

# 8715

NAVSHIPS 92831

*Non-Registered*

★

TECHNICAL MANUAL

*for*

RADIO SET

AN/URC-8(XN-1)

COLLINS RADIO COMPANY  
CEDAR RAPIDS, IOWA

DEPARTMENT OF THE NAVY  
BUREAU OF SHIPS

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Contract: NObsr 63161

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## LIST OF EFFECTIVE PAGES

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DEPARTMENT OF THE NAVY  
BUREAU OF SHIPS  
WASHINGTON 25, D. C.

IN REPLY REFER TO  
Code 993-100  
26 July 1956

From: Chief, Bureau of Ships  
To: All Activities Concerned with the Installation,  
Operation, and Maintenance of the Subject  
Equipment

Subj: Technical Manual for Radio Set AN/URC-8(XN-1)  
NAVSHIPS 92831

1. This is the technical manual for the subject equipment and is in effect upon receipt.
2. When superseded by a later edition, this publication shall be destroyed.
3. Extracts from this publication may be made to facilitate the preparation of other Department of Defense publications.
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A. G. MUMMA  
Chief of Bureau

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**GUARANTY**

The Contractor guarantees that the work under this contract will conform to the requirements thereof and to high professional standards in the field. The Contractor further guarantees that all articles delivered to the Government hereunder will be free from any defects in material and workmanship. Notice of any such defect shall be given by the Government within one year of the delivery of the defective article, unless a different period of guaranty is specified. Notice of any nonconformity shall be given prior to final payment. If required by the Government within a reasonable time after the aforesaid notice, the Contractor shall with all possible speed correct or replace the defective article or nonconforming work. This Guaranty then shall continue as to corrected or replacing articles and work until one year after redelivery or correction, as the case may be.

**INSTALLATION RECORD**

Contract Number NObsr 63161	Date of Contract, 23 December 1952
Serial Number of equipment . . . . .	
Date of acceptance by the Navy . . . . .	
Date of delivery to contract destination . . . . .	
Date of completion of installation . . . . .	
Date placed in service . . . . .	

Blank spaces on this page shall be filled in at time of installation.

**REPORT OF FAILURE**

Report of failure of any part of this equipment, during its entire service life, shall be made to the Bureau of Ships in accordance with current regulations, using form NAVSHIPS NBS 383 (revised) except for Marine Corps equipment, in which case, the "Signal Equipment Failure Report" form shall be used and distributed in accordance with instructions pertaining thereto. The report shall cover all details of the failure and give the date of installation of the equipment. For procedure in reporting failures, see chapter 67 of the Bureau of Ships Manual or superseding instructions.

**ORDERING PARTS**

All requests or requisitions for replacement material should include the following data:

1. Standard Navy stock number, or when ordering from a Marine Corps or Signal Corps supply depot, the Signal Corps stock number.

2. Name and short description of part.

If the appropriate stock number is not available, the following shall be specified:

1. Equipment model or type designation, circuit symbol, and item number.

2. Name of part and complete description.

3. Manufacturer's designation.

4. Contractor's drawing and part number.

5. JAN or Navy type number.

**DESTRUCTION OF ABANDONED MATERIAL IN THE COMBAT ZONE**

In case it should become necessary to prevent the capture of this equipment, and when ordered to do so, DESTROY IT SO THAT NO PART OF IT CAN BE SALVAGED, RECOGNIZED, OR USED BY THE ENEMY. BURN ALL PAPERS AND BOOKS.

**Means:**

1. Explosives, when provided.

2. Hammers, axes, sledges, machetes, or whatever heavy object is readily available.

3. Burning by means of incendiaries such as gasoline, oil, paper, or wood.

4. Grenades and shots from available firearms.

5. Burying all debris, where possible and when time permits.

6. Throwing overboard or disposing of in streams or other bodies of water.

**Procedure:**

1. Obliterate all identifying marks. Destroy name plates and circuit labels.

2. Demolish all panels, castings, switch and instrument boards.

3. Destroy all controls, switches, relays, connections and meters.

4. Rip out all wiring and cut interconnections of electrical equipment. Smash gas, oil, and water cooling systems in gas engine generators, etc.

5. Smash every electrical or mechanical part, whether rotating, moving, or fixed.

6. Break up all operating instruments, such as keys, phones, microphones, etc.

7. Destroy all classes of carrying cases, straps, containers, etc.

8. Bury or scatter all debris.

**DESTROY EVERYTHING!**

### **SAFETY NOTICE**

The attention of officers and operating personnel is directed to chapter 67 of the Bureau of Ships Manual or superseding instructions on the subject of radio-safety precautions to be observed.

This equipment employs voltages which are dangerous and may be fatal if contacted by operating personnel. Extreme caution should be exercised when working with the equipment.

While every practicable safety precaution has been incorporated in this equipment, the following rules must be strictly observed.

#### **KEEP AWAY FROM LIVE CIRCUITS:**

Operating personnel must at all times observe all safety regulations. Do not change tubes or make adjustments inside equipment with high voltage supply on. Under certain conditions, dangerous potentials may exist in circuits with power controls in the off position, due to charges retained by capacitors. To avoid

casualties, always remove power and discharge and ground circuits, prior to touching them.

#### **DON'T SERVICE OR ADJUST ALONE:**

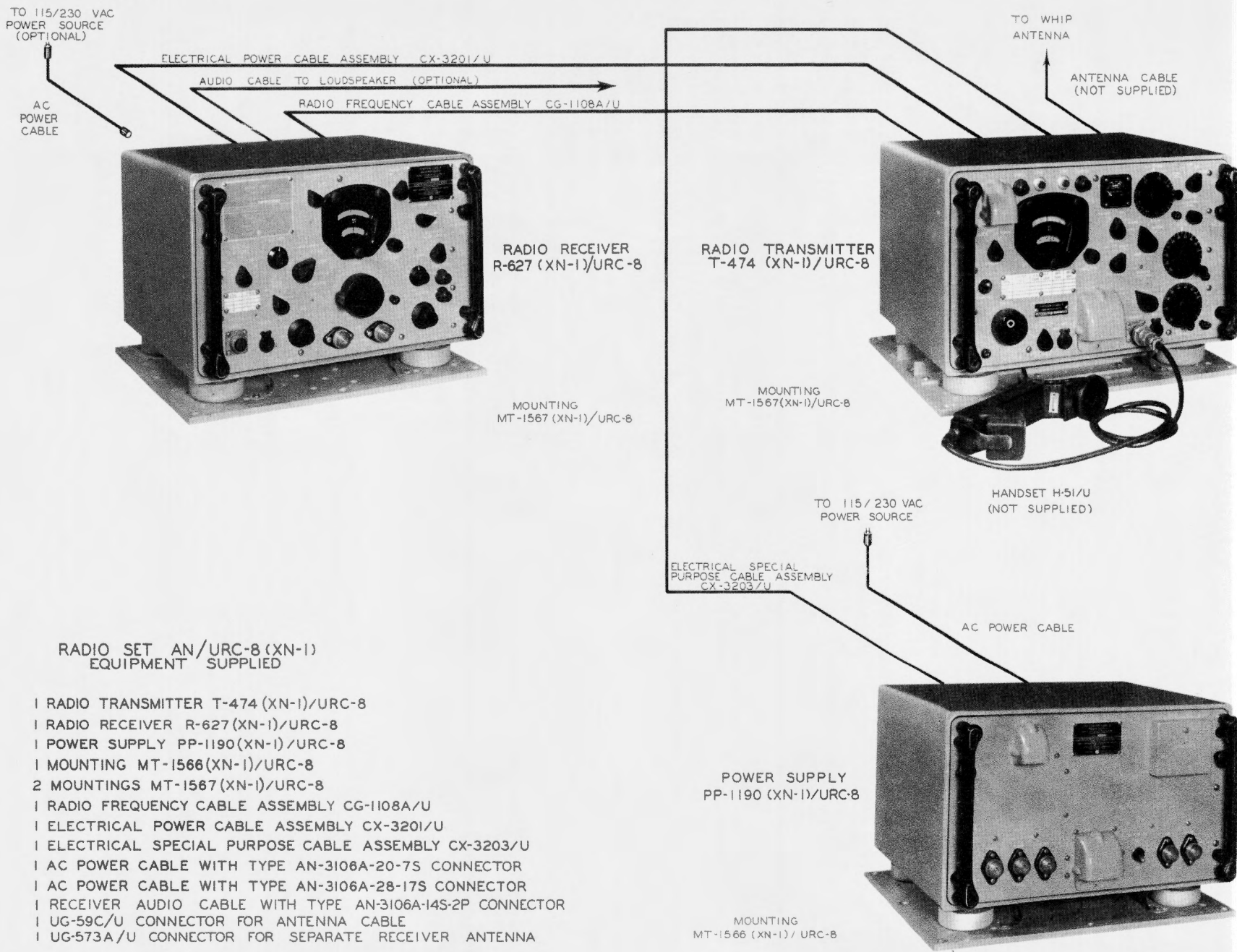
Under no circumstances should any person reach within or enter the enclosure for the purpose of servicing or adjusting the equipment without the immediate presence or assistance of another person capable of rendering aid.

#### **DON'T TAMPER WITH INTERLOCKS:**

Do not depend upon door switches or interlocks for protection, but always shut down motor generators or other power equipment. Under no circumstances should any access gate, door, or safety interlock switch be removed, short-circuited, or tampered with in any way, by other than authorized maintenance personnel, nor should reliance be placed upon the interlock switches for removing voltages from the equipment.

### **RESUSCITATION**

AN APPROVED POSTER ILLUSTRATING THE RULES FOR RESUSCITATION BY THE PRONE PRESSURE METHOD SHALL BE PROMINENTLY DISPLAYED IN EACH RADIO, RADAR, OR SONAR ENCLOSURE. POSTERS MAY BE OBTAINED UPON REQUEST TO THE BUREAU OF MEDICINE AND SURGERY.



RADIO SET AN/URC-8(XN-1)  
EQUIPMENT SUPPLIED

- 1 RADIO TRANSMITTER T-474 (XN-1)/URC-8
- 1 RADIO RECEIVER R-627 (XN-1)/URC-8
- 1 POWER SUPPLY PP-1190(XN-1)/URC-8
- 1 MOUNTING MT-1566(XN-1)/URC-8
- 2 MOUNTINGS MT-1567(XN-1)/URC-8
- 1 RADIO FREQUENCY CABLE ASSEMBLY CG-1108A/U
- 1 ELECTRICAL POWER CABLE ASSEMBLY CX-3201/U
- 1 ELECTRICAL SPECIAL PURPOSE CABLE ASSEMBLY CX-3203/U
- 1 AC POWER CABLE WITH TYPE AN-3106A-20-7S CONNECTOR
- 1 AC POWER CABLE WITH TYPE AN-3106A-28-17S CONNECTOR
- 1 RECEIVER AUDIO CABLE WITH TYPE AN-3106A-14S-2P CONNECTOR
- 1 UG-59C/U CONNECTOR FOR ANTENNA CABLE
- 1 UG-573A/U CONNECTOR FOR SEPARATE RECEIVER ANTENNA

Figure 1-1. Radio Set AN/URC-8(XN-1)

## SECTION 1 GENERAL DESCRIPTION

### 1. SCOPE OF INSTRUCTION BOOK

This instruction book contains instructions for the installation, operation, and maintenance of Radio Set AN/URC-8(XN-1).

### 2. PURPOSE OF EQUIPMENT

Radio Set AN/URC-8(XN-1) is designed for radiotelegraph ( $A_1$ ) and radiotelephone ( $A_3$ ) communications in the 2- to 30-mc range. The radio set is especially suitable for shipboard, mobile and fixed station operation where a rugged, easily operated and easily maintained installation is required. The radio set is splashproof and limited operation can be maintained with the watertight panel covers secured. The radio set operates from a 50 to 60 and 400 cps 115/230 v ac power source, and with the proper motor-generator, will operate from a 12, 28, 115, or 230 v dc power source. (Motor-generators are not supplied.)

### 3. DESCRIPTION OF MAJOR UNITS

a. GENERAL. - Radio Set AN/URC-8(XN-1) includes the following major units:

- (1) Radio Transmitter T-474(XN-1)/URC-8
- (2) Radio Receiver R-627(XN-1)/URC-8
- (3) Power Supply PP-1190(XN-1)/URC-8

b. RADIO TRANSMITTER T-474(XN-1)/URC-8 (figure 1-2). - Radio Transmitter T-474(XN-1)/URC-8 provides cw radiotelegraph ( $A_1$ ) and radiotelephone ( $A_3$ ) transmission over a frequency range from 2 to 30 mc with a nominal rf carrier power of 42 watts into a 200-ohm antenna. The radio transmitter when shockmounted, and with the front panel covered, is 18 in. wide, 12-11/32 in. high, 18-11/32 in. deep, and weighs 102 lbs. Mounting MT-1567(XN-1)/URC-8 is the shockmounting for the radio transmitter. Plug-in modular construction is used in both the radio transmitter and the radio receiver. Figure 1-3 shows the modules located on the top deck of the radio transmitter. Figure 1-4 shows bottom deck modules with the radio transmitter chassis in the 90° service position. The radio receiver and radio transmitter of the radio set lock in the 90° position, as well as the "out" position (figure 1-6), for easy access during servicing. A permeability-tuned oscillator provides a stable fundamental frequency ( $\pm 0.03\%$  drift) which allows the

radio transmitter to be continuously tuned over the frequency range in four bands. A crystal-controlled oscillator with four easily selected crystals, provides four extremely stable operating frequencies ( $\pm 0.007\%$  drift) in each of the four bands. The audio system of the radio transmitter includes a clipper to eliminate overmodulation, and a high-pass filter and a low-pass filter to maintain a constant audio bandwidth. Simplified manual tuning of the radio transmitter reduces the operating procedure to (1) resonating the power amplifier pi network, (2) tuning the antenna, and, (3) loading the power amplifier once the operating frequency is set up. The radio transmitter operates on phone with an H-51/U handset, but other military microphones may be used. The radio transmitter, in conjunction with Power Supply PP-1190(XN-1)/URC-8, operates from a 115/230 v ac, 50-60 or 400 cps, 650 w power source. With the addition of a proper motor-generator\* (not supplied), the radio set will also operate from 12, 28, 115, or 230 v dc power sources.

c. RADIO RECEIVER R-627(XN-1)/URC-8 (figure 1-5). - Radio Receiver R-627(XN-1)/URC-8 provides cw radiotelegraph ( $A_1$ ), mcw telegraph ( $A_2$ ) and radiotelephone ( $A_3$ ) reception covering a frequency range of from 2 to 30 mc. The radio receiver, when shock-mounted, and with the front panel covered, is 18 in. wide, 12-11/32 in. high, 18-9/32 in. deep, and weighs 107 lbs. Mounting MT-1567(XN-1)/URC-8 is the shockmounting for the radio receiver. Figure 1-6 shows the modules of the radio receiver with the chassis in the "out" service position. The radio receiver is a dual-conversion superheterodyne with a choice of a permeability-tuned, master oscillator or a crystal-controlled oscillator (4 crystals) to provide the first injection frequency. A crystal-controlled oscillator provides the second injection frequency. This provides good frequency stability (.040% on m.o., .009% on c.o.), and high image rejection (greater than 60 db). Two mechanical filters in the if. amplifier provide a choice of broad or narrow selectivity. The sensitivity of the radio receiver is 3 uv for 6 mw into 600 ohms on cw or 5 uv for 6 mw into 600 ohms with 30% modulation at 1000 cps. When operated as part of Radio Set AN/URC-8(XN-1), the separate power supply of the radio receiver obtains ac power from the radio transmitter through an interconnecting cable. A special ac power cable is supplied to permit optional operation of the radio receiver independently from the other units of the radio set from a 115/230 v ac, 50-60 or 400 cps, 170 w power source.

\*Motor-Generator PU-340(XN-1)/U, 12 v dc input; Motor-Generator PU-341(XN-1)/U, 28 v dc input; Motor-Generator PU-342(XN-1)/U, 115/230 v dc input.

d. POWER SUPPLY PP-1190(XN-1)/URC-8 (figure 1-7). - Power Supply PP-1190(XN-1)/URC-8 provides all of the necessary plate-voltage and bias-voltage supplies necessary for the operation of Radio Transmitter T-474(XN-1)/URC-8 and the ac power for Radio Receiver R-627(XN-1)/URC-8. These include a 600 v dc supply, a 250 v dc supply, a 150 v dc regulated supply, a -12 v dc supply, a -60 v dc supply, and a -115 v dc supply. The power supply when mounted and with

the front panel covered is 18 in. wide, 12-11/32 in. high, 17-25/32 in. deep and weighs 138 lbs. Mounting MT-1566(XN-1)/URC-8 is the shockmounting for the power supply. The power supply operates from a 115/230 v ac, 50-60 or 400 cps, 650 w power source. With the addition of a proper motor-generator\* (not supplied) to provide dc-to-ac conversion, the radio set will also operate from 12, 28, 115 or 230 v dc power sources.



Figure 1-2. Radio Transmitter T-474(XN-1)/URC-8

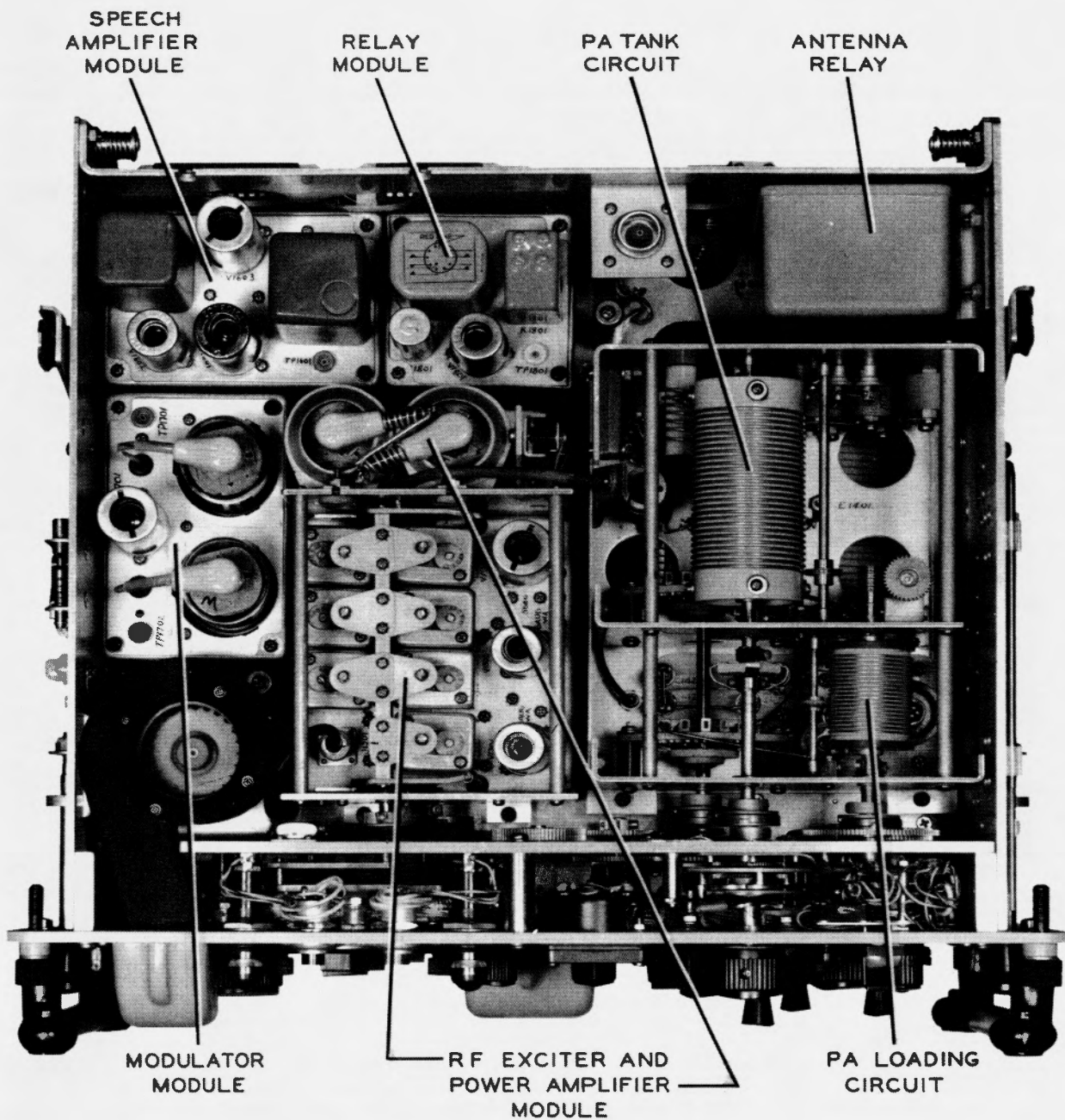


Figure 1-3. Radio Transmitter T-474(XN-1)/URC-8, Top View

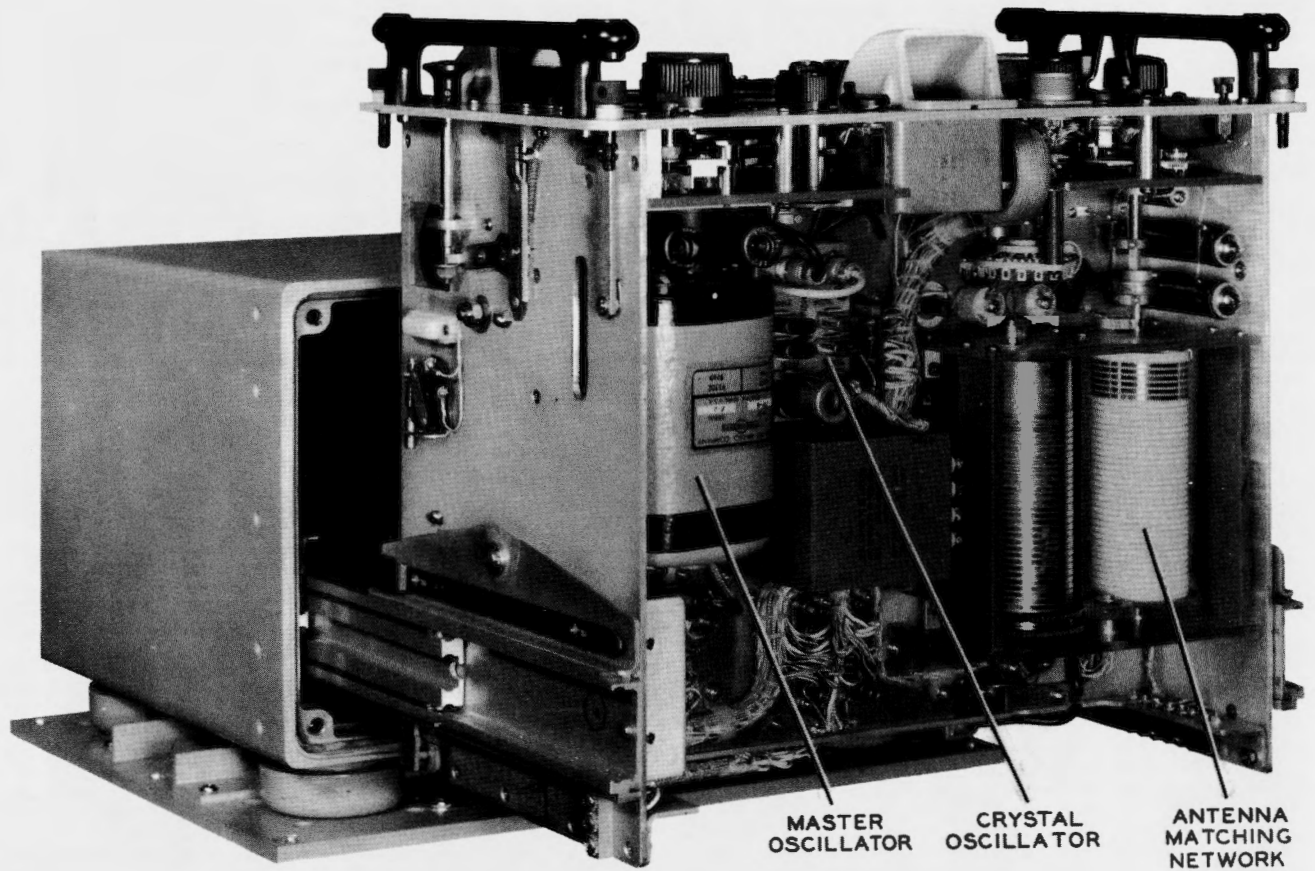


Figure 1-4. Radio Transmitter T-474(XN-1)/URC-8, 90° Service Position





Figure 1-5. Radio Receiver R-627(XN-1)/URC-8

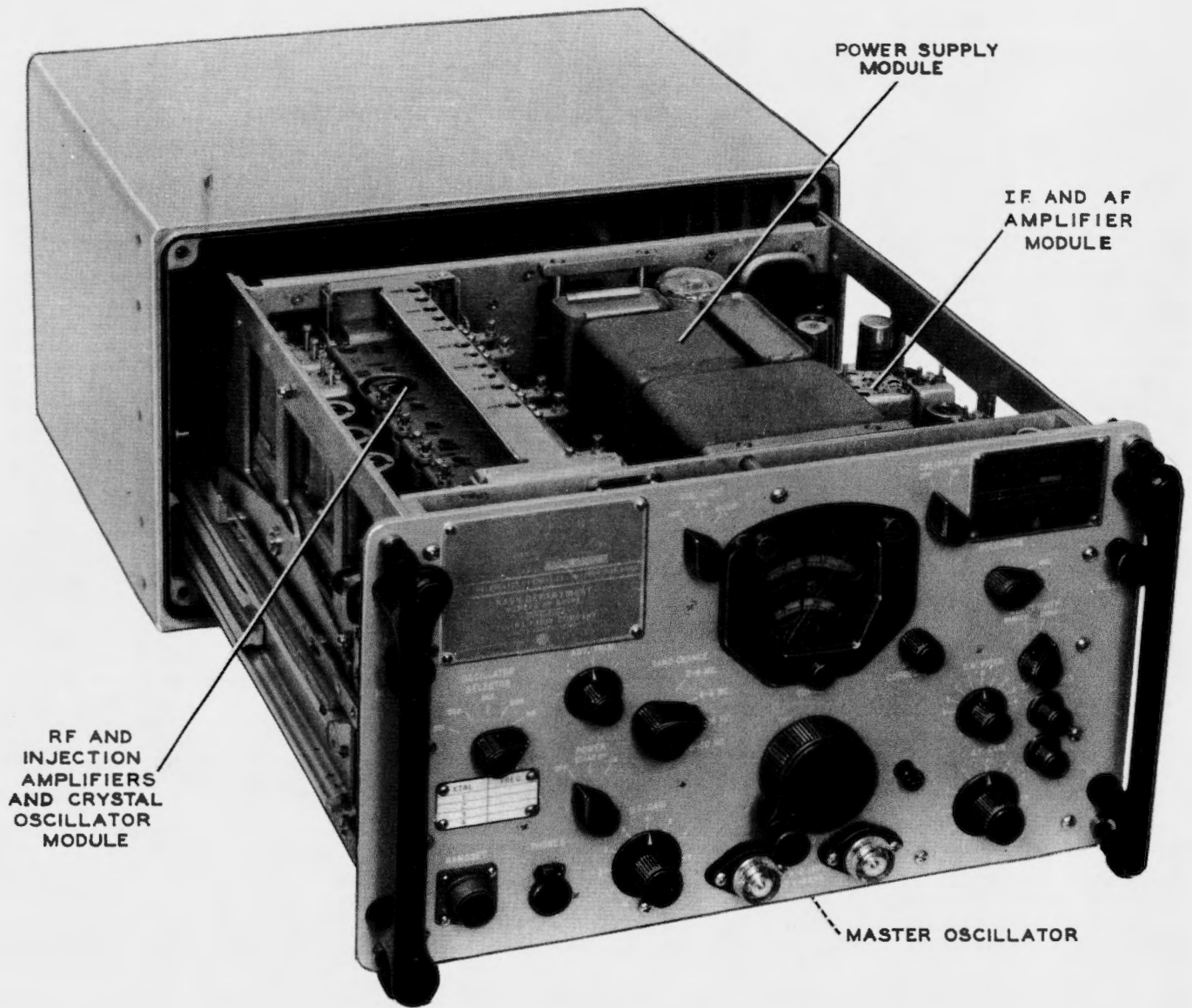


Figure 1-6. Radio Receiver R-627(XN-1)/URC-8, "Out" Service Position



Figure 1-7. Power Supply PP-1190(XN-1)/URC-8

#### 4. REFERENCE DATA

a. NOMENCLATURE. - Radio Set AN/URC-8(XN-1) includes the following major units:

(1) Radio Transmitter T-474(XN-1)/URC-8 with Mounting MT-1567(XN-1)/URC-8

(2) Radio Receiver R-627(XN-1)/URC-8 with Mounting MT-1567(XN-1)/URC-8

(3) Power Supply PP-1190(XN-1)/URC-8 with Mounting MT-1566(XN-1)/URC-8

b. CONTRACT NUMBER. - NObsr 63161 dated 23 December 1952.

c. CONTRACTOR. - Collins Radio Company, Cedar Rapids, Iowa.

d. COGNIZANT NAVAL INSPECTOR. - Inspector of Naval Material, Cedar Rapids, Iowa.

e. TOTAL WEIGHT. - 350 lbs, not crated; approximately 480 lbs, crated.

f. FREQUENCY RANGE. - 2 to 30 mc in four bands.

g. POWER SOURCE REQUIREMENTS. - 115/230 v ac, 50-60 or 400 cps, single phase, 650 watts.

h. HEAT DISSIPATION. - Radio transmitter, 300 watts; radio receiver, 170 watts; power supply, 175 watts.

i. CHARACTERISTICS OF RADIO TRANSMITTER T-474(XN-1)/URC-8

(1) TYPES OF TRANSMISSION. - Cw radio-telegraph (A<sub>1</sub>) and radiotelephone (A<sub>3</sub>).

(2) FREQUENCY RANGE. - 2 to 30 mc in four bands.

(3) TUNING BANDS. - 2 to 4 mc, 4 to 8 mc, 8 to 16 mc, and 16 to 30 mc.

(4) FREQUENCY CONTROL. - Choice of permeability-tuned oscillator for continuous tuning or crystal oscillator (four crystals) for preset frequencies.

(5) PRESET FREQUENCIES. - Four crystals provide 16 preset frequencies, four in each of the four bands. (Crystals are not supplied.)

(6) POWER OUTPUT. - 42 watts (nominal) into 200 ohms; 32 watts (minimum) under combined adverse conditions of high temperature, low input voltage, and high humidity.

(7) DUTY CYCLE. - Continuous duty with 100% sine-wave modulation under any conditions.

(8) KEYING RATE. - Up to 40 words per minute.

(9) REQUIRED ANTENNA CHARACTERISTICS. - 15- to 35-foot whip antenna fed with a maximum of 25 feet of 52-ohm coaxial cable, type RG-10/U.

(10) FREQUENCY STABILITY. -  $\pm 0.03\%$  with permeability-tuned oscillator;  $\pm 0.007\%$  with crystal oscillator.

(11) CALIBRATION ACCURACY. -  $\pm 0.03\%$  using permeability-tuned oscillator;  $\pm 0.015\%$  using nearest 100-kc check point.

(12) AUDIO FREQUENCY RESPONSE. - 300 to 3500 cps  $\pm 2$  db.

(13) MODULATION CONTROL. - Peak limiting clipper prevents overmodulation with signal up to 20 db greater than 100% modulation level.

(14) DISTORTION. - Less than 7% with 90% modulation.

(15) SPURIOUS OUTPUT. - Greater than 50 db below fundamental.

(16) HUM AND NOISE. - Greater than 40 db below 100% modulation.

(17) INTERUNIT INTERFERENCE. - Radiated or conducted noise less than specification MIL-I-16910.

(18) OPERATING TEMPERATURE RANGE. -  $-30^{\circ}$  to  $+65^{\circ}$  centigrade.

(19) ENVIRONMENT. - Splashproof when uncovered except for air intake port; waterproof with covers in place except for cable connectors.

j. CHARACTERISTICS OF RADIO RECEIVER R-627(XN-1)/URC-8.

(1) TYPES OF RECEPTION. - Cw radiotelegraph (A<sub>1</sub>), mcw radiotelegraph (A<sub>2</sub>) and radiotelephone (A<sub>3</sub>).

(2) TYPE OF RECEIVER. - Dual-conversion superheterodyne.

(3) FREQUENCY RANGE. - 2 to 30 mc in four bands.

(4) TUNING BANDS. - 2 to 4 mc, 4 to 8 mc, 8 to 16 mc, and 16 to 30 mc.

(5) FREQUENCY CONTROL. - Choice of permeability-tuned master oscillator for continuous tuning or crystal oscillator (four crystals) for preset frequencies.

(6) PRESET FREQUENCIES. - Four crystals provide 16 preset frequencies, four in each of the four bands. (Crystals are not supplied.)

(7) RECEIVER OUTPUT. - 1-1/2 watts into 600-ohm load.

(8) REQUIRED ANTENNA CHARACTERISTICS. - 15- to 35-foot whip antenna; unbalanced input.

(9) INTERMEDIATE FREQUENCY. - 455 kc.

(10) FREQUENCY STABILITY. -  $\pm 0.040\%$  or 2 kc using master oscillator;  $\pm 0.009\%$  or 1 kc using crystal oscillator.

(11) SIGNAL-TO-NOISE RATIO. - 3 uv for 20 db signal-plus-noise to noise ratio on cw; 5 uv for 10 db signal-plus-noise to noise ratio on mcw or am. with 30% modulation at 1000 cps.

(12) SENSITIVITY. - 3 uv for 6 mw into 600-ohm load on cw; 5 uv for 6 mw into 600-ohm load on mcw or am. with 30% modulation at 1000 cps.

(13) SELECTIVITY. - At least 2 kc at 6 db down and less than 5.4 kc at 60 db down on narrow band; at least 8.4 kc at 6 db down and less than 20 kc at 60 db down on broad band.

(14) IMAGE AND IF. REJECTION. - Greater than 60 db.

(15) AUDIO FREQUENCY RESPONSE. - 300 to 3500 cps  $\pm 2$  db.

(16) AUDIO DISTORTION. - Less than 5% at 1 kc with 1-1/2 watts into 600-ohm load.

(17) OPERATING TEMPERATURE RANGE. - Minus 30° to  $\pm 65^\circ$  centigrade.

(18) ENVIRONMENT. - Splashproof when uncovered; waterproof with covers in place except for cable connectors.

**5. EQUIPMENT SUPPLIED**

TABLE 1-1. EQUIPMENT SUPPLIED

QUANTITY PER EQUIPMENT	NAME OF UNIT	NAVY TYPE DESIGNATION	OVER-ALL DIMENSIONS			
			HEIGHT (IN.)	WIDTH (IN.)	DEPTH (IN.)	WEIGHT (LBS)
1	Radio Transmitter with cover	T-474(XN-1)/URC-8	10-15/32	17-1/4	17-7/8	86
1	Radio Receiver with cover	R-627(XN-1)/URC-8	10-15/32	17-1/4	18-5/16	91
1	Power Supply with cover	PP-1190(XN-1)/URC-8	10-15/32	17-1/4	17-25/32	122
1	Mounting	MT-1566(XN-1)/URC-8	1-7/8	18	15	16
2	Mounting	MT-1567(XN-1)/URC-8	1-7/8	18	15	16 ea
1	Radio Frequency Cable Assembly	CG-1108A/U	8 ft. long			---
1	Electrical Power Cable Assembly	CX-3201/U	8 ft long			---
1	Electrical Special Purpose Cable Assembly	CX-3203/U	8 ft long			---
1	Ac power cable with type AN-3106A-20-7S connector	---	8 ft long			---
1	Ac power cable with type AN-3106A-28-17S connector	---	10 ft long			---

TABLE 1-1. EQUIPMENT SUPPLIED (Cont)

QUANTITY PER EQUIPMENT	NAME OF UNIT	NAVY TYPE DESIGNATION	OVER-ALL DIMENSIONS			
			HEIGHT (IN.)	WIDTH (IN.)	DEPTH (IN.)	WEIGHT (LBS)
1	Audio cable	-----	9 ft long			----
1	Connector for antenna cable, transmitter	UG-59A/U	----			
1	Connector for antenna cable, receiver	UG-573A/U	----			
2	Instruction books		----			

6. EQUIPMENT REQUIRED BUT NOT SUPPLIED

TABLE 1-2. EQUIPMENT REQUIRED BUT NOT SUPPLIED

QUANTITY PER EQUIPMENT	NAME OF UNIT	NAVY TYPE DESIGNATION	REQUIRED USE	REQUIRED CHARACTERISTICS
1	Radio frequency cable	RG-10/U	Transmission line to antenna	52-ohm, up to 25 ft. in length.
1	Antenna	----	Emission and reception	15- to 35-ft. whip; unbalanced input
4	Crystal unit	CR-18/U	Transmitter frequency control	Frequencies to be the fundamentals of the preset channel frequencies, between 2 and 4 mc
4	Crystal unit	CR-18/U	Receiver injection frequency control	Frequencies to be 580 kc greater than the fundamentals of the preset channel frequencies, between 2,580 and 4,580 kc
1	Handset	H-51/U or any military microphone	For radio telephone (A <sub>3</sub> ) operation	
1	Telegraph key		For radio-telegraph (A <sub>1</sub> ) operation	
1	Headphones			600-ohm impedance (recommended)

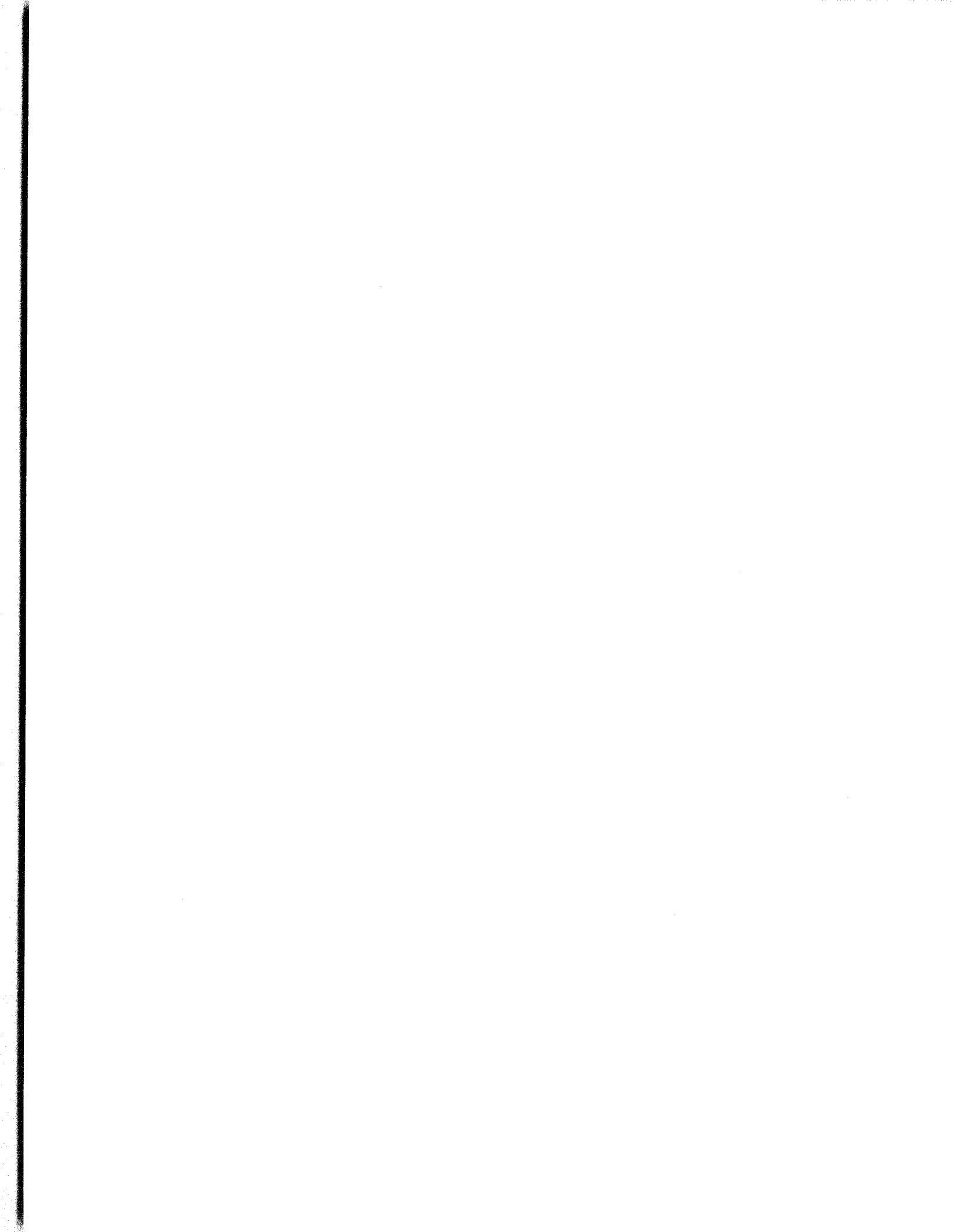
TABLE 1-2. EQUIPMENT REQUIRED BUT NOT SUPPLIED (Cont)

QUANTITY PER EQUIPMENT	NAME OF UNIT	NAVY TYPE DESIGNATION	REQUIRED USE	REQUIRED CHARACTERISTICS
1 to 4	Radiophone Unit	Type 23500	Remote operation	Per BuShips specification 16R28(RE)
1	Loudspeaker		Optional	600-ohm impedance
1	Motor-Generator	PU-340(XN-1)/U	For operation of radio set from 12 v dc power source	12 v dc input; 115 v ac, 60 cps, 10, 650 va output
1	Motor-Generator	PU-341(XN-1)/U	For operation of radio set from 28 v dc power source	28 v dc input; 115 v ac, 60 cps, 10, 650 va output
1	Motor-Generator	PU-342(XN-1)/U	For operation of radio set from 115/230 v dc power source	115/230 v dc input; 115 v ac, 60 cps, 10, 650 va output
1	Electrical Power Cable Assembly	CX-3202/U	For operation of radio set from dc power source to interconnect power supply and motor-generator	7 stranded #16 conductors with type AN-3106A-20-7S connectors on each end

7. VACUUM TUBE COMPLEMENT

TABLE 1-3. VACUUM TUBE COMPLEMENT

UNIT	NUMBER OF TUBES OF TYPE INDICATED										TOTAL NUMBER OF TUBES	
	0A2WA	3B28	5R4WGB	6AU6WA	5686	5726	5749	5751	5814A	5933		6005
Radio Transmitter T-474(XN-1)/URC-8				3	1	2	2	1	2	4		15
Radio Receiver R-627(XN-1)/URC-8	1		1				8		7		2	19
Power Supply PP-1190(XN-1)/URC-8	1	2	1									4
Total Number of Each Tube Type	2	2	2	3	1	2	10	1	9	4	2	38





## SECTION 2

### THEORY OF OPERATION

#### 1. RADIO TRANSMITTER THEORY (figures 2-1 and 5-5)

a. INTRODUCTION. - Figure 2-1 is a functional block diagram of Radio Transmitter T-474(XN-1)/URC-8 which shows the signal paths through the equipment. Figure 5-5 is the complete schematic diagram of the radio transmitter.

#### b. OSCILLATORS

(1) The OSCILLATOR SELECTOR switch S1201 selects either a crystal oscillator or a permeability-tuned oscillator for the radio transmitter frequency control.

(2) The crystal oscillator V1201 circuit contains sockets for four type CR-18/U crystals (crystals not supplied) to provide four fixed channel frequencies in each of the four bands of the radio transmitter. The crystal frequencies must be between 2 and 4 mc. The output frequency of the crystal oscillator is between 2 and 8 mc, depending upon the position of the BAND CHANGE switch S1301A-front. For band 1 frequencies (2-4 mc) and band 2 frequencies (4-8 mc), the output frequency is the same as the crystal frequency, between 2 and 4 mc. For band 3 frequencies (8-16 mc) and band 4 frequencies, (16-30 mc) the tuned circuit, consisting of L1301-C1308, C1306, and C1307 is the plate circuit of the oscillator tube and the output frequency is double the crystal frequency, between 4 and 8 mc. For cw operation of the radio transmitter, the keying relay K1802 keys the suppressor grid of the oscillator tube V1201, as well as V1102, between ground potential and a negative cutoff bias.

(3) The permeability-tuned master oscillator V1101 operates into the first buffer-doubler V1102. The output frequency of the oscillator is continuously variable between 2 and 4 mc. Like the output frequency of the crystal oscillator, the output from the first-buffer doubler depends upon the position of the BAND CHANGE switch S1301A-front. For band 1 and band 2 frequencies the tank circuit is switched out, tube V1102 operates as a buffer, and the output frequency is between 2 and 4 mc. For band 3 and band 4 frequencies, the tank circuit consisting of L1301-C1308, C1306 and C1307 is switched in to make tube V1102 operate as a doubler, and the output frequency is between 4 and 8 mc. For cw operation of the radio transmitter, keying relay K1802 keys the suppressor grid of the first buffer-doubler V1102, as well as V1201, between ground potential and a negative cutoff bias.

#### c. FREQUENCY DOUBLERS AND DRIVER

(1) For band 1 frequencies (2-4 mc), the second buffer-doubler V1301 operates as a buffer because the tuned circuit consisting of L1302-C1310 and C1311 is removed from the circuit by BAND CHANGE switch S1301B-front. The BAND CHANGE switch also switches the output from V1301 directly to the driver V1303. Therefore, with the input frequency between 2 and 4 mc from either oscillator, the band 1 output frequency is also between 2 and 4 mc.

(2) For band 2 frequencies (4-8 mc), BAND CHANGE switch S1301B-front switches the 4 to 8 mc tuned circuit consisting of L1301-C1308, C1306 and C1307 into the second buffer-doubler V1301 plate circuit. Switch S1301A-front switches additive capacitor C1303 into this tuned circuit to compensate for the loss of capacitance in the circuit due to switching coaxial cable out of the circuit. With an oscillator frequency between 2 and 4 mc input to the second buffer-doubler V1301, it operates as a doubler to produce a frequency between 4 and 8 mc. The output from the second buffer-doubler drives the driver V1303 for band 2, 4 to 8 mc operation.

(3) For band 3 frequencies (8-16 mc), BAND CHANGE switch S1301A-front switches the 4 to 8 mc tuned circuit consisting of L1301-C1308, C1306 and C1307 into either the first buffer-doubler V1102 plate circuit for master oscillator operation or into the crystal oscillator V1201 plate circuit for crystal oscillator operation. Therefore, the input to the second buffer-doubler V1301 is between 4 and 8 mc and is the second harmonic of the fundamental frequency of the crystal or master oscillator. Switch S1301B-front switches the 8 to 16 mc tuned circuit consisting of L1302-C1310 and C1311 into the plate circuit of the second buffer-doubler V1301 to cause this tube to operate as a doubler. The 8 to 16 mc output from the second buffer-doubler drives the driver V1303 for band 3, 8 to 16 mc operation.

(4) For band 4 frequencies (16-30 mc) the operation is the same as for band 3 frequencies except that the third doubler V1302 is switched into the circuit. The 8-16 mc output from the second buffer-doubler drives the third doubler V1302 through switch S1301B-front and the 16-30 mc output from this doubler drives the driver V1303. Therefore, the band 3 output is between 16 and 30 mc.

#### d. POWER AMPLIFIER AND ADC

(1) The power amplifier consists of two paralleled type 5933 tubes, V1304 and V1305, which operate into

a pi output network. Feedback from the power amplifier grid circuit, through the automatic drive control (ADC) diode V1801A, controls the buffer-doubler grid circuit to maintain a constant power amplifier grid drive. The BAND CHANGE switch S1401B and S1401C switches capacitors out of the two capacitive branches of the pi network as the band is changed from band 1 up to band 4. The PA TUNING coil L1403 tunes the output network to resonance. The PA LOADING control operates the loading transformer L1404 to load the power amplifier through the antenna matching network.

(2) The automatic drive control (ADC) tube V1801A (see figure 5-5, relay subchassis) in the power amplifier grid circuit maintains a constant drive level to the power amplifier tubes at all frequencies. This automatic drive control is required because the over-all amplification through the rf exciter varies for different frequencies. The automatic drive control operates as a limiter to maintain a constant drive at a level which produces maximum power output from the power amplifier tubes.

e. ANTENNA NETWORK. - The antenna matching network is an L-section consisting of the series ANTENNA TUNING coil L1501 and the shunt capacitors which are switched in by the ANTENNA CAPACITOR switch S1901. This network will match the power amplifier output to whip antennas between 15 and 35 feet long which are fed through a 52-ohm coaxial cable between zero and 25 feet long. About ninety per cent of possible antenna impedances are matched with the ANTENNA TUNING coil alone. For the remaining ten per cent of the possible antenna impedances, shunt antenna capacitance must be switched in to bring the impedance into the matchable range of the series coil. The output from the antenna matching network is switched to the antenna through the antenna change-over relay K1901.

#### f. SPEECH AMPLIFIER AND MODULATOR

(1) Audio to the speech amplifier first passes through high-pass filter T1601 to attenuate all frequencies less than 300 cps. The audio signal is amplified then by the first audio amplifier V1601B. The clipper V1602 then limits the amplitude of the audio signal to prevent overmodulation. The clipper control R1611 adjusts the clipping level from zero to 100 per cent. The clipper will prevent overmodulation with a signal up to 20 db greater than the 100 per cent modulation level. After clipping, the audio signal is amplified by the second audio amplifier V1601A before passing through the low-pass filter T1602 which attenuates all frequencies greater than 3500 cps. The third audio amplifier and phase inverter V1603 then develop the audio signal needed to operate the modulator drivers V1701A and V1701B.

(2) The cathode followers V1701 in the audio signal path are low impedance drivers for the push-pull modulator stages V1702 and V1703. The modulator tubes are type 5933 tubes, the same tube type

as the power amplifier tubes, and are capable of 100 per cent sine-wave modulation on continuous duty.

#### g. CONTROL CIRCUITS

(1) Figure 2-2 shows the voltages and circuits switched by the SERVICE SELECTOR switch S1907. Separate simplified schematic diagrams show the circuit conditions for each of the five positions (STAND BY, CAL, TUNE, CW, and VOICE) of the SERVICE SELECTOR.

(2) The START switch S1904 and the STOP switch S1905, provide for turning Power Supply PP-1190(XN-1)/URC-8 on and off from the front panel of the radio transmitter. The CONTROL switch S1902 switches control circuits to the rear panel terminal boards TB1001 through TB1003 to provide for remote or limited remote operation of the radio set. The METER switch S1906, in conjunction with the front panel meter M1901, provides for metering the total power amplifier grid current, the total power amplifier cathode current, and the total modulator cathode current.

## 2. RADIO RECEIVER THEORY (figures 2-3 and 5-6)

a. INTRODUCTION. - Figure 2-3 is a functional block diagram of Radio Receiver R-627(XN-1)/URC-8 which shows the signal paths through the equipment. Figure 5-6 is the complete schematic diagram of the radio receiver.

b. RF AMPLIFIERS. - The rf signal from the antenna passes through one of four tuned circuits to the first rf amplifier V101. The tuned circuits in the grid circuit of the first rf amplifier are switched by the BAND CHANGE switch S101B and tuned by the TUNING control. Tuned circuits in the plate circuits of the first and second rf amplifiers are also switched and tuned by these two controls. The rf signal receives a second stage of amplification by the second rf amplifier V102, and then passes to the control grid of the first mixer V103.

#### c. FIRST INJECTION FREQUENCY

(1) OSCILLATORS. - The OSCILLATOR SELECTOR switches S111, S112, and S113 select either a crystal oscillator or a permeability-tuned oscillator for control of the first injection frequency.

(a) The crystal oscillator V105A circuit contains sockets for four type CR-18/U crystals (crystals not supplied) to provide four fixed channel frequencies in each of the four bands for the radio receiver. Since high-side injection is used, the crystal frequencies must be between 2580 and 4580 kc and must be 580 kc higher than their associated crystals in the crystal oscillator circuit of the radio transmitter. The crystal oscillator is enabled by the application of B+ voltage through the OSCILLATOR SELECTOR switch S113A.

(b) The permeability-tuned oscillator V401 operates into a buffer V402. The output frequency of

the oscillator is continuously variable between 2580 kc and 4580 kc, and the TUNING control varies the frequency. Regulator V403 provides a regulated B+ supply for the oscillator tube V401. The OSCILLATOR SELECTOR switch S113A selects the permeability-tuned oscillator by applying plate voltage to the buffer.

(2) FREQUENCY DOUBLERS. - The buffer V402 of the permeability-tuned oscillator and the oscillator tube V105A of the crystal oscillator both work into the tuned circuit Z121 to produce an injection frequency 580 kc higher than the fundamental of the rf signal. For band 1 frequencies (2-4 mc), the output from this tuned circuit feeds directly into the cathode follower circuit of the first mixer V103. In V103 it mixes with the rf signal to produce a band 1, first if. signal of 580 kc. For band 2 frequencies (4-8), BAND CHANGE switch S107B provides plate voltage for the first doubler V105B and switch S107A switches the output from the first doubler tuned circuit Z122 into the cathode follower circuit of the first mixer. This produces a band 2, first if. signal of 1160 kc from the first mixer. For band 3 frequencies (8-16 mc), both the first doubler V105B and the second doubler V106A are in the circuit. The output from the first mixer is a band 3, first if. signal of 2320 kc. For band 4 frequencies (16-30 mc), the third doubler V106B is added to the circuit to produce a band 4, first if. signal of 4640 kc from the first mixer.

d. SECOND MIXER AND SECOND INJECTION FREQUENCY. - The second mixer V104 grid receives the if. signal from the first mixer through double-tuned transformer circuits T101A and T101B which are selected by BAND CHANGE switches S104 and S105A. One-half of tube V104 operates as a crystal-controlled oscillator which feeds the second injection frequency into the cathode of the other half. The oscillator circuit contains four type CR-18/U crystals, and BAND CHANGE switch S105B selects the proper crystal for the band. For band 1 frequencies, the second injection frequency is 1035 kc which produces an if. output from the mixer of 455 kc. For band 2 frequencies, the injection frequency is 1615 kc and the if. output is 455 kc. For band 3 frequencies, the injection frequency is 2775 kc and the if. output is 455 kc. For band 4 frequencies, the injection frequency is 5095 kc and the if. output is 455 kc. The 455 kc, fixed if. signal passes on to the if. amplifiers through one of two mechanical filters.

e. IF. AMPLIFIERS AND AGC. - The if. input to the if. amplifier section is through one of two mechanical filters which is selected by the SELECTIVITY switches S301 and S302. The NARROW bandwidth position selects a mechanical filter FL302, which has a 2 kc bandwidth. The BROAD bandwidth position selects mechanical filter FL301, which has a 9 kc bandwidth. After filtering, three stages of amplification, provided by V301, V302, and V303, increase the if. signal level. Out of the third if. amplifier, the signal passes to the af detector V306B and to the agc detector V306A. The agc detector provides agc voltage to the first and second if. amplifiers V301 and V302 as well as to the

first and second rf amplifiers V101 and V102. The RECEPTION switch S603B grounds the agc bus during cw reception.

f. AUDIO SYSTEM AND BFO. - The af detector V306B receives the 455 kc if. signal. For cw operation the beat-frequency oscillator V305 is enabled due to the presence of plate voltage through the RECEPTION switch S603A. The bfo is isolated and amplified by the bfo buffer V304A and the bfo signal couples into the plate circuit of the af detector V306B. The audio output signal from the af detector then passes through the first af amplifier V304B, an amplifier and phase inverter V307, and a push-pull af output amplifier V308 and V309. Feedback from the audio output transformer T302, into the cathode circuit of tube V307A, provides a low output impedance and reduces audio distortion. The audio amplifier provides 1-1/2 watts of power into a 600-ohm load with less than 5 per cent distortion at 1 kc.

g. CALIBRATION OSCILLATOR. - The crystal oscillator V105A also operates as the calibration oscillator using crystal Y105 as the frequency control to produce a 100 kc signal. To operate as a calibration oscillator, the OSCILLATOR SELECTOR is in the MO position and plate voltage applies to tube V105A through the CALIBRATOR switch S602. Harmonics from the 100 kc signal develop across the harmonic generator, CR101 and R104, and feed into the plate circuit of the first rf amplifier through capacitor C109. The harmonics appear as cw signals spaced every 100 kc throughout the receiver tuning range. To calibrate, the RECEPTION switch is set to CW and the CW PITCH control is set to 0. The TUNING dial is adjusted to produce a zero beat in the output with the desired 100 kc harmonic, and the DIAL CORRECTOR is adjusted to align the TUNING dial indicator with 0 on the lower dial. Calibration provides maximum TUNING dial accuracy over the frequency range of  $\pm 50$  kc from the calibration frequency.

h. POWER SUPPLY. - The radio receiver has a self-contained power supply which provides all necessary operating voltages for the radio receiver. Input to the power supply is 115/230 v ac, single phase, 50-60 or 400 cps. The output from full-wave rectifier V501 is filtered to produce a 260 v dc and a 255 v dc B+ supply.

### 3. POWER SUPPLY THEORY (figure 5-7)

a. INTRODUCTION. - Figure 5-7 is the complete schematic of Power Supply PP-1190(XN-1)/URC-8. The power supply operates from a 115/230 v ac, single phase 50-60 or 400 cps power source. The power supply will operate also in conjunction with Motor-Generators PU-340(XN-1)/U, PU-341(XN-1)/U, and PU-342(XN-1)/U for operation of Radio Set AN/URC-8(XN-1) from 12, 28, and 115/230 v dc power sources. (The motor-generators are not supplied.)

b. SUPPLY VOLTAGES. - The power supply is started and stopped from the radio transmitter. When

the start circuit is closed, the dc output from rectifier CR2003 energizes self-holding dc relay K2003. This energizes transformer T2002 and provides the -12 v dc supply from selenium rectifier CR2001, provides the -115 v dc and -60 v dc supplies from selenium rectifier CR2002, and all filament voltages. These voltages remain on as long as the radio transmitter STOP button has not been pressed. If all interlocks in the radio transmitter and power supply are closed, and the radio transmitter SERVICE SELECTOR is not on STANDBY, relay K2002 pulls in to energize transformer T2001 after the time delay provided by relay K2001. The power supply blower also will start when

relay K2002 operates. From the output of transformer T2001, full-wave rectifier V2001 and V2003 provides the filtered 600 v dc supply, and full-wave rectifier V2002 provides the filtered 250 v dc supply. The 250 v dc supply is reduced, then regulated by V2004 to provide a regulated 150 v dc supply for the master oscillator. The power supply also provides 115/230 v ac for the operation of the radio receiver when the receiver is operated as part of the radio set rather than from an independent power source. Closing the stop circuit shorts out relay K2003 and shuts down all outputs from the power supply except the ac power to the radio receiver.

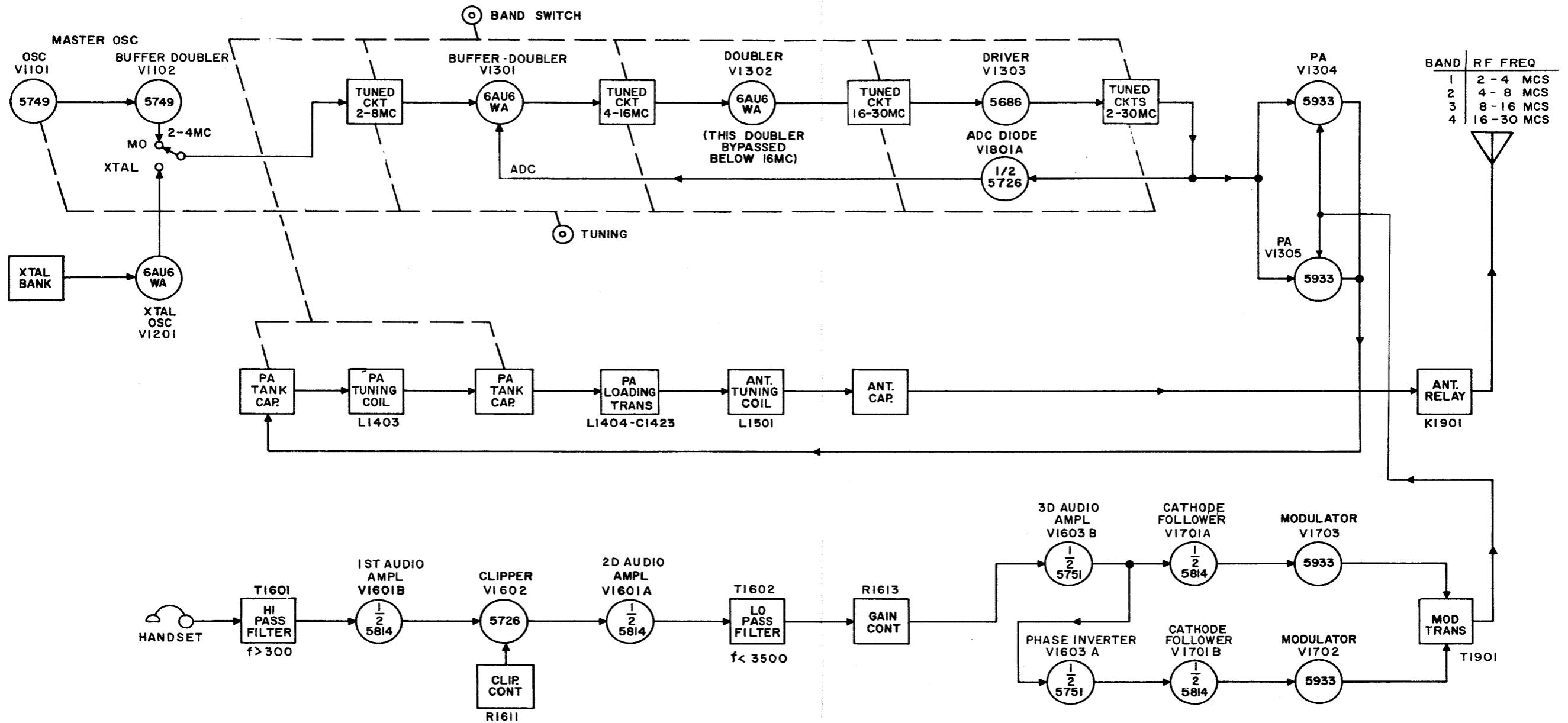


Figure 2-1. Radio Transmitter T-474(XN-1)/URC-8, Block Diagram

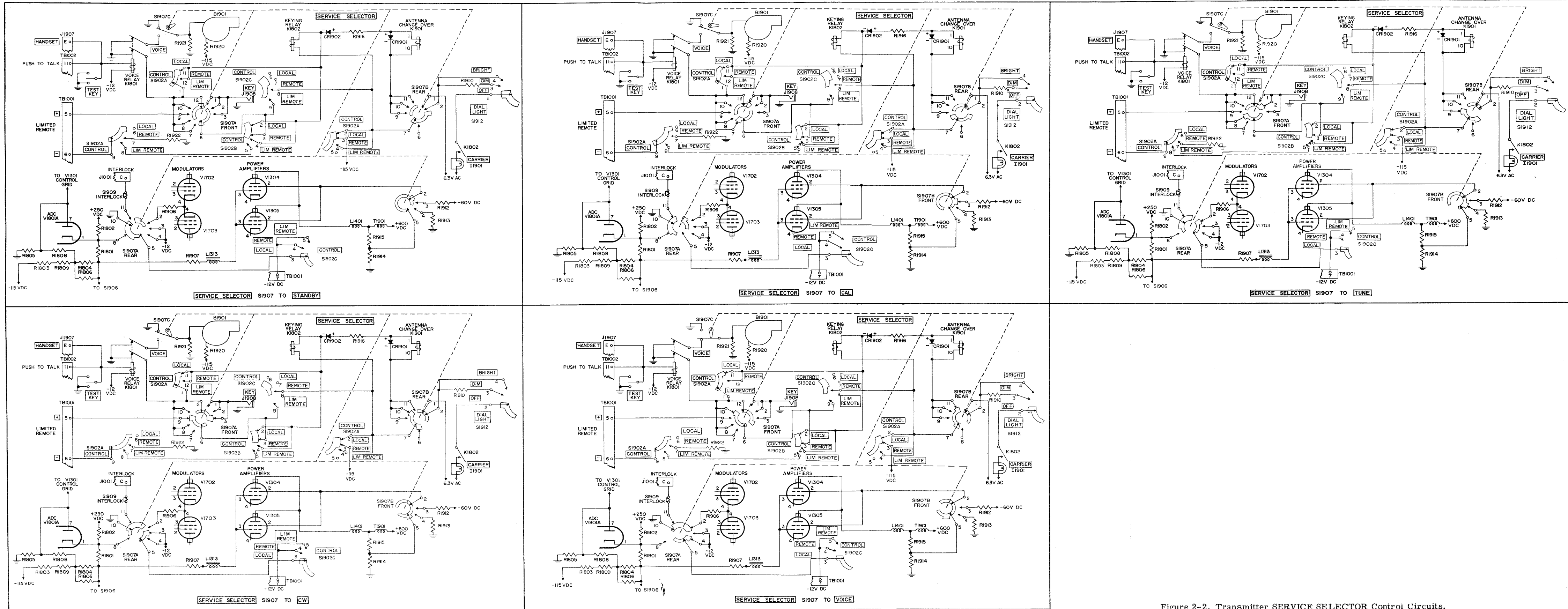


Figure 2-2. Transmitter SERVICE SELECTOR Control Circuits, Simplified Schematic Diagram

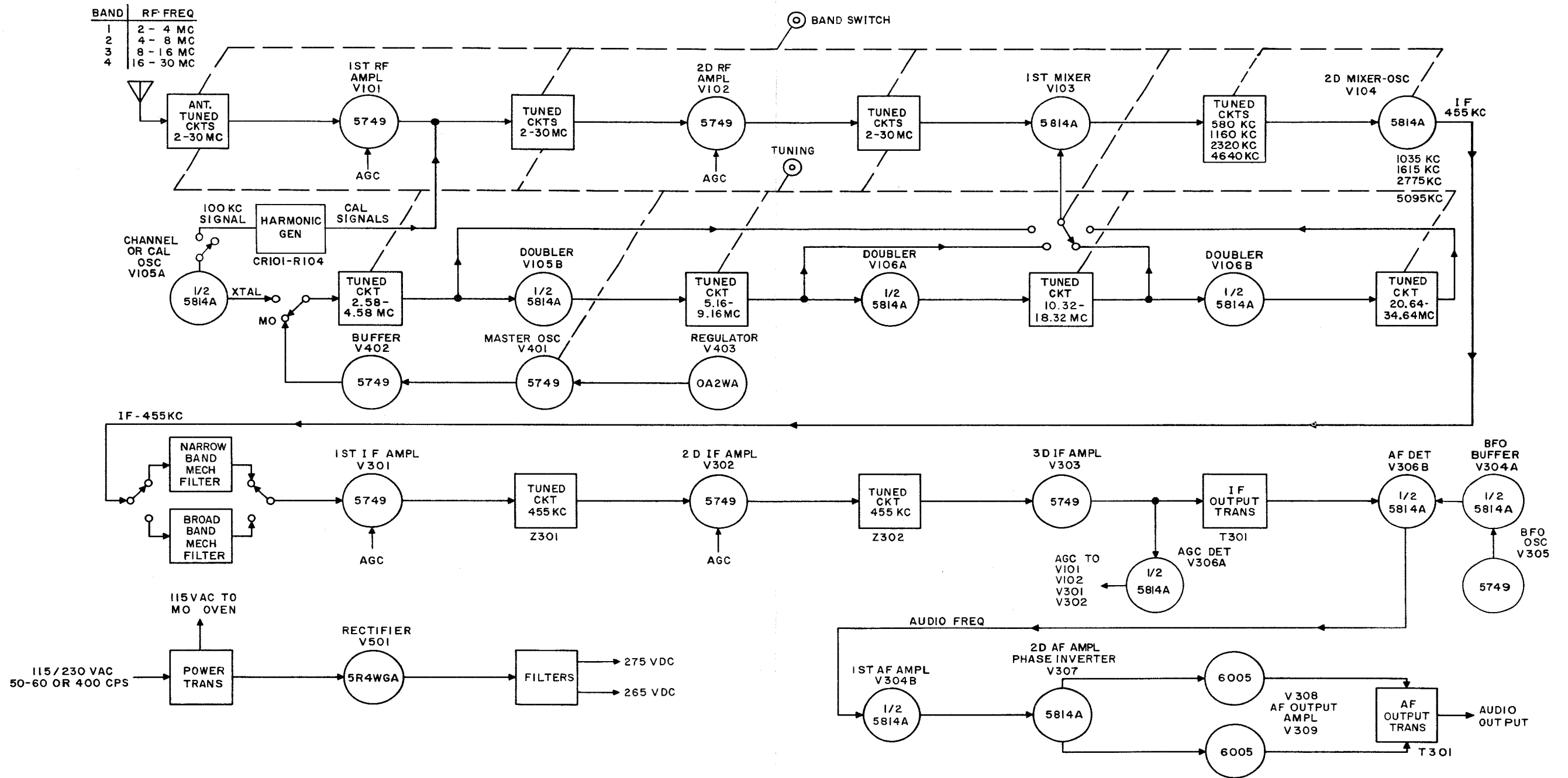


Figure 2-3. Radio Receiver R-627(XN-1)/URC-8, Block Diagram

## SECTION 3 INSTALLATION

### 1. UNPACKING

a. GENERAL. - The units of Radio Set AN/URC-8(XN-1) are packed for domestic shipment. Unpack the equipment close to the final installation of the equipment. Use care when unpacking the units to prevent damage to them. After unpacking, check the equipment received against the master packing slip. Visually inspect each unit for damaged controls, meters and tubes. Check the fuses of the equipment for proper rating and be sure that the fuses are properly seated upon replacing them.

### 2. INSTALLATION

Figures 3-1 through 3-7 and table 3-1, provide the information necessary to install Radio Set AN/URC-8(XN-1) in either a horizontal installation, a vertical installation or a rack installation. These diagrams also provide the necessary space requirements for the radio set and the interconnections which are required. These figures and table include the following information:

- Figure 3-1. Pictorial Diagram of Radio Set AN/URC-8(XN-1)
- Figure 3-2. Space Requirements for Various Types of Installations for Radio Set AN/URC-8(XN-1).
- Figure 3-3. Dimensions of Radio Transmitter T-474(XN-1)/URC and Mounting MT-1567(XN-1)/URC-8
- Figure 3-4. Dimensions of Radio Receiver R-627(XN-1)/URC-8 and Mounting MT-1567(XN-1)/URC-8
- Figure 3-5. Dimensions of Power Supply PP-1190(XN-1)/URC-8 and Mounting MT-1566(XN-1)/URC-8
- Figure 3-6. Interconnecting Cable Diagram of Radio Set AN/URC-8(XN-1)
- Table 3-1. Running Sheet for Interconnecting Cables of Radio Set AN/URC-8(XN-1)

Figure 3-7. Primary Power Distribution Diagram of Radio Set AN/URC-8(XN-1)

### 3. INITIAL ADJUSTMENTS AND INITIAL OPERATION

a. The units of Radio Set AN/URC-8 are properly aligned by the manufacturer. Therefore, no initial adjustments should be required following the installation. If there is evidence of rough handling during shipping, the rf module of the radio transmitter should be checked for proper alignment (paragraph 5-6e). For initial operation of the radio set, refer to section 4 of this instruction book. If initial operation indicates an improperly operating radio set, refer to section 5 of this instruction book for trouble shooting and alignment procedures.

#### NOTE

ALL FUSES SHOULD BE CHECKED FOR PROPER RATING BEFORE THE EQUIPMENT IS OPERATED.

b. For operation on preset frequencies, it is necessary to install CR-18/U crystals in both the radio receiver and the radio transmitter. Crystals for frequency control are not supplied. For the radio transmitter, install crystals Y1201-Y1204, type CR-18/U, cut for frequencies between 2 and 4 mc, the crystal frequencies to be the fundamental of the preset channel frequencies. For the radio receiver, install crystals Y106-Y109, type CR-18/U, cut for frequencies between 2.580 and 4.580 mc, the crystal frequencies to be 580 kc greater than the fundamental of the preset channel frequencies.

#### NOTE

FOR OPERATING THE RADIO RECEIVER INDEPENDENTLY OF THE RADIO TRANSMITTER, THE RECEIVER AC POWER CABLE HAS PIN P SHORTED TO PIN G OF PLUG P2504.



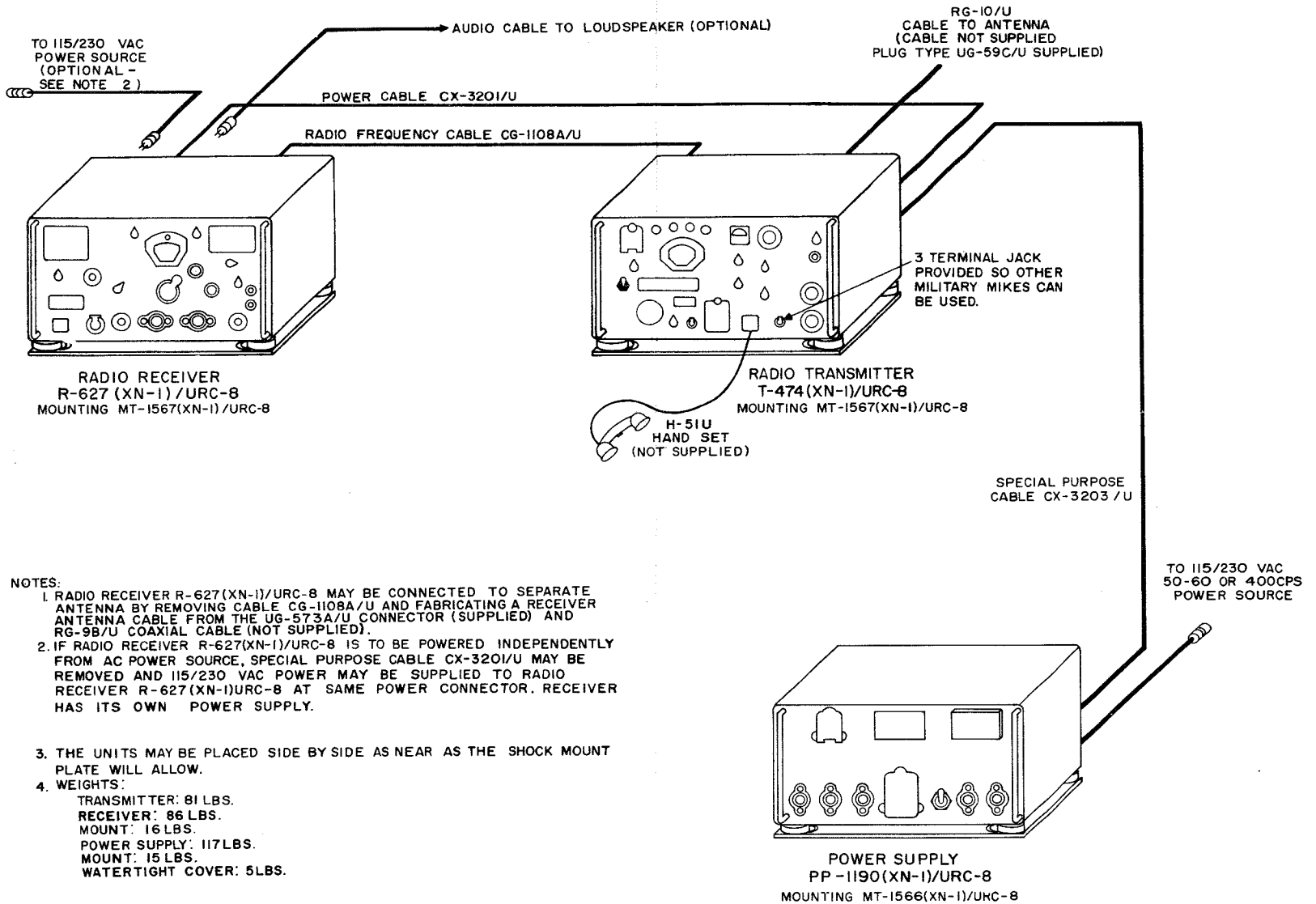
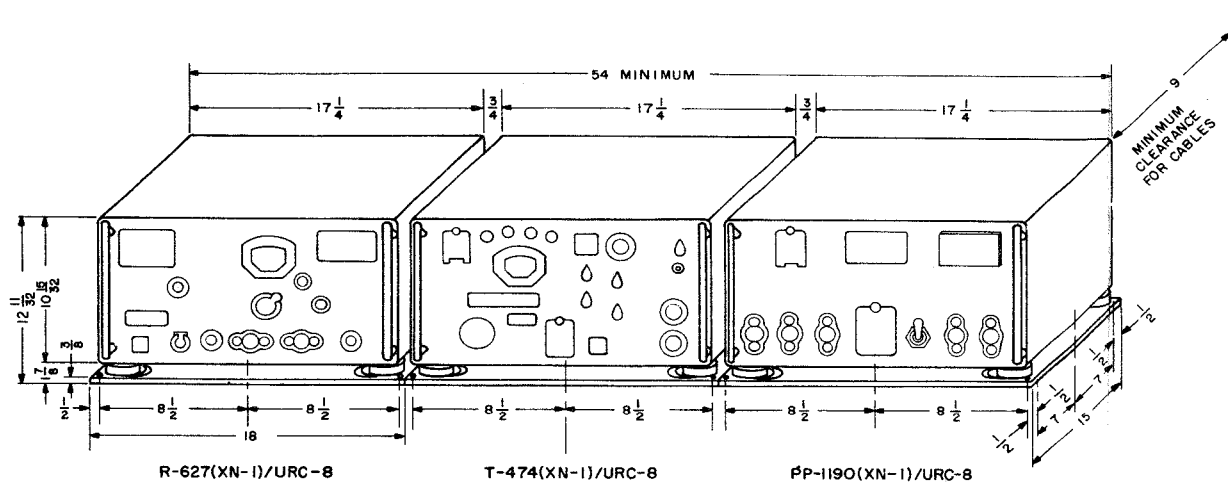
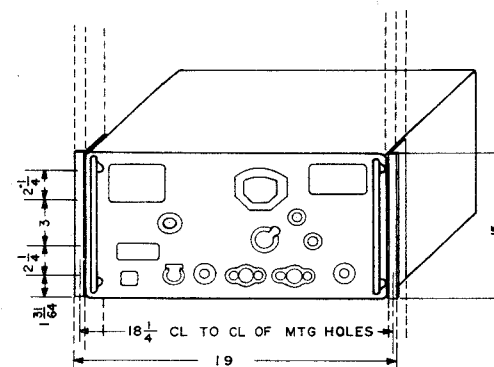


Figure 3-1. Pictorial Diagram of Radio Set AN/URC-8(XN-1)

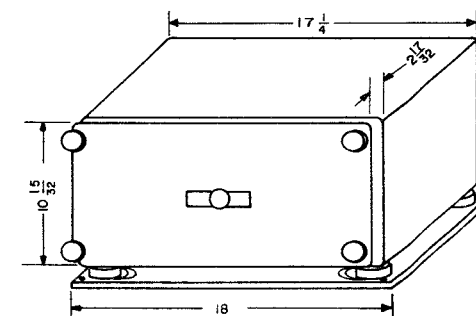


R-627(XN-1)/URC-8      T-474(XN-1)/URC-8      PP-1190(XN-1)/URC-8

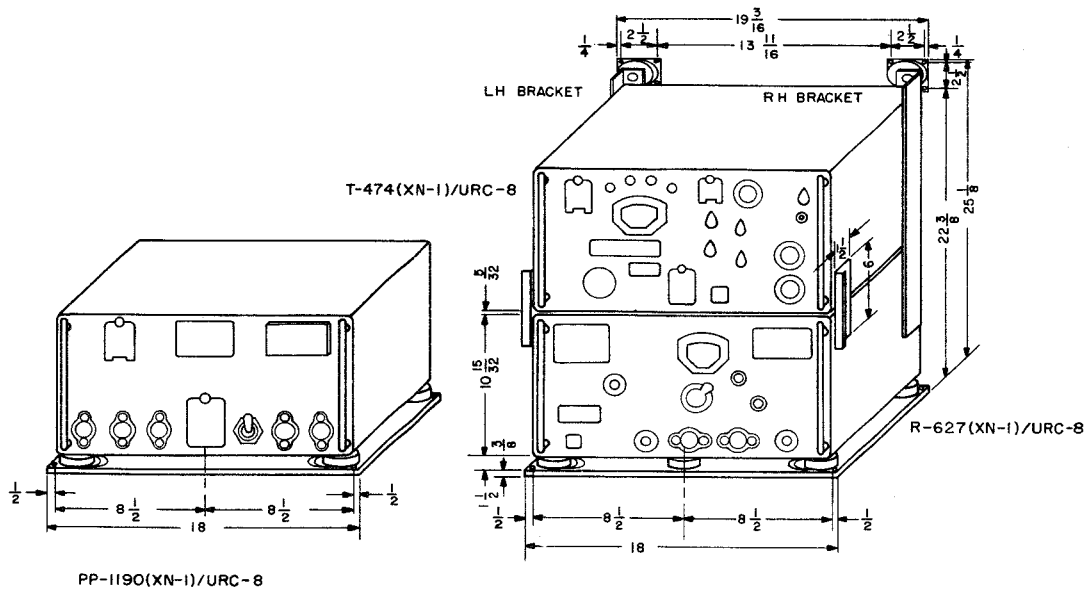
SHOCK MOUNTED HORIZONTAL METHOD OF MOUNTING AN/URC-8(XN-1)



RACK MOUNTING  
RADIO RECEIVER R-627(XN-1)/URC-8 OR RADIO TRANSMITTER T-474(XN-1)/URC-8. THE POWER SUPPLY PP-1190(XN-1)/URC-8 IS NOT RECOMMENDED FOR RACK MOUNTING.



WITH COVER  
COVER DIMENSIONS: 17.218L X 10.437W X 2.531D.



VERTICAL METHOD OF MOUNTING AN/URC-8(XN-1)

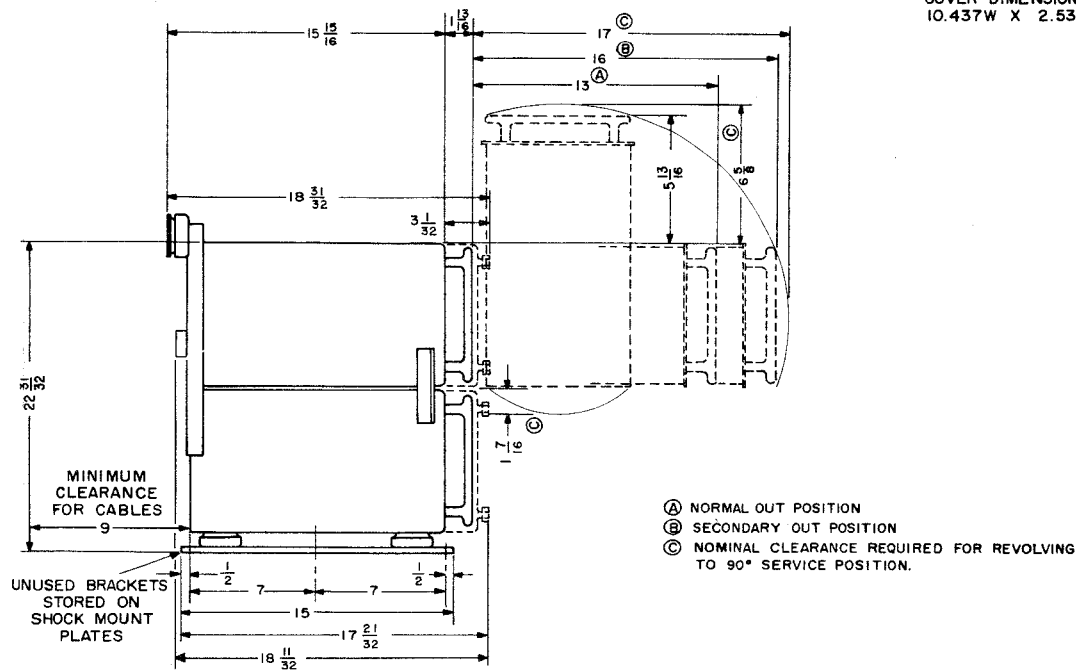
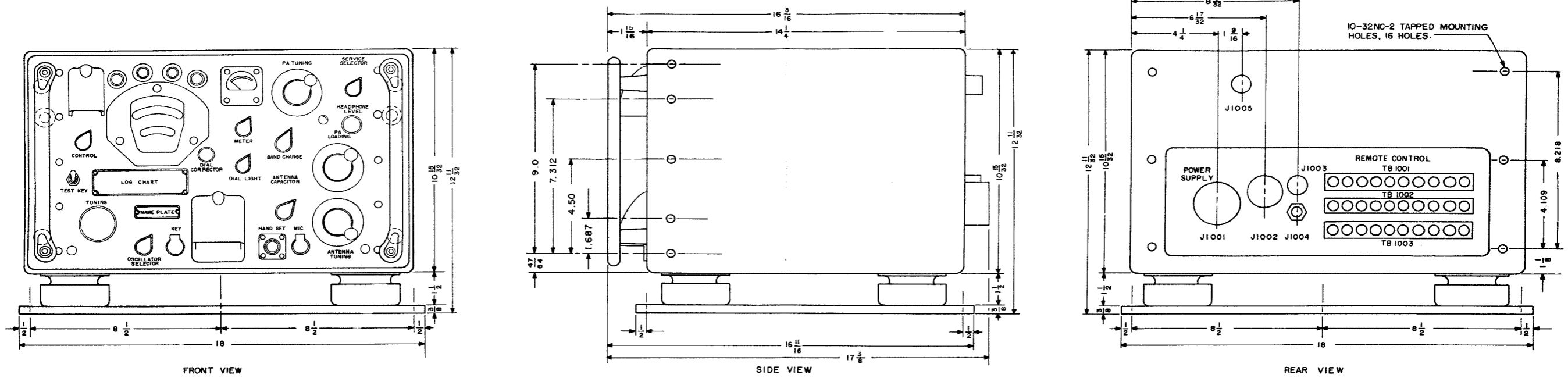
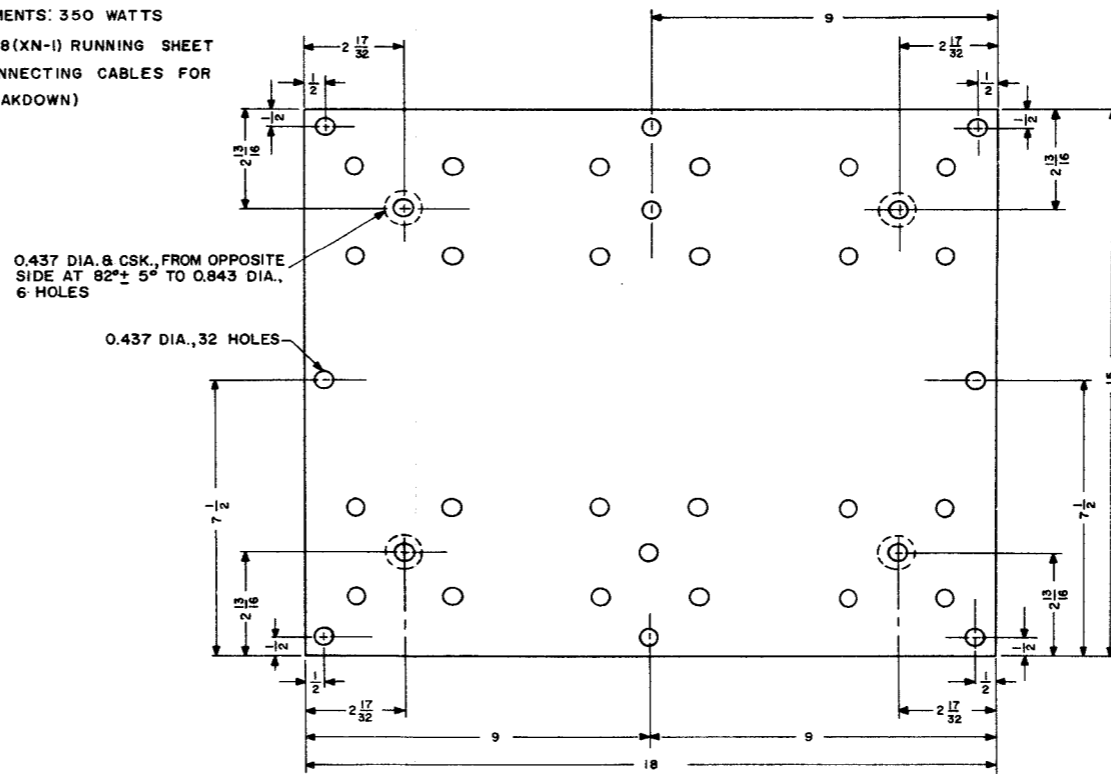
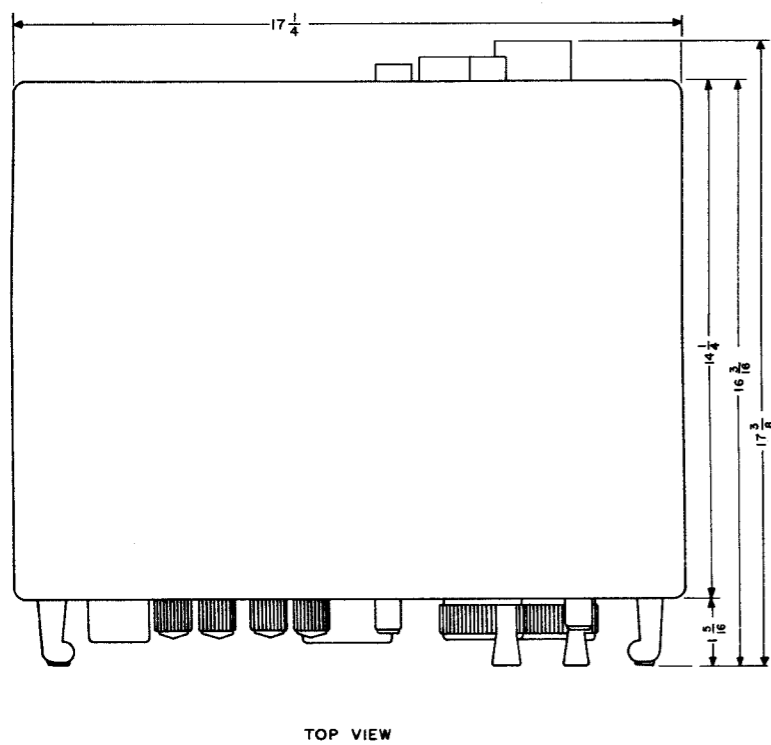


Figure 3-2. Space Requirements for Various Types of Installations for Radio Set AN/URC-8(XN-1)



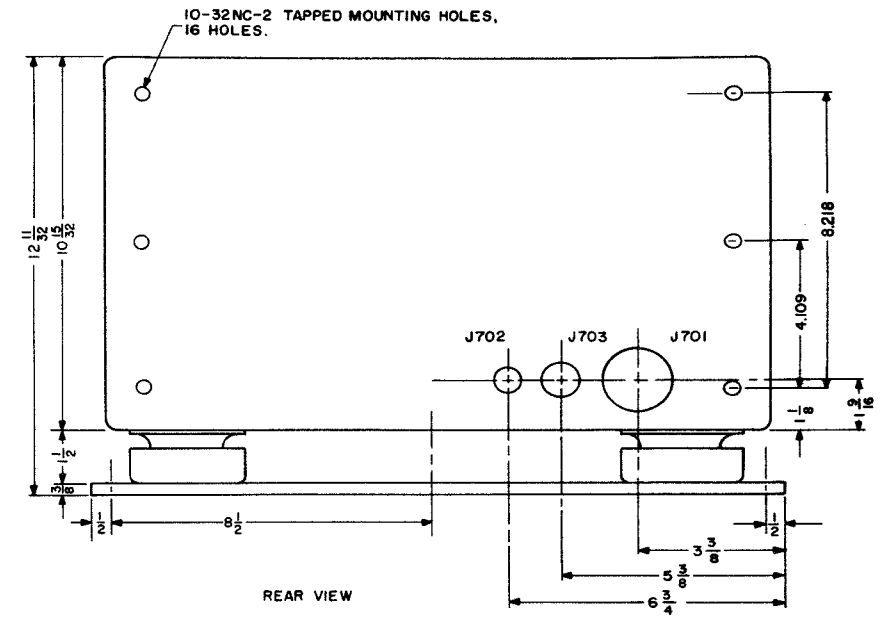
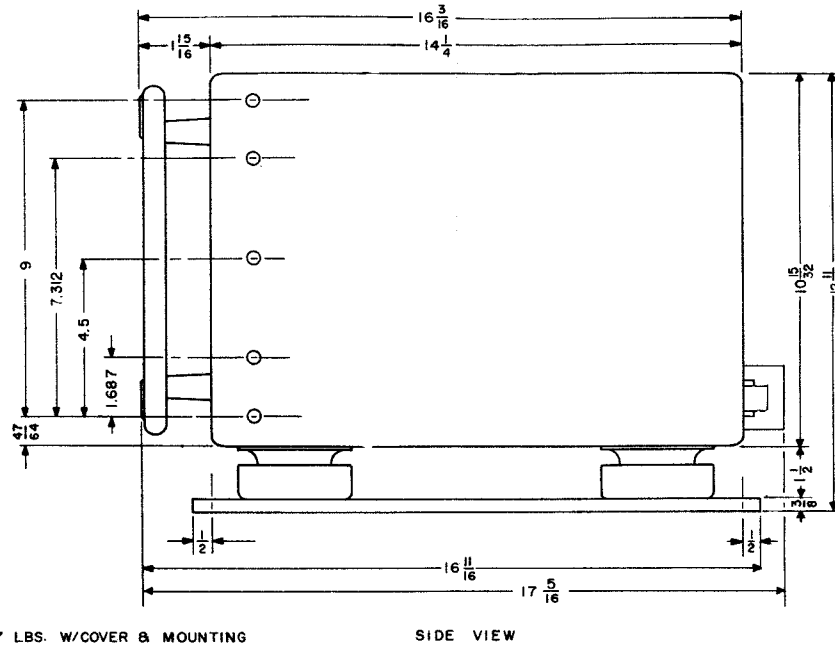
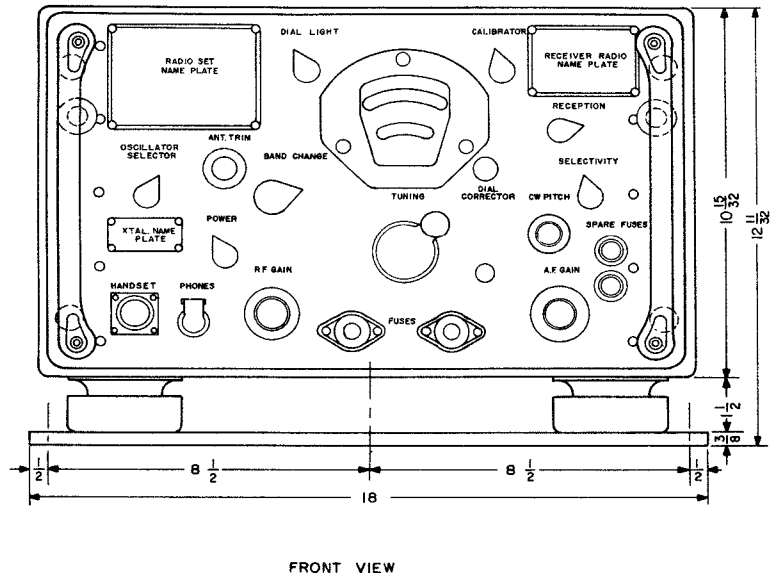
WEIGHT: 102 LBS W/COVER & MOUNTING  
 CRATED WEIGHT: 136 LBS 15X21X23 CRATE  
 HEAT DISSIPATION: 300 WATTS  
 POWER REQUIREMENTS: 350 WATTS

(SEE AN/URC-8(XN-1) RUNNING SHEET  
 FOR INTERCONNECTING CABLES FOR  
 VOLTAGE BREAKDOWN)



SHOCKMOUNT DIMENSIONS  
 MOUNTING MT-1567(XN-1)/URC-8

Figure 3-3. Dimensions of Radio Transmitter T-474(XN-1)/URC-8 and Mounting MT-1567(XN-1)/URC-8



WEIGHT: 107 LBS. W/COVER & MOUNTING  
CRATED WEIGHT: 140 LBS., 15X21X 23 CRATE  
HEAT DISSIPATION: 170 WATTS.  
POWER REQUIREMENTS: 170 WATTS, 115 OR 230 VOLTS, 50-60 OR 400 CPS.

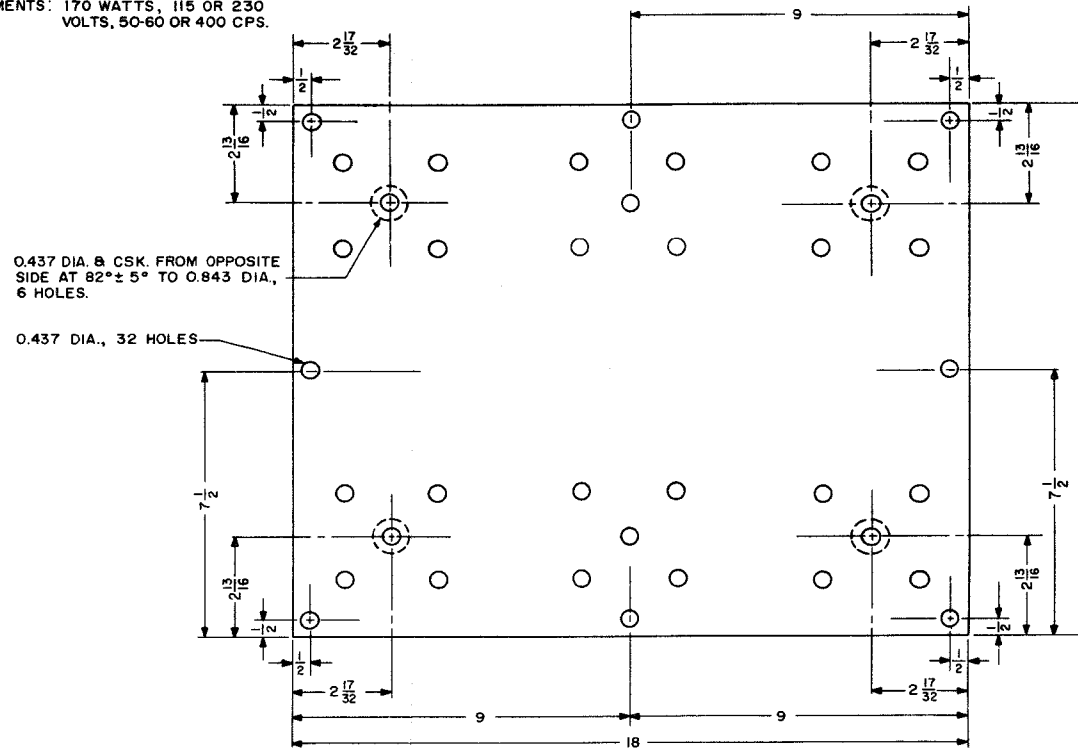
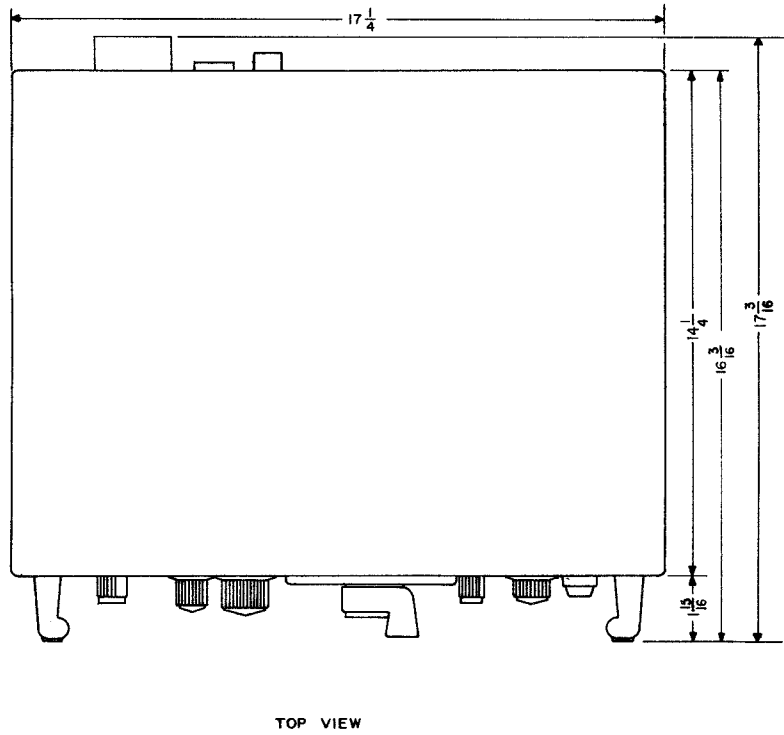
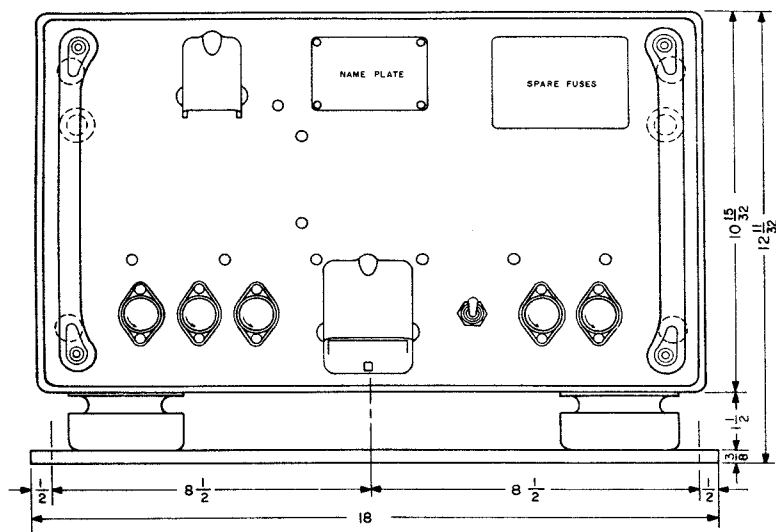
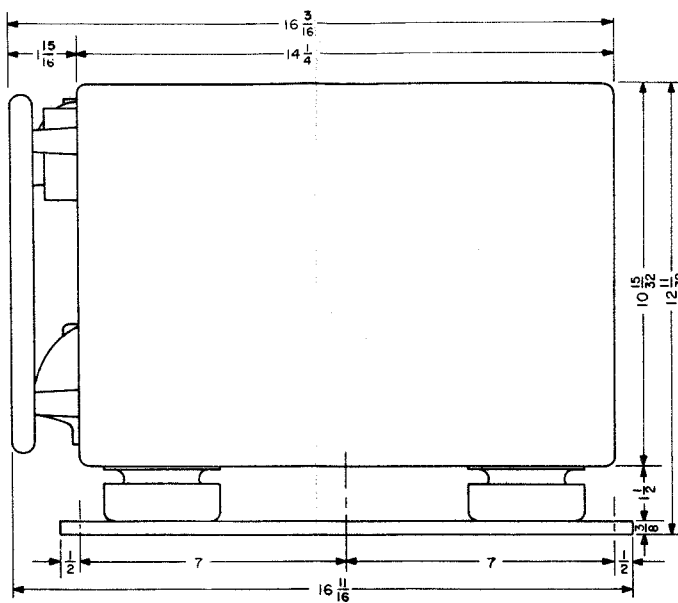


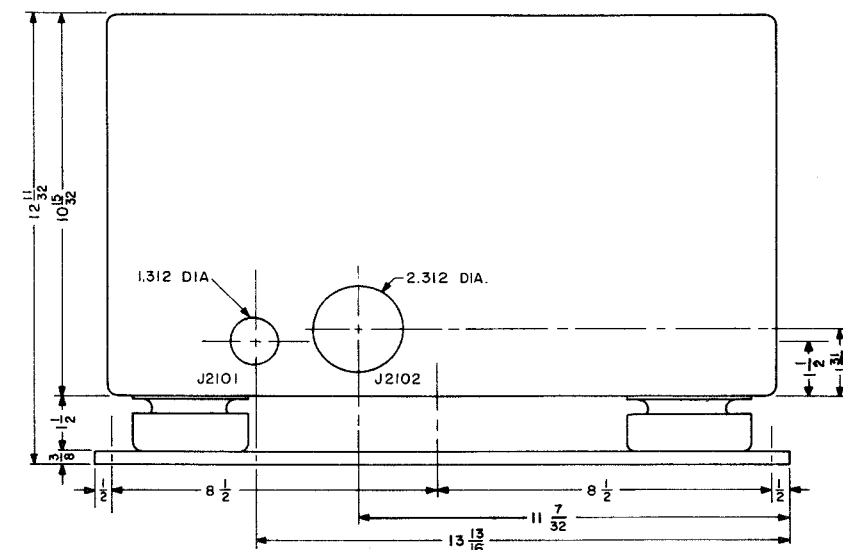
Figure 3-4. Dimensions of Radio Receiver R-627(XN-1)/URC-8 and Mounting MT-1567(XN-1)/URC-8



FRONT VIEW



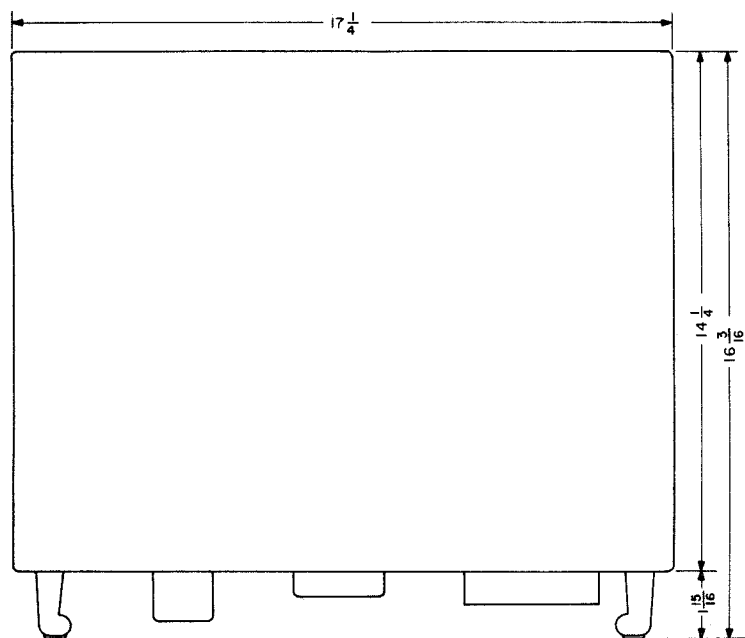
SIDE VIEW



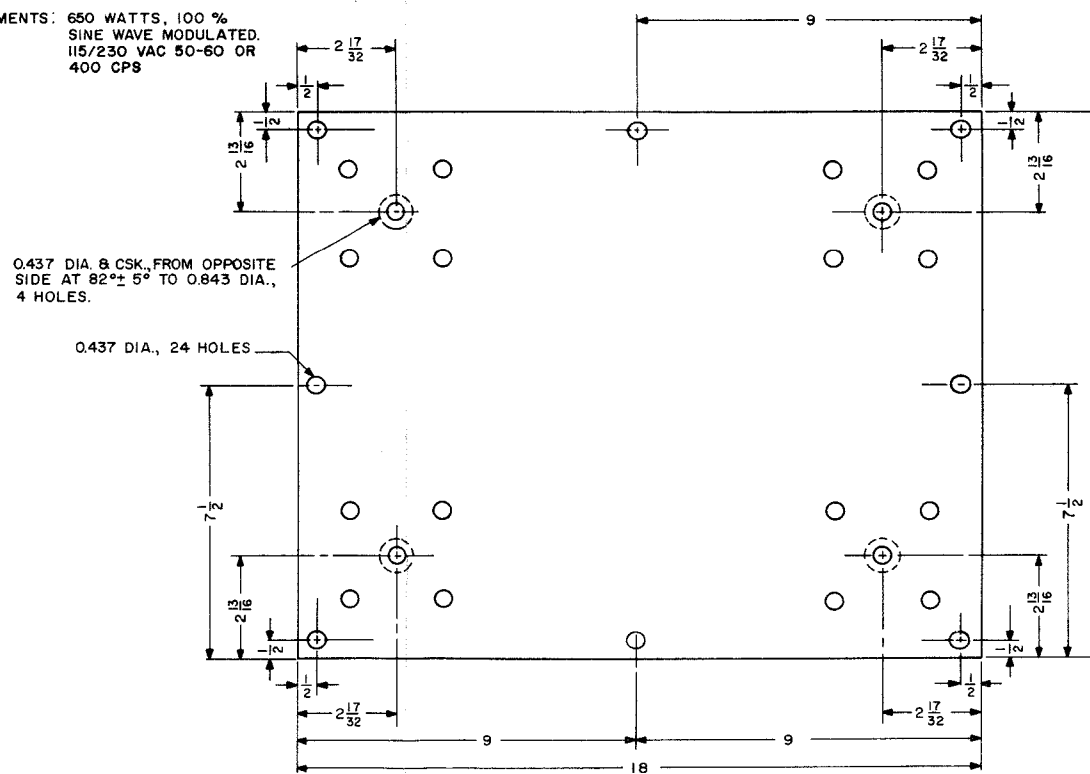
REAR VIEW

WEIGHT: 137 LBS. W/COVER & MOUNTING  
CRATED WEIGHT: 175 LBS.; 15X21X 23 CRATE  
HEAT DISSIPATION: 175 WATTS.

POWER REQUIREMENTS: 650 WATTS, 100 %  
SINE WAVE MODULATED,  
115/230 VAC 50-60 OR  
400 CPS



TOP VIEW



SHOCKMOUNT DIMENSIONS  
MOUNTING MT-1566(XN-1)/URC-8

Figure 3-5. Dimensions of Power Supply PP-1190(XN-1)/URC-8  
and Mounting MT-1566(XN-1)/URC-8

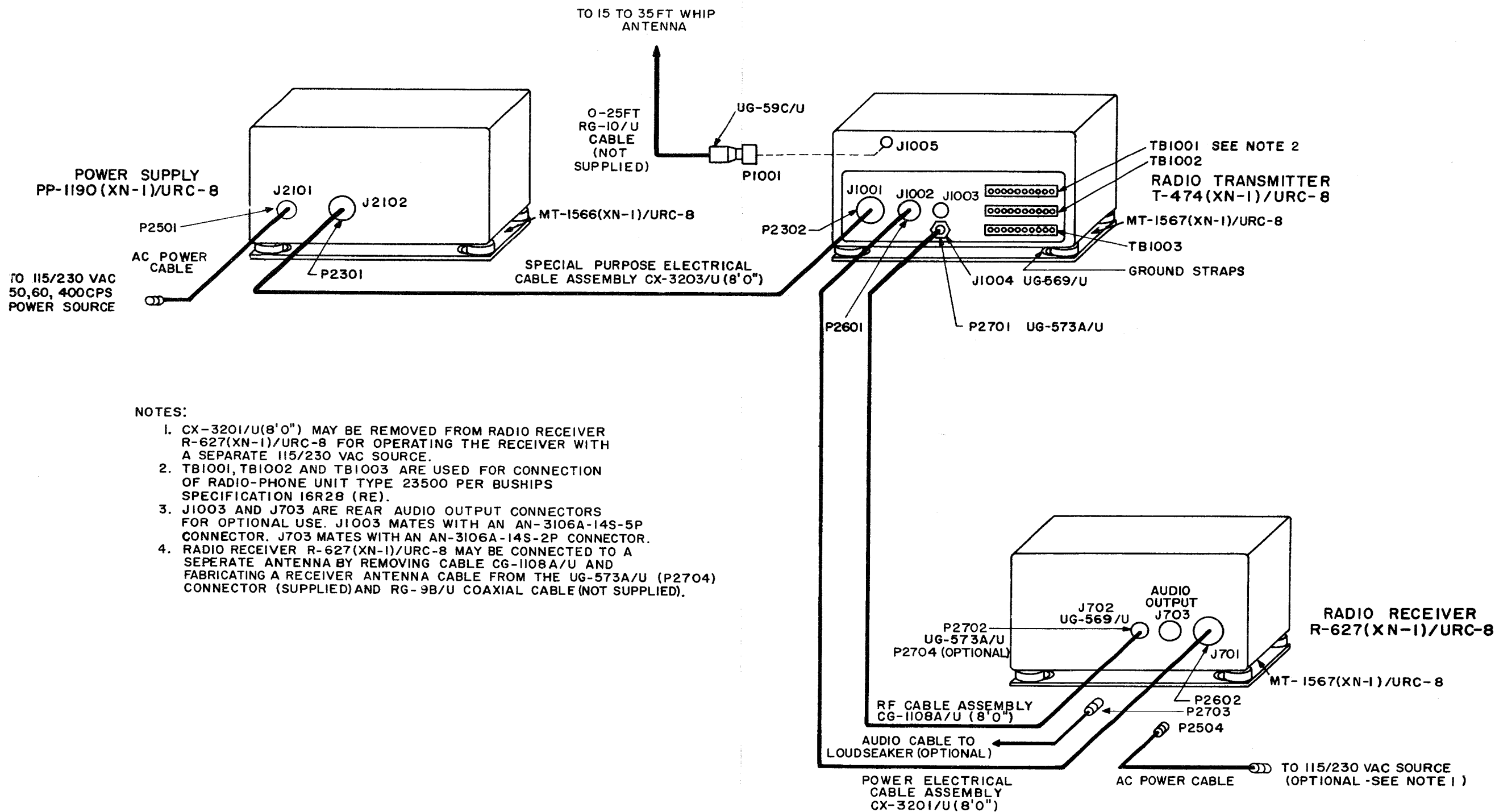
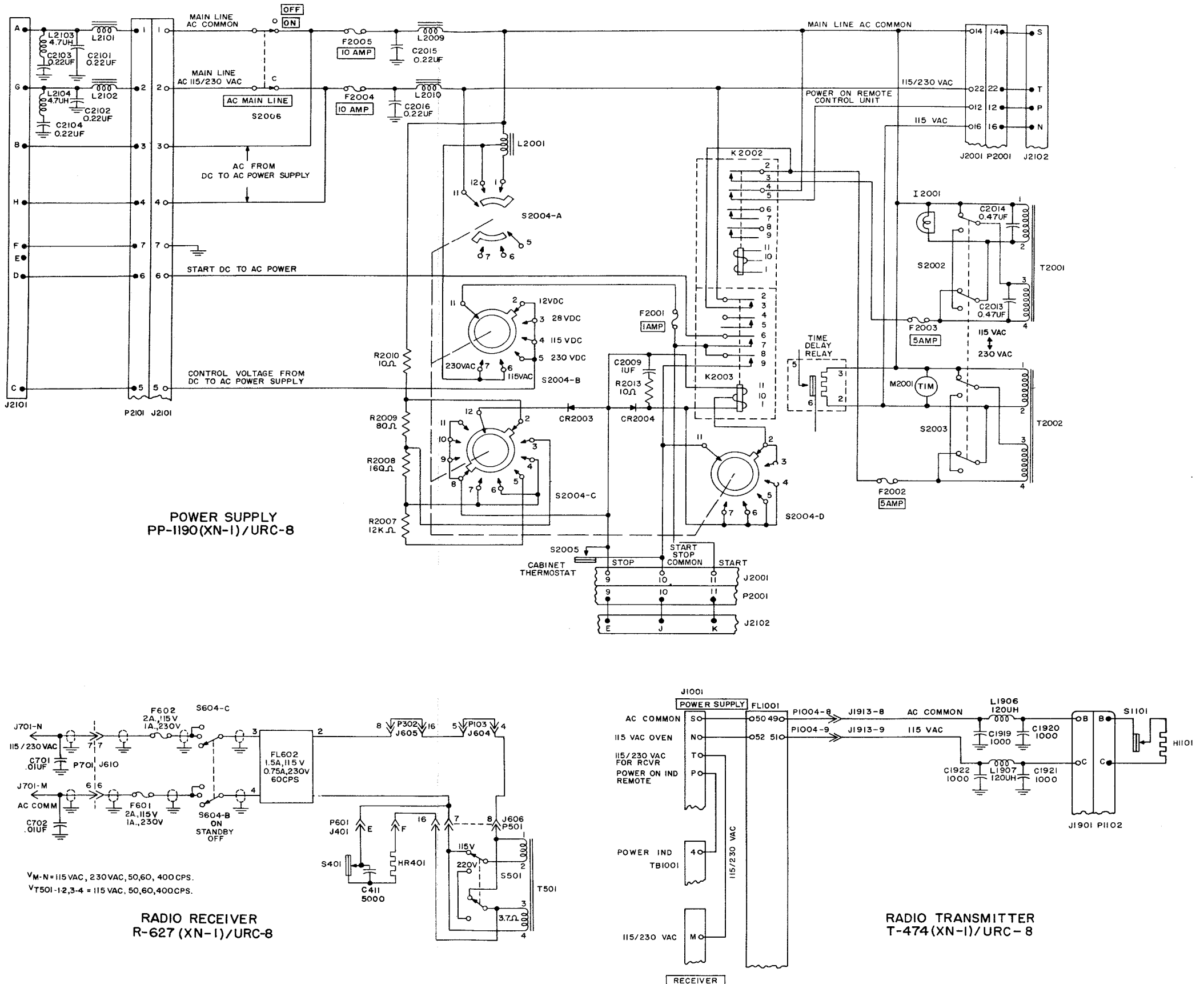


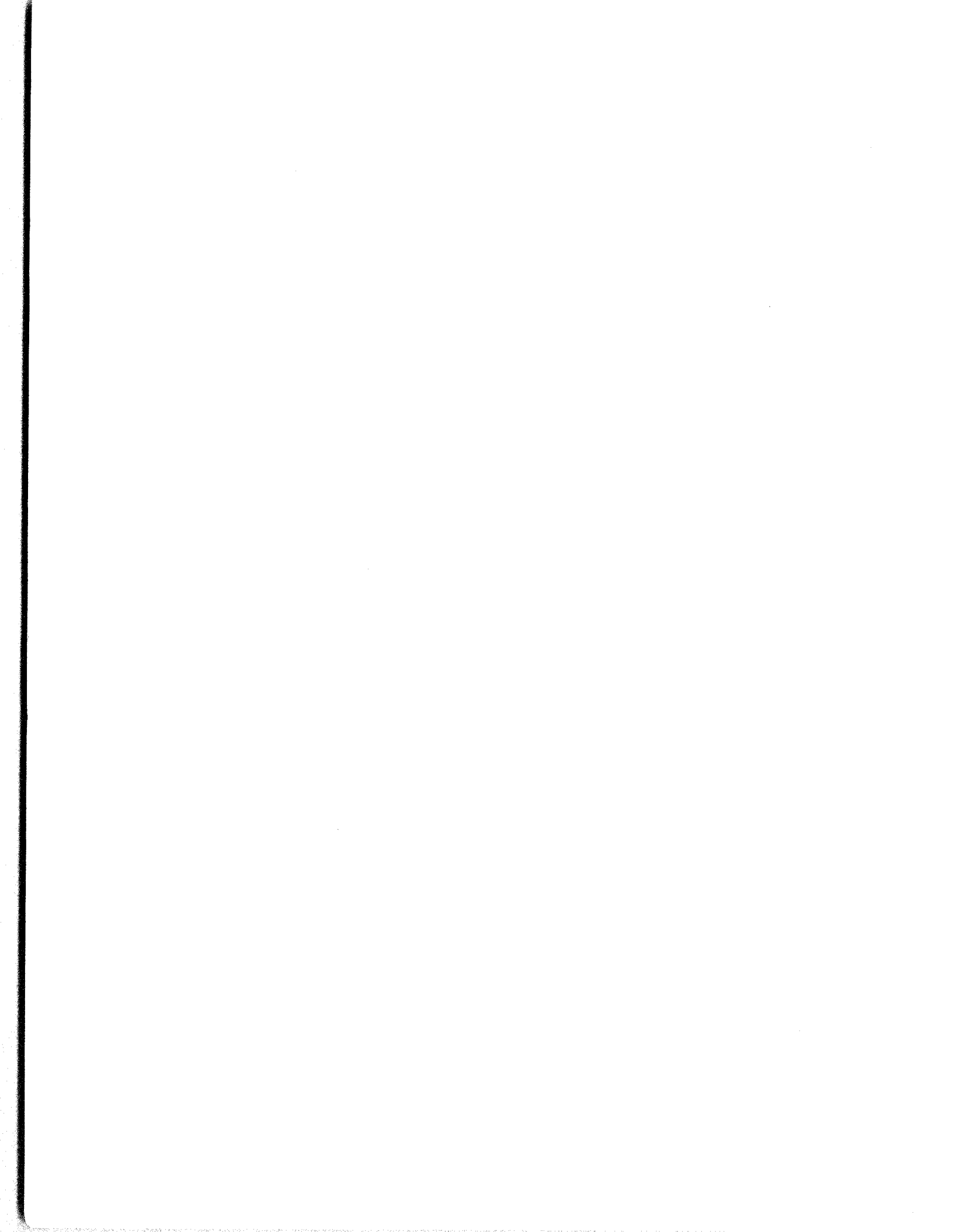
Figure 3-6. Interconnecting Cable Diagram of Radio Set AN/URC-8(XN-1)

TABLE 3-1. RUNNING SHEET FOR INTERCONNECTING CABLES OF RADIO SET AN/URC-8(XN-1)

CABLE NOMEN-CLATURE	NAVY CABLE TYPE	NO. ACTIVE COND	COLOR	FROM	JACK PLUG	PIN NO.	TO	JACK PLUG	PIN NO.	FUNCTION	COND AMP	MAX VOLTS DROP	SUP-PLIED BY
CG-1108A/U (8'0")	RG9B/U	1	-----	Receiver R-627(XN-1)/URC-8	J702 P2702	---	Transmitter or Antenna	J1004 P2701	---	Antenna Cable	-----	-----	Contr
CX-3201/U (8'0")	TTRS8	14	R-Bk-Bk	Receiver R-627(XN-1)/URC-8	J701 P2602	A	Transmitter T-474(XN-1)/URC-8	J1002 P2601	A	Spare	-----	-----	CONTRACTOR
			Wh-Bk-Wh			B			Handset (term. A)	-----	-----		
			Blu-Wh			C			Handset (term. C)	-----	-----		
			R-Bk-Wh			D			Handset (term. E)	-----	-----		
			-----			E			Transmitter Ground	-----	-----		
			Bk-Bk			F			NC	-----	-----		
			Blu-Bk			G			Disable Ground	.0065	-----		
			Blu-Bk			H			Ground	-----	-----		
			Wh-Bk-Bk			J			Transmitter Ground	-----	-----		
			O-Bk			K			Low Audio	.02	-----		
			O-Wh			L			Ground	-----	-----		
			Gn-Wh & R-Wh			M			115/230 vac	.75 ea	.06		
			Gn-Bk & R-Bk			N			AC Common	.75 ea	.06		
			Bk-Wh			P			Disable	.0065	-----		
Wh-Wh	R	Spare	-----	-----									
CX-3203/U (8'0")	P/N	29	Bk-Wh	Power Supply PP-1190(XN-1)/URC-8	J2102 P2301	A	Transmitter T-474(XN-1)/URC-8	J1001 P2302	A	-12 v dc Ground return	1.2	CONTRACTOR	
			Bk-Gn			B			-12 v dc	1.2			
			Bk-R-Gn			C			Interlock	-----	-----		
			Bk-O			D			Ground	-----	-----		
			Bk-Blu			E			Stop	-----	-----		
			Shield			F			Blower Lead	-----	-----		
			#18-Bk			G			6.3 fil	8	-----		
			#18-Bk-R			G			6.3 fil	-----	-----		
			Bk-Br			G			6.3 fil	-----	-----		
			Bk-R-Y1			G			6.3 fil	-----	-----		
			Wh			G			6.3 fil	-----	-----		
			#18-Bk-W			H			6.3 fil	8	-----		
			Bk-Y1			H			6.3 fil	-----	-----		
			Bk-Gn			H			6.3 fil	-----	-----		
			Bk-G-R			H			6.3 fil	-----	-----		
			Blu-R			H			6.3 fil	-----	-----		
			Bk-R-Br			I			-60 v Bias	-----	-----		
			Bk-Wh			J			Common	-----	-----		
			Bk-Blu			K			Start	-----	-----		
			Bk-Gn			M			Local Power Ind	-----	-----		
			BK			N			115 v ac Trans Oven	-----	-----		
			Bk-Br-Wh			O			-115 v dc	-----	-----		
			Bk-Y1			P			Power Ind Remote	-----	-----		
			Bk-Y-Gn			R			250 v Speech Amp	2 ma	-----		
			Bk-Gn			S			115 v ac Common	-----	-----		
			Bk-Blu			T			115/230 v ac Rec	-----	-----		
Bk-Y-Blu	U	+150 v dc	12 ma	-----									
Bk-R	V	+250 v dc	125 ma	-----									
R	W	+600 v dc	325 ma	-----									
-----	Pair #14 wires od 9/16" rubber sheathed	2	Wh Bk	Power Supply PP-1190(XN-1)/URC-8	J2101 P2501	A G	Whatever line facilities available	---	---	AC Power to System 115/230 v ac AC Power to System 115/230 v ac	7 or 3.5	Max length 40'	Contr
-----	Pair #16 wires od 5/16" rubber sheathed	2	Wh Bk	Receiver R-627(XN-1)/URC-8	J701 P2504	---	Whatever line facilities available	---	---	115/230 v ac to receiver (optional power input)	2 or 1	Max length 40'	Contr.
-----	RG-10/U	1	-----	Transmitter T-474(XN-1)/URC-8	J1001 P1001	---	Antenna	---	---	RF output to Antenna	---	Max length 25'	GFP
-----	Pair #18 wires od 9/36" rubber sheathed	2	Wh Bk	Receiver R-627(XN-1)/URC-8	J703 P2703	A C	Loudspeaker (optional)	---	---	High Level Audio Output	---	-----	Contr.







## SECTION 4 OPERATION

### 1. INTRODUCTION

Radio Set AN/URC-8(XN-1) provides radiotelegraph (A<sub>1</sub>) and radiotelephone (A<sub>3</sub>) communications in the 2 to 30 mc range with a transmitter nominal power output of 42 watts. The radio set includes Radio Transmitter T-474(XN-1)/URC-8, Radio Receiver R-627(XN-1)/URC-8 and Power Supply PP-1190(XN-1)/URC-8. With these three major units properly interconnected, they operate as a radio set using a single antenna and a single primary power input. The radio transmitter and power supply will operate as a radio transmitting set independently from the radio receiver.

The radio receiver will also operate independently from the power supply and the radio transmitter.

### 2. OPERATING CONTROLS

Before operating the radio set, the operator should be familiar with the functions of the operating controls and he should know the location of all operating controls. Table 4-1 gives a complete list of the operating controls of Radio Set AN/URC-8(XN-1). Figures 4-1 and 4-2 show the locations of the operating controls of the radio transmitter and radio receiver.

TABLE 4-1. OPERATING CONTROLS OF RADIO SET AN/URC-8(XN-1)  
AND THEIR FUNCTIONS

FUNCTIONAL DESIGNATION	LOCATION	REF. DESIG.	PURPOSE OF CONTROL
ANTENNA CAPACITOR switch	Radio Transmitter	S1901	Switches capacitance in parallel with antenna when rotated from 0 position to position 4.
ANTENNA TUNING	Radio Transmitter	L1501	Increases inductance in series with antenna when rotated clockwise.
BAND CHANGE switch	Radio Transmitter	S1301 S1401	Switches tuned circuits in rf power amplifier module and switches capacitance in power amplifier tank module.
CARRIER indicator	Radio Transmitter	I1901	Indicates rf carrier is on the antenna.
CONTROL switch	Radio Transmitter	S1902	Switches control from radio transmitter panel to TB1001, TB1002, and TB1003 for remote or limited remote operation.
DIAL CORRECTOR	Radio Transmitter		Moves indicator on TUNING dial for correction.
DIAL LIGHT switch	Radio Transmitter	S1912	Turns dial lights on bright, dim, or off.
HANDSET jack	Radio Transmitter	J1907 J1003	For connecting Handset H-51/U. (Parallels J608 on radio receiver.)
HEADPHONE LEVEL	Radio Transmitter	R1902	Varies audio output of headphones.

TABLE 4-1. OPERATING CONTROLS OF RADIO SET AN/URC-8(XN-1)  
AND THEIR FUNCTIONS (Cont)

FUNCTIONAL DESIGNATION	LOCATION	REF. DESIG.	PURPOSE OF CONTROL
KEY jack	Radio Transmitter	J1908	Key jack for cw operation.
METER switch	Radio Transmitter	S1906	Switches meter M1901 for metering total power amplifier grid current and cathode current and modulator total cathode current.
MIC jack	Radio Transmitter	J1909	For connecting military microphones other than Handset H-51/U.
OSCILLATOR SELECTOR	Radio Transmitter	S1201	Selects the crystal oscillator and one of four crystals or the permeability-tuned oscillator for frequency control of the radio transmitter.
PA LOADING	Radio Transmitter	L1404 C1423	Operates as the loading transformer to load the radio transmitter through the antenna matching network.
PA TUNING	Radio Transmitter	L1403	Tunes the power amplifier pi-section tank circuit to resonance.
POWER indicator	Radio Transmitter	I1902	Indicates that Power Supply PP-1190(XN-1)/URC-8 is supplying all operating voltages.
SERVICE SELECTOR	Radio Transmitter	S1907	Energizes proper circuits for cw or voice transmission as well as for standby, calibrate and tune conditions.
START push button	Radio Transmitter	S1904	Energizes Power Supply PP-1190(XN-1)/URC-8 which starts the radio transmitter.
STOP push button	Radio Transmitter	S1905	Shuts down Power Supply PP-1190(XN-1)/URC-8 to stop the radio transmitter.
TEST KEY	Radio Transmitter	S1903	Energizes voice relay which in turn energizes keying relay to key the rf carrier on.
TUNING	Radio Transmitter	L1102 and L1301 through L1307	Varies resonant frequency of tuned circuits of permeability-tuned oscillator, rf doublers, and driver.
Side-tone level	Radio Transmitter, left side main frame (figure 5-3)	R1903	Varies side-tone level to headphones.

TABLE 4-1. OPERATING CONTROLS OF RADIO SET AN/URC-8(XN-1)  
AND THEIR FUNCTIONS (Cont)

FUNCTIONAL DESIGNATION	LOCATION	REF. DESIG.	PURPOSE OF CONTROL
AF GAIN	Radio Receiver	R603	Controls level of audio input signal to the first af amplifier.
ANT. TRIM.	Radio Receiver	C110	Tunes antenna input circuit to resonance.
BAND CHANGE switch	Radio Receiver	S101 through S107	Switches tuned circuits in rf and injection amplifier module.
CALIBRATOR switch	Radio Receiver	S602	Provides B+ voltage to allow V105A to operate as the 100 kc calibration oscillator.
CW PITCH	Radio Receiver	C321	Varies frequency of the bfo.
DIAL CORRECTOR	Radio Receiver		Moves indicator on TUNING dial for correction.
DIAL LIGHT switch	Radio Receiver	S601	Turns dial lights on bright, dim, or off.
HANDSET jack	Radio Receiver	J608	For connecting Handset H-51/U. (Parallels J1907 and J1003 on radio transmitter.)
OSCILLATOR SELECTOR	Radio Receiver	S111 through S113	Selects the crystal oscillator and one of four crystals or the permeability-tuned oscillator for injection frequency control of the radio receiver.
PHONES jack	Radio Receiver	J607	For connecting military headphones other than Handset H-51/U.
POWER switch	Radio Receiver	S604	Energizes radio receiver power supply; applies disabling bias to rf gain line for standby condition.
RECEPTION switch	Radio Receiver	S603	Enables bfo and grounds agc bus for cw operation.
RF GAIN	Radio Receiver	R601	Controls level of rf signal by varying cathode bias of the first and second rf amplifiers and the first and second if. amplifiers.
SELECTIVITY switch	Radio Receiver	S301 S302	Switches mechanical filter input to if. amplifier; broad filter provides 9 kc bandwidth, narrow filter provides 2 kc bandwidth.

TABLE 4-1. OPERATING CONTROLS OF RADIO SET AN/URC-8(XN-1)  
AND THEIR FUNCTIONS (Cont)

FUNCTIONAL DESIGNATION	LOCATION	REF. DESIG.	PURPOSE OF CONTROL
TUNING	Radio Receiver	L401, Z101 through Z112, Z121 through Z124	Varies resonant frequency of tuned circuits of permeability-tuned oscillator, rf amplifiers, and injection frequency doublers.
AC MAIN LINE	Power Supply	S2006	Switches power from 115/230 v ac, 50-60 or 400 cps power source into power supply.

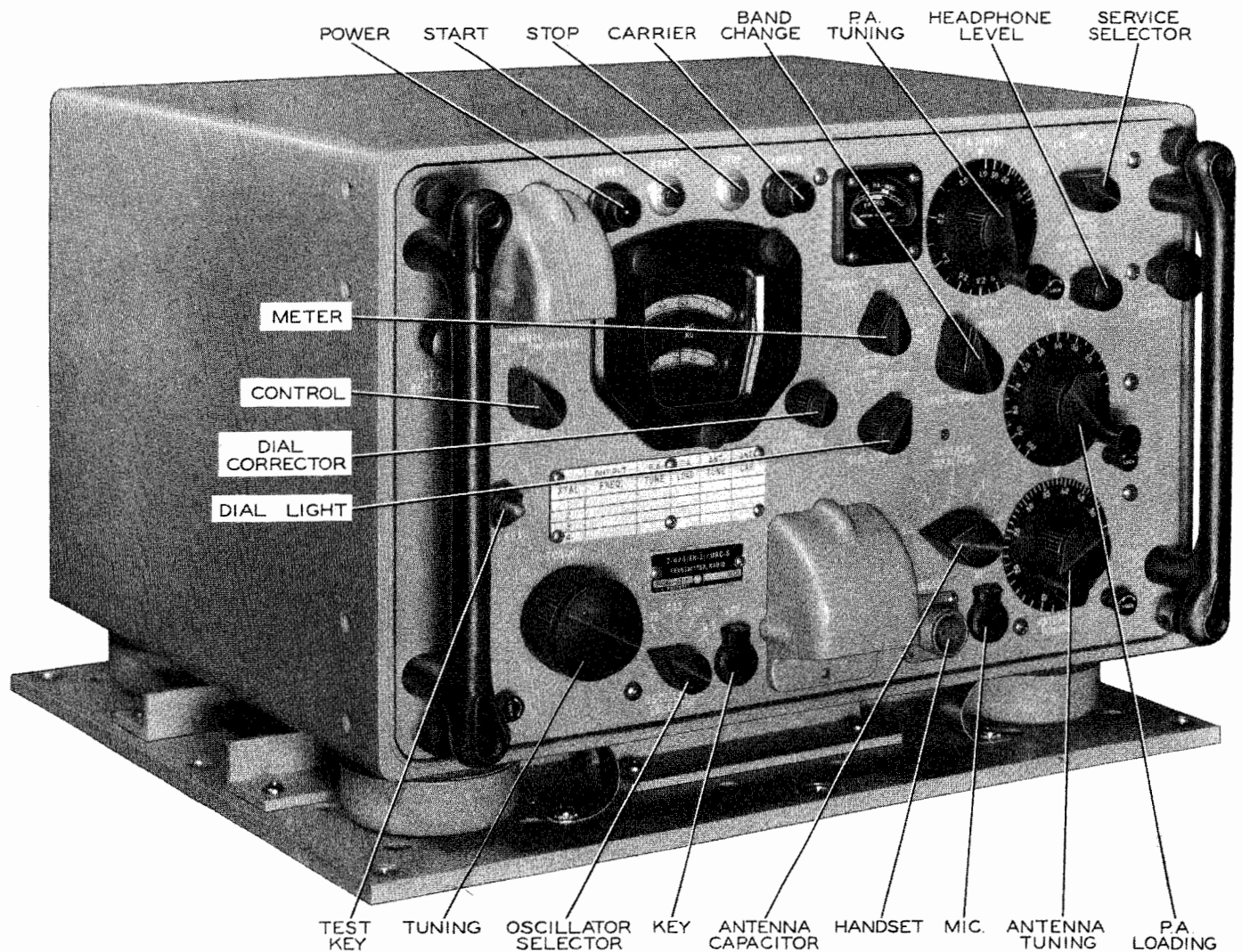


Figure 4-1. Radio Transmitter T-474(XN-1)/URC-8, Operating Controls

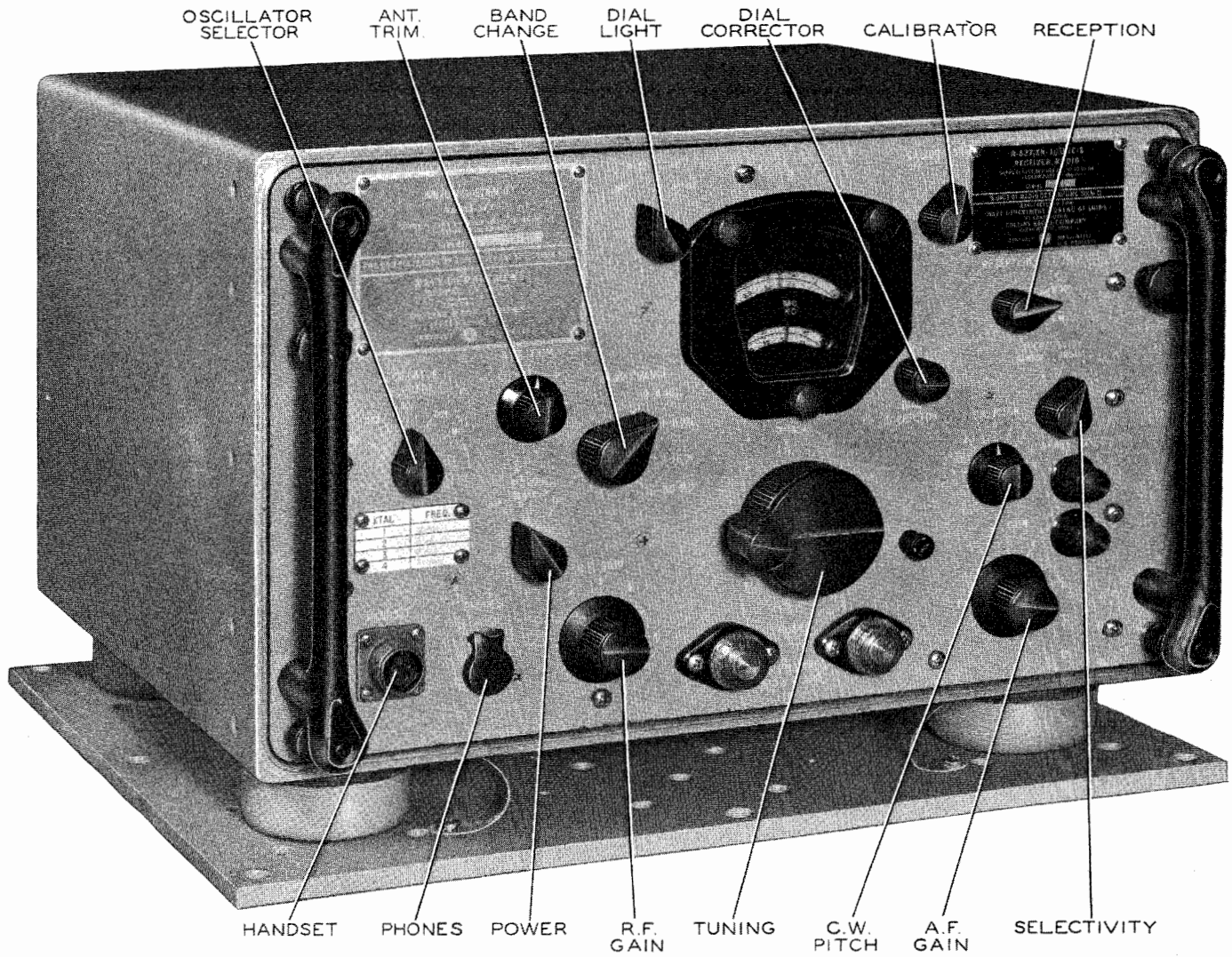


Figure 4-2. Radio Receiver R-627(XN-1)/URC-8 Operating Controls

### 3. OPERATING PROCEDURE



BEFORE OPERATING THE RADIO SET CHECK THE FOLLOWING:

- (1) THAT SWITCH S2002-S2003 OF POWER SUPPLY PP-1190(XN-1)/URC-8 IS SET TO THE PROPER AC LINE VOLTAGE POSITION.
- (2) THAT SWITCH S2004 OF POWER SUPPLY PP-1190(XN-1)/URC-8 IS SET TO THE PROPER AC OR DC POSITION.
- (3) THAT SWITCH S501 OF RADIO RECEIVER R-627 (XN-1)/URC-8 IS SET TO THE PROPER AC LINE VOLTAGE POSITION.

SEE PARAGRAPHS 1-3c AND 1-3d FOR POWER SOURCE REQUIREMENTS.

a. STARTING PROCEDURE. - Set the AC MAIN LINE switch on the power supply to ON. This provides power up to the on-off circuit of the radio transmitter and up to the on-off circuit of the radio receiver. When operated independently from the radio transmitter, power to the radio receiver must be provided from an individual ac source. With the AC MAIN LINE switch to ON, the radio set is ready for operation.

#### b. OPERATION OF RADIO RECEIVER

(1) Connect to one or more of the following sources for audio output from the radio receiver:

- (a) The HANDSET jack on either transmitter or receiver.
- (b) The PHONES jack on the receiver front panel.
- (c) Output jack J703 at the receiver rear.

Maximum output for operation of a loudspeaker of 600 ohms impedance is obtained at jack J703. When the receiver is used independently from the transmitter, output is available at the PHONES jack and at jack J703.

(2) Initially set the RF GAIN control to 7, the AF GAIN control to 10, the SELECTIVITY switch to BROAD, the CALIBRATOR switch to OFF, and the CW PITCH to 0. Then set the POWER switch to ON.

(3) Use the following procedure for master oscillator (continuous tuning) operation. For crystal oscillator operation, refer to paragraph 4-3b(5) following.

(a) To obtain maximum dial frequency accuracy, calibrate the radio receiver at the 100 kc point nearest to the desired operating frequency using the procedure of paragraph 4-3b(4).

(b) Set the OSCILLATOR SELECTOR switch to MO.

(c) Unlock and set the TUNING dial to the operating frequency.

(d) Set the RECEPTION switch to CW and the CW PITCH control to 0 and tune the receiver to zero beat on the received signal. This assures that the signal is centered in the passband.

(e) For cw reception set the RECEPTION switch to CW and use the TUNING dial or CW PITCH control to obtain the desired beat note. Set the AF GAIN control to 10 and use the RF GAIN control for volume control. Set the SELECTIVITY switch to NARROW to minimize interference. To drop an interfering signal out of the receiver passband, use the TUNING dial to tune the desired signal off frequency and the CW PITCH control to maintain the desired beat note. Note that the dial calibration is accurate only for the particular setting of the CW PITCH control at which the receiver is calibrated. After calibration, the dial frequency will be in error by the same number of kc the CW PITCH control is moved. The CW PITCH control is marked in 1 kc divisions.

(f) For radiotelephone reception set the RECEPTION switch to MOD; set the RF GAIN control to 10; and use the AF GAIN control for volume control. Leave the SELECTIVITY switch on BROAD in the absence of appreciable interference or if watch is being maintained on a fixed channel frequency. In the presence of interference, set the SELECTIVITY switch to NARROW and use the TUNING dial to drop the interfering signal out of the receiver passband.

(g) Set the ANT. TRIM. control for maximum signal level or, in the absence of a signal, the maximum noise level.

(4) Use the following procedure to calibrate the radio receiver for master oscillator operation.

#### NOTE

THE RADIO RECEIVER SHOULD BE ALLOWED TO WARM UP IN STANDBY OR ON AT LEAST 45 MINUTES BEFORE FINAL CALIBRATION.

(a) Set the OSCILLATOR SELECTOR to MO.

(b) Set the CALIBRATOR switch to ON.

(c) Set the RECEPTION switch to CW and the CW PITCH control to 0.

(d) Set the BAND CHANGE switch to the proper band.

(e) Unlock and set the TUNING dial to the 100 kc point nearest the operating frequency.

(f) Move the TUNING knob slightly to produce a zero beat in the headphones. Set the AF GAIN control to 10 and use the RF GAIN control to adjust for the desired volume.

(g) Set the DIAL CORRECTOR so that the KC indicator is exactly on the 0 (a 100 kc point) of the lower dial.

(h) Set the CALIBRATOR switch to OFF. It is essential that the calibrating oscillator be turned off to prevent spurious signals.

NOTE

FOR OPERATION WITH THE RADIO TRANSMITTER, CALIBRATE THE RADIO TRANSMITTER (paragraph 4-3c(4)) AFTER THE RADIO RECEIVER IS CALIBRATED.

(5) Use the following procedure for crystal oscillator operation:

(a) Set the OSCILLATOR SELECTOR switch to the desired CO (crystal oscillator) position. Each CO position provides one fixed operating frequency in each of the four TUNING bands, the frequency on any band being twice that of the next lower band. The control crystal unit is 580 kc higher than the desired dial frequency on the 2-4 mc band. When the four crystal units in the receiver are each 580 kc higher in frequency than the corresponding four crystal units in the transmitter, the same 16 crystal-controlled channel frequencies will be available in both the receiver and transmitter.

(b) Unlock and set the TUNING dial to the operating frequency as determined by the CO position in use. It is not necessary to calibrate the receiver for crystal oscillator operation.

(c) For cw reception set the RECEPTION switch to CW and use the CW PITCH control to obtain the desired beat note. Set the AF GAIN control to 10 and use the RF GAIN control for volume control.

(d) For radiotelephone reception set the RECEPTION switch to MOD; set the RF GAIN control to 10; and use the AF GAIN control for volume control.

(e) Set the ANT. TRIM. control for maximum output.

(f) The SELECTIVITY switch always should be on BOARD when monitoring a fixed channel frequency.

(6) To put the radio receiver in a standby condition, set the POWER switch to STAND BY.

(7) To shut down the radio receiver, set the POWER switch to OFF.

c. OPERATION OF RADIO TRANSMITTER

(1) Make the following preliminary control settings before turning the radio transmitter on.

(a) Set the SERVICE SELECTOR to STAND BY.

(b) Set the PA TUNING dial to 1.9, the minimum, and set the PA LOADING dial to 0.

(c) Set the ANTENNA CAPACITOR switch to 0.

(d) Set the ANTENNA TUNING dial to 50, the maximum.

(e) Set the METER switch to PA GRID. The meter will indicate the total power amplifier grid current.

(f) Set the CONTROL switch to LOCAL.

(2) Push the START push button. After a 30-second time delay, the radio transmitter is ready for tuning.

(3) Use the following procedure for master oscillator operation. For crystal oscillator operation, refer to paragraph 4-3c(5), following.

(a) Set the OSCILLATOR SELECTOR to MO.

(b) Unlock the TUNING dial and set up the operating frequency using the TUNING dial and the BAND CHANGE switch. Leave the TUNING dial unlocked if the radio transmitter is to be calibrated.

(4) For master oscillator operation, calibrate the transmitter, if deemed necessary, using the following procedure. It is unnecessary to calibrate the transmitter for crystal oscillator operation.

NOTE

BOTH THE RADIO TRANSMITTER AND THE RADIO RECEIVER SHOULD BE ALLOWED TO WARM UP AT LEAST 45 MINUTES BEFORE FINAL CALIBRATION.

(a) Set the TUNING dial of the radio transmitter to the 100 kc point nearest the operating frequency.

(b) Calibrate Radio Receiver R-627(XN-1)/URC-8, or equivalent receiver, at the same 100 kc point (paragraph 4-3b(2)). Then turn only the CALIBRATOR switch on the radio receiver to OFF, leaving the other controls alone.

(c) With the SERVICE SELECTOR in the CAL position and the TEST KEY in the locked (up) position, turn the TUNING dial of the radio transmitter to produce a zero beat in the headphones connected to the radio receiver.



(d) After producing the zero beat, set the DIAL CORRECTOR on the radio transmitter so that the KC indicator is exactly on 0 of the lower dial (a 100 kc point).

(e) With the TUNING dial, retune the radio transmitter to the operating frequency and lock the dial.

(5) Use the following procedure for crystal oscillator operation.

(a) Set the OSCILLATOR SELECTOR to one of the four CO positions. Each of the four crystals provides a crystal-controlled carrier frequency in each of the four bands, making a total of 16 crystal-controlled channel frequencies available.

(b) Set the BAND CHANGE switch to the proper band.

(c) Unlock and set the TUNING dial to the exact crystal channel frequency.

(6) Set the SERVICE SELECTOR from STAND BY to CAL. With the SERVICE SELECTOR in the CAL position the red POWER indicator should be on and the blowers should be operating.

(7) Set the TEST KEY to the locked (up) position.

(8) For crystal oscillator operation, set the TUNING dial to obtain a peak of PA GRID current as indicated on the meter. Then lock the TUNING dial. (The TUNING dial has been previously set and locked for master oscillator operation.)

(9) Check that the meter reads farther up-scale than the midpoint of the PA GRID block marked on the meter. If sufficient power amplifier grid current is not indicated, refer to table 5-1.

(10) Set the SERVICE SELECTOR to TUNE. This should cause the green CARRIER indicator to come on and the power amplifier grid current should drop to a point below the midpoint of the PA GRID block on the meter.

#### NOTE

WHEN THE GREEN CARRIER INDICATOR IS LIT THERE IS SOME RF SIGNAL ON THE ANTENNA EVEN THOUGH THE ANTENNA IS NOT PROPERLY RESONATED AND THE RADIO TRANSMITTER IS NOT PROPERLY LOADED.

(11) Set the METER switch to PA. The meter will indicate the total power amplifier cathode current.

(12) Unlock and tune the PA TUNING dial up-scale until the first dip is noted in the power amplifier cathode current as indicated by the meter. When the power amplifier cathode current dips, the meter should

read below the TUNE block on the meter. The PA TUNING dial will indicate a value in megacycles which is less than the operating frequency. If this is not true, the power amplifier is tuned to a harmonic of the operating frequency, and power amplifier tuning should be repeated.

(13) Lock the PA TUNING dial.

#### NOTE

WHEN SETTING THE PA TUNING AND THE ANTENNA TUNING DIALS, THE RESONANT POINTS SHOULD BE SET VERY ACCURATELY.

(14) Unlock and tune the PA LOADING dial clockwise until the meter indicates a small increase in power amplifier cathode current.

(15) Resonate the antenna using the following procedure.

(a) Unlock the ANTENNA TUNING dial and turn the dial from 50 toward 9.5 until the antenna is resonant. Antenna resonance is indicated by a peak in the power amplifier cathode current as indicated by the meter. If the power amplifier cathode current does not peak after turning the ANTENNA TUNING dial from 50 down to 9.5, return the dial to 50 and set the ANTENNA CAPACITOR switch to 1. This adds capacitance into the antenna matching network. Then repeat the tuning with the ANTENNA TUNING dial, going from 50 on the dial toward 9.5, until the power amplifier cathode current peaks. It may be necessary to repeat this procedure for each of the five positions of the ANTENNA CAPACITOR switch before the antenna is properly matched to the power amplifier. However, the antenna matching network will match the majority of antennas with no capacitance added. The ANTENNA TUNING dial, when properly tuned, will indicate a frequency which is slightly greater than the operating frequency in megacycles. If this is not true, the antenna is resonated at a harmonic of the operating frequency, and the antenna resonating procedure should be repeated.

#### NOTE

WHILE RESONATING THE ANTENNA, THE PA CATHODE CURRENT AS INDICATED BY THE METER SHOULD NOT EXCEED THE TUNE BLOCK ON THE METER. IF THE METER INDICATOR REACHES THE TUNE BLOCK ON THE METER, REDUCE THE LOADING BY TURNING THE PA LOADING DIAL DOWN-SCALE.

(b) The radio transmitter can be operated into antennas which are outside the range of specified antennas (15 to 35 ft whip fed with up to 25 ft of 52-ohm coaxial cable). For operating into antennas outside the specified range, initially set the ANTENNA CAPACITOR switch to 0. Then use the ANTENNA TUNING and the PA LOADING dials to obtain maximum

power amplifier cathode current as indicated by the meter. Try other positions of the ANTENNA CAPACITOR switch in turn, to obtain the best possible conditions the radio transmitter is operating inefficiently, but transmission can be maintained without damage to the radio transmitter.



DUE TO THE HIGH RF VOLTAGE, ANTENNAS WHICH ARE LESS THAN 15 FEET LONG SHOULD BE LOADED WITH CAUTION AT LOW FREQUENCIES TO PREVENT POSSIBLE ARC-OVER.

(16) For cw radiotelegraph (A<sub>1</sub>) transmission perform the following procedure.

- (a) Set the SERVICE SELECTOR from TUNE to CW.
- (b) Use the PA LOADING dial to increase the power amplifier cathode current of the radio transmitter until the meter indicator is at the midpoint of the PA-MOD block on the meter.
- (c) Check the ANTENNA TUNING dial for antenna resonance.
- (d) Lock the PA LOADING and the ANTENNA TUNING dials.
- (e) Set the TEST KEY to the center (off) position.
- (f) For local (front panel) operation connect the telegraph key into the KEY jack. Avoid the use of a telegraphic key which has an arc-suppressing capacitor across the keying contacts as such keys will distort the keying waveform.
- (g) With the CONTROL switch in the LOCAL position, the radio transmitter is ready for cw radiotelegraph (A<sub>1</sub>) operation from the local position. For

local operation the radio transmitter is started, stopped, keyed, and modulated from the front panel only. No side tone is available for cw radiotelegraph operation. For remote operation, refer to paragraph 4-3c(18), following. For limited remote operation, refer to paragraph 4-3c(10), following.

#### NOTE

IF THE POWER AMPLIFIER PLATE CURRENT IS EXCEEDED FOR AN UNDUE LENGTH OF TIME WHILE TUNING OR OPERATING THE RADIO TRANSMITTER, THE RADIO TRANSMITTER WILL AUTOMATICALLY SHUT DOWN. THE RADIO TRANSMITTER CAN BE RESTARTED AFTER A TWO-MINUTE DELAY BY PUSHING THE START PUSH BUTTON.

(17) For radiotelephone (A<sub>3</sub>) transmission perform the following procedure.

- (a) Set the SERVICE SELECTOR from TUNE to CW.
- (b) Use the PA LOADING dial to increase the power amplifier cathode current of the radio transmitter until the meter indicator is at the midpoint of the PA-MOD block on the meter.
- (c) Check the ANTENNA TUNING dial for antenna resonance.
- (d) Lock the PA LOADING and the ANTENNA TUNING dials.
- (e) Set the TEST KEY to the center (off) position.
- (f) Set the SERVICE SELECTOR from CW to VOICE. The blower should reduce speed.
- (g) Connect Handset H-51/U into the HANDSET jack. Connect other military microphones, if used, into the MIC jack.
- (h) Push the push-to-talk push button on the handset. This should cause the blower motor speed to increase to normal speed, and with no voice input to the microphone, the meter indicator should deflect approximately 15 per cent of full scale with the METER switch in the MOD position. With voice modulation, the average of the peaks of the modulator cathode current should be no more than the center of the PA-MOD block on the meter. If it is, refer to table 5-1.
- (i) Use the HEADPHONE LEVEL control to vary the headphone audio output. Use the sidetone control R1903 (figure 5-3) to control the audio level of the side tone without changing the audio level of the received signal.
- (j) With the CONTROL switch in the LOCAL position, the radio transmitter is ready for radiotelephone (A<sub>3</sub>) operation from the local position. For local operation, the radio transmitter is started, stopped, keyed, and modulated from the front panel only. For remote operation, refer to paragraph 4-c(18), following. Limited remote radiotelephone operation is not provided.

(18) For remote operation of the radio transmitter, use the following procedure.

- (a) Connect Navy type 23500 Radiophone Unit to the terminal board on the rear of the radio transmitter, using the specified control cable for the unit.

(b) With the radio transmitter ready for local radiotelegraph operation (paragraph 4-3c(16), above) or local radiotelephone operation (paragraph 4-3c(17), above), set the CONTROL switch to the REMOTE position.

(c) Check that the SERVICE SELECTOR switch on the radio transmitter is in the CW position for cw radiotelegraph operation from the remote position and in the VOICE position for radiotelephone operation from the remote position.

(d) With the CONTROL switch in the REMOTE position, the radio transmitter can be started, stopped, keyed, and modulated from the remote position as well as from the front panel. The TEST KEY on the front panel will lock the carrier on.

(19) For limited remote operation of the radio transmitter, use the following procedure.



THE POLARITY OF THE DC KEY LINE  
MUST BE AS INDICATED ON THE REAR  
PANEL TERMINAL BOARD OF THE RADIO  
TRANSMITTER.

(a) With the radio transmitter ready for local radiotelegraph operation (paragraph 4-3c(16), above), set the CONTROL switch to LIM REMOTE.

(b) Connect a 115 v dc external power source in series with the remote key line so that the polarity will agree with the rear panel marking on TB1001 terminals 5 and 6.



TO PROTECT THE EXTERNAL 115 V DC  
POWER SOURCE, FUSE THE LINE WITH  
1/2 AMPERE FUSES.

(c) Check that the SERVICE SELECTOR switch on the radio transmitter is in the CW position. Only radiotelegraph operation is available from the limited remote position.

(d) With the CONTROL switch in the LIM REMOTE position, the radio transmitter can only be keyed from the limited remote position. The radio transmitter can not be started and stopped from the limited remote position.

(20) To put the radio transmitter in a standby condition, set the SERVICE SELECTOR to STAND BY. Transmission on the same frequency can be resumed by setting the SERVICE SELECTOR to CW or VOICE without retuning the radio transmitter.

(21) To shut down the radio transmitter, first set the SERVICE SELECTOR to the STAND BY position; then push the STOP button.

d. STOPPING PROCEDURE. - To shut down the radio set, set the AC MAIN LINE switch on the power supply to OFF. This removes all power to the radio transmitter and all power to the radio receiver when the radio receiver is operated with the radio transmitter. When operated independently from the radio transmitter, the radio receiver must be shut down independently.

NOTE

FOR BATTLESHORT CONDITION SET THE  
AC MAIN LINE SWITCH ON THE POWER  
SUPPLY TO OFF.

## SECTION 5 MAINTENANCE

### FAILURE REPORTS

“Report each failure of the equipment, whether caused by a defective part, wear, improper operation, or an external cause. Use ELECTRONIC FAILURE REPORT form DD 787. Each pad of the forms includes full instructions for filling out the forms and forwarding them to the Bureau of Ships. However, the importance of providing complete information cannot be emphasized too much. Be sure that you include the model designation and serial number of the equipment (from the equipment nameplate), the type number of the major unit (from the major unit nameplate), and the type number and reference designation of the particular defective part (from the instruction book). Describe the cause of the failure completely, continuing on the back of the form if necessary. Do not substitute brevity for clarity. And remember--there are two sides to the failure report - - -

#### “YOUR SIDE”

Every FAILURE REPORT is a boost for you:

1. It shows that you are doing your job.
2. It helps make your job easier.
3. It insures available replacements.
4. It gives you a chance to pass your knowledge to every man on the team.

#### “BUREAU SIDE”

The Bureau of Ships uses the information to:

1. Evaluate present equipment.
2. Improve future equipment.
3. Order replacements for stock.
4. Prepare field changes.
5. Publish maintenance data.

Always keep a supply of failure report forms on board. You can get them from the nearest District Publications and Printing Office.”

**WARNING**

HIGH VOLTAGE (600 VOLTS) IS USED IN RADIO SET AN/URC-8(XN-1). FOLLOW SAFETY REGULATIONS AT ALL TIMES. DO NOT DEPEND UPON THE INTERLOCKS FOR PROTECTION. ALWAYS GROUND A CIRCUIT BEFORE SERVICING THE CIRCUIT.

### 1. OPERATOR'S MAINTENANCE

The operator should perform a routine check of the radio transmitting set when coming on watch and during each period that he is responsible for the operation of the equipment. The operator should locate and correct minor trouble that develops during operation of the equipment. Immediate correction of minor trouble will prevent major trouble later. The operator should be sufficiently familiar with the technical details of the equipment to correct minor trouble in the event that a trained technician is not available. During each watch the operator should check the following items: Radio transmitter and radio receiver tuning; meter readings; over-all operation; cabinet temperatures; keying characteristics; interunit cable connections; knob setscrews, and other small mechanical parts.

### 2. PREVENTIVE MAINTENANCE

Preventive maintenance is routine care and inspection of the equipment, and it should begin when the equipment is first placed in operation. Preventive maintenance checks should ascertain that the air filters are clean; that the equipment is free from dirt, dust, sand, excessive moisture, vermin, and insects; that the cables and plugs are clean and free from breaks or cracks; that tuning shafts do not bind; that switch contacts are clean and unpitted; that high-power components are undamaged; that tube sockets are undamaged and socket contacts are tight; that all hardware is secure; and that the equipment operates normally.

### 3. CORRECTIVE MAINTENANCE

a. GENERAL. - Faults and breakdowns occur during the service life of all equipment. Following a logical systematic testing routine will minimize the time required to locate and repair the faults that occur. The

corrective maintenance procedure should first localize the fault to a major unit or module of a major unit then isolate the fault to an individual circuit or component. Maintenance personnel should be familiar with the theory and the operation of the equipment and the location of components within the units so that they can quickly and accurately repair faults that occur. Use the following techniques and precautions when making repairs:

(1) Remember that 600 volts may be exposed in the equipment. Use extreme care and do not depend upon the interlocks for protection as they may be the cause of the fault.

(2) Be reasonably sure that an intended repair will eliminate the fault.

(3) Attempt to duplicate the original condition of a circuit when replacing parts.

(4) Use standard replacement parts.

(5) Use rosin-core solder only, and use a minimum of solder consistent with a good mechanical and electrical connection.

(6) Do not allow excess solder to drop on other components. Remove any drops that do occur.

(7) In the event of emergency repairs where it is impossible to make replacement with standard parts, conspicuously tag the temporary repair and restore the circuit to its original condition at the first opportunity.

(8) Be logical and systematic when locating and repairing faults. Use the trouble-shooting information voltage and resistance measurements, and schematic diagrams provided in this section as aids.

b. UNIT TROUBLE SHOOTING. - Tables 5-1 and 5-2 are trouble-shooting charts which will aid in associating a symptom of a fault with a defective stage or component. Tables 5-3 through 5-7 are voltage and resistance measurement charts which will aid in isolating a defective component after the defective stage is determined. Tube testing, signal tracing and waveform analysis, in addition to voltage and resistance measurements, may also be required to isolate a fault. The basic principle of trouble shooting is to proceed from the obvious to the more complex. The final test for satisfactory trouble shooting is an equipment performance check.

TABLE 5-1. RADIO TRANSMITTER T-474(XN-1)/URC-8 AND  
POWER SUPPLY PP-1190(XN-1)/URC-8 TROUBLE SHOOTING CHART

SYMPTOM	PROBABLE TROUBLE	REMEDY
Dial lights fail to light.	No power to radio transmitter.	Check that AC MAIN LINE switch S2006 on power supply is to ON. Check for blown fuses F2002, F2004, and F2005 in power supply and replace if necessary. Check power source. Check for relay operating voltage across START switch S1904.
Dial lights light but equipment will not operate.	Open interlock-timer circuit.	Check time delay relay K2001 and interlock S2001 in power supply and interlock S1909 in radio transmitter.
Radio transmitter automatically shuts down.	Excessive power amplifier plate dissipation or faulty cooling results in operation of thermal overload switch S1302 or S1908.	Check for proper PA TUNING. Check for one faulty power amplifier V1304 or V1305. Check for blower failure or blocked air ports.
On voice operation, no, or low, modulator plate current indicated on panel meter.	Defective tubes in speech amplifier or modulator, or improper adjustment of clipper and/or gain control.	Adjust the clipper control R1611 and the gain control R1613 using the procedure given in paragraph 5-6c for the microphone used. Check tubes in speech amplifier and modulator modules.
On voice operation, panel meter indicates high modulator current peaks and radio transmitter possibly shuts down automatically.	Excessive power amplifier plate dissipation due to over-modulation.	Adjust the clipper control R1611 and the gain control R1613 using the procedure given in paragraph 5-6c to provide clipping for microphone input signals up to 20 db higher than the normal microphone input.
Carrier hum on cw operation.	Faulty 600 v dc and/or 250 v dc power supply.	Check that the ripple in the 600 v dc power supply is less than .06 per cent. Check that the ripple in the 250 v dc power supply is less than .06 per cent.
Carrier hum on local voice operation but not on cw operation.	Faulty -12 v dc microphone power supply.	Check that the ripple in the -12 v dc power supply is less than .02 per cent.
Keying radio transmitter causes shift in carrier frequency.	Faulty 150 v dc power supply regulation.	Replace regulator V2004 in the power supply.
Fuse F2003 blows when switching from CW to VOICE.	Shorted modulator tube.	Remove tubes V1702 and V1703 in turn to locate defective tube or circuit.
No power amplifier grid current with the SERVICE SELECTOR in the CAL position.	No 250 v dc supply. No 150 v dc supply. Faulty master oscillator or crystal oscillator.	Check for blown fuse F2002 on power supply and rectifier V2002 and regulator V2004 of power supply. Check tubes V1101 and V1102 of master oscillator. Check output from master oscillator with frequency meter against TUNING dial indication to ascertain that no coupler slippage has occurred. Check crystal oscillator

TABLE 5-1. RADIO TRANSMITTER T-474(XN-1)/URC-8 AND  
POWER SUPPLY PP-1190(XN-1)/URC-8 TROUBLE SHOOTING CHART (Cont)

SYMPTOM	PROBABLE TROUBLE	REMEDY
<p>With grid drive, dip in power amplifier cathode current appears at incorrect setting of PA TUNING dial or the dip does not occur.</p>	<p>Improper setting of PA LOADING dial. Roller on tuning coil L1403 misaligned. Defective capacitor in power amplifier tank.</p>	<p>V1201. Check that crystal is between 2-4 mc and that TUNING dial is set to a multiple of the crystal frequency. Turn BAND CHANGE and ANTENNA CAPACITOR switches to check that S1910 and S1911 are making contact.</p> <p>PA LOADING dial should be set to 0. Check mechanical alignment of tuning coil L1403 (paragraph 5-6d(2) ). With same oscillator frequency, tune radio transmitter in next higher band. If tuning is all right, defective tank capacitor is in circuit of the next lowest band. By a process of elimination, a defective tank capacitor can be isolated to the circuit of a single band.</p>
<p>No, or low, power amplifier cathode current while tuning the radio transmitter with no loading and the carrier on.</p>	<p>No 600 v dc plate supply or faulty power amplifier tubes.</p>	<p>Check for blown fuse F2003 on power supply. Check rectifiers V2001 and V2003. Check power amplifier tubes V1304 and V1305 and driver V1303.</p>
<p>ANTENNA TUNING and ANTENNA CAPACITOR controls produce no peak in power amplifier cathode current during tuning.</p>	<p>Improper PA TUNING. Open rf circuit. Antenna impedance outside of matchable range.</p>	<p>Check for dip in power amplifier cathode current with PA TUNING control. Check for proper antenna connections through antenna jack J1005, switch S1903, antenna change-over relay K1901, jack J1502, tape of antenna tuning coil L1501, and jack J1401. If the antenna impedance is outside of the matchable range, change the length of the antenna or the coaxial antenna lead, or operate with reduced efficiency with the unmatched antenna.</p>
<p>Impossible to load transmitter.</p>	<p>Open circuit or loading coil misadjusted in antenna network.</p>	<p>Check alignment of loading coil L1404 (paragraph 5-6d(3) ). Check C1423 for short circuit. Check all plug and jack connections in antenna network for open circuit.</p>
<p>Insufficient loading of transmitter.</p>	<p>High impedance antenna, weak power amplifier tubes or low voltage.</p>	<p>If antenna is outside of tunable range of the antenna matching network, change the length of the antenna or the coaxial lead or operate with reduced efficiency (paragraph 4-3c(15)(b) ). Check high voltage power supply and check power amplifier tube emission if antenna is in matchable range.</p>

TABLE 5-1. RADIO TRANSMITTER T-474(XN-1)/URC-8 AND  
POWER SUPPLY PP-1190(XN-1)/URC-8 TROUBLE SHOOTING CHART (Cont)

SYMPTOM	PROBABLE TROUBLE	REMEDY
No grid current when transmitter is keyed with SERVICE SELECTOR in any position.	No 250 v dc supply, faulty exciter or driver tubes, or open key circuit.	Check 250 v dc supply and check P1301-J1903 connection. Check tubes V1301 through V1303. Check that key line interrupter switches S1910 and S1911 are closed. Check that keying relay K1802 is operative. Check P1801-J1906 connections.
Carrier will not turn off.	Shorted key line or loss of -115 v dc supply.	Check for presence of the -115 v dc supply at front panel KEY jack. Check operation of keying relay K1802.
No or low level sidetone.	Improper control adjustments or open circuit.	Check adjustment of HEADPHONE LEVEL potentiometer on front panel and sidetone gain potentiometer R1903 on outer left side of transmitter. Check for open circuit through R1903 and R1917.
Cannot key or modulate from remote or limited remote position.	Incorrect cabling to remote terminal board on rear of radio transmitter case or CONTROL switch in wrong position.	Check for proper position of CONTROL switch and check cabling from remote or limited remote operating position into the radio transmitter terminal board.
Resistor R1922 (on CONTROL switch S1902A) burnt up.	115 v dc limited remote key line shorted across resistor.	Reverse polarity of the 115 v dc limited remote key line input to the remote terminal board on the rear of the radio transmitter case.
Noisy blowers	Faulty blowers B2001 and/or B1901.	Check for loose blower wheel or loose mounting screws. Lubricate if necessary (paragraph 5-4t). Check and replace, if necessary, the brushes and bearings. Check motor shaft end play for .003 inches interference and tighten bearings if necessary. Replace motor rotor if it is not dynamically in balance.
Blowers do not operate at full speed when microphone push-to-talk button is pushed.	Defective voice relay K1801.	Check for voice relay K1801 operation by turning carrier or with TEST KEY. If necessary replace relay K1801.
Chassis will not roll back into case.	Cable or plug interference or the slide release bar is out of position.	Check that the flexible cable spring is attached to the cable and the cabinet. Check that all jacks and plugs are snugly connected and that jacks J1912 and J1913 are securely tight to chassis. Check that the coaxial cable from the radio receiver is properly connected. Pull chassis out until it latches in the out position; then push chassis in until the slide release bars jump freely into their normal position.



TABLE 5-1. RADIO TRANSMITTER T-474(XN-1)/URC-8 AND  
POWER SUPPLY PP-1190(XN-1)/URC-8 TROUBLE SHOOTING CHART (Cont)

SYMPTOM	PROBABLE TROUBLE	REMEDY
		<p style="text-align: center;">CAUTION</p> <p>AFTER SERVICING THE FRONT PANEL, DO NOT PUT THE MAIN CHASSIS BACK INTO THE CASE UNTIL THE LATCH RELEASE MECHANISMS ARE ASSEMBLED AND CORRECTLY OPERATING. IF THE MAIN CHASSIS SHOULD JAM IN THE CASE, EMERGENCY ENTRY TO THE LATCH MECHANISMS CAN BE ACCOMPLISHED BY REMOVING THE FRONT PANEL, THE AIR FILTER AND THE FILTER BOX.</p>

TABLE 5-2. RADIO RECEIVER R-627(XN-1)/URC-8 TROUBLE SHOOTING CHART

SYMPTOM	PROBABLE TROUBLE	REMEDY
<p>With POWER switch to ON and DIAL LIGHT switch to BRIGHT, receiver fails to operate and dial lamps fail to light.</p> <p>Dial lights on, but no signal or noise at output.</p> <p>No receiver output except low level noise. When switching from MOD to CW no increase in noise. Also the position of the AF GAIN has no effect on noise level.</p> <p>No output signal. The AF GAIN controls the noise in the output and an increase in noise is heard when switching from MOD to CW, but no change in noise level is audible when switching from BROAD to NARROW.</p> <p>No output signal. A change in noise level is audible when switching from BROAD to NARROW.</p>	<p>No power to radio receiver.</p> <p>No high voltage from power supply.</p> <p>Fault exists in circuit after af detector V306B in the audio amplifier.</p> <p>Fault exists in if. amplifier after FL301, FL302.</p> <p>Defect in rf module or master oscillator.</p>	<p>Check for blown fuse F601, F602 as indicated by extension of red pin in fuse holder. Replace fuse. If it blows again, check ac line, filament line, and B+ line for shorts.</p> <p>Check for B+ voltage at test jack J501. If no voltage present, test V501 and replace if necessary.</p> <p>Faulty stage can be located by applying an audio signal through a .1 uf capacitor to the grids and plates of successive audio stages. Test tubes and take voltage and resistance measurements of V304B, V307-V309.</p> <p>Defective stage can be located by applying a modulated if. signal to test jack J301 and checking successive if. stages. Test tubes and take voltage and resistance measurements of V301-V303.</p> <p>Defective stage may be located by the following procedure: Use a modulated rf signal at the 1st if. frequency. Inject at test jack J106 and listen for output in the headphones. If no output</p>

TABLE 5-2. RADIO RECEIVER R-627(XN-1)/URC-8 TROUBLE SHOOTING CHART (Cont)

SYMPTOM	PROBABLE TROUBLE	REMEDY
		<p>occurs, test V104 and take voltage and resistance measurements. If output occurs, using the same frequency, inject at J103 and listen for output. If no output occurs, test V103 and take voltage and resistance measurements. If output occurs, at test jack J103, inject a modulated rf signal at the TUNING dial frequency. If no output occurs, check lower band for output, changing rf signal generator to proper lower band frequency. Use this process to check out injection multipliers; that is, if the 4-8 mc band is operating but the 8-16 and 16-30 mc bands are not, test V106 and take voltage and resistance measurements. If no output is obtained in the 2-4 mc band, test V401 and V402 and take voltage and resistance measurements of the master oscillator. (The tuned circuit of the master oscillator is sealed and should not be opened.) If, however, output is obtained with the rf signal injected at jack J103, successively check V102 and V101 by injecting at test jacks J102 and J101, respectively.</p>
Signals but no beat frequency when RECEPTION switch is in CW.	Fault exists in bfo or bfo amplifier.	Test tubes V305 and V304 and take voltage and resistance measurements.
Signals but no calibration markers with CALIBRATOR switch to ON and OSCILLATOR SELECTOR to MO	Fault exists in crystal oscillator V105A or in 100-kc crystal.	Test tube V105 and take tube voltage and resistance measurements. If trouble still exists, replace 100-kc crystal.
Weak signals.	Improper alignment of rf and/or if. tuned circuits. Weak tubes.	Check alignment following the alignment procedure as given in paragraph 5-5. If no increase is noted during alignment, check tubes. If all tubes check good check the B+ voltage at test jack J501. If the B+ checks normal, then individual stage gain measurements should be taken to localize the defective stage.
No reception using crystal oscillator.	Faulty crystal oscillator V105A.	Test tube V105 and take tube voltage and resistance measurements. If the fault is not found, replace crystal.
Distorted signals.	Weak audio amplifier tubes, incorrect voltage on tubes.	Check tubes and check voltages in audio amplifier. If defective stage is not located, use an audio generator and test successive audio stages for distortion.

TABLE 5-2. RADIO RECEIVER R627(XN-1)/URC-8 TROUBLE SHOOTING CHART (Cont)

SYMPTOM	PROBABLE TROUBLE	REMEDY
Receiver noisy when controls are operated.	Poor contact on gain control potentiometers R601 or R603 or dirty switch contacts.	Clean switch contacts. (A click when switches are operated is normal.) Replace R601 or R603.
Signals unstable.	Faulty master oscillator regulator V403.	Test V403 and take voltage and resistance measurements.
Insufficient dial correction range for calibration.	Calibrator crystal off frequency or master oscillator incorrectly aligned.	Check 100-kc crystal for proper frequency. If crystal is all right, check the master oscillator alignment (paragraph 5-5e).
Noisy receiver.	Noisy antenna location or noisy tubes.	Disconnect antenna. A considerable decrease in noise indicates a noisy signal from the antenna. If the noise persists, tap tubes with an insulated prod. If tapping a particular tube causes a large increase in noise output, replace the tube.

TABLE 5-3. RADIO TRANSMITTER T-474(XN-1)/URC-8 TUBE PIN RESISTANCE MEASUREMENTS

Conditions of Resistance Measurements:

1. Measurements made at tube pins, utilizing a tube socket extension adapter (totem pole), to chassis ground except for modulator tubes V1702 and V1703. Measurements on V1702 and V1703 made from tube sockets to chassis ground with tubes removed.
2. Resistance measured with ohmmeter, Triplett 630 or equivalent.
3. Radio transmitter interconnected with power supply through cable assembly CX-3202/U.
4. Front panel controls in following positions:

AC MAIN LINE switch on power supply to OFF.  
CONTROL switch to LOCAL.  
OSCILLATOR SELECTOR to MO unless otherwise indicated.  
SERVICE SELECTOR to CAL.

REFERENCE DESIGNATION	TUBE TYPE	RESISTANCE AT PIN NUMBER									
		1	2	3	4	5	6	7	8	9	CAP
V1101	5749/6BA6W	33K	0	inf.	inf.	40K	95K	0	-	-	
V1102	5749/6BA6W	56K	11K	inf.	inf.	25K	58K	0	-	-	
V1201*	6AU6WA	1 meg	11K	inf.	inf.	16.5K	17K	50	-	-	
V1301	6AU6WA	410K	0	inf.	inf.	22K	61K	0	-	-	
V1302	6AU6WA	10K	0	inf.	inf.	22K	61K	0	-	-	

\*OSCILLATOR SELECTOR TO CO1

Table 5-3. RADIO TRANSMITTER T-474(XN-1)/URC-8 TUBE PIN RESISTANCE MEASUREMENTS (Cont)

REFERENCE DESIGNATION	TUBE TYPE	RESISTANCE AT PIN NUMBER									
		1	2	3	4	5	6	7	8	9	CAP
V1303	5686	0	18K	0	inf.	inf.	22K	22K	0	22K	
V1304	5933	inf.	16K	20.5K	0	inf.	-	-	-	-	12.2K
V1305	5933	inf.	16K	20.5K	0	inf.	-	-	-	-	12.2K
V1601	5814A	74K	1 meg	5600	inf.	inf.	138K	5200	2700	inf.	
V1602	5726/6AL5W	105K	1 meg	inf.	inf.	105K	inf.	1 meg	-	-	
V1603	5751	630K	41K	15.5K	inf.	inf.	630K	50K	15.2K	inf.	
V1701	5814A	25K	1.1 meg	73K	inf.	inf.	25K	1.1 meg	73K	inf.	
V1702 (removed)	5933	inf.	25K	73K	inf.	inf.	-	-	-	-	12.2K
V1703 (removed)	5933	inf.	25K	73K	inf.	inf.	-	-	-	-	12.2K
V1801	5726/6AL5W	0	20K	inf.	inf.	inf.	10K	400K	-	-	

TABLE 5-4. RADIO TRANSMITTER T-474(XN-1)/URC-8 TUBE PIN DC VOLTAGE MEASUREMENTS

Conditions of DC Voltage Measurements:

1. Measurements made from tube pin to chassis ground with the clipper V1602 in the circuit and properly adjusted.
2. Voltages measured with 20,000 ohm/volt meter, Triplet 630 or equivalent.
3. Tube socket extension adapter (totem pole) used in making measurements.
4. Front panel controls in following positions:

Radio transmitter on and tuned to 2 mc with the carrier on but no modulation.

SERVICE SELECTOR to CAL unless otherwise indicated.

OSCILLATOR SELECTOR to MO unless otherwise indicated.

CONTROL switch to LOCAL.

REFERENCE DESIGNATION	TUBE PINS	VOLTS DC MEASURED AT TUBE PIN NUMBER								
		1	2	3	4	5	6	7	8	9
V1101	5749/6BA6W	-4.5	0	fil 10	fil 10	109	61	0	-	-
V1102	5749/6BA6W	-12.5	0	fil 9.6	fil 8	278	90	0	-	-

TABLE 5-4. RADIO TRANSMITTER T-474(XN-1)/URC-8 TUBE PIN DC VOLTAGE MEASUREMENTS (Cont)

REFERENCE DESIGNATION	TUBE PINS	VOLTS DC MEASURED AT TUBE PIN NUMBER								
		1	2	3	4	5	6	7	8	9
V1201*	6AU6WA	0	0	fil 0	fil 0	271	124	0	-	-
V1301	6AU6WA	-9.2	0	fil 0	fil 0	285	210	0	-	-
V1302	6AU6WA	-10.5	0	fil 0	fil 0	290	141	0	-	-
V1303	5686	0	-15	0	fil 0	fil 0	285	285	0	285
V1304	5933	Tube pins inaccessible - DANGEROUS HIGH VOLTAGE PRESENT ON PLATE CAPS								
V1305	5933									
V1601	5814A	67	0	3.5	fil 0	fil 0	97	0	4.2	fil 0
V1602	5726/6AL5W	-47	-58	fil 0	fil 0	-49	0	-58	-	-
V1603	5751	95	-52	-52	fil 0	fil 0	95	-52	-52	fil 0
V1701**	5814A	270	-27.8	-32	fil 0	fil 0	270	28.3	32.8	fil 0
V1702	5933	Tube pins inaccessible - DANGEROUS HIGH VOLTAGE PRESENT ON PLATE CAPS								
V1703	5933									
V1801	5726/6AL5W	0	tie point	fil 0	fil 0	0	tie point	-31	-	-

\*OSCILLATOR SELECTOR to CO1  
\*\*SERVICE SELECTOR to VOICE

TABLE 5-5. RADIO TRANSMITTER T-474(XN-1)/URC-8 TUBE PIN AC VOLTAGE MEASUREMENTS

Conditions of AC Voltage Measurements:

1. Measurements made from tube pin to chassis ground with the clipper V1602 in the circuit and properly adjusted.
2. Voltages measured with a vtvm, Hewlett-Packard 410B or equivalent.
3. Tube socket extension adapter (totem pole) used in making measurements.
4. Front panel controls in following positions:

Radio transmitter on and tuned to 2 mc with the carrier on but no modulation unless indicated with an asterisk (\*) or double asterisk (\*\*). Where indicated with an asterisk (\*) the radio transmitter is modulated with a .46 v, 1000-cps signal at the HANDSET jack. Where indicated with a double asterisk (\*\*) the radio transmitter is modulated with a .046 v, 1000-cps signal.

SERVICE SELECTOR to CAL unless otherwise indicated.

OSCILLATOR SELECTOR to MO unless otherwise indicated.

CONTROL switch to LOCAL.

TABLE 5-5. RADIO TRANSMITTER T-474(XN-1)/URC-8 TUBE PIN AC VOLTAGE MEASUREMENTS (Cont)

REFERENCE DESIGNATION	TUBE TYPE	VOLTS AC MEASURED AT TUBE PIN NUMBER								
		1	2	3	4	5	6	7	8	9
V1101	5749/6BA6W	4.7	0	fil	fil	8.6	0	.98	-	-
V1102	5749/6BA6W	8.6	0	fil	fil	6.6	0	0	-	-
V1201 <sup>1</sup>	6AU6WA	0	0	fil	fil	.73	0	0	-	-
V1301	6AU6WA	6	0	fil	fil	13.1	.6	0	-	-
V1302	6AU6WA	7.6	0	fil	fil	5.7	.32	0	-	-
V1303	5686	0	10.5	0	fil	fil	.9	170	0	1.1
V1304	5933	Tube pins inaccessible - DANGEROUS HIGH VOLTAGE PRESENT ON PLATE CAPS								
V1305	5933	Tube pins inaccessible - DANGEROUS HIGH DC VOLTAGE PRESENT ON PLATE CAPS (approximately 300 v ac present on plate caps with modulation and SERVICE SELECTOR to PHONE.)								
V1601*	5814A	5.7	1.65	1.1	fil	fil	24.5	2.9	1.01	fil
V1602*	5726/6AL5W	24	13	fil	fil	1.7	0.24	13	-	-
V1603*	5751	32	1.1	.57	fil	fil	35	3.2	32	fil
V1701**2	5814	.7	34	25	fil	fil	.7	32	24	fil
V1702	5933	Tube pins inaccessible - DANGEROUS HIGH DC VOLTAGE PRESENT ON PLATE CAPS (approximately 300 v ac present on plate caps with modulation and SERVICE SELECTOR to PHONE.)								
V1703	5933	Tube pins inaccessible - DANGEROUS HIGH DC VOLTAGE PRESENT ON PLATE CAPS (approximately 300 v ac present on plate caps with modulation and SERVICE SELECTOR to PHONE.)								
V1801 <sup>3</sup>	5726/6AL5W									

\*Modulation to HANDSET jack of .46 v, 1000 cps

\*\*Modulation to HANDSET jack of .046 v, 1000 cps

1 OSCILLATOR SELECTOR to CO1

2 SERVICE SELECTOR to VOICE

3 Voltages measured with 20,000 ohm/volt meter, Triplet 630 or equivalent

TABLE 5-6. RADIO RECEIVER R-627(XN-1)/URC-8 TUBE PIN RESISTANCE MEASUREMENTS

Conditions of Resistance Measurements:

1. Measurements made at tube socket pins to chassis ground with tube removed.
2. Resistances measured with ohmmeter, Triplet 630 or equivalent.
3. Front panel controls in following positions:

POWER switch to OFF  
 BAND CHANGE switch to 16-30 MC  
 RF GAIN control to clockwise stop (maximum gain)  
 AF GAIN control to counterclockwise stop (minimum gain)  
 OSCILLATOR SELECTOR to MO unless otherwise indicated  
 RECEPTION switch to MOD  
 CALIBRATOR switch to OFF  
 SELECTIVITY switch to BROAD

TABLE 5-6. RADIO RECEIVER R-627(XN-1)/URC-8 TUBE PIN RESISTANCE MEASUREMENTS (Cont)

REFERENCE DESIGNATION	TUBE TYPE	RESISTANCE AT PIN NUMBER								
		1	2	3	4	5	6	7	8	9
V101	5749/6BA6W	870K	0	0	0	11.3K	11K	73	-	-
V102	5749/6BA6W	920K	0	0	0	13K	11K	395	-	-
V103	5814A	11K	100K	690	0	0	11K	47K	690	0
V104	5814A	170K	0	470	0	0	31K	22K	525	0
V105 <sup>1</sup>	5814A	225K	470K	4700	0	0	120K	470K	0	0
V106	5814A	120K	470K	0	0	0	120K	470K	0	0
V301	5749/6BA6W	860K	0	0	0	16.3K	68K	340	-	-
V302	5749/6BA6W	960K	0	0	0	16.3K	68K	340	-	-
V303	5749/6BA6W	82K	1000	0	0	11K	93K	1K	-	-
V304	5814A	165K	8	1500	0	0	11K	150K	2200	0
V305	5749/6BA6W	150K	0	0	0	60K	70K	0	-	-
V306	5814A	300K	300K	0	0	0	1 meg	1 meg	10K	0
V307	5814A	26K	500K	16K	0	0	110K	470K	1550	0
V308	6005/6AQ5W	220K	250	0	0	10.2K	10.2K	inf.	-	-
V309	6005/6AQ5W	220K	250	0	0	10.2K	10.2K	inf.	-	-
V401	5749/6BA6W	39K	0	10K	10K	35K	96K	0	-	-
V402	5749/6BA6W	56K	0	10K	10K	23K	175K	560	-	-
V403	0A2WA	inf.	inf.	inf.	0	15K	inf.	inf.	-	-
V501	5R4WGA	inf.	10K	inf.	78	inf.	78	10K	10K	-
J501	jack	10K	-	-	-	-	-	-	-	-

1 OSCILLATOR SELECTOR on CO1

TABLE 5-7. RADIO RECEIVER R-627(XN-1)/URC-8 TUBE PIN DC VOLTAGE MEASUREMENTS

## Conditions of Voltage Measurements:

1. Measurements made from tube pin to chassis ground.
2. Voltages measured with 20,000 ohm/volt meter, Triplett 630 or equivalent, unless noted with an asterisk (\*).
3. Where noted with an asterisk (\*), voltages measured with vtvm, Hewlett-Packard 410B or equivalent.
4. Tube socket extension adapter (totem pole) used in making measurements.
5. Front panel controls in following positions:

POWER switch to ON.  
 BAND CHANGE switch to 16-30 MC.  
 TUNING dial to 16 mc.  
 RF GAIN control to clockwise stop (maximum gain).  
 AF GAIN control to counterclockwise stop (minimum gain).  
 OSCILLATOR SELECTOR to MO unless otherwise indicated.  
 RECEPTION switch to MO unless otherwise indicated.  
 CALIBRATOR switch to OFF.  
 SELECTIVITY switch to BRQAD.

## WARNING

DANGEROUS VOLTAGES ARE PRESENT. USE  
 PARTICULAR CARE WHEN MEASURING V501  
 VOLTAGES.

REFERENCE DESIGNATION	TUBE TYPE	VOLTS DC MEASURED AT TUBE PIN NUMBER								
		1	2	3	4	5	6	7	8	9
V101	5749/6BA6W	0	0	6 v ac	0	241	111	1.41	-	-
V102	5749/6BA6W	0	0	6 v ac	0	234	116	3.5	-	-
V103	5814A	102	2.5 ± .7*	4.8	0	0	102	0	4.8	6 v ac
V104	5814A	71	0	3.3	6 v ac	6 v ac	126	-2.1 ± .7*	3.5	0
V105A <sup>1</sup>	(1/2) 5814A	57*1	-4.9 ± 3.0*1	4.2*	6 v ac	6 v ac				

\*Voltage measured with vtvm Hewlett-Packard 410B

<sup>1</sup> OSCILLATOR SELECTOR on COL



TABLE 5-7. RADIO RECEIVER R-627(XN-1)/URC-8 TUBE PIN DC VOLTAGE MEASUREMENTS (Cont)

REFERENCE DESIGNATION	TUBE TYPE	VOLTS DC MEASURED AT TUBE PIN NUMBER								
		1	2	3	4	5	6	7	8	9
V105B	(1/2) 5814A				6 v ac	6 v ac	71*	-7.5 ±1.5*	0	0
V106	5814	76*	-10.3 ±3.7*	0	0	0	60*	-3.6 ±2.3*	0	6 v ac
V301	57449/6BA6W	0*	0	6 v ac	0	218	51	1.35	-	-
V302	5749/6BA6W	0*	0	6 v ac	0	218	45	1.3	-	-
V303	5749/6BA6W	0	5.5	0	6 v ac	242	120	5.5	-	-
V304	5814A	56	0	1.9	0	0	248	0	10.4	6 v ac
V305 <sup>2</sup>	5749/6BA6W	-5.7 ±7*	0	0	6 v ac	64	75	0	-	-
V306A <sup>2</sup>	(1/2) 5814A	-51*	-51*	0	6 v ac	6 v ac				
V306	5814A	-.66*	-.66*	0	6 v ac	6 v ac	0*	0*	10.9	0
V307	5814A	192	56*	61	6 v ac	6 v ac	72	0	2.5	0
V308	6005/6AQ5W	0	16	0	6 v ac	250	260	0	-	-
V309	6005/6AQ5W	0	16	0	6 v ac	250	260	0	-	-
V401	5749/6BA6W	-1.6 ±.5*	0	8.5 6 v ac <sup>3</sup>	8.5 6 v ac <sup>3</sup>	90	47	0	-	-
V402	5749/6BA6W	-.5 ±.5*	0	8.5 6 v ac <sup>3</sup>	8.5 6 v ac <sup>3</sup>	212	56	2.1	-	-
V403	OA2WA	147	0	0	0	147	0	0	-	-
V501	5R4WGA	0	4.7 v ac <sup>3</sup> 272	0	330 v ac	0	330 v ac	8.5	4.7 v ac <sup>3</sup> 272	-
J501	Jack	250	-	-	-	-	-	-	-	-

\*Voltage measured with vtvm Hewlett-Packard 410B

1 OSCILLATOR SELECTOR on COL

2 RECEPTION switch on CW; CW PITCH on 0

3 Voltages measured across the filament. Use caution when measuring V501 filament as B+ voltage is also present.

#### 4. REPAIRS



**WARNING**

HIGH VOLTAGE CIRCUITS ARE PRESENT. SHUT DOWN THE EQUIPMENT BEFORE CHANGING MODULES OR MAKING OTHER REPAIRS. DISCONNECT THE EQUIPMENT FROM THE POWER SOURCE TO REMOVE THE SUPPLY VOLTAGE FROM THE PRIMARY CIRCUITRY.

##### a. REMOVAL AND REPLACEMENT OF RADIO RECEIVER IF. MODULE

- (1) Pull up the if. module release lever which is located behind the upper right-hand corner of the front panel, in front of the if. module.
- (2) Pull the SELECTIVITY knob out to disengage it.
- (3) Pull the CW PITCH knob out to disengage it.
- (4) The if. module release mechanism is now locked in the up position.
- (5) Loosen the four green-headed, captivated corner screws of the if. module.
- (6) Lift the if. module out of the main frame with the two handles.



**CAUTION**

DO NOT REPLACE THE RADIO RECEIVER INTO ITS CASE WITH THE IF. MODULE RELEASE LEVER IN THE UP POSITION.

- (7) To replace the if. module, reverse the above procedure. To home the SELECTIVITY and the CW PITCH knobs, lift up the if. module release lever slightly and then push in on the knobs with a slight rotating motion. Then gently push the latch release lever until it latches.

##### b. REMOVAL AND REPLACEMENT OF RADIO RECEIVER RF MODULE

- (1) Set the TUNING dial to 3 mc, the slug rack reference position.
- (2) Pull up the rf module release lever which is located behind the front panel, in front of the rf module. A slight turn of the TUNING dial will facilitate the lever release.
- (3) Pull the BAND CHANGE switch knob out to disengage it.

ORIGINAL

- (4) Pull the ANT. TRIM. knob out to disengage it.
- (5) Pull the OSCILLATOR SELECTOR knob out to disengage it.
- (6) The rf module release mechanism is now locked in the up position.
- (7) Loosen the four green-headed, captivated corner screws of the rf module.
- (8) Lift the rf module out of the main frame by grasping the top of the rack. Check that the slug rack is at its index position with the TUNING dial at 3 mc. The index mark is on the left flange at the front of the module and coincides with the top edge of the slug rack.
- (9) To replace the rf module, check that the slug rack is at its index position and the TUNING dial is at 3 mc. Then reverse the above procedure. To home the BAND CHANGE, ANT. TRIM., and OSCILLATOR SELECTOR knobs, lift up the rf module release lever slightly and then push in on the knobs with a slight rotating motion. Then gently push the rf module release lever until it latches.

c. REMOVAL AND REPLACEMENT OF RADIO RECEIVER POWER SUPPLY. - Loosen the four green-headed, captivated corner screws of the module and lift the module out. To replace the module, set it in place and tighten the captivated screws.

##### d. REMOVAL AND REPLACEMENT OF RADIO RECEIVER MASTER OSCILLATOR MODULE

- (1) Put the main frame in the 90° service position. This is done by releasing the two latches behind the front panel and below the slides to pull the main frame out to the secondary out position. Then tilt the main frame up. Lock the main frame in the 90° service position by pushing out the locks on both sides toward the rear and turning the locks 270° until they snap into the locked position.
- (2) Lock the TUNING dial.
- (3) Remove the loading spring from the master oscillator coupler.
- (4) Remove the four screws holding plug P401.
- (5) Disconnect P601-J401.
- (6) While holding the master oscillator, loosen the four green-headed, captivated screws and gently lift the module out of the main frame.



**CAUTION**

DO NOT REPLACE THE RADIO RECEIVER INTO ITS CASE WITH THE RF MODULE RELEASE LEVER IN THE UP POSITION.



BE EXTREMELY CAREFUL NOT TO TURN THE LEAD SCREW SHAFT OF THE MASTER OSCILLATOR MODULE OR THE TUNING DIAL WHILE THE MODULE IS OUT OF THE MAIN FRAME. IF IT IS NECESSARY TO MOVE THE LEAD SCREW, REPLACE THE MASTER OSCILLATOR IN THE MAIN FRAME AND TURN THE LEAD SCREW WITH THE TUNING DIAL. IF THE MECHANICAL ALIGNMENT BETWEEN THE LEAD SCREW AND THE TUNING LINKAGE IS INADVERTENTLY CHANGED WHILE THE MASTER OSCILLATOR IS OUT OF THE MAIN FRAME, MECHANICALLY ALIGN THE MASTER OSCILLATOR BEFORE ATTEMPTING TO REPLACE IT (PARAGRAPH 5-4d(7), FOLLOWING).

(7) The master oscillator has no mechanical stops, its travel being limited by the TUNING dial stops only. To prevent damaging the lead screw assembly due to overtravel, the mechanical alignment between the lead screw and the TUNING linkage must be maintained or re-established before the master oscillator can safely be replaced in the main frame. Use the following procedure to mechanically realign the master oscillator.

(a) With the POWER switch in the OFF position and the BAND CHANGE switch in the 2-4 MC position, place the main frame in the 90° service position.

(b) Connect the master oscillator to its cable but do not install it in the main frame.

(c) Turn the POWER switch to ON and set the OSCILLATOR SELECTOR to MO.

(d) Determine the frequency of the master oscillator, using an accurate auxiliary receiver. Pickup from the master oscillator can be obtained by inserting a probe into the buffer V402 tube shield. It is inadvisable to tune the master oscillator to any given frequency by altering the lead screw setting because of the possibility of overdriving the lead screw.

(e) Unlock and set the TUNING dial to the frequency exactly 580 kc below the frequency of the master oscillator as observed on the auxiliary receiver. Then lock the TUNING dial.

(f) Turn the POWER switch to OFF. The master oscillator is now mechanically aligned with the TUNING dial linkage and can be replaced in the main frame.

(8) To replace the master oscillator module in the main frame, reverse the removal procedure. The master oscillator coupler and the TUNING linkage counterpart should mate without turning either coupler. However, if the master oscillator was mechanically aligned and the couplers do not mate, loosen the

master oscillator coupler and set the coupler to mate with its counterpart. Then tighten the coupler.

e. REMOVAL AND REPLACEMENT OF RADIO RECEIVER FRONT PANEL

(1) Set the front panel controls in the following positions: DIAL CORRECTOR to vertical; BAND CHANGE to 2-4 MC; TUNING to 3 mc; OSCILLATOR SELECTOR to MO; ANT. TRIM. to 90° clockwise from vertical; SELECTIVITY to BROAD; and CW PITCH to 0.

(2) Loosen the setscrews and remove the following knobs: TUNING knob along with the water seal cap on the end of the shaft and two coprene washers, DIAL CORRECTOR, CW PITCH, SELECTIVITY, OSCILLATOR SELECTOR, BAND CHANGE, ANT. TRIM., and the two LATCH RELEASE knobs.

(3) Remove the upper right-hand nameplate.

(4) Remove the 13 front panel screws.

(5) Ease the front panel off the main frame. With the front panel removed, protect the cable which remains attached between the main frame and the panel.

(6) Use the following procedure to replace the front panel.

(a) Remove the if. module (paragraph 5-4a, above) and the rf module (paragraph 5-4b, above).

(b) On the if. and rf modules, check that shafts are aligned so that the large end of the pins through the shafts point toward the index marks on the front of the modules.

(c) Replace the if. module and the rf module, being careful not to disturb the shaft positions.

(d) Gently replace the front panel. Replace and tighten down the 13 front panel screws and the nameplate. Use glyptal varnish to stake the mounting screws.

(e) Replace the CW PITCH knob and engage the shaft of the if. module being careful not to destroy its alignment. Loosen the setscrew of the CW PITCH knob and set the knob to 0 without moving the shaft. Then tighten the setscrew.

(f) Replace the ANT. TRIM. knob and engage the shaft of the rf module being careful not to destroy its alignment. Loosen the setscrew of the ANT. TRIM. knob and set the knob 90° clockwise from the top position. Then tighten the setscrew.

(g) Replace the TUNING knob along with the two coprene washers and the water seal cap on the end of the shaft.

(h) Replace the DIAL CORRECTOR, SELEC-  
TIVITY, OSCILLATOR SELECTOR, and BAND  
CHANGE, knobs in the positions from which they were  
removed.

(i) Replace the two LATCH RELEASE knobs.

f. REMOVAL OF RADIO RECEIVER AND RADIO  
TRANSMITTER MAIN FRAME FROM CASE

(1) Roll the main frame to the out service position.

(2) Then release the latches located immediately  
behind the front panel beneath the slide and pull the  
main frame out further to the secondary out service  
position.

(3) Disconnect all cables between the main  
frame and case. On the radio receiver, loosen the  
CABLE CLAMP captivated screw on the inside, rear  
of the main frame.

(4) Tilt the main frame to the 90° service position  
and then lift it off the slides.

g. REPLACING RADIO RECEIVER AND RADIO  
TRANSMITTER DIAL LIGHTS

(1) Loosen the three knurled knobs on the TUNING  
dial escutcheon.

(2) Pull the dial escutcheon out and replace the  
dial lights.

(3) Replace the escutcheon and tighten the knurled  
knobs.

(4) Check that wires to dial lights do not interfere  
with the tuning assembly.

h. REMOVAL AND REPLACEMENT OF RADIO  
TRANSMITTER MODULATOR MODULE. - The  
modulator module is removed by loosening the two  
green-headed captivated screws and lifting the  
module out of the main frame.

i. REMOVAL AND REPLACEMENT OF RADIO  
TRANSMITTER SPEECH AMPLIFIER MODULE. -  
The speech amplifier is removed by loosening two  
green-headed captivated screws and lifting the  
module out of the main frame.

j. REMOVAL AND REPLACEMENT OF RADIO  
TRANSMITTER RELAY MODULE. - The relay  
module is removed by loosening two green-headed  
captivated screws and lifting the module out of the  
main frame.

k. REMOVAL AND REPLACEMENT OF RADIO  
TRANSMITTER RF EXCITER AND POWER  
AMPLIFIER MODULE

(1) Set and lock the TUNING dial as near to the  
counterclockwise stop as is possible with the tongue

on the module side of the rack coupler in the vertical  
position.

(2) Set the BAND CHANGE switch so that the  
tongue on the module side of the coupler is vertical.

(3) Disconnect P1902-J1301 and P1302-J1403.

(4) Loosen the three green-headed captivated  
screws and lift the module out of the main frame. (One  
of the screws is located in front of and between the  
power amplifier tubes.)

NOTE

TO FACILITATE REPLACEMENT OF THE RF  
EXCITER AND POWER AMPLIFIER MODULE,  
DO NOT MOVE THE TUNING DIAL, THE  
BAND CHANGE KNOB, OR THE COUPLERS  
ON THE MODULE.

(5) Use the following procedure to replace the rf  
exciter and power amplifier module:

(a) If a replacement module is used instead of  
the original module, be sure that the BAND CHANGE  
switch S1301 of the module is in the proper position to  
agree with the knob position and to mate with the  
driving side of the switch coupler. The tongue on the  
module side of the switch coupler must be in a vertical  
position. (The switch coupler is the lower of the two  
couplers on the module.) The BAND CHANGE knob  
must be in a position so that the mating slot on the  
front panel side of the coupler is also in a vertical  
position. In addition, the position of S1301D-rear (the  
rear of the fourth switch section from the front of the  
module) should be in one of the following positions  
when viewed from the rear: BAND CHANGE knob on  
16-30 MC, switch S1301D-rear one position counter-  
clockwise from the common terminal; BAND CHANGE  
knob on 8-16 MC, switch S1301D-rear two positions  
counterclockwise from the common terminal; BAND  
CHANGE knob on 4-8 MC, switch S1301D-rear three  
positions counterclockwise from the common terminal;  
BAND CHANGE knob on 2-4 MC, switch S1301D-rear  
four positions counterclockwise from the common  
terminal. If one of these combinations does not exist so  
that the switch coupler will mate with the front panel  
coupler in the vertical position, set the BAND CHANGE  
knob so that the slot on the front panel coupler is  
vertical. Then loosen and slip the coupler on the  
module so that the switch position agrees with the  
position of the BAND CHANGE knob and so that the  
tongue of the coupler will mate in the vertical position  
with its front panel counterpart. Tighten the coupler  
setscrews before replacing the module.

(b) If a replacement module is used instead of  
the original module, be sure that the rack coupler  
mates with its counterpart on the front panel in the  
vertical position. If it does not, loosen the coupler on

the module to replace the module in the radio transmitter. Then after replacement, mechanically align the rf exciter using the procedure given in paragraph 5-6e(1).

(c) After ascertaining that the mechanical alignment of the couplers is all right, with the tongues and grooves of the couplers in a vertical position, lower the module straight down into place. Then tighten the three screws and connect P1902-J1301 and P1302-J1403.

#### l. REMOVAL AND REPLACEMENT OF RADIO TRANSMITTER PA TANK AND LOADING CIRCUIT

(1) Set the BAND CHANGE switch so that the tongue on the module side of the coupler is vertical.

(2) Set and lock the PA TUNING dial near its minimum position so that the tongue on the module side of the coupler is vertical.

(3) Set and lock the PA LOADING dial near its minimum position so that the tongue on the module side of the coupler is vertical.

(4) Disconnect P1302-J1403 from the top of the module and disconnect P1903-J1402 and P1501-J1401 from the bottom.

(5) Loosen the four green-headed captivated screws and lift the module off the main frame.

#### NOTE

TO FACILITATE REPLACEMENT OF PA TANK AND LOADING CIRCUIT, DO NOT MOVE THE BAND CHANGE SWITCH, THE PA TUNING DIAL, THE PA LOADING DIAL, OR THE COUPLERS ON THE MODULE.

(6) Use the following procedure to replace the pa tank and loading circuit.

(a) If a replacement module is used instead of the original module, be sure that the BAND CHANGE switch S1401 of the module is in the proper position to agree with the knob position and to mate with the driving side of the switch coupler. The tongue on the module side of the switch coupler must be in a vertical position. (The switch coupler is the lowest of the three couplers on the module.) The BAND CHANGE knob must be in a position so that the mating slot on the front panel side of the coupler is also in a vertical position. In addition, the position of S1401A (the first switch section from the front of the module) must be such that the switch coupler on the module will mate with its counterpart on the front panel with the BAND CHANGE knob in the 16-30 MC position and with the separated rotor finger of the switch in line with the blue dot on the ceramic wafer. (The rotor

finger which aligns with the blue dot is separated from the group of four fingers on the wafer.) If this is not the vertical coupling position of the coupler, check that this alignment exists in the 16-30 mc band; then turn both the BAND CHANGE knob and the module side of the switch coupler to the vertical coupling position while maintaining the alignment. If this alignment does not exist, loosen and slip the coupler on the module so that the alignment is proper.

(b) Be sure that PA TUNING coupler mates with its counterpart on the front panel in the vertical position. If it does not, loosen the module side of the coupler to replace the module. Then, after replacement, mechanically align the PA TUNING dial using the procedure given in paragraph 5-6d(2).

(c) Be sure that the PA LOADING coupler mates with its counterpart on the front panel in the vertical position. If it does not, loosen the module side of the coupler to replace the module. Then, after replacement, mechanically align the PA LOADING dial using the procedure given in paragraph 5-6d(3).

(d) After ascertaining that the mechanical alignment of the couplers is all right, lower the module straight down into place. Then tighten the four screws and connect P1302-J1403 from the top of the module, P1903-J1402 from the bottom, and P1501-J1401 from the bottom.

#### m. REMOVAL AND REPLACEMENT OF RADIO TRANSMITTER ANTENNA MATCHING NETWORK

(1) Disconnect P1501-J1401 and P1905-J1502.

(2) Set and lock the ANTENNA TUNING dial to the counterclockwise stop.

(3) Loosen the four green-headed captivated screws and remove the module.

(4) To replace the module, reverse the above procedure. If a replacement module is used instead of the original module, be sure that the ANTENNA TUNING coupler mates when the dial is to the counterclockwise stop and that all of the tape of the network is on the ceramic drum.

#### n. REMOVAL AND REPLACEMENT OF RADIO TRANSMITTER CRYSTAL OSCILLATOR

(1) Disconnect P1101-J1203, P1901-J1202, and P1906-J1201.

(2) Set the OSCILLATOR SELECTOR so that the tongue on the module side of the coupler is vertical.

(3) Loosen the three green-headed captivated screws and remove the module.

(4) To replace the module, align the coupler of switch S1201 with the OSCILLATOR SELECTOR knob

so that the coupler mates with the tongue on the slot in the vertical position. Then replace the module, tighten the three screws, and connect P1101-J1203, P1901-J1202, and P1909-J1201.

o. REMOVAL AND REPLACEMENT OF RADIO TRANSMITTER MASTER OSCILLATOR

- (1) Lock the TUNING dial.
- (2) Disconnect P1102-J1901, P1901-J1202, and P1101-J1203.
- (3) Loosen the two green-headed captivated screws at the front of the module.
- (4) While holding the master oscillator, remove the back bracket from the master oscillator and gently lift the module out of the main frame.



BE EXTREMELY CAREFUL NOT TO TURN THE LEAD SCREW SHAFT OF THE MASTER OSCILLATOR MODULE OR THE TUNING DIAL WHILE THE MODULE IS OUT OF THE MAIN FRAME. IF IT IS NECESSARY TO MOVE THE LEAD SCREW, REPLACE THE MASTER OSCILLATOR IN THE MAIN FRAME AND TURN THE LEAD SCREW WITH THE TUNING DIAL. IF THE MECHANICAL ALIGNMENT BETWEEN THE LEAD SCREW AND THE TUNING LINKAGE IS INADVERTENTLY CHANGED WHILE THE MASTER OSCILLATOR IS OUT OF THE MAIN FRAME, MECHANICALLY ALIGN THE MASTER OSCILLATOR BEFORE ATTEMPTING TO REPLACE IT (PARAGRAPH 5-4o(5), FOLLOWING).

(5) The master oscillator has no mechanical stops, its travel being limited by the TUNING dial stops only. To prevent ruining the lead screw assembly due to overtravel, the mechanical alignment between the lead screw and the TUNING linkage must be maintained or re-established before the master oscillator can safely be replaced in the main frame. Use the following procedure to mechanically realign the master oscillator.

(a) With the power off and the BAND CHANGE switch in the 2-4 MC position, place the main frame in the 90° service position.

(b) Connect the master oscillator to its cables but do not install it in the main frame.

(c) Set the OSCILLATOR SELECTOR to the MO position, the SERVICE SELECTOR to STAND BY and then turn the power on.

ORIGINAL

(d) Determine the frequency of the master oscillator using Radio Receiver R-627(XN-1)/URC-8 or an equivalent receiver. Pickup from the master oscillator can be obtained by inserting a probe into the buffer-doubler V1102 tube shield. It is inadvisable to tune the master oscillator to any given frequency by altering the lead screw setting because of the possibility of overdriving the lead screw.

(e) Unlock and set the TUNING dial on the radio transmitter to the exact frequency of the master oscillator. Then lock the TUNING dial.

(f) Turn the power off. The master oscillator is now mechanically aligned with the TUNING dial linkage and can be replaced in the main frame.

(6) To replace the master oscillator in the main frame, reverse the removal procedure. The master oscillator coupler and the TUNING linkage counterpart should mate without turning either coupler. However, if the master oscillator was mechanically aligned and the couplers do not mate, loosen the master oscillator coupler and set the coupler to mate with its counterpart. Then tighten the coupler.

p. REMOVAL AND REPLACEMENT OF RADIO TRANSMITTER FILTER BOX

(1) Remove the radio transmitter main frame from its cables and slides.

(2) Unhook the spring on the filter box cable.

(3) Remove the top grounding strips from the filter box.

(4) Remove the twelve screws from the rear of the case which hold the filter box. Remove the filter box with care to prevent breaking ceramic capacitors. (See paragraph 5-4s, following, for ceramic capacitor replacement procedure.)

(5) To replace the filter box, reverse the above procedure. Be certain that all plugs are tight and that a watertight seal is obtained.

q. REMOVAL AND REPLACEMENT OF RADIO TRANSMITTER FRONT PANEL

(1) Put the radio transmitter in the 90° service position.

NOTE

BEFORE TAKING OFF ANY KNOBS, SET THE CONTROLS TO THE MINIMUM SETTING. THEN REPLACE THE KNOBS AND DIALS IN THE SAME POSITION.

(2) Remove the PA TUNING knob, spring, rubber washer, flat washer, and dial.

(3) Remove the ANTENNA TUNING knob, spring, rubber washer, flat washer, and dial.

(4) Remove the PA LOADING knob, spring, rubber washer, flat washer, and dial.

(5) Remove the BAND CHANGE, ANTENNA CAPACITOR, DIAL CORRECTOR, LATCH RELEASE, and OSCILLATOR SELECTOR knobs.

(6) Remove the TUNING knob along with the water seal cap on the end of the shaft and two Corprene washers.

(7) Remove the 13 front panel screws.

(8) Ease the front panel off the main frame. With the front panel removed, be careful not to damage the cable which remains attached between the main frame and the panel.

(9) Use the following procedure to replace the front panel:

(a) Put the front panel in place so that the shafts come through the panel bushings and the front panel alignment pins are in the holes provided for them. Then replace the three front panel screws which screw into the alignment pins using glyptal varnish to stake them.

(b) Replace the BAND SWITCH, ANTENNA CAPACITOR, DIAL CORRECTOR, and OSCILLATOR SELECTOR knobs.

(c) Replace the PA TUNING, ANTENNA TUNING, and PA LOADING dials, flat washers, rubber washers, springs, and knobs. Push the knobs down so that they are slightly above bottoming on the shafts before tightening.

(d) Replace the remaining ten front panel screws using glyptal varnish to stake them.

(e) Replace the TUNING knob along with the two Corprene washers and the water seal cap on the end of the shaft.

(f) Replace the LATCH RELEASE knobs so that the setscrews set in the notches in the shafts. Be sure that the latch release mechanisms are properly operating before pushing the main frame into the cabinet.

r. REPLACEMENT OF RADIO TRANSMITTER ANTENNA MATCHING NETWORK TAPE

(1) Remove the antenna matching network from the main frame using the procedure given in paragraph 5-4m.

(2) Remove the front plate (nearest couplers) by removing the six screws.

(3) Unsolder the tape from the brass drum.

(4) Remove the idler gear between the two drums.

(5) Unroll the tape and then unsolder it from the ceramic drum.

(6) Solder the new tape to the ceramic drum.

(7) Roll the new tape onto the ceramic drum finger tight. Prevent stretching and kinking the tape while winding it.

(8) Replace the front plate and the six screws.

(9) Insert the small end of the rf exciter alignment rod (which is clipped to the right-hand side of the main frame) into the back plate alignment hole. Then rotate the spring loaded gear clockwise, viewed from rear, until the rod slips through the alignment hole in the spring loaded gear. Maintain the spring loading in this position with the alignment rod.

(10) Rotate the brass drum until the solder tab is 30° past the point which is tangent to the two drums at the unwinding point on the ceramic drum. This will prevent the direct unwinding force from pulling on the soldered joint.

(11) Fold the tape back over the tab on the brass drum, cut off the excess tape, and solder the tape to the tab.

(12) Replace the idler gear between the two drums while holding the tape without slack between the drums.

(13) Remove the alignment rod from the back plate.

(14) Wind the tape back and forth between the drums to check for proper operation. Leave all the tape on the ceramic drum.

(15) Replace the antenna matching network in the main frame using the procedure given in paragraph 5-4m.

s. REPLACEMENT OF RADIO TRANSMITTER FILTER BOX FEED-THROUGH CAPACITORS. - The filter capacitors are ceramic and care must be used in their replacement to prevent damage. To prevent thermal shock and breakage, use a light soldering iron (47 watts) for removing and replacing hookup wire and choke coil wire from the capacitors. Use a heavier soldering iron (up to 250 watts) for soldering and unsoldering the capacitor from the filter box. With the heavy soldering iron, slowly heat the chassis near the capacitor to be removed to prevent thermal shock and breakage. Use fresh solder to solder the capacitor to the filter box and prevent the heavy soldering iron from contacting the capacitor directly.

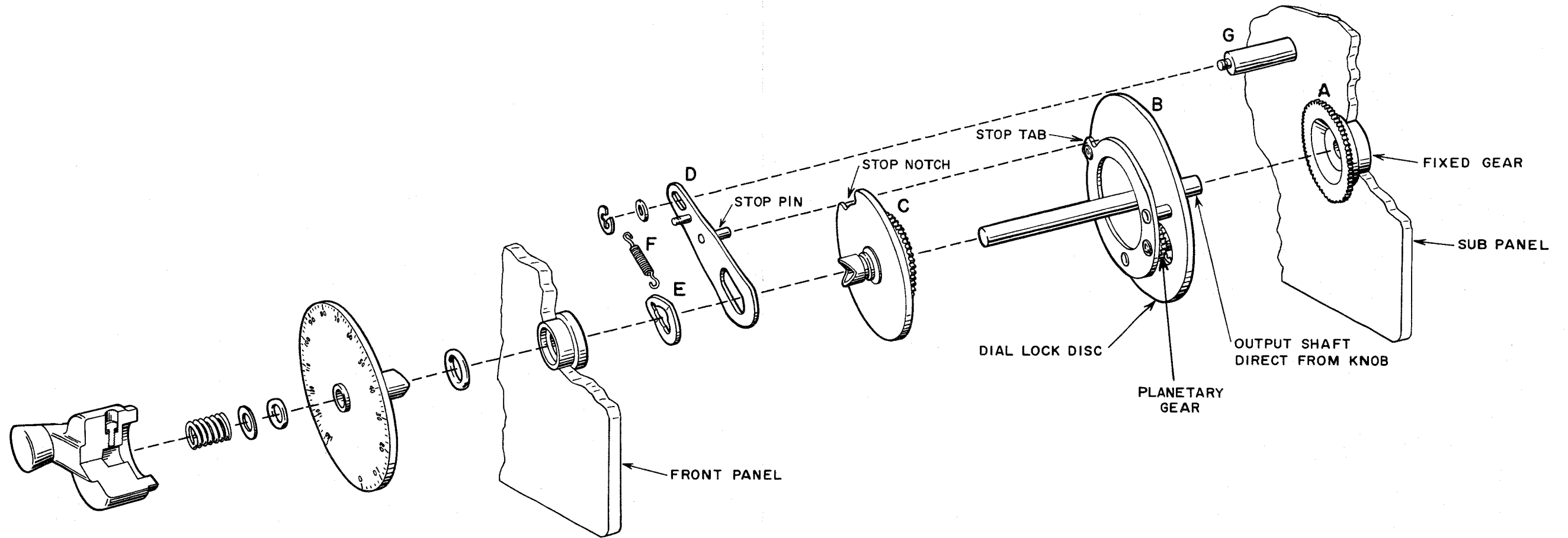


Figure 5-1. Dual-Dial, Exploded View



t. REPLACEMENT OF BLOWER MOTOR  
BRUSHES AND LUBRICATION OF BLOWER  
MOTOR BEARINGS (EVERY 750 HOURS)

(1) To replace the brushes and lubricate the radio transmitter blower motor, it is necessary to first remove the power amplifier, modulator, and speech amplifier modules. Then with the tool provided, remove the three screws from the blower mounting bracket from inside the main frame and unsolder the blower leads. Then remove the blower assembly. Remove a brush assembly by compressing and removing the retaining V-spring and the rubber disk which covers the brush assembly. Gently work the brush assembly out of the phenolic mounting.

(2) The blower motor bearings (2 on each motor) should be lubricated with the brush assemblies removed, before new brushes are inserted. Before disassembling a blower to lubricate, remove the rotor guard (3 screws) and mark the blower wheel and shaft so that the blower wheel can be reassembled in its original position to maintain the dynamic balance of the blower assembly. Remove the blower wheel with the wrench provided. Remove the rear cap (2 screws) being careful not to lose the spacing washers on the bearings. To lubricate the bearings, use a small amount of grease MIL-G-3278 (Beacon 325 or Endok C grease). After lubricating the blower motor bearings, replace the brush assemblies, being sure that the brush curvature matches the commutator.

(3) To replace brushes and lubricate the power supply blower motor, it is necessary to first remove the four front panel screws from the motor mounting bracket, unsolder the blower leads, and remove the blower assembly. Then use the same brush replacement technique as used for the radio transmitter brush replacement.

u. DISASSEMBLY AND ASSEMBLY OF RADIO  
TRANSMITTER PA TUNING, PA LOADING,  
AND ANTENNA TUNING DUAL-DIALS  
(figure 5-1)

(1) DISASSEMBLY

(a) Remove the front panel using the procedure given in paragraph 5-4q. The dial assembly knob, spring, washer, dial, and O-rings are removed during removal of the front panel.

(b) Remove the spring retaining washer (E) and the spring (F).

(c) Remove the retaining ring, washer, and stop-pin assembly (D) from the subpanel post (G).

NOTE

THE ANTENNA TUNING DUAL-DIAL HAS  
NO STOP-PIN ASSEMBLY.

(d) Slip the stop-notch assembly (C) off the dial frame (B) shaft.

(e) Remove the coupler or gear off the shaft of the dial frame from the rear of the subpanel.

(f) Remove the dial frame (B). Removal of the dial lock assembly will facilitate removal of the dial frame.

(2) ASSEMBLY

(a) If the planetary gear was removed or if it requires replacement, assemble the planetary gear in the dial frame (B) and secure with the retaining ring. The end of the planetary gear without the shoulder fits next to the retaining ring.

(b) Slide the stop-notch assembly (C) onto the dial frame (B) and engage the stop-notch assembly drive gear with the planetary gear on the dial frame. Do not replace the dial frame on the subpanel.

(c) Rotate the stop-notch assembly and the dial frame (C and B) so that the right side (viewed from front) of the stop tab and the right side of the stop notch form a small, U-shaped notch. The stop pin of the stop-pin assembly (D) is to seat in this U-shaped notch.

(d) Replace the stop-pin assembly (D) onto the shaft of the stop-notch assembly (C) so that the stop pin lies at the bottom of the U-shaped notch produced by the right side of the stop tab and the right side of the stop notch. Finger-tight torque should be maintained in both directions against the stop pin.

NOTE

THE ANTENNA TUNING DUAL-DIAL HAS NO STOP-PIN ASSEMBLY. FOR THIS DIAL, REPLACE THE ASSEMBLED DUAL-DIAL (B AND C) ONTO THE SUBPANEL AND MESH THE PLANETARY GEAR ON THE DIAL FRAME (B) WITH THE FIXED GEAR (A) ON THE SUBPANEL. THEN MECHANICALLY ALIGN THE ANTENNA MATCHING NETWORK USING THE PROCEDURE IN PARAGRAPH 5-4m(4).

(e) Replace the spring retaining washer (E), seating the washer in the shaft of the stop-notch assembly, and replace the spring (F), connecting it to the washer (E) and the spring retaining post on the stop-pin assembly (D).

(f) With the stop pin at the bottom of the notch produced by the right side of the stop tab and the right side of the stop notch, and with finger-tight torque maintained in both directions against the stop pin, replace the assembled dual-dial (B, C, and D) onto the subpanel. The stop-pin assembly (D) fits on

the subpanel post (G) and the planetary gear of the dial frame (B) meshes with the fixed gear (A) on the subpanel.

(g) Replace the washer and retaining ring to secure the stop-pin assembly (D) to the subpanel post (G).

(h) Rotate the shaft of the dial frame (B) until the dial assembly goes through one complete operating cycle. (This is approximately 27 rotations for the PA TUNING dial shaft and approximately 17 rotations for the PA LOADING dial shaft.) Check that the stop pin falls into place and stops the dial at the other end of the cycle. The stopping conditions during the last two turns of the dial frame (B) should be nearly equal at both ends of a complete operating cycle. If adjustment is necessary, remove the retaining ring and washer from the subpanel post (G), disengage the planetary gear from the fixed gear (A) on the subpanel and from the drive gear on the stop-notch assembly. Then rotate the planetary gear a few teeth on its own shaft and reassemble. This procedure provides a vernier adjustment of the relative position between the two larger gears.

(i) After the dual-dial is aligned to operate properly, replace the coupler or gear on the dial shaft and replace the dial lock assembly if it was removed. Then replace the front panel using the procedure given in paragraph 5-4q(9). The dial assembly O-rings, dial washer, spring, and knob are replaced during the replacement of the front panel.

## 5. ALIGNMENT OF RADIO RECEIVER

### a. EQUIPMENT REQUIRED

- (1) RF Signal Generator Set AN/URM-25, or equivalent.
- (2) VTVM; Hewlett-Packard 400D, or equivalent.
- (3) Swamping resistor; 4.7 K, 2-watt.
- (4) Dummy load; 600-ohm, 2-watt (wire-wound or carbon resistors).
- (5) Dummy antenna; 200 ohms resistance in series with 200 uuf capacitance.
- (6) Headphones; 600-ohm.
- (7) Audio cable (equipment supplied).
- (8) Screw driver alignment tool (clipped on right side of main frame of radio receiver).

### b. PRELIMINARY PROCEDURE

- (1) Turn the radio receiver on and allow it to warm up for a minimum of 45 minutes.

(2) Pull the main frame out to the service position. All adjustments and test jacks are accessible from the top of the main frame (figure 5-2).

(3) Connect the audio cable to the radio receiver and connect the 600-ohm dummy load and the vtvm across the leads of the audio cable.

(4) Set the RECEPTION switch in the CW position, the RF GAIN control to 10, and the AF GAIN control to 5.

### NOTE

THROUGHOUT THE ALIGNMENT, KEEP SIGNAL GENERATOR OUTPUT LEVEL ADJUSTED TO PRODUCE 20 VOLTS OR LESS ACROSS THE DUMMY LOAD AS METERED BY THE VTVM.

### c. IF. MODULE ALIGNMENT

(1) Use the following procedure to align the beat-frequency oscillator.

(a) Connect the signal generator into jack J301 and set the output frequency of the signal generator at 455 kc.

### NOTE

THE ACCURACY OF THE BFO ALIGNMENT IS DEPENDENT UPON THE ACCURACY OF THE 455 KC SIGNAL OF THE SIGNAL GENERATOR.

(b) Connect the headphones into the radio receiver.

(c) Set the CW PITCH control to 0.

(d) Using the screw driver alignment tool, adjust the BFO ADJ coil of tuned circuit Z303 to produce a zero beat in the headphones.

(2) Use the following procedure to align the if. output transformer T301.

(a) Leave the signal generator connected into jack J301 and set to 455 kc.

(b) Set the CW PITCH to the clockwise position 1. This produces a 1 kc beat note in the headphones.

(c) Turn the radio receiver off; then connect the swamping resistor from jack J304 to jack J305 and turn the radio receiver on. This loads the secondary of transformer T301.

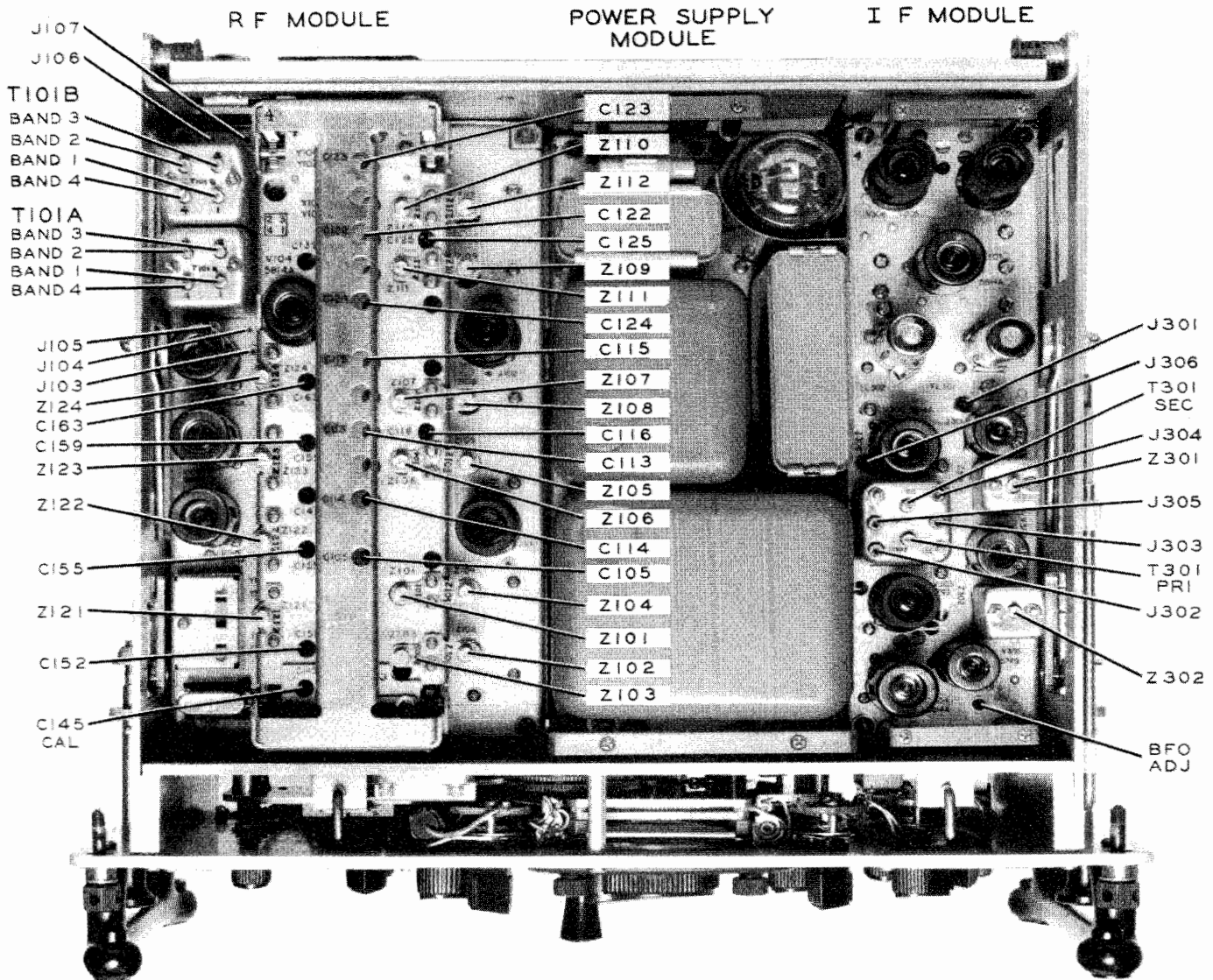


Figure 5-2. Radio Receiver R-627(XN-1)/URC-8, Alignment and Adjustment Points

**WARNING**

AT ALL TIMES WHEN USING THE SWAMPING RESISTOR, BE SURE THAT RADIO RECEIVER IS TURNED OFF BEFORE CONNECTING THE RESISTOR.

(d) Tune transformer T301 primary for maximum output across the dummy load.

(e) Turn the radio receiver off and remove the swamping resistor. Then connect the swamping resistor from jack J302 to jack J303 and turn the radio receiver on. This loads the primary of transformer T301.

(f) Tune transformer T301 secondary for maximum output across the dummy load.

(g) Repeat the steps given in paragraph 5-5c(2)(c) through 5-5e(2)(f), above, until there is no further increase in the output voltage across the dummy load.

(h) Turn the radio receiver off, remove the swamping resistor, and then turn the radio receiver on.

(3) Adjust the second if. amplifier plate load Z302 to give maximum output across the dummy load.

(4) Adjust the first if. amplifier plate load Z301 to give maximum output across the dummy load.

d. RF MODULE ALIGNMENT

(1) Use the following procedure to align the first if. transformer T101A and T101B.

(a) Check that controls are set as given in paragraph 5-5b(4), above.

(b) Set the CW PITCH control to 0.

(c) Set the BAND CHANGE switch to 2-4 MC.

(d) Connect the signal generator into jack J103 and set the output frequency of the signal generator at 580 kc at a level to produce 10 v ac across the dummy load as measured by the vtm.

(e) Tune the signal generator to produce a zero-beat in the headphones.

(f) Set the CW PITCH control to the clockwise position 1. This produces a 1 kc beat-note in the headphones.

(g) Turn the radio receiver off and connect the swamping resistor from jack J104 to jack J105. Then turn the radio receiver on.

**WARNING**

AT ALL TIMES WHEN USING THE SWAMPING RESISTOR, BE SURE THE RADIO RECEIVER IS TURNED OFF BEFORE CONNECTING THE RESISTOR.

(h) Tune the band 1 slug of transformer T101B to give maximum output across the dummy load. If necessary, reduce the output level of the signal generator to keep the output across the dummy load below 20 v ac.

(i) Turn the radio receiver off and remove the swamping resistor. Then connect the swamping resistor from jack J106 to J107 and turn the radio receiver on.

(j) Tune the band 1 slug of transformer T101A to give maximum output across the dummy load.

(k) Turn the radio receiver off and remove the swamping resistor.

(l) Repeat the steps given in paragraph 5-5d(1)(g) through 5-5d(1)(k), above, until no further increase in the output is obtained across the dummy load.

(m) Set the BAND CHANGE switch to 4-8 MC.

(n) Set the output frequency of the signal generator near 1160 kc. Then tune the signal generator to produce a zero beat in the headphones with the CW PITCH control set to 0. Return the CW PITCH control to the clockwise position 1 after zero-beating the signal generator.

(o) Repeat the steps given in paragraphs 5-5d(1)(g) through 5-5d(1)(l), above, but tune the band 2 slug of transformer T101B and the band 2 slug of transformer T101A.

(p) Set the BAND CHANGE switch to 8-16 MC.

(q) Set the output frequency of the signal generator near 2320 kc. Then tune the signal generator to produce a zero beat in the headphones with the CW PITCH control in the O position. Return the CW PITCH control to the clockwise position 1 after zero-beating the signal generator.

(r) Repeat the steps given in paragraph 5-5d(1)(g) through 5-5d(1)(l), above, but tune the band 3 slug of transformer T101B and the band 3 slug of transformer T101A.

(s) Set the BAND CHANGE switch to 16-30 MC.

(t) Set the output frequency of the signal generator near 4640 kc. Then tune the signal generator to produce a zero beat in the headphones with

CW PITCH control set to 0. Return the CW PITCH control to the clockwise position 1 after zero-beating the signal generator.

(u) Repeat the steps given in paragraphs 5-5d(1)(g) through 5-5d(1)(l), above, but tune the band 4 slug of transformer T101B and the band 4 slug of transformer T101A.

(v) Turn the radio receiver off and disconnect the swamping resistor and the signal generator. Then turn the radio receiver on.

(2) Use the following procedure to align the rf coils:

(a) Check that controls are set as given in paragraph 5-5b(4), above.

(b) Connect the dummy antenna (200 ohms in series with 200 uuf) into the ANTENNA jack and connect the signal generator to the dummy antenna.

(c) Set the TUNING dial to 2.2 mc and the BAND CHANGE switch to 2-4 MC.

(d) Set the output frequency of the signal generator near 2.2 mc. Then tune the signal generator to produce a zero beat in the headphones with the CW PITCH control set to 0. Return the CW PITCH control to the clockwise position 1 after zero-beating the signal generator.

(e) Set the ANT. TRIM. to the 75 per cent capacity position, that is, the 45° mark clockwise from the vertical.

(f) Tune the slugs of the rf coils of Z101, Z105, Z109, and Z121, in turn, to give maximum output across the dummy load. Always keep the output across the dummy load below 20 volts by adjusting the signal generator output level.

(g) Set the TUNING dial to 3.8 mc and set the output frequency of the signal generator near 3.8 mc. Then tune the signal generator to produce a zero beat in the headphones with the CW PITCH control set to 0. Return the CW PITCH control to the clockwise position 1 after zero-beating the signal generator.

(h) Adjust capacitors C105, C113, C122, and C152, in turn, to give maximum output across the dummy load.

(i) Repeat the steps given in paragraphs 5-5d(2)(c) through 5-5d(2)(h), above, to trim the 2-4 mc coils and capacitors until no further increase in the output is obtained across the dummy load.

(j) Set the TUNING dial to 4.4 mc and the BAND CHANGE switch to 4-8 MC.

(k) Set the output frequency of the signal generator near 4.4 mc. Then tune the signal generator to produce a zero beat in the headphones with

the CW PITCH control set to 0. Return the CW PITCH control to the clockwise position 1 after zero-beating the signal generator.

(l) Adjust the ANT. TRIM. control to give maximum output across the dummy load.

(m) Tune the slugs of the rf coils of Z106, Z110, and Z122, in turn, to give maximum output across the dummy load.

(n) Set the TUNING dial to 7.6 mc and set the output frequency of the signal generator near 7.6 mc. Then tune the signal generator to produce a zero beat in the headphones with the CW PITCH control set to 0. Return the CW PITCH control to the clockwise position 1 after zero-beating the signal generator.

(o) Adjust the ANT. TRIM. control to give maximum output across the dummy load.

(p) Adjust capacitors C114, C123, and C155, in turn, to give maximum output across the dummy load.

(q) Repeat the steps given in paragraphs 5-5d(2)(j) through 5-5d(2)(p), above, to trim the 4-8 mc coils and capacitors until no further increase in the output is obtained across the dummy load.

(r) Set the TUNING dial to 8.8 mc and the BAND CHANGE switch to 8-16 MC.

(s) Set the output frequency of the signal generator near 8.8 mc. Then tune the signal generator to produce a zero beat in the headphones with the CW PITCH control set to 0. Return the CW PITCH control to the clockwise position 1 after zero-beating the signal generator.

(t) Adjust the ANT. TRIM. control to give maximum output across the dummy load.

(u) Tune the slugs of the rf coils of Z107, Z111, and Z123, in turn, to give maximum output across the dummy load.

(v) Set the TUNING dial to 15.2 mc and set the output frequency of the signal generator near 15.2 mc. Then tune the signal generator to produce a zero beat in the headphones with the CW PITCH control set to 0. Return the CW PITCH control to the clockwise position 1 after zero-beating the signal generator.

(w) Adjust the ANT. TRIM. control to give maximum output across the dummy load.

(x) Adjust capacitors C115, C124, and C159, in turn, to give maximum output across the dummy load.

(y) Repeat the steps given in paragraphs 5-5d(2)(r) through 5-5d(2)(x), above, to trim the 8-16 mc coils and capacitors until no further increase in the output is obtained across the dummy load.

(z) Set the TUNING dial to 17.6 mc and the BAND CHANGE switch to 16-30 MC.

(aa) Set the output frequency of the signal generator near 17.6 mc. Then tune the signal generator to produce a zero-beat in the headphones with the CW PITCH control set to 0. Return the CW PITCH control to the clockwise position 1 after zero-beating the signal generator.

(bb) Adjust the ANT. TRIM. control to give maximum output across the dummy load.

(cc) Tune the slugs of the rf coils of Z108, Z112, and Z124, in turn, to give maximum output across the dummy load.

(dd) Set the TUNING DIAL to 28.8 mc and set the output frequency of the signal generator near 28.8 mc. Then tune the signal generator to produce a zero beat in the headphones with the CW PITCH control set to 0. Return the CW PITCH control to the clockwise position 1 after zero-beating the signal generator.

(ee) Adjust the ANT. TRIM. control to give maximum output across the dummy load.

(ff) Adjust capacitors C116, C125, and C163, in turn, to give maximum output across the dummy load.

(gg) Repeat the steps given in paragraphs 5-d(2)(z) through 5-5d(2)(ff), above, to trim the 16-30 mc coils and capacitors until no further increase in the output is obtained across the dummy load.

(hh) Disconnect the signal generator, dummy antenna, and dummy load.

(3) Use the following procedure to align the antenna trimming circuits.

(a) Set the TUNING dial to 16 mc and the BAND CHANGE switch to 8-16 MC.

(b) Visually adjust the slug height of trimming circuit Z102 until it is approximately the same height as the slugs of rf coils of Z106 and Z110.

(c) Visually adjust the slug height of trimming circuit Z103 until it is approximately the same height as the slugs of rf coils of Z107 and Z111.

(d) Visually adjust the slug height of trimming circuit Z104 until it is approximately the same height as the slugs of rf coils of Z108 and Z112.

(4) Use the following procedure to align the calibration oscillator.

(a) Tune the radio receiver to the Bureau of Standards station WWV on 5, 10 or 15 mc, or use an equivalent frequency standard.

(b) Set the RECEPTION switch to MOD.

(c) Set the CALIBRATOR switch to ON.

(d) During the time interval when station WWV is unmodulated, adjust the CAL capacitor C145 to produce a zero beat in the headphones.

e. MASTER OSCILLATOR END POINT ALIGNMENT

#### NOTE

SETTING MASTER OSCILLATOR END POINTS IS NOT PART OF NORMAL ALIGNMENT PROCEDURE AND SHOULD ONLY BE PERFORMED IF THE TRACKING ERROR BETWEEN END POINTS IS GREATER THAN 5 KC.

(1) Use the following procedure to determine the end point error.

(a) Calibrate the radio receiver at 2 mc using the procedure given in paragraph 4-3b(4).

(b) Without moving the DIAL CORRECTOR, tune the radio receiver to 4 mc and zero beat the radio receiver against the calibration signal with the TUNING dial.

(c) The amount the dial corrector must move to calibrate at the 4 mc frequency is the end point error.

(d) If the end point error is less than 5 kc, no end point alignment is necessary. If the end point error is more than 5 kc, the master oscillator end points must be aligned.

(2) Use the following procedure to align the master oscillator end points:

(a) Calibrate the radio receiver at 2 mc using the procedure given in paragraph 4-3b(4).

(b) Set the TUNING dial to 4 mc but do not zero beat or move the DIAL CORRECTOR.

(c) The frequency of the note heard in the headphones is the end point error. This error must be corrected approximately 145 per cent.

(d) To correct the end point error, adjust coil L402 (the small metal alignment screw between tubes V401 and V402) until the note heard in the headphones goes through the zero beat to a point approximately one octave lower than the original error on the other side of the zero beat.

(e) Repeat the procedure given in paragraphs 5-5e(2)(a) through 5-5e(2)(d), above, until the radio

receiver will calibrate on both 2 mc and 4 mc without moving the DIAL CORRECTOR.

NOTE

CAPACITORS C135 AND C144 ARE FACTORY ADJUSTED AND SHOULD REQUIRE NO ALIGNMENT DURING THE LIFE OF THE RAPID RECEIVER.

6. ALIGNMENT OF RADIO TRANSMITTER

a. EQUIPMENT REQUIRED

- (1) Oscilloscope OS-8A/U, or equivalent.
- (2) Audio Oscillator TS-382A/U, or equivalent.
- (3) Power supply; Hewlett-Packard 711A, or equivalent.
- (4) VTVM; Hewlett-Packard 400D, or equivalent.
- (5) Multimeter; Triplet 630, or equivalent (two required).
- (6) Dummy load; 50-ohm, 50-watt (a 100-150 watt light bulb will serve as a dummy load).
- (7) Blocking capacitor; in the order of .5 uf.
- (8) Meter shunting resistor, in the order of 100 ohms.
- (9) Alignment tools (clipped on right side of main frame of radio transmitter).

b. PRELIMINARY PROCEDURE

- (1) Roll the main frame out of the case to the service position. Figures 5-3 and 5-4 show the adjustable components.
- (2) Disconnect the antenna from the rear of the case and connect the 50-ohm dummy load into jack J1902 provided on the rear of the main frame.
- (3) Pull the plunger of the interlock S1909, located on the left side of the main frame, toward the rear of the main frame. This bypasses the high voltage interlock.

**WARNING**

VOLTAGES IN EXCESS OF 500 VOLTS ARE EXPOSED WHEN THE EQUIPMENT IS OPERATED WITH THE INTERLOCK BY-PASSED. USE EXTREME CARE WHEN SERVICING THE RADIO TRANSMITTER

WITH THE INTERLOCK BYPASSED. THE NEON INDICATOR ON THE LEFT SIDE OF THE MAIN FRAME INDICATES WHEN THE INTERLOCK IS BYPASSED.

- (4) Do not turn the transmitter on at this time.

c. SPEECH AMPLIFIER MODULE ADJUSTMENTS

- (1) Put the radio transmitter in the 90° service position.
- (2) Use an insulated pick-up loop in the vicinity of the power amplifier tank coil L1403 to connect the vertical plates of the oscilloscope for monitoring the modulated rf signal.
- (3) Put the radio transmitter into local voice operation using the procedure given in paragraph 4-3c. A carrier frequency of 2 mc is recommended.
- (4) Unlock and set the gain control potentiometer R1613 to approximately the mid-point.
- (5) Connect the audio oscillator to the HANDSET jack J1907 pin C through the blocking capacitor. The HANDSET jack J1907 pin D is ground.

**CAUTION**

CONNECT THE AUDIO INPUT TO THE HANDSET JACK THROUGH THE BLOCKING CAPACITOR TO PREVENT SHORTING THE 12 V DC POWER SUPPLY.

- (6) Set the frequency of the audio oscillator at 1200 cps and the output at .046 v ac as metered by the vtvm at the HANDSET jack J1907 pin C.
- (7) Unlock and turn the clipper control R1611 counterclockwise until the clipper on-off switch is in the off position. This removes the clipping.
- (8) Adjust the gain control potentiometer R1613 until 100 per cent modulation is indicated on the oscilloscope. Lock the potentiometer in this position.
- (9) With the modulating frequency still at 1200 cps, set the output level of the audio oscillator to .46 v ac.
- (10) Turn the clipper control R1611 clockwise until 100 per cent modulation is restored as indicated on the oscilloscope. Lock the control in this position.

NOTE

THE .046 AND .46 V AC AUDIO INPUT LEVELS USED TO ADJUST THE CLIPPING

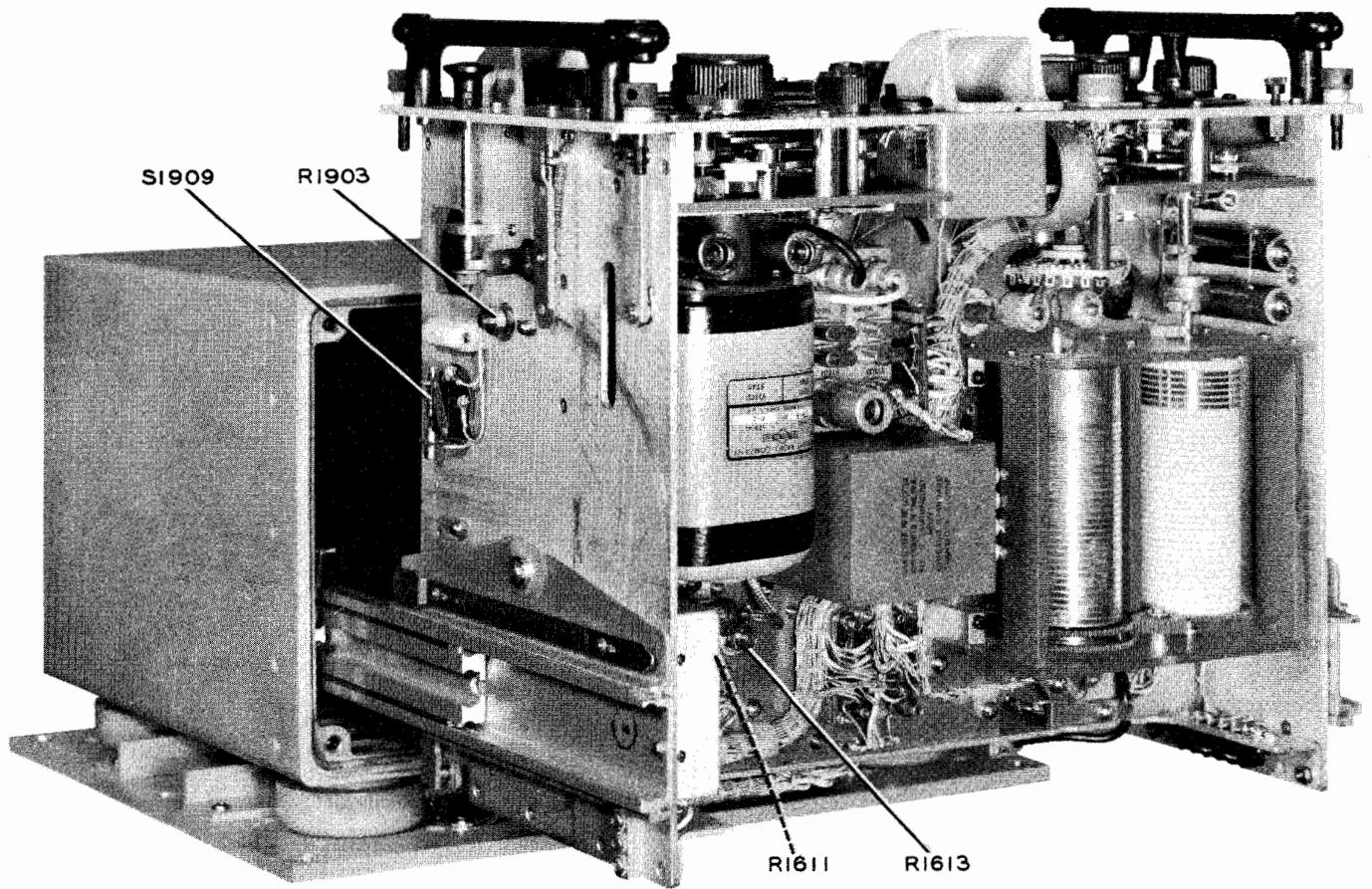


Figure 5-3. Radio Transmitter T-474(XN-1)/URC-8, Bottom Deck Alignment and Adjustment Points



LEVEL ARE VALID ONLY WHEN HAND-SET H-51/U IS USED FOR VOICE TRANSMISSION. FOR MILITARY MICROPHONES WITH GREATER OR LESS OUTPUT THAN HANDSET H-51/U, SET THE GAIN CONTROL POTENTIOMETER R1613 AND THE CLIPPER CONTROL R1611 SO THAT NO OVER-MODULATION OCCURS WITH MAXIMUM MICROPHONE SIGNAL AT A FREQUENCY IN THE 1200 CPS RANGE.

(11) Put the radio transmitter in the standby condition and disconnect the test equipment.

d. POWER AMPLIFIER TANK AND LOADING CIRCUIT ALIGNMENT

(1) Put the radio transmitter in the out service position.

(2) Tune the radio transmitter to 30 mc and check during the tuning procedure that when tuning the PA TUNING dial the power amplifier cathode current dip (indicating tank resonance) occurs when the rolling contact on tank coil L1403 is between 1/4 - 1/2 inch from the rear end of the coil. If it does not, use the following procedure to align the power amplifier tank.

(a) Set the SERVICE SELECTOR to STAND BY.

(b) If the roller contact is closer than 1/4 inch from the rear end of tank coil L1403 when the power amplifier cathode current dipped, spread the turns of coil L1402.

(c) If the roller contact is farther than 1/2 inch from the rear end of tank coil L1403 when the power amplifier cathode current dipped, squeeze the turns of coil L1402.



AFTER ADJUSTING COIL L1402, BE SURE THAT NO TURNS ARE LEFT SHORTED.

(3) Set the PA LOADING dial to the stop at the zero end of the dial and lock the dial. With the dial in this position the roller contact on loading coil L1404 should be contacting the first turn within 1/8 to 1/4 inch from the front panel end of coil L1404 and capacitor C1423 should be in the maximum capacity position, fully meshed. If the roller contact is not within 1/8 to 1/4 inch from the front panel end of coil L1404 but is on the first turn of the coil, loosen the coupler on the coil side, turn the coil so that the roller is 1/8 inch from the end of the coil, and tighten the coupler. If the roller contact is off more than a full turn, lift the roller and set on the first turn before adjusting the coupler. If capacitor C1423 is not fully

meshed, loosen the setscrews on the capacitor shaft, set capacitor C1423 to the fully meshed position, and retighten the setscrews.

e. RF EXCITER AND POWER AMPLIFIER MODULE ALIGNMENT

(1) Use the following procedure to mechanically align the slug rack of the rf exciter.

(a) Put the radio transmitter in the secondary out service position. To do this it is necessary to roll the main frame out to the stops and release the latches behind the front panel beneath the slides. The main frame will then pull out another six inches until it hits the second slide stops.

(b) Set the DIAL CORRECTOR to the center of the KC window of the dial. Then set the TUNING dial to 3.900 mc.

(c) Lock the TUNING dial.

(d) Turn the radio transmitter off.

(e) Remove power amplifier tube V1304 and the relay module.

(f) Check that the alignment rod (which is clipped to right side of the main frame) will pass through the alignment holes in the slug rack cams and upright brackets of the module. The alignment rod is inserted from the rear of the module. If the alignment rod will pass completely through the module, the mechanical alignment is all right. If it does not, continue with this procedure to mechanically realign the slug rack.

(g) Loosen the slug rack side of the coupler on the cam drive.

(h) Position the slug rack so that the alignment rod will pass through the alignment holes in the slug rack cams and upright brackets of the module.

(i) With the alignment rod holding the slug rack in position and the TUNING dial set to 3.9 mc, tighten the coupler.

(j) Remove the alignment rod, replace the power amplifier tube V1304, and replace the relay module.

(2) Use the following procedure to electrically align the rf exciter.

(a) Calibrate the radio transmitter at 3.800 mc using the procedure given in paragraph 4-3c(4). Then check for dial accuracy at 2.1 mc.

(b) Put the radio transmitter in the out service position.

(c) Set the TUNING dial to 2.1 mc and the BAND CHANGE switch to 2-4 MC. Leave the SERVICE SELECTOR on CAL.

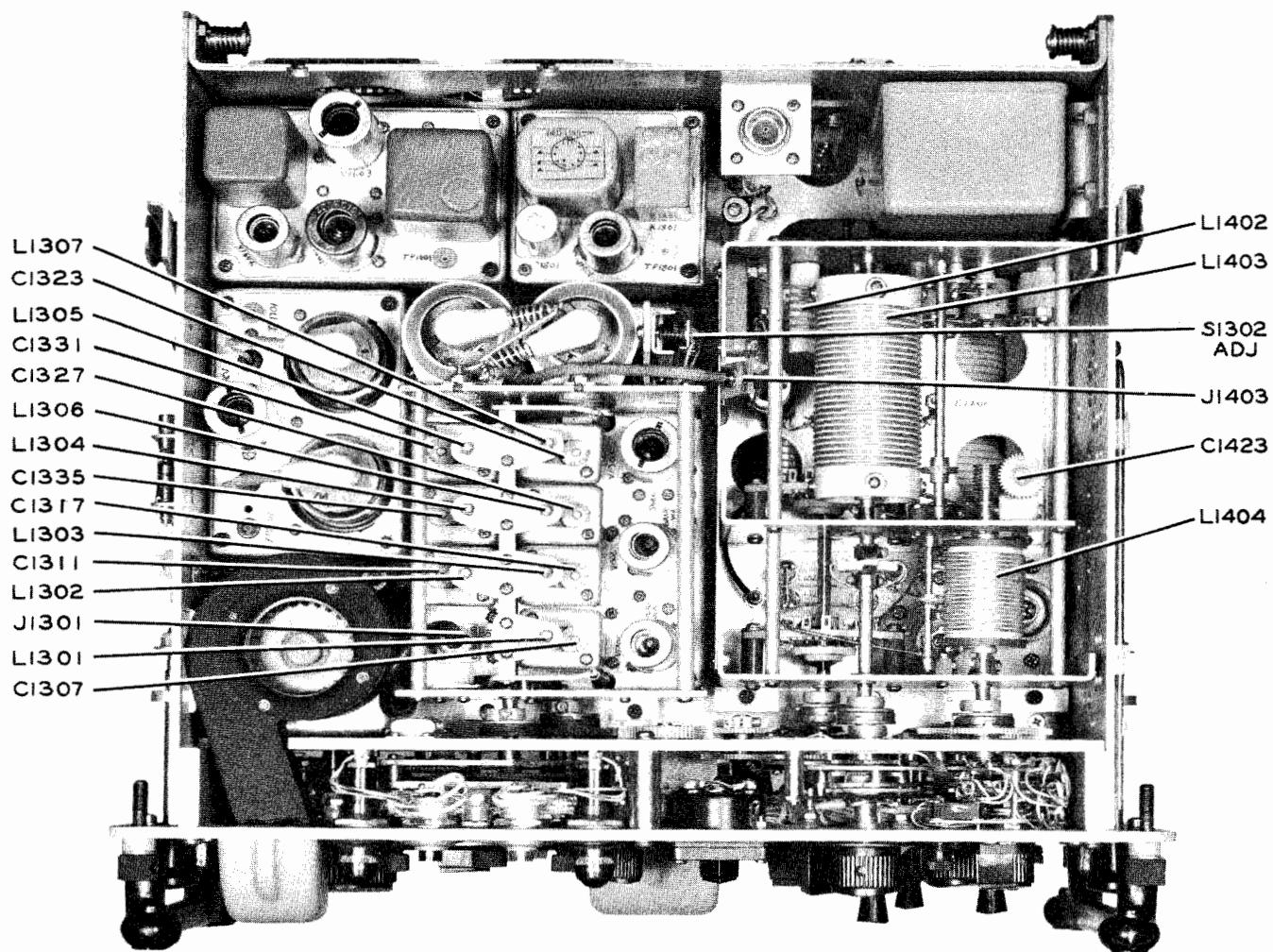


Figure 5-4. Radio Transmitter T-474(XN-1)/URC-8, Top Deck Alignment and Adjustment Points

(d) Set the METER switch to PA GRID.

(e) Connect the meter shunting resistor across the two input terminals on the rear of meter M1901.

NOTE

TO PREVENT OVERLOADING THE METER USE THE SHUNTING RESISTOR WHEN ALIGNING THE 2-4, 4-8, AND 8-16 MC TUNED CIRCUITS.

(f) Using the phenolic tuning tool (clipped to right side of main frame), set the slugs of coils L1301 through L1307 so that their adjusting screws are approximately 1/8 inch above the screw mounting bracket.

(g) With the TUNING dial set to 2.1 mc, tune capacitor C1335 to produce peak power amplifier grid current.

(h) Set the TUNING dial to 3.8 mc and adjust the slug of L1304 to produce peak power amplifier grid current.

(i) Repeat the adjustment of capacitor C1335 at 2.1 mc and the adjustment of coil L1304 slug at 3.8 mc until no further increase in power amplifier grid current is obtained. Terminate the procedure with an adjustment to the coil slug.

(j) Set the BAND CHANGE switch to 4-8 MC and the TUNING dial to 4.2 mc.

(k) Tune capacitors C1307 and C1331, in turn, to produce peak power amplifier grid current.

(l) Set the TUNING dial to 7.6 mc and adjust the slugs of coils L1301 and L1305, in turn, to produce peak power amplifier grid current.

(m) Repeat the adjustment of capacitors C1307 and C1331 at 4.2 mc and the adjustment of coil L1301 and L1305 slugs at 7.6 mc until no further increase in power amplifier grid current is obtained. Terminate the procedure with an adjustment to the coil slugs.

(n) Set the BAND CHANGE switch to 8-16 MC and the TUNING dial to 8.4 mc.

(o) Tune capacitors C1311 and C1327, in turn, to produce peak power amplifier grid current.

(p) Set the TUNING dial to 15.2 mc and adjust the slugs of coils L1302 and L1306, in turn, to produce peak power amplifier grid current.

(q) Repeat the adjustment of capacitors C1311 and C1327 at 8.4 mc and the adjustment of coil L1302 and L1306 slugs at 15.2 mc until no further increase

in power amplifier grid current is obtained. Terminate the procedure with an adjustment to the coil slugs.

(r) Set the BAND CHANGE switch to 16-30 MC and the TUNING dial to 16.8 mc.

(s) Tune capacitors C1317 and C1323, in turn, to produce peak power amplifier grid current. If necessary, remove the meter shunting resistor to obtain a clear meter indication of peak current.

(t) Set the TUNING dial to 26.4 mc and adjust the slugs of coils L1303 and L1307, in turn, to produce peak power amplifier grid current.

(u) Repeat the adjustment of capacitors C1317 and C1323 at 16.8 mc and the adjustment of coil L1303 and L1307 slugs at 26.4 mc until no further increase in power amplifier grid current is obtained. Terminate the procedure with an adjustment to the coil slugs.

NOTE

THE 16-30 MC COILS, L1303 AND L1307, REQUIRE VERY CAREFUL ADJUSTMENT TO OBTAIN OPTIMUM PERFORMANCE.

f. POWER AMPLIFIER OVERLOAD RELAY S1302 ADJUSTMENT

(1) With the power to the radio transmitter turned off, remove the power amplifier tube farthest from the overload relay S1302.

(2) Disconnect plug P1302 from jack J1403 to disconnect the 600 v dc supply of Power Supply PP-1190(XN-1)/URC-8.

(3) Remove the plate cap from the power amplifier tube nearest the overload relay S1302.

(4) Disconnect plug P1902 from jack J1301 to remove rf excitation from the power amplifier.

(5) Connect the separate 500 v dc power supply, Hewlett-Packard 711A or equivalent, to the plate cap of the power amplifier tube nearest the overload relay. The lead from the separate power supply must be run into the radio transmitter through the air exhaust port, and the main chassis must be rolled back into the case. Two external meters (Triplett 630 or equivalent) must be connected to meter the dc voltage on the power amplifier tube and current through the tube.



GROUND THE SEPARATE POWER SUPPLY TO THE MAIN CHASSIS OF THE RADIO TRANSMITTER.

(6) Pull the main frame out on its slides, set the SERVICE SELECTOR switch to TUNE, and put the TEST KEY in the lock (up) position. The radio transmitter will not turn on because the interlock switch is open.

(7) Turn the radio transmitter on by rolling the main frame back into the cabinet.

(8) Immediately turn the separate power supply on and immediately adjust the output voltage level to produce a plate dissipation of 20 watts from the single power amplifier tube. With this equipment setup, the plate dissipation is the product of the dc voltage and current as indicated by the two external meters in the plate voltage supply line.

(9) After the power amplifier tube has warmed up for approximately 10 minutes, increase the output voltage level of the separate power supply to produce a plate dissipation of 35 watts. The overload relay S1302 should operate in approximately 30 seconds.

(10) Remove plate voltage from the power amplifier tube after the overload relay operates.

(11) If the overload relay requires more than 40 seconds or less than 30 seconds to operate after increasing the plate dissipation from 20 watts to 35 watts, adjust the adjusting screw on the thermal relay S1302. Then repeat the test to check the timing of the relay.

NOTE

OVERLOADING THE POWER AMPLIFIER TUBE SHOULD NOT BE REPEATED UNNECESSARILY AS IT WILL SHORTEN TUBE LIFE.

(12) After the proper relay adjustment is obtained, remove all power from the radio transmitter, disconnect all test equipment, connect P1302 to J1403, connect P1902 to J1301, replace the power amplifier tube, and connect the plate caps of the power amplifier tubes.

g. MASTER OSCILLATOR END POINT ALIGNMENT

NOTE

SETTING MASTER OSCILLATOR END POINTS IS NOT PART OF NORMAL ALIGNMENT PROCEDURE AND SHOULD ONLY BE PERFORMED

IF THE TRACKING ERROR BETWEEN END POINTS IS GREATER THAN 5 KC.

(1) Use the following procedure to determine the end point error:

(a) Calibrate the radio transmitter at 2 mc using the procedure given in paragraph 4-3c(4).

(b) Calibrate the Radio Receiver R-627(XN-1)/URC-8, or equivalent receiver, at 4 mc.

(c) Without moving the DIAL CORRECTOR on the radio transmitter, tune the radio transmitter to zero beat with the calibrated receiver at 4 mc.

(d) The amount the KC indicator must move to calibrate at the 4 mc frequency is the end point error.

(e) If the end point error is less than 5 kc, the end point setting of the master oscillator is all right. If the end point error is more than 5 kc, the master oscillator end points must be reset.

(2) Use the following procedure to reset the master oscillator end points.

(a) Calibrate the radio transmitter at 2 mc using the procedure given in paragraph 4-3c(4).

(b) Set the TUNING dial to 4 mc but do not zero beat or move the DIAL CORRECTOR.

(c) The frequency of the note heard in the headphones of the calibrating receiver is the end point error. This error must be corrected approximately 145 per cent. (The calibrating receiver must be calibrated at 4 mc instead of depending upon the accuracy of the dial setting.)

(d) To correct the end point error, adjust coil L1102 (the small metal alignment screw between tubes V401 and V402) until the note heard in the headphones goes through the zero beat to a point approximately one octave lower than the original error on the other side of the zero beat.

(e) Repeat the procedure given in paragraphs 5-6g(2)(a) through 5-6g(2)(d), above, until the radio transmitter will calibrate on both 2 mc and 4 mc without moving the DIAL CORRECTOR.

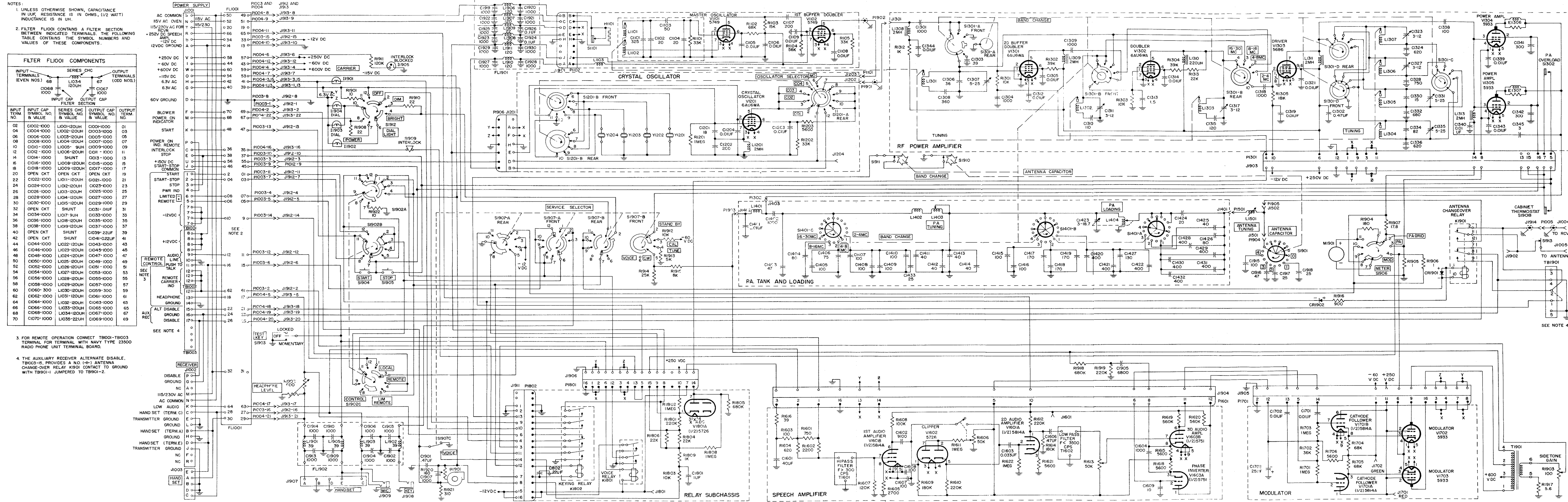
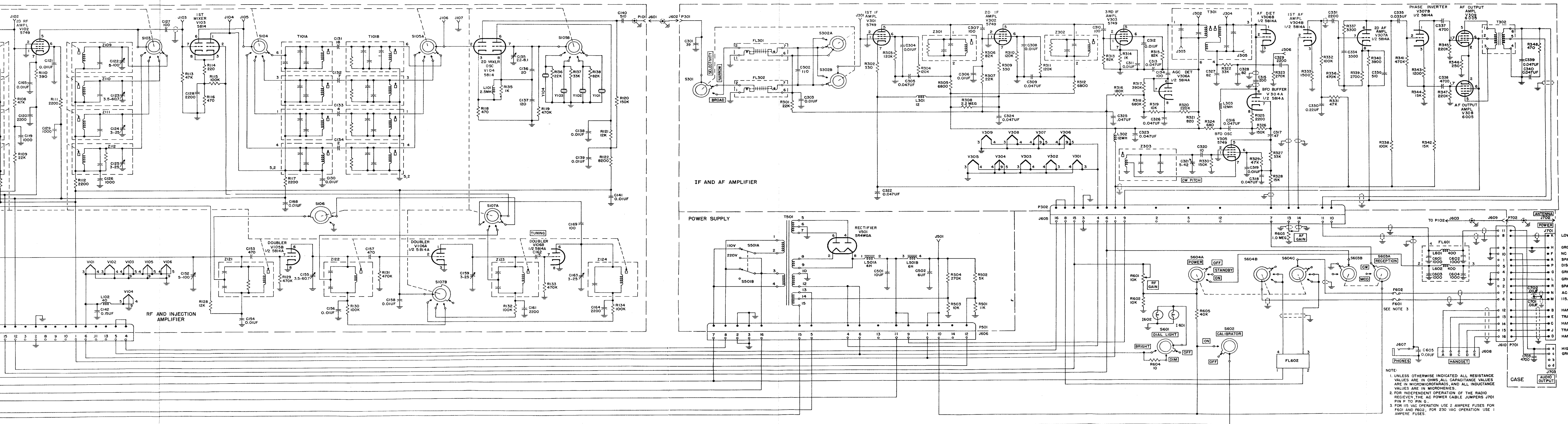
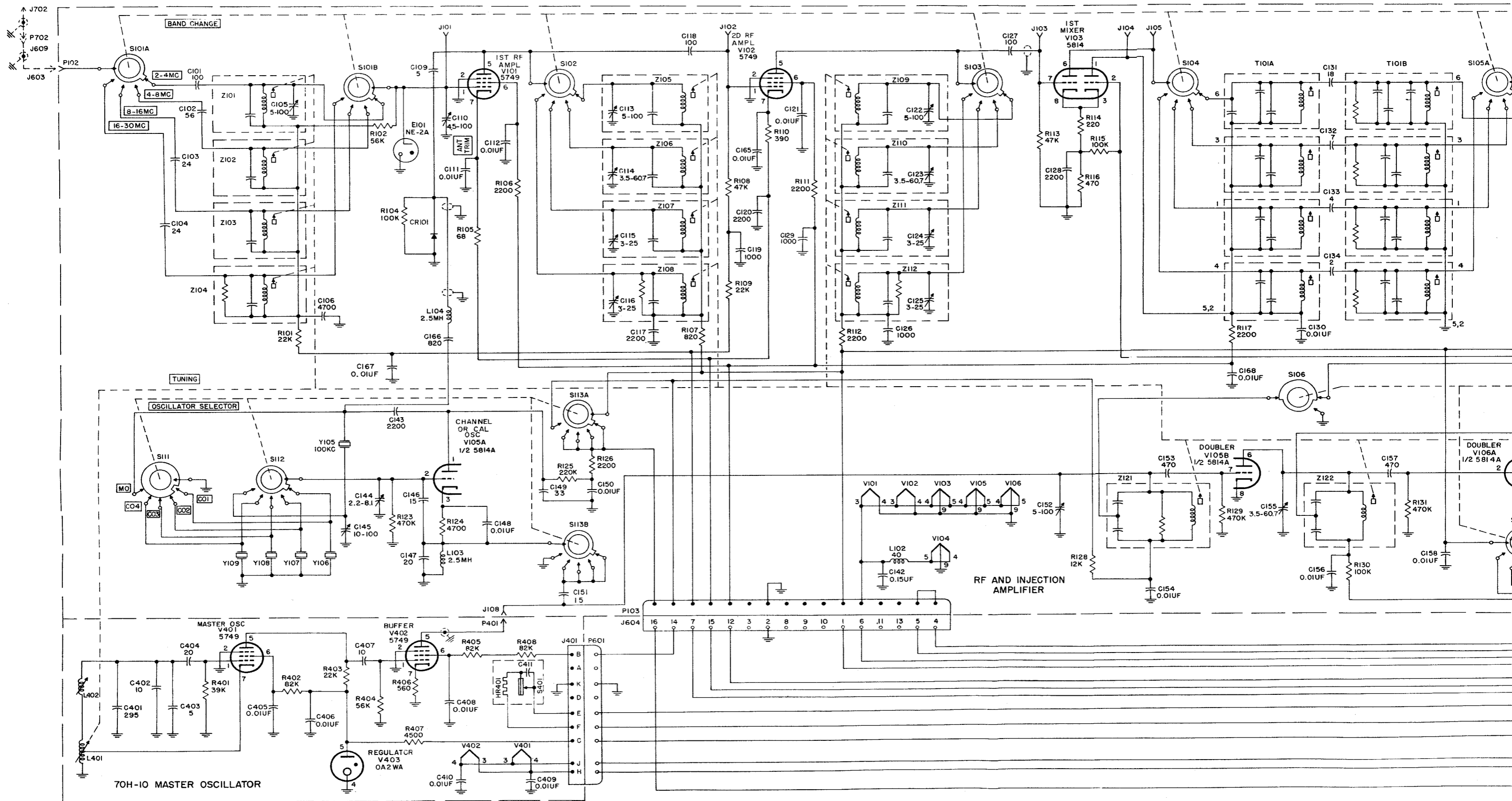


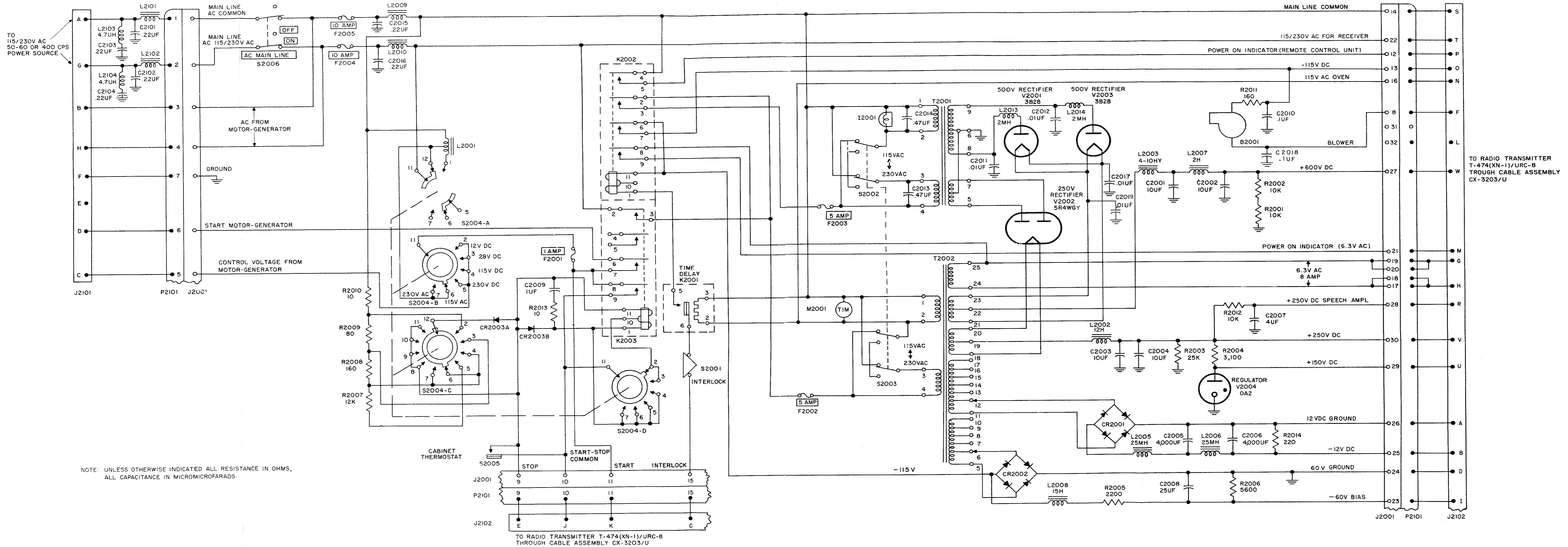
Figure 5-5. Radio Transmitter T-474(XN-1)/URC-8, Schematic Diagram



NOTE:  
 1. UNLESS OTHERWISE INDICATED ALL RESISTANCE VALUES ARE IN OHMS, ALL CAPACITANCE VALUES ARE IN MICROMICROFARADS, AND ALL INDUCTANCE VALUES ARE IN MICROHENRIES.  
 2. FOR INDEPENDENT OPERATION OF THE RADIO RECEIVER, THE AC POWER CABLE JUMPERS J701 PIN P TO PIN G.  
 3. FOR 115 VAC OPERATION USE 2 AMPERE FUSES FOR F601 AND F602, FOR 230 VAC OPERATION USE 1 AMPERE FUSES.

Figure 5-6. Radio Receiver R-627(XN-1)/URC-8, Schematic Diagram





NOTE: UNLESS OTHERWISE INDICATED ALL RESISTANCE IN OHMS,  
ALL CAPACITANCE IN MICROMICROFARADS.

Figure 5-7. Power Supply PP-1190(XN-1)/URC-8, Schematic Diagram

ORIGINAL



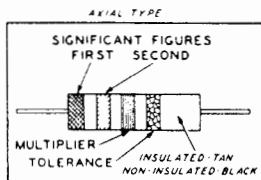
## SECTION 6 PARTS LIST

TABLE 6-1. LIST OF MODULES AND MAJOR UNITS

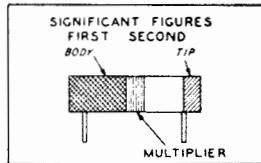
SYMBOL GROUP	MODULE OR SUBASSEMBLY	MAJOR UNIT
101-199	Rf and Injection Amplifier	Radio Receiver R-627(XN-1)/URC-8
301-399	If. and Af Amplifier	Radio Receiver R-627(XN-1)/URC-8
401-499	Master Oscillator	Radio Receiver R-627(XN-1)/URC-8
501-599	Power Supply	Radio Receiver R-627(XN-1)/URC-8
601-699	Front Panel and Main Frame	Radio Receiver R-627(XN-1)/URC-8
701-799	Case	Radio Receiver R-627(XN-1)/URC-8
1001-1099	Case	Radio Transmitter T-474(XN-1)/URC-8
1101-1199	Master Oscillator	Radio Transmitter T-474(XN-1)/URC-8
1201-1299	Crystal Oscillator	Radio Transmitter T-474(XN-1)/URC-8
1301-1399	Rf Power Amplifier	Radio Transmitter T-474(XN-1)/URC-8
1401-1499	Power Amplifier Tank and Loading	Radio Transmitter T-474(XN-1)/URC-8
1501-1599	Antenna Tuning	Radio Transmitter T-474(XN-1)/URC-8
1601-1699	Speech Amplifier	Radio Transmitter T-474(XN-1)/URC-8
1701-1799	Modulator	Radio Transmitter T-474(XN-1)/URC-8
1801-1899	Relay Subchassis	Radio Transmitter T-474(XN-1)/URC-8
1901-1999	Front Panel and Main Frame	Radio Transmitter T-474(XN-1)/URC-8
2001-2099	Main Frame	Power Supply PP-1190(XN-1)/URC-8
2101-2199	Case	Power Supply PP-1190(XN-1)/URC-8
2201-2299	Interconnecting Cable	Radio Set AN/URC-8(XN-1)
2301-2399	Interconnecting Cable	Radio Set AN/URC-8(XN-1)
2401-2499	Interconnecting Cable	Radio Set AN/URC-8(XN-1)
2501-2599	Interconnecting Cable	Radio Set AN/URC-8(XN-1)

### RESISTOR COLOR CODES

RMA COLOR CODE FOR FIXED COMPOSITION RESISTORS

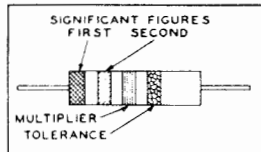


RADIAL TYPE

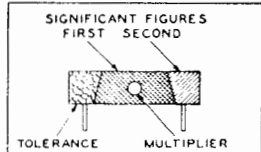


JAN COLOR CODE FOR FIXED COMPOSITION RESISTORS

AXIAL TYPE INSULATED

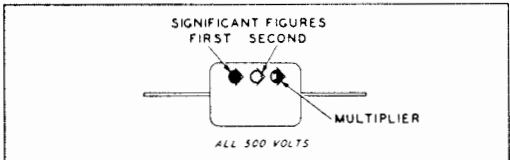


RADIAL TYPE NON-INSULATED

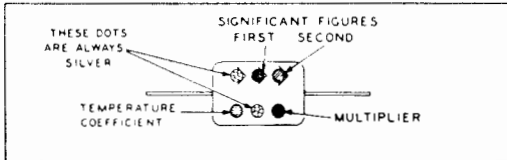


### CAPACITOR COLOR CODES

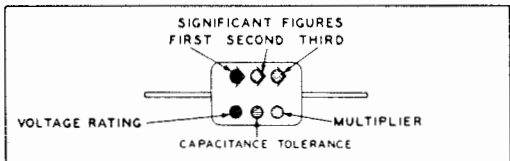
RMA 3-DOT COLOR CODE FOR MICA-DIELECTRIC CAPACITORS



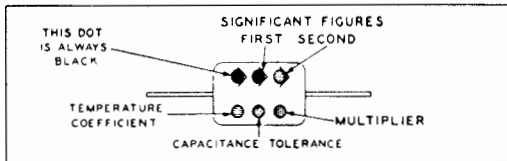
JAN 6-DOT COLOR CODE FOR PAPER-DIELECTRIC CAPACITORS



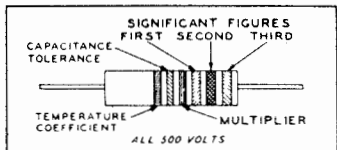
RMA 6-DOT COLOR CODE FOR MICA-DIELECTRIC CAPACITORS



JAN 6-DOT COLOR CODE FOR MICA-DIELECTRIC CAPACITORS

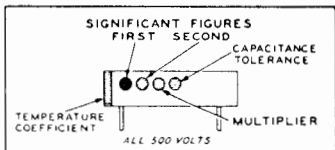


RMA COLOR CODE FOR TUBULAR CERAMIC-DIELECTRIC CAPACITORS

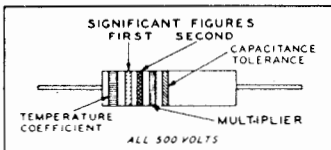


JAN COLOR CODE FOR FIXED CERAMIC-DIELECTRIC CAPACITORS

RADIAL TYPE NON-INSULATED



AXIAL TYPE INSULATED



RMA: RADIO MANUFACTURERS ASSOCIATION  
JAN: JOINT ARMY-NAVY

RESISTORS				CAPACITORS				
TOLERANCE	MULTIPLIER	SIGNIFICANT FIGURE	COLOR	MULTIPLIER			VOLTAGE RATING	TEMPERATURE COEFFICIENT
				RMA MICA AND CERAMIC-DIELECTRIC	JAN MICA AND PAPER-DIELECTRIC	JAN CERAMIC DIELECTRIC		
	1	0	BLACK	1	1	1		A
	10	1	BROWN	10	10	10	100	B
	100	2	RED	100	100	100	200	C
	1000	3	ORANGE	1000	1000	1000	300	D
	10000	4	YELLOW	10000			400	E
	100000	5	GREEN	100000			500	F
	1000000	6	BLUE	1000000			600	G
	10000000	7	VIOLET	10000000			700	
	100000000	8	GRAY	100000000		0.01	800	
	1000000000	9	WHITE	1000000000		0.1	900	
5	0.1		GOLD	0.1	0.1		1000	
10	0.01		SILVER	0.01	0.01		2000	
20			NO COLOR				500	

Resistor and Capacitor Color Codes

TABLE 6-2. TABLE OF REPLACEMENT PARTS

FOR RADIO SET AN/URC-8(XN-1)

RF AND INJECTION AMPLIFIER  
MAJOR ASSEMBLY: RADIO RECEIVER R-627(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C101	N16-C028547-8645	CAPACITOR, fixed: mica; 100 mmf $\pm 2\%$ ; 500 vdcw	Antenna coupling, band 1	912 0493 00
C102		CAPACITOR, fixed: mica; 56 mmf $\pm 2\%$ ; 500 vdcw	Antenna coupling, band 2	912 0475 00
C103	N16-C099999-0396	CAPACITOR, fixed: mica; 24 mmf $\pm 5\%$ ; 500 vdcw	Antenna coupling, band 3	912 0449 00
C104	N16-C099999-0396	CAPACITOR, fixed: mica; 24 mmf $\pm 5\%$ ; 500 vdcw	Antenna coupling, band 4	912 0449 00
C105		CAPACITOR, variable: air; 5 to 100 mmf; 38 plates; 600 v rms, 60 cycles	Z101 trimming	922 0272 00
C106		CAPACITOR, fixed: paper; 0.0047 mf $\pm 20\%$ ; 100 vdcw	V101 grid circuit bypass	931 9082 00
C107		NOT USED		
C108		NOT USED		
C109	N16-C025102-6283	CAPACITOR, fixed: mica; 5 mmf $\pm 5\%$ ; 500 vdcw	100 kc harmonic coupling	No part no.
C110		CAPACITOR, variable: air; 4.5 to 100 mmf; 38 plates; 600 v rms, 60 cps	Antenna trimming	922 9001 00
C111	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf $+100 -20\%$ ; 500 vdcw	V101 cathode bypass	913 1188 00
C112	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf $+100 -20\%$ ; 500 vdcw	V101 screen bypass	913 1188 00
C113		CAPACITOR, variable: air; 5 to 100 mmf; 38 plates; 600 v rms, 60 cycles	Z105 trimming	922 0272 00
C114		CAPACITOR, variable: air 3.5 to 60.7 mmf; 23 plates; 600 v rms, 60 cps	Z106 trimming	922 0212 00
C115		CAPACITOR, variable: air; 3 to 25 mmf; 10 plates; 600 v rms, 60 cps	Z107 trimming	922 0273 00
C116		CAPACITOR, variable: air; 3 to 25 mmf; 10 plates; 600 v rms, 60 cps	Z108 trimming	922 0273 00
C117		CAPACITOR, fixed: paper; 0.0022 mf $\pm 20\%$ ; 400 vdcw	V101 plate bypass	931 9091 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

RF AND INJECTION AMPLIFIER  
MAJOR ASSEMBLY: RADIO RECEIVER R-627(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C118	N16-C028547-8645	CAPACITOR, fixed: mica; 100 mmf $\pm 2\%$ ; 500 vdcw	V102 grid coupling	912 0493 00
C119		CAPACITOR, fixed: paper; 0.001 mf $\pm 20\%$ ; 100 vdcw	V102 grid decoupling	931 9077 00
C120		CAPACITOR, fixed: paper; 0.0022 mf $\pm 20\%$ ; 100 vdcw	V102 cathode decoupling	931 9080 00
C121	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf +100 -20%; 500 vdcw	V102 screen bypass	913 1188 00
C122		CAPACITOR, variable: air; 5 to 100 mmf; 38 plates; 600 v rms, 60 cycles	Z109 trimming	922 0272 00
C123		CAPACITOR, variable: air; 3.5 to 60.7 mmf; 23 plates; 600 v rms, 60 cps	Z110 trimming	922 0212 00
C124		CAPACITOR, variable: air; 3 to 25 mmf; 10 plates; 600 v rms, 60 cycles	Z111 trimming	922 0273 00
C125		CAPACITOR, variable: air; 3 to 25 mmf; 10 plates; 600 v rms, 60 cycles	Z112 trimming	922 0273 00
C126		CAPACITOR, fixed: paper; 0.001 mf $\pm 20\%$ ; 400 vdcw	V102 plate bypass	931 9090 00
C127	N16-C028547-8645	CAPACITOR, fixed: mica; 100 mmf $\pm 2\%$ ; 500 vdcw	V103 signal grid coupling	912 0493 00
C128		CAPACITOR, fixed: paper; 0.0022 mf $\pm 20\%$ ; 100 vdcw	V103 cathode bypass	931 9080 00
C129		CAPACITOR, fixed: paper; 0.001 mf $\pm 20\%$ ; 300 vdcw	V102 screen decoupling	931 0522 00
C130	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf +100 -20%; 500 vdcw	V103 plate bypass	913 1188 00
C131	N16-C016043-9128	CAPACITOR, fixed: ceramic; JAN #CC21CH180G	T101 top coupling, band 1	916 1818 00
C132	N16-C015752-2467	CAPACITOR, fixed: ceramic; JAN #CC21CH070C	T101 top coupling, band 2	916 1070 00
C133	N16-C015560-4665	CAPACITOR, fixed: ceramic; JAN #CC21CH040C	T101 top coupling, band 3	916 1058 00
C134	N16-C015432-5867	CAPACITOR, fixed: ceramic; JAN #CC21CK020C	T101 top coupling, band 4	916 1020 00
C135		CAPACITOR, variable: air; 2.2 to 8.1 mmf; 9 plates; 1250 v peak, 60 cps	V104 crystal capacity trimming	922 0031 00

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C136	N16-C026732-9444	CAPACITOR, fixed: mica; 20 mmf $\pm 5\%$ ; 500 vdcw	Osc feedback network	912 0443 00
C137		CAPACITOR, fixed: mica; 120 mmf $\pm 2\%$ ; 500 vdcw	Osc feedback network	912 0499 00
C138	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf $+100 -20\%$ ; 500 vdcw	V104 osc plate bypass	913 1188 00
C139	N16-C042733-5758	CAPACITOR, fixed: paper; 0.01 mf $\pm 10\%$ ; 400 vdcw	V104 mixer plate bypass	No part no.
C140	N16-C030183-2027	CAPACITOR, fixed: mica; MIL #CM15D510G	Coupling to if. module	912 0544 00
C141	N16-C042733-5758	CAPACITOR, fixed: paper; 0.01 mf $\pm 10\%$ ; 400 vdcw	B+ bypass	No part no.
C142		CAPACITOR, fixed: paper; 0.15 mf $\pm 20\%$ ; 100 vdcw	V104 filament decoupling	931 2046 00
C143		CAPACITOR, fixed: paper; 0.0022 mf $\pm 20\%$ ; 400 vdcw	V105A plate decoupling	931 0451 00
C144		CAPACITOR, variable: air; 2.2 to 8.1 mmf; 9 plates; 1250 v peak, 60 cps	V105A crystal trimmer	922 0031 00
C145		CAPACITOR, variable: air; 5 to 100 mmf; 38 plates; 600 v rms, 60 cycles	100 kc crystal trimmer	922 0272 00
C146		CAPACITOR, fixed: mica; 15 mmf $\pm 5\%$ ; 500 vdcw	Osc feedback network	912 0437 00
C147	N16-C026732-9444	CAPACITOR, fixed: mica; 20 mmf $\pm 5\%$ ; 500 vdcw	Osc feedback network	912 0443 00
C148		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ ; 100 vdcw	V105A cathode bypass	931 2042 00
C149		CAPACITOR, fixed: mica; 33 mmf $\pm 2\%$ ; 500 vdcw	V105A plate bypass	912 0457 00
C150	N16-C042733-5758	CAPACITOR, fixed: paper; 0.01 mf $\pm 10\%$ ; 400 vdcw	V105A plate decoupling	No part no.
C151		CAPACITOR, fixed: mica; 15 mmf $\pm 5\%$ ; 500 vdcw	V105A osc coupling	912 0437 00
C152		CAPACITOR, variable: air; 5 to 100 mmf; 38 plates; 600 v rms, 60 cycles	Z121 trimmer	922 0272 00
C153	N16-C030103-8375	CAPACITOR, fixed: mica; 470 mmf $\pm 2\%$ ; 300 vdcw; MIL #CM15D471G	V105B grid coupling	912 0541 00
C154		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ ; 400 vdcw	Z121 decoupling	931 9092 00
C155		CAPACITOR, variable: air; 3.5 to 60.7 mmf; 23 plates; 600 v rms, 60 cps	Z122 trimmer	922 0212 00
C156		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ ; 400 vdcw	V105B plate bypass	931 9092 00
C157	N16-C030103-8375	CAPACITOR, fixed: mica; 470 mmf $\pm 2\%$ ; 300 vdcw; MIL #CM15D471G	V106A grid coupling	912 0541 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

RF AND INJECTION AMPLIFIER  
MAJOR ASSEMBLY: RADIO RECEIVER R-627(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C158	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf +100 -20%; 500 vdcw	B+ bypass	913 1188 00
C159		CAPACITOR, variable: air; 3 to 25 mmf; 10 plates; 600 v rms, 60 cycles	Z123 trimmer	922 0273 00
C160		NOT USED		
C161		CAPACITOR, fixed: paper; 0.0022 mf ±20%; 400 vdcw	V106A plate bypass	931 9091 00
C162	N16-C015624-4628	CAPACITOR, fixed: ceramic; JAN #CC20CH050C	V106B grid coupling	916 0117 00
C163		CAPACITOR, variable: air; 3 to 25 mmf; 10 plates; 600 v rms, 60 cycles	Z124 trimmer	922 0273 00
C164		CAPACITOR, fixed: paper; 0.0022 mf ±20%; 400 vdcw	V106B plate bypass	931 9091 00
C165	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf +100 -20%; 500 vdcw	V102 cathode bypass	913 1188 00
C166	N16-C030737-3019	CAPACITOR, fixed: mica; MIL #CM35E821G	100 kc filter	935 2322 00
C167	N16-C018661-2291	CAPACITOR, fixed: ceramic; 0.001 mf +100 -20%; 500 vdcw	AGC bypass	913 1186 00
C168	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf +100 -20%; 500 vdcw	V103 plate decoupling	913 1188 00
C169	N16-C028547-8645	CAPACITOR, fixed: mica; 100 mmf ±2%; 500 vdcw	V106B plate coupling	912 0493 00
CR101		CRYSTAL UNIT, rectifying: diode, silicon; 50 ma avg current; 0.2 w; 0.0005 ma max at -25 v reverse current; 15 ma at +1 v forward current	100 kc harmonic generator	353 0200 00
E101		LAMP, glow: starting voltage 90 v dc or 65 v ac; 1/25 w	V101 overload protection	262 0265 00
J101		CONNECTOR, receptacle: 1 rd female cont; for u/w a 0.050 in. male cont	V101 grid test jack	360 0077 00
J102		CONNECTOR, receptacle: 1 rd female cont; for u/w a 0.050 in. male cont	V102 grid test jack	360 0077 00

J103		CONNECTOR, receptacle: 1 rd female cont; for u/w a 0.050 in. male cont	V103 grid test jack	360 0077 00
J104		CONNECTOR, receptacle: 1 rd female cont; for a u/w a 0.050 in. male cont	V103 plate test jack	360 0077 00
J105		CONNECTOR, receptacle: 1 rd female cont; for a u/w a 0.050 in. male cont	V103 plate test jack	360 0077 00
J106		CONNECTOR, receptacle: 1 rd female cont; for a u/w a 0.050 in. male cont	V104 grid test jack	360 0077 00
J107		CONNECTOR, receptacle: 1 rd female cont; for a u/w a 0.050 in. male cont	Ground test jack	360 0077 00
J108		CONNECTOR, plug: plug-in type; coaxial	PTO injection connector	357 9211 00
L101		COIL, RF: choke; 2.5 mh $\pm$ 5%	V104 osc cathode	082 3500 99
L102		COIL, RF: choke; 40 uh	V104 filament decoupling	596 6984 002
L103		COIL, RF: choke; 2.5 mh $\pm$ 5%	V105A osc cathode	082 3500 99
L104		COIL, RF: choke; 2.5 mh $\pm$ 5%	100 kc filter	082 3500 99
P101		CONNECTOR, plug: plug-in type; coaxial	V104 output connector	357 9211 00
P102		CONNECTOR, plug: plug-in type; coaxial	Antenna input connector	357 9211 00
P103		CONNECTOR, plug: 16 cont; molded plastic; 5 amp at 600 vdc	RF module power plug	372 1136 00
R101	N16-R050371-0433	RESISTOR, fixed: composition; MIL #RC20GF223J	V101 agc decoupling	745 1407 00
R102	N16-R050515-0433	RESISTOR, fixed: composition; MIL #RC20GF563J	V101 grid return	745 1425 00
R103		NOT USED		
R104	N16-R050632-0416	RESISTOR, fixed: composition; MIL #RC20GF104J	CR101 return	745 1435 00
R105	N16-R049498-0438	RESISTOR, fixed: composition; MIL #RC20GF680J	V101 cathode	745 1302 00
R106	N16-R050011-0438	RESISTOR, fixed: composition; MIL #RC20GF222J	V101 screen dropping	745 1365 00
R107	N16-R049876-0698	RESISTOR, fixed: composition; MIL #RC32GF821J	V101 plate decoupling	745 3348 00
R108	N16-R050479-0435	RESISTOR, fixed: composition; MIL #RC20GF473J	V102 grid return	745 1421 00
R109	N16-R050371-0433	RESISTOR, fixed: composition; MIL #RC20GF223J	V102 agc decoupling	745 1407 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

RF AND INJECTION AMPLIFIER  
MAJOR ASSEMBLY: RADIO RECEIVER R-627(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
R110	N16-R049732-0438	RESISTOR, fixed: composition; MIL #RC20GF391J	V102 cathode	745 1334 00
R111	N16-R050011-0438	RESISTOR, fixed: composition; MIL #RC20GF222J	V102 screen dropping	745 1365 00
R112	N16-R050011-0438	RESISTOR, fixed: composition; MIL #RC20GF222J	V102 plate decoupling	745 1365 00
R113	N16-R050479-0435	RESISTOR, fixed: composition; MIL #RC20GF473J	V103 grid return	745 1421 00
R114	N16-R049660-0438	RESISTOR, fixed: composition; MIL #RC20GF221J	V103 cathode	745 1323 00
R115	N16-R050632-0416	RESISTOR, fixed: composition; MIL #RC20GF104J	V103 grid return	745 1435 00
R116	N16-R049768-0438	RESISTOR, fixed: composition; MIL #RC20GF471J	V103 cathode	745 1337 00
R117	N16-R050011-0438	RESISTOR, fixed: composition; MIL #RC20GF222J	V103 plate decoupling	745 1365 00
R118	N16-R049768-0438	RESISTOR, fixed: composition; MIL #RC20GF471J	V104 cathode	745 1337 00
R119	N16-R050821-0276	RESISTOR, fixed: composition; MIL #RC20GF474J	V104 grid return	745 1463 00
R120	N16-R050677-0713	RESISTOR, fixed: composition; MIL #RC32GF154J	V104 plate dropping	745 3442 00
R121	N16-R050308-0945	RESISTOR, fixed: composition; MIL #RC42GF123J	V104 plate dropping	745 5697 00
R122	N16-R050236-0940	RESISTOR, fixed: composition; MIL #RC42GF822J	V104 plate decoupling	745 5690 00
R123	N16-R050821-0276	RESISTOR, fixed: composition; MIL #RC20GF474J	V105A grid return	745 1463 00
R124	N16-R050128-0438	RESISTOR, fixed: composition; MIL #RC20GF472J	V105A cathode	745 1379 00
R125	N16-R050714-0108	RESISTOR, fixed: composition; MIL #RC42GF224J	V105A plate dropping	745 5749 00
R126	N16-R050011-0438	RESISTOR, fixed: composition; MIL #RC20GF222J	V105A plate decoupling	745 1365 00
R127		NOT USED		
R128	N16-R050308-0945	RESISTOR, fixed: composition; MIL #RC42GF123J	Z121 decoupling	745 5697 00
R129	N16-R050821-0276	RESISTOR, fixed: composition; MIL #RC20GF474J	V105B grid return	745 1463 00
R130	N16-R050633-0136	RESISTOR, fixed: composition; MIL #RC42GF104J	V105B plate dropping	745 5735 00
R131	N16-R050821-0276	RESISTOR, fixed: composition; MIL #RC20GF474J	V106A grid return	745 1463 00

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R132	N16-R050633-0136	RESISTOR, fixed: composition; MIL #RC42GF104J	V106A plate dropping	745 5735 00
R133	N16-R050821-0276	RESISTOR, fixed: composition; MIL #RC20GF474J	V106B grid return	745 1463 00
R134	N16-R050633-0136	RESISTOR, fixed: composition; MIL #RC42GF104J	V106B plate dropping	745 5735 00
R135	N16-R049921-0349	RESISTOR, fixed: composition; MIL #RC20GF102J	V104 cathode	745 1351 00
R136	N16-R050371-0433	RESISTOR, fixed: composition; MIL #RC20GF223J	V104 band 4 Xtal loading	745 1407 00
R137	N16-R050416-0435	RESISTOR, fixed: composition; MIL #RC20GF333J	V104 band 3 Xtal loading	745 1414 00
R138	N16-R050587-0435	RESISTOR, fixed: composition; MIL #RC20GF823J	V104 band 2 Xtal loading	745 1432 00
S101		SWITCH, rotary: wafer; 2 pole, 4 position	1st comp band switch	082 6410 97
S102		SWITCH, rotary: wafer; 1 pole, 4 position	2nd comp band switch	082 6412 97
S103		SWITCH, rotary: wafer; 1 pole, 4 position	3rd comp band switch	082 6415 97
S104		SWITCH, rotary: wafer; 1 pole, 4 position	1st if. band switch	082 6414 97
S105		SWITCH, rotary: wafer; 2 pole, 4 position	1st if. band switch	082 6413 97
S106		SWITCH, rotary: wafer; 1 pole, 4 position	Band 1 inj lead grounding switch	082 6416 97
S107		SWITCH, rotary: wafer; 2 pole, 4 position	Injection band switch	082 6417 97
S108		NOT USED		
S109		NOT USED		
S110		NOT USED		
S111		SWITCH, rotary: wafer; 1 pole, 5 position	Osc selector switch	082 6409 97
S112		SWITCH, rotary: wafer; 1 pole, 5 position	Osc selector switch	082 6411 97
S113		SWITCH, rotary: wafer; 2 pole, 5 position	Osc selector switch	082 6408 97
T101A		TRANSFORMER: bands 1, 2, 3, 4 tuned ckt assembly	Pri, 1st if. transformer	596 6979 003
T101B		TRANSFORMER: bands 1, 2, 3, 4 tuned ckt assembly	Sec, 1st if. transformer	596 6980 003
V101	N16-T075749	TUBE, electron: pentode; MIL #5749/6BA6W	1st rf amplifier	254 0872 00
V102	N16-T075749	TUBE, electron: pentode; MIL #5749/6BA6W	2nd rf amplifier	254 0872 00
V103	N16-T075814-0005	TUBE, electron: twin triode; MIL #5814A	1st mixer	254 0897 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

RF AND INJECTION AMPLIFIER  
MAJOR ASSEMBLY: RADIO RECEIVER R-627(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
V104	N16-T075814-0005	TUBE, electron: twin triode; MIL #5814A	2nd mixer	254 0897 00
V105	N16-T075814-0005	TUBE, electron: twin triode: MIL #5814A	Xtal osc and 1st inj dblr	254 0897 00
V106	N16-T075814-0005	TUBE, electron: twin triode; MIL #5814A	2nd and 3rd inj dblr	254 0897 00
XV101	N16-S062603-6899	SOCKET, tube: 7 cont min; below chassis base mtd; rd, mica filled body; w/o shield	V101 tube socket	220 1049 00
XV102	N16-S062603-6899	SOCKET, tube: 7 cont min; below chassis base mtd; rd, mica filled body; w/o shield	V102 tube socket	220 1049 00
XV103	N16-S064063-6713	SOCKET, tube: JAN #TS103P01	V103 tube socket	220 1103 00
XV104	N16-S064063-6713	SOCKET, tube: JAN #TS103P01	V104 tube socket	220 1103 00
XV105	N16-S064063-6713	SOCKET, tube: JAN #TS103P01	V105 tube socket	220 1103 00
XV106	N16-S064063-6713	SOCKET, tube: JAN #TS103P01	V106 tube socket	220 1103 00
XY101	N16-S054287-5101	SOCKET, crystal: u/w HC-6/U holder; steatite ins; bronze cont	Y101 crystal socket	292 0023 00
XY102	N16-S054287-5101	SOCKET, crystal: u/w HC-6/U holder; steatite ins; bronze cont	Y102 crystal socket	292 0023 00
XY103	N16-S054287-5101	SOCKET, crystal: u/w HC-6/U holder; steatite ins; bronze cont	Y103 crystal socket	292 0023 00
XY104	N16-S054287-5101	SOCKET, crystal: u/w HC-6/U holder; steatite ins; bronze cont	Y104 crystal socket	292 0023 00
XY105	N16-S054423-5583	SOCKET, crystal: two terminal; ceramic	Y105 crystal socket	292 0017 00
XY106	N16-S054287-5101	SOCKET, crystal: u/w HC-6/U holder; steatite ins; bronze cont	Y106 crystal socket	292 0023 00
XY107	N16-S054287-5101	SOCKET, crystal: u/w HC-6/U holder; steatite ins; bronze cont	Y107 crystal socket	292 0023 00
XY108	N16-S054287-5101	SOCKET, crystal: u/w HC-6/U holder; steatite ins; bronze cont	Y108 crystal socket	292 0023 00

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XY109	N16-S054287-5101	SOCKET, crystal: u/w HC-6/U holder; steatite ins; bronze cont	Y109 crystal socket	292 0023 00
Y101		CRYSTAL UNIT, quartz: CR-18/U; 1035 kc	Band 1 crystal	291 8212 00
Y102		CRYSTAL UNIT, quartz: CR-18/U; 1615 kc	Band 2 crystal	291 8213 00
Y103		CRYSTAL UNIT, quartz: CR-18/U; 2775 kc	Band 3 crystal	291 8214 00
Y104		CRYSTAL UNIT, quartz: CR-18/U; 5095 kc	Band 4 crystal	291 8215 00
Y105		CRYSTAL UNIT, quartz: CR-1A/AR holder; 100 kc	Calibrator crystal	082 6942 00
Y106		CRYSTAL UNIT, quartz: type CR-18/U (not supplied)	Channel crystal	
Y107		CRYSTAL UNIT, quartz: type CR-18/U (not supplied)	Channel crystal	
Y108		CRYSTAL UNIT, quartz: type CR-18/U (not supplied)	Channel crystal	
Y109		CRYSTAL UNIT, quartz: type CR-18/U (not supplied)	Channel crystal	
Z101		TUNED CIRCUIT ASSEMBLY: 2-4 mc	Band 1 ant tuned circuit	596 6963 003
Z102		TUNED CIRCUIT ASSEMBLY: 4-8 mc	Band 2 ant tuned circuit	596 6964 003
Z103		TUNED CIRCUIT ASSEMBLY: 8-16 mc	Band 3 ant tuned circuit	596 6965 003
Z104		TUNED CIRCUIT ASSEMBLY: 16-30 mc	Band 4 ant tuned circuit	596 6966 003
Z105		TUNED CIRCUIT ASSEMBLY: 2-4 mc	Band 1 1st rf tuned circuit	596 6967 003
Z106		TUNED CIRCUIT ASSEMBLY: 4-8 mc	Band 2 1st rf tuned circuit	596 6968 003
Z107		TUNED CIRCUIT ASSEMBLY: 8-16 mc	Band 3 1st rf tuned circuit	596 6969 003
Z108		TUNED CIRCUIT ASSEMBLY: 16-30 mc	Band 4 1st rf tuned circuit	596 6970 003
Z109		TUNED CIRCUIT ASSEMBLY: 2-4 mc	Band 1 2nd rf tuned circuit	596 6971 003
Z110		TUNED CIRCUIT ASSEMBLY: 4-8 mc	Band 2 2nd rf tuned circuit	596 6972 003
Z111		TUNED CIRCUIT ASSEMBLY: 8-16 mc	Band 3 2nd rf tuned circuit	596 6973 003
Z112		TUNED CIRCUIT ASSEMBLY: 16-30 mc	Band 4 2nd rf tuned circuit	596 6974 003
Z121		TUNED CIRCUIT ASSEMBLY: 2.58-4.58 mc	Band 1 inj tuned circuit	596 6975 003
Z122		TUNED CIRCUIT ASSEMBLY: 5.16-9.16 mc	Band 2 inj tuned circuit	596 6976 003

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

RF AND INJECTION AMPLIFIER  
MAJOR ASSEMBLY: RADIO RECEIVER R-627(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
Z123		TUNED CIRCUIT ASSEMBLY: 10.32-18.32 mc	Band 3 inj tuned circuit	596 6977 003
Z124		TUNED CIRCUIT ASSEMBLY: 20.64-34.64 mc	Band 4 inj tuned circuit	596 6978 003

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TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

IF. AND AF AMPLIFIER  
MAJOR ASSEMBLY: RADIO RECEIVER R-627(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C301		CAPACITOR, fixed: mica; 39 mmf $\pm 2\%$ ; 500 vdcw	FL301, 302 input tuning	912 0463 00
C302		CAPACITOR, fixed: mica; 110 m mf $\pm 2\%$ ; 500 vdcw	FL301, 302 output tuning	912 0496 00
C303		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ ; 100 vdcw	V301 grid decoupling	931 9078 00
C304	N16-C042733-5758	CAPACITOR, fixed: paper; 0.01 mf $\pm 10\%$ ; 400 vdcw	V301 screen bypassing	No part no.
C305		CAPACITOR, fixed: paper; 0.047 mf $\pm 20\%$ ; 400 vdcw	V301 plate bypassing	931 0551 00
C306		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ ; 100 vdcw	V302 grid decoupling	931 9078 00
C307	N16-C028547-8645	CAPACITOR, fixed: mica; 100 mmf $\pm 2\%$ ; 500 vdcw	V302 grid coupling	912 0493 00
C308	N16-C042733-5758	CAPACITOR, fixed: paper; 0.01 mf $\pm 10\%$ ; 400 vdcw	V302 screen bypassing	No part no.
C309		CAPACITOR, fixed: paper; 0.047 mf $\pm 20\%$ ; 400 vdcw	V302 plate bypassing	931 0551 00
C310	N16-C028547-8645	CAPACITOR, fixed: mica; 100 mmf $\pm 2\%$ ; 500 vdcw	V303 grid coupling	912 0493 00
C311		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ ; 100 vdcw	V303 cathode bypassing	931 9078 00
C312	N16-C042733-5758	CAPACITOR, fixed: paper; 0.01 mf $\pm 10\%$ ; 400 vdcw	V303 screen bypassing	No part no.
C313		CAPACITOR, fixed: paper; 0.047 mf $\pm 20\%$ ; 400 vdcw	V303 plate bypassing	931 0551 00
C314	N16-C028547-8645	CAPACITOR, fixed: mica; 100 mmf $\pm 2\%$ ; 500 vdcw	Agc rect coupling	912 0493 00
C315	N16-C029260-1376	CAPACITOR, fixed: mica; 200 mmf $\pm 2\%$ ; 500 vdcw	Bfo injection coupling	912 0514 00
C316		CAPACITOR, fixed: paper; 0.047 mf $\pm 20\%$ ; 400 vdcw	V304A plate bypassing	931 0551 00
C317	N16-C027571-8993	CAPACITOR, fixed: mica; 47 mmf $\pm 2\%$ ; 500 vdcw	V304A grid coupling	912 0469 00
C318		CAPACITOR, fixed: paper; 0.047 mf $\pm 20\%$ ; 400 vdcw	V305 plate decoupling	931 0551 00
C319	N16-C042733-5758	CAPACITOR, fixed: paper; 0.01 mf $\pm 10\%$ ; 400 vdcw	V305 screen bypassing	No part no.
C320	N16-C026020-7701	CAPACITOR, fixed: mica; 10 mmf $\pm 5\%$ ; 500 vdcw	V305 grid blocking	912 0431 00
C321		CAPACITOR, variable: air; 5.0 to 42 mmf; class 1, characteristic E	Bfo tuning	922 9002 00

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TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

IF. AND AF AMPLIFIER  
MAJOR ASSEMBLY: RADIO RECEIVER R-627(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C322	N16-C030183-2027	CAPACITOR, fixed: paper; 0.047 mf ±20%; 100 vdcw	V301 cathode decoupling	931 9079 00
C323		CAPACITOR, fixed: paper; 0.047 mf ±20%; 400 vdcw	B+ bypassing	931 0551 00
C324		CAPACITOR, fixed: paper; 0.047 mf ±20%; 100 vdcw	V302 cathode decoupling	931 9079 00
C325		CAPACITOR, fixed: paper; 0.047 mf ±10%; 100 vdcw	Agc filtering	931 9086 00
C326		CAPACITOR, fixed: paper; 0.047 mf ±20%; 100 vdcw	V306A cathode bypassing	931 9079 00
C327		CAPACITOR, fixed: mica; 82 mmf ±2%; 500 vdcw	Detector filtering	912 0487 00
C328		CAPACITOR, fixed: mica; 82 mmf ±2%; 500 vdcw	Detector filtering	912 0487 00
C329		CAPACITOR, fixed: paper; 0.0022 mf ±5%; 100 vdcw	Detector output coupling	931 2043 00
C330		CAPACITOR, fixed: paper; 0.22 mf ±20%; 400 vdcw	V304B plate bypassing	931 9128 00
C331		CAPACITOR, fixed: paper; 0.0022 mf ±5%; 400 vdcw	V307A grid coupling	931 0758 00
C332		NOT USED		
C333		NOT USED		
C334		CAPACITOR, fixed: paper; 0.0033 mf ±5%; 400 vdcw	V307A plate filtering	931 2740 00
C335		CAPACITOR, fixed: paper; 0.033 mf ±5%; 400 vdcw	V307B grid coupling	931 2044 00
C336		CAPACITOR, fixed: mica; MIL #CM15D510G	V307A feedback filter	912 0544 00
C337		CAPACITOR, fixed: paper; 0.0047 mf ±5%; 400 vdcw	V309 grid coupling	931 0759 00
C338		CAPACITOR, fixed: paper; 0.0047 mf ±5%; 400 vdcw	V308 grid coupling	931 0759 00
C339		CAPACITOR, fixed: paper; 0.047 mf ±10%; 100 vdcw	Af feedback filter	931 9086 00
C340		CAPACITOR, fixed: paper; 0.047 mf ±10%; 100 vdcw	Af feedback filter	931 9086 00
FL301		FILTER, bandpass: mechanical; type F-455J-80	If. bandpass filtering	082 0005 526
FL302	FILTER, bandpass: mechanical; type F-455J-20	If. bandpass filtering	082 0004 526	

J301		CONNECTOR, receptacle: 1 rd female cont; for u/w a 0.081 in. test prod	V301 grid test	360 9003 00
J302		CONNECTOR, receptacle: 1 rd female cont; for u/w a 0.081 in. test prod	Part of T301	360 0077 00
J303		CONNECTOR, receptacle: 1 rd female cont; for u/w a 0.081 in. test prod	Part of T301	360 0077 00
J304		CONNECTOR, receptacle: 1 rd female cont; for u/w a 0.081 in. test prod	Part of T301	360 0077 00
J305		CONNECTOR, receptacle: 1 rd female cont; for u/w a 0.081 in. test prod	Part of T301	360 0077 00
J306		CONNECTOR, receptacle: 1 rd female cont; for u/w a 0.081 in. test prod	Diode load test	360 9003 00
L301		COIL, RF: choke; 12 uh at 2.5 mc; 50 turns of #30 awg wire	V301-302 cathode decoupling	240 0049 00
L302		COIL, RF: choke; 12.0 mh $\pm 20\%$ at 150 kc; 60 ohms dc res	B+ decoupling	240 0125 00
L303		COIL, RF: choke; 12.0 mh $\pm 20\%$ at 150 kc; 60 ohms dc res	V304A plate load	240 0125 00
P301		CONNECTOR, plug: plug-in type; coaxial	If. module sig input plug	357 9211 00
P302		CONNECTOR, plug: 16 cont; molded plastic; 5 amp at 600 vdc	If. module power plug	372 1136 00
R301	N16-R050371-0433	RESISTOR, fixed: composition; MIL #RC20GF223J	V301 grid decoupling	745 1407 00
R302	N16-R049705-0321	RESISTOR, fixed: composition; MIL #RC20GF331J	V301 cathode bias	745 1330 00
R303	N16-R050650-0715	RESISTOR, fixed: composition; MIL #RC32GF124J	V301 screen dropping	745 3439 00
R304	N16-R050651-0131	RESISTOR, fixed: composition; MIL #RC42GF124J	V301 screen dropping	745 5739 00
R305	N16-R050201-0137	RESISTOR, fixed: composition; MIL #RC42GF682J	V301 plate decoupling	745 5686 00
R306	N16-R050587-0435	RESISTOR, fixed: composition; MIL #RC20GF823J	V302 grid return	745 1432 00
R307	N16-R050371-0433	RESISTOR, fixed: composition; MIL #RC20GF223J	V302 grid decoupling	745 1407 00
R308	N16-R051064-0435	RESISTOR, fixed: composition; MIL #RC20GF225J	Rf gain control bias	745 1491 00
R309	N16-R049705-0321	RESISTOR, fixed: composition; MIL #RC20GF331J	V302 cathode bias	745 1330 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

IF. AND AF AMPLIFIER  
MAJOR ASSEMBLY: RADIO RECEIVER R-627(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
R310	N16-R050650-0715	RESISTOR, fixed: composition; MIL #RC32GF124J	V302 screen dropping	745 3439 00
R311	N16-R050651-0131	RESISTOR, fixed: composition; MIL #RC42GF124J	V302 screen dropping	745 5739 00
R312	N16-R050201-0137	RESISTOR, fixed: composition; MIL #RC42GF682J	V302 plate decoupling	745 5686 00
R313	N16-R050587-0435	RESISTOR, fixed: composition; MIL #RC20GF823J	V303 grid return	745 1432 00
R314	N16-R049921-0349	RESISTOR, fixed: composition; MIL #RC20GF102J	V303 cathode bias	745 1351 00
R315	N16-R050588-0131	RESISTOR, fixed: composition; MIL #RC42GF823J	V303 screen dropping	745 5732 00
R316	N16-R050695-0346	RESISTOR, fixed: composition; MIL #RC20GF184J	Agc filtering	745 1446 00
R317	N16-R050785-0275	RESISTOR, fixed: composition; MIL #RC20GF394J	Agc divider	745 1460 00
R318	N16-R050893-0435	RESISTOR, fixed: composition; MIL #RC20GF684J	Agc divider	745 1470 00
R319	N16-R050281-0438	RESISTOR, fixed: composition; MIL #RC20GF103J	Agc delay divider	745 1393 00
R320	N16-R050714-0108	RESISTOR, fixed: composition; MIL #RC42GF224J	Agc delay divider	745 5749 00
R321	N16-R049876-0438	RESISTOR, fixed: composition; MIL #RC20GF821J	V303 plate decoupling	745 1348 00
R322	N16-R050416-0435	RESISTOR, fixed: composition; MIL #RC20GF333J	Detector filtering	745 1414 00
R323	N16-R050740-0380	RESISTOR, fixed: composition; MIL #RC20GF274J	Detector load	745 1453 00
R324	N16-R049840-0698	RESISTOR, fixed: composition; MIL #RC32GF681J	V304A plate decoupling	745 3344 00
R325	N16-R050012-0146	RESISTOR, fixed: composition; MIL #RC42GF222J	V304A cathode bias	745 5665 00
R326	N16-R050677-0380	RESISTOR, fixed: composition; MIL #RC20GF154J	V304A grid return	745 1442 00
R327	N16-R050416-0944	RESISTOR, fixed: composition; MIL #RC42GF333J	V305 plate load	745 5714 00
R328	N16-R050335-0940	RESISTOR, fixed: composition; MIL #RC42GF153J	V305 plate decoupling	745 5700 00
R329	N16-R050480-0131	RESISTOR, fixed: composition; MIL #RC42GF473J	V305 screen dropping	745 5721 00
R330	N16-R050677-0380	RESISTOR, fixed: composition; MIL #RC20GF154J	V305 grid return	745 1442 00



R331	N16-R050479-0435	RESISTOR, fixed: composition; MIL #RC20GF473J	V304B plate decoupling	745 1421 00
R332	N16-R050632-0416	RESISTOR, fixed: composition; MIL #RC20GF104J	V304B plate load	745 1435 00
R333	N16-R049966-0433	RESISTOR, fixed: composition; MIL #RC20GF152J	V304B cathode bias	745 1358 00
R334		NOT USED		
R335		NOT USED		
R336	N16-R050821-0276	RESISTOR, fixed: composition; MIL #RC20GF474J	V307A grid return	745 1463 00
R337	N16-R050065-0438	RESISTOR, fixed: composition; MIL #RC20GF332J	V307A plate filtering	745 1372 00
R338	N16-R050632-0416	RESISTOR, fixed: composition; MIL #RC20GF104J	V307A plate load	745 1435 00
R339	N16-R050038-0438	RESISTOR, fixed: composition; MIL #RC20GF272J	V307A cathode bias	745 1369 00
R340	N16-R050092-0438	RESISTOR, fixed: composition; MIL #RC20GF392J	V307A feedback divider	745 1376 00
R341	N16-R050821-0276	RESISTOR, fixed: composition; MIL #RC20GF474J	V307B grid return	745 1463 00
R342	N16-R050335-0438	RESISTOR, fixed: composition; MIL #RC20GF153J	V307B plate load	745 1400 00
R343	N16-R049939-0271	RESISTOR, fixed: composition; MIL #RC20GF122J	V307B cathode bias	745 1355 00
R344	N16-R050335-0438	RESISTOR, fixed: composition; MIL #RC20GF153J	V307B cathode load	745 1400 00
R345	N16-R050713-0380	RESISTOR, fixed: composition; MIL #RC20GF224J	V309 grid return	745 1449 00
R346	N16-R068369-8366	RESISTOR, fixed: wirewound; MIL #RW55F251	V308-309 cathode	747 7534 00
R347	N16-R050713-0380	RESISTOR, fixed: composition; MIL #RC20GF224J	V308 grid return	745 1449 00
R348	N16-R049769-0101	RESISTOR, fixed: composition; MIL #RC42GF471J	Af feedback filtering	745 5637 00
S301		SWITCH, rotary: wafer; 2 position	Mech filter input switch	082 6405 97
S302		SWITCH, rotary: wafer; 2 position	Mech filter input switch	082 6405 97
T301		TRANSFORMER, IF.: 455 kc	If. output	596 6982 003
T302		TRANSFORMER, AF: pri 27,000 ohms, c.t. sec 600/150 ohms	Audio output	082 7462 00
V301	N16-T075749	TUBE, electron: pentode; MIL #5749/6BA6W	1st if. amplifier	254 0872 00
V302	N16-T075749	TUBE, electron: pentode; MIL #5749/6BA6W	2nd if. amplifier	254 0872 00
V303	N16-T075749	TUBE, electron: pentode; MIL #5749/6BA6W	3rd if. amplifier	254 0872 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

IF. AND AF AMPLIFIER  
MAJOR ASSEMBLY: RADIO RECEIVER R-627(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
V304	N16-T075814-0005	TUBE, electron: twin triode; MIL #5814A	A-bfo buffer/B-af amplifier	254 0897 00
V305	N16-T075749	TUBE, electron: pentode; MIL #5749/6BA6W	Beat frequency oscillator	254 0872 00
V306	N16-T075814-0005	TUBE, electron: twin triode; MIL #5814A	A-agc rect/B-sig det	254 0897 00
V307	N16-T075814-0005	TUBE, electron: twin triode; MIL #5814A	A-af amplifier/B-af invert	254 0897 00
V308	N16-T076005-0000	TUBE, electron: pentode; MIL #6005/6AQ5W	Af power amplifier	254 0845 00
V309	N16-T076005-0000	TUBE, electron: pentode; MIL #6005/6AQ5W	Af power amplifier	254 0845 00
XFL301		SOCKET, tube: 9 cont miniature; saddle mtg; brass, phenolic ins	Mech filter socket	220 1240 00
XFL302		SOCKET, tube: 9 cont miniature; saddle mtg; brass, phenolic ins	Mech filter socket	220 1240 00
XV301	N16-S062603-6700	SOCKET, tube: JAN #TS102C01	Socket for V301	220 1112 00
XV302	N16-S062603-6700	SOCKET, tube: JAN #TS102C01	Socket for V302	220 1112 00
XV303	N16-S062603-6899	SOCKET, tube: 7 cont min; below chassis base mtd; rd, mica filled body; w/o shield	Socket for V303	220 1049 00
XV304	N16-S064063-6713	SOCKET, tube: JAN #TS103P01	Socket for V304	220 1103 00
XV305	N16-S062603-6700	SOCKET, tube: JAN #TS102C01	Socket for V305	220 1112 00
XV306	N16-S064063-6713	SOCKET, tube: JAN #TS103P01	Socket for V306	220 1103 00
XV307	N16-S064063-6713	SOCKET, tube: JAN #TS103P01	Socket for V307	220 1103 00
XV308	N16-S062603-6899	SOCKET, tube: 7 cont min; below chassis base mtd; rd, mica filled body; w/o shield	Socket for V308	220 1049 00
XV309	N16-S062603-6899	SOCKET, tube: 7 cont min; below chassis base mtd; rd, mica filled body; w/o shield	Socket for V309	220 1049 00
Z301		TUNED CIRCUIT ASSEMBLY: 455 kc	V301 plate load	596 6981 003

596 6981 003  
596 6983 002

V302 plate load  
Bfo coil

TUNED CIRCUIT ASSEMBLY: 455 kc  
TUNED CIRCUIT ASSEMBLY: 455 kc

Z302  
Z303

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

MASTER OSCILLATOR  
MAJOR ASSEMBLY: RADIO RECEIVER R-627(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C401		CAPACITOR, fixed: ceramic; 295 mmf $\pm 1\%$ ; 250 vdcw	V401 grid tuning	913 2359 00
*C402	N16-C015920-8853	CAPACITOR, fixed: ceramic; 10 mmf $\pm 1.0$ mmf; 500 vdcw $0 \pm 30$ PPM/ $^{\circ}$ C	V401 grid tuning	913 0043 00
*C402A	N16-C015923-4258	CAPACITOR, fixed: ceramic; 10 mmf $\pm 1$ mmf; 500 vdcw; $-200 \pm 15\%$ temp coef	V401 grid tuning	913 0044 00
*C402B	N16-C015924-7558	CAPACITOR, fixed: ceramic; 10 mmf $\pm 1.0$ mmf; 500 vdcw $-600 \pm 15\%$ PPM/ $^{\circ}$ C	V401 grid tuning	913 0046 00
*C402C	N16-C015924-3401	CAPACITOR, fixed: ceramic; 10 mmf $\pm 1.0$ mmf; 500 vdcw $-400 \pm 15\%$ PPM/ $^{\circ}$ C	V401 grid tuning	913 0045 00
*C402D	N16-C015925-2220	CAPACITOR, fixed: ceramic; 10 mmf $\pm 1.0$ mmf; 500 vdcw $-800 \pm 15\%$ PPM/ $^{\circ}$ C	V401 grid tuning	913 0047 00
*C402E	N16-C015925-2360	CAPACITOR, fixed: ceramic; 10 mmf $\pm 1.0$ mmf; 500 vdcw; $-1000 \pm 15\%$ PPM/ $^{\circ}$ C	V401 grid tuning	913 0048 00
*C402F	N16-C015925-2480	CAPACITOR, fixed: ceramic; 10 mmf $\pm 1.0$ mmf; 500 vdcw $-1200 \pm 15\%$ PPM/ $^{\circ}$ C	V401 grid tuning	913 0049 00
*C402G	N16-C015925-2642	CAPACITOR, fixed: ceramic; 10 mmf $\pm 1.0$ mmf; 500 vdcw $-1400 \pm 15\%$ PPM/ $^{\circ}$ C	V401 grid tuning	913 0050 00
*C403		CAPACITOR, fixed: ceramic; 5 mmf $\pm 0.5$ mmf; 500 vdcw; $0 \pm 30$ PPM/ $^{\circ}$ C	V401 grid tuning	913 0035 00
*C403A		CAPACITOR, fixed: ceramic; 5 mmf $\pm 0.5$ mmf; 500 vdcw; $-800 \pm 15\%$ PPM/ $^{\circ}$ C	V401 grid tuning	913 0039 00
*C403B		CAPACITOR, fixed: ceramic; 5 mmf $\pm 0.5$ mmf; 500 vdcw; $-1400 \pm 15\%$ PPM/ $^{\circ}$ C	V401 grid tuning	913 0042 00
C404		CAPACITOR, fixed: ceramic; JAN #CC30CH200G	V401 grid coupling	916 4187 00
C405		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ ; 300 vdcw	V401 screen bypass	931 1296 00
C406		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ ; 300 vdcw	V401 B+ bypass	931 1296 00

C407	N16-C026020-7701	CAPACITOR, fixed: mica; 10 mmf $\pm 5\%$ ; 500 vdcw	V402 grid coupling	912 0431 00
C408		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ ; 300 vdcw	V402 screen bypass	931 1296 00
C409		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ ; 100 vdcw	V401 and V402 fil bypass	931 2497 00
C410		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ ; 100 vdcw	V401 and V402 fil bypass	931 2497 00
C411	N16-C018983-1015	CAPACITOR, fixed: ceramic; 0.005 mf $+100 -20\%$ ; 500 vdcw	Thermostat bypass	913 1187 00
HR401		OVEN: use same disk as HR1101	Mo oven heater	2694C427
J401		CONNECTOR, plug: 9 rd male pol cont; straight; 5 amp, 660 v ac rms	Mo module power jack	372 1123 00
L401		COIL, RF: variable pitch tuning inductor; phenolic form, #30 awg wire	Coil for 70 H-10 PTO	2693C538
L402		COIL, RF: trimmer; 4 turns #30 awg wire; slug tuned; powdered iron core	Coil for 70 H-10 PTO	540 6224 002
P401		CONNECTOR, receptacle: plug-in type; brass body w/ copper or bronze cont	Mo rf output	357 9210 00
R401	N16-R050443-0438	RESISTOR, fixed: composition; MIL #RC20GF393J	V401 grid return	745 1418 00
R402	N16-R050587-0435	RESISTOR, fixed: composition; MIL #RC20GF823J	V401 screen dropping	745 1432 00
R403	N16-R050371-0711	RESISTOR, fixed: composition; MIL #RC32GF223J	V401 plate load	745 3408 00
R404	N16-R050515-0433	RESISTOR, fixed: composition; MIL #RC20GF563J	V402 grid return	745 1425 00
R405	N16-R050587-0435	RESISTOR, fixed: composition; MIL #RC20GF823J	V402 screen dropping	745 1432 00
R406	N16-R049804-0438	RESISTOR, fixed: composition; MIL #RC20GF561J	V402 cathode	745 1341 00
R407	N16-R068421-8706	RESISTOR, fixed: wirewound; MIL #RW56G452	V401 B+ dropping	747 8093 00
R408	N16-R050587-0636	RESISTOR, fixed: composition; MIL #RC32GF823J	V402 screen dropping	745 3432 00
S401		SWITCH, thermostatic: 10 amp at 115 v ac; 5 amp at 230 v ac and 2 amp at 28 v dc; cont open on temp rise; tension operated	Mo oven thermostat	292 0095 00
V401	N16-T075749	TUBE, electron: pentode; MIL #5749/6BA6W	Mo osc	254 0872 00
V402	N16-T075749	TUBE, electron: pentode; MIL #5749/6BA6W	Mo buffer	254 0872 00

\* Temperature Compensating

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

MASTER OSCILLATOR  
MAJOR ASSEMBLY: RADIO RECEIVER R-627(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
V403	N16-T052001-0003	TUBE, electron: voltage regulator; MIL #OA2WA	Mo voltage regulator	254 0873 00
XV401	N16-S062603-6700	SOCKET, tube: JAN #TS102C01	Socket for V401	220 1112 00
XV402	N16-S062603-6700	SOCKET, tube: JAN #TS102C01	Socket for V402	220 1112 00
XV403	N16-S062603-6700	SOCKET, tube: JAN #TS102C01	Socket for V403	220 1112 00

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AN/URC-8(XN-1)  
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TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

POWER SUPPLY  
MAJOR ASSEMBLY: RADIO RECEIVER R-627(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C501		CAPACITOR, fixed: paper; 10 mf +25% -0%; 400 vdcw	Power supply filter	082 6717 00
C502		CAPACITOR, fixed: paper; 6 mf +25% -0%; 400 vdcw	Power supply filter	082 6716 00
J501		CONNECTOR, receptacle: 1 rd male cont; 3800 v rms; 10 mmf; straight	B+ test point	360 9002 00
L501		COIL, RF: filter choke; 4 hy at 200 ma; 6 hy at 125 ma	Power supply filter	082 8305 00
P501		CONNECTOR, plug: 16 cont; molded plastic; 5 amp at 600 vdc	Module connector	372 1136 00
R501		RESISTOR, fixed: wirewound; MIL #RW56G113	Power supply bleeder	747 8101 00
R502	N16-R068424-1106	RESISTOR, fixed: wirewound; MIL #RW56F502	Power supply bleeder	No part no.
R503	N16-R050281-0438	RESISTOR, fixed: composition; MIL #RC20GF103J	Pto filament bias	745 1393 00
R504		RESISTOR, fixed: composition; MIL #RC42GF274K	Pto filament bias	745 5754 00
S501		SWITCH, rotary: dpdt; 3A at 250 v; 6A at 125 v	(115-230) v ac input	260 9003 00
T501		TRANSFORMER, power: pri (115-230) v, 50-400 cps; sec 730 v ct; 5 v, 6.3 v, 6.3 v	Power transformer	082 7449 00
V501	N16-T055446-0005	TUBE, electron: rectifier; MIL #5R4WGB	Power rectifier	254 0899 00
XV501	N16-S063515-4162	SOCKET, tube: JAN #TS101C02	V501 socket	220 1122 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

FRONT PANEL AND MAIN FRAME  
MAJOR ASSEMBLY: RADIO RECEIVER R-627(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C601	N16-C099999-1139	CAPACITOR, fixed: paper; 0.001 mf $\pm 20\%$ ; 600 vdcw	Af line filter	082 7750 00
C602		CAPACITOR, fixed: paper; 0.001 mf $\pm 20\%$ ; 600 vdcw	Af line filter	082 7750 00
C603		CAPACITOR, fixed: paper; 0.001 mf $\pm 20\%$ ; 600 vdcw	Disable line filter	082 7750 00
C604		CAPACITOR, fixed: paper; 0.001 mf $\pm 20\%$ ; 600 vdcw	Disable line filter	082 7750 00
C605		CAPACITOR, fixed: ceramic; 0.01 mf $+100 -20\%$ ; 500 vdcw	Headphone bypass	913 1188 00
F601		FUSE, cartridge: 2 amp, 250 v; luminated tube, pin-indicating type	Fuse for 115 v receiver operation	264 0159 00
		OR		
		FUSE, cartridge: 1 amp, 250 v; luminated tube, pin-indicating type	Fuse for 230 v receiver operation	264 0158 00
F602		FUSE, cartridge: 2 amp, 250 v; luminated tube, pin-indicating type	Fuse for 115 v receiver operation	264 0159 00
		OR		
		FUSE, cartridge: 1 amp, 250 v; luminated tube, pin-indicating type	Fuse for 230 v receiver operation	264 0158 00
FL601		FILTER: incls C601 thru C604, L601, and L602	Af line and disable line filter	
FL602		SUPPRESSOR, electrical noise: dual coil and capacitor type; 1.5 amp at 115 v ac, 0.75 amp at 230 v ac; 50 - 400 cps	Filter ac line	241 9008 00
I601		LAMP, glow: 6-8 v; 0.25 amp; G-3-1/2 bulb	Dial lamp	262 0264 00
I602	LAMP, glow: 6-8 v; 0.25 amp; G-3-1/2 bulb	Dial lamp	262 0264 00	
J601	CONNECTOR, receptacle: plug-in type; coaxial	V104 output	357 9210 00	
J602	CONNECTOR, receptacle: plug-in type; coaxial	Input to if. module	357 9210 00	



J603		CONNECTOR, receptacle: plug-in type; coaxial	Antenna input	357 9210 00
J604		CONNECTOR, receptacle: plastic; SS mtg pl; 16 spring cont; 5 amp at 600 vdc	Rf module power	372 1131 00
J605		CONNECTOR, receptacle: plastic; SS mtg pl; 16 spring cont; 5 amp at 600 vdc	If. module power	372 1131 00
J606		CONNECTOR, receptacle: plastic; SS mtg pl; 16 spring cont; 5 amp at 600 vdc	Power supply power	372 1131 00
J607	N17-J039248-4418	JACK, telephone: AN type No. JJ-034; spring leaf, 2 conductor plug	Headphone jack	358 1040 00
J608		CONNECTOR, receptacle: Navy Type #AN3102C-14S-5S	Handset	357 2077 00
J609	N17-C073109-6056	CONNECTOR, receptacle: UG-291B/U; single rd female cont; straight type	Antenna	357 9199 00
J610		CONNECTOR, receptacle: 16 contacts; ribbon type; female insert; SS mtg plate	Main frame	044 2072 98
L601	N16-C074096-3004	COIL, RF: choke; 400 uh at 1 mc; 4 univ pi wnd; 60 turns #30 awg wire	Af line filter	240 0023 00
L602	N16-C074096-3004	COIL, RF: choke; 400 uh at 1 mc; 4 univ pi wnd; 60 turns #30 awg wire	Disable line filter	240 0023 00
P601		CONNECTOR, plug: 9 rd female pol cont; 1 amp at 660 v ac rms	Mo module power	372 1125 00
R601		RESISTOR, variable: 10,000 ohm, 2 w	Rf gain control	082 2901 97
R602	N16-R050281-0711	RESISTOR, fixed: composition; MIL #RC32GF103J	Rf disabling	745 3393 00
R603		RESISTOR, variable: 1.0 meg, 2 w	Af gain control	082 2902 97
R604	N16-R068315-5206	RESISTOR, fixed: wirewound; MIL #RW55F100	Dial light dropping	No part no.
R605		RESISTOR, variable: 40,000 ohm, 5 w	Disable dropping	082 3900 97
S601		SWITCH, rotary: wafer; 3 position	Dial light	082 6404 97
S602		SWITCH, rotary: wafer; 2 position	Xtal calibrator	082 6402 97
S603		SWITCH, rotary: wafer; 2 position	Reception	082 6401 97
S604		SWITCH, rotary: wafer; 3 position	Power	082 6403 97

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

FRONT PANEL AND MAIN FRAME  
 MAJOR ASSEMBLY: RADIO RECEIVER R-627(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
XF601		HOLDER, fuse: indicator type w/ transparent knob; molded phenolic case	F601 holder	265 9002 00
XF602		HOLDER, fuse: indicator type w/ transparent knob; molded phenolic case	F602 holder	265 9002 00
XI601		LAMPHOLDER:	I601 holder	082 0035 00
XI602		LAMPHOLDER:	I602 holder	082 0035 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

CASE  
MAJOR ASSEMBLY: RADIO RECEIVER R-627(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
A701		MOUNT, vibration: square mtg; rubber cushion; steel center sleeve; metal center holder	Cushion (p/o receiver shockmount)	200 0147 00
A702		MOUNT, vibration: square mtg; rubber cushion; steel center sleeve; metal center holder	Cushion (p/o receiver shockmount)	200 0147 00
A703		MOUNT, vibration; square mtg; rubber cushion; steel center sleeve; metal center holder	Cushion (p/o receiver shockmount)	200 0147 00
A704		MOUNT, vibration: square mtg; rubber cushion; steel center sleeve; metal center holder	Cushion (p/o receiver shockmount)	200 0147 00
C701		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ ; 600 vdcw	Power line bypass	931 4812 00
C702		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ ; 600 vdcw	Power line bypass	931 4812 00
C703		CAPACITOR, fixed: paper; 4700 mmf $\pm 20\%$ ; 600 vdcw	Audio line bypass	931 4813 00
E701		STRAP, grounding: 3-1/4" lg, 5/8" w, 0.01 thk; phosphor-bronze	Shockmounting assy ground strap	541 8947 002
E702		STRAP, grounding: 3-1/4" lg, 5/8" w, 0.01 thk; phosphor-bronze	Shockmounting assy ground strap	541 8947 002
E703		STRAP, grounding: 3-1/4" lg, 5/8" w, 0.01 thk; phosphor-bronze	Shockmounting assy ground strap	541 8947 002
E704		STRAP, grounding: 3-1/4" lg, 5/8" w, 0.01 thk; phosphor-bronze	Shockmounting assy ground strap	541 8947 002
J701		CONNECTOR, receptacle: Navy type #AN3102A-28-17P	Case power input	357 3217 00
J702		CONNECTOR, receptacle: UG-569/U; type C, female cont	Case antenna input	357 9130 00
J703	N17-C072246-5429	CONNECTOR, receptacle: Navy type #AN3102A-14S-2S	Case af input	357 2010 00
N701	For reference only	PLATE, identification: aluminum; inscribed "Radio Set AN/URC-8(XN-1);" black on natural or white	Nameplate	044 0007 280
N702	For reference only	PLATE, identification: aluminum; inscribed "R-627(XN-1)/URC-8 Receiver;" black on natural or white	Nameplate	044 0008 280
P701		CONNECTOR, plug: c/o hood, clamp and 16 contact, ribbon male plug	Chassis power input	596 6985 002
P702	N17-C071408-9255	CONNECTOR, plug: MIL #UG-88C/U; single rd male cont; straight	Chassis antenna input	357 9292 00

ORIGINAL

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AN/URC-8(XN-1)  
PARTS LIST

NAVSHIPS 92831

Section 6  
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TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

CASE

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
A1001		MOUNT, vibration: square mtg; rubber cushion; steel center sleeve w/metal cad pl holder	Transmitter shockmount	200 0146 00
A1002		MOUNT, vibration: square mtg; rubber cushion; steel center sleeve w/metal cad pl holder	Transmitter shockmount	200 0146 00
A1003		MOUNT, vibration: square mtg; rubber cushion; steel center sleeve w/metal cad pl holder	Transmitter shockmount	200 0146 00
A1004		MOUNT, vibration: square mtg; rubber cushion; steel center sleeve w/metal cad pl holder	Transmitter shockmount	200 0146 00
C1001		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1002		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1003		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1004		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1005		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1006		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1007		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1008		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00

C1009	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1010	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1011	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1012	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1013	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1014	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1015	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1016	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1017	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1018	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1019	NOT USED		
C1020	NOT USED		
C1021	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1022	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1023	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1024	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1025	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

MAJOR ASSEMBLY; RADIO TRANSMITTER T-474(XN-1)/URC-8

CASE

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C1026	N16-C099999-1139	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1027		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1028		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1029		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1030		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1031		CAPACITOR, fixed: ceramic; 0.01 mf +100 -20%; 500 vdcw	Filter	913 1188 00
C1032		NOT USED		
C1033		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1034		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1035		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1036		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1037		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1038		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1039		CAPACITOR, fixed: paper; 0.22 mf $\pm$ 20%; 100 vdcw	Feedthru filter capacitor	044 0157 98
C1040		NOT USED		

C1041	CAPACITOR, fixed: paper; 0.22 mf $\pm 20\%$ ; 100 vdcw	Feedthru filter capacitor	044 0157 98
C1042	NOT USED		
C1043	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1044	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1045	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1046	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1047	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1048	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1049	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1050	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1051	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1052	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1053	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1054	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1055	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1056	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1057	CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

CASE

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C1058		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1059		CAPACITOR, fixed: ceramic; 300 mmf $\pm 20\%$ ; 1000 vdcw	Line filter capacitor	044 1140 98
C1060		CAPACITOR, fixed: ceramic; 300 mmf $\pm 20\%$ ; 1000 vdcw	Line filter capacitor	044 1140 98
C1061		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1062		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1063		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1064		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1065		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1066		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1067		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1068		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1069		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
C1070		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol, 500 vdcw	Line filter capacitor	913 1161 00
E1001		TERMINAL, stud: melamine body, brass base; hex	Insulated terminal	306 0234 00
E1002		TERMINAL, stud: melamine body, brass base; hex	Insulated terminal	306 0234 00
E1003		TERMINAL, stud: melamine body, brass base; hex	Insulated terminal	306 0234 00



E1004		TERMINAL, stud: melamine body, brass base; hex	Insulated terminal	306 0234 00
E1005		STRAP, grounding: 3-1/4" lg, 5/8" w, 0.01" thk; phosphor-bronze	Shockmounting assy grounding strap	541 8947 002
E1006		STRAP, grounding: 3-1/4" lg, 5/8" w, 0.01" thk; phosphor-bronze	Shockmounting assy grounding strap	541 8947 002
E1007		STRAP, grounding: 3-1/4" lg, 5/8" w, 0.01" thk; phosphor-bronze	Shockmounting assy grounding strap	541 8947 002
E1008		STRAP, grounding: 3-1/4" lg, 5/8" w, 0.01" thk; phosphor-bronze	Shockmounting assy grounding strap	541 8947 002
E1010		TERMINAL, stud: melamine body, brass base; hex	Insulated terminal	306 0234 00
E1011		TERMINAL, stud: melamine body, brass base; hex	Insulated terminal	306 0234 00
E1012		TERMINAL, stud: melamine body, brass base; hex	Insulated terminal	306 0234 00
E1013		TERMINAL, stud: melamine body, brass base; hex	Insulated terminal	306 0234 00
J1001		CONNECTOR, receptacle: 22 male cont; 900 v ac rms, 1250 v dc	Connector, power cabinet	044 2070 98
J1002		CONNECTOR, receptacle: 15 cont; socket insert; box mtg	Connector, Rcvr	357 2061 00
J1003	N17-C072252-1135	CONNECTOR, receptacle: 1 mating end; 5 rd female cont; 22 amp, 700 v dc, 500 v ac; Navy type #AN3102A-14S-5S	Connector, handset	357 2000 00
J1004		CONNECTOR, receptacle: UG-569( )/U; female cont, teflon ins	Connector, rcvr ant	357 9130 00
J1005		CONNECTOR, receptacle: HS bulkhead; brass, silver pl; glass seal dielectric	Connector antenna	357 9200 00
L1001		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1002		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1003		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1004		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1005	N16-C073074-5530	COIL, RF: choke; 9 uh $\pm 20\%$ at 7.9 mc	Line filter choke	240 0026 00
L1006		COIL, RF: choke: 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

CASE

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
L1007		NOT USED		
L1008		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1009		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1010		NOT USED		
L1011		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1012		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1013		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1014		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1015		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1016		NOT USED		
L1017	N16-C073074-5530	COIL, RF: choke; 9 uh $\pm 20\%$ at 7.9 mc	Line filter choke	240 0026 00
L1018		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1019		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1020		NOT USED		
L1021		NOT USED		
L1022		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1023		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1024		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1025		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1026		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1027		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1028		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00

L1029		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1030		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1031		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1032		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	290 0194 00
L1033		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1034		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Line filter choke	240 0194 00
L1035		COIL, RF: choke; 22 uh $\pm 10\%$ ; 30 min Q at 2.5 mc	Line filter choke	240 0186 00
O1007		COVER: for connector; incl rubber gasket and chain; steel, cad pl; 1-3/4-18NS-2 thd	Cap for J1002	367 8122 00
O1008		COVER: for connector; steel, cad pl; incl rubber gasket and chain; 7/8-20NEF-2 thd	Cap for J1003	357 8077 00
O1009		COVER: for type "C" connector; brass, silver pl; incl chain	Waterproof cover for J1004	357 8397 00
P1001		CONNECTOR, plug: UG-59C/U; 50 ohms impedance; brass, silver pl; teflon ins	Connector, antenna	357 9245 00
P1002		NOT USED		
P1003		CONNECTOR, plug: 16 cont; brass, nickel pl hood; silver pl cont; 5 amp at 800 v dc	Connector transmitter cable	044 2075 98
P1004		CONNECTOR, plug: 24 cont; brass, nickel pl hood; silver pl cont; 5 amp at 800 v dc	Connector transmitter cable	044 2076 98
P1005	N17-C071408-9285	CONNECTOR, plug: single rd male cont; straight; UG-260B/U	Connector rcvr antenna	No part no.
TB1001	N17-B099999-0037	BOARD, terminal: connector strip; 10 solder lug term w/barriers; molded phenolic board	Terminal board remote box	367 0537 00
TB1002	N17-B099999-0037	BOARD, terminal: connector strip; 10 solder lug term w/barriers; molded phenolic board	Terminal board remote box	367 0537 00
TB1003	N17-B099999-0037	BOARD, terminal: connector strip; 10 solder lug term w/barriers; molded phenolic board	Terminal board remote box	367 0537 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

MASTER OSCILLATOR  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C1101		CAPACITOR, fixed: ceramic; 335 mmf $\pm 1\%$ ; 250 vdcw	Main tuning (fixed)	913 2360 00
*C1102	N16-C015920-8853	CAPACITOR, fixed: ceramic; 10 $\pm 1.0$ mmf, 500 vdcw	Individually selected in test	913 0043 00
*C1102	N16-C015923-4258	CAPACITOR, fixed: ceramic; 10 $\pm 1.0$ mmf, 500 vdcw	Individually selected in test	913 0044 00
*C1102	N16-C015924-3401	CAPACITOR, fixed: ceramic; 10 $\pm 1.0$ mmf, 500 vdcw	Individually selected in test	913 0045 00
*C1102	N16-C015924-7558	CAPACITOR, fixed: ceramic; 10 $\pm 1.0$ mmf, 500 vdcw	Individually selected in test	913 0046 00
*C1102	N16-C015925-2220	CAPACITOR, fixed: ceramic; 10 $\pm 1.0$ mmf, 500 vdcw	Individually selected in test	913 0047 00
*C1102	N16-C015925-2360	CAPACITOR, fixed: ceramic; 10 $\pm 1.0$ mmf, 500 vdcw	Individually selected in test	913 0048 00
*C1102	N16-C015925-2480	CAPACITOR, fixed: ceramic; 10 $\pm 1.0$ mmf, 500 vdcw	Individually selected in test	913 0049 00
*C1103	N16-C015920-8853	CAPACITOR, fixed: ceramic; 10 $\pm 1.0$ mmf, 500 vdcw	Individually selected in test	913 0043 00
*C1103	N16-C015923-4258	CAPACITOR, fixed: ceramic; 10 $\pm 1.0$ mmf, 500 vdcw	Individually selected in test	913 0044 00
*C1103	N16-C015924-3401	CAPACITOR, fixed: ceramic; 10 $\pm 1.0$ mmf, 500 vdcw	Individually selected in test	913 0045 00
*C1103	N16-C015924-7558	CAPACITOR, fixed: ceramic; 10 $\pm 1.0$ mmf, 500 vdcw	Individually selected in test	913 0046 00
*C1103	N16-C015925-2220	CAPACITOR, fixed: ceramic; 10 $\pm 1.0$ mmf, 500 vdcw	Individually selected in test	913 0047 00
*C1103	N16-C015925-2360	CAPACITOR, fixed: ceramic; 10 $\pm 1.0$ mmf, 500 vdcw	Individually selected in test	913 0048 00
*C1103	N16-C015925-2480	CAPACITOR, fixed: ceramic; 10 $\pm 1.0$ mmf, 500 vdcw	Individually selected in test	913 0049 00
C1104		CAPACITOR, fixed: ceramic; JAN #CC35CG510F	Osc grid coupling	916 5304 00

C1105		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ , 300 vdcw	Osc screen bypass	931 1296 00
C1106		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ , 300 vdcw	B+ decoupling	931 1296 00
C1107		CAPACITOR, fixed: mica; 200 mmf 5%, 500 vdcw	Buffer grid coupling	912 0515 00
C1108		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ , 300 vdcw	Buffer screen bypass	931 1296 00
C1109		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ , 100 vdcw	Buffer suppressor bypass	931 2497 00
E1101		SHIELD, tube: JAN #TS102U02	Shield for V1101	141 0144 00
E1102		SHIELD, tube: JAN #TS102U02	Shield for V1102	141 0144 00
HR1101		OVEN: oven assembly; c/o single and double terminal boards; thermostat and bracket; can; capacitor and hardware	Oven assy	269 4C427
L1101		INDUCTOR, standard: tuning; 28 turns #22 awg wire; tapped	Main tuning	2692C537
L1102		COIL, RF: trimmer; 4 turns #30 awg copper wire; ceramic coil form; 234 mmf $\pm 10$ mmf at 25 mc	Trimmer	540 6224 002
L1103		COIL, RF: choke; single wnd; 3 pi universal wnd; 100 mh $\pm 10\%$ at 2.5 mc; 500 turns #36 awg wire; powdered iron core	B+ decoupling	240 0099 00
P1101		CONNECTOR, plug: 1 rd female cont; straight; 53.5 ohms impedance; u/w special min RG-58 and 58A/U cable	Connector rf output	357 9143 00
P1102		CONNECTOR, plug: 9 rd male pol cont; straight; 5 amp, 660 v ac rms; rd, plastic body	Power input	372 1123 00
R1101	N16-R050416-0435	RESISTOR, fixed: composition; MIL #RC20GF333J	Osc grid leak	745 1414 00
R1102	N16-R050587-0435	RESISTOR, fixed: composition; MIL #RC20GF823J	Osc screen dropping	745 1432 00
R1103	N16-R050335-0656	RESISTOR, fixed: composition; MIL #RC32GF153J	Osc plate load	745 3400 00
R1104	N16-R050515-0433	RESISTOR, fixed: composition; MIL #RC20GF563J	Buffer grid	745 1425 00
R1105	N16-R050416-0682	RESISTOR, fixed: composition; MIL #RC32GF333J	Buffer screen dropping	745 3414 00
S1101		SWITCH, thermostatic: normally closed; cont open on temp increase; $-100^{\circ}$ to $400^{\circ}$ F temp setting; 115 v, 230 v ac, 10.5 amp	Thermostatic switch	292 0095 00

\*Temperature Compensating

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

MASTER OSCILLATOR  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
V1101	N16-T075749	TUBE, electron: pentode; MIL #5749/6BA6W	Oscillator	254 0872 00
V1102	N16-T075749	TUBE, electron: pentode; MIL #5749/6BA6W	Buffer amplifier	254 0872 00
XV1101	N16-S062603-6700	SOCKET, tube: 7 pin miniature; JAN #TS102C01	Socket for V1101	220 1112 00
XV1102	N16-S062603-6700	SOCKET, tube: 7 pin miniature: JAN #TS102C01	Socket for V1102	220 1112 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

CRYSTAL OSCILLATOR  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C1201	N16-C016043-9144	CAPACITOR, fixed: ceramic; JAN #CC30CH180G	Crystal osc	916 4183 00
C1202	N16-C029260-1376	CAPACITOR, fixed: mica; MIL #CM15D201G	Crystal osc	912 0514 00
C1203	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf +100 -20%, 500 vdcw	Bypass screen grid	913 1188 00
C1204	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf +100 -20%, 500 vdcw	Bypass suppressor grid	913 1188 00
E1201		SHIELD, tube: JAN #TS102U02	Shield tube	141 0144 00
E1202		TERMINAL, stud: melamine body, brass base; hex	Terminal standoff	306 0234 00
E1203		TERMINAL, stud: melamine body, brass base; hex	Terminal standoff	306 0234 00
J1201		CONNECTOR, plug: 7 rd female pol cont; straight; 5 amp at 250 v ac rms; rd phenolic body	Connector Xtal osc pwr	372 1124 00
J1202	N17-C073108-2878	CONNECTOR, receptacle: UG-290A/U; straight; single rd female cont	Connector rf pa	357 9111 00
J1203	N17-C073108-2878	CONNECTOR, receptacle: UG-290A/U; straight; single rd female cont	Connector mo	357 9111 00
J1204		CONNECTOR, receptacle: 1 rd male cont; 3800 v rms; 60 cps; 10 mmf; 5000 meg res	Connector, test point	360 9002 00
L1201	N16-C074537-8957	COIL, RF: choke; 2.0 mh; 100 mmf at 350 to 20 kc	Rf choke	240 0084 00
R1201	N16-R050974-0438	RESISTOR, fixed: composition; MIL #RC20GF105J	Grid bias	745 1477 00
R1202	N16-R050416-0682	RESISTOR, fixed: composition; MIL #RC32GF333J	Screen grid bleeder	745 3414 00
R1203	N16-R050164-0435	RESISTOR, fixed: composition; MIL #RC20GF562J	Screen dropping	745 1383 00
S1201		SWITCH, rotary wafer: 4 pole, 5 position; 2 sect; w/ shield; spring silver clips, coin silver rotor blades	Xtal mo switch	044 5819 97
V1201	N16-T056203-0053	TUBE, electron: amplifier; MIL #6AU6WA	Xtal osc	254 0879 00

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AN/URC-8(XN-1)  
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TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

CRYSTAL OSCILLATOR  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
XV1201	N16-S062603-6700	SOCKET, tube: 7 pin miniature; JAN #TS102C01	Socket for V1201	220 1112 00
XY1201	N16-S054287-5051	SOCKET, crystal: for HC-6 type holder; beryllium copper, silver pl cont; steatite body	Socket	292 0059 00
XY1202	N16-S054287-5051	SOCKET, crystal: for HC-6 type holder; beryllium copper, silver pl cont; steatite body	Socket	292 0059 00
XY1203	N16-S054287-5051	SOCKET, crystal: for HC-6 type holder; beryllium copper, silver pl cont; steatite body	Socket	292 0059 00
XY1204	N16-S054287-5051	SOCKET, crystal: for HC-6 type holder; beryllium copper, silver pl cont; steatite body	Socket	292 0059 00
Y1201		NOT SUPPLIED (CR-18/U recommended)		
Y1202		NOT SUPPLIED (CR-18/U recommended)		
Y1203		NOT SUPPLIED (CR-18/U recommended)		
Y1204		NOT SUPPLIED (CR-18/U recommended)		

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TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

RF POWER AMPLIFIER  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C1301	N16-C018661-2291	CAPACITOR, fixed: ceramic; 1000 mmf +100 -20%, 500 vdcw	Coupling C (rf power amp)	913 1186 00
C1302	N16-C047030-7043	CAPACITOR, fixed: paper; 0.47 mf +10%, 400 vdcw	B+ bypass	No part no.
C1303		CAPACITOR, fixed: mica; 39 mmf ±2%, 500 vdcw	Tank shunt C	912 0463 00
C1304	N16-C018661-2291	CAPACITOR, fixed: ceramic; 1000 mmf +100 -20%, 500 vdcw	Bypass C (rf power amp)	913 1186 00
C1305	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf +100 -20%, 500 vdcw	Bypass C (rf power amp)	913 1188 00
C1306		CAPACITOR, fixed: mica; 36 mmf ±2%, 500 vdcw	Shunt C	912 0460 00
C1307		CAPACITOR, variable: ceramic; 5.0 to 37.5 mmf; 350 vdcw; OPPM/°C	Trimmer	917 1109 00
C1308	N16-C029819-2111	CAPACITOR, fixed: mica; JAN #CM15D361J	Series C	912 0533 00
C1309	N16-C018661-2291	CAPACITOR, fixed: ceramic; 1000 mmf +100 -20%, 500 vdcw	Coupling C (rf power amp)	913 1186 00
C1310		CAPACITOR, fixed: mica; 110 mmf ±2%, 500 vdcw	Series C	912 0496 00
C1311		CAPACITOR, variable: ceramic; 3.0 to 18.0 mmf; 350 vdcw; OPPM/°C	Trimmer	917 1108 00
C1312	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf +100 -20%, 500 vdcw	Filament bypass (rf power amp)	913 1188 00
C1313	N16-C015400-5828	CAPACITOR, fixed: ceramic; JAN #CC20CK1R5C	Shunt C	916 0072 00
C1314	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf +100 -20%, 500 vdcw	Bypass (rf power amp)	913 1188 00
C1315		CAPACITOR, fixed: mica; 120 mmf ±2%, 500 vdcw	Series C	912 0499 00
C1316		NOT USED		
C1317		CAPACITOR, variable: ceramic; 3.0 to 18.0 mmf; 350 vdcw; OPPM/°C	Trimmer	917 1111 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

RF POWER AMPLIFIER  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C1318	N16-C018661-2291	CAPACITOR, fixed: ceramic; 1000 mmf +100 -20%, 500 vdcw	Coupling (rf power amp)	913 1186 00
C1319	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf +100 -20%, 500 vdcw	Bias bypass (rf power amp)	913 1188 00
C1320		NOT USED		
C1321	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf +100 -20%, 500 vdcw	Screen bypass (rf power amp)	913 1188 00
C1322		NOT USED		
C1323		CAPACITOR, variable: ceramic; 3.0 to 18.0 mmf; 350 vdcw; OPPM/°C	Trimmer	917 1111 00
C1324		CAPACITOR, fixed: mica; 620 mmf ±2%, 500 vdcw	Neut C	935 5063 00
C1325		NOT USED		
C1326		NOT USED		
C1327		CAPACITOR, variable: ceramic; 3.0 to 18.0 mmf; 350 vdcw; OPPM/°C	Trimmer	917 1111 00
C1328		CAPACITOR, fixed: mica; 750 mmf ±2%, 500 vdcw	Neut C	935 5066 00
C1329		NOT USED		
C1330		CAPACITOR, fixed: mica; 15 mmf ±5%, 500 vdcw	Shunt C	912 0437 00
C1331		CAPACITOR, variable: ceramic; 5.0 to 37.5 mmf; 350 vdcw; OPPM/°C	Trimmer	917 1109 00
C1332		CAPACITOR, fixed: mica; 680 mmf ±2%, 500 vdcw	Neut C	935 5072 00
C1333		NOT USED		
C1334		CAPACITOR, fixed: mica; 82 mmf ±2%, 500 vdcw	Shunt C	912 0487 00
C1335		CAPACITOR, variable: ceramic; 5.0 to 37.5 mmf; 350 vdcw; OPPM/°C	Trimmer	917 1109 00

C1336		CAPACITOR, fixed: mica; 620 mmf $\pm 2\%$ , 500 vdcw	Neut C	935 5063 00
C1337		NOT USED		
C1338	N16-C028553-1046	CAPACITOR, fixed: mica; 1000 mmf $\pm 5\%$ , 500 vdcw	Coupling	912 0494 00
C1339	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf +100 -20%, 500 vdcw	Cath bypass (rf power amp)	913 1188 00
C1340	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf +100 -20%, 500 vdcw	Grid bypass (rf power amp)	913 1188 00
C1341		CAPACITOR, fixed: ceramic; 300 mmf $\pm 20\%$ , 1000 vdcw	Scr bypass (rf power amp)	044 1140 98
C1342		CAPACITOR, fixed: ceramic; 300 mmf $\pm 20\%$ , 1000 vdcw	Scr bypass (rf power amp)	044 1140 98
C1343	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf +100 -20%, 500 vdcw	Cathode bypass (rf power amp)	913 1188 00
C1344	N16-C099999-1139	CAPACITOR, fixed: ceramic; 0.01 mf +100 -20%, 500 vdcw	Decoupling (rf power amp)	913 1188 00
C1345		CAPACITOR, fixed: ceramic; 3 mmf $\pm 0.5$ mmf, 5000 vdcw	Neutralizing	913 0971 00
E1301		SHIELD, tube: JAN #TS102U02	Shield (rf power amp)	141 0144 00
E1302		SHIELD, tube: JAN #TS102U02	Shield (rf power amp)	141 0144 00
E1303	N16-S034576-6513	SHIELD, tube: JAN #TS103U02	Shield (rf power amp)	141 0147 00
E1304		INSULATOR, feedthru: brass; rd, post shape	Terminal, insulated (rf power amp)	306 0322 00
E1305	N17-T028207-1437	INSULATOR, feedthru: brass; teflon ins	Terminal insulated (rf power amp)	306 0327 00
E1306		RESISTOR, fixed: composition; MIL #RC32GF470K and 5 turns wire	Par suppressor (rf power amp)	2593B13537
E1307		RESISTOR, fixed: composition; MIL #RC32GF470K and 5 turns wire	Par suppressor (rf power amp)	2593B13537
E1308	N17-C800646-0201	CLIP: electron tube; copper or brass; ceramic insulation	Plate cap	301 1002 00
E1309	N17-C800646-0201	CLIP: electron tube; copper or brass; ceramic insulation	Plate cap	301 1002 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

RF POWER AMPLIFIER  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
E1310		CORE, adjustable tuning: ceramag; copper wire insert; brass slug screw; 8-32 mc	Tuning slugs (rf power amp)	288 1143 00
E1311		CORE, adjustable tuning: ceramag; copper wire insert; brass slug screw; 8-32 mc	Tuning slugs (p/o coil assy)	288 1143 00
E1312		CORE, adjustable tuning: ceramag; copper wire insert; brass slug screw; 8-32 mc	Tuning slugs (p/o coil assy)	288 1143 00
E1313		CORE, adjustable tuning: ceramag; copper wire insert; brass slug screw; 8-32 mc	Tuning slug (p/o coil assy)	288 1143 00
E1314		CORE, adjustable tuning: ceramag; copper wire insert; brass slug screw; 8-32 mc	Tuning slug (p/o coil assy)	288 1143 00
E1315		CORE, adjustable tuning: ceramag; copper wire insert; brass slug screw; 8-32 mc	Tuning slug (p/o coil assy)	288 1143 00
E1316		CORE, adjustable tuning: ceramag; copper wire insert; brass slug screw; 8-32 mc	Tuning slug (p/o coil assy)	288 1143 00
E1317		TERMINAL, stud: insulated, tapped insert type; hex base	Insulated standoff (rf power amp)	306 0233 00
J1301	N17-C073108-2878	CONNECTOR, receptacle: UG-290A/U; straight; single rd female cont	Connector mo (rf power amp)	357 9111 00
L1301		COIL ASSEMBLY, RF: exciter	PA tuning coil	541 8796 002
L1302		COIL ASSEMBLY, RF: exciter	PA tuning coil	541 8793 002
L1303		COIL ASSEMBLY, RF: exciter	PA tuning coil	541 8792 002
L1304		COIL ASSEMBLY, RF: exciter	PA tuning coil	541 8797 002
L1305		COIL ASSEMBLY, RF: exciter	PA tuning coil	541 8798 002
L1306		COIL ASSEMBLY, RF: exciter	PA tuning coil	541 8799 002
L1307		COIL ASSEMBLY, RF: exciter	PA tuning coil	541 8791 002

L1308		COIL, RF: choke; 4 univ pi wnd sections; 139 ±2 turns ea sect; 2.0 mh at 350 kc	RFC buffer plate (rf power amp)	044 3533 99
L1309		COIL, RF: choke; 4 univ pi wnd sect; 139 ±2 turns ea sect; 2.0 mh at 350 kc	RFC V1301 (rf power amp)	044 3533 99
L1310		COIL, RF: choke; 220 uh ±10% at 1.51 mc	RFC V1302	240 0037 00
L1311		COIL, RF: choke; 4 univ pi wnd sect; 139 ±2 turns ea sect; 2.0 mh at 350 kc	RFC V1303 (rf power amp)	044 3533 99
L1312		NOT USED		
L1313		COIL, RF: choke; 4 univ pi wnd sect; 139 ±2 turns ea sect; 2.0 mh at 350 kc	RFC V1304 grid (rf power amp)	044 3533 99
O1308		SPRING, tension: 3-7/32" lg, 3/16" dia	Cam	340 2180 00
O1319		SPRING, tension: 3-7/32" lg, 3/16 " dia	Cam	340 2180 00
O1325		SPRING, locking	Slug adjusting screw	502 6005 002
O1326		SPRING, locking	Slug adjusting screw	502 6005 002
O1327		SPRING, locking	Slug adjusting screw	502 6005 002
O1328		SPRING, locking	Slug adjusting screw	502 6005 002
O1329		SPRING, locking	Slug adjusting screw	502 6005 002
O1330		SPRING, locking	Slug adjusting screw	502 6005 002
O1331		SPRING, locking	Slug adjusting screw	502 6005 002
P1301		CONNECTOR, plug: 16 cont; molded plastic; 5 amps at 600 v dc	Connector (rf power amp)	372 1136 00
P1302		CONNECTOR, plug: plug tip; single, straight, cylindrical, brass, thermoplastic sleeve; 500 v rms	Connector output network (rf power amp)	361 0044 00
R1301	N16-R050281-0438	RESISTOR, fixed: composition; MIL #RC20GF103J	Grid (rf power amp)	745 1393 00
R1302	N16-R050445-0101	RESISTOR, fixed: composition; MIL #RC32GF393J	Screen (rf power amp)	745 3418 00
R1303	N16-R050281-0438	RESISTOR, fixed: composition; MIL #RC20GF103J	Grid (rf power amp)	745 1393 00
R1304	N16-R050445-0101	RESISTOR, fixed: composition; MIL #RC32GF393J	Screen (rf power amp)	745 3418 00
R1305		RESISTOR, fixed: composition; MIL #RC20GF183K	Grid (rf power amp)	745 1405 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1) RF POWER AMPLIFIER  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
R1306		NOT USED		
R1307		NOT USED		
R1308		NOT USED		
R1309		NOT USED		
R1310		NOT USED		
R1311		NOT USED		
R1312	N16-R049921-0349	RESISTOR, fixed: composition; MIL #RC20GF102J	Decoupling (rf power amp)	745 1351 00
R1313	N16-R050371-0433	RESISTOR, fixed: composition; MIL #RC20GF223J	Loading (rf power amp)	745 1407 00
S1301A		SWITCH, rotary: wafer; 6 pole; 4 sect; 12 position	Switch (rf power amp)	044 5842 97
S1301B		SWITCH, rotary: wafer; 6 pole; 4 sect; 12 position	Switich (rf power amp)	044 5842 97
S1301C		SWITCH, rotary: wafer; 6 pole; 4 sect; 12 position	Switch (rf power amp)	044 5842 97
S1301D		SWITCH, rotary: wafer; 6 pole; 4 sect; 12 position	Switch (rf power amp)	044 5842 97
S1302		SWITCH, radiation: overload; for protection of radiation cooled power tubes	Switch (rf power amp)	260 1855 00
V1301	N16-T056203-0053	TUBE, electron: amplifier; MIL #6AU6WA	2nd buffer, doubler	254 0879 00
V1302	N16-T056203-0053	TUBE, electron: amplifier; MIL #6AU6WA	Doubler	254 0879 00
V1303	N16-T075686	TUBE, electron: twin diode; MIL #5686	Driver tube	254 0850 00
V1304	N16-T075933-0085	TUBE, electron: pentode; MIL #5933WA	Tube (rf power amp)	254 0855 00
V1305	N16-T075933-0085	TUBE, electron: pentode; MIL #5933WA	Power amplifier	254 0855 00
XV1301	N16-S062603-6700	SOCKET, tube: 7 pin miniature; JAN #TS102C01	Socket for V1301	220 1112 00
XV1302	N16-S062603-6700	SOCKET, tube: 7 pin miniature; JAN #TS102C01	Socket for V1302	220 1112 00
XV1303	N16-S064063-6713	SOCKET, tube: JAN #TS103P01	Socket for V1303	220 1103 00

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XV1304

N16-S061717-4641

SOCKET, tube: five prong; above chassis base mtg;  
rd, mica filled bakelite body

Socket for V1304

220 1071 00

XV1305

N16-S061717-4641

SOCKET, tube: five prong; above chassis base mtg;  
rd, mica filled bakelite body

Socket for V1305

220 1071 00

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TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

POWER AMPLIFIER TANK AND LOADING  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C1401	N16-C033618-2690	CAPACITOR, fixed: mica; JAN #CM50B103J	Bypass hv power supply (output network)	936 1125 00
C1402	N16-C031086-5632	CAPACITOR, fixed: mica; JAN #CM45B102J	Blocking (output network)	936 0248 00
C1403		CAPACITOR, fixed: ceramic; 47 mmf $\pm 5\%$ , 5000 vdcw	PA tank tuning (output network)	913 0827 00
C1404		CAPACITOR, fixed: ceramic; 80 mmf $\pm 10\%$ , 5000 vdcw	PA tank tuning (output network)	913 0822 00
C1405		CAPACITOR, fixed: ceramic; 100 mmf $\pm 5\%$ , 5000 vdcw	PA tank tuning (output network)	913 0833 00
C1406		CAPACITOR, fixed: ceramic; 75 mmf $\pm 5\%$ , 5000 vdcw	PA tank tuning (output network)	913 0830 00
C1407		CAPACITOR, fixed: ceramic; 100 mmf $\pm 5\%$ , 5000 vdcw	PA tank tuning (output network)	913 0833 00
C1408		CAPACITOR, fixed: ceramic; 100 mmf $\pm 5\%$ , 5000 vdcw	PA tank tuning (output network)	913 0833 00
C1409		CAPACITOR, fixed: ceramic; 100 mmf $\pm 5\%$ , 5000 vdcw	PA tank tuning (output network)	913 0833 00
C1410		CAPACITOR, fixed: ceramic; 100 mmf $\pm 5\%$ , 5000 vdcw	PA tank tuning (output network)	913 0833 00
C1411		CAPACITOR, fixed: mica; 40 mmf $\pm 2\%$ , 500 vdcw	PA tank tuning (output network)	912 0753 00
C1412		CAPACITOR, fixed: mica; 40 mmf $\pm 2\%$ , 500 vdcw	PA tank tuning (output network)	912 0753 00
C1413		CAPACITOR, fixed: mica; 40 mmf $\pm 2\%$ , 500 vdcw	PA tank tuning (output network)	912 0753 00
C1414		CAPACITOR, fixed: mica; 40 mmf $\pm 2\%$ , 500 vdcw	PA tank tuning (output network)	912 0753 00



C1415	N16-C099999-0286	CAPACITOR, fixed: mica; 100 mmf $\pm 5\%$ , 500 vdcw	PA tank tuning (output network)	912 0721 00
C1416	N16-C099999-0286	CAPACITOR, fixed: mica; 100 mmf $\pm 5\%$ , 500 vdcw	PA tank tuning (output network)	912 0721 00
C1417		CAPACITOR, fixed: mica; 170 mmf $\pm 2\%$ , 500 vdcw	PA tank tuning (output network)	912 0730 00
C1418		CAPACITOR, fixed: mica; 170 mmf $\pm 2\%$ , 500 vdcw	PA tank tuning (output network)	912 0730 00
C1419		CAPACITOR, fixed: mica; 170 mmf $\pm 2\%$ , 500 vdcw	PA tank tuning (output network)	912 0730 00
C1420		CAPACITOR, fixed: mica; 400 mmf $\pm 2\%$ , 500 vdcw	PA tank tuning (output network)	912 0748 00
C1421		CAPACITOR, fixed: mica; 400 mmf $\pm 2\%$ , 500 vdcw	PA tank tuning (output network)	912 0748 00
C1422		CAPACITOR, fixed: mica; 400 mmf $\pm 2\%$ , 500 vdcw	PA tank tuning (output network)	912 0748 00
C1423		CAPACITOR, variable: air; 3.0 to 18.7 mmf 21 plates; 1250 peak v; 60 cps	Autotransformer compensating (output network)	044 1552 98
C1424		CAPACITOR, fixed: ceramic; 20 mmf $\pm 5\%$ , 5000 vdcw	Antenna series (output network)	913 0838 00
C1425		CAPACITOR, fixed: ceramic; 40 mmf $\pm 5\%$ , 5000 vdcw	Antenna series (output network)	913 0836 00
C1426		CAPACITOR, fixed: ceramic; 80 mmfd $\pm 10\%$ , 15,000 vdcw	Antenna series (output network)	913 1421 00
C1427		CAPACITOR, fixed: mica; 130 mmf $\pm 2\%$ , 500 vdcw	Output network	912 0751 00
C1428		CAPACITOR, fixed: mica; 400 mmf $\pm 2\%$ , 500 vdcw	Output network	912 0748 00
C1429		CAPACITOR, fixed: mica; 400 mmf $\pm 2\%$ , 500 vdcw	Output network	912 0748 00
C1430		CAPACITOR, fixed: mica; 400 mmf $\pm 2\%$ , 500 vdcw	Output network	912 0748 00
C1431		CAPACITOR, fixed: mica; 400 mmf $\pm 2\%$ , 500 vdcw	Output network	912 0748 00
C1432		CAPACITOR, fixed: mica; 400 mmf $\pm 2\%$ , 500 vdcw	Output network	912 0748 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

POWER AMPLIFIER TANK AND LOADING  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C1433	N16-C016223-6759	CAPACITOR, fixed: ceramic; 25 uuf $\pm 10\%$ , 2500 vdcw at 2 mc, 1000 vdcw at 16 mc	Output network	913 4253 20
J1401	N17-C073108-1158	CONNECTOR, receptacle: single female cont; straight; cylindrical; brass, silver pl	Pin jack, Rf (output network)	360 2010 00
J1402		CONNECTOR, receptacle: 1 rd male contact; 3800 v rms; 60 cps; 10 mmf; 5000 meg res	Connector B+ (output network)	360 9002 00
J1403	N17-C073108-1158	CONNECTOR, receptacle: single female cont; straight; cylindrical; brass, silver pl	Pin jack, Rf (output network)	360 2010 00
L1401		FORM, coil: ceramic; 3/4" dia; ungrooved; glazed on outer surface	Coil form, rf filter choke (output network)	190 0108 00
L1402		FORM, coil: ceramic; 1/2" dia; steatite w/white glaze on barrel only	Coil form, 30 mc, fixed tank coil (output network)	190 0117 00
L1403		FORM, coil: ceramic; 1-3/4" dia; steatide; glazed on outside	Coil form, 2-30 mc, variable tank coil (output network)	190 0115 00
L1404		FORM, coil: ceramic; 1-1/4" dia; 14 grooves per in; LH turns; 19 full turns	Coil form, autotransformer (output network)	044 3086 99
S1401A		SWITCH SECTION, rotary: 1 pole, 18 pos; multiple finger; solid silver cont; 7-1/2 amp per finger; 2550 v rms, 60 cps	Switch (output network)	044 6795 97
S1401B		SWITCH SECTION, rotary: 1 pole, 18 pos; multiple finger; solid silver cont; 7-1/2 amp per finger; 2550 v rms, 60 cps	Switch (output network)	044 6795 97
S1401C		SWITCH SECTION, rotary: 1 pole, 18 pos; multiple finger; solid silver cont; 7-1/2 amp per finger; 2550 v rms, 60 cps	Switch (output network)	044 6795 97

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

ANTENNA TUNING  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
E1501		RIBBON: hard drawn fine silver; 0.093 in w by 22 ft lg	Tape (L1501) windup coil	044 7644 97
J1501	N17-C073108-1158	CONNECTOR, receptacle: single female cont; straight; cylindrical; brass, silver pl	Pin jack	360 2010 00
J1502	N17-C073108-1158	CONNECTOR, receptacle: single female cont; straight; cylindrical; brass, silver pl	Pin jack	360 2010 00
L1501		COIL, RF: grooved drum and brass drum assy; antenna tuning; includes O1501 and O1517	Antenna matching	541 8860 005
O1501		DRUM, coil: grooved drum; windup; 0-37 turns silver ribbon; includes powdered iron core; part of L1501	Grooved drum (windup coil)	541 8838 002
O1517		DRUM, coil: brass; flat; windup; 0-37 turns silver ribbon; part of L1501	Shorting windup drum for L1501	541 8857 003
P1501		CONNECTOR, plug: phone tip; brass; thermoplastic sleeve; 500 v rms	Connector Rf (windup coil)	361 0043 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

SPEECH AMPLIFIER  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C1601		CAPACITOR, fixed: electrolytic; 40 mf -15% +50%; 30 vdcw	Microphone line filter	184 7126 00
C1602		CAPACITOR, fixed: paper; 9100 mmf $\pm 5\%$ , 400 vdcw	Coupling (speech amp)	931 0761 00
C1603		CAPACITOR, fixed: paper; 0.033 mf $\pm 20\%$ , 100 vdcw	Coupling (speech amp)	931 2500 00
C1604	N16-C018661-2291	CAPACITOR, fixed: ceramic; 1000 mmf +100 -20%, 500 vdcw	Phase correction (speech amp)	913 1186 00
C1605		NOT USED		
C1606		CAPACITOR, fixed: paper; 0.47 mf $\pm 20\%$ , 200 vdcw	Coupling (speech amp)	931 2547 00
C1607	N16-C028558-1535	CAPACITOR, fixed: mica; 100 mmf $\pm 10\%$ , 500 vdcw	Bypass filament (speech amp)	912 0495 00
C1608	N16-C028558-1535	CAPACITOR, fixed: mica; 100 mmf $\pm 10\%$ , 500 vdcw	Bypass filament (speech amp)	912 0495 00
C1609		CAPACITOR, fixed: mica; 10 mmf $\pm 10\%$ , 500 vdcw	Bypass rf (speech amp)	912 0432 00
E1601	N16-S034576-6713	SHIELD, tube: JAN #TS103U02	V1601 shield	141 0147 00
E1602	N16-S034520-3862	SHIELD, tube: JAN #TS102U01	V1602 shield	141 0143 00
E1603	N16-S034576-6513	SHIELD, tube: JAN #TS103U02	V1603 shield	141 0147 00
E1604		TERMINAL, feedthru: brass conductor, polyethylene ins	Feedthru terminal	306 0425 00
E1605		TERMINAL, feedthru: brass conductor, polyethylene ins	Feedthru terminal	306 0425 00
E1606		TERMINAL, feedthru: brass conductor, polyethylene ins	Feedthru terminal	306 0425 00
E1607		TERMINAL, feedthru: brass conductor, polyethylene ins	Feedthru terminal	306 0425 00
E1608		TERMINAL, feedthru: brass conductor, polyethylene ins	Feedthru terminal	306 0425 00
E1609		TERMINAL, feedthru: brass conductor, polyethylene ins	Feedthru terminal	306 0425 00
E1610		TERMINAL, feedthru: brass conductor, polyethylene ins	Feedthru terminal	306 0425 00

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E1611		TERMINAL, feedthru: brass conductor, polyethylene ins	Feedthru terminal	306 0425 00
E1612		TERMINAL, feedthru: brass conductor, polyethylene ins	Feedthru terminal	306 0425 00
E1613		TERMINAL, feedthru: brass conductor, polyethylene ins	Feedthru terminal	306 0425 00
E1614		TERMINAL, stud: melamine body; brass base; hex	Terminal	306 0234 00
E1615		TERMINAL, stud: melamine body; brass base; hex	Terminal	306 0234 00
E1616		TERMINAL, stud: melamine body; brass base; hex	Terminal	306 0234 00
E1617		RETAINER, electrical shield: brass, nickel pl; rd, open top; for 9-pin min tube socket	Base for V1601 tube shield	141 0159 00
E1618		RETAINER, electrical shield: brass, nickel pl; rd, open top; for 7-pin min tube socket	Base for V1602 tube shield	141 0221 00
E1619		RETAINER, electrical shield: brass, nickel pl; rd, open top; for 9-pin min tube socket	Base for V1603 tube shield	141 0159 00
J1601		CONNECTOR, receptacle: 1 rd male cont; 3800 v rms; 60 cps; 10 mmf; 5000 meg res	Test point	360 9002 00
P1601		CONNECTOR, plug: 16 cont; molded plastic; 5 amp at 600 vdc	Speech amplifier	372 1136 00
R1601	N16-R049858-0438	RESISTOR, fixed: composition; MIL #RC20GF751J	Voltage divider	745 1347 00
R1602	N16-R050011-0438	RESISTOR, fixed: composition; MIL #RC20GF222J	Voltage divider	745 1365 00
R1603	N16-R049579-0131	RESISTOR, fixed: composition; MIL #RC20GF101J	Voltage divider	745 1309 00
R1604	N16-R049822-0438	RESISTOR, fixed: composition; MIL #RC20GF621J	Voltage divider	745 1343 00
R1605	N16-R050038-0438	RESISTOR, fixed: composition; MIL #RC20GF272J	V1601B cathode bias	745 1369 00
R1606		RESISTOR, variable: 50,000 ohms $\pm 20\%$ , 2 w at 70°C	Clipping level control	380 1146 00
R1607	N16-R050650-0390	RESISTOR, fixed: composition; MIL #RC20GF124J	V1601B grid	745 1439 00
R1608	N16-R050632-0416	RESISTOR, fixed: composition; MIL #RC20GF104J	V1601B plate load	745 1435 00
R1609	N16-R050695-0436	RESISTOR, fixed: composition; MIL #RC20GF184J	Clipper input	745 1446 00
R1610	N16-R050713-0380	RESISTOR, fixed: composition; MIL #RC20GF224J	Clipper output	745 1449 00
R1611	N16-R050974-0438	RESISTOR, fixed: composition; MIL #RC20GF105J	Clipper bias dropping	745 1477 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8  
 SPEECH AMPLIFIER

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
R1612	N16-R050713-0380	RESISTOR, fixed: composition; MIL #RC20GF224J	V1601A plate load	745 1449 00
R1613		RESISTOR, variable: one sect; 50,000 ohms $\pm 20\%$ ; 2 w; not special taper	Amplifier gain control	380 5796 00
R1614	N16-R050695-0436	RESISTOR, fixed: composition; MIL #RC20GF184J	Voltage divider	745 1446 00
R1615	N16-R050164-0435	RESISTOR, fixed: composition; MIL #RC20GF562J	V1603B cathode bias	745 1383 00
R1616	N16-R049390-0438	RESISTOR, fixed: composition; MIL #RC20GF390J	Mike filter	745 1292 00
R1617		NOT USED		
R1618	N16-R050164-0435	RESISTOR, fixed: composition; MIL #RC20GF562J	V1603A cathode bias	745 1383 00
R1619	N16-R050857-0438	RESISTOR, fixed: composition; MIL #RC20GF564J	V1603B plate load	745 1467 00
R1620	N16-R050857-0438	RESISTOR, fixed: composition; MIL #RC20GF564J	V1603A plate load	745 1467 00
R1621	N16-R050164-0435	RESISTOR, fixed: composition; MIL #RC20GF562J	V1601A cathode bias	745 1383 00
R1622	N16-R050974-0438	RESISTOR, fixed: composition; MIL #RC20GF105J	V1601A grid	745 1477 00
T1601		FILTER, high-pass: 1.5 db max; 600 ohms $\pm 20\%$ input impedance; -3 v dc max output operating v; continuous duty; HS; stud mtd	H-p filter audio div #D6426	044 3025 01
T1602		FILTER, low-pass: audio; 50,000 ohms $\pm 20\%$ input impedance; -75 v dc output; HS case, stud mtd	L-p filter	044 3352 01
V1601	N16-T075814-0005	TUBE, electron: current amplifier; MIL #5814A	1st and 2nd audio amplifier	254 0897 00
V1602	N16-T075726	TUBE, electron: miniature twin triode; MIL #5726/6AL5W	Clipper	254 0844 00
V1603	N16-T075751	TUBE, electron: miniature twin triode; MIL #5751	Phase inverter	254 0821 00
XV1601		SOCKET, tube: 9 pin min; turret type	Socket for V1601	220 1194 00
XV1602		SOCKET, tube: 7 pin min; turret type	Socket for V1602	220 1189 00
XV1603		SOCKET, tube: 9 pin min; turret type	Socket for V1603	220 1194 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

MODULATOR  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C1701		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ , 400 vdcw	V1701B grid coupling	931 2529 00
C1702		CAPACITOR, fixed: paper; 0.01 mf $\pm 20\%$ , 400 vdcw	V1701A grid coupling	931 2529 00
C1703		CAPACITOR, fixed: electrolytic; 25 mf -15 +50%, 125 vdcw	Bias filter	184 7101 00
E1701	N16-S034576-6513	SHIELD, tube: JAN #TS103U02	V1701 shield	141 0147 00
E1702		NOT USED		
E1703		NOT USED		
E1704	N16-C800646-0201	CLIP, electron tube: copper or brass; ceramic insulation	Plate cap	301 1002 00
E1705	N16-C800646-0201	CLIP, electron tube: copper or brass; ceramic insulation	Plate cap	301 1002 00
J1701		CONNECTOR, receptacle: 1 rd male cont; 3800 v rms; 60 cps; 10 mmf; 5000 meg res	Test point	360 9002 00
J1702		CONNECTOR, receptacle: 1 rd male cont; 3800 v rms; 60 cps; 10 mmf; 5000 meg res	Test point	360 9005 00
P1701		CONNECTOR, plug: 16 cont; molded plastic; 5 amp at 600 vdc	Modulator power	372 1136 00
R1701	N16-R050974-0438	RESISTOR, fixed: composition; MIL #RC20GF105J	Grid	745 1477 00
R1702	N16-R050434-0636	RESISTOR, fixed: composition; MIL #RC20GF363J	Voltage divider	745 1417 00
R1703	N16-R050974-0438	RESISTOR, fixed: composition; MIL #RC20GF105J	Grid	745 1477 00
R1704	N16-R050551-0401	RESISTOR, fixed: composition; MIL #RC20GF683J	Cathode bias	745 1428 00
R1705	N16-R050551-0401	RESISTOR, fixed: composition; MIL #RC20GF683J	Cathode bias	745 1428 00
R1706		RESISTOR, fixed: composition; MIL #RC09GF562K	Bias filter	745 0384 00
V1701	N16-T075814-0005	TUBE, electron: current amplifier; MIL #5814A	Driver	254 0897 00
V1702	N16-T075933-0085	TUBE, electron: pentode; MIL #5933WA	Modulator	254 0855 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

MODULATOR  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
V1703	N16-T075933-0085	TUBE, electron: pentode; MIL #5933WA	Modulator	254 0855 00
XV1701		SOCKET, tube: 9 pin min; turret type	Socket for V1701	220 1194 00
XV1702	N16-S061717-4641	SOCKET, tube: five prong; above chassis base mtg; rd, mica filled bakelite body	Socket for V1702	220 1071 00
XV1703	N16-S061717-4641	SOCKET, tube: five prong; above chassis base mtg; rd, mica filled bakelite body	Socket for V1703	220 1071 00



TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

RELAY SUBCHASSIS  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C1801		CAPACITOR, fixed: paper; 1.00 mf $\pm 20\%$ , 200 vdcw	Keying filter	931 0613 00
C1802		CAPACITOR, fixed: paper; 0.22 mf $\pm 20\%$ , 200 vdcw	Keying capacitor	931 2545 00
E1801	N16-S034520-3862	SHIELD, tube: JAN #TS102U01	V1801 shield	141 0143 00
E1802		RETAINER, electrical shield: brass, nickel pl; rd, open top; for 7-pin min tube socket	Base for V1801 tube shield	141 0221 00
J1801		CONNECTOR, receptacle: 1 rd male contact; 3800 v rms; 60 cps; 10 mmf; 5000 meg res	Test point (white)	360 9001 00
K1801		RELAY, armature: cont arrangement 2A; 500 ma at 135 v dc cont rating; 12 v dc coil, 175 ohms res	Phone relay (RBM 2A-12DC)	044 0558 99
K1802		RELAY, armature: contact arrangement 3A; 1C; 1A, 1 amp 7 vac; 1A, 3 amp 12 v dc; 1C, 0.200 amp at 25 v ac; 1A - 0.020 amp at 115 v dc	Keying relay	044 0629 99
P1801		CONNECTOR, plug: 16 cont; molded plastic 5 amp at 600 v dc	Power	372 1136 00
P1802		CONNECTOR, plug: 16 cont; molded plastic 5 amp at 600 v dc	Power	372 1136 00
R1801	N16-R050713-0380	RESISTOR, fixed: composition; MIL #RC20GF224J	Voltage divider	745 1449 00
R1802	N16-R050974-0438	RESISTOR, fixed: composition; MIL #RC20GF105J	Voltage divider	745 1477 00
R1803	N16-R050282-0131	RESISTOR, fixed: composition; MIL #RC42GF103J	Bias filter	745 5693 00
R1804	N16-R050372-0131	RESISTOR, fixed: composition; MIL #RC42GF223J	Bias resistor	745 5707 00
R1805	N16-R050893-0435	RESISTOR, fixed: composition; MIL #RC20GF684J	Voltage divider	745 1470 00
R1806	N16-R050372-0131	RESISTOR, fixed: composition; MIL #RC42GF223J	Bias resistor	745 5707 00
R1807		NOT USED		
R1808	N16-R050974-0438	RESISTOR, fixed: composition; MIL #RC20GF105J	Voltage divider	745 1477 00

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Section 6  
C1801 - R1808

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

RELAY SUBCHASSIS  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
R1809	N16-R049921-0349	RESISTOR, fixed: composition; MIL #RC20GF102J	Bias dropping	745 1351 00
V1801	N16-T075726	TUBE, electron: miniature twin triode; MIL #5726/6AL5W	ADC	254 0844 00
XV1801		SOCKET, tube: 7 pin min; turret type	Socket for V1801	220 1189 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

FRONT PANEL AND MAIN FRAME  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
B1901		MOTOR, DC: 1/50 hp at 7500 rpm; 115 v dc $\pm 20$ v; 300 ma dc input current	Blower motor (115 v dc)	044 0184 01
C1901	N16-C047147-7395	CAPACITOR, fixed: paper; 0.47 mf $\pm 20\%$ , 200 vdcw	Noise filter	931 0519 00
C1902		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Key line rf filter	913 1161 00
C1903		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Key line rf filter	913 1161 00
C1904		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Handset rf filter	913 1161 00
C1905		CAPACITOR, fixed: paper; 6800 mmf $\pm 5\%$ , 600 vdcw	Feedback capacitor	931 0763 00
C1906		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Handset rf filter	913 1161 00
C1907	N16-C018661-2291	CAPACITOR, fixed: ceramic; 0.001 mf $+100 -20\%$ ; 500 vdcw	Noise filter	913 1186 00
C1908		NOT USED		
C1909		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Handset rf filter	913 1161 00
C1910		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Handset rf filter	913 1161 00
C1911		NOT USED		
C1912		NOT USED		
C1913		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Handset rf filter	913 1161 00
C1914		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Handset rf filter	913 1161 00
C1915		CAPACITOR, fixed: ceramic; 100 mmf $\pm 5\%$ , 5000 vdcw	Antenna tuning	913 0833 00

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Section 6  
B1901 - C1915

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

FRONT PANEL AND MAIN FRAME  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
C1916		CAPACITOR, fixed: ceramic; 47 mmf $\pm 5\%$ , 5000 vdcw	Antenna tuning	913 0827 00
C1917		CAPACITOR, fixed: ceramic; 25 mmf $\pm 5\%$ ; 0 PPM/ $^{\circ}$ C; 7, 500 vdcw	Antenna tuning 25 mmf 700 v dc	044 1114 98
C1918		CAPACITOR, fixed: ceramic; 25 mmf $\pm 5\%$ ; 0 PPM/ $^{\circ}$ C; 7, 500 vdcw	Antenna tuning	044 1114 98
C1919		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Mo rf filter	913 1161 00
C1920		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Mo rf filter	913 1161 00
C1921		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Mo rf filter	913 1161 00
C1922		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Mo rf filter	913 1161 00
C1923		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Mo rf filter	913 1161 00
C1924		CAPACITOR, fixed: paper; $\pm 20\%$ ; 100 vdcw	Mo rf filter	931 0496 00
C1925		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Mo rf filter	913 1476 00
C1926		CAPACITOR, fixed: paper; $\pm 20\%$ ; 100 vdcw	Mo rf filter	931 0496 00
C1927		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Mo rf filter	913 1161 00
C1928		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Mo rf filter	913 1161 00
C1929		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Mo rf filter	913 1161 00
C1930		CAPACITOR, fixed: ceramic; 1000 mmf guar min tol; 500 vdcw	Mo rf filter	913 1161 00

CR1901	N17-R051401-8526	RECTIFIER, metallic: selenium; input 130 v ac, 60 cycle, single phase; output 125 v, 100 ma	Antenna relay delay rectifier	353 0006 00
CR1902	N17-R051401-8526	RECTIFIER, metallic: selenium; input 130 v ac, 60 cycles, single phase; output 125 v, 100 ma	Isolation rectifier	353 0006 00
E1901		KNOB: crank; for 1/4" dia shaft; molded black "Tenite No. 2"; w/aluminum insert	PA tune	281 9002 00
E1902		KNOB: crank; for 1/4" dia shaft; molded black "Tenite No. 2"; w/aluminum insert	Ant load	281 9002 00
E1903		KNOB: crank; for 1/4" dia shaft; molded black "Tenite No. 2"; w/aluminum insert	Ant tune	281 9002 00
E1904		KNOB: round; for 1/4" dia shaft; black "Tenite No. 2"; w/aluminum insert	Knob tuning	281 0128 00
E1905		KNOB: pointer; for 1/4" dia shaft; black "Tenite No. 2"; w/aluminum insert	Local remote	281 0152 00
E1906		KNOB: pointer; for 1/4" dia shaft; black "Tenite No. 2"; w/aluminum insert	Service select	281 0152 00
E1907		KNOB: pointer; for 1/4" dia shaft; black "Tenite No. 2"; w/aluminum insert	Light dimmers	281 0152 00
E1908		KNOB: pointer; for 1/4" dia shaft; black "Tenite No. 2"; w/aluminum insert	Meter switch	281 0152 00
E1909		KNOB: pointer; for 1/4" dia shaft; black "Tenite No. 2"; w/aluminum insert	Mo Xtal select	281 0152 00
E1910		KNOB: pointer; for 1/4" dia shaft; black "Tenite No. 2"; w/aluminum insert	Band switch	281 0154 00
E1911		KNOB: pointer; for 1/4" dia shaft; black "Tenite No. 2"; w/aluminum insert	Ant capacitor	281 0154 00
E1912		KNOB: round; for 1/4" dia shaft; black "Tenite No. 2"; w/aluminum insert	Knob Zero adjust	281 0122 00
E1913		KNOB: round; for 1/4" dia shaft; black "Tenite No. 2"; w/aluminum insert	Knob Headphone level	281 0122 00
E1914	N16-K700248-0886	KNOB: rd; aluminum; for 0.188 in. dia shaft; engraved arrow and word LOCK	Dial lock	503 8779 003

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

FRONT PANEL AND MAIN FRAME  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
E1915	N16-K700248-0886	KNOB: rd; aluminum; for 0.188 in. dia shaft; engraved arrow and word LOCK	Dial lock	503 8779 003
E1916	N16-K700248-0886	KNOB: rd; aluminum; for 0.188 in. dia shaft; engraved arrow and word LOCK	Dial lock	503 8779 003
E1917	N16-K700248-0886	KNOB: rd; aluminum; for 0.188 in. dia shaft; engraved arrow and word LOCK	Dial lock	503 8779 003
E1918		RING, retainer: secures connector; brass, nickel pl; #22 awg	Connector ring for J1901	372 1126 00
FL1901		FILTER: includes C1919, C1920, and L1906	Mo filter	
FL1902		FILTER: includes C1913, C1914, and L1901	Mo filter	
I1901		LAMPHOLDER: pilot light bulb w/minature bayonet base; T-3-1/4 bulb	Carrier on light	262 3220 00
I1902		LAMPHOLDER: pilot light bulb w/minature bayonet base; T-3-1/4 bulb	Power on	262 3220 00
I1903		LAMP, glow: 6-8 v; 0.25 amp; G-3-1/2 bulb	Dial light	262 0264 00
I1904		LAMP, glow: 6-8 v; 0.25 amp; G-3-1/2 bulb	Dial light	262 0264 00
I1905	N17-L006806-0460	LIGHT, indicator: neon; w/lens; 1/10 w; 100,000 ohms res in 110 to 120 v ac or dc	Interlock indicator	262 0074 00
J1901		CONNECTOR, plug: 9 rd female pol cont; straight; 1 amp at 660 v ac rms max; rd phenolic body	Mo connector	372 1125 00
J1902	N17-C073109-6720	CONNECTOR, receptacle: 1 rd female cont; straight; cylindrical metal body w/teflon insert; UG-496/U	Antenna connector	357 9037 00
J1903		CONNECTOR, receptacle: plastic, SS mtg pl; 16 spring cont; 5 amp at 600 v dc	Rf power amplifier power connector	372 1131 00
J1904		CONNECTOR, receptacle: plastic, SS mtg pl; 16 spring cont; 5 amp at 600 v dc	Speech amplifier power connector	372 1131 00

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PARTS LIST

J1905		CONNECTOR, receptacle: plastic, SS mtg pl; 16 spring cont; 5 amp at 600 v dc	Modulator power connector	372 1131 00
J1906		CONNECTOR, receptacle: plastic, SS mtg pl; 16 spring cont; 5 amp at 600 v dc	Power chassis power connector	372 1131 00
J1907	N17-C072252-1135	CONNECTOR, receptacle: 1 mating end; 5 rd female cont; 22 amp; 700 v dc, 500 v ac; Navy type AN3102A-14S-5S	Local mike	357 2000 00
J1908		JACK, telephone: for 2 conductor plug; J1 cont arrangement; incl mtg bushing, washer and nut	Local key jack	358 1080 00
J1909	N17-J039420-5601	JACK, telephone: w/w three conductor plug; J2 cont arrangement; incl bushing and nut	Local mike jack	358 1100 00
J1910		NOT USED		
J1911		CONNECTOR, receptacle: plastic, SS mtg pl; 16 spring cont; 5 amp at 600 v dc	Relay chassis power connector	372 1131 00
J1912		CONNECTOR, receptacle: 16 female cont; 5 amp at 800 v dc	Transmitter power connector	044 2072 98
J1913		CONNECTOR, receptacle: 24 female cont; 5 amp at 800 v dc	Transmitter power connector	044 2073 98
J1914	N17-C073108-2878	CONNECTOR, receptacle: UG-290A/U; straight; single rd female cont	Receiver ant connector	357 9111 00
K1901		RELAY, armature: 2C cont arrangement; 150 ma contact rating; 115 v dc $\pm 15\%$ coil	Relay ant changeover	044 0556 99
L1901		COIL, RF: choke; 39 uh $\pm 10\%$ ; 65 min Q at 2 mc	Handset rf filter	240 0171 00
L1902		COIL, RF: choke; 39 uh $\pm 10\%$ ; 65 min Q at 2 mc	Key line rf filter	240 0171 00
L1903		COIL, RF: choke; 39 uh $\pm 10\%$ ; 65 min Q at 2 mc	Handset rf filter	240 0171 00
L1904		NOT USED		
L1905		COIL, RF: choke; 39 uh $\pm 10\%$ ; 65 min Q at 2 mc	Handset rf filter	240 0171 00
L1906		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Mo rf filter	240 0194 00
L1907		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Mo rf filter	240 0194 00
L1908		COIL, RF: choke; 22 uh $\pm 10\%$ ; 30 min Q at 2.5 mc	Mo rf filter	240 0186 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

FRONT PANEL AND MAIN FRAME  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
L1909		COIL, RF: choke; 22 uh $\pm 10\%$ ; 30 min Q at 2.5 mc	Mo rf filter	240 0186 00
L1910		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Mo rf filter	240 0194 00
L1911		COIL, RF: choke; 120 uh $\pm 10\%$ ; 85 min Q at 1.0 mc	Mo rf filter	240 0194 00
M1901		METER, ammeter: dc; range 0-1 ma; square aluminum case; $\pm 3\%$ accuracy for full scale reading	Test meter (0-ma)	044 2510 98
N1901	For reference only	PLATE, identification: aluminum; inscribed "T-474(XN-1)/URC-8 Transmitter" black on natural or white	Nameplate	044 0010 280
O1901		ACTUATOR, switch: auxiliary roller type; SS frame and leaf, oil impr bronze roller	Actuator for S1910	260 0945 00
O1902		ACTUATOR, switch: auxiliary roller type; SS frame and leaf, oil impr bronze roller	Actuator for S1911	260 0945 00
O1903		CLEANER, air: wire mesh; aluminum, chromate dip; oil impregnated	Air filter	044 0216 97
O1923		GASKET: O-ring; synthetic rubber; AN 6227-6	Front panel shaft sealing ring	013 0250 00
O1924		GASKET: O-ring; synthetic rubber; AN 6227-6	Front panel shaft sealing ring	013 0250 00
O1938	N17-S150263-0108	NUT, lock: hex; brass w/synthetic rubber seal	Front panel shaft sealing nut	334 0458 00
O1943		GASKET: O-ring; synthetic rubber; AN 6227-5	Front panel shaft sealing ring	013 0248 00
O1944		GASKET: O-ring; synthetic rubber; AN 6227-7	Front panel shaft sealing ring	013 0234 00
O1952		GASKET: O-ring; synthetic rubber; AN 6227-5	Front panel shaft sealing ring	013 0248 00
O1953		GASKET: O-ring; synthetic rubber; AN 6227-7	Front panel shaft sealing ring	013 0234 00



O1961		GASKET: O-ring; synthetic rubber; AN 6227-5	Front panel shaft sealing ring	013 0248 00
O1962		GASKET: O-ring; synthetic rubber; AN 6227-7	Front panel shaft sealing ring	013 0234 00
O1967		SLEEVE, centering; black silicone rubber	Hood for front panel shaft sealing nut	044 0006 200
O1970		SLEEVE, centering: black silicone rubber	Hood for front panel shaft sealing nut	044 0006 200
O1977		BOOT: rubber; Dow-Corning silaster X6015	Switch boot	044 0004 266
O1978		BOOT: rubber; Dow-Corning silaster X6015	Switch boot	044 0004 266
O1982	N17-S150263-0108	NUT, lock: hex; brass w/synthetic rubber seal	Front panel shaft sealing nut	334 0458 00
O1986	N17-S150263-0109	NUT, lock: hex; brass w/synthetic rubber seal	Front panel shaft sealing nut	334 0459 00
O1993		SLEEVE, centering; black silicone rubber	Hood for front panel shaft sealing nut	044 0006 200
O1997		BLOWER, impeller: single intake; cw rotation; 24 blades; 2" dia, 31/32" w, 0.1875 bore	Blower impeller for B1901	009 1111 00
P1901	N17-C071408-9285	CONNECTOR, plug: single rd male cont; straight; UG-260B/U	Xtal osc output connector	357 9028 00
P1902	N17-C071408-9285	CONNECTOR, plug: single rd male cont; straight; UG-260B/U	Rf PA connector	357 9028 00
P1903		CONNECTOR, plug: plug tip; straight, cylindrical, brass thermoplastic sleeve; 500 v rms	B+ connector	361 0044 00
P1904	N17-C078442-1676	CONNECTOR, plug: 1 rd banana type cont; straight; brass, silver pl body	Ant tuning capacitor	361 0005 00
P1905	N17-C078442-1676	CONNECTOR, plug: 1 rd banana type cont; straight, brass, silver pl body	Ant changeover relay	361 0005 00
P1906		CONNECTOR, receptacle: 7 rd pol cont; straight; 5 amp at 500 v ac; phenolic body	Xtal osc power connector	372 1116 00
R1901	N16-R049237-0995	RESISTOR, fixed: composition; MIL #RC42GF100J	Light dimmer	745 5567 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

FRONT PANEL AND MAIN FRAME  
MAJOR ASSEMBLY: RADIO TRANSMITTER T-474(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
R1902		RESISTOR, variable: 2 sect; 600 ohms $\pm 20\%$ input impedance; 2 w max per section	Vol dual (600 ohm)	044 2001 97
R1903		RESISTOR, variable: 100 ohms $\pm 20\%$ ; 2 w at 70°C	Sidetone pot	380 5800 00
R1904		RESISTOR, fixed: film; MIL #RN20X1820F	Meter res	705 2113 00
R1905		RESISTOR, fixed: wirewound; 1 ohm $\pm 3\%$ ; 2 w	Meter res	747 9296 00
R1906		RESISTOR, fixed: wirewound; 1 ohm $\pm 3\%$ ; 2 w	Meter res	747 9296 00
R1907		RESISTOR, fixed: film; MIL #RN20X17R8F	Meter res	705 2284 00
R1908	N16-R049318-0698	RESISTOR, fixed: composition; MIL #RC32GF220J	Light dimmer	745 3281 00
R1910	N16-R049318-0698	RESISTOR, fixed: composition; MIL #RC32GF220J	Light dimmer	745 3281 00
R1911	N16-R050650-0390	RESISTOR, fixed: composition; MIL #RC20GF124J	Voltage dropping	745 1439 00
R1912	N16-R050282-0131	RESISTOR, fixed: composition; MIL #RC42GF103J	Bias	745 5693 00
R1913	N16-R068424-1047	RESISTOR, fixed: wirewound; MIL #RW31F502	Tune	747 0681 00
R1914	N16-R062158-6635	RESISTOR, fixed: wirewound; MIL #RW34F253	Screen bleeder	747 2108 00
R1915		RESISTOR, fixed: wirewound; MIL #RW34G802	Screen dropping	747 2098 00
R1916		RESISTOR, fixed: wirewound; MIL #RW33G901	Ant relay series res	747 1592 00
R1917	N16-R049120-0716	RESISTOR, fixed: composition; MIL #RC32GF5R6J	Sidetone	745 3545 00
R1918	N16-R050893-0656	RESISTOR, fixed: composition; MIL #RC32GF684J	Feedback res	745 3470 00
R1919	N16-R050713-0380	RESISTOR, fixed: composition; MIL #RC20GF224J	Voltage divider	745 1449 00
R1920	N16-R065734-9526	RESISTOR, fixed: wirewound; MIL #RW30G161	Motor series	747 0074 00
R1921	N16-R065806-3643	RESISTOR, fixed: wirewound; MIL #RW33F311	Idle speed motor res	747 1535 00
R1922	N16-R049237-0443	RESISTOR, fixed: composition; MIL #RC20GF100J	Key circuit fuse	745 1267 00
S1901		SWITCH; antenna capacitor; single pole, single deck; 5 pos	Ant cap switch	044 5877 97

S1902		SWITCH, rotary wafer: 9 pole, 3 position; 3 sect; spring silver clips, coin silver rotor blades	Local remote	044 5811 97
S1903	N17-S072396-1685	SWITCH, toggle: SPDT; JAN #ST42H; JAN-S-23	Test key	266 3079 00
S1904		SWITCH, push: SPST; 17 amp at 24 v dc, 15 amp at 115 v ac, 7.5 amp at 230 v ac; marked "start"	Off-on	044 6418 97
S1905		SWITCH, push: SPST; 17 amp at 24 v dc; 15 amp at 115 v ac; 7.5 amp at 230 v ac; marked "stop"	Off-on	044 6419 97
S1906		SWITCH, rotary wafer: 2 pole, 3 position; spring silver clips, coin silver rotor blades	Meter switch	044 5808 97
S1907		SWITCH ASSEMBLY: rotary wafer; 7 pole, 5 pos; 2 sect; w/cam operated 1MD1-1A "Acro" switch	Service selector	044 5818 97
S1908		SWITCH, thermostatic: 6-125 v dc; 125 to 250 v ac; contact normally open; HS	Cat thermo switch	267 0037 00
S1909	N17-S053442-1849	SWITCH, interlock: SPDT; 10 amp, 125 or 250 v dc; phenolic and metal body	Interlock	266 0013 00
S1910		SWITCH, sensitive: 5 amp at 125 v ac; 1.5 amp at 30 v dc; phenolic case; momentary action	Pulser	266 0043 00
S1911		SWITCH, sensitive: 5 amp at 125 v ac; 1.5 amp at 30 v dc; phenolic case; momentary action	Pulser	266 0043 00
S1912		SWITCH, rotary wafer: 3 pole, 3 position; spring silver clips, coin silver rotor blades	Light dimmer	044 5809 97
T1901		TRANSFORMER, power: modulation; 5300 ohms pri; 190 ma at 50 w; 235 ma at 100 w pri current; sec 2, 750 ohms 195 ma; 100 w max output	Modulation transformer	044 3024 01
TB1901		BOARD, terminal: barrier type; 5 screw lug term; molded phenolic board	Term board	367 0532 00
XI1901		LIGHT, indicator: w/lens; T-3-1/4 bayonet base bulb; 11/16 - 27NS-2 thd bushing	Lampholder	262 0267 00
XI1902		LIGHT, indicator: w/lens; T-3-1/4 bayonet base bulb; 11/16 - 27NS-2 thd bushing	Lampholder	262 0267 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

MAIN FRAME  
POWER SUPPLY PP-1190(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
B2001		MOTOR, DC: 1/50 hp at 7500 rpm; 115 v dc $\pm 20$ v; 300 ma dc input current	Blower motor (115 v dc)	044 0184 01
C2001		CAPACITOR, fixed: paper; 10 mf $\pm 10\%$ , 600 vdcw	(500 v dc)	930 0383 00
C2002		CAPACITOR, fixed: paper; 10 mf $\pm 10\%$ , 600 vdcw	(500 v dc)	930 0383 00
C2003		CAPACITOR, fixed: paper; 10 mf $\pm 10\%$ , 600 vdcw	(250 v dc)	930 0383 00
C2004		CAPACITOR, fixed: paper; 10 mf $\pm 10\%$ , 600 vdcw	(250 v dc)	930 0383 00
C2005		CAPACITOR, fixed: electrolytic; 4000 mf -10% +40%; 25 vdcw	Power supply chassis (4000 mf 25 v)	044 1557 98
C2006		CAPACITOR, fixed: electrolytic; 4000 mf -10% +40%, 25 vdcw	Power supply chassis	044 1557 98
C2007		CAPACITOR, fixed: paper; 4 mf $\pm 10\%$ , 400 vdcw	250 v dc sp amp	931 4035 00
C2008		CAPACITOR, fixed: electrolytic; 25 mf -15 +50%; 125 vdcw	(25 mf 125 v)	184 7101 00
C2009	N16-C048810-3820	CAPACITOR, fixed: paper; 1.00 mf $\pm 10\%$ , 200 vdcw	Filter capacitor	No part no.
C2010		SUPPRESSOR, electrical noise: 0.1 mf +20 -10%; 400 vdcw, 20 amp	Hash filter	241 0076 00
C2011	N16-C033618-2690	CAPACITOR, fixed: mica; JAN #CM50B103J	Noise filter	936 1125 00
C2012	N16-C033618-2690	CAPACITOR, fixed: mica; JAN #CM50B103J	Noise filter	936 1125 00
C2013		CAPACITOR, fixed: paper; 0.47 mf $\pm 10\%$ , 115 v ac at 400 cycles	Noise suppressor	931 2393 00
C2014		CAPACITOR, fixed: paper; 0.47 mf $\pm 10\%$ , 115 v ac at 400 cycles	Line filter	931 2393 00
C2015		CAPACITOR, fixed: paper; 0.22 mf $\pm 10\%$ , 230 v ac at 400 cycles	Noise suppressor	931 2394 00
C2016		CAPACITOR, fixed: paper; 0.22 mf $\pm 10\%$ , 230 v ac at 400 cycles	Noise suppressor	931 2394 00

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PARTS LIST

C2017	N16-C033618-2690	CAPACITOR, fixed: mica; JAN #CM50B103J	Noise filter	936 1125 00
C2018	N16-C045772-4548	CAPACITOR, fixed: paper; 0.10 mf $\pm 20\%$ , 300 vdcw	Noise filter (p/o B2001)	931 0534 00
C2019	N16-C033618-2690	CAPACITOR, fixed: mica; JAN #CM50B103J	Noise filter	936 1127 00
CR2001		RECTIFIER, metallic: selenium; input 26 v rms, 50 -400 cps; output 750 ma dc	Rectifier (750 M 12 v bridge)	044 0167 97
CR2002		RECTIFIER, metallic: selenium; input 26 v rms, 50-400 cps; output 750 ma dc	Rectifier (750 M 115 v bridge)	044 0169 97
CR2003A		RECTIFIER, metallic: selenium; input 115 v ac, single phase, 400-1000 cps; output 140 v dc at 20 ma; cylindrical	Rectifier	353 0123 00
CR2003B		RECTIFIER, metallic: selenium; input 115 v ac, single phase, 400-1000 cps; output 140 v dc at 20 ma; cylindrical	Rectifier	353 0123 00
E2001	N16-S034607-6039	SHIELD, tube: JAN #TS102U03	Tube shield	141 0145 00
E2002	N17-C800956-0126	CLIP: electron tube; beryllium copper, tinned; ceramic ins; solder lug connection	Cap	301 1005 00
E2003	N17-C800956-0126	CLIP: electron tube; beryllium copper, tinned; ceramic ins; solder lug connection	Cap	301 1005 00
F2001		FUSE, cartridge: 1 amp, 250 v; laminated tube, pin-indicating type	Control circuit	264 0158 00
F2002		FUSE, cartridge: 5 amp, 250 v; laminated tube, pin-indicating type	Low-voltage fuse	264 0161 00
F2003		FUSE, cartridge: 5 amp, 250 v; laminated tube, pin-indicating type	High-voltage fuse	264 0161 00
F2004		FUSE, cartridge: 10 amp, 250 v; laminated tube, pin-indicating type	Ac line fuses	264 0162 00
F2005		FUSE, cartridge: 10 amp, 250 v; laminated tube, pin-indicating type	Ac line fuses	264 0162 00
H2001		CLAMP: tube; SS, plain finish; for medium shell octal tube base	Tube clamp	139 9005 00
H2002		CLAMP: tube; SS, plain finish; for medium shell octal tube base	Tube clamp	139 9005 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

MAIN FRAME  
MAJOR ASSEMBLY: POWER SUPPLY PP-1190(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
H2003		CLAMP: tube; SS, plain finish; for medium shell octal tube base	Tube clamp	139 9005 00
H2004		BRACKET: mounting; u/w CP70 capacitors	Capacitor clamp	044 0226 97
H2005		BRACKET: mounting; u/w CP70 capacitors	Capacitor clamp	044 0226 97
H2006		BRACKET: mounting; u/w CP70 capacitors	Capacitor clamp	044 0226 97
H2007		BRACKET: mounting; u/w CP70 capacitors	Capacitor clamp	044 0226 97
H2008		BRACKET: mounting; u/w CP70 capacitors	Capacitor clamp	044 0226 97
H2009		BRACKET: mounting; u/w CP70 capacitors	Capacitor clamp	044 0226 97
H2010		BRACKET: mounting; u/w CP70 capacitors	Capacitor clamp	044 0226 97
H2011		BRACKET: mounting; u/w CP70 capacitors	Capacitor clamp	044 0226 97
I2001	N17-L006806-0460	LIGHT, indicator: neon; w/lens; 1/10 w; 100,000 ohms res in 110 to 120 v ac or dc	Pilot light	262 0074 00
J2001		CONNECTOR, receptacle: 32 female cont; 5 amp at 800 v dc	Power connector power supply chassis	044 2074 98
K2001		RELAY, thermal: cont arrangement normally open; 6 am; single wnd; 90-125 v; std 7 pin min base	Thermal	402 0219 00
K2002		RELAY, armature: 4A cont arrangement; 3A - 0.5 amp at 115 v dc; 1A - 10 amp at 115 v ac or 5 amp at 230 v ac; 50 - 400 cps	Plate supply	044 0560 99
K2003		RELAY, armature: 4A cont arrangement; 3A - 0.5 amp at 115 v dc; 1A - 10 amp at 115 v ac or 5 amp at 230 v ac; 50 - 400 cps	Off-on	044 0560 99
L2001		TRANSFORMER, power: 230 v ac input; 50 to 400 cps freq; 1500 v rms test; HS	115 v autotransformer	044 3099 01
L2002		REACTOR: filter; 12 hy at 150 ma dc; 150 ohms max dc res; 2500 v rms test; 100 - 800 cps freq; continuous duty; HS case	Filter choke	044 3191 01

L2003		REACTOR: swinging filter; 4 uh at 300 ma dc; 35 ohms dc res; 1500 v rms test; continuous duty; HS case	Filter choke	044 3126 01
L2004		NOT USED		
L2005		REACTOR: swinging filter; 0.025 hy at 1.0 amps dc and 0.100 hy at 170 ma dc, 0.5 ohms max dc res; 500 v rms test; 95 to 840 cps freq; HS case	Filter choke	044 3281 01
L2006		REACTOR: swinging filter; 0.025 hy at 1.0 amps dc and 0.100 hy at 170 ma dc; 0.5 ohms max dc res; 500 v rms test; 95 to 840 cps freq; HS case	Filter choke	044 3281 01
L2007		REACTOR: filter; 2 hy, 450 ma; 350 ohm dc res; 1500 v rms test; cont duty	Filter choke	678 0522 00
L2008	N16-R029317-4166	REACTOR: filter choke; 15 hy, 60 ma $\pm$ 20%; 0 - 60 cps; 1600 ohm max; 1500 v test	Filter choke	678 0020 00
L2009		COIL, RF: choke; 60 uh at 2.5 mc; 100 meg dc res at 500 v; 79 turns of #19 awg wire; powdered iron core	Noise filter (60 uh 250 kc)	044 3535 99
L2010		COIL, RF: choke; 60 uh at 2.5 mc; 100 meg dc res at 500 v; 79 turns of #19 awg wire; powdered iron core	Noise filter	044 3535 99
L2011		NOT USED		
L2012		NOT USED		
L2013		COIL, RF: choke; 2.0 mh at 250 kc; #26 awg wire; 2500 v rms, 60 cps	Noise filter	044 3536 99
L2014		COIL, RF: choke; 2.0 mh at 250 kc; #26 awg wire; 2500 v rms, 60 cps	Noise filter	044 3536 99
M2001		METER, TIME TOTALIZING: 115 v, 60 cps synchronous motor; cyclometer counters	Ac counter elapsed time	044 0603 99
N2001	For reference only	PLATE, identification: aluminum; inscribed "PP-1190 (XN-1)/URC-8 Power Supply", black on natural or white	Nameplate	044 0009 280
O2001		CLEANER, air: wire mesh; aluminum, chromate dip; oil impregnated	Air filter	044 0216 97
O2002		BLOWER, impeller: single intake; cw rotation; 24 blades 2" dia, 31/32" w, .1875" bore	Blower impeller for B2001	009 1111 00
R2001		RESISTOR, fixed: wirewound; 10,000 ohms $\pm$ 5%, 10 w	Filter	747 9448 00

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

MAIN FRAME  
MAJOR ASSEMBLY: POWER SUPPLY PP-1190(XN-1)/URC-8

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
R2002		RESISTOR, fixed: wirewound; 10,000 ohms $\pm 5\%$ , 10 w	Bleeder resistor	747 9448 00
R2003		RESISTOR, fixed: wirewound; 25,000 ohms $\pm 5\%$ , 10 w	250 v dc filter	747 9449 00
R2004	N16-R066167-7558	RESISTOR, fixed: wirewound; MIL #RW31G312	Voltage dropping	747 0677 00
R2005	N16-R050012-0146	RESISTOR, fixed: composition; MIL #RC42GF222J	Bias filter	745 5665 00
R2006	N16-R050165-0131	RESISTOR, fixed: composition; MIL #RC42GF562J	Bias filter	745 5683 00
R2007		RESISTOR, fixed: wirewound; 12,000 ohms $\pm 5\%$ , 10 w	Voltage divider	747 9450 00
R2008		RESISTOR, fixed: wirewound; MIL #RW56G162	Voltage divider	747 8084 00
R2009		RESISTOR, fixed: wirewound; MIL #RW56G800	Voltage divider	747 8058 00
R2010		RESISTOR, fixed: wirewound; MIL #RW56G100	Voltage divider (S2004C)	747 8040 00
R2011	N16-R065734-9526	RESISTOR, fixed: wirewound; MIL #RW30G161	(p/o B2001)	747 0074 00
R2012	N16-R050281-0711	RESISTOR, fixed: composition; MIL #RC32GF103J	Dropping resistor	745 3393 00
R2013	N16-R049237-0698	RESISTOR, fixed: composition; MIL #RC32GF100J	Current limiting	745 3267 00
R2014	N16-R049661-0116	RESISTOR, fixed: composition; MIL #RC42GF221J	Bleeder	745 5623 00
S2001	N17-S053442-1849	SWITCH, interlock: SPDT; 10 amp, 125 or 250 v dc; phenolic and metal body	Interlock	266 0013 00
S2002	N17-S073959-1025	SWITCH, toggle: DPDT; JAN #ST52N; JAN-S-23	Dpdt toggle	266 3060 00
S2003	N17-S073959-1025	SWITCH, toggle: DPDT; JAN #ST52N; JAN-S-23	Dpdt toggle	266 3060 00
S2004		SWITCH, rotary: 5 pole, 6 pos; 4 sect	Input line voltage selector	044 5810 97
S2005		SWITCH, thermostatic: 6 - 125 v dc; 125 to 250 v ac; contact normally open; HS	Thermal	267 0037 00
S2006	N17-S072828-2605	SWITCH, toggle: JAN #ST52K	SP-ST	266 3057 00



T2001		TRANSFORMER, power: plate type; 115 and 230 v ac, 50 to 400 cps pri; 500 vdc at 385 ma sec; continuous duty; HS	Hi v pl	044 3056 01
T2002		TRANSFORMER, power: filament type; 115 to 230 v ac, 50 to 400 cycles pri; 6.8 v $\pm 3\%$ at 8.0 amps sec #1; 5.0 v $\pm 3\%$ at 2.0 amp sec #2; 2.5 v $\pm 3\%$ at 10.0 amp sec #3; 18.5 v $\pm 3\%$ at 1.0 amp sec #4; 150 v $\pm 3\%$ at 750 ma sec #5; continuous duty; HS	Low v fil	044 3057 01
V2001	N16-T053228	TUBE, electron: rectifier; MIL #3B28	High-voltage rectifier	254 0784 00
V2002	N16-T055446-0005	TUBE, electron: rectifier; MIL #5R4WGB	High-voltage rectifier	254 0899 00
V2003	N16-T053228	TUBE, electron: rectifier; MIL #3B28	High-voltage rectifier	254 0784 00
V2004	N16-T052001-0003	TUBE, electron: miniature voltage regulator; MIL #6626/OA2WA	Voltage regulator	254 0873 00
XF2001		HOLDER, fuse: indicating type w/transparent knob; molded phenolic case	Holder for F2001	265 9002 00
XF2002		HOLDER, fuse: indicating type w/transparent knob; molded phenolic case	Holder for F2002	265 9002 00
XF2003		HOLDER, fuse: indicating type w/transparent knob; molded phenolic case	Holder for F2003	265 9002 00
XF2004		HOLDER, fuse: indicating type w/transparent knob; molded phenolic case	Holder for F2004	265 9002 00
XF2005		HOLDER, fuse: indicating type w/transparent knob; molded phenolic case	Holder for F2005	265 9002 00
XK2001	N16-S062603-6700	SOCKET, tube: 7 pin miniature; JAN #TS102C01	Socket for K2001	220 1112 00
XV2001	N16-S060852-2121	SOCKET, tube: 4 cont; stainless steel	Socket for V2001	220 1167 00
XV2002	N16-S063515-4162	SOCKET, tube: JAN #TS101C02	Socket for V2002	No part no.
XV2003	N16-S060852-2121	SOCKET, tube: 4 cont; stainless steel	Socket for V2003	220 1167 00
XV2004	N16-S062603-6700	SOCKET, tube: 7 pin miniature; JAN #TS102C01	Socket for V2004	No part no.

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)

MAJOR ASSEMBLY: POWER SUPPLY PP-1190(XN-1)/URC-8

CASE

REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
A2101	N17-M075466-6741	MOUNT, vibration: square mtg; rubber cushion; steel center sleeve; metal center holder	Cushion (power supply p/o shockmount)	200 0147 00
A2102	N17-M075466-6741	MOUNT, vibration: square mtg; rubber cushion; steel center sleeve; metal center holder	Cushion (power supply p/o shockmount)	200 0147 00
A2103	N17-M075466-6741	MOUNT, vibration: square mtg; rubber cushion; steel center sleeve; metal center holder	Cushion (power supply p/o shockmount)	200 0147 00
A2104	N17-M075466-6741	MOUNT, vibration: square mtg; rubber cushion; steel center sleeve; metal center holder	Cushion (power supply p/o shockmount)	200 0147 00
C2101		CAPACITOR, fixed: paper; 0.22 mf $\pm 10\%$ , 230v ac at 400 cycles	Noise filter	931 2394 00
C2102		CAPACITOR, fixed: paper; 0.22 mf $\pm 10\%$ , 230v ac at 400 cycles	Noise filter	931 2394 00
C2103		CAPACITOR, fixed: paper; 0.22 mf $\pm 10\%$ , 230v ac at 400 cycles	Noise filter	931 2394 00
C2104		CAPACITOR, fixed: paper; 0.22 mf $\pm 10\%$ , 230v ac at 400 cycles	Noise filter	931 2394 00
E2101		GROUNDING STRAP	Shockmounting assy	541 8966 003
E2102		GROUNDING STRAP	Shockmounting assy	541 8966 003
E2103		GROUNDING STRAP	Shockmounting assy	541 8966 003
E2104		GROUNDING STRAP	Shockmounting assy	541 8966 003
J2101		CONNECTOR, receptacle: 8 male cont; box mtg; 900 v ac rms, 500v ac rms	Power supply cab.	044 2071 98
J2102		CONNECTOR, receptacle: 8 male cont; box mtg; 900 v ac rms, 500v ac rms	Power supply cab.	044 2071 98
L2101		COIL, RF: choke; 60 uh at 2.5 mc; 100 meg dc res at 500 v; 79 turns of #19 awg wire; powdered iron core	Noise filter	044 3535 99

L2102

COIL, RF: choke; 60 uh at 2.5 mc; 100 meg dc res at 500 v; 79 turns #19 awg wire; powdered iron core

Noise filter

044 3535 99

L2103

COIL, RF: choke; 4.7 uh  $\pm 10\%$ ; 45 min Q at 5 mc

Noise filter

240 0178 00

L2104

COIL, RF: choke; 4.7 uh  $\pm 10\%$ ; 45 min Q at 5 mc

Noise filter

240 0178 00

P2101

CONNECTOR, plug: 32 cont; brass, nickel pl hood; silver pl cont; 5 amp at 800 v dc

Noise filter power supply

044 2077 98

TABLE 6-2. TABLE OF REPLACEMENT PARTS (Cont)

FOR RADIO SET AN/URC-8(XN-1)		INTERCONNECTING CABLES MAJOR ASSEMBLY: RADIO SET AN/URC-8(XN-1)		
REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	NAME AND DESCRIPTION	LOCATING FUNCTION	COLLINS PART NUMBER
P2301		CONNECTOR, plug: 22 female cont; straight type; #AN3106A-36-1S with "W" washer added	Cable CX-3203/U	044 2065 98
P2302		CONNECTOR, plug: 22 female cont; straight type; #AN3106A-36-1S with "W" washer added	Cable CX-3203/U	044 2065 98
P2501		CONNECTOR, plug: 8 female cont; Navy type #AN3106A-20-7S with "W" washer added	Transmitter ac power cable	044 2064 98
P2502		NOT USED		
P2503		NOT USED		
P2504		CONNECTOR, plug: 15 female cont; straight type; #AN3106A-28-17S with "W" washer added	Receiver ac power cable (optional)	357 9212 00
P2601		CONNECTOR, plug: 15 male cont; straight type; #AN3106A-28-17P with "W" washer added	Cable CX-3201/U	357 9213 00
P2602		CONNECTOR, plug: 15 female cont; straight type; #AN3106A-28-17S with "W" washer added	Cable CX-3201/U	357 9212 00
P2701		CONNECTOR, plug: type C, rf coaxial, MIL #UG-573A/U	Cable CG-1108A/U	357 0008 00
P2702		CONNECTOR, plug: type C, rf coaxial, MIL #UG-573A/U	Cable CG-1108A/U	357 0008 00
P2703		CONNECTOR, plug: 4 male cont; straight type; #AN3106A-14S-2P with "W" washer added	Audio cable (optional)	357 9214 00
P2704		CONNECTOR, plug: type C, rf coaxial, MIL #UG-573A/U	Provided for connecting receiver to separate antenna (optional); RG-9B/U coaxial cable not supplied	357 0008 00

TABLE 6-3. CROSS REFERENCE PARTS LIST

STANDARD NAVY STOCK NUMBER	REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	REFERENCE DESIGNATION
N16-C015400-5828	C1313	N16-C026732-9444	C147	N16-C099999-0286	C1415
N16-C015432-5867	C134	N16-C027571-8993	C317	N16-C099999-0286	C1416
N16-C015560-4665	C133	N16-C028547-8645	C101	N16-C099999-0396	C103
N16-C015624-4628	C162	N16-C028547-8645	C118	N16-C099999-0396	C104
N16-C015752-2467	C132	N16-C028547-8645	C127	N16-C099999-1139	C111
N16-C015920-8853	C402	N16-C028547-8645	C169	N16-C099999-1139	C112
N16-C015920-8853	C1102	N16-C028547-8645	C307	N16-C099999-1131	C168
N16-C015920-8853	C1103	N16-C028547-8645	C310	N16-C099999-1139	C121
N16-C015923-4258	C402A	N16-C028547-8645	C314	N16-C099999-1139	C130
N16-C015923-4258	C1102	N16-C028553-1046	C1338	N16-C099999-1139	C138
N16-C015923-4258	C1103	N16-C028558-1535	C1607	N16-C099999-1139	C158
N16-C015924-3401	C402C	N16-C028558-1535	C1608	N16-C099999-1139	C165
N16-C015924-3401	C1102	N16-C029260-1376	C315	N16-C099999-1139	C605
N16-C015924-3401	C1103	N16-C029260-1376	C1202	N16-C099999-1139	C1031
N16-C015924-7558	C402B	N16-C029819-2111	C1308	N16-C099999-1139	C1203
N16-C015924-7558	C1102	N16-C030103-8375	C153	N16-C099999-1139	C1204
N16-C015924-7558	C1103	N16-C030103-8375	C157	N16-C099999-1139	C1305
N16-C015925-2220	C402D	N16-C030183-2027	C140	N16-C099999-1139	C1312
N16-C015925-2220	C1102	N16-C030183-2027	C336	N16-C099999-1139	C1314
N16-C015925-2220	C1103	N16-C030737-3019	C166	N16-C099999-1139	C1319
N16-C015925-2360	C402E	N16-C031086-5632	C1402	N16-C099999-1139	C1321
N16-C015925-2360	C1102	N16-C033618-2690	C1401	N16-C099999-1139	C1339
N16-C015925-2360	C1103	N16-C033618-2690	C2011	N16-C099999-1139	C1340
N16-C015925-2480	C402F	N16-C033618-2690	C2012	N16-C099999-1139	C1343
N16-C015925-2480	C1102	N16-C033618-2690	C2017	N16-C099999-1139	C1344
N16-C015925-2480	C1103	N16-C033618-2690	C2019	N16-C800646-0201	E1704
N16-C015925-2642	C402G	N16-C042733-5758	C139	N16-C800646-0201	E1705
N16-C016043-9128	C131	N16-C042733-5758	C141	N16-K700248-0886	E1914
N16-C016043-9144	C1201	N16-C042733-5758	C150	N16-K700248-0886	E1915
N16-C016223-6759	C1433	N16-C042733-5758	C304	N16-K700248-0886	E1916
N16-C018661-2291	C167	N16-C042733-5758	C308	N16-K700248-0886	E1917
N16-C018661-2291	C1301	N16-C042733-5758	C312	N16-R029317-4166	L2008
N16-C018661-2291	C1304	N16-C042733-5758	C319	N16-R049120-0716	R1917
N16-C018661-2291	C1309	N16-C045772-4548	C2018	N16-R049237-0443	R1922
N16-C018661-2291	C1318	N16-C047030-7043	C1302	N16-R049237-0698	R2013
N16-C018661-2291	C1604	N16-C047147-7395	C1901	N16-R049237-0995	R1901
N16-C018661-2291	C1907	N16-C048810-3820	C2009	N16-R049318-0698	R1908
N16-C018983-1015	C411	N16-C073074-5530	L1005	N16-R049318-0698	R1910
N16-C025102-6283	C109	N16-C073074-5530	L1017	N16-R049390-0438	R1616
N16-C026020-7701	C320	N16-C074096-3004	L601	N16-R049498-0438	R105
N16-C026020-7701	C407	N16-C074096-3004	L602	N16-R049579-0131	R1603
N16-C026732-9444	C136	N16-C074537-8957	L1201	N16-R049660-0438	R114

TABLE 6-3. CROSS REFERENCE PARTS LIST (Cont)

STANDARD NAVY STOCK NUMBER	REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	REFERENCE DESIGNATION
N16-R049661-0116	R2014	N16-R050281-0438	R1301	N16-R050587-0435	R402
N16-R049705-0321	R302	N16-R050281-0438	R1303	N16-R050587-0435	R405
N16-R049705-0321	R309	N16-R050282-0131	R1803	N16-R050587-0435	R1102
N16-R049732-0438	R110	N16-R050282-0131	R1912	N16-R050587-0636	R408
N16-R049768-0438	R116	N16-R050281-0711	R602	N16-R050588-0131	R315
N16-R049768-0438	R118	N16-R050281-0711	R2012	N16-R050632-0416	R104
N16-R049769-0101	R348	N16-R050308-0945	R121	N16-R050632-0416	R115
N16-R049804-0438	R406	N16-R050308-0945	R128	N16-R050632-0416	R332
N16-R049822-0438	R1604	N16-R050335-0438	R342	N16-R050632-0416	R338
N16-R049840-0698	R324	N16-R050335-0438	R344	N16-R050632-0416	R1608
N16-R049858-0438	R1601	N16-R050335-0940	R328	N16-R050633-0136	R130
N16-R049876-0438	R321	N16-R050371-0433	R101	N16-R050633-0136	R132
N16-R049876-0698	R107	N16-R050371-0433	R109	N16-R050633-0136	R134
N16-R049921-0349	R135	N16-R050371-0433	R136	N16-R050650-0390	R1607
N16-R049921-0349	R314	N16-R050371-0433	R301	N16-R050650-0390	R1911
N16-R049921-0349	R1312	N16-R050371-0433	R307	N16-R050650-0715	R303
N16-R049921-0349	R1809	N16-R050371-0433	R1313	N16-R050650-0715	R310
N16-R049939-0271	R343	N16-R050371-0711	R403	N16-R050651-0131	R304
N16-R049966-0433	R333	N16-R050372-0131	R1804	N16-R050651-0131	R311
N16-R050011-0438	R106	N16-R050372-0131	R1806	N16-R050677-0380	R326
N16-R050011-0438	R111	N16-R050416-0435	R137	N16-R050677-0380	R330
N16-R050011-0438	R112	N16-R050416-0435	R322	N16-R050677-0713	R120
N16-R050011-0438	R117	N16-R050416-0435	R1101	N16-R050695-0346	R316
N16-R050011-0438	R126	N16-R050416-0682	R1105	N16-R050695-0436	R1609
N16-R050011-0438	R1602	N16-R050416-0682	R1202	N16-R050695-0436	R1614
N16-R050012-0146	R325	N16-R050416-0944	R327	N16-R050713-0380	R345
N16-R050012-0146	R2005	N16-R050434-0636	R1702	N16-R050713-0380	R347
N16-R050038-0438	R339	N16-R050443-0438	R401	N16-R050713-0380	R1610
N16-R050038-0438	R1605	N16-R050445-0101	R1302	N16-R050713-0380	R1612
N16-R050065-0438	R337	N16-R050445-0101	R1304	N16-R050713-0380	R1801
N16-R050092-0438	R340	N16-R050479-0435	R108	N16-R050713-0380	R1919
N16-R050128-0438	R124	N16-R050479-0435	R113	N16-R050714-0108	R125
N16-R050164-0435	R1203	N16-R050479-0435	R331	N16-R050714-0108	R320
N16-R050164-0435	R1615	N16-R050480-0131	R329	N16-R050740-0380	R323
N16-R050164-0435	R1618	N16-R050515-0433	R102	N16-R050785-0275	R317
N16-R050164-0435	R1621	N16-R050515-0433	R404	N16-R050821-0276	R119
N16-R050165-0131	R2006	N16-R050515-0433	R1104	N16-R050821-0276	R123
N16-R050201-0137	R305	N16-R050551-0401	R1704	N16-R050821-0276	R129
N16-R050201-0137	R312	N16-R050551-0401	R1705	N16-R050821-0276	R131
N16-R050236-0940	R122	N16-R050587-0435	R138	N16-R050821-0276	R133
N16-R050281-0438	R319	N16-R050587-0435	R306	N16-R050821-0276	R336
N16-R050281-0438	R503	N16-R050587-0435	R313	N16-R050821-0276	R341

TABLE 6-3. CROSS REFERENCE PARTS LIST (Cont)

STANDARD NAVY STOCK NUMBER	REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	REFERENCE DESIGNATION
N16-R050857-0438	R1619	N16-S054287-5101	XY109	N16-T056203-0053	V1201
N16-R050857-0438	R1620	N16-S054423-5583	XY105	N16-T056203-0053	V1301
N16-R050893-0435	R318	N16-S060852-2121	XV2001	N16-T056203-0053	V1302
N16-R050893-0435	R1805	N16-S060852-2121	XV2003	N16-T075686	V1303
N16-R050893-0656	R1918	N16-S061717-4641	XV1304	N16-T075726	V1602
N16-R050974-0438	R1201	N16-S061717-4641	XV1305	N16-T075726	V1801
N16-R050974-0438	R1611	N16-S061717-4641	XV1702	N16-T075749	V101
N16-R050974-0438	R1622	N16-S061717-4641	XV1703	N16-T075749	V102
N16-R050974-0438	R1701	N16-S062603-6700	XK2001	N16-T075749	V301
N16-R050974-0438	R1703	N16-S062603-6700	XV301	N16-T075749	V302
N16-R050974-0438	R1802	N16-S062603-6700	XV302	N16-T075749	V303
N16-R050974-0438	R1808	N16-S062603-6700	XV305	N16-T075749	V305
N16-R051064-0435	R308	N16-S062603-6700	XV401	N16-T075749	V401
N16-R05335-0656	R1103	N16-S062603-6700	XV402	N16-T075749	V402
N16-R062158-6635	R1914	N16-S062603-6700	XV403	N16-T075749	V1101
N16-R065734-9526	R1920	N16-S062603-6700	XV1101	N16-T075749	V1102
N16-R065734-9526	R2011	N16-S062603-6700	XV1102	N16-T075751	V1603
N16-R065806-3643	R1921	N16-S062603-6700	XV1201	N16-T075814-0005	V103
N16-R066167-7558	R2004	N16-S062603-6700	XVi301	N16-T075814-0005	V104
N16-R068315-5206	R604	N16-S062603-6700	XV1302	N16-T075814-0005	V105
N16-R068369-8366	R346	N16-S062603-6700	XV2004	N16-T075814-0005	V106
N16-R068421-8706	R407	N16-S062603-6899	XV101	N16-T075814-0005	V304
N16-R068424-1047	R1913	N16-S062603-6899	XV102	N16-T075814-0005	V306
N16-R068424-1106	R502	N16-S062603-6899	XV303	N16-T075814-0005	V307
N16-S034520-3862	E1602	N16-S062603-6899	XV308	N16-T075814-0005	V1601
N16-S034520-3862	E1801	N16-S062603-6899	XV309	N16-T075814-0005	V1701
N16-S034576-6513	E1303	N16-S063515-4162	XV501	N16-T075933-0085	V1304
N16-S034576-6513	E1601	N16-S063515-4162	XV2002	N16-T075933-0085	V1305
N16-S034576-6513	E1603	N16-S064063-6713	XV103	N16-T075933-0085	V1702
N16-S034576-6513	E1701	N16-S064063-6713	XV104	N16-T075933-0085	V1703
N16-S034607-6039	E2001	N16-S064063-6713	XV105	N16-T076005-0000	V308
N16-S054287-5051	XY1201	N16-S064063-6713	XV106	N16-T076005-0000	V309
N16-S054287-5051	XY1202	N16-S064063-6713	XV304	N17-B099999-0037	TB1001
N16-S054287-5051	XY1203	N16-S064063-6713	XV306	N17-B099999-0037	TB1002
N16-S054287-5051	XY1204	N16-S064063-6713	XV307	N17-B099999-0037	TB1003
N16-S054287-5101	XY101	N16-S064063-6713	XV1303	N17-C071408-9255	P702
N16-S054287-5101	XY102	N16-T052001-0003	V403	N17-C071408-9285	P1005
N16-S054287-5101	XY103	N16-T052001-0003	V2004	N17-C071408-9285	P1901
N16-S054287-5101	XY104	N16-T053228	V2001	N17-C071408-9285	P1902
N16-S054287-5101	XY106	N16-T053228	V2003	N17-C072246-5429	J703
N16-S054287-5101	XY107	N16-T055446-0005	V501	N17-C072252-1135	J1003
N16-S054287-5101	XY108	N16-T055446-0005	V2002	N17-C072252-1135	J1907

ORIGINAL

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AN/URC-8(XN-1)  
PARTS LIST

NAVSHPDS 92831

Section 6  
Cross Reference Parts List

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STANDARD NAVY STOCK NUMBER	REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	REFERENCE DESIGNATION	STANDARD NAVY STOCK NUMBER	REFERENCE DESIGNATION
N17-C073108-1158	J1401	N17-C800646-0201	E1308	N17-R051401-8526	CR1901
N17-C073108-1158	J1403	N17-C800646-0201	E1309	N17-R051401-8526	CR1902
N17-C073108-1158	J1501	N17-C800956-0126	E2002	N17-S053442-1849	S1909
N17-C073108-1158	J1502	N17-C800956-0126	E2003	N17-S053442-1849	S2001
N17-C073108-2878	J1202	N17-J039248-4418	J607	N17-S072396-1685	S1903
N17-C073108-2878	J1203	N17-J039420-5601	J1909	N17-S072828-2605	S2006
N17-C073108-2878	J1301	N17-L006806-0460	I1905	N17-S073959-1025	S2002
N17-C073108-2878	J1914	N17-L006806-0460	I2001	N17-S073959-1025	S2003
N17-C073109-6056	J609	N17-M075466-6741	A2101	N17-S150263-0108	O1938
N17-C073109-6720	J1902	N17-M075466-6741	A2102	N17-S150263-0108	O1982
N17-C078442-1676	P1904	N17-M075466-6741	A2103	N17-S150263-0109	O1986
N17-C078442-1676	P1905	N17-M075466-6741	A2104	N17-T028207-1437	E1305



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