NAVSHIPS 91529(A)

INSTRUCTION BOOK

for

MODEL MAW-1 PORTABLE VHF RADIO TRANSMITTING AND RECEIVING EQUIPMENT

HOFFMAN RADIO CORPORATION
Los Angeles 7, California

BUREAU OF SHIPS NAVY DEPARTMENT

Contract: NObsr-52170 *Approved by BuShips 24 October 1951*

LIST OF EFFECTIVE PAGES

PAGE NUMBERS	CHANGE IN EFFECT	PAGE NUMBERS	CHANGE IN EFFECT
Tirle Page	Original	4-0 to 4-7	Original
A to C	Original	5-0 to 5-4	Original
i to v	Original	6-1 to 6-50	Original
1-0 to 1-8	Original	7-1 to 7-41	Original
2-1 to 2-6	Original	i-0 to i-5	Original
3-1 to 3-3	Original		

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

IN REPLY REFER TO
Code 993-100
24 October 1951

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

Subj: Instruction Book for Portable VHF Radio Transmitting and Receiving Equipment Navy Model MAW-1 NAVSHIPS 91529(A)

1. This is the instruction book for the subject equipment and is in effect upon receipt, superseding NAVSHIPS 91529.

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 When superseded by a later edition, this publication shall be destroyed.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.

4. All Navy requests for NAVSHIPS Electronics publications should be directed to the nearest District Publications and Printing Office. When changes or revised books are distributed, notice will be included in the BuShips ELECTRON and in the Index of Bureau of Ships General and Electronics Publications, NAVSHIPS 250-020.

H. N. WALLIN
Chief of Bureau

RECORD OF CORRECTIONS MADE

CHANGE NO.	DATE	SIGNATURE OF OFFICER MAKING CORRECTION

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

SECTION 1 — GENERAL DESCRIPTION

SECTION 2 — THEORY OF OPERATION

SECTION 3 — INSTALLATION

SECTION 4 — OPERATION

SECTION 5 — OPERATOR'S AND PREVENTIVE MAINTENANCE

SECTION 6 — CORRECTIVE MAINTENANCE

LIST OF TABLES

SECTION 1 — GENERAL DESCRIPTION

SECTION 2 — THEORY OF OPERATION

SECTION 4 — OPERATION

SECTION 5 — OPERATOR'S AND PREVENTIVE MAINTENANCE

SECTION 6 — CORRECTIVE MAINTENANCE

SECTION 7 — PARTS LISTS

GUARANTEE

RADIO ONE YEAR GUARANTEE: The equipment including all parts and spare parts, except vacuum tube, batteries, rubber and material normally consumed in operation, is guaranteed for a period of one year from the date of delivery of the equipment to and acceptance by the Government with the understanding that all such items found to be defective as to material, workmanship or manufacture will be repaired or replaced, f.o.b any point within the continental limits of the United States designated by the Government, without delay and at no expense to the Government, provided that such guarantee will not obligate the Contractor to make repair or replacement of any such defective items unless the defect appears within the aforementioned period and the Contractor is notified thereof in writing within a reasonable time and the defect is not the result of normal expected shelf life deterioration.

To the extent the equipment, including all parts and spare parts, as defined above is of the Contractor's design or is of a design selected by the Contractor, it is also guaranteed, subject to the foregoing condition, against defects in design with the understanding that if ten percent (10%) or more of any such said item, but not less than two of any such item, of the total quantity comprising such item furnished under the contract, are found to be defective as to design, such item will be conclusively presumed to be of defective design and subject to one hundred percent (100%) correction or replacement by a suitably redesigned item.

All such defective items will be subject to ultimate return to the Contractor.

In view of the fact that normal activities of the Naval Service may result in the use of equipment in such remote portions of the world or under such conditions as to preclude the return of the defective items for repair or replacement without jeopardizing the integrity of Naval communications, the exigencies of the Service, therefore, may necessitate expeditious repair of such item in order to prevent extended interruption of communications. In such cases the return of the defective items for examination by the Contractor prior to repair or replacement will not be mandatory. The report of a responsible authority, including details of the conditions surrounding the failure, will be acceptable as a basis for affecting expeditious adjustment under the provisions of this contractual guarantee.

The above one year period will not include any portion of time the equipment fails to perform satisfactorily due to any such defects, and any item repaired or replaced by the Contractor will be guaranteed anew under this provision.

INSTALLATION RECORD

Contract Number NObsr-52170 Date of Contract, 15 Dec. 1950

Serial Number of equipment .....

Date of acceptance by Navy .....

Date of delivery to contract designation .....

Date of completion of installation .....

Date placed in service .....

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

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.

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.

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. Federal 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.

Figure 1-1. Model MAW-1 Portable VHF Radio Transmitting and Receiving Equipment

SECTION 1
GENERAL DESCRIPTION

1. PURPOSE AND FUNCTION.

The purpose of Navy Model MAW-1 Portable VHF Radio Transmitting and Receiving Equipment (figure 1-1) is to provide two-way, amplitude-modulated (AM), voice of telegraphic radio communication on any one of 10 preset channels in the frequency range 115 to 156 megacycles. The telegraphic communication is modulated-continuous-wave (MCW) wherein the carrier is amplitude modulated by a keyed 1000 cycle-per-second tone. The transmitter is crystal controlled and has seven hundred milliwatts of modulated output. The receiver is a twelve-tube, crystal-controlled superheterodyne.

The operating units of the equipment are battery powered, being designed to be carried by the operator on a standard Army-Navy packboard or by means of a shoulder strap. Provision is also made for setting up the equipment as a fixed station. A standard lip microphone and headset combination are supplied for voice transmission and for reception. A push-button type key is provided on the control panel for keying the MCW tone. A quarter-wave telescoping-rod type antenna element is used on the receiver-transmitter unit for portable operation. For fixed-station operation the same antenna element is combined in an antenna assembly having a ground-plane counterpoise and a coaxial lead-in, which permit the antenna assembly to be mounted separately. One control knob simultaneously selects the operating channel for both the receiver and transmitter, both of which are normally operated on the same frequency. Each receiver channel and transmitter channel can be tuned to any frequency in the range of the equipment.

Because of the nature of VHF transmissions, reliable communication between two MAW-1 equipments is limited almost entirely to line of sight operation; that is, operation wherein the signal travels in a straight line from the transmitter to the receiver without being blocked by intervening objects. In unfavorable terrain, distances may be limited to a few hundred yards; but over unobstructed territory, with transmitting and receiving antennas elevated 6500 feet or more, distances up to 100 miles are sometimes practical. Ground to air communication will generally cover greater distances than between ground stations.

The receiver, transmitter, power supply and batteries are housed in a glass-fiber, submersion-proof case; and space is provided in the control-panel cover for stowing the Headset-Microphone assembly. Spare tubes and a spare vibrator in the case and a separate spare antenna in the shipping chest are supplied for emergency maintenance in the field. A Test Meter, cables and other accessories are included with the equipment for alignment of the channels, charging the batteries, maintenance, and for fixed-station operation. A reinforced, treated plywood shipping chest is included for stowing and transporting the complete equipment.

2. DESCRIPTION OF MAJOR UNITS.

(See figure 1-1)

a. RADIO RECEIVER-TRANSMITTER CKB-43069-A.

Radio Receiver-Transmitter CKB-43069-A is the principal unit of the MAW-1 equipment. It contains the receiver, transmitter, and power supply circuits, as well as the battery. Operating controls, jacks for the microphone-headset, and a receptacle for the antenna are provided on the control panel at the top of the unit.

The complete unit is housed in a waterproof case fabricated of an impregnated glass-fiber board. The case is sealed against the control panel, which is also waterproof, and together they make the enclosure watertight. A control-panel cover is provided which has space for stowing the Headset-Microphone assembly. When this cover is securely fastened in place against the gasket on the panel the complete unit is buoyant. The antenna receptacle and one set of Headset-Microphone jacks are accessible while the cover is in place so that the equipment may be operated with the cover on. All exterior surfaces are finished in U.S. Marine Corps green.

The receiver, transmitter and power supply are constructed as separate, replaceable sub-divisions of the Receiver-Transmitter, as shown in figure 1-2; all are mounted together in a common "U" frame to form the complete chassis.

The receiver (A101) is a conventional crystal-controlled, 12-tube superheterodyne with ten preset fixed channels, each tunable to any frequency in the range 115 to 156 megacycles. The channel to be operated is selected by a ten-position, eight-section switch which connects the crystal and tuning elements of the de-

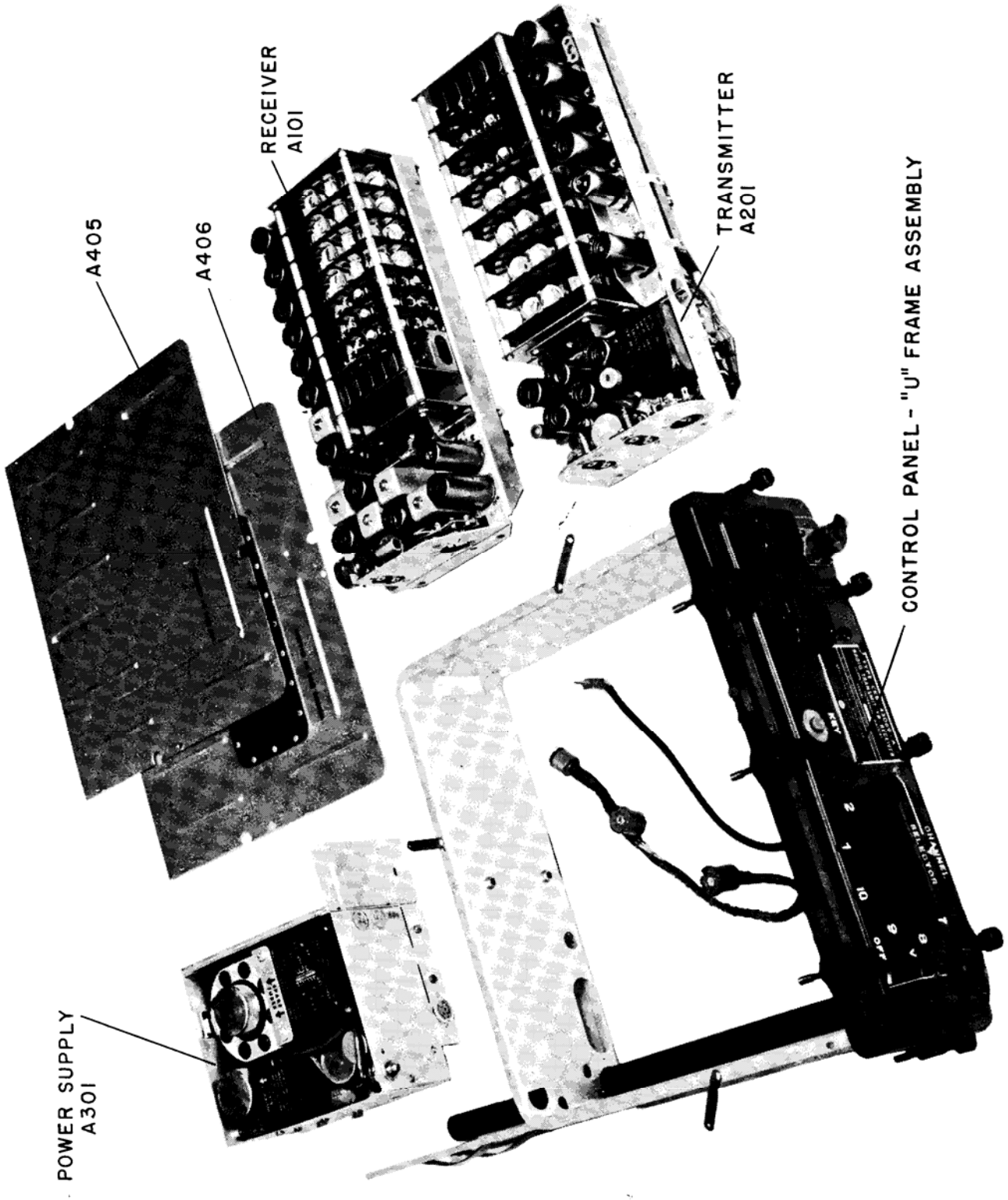


Figure 1-2. Major Divisions of Receiver-Transmitter

sired channel into the rf and oscillator circuits. Seven sections of the switch are of the turret type in which the variable capacitors and variable inductors for the various tuned circuits of the ten channels are mounted on the rotating-wafer contacts of the switch assembly. For this reason the whole assembly is referred to as a "turret switch" or "turret." The remaining section of the switch is the exception, being not a turret but a ten-position double-pole selector for switching the receiver crystals. The channel selector knob on the control panel is mechanically coupled through shafts and gears to operate the receiver turret switch and the transmitter turret switch simultaneously. The crystal controlled receiver oscillator frequency is multiplied through four doubler stages before it is mixed with the receiver carrier to produce the 12 megacycle intermediate frequency signal. Receiver output is transformer coupled to the output jack—matched to the standard headset supplied. A volume control, adjustable from the control panel, is provided for adjusting the output level.

The eleven-tube transmitter (A201) has a conventional crystal-controlled, plate-modulated circuit which is capable of 700 milliwatts output on MCW or voice transmissions. It employs four doubler stages and uses a neutralized push-pull final output stage. The audio circuits include an oscillator for generating the MCW 1000 cps tone and a microphone amplifier stage. Sidetone from the modulator stage is supplied to the headset for monitoring. The transmitter channel selector switch is a turret-type like that in the receiver, having six turret sections and one double-pole selector section.

The power supply (A301) is a synchronous-vibrator type which provides all plate power for the receiver and transmitter. It contains the necessary filter circuits and shielding, as well as the power switch, alignment switch and transmit-receive relay.

When the Receiver-Transmitter is turned on by the Off-Volume knob on the control panel, the receiver is energized. With the Headset-Microphone plugged in, pressing the "press-to-talk" switch in the headset-microphone cable actuates two relays which transfer the power and the antenna to the transmitter. A switch on the back of the power supply is provided for energizing both the transmitter and receiver at the same time for alignment of the receiver channels.

Battery power for the equipment is supplied by two single-cell lead-acid storage batteries which are wired in series and connected in a battery box (E401). The battery box has strap contacts on the side that make connection to the power supply circuits when the battery assembly is slid into its compartment at the bottom of the Receiver-Transmitter case. Plastic windows at each side of the battery box which align with windows in the Receiver-Transmitter case allow inspection of battery water level and the ball charge-indicators. The battery box is constructed of welded aluminum and treated with an acid resisting finish. The battery compartment opening at the bottom of the Receiver-Transmitter case is closed by a cover held by compression-type latches.

Metering circuits, receptacles, and switches are provided in the Receiver-Transmitter chassis for using Test Meter CKB-60155-A as a grid-current output meter in aligning the channels, and in general testing of the equipment.

The three subdivisions of the Receiver-Transmitter are assembled together on a common mounting called the "U" frame assembly. This is an aluminum channel formed in a "U" shape which serves as a mounting for the receiver and transmitter chassis and has an extending bracket for mounting the power supply chassis. The "U" frame is attached to the rear of the control panel. Aluminum covers fastened to the "U" frame by turn tabs are used to enclose and shield the top and bottom of the receiver and transmitter when in the assembly.

b. HEADSET-MICROPHONE ASSEMBLY AN/URA-2 (See figure 1-1.)—The Headset-Microphone Assembly (A601) consists of a headset, lip microphone, microphone harness, extension cord with press-to-talk switch, and gas mask adaptor. When not in use the assembly is stowed in the control panel cover.

The extension cord connects the headset and microphone to the Receiver-Transmitter. The cord is 65 inches long and includes a press-to-talk switch which controls the transmit-receive relay and conditions the equipment to transmit when pressed.

The headset is a standard 600 ohm type designed to be worn under the standard infantry metal helmet and is equipped with ear cushions to exclude noise. Two snap fasteners are provided for attachment of the lip microphone harness, and a short cord has a plug that connects to the extension cord.

The lip microphone is a 100 ohm carbon-button type mounted in a face harness which is attached to the headset by two snap fasteners. It is adjusted to the face by sliding the supporting cords within the metal loop in the snap fasteners. A short cord terminates in a plug that connects to the extension cord.

A gas mask adapter is supplied to permit the microphone to be worn inside a standard gas mask.

c. ANTENNA ASSEMBLY CKB-66150. (See figure 1-1.)—The Antenna Assembly (E701) is a quarter-wave ground-plane type, consisting of three folding radial ground radiators, one vertical space radiator, and a six foot RG-58/U coaxial transmission line. Each radiator has a two-section telescoping rod with two intermediate positions indicated by detents, giving four antenna settings. The fully collapsed position is used only for storage. The three extended positions are used to cover the frequency range of the equipment; that is, extended to the first detent, extended to the second detent and fully extended.

For portable operation of the Receiver-Transmitter, the vertical radiator is removed from the Antenna Assembly and attached directly to the antenna connector on the control panel of the unit. For fixed-station operation the complete antenna assembly is used, which results in somewhat greater efficiency and permits more advantageous placement of the antenna. A ground stake six inches long is located on the bottom end of the antenna for supporting the antenna on the ground.A fifty foot extension cable and tree clamp are supplied in the accessory bag for mounting the antenna at a distance from the unit and attaching it to a tree or other object for elevation. The antenna may be folded up and stowed in the Receiver-Transmitter Assembly CKB-66150 inside the tube provided at the corner of the control panel. A spare Antenna Assembly CKB-66150 is included in the equipment and is packed in the Shipping Chest.

d. TEST METER CKB-60155-A (See figure 1-1.)—The Test Meter (MT501) is used for testing the transmitter and receiver. Two alignment tools and spare tips are mounted in clips attached inside the lid of the case. A 0 to 200 dc microammeter is mounted in the case and connected to a test lead with a plug which fits the test meter jacks in the transmitter and receiver chassis. When the meter is not in use, the test leads are inserted in a shorting jack to provide damping. The test meter case is aluminum with a hinged cover and a compression type latch. Rubber gaskets on the lid and the case make the unit submersion proof when closed. The outside of the case is U. S. Marine Corps green.

The Test Meter is strapped in the Shipping Chest in the space marked for it. For field operation, it can be carried in the accessory bag.

e. SHIPPING CHEST CKB-10543. (See figure 1-1.)—Shipping Chest CKB-10543 (A801) is designed to house all the units of Navy Model MAW-1. The Chest is constructed of ⅜″ treated plywood and partitioned to provide compartments for the accessory bag, Test Meter, spare crystals, battery assembly, and spare Antenna. Each compartment is stenciled with the name of the part it holds, and straps are included to hold the items in place.

A felt-lined hangar is built in above the compartments to support the Radio Receiver-Transmitter. One of the compartments is provided to hold the battery assembly during shipment, to give it better protection than in the Receiver-Transmitter. All external edges and corners of the Chest are protected by steel reinforcing and the lid is supported by a full length hinge. When the lid is closed by the four compression type fasteners, the gaskets on the lid and body of the Chest form a rubber-to-rubber seal. The Chest is painted U. S. Marine Corps green.

(1) ACCESSORY BAG.—The accessory bag is a canvas bag with a carrying strap. It is provided for carrying the accessories in the field where it is not practical to transport the Shipping Chest. Parts included are a tree clamp, antenna extension cable, extension service cable, battery extension cable, charger cable, and tube puller. Spare crystals and the Test Meter may also be carried in the accessory bag, when desired.

The tree clamp (A802), which has spring jaws with an opening of two inches, is used to mount the Antenna Assembly on a tree or post to give it elevation. The ground stake of the antenna attaches to a swiveled bracket in the clamp, allowing flexibility of its position.

The antenna extension cable (W802) is used when the Antenna Assembly is to be mounted some distance from the radio equipment. It consists of 50 ft. of RG-8/U cable with Navy Type 49190 connector on each end and one Navy Type 49191 adapter which is used to connect the cable to the antenna connector.

The service cable (W805) is used to extend the regular connector cable when servicing the transmitter, receiver or power supply when they are removed from the mounting frame assembly. It consists of an 18 inch cable with a miniature type male plug on each end.

The battery extension cable (W803) is used to connect the power supply to the battery when the radio unit has been removed from the carrying case. An insulated plate connected to one end of the cable is attached to the power supply by means of a thumb screw. The other end has a polarized plug which is connected to the charger outlet on the carrying case.

The charger cable (W804) is used to charge the battery while it is in the equipment. A polarized plug on one end of the cable connects to the receptacle in the side of the carrying case. Two battery clips are attached to the other end of the cable for clipping on to a dc charging source.

The tube puller (H801) is designed to remove the miniature tubes and crystals from the equipment. It has formed jaws coated with rubber to facilitate gripping the tubes.

(2) SPARE CRYSTALS.—Spare crystals are identical to those included in Radio Receiver-Transmitter. However, they are not supplied with the equipment and must be obtained from a supply house.

(3) SPARE ANTENNA.—A spare Antenna Assembly CKB-66150 is provided with the equipment.

(4) BATTERY ASSEMBLY. — The battery assembly is initially shipped with the two cells in a dry-charged state without electrolyte. Before operation, the electrolyte must be obtained from the supply house and added to the batteries, the batteries charged, and the assembly installed in the Radio Receiver-Transmitter according to the instructions in Section 3 of this manual.

f. RUNNING MAINTENANCE PARTS.—The running maintenance parts listed in table 1-5 are provided for field maintenance use and are located in the power supply chassis of the Receiver-Transmitter.

3. REFERENCE DATA.

a. NOMENCLATURE. — Model MAW-1 Portable VHF Radio Transmitting and Receiving Equipment.

b. CONTRACT NUMBER AND DATE. — NObsr-52170, 15 December 1950.

c. CONTRACTOR. — Hoffman Radio Corp., 3761 South Hill Street, Los Angeles 7, California.

d. COGNIZANT NAVAL INSPECTOR.—Inspector of Naval Material, Los Angeles District, 1206 Santee, Los Angeles 15, California.

e. NUMBER OF PACKAGES PER COMPLETE SHIPMENT OF EQUIPMENT.—One. One package of Equipment.

f. TOTAL CUBICAL CONTENTS.—7.07 cubic feet crated, 3.25 cubic feet uncrated.

g. TOTAL WEIGHT. — 153 pounds crated, 102 pounds uncrated.

h. FREQUENCY RANGE. — 115 megacycles to 156 megacycles.

i. NUMBER OF PRESET FREQUENCIES. — Ten preset frequencies each changeable to any frequency within the frequency range.

j. TYPE OF FREQUENCY CONTROL. — Crystal controlled both Receiver and Transmitter.

k. TYPES OF EMISSION AND MODULATION CAPABILITIES.—A-2 and A-3 type emission.

l. NOMINAL UNMODULATED CARRIER OUTPUT.—0.5 watts, 0.4 watts at 156 megacycles.

m. MAXIMUM MODULATED POWER OUTPUT. —0.7 watts.

n. TYPE RECEIVER.—Superheterodyne.

o. INTERMEDIATE FREQUENCY.—12 megacycles.

p. RECEIVER OUTPUT.—15 milliwatts into a 600 ohm headset load at 1000 cycles.

q. TYPE OF RECEPTION.—A_2 (MCW) and A_3 (Voice).

r. CRYSTALS.—Type CR-18/U or CR-5/U.

s. FREQUENCY STABILITY DATA. — Type CR-18/U, ±0.005% from —55° C. (—67° F.) through 90° C (194° F.). — Type CR-5/U, ±0.02% from —55° C. (67° F.) through 90° C. (194° F.).

t. OUTPUT IMPEDANCE AND/OR INPUT IMPEDANCE. — Headset, 600 ohms. Microphone, 100 ohms. Antenna, 52 ohms.

u. ELECTRICAL CHARACTERISTICS OF ANTENNA ASSEMBLY.—Antenna Assembly or detachable vertical element resonate at 120 megacycles full length. 135 megacycles in the second detent position, 150 megacycles in the first detent and 168 megacycles fully collapsed. The fully collapsed position is not used in this equipment. Impedance of Antenna connecting cable is 52 ohms.

v. CHARACTERISTICS OF POWER SUPPLY. — Synchronous vibrator type supplying 100 volts dc for receive, or 135 volts dc for transmit and 1.5 and 3 volts dc filament voltage from a 4 volt dc source. 11.3 amperes dc current drain on transmit, 2.7 amperes dc on receive.

w. HEAT DISSIPATION OF EACH MAJOR UNIT. —Transmit condition transmitter 33.8 watts, power supply 8.4 watts. Receive condition—receiver 8.6 watts, power supply 2.2 watts.

x. TABLES.

(1) EQUIPMENT LISTS.—Tables 1-1 and 1-2 list the equipment supplied and the equipment required but not supplied.

TABLE 1-1. EQUIPMENT SUPPLIED

QUANTITY PER EQUIPMENT	NAME OF UNIT	NAVY TYPE DESIGNATION	OVER-ALL DIMENSIONS			VOLUME	WEIGHT
			HEIGHT	WIDTH	DEPTH		
1	PORTABLE VHF RADIO TRANSMITTING AND RECEIVING EQUIPMENT Consisting of the following units:	MAW-1	13	25⅜	17	3.25	91
1	Radio Receiver-Transmitter, with Battery Assembly	CKB-43069-A	18	14½	5⅜	0.81	42
2	Antenna Assembly	CKB-66150	1½	1½	19	0.024	0.75
1	Headset-Microphone Assembly	AN/URA-2					
1	Shipping Chest	CKB-10543	13	25⅜	17	3.25	35.6
1	Test Meter with:	CKB-60155-A	3¾	3¼	4¼	.0295	1
1	RF Alignment Tool (H504)						
1	IF Alignment Tool (H503)						
2	Spare Screw Driver tips (H501 and H502)						
1	Accessory Bag (0801) containing:		11¼	11¼	3¼	0.24	7.5
1	Tube Puller (H801)						
1	Antenna Extension Cable (W802)						
1	Tree Clamp (A802)						
1	Service Cable (W805)						
1	Battery Extension Cable (W803)						
1	Charger Cable (W804)						
2	INSTRUCTION BOOK	NAVSHIPS 91529(A)	11½	9	¾	0.04	2.5

Dimensions in inches, volume in cubic feet, weight in pounds.

TABLE 1-2. EQUIPMENT REQUIRED BUT NOT SUPPLIED

QUANTITY PER EQUIPMENT	NAME OF UNIT	NAVY TYPE DESIGNATION	REQUIRED USE	REQUIRED CHARACTERISTICS
24 fluid ounces	Electrolyte	—	Battery Acid	1.280 ±0.005 Specific Gravity per Federal Spec O-A-111
6 Spares as needed	Crystals	CR-5B/U or CR-18/U	To provide extra channel frequencies	See paragraph 26.b. of section 6

(2) SHIPPING DATA.—Table 1-3 gives information on the equipment as packed for shipment.

(3) EQUIPMENT SIMILARITIES.—The MAW-1 and MAW equipments are electrically and mechanically interchangeable; however, this instruction book cannot be used with MAW equipment.

(4) ELECTRON TUBE COMPLEMENT. – The complement of electron tubes for the units are listed in table 1-4.

(5) RUNNING MAINTENANCE PARTS. – Table 1-5 lists the Maintenance parts supplied with MAW-1.

TABLE 1-3. SHIPPING DATA

SHIPPING BOX NO.	CONTENTS		OVER-ALL DIMENSIONS			VOLUME	WEIGHT
	NAME	DESIGNATION	HEIGHT	WIDTH	DEPTH		
1	Portable VHF Radio Transmitting and Receiving Equipment	MAW-1	17½	31¾	21⅞	7.07	178

Dimensions in inches, volume in cubic feet, weight in pounds.

TABLE 1-4. ELECTRON TUBE COMPLEMENT

UNIT	NUMBER OF TUBES OF TYPE INDICATED				
	JAN-1L4	JAN-1U5	JAN-3A4	JAN-3A5	TOTAL NO. OF TUBES
Receiver	6	1	4	1	12
Transmitter	2		7	2	11
Total Number of Each Type	8	1	11	3	23

TABLE 1-5. RUNNING MAINTENANCE PARTS

QUANTITY	NAME	SYMBOL DESIG.	NAVY STOCK NUMBER	ARMY STOCK NUMBER	LOCATION
1	Antenna Assembly CKB-66150	E701	F16-A-54482-9401	2A288A-54	Shipping Chest CKB-10543
1	JAN 1L4	V301	N16-T-51650	2J1L4	Power Supply
1	JAN 1U5	V302	N16-T-51972	2J1U5	Power Supply
3	JAN 3A4	V303	N16-T-53140	2J3A4	Power Supply
3	JAN 3A5	V304	N16-T-53150	2J3A5	Power Supply
1	Vibrator	CR302	N17-V-50523	3H6691-29	Power Supply

These are stowed in the power supply section of Radio Receiver-Transmitter CKB-43069-A.

(6) ELECTRICAL DATA.—Tables 1-6 and 1-7 list the Battery drain and Output data for transmit and receive conditions.

TABLE 1-6. BATTERY DRAIN

OPERATING CONDITION	INPUT	
	VOLTS	AMPERES
RECEPTION	4	2.7
TRANSMISSION	4	11.3
ALIGNMENT	4	4.5

TABLE 1-7. OUTPUT DATA

OPERATING CONDITION	OUTPUT	IMPEDANCE
TRANSMIT	0.5 watts Unmodulated 0.7 watts Modulated	52 ohms
RECEIVE	15 milliwatts	600 ohm load at 1000 cycles

SECTION 2
THEORY OF OPERATION

1. GENERAL.

Model MAW-1 Portable VHF Radio Transmitter and Receiver is a battery powered set designed for AM operation on ten fixed-frequency channels in the frequency range 115 to 156 megacycles. Each channel is selected by a channel selector knob which mechanically rotates receiver and transmitter band switch assemblies of the turret type. Any channel can be set up on any frequency within the range of the equipment. The frequency of each channel is determined primarily by crystals selected by the channel switching. The individual stages are tuned by pretuned elements inserted in their respective circuits by the turret tuner. The major operating units are Radio Receiver-Transmitter CKB-43069-A, Headset-Microphone Assembly AN/URA-2 and Antenna Assembly CKB-66150.

2. CIRCUIT ANALYSIS OF RADIO RECEIVER-TRANSMITTER CKB-43069-A.

Figure 2-1 is a block diagram representing the principal functions of the Receiver-Transmitter circuits, along with the Antenna and Headset Assemblies.

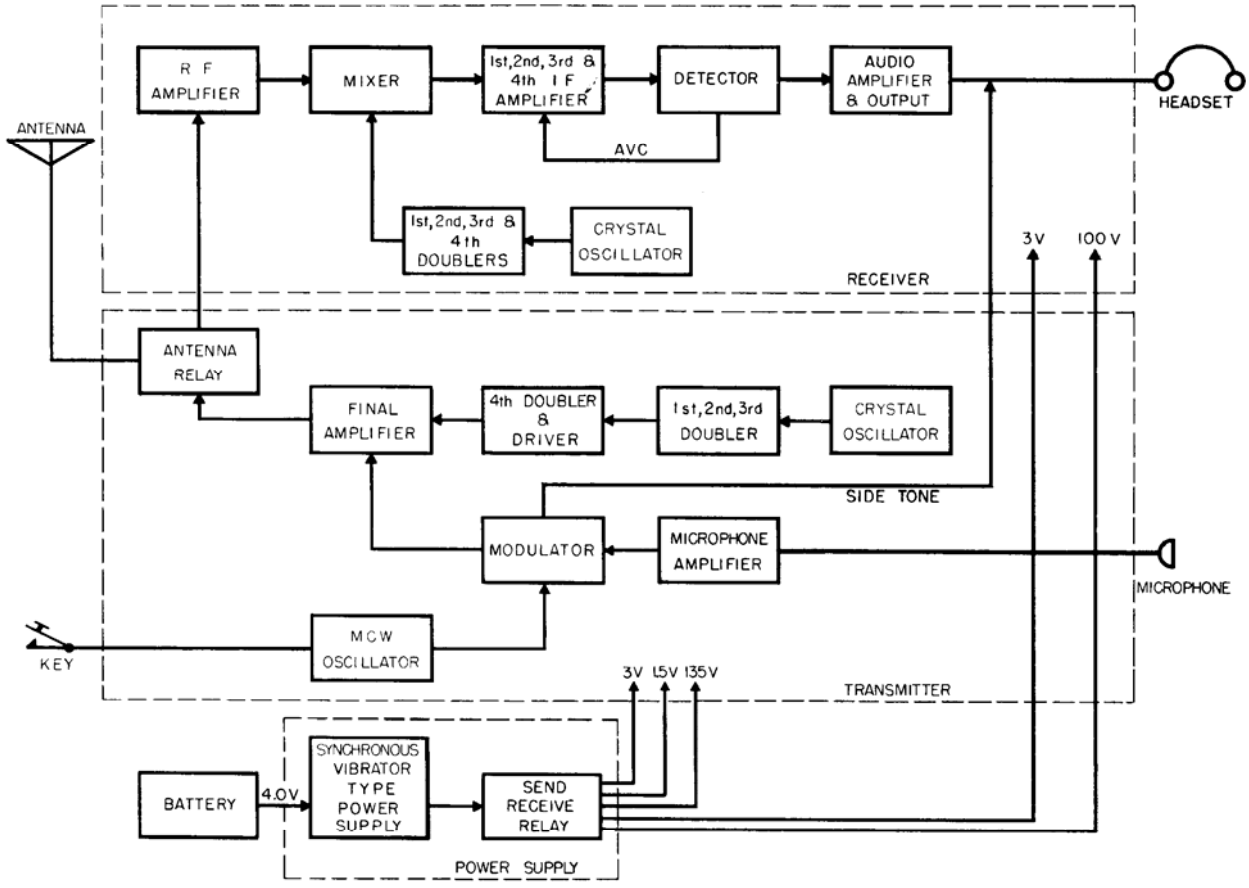


Figure 2-1. Block Diagram of MAW-1

The Receiver-Transmitter unit consists of separate receiver, transmitter, and power supply chassis mounted together in a "U" frame assembly and coordinated by a control panel (See figure 1-2). Since all three electronic chassis are fundamentally conventional, only the outstanding features are considered in the following discussion. For the respective function of each component refer to the function column of the Table of Replaceable Parts, table 7-2.

a. RECEIVER.

The receiver is a 12 tube superheterodyne type consisting of one stage of rf amplification, a mixer, a crystal oscillator with four frequency doubler stages, four stages of i-f amplification, a detector-1st audio, and an audio output stage. The crystal wafer-switch in the turret tuner selects the crystal for the oscillator, and the other turret sections select the tuning elements for the rf, mixer and oscillator doubler stages. External metering of these circuits and the audio output is provided for alignment and maintenance. Reference should be made to the receiver schematic diagram figure 6-21 in connection with the following paragraphs.

(1) RF AMPLIFIER STAGE.—A JAN 3A4 pentode amplifier V101 is used as the rf amplifier. A tap on the rf-amplifier grid coil L101 is provided to match the impedance of the antenna. Tuning of the grid circuit is accomplished by adjustment of a variable ceramic capacitor in parallel with grid coil L101; a ten position turret switch S102F provides a means for connecting any one of the ten variable capacitors C101 through C110 across the grid coil L101. Due to the fact that a single bypass from L101 to ground tends to produce series resonance at 12 mc, the i-f frequency, C111 and C194 are used in parallel to improve the 12 mc rejection by the rf stage. The plate circuit of V101 is tuned by the primary coil of T102 and one of the variable capacitors C116 through C125 on S102G. The signal is inductively coupled to the grid of V102, the mixer stage.

(2) OSCILLATOR AND DOUBLER STAGE.—Crystal oscillator V112 is a 3A4 pentode used as a triode, utilizing the Pierce circuit in which the crystal is connected between grid and plate. V112 is used as a triode by connecting the screen of the 3A4 as the triode plate and leaving the normal plate of the 3A4 disconnected. The crystal frequency is stable $\pm 0.02\%$ for type CR-5/U and $\pm 0.005\%$ for type CR-18/U over the operating temperature range of the MAW-1 equipment; i.e., $-54°C.$ ($-45°F.$) through $+65°C.$ ($+154°F.$). The range of oscillator frequencies used by the receiver is 6437.5 to 9000 kc. For further crystal information see paragraph 26.b. of section 6. The turret wafer switch S102A allows selection of any one of ten crystals, Y101 through Y110. RF coil L133 is inductive at all crystal frequencies. Capacitor C190 from grid cathode is, in effect, part of a voltage divider network consisting of the series inter-electrode capacitance from cathode-to-grid and grid-to-plate, and since it is in parallel with the cathode-to-grid capacitance, reduces the amount of signal applied to the grid of V112. The frequency of the crystal oscillator is passed through four doubler stages, being multiplied 16 times the fundamental frequency. See table 2-1 for typical doubler frequencies and the frequency relationships in the receiver. The fourth doubler output is coupled to the mixer tube V102 by transformer T102, and to produce the correct i-f, must be 12 megacycles below the incoming rf frequency. Thus to find the crystal frequency for a given receiver frequency use the following formula.

$$F_{cry} = \frac{F_{rec} - 12}{16}$$

Where:

F_{cry} = frequency of receiver crystal in megacycles

F_{rec} = frequency in megacycles to which receiver is to be tuned

TABLE 2-1. TYPICAL RECEIVER FREQUENCY RELATIONSHIPS

OSC FREQUENCY	1ST DOUBLER OUTPUT FREQUENCY	2ND DOUBLER OUTPUT FREQUENCY	3RD DOUBLER OUTPUT FREQUENCY	4TH DOUBLER OUTPUT FREQUENCY	RF (CHANNEL) FREQUENCY	IF FREQUENCY
9.0 mc (9000.00 kc.)	18 mc	36 mc	72 mc	144 mc	156 mc	12 mc
6.4375 mc (6437.50 kc)	12.875 mc	25.75 mc	51.5 mc	103 mc	115 mc	12 mc

Note: The two frequencies given in each column are the upper and lower frequency limits of each stage, thus indicating the tuning range of the stage.

When considering crystal frequencies for both the receiver and transmitter it should be noted that for the same operating frequency the receiver crystal will always be 750 kc below the transmitter crystal frequency. See paragraph 2.b. (1) of this section.

All four doubler stages are conventional in that the plate circuit is resonated at twice the frequency of the grid signal. The output frequency range of each doubler is shown in table 2-1. The first doubler V111 is tuned by one of the coils L122 through L131 selected by the turret switch S102B, the second doubler V110, by L112 through L121 on S102C, third doubler V109, by L102 through L111 on S102D. The fourth doubler plate circuit is tuned by one of the variable capacitors C136 through C145 of S102E across the primary of T102 which is inductively coupled to the grid of V102 mixer tube.

(3) MIXER STAGE.—The mixer V102 is a pentode with a tuned coil in its grid circuit into which the receiver rf signal and multipled oscillator signal from the fourth doubler are both inductively coupled. When these two frequencies have 12 megacycles difference between them, the heterodyne beat which they produce is passed on and amplified by the i-f amplifier, which is tuned to 12 megacycles. The crystal oscillator fundamental frequency is selected so that the 16th harmonic, which is the output frequency of the fourth doubler, will be 12 megacycles below the rf carrier frequency. The secondary coil of T102 and one of the variable capacitors C126 to C135 in turret switch S102H comprise the mixer tuned grid circuit, which is tuned to the rf frequency. Primary coils of T102 used in the rf amp and 4th doubler outputs are inductively coupled to the mixer through the secondary of T102. The 12 megacycle i-f output from the plate of the mixer is fed to the first i-f transformer Z101.

(4) IF AMPLIFIER STAGES.—When two frequencies are combined as they are in the mixer, these frequencies and their sum-and-difference frequencies appear in the output or plate circuit. Since greater amplification is possible with the lower frequency, the difference frequency, 12 megacycles, is selected as the i-f frequency. As the incoming signal and the output of the fourth doubler will always be 12 megacycles apart, the i-f system is so designed to give maximum amplification and at the same time maintain the proper band-width characteristics. Four pentode amplifying tubes V103, V104, V105, V106 with their associated components comprise the i-f system. Automatic volume control, avc, voltage developed across the diode load resistor is applied to all i-f control grids to reduce the effects of signal variation. Tuning of all i-f transformers are similar; powdered iron slugs provide adjustment for resonance. IF transformer Z101 and Z102 have a tuned primary and tuned secondary to give a peaked selective response. Transformers Z103 and Z104 are single tuned, giving a reduced, broader response curve and increasing bandwidth. The output of the fifth i-f transformer Z105, which is double tuned, is applied to the diode section of V107 for rectification and subsequent audio amplification.

(5)) DIODE DETECTOR-AVC, FIRST AUDIO, AND OUTPUT STAGES. – The diode-pentode tube V107, type 1U5, serves two purposes. Its diode rectifies the i-f signal and produces audio and avc voltages across its load resistor R130, from whence the avc voltage is fed through the avc network to bias the i-f stages and the audio is fed through C189 to the af amplifier. The pentode section of V107 is used as the first stage of a resistance coupled amplifier of which V108, a 1L4 output pentode, is the final stage. R136 serves as the audio volume control between the stages. Output transformer T101 matches the 600 ohm Headset to the plate of V108.

(6) RECEIVER METERING. – Circuits and switching are provided for using Test Meter CKB-60155-A to indicate the grid current of the oscillator, doubler, rf, and mixer stages and to indicate the relative af output level as fed to the Headset. When the Test Meter is plugged into receptacle J101, the break-in type switch S101 will connect the 200 microamp meter in series with any one of the metered grid circuits, one at a time, while keeping all the other grid returns properly grounded. The current rectified by each grid is an indication of the signal level applied to it; and the resulting meter reading is used for indicating resonance while tuning and for general indication of signal present in each stage when trouble shooting, etc.

The positions of switch S101 are marked with colors which correspond to the colors marked on related sections of the turret tuner in the receiver chassis, and which are indicated on the schematic, figure 6-21. When S101 is in the blue position, the meter is connected across rectifier CR101 and resistor R138 where the rectified current flowing through the meter is an indication of the relative level of af signal in the Headset. The Headset must be plugged in to complete the circuit. When no metering is being done, S101 must be kept in the OFF position, where all circuits are grounded.

b. TRANSMITTER.

(See Block Diagram, figure 2-1.)

The transmitter unit of Radio Receiver-Transmitter CKB-43069-A is a low-power, plate-modulated type employing 11 tubes. It consists of a crystal oscillator, four doublers, final amplifier, modulator, speech

amplifier, and audio oscillator. The fourth doubler serves as a driver for the final amplifier, and the af oscillator produces the MCW tone. Provision is made for external metering of the transmitter circuits. Refer to the Transmitter Schematic Diagram figure 6-22 in connection with the following paragraphs.

(1) CRYSTAL OSCILLATOR AND DOUBLER STAGES.—The crystal oscillator V201 is a 3A4 pentode connected as a triode used as a Pierce oscillator in which the frequency controlling crystal is connected from grid to plate. The triode connection to the 3A4 uses the screen of the tube as the triode plate and leaves the normal pentode plate disconnected. The crystal frequency is stable ±0.02% for type CR-5/U and 0.005% for type CR-18/U over the operating temperature range of the MAW-1 equipment; i.e., −54°C. (−45°F.) through +65°C. (+153°F.). The transmitter oscillator operates in the range 7.1875 mc to 9.75 mc. See paragraph 26.b. of section 6 for further crystal information. See table 2-2 for the frequency range of the crystal oscillator and the frequency relationships between the transmitter stages.

Doubler stages V202, V203, and V204 are conventional pentode doubler stages using 3A4 tubes, which have plate coils tuned to twice the respective grid frequencies and obtain their individual biases across grid resistors from grid excitation. Bias voltage is taken from the second doubler grid circuit through R205 for use in the MCW oscillator, discussed later. The fourth doubler V204 is a double triode having the two sections connected in parallel as a doubler stage and driver for the final stage.

Crystal, Y201 thru Y210, selected by the wafer switch S202A of the turret tuner S202 determines the frequency of the transmitter. One of the coils L201 thru L210 on S202B is used in the first doubler; and one of L211 thru L220 on S202C is used in the second doubler. The third and fourth doublers use capacitors C213 thru C222 on S202D, and C226 thru C235 on S202E respectively. R230 is used as a filament voltage equalizer in the third doubler to prevent its heavy peaks of plate current from overloading the grounded half of the filament. The output of the fourth doubler is coupled to the tuned push-pull grid circuit of the final amplifier stage V206 by rf transformer T203.

(2) FINAL POWER AMPLIFIER.—The purpose of the final amplifier is to amplify the desired frequency and deliver sufficient rf energy to the antenna system for satisfactory radiation. A twin triode 3A5 tube, V206, in a push-pull circuit arrangement performs this function. The secondary of T203 in the grid circuit of V206 is tuned to resonance by one of the 10 variable ceramic capacitors, C236 thru C245, selected by turret switch S202F. Bias for class "C" operation is developed by grid current through resistor R217, with R216 in series to ground as a metering resistor. Since both the grid and plate circuits of V206 are operating at the same frequency, some method of neutralizing must be employed to prevent oscillation. Two neutralizing variable capacitors C248 and C249 cross-connected between the grids and plates of the two triode sections are used to balance out the effect of the tube grid-to-plate capacitance. The resonant plate circuit is the primary of T204, which is tuned by one of the 10 variable ceramic capacitors C250 thru C259, as selected by turret switch S202G. The transmitter output is coupled by rf transformer T204 through the contacts of antenna relay K201 (when in transmit position) to the receptacle J204, which, in turn, is connected through P402 and a short coaxial cable to J403, the ANT receptacle on the control panel. Antenna relay K201 is energized to the transmit position by the transmitter three volt filament power controlled by transmit-receive relay K301, which is operated by the press-to-talk switch. Through this sequence, the transmitter output is connected to the antenna when the transmitter is on.

The final rf amplifier is plate modulated by the modulator stage, which is driven by the microphone amplifier or the MCW oscillator (or both).

TABLE 2-2. TYPICAL TRANSMITTER FREQUENCY RELATIONSHIPS

CRYSTAL OSCILLATOR FREQUENCY	1ST DOUBLER FREQUENCY	2ND DOUBLER FREQUENCY	3RD DOUBLER FREQUENCY	4TH DOUBLER FREQUENCY	FINAL (CHANNEL) FREQUENCY
9.75000 mc (9750.00 kc)	19.50 mc	39 mc	78 mc	156 mc	156 mc
7.18750 mc (7187.50 kc)	14.357 mc	28.75 mc	57.5 mc	115 mc	115 mc

Note: The two frequencies given in each column are the upper and lower frequency limits of each stage, thus indicating the tuning range of the stage.

(3) MODULATOR. – The modulator impresses the audio intelligence on the rf carrier for transmitting information. This is accomplished by applying the output of the parallel modulator tubes V207, V208, and V209 (type 3A4 pentodes) to the plate of final amplifier V206 through modulation transformer, T201. In addition to modulating the transmitter output, the modulator stage supplies a sidetone to the headset which permits the operator to monitor the audio portion of the transmission. Bias for the modulator is obtained from the crystal oscillator grid circuit. R224, R225 and R226 are grid suppressors to stabilize the modulators. Drive for the modulator is supplied by the microphone amplifier and MCW oscillator outputs which are coupled in parallel by C226 and C269 to the modulator grids. Normally the MCW oscillator is inoperative until keyed.

(4) MICROPHONE AMPLIFIER. – Microphone amplifier V210 is a 1L4 pentode employed as a resistance coupled amplifier stage between microphone transformer T401 and the modulator.

(5) MCW OSCILLATOR.–MCW oscillator V211, is a 1L4 pentode, triode connected, in a 1000 cps Hartley oscillator circuit. The frequency is determined by T202 and C268. When S401, the KEY on the control panel, is open, oscillation is blocked by bias on the grid of V211 obtained from the first doubler stage through R205. When the KEY is pressed, V211 bias is grounded out permitting oscillation, and thus modulating the transmitter with the MCW tone.

(6) TRANSMITTER METERING.–Circuits and switching are provided for using Test Meter CKB-60155-A to indicate grid current of the oscillator, doubler, and final stages. When the Test Meter is plugged into receptacle J202, the break-in type switch S201 will connect the meter movement across any one of the meter-shunt resistors, in series with the grid circuit, to indicate grid current. For example, when metering the grid current of the crystal oscillator the meter is shunted by R203. Each grid circuit has a value of shunt resistor selected to keep the normal grid current reading near center scale. The current rectified by each grid is a relative indication of the signal level applied to it and the resulting meter reading is used for indicating resonance while tuning and for general indication of signal present in each stage when trouble shooting, etc.

The positions of switch S201 are marked with colors which correspond to the colors marked on related sections of the turret tuner in the transmitter chassis, and which are indicated on the schematic, figure 6-22.

When the Test Meter is plugged into receptacle J201, the meter movement is in shunt with R218 and indicates relative final-amplifier plate current for tuning and testing the final stage.

c. POWER SUPPLY.

The power supply is a synchronous vibrator type consisting of a sychronous vibrator, a step up transformer, filter circuits, transmit-receive relay, alignment switch and off-on switch. Voltage supplied to the receiver is 90 vdc while to the transmitter is 130 vdc. Refer to the schematic diagram figure 6-23 in connection with the following discussion.

(1) SYNCHRONOUS VIBRATOR AND POWER TRANSFORMER.–The four-volt dc battery input voltage is applied to the primary winding center-tap (terminal 10) of power transformer T301 and alternately interrupted between terminals 8 and 11 by action of the synchronous vibrator CR301. The secondary of T301 is center-tapped (terminal 3) and the full winding (terminals 1 and 5) supplies voltage to be rectified for the transmitter plate supply. The secondary is tapped (terminals 2 and 4) to provide lower voltage to be rectified for the receiver. The respective secondary winding is connected to contacts on the vibrator reed by the action of transmit-receive relay K301, and the transformer and vibrator circuits are so phased that positive pulsating dc voltage is obtained at the secondary center tap (terminal 3). The vibrator reed is driven at approximately 100 cycles per second by the motor coil and separate set of contacts, receiving power through R303 which reduces the driving voltage to two volts.

(2) FILTER CIRCUITS. – The circuits of the power supply include several noise-suppressor filter circuits, as well as necessary shielding, to prevent hash originating from the arcing of the vibrator contacts from entering the B+ supply or filament supply circuits. The primary circuit to the transformer center tap and each lead to the primary contacts of the vibrator, as well as the vibrator motor coil, are filtered by individual "L" section choke-and-capacitor combinations. Output from the transformer secondary center-tap and each lead to the vibrator secondary contacts have individual "L" section suppressors, thus completely filtering the vibrator and transformer from all other circuits. Additional isolation for the filament circuits is provided by L304 and C303B; C303A serves as a bypass for the 1½v supply for the microphone, the MCW oscillator, and microphone amplifier. C304 is a high voltage buffer capacitor across the full secondary of the transformer.

C301B, L302, and C301A form a pi-section smoothing filter for removing the vibrator ripple from the B+ plate supply.

R301 and R302 are filament dropping resistors for the 3 and 1½ volt circuits, respectively.

(3) TRANSMIT-RECEIVE RELAY. – For receiver operation relay K301 is unenergized. In this position its contacts connect battery power to the receiver filament circuit and connect the lower voltage secondary of the power transformer to the vibrator, to produce 90 volts B+. When the press-to-talk switch is pressed, it energizes K301 switching the filament power to the transmitter and connecting the higher voltage secondary to the vibrator producing 130 volts B+ for transmitter operation.

(4) ALIGNMENT SWITCH.—Alignment switch S302 is provided to permit alignment of receiver channels by using the transmitter as the signal source. With the receiver operating, when switch S302 is thrown to the "RECEIVER ALIGNMENT USING TRANSMITTER" position, it connects filament power to the transmitter filaments, thus operating the transmitter at reduced power (95vB+) along with the receiver. Although the antenna relay K201 is normally energized by transmitter filament power it remains unenergized in the receive position, antenna connected to the receiver, because S302 opens its return path to ground. This prevents radiation from the transmitter during receiver alignment.

3. CIRCUITS OF ANTENNA ASSEMBLY CKB-66150.

The Antenna Assembly (E701) is a quarter-wave ground-plane type made up of one vertical telescoping radiator and three telescoping counterpoise elements. Its characteristic impedance is roughly 50 ohms. The antenna covers the frequency range of the equipment in three settings of element length. The fully extended length covers 115 to 134 megacycles; retracted to the second detent position the antenna covers 134 to 142 megacycles; retracted to the first detent position it covers 142 to 156 megacycles. Fully retracted, it goes beyond the frequency range of the equipment. For most efficient operation the Antenna Assembly should be mounted at the maximum practical elevation in the most advantageous position. Connection from the Antenna Assembly to the antenna receptacle on the Receiver-Transmitter is made by the 53.5 ohm RG-58/U antenna coaxial transmission line and may be further extended by the 50 foot extension (W802), which is 52 ohm RG-8/U cable.

For portable operation of the Receiver-Transmitter, the vertical antenna element E702 is unscrewed from the Antenna Assembly and attached directly to antenna jack (J403) on the Receiver-Transmitter panel.

4. CIRCUITS OF HEADSET-MICROPHONE ASSEMBLY AN/URA-2.

The electrical components of Headset-Microphone Assembly AN/URA-2 consists of: a 600 ohm pair of magnetic type earphones (Headset HS601), a 100 ohm single carbon-button lip type microphone, (MI601) and an extension cord (W601) with a pressure-actuated switch.

The headset cord terminates in a short telephone-type, two-circuit plug, which is inserted into a jack in the extension cord. The microphone mates two contacts in the face harness (A603) which are brought out to a small plug also connected to the extension cord. The headset, microphone, and switch are connected to the corresponding jacks in the control panel by two standard telephone plugs on the extension cord, a two-circuit plug for the headset and a three-circuit plug for the microphone and switch. When the pressure actuated press-to-talk switch is compressed, the circuits to the sleeve and tip of the three-circuit plug are closed, energizing the transmit-receive relay (K301). Excitation for the microphone is 1½ volts supplied from the power supply through the primary of microphone transformer (T401).

SECTION 3
INSTALLATION

1. UNPACKING.

Navy model MAW-1 Portable VHF Radio Transmitting and Receiving Equipment is overseas packed in a wooden shipping box with a waterproof liner. The complete equipment is packaged with a moisture-vaporproof barrier and dessicant and should not be unpacked until ready for use. See figure 3-1.

Open the shipping box by breaking the steel straps and removing the top cover. Tear open the box liner, remove the upper and side packing materials, turn the shipping box on its side, and slide out the contents. Two instruction books in foil-lined bags are packed just outside the equipment package. Open the equipment package by tearing or cutting open the top flaps of the outer carton, tearing open the bag, and tearing open the flaps of the inner carton. Do not cut open the inner carton unless the cutting blade has a guard which will prevent cutting deeper than the thickness of the fiberboard. Lay the carton on one side and slide out the chest containing the equipment. Unlock the Shipping Chest CKB-10543, using the keys wired to one of its handles, and open the lid. Unpack every item (see figure 1-1 and table 1-1) and remove all miscellaneous packing materials. The Headset-Microphone Assembly AN/URA-2 is shipped with its parts packaged separately; after unpacking they should be combined and used or stowed as an assembly.

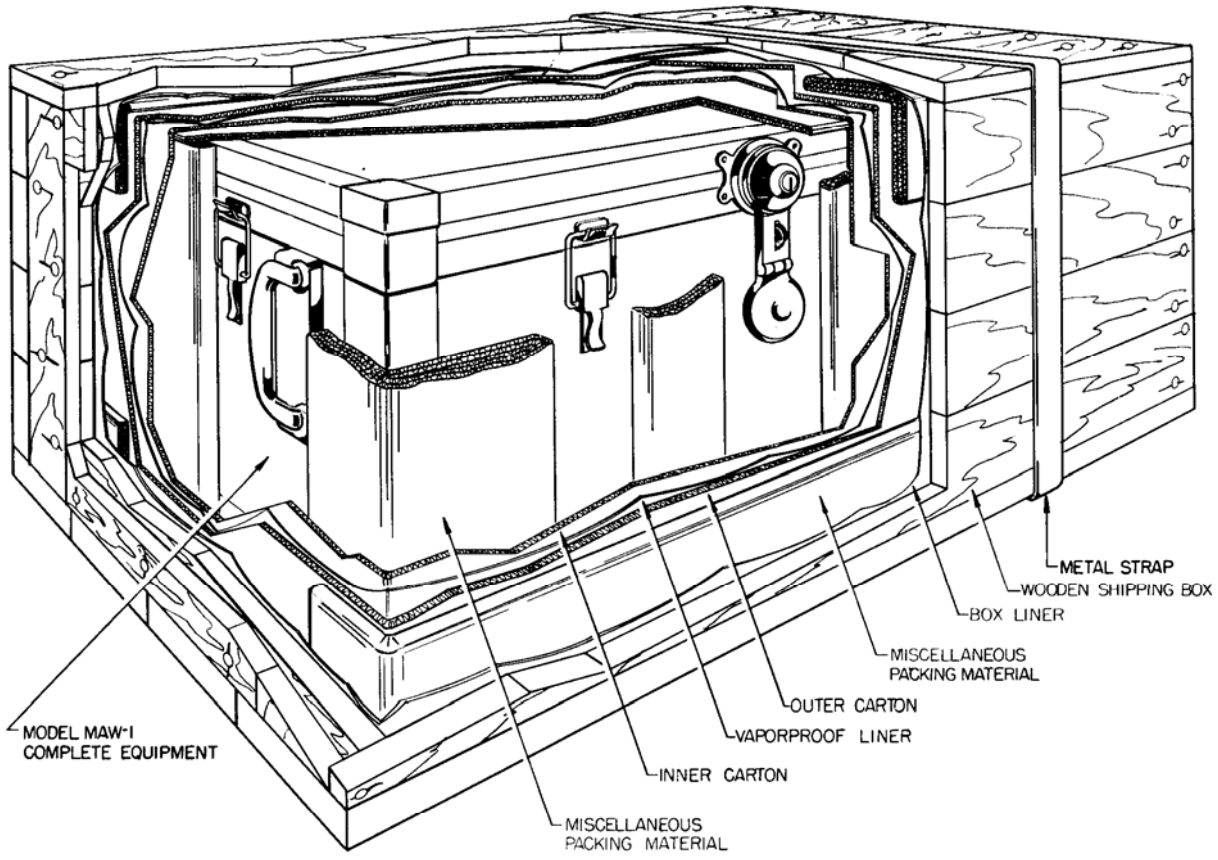


Figure 3-1. Model MAW-1 Shipping Box Cutaway View

Note

The batteries are shipped without electrolyte.

Inspect each item for possible damage during shipment and then proceed with battery installation and the preliminary operational check according to the subsequent instructions in this section. When the equipment is not in use, stow the units and accessories in their respective places in the Shipping Chest according to the following paragraph.

a. PLACEMENT OF COMPONENTS IN SHIPPING CHEST CKB-10543.—All units and accesories of the MAW-1 equipment are to be stowed in the Shipping Chest in the places indicated by stencilling. Radio Receiver-Transmitter CKB-43069-A is mounted in a felt-lined cradle in the top center of the Chest. Headset-Microphone Assembly AN/URA-2 is stowed in the Receiver-Transmitter control panel cover, and one Antenna Assembly CKB-66150 is placed in the Receiver-Transmitter, see figure 4-7. The spare Antenna Assembly is strapped to the bottom of the Chest. The instruction books are stowed under the accessory bag, which is strapped to the bottom. The tube puller, antenna extension cable, tree clamp, service cable, battery extension cable, and charger cable are contained in the accessory bag. The Test Meter is stowed in one corner. A compartment is provided to allow for storage of the battery assembly out of the Receiver-Transmitter or for stowage of an extra battery assembly.

2. INITIAL BATTERY INSTALLATION.

(See figures 3-2 and 3-3)

Batteries (BT401 and BT402) supplied with MAW-1 equipment are shipped dry charged, assembled in battery box E401. Before placing in operation the batteries must be filled with electrolyte and charged. The battery box has two inspection windows which allow visual check of battery charge indication. Each battery is vented to the outside of the box by flexible tubing. The battery assembly fits into a compartment in the bottom of the Receiver-Transmitter carrying case from which it is readily removable for subsequent servicing.

a. FILLING WITH ELECTROLYTE. — Approximately 12 oz of sulphuric acid of 1.280 ± 0.005 specific gravity according to Federal specification O-A-111 are required for each battery. The following procedure should be carefully observed.

Step 1. Unscrew red filler plug from each cell, being sure that the gasket is not lost.

Step 2. Insert glass (or approved) funnel in filler cap opening in battery.

Step 3. Pour electrolyte SLOWLY into each battery. Fill until level of electrolyte is at the level line on the side of the battery, with the battery sitting level.

Step 4. Allow the batteries to stand not less than ONE hour or more than FOUR hours. Then add electrolyte to bring liquid level back to the level line.

Step 5. Remove funnel, replace filler cap on each battery and tighten securely against rubber gasket.

Step 6. Charge the batteries at 3.2 amperes for 20 hours according to paragraph 3 of section 6, using the battery charger as the preferred method.

Step 7. If electrolyte is below level line, after charging, add distilled water until it is again at the level line. See figure 6-2 which shows the level line and the charge-indicating balls.

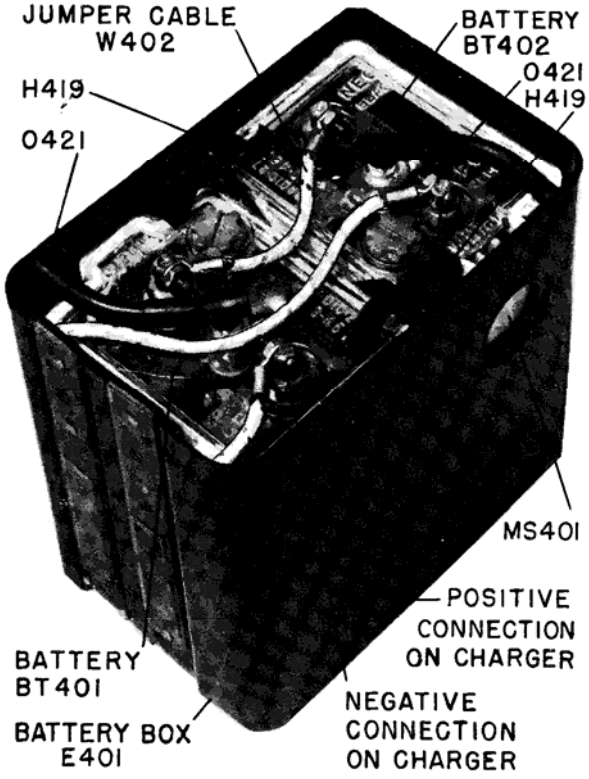


Figure 3-2. Battery Assembly

b. EMERGENCY USE WITHOUT CHARGING.—In emergencies, when the battery must be used immediately, it may be placed in service after the initial filling, before charging. However, this is detrimental to the battery, and it must be charged at the first opportunity.

c. BATTERY ASSEMBLY INSTALLATION. – After the battery assembly has been filled with electrolyte and charged, loosen the four spring catches on the bottom guard plate A410 of the carrying case, and swing the plate out of the way on the two captivated catches. See figure 3-3. This will expose the battery compartment in the bottom of the case. On the inside wall of the compartment are two pressure spring contacts designed to make electrical contact with the two contact straps on the side of the battery box. Give the battery assembly a final inspection to determine if the filler plugs are screwed down tightly against the gaskets, that the breather tubes are pressed down over the battery vents and connected to the vent openings in the side of the battery box. Check battery cable connections for tightness. Grasp the handle on the bottom of the battery box; and with contact straps in position to meet the springs on the inside wall of the battery compartment, insert the battery assembly, open end first, until it presses against the sponge rubber gasket. Replace the bottom plate on the carrying case and fasten the four catches. The bottom plate should press the battery assembly firmly against the sponge rubber gasket so that it seals the top of the battery box and makes the battery assembly submersion proof when in the compartment.

3. PRELIMINARY OPERATIONAL CHECK.

Model MAW-1 equipment is thoroughly tested and completely aligned on all ten channels at the factory before shipment. However, before turning over the equipment for use in the field it should be given a complete operational check.

The most reliable form of operational check is direct communication between two sets of equipment separated a few hundred feet or a few hundred yards apart. Follow the instructions of section 4 Operation, subsections 2 and 3. Establish and check communication in both directions on each channel using both MCW and phone each time. Use each operating control enough times to make certain that it functions properly in every way. Be sure that the sidetone signal can be heard in the headset during transmission when speaking into the microphone in a normal tone of voice, and that the 1000-cycle sidetone can be heard when MCW is being transmitted. After a thorough check in one type of operation, fixed or portable, set the equipment up for the other type and check at least on one channel. Adjust all rods of the Antenna Assembly to all three lengths to see if they adjust satisfactorily. If all these checks are satisfactory the equipment is ready for field use.

If another MAW-1 equipment is not available for check, it may be that communication can be established with some operating station on one or more channels, checking the operation of the equipment to considerable extent. However, this type of check will not prove that normal operation is assured on the channels which are not directly used.

If the equipment fails to operate or is abnormal, see Operator's Maintenance, subsection 1 of section 5, or call a technician.

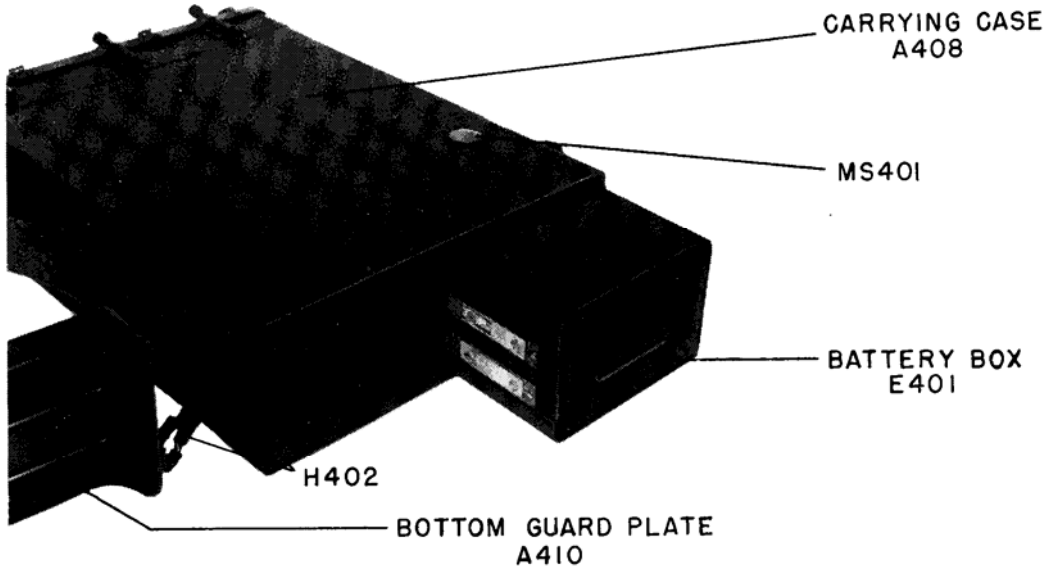


Figure 3-3. Installation of Battery Assembly

SECTION 4
OPERATION

1. GENERAL.

Model MAW-1 Portable VHF Radio Transmitting and Receiving equipment is designed to provide two-way radio voice or MCW telegraphic communication in the frequency range of 115 to 156 megacycles on any one of ten preset crystal-controlled channels. The channels may be selected at will by the operator. The operating units of the equipment may be operated portable, carried by shoulder strap or by means of a standard AN packboard; or the equipment may be set up and operated as a fixed station. Operation is essentially the same in both cases, the only difference being in the position of the Receiver-Transmitter CKB-43069-A and in the the way in which the antenna is used and mounted.

The very high frequency (VHF) signals transmitted and received by the MAW-1 equipment inherently travel in an essentially straight line and are readily absorbed by intervening objects. For this reason it is important to have a very nearly unobstructed path between the antennas of equipments attempting to communicate. This is called "line-of-sight" communication and is characteristic of VHF. For ground-to-air communication this is not usually a limiting factor; but for communication between ground stations it is an important consideration. In general the operator should try to maintain a condition where his antenna is at the highest practical elevation and should prevent large objects, such as hills or big buildings, from blocking the path between the communicating units.

Before attempting actual operation of the equipment under field conditions, the operator should become thoroughly familiar with the operation of the equipment as given in this section, should be acquainted with the general nature and use of the equipment as described in section 1, and should know the procedures which may be authorized for emergencies as described in Operator's Maintenance, subsection 1 of section 5. A routine operational check, similar to that described in subsection 3 of section 3, should be made before each field use of the equipment to determine its general operating condition.

The battery should be fully charged before each period of operation, as indicated by the green, white and red balls all floating at the liquid level in both batteries; the battery condition should be checked frequently during operation as shown by these charge-indicating balls, which are visible through the small windows on each side of the Receiver-Transmitter carrying case.

Note

The Receiver-Transmitter must be upright, with the battery level, for correct charge indications.

The green ball floats at 90% charge, and higher; the white ball floats at 50% charge, and higher; and the red ball floats at 10% charge, and higher. See figure 6-2 in section 6 for an illustration of the charge indicators. After the white ball has sunk the receiver will continue to operate for some time; but due to the greater battery current required by the transmitter, the transmitter may fail to operate shortly thereafter. For this reason it is advisable to have the battery recharged whenever the white ball sinks in either battery.

The operator must be informed of the channel, or channels, which are to be used, of the correct antenna length (or frequency) for each channel, and of the operating schedule, if any, for each operation.

It is vital that the equipment be in excellent condition for every period of operation. Since the equipment is primarily for portable field operation and is then in the care of the operator, it becomes his duty to take proper care of the equipment while in his charge and report any malfunctioning. If failure occurs or defects appear, turn the equipment over to authorized maintenance personnel. When an emergency exists, refer to Operator's Emergency Maintenance, paragraph 1.b. of section 5.

2. PREPARATION FOR OPERATION.

MAW-1 equipment may be set up either as a portable station or as a fixed station. Operation is essentially the same in both cases, the only difference being in the placement of the Receiver-Transmitter and in the antenna and its mounting.

a. SETUP FOR PORTABLE OPERATION.—The MAW-1 equipment is designed primarily for portable operation. The setup for this use is accomplished by merely connecting the operating units and selecting the desired carrying position, whether by shoulder strap or by standard Army-Navy packboard.

The equipment required for portable operation is as follows:

1. Radio Receiver-Transmitter CKB-43069-A.
2. Headset-Microphone Assembly AN/URA-2.
3. Vertical antenna element (E702) of Antenna Assembly CKB-66150.
4. A standard AN packboard (not supplied), if packboard method of carrying is to be used (see table 4-1).

These items are illustrated in figure 1-1 and described in paragraphs 2.a., 2.b. and 2.c. of section 1.

Carry the Radio Receiver-Transmitter by the shoulder strap, as shown in figure 4-1. It may be carried on either shoulder, and the strap length may be adjusted to obtain the most desirable position of the unit. If the unit is to be carried on a packboard, see paragraph 2.b. below.

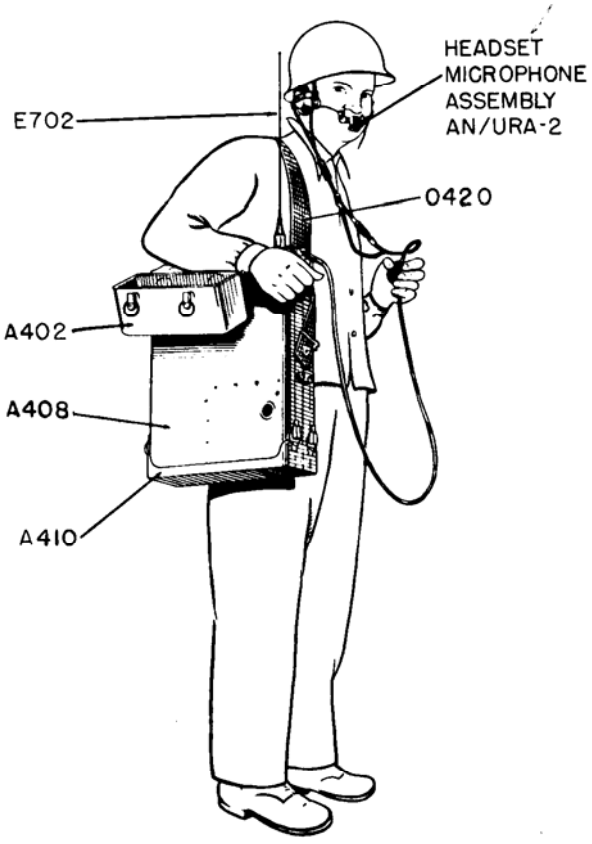


Figure 4-1. Operation of MAW-1 Equipment Carried by Shoulder Strap

Wear the headset HS601, the microphone MI601, and extension cord W601 of the Headset-Microphone Assembly as illustrated in figure 4-2. Attach the microphone in position on the headset by the two adjustable strap-fasteners which are attached to studs mounted on the headset. The microphone position may be adjusted by pressing the clips holding the face harness and adjusting the cable until the microphone is held comfortably against the upper lip. Connect the extension cord between the headset and microphone plugs and the jacks on the control panel, inserting each plug into its mating connector jack. Arrange the cord so the press-to-talk switch may be held in one hand for switching the transmitter on during operation.

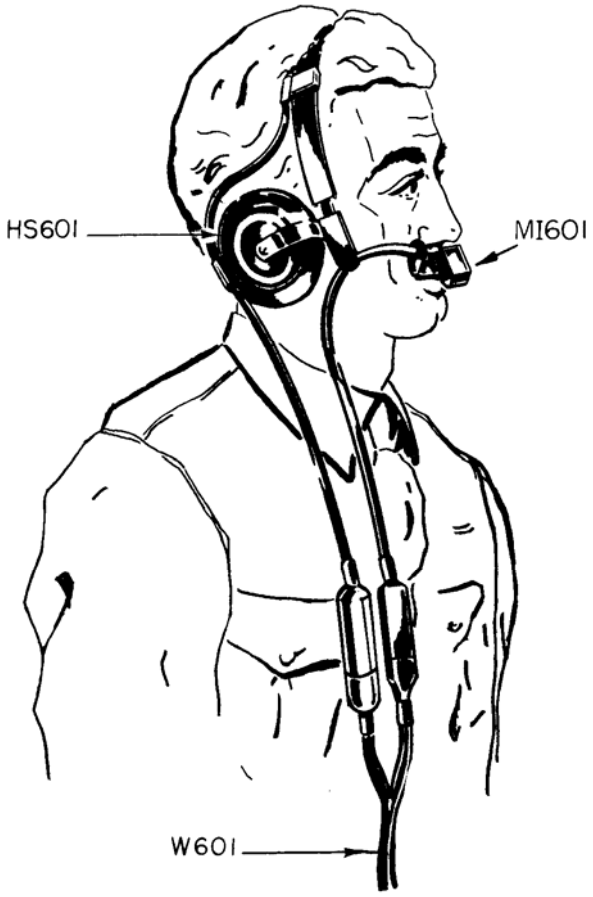


Figure 4-2. Wearing Position of Headset, Microphone and Extension Cord

If a gas mask is required, the gas mask adapter, A602, of the AN/URA-2 assembly must be used with the mask. Fasten the adapter in the mask by forcing the forked ears onto the mounting between the mask's plastic outlet-valve seat and the rubber mask, as illustrated in figure 4-3. The movable sleeve shown is provided on the strap to permit adjustment of the length

of the strap. It should be adjusted so that the strap is held in place flat against the inner contour of the mask. After adjusting the sleeve, the strap should be taped to the throat flange on the gas mask. After the adapter is assembled in the gas mask it should remain as a component part of the gas mask. The microphone must be removed from the face harness and installed in the gas mask adapter. Remove it by spreading the metal bracket in the face harness assembly slightly with the fingers and lifting it out, and then snap it into the bracket in the adapter. Remove the face harness assembly from the headset before donning the headset and mask.

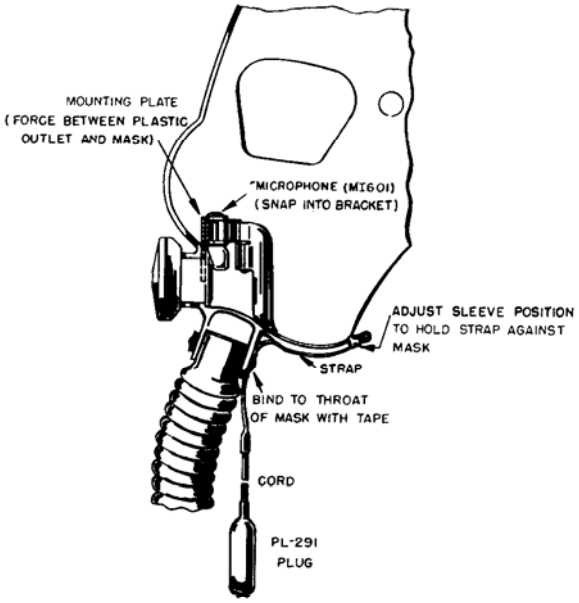


Figure 4-3. Gas Mask Adapter

The vertical element (E702 only) of the antenna is used for portable operation. Unscrew the vertical rod from Antenna Assembly CKB-66150 and screw it onto the ANT receptacle on the control panel of the Receiver-Transmitter, as shown in figure 4-1, 4-4, and 4-6. The length of the rod is to be adjusted during operation, as indicated in table 4-2.

b. MOUNTING ON PACKBOARD. (See figure 4-4 and table 4-1.)—If the Receiver-Transmitter is to be carried by packboard, place the packboard on the ground with canvas side down and clip the attachment bracket on the plywood board at the second opening from the bottom. Place the Receiver-Transmitter unit on the packboard with the antenna side of the carrying case down and with the bottom of the carrying case resting against the attachment bracket. If the unit is positioned correctly, the control panel will extend just beyond the top edge of the packboard. The two keepers on the carrying strap are shaped to slip over the tie hooks on the packboard. Place the keepers over the hooks on each side of the packboard and buckle the straps tight around the carrying case, as shown, tucking the loose end of the strap through the keeper and under the case. The accessory bag containing the extension cable and other accessories may be carried on the packboard by laying the bag over the carrying case before strapping, as shown. Loop the accessory bag strap over the top of the Receiver-Transmitter panel and adjust to keep the bag from slipping down while being carried. Keep the strap from touching the antenna vertical rod.

It is impractical in packboard operation to change channels or adjust antenna length while the equipment is being carried, so the control panel cover (A402) may be kept closed after the unit is placed in operation. However, if more than one channel is to be used, the control panel cover may be removed to make the controls readily accessible for quick switching when the packboard is set down to change channels. Remove the cover by releasing all four catches, and pressing the springs to free the two catches that are normally held captive. Replace the cover after the packboard operation is completed.

TABLE 4-1. PACKBOARD

QUANTITY	DESCRIPTION	ARMY STOCK NUMBER
1	Packboard, Plywood	74-P-27-30
1	Attachment, Packboard	74-A-33-30

c. SETUP FOR FIXED OPERATION. (See figure 4-5.)—Fixed operation is used where it is desirable to set up a fixed station for any length of time. This permits using the complete Antenna Assembly CKB-66150 which gives the installation more flexibility, as well as increased efficiency.

The equipment required for fixed operation is as follows:

1. Radio Receiver-Transmitter CKB-43069-A.
2. Headset-Microphone Assembly AN/URA-2 (two may be used).
3. Antenna Assembly CKB-66150.
4. Accessories: Antenna extension cable W802, Connector adaptor E803, and tree clamp A802.

These items are illustrated in figure 1-1 and described in paragraphs 2.a., 2.b. and 2.c. of section 1.

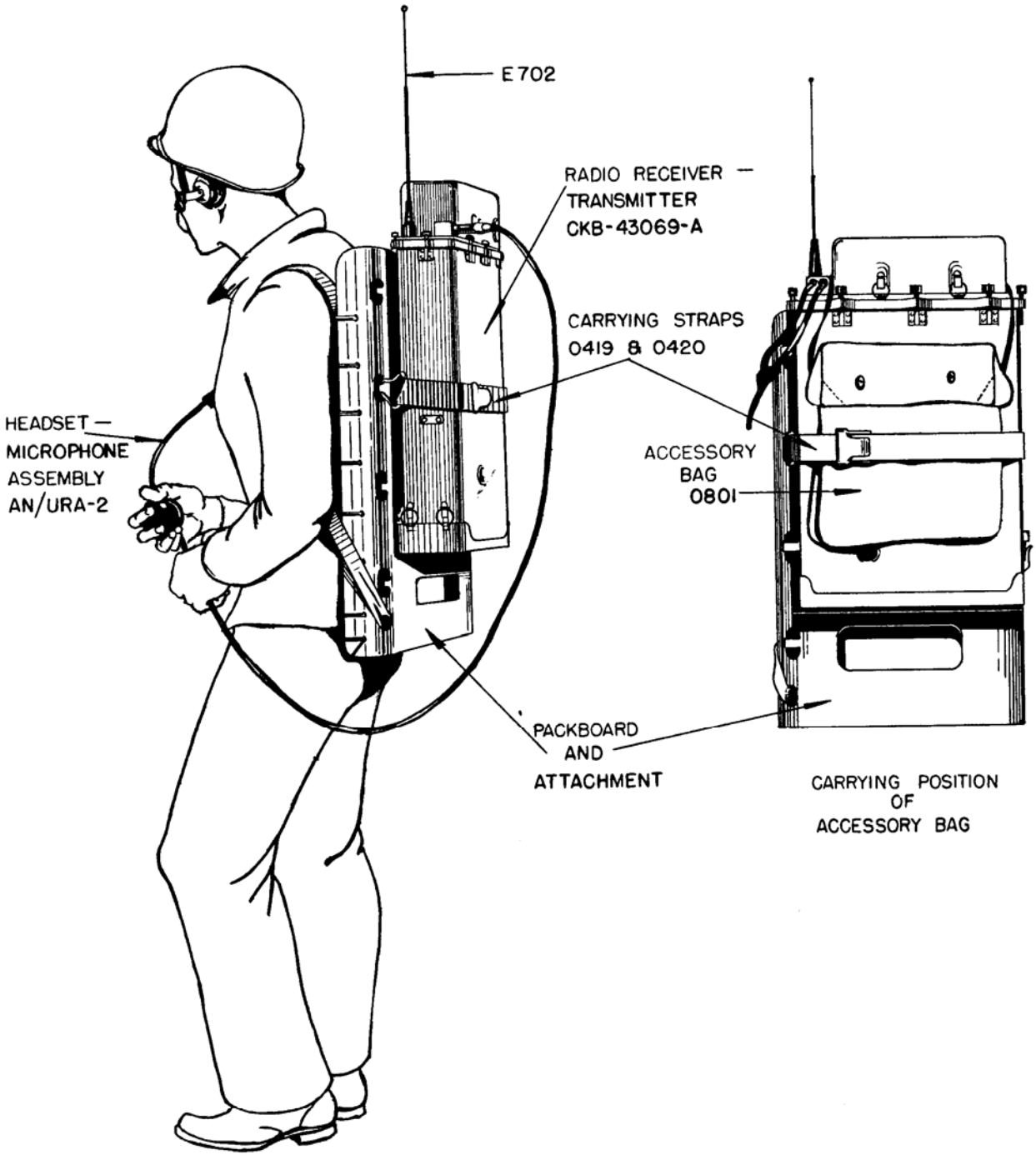


Figure 4-4. Packboard Operation of MAW-1 Equipment

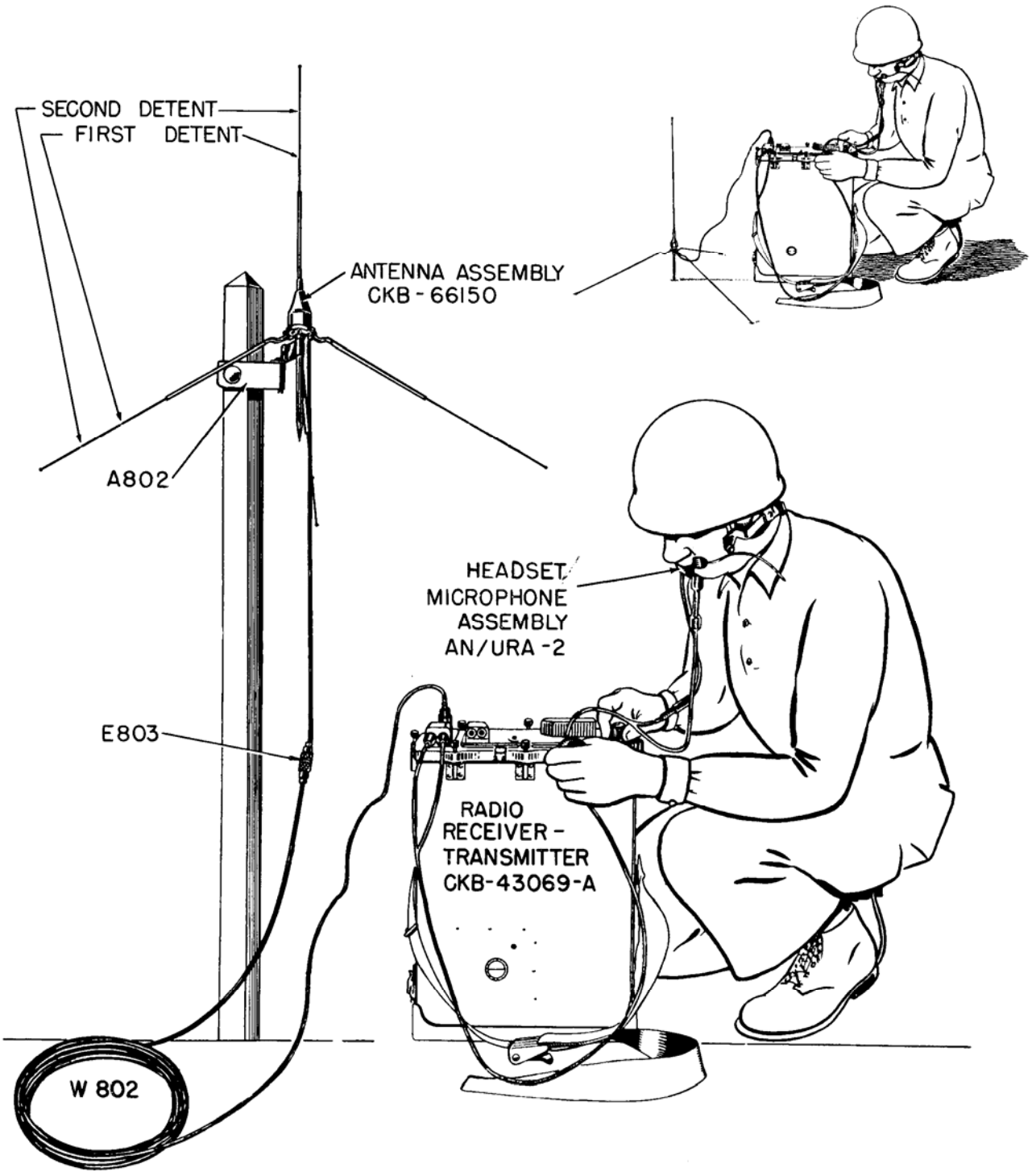


Figure 4-5. Fixed Operation of MAW-1 Equipment

Use of the Antenna Assembly offers the advantage of higher elevation or a more desirable location for the Antenna. It is mounted away from the equipment, either by the tree clamp A802, or by inserting the ground spike in the ground, as illustrated in figure 4-5. Where extreme elevation or remote antenna position is desired, the extension cable W802 and connector E803 may be used.

Set the Receiver-Transmitter in the desired position.

Setup of the remainder of the fixed station equipment is the same as for portable operation as described in paragraph 2.a. above. Two Headset-Microphone Assemblies may be plugged in at the two double-jacks J401 and J402 on the control panel and used simultaneously, if desired.

3. OPERATION.

The following paragraphs describe the function of each control and give the operating procedures.

a. OPERATING CONTROLS (See figure 4-6.) — The two knobs and the key on the control panel, the press-to-talk switch on the Headset-Microphone extension cable, and the adjustable rods on the antenna constitute the operating controls of the MAW-1 equipment. The function of each control is given in table 4-2.

TABLE 4-2. OPERATING CONTROLS

CONTROL	FUNCTION
OFF-VOLUME	Full counterclockwise position turns off equipment. Clockwise rotation turns on power and then increases loudness of sound in headset.
CHANNEL SELECTOR	Switches receiver and transmitter simultaneously to any one of the 10 operating channels thus selecting any of the preset operating frequencies. It may be turned in either direction and has no stops.
Press-to-talk switch	Pressing the switch turns on the transmitter, when the OFF VOLUME control is on, and releasing the switch turns on the receiver.
KEY	Pressing the KEY modulates the transmitter carrier with a 1000 cps tone when the transmitter is on the air. This may be used for telegraphic communication.
Antenna Adjustment	The telescoping rod of the vertical antenna element or all the rods of the Antenna Assembly must be adjusted to the correct length for the channel being used according to the following: (See figure 4-5.) For: 115 to 134 mc, the rods must be fully extended. 134 to 142 mc, the rods must be at second detent position. 142 to 156 mc, the rods must be at first detent position. The fully collapsed position is used only for storage.

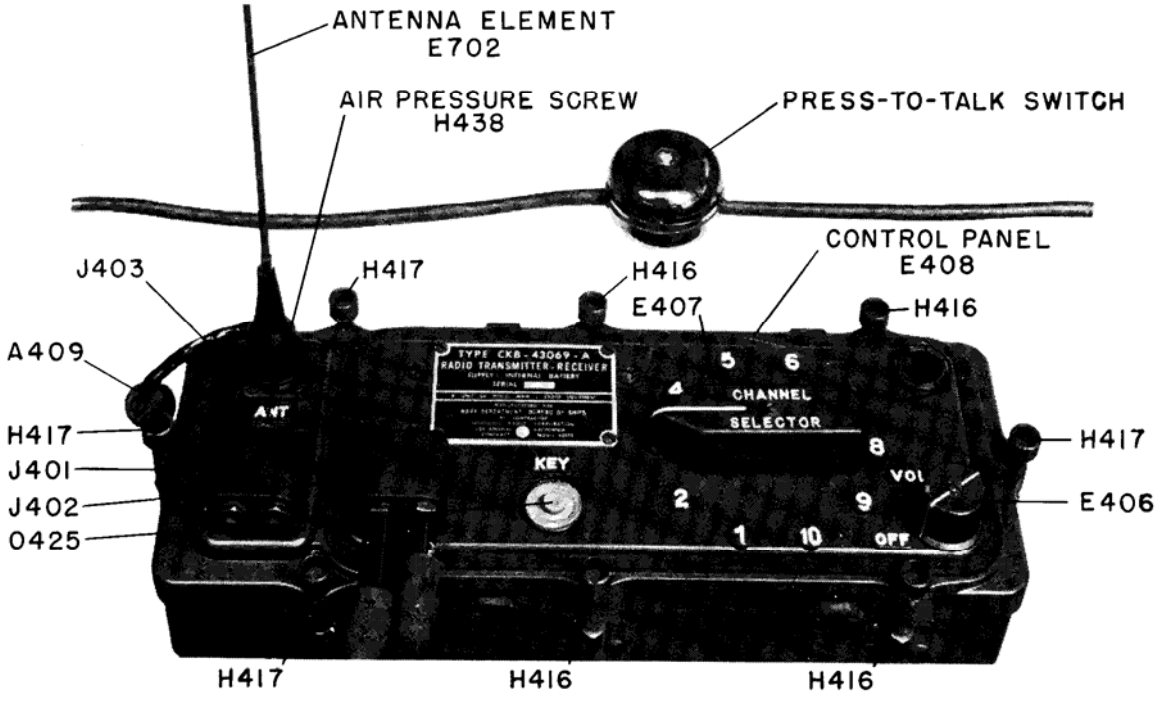


Figure 4-6. Operating Controls of MAW-1

b. OPERATING PROCEDURE.—After the operating units have been connected for portable or fixed operation according to subsection 2 of this section, and the operator is familiar with the operating controls as discussed in paragraph 3.a. above, the following steps should be followed for operation. Refer to figure 4-6.

Note

The equipment should be operated in an upright position, otherwise the battery life will be shortened.

Step 1. Turn the CHANNEL SELECTOR knob to the desired channel, adjust the vertical antenna elements to the correct length, as noted in table 4-2. If the Antenna Assembly is used, adjust all four elements.

Step 2. Turn the equipment on by rotating the VOLUME knob clockwise until a click is heard. The receiver is then on. Continue turning clockwise until the desired volume is obtained.

Note

A fully charged battery will operate approximately 12 hours on receive, or two hours on transmit. For this reason keep transmissions short, and always start operation with a fully charged battery.

Step 3. Press the press-to-talk switch on the Headset-Microphone extension cord to transmit. For voice transmission speak distinctly in a normal conversational tone of voice into the microphone; it is not necessary to shout. The microphone system is sensitive even to a whisper, if it becomes necessary for security reasons. Release the press-to-talk switch for reception.

MCW or modulated continuous wave transmission is accomplished by pressing the press-to-talk switch and actuating the KEY on the control panel.

Note

The press-to-talk switch must be depressed throughout voice or MCW transmission.

The sidetone is a reproduction of the transmission in the headset to enable the operator to hear his own transmission.

c. OPERATING NOTES. — The following notes should be observed in order to obtain the maximum operation from the equipment.

(1) Keep the microphone adjusted properly and DON'T SHOUT!

(2) Keep the vertical radiator on the antenna clear of bushes, underbrush, and any foreign objects. Keep in the clear and elevated as much as possible.

(3) The Antenna Assembly should always be elevated to get maximum range; hold it up in the air by grasping the ground stake, or use the tree clamp to mount on tree or bush.

(4) Conserve your battery; keep transmissions short.

(5) Operate the receiver at a comfortable volume and keep headset pads over ears to exclude outside noise.

(6) When red charge indicator ball is down in the battery, the receiver may operate, but the transmitter may not. Recharge battery when either white ball sinks.

(7) The detent action of the channel selector switch is positive, but be certain that the pointer is not in between channel numbers.

(8) To enable the operator to set the antenna length correctly for any channel without divulging the channel frequency, pencil a number next to each channel number on the control panel—a number 1 for channels requiring the antenna to be extended to first detent; a number 2 for extension to the second detent; a number 3 for full extension. (See figure 4-5.)

(9) All plugs on extension cables should be inserted clear to the shoulder of the plug.

(10) In order that the equipment will remain submersion proof, keep the thumb screws, holding the control panel, screwed down tight and the bottom plate on the carrying case securely fastened.

(11) The equipment should be operated in an upright position, otherwise the battery life will be shortened.

(1) Don't pass up an opportunity to recharge the battery if the green balls have sunk.

4. SECURING THE EQUIPMENT.

After the transmission is complete, turn the VOLUME control knob to the OFF position. Replace the Headset-Microphone Assembly in the control panel cover (A402) and return the Antenna Assembly to its storage tube. See figure 4-7.

Note

If it is necessary for the unit to be buoyant, be sure that the control panel cover is securely fastened and watertight against its gasket.

Return each item of the equipment to its marked storage position in the Shipping Chest and fasten all the retaining straps. Close and securely fasten the Shipping Chest cover.

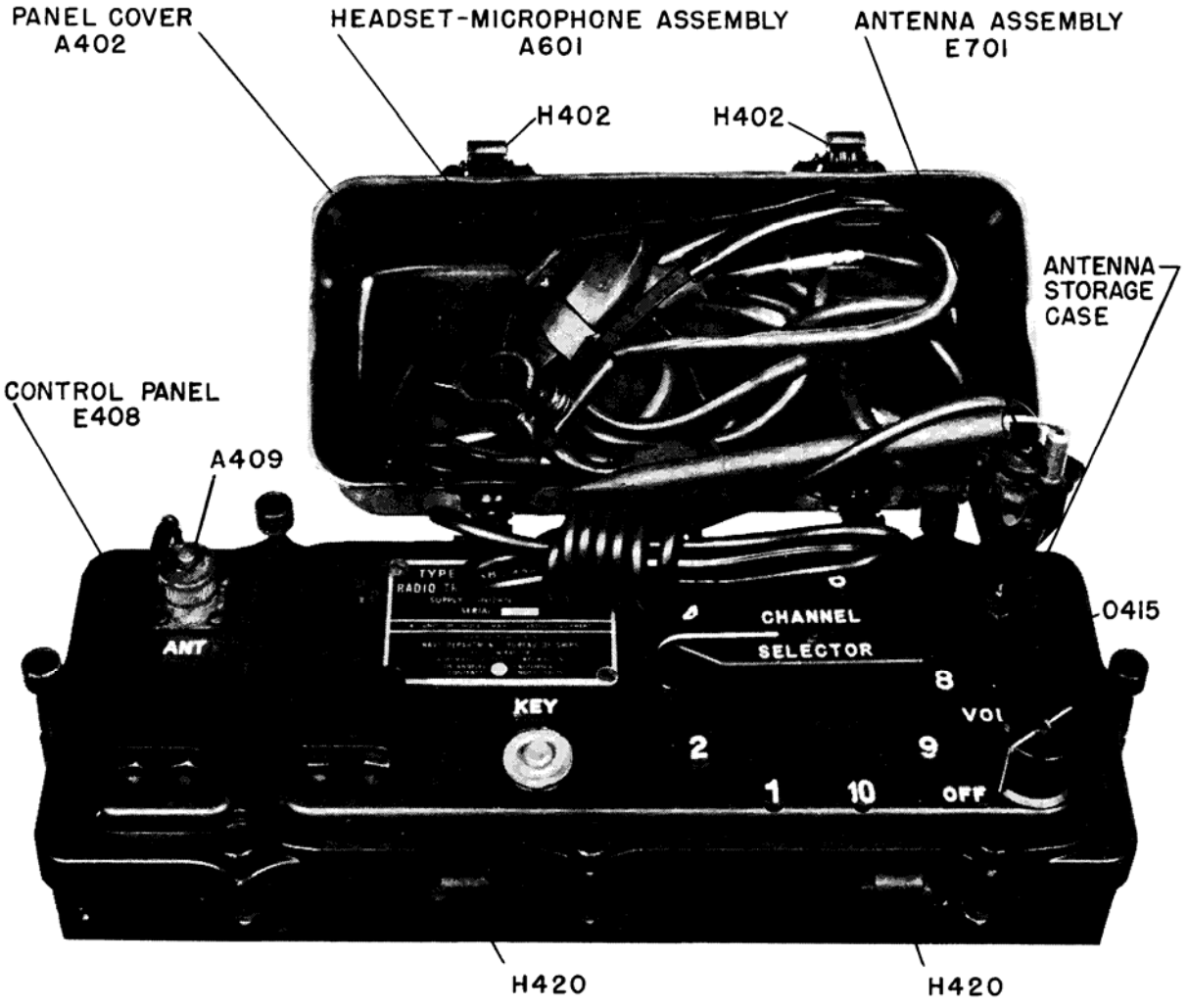


Figure 4-7. Stowage of Headset-Microphone Assembly and Antenna Assembly

SECTION 5

OPERATOR'S AND PREVENTIVE MAINTENANCE

1. OPERATOR'S MAINTENANCE.

a. GENERAL.

Model MAW-1 Portable VHF Radio Transmitting and Receiving Equipment is intended primarily for field use. It is important that it be maintained in good operating condition at all times. Since the operating units are in the care of the operator during operation, the operator has a definite responsibility in the care of the equipment. If the equipment does not function normally when properly operated, it should be turned over to authorized maintenance personnel for correction of the troubles. However, in emergencies the operator may be authorized to replace tubes, the vibrator or the battery assembly.

b. OPERATOR'S EMERGENCY MAINTENANCE.

Because of the fact that battery failure, tube failure, and vibrator failure are the most common causes of malfunctioning of the MAW-1 equipment the operator may, upon proper authorization, perform the following replacements in an emergency. After emergency maintenance has been performed, and the emergency is over, turn the equipment over to maintenance personnel for servicing.

NOTICE TO OPERATORS

Operators shall not perform any of the following emergency maintenance without proper authorization.

(1) BATTERY ASSEMBLY REPLACEMENT.—If the equipment fails to operate properly it may be due to discharged batteries. It is possible for the receiver to operate and the transmitter to be inoperative when the batteries are low. This is due to the higher current drain requirements of the transmitter. Check the battery conditions as shown by the charge-indicator balls, according to the general instructions in the fourth paragraph of subsection 1 of section 4, Operation, and figure 6-2.

In an emergency if the battery is discharged and a charged battery is available, open the battery compartment of the Receiver-Transmitter carrying case by releasing the four spring catches on the bottom guard plate (A410) and swinging it out of the way on the two captivated catches. See figure 3-3. With the carrying case laid on its side, grasp the handle at the bottom of the battery box and pull the battery assembly out. Insert the charged battery assembly into the battery compartment with the contact straps in position to slide against the spring contacts on the inside wall of the battery compartment. Push the battery assembly firmly into position and then replace the bottom plate on the carrying case, securely fastening the catches.

(2) RECEIVER-TRANSMITTER CHASSIS REMOVAL AND CONNECTION.—When it is necessary to remove the Receiver-Transmitter chassis from its carrying case, unscrew the eight captive screws (H416 and H417) at the edges of the control panel and lift the assembly out of its case. A vacuum may exist in the carrying case which would prevent removing the chassis. If so, remove the air pressure screw H438 (see figure 4-6), and allow the air pressure screw H438 (see figure 4-6), and allow the air pressure to equalize. Be careful not to lose the screw or its rubber-washer gasket (H429). Remove both chassis covers by swinging the spring fastening straps straight out and lifting the cover off. Set the equipment as illustrated in figure 6-3, and connect the battery extension cable W803 as shown. This will supply battery current to operate the unit out of the case.

Caution

Connect the power supply end of W803 first, before inserting the other end in the battery charging receptacle. This will prevent possible shorting of the batteries while connecting to the power supply.

Connect W803 to the power supply by placing the bakelite plate at one end over the power-supply strap contacts and screwing the thumb screw into the threaded hole between the straps; then insert the polarized plug into the battery charging receptacle on the side of the case.

Connect the Headset-Microphone assembly plugs to their corresponding jacks on the control panel.

Make certain that the battery is in good condition as indicated by the charge-indicator balls. (See the fourth paragraph of subsection 1 of section 4, and figure 6-2.)

(a) REASSEMBLY OF RECEIVER-TRANSMITTER CHASSIS INTO CASE.—To reassemble the Receiver-Transmitter chassis into the carrying case, disconnect the battery extension cable W803 and all external units.

Caution

Disconnect the end of W803 inserted in the battery charging receptacle first. This will prevent possible shorting of the batteries while disconnecting the power supply.

Install both cover plates on the chassis and secure them with the spring fastening straps. Be sure that none of the three spring straps holding the shield are protruding outside the edge. Wipe off gasket surfaces and replace chassis unit in the case, with the power supply positioned opposite the battery compartment. Carefully slide the unit in place, keeping it in line with the case. A slight resistance will be felt as the control panel nears the top of the case; this is caused by the battery pressure contact springs and is normal. Screw all eight captive screws (H416 and H417) into the brackets on the case, starting with the two end screws; repeat several times until all eight screws are tight. To insure a true seal of the gasket, remove the air pressure screw (see figure 4-6) until the captive screws are tightened. Be sure to replace the air pressure screw (H438) and its washer (H429), tightening securely.

(3) TUBE REPLACEMENT.—Eight spare tubes are supplied in the power supply section of the Receiver-Transmitter as part of the Running Maintenance Spares, listed in table 1-5. These are for emergency replacement. Figure 6-15 illustrates the position of each tube in the Receiver-Transmitter, including the spares.

Tube failure in the receiver or transmitter ordinarily will cause the set to be inoperative on all channels of the section affected. Tube failure in the transmitter modulator circuits will cause a failure of modulation, either voice of MCW tone or both, as indicated by a lack of sidetone in the headset.

For tube replacement, remove the Receiver-Transmitter from its carrying case and connect it outside the case according to the instructions of paragraph 1.b. (2) of this section and as shown in figure 6-3, except the chassis should be tube-side up. Connect the antenna vertical element (E702) or Antenna Assembly CKB-66150 and adjust the rod length(s) for the channel or channels on which operation is being tried.

It may be possible to detect a burned out tube by inspecting closely for the small amount of light which can usually be seen near the base of each tube when the tube shield is removed, particularly if it is dark where the inspection is conducted. A burned out tube will remain cold, whereas a lighted tube will become slightly warm after being on a few minutes, as noted by feeling of the tubes with the finger tips. Neither of these indications is a positive check but may aid in locating a burned out tube.

Replace a tube by first removing the tube shield. Press the shield down and turn counterclockwise to release it from the base and lift it off the tube. Use the tube puller H801 supplied in the accessory bag for removing and inserting the tubes. Grasp the tube with the tube puller and pull it straight out of the socket, with a very slight rocking motion. Be careful not to bend the tube pins by twisting the tube or by tipping it excessively. Reinsert the replacement tube by aligning the tube pins to correspond with the socket holes and, after carefully starting the pins into the socket, pressing the tube firmly into place. Reinstall and lock the tube shield.

Since the running maintenance parts do not include a full set of spare tubes for the receiver or transmitter, location of a defective tube or tubes by replacement is necessarily on a trial-and-error basis. Replace each suspected tube until all the available tubes have been used. Be sure to replace only with a tube of the correct type as marked on the chassis and as shown in figure 6-15. If the trouble is still not corrected, try replacing each of the remaining tubes with one of the running maintenance tubes, putting the original tube back in its socket, until all tubes of each type have been checked by a replacement or the defective tube has been located.

After an emergency in which tubes have been replaced, the equipment should be given to maintenance personnel for realignment and check.

When tube replacement, or vibrator replacement according to the following paragraph, fails to restore the equipment to normal operation, it must be turned over to qualified maintenance personnel.

(4) VIBRATOR REPLACEMENT. – One spare vibrator is supplied in the power supply section of the Receiver-Transmitter as shown in figure 6-15. This is part of the running maintenance parts (table 1-5) furnished for emergency replacement.

For vibrator replacement, remove the Receiver-Transmitter from its carrying case and connect it outside the

case according to the instructions of paragraph 1.b. (2) of this section and as shown in figure 6-3, except the chassis should be tube-side up. Connect the antenna vertical element (E702) or Antenna Assembly CKB-66150 and adjust the rod length(s) for the channels or channel on which operation is being tried.

The most common vibrator trouble is the vibrator failing to start. This can be checked by placing the fingers on top of the vibrator CR301 in the center of the spare tube rack when the Receiver-Transmitter is turned on to feel the vibration caused when the vibrator is functioning. Replace the vibrator whenever it fails to function. If no vibrator is available, a sharp shock may temporarily cause the vibrator to function.

Remove the vibrator by rocking it slightly and pulling it out of the socket. Before inserting the replacement vibrator, align it so the two large pins on the base correspond to the two large holes in the socket. Press the vibrator firmly into the socket. After replacing the vibrator check the operation of the equipment.

It is advisable to try replacing the vibrator for most any trouble symptom in the receiver or transmitter. Even though the vibrator is functioning it may fail to produce any power-supply output or it may be producing improper voltages for the receiver and/or the transmitter.

If vibrator replacement, or tube replacement according to paragraph 1.b.(3) above, fails to restore the equipment to normal operation it must be turned over to qualified maintenance personnel.

2. PREVENTIVE MAINTENANCE.

Preventive maintenance includes procedures which should be performed periodically for the purpose of preventing failure or impairment of the equipment.

Note

THE ATTENTION OF MAINTENANCE PERSONNEL IS INVITED TO THE REQUIREMENTS OF CHAPTER 67 OF THE *BUREAU OF SHIPS MANUAL* OF THE LATEST ISSUE.

a. PERIODIC PREVENTIVE MAINTENANCE CHECKS.—Recommended periodic checks on the MAW-1 equipment are shown in table 5-1 below. However, the frequency of use and the conditions imposed upon the equipment will determine the need and type of preventive maintenance and shall be performed at the discretion of the Officer-in-Charge. Complete realignment and check of all units should be made by qualified technicians at intervals, as dictated by field experience.

TABLE 5-1. PERIODIC MAINTENANCE CHECKS

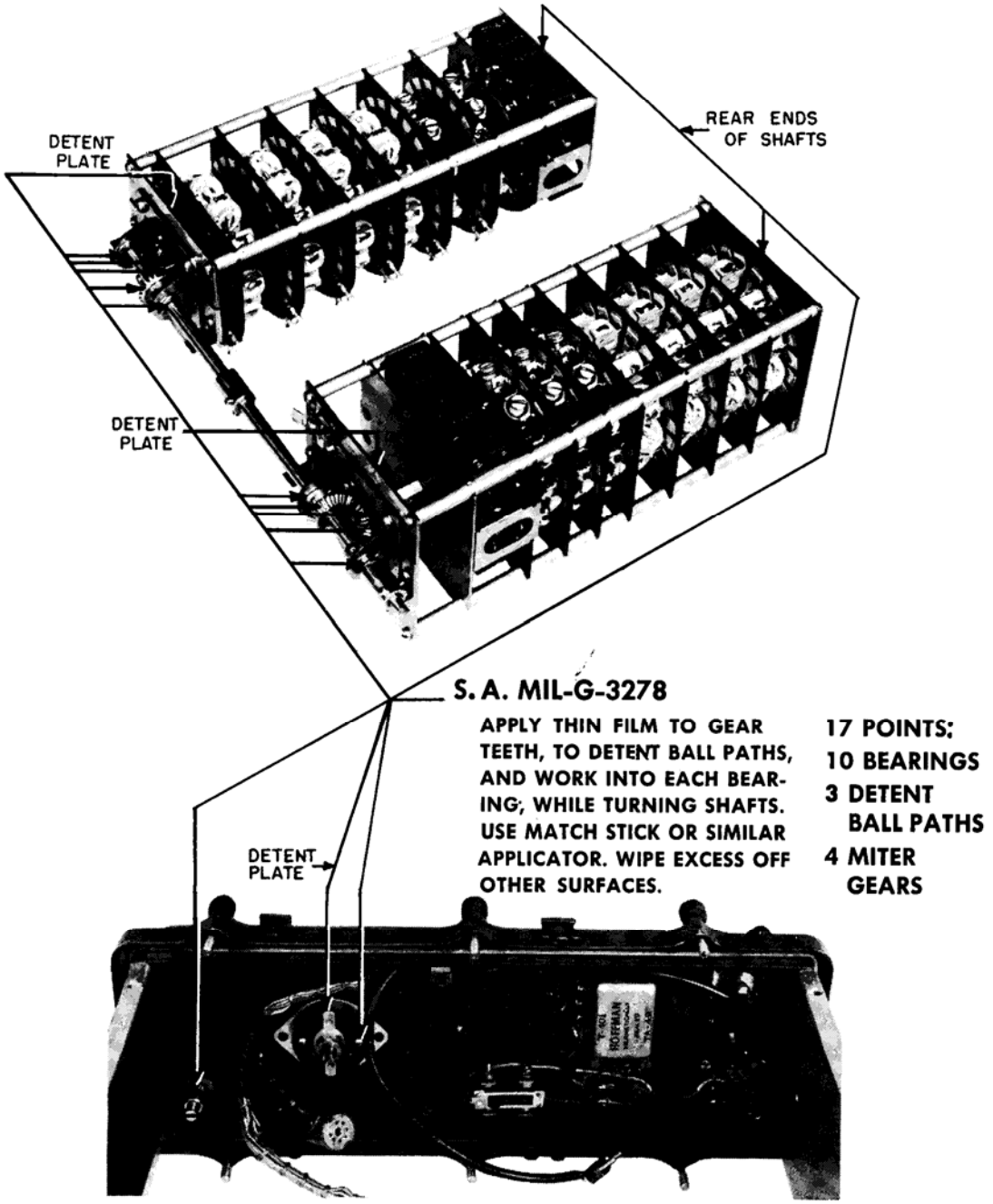
WHAT TO CHECK	FREQUENCY OF CHECK	PROCEDURE	REMARKS
Battery water level	Weekly or before and after battery charge	Keep water to LEVEL LINE on battery case.	Use only pure (distilled) water. Keep filler caps tight.
Battery Charge Condition	Hourly during operation Weekly for idle operation	Charge when white ball sinks. (See subsection 3, section 6).	Do not pass up an opportunity to charge batteries if green ball is down.
Operational Check, receive-transmit	Before anticipated operation	Check as per paragraph 3, section 3.	Check on all channels on MCW and Voice.
Tubes	Monthly	Test with tube tester. Replace any weak or defective tube.	Check each tube one at a time and if OK replace in the same socket. If a defective tube is replaced, the alignment for that stage should be checked. See subsection 4 of section 6.
Control panel thumb screws	Monthly or after rough handling	Tighten thumb screws uniformly.	Do not use a tool to tighten thumb screws.

TABLE 5-1. PERIODIC MAINTENANCE CHECKS (Cont'd)

WHAT TO CHECK	FREQUENCY OF CHECK	PROCEDURE	REMARKS
Packing glands	Monthly	Remove channel selector and volume knobs; tighten packing gland nut until the knob shafts bind slightly. Do not tighten to extent shaft will freeze.	Note position of knobs before removing, and replace in the same position. If packing glands do not tighten properly, see paragraph 22 of section 6.
Key boot	Monthly	Check for cracks, holes or deteriorated rubber.	Replace when needed. See paragraph 23 of section 6.
Gaskets	Monthly	Inspect for cuts, abrasions, or cracks.	Replace if defective.
Spare tubes and vibrator	Monthly	See figure 6-15. Make sure all items of table 1-5 are in place. Check tubes in tube tester, substitute vibrator in a good set, to check operation.	Replace any missing or defective item.
Visual inspection	Monthly or when set is removed from carrying case for other maintenance.	Inspect for loose plugs, loose connections, dirty contacts, and over-all condition of equipment.	Replace any defective or worn part.
Lubrication	Monthly	Check all moving parts, and lubricate if necessary per paragraph 2.b. of this section.	Do not get lubricant on electrical parts.

b. LUBRICATION.—Lubrication of the proper mechanical parts will prevent channel switching from becoming harder to turn and will prevent excessive wear and breakdown. For points of lubrication and detailed instructions, refer to figure 5-1. If the old lubricant is caked or dirty, clean before lubricating by using an approved grease solvent such as carbon tetrachloride (Federal Spec. O-C-141). Keep solvent away from electrical parts.

c. RETROPICALIZATION.—This equipment is protected against the effects of moisture and fungus growth by a fungicidal varnish conforming to spec JAN-C-173 applied in accordance with spec JAN-T-152. Any part that is replaced, or needs retropicalization should be treated in accordance with these specifications.



NOTE: Lubricate all points indicated Semi-Annually (S.A.) with grease per Spec. MIL-G-3278

SPECIFICATION NAME	STANDARD NAVY STOCK NUMBER					
	8 OZ.	1 LB.	5 LB.	25 LB.	35 LB.	100 LB.
MIL-G-3278 * Aircraft and Instrument Grease	R14-G-984-500	R14-G-982-20	R14-G-984-520	R14-G-984-540	R14-G-984-550	R14-G-984-560

* Formerly Army-Navy Aeronautical Specification AN-G-25

Figure 5-1. Lubrication Data, Radio Receiver-Transmitter CKB-43069-A

FAILURE REPORTS

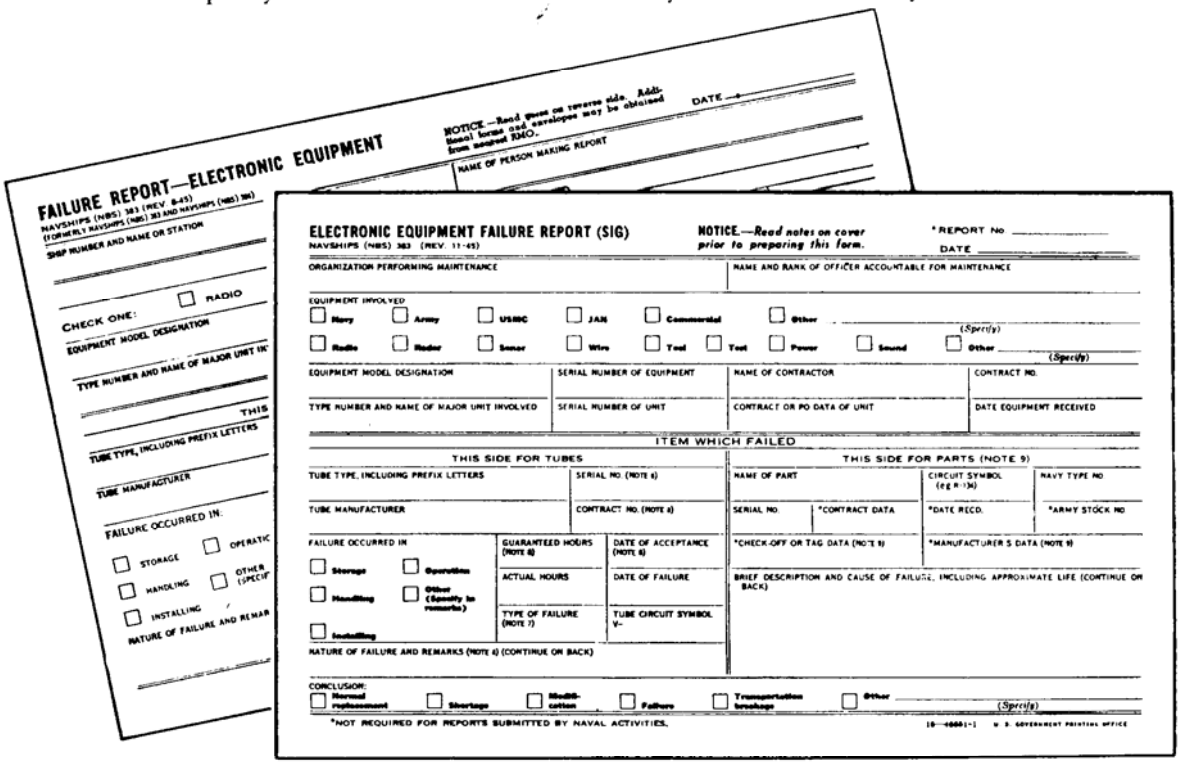
A FAILURE REPORT must be filled out for the failure of any part of the equipment whether caused by defective or worn parts, improper operation, or external influences. It should be made on Failure Report, form NBS-383, which has been designed to simplify this requirement. The card must be filled out and forwarded to BUSHIPS in the franked envelope which is provided. Full instructions are to be found on each card.

Use great care in filling the card out to make certain it carries adequate information. For example, under "Circuit Symbol" use the proper circuit identification taken from the schematic drawings, such as T-803, in the case of a transformer, or R-207, for a resistor. Do not substitute brevity for clarity. Use the back of the card to completely describe the cause of failure and attach an extra piece of paper if necessary.

The purpose of this report is to inform BUSHIPS of the cause and rate of failures. The information is used by the Bureau in the design of future equipment and in the maintenance of adequate supplies to keep the present equipment going. The cards you send in, together with those from hundreds of other ships and stations, furnish a store of information permitting the Bureau to keep in touch with the performance of all electronic equipment of the Naval Establishment.

This report is not a requisition. You must request the replacement of parts through your Officer-in-Charge in the usual manner.

Make certain you have a supply of Failure Report cards, and envelopes on board. They may be obtained from any Electronics Officer.



FAILURE REPORT—ELECTRONIC EQUIPMENT

NAVSHIPS (NBS) 383 (REV. 8-45)
(FORMERLY NAVSHIPS (NBS) 383 AND NAVSHIPS (NBS) 384)

SHIP NUMBER AND NAME OR STATION

CHECK ONE: ☐ RADIO

EQUIPMENT MODEL DESIGNATION

TYPE NUMBER AND NAME OF MAJOR UNIT IN

THIS TUBE TYPE, INCLUDING PREFIX LETTERS

TUBE MANUFACTURER

FAILURE OCCURRED IN:

☐ STORAGE ☐ OPERATIC
☐ HANDLING ☐ OTHER (SPECIF
☐ INSTALLING

NATURE OF FAILURE AND REMAR

NOTICE—Read items on reverse side. Additional forms and envelopes may be obtained from nearest BAEO.

DATE

NAME OF PERSON MAKING REPORT

ELECTRONIC EQUIPMENT FAILURE REPORT (SIG)
NAVSHIPS (NBS) 383 (REV. 11-45)

NOTICE.—*Read notes on cover prior to preparing this form.*

*REPORT No.

DATE

ORGANIZATION PERFORMING MAINTENANCE

NAME AND RANK OF OFFICER ACCOUNTABLE FOR MAINTENANCE

EQUIPMENT INVOLVED

☐ Navy ☐ Army ☐ USMC ☐ JAN ☐ Commercial ☐ Other _____ (Specify)

☐ Radio ☐ Radar ☐ Sonar ☐ Wire ☐ Test ☐ Test ☐ Power ☐ Sound ☐ Other _____ (Specify)

EQUIPMENT MODEL DESIGNATION	SERIAL NUMBER OF EQUIPMENT	NAME OF CONTRACTOR	CONTRACT NO.
TYPE NUMBER AND NAME OF MAJOR UNIT INVOLVED	SERIAL NUMBER OF UNIT	CONTRACT OR PO DATA OF UNIT	DATE EQUIPMENT RECEIVED

ITEM WHICH FAILED

THIS SIDE FOR TUBES

TUBE TYPE, INCLUDING PREFIX LETTERS	SERIAL NO. (NOTE 6)
TUBE MANUFACTURER	CONTRACT NO. (NOTE 6)

FAILURE OCCURRED IN

☐ Storage ☐ Operation ☐ Handling ☐ Other (Specify in remarks) ☐ Installing

GUARANTEED HOURS (NOTE 6)	DATE OF ACCEPTANCE (NOTE 6)
ACTUAL HOURS	DATE OF FAILURE
TYPE OF FAILURE (NOTE 7)	TUBE CIRCUIT SYMBOL V-

NATURE OF FAILURE AND REMARKS (NOTE 6) (CONTINUE ON BACK)

THIS SIDE FOR PARTS (NOTE 9)

NAME OF PART	CIRCUIT SYMBOL (eg R-13K)	NAVY TYPE NO.
SERIAL NO. / *CONTRACT DATA	*DATE RECD.	*ARMY STOCK NO.
*CHECK-OFF OR TAG DATA (NOTE 9)	*MANUFACTURER'S DATA (NOTE 9)	

BRIEF DESCRIPTION AND CAUSE OF FAILURE, INCLUDING APPROXIMATE LIFE (CONTINUE ON BACK)

CONCLUSION:
☐ Normal replacement ☐ Shortage ☐ Modification ☐ Failure ☐ Transportation breakage ☐ Other _____ (Specify)

*NOT REQUIRED FOR REPORTS SUBMITTED BY NAVAL ACTIVITIES.

16—40681-1 U. S. GOVERNMENT PRINTING OFFICE

Figure 6-1. Failure Report, Sample Form

SECTION 6
CORRECTIVE MAINTENANCE

1. FAILURE REPORTS.

Make failure reports as instructed in figure 6-1.

2. GENERAL.

The following paragraphs, tables, charts, diagrams and illustrations give data and procedures for testing, repairing and aligning the Navy Model MAW-1 Portable VHF Radio Transmitting and Receiving Equipment.

Maintenance personnel should be thoroughly acquainted with the operation of the equipment, as given in section 4. All applicable parts of Operator's and Preventive Maintenance are to be included as part of Corrective Maintenance.

Radio Receiver-Transmitter CKB-43069-A, the principal operating component, divides naturally into four inter-related units: the receiver, transmitter, power supply, and control panel with its interconnecting cables (figure 1-2).

When the cause of a trouble is not obvious, start first with simple tests and then proceed with the purpose of localizing the trouble to one section of the equipment and to one circuit, where more detailed testing can locate the exact component part at fault. Make full use of Test Meter CKB-60155-A, the running maintenance parts, and other available Receiver-Transmitter units in obtaining symptoms and evidences of trouble and in preliminary checking. Analyze symptoms and try to select tests that will most quickly localize and reveal the cause of the malfunctioning.

It is assumed that maintenance personnel are experienced in the standard methods of testing and repairing Naval electronic equipment, and therefore detailed descriptions of simple common tests are not given herein.

Note

Before maintenance tests, check battery charge condition and recharge if below 50% charge. See subsection 3 below.

3. BATTERY CHARGING AND SERVICING.

Battery charging is normally the most frequent maintenance operation required by the MAW-1 equipment. Recharging is necessary whenever either white ball is not floating at the top of the electrolyte, to insure continued operation of the transmitter. The four-volt battery assembly may be charged from a suitable battery charger or by using another 6, 12, or 24 volt dc source, such as other batteries. When the battery electrolyte level is correct and the batteries fail to charge properly, they should be replaced.

a. INDICATION OF BATTERY CHARGE.—Battery condition is shown by three colored ball indicators as shown in Fig. 6-2. When all three balls float at the liquid level line the battery is charged. As the battery is discharged the green ball will sink first, then the white. When the red ball falls the battery is discharged. See table 6-1 for battery discharge indications. Due to the heavy current drawn by the transmitter (see table 1-6), it is advisable to recharge the battery after the white balls have sunk to insure transmitter operation.

Note

After rough handling the balls sometimes stick at the top or bottom of the case and may be dislodged by a sharp rap on the case.

TABLE 6-1. BATTERY CHARGE INDICATION

GREEN BALL	WHITE BALL	RED BALL	SPECIFIC GRAVITY	PERCENT OF CHARGE
Just Floating	Floating	Floating	1.268	90%
Down	Just Floating	Floating	1.220	50%
Down	Down	Just Floating	1.150	10%

b. BATTERY CHARGING USING CHARGER.—It is desirable to charge the batteries out of the carrying case during the initial charge, as excessive gassing or too much electrolyte will cause the electrolyte to be forced out of the breather tubes and cause damage. To charge the batteries out of the case, connect as indicated in Fig. 3-2. Be sure that the positive charger terminal is connected to the positive battery terminal, and the negative to negative.

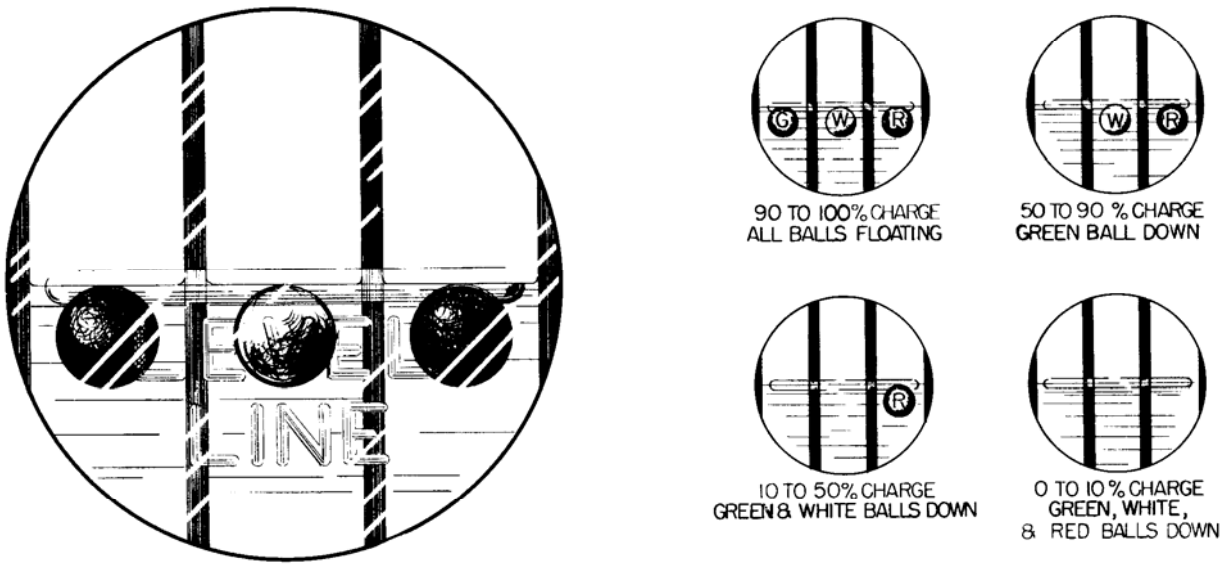


Figure 6-2. Battery Charge-Indicator Balls

After the initial charging, the batteries may be recharged while still in the Receiver-Transmitter carrying case by connecting the charger to the charger cable W804, which is supplied in the accessory bag, and inserting the polarized plug at the end of the cable into the charger receptacle on the side of the carrying case. However, if the electrolyte is low, the battery assembly must be removed from the carrying case to add distilled water. See paragraph 2.c. of section 3.

Use any battery charger that is adjustable to the required 3.2 or 2.5 ampere charging rate on the four-volt battery assembly. Observe the following procedure:

Caution

Do not charge batteries at a higher rate than 3.2 amperes, except as an emergency measure. The OFF-VOLUME control should be in the OFF position during charge, or excessive filament voltage will be applied to the tubes.

Step 1. Check the electrolyte level in both batteries through the inspection windows while the battery assembly is level, and add distilled water to bring up to the level line, if needed. See figure 6-2.

Step 2. Turn the OFF-VOLUME knob on the control panel to OFF.

Step 3. Turn off the charger and connect it to the batteries according to the introductory paragraphs above. Set the charger to its lowest rate.

Step 4. Turn on the charger and adjust to a charging rate of 2.5 amperes (3.2 amperes for the initial charge).

For recharging, charge at 2.5 amperes and continue for two hours after the green ball floats.

Step 5. For the initial charge, charge for 20 hours at 3.2 amperes. For recharging, charge at 2.5 amperes and continue for two hours after the green ball floats.

Warning

During charge, oxygen and hydrogen are given off as gasses; these are explosive when they accumulate in a confined space. Keep batteries well vented and away from fires or sparks.

The electrolyte will rise in the battery cells due to gassing and heat. Some electrolyte may be lost due to evaporation. If the level falls below the level line, add distilled water as

needed to bring it back up to the line. Be careful not to overfill.

Step 6. Disconnect the charger, and after the battery assembly has set long enough to cool off, about an hour, check the electrolyte level again and fill if necessary. If the battery assembly is out of the carrying case, reinstall according to paragraph 2.c. of section 3.

If the batteries do not charge properly, they are defective and should be replaced.

c. BATTERY CHARGING USING OTHER BATTERIES.—The batteries used in the MAW-1 equipment may be charged by using the storage battery in motorized equipment as the charging source instead of a charger. It is necessary, however, to connect a resistor in one of the leads to prevent charging at an excessive rate. The battery polarity should be observed, i.e., the positive of the charging-source batteries should be connected to the resistor and the resistor connected to the + (positive) terminal of the battery being charged; and the negative to the negative. Table 6-2 gives values which enable the operator to select the proper size resistor to give a charging rate of two and one-half amperes from a six, twelve, or twenty-four volt storage battery. The battery voltage may be determined by counting the number of cells that are connected in series in the battery and multiplying by two; i.e., a battery containing three cells in series is six volts, six cells in series is twelve volts, etc.

Follow the same procedure as that given in paragraph 3.*b.* above, substituting the battery source of charging power and the resistor for the battery charger.

Note

The resistors shown in table 6-2 are not supplied with the equipment.

TABLE 6-2. BATTERY CHARGING USING MOBILE BATTERIES

BATTERY VOLTAGE OF MOTORIZED EQUIPMENT	RESISTOR		CHARGING RATE	CAUTION
	OHMS	WATTS		
6	0.8	5	2.5	Connect the + (positive) W804 cable to resistor and the resistor to + terminal on charging-source battery; — (negative) clip to negative terminal on battery.
12	3.2	20	2.5	
24	8.0	50	2.5	

In an emergency, if resistors are not available, the batteries may be charged by connecting across two cells of a storage battery. Be careful to observe correct polarity.

d. BATTERY REPLACEMENT.

To replace a defective battery, remove the battery assembly from the carrying case by unhooking the bottom plate A410 and pulling the battery box E401 out of its compartment. See figure 3-3. Remove the wires from the terminals of the defective battery; slip out the battery hold down springs H419; and lift the battery out of the box. Set the new battery in place, reinsert the hold down springs, connect the wires, and service according to paragraph 2 of section 3.

4. CHANNEL ALIGNMENT PROCEDURES.

It is expected that the assignment of frequencies to the ten channels of the radio Receiver-Transmitter CKB-43069-A will frequently be changed and new crystals issued. The equipment is designed to permit alignment of each channel on any desired frequency within the range 115 to 156 megacycles. The alignment technique requires a minimum of equipment and technical knowledge and may be done completely with the equipment supplied as part of the MAW-1.

Test Meter CKB-60155-A (MT501), complete with alignment tools as illustrated in figure 6-4, is supplied specifically for channel alignment (as well as for other tests by maintenance personnel). The positions of the transmitter and receiver meter switches S101 and S201, shown in the figure, are indicated by colored lines, each line corresponding respectively to the color on the turret section being adjusted.

Two crystals are required for each channel — one transmitter crystal and one receiver crystal. They may be either type CR-5/U or type CR-18/U; the equipment operates with and accommodates either type in any crystal socket.

The transmitter and receiver are normally operated on the same frequency in each channel, the channel frequency being determined by the crystals. The relationships of frequencies for the transmitter and receiver crystals are given in these simple formulas:

$$\text{Transmitter crystal frequency} = \frac{\text{operating frequency}}{16}$$

$$\text{Receiver crystal frequency} = \frac{\text{operating frequency-12 mc}}{16}$$

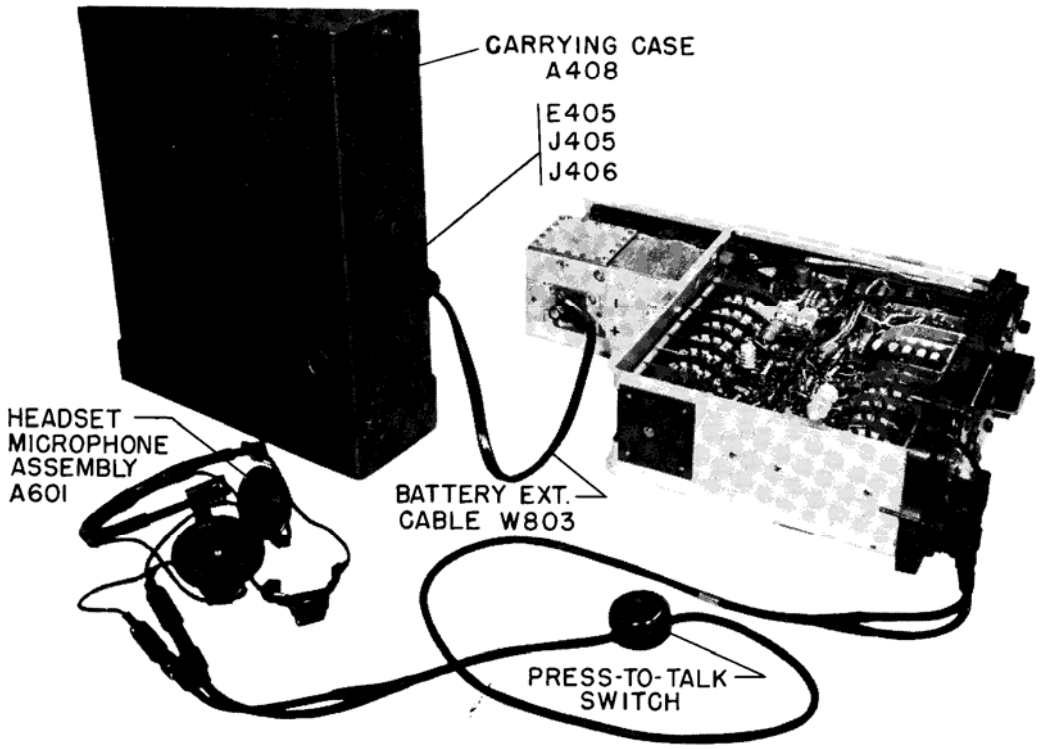


Figure 6-3. Receiver-Transmitter Connected Outside of Case

or Receiver crystal frequency = transmitter crystal frequency — 750 kc

The first and last formulas are the easiest to remember. For example: Assume an operating frequency of 134.640 megacycles. The transmitter crystal frequency = $\frac{134.640 \text{ mc}}{16}$ = 8.415 megacycles, or 8415 kilocycles (1 mc = 1000 kc). The receiver crystal frequency = 8415 kc — 750 kc = 7665 kilocycles. Or conversely, assume a receiver crystal frequency of 8750 kc. The transmitter crystal frequency = 8750 kc + 750 kc = 9500 kc and the operating frequency for both transmitter and receiver = 16 × 9500 kc = 152,000 kc or 152 megacycles. Each crystal is marked with its operating frequency in kc.

The ten channels of the transmitter and of the receiver are each aligned one at a time. There is no interaction between channels so they may be aligned in any order and at any time without necessitating readjustment of the remaining channels.

Remove the chassis from the carrying case as outlined in paragraph 1.*b.*(2) of section 5, and set with the wiring side of the chassis up as illustrated in figure 6-3.

a. TRANSMITTER CHANNEL ALIGNMENT.

The following alignment procedure is complete for one channel and is to be repeated for each transmitter channel requiring alignment.

Figure 6-25 shows pictorially the transmitter turret color coding and may be used to complement figure 6-5, which is referenced in the procedure below.

Table 6-3 gives the related data for alignment of each stage of the transmitter. The steps for stage-by-stage alignment of each channel are as follows:

Note

All readings taken and adjustments made with press-to-talk switch held down and alignment switch S302 in NORMAL OPERATING POSITION.

Step 1. Turn CHANNEL SELECTOR knob to the channel to be aligned and insert proper crystal in corresponding transmitter crystal socket. See figure 6-5. (The transmitter crystal frequency will be 750 kc above that of the receiver.)

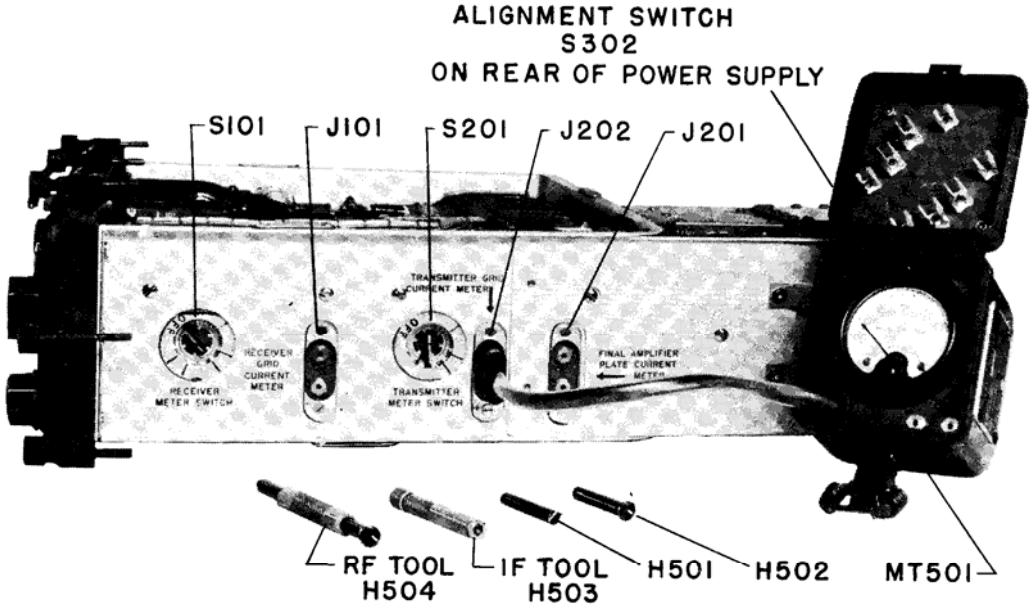


Figure 6-4. Test Meter CKB-60155-A Connected for Alignment

TABLE 6-3. TRANSMITTER CHANNEL ALIGNMENT CHART

See paragraph 4.a.

SEQUENCE OF ALIGNMENT OPERATIONS	STAGE TO BE ADJUSTED	COLOR OF METER SWITCH POSITION (S201) AND TURRET SECTION TO BE ADJUSTED	METER READING		TURRET SECTION TO BE ADJUSTED	CAPACITOR OR COIL TO BE ADJUSTED CHANNEL 1 THRU 10, RESPECTIVELY
			INDICATION FOR RESONANCE IN NORMAL STAGE	CIRCUIT WHERE CURRENT IS MEASURED		
A	CRYSTAL OSCILLATOR (V201)	RED	100	Crystal oscillator grid	(No adjustment) S202A	(No adjustment) Y201 thru Y210
B	FIRST DOUBLER (V202)	YELLOW	100	2nd doubler grid	S202B	L201 thru L210
C	SECOND DOUBLER (V203)	GREEN	100	3rd doubler grid	S202C	L211 thru L220
D	THIRD DOUBLER (V204)	BLACK	100	4th doubler grid	S202D	C213 thru C222
EF	FOURTH DOUBLER PLATE (V205) and FINAL AMPLIFIER GRID	ORANGE	Adjust alternately for maximum reading	Final amplifier grid	S202E and S202F	C226 thru C235 and C236 thru C245
G	FINAL AMPLIFIER PLATE (V206)	UNCOLORED last turret section	Tune for greatest dip in reading	Final amplifier plate	S202G	C250 thru C259

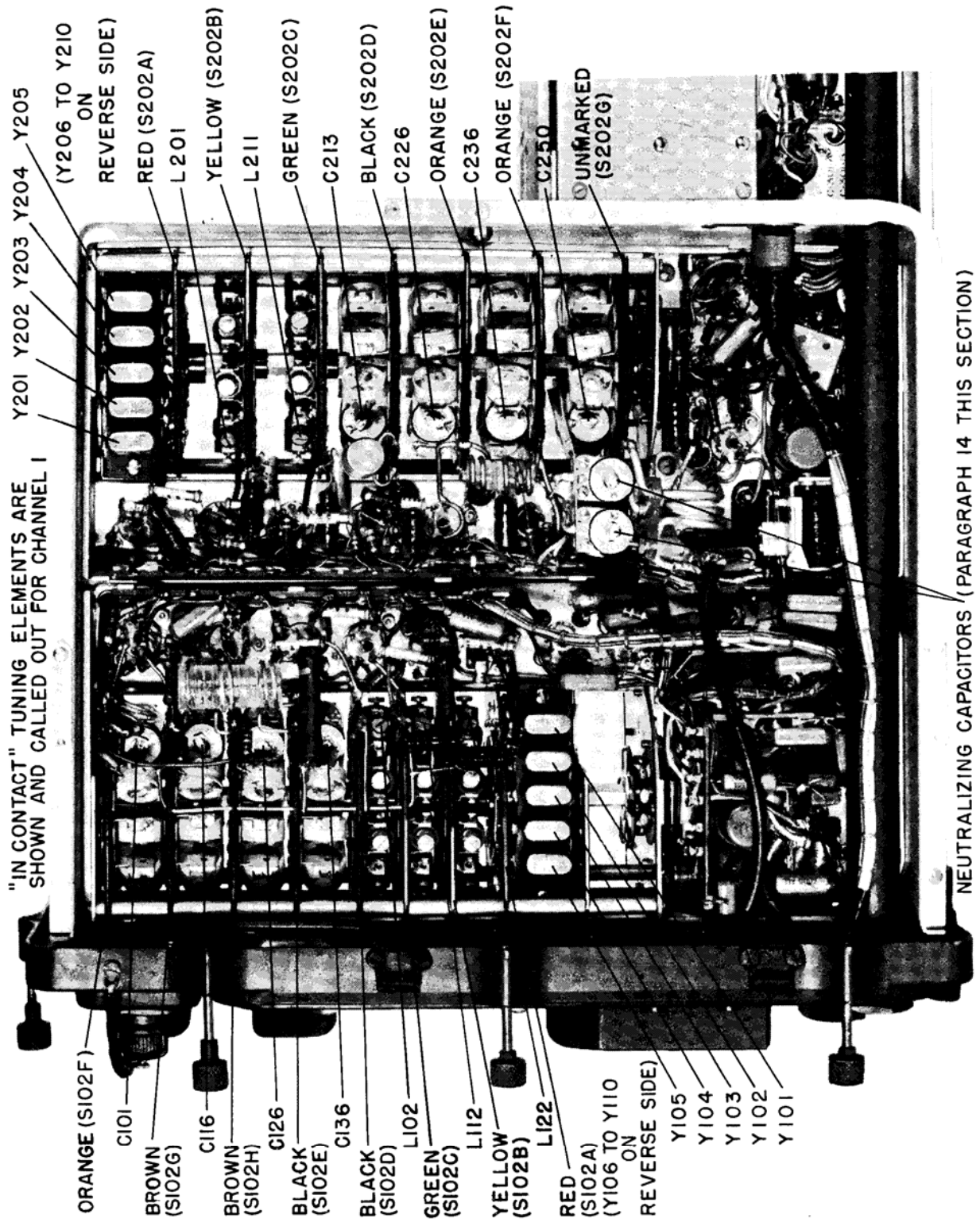


Figure 6-5. Channel Alignment Adjustments

Step 2. Plug the Test Meter (MT501) into the TRANSMITTER GRID CURRENT METER receptacle (J202), the red lead side to the positive (+) side of the receptacle. See figure 6-4.

Step 3. (Operation A of table 6-3). Turn the TRANSMITTER METER SWITCH, S201, to red and note meter reading. A normal reading indicates that the crystal oscillator stage is operating properly; there is no adjustment of this stage.

Step 4. (Operation B.) Turn S201 to yellow and adjust the "in contact" coil on the yellow turret section to "resonance". See paragraph 4.*a.*(1) and (2) below. Use alignment tool H504.

Caution

Tune only the elements indicated. Tampering with other adjustments may unbalance and impair the operation of other circuits.

Step 5. (Operation C.) Turn S201 to green and adjust the "in contact" coil on the green turret section to "resonance".

Step 6. (Operation D.) Turn S201 to black and adjust the "in contact" capacitor on the black turret section to "resonance".

Step 7. (Operation EF.) Turn S201 to orange and adjust both the "in contact" capacitors on the two orange turret sections together for "resonance". Turn the capacitor on the orange section, adjacent to the black, a small amount, and then turn the other one a complete turn. Repeat this procedure until a definite rise in the meter reading is found. Finally, adjust each capacitor for peak meter reading, going over them alternately until no further increase can be attained.

Step 8. Turn meter switch S201 to OFF position. This completes the doubler and driver adjustments.

Step 9. In order to adjust the final amplifier, remove Test Meter (MT501) from meter receptacle J202 and plug into FINAL AMPLIFIER PLATE CURRENT METER receptacle (J201), the red lead side to the positive (+) side of the receptacle.

Step 10. The transmitter final amplifier may be adjusted with the antenna disconnected if radiation effects are undesirable. However, for best results, connect ANTENNA ASSEMBLY CKB-66150 and adjust the rod length for the frequency of the channel to be aligned as shown in table 6-4.

TABLE 6-4. ANTENNA FREQUENCY ADJUSTMENT
(See figure 4-5)

115 to 134 mc	All radiators fully extended
134 to 142 mc	All radiators on second detent
142 to 156 mc	All radiators on first detent
Fully retracted position, used only for storage.	

Step 11. (Operation G.) Adjust the "in contact" capacitor on the unmarked last turret section for "resonance". In this case "resonance" is indicated by a dip (rather than a peak) in the meter reading that already is present from the adjustment of the previous stage. Turn the capacitor through its full range of adjustment and note the greatest decrease in the reading. Turn back to the lowest-reading position and adjust carefully back and forth until the lowest point of dip is reached. (Don't be misled by false dips, pick the lowest if there is more than one.) This completes the transmitter alignment for one channel.

Repeat the above alignment procedure for each channel to be aligned in the transmitter. After this, proceed with alignment of the required channels in the receiver.

(1) "CONTACT POSITION" COIL OR CAPACITOR. – Examination of the turret switch will show that there are ten tuning components on each wafer, but only one is connected to the associated circuit at each position. The capacitor or coil which is in contact with the circuit is said to be in the "contact position", and is the one to be adjusted for that stage. Figure 6-5 shows the capacitors and coils of channel one in "contact position".

(2) TUNING TO RESONANCE.—In tuning for "resonance", turn the tuning component through its full range of adjustment and note the highest meter reading obtained. Turn back to the highest-reading position and then adjust carefully back and forth to obtain the highest possible meter indication. This peak reading indicates the point of correct adjustment, and turning in either direction from this point will cause a drop in the meter reading. (Don't be misled by false peaks; pick the highest if there is more than one.)

b. RECEIVER CHANNEL ALIGNMENT.

The following alignment procedure is complete for one channel and is to be repeated for each receiver channel requiring alignment.

Figure 6-24 shows pictorially the receiver turret color coding and may be used to complement figure 6-5, which is referenced in the procedure below.

Table 6-5 gives the related data for alignment of each stage of the receiver. The steps for stage-by-stage alignment of each channel are as follows:

Note

Alignment switch S302 must be in NORMAL OPERATING POSITION.

Step 1. Turn CHANNEL SELECTOR knob to the position to be aligned and insert proper crystal in corresponding receiver crystal socket. See figure 6-5. (The receiver crystal frequency will normally be 750 kc below that of the transmitter.)

Step 2. Plug the Test Meter (MT501) into the RECEIVER GRID CURRENT METER receptacle (J101), the red lead side to the positive (+) side of the receptacle. See figure 6-4.

Step 3. (Operation A of Table 6-5.) Turn the RECEIVER METER SWITCH, S101, to red and note meter reading. A normal reading indicates that the crystal oscillator stage is operating properly; there is no adjustment of this stage.

Step 4. (Operation B.) Turn S101 to yellow and adjust the "in contact" coil on the yellow turret section to "resonance". See paragraphs 4.a.(1) and (2) above. Use alignment tool H504.

CAUTION

Tune only the elements indicated. Tampering with other adjustments may unbalance and impair the operation of other circuits.

Step 5. (Operation C.) Turn S101 to green and adjust the "in contact" coil on the green turret section to "resonance".

Step 6. (Operation D.) Turn S101 to black and adjust the "in contact" coil on the black turret section, adjacent to the green, to "resonance".

TABLE 6-5. RECEIVER CHANNEL ALIGNMENT CHART
See paragraph 4.b.

SEQUENCE OF ALIGNMENT OPERATIONS	STAGE BEING ADJUSTED	COLOR OF METER SWITCH POSITION (S101) AND TURRET SECTION TO BE ADJUSTED	METER READING		TURRET SECTION TO BE ADJUSTED	CAPACITOR OR COIL TO BE ADJUSTED CHANNEL 1 THRU 10, RESPECTIVELY
			INDICATION FOR RESONANCE IN NORMAL STAGE	CIRCUIT WHERE CURRENT IS MEASURED		
A	CRYSTAL OSCILLATOR (V112)	RED (no adjustment)	100	Crystal oscillator grid	(No adjustment) S102A	(No adjustment) Y101 thru Y110
B	FIRST DOUBLER (V111)	YELLOW	50	2nd doubler grid	S102B	L122 thru L131
C	SECOND DOUBLER (V110)	GREEN	50	3rd doubler grid	S102C	L112 thru L121
D	THIRD DOUBLER (V109)	BLACK next to green	50	4th doubler grid	S102D	L102 thru L111
E	FOURTH DOUBLER (V109)	BLACK next to brown	Tune for greatest dip in reading (one division or more)	4th doubler grid	S102E	C136 thru C145
F	RF AMPLIFIER GRID TANK (V101)	ORANGE	1 or 2	RF amplifier grid	S102F	C101 thru C110
G	RF AMPL. PLATE (V101)	BROWN next to orange	25 to 50	Mixer grid	S102G	C116 thru C125
H	MIXER GRID (V102)	BROWN next to black		Mixer grid	S102H	C126 thru C135
I	TOUCH UP OF RF, MIXER AND 4TH DOUBLER ADJUSTMENTS	BLUE meter position last four turret sections	5 to 30	Audio output	SAME AS E, F, G & H	

Step 7. (Operation E.) Leave S101 on black and adjust the "in contact" capacitor on the black turret section, adjacent to the brown, to "resonance". In this case "resonance" is indicated by a dip (rather than a peak) in the meter reading that already is present from the adjustment of the previous stage. Turn the capacitor through its full range of adjustment and note the greatest decrease in the reading. Turn back to the lowest-reading position and adjust carefully back and forth until lowest point of the dip is reached. (Don't be misled by false dips, pick the lowest if there is more than one.) This completes the first three doubler adjustments and the fourth doubler initial adjustment.

Step 8. In order to align the receiver rf section, set alignment switch S302 to RECEIVER ALIGNMENT USING TRANSMITTER position.

Step 9. Connect ANTENNA ASSEMBLY CKB-66150 and adjust the rod length for the frequency of the channel to be aligned, as shown in table 6-4.

Step 10. Remove crystal from the receiver crystal socket.

Step 11. (Operation F.) Turn S101 to orange and adjust the capacitor on the orange turret section to "resonance". The meter reading will be small—on the order of one or two divisions.

Step 12. (Operation G.) Turn S101 to brown and adjust the capacitor on the brown turret section, adjacent to the orange, for "resonance".

Step 13. (Operation H.) Leave S101 on brown and adjust the capacitor on the brown turret section, adjacent to black, for "resonance". This completes the initial receiver rf adjustments.

Step 14. Because of interaction between the rf stages and the fourth doubler stage, final touch-up adjustments must be made for best receiver sensitivity. Therefore, replace the proper crystal in the receiver crystal socket.

Note

The following readings taken and adjustments made with the headset connected to the receiver, the receiver VOLUME fully clockwise and the transmitter KEY held down.

Step 15. (Operation I.) Turn S101 to blue and carefully readjust tuning elements adjusted in steps 7, 11, 12 and 13. (Operations E. through H.) Adjust each capacitor for peak meter reading, going over them in succession several times until no further increase can be attained.

Step 16. Turn S101 to OFF position.

Step 17. Return S302 to NORMAL OPERATING POSITION. This completes the receiver alignment for one channel.

Repeat the above alignment procedure for each channel to be aligned.

c. ALIGNMENT OF CHANNEL WITH DIFFERENT RECEIVER vs. TRANSMITTER FREQUENCIES.

In the case of a channel being assigned a receiver frequency different from that of the transmitter, the transmitter alignment procedure is the same as set forth in paragraph 4.a. above and table 6-3.

Receiver alignment procedure is the same as set forth in paragraph 4.b. above and table 6-5, except that another transmitter must be used when making the rf adjustments.

Instead of switching the alignment switch in step 8, set up another MAW-1 or equivalent transmitter to produce the required rf output (unmodulated). Place the transmitting antenna near the receiver antenna (connected to receiver in step 9) and proceed with steps 10 through 17 using the external signal. Adjust the distance and orientation between the two antennas to obtain satisfactory meter readings.

5. TROUBLE SHOOTING CHARTS.

Tables 6-6 and 6-7 are charts of possible symptoms of trouble and probable causes for the receiver and the transmitter, respectively. Evidences of signal in the various circuits are listed in the heavy blocks at the right and trouble symptoms are noted on the lines leading to the left, with blocks of possible causes at the ends of the lines. The charts are progressive, moving right on through the signal path in each division of the Receiver-Transmitter, including power supply considerations in relation to the first stage. The power supply must be operating for the first stage to function and must be reconsidered if the load is increased as other dead stages are brought into operation further on in the chain. Blocks indicating the use of an af signal source and an i-f signal generator for stage by stage check of the receiver af and i-f stages are included at the bottom of figure 6-6.

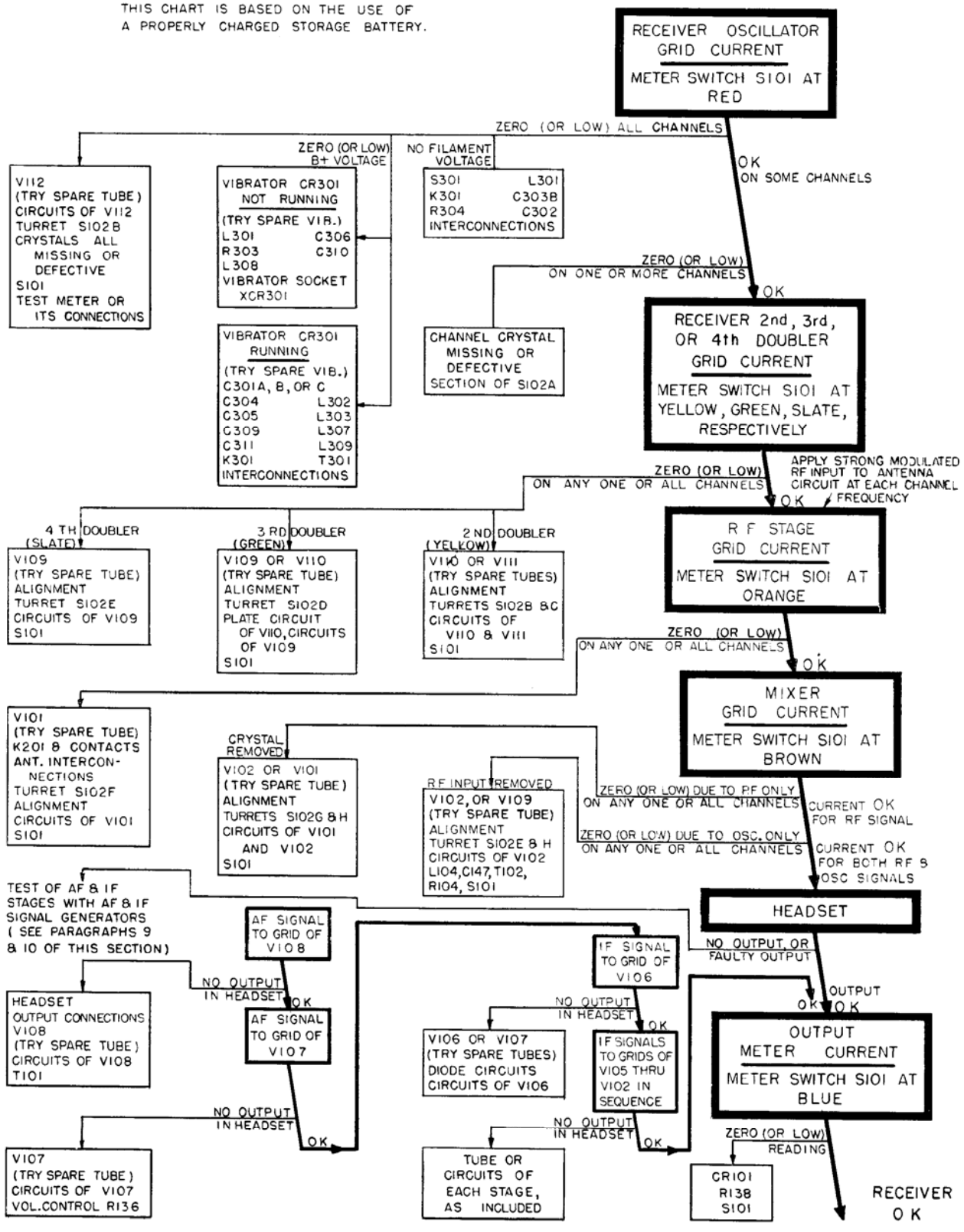
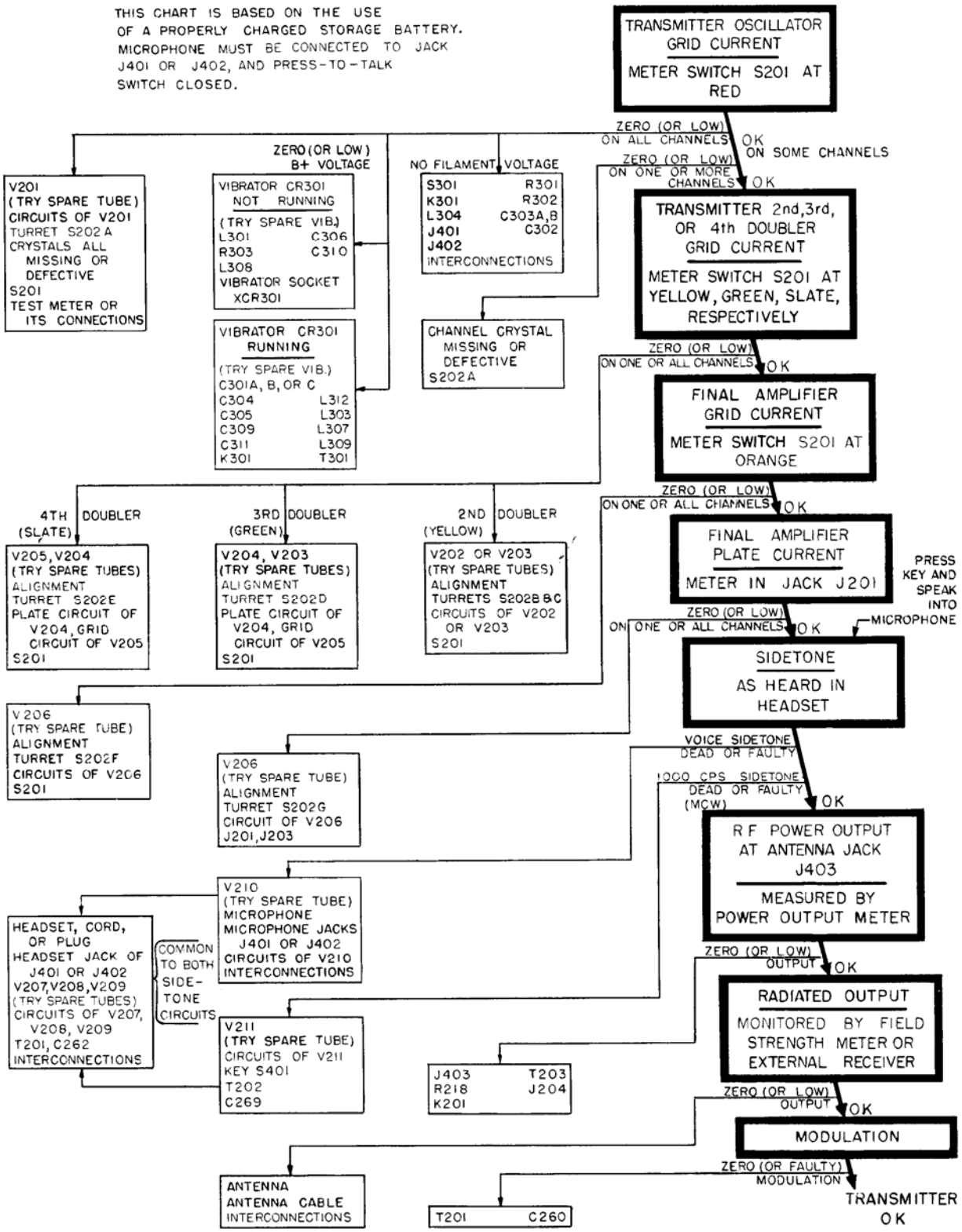


Table 6-6. Trouble Shooting Chart, Receiver


THIS CHART IS BASED ON THE USE OF A PROPERLY CHARGED STORAGE BATTERY. MICROPHONE MUST BE CONNECTED TO JACK J401 OR J402, AND PRESS-TO-TALK SWITCH CLOSED.
TRANSMITTER OSCILLATOR GRID CURRENT
METER SWITCH S201 AT RED
ZERO (OR LOW) ON ALL CHANNELS OK
ZERO (OR LOW) ON SOME CHANNELS
ZERO (OR LOW) ON ONE OR MORE CHANNELS OK
V201 (TRY SPARE TUBE) CIRCUITS OF V201 TURRET S202A CRYSTALS ALL MISSING OR DEFECTIVE S201 TEST METER OR ITS CONNECTIONS
ZERO (OR LOW) B+ VOLTAGE
VIBRATOR CR301 NOT RUNNING (TRY SPARE VIB.) L301 C306 R303 C310 L308 VIBRATOR SOCKET XCR301
VIBRATOR CR301 RUNNING (TRY SPARE VIB.) C301A, B, OR C C304 L312 C305 L303 C309 L307 C311 L309 K301 T301
NO FILAMENT VOLTAGE
S301 R301 K301 R302 L304 C303A,B J401 C302 J402 INTERCONNECTIONS
CHANNEL CRYSTAL MISSING OR DEFECTIVE S202A
TRANSMITTER 2nd,3rd, OR 4th DOUBLER GRID CURRENT
METER SWITCH S201 AT YELLOW, GREEN, SLATE, RESPECTIVELY
ZERO (OR LOW) ON ONE OR ALL CHANNELS OK
FINAL AMPLIFIER GRID CURRENT
METER SWITCH S201 AT ORANGE
ZERO (OR LOW) ON ONE OR ALL CHANNELS OK
FINAL AMPLIFIER PLATE CURRENT
METER IN JACK J201
PRESS KEY AND SPEAK INTO MICROPHONE
ZERO (OR LOW) ON ONE OR ALL CHANNELS OK
SIDETONE
AS HEARD IN HEADSET
4TH DOUBLER (SLATE)
V205, V204 (TRY SPARE TUBES) ALIGNMENT TURRET S202E PLATE CIRCUIT OF V204, GRID CIRCUIT OF V205 S201
3RD DOUBLER (GREEN)
V204, V203 (TRY SPARE TUBES) ALIGNMENT TURRET S202D PLATE CIRCUIT OF V204, GRID CIRCUIT OF V205 S201
2ND DOUBLER (YELLOW)
V202 OR V203 (TRY SPARE TUBES) ALIGNMENT TURRETS S202B&C CIRCUITS OF V202 OR V203 S201
V206 (TRY SPARE TUBE) ALIGNMENT TURRET S202F CIRCUITS OF V206 S201
V206 (TRY SPARE TUBE) ALIGNMENT TURRET S202G CIRCUIT OF V206 J201, J203
VOICE SIDETONE DEAD OR FAULTY
1000 CPS SIDETONE DEAD OR FAULTY (MCW) OK
RF POWER OUTPUT AT ANTENNA JACK J403
MEASURED BY POWER OUTPUT METER
V210 (TRY SPARE TUBE) MICROPHONE MICROPHONE JACKS J401 OR J402 CIRCUITS OF V210 INTERCONNECTIONS
HEADSET, CORD, OR PLUG HEADSET JACK OF J401 OR J402 V207, V208, V209 (TRY SPARE TUBES) CIRCUITS OF V207, V208, V209 T201, C262 INTERCONNECTIONS
COMMON TO BOTH SIDE-TONE CIRCUITS
V211 (TRY SPARE TUBE) CIRCUITS OF V211 KEY S401 T202 C269
ZERO (OR LOW) OUTPUT OK
RADIATED OUTPUT
MONITORED BY FIELD STRENGTH METER OR EXTERNAL RECEIVER
J403 T203 R218 J204 K201
ZERO (OR LOW) OUTPUT OK
MODULATION
ANTENNA ANTENNA CABLE INTERCONNECTIONS
ZERO (OR FAULTY) MODULATION
T201 C260
TRANSMITTER OK

These charts should prove helpful as an outline of a rapid, straight forward system of localizing trouble sources. Reference should be made to the channel alignment charts, tables 6-3 and 6-5 in connection with Test Meter readings.

Refer to the schematic diagrams figures 6-21, 6-22 and 6-23 for interpretation of the results of the various tests.

6. VOLTAGE TESTS.

Typical voltages are shown in figures 6-6, 6-7 and 6-8. Refer to the schematic diagrams for other voltage data and to interpret the cause of incorrect voltage readings.

Warning

Voltages over 300 volts shall be measured as follows:

(1) Deenergize the equipment. Ground terminals to be measured to discharge any capacitors connected to these terminals. (See Note F)

(2) Connect meter to terminals to be measured using a range higher than the expected voltage.

(3) WITHOUT TOUCHING METER OR TEST LEADS, energize the equipment and read the meter.

(4) Deenergize the equipment. Ground the terminals connected to the meter before disconnecting meter.

NOTES:

(A) KEEP AWAY FROM GROUND whenever adjusting equipment or using measuring equipment.

(B) In general, USE ONE HAND only when servicing live equipment.

(C) If test meter must be held or adjusted while voltage is applied GROUND the case of the meter before starting measurement and DO NOT touch the live equipment or personnel working on live equipment while holding the meter. Some vane type meters should not be grounded. These should not be held during measurements.

(D) DO NOT FORGET that high voltages MAY BE PRESENT across terminals that are normally low voltage, due to equipment breakdown. Be careful even when measuring low voltages.

(E) DO NOT use test equipment known to be in poor condition.

(F) High voltage high capacity capacitors should be discharged with a grounding stick with approximately 10 ohms in series with the grounded line. Where neither terminal of a capacitor is grounded, short capacitor terminals to each other.

7. RESISTANCE TESTS.

Resistance values from each tube pin to ground are given in figures 6-6, 6-7 and 6-8. Other resistance values may be found on the schematics, in the Winding Data Table 6-11, and in the Table of Replaceable Parts, 7-2. Continuity tests are valuable in testing the interconnecting cables and their connections.

Caution

Disconnect the battery power from the chassis before making resistance or continuity measurements.

8. POWER SUPPLY CHECK.

Power supply symptoms and possible causes are listed in the Receiver and Transmitter Trouble Shooting Charts, tables 6-6 and 6-7.

If the vibrator is functioning, a slight mechanical vibration will be noticeable in the vibrator itself, but this does not necessarily mean correct operation. Check the voltages at socket XCR301 of the power supply in accordance with figure 6-8. Be sure switch S302 is in NORMAL OPERATING POSITION.

The power supply may be tested separate from the other chassis by the use of a load resistor from B+ to

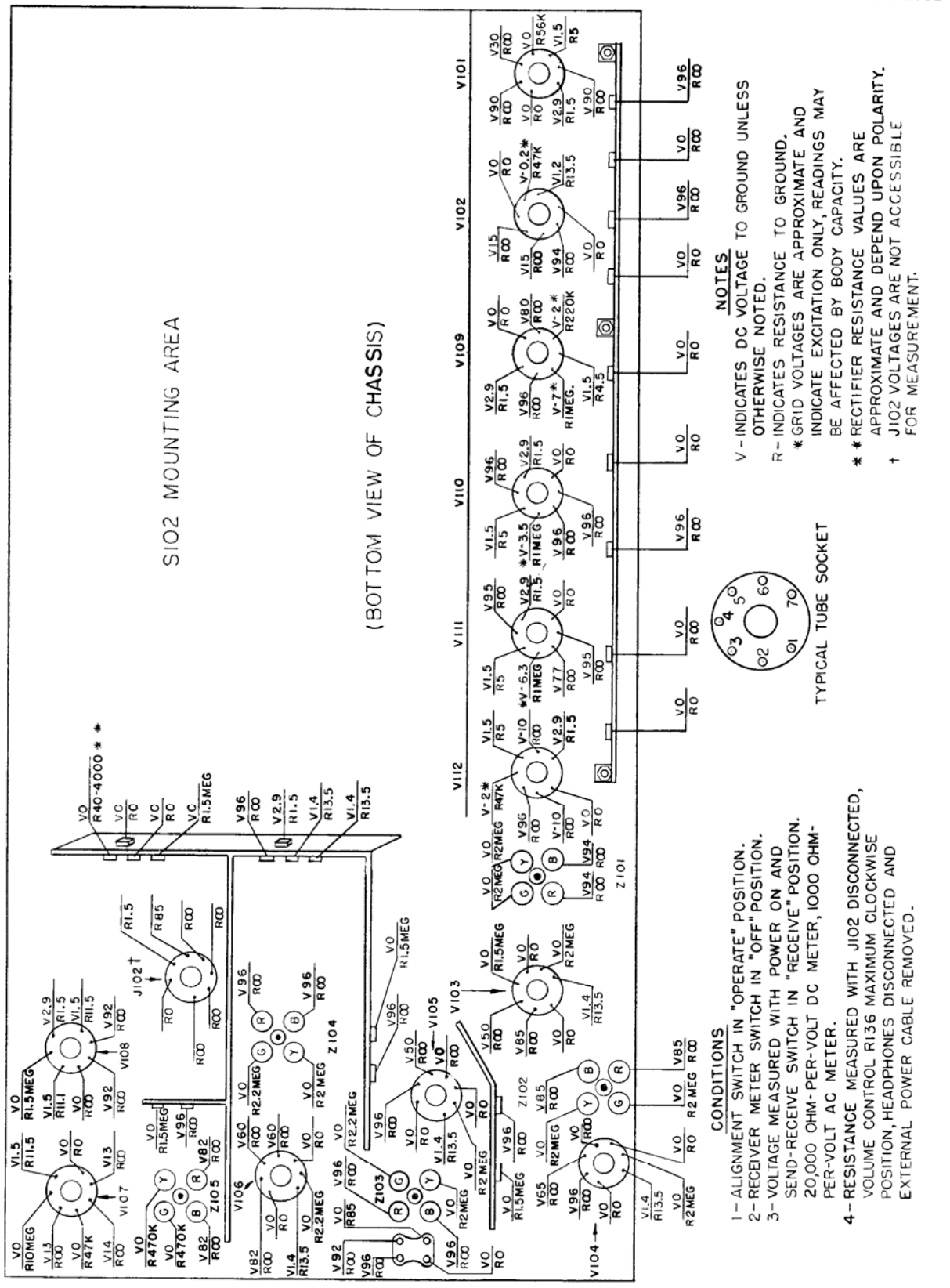


Figure 6-6. Voltage and Resistance Chart, Receiver

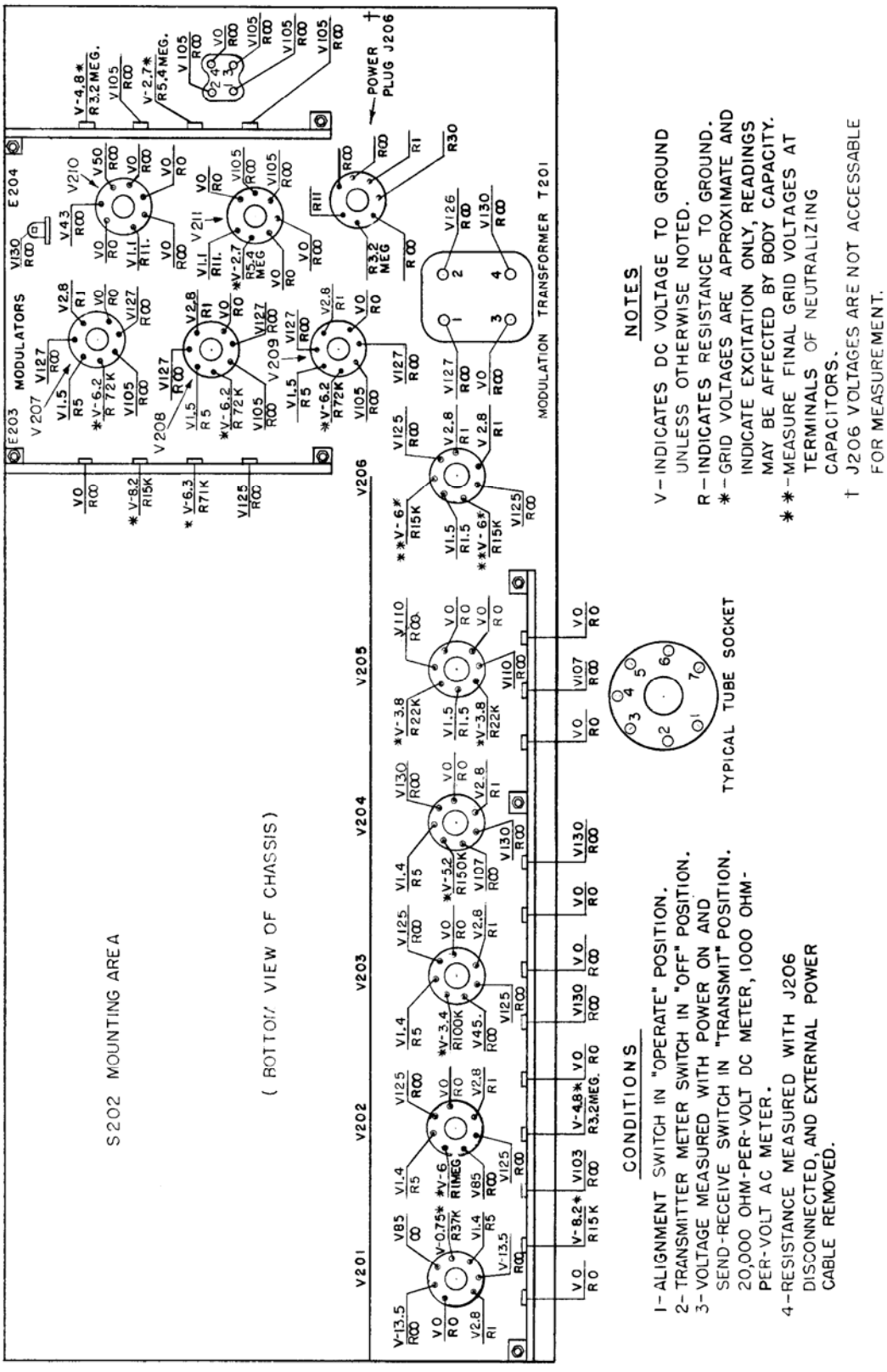
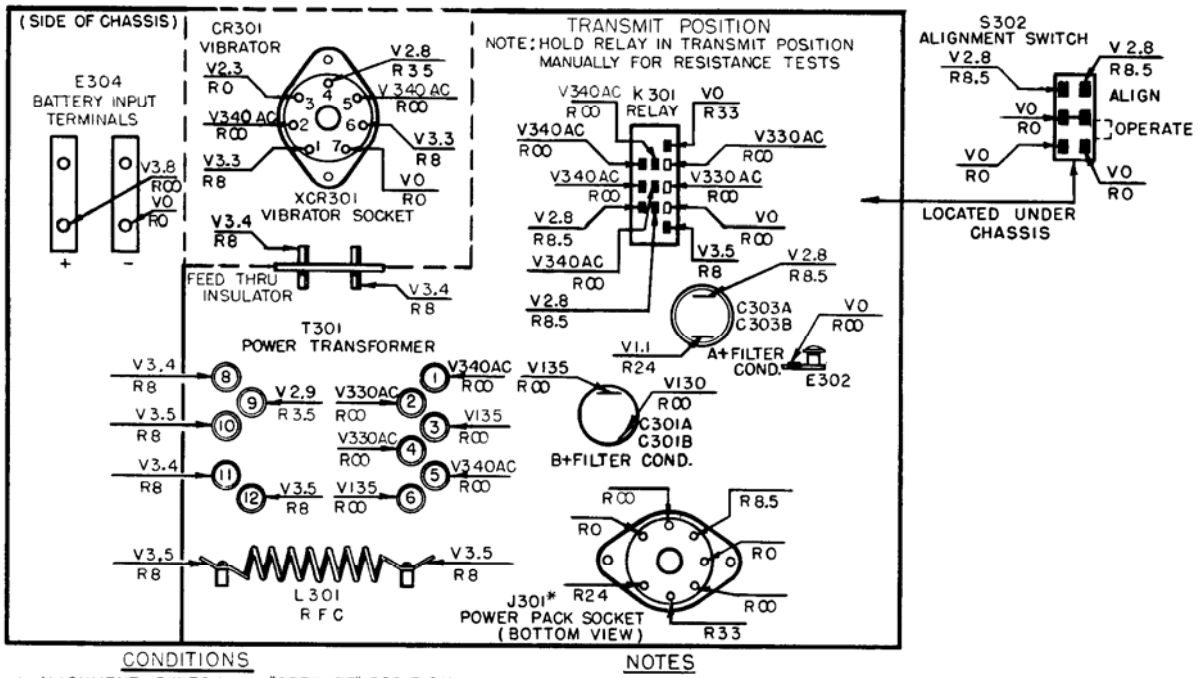


Figure 6-7. Voltage and Resistance Chart, Transmitter



CONDITIONS

1. ALIGNMENT SWITCH IN "OPERATE" POSITION.
2. VOLTAGE MEASURED WITH POWER ON AND W404 CONNECTED OR LOAD RESISTOR BETWEEN C301A & B AND GROUND (750 OHM 20 WATT FOR TRANSMIT, 2000 OHM 10 WATT FOR RECEIVE) 20,000 OHM-PER-VOLT DC METER, 1000 OHM-PER-VOLT AC METER.
3. RESISTANCE MEASURED WITH J301 DISCONNECTED, AND EXTERNAL POWER CABLE REMOVED.

NOTES

V - INDICATES DC VOLTAGES TO GROUND UNLESS OTHERWISE NOTED.
R - INDICATES RESISTANCE TO GROUND.
* - J301 VOLTAGES CANNOT READILY BE MEASURED WITH W404 CONNECTED.

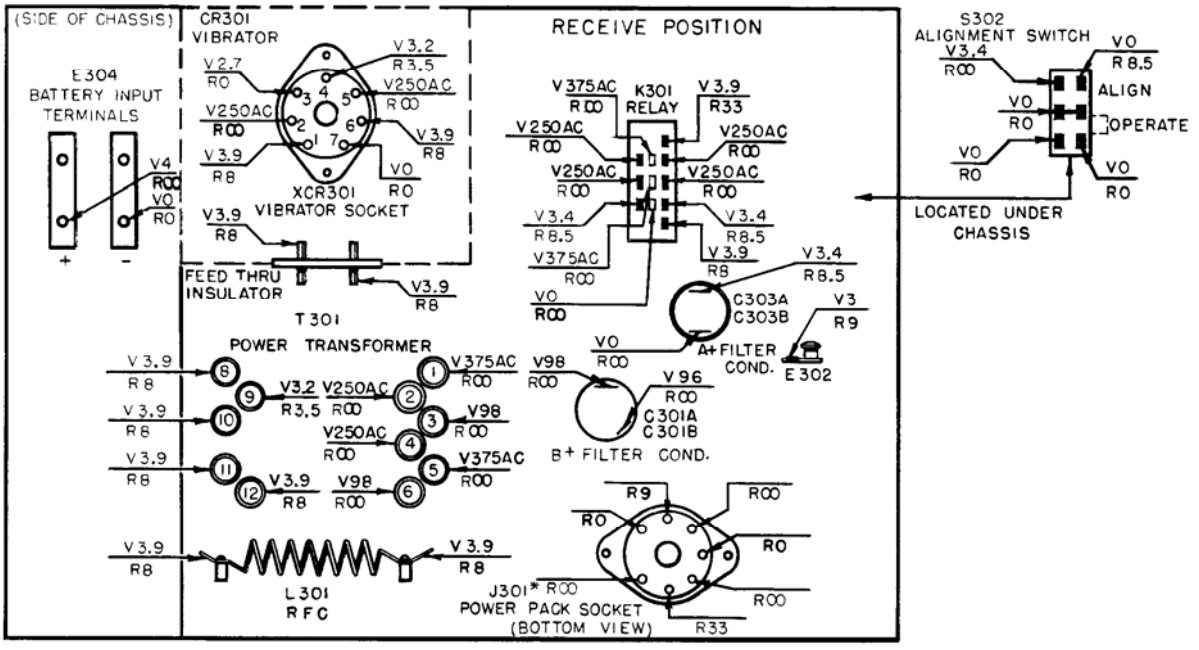


Figure 6-8. Voltage and Resistance Chart, Power Supply

chassis; that is, from contact number 5 of J301 to chassis. For RECEIVE condition, connect a 2000 ohm, 10 watt resistor from B+ to chassis; normal current is 47 milliamperes. For TRANSMIT condition, connect a 750 ohm, 20 watt resistor from B+ to chassis and ground contact number 6 of J301 to throw the transmit-receive relay. Normal current is 173 milliamperes. Other voltage checks per figure 6-8 may be made as needed; and after the battery is disconnected, resistance tests may also be made.

9. TEST OF RECEIVER AF STAGES WITH AF GENERATOR.

An outline of this type of test is given in the blocks at the lower left of table 6-6. Use an audio signal generator such as Navy Model LAJ or LO series and test in the following manner.

Step 1. Plug Test Meter CKB-60155-A into the RECEIVER GRID CURRENT receptacle; plug in the Headset-Microphone Assembly; and turn on the equipment. See figures 6-4 and 6-3.

Step 2. Set the RECEIVER METER SWITCH S101 to the blue position. Apply a 1000 cycle audio signal between the grid (pin 6) of V108 and ground. See figure 6-21. If the output stage is operating, the meter will indicate output current. A reading of 100 indicates normal full output. The output signal may be monitored with the headset for general quality.

Step 3. If the output stage is normal, move the audio signal to the grid (pin 6) of V107, and ground. Note the audio output while turning the VOLUME control R136 from its lowest position, counter-clockwise, to full volume, clockwise. Reduce the generator output, as necessary.

Step 4. If the V107 pentode amplifier is functioning, move the signal to pin 4 of V107 to check whether audio signal will go from the diode circuit through the coupling capacitor C189 to V107 grid. The amplifier output should be practically the same as that obtained in step 3.

Step 5. If audio signal fails to pass normally through any part of the audio amplifier, use all available tests to find and repair the defect; and then proceed until amplifier functions properly. Disconnect the test equipment and turn the RECEIVER METER SWITCH S101 to OFF.

10. TEST OF RECEIVER IF STAGES WITH IF GENERATOR.

An outline of this type of test is given in the blocks at the bottom center of table 6-6. When the receiver is inoperative and the audio amplifier checks normal according to subsection 9 above, the i-f stages may be checked to locate a dead stage by using the same setup as used in i-f alignment, subsection 11 below. Apply a modulated 12 megacycle signal through a coupling capacitor to the grid of the last i-f stage (pin 6 of V106 and ground) and note the audio output. See figures 6-16 and 6-21. Move the i-f signal successively to each preceeding i-f stage until the defective i-f stage (if any) is located. Use all available tests to find and correct the defect. If in the repair of an i-f stage any component that affects the tuning is replaced or disturbed, completely realign the i-f amplifier according to the procedure in the next paragraphs.

11. RECEIVER I-F ALIGNMENT.

Receiver i-f alignment should be checked at regular intervals, as determined by the officer-in-charge, or whenever any component affecting i-f tuning is replaced or disturbed.

A standard signal generator is required capable of a 12 megacycle output, 30% modulated as 1000 cps, and having a calibrated output level; such as R.F. Signal Generator Set AN/URM-25 series or Navy Model LP or LX series.

Set the equipment up the same as for channel alignment, as given in subsection 4 of this section and shown in figures 6-3 and 6-4. Observe the conditions noted under table 6-8.

Transformers Z101, Z102 and Z105 are double-tuned, the primary adjustment being on the wiring side of the chassis and the secondary adjustment on the tube side. Z103 and Z104 are single tuned from the wiring side of the chassis.

Use the special alignment tool H503, supplied with the Test Meter, for i-f adjustments. This tool is a combination hex wrench and screwdriver. The adjustments are made by loosening the locknut before turning the screw.

Note

Always loosen the locknut before turning the i-f adjustment.

Align each i-f stage following the information and sequence in table 4-1. Turn each adjusting screw until a maximum meter reading is obtained. (A reading of 30 indicates an output of six milliwatts.) Rotate through the maximum point several times to get a true peak. On the double-tuned transformers first peak the primary and then the secondary alternately several times. Be sure to lock each screw after adjustment, being careful to retain the maximum reading while the nut is tightened.

TABLE 6-8. RECEIVER I-F ALIGNMENT CHART

IF TRANSFORMER	SIGNAL GENERATOR FREQUENCY	GENERATOR VOLTAGE	POINT OF SIGNAL INPUT	REMARKS
Z105	12 mc 30% Modulated at 1000 cycles	0.022v	High side to pin 6 of V106. Low side to ground.	Insert a blocking condenser in series with generator high side lead to prevent shorting AVC.
Z104	12 mc 30% Modulated at 1000 cycles	4400 microvolts	High side to pin 6 of V105. Low side to ground.	Insert a blocking condenser in series with generator high side lead to prevent shorting AVC.
Z103	12 mc 30% Modulated at 1000 cycles	675 microvolts	High side to pin 6 of V104. Low side to ground.	Insert a blocking condenser in series with generator high side lead to prevent shorting AVC.
Z102	12 mc 30% Modulated at 1000 cycles	75 microvolts	High side to pin 6 of V103. Low side to ground.	Insert a blocking condenser in series with generator high side lead to prevent shorting AVC.
Z101	12 mc 30% Modulated at 1000 cycles	35 microvolts	High side to pin 6 of V102. Low side to ground.	DO NOT REALIGN, (TOUCH-UP), STAGES PREVIOUSLY ALIGNED WITH SIGNAL ON V103 GRID. IMPROPER ALIGNMENT WILL RESULT.

CONDITIONS: 1. Test Meter CKB-60155-A inserted into RECEIVER GRID CURRENT METER jack J101 RECEIVER METER SWITCH at blue position.
2. One Headset plugged into control panel jack J401 or J402 by Extension Cord W601.
3. VOLUME control at full-on (clockwise) position.

12. RECEIVER RF ALIGNMENT USING SIGNAL GENERATOR.

In the maintenance shop, the receiver rf stages may be aligned using a signal generator, instead of aligning with signal from the transmitter as used in the procedure of paragraph 4.b. of this section. The signal-generator method is preferred and is convenient to use when sensitivity measurements are to be made, because the same setup and equipment is involved in both.

A standard signal generator is required, covering 115 to 156 megacycles, modulated 30% at 1000 cps, with output calibrated in microvolts; such as R.F. Signal Generator Set AN/URM-26 series or Navy Model LX series.

Set up the equipment according to the regular channel alignment procedure of subsection 4 of this section and align the crystal doubler stages for the channel involved according to the regular procedure of steps 1 through 7 of paragraph 4.b.

After this turn the RECEIVER METER SWITCH S101 to the blue position, to indicate af output and continue as follows:

Step 1. Connect the signal generator output (through a 50-ohm dummy load if signal generator output is higher than 50 ohms) to the ANT receptacle on the Receiver-Transmitter control panel.

Step 2. Set the signal generator to the correct frequency for the channel to be aligned. This will be 16 times the corresponding crystal (Y101 to Y110) frequency plus 12 megacycles.

Step 3. Turn the VOLUME control to maximum, fully clockwise.

Step 4. Starting with a high signal generator output, align the rf grid, rf plate, mixer grid and fourth doubler "in contact" tuning capacitors for maximum output, reducing the generator output, as necessary, to keep the Test Meter reading below a reading of 50. The capacitors to be adjusted are indicated in operations F, G, H, and I of table 6-5 and are shown in figure 6-5. It is desirable to keep the signal level low to counteract the effects of the AVC. Go over the adjustments in succession several times until no further improvement can be made as each one is peaked.

Step 5. Check the sensitivity of the receiver on the aligned channel according to the instructions in the next subsection and then repeat the whole process from beginning to end for each channel to be aligned.

13. RECEIVER SENSITIVITY MEASUREMENT.

A sensitivity measurement is a definite check of receiver condition which may be made at regular intervals in the maintenance shop. It is advisable to make the measurement whenever the receiver is aligned using a signal generator or whenever the equipment is given a complete servicing.

The setup for sensitivity measurement is the same as that for receiver alignment with a signal generator, given in subsection 12 above, except that an audio frequency voltmeter is used for output indications instead of the Test Meter. Proceed as follows:

Step 1. With the Headset-Microphone Assembly AN/URA-2 connected to the Receiver-Transmitter, connect an af voltmeter (such as ME-25/U) across the output terminals by connecting to a standard two-circuit phone plug and inserting the plug in the second jack on the control panel. The jacks of J401 and J402 are in parallel as shown in figure 6-23.

Step 2. Turn RECEIVER METER SWITCH S101 to OFF. (The Test Meter need not be connected.)

Step 3. Adjust the signal generator for 30% modulation at 1000 cps.

Step 4. With the signal generator connected (through a 50 ohm dummy load if signal generator output is higher than 50 ohms) to the ANT receptacle and with the receiver VOLUME at maximum (clockwise), adjust the generator output to produce a receiver output of six milliwatts (which is the standard output level for sensitivity measurements). This is 1.9 volts across the 600-ohm headset output load. The generator output must not be higher than 10 microvolts. See the sensitivity curve of figure 6-13 for the relative sensitivity to be expected at the different frequencies in the range of the MAW-1. This measurement is the sensitivity of signal-plus-noise.

Step 5. Turn the generator modulation to off. The af output must drop at least 10 db; that is, to 0.6 volt or less. This is a check of the signal-to-noise ratio.

If the sensitivity or signal-to-noise ratio are not satisfactory in steps 4 and 5 above, the Receiver-Transmitter must be serviced to restore it to normal operating condition. Weak tubes, misalignment, incorrect voltages in amplifier stages, and defective tuning elements are among the more common causes of low sensitivity or high noise ratio.

14. TRANSMITTER NEUTRALIZATION.

Neutralization of the double-triode, push-pull final output stage is necessary to prevent self oscillation of the stage and to produce maximum efficiency. The circuits should be reneutralized whenever the equipment is completely serviced in a maintenance shop.

The two neutralizing capacitors are to be adjusted to counteract, or neutralize, the grid-to-plate capacitance of the tube so that there is a minimum of coupling and minimum interaction between the grid tank and plate tank of the final stage V206. See figure 6-22. Check as follows and readjust if necessary.

Step 1. With the equipment set-up and connected as for transmitter alignment, turn to the highest frequency channel and make certain that it is properly aligned.

Step 2. With power off, disconnect the pin plug P201 from its pin jack (J203) to remove plate power from the final stage; and turn the unit back on.

Step 3. Turn the TRANSMITTER METER SWITCH to orange.

Step 4. Turn the "in contact" plate tank capacitor (C250 through C259) on S202G (uncolored), through a complete 360° turn, watching for a dip in the meter reading. If there is no dip, the neutralization is correct.

Step 5. If there is a dip in the meter reading in step 4, tune to the greatest dip; and then adjust the neutralizing capacitors C248 and C249 for maximum reading. See figure 6-16. Repeat step 4 and this step until no dip can be found in step 4.

Step 6. If the stage was badly out of neutralization, realign the final stage grid tank and plate tank according to the regular procedure, and then repeat the neutralization steps to obtain the optimum adjustment of the circuits.

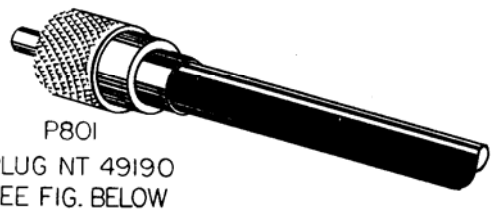
Step 7. After completing neutralization, realign the plate tank.

15. TRANSMITTER ANTENNA COUPLING ADJUSTMENT.

Antenna coupling transformer T204 provides coupling between the final output stage and antenna. The secondary is adjustable in coupling (spacing), being held in place by a polystyrene bracket. See figure 6-16. However, over the entire frequency range of the equipment, the coupling is not critical. Therefore, the only consideration is to keep the primary and secondary approximately ⅛ inch apart to prevent shorting and overcoupling. Overcoupling increases plate current and creates a waste of power.

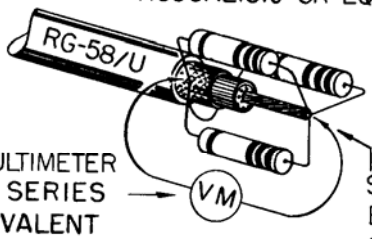
16. TRANSMITTER POWER OUTPUT CHECK.

A dummy antenna with a 50-ohm non-inductive resistive load bridged by a probe-type rf electronic multimeter, such as Multimeter ME-25/U series or Navy Model OBQ series, can be used to check the output of the transmitter. Construct a dummy load as shown in figure 6-9 and attach a plug to the other end



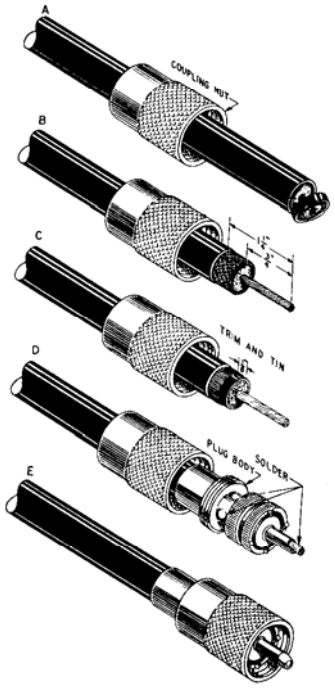
P801
PLUG NT 49190
SEE FIG. BELOW
FOR INSTALLATION

3-150 OHM 1 WATT
COMPOSITION NON-INDUCTIVE
RESISTORS SUCH AS JAN TYPE
RC30AE151J OR EQUIVALENT.



ELECTRONIC MULTIMETER
ME-25/U SERIES
OR EQUIVALENT

STRIP WIRE AS SHOWN
BELOW. KEEP LEADS AS
SHORT AS POSSIBLE.
SOLDER ALL CONNECTIONS.



(A) Square off the end of the cable. Slide the coupling nut over the cable.

(B) Cut the outer jacket of the cable 1¼" from the end. Be careful not to nick the copper braid underneath. Cut the copper braid and inner insulation ¾" from the end.

(C) Fan out, trim, and tin the copper braid.

(D) Screw the plug body over the outer jacket until 1/16" of the inner conductor is exposed. Be careful not to push back the copper braid. Solder the plug body to the copper braid through 4 holes provided. Solder the inner conductor to the contact sleeve. Remove any excess solder and cut off the inner conductor where it projects past the contact sleeve.

(E) Slide and screw the coupling nut forward until it is free from the internal thread.

Figure 6-9. Dummy Antenna for Transmitter

of the coax cable according to the instructions. Connect to the transmitter output and record the voltage across the resistive load. The voltage should not read less than 0.39 volts giving a power output of 300 milliwatts ($P = E^2/R$). If the voltage is less than the specified minimum value, check the transmitter thoroughly for weakness.

17. DISTORTION.

Distortion which appears in the receiver or transmitter output may be caused by various troubles; low battery voltage, low B+, weak tubes, improper biasing, etc. If both the receiver and transmitter show distortion, the trouble will probably be either in the power supply or antenna circuits. Where distortion occurs only in the receiver or transmitter, that particular unit should be checked.

a. RECEIVER DISTORTION. – To eliminate receiver distortion, check tubes by substitution. Perform the steps indicated in paragraph 9 and 10 of this section. Listening to the audio signal in the headset will show the stage where distortion is occurring.

b. TRANSMITTER DISTORTION.— The modulator section of the transmitter is easily checked for distortion by listening to the side tone through the headset. If it is clear, the distortion is in the rf section or modulation transformer. Checking the rf grid currents and final amplifier current will show any defective stage.

18. NOISE INTERFERENCE.

RF noise interference in the receiver may be externally or internally caused. To determine which it is, disconnect the antenna. If the interference is external the noise will disappear. The solution to external noise is to change the receiving antenna location, stop the interference at its source, or increase the field strength of the received signal. When the interference continues after the antenna has been disconnected, it is internally generated. Check the buffer condenser C304, the vibrator CR301, filters L303 and C305, and the power supply shielding.

19. RADIO RECEIVER-TRANSMITTER CKB-43069-A DISASSEMBLY.

Radio Receiver-Transmitter CKB-43069-A is easily disassembled permitting the receiver, transmitter, power supply and control panel to be removed for individual replacement or servicing. See figure 1-2. Service extension cable (W806) is used to connect to the power supply when the receiver or transmitter chassis are removed. Remove the complete assembly from the carrying case as per instruction of paragraph 1.b.(2) of section 5.

a. RECEIVER CHASSIS REMOVAL.—Before starting the removal of the receiver chassis from the complete Receiver-Transmitter chassis, turn the CHANNEL SELECTOR knob to channel 3. Note the position of the moving contact on the crystal side of the crystal wafer switch S102A. Refer to the S102A wiring diagram on the apron of figure 6-24 for the actual position of the channel 3 contacts. Use the following procedure for removing the receiver chassis: See figures 6-15 and 6-16.

Step 1. Disconnect cable plug P403 from receptacle J102 and antenna plug P101 from receptacle J205.

Step 2. Remove #6 Allen wrench (H130) from Fahnestock clip (H117). Loosen the set screws in the coupling sleeve (O302) on the back of the volume control (R136). Slide the coupling back and disengage shaft.

Step 3. Loosen the set screws in the couplings (O422) on the shaft (O412) and disengage shaft.

Step 4. Loosen the set screws in the coupling sleeve (O207) on the channel selector shaft between the two units and in the coupling (O102) next to the control panel. Slide the couplings back from the joint.

Step 5. Remove the two screws on each side of the "U" frame assembly holding the receiver chassis. Work the receiver chassis out through the top (tube side) of the assembly.

b. TRANSMITTER CHASSIS REMOVAL.—Before starting removal of the transmitter chassis from the complete Receiver-Transmitter chassis, turn the CHANNEL SELECTOR knob to channel 3. Note the position of the moving contact on the crystal side of the crystal wafer switch S202A. Refer to the S202A wiring diagram on the apron of figure 6-25 for the actual position of the channel 3 contacts. Use the following procedure for removing the transmitter chassis: See figures 6-15 and 6-16.

Step 1. Disconnect receiver antenna plug P101 from the transmitter connector J205. Also disconnect the plug P404 on the cable leading to the control panel which plugs into the transmitter.

Step 2. Using #6 Allen wrench H130, loosen set screws holding coupling (O207) on the main drive shaft located where the shaft passes through the formed clearance hole between receiver and transmitter. Slide coupling free of joint in shaft.

Step 3. Using the same Allen wrench, loosen set screw in couplings (O302) and (O304) at rear of volume control and at switch S301 in power supply. Slide couplings free of joints in shaft and remove shaft and couplings.

Step 4. Remove two screws from the "U" frame at each end of transmitter. Rotate main drive shaft until slot is perpendicular to chassis, and slide transmitter chassis away from antenna storage tube and out of "U" frame.

c. POWER SUPPLY CHASSIS REMOVAL. — To remove or replace the power supply chassis, use the following steps. See figure 6-15 and 6-16.

Step 1. Remove cable plug P401 from connector J301.

Step 2. Using #6 Allen wrench H130, held by Fahnestock clip (H117) to receiver band switch assembly, loosen set screw in coupling (O304) adjacent to power supply switch, S301. Slide coupling free of joint in shaft and tighten set screw to retain coupling on shaft.

Step 3. Remove the three screws holding the power supply to the "U"-frame extension and the two screws from the back of the "U"-frame; and then remove the power supply chassis.

d. CONTROL PANEL REMOVAL. (See figures 6-15 and 6-20).—Control panel removal is necessary if any component or the whole assembly is to be replaced. Use the following procedure for removal: See figures 6-15 and 6-16.

Step 1. Disconnect cable connectors P401, P403 and P404 respectively from power supply, transmitter, and receiver. Disconnect antenna plug P402 from transmitter.

Step 2. Rotate tuning drive shaft until set screw in coupling (O102) next to control panel is accessible. Using hex wrench (H130), loosen set screw and slide coupling free of joint in shaft.

Step 3. Turn the CHANNEL SELECTOR knob to channel 3. With hex wrench, loosen set screw in coupling (O422) on volume control shaft to control panel. Slide coupling free of joint in shaft.

Step 4. Detach the control panel from the "U" frame by removing the six binder head machine screws (three at each side) holding control panel to "U" frame. Note that reinforcing strips (A407) are then removable.

Step 5. Remove screw holding antenna storage case to "U" channel extension frame at power supply, and pull control panel away from "U" frame so that antenna storage case slides out of "U" frame with control panel.

20. RADIO RECEIVER-TRANSMITTER CKB-43069-A REASSEMBLY.

All units of the Radio Receiver-Transmitter CKB-43069-A are reassembled in the reverse order of disassembly. Use care to insure getting the CHANNEL SELECTOR positioned to the correct channel. Refer to subsection 19 for disassembly procedure.

21. TURRET TUNER SERVICING.

(See figures 6-10.)

The turret tuners of MAW-1 are designed so that the complete turret or any part thereof can be replaced. Since both tuners are essentially the same, the following discussion will be for both. See paragraph 1.b.(2) of section 5 and subsection 19 of this section for initial disassembly.

a. CLEANING.—Periodically the turret tuner contacts should be inspected and cleaned. Blow or brush out all loose dirt or foreign matter. Use a small soft brush and a good contact cleaner, such as carbon tetrachloride (Federal spec. O-C-141) or equivalent. Brush cleaner on all contacts liberally until they are as clean as possible. Permit the tuner to dry thoroughly before operating.

b. TURRET-TUNER PARTS REPLACEMENT.—Individual parts on each wafer section are replaceable without removing the turret assembly from the chassis. To replace capacitors, carefully unsolder each side from the mounting posts and lift the capacitor out. Insert the new part in the same position and solder in place. Realignment of that stage is necessary. To replace the coils, first grasp the tuning-slug screw head and pull upward out of the coil. Next unsolder the two sides of the coil from the mounting posts. Solder the new coil, minus the slug, into place. Line the slug keyway up with the coil key and push into place. A "snap" is heard when the slug is locked in place.

Note

Check all tuning slugs and make sure they are snapped into place. If a slug comes out it may cause considerable damage to the tuner.

c. TURRET TUNER REMOVAL FROM CHASSIS. (See figures 6-17 and 6-18.)—It is necessary to remove the receiver or transmitter chassis as per paragraphs 19.a. and b. of this section before the turret tuners can be removed. All leads that connect the tuner to the chassis circuits must be unsoldered. A good procedure to follow is to make a wiring diagram of the connections where these wires are soldered. For the actual wiring diagrams, see figures 6-24 and 6-25. After the tuner has been disconnected electrically, remove the two countersunk flat-head screws from the end of the chassis that the tuner is connected to. On the gear end of the tuner and on the wiring side of the chassis are two screws which bolt the tuner brackets to the chassis. Remove these screws and pull the tuner away from the chassis.

d. TURRET TUNER WAFER SWITCH REPLACEMENT.—To replace a wafer switch, the turret tuner must be completely disconnected from the chassis per paragraph c above. Remove the three screws on each end of the tuner holding the three aluminum spacing rods (O107 or O205) and removable plate (O106). (See figure 6-10.) All wafer sections must be removed at the end away from the detent. Use care in pulling the wafer from the switch shaft. To place new wafer on switch, place on the shaft so that the tunable ele-

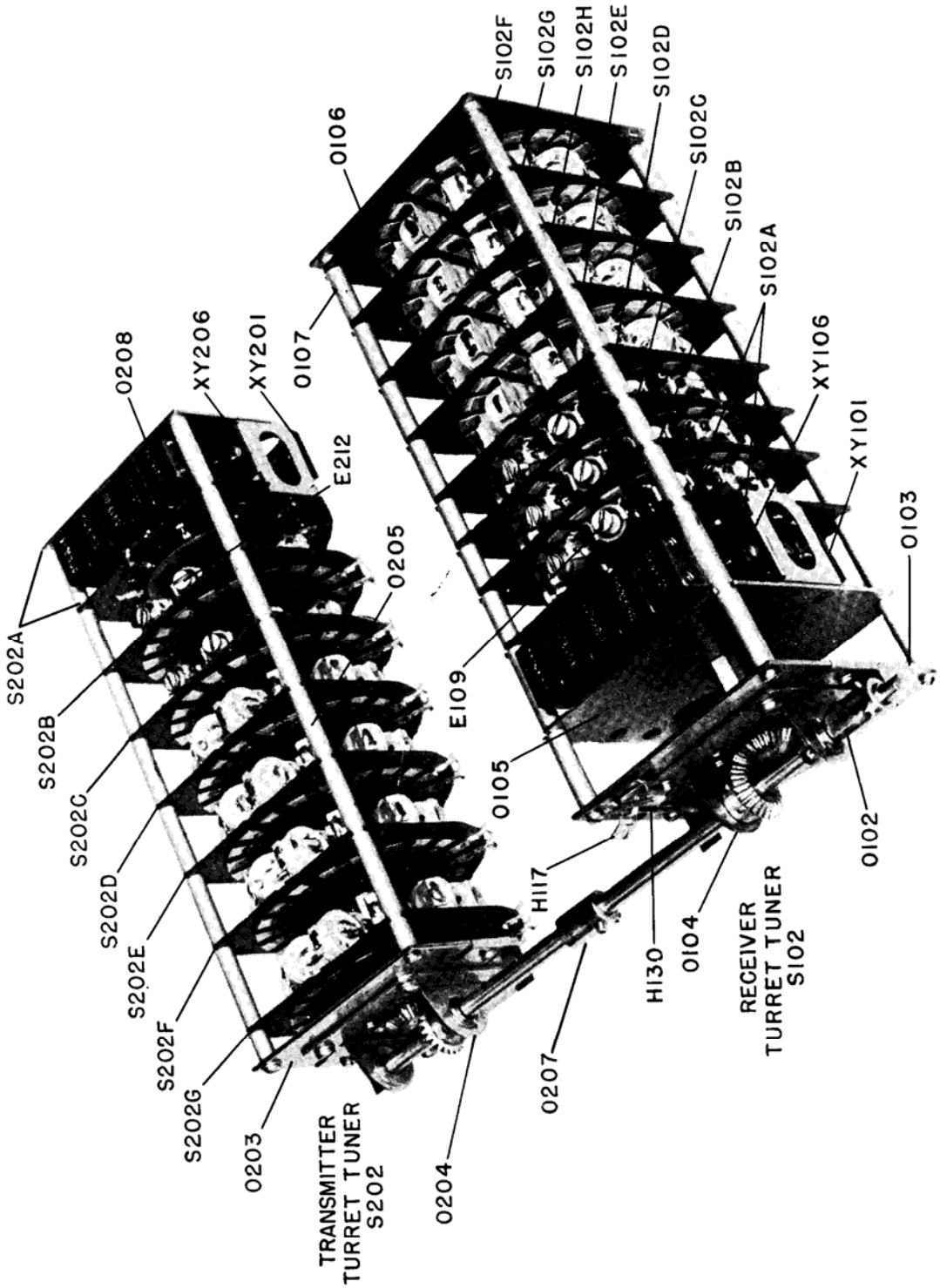


Figure 6-10. Receiver and Transmitter Turret Tuners

ment lines up with the tuning elements on the other wafers. Reassemble the switch in the reverse order of disassembly. Realignment is necessary after replacing any part.

e. CRYSTAL SWITCH AND HOLDER REPLACEMENT.—Crystal switch and holder (S102A or S202A) may be replaced as a unit if the tuner is removed from the chassis, in the same manner as the wafer switch replacement discussed above. On the transmitter it is the first switch section removed. (See figure 6-10.) However, on the receiver it is the last section removed and entails quite a lot of work. If only the crystal holder socket (XY101 or XY106) is broken on the receiver, it is easier to replace just the socket and the associated wiring. This can be done without removing the turret tuner from the receiver chassis or the receiver chassis from the complete assembly. Remove the three screws on the detent end of the tuner, from the spacer rods (0107). Remove the two screws holding each crystal socket to the metal plate. Spread the spacer rods apart enough to allow the plate to slide forward. Enough room is available to change crystal sockets. Make a wiring diagram to facilitate hookup. Refer to the receiver wiring diagram apron, figure 6-24.

f. TUNER DETENT REPLACEMENT.—The detent (0103 or 0203) consists of the switch shaft, detent spring, balls, front plate, and gear. All of these parts are replaced as one unit except for the balls which may be replaced separately. Remove the turret assembly from the chassis as indicated in paragraph 21.*c.* of this section. Remove the three screws holding the front plate to the spacer rods (0107 or 0205). See figure 6-10. Pull the shaft from the wafer switches. Use extreme care in removing the shaft from the wafers. Exchange the turret tuner drive assembly (0104) or (0204). Be sure that the slot on the drive shaft is perpendicular to the chassis. (See paragraph *g* below.) Reassemble the turret tuner in the reverse order of disassembly.

g. TURRET TUNER DRIVE ASSEMBLY REPLACEMENT.—The drive assemblies, 0104 and 0204, consists of shaft, gear, bushing and mounting bracket. Remove the turret assembly from the chassis as indicated in paragraph 21.*c.* of this section.

Removing the drive assembly from the turret unmeshes the drive gears, and the exact position of the flatted end of the drive shaft must be carefully noted before removing the assembly so that the replacement can be set in the same position. This is necessary to keep the correct alignment of the two turret tuners and the CHANNEL SELECTOR knob.

Detach the drive assembly from the detent front plate (0103 or 0203) by removing the four screws. Fasten the new drive assembly in place, making sure that the flatted end of the drive shaft is in the correct position. Tighten the set screws in the gears. The turret tuner should still be in the channel 3 position. Replace the turret tuner into the chassis as indicated in paragraph *h.* below.

h. TURRET TUNER REASSEMBLY INTO CHASSIS.—Each turret tuner is reassembled into its chassis by reversing the steps used in its removal. Return the turret tuner to the same channel it was on, channel 3, before replacing in the chassis.

22. PACKING GLAND SERVICING.

Packing gland servicing is necessary whenever the packing material has worn or deteriorated to where tightening the gland will not make it watertight. The gland is normally watertight when the packing material will grip the shaft enough to be noticeable when the shaft is turned.

If the preventive maintenance adjustment of either packing gland according to table 5-1 proves unsatisfactory, proceed as follows: See figure 6-11.

Step 1. Remove packing nut 0401 and bushing 0402, cleaning out all packing material.

Step 2. Remove washer and inspect the gasket H425. If the gasket has hardened, cracked or otherwise deteriorated, replace.

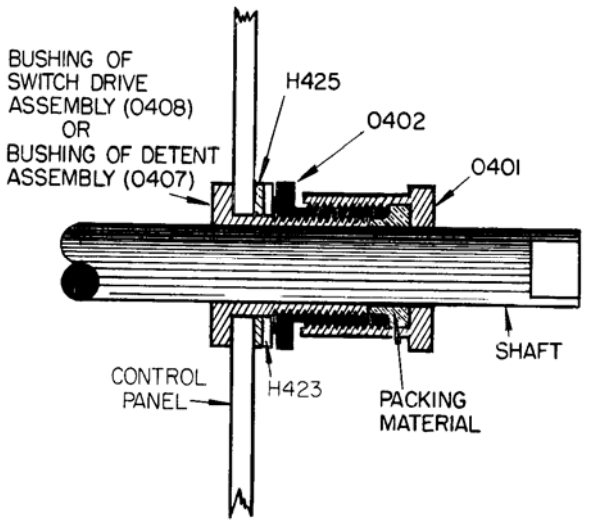


Figure 6-11. Cross Section of Packing Gland Assembly

Step 3. Reinstall bushing 0402, tightening it securely.

Step 4. Wrap four or five turns of 1/16" diameter graphite-impregnated packing string around the shaft clockwise just above 0402.

Step 5. Slip the packing nut 0401 over the string and screw it onto 0402. Alternately turn the shaft and tighten the nut repeatedly, until the packing material is well seated. Tighten to where the packing nearly freezes the shaft, and then after several turns of the shaft, release the nut so the packing causes a slight drag.

23. KEY "BOOT" REPLACEMENT.

Boot 0425 is a rubber diaphragm, mounted in a metal ferrule, which serves as a waterproof cover over the KEY switch. Any time the rubber becomes cracked or pierced it should be replaced in the following manner.

Step 1. Remove the unit from the carrying case as indicated in paragraph 1.*b.*(2) of section 5.

Step 2. Disassemble the control panel from the "U" frame as per paragraph 19.*d.* of section 6.

Step 3. Unscrew the two bolts holding the switch S401 to its bracket H439. See figure 6-20. This will reveal the boot assembly flange which is swaged over the edges of the switch bracket, as indicated in the cross-sectional view, figure 6-12.

Step 4. Remove the pushbutton 0426 from the under side of the boot.

Step 5. Straighten the swaged edges of the boot ferrule and remove through the front side of the control panel.

Step 6. Inspect the rubber washer, H440, between the switch bracket and control panel. If it is marred or deteriorated, replace it.

Step 7. Place the new boot assembly (0425), the rubber washer (H440), and switch bracket (H439) in position as shown in figure 6-12. Be sure that all mating surfaces are free from dirt or foreign matter.

Step 8. Back the control panel side of the boot assembly with a flat surface, (wood block or similar material). Swage the edges of the boot ferrule over the switch bracket until a tight fit is obtained between the rubber washer and the control panel. This must be tight enough to be waterproof. Use a proper tool and exercise extreme caution to prevent damaging the new rubber boot.

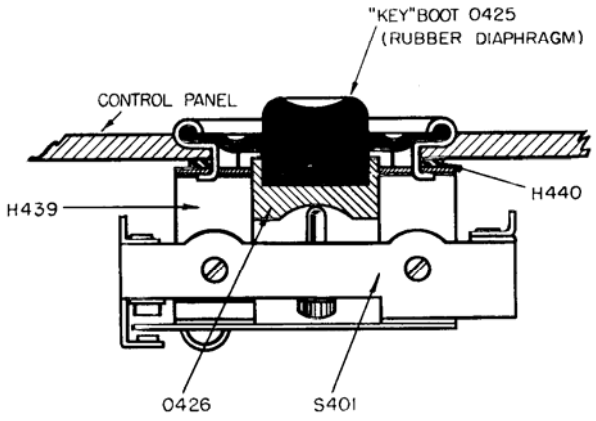


Figure 6-12. Cross Section of KEY "Boot" Assembly

Step 9. Reassemble, following steps 1, 2, 3, and 4 in the reverse order.

24. UNPAINTED PARTS.

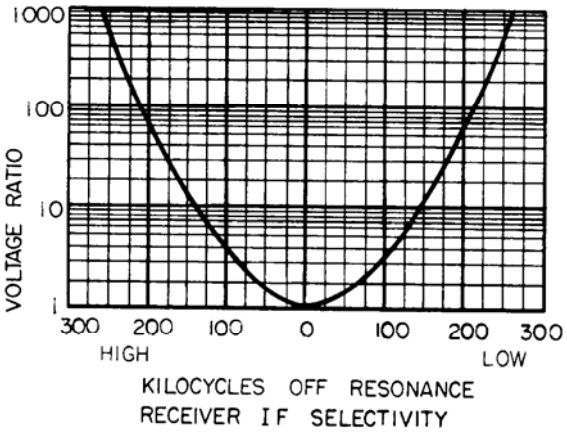
In case any external parts require painting, clean and prime the surface with zinc chromate primer as per Navy spec MIL-P-6889A Type 1, or equivalent. Paint with Marine Corps Green, dull sheen, enamel as per Navy spec 52E12 (Ships).

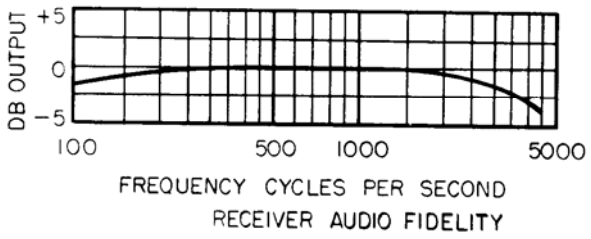
25. PERFORMANCE CURVES.

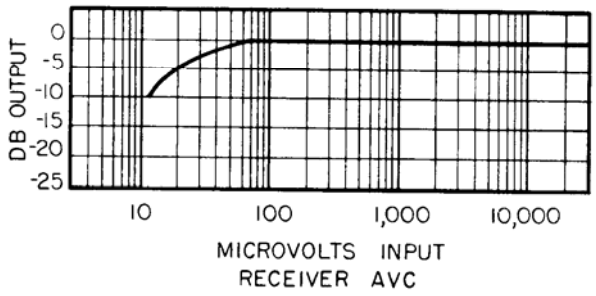
The performance curves shown in figure 6-13 are for use by experienced technical personnel and will be useful only if laboratory equipment is available. Information from these actual curves gives a complete check on the equipment characteristics.

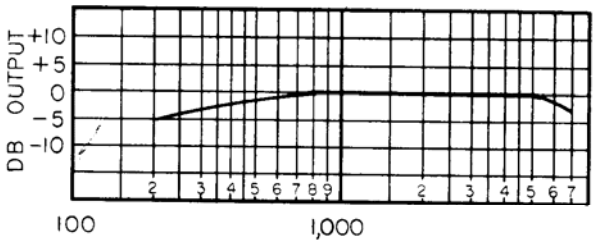
26. COMPONENT CHARACTERISTICS.

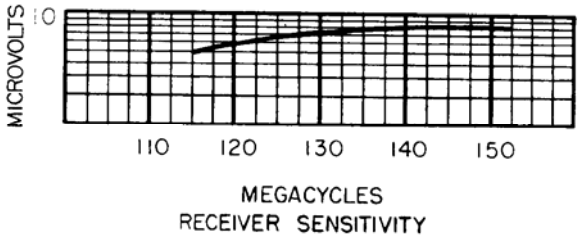
a. ELECTRON TUBES.—For operating characteristics and complete technical data see tables 6-9 and 6-10.











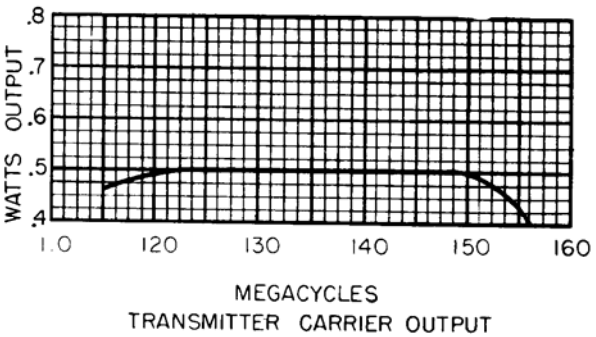


Figure 6-13. MAW-1 Performance Curves

Note

ALL TUBES OF A GIVEN TYPE SUPPLIED WITH THE EQUIPMENT SHALL BE CONSUMED PRIOR TO EMPLOYMENT OF TUBES FROM GENERAL STOCK.

b. CRYSTAL DATA.—The frequency range of the receiver crystal circuit is 6437.50 to 9000 kc. The frequency output after 4 doubler stages is 103 to 144 megacycles. See table 2-1.

The frequency of the transmitter crystal circuit is 7187.50 to 9750 kc. The final output frequency after four doubler stages is 115 to 156 megacycles. See table 2-2.

For the receiver and transmitter crystal circuit schematic refer to figures 6-21 and 6-22.

Crystal type CR-5/U and CR-18/U may be intermixed in Receiver-Transmitter CKB-43069-A. Crystal CR-5/U frequency tolerance is ± 0.02% from —55°C. (—67°F.) through +90°C. (194°F.); CR-18/U is ± 0.005% from —55°C. (—67°F.) through (194°F.). Both types are pressure mounted. For the individual specifications on each crystal holder, refer to figure 6-14.

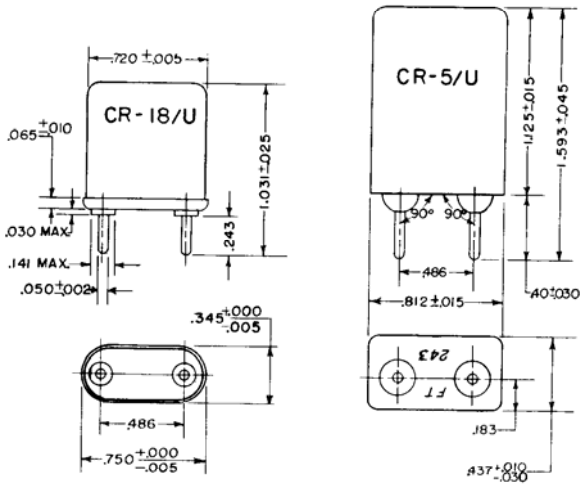


Figure 6-14. CR-5/U and CR-18/U Crystal Holders

TABLE 6-9. TUBE OPERATING VOLTAGES AND CURRENTS

TUBE TYPE AND SYMBOL NUMBER		FUNCTION	PLATE (E)	PLATE (MA)	SCREEN (E)	SCREEN (MA)	SUPP (E)	CATH (E)	GRID (E)	HEATER (E) DC
3A4	V101	RF Amplifier	90	5.1	30	0.73	1.5	....	0	2.9
1L4	V102	Mixer	94	0.28	15	0.072	0	....	—0.2	1.2
1L4	V103	1st IF	85	2.3	50	0.68	0	....	0	1.4
1L4	V104	2nd IF	96	2.4	65	0.82	0	....	0	1.4
1L4	V105	3rd IF	96	1.4	50	0.52	0	....	0	1.4
1L4	V106	4th IF	82	2.6	60	1.0	0	....	0	1.4
1U4	V107	Detector	13 Diode 14	0.068	0	0.019	0	....	0	1.5
1L4	V108	Output	92	3.2	92	....	1.5	....	0	1.4
3A5	V109	4th doubler 3rd doubler	80 96	2.9 1.4	... ...	....	... ...	....	—2 —7	2.9
3A4	V110	2nd Doubler	95	6.1	96	9.6	1.5	....	—3.5	2.9
3A4	V111	1st doubler	95	5.1	77	1.7	1.5	....	—6.3	2.9
3A4	V112	Oscillator	—10	....	96	3.2	1.5	....	—2.0	2.9
3A4	V201	Oscillator	—13.5	....	85	4.8	1.4	....	—0.75	2.8
3A4	V202	1st doubler	125	4	85	1.0	1.4	....	—6	2.8
3A4	V203	2nd doubler	125	6	45	2.3	1.4	....	—3.4	2.8
3A4	V204	3rd doubler	130	13	107	2.6	1.4	....	—5.2	2.8
3A5	V205	4th doubler and driver	110	24.5	...	....	1.4	....	—3.8	1.5

TABLE 6-9. TUBE OPERATING VOLTAGES AND CURRENTS (Cont'd)

TUBE TYPE AND SYMBOL NUMBER	FUNCTION	PLATE (E)	PLATE (MA)	SCREEN (E)	SCREEN (MA)	SUPP (E)	CATH (E)	GRID (E)	HEATER (E) DC
3A5 V206 Both sections operating in parallel	Final Amplifier	125	7.5	...	....	....	....	−6	1.3
3A4 V207	Modulator	127	12	105	2.8	1.5	....	−6.2	2.8
3A4 V208	Modulator	127	12	105	2.8	1.5	....	−6.2	2.8
3A4 V209	Modulator	127	12	105	2.8	1.5	....	−6.2	2.8
1L4 V210	Microphone Amplifier	43	0.79	50	0.32	0	....	0	1.1
1L4 V211	MCW Oscillator	105	0.51	...	....	0	....	−2.7	1.1

TABLE 6-10. RATED TUBE CHARACTERISTICS

TUBE TYPE	FILAMENT VOLTAGE (V)	FILAMENT CURRENT (A)	PLATE VOLTAGE (V)	GRID BIAS (V)	SCREEN VOLTAGE (V)	PLATE CURRENT (MA)	SCREEN CURRENT (MA)	A-C PLATE RESISTANCE (OHMS)	VOLTAGE AMPLIFICATION FACTOR (MU)	TRANSCONDUCTANCE (MICROMHOS)	
										NORMAL	MINIMUM
1L4	1.4	0.05	90	0	90	4.5	2.0	350,000	360	1025	760
1U5	1.4	0.04	90	0	90	1.6	0.4	600,000	54	900	720
3A4	2.8	0.1	150	−8.4	90	14.1	3.5	100,000	190	1900	1670
3A5	2.8	0.11	135	−1.5	..	15[1]	...	5750	15	2600	2080

[1]Values are for each unit

TABLE 6-11. WINDING DATA

DESIGNATION SYMBOL	HOFFMAN PART NO.	DIAGRAM	WINDING	WIRE SIZE	TURNS	DC RESISTANCE IN OHMS	IMPEDANCE RATIO	HIPOT AC VOLTS	REMARKS
L101	LR-30		Single	#14 AWG Copper Tinned	2⅛	....	..	....	Approximately 0.15 uh at 43 mc. Coil excluding terminals, 0.531" diam, by ½" lg. Taped at ½ turn when mounted in equipment.
L102	LR-31		Single	#22 AWG Copper Plain Enamel	7½	....	..	....	Approximately 0.22 mh at 43 mc. Wound on molded phenolic form. Iron-copper tuning core.
L112	LR-33		Single	#30 AWG Copper Plain Enamel	15½	....	..	....	Approximately 1.73 mh at 22.1 mc. Wound on molded phenolic form. Iron-copper tuning core.
L122	LR-34		Single	#33 AWG Copper Plain Enamel	29½	....	..	....	Approximately 5.72 mh at 12.15 mc. Wound on molded phenolic form. Iron-copper tuning core.

TABLE 6-11. WINDING DATA (Cont'd)

DESIGNATION SYMBOL	HOFFMAN PART NO.	DIAGRAM	WINDING	WIRE SIZE	TURNS	DC RESISTANCE IN OHMS	IMPEDANCE RATIO	HIPOT AC VOLTS	REMARKS
L132	LR-40		4 pi	#38 AWG Silk Enamel	70 per pi 280 total	14.5	..	....	250 uh at 1.53 mc. Wound on stackpole form DR-1 Resistor. Impregnate with INSUL-X #E-67 and dip in fungus lacquer per spec JAN-C-173.
L201	LR-35		Single	#32 AWG Copper Plain Enamel	29½	....	..	....	Approximately 5.35 mh at 12.55 mc. Wound on molded phenolic form. Iron-copper tuning core.
L211	LR-36		Single	#30 AWG Copper Plain Enamel	14½	....	..	....	Approximately 1.73 mh at 22.1 mc. Wound on molded phenolic form. Iron-copper tuning core.
L221	LA-13		Single	#14 AWG Tinned Copper	4	....	..	....	Approximately 0.2 uh at 34.8 mc. Wound on polystyrene form. Coil is ¾" lg, by ½" diam.
L228	LR-41		Single	#30 AWG Copper Plain Enamel	25	....	..	....	Approximately 1.3 uh at 17.5 mc. Wound on stackpole form type DR-1 Resistor. Impregnate with INSUL-X #85.
L301	LR-42		Single	#12 AWG Copper Plain Enamel	9	....	..	....	Approximately 0.3 uh at 29.3 mc. 1½" lg by 0.312" diam.
L302	LF-21		Single	#31 AWG Plain Enamel	1235	35	..	2000	400 mh at 1000 cycles. Impregnate in BI-WAX 796.
L303	LR-43		Single	#30 AWG Plain Enamel	45	....	..	....	Approximately 4.7 uh at 10.5 mc. Wound on stackpole form DR-1 Resistor. Impregnate with INSUL-X #85.
L304	LF-22		Single	#30 AWG Plain Enamel	45	....	..	....	10 mh at 1000 cycles. Vacuum impregnate. Wrapped with Kraft paper. Core 5/16 Allegheny EI-21 #29 gauge 0.010 air gap.
L305	LR-44		Single	#16 Plain Enamel	36 Bedspring Type	0.020	..	2000 to Chassis	Approximately 6 uh at 11 mc. Impregnate with Varnish-Q-Max #43.

TABLE 6-11. WINDING DATA (Cont'd)

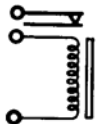
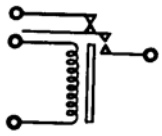
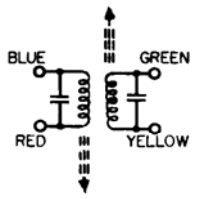
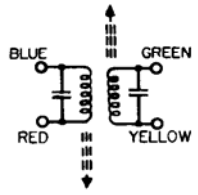
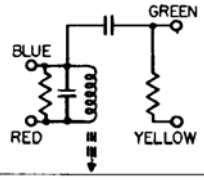
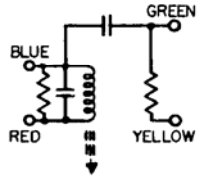
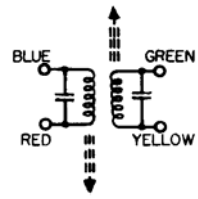
DESIG-NATION SYMBOL	HOFF-MAN PART NO.	DIAGRAM	WINDING	WIRE SIZE	TURNS	DC RESISTANCE IN OHMS	IMPEDANCE RATIO	HIPOT AC VOLTS	REMARKS
K201	KR-19		Single Layer	#32 AWG PE	1500	30	..	....	Palladium contacts. Pull in voltage 2.25v. Treated with moisture and fungus lacquer per spec JAN-C-173.
K301	KR-20		Single Layer	#29 AWG	1750	25	..	....	Palladium contacts. Pull in voltage 2.25v. Treated with moisture and fungus lacquer per spec JAN-C-173.
T101	TA-46		Primary Term 1 & 2 Secondary Term 3 & 4	#41 AWG Plain Enamel	3250 515	800 100	7 to 1	500	Hermetically sealed case. Start terms 1 & 3, finish 2 & 4. Vacuum impregnate in Bi-Wax 796 or equivalent.
T102	TA-52		3 single layer	#14 Tinned Copper	2 2 1¼	....	.. .. ..	....	Approximately 0.16 uh at 40.1 mc, 0.15 uh at 40.9 mc, and 0.11 uh at 48 mc. Wound on polystyrene form 1½" lg. by ⅜" diam.
T201	TA-47		Single Winding	#34 AWG Plain Enamel	2010 tapped at 875	1 to 4 50 2 to 4 80	..	2000	Hermetically sealed case. Inductance at 1000 cycles between 1 & 4 is 14 mh, between 2 & 2, 21 mh. Terminal 4 is positive with respect to 1 & 2. Vacuum impregnate in Bi-Wax 796 or equivalent.
T202	TA-48		Single Winding	#41 AWG Plain Enamel	5000 tap at 2500	1 to 2 475 2 to 3 635	..	500	Hermetically sealed case. Inductance at 1000 cycles between 1 & 2, 2 & 3 is 10.5 h. #29 ga Allegheny #4750 metal. Bake and impregnate with Bi-Wax 796 or equivalent.
T203	TA-51		2 single layers	#12 AWG Tinned Copper	Primary 2 Secondary 3	....	.. ..	....	Primary approximately 0.1 uh at 49.2 mc, Secondary 0.13 uh at 44 mc. Wound on polystyrene form 1" lg by 7/16" diam.
T204	TA-50		2 single windings	#8 AWG Tinned Copper	Primary 1¾ Secondary 1	....	.. ..	....	Primary approximately 0.15 uh at 42 mc. Secondary 0.1 uh at 50.15 mc. Pri winding ⅞" diam. by 5/16" width. Secondary ⅞" diam.
T301	TP-26		Primary Term 8-11 Top Term 10 Secondary Terms 1, 2, 3, 4 & 5	#12 AWG #30 AWG Plain Enamel	40 tap at 20 2350 tap at 635, 1175, 1715	....	..	....	Hermetically sealed case. Start term 1 & 11, finish term 5 & 8.

TABLE 6-11. WINDING DATA (Cont'd)

DESIGNATION SYMBOL	HOFFMAN PART NO.	DIAGRAM	WINDING	WIRE SIZE	TURNS	DC RESISTANCE IN OHMS	IMPEDANCE RATIO	HIPOT AC VOLTS	REMARKS
T401	TA-49		Primary Term 1 & 2 Secondary Term 3 & 4	#36 AWG #40 AWG Plain Enamel	245 2000	11 320	1 to 8	500	Hermetically sealed case. Start terms 1 & 3, finish terms 2 & 4. Primary inductance 84 mh, secondary 6.6 h at 1000 cycles. Bake and impregnate under vacuum with BI-WAX 796 or equivalent.
Z101	ZM-17		Primary Term Blue & Red Secondary Term Green & Yellow	#30 Double Silk Enamel	17 17	....	1 to 1	....	Primary start blue, finish red. Secondary start green, finish yellow. Primary paralleled by 39 uuf, Secondary paralleled by 47 uuf capacitor. Single layer wound on paper base phenolic form. Primary separated from secondary by 0.344 spacer. Each separately tuned by iron core. Treat with "Q-MAX" coil assembly.
Z102	ZM-18		Primary Term Blue & Red Secondary Term Green & Yellow	#30 Double Silk Enamel	17 17	....	1 to 1	....	Primary start blue, finish red. Secondary start green, finish yellow. Primary and secondary paralleled by 47 uuf capacitor. Single layer wound on paper base phenolic form. Primary separated from secondary by 0.344 spacer. Each winding separately tuned by iron core. Treat coil assembly with "Q-MAX".
Z103	ZM-19		Single Layer	#30 Double Silk Enamel	18	....	..	....	Close wound on paper base phenolic tubing. Treat assembly with "Q-MAX." Tuned from bottom by iron core. Capacitors are 47 uuf. Coil resistor is 15K ohms, grid resistor is 220K ohms.
Z104	ZM-20		Single Layer	#30 AWG	18	....	..	....	Close wound on paper base phenolic tubing. Treat assembly with "Q-MAX." Tuned from bottom by iron core. Coil capacitor and resistor are 47 uuf and 15K ohms. Coupling capacitor is 20 uuf, grid resistor is 220 ohms.
Z105	ZM-21		Primary Term Blue & Red Secondary Term Green & Yellow	#30 AWG	17	....	..	1 to 1	Primary start blue, finish red. Secondary start green, finish yellow. Primary paralleled by 47 uuf capacitor and 220K ohm resistor. Secondary paralleled by 47 uuf capacitor. Treat coil assembly with "Q-MAX." Each winding separately tuned by iron core.

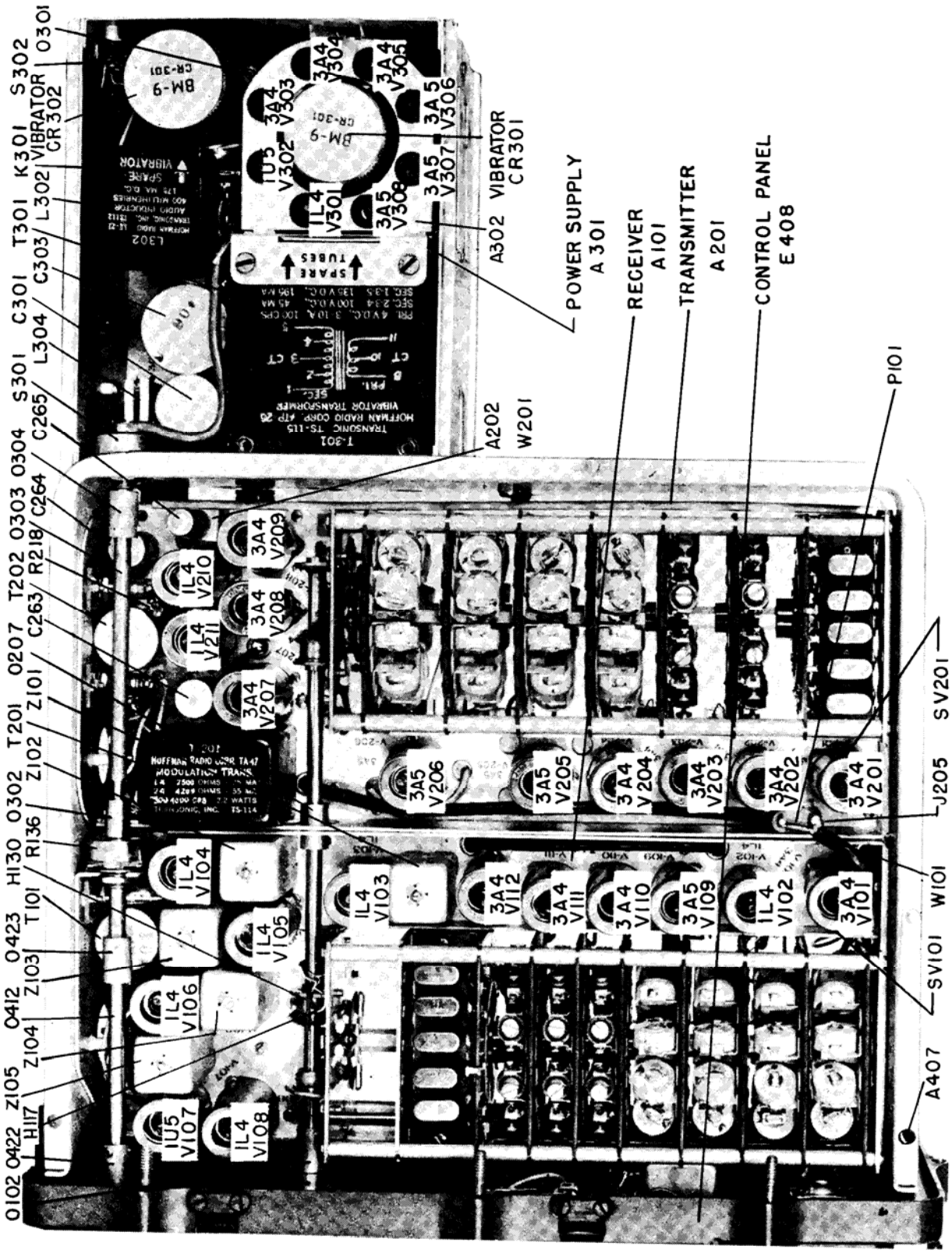


Figure 6-15. Top View of Radio Receiver-Transmitter CKB-43069-A Chassis

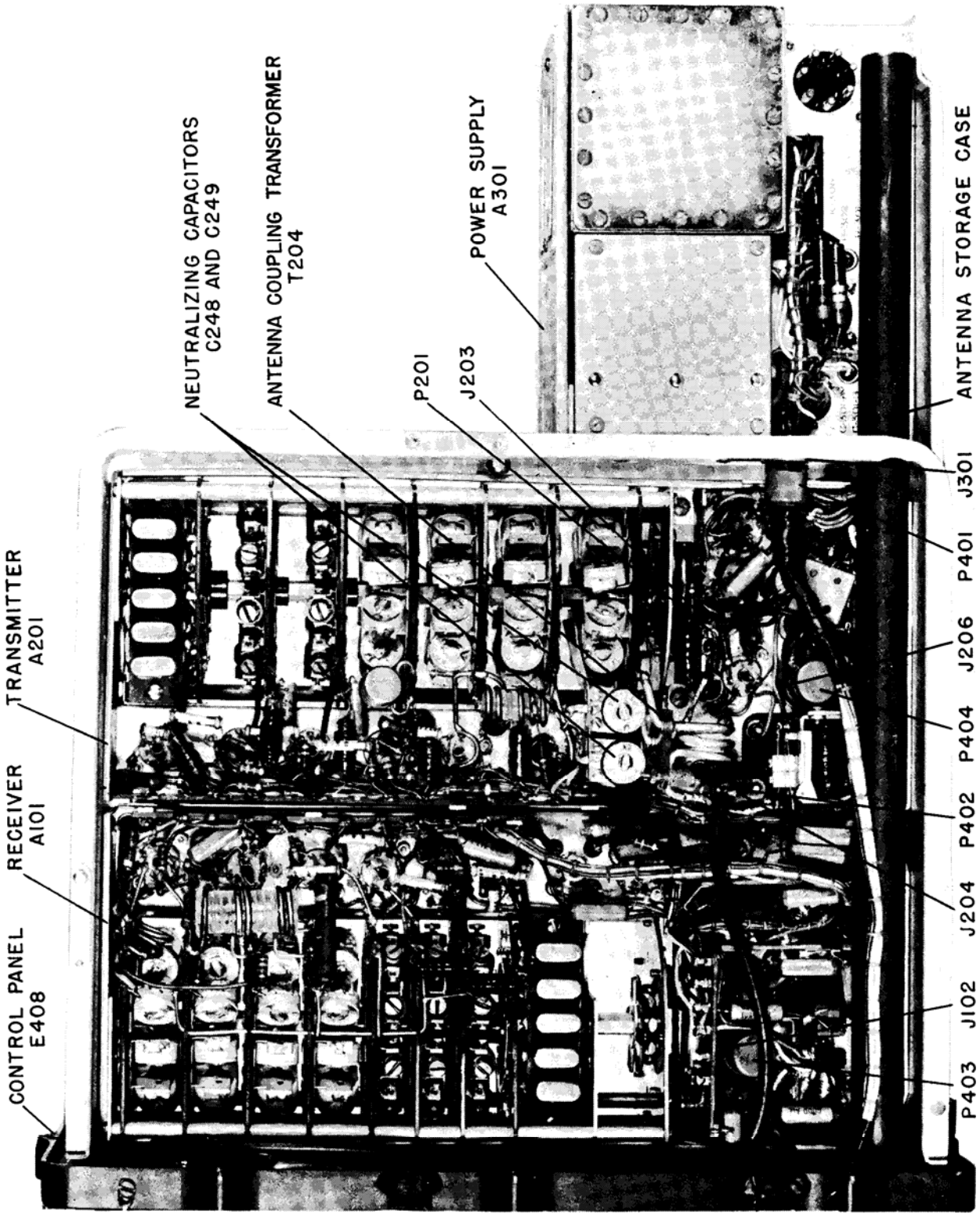


Figure 6-16. Bottom View of Radio Receiver-Transmitter CKB-43069-A Chassis

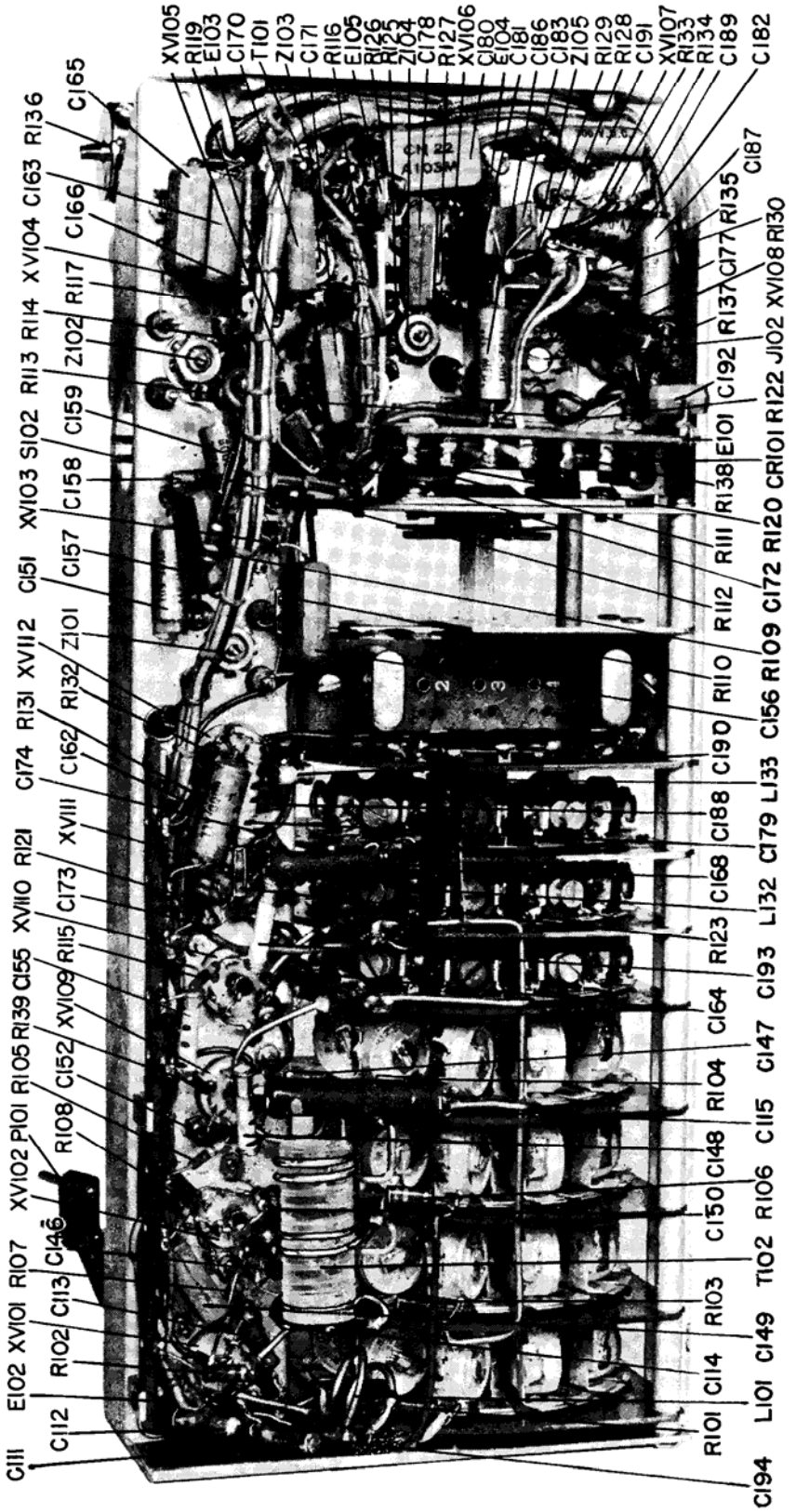


Figure 6-17. Receiver Chassis, Bottom View

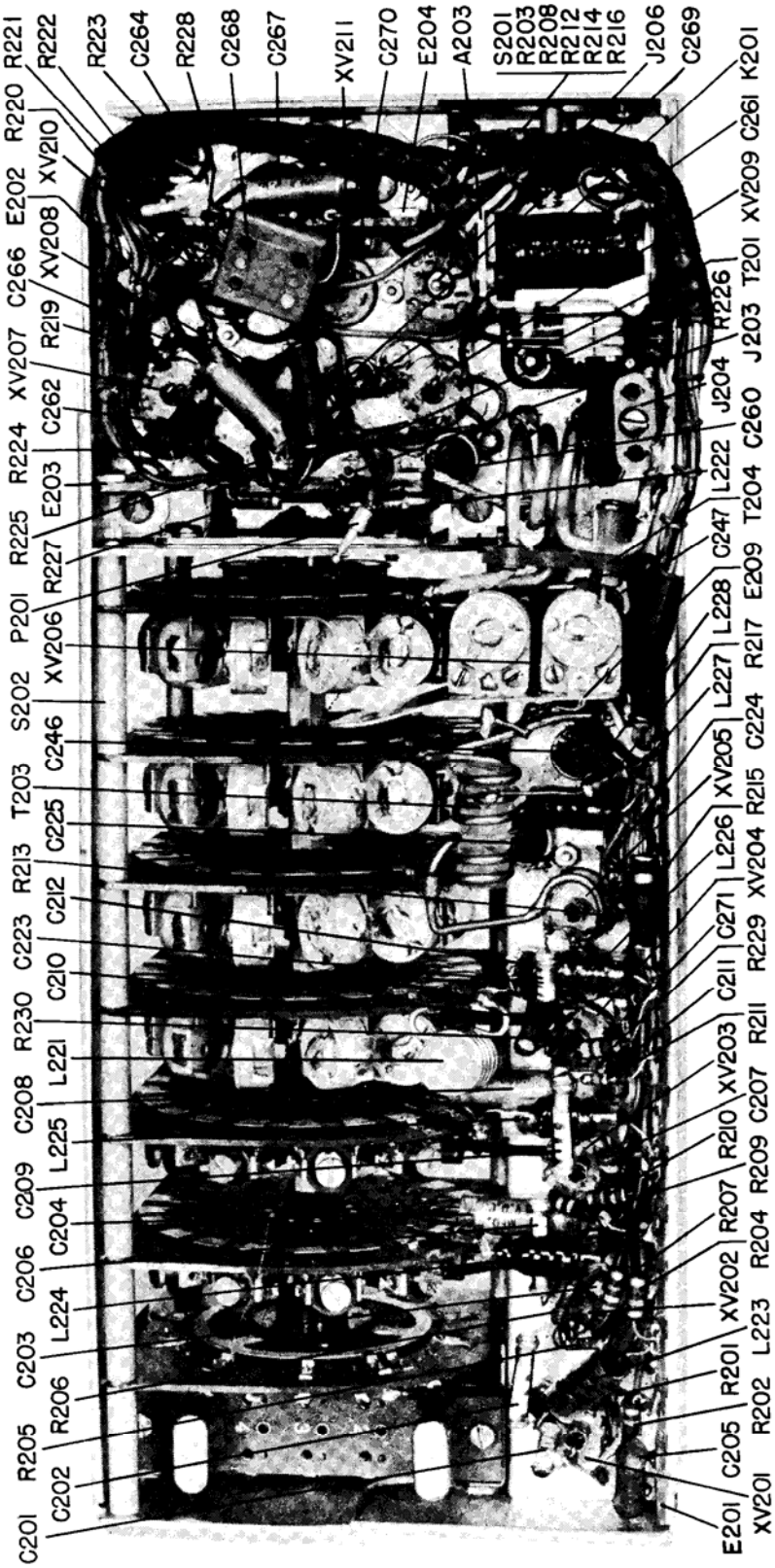


Figure 6-18. Transmitter Chassis, Bottom View

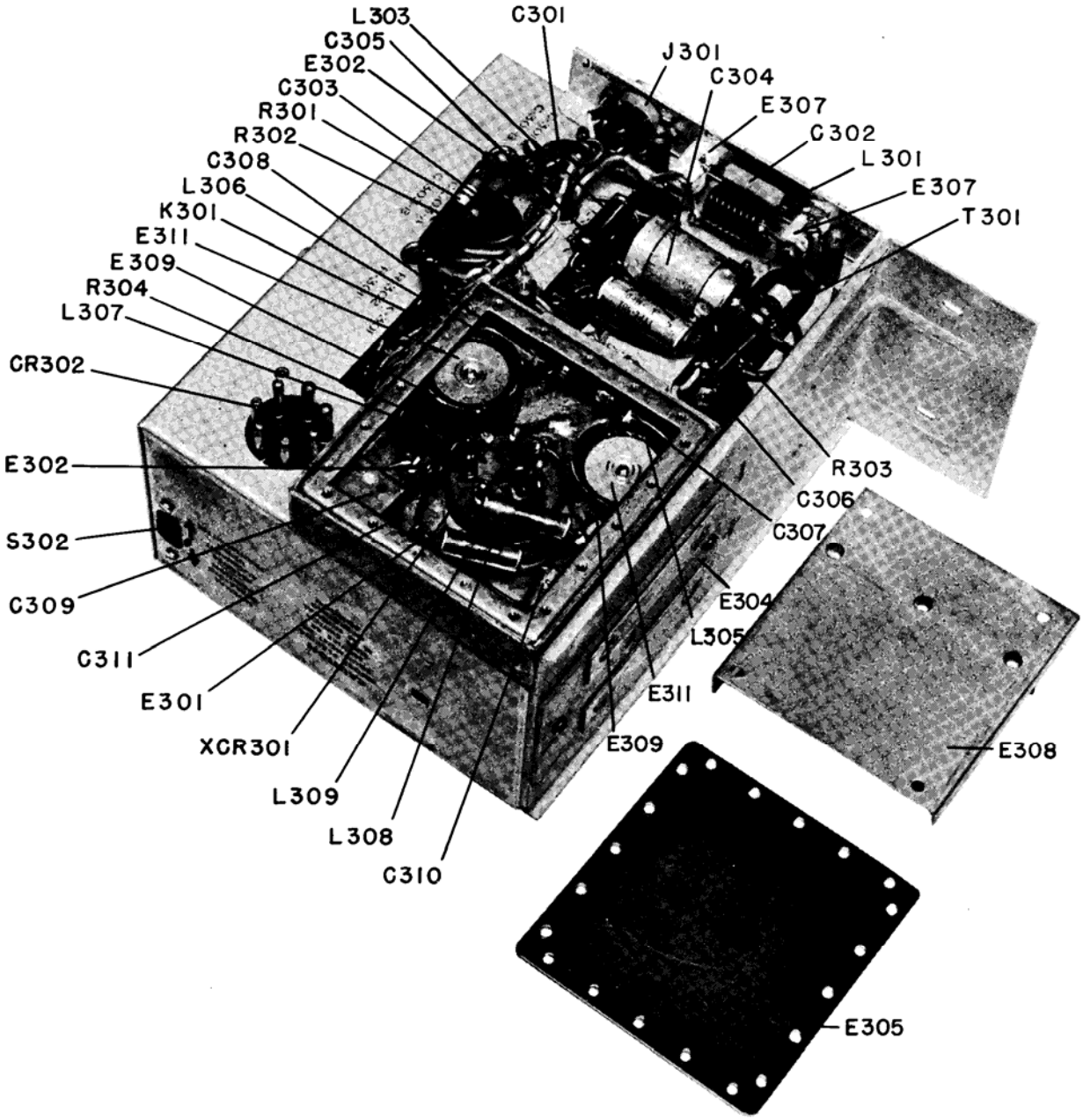


Figure 6-19. Power Supply Chassis, Bottom View

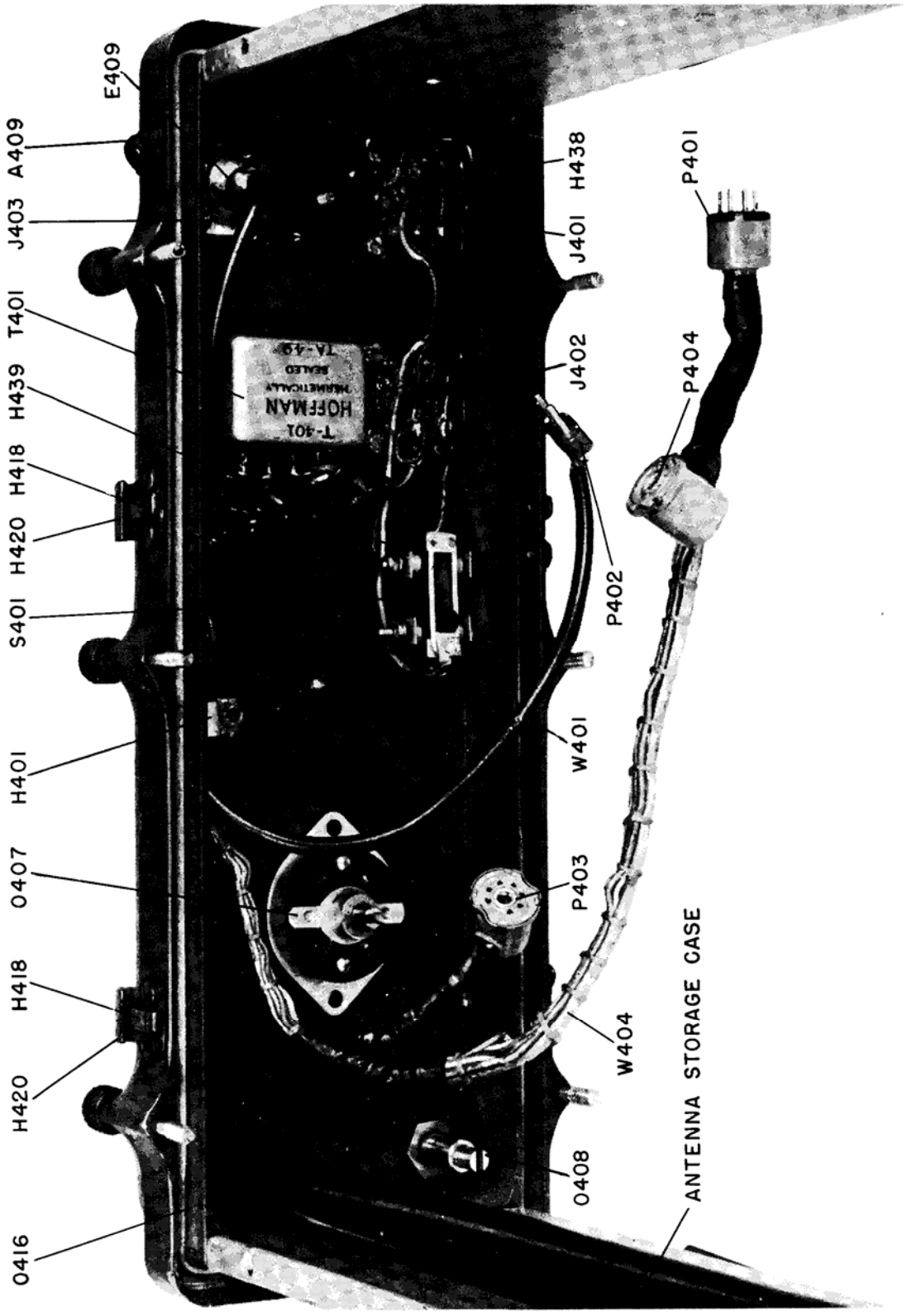
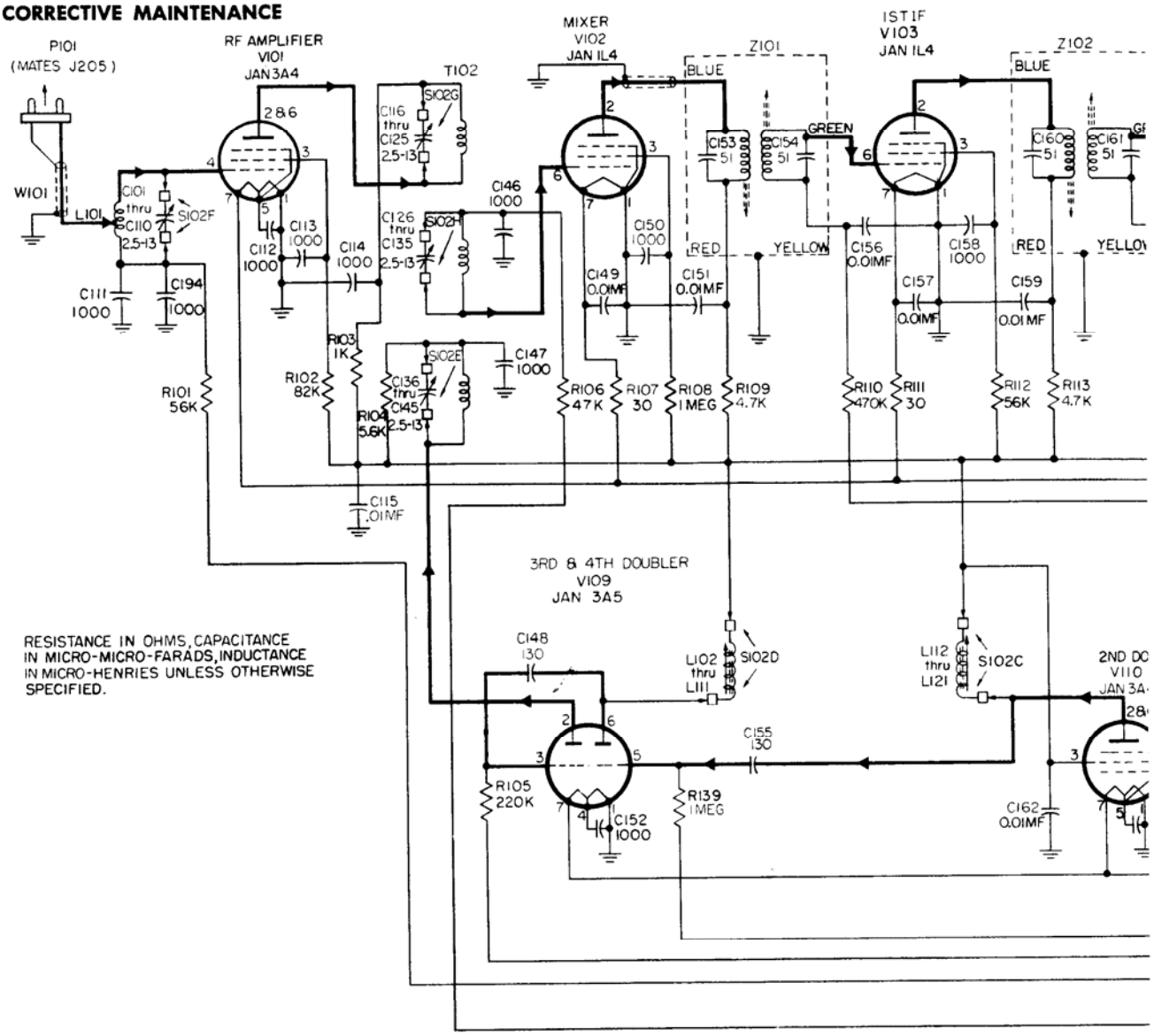
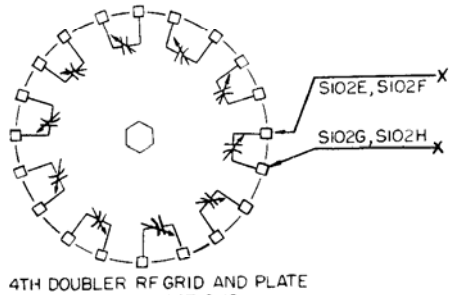


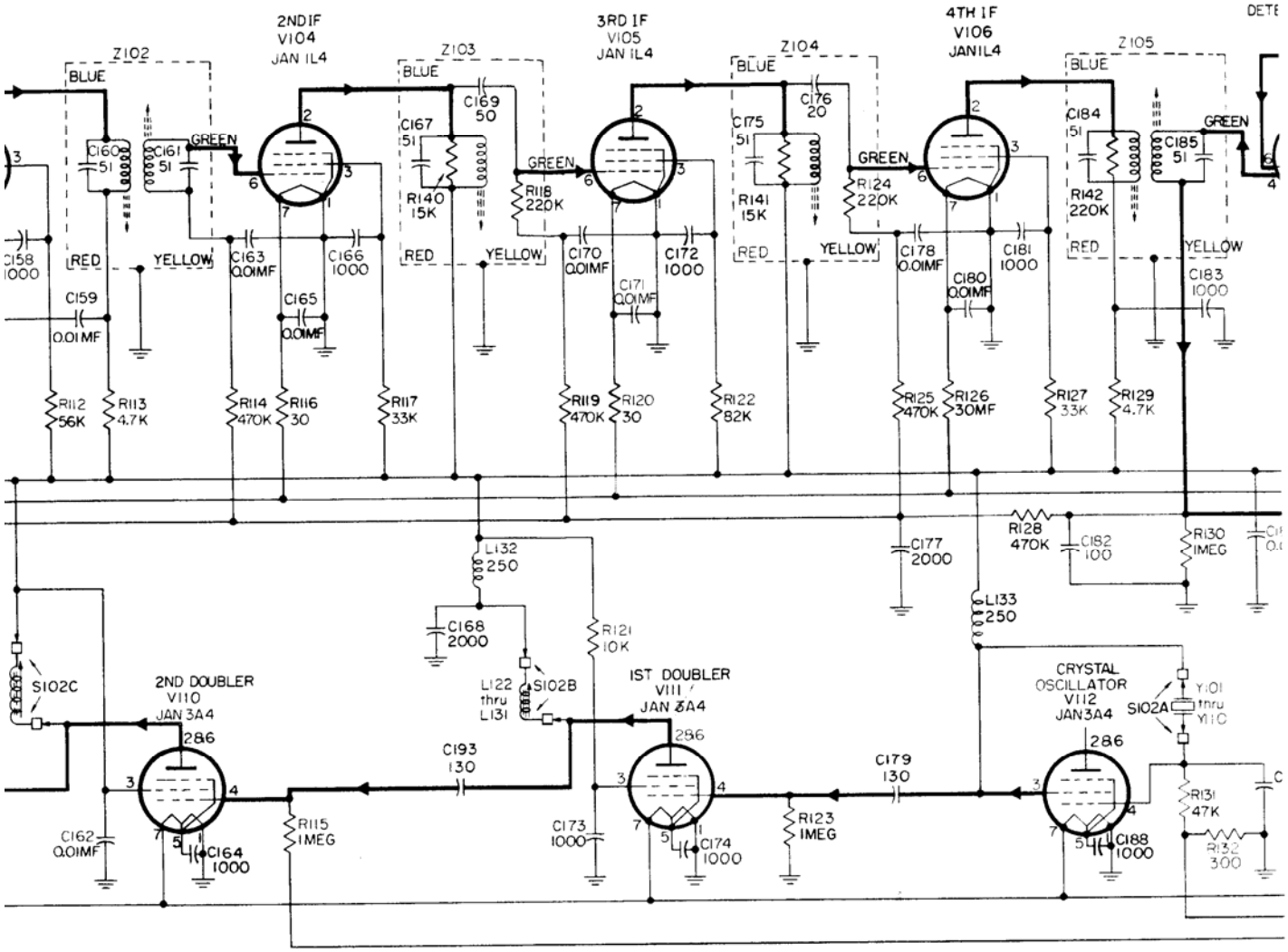
Figure 6-20. Control Panel, Rear View

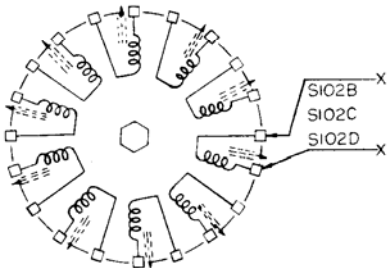




4TH DOUBLER RF GRID AND PLATE
AND MIXER TURRET SECTIONS

ORIGINAL

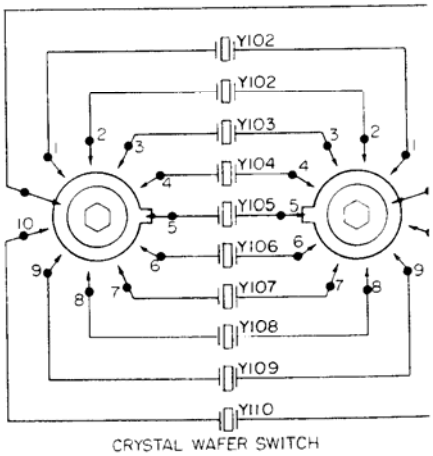




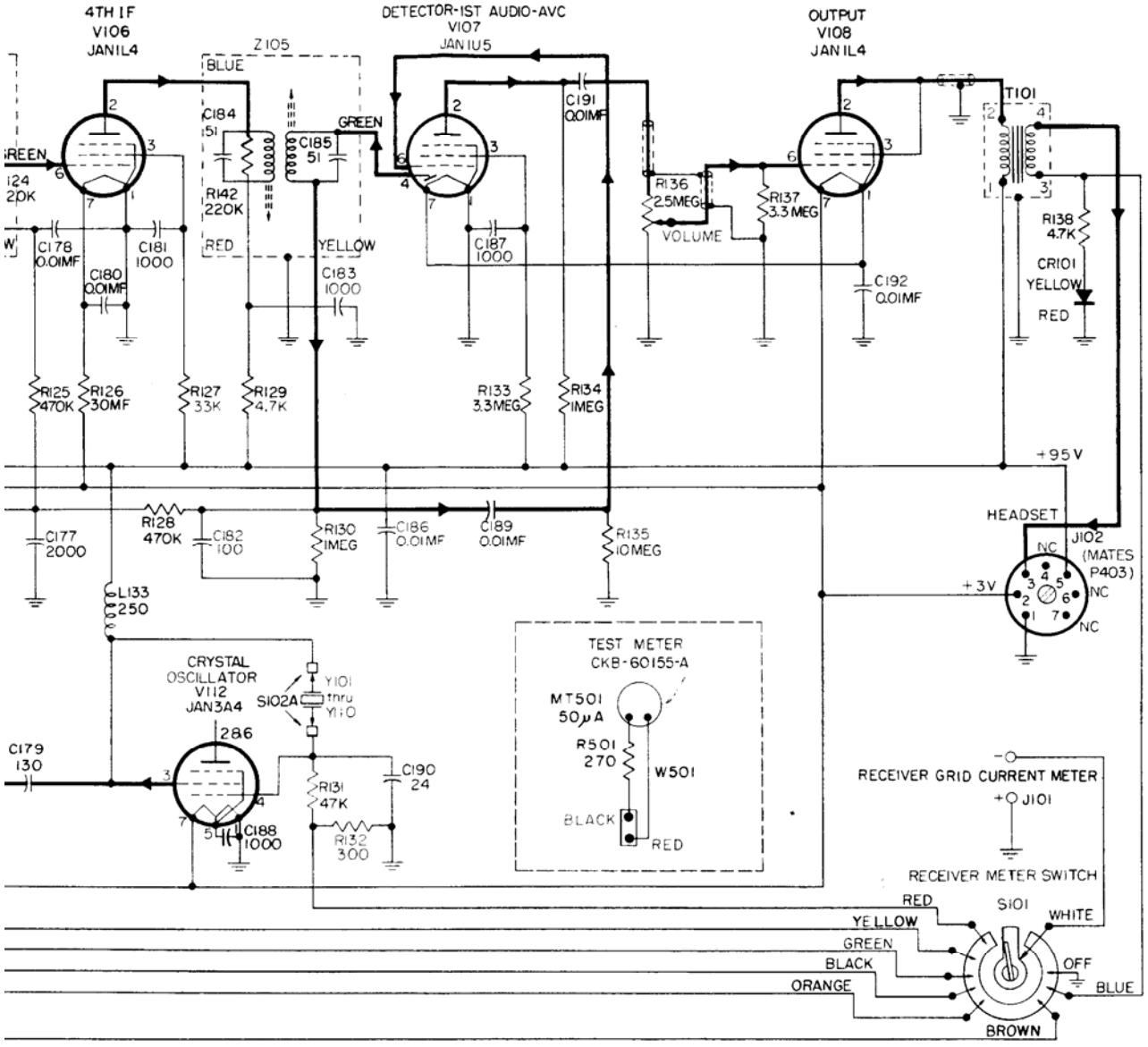
IST, 2ND AND 3RD DOUBLER TURRET SECTIONS

TURRET TUNER S102 CIRCUITS
(ACTUATED BY CHANNEL SELECTOR KNOB E 407)

FRONT VIEW OF FRONT SIDE



CRYSTAL WAFER SWITCH



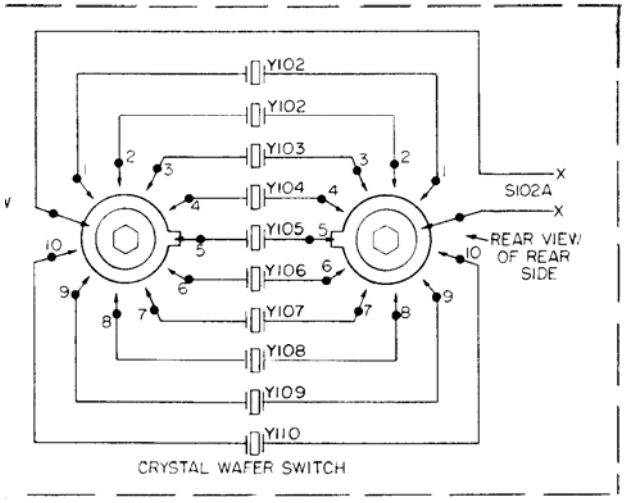
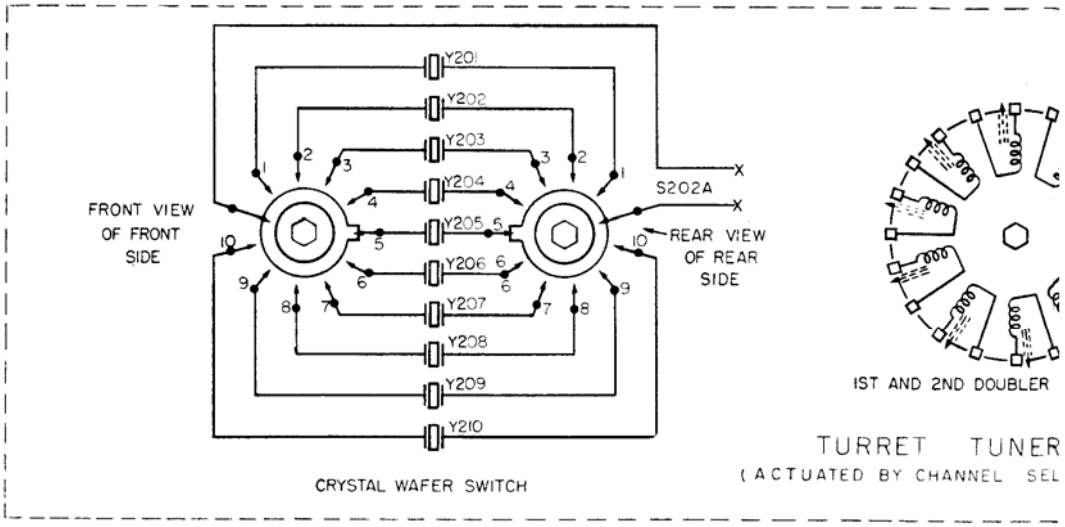
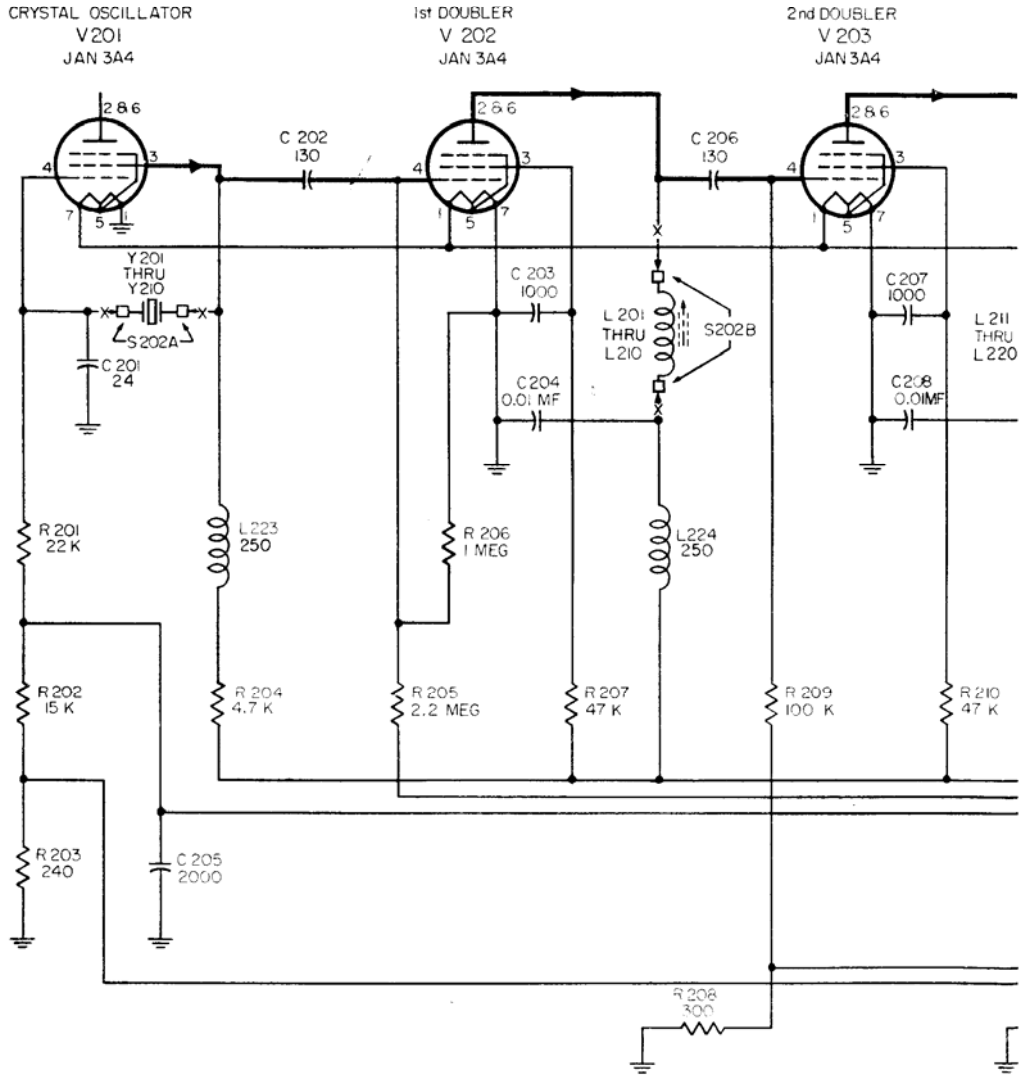
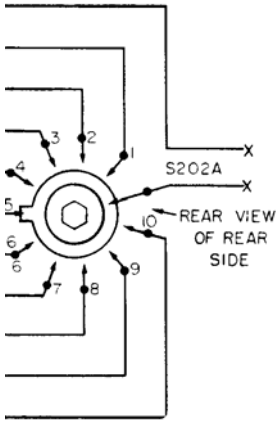


Figure 6-21. Schematic Diagram, Receiver.

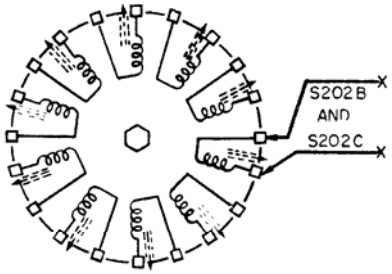

Y201
Y202
Y203
Y204
Y205
Y206
Y207
Y208
Y209
Y210
FRONT VIEW OF FRONT SIDE
REAR VIEW OF REAR SIDE
S202A
CRYSTAL WAFER SWITCH
IST AND 2ND DOUBLER
TURRET TUNER
(ACTUATED BY CHANNEL SEL


CRYSTAL OSCILLATOR
V201
JAN 3A4
1st DOUBLER
V 202
JAN 3A4
2nd DOUBLER
V 203
JAN 3A4
2 8 6
C 202 130
C 206 130
Y 201 THRU Y210
S202A
C 201 24
C 203 1000
C 204 0.01 MF
L 201 THRU L 210
S202B
C 207 1000
C208 0.01MF
L 211 THRU L 220
R 201 22 K
L 223 250
R 206 1 MEG
L224 250
R 202 15 K
R 204 4.7 K
R 205 2.2 MEG
R 207 47 K
R 209 100 K
R 210 47 K
R 203 240
C 205 2000
R 208 300

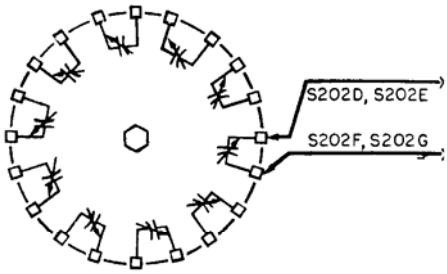
ORIGINAL



TCH



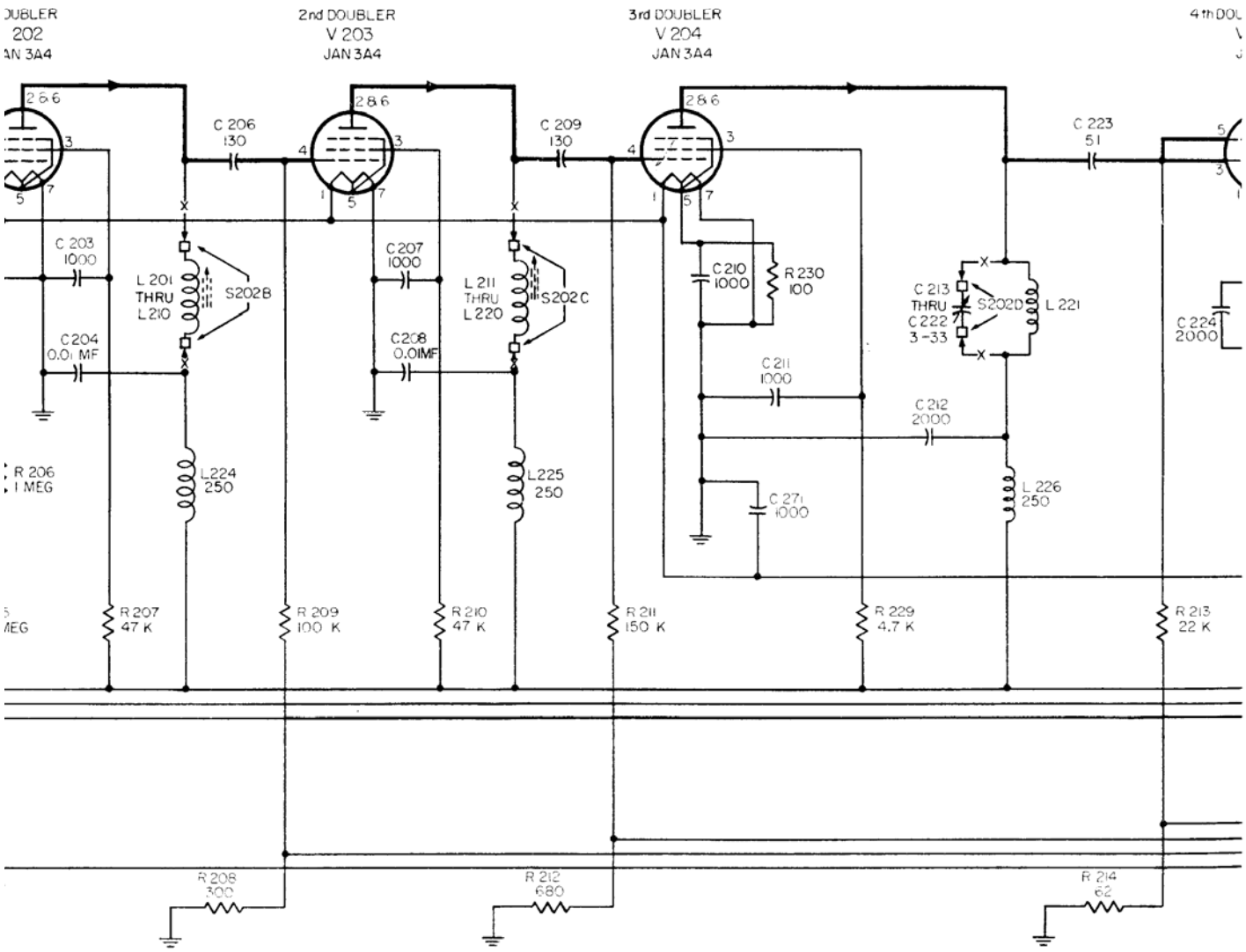
IST AND 2ND DOUBLER TURRET SECTIONS

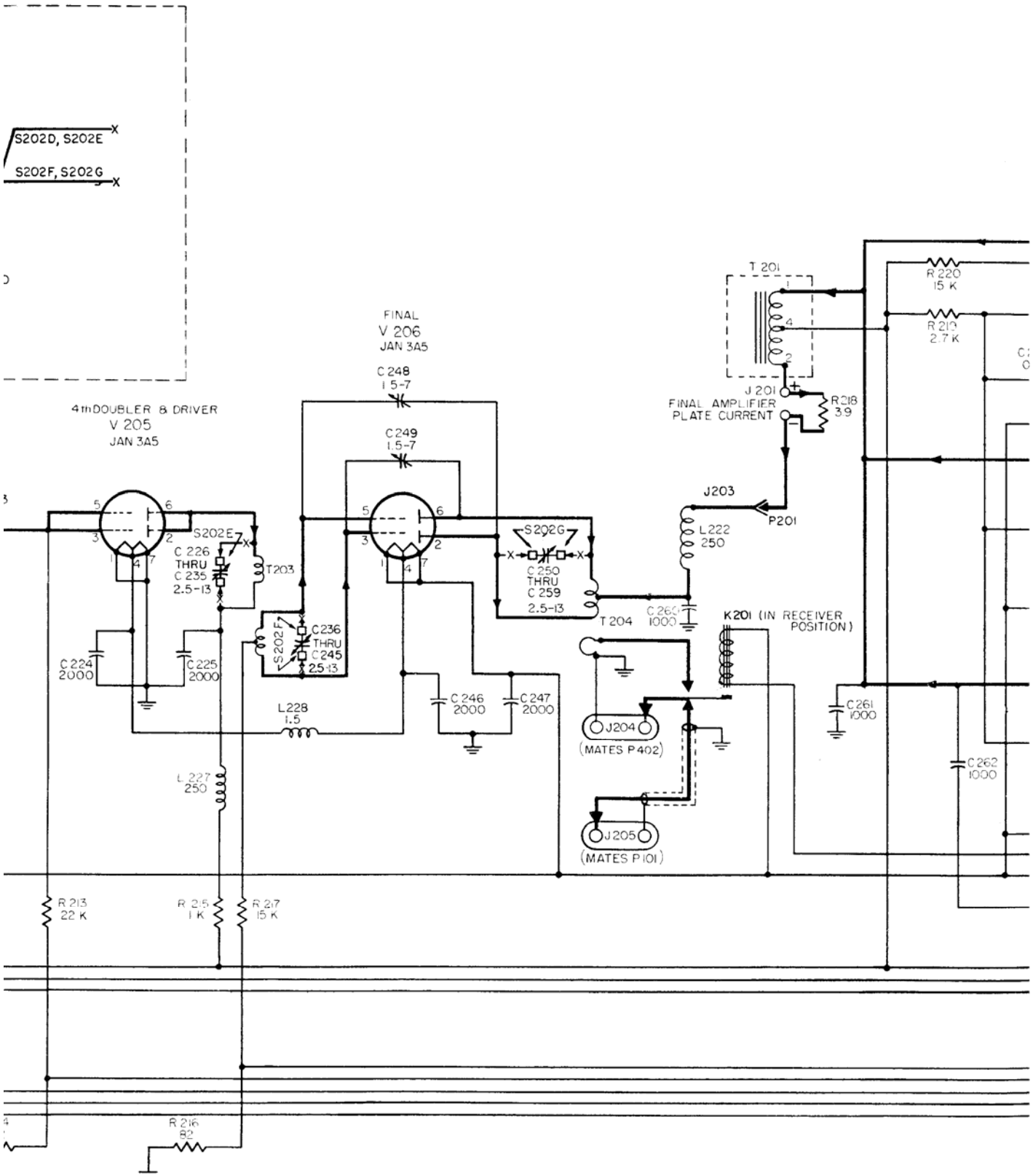


3RD AND 4TH DOUBLER FINAL GRID
AND PLATE TURRET SECTIONS

TURRET TUNER CIRCUITS

(ACTUATED BY CHANNEL SELECTOR KNOB E 407)




S202D, S202E
S202F, S202G
4th DOUBLER & DRIVER
V 205
JAN 3A5
FINAL
V 206
JAN 3A5
C 248
1.5-7
C 249
1.5-7
T 201
R 220
15 K
R 219
2.7 K
J 201
FINAL AMPLIFIER
PLATE CURRENT
R 218
3.9
J203
P201
L 222
250
S202E
C 226
THRU
C 235
2.5-13
T203
S202G
C 250
THRU
C 259
2.5-13
T 204
C 260
1000
K201 (IN RECEIVER
POSITION)
S202F
C 236
THRU
C 245
2.5-13
C 224
2000
C 225
2000
L 228
1.5
C 246
2000
C 247
2000
J204
(MATES P402)
J205
(MATES P101)
C 261
1000
C 262
1000
L 227
250
R 213
22 K
R 215
1 K
R 217
15 K
R 216
82

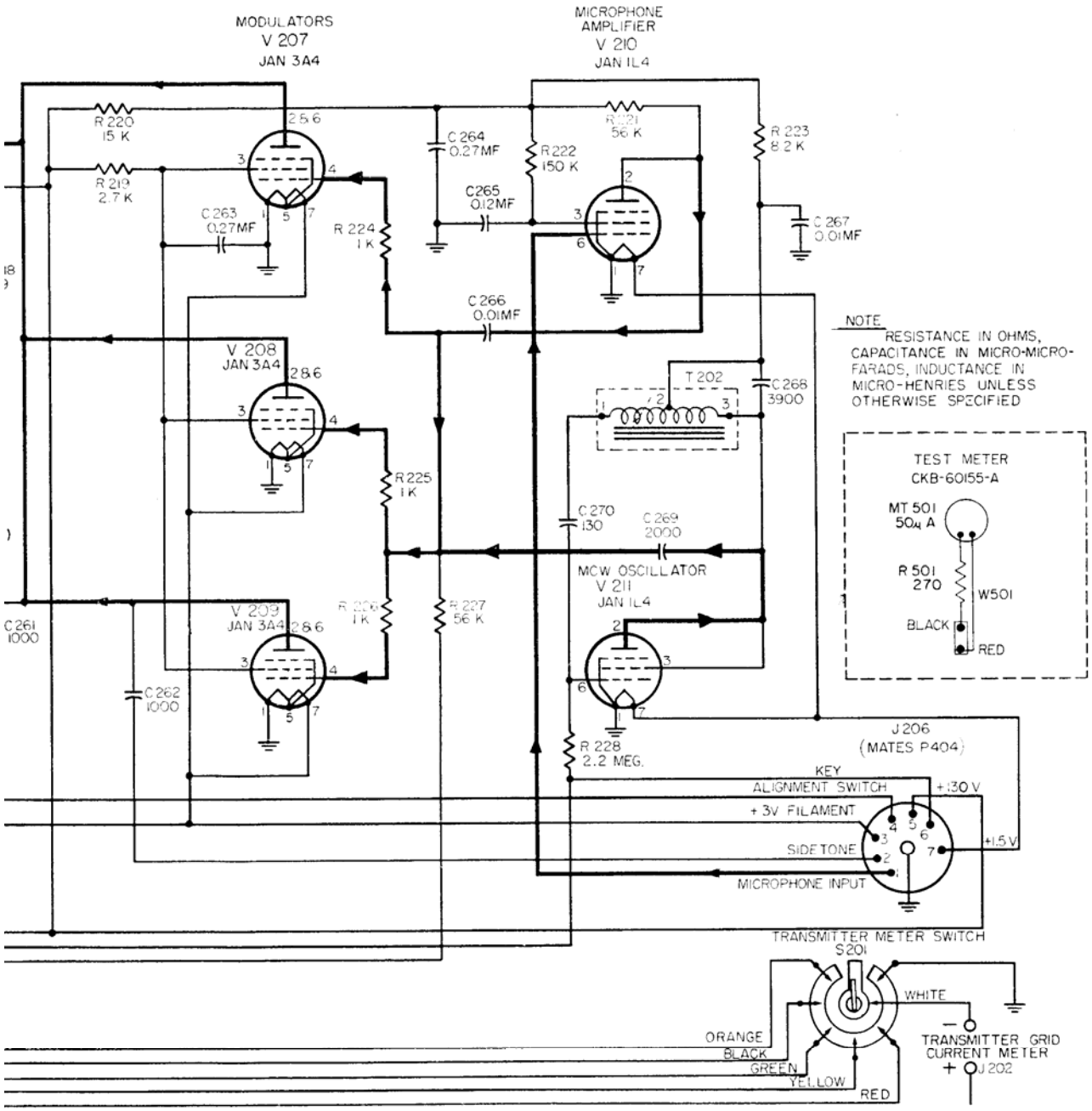
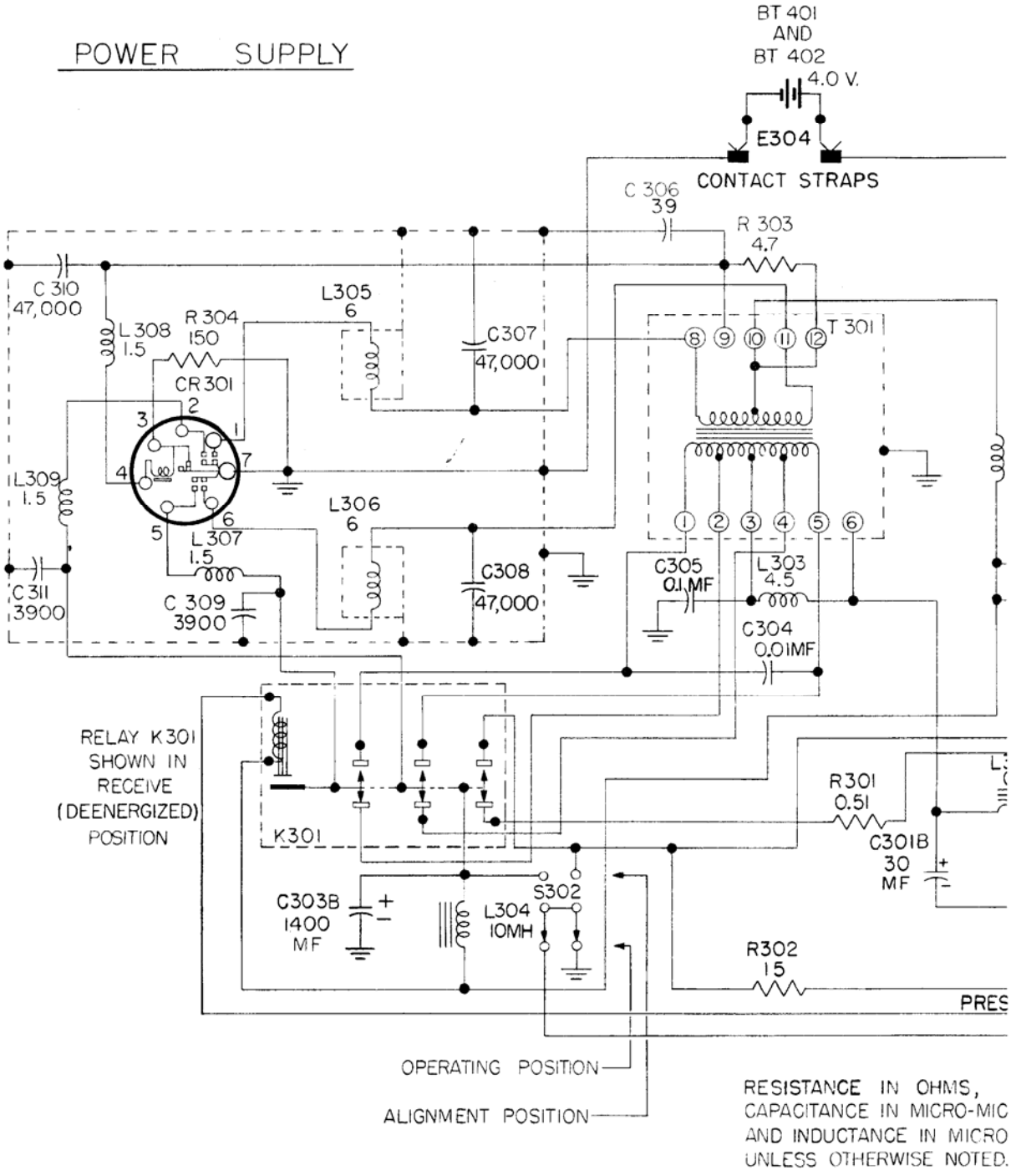


Figure 6-22. Schematic Diagram, Transmitter.


POWER SUPPLY
BT 401
AND
BT 402
4.0 V.
E304
CONTACT STRAPS
C 306
39
R 303
4.7
C 310
47,000
L308
1.5
R 304
150
L305
6
C307
47,000
T 301
CR301
L309
1.5
L306
6
L307
1.5
C308
47,000
C305
0.1 MF
L303
4.5
C 311
3900
C 309
3900
C304
0.01MF
RELAY K301
SHOWN IN
RECEIVE
(DEENERGIZED)
POSITION
K301
R301
0.5I
C301B
30
MF
C303B
1400
MF
L304
10MH
S302
R302
15
PRES
OPERATING POSITION
ALIGNMENT POSITION
RESISTANCE IN OHMS,
CAPACITANCE IN MICRO-MIC
AND INDUCTANCE IN MICRO
UNLESS OTHERWISE NOTED.

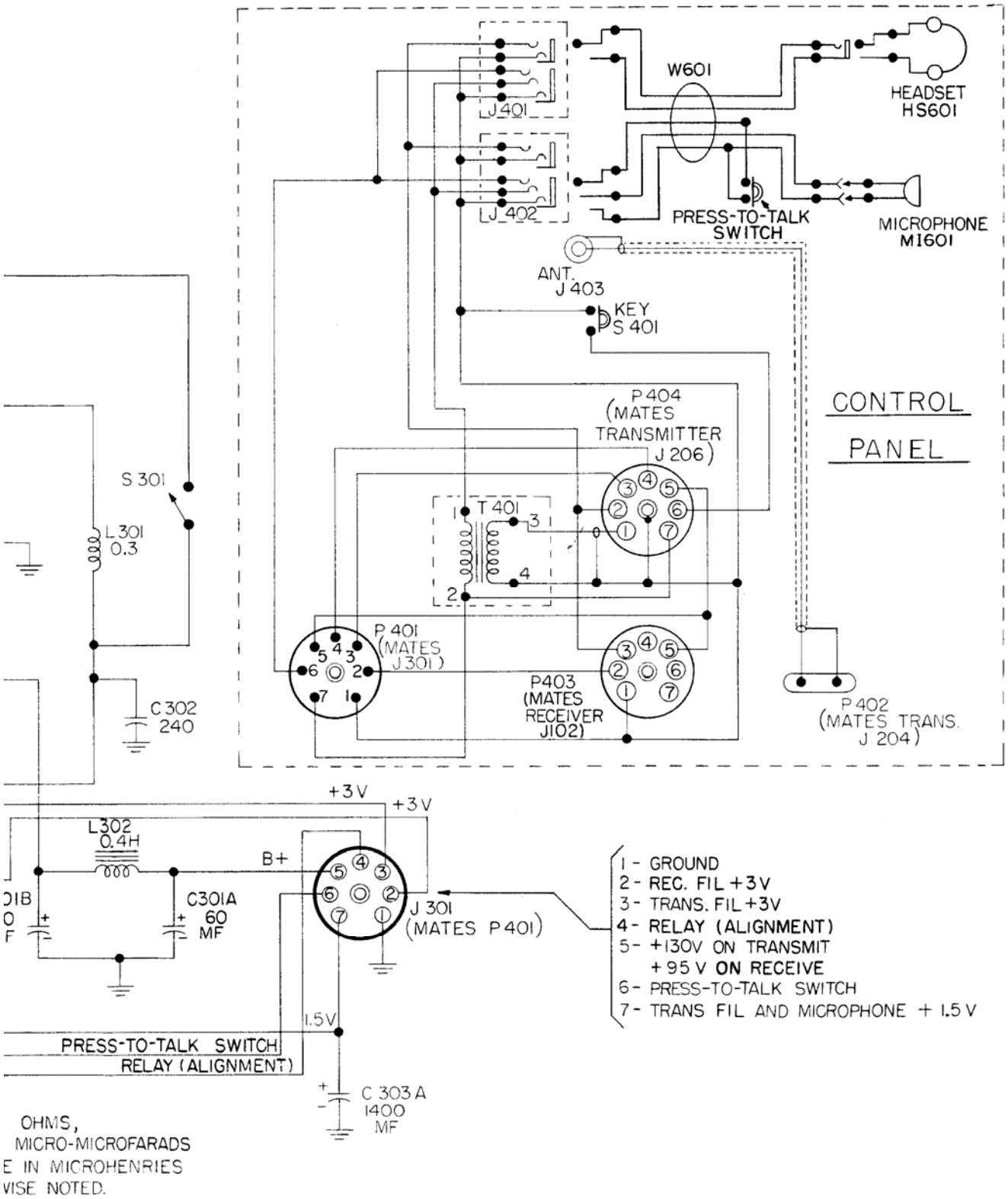
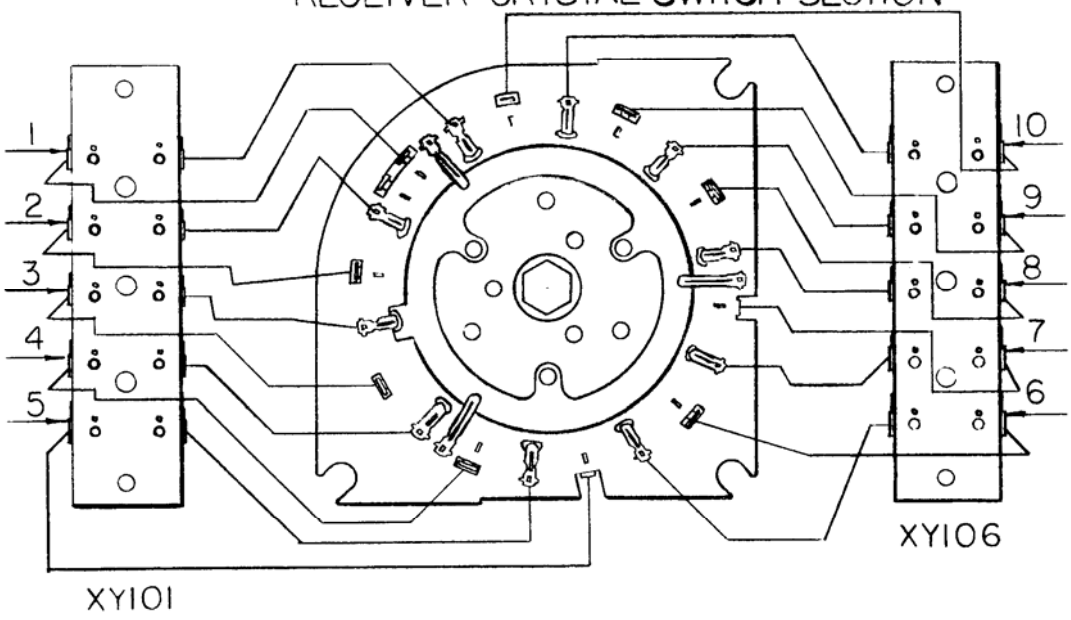
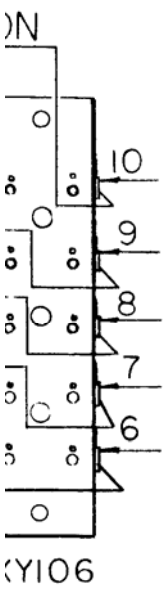
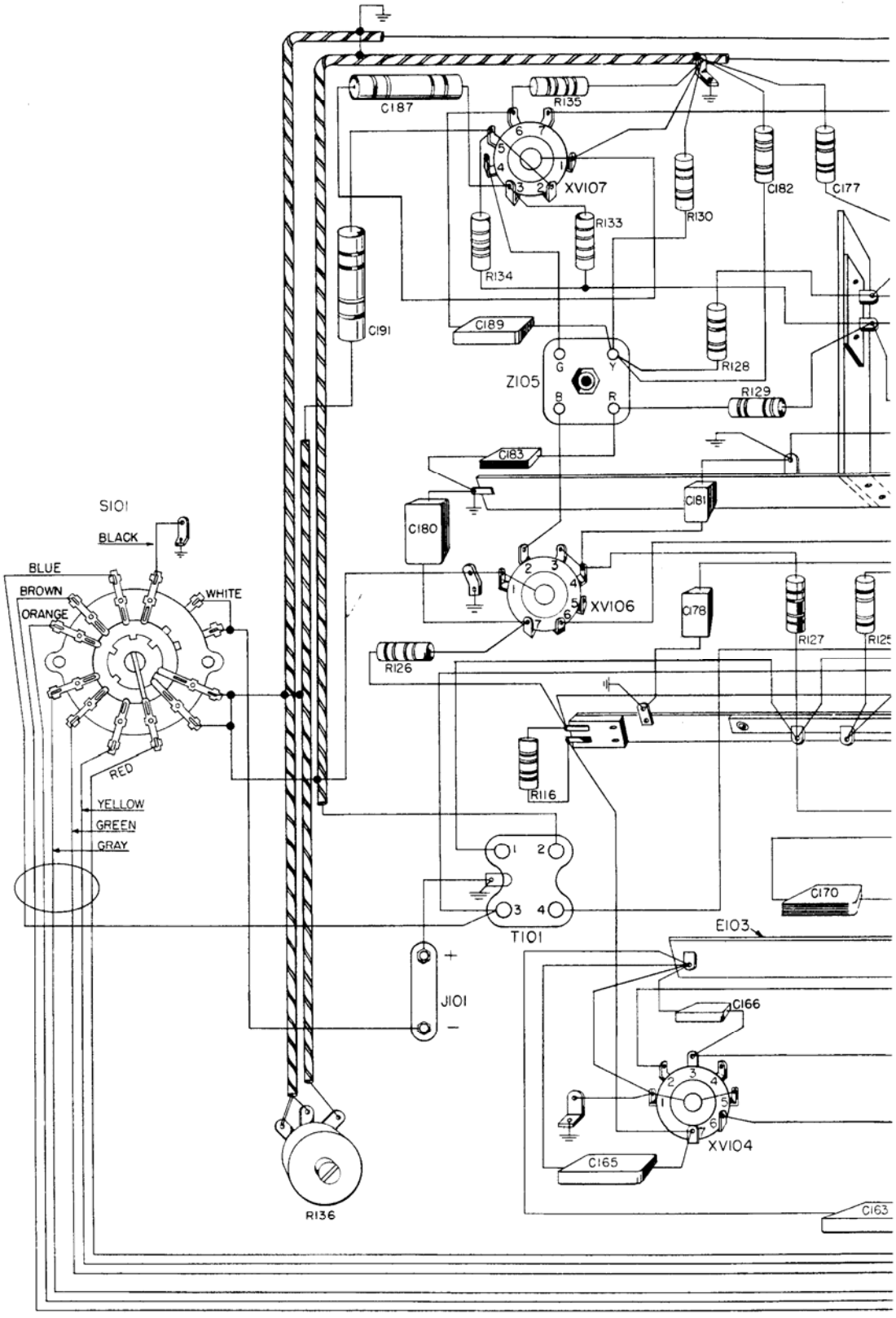


Figure 6-23. Schematic Diagram, Power Supply and Control Panel.

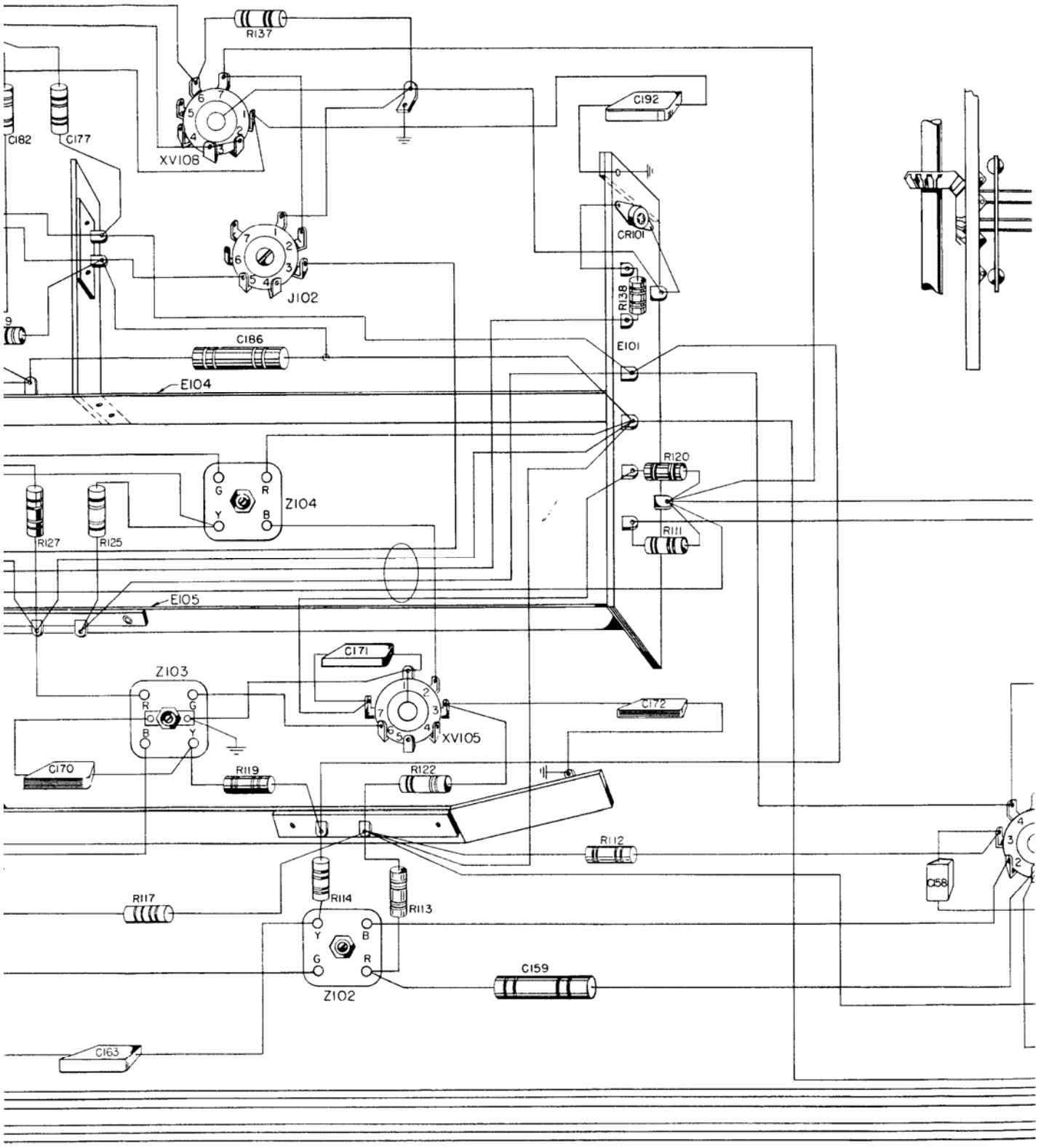
WIRING DETAILS S102A
RECEIVER CRYSTAL SWITCH SECTION

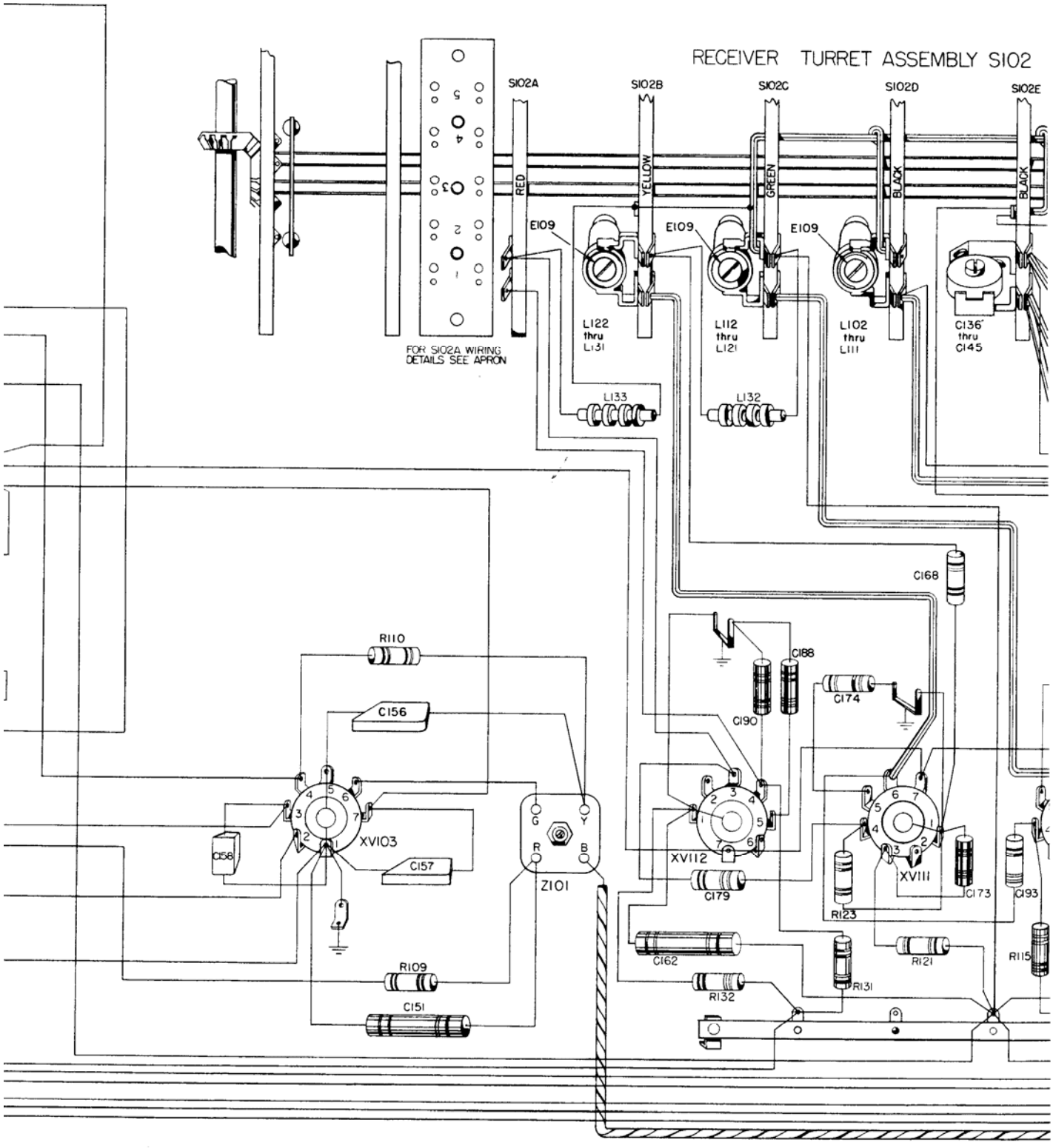



)N
10
9
8
7
6
XY106


C187
R135
XV107
C182
C177
R133
R130
R134
C191
C189
R128
Z105
G
Y
B
R
R129
C183
C181
C180
S101
BLACK
BLUE
BROWN
ORANGE
WHITE
XV106
C178
R127
R126
RED
YELLOW
GREEN
GRAY
R116
C170
T101
E103
J101
+
−
C166
XV104
C165
C163
R136

ORIGINAL


R137
C182
C177
XV108
C192
CR101
J102
R138
C186
E101
E104
R120
Z104
R127
R125
R111
E105
C171
Z103
XV105
C172
C170
R119
R122
R112
C158
R117
R114
R113
C159
Z102
C163


RECEIVER TURRET ASSEMBLY S102
S102A
S102B
S102C
S102D
S102E
RED
YELLOW
GREEN
BLACK
BLACK
E109
E109
E109
L122 thru L131
L112 thru L121
L102 thru L111
C136 thru C145
FOR S102A WIRING DETAILS SEE APRON
L133
L132
C168
R110
C188
C190
C174
C156
XV103
C158
C157
G
Y
R
B
Z101
XV112
XV111
C179
C173
C193
R123
C162
R121
R115
R131
R132
R109
C151

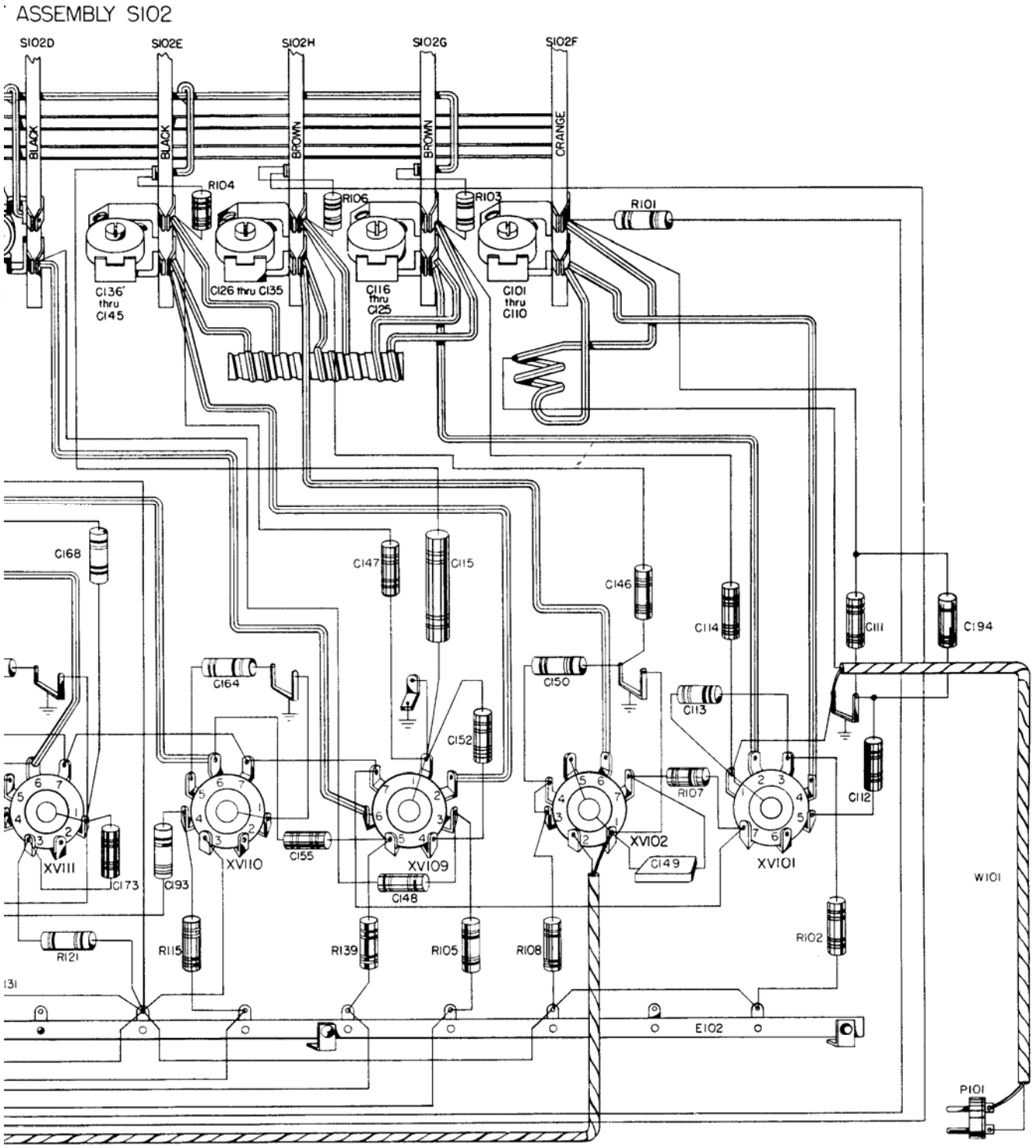
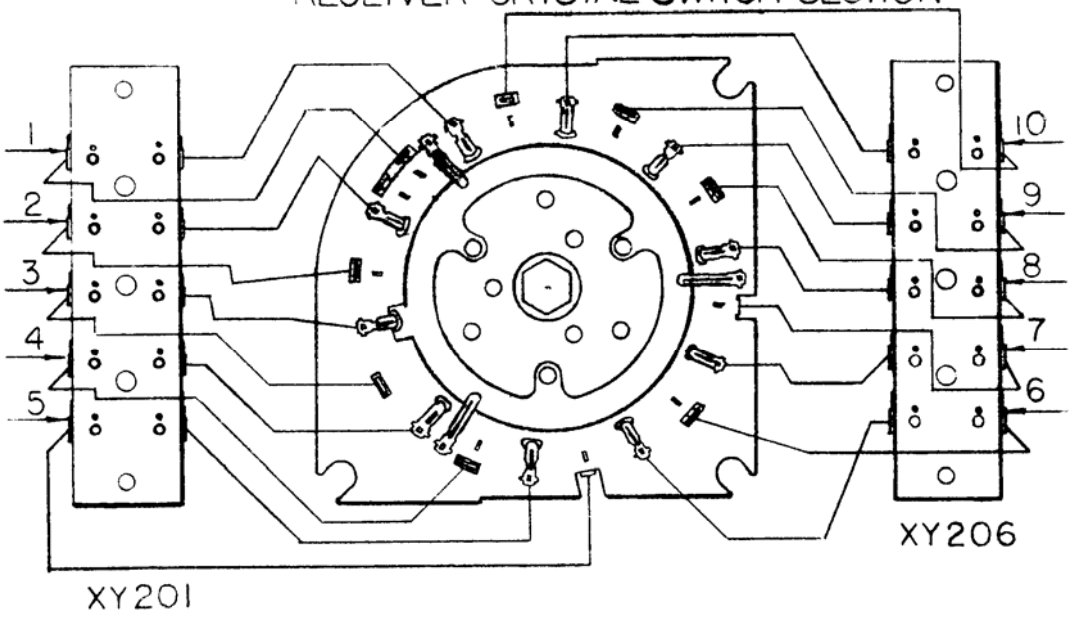
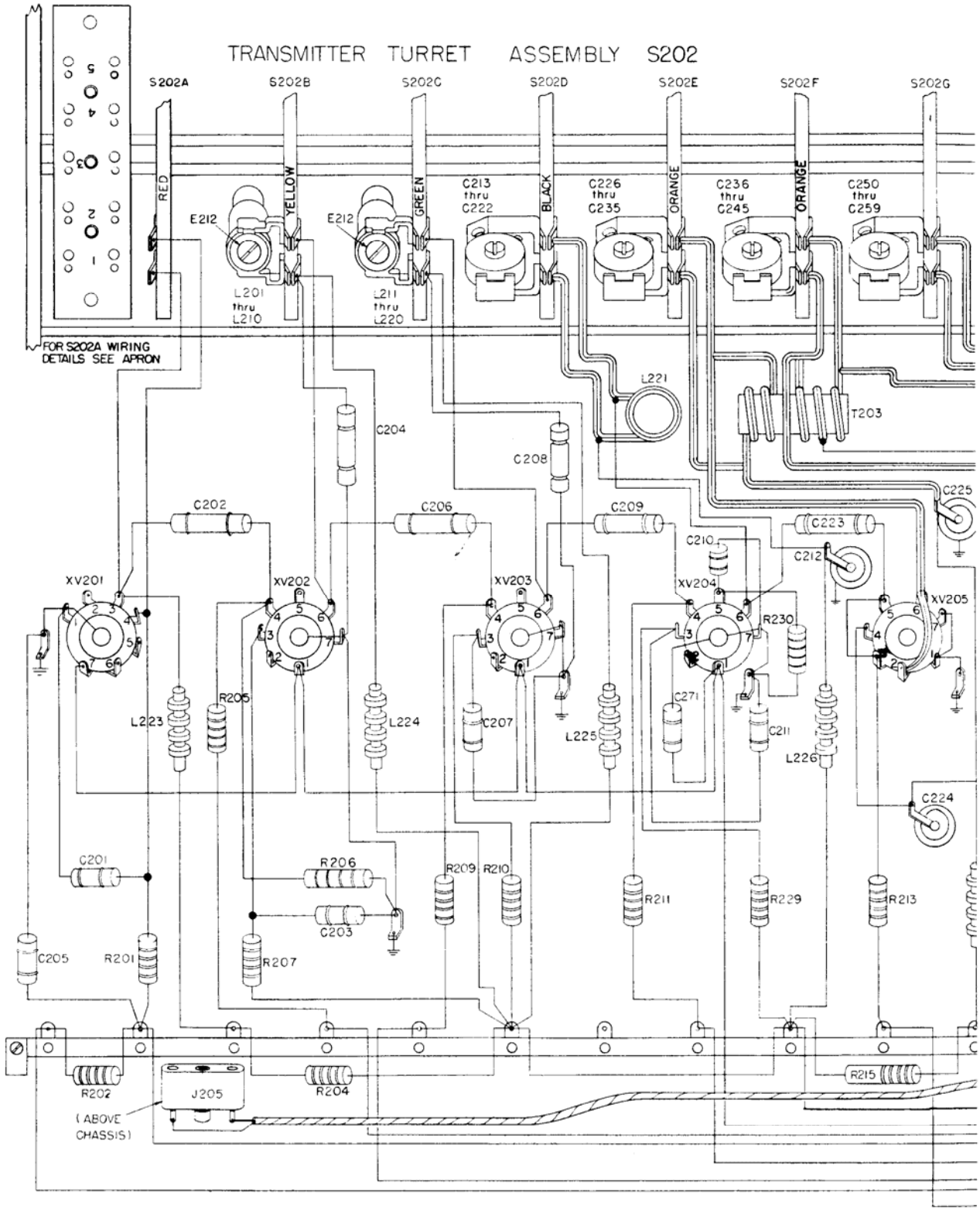


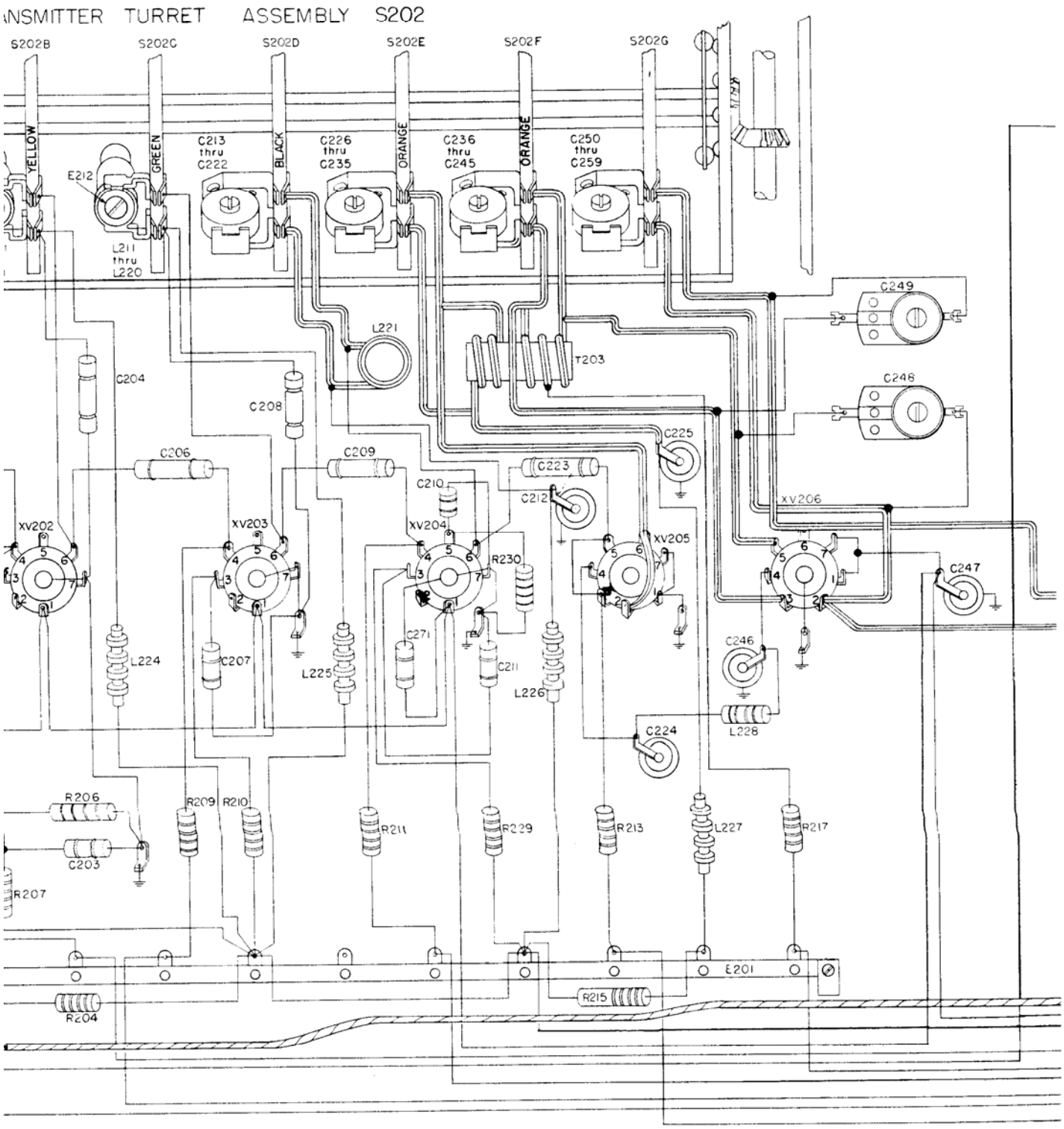
Figure 6-24. Wiring Diagram, Receiver.

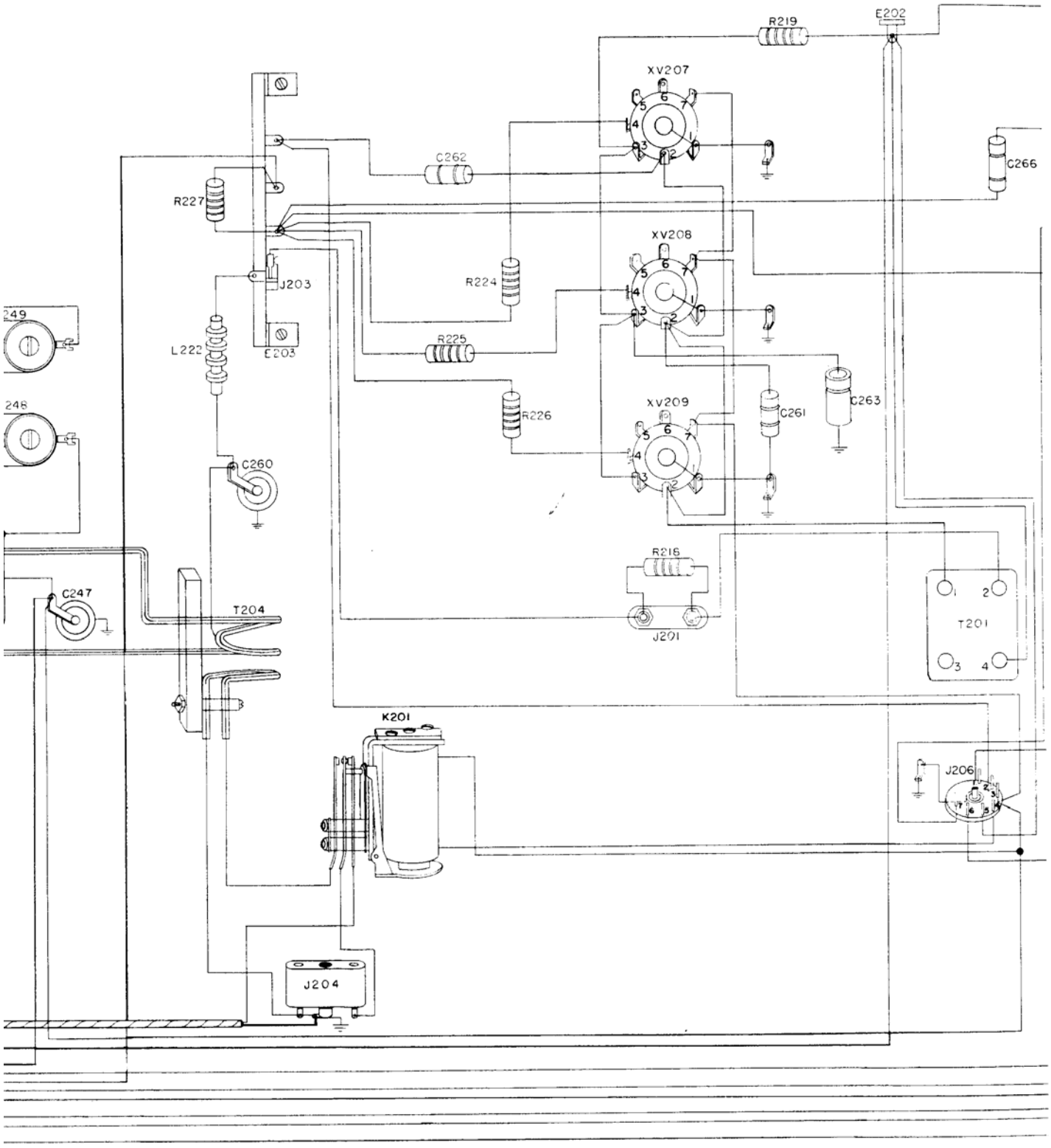
WIRING DETAILS S202A
RECEIVER CRYSTAL SWITCH SECTION




TRANSMITTER TURRET ASSEMBLY S202
S202A
S202B
S202C
S202D
S202E
S202F
S202G
RED
YELLOW
GREEN
BLACK
ORANGE
ORANGE
E212
E212
L201 thru L210
L211 thru L220
C213 thru C222
C226 thru C235
C236 thru C245
C250 thru C259
FOR S202A WIRING DETAILS SEE APRON
L221
T203
C204
C208
C202
C206
C209
C210
C223
C225
C212
XV201
XV202
XV203
XV204
XV205
R230
L223
R205
L224
C207
L225
C271
C211
L226
C224
C201
R206
R209
R210
R211
R229
R213
C205
R201
C203
R207
R202
J205
R204
R215
(ABOVE CHASSIS)

ORIGINAL


NSMITTER TURRET ASSEMBLY S202
S202B
S202C
S202D
S202E
S202F
S202G
YELLOW
GREEN
BLACK
ORANGE
ORANGE
E212
L211 thru L220
C213 thru C222
C226 thru C235
C236 thru C245
C250 thru C259
C249
C248
L221
T203
C204
C208
C225
C206
C209
C223
C210
C212
XV206
XV202
XV203
XV204
XV205
R230
C247
C271
C207
L224
L225
C211
L226
C246
L228
C224
R206
R209
R210
R211
R229
R213
L227
R217
C203
R207
E201
R215
R204


R219
E202
XV207
C262
C266
R227
XV208
J203
R224
L222
E203
R225
C263
R226
XV209
C261
C260
R216
C247
T204
J201
T201
K201
J206
J204

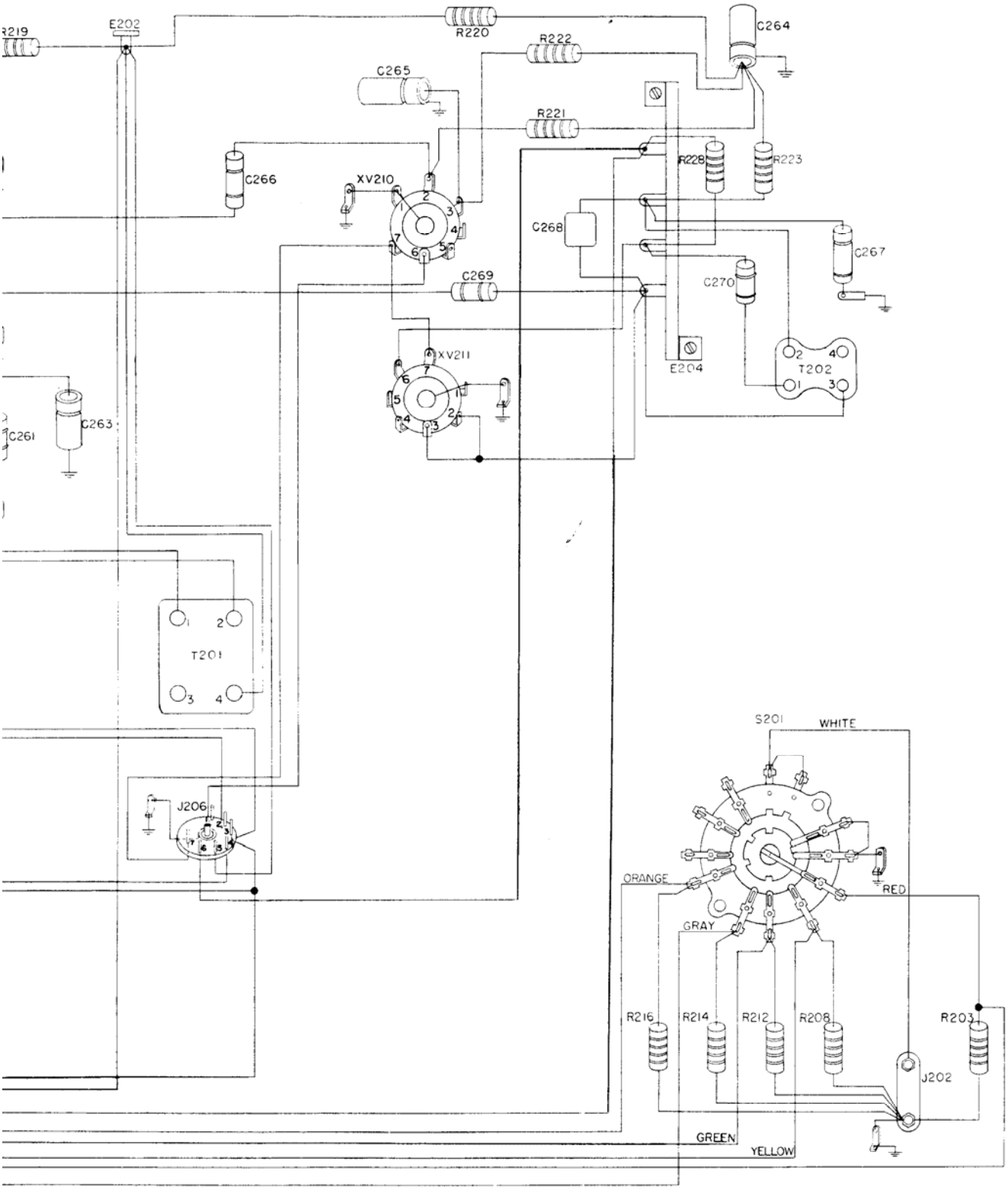
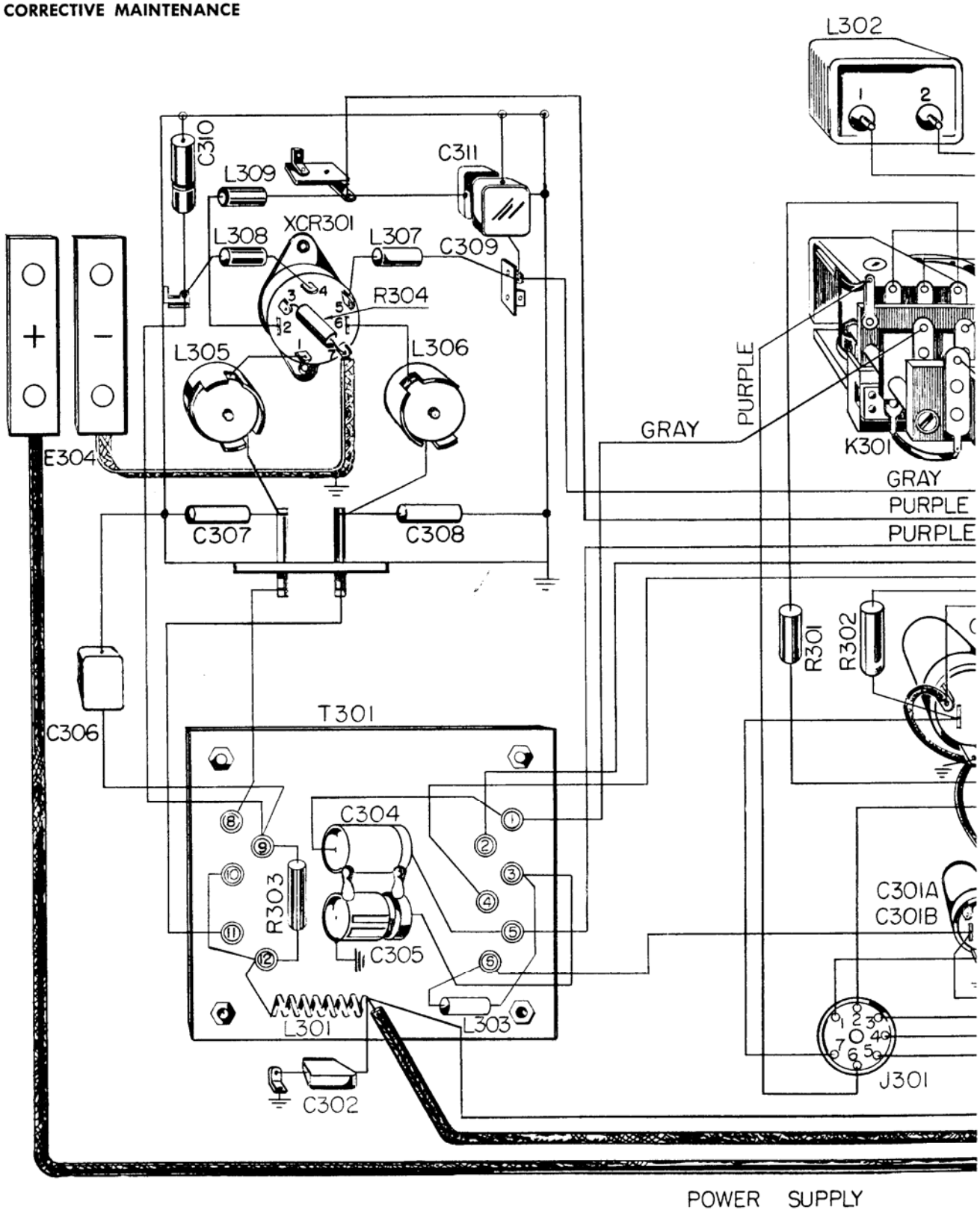
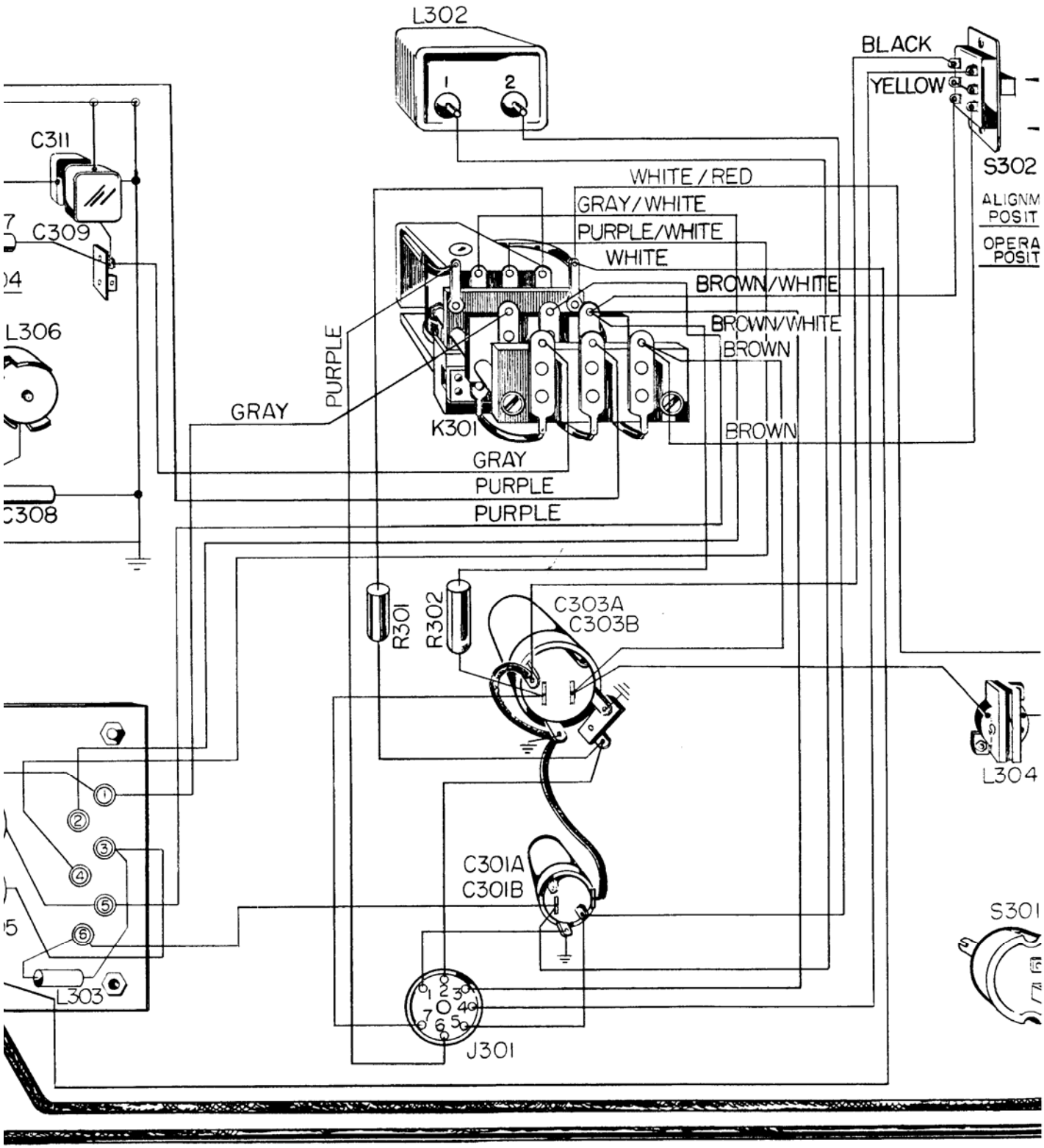


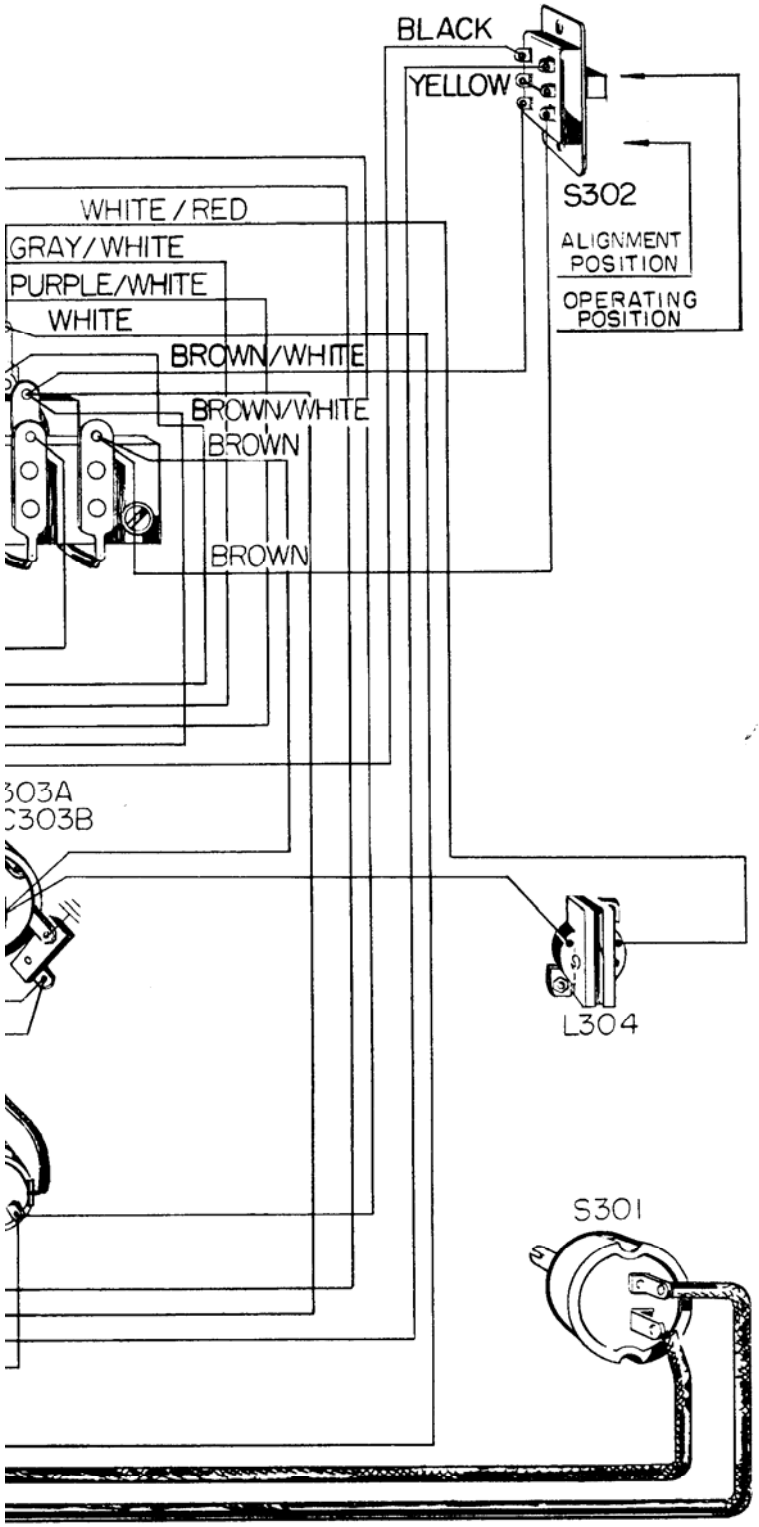
Figure 6-25. Wiring Diagram, Transmitter.


L302
1
2
C310
L309
C311
XCR301
L308
L307
C309
R304
L305
L306
E304
C307
C308
C306
T301
C304
R303
C305
L301
L303
C302
GRAY
PURPLE
K301
GRAY
PURPLE
PURPLE
R301
R302
C301A
C301B
J301
POWER SUPPLY

ORIGINAL



POWER SUPPLY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YELLOW
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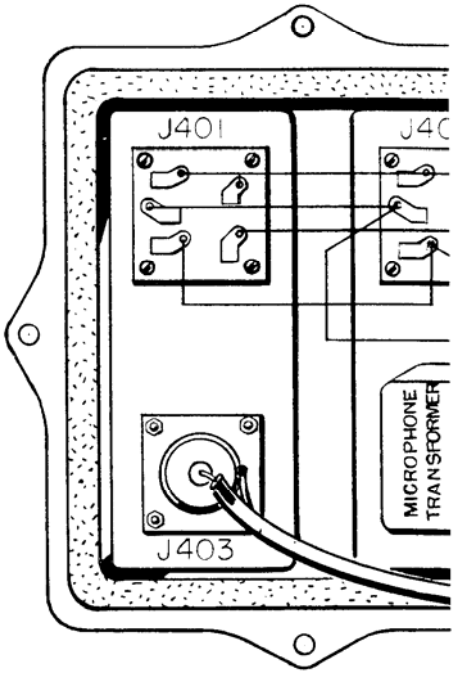
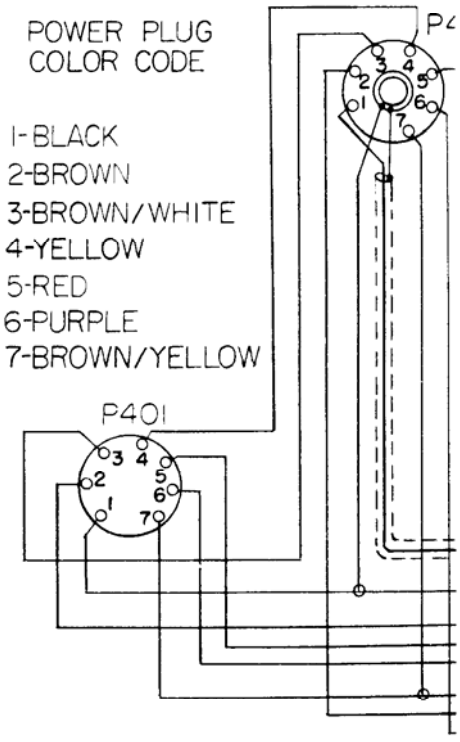
ALIGNMENT POSITION
OPERATING POSITION
WHITE/RED
GRAY/WHITE
PURPLE/WHITE
WHITE
BROWN/WHITE
BROWN/WHITE
BROWN
BROWN
303A
C303B
L304
S301


J401
J403
MICROPHONE TRANSFORMER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2-BROWN
3-BROWN/WHITE
4-YELLOW
5-RED
6-PURPLE
7-BROWN/YELLOW
P401

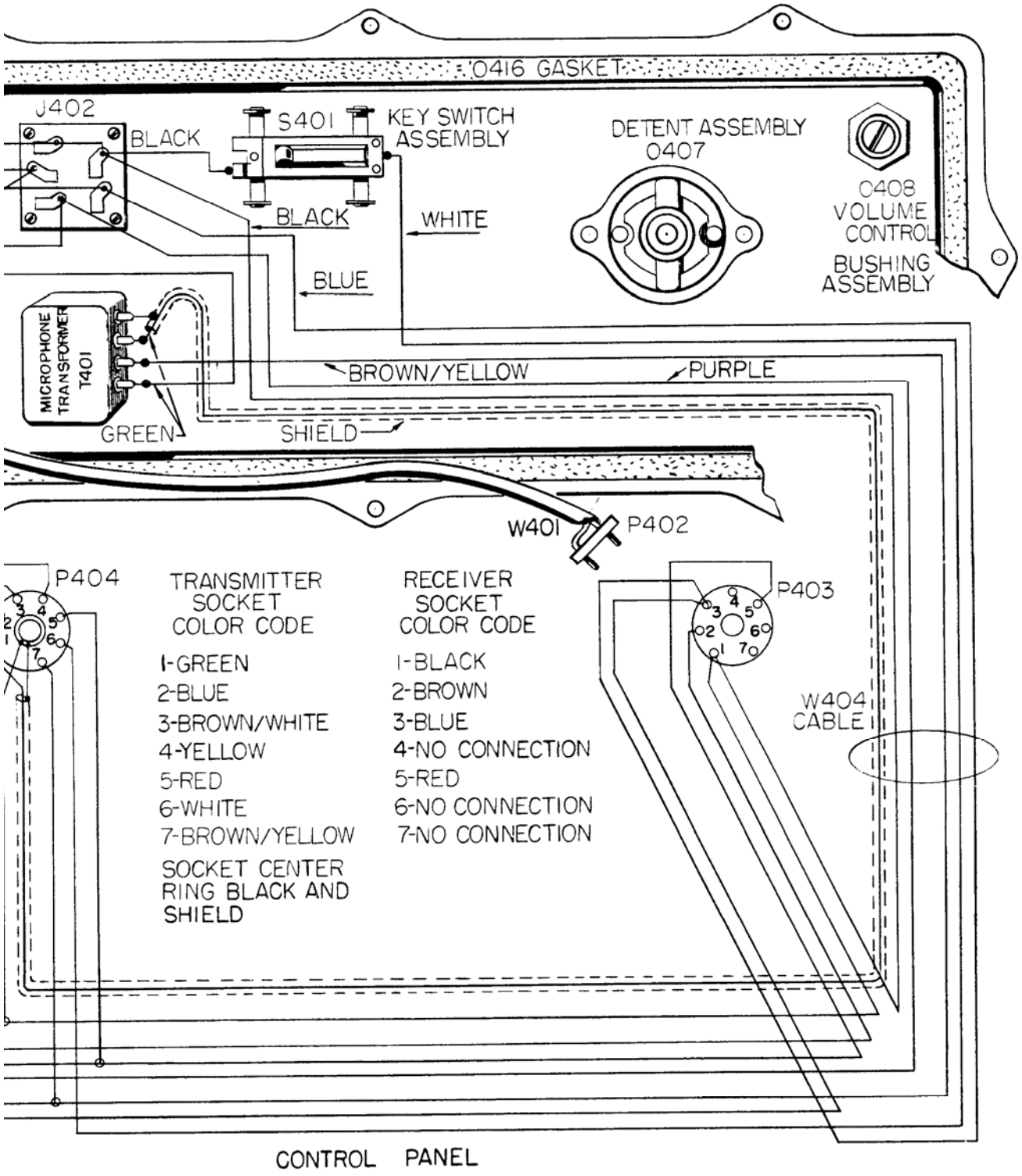


Figure 6-26. Wiring Diagram, Power Supply and Control Panel.

TABLE 7-1. MAW-1, LIST OF MAJOR UNITS

SYMBOL GROUP	QUANTITY	NAME OF MAJOR UNIT	ARMY-NAVY DESIGNATION
101-499	1	RADIO RECEIVER-TRANSMITTER Consisting of the following:	CKB-43069-A
101-199	(1)	Receiver	.....
201-299	(1)	Transmitter	.....
301-399	(1)	Power Supply	.....
401-499	(1)	Panel, "U" Frame, Carrying Case and Battery	.....
501-599	1	TEST METER	CKB-60155-A
601-699	1	HEADSET-MICROPHONE ASSEMBLY	AN/URA-2
701-799	2	ANTENNA ASSEMBLY	CKB-66150
801-899	1	SHIPPING CHEST	CKB-10543
801-899	1	Bag	.....
801-899	1 set	Accessories	.....

TABLE 7-2. TABLE OF REPLACEABLE PARTS

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
101-499	N16-R-35393-7988 2Z5416	RADIO RECEIVER-TRANSMITTER CKB-43069-A: A2 or A3 type of emission, MBCA Ref Dwg Group 5; 0.5 w CW or 0.8 w MCW xmtr output, 25 mw receiver output; frequency data—115 to 156 mc frequency range, 10 channels, ea channel can be preset to any frequency within 115 to 156 mc range; operating power requirements—DC 4v, 2.7 amp reception, 11.3 amp transmission, battery operated, two Sig C Batteries, Type No. BB-54A, w/batteries; mounted in a chassis; special features—entire unit is resistant to moisture and fungi; data regarding "the mfr"—Hoffman Radio Corp part/dwg #AA-423; for portable use; govt identification data—Navy Radio Receiver-Transmitter Type No. CKB-43069-A; govt spec data—MIL Spec No. MIL-R-15774 (SHIPS); p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; all components and accessories listed in MIL-R-15774 (SHIPS)	Major Unit of MAW-1 Equipment
A101	F16-R-31669-9690 2C4034	RECEIVER, RADIO: A2 & A3 reception, MBCA Ref Dwg Group 5; frequency data—115 mc to 156 mc range, 10 channels (frequencies to be determined by govt furnished xtals); operating power requirements—dc, 3 v at at 0.85 amp, 100 v at 45 ma; mounts inside "U" frame beside transmitter; approx o/a dim—12-5/32″ lg, 5-7/16″ wd, 3-7/8″ h; 12 electron tubes; superheterodyne circuit; special features—a turret switch selects the proper tank circuit for each stage and the corresponding xtal for the heterodyne osc in ea channel position; data regarding a "typical mfr"—Hoffman Radio Corp part/dwg #AA-378; for communications; p/o Navy Portable VHF Radio Transmitter and Receiving Equipment Model MAW-1	Receiving unit of equipment. Mounted next to Control Panel A408
C101	N16-C-33906-2511 3D9013Y-4	CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: rotary type, single section, zero temp coef; 2.5 to 13.0 mmf cap; working voltage data—dc, 500 v wkg; approx max o/a dim excl term—0.843″ lg, 0.640″ wd, 0.312″ h; term data—2 term, solder lug type, one located axially at ea end, can be bent to form "L"; two 0.120″ diam mtg holes spaced 0.437″ c to c; scdr slot adj; ceramic base; special features—pure silver plates, full cap change in 180° rotation w/o stop; brass silver plated terminal lugs; "2 5-13 mmf" stamped on side; data regarding a "typical mfr"—Centralab Division of Globe-Union Inc. cat/part #822-BZ-MOD; for general purpose use; Hoffman Radio Corp part/dwg #CV-19; p/o S102F	V101 Grid tuning
C102 thru C110		Same as C101	V101 Grid tuning Mounted on S102F
C111	N16-C-18657-8445 3DA1-116	CAPACITOR, FIXED, CERAMIC DIELECTRIC: case style #1, MBCA Ref Dwg Group 1; capacitance data—1000 mmf capacity, ±20% tolerance; 300 vdcw; body insulation data—insulated w/flash dip wax jacket; case dim—11/16″ lg, 7/32″ diam; terminal data—2 radial wire lead type, special features—moisture and fungus resistant; data regarding a "typical mfr"—The Muter Co part #20K-1200; for general purpose use; Hoffman Radio Corp part/dwg #CT-48	V101 Grid bypass
C112		Same as C111	V101 Filament bypass
C113		Same as C111	V101 screen bypass
C114		Same as C111	V101 Plate decoupling
C115	N16-C-19137-8470 3DA10-138	CAPACITOR, FIXED, CERAMIC DIELECTRIC: case style #1, MBCA Ref Dwg Group 1; capacitance data—10,000mmf, ±20% tolerance; 300 vdcw; body insulation data—insulated w/flash dip wax jacket; case dim—1-17/32″ lg, 13/32″ diam; terminal data—2 radial wire lead type; special features—moisture and fungus resistant; data regarding a "typical mfr"—The Muter Co part #61-K1200; for general purpose use—Hoffman Radio Corp part #CT-50	Bypass on B+ buss
C116 thru C125		Same as C101	V101 Plate tuning Mounted on S102G
C126 thru C135		Same as C101	V102 Grid tuning Mounted on S102H
C136 thru C145		Same as C101	V109 4th Doubler Plate tuning Mounted on S102E
C146		Same as C111	V102 Grid bypass
C147		Same as C111	V109 4th Doubler plate decoupling
C148	N43-N-3570-6090 3D9130-24	CAPACITOR, FIXED, CERAMIC DIELECTRIC: case style #1, MBCA Ref Dwg Group 1; cap data—130 mmf ±5% tol; 500 vdcw; temp coef data—220 parts per million per °C neg, +60 −158 parts per million per °C tol; uninsulated; max case dim—0.860″ lg, 0.250″ diam; term data—2 term radial wire lead type 1¼″ lg min; term, mtd; resistant to humidity and salt-water-immersion cycling; govt spec data—JAN, #JAN-C-20A type CC32RH131J; data regarding a "typical mfr"—Erie Resistor Corp part #CC32RH131J; for general purpose use; Hoffman Radio Corp part/dwg #CT-44	Coupling, V109 3rd Doubler to V109 4th Doubler

C149	16-C-42764-8898 3DA10-447	CAPACITOR, FIXED, PAPER DIELECTRIC: 1 section; case style #22, MBCA Ref Dwg Group 1; cap data—10,000 mmf, ±20% tol; working voltage—300 vdcw; 200 v rms; designed for RF application, 0.15 amp max RF current, 1 mc to 10 mc, rated at 40° ambient temperature; black molded plastic case; case dim—51/64″ lg, 15/32″ wd, 7/32″ thk; term data—2 term, wire lead type, 1⅛″ lg, one located axially at ea end; impregnated and filled as per JAN-C-91; no internal ground connections; special features—resistant to humidity and salt-water-immersion cycling; govt spec data— JAN, #JAN-C-91, type CN22A103M; data regarding a "typical mfr"—Micamold Radio Corp part #CN22A103M; for general purpose use; Hoffman Radio Corp part/dwg #CP-96	V102 Filament bypass
C150		Same as C111	V102 Screen bypass
C151		CAPACITOR, FIXED, PAPER DIELECTRIC: 1 section; case style #2, MBCA Ref Dwg Group 1; cap data—10,000 mmf, ±20% tol; working voltage—300 vdcw, 200 v rms; HS metal can; case dim—11/16″ lg, 0.195″ diam; term data—2 term, wire lead type, 1¾″ lg, one located axially at ea end; impregnated and filled w/ Halowax; one side of capacitor is internally grounded; special features—one end sealed with cover; data regarding a "typical mfr"—Good-All Electric Mfg Co type 504, 0.01 mf, 300v; for general purpose use; Hoffman Radio Corp part/dwg #CP-92	V102 Plate decoupling
C152		Same as C111	V109 Filament bypass
C153		(For reference only—Part of Z101)	Z101 Primary fixed tuning
C154		(For reference only—Part of Z101)	Z101 Secondary fixed tuning
C155		Same as C148	Coupling, V110 to V109
C156		Same as C149	V103 Grid bypass
C157		Same as C149	V103 Filament bypass
C158	N16-C-31090-4472 3K2510221	CAPACITOR, FIXED, MICA DIELECTRIC: cap data—1000 mmf, ± 10% tol; working voltage data—500 vdcw; case of molded thermosetting plastic; max case dim—1-1/16″ lg, 15/32″ wd, 7/32″ thk; term data—2 term, wire lead type, one located axially on ea end; term mtd; special features—resistant to humidity and salt-water-immersion cyc; govt spec data—JAN, #JAN-C-5, type CM25B102K; data regarding a "typical mfr"—Electro Motive Mfg Co Inc type RCM25B102K; for general purpose use; Hoffman Radio Corp part/dwg #CM-5	V103 Screen bypass
C159		Same as C151	V103 Plate decoupling
C160		(For reference only—part of Z102)	Primary fixed tuning
C161		(For reference only—part of Z102)	Secondary fixed tuning
C162		Same as C151	V110 Screen bypass
C163		Same as C149	V104 Grid bypass
C164		Same as C111	V110 Filament bypass
C165		Same as C149	V104 Filament bypass
C166		Same as C158	V104 Screen bypass
C167		(For reference only—part of Z103)	Z103 Fixed tuning
C168	N16-C-18881-8451 3DKA2-118	CAPACITOR, FIXED, CERAMIC DIELECTRIC: case style #1, MBCA Ref Dwg Group 1; capacitance data—2000 mmf capacity, ±20% tolerance; 300 vdcw temp coef variable; body insulation data—insulated w/flash dip wax jacket; case dim—⅞″ lg, 9/32″ diam; terminal data—2 radial wire lead type 1½″ lg; term mtd; special features—moisture and fungus resistant; data regarding a "typical mfr"—The Muter Co part #C-B-K1200; for general purpose use; Hoffman Radio Corp part/dwg #CT-49	V111 Plate decoupling
C169		(For reference only—part of Z103)	Coupling, V104 to V105
C170		Same as C149	V105 Grid bypass
C171		Same as C149	V105 Filament bypass
C172		Same as C158	V105 Screen bypass
C173		Same as C111	V111 Screen bypass
C174		Same as C111	V111 Filament bypass
C175		(For reference only—part of Z104)	Z104 Fixed tuning
C176		(For reference only—part of Z104)	Coupling, V105 to V106
C177		Same as C168	Part of AVC Network
C178		Same as C149	V106 Grid bypass
C179		Same as C148	Coupling, V112 to V111

TABLE 7-2. TABLE OF REPLACEABLE PARTS (Cont'd)

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
C180		Same as C149	V106 Filament bypass
C181		Same as C158	V106 Screen bypass
C182	N16-C-17073-3195 3D9100-242	CAPACITOR, FIXED, CERAMIC DIELECTRIC: case style #1, MBCA Ref Dwg Group 1; cap data–100 mmf ±5% tol; 500 vdcw; temp coef data–zero temp coef, +60 −110 parts per million per °C tol; uninsulated; max case dim–0.860″ lg, 0.250″ diam; term data–2 term radial wire lead type 1¼″ lg min; term mtd; resistant to humidity and salt-water-immersion cycling; govt spec data–JAN, #JAN-C-20A type CC32CH101J; data regarding a "typical mfr"–Erie Resistor Corp part #CC32CH101J; for general use; Hoffman Radio Corp part/dwg #CT-45	Diode load bypass
C183		Same as C158	V106 Plate decoupling
C184		(For reference only–part of Z105)	Z105 Primary fixed tuning
C185		(For reference only–part of Z105)	Z105 Secondary fixed tuning
C186		Same as C151	B+ bypass
C187		Same as C151	V107 Screen bypass
C188		Same as C111	V112 Filament bypass
C189		Same as C149	Coupling, V107 detector to V107 Audio
C190	N16-C-16177-2930 3D9024-32	CAPACITOR, FIXED, CERAMIC DIELECTRIC: case style #1, MBCA Ref Dwg Group 1; cap data–24 mmf ±5% tol; 500 vdcw; temp coef data–zero temp coef, +60 −110 parts per million per °C tol; uninsulated; max case dim–0.460″ lg, 0.240″ diam; term data–2 term radial wire lead type 1¼″ lg min; term mtd; resistant to humidity and salt-water-immersion cycling; govt spec data–JAN, #JAN-C-20A type CC30CH240J; data regarding a "typical mfr"–Erie Resistor Corp part #CC30CH240J; for general purpose use; Hoffman Radio Corp part/dwg #CT-47	V112 Feedback control
C191		Same as C151	Coupling, V107 to V108
C192		Same as C149	V107 and V108 Filament bypass
C193		Same as C148	Coupling, V111 to V110
C194		Same as C111	V101 Grid bypass
CR101	N17-R-50877-3475 3H4860-49	RECTIFIER, METALLIC: copper oxide; designed for single-phase half-wave circuit, MBCA Ref Dwg Group 23; input data–5 vac, single phase, 1-1,000,000 CPS; output data–approx 2.25 vdc, 30 ma rated, half wave rectification; physical data–barrel shaped 0.675″ lg, 0.890″ wd, 0.500″ diam barrel; #6-32 x 0.275″ lg stud bolt ctr mtg; terminal data–two terminals, lug type with 3″ tinned copper braid welded on, located on opposite sides of body; finished with green synthetic lacquer-enamel; data regarding a "typical mfr"–Conant Labs Type H series 500; for general purpose use; Hoffman Radio Corp part/dwg #YM-2	Audio output Meter rectifier. Mounted on E101
E101	*N17-B-77837-7666 2Z9408.195	TERMINAL BOARD: paper base phenolic; terminal data–includes terminals–8 terminals, solder type; w/o barriers; o/a dim–2-11/16″ lg, 11/16″ wd, 1½″ h; one 0.101″ diam mtg hole in "L" shaped mtg bracket near one end; four 0.120″ diam mtg holes near opposite end spaced 0.984″ c to c horizontally and ⅝″ vertically; symbol #"E101" stenciled on front and #"CR101" on back of terminal board; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-303; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment MAW-1	Provides Mounting for R111, R120, R138, and CR101
E102	*N17-B-77895-4399 2Z9409.65	TERMINAL BOARD: paper base phenolic; terminal data–includes terminals–9 terminals, solder type; w/o barriers; o/a dim–5⅞″ lg, ⅞″ wd, 7/16″ h; three "L" shaped mtg brackets spaced 2½″ c to c and 3″ c to c, with one 0.096″ mtg hole in the base of each; symbol #"E102" stenciled on part; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-305; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment MAW-1	Support for wiring and components
E103	*N17-B-77738-2785 3Z770–6.120	TERMINAL BOARD: phenolic board, hot tinned brass base; terminal data–includes terminals, six solder type lug, one phenolic board w/two terminals on top of base, two gnd terminals on mtg lug, one terminal on each end of base; w/o barriers; approx o/a dim excluding term and mtg attachments–2⅞″ lg, 1″ wd, 0.0945″ thk; two 9/32″ diam mtg holes, one on each side; ¼″ diam hole on end nearest mtg lug w/gnd terminals attached; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-315; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Support for wiring and components
E104	*N17-B-77686-6721 3Z770-5.56	TERMINAL BOARD: phenolic board, hot tinned brass base; terminal data–includes terminals, five solder lug type; w/o barriers; approx over-all dim excluding terminals & mtg attachments–2-11/32″ lg top arm, 1-11/64″ lg base, 1″ high; three mtg ears w/ 0.101″ diam mtg holes, two centered on 2.062″ x mtg/c and one on the base; "J102" stencilled on one arm of "T"; special features–base of "T" fastened to top arm by two rivets, ¼″ diam hole in other arm of "T"; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-318; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Support for wiring and components

E105	*N17-B-77686-2551 3Z770-5.55	TERMINAL BOARD: phenolic board, hot tinned brass base; terminal data—includes terminals, five solder lug type; two phenolic boards on metal base; one board has two terms, other board has two terms and one ground term; w/o barriers; approx over-all dim excluding terminals and mtg attachments—2-5/64″ lg, 1¼″ wd, 11/16″ h; two 0.101″ diam mtg holes on different planes; ¼″ diam hole on end opposite terminals; data regarding "the mfr"—Hoffman Radio Corp part/dwg #EA-320; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Support for wiring and components
E106		TERMINAL LUG: rd tongue end type; style #1, MBCA Ref Dwg Group 20; brass; hot solder dip; approx #14 AWG wire accommodation; o/a dim—21/32″ lg, ¼″ wd, 0.020″ thk; soldered wire connection; one 0.116″ to 0.123″ diam mtg hole in large end; one 5/64″ diam hole in small end; data regarding a "typical mfr"—Shakeproof Inc part #2522-04-00; for general purpose use; Hoffman Radio Corp part/dwg #HL-44	Ground terminal Mounted on Chassis
E107		TERMINAL LUG: rd tongue end type; style #1 MBCA Ref Dwg Group 20, with right angle bend near large end; brass; solder coat; approx #16 AWG wire accommodation; o/a dim—25/64″ lg, 3/16″ wd, ¼″ high, 0.016″ thk; soldered wire connection; one 3/32″ diam mtg hole on large end, one 1/16″ diam hole in small end; has 3 small barbs on rim of large mtg hole; data regarding a "typical mfr"—Cinch Manufacturing Corp part #1402A; for general purpose use; Hoffman Radio Corp part/dwg #HL-110	Ground terminal Mounted on Chassis
E108	N-17-T-26666-2325 3Z12073-37.5	TERMINAL LUG: rd tongue end type; style #20, MBCA Ref Dwg Group 20 with right angle bend near one end; brass 0.016″ thk; hot tinned; approx #14 AWG wire accommodation; o/a dim—⅜″ lg, ⅛″ wd, 3/16″ h; soldered wire connection; one 3/32″ diam mtg hole bent end; one 5/64″ diam hole on straight end; data regarding a "typical mfr"—Cinch Manufacturing Corp #1432; for general purpose use; Hoffman Radio Corp part/dwg #HL-112	Ground terminal Mounted on Chassis
E109	N16-C-600701-156 2Z3262-71	CORE, ADJUSTABLE TUNING: principal part data—one end, copper, silver plated; other end, iron, rust proofed; approx o/a dim—1″ lg, 0.255″ diam; supplementary parts c/o—one integral silver plated brass tuning screw w/screwdriver slot; mounts inside coil form; core slotted along length to fit runner on form; data regarding "the mfr"—Hoffman Radio Corp part/dwg #EA-287; used to tune turret coils; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; used with L102 thru L131	Tuning slug for receiver tuning coils L102 thru L131
E110		SWITCH SECTION, rotary: wafer c/o rotor, stator and contacts which are p/o Coil Assembly Switch Section less coils; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; paper base phenolic base with silver pl brass contacts; square with one rounded corner, other three corners have mtg indents; 3-11/16″ lg, 3-5/16″ wd, approx ¾″ thk; 0.101″ rad indents in ea of three corners fit over mtg rods, not included; one solder lug and two solder term on edge of stator; mfr & contr: Hoffman Radio Corp part/dwg #EA-312; p/o S102B	Replacement contact wafer for turret switch section S102B
E111		Same as E110; p/o S102C	Replacement contact wafer for turret switch section S102C
E112		Same as E110; p/o S102D	Replacement contact wafer for turret switch section S102D
E113	N17-S-91764-6110 3Z9903E-36	SWITCH SECTION, rotary: wafer c/o rotor, stator and contacts which are p/o Capacitor Assembly Switch Section less capacitors; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; paper base phenolic base with silver pl brass contacts; square with one rounded corner, other three corners have mtg indents; 3-11/16″ lg, 3-5/16″ wd, approx 3/4″ thk; 0.101″ rad indents in ea of three corners fit over mtg rods, not included; two solder lugs on opposite sides and two solder term on edge of stator; mfr & contr: Hoffman Radio Corp part/dwg #EA-355 (extra solder lug not used); p/o S102E	Replacement contact wafer for turret switch section S102E
E114		Same as E113; p/o S102F (extra solder lug not used)	Replacement contact wafer for turret switch section S102F
E115		Same as E113; p/o S102G	Replacement contact wafer for turret switch section S102G
E116		Same as E113; p/o S102H (extra solder lug not used)	Replacement contact wafer for turret switch section S102H
H101 thru H116		Not used	
H117	N17-C-806533-551 3Z1090	CLIP, ELECTRICAL: fahnestock style #2, MBCA Ref Dwg Group 37; phosphor bronze or spring brass; nickel plated finish; dim, MBCA Ref Dwg Group 37—approx 1″ lg, ⅜″ wd; terminal data—one terminal, spring clip type; approx ⅛″ opening when fully spread; approx 5/32″ diam mtg hole on end; used as holder for #6 Allen wrench; data regarding a "typical mfr"—Fahnestock Electric Co; single type ⅜″ x 1″ nickel pl; for general purpose use; Hoffman Radio Corp part/dwg #HM-256; p/o S102	Holder for Allen Wrench H130
H118	N16-G-900115-298 6Z4849H	GROMMET: synthetic rubber; fits ⅜″ diam hole; ¼″ hole diam x 1/16″ wd groove, ¼″ wd x ½″ diam overall; mfr: Rubbercraft type #3; contr: Hoffman Radio Corp part/dwg #HG-1	Cable feed-through protector in Receiver A101 and part of spare tube retainer in Power Supply
H119 thru H129		Not used	
H130	G41-W-2445 6R57400-6	WRENCH: Allen set screw; 1/16″ hex; approx 1-3/4″ lg arm, 9/16″ short arm; steel, cad pl w/supplementary dichromate treatment per Fed spec QQ-P-416, type 2, class B; 90° offset, either end may be used as head; special for #6 Allen set screw; mfr: Allen Mfg Co code #116; contr: Hoffman Radio Corp part/dwg #VW-7; p/o S102	Tightening and loosening set screws in drive mechanisms

* Not furnished as a maintenance part. If failure occurs, do not request replacement unless the item cannot be repaired or fabricated.

TABLE 7-2. TABLE OF REPLACEABLE PARTS (Cont'd)

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
J101	*N17-C-74508-1237 2Z3105-24	CONNECTOR ASSEMBLY, ELECTRICAL: 2 connectors in assy; individual connector data–2 Insuline Corp of America Pin Jack part #357; contact data–two contacts, rd, female type; electrical rating of contacts–dc, 3 amp at 150v; approx o/a dim–1⅞" lg, ⅜" wd, ⅞" h; two 0.128" diam mtg holes on 1½" mtg/c; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-311; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; includes J101A & J101B	RECEIVER GRID CURRENT METER Jack
J101A	N17-C-73108-3598 2Z3062-264	CONNECTOR, RECEPTACLE: contact data–one, 0.089" diam, female, rd; straight; pin jack type; o/a dim–27/32" lg, 5/16" wd flat to flat hex hd; body data–cylindrical body with hex hd and hex mtg nut, brass, nickel pl; no insert, body is contact and conducting portion of jack; has single solder lug term with 0.062" diam hole; mounting data–threaded body serves as single mtg stud, 1/4" diam, 1/4" x 32NEF-2 thd, shank 19/32" lg; special features–includes 1/4"-32 x 3/8" hex x 3/32" thk mtg nut; data regarding a "typical mfr"–Insuline Corp of America, part #357; for general purpose use; Hoffman Radio Corp part/dwg #JK-8; p/o J101	Single pin jack
J101B		Same as J101A	Single pin jack
J102	N17-I-36426-8201 2Z3027-16	CONNECTOR, RECEPTACLE: Navy Type #491217; 7 round male cont, pol; straight type; 7/16" lg x 0.625" diam less cont; 2 amp, 3 v and 200 ma, 150 v; round, molded phenolic, plain finish; chassis mtd w/1 screw, size #4FH through 0.120" diam hole in ctr of connector; mtg hole csk 0.062" d, incl 4 indents ⅛" diam x 1/64" d equally spaced 90° apart around edge; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment, Model MAW-1; Cinch part #9412 modified per Hoffman Radio Corp part/dwg #PL-88	Electrical Connection for supplying power to Receiver A101
L101	*N16-C-72698-4531 3C1084Z42-2	COIL, RADIO FREQUENCY: electrical data–approx 0.15 uh @ 43 mc; physical data–approx 2⅛" turns 0.064" diam copper tinned conductor, one winding, single layer, tapped ½ turn when mtd in equipment, unshielded; approx coil dim excl terms and mtg attachments–1/2" lg, 0.531" ID; termination data–two terminations, wire, located on each end; mounted by wire leads; used as radio frequency amplifier grid coil; data regarding "the mfr"–Hoffman Radio Corp part/dwg #LR-30; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Antenna impedance matching to V101
L102	N16-C-72740-4301 3C1084Z52-15	COIL, RADIO FREQUENCY: electrical data–approx 0.44 mh @ 43.6 mc; physical data–7½ turns #22 AWG copper conductor plain enameled, one winding, single layer, unshielded, moulded phenolic form; approx coil dim, excluding terminals, mtg attachments and tuning devices–3/16" lg, 0.297" diam; over-all coil form dim–¾" lg, ½" diam; adjustable tuning–iron-copper core, not supplied, screwdriver adjustment top end of coil; terminal data–two terminals, solder lug type; mounted by terminal lugs; radio frequency plate circuit tuning coil; data regarding "the mfr"–Hoffman Radio Corp part/dwg #LA-8; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S102D	V109 3rd Doubler plate tuning
L103 thru L111		Same as L102	V109 3rd Doubler plate tuning
L112	N16-C-72849-5501 3C1084Z52-13	COIL, RADIO FREQUENCY: electrical data–approx 1.93 mh @ 20.9 mc; physical data–15½ turns #30 AWG copper conductor plain enameled, one winding, single layer, unshielded, moulded phenolic form; approx coil dim, excluding terminals, mtg attachments and tuning devices–⅛" lg, 0.297" diam; over-all coil form dim–¾" lg, ½" diam; adjustable tuning–iron-copper core, not supplied, screwdriver adjustment top end of coil; terminal data–two terminals, solder lug type; mounted by terminal lugs; radio frequency plate circuit tuning coil; data regarding "the mfr"–Hoffman Radio Corp part/dwg #LA-8; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S102C	V110 plate tuning
L113 thru L121		Same as L112	V110 plate tuning
L122	N16-C-73027-4522 3C1084Z52-14	COIL, RADIO FREQUENCY: electrical data–approx 5.72 mh @ 12.15 mc; physical data–29½ turns #33 AWG copper conductor plain enameled, one winding, single layer, unshielded, moulded phenolic form; approx coil dim, excluding terminals, mtg attachments and tuning devices–¼" lg, 0.297" diam; over-all coil form dim–¾" lg, ½" diam; adjustable tuning–iron-copper core, not supplied, screwdriver adjustment top end of coil; terminal data–two terminals, solder lug type; mounted by terminal lugs; radio frequency plate circuit tuning coil; data regarding "the mfr"–Hoffman Radio Corp part/dwg #LA-10; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S102B	V111 plate tuning
L123 thru L131		Same as L122	V111 plate tuning
L132	N16-C-74000-3662 3C323-176D	COIL, RADIO FREQUENCY: electrical data–approx 250 uh at 1.53 mc; physical data–70 turns/pi, #38 AWG copper single silk enameled conductor, 4 windings, pi universal type, unshielded, solid phenolic Stackpole type #DR-1 Hank resistor form; impregnated w/Insl-x, #E-67; approx coil dim excl terms & mtg attachments–½" lg, 5/16" diam, approx coil form dim–¾" lg, 7/32" diam; terminal data–two terminals, axial wire lead type, one on each end of form; mounted term; used as radio frequency choke; data regarding "the mfr"–Hoffman Radio Corp part/dwg #LR-40; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	V111 plate decoupling choke
L133		Same as L132	V112 screen (active plate) decoupling choke

0101	*N17-C-860001-131 2Z2935-162	COLLAR, spacing: u/w Hoffman Radio Corp part/dwg #SW-52, rotary switch; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; aluminum alloy, caustic dipped and water dip lacquered; tublar shaped, 7/32" lg x 3/16" OD; one 0.131" diam axial mtg hole thru length; mfr and contr: Hoffman Radio Corp part/dwg #OS-54; u/w S101	Mounting spacers for switch S101
0102	*N17-C-98432-4641 2Z3273-258	COUPLING, rigid: sleeve type; 0.253" ±0.001" ID ea end; two #6-32 set screw holes separated 90° on one end only; 11/16" lg, 7/16" diam o/a; water hardened tool steel, chrome pl; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr & contr: Hoffman Radio Corp part/dwg #OM-621; p/o 0104	Drive shaft couplings to Turret Tuner S102
0103	N16-D-200001-126 2Z3613-17	DETENT: provision for 10 switch positions; approx o/a dim—8¾" lg, 3-11/32" wd, 3-5/16" h; one 0.187"/0.188" diam mtg hole in each of three corners of detent plate, 2.937" x 2.937" mtg/c, two "L" mtg brackets also on plate on 2.908" mtg/c; special features—c/o end plate, miter gear, detent spring, two balls and shaft, p/o Hoffman Rad part/dwg #EA-277; data regarding "the mfr"—Hoffman Radio Corp part/dwg #AA-374, p/o—Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S102	Drive shaft and detent for receiver channel turret switch
0104	N16-D-901161-154 2Z3876.143	DRIVE, TUNING: mechanically operated; continuous 360° rotation; selector knob shaft actuation; approx o/a dim—5-5/16" lg, 1¾" wd, 15/16" d; four 0.072" rad mtg holes elongated 1/16", one on ea corner of rectangular mtg bracket on 1.750" x 1.750" mtg/c; data regarding "the mfr"—Hoffman Radio Corp part/dwg #OA-144; transfers rotational drive at rt-angle for transmitter channel selector switch from knob-actuated shaft; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S102	Miter gear and drive shaft assembly for Receiver Turret Tuner
0105	*N16-B-750041-107 2Z6820.425	MOUNTING: SS, passivated; approx o/a dim—3-5/16" lg, 3-5/16" wd, 1-13/32" d; mtg data—two integral brackets with 0.125" diam mtg hole in ea for holding two crystal sockets fastened to ends of three spacer rods by one 0.101" rad mtg slot in ea of three corners; for mtg crystal sockets in receiver; data regarding "the mfr"—Hoffman Radio Corp part/dwg #AA-425; p/o S102A	Mounting for Crystal socket XY101 and XY106
0106	*N17-P-405501-140 2Z7091-632	PLATE, switch: end of radio frequency tuner assembly; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; SS passivate; square except one corner is rounded and cut out; 3-5/16" lg, 3-5/16" wd, 0.0598" thk; 0.188" diam mtg holes on three corners on 2.937" x 2.937" mtg/c; mfr & contr: Hoffman Radio Corp part/dwg # AS-812; p/o S102	Support for Spacer Rods 0107
0107	*N16-R-686861-108 2Z8203-639	ROD, spacer: used to support and space sections of receiver RF tuner, Hoffman Radio Corp part/dwg #EA-277; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; aluminum alloy, caustic dipped and water dipped lacquered; rd rod; 8.155" lg x 0.250" diam; two #4-40-NC-2 x 5/16" d axial holes, one on each end; seven 0.064" wd x 0.057" d externally relieved indents spaced along length, each end externally relieved 0.031" lg x approx 0.186" diam; mfr and contr: Hoffman Radio Corp part/dwg #OM-678; p/o S102	Supports and spaces switch sections
P101	N17-C-71426-9862 2Z3022-164	CONNECTOR, PLUG: contact data—2, male, rd; straight type; o/a dim—9/32" lg excl contacts and term, 13/16" wd, 5/16" h; radio frequency connector, approx 50 ohms nominal impedance, nonconstant freq impedance characteristic; body data—rectangular, rounded ends, type MTS-E-4 molded phenolic, moisture and fungus resistant lacquer; mounting data—2 turret type solder lugs, 3/32" lg, 0.486" mtg/c; special features—cannot be disassembled, contacts are silver plated; data regarding "the mfr"—Hoffman Radio Corp part/dwg #EM-194; p/o—Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o W101	Receiver antenna connector plug
R101	N16-R-50516-491 3RC10BF563K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data—56,000 ohms total resistance, ±10% tolerance; ¼ watt power dissipation; resistance temp characteristics—F characteristics; max body dim excl term—0.406" lg, 0.170" diam; insulation data—insulated, resistant to humidity and salt-water-immersion cycling; terminal data—2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data—JAN type RC10BF563K, #JAN-R-11; data regarding a "typical mfr"—International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-363	V101 Grid Return
R102	N16-R-50588-491 3RC10BF823K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data—82,000 ohms total resistance, ±10% tolerance; ¼ watt power dissipation; resistance temp characteristics—F characteristic; max body dim excl term—0.406" lg, 0.170" diam; insulation data—insulated, resistant to humidity and salt-water-immersion cycling; terminal data—2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data—JAN type RC10BF823K, #JAN-R-11; data regarding a "typical mfr"—International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-354	V101 Screen dropping
R103	N16-R-49922-491 3RC10BF102K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data—1000 ohms total resistance, ±10% tolerance; ¼ watt power dissipation; resistance temp characteristics—F characteristic; max body dim excl term—0.406" lg, 0.170" diam; insulation data—2 term, wire lea dtype, one located axially on ea end; standard color code per JAN-R-11; govt spec data—JAN type RC10BF102K, #JAN-R-11; data regarding a "typical mfr"—International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-348	V101 Plate decoupling
R104	N16-R-50165-491 3RC10BF562K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data—5600 ohms total resistance, ±10% tolerance; ¼ watt power dissipation; resistance temp characteristics—F characteristic; max body dim excl term—0.406" lg, 0.170" diam; insulation data— insulated, resistant to humidity and salt-water-immersion cycling; terminal data—2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data—JAN type RC10BF562K, #JAN-R-11; data regarding a "typical mfr"—International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-352	V109 Plate decoupling

* Not furnished as a maintenance part. If failure occurs, do not request replacement unless the item cannot be repaired or fabricated.

TABLE 7-2. TABLE OF REPLACEABLE PARTS (Cont'd)

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
R105	N16-R-50714-491 3RC10BF224K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–220,000 ohms total resistance, ±10% tolerance; ¼ watt power dissipation; resistance temp characteristics–F characteristic; max body dim excl term–0.406" lg, 0.170" diam; insulation data–insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC10BF224K, #JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp; part/dwg #RC-361	V109 grid return of 4th Doubler
R106	N16-R-50480-491 3RC10BF473K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–47,000 ohms total resistance,±10% tolerance; ¼ watt power dissipation; resistance temp characteristics–F characteristic; max body dim excl term–0.406" lg, 0.170" diam; insulation data– insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC10BF473K, #JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-188	V102 grid return
R107	N16-R-49354-111 3RC10BF300J	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–30 ohms total resistance, ±5% tolerance; ¼ watt power dissipation; resistance temp characteristics–F characteristic; max body dim excl term–0.406" lg, 0.170" diam; insulation data–insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC10BF300J, #JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-341	V102 Filament voltage dropping
R108	N16-T-50975-491 3RC10BF105K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–1 megohm total resistance, ±10% tolerance; ¼ watt power dissipation; resistance temp characteristics–F characteristic; max body dim excl term–0.406" lg, 0.170" diam; insulation data–insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC10BF105K, #JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-186	V102 screen dropping
R109	N16-R-50129-491 3RC10BF472K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–4700 ohms total resistance, ±10% tolerance; ¼ watt power dissipation; resistance temp characteristics–F characteristic; max body dim excl term–0.406" lg, 0.170" diam; insulation data– insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; gvt spec data–JAN type RC10BF472K, #JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-351	V102 plate decoupling
R110	N16-R-50822-491 3RC10BF474K	RESISTOR, FIXED, COMPOSITION; body style #14, MBCA Ref Dwg Group 2; resistance data–470,000 ohms total resistance, ±10% tolerance; ¼ watt power dissipation; resistance temp characteristics–F characteristic; max body dim excl term–0.406" lg, 0.170" diam; insulation data–insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC10BF474K, # JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-362	V103 grid return
R111		Same as R107	V103 Fillament voltage dropping
R112		Same as R101	V103 screen dropping
R113		Same as R109	V103 plate decoupling
R114		Same as R110	V104 grid return
R115		Same as R108	V110 grid return
R116		Same as R107	V104 Filament voltage dropping
R117	N16-R-50417-491 3RC10BF333K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–33,000 ohms total resistance, ±10% tolerance; ¼ watt power dissipation; resistance temp characteristics–F characteristic; max body dim excl term–0.406" lg, 0.170" diam; insulation data–insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC10BF333K, #JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-365	V104 screen dropping
R118		(For Reference only–part of Z102)	Z102 loading
R119		Same as R110	V105 grid return
R120		Same as R107	V105 Filament voltage dropping
R121	N16-R-50282-491 3RC10BF103K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–10,000 ohms total resistance, ±10% tolerance; ¼ watt power dissipation; resistance temp characteristics–F characteristic; max body dim excl term–0.406" lg, 0.170" diam; insulation data–insulated, resistant to humidity and salt-water-imersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC10BF103K, #JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-189	V111 screen dropping

R122		Same as R102	V105 screen dropping
R123		Same as R108	V111 grid return
R124		(For Reference only—part of Z104)·	V106 grid return
R125		Same as R110	V106 grid return
R126		Same as R107	V106 filament voltage dropping
R127		Same as R117	V106 screen dropping
R128		Same as R108	V107 anode load
R129		Same as R109	V106 plate decoupling
R130		Same as R110	Part of AVC network
R131		Same as R106	V112 grid return
R132	N16-R-49696-111 3RC10BF301J	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data—300 ohms total resistance, ±5% tolerance; ¼ watt power dissipation; resistance temp characteristics—F characteristic; max body dim excl term—0.406″ lg, 0.170″ diam; insulation data—insulated, resistant to humidity and salt-water-immersion cycling; terminal data—2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data—JAN type RC10BF301J, #JAN-R-11; data regarding a "typical mfr"—International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-346	Meter shunt for metering grid current of V112
R133	N16-R-51110-491 3RC10BF335K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data—3.3 megohms total resistance, ±10% tolerance; ¼ watt power dissipation; resistance temp characteristics—F characteristic; max body dim excl term—0.406″ lg, 0.170″ diam; insulation data—insulated, resistant to humidity and salt-water-immersion cycling; terminal data—2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data—JAN type RC10BF335K, #JAN-R-11; data regarding a "typical mfr"—International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-356	V107 screen dropping
R134		Same as R108	V107 plate load
R135	N16-R-51326-491 3RC10BF106K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data—10 megohms total resistance, ±10% tolerance; ¼ watt power dissipation; resistance temp characteristics—F characteristic; max body dim excl term—0.406″ lg, 0.170″ diam; insulation data—insulated, resistant to humidity and salt-water-immersion cycling; terminal data—2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data—JAN type RC10BF106K, #JAN-R-11; data regarding a "typical mfr"—International Resistance Co; for general use; Hoffman Radio Corp part/dwg #RC-364	V107 grid return
R136	N16-R-88413-7960 3Z7499-2E5.2	RESISTOR, VARIABLE: carbon element; resistor & tolerance data—one section, 2.5 megohms ±20%; taper data—std M taper, MBCA Ref Dwg Group 3; terminal data—three terms each section, solder lug type; case data—metal case, enclosed, approx diam, 0.451″ wd, 15/16″ diam; shaft data—metal, rd, approx 0.250″ diam, 32 thds/in, ¼″ lg; special features—all phenolic parts moisture & fungus resistant treated; unit must operate satisfactorily between −54° C & +65° C; angle of rotation is 320°; case is grounded; "RV-78" stamped on side of case & "R-136" stencilled on back of case; ⅜″-32 x 9/16″ hex x 3/32″ thk mtg nut & ⅜″ ID x ⅝″ OD x 1/32″ thk washer furnished with unit; shaft has 3/16″ lg x 0.250″ wd x 0.091″ thk rectangular tip chamfered 1/64″ x 45° on long end; long end flatted 0.015″ x 21/32″ lg; shaft extends 0.218″ from back of case & is 0.160″ diam with centered slot 0.065″ lg x 0.160″ wd x 3/16″ deep; data regarding "the mfr"—Hoffman Radio Corp part/dwg #RV-78; p/o Navy Portable VHF Radio Transmitting & Receiving Equipment Model MAW-1	Volume control Mounted on Receiver Chassis
R137		Same as R133	V108 grid return
R138		Same as R109	Grid current limiting
R139		Same as R109	V109 grid return
R140		(For Reference Only—part of Z103	Z103 load resistor
R141		(For Reference Only—part of Z104)	Z104 load resistor
R142		(For Reference Only—part of Z105)	Z105 load resistor
S101	N17-S-59406-8553 3Z9826-94	SWITCH, ROTARY: one section; twelve max switching positions possible; contact data arrangement—non "pi.e-up" type, ten stator contacts/section; bras contacts, silver plated; phenolic section; o/a physical dim excl terms—1-59/64″ lg, 1-21/32″ wd, ⅜″ thk; mtd by two 0.136″ diam holes, one each end; solder lug type terminals; special features—phenolic moisture and fungus resistant treated, indicator control arm 9/16″ lg x ⅜″ wd x 1/16″ thk o/a staked to wafer; data regarding "the mfr"—Hoffman Radio Corp part/dwg #SW-52; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; u/w two 0101	Selects one of 7 Receiver Circuits for metering
S102	N16-T-98209-8501 3Z9826-94.3	TUNER ASSEMBLY, RADIO FREQUENCY: 115 mc to 156 mc freq range; adjustment data—40 trimmer type capacitors, 30 coil slugs, all screwdriver adjustments; approx o/a dim—9-5/16″ lg, 5-5/16″ wd, 3-11/32″ h; mtg data—one end has two "L" brackets, other end has two tapped mtg holes; two crystal socket assemblies are marked 1 to 5 and 6 to 10 respectively; c/o four switch wafers with 10 trimmer capacitors on each, three wafers with 10 coils on each, a detent, pair of miter gears and shaft; small alignment pin through one gear and shaft; data regarding "the mfr"—Hoffman Radio Corp part/dwg #EA-277; selects frequency channel of receiver by inserting pretuned tank circuits into the proper stages; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Receiver Turret Tuner channel selector

TABLE 7-2. TABLE OF REPLACEABLE PARTS (Cont'd)

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
S102A	N16-R-36161-1034 2Z8761-71	SOCKET ASSEMBLY, CRYSTAL: crystal switch and socket assembly for channel selector switch; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; consists of two sets of five ea crystal sockets wired to the crystal switch wafer of the channel selector; approx 3-5/16" h x 3-5/16" lg x 1-7/16" wd; mounts by three cut-outs in corners of the crystal switch wafer which engage grooves in three switch section supporting rods; crystal switch sockets marked with numbers from 1 to 10; crystal sockets are designed to accommodate either type CR-18/U or CR-5/U crystal units; mfr and contr: Hoffman Radio Corp part/dwg #EA-276; p/o S102	Mounts and selects one of ten crystals Y101 thru Y110 for V112
S102B	*N16-C-78076-5001 3Z4034-2	COIL ASSEMBLY, RADIO FREQUENCY: individual coil data–10 coils, single layer close wound, 29½ turns #33 AWG enameled wire; termination data–2 terminals, lug type; approx o/a dim–3-11/32" lg, 3-5/16" wd, ⅞" thk; adjustable iron-copper core; mounting data–cut-outs in three corners which fits slot of tuner assembly spacer rods, hexagonal hub in center, which fits tuner assembly drive shaft; special features–phenolic is fungus treated, contacts silver plated, extra solder lug on stator, p/o Hoffman Rad part/dwg #EA-277; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-289; receiver 1st doubler tuning; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S102	Mounts and selects one of ten coils L122 thru L131 for V111
S102C	*N16-C-78076-2001 3Z4034-2	COIL ASSEMBLY, RADIO FREQUENCY: individual coil data–10 coils, single layer close wound, 15½ turns #30 AWG enameled wire; termination data–2 terminals, lug type; approx o/a dim–3-11/32" lg, 3-5/16" wd, ⅞" thk; adjustable iron-copper core; mounting data–cut-outs in three corners which fit slot of tuner assembly spacer rods; hexagonal hub in center which fits tuner assembly drive shaft; special features–phenolic is fungus treated, contacts silver plated, p/o Hoffman Rad part/dwg #EA-277; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-290; receiver 2nd doubler tuning; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S102	Mounts and selects one of ten coils L112 thru L121 for V110
S102D	*N16-C-78075-8001 3C4034-4	COIL ASSEMBLY, RADIO FREQUENCY TUNER: individual coil data–10 coils, single layer close wound, 7½ turns #22 AWG enameled wire; termination data–2 terminals, lug type; approx o/a dim– 3-11/32" lg, 3-5/16" wd, ⅞" thk; adjustable iron-copper core; mounting data–cut-outs in three corners which fit slot of tuner assembly spacer rods, hexagonal hub in center which fits tuner assembly drive shaft; special features –phenolic is fungus treated, contacts silver plated; p/o Hoffman Rad part/dwg #EA-277; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-300; receiver 3rd doubler tuning; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S102	Mounts and selects one of ten coils L102 thru L111 for V109
S102E	*N16-C-66300-6251 3DE215V	CAPACITOR ASSEMBLY: individual capacitor data–10 capacitors, 2½ to 13 mmf, approx 500 vdcw, Centralab catalog #822-BZ; approx over-all dim–3-11/32" lg, 3-5/16" wd, ⅞" thk; mounting data–cut-outs in three corners which fit in slot of tuner assembly spacer rods; hexagonal hub in center which fits tuner assembly drive shaft; special features–phenolic is fungus treated, contacts silver plated, extra solder lug on stator; p/o Hoffman Rad part/dwg #EA-277; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-293; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S102 For replacement use Hoffman Rad part #EA-356, (S102G)	Mounts and selects one of ten Capacitors C136 thru C145 for V109
S102F		Same as S102E For replacement use Hoffman Rad part #EA-356. (S102G)	Mounts and selects one of ten Capacitors C101 thru C110 for V101
S102G	N16-C-66300-6276 3DE13V-1	CAPACITOR ASSEMBLY: individual capacitor data–10 capacitors 2½/13 mmf, approx 500 vdcw, Centralab catalog #822-BZ; approx o/a dim–3-11/32" lg, 3-5/16" wd, ⅞" thk; mounting data–cut-outs in three corners which fit in slot of tuner assembly spacer rods, hexagonal hub in center which fits tuner assembly drive shaft; special features–phenolic is fungus treated, contacts silver plated; p/o Hoffman Radio Corp part/dwg #EA-277, two solder term and one double solder lug on stator; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-356; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S102	Mounts and selects one of ten Capacitors C116 thru C125 for V101
S102H		Same as S102E For replacement use Hoffman Rad part #EA-356, (S102G)	Mounts and selects one of ten Capacitors C126 thru C135 for V102
SV101	N16-S-34557-8351 2Z8304.276	SHIELD, tube: JAN type #TS102U02; copper nickel pl or bras nickel pl; cylindrical with partially closed top; bayonet mtg on shield base of socket; 0.810" ID x 1¾" lg; ½" diam vent hole at top; with coiled tube-retaining spring; Cinch Mfg Corp part #TS102U02; Hoffman Radio Corp part/dwg #XA-19; spec JAN-S-28A; u/w XV101	Shield and retainer for V101
SV102 thru SV112		Same as SV101	Shields and retainers for V102 thru V112
T101		TRANSFORMER, AUDIO FREQUENCY: plate coupling type; impedance data–24,000 ohms primary, 600 ohms secondary; 500 vac 60 cycle test voltage; case and core data–closed cylindrical metal case, iron alloy core; o/a dim, MBCA Ref Dwg Group 12–1-7/16" lg, 1.000" diam; approx 6 to 1 ratio of turns, primary to secondary; frequency data–±1 db from 350 to 3500 cycles frequency response, not tuned; term data–four solder lug type terms, located on bottom; two mtg bushings tapped #2-56-NC-2 x 3/16" min d spaced 0.656" c to c; special features–term nos "1", "2", "3" and "4" metal stamped ⅛" h on bottom of case, case rolled over and solder sealed to base, "TA-46" and "T101" stencilled on top of case, "TA-46" stamped on winding, primary wound over secondary, fungus treated; vacuum wax-impregnated, not shielded; data regarding "the mfr"–Hoffman Radio Corp part/dwg #TA-46; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Couples output of V108 to Headset

T102	N16-C-75981-8718 3C1084Z42-3	TRANSFORMER, RADIO FREQUENCY: winding data—three windings, single layer wound; approx inductance ea wnd—4th doubler plate, 0.16 uh at 40.1 mc, converter grid, 0.15 uh at 40.9 mc, rf plate, 0.11 uh at 48.0 mc; 0.064″ diam tinned copper wire ea wnd—4th doubler plate, 2 turns, converter grid, 2 turns, rf plate, 1¼″ turns 0.064″ diam tinned copper wire; not tapped; unshielded; approx over-all dim—2″ lg, ¾″ diam excl term; material data—solid polystyrene form; approx over-all dim of form—1½″ lg, ⅝″ diam; no adjustable tuning; mounted by wire ends of coils; terminal data—6 terminals, wire type, located on side; special features—form has eight 0.032″ rad threads/in; form has 5/16″ lg, 3/64″ wd, 1/16″ d centered slot on one end; data regarding "the mfr"—Hoffman Radio Corp part/dwg #TA-52; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Couples signal from V109 and V101 to V102
V101	N16-T-53140 2J3A4	TUBE, electron: type JAN 3A4; miniature type power amplifier pentode	RF Amplifier
V102	N16-T-51650 2J1L4	TUBE, electron: type JAN-1L4; miniature type RF sharp cutoff pentode	Mixer
V103		Same as V102	1st IF
V104		Same as V102	2nd IF
V105		Same as V102	3rd IF
V106		Same as V102	4th IF
V107	N16-T-51972 2J1U5	TUBE, electron: type JAN 1U5; miniature type diode pentode	Detector
V108		Same as V102	Audio Output
V109	N16-T-53150 2J3A5	TUBE, electron: type JAN 3A5; miniature type hi freq twin triode	3rd & 4th Doubler
V110		Same as V101	2nd Doubler
V111		Same as V101	1st Doubler
V112		Same as V101	Crystal Oscillator
W101	*N16-C-11943-2371 3E7317-4	CABLE ASSEMBLY, RADIO FREQUENCY: cable data—AN radio frequency cable type #RG-58/U, coaxial, 53.5 ohms characteristic impedance, 1900 v rms max operating voltage; conductor data—single solid #20 AWG copper wire, plain finish; dielectric data—polyethylene 0.116″ OD; shield data—single copper, tinned; rd shape, 0.195″ diam, black vinyl jacket; lgth data—assy approx 6-1/2″ lg o/a, approx 5-3/4″ lg excl terminations; termination data—plug, Hoffman Radio Corp part/dwg #EM-194, one located on one end; jacket, shield and dielectric stripped 1-5/8″, 1-5/8″, 1/4″ respectively other end; special features—7/8″ lg shield twist at stripped end; data regarding "the mfr"—Hoffman Radio Corp part/dwg #WA-99; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; includes P101	Connector from J205 to L101
XV101	N16-S-62603-6700 2Z8677.172	SOCKET, TUBE: seven cont miniature; JAN type #TS102C01; one piece saddle mtg, above chassis; two 1/8″ diam mtg holes on 7/8″ mtg/c, for 41/64″ diam chassis cutout; round ceramic body approx 3/4″ diam x 5/16″ thk excl term; beryllium copper, silver pl cont; marked with JAN no. and mfr symbol or name; saddle includes base for mtg shock shield; center shield 0.095″ ID; Hugh H Eby part #TS102C01; Hoffman Radio Corp part/dwg #XT-38; spec JAN-S-28A	Socket for V101
XV102 thru XV112		Same as XV101	Sockets for V102 thru V112
XY101	N16-S-67026-1676 2Z8761-70	SOCKET ASSEMBLY, CRYSTAL: assy consists of 5 sockets; individual socket data—5 sockets, 2 contacts per socket, crystal socket for 0.050″ diam contacts & 0.093″ diam contacts, spaced 0.486″ c to c, arranged perpendicular to ctr line of base; paper base phenolic mtg frame; o/a dim—3-5/16″ lg, 13/16″ wd approx 3/8″ thk; frame mounts by two 0.120″ diam mtg holes spaced 2-15/16″ c to c; sockets numbered 1 to 5; sockets are designed to accommodate either type CR-18/U or CR-5/U crystal units; data regarding "the mfr"—Hoffman Radio Corp part/dwg #EA-281; for accommodating crystals in channel selector switch; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S102A (listed for reference only)	Socket for crystals Y101 thru Y105
XY102 thru XY105		Not used	
XY106	N16-S-67026-1681 2Z8799A-2	SOCKET ASSEMBLY, CRYSTAL: assy consists of 5 sockets; individual socket data—5 sockets, 2 contacts per socket, crystal socket for 0.050″ diam contacts & 0.093″ diam contacts, spaced 0.486″ c to c, arranged perpendicular to ctr of base; paper base phenolic mtg frame; o/a dim—3-5/16″ lg, 13/16″ wd, approx 3/8″ thk; frame mounts by two 0.120″ diam mtg holes, spaced 2-15/16″ c to c; sockets numbered 6 to 10; sockets are designed to accommodate either type CR-18/U or CR-5/U crystal units; data regarding "the mfr"—Hoffman Radio Corp part/dwg #EA-280; for accommodating crystals in channel selector switch; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S102A (listed for reference only)	Socket for crystals Y106 thru Y110
XY107 thru XY110		Not used	

* Not furnished as a maintenance part. If failure occurs, do not request replacement unless the item cannot be repaired or fabricated.

TABLE 7-2. TABLE OF REPLACEABLE PARTS (Cont'd)

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
Y101	2X209—(Freq.)	CRYSTAL UNIT, QUARTZ: single crystal plate; frequency to be between 6437.50 kc and 9750.00 kc; holder data— MIL Crystal Holder type HC-6/U; air gaps not adjustable; hermetically sealed; special features data— ±0.005% of nominal frequency tolerance at 25°C, crystal plate etched, temp data— −55°C to +90°C range, ±0.005% of nominal frequency tolerance over range of −55°C to +90°C; govt furnished; govt spec data—MIL spec MIL-C-3098 type CR-18/U; for general purpose use	Frequency determining element for CRYSTAL OSCILLATOR V112 (Government furnished)
(Y101 alternate)		CRYSTAL UNIT, QUARTZ: single crystal plate; frequency to be between 6437.50 kc and 9750.00 kc; holder data—MIL Crystal Holder type FT-243, pin data—2 pins located on bottom spaced 0.486″ c to c, solid type 0.093″ diam, 0.400″ lg, body data—rectangular shape, mineral filled phenolic resin, dim—1.125″ lg, 0.812″ wd, 0.437″ thk, one side marked "CR-5/U", nominal crystal frequency and mfr's code, top also marked with crystal frequency; air gaps not adjustable; hermetically sealed; special features data— ±0.02% tolerance of nominal frequency at 25°C for each plate, crystal plate etched, temperature data— −55°C to +90°C range, 0.02% per deg C max freq deviation; govt furnished; govt spec data—MIL spec MIL-C-239B type CR-5/U; data regarding a typical mfr"—Monitor Piezo Co CR-5/U	Same as Y101
Y102 thru Y110		Same as Y101	
Z101	N17-T-68061-7269 2Z9643.246	TRANSFORMER, INTERMEDIATE FREQUENCY: 12 mc peak frequency; input; shielded; approx o/a dim—29/32″ lg, 29/32″ wd, 2-3/4″ h; material data—paper base phenolic coil form; double tuned; adjustable iron core tuning, pri on bottom, secd on top; mounting data—mounted by single axial ¼″-28 tapped bushing, positioned by four terminal feed-through insulators spaced on 9/16″ x 9/16″ mtg/c; terminal data—4 insulated terminals, wire lead type; special features—pri shunted by 39 mmf ±2% JAN type #CC30CH390G capacitor, secd shunted by 47 mmf ±2% JAN type #CC30CH470G capacitor; terminal feed-through insulators are color poded as follows: pri blue start and red finish, secd green start and yellow finish; brown dot on bottom indicates 1st i-f; can marked "CKB", "ZM-17", and "12MC"; all phenolic parts and capacitors are moisture and fungus treated; data regarding "the mfr"—Hoffman Radio Corp part/dwg #ZM-17; govt spec data—Navy spec #16T36; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Coupling V102 MIXER to V103 1st IF
Z102	N17-T-68061-7274 2Z9643.243	TRANSFORMER, INTERMEDIATE FREQUENCY: 12 mc peak frequency; interstage; shielded; approx o/a dim—29/32″ lg, 29/32″ wd, 2-1/2″ h; material data—paper base phenolic coil form; double tuned; adjustable iron core tuning, pri on bottom, secd on top; mounting data—mounted by single axial tapped 1/4″-28 bushing, positioned by four terminal feed-through insulators spaced on 9/16″ x 9/16″ mtg/c; terminal data—4 insulated terminals, wire lead type; special features—pri and secd ea shunted by 47 mmf ±2% JAN type #CC30CH470G capacitor; terminal feed-through insulators are color coded as follows: pri blue start and red finish, secd green start and yellow finish; red dot on bottom indicates 2nd i-f; can marked "CKB", "ZM-18", and "12MC"; all phenolic parts and capacitors are moisture and fungus treated; data regarding "the mfr"—Hoffman Radio Corp part/dwg #ZM-18; govt spec data—Navy spec 16T36; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Coupling 1st IF V103 to 2nd IF V104
Z103	N16-F-32707-8116 2Z9643.244	FILTER, BAND PASS: frequency data—12 mc operating frequency; o/a dim— approx 2-1/2″ lg, 29/32″ max wd, 29/32″ max h; cased, rectangular, metal; mounted by bushing 1/4″-28 centered on bottom; terminal data—4 insulated wire lead type; special features—terminal insulators color coded, plate blue, B+ red, grid green, automatic volume control yellow; bottom marked w/ orange dot to indicate 3d intermediate frequency; case marked "CKB", "ZM-19", "12MC"; phenolic parts, resistors, and capacitors moisture and fungus treated; data regarding "the mfr"—Hoffman Radio Corp part/dwg #ZM-19; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Coupling 2nd IF V104 to 3rd IF V105
Z104	N16-F-32707-8118 2Z9643.247	FILTER, BAND PASS: frequency data— 12 mc operating frequency; o/a dim—approx 2-1/2″ lg, 29/32″ max wd, 29/32″ max h; cased, rectangular, metal; mounts by 1/4″-28 bushing centered on bottom; terminal data—4 insulated wire lead type; special features—terminal insulators color coded, plate blue, B+ red, grid green, automatic volume control yellow; bottom marked w/yellow dot to indicate fourth intermediate frequency; case marked "CKB", "ZM-20", "12MC"; phenolic parts, resistors, and capacitors moisture and fungus treated; data regarding "the mfr"—Hoffman Radio Corp part/dwg #ZM-20; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Coupling 3rd IF V105 to 4th IF V106
Z105	N17-T-68061-7284 2Z9643.245	TRANSFORMER, INTERMEDIATE FREQUENCY: 12 mc peak frequency; output; shielded; approx o/a dim—29/32″ lg, 29/32″ wd, 2-3/4″ h; material data—paper base phenolic coil form; double tuned; adjustable iron core tuning, pri on bottom, secd on top; mounting data—mounted by single axial tapped 1/4″-28 bushing, positioned by four terminal feed-through insulators spaced on 9/16″ x 9/16″ mtg/c; terminal data—4 terminals, wire lead type; special features—pri and secd ea shunted by 47 mmf ±2% JAN type #CC30CH470G capacitor, pri is shunted by 220,000 ohm JAN type RC10BF224K resistor; terminal feed-through insulators are color coded as follows: pri blue start and red finish, secd green start and yellow finish; green dot on bottom indicates 5th i-f; can marked "CKB", "ZM-21", and "12MC"; all phenolic parts and capacitors are moisture and fungus treated; data regarding "the mfr"—Hoffman Radio Corp part /dwg #ZM-21; govt spec data—Navy spec #16T36; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Coupling 4th IF V106 to DETECTOR V107
A201	F16-T-37275-1005 2C5417	TRANSMITTER, RADIO: type A2 & A3 emissions, MBCA Ref Dwg Group 5; frequency data—115 mc to 156 mc range, 10 channels, (frequencies to be determined by govt furnished xtals); 0.70 w modulated or 0.50 w unmodulated nominal output; operating power requirements—dc, 1.5v at 0.1 amp, 3v at 1.22 amp, 135v at 190 ma; not enclosed; approx o/a dim—12″ lg, 5″ wd, 3-3/4″ h; mts inside "U" frame beside receiver; special features—a turret switch selects the proper tank circuit for each stage and the corresponding xtal for the osc in ea channel position; data regarding "the mfr"—Hoffman Radio Corp part/dwg #AA-380; for communications; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1, spec MIL-R-15774 (SHIPS)	Transmitting Unit of Equipment

A202	*N16-M-60955-5051 2Z6820-429	BRACKET: capacitor mtg bracket; "U" shape; brass, tin plate; approx 3/4" lg x 1/2" wd x 11/16" h, made of #20 ga B&S (0.032") stock; one #6-32 NC-2 thd on leg 7/16" h and one 21/64" diam mtg hole on leg 11/16" h; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr & contr: Hoffman Radio Corp part/dwg #AS-764	Mounting for C263
A203	*N17-M-86377-3729 2Z1244-209	BRACKET: mtg bracket for antenna relay; "L" shape; stainless steel with passivate finish; approx 1-13/32" lg x 1-9/32" h x 11/16" wd, made of #16 ga USS (0.059) stock; two 0.159" diam mtg holes on 1.00" mtg/c on long end, and two 0.128" diam mtg holes spaced diagonally on the short end, 21/32" apart vertically and 3/8" apart horizontally, one hole 1/4" diam centrally located between two holes on short end; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr & contr: Hoffman Radio Corp part/dwg #AS-769; u/w K201	Mounting for Antenna relay
C201		CAPACITOR, FIXED, CERAMIC DIELECTRIC: case style #1, MBCA Ref Dwg Group 1; cap data–24 mmf ±5% tol; 500 vdcw; temp coef data–zero temp coef, 60 parts per million per °C pos tol; uninsulated; max case dim–0.0460" lg, 0.240" diam; term data–2 term radial wire lead type 1-1/4" lg min; term mtd; resistant to humidity and salt-water-immersion cycling; govt spec data–JAN, #JAN-C-20A type CC30CH240J; data regarding a "typical mfr"–Erie Resistor Corp part #CC30CH240J; for general purpose use; Hoffman Radio Corp part/dwg #CT-47 (Same as C190)	V201 feedback Control
C202		CAPACITOR, FIXED, CERAMIC DIELECTRIC: case style #1, MBCA Ref Dwg Group 1; cap data–130 mmf ±5% tol; 500 vdcw; temp coef data– 220 parts per million per °C neg, 60 parts per million per °C pos tol; uninsulated; max case dim–0.860" lg, 0.250" diam; term data–2 term radial wire lead type 1-1/4" lg min; resistant to humidity and salt-water-immersion cycling; govt spec data–JAN, #JAN-C-20A type CC32RH131J; data regarding a "typical mfr"–Erie Resistor Corp part #CC32RH131J; for general purpose use; Hoffman Radio Corp part/dwg #CT-44 (Same as C148)	Coupling, V201 to V202
C203		CAPACITOR, FIXED, CERAMIC DIELECTRIC: case style #1, MBCA Ref Dwg Group 1; capacitance data–1000 mmf capacity, ±20% tolerance; 300 vdcw; body insulation data–insulated w/flash dip wax jacket; case dim–11/16" lg, 7/32" diam; terminal data–2 radial wire lead type, special features–moisture and fungus resistant; data regarding a "typical mfr"–The Muter Co part #20K-1200; for general purpose use; Hoffman Radio Corp part/dwg #CT-48 (Same as C111)	V202 screen bypass
C204		CAPACITOR, FIXED, PAPER DIELECTRIC: 1 section; case style #2, MBCA Ref Dwg Group 1; cap data–10,000 mmf, ±20% tol; working voltage–300 vdcw, 200 v rms; HS metal can; case dim–11/16" lg, 0.195" diam; term data–2 term, wire lead type, 1-3/4" lg, one located axially at ea end; impregnated and filled w/Halowax; one side of capacitor is internally grounded; special features–one end sealed with cover; data regarding a "typical mfr"–Good-All Electric Mfg Co type 504, 0.01 mf 300v; for general purpose use; Hoffman Radio Corp part/dwg #CP-92 (Same as C151)	V202 plate decoupling
C205		CAPACITOR, FIXED, CERAMIC DIELECTRIC: case style #1, MBCA Ref Dwg Group 1; capacitance data–2000 mmf capacity, ±20% tolerance; 300 vdcw temp coefficient variable; body insulation data–insulated w/flash dip wax jacket; case dim–7/8" lg, 9/32" diam; terminal data–2 radial wire lead type 1-1/2" lg; term mtd; special features–moisture and fungus resistant; data regarding a "typical mfr"–The Muter Co part #C-B-K1200; for general purpose use; Hoffman Radio Corp part/dwg #CT-49 (Same as C168)	V201 grid bypass
C206		Same as C202	Coupling, V202 to V203
C207		Same as C203	V203 screen bypass
C208		Same as C204	V203 plate decoupling
C209		Same as C202	Coupling, V203 to V204
C210		Same as C203	V204 filament bypass
C211		Same as C203	V204 screen bypass
C212	N16-C-31807-8195 3DA2-223	CAPACITOR, FIXED, MICA DIELECTRIC: case style #8, MBCA Ref Dwg Group 1; capacitance data–2000 mmf ±20% tol; working voltage data–500 vdc; metal case; case dim–1/4" h, 0.463" diam; terminal data–one solder lug type 17/64" h located on top; moisture and fungus resistant; data regarding a "typical mfr"–Sangamo Electric Co part #M-38, cat #23; for general purpose use; Hoffman Radio Corp part/dwg #CT-51	V204 plate decoupling
C213	N16-C-64096-6401 3D9033V-6	CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: rotary type, single section, zero temp coef; 3.0 to 33.0 mmf cap; working voltage data–ac, 500 v; max o/a dim excl term–0.843" lg, 0.640" wd, 0.312" h; term data–2 term, solder lug type, one located axially at each end, can be bent to form "L"; two 0.120" diam mtg holes spaced 0.437" c to c; scdr slot adj; ceramic base; special features–pure silver plates, full cap change in 180° w/o stop; brass silver plated terminal lugs; "3-33 mmf" and "CV-20" stamped on side; data regarding a "typical mfr"–Centralab Division of Globe-Union, Inc, type #822-AZ SPECIAL; for general purpose use; Hoffman Radio Corp part/dwg #CV-20; p/o S202D	V204 plate tuning
C214 thru C222		Same as C213	V204 plate tuning
C223	N16-C-16593-2934 3D9051-71	CAPACITOR, FIXED, CERAMIC DIELECTRIC: case style #1, MBCA Ref Dwg Group 1; cap data–51 mmf ±5% tol; 500 vdcw; temp coef data–zero temp coef, ±60 parts per million per °C tol; uninsulated; max case dim–0.460" lg, 0.240" diam; term data–2 term radial wire lead type 1-1/4" lg min; term mtd; resistant to humidity and salt-water-immersion cycling; data regarding a "typical mfr"–Erie Resistor Corp, type CC30CH510J; for general purpose use; contr: Hoffman Radio Corp part/dwg #CT-46	Coupling V204 to V205
C224		Same as C212	V205 filament bypass
C225		Same as C212	V205 plate decoupling

* Not furnished as a maintenance part. If failure occurs, do not request replacement unless the item cannot be repaired or fabricated.

TABLE 7-2. TABLE OF REPLACEABLE PARTS (Cont'd)

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
C226 thru C235		CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: rotary type, single section, zero temp coef; 2.5 to 13.0 mmf cap; working voltage data–dc, 500 v wkg; approx max o/a dim excl term–0.843″ lg, 0.640″wd, 0.312″ h; term data–2 term, solder lug type, one located axially at ea end, can be bent to form "L"; two 0.120″ diam mtg holes spaced 0.437″ c to c; scdr slot adj; ceramic base; special features–pure silver plates, full cap change in 180° rotation w/o stop; brass, silver plated terminal lugs; "2.5-13 mmf" stamped on side; data regarding a "typical mfr"–Centralab Division of Globe-Union Inc, cat/part #822-BZ; for general purpose use; Hoffman Radio Corp part/dwg #CV-19 (Same as C101); p/o S202E	V205 plate tuning
C236 thru C245		Same as C226 thru C235	V206 grid tuning mounted on S202F
C246		Same as C212	V206 filament bypass
C247		Same as C212	V206 filament bypass
C248	N16-C-63900-6761 3D9007V-17	CAPACITOR, VARIABLE, CERAMIC DIELECTRIC: rotary type, single section, zero temp coef; 1.5 to 7.0 mmf cap; working voltage data–dc, 500 v; max o/a dim excl term– 27/32″ lg, 41/64″ wd, 13/32″ h; term data–2 terminals, solder lug type, "L" shape, one located on ea end; two 0.120″ diam mtg holes 0.438″ c to c; scdr slot adj; ceramic base; special features–marked w/capacity value and mfr's part no; govt spec data–Jan, type CV11A070; #JAN-C-81; data regarding a "typical mfr"–Erie Resistor Corp part #CV11A070; for general purpose use; Hoffman Radio Corp part/dwg #CV-21; u/w E209	V206 Neutralizing
C249		Same as C248	V206 Neutralizing
C250 thru C259		Same as C226 thru C235	V206 plate tank tuning mounted on S202G
C260	N16-C-31095-6411 3DA1-341	CAPACITOR, FIXED, MICA DIELECTRIC: case style #8, MBCA Ref Dwg Group 1; capacitance data–1000 mmf ±20% tol; working voltage data–500 vdc; metal case; case dim–7/16″ h, 0.463″ diam; terminal data–one solder lug type, 1/4″ h located on top; mtg data–single screw mtg #3-48 x 7/64″ d axial hole in bottom; moisture and fungus resistant; data regarding a "typical mfr"–Sangamo Electric Cop part #M-36, cat #23; for general purpose use; Hoffman Radio Corp part/dwg #CT-52	V206 plate decoupling
C261		Same as C203	V207, V208, V209 plate bypass
C262		Same as C203	Sidetone Coupling from Modulators to J206
C263	N16-C-46390-6651 3DA270-8	CAPACITOR, FIXED, PAPER DIELECTRIC: 1 section; case style #15, MBCA Ref Dwg Group 1; cap data–270,000 mmf ±20% tol; working voltage–200 vdcw, 140 v rms; HS metal can; case dim excl term–approx 1-1/2″ lg, 0.562″ diam; term data–1 term, wire lead type, 1-5/8″ lg, located axially on bottom end; impregnated and filled w/Vitamin "Q"; one side internally grounded; mtg data–single bushing type mtg, incl hex nut and lockwasher, 5/16″-24 mtg thd; special features–resistant to humidity and salt-water-immersion cycling; data regarding a "typical mfr"–Sprague Electric Co type 81P2740S5; for general purpose use; Hoffman Radio Corp part/dwg #CP-98	V207, V208, V209 screen bypass
C264		Same as C263	V210 and V211 plate decoupling
C265	N16-C-45820-6820 3DA120-8	CAPACITOR, FIXED, PAPER DIELECTRIC: 1 section; cap data–120,000 mmf, ±20% tol; working voltage–200 vdcw, 140 v rms; HS metal can; case dim excl term–approx 1-1/2″ lg, 0.400″ diam; term data–1 term, wire lead type, located axially on bottom end; impregnated and filled w/Vitamin "Q"; internally grounded; mtg data–single bushing type mtg, incl hex nut and lockwasher; special features–resistant to humidity and salt-water-immersion cycling; data regarding a "typical mfr"–Sprague Electric Co type 81P12402S5; for general purpose use; Hoffman Radio Corp part/dwg #CP-99	V210 screen bypass
C266		Same as C204	Coupling from V210 to V207, V208, V209
C267		Same as C204	V211 plate decoupling
C268	N16-C-32435-6608 3K3539221	CAPACITOR, FIXED, MICA DIELECTRIC: case style #22 MBCA Ref Dwg Group 1; cap data–3900 mmf, ±10% tol; working voltage data–500 vdcw, 350 v rms; case of molded thermo-setting plastic; max case dim–53/64″ lg, 53/64″ wd, 11/32″ thk; term data–2 term, wire lead type, 1-1/8″ lg, one located axially at ea end; term mtd; special features–resistant to humidity and salt-water-immersion cyc; govt spec data–JAN, #JAN-C-5, type CM35B392K; data regarding a "typical mfr"–Electro Motive Mfg Co type RCM35B392K; for general purpose use; Hoffman Radio Corp part/dwg #CM-81	V211 frequency determining element
C269		Same as C205	Coupling from V211, to V207, V208, V209
C270		Same as C202	V211 feedback
C271		Same as C203	3V filament bypass

E201	*N17-B-77990-2001 3Z770-12.112	TERMINAL BOARD: paper base phenolic; terminal data—includes terminals, 12, solder type; w/o barriers; o/a dim—7-5/16″ lg, 15/16″ h, 7/16″ thk; three "L" shaped mtg brackets spaced 2″ c to c and 5″ c to c, with one 0.096″ mtg hole in the base of each; symbol #"E201" stenciled on part; data regarding "the mfr"—Hoffman Radio Corp part/dwg #EA-304; p/o—Navy Portable VHF Radio Transmitting and Receiving Equipment MAW-1	Support for wiring and components
E202	*N17-B-77481-9701 2Z9401.129	TERMINAL BOARD: phenolic; terminal data—terminal included, one solder lug type; w/o barriers; approx over-all dim—0.442″ lg, 3/8″ wd, 1-1/16″ h; one 0.140″ diam mtg hole in "L" mtg brkt; special features—phenolic fungus treated; terminals and mtg brkt are tinned brass, eyeleted to board; mtg brkt is mounted on same side of board as terminal; data regarding "the mfr"—Hoffman Radio Corp part/dwg #EA-332; p/o—Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Support for wiring and components
E203	*N17-B-77637-8940 2Z9404.266	TERMINAL BOARD: paper base laminated phenolic; terminal data—includes terminals, 4, solder lug type; w/o barrjers; o/a dim—2-13/16″ lg, 1/2″ wd, 7/8″ h; two 0.096″ diam mtg holes on 2-1/2″ mtg/c; symbol #E-203 stenciled on part; data regarding "the mfr"—Hoffman Radio Corp part/dwg #EA-269; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Support for wiring and components
E204	*N17-B-77637-8924 2Z9404.267	TERMINAL BOARD: paper base laminated phenolic; terminal data—includes terminals, 4, solder type; w/o barriers; o/a dim—2-3/4″ lg, 15/16″ h, 13/16″ wd; two "L" shaped mtg brackets spaced 2-1/2″ c to c facing in opposite directions; each mtg bracket contains one 0.096″ mtg hole placed 1/4″ from side of board; symbol #"E204" stenciled on part; data regarding "the mfr"—Hoffman Radio Corp part/dwg #EA-306; p/o—Navy Portable VHF Radio Transmitting and Receiving Equipment MAW-1	Support for wiring and components
E205	N17-T-26686-2107 3Z12073-44.2	TERMINAL LUG: rd tongue end type; style #2, MBCA Ref Dwg Group 20; brass; hot tinned finish; approx #12 AWG wire accommodation; o/a dim—7/8″ lg, 5/16″ wd, 0.020″ thk; soldered wire connection; one 0.144″ diam mtg hole on large end, 0.093″ diam hole on small end; data regarding a "typical mfr"—Zierick Manufacturing Corp part #46-6; for general purpose use; Hoffman Radio Corp part/dwg #HL-118	Chassis ground terminal lug
E206	N17-T-26683-2801 3Z12073-59.1	TERMINAL LUG: rd tongue end type; style #1, MBCA Ref Dwg Group #20 with right angle bend near large end; brass 0.025″ thk; hot tinned; approx #12 AWG wire accommodated; o/a dim—35/64″ lg, 1/4″ wd, 9/32″ h; soldered wire connection; one 1/8″ diam mtg hole on large end, one rounded rectangular hole 11/64″ lg x 3/32″ wd on small end; data regarding a "typical mfr"—Stewart Stamping Company part #650; for general purpose use; Hoffman Radio Corp part/dwg #HL-108	Support for wiring and components
E207	*N17-I-67017-7436 3G250-2	INSULATOR, CLEAT: material—lucite, I grade, transparent; clear; rectangular shape with two cut-outs on one side and one corner clipped diagonally; o/a dim—7/8″ lg, 1/4″ wd, 3/8″ h; two 0.128″ diam holes on 0.625″ mtg/c; data regarding "the mfr"—Hoffman Radio Corp part/dwg #EM-203; p/o—Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o T204	Adjustable mounting for antenna output link
E208	*N17-I-64185-3801 3G320-313	INSULATOR, PLATE: material data—phenolic, XXXP grade, natural color; fungus treated finish; dielectric breakdown 80 kv min; flat, rectangular shape, item code #185, MBCA Ref Dwg Group 9; dim—7/8″ lg, 21/32″ wd, 3/32″ thk; one 0.144″ diam mtg hole in ctr 3/8″ from long side; 10,500 psi min flexural strength; data regarding "the mfr"—Hoffman Radio Corp part/dwg #EL-206; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; u/w J206	Spacer for Transmitter output plug
E209	*N16-M-60962-1282 2Z6820.426	MOUNTING: brass; hot tin dipped; mounting data—holds capacitor by means of two #4-40 x 3/8″ lg machine bolts, one 0.096″ diam mtg hole on base; for mounting two neutralizing capacitors and shielding final output from input on transmitter; data regarding "the mfr"—Hoffman Radio Corp part/dwg #AS-819; "C248" and "C249" stenciled with black lacquer; u/w C248 & C249	Mounting for neutralizing Capacitors
E210 and E211		Not used	
E212		CORE, ADJUSTABLE TUNING: principal part data—one end copper, silver plated; other end, iron, rust proofed; approx o/a dim—1″ lg, 0.255″ diam; supplementary parts c/o—one integral silver plated brass tuning screw w/screwdriver slot; mounts inside coil form; core slotted along length to fit runner on form; data regarding "the mfr"—Hoffman Radio Corp part-dwg #EA-287; used to tune turret coils; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment; Model MAW-1 (Same as E109); u/w L201 thru L220	Tuning slug for Transmitter coils L201 thru L220
E213		SWITCH SECTION, rotary: wafer c/o rotor, stator and contacts which are p/o Coil Assembly Switch Section less coils; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; paper base phenolic base with silver pl brass contacts; square with one rounded corner, other three corners have mtg indents; 3-11/16″ lg, 3-5/16″ wd, approx 3/4″ thk; 0.101″ rad indents in ea of three corners fit over mtg rods, not included; one solder lug and two solder term on edge of stator; mfr & contr: Hoffman Radio Corp part/dwg #EA-312 (Same as E110); p/o S202B	Replacement contact wafer for turret switch section S202B
E214		Same as E213; p/o S202C	Replacement contact wafer for turret switch section S202C
E215		SWITCH SECTION, rotary: wafer c/o rotor, stator and contacts which are p/o Capacitor Assembly Switch Section less capacitors; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; paper base phenolic base with silver pl brass contacts; square with one rounded corner, other three corners have mtg indents; 3-11/16″ lg, 3-5/16″ wd, approx 3/4″ thk; 0.101″ rad indents in ea of three corners fit over mtg rods, not included; two solder lugs on opposite sides and two solder term on edge of stator; mfr & contr: Hoffman Radio Corp part/dwg #EA-355 (Same as E113); p/o S202D	Replacement contact wafer for turret switch section S202D
E216		Same as E215; p/o S202E	Replacement contact wafer for turret switch section S202E

* Not furnished as a maintenance part. If failure occurs, do not request replacement unless the item cannot be repaired or fabricated.

TABLE 7-2. TABLE OF REPLACEABLE PARTS (Cont'd)

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
E217		Same as E215; p/o S202F	Replacement contact wafer for turret switch section S202F
E218		Same as E215; p/o S202G	Replacement contact wafer for turret switch section S202G
E219		INSERT, ELECTRICAL CONNECTOR: 7 rd male cont, pol; straight type; 7/16″ lg x 0.625″ dia less cont; 2 amp, 3 v and 200 ma, 150 v; rd molded phenolic, plain finish; 0.144″ dia mtg hole thru ctr, c/bore 1/4″ dia x 3/32″ d; Cinch part #9412 MOD per Hoffman Rad part/dwg #PL-89; p/o J206 (Listed for Reference only)	Insert for J206
E220		CONTACT, connector: used as ctr cont; brass shank & beryllium copper banana tip, sil pl; approx 3/32″ lg x 3/16″ flat to flat hex hd; mtd by 5/8″ stud w/#6-32 x 1/4″ thd; Ucinite Co part #FT-153351; Hoffman Radio Corp part/dwg #PL-91; p/o J206 (Listed for Reference only)	Ground contact for J206
J201		CONNECTOR ASSEMBLY, ELECTRICAL: 2 connectors in assy; individual connector data–2 Insuline Corp of America Pin Jack part #357; contact data–one contact, rd, female type; electrical rating of contacts–dc, 3 amp at 150v; approx o/a dim–1-7/8″ lg, 5/8″ wd, 7/8″ h; two 0.128″ diam mtg holes on 1-1/2″ mtg/c; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-311; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; includes J201A & J201B (Same as J101)	Transmitter FINAL AMPLIFIER PLATE CURRENT METER Jack
J201A		CONNECTOR, RECEPTACLE: contact data–one, 0.089″ diam, female, rd; straight; pin jack type; o/a dim–27/32″ lg, 5/16″ wd flat to flat hex hd; body data–cylindrical body with hex hd and hex mtg nut, brass, nickel pl; no insert, body is contact and conducting portion of jack; has single solder lug term with 0.062″ diam hole; mounting data–threaded body serves as single mtg stud, 1/4″ diam, 1/4″ x 32NEF-2 thd, shank 19/32″ lg; special features–includes one 1/4″ x 32 x 3/8″ hex x 3/32″ thk mtg nut; data regarding a "typical mfr"–Insuline Corp of America, part #357; for general purpose use; Hoffman Radio Corp part/dwg #JK-8; p/o J201 (same as J101A)	Single pin jack
J201B		Same as J201A	Single pin jack
J202		Same as J201	TRANSMITTER GRID CURRENT METER Jack
J203	N17-C-73107-9292 2Z3062-253	CONNECTOR, RECEPTACLE: contact data–1 female, rd; straight type; o/a dim–0.637″ lg excl protruding term, 0.218″ wd, 0.156″ h; body data–cylindrical with one rectangular end, material and finish as per JAN-J-641; one spring which holds plug in place; gov't spec data–JAN, spec JAN-J-641 p/o type JJ-048; data regarding a "typical mfr"–Hoffman Radio Corp part/dwg #JA-1; for general purpose use; u/w E203	V206 plate voltage jack. Mounted on E203. Mates P201
J204	N17-C-73126-3739 2Z3083-17	CONNECTOR, RECEPTACLE: contact data–2 female, rd; straight type; approx o/a dim–17/32″ lg excl protruding term, 13/16″ wd, 5/16″ thk; radio frequency connector–approx 50 ohms nominal impedance, nonconstant freq impedance characteristic; body data–rectangular, rounded sides, mica-filled phenolic, moisture and fungus resistant; mounting data–1 hole 0.144″ diam, 7/16″ lg, centered; special features–mtg hole counterbored to 0.250″ diam x 0.187″ d from top; data regarding a "typical mfr"–Hoffman Radio Corp part/dwg #JR-78; for general purpose use; p/o W201	Antenna receptacle on transmitter chassis
J205		Same as J204	Receptacle for receiver plug P101
J206	N17-C-73530-4103 2Z3027-17	CONNECTOR, RECEPTACLE: contact data– 7 male round, 1 male banana type round; polarized; straight type; over-all dim, excluding protruding contacts–7/16″ high, 5/8″ dia; contact electrically rated 2 amp, 3 v and 200 ma, 150 v; body data–cylindrical shape, molded bakelite, plain black finish; 0.144″ dia max cable opening; mounting data–mounts by special banana plug Ucinite Type No. FT-153351, located in center of end having cable opening w/counterbore 1/4″ dia by 3/32″ deep; varnished for moisture and fungus proofing; special features–terminal end of banana contact has #6-32 thread for chassis mounting; govt type data–N connector Type No. 491218; data regarding "the mfr"–Hoffman Radio Corp part/dwg #JA-3; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; consists of Hoffman Rad parts, Connector #PL-89 and Contact Pin #PL-91 one ea	Power and Control Receptacle for transmitter chassis.
K201	N17-R-64694-6639 2Z7585-164	RELAY, ARMATURE: contact data–contact arrangement 1 c, MBCA Ref Dwg Group 4, single break, ac-dc, 45 v, 3 amp; coil data–1 winding, 1 inductive winding, dc 30 ohms ±10% resistance, 2.7 v at 0.10 amp nom, 2.25 v "pull-in"; terminal data–3 term on contacts, 2 term on coil; intermittant duty; o/a dim–1-9/16″ lg, 25/32″ wd, 1-7/16″ h; two #4-40 NC-2 tapped mtg holes diagonally spaced 3/8″ vertically and 21/32″ horizontally on one end; special features–marked "KR-19" and "K201," moisture and fungi resistant; data regarding a "typical mfr"–Cook Electric Co part #400-1220; for general purpose use; Hoffman Radio Corp part/dwg #KR-19	Antenna Relay
L201	N16-C-73000-2334 3C1084Z52-11	COIL, RADIO FREQUENCY: electrical data–approx 5.35 mh @ 12.55 mc; physical data–29-1/2 turns #32 AWG copper conductor plain enameled, one winding, single layer, unshielded, moulded phenolic form; approx coil dim, excluding terminals, mtg attachments and tuning devices–1/4″ lg, 0.297″ diam; over-all coil form dim–3/4″ lg, 1/2″ diam; adjustable tuning–iron-copper core, not supplied, screwdriver adjustment top end of coil; terminal data–two terminals, solder lug type; mounted by terminal lugs; radio frequency plate circuit tuning coil; data regarding "the mfr"–Hoffman Radio Corp part/dwg #LA-11; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S202B	V202 plate tuning

L202 thru L210		Same as L201	V202 plate tuning
L211	N16-C-72839-3101 3C1084Z52-10	COIL, RADIO FREQUENCY: electrical data—approx 1.73 mh @ 22.1 mc; physical data—14-1/2 turns #30 AWG copper conductor plain enameled, one winding, single layer, unshielded, moulded phenolic form; approx coil dim, excluding terminals, mtg attachments and tuning devices—1/8" lg, 0.297" diam; over-all coil form dim—3/4" lg, 1/2" diam; adjustable tuning—iron-copper core, not supplied, screwdriver adjustment top end of coil; terminal data—two terminals, solder lug type; mounted by terminal lugs; radio frequency plate circuit tuning coil; data regarding "the mfr"—Hoffman Radio Corp part/dwg #LA-12; p/o—Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S202C	V203 plate tuning
L212 thru L220		Same as L211	V203 plate tuning
L221	N16-C-72704-3301 3C1084Z42	COIL, RADIO FREQUENCY: electrical data—approx 0.2 uh @ 34.8 mc; physical data—approx 4 turns 0.064" diam copper tinned conductor, one winding, single layer, untapped, unshielded, polystyrene form; approx coil dim excl terms and mtg attachments—11/16" lg, 0.566" OD; over-all coil form dim—3/4" lg, 1/2" diam; termination data—two terminations, wire, located on side, each end; mounted by wire leads; used as radio frequency amplifier plate coil; special features—form has eight 0.0335" rad thrds/inch 0.125" apart; form has centered slot in one end, 5/16" lg, 3/64" wd, 1/16" deep; data regarding "the mfr"—Hoffman Radio Corp part/dwg #LA-13; p/o—Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	V204 plate coil mounted on S202
L222		COIL, RADIO FREQUENCY: electrical data—approx 250 uh @ 1.53 mc; physical data—70 turns/pi, #38 AWG copper single silk enameled conductor, 4 windings, pi universal type, unshielded, solid phenolic form, approx coil dim excl terms & mtg attachments—1/2" lg, 5/16" diam, approx coil form dim—3/4" lg, 1/4" diam; terminal data—two terminals, pigtail type, one on each end of form; mounted by axial wire leads; used as radio frequency choke; data regarding "the mfr"—Hoffman Radio Corp part/dwg #LR-40; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1 (Same as L132)	V206 plate decoupling
L223		Same as L222	V201 plate decoupling
L224		Same as L222	V202 plate decoupling
L225		Same as L222	V203 plate decoupling
L226		Same as L222	V204 plate decoupling
L227		Same as L222	V205 plate decoupling
L228	N16-C-72801-2249 3C323-176C	COIL, RADIO FREQUENCY: electrical data—approx 1.5 uh @ 17.5 mc; physical data—25 turns #30 AWG copper plain enameled conductor, one winding, single layer, untapped, unshielded, solid phenolic form, approx coil dim excl terms & mtg attachments—3/4" lg, 5/16" diam, approx coil form dim—3/4" lg, 7/32" diam; terminal data—two terminals, wire lead type, one on each end of form; mounted by axial wire leads; used as radio frequency choke; data regarding "the mfr"—Hoffman Radio Corp part/dwg #LR-41; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	V205, V206 filament decoupling
0201	*N16-C-600001-275 2Z2935-163	COLLAR, spacing: u/w Hoffman Radio Corp part/dwg #JR-78, antenna receptacle; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; aluminum alloy, caustic dipped and water dip lacquered; tubular shaped, 21/32" lg x 1/4" OD; one 0.140" diam mtg hole thru length; one end flatted to 0.180" diam x 1/8" lg; mfr and contr: Hoffman Radio Corp part/dwg #OS-52; u/w J204	Spaces Antenna Receptacle from chassis
0202	*N16-C-600001-276 2Z2935-164	COLLAR, spacing: u/w Hoffman Radio Corp part/dwg #JR-78, antenna receptacle; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; aluminum alloy, caustic dipped and water dip lacquered; tubular shaped, 15/32" lg x 1/4" OD; one 0.140" diam mtg hole thru length; one end flatted to 0.180" diam x 1/8" lg; mfr and contr: Hoffman Radio Corp part/dwg #OS-51; u/w J205	Spaces J205 from chassis
0203	N17-S-91941-1092 2Z3613-16	SWITCH SUBASSEMBLY: for xmtr channel sw; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; incl the following Hoffman Radio Corp part # 1 ea AS-850 Plate, 1 ea OM-62 Gear, 1 ea OA-139 Spring, 2 ea HM-219 Detent Ball, 1 ea OA-153 Shaft, 1 ea AS-792 Bracket and 1 ea AS-793 Bracket; 8-3/4" lg x 3-5/16" wd x 3-11/32" h o/a; 3 mtg holes 0.188" max diam on 2.937" mtg/c; Hoffman Radio Corp part/dwg #AA-375; p/o S202	Drive Shaft for Transmitter channel switch
0204	N16-D-901161-155 2Z3876.142	DRIVE, TUNING: mechanically operated; continuous 360° rotation; selector knob shaft actuation; approx o/a dim—4-9/16" lg, 2-3/16" wd, 13/16" thk; four 0.072" rad mtg holes elongated 1/16", one on ea corner of rectangular mtg bracket on 1.750" x 1.750" mtg/c; data regarding "the mfr"—Hoffman Radio Corp part/dwg #OA-145; transfers rotation drive at rt-angle for receiver channel selector switch from knob-actuated shaft; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S202	Miter gears and drive shaft for Turret Tuner switch
0205	*N16-R-673641-106 2Z8203-640	SHAFT: used to support and space sections of transmitter RF tuner, Hoffman Radio Corp part/dwg #EA-275; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; aluminum alloy, caustic dipped and water dipped lacquered; rd rod; 8.155" lg x 0.250" diam; two #4-40-NC-2 x 5/16" d axial holes, one on each end; nine 0.082" wd x 0.057" d externally relieved indents spaced along length, each end externally relieved 0.031" lg x approx 0.186" diam; mfr and contr: Hoffman Radio Corp part/dwg #OM-677; p/o S202	Rod which supports and spaces switch sections
0206		COLLAR, spacing: u/w Hoffman Radio Corp part/dwg #SW-52, rotary switch; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; aluminum alloy, caustic dipped and water dip lacquered; tubular shaped, 7/32" lg x 3/16" OD; one 0.131" diam axial mtg hole thru length; mfr & contr: Hoffman Radio Corp part/dwg #OS-54 (Same as 0101); u/w S201	Mounting spacer for switch S201

* Not furnished as a maintenance part. If failure occurs, do not request replacement unless the item cannot be repaired or fabricated.

TABLE 7-2. TABLE OF REPLACEABLE PARTS (Cont'd)

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
0207		COUPLING, rigid: sleeve type; 0.253" ±0.001" ID ea end; two #6-32 set screw holes separated 90° on one end only; 11/16" lg, 7/16" diam o/a; water hardened tool steel, chrome pl; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfg & contr: Hoffman Radio Corp part/dwg #OM-621; p/o 0204 (Same as 0102)	Drive shaft coupling to Turret Tuner
0208	*N16-M-63399-1108 2Z6820.432	MOUNTING: SS, passivated; approx o/a dim—3-5/16" lg, 3-5/16" wd, 1-13/32" d; mtg data—two integral brackets with 0.125" diam mtg hole in ea for holding two crystal sockets fastened to ends of three spacer rods by one 0.125" diam mtg holes in ea of three corners; for mtg crystal sockets in transmitter; data regarding "the mfr"—Hoffman Radio Corp part/dwg #AA-382; p/o S202A	Mounting for crystal socket XY201 and XY206
P201	N17-T-47047-5150 2Z9494A-5	TIP, PHONE: rd type; brass; silver plated finish; #20 AWG wire accommodated; approx o/a dim—33/64" lg, 5/32"" diam; soldered wire connection, one 0.046" diam axial hole 9/64" d on end opposite tip for solder connection; special features—0.083" diam 21/64" lg shank has externally relieved groove 0.046" wd x 0.046" diam centered 0.094" from tip end, tip end rounded 0.031" rad; brass, silver plated; data regarding "the mfr"—Hoffman Radio Corp part/dwg #OM-638; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	V306 plate B+ voltage disconnect Mates J203
R201	N16-R-50372-491 3RC10BF223K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data—22,000 ohms total resistance, ±10% tolerance; 1/4 watt power dissipation; resistance temp characteristics—F characteristic; max body dim excl term—0.406" lg, 0.170" diam; insulation data—insulated, resistant to humidity and salt-water-immersion cycling; terminal data—2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data—JAN type RC10BF223K, #JAN-R-11; data regarding a "typical mfr"—International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-366	Part of V201 grid return
R202	N16-R-50336-491 3RC10BF153K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data—15,000 ohms total resistance, ±10% tolerance; 1/4 watt power dissipation; resistance temp characteristics—F characteristic; max body dim excl term—0.406" lg, 0.170; diam; insulation data—insulated, resistant to humidity and salt-water-immersion cycling; terminal data—2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data—JAN type RC10BF153K, #JAN-R-11; data regarding a "typical mfr"—International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-358	V207, V208, V209 grid bias voltage. Part of V201 grid return
R203	N16-R-49669-111 3RC10BF241J	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data—240 ohms total resistance, ±5% tolerance; 1/4 watt power dissipation; resistance temp characteristics—F characteristic; max body dim excl term—0.406" lg, 0.170" diam; insulation data—insulated, resistant to humidity and salt-water-immersion cycling; terminal data—2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data—JAN type RC10BF241J, #JAN-R-11; data regarding a "typical mfr"—International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-357	Meter shunt for metering grid current of V201
R204	N16-R-50129-811 3RC20BF472K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data—4700 ohms total resistance, ±10% tolerance, 1/2 watt power dissipation rated at 40°C ambient; resistance temp characteristics—F characteristic; max body dim excl term—0.468" lg, 0.249" diam; insulation data—insulated, resistant to humidity and salt-water-immersion cycling; terminal data—2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data—JAN type RC20BF472K, &JAN-R-11; data regarding a "typical mfr"—International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-110	V201 plate load
R205	N16-R-51065-491 3RC10BF225K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data—2.2 megohoms total resistance, ±10% tolerance; 1/4 watt power dissipation; resistance temp characteristics—F characteristic; max body dim excl term—0.406" lg, 0.170" diam; insulation data— insulated, resistant to humidity and salt-water-immersion cycling; terminal data—2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data—JAN type RC10BF225K, #JAN-R-11; data regarding a "typical mfr"—International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg RC-355	V211 bias coupling
R206		RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data—1 megohm total resistance, ±10% tolerance; 1/4 watt power dissipation; resistance temp characteristics—F characteristic; max body dim excl term—0.406" lg, 0.170" diam; insulation data— insulated, resistant to humidity and salt-water-immersion cycling; terminal data—2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data—JAN type RC10BF105K, #JAN-R-11; data regarding a "typical mfr"—International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-186 (Same as R108)	V202 grid return
R207	N16-R-50480-811 3RC20BF473K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data—47,000 ohms total resistance, ±10% tolerance; 1/2 watt power dissipation at 40°C ambient; resistance temp characteristics—F characteristic; max body dim excl term—0.468" lg, 0.249" diam; insulation data—insulated, resistant to humidity and salt-water-immersion cycling; terminal data—2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data—JAN type RC20BF473K, #JAN-R-11; data regarding a "typical mfr"—International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-51	V202 screen dropping
R208		RESISTOR, FIXED, COMPOSITION: body style # 14, MBCA Ref Dwg Group 2; resistance data—300 ohms total resistance, ±5% tolerance; 1/4 watt power dissipation; resistance temp characteristics—F characteristic; max body dim excl term—0.406" lg, 0.170" diam; insulation data—insulated, resistant to humidity and salt-water-immersion cycling; terminal data—2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data—JAN type RC10BF301J, #JAN-R-11; data regarding a "typical mfr"—International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-346 (Same as R132)	Meter shunt for metering V203 grid current

R209	N16-R-50633-491 3RC10BF104K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–100,000 ohms total resistance, ±10% tolerance; 1/4 watt power dissipation; resistance temp characteristics–F characteristic; max body dim excl term–0.406″ lg, 0.170″ diam; insulation data–insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC10BF104K, #JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-359	V203 grid return
R210		Same as R207	V203 screen dropping
R211	N16-R-50678-491 3RC10BF154K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–150,000 ohms total resistance, ±10% tolerance; 1/4 watt power dissipation; resistance temp characteristics–F characteristic; max body dim excl term–0.406″ lg, 0.170″ diam; insulation data–insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC10BF154K, #JAN-R-11; data regarding a "typical mfr"–Internatioal Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-360	V204 grid return
R212	N16-R-49840-111 3RC10BF681J	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–680 ohms total resistance, ±5% tolerance; 1/4 watt power dissipation; resistance temp characteristics–F characteristic; max body dim excl term–0.406″ lg, 0.170″ diam; insulation data–insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC10BF681J, #JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC347	Meter shunt for metering V204 grid Current
R213		Same as R201	V205 grid return
R214	N16-R-49480-111 3RC10BF620J	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–62 ohms total resistance, ±5% tolerance; 1/4 watt power dissipation; resistance temp characteristics–F characteristic; max body dim excl term–0.406″ lg, 0.170″ diam; insulation data–insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC10BF620J, #JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-342	Meter shunt for metering V205 grid Current
R215	N16-R-49923-231 3RC30BF102K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–1000 ohms total resistance, ±10% tolerance; 1 watt power dissipation rated at 40°C ambient; resistance temp characteristics –F characteristic; max body dim excl term–0.750″ lg, 0.280″ diam; insulation data–insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC30BF102K, #JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-103	V205 plate decoupling
R216	N16-R-49534-111 3RC10BF820J	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–82 ohms total resistance, ±5% tolerance; 1/4 watt power dissipation; resistance temp characteristics–F characteristic; max body dim excl term–0.406″ lg, 0.170″ diam; insulation data– insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data– JAN type RC10BF820J, #JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-343	Meter shunt for metering V206 grid Current
R217	N16-R-50336-811 3RC20BF153K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–15,000 ohms total resistance, ±10% tolerance; 1/2 watt power dissipation at 40°C ambient; resistance temp characteristics–F characteristic; max body dim excl term–0.468″ lg, 0.249″ diam; insulation data–insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC20BF153K, #JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-50	V206 grid return
R218	N16-R-68292-2156 3RU12007	RESISTOR, FIXED, WIRE-WOUND: body style #14, MBCA Ref Dwg Group 2; inductive winding; resistance data–3.9 ohms, ±5% tol; power rating–1 watt power dissipation, 110°C max continuous operating temp 40°C ambient temp; body dim excl term–1-9/32″ lg, 9/32″ diam; protective covering data–molded plastic case, resistant to humidity and salt-water-immersion cycling; term data–2 term, axial wire leads, 1-1/2″ lg #19 AWG min; term mtd; resistance temp coef ±0.025%/°C; govt spec data–Jan, #JAN-R-184, type RU4C3R9J; data regarding a "typical mfr"–International Resistance Co type BW; for general purpose use; Hoffman Radio Corp part/dwg #RW-52	Meter shunt for metering V206 plate current
R219	N16-R-50038-751 3RC30BF272J	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–2700 ohms total resistance, ±5% tolerance; 1 watt power dissipation rated at 40°C ambient; resistance temp characteristics –F characteristic; max body dim excl term–0.750″ lg, 0.280″ diam; insulation data– insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC30BF272J, #JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-350	V207, V208, V209 screen dropping
R220		Same as R217	V210, V211, plate and screen dropping
R221		RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–56,000 ohms total resistance, ±10% tolerance; 1/4 watt power dissipation; resistance temp characteristics–F characteristic; max body dim excl term–0.406″ lg, 0.170″ diam; insulation data–insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC10BF563K, #JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC363 (Same as R101)	V210 plate load
R222		Same a R211	V210 screen dropping

* Not furnished as a maintenance part. If failure occurs, do not request replacement unless the item cannot be repaired or fabricated.

TABLE 7-2. TABLE OF REPLACEABLE PARTS (Cont'd)

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
R223	N16-R-50237-491 3RC10BF822K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–8200 ohms total resistance, ±10% tolerance; 1/4 watt power dissipation; resistance temp characteristics–F characteristic; max body dim excl term–0.406" lg, 0.170" diam; insulation data–insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC10BF822K, #JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-367	V211 plate dropping
R224		RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–1000 ohms total resistance, ±10% tolerance; 1/4 watt power dissipation; resistance temp characteristics–F characteristic; max body dim excl term–0.406" lg, 0.170" diam; insulation data–insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 terms, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC10BF102K, JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-348 (Same as R103)	V207 screen dropping
R225		Same as R224	V208 screen dropping
R226		Same as R224	V209 screen dropping
R227		Same as R221	Bias Coupling from V201, to V207, V208, V209
R228		Same as R205	V211 grid return
R229		Same as R204	V204 screen dropping
R230	N16-R-49579-111 3RC10BF101J	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data–100 ohms total resistance, ±5% tolerance; 1/4 watt power dissipation; resistance temp characteristics–F characteristic; max body dim excl term–0.406" lg, 0.170" diam; insulation data–insulated, resistant to humidity and salt-water-immersion cycling; terminal data–2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data–JAN type RC10BF101J, #JAN-R-11; data regarding a "typical mfr"–International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-344	Filament Current equalizer to carry added plate current from ungrounded half of filament
S201		SWITCH, ROTARY: one section; twelve max switching positions possible; contact data arrangement–non-"pile-up" type, ten stator contacts/section; brass contacts, silver plated; phenolic section; o/a physical dim excl terms– 1-59/64" lg, 1-21/32" wd, 3/8" thk; mtd by two 0.136" diam holes, one each end; solder lug type terminals; special features– phenolic moisture and fungus resistant treated, indicator control arm 9/16" lg x 3/8" wd x 1/16" thk o/a staked to wafer; data regarding "the mfr"– Hoffman Radio Corp part/dwg #SW-52; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1 (Same as S101); u/w two 0206	TRANSMITTER METER SWITCH
S202	N16-T-98209-8506 3Z9826-94.2	TUNER, ASSEMBLY, RADIO FREQUENCY: 115 mc to 156 mc range; adjustment data–40 trimmer capacitors, 20 coil slugs, all screwdriver adjustment; approx o/a dim–9-1/4" lg, 5" wd, 3-5/16" h; mtg data–one end has two "L" brackets, other end has two tapped mtg holes; two crystal socket assemblies are marked 1 to 5 and 6 to 10 respectively; c/o four switch wafers with 10 trimmer capacitors on each, two wafers with 10 coils on each, a detent, pair of miter gears and shaft; small alignment pin through one gear and shaft; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-275; selects frequency channel of transmitter by inserting pretuned tank circuits into the proper stages; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Transmitter Channel selector Turret Tuner
S202A		SOCKET ASSEMBLY, CRYSTAL-SWITCH SECTION: crystal switch and socket assembly for channel selector switch; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; consists of two sets of crystal sockets wired to the crystal switch wafer of the channel selector; approx 3-5/16" h x 3-5/16" lg x 1-7/16" wd; mounts by three cut-outs in corners of the crystal switch wafer which engage grooves in three switch section supporting rods; crystal switch sockets marked with numbers from 1 to 10; crystal sockets are designed to accommodate either type CR-18/U or CR-5/U crystal units; mfr & contr: Hoffman Radio Corp part/dwg #EA-276 (Same as S102A); p/o S202	Mounts and selects one of ten crystals (Y201 thru Y210) for V201
S202B	*N16-C-78076-5051 3C4034-1	COIL ASSEMBLY, RADIO FREQUENCY: individual coil data–10 coils, single layer close wound, 29-1/2 turns #32 AWG enameled wire; termination data–2 terminals, lug type; approx o/a dim–3-11/32" lg, 3-5/16" wd, 7/8" thk; adjustable iron-copper core; mounting data–cut-outs in three corners which fit slot of tuner assembly spacer rods; hexagonal hub in center which fits tuner assembly drive shaft; special features–phenolic is fungus treated, contacts silver plated, p/o Hoffman Rad part/dwg #EA-275; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-297; transmitter 1st doubler tuning; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S202	Mounts and selects one of ten coils L201 thru L210 for V202
S202C	*N16-C-78076-1001 3C4034-3	COIL ASSEMBLY, RADIO FREQUENCY: individual coil data–10 coils, single layer close wound, 14-1/2 turns #30 AWG enameled wire; termination data–2 terminals, lug type; approx o/a dim–3-11/32" lg, 3-5/16" wd, 7/8" thk; adjustable iron-copper core; mounting data–cut-outs in three corners which fit slot of tuner assembly spacer rods, hexagonal hub in center which fits tuner assembly drive shaft; special features–phenolic is fungus treated, contacts silver plated, p/o Hoffman Rad part/dwg #EA-275; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-301; transmitter 2nd doubler tuning; p/oNavy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S202	Mounts and selects one of ten coils L211 thru L220 for V203

S202D	N16-C-66300-6442 3DE33V	CAPACITOR ASSEMBLY: individual capacitor data–10 capacitors, 3 to 33 mmf, approx 500 vdcw, Centralab catalog #822-AZ SPECIAL; approx over-all dim–3-11/32″ lg, 3-5/16″ wd, 7/8″ thk; mounting data–cut-outs in three corners which fit in slot of tuner assembly spacer rods; hexagonal hub in center which fits tuner assembly drive shaft; special features–phenolic is fungus treated; contacts silver plated; p/o Hoffman Rad part/dwg #EA-275; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-294; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment; p/o S202	Mounts and selects one of ten capacitors C213 thru C222 for V204
S202E	N16-C-66300-6249 3DE13V	CAPACITOR ASSEMBLY: individual capacitor data–10 capacitors, 2½ to 13 mmf, approx 500 vdcw, Centralab catalog #822-BZ; approx over-all dim–3-11/32″ lg, 3-5/16″ wd, 7/8″ thk; mounting data–cut-outs in three corners which fit in slot of tuner assembly spacer rods; hexagonal hub in center which fits tuner assembly drive shaft; special features–phenolic is fungus treated; contacts silver plated; p/o Hoffman Rad part/dwg #EA-275; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-292; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment; p/o S202 For replacement use Hoffman Rad part #EA-356, (S102G)	Mounts and selects one of ten Capacitors C226 thru C235 for V205
S202F		Same as S202E For replacement use Hoffman Rad part #EA-356, (S102G)	Mounts and selects one of ten capacitors C236 thru C245 for V206
S202G		Same as S202E For replacement use Hoffman Rad part #EA-356, (S102G)	Mounts and selects one of ten capacitors C250 thru C259 for V206
SV201 thru SV211	N16-S-34557-8351 2Z8304.276	SHIELD, tube: JAN type #TS102U02; copper nickel pl or brass nickel pl; cylindrical with partially closed top; bayonet mtg on shield base of socket; 0.810″ ID x 1-3/4″ lg; 1/2″ diam vent hole at top; with coiled tube-retaining spring; Cinch Mfg Corp part #TS102U02; Hoffman Radio Corp part/dwg #XA-19; spec JAN-S-28A; u/w XV201 thru XV211 (Same as SV101)	Shield retainers for V201 thru V211
T201	N17-T-62672-7301 2Z9634.103	TRANSFORMER, AUDIO FREQUENCY: modulation type; impedance data–380 ohms primary, 635 ohms secondary; 750v breakdown voltage; case and core data–sealed rectangular metal case, iron alloy core; o/a dim, MBCA Ref Dwg Group 12–2″ lg, 1-7/16″ wd, 1-3/4″ h; approx 1 to 1.28 ratio of turns, primary to secondary; term data–four solder lug type terms, located on bottom; four mtg bushings tapped #6-32-NC-2 x 1/4″ min d on 1.562″ x 1.000″ mtg/c; special features–term nos "1", "2", "3" and "4" metal stamped 1/8″ h on bottom of case; case rolled over and solder sealed to base; "TA-47" and "T201" stenciled on top of case; one coat dull black lacquer on case, "TA-47" stamped on winding; term #1 and #4 pri, term #4 and #2 secd, #3 term NC; special features data–vacuum wax-impregnated, not shielded; data regarding "the mfr"–Hoffman Radio Corp part/dwg #TA-47; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Couples Modulator V207, V208 and V209 to V206
T202	N17-T-66443-4001 2Z9638-49	TRANSFORMER, AUDIO FREQUENCY: plate coupling type; impedance data– 65,000 ohms primary, 65,000 ohms secondary; 500 vac 60 cycle test voltage; case and core data–closed cylindrical metal case, iron alloy core; o/a dim, MBCA Ref Dwg Group 12–1-7/16″ lg, 1.000″ diam; approx 1 to 1 ratio of turns, primary to secondary; term data–four solder lug type terms, located on bottom; two mtg bushings tapped #2-56-NC-2 x 3/16″ min d spaced 0.656″ c to c; special features–term nos "1", "2", "3" and "4" metal stamped 1/8″ h on bottom of case; case rolled over and solder sealed to base; "TA-48" and "T202" stenciled on top of case; "TA-48" stamped on winding; pri terms #1 and #2, secd terms #2 and #3, #4 term NC; fungus treated; special features data–vacuum wax-impregnated, not shielded; data regarding "the mfr"–Hoffman Radio Corp part/dwg #TA-48; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Audio oscillator transformer for V211
T203	N16-C-75783-9401 3C1084Z42-1	TRANSFORMER, RADIO FREQUENCY: winding data–two windings, single layer wound; approx inductance –primary 0.1 uh @ 49.2 mc, secondary 0.13 uh @ 44 mc; 0.080″ diam tinned copper wire–primary 2 turns #12 AWG, secondary 3 turns #12 AWG; untapped; unshielded; dim excl term–1″ lg, 0.535″ diam; material data–polystyrene form; approx over-all dim of coil form–1″ lg, 7/16″ diam; no adjustable tuning; mounted by wire leads; terminal data–4 terminals, wire lead type, located on side; special features–form has six 0.415″ rad threads/in 0.166″ between threads; form has centered slot in end 5/16″ lg, 3/64″ wd, 1/16″ d; data regarding "the mfr"–Hoffman Radio Corp part/dwg #TA-51; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Coupling V205 to V206
T204	N16-C-75781-8467 3C1084Z42-4	TRANSFORMER, VARIABLE RADIO FREQUENCY: winding data–two windings, space wound; approx inductance– primary, 0.15 uh @ 42.0 mc, secondary, 0.1 uh @ 50.15 mc; 0.128″ diam silver plated copper wire, primary, 1-3/4 turns, secondary, 1 turn; primary center tapped at time of assembly in equipment; unshielded; approx over-all dim–2-1/4″ lg, 1-5/16″ wd, 1-11/32″ h; material data–lucite coil base, air core; coil base is mounted vertically by one "L" brkt on bottom; terminal data–4 terminals, wire lead type, two located on each side; secondary is mounted on base by clamping block; coupling may be adjusted by loosening screws and moving secondary; data regarding "the mfr"–Hoffman Radio Corp part/dwg #TA-50; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Final Coupling V206 to J204
V201		TUBE, electron: type JAN-3A4; miniature type power amplifier pentode (Same as V101)	Crystal Oscillator
V202		Same as V201	1st Doubler
V203		Same as V201	2nd Doubler
V204		Same as V201	3rd Doubler
V205		TUBE, electron: type JAN-3A5; miniature type hi freq twin triode (Same as V109)	4th Doubler and Driver
V206		Same as V205	Final Amplifier
V207		Same as V201	Modulator

* Not furnished as a maintenance part. If failure occurs, do not request replacement unless the item cannot be repaired or fabricated.

TABLE 7-2. TABLE OF REPLACEABLE PARTS (Cont'd)

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
V208		Same as V201	Modulator
V209		Same as V201	Modulator
V210		TUBE, electron: type JAN-1L4; miniature type rf sharp cut-off pentode (Same as V102)	Microphone Amplifier
V211		Same as V210	MCW Oscillator
W201	*N16-C-11943-3171 3E7317-3	CABLE ASSEMBLY, RADIO FREQUENCY: cable data–AN radio frequency cable type #RG-58/U, coaxial, 53.5 ohms characteristic impedance, 1900 v rms max operating voltage; conductor data–single solid #20 AWG copper wire, plain finish; dielectric data–polyethylene 0.116″ OD; shield data–single copper, tinned; rd shape, 0.195″ diam, black vinyl jacket; lgth data–assy approx 11-1/4″ lg o/a, approx 9-3/4″ lg excl terminations; termination data–socket, one Hoffman Radio Corp part/dwg #JR-78, one end; jacket, shield and dielectric stripped 1/2″, 1/2″ and 5/16″ respectively, other end; special features– jacket stripped 5/16″ lg starting 2″ from end opposite plug; data regarding "the mfr"–Hoffman Radio Corp part/dwg #WA-97; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; incl J204	Receiver Antenna lead from Antenna Relay K201 to J205
XV201 thru XV211		SOCKET, TUBE: seven cont miniature; JAN type #TS102C01; one piece saddle mtg, above chassis; two 1/8″ diam mtg holes on 7/8″ mtg/c; for 41/64″ diam chassis cutout; round ceramic body approx 3/4″ diam x 5/16″ thk excl term; beryllium copper, silver pl cont; marked with JAN no. and mfr symbol or name; saddle includes base for mtg shock shield, center shield 0.095″ ID; Hugh H Eby part #TS102C01; Hoffman Radio Corp part/dwg #XT-38; spec JAN-S-28A (Same as XV101)	Sockets for V201 thru V211
XY201		SOCKET ASSEMBLY, CRYSTAL: assy consists of five sockets; individual socket data–5 sockets, 2 contacts per socket, crystal socket for 0.050″ diam contacts and 0.093″ diam contacts, spaced 0.486″ c to c, arranged perpendicular to ctr line of base; paper base phenolic mtg frame; o/a dim–3-5/16″ lg, 13/16″ wd, approx 3/8″ thk; frame mounts by two 0.120″ diam mtg holes spaced 2-15/16″ c to c; sockets numbered 1 to 5; sockets are designed to accommodate either type CR-18/U or CR-5/U crystal units; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-281; for accommodating crystals in channel selector switch; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S202A (Listed for reference only) (Same as XY101)	Sockets for Crystals from Channels 1 to 5
XY202 thru XY205		Not used	
XY206		SOCKET ASSEMBLY, CRYSTAL: assy consists of 5 sockets; individual socket data–5 sockets, 2 contacts per socket, crystal socket for 0.050″ diam contacts & 0.093″ diam contacts, spaced 0.486″ c to c, arranged perpendicular to ctr of base; paper base phenolic mtg frame; o/a dim–3-5/16″ lg, 13/16″ wd, approx 3/8″ thk; frame mounts by two 0.120″ diam mtg holes, spaced 2-15/16″ c to c; sockets numbered 6 to 10; sockets are designed to accommodate either type CR-18/U or CR-5/U crystal units; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-280; for accommodating crystals in channel selector switch; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o S202A (Same as XY106) (listed for reference only)	Sockets for Crystals from Channel 6 to 10
XY207 thru XY210		Not used	
Y201 thru Y210	2X209 (freq)	CRYSTAL UNIT, QUARTZ: single crystal plate; frequency to be between 6437.50 kc and 9750.00 kc; holder data–MIL Crystal Holder type HC-6/U; air gaps not adjustable; hermetically sealed; special features data–±0.005% of nominal frequency tolerance at 25°C, crystal plate etched, temp data–55°C to +90°C range, ±0.005% of nominal frequency tolerance over range of −55°C to +90°C; govt furnished; govt spec data–MIL, spec MIL-C-3098 type CR-18/U; for general purpose use (Same as Y101)	Frequency determining element for CRYSTAL OSCILLATOR V201 (Government furnished)
A301	F16-P-68615-7561 3H6691.3	POWER SUPPLY: rectification data–vibrator type, synchronous type; output data–dc, 135v/100v at 190ma/45ma, 3v at 1.22 amp, 1.5 v at 0.8 amp; unregulated; input data–dc, 4.2v at 11.3 amp; approx o/a dim–11-7/8″ lg, 7-3/8″ wd, 3-15/16″ d; filter included; one "L" mtg bracket w/two elongated 5/64″ rad holes on 2-1/4″ mtg/c; components moisture and fungus resistant; data regarding "the mfr"–Hoffman Radio Corp part/dwg #AA-390; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Supplies all operating voltages Receiver and Transmitter. Mounted on rear of "U" Frame
A302	N16-R-503580-243 2Z7780-158	RETAINER, ELECTRON TUBE: aluminum alloy; caustic dipped & water dip lacquered; designed to retain tubes–approx 7/8″ lg excluding pins, approx 3/4″ diam; mounted by two 0.169″ diam holes on 2.375″ mtg/c; special features–hinged 3/4″ from one end; 1/4″ ID rubber grommets in tube mounting holes; retaining clip riveted on end opposite hinge; approx o/a dim–3-15/16″ lg, 2-7/8″ wd, 15/16″ high; data regarding "the mfr"–Hoffman Radio Corp part/dwg #AA-401; used to retain tops of eight spare miniature tubes mounted 45° apart on 2-3/8″ diam circle; u/w another retainer for base of tubes; p/o Navy Portable VHF Radio Transmitting & Receiving Equipment Model MAW-1	Secures spare tubes in Power Supply A301
C301	N16-C-21924-4421 3DB60-11	CAPACITOR, FIXED, ELECTROLYTIC: case style #20, MBCA Ref Dwg Group 1; 2 sections; one section 30 mf, other section 60 mf; working voltage–200 vdc; minus 15°C to plus 60°C working temperature range; hermetically sealed metal can; case dim–3″ lg, 1″ diam; terminal data–2 solder lug type, 1/2″ high, located on bottom 3/8″ c to c, phenolic insulation; can is common negative for both sections; mounting data–3 twist prong mounting tabs on bottom, spaced 5/8″ c to c; data regarding a "typical mfr"–Sprague Electric Co type DFP; for general purpose use; Hoffman Radio Corp part/dwg #CE-18	B+ Filter Capacitor

C302	N16-C-29454-9271 (For replacement use SNSN N16-C-29449-8791 Sig C 3K204112)	CAPACITOR, FIXED, MICA DIELECTRIC: case style #22, MBCA Ref Dwg Group 1; cap data–240 mmf, ±10% tol; working voltage data–500 vdcw, 350 v rms; case of molded thermosetting plastic; max case dim–51/64″ lg, 15/32″ wd, 7/32″ thk; term data–2 term, wire lead type, 1-1/8″ lg, one located axially at ea end; special features–resistant to humidity and salt water; data regarding a "typical mfr"–Electro Motive Mfg Co Inc type RCM20B241K; for general purpose use; Hoffman Radio Corp part/dwg #CM-146 (For replacement use JAN type #CM20A241J)	Battery Shunt
C303	N16-C-22332-5020 3DB1400	CAPACITOR, FIXED, ELECTROLYTIC: (dry FP type) case style #20, MBCA Ref Dwg Group 1; 2 sections; 1400 mf per section, +100% −10% tol; working voltage–6 vdcw; HS metal can; max case dim excl term & mtg–2-27/32″ h, 1⅜″ diam; term data–2 term, solder lug type, approx ½″ lg, located on bottom, ⅜″ c to c; both neg term grounded internally; mtg data–4 twist lugs located on bottom, spaced 90° apart on ½″ rad; special features–etched foil construction, concentrically wnd; data regarding a "typical mfr"–Sprague Electric Co type DFP; Hoffman Radio Corp part/dwg #CE-17	C303A: 1½V Filament bypass C303B: 3V Filament bypass
C304	N16-C-42762-2357 3DA10-578	CAPACITOR, FIXED, PAPER DIELECTRIC: 1 section; case style #17, MBCA Ref Dwg Group 1; cap data –10,000 mmf, +20% −10% tol; working voltage– 2000 vdcw, 600 vac; HS metal can; max case dim–1-5/16″ lg, ¾″ diam; term data–2 term, wire lead type, 2½″ lg, one located axially on ea end, not insulated; Dyknol "B" syn oil impregnated and filled; no int gnd connections; term mtd; data regarding a "typical mfr"–Cornell Dubilier Elec Corp type TVC20S1-2; for general purpose use; Hoffman Radio Corp part/dwg #CP-95	Vibrator CR301 Buffer
C305	N16-C-45805-4271 3DA100-1105	CAPACITOR, FIXED, PAPER DIELECTRIC: 1 section; case style #2, MBCA Ref Dwg Group 1; cap data–100,000 mmf, ±20% tol; working voltage–400 vdcw, 200 v rms; designed for RF application, HS metal can; case dim–1-1/16″ lg, 0.4″ diam; term data–2 term, wire lead type, 1¾″ lg, one located axially at ea end; impregnated and filled w/Halowax; one side of capacitor is internally grounded; special features–one end sealed with Covar; data regarding a "typical mfr"–Good-All Electric Mfg Co type 501; for general purpose use; Hoffman Radio Corp part/dwg #CP-94	B+ RF Filter
C306	N16-C-27371-1676 3K2039021	CAPACITOR, FIXED, MICA DIELECTRIC: case style #22, MBCA Ref Dwg Group 1; cap data–39 mmf, ±10% tol; working voltage data–500 vdcw; 350 v rms; case of molded thermosetting plastic; max case dim –51/64″ lg, 15/32″ wd, 7/32″ thk; term data–2 term, wire lead type, 1-1/8″ lg, one located axially at ea end; special features–resistant to humidity and salt-water immersion cyc; govt spec data–JAN, #JAN-C-5, type CM20B390K; data regarding a "typical mfr"–Electro Motive Co Inc type RCM20B390K; for general purpose use; Hoffman Radio Corp part/dwg #CM-147	Battery RF bypass
C307	N16-C-44111-2351 3DA47-13	CAPACITOR, FIXED, PAPER DIELECTRIC: 1 section; case style #2, MBCA Ref Dwg Group 1; cap data–47,000 mmf, ±20% tol; working voltage–200 vdcw, 140 v rms; designed for RF application, HS metal can; case dim–13/16″ lg, 0.312″ diam; term data–2 term, wire lead type, 1¾″ lg, one located axially on ea end; impregnated and filled w/Halowax; one side of capacitor is internally grounded; special features–one end sealed with Covar; data regarding a "typical mfr"–Good-All Electric Mfg Co type 504; for general purpose use; Hoffman Radio Corp part/dwg #CP-93	Vibrator CR301 Filter
C308		Same as C307	Vibrator CR301 Filter
C309		CAPACITOR, FIXED, MICA DIELECTRIC: case style #22 MBCA Ref Dwg Group 1; cap data–3900 mmf, ±10% tol; working voltage data–500 vdcw, 350 v rms; case of molded thermo-setting plastic; max case dim–53/64″ lg, 53/64″ wd, 11/32″ thk; term data–2 term, wire lead type, 1⅛″ lg, one located axially at ea end; special features–resistant to humidity and salt-water-immersion cyc; govt spec data–JAN, #JAN-C-5, type CM35B392K; data regarding a "typical mfr"–Electro Motive Mfg Co type RCM35B392K; for general purpose use; Hoffman Radio Corp part/dwg #CM-81 (Same as C268)	Vibrator CR301 Filter
C310		Same as C307	Vibrator CR301 Filter
C311		Same as C 309	Vibrator CR301 Filter
CR301	N17-V-50523-8351 3H6691-29	VIBRATOR, SYNCHRONOUS: input data for max pwr output–2 vdc, 3 amp max, 2 vdc driving coil wkg voltage; reed data–single reed, 95 cycles frequency, +10/−5 tolerance; cylindrical shape; o/a dim excluding prongs–1-1/2″ diam, approx 2-15/16″ high; Oak Mtg Co base designation MV2; hermetically sealed aluminum case; fungus treated phenolic base; "BM-9" & CR-301" stenciled on top; case is covered with moisture and fungus resistant lacquer; data regarding "the mfr"–Oak Mfg Co part #V6702; p/o Navy Portable VHF Radio Transmitting & Receiving Equipment Model MAW-1; Hoffman Radio Corp part/dwg #BM-9	Converts 4V dc to ac Rectifies output of T301
CR302		Same as CR301	Spare Vibrator
E301	*N17-B-77482-3501 3Z770-1.32	TERMINAL BOARD: phenolic; terminal data–terminals included, one solder lug type; w/o barriers; approx over-all dim–5/16″ lg, ½″ wd, 9/16″ h; one approx 3/32″ diam mtg hole in "L" mtg brkt; special features–phenolic fungus treated; terminals and mtg brkt are tinned brass, eyeleted to board; mtg brkt is mounted on same side of board as terminal; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-328; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Support for wiring and components
E302	*N17-B-77482-3506 3Z770-1.31	TERMINAL BOARD: phenolic; terminal data–terminal included, one solder lug type; w/o barriers; approx over-all dim–5/16″ lg, 1/2″ wd, 9/16″ h; one approx 3/32″ diam mtg hole in "L" mtg brkt; special features–phenolic fungus treated; terminals and mtg brkt are tinned brass, eyeleted to board; mtg brkt is mounted on opposite side of board as terminal; data regarding "the mfr"–Hoffman Radio Corp part/dwg #EA-329; p/o–Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Support for wiring and components
E303	N17-T-26657-2145 3Z12072-26.5	TERMINAL LUG: rd tongue and type; style #3 MBCA Ref Dwg Group 20; copper; tinned finish; approx #12 AWG wire accommodation; o/a dim–1/2″ lg, 1/4″ wd, 0.015″ thk; soldered wire connection; one 0.144″ diam mtg hole in large end; one 0.014″ diam hole in small end; data regarding a "typical mfr"–Zierick Manufacturing Corp part #11A-6; for general purpose use; Hoffman Radio Corp part/dwg #HL-109	Ground Terminal

* Not furnished as a maintenance part. If failure occurs, do not request replacement unless the item cannot be repaired or fabricated.

TABLE 7-2. TABLE OF REPLACEABLE PARTS (Cont'd)

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
E304	*N17-C-84211-1001 2Z3197A-77	CONTACT ASSEMBLY, ELECTRICAL: p/o power supply; conducting surface data—2 silver plated brass, 2-3/8" lg, 9/16" wd, 1/32" thk; phenolic; natural· o/a dim—317/16" lg x 1-15/16" wd x 5/8" thk; dc, 20 amps, 4v; terminal data—2 solder lug type, located on back of assembly; contact surface location data—9/32" from first mtg hole to either contact surface, one contact surface on each side of mtg hole ctr line; two 0.125" diam mtg holes on 2.812" mtg/c; 0.201" hole near ctr of board; data regarding "the mfr"—Hoffman Radio Corp part/dwg #EA-321; p/o Navy Portable VHF Radio Transmitter and Receiver Model MAW-1	Provides electrical connection to battery box contacts
E305	*N16-C-650001-511 2Z3351-336	COVER, filter box: used as dust cover & electrical shield on vibrator pack filter case; p/o Navy Radio Receiver-Transmitter #CKB-43069-A; copper, nickel plated; square shaped; 3.312" lg x 3.093" wd x 0.032" thk; twenty 0.120" diam mtg holes spaced around perimeter; 2-5/16" lg x 2" wd x 0.015" thk; varnished cambric insulation cemented to inside; mfr & contr: Hoffman Cadio Corp part/dwg #AA-421	Dust cover and electrical shield for vibrator filter
E306		Not used	
E307	N17-I-69155-6231 3G350-165	INSULATOR, STANDOFF: material data—ceramic, L-4A grade per spec JAN-I-10, white; glazed finish; cylindrical pillar shape, item code #10, MBCA Ref Dwg Group 9; o/a dim—9/16" lg, 0.375" diam; two axial 3/16" lg #6-32 NC-2 tapped mtg holes, one ea end; 3,000 lbs/sq in flexural stgth; data regarding "the mfr"—Hoffman Radio Corp part/dwg #EM-206; p/o Navy Portable VHF Radio Transmitting & Receiving Equipment Model MAW-1	Support and Insulator for RF Choke L301
E308	*N16-S-33571-1045 2Z8309-20	SHIELD, COIL: sheet copper #20 ga, nickel pl; rectangular w/"L" shaped partition secured by 3 rivets on bottom; approx 2-55/64" wd x 3-3/32" lg x 0.782" d; 4 holes 0.136" diam on 2.625" x 2.375" mtg/c, 1 arc-shaped opening 3/16" rad on bottom of partition ins, irregularly shaped sides w/openings 1 ea side on 1/8" rad; shields choke coil and components in power supply, varnished cambric ins on "L" shaped partition; p/o Navy Portable Radio Transmitting and Receiving Equipment MAW-1; Hoffman Radio Corp part/dwg #AA-398	Power Supply filter shield
E309	*N16-S-22571-1047 2Z8304.298	SHIELD, COIL: copper, hot tin finish; rd shape, with one end open, ctr hole screw mtg; approx 1.057" diam x 0.750" deep; one mtg hole 0.196" diam in bottom, two wire lead openings 9/32" wd x 7/16" lg in side; one side of open end is cut on an angle for clearance; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr & contr: Hoffman Radio Corp part/dwg #AS-817; u/w E311	Shields RF choke L305
E310		TERMINAL LUG: rd tongue end type; style #1, MBCA Ref Dwg Group 20 with right angle bend near large end; brass 0.025" thk; hot tinned; approx #12 AWG wire accommodated; o/a dim—35/64" lg, 1/4" wd, 9/32" h; soldered wire connection; one 1/8" diam mtg hole on large end, one rounded rectangular hole 11/64" lg x 3/32" wd on small end; data regarding a "typical mfr"—Stewart Stamping Company; for general purpose use: Hoffman Radio Corp part/dwg #HL-108 (Same as E206)	Support for wiring and components
E311	*N16-S-33571-1046 2Z3351-334	COVER, COIL: steel, cad pl; over-all dim—13/64" diam, 3/32" thk; one 0.0628" lg extruded and tapped #4-40-NC-2 axial mtg hole; u/w Hoffman Radio Corp part/dwg #AS-817, shield, to retain and shield Hoffman Radio Corp part/dwg #LR-44, radio frequency choke coil; data regarding "the mfr"—Hoffman Radio Corp part/dwg #OM-673; u/w E309	Cover for Choke L305
E312	N17-T-26665-3895 3Z12073-41.14	TERMINAL LUG: rd tongue end type; style #14, MBCA Ref Dwg Group 20; brass; hot solder dip; approx #12 AWG wire accommodation; o/a dim—35/64" lg, 35/64" wd, 0.018" thk; soldered wire connections; one approx 0.140" diam mtg hole in ctr; one 5/64" diam hole in each end; data regarding a "typical mfr"—Shake-proof Inc part #2524-06-00; for general purpose use; Hoffman Radio Corp part/dwg #HL-111; u/w L-301	Terminal for battery RF choke in power supply
H301 thru H305		Not used	
H306	N16-G-900171-376 6Z4876-11	GROMMET: synthetic rubber; fits 9/16" diam hole; 7/16" hole diam x 1/16" wd groove, 1/4" wd x 3/4" diam over-all; mfr: Atlantic India Rubber Works part #1787; contr: Hoffman Radio Corp part/dwg #HG-34	Protection for cable (W501) and cushious for spare tubes V301 to V308
J301	N16-S-62603-6924 2Z8677.179	SOCKET, ELECTRON TUBE: contact data—7 female, rd; polarized by position of contacts; approx o/a dim—1-1/8" lg, 11/16" wd, 3/8" h excl term; contact electrical ratings—200 vdc, 2 amp; moulded phenolic; mounted with steel flange—2 mtg holes, .093 min, 7/8" mtg/c; data regarding a "typical mfr"—Cinch Mfg Co part #53C14015; for general purpose use; Hoffman Radio Corp part/dwg #JR-64	Power Supply Output
K301	N17-R-64724-3287 2Z7594-4	RELAY, ARMATURE: contact data— contact arrangement 3C, MBCA Ref Dwg Group 4, single break, ac-dc, 200 v, 4 amp; coil data—1 winding, 1 inductive winding, dc, 25 ohms resistance, 4 v nom operating; term data—9 term on contacts, 2 term on coil; intermittant duty; o/a dim--2-1/32" lg, 1-5/8" wd, 2-1/8" h; two #8-32 NC-2 tapped mtg holes diagonally spaced 15/16" vertically and 5/8" horizontally on one end; special features—marked "KR-20" and "K301" moisture and fungi resistant; govt identification data—Navy Relay, type 29878; data regarding a "typical mfr"—Guardian Electric Mfg Co part #37494; for general purpose use; Hoffman Radio Corp part/dwg #KR-20	Selects Transmit-Receive filament voltages

L301	N16-C-72719-6756 3C323-176E	COIL, RADIO FREQUENCY: electrical data—approx 0.3 uh @ 29.3 mc; physical data—approx 9 turns #12 AWG copper enameled conductor, one winding, single layer, untapped, unshielded; approx coil dim excl terms and mtg attachments—1-5/16″ lg, 17/32″ diam; termination data—two terminations, wire, located on each end; mounted by wire leads; used as radio frequency choke; data regarding "the mfr"—Hoffman Radio Corp part/dwg #LR-42; p/o—Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Battery RF Filter Choke
L302	N16-R-28909-6600 3C574X-1	REACTOR: filter choke, one section; electrical data—approx 400 mh @ 1000 cps, 175 ma dc; approx 35 ohms dc resistance + 10% −0%; 2000 v 60 cycle ac breakdown voltage; case data—solder sealed, metal; approx o/a dim—1-11/16″ lg, 2-1/4″ max h, 1-3/16″ wd; 4 mtg bushings on 1.125″ x 0.750″ mtg/c tapped 6-32-NC-2 x 1/4″ deep; terminal data—two terminals, solder lug type, located on top; special features—coil vacuum wax impregnated, entire reactor is fungus treated, stenciled "spare vibrator," "L-302" and "LF-21"; data regarding "the mfr"—Hoffman Radio Corp part/dwg #LF-21; p/o Navy Portable Radio Transmitting and Receiving Equipment Model MAW-1	B+ Filter Choke
L303	N16C-72975-4743 3C323-176A	COIL, RADIO FREQUENCY: electrical data—approx 4.5 uh at 10.5 mc; physical data—45 turns #30 AWG copper plain enameled conductor, one winding, single layer close wound, untapped, unshielded, solid phenolic form, approx coil dim excl terms & mtg attachments—3/4″ lg, 5/16″ diam, approx coil form dim—3/4″ lg, 7/32″ diam; terminal data—two terminals, wire lead type, one on each end of form; mounted by axial wire leads; used as radio frequency choke; data regarding "the mfr"—Hoffman Radio Corp part/dwg #LR-43; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	RF hash filter choke
L304	N16-R-28833-3600 3C574X	REACTOR: filter choke, one section; electrical data—approx 10 mh @ 1000 cps, 1.5 amp dc; approx 0.52 ohms dc resistance; 1000 v 60 cycle ac breakdown voltage; case data—open frame, metal; approx o/a dim—1-13/16″ lg, 1-11/16″ wd, 1″ h; two #4-40 stopnuts, swaged to "L" mtg brackets, 1-1/4″ c to c on opposite sides; terminal data—two terminals, wire type, one on each side; special features—coil vacuum wax impregnated, entire reactor is fungus treated, "LF-22" and "L-304" stenciled on top; data regarding "the mfr"—Hoffman Radio Corp part/dwg #LF-22; p/o—Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Filament Voltage RF Filter
L305	N16-C-73029-6031 3C323-176B	COIL, RADIO FREQUENCY: electrical data—approx 6 uh at 11 mc. approx 0.020 ohms dc resistance; physical data—#16 AWG copper double enameled conductor, one winding, bedspring type, untapped; u/w shields, Hoffman Radio Corp part/dwgs #AS-817 & #OM-673, not included; fibre form, air core; coil dim excl terms & mtg attachments—1″ diam, 9-1/16″ high, approx coil form dim—9/16″ lg, 1/4″ diam; termination data—two terminations, radial wire type located on end; mounted by machine bolt thru 1/8″ diam ctr/hole in form, not included; marked "LR-44" stamped or shield; used as radio frequency choke; moisture and fungus treated; data regarding "the mfr"—Hoffman Radio Corp part/dwg #LR-44; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; u/w E309 and E311	Vibrator Primary RF Filter
L306		Same as L305	Vibrator Primary RF Filter
L307		COIL, RADIO FREQUENCY: electrical data—approx 1.5 uh at 17.5 mc; physical data—25 turns #30 AWG copper plain enameled conductor, one winding, single layer, untapped, unshielded, solid phenolic form, approx coil dim excl terms & mtg attachments—3/4″ lg, 5/16″ diam, approx coil form dim—3/4″ lg, 7/32″ diam; terminal data—two terminals, wire lead type, one on each end of form; mounted by axial wire leads; used as radio frequency choke; data regarding "the mfr"—Hoffman Radio Corp part/dwg #LR-41; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1 (Same as L228)	Vibrator Secondary RF Filter
L308		Same as L307	Vibrator Driving Coil RF Filter
L309		Same as L307	Vibrator Secondary RF Filter
O301	*N17-C-814192-201 2Z2642.542	CLAMP, ELECTRICAL: steel, cadmium plated finish; fastening device data—eight clip type; over-all dim—approx 1-1/2″ diam, approx 1/2″ thk; mounted by 2 mtg holes 0.136″ diam spaced 1-1/2″ c to c; designed to hold material 1-1/2″ diam; cad plate has supplementary dichromate treatment; tube base style #5, MBCA Ref Dwg Group 37; used to lock vibrator in socket; data regarding a "typical mfr"—Ucinite Company, Subsidiary of United-Carr Fastener Corp, part #52035; for general purpose use; Hoffman Radio Corp part/dwg #EM-218	Hold vibrators CR301 and CR302 in sockets
O302	*N16-C-98431-1620 2Z3273-25	COUPLING, rigid: sleeve type; approx 0.160″ diam shaft size both ends; two set screw mtg holes w/6-32 thd; 9/16″ lg x 3/8″ OD over-all; stainless steel, passivated; set screws not included; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr and contr: Hoffman Radio Corp part/dwg #OM-656; u/w 0303 and R136	Coupling from Volume Control R136 to Power Switch Extension Shaft 0303
O303	*N17-S-37015-7183 2Z8203-155	SHAFT: used as drive shaft for power switch; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; stainless steel, passivated; rd rod; approx 5.046″ lg, 0.250″ diam o/a; rectangular tip approx 0.250″ lg x 0.091″ wd x 5/32″ deep one end, which is flatted 0.015″ x 15/32″ lg; rectangular tip 0.160″ lg x 0.0625″ wd x 7/32″ deep other end, which is reduced to 0.160″ diam & flatted 0.015″ x 1/4″ lg; mfr & contr: Hoffman Radio Corp part/dwg #OM-666; u/w 0302 and 0304	Power Switch extension Shaft
O304		COUPLING, rigid: sleeve type; 0.253″ ± 0.001″ ID ea end; two #6-32 set screw holes separated 90° on one end only; 11/16″ lg, 7/16″ diam o/a; water hardened tool steel, chrome pl; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr & contr: Hoffman Radio Corp part/dwg #OM-621; u/w 0303 and S301 (Same as 0102)	Coupling from Power Switch S301 to extension Shaft 0303
R301	N16-R-68256-6826 3RU03603	RESISTOR, FIXED, WIRE-WOUND: body style no. 14, MBCA Ref Dwg Group 2; inductive winding; resistance data—0.51 ohm, ±5% tol; power rating—1 watt power dissipation, 110°C max continuous operating temp 40°C ambient temp; body dim excl term—1-9/32″ lg, 9/32″ diam; protective covering data—molded plastic case, resistant to humidity and salt-water-immersion cycling; terminal data—2 term, axial wire leads, 1-1/2″ lg #19 AWG min; mtg data— term mtd; special features—resistance temp coef ±0.025%/°C; govt spec data—JAN, #JAN-R-184, type RU4CR51J; data regarding a "typical mfr"—International Resistance Co type BW; for general purpose use; Hoffman Radio Corp part/dwg #RW-53	Reduces Battery Voltage for Receiver Filaments V101 to V112

* Not furnished as a maintenance part. If failure occurs, do not request replacement unless the item cannot be repaired or fabricated.

TABLE 7-2. TABLE OF REPLACEABLE PARTS (Cont'd)

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
R302	N16-R-68320-9631 3RU17607	RESISTOR, FIXED, WIRE-WOUND: body style no. 14, MBCA Ref Dwg Group 2; inductive winding; resistance data— 15 ohms ±15% tol; power rating— 1 watt power dissipation, 110°C max continuous operating temp 40°C ambient temp; body dim excl term—1-9/32″ lg, 9/32″ diam; protective covering data—molded plastic case, resistant to humidity and salt-water-immersion cycling; term data—2 term, axial wire leads, 1-1/2″ lg #19 AWG min; mtg data— term mtd; special features—resistance temp coef ±0.025%/°C; govt spec data—JAN, # JAN-R-184, type RU4C150J; data regarding a "typical mfr"—International Resistance Co type BW; for general purpose use; Hoffman Radio Corp part/dwg #RW-54	Reduces Battery Voltage for 1.5 Volt Tube V210 and V211
R303	N16-R-68296-6106 3RU12802	RESISTOR, FIXED, WIRE-WOUND: body style no. 14, MBCA Ref Dwg Group 2; inductive winding; resistance data—4.7 ohms, ±5% tol; power rating—1 watt power dissipation, 110°C max continuous operating temp; body dim excl term—1-9/32″ lg, 9/32″ diam; protective covering data—molded plastic case, resistant to humidity and salt-water-immersion cycling; term data—2 term, axial wire leads, 1-1/2″ lg #19 AWG min; govt spec data—JAN, # JAN-R-184, type RU4C4R7J; data regarding a "typical mfr"—International Resistance Co type BW; for general purpose use; Hoffman Radio Corp part/dwg #RW-55	Reduces Battery Voltage to 2-volts for Vibrator CR301
R304	N16-R-49625-491 3RC10BF151K	RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Dwg Group 2; resistance data—150 ohms total resistance, ±10% tolerance; 1/4 watt power dissipation; resistance temp characteristics—F characteristic; max body dim excl term—0.406″ lg, 0.170″ diam; insulation data—insulated, resistant to humidity and salt-water-immersion cycling; terminal data—2 term, wire lead type, one located axially on ea end; standard color code per JAN-R-11; govt spec data—JAN type RC10BF151K, # JAN-R-11; data regarding a "typical mfr"—International Resistance Co; for general purpose use; Hoffman Radio Corp part/dwg #RC-345	Current Limiter for Motor Coil of Vibrator CR301
S301	N17-S-59617-3881 3Z9826-65.1	SWITCH, ROTARY: one section; two max switching positions possible; contact data arrangement—non-"pile-up" type, single pole, double throw; electrical rating—6 v dc, 15 amps; brass contacts, silver plated; metal case; o/a physical dim excl terms—57/64″ lg, 1″ diam; mtd by 3/8″-32-NEF-2 x 1/4″ lg bushing; shaft data—rd slotted type, 0.156″ lg, 0.250″ diam, 0.250″ lg x 0.0935″ wd x 1/8″ deep slot; solder lug type terminals; special features—320° min angular rotation, "SW-51" stamped on side of case, phenolic parts to be moisture and fungus resistant treated, 3/8″ ext tooth lockwasher and 3/8-32-NF-2 x 9/16″ hex nut supplied with switch; data regarding "the mfr"—Hoffman Radio Corp part/dwg #SW-51; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	On-Off Switch Actuated by Panel Knob E406
S302	M-S-69738-7681 3Z9835-8	SWITCH, SLIDE: double-pole, double-throw; 0.50 amp ac-dc; 125v; case data—steel case, approx dim excl terms, 13/32″ lg, 35/64″ wd, 9/32″ high; actuating mechanism data—slide button approx dim, 5/16″ lg, 1/4″ wd, 7/32″ high; locking action; terminal data—six terminals, solder lug type, flush mtg, two 7/32″ lg, 1/4″ diam spacers tapped 2-56-NC-2 spaced 1-1/8″ c to c; special features—button is black bakelite, terminals & contacts silver plated; data regarding "the mfr"—Hoffman Radio Corp part/dwg #SA-3; p/o Navy Portable VHF Radio Transmitting & Receiving Equipment Model MAW-1	RECEIVER ALIGNMENT USING TRANSMITTER
T301	N17-T-78513-4061 2Z9625-50	TRANSFORMER, POWER, VIBRATOR: case data—closed rectangular metal case; input data—4 vdc to center tap, 3-10 amp; output data—secondary #1, 200 vac CT to give 135 v dc after full wave rectification, 45 ma, 100 cycles; secondary #2, 270 vac CT to give 100 v dc after full wave rectification, 195 ma, 100 cycles; dim, MBCA Ref Dwg Group 12—3.209″ lg, 3″ wd, 2-15/16″ high; vacuum impregnated winding; terminal data—eleven terms, solder lug type, located on bottom; eight mtg bushings tapped #8-32-NC-2 x 11/32″ min deep, two sets of four on 2.625″ x 2.375″ mtg/c, one set on top and one set on bottom; no internal shielding; special features—case is solder sealed to base, one coat of dull black lacquer on case, term nos "1", "2", "3", "4", "5", "6", "8", "9", "10", "11", & "12" metal stamped on bottom of case, "TP-26" stenciled on windings, "TP-26", "T301" contr, mfr, winding diagram and electrical ratings stenciled on top of case, terms pri start #11, CT #10, finish #8, secd start #1, taps #2, #3 and #4, finish #5, term nos 6, 9 & 12 NC; data regarding "the mfr"—Hoffman Radio Corp part/dwg #TP-26″ p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Power Supply voltage step-up
V301		TUBE, electron: type JAN-1L4; miniature type, r.f. sharp cut-off pentode (Same as V102)	Spare 1L4 Tube
V302		TUBE, electron: type JAN-1U5; miniature type diode-pentode; pentode (Same as V107)	Spare 1U5 Tube
V303		TUBE, electron: type JAN-3A4; miniature type power amplifier pentode (Same as V101)	Spare 3A4 Tube
V304		Same as V303	Spare 3A4 Tube
V305		Same as V303	Spare 3A4 Tube
V306		TUBE, electron: type JAN-3A5; miniature hi freq twin triode (Same as V109)	Spare 3A5 Tube
V307		Same as V306	Spare 3A5 Tube
V308		Same as V306	Spare 3A5 Tube
XCR301	N16-S-62732-6041 2Z8677.91	SOCKET, ELECTRON TUBE: contact data—7 contact, phosphor bronze, silver plated; small; rd shape: o/a dim—approx 1-7/8″ lg, 1-9/32″ wd, 25/32″ h; molded phenolic; mtg data—molded-in plate, mtg dim—1-1/8″ diam chassis hole required, 2 mtg holes, 5/32″ diam, spaced 1-1/2″ c to c; commercial identification—Hoffman Radio Corp part/dwg # XT-41; data regarding a "typical mfr"—American Phenolic Corporation part #77-MIP-7S; for general purpose use	Vibrator CR301 Receptacle

A401		Not used	
A402	N16-C-170001-383 2Z3351-331	COVER, PANEL: aluminum alloy; anodized and USMC green enamel; o/a dim—approx 10-3/8″ lg, 5-3/4″ wd, 4-3/8″ d; four spring loaded catch fasteners, two on each long side 5-1/4″ c to c; seamless construction; waterproof cover for control panel and accessories; data regarding "the mfr"—Hoffman Radio Corp part/dwg # AA-372; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment model MAW-1	Headset and Microphone Assembly HS601 Container and Cover for Control Panel E408
A403 and A404		Not used	
A405	*N16-P-402241-122 2Z7091-635	PLATE, ELECTRICAL SHIELD: aluminum alloy; caustic dip and water dip lacquer; rectangular shape; approx o/a dim—12-13/16″ lg, 10-9/16″ wd, 11/32″ thk; one 3/16″ rad cutout on ea of three edges and an indent 1.250″ away from ctr of cutout, spring clips permanently fastened to "U" frame assy fit into cutouts and snap into the indents to secure the plate, one 0.128″ diam stud on ea of two sides position the plate before it is secured; nine 3/16″ wd ribs pressed into plate in various places; "TUBE SIDE OF CHASSIS" marked on one side; data regarding "the mfr"—Hoffman Radio Corp part/dwg #AA-376; electrostatic shield for one side of radio chassis; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Shield and Chassis Cover
A406	*N16-P-402241-123 2Z7091-634	PLATE, ELECTRICAL SHIELD: aluminum alloy and bakelite; aluminum has caustic dip and water dip lacquer finish and bakelite has moisture and fungus resistant lacquer finish; rectangular shape; approx o/a dim—12-13/16″ lg, 10-9/16″ wd, 11/32″ thk; one 3/16″ rad cutout on ea of three edges and an indent 1.250″ away from ctr of cutout, spring clips permanently fastened to "U" frame assy fit into cutouts and snap into the indents to secure the plate, one 0.128″ diam stud on ea of two sides position the plate before it is secured; nine 3/16″ wd ribs pressed into plate in various places, ctr portion of plate is bakelite because shielding is undesirable near transmitter coils; "WIRING SIDE OF CHASSIS" marked on one side; data regarding "the mfr"—Hoffman Radio Corp. part/dwg #AA-377; electrostatic shield for one side of radio chassis; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Shield and Chassis Cover
A407	*N16-P-404101-104 2Z7091-171	PLATE, clamp: holds "U" frame and control panel together; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; 1/2 hard SS, passivate; rectangular shape; 3-3/4″ lg, 19/64″ wd, 0.059″ thk; three 0.169″ diam in-line mtg holes, 1-9/16″ x 1-9/16″ mtg ctr; mfr and contr: Hoffman Radio Corp part/dwg # AS-783	Reinforces Control Panel and "U"-frame junction
A408	F16-C-170001-405 6F590-3	CABINET: for radio receiver-transmitter; laminated glass fibre; empty; 17-19/32″ lg, 14″ wd, 5-1/2″ thk; one 6-1/2″ d x 6-7/8″ lg x 4-3/8″ wd battery compartment which only opens through bottom of cabinet; carrying strap mounting boss on each side; 4 catch fasteners for bottom cover, 8 threaded anchors for securing unit in case; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr & contr: Hoffman Radio Corp part/dwg # AA-404	Carrying Case for Complete Chassis Assembly, and Batteries
A409	N17-C-200993-976 2Z3351-332	COVER, ELECTRICAL CONNECTOR: brass, silver plated and enameled USMC green; approx o/a dim—11/16″ h, 3/4″ diam; internally threaded 5/8″-24 approx 3/8″ lg; includes approx 3-3/4″ lg small link chain black nickel plated and USMC green enameled attached to ring clamped to top of cover; neoprene washer inserted in top of threaded section; used as protective covering for antenna connector receptacle, Hoffman Radio Corp part/dwg #JR-75; data regarding a "typical mfr"—American Phenolic Corp part 83-1AC (MOD as per Hoffman Rad dwg #HM-212); p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; Hoffman Radio Corp part/dwg #HM-212; u/w J403	Covers Antenna Receptacle J403
A410	F16-C-650001-503 2Z3351-330	COVER, TRANSMITTER-RECEIVER: aluminum alloy; anodized and USMC green enamel; approx 13-15/16″ lg, 4-25/32″ wd, 2-13/16″ h o/a; four strike fasteners, two on ea end; strike fasteners on one end have retaining springs; forms waterproof bottom cover of cabinet; data regarding "the mfr"— Hoffman Radio Corp part/dwg # AA-402; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Cover for Bottom of Carrying Case A408
BT401		BATTERY, STORAGE: voltage data— 2v total voltage; 32 amp hr capacity at 20 hr rate; 16.5 amp hr capacity at 20 min rate; over-all dim—4″ lg, 3″ wd, 5-1/2″ h; one cell; plate and separator data—11 plates per cell, lead alloy plates impregnated w/lead oxide separator of "fibrite", matted-felted redwood bark fibre; non-spillable; requires acid electrolyte; stored and shipped dry charged; terminal data—two terminals, bolt type; outer case of bakelite C-11, temp operation data—40°C or F, 2 amp for 4-1/2 hrs; 16 non-spill vents; built in charge indicator; same as BB-54A per spec Army 70-400 except rated at 32 amp/hrs instead of 28 amp/hrs; data regarding "the mfr"—Williard Storage Battery Co part #8250; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; Hoffman Radio Corp part/dwg #BT-2	Provides power for equipment. Used in series with BT402
BT402		Same as BT401	Provides power for equipment. Used in series with BT401
E401	N17-B-150001-136 3B4470-3	BATTERY BOX: aluminum alloy box; two compartments, ea approx 3″ lg x 4″ x 5-1/2″ h; top is open; approx 6-1/2″ lg, 4-1/2″ wd, 5-1/2″ h o/a; includes two syn rubber vent tubes Hoffman Rad part #PK-288 to be attached to battery vent, outlet in side of case; includes two spring steel battery retaining clips Hoffman Rad part #AS-823 which are coated with acid resistant rubber; includes molded sponge rubber battery cushion Hoffman Rad part #PK-297 in bottom; entire case is coated with acid resistant rubber compound; battery observation windows on each side of case; data regarding "the mfr"—Hoffman Rad part/dwg #AA-460; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; c/o Hoffman parts, one #AA-393 and two #AS-823; u/w BT401 and BT402	Case for Batteries
E402		BOARD, TERMINAL: for telephone jack assem; 5 solder lug term located on back; 2 term spaced approx 11/32″ c to c on 1 side, 3 term spaced approx 1/4″ c to c on other side; phenolic board; approx 1-5/16″ lg x 1-1/4″ wd x 7/8″ h o/a incl term and springs; 4 mtg holes 0.120″ diam, 1 in ea corner, on approx 1″ x 7/8″ mtg/c; 5 beryllium copper cont springs, approx 0.406″ lg x 0.140″ OD, located on front, u/w 5 conducting points not incl; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; Hoffman Rad part/dwg #EA-279; p/o J401 and J402; (Listed for reference only)	Spring Contact Assembly for Telephone Jack
E403 and E404		Not used	

* Not furnished as a maintenance part. If failure occurs, do not request replacement unless the item cannot be repaired or fabricated.

TABLE 7-2. TABLE OF REPLACEABLE PARTS (Cont'd)

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
E405	N17-I-70902-1001 3G335-15	INSULATOR, SPACER: material data—molded phenolic grade MFG per MIL-P-15088 (SHIPS), natural; USMC green lacquer; rectangular, rounded ends; item code 217, MCBA Ref Dwg Group 9; 2-1/16″ lg, 13/16″ wd, 13/32″ thk; two 17/64″ diam mtg holes 1.250″ c to c; mtg holes counter-bored to 5/8″ diam to 9/32″ d; data regarding "the mfr"—Hoffman Radio Corp part/dwg # EM-196; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; u/w J405 and J406	Spaces J405 and J406 to form external power Receptacle on side of Cabinet A408
E406	N16-K-700314-818 2Z5822-173	KNOB: rd; aluminum alloy; USMC green; attachment data—designed to accomodate shaft, rd, flatted on two opposite sides, 0.253″ diam, 0.194″ wd flat to flat, shaft hole 3/16″ d, screw may be screwed axially into end of shaft through 0.125″ diam hole; white luminous pointer line; o/a dim—0.870 in. lg, 1-1/8″ diam; serrated fingergrip surface; data regarding "the mfr"—Hoffman Radio Corp part/dwg /AC-80; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	VOLUME CONTROL with OFF position
E407	N16-K-700116-101 2Z5821-108	KNOB: rectangular w/one pointed end; aluminum alloy; USMC green; attachment data—designed to accommodate shaft, rd, flatted on two opposite sides, 0.253″ diam, 0.194″ wd flat to flat, shaft hole 3/16″ d, 0.113″ diam hole so that a screw may be screwed axially into end of shaft; SS insert; marked with white luminous pointer line and "CHANNEL SELECTOR"; o/a dim 3-3/8″ lg, 15/16″ wd, 0.968″ h; data regarding "the mfr"—Hoffman Radio Corp part/dwg #AC-82; Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	CHANNEL SELECTOR
E408	N17-P-17888-1685 2Z6900-21	PANEL, CONTROL; not enclosed; electrical cable data—1 phone, mic, key and power circuit cable, voltages up to 135v dc and lo-voltage af signals, three connectors, one seven contact female, one eight contact female, and one seven contact male; 1 ant cable with a two contact male connector; approx o/a dim—14-5/16″ lg excl cables, 5-3/8″ wd, 18-1/4″ d incl ant case; aluminum alloy panel; dull sheen USMC green; special features data—8 captive screws around edge provide mtg; includes one volume control knob, channel selector bar type knob, push-button key, two pairs of telephone jacks, one mic transformer, one ant receptacle connector and one tubular antenna case; data regarding "the mfr"—Hoffman Radio Corp part/dwg # AA-373; provides complete control for receiver, transmitter and power supply; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Main panel with control knobs, jacks J401 and J402, and antenna receptacle J403
E409	N17-S-8251-1019 2Z8276-65	SHELL, CONNECTOR: brass, silver plated; conical shape with square mtg flange; o/a dim—9/16″ lg, 1″ wd, 1″ h; four 0.125″ diam mtg holes on 23/32″ x 23/32″ mtg/c; data regarding "the mfr"—Hoffman Radio Corp part/dwg #JR-77; used as hood for antenna receptacle; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; JAN type UG-177/U MOD per Hoffman Radio Corp dwg #JR-77; p/o W401	Hood which covers junction between antenna receptacle J403 and cable W401. Part of W401
E410	N17-T-26649-3437 3Z12073-35.19	TERMINAL LUG: rd tongue end type; style #1 stud mount hole, style #19 wire mount, MBCA Ref Dwg Group 20; copper with bronze clamping sleeve; hot tinned finish; approx #10 AWG wire accommodation; o/a dim—13/16″ lg, 5/16″ wd, 3/16″ thk, tongue 0.040″ thk; crimped and soldered wire connection; one 0.138″ diam mtg hole on end; stake-on type; data regarding a "typical mfr"—Thomas & Betts Co part #C-33; for general purpose use; Hoffman Radio Corp part/dwg #HL-113	Cable terminations
E411		CONTACT, ELECTRICAL: p/o Jack Assembly, Telephone; contact in actual conducting point; stainless steel; passivated; approx o/a dim— 15/32″ lg, 0.187″ wd, 0.187″ thk; used for low power af signals; one 0.156″ diam ctr mtg hole 3/16″ deep on square end fits on contact spring; special features—9/32″ lg x 0.187″ wd x 0.187″ thk square shank on one end, 3/16″ lg x 0.125″ diam rd shank on other end, 1/64″ chamfer all corners of square end, rd end is cut by two angular planes to form rectangular tip; data regarding "the mfr"— Hoffman Radio Corp part/dwg #OM-680; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o J401 and J402 (Listed for reference use only)	Contacts for Telephone Jacks
E412		INSERT, ELECTRICAL CONNECTOR: low voltage, low current type; contact data—7 contacts, rd female type, 3/64″ diam, 200 vdc, 2 amp; phenolic; plain finish; rd shape; o/a dim—19/32″ lg, approx 3/4″ diam; two opposite 0.156″ rad indents for positioning in shell which has to be crimped to hold insert; polarized by position of contacts; data regarding "the mfr"—Cinch Mfg Corp; u/w shell as a plug; p/o Navy Portable Radio Transmitting and Receiving Equipment Model MAW-1; Hoffman Radio Corp part/dwg #PL-83; p/o P403 (Listed for reference only)	Insert for power plug P403
E413		INSERT, ELECTRICAL CONNECTOR: low-voltage low-current type; contact data—8, rd female, seven 3/64″ diam and one 7/64″ diam, 200 v dc, 2 amp; phenolic; plain finish; round shape; o/a dim—25/64″ lg, 0.705″ diam; two opposite 0.156″ radius indents for positioning in shell which has to be crimped to hold insert; polarized by position of contacts; data regarding "the mfr"— Hoffman Radio Corp part/dwg #PA-7; u/w shell as a plug; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o P404 (Listed for reference only)	Insert for power plug P404
H401	N17-C-781103-190 2Z2642.541	CLAMP, ELECTRICAL: steel; cadmium plated finish; fastening device data—one hook type; over-all dim-15/16″ lg, 3/8″ wd, approx 0.282″ high; mounted by one mtg hole 0.144″ diam in base of clamp; designed to hold material 1/4″ max diam; special features—cad plate has supplementary dichromate treatment; used as cable clamp; data regarding a "typical mfr"—Zierick Mfg Corp part #79-6; for general purpose use; Hoffman Radio Corp part/dwg #HM-218; u/w W404	Cable Clamp
H402	N17-L-150001-110 6Z3810-68	CATCH, fastener: p/o Navy type CKB-43069-A Radio Receiver-Transmitter; steel, bonderized; approx 2-1/16″ lg, x 1-3/8″ wd x 1/2″ thk; two mtg holes 9/64″ diam on 7/16″ mtg/c; spring loaded; mfr: Corbin Cabinet Lock Div, the American Hardware Corp part #15821; contr: Hoffman Radio Corp part/dwg #HM-252; u/w H420 and O409	Moveable Part of fasteners for lid of Test Meter MT501, bottom cabinet Cover A410 and Panel Cover A402

H403 thru H413		Not used	
H414	*N16-P-404941-132 2Z7091-633	PLATE, spacer: spaces catch fastener; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; aluminum alloy, anodized; 15/16″ lg, 1/2″ wd, 1/16″ thk; two 0.144″ diam holes on 0.437″ mtg/c; mfr & contr: Hoffman Radio Corp part/dwg #AS-756; u/w H402	Spacer for each of four Catch Fasteners H402 on bottom of Cabinet A408
H415	*N16-P-404941-133 2Z7091-639	PLATE, spacer: used as spacer between antenna connector and hood; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; aluminum, caustic dipped and water dipped lacquer; square shaped; 1″ lg x 1″ wd x 0.1285″ thk; four 0.125″ diam mtg holes, one in each corner; 41/64″ diam ctr hole; mfr and contr: Hoffman Radio Corp part/dwg #AS-925; u/w J403	Spaces Connector J403 from Panel E408
H416	N43-S-4799-1311 6L17110-32.1	SCREW, captive: knurled thumb head; brass head and stainless steel shank, painted USMC green; #10-24-NC-2; 2″ lg over-all; threaded portion 3/8″ lg; approx 1/2″ diam x 3/8″ lg head; approx 0.250″ diam x 1/8″ lg shoulder; 45° chamfer on head, 1/32″ top and 1/64″ bottom; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr and contr: Hoffman Radio Corp part/dwg #OA-143; four u/w A408	Secures set in Cabinet A408
H417	N43-S-99500-18 6L20910-32.3	SCREW, captive: knurled thumb head; brass head and stainless steel shank, painted USMC green; #10-24-NC-2; 2″ lg over-all, threaded portion 3/8″ lg; approx 1/2″ diam x 3/8″ lg head; approx 0.250″ diam x 5/16″ lg shoulder; 45° chamfer on head, 1/32″ top and 1/64″ bottom; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr and contr: Hoffman Radio Corp part/dwg #OA-148; four u/w A408	Secures set in Cabinet A408
H418	N17-S-46765-4939 2Z8879-151	SPRING: flat type; u/w strike fastener to retain catch after it is released; #26 ga (0.015″ thk) soft spring steel, bonderized; 7/8″ lg, 29/64″ wd, 3/16″ h o/a; two 5/32″ diam mtg holes on 17/32″ mtg/c; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr & contr: Hoffman Radio Corp part/dwg #OM-624; u/w H420	Retainer for Accessory Cover A402 and Bottom Cover A408 to prevent loss when opened
H419	N17-S-46773-1201 2Z8879-152	SPRING: flat type; battery retaining; flat stock spring steel 0.020″ thk, bonderized and coated with acid resistant rubber compound; 1-13/16″ lg, 5/16″ wd, 17/32″ d o/a; butterfly shape; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr & contr: Hoffman Radio Corp part/dwg #AS-823; p/o E401	Retains batteries in Box E401
H420	N42-S-26462-1800 6Z3810-27.1	STRIKE, fastener: p/o Navy type CKB-60155-A Test Meter and CKB-43069-A Radio Receiver-Transmitter; steel, bonderized; "J" shaped cross-section; two mtg holes 1/8″ diam on 17/32″ mtg/c; 7/8″ lg x 9/16″ wd x 1/16″ thk; mfr: Corbin Cabinet Lock Div American Hardware Corp part #15794; contr: Hoffman Radio Corp part/dwg #HM-253	Fixed half of Hold-Down Fasteners. Part of Control Panel E408
H421 thru H424		Not used	
H425	*N33-W-179-1775 6L50526-13	WASHER, FLAT: type data—round laminated phenolic; spec data—MIL, spec MIL-P-3114, 14,200 lbs per sq in min flexural strength, M-84 min Rockwell hardness; finish data—moisture and fungus resitsant lacquer; dim—center hole 3/8″ ID, outside 5/8″ OD, 0.026″ thk min, 0.036″ thk max; 3/8″ diam nominal bolt or screw size; data regarding a "typical mfr"—Hoffman Radio Corp part/dwg #HW-509; u/w O402	Gasket for Packing Nut Bushing O402
H426	*N33-W-179-2500 6L50501-1	WASHER, flat: phenolic, fungus treated; round 1/4″ OD, 0.112″ ID, 1/64″ thk; fungus & moisture resistant; p/o CKB-60155-A Test Meter & CKB-43069-A Radio Receiver-Transmitter of MAW-1; mfr & contr: Hoffman Radio Corp part/dwg #HM-276	Seal under assembly bolts on Control Panel A408 and Test Meter MT501
H427	*N33-W-312-9183 6L54014-4	WASHER, flat: type data—round; synthetic rubber; spec data—MIL, spec #MIL-R-900A, 800 lb per sq in min tensile strength; finish data—smooth or fine fabric impression; dim—center hole 7/8″ ID, outside, 1.000″ OD, 1/32″ thk nominal, 0.04125 thk″ max; 7/8″ nominal bolt or screw size; govt spec data—MIL, spec MIL-R-900A, class 1; data regarding "the mfr"—Hoffman Radio Corp part/dwg #PK-286	Waterproof seal between Antenna Case Control Panel E408
H428	*N33-W-311-2721 6L54002-25	WASHER, flat: type data—rd; syn rubber, med soft, spec data—MIL, spec MIL-R-900A class 1, durometer 30-40; finish data—natural black smooth finish; dim—0.140″ ctr hole, 5/16″ OD, 1/64″ nominal material thickness, 0.3225″ max material thickness; #6 nominal bolt size; data regarding "the mfr"—Hoffman Radio Corp part/dwg #HM-274	Waterproof seal around bolts in Control Panel E408
H429	*N33-W-311-3741 6L54002-26	WASHER, flat: rd; syn rubber; spec data—MIL, spec MIL-R-900A class 1, durometer 40-50; finish data—natural black smooth finish; dim—0.164″ ctr hole ID, 3/8″ OD, 0.1055″ shoulder, 1/64″ nominal material thickness; #8 nom size screw; data regarding "the mfr"—Hoffman Radio Corp part/dwg #PK-304	Waterproofs Air Pressure Screw H438
H430	*N33-W-311-230 6L54004-4	WASHER, flat: synthetic rubber; round 3/4″ OD, 1/4″ ID, 3/32″ thk; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr & contr: Hoffman Radio Corp part/dwg #PK-319; u/w J405 & J406	Waterproof seal between Cabinet A408 and Connectors J405 and J406
H431 thru H437		Not used	
H438	N43-S-61003-8260 6L6832-4.11	BOLT, MACHINE: brass, spec data—SAE spec #41, 60,000 lbs/sq in min yield stgth, 57RB min Rockwell hardness; cadmium plated with supplementary phosphate treatment per Fed spec QQ-P-416 type 3, class C; semifinished; head data, as indicated in MBCA Ref Dwg Group 29—binding, style #2, slot drive, style #48, approx dim—0.092″ lg, 0.335″ diam; thread data—8-32 NC, class 2 fit, full lgth thrd; 1/4″ nom lgth; commercial identification data—Hoffman Radio Corp part #HSB-902-C, dwg #KD-12; data regarding a "typical mfr"—Central Screw Co Catalog "L"	Air Pressure Screw
H439	N17-B-750001-228 2Z1244-208	BRACKET: sw support; table shape, flat surface w/4 legs; brass, nickel pl; approx 1-1/16″ lg, 0.862″ wd, 37/64″ h; mts by 0.755″ diam hole in ctr of base; 4 holes 3/16″ diam for mtg sw, 1 hole ea leg; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; Hoffman Radio Corp part/dwg #AS-772; u/w S401	Mounts Key Switch S401 to Control Panel E408

* Not furnished as a maintenance part. If failure occurs, do not request replacement unless the item cannot be repaired or fabricated.

TABLE 7-2. TABLE OF REPLACEABLE PARTS (Cont'd)

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
H440	N17-G-161128-588 6L54012-8	GASKET: synthetic rubber with black finish; round 3/4″ ID, 31/32″ OD, 1/32″ thk; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; Hoffman Radio Corp part/dwg #PK-282; u/w H439	Seat for Key Switch Bracket H439
J401	N17-J-40201-1251 2Z5531.55	JACK ASSEMBLY, TELEPHONE: jack data—2 jacks c/o two sleeve type bushings mounted on aluminum alloy plate mounted on phenolic block, contacts are separate and are inside block; one jack for 2-conductor phone plug and other for 3-conductor mic plug; contact data—c/o five conducting points Hoffman Radio part #OM-680 and five contact springs mtd on phenolic board, Hoffman Radio part #EA-279, board is to be mtd on opposite side of panel from body of assembly and the contact springs project through holes in the panel into the block; 2 conductor jack contact arrangement J1, MBCA Ref Dwg Group 4; 3 conductor contact arrangement J2, MBCA Ref Dwg Group 4; approx o/a dim—1-11/16″ lg, 1-5/16″ wd, 15/16″ thk; mounting data—6 brass inserts 0.208″ lg tapped #4-40-NC-2 0.148″ deep molded into phenolic block, 5/32″ deep, irregularly spaced, one in each four corners and two in ctr, six 5/16″ lg slot drive machine bolts and water seal gasket Hoffman Radio part #PK-289 included; internal surface enameled USMC green except for two black oxide jack bushings; data regarding "the mfr"—Hoffman Radio part #JA-2; c/o Hoffman Radio parts, one #EA-278, one #EA-279, five #OM-680, one #PK-289 & six #HSB-913; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; includes five E411, one E402 & one O412	Receptacle for Headset and Microphone plugs. Mates JAN type plugs #PJ-055B and #PJ-068
J402		Same as J401	Receptacle for Headset and Microphone plugs. Mates JAN type plugs #PJ-055B and #PJ-068
J403	N17-C-73108-5887 2Z3062-263	CONNECTOR, RECEPTACLE: contact data—one female, rd; straight type; over-all dim—15/16″ approx lg, 1″ wd, 1″ high; contact electrical ratings—500 v peak; radio freq connector for use below 160 mc, 52 ohms nominal impedance, non-constant frequency impedance characteristic; body data— cylindrical body w/sq mtg flange, brass, silver plated; L5 steatite insert; mounting data—4 holes, 0.125″ diam, 23/32″ x 23/32″ mtg/c; pressure proof; data regarding a "typical mfr"—American Phenolic Corp part #83-716; for general purpose use; Hoffman Radio Corp part/dwg #JR-75; u/w E409 and J403	Receptacle for antenna or antenna cable
J404		Not used	
J405	N17-C-78513-5120 2Z3062-262	CONNECTOR, RECEPTACLE: contact data—1 female rd; straight type; mates with male banana contact; o/a dim— 5/8″ lg, 1/2″ diam; body data—cylindrical shape; mounting data—1/4″ x 28NF-2thd mtg; special features—material 1/2 hard brass copper pl and tin pl; data regarding a "typical mfr"—Hoffman Radio Corp part/dwg #OM-679; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; u/w J406, E405 & two H430	Part of external power connection plug
J406		Same as J405	Part of external power connection plug
MS401	*N16-W-63685-1440 2Z7091-637	PLATE, APERTURE: high temp polystyrene; battery observation window; disc shape; 1.250″ diam, 0.062″ thk; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr & contr: Hoffman Radio Corp part/dwg #MM-144; p/o E410 & A408	Charge-indicator viewing window in Battery Box and in Cabinet
O401	N17-N-89002-1250 6L3800-13	NUT, packing: brass, cad pl; 1/2″-27 thread, class 2 fit; 7/16″ h o/a, 3/8″ lg thread, 5/8″ wd flat to flat; cad pl has supplementary dichromate treatment, 11/32″ lg x 9/16″ diam shank has 6 longitudinal slots equally spaced 1/32″ wd x 1/4″ lg, ctr hole 5/16″ diam on hex end; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; Hoffman Radio Corp part/dwg #OM-647; u/w O407 and O408	Watertight seal for Drive Shafts
O402	N16-B-800239-927 2Z1409-279	BUSHING: u/w drive assys, Hoffman Radio Corp #EA-326 and #OA-142; brass, nickel plated; male and female; 3/8″ lg o/a, hex end is externally relieved 0.005″ lg to 1/2″ diam, hex hd 0.088″ thk x 5/8″ flat to flat; 3/8″-32-NEF-2 internal thread, 1/2″-27 external thread class 2 fit, end opposite hex countersunk 0.062″; p/o control panel assembly of Navy type CKB-43069-A Radio Receiver-Transmitter; mfr and contr: Hoffman Radio Corp part/dwg #OM-828; u/w O407 and O408	Mounting and Retainer for Packing Nut
O403	*N16-C-600001-273 2Z2935-161	COLLAR, spacing: u/w Hoffman Radio Corp part/dwg #SW-55, key switch; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; aluminum alloy, caustic dipped and water dip lacquered; tubular shaped; 1/8″ lg x 1/4″ OD; one 0.104″ diam axial mtg hole thru length; mfr & contr: Hoffman Radio Corp part/dwg #OS-53; four u/w S401	Spacer for mounting KEY SWITCH
O404		Not used	
O405	*N17-C-965001-101 2Z6911-23	CUSHION, battery: shock mounting for battery; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; molded sponge rubber, smooth rind finish; rectangular shape with rounded corners and 1/8″ x 2-3/16″ lg cutout on one end; 6-23/64″ x 4-3/64″ x 1/4″ thk; all surfaces treated to prevent absorption of sulphuric battery solution; mfr & contr: Hoffman Radio Corp part/dwg #PK-297; Atlantic India Rubber #GA-0004; p/o E401	Cushion for batteries BT401 and BT402
O406	*N17-C-965001-102 2Z6911-22	CUSHION, battery: cushions battery and waterproofs battery box; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; c/o Hoffman Radio "Sealer Sheet" part/dwg #PK-296 and "Pad" part/dwg #PK-293; molded cellular blown black rubber pad and black medium soft syn rubber sealer sheet; rectangular shape; 6-27/32″ lg 4-5/16″ wd, 0.531″ thk; mfr & contr: Hoffman Radio Corp part/dwg #PA-6; p/o A408	Waterproofs Battery Box E401

O407	N17-S-91941-1090 2Z3613-15	SWITCH, SUBASSEMBLY: used as tuning drive detent; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; c/o 1 Hoffman Radio Part #OA-150 detent shaft assy, 1 #EA-325 detent plate assy, 1 #HM-220 SS "C" washer, 2 #HM-210 detent locating balls, and #MM-99 grease lubricant; approx 2" lg x 1-13/16" wd x 2-5/16" h o/a; 2 mtg holes 0.191" diam, 1 ea end; has provisions for 10 sw positions, continuous rotation, shaft locked to detent arm by locking pin, drive end of shaft slotted to fit tuner drive shaft; Hoffman Radio part/dwg #EA-326; p/o A401	Control Panel drive control for Receiver and Transmitter Turret Tuners S102 and S202
O408	*N16-S-21226-1183 2Z3876.91	SHAFT ASSEMBLY: transfers drive from 1 shaft to another for rotating volume control and "on-off" switch; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; c/o 1 Hoffman Radio part #OM-648 Volume Control Shaft, 1 #OM-663 Volume Control Shaft Collar, 1#HD-37 Drive Pin, 1 #HM-220 "C" Washer, 1 #OM-650 Packing Nut Bushing; continuous 360 deg rotation; approx 1-29/32" lg x 1-15/32" wd o/a; mts by hex bushing 3/8"-32 NEF-2 x 0.3755" lg x 1-15/32" wd peak to peak; mechanically operated, selector knob shaft operation, slotted at one end; Hoffman Radio Corp part/dwg #OA-142; p/o A401	Control Panel drive for VOLUME control and ON-OFF switch
O409	*N16-P-404941-134 2Z4868.1130	PLATE, SPACER: catch fastener mtg; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment MAW-1; phenolic, lacquer coated; rectangular shape; 29/32" lg x 15/32" wd x 1/32" thk; 2 holes 5/32" diam on 7/16" mtg/c; moisture and fungus resistant; Hoffman Radio Corp part/dwg #EL-197; u/w H402	Used under Catch Fasteners H402 to make screw holes watertight, sealed with cement
O410	*N16-P-404941-135 2Z4868.1131	PLATE, SPACER: for catch fastener reinforcing plate; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment MAW-1; phenolic, lacquer coated; rectangular shape; 1" lg x 3/8" wd x 0.032" thk; 2 holes 5/32" diam on 7/16" mtg/c; moisture and fungus resistant; Hoffman Radio Corp part/dwg #EL-200; u/w H402	Used under Catch Fasteners H402 to make screw holes watertight, sealed with cement
O411	*N17-G-161279-537 2Z4868.1129	GASKET: for battery observation window; synthetic rubber; single hole; circular shape, 1-17/64" OD, 1-1/16" ID; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr & contr: Hoffman Radio Corp part/dwg #PK-281; p/o A408 and E401	Watertight seal for observation window MS401 on Carrying Case and Battery Box
O412		Not used	
O413	*N17-G-153879-145 2Z4868.1128	GASKET: watertight union between ant connector and control panel; syn rubber, 30-40 durometer as per MIL-R-900A class 1; 5 holes, one 9/64" diam mtg hole in each corner, one 21/32" diam ctr hole; square, 31/32" lg x 31/32" wd x 1/32" thk over-all; white dot on stripe to indicate class 1; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr & contr: Hoffman Radio Corp part/dwg #PK-300; u/w J403	Waterproof Seal between Jack J403 and Control Panel E408
O414	*N17-G-161470-368 2Z4868.1136	GASKET: water tight union between mic transformer and control panel; syn rubber, med soft; two 0.250" diam mtg holes on ctr line 1.250" c to c; rct shape, 1-5/8" lg x 1-1/8" wd x 1/32" thk over-all; durometer 30-40 as per MIL-R-900A class 3; marked with red dot on stripe to indicate class 3; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr & contr: Hoffman Radio Corp part/dwg #PK-302; u/w T401	Waterproof Seal between Transformer T401 and Control Panel E408
O415	N17-G-157722-656 2Z4867.427	GASKET, water: watertight seal between accessory cover and control panel; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; molded neoprene, natural black smooth finish; durometer 40-50 as per MIL-R-900A class 1; rectangular shape; 10-1/2" lg, 4-9/16" wd, 1/4" thk; marked with white dot or stripe to indicate class 1; mfr & contr: Hoffman Radio Corp part/dwg #PK-291; p/o E408	Provides watertight Seal between accessory Cover A402 and Control Panel E408
O416	N17-G-158302-920 2Z4868.1127	GASKET: watertight seal between control panel and case; molded neoprene, durometer 40-50, natural black smooth finish; single hole 12-13/16" lg x 4-3/16" wd; rectangular shape 13-5/16" lg x 4-11/16" wd x 1/4" thk; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment MAW-1; Hoffman Radio Corp part/dwg #PK-298; p/o 0408	Provides watertight Seal between Control Panel E408 and Carrying Case A408
O417		Not used	
O418		Not used	
O419	N16-S-690501-132 6Z8448-31	STRAP, carrying: long p/o harness for carrying portable radio equip; cotton webbing USMC green; approx 41-3/4" lg, 2" wd; ends terminated with aluminum alloy tips coated with USMC green lacquer, one end has plate 2" lg x 2" wd with 1/2" mtg hole in ctr, other end has 19/32" lg tip width of belt; one keeper secured near end with large tip; mildew and water resistant; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr & contr: Hoffman Radio Corp part/dwg #VA-18; u/w 0420	Part of Harness for carrying Radio Transmitter Receiver CKB-43069-A
O420	N16-S-690501-131 6Z8848-32	STRAP, carrying: short p/o harness for carrying portable radio equip; cotton webbing USMC green; approx 18" lg, 2" wd; end terminations are of aluminum alloy w/USMC green lacquer finish, one end has plate 2" wd x 2" lg with 1/2" mtg hole in ctr, other end has buckle 2-1/2" wd x 2-3/8" lg x 1" h; one keeper not secured; mildew and water resistant; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr & contr: Hoffman Radio Corp part/dwg #VA-19; u/w 0419	Part of Harness for carrying Radio Receiver Transmitter CKB-43069-A
O421	N17-V-280001-102 2Z11105-28	TUBING: release for battery gas; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; synthetic rubber, anti-sulphuric; flexible; tubular shape with rt angle opening on one end; 2-13/16" lg, 11/32" max diam, 13/32" wd incl side opening; side opening 1/4" diam slips over non-spill vent on top of battery; mfr & contr: Hoffman Radio Corp part/dwg #PK-288; p/o E401	External vent for battery gas
O422		COUPLING, rigid: sleeve type; 0.253" ±0.001" ID ea end; two #6-32 set screw holes separated 90° on one end only; 11/16" lg, 7/16" diam o/a; water hardened tool steel, chrome pl; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr & contr: Hoffman Radio Corp part/dwg #OM-621; u/w E408 (Same as 0102)	Coupling from volume control Drive O408 to extension Shaft O412
0423		Same as 0422	Coupling from K136 to O412
O424	N16-G-900058-589 6Z4856-60	GROMMET: synthetic rubber; fits 3/16" diam hole; 1/8" hole diam x 1/32" wd groove, 3/32" wd x 1/4" diam over-all; mfr: Atlantic India Rubber Works part #1070; contr: Hoffman Radio Corp part/dwg #HG-36; u/w O403	Provides shockmounting for KEY S401

* Not furnished as a maintenance part. If failure occurs, do not request replacement unless the item cannot be repaired or fabricated.

TABLE 7-2. TABLE OF REPLACEABLE PARTS (Cont'd)

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
O425	N17-C-945001-939 2Z3351-333	COVER: waterproof diaphragm cover for MCW push switch; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; molded black silicone rubber diaphragm with a brass ferrule with black oxide finish around edge; rd shape; approx 1" diam, 1/2" thk; mounts by 3/4" diam x 3/16" lg flange of ferrule, which is swaged after inserting into mtg hole; mfr & contr: Hoffman Radio Corp part/dwg #AA-422; u/w S401	Rubber diaphragm type button on Control Panel for Key Switch
O426	N17-B-840101-142 2Z1480.81	BUTTON, PUSH: for MCW switch; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; plastic; cylindrical; 1/2" diam, 11/32" lg; 0.365" diam x 1/8" mtg hole in one end; sprayed w/moisture and fungus resistant lacquer; mfr & contr: Hoffman Radio Corp part/dwg #EM-191; u/w S401	Button for Key Switch S401 behind Boot O425
P401	N17-C-17530-5942 2Z3027-33	CONNECTOR, PLUG: contact data—7 male type, rd; polarized; straight type; approx o/a dim excl contacts—41/64" lg, 0.625" diam; contacts electrical ratings—2 amp 200 vdc; body data—cylindrical shape, brass, gray enamel; molded black bakelite insert; 0.312" diam cable opening; internal cable to term mtg; can be chassis mtd without shell to form receptacle; data regarding a "typical mfr"—Cinch Mfg Corp, parts #4754E78 and #9412; for general purpose use; Hoffman Radio Corp part/dwg #PA-18; c/o Hoffman Radio parts, Connector #PL-88 and Shell #PL-90 one each; p/o W404	Power cable Plug which mates J301
P402		CONNECTOR, PLUG: contact data—2, male, rd; straight type; o/a dim— 9/32" lg excl contacts and term, 13/16" wd, 5/16" h; radio frequency connector, approx 50 ohms nominal impedance, nonconstant freq impedance characteristic; body data—rectangular, rounded ends, molded phenolic, moisture and fungus resistant lacquer; mounting data—2 turret type solder lugs, 5/32" rad x 3/32" lg, 0.486" mtg/c; special features—cannot be disassembled, contacts are silver plated; data regarding "the mfr"—Hoffman Radio Corp part/dwg #EM-194; p/o—Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1 (Same as P101); p/o W401	Antenna Cable plug which mates J204
P403	N16-S-62601-5696 2Z8677.186	CONNECTOR, PLUG: contact data—7 female, rd; polarized; angle type; 90° angle; approx o/a dim—41/64" lg, 49/64" diam; contacts electrical ratings—2 amp 200 vdc; body data— cylindrical shape w/flange, brass, gray enamel; molded mica-filled bakelite insert; 0.312" diam max cable opening; internal cable to term mtg; data regarding a "typical mfr"—Cinch Mfg Corp, parts #4753E78 and #9366; for general purpose use; Hoffman Radio Corp part/dwg #PA-19; c/o Hoffman Radio parts, Connector #PL-83 and Shell #PL-86 one each; p/o W404	Control Panel Connector which mates jack J102
P404	N16-S-62601-5697 2Z8677.185	CONNECTOR, PLUG: contact data—8 female, rd; polarized; angle type; 90° angle; ctr contact is banana type; approx o/a dim—41/64" lg, 49/64" diam; contacts electrical ratings—2 amp 200 vdc; body data—cylindrical shape w/flange, brass, gray enamel; molded mica-filled bakelite insert; 0.312" diam max cable opening; internal cable to term mtg; data regarding a "typical mfr"—Cinch Mfg Corp ,parts #4753E78 and #9366 MOD per Hoffman Radio dwg #PA-7 for ctr banana contact; p/o—Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; Hoffman Radio Corp part/dwg #PA-20; c/o Hoffman Radio parts, Connector #PA-7 and Shell #PL-86 one each; p/o W404	Control Panel Connector which mates Transmitter Jack J206
S401	N17-S-57340-7853 3Z9824-110	SWITCH, PUSH: contact arrangement—single-pole, double-throw; current rating—dc, 10 amps; 115v; action data—momentary action normally open; phenolic body; o/a dim excl terms and ext actuator—1-1/2" lg, 7/16" wd, 21/64" high; external actuator data—plunger, approx 1/4" lg; terminal data—three terminals, solder lug type, located on back; two 0.105" diam mtg holes spaced 0.750" c to c; special features—4-6 oz operation force, 2-4 oz. release pressure, silver plated contacts, phenolic parts moisture and fungus resistant treated, all metal parts cadmium plated with supplementary dichromate treatment per Fed spec QQ-P-416 type 2, class C; data regarding "the mfr"—Hoffman Radio Corp part/dwg #SW-55; Acro Electric Model 6 part #969; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	KEY switch for code transmission Counted on Control Panel E408
T401	N17-T-61177-9775 2Z9631.307	TRANSFORMER, AUDIO FREQUENCY: input type; impedance data—250 ohms primary, 32,000 ohms secondary; 500vac 60 cycle test voltage; case and core data—sealed rectangular metal case, iron alloy core; o/a dim, MBCA Ref Dwg Group 12—1-3/4" lg, 7/8" h, 1-1/4" wd; approx 1 to 8 ratio of turns, primary to secondary; frequency data—± 1 db from 350 to 3500 cycles frequency response, not tuned; term data—four solder lug type terms, located on top; term #1 and #2 pri, #3 and #4 secd; two mtg bushings tapped #6-32-NC-2 x 1/4" min d spaced 1.250" c to c; special features—term nos "1", "2", "3" and "4" metal stamped 1/8" h on top of case; case rolled over and solder sealed to base; "TA-49" and "T401" on back of case; fungus treated; special features data—vacuum wax-impregnated, not shielded; data regarding "the mfr"—Hoffman Radio Corp part/dwg #TA-49; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Microphone transformer, mounted on Control Panel E408
W401	*N16-C-11943-4260 3E7350-2.15.9	CABLE ASSEMBLY, RADIO FREQUENCY: cable data—AN radio frequency cable type #RG-58/U, coaxial 53.5 ohms characteristic impedance, 1900 v rms max operating voltage; conductor data—single solid #20 AWG copper wire, plain finish; dielectric data—polyethylene 0.116" OD; shield data—single copper, tinned; rd shape, 0.195" diam, black vinyl jacket; lgth data—assy approx 16-1/4" lg o/a, approx 14-1/2" lg excl terminations; termination data—plug, Hoffman Radio Corp part/dwg #EM-194, one located on one end; hood, Hoffman Radio Corp part/dwg #JR-77, one located on other end; special features—"P-402" stenciled on side of plug; conductor extending through hood bent to form the shape of a hook; data regarding "the mfr"—Hoffman Radio Corp part/dwg #WA-92; p/o Navy Portable Radio Transmitting and Receiving Equipment Model MAW-1; includes P402	Interconnecting cable between J403 and J204
W402	*N17-L-62627-5391 3E7998-3.11	LEAD, electrical: JAN type SRIR-9(37)10U0, #10 AWG, 37 strands 0.0159" diam, synthetic resin insulation, black, 1000 v working, syn resin; 3-1/8" lg excl terminations; Thomas & Betts Co #C-33 #6 stakon lug on each end; tongue end of terminals are in same plane; flame proof; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; mfr & contr: Hoffman Radio Corp part/dwg #WA-110; p/o E401	Jumper between Batteries BT401 and BT402

W403		Not used	
W404	N17-W-300314-537 3E10000-21.1	WIRING HARNESS: main body data—conductor data—16 conductors #22 AWG copper, stranded; approx 22-3/8″ lg o/a main body; termination data— one plug connector & shell, Hoffman Radio Corp part/dwg nos PL-88 & PL-90 located on end, two conductors stripped & tinned 3/8″ each 1″ lg, located on other end; leg and breakout data—first breakout approx 3″ lg o/a six conductors covered with #1 x 7/8″ lg black vinylite tubing terminated by one receptacle connector & shell Hoffman Radio Corp part/dwg #PL-83 & PL-86, second breakout approx 1-1/2″ lg o/a eight conductors covered with #1 x 7/8″ lg black vinylite tubing terminated by one receptacle connector & shell Hoffman Radio Corp part/dwg nos PA-7 & PL-86; conductor breakouts—five conductors 7/8″ to 2-3/4″ lg and one shielded conductor approx 1-3/8″ lg, with 1/2″ lg shield braid twist, tinned on end; synthetic resin insulation each conductor; 1000v rms ac working voltage each conductor; twine laced approx 1/2″ apart binds conductors; color coded conductors; special features—fungus treated; vinylite tubing on each connector lead; vinylite tape wrapped on ends & legs; shielded conductor covered by vinylite tubing; data regarding "the mfr"—Hoffman Radio Corp part/dwg #WA-93; for connecting sub-units of radio set; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o A401	Main wiring loom between Control Panel E408 and rest of equipment
E501		TERMINAL LUG: rd tongue end type; brass; hot solder dip finish; approx #12 AWG wire accommodation; o/a dim—3/4″ lg, 1/2″ wd, 5/32″ h, 0.018″ thk tongue; crimped and soldered wire connection; one 0.267/0.256″ diam mtg hole on tongue end; data regarding a "typical mfr"—Shakeproof Inc, part #2578-14-00; for general purpose use; Hoffman Radio part/dwg #HL-116; p/o MT501	Meter terminal lugs on meter M501 in Test Meter MT501
H501	N16-T-751254-506 6Q6244	TOOL, ALIGNMENT: for slot drive; 3/32″ lg tip; 1-9/16″ lg o/a; 1/4″ diam rd shank, 1/4″ per ft taper 5/8″ lg on end opposite blade; bit end 1/4″ wd, 0.025″ thk; molded phenolic materials; p/o CKB-60155-A Test Meter of MAW-1; mfr & contr: Hoffman Radio Corp part/dwg #OP-8; u/w H504	Spare bit for Alignment Tool. Mounted inside Test Meter MT501 lid
H502	N16-T-751885-924 6R38479-1	BIT, screwdriver: for slot drive; SS blade insert extends 3/32″ lg past shank; 1-19/32″ lg o/a; 5/16″ max diam shoulder; 1/4″ diam rd shank, 1/4″ per 1 ft taper 5/8″ lg on end opposite blade; bit end 13/64″ wd, 0.025″ thk; molded phenolic shank; p/o Navy type CKB-60155-A Test Meter of MAW-1; mfr & contr: Hoffman Radio Corp part/dwg #OP-9; u/w H504	Spare bit for Alignment Tool. Mounted inside Test Meter MT501 lid
H503	N16-T-750644-951 6R38428	TOOL, alignment: aluminum alloy body and screwdriver handle; 2-7/8″ lg, 3/8″ diam o/a, 2-29/32″ lg extended; one end is 0.189″ flat to flat hex socket with a coaxially retractable screwdriver inside, blade is 0.025″ thk x 0.093″ wd, other end is a 0.375″ lg x 0.385″ diam diamond knurled screwdriver handle; top portion of main body is knurled for approx 13/16″ to provide handle for hex socket, remaining portion of 2-1/8″ lg body is covered with plastic insulated sleeve; specifically designed for i-f alignment in CKB-43069-A Radio Receiver-Transmitter—p/o CKB-60155-A Test Meter of the MAW-1; mfr & contr: Hoffman Radio Corp part/dwg #VA-8; p/o MT501	Receiver, A101, IF alignment tool mounted inside Test Meter MT501 lid
H504	N16-T-750844-801 6R38428-3	TOOL, alignment: aluminum alloy body; 4″ lg o/a, 3/8″ diam; both ends have molded phenolic screwdriver bits, one has 0.025″ thk x 1/4″ wd phenolic tip, other has SS insert tip 0.025″ thk x 13/64″ wd; each end of handle has plastic insulating sleeve extending 1/2″ from shank; remaining portion of handle has a diamond knurl; specifically designed for rf alignment in CKB-43069-A Radio Receiver-Transmitter—p/o CKB-60155-A Test Meter of MAW-1; mfr & contr: Hoffman Radio Corp part/dwg #VA-9; c/o Hoffman Radio parts, Handle #OM-819, Tip #OP-108, Tip #OP-9 one each; p/o MT501	Transmitter, A201, and Receiver A101 alignment tool. Mounted inside Test Meter MT501 lid
M501	N17-M-19052-1053	AMMETER: panel mounted; dc circuit application; scale data—marked "DC MICROAMPERES", graduated clockwise from 0 to 200 in increments of 5; round molded phenolic case style #15 MBCA Ref Dwg Group 27; flush mtg with 2.695″ max diam x 0.38″ max thk flange, 2.21″ max body diam x 1.60″ max body depth from mtg surface excluding terminals; ±2% accuracy at full scale reading; 50 millivolt full scale terminal drop sensitivity; calibrated for non-magnetic panel, not magnetically shielded; white face with black pointer and scale markings; self-contained; three 0.125″ diam mtg holes spaced 120° apart on 1.22″ radius, three #4-40 mtg bolts supplied; two 1/4-28 NF-2 or 0.164(8)-32 NC-2 or 0.190(10)-32 NC-2 (at mfr's option) thd stud terminals on back, supplied with two washers and two hex nuts on each, studs may need shortening for replacement use in the MAW-1 so that the max depth behind mtg surface (including studs) does not exceed 1-15/16″ deep; special features—screwdriver slot drive zero adjuster on front; govt spec JAN-I-6 type #MR25W200DCUA; data regarding a "typical mfr"—Weston Electrical Instrument Corp, type #MR25W200-DCUA; for general purpose use; contr: Hoffman Radio Corp part/dwg #MR-25; p/o MT501	Part of Test Meter MT501
MT501	N17-M-19057-1251 6Q320	TEST METER CKB-60155-A: for aligning xmtr and rec; aluminum case w/USMC green finish; c/o JAN type #MR25W200DCUA; data regarding a "typical mfr"—Westo nElectrical Instrument So, type #MR25W200-Bits #OP-8 and #OP-9; 3-3/16″ wd x 3-1/2″ h x 4-3/16″ d o/a; 200 ua movement meter, shorting jack provided for damping meter when not in use, 2 rubber gaskets provide submersion proof seal when lid is closed; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; Hoffman Radio Corp part/dwg #AA-409; includes H503, H504, M501, O501, O502, R501 and W501	Used for Alignment of Receiver, A101, and Transmitter A201
O501		Not used	
O502	N17-G-155142-470 2Z4868.438	GASKET: makes Test Meter case waterproof when lid is closed; p/o CKB-60155-A Test Meter of MAW-1; synthetic rubber; durometer 50-60; continuous strip of "U" cross section forms rectangle; 3.375″ lg, 3.062″ wd, 5/16″ h o/a; 1/4″ d, 0.025″ wd continuous slot for mtg; mfr & contr: Hoffman Radio Corp part/dwg #PK-294; p/o MT501	Waterproof seal between lid and case of Test Meter
R501		RESISTOR, FIXED, COMPOSITION: body style #14, MBCA Ref Dwg Group 2; resistance data 270 ohms ±10% tolerance; 1/2 watt power dissipation; resistance temp characteristic—F characteristic; max body dim excl term—0.468″ lg, 0.249″ diam; insulation data—insulated, resistant to humidity and salt water-immersion-cycling; term data—2 terms, axial wire lead type; govt spec data—JAN, spec JAN-R-11 type RC20BF271K; data regarding a "typical mfr"—International Resistance Co, type BTS; for general purpose use; Hoffman Radio Corp part/dwg #RC-63; p/o MT501	Divider for Test Meter circuit

* Not furnished as a maintenance part. If failure occurs, do not request replacement unless the item cannot be repaired or fabricated.

TABLE 7-2. TABLE OF REPLACEABLE PARTS (Cont'd)

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
W501	N17-C-48571-1301 3E7350-1.12.5	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: cable consists of two #18 AWG stranded conductors, each with cotton wrap and rubber insulation, the two conductors housed in an outer jacket of #4 clear vinylite tubing (not shielded); 12-7/8" lg o/a including terminal ends; one end terminated with Plug c/o Hoffman Radio parts as follows: two #EM-265, two #EM-192 and one #HRB-173, (plug not to be disassembled); other end terminated with two Solder Lugs, Hoffman Radio part #HL-116 (Shakeproof #2578-14-00); no branches; each conductor c/o 65 strands of #36 AWG extra flexible tinned copper wire; data regarding "the mfr"—Hoffman Radio Corp part/dwg #WA-100; p/o Navy Test Meter type CKB-60155-A, symbol MT501	Test lead for Test Meter MT501
A601	N17-H-52572-1261 2B1055-2	HEADSET-MICROPHONE ASSEMBLY AN/URA-2; c/o Carbon Microphone, NT-51066; Microphone Harness, NT-10312; Headset, NT-CW-49507A; Cord, Head and Chest Set, NT-49576, and Gas Mask Adapter NT-CW-10327	Headset is reproducer for audio output of receiver A101, and microphone provides means of speech input to transmitter A201
A602	N17-H-261001-103 2Z307-26	ADAPTER, gas mask: NT-10327; used for mtg NT-51066 Microphone Unit plus cord and Sig C Plug PL-291; wt 1 oz; 17" lg x 3-13/16" wd by 1-11/32" h o/a; mts in std gas mask; p/o A601	Mounts on gas mask Provides mounting for Microphone MI601
A603	N17-H-261001-101 2B670	FACE HARNESS ASSEMBLY: NT-10312; used to hold NT-51066 Lip Microphone; incl mic holder, strap, cord and plug; neoprene rubber matl; 24-3/4" lg x 1-3/4" wd x 1-5/16" d o/a; strap fastens on headband or helmet by snap on button; has Navy nameplate; same as AN Face Harness MX-108/UR; p/o A601	Secures Microphone MI601 to Headset HS601
HS601	N17-H-52025-2191 2B955.1	HEADSET: NT-49507-A; for radio use; magnetic type; 600 ohms impedance; two rec 2-1/32" diam x 3/8" d, one flat plastic covered metal headband; u/w std infantry helmet or std armored vehicle crash helmet; c/o two NT-49505 Receivers, two NT-49506 Cushions, one NT-49504 Headband, one NT-49503-A Cord and Headband, one NT-49503-A Cord and Headband Covering; same as NT-49507 except uses different cord and headband covering; p/o A601	Reproducer for audio output of receiver A101
MI601	N17-M-46602-3246 2B1750-1	MICROPHONE, CARBON: NT-51066; 100 ohms impedance; output level plus 47 db above 1 mw; freq response 300 to 4000 cyc; uni-directional; 1-5/16" lg x 1-1/4" wd x 15/32" d o/a, less cord; snap in mtg; w/o noise cancelling; button current approx 55 ma; uses NT-10312 Face Harness Assembly; p/o A601	Provides means of speech input to transmitter A201
W601	N-17-C-919881-103 3E7243-30	CORD, HEAD AND CHEST: NT-49576; c/o approx 8" of four cond tinsel cord rubber insulated and jacketed and 39" of five cond tinsel cord rubber insulated and jacketed, color coded; 65" lg approx o/a; four cond cord terminated in Y w/Sig C Jack JK-26 and Sig C Jack JK-48; 5 cond cord terminated in Y w/ NT-49007-A Telephone Plug (Sig C Plug PL-68) and NT-49109 Telephone Plug (Sig C Plug PL-55); has push-to-talk sw between the two cords; for use w/NT-51071 (or NT-51066) Microphone Assembly and NT-49507 (or NT-49507-A) Headset Assembly; p/o A601	Extension between Headset HS601 Microphone MI601 and equipment
E701	F16-A-54482-9701 2A288A-54	ANTENNA ASSEMBLY CKB-66150: ground plane type, MBCA Ref Dwg Group 11; electrical data—115-156 mc frequency range, 53.5 ohms characteristic input impedance, terminated for coaxial lead-in; telescopic construction; element data—3; dim—3/16" diam, 24-3/16" lg o/a collapsed; fixed type; mtd by ground stake 6" lg; components and accessories c/o 1 AN Cable type #RG-58/U, 1 Navy Plug, Connector type #49482; govt identification data—Navy Antenna Assembly type #66150; data regarding a "typical mfr"—Hoffman Radio Corp part/dwg #EA-333; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; for receiving and transmitting	Receiver, A101, and Transmitter, A201 antenna stored in antenna case A403
E702	N16-A-54482-9851 2A288B-12	ANTENNA ELEMENT: two section telescoping rod; (not indicated in MBCA Ref Dwg Group 11); electrical data—115 to 156 megacycle freq range, approx 50 ohms characteristic impedance, coaxial connector feed; construction data—telescopic construction, one element, 24-3/8" lg extended, 17-11/16" collapsed, two intermediate detent positions provided to set length at 19-11/16" and at 21-1/4" lg for resonance at 150 mc and 135 mc, fixed position type; stainless steel; USMC green enamel; mts by integral coaxial connector; includes rubber cover for mounting base; data regarding "the mfr"—Hoffman Radio Corp part/dwg #EA-358; for transmitting and receiving; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o E701	Antenna radiating element for Antenna Assembly E701 or for Radio Receiver Transmitter CKB-43069-A
O701	*N17-G-161006-936 2Z3351-329	COVER: waterproofs cable connector; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment MAW-1; syn rubber; cylindrical shape; 0.468" OD, 5/32" wd, 1/4" ID 0.095" wd, 0.343" ID 0.062" wd; Hoffman Radio part/dwg #PK-287: u/w P701, P801 and P802	Waterproofs Connectors
O702	N17-C-49521-1975 2A775-43	COVER, ANTENNA: weatherproofs base of vertical radiator; p/o Navy type CKB-66150 antenna assembly; black molded synthetic rubber; durometer 40-50; cylindrical shape externally relieved to conical shape; 2-3/8" lg, 31/32" diam o/a; 3/16" ID one end fits snugly over mast of antenna; 3/64" rad extruded lip on large end; mfr and contr: Hoffman Radio Corp part/dwg #PK-321; p/o E702	Weatherproof cover for antenna
P701	N17-C-71414-3649 2Z7390-203	CONNECTOR, PLUG: Army-Navy Plug UG-203/U, Navy type #49482; single round male cont; straight type; 3/4" diam x 1-21/32" lg o/a excl cont; non-constant impedance type, 500 v peak, 200 mc peak freq; cylindrical brass body, silver pl; mica-filled bakelite insert; 0.261" diam cable opening; has int thd 5/8"-24 coupling nut on cont end; similar to Navy Type #49195 except has smaller cable opening; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment MAW-1; Brach Part #11124, Astatic Dwg #7800, Gephart Type #1311, Amphenol Part/Dwg #83-776; Hoffman Radio Corp part/dwg #PL-92; p/o E701	Male connector at end of Cable on Antenna E701
A801	N16-C-170001-112 2Z1800.79	SHIPPING CHEST CKB-10543: for shipping Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; fiber w/steel corners and edges, USMC green E finish; empty; 25-3/8" lg x 16-5/8" wd x 12-3/8" h o/a; 3 compartments not encl, felt cushions inside of case; 2 folding handles, 1 on ea end; 4 latch fasteners, hasp and staple w/built-in lock, also provides for padlock; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; Hoffman Radio Corp part/dwg #AA-370-B	Shipping container for MAW-1 equipment

A802	N16-C-304470-201 2A478.2-2	CLAMP: jaw type; for holding antenna to trees, fences, etc; steel, bonderized & painted USMC green; approx 4-3/4" lg x 2-1/2" wd x 1-1/4" thk; approx 2" jaw opening; angle iron and wing nut bolts form swivel joint for orienting antenna, extruded teeth provide locking feature when wing nuts are tightened; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; mfr & contr: Hoffman Radio Corp part/dwg #AA-413; u/w E701	Provides means of attaching antenna to trees, posts, etc
E801	N17-C-802012-351 3Z1086B-1	CLIP, ELECTRICAL: battery style #1, MBCA Ref Dwg Group 37; steel; hot lead dipped; dim, MBCA Ref Dwg Group 37—approx 2-7/8" lg, 1-1/8" wd, 5Z8" h; electrical rating—DC, 25 amp, 6 v; terminal data—1 terminal, solder lug type; 1" jaw opening when fully spread; used on battery clip; data regarding a "typical mfr"—Mueller Electric Co part /24A plain; for general purpose use; Hoffman Radio Corp part/dwg /HM-213; p/o W804	Negative clip for battery charging
E802	N17-C-802013-106 3Z1086B-2	CLIP, ELECTRICAL: battery style #1; MBCA Ref Dwg Group 37; steel; hot lead dipped; dim, MBCA Ref Dwg Group 37—approx 2-7/8" lg, 1-1/8" wd, 5/8" h; electrical rating—DC, 25 amp, 6 v; terminal data—1 terminal, solder lug type; 1" jaw opening when fully spread; "+" punched on clip; used on battery clip; data regarding a "typical mfr"—Mueller Electric Co part #24A+; for general purpose use; Hoffman Radio Corp part/dwg #HM-214; p/o W804	Positive clip for battery charging
E803	N17-C-67727-5787 2Z7226-258	CONNECTOR, adapter: Navy dwg #RE49F169, Navy type 49191 double ended female; one round cont on each end; straight type; for joining two coax cables w/two NT-49190 or NT-49195 plugs; 5/8" diam x 1-1/8" long o/a; cylindrical brass body; silver pl; polystyrene insert; contr: Hoffman Radio Corp part/dwg #JR-76; used on MAW-1; p/o W802	Adapter used to connect two male plugs. Part of antenna extension cable
E804	N17-T-26702-8017 3Z12060-20.5	TERMINAL LUG: rd tongue end type; style #1 stud mount hole, style #19 wire mount, MBCA Ref Dwg Group 20; copper with bronze clamping sleeve; hot tinned finish; approx #10 AWG wire accommodation; o/a dim—27/32" lg, 3/8" wd, tongue 0.040" thk; crimped and soldered wire connection; one 0.190" diam mounting hole on end; stake-on type; data regarding a "typical mfr"—Thomas & Betts Co, part #C-26; for general purpose use; Hoffman Radio Corp part/dwg #HL-114	Termination on one end of cable W804
E805		ANTENNA ASSEMBLY CKB-66150: ground plane type MBCA Ref Dwg Group 11; electrical data—115-156 mc frequency range, 53.5 ohms characteristic input impedance, terminated for coaxial lead-in; telescopic construction; element data—3, dim—3/16" diam, 24-3/16" lg o/a collapsed; fixed type; mtd by ground stake 6" lg; components and accessories c/o 1 AN Cable type #RG-58-U, 1 Navy Plug, Connector type #49482; govt type data—Navy Antenna Assembly type #66150; govt identification data—Navy Antenna Assembly type #66150; data regarding a "typical mfr"—Hoffman Radio Corp part/dwg /EA-333; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; for receiving and transmitting (Same as E701)	Spare Antenna stowed in Shipping Chest A801
E806		ANTENNA ELEMENT: two section telescoping rod; (not indicated in MBCA Ref Dwg Group 11); electrical data—115 to 156 megacycle freq range, approx 50 ohms chacacteristic impedance, coaxial connector feed; construction data—telescopic construction, one element, 24-3/8" lg extended, 17-11/16" collapsed, two intermediate detent positions provided to set length at 19-11/16" and at 21-1/4" lg for resonance at 150 mc and 135 mc, fixed position type; stainless steel; USMC green enamel; mts by integral coaxial connector; includes rubber cover for mounting base; data regarding "the mfr"—Hoffman Radio Corp part/dwg #EA-358; for transmitting and receiving; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o E805 (Same as E702)	Antenna radiating element for Spare Antenna Assembly E805
E807		INSERT, ELECTRICAL CONNECTOR: 7 rd male cont, pol; straight type: 7/16" lg x 0.625" diam less cont; 2 amp, 3 v and 200 ma, 150 v; rd molded phenolic, plain finish; 0.144" diam mtg hole thru ctr, c/bore 1/4" dia x 3/32" d; Cinch part #9412 MOD per Hoffman Radio dwg #PL-89; p/o P803 (Listed for reference only)	Insert for P803
E808		CONTACT, connector: used as ctr cont; brass shank & berylium copper banana tip, sil pl; approx 3/32" lg x 3/16" flat to flat hex hd; mtd by 5/8" stud w/#6-32 x 1/4" thd; Ucinite Co part #FT-153351; Hoffman Radio Corp part #PL-91; p/o P803 (Listed for reference only)	Ground contact for P803
E809		INSERT, ELECTRICAL CONNECTOR: low-voltage low-current type; contact data—8, rd female, seven 3/64" diam and one 7/64" diam, 200 v dc, 2 amp; phenolic; plain finish; round shape; o/a dim—25/64" lg, 0.705" diam; two opposite 0.156" radius indents for positioning in shell which has to be crimped to hold insert; polarized by position of contacts; data regarding "the mfr"—Hoffman Radio Corp part/dwg #PA-7; u/w shell as a plug; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; p/o P805 (Listed for reference only)	Insert for power plug P805
H801	N16-P-94101-1009 6R7442	PULLER, tube: Sig C Tube Extractor #TL-201; used to remove electron tubes from sockets; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; steel, cold finished; scissor shaped; approx 7-7/8" lg x 4" wd x 3/8" thk; marked "TL-201"; has rubber sleeves on grasping tips; mfr: General Cement Mfg Co #5092; contr: Hoffman Radio Corp part/dwg #VA-17; Sig C dwg #SC-D-7459-A	Used to remove tubes from socket. Stowed in accessory bag O801
H802	*N43-S-4799-1565 6L4770-15.8K	SCREW, CAPTIVE: knurled knob thumb drive; knurled thumb head, semi-finished; brass, nickel pl; #10-32 NF class 2 thd; 31/32" lg o/a; thd 1/4" lg; 3/8" lg x 0.511" diam hd; 1/8" lg x 0.250" diam flange; 0.143" diam relieved shank 7/32" lg between flange & threaded portion; p/o Navy type CKB-43069-A Radio Receiver-Transmitter; contr: Hoffman Radio Corp part/dwg #HM278; p/o W804	Attaches and retains Charging Cable W804 to E304
O801	N16-B-110001-107 2Z552-9	BAG: Navy type #10583; for carrying cables; #8 duck, USMC green; approx 12" lg x 3-3/4" wd x 11-1/4" d o/a; 2 snap fasteners mtd on finger grip strap for holding cover closed, straps riveted to bag, 3/4" webb binding sewed to all edges; cotton webbing shoulder strap 1" wd x 55" lg w/2" overlap, cotton webbing shoulder pad on strap 12" lg x 2-1/8" wd; water repellent and mildew resistant; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; Hoffman Radio Corp part/dwg #VA-16	Provides storage for accessories
O802	N17-G-169900-551 2Z4868.1137	GASKET: waterproofing between shipping chest and lid; p/o CKB-10543 Shipping Chest of MAW-1; synthetic rubber; durometer 30-40; square stripping; 1/4" wd, 1/4" thk, approx 78-1/4" lg; mfr and contr: Hoffman Radio Corp part/dwg #PK-290; p/o A801	Waterproof seal beteween Shipping chest and its lid

* Not furnished as a maintenance part. If failure occurs, do not request replacement unless the item cannot be repaired or fabricated.

TABLE 7-2. TABLE OF REPLACEABLE PARTS (Cont'd)

REFERENCE DESIGNATION	STANDARD NAVY AND ARMY STOCK NUMBERS	NAME AND DESCRIPTION	LOCATING FUNCTION
P801	N17-C-71412-8709 2Z7226-259	CONNECTOR, PLUG: contact data—1 male rd; not polarized; straight type; over-all dim—1-1/2" lg, 11/16" dia; high frequency connector, 50 ohms nominal impedance, nonconstant frequency impedance characteristic; body data—cylindrical brass silver plated finish, locking type; mica filled phenolic insert; 3/8" dia max cable opening; mounting data—no coupling nut, 5/8-24 internal thread 1 end; govt identification data— Navy Connector, Plug, Type No. 49190; govt spec data—Navy Dwg No RE49F175; data regarding a "typical mfr"—Amphenol Part No 83-1SP; p/o Navy Portable VHF Transmitting and Receiving Equipment Model MAW-1; Hoffman Rad part/dwg #PL-73; p/o W802	Antenna extension cable termination
P802		Same as P801	Antenna extension cable termination
P803	N17-C-71239-7838 2Z3068-29	CONNECTOR, PLUG: eight round male contacts; polarized by standard 7 prong miniature tube base spacing; straight type connector; seven contacts are pin type and single ctr contact is banana type; approx 5/8" lg excl contacts, 15/16" lg o/a, 5/8" diam; contacts rated 2 amps at 3v, 200 ma at 150 vdc; steel cylindrical shell is finished in gray enamel; molded mica-filled bakelite insert; 0.312" diam max cable opening; mts by cable being soldered to terminals inside shell; data regarding "the mfr"—Hoffman Radio Corp part #PA-21; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; c/o Hoffman Radio parts, Connector #PL-89, Banana Contact #PL-91 and Shell #PL-90 on each; p/o W805	Mates with J301, P403 or P404
P804		Not used	
P805		CONNECTOR, PLUG: contact data—8 female, rd; polarized; angle type; 90° angle; ctr contact is banana type; approx o/a dim—41/64" lg, 49/64" diam; contacts electrical ratings—2 amps at 3v, 200 ma at 150 vdc; body data—cylindrical shape w/flange brass, gray enamel; molded mica-filled bakelite insert; 0.132" diam max cable opening; internal cable to term mtg; data regarding a "typical mfr"—Cinch Mfg Corp, parts #4753E78 and #9366 MOD per Hoffman Radio dwg #PA-7 for ctr banana contact; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; Hoffman Radio Corp part/dwg #PA-20 (Same as P404); p/o W805	Mates with J102, J206 and J207 or J301
W801		Not used	
W802	*N16-C-11594-8221 3E7317-18	CABLE ASSEMBLY, RADIO FREQUENCY: cable data—AN radio frequency cable type #RG-8/U, coaxial, 52 ohms characteristtic impedance, 4000 v rms max operating voltage; conductor data—single 7 strands #21 AWG copper wire, plain finish; dielectric data—polythylene 0.285" OD; shield data—single copper; rd shape, 0.405" diam, black vinyl jacket; lgth data—assy approx 50 ft excl terminations; termination data—connector, Navy typt #49190, two, one located each end; special features—internal water seal gasket each connector; Navy type #49191 adapter inserted one end; connectors painted USMC green anamel; data regarding "the mfr"—Hoffman Radio Corp part/dwg #WA-105; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1; u/w E701	50' Antenna extension cable
W803	N17-C-48197-2091 3E7317-6	CABLE ASSEMBLY, POWER, ELECTRICAL: cable data—conductor details, 2 conductors, stranded, #10 AWG, synthetic resin insulated; black vinylite outer jacket; ea conductor rated 1000 v rms max working voltage; approx 18" lg o/a; termination data—terminal fittings on first end, 1 Hoffman Radio Corp Plug Assembly, c/o 1 ea Battery Plug Shell top half #EM-193 and bottom half #EM-190, 1 polarized pin #OM-639, 2 Banana plugs #AA-430; terminal fittings on second end, 1 Hoffman Radio Corp Contact Assembly c/o 1 Plate #EL-211, 1 Thumb Screw #HM-278, 2 Terminal Lugs #HL-113; special features data— conductor stranding, 37 strands, 0.0159" diam; data regarding "the mfr"—Hoffman Radio Corp part/dwg #WA-106; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment MAW-1	Battery extension cable for supplying power to equipment when removed from Carrying Case A408
W804	N17-C-48221-2954 3E7317-2	CABLE ASSEMBLY, POWER, ELECTRICAL: cable data—conductor details, 2 conductors, stranged, #10 AWG, synthetic resin insulated, black vinylite outer jacket; approx 5'3" lg o/a; termination data—terminal fittings on first end, 1 Hoffman Radio Corp Plug Assembly c/o 1 ea Battery Plug Shell top half #EM-193 and bottom half #EM-190, 1 Polarizing Pin #OM-639, 2 Banana Plugs #AA-430; terminal fittings on second end, 1 Mueller Electric Co Battery Clip part #24-A marked +, 1 Mueller Electric Co Battery Clip part #24-A unmarked; data regarding "the mfr"—Hoffman Radio Corp part/dwg #WA-107; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Battery charging cable. One end mates J405 and J406, and other end has battery clips E801 and E802
W805	*	WIRING HARNESS: main body data—conductor data—8 conductors #22 AWG copper, stranded; approx 18" lg, excl connections; termination data— plug connector & shell, Hoffman Radio Co part nos PL-89 & PL-90, located on end; receptacle connector & shell, Hoffman Radio Part nos PA-7 & PL-86, located on other end; synthetic resin insulation each conductor; 1000v rms ac working voltage each conductor; #1 black vinylite tubing covers entire cable; color coded conductors; special features—fungus treated; vinylite tubing on each conductor lead; data regarding "the mfr"—Hoffman Radio Corp part/dwg #WA-98; used as power & control service cable; p/o Navy Portable VHF Radio Transmitting and Receiving Equipment Model MAW-1	Power cable for supplying Power Supply voltages to any unit removed from "U" frame assembly A401

* Not furnished as a maintenance part. If failure occurs, do not request replacement unless the item cannot be repaired or fabricated.

TABLE 7-3. CROSS REFERENCE PARTS LIST

AN DESIGNATION	KEY SYMBOL
UG-203/U	P701

JAN, AWS OR MIL DESIGNATION	KEY SYMBOL
CC30CH240J	C190
CC32CH101J	C182
CC32RH131J	C148
CM20A241J	C302
CM20B390K	C306
CM25B102K	C158
CM35B392K	C268
CN22A103M	C149
CR-5/U	(Y101 alternate)
CR-18/U	Y101
CV11A070	C248
RC10BF101J	R230
RC10BF102K	R103
RC10BF103K	R121
RC10BF104K	R209
RC10BF105K	R108
RC10BF106K	R135
RC10BF151K	R304
RC10BF153K	R202
RC10BF154K	R211
RC10BF223K	R201
RC10BF224K	R105
RC10BF225K	R205
RC10BF241J	R203
RC10BF300J	R107
RC10BF301J	R132
RC10BF333K	R117
RC10BF335K	R133
RC10BF472K	R109
RC10BF473K	R106
RC10BF474K	R110
RC10BF562K	R104
RC10BF563K	R101
RC10BF620J	R214
RC10BF681J	R212
RC10BF820J	R216
RC10BF822K	R223
RC10BF823K	R102
RC20BF153K	R217
RC20BF271K	R501
RC20BF472K	R204
RC20BF473K	R207
RC30BF102K	R215
RC30BF272J	R219
RU4CR51J	R301
RU4C150J	R302
RU4C3R9J	R218
RU4C4R7J	R303
SRIR-9(37) 10U0	W402
TS102C01	XV101
TS102U02	SV101
UG-177/U MOD	E409
1L4	V102
1U5	V107
3A4	V101
3A5	V109

NAVY TYPE NUMBER	KEY SYMBOL
10312	A603
10327	A602
10583	0801
29878	K301
43069-A	101-499
49190	P801
49191	E803
49482	P701
49507-A	HS601
49576	W601
51066	MI601
66150	E701
491217	J102

SIGNAL CORPS STOCK NUMBER	KEY SYMBOL
2A288A-54	E701
2A288B-12	E702
2A578.2-2	A802
2A775-43	0702
2B670	A603
2B955.1	HS601
2B1055-2	A601
2B1750-1	MI601
2C4034	A101
2C5416	101-499
2C5417	A201
2J1L4	V102
2J1U5	V107
2J3A4	V101
2J3A5	V109
2X209-(Freq.)	Y101
2Z307-26	A602
2Z552-9	0801
2Z1244-208	H439
2Z1244-209	A203
2Z1409-279	0402
2Z1480.81	0426
2Z1800.79	A801
2Z2642.541	H401
2Z2642.542	0301
2Z2935-161	0403
2Z2935-162	0101
2Z2935-163	0201
2Z2935-164	0202
2Z23022-164	P101
2Z3027-16	J102
2Z3027-17	J206
2Z3027-33	P401
2Z3062-253	J203
2Z3062-262	J405
2Z3062-263	J403
2Z3062-264	J101A
2Z3068-29	P803
2Z3083-17	J204
2Z3105-24	J101
2Z3197A-77	E304
2Z3262-71	E109
2Z3273-25	0302
2Z3273-258	0102
2Z3351-329	0701
2Z3351-330	A410
2Z3351-331	A402
2Z3351-332	A409
2Z3351-333	0425
2Z3351-334	E311
2Z3351-336	E305
2Z3613-15	0407
2Z3613-16	0203
2Z3613-17	0103
2Z3876.91	0408
2Z3876.142	0204
2Z3876.143	0104
2Z4867.427	0415
2Z4868.438	0502
2Z4868.1127	0416
2Z4868.1128	0413
2Z4868.1129	0411
2Z4868.1130	0409
2Z4868.1131	0410
2Z4868.1136	0414
2Z4868.1137	0802
2Z5531.55	J401
2Z5821-108	E407
2Z5822-173	E406
2Z6820.425	0105
2Z6820.426	E209
2Z6820.429	A202
2Z6820.432	0208
2Z6900-21	E408
2Z6911-22	0406
2Z6911-23	0405
2Z7091-171	A407
2Z7091-632	0106
2Z7091-633	H414
2Z7091-634	A406
2Z7091-635	A405
2Z7091-637	MS401
2Z7091-639	H415
2Z7226-258	E803
2Z7226-259	P801
2Z7390-203	P701
2Z7585-164	K201
2Z7594-4	K301
2Z7780-158	A302
2Z8203-154	0108
2Z8203-155	0303
2Z8203-639	0107
2Z8203-640	0205
2Z8276-65	E409
2Z8304.276	SV101
2Z8304.298	E309
2Z8309-20	E308
2Z8677.91	XCR301
2Z8677.172	XV101
2Z8677.179	J301
2Z8677.185	P404
2Z8677.186	P403
2Z8671-70	XY101
2Z8671-71	S102A
2Z8799A-2	XY106
2Z8879-151	H418
2Z8879-152	H419
2Z9401.129	E202
2Z9404.266	E203
2Z9404.267	E204
2Z9408.195	E101
2Z9409.65	E102
2Z9494A-5	P201
2Z9625-50	T301
2Z9631.307	T401
2Z9634.103	T201
2Z9638-49	T202
2Z9643.243	Z102
2Z9653.244	Z103
2Z9643.245	Z105
2Z9643.246	Z101
2Z9643.247	Z104
2Z11105-28	0421

TABLE 7-3. CROSS REFERENCE PARTS LIST (Continued)

SIGNAL CORPS STOCK NUMBER	KEY SYMBOL	SIGNAL CORPS STOCK NUMBER	KEY SYMBOL	SIGNAL CORPS STOCK NUMBER	KEY SYMBOL	SIGNAL CORPS STOCK NUMBER	KEY SYMBOL
3B4470-3	E401	3E10000-21.1	W404	3Z1086B-2	E802	F16-C-650001-503	A410
3C323-176A	L303	3F872-1	M501	3Z1090	H117	F16-P-68615-7561	A301
3C323-176B	L305	3G250-2	E207	3Z7499-2E5.2	R136	F16-R-31669-9690	A101
3C323-176C	L228	3G320-313	E208	3Z9824-110	S401	F16-T-37275-1005	A201
3C323-176D	L132	3G335-15	E405	3Z9826-65.1	S301	G41-W-2445	H130
3C323-176E	L301	3G350-165	E307	3Z9826-94	S101	M-S-69738-7681	S302
3C574X	L304	3H4860-49	CR101	3Z9826-94.2	S202	N16-A-54482-9851	E702
3C574X-1	L302	3H6691.3	A301	3Z9826-94.3	S102	N16-B-110001-107	0801
3C1084Z42	L221	3H6691-29	CR301	3Z9835-8	S302	N16-B-750041-107	0105
3C1084Z42-1	T203	3K204112	C302	3Z9903E-36	E113	N16-B-800239-927	0402
3C1084Z42-2	L101	3K2510221	C158	3Z12060-20.5	E804	N16-C-11594-8221	W802
3C1084Z42-3	T102	3K2039021	C306	3Z12072-26.5	E303	N16-C-11943-2371	W101
3C1084Z42-4	T204	3K3539221	C268	3Z12073-35.19	E410	N16-C-11943-3171	W201
3C1084Z52-10	L211	3RC10BF101J	R230	3Z12073-37.5	E108	N16-C-11943-4260	W401
3C1084Z52-11	L201	3RC10BF102K	R103	3Z12073-41.14	E312	N16-C-16177-2930	C190
3C1084Z52-13	L112	3RC10BF103K	R121	3Z12073-44.2	E205	N16-C-16593-2934	C223
3C10842Z52-14	L122	3RC10BF104K	R209	3Z12073-59.1	E206	N16-C-17073-3195	C182
3C1084Z52-15	L102	3RC10BF105K	R108	6F590-3	A408	N16-C-18657-8445	C111
3C4034	S102C	3RC10BF106K	R135	6L3800-13	0401	N16-C-18881-8451	C168
3C4034-1	S202B	3RC10BF151K	R304	6L4770-15.8K	H802	N16-C-19137-8470	C115
3C4034-2	S102B	3RC10BF153K	R202	6L17110-32.1	H416	N16-C-21924-4421	C301
3C4034-3	S202C	3RC10BF154K	R211	6L20910-32.3	H417	N16-C-22332-5020	C303
3C4034-4	S102D	3RC10BF223K	R201	6L50501-1	H426	N16-C-27371-1676	C306
3D9007V-17	C248	3RC10BF224K	R105	6L50526-13	H425	N16-C-29449-8791	C302
3D9013V-4	C101	3RC10BF225K	R205	6L54002-25	H428	N16-C-29454-9271	C302
3D9024-32	C190	3RC10BF241J	R203	6L54002-26	H429	N16-C-31090-4472	C158
3D9033V-6	C213	3RC10BF300J	R107	6L54004-4	H430	N16-C-31095-6411	C260
3D9051-71	C223	3RC10BF301J	R132	6L54012-8	H440	N16-C-31807-8195	C212
3D9100-242	C182	3RC10BF333K	R117	6L54014-4	H427	N16-C-32435-6608	C268
3D9130-24	C148	3RC10BF335K	R133	6L6832-4.11	H438	N16-C-42762-2357	C304
3DA1-116	C111	3RC10BF472K	R109	6Q320	MT501	N16-C-42764-8898	C149
3DA1-341	C260	3RC10BF473K	R106	6Q6244	H501	N16-C-44111-2351	C307
3DA2-223	C212	3RC10BF474K	R110	6R7442	H801	N16-C-45805-4271	C305
3DA10-138	C115	3RC10BF562K	R104	6R38428-3	H504	N16-C-45820-6820	C265
3DA10-447	C149	3RC10BF563K	R101	6R38428	H503	N16-C-46390-6651	C263
3DA10-578	C304	3RC10BF620J	R214	6R38479-1	H502	N16-C-63900-6761	C248
3DA47-13	C307	3RC10BF681J	R212	6R57400-6	H130	N16-C-63960-2511	C101
3DA100-1105	C305	3RC10BF820J	R216	6Z2848-32	0420	N16-C-64096-6401	C213
3DA120-8	C265	3RC10BF822K	R223	6Z3810-27.1	H420	N16-C-65001-511	E305
3DA270-8	C263	3RC10BF823K	R102	6Z3810-68	H402	N16-C-66300-6249	S202E
3DB60-11	C301	3RC20BF153K	R217	6Z4849H	H118	N16-C-66300-6251	S102E
3DB1400	C303	3RC20BF472K	R204	6Z4856-60	0424	N16-C-66300-6276	S102G
3DE13V	S202E	3RC20BF473K	R207	6Z4876-11	H306	N16-C-66300-6642	S202D
3DE13V-1	S102G	3RC30BF102K	R215	6Z8448-31	0419	N16-C-72698-4531	L101
3DE33V	S202D	3RC30BF272J	R219			N16-C-72704-3301	L221
3DE215V	S102E	3RU03603	R301			N16-C-72719-6756	L301
3DKA2-118	C168	3RU12007	R218			N16-C-72740-4301	L102
3E7243-30	W601	3RU12802	R303			N16-C-72801-2249	L228
3E7317-2	W804	3RU17607	R302			N16-C-72839-3101	L211
3E7317-3	W201	3Z770-1.31	E302			N16-C-72849-5501	L112
3E7317-4	W101	3Z770-1.32	E301	**STANDARD NAVY STOCK NUMBER**	**KEY SYMBOL**	N16-C-72975-4743	L303
3E7317-6	W803	3Z770-5.55	E105			N16-C-73000-2334	L201
3E7317-8	W802	3Z770-5.56	E104			N16-C-73027-4522	L122
3E7350-1.12.5	W501	3Z770-6.120	E103			N16-C-73029-6031	L305
3E7350-2.15.9	W401	3Z770-12.112	E201	F16-A-54482-9701	E701	N16-C-74000-3662	L132
3E7998-3.11	W402	3Z1086B-1	E801	F16-C-170001-405	A408	N16-C-75781-8467	T204

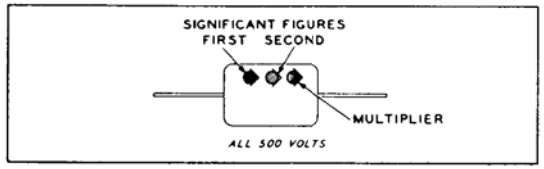
TABLE 7-3. CROSS REFERENCE PARTS LIST (Continued)

STANDARD NAVY STOCK NUMBER	KEY SYMBOL	STANDARD NAVY STOCK NUMBER	KEY SYMBOL	STANDARD NAVY STOCK NUMBER	KEY SYMBOL	STANDARD NAVY STOCK NUMBER	KEY SYMBOL
N16-C-75783-9401	T203	N16-R-50336-491	R202	N17-B-77686-6721	E104	N17-J-40201-1251	J401
N16-C-75981-8718	T102	N16-R-50336-811	R217	N17-B-77738-2785	E103	N17-L-62627-5391	W402
N16-C-78075-8001	S102D	N16-R-50372-491	R201	N17-B-77837-7666	E101	N17-L-150001-110	H402
N16-C-78076-1001	S202C	N16-R-50417-491	R117	N17-B-77895-4399	E102	N17-M-19052-1053	M501
N16-C-78076-2001	S102C	N16-R-50480-491	R106	N17-B-77990-2001	E201	N17-M-19057-1251	MT501
N16-C-78076-5001	S102B	N16-R-50480-811	R207	N17-B-150001-136	E401	N17-M-46602-3246	MI601
N16-C-78076-5051	S202B	N16-R-50516-491	R101	N17-B-750001-228	H439	N17-M-86377-3729	A203
N16-C-98431-1620	O302	N16-R-50588-491	R102	N17-B-840101-142	O426	N17-N-89002-1250	O401
N16-C-170001-112	A801	N16-R-50633-491	R209	N17-C-48197-2091	W803	N17-P-17888-1685	E408
N16-C-170001-383	A402	N16-R-50678-491	R211	N17-C-48221-2954	W804	N17-P-405501-140	0106
N16-C-304470-201	A802	N16-R-50714-491	R105	N17-C-48571-1301	W501	N17-R-50877-3475	CR101
N16-C-600001-273	O403	N16-R-50822-491	R110	N17-C-49521-1975	O702	N17-R-64694-6639	K201
N16-C-600001-275	O201	N16-R-41065-491	R205	N17-C-67727-5787	E803	N17-R-64724-3287	K301
N16-C-600001-276	O202	N16-R-51110-491	R133	N17-C-71239-7838	P803	N17-S-8251-1019	E409
N16-C-600701-156	E109	N16-R-51326-491	R135	N17-C-71412-8709	P801	N17-S-37015-7183	O303
N16-D-200001-126	O103	N16-R-68256-6826	R301	N17-C-71414-3649	P701	N17-S-46765-4939	H418
N16-D-901161-154	O104	N16-R-68292-2156	R218	N17-C-71426-9862	P101	N17-S-46773-1201	H419
N16-D-901161-155	O204	N16-R-68296-6106	R303	N17-C-71530-5942	P401	N17-S-57340-7853	S401
N16-F-32707-8116	Z103	N16-R-68320-9631	R302	N17-C-73107-9292	J203	N17-S-59406-8553	S101
N16-F-32707-8118	Z104	N16-R-88413-7960	R136	N17-C-73108-3598	J101A	N17-S-59617-3881	S301
N16-G-900058-589	O424	N16-R-503580-243	A302	N17-C-73108-5887	J403	N17-S-91764-6110	E113
N16-G-900115-298	H118	N16-R-673641-106	O205	N17-C-73126-3739	J204	N17-S-91941-1090	O407
N16-G-900171-376	H306	N16-R-686861-108	O107	N17-C-73530-4103	J206	N17-S-91941-1092	O203
N16-K-700116-101	E407	N16-S-20988-7801	O108	N17-C-74508-1237	J101	N17-T-26649-3437	E410
N16-K-700314-818	E406	N16-S-21226-1183	O408	N17-C-78513-5120	J405	N17-T-26657-2145	E303
N16-M-60955-5051	A202	N16-S-22571-1047	E309	N17-C-84211-1001	E304	N17-T-26665-3895	E312
N16-M-60962-1282	E209	N16-S-33571-1045	E308	N17-C-98432-4641	O102	N17-T-26666-2325	E108
N16-M-63399-1108	O208	N16-S-33571-1046	E311	N17-C-200993-976	A409	N17-T-26683-2801	E206
N16-P-94101-1009	H801	N16-S-34557-8351	SV101	N17-C-781103-190	H401	N17-T-26686-2107	E205
N16-P-402241-122	A405	N16-S-62601-5696	P403	N17-C-802012-351	E801	N17-T-26702-8017	E804
N16-P-402241-123	A406	N16-S-62601-5697	P404	N17-C-802013-106	E802	N17-T-47047-5150	P201
N16-P-404101-104	A407	N16-S-62603-6700	XV101	N17-C-806533-551	H117	N17-T-61177-9775	T401
N16-P-404941-132	H414	N16-S-62603-6924	J301	N17-C-814192-201	O301	N17-T-62672-7301	T201
N16-P-404941-133	H415	N16-S-62732-6041	XCR301	N17-C-860001-131	O101	N17-T-66443-4001	T202
N16-P-404941-134	O409	N16-S-67026-1676	XY101	N17-C-919881-103	W601	N17-T-68061-7269	Z101
N16-P-404941-135	O410	N16-S-67026-1681	XY106	N17-C-945001-939	O425	N17-T-68061-7274	Z102
N16-R-28833-3600	L304	N16-S-690501-131	O420	N17-C-965001-101	O405	N17-T-68061-7284	Z105
N16-R-28909-6600	L302	N16-S-690501-132	O419	N17-C-965001-102	O406	N17-T-78513-4061	T301
N16-R-35393-7988	101-499	N16-T-50975-491	R108	N17-G-153879-145	O413	N17-V-50523-8351	CR301
N16-R-36161-1034	S102A	N16-T-51650	V102	N17-G-155142-470	O502	N17-V-280001-102	O421
N16-R-49354-111	R107	N16-T-51972	V107	N17-G-157722-656	O415	N17-W-300314-537	W404
N16-R-49480-111	R214	N16-T-53140	V101	N17-G-158302-920	O416	N33-W-179-1775	H425
N16-R-49534-111	R216	N16-T-53150	V109	N17-G-161006-936	O701	N33-W-179-2500	H426
N16-R-49579-111	R230	N16-T-98209-8501	S102	N17-G-161128-588	H440	N33-W-311-230	H430
N16-R-49625-491	R304	N16-T-98209-8506	S202	N17-G-161279-537	O411	N33-W-311-2721	H428
N16-R-49669-111	R203	N16-T-750644-951	H503	N17-G-161470-368	O414	N33-W-311-3741	H429
N16-R-49696-111	R132	N16-T-750844-801	H504	N17-G-169900-551	0802	N33-W-312-9183	H427
N16-R-49840-111	R212	N16-T-751254-506	H501	N17-H-52025-2191	HS601	N42-S-26462-1800	H420
N16-R-49922-491	R103	N16-T-751885-924	H502	N17-H-52572-1261	A601	N43-N-3570-6090	C148
N16-R-49923-231	R215	N16-W-63685-1440	MS401	N17-H-261001-101	A603	N43-S-4799-1311	H416
N16-R-50038-751	R219	N17-B-77481-9701	E202	N17-H-261001-103	A602	N43-S-4799-1565	H802
N16-R-50129-491	R109	N17-B-77482-3501	E301	N17-I-36426-8201	J102	N43-S-61003-8260	H438
N16-R-50129-811	R204	N17-B-77482-3506	E302	N17-I-64185-3801	E208	N43-S-99500-18	H417
N16-R-50165-491	R104	N17-B-77637-8924	E204	N17-I-67017-7436	E207		
N16-R-50237-491	R223	N17-B-77637-8940	E203	N17-I-69155-6231	E307		
N16-R-50282-491	R121	N17-B-77686-2551	E105	N17-I-70902-1001	E405		

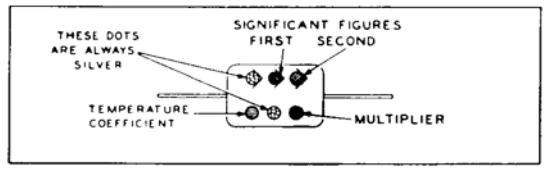
TABLE 7-4. APPLICABLE COLOR CODES AND MISCELLANEOUS DATA

CAPACITOR COLOR CODES

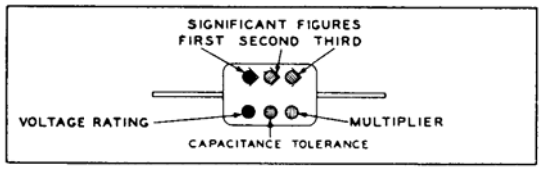
RMA 3-DOT COLOR CODE FOR MICA-DIELECTRIC CAPACITORS



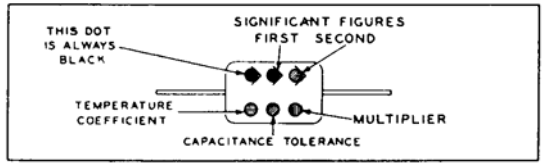
JAN 6-DOT COLOR CODE FOR PAPER-DIELECTRIC CAPACITORS



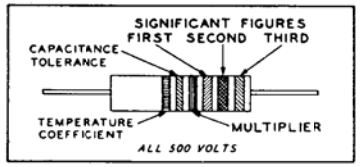
RMA 6-DOT COLOR CODE FOR MICA-DIELECTRIC CAPACITORS



JAN 6-DOT COLOR CODE FOR MICA-DIELECTRIC CAPACITORS

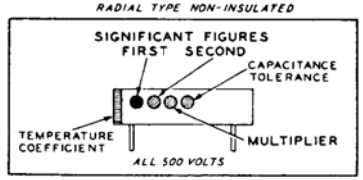


RMA COLOR CODE FOR TUBULAR CERAMIC-DIELECTRIC CAPACITORS

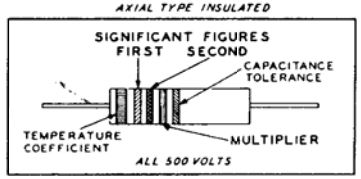


JAN COLOR CODE FOR FIXED CERAMIC-DIELECTRIC CAPACITORS

RADIAL TYPE NON-INSULATED



AXIAL TYPE INSULATED



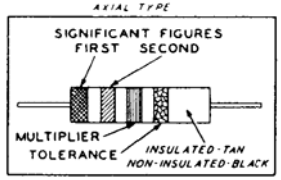
RMA: RADIO MANUFACTURERS ASSOCIATION
JAN: JOINT ARMY-NAVY

RESISTORS		CAPACITORS						
				MULTIPLIER				
TOLERANCE	MULTIPLIER	SIGNIFICANT FIGURE	COLOR	RMA MICA AND CERAMIC-DIELECTRIC	JAN MICA AND PAPER-DIELECTRIC	JAN CERAMIC DIELECTRIC	VOLTAGE RATING	TEMPERATURE COEFFICIENT
	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
	10,000	4	YELLOW	10,000			400	E
	100,000	5	GREEN	100,000			500	F
	1,000,000	6	BLUE	1,000,000			600	G
	10,000,000	7	VIOLET	10,000,000			700	
	100,000,000	8	GRAY	100,000,000		0.01	800	
	1,000,000,000	9	WHITE	1,000,000,000		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	

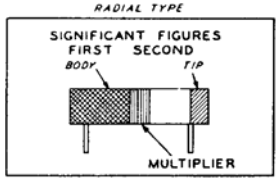
RESISTOR COLOR CODES

RMA COLOR CODE FOR FIXED COMPOSITION RESISTORS

AXIAL TYPE

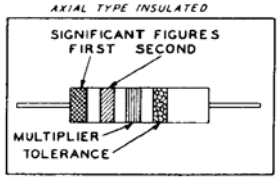


RADIAL TYPE



JAN COLOR CODE FOR FIXED COMPOSITION RESISTORS

AXIAL TYPE INSULATED



RADIAL TYPE NON-INSULATED

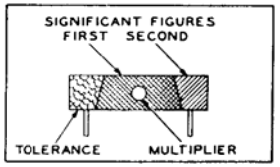


TABLE 7-5. LIST OF MANUFACTURERS

ABBREVIATION	PREFIX	NAME	ADDRESS
Acro Elec	CATK	Acro Electric Co.	1316 Superior Ave., Cleveland 14, Ohio
Allen Mfg		Allen Mfg. Co.	Hartford 1, Conn.
Amphenol	CPH	American Phenolic Corp.	1830 So. 54th Ave., Chicago 50, Ill.
Astatic	CQA	Astatic Corp., The	830 Market St., Youngstown, Ohio
Atlan India Rub		Atlantic India Rubber Works, Inc.	571 W. Polk St., Chicago 7, Ill.
Brach	CLS	Brach, L. S., Mfg. Corp.	200 Central Ave., Newark 4, N. J.
Centralab	CBN	Central Radio Laboratory Div. of Globe-Union, Inc.	900 E. Keefe Ave., Milwaukee 1, Wis.
		Central Screw Co.	3501 Shields Ave., Chicago 9, Ill.
Cinch	CMG	Cinch Mfg. Corp.	2335 W. Van Buren St., Chicago 12, Ill.
	CAZO	Conant Electrical Laboratories	6500 O St., Lincoln 5, Nebr.
Cookeco	CBBG	Cook Electric Co.	2700 No. Southport Ave., Chicago 14, Ill.
Corbin Cabinet		Corbin Cabinet Lock, Div. of American Hardware Corp.	New Britain, Conn.
Dubilier	CD	Cornell-Dubilier Elec. Corp.	1000 Hamilton Blvd., So. Plainfield, N. J.
Eby	CEB	Eby, Hugh., Inc.	4700 Stenton Ave., Philadelphia 29, Pa.
Electro Motive	CMF	Electro Motive Mfg. Co. Inc.	South Park & John Sts., Willimantic, Conn.
Erie	CER	Erie Resistor Corp.	640 W. 12th St., Erie, Pa.
Fahnestock		Fahnestock Electric Co.	46-44 Eleventh St., Long Island City 1, N. Y.
Gen Cement		General Cement Mfg. Co.	919 Taylor Avee., Rockford, Ill.
Gephart		Gephart Mfg. Co.	Chicago, Ill.
	CAMD	Good-All Electric Mfg. Co.	112 W. First St., Ogallala, Nebr.
Guardian Elec	CGE	Guardian Electric Mfg. Co.	1621 W. Walnut St., Chicago 12, Ill.
Hoffman Rad	CKB	Hoffman Radio Corp.	3761 So. Hill St., Los Angeles 7, Calif.
ICA	CAXD	Insuline Corp. of America	36-02 35th Ave., Long Island City 1, N. Y.
IRC	CIR	International Resistance Corp.	401 N. Broad St., Philadelphia 8, Pa.
Micamold	CMR	Micamold Radio Corp.	1087 Flushing Ave., Brooklyn 6, N. Y.
Monitor Piezo	CZN	Monitor Piezo Products Co.	815 Fremont Ave., So. Pasadena, Calif.
Mueller Elec	CBIT	Mueller Electric Co.	1603 E. 31st St., Cleveland 14, Ohio
Muter	CAKD	Muter Co., The	1255 S. Michigan Ave., Chicago 5, Ill.
Oak	COC	Oak Mfg. Co.	1260 N. Clyborn Ave., Chicago 10, Ill.
Rubbercraft		Rubbercraft Corp. of Calif. Ltd.	112 E. 17th St., Los Angeles, Calif.
Sangamo	CAN	Sangamo Electric Co.	1935 Funk St., Springfield, Ill.
Shakeproof	CAXO	Shakeproof Inc., Div. of Illinois Tool Works	2501 N. Keeler Ave., Chicago 39, Ill.
Sprague	CSF	Sprague Electric Co.	North Adams, Mass.
Stewart Stamp	CBAG	Stewart Stamping Corp.	621 E. 216th St., New York, N. Y.
Thomas & Betts		Thomas and Betts Co., Inc.	40 Butler St., Elizabeth 1, N. J.
Ucinite		Ucinite Company, Div. of United Carr Fastener Corp.	1 Nevada St., Newtonville 60, Mass.
Weston	CV	Weston Electrical Instruments Corp.	614 Frelinghuysen Ave., Newark 5, N. J.
Willard	CWB	Willard Storage Battery Co.	246 E. 131st St., Cleveland 1, Ohio
Zierick		Zierick Mfg. Corp.	385 Gerard Ave., New York 51, N. Y.

INDEX