

# INSTRUCTION BOOK (OPERATING)

FOR

**RADIO SET SCR-522-A**

**RADIO SET SCR-522-T2**

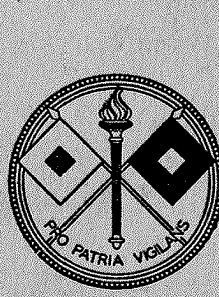
**RADIO SET SCR-542-A**

**RADIO SET SCR-542-T2**

Manufactured By

**BENDIX RADIO CORPORATION**

Baltimore, Maryland, U. S. A.



SC1376A

# RESTRICTED

**PUBLISHED BY AUTHORITY  
OF  
THE CHIEF SIGNAL OFFICER**

Order Nos.  
657-Phila-42  
1974-ARL-41  
97-WFSCPD-42  
4567-Phila-42  
151-WFSCPD-42

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Division of Bendix Aviation Corporation

Baltimore, Maryland, U. S. A.

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## **SAFETY NOTICE**

**OPERATION OF THIS EQUIPMENT INVOLVES THE USE OF HIGH VOLTAGES WHICH ARE DANGEROUS TO LIFE. OPERATING PERSONNEL MUST AT ALL TIMES OBSERVE ALL SAFETY REGULATIONS—THIS PARTICULARLY APPLIES TO CHANGING TUBES OR MAKING ADJUSTMENTS INSIDE THE EQUIPMENT WITH ANY BUT THE “OFF” CONTROL-BOX PUSH BUTTON DE-PRESSED.**

**A DANGEROUS POTENTIAL EXISTS ON BOTH THE TRANSMITTER AND RECEIVER WHENEVER THE EQUIPMENT IS IN EITHER THE TRANSMIT OR RE-CEIVE CONDITION.**

**DO NOT REMOVE TRANSMITTER OR RECEIVER FROM RACK FT-244-A PRIOR TO CONSULTING PARA-GRAPH 12 AS DAMAGE TO THE EQUIPMENT WILL RE-SULT IF CHANNEL SLIDES ARE NOT ALL RELEASED AS DIRECTED.**

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**INSTRUCTION BOOK (OPERATING)***for*

**RADIO SET SCR-522-A**  
**RADIO SET SCR-522-T2**  
**RADIO SET SCR-542-A**  
**RADIO SET SCR-542-T2**

**SECTION I**  
**DESCRIPTION**

**1. GENERAL**

Throughout this book references to components of Radio Sets SCR-522-A and SCR-542-A apply also to similar components of Radio Sets SCR-522-T2 and SCR-542-T2, the only difference being that the suffix "T2" is used in place of "A" on the nameplate. With the exception of nameplate

designation, all components of Radio Sets SCR-522-T2 and SCR-542-T2 are identical with similar components of Radio Sets SCR-522-A and SCR-542-A respectively. The nomenclature of the principal components of these sets is indicated in the following table:

<b>RADIO SET SCR-522-A</b>	<b>RADIO SET SCR-522-T2</b>
<b>RADIO SET SCR-542-A</b>	<b>RADIO SET SCR-542-T2</b>
Radio Transmitter BC-625-A	Radio Transmitter BC-625-T2
Radio Receiver BC-624-A	Radio Receiver BC-624-T2
Rack FT-244-A	Rack FT-244-T2
Case CS-80-A	Case CS-80-T2
Radio Control Box BC-602-A	Radio Control Box BC-602-T2
Junction Box JB-29-A	Junction Box JB-29-T2
*Dynamotor Unit PE-94-A	*Dynamotor Unit PE-94-T2
**Dynamotor Unit PE-98-A	**Dynamotor Unit PE-98-T2
Jack Box BC-629-A (Pilot)	Jack Box BC-629-T2 (Pilot)
Jack Box BC-630-A (First Crew)	Jack Box BC-630-T2 (First Crew)
Jack Box BC-631-A (Other Crew)	Jack Box BC-631-T2 (Other Crew)
Crystal Unit DC-11-A	Crystal Unit DC-11-T2

\* Used on Radio Set SCR-522-A or SCR-522-T2 only.

\*\* Used on Radio Set SCR-542-A or SCR-542-T2 only.

These radio sets are intended for use in U. S. Army aircraft and will provide two-way radio-telephone communication between aircraft in flight and between aircraft and ground stations. Operation may take place on any of four crystal-controlled channels lying within the frequency range of the equipment. Remote control only is provided. Radio Set SCR-522-A operates on 28 volts and uses Dynamotor Unit PE-94-A. Radio

Set SCR-542-A operates on 14 volts and uses Dynamotor Unit PE-98-A. Radio Set SCR-522-A differs from Radio Set SCR-542-A only in the primary power supply voltage and the dynamotor unit used. While this is not the customary procedure, on these particular radio sets, British Air Ministry nameplates as well as U. S. Signal Corps nameplates are affixed to each major component unit.

2. COMPONENTS, DIMENSIONS, AND WEIGHTS

Radio Sets SCR-522-A and SCR-542-A consist of the following component units:

Quantity	U. S. Signal Corps Description	British Air Ministry Description	Ref. No.	Overall Dimensions (Inches)	Weight (Lbs.)
1	*Case CS-80-A, Containing: 1 Radio Transmitter BC-625-A	*Case, Type TR. 5048, Including: 1 Radio Transmitter Unit, Type T. 5017	*110D/145 110D/146	16 $\frac{5}{8}$ x12 $\frac{1}{8}$ x10 $\frac{1}{16}$	49
1	1 Radio Receiver BC-624-A	1 Radio Receiver Unit, Type R. 5019	110D/147		
1	1 Rack FT-244-A	1 Rack, Type 5009	110D/148	5 $\frac{1}{2}$ x5 $\frac{1}{2}$ x2 $\frac{1}{2}$	2.41
1	Radio Control Box BC-602-A	Controller, Type 5008	110J/71	8 $\frac{1}{2}$ x4 $\frac{1}{2}$ x2 $\frac{1}{2}$	2.19
1	Junction Box JB-29-A	Junction Box, Type 5017	110A/240	12 $\frac{1}{2}$ x8 $\frac{1}{2}$ x6 $\frac{1}{4}$	37
1	**Dynamotor Unit PE-94-A	Dynamotor Unit, Type 5016	110K/248	12 $\frac{1}{2}$ x8 $\frac{1}{2}$ x6 $\frac{1}{4}$	37
1	***Dynamotor Unit PE-98-A	Dynamotor Unit, Type 5015	110K/247	12 $\frac{1}{2}$ x8 $\frac{1}{2}$ x6 $\frac{1}{4}$	0.60
1	Jack Box BC-629-A (Pilot)	Jack Box	110A/241	4 $\frac{1}{2}$ x2 $\frac{1}{2}$ x1 $\frac{1}{4}$	0.60
1	Jack Box BC-630-A (First Crew)	Jack Box	110A/242	4 $\frac{1}{2}$ x2 $\frac{1}{2}$ x1 $\frac{1}{4}$	0.54
1	Jack Box BC-631-A (Other Crew)	Jack Box	110A/243	4 $\frac{1}{2}$ x2 $\frac{1}{2}$ x1 $\frac{1}{4}$	0.18 Ea.
8	§Crystal Unit DC-11-A	Crystal Unit	110 XN/	1 $\frac{1}{2}$ x1 $\frac{1}{2}$ x $\frac{1}{2}$	0.75
1	Set of Vacuum Tubes for Radio Transmitter BC-625-A, Consisting of: 2 U. S. Army Tubes VT-118 3 U. S. Army Tubes VT-134 1 U. S. Army Tube VT-198-A 2 U. S. Army Tubes VT-199	Amr. Commercial 832 Amr. Commercial 12A6 Amr. Commercial 6G6G Amr. Commercial 6SS7			0.44
1	Set of Vacuum Tubes for Radio Receiver BC-624-A, Consisting of: 1 U. S. Army Tube VT-135 1 U. S. Army Tube VT-169 1 U. S. Army Tube VT-202 3 U. S. Army Tubes VT-203 1 U. S. Army Tube VT-207 3 U. S. Army Tubes VT-209	Amr. Commercial 12J5GT Amr. Commercial 12C8 Amr. Commercial 9002 Amr. Commercial 9003 Amr. Commercial 12AH7GT Amr. Commercial 12SG7			



DESCRIPTION

Quantity	U. S. Signal Corps Description	British Air Ministry Description	Ref. No.	Overall Dimensions (Inches)	Weight (Lbs.)
2	§§Plug PL-P164 } Junction Box or §§Plug PL-Q164 } Press-to-Transmit Circuit	Socket, Type W147 Socket, Type W148	10H/401 10H/402	2¼ L., 1 <sup>19</sup> / <sub>64</sub> Dia. 2 <sup>1</sup> / <sub>64</sub> H., 2 <sup>3</sup> / <sub>8</sub> L., 1 <sup>19</sup> / <sub>64</sub> Dia.	0.17 0.21
2	§§Plug PL-P165 } Junction Box or §§Plug PL-Q165 } Contactor	Socket, Type W145 Socket, Type W146	10H/399 10H/400	2¼ L., 1 <sup>19</sup> / <sub>64</sub> Dia. 2 <sup>1</sup> / <sub>64</sub> H., 2 <sup>3</sup> / <sub>8</sub> L., 1 <sup>19</sup> / <sub>64</sub> Dia.	0.18 0.21
2	§§Plug PL-P166 } Junction Box or §§Plug PL-Q166 } 1st Crew Jack Box	Socket, Type W151 Socket, Type W152	10H/405 10H/406	2 <sup>5</sup> / <sub>8</sub> L., 1 <sup>19</sup> / <sub>64</sub> Dia. 2 <sup>1</sup> / <sub>64</sub> H., 2 <sup>49</sup> / <sub>64</sub> L., 1 <sup>19</sup> / <sub>64</sub> Dia.	0.25 0.27
2	§§Plug PL-P167 } Junction Box or §§Plug PL-Q167 } Pilot Jack Box	Socket, Type W149 Socket, Type W150	10H/403 10H/404	2 <sup>5</sup> / <sub>8</sub> L., 1 <sup>19</sup> / <sub>64</sub> Dia. 2 <sup>1</sup> / <sub>64</sub> H., 2 <sup>49</sup> / <sub>64</sub> L., 1 <sup>19</sup> / <sub>64</sub> Dia.	0.25 0.27
2	§§Plug PL-P169 } Junction Box or §§Plug PL-Q169 } Radio Control Box	Socket, Type W161 Socket, Type W162	10H/415 10H/416	2¼ L., 1 <sup>21</sup> / <sub>32</sub> Dia. 2 <sup>1</sup> / <sub>64</sub> H., 2 <sup>15</sup> / <sub>16</sub> L., 1 <sup>21</sup> / <sub>32</sub> Dia.	0.29 0.31
1	Plug PL-P169 } Rack or Plug PL-Q169 } Dynamotor Unit	Socket, Type W161 Socket, Type W162	10H/415 10H/416	2¼ L., 1 <sup>21</sup> / <sub>32</sub> Dia. 2 <sup>1</sup> / <sub>64</sub> H., 2 <sup>15</sup> / <sub>16</sub> L., 1 <sup>21</sup> / <sub>32</sub> Dia.	0.29 0.31
2	§§Plug PL-P170 } Junction Box or §§Plug PL-Q170 } Rack	Socket, Type W163 Socket, Type W164	10H/417 10H/418	2¼ L., 1 <sup>59</sup> / <sub>64</sub> Dia. 2 <sup>5</sup> / <sub>32</sub> H., 3 <sup>13</sup> / <sub>64</sub> L., 1 <sup>59</sup> / <sub>64</sub> Dia.	0.34 0.56
1	°Plug PL-P170 } Junction Box or °Plug PL-Q170 } Marker Beacon Receiver	Socket, Type W163 Socket, Type W164	10H/417 10H/418	2¼ L., 1 <sup>59</sup> / <sub>64</sub> Dia. 2 <sup>5</sup> / <sub>32</sub> H., 3 <sup>13</sup> / <sub>64</sub> L., 1 <sup>59</sup> / <sub>64</sub> Dia.	0.34 0.56
1	Plug PL-P171 } Dynamotor Unit or Plug PL-Q171 } Rack	Socket, Type W159 Socket, Type W160	10H/413 10H/414	2¼ L., 1 <sup>21</sup> / <sub>32</sub> Dia. 2 <sup>1</sup> / <sub>64</sub> H., 2 <sup>15</sup> / <sub>16</sub> L., 1 <sup>21</sup> / <sub>32</sub> Dia.	0.30 0.29
1	Plug PL-P172 } Dynamotor Unit or Plug PL-Q172 } Battery	Socket, Type W165	110H/459 10H/419	2 <sup>35</sup> / <sub>64</sub> L., 1 <sup>19</sup> / <sub>64</sub> Dia. 2 <sup>33</sup> / <sub>64</sub> H., 2 <sup>19</sup> / <sub>32</sub> L., 1 <sup>19</sup> / <sub>64</sub> Dia.	0.28 0.29

DESCRIPTION

Quantity	U. S. Signal Corps Description	British Air Ministry Description	Ref. No.	Overall Dimensions (Inches)	Weight (Lbs.)
2	§§ Plug PL-P173 } Rack or } §§ Plug PL-Q173 } Antenna	Plug. Type 156	110H/584	†2 <sup>29</sup> / <sub>64</sub> L., 1 <sup>1</sup> / <sub>4</sub> Dia.	0.21
1	° Plug PL-P199 } Junction Box or } ° Plug PL-Q199 } Rack	Plug. Type 150	110H/507	†2 <sup>51</sup> / <sub>64</sub> H., 2 <sup>7</sup> / <sub>8</sub> L., 1 <sup>1</sup> / <sub>4</sub> Dia.	0.35
1	Socket SO-153 (For Plug PL-P173 or PL-Q173)	Socket, Type 86	110H/585	2 <sup>5</sup> / <sub>8</sub> L., 1 <sup>19</sup> / <sub>64</sub> Dia.	0.11
1	†† Package of Screws				
1	Package of Maintenance Parts, Includes: 3 Pilot Lamps for Radio Control Box BC-602-A Spare Sets of Dynamotor Brushes				

NOTES: \* The nomenclature, Case CS-80-A, does not include the radio receiver, radio transmitter, and rack. Case CS-80-A, containing the radio transmitter, radio receiver, and rack, is referred to throughout this book as "transmitter-receiver assembly". The Case, British Type TR. 5043, Reference Number 110D/145, includes the complete transmitter-receiver assembly.

\*\* Used on Radio Set SCR-522-A only.

\*\*\* Used on Radio Set SCR-542-A only.

§ One receiver and one transmitter crystal of the desired frequency is required for each of the four channels provided in the equipment.

§§ Two straight plugs, two right-angled plugs or the combination of a straight plug and a right-angled plug may be used, as required for each particular installation, as terminations for the cable and the various cords.

† Less rubber sleeve.

†† These four No. 1/4-26 x 1<sup>5</sup>/<sub>32</sub> screws are in a small fabric bag attached to Case CS-80-A and have British Standard Fine Threads.

° This plug is supplied for all installations and should be wired as indicated in Figure 27 when no marker beacon equipment is used.

°° This plug is required when marker beacon equipment is used, but is normally not supplied as part of the equipment.

## DESCRIPTION

The U. S. Signal Corps type numbers for plugs include a ferrule and a nut for each type of plug for flexible conduit attachment. Ferrules and nuts, though they are a part of every plug supplied with Radio Sets SCR-522-A and SCR-542-A, are not covered by the British Type and Reference Numbers. The straight (P) plugs such as PL-P164 and right-angled (Q) plugs such as PL-Q164 are interchangeable. The types used will depend on the requirements of the installation.

### 3. ADDITIONAL EQUIPMENT REQUIRED

To complete the radio set, an antenna, microphones, headsets, and a 14- or 28-volt DC power source will be required. In addition, a Contactor BC-608-A is necessary.

The wires and conduits needed for the required cables are supplied in bulk and the cable lengths may vary with each particular airplane installation. Normally, all conduit and cable wiring will be installed at the airplane factory by the airplane contractor.

The following table lists the type of material supplied and the corresponding British Reference Numbers. For further information, consult the cable assembly drawings, Figures 18 to 26 inclusive.

Description	British Ref. No.
Wire, AWG, No. 22	105E/105
Wire, AWG, No. 22, Shielded	105E/106
Wire, AWG, No. 22, Shielded, Twisted Pair	
Wire, AWG, No. 18	105E/107
Wire, AWG, No. 18, Shielded	105E/70
Wire, AWG, No. 10	105E/108
Wire, AWG, No. 10, Shielded	105E/69
Flex. Conduit, 1/2" ID	110H/466
Flex. Conduit, 3/8" ID	110H/465
Flex. Conduit, 1/4" ID	110H/464
Cable WC-543	105E/78

### 4. POWER CONSUMPTION

The power input requirements for Radio Set SCR-522-A are as follows:

For transmission, the total input current is 11.5A at 28V; for reception, the total input current is 11.1A at 28V.

The power input requirements for Radio Set SCR-542-A are as follows:

For transmission, the total input current is 23.0A at 14V; for reception, the total input current is 22.2A at 14V.

### 5. DESCRIPTION OF PRINCIPAL COMPONENTS

#### a. Transmitter-Receiver Assembly

The transmitter-receiver assembly consists of Case CS-80-A which contains Rack FT-244-A, Radio Transmitter BC-625-A, and Radio Receiver BC-624-A (see Figures 2 and 3). The receiver and transmitter are mounted to the rack; and the complete assembly is easily removed from or placed into the case (refer to paragraph 6a). One set of vacuum tubes and one set of crystals are required for the complete installation of the transmitter-receiver assembly (see paragraph 2). Both the transmitter and receiver are simultaneously switched to any one of the four pre-set crystal-controlled channels whenever the appropriate channel-selector button (located on Radio Control Box BC-602-A) is pressed. The rack is equipped with transmitter and receiver covers which may be drawn away from the control panels of the receiver and transmitter simply by loosening four Dzus fasteners, lifting the covers slightly and allowing them to drop alongside the front (transmitter side) and rear (receiver side) of the case. The covers are provided with a slot-and-screw arrangement making it possible to remove them from the control panels without detaching them from the rack. The case is equipped with four shockmounts complete with mounting holes. Mounting holes are also provided in one side of the case for attaching Dynamotor Unit PE-94-A or PE-98-A when the dynamotor unit and the transmitter-receiver assembly are assembled together for common mounting to the aircraft. See paragraph 6a.

Rack FT-244-A is provided with the necessary electrical connections for the transmitter and receiver. One socket on the rack is for the RF transmission line to the antenna, one is for the cable to the dynamotor unit and one is for the cable to the junction box (see Figures 3 and 27). Electrical connections between the rack and the receiver and transmitter are automatically made upon proper assembly of these components.

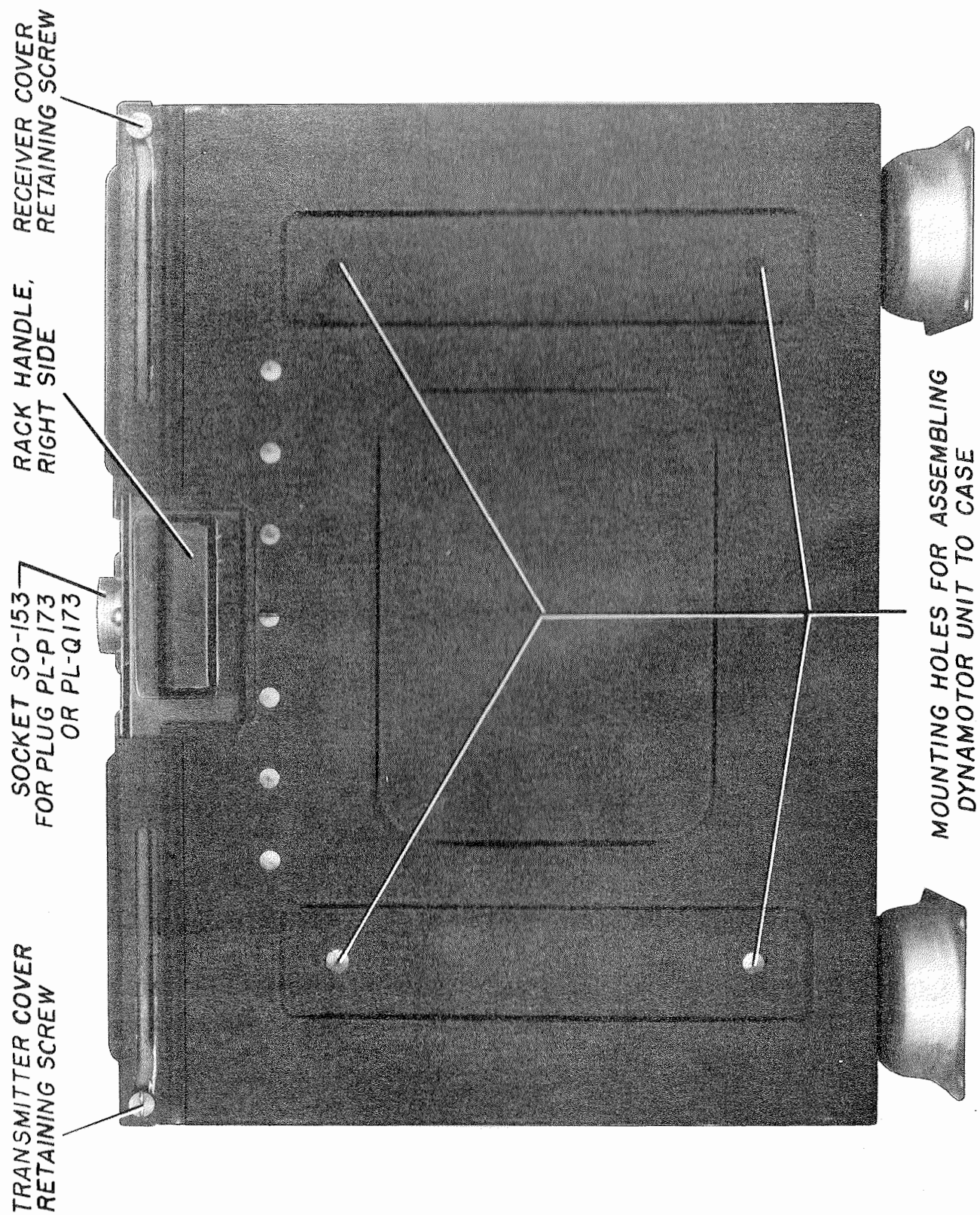


FIGURE 2—TRANSMITTER-RECEIVER ASSEMBLY, RIGHT SIDE VIEW

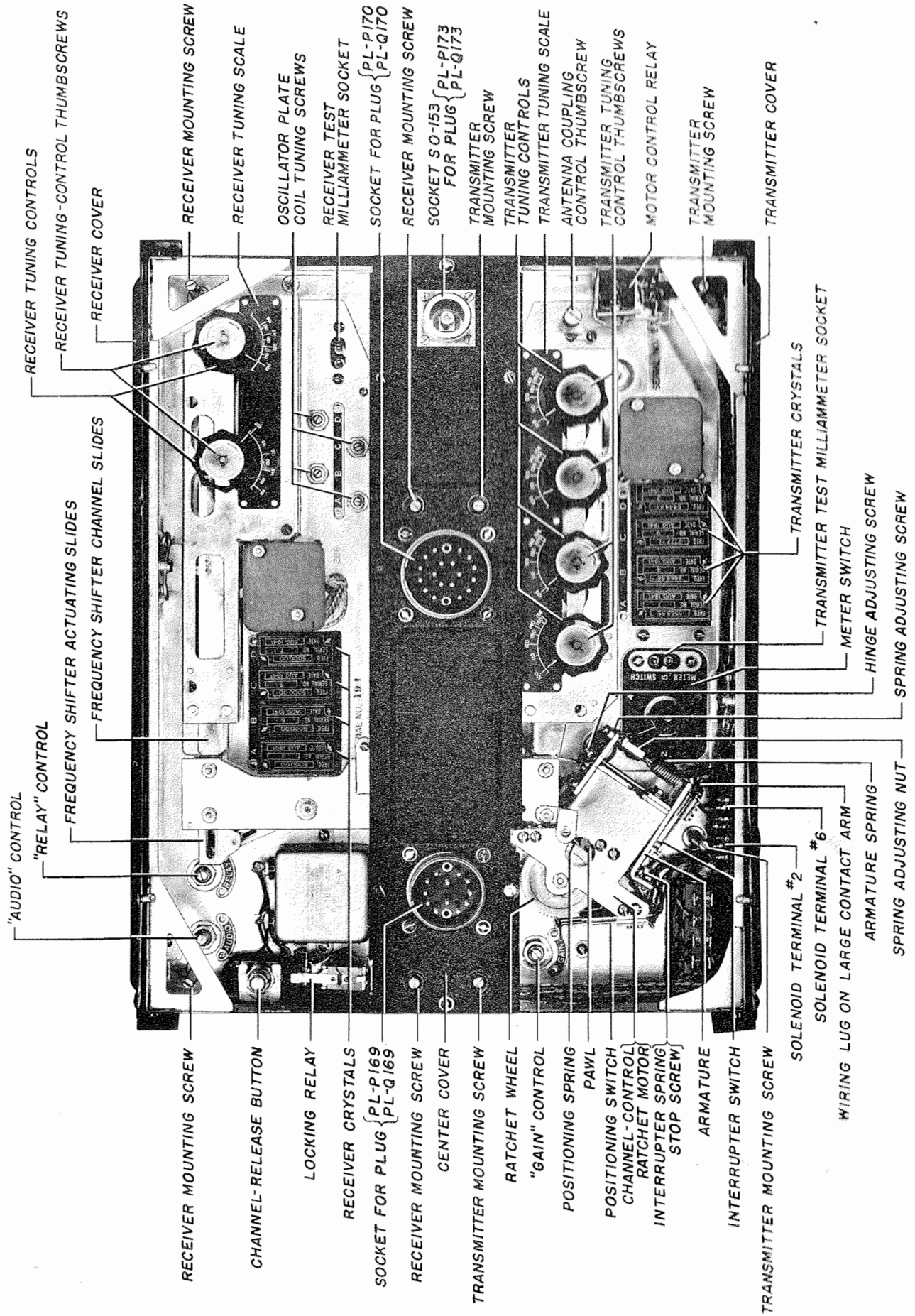


FIGURE 3—TRANSMITTER-RECEIVER ASSEMBLY, TOP VIEW, COVERS OPEN

## DESCRIPTION

The transmitter control panel is equipped with a test-milliammeter socket and a "METER SWITCH" (see Figure 3). Position No. "6" of the "METER SWITCH" is not used. The following table shows, for each of the five usable positions of this switch, the amount of current which will cause full-scale deflection of the 0-1 MA DC test milliammeter which is part of Test Set I-139-A.

"METER SWITCH" Position	Test-Set I-139-A Full-Scale Deflection
"1"	50 MA
"2"	100 MA
"3"	100 MA
"4"	1 MA
"5"	2 MA

The antenna-coupling control is located on the right side of the transmitter panel (see Figure 3) and the "GAIN" control is on the left. The crystal sockets are to the right of the "METER SWITCH" and are identified by the channel letters "A", "B", "C", and "D" (see Figure 3).

The "AUDIO" and "RELAY" controls are on the left rear side of the receiver panel. The test-milliammeter socket is on the lower right and the crystal oscillator plate coil tuning screws are located to the left of the test-milliammeter socket. The crystal sockets are to the left of the oscillator plate coil tuning screws.

The rack is equipped with a push-button switch for releasing channel-selector slides. If a particular channel is already selected, this push-button switch makes it possible to select this channel again without pressing any of the control buttons on the radio control box.

### b. Radio Control Box BC-602-A

The radio control box is provided with four push buttons for channel selection and an "OFF" button for stopping the radio set (see Figure 4). The "T-R-REM." switch at the bottom of the radio control box switches the radio set to the transmit, receive, or press-to-transmit (press-to-talk) condition. "REM." means remote. An indicator lamp on the right side of each channel-selector button informs the operator which channel is being used. Dimmer masks are provided for the lamps to pre-

vent glare. Mounting holes are provided for the control box in the right-hand side plate. Electrical connections are made through sockets in the rear.

### c. Junction Box JB-29-A

The junction box is equipped with eight sockets, as shown in Figure 5, and functions as a link between the several components of the radio set. Mounting feet are provided on the bottom of the junction box.

### d. Dynamotor Units PE-94-A and PE-98-A

Dynamotor Unit PE-94-A (for 28-volt operation) and Dynamotor Unit PE-98-A (for 14-volt operation) are similar in every respect except for the provisions made for the difference in input voltage (see Figure 6). Four Lord shockmounts are provided for mounting the dynamotor unit as a separate unit. When assembled to the case as a composite unit, the dynamotor unit will rest on two shockmounts inserted in the rear of the unit. Two sockets are provided, one connecting with the dynamotor unit-to-battery cable and one connecting with the dynamotor unit-to-rack cable.

### e. Jack Boxes BC-629-A (Pilot), BC-630-A (First Crew), and BC-631-A (Other Crew)

In general, the jack boxes (see Figures 7, 8, and 9) provide for the connections between the junction box and the microphone, headset, and gun-switch terminals. The gun-switch terminals are not used in U. S. installations. A terminal strip inside the jack boxes is equipped with the necessary lugs, and complete wiring information is etched on the inside of the jack-box covers. In British installations the gun-switch terminals in the jack boxes are used for press-to-transmit (press-to-talk) connections. However, no gun-switch terminals are provided in Jack Box BC-629-A. Jack Box BC-631-A is equipped with a rubber grommet instead of a socket. Except for these differences, the three jack boxes are very similar in construction. Each jack box is provided with an anchor loop on the bottom (see Figures 7, 8, and 9). This loop is used to tie down the wires, to take up slack, and to prevent strains in the electrical connections.

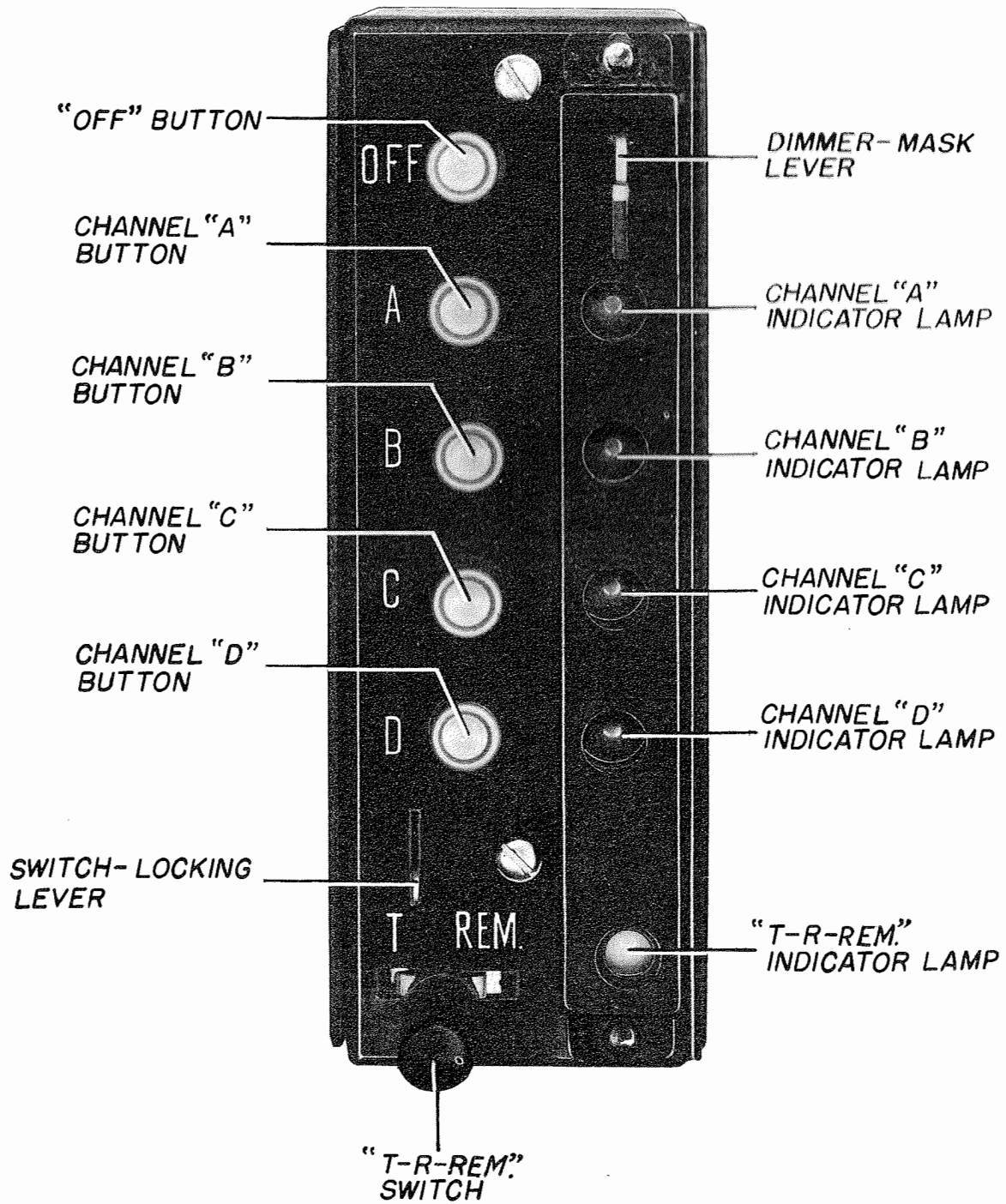


FIGURE 4—RADIO CONTROL BOX BC-602-A, FRONT VIEW

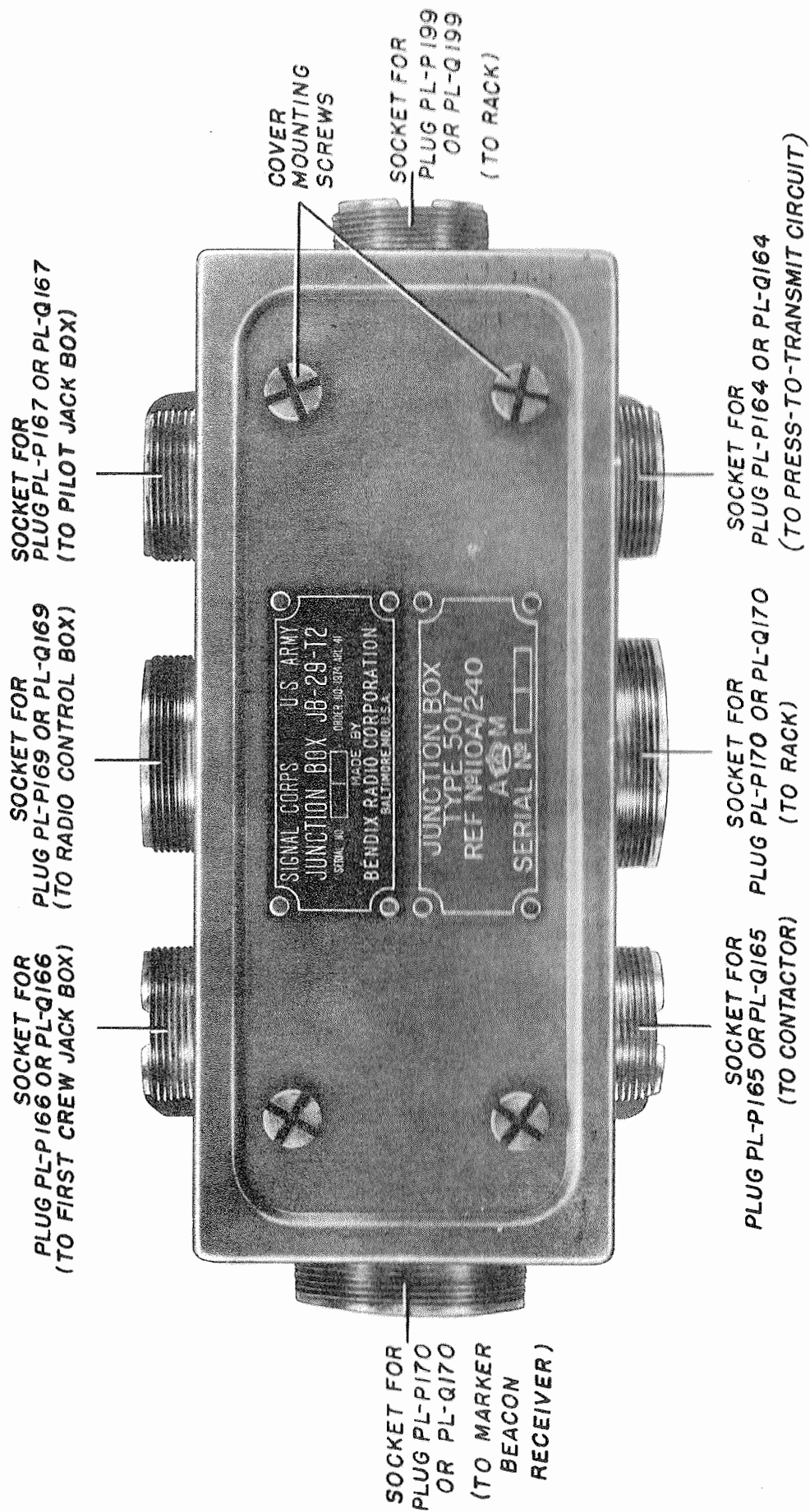


FIGURE 5—JUNCTION BOX JB-29-A, TOP VIEW



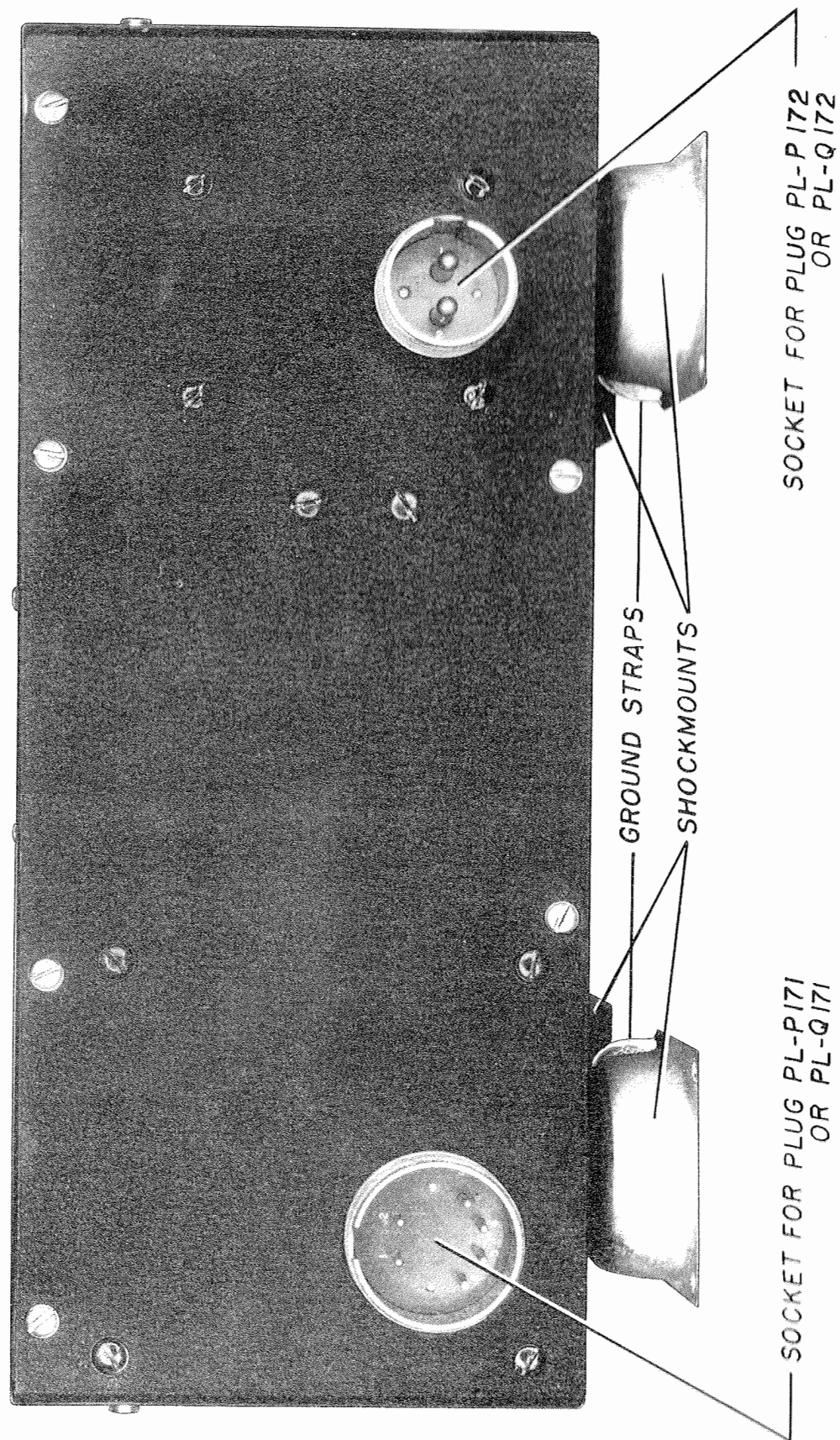


FIGURE 6—DYNAMOTOR UNIT PE-94-A OR PE-98-A, REAR VIEW

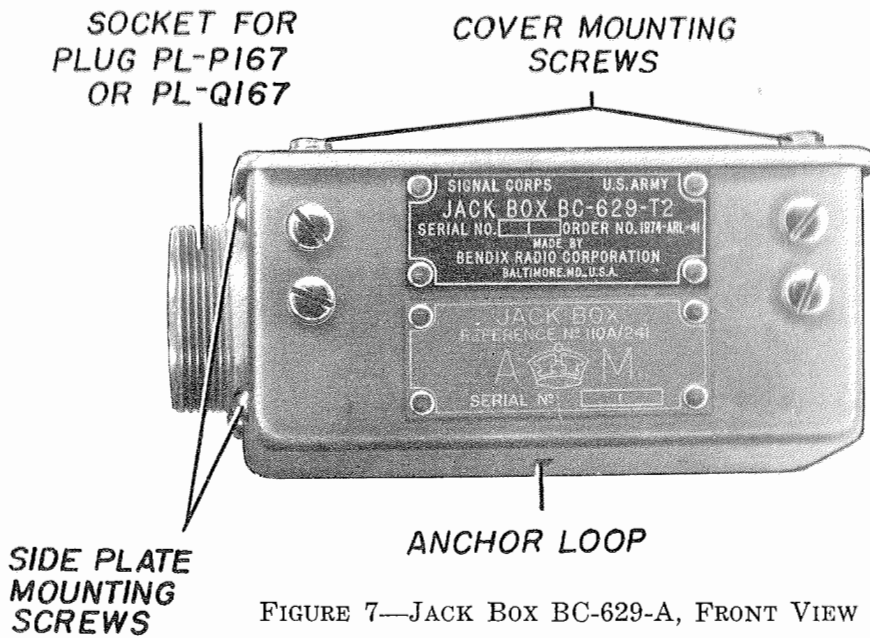


FIGURE 7—JACK BOX BC-629-A, FRONT VIEW

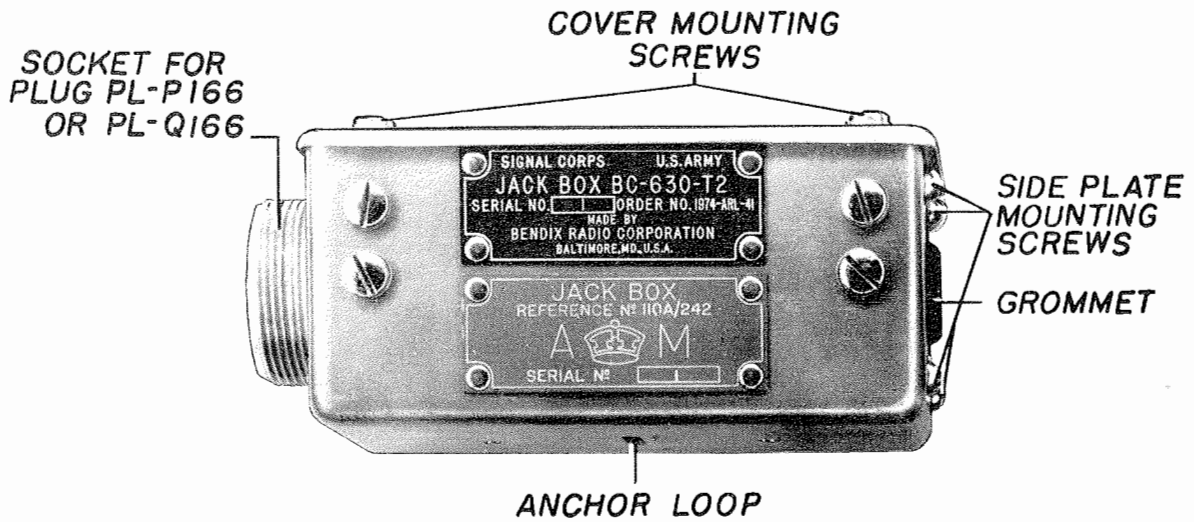


FIGURE 8—JACK BOX BC-630-A, FRONT VIEW

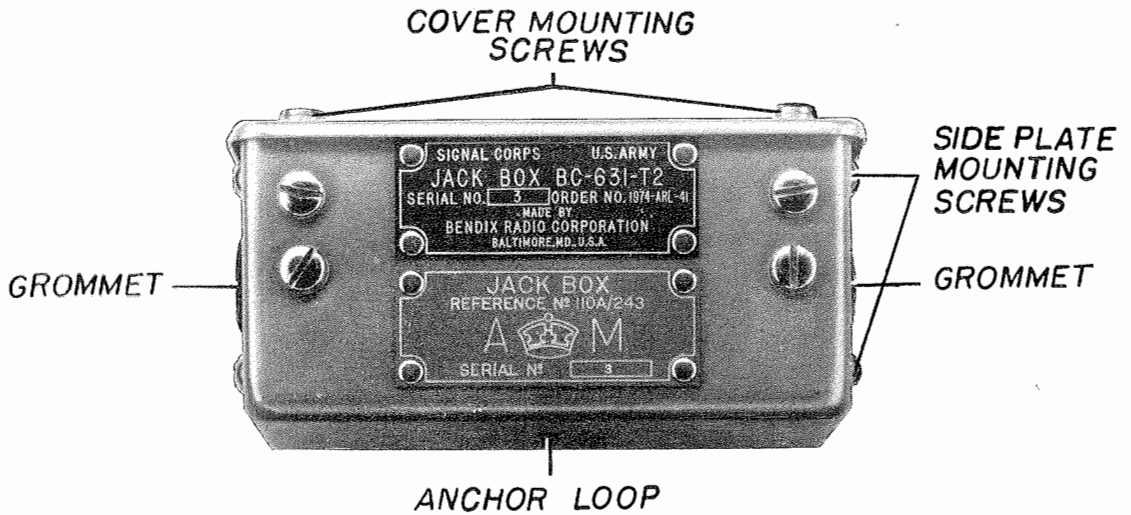


FIGURE 9—JACK BOX BC-631-A, FRONT VIEW

## SECTION II EMPLOYMENT

### 6. INSTALLATION

#### a. *Case CS-80-A and Dynamotor Unit PE-94-A or PE-98-A*

Remove the bag containing the four mounting screws from Case CS-80-A.

The case and the dynamotor unit may be installed as separate units or they may be assembled together before installation (see Figures 2, 10, 13, and 14). Sufficient clearance should be allowed on all sides for free action of the shockmounts, for removing the rack and plugs, and for access to the tuning and adjustment controls on the transmitter-receiver panel. NOTE: Each ground strap (see Figures 6, 10, 13, and 14) should be attached to a shockmount mounting hole by means of a mounting screw inserted in the lug in the free end of the ground strap.

To assemble the dynamotor unit to the case, remove the four shockmounts from the dynamotor unit and install two of these shockmounts in the mounting holes located in the side opposite the sockets (see Figure 10).

Loosen four Dzus fasteners, two located on the top front, and two on the top rear of Case CS-80-A. Grasp the rack by the handles on its upper left and right sides. Lift the rack (together with the transmitter and receiver) out of the case, and set it down, control panels uppermost, on a flat surface.

Place the dynamotor unit against the side of the case (see Figure 2) in such a manner that the four mounting screws provided with the equipment may be inserted through the mounting holes from within the case and threaded into the holes (in the dynamotor unit) left by the removal of the four shockmounts. The dynamotor unit and the case, assembled together, will rest on a total of six shockmounts. No. 10 screws are recommended for all shockmounts used on Radio Set SCR-542-A or SCR-522-A.

#### b. *Junction Box JB-29-A*

Loosen the four captive screws (see Figure 5) on the cover of the junction box. Do not attempt to completely remove these screws; it is sufficient to separate them from the mounting posts inside the junction box. Remove the cover. Holding the four sides to prevent their becoming separated, lift the sides of the junction box away from the

bottom. It is now possible to insert mounting screws into the holes in the mounting feet (see Figure 11). Note that, with the junction box in the position shown in Figure 5, the sockets are located as follows: Upper left, first crew jack box; upper center, radio control box; upper right, pilot jack box; lower left, contactor; lower center, transmitter-receiver; lower right, press-to-transmit circuit; extreme left, marker beacon receiver; extreme right, transmitter-receiver. The position of the sides relative to the mounted bottom may be varied by inverting or rotating the complete assembly of the four sides and sockets.

#### c. *Jack Boxes BC-629-A, BC-630-A, and BC-631-A*

Remove the three screws from the covers of the jack boxes and remove the covers (see Figures 7, 8, 9, and 16). Drill mounting holes in the bottom of the jack boxes, being careful not to damage the wires or the soldering lugs. Remove all metallic chips from the jack boxes, to insure against short circuits.

If it is desired to change the location of the plug to the opposite end of the Jack Box BC-629-A or BC-630-A: remove the four screws from each end plate. Remove the end plate opposite the plug. Note the position of the grounding lug. Slip the plug through its corresponding end plate, and transfer the complete plug-and-end-plate assembly to the desired side. Do not neglect to replace the grounding lug. Fasten the grommet end plate to the side on which the plug was formerly located.

#### d. *Radio Control Box BC-602-A*

The radio control box must be mounted with the control panel accessible and visible to the pilot (see Figures 12 and 17). The side plates are interchangeable and can be removed from the radio control box by loosening the four mounting screws.

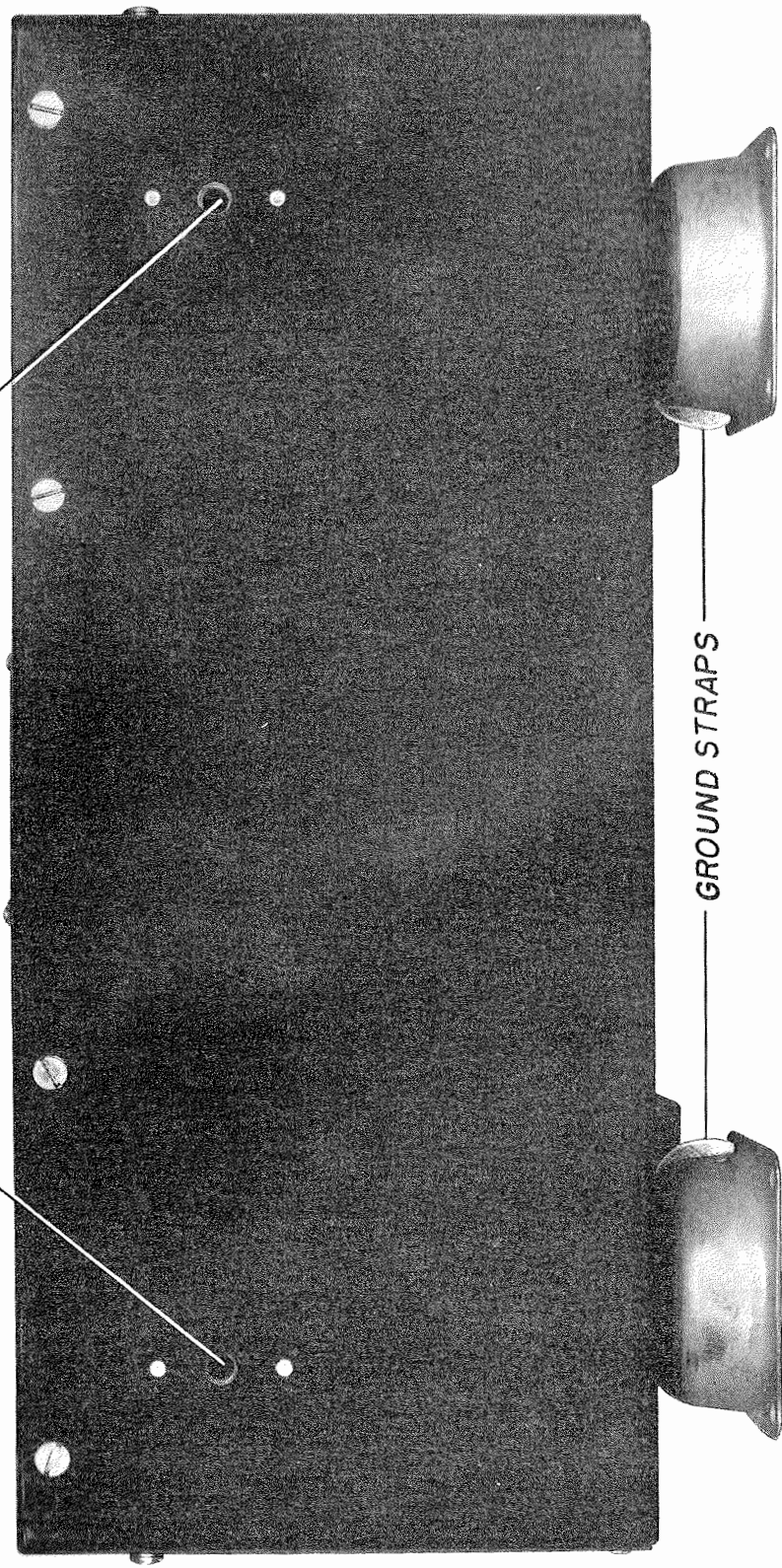
#### e. *Vacuum Tubes*

The equipment is usually furnished with all vacuum tubes installed. When exceptions occur, install the vacuum tubes by following the procedure given in paragraph 12.

#### f. *Cable Assembling*

(1) Before cables can be constructed, the plugs must be taken apart for wiring purposes. The

ANCHOR NUTS FOR SHOCKMOUNTS FOR MOUNTING  
DYNAMOTOR UNIT TO AIRCRAFT WHEN DYNAMOTOR  
UNIT IS ASSEMBLED TO CASE



GROUND STRAPS

FIGURE 10—DYNAMOTOR UNIT PE-94-A OR PE-98-A, FRONT VIEW

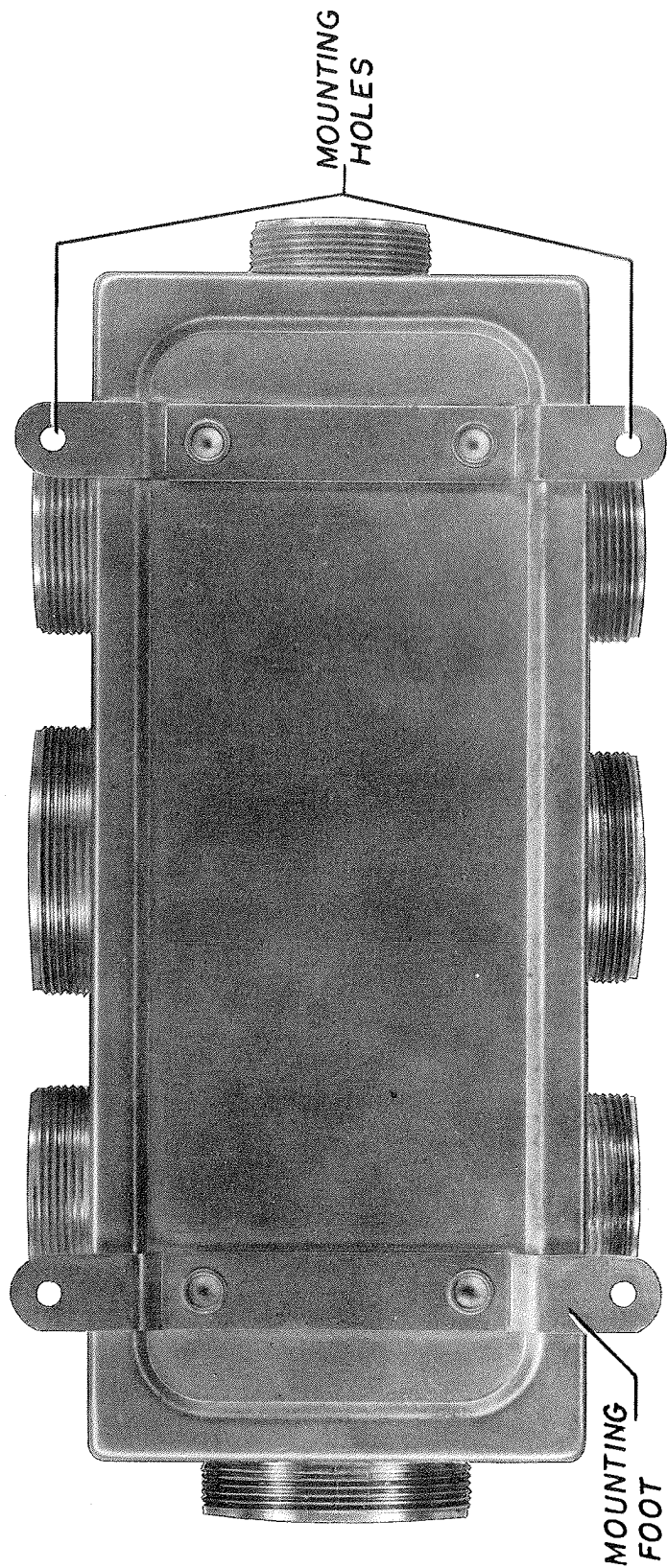


FIGURE 11—JUNCTION BOX JB-29-A, BOTTOM VIEW

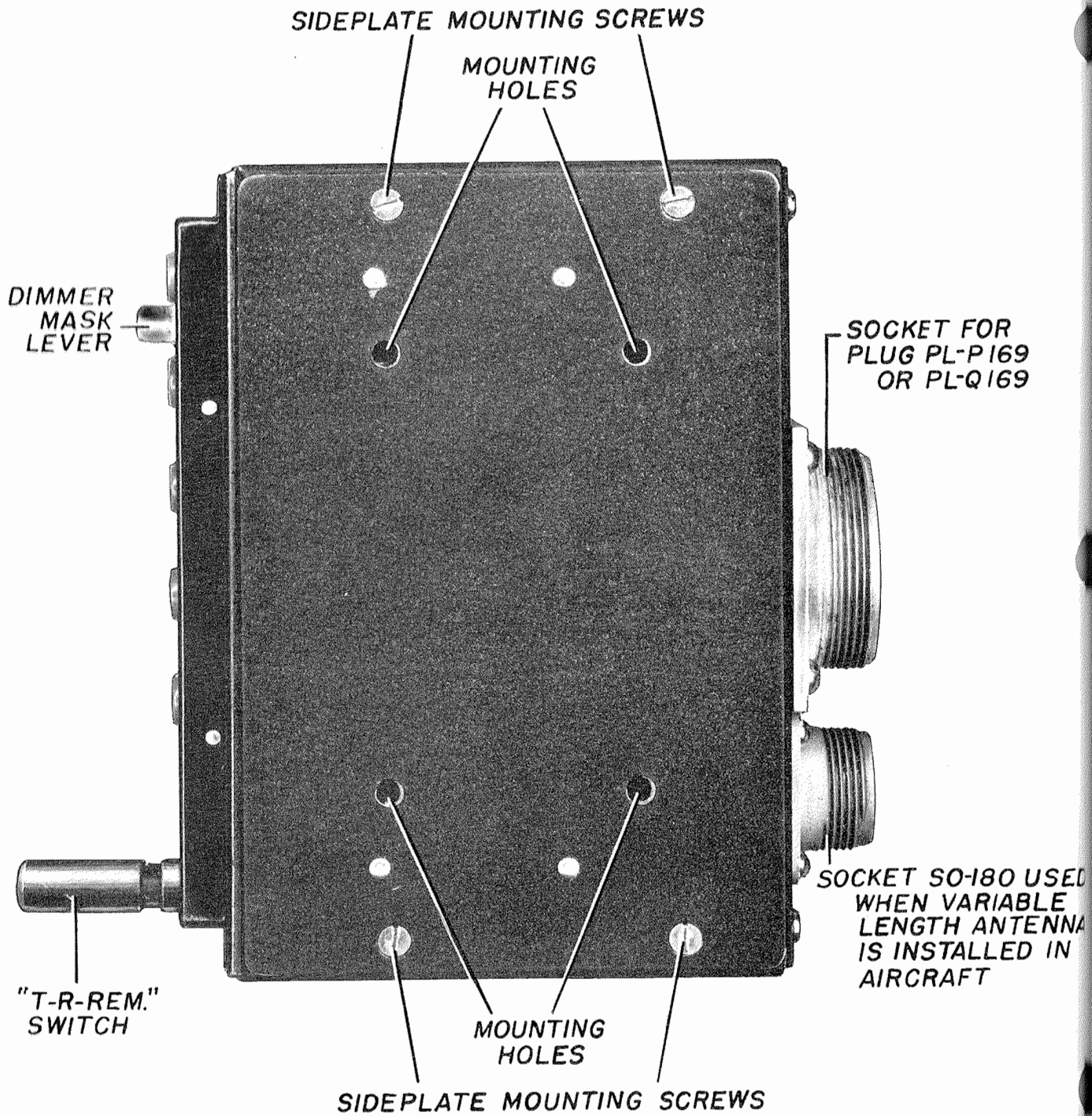


FIGURE 12—RADIO CONTROL BOX BC-602-A, RIGHT SIDE VIEW

## EMPLOYMENT

disassembly procedure is the same for all types of plugs supplied with the radio set with the exception of Plugs PL-P172 or PL-Q172, and PL-P173 or PL-Q173.

(2) Insert Plug PL-P172 or PL-Q172 into its corresponding socket located on Dynamotor Unit PE-94-A or PE-98-A or hold the plug body (metal shell containing the insulated insert) with a pair of pliers (see Figure 18). Turn the plug end ring counterclockwise, using a spanner wrench, if necessary. The ferrule, coupling nut, cable fitting, end ring, and locking ring will come free and should be removed from the plug body. Carefully draw the plug body out of the socket. Remove the two screws from the plug-assembly insulation, and remove the two large female contacts from the plug washer. The two No. 10 wires may now be soldered to the female contacts [see paragraph 6f(5)].

(3) Remove the two screws from the clamp assembly of Plug PL-P173 or PL-Q173 (see Figure 19). Remove the smaller section of the clamp. Turn the larger clamp section counterclockwise to disassemble the plug.

(4) The remaining plugs are disassembled for wiring by inserting them into their corresponding sockets or holding the plug bodies with a pair of pliers, and turning their end rings counterclockwise until the ferrules, coupling nuts, cable fittings, end rings, and locking rings can be removed. Draw the plug bodies out of their sockets. The small sockets can now be wired (see Figures 20 to 26 inclusive).

(5) Wiring and reassembling of plugs should be done as follows:

For Plug PL-P172 or PL-Q172 (see Figure 18), after cutting the required lengths of No. 10 tinned wire, lace the wires together and, using a pilot wire, draw the laced wires through the proper length of 1/2-inch flexible conduit. Stretch the conduit and trim it sufficiently to prevent the occurrence of lumps in the completely assembled cable. Cut off about 1/2-inch of wire insulation at the end to be soldered and twist the strands of wire to insure good contact. Place about 3/4-inch of phenoflex tubing over each wire, leaving the ends bare until soldering is accomplished. Solder each wire to one of the

large female contacts of Plug PL-P172 or PL-Q172, using sufficient solder to fill the cup. Test each connection. No tinning is necessary, since the contacts and wires are already tinned. Slip the phenoflex tubing over each soldered joint.

Slip the ferrule, coupling nut, cable fitting, end ring, and locking ring over the conduit, in the order in which these elements will have to be reassembled to the plug body. Insert the plug-assembly insulation into the plug body. Pass the female contacts through the center hole in the plug washer, inserting them far enough to make it possible to bring the contacts back to their grooves beside the center hole. Re-insert the plug washer with the female contacts into the plug body. Make certain that the pin numbers on the plug washer correspond to those on the face of the plug.

Re-insert and tighten the two screws in the plug-assembly insulation. Tighten the coupling nut so that the conduit will be securely fastened and able to take up strains in the cable. Fasten the box connector, locking nut, and coupling nut on the free end of the cable and attach suitable lugs to the wires (see Figure 18).

(6) Complete instructions for assembling Plug PL-P173 or PL-Q173 to the coaxial antenna cable are given in Figure 19.

(7) For the remaining plugs, PL-P164 or PL-Q164, PL-P165 or PL-Q165, PL-P166 or PL-Q166, PL-P167 or PL-Q167, PL-P169 or PL-Q169, PL-P170 or PL-Q170, and PL-P171 or PL-Q171, the procedure for cutting and lacing the required cable wires is the same as for Plug PL-P172 or PL-Q172 except that only 1/4-inch of wire insulation should be removed. Refer to paragraph 6f(5).

Cable assembly drawings, Figures 20 to 26 inclusive, include information on bonding, shielding, and size of conduit. A wire table on each drawing lists the wires to be used on every plug pin. Before the wires are laced together and run through the conduit, it is necessary to stroke the shield of any shielded wire in the cable until the shield extends about one inch beyond the end of the wire. Without breaking any strands, separate the strands in the shield with a sharp tool, making an opening at a point about one inch from the end, and extrude the

## EMPLOYMENT

wire through this opening in the shield. Stroke the shield in the direction away from the end, until about one inch of wire is exposed. After the wires are soldered to the sockets, the one inch of shield which extends from the opening to the end of the shield is to be clamped between the ferrule and cable fitting and then trimmed. This is to insure a good grounding connection. This procedure must be applied to all shielded wires included in every cable assembly.

In addition, if more than one shielded wire is used in a cable, the braids of all such wires must be bonded together with solder, as shown in the cable assembly drawings.

Slip a  $\frac{3}{8}$ -inch length of phenoflex tubing over the bare end of each wire, leaving the bare end exposed. After placing the necessary plug components on the cable, in the correct order for reassembling to the plug body, solder each wire to the appropriate small tinned socket (metal insert). CAUTION: Do not allow excess solder to run into the small sockets. Do not insert the wire beyond the  $\frac{1}{4}$ -inch of stripped length. Test the strength of each connection. Care must be taken not to burn the plug washer.

Many of the wires used in each cable are exactly alike; therefore, to make certain that each wire connects a given pin in one plug with the corresponding pin in another, all the connections must be electrically tested for correct continuity, using a dry-cell battery and a buzzer or ohmmeter.

After the wires are soldered to the small sockets, slip the phenoflex tubing over the sockets and ends of wires to insulate adjacent connections from each other. Reassemble the plugs and tighten the coupling nuts so that the wire braids and the cable conduits are securely fastened. If it is desired to remove a plug from a socket, it is sufficient merely to turn the locking ring counterclockwise. No pulling is required.

**g. Fuses**

No fuses are used in any component unit of the radio set. The total input current figures under operating conditions are given in paragraph 4. The equipment will operate satisfactorily from an ungrounded power source, but a negative grounded

power source is preferable. If it is desired to fuse the aircraft primary power supply line to the set, a standard 40A fuse is recommended for either the 14- or 28-volt power supply.

**h. Connecting Jack Boxes BC-629-A, BC-630-A, and BC-631-A**

The schematic wiring diagram of the jack box and the purpose for which each terminal is to be used is etched on the inside of the jack box cover. This information simplifies the problem of connecting the microphone, telephone (headset), and gun switch (press-to-transmit) leads to the proper lugs in the jack boxes. The terminal lugs may be loosened and turned, if necessary, for soldering purposes, by loosening the appropriate screws on the terminal strip inside the jack box. In British installations the gun-switch terminals are press-to-transmit (press-to-talk) connections. In U. S. installations a single wire connects pin No. 9 of Plug PL-P169 or PL-Q169 to one terminal of the press-to-transmit switch on the throttle, the other terminal of this switch being connected to ground. Note that this switch must be in the *closed* position for *transmission*. Consult the cording diagram, Figure 27, for information regarding the layout and distribution of cables for the entire radio set.

After connecting the necessary cables and wires to the jack boxes, fasten the lacing on the cables and wires to the anchor loop on the bottom of the jack boxes. This should be done in a manner calculated to take up slack and relieve all electrical connections from mechanical strains.

**7. ASSEMBLING OF RADIO SET SCR-522-A OR SCR-542-A**

With the desired crystals unpacked and installed in the crystal sockets located on the receiver and transmitter panels, place Rack FT-244-A inside Case CS-80-A. Close the transmitter and receiver covers and connect all plugs to their corresponding sockets.

**8. PREPARATION FOR USE**

**NOTICE: DO NOT REMOVE TRANSMITTER OR RECEIVER FROM RACK FT-244-A PRIOR TO CONSULTING PARAGRAPH 12. IT IS NOT NORMALLY NECESSARY TO REMOVE TRANSMITTER OR RECEIVER FROM RACK FOR TUNING.**



## EMPLOYMENT

a. *Transmitter Tuning (Using Test Equipment IE-19-A)*

(1) The following components of Test Equipment IE-19-A are required for transmitter tuning: Field Strength Meter I-95-A and Test Set I-139-A. The test set consists of a 0-1 MA DC milliammeter with a cord attached.

(2) Radio Transmitter BC-625-A, when being tuned, must be inside Case CS-80-A, with Radio Receiver BC-624-A connected. NOTE: If the transmitter is tuned while removed from the case, the additional capacitances introduced by replacing the transmitter in the case would tend to upset the tuning adjustments.

(3) If the receiver and transmitter covers are closed, loosen the Dzus fasteners pinning them to the center cover. Raise the covers slightly and draw them away from the control panels.

(4) The crystal chosen for any transmitter channel should have a fundamental frequency one-eighteenth the magnitude of the desired output frequency.

(5) With the airplane antenna plugged in, install crystals of the desired frequencies in the crystal sockets. Plug the test-set cord into the two-prong transmitter test-milliammeter socket located on the right side of the "METER SWITCH" (see Figure 3).

Press channel "D" button on the panel of Radio Control Box BC-602-A. Press the channel-release button located on the rack (see Figure 3). Loosen the four transmitter tuning-control thumbscrews by turning them counter-clockwise (see Figure 3). Press channel "A" button on the radio control box.

NOTE: Whenever a channel is selected on Radio Control Box BC-602-A, the switching mechanism will select and release channels in the sequence "A", "B", "C", "D" until the desired channel is selected. For example, if channel "A" button is in the depressed position when channel "D" is selected, channels "B" and "C" will be switched on and off before channel "D" is reached. If channels "B" and "C" are already aligned and the tuning-control thumbscrews are loose when channel "D" button is pressed, channels "B" and "C" will probably be

jarred out of adjustment by the impact of the channel-selector slides. However, if tuning is done in the order "A", "B", "C", "D" it is not necessary to disturb previously aligned channels before reaching the channel to be tuned. For example, when channel "C" button is in the depressed position, channel "D" can be selected without actuating the selector slides for any other channel.

After allowing about one minute for the tubes to warm up, throw the "T-R-REM." switch (on the radio-control-box panel) to "T".

## (6) Tuning Operation No. 1

(a) Place the "METER SWITCH" in position "1" (see Figure 3).

(b) Adjust the first tuning control (at the left) on the transmitter control panel for a maximum deflection of the test milliammeter. CAUTION: Guard against tuning to an undesired harmonic by making certain that the scale indication of the tuning control as indicated on the transmitter tuning scale is approximately equal to the output frequency being tuned.

## (7) Tuning Operation No. 2

(a) Place the "METER SWITCH" in position "2".

(b) Apply the procedure given in paragraph 8a(6)(b), using the second tuning control from the left.

## (8) Tuning Operation No. 3

(a) Place the "METER SWITCH" in position "3".

(b) Apply the procedure given in paragraph 8a(6)(b), using the second tuning control from the right. Note the test milliammeter reading.

(c) Adjust the first tuning control at the right for minimum milliammeter current.

## (9) Tuning Operation No. 4

(a) Place the "METER SWITCH" in position "4".

(b) Apply the procedure given in paragraph 8a(6)(b), using the first tuning control at the right.

## EMPLOYMENT

(c) Adjust the second tuning control from the right for maximum milliammeter current.

### (10) Tuning Operation No. 5

(a) Place the "METER SWITCH" in position "5".

(b) Readjust all transmitter tuning controls for a maximum test milliammeter reading.

The performance of the above five tuning operations completes the tuning of transmitter channel "A".

### (11) Adjustments for Remaining Channels

To tune channel "B", press button "B" on the panel of Radio Control Box BC-602-A and follow the same tuning procedure outlined for channel "A" in paragraphs 8a(6) to 8a(10) inclusive. Tune channels "C" and "D" in like manner; after which, press the channel-release button (see Figure 3) and tighten all transmitter tuning-control thumbscrews by turning them clockwise.

### (12) Antenna Coupling

With all channels tuned and the tuning-control thumbscrews tightened, place the "METER SWITCH" in position "3". Loosen the antenna coupling-control thumbscrew located at the right of the transmitter tuning controls (see Figure 3) by turning it counterclockwise. With the "METER SWITCH" in position "3", check and recheck each channel, while sliding the antenna-coupling control to the right or left to obtain an average current of approximately 63 MA (.63 on milliammeter scale) for most channels. When this adjustment is achieved, tighten the antenna coupling control thumbscrew by turning it clockwise. After making this antenna-coupling adjustment, a sustained note in the microphone should result in modulation of the carrier. This can be checked by first tuning in the unmodulated carrier on Field Strength Meter I-95-A and then noting an increase in the peak reading of the "RELATIVE FIELD STRENGTH" milliammeter when the carrier is modulated.

This completes the tuning of the transmitter with Test Equipment IE-19-A. However, if at any time it is necessary to tune one transmitter channel only, the following procedure applies.

### (13) Procedure for Tuning One Channel Only

If it is known that one channel is out of adjustment, it may be tuned without disturbing other channels. Refer to paragraph 8a(5). The following is a brief summary of procedure:

(a) Press the channel-selector button (on Radio Control Box BC-602-A) corresponding to the channel *preceding* the desired channel in the sequence "A", "B", "C", "D".

(b) Press the channel-release button (on the rack).

(c) Loosen all transmitter tuning-control thumbscrews.

(d) Press the selector button corresponding to the desired channel.

(e) Tune the desired channel [see paragraphs 8a(6) to 8a(10)].

(f) Press the channel-release button.

(g) Tighten all transmitter tuning-control thumbscrews.

(h) Press the channel-release button.

(i) Adjust the antenna-coupling control [see paragraph 8a(12)].

NOTE: Additional transmitter tuning adjustments to be made under conditions of normal operation are given in paragraph 8c.

### b. Receiver Tuning (Using Test Equipment IE-19-A)

(1) Test Equipment IE-19-A and a headset are required for receiver tuning.

(2) A receiver crystal is identified by the fundamental frequency which appears on the crystal nameplate (see Figure 3).

To find the correct receiver crystal for a particular receiver channel, is therefore the same as finding the correct fundamental frequency (f) of the crystal to be used. The fundamental crystal frequency (f) may be determined from the expression

$$f = \frac{f_r - 12}{H}$$

where  $f_r$  is the frequency to which the receiver is to be tuned and H is the receiver crystal harmonic used (see table below). The receiver

## EMPLOYMENT

crystal harmonic (H) used depends only on the frequency ( $f_r$ ) to be tuned in, and is given in the following table.

Frequency ( $f_r$ )	Receiver Crystal Harmonic (H)
100-108	11
108-116	12
116-124	13
124-132	14
132-140	15
140-148	16
148-156	17
156	18

(3) Adjustment of Signal Generator I-130-A (Using Crystal)

(a) Insert a transmitter crystal into the "CRYSTAL" socket of the signal generator. This crystal should have a fundamental frequency one-eighteenth the magnitude of the receiver frequency to be tuned. If no transmitter crystal is available, refer to paragraphs 8b (6), 8b (7), and 8b (8).

(b) Connect Cord CD-477 to the "R.F. OUTPUT" socket on the signal generator and to the antenna Socket SO-153 on Rack FT-244-A (see Figure 3).

(c) Connect Test Set I-139-A to the signal generator "METER" socket.

(d) Plug the Battery Box BX-33-A cable into the signal-generator four-pin socket located to the left of the "METER" socket. Throw the signal-generator "POWER ON-OFF" switch to "ON".

(e) Set the signal-generator "M.O.—CRYSTAL" switch at "CRYSTAL".

(f) Place the "OUTPUT CONTROL" on "MAX." (extreme clockwise position) and place the "OUTPUT STEPS" control on step "5".

(g) After allowing about one minute for the tubes to warm up, adjust the "CRYSTAL TUNING" control to the frequency to be tuned. If this adjustment is correct, a dip will be observed in the test milliammeter (Test Set I-139-A). Adjust the "MEGA-

CYCLES" dial control for additional dip (approximately at the same dial setting as the receiver channel frequency being tuned). Now connect Test Set I-139-A to the receiver test-milliammeter socket (see Figure 3).

(4) Tuning Adjustments for Channel "A" (Using Crystal in Signal Generator).

(a) Install the proper crystal in the socket for receiver channel "A" (see Figure 3).

(b) Press channel "D" button of Radio Control Box BC-602-A.

(c) Press the channel-release button located on the rack.

(d) Loosen the two receiver tuning-control thumbscrews by turning them counterclockwise.

(e) Press channel "A" button of the radio control box. After allowing about one minute for the receiver vacuum tubes to warm up, throw the "T-R-REM." switch on the Radio Control Box BC-602-A panel to "R", or center position.

(f) Turn the receiver tuning controls to approximately the desired frequency.

(g) Starting from the extreme clockwise position, slowly turn the crystal oscillator plate coil tuning screw for channel "A" (see Figure 3) counterclockwise with a screwdriver until there is a sudden dip in the test milliammeter. An additional one-half to three-quarters of a full turn in a counterclockwise direction is necessary for a stable adjustment of the crystal oscillator. If this results in reduced output, continue turning the screw counterclockwise until the output is restored.

(h) Adjust the "OUTPUT CONTROL" of the signal generator to "MIN." position. Place the "OUTPUT STEPS" control in position "1" and then turn both controls clockwise until the test milliammeter reading just begins to decrease.

(i) Readjust the receiver tuning controls and the signal generator "CRYSTAL TUNING" control for a minimum milliammeter reading. This may require repeated readjustments.

(5) Adjustments for Remaining Channels (Using Crystal in Signal Generator)

## EMPLOYMENT

To adjust the remaining channels, press channel "B" button on Radio Control Box BC-602-A and follow the same tuning procedure outlined for channel "A" in paragraphs 8b(3)(f), 8b(3)(g), 8b(4)(a), 8b(4)(f), 8b(4)(g), 8b(4)(h), and 8b(4)(i). *NOTE*: The tuning instructions for channel "A" will hold good for channel "B" only if the letter "B" is substituted for "A" wherever the crystal, the channel, and the oscillator plate coil tuning screw are mentioned. This note likewise applies when tuning channels "C" and "D". Tune channels "C" and "D" in like manner; after which, press the channel-release button and tighten the two receiver tuning-control thumbscrews by turning them clockwise.

(6) Adjustment of Signal Generator I-130-A (Using Master Oscillator)

If a transmitter crystal is not available, follow the procedure given in paragraphs 8b(3)(b) and 8b(3)(d). Set the "M.O.—CRYSTAL" switch at "M.O.". Allow about one minute for the signal generator tubes to warm up. Connect Test Set I-139-A to the receiver test-milliammeter socket (see Figure 3).

(7) Tuning Adjustments for Channel "A" (Using Signal Generator Master Oscillator)

(a) Press channel "D" button of Radio Control Box BC-602-A.

(b) Press the channel-release button located on the rack.

(c) Loosen the two receiver tuning-control thumbscrews by turning them counterclockwise.

(d) Press channel "A" button of the radio control box. After allowing about one minute for the receiver vacuum tubes to warm up, throw the "T-R-REM." switch on the Radio Control Box BC-602-A panel to "R", or center position.

(e) Turn the receiver tuning controls to approximately the desired frequency.

(f) Using a screwdriver, turn the crystal oscillator plate coil tuning screw for channel "A" (see Figure 3) to the extreme counterclockwise position.

(g) With a headset connected to one of the jack boxes, place the signal generator "OUT-

PUT STEPS" control on step "5" and set the "OUTPUT CONTROL" at "MAX." (extreme clockwise position).

(h) Set the signal generator "MEGACYCLES" dial control approximately at the frequency being tuned and then adjust this control for a dip in the test milliammeter. A modulated signal should now be heard in the headphones.

(i) Turn the oscillator plate coil tuning screw for channel "A" clockwise until there is a sharp rise of current in the test milliammeter (the scale reading should increase to about 0.77). A modulated signal should no longer be heard in the headphones.

(j) Turn the crystal oscillator plate coil tuning screw counterclockwise until there is a sharp dip in the test milliammeter. An additional one-half to three-quarters of a full turn in a counterclockwise direction is necessary for a stable adjustment of the crystal oscillator. If this results in reduced output, continue turning the screw counterclockwise until the output is restored. A modulated signal should now be heard in the headphones.

(k) Adjust the signal generator "OUTPUT STEPS" control and the "OUTPUT CONTROL" in a counterclockwise direction and adjust the "MEGACYCLES" dial control at the same time until additional adjustments of these three controls produce a comparatively small deflection of the test milliammeter.

(l) Readjust the receiver tuning controls and the signal generator "MEGACYCLES" dial control for a minimum milliammeter reading. This may require repeated readjustments. A modulated signal should still be heard in the headphones. The final setting of the receiver tuning controls should be near the calibrated settings for the desired frequency.

(8) Tuning Adjustments for Remaining Channels (Using Signal Generator Master Oscillator)

To tune the remaining channels, press channel "B" button on Radio Control Box BC-602-A and follow the same tuning procedure outlined for channel "A" in paragraphs 8b(6) and

## EMPLOYMENT

8b(7). NOTE: The tuning instructions for channel "A" will hold good for channel "B" only if the letter "B" is substituted for "A" wherever the crystal, the channel, and the oscillator plate coil tuning screw are mentioned. This note likewise applies when tuning channels "C" and "D". Tune channels "C" and "D" in like manner; after which, press the channel-release button and tighten the two receiver tuning-control thumbscrews by turning them clockwise.

This completes the tuning of the receiver with Test Equipment IE-19-A. However, if at any time it is necessary to tune one receiver channel only, the following procedure applies.

### (9) Procedure for Tuning One Channel Only

If one channel is out of adjustment, it may be tuned without disturbing the other channels.

(a) Press the selector button (on Radio Control Box BC-602-A) corresponding to the channel *preceding* the desired channel in the sequence "A", "B", "C", "D".

(b) Press the channel-release button.

(c) Loosen the receiver tuning-control thumbscrews.

(d) Press the channel-selector button for the desired channel.

(e) Tune the desired channel [see paragraphs 8b(1) to 8b(4) inclusive, or 8b(6) and 8b(7), depending on whether or not a transmitter crystal is used in the signal generator].

(f) Press the channel-release button.

(g) Tighten the receiver tuning-control thumbscrews.

(h) Press the channel-release button to select the channel just tuned.

### c. Transmitter Adjustment Under Normal Operating Conditions

#### (1) "GAIN" Control Adjustment

With the airplane engines running, and with any channel switched on, adjust the "GAIN" control (see Figure 3) with a screwdriver for normal voice level under conditions of normal operation. This adjustment, once made, is good for all channels.

### d. Receiver Adjustment Under Normal Operating Conditions

#### (1) "AUDIO" and "RELAY" Control Adjustments

With the airplane engines running, the headset connected to one of the jack boxes, the antenna plugged in, the "AUDIO" control (see Figure 3) set fully clockwise, any channel switched on, and no signal being received: adjust the "RELAY" control (see Figure 3) with a screwdriver until a decided drop in volume is noticed in the headset. This adjustment is made to minimize extraneous receiver noises when no signal is being received.

With a signal being received, adjust the receiver "AUDIO" control with a screwdriver until a comfortable signal is obtained in the headset. This "AUDIO" control corresponds to a volume control in an ordinary receiver.

## 9. OPERATION

### a. Preliminary Tests

Prior to take-off of aircraft, make certain that all plugs and cable leads are properly connected and that the "AUDIO," "RELAY," and "GAIN," controls located on the control panels of the receiver and transmitter are properly adjusted. Refer to paragraphs 8c, 8d, and Figure 3.

NOTE: To insure that the airplane's storage battery will not be excessively drained, it is essential that the use of the radio set on the ground prior to take-off be reduced to the shortest possible time.

### b. "T-R-REM." Switch (on Radio Control Box BC-602-A)

If it is desired to allow the "T-R-REM." switch which is located on the lower part of the radio-control-box panel to be placed in any of the three positions "T", "R", or "REM.": raise the switch-locking lever which is located directly above the "T-R-REM." switch (see Figure 4).

With the switch-locking lever in the down position, it is impossible to throw the "T-R-REM." switch to "REM."; also the "T-R-REM." switch is normally in "R" position, and if thrown to "T", it must be held in place or else it will spring back to "R".

## EMPLOYMENT

The indicator lamp opposite the "T-R-REM." switch glows when the switch is in "R" or "REM." position. With the switch in "T" position the indicator lamp is out; in "REM." position the lamp glows when reception takes place and is out when transmission takes place.

### c. Indicator Lamp Dimmer Masks

To lower the dimmer masks over the channel-indicator lamps on the front panel of the radio control box: lower the dimmer-mask lever (located just above channel "A" indicator lamp). The dimmer masks should be lowered for night operation to prevent glare.

To raise the dimmer masks: raise the dimmer-mask lever.

### d. MCW Transmissions

The MCW transmissions produce a continuous tone in the headphones and the illumination of lamp "D" on the radio-control-box panel. The transmission or reception of messages is not normally possible during the periods in which MCW transmissions occur. When the MCW transmissions end, the radio set is automatically restored to its normal condition. Interphone communication is possible under all operating conditions.

### e. Normal Operation

*NOTE:* All operating controls referred to in this paragraph, with the exception of the press-to-transmit switch, are located on the panel of Radio Control Box BC-602-A. The microphone switch should be closed.

### (1) Transmission

(a) To start the equipment, press button "A", "B", "C", or "D", depending on which channel is to be used.

(b) Allow approximately one minute for the vacuum tubes to warm up.

(c) Place the "T-R-REM." switch in "T" position.

(d) Speak into the microphone.

### (2) Reception

(a) Place the "T-R-REM." switch in "R" position.

(b) To start the equipment, press button "A", "B", "C", or "D".

### (3) Press-to-transmit (press-to-talk) Operation

(a) Place the "T-R-REM." switch in "REM." position.

(b) To start the equipment, press button "A", "B", "C", or "D".

(c) *To receive:* Under these conditions the receiver is normally in operation.

(d) *To transmit:* Depress the press-to-transmit switch and speak into the microphone. *Note that this switch must be closed for transmission.*

(e) *To receive again:* Release the press-to-transmit switch.

### f. Stopping the Equipment

*To stop the equipment:* Press the "OFF" button.

## SECTION III MAINTENANCE

### 10. CHANNEL-CONTROL RATCHET MOTOR

#### a. General

The ratchet wheel of the channel-control motor (see Figure 3) is equipped with four arms spaced 90 degrees apart. The motor is so positioned that a ratchet-wheel arm will release a frequency-shifter actuating slide when the ratchet wheel is displaced by the space of one tooth past the point where the opposite arm first opens a pair of positioning-switch contacts. In this condition of the motor assembly the contacts should remain open.

Whenever the selector slides for a channel are in the released position, the corresponding positioning-switch contacts should be properly closed. Note that, with the armature in the unenergized position, the positioning spring is just clear of the second tooth from the tooth engaged by the pawl.

All adjustments are made with the power off.

#### b. Lubrication

Lubricate the ratchet-wheel teeth and the pawl after every 20,000 operations. Use a few drops of Pioneer Instrument Oil No. 1.

#### c. Adjustments

##### (1) Introduction

The armature, armature springs, armature hinge, and the interrupter switch must be adjusted at the same time. If any one of these components is out of adjustment, the operation of the other components will be affected adversely.

##### (2) Armature Hinge

Turn the hinge-adjusting screw (see Figure 3) with an offset screwdriver, until the armature face rests evenly against, or is parallel to the edges of the motor frame when the armature face is in contact with the solenoid pole piece (not shown in Figure 3).

##### (3) Armature Springs

Apply 9 volts DC directly to the solenoid terminals No. 2 and 6. Hold the spring-adjusting nut with a wrench while loosening the locknut with another wrench (see Figure 3). Turn

the spring-adjusting screws with an offset screwdriver until the spring tension is just sufficient to allow operation of the armature. Tighten the locknut. There should be approximately equal tension on each spring.

##### (4) Interrupter Switch (see Figure 3)

Adjust the interrupter-switch spring stop screw with an offset screwdriver so that the interrupter-switch contacts will be approximately six thousandths of an inch apart when the armature is placed against the solenoid pole piece. To energize the solenoid without operating the interrupter switch, apply 12 volts DC between solenoid terminal No. 2 located on the terminal board, and the wiring lug located on the larger contact arm of the interrupter switch (see Figure 3).

Slightly flex the shorter, or contact arm of the interrupter switch both ways to determine the contact adjustment which results in best motor operation when 12 volts DC is applied directly to the solenoid terminals. Readjust the interrupter spring stop screw, if necessary.

### 11. CHANNEL INDICATOR LAMPS

To remove a channel indicator lamp: remove the two mounting screws from the panel of Radio Control Box BC-602-A (see Figure 4). Remove the handle of the "T-R-REM." switch by turning it counterclockwise. Draw the panel away from the radio control box.

Remove the lamp cap. A lamp-cap remover is supplied with Test Equipment IE-19-A. Slots are provided in the lamp sleeves to accommodate the lamp-cap remover. The lamp may now be removed with the special extracting tool which is part of the test equipment. Pull the lamp straight out. No turning is required. The extracting tool may also be used for inserting lamps in the radio control box.

### 12. REPLACEMENT OF VACUUM TUBES

Vacuum tubes may be installed or replaced by the following procedure:

Loosen the two Dzus fasteners pinning the transmitter cover to the center cover. Raise the

## MAINTENANCE

transmitter cover slightly and draw it away from the control panel.

If all the frequency-shifter slides (see Figure 3) are not in the released position; that is, if all the channel slides are not completely out of contact with the actuating slides, push the armature of the frequency-shift motor toward the motor (repeatedly if necessary) until complete release of the slides is accomplished. Release takes place suddenly, and is easily recognized. Both transmitter and receiver channel slides are released at the same time.

**NOTE: DAMAGE TO EQUIPMENT WILL RESULT IF CHANNEL SLIDES ARE NOT ALL RELEASED PRIOR TO REMOVING TRANSMITTER OR RECEIVER FROM RACK FT-244-A.**

Remove the four red mounting screws fastening the transmitter to the rack. These screws are shown in Figure 3.

Lift the transmitter side of the rack slightly, while pressing the top of the transmitter down with the thumbs. The transmitter will come free. Lift the rack, together with the receiver, away from the transmitter.

Remove the four Dzus fasteners from the end plate located on the right side of the transmitter chassis. Remove the plate. Install the tubes (1—VT-118, 1—VT-198-A, 1—VT-134) belonging in

the compartment made accessible by the removal of the end plate. Connect the two plate clamps (located on the tank-circuit leads) to the plate terminals on top of tube VT-118. **DO NOT CROSS THE TANK CIRCUIT LEADS.** NOTE: When replacing the end plate, make certain that the Mycalex clamp on its inside surface holds the VT-118 tube firmly in its socket.

Place the transmitter on one of its sides. Loosen the knurled thumbscrew on the tube clamp for the VT-118 tube belonging in the bottom of the transmitter, and turn the clamp aside to make the tube socket accessible. After inserting the tube in its socket, the clamp may be placed over the tube and the thumbscrew tightened. Care must be taken not to break the plate terminals. Connect the two output-circuit plate clamps to the plate terminals on top of the tube. **DO NOT CROSS THE OUTPUT CIRCUIT LEADS.**

Insert the remaining transmitter tubes into their respective sockets.

The receiver tubes may be installed without first removing the receiver from the rack. Make certain that all the tube-securing clamps are properly adjusted after the tubes have been inserted into their respective sockets.

To reassemble the transmitter to the rack, fit the rack to the transmitter, and re-insert and retighten the transmitter mounting screws. Place the rack inside the case.



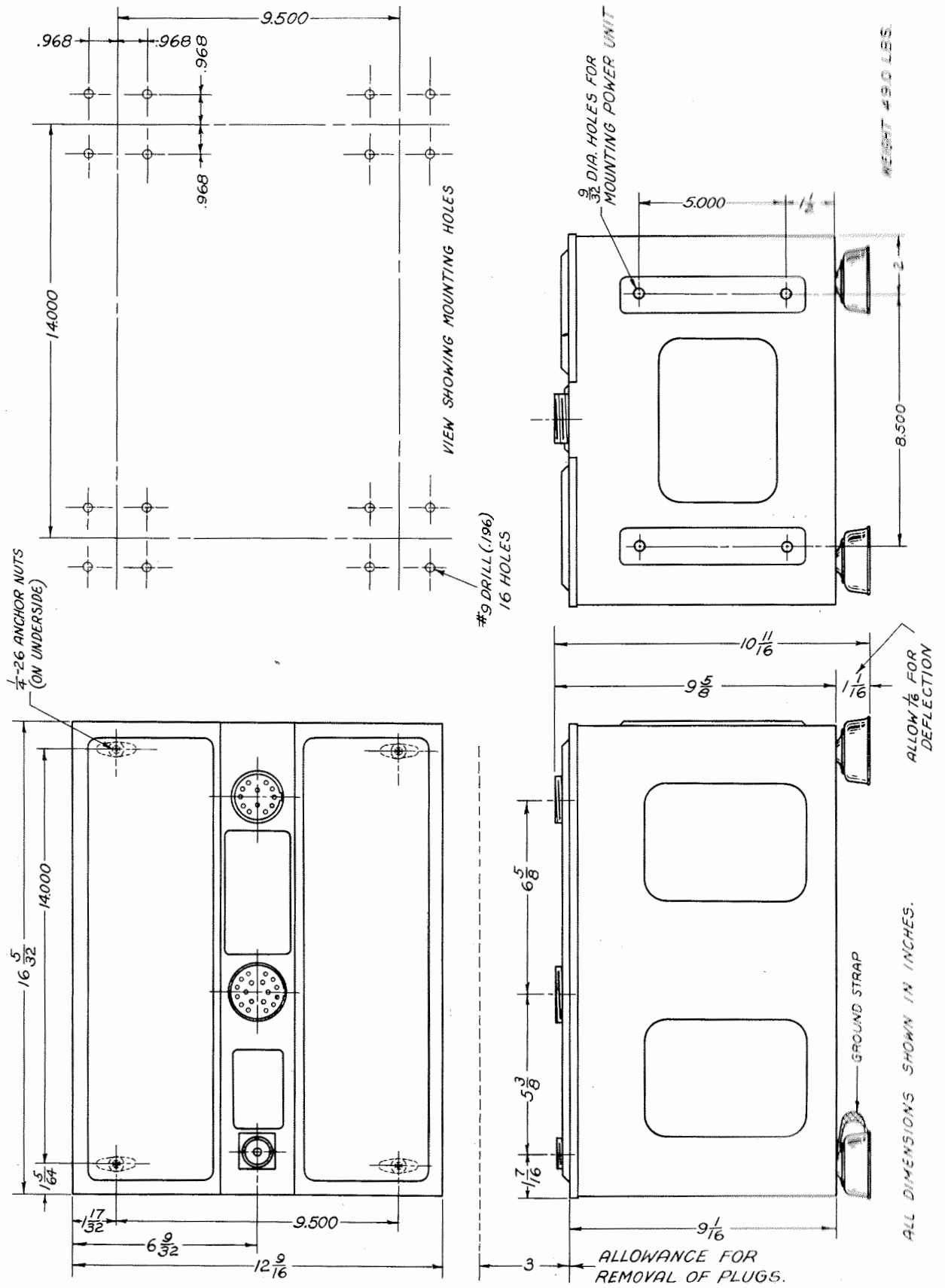


FIGURE 13—TRANSMITTER-RECEIVER ASSEMBLY, OUTLINE DRAWING

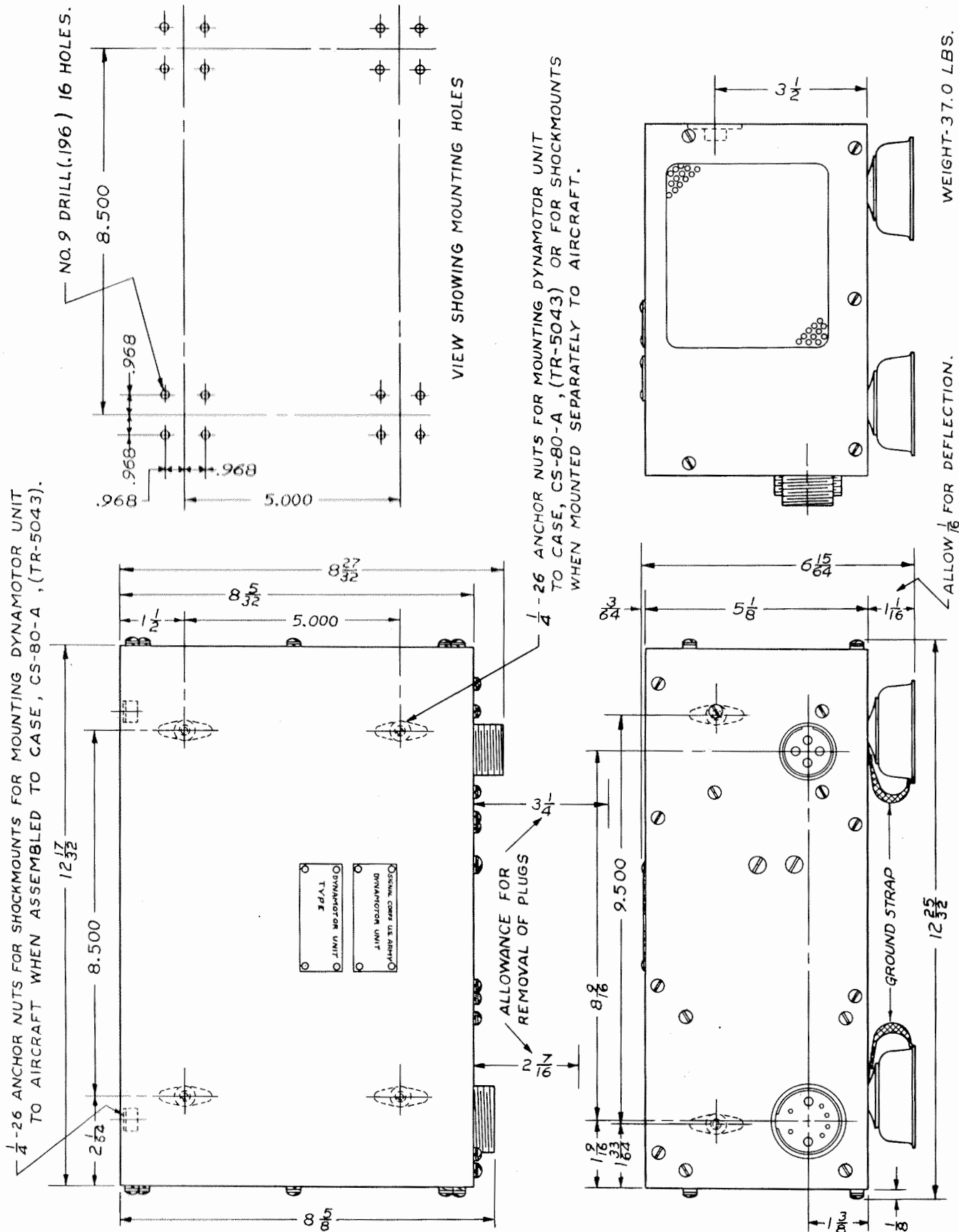
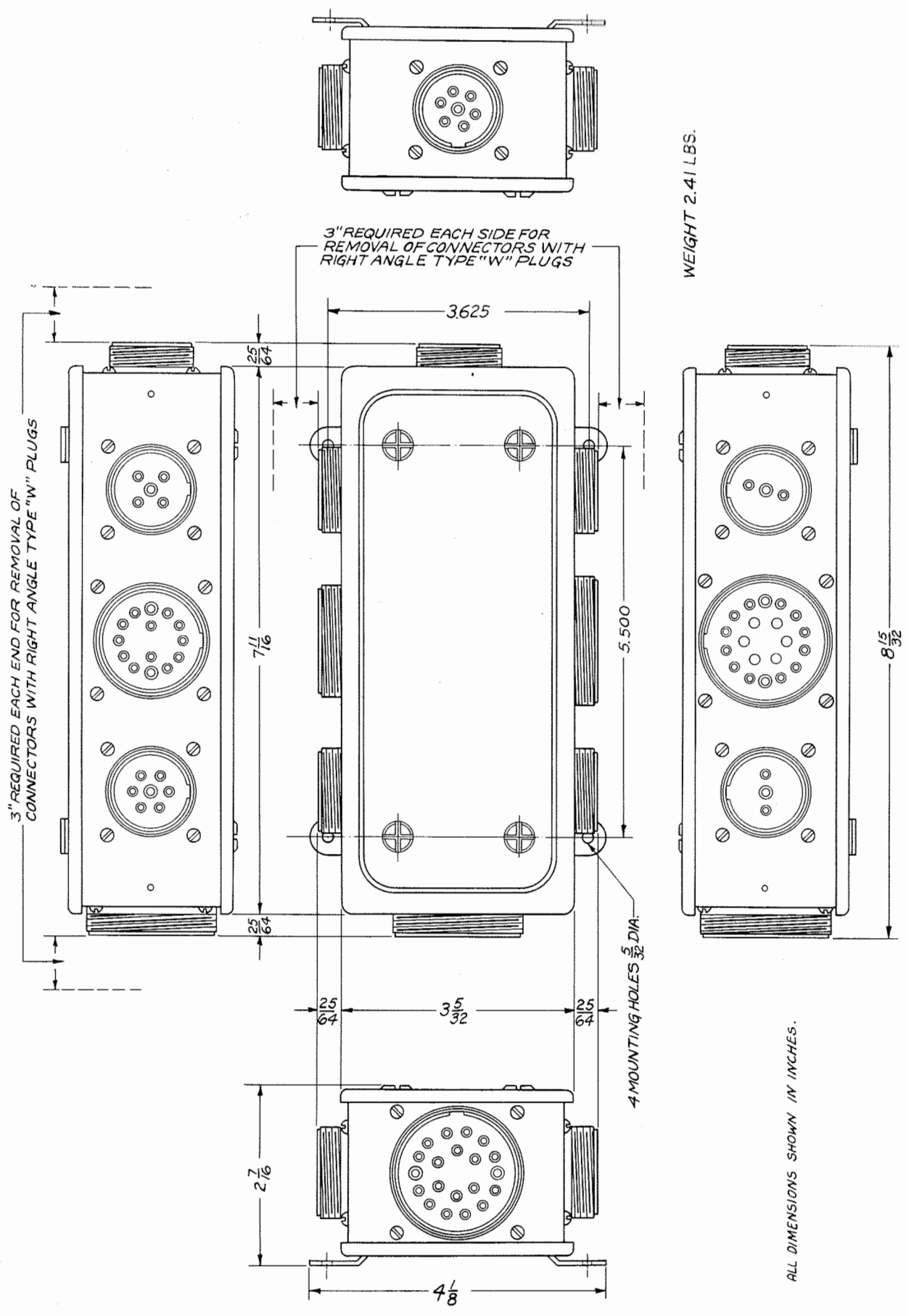


FIGURE 14—DYNAMOTOR UNIT PE-94-A OR PE-98-A, OUTLINE DRAWING

WEIGHT-37.0 LBS.  
ALL DIMENSIONS SHOWN IN INCHES

ALLOW  $\frac{1}{16}$  FOR DEFLECTION.

$12 \frac{5}{32}$



WEIGHT 2.41 LBS.

ALL DIMENSIONS SHOWN IN INCHES.

FIGURE 15—JUNCTION BOX JB-29-A, OUTLINE DRAWING



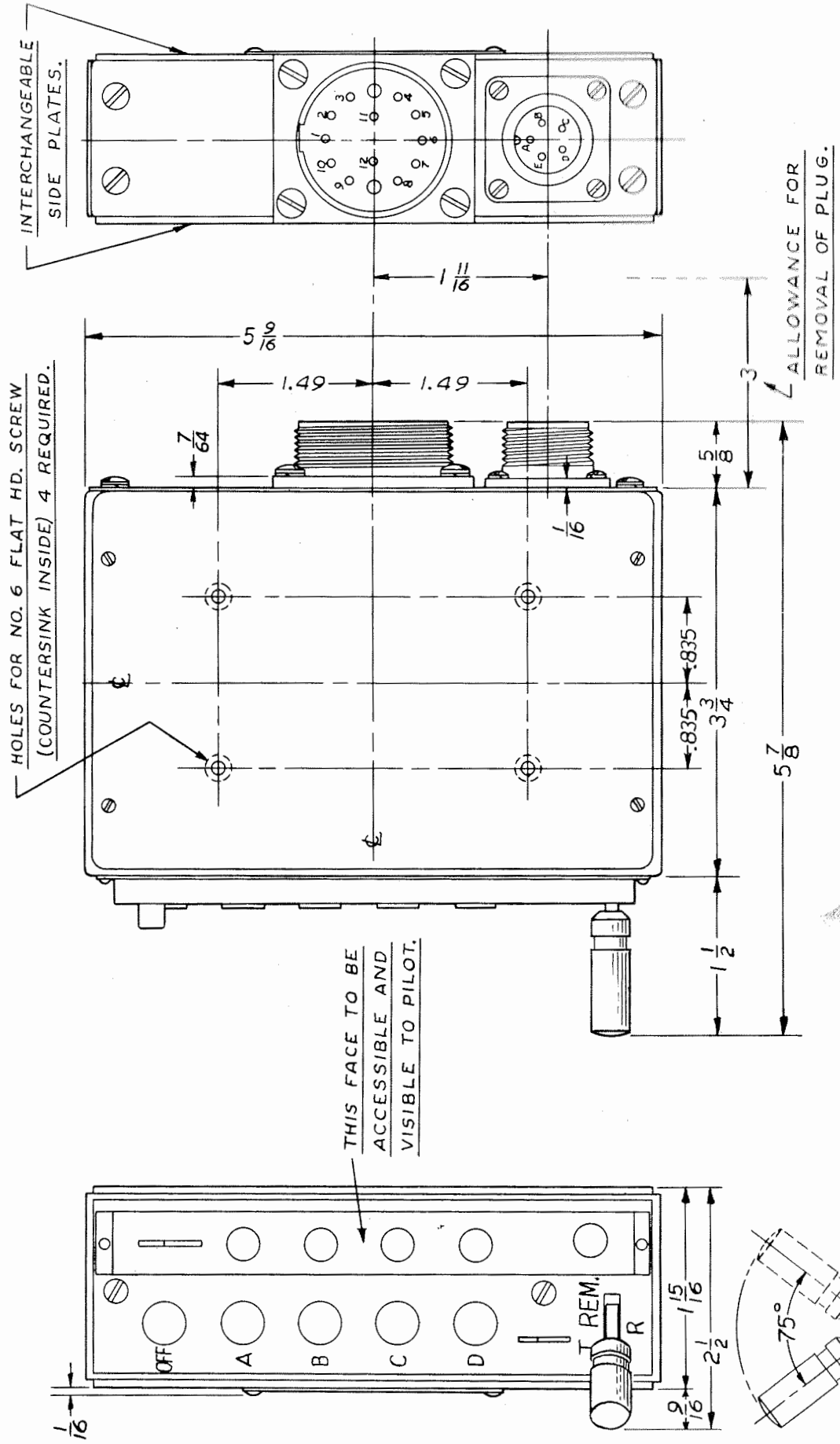
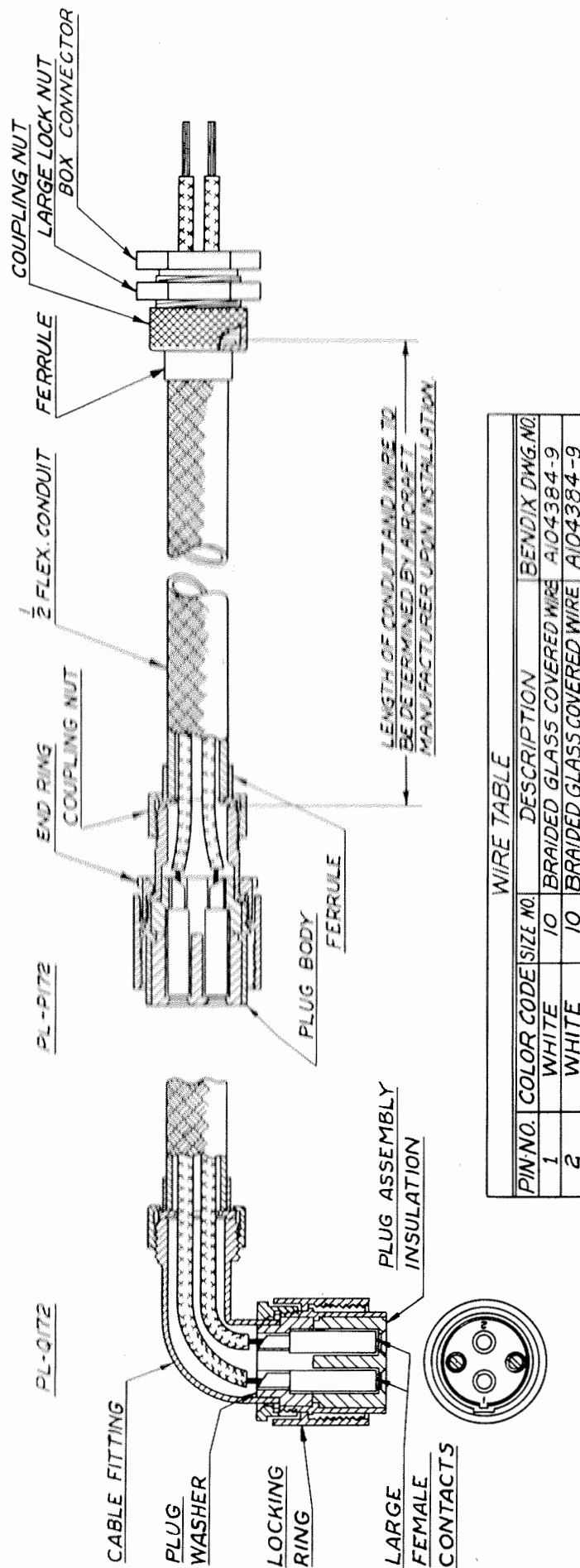


FIGURE 17—RADIO CONTROL BOX BC-602-A, OUTLINE DRAWING



ALL DIMENSIONS IN INCHES

NOTES: 1 - IF OPEN AIRPLANE WIRING IS USED, THE PLUGS SHOWN ABOVE WILL BE REQUIRED BUT THE FLEXIBLE CONDUIT WILL NOT. HOWEVER, THE WIRE WILL HAVE TO BE PROVIDED TO ESTABLISH THE CIRCUITS AS SHOWN.

2 - USE A 3/4 INCH LENGTH OF PHENOFLEX TUBING OVER EACH SOLDERED JOINT.

FIGURE 18—CABLE, DYNAMOTOR UNIT-TO-BATTERY, ASSEMBLY

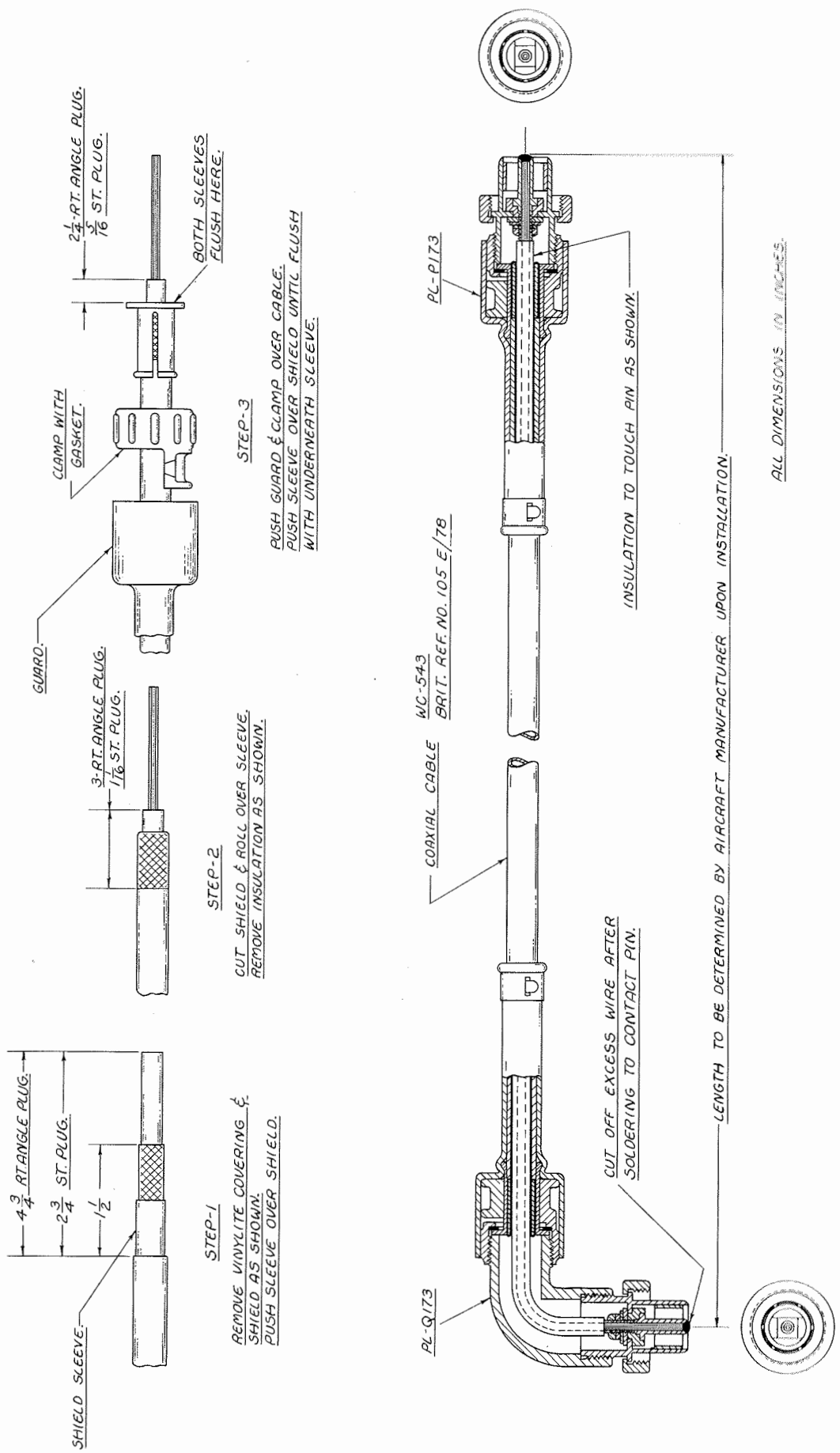
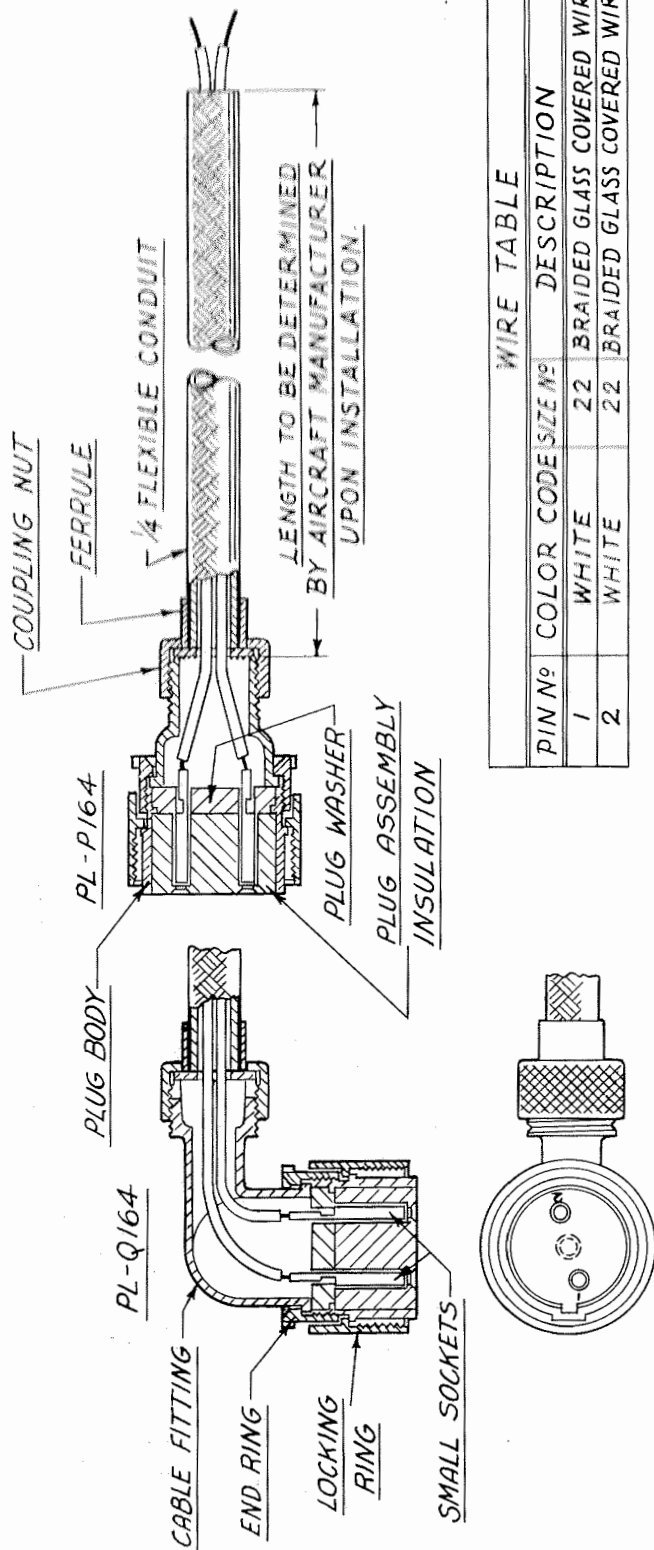


FIGURE 19—CABLE, RACK-TO-ANTENNA, ASSEMBLY



ALL DIMENSIONS IN INCHES.

NOTES:

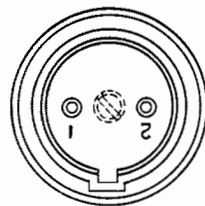
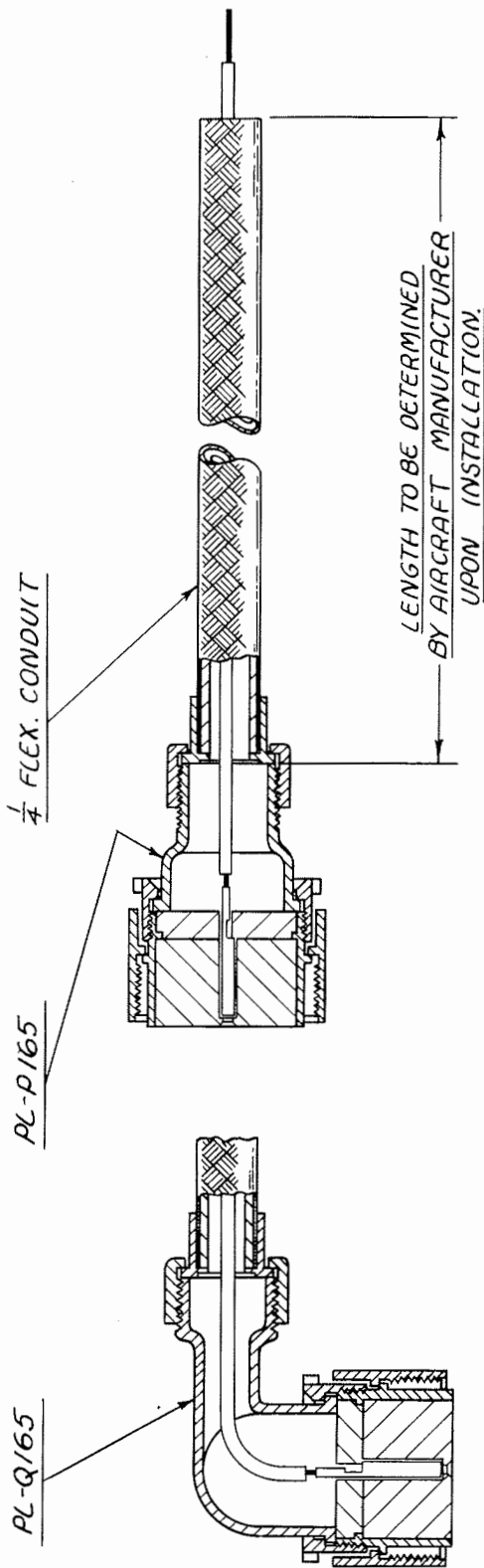
1- DO NOT ALLOW EXCESS SOLDER TO RUN INTO THE SMALL SOCKETS. DO NOT INSERT THE WIRE BEYOND THE 1/4 INCH OF STRIPPED LENGTH. USE A 3/8 INCH LENGTH OF PHENOFLEX TUBING ON EACH SOLDERED JOINT.

2- IF OPEN AIRPLANE WIRING IS USED, THE PLUGS SHOWN ABOVE WILL BE REQUIRED BUT THE FLEXIBLE CONDUIT WILL NOT. HOWEVER, THE WIRE WILL HAVE TO BE PROVIDED TO ESTABLISH THE CIRCUITS AS SHOWN.

3- SEE NOTE "A" ON FIGURE 27.

FIGURE 20—CABLE, JUNCTION BOX-TO-PRESS-TO-TRANSMIT CIRCUIT, ASSEMBLY





WIRE TABLE				
PIN NO.	COLOR CODE	SIZE NO.	DESCRIPTION	BENDIX DWG. NO.
1	WHITE	22	BRAIDED GLASS COVERED WIRE	A 104386-9
2	WHITE	22	BRAIDED GLASS COVERED WIRE	A 104386-9

ALL DIMENSIONS IN INCHES.

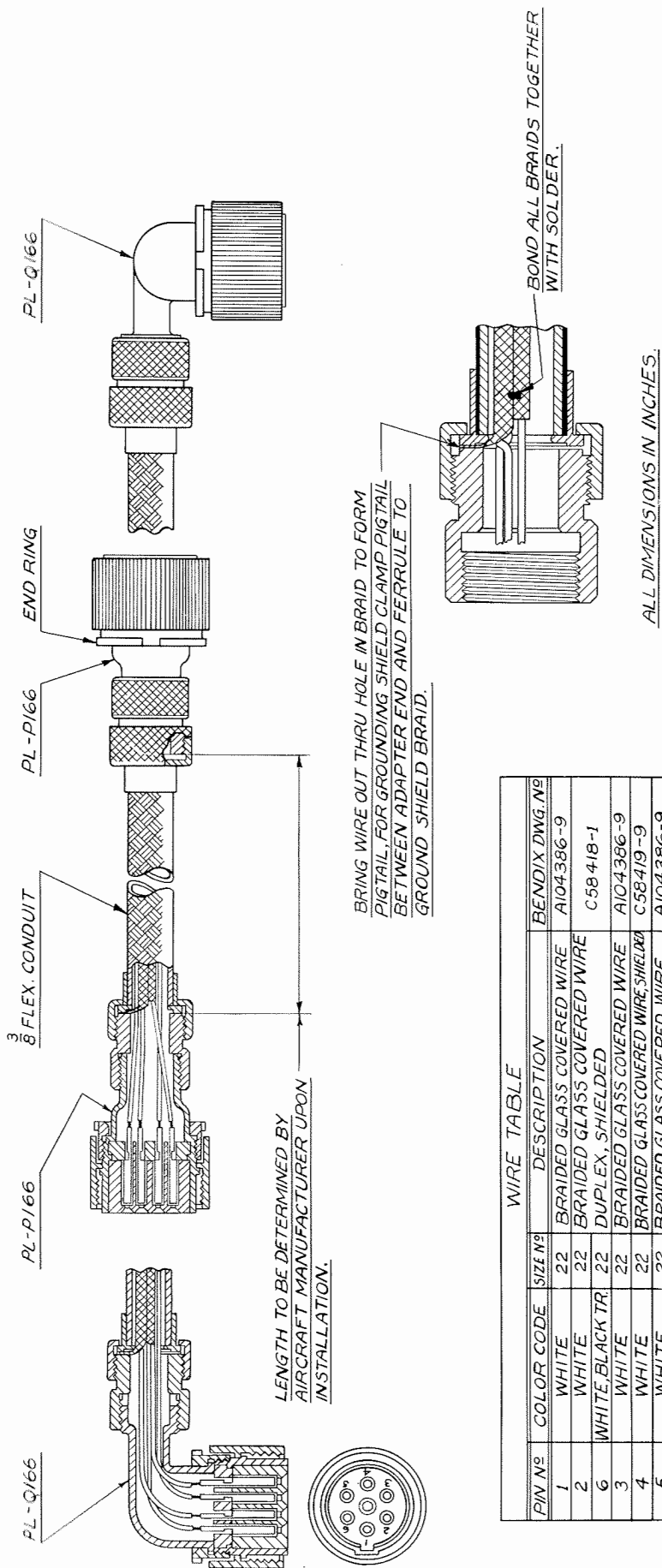
NOTES:

1-DO NOT ALLOW EXCESS SOLDER TO RUN INTO THE SMALL SOCKETS. DO NOT INSERT THE WIRE BEYOND THE 1/4 INCH OF STRIPPED LENGTH. USE A 3/8 INCH LENGTH OF PHENOFLEX TUBING ON EACH SOLDERED JOINT.

2-IF OPEN AIRPLANE WIRING IS USED, THE PLUGS SHOWN ABOVE WILL BE REQUIRED BUT THE FLEXIBLE CONDUIT WILL NOT. HOWEVER, THE WIRE WILL HAVE TO BE PROVIDED TO ESTABLISH THE CIRCUITS AS SHOWN.

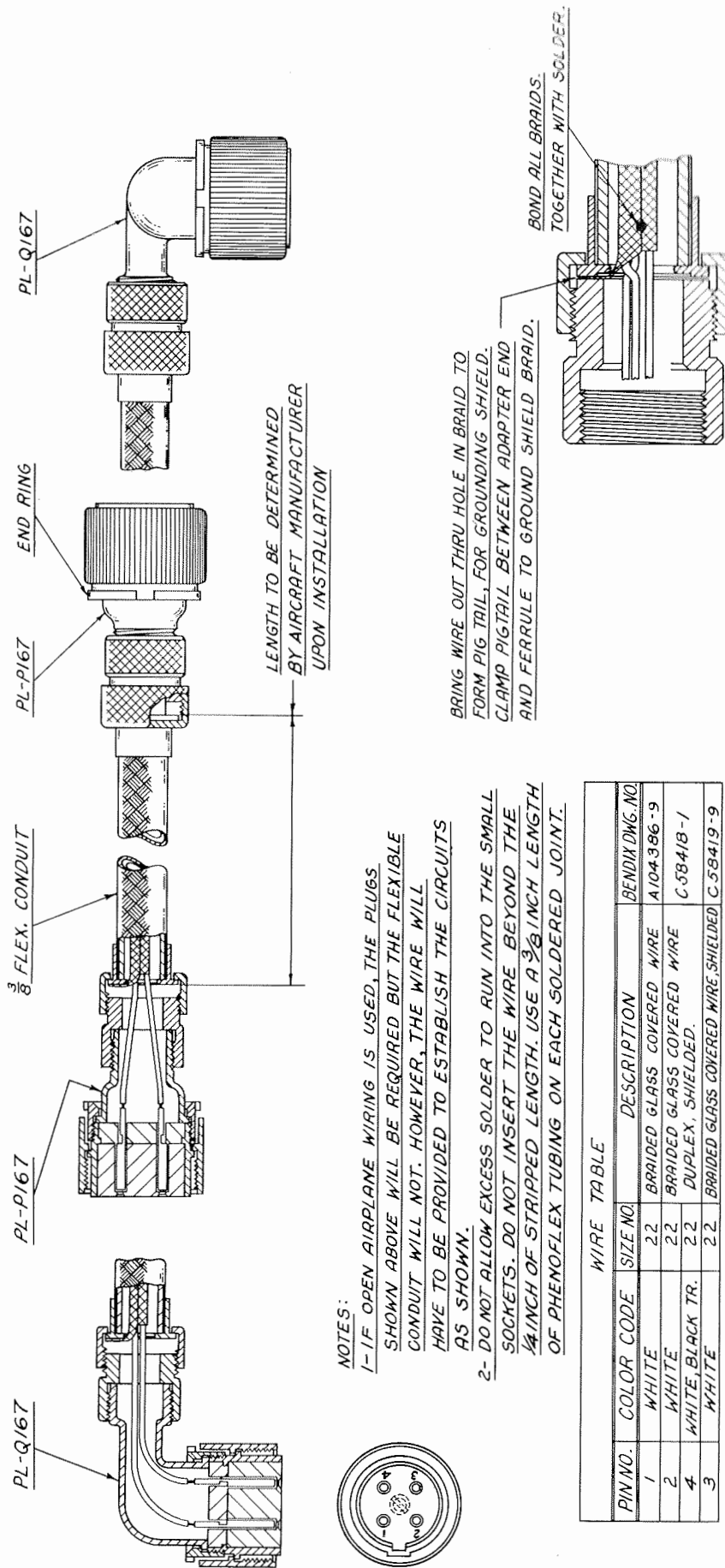
3-SEE NOTES 'B' & 'C' ON FIGURE 27.

FIGURE 21—CABLE, JUNCTION BOX-TO-CONTACTOR, ASSEMBLY



- NOTES:
- DO NOT ALLOW EXCESS SOLDER TO RUN INTO THE SMALL SOCKETS. DO NOT INSERT THE WIRE BEYOND THE  $\frac{1}{4}$  INCH OF STRIPPED LENGTH. USE A  $\frac{3}{8}$  INCH LENGTH OF PHENOFLEX TUBING ON EACH SOLDERED JOINT.
  - IF OPEN AIRPLANE WIRING IS USED, THE PLUGS SHOWN ABOVE WILL BE REQUIRED BUT THE FLEXIBLE CONDUIT WILL NOT. HOWEVER, THE WIRE WILL HAVE TO BE PROVIDED TO ESTABLISH THE CIRCUITS AS SHOWN.

FIGURE 22—CABLE, JUNCTION BOX-TO-FIRST CREW JACK BOX (BC-630-A), ASSEMBLY



NOTES:

1- IF OPEN AIRPLANE WIRING IS USED, THE PLUGS SHOWN ABOVE WILL BE REQUIRED BUT THE FLEXIBLE CONDUIT WILL NOT. HOWEVER, THE WIRE WILL HAVE TO BE PROVIDED TO ESTABLISH THE CIRCUITS AS SHOWN.

2- DO NOT ALLOW EXCESS SOLDER TO RUN INTO THE SMALL SOCKETS. DO NOT INSERT THE WIRE BEYOND THE  $\frac{1}{4}$  INCH OF STRIPPED LENGTH. USE A  $\frac{3}{8}$  INCH LENGTH OF PHENOFLEX TUBING ON EACH SOLDERED JOINT.

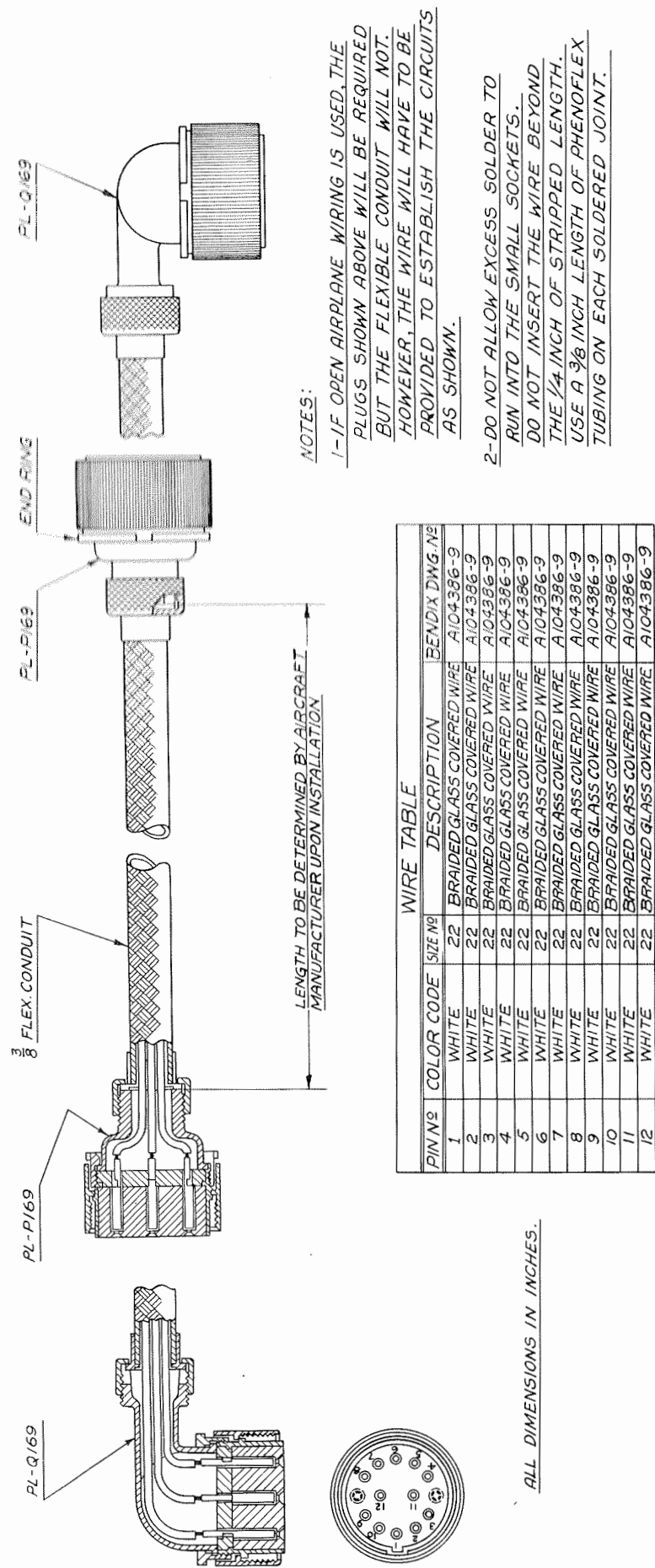
WIRE TABLE

PIN NO.	COLOR CODE	SIZE NO.	DESCRIPTION	BENDIX DWG. NO.
1	WHITE	22	BRAIDED GLASS COVERED WIRE	A104-386-9
2	WHITE	22	BRAIDED GLASS COVERED WIRE	C-58418-1
4	WHITE, BLACK TR.	22	DUPLEX, SHIELDED.	
3	WHITE	22	BRAIDED GLASS COVERED WIRE SHIELDED	C-58419-9

ALL DIMENSIONS IN INCHES.

METHOD OF GROUNDING SHIELD  
SCALE 2" = 1"

FIGURE 23—CABLE, JUNCTION BOX-TO-PILOT JACK BOX (BC-629-A), ASSEMBLY



**NOTES:**

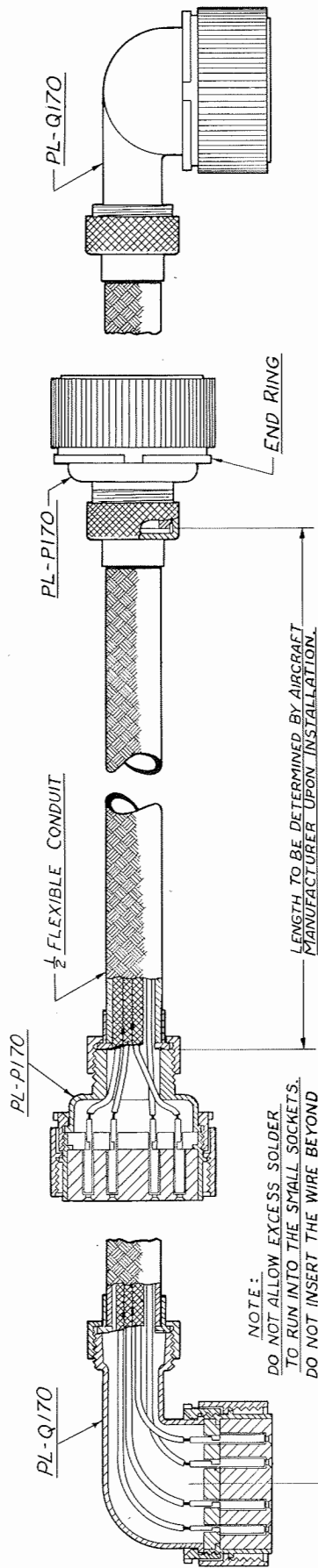
- 1- IF OPEN AIRPLANE WIRING IS USED, THE PLUGS SHOWN ABOVE WILL BE REQUIRED BUT THE FLEXIBLE CONDUIT WILL NOT. HOWEVER, THE WIRE WILL HAVE TO BE PROVIDED TO ESTABLISH THE CIRCUITS AS SHOWN.
- 2- DO NOT ALLOW EXCESS SOLDER TO RUN INTO THE SMALL SOCKETS. DO NOT INSERT THE WIRE BEYOND THE 1/4 INCH OF STRIPPED LENGTH. USE A 3/8 INCH LENGTH OF PHENOFLEX TUBING ON EACH SOLDERED JOINT.

**WIRE TABLE**

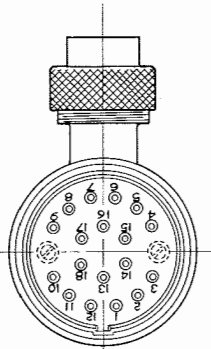
PIN NO	COLOR CODE	SIZE NO	DESCRIPTION	BENDIX DWG. NO
1	WHITE	22	BRAIDED GLASS COVERED WIRE	A104386-9
2	WHITE	22	BRAIDED GLASS COVERED WIRE	A104386-9
3	WHITE	22	BRAIDED GLASS COVERED WIRE	A104386-9
4	WHITE	22	BRAIDED GLASS COVERED WIRE	A104386-9
5	WHITE	22	BRAIDED GLASS COVERED WIRE	A104386-9
6	WHITE	22	BRAIDED GLASS COVERED WIRE	A104386-9
7	WHITE	22	BRAIDED GLASS COVERED WIRE	A104386-9
8	WHITE	22	BRAIDED GLASS COVERED WIRE	A104386-9
9	WHITE	22	BRAIDED GLASS COVERED WIRE	A104386-9
10	WHITE	22	BRAIDED GLASS COVERED WIRE	A104386-9
11	WHITE	22	BRAIDED GLASS COVERED WIRE	A104386-9
12	WHITE	22	BRAIDED GLASS COVERED WIRE	A104386-9

ALL DIMENSIONS IN INCHES.

FIGURE 24—CABLE, JUNCTION BOX-TO-RADIO CONTROL BOX, ASSEMBLY



NOTE:  
DO NOT ALLOW EXCESS SOLDER  
TO RUN INTO THE SMALL SOCKETS.  
DO NOT INSERT THE WIRE BEYOND  
THE 1/4 INCH OF STRIPPED LENGTH.  
USE A 3/8 INCH LENGTH OF PHENOFLEX  
TUBING ON EACH SOLDERED JOINT.

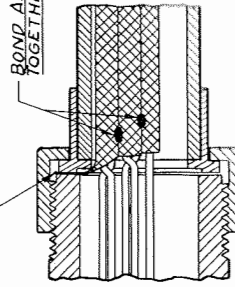


NOTE:  
IF OPEN AIRPLANE WIRING IS USED,  
THE PLUGS SHOWN ABOVE WILL BE  
REQUIRED BUT THE FLEXIBLE  
CONDUIT WILL NOT. HOWEVER, THE  
WIRE WILL HAVE TO BE PROVIDED  
TO ESTABLISH THE CIRCUITS AS  
SHOWN.

WIRE TABLE				BENDIX DWG. NO.
PIN No.	COLOR CODE	SIZE No.	DESCRIPTION	
1	WHITE	22	BRAIDED GLASS COVERED WIRE.	A104386-9
2	WHITE	22	BRAIDED GLASS COVERED WIRE.	A104386-9
3	WHITE	22	BRAIDED GLASS COVERED WIRE SHIELD'D.	C 58419-9
4	WHITE	22	BRAIDED GLASS COVERED WIRE.	A104386-9
5	WHITE	22	BRAIDED GLASS COVERED WIRE.	A104386-9
6	WHITE	22	BRAIDED GLASS COVERED WIRE.	A104386-9
7	WHITE, BLACK TR.	22	SHIELDED, DUPLEX.	C 58418-1
8	WHITE	22	SHIELDED, DUPLEX.	A104386-9
9	WHITE	22	SHIELDED, DUPLEX.	A104386-9
10	WHITE	22	SHIELDED, DUPLEX.	A104386-9
11	WHITE, BLACK TR.	22	SHIELDED, DUPLEX.	C 58418-1
12	WHITE	22	SHIELDED, DUPLEX.	A104386-9
13	WHITE	22	SHIELDED, DUPLEX.	A104386-9
14	WHITE	22	SHIELDED, DUPLEX.	A104386-9
15	WHITE	22	SHIELDED, DUPLEX.	A104386-9
16	WHITE	22	SHIELDED, DUPLEX.	A104386-9
17	WHITE	22	SHIELDED, DUPLEX.	A104386-9
18	WHITE	22	SHIELDED, DUPLEX.	A104386-9

ALL DIMENSIONS IN INCHES.

BRING WIRE OUT THRU HOLE IN BRAID  
TO FORM DIGITAL FOR GROUNDING SHIELD.  
CLAMP DIGITAL BETWEEN CABLE FITTING END  
AND FERRULE TO GROUND SHIELD BRAID.

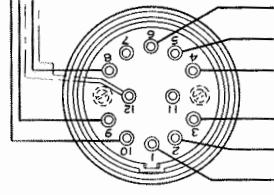


BOND ALL SHIELD BRAIDS  
TOGETHER WITH SOLDER.

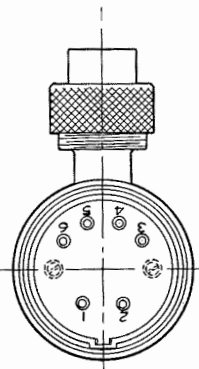
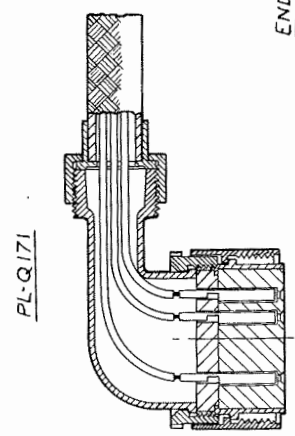
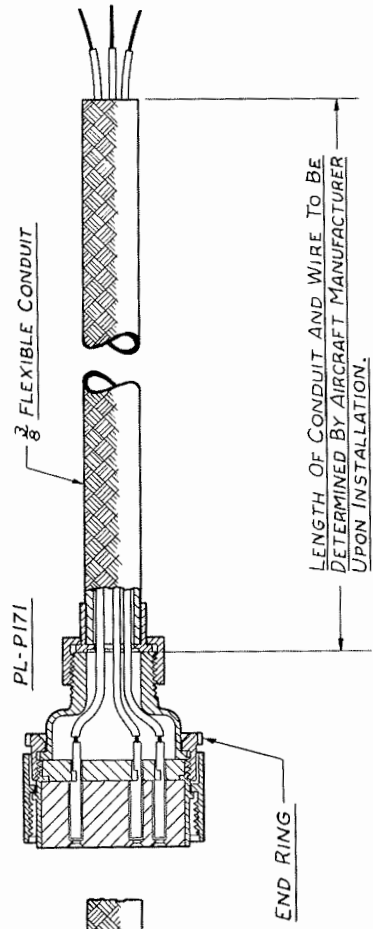
METHOD OF GROUNDING SHIELDS  
SCALE: 2:1

FIGURE 25—CABLE, JUNCTION BOX-TO-RACK, ASSEMBLY

THESE WIRES TERMINATE  
ON PLUG PL-P199  
OR PLUG PL-Q199  
SEE FIGURE 27 AND  
REFER TO NOTE G  
PLUG PL-P169  
OR PL-Q169



THESE WIRES TERMINATE ON  
PLUG PL-P171 OR PL-Q171.  
SEE FIGURE 27.



NOTE:

DO NOT ALLOW EXCESS SOLDER TO RUN INTO THE SMALL SOCKETS.  
DO NOT INSERT THE WIRE BEYOND THE 1/4 INCH OF STRIPPED LENGTH.  
USE A 3/8 INCH LENGTH OF PHENOFLEX TUBING ON EACH SOLDERED JOINT.

NOTE:

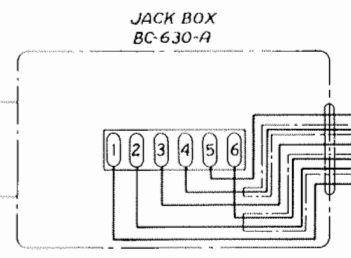
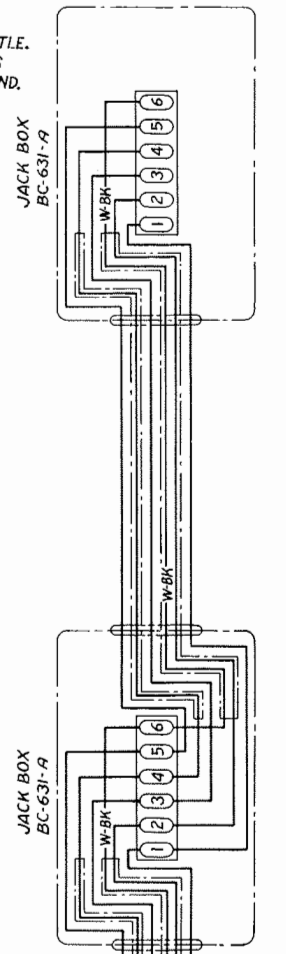
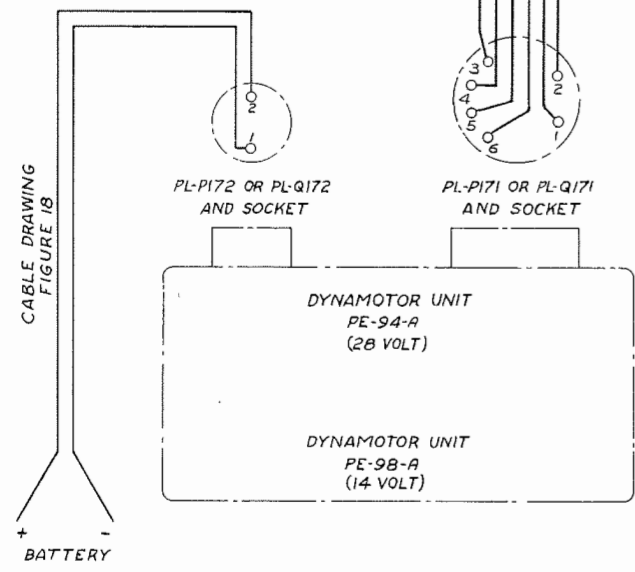
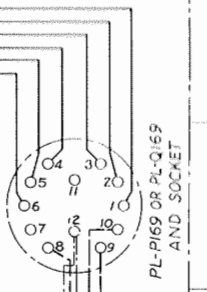
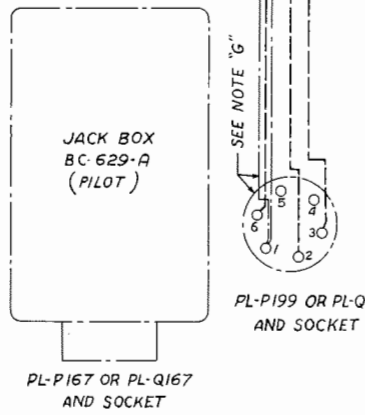
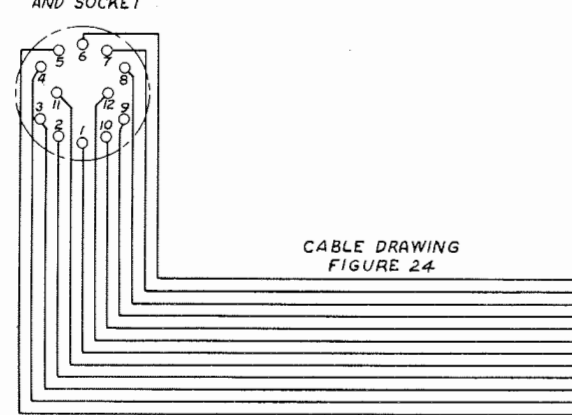
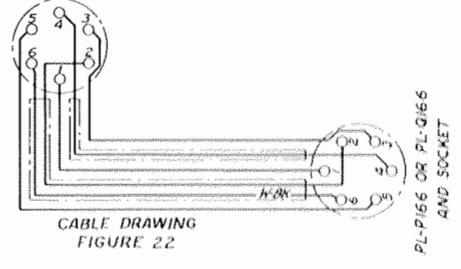
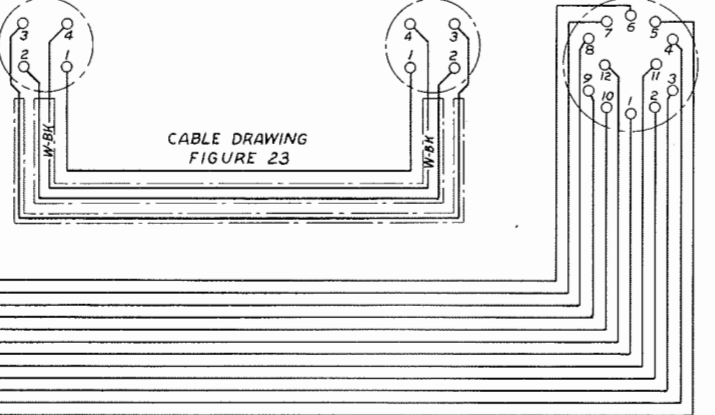
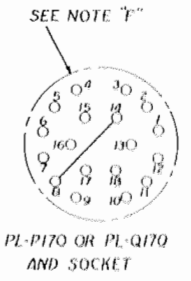
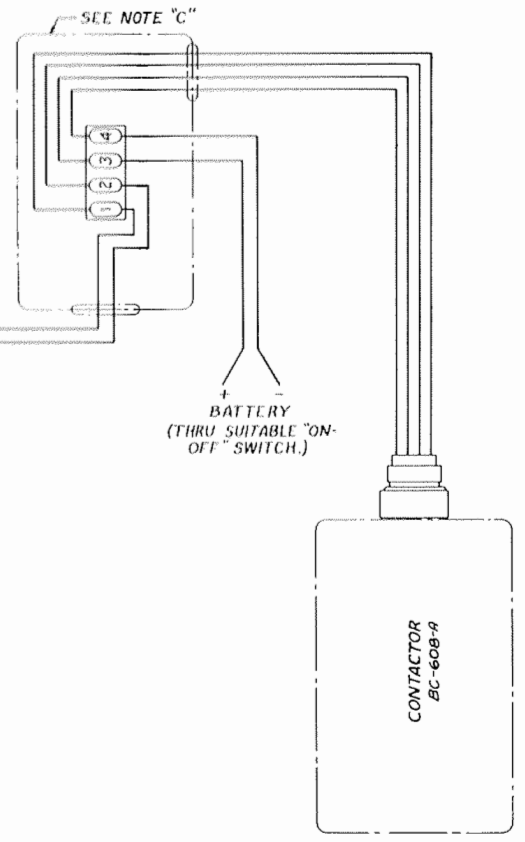
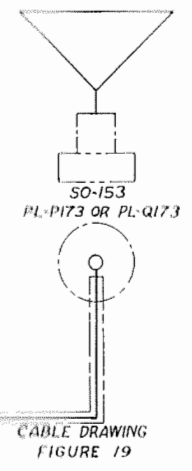
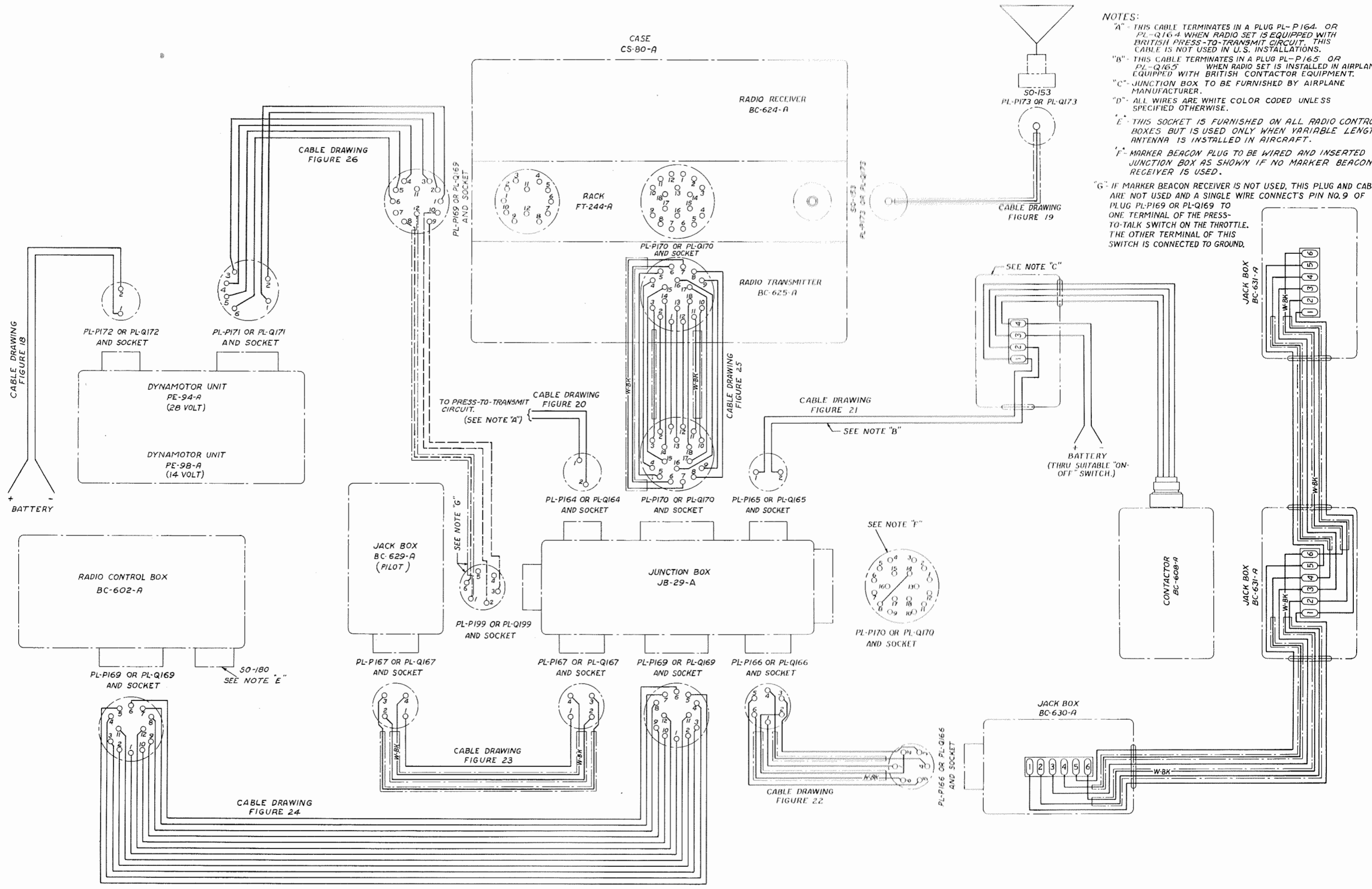
IF OPEN AIRPLANE WIRING IS USED, THE PLUGS  
SHOWN ABOVE WILL BE REQUIRED BUT THE  
FLEXIBLE CONDUIT WILL NOT. HOWEVER,  
THE WIRE WILL HAVE TO BE PROVIDED TO  
ESTABLISH THE CIRCUIT AS SHOWN.

PLUG PL-P171 OR PL-Q171		WIRE TABLE		PLUG PL-P169 OR PL-Q169	
PIN NO.	COLOR CODE	SIZE No.	DESCRIPTION	BENDIX DWG. NO.	PIN NO.
1	WHITE	22	BRAIDED GLASS COVERED WIRE	A 104386-9	1
2	WHITE	22	BRAIDED GLASS COVERED WIRE	A 104386-9	2
3	WHITE	18	BRAIDED GLASS COVERED WIRE	A 104385-9	3
4	WHITE	18	BRAIDED GLASS COVERED WIRE	A 104385-9	4
5	WHITE	22	BRAIDED GLASS COVERED WIRE	A 104386-9	5
6	WHITE	22	BRAIDED GLASS COVERED WIRE	A 104386-9	6

ALL DIMENSIONS IN INCHES.

FIGURE 26—CABLE, DYNAMOTOR UNIT-TO-RACK, ASSEMBLY

- NOTES:**
- "A" - THIS CABLE TERMINATES IN A PLUG PL-P164 OR PL-Q164 WHEN RADIO SET IS EQUIPPED WITH BRITISH PRESS-TO-TRANSMIT CIRCUIT. THIS CABLE IS NOT USED IN U.S. INSTALLATIONS.
  - "B" - THIS CABLE TERMINATES IN A PLUG PL-P165 OR PL-Q165 WHEN RADIO SET IS INSTALLED IN AIRPLANE EQUIPPED WITH BRITISH CONTACTOR EQUIPMENT.
  - "C" - JUNCTION BOX TO BE FURNISHED BY AIRPLANE MANUFACTURER.
  - "D" - ALL WIRES ARE WHITE COLOR CODED UNLESS SPECIFIED OTHERWISE.
  - "E" - THIS SOCKET IS FURNISHED ON ALL RADIO CONTROL BOXES BUT IS USED ONLY WHEN VARIABLE LENGTH ANTENNA IS INSTALLED IN AIRCRAFT.
  - "F" - MARKER BEACON PLUG TO BE WIRED AND INSERTED IN JUNCTION BOX AS SHOWN IF NO MARKER BEACON RECEIVER IS USED.
  - "G" - IF MARKER BEACON RECEIVER IS NOT USED, THIS PLUG AND CABLE ARE NOT USED AND A SINGLE WIRE CONNECTS PIN NO. 9 OF PLUG PL-P169 OR PL-Q169 TO ONE TERMINAL OF THE PRESS-TO-TALK SWITCH ON THE THROTTLE. THE OTHER TERMINAL OF THIS SWITCH IS CONNECTED TO GROUND.



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**ILLUSTRATION**

Figure 1 — Radio Sets SCR-522-A and SCR-542-A, Complete Schematic Circuit Diagram



SUPPLEMENT

SUPPLEMENT

TABLE OF REPLACIBLE PARTS

Ref. No.	Stock No.	Name	Description	Function	Mfr.	Drawing Numbers Bendix	Std. C.
<b>a. Radio Transmitter BC-625-A</b>							
*100		Capacitor	15 mmf ± 1 mmf, 500V DCW, ceramic, Type NPOL	Balancing	Erie	A18182-17	
101		Capacitor	10 mmf ± 0.5 mmf, 500V DCW, ceramic, Type NPOK	Osc. Feedback	Erie	A18182-13	
*102-1		Capacitor	.006 mfd ± 20%, 300V DCW, mica, Aero Type 1467, C. D. Type 1WL-3D6, mica Type W	Osc. Screen Coupling	Aero, Mica, C. D.	A102967-7	
*102-2			Same as 102-1	Osc. Plate Bypass			
*102-3			Same as 102-1	1st Harm. Amp. Grid Bypass			
*102-4			Same as 102-1	1st Harm. Amp. Filament Bypass			
*102-5			Same as 102-1	1st Harm. Amp. Screen Bypass			
*102-6			Same as 102-1	1st Harm. Amp. Cathode Bypass			
*102-7			Same as 102-1	1st Harm. Amp. Plate Bypass			
*102-8			Same as 102-1	2nd Harm. Grid Bypass			
*102-9			Same as 102-1	2nd Harm. Amp. Grid Bypass			
*102-10			Same as 102-1	2nd Harm. Amp. Filament Bypass			
*102-11			Same as 102-1	Meter Shunt Bypass			
*102-12			Same as 102-1	PA Grid Bypass			
*102-13			Same as 102-1	PA Grid Bypass			
*102-14			Same as 102-1	Bridge Blocking			
*102-15			Same as 102-1	Bridge Blocking			
103		Capacitor	50 mmf ± 1%, 500V DCW, silver mica, Type MIJ	Osc. Cathode Bypass	Erie	A18253-1	
104		Capacitor	100 mmf ± 5 mmf, 500V DCW, ceramic, Type NPOD	1st Harm. Amp. Grid Coupling	Erie	A104485-1	
105-1		Capacitor	.001 mfd ± 10%, 500V DCW, mica, C. D. Type 5WL, Aero Type 1468	PA Filament Bypass	C. D., Aero	C56315-102	
105-2			Same as 105-1	RF Indicator Bypass			
105-3			Same as 105-1	Speech Amp. Grid Bypass			
105-4			Same as 105-1	Meter Shunt Bypass			

\* Any equivalent capacitor with a capacitance rating within the range .005 to .01 mfd is also suitable and may be used as an alternate part.  
 \*\* Ref. No. 100 is not used in some transmitters.

SUPPLEMENT

Ref. No.	Stock No.	Name	Description	Function	Mfr.	Drawing Numbers Bendix Sig. C.
106		Capacitor	.002 mfd $\pm 5\%$ , 800V DCW, mica, Type 1WPLS	PA Plate Bypass	C. D.	A18255-1
107-1		Capacitor	0.1 mfd $\pm 10\%$ , 400V DCW, paper, Mica Type 345-21, Solar Type MPW-4147	Speech Amp. Screen Bypass	Mica, Solar	A18015-104
108-2		Capacitor	.001 mfd $\pm 5\%$ , 500V DCW, mica, C. D. Type 1WL-5D1, Mica Type W, Aero Type 1467	Tone Feedback	Aero, Mica, C. D.	A102967-2
109-1		Capacitor	20 mfd $\pm 1$ mmf, 500V DCW, ceramicon, Type NPOL	PA Grid Coupling	Erie	A18182-16
109-2			Same as 109-1	PA Grid Coupling		
109-3			Same as 109-1	2nd Harm. Amp.		
109-4			Same as 109-1	Grid Coupling		
109-5			Same as 109-1	2nd Harm. Amp.		
110		Capacitor	1.0 mfd $\pm 10\%$ , 100V DCW, oil-paper	Grid Coupling		
*111		Capacitor	0.5 mfd $\pm 10\%$ , 400V DCW, oil-paper	Mod. Grid Bypass	C. D., Aero	A104092-2
113		Capacitor	.0003 mfd $\pm 5\%$ , 500V DCW, mica, C. D. Type 1WL, Mica Type W, Aero Type 1467	Speech Amp. Plate Blocking	C. D., Aero	A104092-1
114		Capacitor	Stators in parallel, 11.0 $\pm 1$ mmf min, 65.5 $\pm 1.5$ mmf eff	Speech Amp. Plate Blocking	Aero, Mica, C. D.	A102967-3
115		Capacitor	Stators in series, 3.5 $\pm 1$ mmf min, 27.0 $\pm 1$ mmf eff	Osc. Plate Tuning	G. Inst., Rad. Cond.	L72950
116		Capacitor	Stators in series, 3.0 $\pm 1$ mmf min, 16.5 $\pm 1$ mmf eff	1st Harm. Amp. Pl. Tuning	G. Inst., Rad. Cond.	L72951
117		Capacitor	Stators in series, 2.8 $\pm 1$ mmf min, 11.0 $\pm 1$ mmf eff	2nd Harm. Amp. Pl. Tuning	G. Inst., Rad. Cond.	L72949
118		Inductor	9 1/2 turns #24 enamel wire, grooved form	PA Plate Tuning	G. Inst., Rad. Cond.	L72948
119		Inductor	15 turns #10 silver-plated SD copper wire, tapped at 8 turns, self-supporting	Osc. Plate Tuning	Bendix	AC57998-1
120		Inductor	#10 silver-plated SD copper wire, distributed inductance line	1st Harm. Amp. Plate Tuning	Bendix	AC57999-1
121		Inductor	2 turns—gap—2 turns, self-supporting, #10SD silver-plated copper wire	2nd Harm. Amp. Pl. Tuning	Bendix	AC58149-1
122		Inductor	3 turns, self-supporting, #10 SP copper wire	PA Plate Tuning	Bendix	AC58150-1
123-1		Plug	8-contact male, Type P-408	Ant. Coupling	Bendix	AC58151-1
123-2			Same as 123-1	Trans. Control CKT. Power Input	Jones	A102811

\* Bendix Dwg. No. A104810 may be substituted for A104092-1 in Radio Transmitter BC-625-A only.

SUPPLEMENT

Drawing Numbers  
Bendix Sig. C

Mfr.

Function

Description

Part Name

Part No.

Part No.	Part Name	Description	Function	Mfr.	Drawing Numbers Bendix Sig. C
126	Reactor, AF	400 H, 1MA DC, 5000 $\Omega$ , Type XR-5B	Audio "GAIN" Control	I. R. C.	A104470-2
127-1	Reactor, RF	1 amp., 2½ meter, Type ZO	Speech Amp. Plate	Bendix	A103034
127-2		Same as 127-1	2nd Harm. Amp. Grid Choke	Ohmite	A104090
127-3		Same as 127-1	2nd Harm. Amp. Grid Choke		
127-4		Same as 127-1	PA Grid Choke		
128-1	Reactor, RF	2.5 MH, 125 MA, 50 $\Omega$ , 1 Mmf, Type R-100	PA Grid Choke	National	A10556
128-2		Same as 128-1	Osc. Grid Choke		
128-3		Same as 128-1	Osc. Cathode Choke		
130	Relay	0.2 sec. release, 12V, 200-ohm coil, SPDT, Type EA-6487	PA Plate Choke	Clare	A18258
131	Relay	200-ohm coil, 12V, DPDT & SPST, normally unenergized, Type B-6106	Slow Release Relay	Clare	A18259
132-1	Resistor	25,000 $\Omega$ $\pm$ 5%, ½W, ceramic	Contactor Relay	Erie	A18004-253
132-2		Same as 132-1	2nd Harm. Amp. Grid Bias		
133-1	Resistor	40,000 $\Omega$ $\pm$ 5%, 1W, ceramic	2nd Harm. Amp. Grid Bias	Erie	A18158-403
133-2		Same as 133-1	PA Screen Dropping		
134	Resistor	1.53 $\Omega$ $\pm$ 1%, WW, Type 181	PA Screen Dropping	Shall	A18254-2
135-1	Resistor	0.76 $\Omega$ $\pm$ 1%, WW, Type 181	1st Harm. Amp. Plate Shunt	Shall	A18254-1
135-2		Same as 135-1	2nd Harm. Amp. Plate Shunt		
138-3	Resistor	1 meg. $\pm$ 5%, ½W, ceramic	PA Plate Shunt	Erie	A18004-105
140-2	Resistor	500,000 $\Omega$ $\pm$ 5%, ½W, ceramic	Speech Amp. Screen Dropping	Erie	A18004-504
140-3		Same as 140-2	Tone Voltage Divider		
140-4		Same as 140-2	Tone Voltage Divider		
141-1	Resistor	1 meg. $\pm$ 5%, ¼W, ceramic	Tone Feedback Coupling	Erie	A18001-105
141-2		Same as 141-1	Input Bridge		
141-3		Same as 141-1	Input Bridge		
141-4		Same as 141-1	Input Bridge		
142	Resistor	5000 $\Omega$ $\pm$ 5%, ½W, ceramic	Speech Amp. Grid Bias	Erie	A18004-502
143-1	Resistor	82 $\Omega$ $\pm$ 5%, 1W, ceramic	Speech Amp. Filament Dropping	Erie	A18158-820
143-2		Same as 143-1	Speech Amp. Filament Dropping		

\*\* Bendix Dwg. No. A105317 may be substituted for A104470 in Radio Transmitter BC-625-A.

SUPPLEMENT

Ref. No.	Stock No.	Name	Description	Function	Mfr.	Drawing Numbers Bendix Sig. C
144	Resistor	250,000Ω ±5%, ¼W, ceramic	Speech Amp. Plate Load	Erie	A18001-254	
145	Resistor	15,000Ω ±5%, 1W, ceramic	Mod. Bias Bleeder	Erie	A18158-153	
146	Resistor	6000Ω ±5%, 1W, ceramic	Transformer Bias Bleeder	Erie	A18158-602	
147	Resistor	18,000Ω ±5%, 1W, ceramic	Transformer Bias Divider	Erie	A18158-183	
148	Resistor	75Ω ±5%, 1W, ceramic	PA Grid Shunt	Erie	A18158-750	
150	Resistor	50Ω ±5%, ½W, ceramic	1st Harm. Amp. Grid Coupling	Erie	A18004-500	
151-1	Resistor	50,000Ω ±5%, ½W, ceramic	Osc. Grid Bias	Erie	A18004-503	
151-2	Resistor	Same as 151-1	1st Harm. Amp. Grid Bias	Erie	A18158-503	
152-1	Resistor	50,000Ω ±5%, 1W, ceramic	Osc. Screen Bias	Erie	A18158-503	
152-2	Resistor	Same as 152-1	2nd Harm. Amp. Screen Dropping	Erie	A18158-503	
152-3	Resistor	Same as 152-1	Mod. Bias Divider	Erie	A18158-202	
152-4	Resistor	Same as 152-1	Mod. Bias Divider	Erie	A18158-202	
153-1	Resistor	2000Ω ±5%, 1W, ceramic	1st Harm. Amp. Cathode Bias	Erie	A18158-202	
153-2	Resistor	Same as 153-1	RF Indicator Plate Shunt	Erie	A18158-502	
153-3	Resistor	Same as 153-1	Speech Amp. Cathode Bias	Erie	A18158-502	
153-4	Resistor	Same as 153-1	Sp. Amp. Grid Suppressor	Erie	A18158-502	
154-1	Resistor	5000Ω ±5%, 1W, ceramic	1st Harm. Amp. Screen Dropping	Erie	A18158-502	
154-2	Resistor	Same as 154-1	Mod. Screen Dropping	Erie	A18158-502	
154-3	Resistor	Same as 154-1	RF Indicator Load	Erie	A18158-502	
156A	Switch	4-section, 2-position, 1-pole	Crystal Selector, Channel A	Oak, Yaxley	AC56334-1	
156B	Switch	4-section, 2-position, 1-pole	Crystal Selector, Channel B			
156C	Switch	4-section, 2-position, 1-pole	Crystal Selector, Channel C			
156D	Switch	4-section, 2-position, 1-pole	Crystal Selector, Channel D			
157	Switch	2-deck, 6-position, 1-pole, Type 10206-H2	"METER SWITCH"	Oak	C56333	
158	Transformer	Res. pri. 5.2Ω, CT; sec. 4000Ω; turns ratio 1:45.7; pri. imp. 200Ω, sec. 420,000Ω	Microphone	Bendix	A103014	
159	Transformer	Res. pri. 1050Ω, sec. 2750Ω, CT; turns ratio 1:2; pri. imp. 125,000Ω, sec. 500,000Ω	Intrestage	Bendix	A103016	

SUPPLEMENT

Part Number Bendix Sq. C.

Mfg. Bendix Denyon

Function

Description

Name

Stock No.

Ref. No.

Ref. No.	Stock No.	Name	Description	Function	Mfg.	Part Number
160		Transformer	Res. pri. 690Ω, CT; sec. 170Ω; turns ratio 2:1; pri. imp. 22,000Ω, sec. 5500Ω	Modulation	Bendix, Denyon	A103015
161		Relay	200Ω coil, SPST normally open, Type G, catalogue #A10480	Press-to-Transmit Control	Clare	A107141
*162		Reactor, RF	38 turns #28 enameled wire	Sp. Amp. Cathode Choke	Bendix	A104301-1
163		Tube Clamp Assembly	Mycalex strip with spring clamp	For 2nd Har. Amp.	Bendix	AA102860-1
164		Strip	Mycalex 1/8" x 1/2" x 2 3/8"	Part of I63	Bendix	A102452
165		Knob	Bar knob, Type J-10829	Meter Switch	Weston	A11357
166		Freq. Shifter Assembly	Frequency shifter channel slides and tuning controls	Channel Selection	Bendix	AC57991-1
167		Shield Assembly	Shield, Dzus fasteners	PA Shield	Bendix	AC58596-1
168		Socket	2-contact, antenna & gnd.	Transmitter Output	Bendix	AA102951-1
169-1		Socket, Tube	Octal, Type S-STM	For VT-198-A, Oscillator	Amph.	A104087
169-2			Same as 169-1	For VT-134, 1st Harmonic Amp.		
169-3			Same as 169-1	For VT-134, Modulator		
169-4			Same as 169-1	For VT-134, Modulator		
169-5			Same as 169-1	For VT-199, Sp. Amp.		
169-6			Same as 169-1	For VT-199, RF Ind.		
170-1		Socket, Tube	7-contact, steatite	For VT-118, 2nd Harm. Amp.	Johnson	A31778
170-2			Same as 170-1	For VT-118, Power Amp.		
171		Socket	2-contact	DC Meter Socket	Bendix	AA102954-1
172		Plug Board	Crystal board assembly including 128-1 and 151-1	For Crystals	Bendix	AC58213-1
173-1		Screw	1 3/4" long, #8-32 x 3/8, red-enameled, special	Mounting	Bendix	A102735
173-2			Same as 173-1			
173-3			Same as 173-1			
173-4			Same as 173-1			
VT-118		Vacuum Tube	U. S. Army VT-118, push-pull RF beam power amp., Type S32	2nd Harm. Amp.	RCA, N. U., Ken.	
VT-118		Vacuum Tube	U. S. Army VT-118, push-pull RF beam power amp., Type S32	Power Amplifier	RCA, N. U., Ken.	
VT-134		Vacuum Tube	U. S. Army VT-134, beam power amplifier, Type 12A6	1st Harm. Amp.	RCA, Ken.	

\* A few transmitters are without Ref. No. 162.

SUPPLEMENT

Ref. No.	Stock No.	Name	Description	Function	Mfr.	Drawing Numbers Bendix Sig. C.
VT-134		Vacuum Tube	U. S. Army VT-134, beam power amplifier, Type 12A6	Modulator	RCA, Ken.	
VT-134		Vacuum Tube	U. S. Army VT-134, beam power amplifier, Type 12A6	Modulator	RCA, Ken.	
VT-198-A		Vacuum Tube	U. S. Army VT-198-A, power amplifier pentode, Type 6G6G	Oscillator	RCA, Ken.	
VT-199		Vacuum Tube	U. S. Army VT-199, triple-grid, super-control amplifier, Type 6SS7	Speech Amplifier	RCA, Ken.	
VT-199		Vacuum Tube	U. S. Army VT-199, triple-grid, super-control amplifier, Type 6SS7	RF Indicator Diode	RCA, Ken.	
<b>b. Radio Receiver BC-624-A</b>						
201		Capacitor	10 mmf $\pm 20\%$ , 500V DCW, mica, Aero Type 1468, C. D.	RF Grid Coupling	Aero, C. D.	C58469-100
202-1		Capacitor	Type 5LS, XM-262 case .001 mfd $\pm 20\%$ , 600V DCW, mica, Aero Type 1468, C. D.	RF Cathode Bypass	Aero, C. D.	C58469-102
202-2			Type 5LS, XM-262 case	RF AVC Filter		
202-3			Same as 202-1	RF Screen Bypass		
202-4			Same as 202-1	RF Plate Bypass to Cathode		
202-5			Same as 202-1	RF Plate Bypass to Ground		
202-6			Same as 202-1	Mixer Cathode Bypass		
202-7			Same as 202-1	Mixer Screen Bypass		
202-8			Same as 202-1	Harm. Amp. B + Filter		
202-9			Same as 202-1	Harm. Amp. Plate Bypass to Cathode		
202-10			Same as 202-1	Harm. Amp. Plate Bypass to Ground		
202-11			Same as 202-1	Harm. Amp. Cathode Bypass		
202-12			Same as 202-1	Harm. Amp. Screen Bypass		
202-13			Same as 202-1	Harm. Generator Plate Bypass		
202-14			Same as 202-1	Harm. Generator Plate Bypass		
202-15			Same as 202-1	Harm. Generator Cathode Bypass		
202-16			Same as 202-1	RF B + Filter		
202-17			Same as 202-1	Audio B + Filter		

SUPPLEMENT

Part No.	Stock No.	Name	Description	Function	Mfr.	Part. No.	Drawing Numbers
202-18			Same as 202-1	RF Heater Bypass			
202-19			Same as 202-1	Mixer Heater Bypass			
202-20			Same as 202-1	Mixer Heater Bypass			
202-21			Same as 202-1	Harm. Amp.			
202-22			Same as 202-1	Heater Bypass			
202-23			Same as 202-1	Harm. Amp.			
202-24			Same as 202-1	Heater Bypass			
202-25			Same as 202-1	Harm. Generator			
202-26			Same as 202-1	Heater Bypass			
202-27			Same as 202-1	1st IF Suppressor			
203-1		Capacitor	Same as 202-1	Bypass			
203-2			Same as 202-1	2nd IF Suppressor			
203-3			Same as 202-1	Bypass			
203-4			Same as 202-1	3rd IF Suppressor			
204		Capacitor	Same as 202-1	Bypass			
205		Capacitor	Same as 202-1	Osc. Plate Choke			
*206-1		Capacitor	50 mmf $\pm 20\%$ , 500V DCW, mica, Aero Type 1468, C. D. Type 5LS, XM-262 case Same as 203-1	Mixer Grid Coupling	Aero, C. D.	C58469-500	
*206-2			Same as 203-1	Harm. Amp. Grid Coupling			
*206-3			Same as 203-1	AVC Diode Coupling			
*206-4			Same as 203-1	1st Audio Plate			
*206-5			15 mmf $\pm 20\%$ , 500V DCW, mica, Aero Type 1468, C. D. Type 5LS, XM-262 case	RF Bypass	Aero, C. D.	C58469-150	
*206-6			250 mmf $\pm 20\%$ , 500V DCW, mica, Aero Type 1468, C. D. Type 5LS, XM-262 case	Osc. Plate Resonator	Aero, C. D.	C58469-251	
*206-7			.006 mfd $\pm 20\%$ , 300V DCW, mica, Aero Type 1467, C. D. Type 1WL-3D6, Mica Type W	Harm. Generator	Aero, C. D.	C58469-251	
*206-8			Same as 206-1	Grid Coupling			
*206-9			Same as 206-1	Osc. Plate Bypass	Aero, Mica,	A102967-7	
*206-10			Same as 206-1	C. D.			
			Same as 206-1	Osc. Cathode Bypass			
			Same as 206-1	Mixer Plate Bypass			
			Same as 206-1	1st IF AVC Filter			
			Same as 206-1	1st IF Cathode Bypass			
			Same as 206-1	1st IF Screen Bypass			
			Same as 206-1	1st IF Plate Bypass			
			Same as 206-1	2nd IF AVC Filter			
			Same as 206-1	2nd IF Cathode Bypass			
			Same as 206-1	2nd IF Screen Bypass			

\* Any equivalent capacitor with a capacitance rating within the range .005 to .01 mfd is also suitable and may be used as an alternate part.

SUPPLEMENT

Drawing Numbers  
Bendix Sig. C.

Mfr.

Function

Description

Name

Stock  
No.

Ref.  
No.

Ref. No.	Stock No.	Name	Description	Function	Mfr.	Drawing Numbers Bendix Sig. C.
*206-11			Same as 206-1	2nd IF Plate Bypass		
*206-12			Same as 206-1	3rd IF Cathode Bypass		
*206-13			Same as 206-1	3rd IF Screen Bypass		
*206-14			Same as 206-1	3rd IF Plate Bypass		
*206-15			Same as 206-1	B+ Bypass		
*206-16			Same as 206-1	Audio Squelch Grid Bypass		
*206-19			Same as 206-1	1st IF Heater Bypass		
*206-20			Same as 206-1	2nd IF Heater Bypass		
*206-21			Same as 206-1	3rd IF Heater Bypass		
*206-22			Same as 206-1	Osc. and Audio Squelch Heater Bypass		
*206-23			Same as 206-1	3rd IF Grid Bypass		
207-1	Capacitor		60 mmf $\pm 2\%$ , 500V DCW, mica, C. D. Type 5R, Aero Type 1469, XM-262 case	Mixer Plate Resonator Part of 291	Aero, C. D.	C58495-600
207-2			Same as 207-1, part of 291	1st IF Grid Resonator,		
207-3			Same as 207-1, part of 292	1st IF Plate Resonator,		
207-4			Same as 207-1, part of 292	2nd IF Grid Resonator,		
207-5			Same as 207-1, part of 293	2nd IF Plate Resonator,		
207-6			Same as 207-1, part of 293	3rd IF Grid Resonator,		
207-7			Same as 207-1, part of 294	3rd IF Plate Resonator,		
207-8			Same as 207-1, part of 294	Diode Resonator		
208-1	Capacitor		15 mmf $\pm 5\%$ , 500V DCW Type N680K, part of 291	Mixer Plate Resonator	Erie	A25715-15
208-2			Same as 208-1, part of 291	1st IF Grid Resonator,		
208-3			Same as 208-1, part of 292	1st IF Plate Resonator,		
208-4			Same as 208-1, part of 292	2nd IF Grid Resonator,		
208-5			Same as 208-1, part of 293	2nd IF Plate Resonator,		
208-6			Same as 208-1, part of 293	3rd IF Grid Resonator,		
208-7			Same as 208-1, part of 294	3rd IF Plate Resonator,		
208-8			Same as 208-1, part of 294	Diode Resonator		

\* Any equivalent capacitor with a capacitance rating within the range .005 to .01 mfd is also suitable and may be used as an alternate part.



SUPPLEMENT

Part No. Part Name Part No. Part Name Part No.

Part No.	Part Name	Description	Function	Mfg.	Part No.
209	Capacitor	100 mmf ± 20%, 500V DCW, mica, Aero Type 1468, C. D. Type 5LS, XM-262 case	Audio Diode Bypass	Aero, C. D.	C58469-101
210	Capacitor	350 mmf ± 20%, 500V DCW, mica, Aero Type 1468, C. D. Type 5LS, XM-262 case	Audio Diode Bypass	Aero, C. D.	C58469-351
211A	Capacitor	3-section, per section .1 mfd ± 15%, -12%, 400V DCW, oil-paper, special electrolytic	1st Audio Cathode Bypass	Aero, Solar, Mallory, E. U.	A25096
211B					
211C					
212A					
212B	Capacitor	20 mfd ± 10%, 350V DCW, electrolytic	Audio B+ Filter	Aero, C. D.	L73073
212C					
212D					
213	Capacitor	10 mfd ± 10%, 350V DCW, electrolytic	Audio B+ Filter	Aero, C. D.	L73073
214	Capacitor	20 mfd ± 10%, 350V DCW, electrolytic	Audio Cathode Bypass	Aero, C. D.	L73073
215-1	Capacitor	5 mfd ± 10%, 150V DCW, electrolytic	2nd Audio Cathode Bypass	Aero, C. D.	L73073
215-2	Capacitor	5 mfd ± 10%, 150V DCW, electrolytic	RF & Mixer Heater Bypass	Aero	A104484
216A	Capacitor	1 mfd ± 10%, 100V DCW, oil-paper	Audio Coupling	Aero, Solar, C. D.	A25714-3
216B					
216C					
217A					
217B	Capacitor	82 mmf ± 2%, 500V DCW, mica, C. D. Type 5R, Aero Type 1469, XM-262 case	Bridge Balancing	Aero, C. D.	C58495-820
218-1					
218-2	Capacitor	.01 mfd ± 10%, 500V DCW, mica, Aero Type 1467, C. D. Type 1WL, Solar Type MW, XM-262 case	Audio Coupling	Aero, Solar, C. D.	A25714-3
218-3					
218-4	Capacitor	Same as 215-1	2nd Audio Grid Coupling	Aero, Solar, C. D.	A25714-3
218-5					
216A	Capacitor	Effective capacity per section 36.0 mmf, min. capacity 6 mmf, 3-section, variable	RF Grid Tuning	Bendix	L72799-1
216B					
216C					
217A					
217B	Capacitor	Rear section, eff. cap. 36 mmf, min. cap. 6 mmf, variable	RF Plate Tuning	Bendix	L72798-1
218-1					
218-2	Capacitor	Front section, eff. cap. 39.6 mmf, min. cap. 6.5 mmf, variable	Mixer Grid Tuning	Bendix	L72798-1
218-3					
218-4	Capacitor	Effective capacity 10 mmf, variable	Harm. Amp. Plate Tuning	Bendix	L72798-1
218-5					
218-6	Capacitor	Effective capacity 10 mmf, variable	Harm. Generator	Bendix	L72798-1
218-7					
218-8	Capacitor	Effective capacity 10 mmf, variable	Plate Tuning	Bendix	L72798-1
218-9					
218-9	Capacitor	Effective capacity 10 mmf, variable	RF Grid Trimmer for 216A	Bendix	L72798-1
218-10					
218-10	Capacitor	Effective capacity 10 mmf, variable	RF Plate Trimmer for 216B	Bendix	L72798-1
218-11					
218-11	Capacitor	Effective capacity 10 mmf, variable	Mixer Grid Trimmer for 216C	Bendix	L72798-1
218-12					
218-12	Capacitor	Effective capacity 10 mmf, variable	Harm. Amp. Plate Trimmer for 217A	Bendix	L72798-1
218-13					
218-13	Capacitor	Effective capacity 10 mmf, variable	Harm. Generator Plate Trimmer	Bendix	L72798-1
218-14					
218-14	Capacitor	Effective capacity 10 mmf, variable	Harm. Amp. Plate Trimmer for 217A	Bendix	L72798-1
218-15					
218-15	Capacitor	Effective capacity 10 mmf, variable	Harm. Generator Plate Trimmer	Bendix	L72798-1
218-16					

\* Any equivalent capacitor with a capacitance rating within the range 100 to 500 mmf and 500 to 5000V is acceptable.

SUPPLEMENT

Ref. No.	Stock No.	Name	Description	Function	Mfr.	Drawing Numbers Bendix Sig. C.
221		Inductor	One turn #14 tinned copper wire	Antenna Coupling	Bendix	A104312
222		Inductor	Two turns #14 tinned copper wire	RF Grid Resonator	Bendix	A104309
223		Inductor	Two turns #14 tinned copper wire	RF Plate Resonator	Bendix	A104308
224		Inductor	Two turns #14 tinned copper wire	Mixer Grid Resonator	Bendix	A104313
225		Inductor	One turn #12 tinned copper wire	Harm. Amp. Plate Resonator	Bendix	A104311
226		Inductor	Two turns #14 tinned copper wire	Harm. Generator Plate Resonator	Bendix	A104310
227-1		Inductor	23 turns #26 enameled wire, permeability tuned	Osc. Plate Resonator, Channel "A"	Bendix	AA104225-1
227-2			Same as 227-1	Osc. Plate Resonator, Channel "B"		
227-3			Same as 227-1	Osc. Plate Resonator, Channel "C"		
227-4			Same as 227-1	Osc. Plate Resonator, Channel "D"		
228-1		Inductor	10 turns #22 enameled wire, permeability tuned, threaded form, part of 291	Mixer Plate Resonator,	Bendix	AA104206-1
228-2			Same as 228-1, part of 291	1st IF Grid Resonator,		
228-3			Same as 228-1, part of 292	1st IF Plate Resonator,		
228-4			Same as 228-1, part of 292	2nd IF Grid Resonator,		
228-5			Same as 228-1, part of 293	Resonator,		
228-6			Same as 228-1, part of 293	2nd IF Plate Resonator,		
228-7			Same as 228-1, part of 294	3rd IF Grid Resonator,		
228-8			Same as 228-1, part of 294	3rd IF Plate Resonator,		
231		Plug	10-contact, similar to Type P-410-AB $\frac{1}{16}$ " less angle brackets	Audio Diode Resonator,	Jones	A102813
232		Plug Board Ass'y	2-contact, ant. & grd.	Receiver Connector		
236		Potentiometer	150,000 $\Omega$ , special, Type CS, Curve "C"	Receiver Input	Bendix	AA104203-1
237		Potentiometer	2000 $\Omega$ , special, Type CS, Curve "A"	"AUDIO" Volume Control	IRC	A102991
241-1		Reactor, RF	38 turns #28 enameled wire	Audio Squelch "RELAY" Sens. Control	IRC	A102992
241-2			Same as 241-1	1st Audio Grid Choke	Bendix	AA104301-1
241-3			Same as 241-1	B+ RF Choke		
243-1		Socket, Tube	Octal, bakelite base, Type S-8TM	B+ RF Choke For VT-207 Ocs. & Audio Squelch	Amph.	A104087

## SUPPLEMENT

Ref. No.	Stock No.	Name	Description	Function	Mfr.	Drawing Numbers Bendix Sig. C.
243-2			Same as 243-1	For VT-209, 1st IF		
243-3			Same as 243-1	For VT-209, 2nd IF		
243-4			Same as 243-1	For VT-209, 3rd IF		
243-5			Same as 243-1	For VT-169, Det., AVC, & 1st Audio		
243-6			Same as 243-1	For VT-135, 2nd Audio		
244-1		Socket, Tube	7-contact, bakelite base, Type 78-7PT	For VT-203, RF Amp.	Amph.	A102980
244-2			Same as 244-1	For VT-203, Mixer		
244-3			Same as 244-1	For VT-203, Har. Amp.		
244-4			Same as 244-1	For VT-202, Har. Gen.		
246		Relay	SPST, 5000Ω ±10%, 4MA ±.5MA, operates with current change of .2MA, Sigma Type 4C1, Allied Type C	Squelch Circuit	Sigma, Allied	A102882 or A106405
248		Freq. Shifter	Channel slide & tuning control assembly	Channel Selection	Bendix	AC57965-1
249-1		Screw	1 3/4" long, #8-32 x 3/8, red-enameled, special	Mounting	Bendix	A102735
249-2			Same as 249-1			
249-3			Same as 249-1			
249-4			Same as 249-1			
251		Resistor	470,000Ω ±5%, 1/2W, special, Type EB	RF Stage Grid Leak	Allen-B	A102975-474
252		Resistor	100,000Ω ±5%, 1/2W, special, Type EB	RF Stage AVC Filter	Allen-B	A102975-104
253-1		Resistor	330Ω ±5%, 1/2W, special, Type EB	RF Stage Cathode Bias Harm. Amp.	Allen-B	A102975-331
253-2			Same as 253-1	Cathode Bias		
254-1		Resistor	6800Ω ±5%, 1/2W, special, Type EB	RF Stage Plate Filter	Allen-B	A102975-682
254-2			Same as 254-1	Harm. Amp. Plate Filter		
255-1		Resistor	1.8 meg. ±5%, 1/2W, special, Type EB	Mixer Grid Leak	Allen-B	A102975-185
255-2			Same as 255-1	Harm. Amp. Grid Leak		
256		Resistor	1000Ω ±5%, 1/2W, special, Type EB	Mixer Cathode Bias	Allen-B	A102975-102
257		Resistor	330,000Ω ±5%, 1/2W, special, Type EB	Mixer Screen Dropping	Allen-B	A102975-334
258		Resistor	680,000Ω ±5%, 1/2W, ceramic, special	2nd Audio Grid Leak	Erie	A15304-258
259		Resistor	10Ω ±5%, 1/2W, special, Type EB	Test Meter Shunt	Allen-B	A102975-360

## SUPPLEMENT

Ref. No.	Stock No.	Name	Description	Function	Mfr.	Drawing Numbers Bendix Sig. C.
260		Resistor	27,000 $\Omega$ $\pm$ 5%, 1/2W, special, Type EB	Harm. Generator Plate Filter	Allen-B	A102975-273
261		Resistor	1200 $\Omega$ $\pm$ 5%, 1/2W, special, Type EB	Harm. Generator Cathode Bias	Allen-B	A102975-122
262-1		Resistor	560,000 $\Omega$ $\pm$ 5%, 1/2W, special, Type EB	Harm. Generator Grid Leak	Allen-B	A102975-564
262-2			Same as 262-1	1st Audio Compensating Mixer Plate Filter	Erie	A18004-472
263-1		Resistor	4700 $\Omega$ $\pm$ 5%, 1/2W, ceramic, special	1st IF Plate Filter		
263-2			Same as 263-1	2nd IF Plate Filter		
263-3			Same as 263-1	3rd IF Plate Filter		
263-4			Same as 263-1	Osc. Plate Filter	Erie	A18004-103
264		Resistor	10,000 $\Omega$ $\pm$ 5%, 1/2W, ceramic, special	Osc. Cathode Bias	Erie	A18004-272
265		Resistor	2700 $\Omega$ $\pm$ 5%, 1/2W, ceramic, special	Osc. Grid Leak	Erie	A18004-274
266-1		Resistor	270,000 $\Omega$ $\pm$ 5%, 1/2W, ceramic, special	AVC Filter		
266-2			Same as 266-1	1st Audio Plate Load		
266-3			Same as 266-1	1st IF AVC Filter	Erie	A18004-104
267-1		Resistor	100,000 $\Omega$ $\pm$ 5%, 1/2W, ceramic, special	1st IF Screen		
267-2			Same as 267-1	Voltage Divider		
267-3			Same as 267-1	1st IF Screen		
267-4			Same as 267-1	Voltage Divider		
267-5			Same as 267-1	2nd IF AVC Filter		
267-6			Same as 267-1	2nd IF Screen		
267-7			Same as 267-1	Voltage Divider		
267-8			Same as 267-1	2nd IF Screen		
268		Resistor	390 $\Omega$ $\pm$ 5%, 1/2W, ceramic, special	Harm. Amp. Screen Dropping		
269		Resistor	270 $\Omega$ $\pm$ 5%, 1/2W, ceramic, special	RF Screen Dropping	Erie	A18004-391
270		Resistor	470 $\Omega$ $\pm$ 5%, 1/2W, ceramic, special	1st IF Cathode Bias	Erie	A18004-271
271		Resistor	82,000 $\Omega$ $\pm$ 5%, 1/2W, ceramic, special	2nd IF Cathode Bias	Erie	A18004-471
272		Resistor	120,000 $\Omega$ $\pm$ 5%, 1/2W, ceramic, special	3rd IF Cathode Bias	Erie	A18004-823
273		Resistor	5600 $\Omega$ $\pm$ 5%, 1/2W, ceramic, special	3rd IF Screen Dropping	Erie	A18004-124
274-1		Resistor	2.2 megohms $\pm$ 5%, 1/2W, ceramic, special	Audio Squelch Compensating	Erie	A18004-562
				Audio Squelch Compensating	Erie	A18004-225

SUPPLEMENT

Ref. No.	Stock No.	Name	Description	Function	Mfr.	Drawing Numbers Bendix Sig. C.
274-2		Resistor	Same as 274-1	1st Audio Screen Dropping	Erie	A18004-474
275-1		Resistor	470,000Ω ±5%, ½W, Ceramic, special	AVC Diode Load		
275-2		Resistor	Same as 275-1	1st Audio Grid		
275-3		Resistor	Same as 275-1	1st Audio Grid		
276		Resistor	18,000Ω ±5%, ½W, ceramic, special	AVC Delay	Erie	A18004-183
277		Resistor	1800Ω ±5%, ½W, ceramic, special	1st Audio Cath.	Erie	A18004-182
278		Resistor	1500Ω ±5%, ½W, ceramic, special	Bias		
279-1		Resistor	47,000Ω ±5%, ½W, ceramic, special	2nd Audio Cath.	Erie	A18004-152
279-2		Resistor	Same as 279-1	Bias		
280		Resistor	1 meg. ±5%, ½W, ceramic, special	Squelch Cath. Bleeder	Erie	A18004-473
281		Resistor	150,000Ω ±5%, ½W, ceramic, special	Squelch Cath. Bleeder		
282		Resistor	3300Ω ±5%, ½W, ceramic, special	Squelch Cath. Bleeder	Erie	A18004-105
286A		Switch	Bakelite wafer	3rd IF Grid Leak	Erie	A18004-154
286B		Socket		Audio Diode Filter	Erie	A18004-332
286C		Socket		Audio Squelch Cathode Bias		
286D		Socket		Channel "A" Crystal and Plate Coil	Oak, Yaxley	AA102802-1
288		Socket	2-contact, plug-board assembly	Channel "B" Crystal and Plate Coil		
289		Socket	12-contact, plug-board assembly	Channel "C" Crystal and Plate Coil		
291		IF Transformer Assembly	12 Mcs, permeability tuned	Channel "D" Crystal and Plate Coil		
292		IF Transformer Assembly	12 Mcs, permeability tuned	Selector		
293		IF Transformer Assembly	12 Mcs, permeability tuned	Channel "C" Crystal and Plate Coil		
294		IF Transformer Assembly	12 Mcs, permeability tuned	Channel "D" Crystal and Plate Coil		
295		Socket	2-contact, plug-board assembly	Rec. Test-Milliammeter Socket	Bendix	AA102804-1
296		Socket	12-contact, plug-board assembly	Crystal Sockets	Bendix	AC58428-1
297		IF Transformer Assembly	12 Mcs, permeability tuned	Mixer to 1st IF Coupling	Bendix	AL73028-1
298		IF Transformer Assembly	12 Mcs, permeability tuned	1st IF to 2nd IF Coupling	Bendix	AL73028-2
299		IF Transformer Assembly	12 Mcs, permeability tuned	2nd IF to 3rd IF Coupling	Bendix	AL73028-3
300		IF Transformer Assembly	12 Mcs, permeability tuned	3rd IF to Diode Coupling	Bendix	AL73028-4

SUPPLEMENT

Ref. No.	Stock No.	Name	Description	Function	Mfr.	Drawing Numbers
						Bendix Sig. C.
295		Transformer	Pri. # 1—920Ω, pri. # 2—6.9Ω, sec.—2450Ω, pri. # 1 imp. 250,000Ω—pri. # 2 imp. 750Ω, sec. imp. 1 meg., pri. # 1 to sec. 1:2, pri. # 2 to sec. 1:36.4	Audio Input	Bendix	A103022
296A		Trans-former Assembly	U. S. Army VT-135, detector amplifier triode, Type 12J5GT	Audio Output	Bendix	A103024
296B		Reactor	U. S. Army VT-169, duplex-diode pentode, Type 12C8	Audio B+ Filter	RCA, Ken.	
VT-135		Vacuum Tube	U. S. Army VT-202, detector amplifier triode, Type 9002	2nd Audio	RCA, Ken.	
VT-169		Vacuum Tube	U. S. Army VT-202, detector amplifier triode, Type 9002	Detector, AVC, and 1st Audio	RCA, Ken.	
VT-202		Vacuum Tube	U. S. Army VT-203, supercontrol amplifier pentode, Type 9003	Harmonic Generator	RCA, Ken.	
VT-203		Vacuum Tube	U. S. Army VT-203, supercontrol amplifier pentode, Type 9003	RF Amp.	RCA, Ken.	
VT-203		Vacuum Tube	U. S. Army VT-203, supercontrol amplifier pentode, Type 9003	Mixer	RCA, Ken.	
VT-203		Vacuum Tube	U. S. Army VT-203, supercontrol amplifier pentode, Type 9003	Harmonic Amplifier	RCA, Ken.	
VT-207		Vacuum Tube	U. S. Army VT-207, twin-triode, Type 12AH7GT	Oscillator and Audio Squelch	RCA, Ken.	
VT-209		Vacuum Tube	U. S. Army VT-209, HF amplifier pentode, Type 12SG7	1st IF	RCA, Ken.	
VT-209		Vacuum Tube	U. S. Army VT-209, HF amplifier pentode, Type 12SG7	2nd IF	RCA, Ken.	
VT-209		Vacuum Tube	U. S. Army VT-209, HF amplifier pentode, Type 12SG7	3rd IF	RCA, Ken.	
<b>c. Dynamotor Unit PE-94-A</b>						
*301-1		Capacitor	.006 mfd ±20%, 300V DCW, mica, Aero Type 1467, C. D. Type 1WL-3D6, Mica Type W, XM-262 case	Hash Filter, MV—Lutput	Aero, C. D., Mica	A102967-7
*301-2			Same as 301-1	Hash Filter, HV+ Output		
*301-3			Same as 301-1	Hash Filter, LV+ Output		
*301-4			Same as 301-1	Hash Filter, SW+		
*301-5			Same as 301-1	Hash Filter, SW—		
*301-6			Same as 301-1	Hash Filter, — Input		
*301-7			Same as 301-1	Hash Filter, + Input		

\* Any equivalent capacitor with a capacitance rating within the range .005 to .01 mfd is also suitable and may be used as an alternate part.

SUPPLEMENT

Ref. No.	Stock No.	Name	Description	Function	Mfr.	Drawing Numbers Bendix Sig. C.
302-1		Capacitor	.001 mfd $\pm 20\%$ , 600V DCW, mica, Aero Type 1468, C. D. Type 5LS, XM-262 case Same as 302-1	Hash Filter, MV— Output	Aero, C. D.	C58469-102
302-2			Same as 302-1	Hash Filter, HV + Output		
302-3			Same as 302-1	Hash Filter, LV + Output		
307		Dynamotor	Outputs: LV, 14.5V 4.9A; MV, 150V 10 MA; HV, 300V 260 MA 24 1/2 turns # 20 wire, phenolic form	Dynamotor, 28V Input	Bendix	L72938-2
310-1		Choke	Same as 310-1	Hash Filter, MV— Output	Bendix	AA102971-1
310-2			Same as 310-1	Hash Filter, HV + Output		
310-3			Same as 310-1	Hash Filter, LV + Output		
310-4			Same as 310-1	Hash Filter, SW +		
310-5			Same as 310-1	Hash Filter, SW—		
311		Choke	10 3/4 turns # 10 wire, phenolic form	Hash Filter, — Input	Bendix	AA102784-2
312		Choke	10 3/4 turns # 10 wire, phenolic form	Hash Filter, + Input	Bendix	AA102784-1
314		Voltage Regulator	Variable resistance, automatic operation	Control of Output Voltage	Eclipse	C58131
316		Resistor	15 $\Omega$ $\pm 10\%$ , 35W, vitreous, Type 4 1/8" T15, variable	Regulator Coil Control	Ward	A104005
317		Resistor	0.3 $\Omega$ +0%, -10%, 20W, vitreous, Type 2"	Dropping	Ward	A103999
321		Relay	SPST, 22-32V	Starting Input	Price	A102837-2
322		Receptacle	2-contact	Output	Amph.	A102876
323		Receptacle	6-contact	Armature for 307	Amph.	A102974
341		Armature	28V, includes bearings, Type D-1117		Bendix	C58601-2
342		Field Coil	28V, main field, Type D-1135-2	Field Coil for 307	Bendix	C58603-2
343		Field Coil	28V, booster field, Type D-1136	Field Coil for 307	Bendix	C58605-2
344		Bearing	Sealed ball bearing, Type WC-87039	Bearing for 307	N. D.	A105070
345		Brush Holder	LV output, Type B-1105, for Type B-1081 brush	Brush Holder for 307	Bendix	A105071
346		Brush Holder	MV output, Type B-1109, for Type B-1082 brush	Brush Holder for 307	Bendix	A105072
347		Brush Holder	HV output, Type B-1108, for Type B-1082 brush	Brush Holder for 307	Bendix	A105073
348		Brush Holder	28V input, Type B-1110	Brush Holder for 307	Bendix	A105075
349		Brush	Input, 28V, Type B-1080	Brush for 307	Bendix	A105076
350		Brush	LV output, Type B-1081	Brush for 307	Bendix	A105077

SUPPLEMENT

Ref. No.	Stock No.	Name	Description	Function	Mfr.	Drawing Numbers Bendix Sig. C.
351		Brush	MV output & HV output, Type B-1082	Brush for 307	Bendix	A105078
352-1		Shockmount	Type 150 PH 10	Shockproof Mtg.	Lord	C56354-9
352-2			Same as 352-1	Shockproof Mtg.		
352-3			Same as 352-1	Shockproof Mtg.		
352-4			Same as 352-1	Shockproof Mtg.		
353-1		Screw	Cap screw, #1/4-26 x 1 3/8, B. S. F. thrds.	Shkmt-to-Dyn. Mtg.	Bendix	A102900-1
353-2			Same as 353-1	Shkmt-to-Dyn. Mtg.		
353-3			Same as 353-1	Shkmt-to-Dyn. Mtg.		
353-4			Same as 353-1	Shkmt-to-Dyn. Mtg.		
354		Terminal Strip	5-contact	Output	Bendix	AC58120-1
355		Terminal Strip	2-contact	Input	Bendix	AC58122-1
356		Grommet	Rubber grommet	Cable Insulation	A. R. H.	A18131-25
357		Cover	Brass, cad. pl.	For Output Filter Unit	Bendix	A102774
358		Cover	Brass, cad. pl.	For Input Filter Unit	Bendix	C58121

d. Dynamotor Unit PE-98-A (Same as Dynamotor Unit PE-94-A Except as Follows)

306		Dynamotor	Outputs: HV, 300V 260 MA; MV, 150V 10 MA; LV, 13V 4.9A	Dynamotor, 14V Input	Bendix	L72938-1
307		Dynamotor	Not used			
317		Resistor	Not used			
320		Relay	SPST, 11-16V	Starting, 14V	Price	A102837-1
321		Relay	Not used			

e. Rack FT-244-A

401		Capacitor	2 mfd +0.5 mfd, -0 mfd, 25V	Motor Solenoid	C. D., Aero	A102816
402		Capacitor	AC 60 cycle, oil-paper	Resonating		
406		Motor	0.5 mfd ±10%, 400V DCW, oil-paper	HV Bypass	C. D., Aero	A104092-1
407		Armature	Ratchet Type, 12V, 1A	Automatic Tuning	Bendix, Col., G. Inst.	AC57992
408		Solenoid	Armature & pawl assembly	Part of 406	G. Inst.	AA102508-1
409		Ratchet Wheel	975 ±5% turns #24 wire, 5.75Ω ±5%	Part of 406	G. Inst.	AA102536-1
411-1		Relay	Ratchet wheel and switching arms assembly	Part of 406	G. Inst.	AA102519-1
411-2		Relay	12V, SPST, Type AR	Locking	G. Inst.	A102817
412		Relay	Same as 411-1	Motor Control	Allied	
			12V, DPDT, Type A-7374	Antenna Changeover	Clare	C58180



SUPPLEMENT

Ref. No.	Stock No.	Name	Description	Function	Mfr.	Drawing Numbers Bendix Sig. C.
416	Socket	Coaxial cable connector, SO-153	Antenna Connection	Amph.	AC58136-1	
417	Socket	18-contact	Control Circuit	Amph.	AA102399-1	
418-1	Socket	8-contact, Type S-408	Trans. Control Ckt.	Jones	A102812	
418-2	Socket	Same as 418-1	Power Input to Transmitter			
419	Socket	10-contact, Type S-410	Receiver Connection	Jones	A102814	
420	Socket	12-contact	Power Input to Rack	Amph.	AA102437-1	
421	Plug	Ass'y with #6-32 x 1/2 thrd, similar to G. R. Type 274-P	Gnd. Plug	G. R.	A102875-2	
422	Plug	Plug & board ass'y, special	Ant. Plug	Bendix	AA102718-1	
426	Switch	DPST push type, Type 3594-D	Tuning Release	H & H	A29843-1	
427A	Switch	4-pole, 4-position	Motor Positioning (Part of 406)	Bendix	AA102537	
427B	Switch					
427C	Switch					
427D	Switch					
431-1	Screw	#6-32 x 7/16, special head	Trans. Cover Retaining	Bendix	A102741	
431-2	Screw	Same as 431-1	Trans. Cover Retaining			
431-3	Screw	Same as 431-1	Rec. Cover Retaining			
431-4	Screw	Same as 431-1	Rec. Cover Retaining			
<b>f. Radio Control Box BC-602-A</b>						
601-1	Lamp	12V, 1/4 dia., 1 3/4 long, W. E. Type 2F, G. E. Type 12A	Indicates Channel "A"	W. E., G. E.	A104012	
601-2	Lamp	Same as 601-1	Indicates Channel "B"			
601-3	Lamp	Same as 601-1	Indicates Channel "C"			
601-4	Lamp	Same as 601-1	Indicates Channel "D"			
601-5	Lamp	Same as 601-1	Indicates Transmit Condition			
606	Socket	12-contact	Connection to JB-29-A	Bendix	A102887-1	
607	Socket	5-contact, Type AN3102-14S-5P, Army Type SO-180	Connection to Variable-length Antenna	Amph.	A102888-1	
608A	Switch	5-position, push-button type, Type 22506-80	Selects Channel "A"			
608B	Switch		Selects Channel "B"			
608C	Switch		Selects Channel "C"			
608D	Switch		Selects Channel "D"			
608E	Switch		Trans. Stop Indicator		C58192	

SUPPLEMENT

Ref. No.	Stock No.	Name	Description	Function	Mfr.	Drawing Numbers Bendix Sig. C.
612		Switch	3-position	"T-R-REM."		
616-1		Socket	3 1/8" long, tinned lugs, Type # 4925	For 601-1	Bendix	AL72966-1
616-2			Same as 616-1	For 601-2	Oak	A103987
616-3			Same as 616-1	For 601-3		
616-4			Same as 616-1	For 601-4		
616-5			Same as 616-1	For 601-5		
<b>g. Junction Box JB-29-A</b>						
801-1		Socket	18-contact	For Plug PL-P170 or PL-Q170	Amph.	AA102399-1
801-2		Socket	Same as 801-1	For Dummy Plug		
802		Socket	4-contact	For Plug PL-P167 or PL-Q167	Amph.	AA102436-4
803		Socket	2-contact	For Plug PL-P165 or PL-Q165	Amph.	AA102436-2
804		Socket	6-contact	For Plug PL-P166 or PL-Q166	Amph.	AA102436-3
805		Socket	6-contact	For Plug PL-P199 or PL-Q199	Amph.	AA102436-5
806		Socket	12-contact	For Plug PL-P169 or PL-Q169	Amph.	AA102437-1
807		Socket	2-contact	For Plug PL-P164 or PL-Q164	Amph.	AA102436-1
<b>h. Jack Box BC-629-A</b>						
900		Grommet	Rubber grommet	Cable Insulating	A. R. H.	A18131-22
901		Terminal Strip	6-contact	Mic. & Headset Connections	Bendix	AC58144-1
902		Socket	4-contact	For Plug PL-P167 or PL-Q167	Amph.	AA102436-4
<b>i. Jack Box BC-630-A</b>						
1000		Grommet	Rubber grommet	Cable Insulating	A. R. H.	A18131-22
1001		Terminal Strip	6-contact	Mic., Headset, and Press-to-Transmit Connections	Bendix	AC58144-1
1002		Socket	6-contact	For Plug PL-P166 or PL-Q166	Amph.	AA102436-3

SUPPLEMENT

Ref. No. Stock No. Name Description Function Mfr. Drawing Numbers Sig. C.  
Bendix

**j. Jack Box BC-631-A**

1100	Grommet	Rubber grommet	Cable Insulating	A. R. H.	A18131-22
1101	Terminal Strip	6-contact	Mic., Headset, and Press-to-Transmit Connections	Bendix	AC58144-1

**k. Case CS-80-A**

1401-1	Shockmount	Type 150 PH 12	Shockproof Mtg.	Lord	C56354-10
1401-2		Same as 1401-1	Shockproof Mtg.		
1401-3		Same as 1401-1	Shockproof Mtg.		
1401-4		Same as 1401-1	Shockproof Mtg.		
1402-1	Screw	# 1/4--26 x 1 3/8, hex. hd., SS, B. S. F. thrds, cap screw, special	Shkmt-to-Case Mtg.	Bendix	A102900-1
1402-2		Same as 1402-1	Shkmt-to-Case Mtg.		
1402-3		Same as 1402-1	Shkmt-to-Case Mtg.		
1402-4		Same as 1402-1	Shkmt-to-Case Mtg.		
1403-1	Screw	# 1/4--26 x 1 5/8, hex. hd., SS, B. S. F. thrds, cap screw, special	Dyn. Unit-to-Case Mtg.	Bendix	A102900-2
1403-2		Same as 1403-1	Dyn. Unit-to-Case Mtg.		
1403-3		Same as 1403-1	Dyn. Unit-to-Case Mtg.		
1403-4		Same as 1403-1	Dyn. Unit-to-Case Mtg.		

**l. Cable Plugs and Sockets**

PL-P164	Plug PL-P164	2-contact, straight	Cable term't'n, Junction Box to Press-to-trans. Circuit	Amph.	AC57974-1
PL-Q164	Plug PL-Q164	2-contact, right angled	Cable term't'n, Junction Box to Press-to-trans. Circuit	Amph.	AC57975-1
PL-P165	Plug PL-P165	2-contact, straight	Cable term't'n, Junction Box to Contactor	Amph.	AC57974-2
PL-Q165	Plug PL-Q165	2-contact, right angled	Cable term't'n, Junction Box to Contactor	Amph.	AC57975-2
PL-P166	Plug PL-P166	6-contact, straight	Cable term't'n, Junction Box to BC-630-A	Amph.	AC57974-3
PL-Q166	Plug PL-Q166	6-contact, right angled	Cable term't'n, Junction Box to BC-630-A	Amph.	AC57975-3

SUPPLEMENT

Ref. No.	Stock No.	Name	Description	Function	Mfr.	Drawing Numbers Bendix Sig. C.
PL-P167		Plug PL-P167	4-contact, straight	Cable term't'n, Junction Box to BC-629-A	Amph.	AC57974-4
PL-Q167		Plug PL-Q167	4-contact, right angled	Cable term't'n, Junction Box to BC-629-A	Amph.	AC57975-4
PL-P169		Plug PL-P169	12-contact, straight	Cable term't'ns, Junction Box to BC-602-A; Rack to PE-94-A	Amph.	AC57976-1
PL-Q169		Plug PL-Q169	12-contact, right angled	Cable term't'ns, Junction Box to BC-602-A; Rack to PE-94-A	Amph.	AC57977-1
PL-P170		Plug PL-P170	18-contact, straight	Dummy Plug; Cable term't'n, Junction Box to Rack	Amph.	AC57978-1
PL-Q170		Plug PL-Q170	18-contact, right angled	Dummy Plug; Cable term't'n, Junction Box to Rack	Amph.	AC57979-1
PL-P171		Plug PL-P171	6-contact, straight	Cable term't'n, Dyn. Unit to Rack	Amph.	AC57976-2
PL-Q171		Plug PL-Q171	6-contact, right angled	Cable term't'n, Dyn. Unit to Rack	Amph.	AC57977-2
PL-P172		Plug PL-P172	2-contact, straight	Cable term't'n, Dyn. Unit to Battery	Amph.	AC57983-1
PL-Q172		Plug PL-Q172	2-contact, right angled	Cable term't'n, Dyn. Unit to Battery	Amph.	AC57982-1
PL-P173		Plug PL-P173	1-contact, straight	Cord CD-477	Amph.	AC57983-1
PL-Q173		Plug PL-Q173	1-contact, right angled	Cord CD-477	Amph.	AL72939-1
SO-153		Socket SO-153	1-contact, for Plug PL-P173 or PL-Q173	Antenna Fitting	Amph.	AC58136-1

2. TABLE OF INTERCHANGEABLE PARTS

111 } 402 } 202-1 } to } 202-27 } 302-1 } to } 302-3 }	Capacitor	0.5 mfd ±10%, 400V DCW, oil-paper	See Parts List	C. D., Aero	A104092-1
	Capacitor	.001 mfd ±20%, 600V DCW, mica, Aero Type 1468, C. D. Type 5LS, XM-262 case	See Parts List	C. D., Aero	C58469-102

SUPPLEMENT

Ref. No.	Stock No.	Name	Description	Function	Mfr.	Drawing Numbers Bendix Sig. C.
*102-1 to 102-15		Capacitor	.006 mfd $\pm 20\%$ , 300V DCW, mica, Aero Type 1467, C. D. Type 1WL-306, Mica Type W	See Parts List	Aero, Mica, C. D.	A102967-7
*206-1 to 206-23		Resistor	1 meg. $\pm 5\%$ , $\frac{1}{2}W$ , ceramic	See Parts List	Erie	A18004-105
*301-1 to 301-7		Socket, Tube	Octal, Type S-8TM	See Parts List	Amph.	A104087
138-3 280		Socket	2-contact	See Parts List	Bendix	AA102954-1
169-1 to 169-6		Socket	12-contact	See Parts List	Amph.	AA102437-1
243-1 to 243-6		Socket	18-contact	See Parts List	Amph.	A102399-1
171 288		Socket	4-contact	See Parts List	Amph.	A102436-4
420 606 806		Socket	6-contact	See Parts List	Amph.	A102436-3
417 801-1 801-2		Screw	$1\frac{3}{4}$ " long, # 8-32 x $\frac{3}{8}$ , red-enameled, special	See Parts List	Bendix	A102735
802 902		Screw	# $\frac{1}{4}$ -26 x $1\frac{1}{2}$ , hex. hd., SS, B. S. F. threds, cap screw, special	See Parts List	Bendix	A102735
804 1002 173-1 to 173-4		Screw		See Parts List	Bendix	A102735
249-1 to 249-4		Screw		See Parts List	Bendix	A102735
352-1 to 352-4		Screw		See Parts List	Bendix	A102735
353-1 to 353-4		Screw		See Parts List	Bendix	A102735
354-1 to 354-4		Screw		See Parts List	Bendix	A102735
355-1 to 355-4		Screw		See Parts List	Bendix	A102735
356-1 to 356-4		Screw		See Parts List	Bendix	A102735
357-1 to 357-4		Screw		See Parts List	Bendix	A102735
358-1 to 358-4		Screw		See Parts List	Bendix	A102735
359-1 to 359-4		Screw		See Parts List	Bendix	A102735
360-1 to 360-4		Screw		See Parts List	Bendix	A102735
361-1 to 361-4		Screw		See Parts List	Bendix	A102735
362-1 to 362-4		Screw		See Parts List	Bendix	A102735
363-1 to 363-4		Screw		See Parts List	Bendix	A102735
364-1 to 364-4		Screw		See Parts List	Bendix	A102735
365-1 to 365-4		Screw		See Parts List	Bendix	A102735
366-1 to 366-4		Screw		See Parts List	Bendix	A102735
367-1 to 367-4		Screw		See Parts List	Bendix	A102735
368-1 to 368-4		Screw		See Parts List	Bendix	A102735
369-1 to 369-4		Screw		See Parts List	Bendix	A102735
370-1 to 370-4		Screw		See Parts List	Bendix	A102735
371-1 to 371-4		Screw		See Parts List	Bendix	A102735
372-1 to 372-4		Screw		See Parts List	Bendix	A102735
373-1 to 373-4		Screw		See Parts List	Bendix	A102735
374-1 to 374-4		Screw		See Parts List	Bendix	A102735
375-1 to 375-4		Screw		See Parts List	Bendix	A102735
376-1 to 376-4		Screw		See Parts List	Bendix	A102735
377-1 to 377-4		Screw		See Parts List	Bendix	A102735
378-1 to 378-4		Screw		See Parts List	Bendix	A102735
379-1 to 379-4		Screw		See Parts List	Bendix	A102735
380-1 to 380-4		Screw		See Parts List	Bendix	A102735
381-1 to 381-4		Screw		See Parts List	Bendix	A102735
382-1 to 382-4		Screw		See Parts List	Bendix	A102735
383-1 to 383-4		Screw		See Parts List	Bendix	A102735
384-1 to 384-4		Screw		See Parts List	Bendix	A102735
385-1 to 385-4		Screw		See Parts List	Bendix	A102735
386-1 to 386-4		Screw		See Parts List	Bendix	A102735
387-1 to 387-4		Screw		See Parts List	Bendix	A102735
388-1 to 388-4		Screw		See Parts List	Bendix	A102735
389-1 to 389-4		Screw		See Parts List	Bendix	A102735
390-1 to 390-4		Screw		See Parts List	Bendix	A102735
391-1 to 391-4		Screw		See Parts List	Bendix	A102735
392-1 to 392-4		Screw		See Parts List	Bendix	A102735
393-1 to 393-4		Screw		See Parts List	Bendix	A102735
394-1 to 394-4		Screw		See Parts List	Bendix	A102735
395-1 to 395-4		Screw		See Parts List	Bendix	A102735
396-1 to 396-4		Screw		See Parts List	Bendix	A102735
397-1 to 397-4		Screw		See Parts List	Bendix	A102735
398-1 to 398-4		Screw		See Parts List	Bendix	A102735
399-1 to 399-4		Screw		See Parts List	Bendix	A102735
400-1 to 400-4		Screw		See Parts List	Bendix	A102735

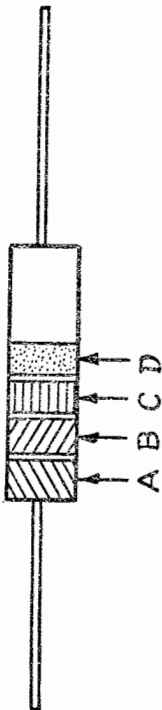
SUPPLEMENT

3. RMA COLOR CODE FOR RESISTORS AND CAPACITORS

Color	Significant Figure	Decimal Multiplier	Tolerance	Voltage Rating
Black	0	1		
Brown	1	10	1%	100 Volts
Red	2	100	2%	200 "
Orange	3	1,000		300 "
Yellow	4	10,000		400 "
Green	5	100,000	5%	500 "
Blue	6	1,000,000		600 "
Violet	7	10,000,000		700 "
Gray	8	100,000,000		800 "
White	9	1,000,000,000		
Gold	—	0.1	5%	
Silver	—	0.01	10%	
No Color	—	—	20%	500 "

RESISTORS

The nominal resistance value of fixed composition resistors is indicated in two manners. The one in most common use indicates the value by bands of color as follows:



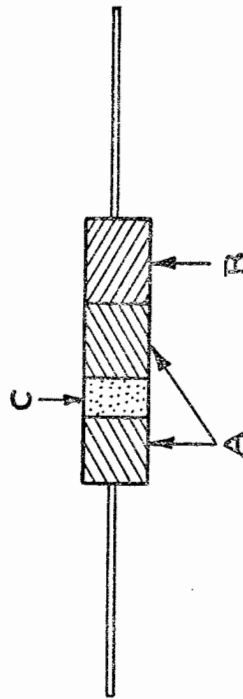
Band A indicates the first significant figure of the resistance of the resistor.

Band B indicates the second significant figure.

Band C indicates the decimal multiplier.

Band D, if any, indicates the tolerance limits about the nominal resistance value.

The least common system used for indicating nominal resistance value is as follows:



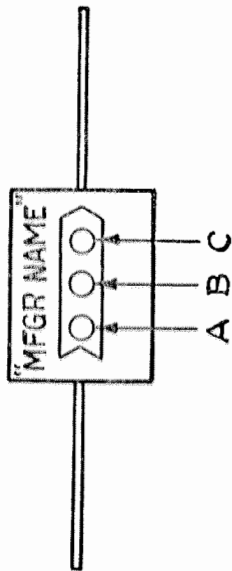
The body (A) of the resistor is colored to represent the first significant figure of the resistance value. One end (B) is colored to represent the second significant figure and a band, or dot (C)

of color, located within the body color, indicates the decimal multiplier.

CAPACITORS

Two systems for color coding small fixed capacitors are in use. In either case, capacity is expressed in micromicrofarads and some means to avoid ambiguity in interpretation of colors is provided. An arrow pointing from left to right or the manufacturer's name is generally used.

In general, capacitors having a working voltage of 500 volts are coded by means of three dots of color as follows:



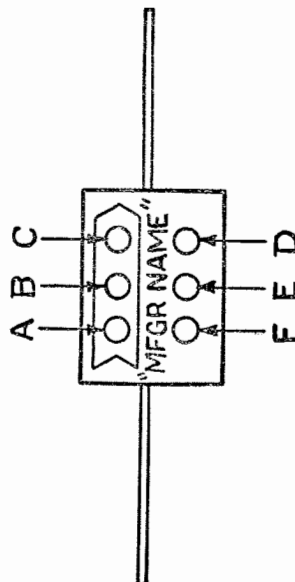
Dot A indicates the first significant figure of the capacitance of the capacitor.

Dot B indicates the second significant figure.

Dot C indicates the decimal multiplier.

An additional dot is sometimes shown when the working voltage is other than 500 volts. This dot indicates the voltage rating of the condenser.

A second system now coming into common use involves six dots of color as follows:



Dot A indicates the first significant figure of the capacitance of the capacitor.

Dot B indicates the second significant figure.

Dot C indicates the third significant figure.

Dot D indicates the decimal multiplier.

Dot E indicates the tolerance about the nominal capacitance value.

Dot F indicates the voltage rating of the capacitor.

# SUPPLEMENT

## 4. ADDRESSES OF MANUFACTURERS

The following abbreviations have been used to indicate manufacturers of various parts.

Abbreviation	Manufacturer	Address
Aero	Aerovox Corporation	New Bedford, Mass.
Allen-B	Allen-Bradley Co.	Milwaukee, Wis.
Allied	Allied Control Co., Inc.	227 Fulton Street, New York, N. Y.
Amph.	American Phenolic Corp.	Chicago, Ill.
A.R.H.	American Radio Hardware Co.	476 Broadway, New York, N. Y.
Bendix	Bendix Radio Division of Bendix Aviation Corporation	Baltimore, Maryland
C.D.	Cornell-Dubilier Electric Corporation	1000 Hamilton Blvd., S. Plainfield, N. J.
Clare	C. P. Clare Company	4903 W. Lawrence Avenue, Chicago, Ill.
Col.	Colonial Radio Corporation	254 Rano Street, Buffalo, N. Y.
Denyon	Denyon Coil Company	Caledonia, N. Y.
Eclipse	Eclipse Aviation Corp. Div. Bendix Aviation Corporation	Bendix, N. J.
Erie	Erie Resistor Corporation	644 West 12th Street, Erie, Pennsylvania
E.U.	Electrical Utilities	2902 S. Michigan Avenue, Chicago, Ill.
G.E.	General Electric Corporation	Schenectady, N. Y.
G. Inst.	General Instrument Corporation	829 Newark Avenue, Elizabeth, N. J.
G.R.	General Radio Company	30 State Street, Cambridge, Mass.
H & H	Arrow-Hart & Hegeman Co.	Hartford, Conn.
I.R.C.	International Resistance Co.	401 N. Broad Street, Philadelphia, Penna.
Johnson	E. F. Johnson Company	Waseca, Minn.
Jones	Howard B. Jones Company	2300 Wabansia Avenue, Chicago, Ill.
Ken.	Ken-Rad Tube and Lamp Corp.	Owensboro, Ky.
Lord	Lord Manufacturing Co.	Erie, Penna.
Mallory	P. R. Mallory & Co., Inc.	Indianapolis, Ind.
Mica	Micamold Radio Corp.	1087 Flushing Avenue, Brooklyn, N. Y.
National	National Company, Inc.	61 Sherman Street, Malden, Mass.
N.D.	New Departure Division General Motors Sales	Bristol, Conn.
N.U.	National Union Radio	57 State Street, Newark, N. J.
Oak	Oak Manufacturing Co.	1260 S. Clybourne Avenue, Chicago, Ill.
Ohmite	Ohmite Manufacturing Co.	4835 Flournoy Street, Chicago, Ill.
Price	Price Brothers	Frederick, Maryland
Rad. Cond.	Radio Condenser Co.	Camden, New Jersey
RCA	RCA Radiotron Div. RCA Manufacturing Co., Inc.	401 Bergen Street, Harrison, New Jersey
Shall	Shallcross Manufacturing Co.	700 Parker Avenue, Collingdale, Penna.
Sigma	Sigma Instrument Co.	76-78 Freeport Street, Boston, Mass.
Solar	Solar Manufacturing Corp.	Bayonne, New Jersey
Ward	Ward Leonard Electric Co.	Mount Vernon, N. Y.
W.E.	Western Electric Co.	300 Central Avenue, Kearney, New Jersey
Weston	Weston Electrical Instrument Company	Frelinghuysen Avenue, Newark, New Jersey
Yaxley	Yaxley Mfg. Div. P. R. Mallory & Co., Inc.	3029 E. Washington St., Indianapolis, Ind.

Dot F indicates the voltage rating of the capacitor.  
significant figure of the resistance value. One or two (2) to represent the second significant figure and a band, or dot (C)

## SUPPLEMENT

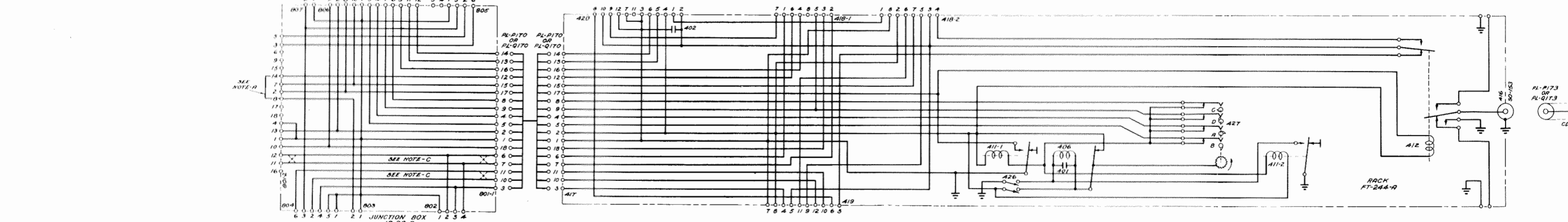
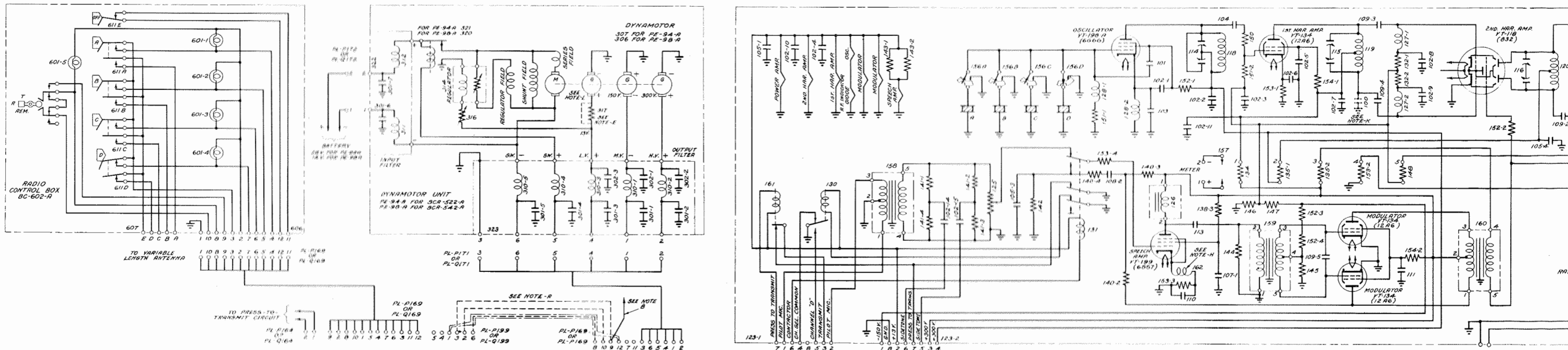
## 5. FUNCTION OF ALL WIRES IN INTERCONNECTING CABLES

Cable	Plug Pin No.	Function	
Dynamotor Unit to Battery	1	-14V or -28V input to dynamotor.	
	2	+14V or +28V input to dynamotor.	
Dynamotor Unit to Rack  *Note: The wires connected to pin nos. 8, 9, 10, and 12 of plug PL-P169 or PL-Q169 do not return to the dynamotor unit. See the schematic circuit diagram.	1	-150V bias supply.	
	2	+300V plate and screen supply.	
	3	-13V, +150V, -300V, ground.	
	4	+13V heater and control-circuit supply.	
	5	Dynamotor starting-relay control.	
	6	Dynamotor starting-relay control.	
	*8	Receiver AVC (used only when marker beacon receiver is installed).	
	*9	To press-to-talk switch on throttle (U. S. installations only) or to press-to-transmit circuit (British installations only).	
	*10	+300V for marker beacon receiver.	
	*12	-300V, ground for marker beacon receiver.	
	Junction Box to Rack	1	Common gnd.
		2	+13V supply for BC-602-A indicator lamps.
3		Receiver and interphone audio output.	
4		Ratchet motor control, Channel "A".	
5		Ratchet motor control, Channel "B".	
6		Pilot microphone.	
7		Pilot microphone.	
8		Ratchet motor control, Channel "C".	
9		Ratchet motor control, Channel "D"; slow release relay 130.	
10		Crew microphone.	
11		Crew microphone.	
12		Contact relay 131 control.	
13		Dynamotor starting relay control.	
14		Dynamotor starting relay control.	
15		Relay 161, press-to-transmit (press-to-talk) circuit.	
16		Ratchet motor channel controls, common return.	
17		Antenna relay 412 control.	
18		Relay 161.	
Junction Box to Radio Control Box	1	Common ground.	
	2	+13V supply for indicator lamps.	
	3	Ratchet motor channel controls, common return.	
	4	Ratchet motor control, Channel "A".	
	5	Ratchet motor control, Channel "B".	
	6	Ratchet motor control, Channel "C".	
	7	Ratchet motor control, Channel "D".	
	8	"T-R-REM." switch, ant. relay 412 control.	
	9		
	10		
	11	Dynamotor starting relay control.	
	12	Dynamotor starting relay control.	
Junction Box to Pilot Jack Box (BC-629-A)	1	Ground.	
	2	Pilot microphone.	
	3	Rec. and interphone audio output.	
	4	Pilot microphone.	
Junction Box to First Crew Jack Box (BC-630-A)	1	Ground.	
	2	Crew microphone.	
	3	Gun switch. Press-to-transmit connection in British installations; not used in U. S. installations.	

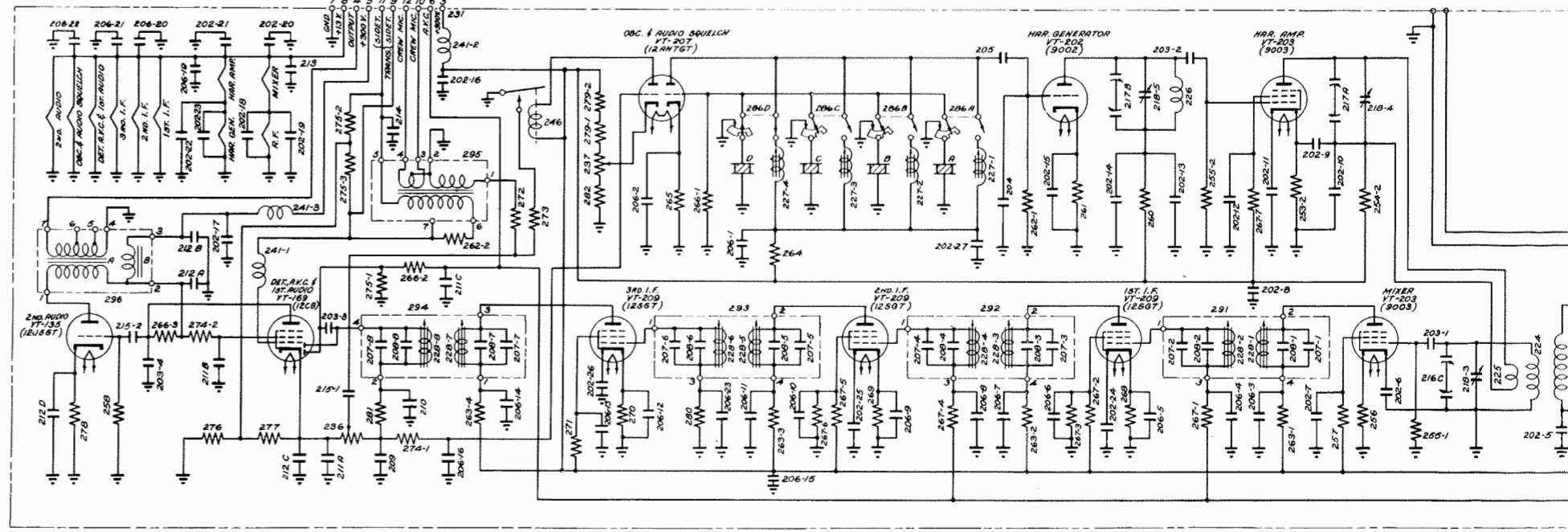
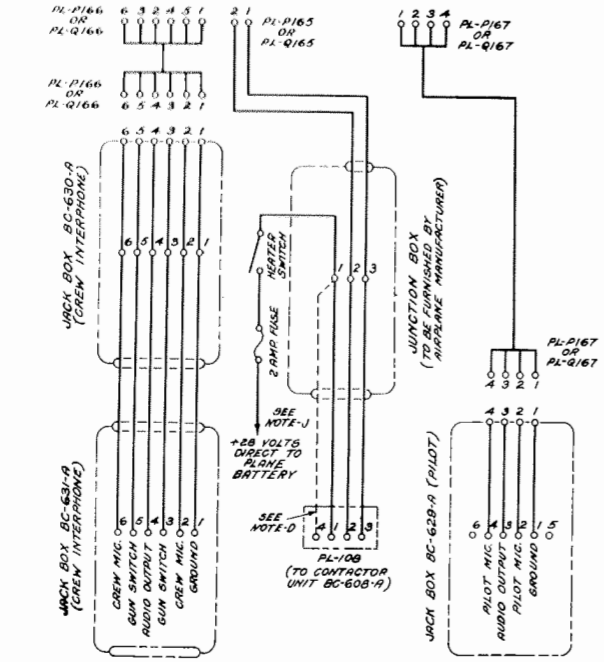


SUPPLEMENT

Cable	Plug Pin No.	Function
Junction Box to First Crew Jack Box (BC-630-A)	4	Rec. and interphone audio output.
	5	Gun switch. Press-to-transmit connection in British installations; not used in U. S. installations.
	6	Crew microphone.
First Crew Jack Box (BC-630-A) to Jack Box BC-631-A (Other Crew)		All connections between these jack boxes are continuations of the wires connecting Junction Box JB-29-A and Jack Box BC-630-A.
Junction Box to Press-to-transmit Circuit	1	Ground.
	2	Press-to-transmit (press-to-talk) relay 161.
Junction Box to Contactor	1	Ground.
	2	Contactor relay 131.



- NOTES:**
- A-WHEN MARKER BEACON RECEIVER IS USED IT IS NECESSARY TO USE THE CABLE SHOWN IN DOTTED LINES BETWEEN SOCKET 420 AND SOCKET 805. IT IS ALSO NECESSARY TO REMOVE THE JUMPER BETWEEN TERMINALS 8 AND 14 OF SOCKET 801-2.
  - B-THIS LEAD IS USED IN U.S. INSTALLATIONS ONLY, AND GOES DIRECTLY TO THE PRESS-TO-TRANSMIT (PRESS-TO-TALK) SWITCH ON THE THROTTLE.
  - C-THESE LEADS MAY BE INTERCHANGED IN SOME EQUIPMENTS AND THIS IS UNIMPORTANT AS THESE LEADS ARE FOR A BALANCED MICROPHONE CIRCUIT.
  - D-FOR 14 VOLT OPERATION REMOVE LEAD FROM PIN NO. 1 OF PL-108 AND CONNECT IT TO PIN NO. 4 AS SHOWN BY DOTTED LINE.
  - E-ON PE-93-A ITEM 317 IS OMITTED AND CONNECTION IS MADE AS SHOWN BY DOTTED LINE.
  - F-EQUIPMENT SHOWN IN THE RECEIVE POSITION ON BAND 'D' WITH SUFFICIENT INPUT TO THE RECEIVER TO OPEN THE SQUELCH RELAY 246.
  - G-VACUUM TUBE NOS. IN PARENTHESIS, SUCH AS (832), ARE U.S.A. COMMERCIAL TYPE NOS.
  - H-A FEW EQUIPMENTS DO NOT HAVE ITEM 162.
  - J-CONTACTOR UNIT SUITABLE FOR USE ONLY WITH PRIMARY POWER SYSTEMS HAVING A GROUNDED NEGATIVE.
  - K-A FEW EQUIPMENTS HAVE ITEM 100.
  - L-14.5 VOLT OUTPUT FOR DYNAMOTOR 307  
 13 VOLT OUTPUT FOR DYNAMOTOR 306



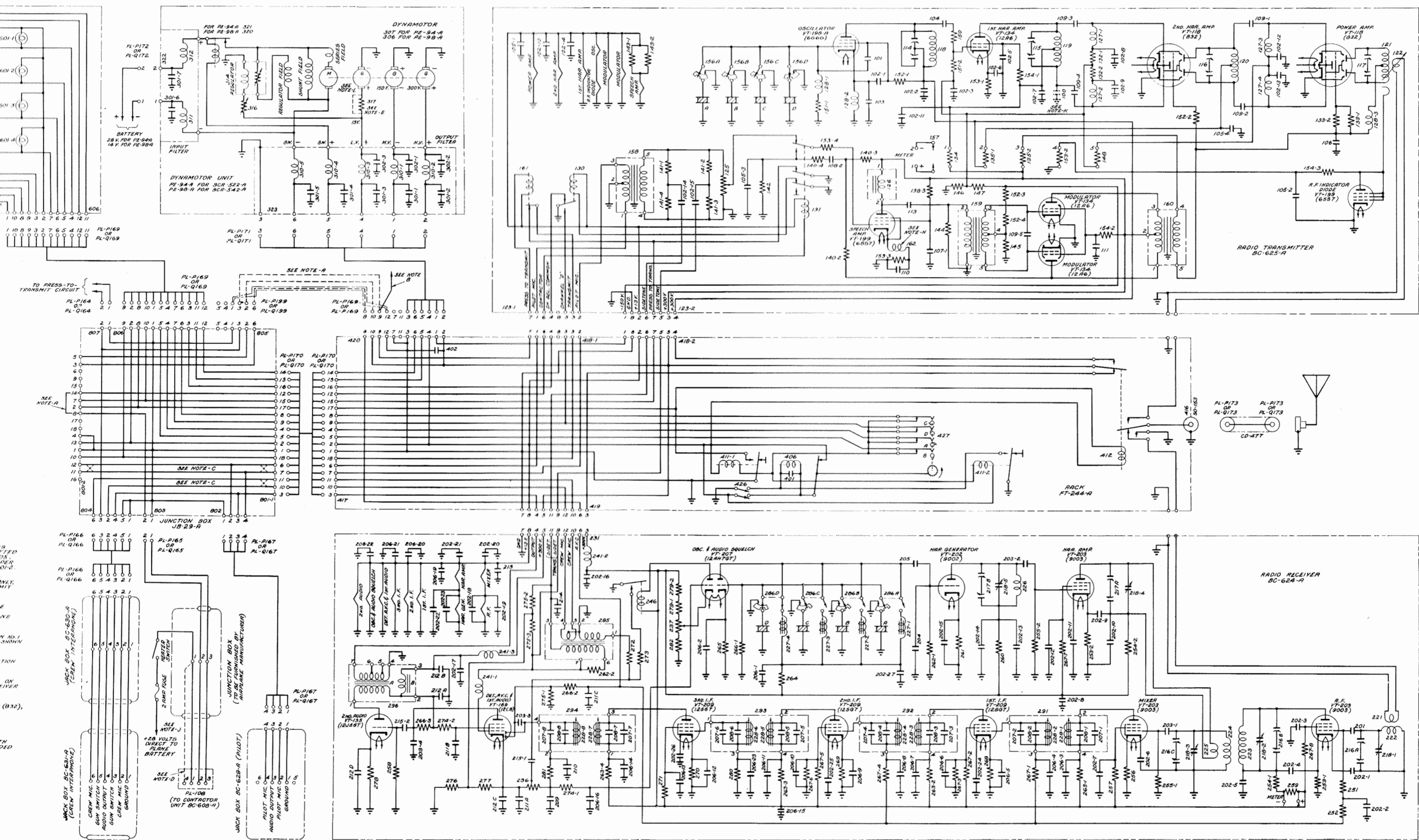


FIGURE 1—RADIO SETS SCR-522-A AND SCR-542-A, COMPLETE SCHEMATIC CIRCUIT DIAGRAM