NAVSHIPS 900,213 RESTRICTED

INSTRUCTION BOOK

for

ANTENNA MULTICOUPLER ASSEMBLY NAVY MODEL RXA

HOFFMAN RADIO CORPORATION
LOS ANGELES 7, CALIFORNIA

NAVY DEPARTMENT BUREAU OF SHIPS

Contract NXsr-91989 *Approved 6 NOVEMBER 1945*

LIST OF EFFECTIVE PAGES

PAGE NUMBERS	CHANGE IN EFFECT	PAGE NUMBERS	CHANGE IN EFFECT
Entire Book	Original		

FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

ADDRESS NAVY DEPARTMENT,
BUREAU OF SHIPS
Section 993-100
REFER TO FILE NO.

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

1 November 1945

1. NAVSHIPS 900,213 is the instruction book for Antenna Multicoupler Assembly, Navy Model RXA. It is in effect upon receipt.

2. NAVSHIPS 900,213 is a RESTRICTED non-registered publication and shall be handled, transported, and safeguarded in accordance with U.S. Naval Regulations. When superseded by a later edition, this publication shall be destroyed.

3. Any person known to be in the service of the United States and persons of undoubted loyalty and discretion who are cooperating in Government work may have access to this publication. However, information contained herein shall not be communicated to the public or to the press.

4. This document contains information affecting the National defense of the United States within the meaning of the Espionage Act, 50 U.S.C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law. (ART. 76 U.S.N. REGS-1920).

5. Extracts from this publication may be made to facilitate the preparation of other Navy instruction books and handbooks.

6. Copies of this publication may be obtained from the nearest Electronics Officer.

E. L. COCHRANE
Chief of Bureau

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

RECORD OF CORRECTIONS MADE

CHANGE NO.	DATE	SIGNATURE OF OFFICER MAKING CORRECTION

E R R A T A

NAVSHIPS 900,213 RESTRICTED

INSTRUCTION BOOK
FOR
ANTENNA MULTICOUPLER ASSEMBLY, NAVY MODEL RXA

Page 1-4 2nd paragraph, line 4: Change "nad" to "and".

Page 1-5 Table 1-1.-Equipment Supplied, Navy Type Designation: Delete "C-49122B" and "C-49123B".

Page 2-2 Paragraph d., line 3: Change "plate" to "cathode".
Paragraph d., line 5: Change the last sentence to read, "A 100-ohm resistor is connected in the B+ circuit of each stage, the meter switch connecting the meter in shunt with the resistor of the stage being checked".

Page 3-2 Subparagraph (14), line 6: Change "access" to "excess".

Page 7-3 Table 7-2.-Multicoupler Trouble Chart, in column headed Probable Cause, number 2 next to bottom line: Change "R-125 open" to read "C-108 leaky or short circuited".

TABLE 8-2

Page 8-2 Opposite A-102, in column headed Mfr. and Mfr.'s Desig.: Change "46-001A-22-1" to read "46-001A122-1".

Page 8-4 Opposite C-104, in column headed Name of Part and Description: Change "3900 mmfd." to read "680 mmfd".

Page 8-7 Opposite E-104, in column headed All Symbol Desig. Involved: Add "E-104".

Page 8-7 Opposite E-109, in column headed Name of Part and Description: Change "1 5/46" diam." to read "1 5/64" diam".

Page 8-7 Opposite E-109, in column headed Function: Delete "for V-112" and add "selector switch S-101".

Page 8-8 Opposite E-111, in column headed Function: Change first "C-102" to read "C-101".

Page 8-8 Opposite J-102,
In column headed AWS, JAN or Navy Type Desig.: Add "C-49039".
In column headed Total Per Equip.: Add "4".
In column headed Spare Parts-Equip.-Quan.: Add "2".
In column headed Spare Parts-Stock-Quan.: Add "4".

Page 8-8 Opposite J-103,
In column headed AWS, JAN, or Navy Type Desig.: Add "AN-3102-18-10P".
In column headed Total Per Equip.: Add "3".
In column headed Spare Parts-Equip.-Quan.: Add "2".
In column headed Spare Parts-Stock.-Quan.: Add "6".

Page 8-9 Opposite J-111, in column headed Function: Change "V-11" to V-111".

Page 8-9 Opposite L-101,
In column headed Name of Part and Description: Change description from "14 turns" to read "21 turns" and delete "4 9/32" lg."
In column headed Mfr. and Mfr.'s Desig.: Change "16" to read "25".

Page 8-9 Opposite L-102,
In column headed Name of Part and Description: Delete "4 9/32" lg." from description.
In column headed Mfr. and Mfr.'s Desig.: Change "16" to read "25".

Page 8-11 Opposite R-125, in column headed All Symbol Desig. Involved: Change one "R-134" to read "R-137".

Page 8-13 Opposite S-101, in column headed Name of Part and Description: Change length of bushing in description from "1/4" lg." to "1/2" lg."

Page 8-14 Opposite X-101,
In column headed AWS, JAN or Navy Type Desig.: Change "CNZ49380" to read "C-49380".
In column headed Mfr. and Mfr.'s Desig.: Delete "115001/1A NS".

Page 8-14 Opposite 201-299 Series, in column headed AWS, JAN or Navy Type Desig.: Change "CBK20477" to read "CKB-20477"

Page 8-15 Opposite H-202, in column headed Name of Part and Description: Change second parenthesis to read "(.035 stainless steel, mounting hole, clearance for #10 screw)".

Page 8-16 Opposite T-201,
In column headed Name of Part and Description: Change "400v." in description to read "378v."
In column headed AWS, JAN or Navy Type Desig.: Add "CAFT-303411".

Page 8-16 Opposite X-201, in column headed Mfr. and Mfr.'s Desig.: Change "18" to read "4".

Page 8-19 Opposite A-401, in Description: Change last 3 lines to read "located on a 1.22" radius around 2.22" diam. hole); one 3/8" diam. hole located in approximate center of one side of panel, one 13/32" hole on other side.

Page 8-19 Opposite E-401, in column headed Contractor's Dwg. and Part No.: Change "46-0A0A332" to read "46-008A242-1".

Page 8-21 Opposite W-601, in Description: Change "and 2" vinylite tubing" in last two lines to read "and 5/8" vinylite tubing".

Page 8-26 In Table 8-5.-List of Manufacturers: Add "25, Precision Radio Products, 1244 W. Slauson Ave., Los Angeles, Calif."

TABLE OF CONTENTS

SECTION I — GENERAL DESCRIPTION

SECTION II — THEORY OF OPERATION

SECTION III — INSTALLATION AND INITIAL ADJUSTMENTS

SECTION IV — OPERATION

SECTION V — OPERATOR'S MAINTENANCE

SECTION VI — PREVENTIVE MAINTENANCE

SECTION VII — CORRECTIVE MAINTENANCE

LIST OF ILLUSTRATIONS

LIST OF TABLES

SAFETY AND WARNING NOTICES

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.

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.

CONTRACTUAL GUARANTEE

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

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

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

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

INSTALLATION RECORD

Contract Number NXsr-91989, Date of Contract August 7, 1945.

Serial Number of Equipment ______________________

Date of acceptance by the Navy ______________________

Date of delivery to contract destination ______________________

Date of completion of installation ______________________

Date placed in service ______________________

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

REPORT OF FAILURE

Report of failure of any part of this equipment, during its service life, shall be made to the Bureau of Ships in accordance with current instructions. The report shall cover all details of the failure and give the date of installaion of the equipment. For procedure in reporting failures see Chapter 67 of the "Bureau of Ships Manual", or superseding instructions.

REPLACEMENT MATERIAL

All requests or requisitions for replacement material should include complete descriptive data covering the parts desired in the following data:

1. Navy stock number or, when ordering from an Army supply depot, the Army stock number.
2. Name of part.

If the Navy stock number has not been assigned, the requisitions should specify the following:

1. Equipment model designation.
2. Name of part and complete description.
3. Manufacturer's designation.
4. Contractor's drawing and part number.
5. AWS, JAN, or Navy type designation.

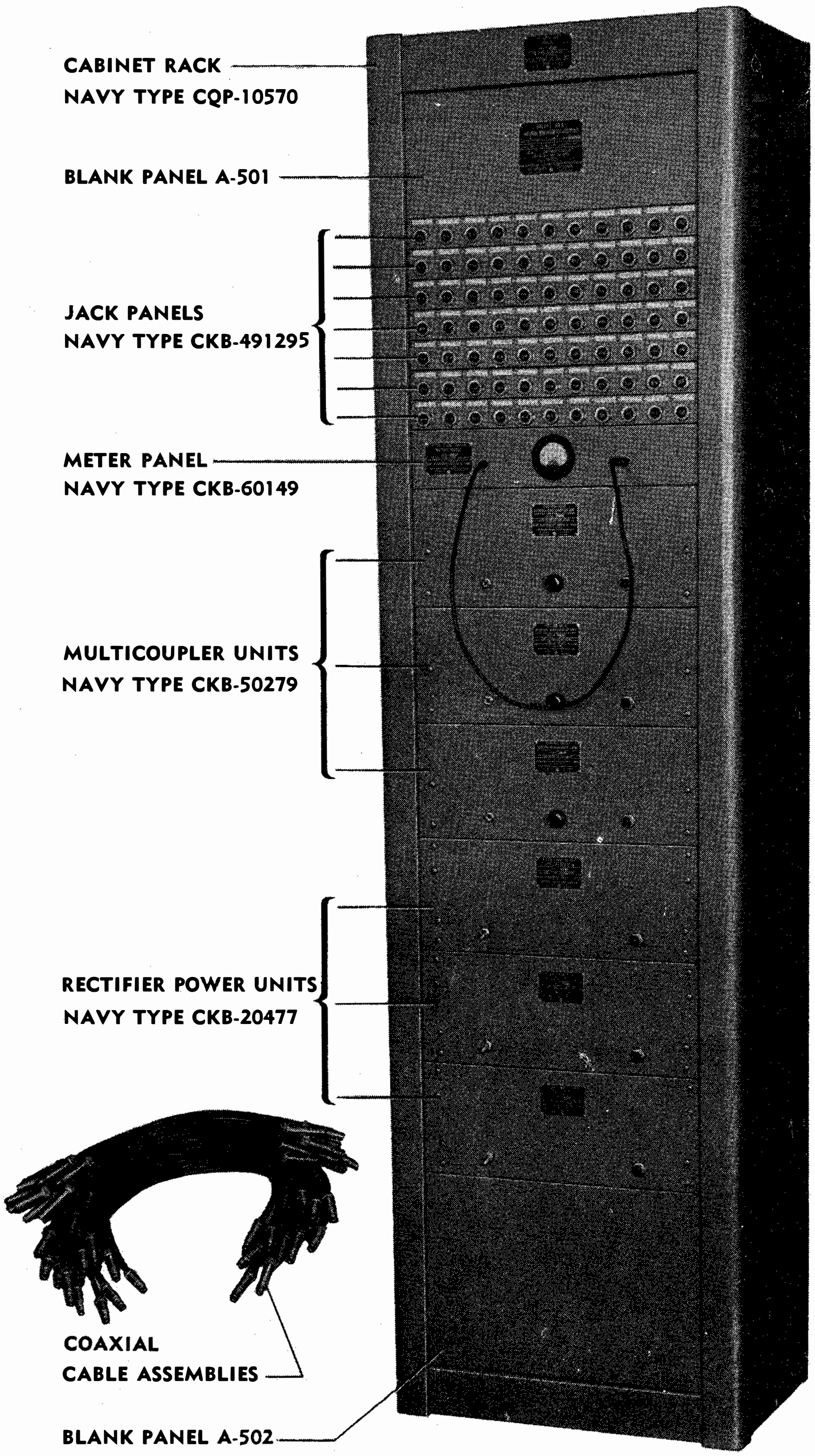


Figure 1-1. Model RXA Antenna Multicoupler Assembly, Complete Equipment

SECTION I

GENERAL DESCRIPTION

1. FUNCTION OF EQUIPMENT.

Model RXA Antenna Multicoupler Assembly consists of the units illustrated in figure 1-1. This equipment is designed for use with Navy Communication receivers within the frequency range from 4 to 24 megacycles. Each of the three multicoupler units furnished with the equipment permits the use of from one to ten Navy communication receivers on one antenna. The entire equipment is capable of operating a total of thirty receivers on three antenna systems.

2. DESCRIPTION OF MAJOR UNITS.

a. MULTICOUPLER UNIT. *(See figure 1-2).*—This unit, as part of the Antenna Multicoupler Assembly, is capable of operating up to ten Navy communications receivers on one antenna without interaction between receivers. Eleven coaxial connectors located on the back of the multicoupler unit chassis provide input and output connection facilities for the unit. A four-contact male receptacle is also located at the rear of the chassis for power input to the unit. A thirteen-position METER SWITCH is mounted on the front panel together with a METER JACK and indicator light.

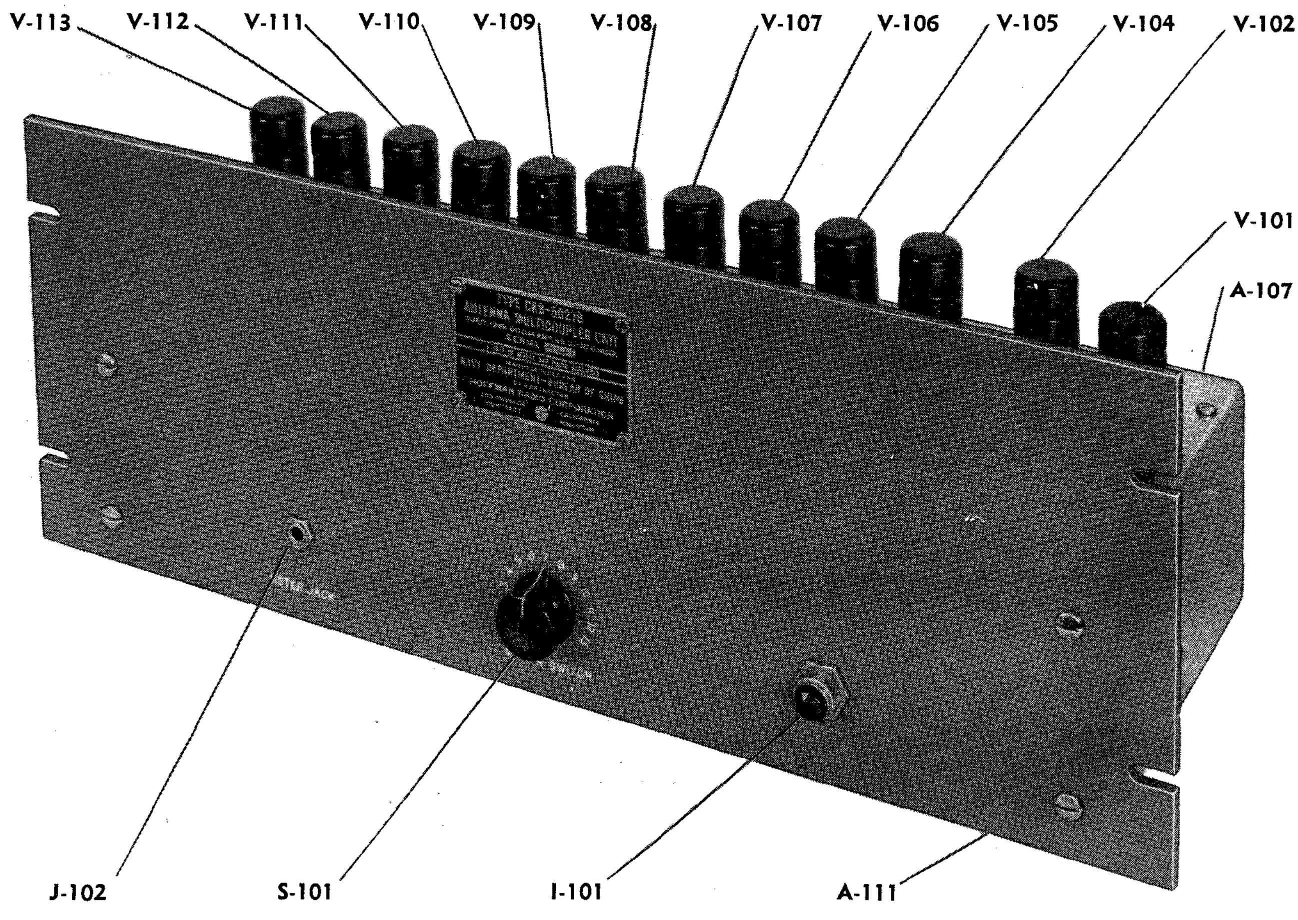


Figure 1-2. Model RXA Antenna Multicoupler Assembly, Antenna Multicoupler Unit

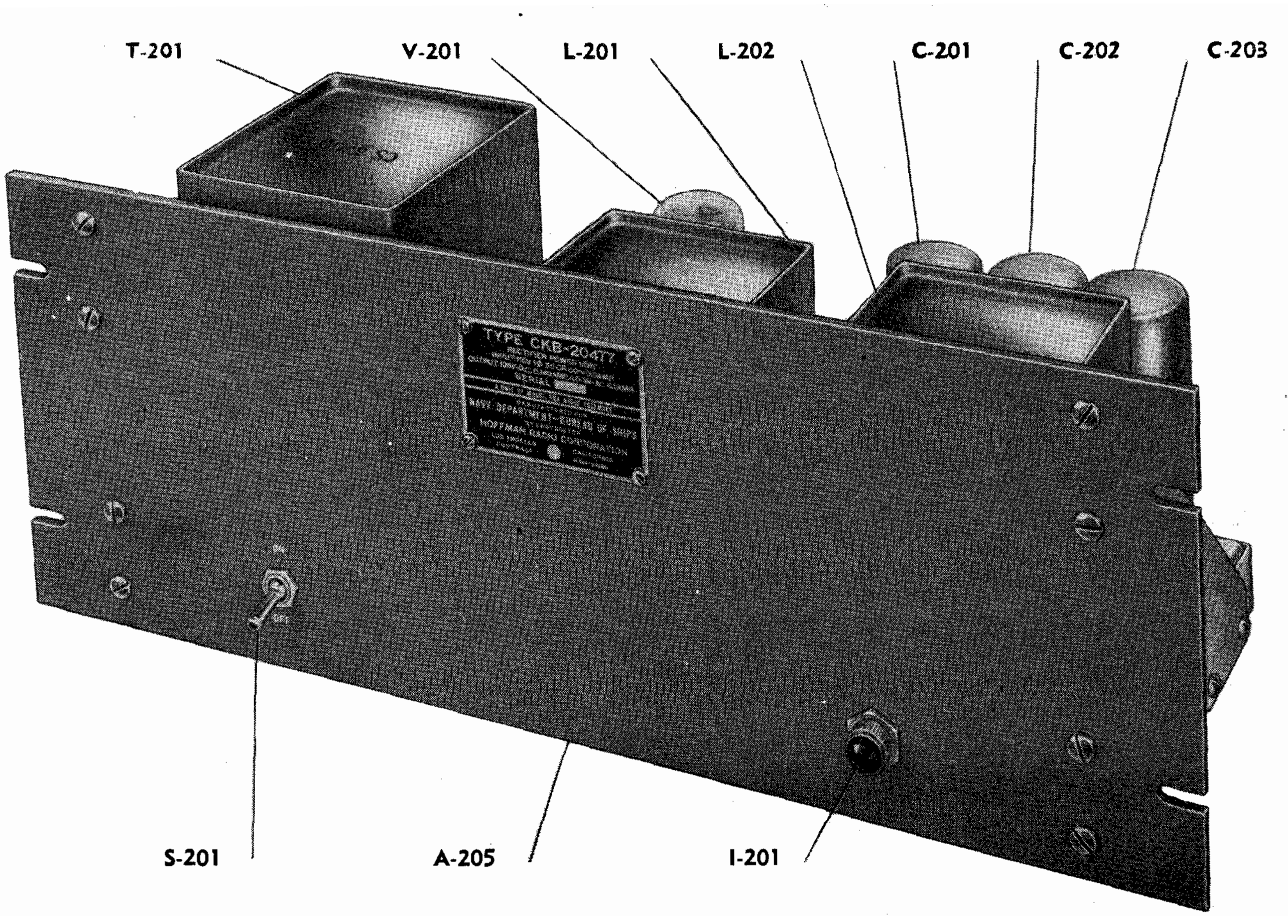


Figure 1-3. Model RXA Antenna Multicoupler Assembly, Rectifier Power Unit

b. RECTIFIER POWER UNIT. *(See figure 1-3.)*—This unit supplies all plate and heater power required for the multicoupler unit and operates on a power source of 115 volts, plus or minus ten per-cent, 50 to 60 cycles single phase alternating current. The power switch and pilot light are mounted on the front panel. Two extractor type fuse holders, each housing a 1-ampere type 4AG fuse, are located at the rear of the chassis. A four-contact power out-put receptacle, and a three-contact a-c power input receptacle are both mounted at the rear of the chassis directly behind the power transformer.

c. JACK PANELS. *(See figure 1-4.)*—Three of the seven jack panels supplied with the equipment are furnished complete with coaxial cable assem-blies.

The other four jack panels are equipped with coaxial jacks and jack terminations only. All jack panels have metal tab holders mounted above each coaxial jack for identification purposes.

d. METER PANEL. *(See figure 1-5.)*—A zero to 20-milliampere d-c meter is mounted on the panel for the purpose of measuring the cathode currents of the multicoupler unit vacuum tubes. A 36-inch

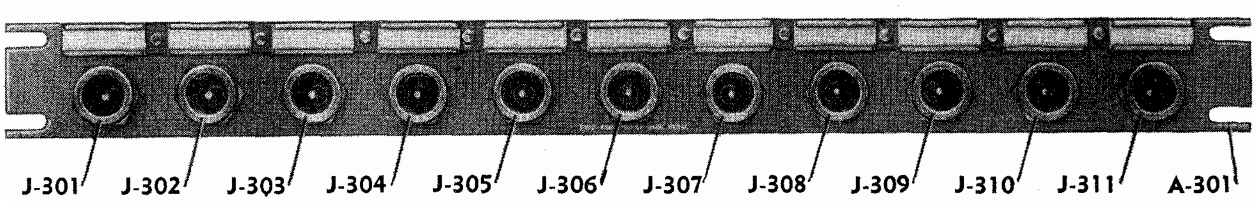


Figure 1-4. Model RXA Antenna Multicoupler Assembly, Jack Panel

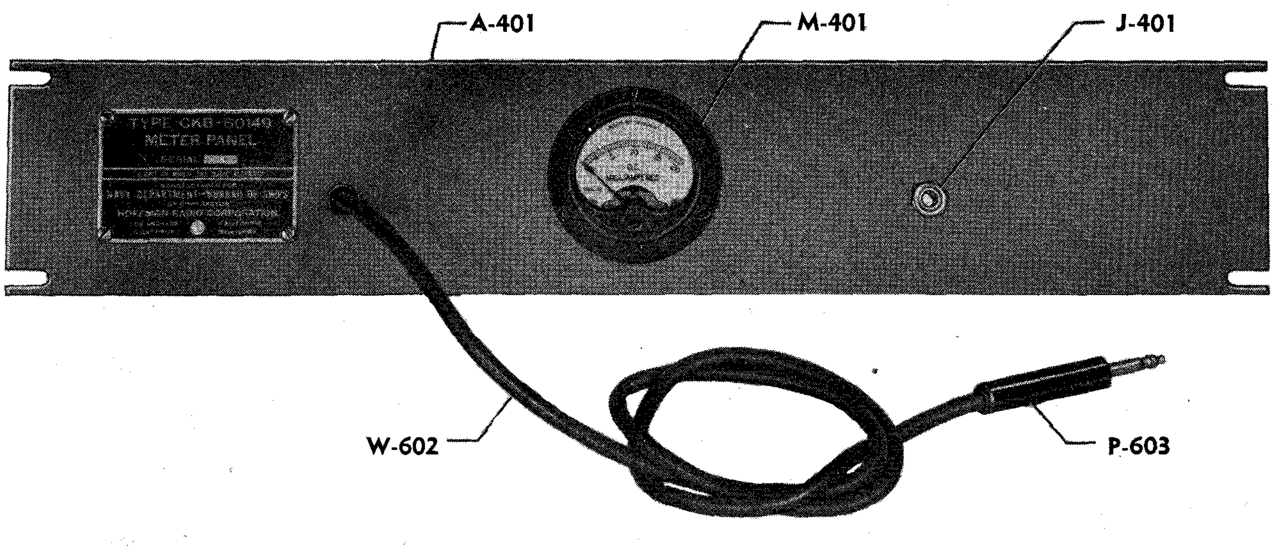


Figure 1-5. Model RXA Antenna Multicoupler Assembly, Meter Panel

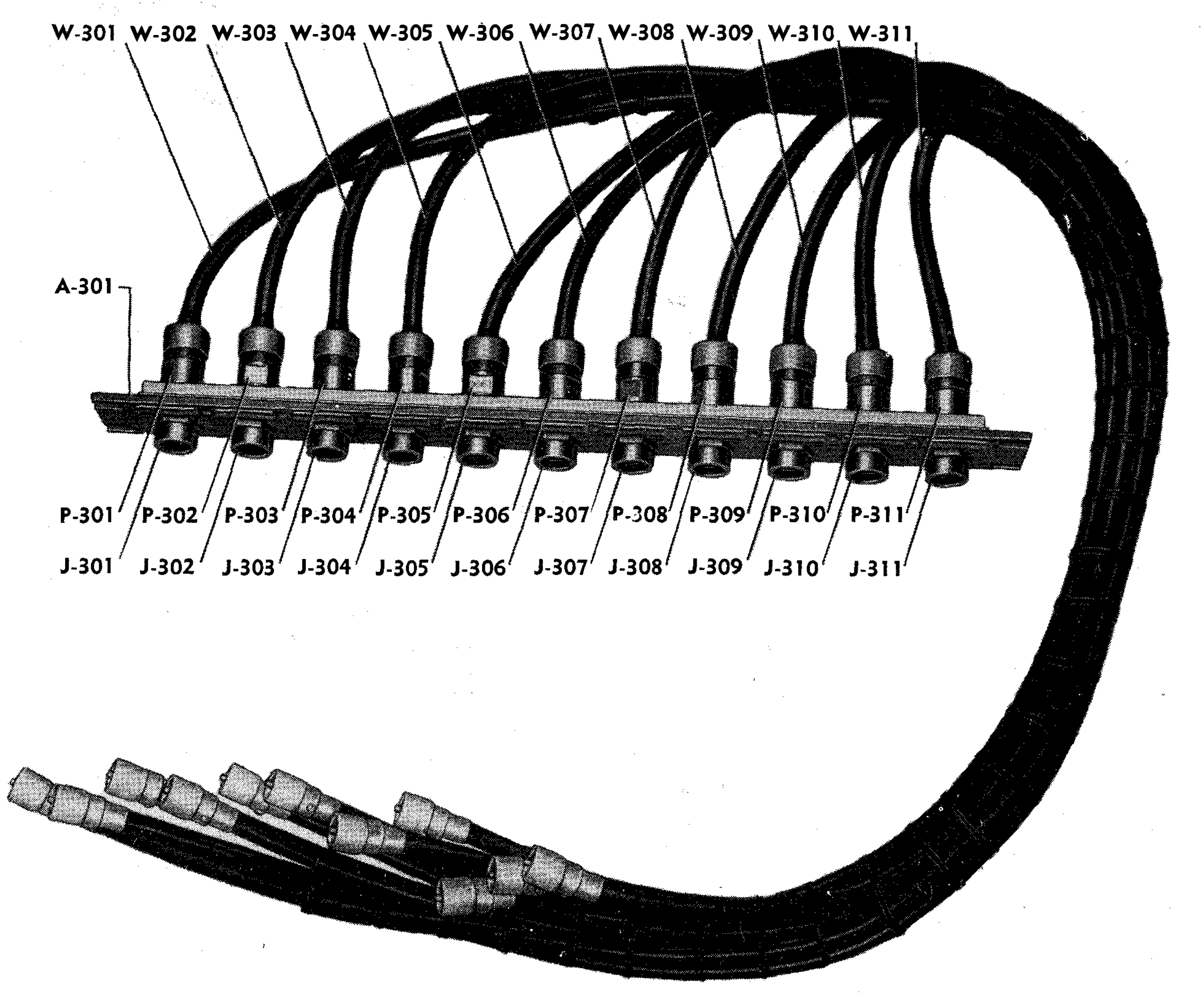


Figure 1-6. Model RXA Antenna Multicoupler Assembly, Jack Panel with Cables Attached

cable fitted with a Navy type 49007A plug is used to connect the meter to the meter jack on the multicoupler unit. The other end of the cable is connected to the meter terminals and secured to the meter panel. A dummy jack mounted on the front of the panel holds the plug when the meter is not in use.

e. INTERCONNECTING CABLES.—A complement of 33 cables (coaxial type RG-11/U) of varying length connects the output terminals on the multicouplers to the three lower jack panels. One end of each cable connects to a Navy type 62112 concentric jack termination on the jack panel and the other end connects to a Navy type C-49195 concentric connector plug which is inserted in the type C-49194 receptacle in the multicoupler unit. (See figure 1-6.)

Three power cables, each consisting of one AN-3106-18-10P four-contact male plug and one AN 3106-18-10S four-contact female plug feed filament nad plate power from the rectifier power units to the multicoupler units. Power input cables for connecting the rectifier power unit to the power source are not provided. However, a plug (AN 3106-14s-7S) and a cable clamp (AN 3057-6) for connecting the power input cable to the power unit are supplied with each power unit.

SEE ERRATA SHEET

f. ANTENNA AND RECEIVER PATCH CORDS. *(See figure 1-1.)*—Thirteen 18-inch patch cords and twenty 36-inch patch cords are furnished with the equipment to be used as required by operating personnel. Each patch cord is equipped with two Navy type C-49121-A concentric connector plugs.

g. BLANK PANELS. *(See figure 1-1.)*—One size "D" blank panel and one size "G" blank panel are furnished with the equipment to fill in the unused panel space on the cabinet rack.

h. CABINET RACK. *(See figure 1-7.)*—The cabinet rack which houses Model RXA Antenna Multicoupler Assembly is 82 inches high and of all-welded construction. A full length hinged door permits access to the rear of the rack. A rectangular opening 6 x 14 inches is provided in the bottom of the cabinet for entrance of radio-frequency and power cables. Four ½-inch diameter holes are provided in the bottom of the cabinet near the corners for securing the equipment to the floor (Figure 3-1). The cabinet is provided with a sufficient number of vent holes to provide adequate ventilation for the heat dissipated by the power and multicoupler units.

3. REFERENCE DATA.

a. NOMENCLATURE.—Model RXA Antenna Multicoupler Assembly.

b. CONTRACT NUMBER AND DATE.—NXsr-91989; 15 March 1945.

c. CONTRACTOR.—Hoffman Radio Corporation, 3430 South Hill Street, Los Angeles 7, California.

d. COGNIZANT NAVAL INSPECTOR.—Inspector of Naval Material, 4521 Produce Plaza, Vernon 11, California.

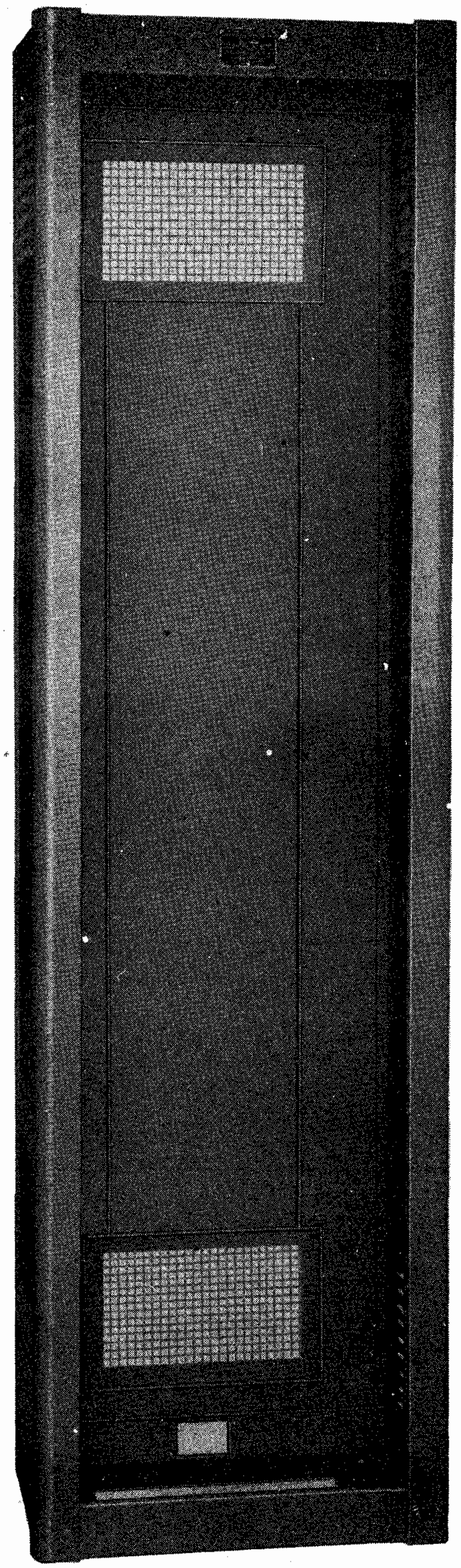


Figure 1-7. Model RXA Antenna Multicoupler Assembly, Cabinet Rack, Navy Type CQP-10570

e. NUMBER OF PACKAGES PER COMPLETE EQUIPMENT.—Two.

f. TOTAL CUBICAL CONTENTS.—18.42 cubic feet.

g. TOTAL WEIGHT.—376.5 pounds.

h. FREQUENCY RANGE.—From 4 to 24 megacles.

i. POWER FACTOR OF EQUIPMENT.—98%.

j. POWER SOURCE REQUIRED FOR OPERATION.—115 volts ac, ±10%, 50-60 cps., single phase.

k. TYPE RECEIVER USED WITH THIS EQUIPMENT.—Any receiver that is designed to operate within the frequency range of 4-24 megacycles.

l. TYPE OF RECEPTION.—Voice, MCW and CW.

m. INPUT IMPEDANCE.—For 75-ohm.

n. OUTPUT IMPEDANCE.—75-ohm.

4. EQUIPMENT SUPPLIED.

The equipment supplied is listed in table 1-1.

5. EQUIPMENT REQUIRED BUT NOT SUPPLIED.

The equipment required but not supplied is listed in table 1-2.

6. VACUUM TUBE COMPLEMENT.

Table 1-3 lists the vacuum tube complement for this equipment by units.

TABLE 1-1.—EQUIPMENT SUPPLIED

Quan. Per Equip.	Name of Unit	Navy Type Designation	Overall Dimensions (Inches) A: Crated B: Uncrated Height, Width, Depth	Volume (Cubic Feet) A: Crated B: Uncrated	Weight (Pounds) A: Crated B: Uncrated
1	Antenna Multi-coupler Assembly consisting of:	Model RXA	A: $97\frac{1}{8}$x32x$25\frac{1}{2}$ B: $83\frac{1}{8}$x22x$15\frac{1}{2}$	A: 45.9 B: 16.4	A: 460 B: 312.0
3	Antenna Multi-coupler unit	CKB-50279	B: $6\frac{31}{32}$x19x7	B: 0.54	B: 9.75
3	Rectifier Power Unit with plug and cable clamp connected	CKB-20477 Plug: AN 3106-14s-7S Clamp: AN 3057-6	B: $6\frac{31}{32}$x19x$7\frac{3}{8}$	B: 0.555	B: 25.25
7	Jack Panel Assembly	CKB-491295	B: $1\frac{23}{32}$x19x$1\frac{5}{16}$		B: 3.75
1	Meter Panel with cable and plug attached	CKB-60149 Cable: DCOP-1 Plug: C-49007A	B: $3\frac{15}{32}$x19x$2\frac{1}{4}$		B: 2.0
1	Blank Panel	Size "D" per Bureau of Ships Spec. XA-8896-A	B: $6\frac{31}{32}$x19x$\frac{3}{16}$		B: 2.5
1	Blank Panel	Size "G" per Bureau of Ships Spec. XA-8896-A	B: $12\frac{7}{32}$x19x$\frac{3}{16}$		B: 4.5
1	Relay Rack	CQP-10570	B: $83\frac{1}{8}$x22x$15\frac{1}{2}$	B: 16.4	B: 138.0
13	Patch Cord Assembly	C-49122B SEE ERRATA SHEET	B: $21\frac{3}{4}$" long		B: 0.5
20	Patch Cord Assembly	C-49123B	B: 40" long		B: 0.75

TABLE 1-1.—EQUIPMENT SUPPLIED (Continued)

Quan. Per Equip.	Name of Unit	Navy Type Designation	Overall Dimensions (Inches) A: Crated B: Uncrated Height, Width, Depth	Volume (Cubic Feet) A: Crated B: Uncrated	Weight (Pounds) A: Crated B: Uncrated
33	Jack Panel Cable Assembly (with Plug attached)	Cable RG-11/U Plug CQA-49125	B: 11 cables 50" long 11 cables 41" long 11 cables 32" long		B: 0.5 0.375 0.312
3	Cable Assembly, Power, DC and Filament, with two plugs and two cable clamps	Cable WF-1/U Plugs: AN 3106-18-10P AN 3106-18-10S Clamp: AN 3057-10	B: 33¼" long		B: 0.75
1	Set of equipment spares		A: 17½x23x17 B: 12½x18½x12	A: 3.96 B: 1.52	A: 87.0 B: 64.5

TABLE 1-2.—EQUIPMENT REQUIRED BUT NOT SUPPLIED

Quan. Per Equip.	Name of Unit	Navy Type Designation	Required Characteristics
As Req.	Radio Receiving Equipment		4 to 24 megacycle tuning range
3	Power Input Cable		For use on 115 V ac., 50/60 cps single phase primary power
As Req.	Antenna Systems		Frequency range within 4 to 24 megacycles

TABLE 1-3.—VACUUM TUBE COMPLEMENT

Quantity	Type
EACH MULTICOUPLER UNIT	
13	JAN-6AB7
EACH RECTIFIER POWER UNIT	
1	JAN-5U4G

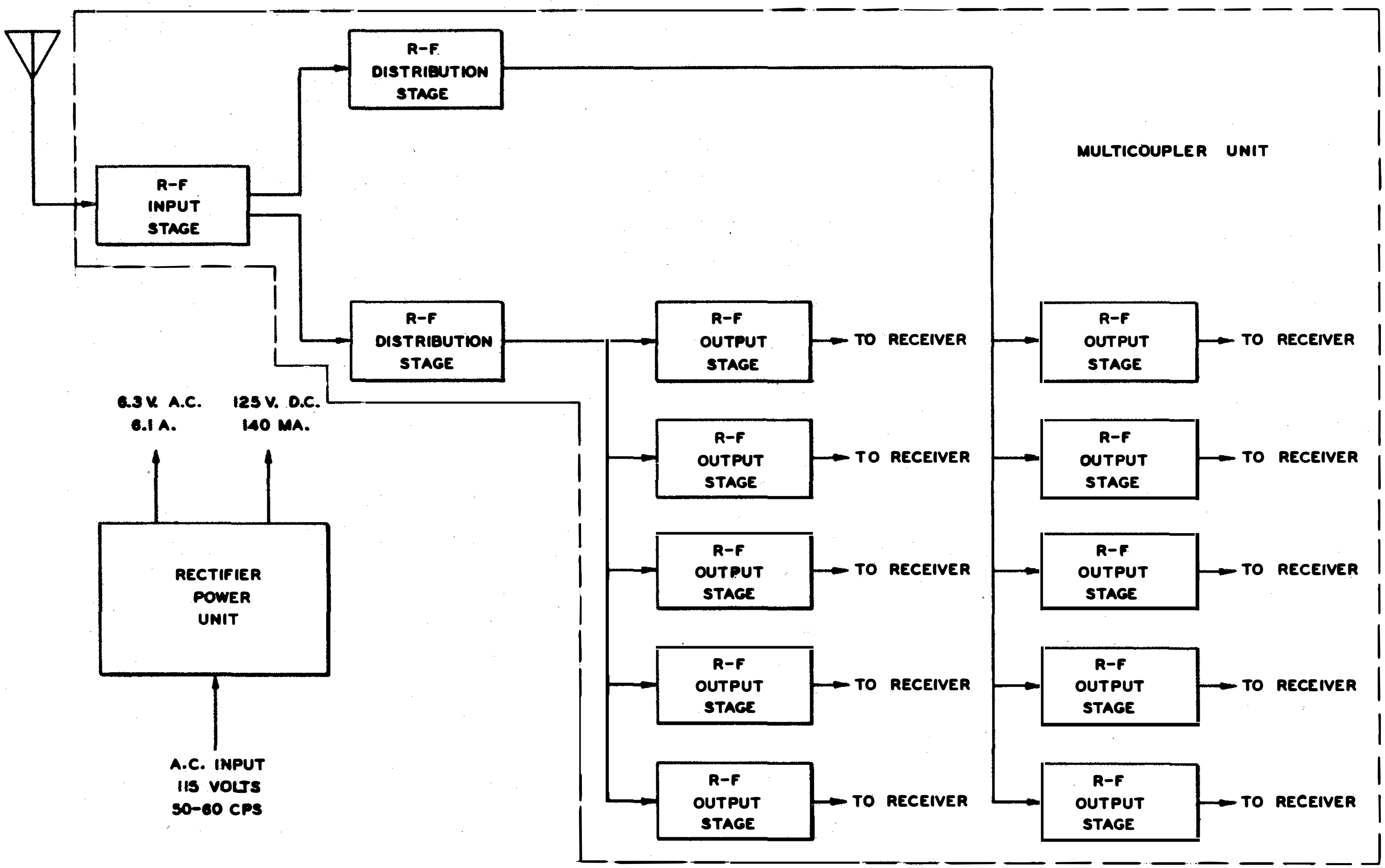


Figure 2-1. Model RXA Antenna Multicoupler Assembly, Functional Block Diagram

SECTION II

THEORY OF OPERATION

1. GENERAL.

The overall function of Model RXA Antenna Multicoupler Assembly is shown in block diagram form in figure 2-1. Each multicoupler unit provides antenna coupling facilities for ten receivers. The complete Multicoupler Assembly can accommodate three antenna systems and a total of thirty communications receivers.

A rectifier power unit, operating on 115 volts, 50-60 cycles ac, furnishes all the power required for one multicoupler unit. Three rectifier power units are therefore required for the complete equipment.

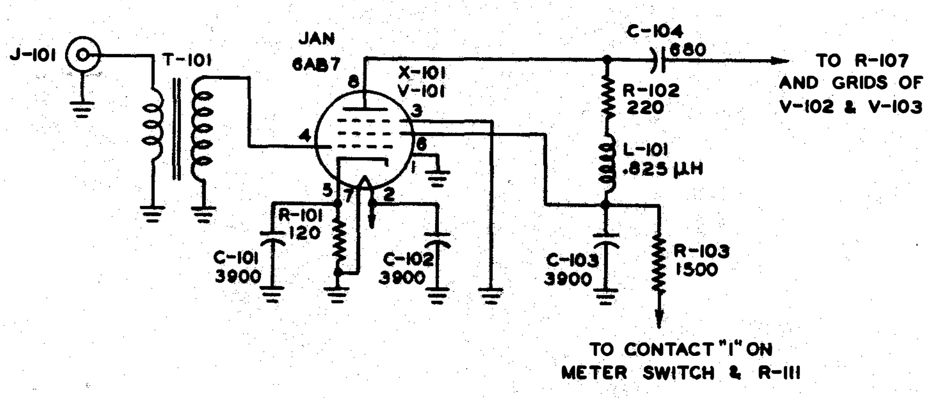


Figure 2-2. Antenna Multicoupler Unit, Input Stage, Schematic Diagram

2. ANTENNA MULTICOUPLER UNIT.

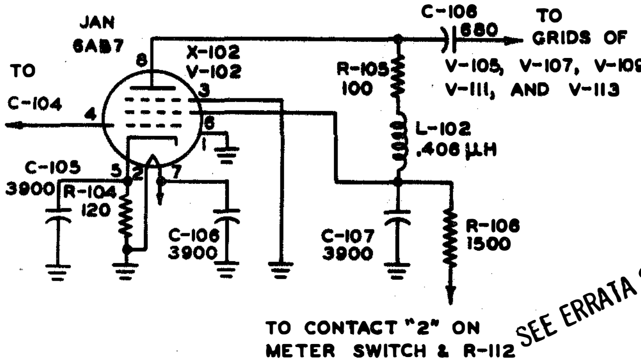
The multicoupler unit consists of one antenna input stage feeding two r-f distribution stages each of which in turn feeds five output stages.

a. INPUT STAGE. *(See figure 2-2.)*—This stage is designed for use with a 75-ohm coaxial line. The coaxial line from the antenna system is coupled to the grid of the input tube through a r-f transformer (T-101). A JAN-6AB7 tube (V-101) is connected as a pentode in this stage. The tube is biased by means of a 120-ohm cathode resistor (R-101). C-101 is a 3900-micromicrofarad mica capacitor that bypasses the radio-frequency component around R-101. R-103 is a 1500-ohm decoupling resistor to prevent interaction between amplifier stages, with C-103 functioning as a plate and screen supply bypass capacitor for this stage. R-102 and L-101 comprise the plate load for V-101, with R-102 functioning as a conventional plate load resistor and L-101 acting as a "shunt-peaking" coil to extend the frequency response of the amplifier to approximately 24 megacycles. C-104 couples the output from V-101 to the two r-f distribution stages.

b. R-F DISTRIBUTION STAGES. *(See figure 2-3.)*—Two of these stages are incorporated in the multicoupler unit to provide two identical r-f output channels from a common signal source. Instead of connecting all ten multicoupler output stages in parallel for operation from one channel, one of two groups of five output stages are each connected to the output of one r-f distribution stage as shown in figure 7-1. This limits the combined input capacitance due to parallel operation of the output stages to a value that will not result in excessive loss of gain.

Since both r-f distribution stages are identical in design, only one will be described in detail. The two r-f distribution stages have a common grid resistor (R-107) and grid coupling capacitor (C-104).

A JAN-6AB7 (V-102) pentode is used in this stage. The tube is biased by means of a 120-ohm cathode resistor (R-104). C-105 is a 3900-micromicrafarad capacitor that bypasses the radio-frequency component around R-104. C-106 is a heater bypass capacitor which contributes to the r-f isolation of the stage by minimizing coupling between stages via the heater wiring. R-105 and L-102 comprise the plate load for V-102, with R-105 func-



SEE ERRATA SHEET

*Figure 2-3. **Antenna Multicoupler Unit,**
R-F Distribution Stage, Schematic Diagram*

tioning as a conventional plate load resistor and L-102 acting as a "shunt-peaking" coil to extend the frequency response of the amplifier to approximately 24 megacycles. C-108 is the coupling capacitor feeding a bank of five output stages (V-105, V-107, V-109, V-111 and V-113). Since the other r-f distribution stage is identical in performance and design with the one just described, the other stage (V-103) will not be discussed.

c. OUTPUT STAGES.—Ten of these stages are connected in two banks, each bank consisting of five stages in parallel. (See figure 2-4.) Since these stages are identical in performance and design, only the V-104 output stage will be described in detail. C-112 couples the output from V-103 to V-104, V-106, V-108, V-110 and V-112, all output stages of the same bank. R-148 is a grid resistor common to all five output stages connected in parallel. R-124 functions as a cathode resistor for V-104, with C-113 functioning as a cathode resistor bypass capacitor. C-114 functions as a heater bypass capacitor and serves to further isolate the stage from the others by minimizing cross-talk effects due to common heater wiring coupling. R-125 is the plate load resistor for V-104, and C-116 is the output coupling capacitor for this stage. This capacitor couples the output from the stage to the coaxial line feeding the receiver through the jack panel. The R-C network comprising R-126 and C-115 functions as a decoupling

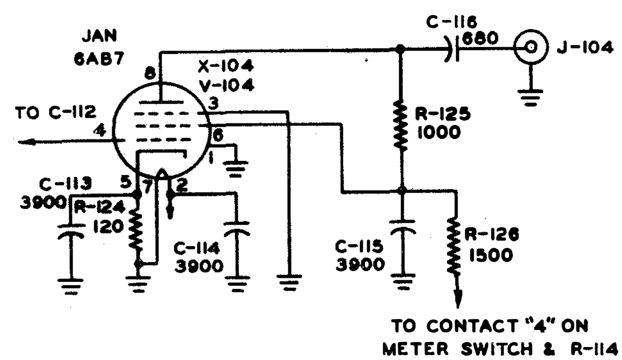


*Figure 2-4. **Antenna Multicoupler Unit,**
Output Stage, Schematic Diagram*

filter for this stage. No peaking coil is used in this stage since all gain compensation for the range from 4 to 24 megacycles is provided for in the input stage and the r-f distribution stages.

d. METER SWITCH. *(See figure 2-5.)*—When the meter is connected to J-102, it is possible to measure the plate current of any stage in the multicoupler unit by selecting the proper position of switch S-101. A 100-ohm resistor is connected in the plate circuit of each stage, the meter switch shunting the resistor of the stage being checked.

3. RECTIFIER POWER UNIT.

(See figure 2-6.)

The rectifier power unit comprises a conventional transformer-rectifier-filter system supplying all

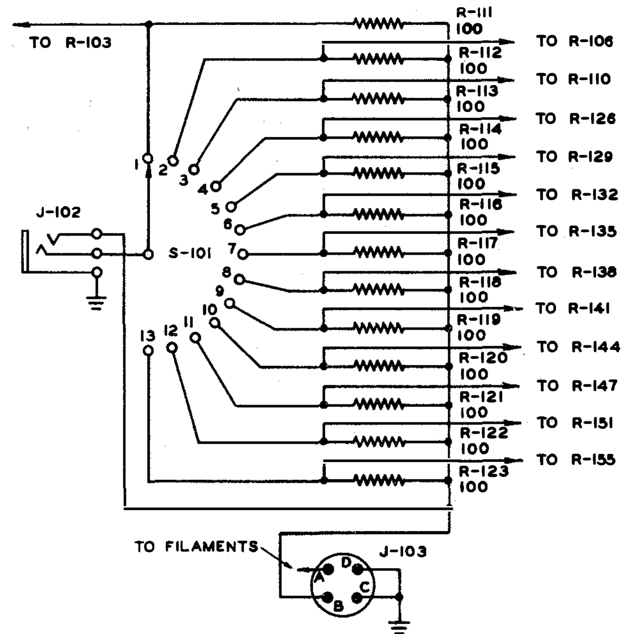


*Figure 2-5. **Antenna Multicoupler Unit,**
Meter Switch, Schematic Diagram*

necessary filament and plate power required for the multicoupler unit. The power unit is designed to supply 125 volts at 140 milliampers for the multicoupler plate circuits and 6.3 volts a-c at 6.1 amperes for the multicoupler vacuum tube heaters. T-201 supplies 189 volts a-c each side of center tap to rectifier V-201 which is a type JAN-5U4G. T-201 also supplies all necessary heater voltages for the multicoupler unit. A capacitor input filter circuit consisting of three 4-microfarad filter capacitors (C-201, C-202, and C-203) and two 5-henry filter chokes (L-201 and L-202) is incorporated in the rectifier power unit.

4. JACK PANEL.

(See figure 2-7.)

The jack panel provides a convenient means of making the multicoupler input and output connec-

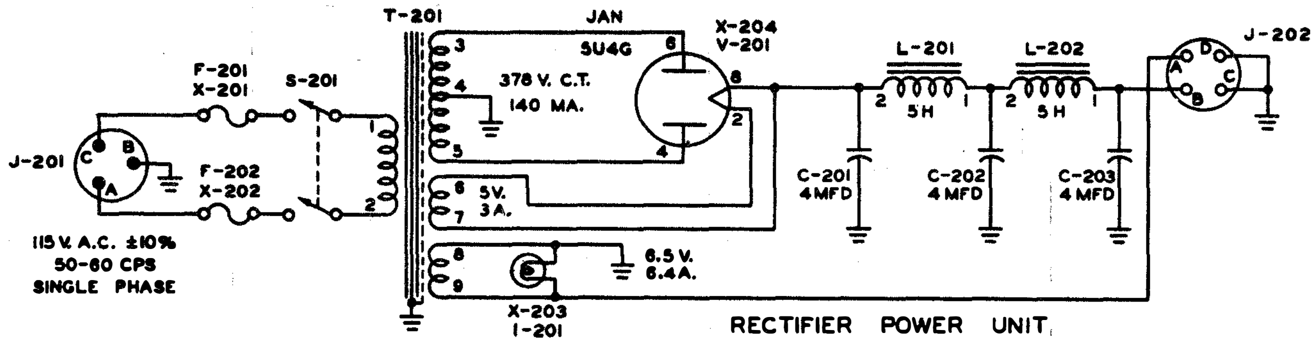


Figure 2-6. Rectifier Power Unit, Schematic Diagram

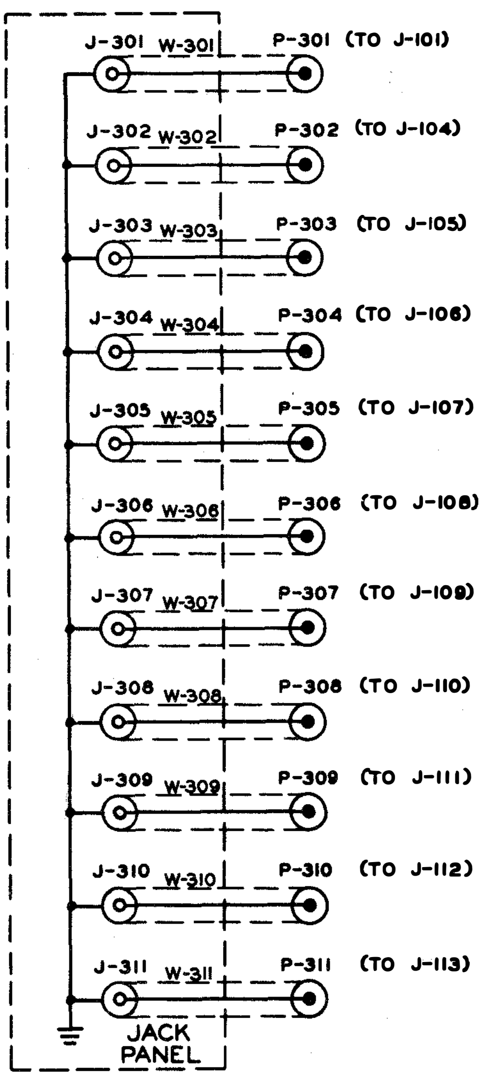


Figure 2-7. Jack Panel, Schematic Diagram

tions accessible from the front panel by means of a coaxial cable assembly. (See figure 1-6.)

5. METER PANEL.

(See figure 2-8.)

The meter panel provides a convenient means for checking the cathode current of the various multicoupler stages. The meter is connected to a plug and cord assembly so the meter can be plugged into the multicoupler unit as described in paragraph 2 above.

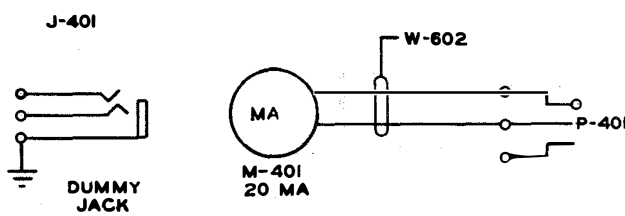


Figure 2-8. Meter Panel, Schematic Diagram

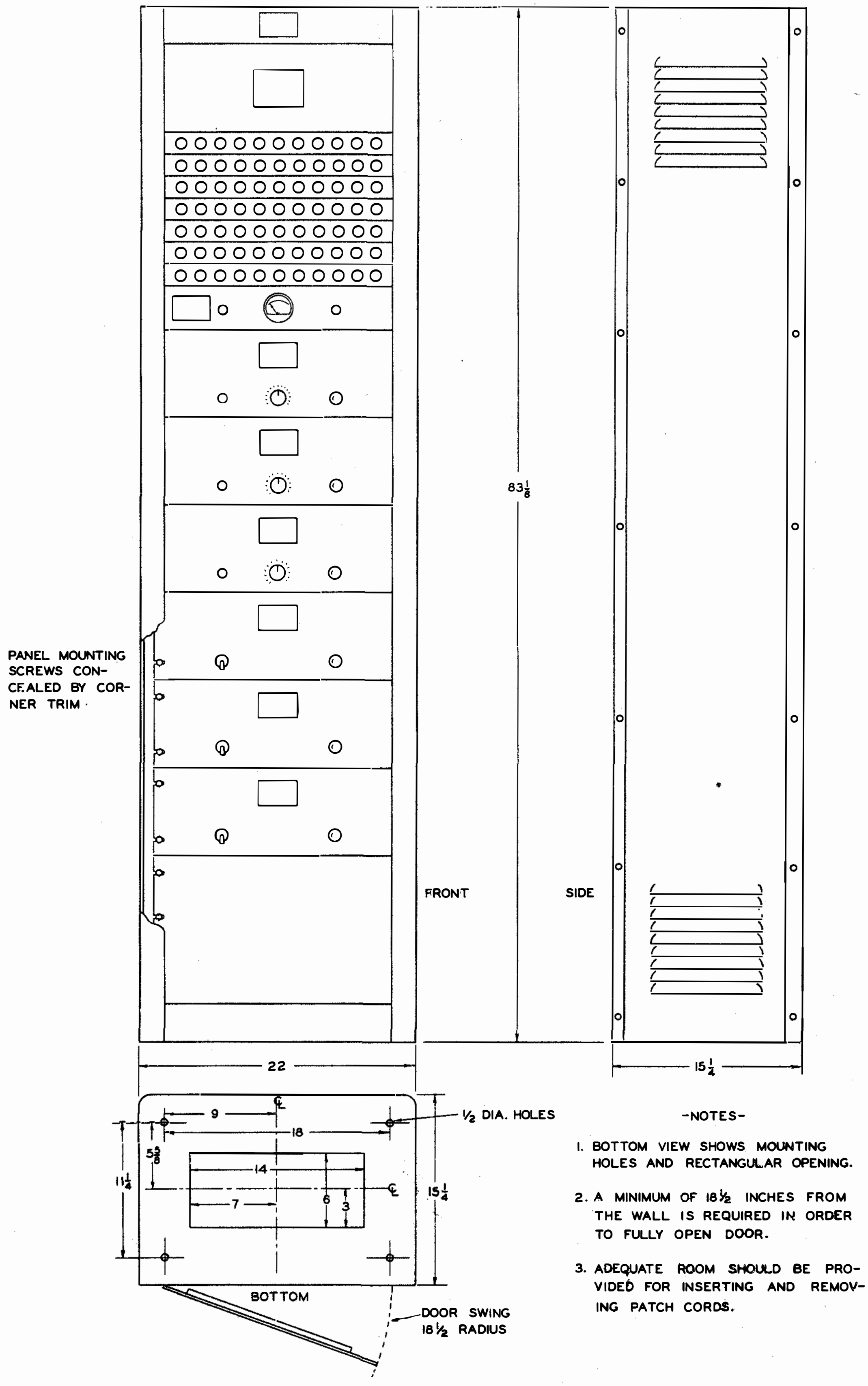


Figure 3-1. Model RXA Antenna Multicoupler Assembly, Outline and Mounting Dimensions

SECTION III

INSTALLATION AND INITIAL ADJUSTMENTS

1. GENERAL.

Model RXA Antenna Multicoupler Assembly is shipped from the factory in a packing case of waterproof construction to insure safe delivery of the equipment. Since this is delicate electronic equipment, as much protection and care in handling should be taken as circumstances will permit. Unpack the equipment carefully from the packing cases and inspect each unit for possible damage in shipment.

2. INSTALLATION.

a. LOCATION OF EQUIPMENT.—The following should be considered when determining the location of the equipment.

(1) The operating controls should be readily accessible to the operator.

(2) The control panel should be clearly visible to the operator.

(3) The equipment should be located so that minimum lengths of coaxial cable may be used to the antenna installation and the receivers.

(4) The equipment should be located so that the back of the Multicoupler Assembly is readily accessible for maintenance.

b. MOUNTING EQUIPMENT.—To locate the mounting holes for the Multicoupler Assembly, see figure 3-1.

c. GROUNDING EQUIPMENT.—The Multicoupler Assembly should be thoroughly grounded through one of the floor mounting bolts.

d. POWER INPUT CABLES. *(For connections see figure 7-1.)*—Solder the ends of the primary power cable to the 3-contact female plug (AN 3106-14s-7S) supplied with the equipment. Three of these primary power cables are required for the complete Multicoupler Assembly, and one plug will be found installed on the primary power input receptacle at the back of each rectifier power unit chassis.

e. RECEIVER AND ANTENNA CONNECTIONS.—All receiver and antenna coaxial cables are routed into the Antenna Multicoupler Assembly through the rectangular hole in the bottom of the cabinet rack. These coaxial cables must be soldered to the coaxial jack terminations in back of the spare jack panels as follows (Figure 3-2):

(1) Unscrew the coaxial jack termination from the back of the coaxial jack.

(2) Slip the coaxial jack termination parts over the cut end of the coaxial in the following order:

(a) Compression unit
(b) Armor follower washer
(c) Gasket follower
(d) Neoprene gasket
(e) Shield
(f) Paper sealer washer

(3) Strip off the coaxial cable outer covering for an approximate length of 1 1/8 inches.

(4) Spread the outer conductor (copper braid) and cut off about ½ inch of the core and center conductor.

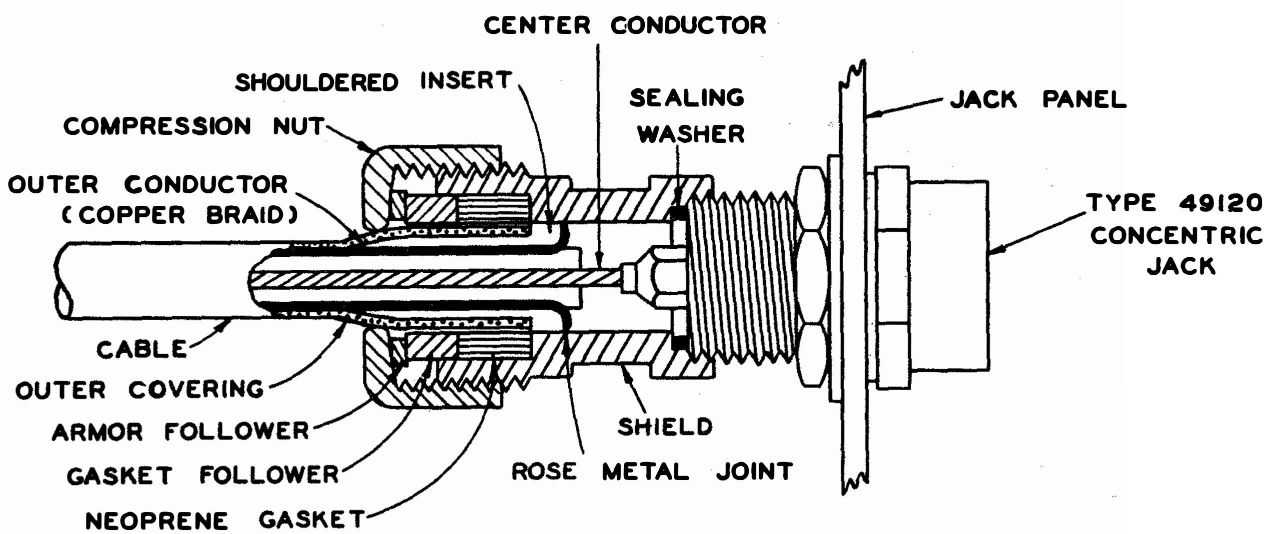


Figure 3-2. Coaxial Jack Termination Assembly Detail, Cross-Sectional View

(5) Draw the copper braid out over the end of the core and twist the ends of the braid together.

(6) Slip the shouldered insert over the copper braid and push it back under the coaxial cable outer covering until the end of the outer covering butts against the edge of the shoulder.

(7) Fan out the exposed braid and clip the strands close to the shouldered insert. Apply rosin and alcohol sparingly and solder the ends of the copper braid to the countersunk end of the shouldered insert, using Rose-metal. This must be done quickly, as excessive heat will damage the cable core and outer covering.

(8) Smooth the ends of the soldered braid flush with the rim of the shouldered insert with a fine file.

CAUTION

Do not mar the Rose-metal coating on the exposed perimeter of the shouldered insert and avoid nicking or roughing the surface of the core.

(9) Cut off the core and inner conductor $\frac{1}{4}$ inch from the face of the shouldered insert and strip the core from the center conductor so that a little more than $\frac{3}{16}$-inch of the inner conductor is exposed.

CAUTION

Be careful not to nick the inner conductor during this procedure.

(10) Tin the inner conductor quickly with rosin core solder.

(11) Put the end of the center conductor in the recess at the rear of the banana plug securing unit at the rear of the coaxial jack and solder it in quickly with rosin core solder.

(12) Slip the paper sealing washer up against the back of the coaxial jack and screw the shield onto the coaxial jack until the paper sealing washer is compressed. Tighten the shield with a $\frac{3}{4}$-inch open end wrench. The coaxial cable must be kept from twisting during this operation.

(13) Slip the neoprene gasket well into the recess at the rear of the shield. Back the neoprene gasket up with the gasket follower and armor follower washer and screw the compression nut in place. Tighten firmly with 6-inch gas pliers.

(14) Heat the shield to approximately 212°F (100°C) to insure a Rose metal bond between the shouldered insert and the inner surface of the shield. Do this by applying Thermo-Grip pliers to the "flats" of the shield and heat only until it "spits" when touched with a moistened finger, to avoid access heating.

f. COAXIAL JACK IDENTIFICATION.—After wiring the coaxial jack terminations, identify the various coaxial jacks by slipping an identification tag in the tag holder mounted over each coaxial jack.

SEE ERRATA SHEET

3. PERFORMANCE CHECKS.

To check the overall performance of the Antenna Multicoupler Assembly, proceed as follows:

a. INITIAL POSITION OF CONTROLS.—Make certain that all rectifier power unit switches are in the OFF position and that the meter plug is stowed in the jack on the meter panel.

b. STARTING THE EQUIPMENT.—Turn one or more rectifier power unit switches to ON, depending upon the number of multicoupler units to be put in operation and allow the equipment one minute to warm up before proceeding further. The rectifier power unit indicator light, together with the corresponding multicoupler indicator light should come on.

c. OPERATION OF METER SWITCH.—Put the meter plug in the METER JACK of the multicoupler unit under test and rotate the METER SWITCH to the proper position for measuring the cathode current of the stage under test. The proper position for the switch may easily be found by remembering that the numbers on the METER SWITCH correspond to the vacuum tube symbol numbers. For example, position 2 on the METER SWITCH checks the cathode current of V-102 while position 12 checks the cathode current of V-112. The meter should indicate cathode currents between 8 and 12 milliamperes for normal operation.

d. ANTENNA SELECTION.—To select a given antenna for operation with one of the multicoupler units, proceed as follows:

(1) Locate antenna output jack by means of the identification tab on the jack panel.

(2) Locate multicoupler antenna input jack in a similar manner.

(3) Use one of the coaxial patch cords supplied with the equipment to connect the antenna jack to the multicoupler input jack. The patch cord is equipped with a coaxial plug at each end and the plug is simply pushed into the jack to make the connection.

e. RECEIVER SELECTION.—A receiver may be connected to a given multicoupler unit as follows:

(1) Locate the desired multicoupler output jack by means of the identification tab on the jack panel.

(2) Locate receiver input jack in a similar manner.

(3) Use one of the coaxial patch cords supplied with the equipment to connect the multicoupler output jack to the receiver input jack.

f. MULTICOUPLER UNIT PERFORMANCE.—To check the electrical performance of a multicoupler unit, proceed as follows:

(1) Tune in a signal somewhere around 6 megacycles with the receiver connected to the multicoupler unit, and observe the reading on the receiver tuning meter.

(2) Without disturbing any receiver adjustments, connect the receiver directly to the antenna by means of a coaxial patch cord. The reading on the receiver tuning meter should not change appreciably, compared to operation of the receiver through the Antenna Multicoupler Assembly.

(3) Repeating the above procedure near 14 megacycles and again near 22 megacycles will give a rough check of Antenna Multicoupler Assembly performance over the approximate frequency range of the equipment.

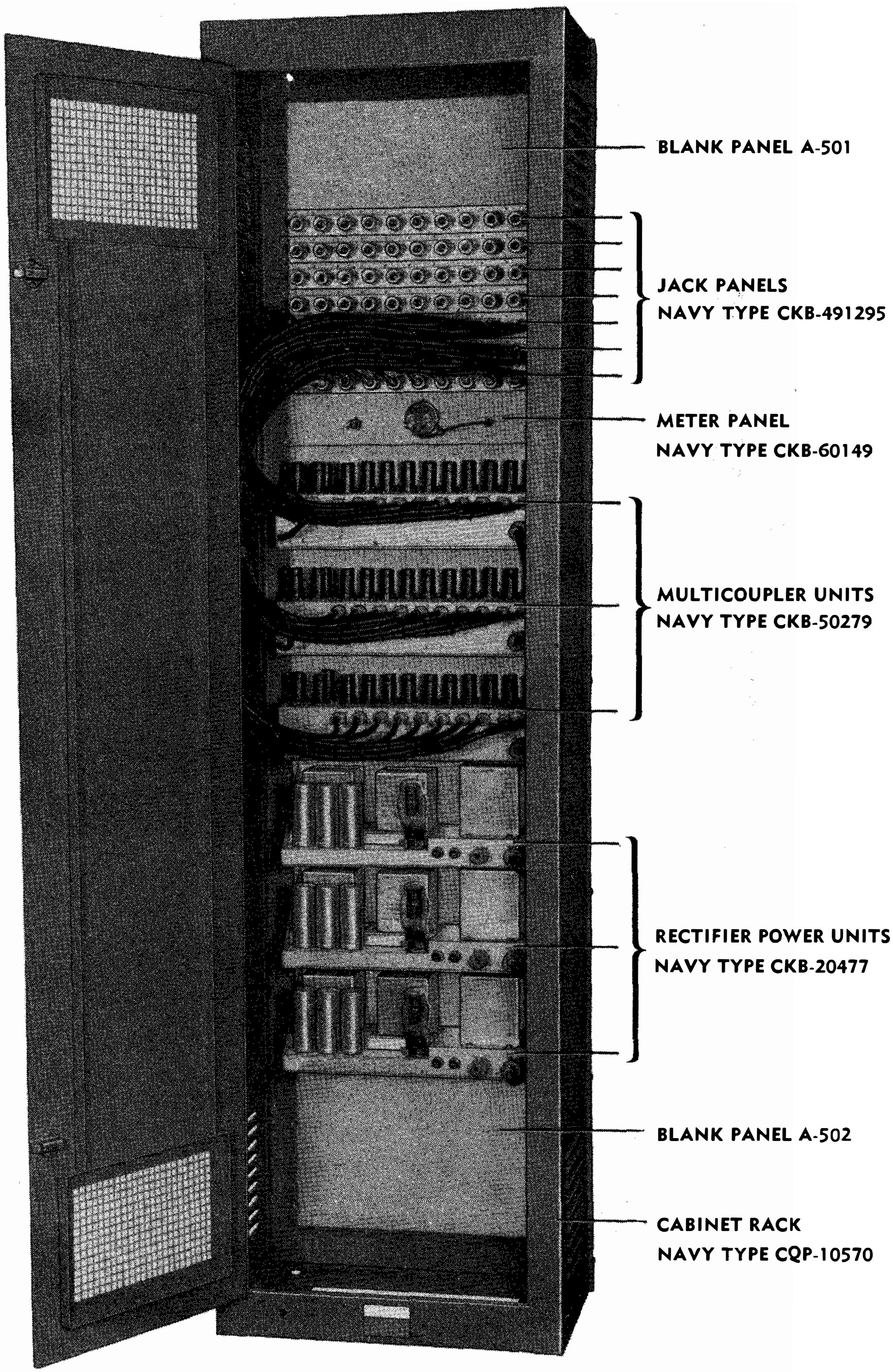


Figure 3-3. Model RXA Antenna Multicoupler Assembly, Rear View with Door Open

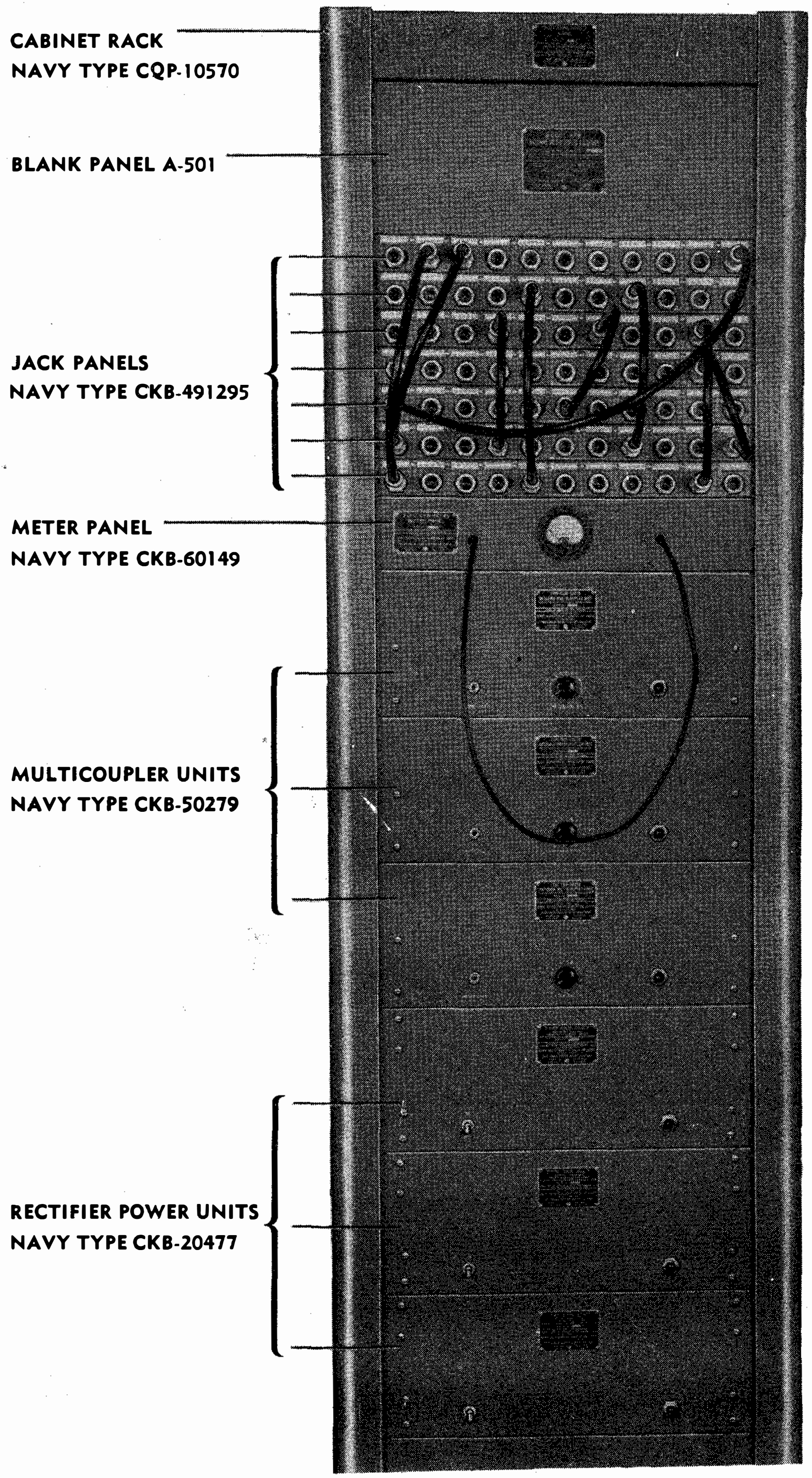


Figure 4-1. Model RXA Antenna Multicoupler Assembly, Front Panel

SECTION IV

OPERATION

1. INITIAL POSITION OF CONTROLS.

Before the equipment is placed in operation, the operating controls should be set as follows:

a. All rectifier power units should be in the OFF position.

b. The meter plug should be plugged into the dummy jack on the meter panel.

2. STARTING THE EQUIPMENT.

Turn one or more rectifier power unit switches to ON, depending upon the number of multicoupler units to be put in operation and allow the equipment one minute to warm up before proceeding further. The rectifier power unit indicator light, together with the corresponding multicoupler indicator light should come on.

3. OPERATION OF METER SWITCH.

Put the meter plug in the METER JACK of the multicoupler unit under test and rotate the METER SWITCH to the proper position for measuring the cathode current of the stage under test. The proper position for the switch can be easily found by remembering that the numbers on the METER SWITCH correspond to the vacuum tube symbol numbers. For example, position 2 on the METER SWITCH checks the cathode current of V-102 while position 12 checks the cathode current of V-112. The meter will indicate cathode currents between 8 and 12 milliamperes for normal operation.

4. ANTENNA SELECTION.

To select a given antenna for operation with one of the multicoupler units, proceed as follows:

a. Locate antenna output jack by means of the identification tab provided on the jack panel.

b. Locate multicoupler antenna input jack in a similar manner.

c. Use one of the coaxial patch cords supplied with the equipment to connect the antenna jack to the multicoupler input jack. The patch cord is equipped with a coaxial plug at each end and the plug is simply pushed into the jack to make the connection.

5. RECEIVER SELECTION.

A receiver may be connected to a given multicoupler unit as follows:

a. Locate the desired multicoupler output jack by means of the identification tab on the jack panel.

b. Locate receiver input jack in a similar manner.

c. Use one of the coaxial patch cords supplied with the equipment to connect the multicoupler output jack to the receiver input jack.

6. CONNECTING RECEIVER DIRECTLY TO ANTENNA.

Any receiver may be connected directly to any antenna by simply connecting an antenna jack to a receiver jack by means of a coaxial patch cord.

7. RECEIVER OPERATION.

For receiver operation consult the handbook supplied with the receiver equipment.

SECTION V

OPERATOR'S MAINTENANCE

1. GENERAL.

Operator's maintenance is limited to what the operator can do to keep the equipment functioning properly without the use of special tools or equipment. For maintenance chart see table 5-1.

2. REPLACEMENT OF FUSES.

All fuses in Model RXA Antenna Multicoupler Assembly are accessible from the rear door of the cabinet rack. Two extractor type fuse holders are installed at the rear of each rectifier power unit chassis. (See figure 5-1.) To replace a fuse, twist the fuse holder cap in the direction indicated by the arrow and withdraw the cap from the fuse holder. The fuse may now be replaced and the cap reinserted in the holder, this time twisting to the right in order to lock the fuse holder cap in place.

3. REPLACEMENT OF VACUUM TUBES.

a. The replacement of vacuum tubes requires access to the rear of the rectifier power and multicoupler units. To gain access to the chassis of either of these units, pull the snap-action catches on the door at the rear of the cabinet rack. (See figure 3-3.)

b. When removing vacuum tubes pull the tube straight out of its socket, using a slight rocking motion.

c. When replacing vacuum tubes, properly orient the tube pins with respect to the socket, and push downward on the tube as far as it will go until it is properly seated.

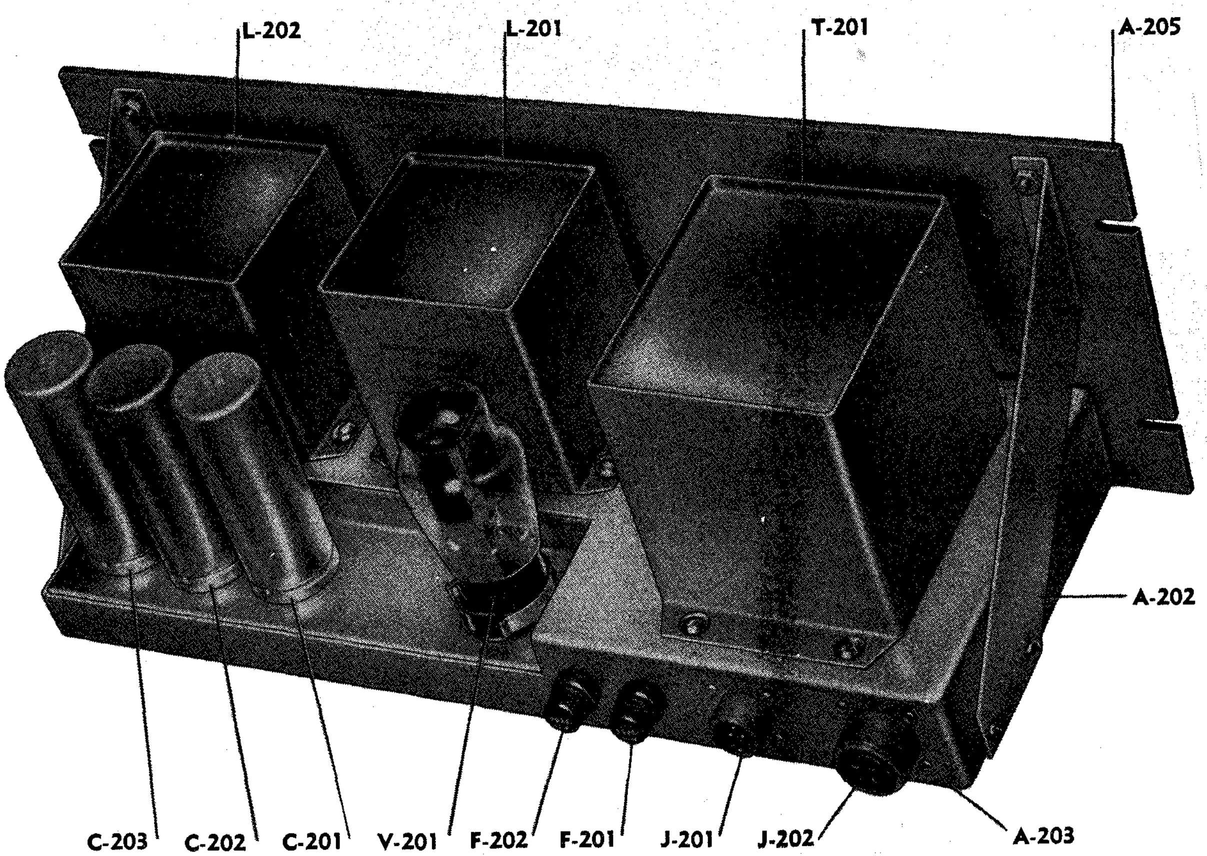


Figure 5-1. Rectifier Power Unit, Rear Oblique View

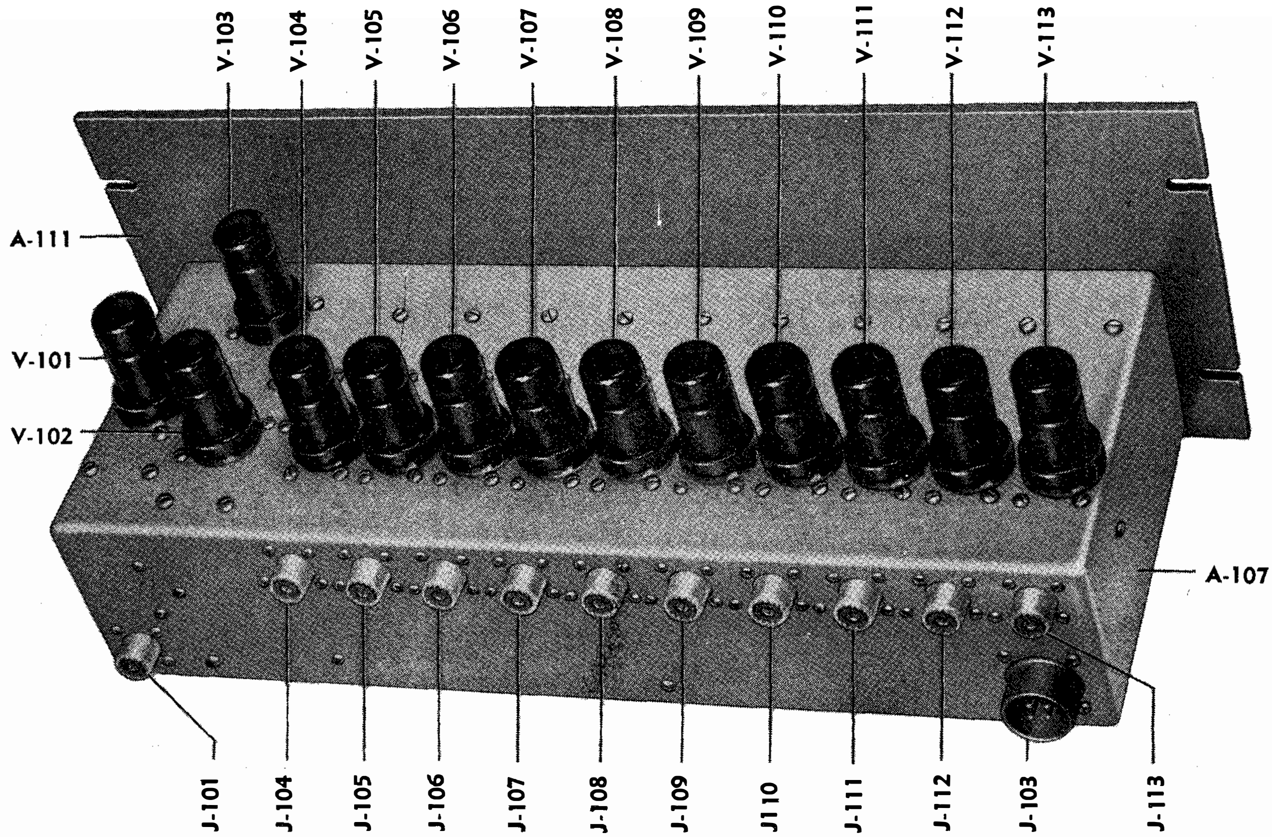


Figure 5-2. Antenna Multicoupler Unit, Rear Oblique View

TABLE 5-1.—OPERATOR'S MAINTENANCE CHART

Symptom	Probable Cause	Remedy
No indication of power with power switch ON	1. Rectifier power unit indicator bulb burned out 2. Fuse burned out	1. Replace 2. Replace
Indicator light on, multicoupler unit inoperative	1. Rectifier tube burned out 2. No signal input to multi-coupler unit 3. V-101 burned out 4. W-601 power cable defective	1. Replace 2. Check or replace antenna patch cord assembly 3. Replace 4. Repair or replace
V-104, V-106, V-108, V-110, and V-112 output stages inoperative	1. V-103 burned out	1. Replace
V-105, V-107, V-109, V-111, and V-113 output stages inoperative	1. V-102 burned out	1. Replace
One of the output stages inoperative	1. Tube burned out 2. Corresponding coaxial jack and/or cable defective	1. Replace 2. Repair or replace as required

4. LOCATING TUBE FAILURE.

A burned out tube will usually result in a multicoupler unit being either partially or entirely inoperative. To locate the burned out tube, proceed as follows:

a. Place the meter plug in the METER JACK of the multicoupler unit under test.

b. Slowly rotate the METER SWITCH on the multicoupler unit from position "1" to "13" and make certain that a current reading between 8 and 12 milliamperes is obtained at each switch position. Absence of current for any position indicates that the tube indicated by the METER SWITCH is burned out. For example if no meter reading is obtained on position "9," it means that V-109 is inoperative and must be replaced as described in paragraph 3 above.

c. If no current readings are obtained for any position of the METER SWITCH, proceed as follows:

(1) Check rectifier power unit indicator light to see that it is on.

(2) Replace rectifier tube JAN-5U4G (V-201) if the tube filament does not light.

SECTION VI

PREVENTIVE MAINTENANCE

1. GENERAL.

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

2. MAINTENANCE TEST SCHEDULE.

Model RXA Antenna Multicoupler Assembly will usually require only the occasional replacement of vacuum tubes to assure continuity of service. Routine inspections and tests should be made at regular intervals depending upon the amount of use to which the equipment is subjected. (See table 6-1.)

NOTE

The attention of maintenance personnel is invited to the requirements of Chapter 67 (or 68) of the Bureau of Ships Manual of the latest issue.

a. TESTING AND REPLACING VACUUM TUBES.—See paragraph 3, section 5 for the procedure required to remove and replace vacuum tubes from this equipment. Vacuum tubes should be replaced under the following conditions.

(1) When a tube test check reveals one or more of the following defects:

(a) Heater element open.

(b) Short circuit or leakage between tube elements.

(c) Low emission or transconductance tests.

(d) Tube checks soft; shows evidence of gas.

(2) When there is any doubt about the condition of the vacuum tube replace it with a new one. Some tube defects will not be revealed on the usual tube tester check.

b. VISUAL INSPECTION AND MAINTENANCE.—Whenever the multicoupler unit or rectifier power unit is removed from the rack for a routine vacuum tube check or for any other reason, the chassis should be given a thorough visual inspection for the following:

(1) Evidence of dirt or corrosion within the unit.

(2) Poorly soldered or corroded connections.

(3) Deterioration of wiring or components.

(4) Loose terminals, mounting screws, or components.

TABLE 6-1.—MAINTENANCE TEST SCHEDULE

Check	Inspection Period	Procedure
Overall functional check	Daily	Operate equipment in accordance with the procedure covered in section 4.
Tubes	250 hours	Use tube checker.
Visual	100 hours	Carry out visual inspection in accordance with the procedure covered in paragraph 2*b* of this section.
Coaxial cables	100 hours	Check coaxial cable connections for cleanliness and tightness.

FAILURE REPORTS

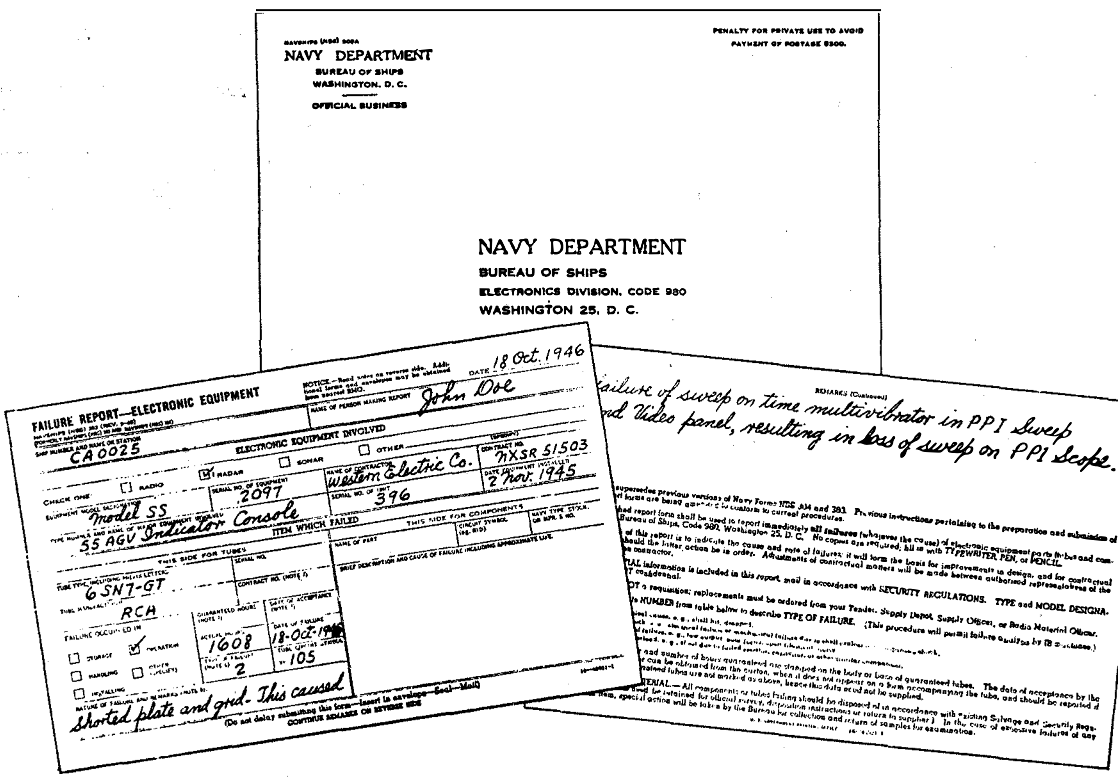
A FAILURE REPORT must be filled out for the failure of any part of the equipment whether caused by defective or worn parts, improper operation, or external influences. It should be made on Failure Report, form NBS-383, which has been designed to simplify this requirement. The card must be filled out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

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

The purpose of this report is to inform BUSHIPS of the cause and rate of failures. The information is used by the Bureau in the design of future equipment and in the maintenance of adequate supplies to keep the present equipment going. The cards you send in, together with those from hundreds of other ships, 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 any Electronics Officer.



Sample Failure Report Cards Properly Filled In

SECTION VII

CORRECTIVE MAINTENANCE

1. GENERAL.

This section includes all information necessary to locate and correct trouble that may develop in this equipment.

2. TEST EQUIPMENT REQUIRED.

The following test equipment is required to service Model RXA Antenna Multicoupler Assembly:

a. Tube checker.

b. Communications receiver covering the frequency range from 4 to 24 megacycles.

3. REMOVAL OF UNITS FROM CABINET RACK.

To remove the various units from the cabinet rack, proceed as follows:

a. Loosen the seven screws holding the cabinet corner trim in place so that the corner trim can be moved away from the front panels to afford enough clearance for removal of the units. It will be found that adequate clearance will be obtained when the corner trim retaining screws are brought out approximately 3/8-inch.

b. JACK PANELS.—To remove the jack panels, first disconnect the jack panel coaxial cables from the rear of the multicoupler unit and then remove the panel retaining screws.

c. METER PANEL.—To remove the meter panel, merely remove the panel retaining screws.

d. MULTICOUPLER UNIT.—To remove one of the multicoupler units, disconnect all coaxial cables from the back of the unit and the power plug, and remove the panel retaining screws.

e. RECTIFIER POWER UNIT.—To remove a rectifier power unit, disconnect the primary power input cable, the power output cable running to the multicoupler unit, and remove the panel retaining screws.

CAUTION

When removing any of the units from the cabinet rack remember that the unit is supported entirely by the front panel screws and must be held in place while the panel retaining screws are being removed.

f. ARRANGEMENT OF UNITS IN CABINET RACK. — The various units of Model RXA Antenna Multicoupler Assembly must always be installed in the same position in the rack. For proper sequence of units in the rack see figure 1-1.

4. NOISE.

The following sources of noise may be encountered in the Antenna Multicoupler Assembly.

a. TUBES.—Some JAN-6AB7 tubes are capable of producing a rather high and variable noise level in the equipment. This may increase the overall noise ratio by several decibels, especially if the tube happens to be used in the V-101 position in the multicoupler unit. A simple substitution test by means of a tube known to be good will usually locate a noisy tube.

b. COAXIAL CABLES AND CONNECTORS.—Noisy and intermittent reception may be caused by defective coaxial cables or connectors. If all the receivers operating from one multicoupler unit are noisy or intermittent the trouble will probably be found in the antenna cable or coaxial patch cord. If only one receiver is noisy or intermittent, the coaxial cable and connections from the receiver to the multicoupler unit should be examined for poor or dirty connections or defective cables.

5. GAIN.

To check the gain of a multicoupler unit, proceed as follows:

a. Tune in a signal somewhere around 6 megacycles with the receiver connected to the multicoupler unit, and observe the reading on the receiver tuning meter.

b. Without disturbing any receiver adjustments, connect the receiver directly to the antenna by means of a coaxial patch cord. The reading on the receiver tuning meter should not change appreciably, compared to operation of the receiver through the Antenna Multicoupler Assembly.

c. Repeating the above procedure near 14 megacycles and again near 22 megacycles will give a rough check of Antenna Multicoupler Assembly performance over the approximate frequency range of the equipment.

6. UNIT TROUBLE SHOOTING AND REPAIR.

The following trouble charts list component failures that may be encountered in the various units. The trouble charts are presented in the order in which the units would usually be checked. Additional service information in the form of wiring, voltage, and resistance diagrams will be found in figures 7-6 to 7-11.

TABLE 7-1.—RECTIFIER POWER UNIT TROUBLE CHART

Symptom	Probable Cause	Remedy
No indication of power with power switch ON	1. Indicator light bulb burned 2. Fuse burned out 3. A-C input cord defective 4. J-201 worn or defective 5. S-201 defective	1. Replace 2. Replace 3. Repair or replace 4. Repair or replace 5. Replace
Indicator light on, no high voltage output from contact "B" on J-202	1. V-201 burned out 2. C-201 short-circuited 3. C-202 short-circuited 4. C-203 short-circuited 5. L-201 winding open 6. L-202 winding open 7. T-201 defective	1. Replace 2. Replace 3. Replace 4 Replace 5 Replace 6. Replace 7 Replace
Indicator light on, low voltage from contact "B" on J-202	1. V-201 defective 2. C-201 leaks 3. C-202 leaks 4. C-203 leaks 5. L-201, L-202 defective	1. Replace 2. Replace 3. Replace 4. Replace 5. Replace

TABLE 7-2.—MULTICOUPLER UNIT TROUBLE CHART

Symptom *	Probable Cause	Remedy
Rectifier Power unit on; no plate voltage on terminal "B" and/or no heater voltage on terminal "A" of J-103	1. Defective cable assembly 2. Poor contacts on J-103	1. Check continuity of cable assembly; repair or replace as required. 2. Repair or replace as required.

* These symptoms are typical for all output stages; for probable cause refer to corresponding parts in the stage being serviced.

TABLE 7-2.—MULTICOUPLER UNIT TROUBLE CHART (Continued)

Symptom	Probable Cause	Remedy
Plate and heater voltages normal, multicoupler unit inoperative	1. V-101 burned out or defective 2. R-102 open 3. L-101 open 4. R-103 open 5. C-103 short-circuited 6. R-101 open 7. Antenna cable defective 8. T-101 defective	1. Replace 2. Replace 3. Replace 4. Replace 5. Replace 6. Replace 7. Repair or replace as required 8. Replace
No output from J-105, J-107, J-109, J-111, and J-113	1. V-102 burned out or defective 2. R-105 open 3. L-102 open 4. R-106 open 5. R-104 open 6. C-107 short-circuited	1. Replace 2. Replace 3. Replace 4. Replace 5. Replace 6. Replace
No output from J-104, J-106, J-108, J-110, and J-112	1. V-103 burned out or defective 2. V-109 open 3. L-103 open 4. R-110 open 5. R-108 open 6. C-111 short-circuited	1. Replace 2. Replace 3. Replace 4. Replace 5. Replace 6. Replace
Positive grid voltage on the following tube or tubes: 1. V-102 and V-103	1. C-104 leaky or short-circuited	1. Replace
2. V-105, V-107, V-109, V-111 and V-113 3. V-104, V-106, V-108, V-110 and V-112	2. R-125 open SEE ERRATA SHEET 3. C-112 leaky or short-circuited	2. Replace 3. Replace

TABLE 7-2.—MULTICOUPLER UNIT TROUBLE CHART (Continued)		
Symptom	**Probable Cause**	**Remedy**
V-104 output stage inoperative	1. V-104 burned out or defective	
	2. R-125 open	2. Replace
	3. R-126 open	3. Replace
	4. C-115 shorted or open	4. Replace
	5. R-124 open	5. Replace
	6. J-104 or coaxial cable defective	6. Repair or replace as required

TABLE 7-3.—METER PANEL TROUBLE CHART		
Symptom	**Probable Cause**	**Remedy**
Meter inoperative	1. P-401 defective	1. Repair or replace
	2. J-102 defective	2. Repair or replace
	3. Meter cable defective	3. Repair or replace
	4. Meter defective	4. Replace

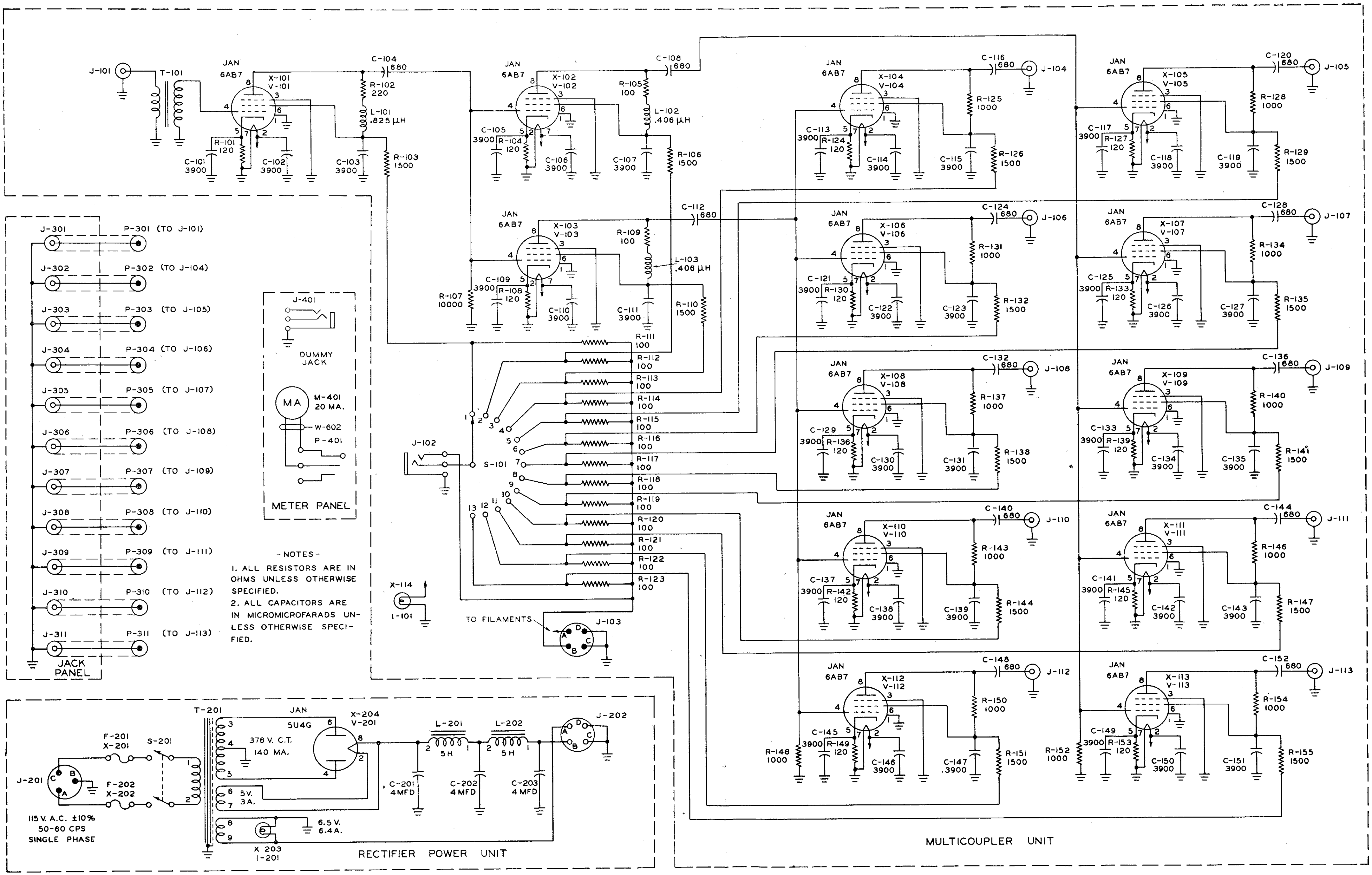


Figure 7-1. Model RXA Antenna Multicoupler Assembly, Schematic Diagram

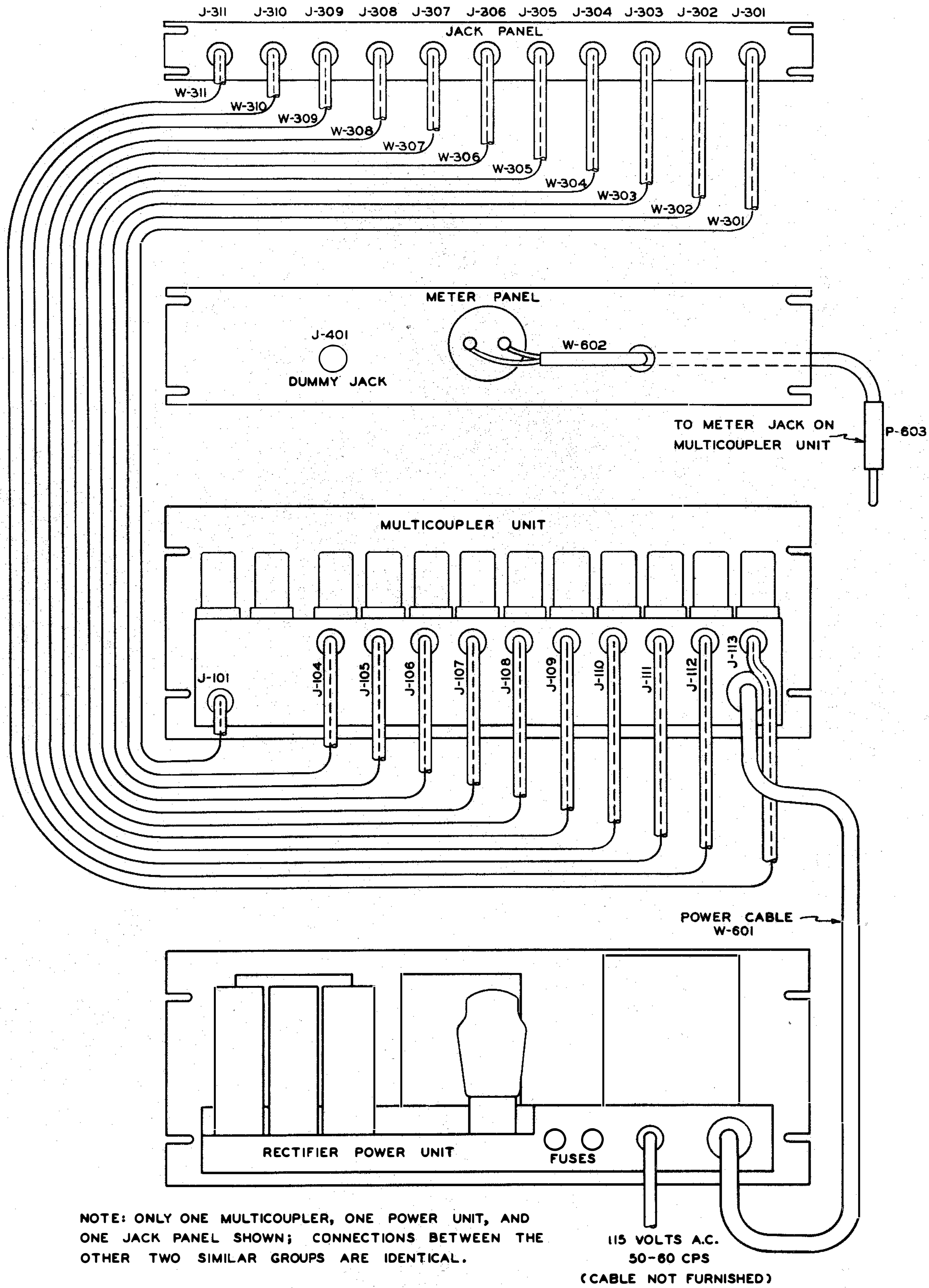
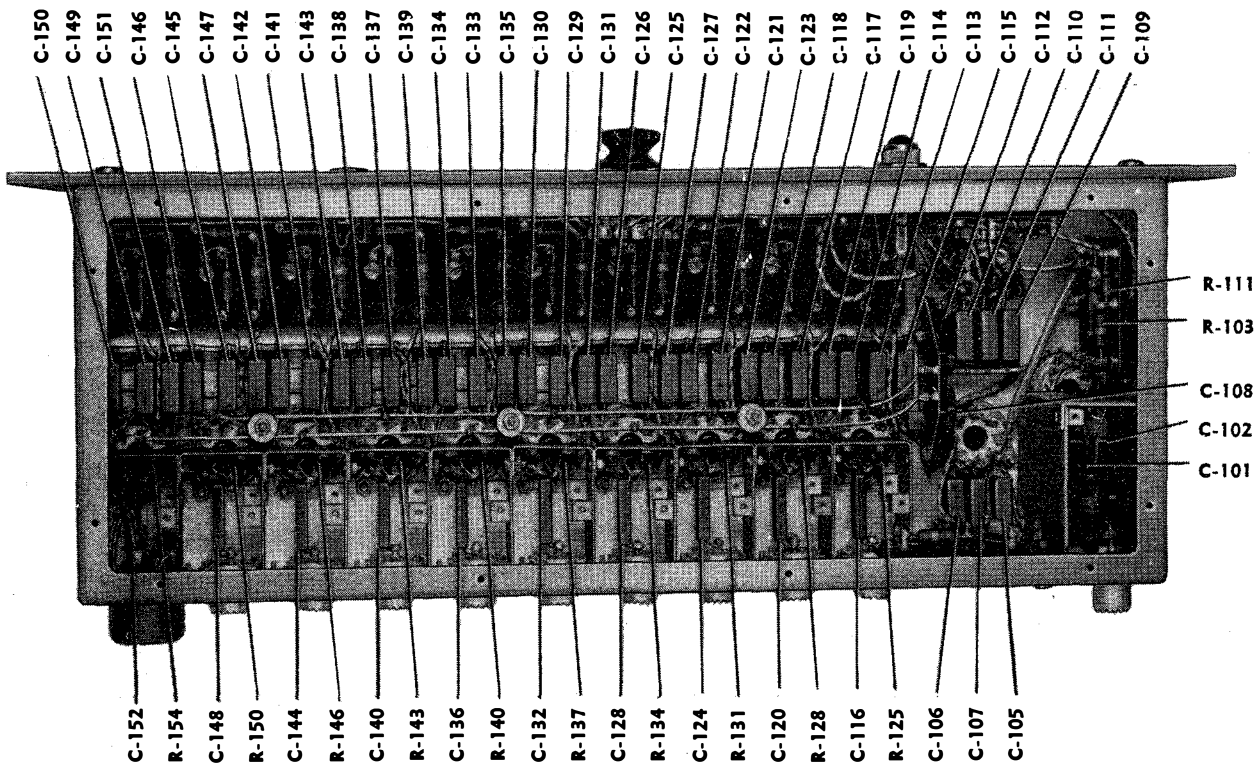


Figure 7-2. Model RXA Antenna Multicoupler Assembly, Interconnecting Diagram



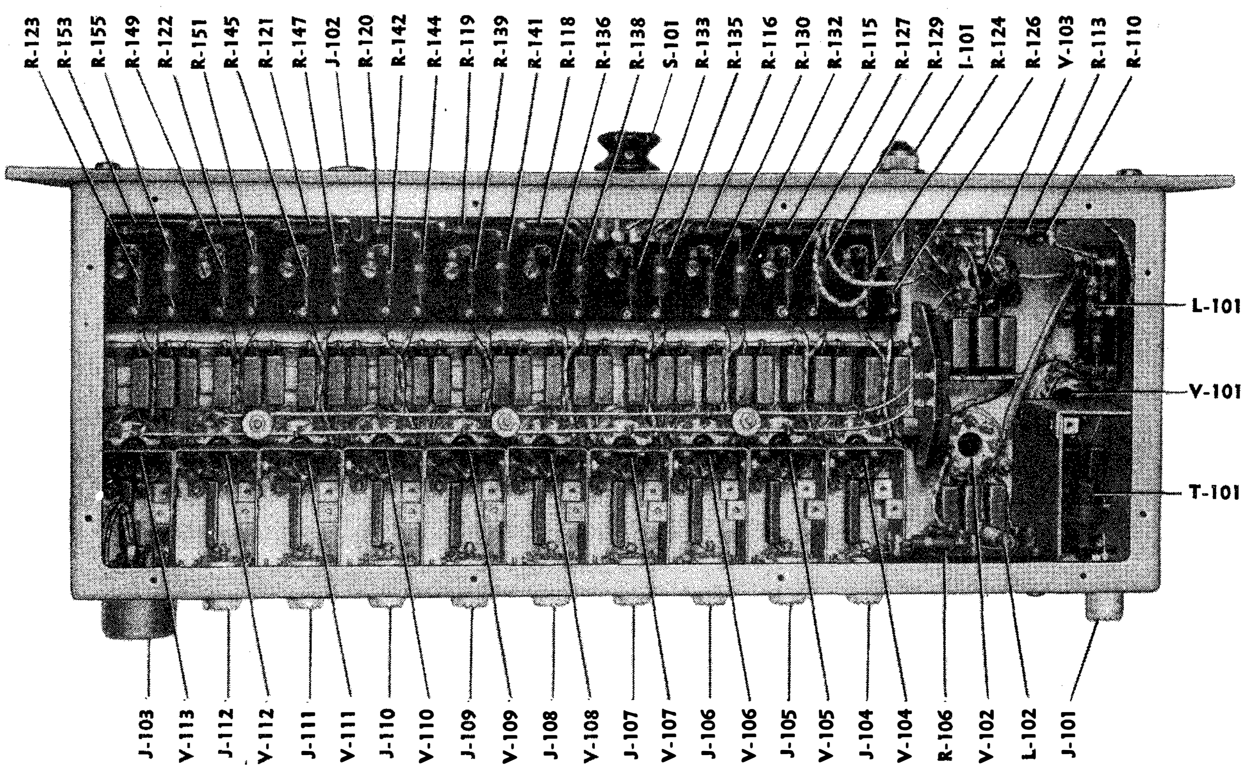


Figure 7-3. Antenna Multicoupler Unit, Bottom View of Chassis

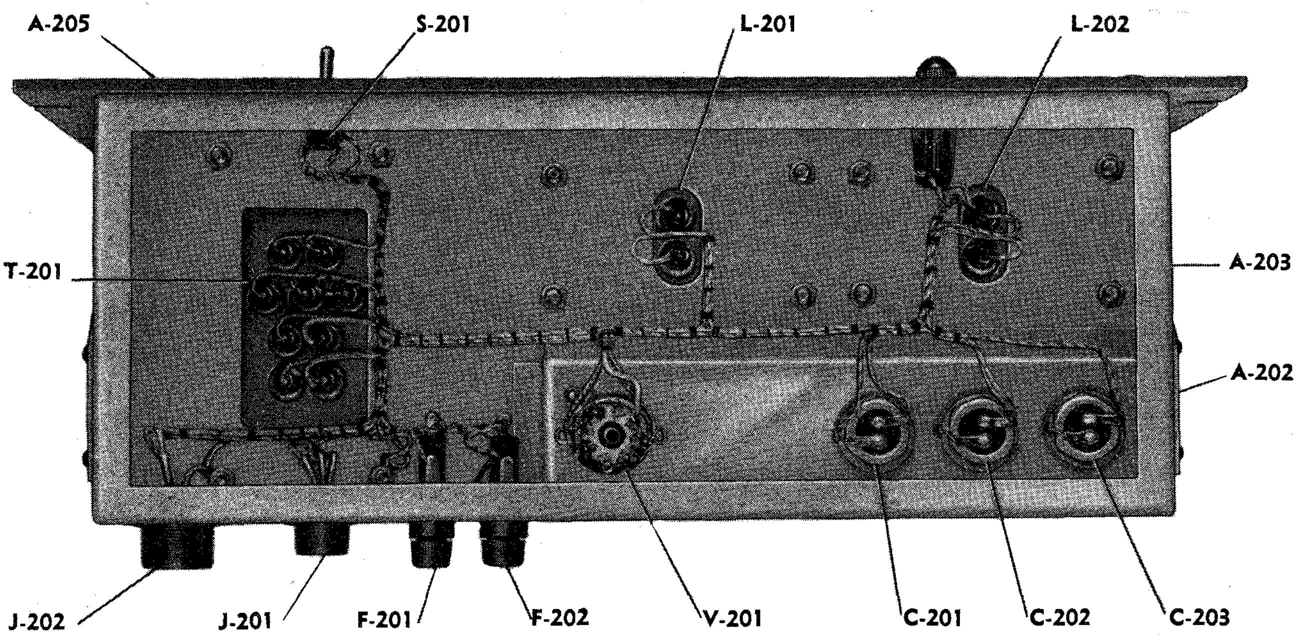


Figure 7-4. Rectifier Power Unit, Bottom View of Chassis

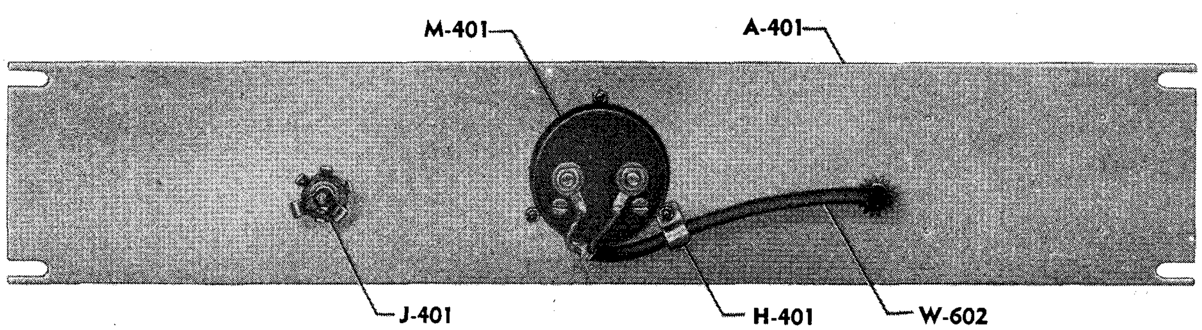


Figure 7-5. Meter Panel, Rear View

7. TROPICALIZATION TREATMENT WHEN REPLACING PARTS.

This equipment is treated in accordance with proposed joint Army-Navy specification JAN-T-152, "General Process for Replacement and Fungus Resistant Treatment of Communications, Electronic and Associated Electrical Equipment." When making replacement, the component part or parts and soldering must be treated with a coating (brushed or sprayed) of fungus-resistant varnish or lacquer in accordance with JAN-T-152. The following quotations from JAN-T-152 are the essential points that apply:

"C-1. MATERIAL.—The coating materials used shall meet the requirements of Signal Corps Tentative Specifications 72-84—Navy Department Specification 52C35 (Proposed JAN-C-173) . . ."

"D-1a. COVERAGE.—The coating material shall be applied thoroughly and completely over all surfaces, circuit elements (resistors, capacitors, coils, etc.), all surfaces supporting circuit elements, interconnecting wiring and connections unless such applications will interfere with the operation and performance of the equipment. . . ."

"D-1b. MASKING.—The coating material shall not be applied to any surface or parts where such application will interfere with the operation or performance of the equipment. The following are examples of surfaces which are not to be treated by the method specified herein:

(1) contact portion of: . . . .connectors, fuses, jacks, ...plugs, ...sockets, switches. . . .
(2) surfaces which rub together for electrical or magnetic contact such as those in: . . . . shields. . . .
(3) mechanical parts such as: . . . .windows. . . .
(4) components, parts and materials such as: . . . painted, lacquered or varnished exterior surfaces. . . .plugs, plug-connectors, tube sockets, etc., (pins, mating surfaces and threads) . . . ."

"D-1c. The following need not be coated; however, if the operation and performance of the equipment is not undesirably affected, no precaution need be taken to prevent coverage, except that dripping thereon shall be prevented:

cable, wire, braids, and jackets whose outside surface is of rubber, synthetic rubber or vinylite type composition, (not flexed in normal operation). . . . .painted, lacquered, or varnished interior surfaces. . . .parts made of, or plated with: . . . .nickel. . . . tubes, electron (avoid direct application to envelopes). . . ."

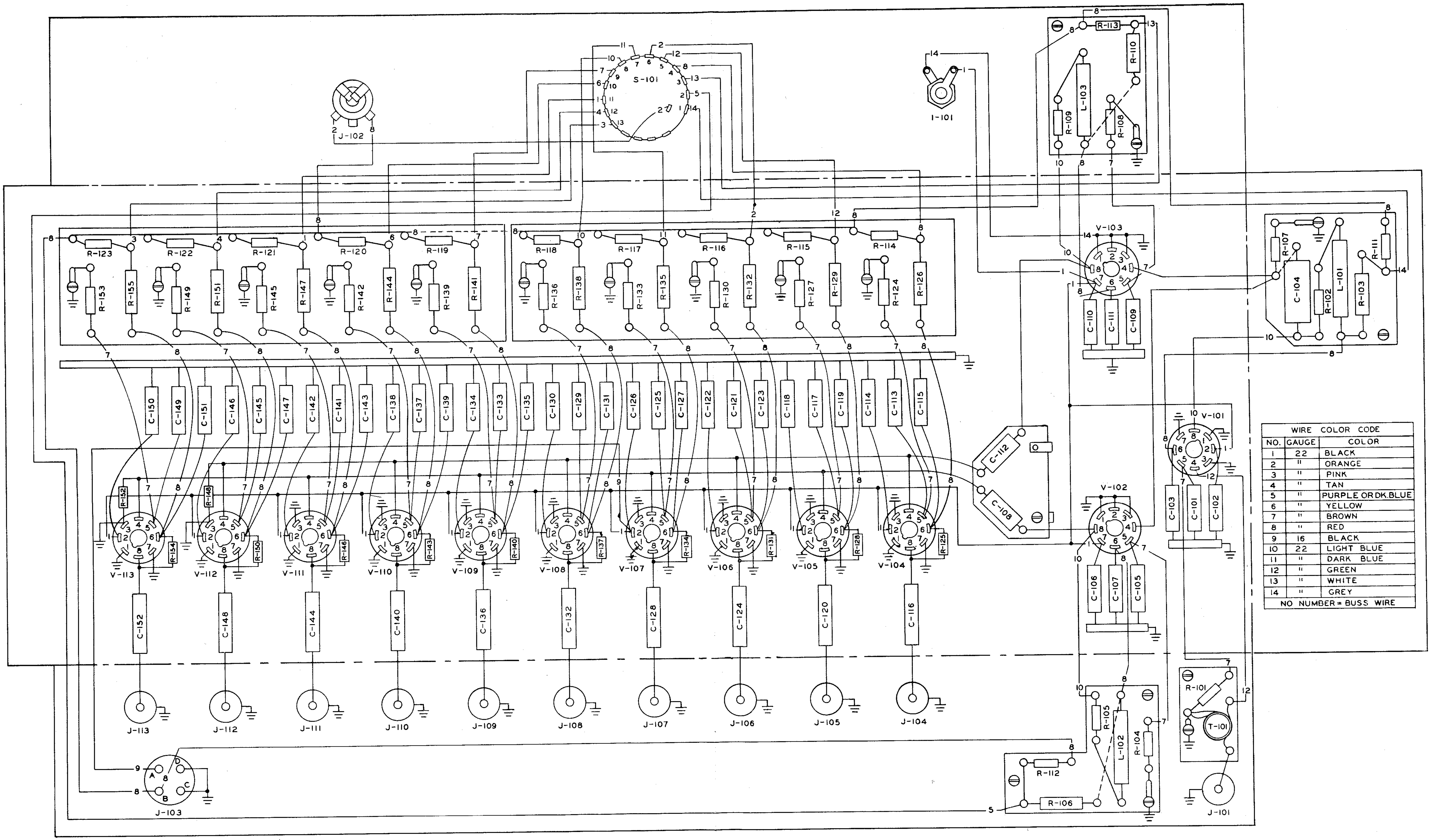
"D-2. PREPARATION FOR TREATMENT.—The parts, circuit elements, etc., shall be exposed so that the coating shall be applied effectively and completely over all surfaces to be treated. . . ."

"D-2a. CLEANING.—All surfaces of parts to be coated shall be sufficiently clean so that they are free from dirt, oil, grease or other foreign matter which could interfere with the adherance or proper functioning of the material. All readily visable deposits of the rosin shall be cleaned off as much as practicable by scraping, chipping, etc. Joints with no readily visable deposits of rosin need not be cleaned. The use of solvents such as alcohol or acetone is not advisable as it tends to spread a thin coat of rosin over a large area."

"D-2b. DRYING OF EQUIPMENT.—The coating material shall be applied only on dry surfaces. In no case shall the coating materials be applied on wet or damp materials with moisture on their surfaces. . ."

WARNING

The anti-fungus agent is poisonous. Do not inhale fumes and avoid contact with the skin.



WIRE COLOR CODE		
NO.	GAUGE	COLOR
1	22	BLACK
2	"	ORANGE
3	"	PINK
4	"	TAN
5	"	PURPLE OR DK.BLUE
6	"	YELLOW
7	"	BROWN
8	"	RED
9	16	BLACK
10	22	LIGHT BLUE
11	"	DARK BLUE
12	"	GREEN
13	"	WHITE
14	"	GREY
NO NUMBER = BUSS WIRE		

Figure 7-6. Antenna Multicoupler Unit, Practical Wiring Diagram

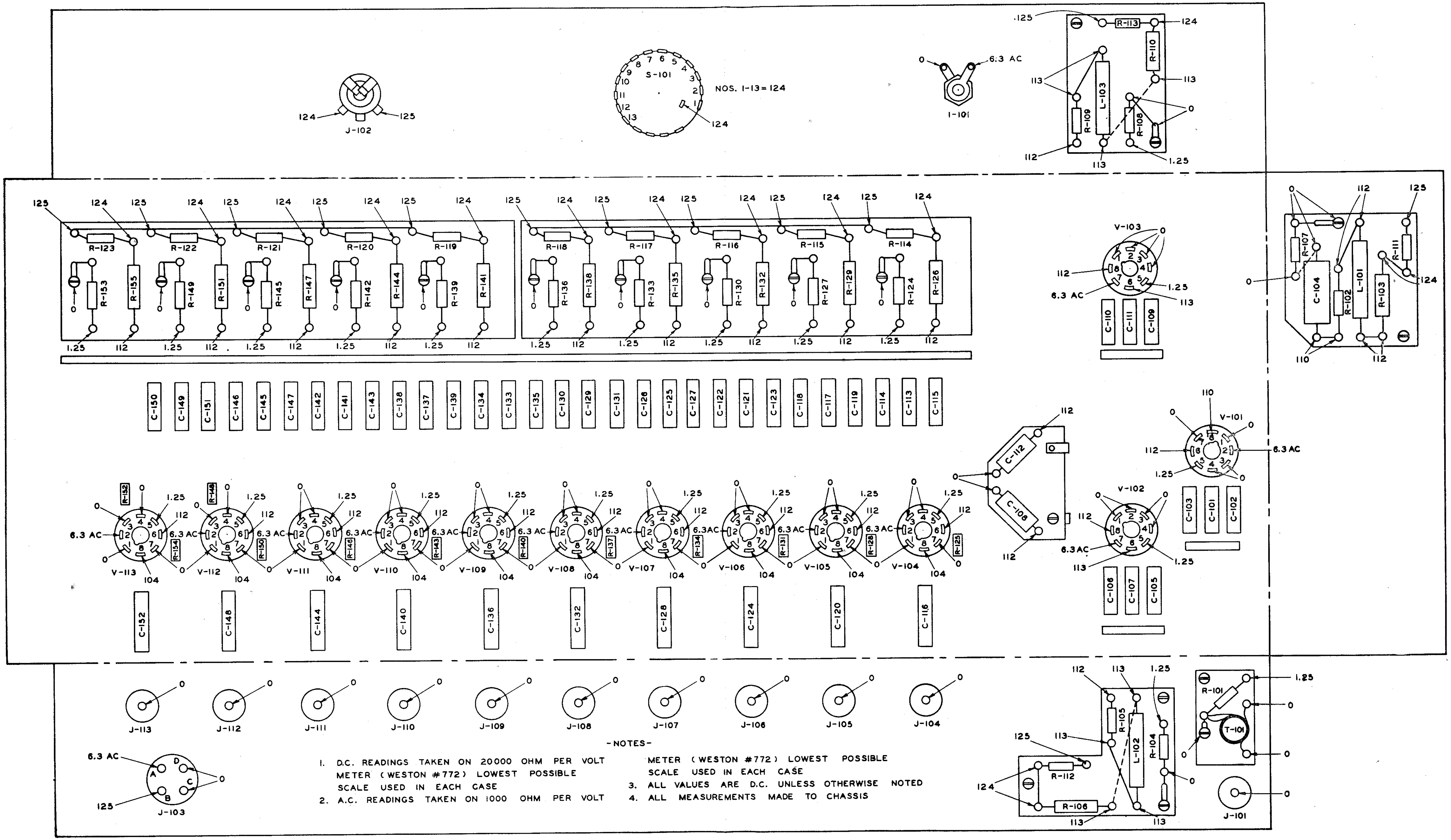


Figure 7-7. Antenna Multicoupler Unit, Voltage Diagram

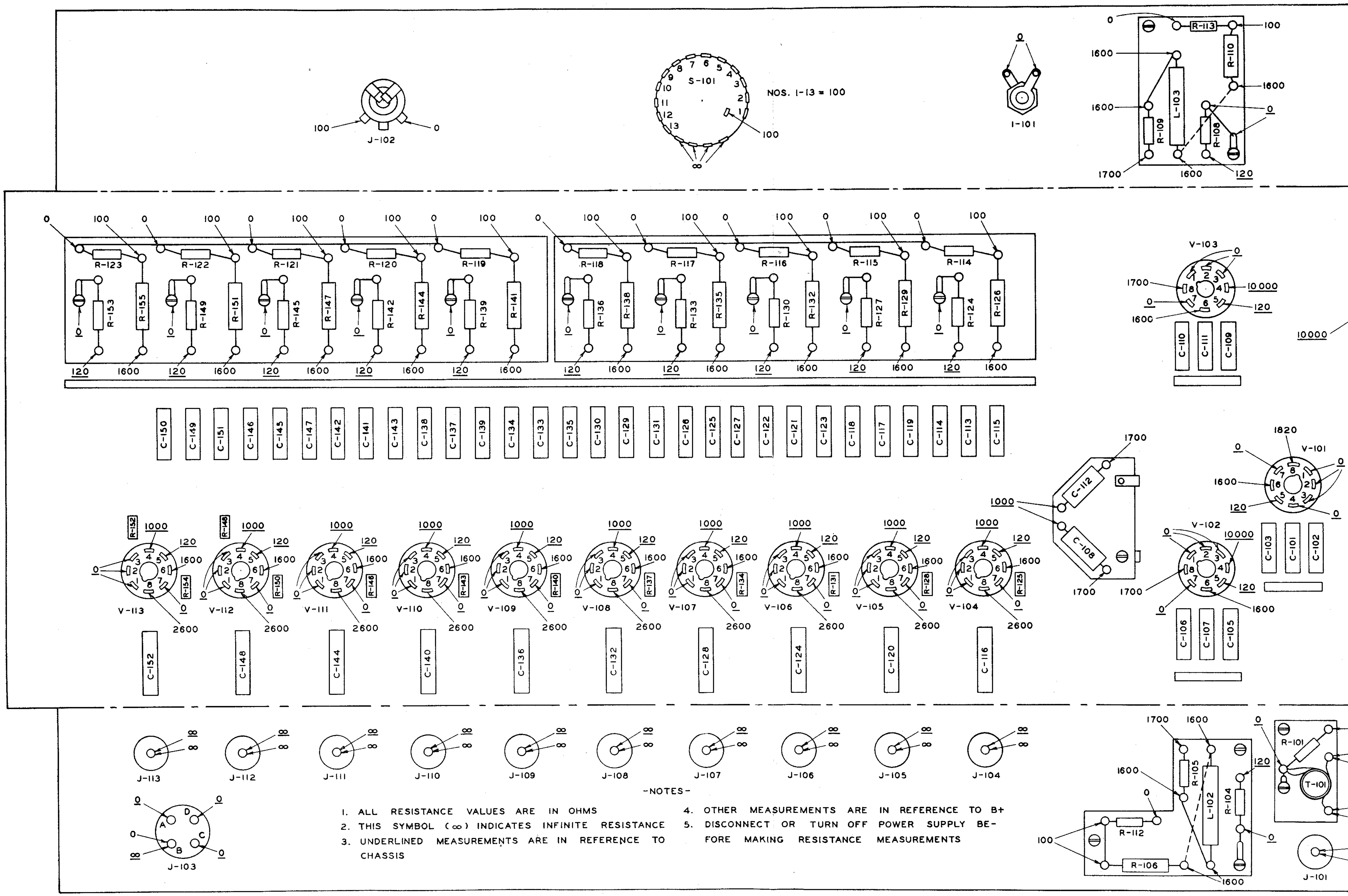
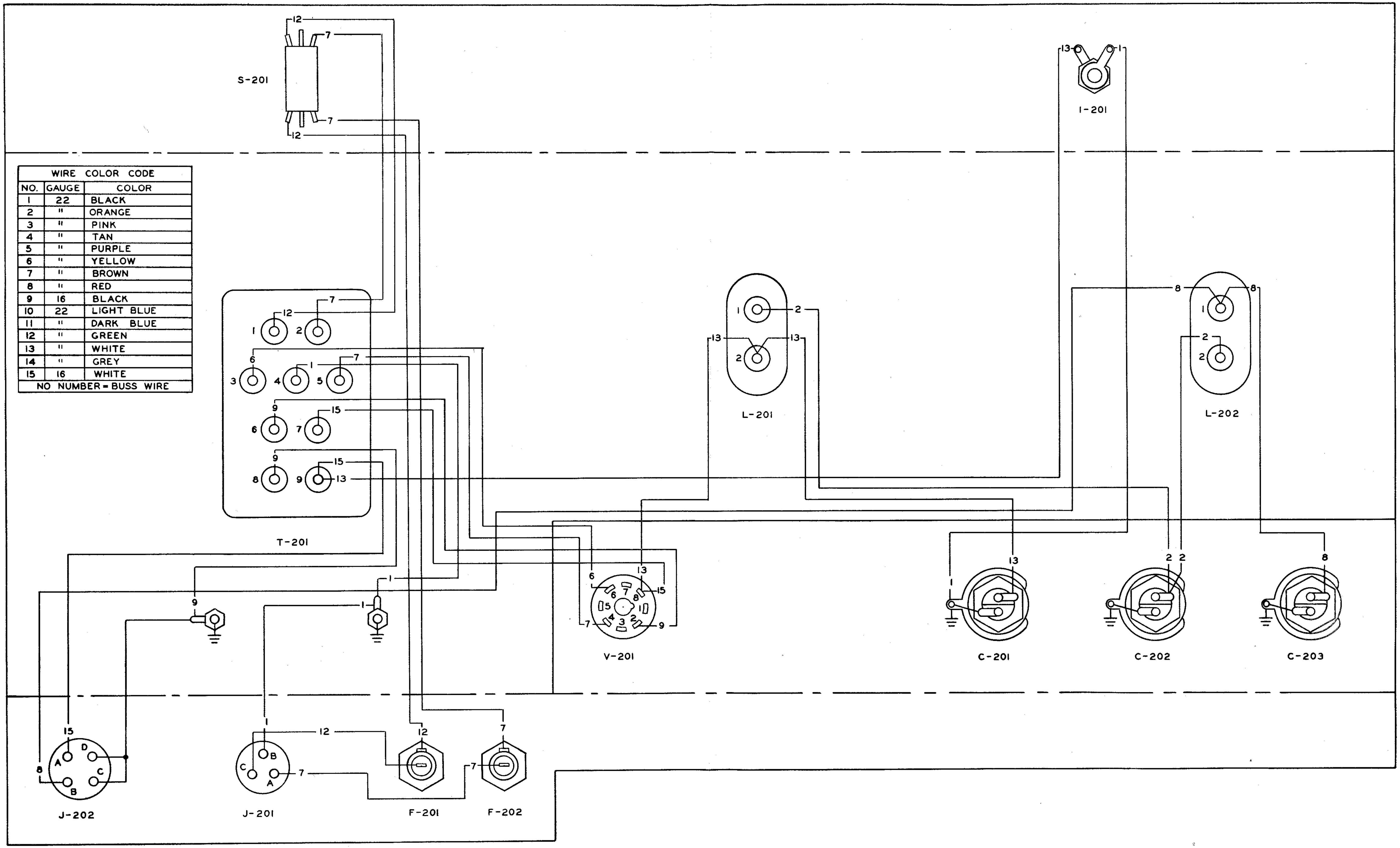


Figure 7-8. Antenna Multicoupler Unit, Resistance Diagram



WIRE COLOR CODE		
NO.	GAUGE	COLOR
1	22	BLACK
2	"	ORANGE
3	"	PINK
4	"	TAN
5	"	PURPLE
6	"	YELLOW
7	"	BROWN
8	"	RED
9	16	BLACK
10	22	LIGHT BLUE
11	"	DARK BLUE
12	"	GREEN
13	"	WHITE
14	"	GREY
15	16	WHITE
NO NUMBER = BUSS WIRE		

Figure 7-9. Rectifier Power Unit, Practical Wiring Diagram

NAVSHIPS 900,213

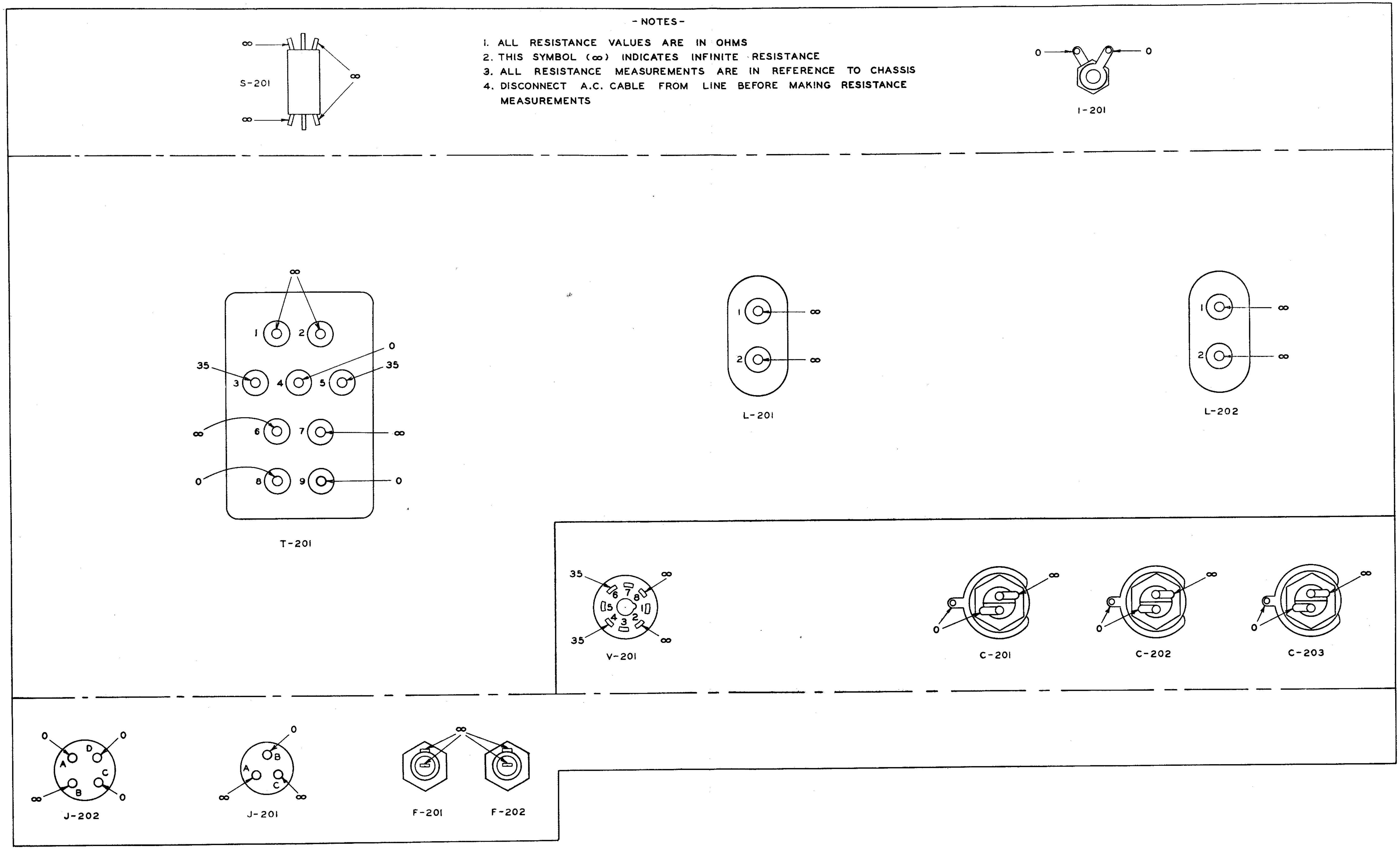
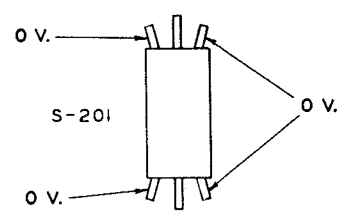


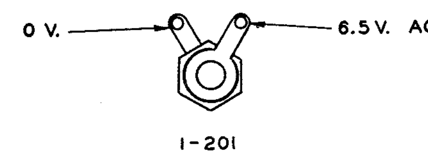
Figure 7-10. Rectifier Power Unit, Resistance Diagram

RESTRICTED



- NOTES -

1. READINGS TAKEN WITH POWER SWITCH ON
2. D.C. READINGS TAKEN ON 20000 OHM PER VOLT METER (WESTON #772) LOWEST POSSIBLE SCALE USED IN EACH CASE
3. A.C. READINGS TAKEN ON 1000 OHM PER VOLT METER (WESTON #772) LOWEST POSSIBLE SCALE USED IN EACH CASE
4. ALL MEASUREMENTS MADE TO CHASSIS EXCEPT THOSE ENCLOSED IN AN ELLIPSE; THE LATTER DESIGNATES READINGS BETWEEN TWO POINTS



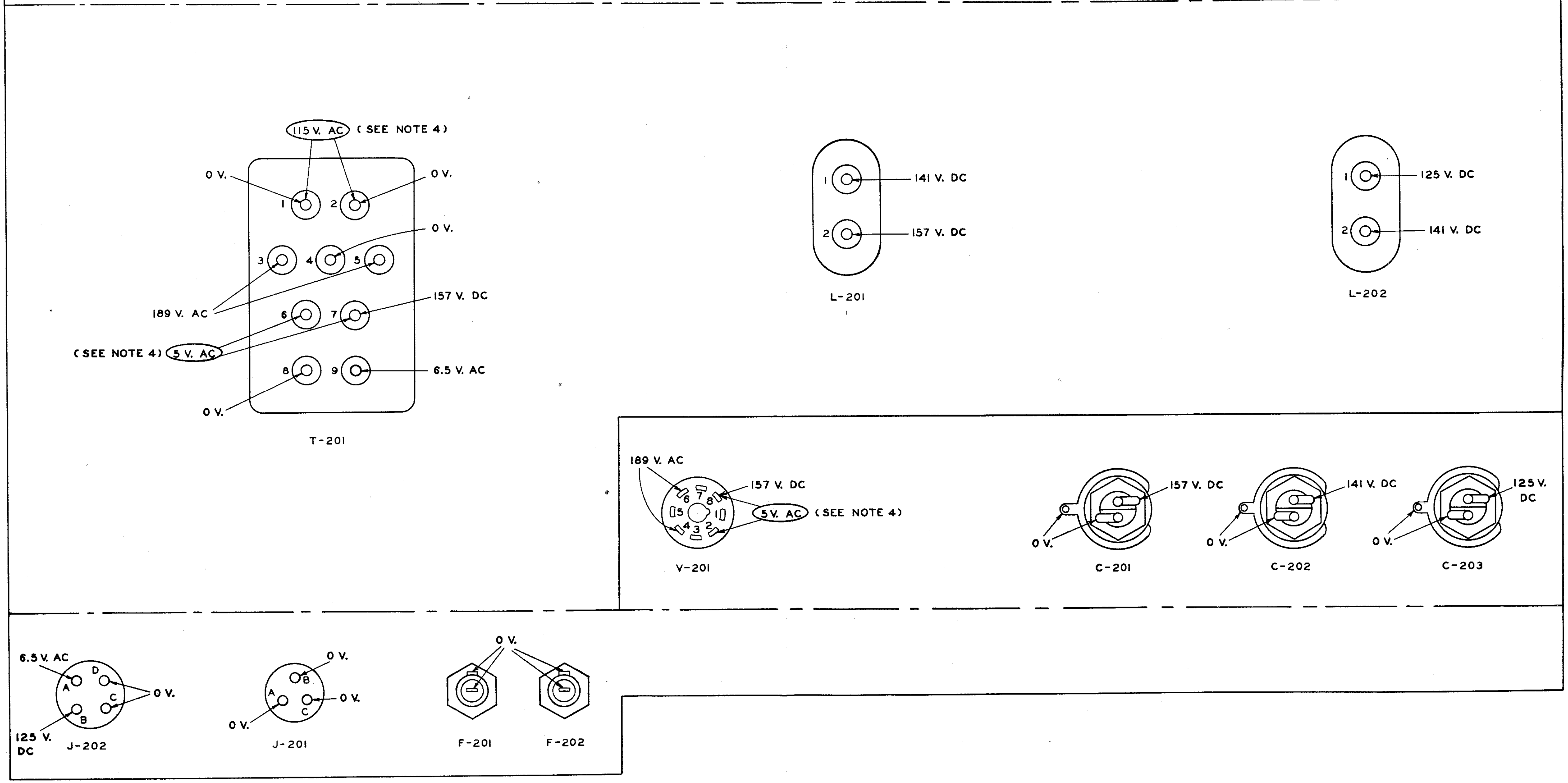


Figure 7-11. Rectifier Power Unit, Voltage Diagram

SECTION VIII
PARTS AND SPARE PARTS LIST

TABLE 8-1.—LIST OF MAJOR PARTS

Quantity	*Name of Major Unit*	*Navy type Designation*	*Symbol Group*
3	Multicoupler Unit	CKB-50279	101-199
3	Rectifier Power Unit	CKB-20477	201-299
7	Jack Panel	CKB-491295	301-399
1	Meter Panel	CKB-60149	401-499
1	Rack	CQP-10570	501-599
	Accessories		601-699

TABLE 8-2
COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts: Equip. Box No.	Spare Parts: Equip. Quan.	Spare Parts: Tender Box No.	Spare Parts: Tender Quan.	Spare Parts: Stock Box No.	Spare Parts: Stock Quan.
101-199 Series	MULTICOUPLER UNIT: Includes one complete set of tubes and other components; mounted on an aluminum alloy chassis and connected to a Navy type size "D" rack mounting panel per spec. XA 8896-A; overall dimensions 19" lg. x 6$\frac{21}{32}$" h. x 7" d.		Navy type CKB-50279			9 46-0A0A340	46-0A0A340		3						
A-101	BLOCK, mounting: 17ST aluminum, caustic dipped; ¼" square x $\frac{11}{32}$" long; drilled thru out length and tapped #6-32; drilled thru $\frac{5}{32}$" from one end and tapped #6-32 at right angles to other hole.	Serves as ground between A-109 and A-113				9 46-00142-1	46-00142-1	A-101	3						
A-102	BLOCK, mounting: 17ST aluminum, caustic dipped; ¼" square x ½" long overall; one end drilled ¼" deep and tapped #6-32; one hole drilled thru and tapped #6-32 at right angles.	Secures terminal board E-102 to top of chassis				9 46-001A-22-1	46-001A122-1	A-102, A-103	6						
A-103	Same as A-102.	Secures terminal board E-102 to top of chassis				SEE ERRATA SHEET									
A-104	BRACKET, buss wire support: .051" diam. music wire, cadmium plated $\frac{15}{16}$" h. x ¼" wd. x ½" d. overall; "V" shaped; one end bent to form $\frac{5}{32}$" diam. loop; opposite end bent to form $\frac{11}{64}$" diam. loop with plane of loop at right angles to plane of opposite loop.	Supports buss wire				9 46-006A172-1	46-006A172-1	A-104, A-105, A-106	9						
A-105	Same as A-104.														
A-106	Same as A-104.														
A-107	CHASSIS ASSEMBLY: #14 gauge aluminum, caustic dipped; 17⅛" wd. x 6¼" d. x 3½" h.	Mounts components of multicoupler unit				9 46-009A735-5	46-009A735-5	A-107	3						
A-108	CLAMP, cable: cold rolled steel; cadmium plated; ¼" wd. x ½" lg. (approximately); $\frac{5}{32}$" diam. mounting hole located $\frac{9}{64}$" from end; clamping section formed on $\frac{3}{32}$" radius.	Secures wiring to chassis				9 46-009A382-1	46-009A382-1	A-108	3						
A-109	COVER, chassis bottom: #14 gauge aluminum, caustic dipped; 17" lg. x 6⅛" wd.; twelve #17 holes spaced around edge, and one #17 hole near one end.	Provides dust tight cover for bottom of chassis				9 46-009A737-2	46-009A737-2	A-109	3						
A-110	COVER, output shield: #20 gauge aluminum, caustic dipped; 13 $\frac{31}{64}$" lg. x 2$\frac{1}{16}$" wd.; two ⅜" flanges turned at 90° in opposite directions on long dimension; one ⅜" flange turned at 90° at one end; ten $\frac{5}{32}$" holes spaced 1.343" apart 1" from edge of long dimension.	Covers output shields				9 46-009A736-2	46009A736-2	A-110	3						

RESTRICTED

TABLE 8-2 (Continued)

COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts Equip. Box No.	Spare Parts Equip. Quan.	Spare Parts Tender Box No.	Spare Parts Tender Quan.	Spare Parts Stock Box No.	Spare Parts Stock Quan.
A-111	PANEL, front: aluminum, caustic dipped; 19" lg. x 6 31/32" wd. x 3/16" thk.; two 1/4" mounting slots at each end; front side of panel painted gray and engraved.	Mounts multicoupler unit to rack	Size "D" per Bureau of Ships Spec. XA8896-A			9 46-009A746-2	46-009A746-2	A-111	3						
A-112	SHIELD, input stage, front: #16 gauge aluminum, caustic dipped; 2 63/64" h. x 1 19/32" d.; two 1/4" flanges bent in opposite directions on height dimensions; two 5/32" holes spaced 1 3/8" on center in rear flanges; two holes extruded and tapped to #6-32 on front flange.	Shields antenna input circuit				9 46-009A733-1	46-009A733-1	A-112	3						
A-113	SHIELD, input stage side: #16 gauge aluminum, caustic dipped; 2 11/16" d. x 3 27/64" h; 13/32" flange turned on one side on height dimensions; two 5/32" holes spaced 1 1/8" on center in flange; one 5/32" hole placed in upper front corner of shield; one hole extruded in lower front corner and tapped to #6-32.	Shields antenna input circuit				9 46-009A734-1	46-009A734-1	A-113	3						
A-114	SHIELD, output stage: #20 gauge aluminum, caustic dipped; 1 1/4" h. x 2 1/64" lg. x 1 1/3" wd.	Shields V-104 output circuit				9 46-009A732-1	46-009A732-1	A-114, A-115, A-116, A-117, A-118, A-119 A-120, A-121, A-122, A-123	30						
A-115	Same as A-114.	Shields V-105 output circuit													
A-116	Same as A-114.	Shields V-106 output circuit													
A-117	Same as A-114.	Shields V-107 output circuit													
A-118	Same as A-114.	Shields V-108 output circuit													
A-119	Same as A-114.	Shields V-109 output circuit													
A-120	Same as A-114.	Shields V-110 output circuit													
A-121	Same as A-114.	Shields V-111 output circuit													
A-122	Same as A-114.	Shields V-112 output circuit													
A-123	Same as A-114.	Shields V-113 output circuit													
A-124	SPACER, terminal board mounting: 1/2 h. brass; nickel plated; 5/16" hex. x 3/8" lg.; drilled on center thruout length and tapped #6-32.	Secures terminal boards E-101, E-103, E-104, E-105, E-106, E-107 to chassis				9 46-001A308-1	46-001A308-1	A-124	57						

TABLE 8-2 (Continued)

COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts: Equip. Box No.	Spare Parts: Equip. Quan.	Spare Parts: Tender Box No.	Spare Parts: Tender Quan.	Spare Parts: Stock Box No.	Spare Parts: Stock Quan.
C-101	CAPACITOR. fixed: mica; 3900 mmfd, ±10%; 500 vdcw; overall dimensions $\frac{11}{16}$" square x $\frac{9}{32}$" thk.	Cathode bypass for V-101	JAN type CM35B 392K			13 Type V or W	46-A30A028-1	C-101, C-102, C-103, C-105, C-106, C-107, C-109, C-110, C-111, C-113, C-114, C-115, C-117, C-118, C-119, C-121, C-122, C-123, C-125, C-126, C-127, C-129, C-130, C-131, C-133, C-134, C-135, C-137, C-138, C-139, C-141, C-142, C-143, C-145, C-146, C-147, C-149, C-150, C-151	117		8				39
C-102	Same as C101.	Heater bypass for V-101													
C-103	Same as C101.	Screen bypass for V-101													
C-104	CAPACITOR, fixed: mica; 3900 mmfd. ±10%; 500 vdcw; overall dimensions $1\frac{1}{16}$" lg. x $\frac{1}{16}$" wd. x $\frac{5}{32}$" thk.	Output coupling for V-101	JAN type CM25B681K			13 Type F	46-A3030-1	C-104, C-108 C-112, C-116, C-120, C-124, C-128, C-132, C-136, C-140, C-144, C-148, C-152	39		4				39
C-105	Same as C101.	Cathode bypass for V-102													
C-106	Same as C101.	Heater bypass for V-102													
C-107	Same as C101.	Screen bypass for V-102													
C-108	Same as C104.	Output coupling for V-102													
C-109	Same as C101.	Cathode bypass for V-103													
C-110	Same as C-101.	Heater bypass for V-103													
C-111	Same as C-101.	Screen bypass For V-103													
C-112	Same as C-104.	Output coupling for V-103													

SEE ERRATA SHEET

TABLE 8-2 (Continued)
COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts: Equip. Box No.	Spare Parts: Equip. Quan.	Spare Parts: Tender Box No.	Spare Parts: Tender Quan.	Spare Parts: Stock Box No.	Spare Parts: Stock Quan.
C-113	Same as C-101.	Cathode bypass for V-104													
C-114	Same as C-101.	Heater bypass for V-104													
C-115	Same as C-101.	Screen bypass for V-104													
C-116	Same as C-104.	Output coupling for V-104													
C-117	Same as C-101.	Cathode bypass for V-105													
C-118	Same as C-101.	Heater bypass for V-105													
C-119	Same as C-101.	Screen bypass for V-105													
C-120	Same as C-104.	Output coupling for V-105													
C-121	Same as C-101.	Cathode bypass for V-106													
C-122	Same as C-101.	Heater bypass for V-106													
C-123	Same as C-101.	Screen bypass for V-106													
C-124	Same as C-104.	Output coupling for V-106													
C-125	Same as C-101.	Cathode bypass for V-107													
C-126	Same as C-101.	Heater bypass for V-107													
C-127	Same as C-101.	Screen bypass for V-107													
C-128	Same as C-104.	Output coupling for V-107													
C-129	Same as C-101.	Cathode bypass for V-108													
C-130	Same as C-101.	Heater bypass for V-108													
C-131	Same as C-101.	Screen bypass for V-108													

TABLE 8-2 (Continued)

COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts Equip. Box No.	Spare Parts Equip. Quan.	Spare Parts Tender Box No.	Spare Parts Tender Quan.	Spare Parts Stock Box No.	Spare Parts Stock Quan.
C-132	Same as C-104.	Output coupling for V-108													
C-133	Same as C-101.	Cathode bypass for V-109													
C-134	Same as C-101.	Heater bypass for V-109													
C-135	Same as C-101.	Screen bypass for V-109													
C-136	Same as C-104.	Output coupling for V-109													
C-137	Same as C-101.	Cathode bypass for V-110													
C-138	Same as C-101.	Heater bypass for V-110													
C-139	Same as C-101.	Screen bypass for V-110													
C-140	Same as C-104.	Output coupling for V-110													
C-141	Same as C-101.	Cathode bypass for V-111													
C-142	Same as C-101.	Heater bypass for V-111													
C-143	Same as C-101.	Screen bypass for V-111													
C-144	Same as C-104.	Output coupling for V-111													
C-145	Same as C-101.	Cathode bypass for V-112													
C-146	Same as C-101.	Heater bypass for V-112													
C-147	Same as C-101.	Screen bypass for V-112													
C-148	Same as C-104.	Output coupling for V-112													
C-149	Same as C-101.	Cathode bypass for V-113													
C-150	Same as C-101.	Heater bypass for V-113													

TABLE 8-2 (Continued)

COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts: Equip. Box No.	Spare Parts: Equip. Quan.	Spare Parts: Tender Box No.	Spare Parts: Tender Quan.	Spare Parts: Stock Box No.	Spare Parts: Stock Quan.
C-151	Same as C-101.	Screen bypass for V-113													
C-152	Same as C-104.	Output coupling for V-113													
E-101	BOARD, antenna terminal: LTS-E-4 black phenolic; 1 13/16" lg. x 1 1/8" wd. x 1/8" thk.	Mounts T-101 and R-101				9 46-0A0A381	46-0A0A381	E-101	3						
E-102	BOARD, coupling condenser terminal: LTS-E-4 black phenolic; 2 11/16" lg. x 1 3/4" wd. x 1/8" thk.	Mounts C-108 and C-112				9 46-0A0A382	46-0A0A382	E-102	3						
E-103	BOARD, resistor terminal: LTS-E-4 black phenolic; 6 43/64" lg. x 1 3/4" wd. x 1/8" thk.	Mounts R-114, R-115, R-116, R-117, R-118, R-124, R-126, R-127, R-129, R-130, R-132, R-133, R-135, R-136, R-138				9 46-0A0A383	46-0A0A383	E-103	3						
E-104	BOARD, resistor terminal: LTS-E-4 black phenolic; 6 43/64" lg. x 1 3/4" wd. x 1/8" thk.	Mounts R-119, R-120, R-121 R-122, R-123, R-139, R-141, R-142, R-144, R-145, R-147, R-149, R-151, R-153, R-155				9 46-0A0A384	46-0A0A384	SEE ERRATA SHEET	3						
E-105	BOARD, V-102 tube terminal: LTS-E-4 black phenolic; "L" shaped; 2 1/16" across base; 2 13/16" h. x 1/8" thk.	Mounts L-102, R-104, R-105, R-106, R-112				9 46-0A0A385	46-0A0A385	E-105	3						
E-106	BOARD, V-103 tube terminal: LTS-E-4 black phenolic; 2 9/16" lg. x 1 7/8" wd. x 1/8" thk.	Mounts L-103 R-108, R-109, R-110, R-113				9 46-0A0A386	46-0A0A386	E-106	3						
E-107	BOARD, V-101 tube terminal: LTS-E-4 black phenolic; 2 1/4" lg. x 2 1/8" wd. x 1/8" thk.	Mounts C-104, L-101, R-102, R-107, R-103, R-111				9 46-0A0A387	46-0A0A387	E-107	3						
E-108	CLAMP, insulating: ceramic (Grade G); waxed; 15/32" diam. x 1/8" thk.; 1/8" drilled through center; 5/64" groove cut across face 9/64" off each side of center; 6 required per multicoupler.	Insulates and clamps buss wires				9 46-00804-1	46-00804-1	E-108	18						
E-109	KNOB, control: MTS-E-1 (CFG) black phenolic; 1 5/16" diam. x 5/8" d.; finger grooves around circumference; pointer white engraved.	Knob for rotary for V-112				9 46-008A111-1	46-008A111-1	E-109	3						

SEE ERRATA SHEET

SEE ERRATA SHEET

TABLE 8-2 (Continued)

COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts: Equip. Box No.	Spare Parts: Equip. Quan.	Spare Parts: Tender Box No.	Spare Parts: Tender Quan.	Spare Parts: Stock Box No.	Spare Parts: Stock Quan.
E-110	STRAP, ground; ½ hard brass; #14 gauge; cadmium plated; 13¼" lg; formed thruout length at 90°; narrow leg ⅜" wd.; wide leg 23/32"; 10 holes extruded and tapped to #6-32 on narrow leg 1.34" between centers; 30-#52 holes evenly spaced (edge distance ⅛") on wide leg.	Grounds capacitors C-113, C-114, C-115, C-117, C-118, C-119, C-121, C-122, C-123, C-125, C-126, C-127, C-129, C-130, C-131, C-133, C-134, C-135, C-137, C-138, C-139, C-141, C-142, C-143, C-145, C-146, C-147, C-149, C-150, C-151 to chassis				9 46-009A723-2	46-009A723-2	E-110	3						
E-111	STRAP, ground: ½ hard brass; #14 gauge; cadmium plated; 1 7/16" lg.; formed thruout length at 90°; narrow leg ⅜" wide; wide leg 23/32"; two holes extruded and tapped to #6-32 on narrow leg 1⅛" between centers; three #52 holes spaced 11/32" apart (edge distance ⅛") on wide leg.	Grounds capacitors C-102, C-102, C-103 to chassis SEE ERRATA SHEET				9 46-009A722-1	46-009A722-1	E-111, E-112, E-113	9						
E-112	Same as E-111,	Grounds capacitors C-105, C-106, C-107 to chassis													
E-113	Same as E-111.	Grounds capacitors C-109, C-110, C-111 to chassis													
H-101	SCREW, Allen set: #8-32 thread (class 2, free fit) x 3/16" long; cup point; steel; cadmium plated.	Secures E-109 to selector switch (S-101)				9 46-005A052-1	46-005A052-1	H-101	3						
I-101	LAMP, pilot; 6 to 8 volt; .25 amp.; clear bulb; miniature bayonet; 1⅛" long overall.	Indicates power on				7 Mazda 44	46-A0083-1	I-101, I-201	6		1				3
J-101	RECEPTACLE, concentric connector: 1 round female contact, straight; 1 1/16" lg. x 1" wd. x 1" h. overall; contact beryllium copper, silver plated; ⅝"-24 coupling threads; mounting flange 1" square with four .125" diam. holes spaced .719".	Antenna input connections to T-101	Navy type C-49194			2 7145	46-A7078-1	J-101, J-104, J-105, J-106, J-107, J-108, J-109, J-110, J-111, J-112, J-113	33		6				22
J-102	JACK, telephone: for 3 conductor .2065" diam. plug; 1 3/16" lg. x ⅞" diam. overall; three solder lug terminals; includes one hex mounting nut.	Jack for meter plug	SEE ERRATA SHEET			15 JK-33-A	46-A70A176-1	J-102, J-401	SEE ERRATA SHEET						
J-103	RECEPTACLE, male: 4 round male contacts, straight; 1 7/16" lg. overall; #12 contacts; silver plated; moulded phenolic insert; aluminum alloy housing; sandblast and clear lacquer finish; 1⅛"-18 coupling threads ⅝" long; mounting flange 1⅜" square with four ⅛" diam. mounting holes spaced 1 1/16".	Power input receptacle	SEE ERRATA SHEET			5 2061-21	46-A70A170-1	J-103		SEE ERRATA SHEET					

TABLE 8-2 (Continued)

COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts: Equip. Box No.	Spare Parts: Equip. Quan.	Spare Parts: Tender Box No.	Spare Parts: Tender Quan.	Spare Parts: Stock Box No.	Spare Parts: Stock Quan.
J-104	Same as J-101.	Output connection for V-104													
J-105	Same as J-101.	Output connection for V-105													
J-106	Same as J-101.	Output connection for V-106													
J-107	Same as J-101.	Output connection for V-107													
J-108	Same as J-101.	Output connection for V-108													
J-109	Same as J-101.	Output connection for V-109													
J-110	Same as J-101.	Output connection for V-110													
J-111	Same as J-101.	Output connection for V-11 SEE ERRATA SHEET													
J-112	Same as J-101.	Output connection for V-112													
J-113	Same as J-101.	Output connection for V-113													
L-101	SEE ERRATA SHEET COIL, plate loading: choke; integral type; single winding; single layer wound; unshielded; 14 turns; #28 tinned copper wire, 4 3/32" lg.; ceramic form 1¼" lg. x ¼" diam.; .825 microhenries at 10 megacycles.	Shunt peaking coil for input stage				16 SEE ERRATA SHEET	46-A5006-1	L-101	3		3				9
L-102	SEE ERRATA SHEET COIL, plate loading: choke; integral type; single winding; single layer wound, unshielded; 14 turns. # 28 tinned copper wire 4 3/32" lg.; ceramic form 1¼" lg. x ¼" diam. .406 microhenries at 12 megacycles.	Shunt peaking coil for V-102				16	46-A5005-1	L-102, L-103	6		6				18
L-103	Same as L-102.	Shunt peaking coil for V-103													
R-101	RESISTOR, fixed: composition; 120 ohms ±5 %; ½ watt; overall dimensions ½" lg. x ⅜" diam.	V-101 cathode resistor	JAN type RC21BF121J			20	46-A1098-1	R-101, R-104, R-108, R-124, R-127, R-130, R-133, R-136, R-139, R-142, R-145, R-149, R-153	39		6				60
R-102	RESISTOR, fixed: composition; 220 ohms ±10%; ½ watt; overall dimensions ⅝" lg. x ¼" diam.	V-101 plate resistor	JAN type RC21BF221K			20	46-A10A020-1	R-102	3		1				10

TABLE 8-2 (Continued)

COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts: Equip. Box No.	Spare Parts: Equip. Quan.	Spare Parts: Tender Box No.	Spare Parts: Tender Quan.	Spare Parts: Stock Box No.	Spare Parts: Stock Quan.
R-103	RESISTOR, fixed: composition; 1500 ohms ±10%; 1 watt; overall dimensions 5/8" lg. x 1/4" diam.	V-101 stage decoupling resistor	JAN type RC30BF152K			20	46-A10A074-1	R-103, R-106, R-110, R-126, R-129, R-132, R-135, R-138, R-141, R-144, R-147, R-151, R-155	39		6				60
R-104	Same as R-101.	V-102 cathode resistor													
R-105	RESISTOR, fixed: composition; 100 ohms ±10%; 1/2 watt; overall dimensions 5/8" lg. x 3/16" diam.	V-102 plate resistor	JAN type RC21BF101K			20	46-A1025-1	R-105, R-109, R-111, R-112, R-113, R-114, R-115, R-116, R-117, R-118, R-119, R-120, R-121, R-122, R-123	45		6				60
R-106	Same as R-103.	V-102 stage decoupling resistor													
R-107	RESISTOR, fixed: composition; 10,000 ohms ±10%; 1/2 watt; overall dimensions 3/4" lg. x 1/4" diam.	V-102 and V-103 grid resistor	JAN type RC21BF103K			20	46-A1021-1	R-107	3		1				10
R-108	Same as R-101.	V-103 cathode resistor													
R-109	Same as R-105.	V-103 plate resistor													
R-110	Same as R-103.	V-103 stage decoupling resistor													
R-111	Same as R-105.	Meter shunt for V-101 stage													
R-112	Same as R-105.	Meter shunt for V-102 stage													
R-113	Same as R-105.	Meter shunt for V-103 stage													
R-114	Same as R-105.	Meter shunt for V-104 stage													
R-115	Same as R-105.	Meter shunt for V-105 stage													
R-116	Same as R-105.	Meter shunt for V-106 stage													
R-117	Same as R-105.	Meter shunt for V-107 stage													

TABLE 8-2 (Continued)
COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts Equip. Box No.	Spare Parts Equip. Quan.	Spare Parts Tender Box No.	Spare Parts Tender Quan.	Spare Parts Stock Box No.	Spare Parts Stock Quan.
R-118	Same as R-105.	Meter Shunt for V-108 stage													
R-119	Same as R-105.	Meter shunt for V-109 stage													
R-120	Same as R-105.	Meter shunt for V-110 stage													
R-121	Same as R-105.	Meter shunt for V-111 stage													
R-122	Same as R-105.	Meter shunt for V-112 stage													
R-123	Same as R-105.	Meter shunt for V-113 stage													
R-124	Same as R-101.	V-104 cathode resistor													
R-125	RESISTOR, fixed: composition; 1000 ohms ±10%; ½ watt; overall dimensions ⅝" lg. x 3/16" diam.	V-104 plate resistor	JAN type RC21BF102K			20	46-A1039-1	R-125, R-128, R-131, R-134, R-140, R-143, R-146, R-148, R-150, R-152, R-154	36		5				50
R-126	Same as R-103.	V-104 stage decoupling resistor				SEE ERRATA SHEET									
R-127	Same as R-101.	V-105 cathode resistor													
R-128	Same as R-125.	V-105 plate resistor													
R-129	Same as R-103.	V-105 stage decoupling resistor													
R-130	Same as R-101.	V-106 cathode resistor													
R-131	Same as R-125.	V-106 plate resistor													
R-132	Same as R-103.	V-106 stage decoupling resistor													
R-133	Same as R-101.	V-107 cathode resistor													
R-134	Same as R-125.	V-107 plate resistor													
R-135	Same as R-103.	V-107 stage decoupling resistor													

TABLE 8-2 (Continued)

COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts: Equip. Box No.	Spare Parts: Equip. Quan.	Spare Parts: Tender Box No.	Spare Parts: Tender Quan.	Spare Parts: Stock Box No.	Spare Parts: Stock Quan.
R-136	Same as R-101.	V-108 cathode resistor													
R-137	Same as R-125.	V-108 plate resistor													
R-138	Same as R-103.	V-108 stage de-coupling resistor													
R-139	Same as R-101.	V-109 cathode resistor													
R-140	Same as R-125.	V-109 plate resistor													
R-141	Same as R-103.	V-109 stage de-coupling resistor													
R-142	Same as R-101.	V-110 cathode resistor													
R-143	Same as R-125.	V-110 plate resistor													
R-144	Same as R-103.	V-110 stage de-coupling resistor													
R-145	Same as R-101.	V-111 cathode resistor													
R-146	Same as R-125.	V-111 plate resistor													
R-147	Same as R-103.	V-111 stage de-coupling resistor													
R-148	Same as R-125.	Grid resistor for V-104, V-106, V-108, V-110, V-112 stages													
R-149	Same as R-101.	V-112 cathode resistor													
R-150	Same as R-125.	V-112 plate resistor													
R-151	Rame as R-103.	V-112 stage de-coupling resistor													
R-152	Same as R-125.	Grid resistor for V-105, V-107, V-109, V-111, V-113 stages													
R-153	Same as R-101.	V-113 cathode resistor													
R-154	Same as R-125.	V-113 plate resistor													

TABLE 8-2 (Continued)

COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

SEE ERRATA SHEET

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts: Equip. Box No.	Spare Parts: Equip. Quan.	Spare Parts: Tender Box No.	Spare Parts: Tender Quan.	Spare Parts: Stock Box No.	Spare Parts: Stock Quan.
R-155	Same as R-103.	V-113 stage decoupling resistor													
S-101	SWITCH, rotary selector: 1 pole; 13 position; single section; steel; cadmium plated body; 1 11/16" diam. x 1 23/32" lg. overall; non-shorting contacts; shaft ½" diam. x ⅜ lg.; bushing ⅜" diam. x ¼" lg.; solder lug terminals.	Cathode current meter switch				12 Mod. 32117-J	46-A6037-2	S-101	3		1				3
T-101	TRANSFORMER, antenna input: two windings; double layer; one primary 5 turns; one secondary 15 turns; unshielded; 1½" lg. x 11/32" diam. overall; powdered iron core; mounts leg #6-32 threaded stud ⅜" lg.	Couples antenna coaxial cable to grid of V-101				16	46-5A014-1	T-101	3		3				9
V-101	TUBE, vacuum: JAN 6AB7 receiving pentode amplifier.	Input stage amplifier	JAN type 6AB7			18		V-101, V-102 V-103, V-104, V-105, V-106, V-107, V-108, V-109, V-110, V-111, V-112, V-113	39		78				—
V-102	Same as V-101.	Distribution stage amplifier													
V-103	Same as V-101.	Distribution stage amplifier													
V-104	Same as V-101.	Output stage amplifier													
V-105	Same as V-101.	Output stage amplifier													
V-106	Same as V-101.	Output stage amplifier													
V-107	Same as V-101.	Output stage amplifier													
V-108	Same as V-101.	Output stage amplifier													
V-109	Same as V-101.	Output stage amplifier													
V-110	Same as V-101.	Output stage amplifier													
V-111	Same as V-101.	Output stage amplifier													
V-112	Same as V-101.	Output stage amplifier													
V-113	Same as V-101.	Output stage amplifier													

TABLE 8-2 (Continued)

COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts Equip. Box No.	Spare Parts Equip. Quan.	Spare Parts Tender Box No.	Spare Parts Tender Quan.	Spare Parts Stock Box No.	Spare Parts Stock Quan.
X-101	SOCKET, tube: standard octal; steatite; 1¾" diam. x ¾" h. overall; mounts by menas of cadmium plated saddle on 1½" mounting center.	Mounts tube V-101	Navy type CNZ49380 SEE ERRATA SHEET			23 115001/1A-NS SEE ERRATA SHEET	46-A70A171-1	X-101, X-102, X-103, X-104, X-105, X-106, X-107, X-108, X-109, X-110, X-111, X-112, X-113, X-204	42		7				14
X-102	Same as X-101.	Mounts tube V-102													
X-103	Same as X-101.	Mounts tube V-103													
X-104	Same as X-101.	Mounts tube V-104													
X-105	Same as X-101.	Mounts tube V-105													
X-106	Same as X-101.	Mounts tube V-106													
X-107	Same as X-101.	Mounts tube V-107													
X-108	Same as X-101.	Mounts tube V-108													
X-109	Same as X-101.	Mounts tube V-109													
X-110	Same as X-101.	Mounts tube V-110													
X-111	Same as X-101.	Mounts tube V-111													
X-112	Same as X-101.	Mounts tube V-112													
X-113	Same as X-101.	Mounts tube V-113													
X-114	SOCKET, pilot light: miniature; bayonet base; brass body; 1⅞" lg. x ⅞" wd. x 1⅛" h. overall; smooth red jewel; fibre insulating washer; panel mounting; two solder lug terminals.	Mounts pilot light				8 404	46-A70A175-1	X-114, X-203	6						
201-299 Series	RECTIFIER POWER UNIT: includes one rectifier tube and other components housed in an aluminum alloy chassis, caustic dipped; mounted on Size "D" rack mounting panel; overall dimensions 19" lg. x 6 31/32" h. x 7⅜" d.; fuse assemblies in rear of chassis.		Navy type CBK20477 SEE ERRATA SHEET			9 46-0A0A341	46-0A0A341		3						
A-201	BRACKET, left hand panel support: .062" aluminum; caustic dipped; ⅝" wd. x 6½" h. x 5¾" d. overall; trapezoidal shaped; contains one ⅝" flange turned at right angles along one slanted side of trapezoid (two .203" diam. mounting holes punched in flange); two .187 diam. holes located in edge of opposite slanted side.	Support between panel and chassis left side				9 46-009A727-2	46-009A727-2	A-201	3						
A-202	BRACKET, right hand panel support: same as 009A727-2 except flange turned in opposite direction.	Support between panel and chassis, right side				9 46-009A728-2	46-009A728-2	A-202	3						

TABLE 8-2 (Continued)

COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts: Equip. Box No.	Spare Parts: Equip. Quan.	Spare Parts: Tender Box No.	Spare Parts: Tender Quan.	Spare Parts: Stock Box No.	Spare Parts: Stock Quan.
A-203	CHASSIS ASSEMBLY: power supply; #14 gauge aluminum; 16 3/4" lg. x 6 1/2" wd. x 2" h. overall; box shapped; corners flame-welded; shelf spot-welded to chassis.	Houses all componenas of power unit				9 46-0A0A346-4	46-0A0A346-4	A-203	3						
A-204	COVER, chassis bottom: aluminum; caustic dipped; .064" thk. x 6 3/8" wd. x 16 5/8" lg. overall; corners rounded on 5/32" radius; ten #17 mounting holes located around cover edge.	Provides dust cover for bottom of chassis				9 46-009A738-2	46-009A738-2	A-204	3						
A-205	PANEL, front: aluminum; caustic dipped; 3/16" thk. x 6 31/32" wd. x 19" lg. overall; two mounting slots 3/8" lg. x 1/4" wide located in each end; front side of panel painted gray and engraved.	Mounts chassis to rack	Size "D" per Bureau of Ships Spec. XA8896-A			9 46-009A729-2	46-009A729-2	A-205	3						
C-201	CAPACITOR, fixed: paper; oil filled; 4 microfarad ±10%; 600 volts DCW; cylindrical aluminum case 5 1/4" lg. x 1 1/2" diam.; two solder lug terminals.	Rectifier Power Unit filter capacitor	JAN type CP40C2FF405K			10 6GA400	46-A3026-1	C-201, C-202, C-203	9		5				23
C-202	Same as C-201.	Rectifier Power Unit filter capacitor													
C-203	Same as C-201.	Rectifier Power Unit filter capacitor													
F-201	FUSE, cartridge: 1 amp; 250 v; non-renewable; glass body; ferrule type contacts; 1 1/4" lg. x 9/32" diam. overall. Type 4AG.	Provides protection in ac input line				11 #1091	46-A00A022-1	F-201, F-202	6		120				600
F-202	Same as F-201.	Provides protection in ac input line													
H-201	CLAMP. cable: AN 3057-6; aluminum alloy, sandblast and clear lacquer finish; 27/32" lg. x 1 3/64" wd. overall; 3/4"-20 thread; two AN-515 screws and two AN-935 lockwashers furnished with each cable clamp; saddle clamp adjustable to various diameters.	Clamp for primary source of power cable	AN 3057-6			5 2255-3	46-A00A170-1	H-201	3						
H-202	CLAMP, tube: .025 stainless steel; comprised of circular strap (with tension loop), clip (opening and closing) and mounting bracket (.035 stainless steel hole, hole clearance for #10 screw); clamp inside diam. (when closed) 1 3/8".	Clamp vacuum tube V-201				3 926C 2	46-006A014-1	H-202	3		5				10
I-201	LAMP, pilot light: same as I-101.	Indicates power on				7 Mazda 44	46-A0083-1	I-201, I-101							

SEE ERRATA SHEET

TABLE 8-2 (Continued)

COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts: Equip. Box No.	Equip. Quan.	Tender Box No.	Tender Quan.	Stock Box No.	Stock Quan.
J-201	RECEPTACLE, male: 3 round male contacts, straight; 1 3/16" lg. overall; #16 contacts silver plated; moulded phenolic insert; aluminum alloy housing sandblast and clear lacquer finish; 7/8"-20 coupling threads 3/8" lg.; mounting flange 1 3/16" square with four .120" diam. mounting holes spaced 29/32".	Power input receptacle	AN3102-14S-7P			5 2057-9	46-A70A139-1	J-201	3		2				6
J-202	RECEPTACLE, female: 4 round female contacts, straight; 1 7/16" lg. overall; #12 contacts silver plated; moulded phenolic insert; aluminum alloy housing; sandblast and clear lacquer finish; 1 1/8"-18 coupling threads 5/8" lg.; mounting flange 1 3/8" square with four .120" diam. holes spaced 1 1/16".	For output of filament and dc power to multicoupler	AN3102-18-10S			5 2061-22	46-A7059-1	J-202	3		2				6
L-201	COIL, radio, AF: choke; single winding; 5 henries at 180 ma; DC resistance 113 ohms; 4-5/8" lg. x 3 3/8" wd. x 4 1/8" h. overall; 2.5 K.V., DC insulation test; enclosed steel case; four 1/2" x 1/4" elongated holes; 3 5/8" and 2" mounting centers; two solder lug terminals on bottom of case.	First filter choke	Navy type CAFT302143			21 CS-13901	46-A4028-2.	L-201, L-202	6		2				6
L-202	Same as L-201.	Second filter choke													
P-201	PLUG. female: 3 round female contacts; straight; 1 21/32" lg. x 1 1/8" diam. overall; #16 contacts silver plated; moulded phenolic insert; aluminum allay housing sandblast and clear lacquer finish; 7/8"-20 coupling thread; 3/4"-20 conduit thread.	Plug for primary source of power cable	AN3106-14s-7S			5 2057-10	46-A70A140-1	P-201	3		2				6
S-201	SWITCH. toggle: DPST; bakelite body; 17/32" wd. x 1 3/8" h. x 1 3/4" d. overall; 15 amp. continuous current; 15/32"-32 threaded bushing 17/32" lg.; solder lug terminals; bat type lever.	Power switch	JAN type ST28K			7 ST28K	46-A6026-1	S-201	3		1				3
T-201	TRANSFORMER, power: fully enclosed steel case; 5 7/8" lg. x 4 1/8" wd. x 4 11/16" h. overall; primary 115 v., 50-60 cycles; secondary 400 v. 140 Ma, CT; filament #1 6.5 v., 6.4 amp.; filament # 2 5v., 3 amp.; four 1/2" long x 1/4" wide elongated mounting holes; 5 1/8" and 2 5/8" mounting centers; nine solder lug terminals on bottom.	Supplies rectifier and filaments SEE ERRATA SHEET	SEE ERRATA SHEET			21 CS-5709	46-A4043-2	T-201	3		1				9
V-201	TUBE, vacuum: 5U4G full wave high vacuum rectifier.	Full wave rectifier	JAN type 5U4G			18 JAN-5U4G	JAN-5U4G	V-201	3		6				
X-201	HOLDER, fuse: extractor post; for single 4AG fuse; bakelite base with copper clips rated at 18 amp.; 2 3/8" lg. x 3/4" diam. overall; two solder lug terminals tinned each containing .115 diam. wire hole; includes 9/16" mounting nut and neoprene washer.	Mounts F-201				18 HCM SEE ERRATA SHEET	46-A00A019-1	X-201, X-202	6		3				12

TABLE 8-2 (Continued)

COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts: Equip. Box No.	Equip. Quan.	Tender Box No.	Tender Quan.	Stock Box No.	Stock Quan.
X-202	Same as X-201.	Mounts F-202													
X-203	Same as X-114.	Mounts I-201													
X-204	Same as X-101.	Mounts recitifier tube													
301-399 Series	PANEL ASSEMBLY, jack: size "A" rack mounting panel and components; 24ST alum-~~inum~~; overall dimensions 19" lg. x 1 23/32" h. x 1 5/16" d.	Provides jacks for patch cord plug-ins	Navy type CKB-491295			9 46-0A0A343-2	46-0A0A343-2		7						
A-301	PANEL, jack: aluminum, caustic dipped; 19" lg. x 1 23/32" h. x 3/16" thk. overall; two mounting slots (5/8" lg. x 1/4- wd.) located in each end; eleven 3/4" diam. and twelve 1/8" diam. equally spaced holes located across face of panel; front side painted gray and engraved.	Mounts J-301, J-302, J-303, J-304, J-305, J-306, J-307, J-308, J-309, J-310, J-311	Size "A" per Bureau of Ships Spec. XA8896-A			9 46-0A0A331-2	46-0A0A331-2	A-301, A-302, A-303, A-304, A-305, A-306, A-307	7						
A-302	Same as A-301.														
A-303	Same as A-301.														
A-304	Same as A-301.														
A-305	Same as A-301.														
A-306	Same as A-301.														
A-307	Same as A-301.														
J-301	JACK ASSEMBLY, concentric connector: consists of one concentric connector jack, Navy type C-49120, and one jack terminator, Navy type C-62112; concentric connector jack, one round male contact, straight 1 5/8" lg. x 1" diam. overall; brass body, 3/4"-20 coupling thread, includes hex mounting nut; jack terminator, brass nickel plated body, 1 1/2" lg. x 13/16" diam. overall 3/4"-20 coupling thread; neoprene insert (Eleven jack assemblies per each jack panel).	Provides termination for W-301				14	46-0A0A361-1	J-301, J-302, J-303, J-304, J-305, J-306, J-307, J-308, J-309, J-310, J-311	77						
J-302	Same as J-301.	Provides termination for W-302													
J-303	Same as J-301.	Provides termination for W-303													
J-304	Same as J-301.	Provides termination for W-304													
J-305	Same as J-301.	Provides termination for W-305													

TABLE 8-2 (Continued)

COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts Equip. Box No.	Spare Parts Equip. Quan.	Spare Parts Tender Box No.	Spare Parts Tender Quan.	Spare Parts Stock Box No.	Spare Parts Stock Quan.
J-306	Same as J-301.	Provides termination for W-306													
J-307	Same as J-301.	Provides termination for W-307													
J-308	Same as J-301.	Provides termination for W-308													
J-309	Same as J-301.	Provides termination for W-309													
J-310	Same as J-301.	Provides termination for W-310													
J-311	Same as J-301.	Provides termination for W-311													
P-301	PLUG, concentric connector: one round male contact; straight; 1 9/16" lg. x 13/16" diam. overall; contact beryllium copper, silver plated; 5/8"-24 thread tapped inside one connector end; moulded phenolic insulation; brass housing silver plated; 7/16" diam. cable opening.	Connects W-301 to J-101	Navy type CQA-49195			2 7149	46-A7080-1	P-301, P-302, P-303, P-304, P-305, P-306, P-307, P-308, P-309, P-310, P-311	33		6				22
P-302	Same as P-301.	Connects W-302 to J-104													
P-303	Same as P-301.	Connects W-303 to J-105													
P-304	Same as P-301.	Connects W-304 to J-106													
P-305	Same as P-301.	Connects W-305 to J-107													
P-306	Same as P-301.	Connects W-306 to J-108													
P-307	Same as P-301.	Connects W-307 to J-109													
P-308	Same as P-301.	Connects W-308 to J-110													
P-309	Same as P-301.	Connects W-309 to J-111													
P-310	Same as P-301.	Connects W-310 to J-112													
P-311	Same as P-301.	Connects W-311 to J-113													

TABLE 8-2 (Continued)

COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts Equip. Box No.	Spare Parts Equip. Quan.	Spare Parts Tender Box No.	Spare Parts Tender Quan.	Spare Parts Stock Box No.	Spare Parts Stock Quan.
W-301	CABLE ASSEMBLY, jack panel: overall dimensions 1½" diam. x 50", 41", or 32" lg.; consisting of coaxial cable (type RG-11/U) and one concentric connector, P-301. (Note: Cable assemblies W-301 thru W-311 each come in three lengths. Each is marked with symbol number and part number.)	Connects J-301 to J-101				9 46-OAOA334-2 (50") or 46-OAOA372-2 (41") or 46-OAOA373-2 (32")	46-OAOA334-2 (50") or 46-OAOA372-2 (41") or 46-OAOA373-2 (32")	W-301, W-302, W-303, W-304, W-305, W-306, W-307, W-308, W-309, W-310, W-311	33						
W-302	Same as W-301.	Connects J-302 to J-104													
W-303	Same as W-301.	Connects J-303 to J-105													
W-304	Same as W-301.	Connects J-304 to J-106													
W-305	Same as W-301.	Connects J-305 to J-107													
W-306	Same as W-301.	Connects J-306 to J-108													
W-307	Same as W-301.	Connects J-307 to J-109													
W-308	Same as W-301.	Connects J-308 to J-110													
W-309	Same as W-301.	Connects J-309 to J-111													
W-310	Same as W-301.	Connects J-310 to J-112													
W-311	Same as W-301.	Connects J-311 to J-113													
401-499 Series	PANEL ASSEMBLY, meter: DC millameter and components mounted on size "B" rack mounting panel; overall dimensions 19" lg. x $3\frac{15}{32}$" h. x 2¼" d.	Millameter panel	Navy type CKB-60149			9 46-OAOA332	46-0A0A342		1						
A-401	PANEL, meter: aluminum: caustic dipped; $\frac{3}{16}$" thk. x $3\frac{15}{32}$" wd. x 19" lg. overall; two mounting slots (⅝" lg. x ¼" wd.) located in each end; one 2.22" diam. hole cut in panel center (three equally spaced ⅛" holes located on 1.22" radius around 2.22" diam. proximate center of one side panel, one $\frac{13}{32}$" hole on the other side. SEE ERRATA SHEET	Mounts E-501, H-501, J, 501, M-501	Size "B" per Bureau of Ships Spec. XA8896-A			9 46-009A741-2	46-009A741-2	A-401	1						
E-401	GROMMET, phenolic plastic: fits ⅜" diam. hole; $\frac{21}{32}$" OD x ¼" ID x $\frac{7}{16}$" lg. overall; collar (threaded on outside) moulded to grommet on one side only; mounts with external tooth phenolic threaded nut.	Provides protection for meter cable through panel				6 3/P-233	46-OAOA332 SEE ERRATA SHEET	E-401	1						

TABLE 8-2 (Continued)

COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts: Equip. Box No.	Equip. Quan.	Tender Box No.	Tender Quan.	Stock Box No.	Stock Quan.
H-401	CLAMP, cable: steel; cadmium plated; 3/4" lg. x 3/8" wd.; #6 mounting hole to fit 1/4" cable.	Clamps meter cable				1 46-009A384-1	46-009A384-1	H-401	1						
J-401	Same as J-102.	Dummy jack for meter plug	Navy type C-49039												
M-401	METER, milliameter: DC; 0 to 20 Ma; round moulded phenolic flush mounting case; 2.695" diam. flange x 2.220" diam. body x 2 1/4" d.; D'Arsonval movement; calibrated for .09" steel panel; black numerals on white background; self contained; three mounting holes .125" diam. on 1.22" radius; two studs 1/4"-28 thread .69" lg. spaced 1" center to center.	For measuring cathode currents of all electron tubes in multicoupler unit	JAN type MR25W020 DCMA			24 1164133	46-A00A161-1	M-401	1						1
501-599 Series	RACK, panel mounting: all weld construction; complete with 10-24 x 3/8" fillister head mounting screws and corner trims; overall dimensions; 83 1/8" h. x 22" wide x 15 1/4" d.	Houses entire equipment	Navy type CQP10570			17 RG-8325	46-A00A139		1						
A-501	PANEL, size "D" blank: aluminum; caustic dipped; 3/16" thk. x 6 31/32" wd. x 19" lg. overall; two mounting slots (3/8" lg. x 1/4" wd.) located in each end; front side of panel painted gray; four 1/8" holes for mounting nameplate.	Fill in unused space in top of rack; mounts assembly nameplate	Size "D" per Bureau of Ships Spec. XA8896-A			9 46-009A739-2	46-009A739-2	A-501	1						
A-502	PANEL, size "G" blank: aluminum, caustic dipped; 3/16" thk. x 12 7/32" wd. x 19" lg. overall; four mounting slots (3/8" lg. x 1/4" wd.) located in each end; front side of panel painted gray.	Fill in unused space in bottom of rack	Size "G" per Bureau of Ships Spec. XA8896-A			9 46-009A752-2	46-009A752-2	A-502	1						
601-699 Series	ACCESSORIES: all interconnecting cables and patch cord assemblies with plugs.														
H-601	CLAMP, cable: aluminum alloy, sandblast and clear lacquer finish; 61/64" lg. x 1 7/32" diam. overall; contains 1"-20 coupling thread; saddle clamp adjustable to various diameters; 5/8" diam. maximum cable entrance.	DC power cable clamp	AN-3057-10			5 2255-6	46-A00A167-1	H-601, H-602, H-603, H-604, H-605, H-606	6						
H-602	Same as H-601.														
H-603	Same as H-601.														
H-604	Same as H-601.														
H-605	Same as H-601.														
H-606	Same as H-601.														

TABLE 8-2 (Continued)

COMBINED PARTS AND SPARE PARTS LIST BY SYMBOL DESIGNATION FOR NAVY TYPE RXA ANTENNA MULTICOUPLER ASSEMBLY

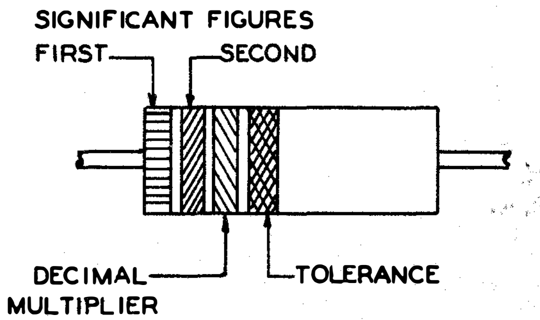
Symbol Desig.	Name of Part and Description	Function	AWS, JAN or Navy Type Desig.	Navy Stock No.	Army Stock No.	Mfr. and Mfr.'s Desig.	Contractor's Dwg. and Part No.	All Symbol Desig Involved	Total Per Equip.	Spare Parts: Equip. Box No.	Spare Parts: Equip. Quan.	Spare Parts: Tender Box No.	Spare Parts: Tender Quan.	Spare Parts: Stock Box No.	Spare Parts: Stock Quan.
P-601	PLUG, male: 4 round contacts; straight 2 1/16" lg. x 1 11/32" diam. overall; #12 contacts silver plated; moulded phenolic insert; aluminum alloy housing sandblast and clear lacquer finish; 1 1/8"-18 coupling threads; 1"-20 conduit thread 3/8" long.	DC and filament power input plug for cable W-601	AN-3106-18-10P			5 2079-21	46-A7060-1	P-601	3		2				6
P-602	PLUG, female: 4 round contacts; straight; 2 1/16" lg. x 1 11/32" diam. overall; #12 contacts silver plated; moulded phenolic insert; aluminum alloy housing sandblast and clear lacquer finish; 1 1/8"-18 coupling threads; 1"-20 conduit thread 3/8" long.	DC and filament power output plug for cable W-601	AN-3106-18-10S			5 2079-22	46-A70A062-1	P-602	3		2				6
P-603	PLUG, telephone: Sig. C Plug PL-68 ;3 way; single shank; tubular; phenolic shell; shank .2065" diam. x 1.093" lg., shell 1/2" diam. x 2 1/8" lg.	Meter cable plug	Navy type C-49007A			19 PL-68	46-A70A178-1	P-603	1		1				2
P-604	PLUG, concentric connector:: straight; 2 11/16" lg. x 11/16" wd. diam. overall; brass nickel plated body contains 11/16" diam. x 15/32" lg. knurled section on one end.	Patch cord connector plug	Navy type C-49121-A			14	46-A7045-1	P-604	66		6				22
W-601	CABLE ASSEMBLY, dc power: overall dimensions 1 11/32" diam. x 33 1/4" lg. consisting of 4-conductor cable. one 4-contact male connector (AN-3106-18-10P) one 4-contact female connector (AN-3106-18-10S), two 5/8" cable clamp (AN-3057-10) and 2" lg. vinylite tubing over each solder connection.	Provides dc and filament power to multicoupler unit				9 46-0A0A333-2	46-0A0A333-2	W-601	3		2				6
W-602	CABLE ASSEMBLY. meter: overall dimensions 1/2" diam. x 46 1/2" lg.; consists of one 3-circuit plug (C-49007A) and DCOP-1 cable (Spec. 15-C-1).	Meter cable				9 46-0A0A335-2	46-0A0A335-2	W-602	1		1				2
W-603	CABLE ASSEMBLY, concentric: overall dimensions 11/16" diam. x 21 3/4" lg.; consists of two concentric connector plugs (C-49121A) and RF coaxial cable (RG-11/U).	Antenna patch cord				9 46-0A0A336-2	46-0A0A336-2	W-603	13		3				
W-604	CABLE ASSEMBLY, concentric: overall dimensions 11/16" diam. x 40" lg.; consists of two concentric connector plugs (C-49121A) and RF coaxial cable (RG-11/U).	Antenna patch cord				9 46-0A0A337-2	46-0A0A337-2	W-604	20		5				

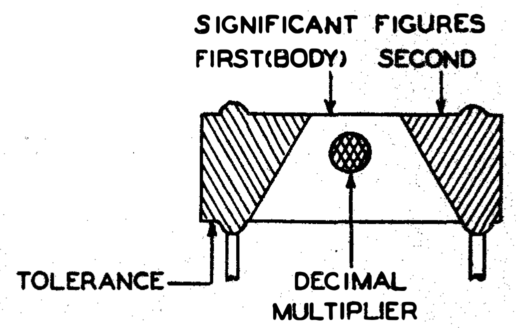
SEE ERRATA SHEET

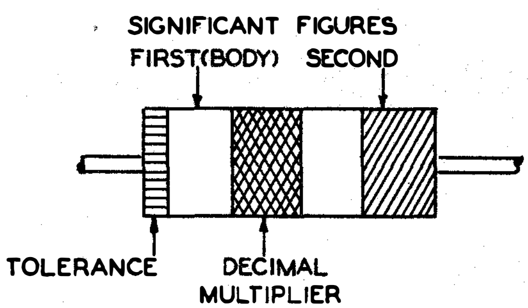
TABLE 8-3.—LIST OF PARTS BY NAVY STOCK NUMBERS

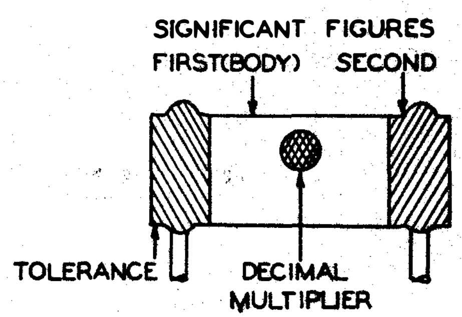
Quantity Used In Equipment	*Navy Stock Number*	*All Symbol Designations Involved*

TABLE 8-4.—APPLICABLE COLOR CODES
(Sheet 1 of 3)





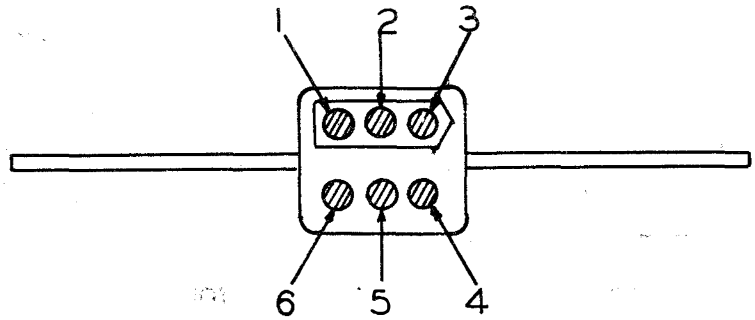




Color	*First Significant Figure*	*Second Significant Figure*	*Decimal Multiplier*	*Tolerance*
Black	0	0	1	—
Brown	1	1	10	± 1%
Red	2	2	100	± 2%
Orange	3	3	1,000	± 3%
Yellow	4	4	10,000	± 4%
Green	5	5	100,000	± 5%
Blue	6	6	1,000,000	± 6%
Violet	7	7	10,000,000	± 7%
Gray	8	8	100,000,000	± 8%
White	9	9	1,000,000,000	± 9%
Gold	—	—	0.1	± 5%
Silver	—	—	0.01	±10%
No Color	—	—	—	±20%

a. Fixed Resistors, RMA and AWS Color Codes

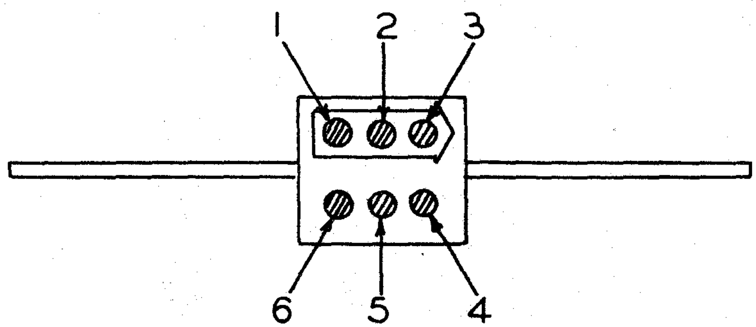
TABLE 8-4.—APPLICABLE COLOR CODE (Continued)
(Sheet 2 of 3)



	1st Dot	*2nd Dot*	*3rd Dot*	*4th Dot*	*5th Dot*	*6th Dot*
Color	*1st Digit*	*2nd Digit*	*3rd Digit*	*Decimal Multiplier*	*Tolerance*	*Voltage Rating*
Black	0	0	0	1	—	—
Brown	1	1	1	10	1%	100 V.
Red	2	2	2	100	2%	200 V.
Orange	3	3	3	1,000	3%	300 V.
Yellow	4	4	4	10,000	4%	300 V.
Green	5	5	5	100,000	5%	400 V.
Blue	6	6	6	1,000,000	6%	600 V.
Violet	7	7	7	10,000,000	7%	700 V.
Gray	8	8	8	100,000,000	8%	800 V.
White	9	9	9	1,000,000,000	9%	900 V.
Gold	—	—	—	0.1	5%	1,000 V.
Silver	—	—	—	0.01	10%	2,000 V.
Body	—	—	—	—	20%	500 V.

b. Moulded Mica Capacitors, RMA Six-Dot Color Code

TABLE 8-4.—APPLICABLE COLOR CODE (Continued)
(Sheet 3 of 3)



Color	*1st Dot* *1st Digit*	*2nd Dot* *2nd Digit*	*3rd Dot* *3rd Digit*	*4th Dot* *Decimal Multiplier*	*5th Dot* *Tolerance*	*6th Dot* *Characteristics**
Black	0	0	0	1	±20%	A
Brown	1	1	1	10		B
Red	2	2	2	100	± 2%	C
Orange	3	3	3	1,000		D
Yellow	4	4	4	10,000		E
Green	5	5	5	100,000		F
Blue	6	6	6	1,000,000		G
Violet	7	7	7	10,000,000		
Gray	8	8	8	100,000,000		
White	9	9	9	1,000,000,000		
Gold	—	—	—	0.1	± 5%	
Silver	—	—	—	0.01	±10%	

*Characteristics include: Q, temperature coefficient in parts per million per degree Centigrade, dissipation factor, and capacitance drift. Higher letters designate more exacting requirements. For complete definitions of characteristics see AWS specification C75.3-1942 or JAN specification JAN-C-5.

c. Moulded Mica Capacitors, AWS and JAN Six-Dot Color Codes

TABLE 8-5.—LIST OF MANUFACTURERS

Code No.	Mfr. Prefix	Name	Address
1		American Radio Hardware Company	476 Broadway, New York City, New York
2		Astatic Corporation	830 Market Street, Youngstown, Ohio
3		Birtcher Corporation	5087 N. Huntington Drive, Los Angeles, Calif.
4		Bussman Manufacturing Company	2538 W. University Street, St. Louis Missouri
5		Cannon Electric Development Company	3291 Humbolt Street, Los Angeles, Calif.
6		Creative Plastics	963 Kent Street, Brooklyn, New York
7		General Electric Company	Schenectady, New York
8		Gothard Manufacturing Company	1300 North 9th Street, Springfield, Illinois
9		Hoffman Radio Corporation	3430 South Hill St., Los Angeles, California
10		Industrial Condenser Corporation	1725 West North Avenue, Chicago, Illinois
11		Littlefuse Laboratories Incorporated	4765 Ravenswood Avenue, Chicago, Illinois
12		Mallory, P. R., Company Incorporated	Indianapolis, Indiana
13		Micamold Radio Corporation	1087-1095 Flushing Ave., Brooklyn, N. Y.
14		National Electric Corporation	2014 Fifth Street, N.E., Washington, D.C.
15		National Fabricated Products Corporation	Chicago, Illinois
16		Pacific Coil	5839 South Hoover, Los Angeles, California
17		Par Metal Products Corporation	32-62 49th Street, Long Island City, N. Y.
18		Radio Corporation of America	Camden, New Jersey
19		Remler	2101 Bryant, San Francisco, California
20		Speer Resistor Corporation	St. Marys, Pennsylvania
21		Thermador Electric Manufacturing Company	5119 S. Riverside Drive, Los Angeles, Calif.
22		Thompson, Geo. S., Company	5240 S. Huntington Dr., Los Angeles, Calif.
23		The Ucinite Company	459 Watertown St., Newtonville, Mass.
24		Westinghouse Electric & Manufacturing Co.	2519 Wilkins Avenue, Baltimore, Maryland

SEE ERRATA SHEET