NAVSHIPS 92491 UNCLASSIFIED

INSTRUCTION BOOK

*for*

# RADIO TELEPHONE TRANSMITTING EQUIPMENT NAVY MODEL TDD-5

JETRONIC INDUSTRIES, INC.
MAIN AND COTTON STREETS
PHILADELPHIA, PA.

DEPARTMENT OF THE NAVY
BUREAU OF SHIPS

*Contract: NObsr 64114* *Approved by BuShips: 28 April 1955*

# LIST OF EFFECTIVE PAGES

| PAGE NUMBERS | CHANGE IN EFFECT | PAGE NUMBERS | CHANGE IN EFFECT |
|---|---|---|---|
| Title Page | ORIGINAL | 3-1 to 3-6 | ORIGINAL |
| A to C | ORIGINAL | 4-1 to 4-2 | ORIGINAL |
| i to iii | ORIGINAL | 5-1 | ORIGINAL |
| 1-1 to 1-6 | ORIGINAL | 6-0 to 6-1 | ORIGINAL |
| 2-1 to 2-3 | ORIGINAL | 7-0 to 7-6 | ORIGINAL |
| | | 8-1 to 8-33 | ORIGINAL |

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

IN REPLY REFER TO
Code 993-100
28 April 1955

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

Subj: Instruction Book for Radio Telephone Transmitting Equipment Navy Model TDD-5, NAVSHIPS 92491

1. This is the instruction book for the subject equipment and is in effect upon receipt.

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 When superseded by a later edition, this publication shall be destroyed.

3. Extracts from this publication may be made to facilitate the preparation of other Department of Defense Publications.

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 Electronics Information Bulletin, NAVSHIPS 900,022(A) and in the Index of Bureau of Ships General and Electronics Publications, NAVSHIPS 250-020.

A. G. MUMMA
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 3 — INSTALLATION



## SECTION 7 — CORRECTIVE MAINTENANCE



# LIST OF TABLES

## SECTION 1 — GENERAL DESCRIPTION



## SECTION 5—OPERATORS MAINTENANCE



## SECTION 6 — PREVENTIVE MAINTENANCE



## SECTION 7—CORRECTIVE MAINTENANCE



## SECTION 8—PARTS LIST

# ORDERING PARTS

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

1. Standard Navy stock number or, when ordering from a Marine Corps or Signal Corps supply depot, the Signal Corps stock number.
2. Name of part and complete description.

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 or part and complete description.
3. Manufacturer's designation.
4. Contractor's drawing and part number.
5. JAN or Navy type number.

# SAFETY NOTICE

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

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

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

**KEEP AWAY FROM LIVE CIRCUITS:**

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

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

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

**DON'T TAMPER WITH INTERLOCK:**

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

# RESUSCITATION

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

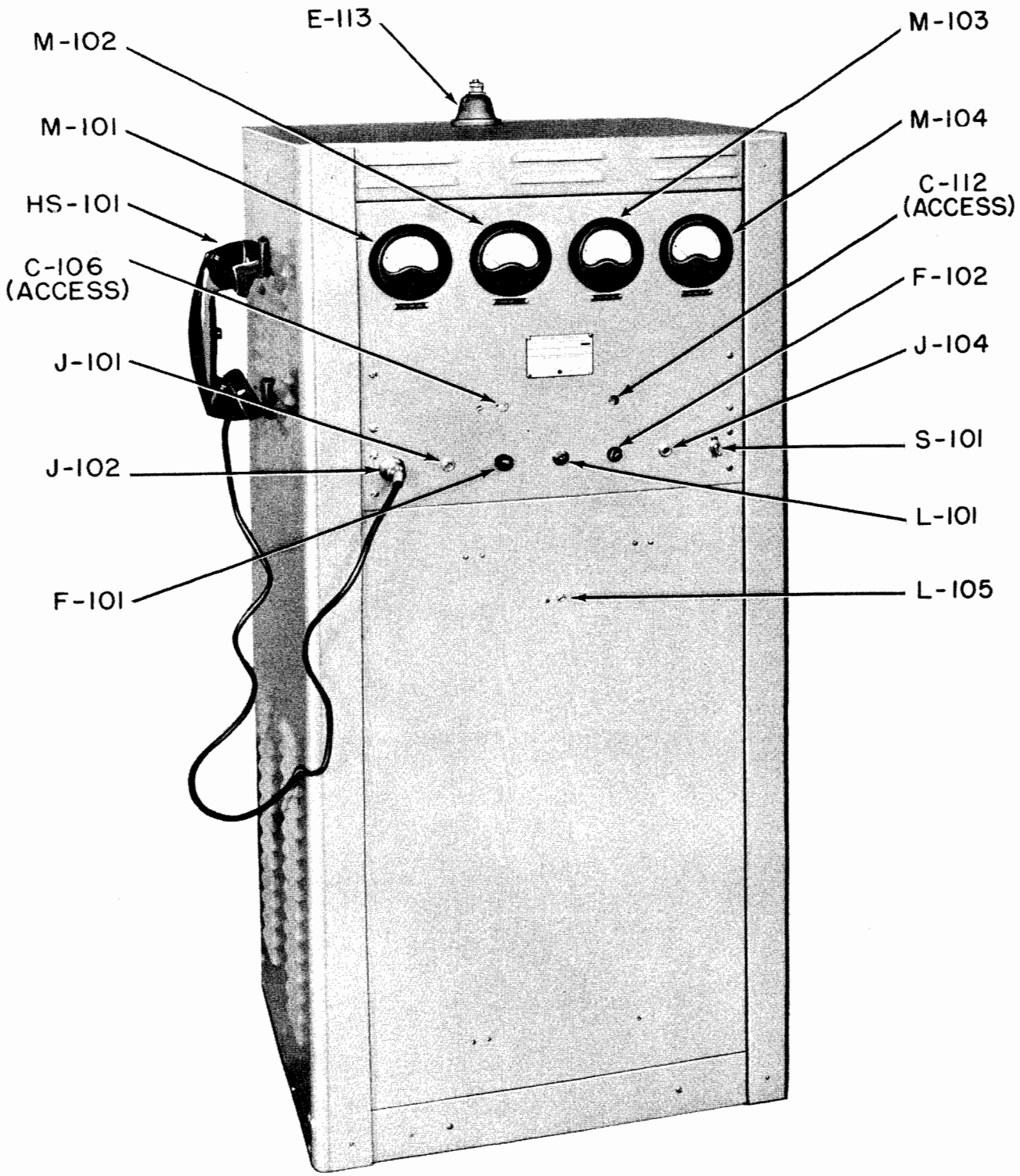



*Figure 1—1. Radio Transmitting & Receiving Equipment—Front View*

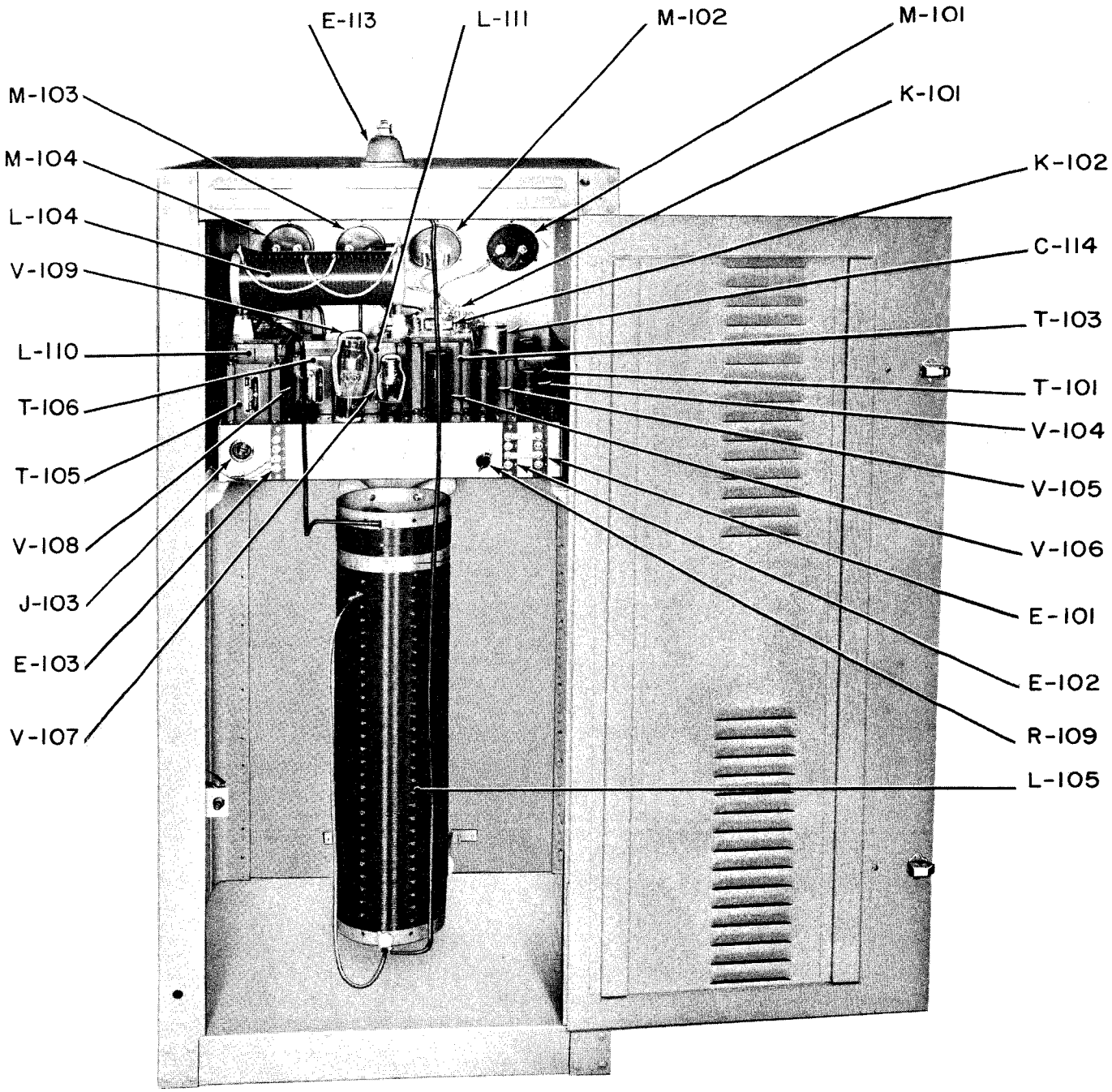



*Figure 1—2. Radio Transmitting & Receiving Equipment—Rear View*

# SECTION 1
# GENERAL DESCRIPTION

## 1. ELECTRICAL & PHYSICAL DESCRIPTION.

The Jetronic Industries, Inc. Radio Telephone Transmitter Equipment, Navy Model TDD-5 as shown in figures 1-1 and 1-2, is a self-contained cabinet mounted, low frequency transmitter. It is used in airport control operation and has an output of 15 watts. The Equipment is designed especially for communication between the airport and aircraft on or near the field. It may be operated either by use of a handset located on the left side of the cabinet or from a remote point by means of a single telephone line. The operating frequency of the Equipment is maintained by a crystal.

The Equipment is designed to operate from a 115 volt, 60 cycle, single phase alternating current source. The transmitter and associated equipment are mounted in a standard rack cabinet with size and weights listed in the reference data paragraph. The Transmitter, Modulator and Power Supply Units are all mounted on one chassis and are readily accessible from the rear of the cabinet.

The Radio Telephone Transmitter consists of three (3) major sections. They are the R.F. Section, the Modulator Section, and the Power Supply Section, and they are mounted compactly on one chassis.

The R.F. Section is crystal-controlled and has a tuned plate oscillator covering any selected frequency in the range from 200 to 550 kc by means of three (3) plug-in coils. (L-101). The Modulator Section consists of a speech amplifier, a modulator, and a voltage regulator. The power amplifier incorporates two (2) 807 vacuum tubes operating in parallel, which supply approximately 25 watts to the antenna loading coil.

The speech input is applied to a variable tap input transformer which also matches various telephone line impedances when remote control is desired. (See section 3 for remote control installation.) The speech amplifier is followed by two (2) modulator tubes which operate push-pull, Class AB-1, and which supply high-level modulation to the final amplifier. Stabilization is accomplished by means of a voltage regulator in the screens of the modulator tubes.

Power is supplied to the Equipment by means of an ON-OFF type switch on the front panel. A 5 amp fuse protects the Equipment. Safety from electrical shock hazard when handling the equipment is assured by the use of an interlock swich in the panel door. This switch actuates a relay which interrupts the high voltage when the panel door is opened. The high and low voltage circuits are well filtered and are adequately fused for circuit protection.

A pilot light, which is in parallel with all of the filaments of the transmitter tubes, operates upon the closing of the power ON-OFF switch.

Four (4) meters which read the various currents and voltages required for the tuning and operation of the Equipment are situated symmetrically on the front panel in the following order:

| | | | |
|---|---|---|---|
| POWER AMPLIFIER GRID CURRENT | POWER AMPLIFIER PLATE CURRENT | PLATE VOLTAGE | R.F. ANTENNA CURRENT |

Appropriate jacks for measuring the cathode currents of the oscillator and modulator tubes are also situated on the front panel.

An AC line cable for connecting the Equipment to the 115 volt power line is supplied with the equipment. The AC plug for this cable is situated on the rear apron of the chassis. Connection to the handset is made through a cable which plugs into a four (4) prong recepacle on the front panel.

Adjustment for remote operation is attained by the proper connections to the three (3) terminal boards mounted on the rear of the chassis. These terminal boards also handle the interlock switch and provide for operating a receiver muting relay. This relay is used to prevent feedback and objectionable interference when a receiver is used in conjunction with the transmitter equipment.

The antenna loading coil is vertically mounted beneath the transmitter chassis and has a variometer adjustment for fine tuning and a number of taps on the stator for coarse adjustments. This permits use of a wide choice of antenna installations.

## 2. CONSTRUCTION.

The Equipment is designed for long and satisfactory service in airport control operation.

All metal parts, including the cabinet, have a baked light gray, semi-gloss finish over a coating of zinc chromate primer. This makes the unit extremely durable under prolonged exposure and use.

The chassis and cabinet are of heavy steel, reinforced to take care of mechanical shocks and stresses. The chassis is mounted sturdily in the cabinet with angle-irons, and also with heavy screws through the front panel. The cabinet has guides which allow the transmitter to slide in and out easily.

All hardware which might be removed when repairing or installing the Equipment, or for any other reason, is nickel plated brass. All hardware which is permanently installed is painted and finished exactly like the cabinet. This eliminates any confusion as to which hardware may be removed.

All parts subject to leakage such as bakelite details, coils and chokes are carefully waxed, impregnated, and moisture and fungus proofed.

The plug-in coils are bakelite forms, padded for protection against humidity and rough handling. A frequency range indicating disc is mounted in the top of these coils.

All relays are carefully insulated, both from each other and from ground, and all parts of the equipment are accessible and easily replaced and repaired in case of failure.

## 3. REFERENCE DATA.

*a.* Radio Telephone Transmitter Equipment, Navy Model TDD-5.

*b.* Contract number NObsr 64114 dated, 1 February, 1954.

*c.* Jetronic Industries, Inc.
Main & Cotton Sts.
Philadelphia, Pa.

*d.* Inspector of Naval Material
17 Brief Avenue
Upper Darby, Pa.

*e.* 2 packages

*f.* 370 lbs. crated
190 lbs. uncrated

*g.* 82 lbs. crated
62 lbs. uncrated

*h.* 200 to 550 kc

*i.* 3 tuning bands: 200 to 300 kc
290 to 450 kc
400 to 680 kc

*j.* crystal

*k.* A-3 emission 100% amplitude modulation

*l.* 15 watts nominal carrier output to a dummy load of 34 ohms.

*m.* frequency of crystal 251 kc

*n.* .005% frequency stability

*o.* 285 watts minimum power input required for operation.

*p.* 105 to 125 volts AC 60 cycles line voltage required for operation.

*q.* 0.24 volts AC audio input level required for 100% modulation.

## TABLE 1—1. EQUIPMENT SUPPLIED

| QUANTITY PER EQUIPMENT | NAME OF UNIT | NAVY TYPE DESIGNATION | OVER-ALL DIMENSIONS | | | VOLUME | WEIGHT |
|---|---|---|---|---|---|---|---|
| | | | HEIGHT | WIDTH | DEPTH | | |
| 1 | Radio Telephone Transmitter | TDD-5 | 51¾ | 22 | 17⅝ | 11.6 | 190 |
| 1 set | Equipment Spare Parts | | 9 | 18½ | 12¾ | 1.23 | 62 |

Unless otherwise stated, dimensions are in inches, volume in cubic feet, and weight in pounds.

## TABLE 1—2. EQUIPMENT AND PUBLICATION REQUIRED BUT NOT SUPPLIED

| QUANTITY PER EQUIPMENT | NAME OF UNIT | DESIGNATION NAVY TYPE | REQUIRED USE | REQUIRED CHARACTERISTICS |
|---|---|---|---|---|
| as required for various frequencies | Crystals/Holders | USN, 40,000A | To obtain necessary frequency | 251 kc at 30°C |

## TABLE 1—3. SHIPPING DATA

| SHIPPING BOX NO. | CONTENTS | | DIMENSIONS OVER-ALL | | | VOLUME | WEIGHT |
|---|---|---|---|---|---|---|---|
| | NAME | DESIGNATION | HEIGHT | WIDTH | DEPTH | | |
| 1 | Radio Telephone Transmitter | TDD-5 | 54 | 25½ | 18½ | 13.3 | 370 |
| 2 | Equipment Spare Parts | | 12 | 20 | 14 | 1.94 | 82 |

Unless otherwise stated, dimensions are in inches, volume in cubic feet, and weight in pounds.

## TABLE 1—4. BASIC SIMILARITIES IN MODEL TDD-5 SERIES EQUIPMENT

| MODEL | FREQUENCY MEASURING UNIT TYPE | HET. OSC. FREQ. RANGE KCS. | OPERATING VOLTAGE | MECHANICAL DESIGN | REMARKS |
|---|---|---|---|---|---|
| TDD | | 200-550 kc | 110 volts AC | | |
| TDD-1 | | 200-550 kc | 110 volts AC | | |
| TDD-2 | | 200-550 kc | 110 volts AC | | |
| TDD-3 | | 200-550 kc | 110 volts AC | | |
| TDD-4 | | 200-550 kc | 115 volts AC | Minor mechanical changes affecting chassis supports. | |
| TDD-5 | | 200-550 kc | 115 volts AC | Minor mechanical changes | |

## TABLE 1—5. VACUUM TUBE COMPLEMENT

| UNIT | NUMBER OF TUBES OF TYPE INDICATED | | | | | |
|---|---|---|---|---|---|---|
| | 6L6 6L6-G or 1614 | 807 | OD3/VR150 or OD3W | 6V6 6V6GT or 5992 | 6X5 6X5GT or 5852 | 83 or 5Z3 |
| TDD-5 Radio Telephone Transmitter | 2 | 2 | 1 | 2 | 1 | 1 |

# SECTION 2
# THEORY OF OPERATION

## 1. TRANSMITTER CIRCUIT.

The transmitter circuit of the Radio Telephone Transmitter Equipment consists of a conventional crystal controlled tuned-plate oscillator and a power amplifier stage.

The antenna circuit is conductively coupled to the transmitter by means of a tap on the power amplifier plate inductance. The plate of the final amplifier is shunt fed by the choke (L-103) and the DC high-voltage is isolated from the antenna by means of the condenser (C-111).

The load coil, mounted in the cabinet directly below the transmitter unit, is used to resonate any antenna between 100 and 500 feet in length to the operating frequency of the equipment.

The oscillator circuit utilizes a 6V6 type beam power amplifier tube (V101). A test meter may be inserted in the oscillator circuit to check tuning and operation by means of the current jack (J-101) which is in series with the oscillator cathode resistor (R-102).

The plate tank inductance of the oscillator is selected from the calibrated plug-in coils supplied with the equipment. These coils cover the entire frequency range of the Equipment, from 200 to 550 kc and are plainly marked with their respective frequency ranges.

The final amplifier circuit of the transmitter uses two (2) 807 type beam power amplifier tubes (V-102, V-103) operated in parallel. Grid excitation for these tubes is obtained from the oscillator stage by capacitor coupling. A milliammeter (M-101), connected in series with the grid bias circuit of the tubes, provides a means of measuring the signal voltage imposed on the grids.

The cathode bias voltage developed across the cathode resistor (R-108) is used as a supply for microphone voltage when a carbon microphone is used. The microphone voltage line is additionally filtered by means of a choke (L-106) and a condenser (C-113A) to assure complete elimination of feedback between the microphone and modulation circuits.

The plate circuit of the final amplifier operates into a tuned inductance (L-103) provided with tuning and padding capacitors C-112, C-109, and C110 respectively.

A milliammeter (M-102), placed in series with the plate supply to this stage, may be used to indicate the tuning and operation of the final amplifier.

An R.F. ammeter (M-104), mounted on the right side of the front panel, is connected to the tap lead loading adjustment and the antenna load coil (L-105), and is used to indicate the antenna loading. The load coil provides sufficient inductance to tune a 100 foot single wire antenna to resonance at 200 kc. Exact tuning of the antenna circuit is obtained through the combined use of taps provided on the load coil.

Speech input to the equipment is made through a multiple line-to-grid transformer (T-101) operating the grid circuit using a 6V6 type tube (V-104). The variable resistor (R-109) which controls the gain of the amplifier, is located on the rear of the chassis and is marked "GAIN".

The first amplifier tube is operated as a triode-connected, class A amplifier. Reduced voltage for the plate circuit is obtained from the high voltage supply through the dropping resistor (R-112). An additional condenser (C-114) is provided as a smoothing filter for the amplifier stage.

The output of the first amplifier stage is used to drive the two (2) 6L6G type modulation tubes (V-105, V-106), operated in Class AB-1 push-pull operation.

Fixed bias for the modulation tubes is supplied by the same voltage supply utilized for fixed bias supply to the final amplifier tubes in the R.F. section.

Modulator screen voltage is obtained by using a gas-type voltage regulator tube, VR150-30 type (V-107), between the high voltage line and the modulator screen grids. Voltage to both the screen and plates of the modulators is obtained from a common power supply.

High level plate and screen modulation of the final amplifier stage is accomplished through the modulator transformer.

The high voltage supply for the entire equipment consists of a power transformer (T-107), a rectifier (V-109) of the 5Z3 or 83 type (if lower than 20°C is encountered, the 5Z3 should be used as lower output is obtained than with the 83 type.), two (2) filter chokes (L-110, L-111), and two (2) filter condensers (C-116, C-117). A separate filament transformer (T-106) provides filament voltage to the rectifier tube. Current protection from overload is obtained through the placement of a fuse (F-102) in the negative line of the power supply.

A filter circuit is connected as a conventional choke input filter system and is adequate to remove all objectionable hum from the carrier. A voltmeter (M-103), with external multiplier (R-114), is inserted

in the output circuit of the filter for the purpose of indicating the voltage applied to the final amplifier and modulator circuits.

The low voltage supply is designed to supply bias voltage to the modulator tubes and to the final amplifier tubes. It is also able to supply power for operation of the primary press-to-talk relay, since this has a low curent drain. This supply consists of a power transformer (T-105), a rectifier (V-108) of the 6X5 or 6X5GT type, and two sections of filter capacitors (C-115), and a filter choke (L-107). The primary press-to-talk relay acts as a bleeder for this supply. When the press-to-talk relay is closed, this supply has a negative operating voltage of approximately 22 to 25 volts; when the key is open, the output is approximately 60 volts.

The press-to-talk circuit of the Equipment is operated by the voltage obtained from the bias supply. This voltage is used to operate the primary press-to-talk relay (K-101) and is connected to one terminal of the relay coil. The other terminal is the press-to-talk line and operates the Equipment when the line is connected to a ground return. This ground connection may be made locally by means of a switch in the handset, or at a remote point by simplexing the telephone line. For complete relay operation and information, see the Relay Service Section.

The primary press-to-talk relay (DPDT) performs two separate functions. One role, in the normal at rest position, opens the cathode of the final amplifier and blocks the oscillator by lowering its plate voltage to a very low value. The other role of the relay energizes a secondary relay by applying 115 volts AC to the coil of that relay. This secondary relay is of the heavy duty type, and has the "make" contact wired in series with the primary winding of the high voltage plate supply transformer (T-107).

A single power switch (S-101) and fuse (F-101) are provided in the Equipment and are accessible from the front panel. A safety interlock switch (S-102) is connected in series with the press-to-talk, so that high voltage to the equipment cannot be applied with the door of the cabinet open.

## 2. RELAY SEQUENCE.

The press-to-talk relay system of the Equipment is very simple because of the manifold operation of the relay. As a result, these advantages are gained:

1. Only two (2) relays are required.
2. A separate source of relay supply is not required.
3. Proper microphone voltage is obtained from the fixed bias resistor of the power amplifier stage, eliminating still another power supply unit.
4. A time lapse is provided, allowing the oscillator to reach full operation before the final amplifier tubes are permitted to function.

When the press-to-talk key is depressed, the oscillator is energized before the power amplifier, and the oscillator, therefore, reaches peak output in an unloaded condition. The advantage of this is explained in the following paragraph.

Before the relays or any part of the transmitter can function, the main switch (S-101) must be closed. Closing of this switch supplies voltage for all tube filaments and for the low voltage rectifier supply which furnished voltage for the primary press-to-talk operation. This tube also acts as a time delay when this transmitter is first turned on.

A press-to-talk switch may be operated from the local test handset or from a remote point by simplexing the telephone line. This operation closes the primary press-to-talk relay.

The primary press-to-talk relay (K-101) is a 32 volt DC relay having a coil resistance of 400 ohms. As a result, the current drain through it is small, making it possible to use the low voltage bias power supply as a source. This high resistance coil has the added advantage of limiting the voltage drops in the telephone line.

One pole of this primary press-to-talk relay energizes the secondary press-to-talk relay (K-102) when the interlock switch (S-102) is closed. The other pole, when closed, performs three (3) functions:

1. It removes the ground from the oscillator plate allowing time for the oscillator to reach full operation.
2. It supplies a ground return for the final amplifier cathode through the resistor (R-108).
3. The voltage drop across this resistor (R-108) is used to supply microphone voltage. This voltage is filtered by the network (L-106) and (C-113a).

The aforementioned time delay, in allowing the oscillator to reach full operation in an unloaded condition, permits the carrier to come "on the air" more promptly. (Low frequency crystals generally do not oscillate vigorously and will not start oscillating quickly in a loaded condition.)

Upon releasing the press-to-talk switch, the primary press-to-talk relay opens, breaking the circuit through the secondary press-to-talk relay (K-102) and removing power from the plates of the high voltage rectifier. The other contact of this relay (K-101) breaks the cathode circuit of the final amplifier and effectively takes the supply voltage off the oscillator. The unit is then in a stand-by condition, with only the filaments and the bias supply drawing power from the AC line. This "idling power" is small since the actual time that the unit is on the air, compared with the stand-by period, is small. This makes the installation an economical one in terms of power consumption.

The equipment is rated as a 15 watt transmitter. It will, however, supply over 20 watts into a 34 ohm

resistive load. Because of the large inductance of the load coil and variometer adjustment, a 100 foot antenna may be tuned to resonance at a frequency as low as 200 kc.

The input from a 500 ohm line, at 400 cycles, can be reduced to as low as 8 db below one milliwatt for 100% modulation of the unit.

Figure 7-3, Response Curve, indicates the audio frequency response of the entire Equipment—with the exception of the microphone. It may be noted that the amplitude range is less than —3 db between 350 cycles and 10,000 cycles per second.

# SECTION 3
# INSTALLATION

## 1. UNPACKING.

Each TDD-5 Radio Telephone Transmitter, is packed in a wooden box as per specification JAN-P-106, and steel strapped.

## 2. INSTALLATION.

*a. Local Handset Connection*: The handset cable plugs into the four (4) prong receptacle (J-102) on the left side of the front panel. Before this handset can be used, jumpers must be attached between terminals 1 and 5, and between terminals 3 and 7 of the terminal strips on the rear of the chassis. See figure 3–1 schematic.

*b. Power Input Connections*: 115 volts AC, 60 cycles per second, power is supplied to the unit by means of a two (2) prong connector (J-103), located on the left side of the transmitter, as viewed from the rear.

*c. Grounding Connection*: A conductor, preferably solid, and of No. 6 AWG size or larger, is recommended for grounding the equipment. One-fourth (¼) inch copper tubing or one (1) inch copper strip is very satisfactory for this purpose. The transmitter ground terminal is located directly beneath the AC connector on the chassis.

*d. Crystal*: A crystal is shipped with the unit and should be mounted in its proper receptacle immediately behind the oscillator tube (V-101). See figure 7–2. This mounting will fit the standard ceramic case U. S. Navy Type 40,000A (similar to the Bliley Electric Co. type BC-10), the Standard Piezo Company type FT-164, or the Valpey Crystal type CBC. The frequency to which the transmitter is tuned depends on the frequency of this crystal.

*e. Oscillator Plug-In Coil*: Three (3) coils are provided with the Equipment covering ranges of 200 to 300 kc, 290 to 450 kc, and 400 to 680 kc. Select the oscillator coil covering the frequency range in which the transmitter is to operate and insert it in the ceramic socket adjacent to the oscillator tube (V-101). Install the vacuum tubes in their respective sockets as shown on the chassis stamping diagram, figure 7–2. Refer to Tube Chart for proper tube types.

*IMPORTANT NOTICE*: Below 20° C, use a 5Z3 tube instead of an 83.

Remove the shunting wires from all meter terminals. These wires are provided during shipment to protect the meter movements by damping them against mechanical shock.

Connect the 115 volt, 60 cycle AC line to the unit by means of the connector and receptacle (J-103) on the chassis.

The Equipment is now ready for test and tuning.

## 3. REMOTE CONTROL INSTALLATION.

If remote operation by means of a telephone is desired, connections to the terminals on the rear of the chassis should be made as follows:

**IMPORTANT NOTICE**

Before remote operation is possible, the local handset plug must be removed. If it is left in, the speech input transformer (T-101) will be unbalanced.

For a 125 ohm line, connect the line to the terminals stamped 1 and 4, and place jumpers between terminals 1 and 2 and also between 3 and 4.

For a 500 ohm line, connect the line to terminals stamped 1 and 4, and place a jumper between terminals 2 and 3.

Impedance matches to lines of 50 ohms, 200 ohms, 250 ohms, and 333 ohms, may also be made by altering the connections to the speech input transformer (T-101) in accordance with the following chart:

| *IMPEDANCE* | *WIRE COLOR* | *TRANS. TERM* |
|---|---|---|
| 50 ohms | white-black | 2 |
| | white-green | 5 |

Connect line to terminals stamped 1 and 4, and place a jumper between terminals stamped 1 and 2 and also between terminals 3 and 4.

| | | |
|---|---|---|
| 200 ohms | white-black | 2 |
| | white-green | 5 |

Connect line to terminals stamped 1 and 4, and place a jumper between terminals 2 and 3. This connection may be simplexed for press-to-talk operations.

| | | |
|---|---|---|
| 250 ohms | white-blue | 2 |

Convert line to terminals stamped 1 and 4 and place a jumper between terminals 2 and 3.

| | | |
|---|---|---|
| 333 ohms | white-green | 5 |

Convert line to terminals 1 and 4 and place a jumper between terminals 2 and 3.

**Note.**

In all of the above alterations, no wires should be moved except those specifically noted. The original connections to the input transformer are as follows:

| *WIRE COLOR* | *TERMINAL BRD CONNECTION* | *TRANS. TERMINAL* |
|---|---|---|
| white-black | 1 | 1 |
| white-red | 2 | 3 |
| white-blue | 3 | 4 |
| white-green | 4 | 6 |

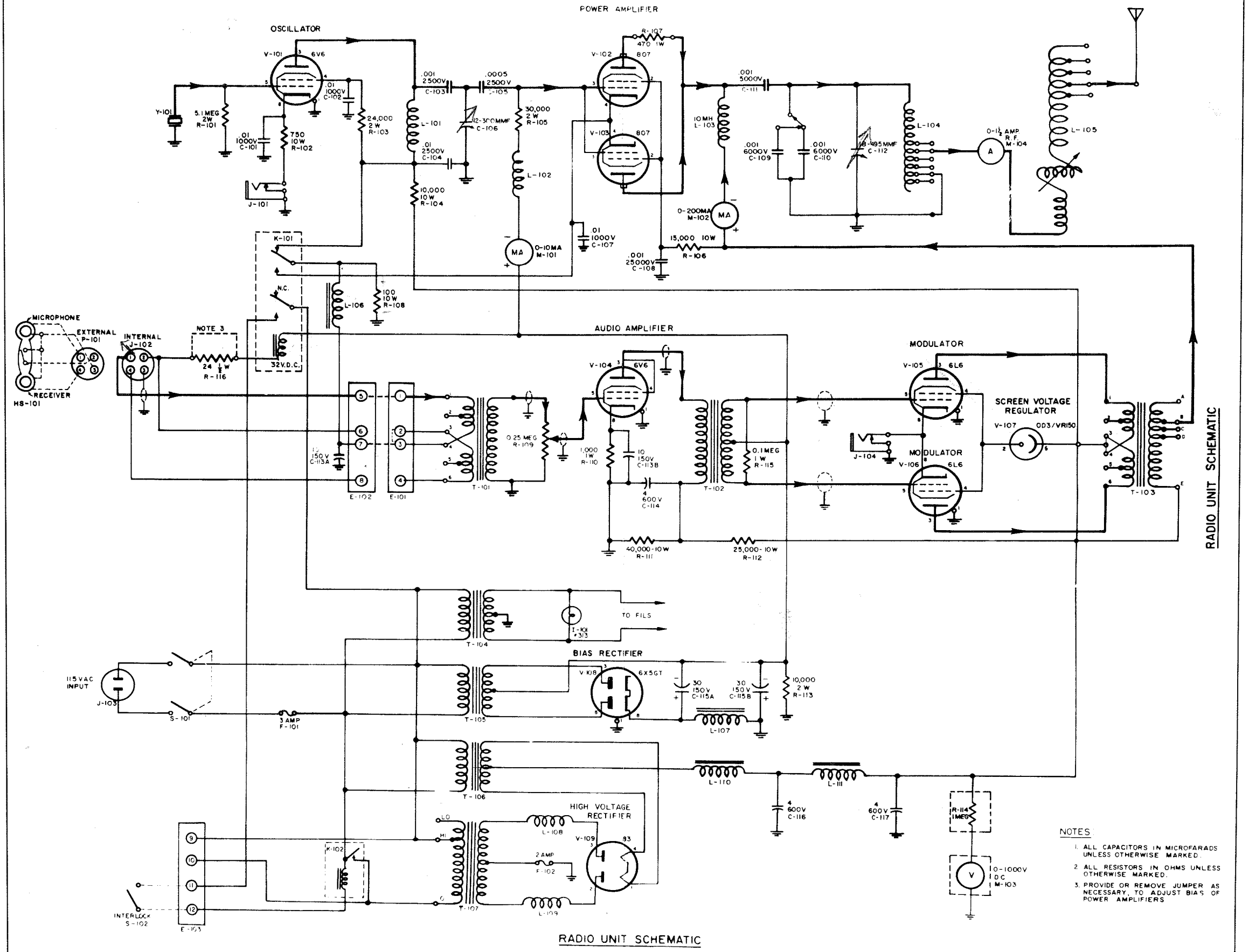
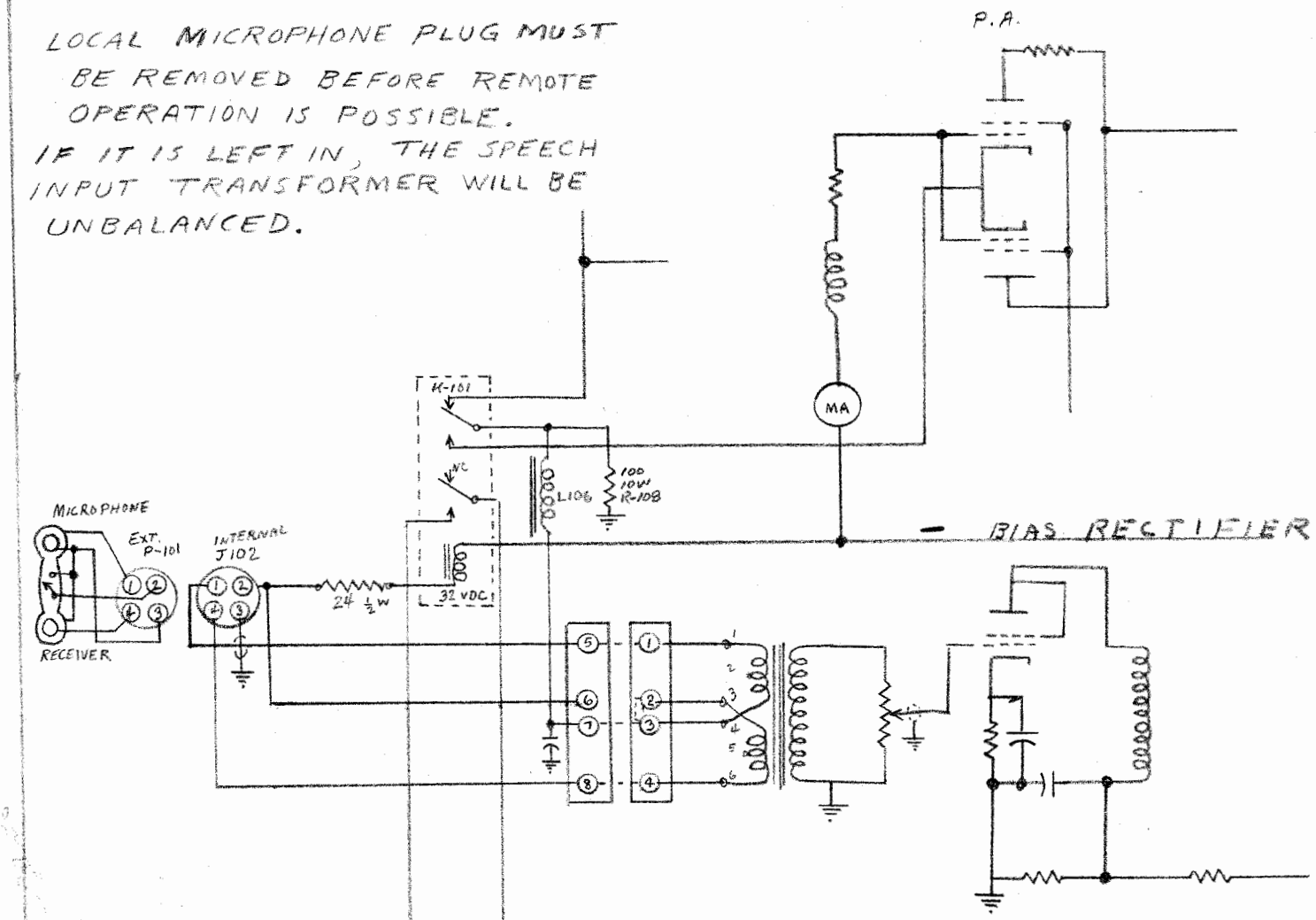





*Figure 3–1. Radio Unit Schematic*

LOCAL MICROPHONE PLUG MUST BE REMOVED BEFORE REMOTE OPERATION IS POSSIBLE.
IF IT IS LEFT IN, THE SPEECH INPUT TRANSFORMER WILL BE UNBALANCED.




4-16-51 K

OVERLAY
FIGURE 3-1 RADIO UNIT TDD-5

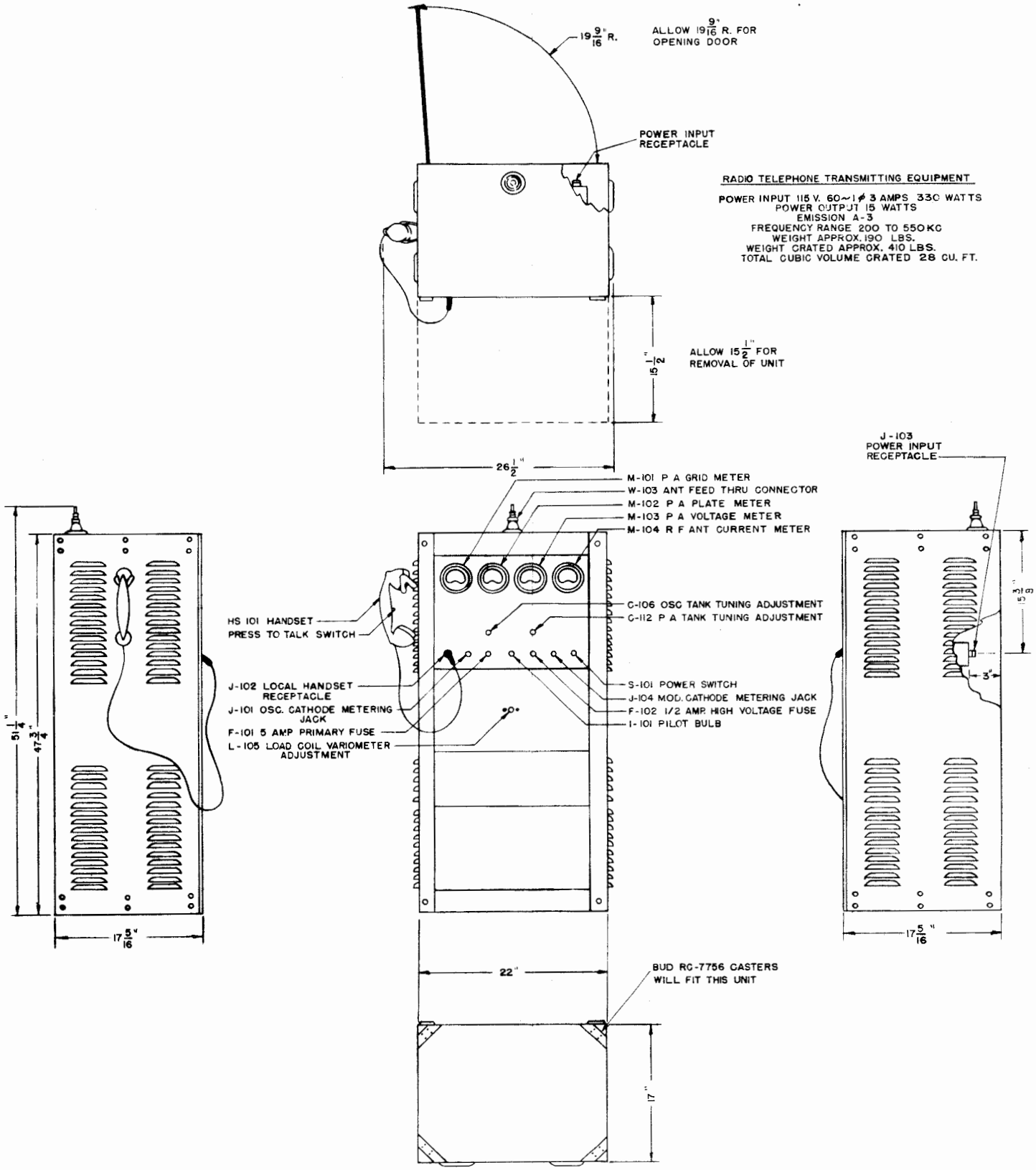



*Figure 3–2. Dimensional Installation Drawing*

# SECTION 4
# OPERATION

## 1. TUNING.

Before the Equipment can be operated, it must be tuned in the following manner:

*a. Oscilator Tuning*: Turn the power switch (S-101) to the "ON" position. If it is available, a 0 to 50 DC milliammeter connected to a standard phone plug may be inserted into the oscillator cathode jack (J-101) to indicate oscillator tuning. (The positive terminal of the meter should be connected to the plug tip.) If no such meter is available, the P.A. grid meter (M-101) will give sufficient indication of the oscillator operation.

Loosen the lock on the shaft of the oscillator tuning capacitor (C-106). Depress the press-to-talk switch on the handset (HS-101) and adjust the capacitor with a screwdriver. Vary this capacitor to obtain either a minimum reading on the internal 0 to 50 DC milliammeter, or a maximum reading on the P.A. grid meter.

Two (2) points of oscillation may be found in this circuit, with the same types of crystals, due to two (2) modes of vibration. Normally, the lower of the two (2) frequencies is the one selected for use. The frequency of the oscillation should be double-checked with a frequency meter.

*b. P.A. Tuning*: When the oscillator circuit has been properly tuned, excitation to the P.A. tubes will be indicated on the P.A. grid meter (M-101). This reading should be from about 3 to 5 milliamperes, depending upon the degree of crystal activity. The rotor lock on the oscillator tuning shaft may now be tightened.

Tuning of the P.A. plate circuit is performed through the variation of the plate tank capacitor (C-112) and the ground tap on the tank coil (L-104).

**Note**

The tuning capacitor (C-112) is padded with 2 (two) 0.001 mfd capacitors (C-109 and C-110). They are located adjacent to the P.A. tuning capacitor and should be used as follows:

| *TRANSMITTER FREQUENCY* | *P A D S* |
|---|---|
| 200 to 300 kc | both |
| 300 to 500 kc | one |
| 500 to 550 kc | none |

Set the P.A. plate tuning capacitor for approximately half capacity. Clip the flexible ground lead (W-102), (attached to the end of the plate coil (L-104) ), to a tap on the adjacent end of the coil. Depress the press-to-talk switch in the handset and note the reading on the P.A. plate circuit meter (M-102). Move the clip to the next tap and repeat the observation Proceed in this manner until a tap is reached where the meter indicates a decided dip in plate current.

Now, the plate tuning capacitor should be adjusted for a more exact minimum reading on meter (M-102). This capacitor may be adjusted by means of a screwdriver inserted through the right access hole in the front panel.

**Note**

Two (2) points of oscillation may be found in this circuit, with the same types of crystals, due to two (2) modes of vibration. Normally, the lower of the two (2) frequencies is the one selected for use. The frequency of the oscillation should be double-checked with a frequency meter.

*c. Antenna Tuning*: Clip the flexible antenna lead (W-101) to a tap immediately adjacent to the grounding clip lead which was located when tuning the tank coil. This lead (W-101) should be clipped toward the "cold" or ground end of the tank coil. Now, take the flexible lead (W-103) which is attached to the lower end of the load coil, and try various taps along the load coil until the antenna current meter shows a maximum reading.

If no maximum indication is obtained, move the antenna flexible lead (W-101) to the next higher tap on the plate tank coil (L-104) and repeat the above procedure. After the suitable tap is located, the antenna circuit may be more accurately tuned by adjusting the variometer coil (L-105). This adjustment is made by means of a screwdriver inserted through the access hole in the top load coil mounting panel.

After the antenna circuit has been tuned for maximum loading, the P.A. tank must be tuned for maximum output. To do this, move the tap connection made by the antenna lead (W-101) progressively from tap to tap along the P.A. plate tank coil (L-104) until a point is found which produces a maximum plate current on the meter (M-102) of approximately 90 to 100 milliamperes.

**IMPORTANT**

Make certain that the setting of the P.A. plate tank capacitor (C-112) and the adjustment of the variometer in the load coil (L-105), produce proper tuning. Always adjust these leads for maximum antenna current.

The 0 to 1½ ampere antenna meter is provided with a shunt resistor which reduces the meter reading to approximately one-half (½) of the actual value of the antenna current. This is a precaution designed to prevent meter failures in installations where high antenna current is obtained. When readings under half scale are noted, the shunt should be removed from the meter.

**2. MODULATION CHECKING.**

Proper modulation of this Equipment may be checked by observing the reading of the antenna current meter (M-104). A loud whistle into the microphone should produce a marked use in antenna current. The percentage rise due to this modulation is adjusted by variation of the gain control (R-109), located on the rear of the chassis. The control should be set so that a loud whistle will produce a rise in antenna current of approximately 20% over the resting current indication. A 20% rise indicates approximately 100% modulation.

Speech to the microphone will also produce a rise in antenna current of approximately 5 to 10% over resting current indication.

An audible check of the carrier modulation may be made by tuning a receiver to the transmitting frequency. Care should be taken when making this test to see that the receiver is located at a reasonable distance from the transmitter and that the transmitter is operated at such a level that feedback on blocking of the receiver does not occur.

**3. FREQUENCY CHECKING.**

Before the Equipment is released for permanent operation, a frequency meter (type LM or LR) should be used to accurately determine the operating frequency. As mentioned previously, it is possible for the crystal to oscillate at two (2) separate frequencies. Caution should be taken to see that the proper frequency is radiated.

**4. FINAL PROCEDURE.**

The flexible leads furnished with the equipment have been soldered to optimum connections to the coil taps during testing and tuning operations. Each installation, however, may require slight adjustments, after which the leads should be permanently soldered to their respective taps.

# SECTION 5
# OPERATORS MAINTENANCE

## 1. ROUTINE MAINTENANCE.

TABLE 5—1. PERIODIC CHECK CHART

| WHAT TO CHECK | READING | PRECAUTIONS |
|---|---|---|
| R.F. Ammeter | 0.7 amps or more | Depress press-to-talk switch on handset. |
| High Voltage Meter | 0.4 to 0.44 KV | Depress press-to-talk switch on handset. |

## 2. EMERGENCY MAINTENANCE.

*a.* NOTICE TO OPERATORS.–Operators shall not perform any of the following emergency maintenance procedures without proper authorization.

*b.* REPLACEMENT OF TUBES & FUSES.

(1) Probable Fuse Failure

**WARNING**

Never replace a fuse with one of higher rating unless continued operation of the equipment is more important than probable damage. If a fuse burns out immediately after replacement, do not replace it a second time until the cause has been corrected.

TABLE 5—2. SYMPTOMS OF FUSE FAILURE

| H.V. Reading | Pilot Light | Interlock Switch | Press-To-Talk | Blown Fuse | Value | Comments |
|---|---|---|---|---|---|---|
| No | Yes | Yes | Yes | F102 | 2 amps | Check rectifier tubes and chokes. |
| No | No | No | No | F101 | 3 amps | Check ON-OFF switch, line voltage, power cable. |

TABLE 5—3. FUSE LOCATIONS

| SYMBOL | LOCATION | PROTECTS | AMPS | VOLTS | NUMBER |
|---|---|---|---|---|---|
| F101 | Right hand fuse post on front panel | Complete Equipment | 3 | 240 | 1080 |
| F102 | Left hand fuse post on front panel | High Voltage Supply | 2 | 240 | 1046 |

# SECTION 6
# PREVENTIVE MAINTENANCE

**1. GENERAL.**

Preventive maintenance is the removing of possible trouble which might later cause the equipment to become inoperative. Primarily, this includes periodic inspection, checking, cleaning and tightening of contacts and components. Certain suggestions can be made for such a program, but local conditions will largely determine the exact details.

The guide to the program will be found in Table 6-1 ROUTINE MAINTENANCE CHART. By carefully following this chart, troubles can be detected and remedied before causing actual breakdown of the equipment.

**2. LUBRICATION.**

No lubrication is required.

**3. CLEANING.**

## WARNING

Disconnect power cord.

*a.* GENERAL.—The chassis is best blown out with dry compressed air free of oil vapor, or cleaned with a dry cloth and a soft dry paint brush of suitable size. It may be necessary to use dry cleaning solvent, 140-F FED P-S-661 Type II (SNSN G51-S-4718-10 for a 5 gallon can), on a cloth to clean ceramic high voltage insulators. Dust should be cleaned off thoroughly, both inside and outside the case.

Inspection should be combined with cleaning, since every part of the equipment can be observed at that time, and cleaning may inadvertently break or loosen a connection.

All exposed lug and screw connections, plug and socket connections, and electron tube pins should be checked for tightness. Cable ends should be properly dressed to prevent short circuits or strain on wires and lugs.

**Caution**

Faulty electrical contacts can cause equipment failure at a critical time. Evidences of heating or breakdown such as carbonized surfaces, overheated resistors with discolored surfaces, and discolored metal parts should be noted. Though there may be no damage, potential trouble is indicated.

**TABLE 6-1. ROUTINE MAINTENANCE CHART**

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

The following Table is given as a basis for a routine maintenance schedule.

## WARNING

Before removing the case, remove the power cable. After removal of the case, discharge any capacitors in the power supply.

**MONTHLY**

a. Remove fuses one at a time. Clean and burnish ends and clips as needed.

b. Check tube pins and socket contacts for corrosion. Clean as needed.

c. Check all tubes in a tube tester. Replace weak tubes.

d. Replace any tubes missing from tested emergency spares after first testing in proper socket.

e. Check operation of all panel controls.

f. Blow out dust with dry compressed air.

g. Check for rust and corrosion. Clean and touch up with paint as needed.

All knobs should be checked for looseness and tightened if necessary. Occasionally knobs become loose and fail to rotate their controls; thus, a loose knob may give the impression of fault in a variable circuit.

Rough handling of the transmitter will sometimes jar parts or wires out of position or abrade them; such damage should be repaired. Rust or corrosion on painted surfaces should be cleaned and sanded smooth, and the spot covered with touchup paint. Unpainted surfaces will not ordinarily corrode unless exposed to salt water or some other corrosive agent. Should corrosion occur, it should be cleaned off thoroughly, taking care not to let the scrapings fall into the unit, and the spot touched up with clear varnish or tropicalizing paint. Paint or varnish should not be used too close to switch or tube socket contacts.

*b.* TUBES.

Compressed air free of oil vapor or a brush will usually suffice to remove dust from the tubes. Be careful to clean tubes that operate at a high temperature, as a layer of dust would interfere with heat radiation and raise the operating temperature. After cleaning, make sure that all tubes are properly seated in their sockets, and all tube clamps locked.

The plate connectors used on high voltage rectifier tubes may lose their spring tension as a result of overheating. The tension should be increased when necessary.

*c.* FUSES.

Fuses should be removed and checked for corrosion and looseness, either of which can cause eventual trouble. A clean cloth moistened with dry cleaning solvent, 140-F FED P-S-661 Type II (SNSN G51-S-4718-10 for a 5 gallon can), will usually suffice for cleaning the fuses and clips, but in some cases it may be necessary to use crocus cloth or fine sandpaper. When repiacing, make sure that the fuses are tight in their clips.

*d.* HIGH-VOLTAGE INSULATORS.

Ceramic and other insulators for voltages under 600 volts are usually tropicalized. They should be kept clean, but care should be taken not to remove the special paint. The use of solvents is not recommended.

Ceramic insulators for voltages greater than 600 volts are not tropicalized. They should be kept clean to prevent the possibility of arc-overs. It may be necessary to use a cloth moistened with dry cleaning solvent, 140-F FED P-S-661 Type II (SNSN G51-S-4718-10 for a 5 gallon can).

# 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 DD 787 which has been designed to simplify this requirement. The card must be filled out and forwarded to BUSHIPS. 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, furnish a store of information permitting the Bureau to keep in touch with the performance of the equipment of your ship and all other ships of the Navy.

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 the nearest District Printing and Publication Office.

# SECTION 7
# CORRECTIVE MAINTENANCE

## 1. THEORY OF LOCALIZATION.

If the P.A. grid meter is not operating, the trouble is probably in the grid of the crystal oscillator circuit. The failure of the H.V. meter may be due to inoperative H.V. supply. If audible click is not heard when press-to-talk switch is depressed, bias supply is not operating correctly.

**TABLE 7—1. TROUBLE SHOOTING CHART**

| SYMPTOM | ELECTRICAL CAUSES | REMEDY |
|---|---|---|
| Pilot Light Off | 1. Line cord open<br>2. Fuse (F101) open | replace<br>replace |
| No High Voltage | 1. Fuse (F102) open<br>2. 83 or 5Z3 (V109) defective<br>3. Open chokes (L108 or L109)<br>4. Shorted filter condensers (C116 and/or C117)<br>5. Open filter chokes (L110-L111) | replace<br>replace<br>replace<br>replace<br>replace |
| No Bias Voltage | 1. 6X5 (V108) tube defective<br>2. Shorted filter condensers (C115a or C115b)<br>3. Open choke (L107) | replace<br>replace<br>replace |
| No P.A. Grid Current | 1. Faulty crystal<br>2. 6V6 (V101) weak or defective<br>3. Plate resistor open (R104)<br>4. Cathode resistor open (R102)<br>5. Open plate choke (L101)<br>6. Open grid choke (L102)<br>7. No bias<br>8. Open cathode resistor (R108) | replace<br>replace<br>replace<br>replace<br>replace<br>replace<br>see No Bias Voltage<br>replace |
| Low or No P.A. Plate Current | 1. Faulty 807 (V102 or V103) tube<br>2. Open choke (L103)<br>3. Open cathode resistor (R108)<br>4. Open screen resistor (R106)<br>5. Low-or-No P.A. grid current | replace<br>replace<br>replace<br>replace<br>see No P.A. Grid Current |

**TABLE 7—1. TROUBLE SHOOTING CHART (cont'd)**

| SYMPTOM | ELECTRICAL CAUSE | REMEDY |
|---|---|---|
| No Modulation | 1. Faulty 6V6 (V104) tube | replace |
| | 2. Faulty 6L6 (V105/V106) tube | replace |
| | 3. Faulty VR-150 (V107) tube | replace |
| | 4. 6V6 resistor (R112) | replace |
| | 5. 6V6 screen resistor (R111) | replace |
| | 6. Shorted condenser (C114) | replace |
| | 7. Choke open (L106) | replace |
| | 8. Condenser shorted (C113a) | replace |
| Distorted Modulation | 1. Shorted condenser (C113b) | replace |
| | 2. Weak modulator tubes | see No Modulation |
| | 3. Resistor (R111) open | replace |
| Hum on Carrier (No Modulation) | 1. Filter condenser (C116 and/or C112) | replace |
| | 2. Bias condensers (C115a/C115b) | replace |
| Hum on Carrier (Modulation) | 1. Condenser open (C-113a) | replace |
| | 2. Condenser open (C114) | replace |

## TABLE 7—2. TUBE OPERATING VOLTAGE AND CURRENTS

| TUBE TYPE | FUNCTION | PLATE P (E) | PLATE (MA) | SCREEN (E) | SCREEN (MA) | SUPP. (E) | CATH. (E) | GRID (E) | HEATER (E) A-C |
|---|---|---|---|---|---|---|---|---|---|
| 6V6 | Oscillator | 270 | 17 | 185 | 1 | | 15 | | 6.1 |
| 807 | Final Amp. | 440 | 115 | 270 | 29 | | 7.5 | —135 | 6.1 |
| 807 | Final Amp. | 440 | 115 | 270 | 29 | | 7.5 | —135 | 6.1 |
| 6V6 | Speech Amp. | 145 | | | | | 7.5 | 0 | 6.1 |
| 6L6 | Modulator | 400 | 140 | 300 | 10 | | | —24 | 6.1 |
| 6L6 | Modulator | 400 | 140 | 300 | 10 | | | —24 | 6.1 |
| VR150 | Voltage Reg. | 300 | | | | | | | |
| 6X5G | L.V. Rectifier | 575 rms | | | | | 480v | | 6.1 |
| 83 | H.V. Rectifier | 55 rms | | | | | | | 5.0 |

NOTE: The above readings were measured to ground.

High Voltage transformer—575-0-575 @300 ma
Low Voltage transformer— 55-0-55

NOTE: Cathode current for the modulator tubes is approximately 180 ma with 100% modulation. All readings listed above are with no modulators.

## TABLE 7—3. 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) | | EMISSION | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | NORMAL | MINIMUM | IS (MA) | TEST VOLT |
| 6V6 | 6.3 | 0.45 | 250 | —12.5 | 250 | 45 | 4.5 | 50,000 | 205 | 4100 | 3600 | | |
| 807 | 6.3 | 0.9 | 475 | —85 | 225 | 83 | 5 | | | 6000 | 5400 | | |
| 6L6 | 6.3 | 0.9 | 350 | —18 | 250 | 60 | 4 | 33,000 | 170 | 500 | 4700 | | |
| VR150 | | | 185 MIN. | | | 5 to 40 | | | | | | | |
| 6X5 | 6.3 | 0.6 | | | | | | | | | | | |

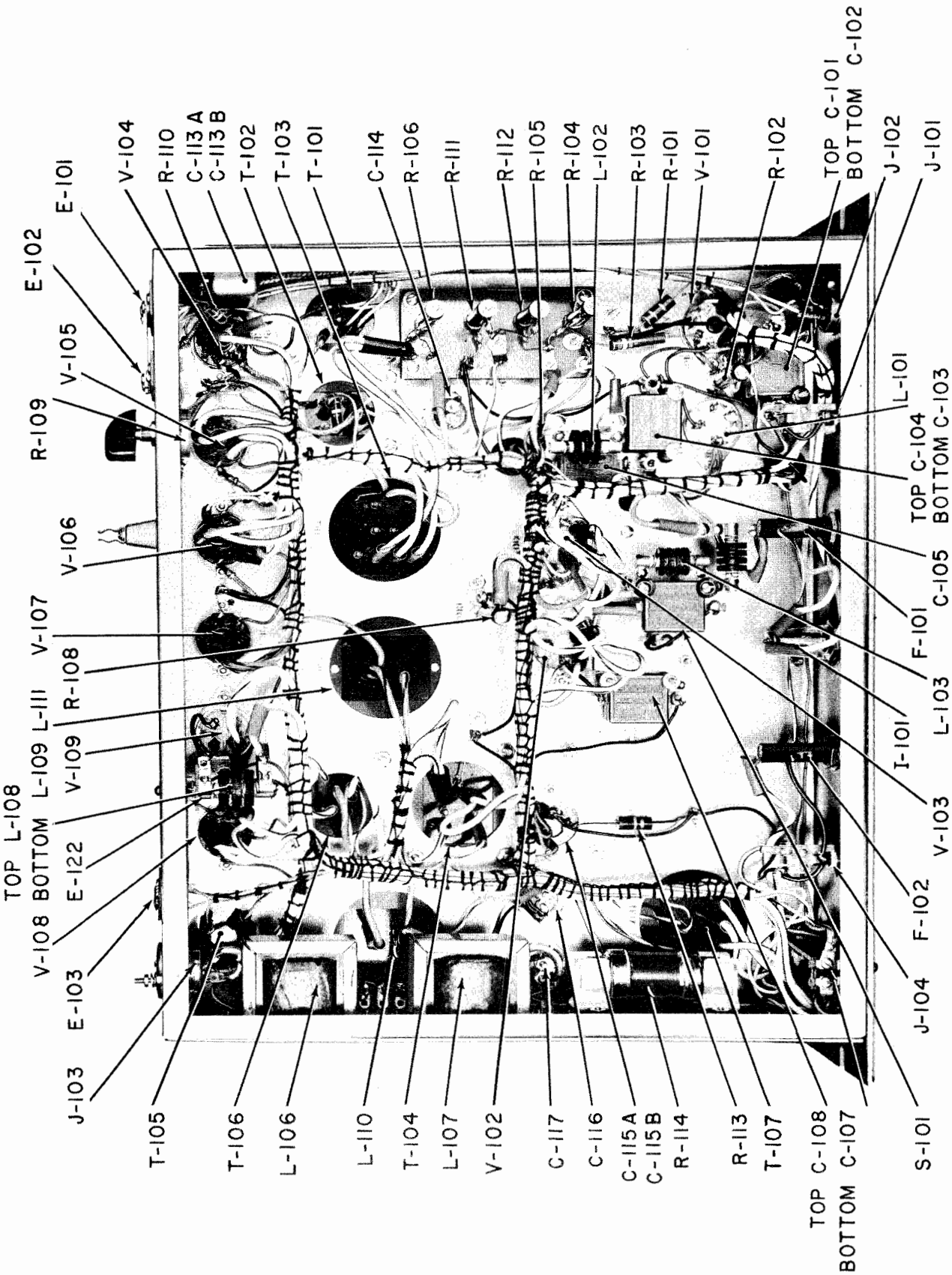



*Figure 7—1. Radio Transmitting & Receiving Equipment—Chassis Bottom*

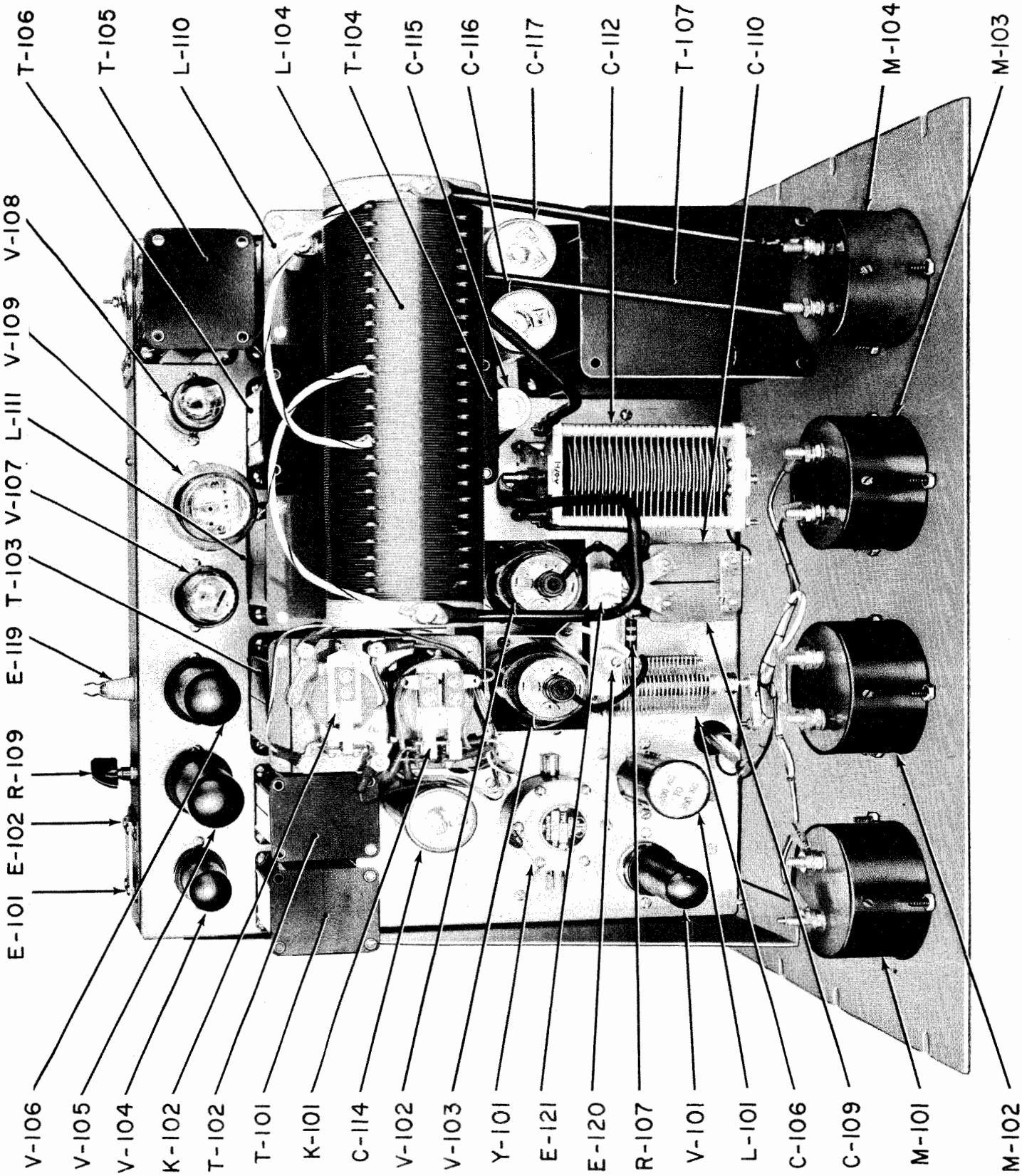



*Figure 7—2. Radio Transmitting & Receiving Equipment— Chassis Top*

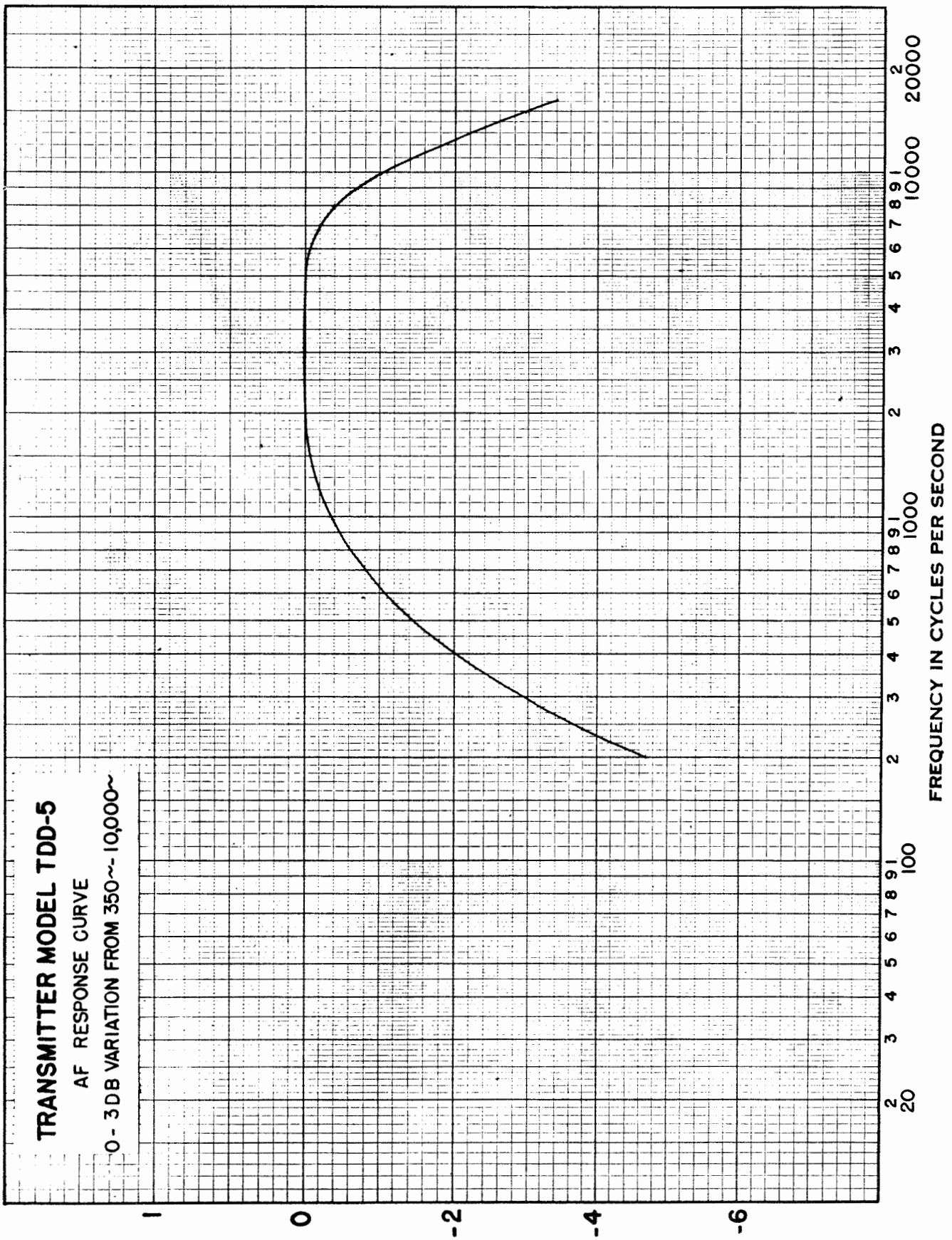



*Figure 7—3. Radio Transmitting & Receiving Equipment—AF Response Curve*

## TABLE 8–1. WEIGHTS AND DIMENSIONS OF SPARE PARTS BOXES

| EQUIPMENT SPARES | | | | | | TENDER SPARES | | | | | | STOCK SPARES | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SPARE PARTS BOX | OVERALL DIMENSIONS | | | VOLUME | WEIGHT | SPARE PARTS BOX | OVERALL DIMENSIONS | | | VOLUME | WEIGHT | SPARE PARTS BOX | OVERALL DIMENSIONS | | | VOLUME | WEIGHT |
| | HEIGHT | WIDTH | DEPTH | | | | HEIGHT | WIDTH | DEPTH | | | | HEIGHT | WIDTH | DEPTH | | |
| 1 | 9 | 12¾ | 18½ | 1.23 | 62 | | | | | | | 1 | 27 | 23 | 23 | 8.27 | 40 |

## TABLE 8–2. SHIPPING WEIGHTS AND DIMENSIONS OF SPARE PARTS BOXES

| EQUIPMENT SPARES | | | | | | | TENDER SPARES | | | | | | | STOCK SPARES | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHIPPING BOX NUMBER | SPARE PARTS BOX | OVERALL DIMENSIONS | | | VOLUME | WEIGHT | SHIPPING BOX NUMBER | SPARE PARTS BOX | OVERALL DIMENSIONS | | | VOLUME | WEIGHT | SHIPPING BOX NUMBER | SPARE PARTS BOX | OVERALL DIMENSIONS | | | VOLUME | WEIGHT |
| | | HGT. | WDTH. | DPTH. | | | | | HGT. | WDTH. | DPTH. | | | | | HGT. | WDTH. | DPTH. | | |
| 1 | 1 | 12 | 20 | 14 | 1.94 | 82 | | | | | | | | 1 | 1 | 29 | 25 | 25 | 10.49 | 65 |
| | | (See Table 1-2 Note) | | | | | | | | | | | | | | | | | | |

## TABLE 8–3. LIST OF MAJOR UNITS

| SYMBOL GROUP | QUANTITY | NAME OF MAJOR UNIT | NAVY TYPE DESIGNATION |
|---|---|---|---|
| 1—23 | 1 | Radio Telephone Transmitter | TDD-5 |

## TABLE 8-4. TABLE OF REPLACEABLE PARTS

| REF. DESIG. | NAME OF PART AND DESCRIPTION | STOCK NOS. SIG. CORPS STD. NAVY AIR CORPS | LOCATING FUNCTIONS |
|---|---|---|---|
| A-101 | MOUNTING PLATE, RELAY; Phenolic; natural XXXP, semi-gloss; holds item by means of 4 machine screws, one end on 2 in. centers, other end on 1-1/2 in. mtg centers, four .149 in. holes on 2-7/16 in. by 3-7/8 in. mtg centers; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-654. | _____<br>_____<br>_____ | Relay mounting. |
| A-102 | MOUNTING PLATE, RIGHT RF TANK COIL; Phenolic natural XXXP, semi-gloss; holds item by means of one machine screw through .177 in. hole on one end, four .149 in. dia holes on 2-7/16 in. by 3-7/8 in. mtg centers; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-655. | _____<br>_____<br>_____ | RF tank coil mounting. |
| A-103 | MOUNTING PLATE, LEFT RF TANK COIL; Phenolic; natural XXXP, semi-gloss; holds item by means of one machine screw through .177 in. dia hole on one end, four .149 in. dia holes on 2-7/16 in. by 3-7/8 in. mtg centers; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-656. | _____<br>_____<br>_____ | RF tank coil mounting. |
| A-104 | MOUNTING BOARD, RESISTORS; Phenolic board; over-all dimensions excluding terminals, 4 in. lg., 2 in. wide, 1/8 in. thk.; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-657. | _____<br>_____<br>_____ | Mounts resistors R-104, R-112, R-111, R-106. |
| A-105 | MOUNTING PLATE, CHOKES; Phenolic; natural XXXP; holds item by means of one machine screw through .149 in. dia hole, two .149 in. dia hole on 1-in. centers; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-672. | _____<br>_____<br>_____ | Mounts chokes L-108, L-109. |

| | | | |
|---|---|---|---|
| A-106 | MOUNTING PLATE, RESISTOR; Phenolic; natural XXXP; holds item by means of two machine screws through .177 in. dia holes on 2-5/8 in. mtg centers, two .177 in. holes on 2-9/16 in. mtg centers; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-658. | ———<br>———<br>——— | Mounts resistor R-114. |
| A-107 | INSULATING PLATE; Phenolic, brown, semi-gloss; item code no. 185 Ref Dwg Group 9; dim Ref Group 9, 3-3/4 in. lg, 1-3/4 in. wide, .032 in. thk; two .177 in. dia mtg holes on 2-9/16 in. mtg centers; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-659. | ———<br>———<br>——— | Insulator for resistor R-114. |
| A-108 | SPACER; Brass, nickel plated; over-all dim, 5/16 in. hex, 5/8 in. lg; drilled and tapped thru, No. 6-32; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-50001-6. | ———<br>———<br>——— | Spacer for resistor mtg board A-104. |
| A-109 | SPACER; Brass, nickel plated; over-all dim, 1/4 in. OD, 9/32 in. lg, 0.149 in. ID; Jetronic Industries, Inc., Part No. A-50018-12. | ———<br>———<br>——— | Spacer and support for capacitor C-106. |
| A-110 | SPACER; Brass, nickel plated; over-all dim, 3/8 in. hex, 1-3/8 in. lg; drilled and tapped thru, No. 6-32; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-50001-5. | ———<br>———<br>——— | Spacer, support and tie point capacitors C-109 and C-110. |
| A-111 | HOLDER, HANDSET; Over-all dim (Hook), 2-7/8 in. high, 2-21/32 in. max width, 1-1/2 in. deep; supplementary parts, 2 metal bumper frames, 2 rubber bumpers; bumpers mt in frames by two No. 8-32 holes on 1-1/4 in. centers; frames with attached bumpers mt on cabinet by two .177 in. clearance holes on 1-1/4 in. centers; hook mts on | ———<br>N17-H074001-1011<br>——— | Holds handset assembly HS-101. |

TABLE 8-4. TABLE OF REPLACEABLE PARTS

| REF. DESIG. | NAME OF PART AND DESCRIPTION | STOCK NOS. SIG. CORPS STD. NAVY AIR CORPS | LOCATING FUNCTIONS |
|---|---|---|---|
| | one bumper and frame by two .177 in. clearance holes; Western Electric, Indianapolis, Ind., Type No. 9A Hanger. | | |
| C-101 | CAPACITOR, FIXED, MICA DIELECTRIC; 10,000 mmf, ± 10% tolerance; 600v dc; dimensional data as indicated in Ref Dwg Group 1, W - 1-1/4 in., D - 1-1/8 in., H - 11/32 in.; Cornell-Dubilier, South Plainfield, N. J., JAN-C-5 type CD4-CM 45A103K. | ——— N16-C033622-7751 ——— | OSC cathode by-pass. |
| C-102 | SAME AS C-101. | | OSC screen by-pass. |
| C-103 | CAPACITOR, FIXED, MICA DIELECTRIC; 1000 mmf, ± 10% tolerance; 2500v dc; Ref Dwg Group 1, W - 1-1/4 in., D - 1-1/8 in., H - 11/32 in.; Cornell-Dubilier, South Plainfield, N. J., JAN-C-5 type CD4-CM45A102K. | ——— N16-C031091-6112 ——— | OSC plate blocking. |
| C-104 | CAPACITOR, FIXED, MICA DIELECTRIC; 10,000 mmf, ± 10% tolerance; 1200v dc; Ref Dwg Group 1, W - 1-1/4 in., D - 1-1/8 in., H - 7/16 in.; Cornell-Dubilier, South Plainfield, N. J., JAN-C-5 type CD4-CM50A103K. | ——— ——— ——— | OSC plate blocking. |
| C-105 | CAPACITOR, FIXED, MICA DIELECTRIC; 500 mmf, ± 10% tolerance; 1200 dc; Ref Dwg Group 1, W - 1-1/4 in., D - 1-1/8 in., H - 7/16 in.; Aerovox Corp., New Bedford, Mass., Part No. 1446LS0005. | ——— N16-C030167-7550 ——— | OSC coupling. |
| C-106 | CAPACITOR, VARIABLE, AIR DIELECTRIC; 12 mmf min, 300 mmf max; 43 plates, 1000v peak voltage; steatite insulation; dim data Section B, Ref | ——— N16-C061676-2027 ——— | OSC plate tuning. |

| | | | |
|---|---|---|---|
| | Dwg Group 204, 4-9/64 in. lg over-all, 3-1/4 in. body lg, 1-11/16 in. body w; Bud Radio Corporation, Cleveland, Ohio, Part No. MC-1860. | | |
| C-107 | SAME AS C-101. | | P. A. cathode by-pass. |
| C-108 | SAME AS C-103. | | P. A. screen by - pass. |
| C-109 | CAPACITOR, FIXED, MICA DIELECTRIC; 100 mmf, ± 10% tolerance; 3500v dc; Ref Dwg Group 1, W - 2 in., H - 1-1/2 in., D - 15/16 in.; Aerovox Corporation, New Bedford, Mass., JAN-C-5 type CM45A102K. | N16-C031091-7510 | P.A. plate tank padding. |
| C-110 | SAME AS C-109. | | P.A. plate tank padding. |
| C-111 | SAME AS C-103. | | P.A. plate blocking. |
| C-112 | CAPACITOR, VARIABLE, AIR DIELECTRIC; 19 mmf min, 488 mmf max; 45 plates, 2000v peak voltage; steatite insulation; dim data Section B, Ref Dwg Group 204, 5-19/32 in. over-all, 4-15/32 in. body lg, 2-5/8 in. body W; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-671-1. | N16-C061918-6221 | P.A. plate tuning. |
| C-113 | CAPACITOR, FIXED, ELECTROLYTIC; 2 sections; 10 mfd, 10 mfd; 150v dc; D - 1 in. dia, L - 2 in. lg; Cornell - Dubilier Electric Corporation, South Plainfield, N. J., Part No. AVL10040. | N16-C021562-5274 | Microphone volt. filter and cathode by-pass capacitor. |
| C-114 | CAPACITOR, FIXED, PAPER DIELECTRIC; Synthetic oil filled; 4 mfd, ± 10% tolerance; 600v dc; dim data, Ref Dwg Group 1, D - 1-1/2 in. dia, L - 4-1/2 in. lg; Cornell - Dubilier Electric Corporation, South Plainfield, N. J., Part No. TNAD6040G. | N16-C049937-5145 | Speech amplifier filter. |

TABLE 8-4. TABLE OF REPLACEABLE PARTS

| REF. DESIG. | NAME OF PART AND DESCRIPTION | STOCK NOS. SIG. CORPS STD. NAVY AIR CORPS | LOCATING FUNCTIONS |
|---|---|---|---|
| C-115 | CAPACITOR, FIXED, ELECTROLYTIC; 2 sections; 30 mmf, 30 mmf; 150v dc; D - 1 in. dia, L - 2 in. lg; Aerovox Corporation, New Bedford, Mass., Part No. AF66D, w/Insul. Mtg Plate. | ———— N16-C021921-1493 ———— | Low voltage filter. |
| C-116 | SAME AS C-114. | | High voltage filter. |
| C-117 | SAME AS C-114. | | High voltage output filter. |
| E-101 | TERMINAL STRIP; Phenolic board; 4 terminals marked 1, 2, 3, 4; single screw type; 3 in. lg, 3/4 in. wide, 1/16 in. thk; Cinch Manufacturing Co., Howard B. Jones Division, Chicago, Ill., Part No. 4-76 modified Jetronic Dwg No. A-668-1. | ———— ———— ———— | Chassis terminal strip. |
| E-102 | TERMINAL STRIP; Phenolic board; terminals marked 5, 6, 7, 8; single screw type; 3 in. lg, 3/4 in. wide, 1/16 in. thk; Cinch Manufacturing Co., Chicago, Ill., Part No. 4-76, modified Jetronic Dwg No. A-668-2. | ———— ———— ———— | Chassis terminal strip. |
| E-103 | TERMINAL STRIP; Phenolic board; 4 terminals marked 9, 10, 11, 12; single screw type; 3 in. lg, 3/4 in. wide, 1/16 in. thk; Cinch Manufacturing Co., Howard B. Jones Div., Chicago, Ill., Part No. 4-76, modified Jetronic Dwg No. A-668-3. | ———— ———— ———— | Chassis terminal strip. |
| E-104 | TERMINAL STRIP; Phenolic board; 6 terminals, single solder lug, eyeletted type; over-all dimensions, excluding terminals, 2-11/32 in. lg, 3/8 in. wide, 1/16 in. thk; Industrial Hardware Manu- | ———— ———— ———— | Sub - panel wiring terminal strip. |

| | | | |
|---|---|---|---|
| | facturing Co., Inc., New York, 12, N. Y., Part No. 6U4AU. | | |
| E-105 | TERMINAL STRIP; Phenolic board; 3 terminals, single solder lug, eyeletted type; over-all dimensions excluding terminals, 1 in. lg, 3/8 in. wide, 1/16 in. thk; Industrial Hardware Manufacturing Co., Inc., New York, N. Y., Part No. 3AJA. | ——— | Sub - panel wiring terminal strip. |
| E-106 | FUSE CLIP; Beryllium copper; silver plated; Ref Drawing Group 37, .385 in. lg, 13/32 in. wide, 9/16 in. high; Littlefuse Inc., Chicago, Ill., Part No. 123001. | N17-C804557-0101 | Terminal connector for crystal unit Y-101. |
| E-107 | SAME AS E-106. | | Terminal connector for crystal unit Y-101. |
| E-108 | FUSE CLIP; Beryllium copper; silver plated; Reference Drawing Group 37, L .385 in. lg, W 13/32 in. wide, H 9/16 in. high; Littlefuse Inc., Chicago, Ill., Part No. 123002. | N17-C804555-0695 | Terminal connector. |
| E-109 | FUSE CLIP; Beryllium copper; silver plated; Reference Drawing Group 37, L - 7/8 in., W - .750 in., H - 1-7/32 in.; Littlefuse Inc., Chicago 40, Ill., Part No. 12,9001. | N17-C804508-0101 | Terminal connector for R-114. |
| E-110 | SAME AS E-109. | | Terminal connector for R-114. |
| E-111 | FUSEHOLDER; Cartridge; extractor post type; phenolic body; 250v, 15 amp contact data, beryllium copper, silver plated finish, clip type; 2.094 in. lg, .719 largest dia, .435 body dia; Littlefuse Inc., Chicago, Ill., Part No. 341001B. | N17-F074267-5151 | Fuseholder for high voltage fuse F-102. |

## TABLE 8-4. TABLE OF REPLACEABLE PARTS

| REF. DESIG. | NAME OF PART AND DESCRIPTION | STOCK NOS. SIG. CORPS STD. NAVY AIR CORPS | LOCATING FUNCTIONS |
|---|---|---|---|
| E-112 | FUSEHOLDER; Cartridge; extractor post type; phenolic body; 250v, 15 amp; silver plated finish; overall dimensions, 2.219 in. lg, .719 in. largest dia, .435 in. body dia; Littlefuse Inc., Chicago, Ill., Part No. 341001A. | ———<br>N17-F074267-5401<br>——— | Fuseholder for AC line fuse F-101. |
| E-113 | CONNECTOR, TAP; Brass; nickel plated; tapped one end, slotted other end with slot compression screw; 3/4 in. lg, 1/4 in. dia; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-678. | ———<br>———<br>——— | Tap connector antenna loading coil. |
| E-114 | CONNECTOR, LINK; Brass; nickel plated; 1-7/16 in. lg, 1/2 in. wide, 1/16 in. thick; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-663-2. | ———<br>———<br>——— | Connector link for C-109, C-110. |
| E-115 | SAME AS E-114. | | Connector link for C-109, C-110. |
| E-116 | SAME AS E-114. | | Connector link for C-109, C-110. |
| E-117 | CONNECTOR, LINK; Brass; nickel plated; 1-7/8 in. lg, 5/16 in. wide, 1/16 in. thick; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-663-1. | ———<br>———<br>——— | Connector link for E-101. |
| E-118 | SAME AS E-117. | | Connector link for E-102. |
| E-119 | INSULATOR, STANDOFF, CONE; Steatite, white; glazed finish; dim, Ref Dwg Group 9, L - 5/8 in., E - 7/16 in., B - 5/8 in.; mtg hardware, 2 nickel | ———<br>———<br>——— | Component parts insulator. |

| | | | |
|---|---|---|---|
| | plated screws, 1 cork washer; E. F. Johnson Company, Waseca, Minn., Part No. 135-500. | | |
| E-120 | SAME AS E-119. | | Component parts insulator. |
| E-121 | SAME AS E-119. | | Component parts insulator. |
| E-122 | SAME AS E-119. | | Component parts insulator. |
| E-123 | INSULATOR, STANDOFF, CONE; Steatite, white; glazed finish; item code no. 5 Ref Dwg Group 9; dim Ref Dwg Group 9, L - 1 in., E - 1/2 in., B - 3/4 in. greatest dia; mtg hardware, 2 nickel plated screws, 1 cork washer; E. F. Johnson Company, Waseca, Minn., Part No. 135-501. | N17-I068769-9021 | Component parts insulator. |
| E-124 | SAME AS E-123. | | Component parts insulator. |
| E-125 | SAME AS E-123. | | Component parts insulator. |
| E-126 | SAME AS E-123. | | Component parts insulator. |
| E-127 | INSULATOR, STANDOFF, CONE; Steatite, white; glazed finish; item code no. 5 Ref Dwg Group 9; dim, Ref Dwg Group 9, L - 3 in., E - 3/4 in., 1-1/2 in.; mtg hardware, 2 nickel plated screws, 1 cork washer; E. F. Johnson Company, Waseca, Minn., Part No. 135-504. | N17-I068816-4016 | Antenna loading coil stand-off insulator. |

TABLE 8-4. TABLE OF REPLACEABLE PARTS

| REF. DESIG. | NAME OF PART AND DESCRIPTION | STOCK NOS. SIG. CORPS STD. NAVY AIR CORPS | LOCATING FUNCTIONS |
|---|---|---|---|
| E-128 | SAME AS E-127. | | Antenna loading coil stand-off insulator. |
| E-129 | SAME AS E-127. | | Antenna loading coil stand-off insulator. |
| E-130 | SAME AS E-127. | | Antenna loading coil stand-off insulator. |
| E-131 | INSULATOR, BUSHING; Steatite, white; glazed finish; item code no. 73 Ref Dwg Group 9, L - 1/4 in. lg, D - 3/4 in. dia. G - 15/32 in. shoulder, H - .1495 in. dia hole; mtg hardware, 4 nickel plated 6-32 nuts, 2 fiber washers; E. F. Johnson Company, Waseca, Minn., Part No. 135-55. | ———<br>N17-I059611-6335<br>——— | Thru panel insulator. |
| E-132 | SAME AS E-131. | | Thru panel insulator. |
| E-133 | INSULATOR, STANDOFF; Ceramic, white; glazed finish; item code 5 Ref Dwg Group 9; dim, Ref Dwg Group 9, L - 1-1/4 in. lg, E - 3/8 in. dia; mtg hardware, 6-32 nickel plated screw; American Lava Corporation, Chattanooga, Tenn., Part No. 1708. | ———<br>———<br>——— | Component parts insulator. |
| E-134 | SAME AS E-133. | | Component parts insulator. |
| E-135 | SAME AS E-133. | | Component parts insulator. |

| | | | |
|---|---|---|---|
| E-136 | SAME AS E-133. | | Component parts insulator. |
| E-137 | SAME AS E-133. | | Component parts insulator. |
| E-138 | INSULATOR, LEAD-IN; Mykroy Ceramic, brown; unglazed finish; item code no. 169 Ref Dwg Group 9; dim, Ref Dwg Group 9, L - 5-1/4 in., D - 2-1/2 in., H1 - 1-1/2 in., H2 - 1-1/2 in., S - 3/8-16 thread; mtg hardware, 4 hex nuts, 2 flat washers, 4 cork washers; Electronic Mechanics, Clifton, N. J., Part No. EB1-250. | ———<br>N17-I059656-1251<br>——— | Antenna lead-in feed-thru insulator. |
| E-139 | GROMMET, RUBBER; Synthetic rubber, specification data, AN, AN-G-21; dim, as indicated in MBCA Ref Dwg Group 156, A - 7/16 in., C - 5/16 in., D - 1/16 in., E - 3/16 in.; Miner Rubber Company, Inc., Bloomfield, N. J., Part No. 3942-B. | ———<br>———<br>——— | Chassis feed-thru wiring insulator. |
| E-140 | SAME AS E-139. | | Chassis feed-thru wiring insulator. |
| E-141 | GROMMET, RUBBER; Snythetic rubber, specification data, AN, AN-G-21; dim, as indicated in MBCA Ref Dwg Group 156, A - 3/4 in., C - 5/8 in., D - 1/16 in., E - 1/2 in.; Miner Rubber Company, Inc., Bloomfield, N. J., Part No. 2130. | ———<br>———<br>——— | Chassis feed-thru wiring insulator. |
| F-101 | FUSE, CARTRIDGE; 250v, 3 amp; normal instantaneous; ferrule type 3/8 in. lg, 1/4 in. dia; overall dim 1-1/4 in. lg, 1/4 in. dia; Littlefuse, Inc., Chicago, Ill., Part No. 312003. | ———<br>GM17-F016302-0120<br>——— | AC line fuse. |

**TABLE 8-4. TABLE OF REPLACEABLE PARTS**

| REF. DESIG. | NAME OF PART AND DESCRIPTION | STOCK NOS. SIG. CORPS STD. NAVY AIR CORPS | LOCATING FUNCTIONS |
|---|---|---|---|
| F-102 | FUSE, CARTRIDGE; 250v, 2 amp; normal instantaneous; ferrule type, 3/8 in. lg, 1/4 in. dia; overall dimensions, 1-1/4 in. lg, 1/4 in. dia; Littlefuse, Inc.; Chicago, Ill., Part No. 312003. | ———<br>GM17-F016302-0100<br>——— | High voltage fuse. |
| H-101 | CLAMP, ELECTRICAL; Steel, cadmium plated; screw type; 5/8 in. lg, 3/8 in. wide, 1/8 in. high; Zierick Manufacturing Corp., New Rochelle, N. Y., Part No. 139-144. | ———<br>———<br>——— | Cable clamp. |
| HS-101 | HANDSET, ASSEMBLY; Battery powered; black phenolic case; rubber covered, cord 4 conductor; cord terminated with Amphenol 91MC4M connector, press to talk WE No. F3AW3 unit; Jetronic Industries, Inc., Philadelphia, Pa., Dwg. No. 1293-1. Radio Telephone Transmitting Equipment. | ———<br>———<br>——— | Local handset. |
| I-101 | LAMP, PILOT; 28v, .17 amp design current; single contact miniature bayonet base; T3 - 1/4 bulb, clear, white light emitted; General Electric Company, Schenectady, N. Y., Type No. 313. | ———<br>GM17-L006543-0050<br>——— | Pilot lamp. |
| J-101 | JACK, MIDGET; Contact spring leaf, contact arrangement J3, Ref Dwg Group 4; over-all dimensions, 1-19/32 in. lg, 5/8 in. wide, 1-3/64 in. high; single through hole mounting; P. R. Mallory & Company, Inc., Indianapolis, Ind., Part No. A-2 Midget. | ———<br>N17-J039148-9239<br>——— | OSC current reading connector. |

| | | | |
|---|---|---|---|
| J-102 | CONNECTOR, RECEPTACLE, MICROPHONE; 4 contacts; straight shape; plastic insulated; polarized; locking type; 8-32 thread coupling nut; over-all dimensions, 3/4 in. lg, 1-1/4 in. dia; American Phenolic Corporation, Chicago, Ill., Part No. 91-PC4F. | N17-C073184-9460 | Accepts P-101 microphone plug. |
| J-103 | CONNECTOR, RECEPTACLE; AC INPUT; Straight shape; w/enclosing shell; non locking type; 2 contacts; over-all dimensions, 1-1/4 in. lg, 1 in. dia; single through hole chassis mounting; The Arrow-Hart & Hegeman Electric Co., Hartford, Conn., Part No. 80329. | N17-C073431-9879 | Accepts P-102 AC line plug. |
| J-104 | SAME AS J-101. | | Modulator current reading connector. |
| K-101 | RELAY, KEY, ARMATURE; 32v, dc, 400 ohms resistance of winding; dpdt contacts, single break, 115v, 10 amp; over-all dimensions, 2-21/32 in. lg, 1-5/8 in. wide, 1-9/16 in. high; two 6-32 mounting holes spaced 2 in. c to c; Advance Electric and Relay Company, Burbank, Calif., Part No. PC2C32VD. | | Press - to - talk circuit relay. |
| K-102 | RELAY, POWER; 115v operating voltage, 60 cycles; ac, 450 ohms dc resistance; spst, normally open, single break, 115v, 30 amp contacts; over-all dimensions, 3 in. lg, 2 in. wide, 1-1/2 in. high; 2 mtg holes 3/32 in. dia spaced 1-1/2 in. c to c; Advance Electric & Relay Company, Burbank, Calif., Part No. PV1A115VA. | | AC line control relay. |
| L-101A | COIL ASSEMBLY, PLUG-IN; Universal wound, no. 35 AWG, single nylon covered resin coated, 2.45 mh at 1000 cycles; phenolic, cased; over-all dimensions, 2-5/16 in. lg, 1-3/8 in. dia; plugs | | OSC tank coil 200 KC to 300 KC. |

TABLE 8-4. TABLE OF REPLACEABLE PARTS

| REF. DESIG. | NAME OF PART AND DESCRIPTION | STOCK NOS. SIG. CORPS / STD. NAVY / AIR CORPS | LOCATING FUNCTIONS |
|---|---|---|---|
| | into 5 prong socket; 200 KC to 300 KC on top of form; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A676-601. | | |
| L-101B | COIL ASSEMBLY, PLUG-IN; Universal wound, no. 35 AWG, single nylon covered resin coated, 1.0 mh at 1000 cycles; phenolic, cased; over-all dimensions, 2-5/16 in. lg, 1-38 in. dia; 290 KC to 450 KC on top of form; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-676-602. | ———— ———— ———— | OSC tank coil 290 KC to 450 KC. |
| L-101C | COIL ASSEMBLY, PLUG-IN; Universal wound, no. 35 AWG, single nylon covered resin coated, .556 mh at 1000 cycles; phenolic, cased; over-all dimensions, 2-5/16 in. lg, 1-3/8 in. dia; plugs into 5 prong socket; 400 KC to 680 KC on top of form; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-676-603. | ———— ———— ———— | OSC tank coil 400 KC to 680 KC. |
| L-102 | COIL, RF CHOKE; 3 pie universal wound, silk covered enamel insulation, 10 mh at 1000 cycles, 100 ma, 78 ohms DC resistance; ceramic coil form; over-all dimensions, 1-1/2 in. lg, 3/4 in. wide; terminal mounted; Bud Radio Corporation, Cleveland, Ohio, Part No. CH924S. | ———— N16-C075105-8342 ———— | P. A. grid choke. |
| L-103 | COIL, RF CHOKE; 4 pie universal wound, 5.5 mh at 1000 cycles, 125 ma, 60 ohms DC resistance; ceramic coil form; over-all dimensions, 1-1/2 in. lg, 3/4 in. wide; terminal mounted; Bud Radio Corporation, Cleveland, Ohio, c/o two type no. CH922S chokes. | ———— N16-C07429-5264 ———— | P. A. plate choke. |

| | | | |
|---|---|---|---|
| L-104 | COIL ASSEMBLY, TANK; Single layer wound, 144 turns, no. 18 AWG, enamel insulation, 47 taps, 2 axial rows; phenolic form; over-all dimensions, 9 in. lg, 3 in. dia; Jetronic Industries, Inc., Philadelphia, Pa., Part No. B-1277-1. | ——— | P. A. plate tank coil. |
| L-105 | COIL ASSEMBLY, ANTENNA LOAD; Layer wound, 301-1/2 turns, no. 16 AWG, enameled wire; adjusting taps and rotor; over-all dimensions, 24 in. lg, 6 in. dia; Jetronic Industries, Inc., Philadelphia, Pa., Part No. C-2154-1. | ——— | Antenna loading and tuning. |
| L-105A | COIL, ANTENNA LOAD; Single layer wound, 301-1/2 turns, no. 16 AWG, enamel insulation, 56 taps, 2 axial rows; phenolic form; over-all dimensions, 24 in. lg, 6 in. dia; Jetronic Industries, Inc., Philadelphia, Pa., Part No. C-2152. | ——— | Antenna loading coil. |
| L-105B | COIL, VARIOMETER ROTOR; Single layer wound, 22-1/2 turns, no. 16 AWG, enamel insulation; phenolic coil form; over-all dimensions, 4-3/4 in. dia, 2-1/2 in. lg, Jetronic Industries, Inc., Philadelphia, Pa., Part No. B-1296-1. | ——— | Antenna tuning. |
| L-106 | FILTER CHOKE; Fixed inductance type; 2.3 henries inductance, 150 ma, dc, 60 ohms dc resistance; 1.5 kv, rms test voltage; hermetically sealed; dim Ref Dwg Group 12, 3-1/4 in. lg, 1-1/2 in. wide, 2 in. high; Standard Transformer Corporation, Chicago, Ill., Part No. C-2304. | ———<br>N16-R028999-1522<br>——— | Bias supply filter choke reactor. |
| L-107 | SAME AS L-106. | | Bias supply filter choke reactor. |

TABLE 8-4. TABLE OF REPLACEABLE PARTS

| REF. DESIG. | NAME OF PART AND DESCRIPTION | STOCK NOS. SIG. CORPS STD. NAVY AIR CORPS | LOCATING FUNCTIONS |
|---|---|---|---|
| L-108 | COIL, RF CHOKE; 3 pie universal wound, silk covered enamel insulation, 2.5 mh at 1000 cycles, 16 ohms DC resistance; ceramic coil form; over-all dimensions, 1-1/2 in. lg, 3/4 in. wide; terminal mounted; Bud Radio Corporation, Cleveland, Ohio, Part No. CM826S. | N16-C074687-6802 | High voltage rectifier RF filter choke. |
| L-109 | SAME AS L-108. | | High voltage rectifier RF filter choke. |
| L-110 | REACTOR CHOKE; Swinging inductance type, 5 to 15 henries inductance, 30 to 150 ma dc, 100 ohms dc resistance; 1K Kv rms test voltage, hermetically sealed; dim Ref Dwg Group 12, 4-1/2 in. lg, 3 in. wide, 4 in. high; Kenyon Transformer Co., Inc., New York, N.Y., Part No. T-501. | N16-R029924-4078 | High voltage filter choke. |
| L-111 | REACTOR, CHOKE; Fixed inductance, 10 henries, 250 ma, d, 100 ohms dc resistance; 1.5 KV rms test voltage, hermetically sealed; dim Ref Dwg Group 12, 4-1/2 in. lg, 3 in. wide, 4 in. high; Kenyon Transformer Co., Inc., Part No. T-151. | N16-R029240-1866 | High voltage filter choke. |
| M-101 | AMMETER; Round, plastic; panel mounted; 0 to 10 ma, dc; 2% accuracy at full scale reading; calibrated for magnetic panel; graduated in 100 scale divisions; black scale markings, white background; 7 ohms drop across terminals; style no. 5, MBCA Ref Dwg Group 27; over-all case dim, A - 1-1/8 in., B - 3-1/2 in., E - 2-3/4 in.; JAN type MR34-W010DCMA; Burlington Instrument Co., Burlington, Iowa, Part No. 431. | N17-M019461-6651 | Indicates P.A. grid current. |

| | | | |
|---|---|---|---|
| M-102 | AMMETER; Round, plastic; panel mounted; 0 to 200 ma dc; 2% accuracy at full scale reading; calibrated for magnetic panel; graduated in 50 scale divisions; black scale markings, white background; 5 ohms drop across terminals; style no. 15, MBCA Ref Dwg Group 27; over-all case dim, A - 1-1/8 in., B - 3-1/2 in., E - 2-3/4 in.; JAN type MR34-W200DCMA; Burlington Instrument Co., Burlington, Iowa, Part No. 431. | N17-M019751-6666 | Indicates P. A. plate current. |
| M-103 | VOLTMETER; Round, plastic; panel mounted; 0 to 1 KV dc; 2% accuracy at full scale reading; calibrated for magnetic panel; graduated in 100 scale divisions; black scale markings, white background; 1000 ohms per volt; style no. 15 MBCA Ref Dwg Group 27; over-all case dimensions, A - 1-1/8 in., B - 3-1/2 in., E - 2-3/4 in.; JAN type MR34W001-DCKV; Burlington Instrument Co., Burlington, Iowa, Part No. 431 JAN. | N17-M035167-6351 | High voltage meter. |
| M-104 | AMMETER RF; Round, plastic; panel mounted; 0 to 1.5 amp RF; 2% accuracy at full scale reading; calibrated for magnetic panel; graduated logarithmically; black scale markings, white background; self contained thermocouple; style no. 15 MBCA Ref Dwg Group 27; over-all case dimensions, A - 1-1/8 in., B - 3-1/2 in., E - 2-3/4 in.; JAN type MR34WIR5RFAA Burlington Instrument Co., Burlington, Iowa; Part No. 433 JAN. | N17-M018208-5409 | Indicates antenna current. |
| N-101 | NAMEPLATE, IDENTIFICATION; Aluminum; reverse etched printing, lusterless orange background; inscribed, MODEL TDD-5 and associated equipment identification data; over-all dimensions, 3 in. lg, 2 in. wide, .030 in. thk; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-673. | | Equipment identification plate. |

TABLE 8-4. TABLE OF REPLACEABLE PARTS

| REF. DESIG. | NAME OF PART AND DESCRIPTION | STOCK NOS. SIG. CORPS STD. NAVY AIR CORPS | LOCATING FUNCTIONS |
|---|---|---|---|
| N-102 | NAMEPLATE, POWER AMP GRID; Aluminum; Gothic compressed printing, reverse etched, dull black background; inscribed POWER AMP GRID; over-all dimensions, 1-9/16 in. lg, 3/8 in. wide, .050 in. thk; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-674-1. | ———<br>———<br>——— | Indicating plate M-101. |
| N-103 | NAMEPLATE, PLATE VOLTAGE; Aluminum; Gothic compressed printing, reverse etched, dull black background; inscribed PLATE VOLTAGE; over-all dimensions, 1-9/16 in. lg, 3/8 in. wide, .050 in. thk; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-674-1. | ———<br>———<br>——— | Indicating plate M-102. |
| N-104 | NAMEPLATE, POWER AMP PLATE; Aluminum; Gothic compressed printing, reverse etched, dull black background; inscribed POWER AMP PLATE; over-all dimensions, 1-9/16 in. lg, 3/8 in. wide, .050 in. thk; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-674-3. | ———<br>———<br>——— | Indicating plate M-103. |
| N-105 | NAMEPLATE, ANTENNA CURRENT; Aluminum; Gothic compressed printing, reverse etched, dull black background; inscribed ANTENNA CUR., over-all dimensions, 1-9/16 in. lg, 3/8 in. wide, .050 in. thk; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-674-4. | ———<br>———<br>——— | Indicating plate M-104. |
| O-101 | COUPLING, SHAFT, FLEXIBLE; Flexible disk type, insulated flexible coupling, ceramic; shaft accommodations; 1/4 in. dia, round; 2 hole, 8-32 | ———<br>N17-C098431-7019<br>——— | Variometer shaft coupling. |

| | | | |
|---|---|---|---|
| | setscrew mtd.; Bud Radio Corporation, Cleveland, Ohio, Part No. FC-795. | | |
| O-102 | CLAMP, SHAFT LOCKING; Brass, nickel plated finish; split bushing, compression screw type; over-all dimensions, 1-13/32 in. lg, 21/32 in. wide, 9/32 in. thk; mounted by one .144 in. dia hole at end of clamp; National Company, Malden, Mass., Part No. D-886-2. | ——— | Shaft lock C-106. |
| O-103 | CLAMP, SHAFT LOCKING; Brass, nickel plated finish; nut locking split bushing type; over-all dimensions, 1-3/4 in. lg, 9/32 in. wide, 19/32 in. high; mounted by two 9/32 in. by 9/64 in. slot holes spaced 1-5/6 in. c to c; James Millen Mfg., Co., Inc., Malden, Mass., Part No. K-10060. | ———<br>N16-C302409-0872<br>——— | Variometer rotor shaft lock. |
| O-104 | KNOB, POINTER; 2 set screw type; arrow marking; bar w/single pointed shape, Section B, Ref Dwg Group 186; black phenolic body; designed to accommodate 1/4 in. unthreaded shaft; 1-1/4 in. lg, 5/8 in. w over-all, 5/8 in. thk over-all; Kurtz-Kasch, Inc., Dayton, Ohio, Part No. S-292-3L/2.S.S. | ——— | Indicating knob for speech amp pot. R-109. |
| O-105 | SHAFT DRIVE; Brass, nickel plated finish; dimensions of slot, located on one end of shaft, 1/16 in. deep, 3/64 in. wide; over-all dimensions, 3-7/8 in. lg, 1/4 in. dia; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-680. | ——— | Variometer shaft extension. |
| O-106 | SHAFT, FLATTED END; Brass, nickel plated finish; dimensions of flat, 5/8 in. lg, 1/32 in. deep; over-all dimensions, 2 in. lg, 1/4 in. dia; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-681-1. | ——— | Variometer rotor bearing shaft. |

TABLE 8-4. TABLE OF REPLACEABLE PARTS

| REF. DESIG. | NAME OF PART AND DESCRIPTION | STOCK NOS. SIG. CORPS STD. NAVY AIR CORPS | LOCATING FUNCTIONS |
|---|---|---|---|
| O-107 | SHAFT, FLATTED END; Brass, nickel plated finish; dimensions of flat, 5/8 in. lg, 1/32 in. deep; over-all dimensions, 2-3/4 in. lg, 1/4 in. dia; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-681-2. | ———— ———— ———— | Variometer rotor bearing shaft. |
| O-108 | BUSHING, CHASSIS; Brass; hex shaped; 3/8-32 external threaded bushing 15/32 in. lg, w/hex locknut 3/32 thk 1/2 in. lg; dim, Section S, Ref Dwg Group 191, .252 in. (dia hole) ID, 1/2 in. hex OD, 9/16 in. lg; Precision Metal Products Co., Stoneham 80, Mass., Part No. 14A. | ———— ———— ———— | Panel bearing. |
| O-109 | SAME AS O-108. | | Panel bearing. |
| O-110 | COLLAR, SHAFT; Brass; 1/4 in. lg axial, set screw type mtg; two setscrew holes spaced 90 deg apart; .257 in. ID, 1/2 in. OD; w/setscrews, st. steel hex socket, knurled point, 8-32 thread 1/2 in. lg; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-677. | ———— ———— ———— | Variometer rotor shaft collar. |
| O-111 | SAME AS O-110. | | Variometer rotor shaft collar. |
| O-112 | TERMINAL BLOCK; Brass; accommodates one terminal; one .377 in. dia hole drilled through block; terminal accommodation, drilled and tapped for 10-32 screw; over-all dimensions excluding terminal, 3/4 in. lg, 3/4 in. wide, 3/8 in. thk; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-686. | ———— ———— ———— | Antenna feed-thru insulator terminal. |

| | | | |
|---|---|---|---|
| O-113 | BLOCK, SHAFT SUPPORT; Brass, nickel plated finish; .257 in. dia shaft hole, two no. 8-32 NF2 threaded mounting holes; over-all dimensions, 1-1/8 in. lg, 1/2 in. wide, 5/16 in. thk; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-684. | ——— | Variometer shaft support. |
| O-114 | SAME AS O-113. | ——— | Variometer shaft support. |
| O-115 | STRAP, LOADING COIL; Phenolic, XXX-P, natural finish; item is attached to outside form of loading coil; dimensions of mounting holes, two 1/4 in. dia holes spaced 2-5/8 in. c to c; overall dimensions 3-5/8 in. lg, 3/4 in. wide, 1/32 in. thk; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-675-1. | ——— | Reinforces loading coil form insulator mount. |
| O-116 | SAME AS O-115. | ——— | Reinforces loading coil form insulator mount. |
| O-117 | STRAP, LOADING COIL; Aluminum 52S-h, anodized finish; item is attached to inside wall of loading coil, two 1/4 in. dia holes spaced 2-9/16 in. c to c; over-all dimensions, 3-5/8 in. lg, 3/4 in. wide, 1/32 in. thk; Jetronic Industries, Inc., Philadelphia, Pa., Part No. A-675-2. | ——— | Reinforces loading coil form insulator mount. |
| O-118 | SAME AS O-117. | ——— | Reinforces loading coil form insulator mount. |
| P-101 | CONNECTOR, PLUG, MICROPHONE; 4 male contacts; straight shape; w/enclosed shell; polarized, locking type, threaded coupling ring; w/cord protector; 3/8 in. dia max cable accommodated; over-all dimensions, 1-1/2 in. lg, 23/32 in. dia; American Phenolic Corp., Chicago, Ill., Part No. 91 MCFM. | ———<br>N17-C071489-1283<br>——— | Mating plug for J-102. |

## TABLE 8-4. TABLE OF REPLACEABLE PARTS

| REF. DESIG. | NAME OF PART AND DESCRIPTION | STOCK NOS. SIG. CORPS STD. NAVY AIR CORPS | LOCATING FUNCTIONS |
|---|---|---|---|
| P-102 | CONNECTOR, PLUG, AC INPUT; 2 female contacts; straight shape; plastic; 11/32 in. dia max size cable accommodated; over-all dimensions, 1-9/32 in. lg, 29/32 in. dia; The Arrow-Hart & Hegeman Electric Co., Hartford, Conn., Part No. 80325. | ———<br>N17-C073435-3470<br>——— | Mating plug for J-103. |
| P-103 | CONNECTOR, PLUG, AC INPUT; Plastic, straight shape; w/partially enclosed shell, 2 contacts; .562 in. dia max size cable accommodated; over-all dimensions, .625 in. wide, 1.531 in. dia; Harvey Hubbell, Inc., Bridgeport, Conn., Part No. 7057. | ———<br>GM17-C071426-2729<br>——— | AC line plug. |
| R-101 | RESISTOR, FIXED, COMPOSITION; 5.1 megohms total resistance, ± 5% tolerance; 2W power dissipation; wire lead type; 1-3/4 in. lg, 21/64 in. OD; JAN-R-11, Type RC41BF515J; International Resistance Co., Philadelphia, Pa., JAN-R-11, Type BT-2-RC41BF515J. | ———<br>———<br>——— | OSC grid resistor. |
| R-102 | RESISTOR, FIXED, WIREWOUND; 750 ohms total resistance, ± 5% tolerance; 10 W power dissipation; vitreous enamel covered; tab with wire lead type; 1-3/4 in. lg, 5/16 in. dia; Tru-ohm Products, Chicago, Ill., Type No. FR-10. | ———<br>N16-R069284-2771<br>——— | OSC cathode bias resistor. |
| R-103 | RESISTOR, FIXED, COMPOSITION; 24,000 ohms total resistance, ± 5%; 2 W power dissipation; wire lead type; 1-3/4 in. lg, 21/64 in. OD; JAN-R-11 Type RC41BF243J; International Resistance Co., Phila., Pa., JAN-R-11 Type BT-2-RC41BF243J. | ———<br>N16-R050381-0346<br>——— | OSC screen dropping resistor. |

| | | | |
|---|---|---|---|
| R-104 | RESISTOR, FIXED, WIREWOUND; 10,000 ohms total resistance, ± 10% tolerance; 10 W power dissipation; vitreous enamel covered; tab with wire lead type; 1-3/4 in. lg, 5/16 in. lg; Tru-ohm Products, Chicago, Ill., Type No. FRL10. | N16-R069422-9646 | OSC plate drop resistor. |
| R-105 | RESISTOR, FIXED, COMPOSITION; 30,000 ohms total resistance, ± 5% tolerance; 2 W power dissipation; wire lead type; 1-3/4 in. lg, 21/64 in. OD; JAN-R-11, Type RC41BF303J; International Resistance Co., Philadelphia, Pa., JAN-R-11, Type RC41BF423J. | | P. A. grid bias resistor. |
| R-106 | RESISTOR, FIXED, WIREWOUND; 10,000 ohms total resistance, ± 10% tolerance; 10 W power dissipation; vitreous enamel covered; tab with wire lead type; 1-3/4 in. lg, 5/16 in. dia; Tru-ohm Products, Chicago, Ill., Type No. FRL10. | N16-R069440-1457 | P. A. screen drop resistor. |
| R-107 | RESISTOR, FIXED, COMPOSITION; 100 ohms total resistance, ± 10% tolerance; 2 W power dissipation; wire lead type 11/16 in. lg, .320 in. dia; JAN-R-11, Type RC41BF101K; Allen-Bradley Co., Milwaukee, Wisc., JAN-R-11, Type RC41BF101K. | | P. A. plate parasitic suppressor. |
| R-108 | RESISTOR, FIXED, WIREWOUND; 100 ohms total resistance, ± 5% tolerance; 10 W power dissipation; vitreous enamel covered; tab w/wire lead type; 1-3/4 in. lg, 5/16 in. dia; Tru-ohm Products, Chicago, Ill., Type No. FR10. | N16-R069193-8901 | Microphone voltage load resistor. |
| R-109 | RESISTOR VARIABLE; Composition element; 250,000 ohms, ± 20%; 1/2 W nom power rating; std C taper, Ref Dwg Group 3; Phenolic body, metal case; single shaft, metal 1/4 in. dia, Jetronic Industries, Inc., Philadelphia, Pa., Part No. B-1278A. | N16-R088080-9551 | Speech amp grid pot. |

TABLE 8-4. TABLE OF REPLACEABLE PARTS

| REF. DESIG. | NAME OF PART AND DESCRIPTION | STOCK NOS. SIG. CORPS STD. NAVY AIR CORPS | LOCATING FUNCTIONS |
|---|---|---|---|
| R-110 | RESISTOR, FIXED, COMPOSITION; 1000 ohms total resistance, ± 5% tolerance; 1 W power dissipation; wire lead type; 23/32 in. lg, 1/4 in. dia; JAN-R-11, Type RC30BF102J. International Resistance Co., Philadelphia, Pa., JAN-R-11, Type BTA, RC30BF102J. | N16-R049921-0751 | Speech amp cathode bias resistor. |
| R-111 | RESISTOR, FIXED, WIREWOUND; 40,000 ohms total resistance, ± 5% tolerance; 10 W power dissipation; vitreous enamel covered; tab type w/wire lead; 1-3/4 in. lg, 5/16 in. dia; Tru-ohm Products, Chicago, Ill., Type No. FRL-10. | N16-R070796-6561 | Speech amp plate bleeder resistor. |
| R-112 | RESISTOR, FIXED, WIREWOUND; 25,000 ohms total resistance, ± 5% tolerance; 10 W power dissipation; vitreous enamel covered; tab type w/wire lead; 1-3/4 in. lg, 5/16 in. dia; Tru-ohm Products, Chicago, Ill., Type No. FRL-10. | N16-R069455-9551 | Speech amp plate drop resistor. |
| R-113 | RESISTOR, FIXED, COMPOSITION; 10,000 ohms total resistance; ± 5% tolerance; 2 W power dissipation; wire lead type; 1-3/4 in. lg, 21/64 in. OD; JAN-R-11, Type RC40BF103J. International Resistance Co., Philadelphia, Pa., JAN-R-11, Type BT-2, RC40BF103J. | N16-R050282-0346 | Low voltage bleeder resistor. |
| R-114 | RESISTOR, FIXED, WIREWOUND; 1 megohm total resistance, ± 1% tolerance; 1 W power dissipation; glazed ceramic covered; ferrule type; 1-29/32 in. lg, 61/64 in. dia; International Resistance Co., Philadelphia, Pa., Part No. MFC105. | N16-R077596-1901 | High voltage multiplier resistor. |

| | | | |
|---|---|---|---|
| R-115 | RESISTOR, FIXED, COMPOSITION; 100,000 ohms total resistance, ±5% tolerance; 1 W power dissipation; wire lead type; 1-1/4 in. lg, 1/4 in. dia; JAN-R-11, Type RC31BF104J; International Resistance Co., Philadelphia, Pa., JAN-R-11, Type BT1, RC31BF104J. | N16-R050632-0751 | Modulator grid limiting resistor. |
| R-116 | RESISTOR, FIXED, COMPOSITION; 24 ohms total resistance, ± 5% tolerance; 1/2 W power dissipation; wire lead type; 13/32 in. lg, 1/8 in. dia; JAN-R-11, RC20BF240J; International Resistance Co., Philadelphia, Pa., JAN-R-11, Type BTS, RC20-BF240J. | N16-R049327-0431 | P. A. bias adjust. |
| S-101 | SWITCH, TOGGLE; DPST; 250v, 12 amp for nom load; bolt type handle; 15/32 in. dia bushing; w/indicating keyway and indicating dial; The Arrow-Hart & Hegeman Electric Co., Hartford, Conn., Type No. 80600. | N17-S073350-9469 | AC line switch. |
| S-102 | SWITCH, PUSH BUTTON; SPST; 3 amp for normal load; 250v; momentary action, normal open; plunger w/metal over-throw knob; 15/32 in. by 32 thread bushing; wire lead type terminals; The Arrow-Hart & Hegeman Electric Co., Hartford, Conn., Type No. 3592. | N17-S057062-8447 | Interlock switch. |
| T-101 | TRANSFORMER, MICROPHONE; 500, 333, 250, 200, 125, 50 ohms tap impedance; 20,000 ohms overall secondary impedance; ± 3 db, 60 to 10,000 kc frequency response; Kenyon Transformer Co., Inc., New York, N. Y., Part No. T-6. | N17-T061003-6001 | Line to grid microphone transformer. |

## TABLE 8-4. TABLE OF REPLACEABLE PARTS

| REF. DESIG. | NAME OF PART AND DESCRIPTION | STOCK NOS. SIG. CORPS STD. NAVY AIR CORPS | LOCATING FUNCTIONS |
|---|---|---|---|
| T-102 | TRANSFORMER, INTERSTAGE; 10,000 ohms overall primary impedance; 1 to 4 turns ratio; ± 3 db, 60 to 10,000 kc; Kenyon Transformer Co., Inc., New York, N. Y., Part No. T-52. | N17-T065507-2521 | Interstage transformer. |
| T-103 | TRANSFORMER, MODULATION; 2000 to 20,000 ohms tapped primary impedance; 40 W max audio operating level; Kenyon Transformer Co., Inc., New York N. Y., Part No. T-493. | N17-T063100-7076 | Modulation transformer. |
| T-104 | TRANSFORMER, FILAMENT; 115v, 60 cycle primary; 7 amp; 6.3v, center tapped secondary; 2000v insulation; Kenyon Transformer Co., Inc., New York, N. Y., Part No. T-378. | N17-T071243-1951 | Filament transformer. |
| T-105 | TRANSFORMER, PLATE; 115v, 60 cycle primary; 50 ma; 90v, center tapped secondary; Kenyon Transformer Co., Inc., New York, N. Y., Part No. T-253. | N17-T064541-7431 | Low voltage plate transformer. |
| T-106 | TRANSFORMER, FILAMENT; 115v, 60 cycle primary; 3 amp; 5v, center tapped; Kenyon Transformer Co., Inc., New York, N. Y., Part No. T-354. | N17-T070932-4899 | Filament transformer. |
| T-107 | TRANSFORMER, PLATE; 115v; 60 cycles; 250 ma; 575v, center tapped secondary; Kenyon Transformer Co., Inc., New York, N. Y., Part No. T-655. | N17-T077643-8696 | High voltage plate transformer. |
| V-101 | ELECTRON TUBE; 6V6; Spec. MIL-E-1; RCA JAN-6V6. | N16-T056756 | OSC tube. |

| | | | |
|---|---|---|---|
| V-102 | ELECTRON TUBE; 807; Spec. MIL-E-1; RCA JAN807. | N16-T068070 | P. A. tube. |
| V-103 | SAME AS V-102. | | P. A. tube. |
| V-104 | SAME AS V-101. | | Speech amplifier tube. |
| V-105 | ELECTRON TUBE; 6L6; Spec. MIL-E-1; RCA JAN6L6. | N16-T056456 | Modulator tube. |
| V-106 | SAME AS V-105. | | Modulator tube. |
| V-107 | ELECTRON TUBE; ODS/VR150; Spec. MIL-E-1; RCA JAN0D3. | N16-T053060 | Screen voltage regulator tube. |
| V-108 | ELECTRON TUBE; 6X5GT; Spec. MIL-E-1; RCA JAN6X5GT. | N16-T056855 | Bias rectifier tube. |
| V-109 | ELECTRON TUBE; 83; Spec. MIL-E-1; RCA JAN-83. | | High voltage rectifier tube. |
| W-101 | CABLE ASSY, POWER; 2 connectors; stranded, no. 18 AWG, rubber insulation; 6 ft. 1/2 in. lg over-all incl; Harvey Hubbel, Inc., Connector Plug, Part No. 7057; Connector Plug, Part No. 80325; Jetronic Industries, Inc., Philadelphia, Pa., Part No. B-1291-1. | | AC line cable assy. |

## TABLE 8-4. TABLE OF REPLACEABLE PARTS

| REF. DESIG. | NAME OF PART AND DESCRIPTION | STOCK NOS. SIG. CORPS<br>STD. NAVY<br>AIR CORPS | LOCATING FUNCTIONS |
|---|---|---|---|
| W-102 | WIRE, ELECTRICAL; 2 conductor, No. 18 AWG; 41 str. No. 34 bare copper, black rubber cover; .325 in. OD 6 ft. lg ea. unit. Essex wire type SJ0. | ———<br>———<br>——— | Replacement for line cord. |
| W-103 | JUMPER ASSEMBLY, LOADING COIL; No. 18 AWG 65/36 stranded copper conductor, Belden Type 8898; 10,000v ac, black, rubber insulation; 23-1/2 in. lg over-all; Jetronic Industries, Inc., tap clip, Part No. A-678 one end, Zierick Co., terminal lug type No. 23-.169 other end. | ———<br>———<br>——— | Connects antenna to antenna loading coil L-105A. |
| W-104 | CONNECTOR, PLATE CAP; For 23/64 dia cap 13/32 in. lg, black phenolic cap with No. 16 AWG 26/.010 insul. wire. Alden Products Co., No. 91H1-WRB16S-3-1/2 in. lead. | ———<br>———<br>——— | Tube plate cap connector. |
| W-105 | SAME AS W-104. | | Tube plate cap connector. |
| X-101 | SOCKET, ELECTRON TUBE; Octal type B; ceramic; silver plated contacts; American Phenolic Corporation, Chicago, Ill., Type No. 49RSS-8. | ———<br>N16-S063524-6492<br>——— | P. A. tube socket. |
| X-102 | SOCKET, ELECTRON TUBE; Type A-5 pin contact; silver plated contacts; ceramic; American Phenolic Corporation, Chicago, Ill., Type No. 49RSS-5. | ———<br>N16-S061719-4629<br>——— | P. A. tube socket. |
| X-103 | SAME AS X-102. | | P. A. tube socket. |

| | | | |
|---|---|---|---|
| X-104 | SOCKET, ELECTRON TUBE; Octal type B; low loss composition; silver plated contacts; American Phenolic Corporation, Chicago, Ill., Type No. 77MP8. | ———— N16-S063516-6481 ———— | Speech amp tube socket. |
| X-105 | SAME AS X-104. | | Modulator tube socket. |
| X-106 | SAME AS X-104. | | Modulator tube socket. |
| X-107 | SAME AS X-104. | | Voltage regulator tube socket. |
| X-108 | SAME AS X-104. | | Low voltage rectifier tube socket. |
| X-109 | SOCKET, ELECTRON TUBE; Type A-4 pin contact; ceramic; plated, silver; American Phenolic Corporation, Chicago, Ill., Type No. 49PSS-4. | ———— N16-S060853-7501 ———— | High voltage rectifier tube socket. |
| X-110 | SAME AS X-102 | | OSC plug-in coil socket. |
| X-111 | SOCKET ASSEMBLY, PANEL LAMP; Horizontal mtg; miniature bayonet socket; 1/2 in. red faceted lens; collar for 1/4 in. panel, chrome plated; Drake Electric Co., Type No. 30. | ———— ———— ———— | Panel lamp socket. |
| Y-101 | CRYSTAL UNIT; Quartz plate, 251KC; 0 deg to 50 deg C operating temp range; dimensions, Ref Dwg Group 202, 1-1/4 in. high, 2-1/4 in. dia, 1/2 in. lg, 5/16 in. dia; James Knight, Sandwich, Ill., Type No. H-6. | ———— ———— ———— | OSC frequency crystal control. |

**TABLE 8-5. MAINTENANCE PARTS KIT LIST**

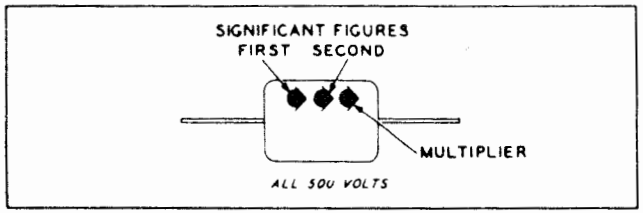
| KEY DESIGNATION | QUANTITY | KEY DESIGNATION | QUANTITY |
|---|---|---|---|
| C-103 | 1 | R-102 | 1 |
| C-104 | 1 | R-104 | 1 |
| C-105 | 1 | R-106 | 1 |
| C-111 | 1 | R-108 | 1 |
| C-113 | 1 | R-109 | 1 |
| C-115 | 1 | R-111 | 1 |
| F-101 | 10 | R-112 | 1 |
| F-102 | 10 | R-113 | 1 |
| K-101 | 1 | T-101 | 1 |
| K-102 | 1 | T-102 | 1 |
| L-101 | 1 | T-103 | 1 |
| L-102 | 1 | T-104 | 1 |
| L-103 | 1 | T-105 | 1 |
| L-106 | 1 | T-106 | 1 |
| L-108 | 1 | T-107 | 1 |
| L-110 | 1 | Y-101 | 1 |
| L-111 | 1 | | |

TABLE 8-3. CROSS REFERENCE PARTS LIST

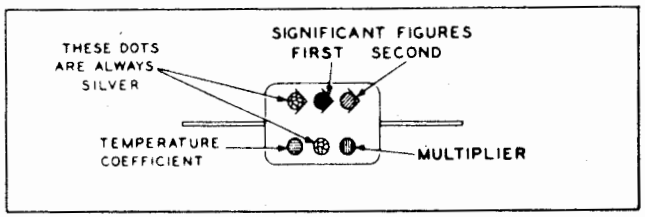
| JAN (or AWS) DESIGNATION | KEY SYMBOL | STD. NAVY STOCK NO. | KEY SYMBOL | STD. NAVY STOCK NO. | KEY SYMBOL |
|---|---|---|---|---|---|
| 0D3 | V-107 | GM17-C071426-2729 | P-103 | N16-S063524-6492 | X-101 |
| 83 | V-109 | GM17-F016302-0100 | F-102 | N16-T053060 | V-107 |
| 6L6 | V-105 | GM17-L006543-0050 | I-101 | N16-T056456 | V-105 |
| 6V6 | V-101 | N16-C021562-5274 | C-113 | N16-T056756 | V-101 |
| 6X5GT | V-108 | N16-C021921-1493 | C-115 | N16-T056855 | V-108 |
| 807 | V-102 | N16-C030167-7550 | C-105 | N16-T068070 | V-102 |
| CM45A102K | C-103 | N16-C031091-6112 | C-103 | N17-C071489-1283 | P-101 |
| CM45A102K | C-109 | N16-C031091-7510 | C-109 | N17-C073184-9460 | J-102 |
| CM50A103K | C-104 | N16-C033622-7751 | C-101 | N17-C073431-9879 | J-103 |
| MR34W001DCKV | M-103 | N16-C049937-5145 | C-114 | N17-C073435-3470 | P-102 |
| MR34W010DCMA | M-101 | N16-C061676-2027 | C-106 | N17-C098431-7019 | O-101 |
| MR34WIR5RFAA | M-104 | N16-C061918-6221 | C-112 | N17-C804508-0101 | E-109 |
| MR34W200DCMA | M-102 | N16-C074687-6802 | L-108 | N17-C804555-0695 | E-108 |
| RC20BF240J | R-116 | N16-C074929-5264 | L-103 | N17-C804557-0101 | E-106 |
| RC30BF102J | R-110 | N16-C075105-8342 | L-102 | N17-F074267-5151 | E-111 |
| RC31BF104J | R-115 | N16-C302409-0872 | O-103 | N17-F074267-5401 | E-112 |
| RC40BF103J | R-113 | N16-R028999-1522 | L-106 | N17-H074001-1011 | A-111 |
| RC41BF101K | R-107 | N16-R029240-1866 | L-111 | N17-I059611-6335 | E-131 |
| RC41BF243J | R-103 | N16-R029924-4078 | L-110 | N17-I059656-1251 | E-138 |
| RC41BF303J | R-105 | N16-R049327-0431 | R-116 | N17-I068769-9021 | E-123 |
| RC41BF515J | R-101 | N16-R049921-0751 | R-110 | N17-I068816-4016 | E-127 |
| | | N16-R050282-0346 | R-113 | N17-J039148-9239 | J-101 |
| | | N16-R050381-0346 | R-103 | N17-M018208-5409 | M-104 |
| | | N16-R050632-0751 | R-115 | N17-M019461-6651 | M-101 |
| | | N16-R069193-8901 | R-108 | N17-M019751-6666 | M-102 |
| | | N16-R069284-2771 | R-102 | N17-M035767-6351 | M-103 |
| | | N16-R069422-9646 | R-104 | N17-S057062-8447 | S-102 |
| | | N16-R069440-1457 | R-106 | N17-S073350-9469 | S-101 |
| | | N16-R069455-9551 | R-112 | N17-T061003-6001 | T-101 |
| | | N16-R070796-6561 | R-111 | N17-T063100-7076 | T-103 |
| | | N16-R077596-1901 | R-114 | N17-T064541-7431 | T-105 |
| | | N16-R088080-9551 | R-109 | N17-T065507-2521 | T-102 |
| | | N16-S060853-7501 | X-109 | N17-T070932-4899 | T-106 |
| | | N16-S061719-4629 | X-102 | N17-T071243-1951 | T-104 |
| | | N16-S063516-6481 | X-104 | N17-T077643-8696 | T-107 |

# CAPACITOR COLOR CODES

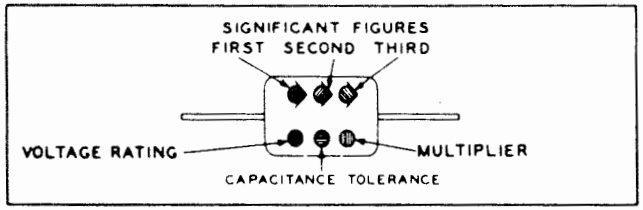
*RMA 3-DOT COLOR CODE FOR MICA-DIELECTRIC CAPACITORS*



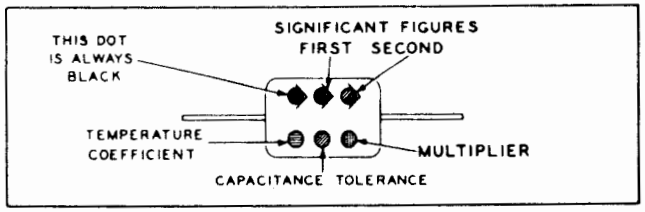

*JAN 6-DOT COLOR CODE FOR PAPER-DIELECTRIC CAPACITORS*



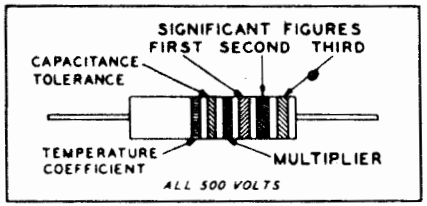

*RMA 6-DOT COLOR CODE FOR MICA-DIELECTRIC CAPACITORS*




*JAN 6-DOT COLOR CODE FOR MICA-DIELECTRIC CAPACITORS*

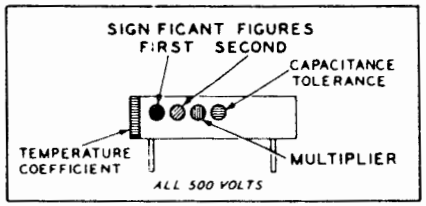



*RMA COLOR CODE FOR TUBULAR CERAMIC-DIELECTRIC CAPACITORS*

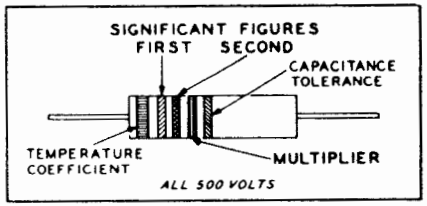



*JAN COLOR CODE FOR FIXED CERAMIC-DIELECTRIC CAPACITORS*

*RADIAL TYPE NON-INSULATED*




*AXIAL TYPE INSULATED*




*RMA: RADIO MANUFACTURERS ASSOCIATION*
*JAN: JOINT ARMY-NAVY*

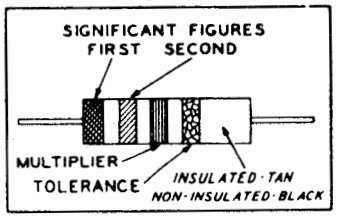
| *RESISTORS* | | | | *CAPACITORS* | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | *MULTIPLIER* | | | | |
| *TOLERANCE* | *MULTIPLIER* | *SIGNIFICANT FIGURE* | *COLOR* | *RMA MICA AND CERAMIC-DIELECTRIC* | *JAN MICA AND PAPER-DIELECTRIC* | *JAN CERAMIC DIELECTRIC* | *VOLTAGE RATING* | *TEMPERATURE COEFFICIENT* |
| | 1 | 0 | BLACK | 1 | 1 | 1 | | A |
| | 10 | 1 | BROWN | 10 | 10 | 10 | 100 | B |
| | 100 | 2 | RED | 100 | 100 | 100 | 200 | C |
| | 1,000 | 3 | ORANGE | 1,000 | 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 | |

**TABLE 8-7. APPLICABLE COLOR CODES**

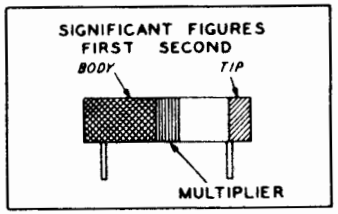
# RESISTOR COLOR CODES

*RMA COLOR CODE FOR FIXED COMPOSITION RESISTORS*

*AXIAL TYPE*

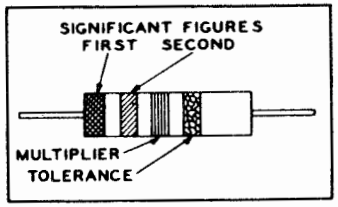



*RADIAL TYPE*

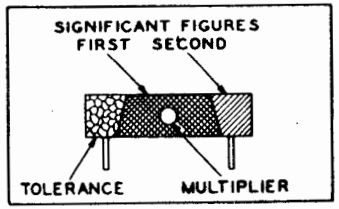



*JAN COLOR CODE FOR FIXED COMPOSITION RESISTORS*

*AXIAL TYPE INSULATED*




*RADIAL TYPE NON-INSULATED*



## TABLE 8-6. LIST OF MANUFACTURERS

| ABBREVIATION | NAME | ADDRESS |
|---|---|---|
| Advance Elec. | Advance Electric & Relay Co. | Burbank, California |
| Aerovox | Aerovox Corporation | New Bedford, Mass. |
| Alden | Alden Products Co. | Brockton, Mass. |
| Amer. Lava | American Lava Corporation | Chattanooga, Tenn. |
| Amer. Phenolic | American Phenolic Corporation | Chicago, Ill. |
| AH & H | Arrow-Hart & Hegeman Electric Co. | Hartford, Conn. |
| Bud | Bud Radio Corp. | Cleveland, Ohio |
| Burlington | Burlington Instrument Co. | Burlington, Iowa |
| Cinch | Cinch Manufacturing Co. | Chicago, Ill. |
| Cinch | Cinch Mfg. Co., H. B. Jones Division | Chicago, Ill. |
| Cornell-Dubilier | Cornell-Dubilier Electric Corporation | So. Plainfield, N. J. |
| Drake | Drake Electric Co. | |
| Electronic Mechanics | Electronic Mechanics | Clifton, N. J. |
| GE | General Electric Co. | Schenectady, N. Y. |
| Hubbell | Harvey Hubbell Inc. | Bridgeport, Conn. |
| Industrial Hardware | Industrial Hardware Mfg. Co. | New York 12, N. Y. |
| International Resistance | International Resistance Co. | Philadelphia, Pa. |
| Jetronic | Jetronic Industries, Inc. | Main & Cotton Sts., Phila., Pa. |
| Johnson | E. F. Johnson Co. | Waseca, Minn. |
| Kenyon | Kenyon Transformer Co., Inc. | New York, N. Y. |
| Knight | James Knight | Sandwich, Ill. |
| Kurtz-Kasch | Kurtz-Kasch Inc. | 1421 So. Broadway, Dayton, Ohio |
| Littlefuse | Littlefuse, Inc. | 4765 Ravenswood Ave., Chicago, Ill. |
| Mallory | P. R. Mallory Co., Inc. | 1941 Thomas St., Indianapolis, Ind. |
| Millen | James Millen Mfg. Co., Inc. | Malden, Mass. |
| Miner | Miner Rubber Co., Inc. | Bloomfield, N. J. |
| National | National Company | Malden, Mass. |
| Precision Metal | Precision Metal Products Co. | Stoneham 80, Mass. |
| Stand. Trans. | Standard Transformer Corp. | Chicago, Ill. |
| Tru-ohm | Tru-ohm Products | Chicago, Ill. |
| Zierick | Zierick Mfg. Co. | New Rochelle, N. Y. |