AN 16-30ARC5-2

Handbook
Maintenance Instructions

AN/ARC-5
AIRCRAFT RADIO EQUIPMENT
LF MF HF COMPONENTS

THIS PUBLICATION SUPERSEDES AN 16-30ARC5-2 DATED 23 FEBRUARY 1944
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15 December 1954

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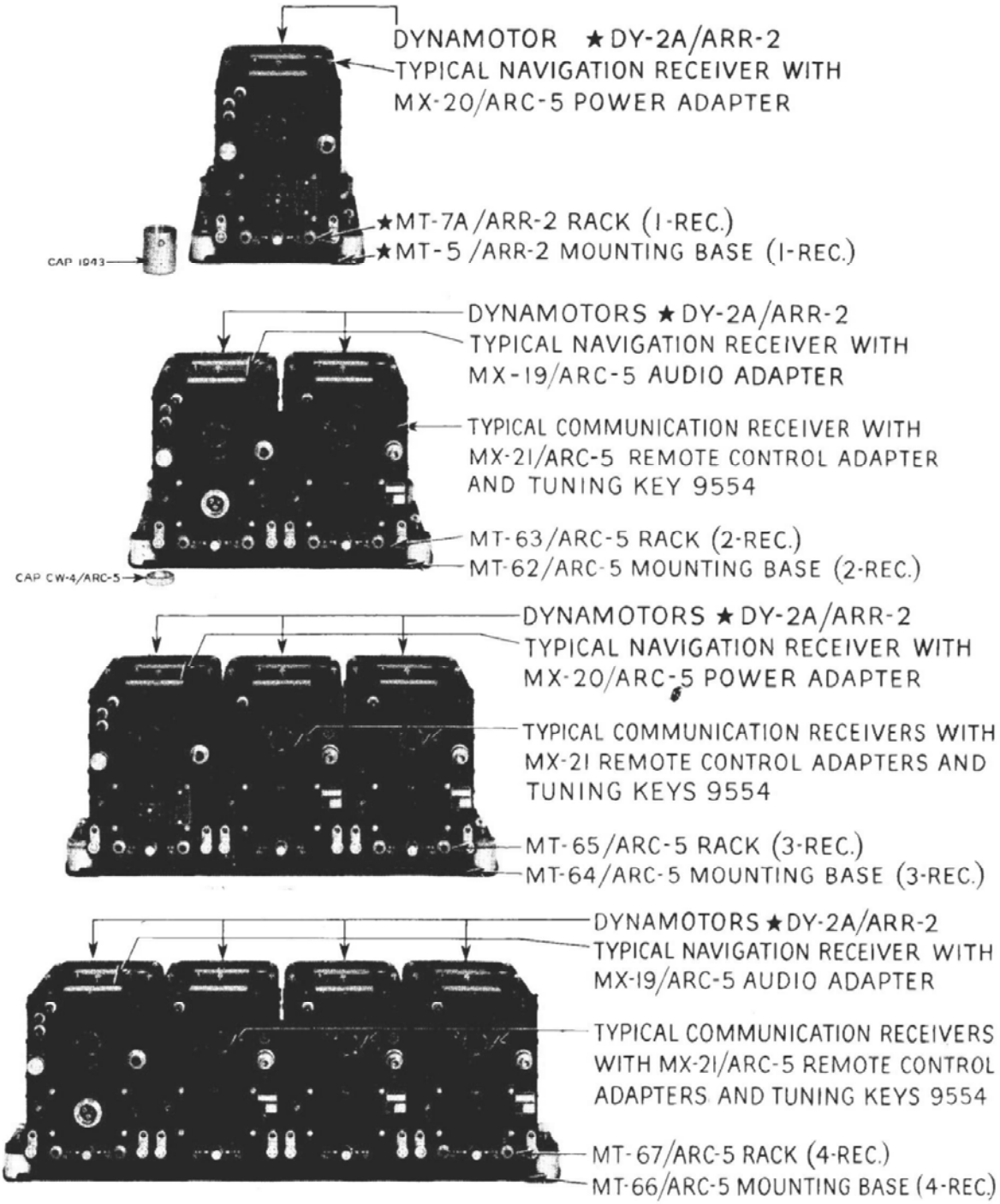
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NOTE:

RACKS SHOWN IN THIS PHOTOGRAPH ARE ALL DESIGNED FOR 28-VOLT OPERATION. RACK MT-411/ARC-5X IS PHOTOGRAPHICALLY LIKE RACK ★MT-7A/ARR-2. RADIO RECEIVERS R-23A/ARC-5 AND R-148/ARC-5X ARE PHOTOGRAPHICALLY LIKE THE TYPICAL NAVIGATION RECEIVER SHOWN. DYNAMOTOR ★DY-2B/ARR-2 IS INTERCHANGEABLE WITH DYNAMOTOR ★DY-2A/ARR-2. DYNAMOTOR DY-1/ARR-2X IS PHOTOGRAPHICALLY LIKE DYNAMOTOR ★DY-2A/ARR-2 SHOWN, BUT IS FOR USE WITH 14-VOLT RECEIVERS AND RACKS

Figure 1—1. Model AN/ARC-5 Aircraft Radio Equipment, Radio Receivers, Dynamotors, Racks, Mounting Bases, and Adapters

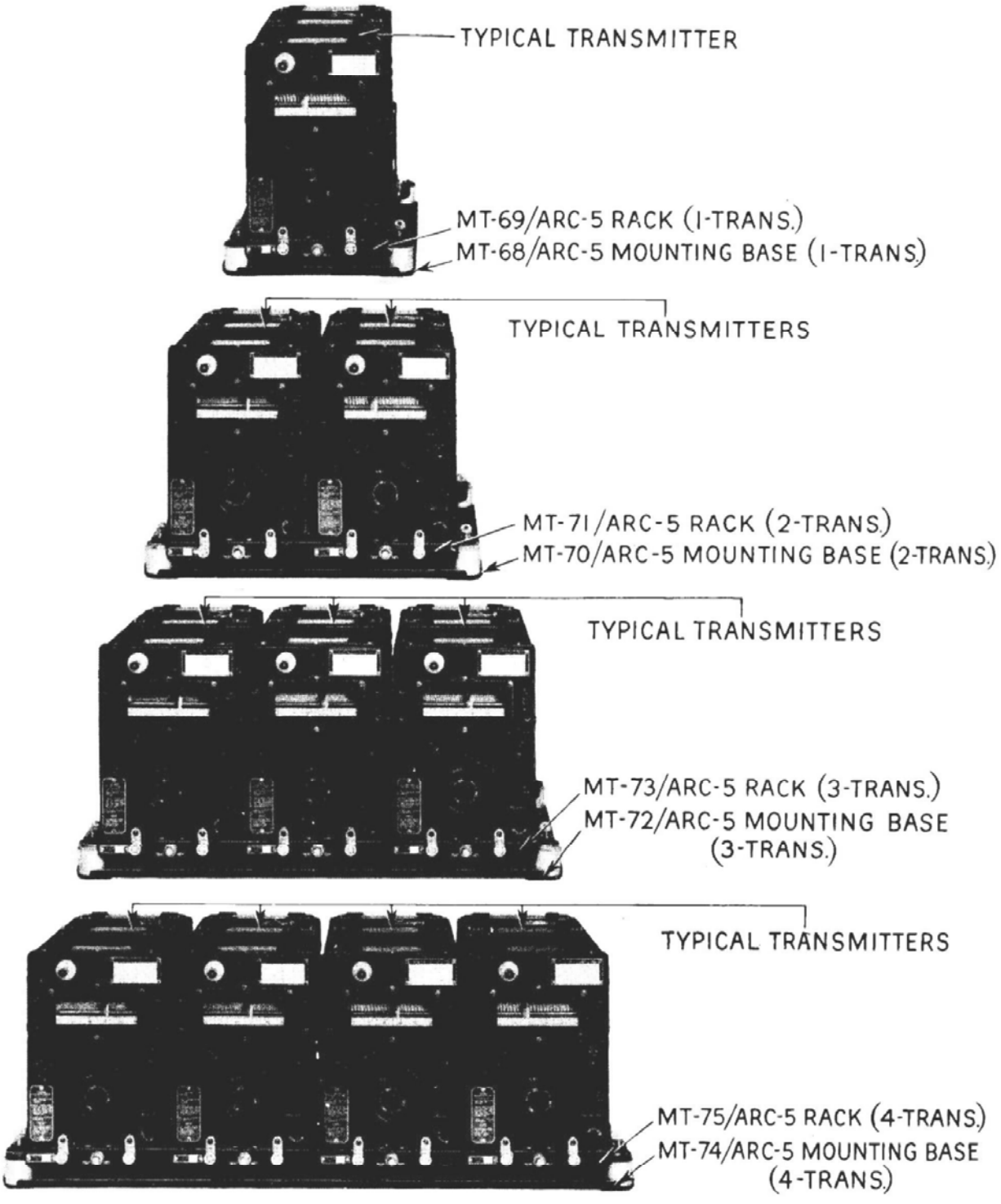
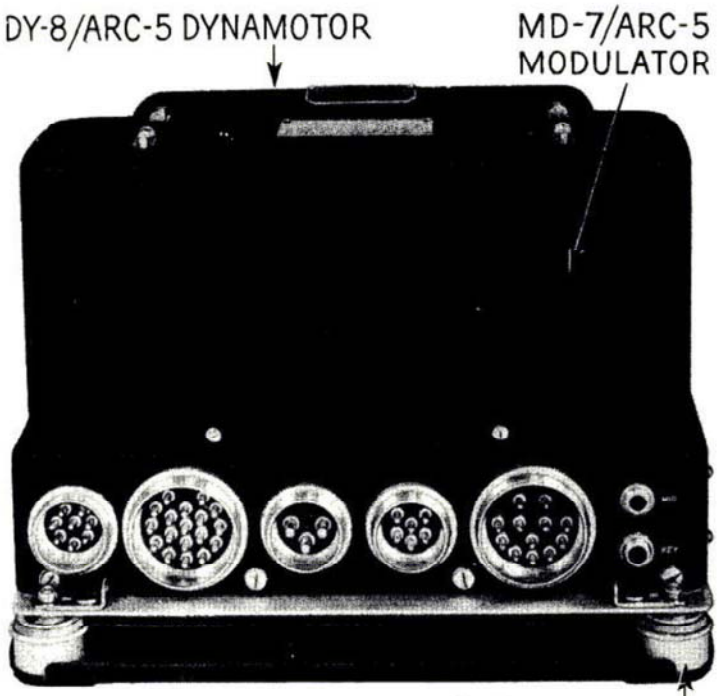
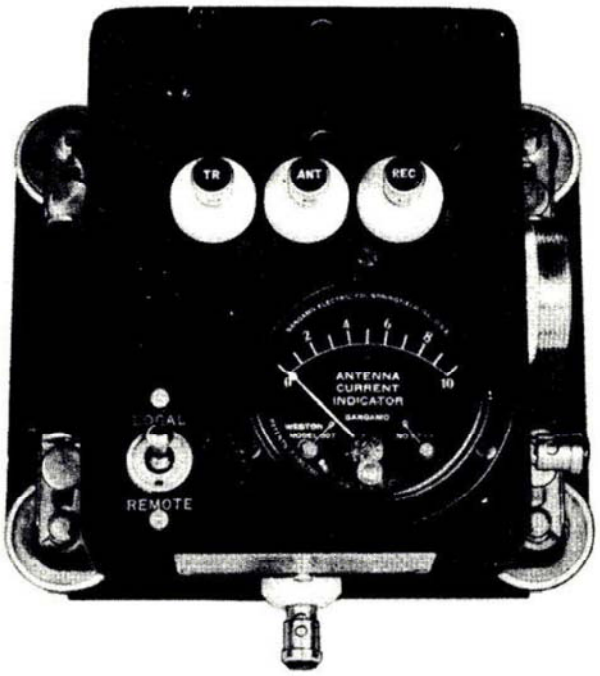


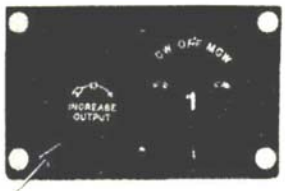
Figure 1—2. Model AN/ARC-5 Aircraft Radio Equipment, Radio Transmitters, Racks, and Mounting Bases





RE-2/ARC-5 ANTENNA RELAY UNIT
WITH MT-77/ARC-5 MOUNTING BASE

Figure 1–3. Model AN/ARC-5 Aircraft Radio Equipment, Modulator with Dynamotor and Mounting Base, and Antenna Relay Unit with Mounting Base



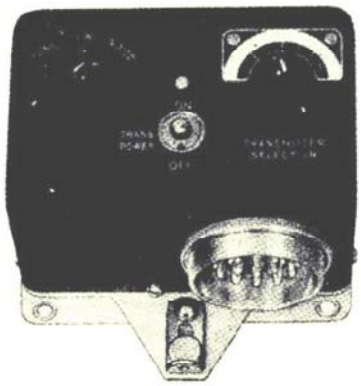
C-24/ARC-5 LOCAL CONTROL UNIT



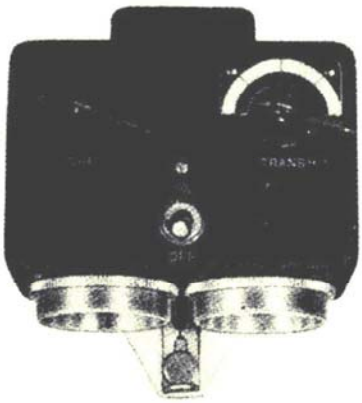
C-26/ARC-5 CONTROL UNIT WITH ★ MT-4/ARR-2 MOUNTING PLATE AND DIAL ID 29/ARC-5



C-25/ARC-5 CONTROL UNIT (REMOTE ANT-LOOP SWITCH CONTROL)



C-29/ARC-5 TRANSMITTER CONTROL UNIT WITH MT-80/ARC-5 MOUNTING PLATE



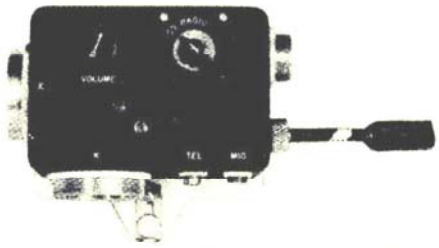
C-30A/ARC-5 TRANSMITTER CONTROL UNIT WITH MT-80/ARC-5 MOUNTING PLATE



C-38/ARC-5 MAIN CONTROL UNIT WITH MT-98/ARC-5 MOUNTING PLATE



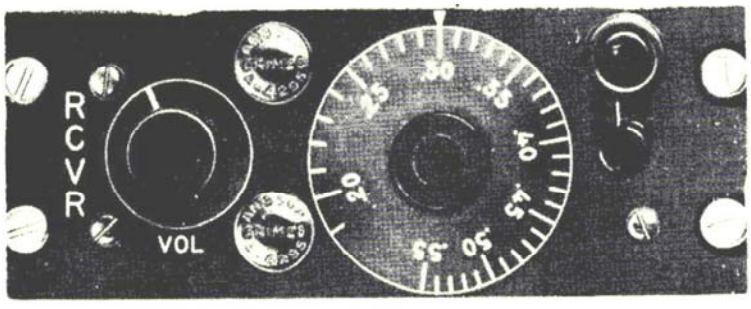
C-27/ARC-5 CONTROL UNIT (LOCK-TUNED) WITH MT-78/ARC-5 MOUNTING PLATE



C-39/ARC-5, C-48/ARC-5, AUXILIARY CONTROL UNIT WITH MT-80/ARC-5 MOUNTING PLATE



C-125/ARC-5 CONTROL PANEL WITH DIAL ID-25/ARC-5



C-744/ARC-5 RADIO SET CONTROL

Figure 1—4. Model AN/ARC-5 Aircraft Radio Equipment, Control Units

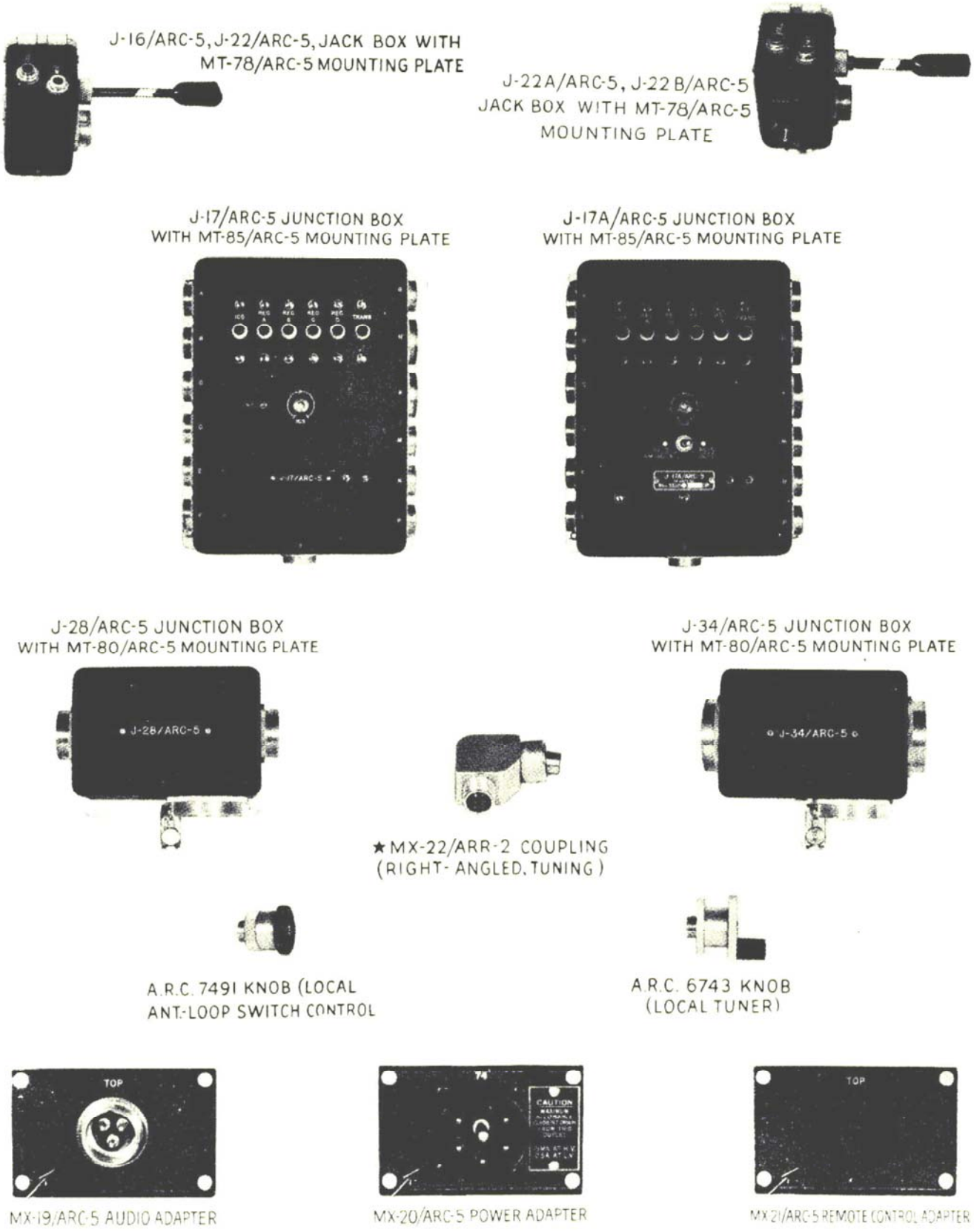


Figure 1—5. Model AN/ARC-5 Aircraft Radio Equipment, Junction Boxes, Jack Boxes, Adapters, Knobs, and Coupling

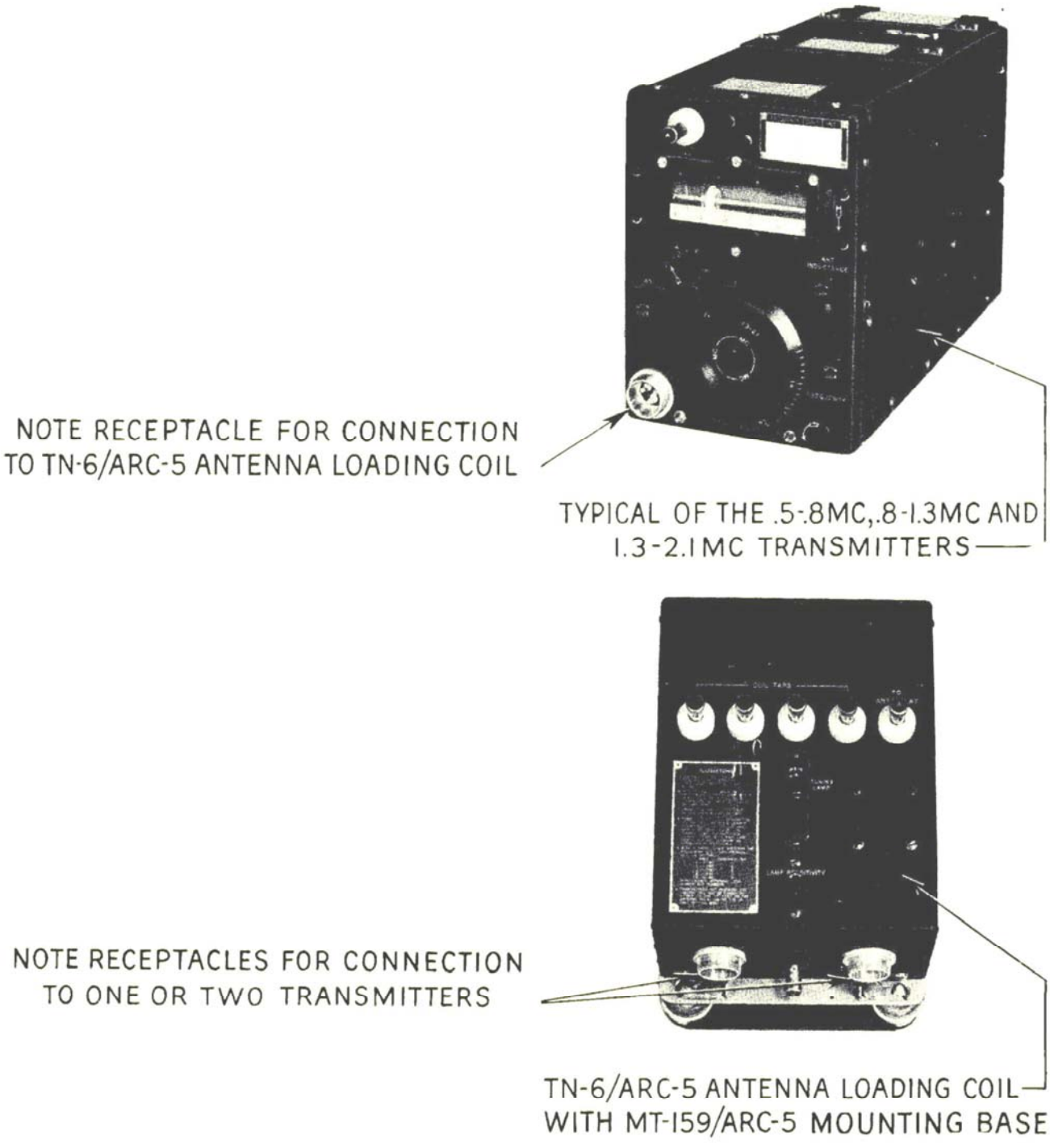


Figure 1—6. Model AN/ARC-5 Aircraft Radio Equipment, Typical MF Transmitter and Antenna Loading Coil

SECTION I

GENERAL DESCRIPTION

1—1. PURPOSE OF HANDBOOK.

1—2. This handbook provides instructions for the operation, maintenance, and repair of the LF-MF-HF components of Model AN/ARC-5 Aircraft Radio Equipment. (See figures 1—1 through 1—6.)

1—3. The LF-MF-HF components operate at or below 9.1 mc. Components of the AN/ARC-5 operating above 100 mc are referred to as the VHF components and are described in a companion volume to this handbook, AN 08-10-195, "Handbook Maintenance Instructions for Model AN/ARC-5 Aircraft Radio Equipment VHF Components."

1—4. PURPOSE OF EQUIPMENT.

1—5. Model AN/ARC-5 Aircraft Radio Equipment is a complete multi-channel radio transmitting and receiving set providing communication and navigation facilities for aircraft. The LF-MF-HF components are designed to transmit and receive voice, tone-modulated, and continuous wave (cw) signals.

1—6. GENERAL PRINCIPLES OF OPERATION.

1—7. Primary power (14 or 28 volts dc) is furnished by the aircraft's electrical system. This power is distributed through a junction box or mounting rack, and is controlled by the off-on switches located on the control units. These switches, designated variously as ON-OFF, SENSITIVITY, or VOLUME, are either toggle- or rotary-type switches. Individual dynamotors furnish high voltage to the radio receiver circuits. High voltage for the transmitter circuits is supplied by a dynamotor mounted on the modulator unit. For voice or cw operation, the radio receivers are tuned either locally or remotely through mechanical linkage connected to the control. Lock-tuned operation of the radio receivers is available for voice reception only. The transmitters are pretuned with their frequency controlled by a master oscillator. The type of emission and the transmitter required are selected by individual switches mounted on the transmitter control unit. No antennas are supplied with the AN/ARC-5 but the equipment is designed for use with a single-wire antenna of the trailing or fixed type, a vertical mast antenna, or a loop antenna.

1—8. EQUIPMENT SUPPLIED.

1—9. The LF-MF-HF components supplied as part of AN/ARC-5 are shown in figures 1—1 through 1—6, and are listed in table 1—1. All components using electron tubes are supplied complete with tubes. All transmitters are supplied with crystals.

TABLE 1—1. EQUIPMENT SUPPLIED

Name of Unit	*Type Designation*	*Over-all Dimensions*			*Wt (lb)*	*Numerical Series of Reference Designations*
		Length (in.)	*Width (in.)*	*Height (in.)*		
	MAJOR UNITS					
Adapter, Audio	MX-19/ARC-5	1-5/8	3-1/16	2	0.2	1-49
Adapter, Power	MX-20/ARC-5	1-5/8	3-1/16	2	0.15	1-49
Adapter, Remote Control	MX-21/ARC-5	1-5/8	3-1/16	2	0.15	1-49
Antenna Loading Coil	TN-6/ARC-5	8-3/16	5-9/16	4-1/8	2.0	1600-1699
Antenna Relay Unit	RE-2/ARC-5	6-9/16	5-1/8	4-3/8	1.9	50-99
Control Unit	C-24/ARC-5	1-5/8	3-1/16	2	0.15	1-49
Control Unit	C-25/ARC-5	1-3/8	2	2-1/2	0.1	1-49
Control Unit	C-26/ARC-5	5-15/32	3-1/4	3	0.7	1-49
Control Unit	C-27/ARC-5	1-3/4	1-3/16	4-3/8	0.25	1-49
Control Unit	C-29/ARC-5	2-11/16	4-1/8	4-3/16	0.5	50-99
Control Unit	C-30A/ARC-5*	2-11/16	4-3/16	4-1/2	0.7	1700-1710
Control Unit	C-38/ARC-5	3-1/8	9-1/2	4-1/8	1.8	1000-1020
Control Unit	C-39/ARC-5	2-3/4	4-1/8	2-3/4	0.81	1100-1110
Control Unit	C-48/ARC-5	2-3/4	4-1/8	2-3/4	0.91	1100-1110
Control Panel	C-125/ARC-5	6	3-3/8	2-3/4	0.6	1900-1903
Radio Set Control	C-744/ARC-5	5-11/16	2-5/16	3-7/16	0.75	1900-1905
Dynamotor	★DY-1/ARR-2X†‡	2-3/4	4-3/4	3-1/4	3.0	1-49
Dynamotor	★DY-2A/ARR-2†	2-3/4	4-3/4	3-1/4	3.0	1-49
Dynamotor	DY-2B/ARR-2	2-11/16	4-1/2	3-1/4	2.1	1-49
Dynamotor	DY-8/ARC-5	3-3/8	7-5/8	4	8.2	50-99
Jack Box	J-16/ARC-5	2-13/16	2-3/8	1-5/8	0.46	1201-1210
Jack Box	J-22/ARC-5	2-13/16	2-3/8	1-5/8	0.46	1201-1210
Jack Box	J-22A/ARC-5	2-13/16	2-3/8	1-5/8	0.5	1201-1210
Jack Box	J-22B/ARC-5	2-13/16	2-3/8	1-5/8	0.5	1201-1210
Junction Box	J-17/ARC-5	10-1/8	3-1/16	7-1/8	3.5	1301-1325
Junction Box	J-17A/ARC-5	10-1/8	3-5/16	7-1/8	3.7	1301-1325
Junction Box	J-28/ARC-5	2-1/2	4-1/8	4-3/16	0.4	50-99
Junction Box	J-34/ARC-5	2-1/2	4-1/8	4-3/16	0.5	50-99
Modulator	MD-7/ARC-5	8-1/4	10-1/16	6-5/8	9.1	50-99
Mounting Base	★MT-5/ARR-2†	10-23/32	6-11/16	1-9/16	0.6	1-49
Mounting Base	MT-62/ARC-5	10-23/32	11-5/8	1-9/16	0.8	1-49
Mounting Base	MT-64/ARC-5	10-23/32	16-9/16	1-9/16	1.0	1-49
Mounting Base	MT-66/ARC-5	10-23/32	21-1/2	1-9/16	1.1	1-49
Mounting Base	MT-68/ARC-5	11-13/16	7-1/4	1-11/16	0.7	50-99
Mounting Base	MT-70/ARC-5	11-13/16	12-13/16	1-3/4	0.8	50-99
Mounting Base	MT-72/ARC-5	11-13/16	18-1/4	1-13/16	0.9	50-99

* Control Unit C-30A/ARC-5 used with AN/ARC-5 VHF components.

† The star ★ preceding certain type designation is a part of that designation.

‡ Type designations followed by an "X" indicate components designed for 14-volt operation.

TABLE 1–1. EQUIPMENT SUPPLIED (Cont)

Name of Unit	*Type Designation*	*Over-all Dimensions*			*Wt (lb)*	*Numerical Series of Reference Designations*
		Length (in.)	*Width (in.)*	*Height (in.)*		
	MAJOR UNITS (Cont)					
Mounting Base	MT-74/ARC-5	11-13/16	23-13/16	1-7/8	1.1	50-99
Mounting Base	MT-74/ARC-5	11-13/16	23-13/16	1-7/8	1.1	50-99
Mounting Base	MT-76/ARC-5	10-3/16	8-7/8	1-1/8	0.7	50-99
Mounting Base	MT-77/ARC-5	5	5-5/8	1	0.3	50-99
Mounting Base	MT-159/ARC-5	8-3/4	5-5/8	1-3/8	0.5	50-99
Mounting Plate	★MT-4/ARR-2*	1/4	3-3/4	5-15/32	0.12	1-49
Mounting Plate	MT-78/ARC-5	1/4	1-3/16	4-3/8	0.04	1-49
Mounting Plate	MT-80/ARC-5	1/4	4-1/8	4-3/16	0.09	50-99
Mounting Plate	MT-85/ARC-5	1/4	8-1/4	10-1/8	0.56	—
Mounting Plate	MT-90/ARC-5	1/4	9-1/2	5-15/32	0.31	—
Rack	★MT-7A/ARR-2*	13-1/8	6	4-3/8	1.4	1-49
Rack	MT-63/ARC-5	13-1/8	11	4-3/8	2.7	1-49
Rack	MT-65/ARC-5	13-1/8	16	4-3/8	4.0	1-49
Rack	MT-67/ARC-5	13-1/8	20-7/8	4-3/8	5.0	1-49
Rack	MT-69/ARC-5	14-5/8	6-5/8	3-7/8	1.4	50-99
Rack	MT-71/ARC-5	14-5/8	12-1/8	3-7/8	2.5	50-99
Rack	MT-73/ARC-5	14-5/8	17-5/8	3-7/8	3.3	50-99
Rack	MT-75/ARC-5	14-5/8	23-1/8	3-7/8	4.4	50-99
Rack	MT-411/ARC-5X	13-1/8	6	4-3/8	1.4	1-49
Radio Receiver	R-23/ARC-5†	11-1/2	4-13/16	5-5/8	6.0	1-49
Radio Receiver	R-23A/ARC-5†	11-1/2	4-13/16	5-5/8	6.0	1-49
Radio Receiver	R-24/ARC-5‡	11-1/2	4-13/16	5-5/8	6.0	1-49
Radio Receiver	R-25/ARC-5††	11-1/2	4-13/16	5-5/8	6.0	1-49
Radio Receiver	R-26/ARC-5§	11-1/2	4-13/16	5-5/8	6.0	1-49
Radio Receiver	R-27/ARC-5**	11-1/2	4-13/16	5-5/8	6.0	1-49
Radio Receiver	R-148/ARC-5X†	11-1/2	4-13/16	5-5/8	6.0	1-49
Radio Transmitter	T-15/ARC-5	12-3/4	5-1/4	7-1/16	9.0	50-99
Radio Transmitter	T-16/ARC-5	12-3/4	5-1/4	7-1/16	9.0	50-99
Radio Transmitter	T-17/ARC-5	12-3/4	5-1/4	7-1/16	9.0	50-99
Radio Transmitter	T-18/ARC-5	12-3/4	5-1/4	7-1/16	9.0	50-99
Radio Transmitter	T-19/ARC-5	12-3/4	5-1/4	7-1/16	9.0	50-99
Radio Transmitter	T-20/ARC-5	12-3/4	5-1/4	7-1/16	9.0	50-99
Radio Transmitter	T-21/ARC-5	12-3/4	5-1/4	7-1/16	9.0	50-99
Radio Transmitter	T-22/ARC-5	12-3/4	5-1/4	7-1/16	9.0	50-99

* The star ★ preceding certain type designation is a part of that designation.
† Supplied with electron tubes and Dial ID-25/ARC-5.
‡ Supplied with electron tubes and Dial ID-26/ARC-5.
†† Supplied with electron tubes, Dial ID-27/ARC-5, and Tuning Key ARC-9554.
§ Supplied with electron tubes, Dial ID-28/ARC-5, and Tuning Key ARC-9554.
** Supplied with electron tubes, Dial ID-29/ARC-5, and Tuning Key ARC-9554.

TABLE 1—1. EQUIPMENT SUPPLIED (Cont)

Name of Part	*Aircraft Radio Corp. Part No.*	*Weight (lb)*
INTERCONNECTING CABLE PARTS[1]		
Cable, bulk, 2 conductors, unshielded, 1/4 in. OD[2]	3251	0.05/foot
Cable, bulk, 2 conductors, shielded, 1/2 in. OD[2]	6712	0.16/foot
Cable, bulk, 4 conductors, unshielded, 1/4 in. OD[2]	9584	0.06/foot
Cable, bulk, 6 conductors, shielded, 1/2 in. OD[2]	6794	0.16/foot
Cable, bulk, 8 conductors, shielded, 1/2 in. OD[2]	6711	0.16/foot
Cable, bulk, 12 conductors, shielded, 19/32 in. OD[2]	6796	0.18/foot
Ferrule, battery cable	6780	0.02
Nut, battery cable	7546	0.02
Connector, plug, 2 contacts	6578	0.10
Connector, plug, 2 contacts	9127	0.06
Connector, plug, 2 contacts	9491	0.05
Connector, plug, 2 contacts	9818	0.05
Connector, plug, 2 contacts	9947	0.05
Connector, plug, 3 contacts	6965	0.10
Connector, plug, 3 contacts	9126	0.06
Connector, plug, 3 contacts	9488	0.05
Connector, plug, 3 contacts	9848	0.05
Connector, plug, 3 contacts	9948	0.05
Connector, plug, 4 contacts	9124	0.06
Connector, plug, 4 contacts	9489	0.05
Connector, plug, 4 contacts	9490	0.05
Connector, plug, 4 contacts	9949	0.05
Connector, plug, 5 contacts	6967	0.10
Connector, plug, 5 contacts	9124	0.06
Connector, plug, 6 contacts	6784	0.10
Connector, plug, 6 contacts	9123	0.06
Connector, plug, 8 contacts	6577	0.10
Connector, plug, 8 contacts	6966	0.10
Connector, plug, 8 contacts	9125	0.06
Connector, plug, 8 contacts	9819	0.06
Connector, plug, 8 contacts	9821	0.06
Connector, plug, 12 contacts	6964	0.17
Connector, plug, 12 contacts	9122	0.15
Connector, plug, 12 contacts	9377	0.17

[1] Aircraft Radio Corp. part numbers for miscellaneous parts are included for reference purposes.

[2] When replacement of any of these cables is required, use cable per BuShips Specification RE13A737B as follows:

In Place of	*Use*
3251	Open wire
6711	WM-1/U
6712	WF-1/U
6794	WM-1/U
6795	WM-2/U
6796	WM-3/U
9584	Open wire

TABLE 1–1. EQUIPMENT SUPPLIED (Cont)

Name of Part	*Aircraft Radio Corp. Part No.*	*Weight (lb)*
INTERCONNECTING CABLE PARTS[1] (Cont)		
Connector, plug, 12 contacts	9589	0.15
Connector, plug, 18 contacts	6962	0.17
Connector, plug, 18 contacts	6963	0.17
Connector, plug, 18 contacts	9121	0.15
Connector, plug, 18 contacts	9585	0.15
Tag, for cable 5803	6970	0.01
Tag, for cable 5804	6971	0.01
Tag, for cable 5806	6973	0.01
Tag, for cable 5808	6941	0.01
Tag, for cable 5810	6975	0.01
Tag, for cable 6693	6803	0.01
Tag, for cable 7547	7627	0.01
Tag, for cable 7548	7626	0.01
Tag, for cable 9376	9378	0.01
Tag, for cable 9396	9654	0.01
Tag, for cable 9397	9655	0.01
Tag, for cable 9817	9820	0.01
Tag, with letter A	10023	0.01
Tag, with letter B	10024	0.01
Tag, with letter C	10025	0.01
Tag, with letter D	10026	0.01
Tag, with letter E	10027	0.01
Tag, with letter F	10028	0.01
Tag, with letter G	10029	0.01
Tag, with letter H	10030	0.01
Tag, with letter K	10031	0.01
Tag, with letter M	10032	0.01
Tag, with letter N	10033	0.01
ACCESSORIES		
Coupling ★MX-22/ARC-5*	6357	0.08
Crystal Frequency Generator O-4/ARC-5 (with tubes, six crystals, cable 9396 [10 ft], and Mounting Base MT-77/ARC-5)	9369	—
Knob, local antenna-loop	7491	0.05
Mechanical Linkage ARC-6151 parts consisting of:	6151	0.12/foot
Casing	3406	—
Shafting	1174	—
Nut	1167	—
Sleeve	6585	—

[1] Aircraft Radio Corp. part numbers for miscellaneous parts are included for reference purposes.

* The star ★ preceding certain type designation is a part of that designation.

TABLE 1–1. EQUIPMENT SUPPLIED (Cont)

Name of Part	*Aircraft Radio Corp. Part No.*	*Weight (lb)*
ACCESSORIES (Cont)		
Spline	6788	—
Tag	6789	—
Receiver Test Set	7918	—
Transmitter Test Set	9558	—
Tool Set, consisting of:		
Tube Extractor	7489	—
Bristo No. 6 Wrench	8021	—
Phillips No. 1 Screwdriver	8020	—
Knob, local tuner	6743	—

1–10. EQUIPMENT REQUIRED BUT NOT SUPPLIED.

1–11. In addition to the equipment supplied, as listed in table 1–1, the following equipment is required but not supplied as part of the AN/ARC-5: a 28-volt or 14-volt d-c primary power source (the voltage depending on the components installed) and suitable antennas for the receivers and transmitters.

1–12. GENERAL ELECTRICAL CHARACTERISTICS.

1–13. FREQUENCY RANGE. The LF-MF-HF components of the AN/ARC-5 cover a frequency range of 0.19 mc (190 kc) to 9.1 mc. The radio receivers divide this frequency range into five bands as follows:

R-23/ARC-5 R-23A/ARC-5 R-148/ARC-5X	0.19 mc (190 kc) to 0.55 mc (550 kc)
R-24/ARC-5	0.52 mc (520 kc) to 1.5 mc (1500 kc)
R-25/ARC-5	1.5 mc to 3 mc
R-26/ARC-5	3 mc to 6 mc
R-27/ARC-5	6 mc to 9.1 mc

The transmitters divide a frequency range of 2.1 mc to 9.1 mc into five bands as follows:

T-18/ARC-5	2.1 mc to 3 mc
T-19/ARC-5	3 mc to 4 mc
T-20/ARC-5	4 mc to 5.3 mc
T-21/ARC-5	5.3 mc to 7 mc
T-22/ARC-5	7 mc to 9.1 mc

In addition, special purpose transmitters covering the following bands are available:

T-15/ARC-5	0.5 mc (500 kc) to 0.8 mc (800 kc)
T-16/ARC-5	0.8 mc (800 kc) to 1.3 mc (1300 kc)
T-17/ARC-5	1.3 mc to 2.1 mc

1–14. POWER REQUIREMENTS. Model AN/ARC-5 Aircraft Radio Equipment is designed for use in aircraft equipped with a 28-volt d-c or 14-volt d-c power source. Equipments designed for 14-volt operation are special and are identified by an "X" following "ARC-5." The radio receivers require 1.6 amperes per receiver with a 28-volt d-c input and 3.4 amperes per receiver with a 14-volt d-c input. The transmitters require 9 amperes per transmitter with a 28-volt d-c input for a maximum power output of 15 watts on voice carrier.

1–15. DESCRIPTION OF MAJOR UNITS.

1–16. GENERAL. Model AN/ARC-5 Aircraft Radio Equipment includes radio receivers, radio transmitters, dynamotors, control units, a modulator, racks, mounting bases, jack boxes, junction boxes, and accessories, which may be grouped in various ways so as to provide a variety of radio communication systems for airborne use. The components installed will depend upon the requirements of the aircraft installation. The R-23/ARC-5, R-23A/ARC-5, R-148/ARC-5X, and R-24/ARC-5 are referred to as the "navigation" receivers, while the R-25/ARC-5, R-26/ARC-5, and R-27/ARC-5 are referred to as the "communication" receivers.

1–17. RADIO RECEIVERS. (See figure 1–1.) Except for the frequency band covered and minor circuit differences, the radio receivers of the AN/ARC-5 are similar. Each receiver is a superheterodyne employing six 12-volt electron tubes. These tubes perform identical functions in all receivers except that the avc diode in the navigation receivers is part of the 12SR7 tube, while in the communication receivers it is part of the 12SF7 tube. Each receiver contains two r-f tuned circuits, an r-f oscillator, six i-f tuned circuits, and a cw heterodyne oscillator circuit. All tuning dials are calibrated directly in megacycles and afford an accuracy of better than 0.5 per cent.

1–18. The navigation receivers are equipped with an input circuit for wire antenna or loop antenna operation, and with a special output for connection to instrument landing equipment. The communication receivers are designed for remote or local tuning operation on voice or cw, or for lock-tuned operation on voice. These receivers may be tuned precisely and left for long periods of time, without retuning or without adjustment of any

kind, with the assurance of normal receiver output on the desired frequency. Operation on these frequencies is placed on a co-ordinate basis with the vhf channel operation for which the pilot or operator has no responsibility for tuning. Both the navigation and communication receivers are equipped with a combination of automatic and manual control of sensitivity, and both may be operated on voice or cw by remote or local control.

1—19. The outputs of the radio receivers may be paralleled on one line to a single headset, or may be separated and fed to two lines for split- or double-headset reception by more than one operator. Several 600-ohm headsets may be connected into the headset jacks in the equipment. An output circuit, which is independent of the headset output, is provided in the R-23/ARC-5, R-23A/ARC-5, R-148/ARC-5X, and R-24/ARC-5 for connection through Audio Adapter MX-19/ARC-5 to instrument landing equipment.

1—20. A single antenna may be used for all radio receivers and transmitters, provided that it is suitable for each. It may be desirable to use a long fore and aft "inverted L" or "T" antenna for all receivers and transmitters, except the R-23/ARC-5, R-23A/ARC-5, or R-148/ARC-5X radio receivers. If these receivers are to be used for reception of airways radio range signals, a suitable antenna such as a two- or three-foot vertical mast, a nearly vertical wire, or a balanced "T" antenna should be installed for these receivers only. A loop antenna may be connected to these receivers or to the R-24/ARC-5; provision is made for remote or local switching of the receiver input to antenna or loop.

1—21. The radio receivers of the AN/ARC-5 are not identical with, but for certain functions are interchangeable with, those of corresponding frequency ranges in the Model ARA (0.19-9.1 mc), RAV (0.19-27 mc) and RAT-1 (13.5-27 mc) equipments. The radio receivers of Models ARA, RAV, and RAT-1 equipments may be operated in the receiver racks of AN/ARC-5 equipment, or vice versa. The radio receivers of Model RAT-1 (13.5-27 mc) equipment were designed for 12-volt operation and therefore cannot be used in the receiver racks of the 24-volt AN/ARC-5 equipment. The 1-, 2-, and 3-unit receiver control boxes of Model ARA equipment may be used with AN/ARC-5 equipment.

1—22. The weight of the receiving equipment, less cables and mechanical linkages, is 23 pounds for a two-receiver remote-controlled installation, and 35 pounds for a three-receiver remote-controlled installation. Installation dimensions of all combinations and the weight of each component is shown in figure 8—57.

1—23. RADIO TRANSMITTERS. (See figure 1—2.) Up to four of the various transmitters supplied as part of the AN/ARC-5 equipment may be installed and operated one at a time by remote control from the transmitter control unit. The particular transmitters supplied or installed will depend upon service requirements. Modulator MD-7/ARC-5 and Dynamotor DY-8/ARC-5 (see figure 1—3) furnish the plate plus screen-grid modulating power and the high-voltage d-c power requirements for the transmitters.

1—24. The power output of each of the transmitters, under optimum antenna loading conditions, exceeds 40 watts cw and 15 watts voice carrier, for 28 volts input to the equipment. Considerably less power than this will be obtained when using short antennas whose capacitance may be as low as 50 uuf, and whose total resistance may be one ohm or less. Under these conditions, a reduction of as much as 10 to 1 in power may be expected. Antenna current into a 5-ohm, 100-uuf antenna is shown in table 6—5 for two frequencies on each transmitter, for each type of emission. Due to the use of plate plus screen-grid modulation in AN/ARC-5 equipment, the transmitters may be tuned for maximum output in the VOICE position of the control unit. This results in a slightly higher power output than in the corresponding transmitters of Model ATA equipment. Modulation distortion resulting from improper tuning of the antenna circuit has been considerably reduced in AN/ARC-5 compared with Model ATA equipment.

1—25. The LF-MF-HF transmitters include a master oscillator to excite a pair of beam-power amplifier tubes, type 1625, connected in parallel. The master oscillator and power amplifier tuning capacitors are ganged for control simplification. Continuously variable magnetic coupling between the power amplifier tank circuit and the antenna circuit is controlled by the ANT. COUPLING knob on the front panel. The antenna circuit is tuned by a continuously variable series inductor. The power amplifier tubes are plate plus screen-grid modulated by the audio voltage from Modulator MD-7/ARC-5. The modulation capability is 100 per cent.

1—26. The transmitter dials are calibrated in megacycles to a precision greater than 0.04 per cent. A quartz-crystal resonator is supplied with each transmitter for use with an electronic-ray tube, type 1629, to *check* the frequency — *it does not control the transmitter frequency.*

1—27. The type of emission is determined by the position of the TONE - CW - VOICE switch on Control Unit C-20/ARC-5. A four-position switch on the same control unit selects a pretuned transmitter. Four positions are provided so that as many as four transmitters may be controlled from the same control unit, if required.

1—28. A single antenna may be used for all transmitters providing that at the operating frequency it has an effective capacitance of not less than 50 micromicrofarads, or an inductance not greater than 4.5 microhenries, and a resistance of 13 ohms or less.

1—29. DESCRIPTION OF OTHER COMPONENTS. Physical descriptions and characteristics of the control units, modulator, dynamotors, junction boxes, jack boxes, and accessories are described in Section IV of this handbook.

1—30. INTERCHANGEABILITY OF AN/ARC-5 AND ATA COMPONENTS.

1—31. The dynamotor, antenna relay unit, and mountings of AN/ARC-5 are interchangeable with corresponding components of Model ATA equipment. Other components such as the transmitter, transmitter racks, modulator, and transmitter control unit are not interchangeable. Table 1—2 is a list of components usable with several types of aircraft radio equipment.

1—32. MANUFACTURERS AND CONTRACT NUMBERS.

1—33. A list of the manufacturers and applicable contract numbers under which Model AN/ARC-5 Aircraft Radio Equipment has been furnished is given in Section VII, paragraph 7—8.

TABLE 1—2. COMPONENTS USABLE WITH SEVERAL AIRCRAFT RADIO EQUIPMENTS

Name of Component	*Type Designation*	*Remarks*	*Name of Component*	*Type Designation*	*Remarks*
Control Unit	C-39/ARC-5	No microphone relay	Jack Box	J-22B/ARC-5	Replaces J-22A/ARC-5
Control Unit	C-48/ARC-5	With microphone relay	Mounting	MT-78/ARC-5	For J-16/ARC-5, J-22/ARC-5, J-22A/ARC-5, or J-22B/ARC-5
Control Unit	C-38/ARC-5	———			
Jack Box	J-16/ARC-5	No microphone relay			
Junction Box	J-17/ARC-5	———	Mounting	MT-80/ARC-5	For C-39/ARC-5 or C-48/ARC-5
Junction Box	J-17A/ARC-5	Replaces J-17/ARC-5	Mounting	MT-85/ARC-5	For J-17/ARC-5 or J-17A/ARC-5
Jack Box	J-22/ARC-5	No microphone relay			
Jack Box	J-22A/ARC-5	With microphone relay and volume control	Mounting	MT-98/ARC-5	For C-38/ARC-5 or C-43/ARC-5

SECTION II

INSTALLATION AND ADJUSTMENT

2—1. UNPACKING AND INSPECTING THE EQUIPMENT.

2—2. Model AN/ARC-5 Aircraft Radio Equipment is usually shipped in steel-strapped wooden crates, with the components packed in individual cartons. Export packaging will differ slightly from domestic packaging. Use care when unpacking the equipment to prevent possible damage. After unpacking the equipment, check the contents against the packing slip and the list of equipment supplied (table 1—1); then inspect the equipment as follows:

a. Check the mechanical operation of all controls and dials.

b. Check the condition of the threads and contacts of all connectors.

c. Check that 20-ampere fuses are installed in the modulator and 10-ampere fuses in the radio receiver racks.

d. Examine all electron tubes for visible damage. See that all tubes are inserted firmly in the proper socket. Tube type designations are marked near the applicable tube socket.

e. Check that all plate and grid clips are firmly attached.

2—3. PRE-INSTALLATION TESTS.

2—4. TEST EQUIPMENT REQUIRED. The test equipment required for pre-installation bench tests and for the maintenance procedures described in Section V of this handbook are listed in table 2—1.

2—5. INTER-COMPONENT CABLING FOR BENCH-TESTING. Figure 8—70 shows the required interconnections between components for bench-testing the AN/ARC-5, using Test Set 7918 and Test Set 9558.

TABLE 2—1. TEST EQUIPMENT REQUIRED FOR MAINTENANCE

Name	*Type Designation*	*Alternate*	*Application*
Electronic Multimeter	ME-6B/U	Ballantine Model 300	Voltage measurements, output meter
Headset	HS-33	Equivalent high-impedance headset	Audio testing
Multimeter	TS-297/U	Simpson Model 443 Weston Model 663	Voltage, current, and resistance measurements at 1000 ohms per volt
Multimeter	TS-352/U	Navy OE Weston Model 790 Simpson Model 260	Voltage, current, and resistance measurements at 20,000 ohms per volt
Resistor	300 ohms	—	Load
Signal Generator	TS-413/U	AN/URM-25 TS-497/VRR	Receiver alignment test procedures
Test Set	7918	—	Receiver tests
Test Set	9558	—	Transmitter tests
Tube Tester	Signal Corps I-177A	Hickok Model 540 Hickok Model 547	Electron tube testing

2—6. INSTALLATION.

2—7. GENERAL. The location and installation of the equipment will depend on the aircraft in which the equipment is to be installed. Installation dimensions and weights of all components are shown in figures 8—57 through 8—60. The illustrations comprising figure 8—55 show the interconnections between components. The installation notes appearing in conjunction with sheet 1 of figure 8—55 should be studied carefully.

2—8. INSTALLATION CONSIDERATIONS. Specific installation instructions will be found in the applicable Erection and Maintenance Handbook, but consider the following requirements during installation:

a. Install the required control units at the operator's position.

b. Install the transmitters in a location where necessary occasional transmitter changes and tuning will be feasible. Make certain that the reflection of the entire electron-ray tube screen may be seen in the mirror located on the underside of the hinged rear cover on each transmitter. This is essential in checking the transmitter frequency against the transmitter crystal.

c. The normal installation of transmitters requires one rack with as many stalls as transmitters (up to four). However, in special cases it is possible to break up the installation into two separate racks. If two one-unit or two two-unit racks are installed because of space limitations, it will be necessary to use Junction Box J-34/ARC-5 in the modulator line to the transmitter racks. When two racks are used, three modulator-to-transmitter rack cables are required instead of one. On the transmitter rack, check the position of the jumper on each selector plate (J-75, J-76) to see that each corresponds with the desired position on the transmitter control box switch S-52.

Note

The VHF transmitter, when installed, must always be No. 1 because of selector circuits in the VHF transmitter Control Unit C-30/ARC-5.

d. Install the receivers in a location which will permit receiver changes to be made, or for tuning to a new lock-tuned frequency.

e. Allow at least two-inch clearance on all sides of each component for sway and ventilation, and sufficient space in front of each to permit easy removal from the racks or mountings.

f. Allow sufficient cable slack to permit connector attachment without restricting shockmount travel. Do not make any sharp bends in any cable.

g. Install and group components so as to keep the length and weight of cabling and wiring to a minimum.

h. Do not run cables where they may be subjected to excessively high temperatures, such as may exist adjacent to heaters or exhausts.

i. Short antenna leads inside the fuselage are essential. This requires the use of the minimum, practical spacing between the antenna relay unit, the antenna binding posts on the receivers and transmitters, and the antenna lead-in insulator. Bare wire supported on ceramic insulators, where necessary, should be used for all antenna connections. These installation precautions are necessary to minimize voltage breakdown, to reduce r-f losses, and to keep to a low value the capacitance to ground of the antenna wiring inside the fuselage.

j. When attaching connectors, feel for the proper orientation before exerting any considerable pressure on them. Use only a hand-tight force on the locking rings.

k. Safety-wire the snapslides which hold the tube cover on the modulator and the power amplifier tube cover on the transmitters to prevent accidental contact with the high-voltage plate leads of the Type 1625 tubes.

Do not safety-wire the hinged cover on the transmitter, for this must be raised to view the crystal resonance indicator. Do not safety-wire the snapslides on the receiver tube cover.

l. To accomplish proper grounding of the transmitters, connect a *short* flexible lead from the aircraft frame to each of the ground binding posts on the rack. The knurled nuts which clamp the transmitters in the racks must be hand-tightened and safety-wired. This retains the components in place and at the same time provides a short electrical connection between chassis and racks. Reduced antenna current from the transmitters will result if these precautions are not observed.

m. Check that all electron tubes of the proper type are in place before turning on the power. Table 6–1 lists the number and type of tubes required.

2–9. NOISE CHECK AFTER INSTALLATION. The reduction of spurious r-f or other noise which may be due to an imperfectly shielded ignition system, generator system, motors, or other electrical equipment must be reduced to a reasonable level for successful operation of the equipment. An approximate test of the effect of such noise sources may be made as follows:

a. Turn on all receivers and adjust the sensitivity controls for maximum output.

b. Note the background noise level; then start the airplane engine.

c. Run the engine on both magnetos past the speed at which the electric generator cuts in. Note the increase in noise level, if any, during this step.

d. Start each motor or other electrical device in the airplane in turn, to check its noise contribution.

2–10. ADJUSTMENTS.

2–11. ANTENNA CIRCUIT TRIMMING OF THE RECEIVERS. After installation, as a final adjustment, the antenna circuit should be trimmed for maximum sensitivity. This adjustment should be made near the high-frequency end of the band where it is most critical. Proper adjustment will prevent considerable loss of available receiver sensitivity. Proceed as follows:

a. Set the receiver ANT.-LOOP switch S-1 to the ANT. position.

b. Tune the receiver to a point at the high-frequency end of the tuning range where only background noise – no signal – is present.

c. Adjust the ALIGN INPUT control on the front of the receiver for maximum noise.

Note

In order for this adjustment to be suitable over the entire tuning range for both ANT. and LOOP positions, the loop antenna inductance should not be greater than 400 microhenries or its capacitance greater than 300 micromicrofarads. If greater values of inductance or capacitance are present, it will be necessary to realign the input circuit after switching from the ANT. to LOOP position for optimum results.

2–12. TRANSMITTER TUNING. There are three controls on the front of each transmitter which require adjustment during transmitter tuning. These are:

FREQUENCY – located in the lower right corner; used for frequency control.

ANT. INDUCTANCE – located in the upper right section; used for adjusting the antenna tuning inductance.

ANT. COUPLING – located in the middle left section; used for antenna coupling adjustment.

To tune a transmitter, proceed as follows:

a. Interconnect the receivers and transmitters, as shown on the applicable sheet of figure 8–55.

b. Set the FREQUENCY control dial to the desired transmitting frequency.

c. Set the ANT. COUPLING control to about 2 on its scale.

d. Throw the toggle switch on the antenna relay unit to LOCAL.

e. Set the transmitter control unit emission switch to VOICE. (For maximum power output on CW, but less on VOICE, set this switch to CW and proceed.)

f. The transmitter control unit selector switch S-52 may be in any position when the test key S-55 or S-56 on the transmitter rack is used for test purposes.

g. After making sure that neither the microphone button nor the key is closed, set the TRANS. POWER switch to ON. (In some installations this switch may be safety-wired permanently in the ON position.)

h. Allow 15 seconds for the electron tubes to heat up.

i. Press the test key on the rack directly below the transmitter being tested.

j. Resonate the antenna circuit by adjusting the ANT. INDUCTANCE for maximum antenna current. (Maximum series inductance is in the circuit when the contact button behind the transparent window is in the extreme right-hand position.) This adjustment should be made with the ANT. COUPLING at a lower setting than that which gives highest antenna current.

k. Vary the ANT. COUPLING until maximum current is indicated on the meter of the antenna relay unit.

l. Observe the antenna current on CW and TONE. Antenna current readings will vary widely with the antenna and the choice of frequency. For a short built-on fore and aft antenna the reading on CW will probably be greater than half-scale, on VOICE it will be considerably less than for CW, and for TONE it will be between the values for CW and VOICE.

m. Lock the three controls of each transmitter by rotating the LOCK knobs one-half turn clockwise to a stop, in which position the engraving LOCK on the knob will read right side up.

n. Leave the toggle switch on the antenna relay unit on LOCAL. The REMOTE position is provided for a remote indication of antenna current in the pilot's or radio operator's cockpit. A remote indicating meter is not normally supplied as part of this equipment.

o. Mark the frequency to which each transmitter has been tuned, in soft pencil, in the appropriate blank space on the plate above the TRANSMITTER SELECTION switch. Record the transmitter tuning data accurately on the write-in plate on the front of each transmitter. These data apply only to that transmitter on that particular airplane.

2—13. TRANSMITTER CALIBRATION.

2—14. CALIBRATION ACCURACY. The master-oscillator circuits of each transmitter are aligned at the factory so that at no point on the dial is the frequency error greater than 0.03 per cent (300 cycles per megacycle). In addition, the process of factory alignment results in zero error exactly at the high-frequency end of the band. Consequently, if retrimming becomes necessary, it is important, if the original accuracy is to be restored, to retrim with reference to an accurately known frequency standard exactly at the high end of the band. Retrimming instructions are given in paragraph 2—15. In general, if the calibration has not been upset by a tube change or by damage to the equipment, the calibrated dial may be relied upon to give sufficient accuracy of transmission frequency for all practical purposes.

2—15. RETRIMMING DIAL CALIBRATION. The slide cover over the master-oscillator trimmer capacitor is normally safety-wired shut to prevent disturbance of the factory adjustment. However, if the Type 1625 or 1626 tube is replaced, readjustment of the trimmer may be necessary. Readjustment should always be made with reference to an accurately known crystal standard. This standard preferably should be a crystal plugged into the transmitter, and the resonant frequency of this crystal should correspond exactly to the highest frequency line on the dial. To retrim the dial calibration, proceed as follows:

a. Plug in a crystal equal in frequency to that of the highest dial line.

b. Set the dial exactly to the highest frequency line.

c. Remove the safety wire from the slide cover over the master-oscillator trimmer capacitor on top of the transmitter.

d. Open the hinged rear cover on the top of the transmitter, in order to observe the Type 1629 resonance indicator tube.

e. Press the test key, or otherwise turn on the transmitter, and adjust the trimmer with a screwdriver to obtain the maximum triangular shadow area on the Type 1629 fluorescent screen. Clockwise rotation of the trimmer results in an increase in capacitance and a lowering in oscillator frequency. If more than one shadow indication can be obtained, set to the lowest frequency (and largest) shadow.

f. As a final check, to make sure the proper crystal resonance has been chosen, rotate the main dial slowly toward lower frequencies, watching the Type 1629 for resonance indications. Four or five small dial divisions is far enough to go. No indication should be observed. If one should be found, return the dial exactly to the highest frequency line, and rotate the trimmer clockwise until the same indication is again obtained.

Note

If a crystal for the high-frequency end of the band is not available, any crystal within the range of the transmitter may be used. The resulting calibration accuracy, however, will not be as good as when a high-end crystal is installed. If it is necessary to retrim by this means, set the dial to read as accurately as possible the crystal frequency and perform the trimming procedure outlined.

2—16. SETTING TRANSMITTER TO FREQUENCY OF TRANSMITTER CRYSTAL. Circuits are provided in each transmitter which make it possible to set the transmitter exactly to the resonant frequency of a plug-in crystal, which may be supplied ground to a tactical frequency. If such operation is desired, plug the proper crystal into the crystal socket, and using the main frequency control knob only, adjust the transmitter frequency to obtain a large triangular dark area on the fluorescent screen of the Type 1629 resonance indicator tube.

2—17. The crystal resonance is extremely sharp, so that an almost imperceptible movement of the dial is sufficient to pass completely through the shadow indicator. Crystals sometimes have one or more smaller incorrect resonances in addition to the main resonance. These false resonances, if they exist, are always at higher frequencies than the correct one, and are always smaller. Therefore, be sure that no other resonant indications occur when the main dial is turned slowly a few small divisions toward lower frequencies.

2—18. When the transmitter setting has been made correctly, the calibrated frequency dial should read very closely the same as the crystal frequency; however, it may not read exactly the same because (1) the dial may have an an error up to 0.03 per cent, as noted previously; and (2) the crystal may be in error by as much as 0.02 per cent. Hence, at crystal resonance, the dial may appear to be incorrect by as much as the sum of the two error possibilities, or 0.05 per cent (500 cycles per megacycle). For example: If the crystal nominal frequency is 8.010 mc, the crystal may be in error by 8 x 200 or 1600 cycles, and the dial may be in error by 8 x 300 or 2400 cycles, with the result that the dial may appear to read wrong by 4000 cycles. At the crystal resonance point then, the dial may read anywhere between 8.006 and 8.014 mc. Apparent dial errors of this magnitude are not an indication that the transmitter needs retrimming.

2—19. TRANSMITTER TUNING DATA. A tuning plate will be found in the upper right front corner of each transmitter on which tuning data entries for five separate frequencies may be made. These five frequencies may be operating frequencies, they may be five frequencies spaced approximately equally throughout the operating band of the transmitter, or they may be a com-

bination of these. If the probable operating frequencies of a transmitter band are known, the transmitter should be tuned for maximum power output in the VOICE position for each frequency, and the data recorded for subsequent use. If these frequencies are not known, record the data for five equally spaced frequencies in the band. At any subsequent time any frequency may be set up, and optimum operation expected by interpolation from the recorded data. The transmitter frequency dial is direct-calibrated. To adjust a transmitter to a specified frequency without actual transmission, proceed as follows:

a. Set the transmitter FREQUENCY dial to the specified frequency and lock the control with the LOCK knob to the right.

b. Set the ANT. COUPLING control to a value shown in the tuning data for the nearest frequency and lock the control with the LOCK knob below it.

c. Set the ANT. INDUCTANCE control to a setting determined by interpolation from the tuning data and lock the control with the LOCK knob below it.

SECTION III

OPERATION

3–1. OPERATING CONTROLS.

3–2. Controls provided for operation of the AN/ARC-5 equipment are located on the control units, jack boxes, and antenna relay unit. Figures 3–1 through 3–10 are illustrations of these components identifying the controls by panel designation. It should be noted that different panel designations are used for identical functions.

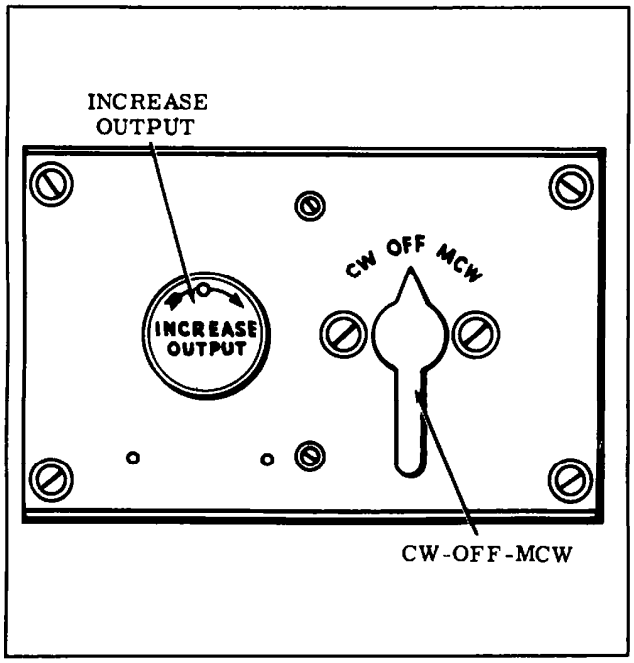


Figure 3–1. Control Unit C-24/ARC-5, Operating Controls

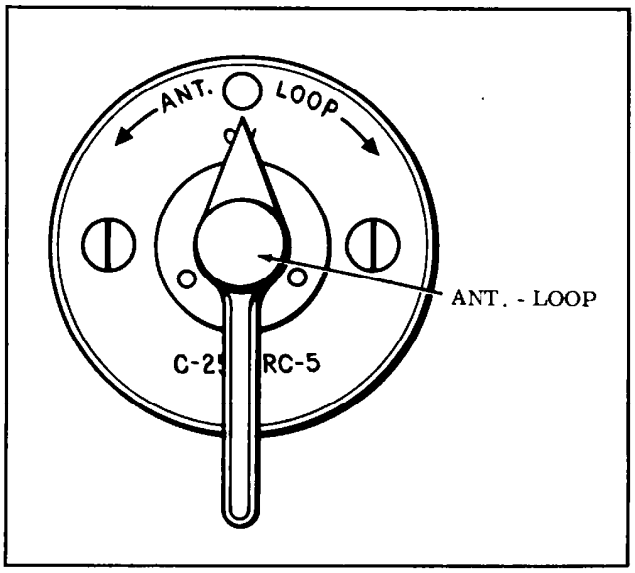


Figure 3–2. Control Unit C-25/ARC-5, Operating Controls

3–3. REMOTE CONTROL OPERATION OF RECEIVERS.

3–4. Any of the receivers may be operated from a remote position on voice or cw by use of Control Unit C-26/ARC-5 (see figure 3–3). This component contains a CW-VOICE selector switch, a wide-range SENSITIVITY control, and a tuning control which for identification will be referred to as the TUNING CRANK. All of these controls are located on the front panel. The C-26/ARC-5 is wired so that primary power is furnished to the

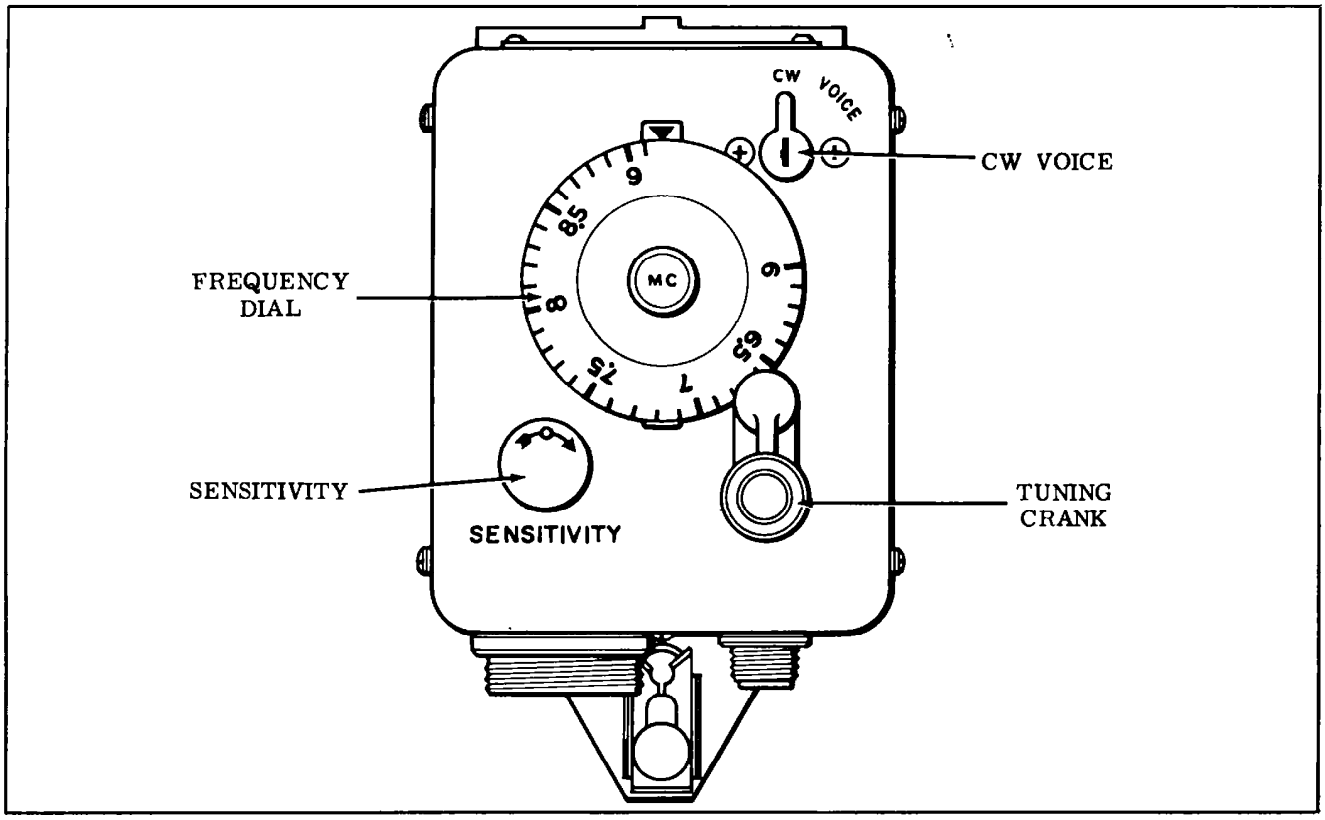


Figure 3—3. Control Unit C-26/ARC-5, Operating Controls

receiver when the aircraft's battery switch is on. To operate a receiver using Control Unit C-26/ARC-5, proceed as follows:

a. Depending on the type of reception desired, set the CW-VOICE switch to CW for reception of continuous-wave keyed signals, or to VOICE for reception of voice or tone-modulated signals.

b. Rotate the TUNING CRANK and tune to the desired frequency as indicated by the tuning dial.

c. Adjust the SENSITIVITY control to the desired signal output.

d. Trim the receiver tuning for best signal.

Note

When using the navigation receivers for reception of radio range, homing, or direction finder signals, keep the SENSITIVITY control at a setting corresponding to the weakest usable signal. If the sensitivity is not reduced manually to a low value when receiving these types of signals, the course indications will usually be broad due to the avc action. When using the communication receivers, keep the manual sensitivity control at a setting corresponding to the maximum tolerable noise level. The built-in avc will automatically adjust the sensitivity of the receiver to weak or strong signals over a wide range, producing about the same audio output in the headset.

3—5. LOCK-TUNED OPERATION OF RECEIVERS.

3—6. Control Unit C-27/ARC-5 may be used for lock-tuned remote operation on voice of any of the communication receivers. This component contains a REC IN-OUT toggle switch and a limited range sensitivity control labeled SET FOR MAX. TOLERABLE NOISE (see figure 3—4). The use of the C-27/ARC-5 presupposes accurate tuning of the communication receivers on the ground with the aid of Crystal Frequency Generator O-4/ARC-5 as described in paragraph 3—8. When using Control Unit C-27/ARC-5, adjust the SET FOR MAX. TOLERABLE NOISE control, with all other receivers out, for maximum tolerable use. This setting will depend upon the amount of static and outside r-f interference, and upon the r-f noise level within the airplane itself. Readjustment will be required only if conditions change during flight. The proper adjustment of this control will insure maximum use of the available sensitivity of the receiver.

3—7. OPERATION OF CRYSTAL GENERATOR O-4/ARC-5.

3—8. The purpose of Crystal Frequency Generator O-4/ARC-5 (see figure 8—19) is to provide modulated radio signals of accurate frequency by means of which the R-25/ARC-5, R-26/ARC-5, and R-27/ARC-5 radio receivers may be accurately adjusted for lock-tuned operation. Proceed as follows:

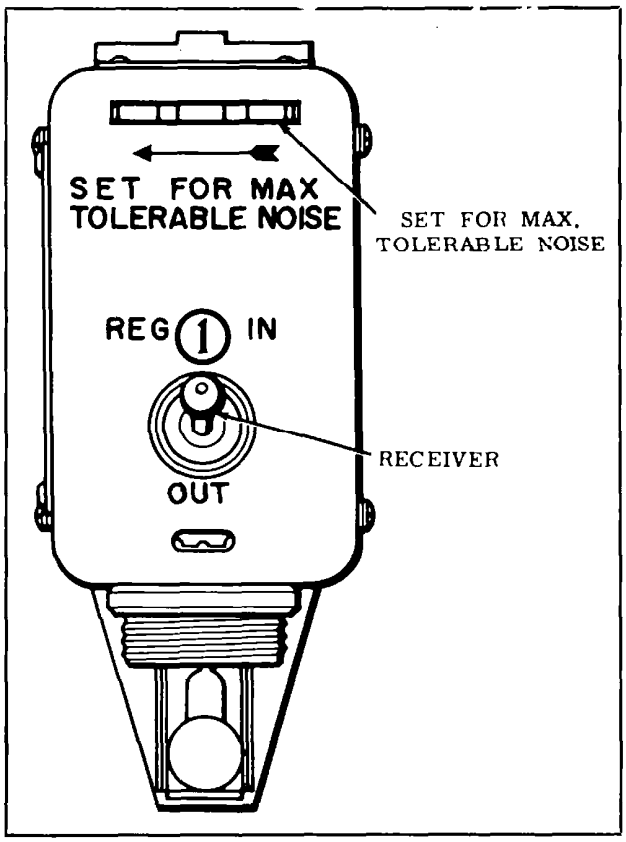


Figure 3–4. Control Unit C-27/ARC-5, Operating Controls

a. Insert a crystal of the required frequency for each of the receivers being lock-tuned. Any crystal, such as type ARC-7785, in the frequency range of 1-10 megacycles may be used. (No crystal tuning is required.)

b. Connect the plug of the battery cable (9396) to the two-contact receptacle connector. Connect the white lead at the other end to +24 volts and the black lead to ground. (No other power source is required.)

c. Switch on the receiver being tuned and adjust the C-27/ARC-5 SET TO MAX. TOLERABLE NOISE control for maximum.

d. Turn the selector switch on the crystal frequency generator to the desired crystal.

e. Tune the receiver to the desired frequency by reference first to the dial reading and then by trimming the tuning for maximum signal from the crystal frequency generator. Adjust the coupling control on the stub antenna of the crystal frequency generator for a weak signal. The spline end of tuning key No. 9554 should be used for tuning of the receiver. The cap end of this unit should be used to cover the tuning outlet after the tuning is completed.

CAUTION

Do not leave a local tuning knob or a mechanical linkage connected to this outlet because of the possibility of tuning creepage.

f. If a second receiver is to be lock-tuned, switch to the second crystal and repeat the above operations for the second receiver.

g. A write-in plate is provided on the lower right side of the R-25/ARC-5, R-26/ARC-5, and R-27/ARC-5 radio receivers which may be used to record the date and frequency of the lock-tuned check.

h. If lock-tuned receiver control units such as Control Unit C-27/ARC-5 are used, the final operation should be to mark in the frequency on the write-in plate, and to set the channel indicator on the front of this box. A pencil point applied to the ratchet on this box can be used to rotate the indicator dial to a letter corresponding to the channel.

i. The four-contact receptacle connector on the front of Crystal Frequency Generator O-4/ARC-5 is used for connection to a remote control of the crystal selector switch. The remote control unit and cable thereto are not normally supplied as part of Crystal Frequency Generator O-4/ARC-5.

3–9. OPERATION OF THE TRANSMITTERS.

WARNING

OPERATION OF THIS EQUIPMENT INVOLVES THE USE OF HIGH VOLTAGES WHICH ARE DANGEROUS TO LIFE. OBSERVE ALL SAFETY REGULATIONS.

3–10. Accessories are provided with AN/ARC-5 equipment to permit the operation of up to four transmitters. Each transmitter is preset on one frequency. Transmission is possible on any of the four frequencies by setting the TRANSMITTER SELECTION switch on Control Unit C-29/ARC-5 to the proper position. The type of emission desired is selected by means of the TONE-CW-VOICE switch. Power to the transmitters is controlled by the TRANS. POWER toggle switch. All controls necessary for transmitter operation, except the microphone or throttle switch, or the key, are located on Control Unit C-29/ARC-5. To operate the transmitters, proceed as follows:

a. Set the TRANSMITTER SELECTION switch to the desired preset transmitting frequency indicated on the write-in plate on Control Unit C-29/ARC-5.

b. Set the TONE-CW-VOICE switch to the required position.

c. Set the TRANS. POWER switch to ON and allow the equipment to warm up for at least 15 seconds. This switch should be left on throughout the flight to avoid repeating the warm-up period.

Note

In some installations this switch may be safety-wired in the ON position eliminating the need for step c.; power is applied when the airplane's master radio switch is turned on.

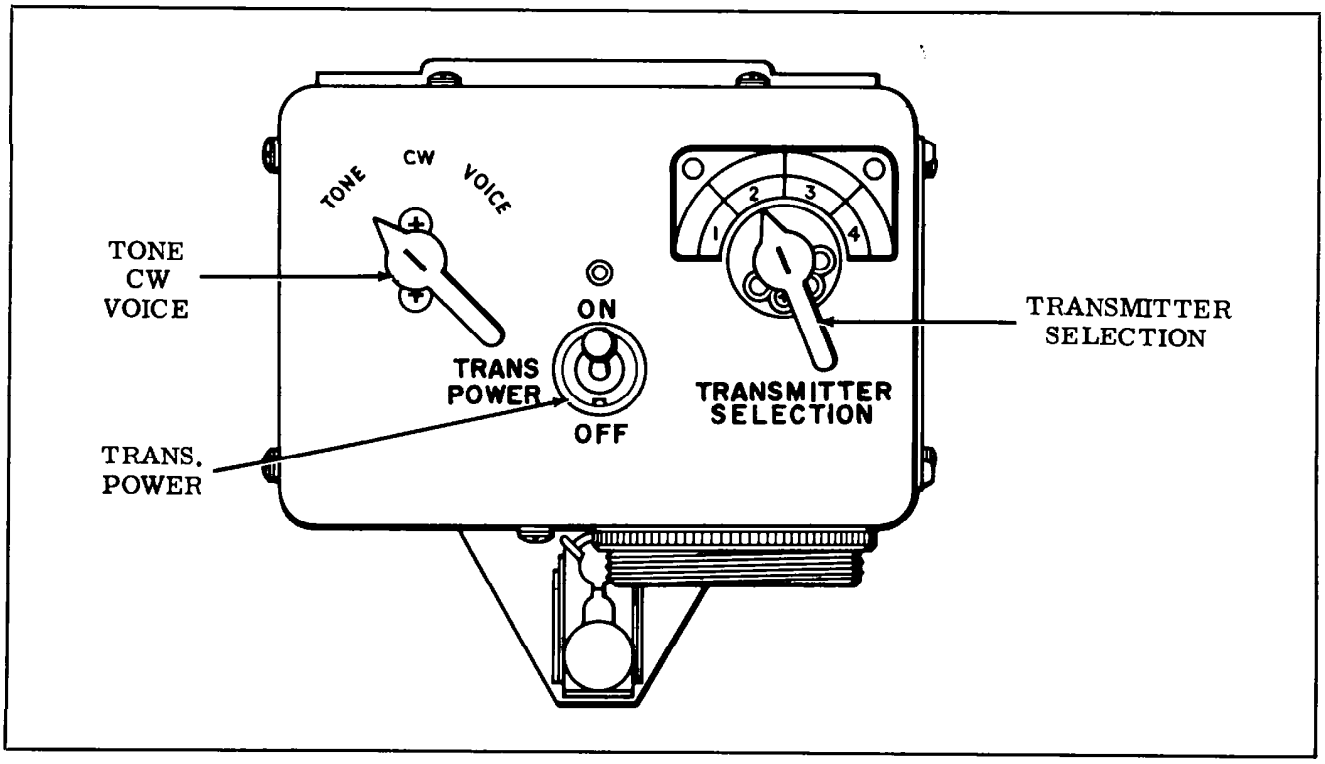


Figure 3—5. Control Unit C-29/ARC-5, Operating Controls

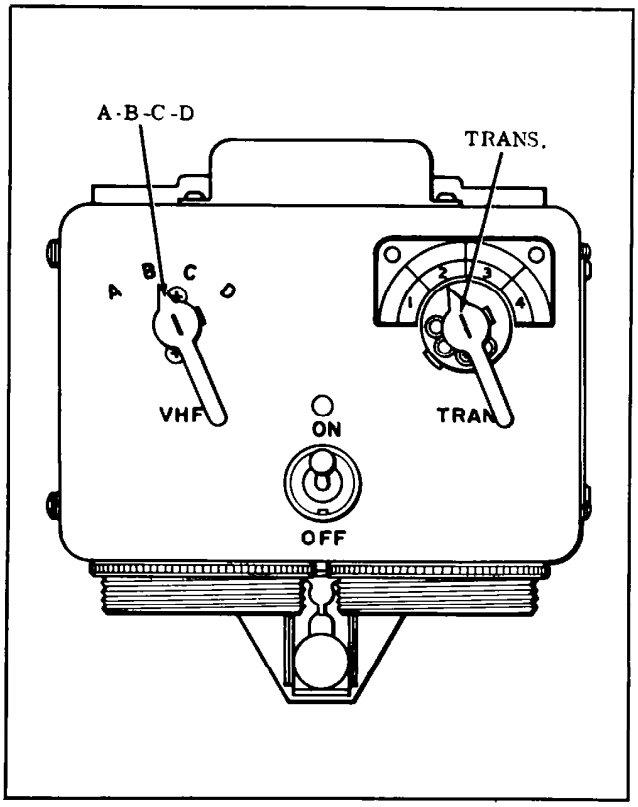


Figure 3—6. Control Unit C-30A/ARC-5, Operating Controls

d. If the TONE-CW-VOICE switch is on VOICE, press the press-to-talk button on the microphone, and talk clearly and distinctly into the microphone. In the VOICE position, the transmitter dynamotor will not start until the press-to-talk button is depressed. Sidetone should be heard distinctly whenever transmitting.

Note

When transmitting voice with a microphone which does not have a keying switch, such as a mask microphone, the equipment must be switched between RECEIVE and TRANSMIT by means of the throttle switch.

e. To transmit tone or cw signals, set the TONE-CW-VOICE switch to either TONE or CW. The transmitter dynamotor will start and continue to run as long as this switch is in either of these positions, but the transmitter will not be on the air until the key is pressed. A sidetone of approximately 1000 cycles should be heard while transmitting on either TONE or CW position.

Note

Unless continued use on TONE or CW is expected, keep the TONE-CW-VOICE switch in the VOICE position to reduce battery drain and prolong dynamotor life.

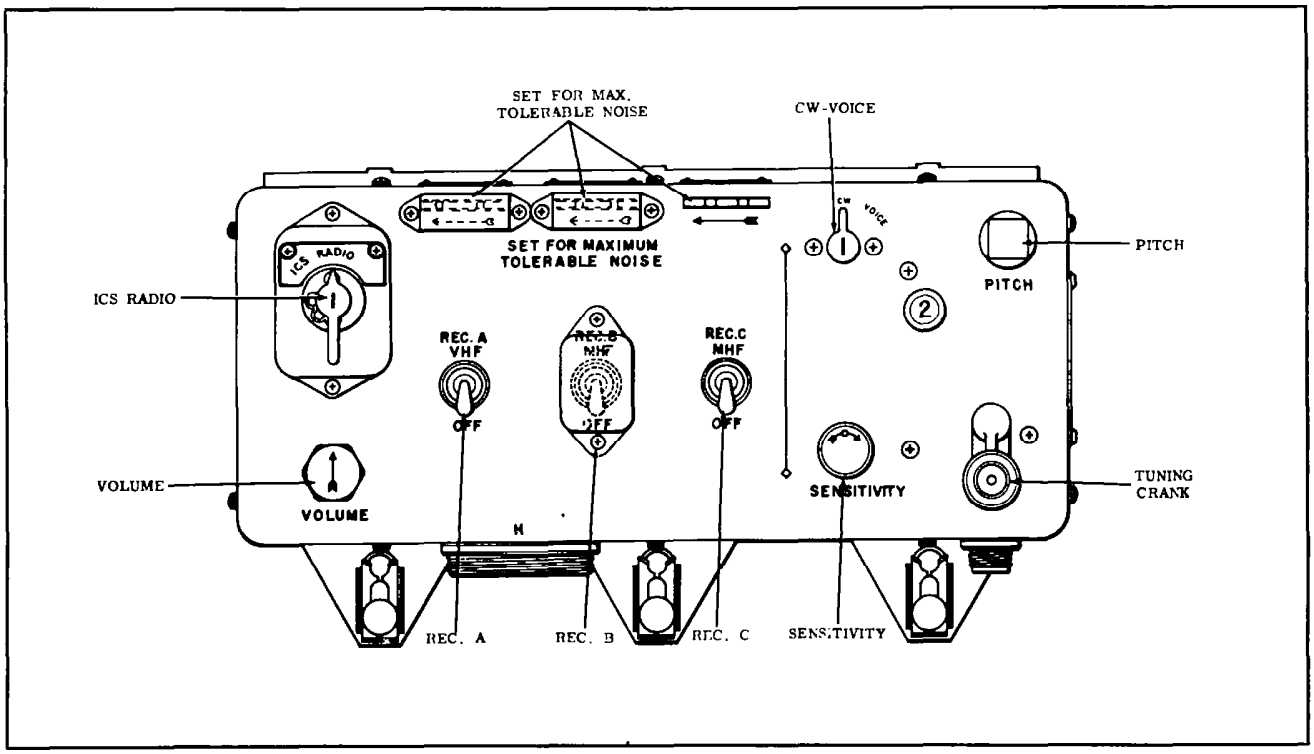


Figure 3–7. Control Unit C-38/ARC-5, Operating Controls

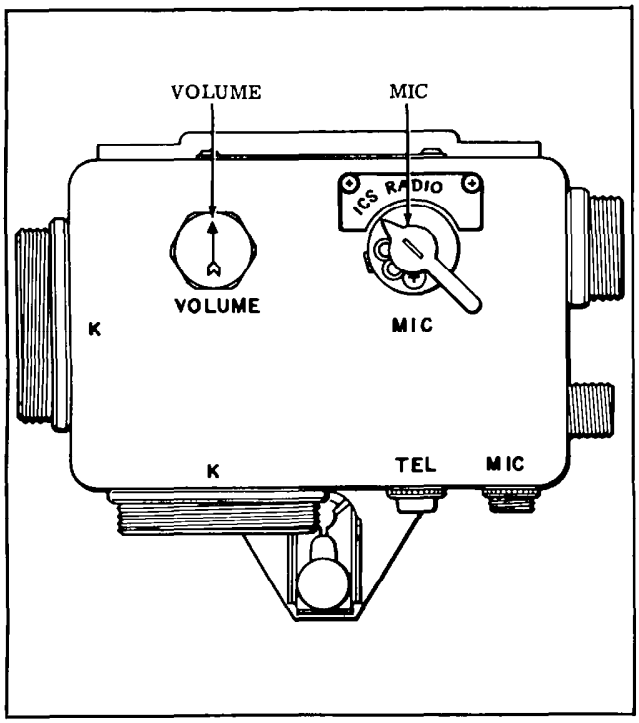


Figure 3–8. Control Units C-39/ARC-5 and C-48/ARC-5, Operating Controls

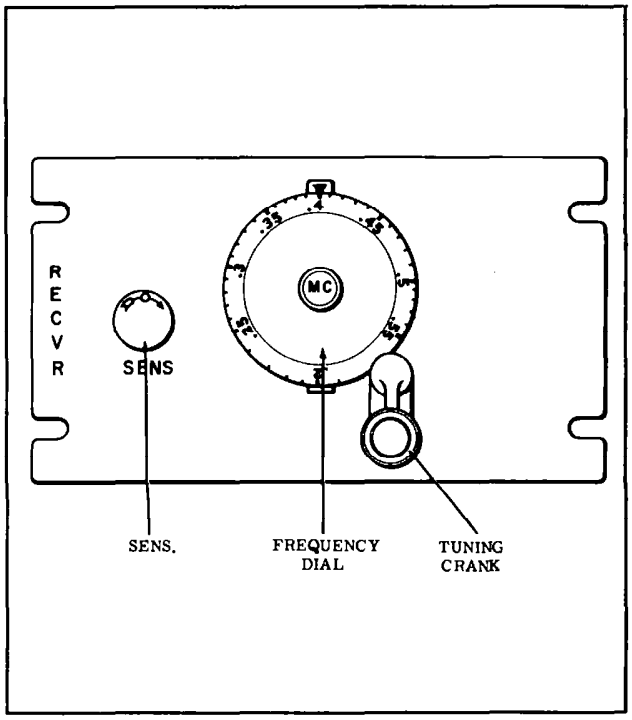


Figure 3–9. Control Panel C-125/ARC-5, Operating Controls

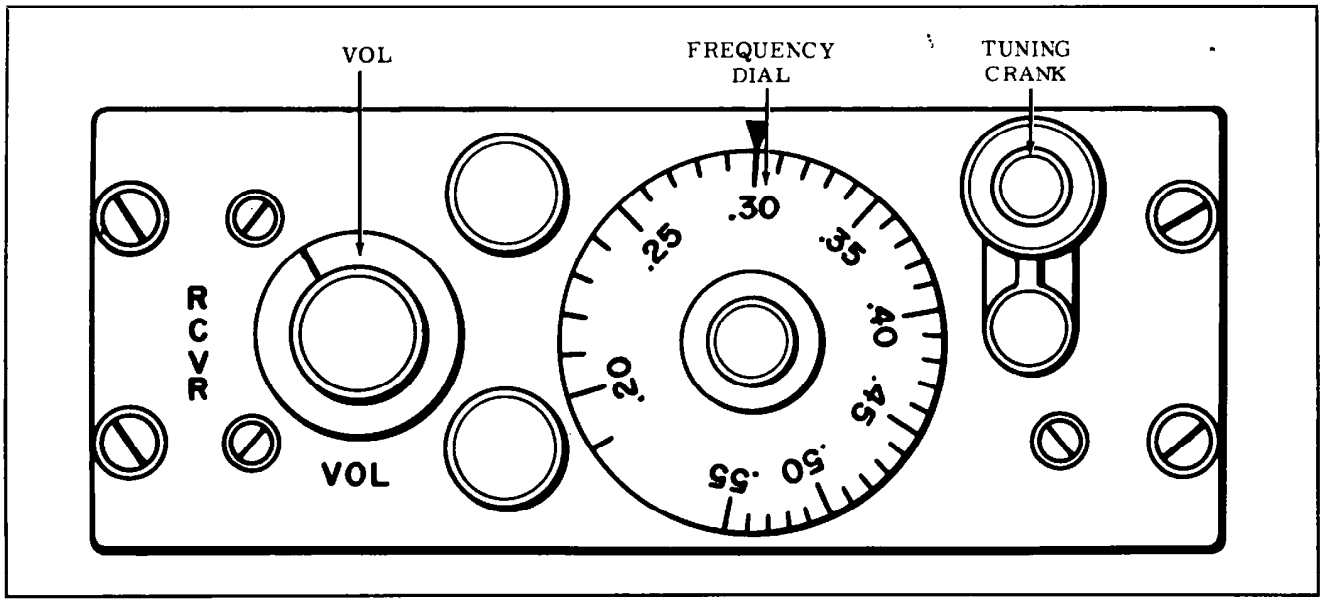


Figure 3—10. Radio Set Control C-744/ARC-5, Operating Controls

3—11. LIMITING CONDITIONS OF OPERATION.

3—12. INPUT VOLTAGE LIMITS. Equipment designed for 28-volt operation should not be operated when the primary source voltage is outside the limits of 22-30 volts. Lower voltages will result in improper functioning of the circuit components such as improper modulation of the transmitters, failure of relays, or even failure of the master oscillator. Higher voltages may cause damage to the electron tubes or dynamotors, or may cause r-f voltage breakdowns.

3—13. LIMIT OF CURRENT DRAIN FOR POWER ADAPTER MX-20/ARC-5. The maximum current drain from Power Adapter MX-20/ARC-5 must not exceed 0.5 ampere from the low-voltage terminal and 15 milliamperes from the high-voltage terminal. Any deviation from these limits will cause the dynamotor and r-f choke coil to overheat.

3—14. DYNAMOTOR DY-8/ARC-5 LIMITS. Dynamotor DY-8/ARC-5 has a continuous-duty rating and two intermittent duty ratings as listed in table 6—8. No operating requirement should be placed on the transmitting equipment which exceeds these ratings There is no time limit for cw operation as long as normally keyed messages are being transmitted. In the TONE or VOICE positions of Control Unit C-29/ARC-5 the high-voltage dynamotor current is ordinarily low enough to be drawn continuously for periods up to one-half hour without damage to the equipment.

3—15. OPERATING PRECAUTIONS.

3—16. KEYING THE TRANSMITTER ON VOICE. Do not key the transmitter when the controls are positioned for voice transmission, since in the VOICE position the dynamotor is started and stopped as the key is closed and opened. The heavy starting current will reduce the life of the dynamotor and the starting relay. In the CW and TONE positions the dynamotor is operating constantly and the effect of closing the key is to operate delays designed for keying.

3—17. SWITCHING TRANSMITTERS WHILE TRANSMITTING. Do not switch to transmitter No. 2 while transmitting on No. 1, or vice versa, due to the possibility of an arc being formed across the contacts of the output relay K-54.

3—18. OVER-TUNING THE TRANSMITTERS. The transmitters are calibrated directly on the tuning dials with considerable precision. Be careful not to tune beyond the normal-end frequencies in such a manner as to strain the gears or capacitors. End-stops are provided, but if an unreasonable amount of force is applied, damage can result.

3—19. INTERFERING SIGNALS. When a receiver is operating on cw at a frequency equal to that of the r-f oscillator, cw oscillator, or crystal oscillator of an adjacent receiver, a steady cw signal may be heard. Interference due to a cw oscillator or crystal oscillator may be eliminated by detuning slightly the operating receiver. If the interference is from an r-f oscillator, it may be eliminated by detuning slightly the offending receiver. The cw oscillator operates at the fixed frequency of the intermediate frequency for that receiver, and the crystal oscillator operates at a fixed frequency; hence, interference caused by either of these cannot be eliminated by detuning any receiver except the one in which the

interference is heard. Table 3–1 lists the frequencies of the r-f oscillator and the cw oscillator for each of the LF-MF-HF receivers. It should be noted that since the crystal oscillators of the VHF receivers may also cause interference in HF receivers, the choice of operating frequencies in the HF and VHF bands should be made carefully. The frequency of the HF receiver should be 25 kc from the VHF crystal frequency.

TABLE 3–1. RADIO RECEIVER R-F OSCILLATOR AND CW OSCILLATOR FREQUENCIES

Receiver	*Frequency of R-F Oscillator (mc)*	*Frequency of CW Oscillator (mc)*
R-23/ARC-5	0.275 – 0.635	0.085
R-23A/ARC-5	0.275 – 0.635	0.085
R-148/ARC-5X	0.275 – 0.635	0.085
R-24/ARC-5	0.759 – 7.739	0.239
R-25/ARC-5	2.205 – 8.705	0.705
R-26/ARC-5	4.415 – 7.415	1.415
R-27/ARC-5	8.830 – 11.930	2.830

3–20. ADJUSTMENT PRECAUTIONS.

3–21. SPURIOUS CRYSTAL RESPONSES. When checking the transmitter frequency by use of the quartz crystal, make certain that the lowest frequency to which the crystal will respond is being resonated. A spurious resonance will be found usually, but it will be higher in frequency than the nominal frequency of the crystal.

3–22. ADJUSTMENT OF ANTENNA COIL INDUCTANCE. Do not tune the transmitter ANT. INDUCTANCE control (with transmitter power on) so close to either end of L-52 that there is danger of the contactor slipping off the coil and causing an arc.

3–23. REDUCTION OF TRANSMITTER POWER OUTPUT. The power output of a transmitter may be reduced by reducing the antenna coupling with the ANT. COUPLING control.

CAUTION

Do not use this method to reduce power in Model ATA equipment. The modulation quality in Model ATA will be seriously affected by reduced coupling. The only way power may be reduced safely in the VOICE position in Model ATA is to *increase* the antenna coupling.

3–24. ADJUSTMENT OF CONTROL UNIT C-27/ARC-5 SENSITIVITY CONTROL. The manual r-f sensitivity control of the Control Unit C-27/ARC-5 will appear to be not operating if tested on a very strong signal. This is due to the avc having reduced the sensitivity to a point below the range of the manual control. This control should always be tested on "no signal" and kept at maximum at all times except when static or local interferences cause an intolerable noise.

3–25. TRANSMITTER TUNING CAUTION. Do not tune transmitters in airplanes whose wings are folded, or which are in hangars. Optimum tuning is markedly affected by either of these conditions. If the tuning is accomplished on the ground or flight deck, with wings extended, no retrimming will be necessary in flight. The presence of near-by aircraft has no adverse effect.

3–26. ADJUSTING RADIO TRANSMITTER ANTENNA CIRCUIT. Corrosion may increase the contact resistance between the contactor button and the antenna coil. If a radio transmitter fails to tune smoothly, switch off all power, remove the window in front of the antenna coil, and rotate the contactor button while pressing it onto the coil. This will clean the contact. A very light finger application of clock oil applied to the contacting surfaces will assist in maintaining a good low-resistance contact.

3–27. EMERGENCY OPERATION.

3–28. Table 3–2 is a suggested list of procedures for emergency operation of the equipment in case of circuit failure during flight. It is assumed that the indicated parts or components are defective, and that no replacements are available. Since some of the procedures require access to the interiors of the components, they may not be practicable in flight.

TABLE 3–2. EMERGENCY OPERATION

Trouble	*Emergency Remedy*
RECEIVING EQUIPMENT	
ELECTRON TUBE FAILURE	Replace with corresponding tube type from component not in use or required least.
FUSE BLOWN	Remove defective fuse. Replace with spare located under fuse cover.
DYNAMOTOR FAILURE	Replace with dynamotor from unused or least necessary receiver.
CIRCUIT BREAKER OPEN	Push in buttons on Junction Box J-17/ARC-5.
AF CHOKE L-15 SHORT-CIRCUITED	Connect a wire across the terminals of L-15 and try to receive through the residual hum.

TABLE 3–2. EMERGENCY OPERATION (Cont)

Trouble	*Emergency Remedy*
	RECEIVING EQUIPMENT (Cont)
SHORT-CIRCUITED BYPASS CAPACITOR	Disconnect and try to receive without the capacitor.
DEFECTIVE INPUT STAGE	Wrap insulated wire around grid lead (top cap) of mixer tube (no direct metallic connection) and connect wire to antenna. Sensitivity may be down by as much as 200 to 1, but reception may still be possible, particularly on cw.
BATTERY WEAK	To conserve battery, turn off all receivers except the one being used, if individual power switches are provided and if not, remove undesired receivers from rack.
	TRANSMITTING EQUIPMENT
ELECTRON TUBE FAILURE	Any or all tubes in the modulator unit may fail and the equipment may still be operated on cw. If the master-oscillator tube becomes defective, it may be replaced by one from the second transmitter, or if absolutely necessary, by the tone-oscillator tube. The calibration will be affected, but may be readjusted by operation of the trimmer C-60. If one of the r-f power amplifier tubes is defective, it may be replaced by the modulator tube and the equipment operated by key on cw.
CIRCUIT BREAKER OPEN	Push in buttons on Junction Box J-17/ARC-5.
DEFECTIVE DYNAMOTOR	If reduced voltage and excessive ripple noise are present, operate the equipment by key in the CW or TONE position, though the power level is reduced. Under these conditions it is possible that the dynamotor will fail completely.
SHORT-CIRCUITED BYPASS CAPACITOR	Disconnect and attempt operation without the capacitor.
DEFECTIVE ANTENNA RELAY UNIT	Connect transmitting antenna directly to transmitter and retune antenna circuit of transmitter. Transfer antenna to receiver manually if a second antenna is not available for connection to the receiver.
FUSE BLOWN	Remove defective fuse. Replace with spare; two will be found under the spare-fuse cover.
FUSIBLE RESISTOR BLOWN	Fusible resistor R-76, located between the top of the power amplifier coil and choke coil in each transmitter, will blow if the plates of the power amplifier tubes are grounded accidentally. If blown, attempt to localize and remove cause of failure, and replace. In an emergency, short-circuit the resistor, or replace it with a carbon resistor of not over 50 ohms.
WEAK BATTERY	To conserve battery: If operating on cw, disconnect power and remove modulator tubes. **WARNING** HIGH VOLTAGE If only one transmitter is necessary, remove the second from the rack. To stop dynamotor when not transmitting, keep the TONE-CW-VOICE switch S-50 in VOICE position. If use of warm-up periods is practicable, set primary power ON-OFF switch S-51 to OFF after each transmission.
ANTENNA CURRENT METER DEFECTIVE	A small neon lamp, similar to V-1 or V-2 in the receiver, may be held an inch or two from the antenna. Its brilliance is an excellent indication of resonance.

SECTION IV

THEORY OF OPERATION

4—1. INTRODUCTION.

4—2. This section describes the mechanical and electrical characteristics of the LF-MF-HF components of Model AN/ARC-5 Aircraft Radio Equipment. Except for Control Unit C-30A/ARC-5 which is described in paragraph 4—79 of this book, information concerning the VHF components will be found in AN 08-10-195. Reference is made in this section to the component schematic diagrams of Section VIII. These will be found helpful in further study of the circuitry involved. Component information is grouped as follows: All radio receivers, associated dynamotors, and accessory adapters used with them are described first. Following this, the radio transmitters, the modulator and dynamotor, the antenna loading coil, and the antenna relay unit are described. Then, all the control units and frequency indicating dials used with them are discussed. Finally, the mounting racks, junction boxes, and jack boxes are described.

4—3. RADIO RECEIVERS R-23/ARC-5, R-24/ARC-5, R-25/ARC-5, R-26/ARC-5, AND R-27/ARC-5.

Note

The LF-MF-HF radio receivers of the Model AN/ARC-5 Aircraft Radio Equipment are similar in many respects. The following description is therefore applicable to all radio receivers, unless noted otherwise. In addition, further details of Radio Receivers R-23A/ARC-5 and R-148/ARC-5X are described in paragraphs 4—24 through 4—27. The R-23/ARC-5, R-23A/ARC-5, R-24/ARC-5, and R-148/ARC-5X are referred to as the "navigation receivers," while the R-25/ARC-5, R-26/ARC-5, and R-27/ARC-5 are referred to as the "communication receivers."

4—4. OVER-ALL DESCRIPTION. (See figures 8—1 and 8—2.) The r-f section of the receivers consists of a tuned r-f input circuit, a 12SK7 r-f amplifier, and a second r-f tuned circuit, followed by a 12K8 mixer, and an r-f oscillator circuit. The i-f section following the 12K8 mixer tube consists of two i-f tuned circuits, a 12SK7 i-f amplifier, a second pair of i-f tuned circuits, a 12SF7 i-f amplifier (plus diode), a third pair of i-f tuned circuits, a 12SR7 detector-cw oscillator, and a tuned-plate cw heterodyne oscillator circuit. Separate avc and detector diodes are employed. The avc diode is fed from the 5th i-f tuned circuit and the detector from the 6th. The audio output of the diode detector is resistance-coupled to a 12A6 beam tetrode. The output of the 12A6 is fed to the headsets from the secondary of an 8-to-1 step-down transformer. In the navigation receivers an auxiliary output for operation of instrument landing equipment is made by connection across the cathode resistor R-21.

4—5. ANTENNA INPUT AND R-F AMPLIFIER CIRCUIT. C-4A, C-4B, and C-4C are three equal sections of the gang tuning capacitor. These sections are factory-adjusted to standards so that with properly adjusted coils L-1, L-3, and L-5, respectively, the tuning dial calibration is accurate to better than 0.5 per cent. The antenna is coupled into the input tuned circuit by means of a fixed capacitor C-1. C-2 is the input trimming capacitor which is connected in parallel with C-4A. C-1 and C-2 are designed so that it is possible to resonate the input circuit with any capacitive antenna. L-16, in the navigation receivers only, is used to couple a loop antenna into the input tuned circuit. Choice of wire antenna or loop antenna operation in the navigation bands is obtained by operation of the ANT.-LOOP switch S-1, remotely or locally. V-1 is a small neon protective lamp (refer to paragraph 4—22). C-3 is a grid blocking capacitor and R-2 is a grid resistor. R-1 and C-6B are the cathode bias resistor and r-f bypass capacitor, respectively, for the r-f amplifier. C-39, across L-2 in the R-23/ARC-5 only, is designed to resonate with the high-inductance primary coil L-2 at a frequency just enough below that covered by the receiver so that the amplification over the entire band covered by the receiver is reasonably uniform. In all other receivers this function is performed by the residual capacitances across L-2. R-35, across L-2 in the R-24/ARC-5 only, is designed to reduce this resonance effect somewhat. C-4D and C-4E are trimmers on the gang capacitors which are used to align the mixer input and r-f oscillator circuits during final test or overhaul. C-4F and C-4G are similar trimmers connected in parallel with C-4D and C-4E, respectively, but which are adjusted to pre-determined angular settings at the time of manufacture and not subsequently readjusted. They are part of the bottom capacitance for these tuned circuits. Their settings are shown for each receiver in table 5—2.

4—6. R-F OSCILLATOR AND MIXER CIRCUIT. L-5, of the r-f oscillator, has a lower inductance than L-3 of the r-f amplifier circuit. This lower value of L-5, aided by the insertion of C-10 between L-5 and ground, results in an r-f oscillation which is higher in frequency than the preselector (signal) frequency. By design, this difference is equal to the intermediate frequency throughout the tuning range of the receiver. L-4 and L-5 are the grid and plate coils of the r-f oscillator. C-4C with trimmers C-4E and C-4G, and C-10 with trimmer C-9, together determine the tuning capacitance across L-5. C-8 is a grid blocking capacitor, and R-3 is a grid resistor. R-6 is a series resistor in the plate circuit, which not only serves to drop the dynamotor voltage to the proper value for the r-f oscillator, but also acts as an r-f filter in conjunction with C-10, to keep r-f voltages from appearing on the high-voltage supply line. C-11 is a compensating capacitor whose capacitance decreases with rise in temperature. It is physically attached to the tube socket at a point where heat from the 12K8 tube heater is quickly conducted to it as soon as the receiver power is turned on. C-11 serves to maintain the frequency of the r-f oscillator constant as the tube and socket warm up. It also has a compensating effect as a function of ambient temperature. An additional capacitor, C-42, in the communication receivers only, is connected electrically in parallel with C-11 but is located in the r-f oscillator section of the gang oscillator. C-42 compensates for ambient temperature effects on the frequency of the r-f oscillator.

4—7. INTERMEDIATE FREQUENCY CIRCUIT. The first i-f tuned circuit is composed of an input coil L-6, fixed capacitor C-12, and trimming capacitor C-13. The second i-f tuned circuit is composed of an output coil L-7, fixed capacitor C-14 and trimming capacitor C-36. The two circuits are coupled magnetically. In the navigation receivers, the coupling may be adjusted to either of two positions, down or up, by means of the bakelite rod which protrudes through the top of the i-f coupling unit. When the rod is down, the circuits are overcoupled and produce a double-hump broad-tuning characterstic. When the rod is up, the circuits are undercoupled and produce a single-hump sharp-tuning characteristic. During the i-f trimming operation, all rods should be up, but on completion, the first i-f rod should be pushed down and the second and third left up, except in the R-23A/ARC-5 and R-148/ARC-5X in which all of the rods should be pushed down after the alignment operation. Trimming holes No. 1 and No. 2 under the cap on the i-f coupling units correspond to the input and output trimmer respectively. The cap serves to cover the holes and to protect the bakelite rod, where present. The principle of operation of the first, second, and third i-f units is the same. The output of the fifth i-f tuned circuit is connected to the avc diode and the output of the sixth i-f tuned circuit is connected to the detector diode (refer to paragraphs 4—14 and 4—18).

4—8. DETECTOR CIRCUIT. The detector diode, which is part of the 12SR7 tube, detects the i-f output from the sixth i-f tuned circuit, and develops the a-f voltage across the detector diode resistor R-18 (plus R-30 in the communication receiver) and the r-f bypass capacitor C-24. This a-f signal is fed to the grid of the 12A6 tube through decoupling resistor R-19 and blocking capacitor C-29. In the navigation receivers, an additional filter section consisting of R-26, C-40, and C-41, to insure that only af and no if. is applied to the grid of the 12A6, is inserted.

4—9. AUDIO AMPLIFIER CIRCUIT. The a-f signal is applied to the grid of 12A6 tube for amplification to a suitable level. R-20 is the grid resistor. The output of the 12A6 is applied to T-1, an 8:1 output transformer. C-31 across the primary of T-1 acts as a filter capacitor to attenuate audio frequencies above 4000 cycles. This filter also acts to prevent af and if. from getting in or out of the radio receiver by way of the TEL line. This is to prevent interference from or to other near-by receivers.

4—10. CW HETERODYNE OSCILLATOR CIRCUIT. The heterodyne oscillator circuit makes use of the triode section of the 12SR7 tube. L-12 and L-13 are the grid and plate coils of a tuned-plate oscillator circuit. C-26 and R-14 are the grid capacitor and resistor. C-27 is a fixed capacitor and C-28 is a trimmer. L-13 is tuned to the exact value of the intermediate frequency by fixed capacitor C-27 and trimmer C-28. C-28 is reached through a small hole on the right side of the chassis near the back. C-33 represents the coupling capacitance between the cw oscillator and the heterodyne injection point. This capacitance is formed by proximity of dead-ended leads attached to the second i-f coupling unit connector in the navigation receivers, and is formed by capacitance within the 12SR7 tube base in the communication receivers. The coupling through C-33 is to the grid of the second i-f amplifier tube in the navigation receivers and directly to the detector diode in the communication receivers. In either case, the coupling is adjusted so that there is at the detector the correct heterodyne current to produce the proper audio beat note level for cw reception. The unused diode connected to terminal 5 on the 12SR7 tube is used to help control the amount of coupling in the communication receivers. Terminal 5, which is physically between the plate terminal 6 and the diode terminal 4, is left unconconnected in the R-25/ARC-5 receiver but is connected to ground through C-45 in the R-26/ARC-5 receiver, and is connected directly to ground in the R-27/ARC-5 receiver. If too little cw oscillator coupling is obtained, cw sensitivity and output will be low, and if the coupling is too great, strong signals will tend to cause the cw oscillator to shift frequency and lock in, thus removing the audio beat output.

4—11. MANUAL AND AUTOMATIC VOLUME SENSITIVITY CONTROLS IN THE NAVIGATION RECEIVERS.

4—12. GENERAL. The sensitivity of a navigation receiver may be controlled manually by a variable resistor R-33 in Control Unit C-26/ARC-5. In addition to this manual control, there is a bulit-in automatic volume control (avc) circuit.

4—13. MANUAL SENSITIVITY CONTROL. The manual control of sensitivity is obtained with a variable resistor R-33 in the cathode-to-ground circuits of the r-f and first i-f amplifiers. As this resistor is increased from 0 to 50,000 ohms, the voltage between ground and these cathodes increases, and since the grids of these tubes are at ground potential for dc, the grids become increasingly negative with respect to the cathodes. This results in a reduction of amplification in each of the controlled tubes, and in an over-all reduction in the sensitivity of the receiver by a factor exceeding 50,000 to 1 as R-33 reaches its maximum resistance. About 0.6 ma flows from the +240-volt-dynamotor line through R-10 and R-33 to ground so that in the minimum gain position of R-33 there is a difference of potential of approximately 30 volts even though the cathode current is negligible. Thus, R-10 acts to make the control voltage developed across R-33 less dependent upon the cathode current of the tubes being controlled.

4—14. AUTOMATIC VOLUME CONTROL. Automatic control of sensitivity is obtained by feeding the diode connected to terminal No. 5 on the 12SR7 tube from the fifth i-f circuit through coupling capacitor C-35. A d-c voltage is developed across diode resistor R-5 if the i-f voltage impressed on this diode exceeds the dc applied to the cathode of the same tube. The sense of the d-c voltage developed across R-5 is such that the diode side of the resistor is negative with respect to ground, and the magnitude of this voltage increases with increasing r-f voltage at the receiving antenna. This negative voltage is applied to the grids of the r-f and first i-f amplifier tubes and reduces their amplification as the negative voltage increases. In this manner the incoming signal acts as its own sensitivity control, automatically adjusting itself to produce nearly constant i-f voltage across input coil L-10. It should be pointed out that this automatic sensitivity control produces uniform audio output only if the modulation is constant. If the audio output is adjusted for 100 milliwatts for a steady tone signal of 30 per cent modulation, the output may be 400 milliwatts for the same steady tone modulation of 60 per cent. For this reason it is essential to talk loudly and clearly into an aircraft microphone. Poor microphone technique may cause as much as a 10 to 1 reduction in received audio power. R-13, R-11, and C-15A form a filter which prevents af, if., or i-f harmonics from feeding back from the avc diode to the grids of the r-f and i-f amplifiers. Seperate avc and second detector diodes are used so that the selectivity of one additional i-f tuned circuit may be interposed between the constant i-f voltage across input coil L-10 and the audio detector diode. Thus when the receiver is tuned through a strong signal, the output audio level is sharply tunable. This effect is highly desirable in that accurate tuning of the receiver to a strong signal may be performed aurally. If the selectivity of the additional tuned circuit were not available, the tuning of a strong signal would be so broad that an aural setting would be nearly impossible and the better the avc the more nearly this would be true. Alternative methods not making use of this principle of differential selectivity might be to use a tuning meter or an electron-ray tube as an indicator.

4—15. EFFECT OF MANUAL CONTROL ON AVC. When the receivers are used for reception of airways radio range signals, homing signals, or for loop direction finder signals, *the manual sensitivity control must be operated to reduce the reciver sensitivity to produce a fairly weak signal. A series resistor or potentiometer in the headset circuit must never be used to reduce these signals* or it will be discovered that the course or bearing is unnecessarily broad. This is becuase the avc will try to maintain a uniform signal when off course or off bearing and will succeed in doing this until or unless the signal is so weak that it cannot operate the avc. The operator will notice that on very strong signals the sensitivity control will do nothing over a wide range, and that for relatively weak signals the control will be effective even near the maximum setting. The result of this combination of manual and automatic control of sensitivity is that it becomes impossible to obtain a course reversal, or multiple nulls on loop reception, caused by receiver overload. The worst that can happen when the operator fails to keep the sensitivity down as directed is that a course broadening will be the result. This is because the avc does its best to keep the volume constant.

4—16. MANUAL AND AUTOMATIC VOLUME SENSITIVITY CONTROLS IN THE COMMUNICATION RECEIVERS.

4—17. MANUAL SENSITIVITY CONTROL. The sensitivity of a communication receiver may be controlled manually over a limited range of about 5 to 100 microvolts by a variable resistor R-32, located in Control Unit C-27/ARC-5, and over a wide range of about 30 to 100,000 microvolts by a built-in automtatic volume control (avc) circuit. The manual control of sensitivity by R-32 is provided for adjustment of the reciever to the maximum sensitivity setting that the conditions of static and other interferences will allow. These conditions will vary with many factors such as frequency, proximity of thunderstorms, time of day or night, geographical location, presence of man-made interference in the form of signals, or electrical noises created within the airplane. With R-32 adjusted to a maximum tolerable noise level, with no desired signal on the air, the avc will control sensitivity automatically as a function of the strength of the incoming signal and will produce a predetermined normal level of signal in the headset. A level control in the headset circuit may then be used to adjust the controlled output to accommodate differences in hearing. headset sensitivity, fatigue effects of long flights, reduced audio levels at high altitude, and ambient noise level. If the receiver sensitivity is set manually for maximum, the noise under certain conditions would be so great that the level-setter in the headset line would have to be reduced considerably for reasonable comfort. The result of this would be a low level of desired signals, or frequent adjustment of the sensitivity control every time a signal came on and went off the air.

4—18. AUTOMATIC VOLUME CONTROL. The principles of operation of the built-in automatic volume control are basically like those described for the navigation receivers in paragraph 4—14. In the communication receivers the avc diode is part of the 12SF7 tube and is fed from the fifth i-f tuned circuit through coupling capacitor C-35. The avc diode resistor R-5 is returned to ground. The cathode of the 12SF7 is returned to ground through bias resistor R-12 and through a second resistor R-29 which carries the cathode current for both the 12SF7 and 12SR7 tubes. The cathode bias of the 12SF7 is approximately 20 volts with respect to ground. This is a delay bias and represents the value of the i-f signal voltage that must be applied to the avc diode before dc will begin to flow in R-5 and develop an avc control voltage. For all i-f signal voltages below this strength, there will be no automatic control of sensitivity. For all i-f signal voltages above this strength, the d-c bias voltage developed across R-5 will be in a sense to reduce the amplification in the r-f and first i-f amplifier tubes. The result of this action is that the control of over-all receiver sensitivity is performed automatically by the incoming signal itself. The i-f voltage applied to the second detector (terminal No. 4 of the 12SR7 tube) remains nearly the same for values of r-f voltage at the antenna of about 30 microvolts to 100,000 microvolts. The audio output of the receiver will likewise be uniform over this same range of input microvolts provided that the modulation of the r-f voltage remains constant. The uniformity of output is aided by a d-c amplifier effect in the 12SF7 tube. The grid return of the 12SF7 is made at the junction of R-18 and R-30 which together form the second detector diode resistance. As the second detector i-f voltage increases, the dc developed across R-30 will increase in such a sense that the junction of R-18 and R-30 becomes more and more negative with respect to the junction point of R-30 and R-29. The effect of this is to reduce the cathode current through R-29 and the voltage across it. Because of this reduction in the delay bias (voltage across R-29) more dc flows through R-5 for a given r-f voltage applied. This still further aids in reducing the sensitivity of the r-f and first i-f amplifier tubes as the r-f voltage at the antenna increases. It should be noted here that although the 12SF7 tube has a cathode voltage with respect to ground of about 20 volts, its voltage with respect to its control grid in the absence of an i-f signal is the normal operating value of about 3 volts. This is because both grid and cathode connections are made above ground by the drop in resistor R-29 and because the drop across R-30 is substantially zero for weak signals.

4—19. OUTPUT CIRCUIT FOR INSTRUMENT LANDING EQUIPMENT. When either the R-23/ARC-5, R-23A/ARC-5, or R-24/ARC-5 receiver is used in connection with instrument landing equipment, Audio Adapter MX-19/ARC-5 must be installed in the front of the receiver.

Note

Audio Adapter MX-19/ARC-5 contains a 28-volt relay and hence may not be used with a 14-volt system and the R-148/ARC-5X receiver, unless modified for 14-volt operation.

Relay K-5 in this adapter is actuated when the relay circuit (terminal 3 on J-28) is grounded in the instrument landing control unit. Actuation of K-5 causes the receiver to be operative on avc and mcw only, regardless of the position of other receiver controls. The 90- and 150-cycle output for the instrument landing equipment is taken from the cathode circuit of the audio amplifier by a connection across R-21. This output is affected very little by the headset load across the output of T-1. C-30 is a blocking capacitor to keep dc from the output circuit. R-27 acts as a ground-return path for the electrolytic capacitor C-30 so that it will be charged regardless of whether or not the instrument landing equipment is connected. R-25 is a damping resistor to prevent harmful effects of r-f or i-f resonance which might be built up on the line. C-20B and C-46 together act as a bypass capacitor across R-21. This bypass is negligible for the instrument landing frequencies of 90 and 150 cps, but becomes effective for frequencies of 1000 to 1500 cps and adds to the intelligibility of voice signals. In early production receivers, a decoupling filter resistor R-28 was connected between R-21 and C-30, and there was no C-46. C-20B was 0.01 microfarad. In those receivers the audio output at 1500 cps was markedly lower than after the change. Modified receivers may be distinguished by a yellow dot on the front of the receiver just above the tuning shaft outlet.

4—20. DYNAMOTOR A-F AND R-F FILTER CIRCUIT. C-16C is an r-f bypass capacitor on the low-voltage primary side of the receiver dynamotor to reduce r-f disturbances created by the dynamotor. L-14 is an r-f choke coil in the low-voltage line which acts in the dual capacity of keeping r-f disturbances generated in the receiver dynamotor from getting out of the receiver by way of J-3, and of preventing external r-f disturbances from getting into the receiver by way of J-3. L-15 is an a-f filter choke which together with C-16B and C-32 acts as an audio filter in the high-voltage supply line. C-16B also functions as an r-f bypass across the high voltage side of the dynamotor.

4—21. R-F BYPASSES AND R-C DECOUPLING FILTERS. C-6B, C-7B, C-20C, C-6C, and C-15B are r-f bypass capacitors for the cathodes of the first five tubes in the navigation receivers. C-6B, C-7B, C-44C, and C-15B are r-f bypass capacitors for the cathodes of the first five tubes in the communication receivers. R-6, C-6A, R-7, and C32 form a typical r-f decoupling network to prevent rf or if. from being transferred along the plate supply line. R-8, C-7C, and C-16A is a similar decoupling network in the screen-grid supply line. R-31 and C-43, in the communication receivers only, form a decoupling section in the grid return of the 12SF7 tube, C-25, R-15, C-20A, and R-16 in the communication receivers form

a decoupling network to keep the cw oscillator current from appearing on the cw oscillator shut-off and the plate supply lines. R-19, C-40, R-26, and C-41, in the navigation receivers only, form a filter to keep if. from appearing on the input to the 12A6 tube. C-5 prevents a-f instability which would result in a high-pitched tone interference, and which might be heard under particular conditions of tuning, signal strength, and manual sensitivity control setting. C-6C is an r-f bypass capacitor in the communication receivers which prevents passage of r-f currents out of or into the receiver by way of the manual sensitivity control line.

4—22. PROTECTIVE NEON LAMPS. V-1 and V-2 are small neon lamps acting as devices to protect the equipment when exceptionally strong signals are received. The lamps glow at approximately 55 volts ac. As soon as the glow starts, any increase in voltage across the lamp terminals causes a relatively large increase in current through the lamps. In this manner, the voltage is limited to approximately 55 volts ac across L-1, and likewise across half of the primary winding of T-1.

4—23. RADIO RECEIVERS R-23A/ARC-5 AND R-148/ARC-5X.

4—24. Radio Receivers R-23A/ARC-5 and R-148/ARC-5X are alike except that the electron tube heater circuits of the R-23A/ARC-5 are wired for 28-volt operation while those in the R-148/ARC-5X are wired for 14-volt operation. (See figure 8—3.) These receivers are modifications of Radio Receiver R-23/ARC-5 described in paragraphs 4—3 through 4—22. The R-23A/ARC-5 supersedes the R-23/ARC-5. Radio Receiver R-148/ARC-5X requires the use of a 14-volt Dynamotor ★DY-1/ARR-2X and the use of a receiver rack with a 14-volt relay. Rack MT-411/ARC-5X is a one-receiver rack for 14-volt operation.

4—25. The redesign of Radio Receiver R-23/ARC-5 to Radio Receiver R-23A/ARC-5 resulted in a higher level of a-f power output for all values of input signal, but particularly for weak signals, and a flatter selectivity response near resonance to improve the a-f fidelity. Higher a-f output level for all values of input signals was obtained by (1) changing the cathode bias resistor of the 12A6 output tube from 1500 to 1000 ohms, thus increasing its plate current and output power capability; (2) increasing the coupling between coils in the third i-f coupling unit in order to increase the input to the detector diode before grid and plate circuit overload occurred in the third i-f tube; (3) changing the avc circuit so that the avc voltage developed was substantially independent of the modulation depth, and by applying this control voltage to the grids of the r-f, mixer and first i-f tubes instead of only the r-f and first i-f. The result is that in the R-23A/ARC-5 the a-f output for increasing signal strength rises more rapidly, and to a higher value, and maintains a flatter output than in the R-23A/ARC-5. The R-23A/ARC-5 output reaches 400 milliwatts for 25-microvolt input modulated 30 percent at 1000 cycles per second compared with 120 milliwatts for the same input to the R-23/ARC-5.

4—26. Flatter selectivity response near resonance was obtained by a redesign of the i-f coupling units. Coupling between the primary and secondary coils was altered and made the same in each of the units under operating conditions. In the modified receiver the i-f coupling units are aligned with the coupling rod *up* (loose coupling) but after alignment *all* of the rods are pushed in as far as they will go. (In the R-23/ARC-5 the rod in the first i-f coupling unit was pushed *down* but the second and third i-f rods were left *up*). Maintenance and repair shops particularly should note this difference and record it on their procedure charts.

4—27. The sensitivity of the receivers is better than 4 mircovolts for 10-milliwatt output into 300-ohm load, with a modulation of 30 per cent at 400 cycles per second. Power output under the same conditions of modulation for inputs of 100, 1000, 10,000 and 100,000 microvolts is approximately 500, 700, 850, and 950 milliwatts, respectively. Beyond 200,000 microvolts the output rises, due to modulation distortion, to 1500 milliwatts. The output does not fall off with increasing input for any value of input up to 1,000,000 microvolts, hence there is no problem of radio range course reversal due to receiver overload; it is the same as the R-23/ARC-5 in this respect.

4—28. DYNAMOTOR ★DY-2A/ARR-2.

4—29. Dynamotor ★DY-2A/ARR-2 supplies the d-c high voltage to the receiver from the 22 — 30 volt d-c supply on the airplane. The rating of this dynamotor will be found in table 6—8. A schematic diagram is shown in figure 8—1.

4—30. DYNAMOTOR ★DY-1/ARR-2X.

4—31. Dynamotor ★DY-1/ARR-2X is identical to Dynamotor ★DY-2A/ARR-2 described in paragraph 4—29 except that it is wound to operate on 14 volts dc instead of 28 volts dc. The input current at 14 volts is 2.2 amperes.

4—32. DYNAMOTOR DY-2B/ARR-2.

4—33. Dynamotor DY-2B/ARR-2 may be used interchangeably with Dynamotor ★DY-2A/ARR-2. Its weight is 2.1 pounds. The rating is 1.45 amperes d-c for 28-volt input with an output of 0.06 ampere at 250 volts. The end covers have louvres with screens. A built-in ventilating fan forces air through the machine for cooling.

4—34. ADAPTERS MX-19/ARC-5, MX-20/ARC-5, AND MX-21/ARC-5.

4—35. Audio Adapter MX-19/ARC-5 is normally used with a navigation receiver when it is connected for operation with instrument landing equipment. This adapter contains a relay operated by a switch in the instrument landing equipment, and is so constructed that when the relay is actuated, the receiver is connected for operation on avc only, with no manual control whatever possible, and is simultaneously connected for mcw operation only. In addition, a connection is made from the cathode circuit of the audio amplifier to the input of the instrument landing equipment. (See figure 8—4.)

4—36. Power Adapter MX-20/ARC-5 is normally used with Radio Receiver R-24/ARC-5 when that receiver is required to supply not over 0.5 ampere at low voltage and not over 15 milliamperes at high voltage to external equipment. This adapter may be used on any of the LF-MF-HF receivers of this equipment. (See figure 8—4.)

4—37. Remote Control Adapter MX-21/ARC-5 is normally supplied with all communication receivers. Its sole function is to complete the low-voltage circuit and to cover up the opening that otherwise would exist in the front of the receiver. (See figure 8—4.)

4—38. RADIO TRANSMITTERS T-15/ARC-5, T-16/ARC-5, AND T-17/ARC-5.

4—39. Radio Transmitters T-15/ARC-5, T-16/ARC-5, and T-17/ARC-5 are referred to as the MF transmitters. (See figures 8—6, 8—7, and 8—8.) They are designed for use as part of the AN/ARC-5 system, but are not ordinarily supplied with the 2.1 — 9.1 mc transmitters, described in paragraphs 4—40 through 4—45, except for special applications. Their efficient use requires a trailing wire antenna, but they may be used in the 1 - 2.1 mc band on a fixed antenna (as small as 60 uuf) with the aid of Antenna Loading Coil TN-6/ARC-5. The power output into an antenna as small as 60 uuf is a fraction of 1 watt. The power output into an optimum trailing wire antenna exceeds 20 watts on CW, 10 watts on VOICE, and 13 watts on TONE positions of the control unit. The MF transmitters differ from the 2.1 — 9.1 mc trasmitters in that the MF transmitters have a 3-contact connector on the lower left portion of the front panel for connection to Antenna Loading Coil TN-6/ARC-5. Differences in the master-oscillator circuit and the value of C-74 may be noted in comparing the schematic circuit diagrams, figures 8—6 through 8—9. Figure 8—56 shows the method of cabling the MF transmitters to Antenna Loading Coil TN-6/ARC-5, and methods of connecting one or two antennas.

4—40. RADIO TRANSMITTERS T-18/ARC-5, T-19/ARC-5, T-20/ARC-5, T-21/ARC-5, AND T-22/ARC-5.

4—41. GENERAL. The mechanical and electrical design of Radio Transmitters T-18/ARC-5, T-19/ARC-5, T-20/ARC-5, T-21/ARC-5, and T-22/ARC-5 is such that any transmitter may be operated in any stall of the transmitter racks. As many as five transmitters are supplied as part of this equipment, of which up to four may be installed in the 1-, 2-, 3-, or 4-unit transmitter racks. Each transmitter contains a separate set of master-oscillator, r-f power-amplifier, and resonance-indicator tubes, and associated circuits, but depends for its d-c voltage and its modulating voltages on a common modulator unit and transmitter dynamotor, and depends for its entire remote control on a common transmitter control unit. Schematically, all transmitters are alike although they differ in the inductance and capacitance values in the r-f circuits and in the values of R-70 and R-73 associated with the resonance-indicator tube. (See figures 8—5 and 8—9.) A functional schematic diagram of a typical transmitter is shown in figure 4—1.

4—42. MASTER OSCILLATOR CIRCUIT. The master oscillator uses a type 1626 tube. T-53A is the master-oscillator coil which is tuned by capacitor C-63. Fixed capacitor and trimmer C-60 and compensating capacitor C-68 are connected in parallel with C-63. R-72 and C-73 are the grid-leak and grid capacitor elements of the master-oscillator circuit. T-53B is a twin winding on the master-oscillator coil, wound from ground to the cathode tap in order to maintain the heater at the same r-f potential as the cathode, so that variations of cathode-to-heater capacitance within the tube will not affect the frequency of oscillation. The plate of the type 1626 tube is grounded for rf by capacitor C-58A, hence the plate is effectively connected to the ground end of T-53A. The cathode is connected several turns above ground and the grid is connected to the top of the coil. T-53C has a dual function; it excites the grids of the r-f power amplifier tubes and it provides a neutralizing connection through the fixed neutralizing capacitor C-62 to the high potential side of the output tank circuit at C-65. R-68 is a decoupling resistor which, with the aid of C-58A, prevents rf from appearing on the master-oscillator plate supply line. C-61 and C-58C are r-f bypass capacitors designed to keep the low side of T-53B and the tapped point of T-53C at ground potential for rf. R-74 is a resistor in the grid circuit of the r-f power amplifier tubes. Grid current in these tubes, which increases with greater excitation from the master-oscillator, flows through R-74. The sense of the grid current flow is such as to make the grids of the r-f power amplifier tubes more negative with respect to ground as the grid current increases. R-74, therefore, may be thought of as a grid-bias resistor.

4—43. R-F POWER AMPLIFIER CIRCUIT. The two r-f power-amplifier tubes, type 1625, are connected in parallel except for an isolation of the two plates by separate parasitic suppressors RL-50 and RL-51. The power-amplifier tuned-tank circuit consists of coil T-54A shunted by fixed capacitor C-67 and tuning capacitor C-65. R-76 acts as a combination decoupling resistor and fuse. L-53 is an r-f choke. R-90 and capacitor C-64 together keep rf from appearing on the screen-grid supply line. T-54B is an antenna coupling coil within T-54A. The amount of coupling to T-54A is controlled from the front of the transmitter by the ANT. COUPLING knob. L-52 is a continuously adjustable inductor in the antenna circuit whose inductance is adjusted from the front of the transmitter by the ANT.-INDUCTANCE. This is the only antenna tuning control.

4—44. RESONANCE INDICATOR CIRCUIT. The resonance indicator circuit uses a type 1629 electron-ray tube. Y-50 is a quartz crystal. It is mounted in a metal-tube envelope having a standard octal base. In this application it is used as a resonator to check the accuracy of the master oscillator and not as a crystal oscillator. The crystal unit may be reached through an opening, having a hinged cover, in the top rear of the transmitter. If desired, a similar crystal unit, but of a different nominal frequency, may be substituted for the unit normally supplied (for example, substituting the tactical frequency

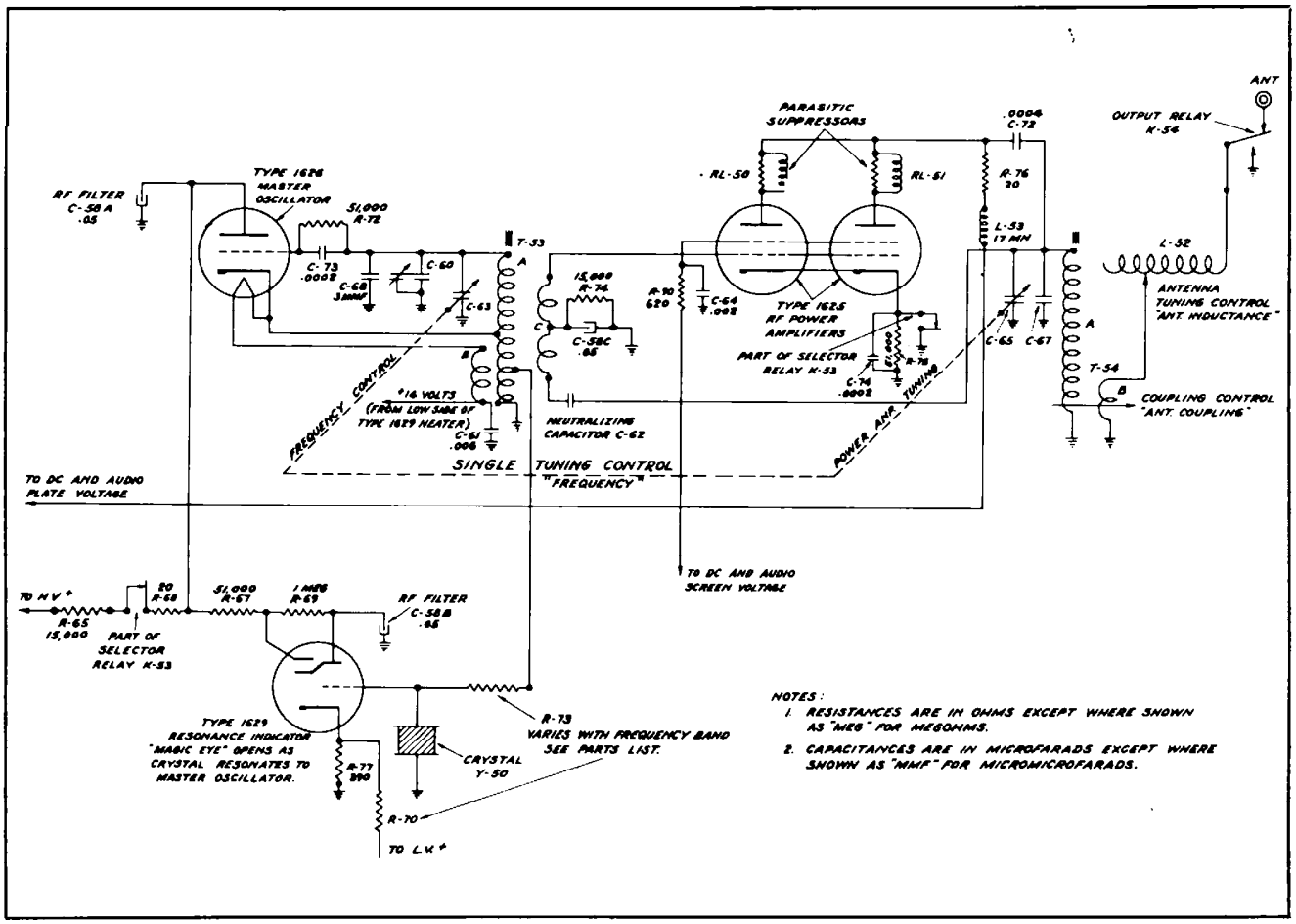


Figure 4—1. Radio Transmitter, Functional Schematic Diagram

or a frequency suitable for calibration alignment purposes). The electrical circuits associated with the type 1629 tube are such that any crystal unit whose nominal frequency falls within the range of the transmitter may be used. R-77 and R-70 are bias resistors for the type 1629 tube. R-73 is an isolating resistor which separates Y-50 from the tap on the master-oscillator tuning coil T-53A. This isolation prevents an interaction between the crystal and master-oscillator which would affect the frequency of the master oscillator, and also cause r-f voltage from the crystal tap on T-53A to build up sharply on the grid of the type 1629 tube due to resonance of the crystal. This tube acts as a plate-circuit detector, causing an increase in average plate current as the grid input voltage rises due to crystal resonance. When the plate current increases, the difference in potential between the target and the plate increases due to the one-megohm resistor R-69 connected between the plate and the target. The greater this difference in potential, the greater will be the area on the target where no electrons reach; hence the shadow angle *increases* at crystal resonance. R-67 is a dropping resistor in the plate circuit of the resonance indicator tube and C-58B is an r-f bypass capacitor between plate and ground on the same tube.

4—45. TRANSMITTER SELECTOR CIRCUIT. Relays K-53 and K-54 are actuated in one of the transmitters when switch S-52 on the transmitter control box is set for that transmitter and the TRANS. POWER switch S-51 in the same box is ON. As delivered, the transmitter on the left in the 2-TRANS rack is normally connected as No. 1 and the one on the right as No. 2. These numbers correspond to the No. 1 and No. 2 positions on switch S-52. K-53 closes the plate supply to the master oscillator and resonance indicator tubes, and also short-circuits R-75, a 51,000-ohm resistor in the cathode-to-ground circuit of the r-f power amplifier tubes. Plate and screen voltages are constantly supplied to the type 1625 power amplifier in both transmitters, but only the one transmitter, in which R-75 is short-circuited, is operative. The bias voltage developed across R-75, when it is not short-circuited, is sufficient to reduce the plate and screen current nearly to zero. There is no excitation on the grids of the power amplifier tubes except in the one transmitter selected because the plate supply of the master oscillator tube is closed only for that unit. C-74 is connected across R-75 for the purposes of preventing r-f oscillation in the output amplifier when that transmitter is not selected. C-74 connects the cathodes of the r-f power

amplifier tubes effectively to ground for r-f. K-54 transfers the high potential side of the antenna tuning inductor L-52 from ground to the antenna binding post when that particular transmitter is selected. Any trasmitter may be operated by pressing its test key (S-55 or S-56) on the rack directly below it, provided the power switch S-51 is ON. The test key makes it unnecessary to return to the pilot's cockpit to turn the selector switch S-52 to the desired trasmitter. Pushing the test key operates the associated transmitter and disables all others. All electron tube heater circuits in the transmitting equipment remain on as long as the TRANS. POWER switch S-51 is ON. S-51 may be safety-wired in the ON position.

4—46. MODULATOR MD-7/ARC-5 AND DYNAMOTOR DY-8/ARC-5.

4—47. Modulator MD-7/ARC-5, supplied with Dynamotor DY-8/ARC-5, contains a tone-oscillator tube, type 12J5-GT, two speech-amplifying and modulating tubes, type 1625, and a 150-volt-regulator tube, type VR-150-30 (now OD3/VR-150). (See figure 4—2.) Dynamotor DY-8/ARC-5 supplies the d-c high voltage to the electron tubes, transformers, relays, chokes, and other elements which are necessary to transform the primary power d-c source to the d-c and audio frequency power requirements of the transmitters. The relation of the MD-7/ARC-5 and DY-8/ARC-5 to other transmitting components is shown in figure 8—5.

4—48. T-56 is a microphone transformer. Two secondary windings, 3-4 and 5-6, feed the grids of the type 1625 modulator tubes in push-pull. The ground return of these secondaries is through the secondary, 5-6 and 6-7, of the tone oscillator transformer T-57. R-91 and R-92 are resistors of 100,000 ohms each. These resistors act to control the gain in the microphone circuit and to keep the input impedance betwen grids and ground more uniform with the audio frequency. C-54B is a 20-microfarad electrolytic capacitor which, together with resistor R-82, acts to keep undesired audio ripple from appearing across the primary of the microphone transformers. This undesired audio ripple may come from several sources, for example, the residual 800-cycle ripple on the low-voltage line caused by the combination a-c, d-c engine-driven generator. R-82 acts also to limit the dc through the microphone. This current is approximately 40 milliamperes. One volt rms at 1000 cycles at the microphone jack is sufficient to produce 100 per cent modulation.

4—49. T-57 is a tone oscillator transformer. The windings 2-3 and 3-4 are in the oscillator circuit with capac-

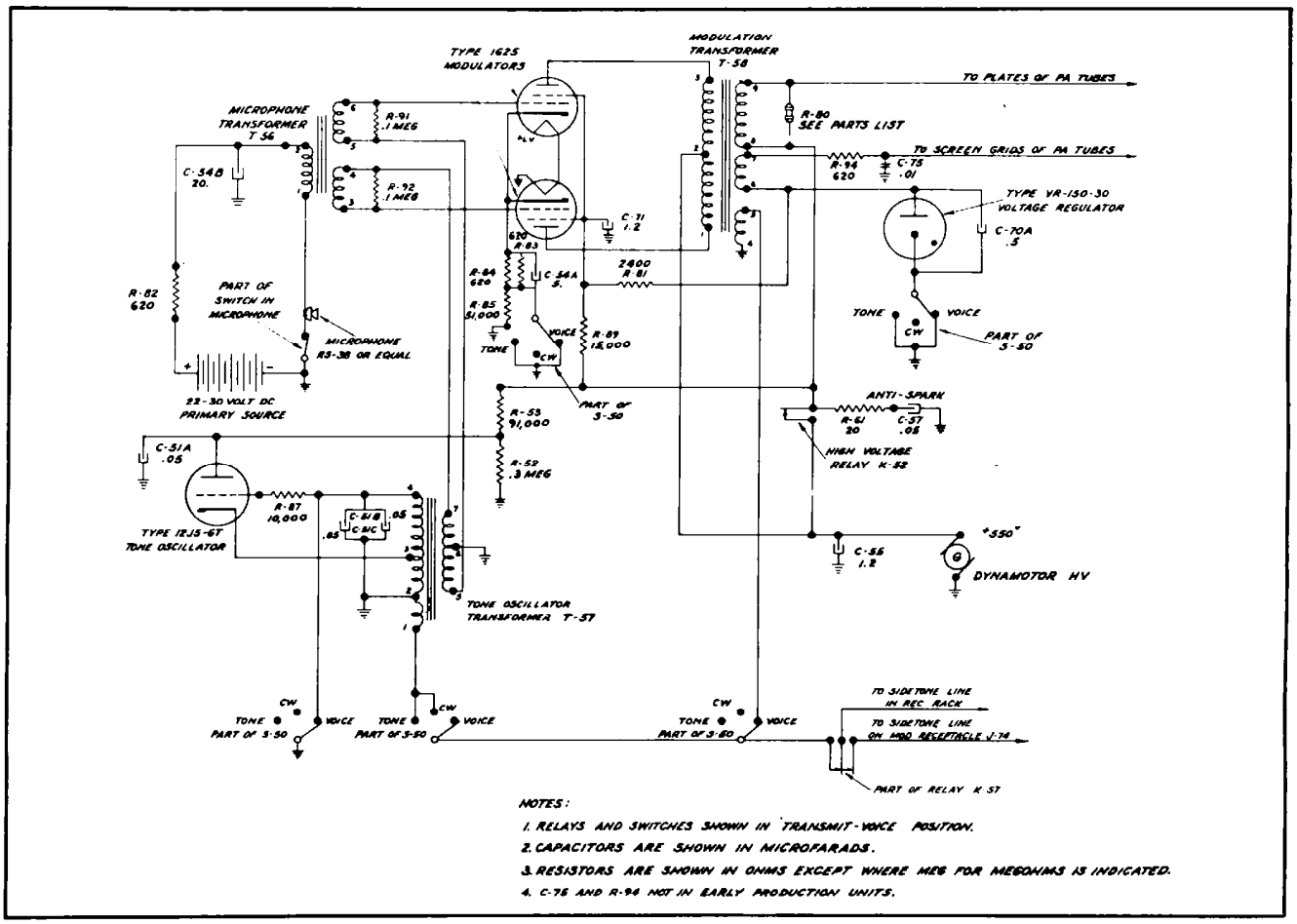


Figure 4—2. Radio Transmitting Audio-Frequency Circuits, Schematic Diagram

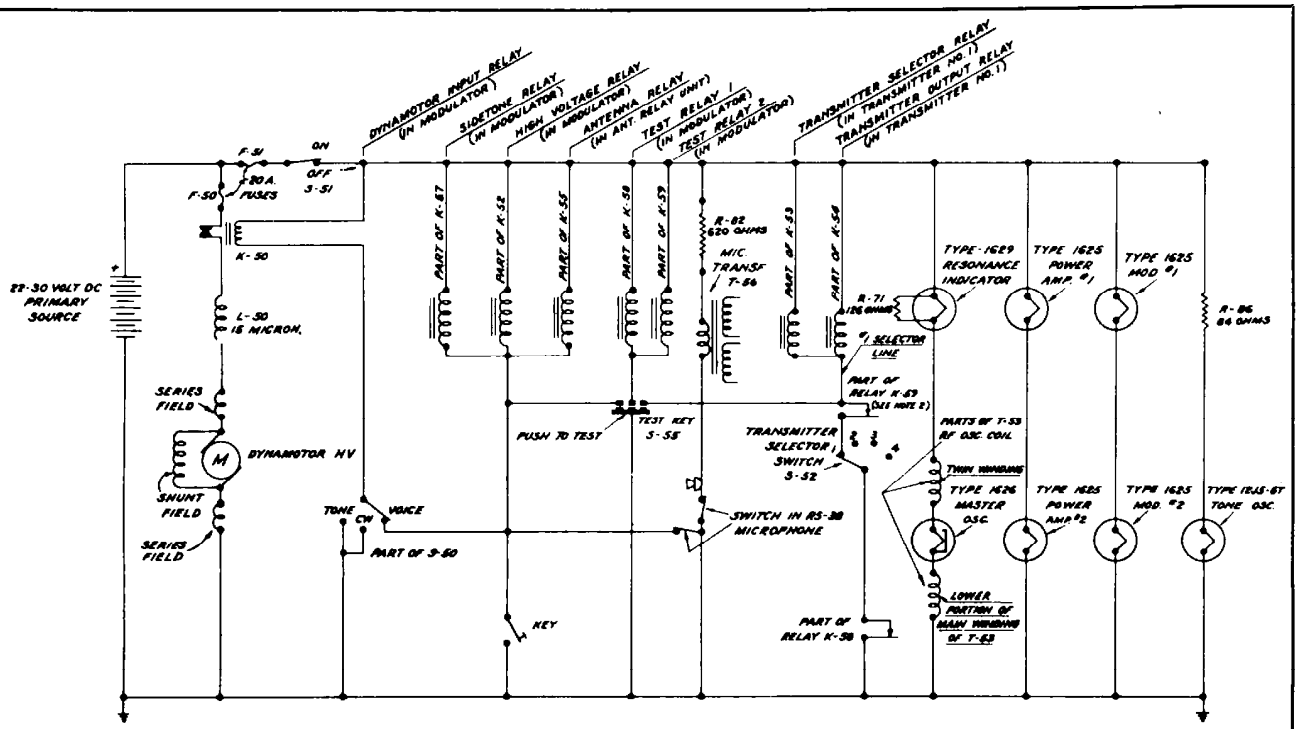
itors C-51B and C-51C in parallel across terminals 2-4. Winding 1-2 is for tone sidetone. Windings 5-6 and 6-7, with ground at 6, provide a push-pull feed to the two type 1625 modulator tubes. R-87 is the tone oscillator grid resistor. No grid capacitor is required. Plate supply to the tone-oscillator tube is obtained through a resistor voltage divider R-52 and R-53. C-51A is a bypass capacitor designed to keep the af potential of the tone oscillator tube plate at ground.

4—50. T-58 is a modulation transformer with push-pull primary windings 1-2 and 2-3 connected to the plates of the two type 1625 modulator tubes. Winding 4-5 is for sidetone. Winding 6-7 supplies audio-frequency modulating voltage to the screen grids of the r-f power amplifier tubes in the transmitter. Winding 8-9 supplies audio-frequency modulating voltage to the plates of the r-f power amplifier tubes in the transmitter. At 100 per cent modulation at 1000 cycles, the rms audio-frequency voltage across 6-7 is approximately 100 volts, and across 8-9 is approximately 300 volts. R-80, across winding 8-9, is a voltage-controlled thyrite resistor whose function is to damp out over-modulation peaks.

4—51. The modulating tubes, type 1625, are connected in push-pull and biased for class AB1 operation by means of resistors R-83 and R-84 in parallel. The plate current of the modulator tubes rises from approximately 55 milliamperes with no modulation to approximately 65 milliamperes at 100 per cent modulation. When transmitting cw, the high side of R-85 is ungrounded by switch S-50 in the control unit. The result is to reduce the flow of plate current in the modulator tubes to less than 2 milliamperes.

4—52. R-86 is an 84-ohm resistor connected in series with the heater of the tone oscillator tube across the 28-volt primary source.

4—53. Functional schematic diagrams of the low voltage and high voltage d-c circuits of the transmitting equipment are shown in figures 4—3 and 4—4 respectively. R-81 in combination with R-89 and the voltage regulator tube, VR-150-30, determines the operating screen voltage of the modulator tubes. The audio output of the modulator stage is in three parts: the plates of the power amplifier tubes are fed from winding 8-9 on T-58 at the full d-c voltage of the dynamotor; the screens are fed by winding 6-7 at approximately 150 volts dc, as determined by the voltage-regulator tube VR-150-30; and the third output winding 4-5 on T-58 supplies VOICE sidetone. Resistor R-94 and capacitor C-75, which are not in



NOTES:

1. RELAYS AND SWITCHES ARE SHOWN IN TRANSMIT-VOICE POSITION FOR TRANSMITTER NO. 1, MICROPHONE SWITCH CLOSED.
2. RELAY K-59 BREAKS THE SELECTOR LINE FOR THE TRANSMITTER IN THE NO. 1 POSITION WHEN THE TEST KEY IS PRESSED. THIS IS THE POSITION REQUIRED FOR VHF TRANSMITTER T-23/ARC-5, WHEN USED.
3. A THROTTLE SWITCH AND MASK MICROPHONE ARE CONNECTED INTO THE CIRCUIT AS SHOWN HERE FOR THE HAND-HELD RS-38 MICROPHONE.

Figure 4—3. Radio Transmitter, Low-Voltage D-C Circuits, Schematic Diagram

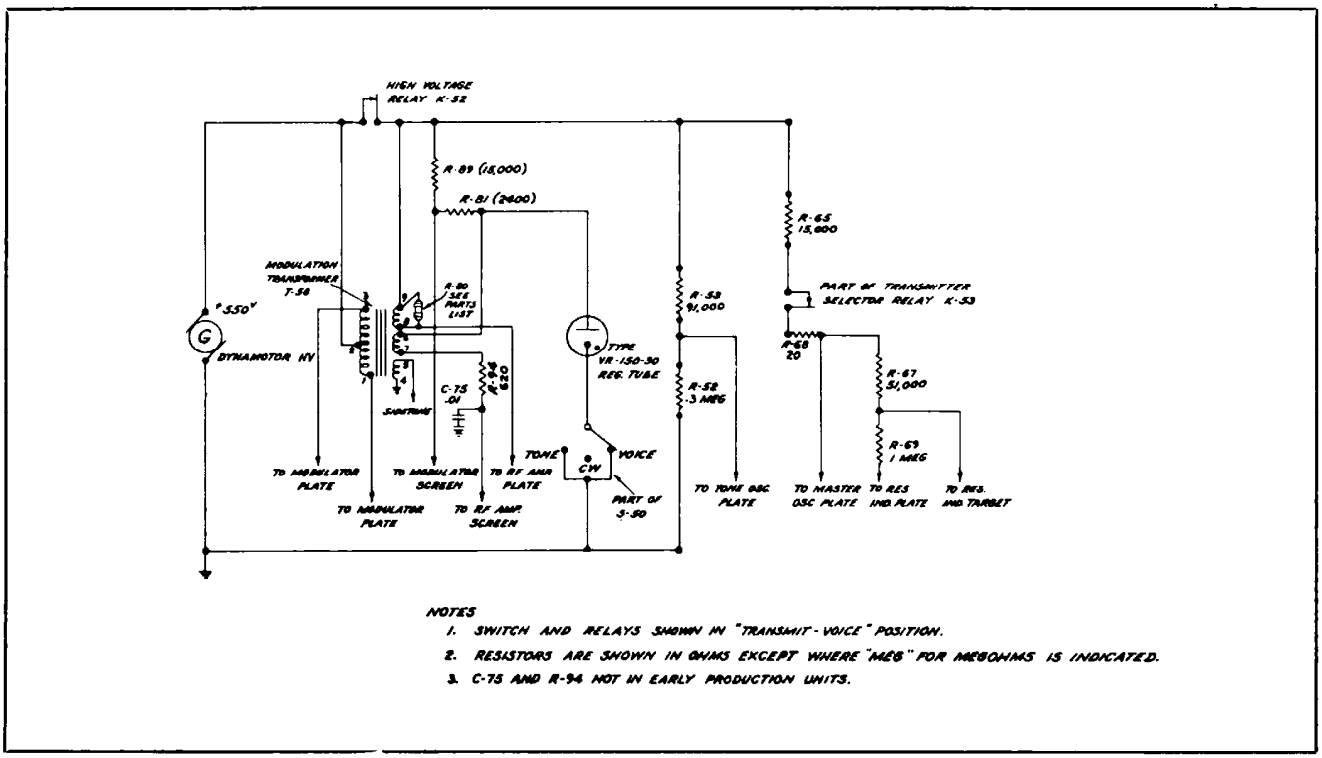


Figure 4—4. Radio Transmitter, High-Voltage D-C Circuits, Schematic Diagram

early-prodution modulators, were added as a safety factor to prevent possible supersonic oscillations under conditions of bad combinations of power amplifier tubes, modulation transformer, and antenna coupling. The power amplifier screens are held at 150 volts in the VOICE and TONE positions of the emission selector switch, but in the CW position the voltage-regulator tube is disconnected so that when the power amplifier is properly adjusted for optimum cw operation, the screen voltage rises to about 270 volts.

4—54. L-50 is an r-f choke and C-70B is an r-f filter capacitor designed to keep rf generated in the transmitter dynamotor from appearing on the low-voltage line. C-55 acts as an r-f and a-f filter on the high voltage line.

4—55. Relay K-50 is the dynamotor starting relay. Relay K-52 is the high-voltage keying relay. R-61 and C-57 act as an anti-sparking filter for K-52. Relay K-57 is a sidetone relay, open in the unenergized position, but closed whenever the transmitter operates. TONE or VOICE sidetone, as determined by the positions of the selector switch on the control box, is connected to each of the two sidetone outlets whenever the transmitter is keyed. When the transmitter is not operating, these two lines are circuited so that if each is connected to a receiver output, the receiver outputs are independent in the receiving position. K-58 is a test relay. Its function is to disable the selector switch S-52 on the transmitter control unit whenever test key S-55 or S-56 on the transmitter rack is pushed, thereby permitting the use of the test key for tuning without requiring that the selector switch be set at the proper transmitter position. K-59 is a second test relay whose contacts in the unenergized position normally close the Selector No. 1 line and open it when the test key in the No. 1 transmitter position is closed. This relay is not necessary when the equipment is used only with HF transmitters and Control Unit C-29/ARC-5, but is required when the equipment is used with VHF Control Unit C-30/ARC-5. Its function is to insure that, when the test key is pressed, only the one transmitter being tested will go on the air.

4—56. Key jack J-72 may be used for connection to a throttle switch or operator's key. MIC jack J-73 may be used for connection to a carbon microphone type RS-38 or equal. Connections to the 22-30 volt d-c source are made at J-53. Connections to the transmitter control unit are made at J-78. Connections to the transmitter rack are made at J-70. Connection to Jack Box J-16/ARC-5, J-22/ARC-5, J-22A/ARC-5, or J-22B/ARC-5 are made at J-74.

4—57. Dynamotor DY-8/ARC-5 generates the high-voltage dc for the transmitting equipment. Connections from the dynamotor to the modulator are made through couplings J-50 and J-51. The mica plate in J-50 is designed to be loose in order to reduce the strain on the pin plugs of J-51 during vibration of the units. The motor is compound wound. C-50, across the motor brush terminals, acts as a filter for r-f disturbances set up at the brushes. C-70B is a filter capacitor across the 28-volt line to the motor, performing a function similar to C-50. The transmitter dynamotor has a continuous-duty and two intermittent-duty ratings (refer to table 6—8). The

dynamotor may be operated for periods up to one hour under normal load on VOICE or TONE but must not be operated continuously, key DOWN, in the CW position. However, it may be operated in the CW position without limit under ordinary conditions of message transmissions.

WARNING

PLATE CONNECTIONS TO THE TWO TYPE 1625 MODULATOR TUBES ARE MADE AT THE TOP OF THE TUBES. THESE LEADS ARE EXPOSED WHEN THE TUBE COVER IS REMOVED. STOP DYNAMOTOR BEFORE REMOVING TUBE COVER.

4—58. ANTENNA LOADING COIL TN-6/ARC-5.

4—59. Antenna Loading Coil TN-6/ARC-5 is designed for operation with Radio Transmitters T-15/ARC-5, T-16/ARC-5 or T-17/ARC-5 only. (See figure 8—18.) Provision is made for operation from 1 to 2.1 mc on fixed antennas having a capacity as low as 60 uuf. Taps are provided on the loading coil which, together with the variable antenna tuning inductance in the transmitter, make it possible to resonate the antenna circuit for frequencies as low as 1 mc. Frequencies below 1 mc require the use of a trailing wire antenna with or without the antenna loading coil. A receptacle in the lower-left front of each of the transmitters is provided for connection to either of the two receptacles on the antenna loading coil. Relays in the antenna loading coil unit make it possible to use as many as two transmitters with the same loading coil in the same installation. A neon lamp with a variable capacitance coupling control is used as a resonance indicator.

4—60. The loading coil introduces a considerable loss in the antenna circuit, and should be used only when necessary, that is, when a trailing wire is impractical. The over-all efficiency, when using a trailing wire, is considerably greater than that with the loading coil. The antenna loading coil and LF transmitters may be used with or without one or more of the HF transmitters. Absorption in the loading coil from one of the higher frequency transmitters is prevented by a disconnect and a short-circuit action of one of the relays in the loading coil.

4—61. ANTENNA RELAY UNIT RE-2/ARC-5.

4—62. Antenna Relay Unit RE-2/ARC-5 consists of an antenna switching relay K-55 designed to switch a single LF-MF-HF antenna either to the transmitters or to the receivers of the AN/ARC-5. (See figure 8—5.) This relay is operated simultaneously with the high-voltage keying relay in the modulator unit. In addition to switching the antenna, relay K-55, when thrown to TRANSMIT, operates to ground the antenna lead to the receivers. T-55 is an r-f current transformer, the primary of which is in the antenna circuit and the secondary of which is connected to a thermocouple TC-50. The output of thermocouple TC-50 may be switched by S-54 to meter M-50 for a local indication of antenna current, or to an external antenna current indicator (not normally supplied with AN/ARC-5) for a remote indication. A ground binding post is provided on this unit in order that r-f currents from the antenna lead to the box may be grounded through a short lead rather than be required to follow the shielding, if any, of the antenna relay cable to ground.

4—63. C-69 connected between binding posts marked C is a high-voltage vacuum capacitor of 50 micromicrofarads capacitance. C-69 may be used in series with the lead from the antenna relay unit to the antenna binding post of any transmitter (or transmitters) which require series capacitance to resonate the output. C-69 will be required only if the antenna is large and the transmitter frequency high, and should not be connected in series with the output of any transmitter not requiring it. Another possible connection of capacitor C-69 is between antenna and ground, to aid in tuning low-frequency transmitters with short antennas. Such connection reduces the antenna voltage, and may be desirable to eliminate sparking at high altitudes, particularly if short antennas and frequencies below 4 mc are used.

4—64. Antenna Relay Unit RE-2/ARC-5 units having a letter stamped beside the nameplate (issue letter of the manufacturing drawing) contain a modified relay for improvement in the vibration-dust characteristics. All spare parts relays should have the letter F (or higher) beside the part number in order to be assured of the improved design. Resistance of each coil in the improved relay is 56 ohms instead of 90 ohms as in all earlier units.

4—65. CONTROL UNIT C-24/ARC-5.

4—66. Control Unit C-24/ARC-5 is designed for local operation on mcw or cw of any of the LF-MF-HF receivers. The unit contains a CW-OFF-MCW selector switch and a wide-range sensitivity control. When the C-24/ARC-5 is used, a wired plug ARC-6787 should be inserted in the rack directly behind the receiver in order to complete the low-voltage circuit to the receiver. A knob, ARC-6743, shown in figure 1—5, may be used for local tuning. Figure 8—10 is a schematic diagram of the C-24/ARC-5.

4—67. CONTROL UNIT C-25/ARC-5.

4—68. Control Unit C-25/ARC-5 is designed for remote operation of the ANT.-LOOP switch S-1 on the navigation receivers. A length of mechanical linkage ARC-6151, identical to that used for tuning the receiver, connects the C-25/ARC-5 with the switch on the receiver.

4—69. Navigation receivers are normally delivered with switch S-1 in the ANT. position and the outlet covered by a cap. S-1 may be operated locally by a knob ARC-7491. The tuning key ARC-9554 may be used to switch S-1 if a knob ARC-7491 is not available. Tuning key ARC-9554 is shown in figure 1—1 and knob ARC-7491 is shown in figure 1—5.

4—70. CONTROL UNIT C-26/ARC-5.

4—71. Control Unit C-26/ARC-5 is required for remote operation of any of the receivers, except for lock-tuned operation of the communication receivers. Because this control unit may be used to tune any of the five receivers, it is shipped less a tuning dial. A tuning dial corresponding to the frequency range of the receiver will be found attached to the underside of the tube cover of each receiver. The dial should always be returned to this location when not in use on a control unit.

4—72. The C-26/ARC-5 contains a wide-range sensitivity control R-33 and a CW-VOICE switch in addition to the tuning mechanism. (See figure 8—10.) In the CW position, the cw heterodyne oscillator in the receiver is operative for reception of cw signals. In the VOICE position the plate voltage to the cw oscillator is cut off, causing the receiver to be capable of receiving modulated signals only. Mcw signals may be heard in the VOICE position. An eight-conductor cable, ARC-6693, is used to connect the control unit to the receiver rack.

4—73. CONTROL UNIT C-27/ARC-5.

4—74. Control Unit C-27/ARC-5 is designed for lock-tuned remote operation on VOICE of any of the communication receivers. This unit contains a REC IN-REC OUT switch S-3 and a limited-range sensitivity control R-32 labelled SET FOR MAX. TOLERABLE NOISE. (See figure 8—10.) The setting of R-32 does not impair the avc action for strong signals but merely determines the maximum sensitivity of the receiver and keeps the noise level in the pilot's headset at a reasonable level when no desired signals are on the air. When a signal comes in, if strong enough, the avc will operate and automatically maintain the desired signal strength. The use of Control Unit C-27/ARC-5 presupposes accurate tuning of the receivers on the ground with the aid of the Crystal Frequency Generator O-4/ARC-5 as described in paragraph 3—8.

4—75. R-32 is a limited-range r-f manual sensitivity control. This control is adjusted at the start of the flight with other receivers off, for maximum tolerable noise, to insure that the greatest possible use is being made of the available sensitivity of the receiver. This setting will depend upon the r-f noise level within the airplane itself and will consequently require readjustment only if the atmospheric or airplane r-f disturbances change during the flight. For example, flying in the vicinity of electric storms will require reduction in maximum usable sensitivity. Otherwise, during the flight the pilot or operator may need only to switch the receiver IN or OUT as required. Resistor R-32 and switch S-3 are in the cathode-to-ground circuit of the r-f amplifier and first i-f amplifier tubes. When S-3 is open, R-36 is in this circuit to maintain a predetermined bias voltage on the cathodes of the controlled tubes of approximately 50 volts with respect to ground. Without R-36 this voltage might be high enough to cause excessive leakage between the cathodes and heaters inside the tubes.

4—76. CONTROL UNIT C-29/ARC-5.

4—77. Control Unit C-29/ARC-5 contains a three-position switch S-50 which controls the circuits determining the type of emission, a four-position switch S-52 which controls the circuits determining the choice of transmitter, and a toggle switch S-51 in the line direct from the primary source. (See figure 8—5.) This box contains receptacle J-77 for connection to the modulator unit. Although S-52 is a four-position switch designed to select one of four transmitters, only positions 1 and 2 are used with one 2-unit transmitter rack. Positions 3 and 4 may be used if a second 2-unit rack is installed or if a single 4-unit rack is installed. A mechanical stop for switch S-52 is so designed that the excursion of the switch knob can include only the required number of switch positions. For example: If two transmitters are installed, the stop is adjusted so that the switch handle hits the stop No. 2 position. One screw holds the stop in place. This screw also helps to secure the switch; therefore, it must never be omitted. Control Unit C-29/ARC-5 is used only in installations not using AN/ARC-5 VHF equipment. Whenever VHF equipment is used, Control Unit C-30/ARC-5 (described in AN 08-10-195) or Transmitter Control Unit C-30/ARC-5 (described in paragraph 4—79 of this book) replaces the C-29/ARC-5.

4—78. CONTROL UNIT C-30A/ARC-5.

4—79. Control Unit C-30A/ARC-5 is a replacement for Control Unit C-30/ARC-5, either of which are used in place of Control Unit C-29/ARC-5, where AN/ARC-5 VHF equipment is installed. Levers replace push-buttons for VHF channel switching and for transmitter choice. No change in mounting or cabling provisions is required.

4—80. The type of emission is chosen by the VOICE-CW-TONE switch (see figure 8—11). For fighter aircraft installations this switch may be left in the VOICE position and the switch covered in order to reduce the number of accessible controls. The desired transmitter is chosen by the TRANS switch. The white space above each of the four switch positions is provided for writing in the transmitter information; for example, No. 1 may be VHF, No. 2 may be 3500 kc, etc. When this transmitter control unit is installed it is not necessary that the VHF transmitter be No. 1. The vhf channel is chosen by the vhf switch. The low-voltage power supply is connected to the transmitting equipment in the ON position of the ON-OFF toggle switch. Provision is made for safety-wiring this switch in the ON position, if desired. The mechanical stop of the TRANS switch may be adjusted to prevent setting of this switch to an unused position; for example, if two transmitters are installed, this stop may be adjusted so that the positions 3 and 4 are blocked off.

4—81. CONTROL UNIT C-38/ARC-5.

4—82. Control Unit C-38/ARC-5 is designed for control of as many as three types of receiving equipments, plus the special Radio Receiver ★R-4/ARR-2, and for microphone selection to interphone or radio equipment. In

installations where only one type of radio equipment is used in addition to the interphone, the nameplate above the microphone selector switch indicates only ICS-RADIO. A mechanical stop is attached to the switch which prevents the knob from being rotated to a position clockwise from the RADIO position. In installations where there are two kinds of radio equipment requiring voice modulation, in addition to interphone, this plate is removed and the mechanical stop is repositioned so that the selector may be set to any one of three positions. Removal of the plate uncovers engraving on the box corresponding to the three positions. A volume control in the lower left-hand corner controls the pilot's headset volume. A receiver ON-OFF switch (see figure 8—11) and an r-f limited-range sensitivity control are provided for each of the three receivers. A CW-VOICE switch, a pitch control, a sensitivity control, and a band-changing crank are provided for operation of Radio Receiver ★R-4/ARR-2. On single-seat aircraft, where interphone is not required, and where there may be but one type of radio equipment involving the microphone, the microphone selector switch may be covered. In these installations, the sensitivity control and ON-OFF switch for Receiver B may likewise be covered. The box is identical internally regardless of whether or not certain controls are covered.

4—83. CONTROL UNITS C-39/ARC-5 AND C-48/ARC-5.

4—84. Control Units C-39/ARC-5 and C-48/ARC-5 are designed for installation in multi-seat aircraft, for use by anyone other than the pilot. Provision is made for control of headset volume, or choice of microphone input, that is, to interphone or to one or two types of radio equipment, depending upon the position of the mechanical stop. (See figure 8—12.) A hand microphone, or a mask microphone, plugs into the jack at the end of a flexible lead which is normally 60 inches long. The hand microphone plugs into the MIC jack on the box. A telephone headset plugs into the TEL jack on the box. Provision is made for connection to a throttle switch by means of a three-contact receptacle. In the C-48/ARC-5 a built-in relay isolates the hand and mask microphones and the throttle switch operates in connection with the mask microphone only. In the C-39/ARC-5 a three-contact throttle switch is installed, eliminating the need for the throttle switch relay.

4—85. CONTROL PANEL C-125/ARC-5.

4—86. Control Panel C-125/ARC-5 is designed to provide remote tuning and sensitivity control for any of the AN/ARC-5 LF-MF-HF receivers when used in airplanes equipped with the standard radio control panel mounting facilities. This control panel is wired for reception of modulated signals only, and for permanent connection of the low-voltage power source to the receiver. (See figure 8—13.) Calibrated dials for use with this control panel are furnished with the associated receivers and not with the control panels. Dials will be found attached to the underside of the receiver tube covers. They are directly calibrated in megacycles in large fluorescent characters. The sensitivity control is a 0-50,000-ohm variable resistor which provides a range of manual sensitivity control exceeding 50,000 to 1.

4—87. RADIO SET CONTROL C-744/ARC-5.

4—88. Radio Set Control C-744/ARC-5 is an edge-lighted plastic-panel console control unit designed to provide remote tuning and r-f sensitivity control for the AN/ARC-5 LF receivers. The C-744/ARC-5 is wired for reception of modulated signals only. (See figure 8—13.) Edge-lighting panel illumination is provided by two 28-volt midget flange-base lamps (AN3140-327) installed in AN3502-2B light assemblies located on the front panel. A removable dial, calibrated for use with the LF receivers, is included. The lamp light is transmitted through a plastic panel which is a dull black overall, except for the dial markings and panel designations which are translucent white, and an area behind the dial and VOL knob which are clear, sandblasted areas. The VOL knob controls the r-f sensitivity level of the receiver. An electrical connector and the point of attachment of the mechanical linkage are located on the rear of the unit.

4—89. DIALS ID-25/ARC-5, ID-26/ARC-5, ID-27/ARC-5, ID-28/ARC-5, AND ID-29/ARC-5.

4—90. Dials ID-25/ARC-5 through ID-29/ARC-5 are removable receiver control unit dials. They are calibrated directly in megacycles in fluorescent characters. Ultraviolet light will cause the characters to fluoresce and give off visible light. If the mechanical linkage which is required for tuning is properly assembled and installed, the total calibration error at the remote dial will not exceed 0.5 per cent. Dials are shipped attached to the underside of the tube covers of corresponding receivers, and should always be stored there when not in use.

4—91. RACKS ★MT-7A/ARR-2, MT-63/ARC-5, MT-65/ARC-5, AND MT-67/ARC-5.

4—92. The receiver racks contain stalls for one, two, three, or four receivers with provision for electrical interconnection with remaining units of the equipment. Rack ★MT-7A/ARR-2 is designed to accommodate one receiver, MT-63/ARC-5 two receivers, MT-65/ARC-5 three receivers, and MT-67/ARC-5 four receivers. A schematic diagram of a typical receiver rack is shown in figure 8—14.

4—93. The racks are designed so that only one cable to the low-voltage power supply and only one cable to the transmitting equipment is required regardless of the number of receivers installed. The output of each receiver may be separately switched to either of two lines, A or B, by the use of a toggle switch directly under each receiver. Three sets of A TEL and 3 sets of B TEL jacks are provided in each rack except in the ★MT-7A/ARR-2, where there are but two. A sidetone-receiver output relay is associated with each receiver and is circuited to operate simultaneously with the keying relay.

4—94. For installations where two separate receiver racks are required, one of the two identical outlets on the right rear may be used to interconnect the racks so that all sidetone-receiver output relays will operate and all receiver outputs will feed into the same A TEL-B TEL lines, and sidetone can be injected, without requiring an additional outlet or cable from the modulator.

4—95. RACK MT-411/ARC-5X.

4—96. Rack MT-411/ARC-5X is identical to Rack ★MT-7A/ARR-2 described in paragraphs 4—92 through 4—94, except that the coil of relay K-1 is wound for 14-volt operation instead of 28 volts.

4—97. RACKS MT-69/ARC-5, MT-71/ARC-5, MT-73/ARC-5, AND MT-75/ARC-5.

4—98. The transmitter racks contain stalls for one, two, three, or four transmitters with provision for electrical interconnection with remaining units of the equipment. These racks connect with the remaining units as shown in figure 8—5, which illustrates the connections to MT-71/ARC-5. J-75 and J-76 are selector plates containing the transmitter selector circuits. Each of these plates is located directly behind the position normally occupied by the transmitter, and removal of the transmitter makes the plate accessible for inspection or change of connections. The top center terminal must be connected by a jumper to No. 1 terminal if the transmitter in that stall is to be selected for position No. 1 on the selector switch S-52 in the transmitter control unit. The top center terminal must be connected to No. 2 if the transmitter in that stall is to be selected for position No. 2 on the same selector switch. Any combination of the transmitter racks may be installed so long as the total does not exceed four transmitters. The connections which are made on the selector plates must be written on the TRANS. NO. plates on the front of the rack in order to identify transmitter positions when the transmitters are in place.

4—99. JUNCTION BOX J-17/ARC-5.

4—100. Junction Box J-17/ARC-5 provides a means for interconnecting several aircraft radio equipments in the different combinations used. The box contains circuit breakers in each of the low-voltage circuits, an interphone-radio switching relay, an interphone (ICS) level control, receptacles for connection to the low-voltage power supply and to major units of several equipments, and circuits necessary for the operation of several combinations of the following equipment: AN/ARC-1, AN/ARC-4, AN/ARC-5, ★AN/ARR-2, AN/ART-13 (ATC), ARB, RL-7 or RL-9, and catapult ICS. Figure 8—55, Sheet 1, shows Junction Box J-17/ARC-5 as it is cabled into the radio and interphone equipment of the SBD-6 airplane.

4—101. JUNCTION BOX J-17A/ARC-5.

4—102. Junction Box J-17A/ARC-5 is a modification of the Junction Box J-17/ARC-5 (refer to paragraph 4—100), which it is intended to replace. Circuit changes have been made for the purpose of increasing the output from the communication receiver at each headset, and for preventing output of the navigation receivers from being controlled by the pilot's VOLUME control. The two-position toggle switch on the face of the junction box should be safety-wired in the position corresponding to the model of interphone installation on that particular airplane. In a single-seat aircraft installation the position of the toggle switch is immaterial.

4—103. JUNCTION BOX J-28/ARC-5.

4—104. Junction Box J-28/ARC-5 acts as a "Y" junction in the cable from Control Unit C-30/ARC-5 to Radio Receiver R-28/ARC-5 and Radio Transmitter T-23/ARC-5. In "open-wiring" installations this box is not necessary.

4—105. JUNCTION BOX J-34/ARC-5.

4—106. Junction Box J-34/ARC-5 acts as a "Y" junction in the cable from the modulator to two transmitter racks. It is required only when more than one transmitter rack is installed.

4—107. JACK BOXES J-16/ARC-5 AND J-22/ARC-5.

4—108. Jack Boxes J-16/ARC-5 and J-22/ARC-5 provide for connection of the headset, hand microphone, mask microphone, and throttle switch. A mask carbon microphone may be permanently connected to the jack attached to the flexible lead. The flexible lead is normally 60 inches long. A hand microphone plugs into the MIC jack on the box. A telephone headset plugs into the TEL jack on the box. A relay in the box is connected in such a manner that pressing the throttle switch (which may be either the two- or three-contact type) connects the mask microphone into the circuit. Pressing the switch on the hand microphone actuates only the hand microphone. Both microphones are independent, and the pilot may use either at will. For bench or ground operation of the equipment, Jack Box J-22/ARC-5 is not necessary — the MIC and KEY jacks on the modulator, and the TEL jacks on the receiver rack, may be used. The cable to Jack Box J-22/ARC-5 need not be connected under these conditions. Jack Box J-16/ARC-5 is a modification of the J-22/ARC-5 in which the throttle switch relay is eliminated.

4—109. JACK BOX J-22A/ARC-5.

4—110. Jack Box J-22A/ARC-5 is identical to Jack Box J-22/ARC-5 described in paragraph 4—108 except that a volume control is provided in the TEL line of the J-22A/ARC-5. The volume control provides an attenuation of signal voltage of as much as 4 to 1 across the headset. Jack Box J-22A/ARC-5 should not be installed with Control Unit C-38/ARC-5 because the latter has a similar volume control; install J-22/ARC-5 with C-38/ARC-5.

4—111. JACK BOX J-22B/ARC-5.

4—112. Jack Box J-22B/ARC-5 is a slight modification of Jack Box J-22A/ARC-5. A single lead from terminal 3 on receptacle J-1202 to the tip of the TEL jack has been added. The purpose of the change is to make it possible to connect the output of the navigation receivers direct to the headset instead of through the VOLUME control.

SECTION V

MAINTENANCE

5–1. INTRODUCTION.

5–2. This section provides preventive and corrective maintenance procedures for the LF-MF-HF components of Model AN/ARC-5 Aircraft Radio Equipment. Included are inspection procedures to maintain continuity of service, repair and replacement instructions, and alignment and test data. To supplement this information, full use should be made of the schematic, wiring, and other maintenance illustrations contained in Section VIII of this handbook; a complete listing will be found at the beginning of Section VIII. Also, the interior illustrations of the equipment components located in Section VI of this handbook will facilitate the location of detail parts.

5–3. PREFLIGHT INSPECTION.

5–4. Make the following preflight inspections and operating check before each flight:

a. Check that all cable connectors and mechanical linkage are secure and connected properly.

b. With aircraft's electrical system furnishing primary power to equipment, feel dynamotors to check that they are operating.

c. Check all tuning cracks, selector switches, and other operating controls for possible binding, slipping, or other defective operation.

d. Check that accessory equipment, such as microphone and headset, are connected properly.

e. Check that components are properly fastened and secured.

f. Make an aural check of the operation of the radio receivers by listening to signals at maximum gain. Excepting lock-tuned receivers, tune each through the entire band. All receivers except the one being tested should be turned off. In case of improper operation, check switch positions, headset connections, cable connections, battery voltage, dynamotor operation, and alignment of antenna input circuit.

g. Make an operating check of each transmitter by watching the antenna current indication on the antenna relay unit, and by listening to the sidetone. In case of improper operation, check switch positions, cable connections, battery voltage, dynamotor operation, and resonance of antenna circuit.

5–5. MONTHLY INSPECTION.

5–6. The equipment should be inspected at monthly intervals, or sooner if operating conditions warrant, as follows:

a. Check the condition of all wires, connections, cables, and antenna and ground leads. All connector locking rings should be handtight.

b. Compare the setting of the radio receiver frequency-indicating dial and the receiver control unit dial.

c. Check the calibration accuracy of the radio transmitters.

d. Check dynamotors for excessive carbon or copper dust. If present, blow out with about 30 psi of clean air. Check lubrication of dynamotor bearings (refer to paragraph 5–33). Inspect the brushes for excessive wear and replace if less than 1/4 inch in length (refer to paragraph 5–31).

e. Check the operation of the equipment for all control positions. If condition of component is questionable, substitute a similar type, known to be good, as a further check.

f. *With power off*, clean the contact between the wire on the antenna tuning coil and the contact button by holding the coil stationary with one hand while pressing and rotating the button with the other.

5–7. REMOVAL AND DISASSEMBLY OF RADIO RECEIVERS.

5–8. REMOVAL OF RADIO RECEIVER FROM RACK. To remove a radio receiver from a rack, disconnect the antenna leads from the receiver antenna binding post, remove safety wires and unscrew the two knurled nuts far enough to allow the lugs to be disengaged from the pointed studs. Slide the receiver out of the rack.

5–9. REMOVAL OF BOTTOM COVER. To remove the bottom cover of the receiver chassis, remove the fourteen bright screws around the bottom edge of the chassis and front panel.

5–10. REMOVAL OF R-F COIL ASSEMBLY. To remove the r-f coil assembly, remove the bottom cover (refer to paragraph 5–9), remove the two black

screws, one at each side of the chassis at approximately the center of the r-f coil assembly, and then lift the coil assembly straight up and out to avoid damaging the terminals.

5—11. REMOVAL OF OUTER SHIELD. To remove the outer shield of a radio receiver, first unfasten the four dynamotor snapslides and lift out the dynamotor. *Without disturbing the three foremost black screws along the top edge of the tie strap on each side of the chassis, or the black screws around the outer edge of the front panel,* remove the eight bright screws, that is, the four rearmost screws along the top edge of the tie strap on each side of the chassis, and slide the outer shield back and off.

5—12. REMOVAL OF ELECTRON TUBES AND I-F COUPLING UNITS. To remove any electron tube from the radio receiver chassis, unfasten the snapslides on the top cover, and remove the cover; all electron tubes are then accessible. With the removal of the top cover, the i-f coupling units may be removed by removing the two bright screws at each base, and lifting straight up to prevent damage to the terminals.

5—13. REMOVAL AND DISASSEMBLY OF RADIO TRANSMITTERS.

5—14. REMOVAL OF RADIO TRANSMITTER FROM RACK. To remove a radio transmitter from a rack, disconnect the antenna lead from the transmitter antenna binding post and unscrew the two knurled nuts far enough to allow the lugs to be disengaged from the pointed studs. Slide the transmitter out of the rack.

5—15. REMOVAL OF BOTTOM COVER. To remove the bottom cover of a transmitter chassis, remove the twelve bright screws around the bottom edge of the chassis and in the bottom flange of the front panel.

5—16. REMOVAL OF OUTER SHIELD. To remove the outer shield of a radio transmitter, remove the nineteen bright screws around the edge of the shield. Lift the rear of the outer shield up and slide back and off the chassis.

5—17. REMOVAL OF MASTER-OSCILLATOR COIL AND CAPACITOR SHIELD. To remove the shield over the master-oscillator coil T-53 and capacitor C-60, it is only necessary to remove the twelve bright screws; however, before doing so, record the serial number and frequency range of the transmitter on the shield and transmitter chassis. This is to make certain that the shield goes back into the same unit, since the position of the screw (on the left side with the blue paint) affects the inductance of the master-oscillator coil.

5—18. TROUBLE SHOOTING THE RADIO RECEIVERS.

5—19. GENERAL. If visible mechanical faults, defective tubes, and dynamotors are eliminated as the cause of failure, either test procedure described in paragraphs 5—20 and 5—21 or a combination of them, will be helpful in locating the fault. A multimeter is the only equipment necessary to locate faults in the control units, dynamotors, racks, and adapters. Examine each unit visually for mechanical defects before making electrical tests.

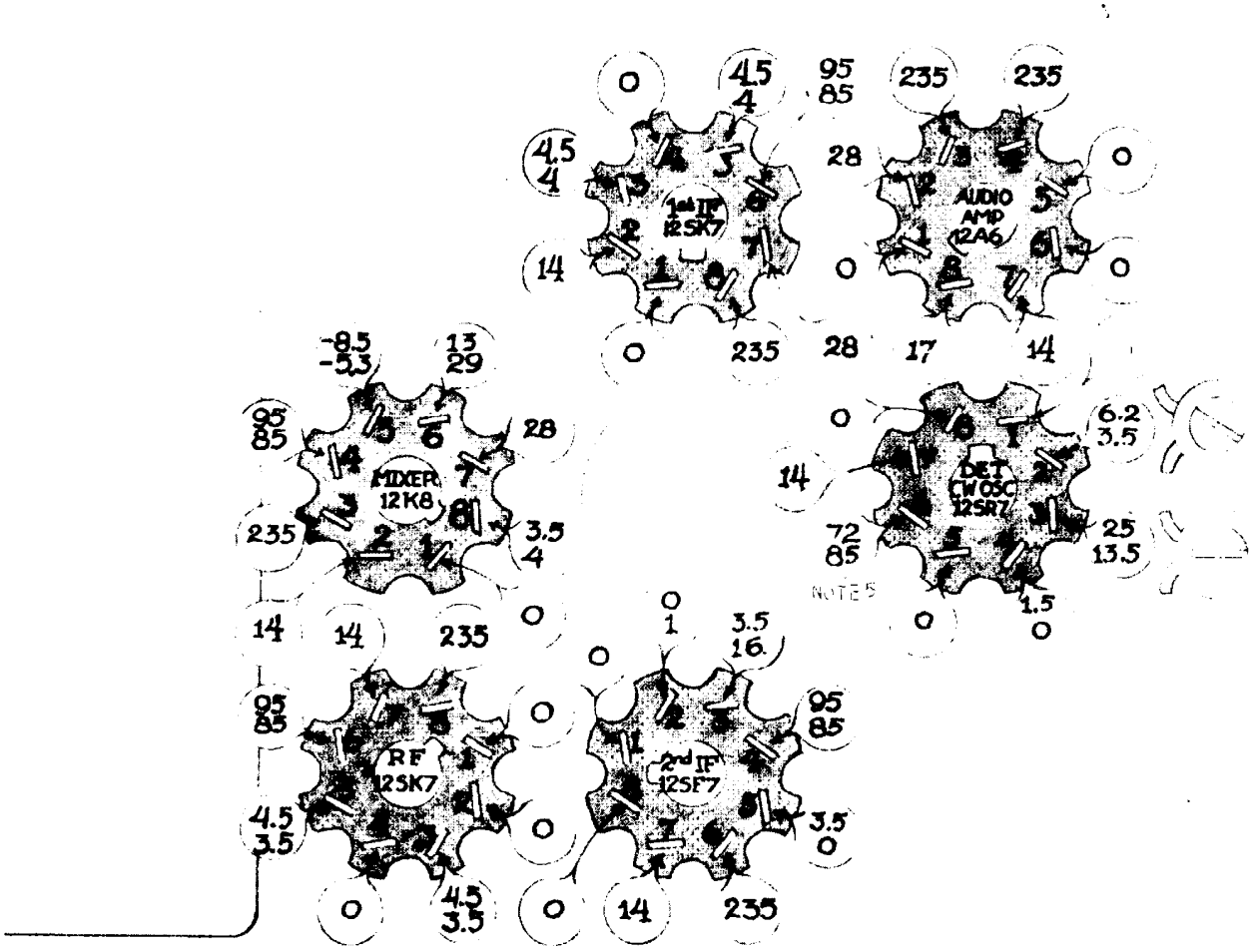
5—20. VOLTAGE MEASUREMENTS AND CONTINUITY CHECK. Remove the chassis bottom cover and connect the radio receiver to Test Set 7918 as shown in figure 8—70. Meters should read as indicated in the table on figure 8—70. Following this, a systematic measurement of the voltages at each of the tube terminals will determine which of the d-c circuits, if any, is defective. (See figure 5—1.) This measurement will also check continuity or shorts in the r-f and i-f plate circuits. If the trouble is not located at the conclusion of the above tests, use a multimeter to check the continuity of all circuits.

5—21. SENSITIVITY MEASUREMENTS. Another method of locating faults in a radio receiver is to measure the microvolts at each of several points required to produce 10 milliwatts (1.73 volts across 300 ohms). Table 6—3 lists the test points and shows a value of sensitivity in microvolts which may be considered normal for each of these points. By systematically applying the signal generator to the points indicated, the stage in which the fault lies may be quickly determined.

Note

Observe the general precautions noted in the application of table 6—3. This table is meant merely as a guide and departures of 2 to 1 from these figures do not necessarily indicate a fault.

5—22. The following test equipment is required for sensitivity measurements: (1) a standard signal generator, such as Signal Generator TS-413/U, which covers the tuning range of the receivers which may be modulated 30 per cent at 400 cps; (2) an output meter of the copper oxide rectifier or vacuum tube voltmeter type, such as Electronic Multimeter ME-6B/U or Ballantine Model 300; (3) a resistor of such value that combined with that of the headset and the voltage measuring instrument across it, the effective load impedance will be close to 300 ohms at 1000 cps; (4) a Test Set 7918 consisting of necessary cables, meters, jacks, gain control, and power switch, and (5) a crystal frequency standard for accurately determining test frequencies. (The variable portion of the alignment tuning capacitors in this equipment is so small that unless the signal generator frequency is precise, it may not be possible to find a resonant point within the range of the aligning capacitor.) The receiver may be connected to this equipment for convenient inspection and adjustment in any position. In lieu of this special equipment, a bench test of a receiver may be made by connecting the positive battery terminal to terminal 6 and the negative battery terminal to the chassis. The battery voltage should be close to 28 volts dc. The headset, output meter, and load resistor may be



NOTES:

1. ALL VOLTAGES ARE DC, AND ARE MEASURED BETWEEN EACH OF THE TUBE SOCKET TERMINALS AND THE CHASSIS. INPUT VOLTAGE 28. RECEIVER IN THE CW, MAXIMUM GAIN CONDITION.
2. VARIATIONS OF ±10% FROM THE FOLLOWING VALUES MAY BE EXPECTED DUE TO DIFFERENCES IN TUBES, RESISTORS, AND DYNAMOTORS.
3. WHERE TWO VOLTAGE VALUES ARE SHOWN, THE TOP ONE APPLIES TO THE NAVIGATION AND THE BOTTOM TO THE COMMUNICATION RECEIVERS.
4. SOME TERMINALS ARE ACCESSIBLE ONLY WITH A BENT VOLTMETER PROD. REFERENCE TO THE WIRING DIAGRAMS WILL INDICATE MORE ACCESSIBLE POINTS WHICH CONNECT DIRECTLY TO THESE TERMINALS.
5. VOLTAGES SHOWN WERE MEASURED WITH A VOLTMETER HAVING A RESISTANCE OF 1000 OHMS PER VOLT. VOLTAGES UNDER 30 WERE MEASURED ON THE 30-VOLT SCALE AND ALL OVER 30 ON THE 300-VOLT SCALE.
6. VOLTAGE AT TERMINAL 6 ON THE 12S7 TUBE IS 0 IN MCW POSITION.

Figure 5–1. Radio Receiver, Terminal Voltage Measurements

connected in parallel to terminal 2 and the chassis. Proceed as follows:

a. Connect the ground lead from the signal generator output to the receiver chassis.

b. Connect the other lead from the signal generator output to the antenna binding post through a 0.006 uf fixed capacitor. Use this blocking capacitor for all of the following tests even though it is essential for tests only on the 2nd if. See that the lengths of both leads from the signal generator are kept as short as possible (less than one foot) and that these leads are kept close together (twisted).

c. Set the signal generator modulation to 30 per cent at 400 cps, set the signal generator microvolts to 200, set the receiver indicated frequency to the lowest calibrated value, switch to MCW position, turn the gain control to maximum, and vary the signal generator frequency through the indicated receiver frequency and far enough on either side to avoid errors in signal generator frequency calibration. Use a headset in the receiver output circuit. If a 400-cycle output is heard, retune the signal generator through this frequency. Keeping the signal generator output microvolts adjusted to produce not more than 10-milliwatt output, tune the signal generator and the radio receiver ALIGN INPUT knob to produce maximum output. If not more than twice the number of microvolts listed in table 6—3 is now required to produce 10-milliwatt output, the receiver sensitivity is not abnormally low, and any serious defect apparent in mcw operation must be found elsewhere. If the mcw sensitivity is satisfactory as indicated above, check the CW position, and consider the cw sensitivity satisfactory if not more than one-half the mcw microvolts is required on cw to produce a maximum beat audio output of 10 milliwatts.

d. If the receiver sensitivity on mcw is abnormally low, measured at the antenna post, determine whether the fault lies ahead of, within, or following the mixer stage, by checking the sensitivity at the mixer grid (top cap).

e. Set the signal generator modulation to 30 per cent at 400 cps, and tune its frequency through the indicated receiver frequency as before. If not more than twice the microvolts indicated in table 6—3 is required for 10-milliwatt output, the fault lies between the antenna binding post and the output of the r-f amplifier stage. If three or four times the number of microvolts indicated in the table is required in this r-f test, change the signal generator frequency to the intermediate frequency for this receiver and vary its frequency and output level progressively to obtain a maximum output of 10 milliwatts. If the normal number of microvolts is now required, the fault lies in the oscillator circuit of the mixer stage.

f. Check the mixer tube voltages and if these are normal, replace the mixer tube with one known to be satisfactory.

g. If considerably more than the normal microvolts at the intermediate frequency on the mixer grid is required, the fault lies further along the amplifier including, or in, the mixer tube elements not used for oscillation.

h. Continue with the signal generator sensitivity checks at the intermediate frequency on the control grid of the first i-f tube. Wrap a wire around the control grid terminal (fourth terminal clockwise from the locating pin as viewed from the bottom), for connection to the signal generator.

i. If this check still shows faulty sensitivity, repeat the measurement in a similar manner on the control grid of the second i-f tube (terminal No. 2), checking the terminal voltages of the tubes and circuits involved, in order to locate the position of the fault more exactly. Abnormally low sensitivity at the second i-f grid indicates trouble between this point and the audio output circuit. The signal generator is not useful beyond the second i-f grid. With this method, the source of the trouble may be quickly narrowed down. It is then possible to use a multimeter to check the components between the tube which was found to give correct sensitivity, and the first one toward the antenna which failed to do so.

j. After the fault has been removed, recheck the cw operation at the intermediate frequency by returning the signal generator to the mixer grid (top cap) to see if less than half of the mcw microvolts required to produce 10-milliwatt beat audio output when in the CW receiver position is present. The signal generator tuning which here produces maximum mcw output should agree closely with that required to produce zero beat on CW.

5—23. RADIO RECEIVER R-F AND I-F ALIGNMENT.

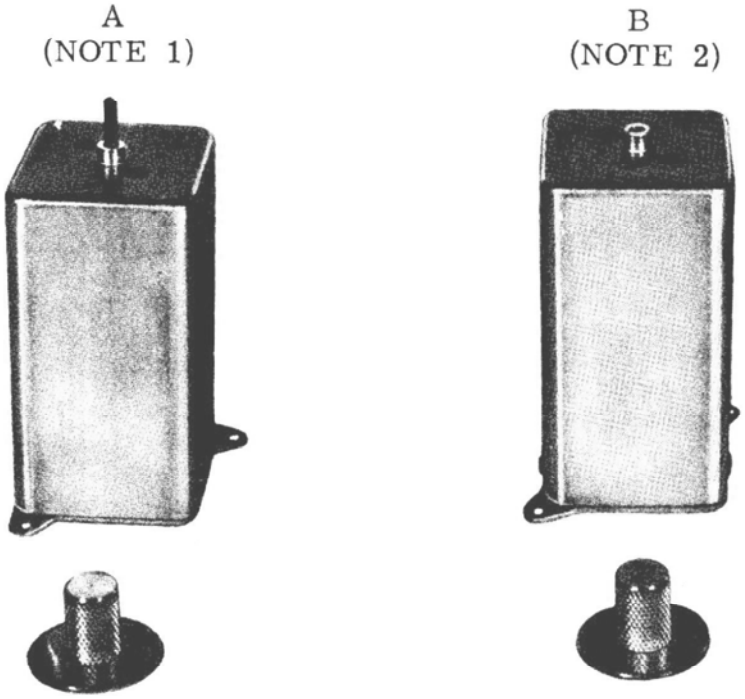
5—24. If the sensitivity of a radio receiver is found to be low, and the tubes, dynamotor, and circuit elements are normal, it may be necessary to realign the r-f and i-f stages. The test equipment required for this operation is the same as that noted in paragraph 5—22 (also refer to table 2—1), plus an insulated screwdriver whose outside shank diameter does not exceed 5/32-inch. An uninsulated screwdriver may ground the trimmer rotor of the third i-f coupling unit secondary, thereby short-circuiting the diode resistor across which audio voltage is developed in the diode detector circuit. Table 6—3 shows the sensitivity in microvolts for standard output for all receivers. It also lists the microvolts required at the grid of the r-f amplifier, the mixer grid, and the grids of the first and second i-f amplifier tubes, required to produce standard output. These values should be used as a guide in determining the condition of the receivers under test. Alignment of these receivers should never be attempted without the use of a good standard signal generator and crystal frequency standard. Never attempt to align any of the several stages on an outside radio signal except in a real emergency and then only on a continuously tone-modulated signal. The alignment operations should be performed in the following order:

a. Set the signal generator to the intermediate frequency, modulated 30 per cent at 400 cps. The signal

generator setting should be as precise as possible. Use a crystal frequency standard. The receiver should be operated on mcw at maximum gain position of the gain control. If the receiver is the R-23/ARC-5, R-23A/ARC-5, R-148/ARC-5X, or the R-24/ARC-5, the magnetic coupling between the two tuned circuits in each of the coupling unit assemblies should be reduced by raising the protruding bakelite rod until it snaps into its up or loose-coupled position (see figure 5—2). The following alignment operations should be performed only with all three of the i-f coupling units thus set for loose coupling. After alignment of the entire receiver, the coupling rod of only the first i-f coupling unit should be snapped back into its down or over-coupled position, except for R-23A/ARC-5 and R-148/ARC-5X receivers in which *all* rods should be pushed down for normal operation *after* the alignment. The R-25/ARC-5, R-26/ARC-5 and R-27/ARC-5 receivers have three i-f coupling units with two tuned circuits per unit, but the coupling between circuits is not adjustable.

b. Connect the signal generator leads to the control grid of the mixer tube and to the chassis of the receiver; do not remove the grid cap.

c. Increase the signal generator input to the smallest amount which will produce an easily readable level in



NOTES:

1. EXCEPT FOR THE MOUNTING PLATE, THIS IS REPRESENTATIVE OF THE I-F COUPLING UNITS IN THE R-23/ARC-5, R-23A/ARC-5, R-148/ARC-5X, AND R-24/ARC-5. TRIMMER CAPACITORS REACHED THROUGH HOLES "1" AND "2" TUNE THE INPUT (PRIMARY) AND OUTPUT (SECONDARY) TUNED CIRCUITS, RESPECTIVELY. WITH THE BAKELITE ROD ACTUATOR IN THE UP POSITION THE CIRCUITS ARE UNDERCOUPLED AND IN THE DOWN POSITION ARE OVERCOUPLED. A STRONG DETENT ACTION INDICATES THE TWO POSITIONS WHICH ARE 1/4-INCH APART. THE ACTUATOR IN "A" IS SHOWN IN THE UP POSITION. THE CAP SHOWN IN FRONT OF THE COUPLING UNIT ACTS AS A DUST COVER AS WELL AS TO PROTECT THE ACTUATOR. FOR FURTHER DETAILS SEE FIGURES 8-64, 8-65, AND 8-66.
2. EXCEPT FOR THE MOUNTING PLATE, THIS IS REPRESENTATIVE OF I-F COUPLING UNITS IN THE R-25/ARC-5, R-26/ARC-5, AND R-27/ARC-5. TRIMMER CAPACITORS REACHED THROUGH HOLES "1" AND "2" TUNE THE INPUT (PRIMARY) AND OUTPUT (SECONDARY) TUNED CIRCUITS RESPECTIVELY. THE COUPLING BETWEEN THE CIRCUITS IS NOT ADJUSTABLE. FOR FURTHER DETAILS SEE FIGURES 8-67, 8-68, AND 8-69.

Figure 5—2. I-f Coupling Unit Assemblies, Top Views

the output meter (approximately 10 milliwatts, which is 1.73 volts across 300 ohms).

d. There are two holes "1" and "2" in the top of each i-f coupling unit shield (see figure 5—2). A variable capacitor under "1" tunes the input (plate) tuned circuit and a capacitor under "2" tunes the output (grid, or diode input) tuned circuit. Using a small screwdriver, tune the capacitor under "1" and then under "2" in the third i-f coupling unit Z-3 for maximum output. Repeat this operation to be assured that it is maximum.

e. Similarly, tune the capacitors in the second i-f coupling unit Z-2.

f. Similarly, tune the capacitors in the first i-f coupling unit Z-1.

g. Switch to CW and tune the cw oscillator trimmer capacitor C-28 for zero beat. Capacitor C-28 may be tuned with a small screwdriver through the hole in the right rear side of the chassis.

h. If further alignment appears necessary, remove the outer receiver shield. It is necessary to remove this to gain access to the r-f amplifier trimmer C-4D and to the r-f oscillator trimmer capacitors C-4E and C-9. C-4D is reached through the left hole in the gang capacitor shield (as viewed facing the front of the receiver). C-4E may be reached through the next hole to the right and C-9 through the remaining hole.

i. With the signal generator lead still connected to the mixer grid, and with its output not more than twice the mixer grid sensitivity value listed in table 6—3, set the tuning dial of the receiver to the high-end alignment frequency (refer to table 5—1) and set the signal generator as accurately as possible to the corresponding frequency. Next, tune the r-f oscillator shunt trimmer capacitor C-4E for maximum output. (C-4E is reached through the middle hole in the shield.)

TABLE 5—1. PRESELECTOR AND R-F OSCILLATOR ALIGNMENT FREQUENCIES

Receiver	*High-End Alignment Frequency*	*Low-End Alignment Frequency*
	Align C-4E, C-4D, and C-2 at	*Align C-9 at*
0.19-0.55 mc	0.52 mc	0.21 mc
0.52-1.5 mc	1.4 mc	0.57 mc
1.5-3 mc	2.9 mc	1.55 mc
3-6 mc	5.8 mc	3.1 mc
6-9.1 mc	8.9 mc	6.1 mc

j. Connect the signal generator to the antenna post, and leaving its frequency and the receiver dial setting unchanged, align the r-f amplifier trimmer C-4D (left hole), and the antenna input C-2 knob (front of receiver marked ALIGN INPUT). Switch to CW and trim C-4E for zero beat.

k. Tune the receiver to the low-end alignment frequency, and the signal generator to the corresponding frequency. Return the switch to MCW. Tune the r-f oscillator series trimmer capacitor C-9 (C-9 is reached through the hole on the right) for the maximum output which can be obtained by turning the receiver slowly back and forth between trial settings of trimmer C-9.

l. Retune the receiver dial and the signal generator to the high-end alignment frequency, and switch to CW. Retrim C-4E for zero beat.

m. Final operation: For the R-23/ARC-5 and R-24/ARC-5 receivers, push the rod of the first i-f coupling unit down and leave the second and third up. For the R-23A/ARC-5 and R-148/ARC-5X receivers, push all three rods down. Replace all screws holding shields, covers, etc. and securely tighten them. The large number of screws are there for the purpose not only of holding parts together, but of reducing undesired electrical interferences created within the receiver.

5—25. SENSE AND PREFERRED SETTING OF ALL TRIMMER CAPACITORS.

5—26. The maximum capacitance position of the rotors of all trimmer capacitors (except auxiliary trimmers C-4F and C-4G under the gang capacitor shield) in the equipment is obtained when the top of the "cross" or "arrow" on the rotor shaft is lined up with the fixed fiducial mark on the dust shield, i-f can, or chassis. Turning the rotor 180 degrees in either direction reduces the capacitance to a minimum. When trimming a circuit, always tune in a counterclockwise motion from the maximum capacitance setting. This will always result in a setting of the trimmer so that a clockwise motion increases capacitance. Uniform practice in this operation is desirable.

5—27. Auxiliary aligning capacitors C-4F and C-4G are in parallel with aligning capacitors C-4D and C-4E. C-4F and C-4G may be tuned only after removal of the gang capacitor shield. These are adjusted at the factory, either to maximum, half, or minimum capacitance, depending on the receiver and the capacitor, and should not be altered subsequently. The correct settings for each receiver are shown in table 5—2.

TABLE 5—2. RADIO RECEIVER TRIMMER CAPACITOR SETTINGS

Receiver	*Setting of cross mark on auxiliary gang trimmers, as seen from the front of the receiver*	
	C-4F	*C-4G*
0.19-0.55 mc	Min. ↑	Min. ↑
0.52-1.5 mc	Min. ↑	Half →
1.5-3 mc	Half →	Half →
3-6 mc	Half →	Max. ↓
6-9.1 mc	Half →	Max. ↓

5–28. MAINTENANCE OF RADIO RECEIVER DYNAMOTORS.

5–29. GENERAL. If the receiving equipment is operating satisfactorily with the dynamotor noise at a suitably low level, the dynamotor should rarely be touched. Frequent sending of commutators, manipulating of brushes, or excessive lubrication is likely to do more harm than good. The dynamotors supplied with this equipment are provided with grease-sealed ball bearings containing sufficient lubricant for 1,000 hours of operation. Hence the routine inspection should consist of a check on the radio and audio noise attributable to the dynamotor, and a cleaning of carbon or copper dust, which may have accumulated in the vicinity of the commutators.

5–30. DYNAMOTOR RADIO NOISE CHECK. A check of dynamotor radio noise may be made by operating the radio receiver at maximum gain and comparing the noise output with that from a dynamotor known to be satisfactory. If the equipment is not properly grounded to the metal fuselage, noise will be experienced even when the dynamotor is operating satisfactorily. The check on audio noise may be made by operating the receiver at minimum gain. If a loud low pitch tone is heard, it is indicative of commutator or armature trouble. In a normal dynamotor, the ripple will be so low that in the presence of a small amount of external radio noise it can barely be distinguished. If the audio noise is loud, make certain that all brushes are making good contact with the commutators and that the brushes slide easily in their slots. If the noise still persists, remove the brushes and check each coil winding of the armature for an open or short circuit by placing the test-leads terminal of a multimeter on adjacent high-voltage commutator bars and continuing the test around the commutator. The test leads must not be applied to that section of the commutator which ordinarily comes in contact with the brushes. Each test around the commutator should indicate the same resistance of approximately 25 ohms for the high-voltage side and approximately 0.4 ohm for the low-voltage side. Any appreciable variation from this indicates an open circuit, a short circuit, or a partial short circuit, in which case the armature must be replaced. The d-c resistance of the shunt field winding is 225 ohms.

5–31. REPLACEMENT OF DYNAMOTOR BRUSHES. When it becomes necessary to replace the dynamotor brushes, make certain that each new brush slides smoothly in its slot, that the pigtail connector inside the spring is secure, and that the brush is the correct one for this machine. Always replace brushes with the same side up in order to reduce the time required for run-in to obtain proper brush seating. Low-voltage brushes should have a useful life of at least 1,000 hours and high-voltage brushes 2,000 hours. The end of the useful life of the brushes comes when they have worn down to ¼-inch. Whenever new brushes are installed, the commutators should be carefully sanded with grade 0000 or finer sandpaper and the dynamotor then "run in" on the bench for a period of six hours (or until at least 80 per cent of the surface of all brushes is in contact with the commutator) under normal load before being replaced in service.

5–32. REMOVAL OF ARMATURE AND BEARINGS. If it becomes necessary to remove the armature or to replace bearings, proceed as follows:

a. Remove the end covers followed by all four brushes; then the tie rods by unscrewing the acorn nuts.

b. Pull the high-voltage bracket out of the frame. This bracket fits snugly, and if difficulty is encountered in removing it, tap it lightly with a leather mallet. Remove the armature.

c. Using a bearing puller, remove the bearings from the shaft (any other method is likely to damage the shaft or commutator). In an emergency, however, two screwdrivers inserted between the grease slinger and the iron core of the commutator may be used as wedges to pry the bearings off the shaft. Be sure to straighten the grease slingers if damaged, or if required, replace them before attaching new bearings.

Note

New bearings should never be removed from their cartons until ready for use in order that they be kept free of corrosion and foreign matter.

d. Check that the bearings run smoothly before placing them on the shaft.

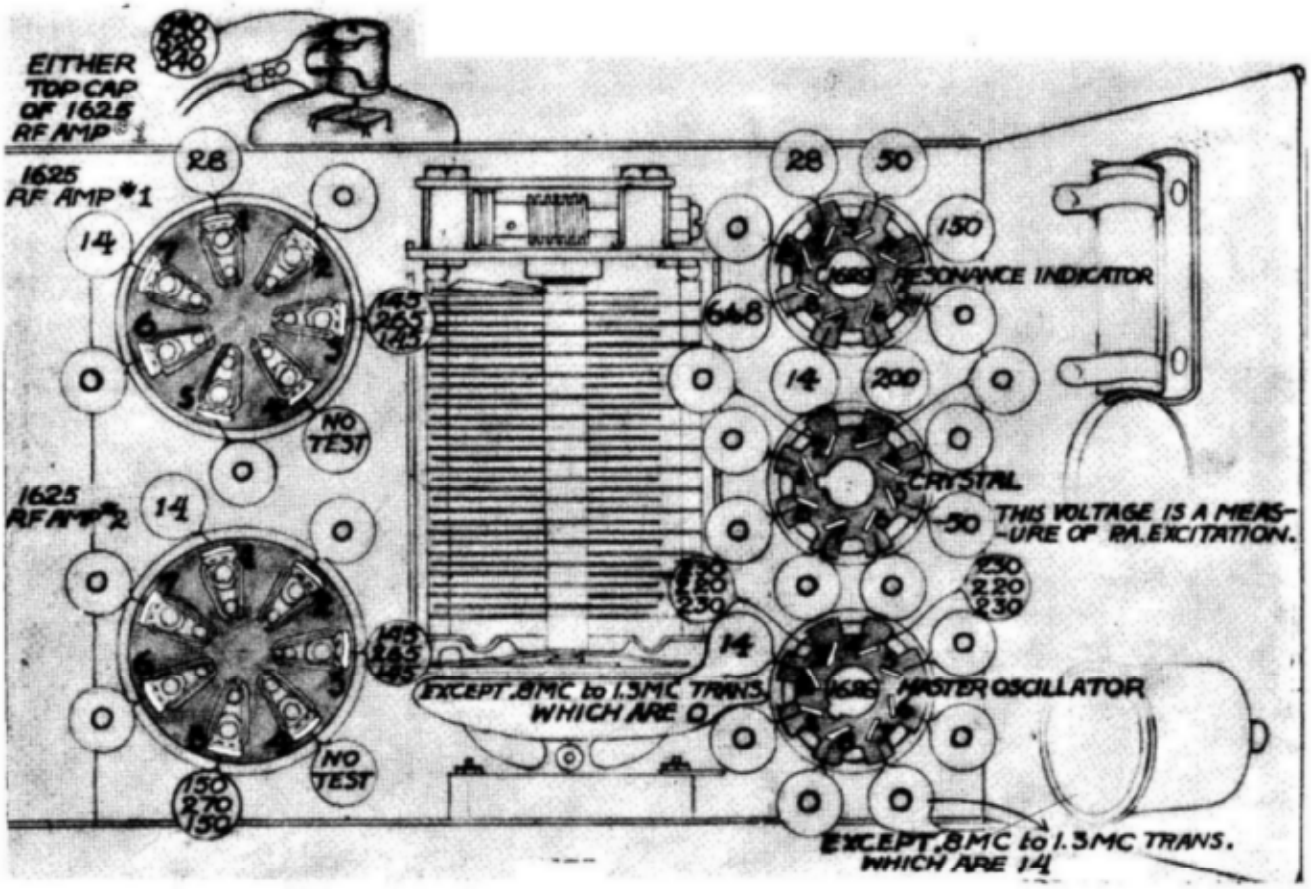
e. With the shield side of the bearings facing the commutator, rap the bearing lightly with the palm of the hand to drive them onto the bearing shoulders.

f. Reverse the removal procedure in replacing the armature and bearing assembly.

5–33. LUBRICATION OF DYNAMOTOR BEARINGS. Replacement bearings are furnished lubricated with sufficient grease for several hundred hours of operation and may be operated temporarily without further addition of grease. If lubrication is necessary, use a small amount of grease (Federal Specification 14L3, Grade III). Do not over-lubricate.

5–34. TROUBLE SHOOTING THE RADIO TRANSMITTERS.

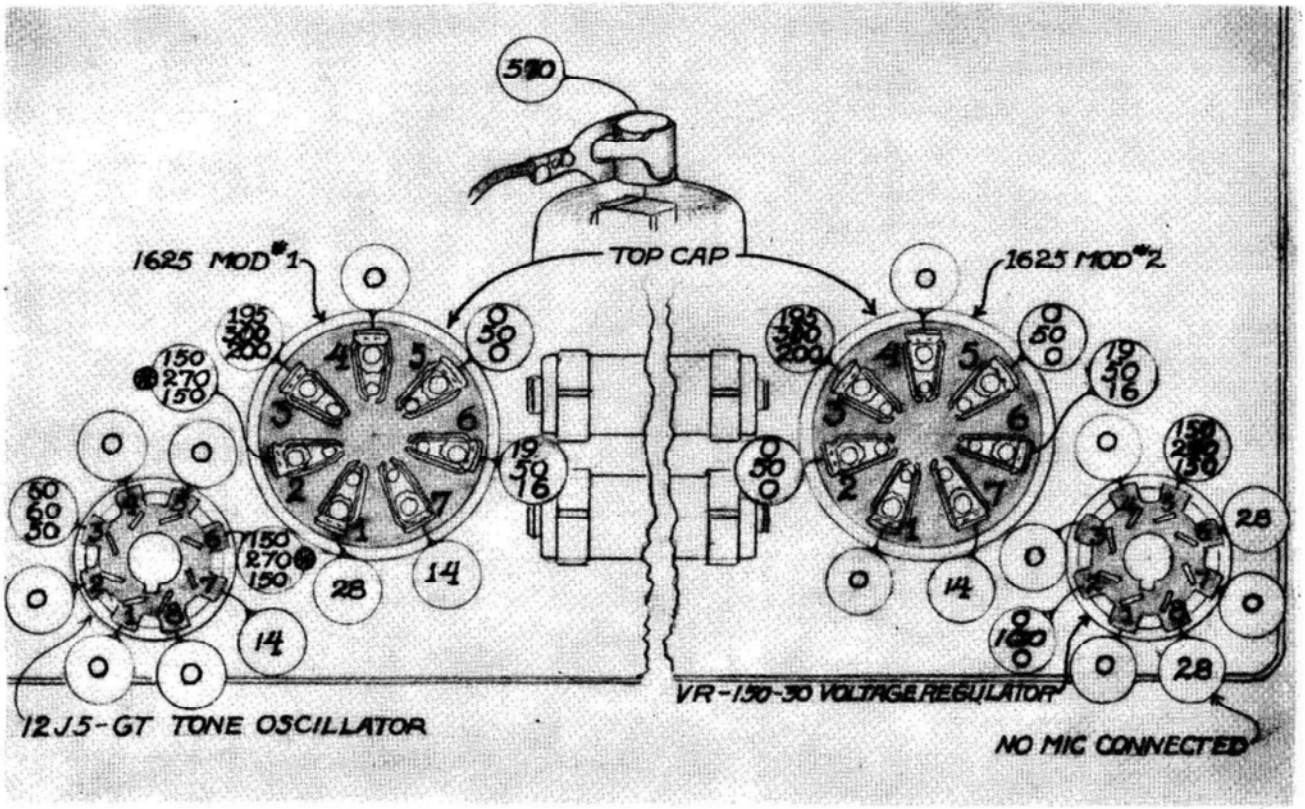
5–35. Defective or questionable radio transmitters should be checked with the aid of Test Set 9558. Figure 8–70 shows the cabling diagram for use with this test set and also includes a table of voltages and currents which should be obtained with normal equipment. Table 6–5 lists additional data on typical transmitters. Before electrically testing any of these units, make a visual inspection for mechanical defects and then make certain that a dynamotor and set of tubes known to be satisfactory are installed. The input voltage should be close to +28 volts dc. Use the schematic diagrams of figure 8–5 in connection with the voltage measurements of figures 5–3 and 5–4 in locating faults. The practical wiring



NOTES:

1. ALL VOLTAGES ARE DC, AND ARE MEASURED BETWEEN EACH OF THE TUBE SOCKET TERMINALS AND THE CHASSIS. INPUT VOLTAGE 28.
2. VARIATIONS OF ± 10% FROM THE FOLLOWING VALUES MAY BE OBTAINED DUE TO DIFFERENCES IN TUBES, TRANSMITTERS, AND DYNAMOTORS. TRANSMITTER CONNECTED TO ANTENNA ARC-7777 AND TUNED ACCORDING TO INSTRUCTIONS IN TABLE 6-5.
3. WHERE THREE VOLTAGE VALUES ARE SHOWN THEY APPLY, IN ORDER, TO TONE, CW, AND VOICE OPERATION. THE SINGLE VALUE APPLIES EQUALLY TO TONE, CW, OR VOICE OPERATION.
4. VOLTAGES SHOWN WERE MEASURED WITH A VOLTMETER HAVING A RESISTANCE OF 1000 OHMS PER VOLT. VOLTAGES UNDER 30 WERE MEASURED ON THE 30-VOLT SCALE AND ALL OVER 30 ON THE 600-VOLT SCALE.

Figure 5–3. Radio Transmitter, Terminal Voltage Measurements



NOTES:

1. ALL VOLTAGES ARE DC, AND ARE MEASURED BETWEEN EACH OF THE TUBE SOCKET TERMINALS AND THE CHASSIS. INPUT VOLTAGE 28.
2. VARIATIONS OF ±10% FROM THE FOLLOWING VALUES MAY BE OBTAINED DUE TO DIFFERENCES IN TUBES, TRANSMITTERS, AND DYNAMOTORS. TRANSMITTER CONNECTED TO ANTENNA ARC-7777 AND TUNED ACCORDING TO INSTRUCTIONS IN TABLE 6-5.
3. WHERE THREE VOLTAGE VALUES ARE SHOWN THEY APPLY IN ORDER TO TONE, CW, AND VOICE OPERATION.
4. VOLTAGES SHOWN WERE MEASURED WITH A VOLTMETER HAVING A RESISTANCE OF 1000 OHMS PER VOLT. VOLTAGES UNDER 30 WERE MEASURED ON THE 30-VOLT SCALE AND ALL OVER 30 ON THE 600-VOLT SCALE.
5. THESE TERMINALS ⊗ ARE BLANK ON EARLY PRODUCTION UNITS.

Figure 5—4. Modulator, Terminal Voltage Measurements

diagrams, figures 8—27 through 8—30, will also assist in localizing troubles and tracing the circuit wiring.

WARNING

WHEN THE OUTER SHIELD A-50 IS REMOVED, PLATE CLIPS ATTACHED TO THE R-F AMPLIFIER TUBES ARE EXPOSED. THE D-C VOLTAGE BETWEEN THESE CLIPS AND GROUND MAY REACH 600 VOLTS. EXTREME CAUTION SHOULD BE OBSERVED IN PERFORMING ANY OPERATION INSIDE THE TRANSMITTER. DO NOT ATTACH OR REMOVE THE TEST SET CABLE WHILE POWER IS ON.

5—36. RADIO TRANSMITTER ALIGNMENT PROCEDURE.

5—37. GENERAL. Each transmitter is equipped with a frequency-calibrated tuning dial geared to a single control for tuning both the master-oscillator and power-amplifier circuits. This means that not only must the values of inductance and capacitance of the master-oscillator circuit be correct to produce the indicated transmitter frequency, but also that the values of inductance and capacitance of the power-amplifier circuit must be correct to "track" with the master oscillator. The master-oscillator and power-amplifier coils in the transmitters are adjusted to a predetermined value of inductance at the factory by means of adjustable iron cores. The screw E-58 controlling the inductance adjustment of the master oscillator is located in the dust cover over the master-oscillator coil. (See figure 6—7.) The screw E-59 controlling the inductance adjustment of the power-amplifier coil is mounted on a bracket attached to the top of the ceramic coil form (see figure 6—7). After proper adjustment of the inductance of each of these coils, the screws are sealed and the tops painted blue. Unnecessary alteration in the setting of these screws will affect the calibration precision and the tracking of the two ganged tuned circuits of the transmitter. The adjustment should be carried out only under controlled conditions. The test equipment required is a precision frequency supply (such as a quartz crystal oscillator with a multivibrator), and a receiver capable of combining signals from the multivibrator and the transmitter and indicating when the two are of equal frequency. A guard shield with a $\frac{1}{2}$-inch hole in the top directly above the inductance adjusting screw E-59 will make the inductance adjustment of the power-amplifier coil less hazardous.

Note

The sequence of the adjustments which follow assumes that the rotor angles of C-60 and C-67 in the applicable transmitters have been adjusted precisely according to the information given on the practical wiring diagram, figure 8—30.

5—38. ADJUSTING THE MASTER OSCILLATOR. To adjust the master oscillator, proceed as follows:

a. Remove the outer shield and connect the transmitter as shown in figure 8—70.

b. Set the rotor of C-60 to the angle specified in the practical wiring diagram for the particular transmitter (see figure 8—30) with the vernier adjustment on the side in its mid-position.

c. Set the FREQUENCY dial to the highest nominal dial reading and tune the transmitter on VOICE for maximum power output into Antenna 7777. Allow the transmitter to warm up for 5 minutes before proceeding.

d. Adjust the trimmer on C-60 for zero beat against the standard frequency corresponding to the transmitter dial setting. If zero beat cannot be obtained by use of the trimmer on C-60, set this midway between the two end-stops and adjust the main rotor of C-60 to produce zero beat. This may be done by loosening the screw at the end of the locking strap attached to the rotor shaft, and adjusting the rotor by pushing the locking strap slightly one way or the other with a screwdriver.

e. When zero beat is obtained, lock the rotor by tightening the screw holding the end of the locking strap. Then, tune the transmitter to approximately zero beat with the standard frequency corresponding to the lowest dial frequency.

f. Observe the error in dial reading at this lowest frequency. This error must be eliminated by a proper adjustment of both inductance and capacitance. To do this most readily, overshoot by changing the inductance trimmer E-58 until the dial error, at zero beat with the standard, is about $1\frac{1}{2}$ times as great as it was before, but of the opposite sign (i.e., if the original dial reading was above the calibration line, the new setting for zero beat should be below, and about $1\frac{1}{2}$ times as far away). Next, reset the dial accurately to the nominal low frequency and trim C-60 for zero beat.

g. Check the highest frequency point, and if the dial and master oscillator are not in agreement, repeat steps a. through f. of this procedure. Check several frequencies in the band for accuracy better than 0.04 per cent.

h. Check that the setting of the capacitance trimmer on C-60 is near the middle of its range. If it is not, set it there and readjust for zero beat at the high-frequency end by variation of the setting of the main rotor. Tighten this lock screw and seal with sealing enamel, or equivalent. It is desirable to leave the trimmer in the mid-position for greater trimming flexibility after the transmitter leaves the repair section.

i. Align the power-amplifier tank circuit (if it is not already aligned) and check the accuracy of the FREQUENCY dial indication at the two ends of the band when the transmitter is properly tuned and coupled to deliver maximum power on VOICE into Antenna 7777. Readjust the trimmer C-60 slightly, if necessary.

5—39. ADJUSTING THE POWER-AMPLIFIER CIRCUIT TO TRACK WITH THE MASTER OSCILLATOR. For the following procedure, a special outer shield, like A-50 except for the addition of a screwdrive hole directly above the iron core adjusting screw E-39, should be in place. To adjust the power-amplifier circuit so that it will track with the master oscillator, proceed as follows:

a. Remove Antenna 7777.

b. Tune the transmitter on VOICE to the high frequency end of the dial and adjust C-67 for the minimum amplifier plate current. The rotor of C-67 can be moved slightly after loosening the locking screw, reached through the larger of the two holes on the right side of the chassis, and moving the locking arm attached to the rotor shaft. A slot in the end of the rotor shaft itself can be reached by a screwdriver through the smaller hole, for easier adjustment.

c. Tune the transmitter to the low-frequency end of the dial and note whether or not the amplifier plate current can be reduced by adjusting the iron core E-59, and how many turns are required to reach minimum.

d. If the minimum amplifier current obtained at the low-frequency end is within 10 milliamperes of the lowest obtainable by careful setting of C-67, the tracking is satisfactory and the iron core need not be readjusted.

e. If a true minimum cannot be found, the angular setting of the rotor C-67 should be rechecked.

f. If a minimum can be reached by adjusting the iron core, "overshoot" by about 1½ times as many turns of the adjusting screw as were necessary to obtain minimum plate current and readjust C-67 for minimum current. Return to the high-frequency end and repeat the check.

5—40. MAINTENANCE OF RADIO TRANSMITTER DYNAMOTORS.

5—41. If the transmitting equipment is operating satisfactorily, the dynamotor should not be serviced indiscriminately. Frequent sanding of commutators, manipulation of brushes, and excessive greasing is likely to do more harm than good. The dynamotors supplied with this equipment are provided with grease-sealed ball bearings containing sufficient lubricant for 3,000 hours of operation. A routine maintenance procedure should consist of a check as to whether or not the brushes are free in their holders, and the removal of carbon or copper dust which may have accumulated in the vicinity of the commutators. Use clean, compressed air at not more than 30 psi, or a soft-bristle brush. Do not use carbon tetrachloride or other liquid cleaning solvent. If the voltage is below normal (see table 6—8), remove the brushes and check each coil winding of the armature for an open or short circuit, by placing the test leads of a multimeter on adjacent high-voltage commutator bars and continuing the test around the commutator. The test leads must not be applied to that section of the commutator which normally comes in contact with the brushes. Each test around the commutator should indicate the same resistance of approximately 11.5 ohms for the high-voltage side and approximately 0.04 ohm for the low-voltage side. Any appreciable variation from this indicates an open or short circuit, in which case the armature must be replaced. The d-c resistance of the shunt field winding is approximately 170 ohms.

5—42. Replacement of dynamotor brushes, the removal of the armature and bearings, and lubrication of the dynamotor is the same as that described for the radio receiver dynamotors in paragraphs 5—31 through 5—33.

SECTION VI

SUPPLEMENTARY DATA

6—1. FUNCTIONAL TUBE AND LAMP COMPLEMENT.

6—2. The quantities, types, and functions of the electron tubes and lamps for each component are listed in table 6—1.

6—3. SUPPLEMENTARY DATA.

6—4. The following tables 6—2 through 6—11 summarize the input current, sensitivity, selectivity, and other electrical and mechanical characteristics of Model AN/ARC-5 Aircraft Radio Equipment.

TABLE 6—1. FUNCTIONAL TUBE AND LAMP COMPLEMENT

Qty	*Type*	*Description*	*Function*
		RADIO RECEIVERS	
2	12SK7	Pentode	R-f Amplifier First I-f Amplifier
1	12K8	Triode-Hexode	Mixer
1	12SF7	Diode-Pentode	Second I-f Amplifier
1	12SR7	Twin Diode-Triode	Detector and CW Oscillator
1	12A6	Beam Power Amplifier	Audio Amplifier
		RADIO TRANSMITTERS	
2	1625	Beam Power Amplifier	R-f Amplifiers
1	1626	Triode	Master Oscillator
1	1629	Electron-ray Tube	Resonance Indicator
		MODULATOR	
1	12J5GT	Triode	Tone Oscillator
2	1625	Beam Power Amplifier	Modulators
1	VR-150/30*	Glow-discharge Voltage Regulator	Voltage Regulator
		RADIO SET CONTROL C-744/ARC-5	
3	AN3140-327	Midget Flange-base Lamp	Panel Illumination

* Now OD3/VR-150

TABLE 6–2. INPUT CURRENT

	Amperes d-c from 28-volt primary source
(1) Three receivers and two transmitters with all receivers ON and one transmitter transmitting on VOICE	14.1
(2) Same as (1) except transmitting on CW	15.1
(3) Same as (1) except two receivers instead of three	12.4
(4) Three receivers, each with its own dynamotor	5.1
(5) Two receivers, each with its own dynamotor	3.4
(6) Two transmitters, one transmitter transmitting VOICE, including modulator unit and transmitter dynamotor	9.0
(7) Stand-by current for transmitting equipment (2 transmitters and modulator unit), VOICE or TONE position	2.5
A variation of ±10% in the above values may be expected due to differences in dynamotors, tubes, and circuit elements.	

TABLE 6–3. RADIO RECEIVER SENSITIVITY MEASUREMENTS

Microvolts, modulated 30 per cent at 400 cps. required to produce 10 milliwatts, output (1.73 volts into 300 ohms resistive load) is shown for six points in each of the receivers, operating independently. The frequencies at which the measurements must be made are in parentheses. Input voltage is 28. Sensitivity values are in microvolts. Use a .006 mfd. mica capacitor in series with the signal generator lead. This is essential for tests on the 2nd IF grid at terminal #2.

Receiver	*Ant. RF, at Ant. Bind. Post*	*RF Control Grid RF, at Term. #4*	*Mixer Control Grid RF, at Top Cap*	*Mixer Control Grid IF, at Top Cap*	*First IF Control Grid IF, at Term. #4*	*Second IF Control Grid IF, at Term. #2*
.19–.55 MC*	5 (.55 MC)	50 (.55 MC)	370 (.55 MC)	310 (85 KC)	8,100 (85 KC)	210,000 (85 KC)
.52–1.5 MC*	7 (1.5 MC)	80 (1.5 MC)	430 (1.5 MC)	360 (.239 MC)	7,500 (.239 MC)	220,000 (.239 MC)
1.5–3 MC	7 (3 MC)	150 (3 MC)	990 (3 MC)	910 (.705 MC)	10,000 (.705 MC)	130,000 (.705 MC)
3–6 MC	6 (6 MC)	130 (6 MC)	390 (6 MC)	330 (1.415 MC)	2,400 (1.415 MC)	99,000 (1.415 MC)
6–9.1 MC	6 (9.1 MC)	100 (9.1 MC)	480 (9.1 MC)	430 (2.830 MC)	2,500 (2.830 MC)	85,000 (2.830 MC)

This table of sensitivities is for use as a guide in servicing receivers. It applies to undamaged and perfectly aligned receivers under reasonable climatic conditions. Microvolt values shown are to be regarded as "desired," to be obtained if possible when adjusting the equipment after overhaul or long service use. Departures from these values by factors as great as 2 to 1 do not necessarily indicate defective equipment. Values in this table should be employed with caution and discretion, particularly in the case of measurements carried out under extreme conditions of temperature or humidity. A signal generator whose accuracy is not definitely known and a set of vacuum tubes which are not "average" may contribute to results varying considerably from those shown in the table.

* Microvolt values for some early production units may be as much as 1.5 times those shown here.

TABLE 6–4. RADIO RECEIVER SELECTIVITY

The SELECTIVITY, expressed in kilocycles, is defined as the displacement of the carrier frequency from the resonant frequency, required to produce standard output, when the radio frequency voltage input is twice (2X), ten times (10X), one hundred times (100X), and one thousand times (1000X) that required to produce standard output at resonance. Standard output for these measurements should be 1 volt across 300 ohms in order to keep the level low enough not to be affected by the AVC. The resonant sensitivity should be reduced to 50 microvolts by the manual RF sensitivity control in order to keep the output noise voltage low. The radio frequency voltage input to the receiver must be modulated 30% at 400 cycles for both the resonant and off-resonant measurements. The selectivity values shown below are those resulting from an average of the selectivity measurements made on either side of resonance.

Receiver	*Frequency*	*Selectivity*			
		2X	*10X*	*100X*	*1000X*
.19–.55 MC	.19 MC	1.1	2.2	3.3	4.5
.52–1.5 MC	.52 MC	2.1	4	6	8
1.5–3 MC	1.5 MC	3.2	6	9	13
3–6 MC	3 MC	7.3	13	19	26
6–9.1 MC	6 MC	13	26	40	56

The above table of selectivities is presented for use as a guide in servicing receivers. It applies to undamaged and perfectly aligned receivers under reasonable climatic conditions. These values are to be regarded as "desired," to be obtained if possible when adjusting the equipment after overhaul or long service use. Departures from these values do not necessarily indicate defective equipment. The values in the table should be employed with caution and discretion, particularly in the case of measurements carried out under extreme conditions of temperature or humidity, or with a signal generator whose accuracy is not definitely known.

TABLE 6–5. RADIO TRANSMITTERS TYPICAL TEST DATA

Input Voltage 28.0, Antenna A.R.C. Part No. 7777 (5 ohms, 100 mmf.), Transmitter tuning and coupling should be adjusted for maximum antenna current for each type of emission.

Transmitter	*Frequency*	*Emission*	*Plate Voltage to RF Power Amp. Tubes*	*Screen Voltage to RF Power Amp. Tubes*	*Plate Current to RF Power Amp. Tubes*	*Plate Current to M.O. Tube*	*Ant. Current Into Ant. A.R.C. 7777*	*Setting of "Ant. Induc-tance" Control*	*Setting of "Ant. Coupling" Control*
2.1–3 MC	2.1	CW	565	302	180	20.0	2.38	30.6	4.2
	2.1	TONE	578	152	76	20.5	1.88	30.6	2.7
	2.1	VOICE	578	152	76	20.5	1.6	30.6	2.7
	3	CW	558	298	197	17.3	2.70	17.4	4.3
	3	TONE	575	152	89	17.9	2.18	17.4	2.9
	3	VOICE	575	152	89	17.9	1.85	17.4	2.9
3–4 MC	3	CW	560	297	177	21.8	2.70	30.6	4.2
	3	TONE	572	152	80	22.3	2.17	30.6	2.3
	3	VOICE	572	152	80	22.3	1.80	30.6	2.3
	4	CW	560	302	186	20	2.91	19.0	4.3
	4	TONE	575	152	80	20.5	2.39	19.0	2.7
	4	VOICE	575	152	80	20.5	2.0	19.0	2.7
4–5.3 MC	4	CW	555	294	190	22.5	2.87	27.9	3.5
	4	TONE	568	152	89	23.0	2.31	27.9	2.0
	4	VOICE	568	152	89	23.0	2.0	27.9	2.0
	5.3	CW	555	281	197	20.7	2.94	17.5	3.8
	5.3	TONE	565	152	96	21.0	2.40	17.5	2.0
	5.3	VOICE	565	152	96	21.0	2.10	17.5	2.0
5.3–7 MC	5.3	CW	560	293	162	23.2	2.83	28.4	3.0
	5.3	TONE	568	152	80	23.5	2.28	28.4	2.0
	5.3	VOICE	568	152	80	23.5	1.88	28.4	2.0
	7	CW	552	292	183	21.3	3.12	17.0	3.4
	7	TONE	561	152	87	21.8	2.51	17.0	2.1
	7	VOICE	561	152	87	21.8	2.12	17.0	2.1
7–9.1 MC	7	CW	557	291	166	21.5	2.85	17.5	3.9
	7	TONE	568	152	82	21.8	2.24	17.5	2.2
	7	VOICE	568	152	82	21.8	1.87	17.5	2.2
	9.1	CW	550	292	190	20.0	2.84	10.5	5.7
	9.1	TONE	560	152	90	20.4	2.27	10.5	3.2
	9.1	VOICE	560	152	90	20.4	1.90	10.5	3.2

Approximate transmitter sidetone voltage across 300 ohms:

TONE AND CW: 2.3 volts.

VOICE: 5 volts for loud sustained tone in RS-38 microphone, or approximately 7 volts at maximum modulation at 1,000 cycles per second (approximately 1 volt at microphone jack, and 12 volts, grid to ground at each modulator tube).

RS-38 Microphone current: Approximately 40 milliamperes d-c.

If the conditions of test shown above this table are followed precisely, variation of ±10% may be observed and may be considered satisfactory for all readings except "Plate Voltage to RF Power Amp Tubes" which should be within ±5%. If the test conditions have been carefully met, and the voltage and current readings fall outside of these limits, important consideration should be given to the seriousness of the discrepancy or discrepancies before the equipment is considered unsatisfactory.

It is recommended that one or more sets of specially marked "average" or "standard" tubes be set aside and used in checking all units which ar found to be outside the specified limits.

An example of the results of testing a *normal* 7–9.1 MC transmitter under a *different* set of conditions follows. Input voltage 27.0, frequency 8 MC, antenna resistance 1 ohm, antenna capacitance 108 micromicrofarads. Transmitter tuning and coupling should be adjusted for maximum antenna current for all measurements. Antenna current in CW, TONE, and VOICE positions is 4.8, 3.8, and 3.2 amperes respectively. The r-f power amplifier plate current is 183, 85, and 85 milliamperes respectively for the three positions. A comparison of these figures with those in the above table will demonstrate the importance of observing standard test conditions if the values shown in this table are to be used as a guide.

TABLE 6–6. CONTINUITY TESTS FOR DYNAMOTORS, RELAYS, CHOKES, AND TRANSFORMERS

Terminals	*Approximate Resistance in Ohms*
Adjacent segments, LV side of receiver dynamotor	0.4
Adjacent segments, HV side of receiver dynamotor	25.
Shunt field coil of receiver dynamotor	225.
Adjacent segments, LV side of transmitter dynamotor	.04
Adjacent segments, HV side of transmitter dynamotor	11.5
Shunt field coil of transmitter dynamotor	170.
Series field coils, LV side of transmitter dynamotor	less than 0.1
K-1, K-2, K-3 in parallel, as measured between terminals 5 and 6 on J-6 or J-7, is 100 ohms	300 ohms each coil
K-50, terminals 12 to 15 on J-78	200.
K-52, K-57 in parallel, terminals 9 to 15 on J-78 Resistance of coil on K-52 alone, 400 ohms Resistance of coil on K-57 alone, 321 ohms	178.
K-53, K-54, in parallel, terminals 3 to 5 on J-69 is 112 ohms	300 for K-53 180 for K-54
K-55, terminals 1 to 4 on J-61, 180 ohms on early units and 112 ohms on all units marked with a letter beside the part no. on the relay	
K-58, K-59, in parallel, 150 ohms terminal 15 on J-78 to terminal 11 on J-70	150 ohms each coil
L-50, terminal 1 or 3 on J-53 to 2 on J-51 (hold K-50 closed)	less than 0.1
RL-50, RL-51, across each unit, less than	less than 1.
T-1, primary, terminals 1 to 2 on T-1	1160.
T-1, secondary, terminal 3 on T-1 to ground	26.
T-56, terminal 1-2	23.
T-56, terminal 3–4	935.
T-56, terminal 5–6	1125.
T-57, terminal 1–4	68.
T-57, terminal 5–7	61.
T-58, terminal 1–3	296.
T-58, terminal 4–5	4.4
T-58, terminal 6–7	248.
T-58, terminal 8–9	82.

TABLE 6—7. ELECTRON TUBE DATA

VALUES SHOWN ARE "CHARACTERISTIC RATINGS" FOR THE TYPE OF TUBE, AND ARE NOT NECESSARILY THE VALUES AT WHICH THEY ARE OPERATED IN THIS EQUIPMENT

Type	*12SK7*	*12K8*	*12SF7*	*12SR7*	*12A6*	*12J5-GT*	*1625*	*1626*	*1629*	*VR-150-30†*
Function in this *equipment*	RF & IF Amp	Mixer	RF Amp and AVC Diode	DET. & CW OSC.	Audio Amp	Tone Osc.	Mod. and RF Power Amp	Master Osc.	Resonance Indicator	Voltage Regulator
Heater voltage	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	
Heater current	.15	.15	.15	.15	.15	.15	.45	.25	.15	
Control grid voltage	−3	−3	−1	−9	−12.5	−8	−29	−32		
Plate voltage	250	250	250	250	250	250	600	250	200	
Screen grid voltage	100	100	100		250		300			
Plate current	9.2	2.5	12.4	9.5	30	9.0	42	25		
Screen grid current	2.6	6.0	3.3		3.5		Approx 1			
Transconductance (Micromhos)	2000	3000 (Triode)	2050	1900	3000	2600		2000		
Plate resistance	8 megohm	.6 megohm (hexode)	.7 megohm	8500	70,000	7700		2500		
Amplification factor	1600	Conversion conductance 350 micromhos	1400	16	210 2.8 watts power output into 7500 ohms, 7% total harmonic distortion	20	8 (G-Gs) 25 watts on plate and 3.5 watts on screen grid max. allowable dissipation.	5	.19 ma with target-to-plate resistor of 1 megohm. 3 ma to target. Shadow angle 90° for grid bias of 0 volts and 0° for grid bias of −6.5 volts.	Starting voltage 180 max. dc. volts, operating 150 dc volts (approximately). Operating current 5 min. dc. ma and 30 max. dc. ma.
Base Connection*										
Pin 1	Shell (S)	Shell (S)	Shell (S)	Shell (S)	Shell (S)		Heater (H)			
Pin 2	Heater (H)	Heater (H)	Control grid (G)	Control grid (G)	Heater (H)	Heater (H)		Heater (H)	Heater (H)	Cold cathode (K)
Pin 3	Suppressor (Su)	Plate (hexode) (P)	Cathode (K)	Cathode (K)	Plate (P)	Plate (P)	Screen grid (Gs)	Plate (P)	Plate (P)	Jumper to 7
Pin 4	Control grid (G)	Screen grid (hexode) (Gs)	Screen grid (Gs)	Diode plate (2) (Dp2)	Screen grid (Gs)		Control grid (G)		Target (TA)	
Pin 5	Cathode (K)	Control grid (osc) and grid #1 hexode (Gs)	Diode plate (Dp1)	Diode plate (1) (Dp1)	Control grid (G)	Control grid (G)		Control grid (G)	Control grid (G)	Anode (AN)
Pin 6	Screen grid (Gs)	Plate (osc) (Po)	Plate (P)	Plate (triode) (P)			Cathode (K)			
Pin 7	Heater (H)	Heater (H)	Heater (H)	Heater (H)	Heater (H)	Heater (H)	Heater (H)	Heater (H)	Heater (H)	Jumper to 3
Pin 8	Plate (P)	Cathode (K)	Heater (H)	Heater (H)	Cathode (K)	Cathode (K)		Cathode (K)	Cathode (K)	
Top Cap		Control grid (hexode) (G)					Plate (P)			
Signal Corps Type	VT-131	VT-132		VT-133	VT-134	VT-135	VT-136	VT-137	VT-138	VT-139

* Base connections are numbered clockwise from the locating pin as viewed from the bottom, *except for type 1625*. This tube as a "medium 7-pin base" on which the numbering proceeds clockwise from the embossed arrow (clockwise from the more clockwise of the two large pins as seen from the bottom).

† Now OD3/VR-150.

TABLE 6—8. DYNAMOTOR RATINGS

(Ratings are based on 60° C temperature rise by change-of-resistance method)

Dynamotor Unit	*Duty*	*Input (d-c)*		*Output (d-c)*	
		Amperes	*Volts*	*Milliamperes*	*Volts*
Type *DY-2A/ARR-2	Continuous	1.1	28	60	250
Type DY-2B/ARR-2	Continuous	1.5	28	60	250
Type *DY-1/ARR-2X	Continuous	2.2	14	60	250
Type DY-8/ARC-5	Continuous	3.7	28	100	590
	1 Hour	5.0	28	160	565
	Intermittent (½ minute on and ½ minute off)	7.0	28	250	540

TABLE 6—9. SHIELDED CABLE ASSEMBLIES, MODEL AN/ARC-5 AIRCRAFT RADIO EQUIPMENT (INCLUDING VHF)

Cable	*Dwg. No. For details of Assembly and Wiring See Fig. 8—61*	*Aircraft Radio Corp. Part No. of Plugs, etc.*	*Aircraft Radio Corp. Part No. of Bulk Cable*	*Aircraft Radio Corp. Part No. of Identification Tag*
Modulator to Trans. Control Unit (1 req.)	5803	6962 2 req. per cable 18 contacts	6796 18 conductors	6970
Trans. Control Unit to "Y" Junction Box J-28/ARC-5 (1 req., for VHF only)	5804	6964 2 req. per cable 12 contacts	6795 12 conductors	6971
"Y" Junction Box J-28/ARC-5 to front of VHF Trans. (1 req., for VHF only)	5806	6966 2 req. per cable 8 contacts	6711 8 conductors	6973
Modulator to external equipment, carrying mic., key, sidetone, tel., etc. (1 req.)	5806	6966 2 req. per cable 8 contacts	6711 8 conductors	6973
Modulator to Rec. Rack (1 req.)	5808	6784 2 req. per cable 6 contacts	6794 6 conductors	6941
"Y" Junction Box J-28/ARC-5 to front of VHF Rec. (1 req., for VHF only)	5808	6784 2 req. per cable 6 contacts	6794 6 conductors	6941
Trans. Rack to Ant. Relay Unit (1 req.)	5810	6967 2 req. per cable 5 contacts	6794 6 conductors	6975
Rec. Rack to Rec. Control Unit, except to C-27/ARC-5 (1 req., for each rec. installed except when controlled by C-27/ARC-5)	6693	6577 2 req. per cable 8 contacts	6711 8 conductors	6803

TABLE 6—9. SHIELDED CABLE ASSEMBLIES, MODEL AN/ARC-5 AIRCRAFT RADIO EQUIPMENT (INCLUDING VHF) (Cont)

Cable	*Dwg. No. For details of Assembly and Wiring See Fig. 8—61*	*Aircraft Radio Corp. Part No. of Plugs, etc.*	*Aircraft Radio Corp. Part No. of Bulk Cable*	*Aircraft Radio Corp. Part No. of Identification Tag*
Junction Box J-17/ARC-5 to Main Control Unit (1 req., if J-17/ARC-5 is installed)	7538	6963 2 req. per cable 18 contacts	6796 18 conductors	7539
Primary Power Supply to Rec. Rack (1 req.)	7547	6578 plug 2 contacts 7546 nut 6780 ferrule 1 each req. per cable	6712 2 conductors	7627
Pri. Power Supply to Modulator (1 req.)	7548	6965 plug 3 contacts 7546 nut 6780 ferrule 1 each req. per cable	6712 2 conductors	7626
Modulator to Trans. Rack (1 req.)	9376	9377 2 req. per cable 12 contacts	6795 12 conductors	9378
Type O-4/ARC-5 Crystal Frequency Generator to Primary Power Supply. This is normally supplied, assembled, with each instrument. Length 10 feet. Plug at one end only.	9396	9491 1 req. per cable 2 contacts, keyed center	3251 2 conductors, not shielded	9654
Type MX-19/ARC-5 Audio Adapter to external equipment. Plug at one end only. (1 req.)	9397	9488 1 req. per cable 3 contacts, keyed center	9584 4 conductors, not shielded	9655
Rec. Rack to C-27/ARC-5 Control Unit (1 req. per C-27/ARC-5 installed)	9817	9819 plug 8 contacts 9818 plug 2 contacts, keyed left 1 each req. per cable	3251 2 conductors not shielded	9820
Trans. (.5 MC to 2.1 MC) left front, to TN-6/ARC-5 Ant. Loading Coil (1 req. per transmitter)	9871	9848 3 contacts, keyed left 2 req. per cable	9584 4 conductors, not shielded	9872
Coaxial Cable, Navy Type CASSF-50-1, with plugs Navy Type 49195				
Coaxial Cable adapter, right angle, Navy Type 49192				

NOTES:

1. See figure 8—55 for cabling diagrams, and figure 8—61 for cable assembly fabrication diagrams.
2. Cables and plugs must be specified by part number and not by the number of conductors or contacts. For example, there are two non-interchangeable eight-contact plugs, 6577 and 6966.
3. All bulk cables listed are shielded and lacquer-covered except 3251 and 9584. See figure 8—61 for assembly details.
4. One mechanical linkage assembly 6151 is required for each receiver which is remotely tuned and for each receiver whose antenna-loop switch is remotely switched by Control Unit C-25/ARC-5. See figure 8—61 for assembly details.

TABLE 6—10. CONNECTOR RECEPTACLES AND CONNECTOR PLUGS MADE BY AIRCRAFT RADIO CORPORATION AND USED IN ATA/ARA AND AN/ARC-5 EQUIPMENTS.

Receptacle No.	Number of Pins	Receptacle Front	Thread	Keyway	Plug No. for Shielded Cable	Signal Corps Item (Shielded)	Plug No. for Unshielded Cable	Plug No. for Open-Wiring	Signal Corps Item (Open Wiring)
9365	2		7/8-24	Center	....	.....	9491*	....	.....
9835	2		7/8-24	Left	....	.....	9818*	....	.....
9934	2		7/8-24	Right	....	.....	9947*	....	.....
9336	3		7/8-24	Center	....	.....	9488*	....	.....
9849	3		7/8-24	Left	....	.....	9848*	....	.....
9935	3		7/8-24	Right	....	.....	9948*	....	.....
9372	4		7/8-24	Center	....	.....	9489*	....	.....
9458	4		7/8-24	Left	....	.....	9490*	....	.....
9936	4		7/8-24	Right	....	.....	9949*	....	.....
6485	2		1 1/8-24	None	6578	PL-147	....	9127	PL-147-A
7024	3		1 1/8-24	None	6965	PL-148	....	9126	PL-148-A
7023	5		1 1/8-24	None	6967	PL-156	....	9124	PL-156-A
5577	6		1 1/8-24	None	6784	PL-151	....	9123	PL-151-A
6418	8		1 1/8-24	None	6577	PL-152	....	9125	PL-152-A
6418	8		1 1/8-24	None	....	.....	9819**	....	.....
7026	8		1 1/8-24	None	6966	.....	....	9821	.....
7025	12		1 5/8-24	None	6964	PL-154	....	9122	PL-154-A
9417	12		1 5/8-24	None	9377	.....	....	9589	.....
7027	18		1 5/8-24	None	6963	PL-153	....	9121	PL-153-A
5571	18		1 5/8-24	None	6962	.....	....	9585	.....

* These connectors are also suitable for use with open wiring.

** Part of cable 9817. See figure 8—61. This connector not normally used with open wiring.

TABLE 6–11. NAVY STOCK NUMBERS FOR CONNECTORS MADE BY AIRCRAFT RADIO CORPORATION

RECEPTACLES		*PLUGS*	
A.R.C. Part No.	*Navy Stock No.*	*A.R.C. Part No.*	*Navy Stock No.*
5571		6577	R16P3361
5577	R16R2406–75	6578	R16P3355
6418	R16R2408	6784	R16P3359
6485	R16R2410	6962	R16P4381
7023	R16R2415	6963	R16P3362
7024	R16R2415–15	6964	R16P3363
7025	R16R2415–20	6965	R16P3356
7026		6966	R16P4372
7027	R16R2419	6967	R16P3365
9336		9121	
9365		9122	
9372		9123	
9417		9124	
9458		9125	
9835		9126	
9849		9127	
9934		9377	R16P4378
9935		9488	R16P4295
9936		9489	
		9490	
		9491	R16P4288
		9585	
		9589	
		9818	R16P4288–15
		9819	
		9848	R16P4295–15
		9821	
		9947	
		9948	
		9949	

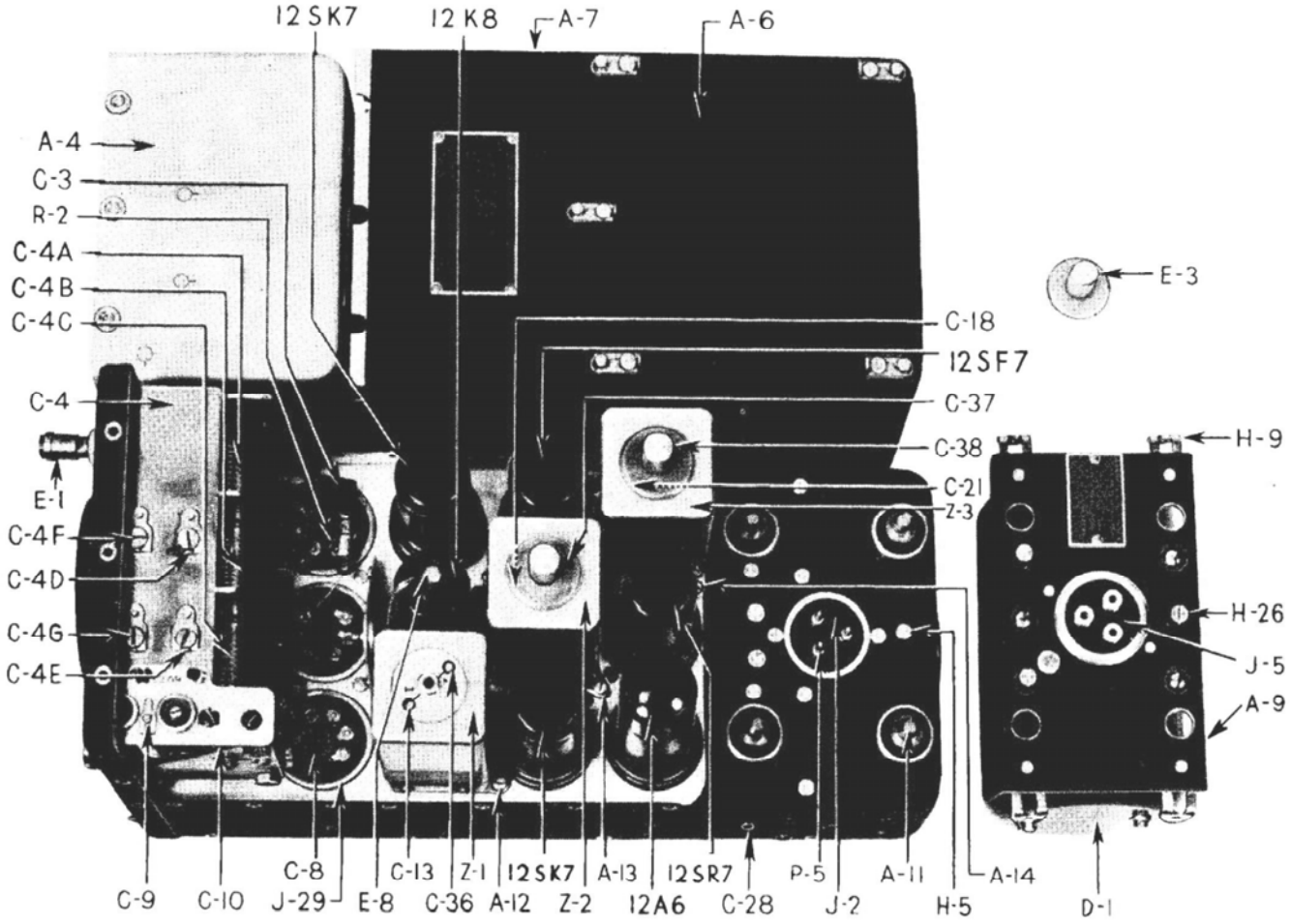


Figure 6—1. Radio Receiver, Top Interior View, and Dynamotor, Bottom View

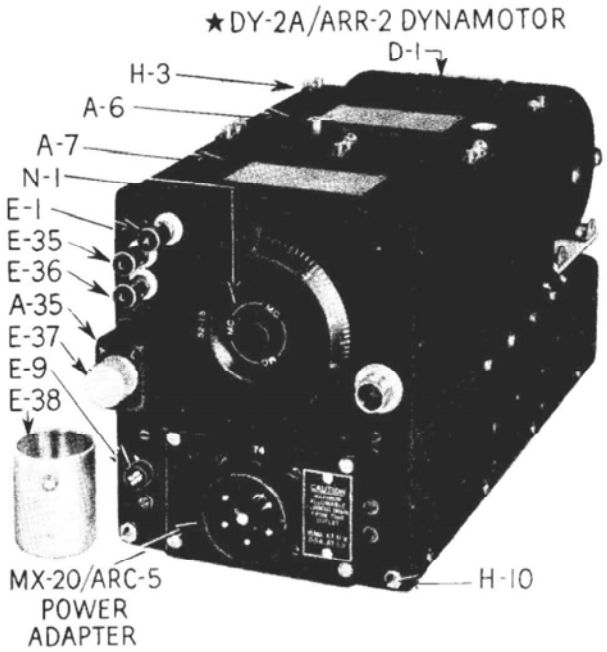
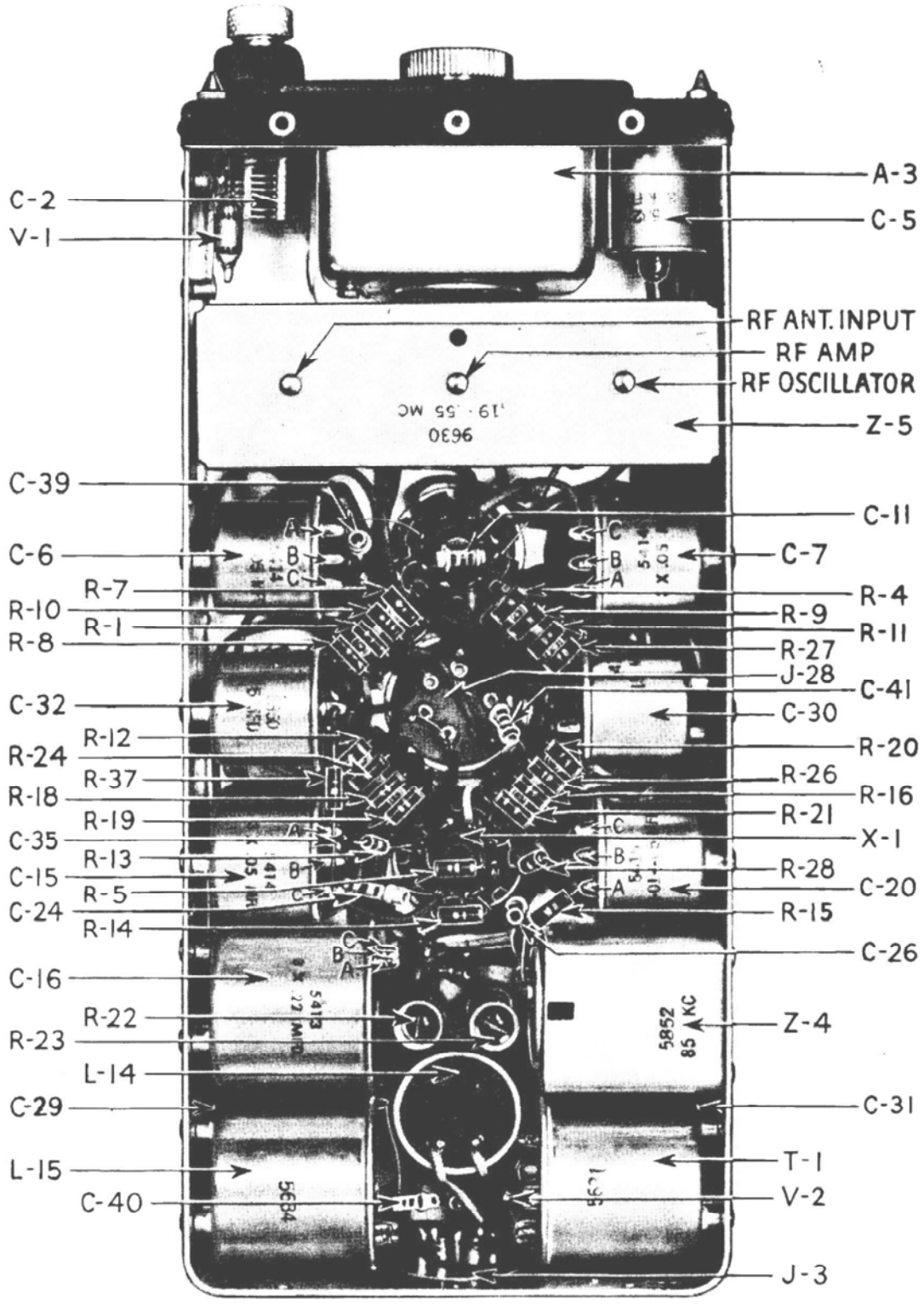


Figure 6—2. Navigation Radio Receiver, Front Oblique View



NOTE:

THIS IS A PHOTOGRAPH OF AN EARLY PRODUCTION UNIT. SEE FIGURES 8-1, 8-20 AND 8-23 FOR DETAILS OF CHANGES WHICH INCLUDE THE ADDITION OF C42, C46, C47, C48 AND C49, DELETION OF R28, AND CHANGE IN C-20B FROM .01 UF TO .05 UF.

Figure 6—3. Navigation Radio Receiver, Bottom Interior View

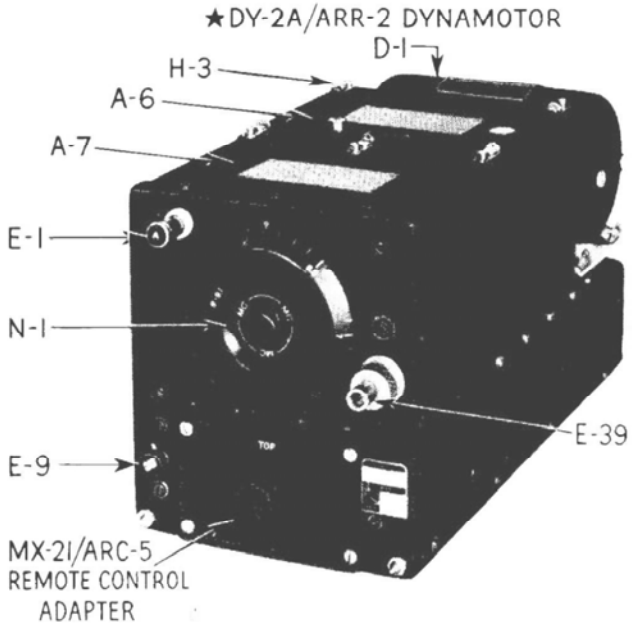


Figure 6—4. Communication Radio Receiver, Front Oblique View

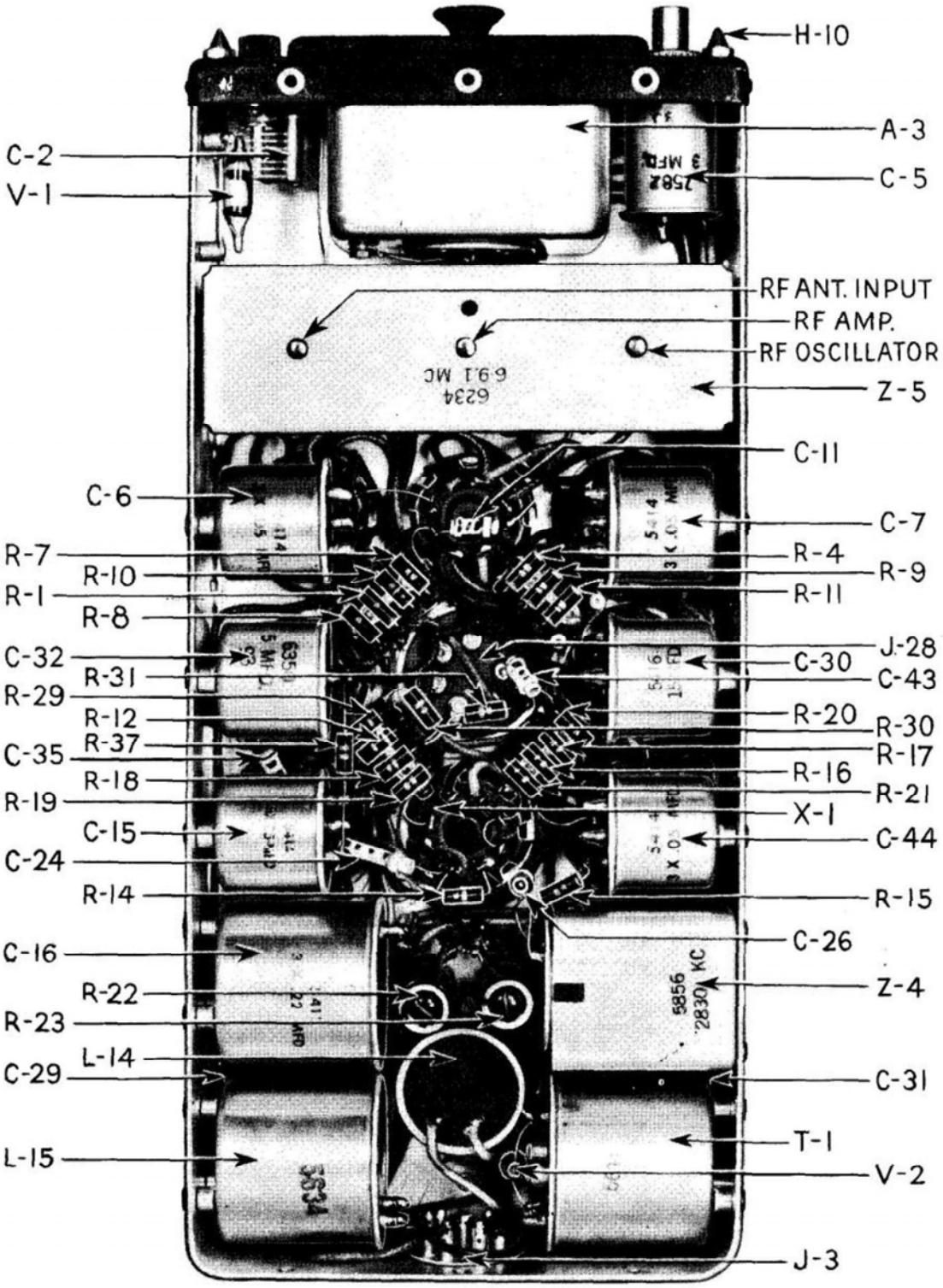


Figure 6–5. Communication Radio Receiver, Bottom Interior View

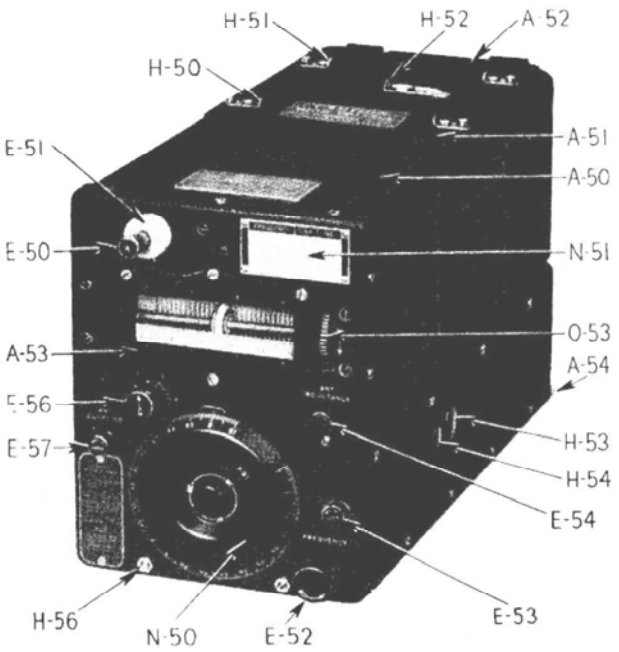


Figure 6—6. Radio Transmitter, Front Oblique View

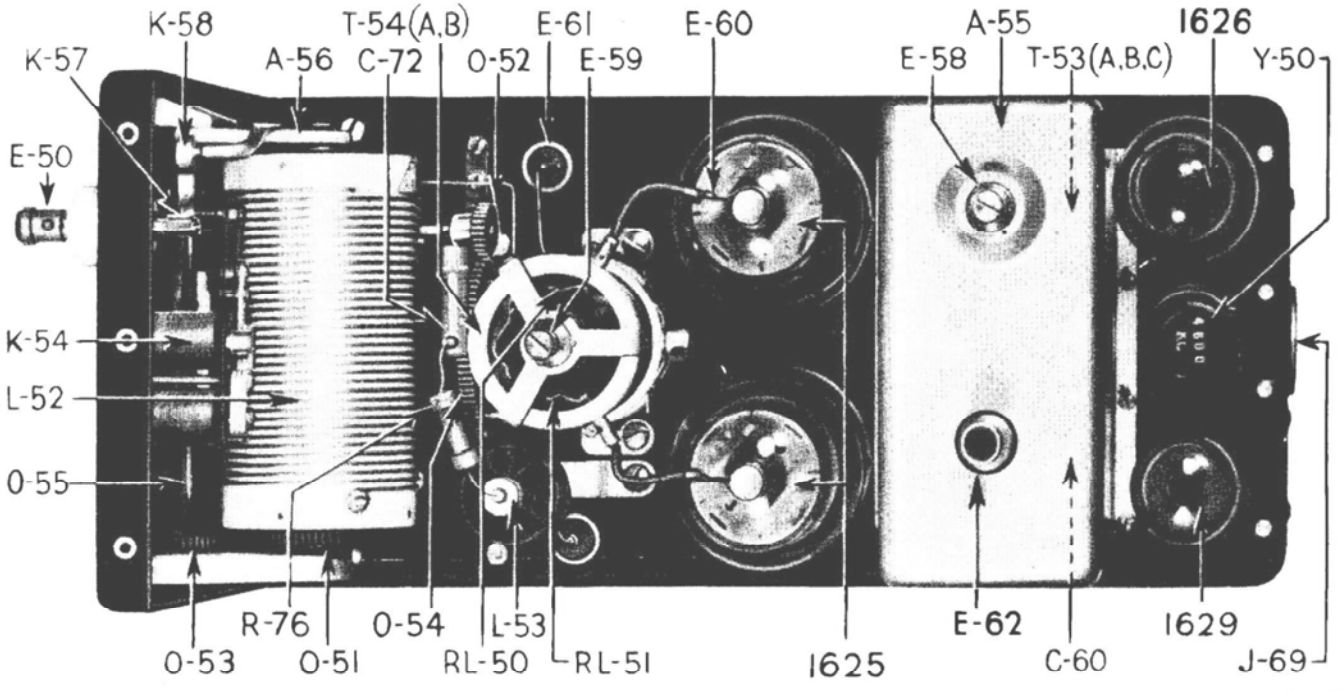


Figure 6—7. Radio Transmitter, Top Interior View

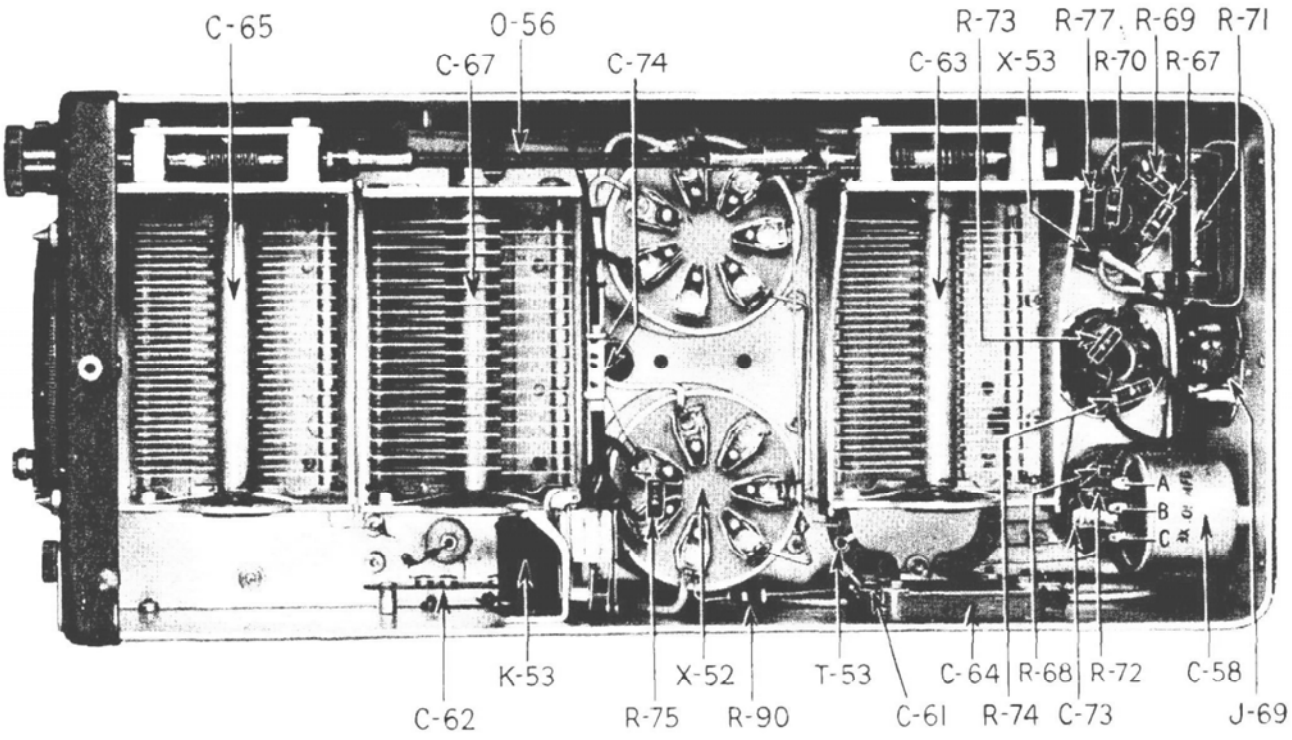


Figure 6—8. Radio Transmitter, Bottom Interior View

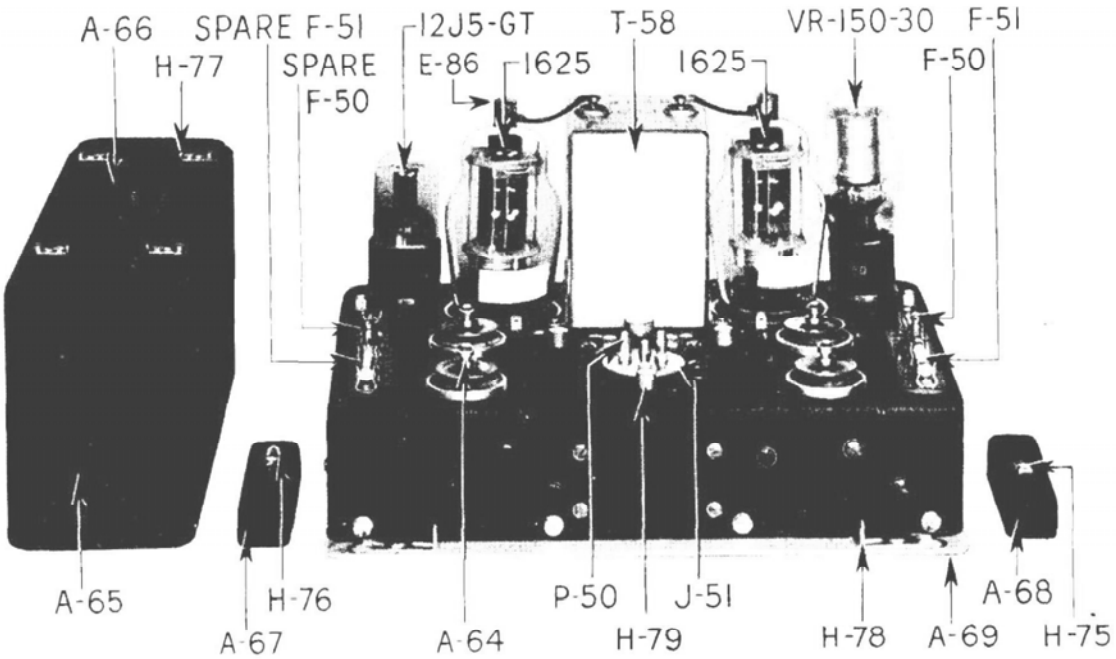
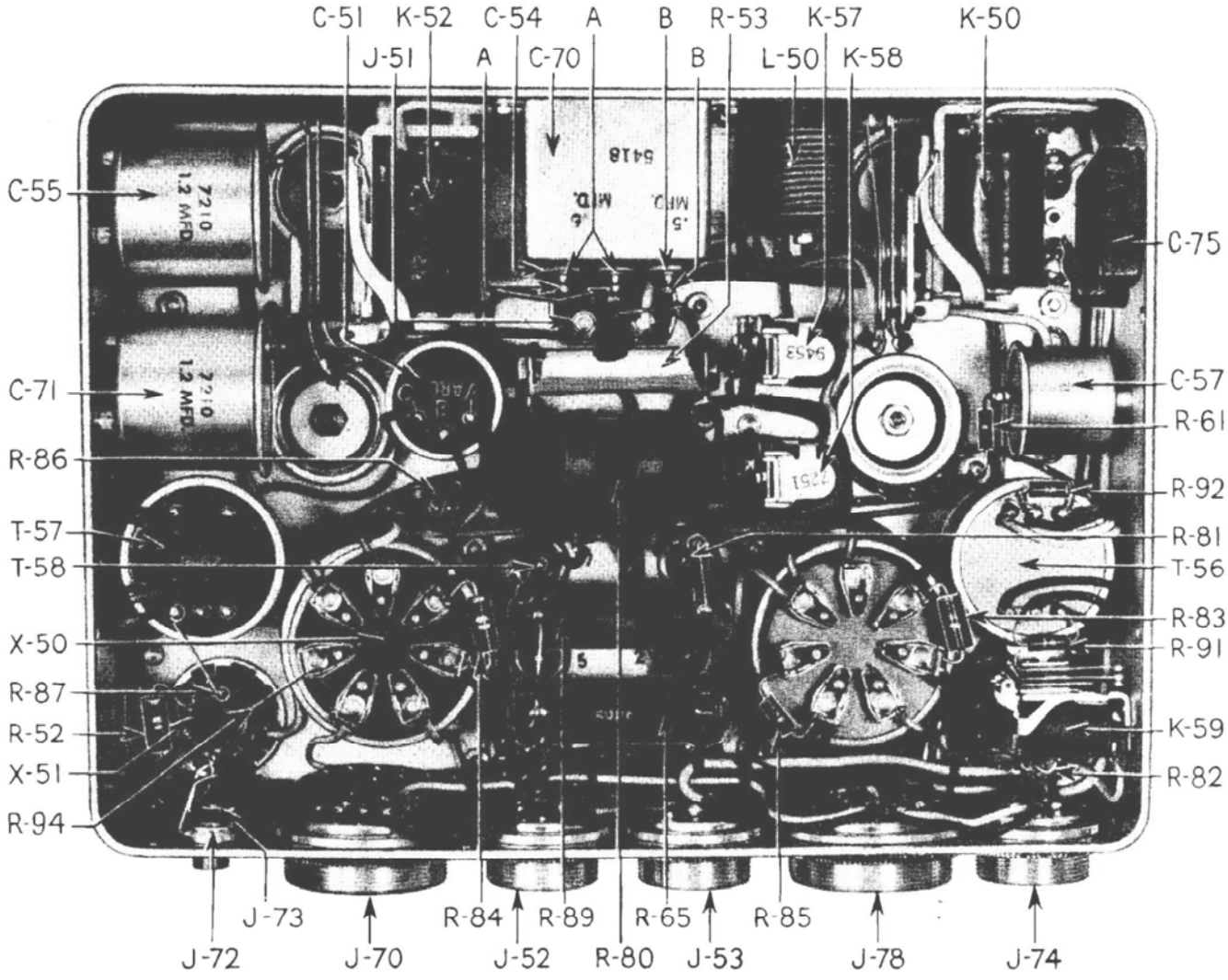


Figure 6—9. Modulator MD-7/ARC-5, Top View, Shield and Dynamotor Removed



NOTE:

C-75 AND R-94 WERE NOT PART OF EARLY PRODUCTION UNITS.

Figure 6—10. Modulator MD-7/ARC-5, Bottom Interior View

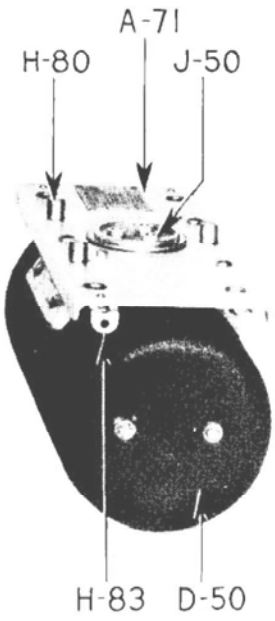


Figure 6—11. Dynamotor DY-8/ARC-5, Bottom View

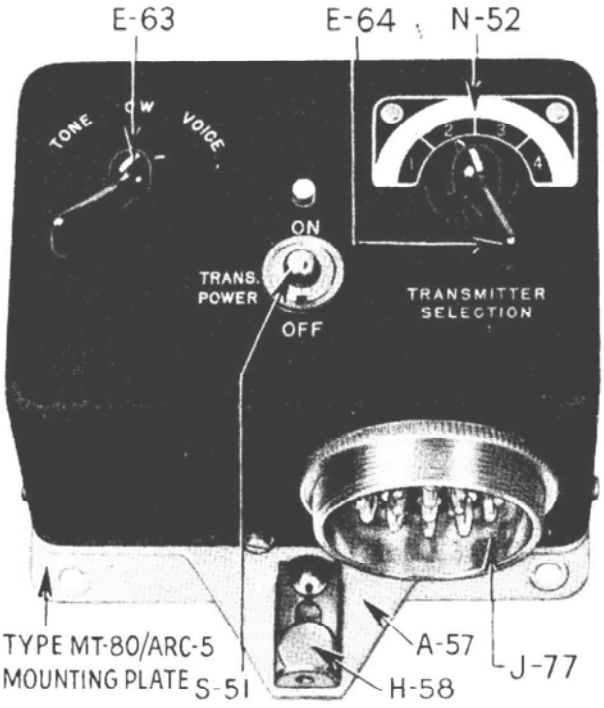


Figure 6—12. Control Unit C-29/ARC-5, Front View

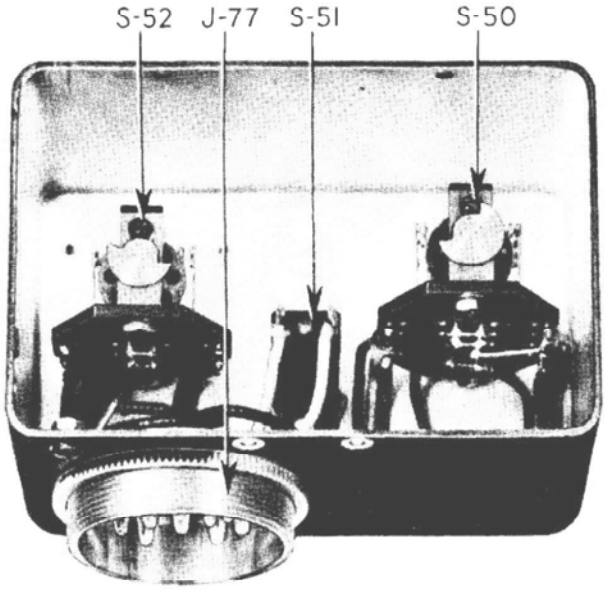


Figure 6—13. Control Unit C-29/ARC-5, Rear Interior View

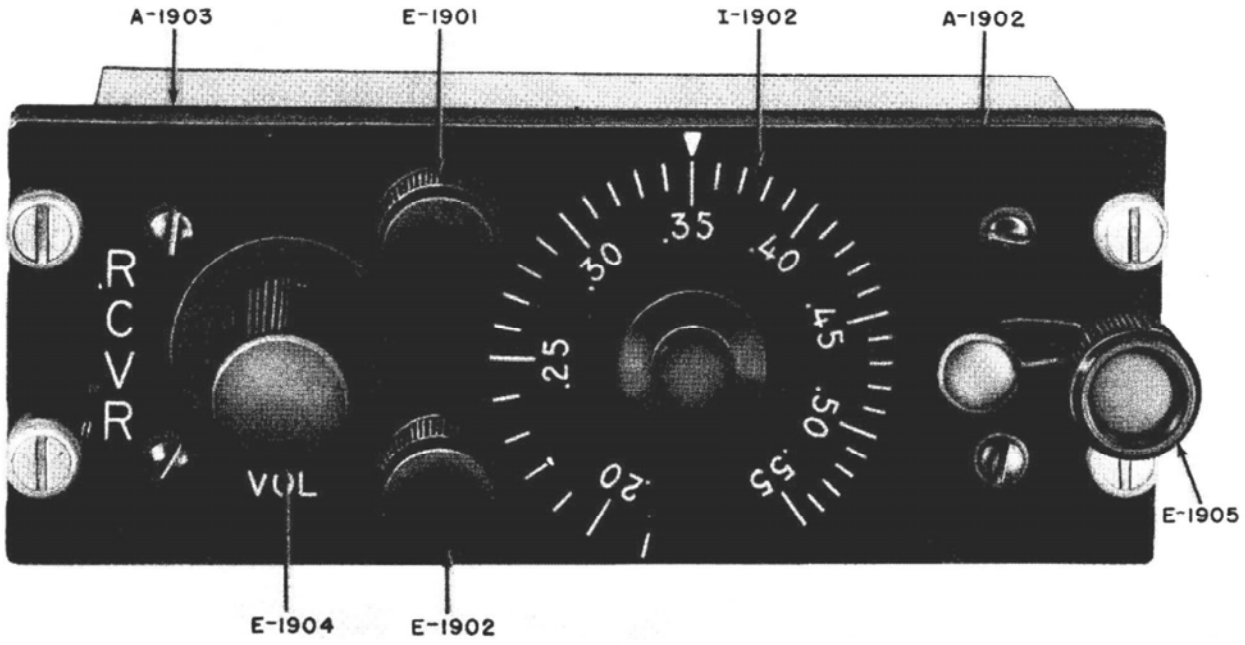


Figure 6—14. Radio Set Control C-744/ARC-5, Front View

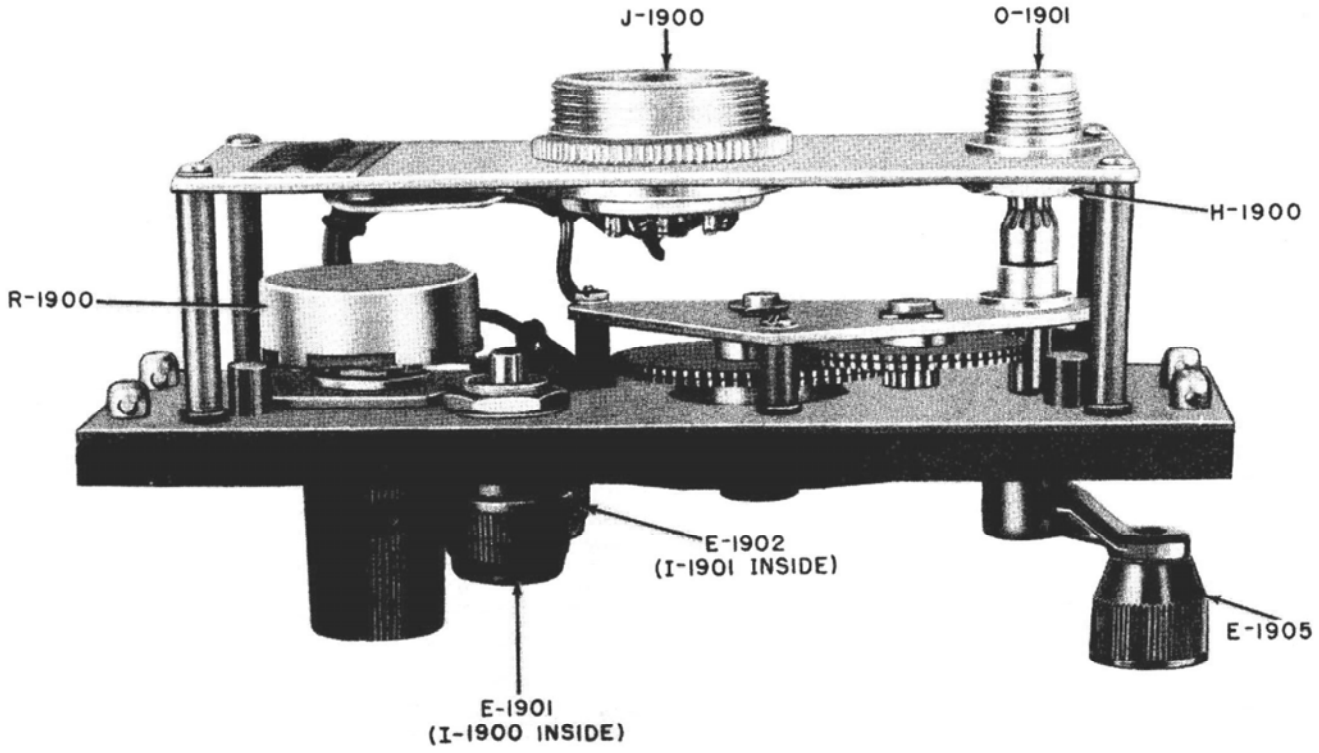


Figure 6—15. Radio Set Control C-744/ARC-5, Interior View

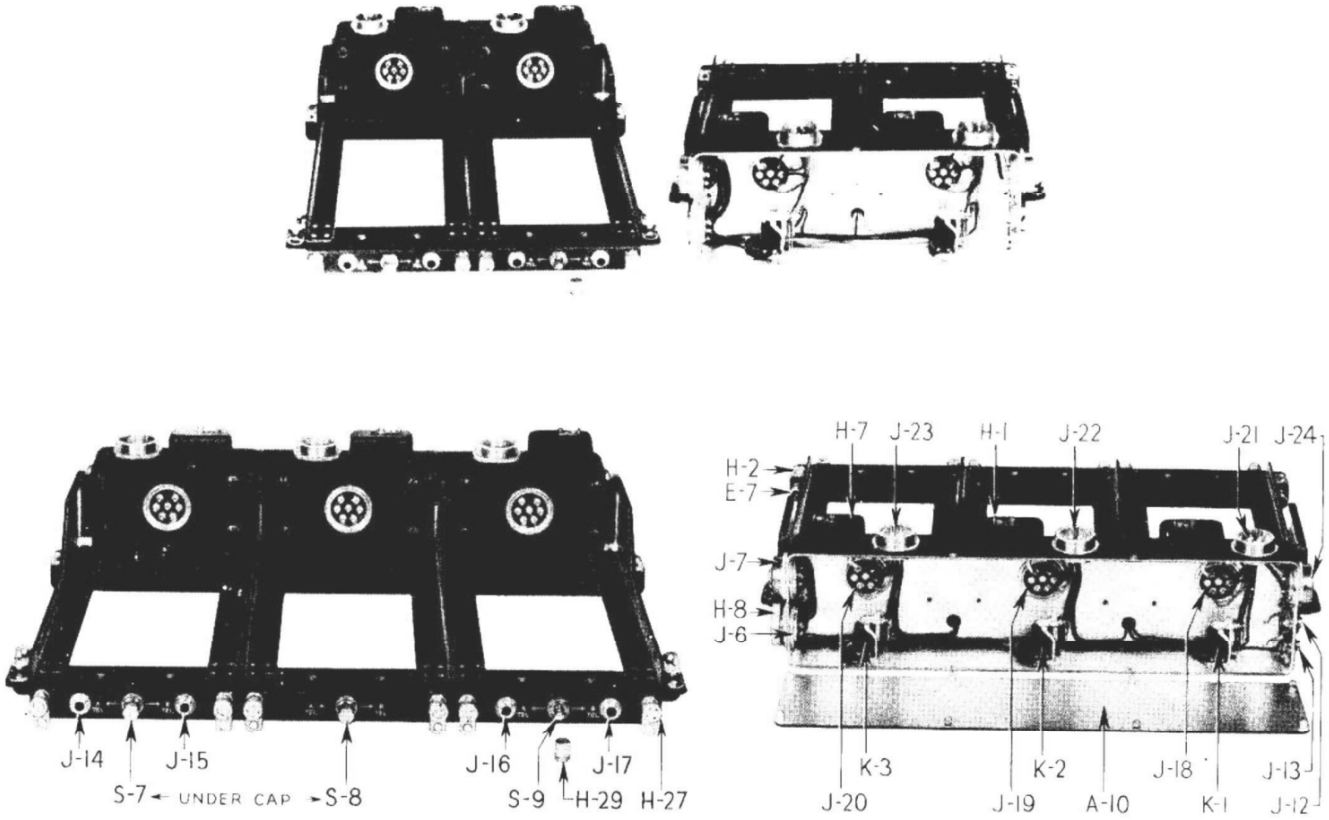


Figure 6—16. Racks MT-63/ARC-5 (2-Receiver) and MT-65/ARC-5 (3-Receiver), Front and Rear Interior Views

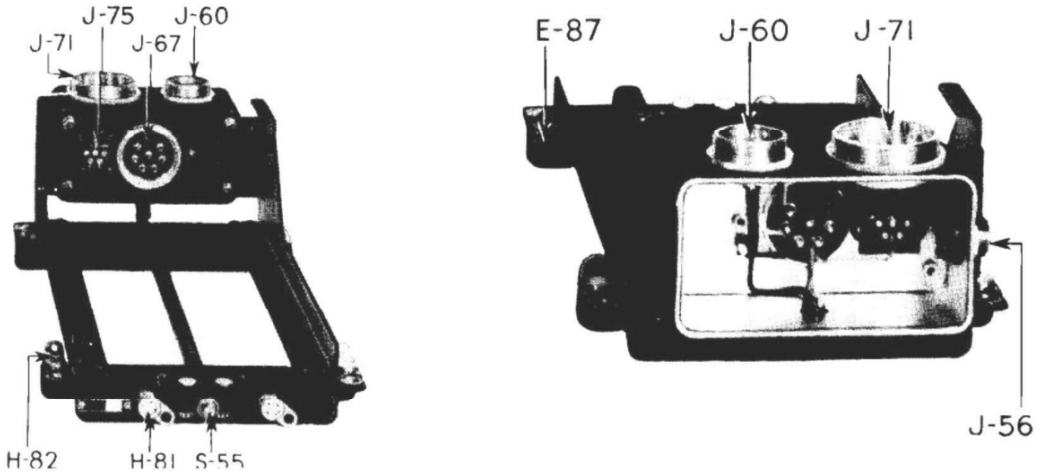


Figure 6—17. Rack MT-69/ARC-5, Front and Rear Interior Views

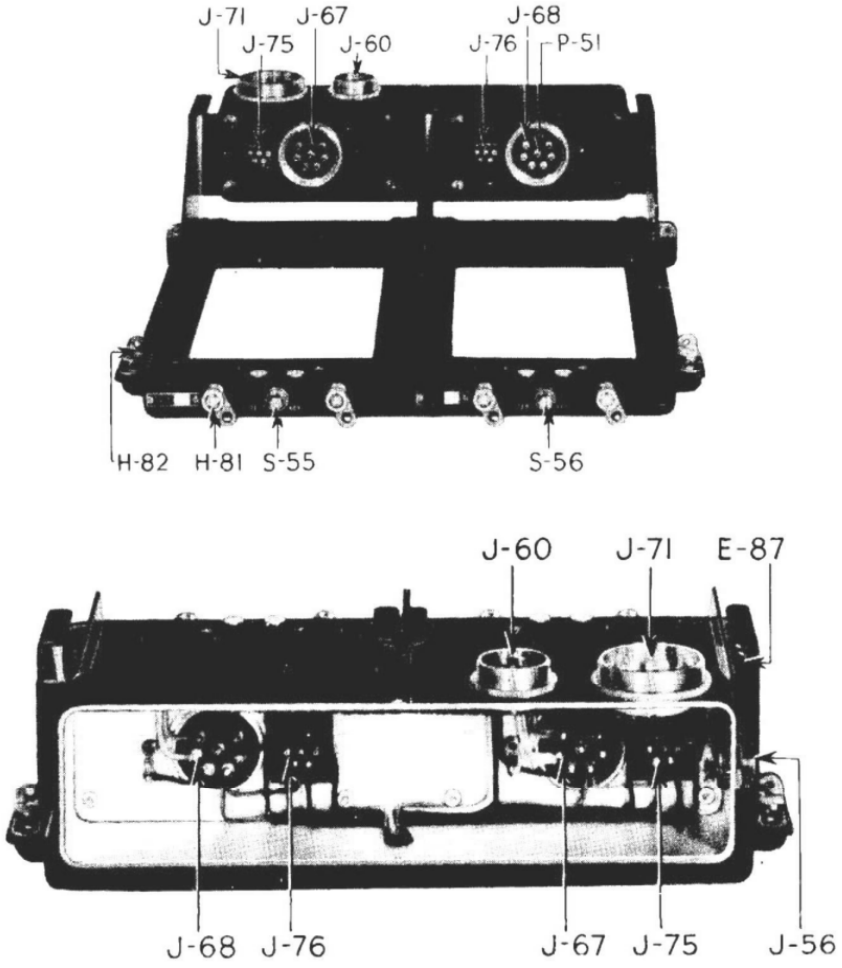


Figure 6—18. Rack MT-71/ARC-5, Front and Rear Interior Views

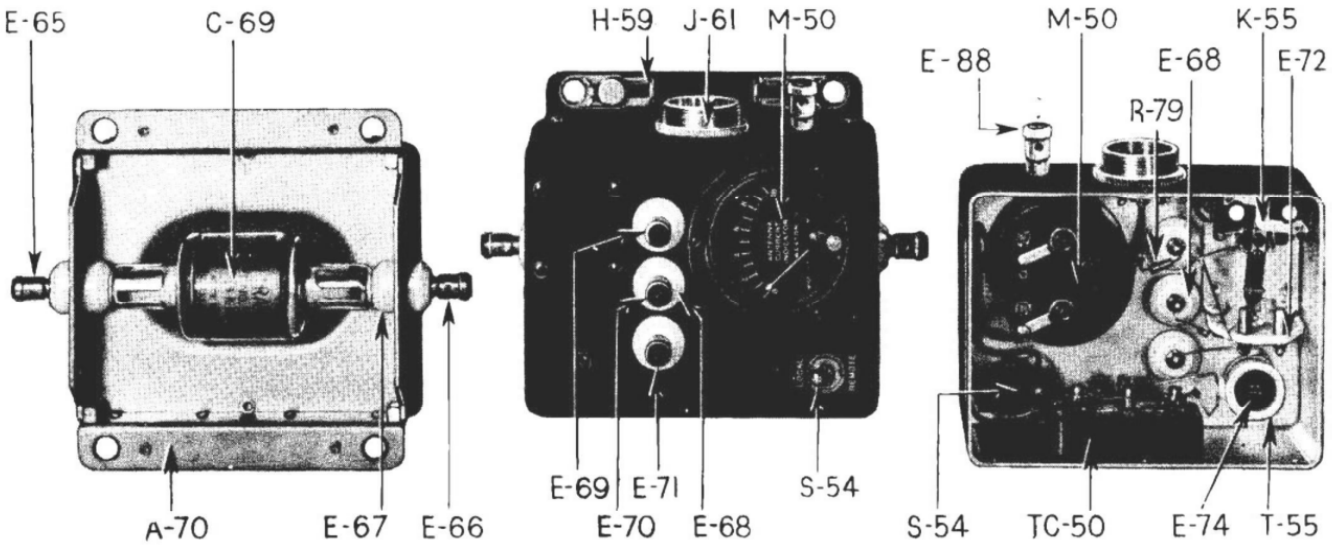


Figure 6—19. Antenna Relay Unit RE-2/ARC-5, Front and Bottom Interior Views

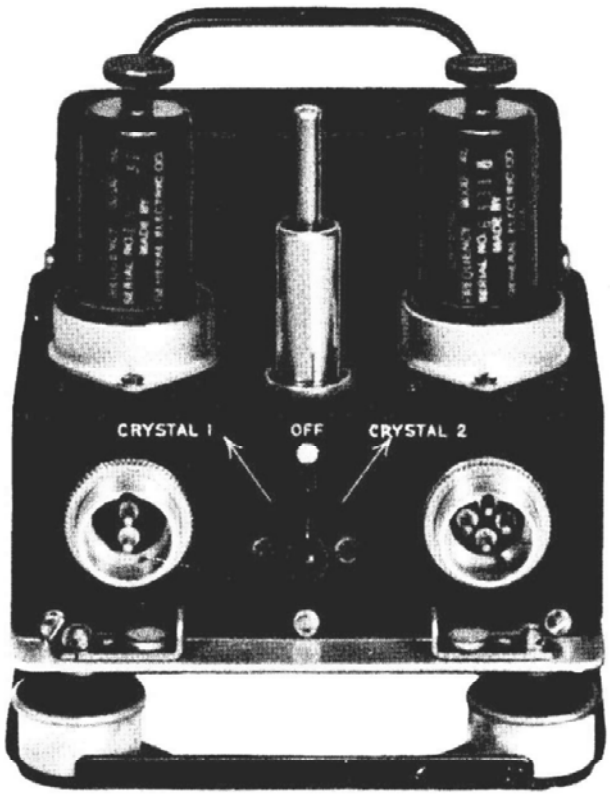


Figure 6—20. Crystal Frequency Generator O-4/ARC-5

SECTION VII

TABLE OF REPLACEABLE PARTS

7—1. GENERAL.

7—2. This section includes a table of replaceable parts for Model AN/ARC-5 Aircraft Radio Equipment, and supplementary information such as resistor and capacitor color codes, and a list of manufacturers. The parts listed in the table of replaceable parts do not constitute a complete electrical and mechanical breakdown of the equipment, but lists all electrical parts and such operative parts as are subject to wear, loss, or failure.

7—3. ORDERING OF SPARE PARTS.

7—4. GENERAL. Each Service using this list has established certain depots and service groups for the storage and issue of spare parts to its organizations requiring them. The regulations of each Service should be studied to determine the method and source for requisitioning spare parts. The information in this list, as to manufacturer's or contractor's name, type, model, or drawing number, is not to be interpreted as authorization to field agencies to attempt to purchase identical or comparable spare parts directly from the manufacturer or a wholesale or retail store except under emergency conditions as covered by existing regulations of the Service concerned.

7—5. U. S. AIR FORCE. This table is for information *only* and is not to be used as a basis for requisitioning parts. Authorities for obtaining maintenance items are as follows:

a. For using organizations: applicable Service publications of the 00-30 series of USAF Technical Orders.

b. For higher maintenance and supply echelons: the applicable Standard Maintenance Test.

7—6. PRECAUTIONS. Where a JAN or AN standard part number is given to a detailed part, only a JAN or AN standard part should be used as a replacement. Where no JAN or AN standard part number is given to a part, care should be taken in replacing the part with any part other than that listed in the table of replaceable parts. This special part probably has been chosen for a special quality not available in standard parts, and use of a standard part may result in decreased life or lowered performance.

7—7. REFERENCE DESIGNATIONS. The reference designations appearing in the table of replaceable parts correspond to those shown on the line drawings and photographs of internal views and which are discussed in the text.

7—8. MANUFACTURERS AND CONTRACT NUMBERS.

7—9. The LF-MF-HF components of Model AN/ARC-5 Aircraft Radio Equipment described in this handbook have been furnished under several contract numbers by different manufacturers. Because of this, it is highly desirable that all R.U.D.M. reports of defective material include the manufacturer's code as well as the serial number (and the contract number if available) of the repaired component in order that reports from the field may be properly coordinated with design improvements that are made from time to time. The manufacturer's designating symbols with the name and applicable contract numbers are:

Code	*Name of Manufacturer*	*Contract No.*
CBY	Aircraft Radio Corp.	NSsa 10573
		NOas 6943
		NOas 10546
		NOas 9578
		NXSa 97662
CLP	Lewyt Corp.	NOas 51-434
		NOas 10079
CCT	Stromberg-Carlson Co.	NOas 51-621
		NOas 52-354
CTE	Telephonics Corp.	NOas 51-182
		NOas 11046

7–10. LIST OF MANUFACTURERS.

7–11. The manufacturers' code designations, as used in the table of replaceable parts, and the name and address of the manufacturer are given in table 7–1.

TABLE 7–1. LIST OF MANUFACTURERS

Code	*Name of Manufacturer*	*Code*	*Name of Manufacturer*
AB	Allen-Bradley Co., Milwaukee, Wis.	GYB	Hoboken Lamp Works, General Electric Co., Hoboken, N. J.
AEV	Aerovox Corp., New Bedford, Mass.	IRC	International Resistance Co., Philadelphia, Pa.
AMP	American Phenolic Corp., Chicago, Ill.	ISO	Isolantite Mfg. Corp., Sterling, N.J.
ARC	Aircraft Radio Corp., Boonton, N. J.	LEW	The Lewyt Corp., Brooklyn, N.Y.
BUS	Bussman Mfg. Co., St. Louis, Mo.	LTF	Littelfuse Inc. Des Plaines, Ill.
CE	Continental Electric Co., Newark, N. J.	NAC	National Co., Walden, Mass.
CLD	Cornell-Dubilier Electric Corp., Indianapolis, Ind.	SPR	Sprague Electric Co., North Adams, Mass.
CN	Centralab, Div. Globe-Union Inc., Milwaukee, Wis.	TEL	Telephonics Corp., Huntington, N.Y.
CUT	Cutler-Hammer Inc., Milwaukee, Wis.	UC	United-Carr Fastener Corp., Cambridge, Mass.
ERC	Erie Resistor Corp., Erie, Pa.	WAL	Ward-Leonard Electric Co., Mount Vernon, N.Y.
GE	General Electric Co., Schenectady, N. Y.	WS	Weston Electrical Instrument Corp., Newark, N.J.
GMC	Grimes Mfg. Co., Urbana, Ohio	WT	Walker-Turner Co. Inc., East Plainfield, N.J.
GNEC	General Cable Corp., New York, N. Y.		

7–12. RESISTOR COLOR CODE.

7–13. The color code used for fixed composition resistors is shown and explained in figure 7–1.

7–14. CAPACITOR COLOR CODES.

7–15. The color codes used for fixed molded mica and tubular ceramic capacitors are shown and explained in figure 7–2.

7–16. WIRE AND COIL COLOR CODES.

7–17. The wire and coil color codes used in the radio receiver coil sets, i-f coupling units, and the cw oscillator are shown and explained in figure 7–3.

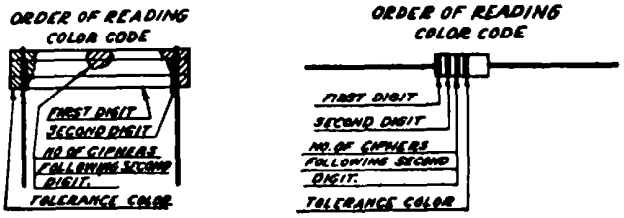
7–18. TABLE OF REPLACEABLE PARTS.

7–19. Table 7–2 lists the replaceable parts used in Model AN/ARC-5 Aircraft Radio Equipment. The sequence of the component listings is by an alpha-numerical arrangement of the type designation within the component classification. The order of appearance of the component classifications is as follows:

Adapters
Antenna Loading Coil
Antenna Relay Unit
Control Units
Dynamotors
Jack Boxes
Junction Boxes
Modulator
Mounting Bases
Mounting Plates
Racks, Receiver
Racks, Transmitter
Radio Receivers
Radio Transmitters

Carbon resistors are color coded by one of two methods to indicate the nominal resistance in ohms and the tolerance from this nominal. The first method is as follows: first digit, by body color, second digit by tip color, and the number of ciphers after the second digit by a dot painted on the body. A gold or a silver colored tip, when used, indicates a tolerance from nominal of ±5% and ±10% respectively. The second method is as follows: four narrow rings are painted around the body starting at one end. The color of the ring at the end represents the first digit, the second ring the second digit, the third ring the number of ciphers after the second digit. The fourth ring indicates the tolerance from nominal, ±5% by gold and ±10% by silver.

0—Black	5—Green
1—Brown	6—Blue
2—Red	7—Violet
3—Orange	8—Gray
4—Yellow	9—White



EXAMPLE: 360,000 ohms ±5%, First method: body orange, tip blue, dot yellow, and a gold colored tip to represent the tolerance. Second method: Orange, blue, yellow and gold rings starting at one end.

NOTE: These resistors increase in resistance with age and with the application of heat. Carbon resistors used in this equipment may deviate 20% from the nominal without unduly adverse effects on the operation of the equipment.

Figure 7–1. Resistor Color Code

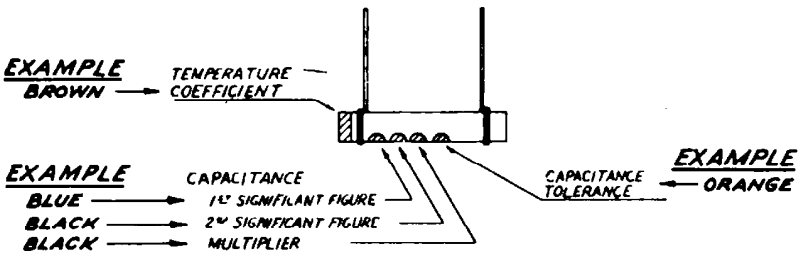
Fixed-capacitance molded mica capacitors, which are too small to be conveniently marked with capacitance values, are coded by the use of colored dots. Colors represent the same numbers as listed above for resistors. Reading from left to right in the direction of the arrow, the micromicrofarads capacitance is indicated by the following: first color, first digit, second color, second digit third; color the number of ciphers after the second digit.

EXAMPLE: 200 micromicrofarads (0.00020 mfd.) would have a red dot, a black dot, and a brown dot, reading from left to right.

Fixed silver-mica capacitors A.R.C. #7935 are color-coded to show their nominal capacitance in micromicrofarads by three dots, arranged clockwise looking at the end with the soldering lug. Colors represent the same numbers as listed above for resistors except that the third dot represents the third digit instead of the number of ciphers after the second digit.

EXAMPLE: 180 micromicrofarads (0.00018 mfd.) would have a brown dot followed clockwise by a gray and black dot. Each of these capacitors is subject to a manufacturing tolerance of ±2.5 micromicrofarads, hence a capacitor coded as 180 may have any value between 177.5 and 182.5 micromicrofarads.

Fixed tubular ceramic capacitors are color-coded to show their nominal capacitance in micromicrofarads, their capacitance tolerance, and their temperature coefficient according to the diagram and table below.



EXAMPLE
60 MMF ±2½%, TEMP. COEF. -.00003

COLOR	SIGNIFICANT FIGURE	MULTIPLIER	TOLERANCE OF CAPACITANCE: CAPACITORS MORE THAN 10 MMF	TOLERANCE OF CAPACITANCE: CAPACITORS 10MMF OR LESS	TEMPERATURE COEFFICIENT IN MMF/MMF/°C
BLACK	0	1	± 20 %	-± 2MMF	0
BROWN	1	10	± 1 %		-.00003
RED	2	100	± 2 %		-.00008
ORANGE	3	1,000	± 2.5 %	± .25MMF	-.00015
YELLOW	4				-.00022
GREEN	5		± 5 %	± .5MMF	-.00033
BLUE	6				-.00047
VIOLET	7				-.00075
GRAY	8	.01			+.00003
WHITE	9	.1	± 10 %	± 1MMF	

Figure 7—2. Capacitor Color Codes

AN 16-30ARC5-2

WIRE COLORS

The use of rubber as insulation on wires was discontinued during production of the units described in this instruction book, and vinylite was substituted. All wiring diagrams show the original wire colors. The following table shows the original and the substitute colors and the Aircraft Radio Corporation specification numbers for the wires.

Original Spec. No.	*Color*	*Substitute Spec. No.*	*Color*
3425	White	9275	White (or cream)
3425	Black	9275	Black
3425	Red	9275	Red
3425	Yellow	9275	Yellow
3425	Green	9275	Light green
3425	Blue	9275	Light blue
3425	Black with green tracer	9275	Dark green
3425	Black with white tracer	9275	Gray
3425	Black with yellow tracer	9275	Brown
3425	Black with blue tracer	9275	Dark blue
3423	Black	9273	Black
3423	White	9273	White

Spec. #3425 is #22 solid, .014 in. thick, rubber and braid
Spec. #9275 is #22 solid, .022 in. thick, vinylite
Spec. #3423 is #18 stranded, .022 in. thick, rubber
Spec. #9273 is #18 stranded, .031 in. thick, vinylite

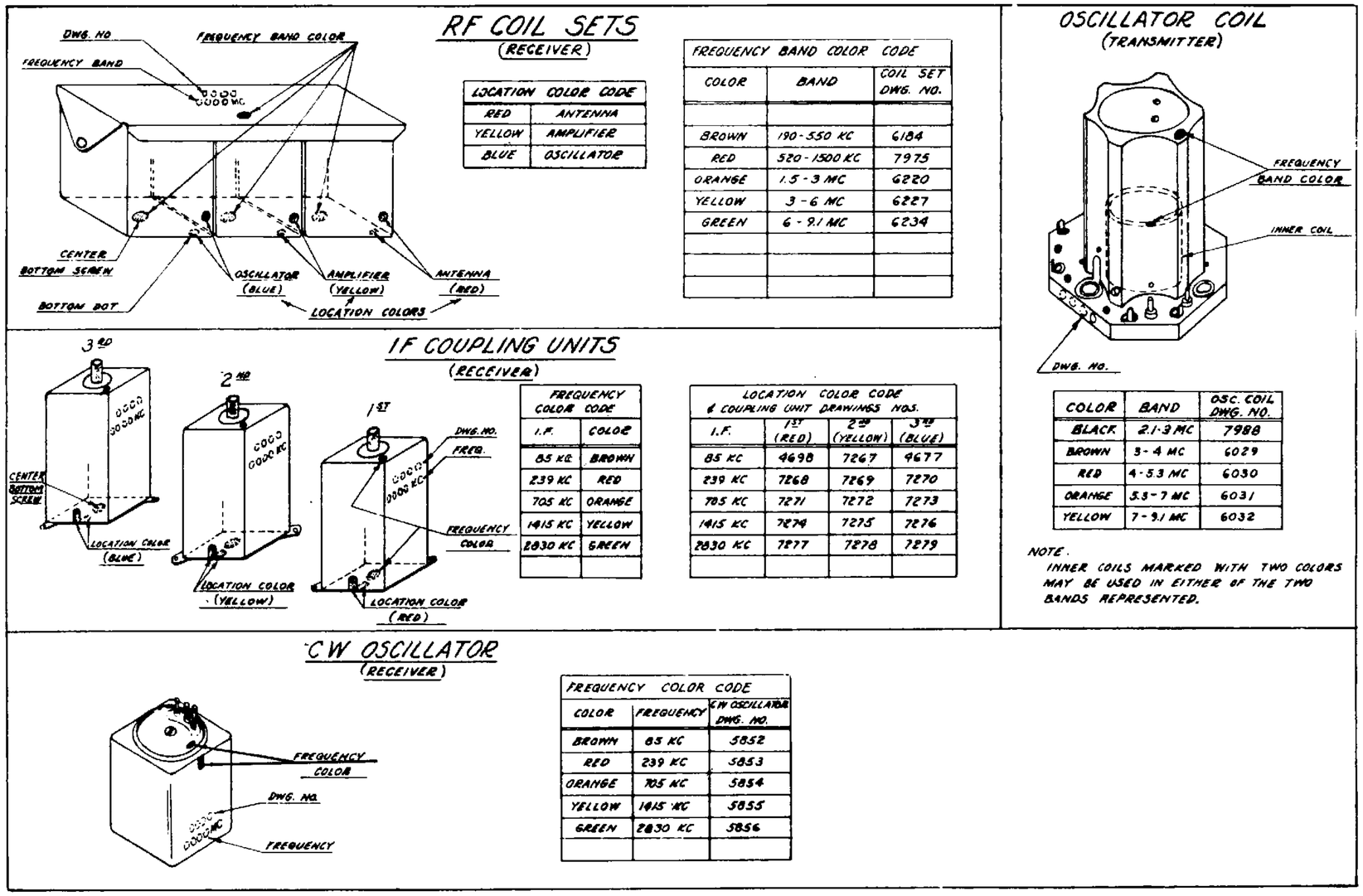


Figure 7—3. Radio Receiver and Transmitter Wire and Coil Color Codes

TABLE 7–2. TABLE OF REPLACEABLE PARTS

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** ADAPTERS

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
1-49 series		ADAPTER, Audio, MX-19/ARC-5	Connects receiver for operation on avc only, with no manual control, and is simultaneously connected for mcw operation only	ARC-9595	ARC-9595
1-49 series		ADAPTER, Power, MX-20/ARC-5	Used with Radio Receiver R-24/ARC-5 when required to supply not over 0.5 ampere of low-voltage power and not over 15 milliamperes of high-voltage power to external equipment for all LF-MF-HF radio receivers	ARC-9074 STC-640426	ARC-9074 STC-640426
1-49 series		ADAPTER, Remote control, MX-21/ARC-5	To complete low-voltage circuit and to cover opening in front of receiver	ARC-6433 STC-640344	ARC-6433 STC-640344
A-30		COVER, Rear (for MX-19/ARC-5 and MX-20/ARC-5 only)	Closure for adapter	ARC-5199 STC-640968	ARC-5199 STC-640968
		COVER, Rear (for MX-21/ARC-5 only)	Closure for adapter	STC-640967	STC-640968
E-12	R16C4688	CAP (for MX-19/ARC-5 only)	Protective closure	ARC-9375	ARC-9375
E-38		CAP (for MX-20/ARC-5 only)	Protective closure	ARC-1943 STC-640005	ARC-1943 STC-640005
J-27	R16P2775	PLATE, Mounting, 8 contacts	Connects to receiver	ARC-6063 STC-640299	ARC-6063 STC-640299
J-28	R16R2517-60	CONNECTOR, Receptacle, 3 contacts (for MX-19/ARC-5 only)	Connects a-f output to external equipment	ARC-9336	ARC-9336
J-29		PLATE, Mounting, same as J-27	Connects to receiver		
J-30		CONNECTOR, Receptacle, 5 contacts (for MX-19/ARC-5 and MX-20/ARC-5 only)	Connects high-voltage and low-voltage to external equipment	ARC-2226 STC-640008	ARC-2226 STC-640008
J-31		PLATE, Mounting, same as J-27	Connects to receiver		
K-5	R16R5072	RELAY, Armature, 28 vdc, dc resistance 300 ohms ± 15% (for MX-19/ARC-5 only)	Grounds cw oscillator and manual r-f sensitivity line when relay K-5 is actuated	ARC-9453	ARC-9453
R-25	R16R17261	RESISTOR, Fixed, composition, 100 ohms ± 10%, ½ w (for MX-19/ARC-5 only)	Damping resistor in a-f line to external equipment	AB-EB 1011	ARC-4536

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** ANTENNA LOADING COIL TN-6/ARC-5

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
1600-1699 series		COIL, Antenna loading, TN-6/ARC-5	Antenna loading	ARC-9607	ARC-9607
A-1601	R16B1815	COVER	Closure over chassis	ARC-9943	ARC-9943
A-1602	R16M5122	MOUNTING	Mounting base	ARC-7057	ARC-7057
C-1601	R16ARC-8086	CAPACITOR, Fixed, vacuum dielectric, 1¼ uuf ± 15%, 3500 vdc working	Coupling to resonance indicator circuit	CN-Special	ARC-8086
C-1602	R16C11950	CAPACITOR, Variable, air dielectric, Δ C = 15 uuf	Lamp sensitivity control	ARC-5676	ARC-5676
E-1601	R16P5362	POST, Binding, engraved "A"	Antenna relay connection	ARC-7663	ARC-7663
E-1601	R16P5309	POST, Binding	Coil tap connection	ARC-7662	ARC-7662
E-1602	R16P5372	POST, Binding, engraved "G"	Ground connection	ARC-6067	ARC-6067
E-1603	R16K3372	KNOB	Controls lamp sensitivity	ARC-9876	ARC-9876
E-1604	R16C37830	COVER, Lamp	Closure over neon lamp	ARC-1986	ARC-1986
J-1601	R16R2517-75	CONNECTOR, Receptacles, 3 contacts	For relay operation of Radio Transmitters T-15/ARC-5, T-16/ARC-5 and T-17/ARC-5	ARC-9849	ARC-9849
J-1602		CONNECTOR, Receptacle, same as J-1601	For relay operation of Radio Transmitters T-15/ARC-5, T-16/ARC-5 and T-17/ARC-5 only		
K-1601	R16R5715-135	RELAY, Armature	For connecting L-1601 into antenna circuit, or to short-circuit L-1601	ARC-7735	ARC-7735
K-1602	R16R5715-98	RELAY, Armature, 28 v dc, coil dc resistance 300 ohms ± 15%	For operation of K-1601 from a second outlet when two T-15/ARC-5, T-16/ARC-5 and T-17/ARC-5 are connected to the loading coil	ARC-7251	ARC-7251
L-1601	R16C21391	COIL, RF	Antenna loading	ARC-9944	ARC-9944
V-1601	G17L6806-120	LAMP, Glow, clear, not over 90 v dc	Resonance indicator	GYL-Type T-2	ARC-5913

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** ANTENNA RELAY UNIT RE-2/ARC-5

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
50-99 series		RELAY UNIT, Antenna, RE-2/ARC-5	Designed to switch a single LF-MF-HF antenna to transmitters or receivers	ARC-5017	ARC-5017
A-70	R16B1722	BASE, Mounting	Holds antenna series capacitor C-69 and provides for connection to mounting base	A-7801	A-7801
C-69	R16C7835	CAPACITOR, Fixed, vacuum dielectric, 50 uuf ± 10%, 500 v dc working	Antenna series capacitor	GE-Type ZA-38	ARC-8047
E-65	R16P5365	POST, Binding, engraved "C"	For connection to C-69	ARC-7805	ARC-7805
E-66		POST, Binding, same as E-65	For connection to C-69		
E-67	R16I4275	INSULATOR, Standoff	Binding post insulation	ISO	ARC-7659
E-68		INSULATOR, Standoff, same as E-67	Binding post insulation		
E-69	R16P5422	POST, Binding, engraved "REC"	Receiver connection	ARC-7665	ARC-7665
E-70	R16P5362-5	POST, Binding, engraved "ANT"	Antenna connection	ARC-7664	ARC-7664
E-71	R16P5428-5	POST, Binding, engraved "TR"	Transmitter connection	ARC-7666	ARC-7666
E-72	R16I4278	PLATE, Insulating	Holds contacts, part of antenna relay K-55	ARC-7732	ARC-7732
E-74		CORE, Iron, part of T-55	Increase coupling between winding on current transformer T-55		
E-88	R16P5372	POST, Binding, engraved "G"	Ground connection	ARC-6067	ARC-6067
H-59	R16S4380	SNAPSLIDE, Formed, includes:	Fastener	ARC-2540	ARC-2540
	R16G7000	GUIDE, Snapslide		ARC-4750	ARC-4750
	R16B15697-20	BUTTON, Snapslide		ARC-2116	ARC-2116
	R16S9875	STUD		ARC-7072	ARC-7072
	R16W1105-50	WASHER, Spring		ARC-5171	ARC-5171
J-61	R16R2415	CONNECTOR, Receptacle, 5 contacts	To transmitter rack	ARC-7023	ARC-7023
K-55	R16R5715-1355	RELAY, Armature	Antenna switching and receiver grounding in TRANS. position	ARC-7735	ARC-7735
M-50	R16A3025	AMMETER	Antenna current indication	WS-Model 507	ARC-6750
R-79		RESISTOR, Fixed, composition, 510,000 ohms ± 5%, ½ w	Antenna leak	AB-EB5145	ARC-4570
S-54	R16S28255-5	SWITCH, Toggle, 2 circuit, 3 amp, 125 v	Antenna current meter Remote-Local selector	CUT-8284-K12	ARC-3280
T-55	R16T7050	COIL, RF	R-f current transformer for thermocouple TC-50	ARC-7501	ARC-7501
TC-50	R16T2610	THERMOCOUPLE, Bridge type, open circuit rating 19.5 ± 1.5 millivolts, ¾ amp	Use with M-50 to indicate antenna current	WS-CD68348	ARC-7499

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** CONTROL UNIT C-24/ARC-5

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
1-49 series		CONTROL UNIT, Local, C-24/ARC-5	For wide range sensitivity control and CW-OFF-MCW switch for local control of LF-MF-HF radio receivers	ARC-6434 STC-640617	ARC-6434 STC-640617
A-30		COVER, Bottom	Closure	ARC-5199 STC-640969 LEW-	ARC-5199 STC-640969 TEL-6296
E-5	R16K3368-25	KNOB, Round, engraved	Sensitivity control	ARC-6749 STC-640685 TEL-6275	ARC-6749 STC-640685 TEL-6275
E-6	R16L4910	KNOB, Bar, single pointer	CW-OFF-MCW control	ARC-3912 STC-640686 LEW-	ARC-3912 STC-640686 TEL-6292
J-32	R16P2774	PLATE ASSEMBLY, Mounting, 8 contacts	Connects to receiver	ARC-6062 STC-640682 LEW-	ARC-6062 STC-640682 LEW-6294
J-33	R16P4350	CONNECTOR, Plug, wired	Completes LV connection	ARC-6787	ARC-6787 STC-
R-34	R16P5841	RESISTOR, Variable composition, 50,000 ohms ± 20%	Wide range RF sensitivity control	AB-J5032/FS2032	ARC-6310 TEL-6295
	R16R28359-750				STC-640692
S-2	R16S10645-60	SWITCH, Rotary, 3 position, 2 circuits	CW-OFF-MCW rotary switch	ARC-6536 STC-640687 TEL-6293	ARC-6536 STC-640687 TEL-6293

TABLE 7—2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** CONTROL UNIT C-26/ARC-5

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
1-49 series		CONTROL UNIT, Tunable, C-26/ARC-5	For tunable operation on CW or VOICE of any LF-MF-HF radio receiver	ARC-9601	ARC-9601
A-22	R16C37500	COVER, Bottom	Closure	ARC-7050	ARC-7050
E-14	R16L4920	KNOB, Round, single bar	For operation of CW-VOICE switch	ARC-5444	ARC-5444
E-15	R16C38470	CRANK	For tuning	ARC-7955	ARC-7955
E-24	R16K3368-25	KNOB, Round, engraved	For r-f sensitivity control	ARC-6749	ARC-6749
H-4	R16S4380	SNAPSLIDE, Formed, includes:	Fastener	ARC-2540	ARC-2540
	R16G7000	GUIDE, Snapslide		ARC-4750	ARC-4750
	R16B15700	BUTTON, Snapslide		ARC-5172	ARC-5172
	R16S9856	STUD		ARC-1450	ARC-1450
	R43W110550	WASHER, Spring		ARC-5171	ARC-5171
J-4	R16R2408	CONNECTOR, Receptacle, 8 contacts	To receiver rack	ARC-6418	ARC-6418
N-2	R16D2200	DIAL, Engraved, 0.19 to 0.55 mc (for Radio Receivers R-23/ARC-5, R-23A/ARC-5 and R-148/ARC-5X only)	Frequency indication	ARC-6051	ARC-6051
N-3	R16D2202	DIAL, Engraved, 0.52 to 1.5 mc (for Radio Receiver R-24/ARC-5 only)	Frequency indication	ARC-6052	ARC-6052
N-4	R16D2225	DIAL, Engraved, 1.5 to 3 mc (for Radio Receiver R-25/ARC-5 only)	Frequency indication	ARC-7575	ARC-7575
N-5	R16D2204	DIAL, Engraved, 3 to 6 mc (for Radio Receiver R-26/ARC-5 only)	Frequency indication	ARC-6053	ARC-6053
N-6	R16D2206	DIAL, Engraved, 6 to 9.1 mc (for Radio Receiver R-27/ARC-5 only)	Frequency indication	ARC-6054	ARC-6054
O-2		SPLINE, Part of O-4			
O-4	R16G2805	GEAR ASSEMBLY	Rotation of dial and mechanical linkage	ARC-6550	ARC-6550
R-33	R16P5839	RESISTOR, Variable, composition, 0 to 50,000 ohms ± 20%	Wide range manual r-f sensitivity control	AB-J5032/FS2060	ARC-6488
S-4	R16S10645-160	SWITCH, Rotary, 2 position, single circuit	CW-VOICE switch	ARC-9624	ARC-9624

TABLE 7—2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** CONTROL UNIT C-27/ARC-5

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
1-49 series		CONTROL UNIT, Lock-tuned, C-27/ARC-5	For lock-tuned operation on voice only of R-25/ARC-5, R-26/ARC-5 and R-27/ARC-5	ARC-9850	ARC-9850
E-10	R16N375	NAMEPLATE	To record lock tuned frequency	ARC-9404	ARC-9404
J-5	R16R2514-105	CONNECTOR, Receptacle, 2 contacts	To receiver rack	ARC-9835	ARC-9835
R-32	R16P5582-75	RESISTOR, Variable, composition, 0 to 1800 ohms ± 20%	Limited range r-f sensitivity control	AB-J1822/FS2032	ARC-6856
R-36	R16JAN-20AE104J	RESISTOR, Fixed, composition, 100,000 ohms ± 10%, ½ w	Cathode bias	AB-EB1041	ARC-4501
R-95	R16R17264-50-25	RESISTOR, Fixed, composition, 620 ohms ± 5%, ½ w (Used in control units under serial No. 5000)	Limits attenuation	AB-EB6215	ARC-6004
S-3	R17S28255-42 USE UNTIL EXH. SUP. BY R17S28255-13	SWITCH, Toggle, 3 amp, 250 v	Receiver ON-OFF switch in r-f sensitivity control line	CUT-8280	ARC-1516

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** CONTROL UNIT C-29/ARC-5

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
50-99 series		CONTROL UNIT, Transmitter, C-29/ARC-5	Controls circuit determining type of emission and choice of radio transmitter	ARC-9314	ARC-9314
A-57	R16C37500-20	COVER, Bottom	Closure	ARC-7084	ARC-7084
E-63	R16L4910	KNOB, Bar, single pointer	TONE-CW-VOICE control	ARC-3912	ARC-3912
E-64		KNOB, Same as E-63	TRANSMITTER SELECTION control		
H-58	R16S4380	SNAPSLIDE, Formed, includes:		ARC-2540	ARC-2540
	R16G7000,	GUIDE, Snapslide		ARC-4750	ARC-4750
	R16B15700	BUTTON, Snapslide		ARC-5172	ARC-5172
	R16S9856	STUD		ARC-1450	ARC-1450
	R43W110550	WASHER, Spring		ARC-5171	ARC-5171
J-77	R16R2534-155	CONNECTOR, Receptacle, 18 contacts	To modulator	ARC-5571	ARC-5571
N-52	R16D2282	PLATE, Dial	For recording frequencies	ARC-6802	ARC-6802
S-50	R16S10651-250	SWITCH, Selector, 3 position, 7 circuits	TONE-CW-VOICE switch	ARC-7104	ARC-7104
S-51	R17S28255-42 USE UNTIL EXH. SUP. BY R17S28255-13	SWITCH, Toggle, 3 amp, 250 v	ON-OFF switch	CUT-8280	ARC-2246
S-52	R16S10648	SWITCH, Selector, 4 position, 4 circuits	TRANS. SELECTION switch	ARC-7097	ARC-7097

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** CONTROL UNIT C-30A/ARC-5

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
1700-1710 series		CONTROL UNIT, Transmitter, C-30A/ARC-5 (for VHF transmitter)	Controls type of emission, and selects VHF radio transmitter	ARC-9910	ARC-9910
A-1700	R16C37500-20	COVER, Bottom	Closure	ARC-7084	ARC-7084
A-1701	R16C38190	COVER, Knob	For S-1701	ARC-10243	ARC-10243
E-1700	R16K3760	KNOB, Bar, single pointer	For S-1702	ARC-10367	ARC-10367
E-1701		KNOB, Same as E-1700	For S-1700		
E-1702	R16K3765	KNOB, Bar, single pointer	For S-1701	ARC-10376	ARC-10376
E-1703	R16P3083	PLATE, Stop	Adjustable stop for S-1700	ARC-9266	ARC-9266
H-1700	R16S4380	SNAPSLIDE, Formed, includes:	Fastener	ARC-2540	ARC-2540
	R16G7000	GUIDE, Snapslide		ARC-4750	ARC-4750
	R16B15700	BUTTON, Snapslide		ARC-5172	ARC-5172
	R16S9856	STUD		ARC-1450	ARC-1450
	R43W110550	WASHER, Spring		ARC-5171	ARC-5171
J-1700	R16R2534-155	CONNECTOR, Receptacle, 18 contacts	To modulator	ARC-5571	ARC-5571
J-1701	R16R2415-20	CONNECTOR, Receptacle, 12 contacts	To VHF receiver and transmitter	ARC-7025	ARC-7025
N-1700	R16D2282	PLATE, Dial	For recording frequencies	ARC-6802	ARC-6802
S-1700	R16S10648	SWITCH, Selector, 4 position, 4 circuits	Transmitter selector	ARC-7097	ARC-7097
S-1701	R16S10651-250	SWITCH, Selector, 3 position, 7 circuits	VOICE-CW-TONE switch	ARC-7104	ARC-7104
S-1702	R16S10651-383	SWITCH, Selector, 4 position, 8 circuits	A-B-C-D VHF switch	ARC-9973	ARC-9973
S-1703	R17S28255-42 USE UNTIL EXH. SUP. BY R17S28255-13	SWITCH, Toggle, 3 amp, 250 v	ON-OFF switch	CUT-8280	ARC-2246

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** CONTROL UNIT C-38/ARC-5

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
1000-1020 series		CONTROL UNIT, Main, C-38/ARC-5	Controls microphone selection, pitch, volume, sensitivity and ICS-RADIO for as many as three receiving equipments	ARC-9610	ARC-9610
A-1001	R16C37500-5	COVER, Bottom	Closure	ARC-7051	ARC-7051
A-1002	R16M5013	MOUNTING	Mounting plate	ARC-7054	ARC-7054
E-1001	R16L4910	KNOB, Bar, single pointer	Microphone selection switch	ARC-3912	ARC-3912
E-1002	R16P3085	PLATE, Stop, adjustable	For microphone switch knob	ARC-9892	ARC-9892
E-1003	R16K4613	KNOB, Hexagonal, engraved	Volume control	ARC-9891	ARC-9891
E-1004	R16L4920	KNOB, Round, single bar	CW-VOICE switch	ARC-5444	ARC-5444
E-1005	R16K3368-25	KNOB, Round, engraved	Sensitivity control	ARC-6749	ARC-6749
E-1006	R16K3373	KNOB, Square	Pitch control	ARC-9920	ARC-9920
E-1007	R16C38470	CRANK	For hand switching	ARC-10021	ARC-10021
E-1008		DIAL	For adjusting r-f gain control resistor	ARC-9866	ARC-9866
J-1001	R16R2419	CONNECTOR, Receptacle, 8 contacts	Connects to Junction Box J-17/ARC-5	ARC-7027	ARC-7027
N-1001	R16N375	NAMEPLATE, Write-in type	For receiver frequency record	ARC-9404	ARC-9404
N-1002	R16P2723-110	PLATE, Dial	ICS-RADIO indicator	ARC-9923	ARC-9923
O-1001	R16G2808	GEAR ASSEMBLY	Rotate dial and mechanical linkage	ARC-9922	ARC-9922
R-1001	R16R5583-9-300	RESISTOR, Variable, composition, 0 to 5,000 ohms ± 20%	Pitch control	AB-JU5022/FS2032	ARC-8083
R-1002	R16P5582-75	RESISTOR, Variable, composition, 0 to 1,800 ohms ± 20%	Limited range r-f sensitivity control	AB-J1822/FS2032	ARC-6856
R-1003		RESISTOR, Variable, same as R-1002	Limited range r-f sensitivity control		
R-1004		RESISTOR, Variable, same as R-1002	Limited range r-f sensitivity control		
R-1005	R16R28359-750	RESISTOR, Variable, composition, 0 to 50,000 ohms ± 20%	Sensitivity control	AB-J5032/FS2032	ARC-6310
R-1006	R16P5581-325	RESISTOR, Variable, composition, 0 to 1200 ohms ± 20%	Volume control	AB-J1222/SD2032	ARC-8082
R-1007	R16R17262-39-25	RESISTOR, Fixed, composition, 200 ohms ± 5%, ½ w	To control range of attenuation of R-1006	AB-EB2015	ARC-4497

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** CONTROL UNIT C-38/ARC-5 (Cont)

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
R-1008	R16JAN-RC20BF-621K	RESISTOR, Fixed, composition, 620 ohms ± 5%, ½ w	Control attenuation of R-1003	AB-EB6215	ARC-6004
R-1009	R16JAN-RC20AG104J	RESISTOR, Fixed, composition, 100,000 ohms ± 10%, ½ w	For sensitivity control line	AB-EB1041	ARC-4501
R-1010	R16R17319-65	RESISTOR, Fixed, composition, 30,000 ohms ± 5%, ½ w	Control attenuation of R-1005	AB-EB3035	ARC-4504
R-1011	R16R17337-28-500	RESISTOR, Fixed, composition, 51,000 ohms ± 5%, ½ w	For sensitivity control line	AB-EB5135	ARC-4569
R-1012		RESISTOR, Fixed, composition, 620 ohms ± 5%, 1 w	Control attenuation of R-1006	AB-GB6215	ARC-8068
R-1013		RESISTOR, Fixed, same as R-1009	For sensitivity control line		
R-1014		RESISTOR, Fixed, same as R-1008 (Used in control units above serial No. 2500)	Control attenuation of R-1002		
S-1001	R16S10642-75	SWITCH, Rotary, 2 position, single circuit	CW-VOICE switch	ARC-9945	ARC-9945
S-1002	R17S28255-43	SWITCH, Toggle, single circuit, 3 amp, 250 v	Receiver ON-OFF switch	CUT-8908-K-142	ARC-8084
S-1003		SWITCH, Toggle, same as S-1002	Receiver ON-OFF switch		
S-1004	R17S28225-125	SWITCH, Toggle, 3 circuit 3 amp, 250 v	Receiver ON-OFF switch	CUT-18908-K-143	ARC-8085
S-1005	R16S10651-353	SWITCH, Selector, 3 position, 6 circuit	Microphone selection	ARC-9912	ARC-9912

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** CONTROL UNIT C-39/ARC-5 and C-48/ARC-5

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
1100-1110 series		CONTROL UNIT, Auxiliary, C-39/ARC-5	Controls headset volume or choice of microphone input	ARC-9909	ARC-9901
1100-1110 series		CONTROL UNIT, Auxiliary, C-48/ARC-5	Controls headset volume or choice of microphone input	ARC-9902	ARC-9902
A-1101	R16C37500-20	COVER, Bottom	Closure	ARC-7084	ARC-7084
A-1102	R16M5030	MOUNT	Mounting plate	ARC-7083	ARC-7083
E-1101	R16L4910	KNOB, Bar, single pointer	Microphone selector	ARC-3912	ARC-3912
E-1102		PLATE, Stop, adjustable	For microphone switch knob	ARC-9892	ARC-9892
E-1103		KNOB, Hexagonal, engraved	Volume control	ARC-9891	ARC-9891
E-1104	R16ARC-9492	NUT ASSEMBLY, Clamping	For cable assembly including JK-48	ARC-9492	ARC-9492
J-1101	R16R2415-20	CONNECTOR, Receptacle, 12 contacts	For Junction Box J-17/ARC-5	ARC-7025	ARC-7025
J-1102		CONNECTOR, Receptacle, same as J-1101	For Junction Box J-17/ARC-5		
J-1103	R16R2517-60	CONNECTOR, Receptacle, 3 contacts	For two- or three-circuit throttle switch	ARC-9336	ARC-9336
J-1104	R16J2046	JACK, Telephone	Connects to Microphone RS-38	ARC-9391	ARC-9391
J-1105	R16J3130-10	JACK, Telephone	Connects to headset	ARC-4691	ARC-4691
JK-48	R16ARC-9919	CABLE ASSEMBLY, Telephone	Connects to mask microphone	SIG.-CO-219	ARC-9919
K-1101	R16R5072	RELAY, Armature, 26 v dc, dc resistance 300 ohms ± 15% (Used in Auxiliary Control Unit C-48/ARC-5 only)	Operated by throttle switch and controls function of hand switch	ARC-9453	ARC-9453
R-1102	R16R5715-98	RELAY, Armature, 28 v dc, dc resistance 300 ohms ± 15%	Connects ICS direct to headset, by-passing the volume control	ARC-7251	ARC-7251
R-1101		RESISTOR, Fixed, composition, 620 ohms ± 5%, 1 w	Alters taper of volume control R-1102	AB-GB6215	ARC-8068
R-1102	R16P5581-325	RESISTOR, Variable, composition, 0 to 1200 ohms ± 20%	Volume control	AB-J1222/SID2032	ARC-8082
S-1101	R16S10651-353	SWITCH, Selector, 3 position, 6 circuit	Microphone and key switch	ARC-9912	ARC-9912

TABLE 7—2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** CONTROL PANEL C-125/ARC-5

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
1900-1903 series		PANEL, Control, C-125/ARC-5	To provide remote tuning and sensitivity control for any one of the AN/ARC-5 LF-MF-HF radio receivers	ARC-9911 STC-640607	ARC-9911 STC-640607
A-1900		PANEL, Mounting, engraved	Mounting plate	ARC-10467 STC-640766	ARC-10467 STC-640766
A-1901		COVER, Rear	Closure	ARC-10464 STC-640765	ARC-10464 STC-640765
E-1900	R16K3368-25	KNOB, Round, engraved	Sensitivity control	ARC-6749 STC-640686	ARC-6749 STC-640686
E-1901	R16C38470	CRANK	For tuning	ARC-7955 STC-640758	ARC-7955 STC-640758
E-1902	R16N2022	NUT, Hex, aluminum, double chamfered, ½-27 U.S. threads	Locks E-1902 sleeve	ARC-1285 STC-635102	ARC-1285 STC-635102
E-1903	R16ARC-6397	SLEEVE	For tuning spline	ARC-6397 STC-640736	ARC-6397 STC-640736
J-1900	R16R2408	CONNECTOR, Receptacle, 8 contacts	Connects to receiver rack	ARC-6418 STC-640340	ARC-6418 STC-640340
O-1900		GEAR ASSEMBLY	Rotate dial and mechanical linkage	ARC-9977 STC-640762	ARC-9977 STC-640762
R-1900	R16R28359-750	RESISTOR, Variable, composition, 0 to 50,000 ohms ± 20%	Manual sensitivity control	AB-J5032/FS2032	ARC-6310 STC-640692

TABLE 7—2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** RADIO SET CONTROL C-744/ARC-5

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
1900-1905 series		CONTROL, Radio set, C-744/ARC-5	To provide remote tuning and volume control for R-23/ARC-5, R23A/ARC-5, or R-148/ARC-5X; with dial replaced may be used with other radio receivers	STC-640874	STC-640874
A-1902	R16TEL-34229	PANEL, Lucite, engraved, dull black finish	Mounting panel	LEW-8790 TEL-34229 STC-641498	LEW-8790 TEL-34229 STC-641498
A-1903		COVER, Rear	Closure	LEW-8764 TEL-34255 STC-641499	LEW-8764 TEL-34255 STC-641499
E-1900	R17L12930-71	LAMPHOLDER	Holder for panel illuminating lamp	AN3502-2A	MIL-L-6723
E-1901		LAMPHOLDER, same as E-1900	Holder for panel illuminating lamp		
E-1904	R16TEL-34230	KNOB, Round, with skirt, engraved fiducial line on skirt	Volume control knob	LEW-8789 STC-641478 TEL-34230	LEW-8789 STC-641478 TEL-34230
E-1905	R16TEL-34231	CRANK ASSEMBLY	For tuning	ARC-7955 STC-641479 TEL-34231	LEW- STC-641479 TEL-34231
H-1900	R16TEL-32194	NUT, Hex, ½-27 U.S. thd, aluminum alloy	Secure O-1901	Coml	ARC-1285 TEL-32194
I-1900	R17AN-3140-327	LAMP, Incandescent, 28 volt	Illuminates front panel	AN3140-327	MIL-L-6723
I-1901		LAMP, Incadescent, same as I-1900	Illuminates front panel		
I-1902	R16TEL-34232	DIAL, Plastic internally lighted, engraved with 0.19 to 0.55 mc indice lines	Indicates frequency	TEL-34232 STC-641493	TEL-34232 STC-641493
J-1900	R16R2408	CONNECTOR, Receptacle, 8 male contacts	Electrical connections	ARC-6418	LEW- TEL-36279 STC-640340
O-1900	R16TEL-34223	GEAR ASSEMBLY	Drives remote control cable	TEL-34223 STC-662010	TEL-34223 STC-662010
O-1901	R16TEL-32178	SLEEVE, Coupling	Holds remote control cable	ARC-6397 TEL-32178 STC-640736	LEW- TEL-32178 STC-640736
R-1900	R16R5588-84	RESISTOR, Variable, composition, 0 to 50,000 ohms ± 20%, ¼ w	Volume control	AB-J5032/FS2032	ARC-6310 STC-641477 TEL-35164

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** DYNAMOTOR DY-2A/ARR-2 AND DY-2B/ARR-2

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
1-49 series		DYNAMOTOR, Receiver, ★DY-2A/ARR-2	High voltage supply for radio receiver	ARC-7351	ARC-7351
1-49 series		DYNAMOTOR, Receiver, DY-2B/ARR-2	High voltage supply for radio receiver	ARC-10009 STC-640994	ARC-10009 STC-640994
A-9	R16B1848-70	BASE ASSEMBLY, Dynamotor	Mounts dynamotor	ARC-5722 STC-640659	ARC-5722 STC-640659
A-15	R16B10755	BRACKET, Bearing		CE-26201 RED-25B228-4 RED-25B228-5	
A-16		FRAME		CE-22994 RED-8A75-3	
A-17	R16B4978	COVER, End		CE-19964-1 RED-33A6	
A-20	R16P5220	POLE, Field		CE-21667 RED-3A3	
D-1		DYNAMOTOR		CE-27926-WS-7610 RED-5063	ARC-6936 STC-640995
E-2	R16A5510	ARMATURE		CE-27829-WS-7610 RED-4889	
E-16	R16C4705	CAP, Screw, brush holder		CE-23607-2 RED-29A10	
E-17	R16H6190	HOLDER, Brush, LV		CE-23610-1-X RED-38A16	
E-18	R16B12304-170	BRUSH, LV (+)		CE-23609-3 RED-24A13	
E-19		BRUSH, LV (—), same as E-18			
E-20	R16B12304-160	BRUSH, HV (+)		CE-23609-4 RED-24A30	
E-21		BRUSH, HV (—), same as E-20			
E-22		HOLDER, Brush, HV		CE-23610-2-X RED-38A16	
E-23	R16G6835	WIRE, Guard		CE-12077 RED-20A33	
H-9	R16S4380	SNAPSLIDE, Formed, includes:	Fastener	ARC-2540 STC-640011	ARC-2540 STC-640011

	R16G700	GUIDE, Snapslide		ARC-4750 STC-640162	ARC-4750 STC-640162
	R16B15697-20	BUTTON, Snapslide		ARC-2116 STC-640007	ARC-2116 STC-640007
	R43W110550	WASHER, Spring		ARC-5171 STC-635220	ARC-5171 STC-635220
	R16S9870	STUD		ARC-4682	ARC-4682
H-11		SCREW, Bearing cover		CE-25926-23 RED-10A22	
H-12	R16P2722	PLATE, Cover		CE-26207 RED-46A33	
H-13	R16CE-25926-19	PIN, Lock, brush holder		CE-25926-19 RED-56A8	
H-14	R16D4460	DOWEL, Bracket locking		CE-25926-26	
H-15		ROD, Tie		CE-25926-13 RED-10A35	
H-16	R16CE-25926-25	WASHER, Lock, tie rod		CE-25926-25 RED-39A4	
H-17		NUT, Tie rod		CE-25926-2A RED-15A10	
H-18	R33G1906-252-25	GROMMET		CE-25926-18	
H-19	R16CE-25926-14	SCREW, Cover		CE-25926-14 RED-10A121	
H-20	R16CE-25926-28	WASHER, Lock, cover screw		CE-25926-28 RED-39A4	
H-21	R43W40200	WASHER, Plain, cover screw		CE-25926-27 RED-39A5-2	
H-22		SCREW, Connecting, LV and HV		CE-25926-20	
H-23	R16CE-25926-21	WASHER, Lock, connecting screw		CE-25926-21	
H-24	R16CE-25926-17	SCREW, Pole		CE-25926-17 RED-10A16	
H-25	R16S4384	SLINGER, Grease		CE-21666 RED-21A146	
H-26	R16S9832	STUD	To position dynamotor	ARC-5219 STC-640197	ARC-5219 STC-640197
J-5	R16P3990-3	CONNECTOR, Receptacle, 3 contacts	Connection to receiver	ARC-5211 STC-640191	ARC-5211 STC-640191

TABLE 7—2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** DYNAMOTOR DY-2A/ARR-2 AND DY-2B/ARR-2 (Cont)

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
L-16	R16C28768	COIL, Field		CE-21668-WS-7610 RED-2B19-2	
O-1	R42B5810-120-100	BEARING, Ball		CE-25926-10 RED-37A49	STC-640995
W-1		WIRE, Ground, LV (—) and HV (—)		CE-25926-33 RED-18A185	
W-2	R16CE-25926-31	WIRE, Connecting, LV (+)		CE-25926-31 RED-18A185	
W-3	R16CE-25926-32	WIRE, Connecting, HV (+)		CE-25926-32 RED-18A185	

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** DYNAMOTOR DY-8/ARC-5

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
1-49 series		DYNAMOTOR, Transmitter, DY-8/ARC-5	High voltage for modulator and radio transmitter	ARC-5168 STC-641450	ARC-5168 STC-641450
A-59	R16B10770	BRACKET, Bearing, LV		CE-23371-3	
A-60	R16CE-27825	FRAME		CE-27825	
A-61	R16B10750	BRACKET, Bearing, HV		CE-23371-1	
A-62	R16C37545	COVER, End		CE-16576-1	
A-63	R16CE-24284	POLE, Field		CE-24284	
A-71	R16B1751	BASE ASSEMBLY, Dynamotor	Mounts dynamotor	ARC-5723 STC-641442	ARC-5723 STC-641442
C-50	R16C10435-15	CAPACITOR, Fixed, mica dielectric, 6000 uuf −10% +100% 400 v dc working	R-f filter	CE-27824-32	ARC-8052
D-50	R16D5656-25	DYNAMOTOR		CE-27824-WS-7666	ARC-5325
E-75	R16C4704	CAP, Screw, brush holder, LV		CE-23607-1	
E-76	R16H6210	HOLDER, Brush, LV		CE-23610-7-X	
E-77	R16H6205	HOLDER, Brush, HV		CE-23610-4-X	
E-78	R16C4705	CAP, Screw, brush holder, HV		CE-23607-2	
E-79	R16B12197-25	BRUSH, LV (+)		CE-23609-9	
E-80		BRUSH, LV (−), same as E-79			
E-81	R16B12197	BRUSH, HV (+)		CE-23609-6	
E-82		BRUSH, HV (−), same as E-81			
E-83	R16CE-12061-424	GUARD, Wire		CE-12061-424	
E-84	R33G1906-252	GROMMET		CE-27824-19	
E-85	R16A5195	ARMATURE		CE-12836-WS-7666	
H-60	R16P2720	PLATE, Cover, bearing		CE-23100	
H-61	R16CE-27824-24	SCREW, Bearing cover		CE-27824-24	
H-62	R16CE-27824-27	DOWEL, Bracket locking		CE-27824-27	
H-63	R16CE-27824-25	NUT, Tie rod		CE-27824-25	
H-64	R16CE-27824-26	WASHER, Lock, tie rod		CE-27824-26	
H-65	R16R31042	ROD, Tie		CE-17042-424	
H-66	R16CE27824-21	SCREW, Connecting, LV and HV		CE-27824-21	

TABLE 7—2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** DYNAMOTOR DY-8/ARC-5 (Cont)

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
H-67	R16CE-27824-22	WASHER, Lock, connecting screw		CE-27824-22	
H-68	R43S436875	SCREW, Set, brush holder		CE-27824-20	
H-69	R43S436871	SCREW, Set, brush holder		CE-27824-20A	
H-70	R16S4387	SLINGER, Grease		CE-25230	
H-71	R16CE-27824-29	WASHER, Lock, cover screw		CE-27834-29	
H-72	R43S129767	SCREW, Cover		CE-17043-400	
H-73	R16CE-27824-28	WASHER, Plain, cover screw		CE-27824-28	
H-74	R16CE-27824-18	SCREW, Pole		CE-27824-18	
H-80	R16S9833	STUD	Position dynamotor	ARC-5182	ARC-5182
H-83	R16S4380	SNAPSLIDE, Formed, includes:	Fastener	ARC-2540 STC-640011	ARC-2540 STC-640011
	R16G7000	GUIDE, Snapslide		ARC-4750 STC-640162	ARC-4750 STC-640162
	R16B1597-20	BUTTON, Snapslide		ARC-2116 STC-640007	ARC-2116 STC-640007
	R16S9874-150	STUD		ARC-5277	ARC-5277
	R43W110550	WASHER, Spring		ARC-5171 STC-635220	ARC-5171 STC-635220
J-50	R16P3990-2	CONNECTOR, Receptacle, 3 contacts	To modulator	ARC-5173 STC-641448	ARC-5173 STC-641448
L-53	R16C28720	COIL, Field, left		CE-26210-3	
L-53	R16CE-26210-4	COIL, Field, right		CE-26210-4	
O-50		BEARING, Ball		CE-27824-11	
W-50		WIRE, Ground, HV (—)		CE-27824-30	
W-51		WIRE, Connecting, HV (+)		CE-27824-31	
W-52		WIRE, Connecting, LV (+)		CE-Part of L-53B	

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** JACK BOXES

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
1201-1210 series		BOX, Jack, J-16/ARC-5	For connection of headset, hand microphone, mask microphone and throttle switch	ARC-9905 STC-640600	ARC-9905 STC-640600
1201-1210 series		BOX, Jack, J-22/ARC-5	For connection of headset, hand microphone, mask microphone and throttle switch	ARC-9867	ARC-9867
1201-1210 series		BOX, Jack, J-22A/ARC-5	For connection of headset, hand microphone, mask microphone and throttle switch and volume control	ARC-9907	ARC-9907
1201-1210 series		BOX, Jack, J-22B/ARC-5	Same as J-22A/ARC-5	ARC-9907 STC-641424	ARC-9907 STC-641424

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT

MAJOR ASSEMBLY: JACK BOXES J-16/ARC-5, J-22/ARC-5, J-22A/ARC-5 AND J-22B/ARC-5

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
A-1201	R16B1740	COVER, Bottom	Closure	ARC-9450 STC-640597	ARC-9450 STC-640597
A-1202	R16P2760	MOUNTING	Mounting plate	ARC-9451	ARC-9451
E-1201	R16ARC-9492	NUT ASSEMBLY, Clamping	For cable assembly which includes JK-48	ARC-9492 STC-640466	ARC-9492 STC-640466
E-1202	R16K4613	KNOB, Engraved, hex (Not used in Jack Box J-16/ARC-5)	Volume control	ARC-9891 STC-641427	ARC-9891 STC-641427
J-1201	R16R2517-60	CONNECTOR, Receptacle, 3 contacts	For throttle switch, two or three wire type	ARC-9336 STC-640594	ARC-9336 STC-640594
J-1202	R16R2534-20	CONNECTOR, Receptacle, 8 contacts	For modulator or to Junction Box J-17/ARC-5	ARC-7026 STC-640580	ARC-7026 STC-640580
J-1203	R16J2046 per ARC Dwg. No. 931	JACK, Telephone	Connects to Microphone RS-38	ARC-9391 STC-640595	ARC-9391 STC-640595
J-1204	R16J3130-10	JACK, Telephone	Connects to headset	ARC-4691 STC-640138	ARC-4691 STC-640138
JK-48	R16ARC-9919	CORD ASSEMBLY, Electrical	Connects to mask microphone	TEL- STC-640601	ARC-9919 STC-640601
K-1201	R16R5072	RELAY, Armature, 28 v, coil dc resistance 300 ohms ± 15% (Not used in Jack Box J-16/ARC-5)	Isolates mask microphone from hand-held microphone when hand-held microphone push-to-talk button is pressed	ARC-9453 STC-641425	ARC-9453 STC-641425
R-1201	R16P5581-325	RESISTOR, Variable, composition, 0 to 1200 ohms ± 20% (Not used in Jack Box J-16/ARC-5)	Volume control	AB-J1222/SID2032	ARC-8082 STC-641426
R-1202	R16R17262-39-25	RESISTOR, Fixed, composition, 200 ohms ± 5%, ½ w (Not used in Jack Box J-16/ARC-5)	To assist in controlling range of attenuation of R-1201	AB-EB2015	ARC-4497 STC-699700
R-1203		RESISTOR, Fixed, composition, 620 ohms ± 5%, 1 w (Not used in Jack Box J-16/ARC-5)	Controls attenuation of R-1201	AB-GB6215	ARC-8068 STC-699126

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** JUNCTION BOX J-17/ARC-5 AND J-17A/ARC-5

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
1301-1325 series		BOX, Junction, J-17/ARC-5	Provides means of interconnecting several aircraft radio equipments in the different combinations used on ship-based aircraft	ARC-9903	ARC-9903
1301-1325 series		BOX, Junction, J-17A/ARC-5	Same as J-17/ARC-5 except circuit changes have been made to increase the output from receivers at each headset	ARC-9903	ARC-9903
A-1301	R16C37780	COVER, Bottom	Closure	ARC-7126	ARC-7126
A-1302	R16P2765	MOUNTING	Mounting base	ARC-9904	ARC-9904
C-1301	R16C11292-125	CAPACITOR, Fixed, paper dielectric, 3 sections, 50,000 uuf ± 15%, 300 v dc working	R-f filter in low-voltage line	ARC-5414	ARC-5414
C-1302	R16011343	CAPACITOR, Fixed, paper dielectric, 500,000 uuf −10% + 20%, 300 v dc working (used in Junction Box J-17A/ARC-only)	A-f coupling	ARC-1573	ARC-1573
J-1301	R16R2408	CONNECTOR, Receptacle, 8 contacts	To receiver A	ARC-6418	ARC-6418
J-1302		CONNECTOR, Receptacle, same as J-1301	To receiver B		
J-1303		CONNECTOR, Receptacle, same as J-1301	To receiver C		
J-1304		CONNECTOR, Receptacle, same as J-1301	To receiver D		
J-1305	R16R2415-15	CONNECTOR, Receptacle 3 contact	To transmit low voltage	ARC-7024	ARC-7024
J-1306	R16R2534-20	CONNECTOR, Receptacle, 8 contact	To transmit sidetone	ARC-7026	ARC-7026
J-1307		CONNECTOR, Receptacle, same as J-1301	To test cable		
J-1308		CONNECTOR, Receptacle, same as J-1301	To AN/ARC-4 equipment		
J-1309		CONNECTOR, Receptacle, same as J-1305	To low-voltage power source		
J-1310		CONNECTOR, Receptacle, same as J-1306	To jack box		
J-1311	R16R2415-20	CONNECTOR, Receptacle, 12 contact	To Control Unit C-39/ARC-5	ARC-7025	ARC-7025
J-1312	R16R2419	CONNECTOR, Receptacle, 18 contact	To Control Unit C-38/ARC-5	ARC-7027	ARC-7027
J-1313		CONNECTOR, Receptacle, same as J-1301	To ICS		
K-1301	R17C9179-80 R17C9139	CIRCUIT BREAKER, Non-trip-free type, 20 amp	Low-voltage circuit protection	SPTD-Type D-6751-2-20	ARC-8080
K-1302	R17C9179-50	CIRCUIT BREAKER, Non-trip-free type, 5 amp	Low-voltage circuit protection	SPTD-Type D-6751-2-5	ARC-8079

TABLE 7—2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** JUNCTION BOX J-17/ARC-5 AND J-17A/ARC-5 (Cont)

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
K-1303		CIRCUIT BREAKER, same as K-1302	Low-voltage circuit protection		
K-1304		CIRCUIT BREAKER, same as K-1302	Low-voltage circuit protection		
K-1305		CIRCUIT BREAKER, same as K-1302	Low-voltage circuit protection		
K-1306		CIRCUIT BREAKER, same as K-1302	Low-voltage circuit protection		
K-1307	R16R5715-98	RELAY, Armature, 28v dc, coil dc resistance 300 ohms ± 15%	ICS-Radio relay	ARC-7251	ARC-7251
K-1308		RELAY, Armature, same as K-1307 (Used in Junction Box J-17A/ARC-5 only)	ICS-Radio relay		
R-1301	R16P5581-325	RESISTOR, Variable, composition, 0 to 1200 ohms ± 20%	ICS level setter	AB-J1222/SD-2032	ARC-8082
R-1302	R16JAN-RC20BF-621K	RESISTOR, Fixed, composition, 620 ohms ± 5%, ½ w	Assist in controlling range of attenuation by R-1301	AB-EB6215	ARC-6004
R-1303	R16R17271-2	RESISTOR, Fixed, composition, 2000 ohms ± 10%, ½ w	Bleeder resistor from ICS audio	AB-EB2021	ARC-4499
R-1304	R16R17262-39-25	RESISTOR, Fixed, composition, 200 ohms ± 5%, ½ w (Used in Junction Box J-17A/ARC-5 only)	Part of audio attenuator to equalize avc levels	AB-EB2015	ARC-4497
R-1305		RESISTOR, Fixed, same as R-1304	Part of audio attenuator to equalize avc levels		
R-1306	R16R17264-133	RESISTOR, Fixed, composition, 1000 ohms ± 10%, ½ w (Used in Junction Box J-17/ARC-5 only)	Part of audio attenuator to equalize avc levels	AB-EB1021	ARC-4136
R-1307	R16R17274-62-2	RESISTOR, Fixed, composition, 2400 ohms ± 5%, ½ w	Avc line to ground for receiver B	AB-EB2425	ARC-8077
R-1308		RESISTOR, Fixed, same as R-1302	Controls attenuation for R-1301		
R-1309	R16R17273-45	RESISTOR, Fixed, composition, 2200 ohms ± 10%, ½ w (Used in Junction Box J-17A/ARC-5 only)	Part of a-f voltage divider	AB-EB2221	ARC-8113
R-1310	R16JAN-RC20AE562K	RESISTOR, Fixed, composition, 5600 ohms ± 10%, ½ w (Used in Junction Box J-17A/ARC-5 only)	Part of a-f voltage divider	AB-EB5621	ARC-8114
R-1311	R16JAN-RC20AE392K	RESISTOR, Fixed, composition, 3900 ohms ± 10%, ½ w (Used in Junction Box J-17A/ARC-5 only)	Part of a-f voltage divider	AB-EB3921	ARC-7009
S-1301	R17S28255-5-100 R17S28255-5	SWITCH, Toggle, 2 circuit, 3 amp, 125 v (Used in Junction Box J-17A/ARC-5 only)	Selects a-f voltage-divider point for amplifier input	CUT-Type 8908-K131	ARC-3280

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** JUNCTION BOX J-28/ARC-5

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
50-99 series		BOX, Junction, J-28/ARC-5	"Y" junction in cable from Control Unit C-30/ARC-5 to VHF Radio Receiver R-28/ARC-5 and VHF Radio Transmitter T-23/ARC-5	ARC-9609	ARC-9609
——	R16C37500-20	COVER, Junction box, bottom	Closure	ARC-7084	ARC-7084
——	R16M5030	MOUNTING	Mounting plate	ARC-7083	ARC-7083
J-1401	R16R2415-20	CONNECTOR, Receptacle, 12 contacts	To Control Unit C-30/ARC-5	ARC-7025	ARC-7025
J-1402	R16R2534-20	CONNECTOR, Receptacle, 8 contacts	To VHF transmitter	ARC-7026	ARC-7026
J-1403	R16R2406-75	CONNECTOR, Receptacle, 6 contacts	To VHF receiver	ARC-5577	ARC-5577

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** JUNCTION BOX J-34/ARC-5

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
50-99 series		BOX, Junction, J-34/ARC-5	"Y" junction in the cable from modulator to two transmitter racks	ARC-9562	ARC-9562
——	R16CE37500-20	COVER, Bottom	Closure	ARC-7084	ARC-7084
——	R16M5030	MOUNTING	Mounting plate	ARC-7083	ARC-7083
J-1501	R16R2534-125	CONNECTOR, Receptacle, 12 contacts	"Y" junction in cable ARC-9376	ARC-9417	ARC-9417
J-1502		CONNECTOR, Receptacle, same as J-1501	"Y" junction in cable ARC-9376		
J-1503		CONNECTOR, Receptacle, same as J-1501	"Y" junction in cable ARC-9376		

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** MODULATOR MD-7/ARC-5

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
50-99 series		MODULATOR, MD-7/ARC-5	Transforms dc from HV primary source to dc and audio-frequency power requirements of the transmitters	ARC-9313	ARC-9313
A-64	R16A256	MOUNT, Vibration	Protection from dynamotor vibration	ARC-10977	ARC-10977
A-65	R16S3965	COVER, Tube access	Closure over tubes and transformer	ARC-9460	ARC-9460
A-66	R16C38275	COVER, Dust	Closure over tubes and transformer	ARC-7144	ARC-7144
A-67	R16C37599	COVER, Fuse	Closure over fuses	ARC-7142	ARC-7142
A-68		COVER, Fuse, same as A-67	Closure over fuses		
A-69	R16C37780	COVER, Bottom	Closure for bottom of chassis	ARC-7126	ARC-7126
C-51	R16C11292-125	CAPACITOR, Fixed, paper dielectric, 3 sections, ea section 50,000 uuf ± 15%, 400 v dc working	A section: tone oscillator plate bypass B section: part of tone oscillator tuning C section: part of tone oscillator tuning	ARC-5414	ARC-5414
C-54	R16C9674-25	CAPACITOR, Fixed, dry electrolytic, polarized, 2 sections, first section 5 uf, second section 20 uf, 35 v dc working	5 uf section: cathode by-pass for modulator tubes 20 uf section: a-f filter in dc line to primary of microphone transformer	ARC-5417	ARC-5417
C-55	R16C11442	CAPACITOR, Fixed, paper dielectric, 1,200,000 uuf ± 30%, 600 v dc working	A-f and r-f filter in high-voltage line	ARC-7210	ARC-7210
C-57	R16C11292-50	CAPACITOR, Fixed, paper dielectric, 50,000 uuf ± 15%, 600 v dc working	Anti-spark filter	ARC-7115	ARC-7115
C-70	R16C11293	CAPACITOR, Fixed, paper dielectric, 2 sections, ea section 500,000 uuf — 10% + 20%, 300 v dc working	Section A: a-f by-pass for voltage regulator tube Section B: r-f filter in low-voltage line	ARC-5418	ARC-5418
C-71		CAPACITOR, Fixed, same as C-55	Screen grid by-pass for modulator tubes		
C-75	R16C10504-18-100	CAPACITOR, Fixed, mica dielectric, 10,000 uuf ± 5%, 2500 v dc working	Prevents spurious oscillations	CLD-Type 4	ARC-7012

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** MODULATOR MD-7/ARC-5 (Cont)

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
E-86	R16C19898	CLIP, Plate	Connector to plates of 1625 electron tubes	NAC-Type 24	ARC-2313
F-50	R17F16250	FUSE, Cartridge, 20 amp	Protection of low-voltage line to dynamotor	LTF-Type 3AG	ARC-4004
F-51		FUSE, Cartridge, same as F-50	Protection of low-voltage line to dynamotor		
H-75	R16S4320	SNAPSLIDE, Formed, includes:	Fastener	ARC-3888	ARC-3888
	R16G6980	GUIDE, Snapslide		ARC-3887	ARC-3887
	R16S9874	STUD		ARC-5134	ARC-5134
	R16S9871	STUD		ARC-4708	ARC-4708
	R16B15698	BUTTON, Snapslide		ARC-3890	ARC-3890
	R16ARC-3889	WASHER, Spring		ARC-3889	ARC-3889
H-78	R16S4380	SNAPSLIDE, Formed, includes:	Fastener	ARC-2540	ARC-2540
	R16R7000	GUIDE, Snapslide		ARC-4750	ARC-4750
	R16S9872	STUD		ARC-5113	ARC-5113
	R43W110550	WASHER, Spring		ARC-5171	ARC-5171
	R16B15697-20	BUTTON, Snapslide		ARC-2116	ARC-2116
H-79	R16ARC-5450	STUD	Position dynamotor	ARC-5450	ARC-5450
J-51	R16R2406-100	CONNECTOR, Receptacle, 3 contacts	Connects to dynamotor	ARC-5844	ARC-5844
J-52	R16R2406-75	CONNECTOR, Receptacle, 6 contacts	To receiver rack	ARC-5577	ARC-5577
J-53	R16R2415-15	CONNECTOR, Receptacle, 3 contacts	To primary power source	ARC-7024	ARC-7024
J-70	R16R2534-125	CONNECTOR, Receptacle, 12 contacts	To transmitter rack	ARC-9417	ARC-9417
J-72	R16J3130	JACK, Telephone	Connects to operators key, or to throttle switch	ARC-7565	ARC-7565
J-73	R16J2046	JACK, Telephone	Connects to Microphone RS-38 or equivalent	ARC-9391	ARC-9391
J-74	R16R2534-20	CONNECTOR, Receptacle, 8 contacts	To Junction Box J-17/ARC-5, Jack Box J-16/ARC-5, Jack Box J-22/ARC-5 or Jack Box J-22A/ARC-5	ARC-7026	ARC-7026

J-78	R16R2534-155	CONNECTOR, Receptacle, 18 contacts	To transmitter control box	ARC-5571	ARC-5571
K-50	R16R5075	RELAY, Armature, 28 v dc, dc resistance 200 ohms ± 15%	Dynamotor starting	ARC-6385	ARC-6385
K-52	R16R5276	RELAY, Armature, 28 v dc, dc resistance 200 ohms ± 15%	High-voltage keying	ARC-5586	ARC-5586
K-57	R16R5072	RELAY, Armature, 28 v dc, dc resistance 300 ohms ± 15%	Sidetone switching	ARC-9453	ARC-9453
K-58	R16R715-98	RELAY, Armature, 28 v dc, dc resistance 300 ohms ± 15%	Test relay 1, opens selector common line when energized	ARC-7251	ARC-7251
K-59		RELAY, Armature, same as K-58	Test relay 2, opens high side of selector No. 1 line		
L-50	R16C17150	COIL, RF, resistance 100,000 ohms, 15 uh	R-f choke in dynamotor	ARC-2092	ARC-2092
P-50	R16P3473	CONTACT, Electrical	Connector	ARC-5542	ARC-5542
P-52	R16P3453	CONTACT, Electrical	Connector	ARC-4629	ARC-4629
R-52	R16R17354-1-3	RESISTOR, Fixed, composition, 300,000 ohms ± 5%, 1 w	Tone oscillator voltage divider	AB-GB3455	ARC-8002
R-53	R16R17344-170	RESISTOR, Fixed, composition, 91,000 ohms ± 5%, 2 w	Tone oscillator plate voltage dropping	AB-HB9135	ARC-8001
R-61	R16R17257-45	RESISTOR, Fixed, composition, 20 ohms ± 5%, ½ w	Part of anti-spark filter	AB-EB2005	ARC-8033
R-65	R16R18689-235	RESISTOR, Fixed, wire wound, 15,000 ohms ± 2%, 15 w	Master oscillator voltage dropping	WAL-Type 237	ARC-5986
R-80	R16R19770	ARRESTER, Electrical surge, 500 v, 4 to 16 ma dc	Peak voltage damping across secondary of modulation transformer	GE-Thyrite	ARC-8070
R-81		RESISTOR, Fixed, composition, 2400 ohms ± 5%, 1 w	Power amplifier screen voltage dropping	AB-GB2425	ARC-8067
R-82		RESISTOR, Fixed, composition, 620 ohms ± 5%, 1 w	Microphone series	AB-GB6215	ARC-8068
R-83		RESISTOR, Fixed, same as R-82	Cathode bias on modulation tubes		
R-84		RESISTOR, Fixed, same as R-82	Cathode bias on modulation tubes		
R-85	R16R17337-23	RESISTOR, Fixed, composition, 51,000 ohms ± 5%, ½ w	R-f amplier cathode bias cut-off	AB-EB5135	ARC-4569
R-86	R16R20905	RESISTOR, Fixed, wire wound, 84 ohms ± 2%, 7 w	Heater series	WAL-Type 237	ARC-8066
R-87	R16R17310-1-500	RESISTOR, Fixed, composition, 10,000 ohms ± 10% ½ w	Tone oscillator grid	AB-EB1031	ARC-4491
R-89		RESISTOR, Fixed, same as R-65	Screen dropping		
R-91	R16JAN-RC20AE104J	RESISTOR, Fixed, composition, 100,000 ohms ± 10%, ½ w	Microphone transformer loading	AB-EB1041	ARC-4501
R-92		RESISTOR, Fixed, same as R-91	Microphone transformer loading		
R-94		RESISTOR, Fixed, same as R-82	Prevents spurious oscillations		

TABLE 7—2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** MODULATOR MD-7/ARC-5 (Cont)

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
T-56	R16ARC-9380	TRANSFORMER, Audio frequency, dc resistance of windings 1 and 2, 19 to 27 ohms, windings 3 and 4, 760 to 1110 ohms, windings 5 and 6, 910 to 1340 ohms	Microphone transformer	ARC-9380	ARC-9380
T-57	R16T6367	TRANSFORMER, Audio frequency, dc resistance of windings 1 and 2, 58 to 75 ohms, windings, 5 and 7, 52 to 70 ohms, inductance at 1000 cycles between terminals 2 and 4, .21 to .29 henries	Tone oscillator transformer	ARC-9462	ARC-9462
T-58	R16T6357-50	TRANSFORMER, Audio frequency, dc resistance of windings 1 and 3, 262 to 330 ohms, windings 4 and 5, 3.8 to 4.9 ohms, windings 6 and 7, 209 to 287 ohms, windings 8 and 9, 73 to 93 ohms	Modulation transformer	ARC-9466	ARC-9466
X-50	R16S6182-50	SOCKET, Tube, 7 contacts	For type 1625 modulator tube	ARC-5068	ARC-5068
X-51	R16S6188-11-100	SOCKET, Tube, octal	For 125-GT tone oscillator or VR-150/30 voltage regulator tube	AMP-Type S-8	ARC-6559

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** MOUNTING BASES

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
50-99 series		BASE, Mounting, ★MT-5/ARR-2	For one receiver	ARC-7059 STC-640852	ARC-7059 STC-640852
50-99 series		BASE, Mounting, MT-62/ARC-5	For two receivers	ARC-5694 STC-640851	ARC-5693 STC-640851
50-99 series		BASE, Mounting, MT-64/ARC-5	For three receivers	ARC-	ARC-
50-99 series		BASE, Mounting, MT-66/ARC-5	For four receivers	ARC-	ARC-
50-99 series	R16A229	BASE, Mounting, MT-68/ARC-5	For one transmitter	ARC-7068	ARC-7068
50-99 series	R16A210	BASE, Mounting, MT-70/ARC-5	For two transmitters	ARC-5185	ARC-5185
50-99 series	R16A212	BASE, Mounting, MT-72/ARC-5	For three transmitters	ARC-5195	ARC-5195
50-99 series	R16A209	BASE, Mounting, MT-74/ARC-5	For four transmitters	ARC-5184	ARC-5184
50-99 series	R16A228	BASE, Mounting, MT-76/ARC-5	For Modulator MD-7/ARC-5	ARC-7067	ARC-7067
50-99 series	R16A225	BASE, Mounting, MT-77/ARC-5	For Antenna Relay Unit RE-2/ARC-5	ARC-7065	ARC-7065
50-99 series		BASE, Mounting, MT-159/ARC-5	For Antenna Loading Coil TN-6/ARC-5	ARC-7057	ARC-7057

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** MOUNTING PLATES

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
1-49 series	R16M5128	PLATE, Mounting, ★MT-4/ARR-2	For Control Unit C-24/ARC-5 or C-26/ARC-5	ARC-7053	ARC-7053
1-49 series	R16P2760	PLATE, Mounting, MT-78/ARC-5	For Control Unit C-27/ARC-5, and Jack Box J-16/ARC-5, J-22/ARC-5 or J-22B/ARC-5	ARC-9451	ARC-9451
50-99 series	R16M5030	PLATE, Mounting, MT-80/ARC-5	For Control Unit C-29/ARC-5, C-30/ARC-5, C-39/ARC-5, or C-48/ARC-5, and Junction Boxes J-28/ARC-5 or J-34/ARC-5	ARC-7083	ARC-7083
——		PLATE, Mounting, MT-84/ARC-5	For Junction Box J-17/ARC-5 or J-17A/ARC-5	ARC-9904	ARC-9904
——	R16M5013	PLATE, Mounting, MT-98/ARC-5	For Control Unit C-38/ARC-5 or C-43/ARC-5	ARC-7054	ARC-7054

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** RACKS, RECEIVER

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
1-49 series		RACK, Receiver, ★MT-7A/ARR-2, 28 v	To mount one receiver with provision for electrical interconnection with remaining units of equipment	ARC-7509 STC-640619	ARC-7509 STC-640619
1-49 series		RACK, Receiver, MT-63/ARC-5, 28 v	To mount two receivers with provision for electrical interconnection with remaining units of equipment.	ARC-5018 STC-640167	ARC-5018 STC-640167
1-49 series		RACK, Receiver, MT-65/ARC-5, 28 v	To mount three receivers with provision for interconnection with remaining units of equipment	ARC-7537	ARC-5737
1-49 series		RACK, Receiver, MT-67/ARC-5, 28 v	To mount four receivers with provision for electrical interconnection with remaining units of equipment	ARC-5019	ARC-5019
1-49 series		RACK, Receiver, MT-411/ARC-5X, 14 v	To mount one receiver with provision for electrical interconnection with remaining units of equipment	ARC-9202	ARC-9202
A-10		COVER, Rear	Closure for 1-receiver rack	ARC-7121 STC-640750	ARC-7121 STC-640750
A-10	R16C37990	COVER, Rear	Closure for 2-receiver rack	ARC-6415 STC-6403337	ARC-6415 STC-640337
A-10	R16C37993	COVER, Rear	Closure for 3-receiver rack	ARC-7122	ARC-7122
A-10	R16C37993-15	COVER, Rear	Closure for 4-receiver rack	ARC-7123	ARC-7123
E-7	R16P5372	POST, Binding, engraved "G"	Ground connection	ARC-6067 STC-640300	ARC-6067 STC-640300
F-1	R17F14287-75	FUSE, Cartridge, 10 amp	Low-voltage circuit protection	LTF-Type 3AG	ARC-4414 STC-640568
F-2		FUSE, Cartridge, same as F-1	Low-voltage circuit protection		
F-3		FUSE, Cartridge, same as F-1	Low-voltage circuit protection		
F-4		FUSE, Cartridge, same as F-1	Low-voltage circuit protection		
H-1	R16S4320	SNAPSLIDE, Formed, includes:	Fastener	ARC-3888 STC-640073	ARC-3888 STC-640073

TABLE 7—2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** RACKS, RECEIVER (Cont)

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
	R16G9680	GUIDE, Snapslide		ARC-3887 STC-640072	ARC-3887 STC-640072
	R16B15698	BUTTON, Snapslide		ARC-3890 STC-640074	ARC-3890 STC-640074
	R16S9874	STUD		ARC-5134 STC-640182	ARC-5134 STC-640182
	R16ARC-3889	WASHER, Spring		ARC-3889 STC-635207	ARC-3889 STC-635207
H-2	R16S4380	SNAPSLIDE, Formed, includes:	Fastener	ARC-2540 STC-640011	ARC-2540 STC-640011
	R16G7000	GUIDE, Snapslide		ARC-4750 STC-640162	ARC-4750 STC-640162
	R16B15697-20	BUTTON, Snapslide		ARC-2116 STC-640007	ARC-2116 STC-640007
	R43W110550	WASHER, Spring		ARC-5171 STC-635220	ARC-5171 STC-635220
H-7	R16C375598	COVER, Fuse	Closure	ARC-6414 STC-640336	ARC-6414 STC-640336
H-8	R16C4682	CAP	Cover for J-6 or J-7	ARC-5319 STC-640221	ARC-5319 STC-640221
H-27		SCREW SUBASSEMBLY, Locking	Fastener	ARC-11020 STC-640774	ARC-11020 STC-640774
H-29	R16C4408	CAP	Covers handle of S-7, S-8 and S-9 when in neutral position	ARC-7581 STC-640412	ARC-7581 STC-640412
J-6	R16R2406-75	CONNECTOR, Receptacle, 6 contacts	To modulator, or a second receiver rack, or both	ARC-5577 STC-640262	ARC-5577 STC-640262
J-7		CONNECTOR, Receptacle, same as J-6	To modulator, or a second receiver rack, or both		
J-12	R16J3130-10	JACK, Telephone	Headset connection	ARC-4691 STC-640138	ARC-4691 STC-640138
J-13		JACK, Telephone, same as J-12	Headset connection		
J-14		JACK, Telephone, same as J-12	Headset connection		
J-15		JACK, Telephone, same as J-12	Headset connection		
J-16		JACK, Telephone, same as J-12	Headset connection		
J-17		JACK, Telephone, same as J-12	Headset connection		

J-18	R16R2406-95	CONNECTOR, Receptacle, 7 contacts	To receiver	ARC-5842 STC-640579	ARC-5842 STC-640579
J-19		CONNECTOR, Receptacle, same as J-18	To receiver		
J-20		CONNECTOR, Receptacle, same as J-18	To receiver		
J-21	R16R2408	CONNECTOR, Receptacle, 8 contacts	To receiver control unit	ARC-6418 STC-640340	ARC-6418 STC-640340
J-22		CONNECTOR, Receptacle, same as J-21	To receiver control unit		
J-23		CONNECTOR, Receptacle, same as J-21	To receiver control unit		
J-24	R16R2410	CONNECTOR, Receptacle, 2 contacts	To prime source	ARC-6485 STC-640354	ARC-6485 STC-640354
J-25		CONNECTOR, Receptacle, same as J-18	To receiver		
J-26		CONNECTOR, Receptacle, same as J-21	To receiver control unit		
K-1	R16R5717-98	RELAY, Armature, 28 v dc, dc resistance 321 ohms ± 10% (Not used in Racks MT-411/ARC-5X)	Sidetone-receiver output relay	ARC-7251 STC-640404	ARC-7251 STC-640404
	R16R5680	RELAY, Armature, 14 v dc, dc resistance 90 ohms ± 10% (For Rack MT-411/ARC-5X only)	Sidetone-receiver output relay	ARC-6318	ARC-6318
K-2		RELAY, Armature, same as K-1	Sidetone-receiver output relay		
K-3		RELAY, Armature, same as K-1	Sidetone-receiver output relay		
K-4		RELAY, Armature, same as K-1	Sidetone-receiver output relay		
S-7	R16S10730-75	SWITCH, Telephone, selector, 3 positions, 2 circuit	A TEL, B TEL switch	ARC-6575 STC-640374	ARC-6575 STC-640374
S-8		SWITCH, Telephone, same as S-7	A TEL, B TEL switch		
S-9		SWITCH, Telephone, same as S-7	A TEL, B TEL switch		
S-10		SWITCH, Telephone, same as S-7	A TEL, B TEL switch		

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** RACKS, TRANSMITTER

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
50-99 series		RACK, Transmitter, MT-69/ARC-5, 28 v	To mount one transmitter with provisions for interconnection with remaining units of equipment	ARC-9306	ARC-9306
50-99 series		RACK, Transmitter, MT-71/ARC-5, 28 v	To mount two transmitters with provisions for interconnection with remaining units of equipment	ARC-9307	ARC-9307
50-99 series		RACK, Transmitter, MT-73/ARC-5, 28 v	To mount three transmitters with provisions for interconnection with remaining units of equipment	ARC-9593	ARC-9593
50-99 series		RACK, Transmitter, MT-75/ARC-5, 28 v	To mount four transmitters with provisions for interconnection with remaining units of equipment	ARC-9594	ARC-9594
A-58	R16C38225-50	COVER, Rear	Closure for 1-transmitter rack	ARC-7124	ARC-7124
A-58	R16C38225	COVER, Rear	Closure for 2-transmitter rack	ARC-6269	ARC-6269
A-58		COVER, Rear	Closure for 3-transmitter rack	ARC-7125	ARC-7125
A-58		COVER, Rear	Closure for 4-transmitter rack	ARC-6095	ARC-6095
E-87	R16P5372	POST, Binding, engraved "G"	Ground connection	ARC-6067	ARC-6067
H-81	R16ARC-11020	SCREW SUBASSEMBLY, Locking	Fastener	ARC-11020	ARC-11020
H-82	R16S4380	SNAPSLIDE, Formed, includes:	Fastener	ARC-2540	ARC-2540
	R16G7000	GUIDE, Snapslide		ARC-4750	ARC-4750
	R16B15697-20	BUTTON, Snapslide		ARC-2116	ARC-2116
	R43W110550	WASHER, Spring		ARC-5171	ARC-5171
J-56		CONNECTOR, Receptacle, 2 contacts	To remote meter	ARC-2674	ARC-2674
J-60	R16R2415	CONNECTOR, Receptacle, 5 contacts	To antenna relay	ARC-7023	ARC-7023
J-67	R16R2531	CONNECTOR, Receptacle, 7 contacts	To transmitter	ARC-9296	ARC-9296
J-68		CONNECTOR, Receptacle, same as J-67	To transmitter		
J-71	R16R2554-125	CONNECTOR, Receptacle, 12 contacts	To modulator	ARC-9417	ARC-9417
J-75	R16P3210	BOARD, Terminal	To connect transmitter to any four selector positions	ARC-9523	ARC-9523

J-76		BOARD, Terminal, same as J-76	To connect transmitter to any four selector positions		
J-79		BOARD, Terminal, same as J-76	To connect transmitter to any four selector positions		
J-80		CONNECTOR, Receptacle, same as J-67	To transmitter		
J-81		BOARD, Terminal, same as J-76	To connect transmitter to any four selector positions		
J-82		CONNECTOR, Receptacle, same as J-67	To transmitter		
P-51	R16P3966	CONTACT, Electrical	Connector	ARC-4630	ARC-4630
S-55	R16S10637-50	SWITCH, Push, 3 circuits	Test key switch	ARC-9508	ARC-9508
S-56		SWITCH, Push, same as S-55	Test key switch		
S-57		SWITCH, Push, same as S-55	Test key switch		
S-58		SWITCH, Push, same as S-55	Test key switch		

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** RADIO RECEIVERS

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
1-49 series	R16R2035	RECEIVER, Radio, R-23/ARC-5, 0.19 to 0.55 mc	LF-MF receiver	ARC-9602	ARC-9602
1-49 series	R16R2035	RECEIVER, Radio, R-23A/ARC-5, 0.19 to 0.55 mc	LF-MF receiver	ARC-10008 STC-640471	ARC-10008 STC-640471
1-49 series	R16R2035-5	RECEIVER, Radio, R-24/ARC-5, 0.52 to 1.5 mc	MF receiver	ARC-9603	ARC-9603
1-49 series		RECEIVER, Radio, R-25/ARC-5, 1.5 to 3 mc	MF receiver	ARC-9604	ARC-9604
1-49 series		RECEIVER, Radio, R-26/ARC-5, 3 to 6 mc	HF receiver	ARC-9605	ARC-9605
1-49 series		RECEIVER, Radio, R-27/ARC-5, 6 to 9.1 mc	HF receiver	ARC-9606	ARC-9606
1-49 series		RECEIVER, Radio, R-148/ARC-5X, 0.19 to 0.55 mc	LF receiver	ARC-10007	ARC-10007
A-3	R16S3915	CASE ASSEMBLY, Switch	Closure and connector	ARC-5691 STC-640286	ARC-5691 STC-640286
A-4	R16S3900	SHIELD, Capacitor	Closure	ARC-5738 STC-640615	ARC-5738 STC-640615
A-6	R16C38270	COVER, Tube access	Closure over tubes	ARC-6266 STC-640319	ARC-6266 STC-640319
A-7	R16C37995	COVER, Dust	Closure	ARC-9812 STC-640503	ARC-9812 STC-640503
A-11	R16A200	MOUNT, Vibration	Protects receiver from dynamotor vibrations	ARC-4681 STC-640131	ARC-4681 STC-640131
A-12	R16P2770	PLATE, Mounting	Mounting for first i-f coupling unit	ARC-4638 STC-640102	ARC-4638 STC-640102
A-13	R16P2773	PLATE, Mounting	Mounting for second i-f coupling unit	ARC-5220 STC-640198	ARC-5220 STC-640198
A-14		PLATE, Mounting, same as A-12	Mounting for third i-f coupling unit		
A-18	R16C37374	COVER, Bottom	Closure for chassis	ARC-5508 STC-640253	ARC-5508 STC-640253
A-35	R16C38180	COVER, Antenna loop switch	Closure	ARC-6859 STC-640394	ARC-6859 STC-640394
C-1	R16C7803	CAPACITOR, Fixed, ceramic dielectric, 11 uuf ± ½ uuf, 500 v dc working (Not used in R-27/ARC-5)	Antenna series	CN-Class D	ARC-9046 STC-699803

	R16C9802-100	CAPACITOR, Fixed, ceramic dielectric, 8.5 uuf ± ½ uuf, 500 v dc working (Used in R-27/ARC-5 only)	Antenna series	CN-Class D	ARC-9045
C-2	R16C11950	CAPACITOR, Variable, air dielectric, ΔC approx 15 uuf	Input alignment	ARC-5676 STC-640281	ARC-5676 STC-640281
C-3	R16C9924-55	CAPACITOR, Fixed, ceramic dielectric, tubular, 100 uuf ± 15%, 500 v dc working, or CAPACITOR, Fixed, mica dielectric, tubular 100 uuf ± 15%, 400 v dc working	R-f amplifier grid blocking	CN-Class D CLD-Type 5S	ARC-4520 STC-699801 ARC-4520 STC-699801
C-4	R16C12180-10	CAPACITOR ASSEMBLY, Variable, air dielectric, 3 sections ganged, ea section ΔC 346 uuf (Used in R-23/ARC-5, R-23A/ARC-5 and R-148/ARC-5X only)	For preselector circuits and r-f oscillator	ARC-3936 STC-640082	ARC-3936 STC-640082
		CAPACITOR ASSEMBLY, Variable, same as C-4 (Used in R-24/ARC-5 only)	For preselector circuits and r-f oscillator		
	R16C12185	CAPACITOR ASSEMBLY, Variable, air dielectric, 3 sections ganged, ea section ΔC 147 uuf (Used in R-25/ARC-5 and R26/ARC-5 only)	For preselector circuits and r-f oscillator	ARC-4601	ARC-4601
	R16C12190	CAPACITOR ASSEMBLY, Variable, air dielectric, 3 sections ganged, ea section 62 uuf (Used in R-27/ARC-5 only)	For preselector circuits and r-f oscillator	ARC-6558	ARC-6558
C-5	R16C9630	CAPACITOR, Fixed, electrolytic, polarized, 3 uf, 300 v dc working	Sensitivity control line by-pass	ARC-7582 STC-640413	ARC-7582 STC-640413
C-6	R16C11292-125	CAPACITOR, Fixed, paper dielectric, 3 sections, ea section 50,000 uuf ± 15%, 300 v dc working	For r-f amplifier mixer, r-f oscillator plate by-pass, r-f amplifier cathode by-pass, and r-f amplifier and mixer screen by-pass	ARC-5414 STC-640229	ARC-5414 STC-640229
C-7		CAPACITOR, Fixed, same as C-6	Avc line filter, mixer cathode by-pass, and r-f amplifier and mixer screen by-pass		
C-8	R16C8356	CAPACITOR, Fixed, ceramic dielectric, tubular, 200 uuf ± 15%, 500 v dc working, or CAPACITOR, Fixed, mica dielectric, tubular, 200 uuf ± 10%, 400 v dc working	R-f oscillator grid	CN-Class C CLD-Type 5S	ARC-4513 STC-699800 ARC-4513 STC-699800
C-9	R16C12022	CAPACITOR, Variable, air dielectric, ΔC approx 40 uuf	Trimmer on r-f oscillator series capacitors	ARC-3865	ARC-3865
C-10	R16C9972-100 R16C8366-5	*CAPACITOR, Fixed, mica dielectric, 690 uuf ± 2.5 uuf, 400 v dc working made from two of following three units: 340 uuf, 345 uuf, or 350 uuf, total not to exceed 690 uuf ± 5 uuf (Used in R-23/ARC-5, R-23A/ARC-5 and R-148/ARC-5X only)	For r-f oscillator series capacitor	ELRC-	ARC-7935 OR ARC-8108 STC-699807
C-10	R16C9972-100	*CAPACITOR, Fixed, mica dielectric, 670 uuf ± 2.5 uuf, 400 v dc working, made from two of following three units: 330 uuf, 335 uuf, or 340 uuf, total not to exceed 670 uuf ± 5 uuf (Used in R-24/ARC-5 only)	R-f oscillator series capacitor	ELRC-	ARC-7935 OR ARC-8122

* Receivers made by ARC starting Jan. 1, 1945, were equipped with ceramic capacitors instead of silver mica type 7935. These units were made by Centralab, Muter and Electrical Reactance Corp. to the same specs. No. 8108 is 345 uuf ± 1%, No. 8122 is 335 uuf ± 1%, No. 8109 is 365 uuf ± 2% and No. 8105 is 240 uuf ± 3%.

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** RADIO RECEIVERS (Cont)

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
C-10	R16C9972-100 R16C8366-1000	*CAPACITOR, Fixed, mica dielectric, 670 uuf ± 2.5 uuf, 400 v dc working, made from two of following three units: 360 uuf, 365 uuf, or 370 uuf, total not to exceed 670 uuf ± 2.5 uuf (Used in R-25/ARC-5 only)	R-f oscillator series capacitor	ELRC-	ARC-7935 OR ARC-8109
C-10	R16C9972-100 R16C8366-1000	*CAPACITOR, Fixed, mica dielectric, 670 uuf ± 2.5 uuf, 400 v dc working, made from two of following three units: 360 uuf, 365 uuf, or 370 uuf, total not to exceed 670 uuf ± 2.5 uuf (Used in R-26/ARC-5 only)	R-f oscillator series capacitor	ELRC-	ARC-7935 OR ARC-8109
	R16C9972-100	*CAPACITOR, Fixed, mica dielectric, 670 uuf ± 2.5 uuf, 400 v dc working, made from two of following three units: 235 uuf, 240 uuf, or 245 uuf, total not to exceed 670 uuf ± 2.5 uuf (Used in R-27/ARC-5 only)	R-f oscillator series capacitor	ELRC-	ARC-7935 OR ARC-8105
C-11	R16C7851	CAPACITOR, Fixed, ceramic dielectric, 3 uuf ± ½ uuf, 500 v dc working	Frequency drift compensation	CN-Class D	ARC-7020 STC-699804
C-12	R16C9972-100 R16C8352-806	†CAPACITOR, Fixed, mica dielectric, 180 uuf ± 2.5 uuf, 400 v dc working (Not used in R-27/ARC-5)	For input of first i-f coupling unit	ELRC-	ARC-7935 OR ARC-8106 STC-699805
	R16C8290	CAPACITOR, Fixed, ceramic dielectric, 60 uuf ± 3%, 500 v dc working (Used in R-27/ARC-5 only)	For input of first i-f coupling unit	CN-Class C	ARC-8074
C-13		CAPACITOR, Variable, air dielectric, ΔC approx. 17 uuf	Trimmer, input of first i-f	ARC-4664 STC-640121	ARC-4664 STC-640121
C-14		CAPACITOR, Fixed, same as C-12	For output of first i-f coupling unit		
C-15	R16C11292-125	CAPACITOR, Fixed, same as C-6 (Used in R-23/ARC-5, R-23A/ARC-5 and R-148/ARC-5X only)	For avc line filter, 12SR7 cathode by-pass, and plate line by-pass, second i-f	ARC-5414	ARC-5414
C-16	R16C11338-15	CAPACITOR, Fixed, paper dielectric, 3 sections, ea section 220,000 uuf ± 20%, 300 v dc working	For screen by-pass, first i-f, dynamotor high-voltage filter and low-voltage filter	ARC-5413 STC-640608	ARC-5413 STC-640608
C-17		CAPACITOR, Fixed, same as C-12	For input of second i-f coupling unit		
C-18		CAPACITOR, Variable, same as C-13	Trimmer, input of second i-f		
C-19		CAPACITOR, Fixed, same as C-12	For output of second if		
C-20	R16C11292-100 R16C11292-125	‡CAPACITOR, Fixed, paper dielectric, 2 sections 50,000 uuf ± 15%, 1 section 10,000 uuf ± 15%, 300 v dc working	For cw oscillator plate filter, by-pass in line to instrument landing equipment, and cathode by-pass, first i-f	ARC-5415 OR ARC-5414 STC-640229	ARC-5415 OR ARC-5414 STC-640229

C-21		CAPACITOR, Varaible, same as C-13	Trimmer, input of third i-f		
C-22		CAPACITOR, Fixed, same as C-12	For input of third i-f coupling unit		
C-23		CAPACITOR, Fixed, same as C-12	For output of third i-f		
C-24		CAPACITOR, Fixed, same as C-8	Diode resistor by-pass		
C-25	R16C10079-50	CAPACITOR, Fixed, mica dielectric, 1,000 uuf ± 15%, 400 v dc working	Cw oscillator plate by-pass	CLD-Type 5	ARC-4157
C-26		CAPACITOR, Fixed, same as C-8 (Used in R-23/ARC-5, R-23A/ARC-5, R-148/ARC-5X and R-24/ARC-5 only)	Cw oscillator grid		
		CAPACITOR, Fixed, same as C-3 (Used in R-25/ARC-5, R-26/ARC-5 and R-27/ARC-5only)	Cw oscillator grid		
C-27	R16C9972-100 R16C8366-5	*CAPACITOR, Fixed, mica dielectric, 345 uuf ± 2.5 uuf, 400 v dc working (Used in R-23/ARC-5, R-23A/ARC-5 and R-148/ARC-5X only)	For cw oscillator, tuned circuit	ELRC-	ARC-7935 OR ARC-8108 STC-699807
	R16C9972-100	*CAPACITOR, Fixed, mica dielectric, 335 uuf ± 2.5 uuf, 400 v dc working (Used in R-24/ARC-5 only)	For cw oscillator, tuned circuit	ELRC-	ARC-7935 OR ARC-8122
		†CAPACITOR, Fixed, mica dielectric, 180 uuf ± 2.5 uuf, 400 v dc working (Used in R-25/ARC-5, R-26/ARC-5 and R-27/ARC-5 only)	For cw oscillator, tuned circuit	ELRC-	ARC-7935 OR ARC-8106
C-28		CAPACITOR, Variable, air dielectric, AC approx. 34 uuf	Trimmer in cw oscillator tuned circuit	ARC-8111 STC-699808	ARC-8111 STC-699808
C-29	R16C10436	CAPACITOR, Fixed, mica dielectric, 6,000 uuf −10% ±100%, 400 v dc working	Grid blocking, audio amplifier tube	AEV-Type 1461	ARC-4091 STC-699809
C-30	R16C9669-80	CAPACITOR, Fixed, dry electrolytic, polarized, 15 uf, 35 v dc working (Used in R-23/ARC-5, R-23A/ARC-5 and R-148/ARC-5X only)	Blocking capacitor in audio line to instrument landing equipment. On other receivers C-30 is by-pass on the 12A6 tube	ARC-5416 STC-640230	ARC-5416 STC-640230
C-31	R16C10083	CAPACITOR, Fixed, mica dielectric, 1,000 uuf ±10%, 400 v dc working	I-f and a-f filter capacitor across primary of output transformer T-1	AEV-Type 1461	ARC-4114 STC-699810
C-32	R16C9654-600 R16C9654-500	CAPACITOR, Fixed, dry electrolytic, 5 uf, 300 v dc working	A-f filter in high-voltage line	ARC-6350 STC-640324	ARC-6350 STC-640324

* Receivers made by ARC starting Jan. 1, 1945, were equipped with ceramic capacitors instead of silver mica type 7935. These units were made by Centralab, Muter and Electrical Reactance Corp. to the same specs. No. 8108 is 345 uuf ± 1%. No. 8122 is 335 uuf ± 1%. No. 8109 is 365 uuf ± 2% and No. 8105 is 240 uuf ±3%.

+ Receivers made by ARC starting Jan. 1, 1945, were equipped with ceramic capacitors instead of silver mica type 7935. These units were made by Centralab, Muter and Electrical Reactance Corp. to the same specs. No. 8106 is 180 uuf ± 2%.

‡ Used in R-23/ARC-5, R-23A/ARC-5 and R-148/ARC-5X of early production. Replaced by ARC-5414, STC-640229 capacitor same as C-6.

TABLE 7—2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** RADIO RECEIVERS (Cont)

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
C-33		CAPACITOR, Fixed, capacitance of less than 2 uuf is formed by proximity of certain leads. This is not a physical unit	Cw oscillator coupling		
C-35		CAPACITOR, Fixed, same as C-3	Coupling to avc diode		
C-36		CAPACITOR, Variable, same as C-13	Trimmer, output of first i-f		
C-37		CAPACITOR, Variable, same as C-13	Trimmer, output of second i-f		
C-38		CAPACITOR, Variable, same as C-13	Trimmer, output of second i-f		
C-39	R16C8345-55	CAPACITOR, Fixed, ceramic dielectric, tubular, 120 uuf ± 2.5%, 500 v dc working; or,	Connected across L-2 to obtain uniform sensitivity over tuning range	CN-Class D	ARC-8013 STC-699802
		CAPACITOR, Fixed, mica dielectric, 120 uuf ± 2.5%, 400 v dc working		CLD-Type 5RS	
C-40		CAPACITOR, Fixed, same as C-3	A-f line filter to input of 12A6 tube		
C-41		CAPACITOR, Fixed, same as C-3	A-f line filter to input of 12A6 tube		
C-42		CAPACITOR, Fixed, same as C-11 (Used in R-23/ARC-5, R-23A/ARC-5 and R-148/ARC-5X only)	Frequency drift compensator for changes in ambient temperature		
	R16C7778-90	CAPACITOR, Fixed, ceramic dielecrtic, 2 uuf ± ½ uuf, 500 v dc working (Used in R-27/ARC-5 only)	Frequency drift compensator for changes in ambient temperature	CN-Class D	ARC-9280
C-43		CAPACITOR, Fixed, same as C-3 (Used in R-25/ARC-5, R-26/ARC-5, and R-27/ARC-5 only)	Grid return by-pass, 12SF7 tube		
C-44		CAPACITOR, Fixed, same as C-6	For cw oscillator plate supply by-pass, cathode by-pass, 12SR7 tube and cathode by-pass first i-f		
C-45		CAPACITOR, Fixed, same as C-1 (Used in R-26/ARC-5 only)	For controlling cw oscillator coupling to second detector diode of 12SR7 tube		
C-46	R16C11339-25	CAPACITOR, Fixed, paper dielectric, 350,000 uuf — 10% + 20%, 35 v dc working (Used in R-23/ARC-5, R-23A/ARC-5, R-148/ARC-5X and R-24/ARC-5 only)	Audio amplifier cathode by-pass	ARC-10247 STC-640511	ARC-10247 STC-640511
C-47		CAPACITOR, Fixed, same as C-3	Mixer grid blocking		
C-48		CAPACITOR, Fixed, same as C-11 (Used in R-23/ARC-5, R-23A/ARC-5 and R-148/ARC-5X only)	For frequency drift compensation		
C-49		CAPACITOR, Fixed, same as C-11 (Used in R-23/ARC-5, R-23A/ARC-5 and R-148/ARC-5X only)	For frequency drift compensation		

E-1	R16P5360	POST, Binding, engraved "A"	Antenna connection	ARC-4667 STC-640122	ARC-4667 STC-640122
E-3	R16C4690	CAP	Protective cap for top of Z-1, Z-2 and Z-3	ARC-4664 STC-640121	ARC-4664 STC-640121
E-4	R16I5090	INSULATOR, Outside (includes washer ARC-6481, 5727 and nut 6009)	For antenna binding post	ISO-	ARC-3485 STC-640043
	R16I5092	INSULATOR, Inside (includes washer ARC-6481, 5727 and nut 6009)	For antenna binding post	ISO-	ARC-6597 STC-640379
E-8		CLIP	Connection to control grid of 12K8	ARC-4754 STC-640163	ARC-4754 STC-640163
E-9	R16K3365	KNOB, Round, engraved	Input alignment control	ARC-4713 STC-640150	ARC-4713 STC-640150
E-35	R16P5308	POST, Binding, engraved "L"	Loop connection	ARC-7356 STC-640409	ARC-7356 STC-640409
E-36		POST, Binding, same as E-35	Loop connection		
E-37	R16C4684	CAP	Covers antenna loop switch outlet when not in use	ARC-9808 STC-640502	ARC-9808 STC-640502
H-3	R16S4320	SNAPSLIDE, Formed, includes:	Fastener	ARC-3888 STC-640073	ARC-3888 STC-640073
	R16G6980	GUIDE, Snapslide		ARC-3887 STC-640072	ARC-3887 STC-640072
	R16B15698	BUTTON, Snapslide		ARC-3890 STC-640074	ARC-3890 STC-640074
	R16S9871	STUD		ARC-4708 STC-640146	ARC-4708 STC-640146
	R16ARC-3889	WASHER, Spring		ARC-3889 STC-635207	ARC-3889 STC-635207
H-5	R16S9825	STUD	For location of dynamotor	ARC-5480 STC-640647	ARC-5480 STC-640647
H-6	R16P1965	PANEL, Mounting, resistor	Holds resistors	ARC-5452 STC-	ARC-5452 STC-
H-10	R16S9823	STUD	For locking receiver in rack	ARC-4710 STC-640147	ARC-4710 STC-640147
J-1	R16R2406-15	CONNECTOR, Receptacle, 8 contacts	Couples receiver to adapter	ARC-4724 STC-640156	ARC-4724 STC-640156
J-2	R16R2406	CONNECTOR, Receptacle, 3 contacts	Couples receiver to dynamotor	ARC-4718 STC-640152	ARC-4718 STC-640152
J-3	R16P3991-32	CONNECTOR, Receptacle, 7 contacts	Couples receiver to rack	ARC-5488 STC-640247	ARC-5488 STC-640247
J-28	R16R2406-10	CONNECTOR, Receptacle, 6 contacts	Couples i-f coupling unit to receiver chassis	ARC-4723 STC-640155	ARC-4723 STC-640155

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** RADIO RECEIVERS (Cont)

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
J-29	R16R2406-5	CONNECTOR, Receptacle, 6 contacts	Couples r-f unit to receiver chassis	ARC-4722 STC-640154	ARC-4722 STC-640154
L-1		COIL, RF (part of Z-5 assy)	Input tuning		
L-2		COIL, RF (part of Z-5 assy)	Mixer input		
L-3		COIL, RF (part of Z-5 assy)	Mixer input		
L-4		COIL, RF (part of Z-5 assy)	R-f oscillator		
L-5		COIL, RF (part of Z-5 assy)	R-f oscillator		
L-6		COIL, RF (part of Z-1 assy)	Part of first i-f		
L-7		COIL, RF (part of Z-1 assy)	Part of first i-f		
L-8		COIL, RF (part of Z-2 assy)	Part of second i-f		
L-9		COIL, RF (part of Z-2 assy)	Part of second i-f		
L-10		COIL, RF (part of Z-3 assy)	Part of third i-f		
L-11		COIL, RF (part of Z-3 assy)	Part of third i-f		
L-12		COIL, RF (part of Z-4 assy)	Cw oscillator		
L-13		COIL, RF (part of Z-4 assy)	Cw oscillator		
L-14	R16C17158	COIL, RF 98 uh ± 5%, dc resistance not over 0.126 ohm	R-f choke	ARC-5546 STC-640257	ARC-5546 STC-640257
L-15	R16C17162	REACTOR, AF, 3 Henries, dc resistance 288 to 363 ohms	A-f choke	ARC-5634 STC-640269	ARC-5634 STC-640269
N-1	R16D2185	DIAL, Engraved, 0.19 to 0.55 mc (For R-23/ARC-5, R-23A/ARC-5 and R-148/ARC-5X only)	Frequency indication	ARC-5613 STC-640264	ARC-5613 STC-640246
	R16D2182	DIAL, Engraved, 0.52 to 1.5 mc (Used in R-24/ARC-5 only)	Frequency indication	ARC-5610	ARC-5610
	R16D2223	DIAL, Engraved, 1.5 to 3 mc (Used in R-25/ARC-5 only)	Frequency indication	ARC-7327	ARC-7327
	R16D2190	DIAL, Engraved, 3 to 6 mc (Used in R-26/ARC-5 only)	Frequency indication	ARC-5622	ARC-5622
	R16D2180	DIAL, Engraved, 6 to 9.1 mc (Used in R-27/ARC-5 only)	Frequency indication	ARC-5608	ARC-5608
P-5	R16ARC-3995	CONTACT, Electrical Replace with:	For conector J-2	ARC-3995 STC-640086 OR	ARC-3995 STC-640086 OR
		CONTACT, Electrical	For conector J-2	ARC-7949	ARC-7949
R-1	R16R17264-50-25	RESISTOR, Fixed, composition, 620 ohms ± 5%, ½ w (Not used in R-23A/ARC-5 and R-148/ARC-5X)	R-f amplifier cathode	AB-EB6215	ARC-6004
	R16JAN-RC20AE102J	RESISTOR, Fixed, composition, 1000 ohms ± 10%, ½ w (Used in R-23A/ARC-5 and R-148/ARC-5X only)	R-f amplifier cathode	AB-EB1021	ARC-4136 STC-698203

R-2	R16R17395	RESISTOR, Fixed, metallized, 2,000,000 ohms ± 10%, 1/3 w	R-f amplifier grid	IRC-Type F-1/3	ARC-4439
R-3	R16R17337-28-500	RESISTOR, Fixed, composition, 51,000 ohms ± 5%, 1/2 w	R-f oscillator grid	AB-EB5135	ARC-4569 STC-699707
R-4		RESISTOR, Fixed, same as R-1 (Not used in R-23A/ARC-5 and R-148/ARC-5X)	Mixer cathode		
		RESISTOR, Fixed, same as R-1 (Used in R-23A/ARC-5 and R-148/ARC-5X only)	Mixer cathode		
R-5	R16JAN-RC20GF514J	RESISTOR, Fixed, composition, 510,000 ohms ± 5%, 1/2 w	Avc diode	AB-EB5145	ARC-4570 STC-696365
R-6		RESISTOR, Fixed, same as R-5 (Used in R-23/ARC-5, R-23A/ARC-5 and R-148/ARC-5X only)	R-f oscillator plate		
	R16R17353-20	RESISTOR, Fixed, composition, 300,000 ohms ± 5%, 1/2 w (Used in R-24/ARC-5 only)	R-f oscillator plate	AB-EB3045	ARC-4530
	R16R17351-15-10	RESISTOR, Fixed, composition, 200,000 ohms ± 5%, 1/2 w (Used in R-25/ARC-5 and R-26/ARC-5 only)	R-f oscillator plate	AB-EB2045	ARC-4502
	R16JAN-RC20AE104J	RESISTOR, Fixed, composition, 150,000 ohms ± 10%, 1/2 w	R-f oscillator plate	AB-EB1541	ARC-4501
R-7	R16R17262-39-25	RESISTOR, Fixed, composition, 200 ohms ± 5%, 1/2 w	R-f amplifier, mixer, and r-f oscillator plate decoupling	AB-EB2015	ARC-4497 STC-699700
R-8		RESISTOR, Fixed, same as R-7	R-f amplifier and mixer screen decoupling		
R-9		RESISTOR, Fixed, same as R-1 (Not used in R-23A/ARC-5 and R-148/ARC-5X)	First i-f cathode		
		RESISTOR, Fixed, same as R-1 (Used in R-23A/ARC-5 and R-148/ARC-5X only)	First i-f cathode		
R-10	R16R17354-12-72	RESISTOR, Fixed, composition, 360,000 ohms ± 5%, 1/2 w	High-voltage bleeder to sensitivity control line	AB-EB3645	ARC-8032 STC-696347
R-11		RESISTOR, Fixed, same as R-5 (Used in R-23/ARC-5, R-23A/ARC-5, R-148/ARC-5X and R-24/ARC-5 only)	Avc line filter		
	R16R17310-1-500	RESISTOR, Fixed, composition, 10,000 ohms ± 10%, 1/2 w (Used in R-25/ARC-5, R-26/ARC-5 and R-27/ARC-5 only)	Avc line filter	AB-EB1031	ARC-4491
R-12	R16R17263-30-25	RESISTOR, Fixed, composition, 390 ohms ± 10%, 1/2 w	Second i-f cathode	AB-EB3911	ARC-6006 STC-696348
R-13		RESISTOR, Fixed, same as R-5 (Not used in R-23A/ARC-5, and R-148/ARC-5X)	Avc line filter		
	R16R17395-26	RESISTOR, Fixed, composition, 2,000,000 ohms ± 5%, 1/2 w (Used in R-23A//ARC-5 and R-148/ARC-5X only)	Avc line filter	AB-EB2055	ARC-4503 STC-699702
R-14	R16JAN-RC20AE104J	RESISTOR, Fixed, composition, 100,000 ohms ± 10%, 1/2 w	Cw oscillator grid	AB-EB1041	ARC-4501 STC-696305
R-15	R16R17310-110-500	RESISTOR, Fixed, composition, 20,000 ohms ± 5%, 1/2 w (Used in R-23/ARC-5, R-23A/ARC-5, R-148/ARC-5X, R-24/ARC-5 and R-25/ARC-5 only)	Cw oscillator plate dropping and filter	AB-EB2035	ARC-4510 STC-699703

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** RADIO RECEIVERS (Cont)

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
	R16R17291-27-500	RESISTOR, Fixed, composition, 5100 ohms ± 5%, ½ w (Used in R-26/ARC-5 and R-27/ARC-5 only)	Cw oscillator plate dropping and filter	AB-EB5125	ARC-6001
R-16		RESISTOR, Fixed, composition, 300,000 ohms ± 5%, ½ w (Used in R-23/ARC-5, R-23A/ARC-5, R-148/ARC-5X and R-24/ARC-5 only)	Cw oscillator plate voltage divider	AB-EB3045	ARC-4530 STC-696342
		RESISTOR, Fixed, same as R-14 (Used in R-25/ARC-5 only)	Cw oscillator plate voltage divider		
		RESISTOR, Fixed, same as R-3 (Used in R-26/ARC-5 and R-27/ARC-5 only)	Cw oscillator plate voltage divider		
R-17		RESISTOR, Fixed, same as R-14 (Used in R-25/ARC-5 only)	Cw oscillator plate voltage divider		
		RESISTOR, Fixed, same as R-3 (Used in R-26/ARC-5 and R-27/ARC-5 only)	Cw oscillator plate voltage divider		
R-18		RESISTOR, Fixed, same as R-5	Second detector diode		
R-19	R16R17349-2	RESISTOR, Fixed, composition, 150,000 ohms ± 10%, ½ w (Used in R-23/ARC-5, R-23A/ARC-5, R-148/ARC-5X and R-24/ARC-5 only)	A-f line filter to input of 12A6 tube	AB-EB1541	ARC-4571 STC-696319
		RESISTOR, Fixed, same as R-14 (Used in R-25/ARC-5, R-26/ARC-5 and R-27/ARC-5 only)	A-f line filter to input of 12A6 tube		
R-20		RESISTOR, Fixed, composition, 2,000,000 ohms ± 5%, ½ w	A-f amplifier grid	AB-EB2055	ARC-4503 STC-699702
R-21	R16JAN-RC20AF152K	RESISTOR, Fixed, composition, 1500 ohms ± 10%, ½ w (Not used in R-23A/ARC-5 and R-148/ARC-5X)	A-f amplifier cathode	AB-EB1521	ARC-4506
		RESISTOR, Fixed, composition, 1000 ohms ± 10%, ½ w (Used in R-23A/ARC-5 and R-148/ARC-5X only)	A-f amplifier cathode	AB-EB1021	ARC-4136 STC-696302
R-22	R16R18681-40	RESISTOR, Fixed, wire wound, 7000 ohms ± 2%, 7 w	Part of voltage divider across dynamotor high-voltage	WAL-Type 237	ARC-5895 STC-699713
R-23		RESISTOR, Fixed, same as R-22			
R-24	R16R17276-50	RESISTOR, Fixed, composition, 3000 ohms ± 5%, ½ w (Used in R-23/ARC-5, R-23A/ARC-5, R-148/ARC-5X and R-24/ARC-5 only)	Avc diode relay	AB-EB3025	ARC-8073
R-26		RESISTOR, Fixed, composition, 150,000 ohms ± 10%, ½ w (Used in R-23/ARC-5, R-23A/ARC-5, R-148/ARC-5X and R24-ARC-5 only)	I-f filter	AB-EB1541	ARC-5471 STC-696319

R-27		RESISTOR, Fixed, same as R-14 (Used in R-23/ARC-5, R-23A/ARC-5, R-148/ARC-5X and R-24/ARC-5 only)	To maintain charge on electrolytic capacitor		
R-28		RESISTOR, Fixed, composition, 1000 ohms ± 10%, ½ w (Used in R-23/ARC-5, R-23A-5, R-23A/ARC-5, R-148/ARC-5X and R-24/ARC-5 only)	I-f filter	AB-EB1021	ARC-4136 STC-696302
R-29	R16R17274-62-2	RESISTOR, Fixed, composition, 2400 ohms ± 5%, ½ w (Used in receivers R-25/ARC-5, R-26/ARC-5 and R-27/ARC-5 only)	Cathode, 12SR7 tube	AB-EB2425	ARC-8077
R-30		RESISTOR, Fixed, same as R-14 (Used in R-25/ARC-5, R26/ARC-5 and R-27/ARC-5 only)	Part of second detector diode resistor		
R-31		RESISTOR, Fixed, same as R-14 (Used in R-25/ARC-5, R-26/ARC-5 and R-27/ARC-5 only)	Grid return filter, 12SF7 tube		
R-35		RESISTOR, Fixed, same as R-3 (Used in R-24/ARC-5 only)	Across primary of L-2 to level gain over the tuning range		
R-37		RESISTOR, Fixed, same as R-7	Second i-f plate decoupling filter		
S-1	R16S10642-50	SWITCH, Rotary, 2 positions, 2 circuits	Antenna loop switching	ARC-9662 STC-640487	ARC-9662 STC-640487
T-1	R16T6435	TRANSFORMER, AF, Plate coupling type, turns ratio 8 to 1, primary turns d-c resistance 1160 ohms ± 15%, secondary turns d-c resistance 26 ohms ± 15%	Audio output to receiver	ARC-5631 STC-640268	ARC-5631 STC-640268
V-1	G17L6806-120	LAMP, Glow, clear, not over 90 v dc	Voltage limiting across L-1	GY1-Type T-2	ARC-5913 STC-640295
V-2		LAMP, Glow, same as V-1	Voltage limiting, across half of primary output transformer		
X-1	R16S6188-11-100	SOCKET, Electron tube, 8 contacts	For any octal-base tube in equipment	AMP-Type S-8	ARC-6559 STC-640368
Z-1	R16C28598-26	TRANSFORMER, IF, 85 KC (Used in R-23/ARC-5 only)	First i-f coupling unit	ARC-4698	ARC-4698
		TRANSFORMER, IF, 85 KC (Used in R-23A/ARC-5 and R-148/ARC-5X only)	First i-f coupling unit	ARC-10791 STC-640481	ARC-10791 STC-640481
	R16C28603	TRANSFORMER, IF, 85 KC (Used in R-24/ARC-5 only)	First i-f coupling unit	ARC-7268	ARC-7268
	R16C28605-142	TRANSFORMER, IF, 85 KC (Used in R-25/ARC-5 only)	First i-f coupling unit	ARC-9681	ARC-9681
	R16C28605-15	TRANSFORMER, IF, 85 KC (Used in R-26/ARC-5 only)	First i-f coupling unit	ARC-7274	ARC-7274
	R16C28605-160	TRANSFORMER, IF, 85 KC (Used in R-27/ARC-5 only)	First i-f coupling unit	ARC-9693	ARC-9693
Z-2	R16C28605-100	TRANSFORMER, IF, 85 KC (Used in R-23/ARC-5 only)	Second i-f coupling unit	ARC-9641	ARC-9641
	R16ARC-10790	TRANSFORMER, IF, 85 KC (Used in R-23A/ARC-5 and R-148/ARC-5 only)	Second i-f coupling unit	ARC-10790 STC-640480	ARC-10790 STC-640480
	R16C28605-92	TRANSFORMER, IF, 85 KC (Used in R-24/ARC-5 only)	Second i-f coupling unit	ARC-9635	ARC-9635
	R16C28605-145	TRANSFORMER, IF, 85 KC (Used in R-25/ARC-5 only)	Second i-f coupling unit	ARC-9684	ARC-9684
	R16C28605-20	TRANSFORMER, IF, 85 KC (Used in R-26/ARC-5 only)	Second i-f coupling unit	ARC-7275	ARC-7275

TABLE 7—2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** RADIO RECEIVERS (Cont)

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
	R16C28605-165	TRANSFORMER, IF, 85 KC (Used in R-27/ARC-5 only)	Second i-f coupling unit	ARC-9697	ARC-9697
Z-3	R16C28605-102	TRANSFORMER, IF, 85 KC (Used in R-23/ARC-5 only)	Third i-f coupling unit	ARC-9642	ARC-9642
	R16ARC-10791	TRANSFORMER, IF, 85 KC (Used in R-23A/ARC-5 and R-148/ARC-5X only)	Third i-f coupling unit	ARC-10791 STC-640481	ARC-10791 STC-640481
Z-4	R16C28785-2	OSCILLATOR ASSEMBLY, CW, 85 KC (Used in R-23/ARC-5, R-23A/ARC-5 and R-148/ARC-5X only)	Cw oscillator	ARC-5852 STC-640290	ARC-5852 STC-640290
	R16C28785-3	OSCILLATOR ASSEMBLY, CW, 239 KC (Used in R-24/ARC-5 only)	Cw oscillator	ARC-5853	ARC-5853
	R16C28785-4	OSCILLATOR ASSEMBLY CW, 705 KC (Used in R-25/ARC-5 only)	Cw oscillator	ARC-5854	ARC-5854
	R16C28785-5	OSCILLATOR ASSEMBLY, CW, 1415 KC (Used in R-26/ARC-5 only)	Cw oscillator	ARC-5855	ARC-5855
	R16C28785-6	OSCILLATOR ASSEMBLY, CW, 2830 KC (Used in R-27/ARC-5 only)	Cw oscillator	ARC-5856	ARC-5856
Z-5	R16C28800-75	COIL ASSEMBLY, RF (Used in R-23/ARC-5, R-23A/ARC-5 and R-148/ARC-5X only)	R-f amplifier and oscillator coils	ARC-9630 STC-640476	ARC-9630 STC-640476
	R16C28800-20	COIL ASSEMBLY, RF (Used in R-24/ARC-5 only)	R-f amplifier and oscillator coils	ARC-6211	ARC-6211
	R16C28800-30	COIL ASSEMBLY, RF (Used in R-25/ARC-5 only)	R-f amplifier and oscillator coils	ARC-6220	ARC-6220
	R16C28800-40	COIL ASSEMBLY, RF (Used in R-26/ARC-5 only)	R-f amplifier and oscillator coils	ARC-6227	ARC-6227
	R16C28800-50	COIL ASSEMBLY, IF (Used in R27/ARC-5 only)	R-f amplifier and oscillator coils	ARC-6234	ARC-6234

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** RADIO TRANSMITTERS

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
50-59 series		TRANSMITTER, Radio, T-15/ARC-5, 0.5 to 0.8 mc	MF transmitter	ARC-9315	ARC-9513
50-59 series		TRANSMITTER, Radio, T-16/ARC-5, 0.8 to 1.3 mc	MF transmitter	ARC-9316	ARC-9316
50-59 series		TRANSMITTER, Radio, T-17/ARC-5, 1.3 to 2.1 mc	MF transmitter	ARC-9317	ARC-9317
50-59 series		TRANSMITTER, Radio, T-18/ARC-5, 2.1 to 3 mc	MF transmitter	ARC-9308	ARC-9308
50-59 series		TRANSMITTER, Radio, T-19/ARC-5, 3 to 4 mc	HF transmitter	ARC-9309	ARC-9309
50-59 series		TRANSMITTER, Radio, T-20/ARC-5, 4 to 5.3 mc	HF transmitter	ARC-9310	ARC-9310
50-59 series		TRANSMITTER, Radio, T-21/ARC-5, 5.3 to 7 mc	HF transmitter	ARC-9311	ARC-9311
50-59 series		TRANSMITTER, Radio, T-22/ARC-5, 7 to 9.1 mc	HF transmitter	ARC9312	ARC-9312
A-50		COVER, Top	Shield and closure over tubes and chassis	ARC-7457	ARC-7457
A-51	R16C38280	COVER, Tube access	Closure over power-amplifier tubes	ARC-7398	ARC-7398
A-52	R16C37630	COVER, Top rear	Closure and mirror	ARC-7459	ARC-7459
A-53	R16D2365	COVER	Closure and calibrated window over power-amplifier tuning coil window	ARC-9346	ARC-9346
A-54	R16C37378	COVER, Bottom	Closure for bottom of chassis	ARC-7397	ARC-7397
A-55	R16S3907	SHIELD, Coil	Shield over master oscillator coil and capacitor	ARC-5501	ARC-5501
A-56	R16I4276	PLATE, Insulating, ceramic	Insulator and support for antenna tuning coil	ARC-7704	ARC-7704
C-58	R16C11292-125	CAPACITOR, Fixed, paper dielectric, 3 sections, ea section 50,000 uuf ± 15%, 300 v dc working	A section: master oscillator plate by-pass B section: resonance indicator plate by-pass C section: r-f amplifier grid by-pass	ARC-5414	ARC-5414

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** RADIO TRANSMITTERS (Cont)

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
C-60	R16C14225	CAPACITOR, Variable, air dielectric,	Master oscillator padding	ARC-4990	ARC-4990
C-61	R16C10436	CAPACITOR, Fixed, mica dielectric, 6,000 uuf −15% + 100%, 400 v dc working	Master oscillator heater line, r-f by-pass	AEV-Type 1461	ARC-4091
C-62	R16C11830	CAPACITOR, Fixed, mica-air dielectric,	Neutralizing	ARC-7193	ARC-7193
C-63	R16C14280	CAPACITOR, Variable, air dielectric, (for T-15/ARC-5, T-16/ARC-5, T-17/ARC-5 only)	Master oscillator tuning	ARC-9251	ARC-9251
	R16C14240	CAPACITOR, Variable, air dielectric, (for T-18/ARC-5, T-19/ARC-5, T-20/ARC-5, T-21/ARC-5, T-22/ARC-5 only)	Master oscillator tuning	ARC-5032	ARC-5032
C-64	R16C10241-25	CAPACITOR, Fixed, mica dielectric, 2,000 uuf −10% + 100%, 1000 v dc working	Power-amplifier screen by-pass	CLD-Type 4	ARC-4190
C-65	R16C14275	CAPACITOR, Variable, air dielectric, (for T-15/ARC-5, T-16/ARC-5, T-17/ARC-5 only)	Power-amplifier tuning	ARC-9238	ARC-9238
	R16C14265	CAPACITOR, Variable, air dielectric, (for T-18/ARC-5, T-19/ARC-5, T-20/ARC-5, T-21/ARC-5, T-22/ARC-5 only)	Power-amplifier tuning	ARC-7321	ARC-7321
C-67		CAPACITOR, Variable, air dielectric (for T-15/ARC-5, T-16/ARC-5, T-17/ARC-5 only)	Power-amplifier padding	ARC-9263	ARC-9263
	R16C11973	CAPACITOR, Variable, air dielectric, (for T-18/ARC-5, T-19/ARC-5, T-20/ARC-5, T-21/ARC-5, T-22/ARC-5 only)	Power-amplifier padding	ARC-7324	ARC-7324
C-68	R16C7851	CAPACITOR, Fixed, ceramic dielectric, 3 uuf ± ½ uuf, 500 v dc working	Temperature compensating	CN-Class D	ARC-7020
C-72	R16C8370	CAPACITOR, Fixed, ceramic dielectric, tubular, 400 uuf ± 25 uuf, 500 v dc working	Power-amplifier plate blocking	ERC-Style D	ARC-8058
C-73	R16C8356	CAPACITOR, Fixed, ceramic dielectric, tubular, 200 uuf ± 5%, 500 v dc working	Master oscillator grid	CN-Class D	ARC-4513
C-74	R16C10079-50	CAPACITOR, Fixed, mica dielectric, 1000 uuf ± 5%, 400 v dc working (for T-15/ARC-5, T-16/ARC-5, T-17/ARC-5 only)	R-f by-pass	CLD-Type 5	ARC-4157
		CAPACITOR, Fixed, ceramic dielectric, tubular, 200 uuf ± 5%, 500 v dc working (for T-18/ARC-5, T-19/ARC-5, T-20/ARC-5, T-21/ARC-5, T-22/ARC-5 only)	R-f by-pass	CN-Class C	ARC-4513
E-50	R16P5362	POST, Binding, engraved "A"	Antenna binding post	ARC-7663	ARC-7663
E-51	R16I4275	INSULATOR	Antenna insulator	ISO-	ARC-7659
E-52	R16K3510	KNOB, Frequency, round, engraved	For tuning master oscillator	ARC-7389	ARC-7389
E-53	R16K3820	KNOB, Lock, round, engraved	For locking controls	ARC-7199	ARC-7199

E-54		KNOB, Lock same as E-53	For locking controls		
E-56	R16K3330	KNOB, Antenna coupling, round	For controlling antenna coupling	ARC-7178	ARC-7178
E-57		KNOB, Lock, same as E-53	For locking controls		
E-58		SCREW, Adjusting (Part of A-55)	To adjust master oscillator coil inductance		
E-59		SCREW, Adjusting (Part of A-55)	To adjust power-amplifier coil inductance		
E-60	R16C19898	CLIP, Electrical	Power-amplifier tube plate connection	NAC-Type 24	ARC-2313
E-61	R16CARC-9541	TERMINAL (With locking ring)	Insulation for high-voltage lead through chassis deck	ARC-9541	ARC-9541
E-62	R16ARC-7290	SLEEVE	Guide for master oscillator trimmer	ARC-7290	ARC-7290
H-50	R16S4320	SNAPSLIDE, Formed, includes:	Fastener	ARC-3888	ARC-3888
	R16G6980	GUIDE, Snapslide		ARC-3887	ARC-3887
	R16B15698	BUTTON, Snapslide		ARC-3890	ARC-3890
	R16ARC-3889	WASHER, Spring		ARC-3889	ARC-3889
	R16S9871	STUD		ARC-4708	ARC-4708
H-51		SNAPSLIDE, Formed, same as H-50	Fastener		
H-52	R16S4380-30	SNAPSLIDE, Formed, includes:	Fastener	ARC-5687	ARC-5687
	R16G6985	GUIDE, Snapslide		APC-5496	ARC-5496
	R16B15715	BUTTON, Snapslide		ARC-5498	ARC-5498
	R43W110550	WASHER, Spring		ARC-5171	ARC-5171
	R16S9827	STUD		ARC-9361	ARC-9361
H-53		BUTTON, Plug	Covers larger of two holes on right side of chassis	UC-Type 50652	ARC-4192
H-54	R16C4715	BUTTON, Plug	Covers smaller of two holes on right side of chassis	UC-Type E-511	ARC-8018
H-56	R16S9823	STUD	For locking transmitter in rack	ARC-4710	ARC-4710
J-69	R16P4338	CONNECTOR, Plug, 7 contacts	To transmitter rack	ARC-9302	ARC-9302
J-79	R16R2517-75	CONNECTOR, Receptacle, 3 contacts, (for T-15/ARC-5, T-16/ARC-5 and T-17/ARC-5 only)	To antenna loading coil	ARC-9849	ARC-9849
K-53	R16R5715-100	RELAY, Armature, 28 v dc, coil dc resistance 300 ohms ± 15%	Transmitter selector	ARC-7252	ARC-7252
K-54	R16ARC-7703	RELAY, Armature, 28 v dc, 2 coils, ea coil dc resistance 90 ohms ± 10%	Transmitter output	ARC-7703	ARC-7703

TABLE 7—2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** RADIO TRANSMITTERS (Cont)

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
K-57	R16ARC-9183	CONTACT, Electrical	For completion of output circuit to antenna	ARC-9183	ARC-9183
K-58	R16C33370	CONTACT, Electrical	Spring and contact for completion of output circuit to antenna	ARC-7706	ARC-7706
L-52	R16C21335	COIL, RF (for T-15/ARC-5 only)	Tuning antenna circuit	ARC-9271	ARC-9271
		COIL, RF (for T-16/ARC-5, T-17/ARC-5, T-18/ARC-5 only)	Tuning antenna circuit	ARC-7992	ARC-7992
	R16C21408-25	COIL, RF (for T-19/ARC-5 only)	Tuning antenna circuit	ARC-6033	ARC-6033
	R16C21408-30	COIL, RF (for T-20/ARC-5 only)	Tuning antenna circuit	ARC-6034	ARC-6034
	R16C21408-35	COIL, RF (for T-21/ARC-5 and T-22/ARC-5 only)	Tuning antenna circuit	ARC-6035	ARC-6035
N-50		DIAL, Engraved, 0.5 to 0.8 mc (for T-15/ARC-5 only)	Frequency indication	ARC-9578	ARC-9578
		DIAL, Engraved, 0.8 to 1.3 mc (for T-16/ARC-5 only)	Frequency indication	ARC-9579	ARC-9579
		DIAL, Engraved, 1.3 to 2.1 mc (for T-17/ARC-5 only)	Frequency indication	ARC-9580	ARC-9580
	R16D2230	DIAL, Engraved, 2.1 to 3 mc (for T-18/ARC-5 only)	Frequency indication	ARC-7997	ARC-7997
	R16D2224	DIAL, Engraved, 3 to 4 mc (for T-19/ARC-5 only)	Frequency indication	ARC-7522	ARC-7522
	R16D2224-5	DIAL, Engraved, 4 to 5.3 mc (for T-20/ARC-5 only)	Frequency indication	ARC-7524	ARC-7524
	R16D2224-9	DIAL, Engraved, 5.3 to 7 mc (for T-21/ARC-5 only)	Frequency indication	ARC-7526	ARC-7526
	R16D2224-13	DIAL, Engraved, 7 to 9.1 mc (for T-22/ARC-5 only)	Frequency indication	ARC-7528	ARC-7528
N-51	R16C16735	NAMEPLATE	For recording of tuning data	ARC-6801	ARC-6801
O-51	R16G2770	GEAR, Spur, driven	For antenna tuning control	ARC-7479	ARC-7479
O-52	R16G2700	GEAR, Spur, driving	For antenna coupling control	ARC-7174	ARC-7174
O-53	R15G2765	GEAR, Spur, driving	For antenna tuning control	ARC-7156	ARC-7156
O-54	R16G2710	GEAR, Spur, driving	For antenna coupling control	ARC-7239	ARC-7239
O-55	R16C33715	CONTACT, Electrical (for T-15/ARC-5, T-16/ARC-5, T-17/ARC-5, F-18/ARC-5 only)	Contact button and spring connection to antenna coil	ARC-7995	ARC-7995
	R16C33705	CONTACT, Electrical (for T-19/ARC-5, T-20/ARC-5, T-21/ARC-5, T-22/ARC-5 only)	Contact button and spring connection to antenna coil	ARC-7145	ARC-7145
O-56	R16S3865	LINKAGE, Mechanical	For gang tuning master oscillator and power-amplifier	ARC-7309	ARC-7309
R-67	R16R17337-28-500	RESISTOR, Fixed, composition, 51,000 ohms ± 5%, ½ w	Resonance indicator dropping	AB-EB5135	ARC-4569

R-68	R17R17257-45	RESISTOR, Fixed, composition, 20 ohms ± 5%, ½ w	Master oscillator plate decoupling	AB-EB2005	ARC-8033
R-69	R16R17375-500	RESISTOR, Fixed, composition, 1 meg ± 10%, ½ w	Resonance indicator plate	AB-EB1055	ARC-4170
R-70	R16JAN-RC20AG102J	RESISTOR, Fixed, composition, 1000 ohms ± 10%, ½ w (for T-15/ARC-5, T-16/ARC-5, T-17/ARC-5, T-18/ARC-5 only)	Resonance indicator cathode bias voltage divider	AB-EB1021	ARC-4136
	R16R17268-26	RESISTOR, Fixed, composition, 1500 ohms ± 10%, ½ w (for T-19/ARC-5, T-22/ARC-5 only)	Resonance indicator cathode bias voltage divider	AB-EB1521	ARC-4506
R-71	R16R18635-75	RESISTOR, Fixed, wire wound, 126 ohms ± 2%, 7 w	Heater equalizing	WAL-Type 237	ARC-7010
R-72		RESISTOR, Fixed, same as R-67	Master oscillator grid		
R-73	R16MIL-RC20GF303J	RESISTOR, Fixed, composition, 30,000 ohms ± 5%, ½ w (for T-15/ARC-5 only)	Crystal decoupling	AB-EB3035	ARC-4504
	R16R17310-60-2	RESISTOR, Fixed, composition, 15,000 ohms ± 10%, ½ w (for T-16/ARC-5, T-17/ARC-5, T-18/ARC-5, T-21/ARC-5 only)	Crystal decoupling	AB-EB1531	ARC-4492
	R16R17291-25	RESISTOR, Fixed, composition, 5100 ohms ± 5%, ½ w (for T-19/ARC-5, T-22/ARC-5 only)	Crystal decoupling	AB-EB5125	ARC-6001
	R16JAN-RC20AE103K	RESISTOR, Fixed, composition, 10,000 ohms ± 10%, ½ w (for T-20/ARC-5 only)	Crystal decoupling	AB-EB1031	ARC-4491
R-74	R16R17310-60-2	RESISTOR, Fixed, composition, 15,000 ohms ± 10%, ½ w	Power-amplifier grid bias	AB-EB1531	ARC-4492
R-75	R16R17337-28-500	RESISTOR, Fixed, composition, 51,000 ohms ± 5%, ½ w	Power-amplifier cathode cut-off auto-bias	AB-EB5135	ARC-4569
R-76	R16R17257-43	RESISTOR, Fixed, wire wound, 20 ohms ± 10%	Fusing	SPR-Type S-11-10	ARC-8044
R-77	R16JAN-RC20AE391K	RESISTOR, Fixed, composition, 390 ohms ± 10%, ½ w	Resonance indicator cathode bias voltage divider	AB-EB3911	ARC-6006
R-90	R16R17264-50-25	RESISTOR, Fixed, composition, 620 ohms ± 5%, ½ w	Power-amplifier screen decoupling	AB-EB6215	ARC-6004
R-93		RESISTOR, Fixed, same as R-90 (Used in T-15/ARC-5 and T-16/ARC-5 transmitters only)	Cathode resistor		
		RESISTOR, Fixed, same as R-77 (Used in T-17/ARC-5 transmitter only)	Cathode resistor		
RL-50	R16C17170	SUPPRESSOR, Parasitic, c/o resistor, fixed, composition, 51 ohms ± 5%, ½ w (AB-Type EB 5105), 9 turns no. 32 AWG wire wound over resistor	Attenuates interference	ARC-7515	ARC-7515
RL-51		SUPPRESSOR, Parasitic, same as RL-50	Attenuates interference		
T-53	R16C28785-20	COIL, RF (for T-15/ARC-5 only)	Master oscillator coil	ARC-9214	ARC-9214
	R16C28785-25	COIL, RF (for T-16/ARC-5 only)	Master oscillator coil	ARC-9219	ARC-9219
	R16C28785-30	COIL, RF (for T-17/ARC-5 only)	Master oscillator coil	ARC-9223	ARC-9223
	R16C26875	COIL, RF (for T-18/ARC-5 only)	Master oscillator coil	ARC-7988	ARC-7988

TABLE 7–2. TABLE OF REPLACEABLE PARTS (Cont)

MODEL: AN/ARC-5 AIRCRAFT RADIO EQUIPMENT **MAJOR ASSEMBLY:** RADIO TRANSMITTERS (Cont)

Reference Designation	*Navy Stock No. USAF Stock No.*	*Name of Part and Description*	*Function*	*Mfr. and Desig. or JAN Type*	*Cont. or Govt. Dwg. or Spec. No.*
	R16C26860	COIL, RF (for T-19/ARC-5 only)	Master oscillator coil	ARC-6029	ARC-6029
	R16C26862	COIL, RF (for T-20/ARC-5 only)	Master oscillator coil	ARC-6030	ARC-6030
	R16C26864	COIL, RF (for T-21/ARC-5 only)	Master oscillator coil	ARC-6031	ARC-6031
	R16C26866	COIL, RF (for T-22/ARC-5 only)	Master oscillator coil	ARC-6032	ARC-6032
T-54	R16C28707	COIL, RF (for T-15/ARC-5 only)	Power-amplifier coil	ARC-9226	ARC-9226
	R16C28707-10	COIL, RF (for T-16/ARC-5 only)	Power-amplifier coil	ARC-9231	ARC-9231
	R16C28707-15	COIL, RF (for T-17/ARC-5 only)	Power-amplifier coil	ARC-9234	ARC-9234
	R16C28707-75	COIL, RF (for T-18/ARC-5 only)	Power-amplifier coil	ARC-9291	ARC-9291
	R16C28707-78	COIL, RF (for T-19/ARC-5 only)	Power-amplifier coil	ARC-9292	ARC-9292
	A16C28707-80	COIL, RF (for T-20/ARC-5 only)	Power-amplifier coil	ARC-9293	ARC-9293
	R16C28707-82	COIL, RF (for T-21/ARC-5 only)	Power-amplifier coil	APC-9294	ARC-9294
	R16C28707-84	COIL, RF (for T-22/ARC-5 only)	Power-amplifier coil	ARC-9295	ARC-9295
X-52	R16S6182-50	SOCKET, Tube, 7 contacts	For type 1625 tubes	ARC-5068	ARC-5068
X-53	R16S68188-11-100	SOCKET, Tube, 8 contacts	For octal-base tubes	AMP-Type S-8	ARC-6559
Y-50	R16C38606	CRYSTAL UNIT, Quartz	Resonator to check frequency of master oscillator	GE-	ARC-7785

SECTION VIII

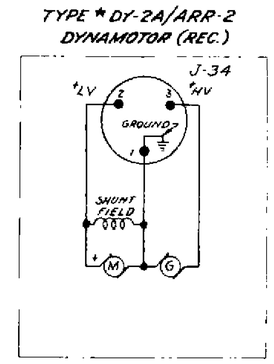
DRAWINGS

AN 16-30ARC5-2

NOTES:

1. CAPACITANCE VALUES ARE IN MICROFARADS UNLESS INDICATED AS MICROMICROFARADS BY MMF.
   RESISTANCE VALUES ARE IN OHMS UNLESS INDICATED AS MEGOHMS BY MEG.

2. C-46 NOT IN EARLY PRODUCTION UNITS. A 1000 OHM RESISTOR R-28 WAS CONNECTED BETWEEN R-21 AND C-30 IN EARLY PRODUCTION UNITS. C-20B WAS .01 MFD. IN EARLY PRODUCTION UNITS.



(FORMERLY TYPE CBY-21531 RECEIVER DYNAMOTOR UNIT) PROVIDES HV TO ONE AN/ARC-5 RECEIVER.

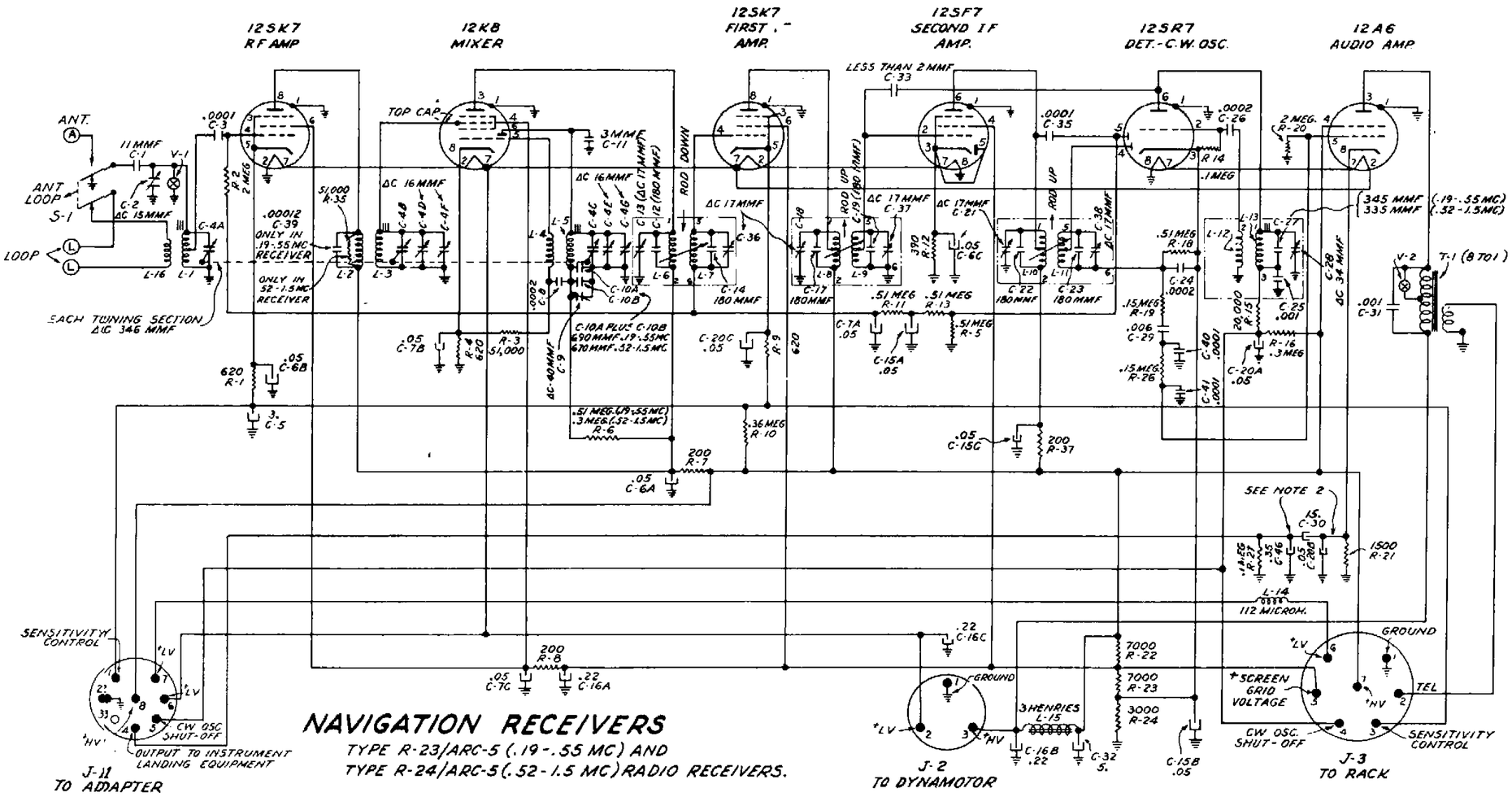
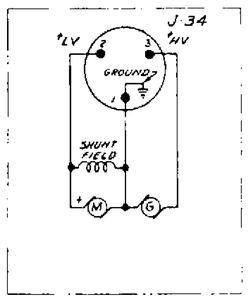


Figure 8—1. Radio Receivers R-23/ARC-5 and R-24/ARC-5, with Dynamotor ★ DY-2A/ARR-2, Schematic Diagram

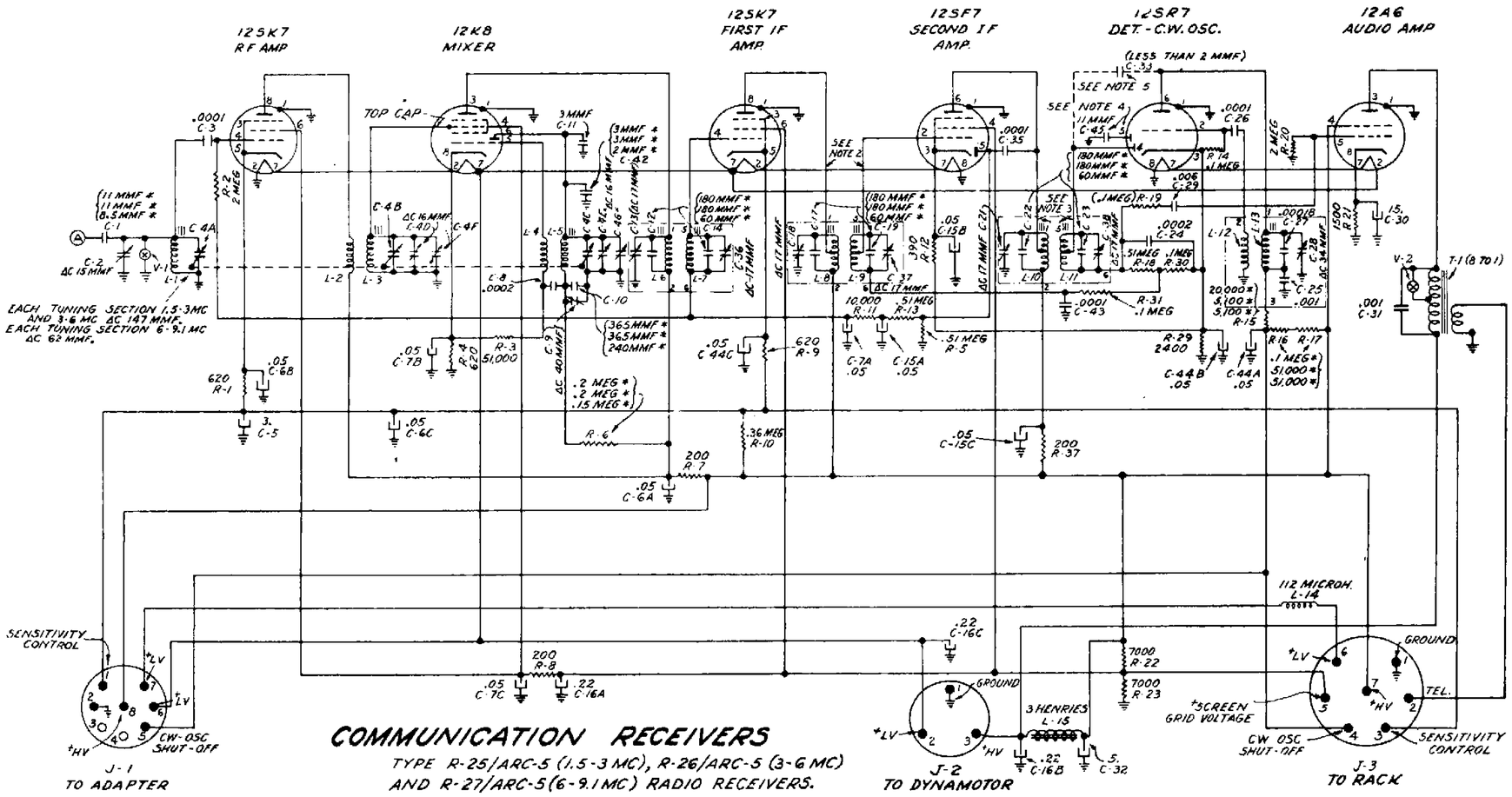
NOTES:

1. * VALUES FOR THE 1.5-3 MC, 3-6 MC AND 6-9.1 MC RECEIVERS IN ORDER SHOWN.
2. TAP IS AT TOP OF COIL FOR 3-6 MC AND 6-9.1 MC RECEIVERS.
3. TAP IS AT TOP OF COIL FOR 6-9.1 MC RECEIVERS
4. C-45 NOT IN 1.5-3 MC NOR 6-9.1 MC RECEIVERS. TERMINAL 5 IS UNCONNECTED IN 1.5-3 MC RECEIVER AND GROUNDED IN 6-9.1 MC RECEIVER.
5. C-33 REPRESENTS THE EFFECTIVE COUPLING CAPACITANCE TERMINAL 6 TO 4 AS MODIFIED BY CONNECTIONS DESCRIBED IN NOTE 4.
6. CAPACITANCE VALUES ARE IN MICROFARADS UNLESS INDICATED AS MICROMICROFARADS BY MMF.
   RESISTANCE VALUES ARE IN OHMS UNLESS INDICATED AS MEGOHMS BY MEG.

TYPE * DY-2A/ARR-2 DYNAMOTOR (REC.)



(FORMERLY TYPE CBY-21531 RECEIVER DYNAMOTOR UNIT) PROVIDES HV TO ONE AN/ARC-5 RECEIVER.



COMMUNICATION RECEIVERS

TYPE R-25/ARC-5 (1.5-3 MC), R-26/ARC-5 (3-6 MC) AND R-27/ARC-5 (6-9.1 MC) RADIO RECEIVERS.

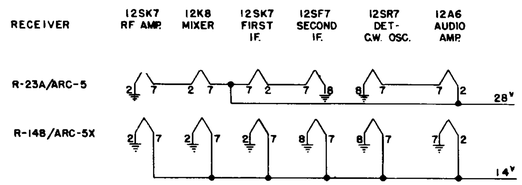
Figure 8—2. Radio Receivers R-25/ARC-5, R-26/ARC-5, and R-27/ARC-5 with Dynamotor ★ DY-2A/ARR-2, Schematic Diagram

NOTES:

1. R-23A/ARC-5 SUPERSEDES R-23/ARC-5 AND MAY BE USED IN ALL APPLICATIONS WHERE R-23/ARC-5 WAS SPECIFIED. R-23A/ARC-5 PRODUCES A HIGHER LEVEL OF AUDIO OUTPUT FOR CORRESPONDING VALUES OF INPUT THAN ITS PREDECESSOR. THIS INCREASE IS MOST MARKED AT LOW VALUES OF INPUT, NEAR THE KNEE OF THE AVC CHARACTERISTIC, AND APPLIES TO BOTH THE "TEL" OUTPUT AND TO THE "INSTRUMENT LANDING EQUIPMENT" OUTPUT.

2. R-23A/ARC-5 IS IDENTICAL TO R-148/ARC-5X EXCEPT FOR THE WIRING OF VACUUM TUBE HEATERS SHOWN BELOW.

3. HEATER CIRCUITS.



4. *DY-1/ARR-2X DYNAMOTOR (14 VOLTS) IS USED WITH THE R-148/ARC-5X RECEIVER. THE SCHEMATIC CIRCUIT AND WIRING DIAGRAM FOR THIS IS THE SAME AS FOR THE *DY-2A/ARR-2 (28 VOLTS) AND WILL NOT BE REPEATED.

5. MT-411/ARC-5X RACK (14 VOLTS) IS USED WITH THE R-148/ARC-5X RECEIVER. THE SCHEMATIC CIRCUIT AND WIRING DIAGRAM FOR THIS IS THE SAME AS FOR THE *MT-7A/ARR-2 (28 VOLTS) AND WILL NOT BE REPEATED.

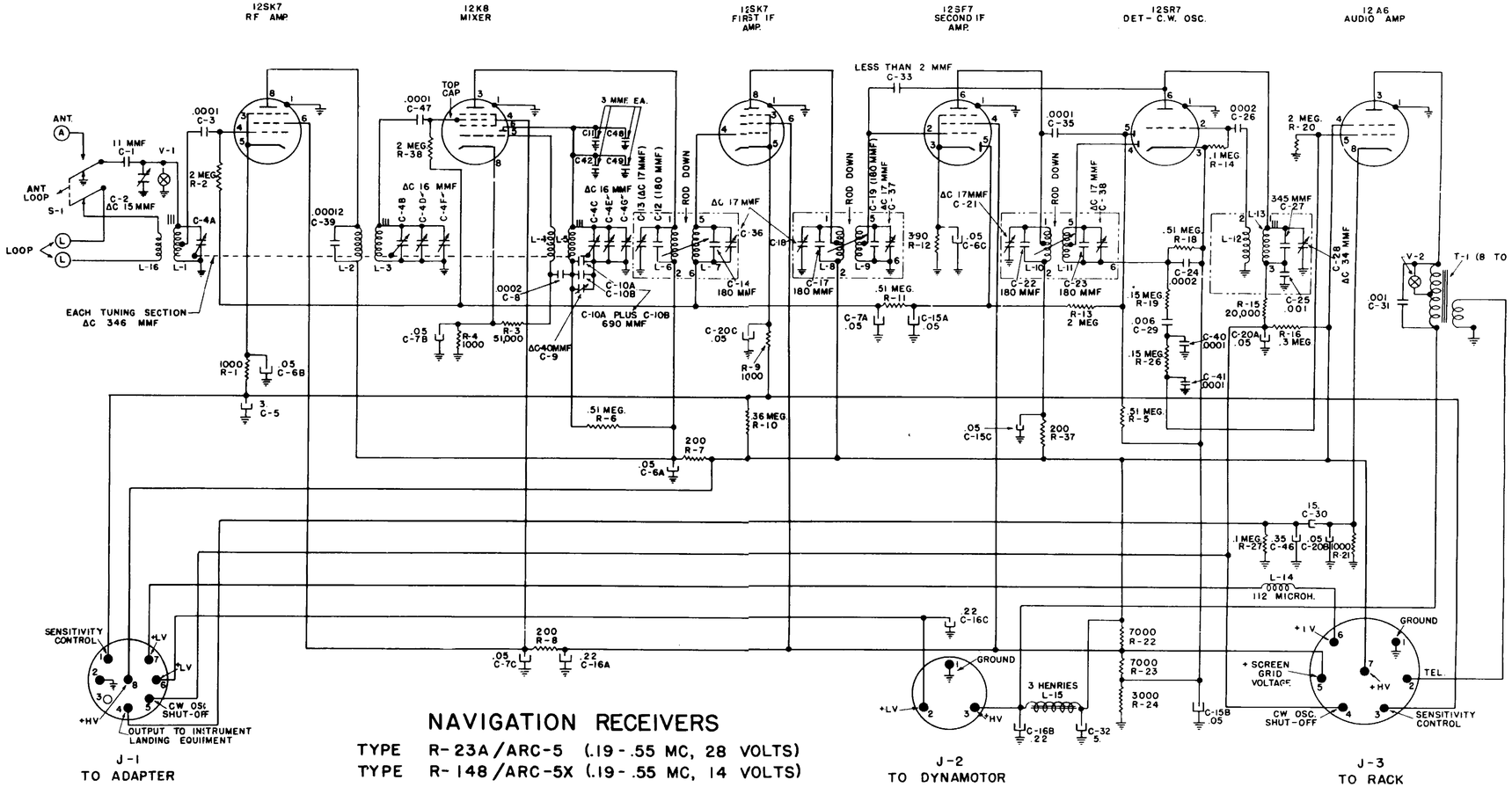
6. CAPACITANCE VALUES ARE IN MICROFARADS UNLESS INDICATED AS MICRO-MICROFARADS BY MMF.

7. RESISTANCE VALUES ARE IN OHMS UNLESS INDICATED AS MEGOHMS BY MEG.

AN 16-30ARC5-2

AN 15-30ARC5-2

AN 16-30ARC5-2



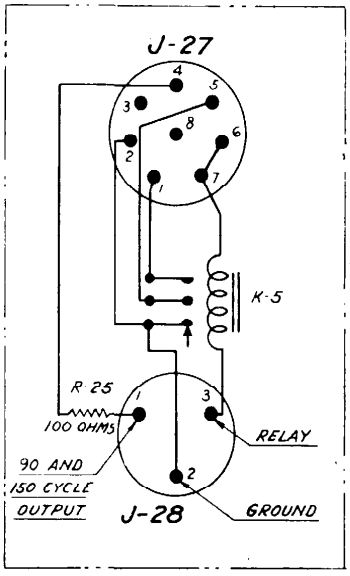
NAVIGATION RECEIVERS

TYPE R-23A/ARC-5 (.19 - .55 MC, 28 VOLTS)
TYPE R-148/ARC-5X (.19 - .55 MC, 14 VOLTS)

SEE NOTES 4 & 5 REGARDING
*DY-1/ARR-2X DYNAMOTOR & MT-411/ARC-5X RACK

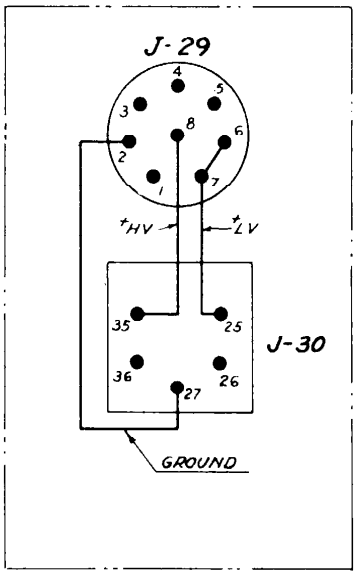
Figure 8—3. Radio Receivers R-23A/ARC-5 and R-148/ARC-5X, Schematic Diagram

TYPE MX-19/ARC-5
AUDIO ADAPTER



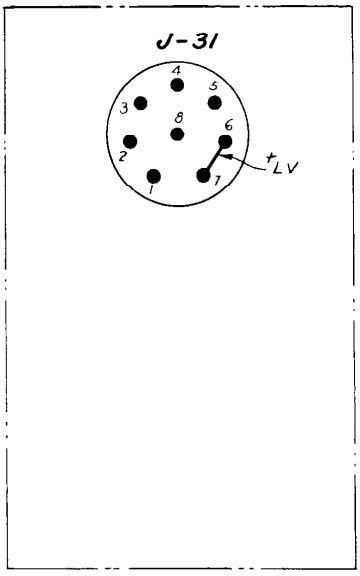
PROVIDES AUDIO, CONNECTION TO INPUT OF INSTRUMENT LANDING EQUIPMENT. WHEN RELAY K-5 IS ACTUATED, THE CW OSC SHUT-OFF AND THE MANUAL SENSITIVITY LINES ARE GROUNDED AUTOMATICALLY CONNECTING RECEIVER FOR VOICE AND AVC OPERATION ONLY.

TYPE MX-20/ARC-5
POWER ADAPTER



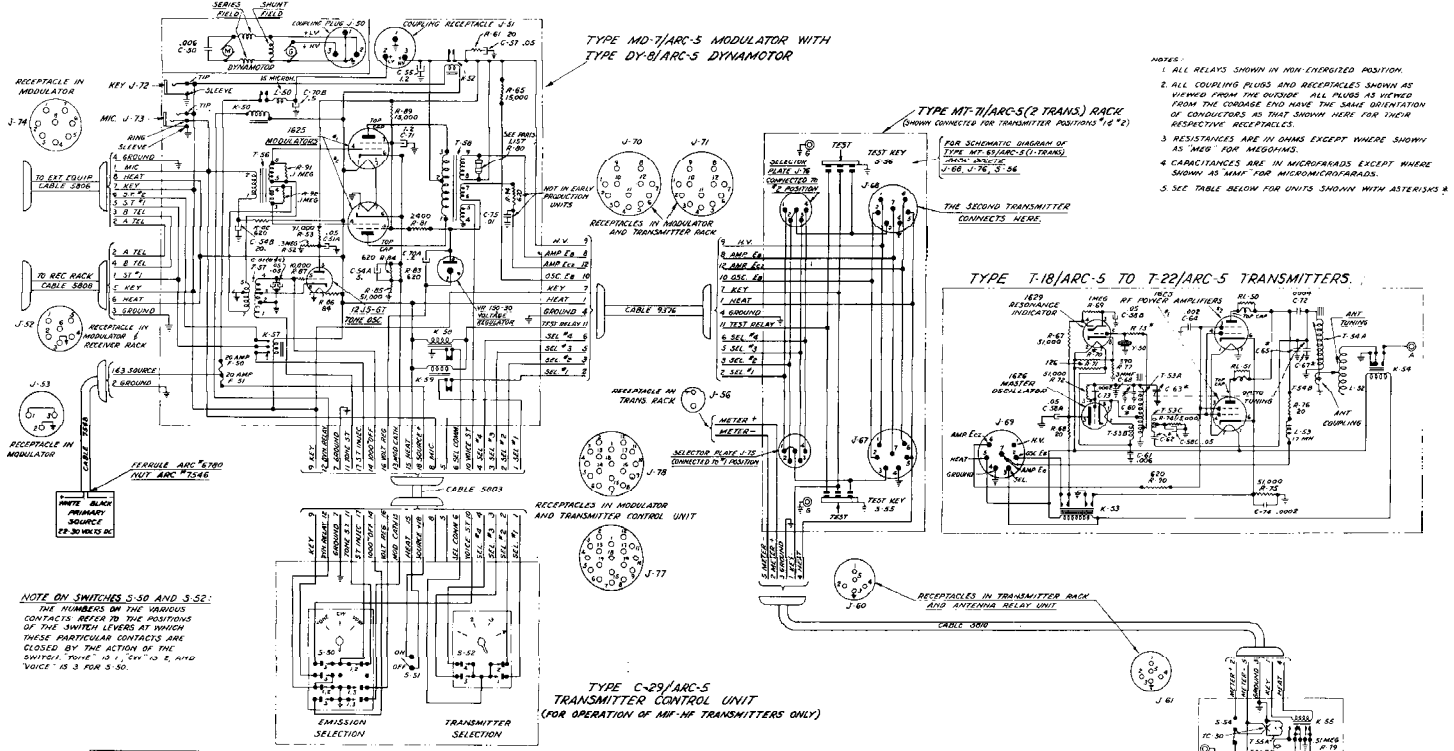
(FORMERLY TYPE CBY-62036 AUXILIARY OUTLET ADAPTER) PROVIDES HV AND LV POWER TO EXTERNAL EQUIPMENT.

TYPE MX-21/ARC-5
REMOTE CONTROL ADAPTER



(FORMERLY TYPE CBY-49107 SWITCH PANEL ADAPTER) PROVIDES JUMPER TO COMPLETE LV CIRCUIT.

Figure 8—4. Audio, Power, and Remote Control Adapters, Schematic Diagrams



CAPACITANCES

SYMBOL	MICROFARADS
C-50	.008
C-51 (MMFD)	125 OR 140
C-52 (A,B)	5/30
C-53	1.2
C-57	.01
C-58 (A,B,C)	.05/.05/.05
C-60	MO TRIMMING
C-61	.005
C-62	NEUTRALIZING
C-63	MO TUNING
C-64	.002
C-65	PA TUNING
C-67	PA TRIMMING
C-68	.000003
C-69	.0002.5
C-70 (A,B)	5/5
C-71	.2
C-72	.0004
C-73	.0002
C-74	.001 (.5 - 2 MC)
C-74	.0002 (2 - 9.1 MC)
C-75	.01

RELAYS

SYMBOL	DESCRIPTION
K-50	DYNAMOTOR
K-52	HIGH VOLTAGE
K-53	TRANS. SELECTOR
K-56	TRANS. OUTPUT
K-57	ANT. SWITCHING
K-57	SIDETONE
K-58	TEST RELAY 1
K-59	TEST RELAY 2

INDUCTANCES

SYMBOL	DESCRIPTION
L-50	RF CHOKE 15 MICROHENRIES
L-52	ANT. TUNING
L-53	RF CHOKE 17 MILLIHENRYS

RESISTANCES

SYMBOL	OHMS
R-52	300,000
R-53	51,000
R-61	20
R-65	15,000
R-66	15,000
R-67	3,300
R-68	20
R-69	1,000,000
R-70	1000 FOR 2-3 MC
R-70	1500 FOR 3-9 MC
R-70	2000 FOR 9-12 MC
R-70	2500 FOR 12-15 MC
R-70	3500 FOR 15-18 MC
R-70	5,000 FOR 18-22 MC
R-71	126
R-72	51,000
R-73	10,000 FOR 2-3 MC
R-73	3,100 FOR 3-9 MC
R-73	10,000 FOR 9-12 MC
R-73	12,500 FOR 12-15 MC
R-73	3,900 FOR 15-18 MC

RESISTANCES CONT

SYMBOL	OHMS
R-74	15,000
R-75	51,000
R-76	120
R-77	3900
R-79	3100,000
R-80	VOLTAGE CONTROLLED
R-82	2,400
R-83	6120
R-84	6120
R-85	1000
R-86	1000
R-87	51,000
R-88	1,800
R-89	10,000
R-90	1K, 500
R-91	6120
R-92	1000,000
R-92	100,000
R-93	6120 (1.5 - 6 MC)
R-93	6120 (1.0 - 1.5 MC)
R-93	3900 (1.5 - 2.1 MC)
R-94	6200

SWITCHES

SYMBOL	DESCRIPTION
S-50	EMISSION SELECTOR
S-51	POWER ON OFF
S-52	TRAN SELECTOR
S-54	METER SELECTION
S-55	TEST KEY
S-56	TEST KEY

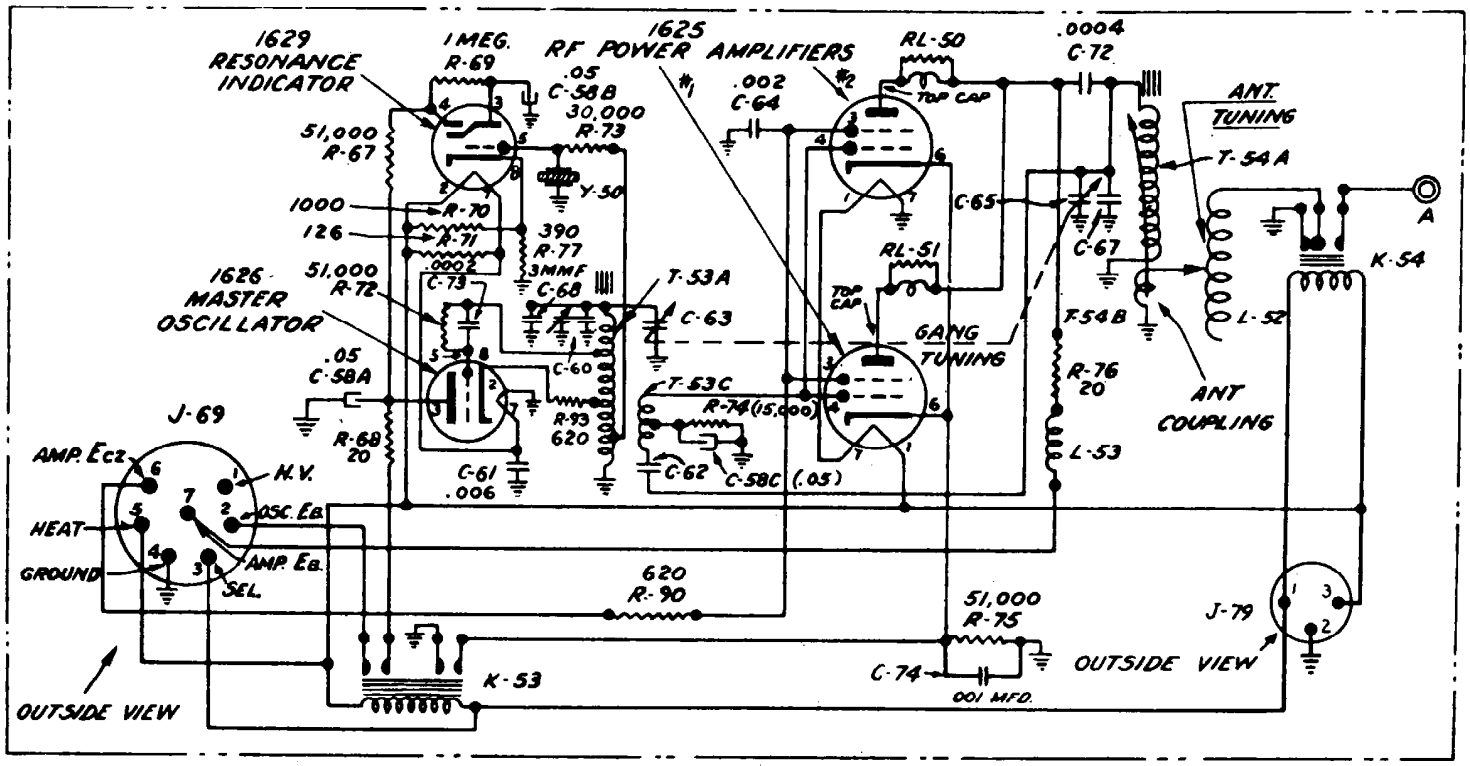
TRANSFORMERS

SYMBOL	DESCRIPTION
T-53	MASTER OSC
T-54	TRANS. OUTPUT
T-55	ANT CURRENT
T-56	MICROPHONE
T-57	TONE OSC.
T-58	MODULATION

MISCELLANEOUS

SYMBOL	DESCRIPTION
TC-50	THERMOCOUPLE
M-50	ANT. CURRENT INDICATOR (LOCAL)
Y-50	CRYSTAL UNIT
F-50	20 A FUSE
F-51	20 A FUSE
RL-50	PARASITIC SUPPRESSOR
RL-51	PARASITIC SUPPRESSOR

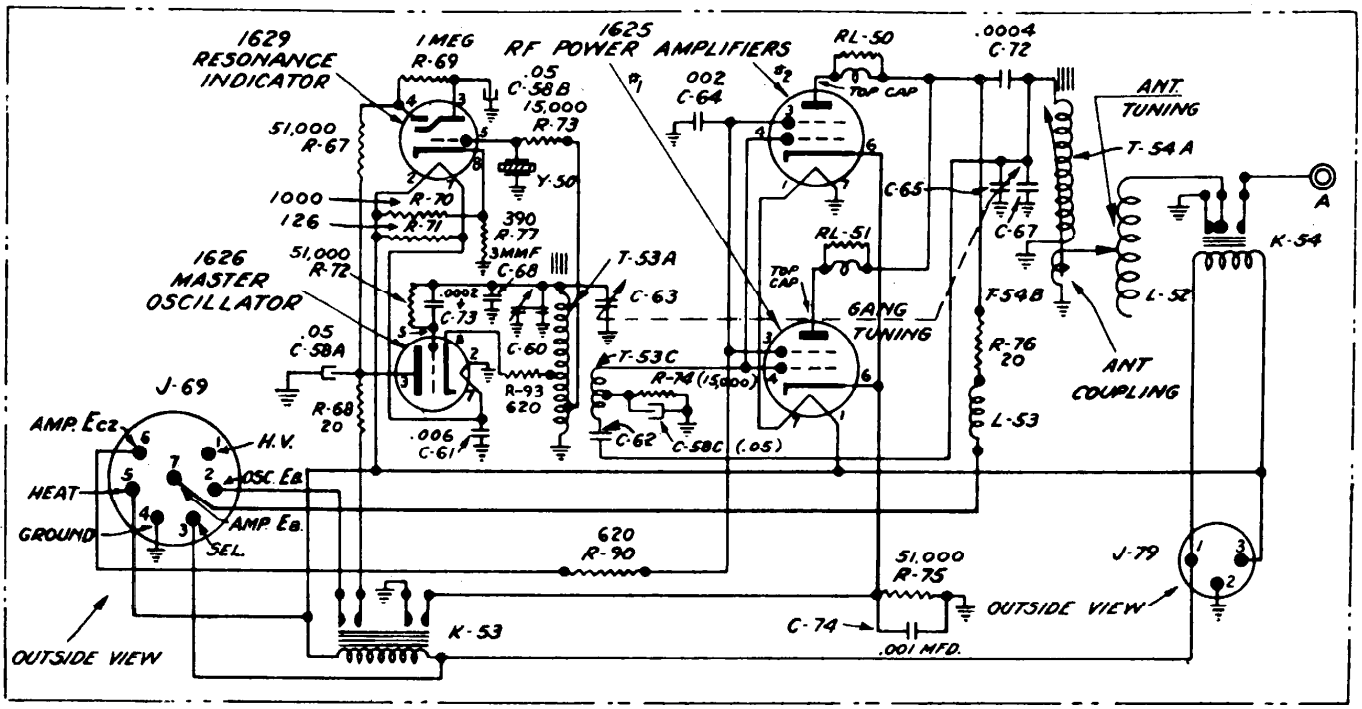
Figure 8–5. Radio Transmitting Equipment, Schematic and External Wiring Diagram



NOTES

1. RESISTANCES ARE IN OHMS EXCEPT WHERE SHOWN AS "MEG" FOR MEGOHMS.
2. CAPACITANCES ARE IN MICROFARADS EXCEPT WHERE SHOWN AS "MMF" FOR MICROMICROFARADS.

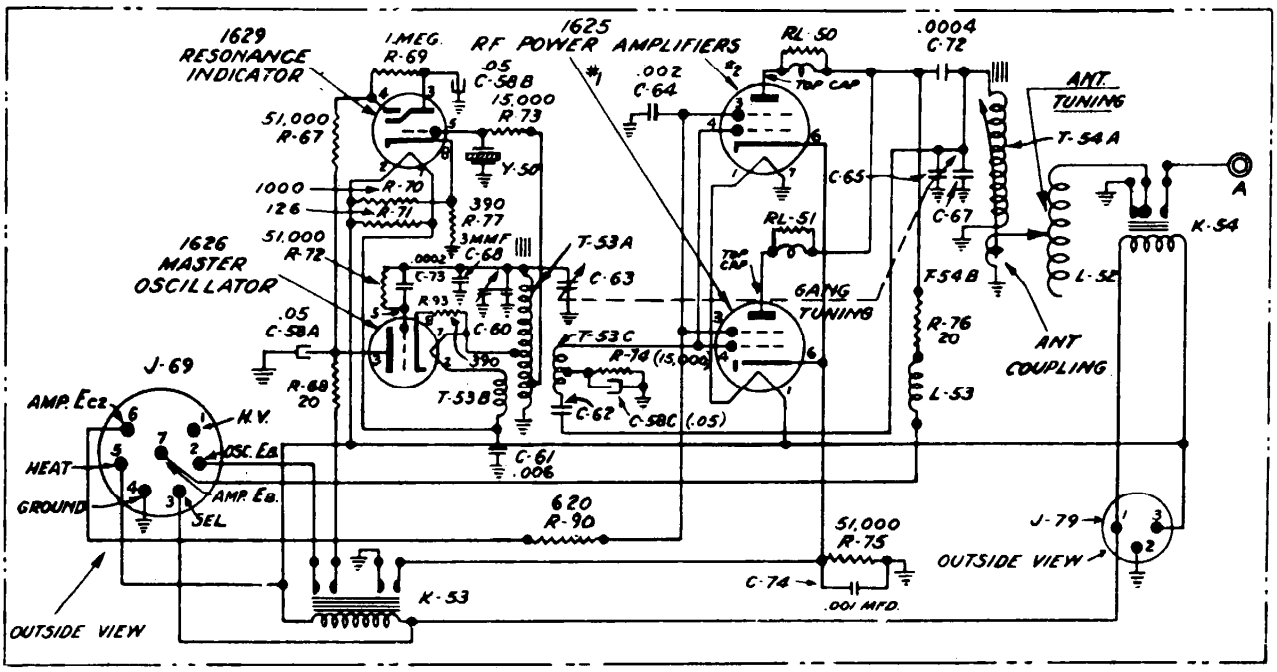
Figure 8–6. Radio Transmitter T-15/ARC-5, Schematic Diagram



NOTES

1. RESISTANCES ARE IN OHMS EXCEPT WHERE SHOWN AS "MEG" FOR MEGOHMS.
2. CAPACITANCES ARE IN MICROFARADS EXCEPT WHERE SHOWN AS "MMF" FOR MICROMICROFARADS.

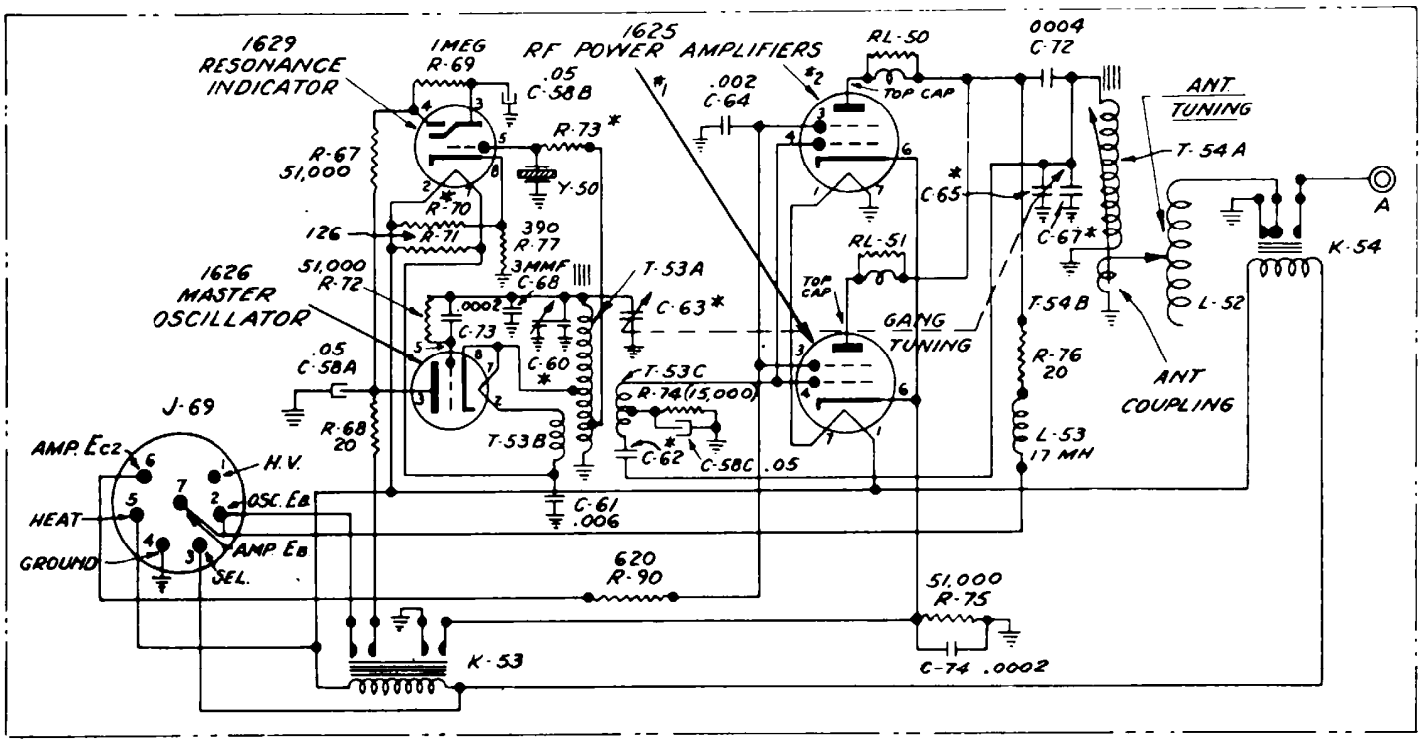
Figure 8–7. Radio Transmitter T-16/ARC-5, Schematic Diagram



NOTES:

1. RESISTANCES ARE IN OHMS EXCEPT WHERE SHOWN AS "MEG" FOR MEGOHMS.
2. CAPACITANCES ARE IN MICROFARADS EXCEPT WHERE SHOWN AS "MMF" FOR MICROMICROFARADS.

Figure 8—8. Radio Transmitter T-17/ARC-5, Schematic Diagram



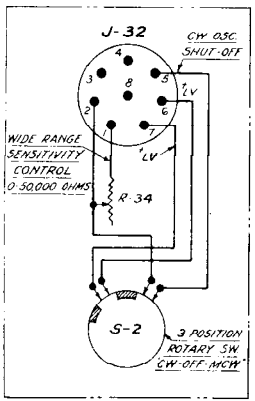
NOTES:

1. ALL RELAYS SHOWN IN NON-ENERGIZED POSITION.
2. ALL COUPLING PLUGS AND RECEPTACLES SHOWN AS VIEWED FROM THE OUTSIDE. ALL PLUGS AS VIEWED FROM THE CORDAGE END HAVE THE SAME ORIENTATION OF CONDUCTORS AS THAT SHOWN HERE FOR THEIR RESPECTIVE RECEPTACLES.
3. RESISTANCES ARE IN OHMS EXCEPT WHERE SHOWN AS "MEG" FOR MEGOHMS.
4. CAPACITANCES ARE IN MICROFARADS EXCEPT WHERE SHOWN AS "MMF" FOR MICROMICROFARADS.
5. SEE FIGURE 8-5 FOR VALUES OF PARTS SHOWN WITH ASTERISK *.

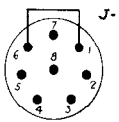
Figure 8—9. Radio Transmitters T-18/ARC-5, T-19/ARC-5, T-20/ARC-5, T-21/ARC-5, T-22/ARC-5, Schematic Diagrams

AN 16-30ARC5-2
AN 16-30ARC5-2

TYPE C-24/ARC-5
LOCAL CONTROL UNIT



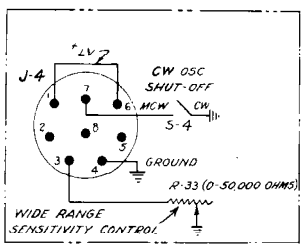
(FORMERLY TYPE CBY 23154 SWITCH PANEL)
PROVIDES WIDE RANGE SENSITIVITY CONTROL AND CW OFF-MCW SWITCH FOR LOCAL CONTROL OF LF-MF-HF RECEIVERS.



WIRED PLUG 6787

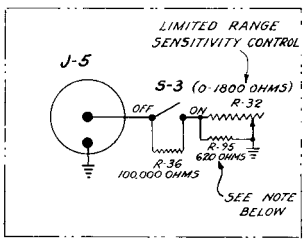
PLUGS INTO RECEIVER RACK WHEN RECEIVER IS LOCALLY CONTROLLED BY TYPE C-24/ARC-5 LOCAL CONTROL UNIT.

TYPE C-26/ARC-5
CONTROL UNIT



PROVIDES FOR TUNABLE OPERATION ON CW OR VOICE OF ANY LF-MF-HF RECEIVER. USE CABLE 6693 FOR CONNECTION TO RECEIVER RACK.

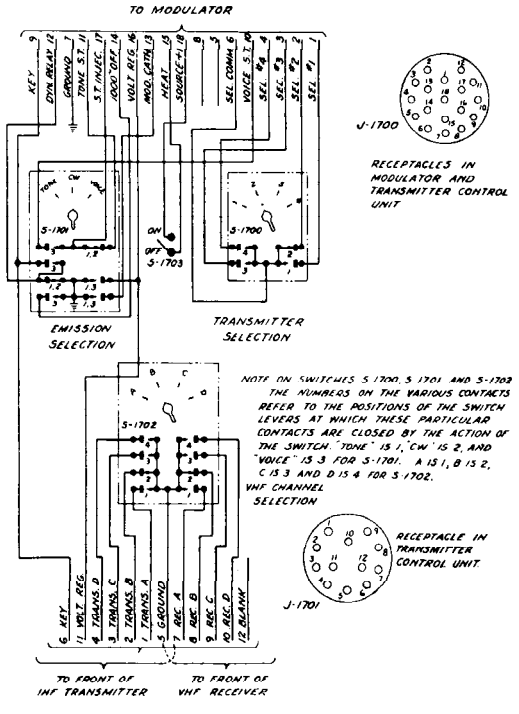
TYPE C-27/ARC-5
CONTROL UNIT



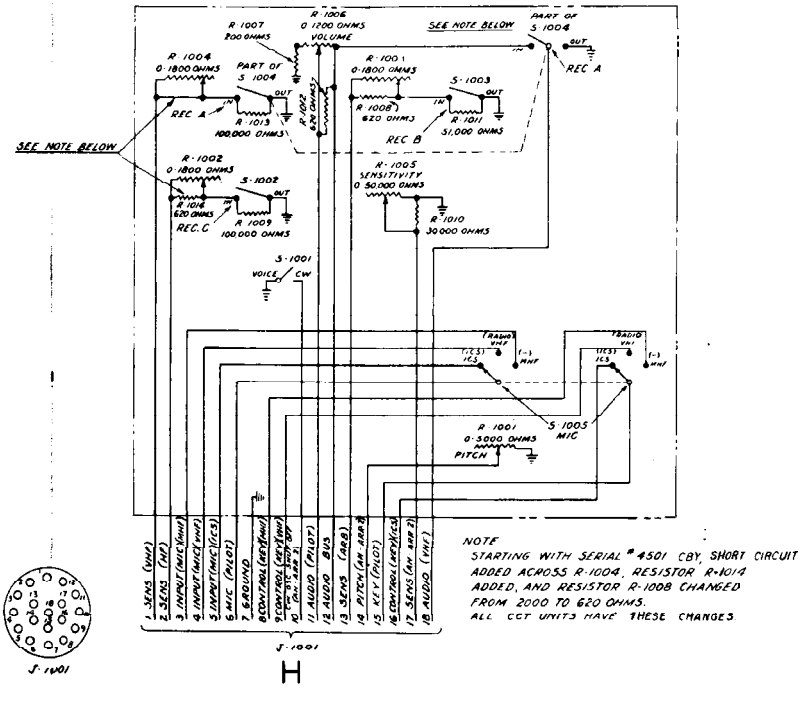
PROVIDES FOR LOCK-TUNED OPERATION ON VOICE ONLY OF RECEIVERS R-25/ARC-5, R-26/ARC-5, AND R-27/ARC-5. USE CABLE 9817 FOR CONNECTION TO RECEIVER RACK.

NOTE:
R-95 NOT IN UNITS ON CONTRACT NXsa 3284

Figure 8-10. Control Units C-24/ARC-5, C-26/ARC-5, and C-27/ARC-5, Schematic Diagrams



TYPE C-30A/ARC-5
TRANSMITTER CONTROL UNIT

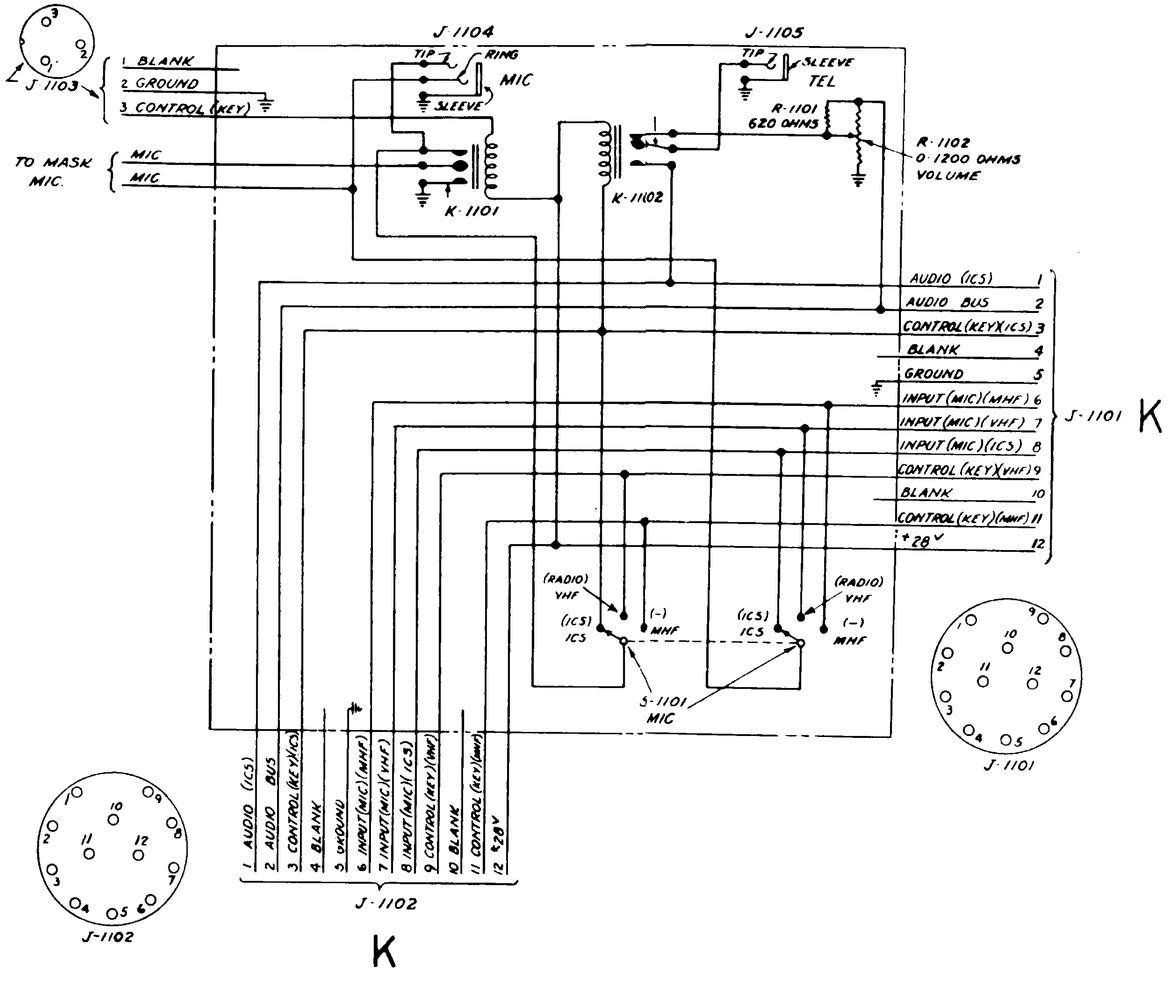


NOTE
STARTING WITH SERIAL # 4501 CBY, SHORT CIRCUIT ADDED ACROSS R-1004; RESISTOR R-1014 ADDED, AND RESISTOR R-1008 CHANGED FROM 2000 TO 620 OHMS. ALL CCT UNITS HAVE THESE CHANGES.

TYPE C-38/ARC-5
MAIN CONTROL UNIT

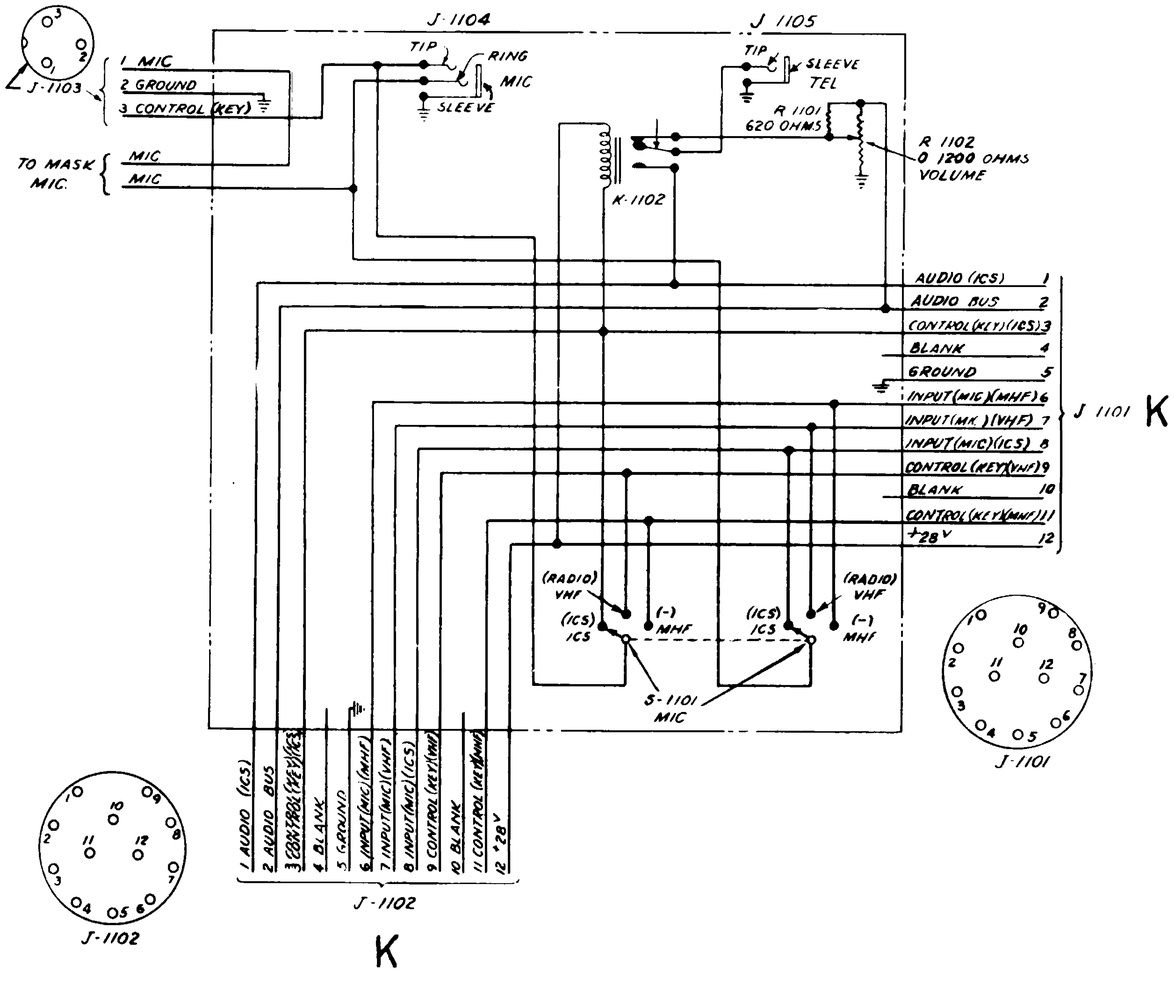
Figure 8—11. Control Units C-30A/ARC-5 and C-38/ARC-5, Schematic Diagrams

AN 16-30ARC5-2



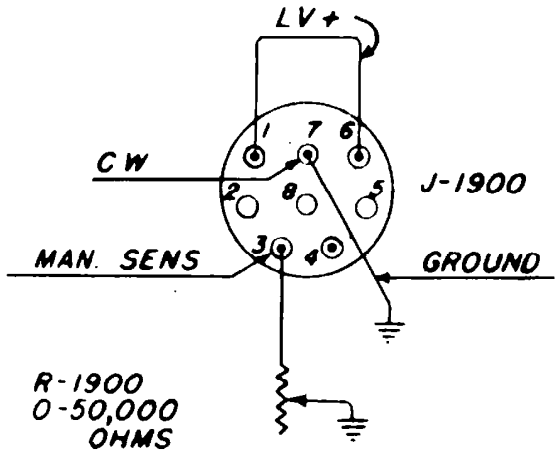
TYPE C-48/ARC-5
AUXILIARY CONTROL UNIT

AN 16-30ARC5-2

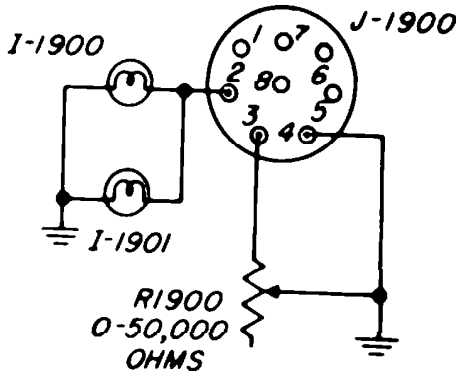


TYPE C-39/ARC-5
AUXILIARY CONTROL UNIT

AN 16-30ARC5-2



TYPE C-125/ARC-5
CONTROL PANEL



TYPE C-744/ARC-5
CONTROL PANEL

Figure 8—13. Control Units C-125/ARC-5 and C-744/ARC-5, Schematic Diagrams

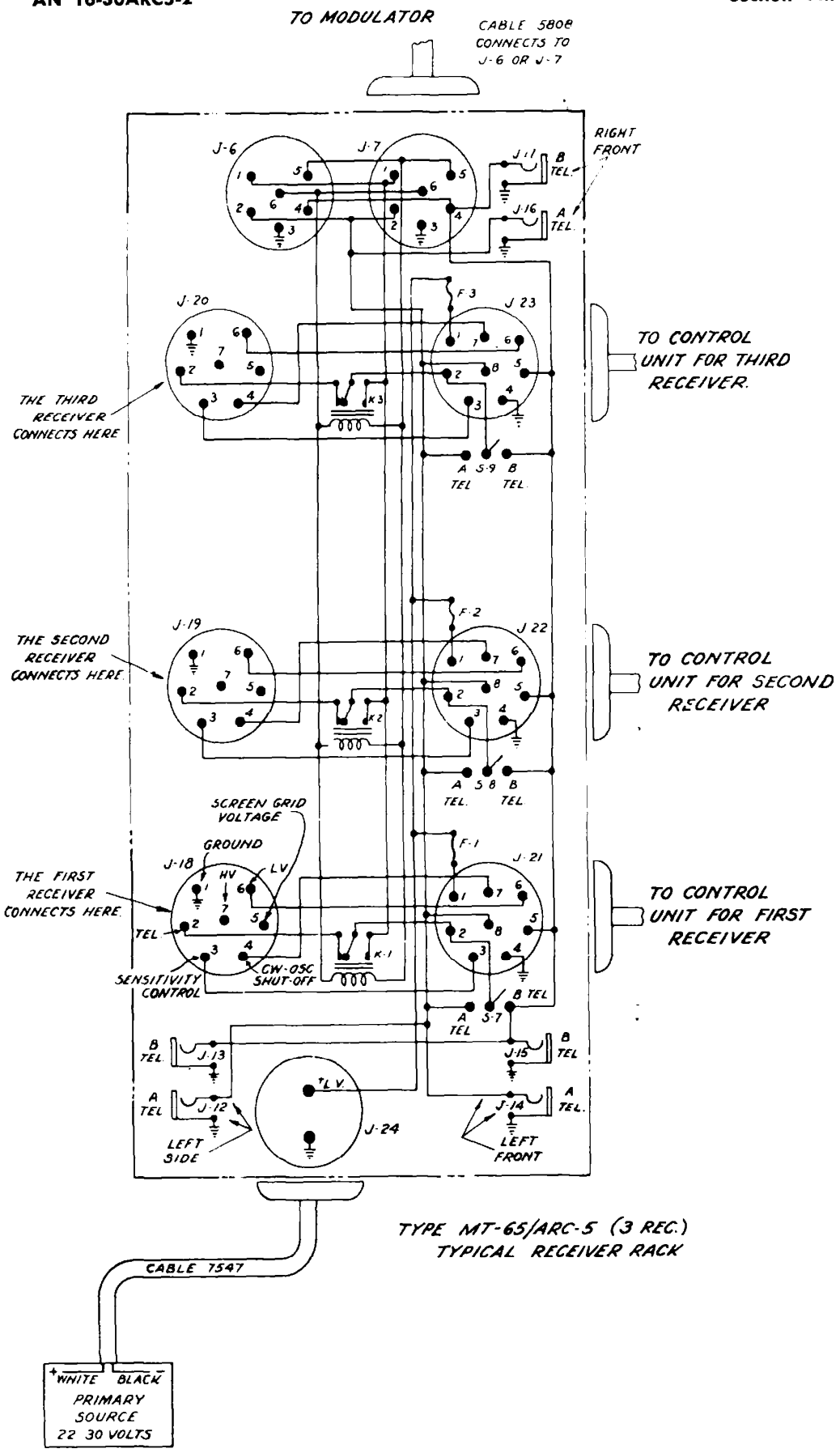
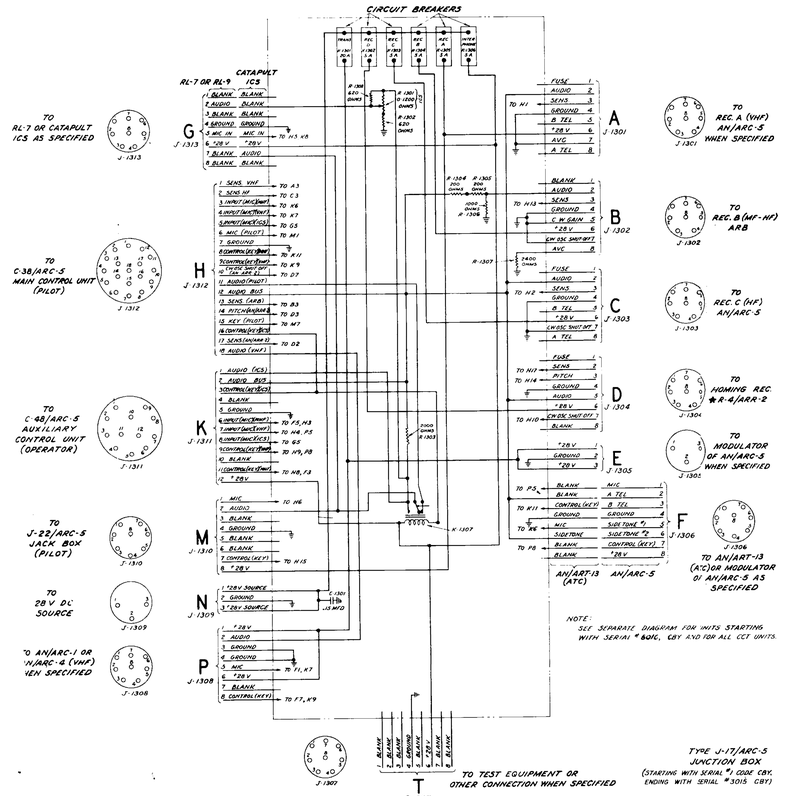
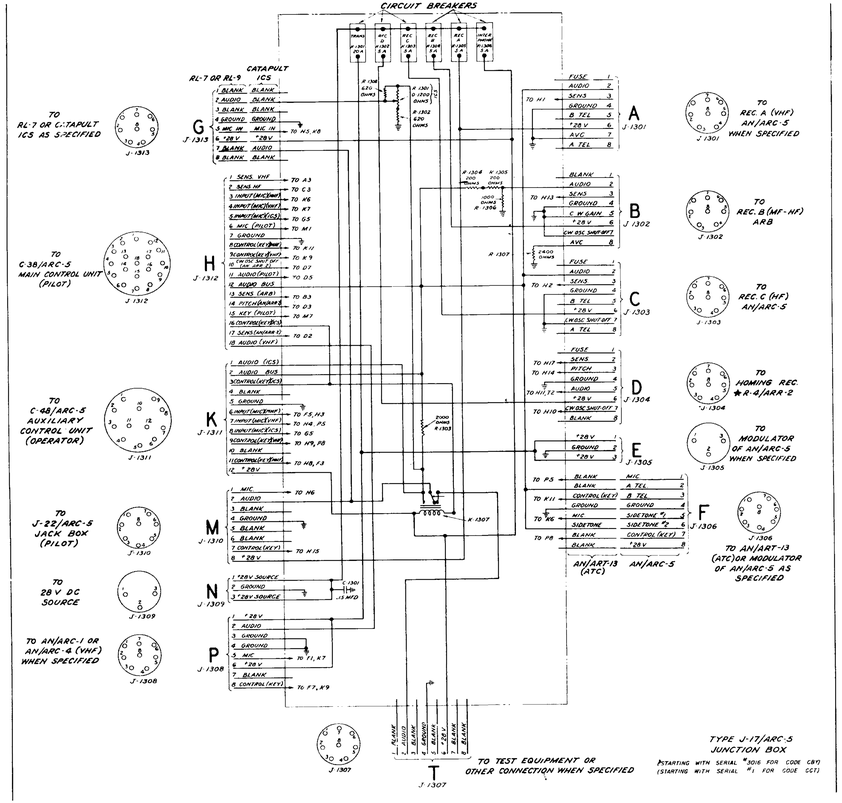


Figure 8—14. Rack MT-65/ARC-5, Schematic Diagram



AN 16-30ARC5-2



AN 16-30ARC5-2

AN 16-30ARC5-2

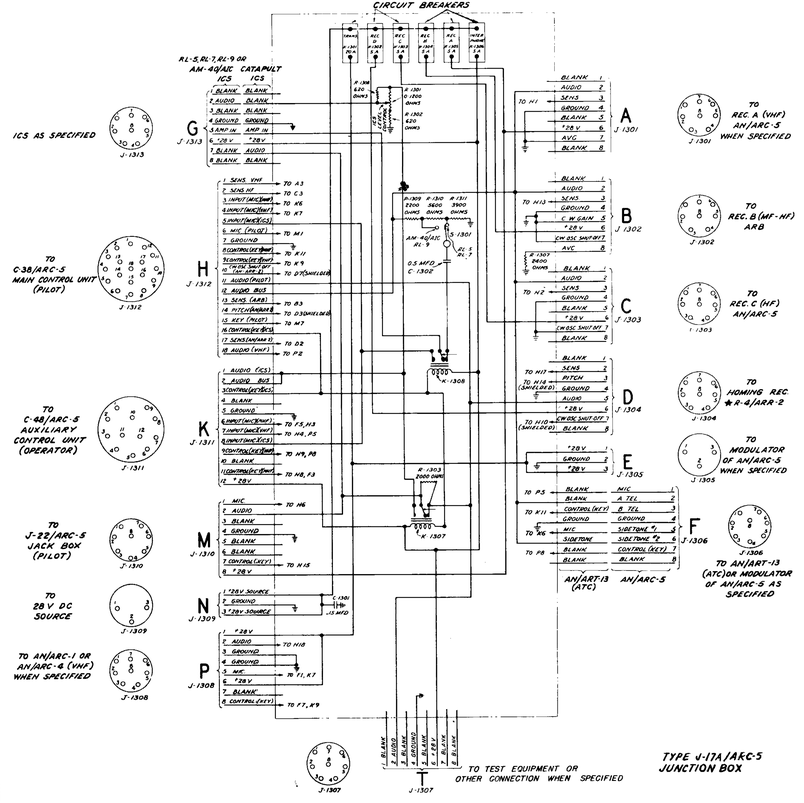
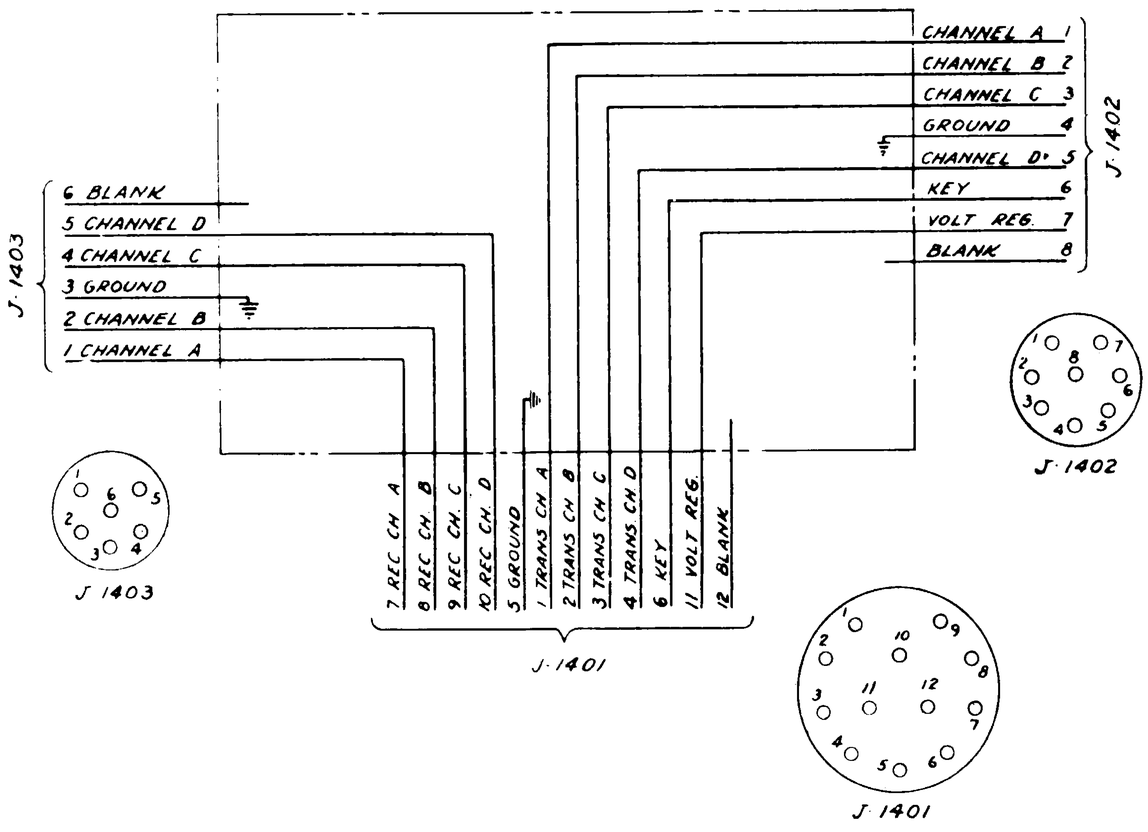


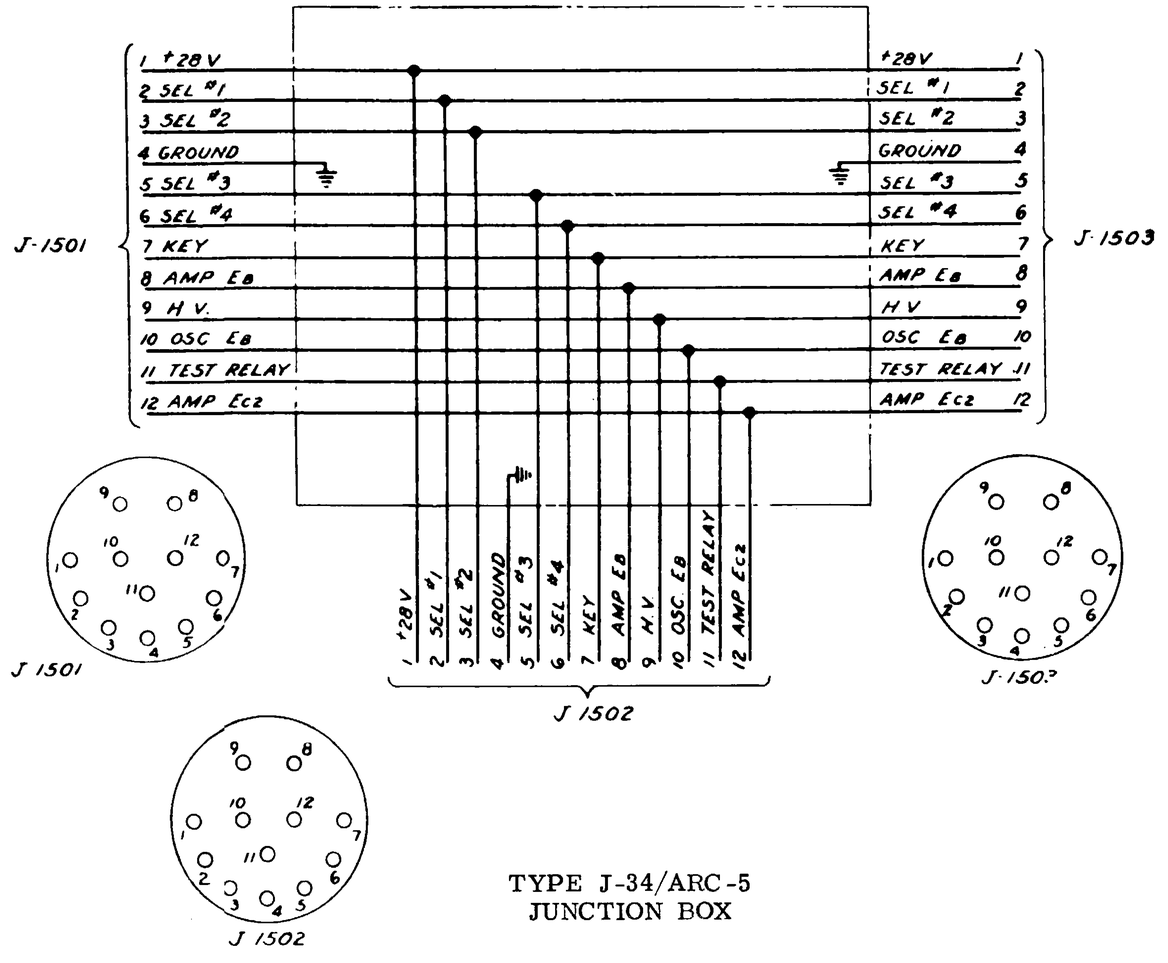
Figure 8—15. Junction Boxes J-17/ARC-5 and J-17A/ARC-5, Schematic Diagrams

AN 16-30ARC5-2



TYPE J-28/ARC-5
JUNCTION BOX

AN 16-30ARC5-2

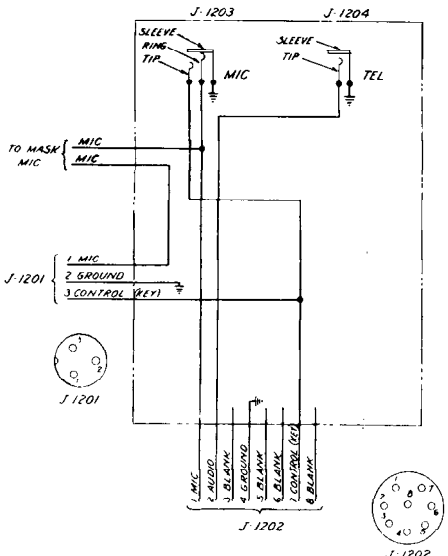


TYPE J-34/ARC-5
JUNCTION BOX

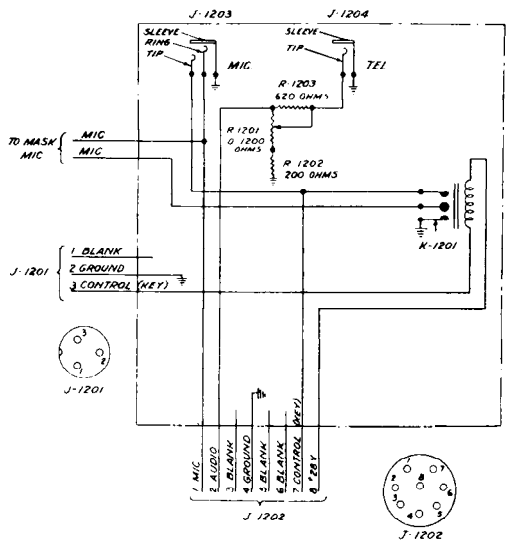
Figure 8—16. Junction Boxes J-28/ARC-5 and J-34/ARC-5, Schematic Diagrams

AN 16-30ARC5-2

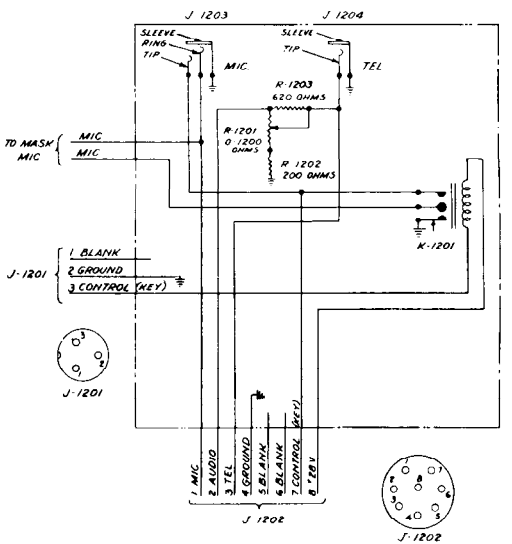
AN 16-30ARC5-2



TYPE J-16/ARC-5
JACK BOX



TYPE J-22A/ARC-5
JACK BOX

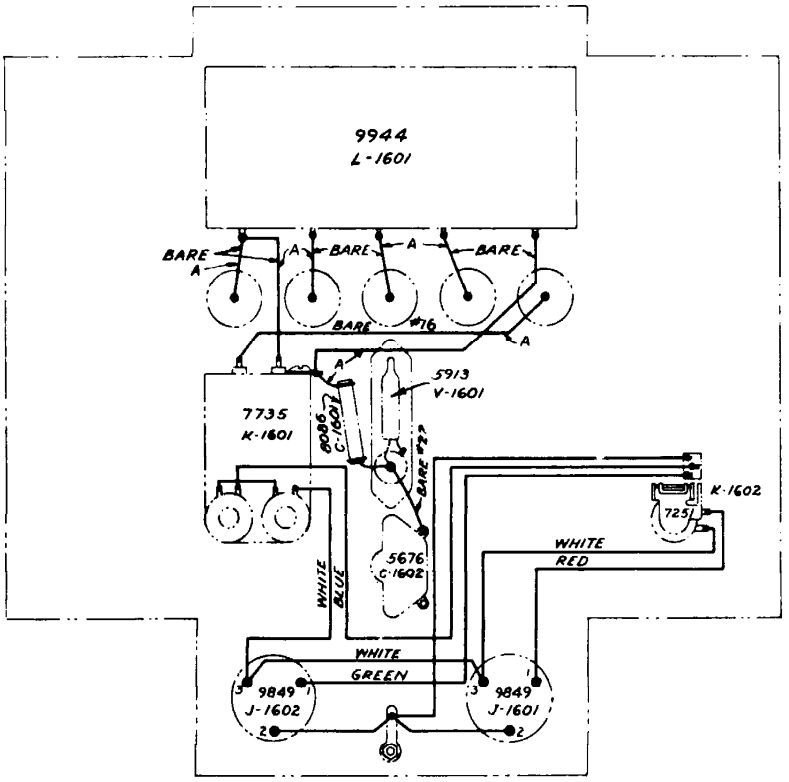


TYPE J-22B/ARC-5
JACK BOX

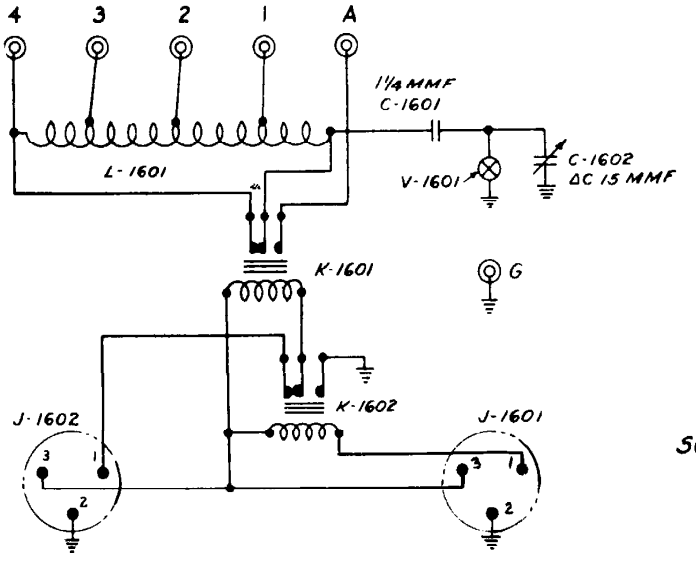
NOTES:

1. ALL BARE WIRES TO BE TINNED COPPER, #18 EXCEPT AS NOTED.
2. ALL INSULATED WIRES TO BE SOLID COPPER (SPEC. #3425) WITH BLACK INSULATION EXCEPT AS NOTED.
3. USE ROSIN FLUX ONLY FOR ALL SOLDERING.
4. LEADS MARKED "A" MUST BE SO DRESSED AS TO MAINTAIN AT LEAST 5/16" CLEARANCE TO OTHER CONDUCTORS AND TO GROUNDED PARTS.
5. SOLDER TERMINATION OF BARE LEADS "A" MUST BE SMOOTHLY ROUNDED TO AVOID ALL SHARP PROJECTIONS, BARE LEADS MUST NOT BE MARREL IN SUCH A WAY AS TO LEAVE SHARP EDGES OR POINTS.

WIRING DIAGRAM
TN-6/ARC-5
ANTENNA LOADING COIL



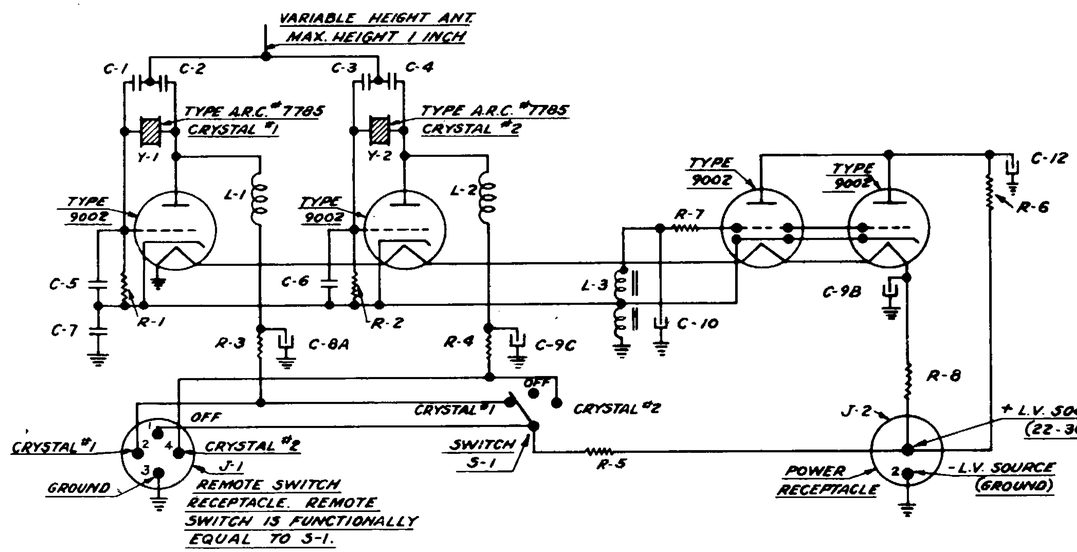
VIEW FROM REAR OF UNIT

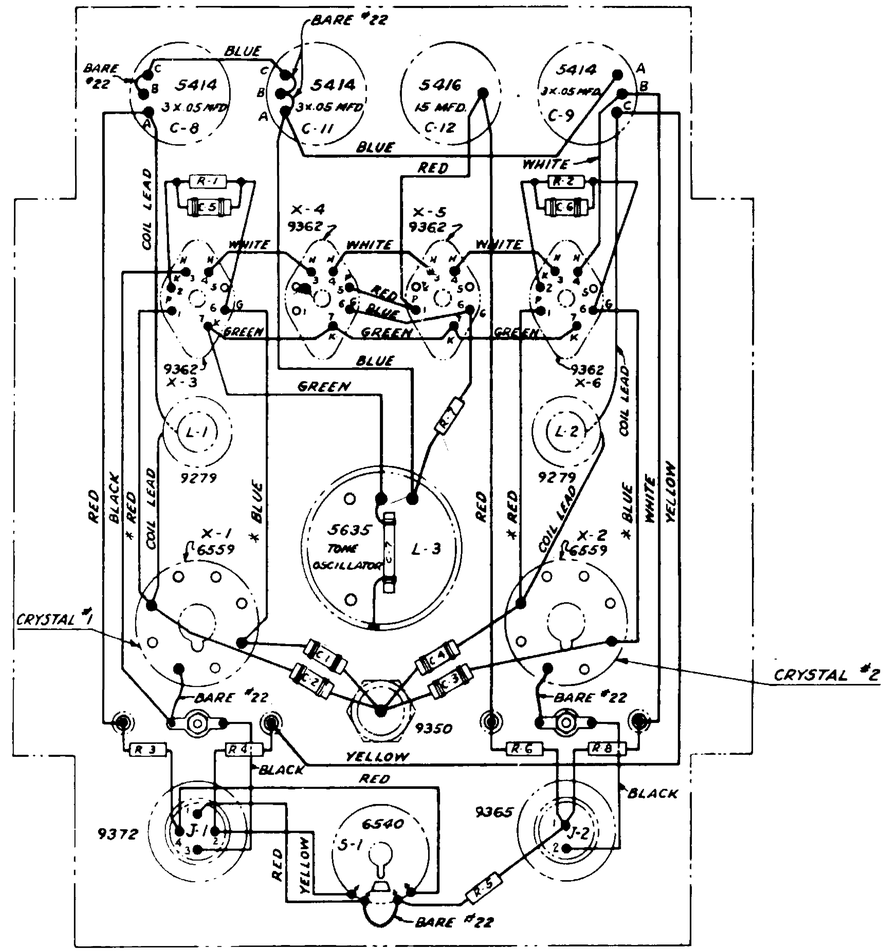


SCHEMATIC CIRCUIT DIAGRAM
TN-6/ARC-5
ANTENNA LOADING COIL

Figure 8—18. Antenna Loading Coil TN-6/ARC-5, Schematic and Wiring Diagrams

AN 16-30ARC5-2
AN 16-30ARC5-2





RESISTORS		ARC PART NO.
R-1, R-2	100,000 OHMS	4501
R-3, R-4, R-5, R-6	200 OHMS	4497
R-7	1,500 OHMS	4506
R-8	15 OHMS	8063

INDUCTORS		ARC PART NO.
L-1, L-2	CHOKE	9279
L-3	TONE OSC.	5635

CAPACITORS		ARC PART NO.
*C-1, C-2, C-3, C-4	3 MMF	7020
C-5, C-6	11 MMF	9046
C-7	200 MMF	4513
C-8 A,B,C	3 X .05 MFD	5414
C-9 A,B,C	3 X .05 MFD	5414
C-10	0.3 MFD (CONSISTING OF C-8B,C + C-9A + C-11 A,B,C)	
C-11 A,B,C	3 X .05 MFD	5414
C-12	15 MFD	5416

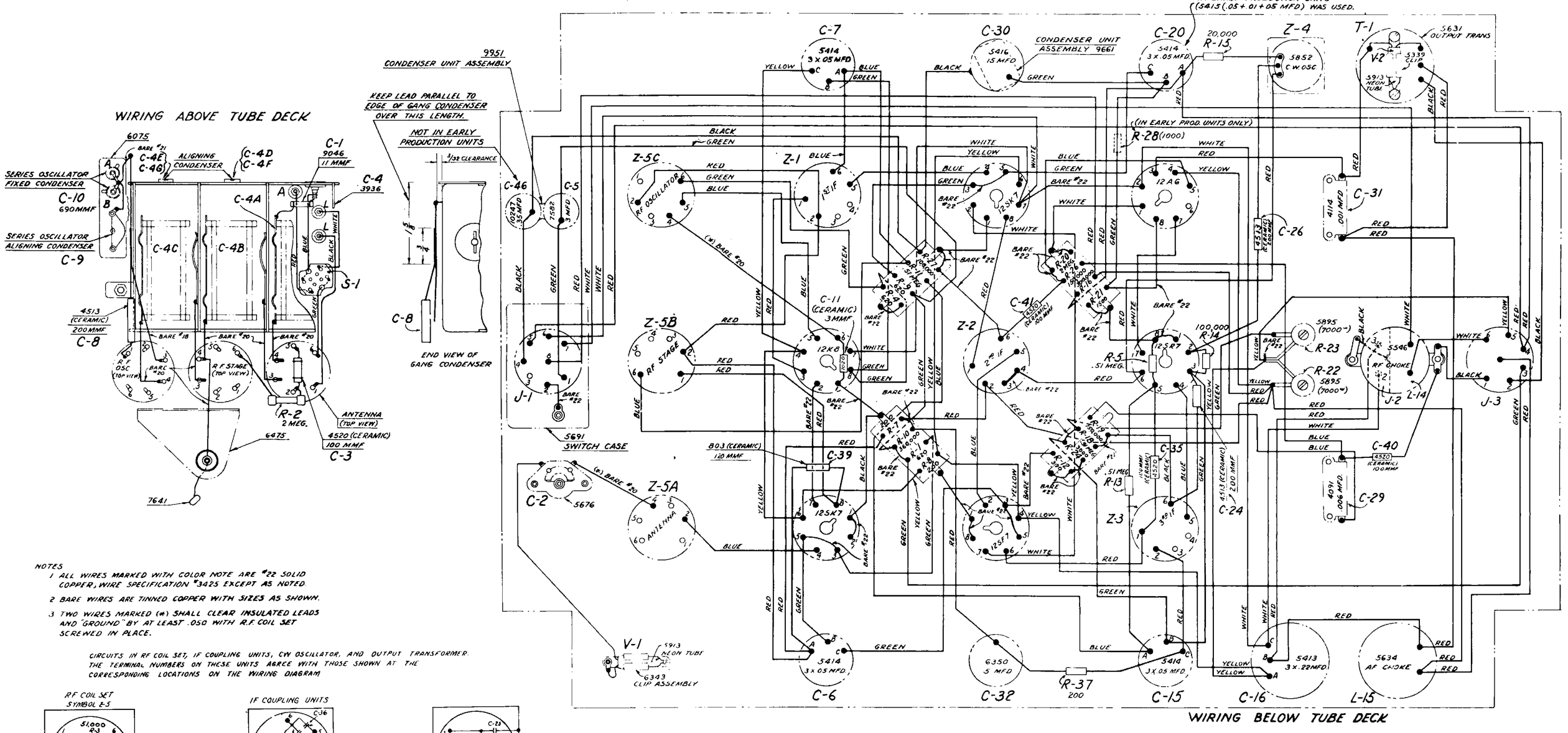
MISCELLANEOUS		ARC PART NO.
SOCKET	X-1, X-2	6559
SOCKET	X-3, X-4, X-5, X-6	9362
RECEPTACLE	J-1	9372
RECEPTACLE	J-2	9365
SWITCH	S-1	6540
VAR. ANT. ASSEM.		9350
TUBES	RCA TYPE #9002	
CRYSTAL	Y-1, Y-2 (SPECIFY FREQUENCY)	7785

NOTES

1. ALL WIRES MARKED WITH COLOR NOTE ARE #22 SOLID COPPER; WIRE SPECIFICATION #9275 EXCEPT AS NOTED.
2. BARE WIRES ARE TINNED COPPER WITH SIZES AS SHOWN
3. KEEP LEAD FROM R-7 RESISTOR AWAY FROM EDGE OF TONE OSCILLATOR CAN BY AT LEAST 1/8 INCH
4. KEEP LEADS MARKED (*) SHORT AND AWAY FROM OTHER LEADS.

* 5. CONDENSERS C-1 & C2 MUST NOT DIFFER IN CAPACITY BY MORE THAN 0.2 MMF, CONDENSERS C-3 & C-4 MUST BE SIMILARLY MATCHED.

Figure 8-19. Crystal Frequency Generator O-4/ARC-5, Schematic and Wiring Diagrams

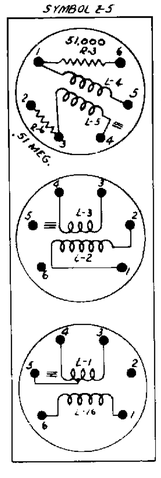


NOTES

1. ALL WIRES MARKED WITH COLOR NOTE ARE #22 SOLID COPPER, WIRE SPECIFICATION #3425 EXCEPT AS NOTED.
2. BARE WIRES ARE TINNED COPPER WITH SIZES AS SHOWN.
3. TWO WIRES MARKED (*) SHALL CLEAR INSULATED LEADS AND "GROUND" BY AT LEAST .050 WITH R.F. COIL SET SCREWED IN PLACE.

CIRCUITS IN RF COIL SET, IF COUPLING UNITS, CW OSCILLATOR, AND OUTPUT TRANSFORMER. THE TERMINAL NUMBERS ON THESE UNITS AGREE WITH THOSE SHOWN AT THE CORRESPONDING LOCATIONS ON THE WIRING DIAGRAM

RF COIL SET SYMBOL Z-5

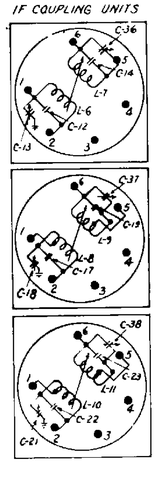


SYMBOL Z-5C RF OSCILLATOR

SYMBOL Z-5B RF AMPLIFIER

SYMBOL Z-5C RF ANTENNA

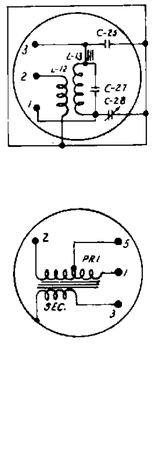
IF COUPLING UNITS



SYMBOL Z-1 1ST IF (85 KC)

SYMBOL Z-2 2ND IF (85 KC)

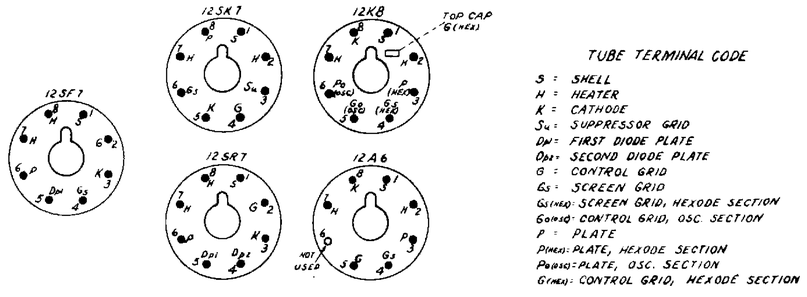
SYMBOL Z-3 3RD IF (85 KC)



SYMBOL Z-4 CW OSCILLATOR (85 KC)

SYMBOL T-1 OUTPUT TRANSFORMER

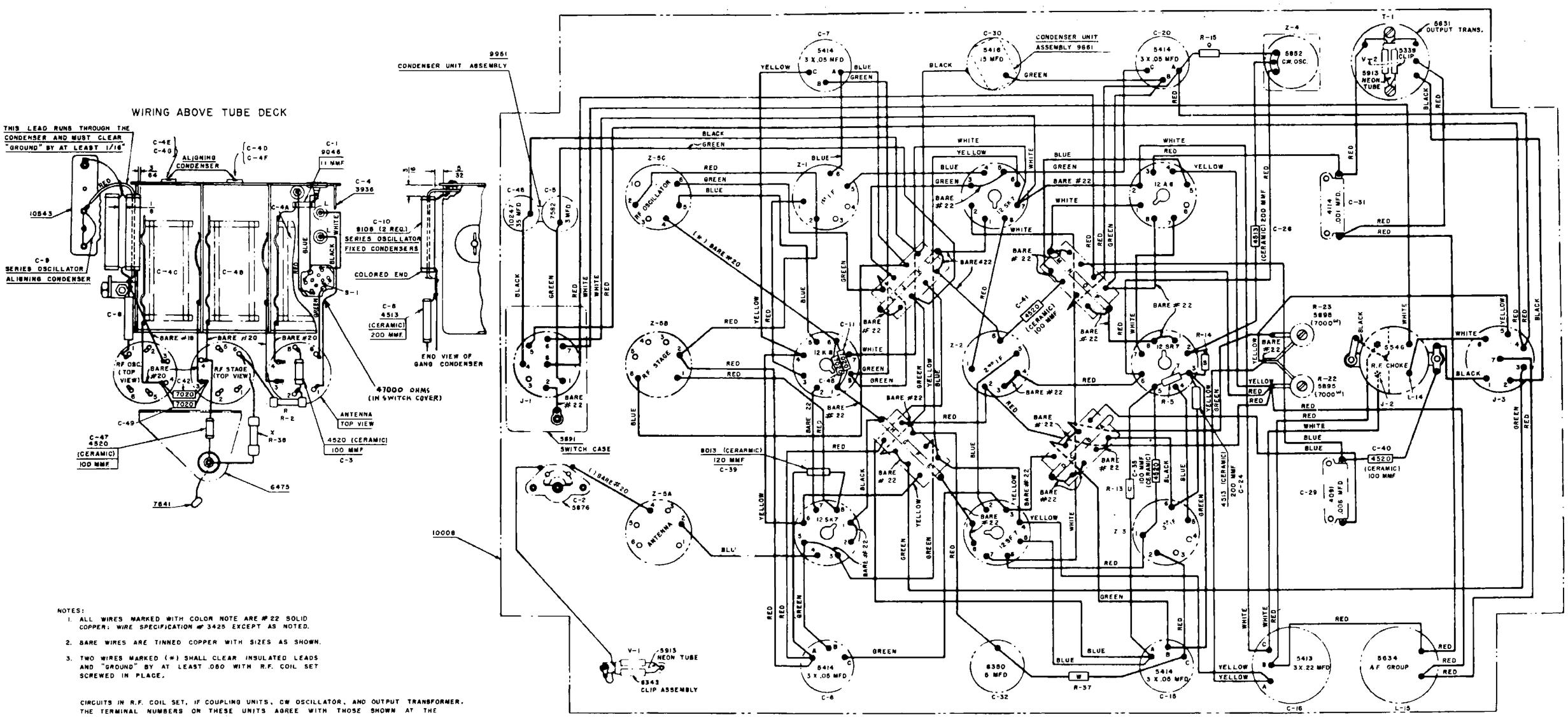
TUBE SOCKET TERMINALS AS VIEWED FROM BOTTOM



TUBE TERMINAL CODE

- S = SHELL
- H = HEATER
- K = CATHODE
- S_u = SUPPRESSOR GRID
- D_M = FIRST DIODE PLATE
- D_{D2} = SECOND DIODE PLATE
- G = CONTROL GRID
- G_S = SCREEN GRID
- $G_{S(MEA)}$: SCREEN GRID, HEXODE SECTION
- G_{OSC}: CONTROL GRID, OSC. SECTION
- P = PLATE
- $P_{(MEA)}$: PLATE, HEXODE SECTION
- P_{OSC}: PLATE, OSC. SECTION
- $G_{(MEA)}$: CONTROL GRID, HEXODE SECTION

Figure 8—20. Radio Receiver R-23/ARC-5, Wiring Diagram

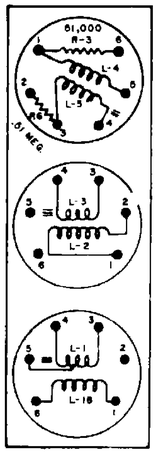


NOTES:

1. ALL WIRES MARKED WITH COLOR NOTE ARE #22 SOLID COPPER; WIRE SPECIFICATION # 3425 EXCEPT AS NOTED.
2. BARE WIRES ARE TINNED COPPER WITH SIZES AS SHOWN.
3. TWO WIRES MARKED (*) SHALL CLEAR INSULATED LEADS AND "GROUND" BY AT LEAST .080 WITH R.F. COIL SET SCREWED IN PLACE.

CIRCUITS IN R.F. COIL SET, IF COUPLING UNITS, CW OSCILLATOR, AND OUTPUT TRANSFORMER. THE TERMINAL NUMBERS ON THESE UNITS AGREE WITH THOSE SHOWN AT THE CORRESPONDING LOCATIONS ON THE WIRING DIAGRAM.

R.F. COIL SET SYMBOL Z-5

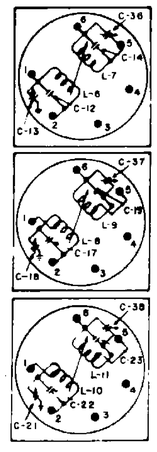


SYMBOL Z-5C R.F. OSCILLATOR

SYMBOL Z-5B R.F. AMPLIFIER

SYMBOL Z-5A R.F. ANTENNA

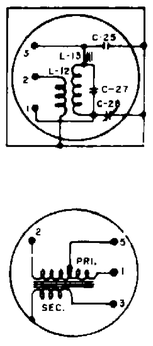
I.F. COUPLING UNITS



SYMBOL Z-1 1ST I.F. (85 KC)

SYMBOL Z-2 2ND I.F. (85 KC)

SYMBOL Z-3 3RD I.F. (85 KC)

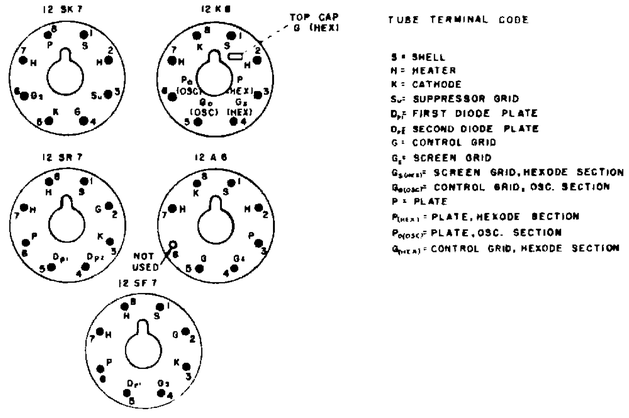


SYMBOL Z-4 C.W. OSCILLATOR (85 KC)

SYMBOL T-1 OUTPUT TRANSFORMER

SYMBOL	LOCATION	A.R.C. DWG OF RESISTOR	OHMS	SYMBOL	LOCATION	A.R.C. DWG OF RESISTOR	OHMS
R-19	A	4571	150,000	R-21	P	4136	1,000
R-18	B	4570	510,000	R-15	Q	4510	20,000
R-24	C	8073	3,000	R-2	R	4439	2,000,000
R-12	D	6006	390	R-14	S	4501	100,000
R-8	E	4497	200	R-5	T	4570	510,000
R-1	F	4136	1,000	R-13	U	4503	2,000,000
R-10	G	8032	360,000				
R-7	H	4497	200	R-37	W	4497	200
R-4	I	4136	1,000	R-38	X	4439	2,000,000
R-9	J	4136	1,000				
R-11	K	4570	510,000				
R-27	L	4501	100,000				
R-20	M	4503	2,000,000				
R-26	N	4571	150,000				
R-16	O	4530	300,000				

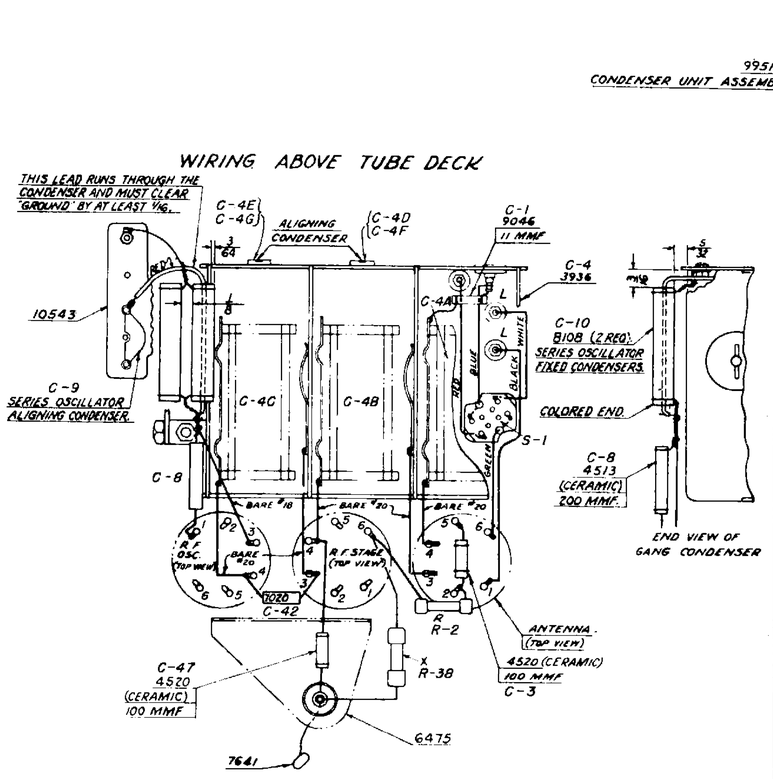
TUBE SOCKET TERMINALS AS VIEWED FROM BOTTOM

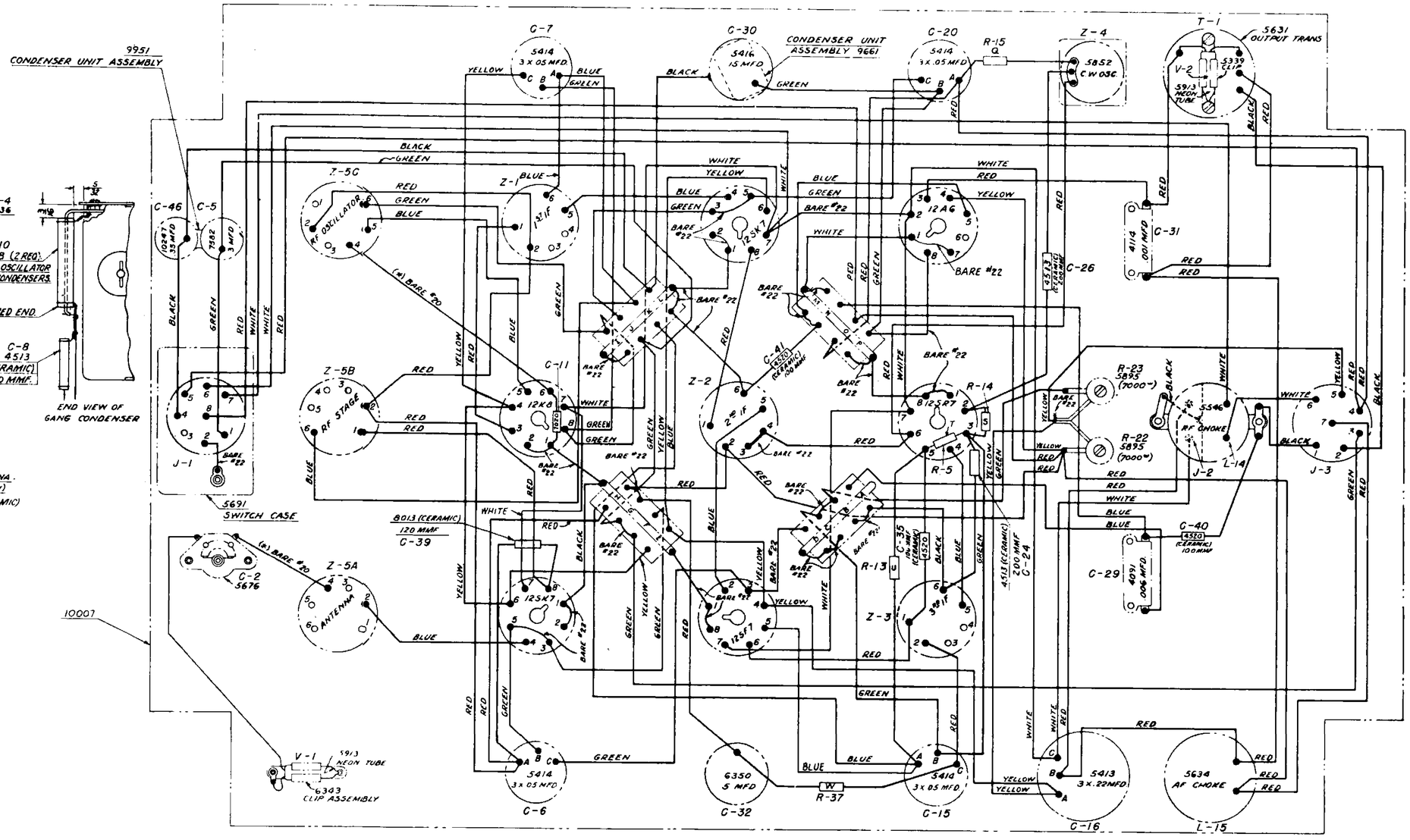


TUBE TERMINAL CODE

S = SHELL
H = HEATER
K = CATHODE
S_u = SUPPRESSOR GRID
D_pF = FIRST DIODE PLATE
D_pE = SECOND DIODE PLATE
G = CONTROL GRID
G_s = SCREEN GRID
$G_{s(HEX)}$ = SCREEN GRID, HEXODE SECTION
$G_{(OSC)}$ = CONTROL GRID, OSC. SECTION
P = PLATE
$P_{(HEX)}$ = PLATE, HEXODE SECTION
$P_{(OSC)}$ = PLATE, OSC. SECTION
$G_{(HEX)}$ = CONTROL GRID, HEXODE SECTION

Figure 8—21. Radio Receiver R-23A/ARC-5, Wiring Diagram





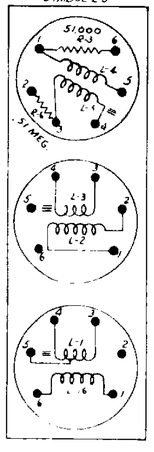
WIRING BELOW TUBE DECK

NOTES.

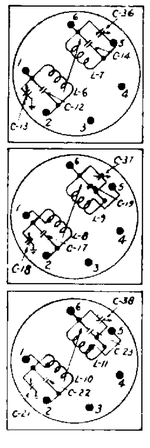
1. ALL WIRES MARKED WITH COLOR NOTE ARE #22 SOLID COPPER, WIRE SPECIFICATION #3425 EXCEPT AS NOTED
2. BARE WIRES ARE TINNED COPPER WITH SIZES AS SHOWN.
3. TWO WIRES MARKED (#) SMALL CLEAR INSULATED LEADS AND "GROUND" BY AT LEAST .050 WITH RF COIL SET SCREWED IN PLACE.

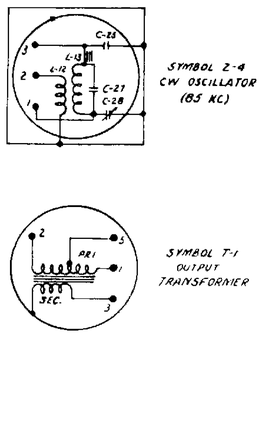
CIRCUITS IN RF COIL SET, IF COUPLING UNITS, CW OSCILLATOR AND OUTPUT TRANSFORMER. THE TERMINAL NUMBERS ON THESE UNITS AGREE WITH THOSE SHOWN AT THE CORRESPONDING LOCATIONS ON THE WIRING DIAGRAM

RF COIL SET SYMBOL Z-5



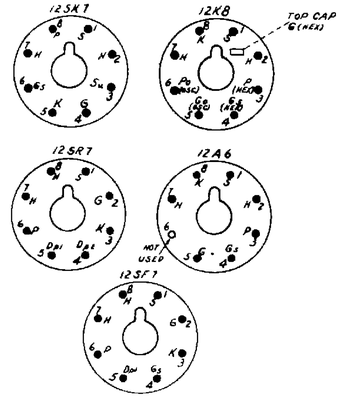
IF COUPLING UNITS





SYMBOL	LOCATION	A.R.C. DWG. OF RESISTOR	OHMS	SYMBOL	LOCATION	A.R.C. DWG. OF RESISTOR	OHMS
R-19	A	4571	150,000	R-21	P	4136	1,000
R-18	B	4570	510,000	R-15	Q	4510	20,000
R-24	C	8073	3,000	R-2	R	4439	2,000,000
R-12	D	6006	390	R-14	S	4501	100,000
R-8	E	4497	200	R-5	T	4570	510,000
R-1	F	4136	1,000	R-13	U	4503	2,000,000
R-10	G	8032	360,000				
R-7	H	4497	200	R-37	W	4497	200
R-4	I	4136	1,000	R-38	X	4439	2,000,000
R-9	J	4136	1,000				
R-11	K	4570	510,000				
R-27	L	4501	100,000				
R-20	M	4503	2,000,000				
R-26	N	4571	150,000				
R-16	O	4530 *	300,000				

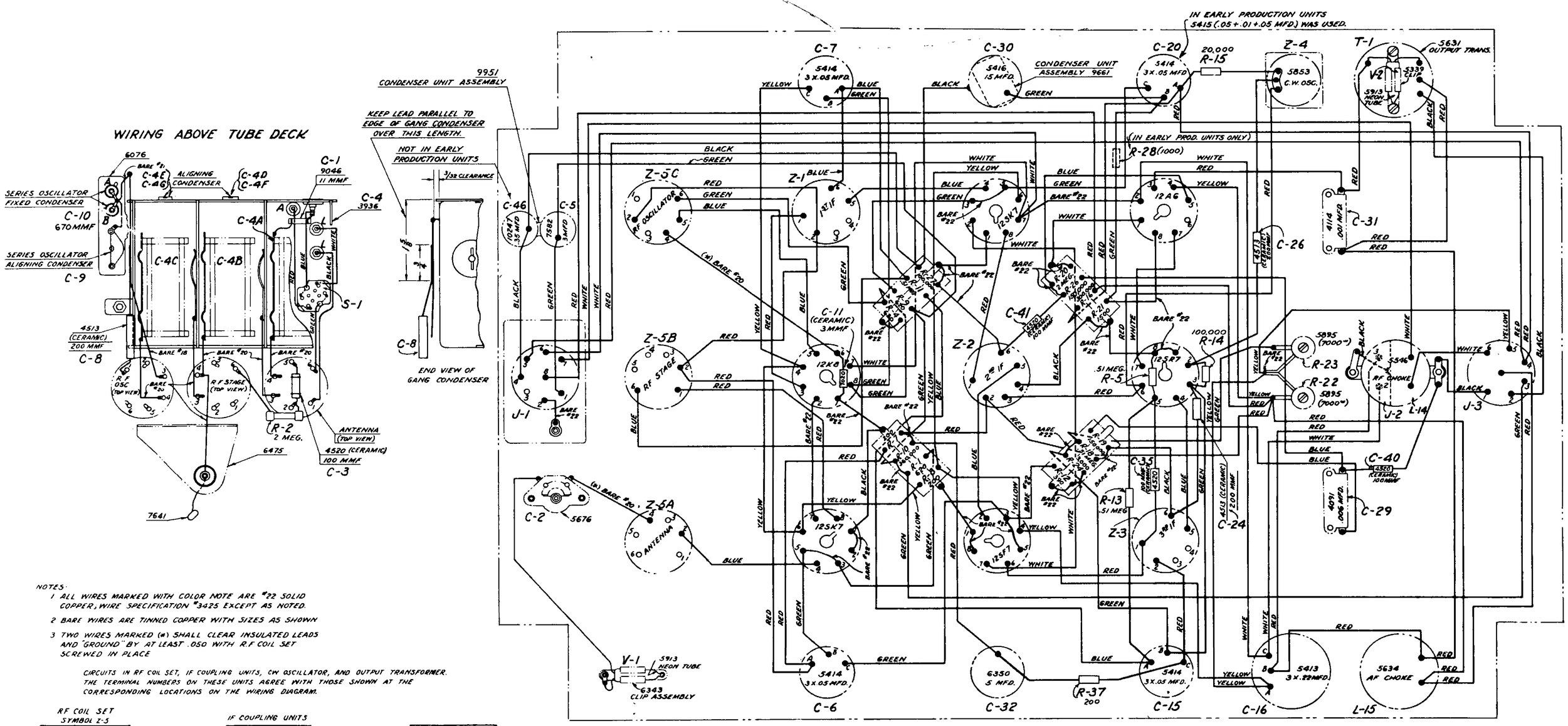
TUBE SOCKET TERMINALS AS VIEWED FROM BOTTOM



TUBE TERMINAL CODE

- S = SHELL
- H = HEATER
- K = CATHODE
- S_4 = SUPPRESSOR GRID
- D_M = FIRST DIODE PLATE
- D_{M2} = SECOND DIODE PLATE
- G = CONTROL GRID
- G_2 = SCREEN GRID
- $G_{2(HEX)}$ = SCREEN GRID, HEXODE SECTION
- $G_{1(OSC)}$ = CONTROL GRID, OSC SECTION
- P = PLATE
- $P_{(HEX)}$ = PLATE, HEXODE SECTION
- $P_{(OSC)}$ = PLATE, OSC SECTION
- $G_{(HEX)}$ = CONTROL GRID, HEXODE SECTION

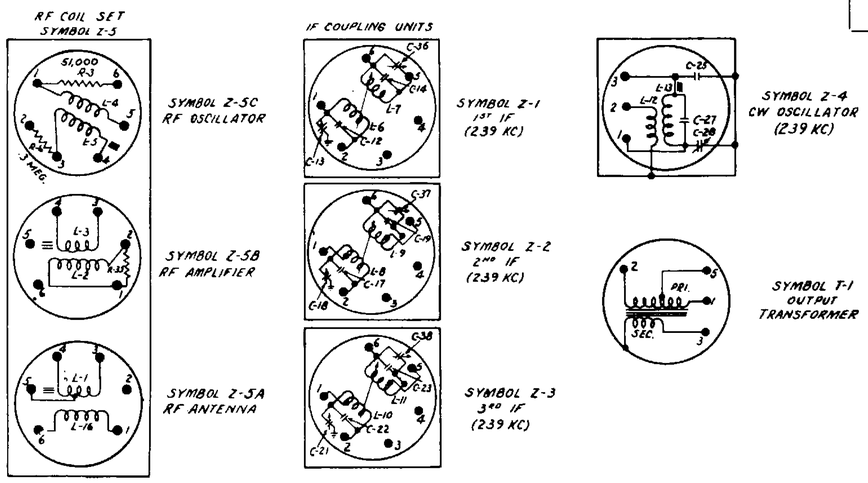
Figure 8—22. Radio Receiver R-148/ARC-5X, Wiring Diagram



NOTES:

1. ALL WIRES MARKED WITH COLOR NOTE ARE #22 SOLID COPPER, WIRE SPECIFICATION #3425 EXCEPT AS NOTED.
2. BARE WIRES ARE TINNED COPPER WITH SIZES AS SHOWN
3. TWO WIRES MARKED (*) SHALL CLEAR INSULATED LEADS AND "GROUND" BY AT LEAST .050 WITH R.F COIL SET SCREWED IN PLACE

CIRCUITS IN RF COIL SET, IF COUPLING UNITS, CW OSCILLATOR, AND OUTPUT TRANSFORMER. THE TERMINAL NUMBERS ON THESE UNITS AGREE WITH THOSE SHOWN AT THE CORRESPONDING LOCATIONS ON THE WIRING DIAGRAM.



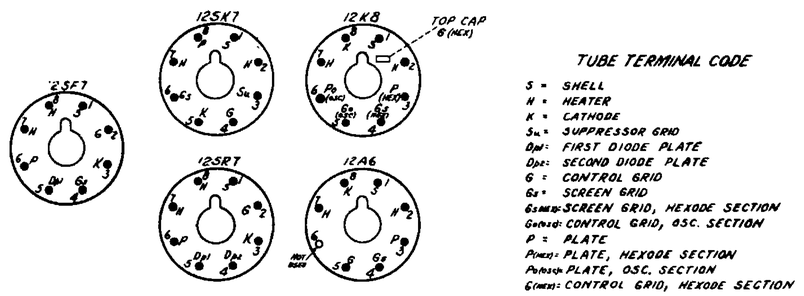
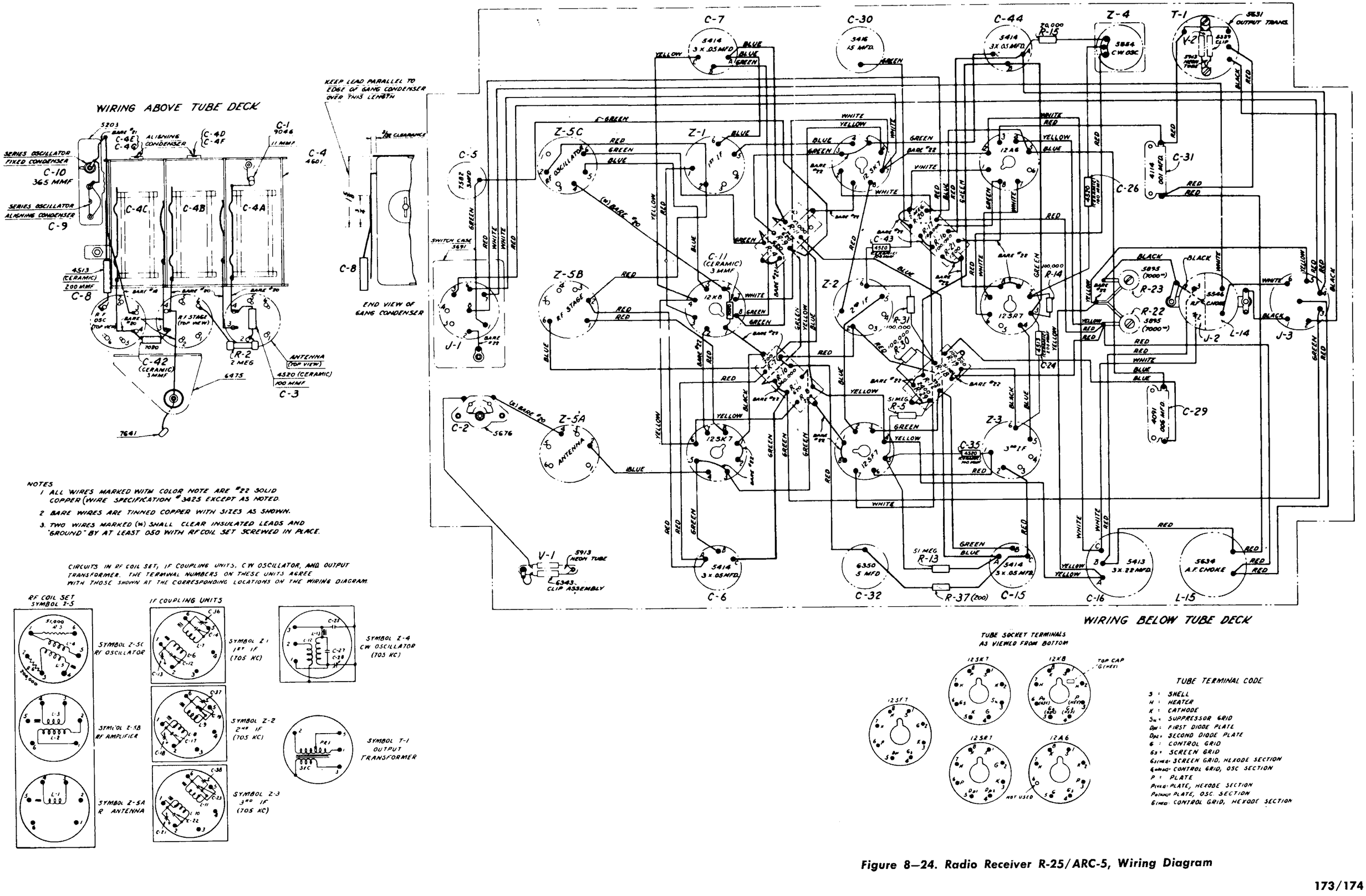


Figure 8—23. Radio Receiver R-24/ARC-5, Wiring Diagram

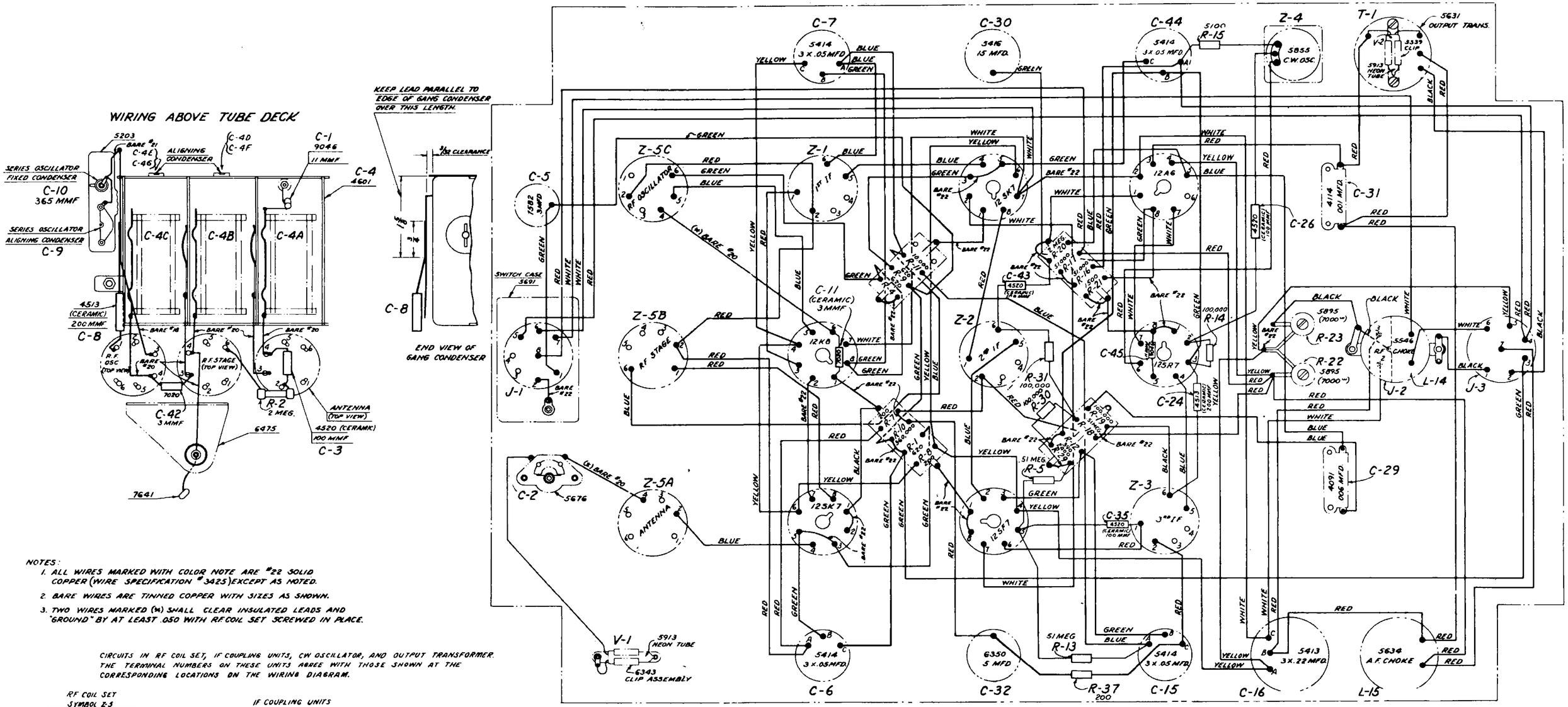


NOTES

1. ALL WIRES MARKED WITH COLOR NOTE ARE #22 SOLID COPPER (WIRE SPECIFICATION #3423 EXCEPT AS NOTED.
2. BARE WIRES ARE TINNED COPPER WITH SIZES AS SHOWN.
3. TWO WIRES MARKED (M) SHALL CLEAR INSULATED LEADS AND "GROUND" BY AT LEAST .050 WITH RF COIL SET SCREWED IN PLACE.

CIRCUITS IN RF COIL SET, IF COUPLING UNITS, C.W. OSCILLATOR, AND OUTPUT TRANSFORMER. THE TERMINAL NUMBERS ON THESE UNITS AGREE WITH THOSE SHOWN AT THE CORRESPONDING LOCATIONS ON THE WIRING DIAGRAM.

Figure 8—24. Radio Receiver R-25/ARC-5, Wiring Diagram

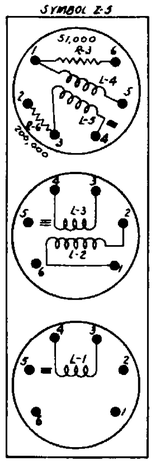


NOTES:

1. ALL WIRES MARKED WITH COLOR NOTE ARE #22 SOLID COPPER (WIRE SPECIFICATION # 3425) EXCEPT AS NOTED.
2. BARE WIRES ARE TINNED COPPER WITH SIZES AS SHOWN.
3. TWO WIRES MARKED (*) SHALL CLEAR INSULATED LEADS AND "GROUND" BY AT LEAST .050 WITH RF COIL SET SCREWED IN PLACE.

CIRCUITS IN RF COIL SET, IF COUPLING UNITS, CW OSCILLATOR, AND OUTPUT TRANSFORMER. THE TERMINAL NUMBERS ON THESE UNITS AGREE WITH THOSE SHOWN AT THE CORRESPONDING LOCATIONS ON THE WIRING DIAGRAM.

RF COIL SET SYMBOL Z-3

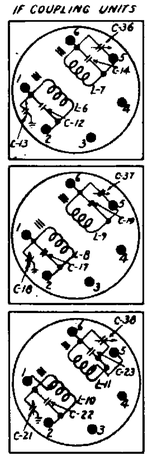


SYMBOL Z-5C RF OSCILLATOR

SYMBOL Z-5B RF AMPLIFIER

SYMBOL Z-5A RF ANTENNA

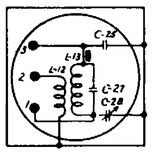
IF COUPLING UNITS



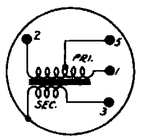
SYMBOL Z-1 1ST IF (1415 KC)

SYMBOL Z-2 2ND IF (1415 KC)

SYMBOL Z-3 3RD IF (1415 KC)



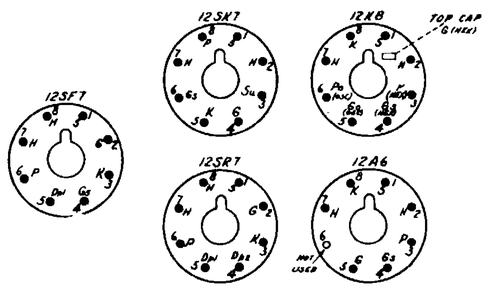
SYMBOL Z-4 CW OSCILLATOR (1415 KC)



SYMBOL T-1 OUTPUT TRANSFORMER

WIRING BELOW TUBE DECK

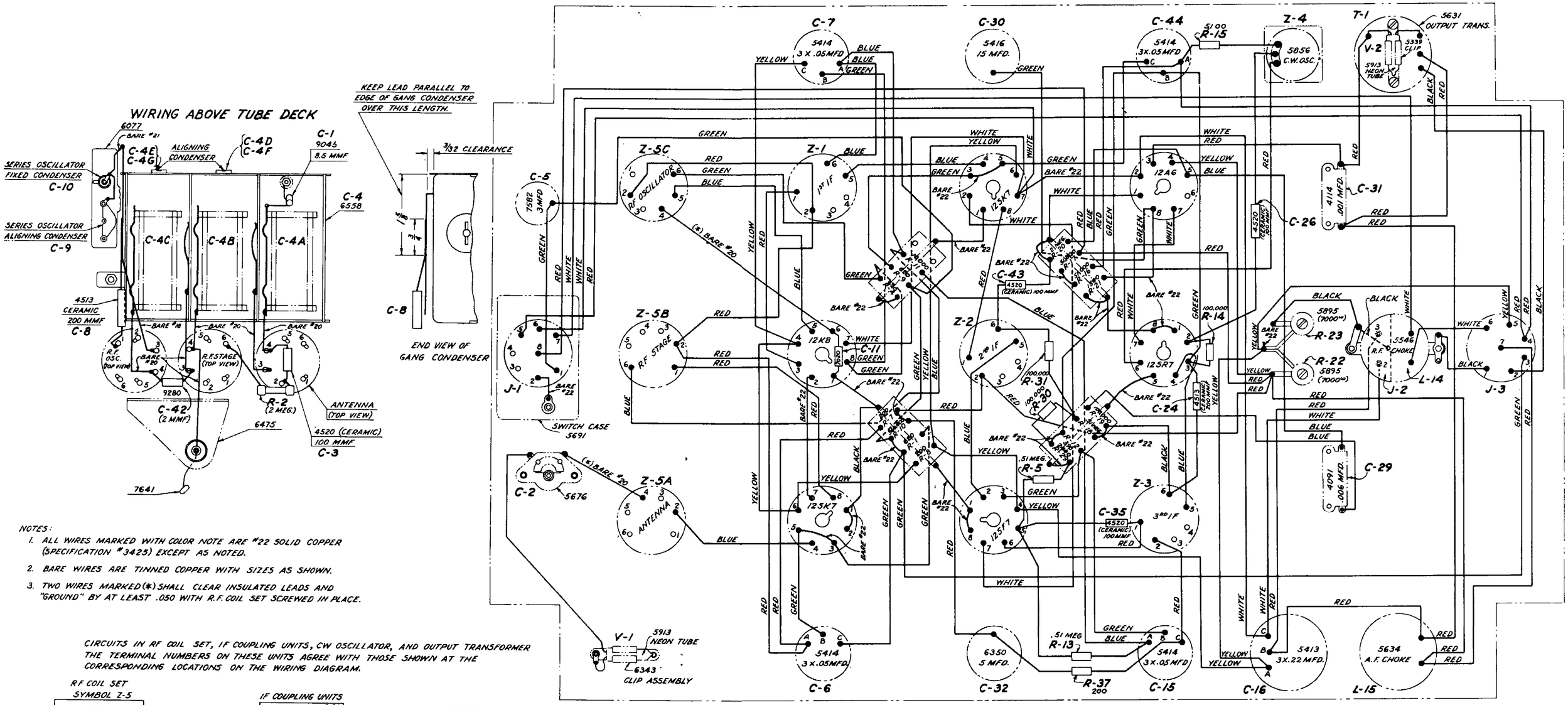
TUBE SOCKET TERMINALS AS VIEWED FROM BOTTOM



TUBE TERMINAL CODE

- S = SHELL
- H = HEATER
- K = CATHODE
- S_u = SUPPRESSOR GRID
- D_{p1} = FIRST DIODE PLATE
- D_{p2} = SECOND DIODE PLATE
- G = CONTROL GRID
- G_2 = SCREEN GRID
- $G_{2(hex)}$ = SCREEN GRID, HEXODE SECTION
- $G_{1(hex)}$ = CONTROL GRID, OSC. SECTION
- P = PLATE
- $P_{(hex)}$ = PLATE, HEXODE SECTION
- $P_{(osc)}$ = PLATE, OSC. SECTION
- $G_{(hex)}$ = CONTROL GRID, HEXODE SECTION

Figure 8—25. Radio Receiver R-26/ARC-5, Wiring Diagram

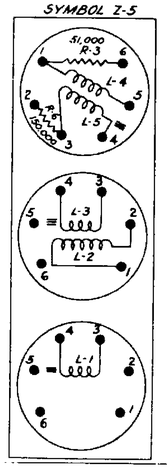


NOTES:

1. ALL WIRES MARKED WITH COLOR NOTE ARE #22 SOLID COPPER (SPECIFICATION #3425) EXCEPT AS NOTED.
2. BARE WIRES ARE TINNED COPPER WITH SIZES AS SHOWN.
3. TWO WIRES MARKED (*) SHALL CLEAR INSULATED LEADS AND "GROUND" BY AT LEAST .050 WITH R.F. COIL SET SCREWED IN PLACE.

CIRCUITS IN RF COIL SET, IF COUPLING UNITS, CW OSCILLATOR, AND OUTPUT TRANSFORMER THE TERMINAL NUMBERS ON THESE UNITS AGREE WITH THOSE SHOWN AT THE CORRESPONDING LOCATIONS ON THE WIRING DIAGRAM.

RF COIL SET SYMBOL Z-5

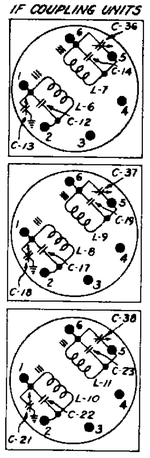


SYMBOL Z-5C RF OSCILLATOR

SYMBOL Z-5B RF AMPLIFIER

SYMBOL Z-5A RF ANTENNA

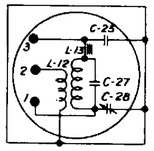
IF COUPLING UNITS



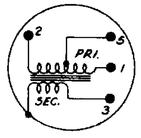
SYMBOL Z-1 1ST I.F. (2830 KC)

SYMBOL Z-2 2ND I.F. (2830 KC)

SYMBOL Z-3 3RD I.F. (2830 KC)



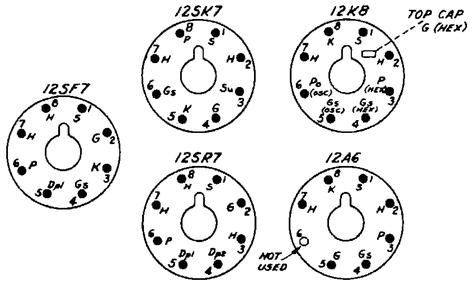
SYMBOL Z-4 CW OSCILLATOR (2830 KC)



SYMBOL T-1 OUTPUT TRANSFORMER

WIRING BELOW TUBE DECK

TUBE SOCKET TERMINALS AS VIEWED FROM BOTTOM



TUBE TERMINAL CODE

- S = SHELL
- H = HEATER
- K = CATHODE
- S_u = SUPPRESSOR GRID
- D_{p1} = FIRST DIODE PLATE
- D_{p2} = SECOND DIODE PLATE
- G = CONTROL GRID
- G_s = SCREEN GRID
- $G_{s(HEX)}$ = SCREEN GRID, HEXODE SECTION
- $G_{s(OSC)}$ = CONTROL GRID, OSCILLATOR SECTION
- P = PLATE
- $P_{(HEX)}$ = PLATE, HEXODE SECTION
- $P_{(OSC)}$ = PLATE, OSC. SECTION
- $G_{(HEX)}$ = CONTROL GRID, HEXODE SECTION

Figure 8—26. Radio Receiver R-27/ARC-5, Wiring Diagram

NOTES:

ALL WIRES MARKED WITH COLOR NOTE ARE #22 SOLID COPPER; WIRE SPECIFICATION MS3325 EXCEPT AS NOTED.

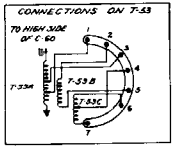
BARE WIRES ARE TINNED COPPER WITH SIZES AS SHOWN.

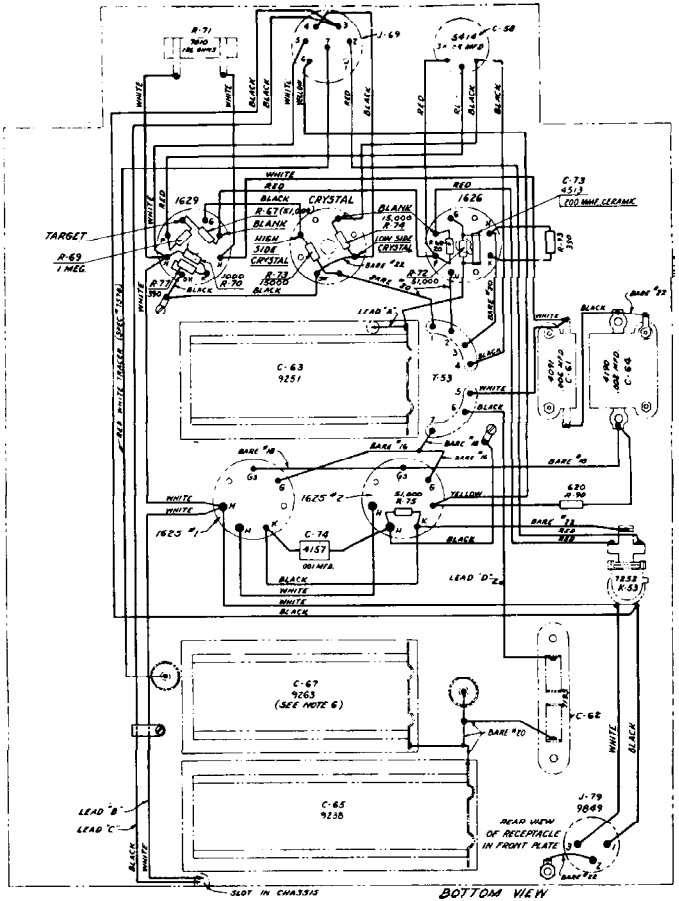
SEAL ALL SOLDERED CONNECTIONS WITH RED LACQUER.

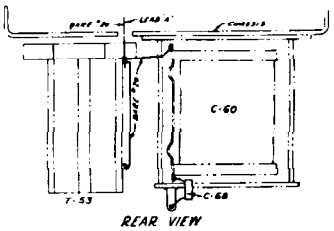
PLACE LEAD "D" IN CORNER OF CHASSIS SO THAT IT WILL BE HELD SECURELY IN POSITION BY OTHER LEADS.

DRESS LEADS RUNNING NEAR THREADED INSERTS IN THE CHASSIS SO THAT SCREWS PROJECTING THROUGH INSERTS WILL CLEAR THE LEADS BY AT LEAST 1/16 INCH WHEN SCREWS ARE FULLY TIGHTENED.

ROTORS ENGAGE STATORS IN CAPACITORS C-60 AT 77 1/2° AND C-67 AT 28 1/2°.







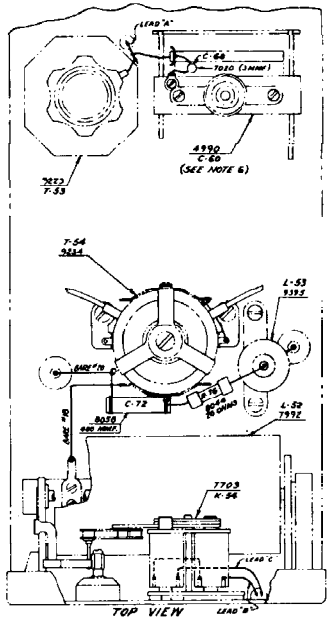


Figure 8–27. Radio Transmitter T-15/ARC-5, Wiring Diagram

AN 16-30ARC5-2

NOTES:

ALL WIRES MARKED WITH COLOR NOTE ARE #22 SOLID COPPER; WIRE SPECIFICATION #3425 EXCEPT AS NOTED.

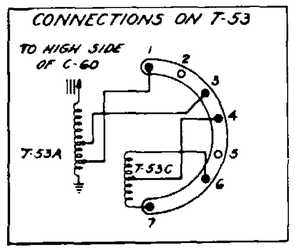
BARE WIRES ARE TINNED COPPER WITH SIZES AS SHOWN.

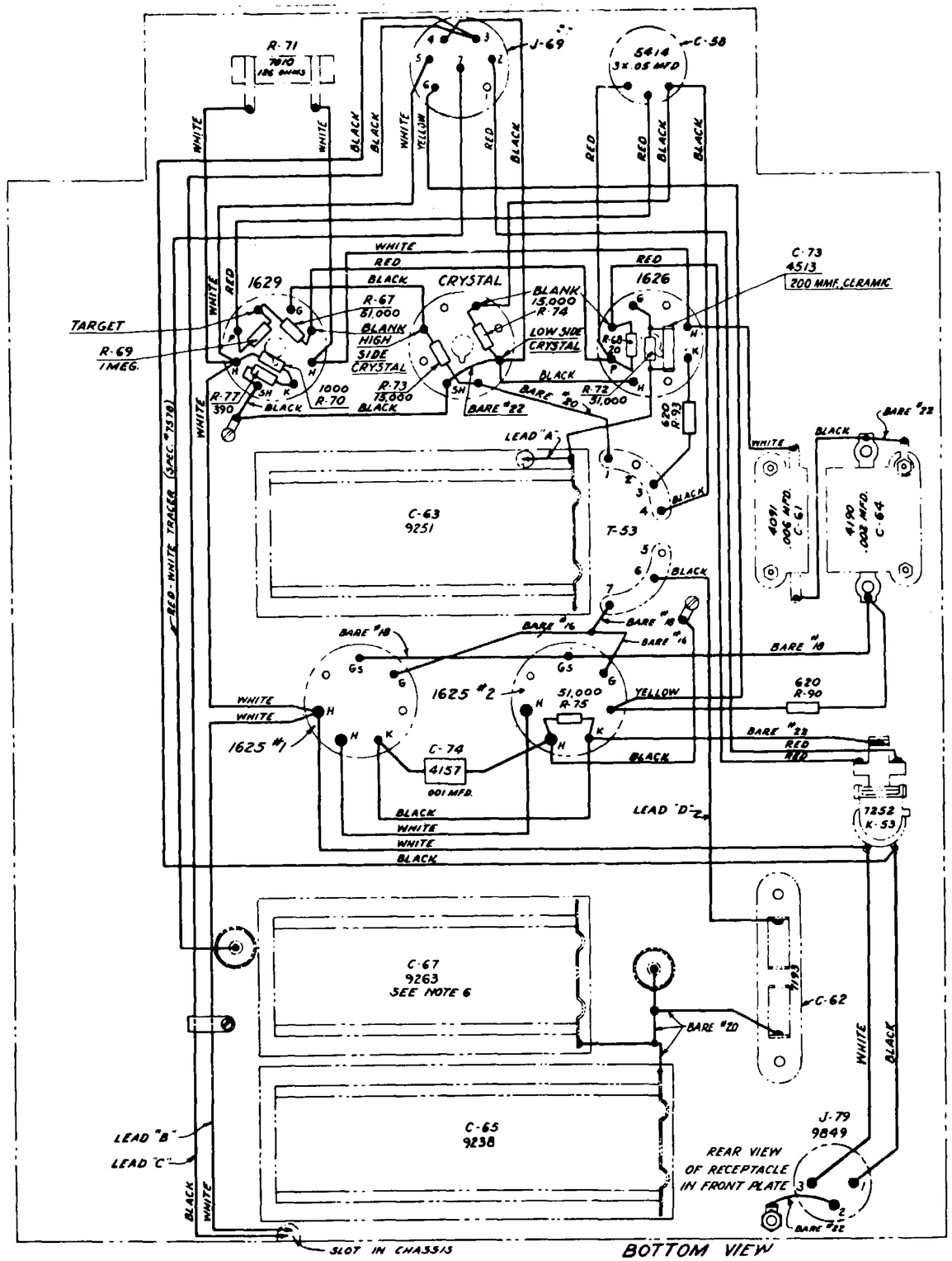
SEAL ALL SOLDERED CONNECTIONS WITH RED LACQUER.

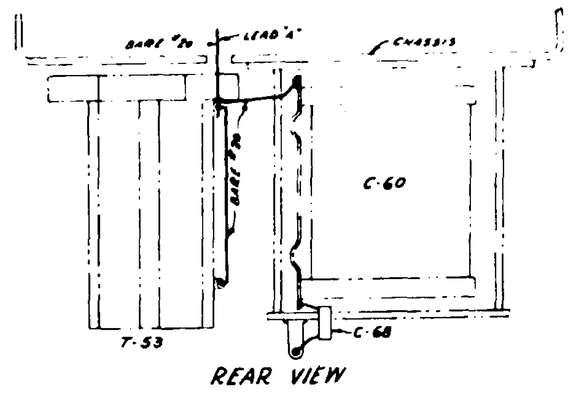
PLACE LEAD "D" IN CORNER OF CHASSIS SO THAT IT WILL BE HELD SECURELY IN POSITION BY OTHER LEADS.

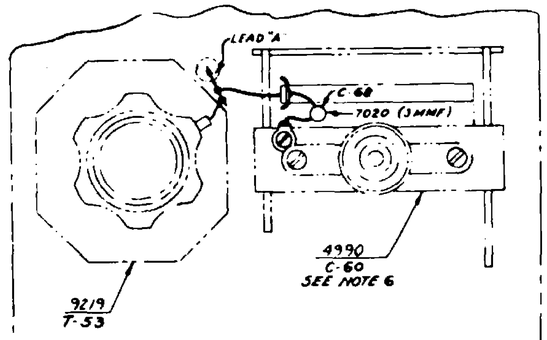
DRESS LEADS RUNNING NEAR THREADED INSERTS IN THE CHASSIS SO THAT SCREWS PROJECTING THROUGH INSERTS WILL CLEAR THE LEADS BY AT LEAST 1/16 INCH WHEN SCREWS ARE FULLY TIGHTENED.

ROTORS ENGAGE STATORS IN CAPACITORS C-60 AT 75° AND C-67 AT 21









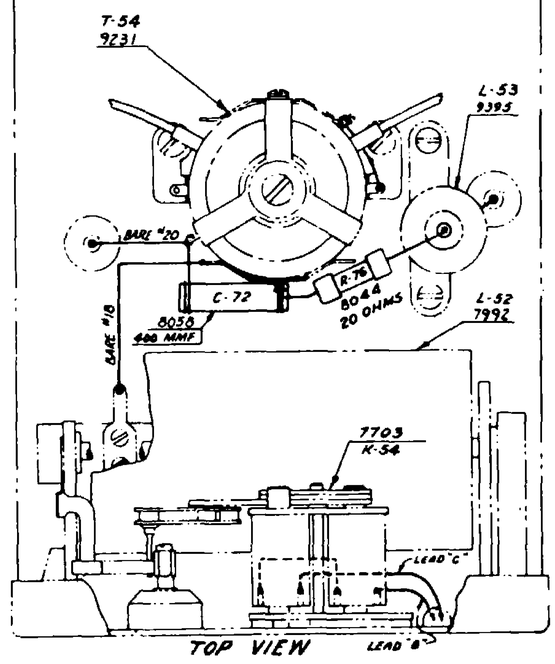


Figure 8—28. Radio Transmitter T-16/ARC-5, Wiring Diagram

AN 16-30ARC5-2

NOTES:

ALL WIRES MARKED WITH COLOR NOTE ARE #22 SOLID COPPER; WIRE SPECIFICATION #3425 EXCEPT AS NOTED.

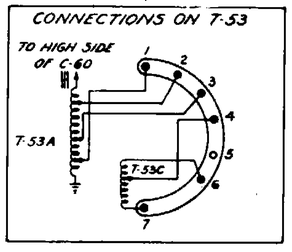
BARE WIRES ARE TINNED COPPER WITH SIZES AS SHOWN.

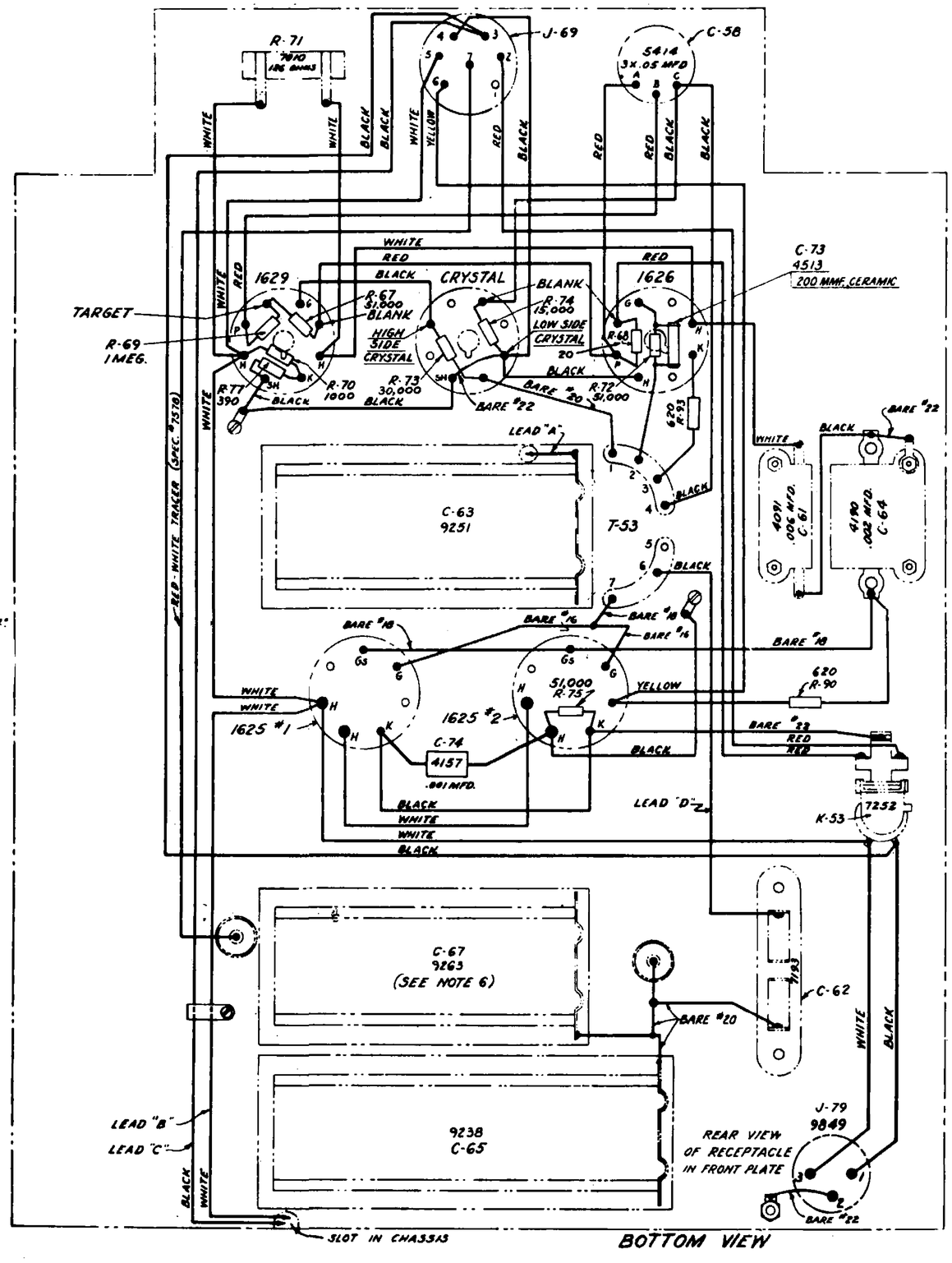
SEAL ALL SOLDERED CONNECTIONS WITH RED LACQUER.

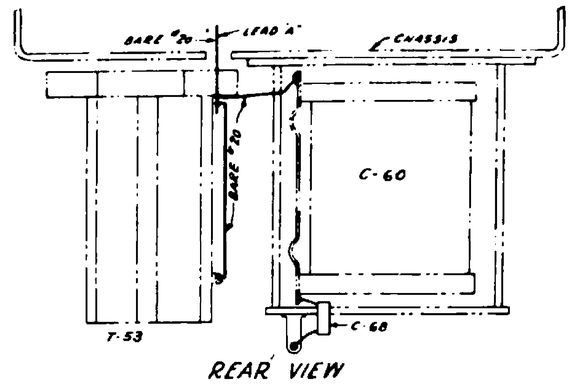
PLACE LEAD "D" IN CORNER OF CHASSIS SO THAT IT WILL BE HELD SECURELY IN POSITION BY OTHER LEADS.

DRESS LEADS RUNNING NEAR THREADED INSERTS IN THE CHASSIS SO THAT SCREWS PROJECTING THROUGH INSERTS WILL CLEAR THE LEADS BY AT LEAST 1/16 INCH WHEN SCREWS ARE FULLY TIGHTENED.

ROTORS ENGAGE STATORS IN CAPACITORS C-60 AT 86° AND C-67 AT 34°.







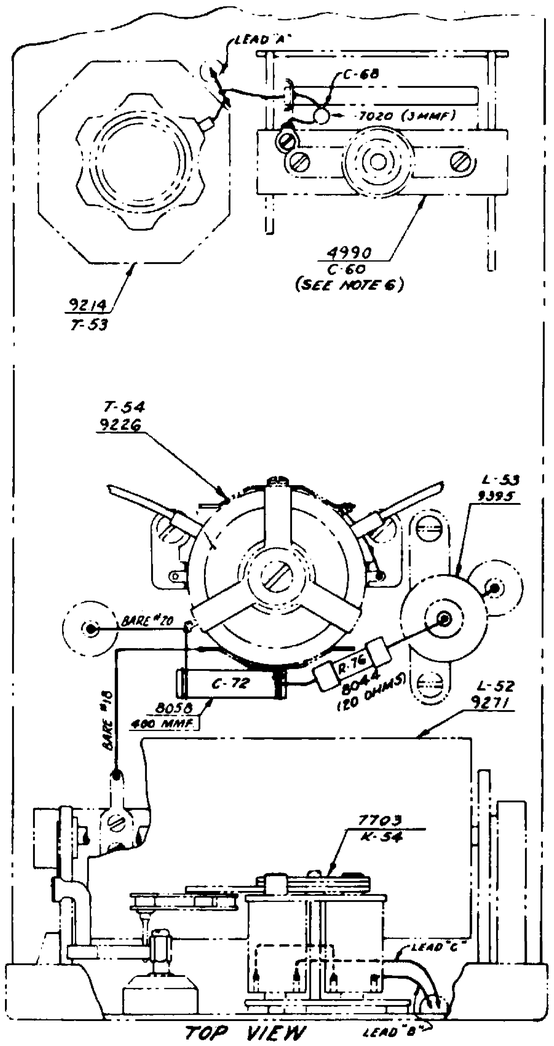
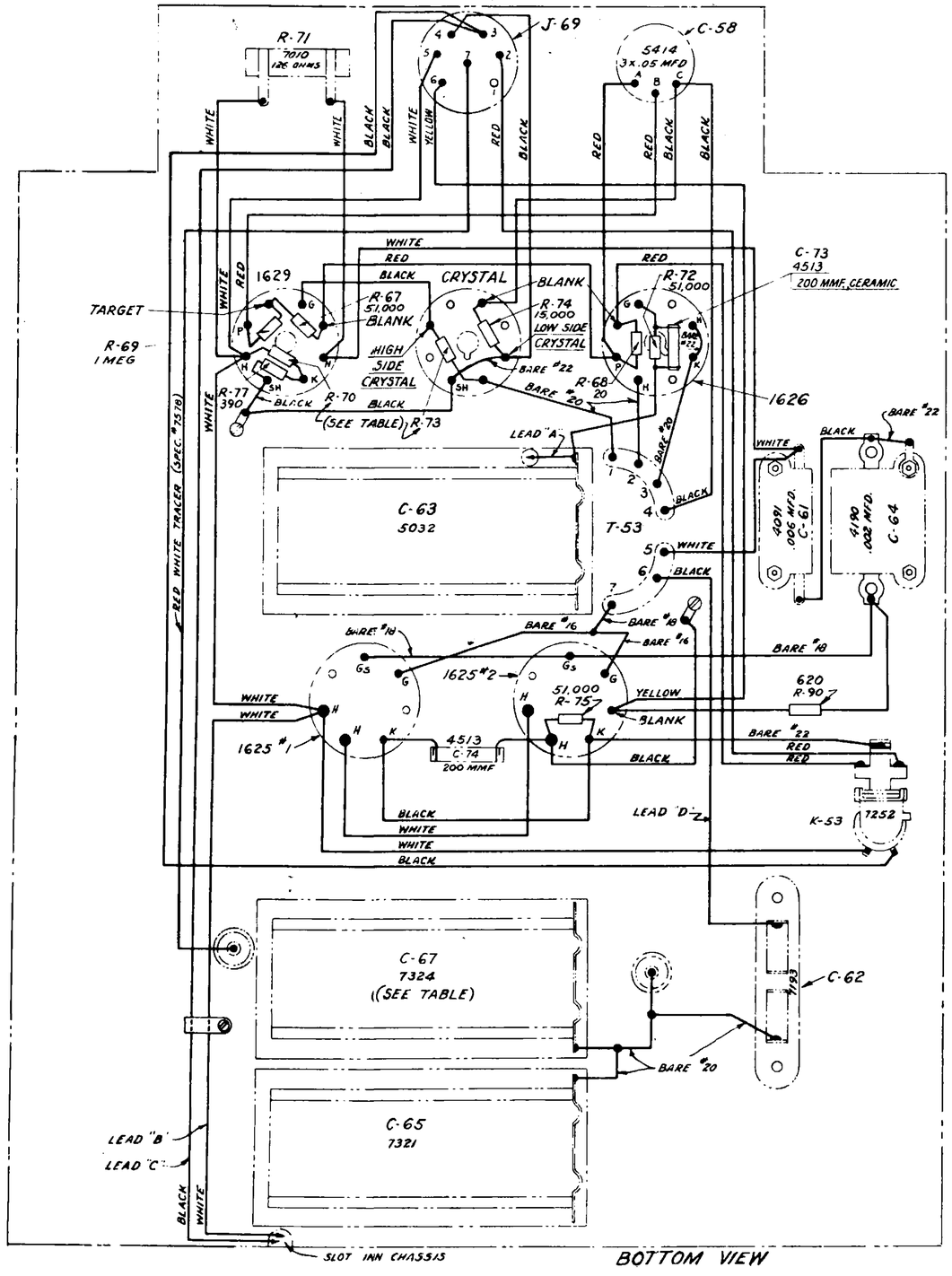
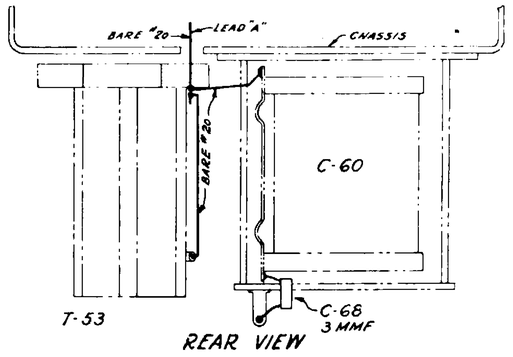
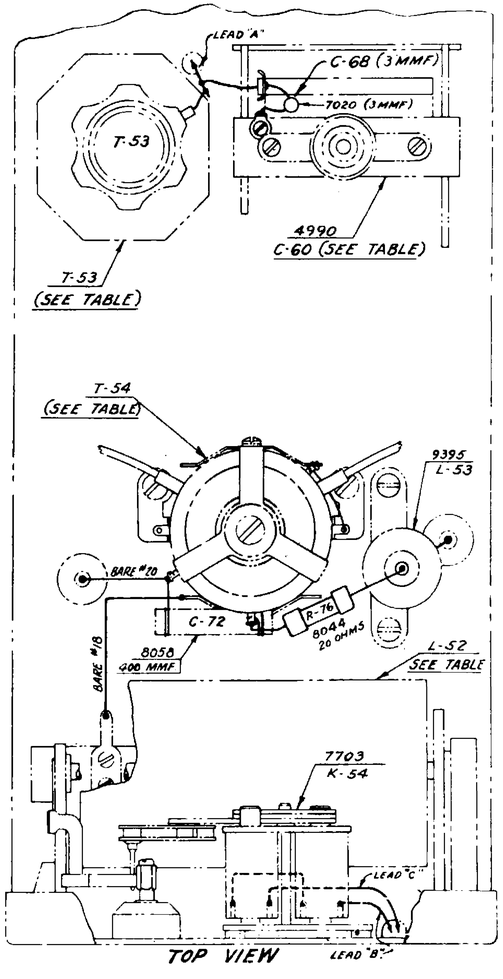


Figure 8—29. Radio Transmitter T-17/ARC-5, Wiring Diagram

AN 16-30ARC5-2
AN 16-30ARC5-2







NOTE:
TRANSMITTERS LISTED BELOW ARE ALIKE EXCEPT FOR THE PARTS AND ADJUSTMENTS SHOWN IN THIS TABLE. ROTORS ENGAGE STATORS IN CAPACITORS C-60 AND C-67 BY THE ANGLES SHOWN.

TRANSMITTER	C-60	C-67	L-52	R-70	R-73	T-53	T-54
2.1 - 3 MC	36½°	22°	7992	1000	15,000	7988	9291
3 - 4 MC	77¼°	56°	6033	1500	5100	6029	9292
4 - 5.3 MC	78°	59°	6034	1000	10,000	6030	9293
5.3 - 7 MC	81½°	62°	6035	1000	15,000	6031	9294
7 - 9.1 MC	95½°	80°	6035	1500	5,100	6032	9295

NOTES
1. ALL WIRES MARKED WITH COLOR NOTE ARE #22 SOLID COPPER; WIRE SPECIFICATION #3425 EXCEPT AS NOTED.
2. BARE WIRES ARE TINNED COPPER WITH SIZES AS SHOWN.
3. SEAL ALL SOLDERED CONNECTIONS WITH RED LACQUER.
4. PLACE LEAD "D" IN CORNER OF CHASSIS SO THAT IT WILL BE HELD SECURELY IN POSITION BY OTHER LEADS.
5. DRESS LEADS RUNNING NEAR THREADED INSERTS IN THE CHASSIS SO THAT SCREWS PROJECTING THROUGH INSERTS WILL CLEAR THE LEADS BY AT LEAST 1/16 INCH WHEN SCREWS ARE FULLY TIGHTENED.

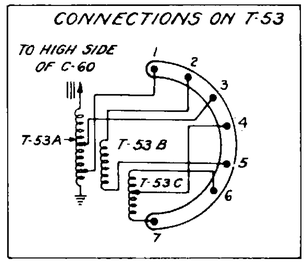
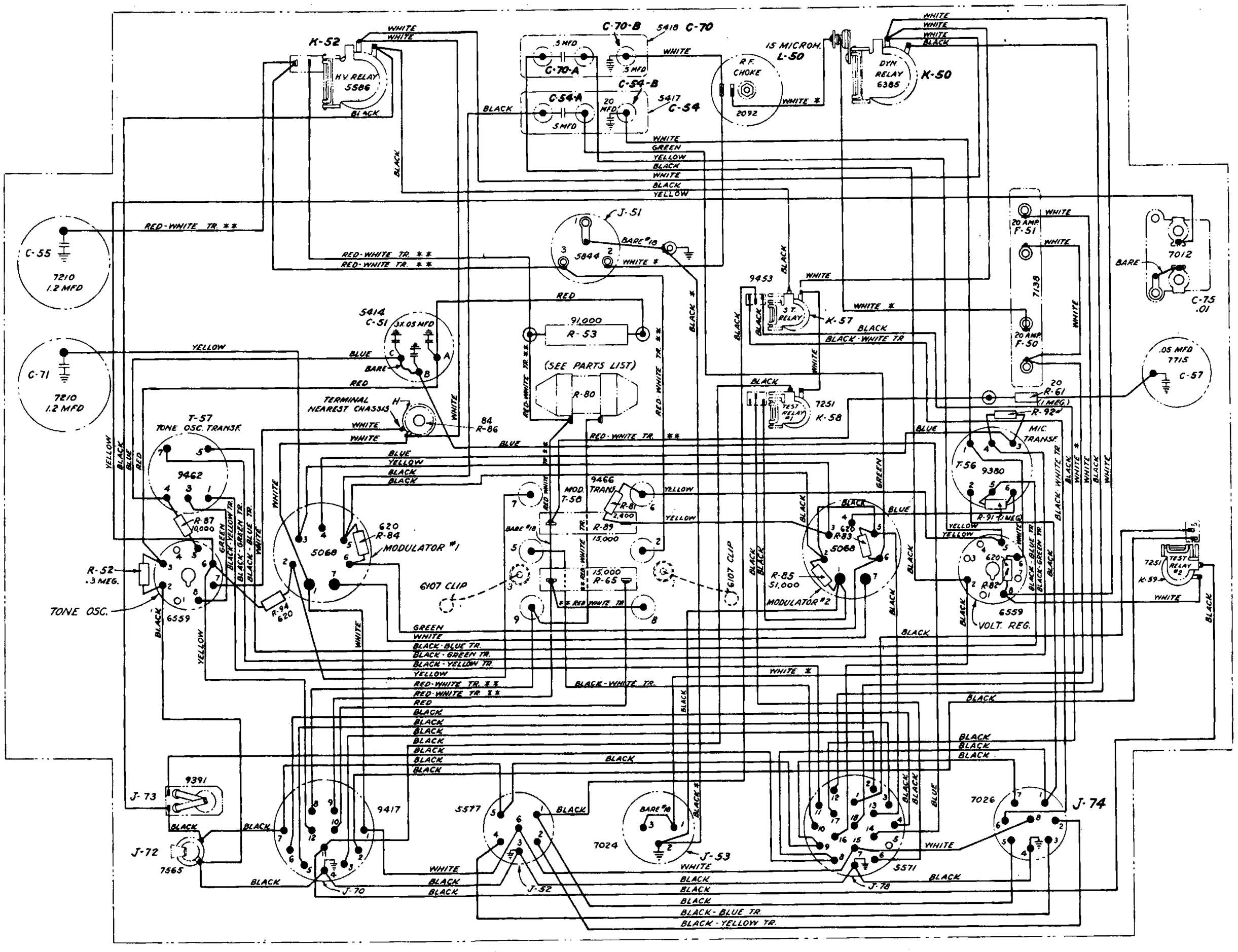


Figure 8—30. Radio Transmitters T-18/ARC-5, T-19/ARC-5, T-20/ARC-5, T-21/ARC-5, T-22/ARC-5, Wiring Diagram



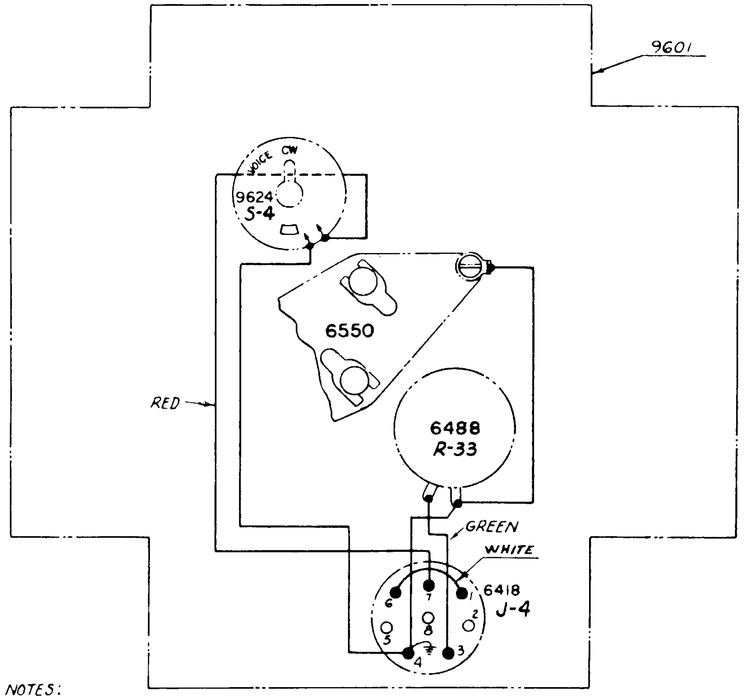
BOTTOM VIEW

NOTES:
1. ALL WIRES MARKED (*) TO BE #18 STRANDED COPPER SPECIFICATION #3423.
2. ALL WIRES MARKED (**) TO BE #22 SINGLE CONDUCTOR TINNED COPPER SPECIFICATION #7578
3. ALL BARE WIRES ARE #22 TINNED COPPER EXCEPT AS NOTED.
4. ALL OTHER INSULATED WIRES TO BE #22 SOLID COPPER SPECIFICATION #3425
5. C-75 AND R-94 NOT ON EARLY PRODUCTION UNITS.

Figure 8—31. Modulator MD-7/ARC-5, Wiring Diagram

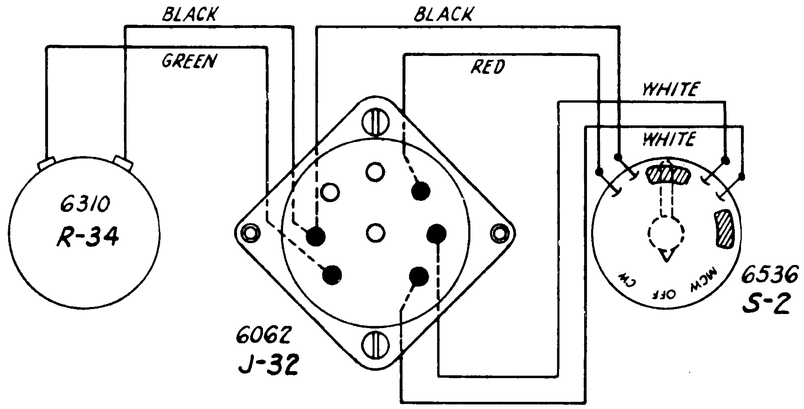
AN 16-30ARC5-2

AN 16-30ARC5-2



NOTES:
1 ALL WIRES TO BE #22 SOLID COPPER (SPEC #3425) UNLESS OTHERWISE NOTED
2 ALL WIRES TO BE BLACK EXCEPT AS OTHERWISE INDICATED.
3 BIND LEADS IN GROUPS WHERE REQUIRED FOR MECHANICAL STABILITY.

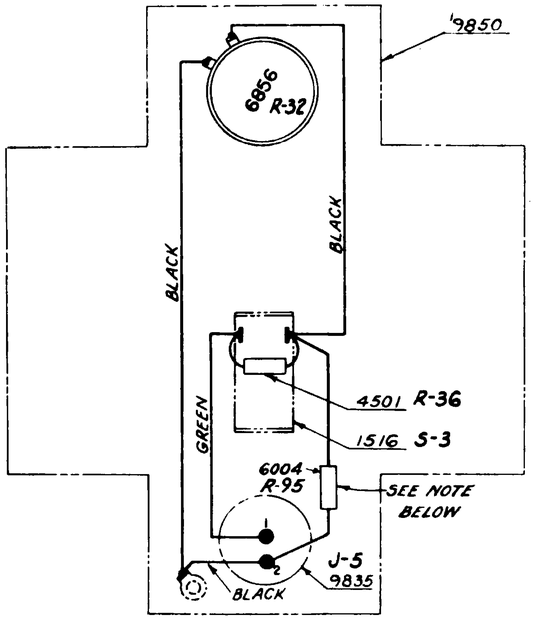
TYPE C-26/ARC-5
CONTROL UNIT (1 REC.)
(TUNABLE)



VIEW FROM REAR OF UNIT

NOTE:
ALL WIRES ARE #22 SOLID COPPER (SPEC. #3425).

TYPE C-24/ARC-5
LOCAL CONTROL UNIT

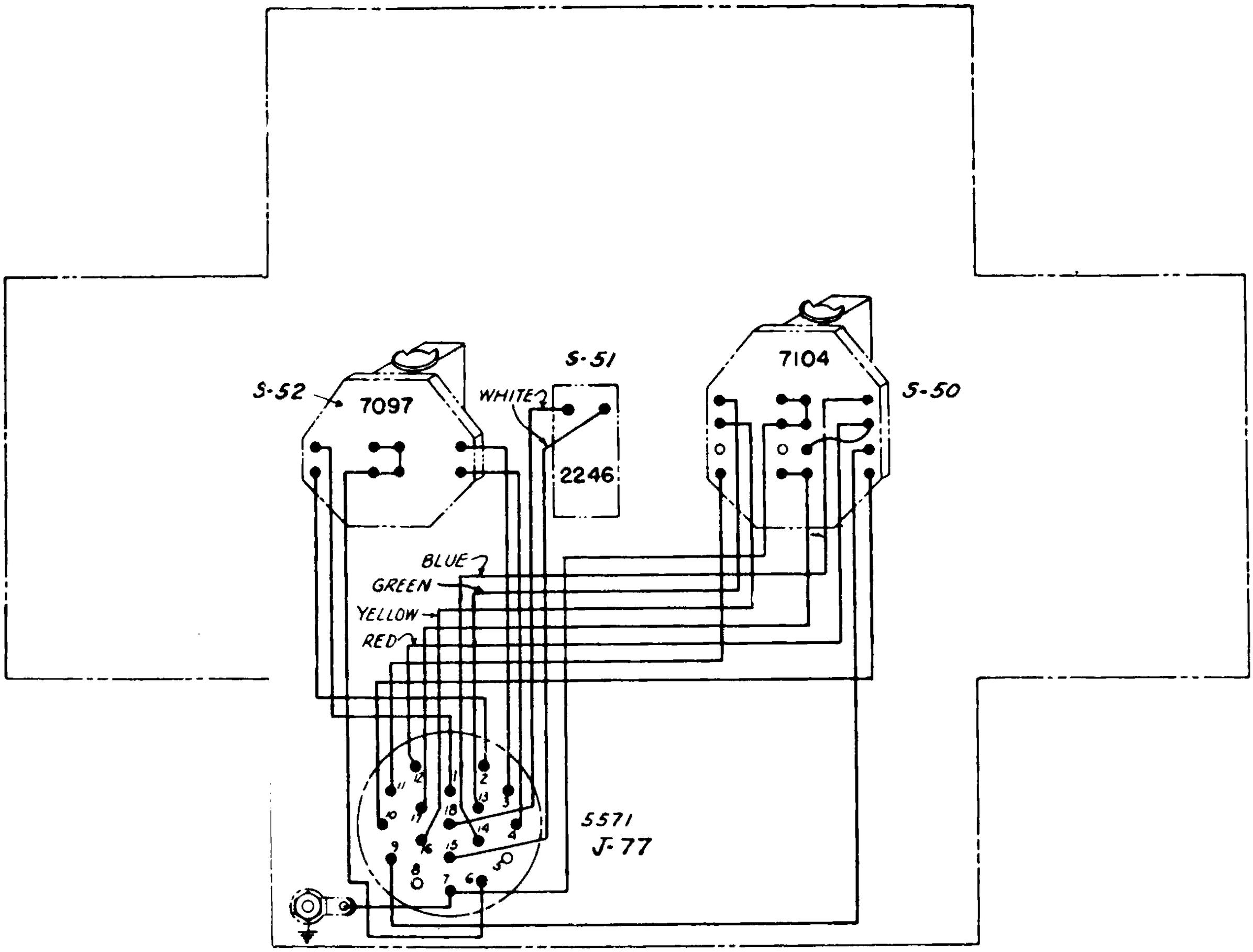


NOTES:
1. ALL WIRES TO BE #22 SOLID COPPER (SPEC. #9275).
2. R-95 NOT IN CBY UNITS OF CONTRACT NXsa 32848.

TYPE C-27/ARC-5
CONTROL UNIT (1 REC.)
(LOCK TUNED)

Figure 8–32. Control Units C-24/ARC-5, C-26/ARC-5, C-27/ARC-5, Wiring Diagrams

AN 16-30ARC5-2

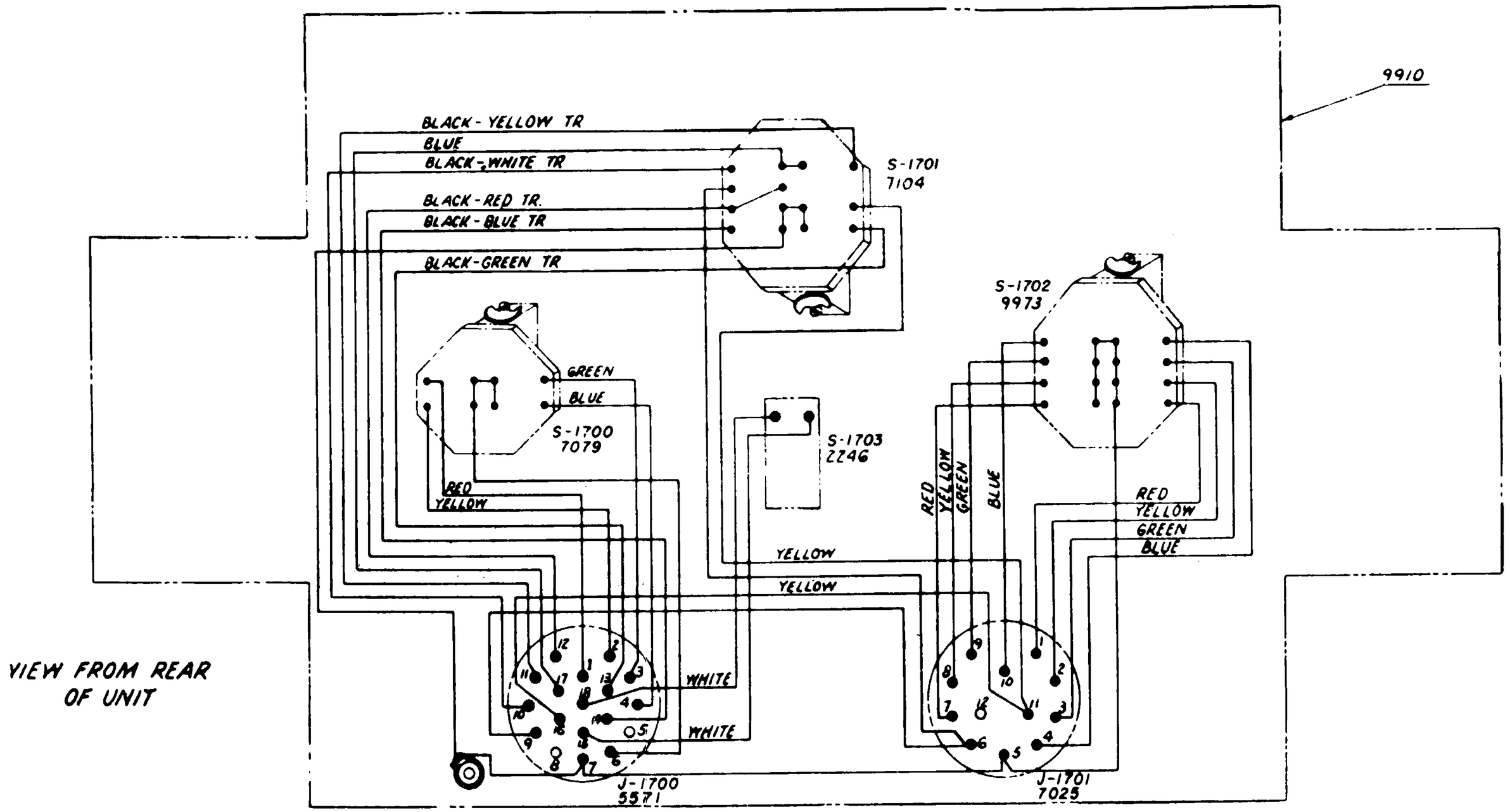


NOTES:

1 ALL WIRES #22 SOLID COPPER, SPEC #3425, (WITH BLACK INSULATION EXCEPT AS NOTED).

2 JUMPERS ON SWITCHES ARE TO BE #22 BARE COPPER WIRE, TINNED

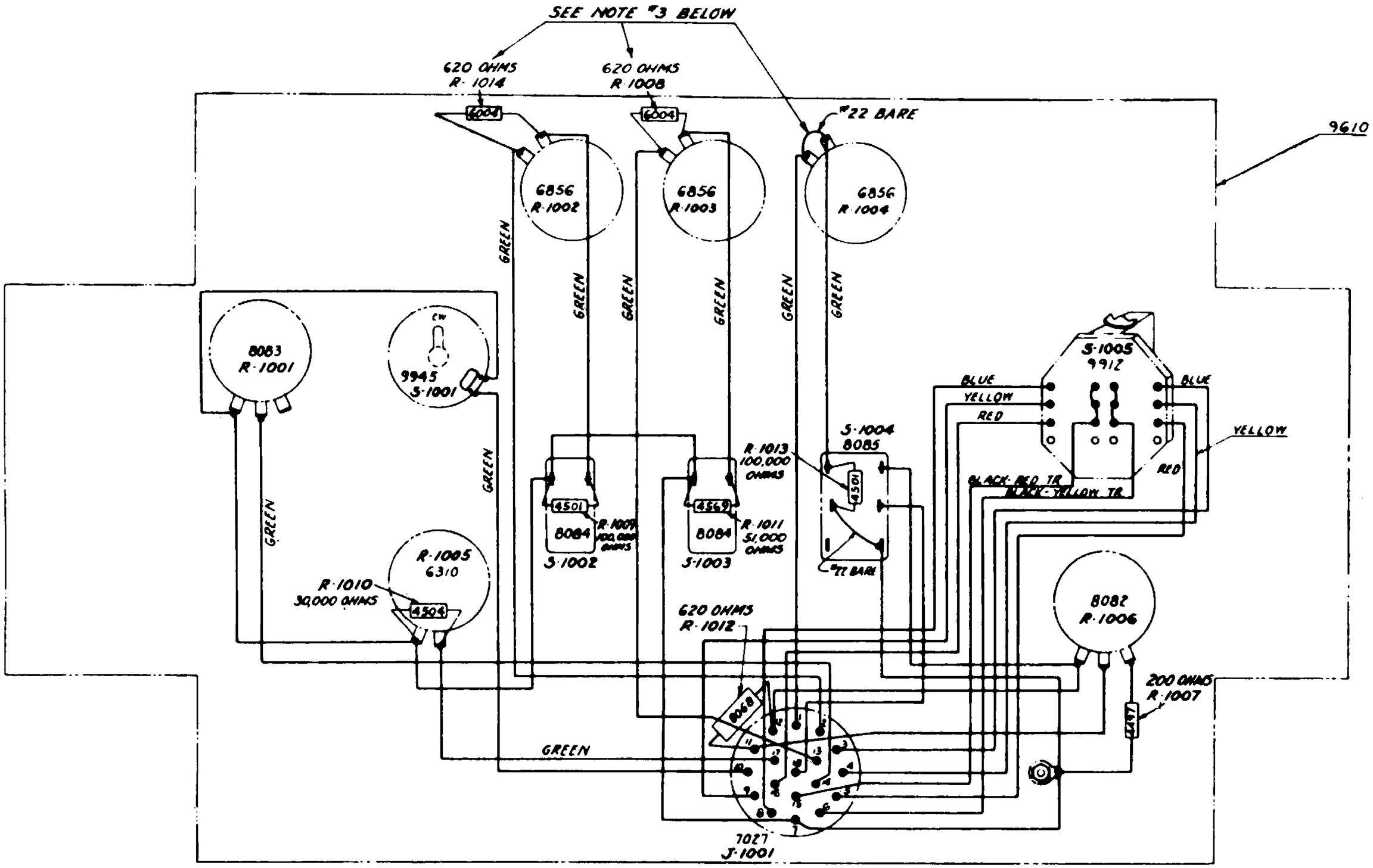
Figure 8—33. Control Unit C-29/ARC-5, Wiring Diagram



NOTES:

1. ALL WIRES #22 SOLID COPPER, SPEC #3425 (WITH BLACK INSULATION EXCEPT AS NOTED.)
2. JUMPERS ON SWITCHES ARE TO BE #22 BARE COPPER WIRE TINNED

Figure 8—34. Control Unit C-30A/ARC-5, Wiring Diagram



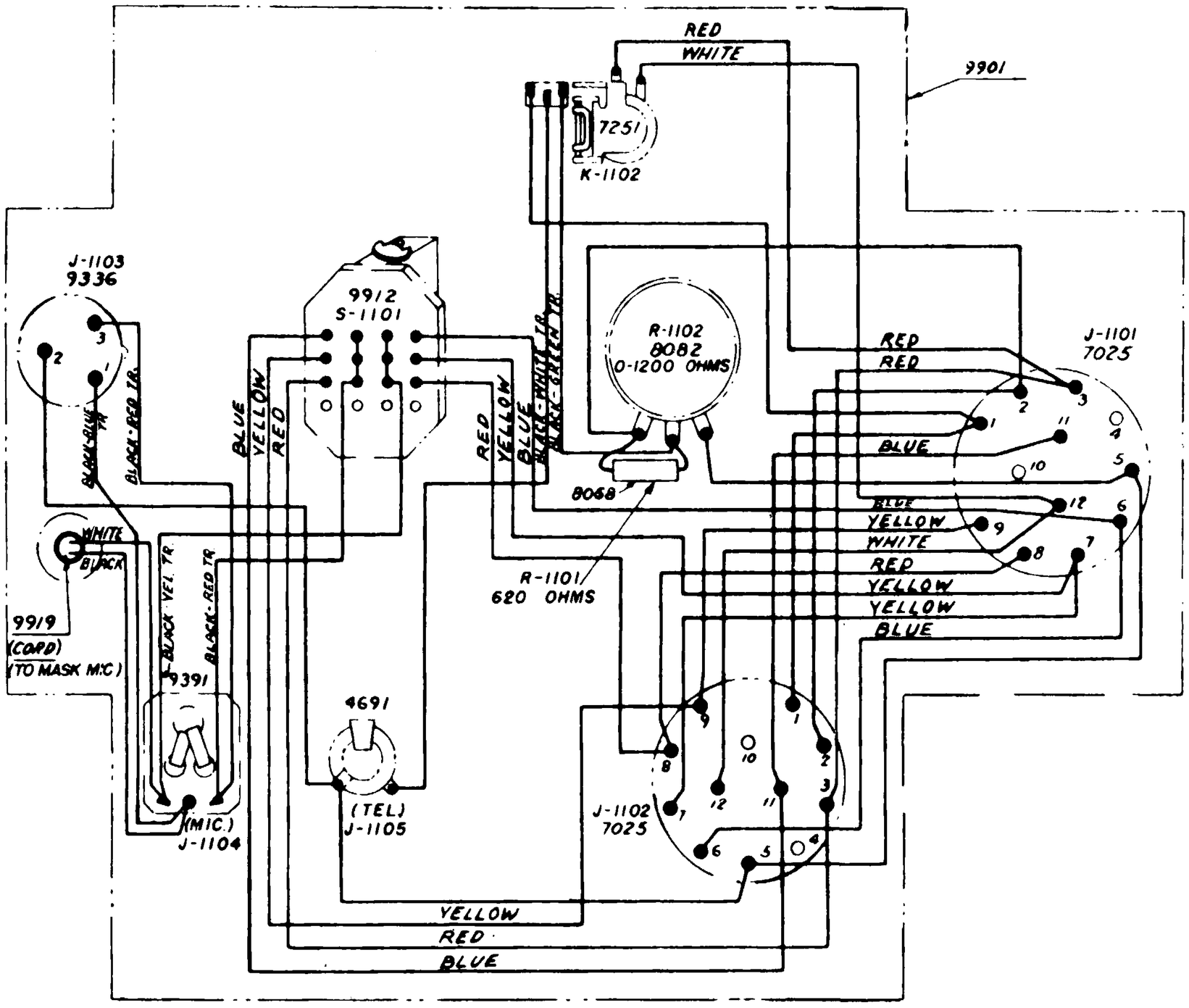
VIEW FROM REAR OF UNIT

NOTES

1. ALL WIRES #22 SOLID COPPER (SPEC. #3425) WITH BLACK INSULATION UNLESS OTHERWISE NOTED
2. JUMPERS ON SWITCH 9912 TO BE #22 BARE COPPER WIRE, TINNED.
3. STARTING WITH SERIAL #4501 · SHORT CIRCUIT ADDED ACROSS R-1004, RESISTOR R-1014 ADDED, AND RESISTOR R-1008 CHANGED FROM 2000 TO 620 OHMS. ON CBY UNITS, ALL CCT UNITS WIRED AS SHOWN.

Figure 8—35. Control Unit C-38/ARC-5, Wiring Diagram

AN 16-30ARC5-2

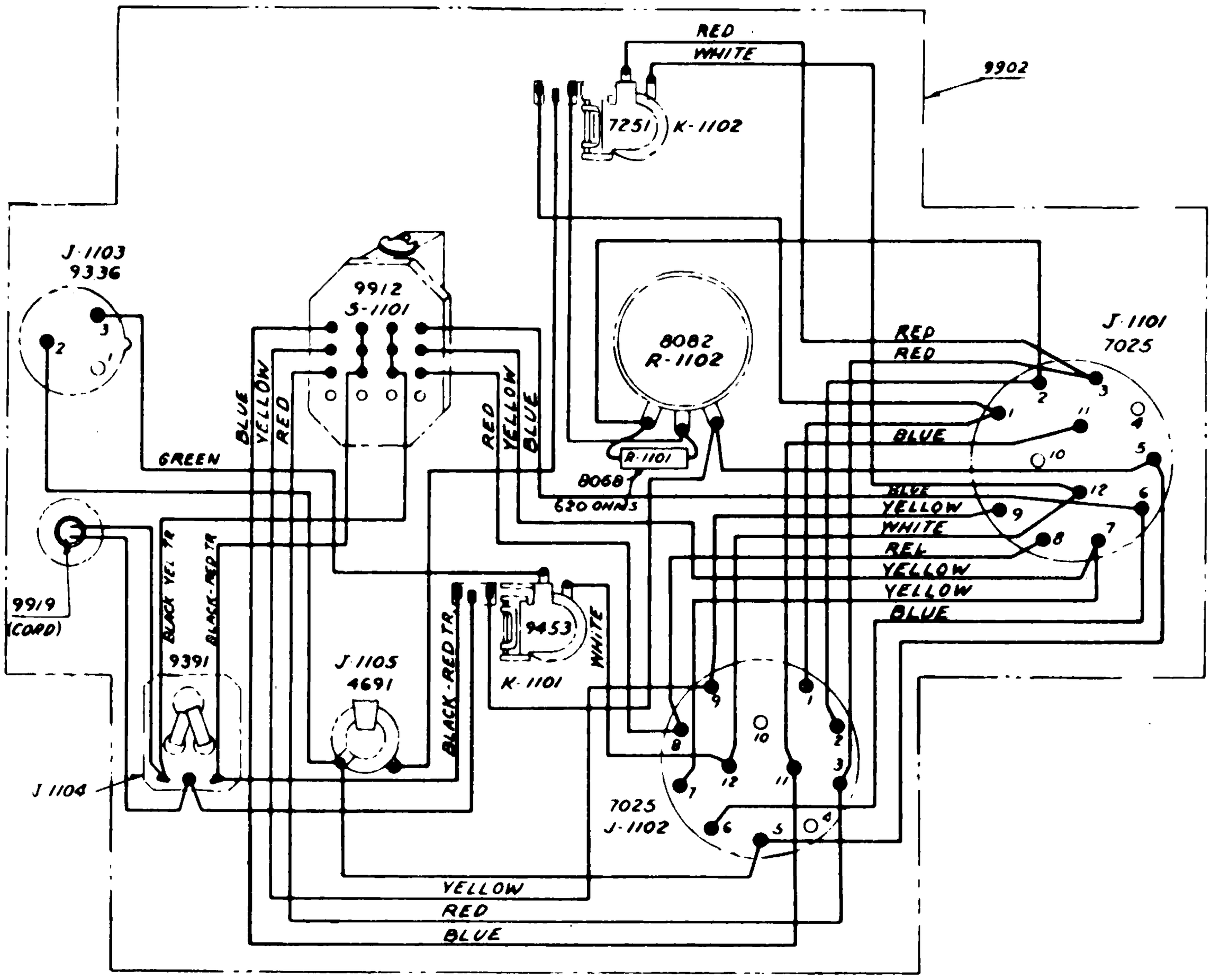


NOTE

1 ALL WIRES #22 SOLID COPPER (SPEC #3425) WITH BLACK INSULATION EXCEPT AS NOTED.

2 JUMPERS ON SWITCH #9912 TO BE #22 BARE COPPER WIRE TINNED.

Figure 8—36. Control Unit C-39/ARC-5, Wiring Diagram

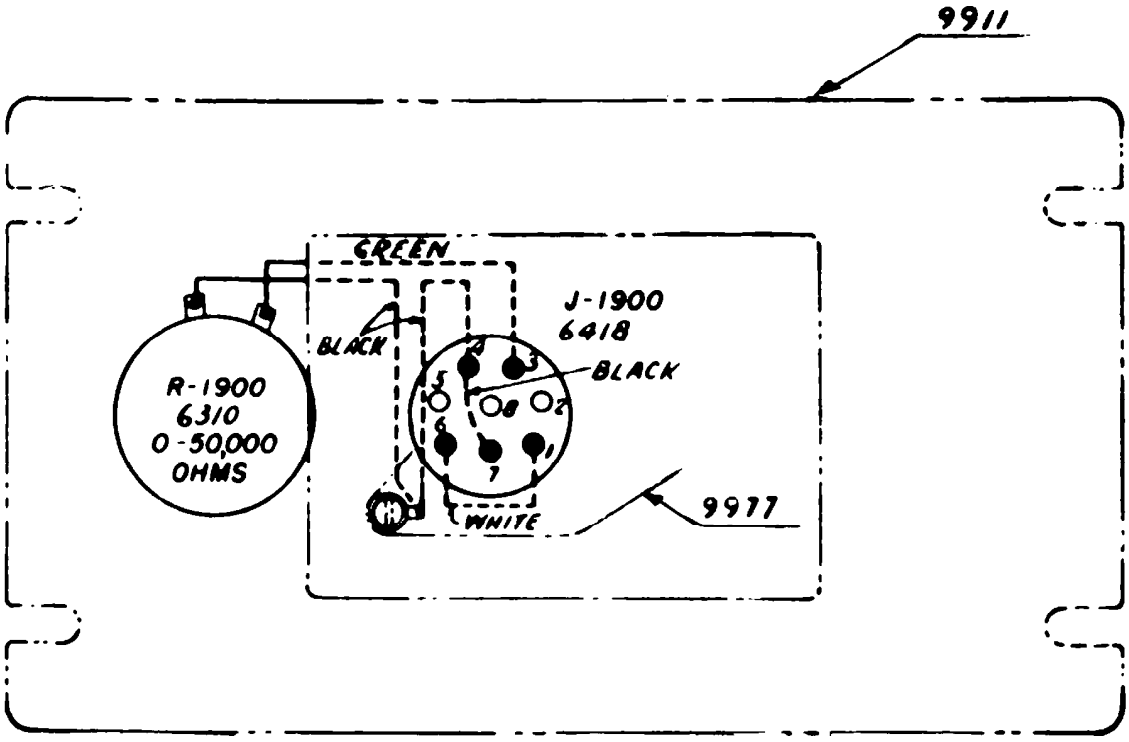


NOTES.

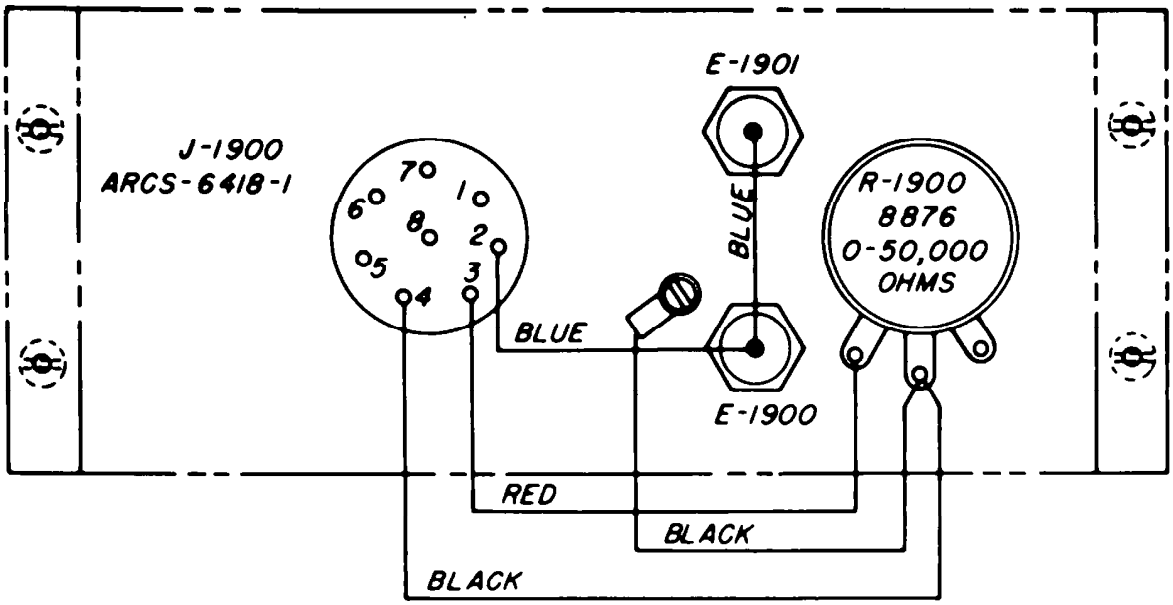
1. ALL WIRES #22 SOLID COPPER (SPEC. #3425) WITH BLACK INSULATION EXCEPT AS NOTED.
2. JUMPERS ON SWITCH #9912 TO BE #22 BARE COPPER WIRE TINNED.

Figure 8—37. Control Unit C-48/ARC-5, Wiring Diagram

AN 16-30ARC5-2

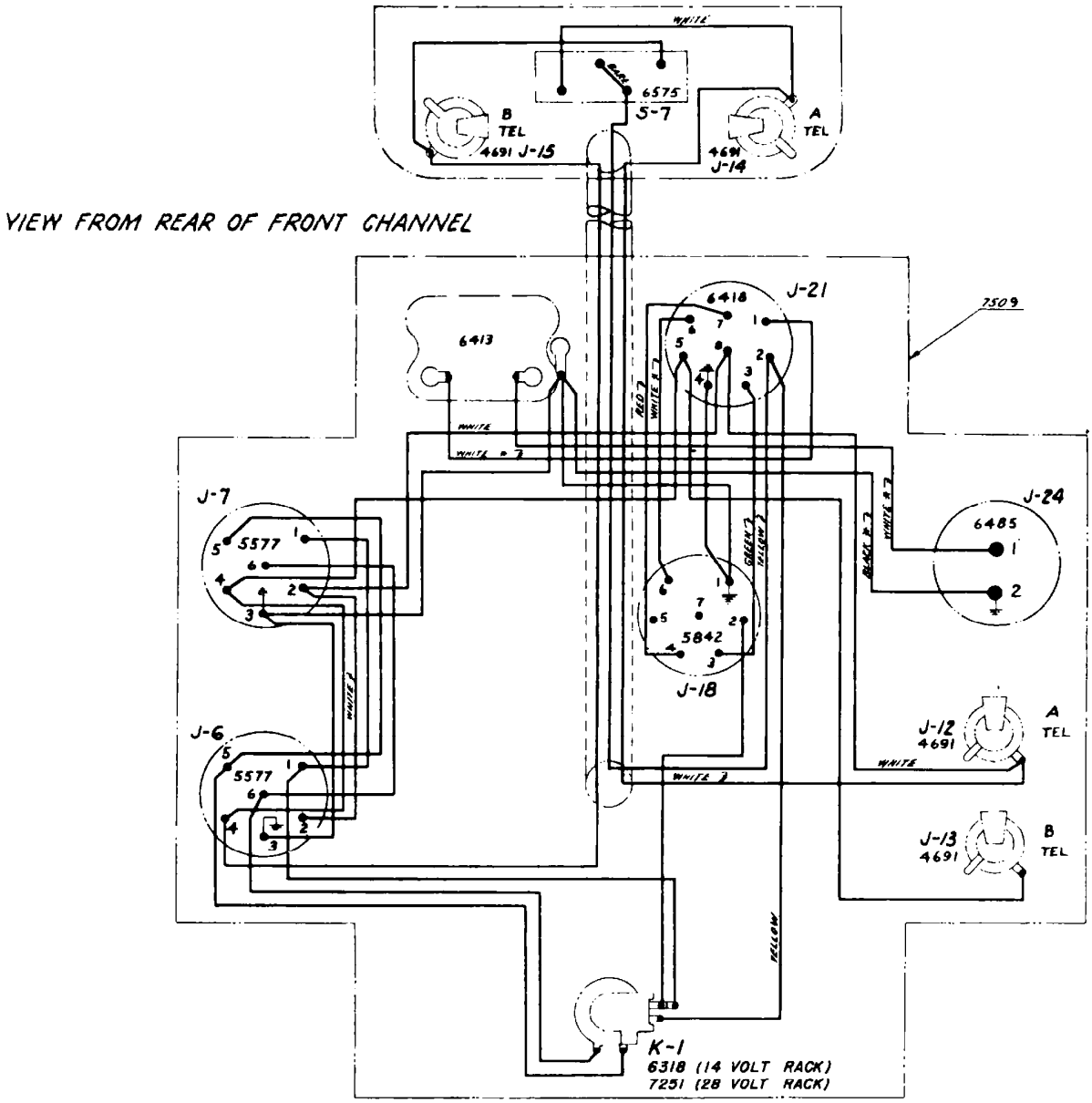


TYPE C-125/ARC-5
CONTROL PANEL



TYPE C-744/ARC-5
CONTROL PANEL

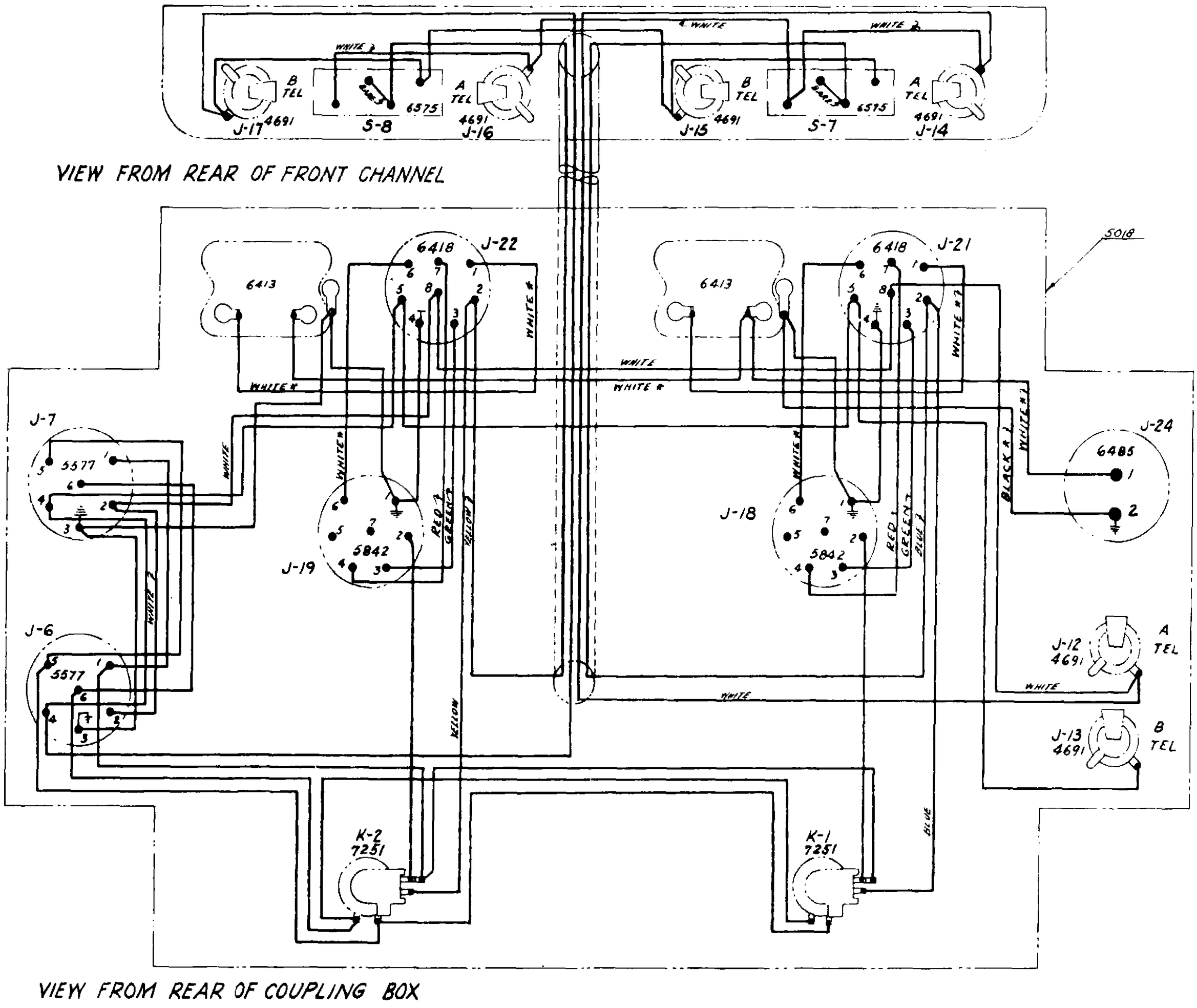
Figure 8—38. Control Units C-125/ARC-5 and C-744/ARC-5, Wiring Diagrams



NOTES:

1. ALL WIRES MARKED (*) TO BE #18 STRANDED COPPER (SPEC. #3423).
2. ALL BARE WIRES TO BE #22 TINNED COPPER.
3. ALL OTHER WIRES TO BE #22 SOLID COPPER (SPEC. #3425).
4. ALL WIRES TO BE BLACK EXCEPT AS OTHERWISE INDICATED.
5. BIND LEADS IN GROUPS WHERE REQUIRED FOR MECHANICAL STABILITY.

Figure 8–39. Racks ★ MT-7A/ARR-2 and MT-411/ARC-5X, Wiring Diagram

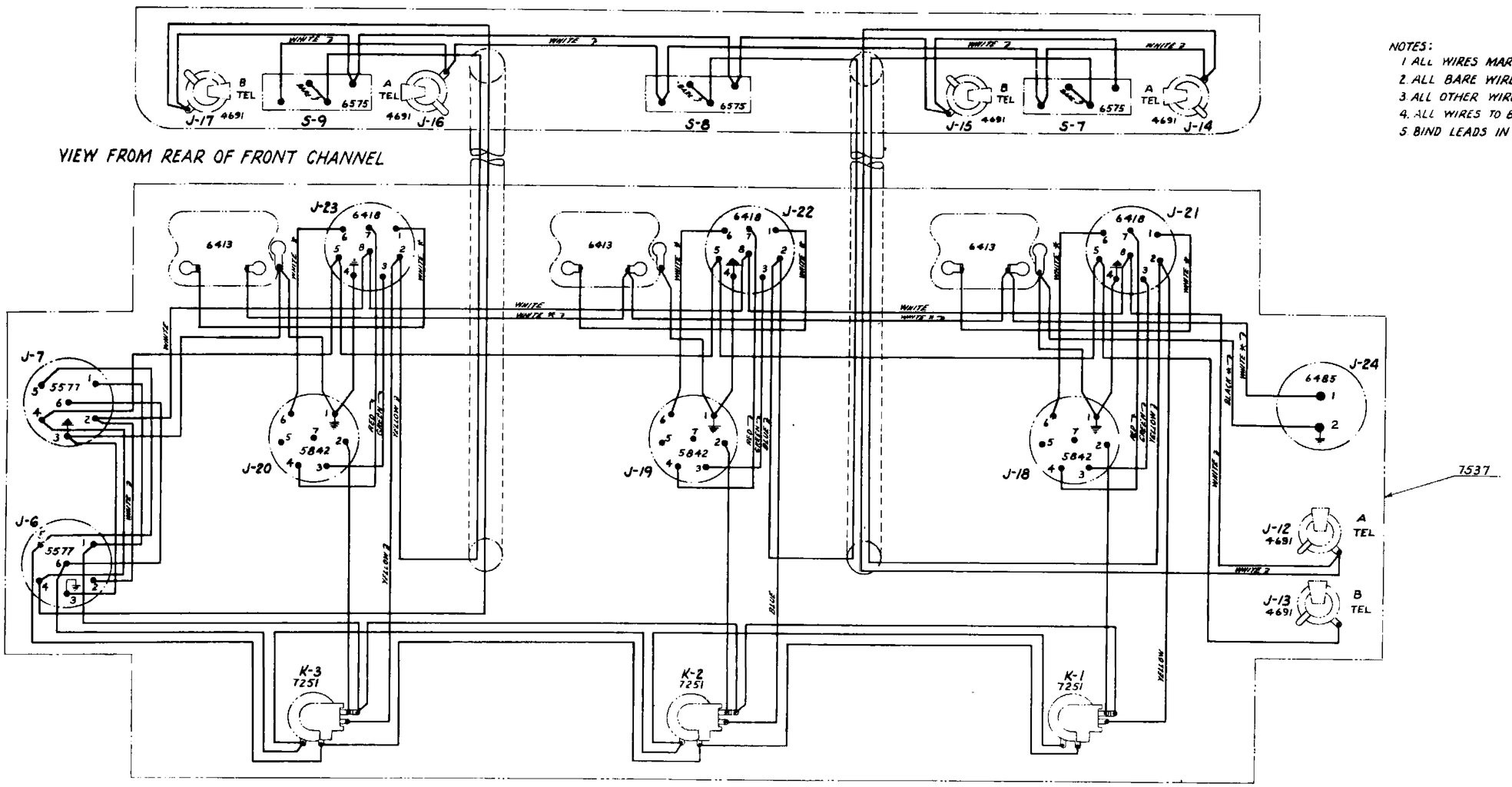


NOTES:

1. ALL WIRES MARKED (*) TO BE #18 STRANDED COPPER (SPEC #3423).
2. ALL BARE WIRES TO BE #22 TINNED COPPER.
3. ALL OTHER WIRES TO BE #22 SOLID COPPER (SPEC #3425)
4. ALL WIRES TO BE BLACK EXCEPT AS OTHERWISE INDICATED.
5. BIND LEADS IN GROUPS WHERE REQUIRED FOR MECHANICAL STABILITY.

Figure 8—40. Rack MT-63/ARC-5, Wiring Diagram

AN 16-30ARC5-2



NOTES:
1. ALL WIRES MARKED (*) TO BE #18 STRANDED COPPER (SPEC. #3423).
2. ALL BARE WIRES TO BE #22 TINNED COPPER.
3. ALL OTHER WIRES TO BE #22 SOLID COPPER (SPEC. #3425).
4. ALL WIRES TO BE BLACK EXCEPT AS OTHERWISE INDICATED.
5. BIND LEADS IN GROUPS WHERE REQUIRED FOR MECHANICAL STABILITY.

Figure 8—41. Rack MT-67/ARC-5, Wiring Diagram

AN 16-30ARC5-2

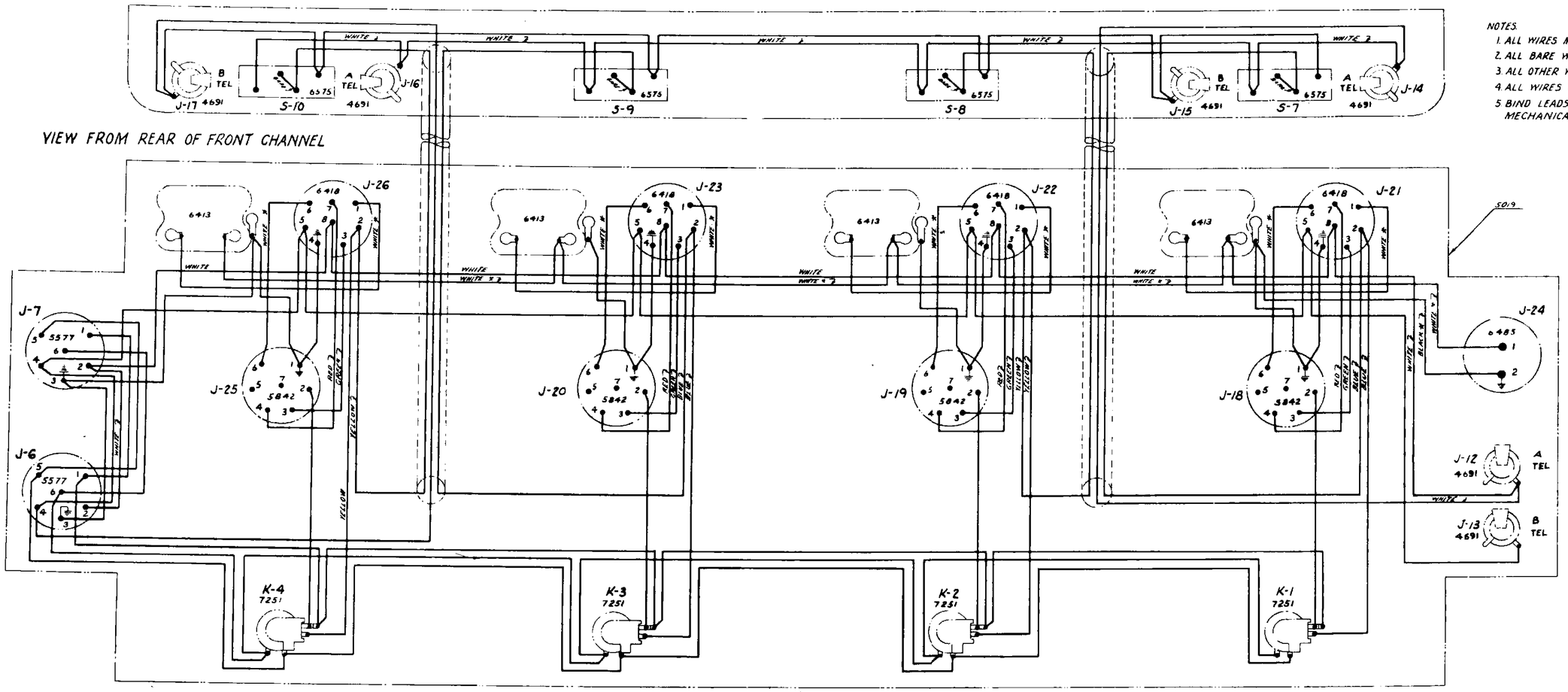
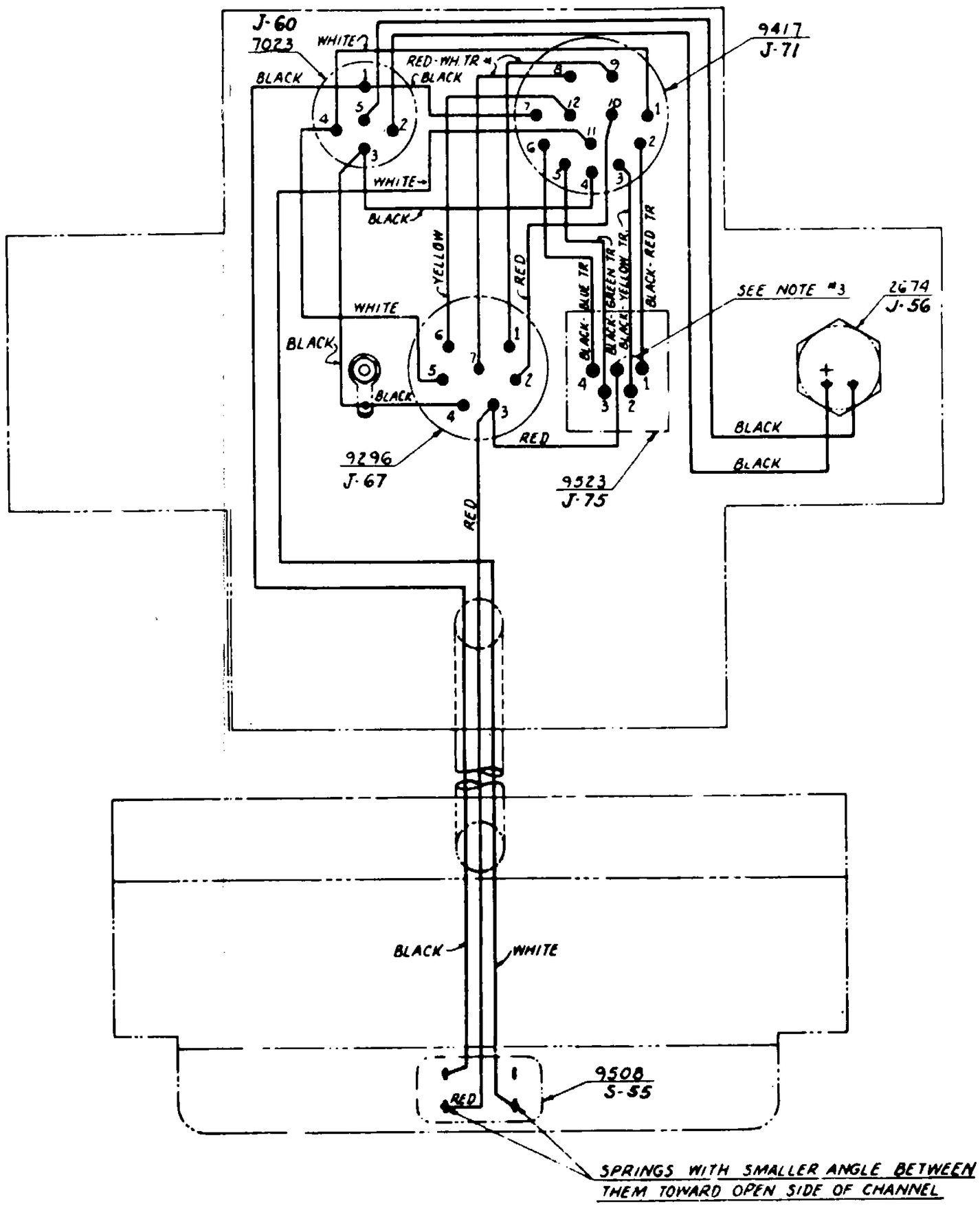


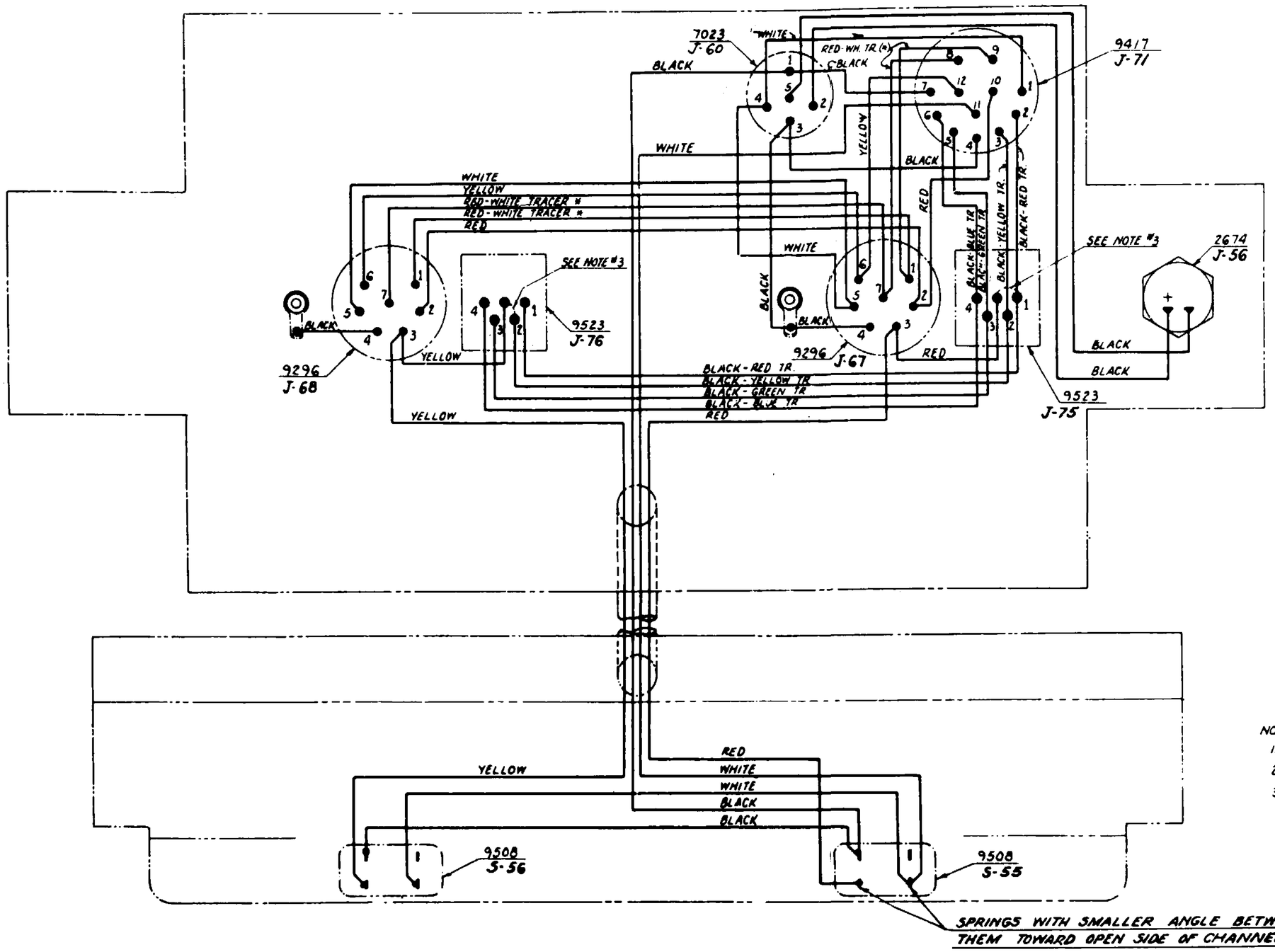
Figure 8—42. Rack MT-65/ARC-5, Wiring Diagram



NOTES:
1 ALL WIRES MARKED (*) TO BE #22 SOLID COPPER, (SPEC. #7578)
2 ALL OTHER WIRES TO BE #22 SOLID COPPER, (SPEC #3425)
3 JUMPER ON FRONT OF #9523 PANEL TO BE #22 TINNED COPPER.

Figure 8—43. Rack MT-69/ARC-5, Wiring Diagram

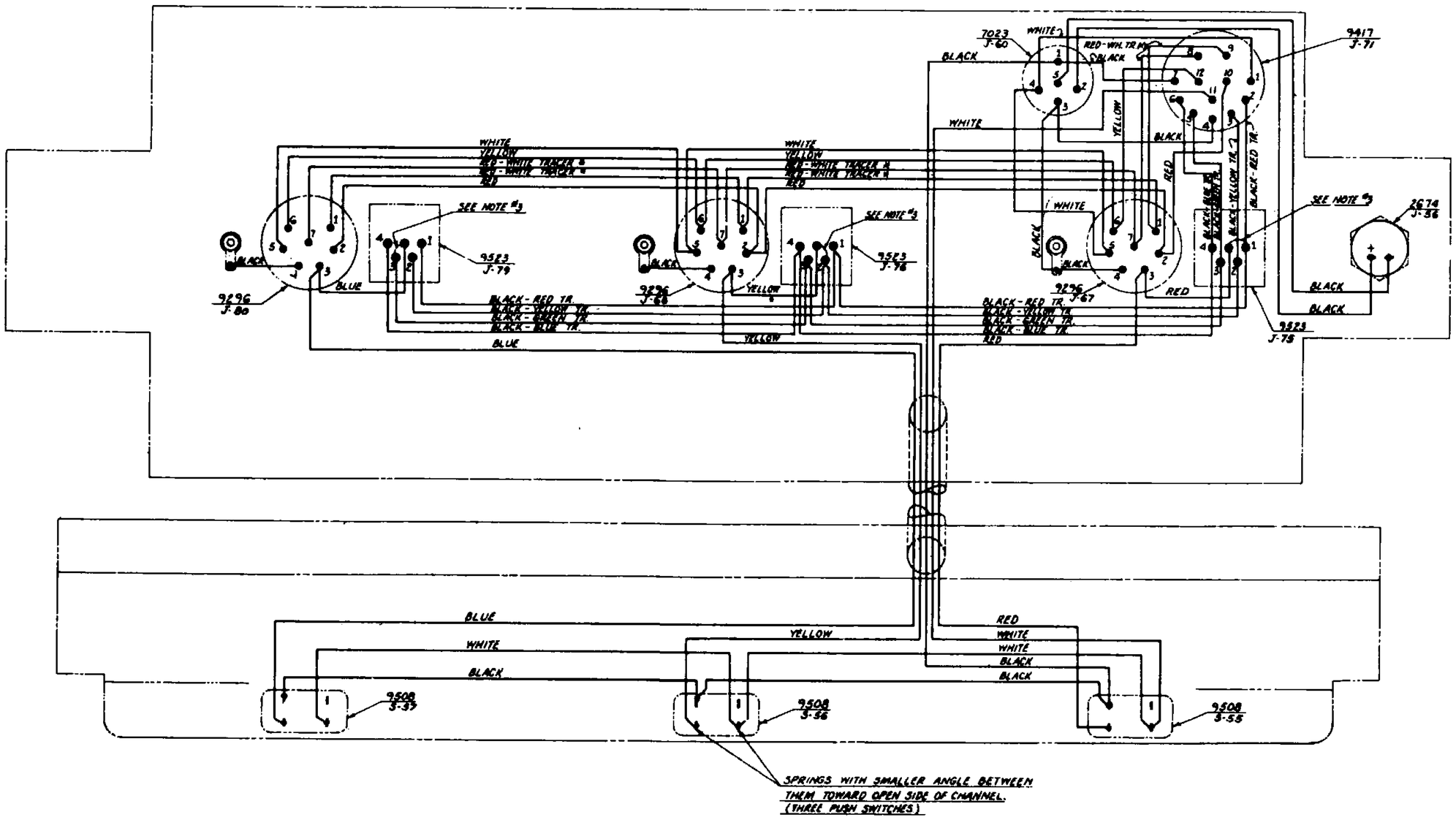
AN 16-30ARC5-2



NOTES:
1. ALL WIRES MARKED (*) TO BE SOLID COPPER, SPEC #7578
2 ALL OTHER WIRES TO BE #22 SOLID COPPER. SPEC #3425
3 JUMPERS ON FRONT OF #9523 PANELS TO BE #22 TINNED COPPER

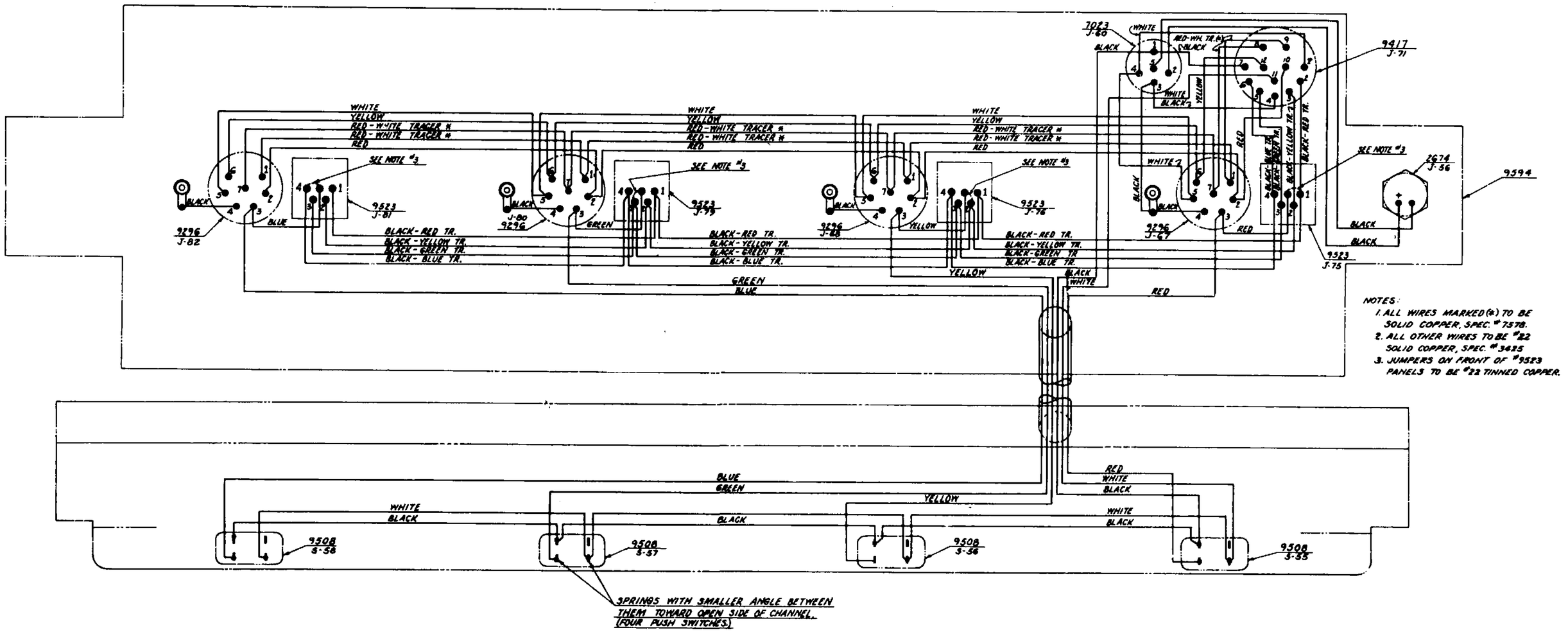
Figure 8—44. Rack MT-71/ARC-5, Wiring Diagram

AN 16-30ARC5-2



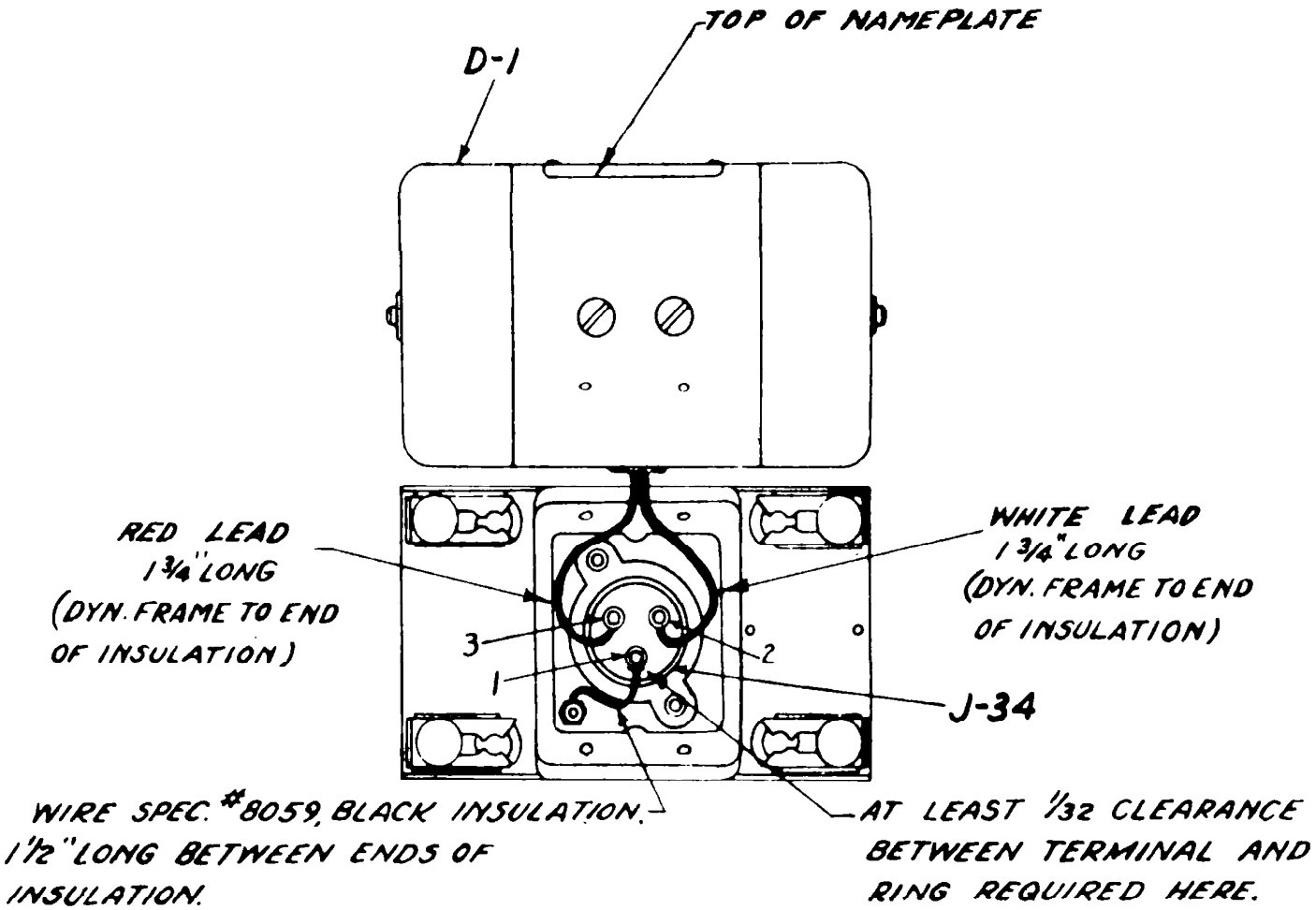
NOTES:
1. ALL WIRES MARKED (R) TO BE SOLID COPPER SPEC. #7578.
2. ALL OTHER WIRES TO BE SOLID COPPER, SPEC. #3425.
3. JUMPERS ON FRONT OF #9523 PANELS TO BE #22 TINNED COPPER.

Figure 8—45. Rack MT-73/ARC-5, Wiring Diagram



NOTES:
1. ALL WIRES MARKED (*) TO BE SOLID COPPER, SPEC. # 7578.
2. ALL OTHER WIRES TO BE #22 SOLID COPPER, SPEC. # 3435
3. JUMPERS ON FRONT OF #9523 PANELS TO BE #22 TINNED COPPER.

Figure 8—46. Rack MT-75/ARC-5, Wiring Diagram



VIEW WITH DYNAMOTOR DISPLACED
SHOWING WIRING

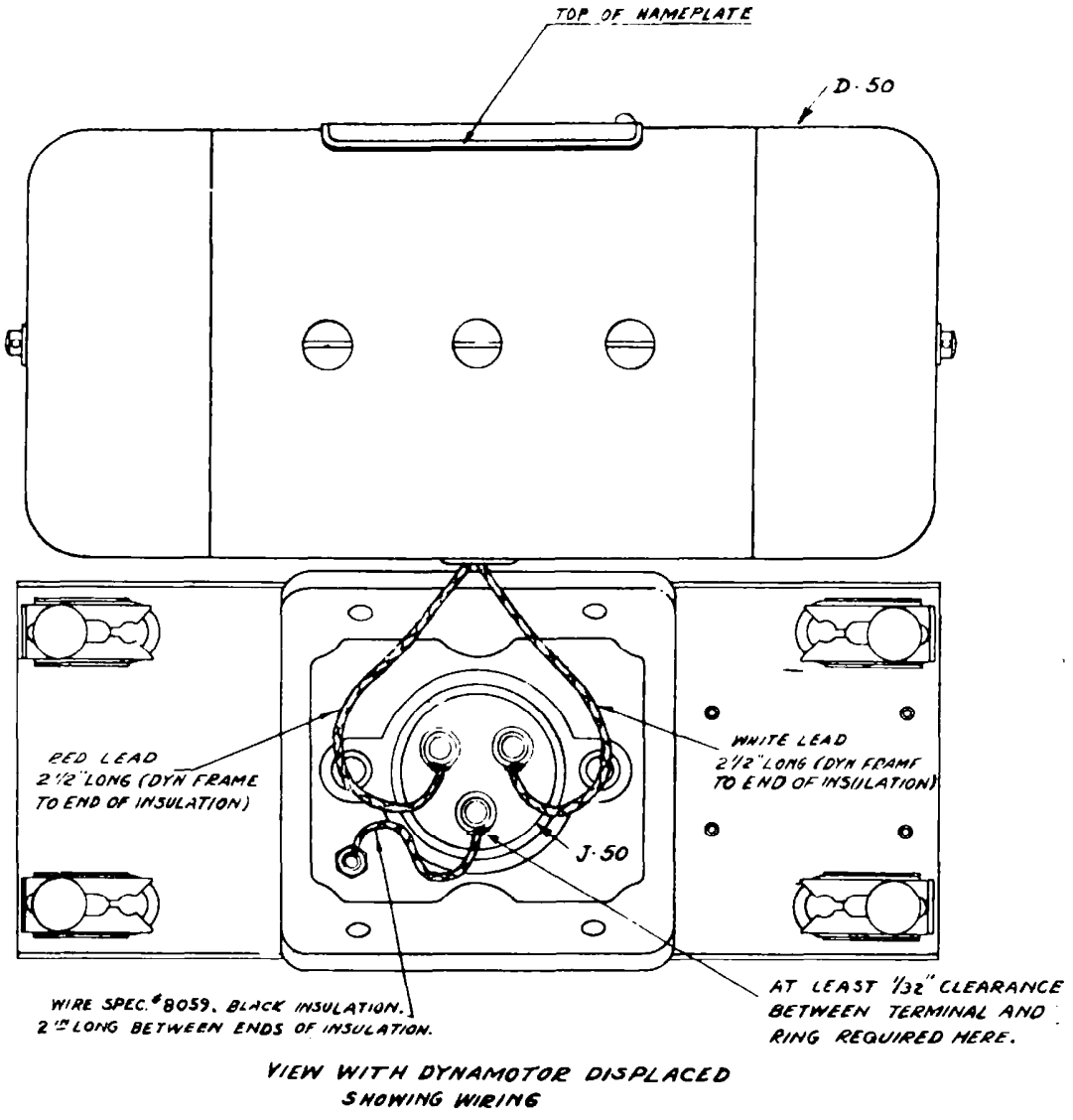
NOTES:

1 KEEP LEAD INSULATION CLOSE TO TERMINALS. PAINT BETWEEN ENDS OF LEAD INSULATION AND TERMINALS WITH THICK RED LACQUER FOR REENFORCEMENT.

2. TOPS OF TERMINALS MUST BE FREE FROM SHARP METALLIC POINTS.

3 TERMINAL NUMBERS SHOWN ARE FOR IDENTIFICATION PURPOSES. THEY DO NOT APPEAR ON THE UNIT.

Figure 8—47. Dynamotors ★ DY-1/ARR-2X, ★ DY-2A/ARR-2, and DY-2B/ARR-2, Wiring Diagram



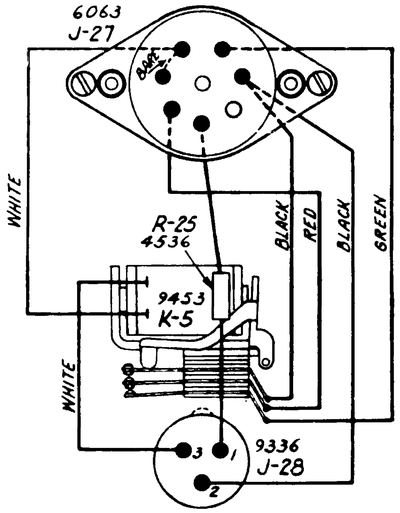
VIEW WITH DYNAMOTOR DISPLACED
SHOWING WIRING

NOTES:
1. KEEP LEAD INSULATION CLOSE TO TERMINALS. PAINT BETWEEN ENDS OF LEAD INSULATION AND TERMINALS WITH THICK RED LACQUER FOR REENFORCEMENT.
2. TOPS OF TERMINALS MUST BE FREE FROM SHARP METALLIC POINTS.

Figure 8—48. Dynamotor DY-8/ARC-5, Wiring Diagram

AN 16-30ARC5-2

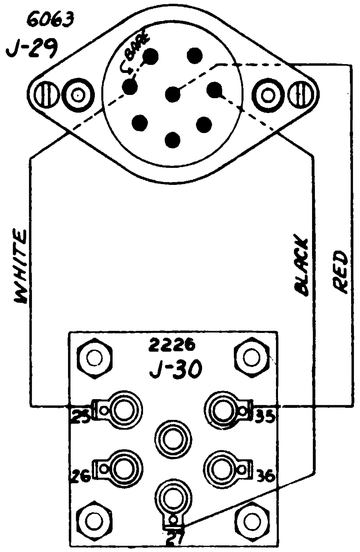
AN 16-30ARC5-2



TYPE MX-19/ARC-5
AUDIO ADAPTER

VIEW FROM REAR OF UNIT

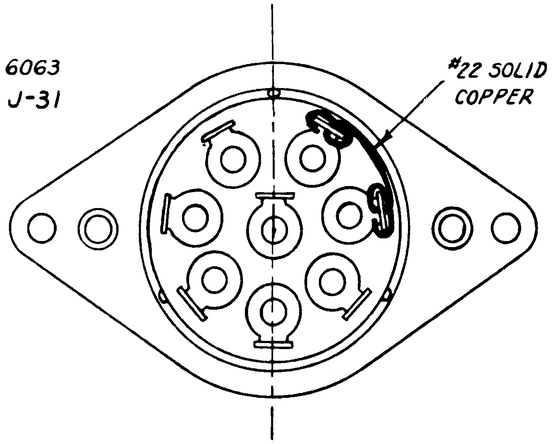
NOTES:
1. ALL WIRES MARKED WITH COLOR NOTE ARE #22 SOLID COPPER (SPEC. #3425).
2. BARE WIRE IS #22 SOLID TINNED COPPER.
3. THIS UNIT OPERATES ON 28 VOLTS.



TYPE MX-20/ARC-5
POWER ADAPTER

VIEW FROM REAR OF UNIT.

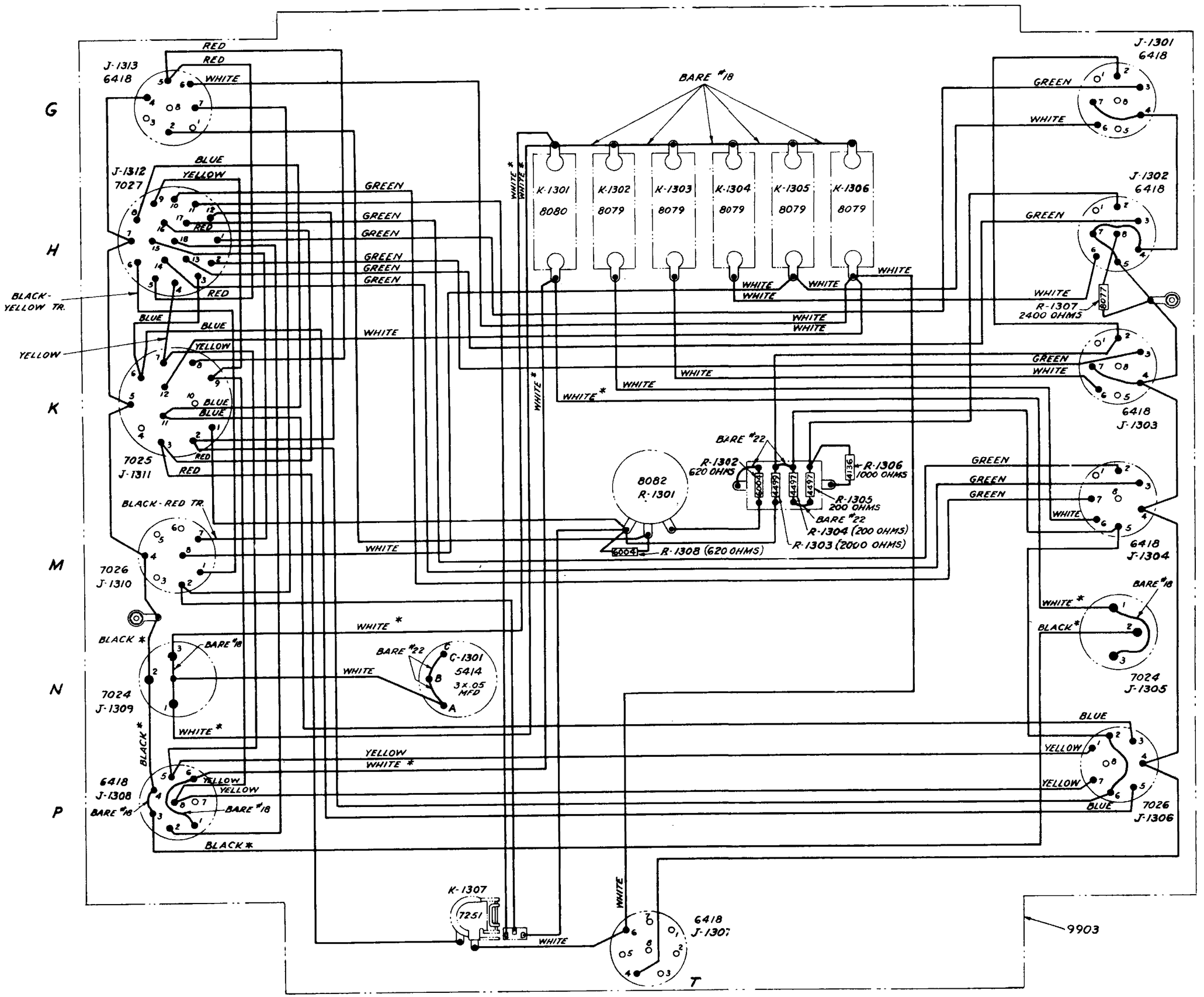
NOTES
1 ALL WIRES MARKED WITH COLOR NOTE ARE #22 SOLID COPPER (SPEC #3425)
2 BARE WIRE IS #22 SOLID TINNED COPPER.



VIEW FROM REAR OF UNIT.

TYPE MX-21/ARC-5
REMOTE CONTROL ADAPTER

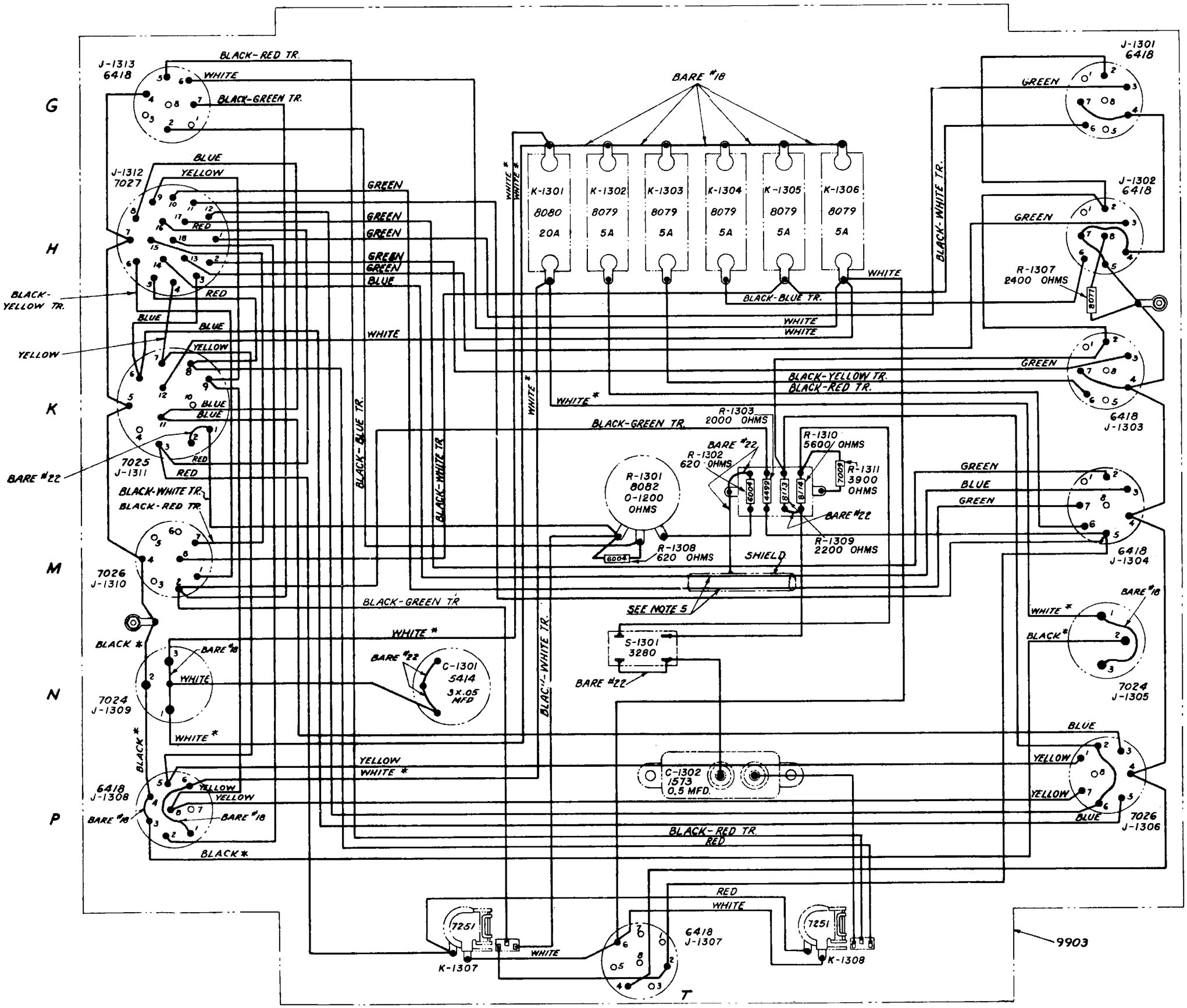
Figure 8—49. Audio, Power, and Remote Control Adapters, Wiring Diagrams



NOTES:

1. WIRING DIAGRAM SHOWN HERE WAS MODIFIED STARTING WITH SERIAL NUMBER 3016 CBY AND WITH SERIAL NUMBER 1 CCT AS FOLLOWS: D-5 CHANGED FROM AUDIO BUS TO H-11; CONNECTION ADDED FROM T-2 TO H-11; SHIELD ADDED TO WIRES D-3 TO H-14 AND D-7 TO H-10.
2. ALL WIRES MARKED (*) TO BE #18 STRANDED COPPER (SPEC. #3423)
3. BARE WIRES ARE TINNED COPPER WITH SIZES AS SHOWN.
4. ALL OTHER WIRES #22 SOLID COPPER (SPEC. #3425) WITH BLACK INSULATION EXCEPT AS NOTED.
5. USE ROSIN FLUX ONLY FOR ALL SOLDERING.

Figure 8—50. Junction Box J-17/ARC-5, Wiring Diagram

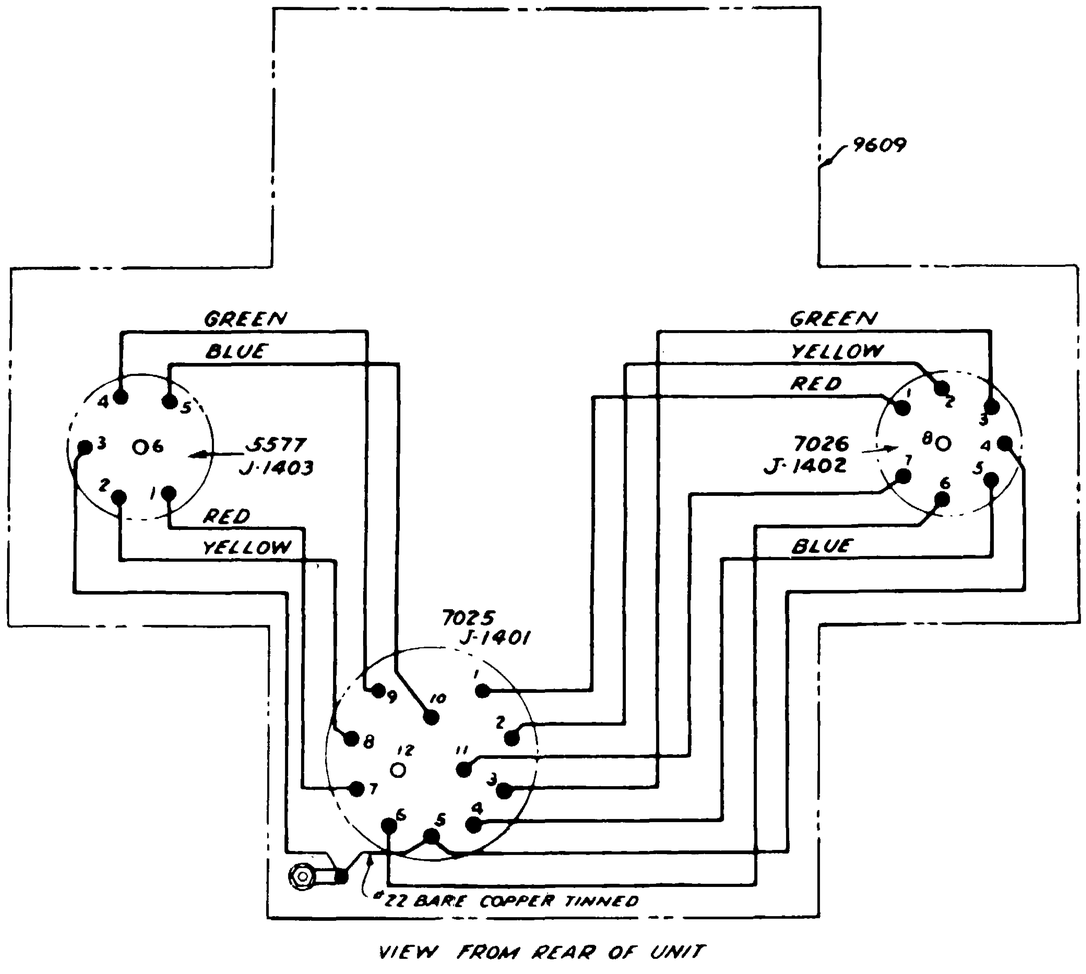


NOTES:

1. ALL WIRES MARKED (*) TO BE #18 STRANDED COPPER (SPEC. #3423)
2. BARE WIRES ARE TINNED COPPER WITH SIZES AS SHOWN.
3. ALL OTHER WIRES #22 SOLID COPPER (SPEC. #3425) WITH BLACK INSULATION EXCEPT AS NOTED.
4. USE ROSIN FLUX ONLY FOR ALL SOLDERING.
5. TWO LEADS AS SHOWN BETWEEN RECEPTACLES G418 AND 7027 SHALL BE ELECTROSTATICALLY SHIELDED TO WITHIN 1½" FROM EACH END. (BOTH WIRES MAY BE IN ONE SHIELD).

Figure 8—51. Junction Box J-17A/ARC-5, Wiring Diagram

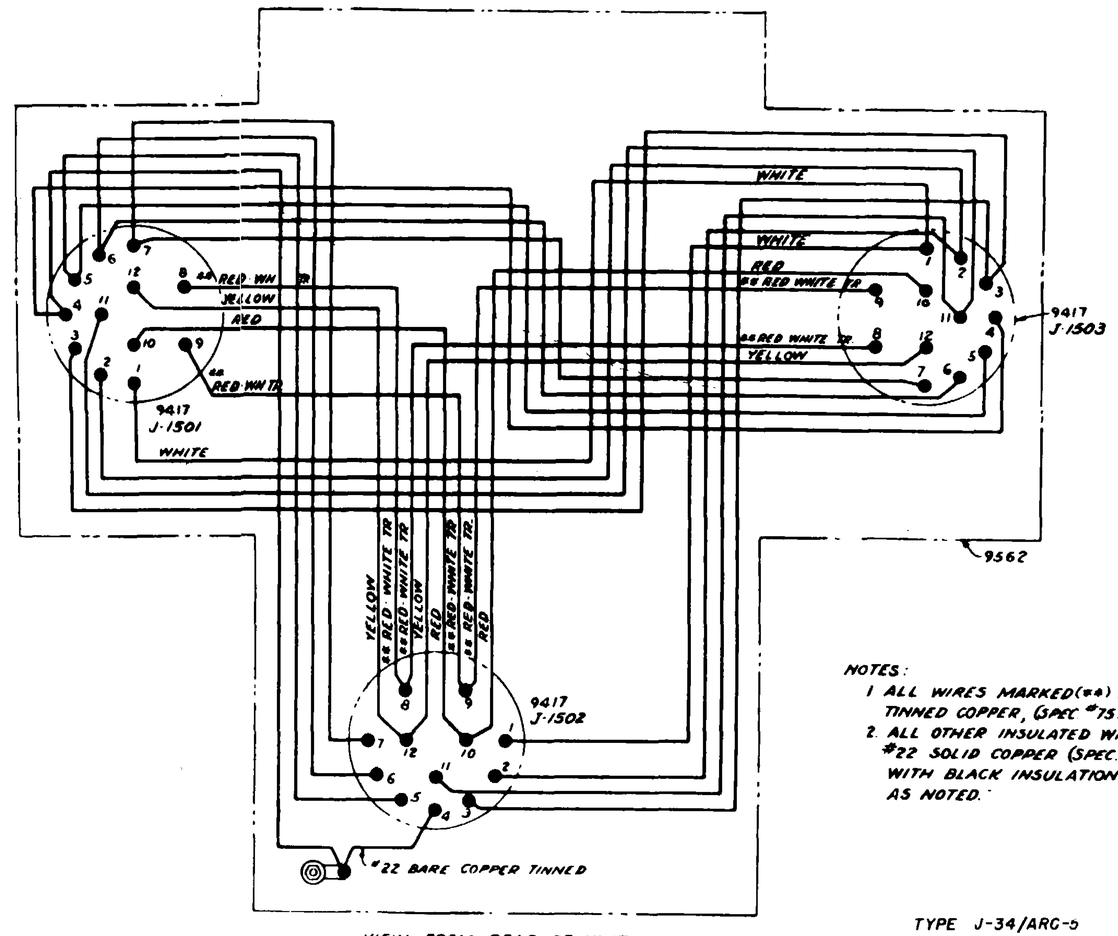
AN 16-30ARC5-2
AN 16-30ARC5-2



VIEW FROM REAR OF UNIT

TYPE J-28/ARC-5
JUNCTION BOX

NOTE:
ALL WIRES #22 SOLID COPPER (SPEC. #3425) WITH BLACK INSULATION EXCEPT AS NOTED.



VIEW FROM REAR OF UNIT

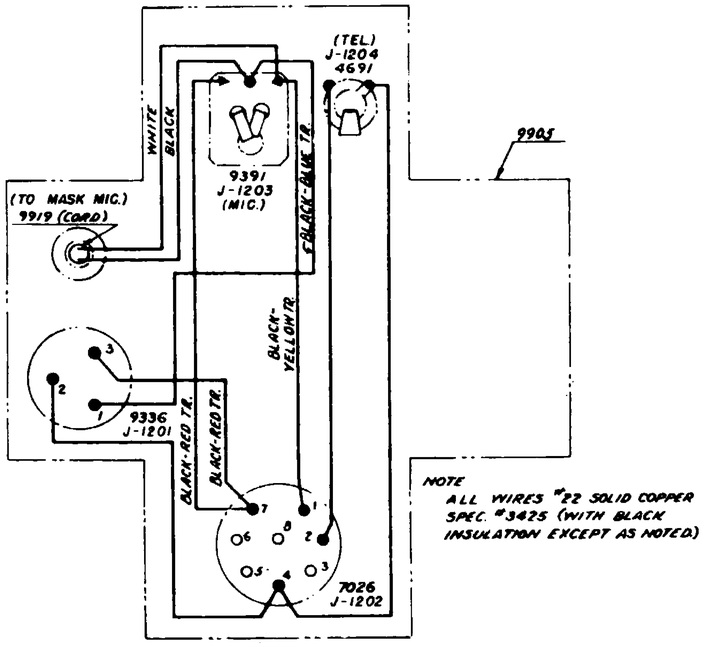
NOTES:
1. ALL WIRES MARKED (**) TO BE #22 TINNED COPPER, (SPEC. #7578).
2. ALL OTHER INSULATED WIRES TO BE #22 SOLID COPPER (SPEC. #3425) WITH BLACK INSULATION EXCEPT AS NOTED.

TYPE J-34/ARC-5
JUNCTION BOX

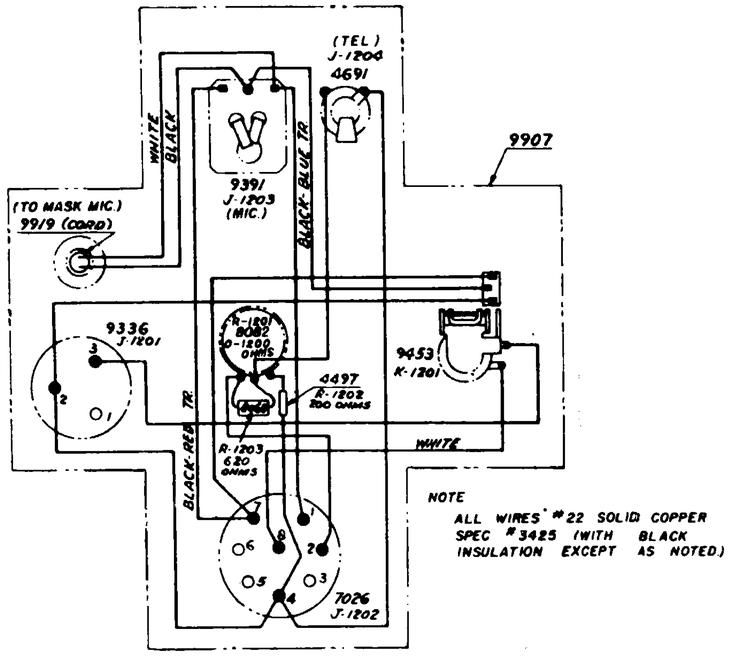
Figure 8—52. Junction Boxes J-28/ARC-5 and J-34/ARC-5, Wiring Diagram

AN 16-30ARC5-2

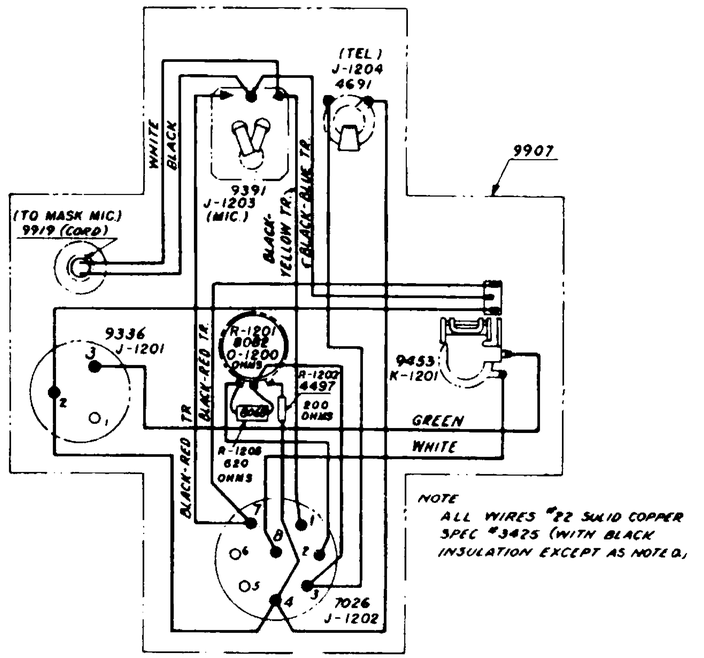
AN 16-30ARC5-2



TYPE J-16/ARC-5
JACK BOX



TYPE J 22A/ARC-5
JACK BOX



TYPE J 22B/ARC-5
JACK BOX

Figure 8—53. Jack Boxes J-16/ARC-5, J-22/ARC-5, J-22A/ARC-5, and J-22B/ARC-5, Wiring Diagrams

AN 16-30ARC5-2

NOTES:

1. LEADS MARKED "A" MUST BE SO DRESSED AS TO MAINTAIN AT LEAST 5/16" CLEARANCE TO OTHER CONDUCTORS AND TO GROUNDED PARTS, EXCEPT THAT GAP "B" NEED NOT EXCEED 1/8"
2. SOLDER TERMINATION OF BARE LEADS "A" MUST BE SMOOTHLY ROUNDED TO AVOID ALL SHARP PROJECTIONS, BARE LEADS MUST NOT BE MARRED IN SUCH A WAY AS TO LEAVE SHARP EDGES OR POINTS.
3. ALL LEADS INDICATED BY COLOR ARE #22 SOLID WIRE (SPEC #3425)
4. PAINT ALL SOLDERED CONNECTIONS WITH RED LACQUER (SPEC #4593)
5. AFTER WIRING IS COMPLETED, APPLY A HEAVY COAT OF G.E. GLYPTOL #1202 LACQUER OVER COIL TURNS AND INSULATORS OF COIL ASSEMBLY 7501.

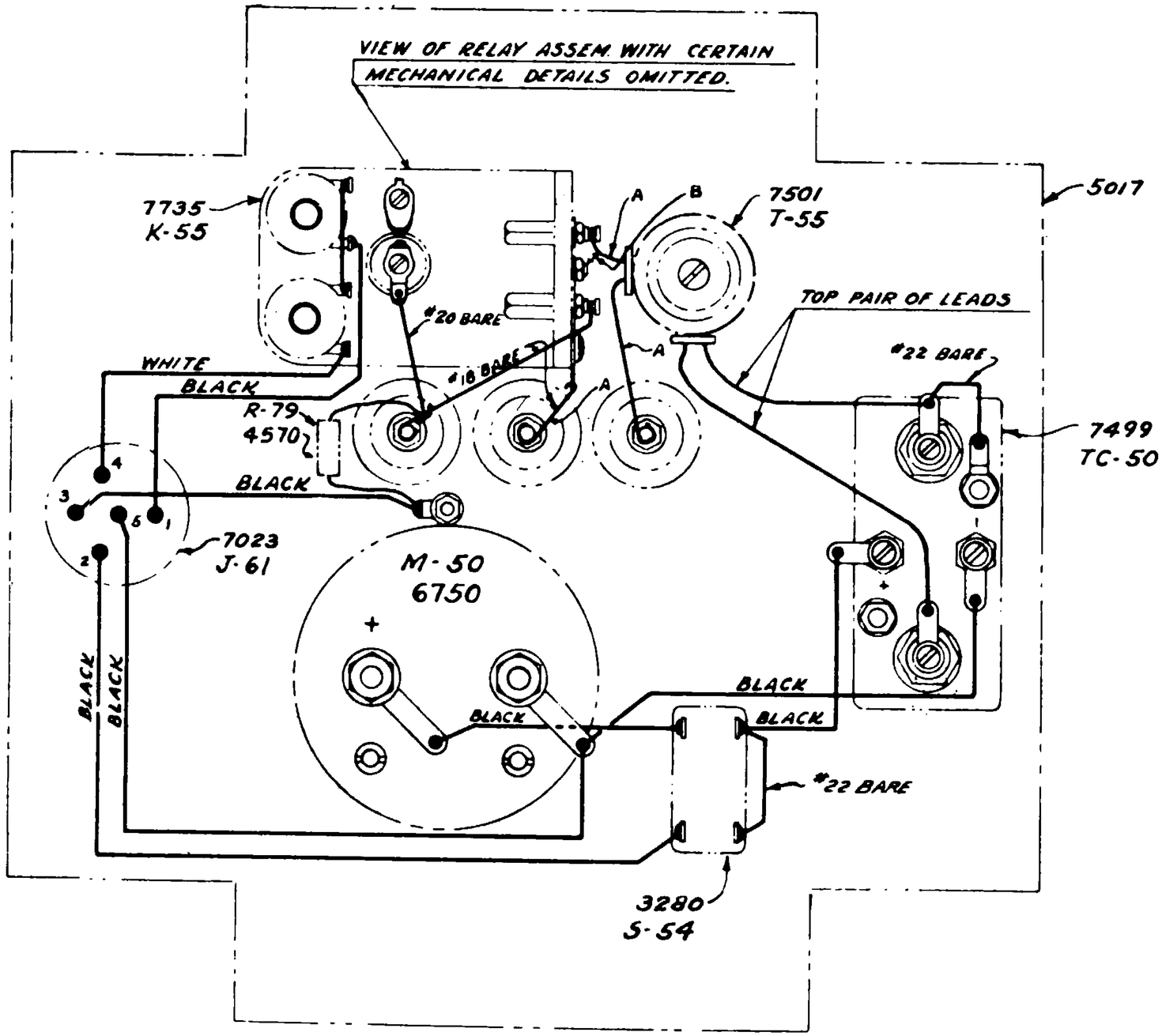


Figure 8—54. Antenna Relay Unit RE-2/ARC-5, Wiring Diagram

NOTES:

1. ONE RECEIVER CONTROL BOX DIAL IS SUPPLIED ATTACHED TO THE TUBE COVER OF EACH RECEIVER. A DIAL MAY BE REMOVED FROM THE CONTROL UNIT BY UNSCREWING THE KNURLED NUT IN THE CENTER AND LIFTING THE DIAL ASSEMBLY OFF. BEFORE TIGHTENING A NEW DIAL, ROTATE IT UNTIL ITS READING CORRESPONDS PRECISELY WITH THAT OF THE ASSOCIATED RECEIVER DIAL, THEN HAND-TIGHTEN THE KNURLED NUT.

2. THE RELATIVE LOCATION OF THE RECEIVERS IN THE 2-UNIT RECEIVER RACK IS IMMATERIAL. ELECTRICAL INTERFERENCE BETWEEN CERTAIN COMBINATIONS OF RECEIVERS IN A 3-UNIT INSTALLATION CAN BE REDUCED BY SEPARATING THE RECEIVERS COVERING ADJACENT FREQUENCY BANDS. FOR EXAMPLE: THE .19-.55 MC or the .52-1.5 MC RECEIVER SHOULD BE PLACED IN THE CENTER COMPARTMENT WITH THE 3-6 MC AND 6-9.1 MC RECEIVERS IN THE END COMPARTMENTS IF THIS COMBINATION IS INSTALLED. THE ARRANGEMENT IN MANY CASES WILL INCLUDE THE *R-4/ARR-2 RECEIVER ON THE LEFT, AN AN/ARC-5 HF RECEIVER IN THE MIDDLE, AND AN AN/ARC-5 VHF, RECEIVER ON THE RIGHT. STABILIZED RECEIVERS (MARKED WITH AN S IN YELLOW ON THE FRONT PANEL) MAY BE LOCK-TURNED WITH THE AID OF THE TYPE O-4/ARC-5 CRYSTAL FREQUENCY GENERATOR, OR IF THIS IS NOT AVAILABLE, AN LM SERIES FREQUENCY METER.

3. THE MECHNICAL LINKAGE CONNECTION TO EACH RECEIVER SHOULD BE MADE WITH A BEND RADIUS AS LARGE AS PRACTICABLE AND WITH SUFFICIENT SLACK NEAR THE RECEIVER SO THAT ITS SHOCK-PROOFING IS NOT MATERIALLY REDUCED. IN SOME CASES IT MAY BE DESIRABLE TO USE A RIGHT-ANGLE TUNING COUPLING *MX-22/ARR-2. THE RELATIVE LENGTHS OF THE SHAFTING AND CASING OF THE MECHANICAL LINKAGE SHOULD BE SUCH THAT WHEN INSTALLED IN AN AIRPLANE THERE IS NO BINDING OF THE SHAFTING OR FITTINGS. THE ALIGNMENT OF THE RECEIVER AND RECEIVER CONTROL UNIT DIALS SHOULD BE PERFORMED AFTER THE INSTALLATION OF THE MECHANICAL LINKAGE. TUNE ACROSS THE DIAL AND CHECK THE CORRESPONDENCE OF THE RECEIVER AND RECEIVER CONTROL UNIT DIALS. BACKLASH SHOULD NOT EXCEED 1/64 INCH ON THE RECEIVER CONTROL UNIT DIAL IN A PROPERLY ASSEMBLED AND INSTALLED MECHANICAL LINKAGE.

4. THE ANTENNA BINDING POST OF ANY RECEIVER MAY BE CONNECTED TO A SEPARATE ANTENNA IF DESIRED. WHEN THE .19-.55 MC RECEIVER IS TO BE USED FOR RECEPTION OF AIRWAYS RADIO RANGE SIGNALS, IT IS RECOMMENDED THAT A VERTICAL OR A BALANCED T ANTENNA BE EMPLOYED. THE OBJECT OF THIS IS TO AVOID COURSE ERRORS USUALLY ASSOCIATED WITH ANTENNAS HAVING A NET HORIZONTAL COMPONENT. THE ANTENNA POST OF THE .52-1.5 MC RECEIVER MAY BE CONNECTED TO AN ANTENNA OR TO THE OUTPUT OF SPECIAL EQUIPMENT, AS REQUIRED.

5. (A, B, C) GROUND CONNECTIONS SHOULD BE MADE TO THE METAL FRAME OF THE AIRPLANE OR TO A MEMBER WELL-BONDED TO THE FRAME. THE LEAD SHOULD BE KEPT AS SHORT AS POSSIBLE EXCEPT FOR ENOUGH SLACK TO PREVENT BREAKAGE.

6. THE PLUG ON CABLE 5808 MAY BE CONNECTED TO EITHER OUTLET ON THE RIGHT REAR OF THE RACK. THE SECOND OUTLET MAY BE USED FOR PATCHING TO A SECOND RACK WHEN REQUIRED. WHEN NOT IN USE, THIS SHOULD BE COVERED BY A CAP CW-2/ARC-5.

7. (A, B, C) ANTENNA LEADS MUST BE BARE, TINNED, APPROXIMATE SIZE #18 B&S GAUGE. SUPPORT ON HIGH QUALITY CERAMIC INSULATORS. THE USE OF CERAMIC BEADS IS NOT RECOMMENDED. ALL TRANSMITTER ANTENNA LEADS MUST BE CAREFULLY SPACED AWAY FROM GROUNDED SURFACES, AND THE ENDS OF THE WIRES MUST BE BENT IN CLOSE TO THE METAL SHELLS OF THE BINDING POSTS. IF ANY SHARP WIRE ENDS ARE ALLOWED TO PROJECT AWAY FROM THE BINDING POST SURFACE, CORONA AND SPARK BREAK-DOWN WILL OCCUR, PARTICULARLY AT HIGH ALTITUDE.

8. (A, B) A 50 MICROMICROFARAD HIGH-VOLTAGE VACUUM CAPACITOR IS CONNECTED BETWEEN POSTS C ON TYPE RE-2/ARC-5 ANTENNA RELAY UNIT. THIS SHOULD BE CONNECTED BETWEEN THE ANTENNA RELAY UNIT AND A TRANSMITTER (AS SHOWN FOR THE UPPER TRANSMITTER UNIT IN FIG. 30) ONLY IF THE ANTENNA IS SO LONG THAT IT IS IMPOSSIBLE TO RESONATE THE ANTENNA CIRCUIT OF THIS TRANSMITTER WITHOUT IT. IF THE OVERALL LENGTH OF THE ANTENNA DOES NOT EXCEED 20 FEET, C-69 PROBABLY WILL NOT BE NECESSARY. IN THIS CASE THE A BINDING POSTS OF THE TWO TRANSMITTERS SHOULD BE CONNECTED TOGETHER, AND A SINGLE WIRE SHOULD FE USED TO CONNECT THEM TO THE TR BINDING POST ON THE ANTENNA RELAY UNIT. THE CABLING DIAGRAM SHOWS THE ANTENNA SERIES CAPACITOR CONNECTED TO ONE TRANSMITTER BUT NOT TO THE OTHER TO EXEMPLIFY BOTH METHODS OF CONNECTION. IF AN EXTREMELY SHORT ANTENNA (12 FEET OR LESS, OVERALL), IS USED FOR TRANSMITTING ON FREQUENCIES LESS THAN 4 MC, IT IS DESIRABLE TO CONNECT THIS CAPACITOR BETWEEN ANTENNA AND GROUND. THIS WILL SERVE TWO PURPOSES: (1) TO MAKE IT POSSIBLE TO RESONATE THE ANTENNA CIRCUIT IF THE ANTENNA CAPACITANCE IS LESS THAN 40 MMF, AND (2) TO REDUCE THE ANTENNA VOLTAGE AND CHANCE OF BREAK-DOWN AT HIGH ALTITUDE.

9. THE RELATIVE LOCATION OF THE HF TRANSMITTERS IN THE RACK IS IMMATERIAL EXCEPT THAT THE TRANS. NO. MUST CORRESPOND WITH THE CORRECT POSITION ON THE TRANSMITTER SELECTION PLATE ON THE TRANSMITTER CONTROL UNIT. THE VHF TRANSMITTER MUST BE TRANS. NO. 1 REGARDLESS OF WHICH STALL IT IS IN OR THE SELECTOR CIRCUITS WILL NOT OPERATE PROPERLY.

10. A THROTTLE SWITCH OR OPERATOR'S KEY, AND MICROPHONE MAY BE CONNECTED HERE.

11. THIS MAY BE THE J-22/ARC-5 OR J-22A/ARC-5 JACK BOX DEPENDING UPON THE PARTICULAR COMBINATION OF ACCESSORIES SPECIFIED FOR THE AIRPLANE.

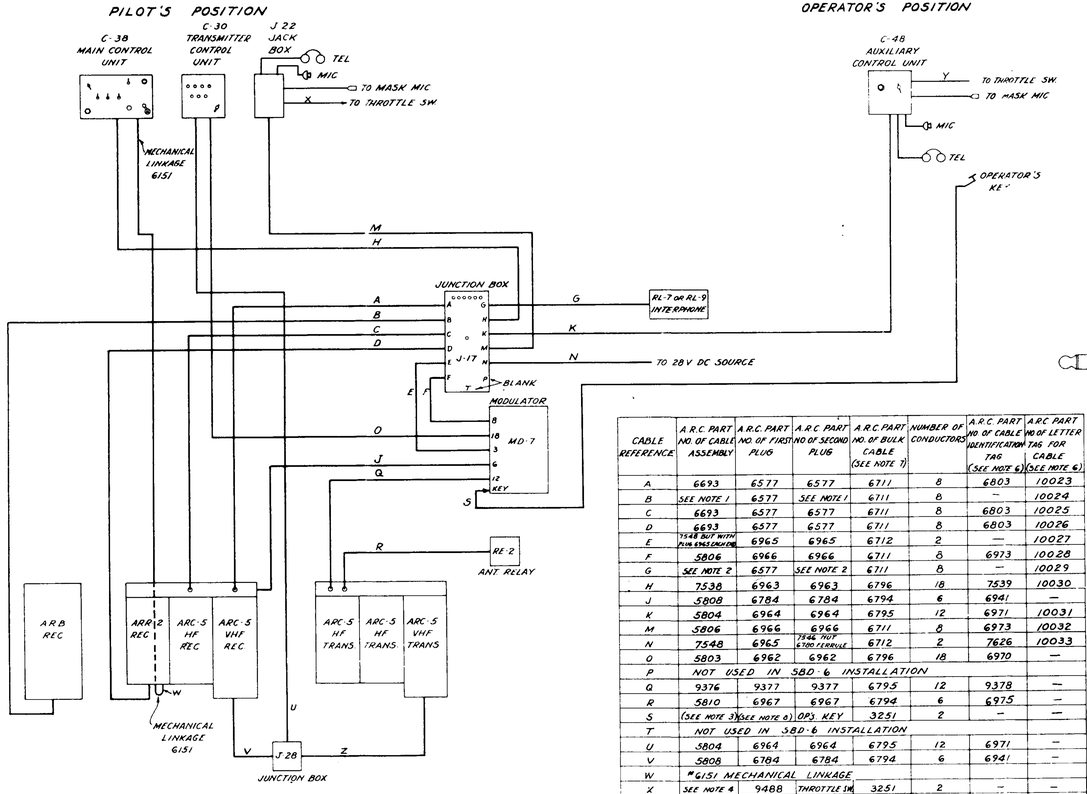
12. THIS OUTLET CONNECTS TO A REMOTE ANTENNA CURRENT INDICATOR WHICH IS NOT SUPPLIED AS PART OF THIS EQUIPMENT. THE REMOTE - LOCAL TOGGLE SWITCH ON THE TYPE RE-2/ARC-5 ANTENNA RELAY UNIT SHOULD BE SAFETY-WIRED ON LOCAL. THIS OUTLET MAY BE USED FOR REMOTE INDICATION OF ANTENNA CURRENT IN SPECIAL CASES.

13. AN ASSEMBLY DRAWING OF EACH OF THE CABLE ASSEMBLIES USED IN THIS EQUIPMENT MAY BE FOUND IN FIG. 43. PARTICULAR ATTENTION SHOULD BE PAID TO THE NOTE REGARDING "TWISTING" OF THESE CABLE ASSEMBLIES DURING INSTALLATION. IF OPEN-WIRING IS SPECIFIED INSTEAD OF SHIELDED CABLES, CONSULT TABLE 17 FOR EQUIVALENT PLUGS WHICH ARE MORE SUITABLE TO OPEN-WIRING THAN THOSE USED WITH SHIELDED CABLE. IF THE "SHIELDED CABLE" TYPE OF PLUGS ARE USED WITH OPEN-WIRING IT IS RECOMMENDED THAT THE NUT AND FERRULE BE REPLACED BY A STANDARD AN TYPE OF GROMMET.

14. A CAP COVERS EACH "A TEL-B TEL" JACK ON THE RECEIVER RACK. THESE COVERS SHOULD BE REMOVED AND THE SWITCH THROWN TO A OR TO B ONLY WHEN THE RECEIVERS ARE CONTROLLED LOCALLY OR WHEN CONTROL UNITS SUCH AS C-26ARC-5, C-27/ARC-5, OR C-38/ARC-5 HAVING NO A TEL-B TEL SWITCHES ARE USED. IN THE LATTER CASE, THE SWITCHES SHOULD BE SAFETY WIRED IN THE POSITION SPECIFIED IN BUREAU OF AERONAUTICS INSTALLATION DIAGRAMS.

15. WRITE #1 ON THE PLATE ATTACHED TO THE RACK BELOW #1 TRANSMITTER AND #2 ON THE CORRESPONDING PLATE BELOW #2 TRANSMITTER, ETC. (THE VHF TRANSMITTER MUST ALWAYS BE #1.)

16. (NOT ON CABLING DIAGRAM) THE OUTLET ON THE TYPE MX-20/ARC-5 POWER ADAPTER SHOULD BE COVERED WITH A PROTECTIVE CAP WHEN A PLUG FROM AUXILIARY EQUIPMENT IS NOT CONNECTED THERETO. THE UPPER LEFT TERMINAL IS AT +240 VOLTS WHEN THE RECEIVER DYNAMOTOR IS RUNNING. THE CAUTION REGARDING MAXIMUM CURRENT DRAIN MUST BE CAREFULLY OBSERVED . . . NOT OVER 0.5 AMPERE FROM THE +LV TERMINAL AND NOT OVER 15 MILLIAMPERES FROM THE +HV TERMINAL.



NOTES:

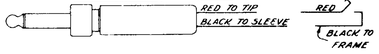
1. SECOND PLUG IS CANNON (R.C.A. PART NO P721098-9) 16 CONTACT.

ARC PLUG #6577	CABLE B			CANNON (R.C.A. #P721098-9)
" TERM. #1	WHITE	TO	BLANK	
" TERM. #2	RED	TO	#12	ON "
" TERM. #3	BLUE	TO	#7	ON "
" TERM. #4	GREEN	TO	#16 & TO #4 GRD	ON "
" TERM. #5	YELLOW	TO	#3	ON "
" TERM. #6	BLACK	TO	#15	ON "
" TERM. #7	BROWN	TO	#1	ON "
" TERM. #8	ORANGE	TO	#5	ON "
OTHERS BLANK				

2. SECOND PLUG IS CANNON (TYPE GK-12-21C½) 12 CONTACT.

ARC PLUG #6577	CABLE G			CANNON (GK 12-21C½)
" TERM. #1	BLUE	TO	BLANK	
" TERM. #2	RED	TO	#6	ON "
" TERM. #3	BLACK	TO	BLANK	
" TERM. #4	GREEN	TO	#3 GROUND	ON "
" TERM. #5	YELLOW	TO	#1	ON "
" TERM. #6	WHITE	TO	#4	ON "
" TERM. #7	BROWN	TO	BLANK	
" TERM. #8	ORANGE	TO	BLANK	
OTHERS BLANK				

3. CABLE S (OPERATOR'S KEY)

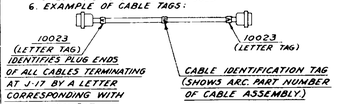


4. CABLES X AND Y

ARC PLUG #9488	
TERM. #1	BLANK
TERM. #2	BLACK, (GRD) TO GRD SIDE OF THROTTLE SW.
TERM. #3	RED, TO "KEY" CONNECTION ON THROTTLE SW.

5. J-22/ARC-5 JACK BOX CONTAINS A RELAY WHICH ISOLATES THE HAND AND MASK MICROPHONES AND WHICH ALLOWS THE USE OF A 2-WIRE CABLE AND 2-CONTACT THROTTLE SWITCH, NAF 1124-11. IF THREE-TERMINAL THROTTLE SWITCH NAF 1124-17 IS INSTALLED ONLY TWO TERMINALS ARE USED.

6. EXAMPLE OF CABLE TAGS:



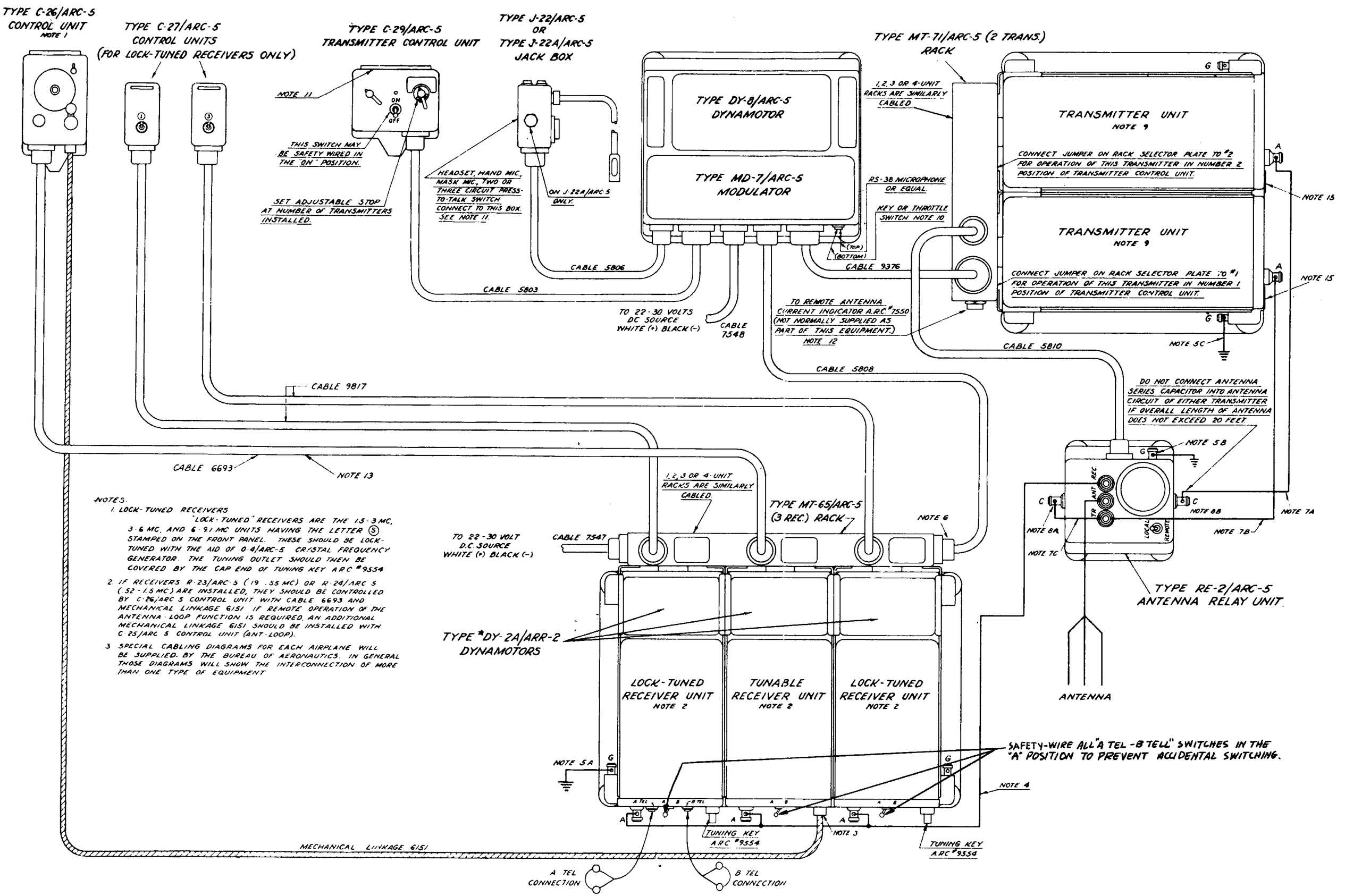
7. IF OPEN-WIRING IS USED IN PLACE OF SHIELDED MULTI-CONDUCTOR CABLES SHOWN IN THIS COLUMN THE WIRE SIZES SHOULD BE CLOSE TO THOSE SPECIFIED IN THE CABLE SPECIFICATIONS, NOT ONLY FOR CURRENT CARRYING CAPACITY BUT FOR EASE OF SOLDERING TO PLUG TERMINALS. THE CONDUCTOR INSULATION MUST BE AT LEAST AS GOOD AS THAT REQUIRED IN THE CABLE SPECIFICATION. PARTICULAR ATTENTION SHOULD BE GIVEN TO THE INSULATION ON WIRES #8 AND #9 ON CABLE 9376 (REF. Q).

8. PLUG N.A.F. #C-310572-1 (NAVAL AIRCRAFT FACTORY DWG.)

9. OPEN-WIRE CABLES MAY BE USED IN PLACE OF SHIELDED CABLES SHOWN HERE. J 28 NOT NECESSARY IF OPEN WIRE IS USED

CABLE REFERENCE	A.R.C. PART NO. OF CABLE ASSEMBLY	A.R.C. PART NO. OF FIRST PLUG	A.R.C. PART NO. OF SECOND PLUG	A.R.C. PART NO. OF BULK CABLE (SEE NOTE 7)	NUMBER OF CONDUCTORS	A.R.C. PART NO. OF CABLE IDENTIFICATION TAG (SEE NOTE 6)	A.R.C. PART NO OF LETTER TAG FOR CABLE (SEE NOTE 6)
A	6693	6577	6577	6711	8	6803	10023
B	SEE NOTE 1	6577	SEE NOTE 1	6711	8	—	10024
C	6693	6577	6577	6711	8	6803	10025
D	6693	6577	6577	6711	8	6803	10026
E	5806	6965	6965	6712	2	—	10027
F	5806	6966	6966	6711	8	6973	10028
G	SEE NOTE 2	6577	SEE NOTE 2	6711	8	—	10029
H	7538	6963	6963	6796	18	7539	10030
J	5808	6784	6784	6794	6	6941	—
K	5804	6964	6964	6795	12	6971	10031
M	5806	6966	6966	6711	8	6973	10032
N	7548	6965	7546 NUT & 7551 FERRULE	6712	2	7626	10033
O	5803	6962	6962	6796	18	6970	—
P	NOT USED IN SBD-6 INSTALLATION						
Q	9376	9377	9377	6795	12	9378	—
R	5810	6967	6967	6794	6	6975	—
S	(SEE NOTE 3)	(SEE NOTE 8)	OP3 KEY	3251	2	—	—
T	NOT USED IN SBD-6 INSTALLATION						
U	5804	6964	6964	6795	12	6971	—
V	5806	6784	6784	6794	6	6941	—
W	"G151 MECHANICAL LINKAGE						
X	SEE NOTE 4	9488	THROTTLE SW	3251	2	—	—
Y	SEE NOTE 4	9488	THROTTLE SW	3251	2	—	—
Z	5806	6966	6966	6711	8	6973	—

Figure 8—55. Model AN/ARC-5, Aircraft Radio Equipment, External Wiring Diagrams (Sheet 1 of 9)



NOTES:

1. LOCK-TUNED RECEIVERS
   "LOCK-TUNED" RECEIVERS ARE THE 1.5-3 MC, 3-6 MC, AND 6-9.1 MC UNITS HAVING THE LETTER (S) STAMPED ON THE FRONT PANEL. THESE SHOULD BE LOCK-TUNED WITH THE AID OF 0-4/ARC-5 CRYSTAL FREQUENCY GENERATOR. THE TUNING OUTLET SHOULD THEN BE COVERED BY THE CAP END OF TUNING KEY ARC #9554
2. IF RECEIVERS R-23/ARC-5 (.19 - .55 MC) OR R-24/ARC-5 (.52 - 1.5 MC) ARE INSTALLED, THEY SHOULD BE CONTROLLED BY C-26/ARC-5 CONTROL UNIT WITH CABLE 6693 AND MECHANICAL LINKAGE 6151 IF REMOTE OPERATION OF THE ANTENNA-LOOP FUNCTION IS REQUIRED. AN ADDITIONAL MECHANICAL LINKAGE 6151 SHOULD BE INSTALLED WITH C-25/ARC-5 CONTROL UNIT (ANT-LOOP).
3. SPECIAL CABLING DIAGRAMS FOR EACH AIRPLANE WILL BE SUPPLIED BY THE BUREAU OF AERONAUTICS. IN GENERAL THOSE DIAGRAMS WILL SHOW THE INTERCONNECTION OF MORE THAN ONE TYPE OF EQUIPMENT

Figure 8—55. Model AN/ARC-5, Aircraft Radio Equipment, External Wiring Diagrams (Sheet 2 of 9)

AN 16-30ARC5-2
AN 16-30ARC5-2
AN 16-30ARC5-2

EQUIPMENT

ITEM NO.	DESCRIPTION	PART NO.	DRAWING NO.	QUANTITY PER AIRPLANE	SPARES INCLUDED IN	WT. LBS.	WEIGHT GROUP	PROD. OR MAINT. GROUP	REMARKS
1	MHF Receiver	See Note 1	BuAero 955-SK	Note 1	S	C 9.0	R	A	Weight includes dynamotor unit
2	VHF Receiver	R-28/ARC-5	BuAero 955-SK	1	S	C 17.5	R	A	Weight includes dynamotor unit
3	Receiver: AN/ARR-2	*R-4/ARR-2	BuAero 955-SK	1	S	C 9.5	R	A	Weight includes dynamotor unit
4	Receiver: ARB	CRV-46151	RCA M-422357	1	S	C 26.8	R	A	Weight includes mounting base
5	MHF Transmitter	See Note 2	BuAero 949-SK	Note 2	S	C 9.0	R	A	See Note 3
6	MHF Transmitter	See Note 2	BuAero 949-SK	Note 2	S	C 9.0	R	A	See Note 3
7	VHF Transmitter	T-23/ARC-5	BuAero 949-SK	1	S	C 11.2	R	A	See Note 3
8	Junction Box	J-37/ARC-5	BuAero 939-SK	1	S	C 3.5	R	A	See Note 4
9	Modulator	MD-7/ARC-5	BuAero 952-SK	1	S	C 8.4	R	A	
10	Transmitter Dynamotor	DY-8/ARC-5	BuAero 952-SK	1	S	C 8.2	R	A	
11	Pilot's Control Box	C-58/ARC-5	BuAero 940-SK	1	S	C 1.84	R	A	
12	Pilot's Jack Box	J-22/ARC-5	BuAero 938-SK	1	S	C 0.33	R	A	
13	Operator's Control Box	C-48/ARC-5	BuAero 942-SK	1	S	C 0.50	R	A	See Note 5
14	Transmitter Control Box	C-50/ARC-5	BuAero 956-SK	1	S	C 1.4	R	A	
15	Antenna Relay	RE-2/ARC-5	BuAero 951-SK	1	S	C 1.9	R	A	
16	Interphone Amplifier	RL-7	BuAero 946-SK	1	S	C 7.5	R	A	Weight include dynamotor and amplifier mount. See Note 5
17									
18	Tuning Head, ARB Receiver	CRV-25253	RCA M-422378	1	S	C 1.0	R	A	For ferrying
19	ARB Receiver Pilot's Cont. Box	CRV-25254	RCA R 471995	1	S	C 1.2	R	A	For ferrying
20	Receiver Rack (3 Unit)	MT-93/ARC-5	BuAero 953-SK	1	S	C 4.0	R	A	
21	Receiver Mount. Base (3 Unit)	MT-94/ARC-5	BuAero 953-SK	1	S	C 1.0	F	A	
22	Transmitter Rack (3 Unit)	MT-71/ARC-5	BuAero 949-SK	1	S	C 3.3	R	A	
23	Transmitter Mount. Base (3 Unit)	MT-72/ARC-5	BuAero 949-SK	1	S	C 0.9	F	A	
24	ARB Receiver Mount. Rack	CRV-10861	RCA M-422357	1	S	C	F	A	
25	Junction Box Mount. Base	MT-93/ARC-5	BuAero 939-SK	1	S	C 0.3	F	A	
26	Modulator Mounting Base	MT-70/ARC-5	BuAero 952-SK	1	S	C 0.7	F	A	
27	Pilot's Cont. Box Mount. Base	MT-96/ARC-5	BuAero 940-SK	1	S	C 0.2	F	A	
28	Pilot's Jack Box Mount. Base	MT-78/ARC-5	BuAero 938-SK	1	S	C 0.03	F	A	
29	Operator's Cont. Box Mount. Base	MT-80/ARC-5	BuAero 954-SK	1	S	C 0.06	F	A	See Note 5
30	Transmitter Cont. Box Mount. Base	MT-86/ARC-5	BuAero 956-SK	1	S	C 0.06	F	A	
31	Antenna Relay Mounting Base	MT-77/ARC-5	BuAero 951-SK	1	S	C 0.3	F	A	
32									
33	8 Contact Plug	ARC 9125	ARC 9125-1-A	11	S	C 0.06	F	A	
34	5 Contact Plug	ARC 9126	ARC 9126-1-A	5	S	C 0.06	F	A	
35	8 Contact Plug	ARC 9821	ARC 9821-1-A	5	S	C 0.06	F	A	
36	10 Contact Plug	ARC 9121	ARC 9121-2-A	2	S	C 0.16	F	A	
37	12 Contact Plug	ARC 9122	ARC 9122-2-A	4	S	C 0.16	F	A	See Note 5
38	18 Contact Plug	ARC 9585	ARC 9585-2-A	2	S	C 0.16	F	A	
39	6 Contact Plug	ARC 9123	ARC 9123-1-A	3	S	C 0.06	F	A	
40	12 Contact Plug	ARC 9589	ARC 9589-2-A	2	S	C 0.16	F	A	
41	5 Contact Plug	ARC 9488	ARC 9488-1-A	2	S	C 0.06	F	A	See Note 5
42	7 Contact Plug	ARC 9124	ARC 9124-1-A	2	S	C 0.08	F	A	
43	Receptacle Cap	CW-2/ARC-5	ARC 5369	2	S	C 0.02	R	A	See Note 5
44	Receptacle Cap	CW-5/ARC-5	ARC 5367	1	S	C 0.02	R	A	
45	12 Contact Plug	Ca. GR12-10C 5/8	Ca. GR. 12	1	S	C 0.156	F	A	
46	16 Contact Plug, Right Angle	RCA 721098-9	RCA W305673	2	S	C 0.38	F	A	
47									
48									
49	Power Line Filter			1	S	C 0.38	R	A	Drawing No. NRL RA-2EF-215, Sheet 1B
50	Nut, Mech. Link	ARC 1167	ARC 6151	5	S	C 0.01	F	A	
51	Sleeve, Mech. Link	ARC 4585	ARC 6151	2	S	C 0.02	F	A	
52	Spline, Mech. Link	ARC 4788	ARC 6151	2	S	C 0.01	F	A	
53	Right Angle Adapter, Mech. Link	*MX-21/ARR-2	WE ESKX 590169	1	S	C 0.20	R	A	
54	Coax Plug	Navy 49195	NAF 48195	5	S	C 0.06	F	A	
55	Right Angle Adapter, Coax Plug	Navy 49192	NAF 48195	3	S	C 0.07	R	A	One not shown. May be installed on *R-4/ARR-2
56	Antenna Series Condenser Assmbl.			1	S	C	R	A	
57	Nut, Flex Shaft	RCA	RCA W305675	2	S	C	F	A	
58	Sleeve Flex. Shaft	RCA	RCA W305675	2	S	C	F	A	
59	Phone Plug (Locking)	NAF C310757-1	NAF C310757	1	S	C 0.1	F	A	
60	3 Prong Plug	RCA 721098-4	RCA W305675	1	S	C 0.22	F	A	
61	16 Prong Plug	RCA 721098-5	RCA W305675	1	S	C 0.28	F	A	
62	Receptacle Cap	CA GR68A		4	S	C 0.02	F	A	
63	Remote Control Adapter	MX-21/ARC-5		Note 7	S	C	R	A	

CABLE

ITEM NO.	DESCRIPTION	PART NO.	DRAWING NO.	QUANTITY PER AIRPLANE	SPARES INCLUDED IN	WT. LBS.	WEIGHT GROUP	PROD. OR MAINT. GROUP	REMARKS
71	5 Conductors		BuAer 8781A	1	C	C		F	A
72	7 Conductors		BuAer 8781A	1	C	C		F	A
73	5 Conductors		BuAer 8781A	1	C	C		F	A
74	6 Conductors		BuAer 8781A	1	C	C		F	A
75	2 Conductors		BuAer 8781A	1	C	C		F	A
76	5 Conductors		BuAer 8781A	1	C	C		F	A
77	16 Conductors		BuAer 8781A	1	C	C		F	A
78	5 Conductors		BuAer 8781A	1	C	C		F	A See Note 5
79	12 Conductors		BuAer 8781A	1	C	C		F	A
80	10 Conductors		BuAer 8781A	1	C	C		F	A See Note 5
81	5 Conductors		BuAer 8781A	1	C	C		F	A
82	2 Conductors		BuAer 8781A	1	C	C		F	A
83	Casing & Shaft; Mech. Link	ARC 3606 and 1174	ARC 6151	1	S	C	0.12	F	A
84	2 Conductors		BuAer 8781A	1	C	C		F	A
85	5 Conductors		BuAer 8781A	1	C	C		F	A
86	12 Conductors		BuAer 8781A	1	C	C		F	A
87	10 Conductors		BuAer 8781A	1	C	C		F	A
88	5 Conductors		BuAer 8781A	1	C	C		F	A
89									
90									
91	Coax Cable	RG-8/U	NAF A47024	1	S	C	0.10	F	A
92	Coax Cable	RG-8/U	NAF A47024	1	S	C	0.10	F	A
93	Coax Cable	RG-8/U	NAF A47024	1	S	C	0.10	F	A
94	Casing & Shaft; Mech. Link		RCA W305675	1	S	C		F	A
95	2 Conductors		BuAer 8781A	1	C	C		F	A
96	16 Conductors		BuAer 8781A	1	C	C		F	A
97	2 Conductors		BuAer 8781A	1	C	C		F	A

BuAero—Bureau of Aeronautics, Navy Department
RCA —Radio Corporation of America
ARC —Aircraft Radio Corporation
GA —Gamma Electric Development Co.
WE —Western Electric Co.
NAF —Naval Aircraft Factory
NRL —Naval Research Laboratory
C —Government
—Airplane Contractor

NOTES

1. The 3.0-6.0 Mc receiver (Part No. R-26/ARC-5) is installed by the airplane contractor in each airplane. A 1.5-3.0 Mc receiver (part No. R-25/ARC-5) is supplied in quantities of one for each five airplanes. This unit is not installed, but is held for use by the Service.

2. The 3.0-6.0 Mc transmitter (Part No. T-70/ARC-5), and the 3.5-7.0 Mc transmitter (Part No. T-71/ARC-5) are installed by the airplane contractor in each plane. The 4.0-5.3 Mc. unit (Part No. T-20/ARC-5), and the 7.0-8.1 Mc. unit (Part No. T-22/ARC-5) are each supplied in quantities of one for every airplane; these are not installed, but held for use by the Service. The 2.1-3.0 Mc. unit is supplied in quantities of one for every airplane. This unit is not installed, and held for use by the Service.

3. All transmitter units are interchangeable. The VHF unit is the number one transmitter selected by the control box, hence the selector plate (located adjacent to the receptacle that receives the plug from the transmitter unit) on no such must be wired by a jumper from the center to the number one terminal. The MHF transmitters will have their selector plates wired to the number two and number three terminals, respectively.

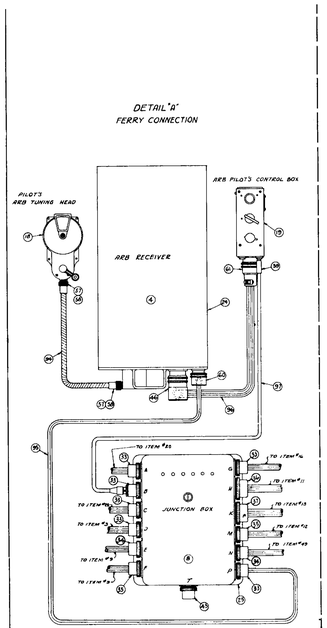
4. Circuit breakers on front of junction box (Item No. 8) must be accessible for resetting.

5. When this equipment is installed in single place aircraft, the following changes on this equipment list are required:

Item No.	Description	Remarks
13	Operator's Control Box	Not supplied
29	Oper. Cont. Box Mount. Base	Not supplied
37	12 Contact Plug (ARC 6046)	Two supplied
41	5 Contact Plug (ARC 9488)	Three supplied
43	Receptacle Cap	Three supplied (see for "G")
16	Interphone Amplifier	Not supplied
80	10 Conductor Cable	Not used
78	6 Conductor Cable	Not used

6. The straight mechanical linkage coupling shown on the ARB Receiver (Ferrying detail) may be modified to include a right angle adapter or a "F" junction.

7. Remote Control Adapter MX-21/ARC-5 (Item No. 63) is supplied in the same quantities as the MHF receiver (Item No. 1).



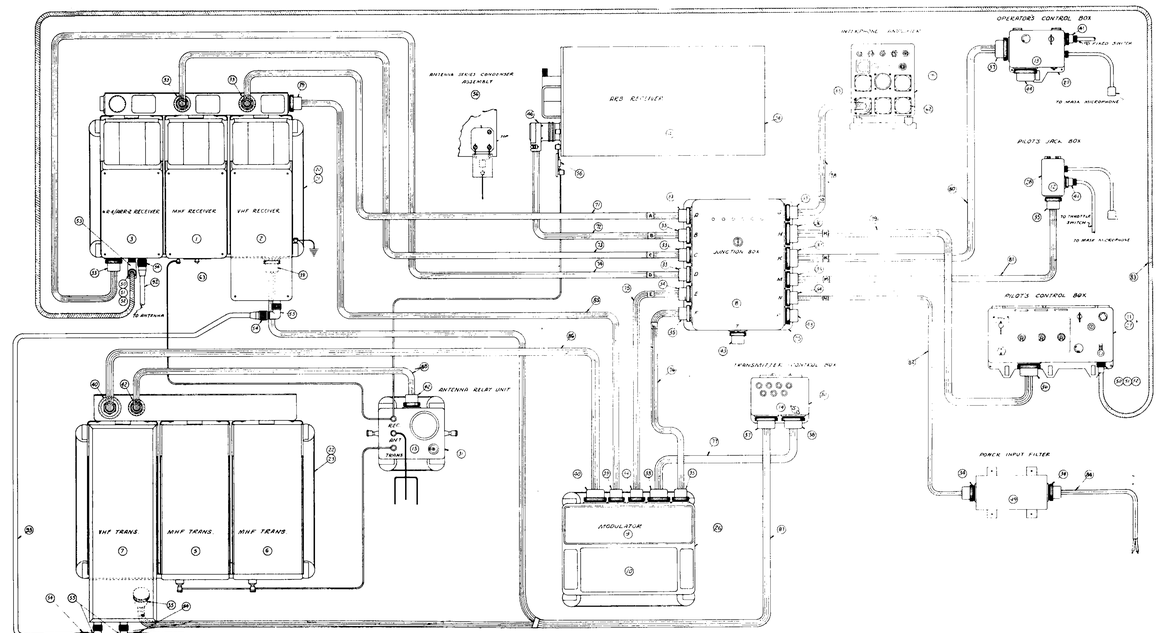


Figure 8—55. Model AN/ARC-5, Aircraft Radio Equipment, External Wiring Diagrams (Sheet 3 of 9)

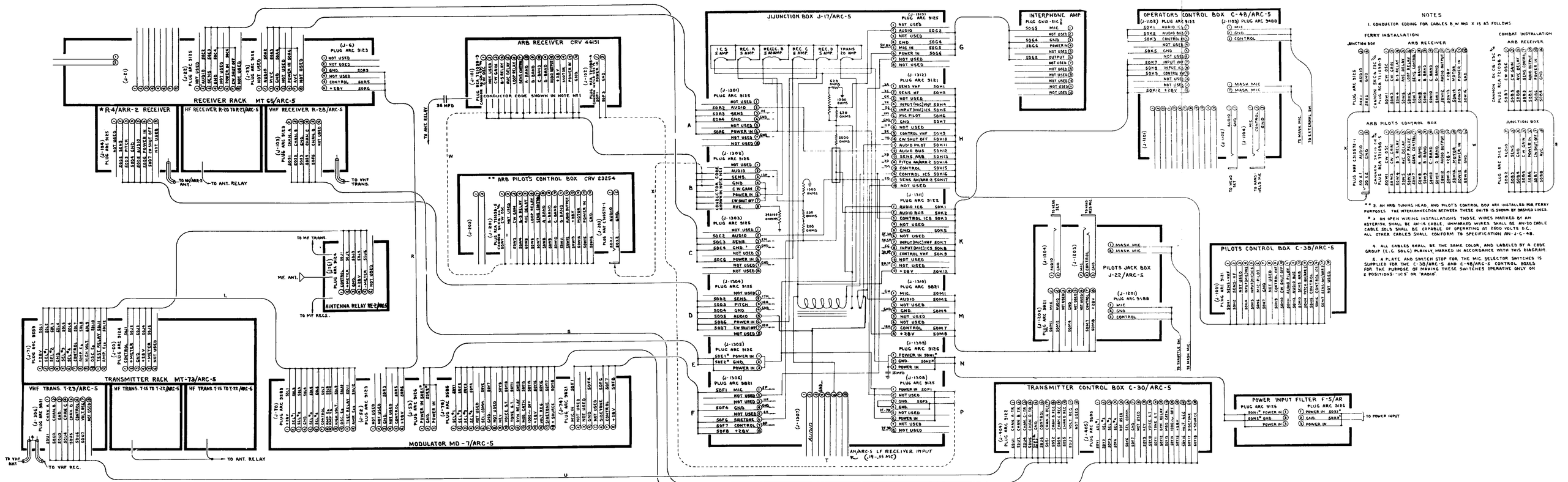


Figure 8—55. Model AN/ARC-5, Aircraft Radio Equipment, External Wiring Diagrams (Sheet 4 of 9)

AN 16-30ARC5-2

AN 16-30ARC5-2

EQUIPMENT

ITEM NO.	DESCRIPTION	PART NO.	DRAWING NO.	QUANTITY PER AIRPLANE	SUPPLIED BY	INSTALLED BY	WEIGHT EACH LBS.	FIXED OR REMOVABLE	GROUP	REMARKS
1	Receiver	*R-4/ARR-2	BuAer 933-SK	1	S	C	6.5	R	A	
2	MHF Receiver	See Note 1	BuAer 933-SK	Note 1	S	C	6.0	R	A	
3	Receiver; VHF	R-28/ARC-5	BuAer 933-SK	1	S	C	17.5	R	A	
4	Transmitter; VHF	T-23/ARC-5	BuAer 930-SK	1	S	C	12.5	R	A	
5	Transmitter; MHF	See Note 2	BuAer 930-SK	Note 2	S	C	9.0	R	A	
6	Modulator	MD-7/ARC-5	BuAer 932-SK	1	S	C	9.1	R	A	
7	Transmitter Dynamotor	DY-8/ARC-5	BuAer 932-SK	1	S	C	8.2	R	A	
8	Pilots Control Box	C-38/ARC-5	BuAer 940-SK	1	S	C	1.84	R	A	
9	Pilots Jack Box	J-22/ARC-5	BuAer 938-SK	1	S	C	0.31	R	A	
10	Transmitter Control Box	C-30/ARC-5	BuAer 934-SK	1	S	C	1.4	R	A	
11	Receiver Rack; 5 Unit	MT-65/ARC-5	BuAer 935-SK	1	S	C	4.6	F	A	
12	Receiver Mounting Base; 3 Unit	MT-64/ARC-5	BuAer 933-SK	1	S	C	1.0	F	A	
13	Transmitter Rack; 2 Unit	MT-71/ARC-5	BuAer 930-SK	1	S	C	2.5	F	A	
14	Trans. Mounting Base; 2 Unit	MT-70/ARC-5	BuAer 930-SK	1	S	C	0.8	F	A	
15	Antenna Relay Unit	RE-2/ARC-5	BuAer 951-SK	1	S	C	1.9	R	A	
16	Antenna Relay Mount. Base	MT-77/ARC-5	BuAer 951-SK	5	S	C	0.3	F	A	
17	Mounting Base; Modulator	MT-76/ARC-5	BuAer 932-SK	1	S	C	0.7	F	A	
18	Mounting Plate Pilot's Cont. Box	MT-98/ARC-5	BuAer 940-SK	1	S	C	0.2	F	A	
19	Mounting Plate; Jack Box	MT-78/ARC-5	BuAer 938-SK	1	S	C	0.03	F	A	
20	Mounting Plate; Trans. Box	MT-80/ARC-5	BuAer 934-SK	1	S	C	0.06	F	A	
21	Remote Control Adapter	MX-21/ARC-5		Note 1	S	C		R	A	
22	8 Contact Plug	ARC 9821	ARC 9821-1-A	3	S	C	0.06	F	A	
23	18 Contact Plug	ARC 9585	ARC 9585-2-A	2	S	C	0.16	F	A	
24	3 Contact Plug	ARC 9126	ARC 9126-1-A	1	S	C	0.06	F	A	
25	6 Contact Plug	ARC 9125	ARC 9125-1-A	3	S	C	0.06	F	A	
26	12 Contact Plug	ARC 9589	ARC 9589-2-A	2	S	C	0.16	F	A	
27	6 Contact Plug	ARC 9124	ARC 9126-1-A	2	S	C	0.06	F	A	
28	12 Contact Plug	ARC 9122	ARC 9122-2-A	1	S	C	0.16	F	A	
29	18 Contact Plug	ARC 9121	ARC 9121-2-A	1	S	C	0.16	F	A	
30	3 Contact Plug	ARC 9488	ARC 9488-1-A	1	S	C	0.06	F	A	
31	8 Contact Plug	ARC 9123	ARC 9123-1-A	5	S	C	0.06	F	A	
32	2 Contact Plug	ARC 9127	ARC 9127-1-A	1	S	C	0.06	F	A	
33	Coax Plug	Navy 49195	NAF 48195	4	S	C	0.06	F	A	
34	Coax Plug; Rt. Angle Adapter	Navy 49192	NAF 48195	4	S	C	0.07	F	A	One not shown. See Note No. 5
35	Nut; Mechanical Link	ARC 1167	ARC 6151	4	S	C	0.01	F	A	
36	Sleeve, Mechanical Link	ARC 6585	ARC 6151	4	S	C	0.02	F	A	
37	Spline; Mechanical Link	ARC 6798	ARC 6151	4	S	C	0.01	F	A	
38	Receiver Cont. Box; Tunnable	C-26/ARC-5	BuAer 935-SK	1	S	C	0.7	R	A	
39	Rec. Cont. Box Mounting Plate	*MT-4/ARR-2	BuAer 935-SK	1	S	C	0.06	F	A	
40	Rt. Angle Adapter; Mech. Link	*MX-22/ARR-2	ESXX 990185	1	S	C	0.2	R	A	Not shown. See Note No. 6
41	Shorting Plug	ARC 6787	ARC 6787-1-A	1	S	C	0.06	F	A	or *MX-2/ARR-2 with 5 to 8 conn. removed
42	Antenna	*AT-5/ARR-1	NAF 48134	1	S	C	.65	F	A	
43	Receptacle Cap	CW-2/ARC-5	ARC 5319	1	S	C		R	A	With Item 11
44	Throttle Switch (3 contact)	NAF 1124-17	NAF 1124	1	C	C		F	A	NAF 1124-11 to be supplied until 1124-17 available

CABLE

ITEM NO.	DESCRIPTION	PART NO.	DRAWING NO.	QUANTITY PER AIRPLANE	SUPPLIED BY	INSTALLED BY	LENGTH	WT. PER FT.	WEIGHT EACH LBS.	FIXED OR REMOVABLE	GROUP	REMARKS
71	5 Conductors (1 shld)		BuAer 8770A	1	C	C				F	A	
72	16 Conductors		BuAer 8770A	1	C	C				F	A	
73	2 Conductors		BuAer 8770A	1	C	C				F	A	
74	4 Conductors		BuAer 8770A	1	C	C				F	A	
75	12 Conductors		BuAer 8770A	1	C	C				F	A	
76	5 Conductors		BuAer 8770A	1	C	C				F	A	
77	12 Conductors		BuAer 8770A	1	C	C				F	A	
78	8 Conductors (2 shld)		BuAer 8770A	1	C	C				F	A	
79	2 Conductors		BuAer 8770A	1	C	C				F	A	
80	Coaxial Cable	RG-8/U	NAF 48195	1	S	C		0.12		F	A	
81	Coaxial Cable	RG-8/U	NAF 48195	1	S	C		0.12		F	A	
82	Coaxial Cable	RG-8/U	NAF 48195	1	S	C		0.12		F	A	
83	Casing; Mechanical Link	ARC 3407	ARC 6151	1	S	C		0.12		F	A	
84	Shaft; Mechanical Link	ARC 1176	ARC 6151	1	S	C				F	A	
85	Casing; Mechanical Link	ARC 3406	ARC 6151	1	S	C		0.12		F	A	
86	Shaft; Mechanical Link	ARC 1176	ARC 6151	1	S	C				F	A	
87	3 Conductors		BuAer 8770A	1	C	C				F	A	

NOTES

1. A 190-590 Kc. receiver, R-23/ARC-5, is supplied to the airplane contractor for installation. Receivers R-26/ARC-5 and R-27/ARC-5 are supplied to the Service in quantities of one for each airplane. Receiver R-25/ARC-5 is supplied to the Service in quantities of one for each five airplanes or one for each airplane depending upon the type of aircraft in which this equipment is installed. The Remote Control Adapter MX-21/ARC-5 (Item No. 21) is supplied in the same quantities as the receiver units.

2. A 3.0-4.0 Mc. transmitter, T-19/ARC-5, is supplied to the airplane contractor for installation. Transmitters T-20/ARC-5, T-21/ARC-5, T-22/ARC-5 supplied to the Service in quantities of one for each airplane. Transmitter T-18/ARC-5 is supplied to the Service in quantities of one for each five airplanes, or one for each airplane depending upon the type aircraft in which this equipment is installed.

3. The VHF transmitter in the number one transmitter on the control box. Hence the selector plate on its rack (located adjacent to the receptacle that receives the plug from the transmitter unit) must be wired by a jumper from the center to the number one terminal. The MHF transmitter shall have its selector plate wired to the number two terminal.

4. The airplane contractor shall safety-wire the above "A-TEL"-"B-TEL" toggle switches on the front of the receiver rack in the following manner: *AN/ARR-2 Rec. to "A-TEL." HF and VHF Rec. to "B-TEL."

5. A right-angle Coax plug is not shown on the antenna input to *R-4/ARR-2. This fitting may be installed if required.

6. A right-angle adapter for the mechanical linkage on *R-4/ARR-2 is not shown. This fitting may be installed if required.

7. For Ferry operation, the cable from C-26/ARC-5 is connected to the *rear* of the Range Receiver rack, (the cable from the Pilot's control box having been disconnected), and the mechanical linkage is connected to the front of the Range Receiver.

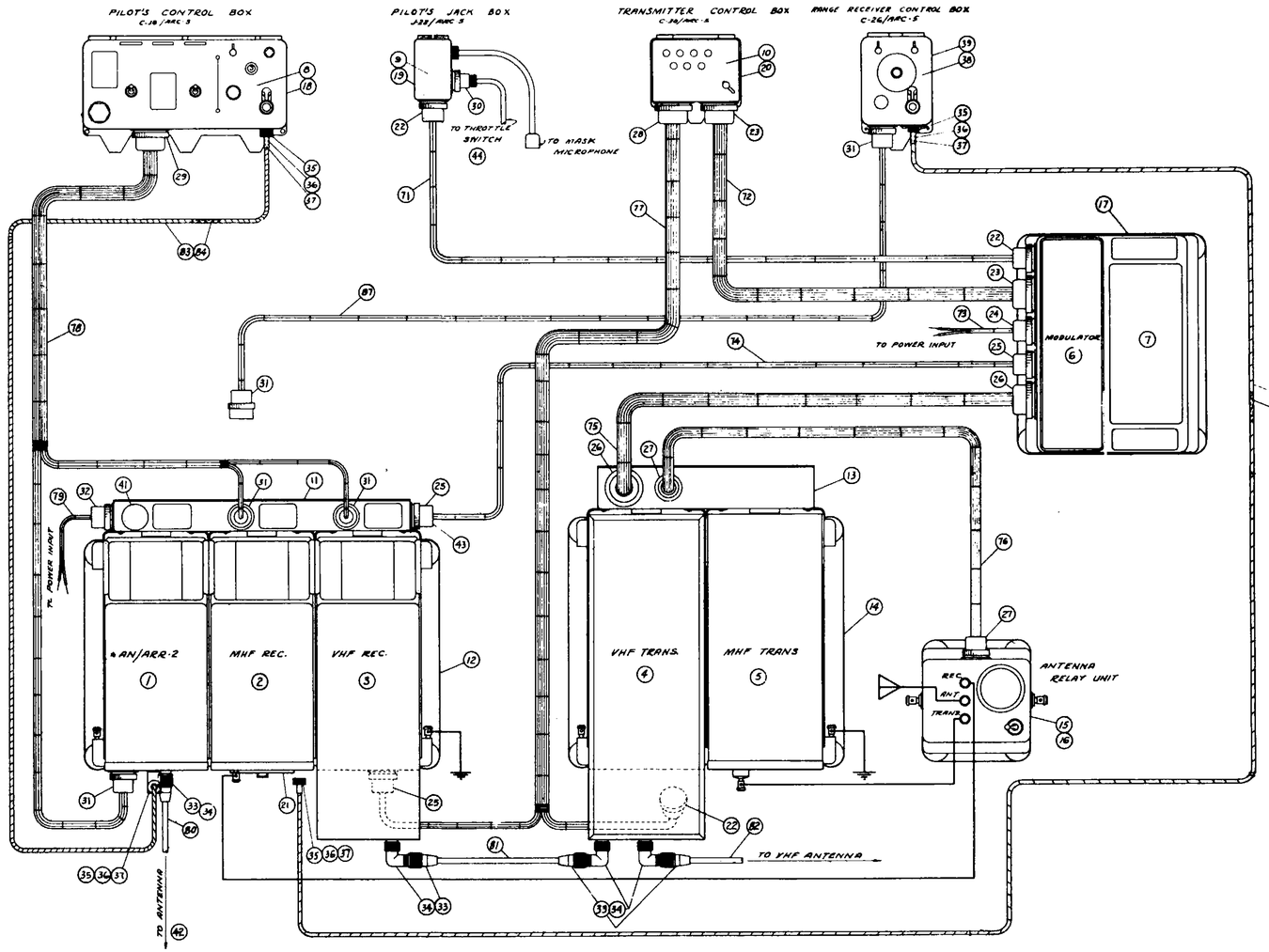
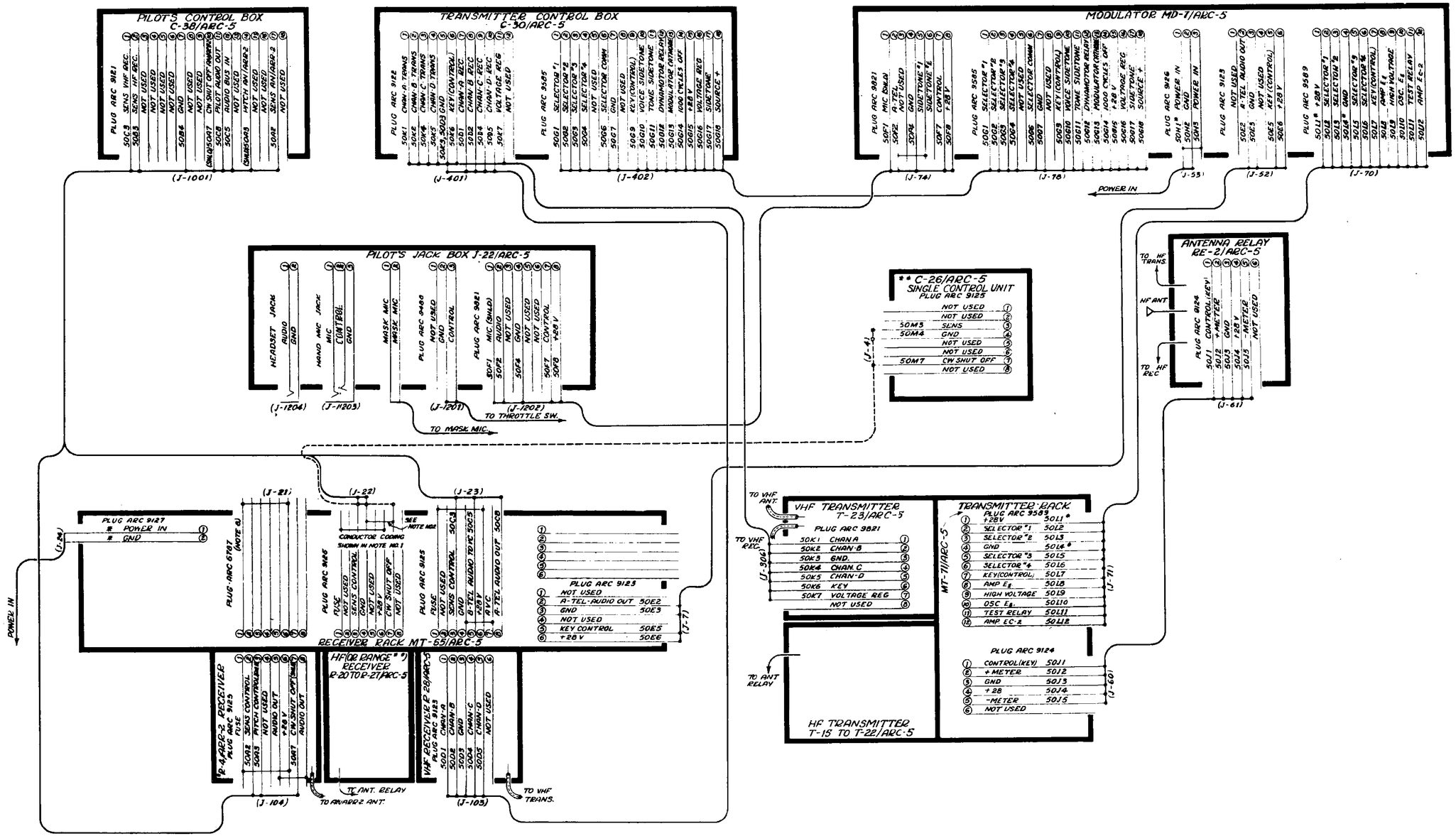
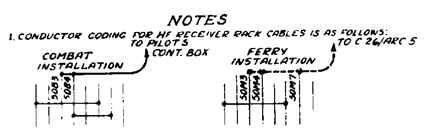


Figure 8—55. Model AN/ARC-5, Aircraft Radio Equipment, External Wiring Diagrams (Sheet 5 of 9)



NOTES

1. CONDUCTOR CODING FOR HF RECEIVER RACK CABLES IS AS FOLLOWS:



2. NO JUMPER BETWEEN PINS ⑥ AND ⑦ IS USED ON RANGE RECEIVER PLUG WHEN C-26/ARC-5 IS INSTALLED, MONEYER JUMPER FROM PIN 1 TO PIN 4 SHALL BE INSTALLED, AS SHOWN IN NOTE 1 ABOVE.

3. A LOW FREQUENCY RECEIVER R-28/ARC-5, AND A SINGLE UNIT TUNABLE CONTROL BOX (C-26/ARC-5) ARE INSTALLED FOR SERVING PURPOSES. THE INTERCONNECTION BETWEEN THESE UNITS, IS SHOWN BY DASHED LINES

IN OPEN WIRING INSTALLATIONS THOSE WIRES MARKED BY AN ASTERISK SHALL BE AN-14 CABLE. UNMARKED WIRES SHALL BE AN-20 CABLE. CABLE 5016 SHALL BE CAPABLE OF OPERATING AT 2500 VOLTS DC. ALL OTHER CABLES SHALL CONFORM TO SPECIFICATION AN-J-C 48. (SEE NOTE 9)

5. ALL CABLES SHALL BE THE SAME COLOR, AND LABELED BY A CODE GROUP (E.G. 5016) PLAINLY MARKED IN ACCORDANCE WITH THIS DIAGRAM.

6. MICROPHONE SELECTOR AND RECEIVER B "ON-OFF" SWITCHES ARE INOPERATIVE IN THIS SYSTEM. COVERS ARE SUPPLIED TO OBSCURE THESE SWITCHES.

7. SAFETY WIRE "A" TEL - "B" TEL SWITCHES ON RECEIVER RACK AS FOLLOWS: THE AN/ARR-2 SWITCH IN A TEL POSITION, THE OTHER TWO SWITCHES IN B TEL POSITION.

8. IF # MX-2/ARR-2 SHORTING PLUG SUPPLIED IN LIEU OF ARC 6787, CONNECTION BETWEEN PINS 2 AND 8 SHALL BE REMOVED.

9. WIRES MARKED "SHLD" SHALL BE SHIELDED AN-20 IN ACCORDANCE WITH U.S. ARMY SPECIFICATION 95-27273-G.

Figure 8—55. Model AN/ARC-5, Aircraft Radio Equipment, External Wiring Diagrams (Sheet 6 of 9)

AN 16-30ARC5-2
AN 16-30ARC5-2
AN 16-30ARC5-2

EQUIPMENT

ITEM NO.	DESCRIPTION	PART NO.	DRAWING NO.	QUANTITY PER AIRPLANE	SUPPLIED BY	INSTALLED BY	WEIGHT EACH	FIXED OR REMOVABLE	GROUP	REMARKS
1	Range Receiver	Detrola No. 438		1	S	C	3.7	R	A	
2	Receiver	*R-4/ARR-2	BuAer 948-SK	1	S	C	6.5	R	A	
3	AN/ARC-4 Trans.—Rec.	RT-19/ARC-4	ESR 749750	1	S	C	33.3	R	A	
4	AN/ARC-4 Control Box	C-52/ARC-4	ESR 749750	1	S	C	0.4	R	A	
5	Pilots Jack Box	J-22/ARC-5	BuAer 938-SK	1	S	C	0.31	R	A	
6	Pilots Control Box	C-38/ARC-5	BuAer 940-SK	1	S	C	1.84	R	A	
7	*R-4/ARR-2 Rec. Rack	*MT-7A/ARR-2	BuAer 948-SK	1	S	C	1.4	F	A	
8	*R-4/ARR-2 Mount. Base	*MT-5/ARR-2	BuAer 948-SK	1	S	C	0.9	F	A	
9	AN/ARC-4 Mounting Base	MT-101/ARC-4	ESR 749750	1	S	C	4.0	F	A	
10	Pilots Jack Box Mount. Base	MT-78/ARC-5	BuAer 938-SK	1	S	C	0.03	F	A	
11	Pilots Control Box Mount. Base	MT-98/ARC-5	BuAer 940-SK	1	S	C	0.2	F	A	
12	18 Pin Plug	ARC 9121	ARC 9121-2-A	2	S	C	0.16	F	A	
13	8 Pin Plug	ARC 9821	ARC 9821-1-A	1	S	C	0.06	F	A	
14	3 Pin Plug	ARC 9488	ARC 9488-1-A	1	S	C	0.06	F	A	
15	2 Pin Plug	ARC 9127	ARC 9127-1-A	1	S	C	0.06	F	A	
16	8 Pin Plug	ARC 9125	ARC 9125-1-A	2	S	C	0.06	F	A	
17	6 Pin Plug	ARC 9123	ARC 9123-1-A	1	S	C	0.06	F	A	
18	Coax Plug	NAVY 49195	NAF 48193	2	S	C	0.06	F	A	
19	Rt. Angle Coax Adapter	NAVY 49192	NAF 48193	2	S	C	0.07	F	A	
20	Nut: Mech. Link	ARC 1167	ARC 6151	2	S	C	0.01	F	A	
21	Sleeve: Mech. Link	ARC 6585	ARC 6151	2	S	C	0.02	F	A	
22	Spline: Mech. Link	ARC 6788	ARC 6151	2	S	C	0.01	F	A	
23	Phone Plug	NAF C310572-1	NAF C310572	1	S	C	0.1	F	A	

CABLE

ITEM NO.	DESCRIPTION	PART NO.	DRAWING NO.	QUANTITY PER AIRPLANE	SUPPLIED BY	INSTALLED BY	LENGTH	WT./FT.	WEIGHT EACH	FIXED OR REMOVABLE	GROUP	REMARKS
71	10 Conductors		BuAer 8808A	1	C	C				F	A	
72	2 Conductors		BuAer 8808A	1	C	C				F	A	
73	Coax Cable	RG-8/U	NAF 48193	1	S	C		0.12	0.12	F	A	
74	Coax Cable	RG-8/U	NAF 48193	1	S	C		0.12	0.12	F	A	
75	2 Conductors		BuAer 8808A	1	C	C				F	A	
76	18 Conductors		BuAer 8808A	1	C	C				F	A	
77	Casing; Mech. Link	ARC 3406	ARC 6151	1	S	C		0.12		F	A	
78	Shaft; Mech. Link	ARC 1174	ARC 6151	1	S	C				F	A	

BuAer—Bureau of Aeronautics, Navy Department
NAF —Naval Aircraft Factory
ARC —Aircraft Radio Corporation
ESR —Western Electric Co.
S —Government
C —Airplane Contractor

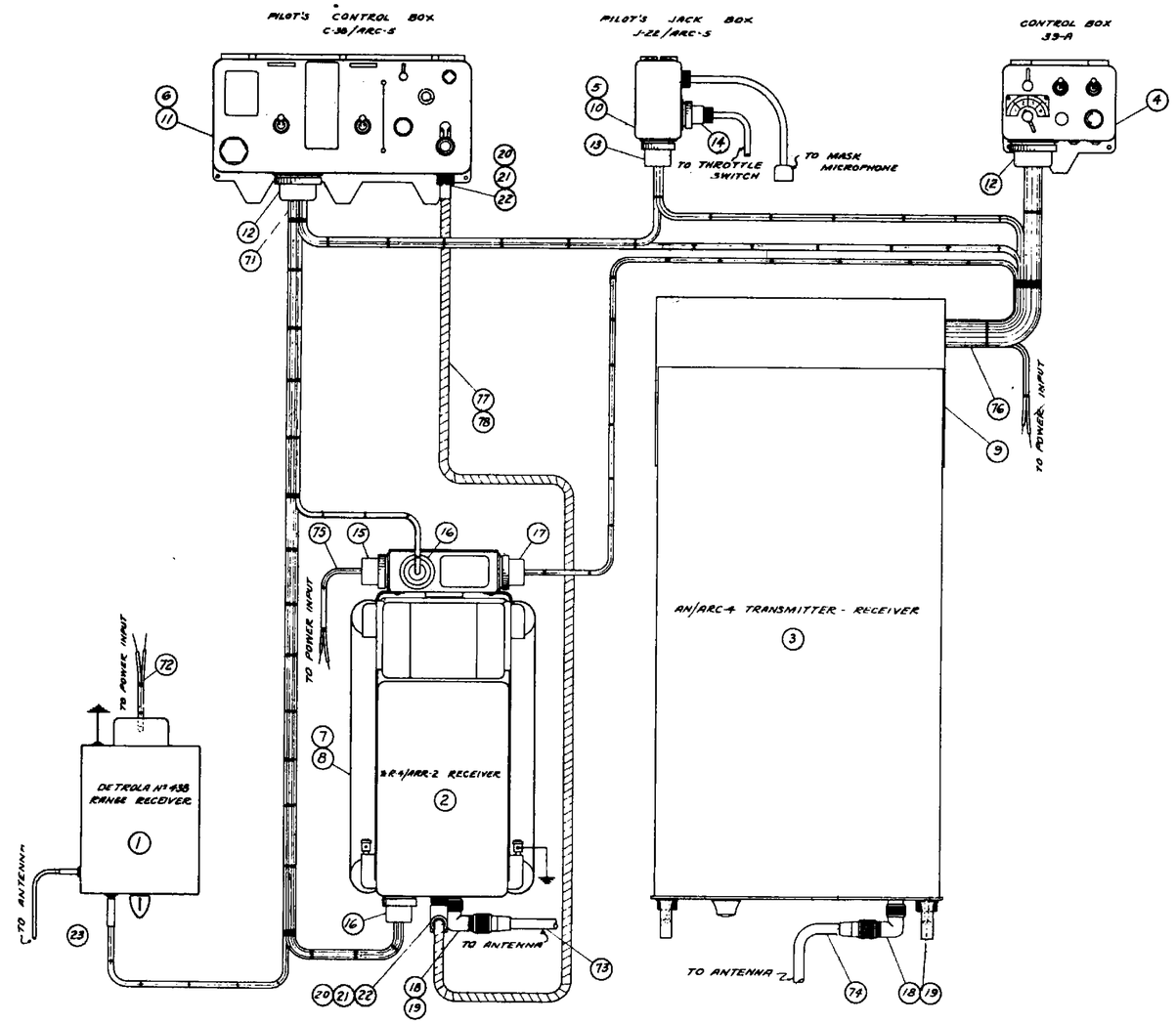


Figure 8—55. Model AN/ARC-5, Aircraft Radio Equipment, External Wiring Diagrams (Sheet 7 of 9)

AN 16-30ARC5-2
AN 16-30ARC5-2
AN 16-30ARC5-2

EQUIPMENT

ITEM NO.	DESCRIPTION	PART NO.	DRAWING NO.	QUANTITY PER EQUIPMENT INSTALLED	QUANTITY PER EQUIPMENT SPARE	WEIGHT EACH UNIT (LBS)	WEIGHT TOTAL (LBS)	PRESS OR NON-PRESS	GROUP	REMARKS
1	MNF Receiver	R-36/ARC-5	Bendix 841-SE	1	S	C	9.00	R	A	Weight includes dynamotor
2	AN/ARR-3 Receiver	*R-4/ARR	Bendix 841-SE	1	S	C	9.5	R	A	Weight includes dynamotor
3	ARR Receiver	CRV-46031	RCA 9402037	1	S	C	36.0	R	A	Weight includes mounting
4	AN/ARC-4, Trans. Rec.	RT-18/ARC-4	WE ESK-749750	1	S	C	35.5	R	A	
5	AN/ART-13 Transmitter	T-47/ART-13	COL K2418	1	S	C	42.0	R	A	Weight includes mounting (COL 52280)
6	ARR Tuning Head	CRV-23253	RCA 9403078	1	S	C	1.0	R	A	
7	ARR Pilot's Control Box	CRV-23254	RCA 9871093	1	S	C	1.2	R	A	
8	AN/ARC-4 General Box	C-50/ARC-4	WE ESK-749750	1	S	C	6.6	R	A	See Note 5 dwg. 8011A
9	AN/ARC-5 Operator's General Box	C-48/ARC-5	Bendix 842-SE	None	S	C	6.5	R	A	Quantity of 1 or 3 supplied. See Note 1. See Note 6 8011A
10	Pilot's Control Box	C-50/ARC-5	Bendix 588-SE	1	S	C	1.66	R	A	
11	Pilot's Jack Box	J-22/ARC-5	Bendix 598-SE	1	S	C	0.31	R	A	See Note 4 Dwg. 8011A
12	AN/ART-13 Pilot's Control Box	C-87/ART-13	COL K1334C	1	S	C	1.0	R	A	(COL 23585)
13	AN/ART-13 Dynamotor	DY-11/ART-13	COL K1928	1	S	C	30.0	R	A	(COL 23951) or DY-12 or DY-11A/ART-13
14										
15	Interphone Amplifier	See Note 3	Bendix 948-SE	1	S	C	7.5	R	A	Weight includes mounting
16	Junction Box	J-17/ARC-5	Bendix 598-SE	1	S	C	3.47	R	A	See Note 4
17	Power Input Filter	FO-3/AR		1	S	C	2.1	R	A	Drawing No. NRL RA-68P-115, Sheet 1B
18	AN/ARC-5 Rec. Rack (2 unit)	MT-82/ARC-5	Bendix 941-SE	1	S	C	2.7	R	A	
19	AN/ARC-5 Rec. Mount. (1 unit)	MT-82/ARC-5	Bendix 941-SE	1	S	C	0.8	F	A	
20	ARR Receiver Mounting	CRV-10081	RCA 9402037	1	S	C		F	A	
21	AN/ARC-4 Mounting Base	MT-101/ARC-4	WE ESK-749750	1	S	C	4.8	F	A	
22	AN/ART-13 Transmitter Mounting	MT-101/ART-13	COL J2511	1	S	C		F	A	
23	Operator's Gen. Box Mounting	MT-88/ARC-5	Bendix 942-SE	None	S	C	0.06	F	A	Quantity of 2 or 4 supplied. See Note 1
24	Pilot's Control Box Mount. Base	MT-98/ARC-5	Bendix 598-SE	1	S	C	0.3	F	A	
25	Pilot's Jack Box Mount. Base	MT-78/ARC-5	Bendix 598-SE	1	S	C	0.03	F	A	
26	Interphone Amp. Mounting		Bendix 948-SE	1	S	C		F	A	
27	Junction Box Mounting	MT-85/ARC-5	Bendix 598-SE	1	S	C	0.50	F	A	
28	4 Contact Plug	ARC-9121	ARC 9120-1-A	8	S	C	0.12	F	A	* with AN/ARR-3
29	8 Contact Plug	ARC-9011	ARC 9011-1-A	3	S	C	0.12	F	A	† with AN/ARC4
30	3 Contact Plug	ARC-9108	ARC 9130-1-A	4	S	C	0.12	F	A	‡ with filter
31	10 Contact Plug	ARC-9125	ARC 9125-1-A	More	S	C	0.18	F	A	Quantity of 2 or 4 supplied. See Note 1
32	1 Contact Plug	ARC-9080	ARC 9480-1-A	More	S	C	0.06	F	A	Quantity of 2 or 4 supplied. See Note 1
33	18 Contact Plug, Right Angle	RCA P-7119969 †	RCA W304075	1	S	C	0.38	F	A	
34	3 Contact Plug	RCA P-7119984 ‡	RCA W304075	1	S	C	0.22	F	A	
35	18 Contact Plug	RCA P-7120085 †	RCA W304075	1	S	C	0.38	F	A	
36	12 Contact Plug	CAGK-12-D/C 538/8	CAGC-12	1	S	C	0.268	F	A	
37	3 Contact Plug, Right Angle	COL 5172927	COL K1158C	1	S	C	0.20	F	A	CA GK-3-D/C 3/4
38	18 Contact Plug, Right Angle	COL 5172931SR	COL K1159C	1	S	C	0.50	F	A	CA RPK-18-D/C 5/8
39	27 Contact Plug	COL 5119402	COL K1160C	1	S	C	0.25	F	A	CA NK-21-D/C 3/4
40	27 Contact Plug	COL 5170960R	COL K1160C	1	S	C	0.50	F	A	CA RNK-27-D/C 5/8
41	10 Contact Plug	COL 5119314	COL *-1159C	1	S	C	0.25	F	A	CA PK-10-D/C 5/8
42	18 Contact Plug	ARC-9121	ARC-9121-2A	1	S	C	0.18	F	A	
43	"T" Junction, Mech. Link	RCA 0405		1	S	C	0.25	H	A	See Note 2
44	Conical Plug	Navy 49195	NAF 48295	3	S	C	0.08	F	A	† with *AT/A-ARR-1
45	Conical Angle Adapter	Navy 49181	N AF 48295	3	S	C	0.07	F	A	‡ with *AT/A-ARR-1
46	Right Angle Adapter, Mech. Link	RCA 0406		1	S	C	0.20	F	A	See Note 2
47	Right Angle Adapter, Mech. Link	*WE-JJ/ARR-1	WE ESXK 390185	1	S	C	0.20	F	A	
48	Nut; Mechanical Linkage	ARC 1107	ARC 4151	2	S	C	0.01	F	A	
49	Sleeve; Mech. Linkage	ARC 4145	ARC 4151	2	S	C	0.01	F	A	
50	Spline; Mechanical Linkage	ARC-4788	ARC 4151	2	S	C	0.01	F	A	
51	Receptacle Cap	CW-2/ARC-5	ARC 5107	1	S	C	0.02	R	A	† supplied with receiver rack
52	Receptacle Cap	CA GK-6SA		1	S	C	0.02	R	A	
53	Receptacle Cap	CW-5/ARC-5	ARC 5107	1	S	C	0.02	R	A	
54	Receptacle Cap	COL 5170139SR		1	S	C	0.01	R	A	
55	Microphone Plug	NAF 212958	NAF 212958	1	S	C	0.1	F	A	
56	Headset Plug—Locking	NAF C110571-	NAF C110572	1	S	C	.11	F	A	NAF B110572-1 used when RL-5 installed
57	Antenna Mica Series Capacitor			1	S	C		R	A	1000 mfd., 30 mmf. 3 10% Cornell-Dubilier Type 4 Aerovox Type 1455 or equal
58	Antenna Shunt Capacitor	CU-24/ART-13	COL 17928	1	S	C	16	R	A	
59	Remote Control Adapter	MX-11/ARC-5	ARC 4432	1	S	C	0.15	R	A	(COL 48408)
60	Pilot's Transmitter Control Box Mounting	MT-103/ART-13 †	COL K1159C	1	S	C		F	A	
61	Transmitter Dynamotor Mtg.	MT-166/ART-13 †	COL K1928	1	S	C		F	A	
62	Transmitter Key	NAF 213051-1	NAF 212681	1	S	C	0.01	R	A	
63	Junction Box Cable Tags	A to P inc	ARC 10023-10034	2	S	C		F	A	Lists A, I, L & O
64	Throttle Switch	NAF 1124-17	RAY 1124	1	S	C		R	A	
65	Level Tuning Unit, ARR			1	S	C	0.05	F	A	
66	Mixing Antenna	*AT-1/ARR-1	NAF 48154-1	1	S	C	0.01	F	A	
67	Radio Op's Switch			1	S	C		F	A	

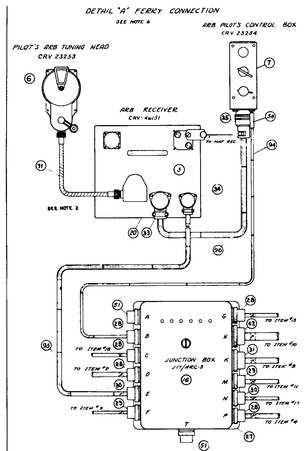
CABLE

ITEM NO.	DESCRIPTION	PART NO.	DRAWING NO.	QUANTITY PER EQUIPMENT INSTALLED	QUANTITY PER EQUIPMENT SPARE	WEIGHT EACH UNIT (LBS)	WEIGHT TOTAL (LBS)	PRESS OR NON-PRESS	GROUP	REMARKS
71	Casing & Shaft Mech. Link	RCA 0400	RCA W304075	1	S	C	0.115		F	A
72	Casing; Mechanical Link	ARC-0406	ARC 4151	1	S	C	0.13		F	A
73	Shaft; Mechanical Link	ARC 1174	ARC 4151	1	S	C			F	A
74	2 Conductors		Bendix 8811A	1	C	C			F	A
75	3 Conductors		Bendix 8811A	1	C	C			F	A
76	5 Conductors (1 shld)		Bendix 8811A	1	C	C			F	A
77	10 Conductors (1 shld)		Bendix 8811A	1	C	C			F	A
78	18 Conductors (1 shld)		Bendix 8811A	1	C	C			F	A
79	4 Conductors (1 shld)		Bendix 8811A	1	C	C			F	A
80	7 Conductors (1 shld)		Bendix 8811A	1	C	C			F	A
81	7 Conductors		Bendix 8811A	1	C	C			F	A
82	7 Conductors (2 shld)		Bendix 8811A	1	C	C			F	A
83	6 Conductors		Bendix 8811A	1	C	C			F	A
84	Single Wire Low-Cap Cable	NAF 47004-105	NAF A47004	1	C	C		0.008	F	A
85	18 Conductors (2 shld)		Bendix 8811A	1	C	C			F	A
86	18 Conductors (3 shld)		Bendix 8811A	1	C	C			F	A
87	21 Conductors		Bendix 8811A	1	C	C			F	A
88	10 Conductors		Bendix 8811A	1	C	C			F	A
89	4 Conductors		Bendix 8811A	1	C	C			F	A
90	4 Conductors (1 shld)		Bendix 8811A	1	C	C			F	A
91	Coaxial Cable	RG4/U	NAF A47004	1	S	C	0.10		F	A
93	Coaxial Cable	RG4/U	NAF A47004	1	S	C	0.10		F	A
95	7 Conductors		Bendix 8811A	1	C	C			F	A
94	5 Conductors		Bendix 8811A	1	C	C			F	A
95	2 Conductors		Bendix 8811A	1	C	C			F	A
96	11 Conductors		Bendix 8811A	1	C	C			F	A
97	3 Conductors		Bendix 8811A	1	C	C			F	A

Bendix—Bureau of Aeronautics, Navy Department
RCA —Radio Corporation of America
ARC —Aircraft Radio Corporation
GA —Gaston Electric Development Co.
WE —Western Electric Co.
NAF —Naval Aircraft Factory
NRL —Naval Research Laboratory
C —Composite
C —Airplane Constructor

NOTES

1. In two-place airplanes, only one operator's control box (Item No. 9) is required. Three operator's control boxes are required in four-place airplanes. The mountings (Item No. 24) and plugs (Items No. 31 and 32) vary accordingly.
2. The mechanical linkage "T" junction (Item No. 43), the right angle adapter (Item No. 46), or a combination of the two, may be used at the side of the ARR receiver mechanical linkage (Item No. 71). Local tuner (Item No. 65) may also be used.
3. The interphone amplifier may be R-5, -6, -7, or -8 depending upon the particular installation.
4. Sufficient clearance shall be provided around the front of the junction box (Item No. 16) to allow resetting of circuit breakers.
5. All cables connected to the junction box [J-17/ARC-5 shall be tagged in accordance with sheet No. 1 of this drawing. (Item No. 63)
6. For ferrying, ARR receiver is supplied power through receiver-dynamotor cable (Item No. 84). ARR receiver is connected to MNF receiver through receiver-dynamotor cable (Item No. 84). All controls of the ARR (other control box #) are removed. To the routine installation, all adjustments are made at C-50/ARC-5 pilot's control box.
7. Two-unit receiver rack (Item No. 18) and two-unit receiver mounting (Item No. 19) may be replaced by single-unit racks and two single-unit mountings. No plug changes are required.



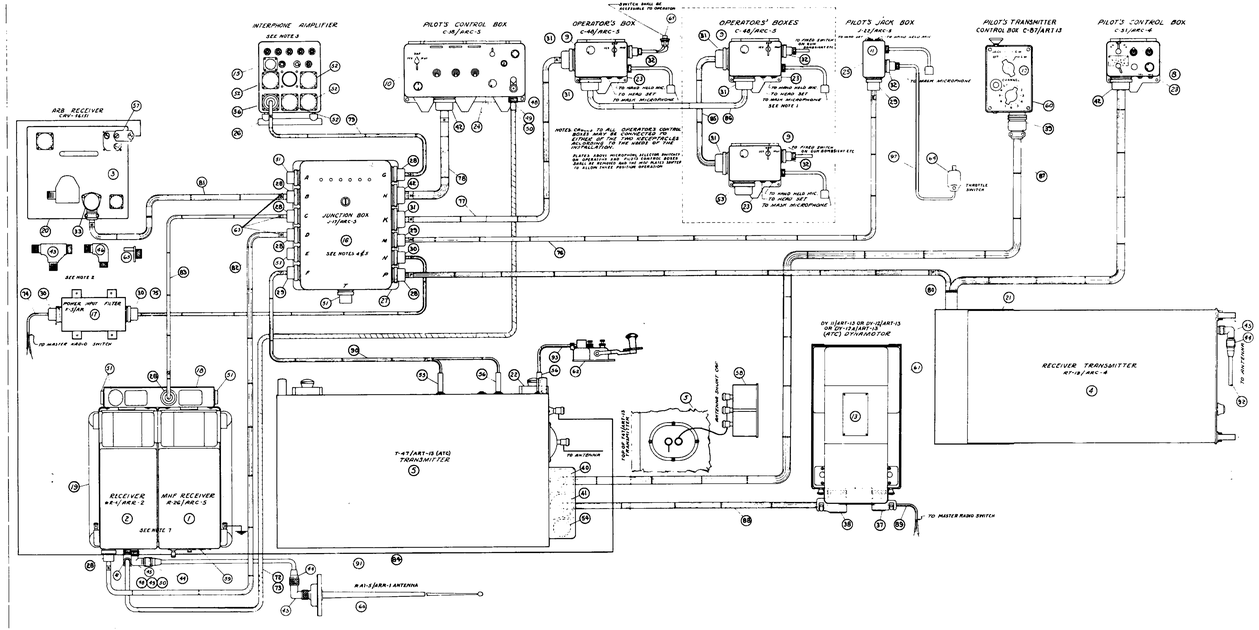


Figure 8—55. Model AN/ARC-5, Aircraft Radio Equipment, External Wiring Diagrams (Sheet 8 of 9)

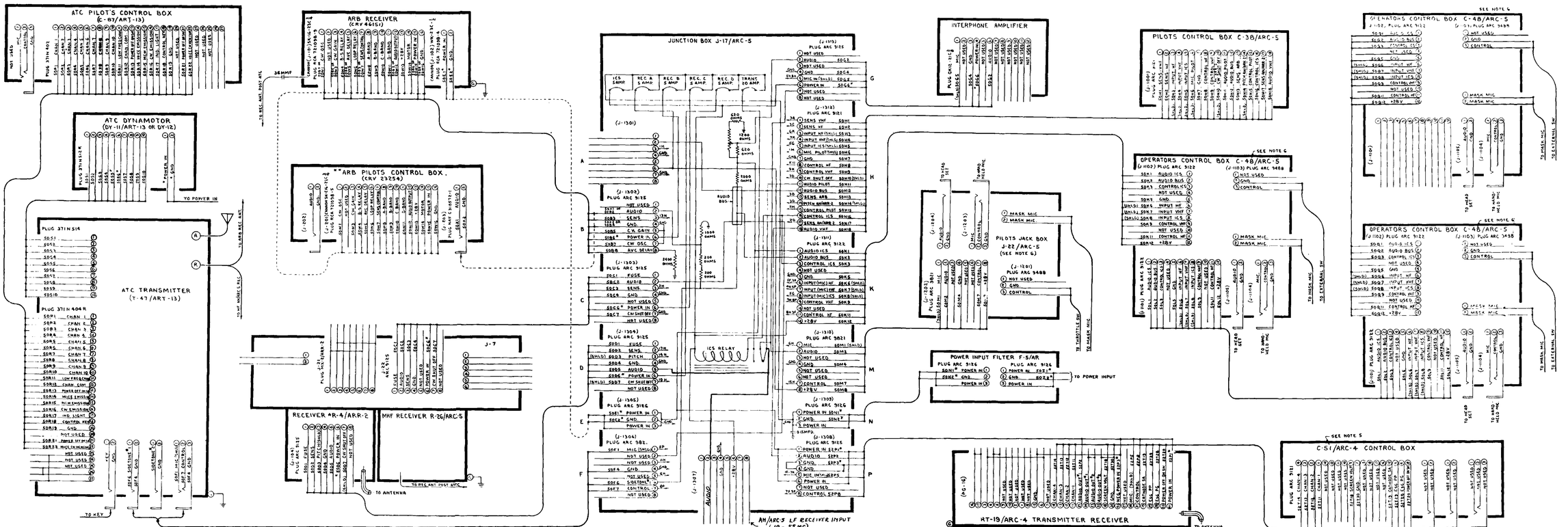
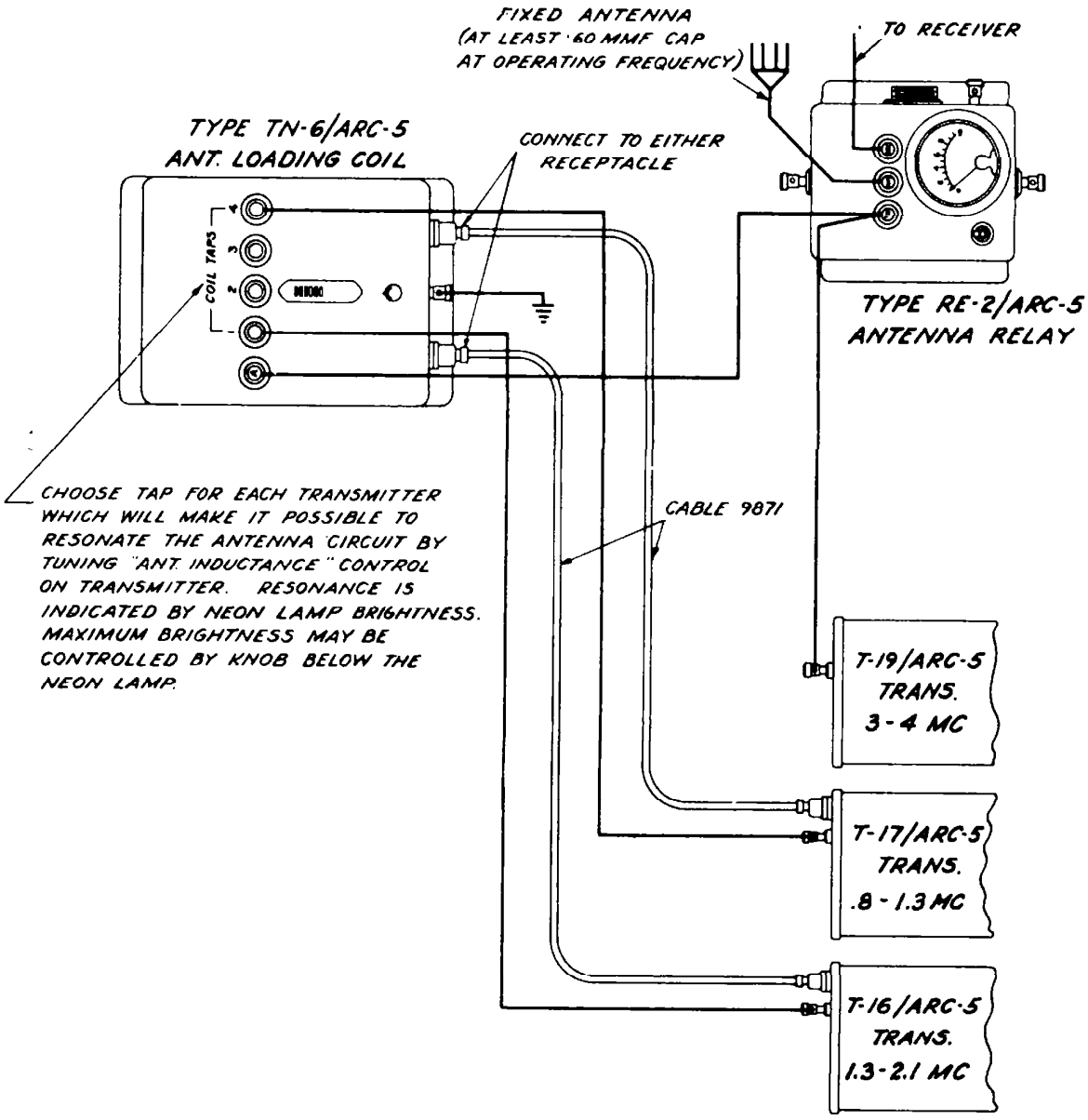


Figure 8–55. Model AN/ARC-5, Aircraft Radio Equipment, External Wiring Diagrams (Sheet 9 of 9



NOTES

1. USE TN-6/ARC-5 ANTENNA LOADING COIL ONLY WHEN IT IS NECESSARY TO OPERATE T-16/ARC-5 OR T-17/ARC-5 TRANSMITTER IN THE FREQUENCY RANGE OF 1 TO 2.1 MC INTO A FIXED ANTENNA WHOSE CAPACITANCE IS 60 MMF OR MORE. THIS METHOD OF TRANSMISSION IS INEFFICIENT AND SHOULD BE USED ONLY FOR SHORT RANGE REQUIREMENTS. FOR EFFICIENT OPERATION USE A TRAILING WIRE WITHOUT TN-6/ARC-5. TN-6/ARC-5 IS NOT USEFUL BELOW 1 MC WITH A FIXED 60 MMF ANTENNA
2. FOR OPERATION ON A TRAILING WIRE ANTENNA USE THE ENTIRE ANTENNA INDUCTANCE IN THE TRANSMITTER, AND REEL OUT FOR MAXIMUM ANTENNA CURRENT ON TONE, CW OR VOICE.

Figure 8—56. Antenna Loading Coil TN-6/ARC-5, Transmitter Antenna Connections and Cabling

AN 16-30ARC5-2
AN 16-30ARC5-2
AN 16-30ARC5-2

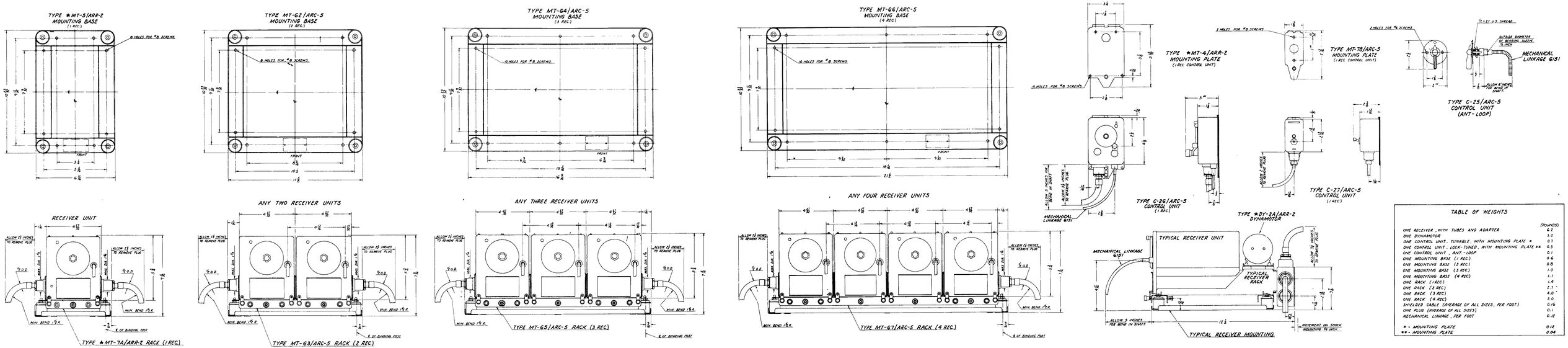


TABLE OF WEIGHTS

	(POUNDS)
ONE RECEIVER, WITH TUBES AND ADAPTER	6.2
ONE DYNAMOTOR	3.0
ONE CONTROL UNIT, TUNABLE, WITH MOUNTING PLATE *	0.7
ONE CONTROL UNIT, LOCK-TUNED, WITH MOUNTING PLATE **	0.3
ONE CONTROL UNIT, ANT.-LOOP	0.1
ONE MOUNTING BASE (1 REC.)	0.6
ONE MOUNTING BASE (2 REC.)	0.8
ONE MOUNTING BASE (3 REC.)	1.0
ONE MOUNTING BASE (4 REC)	1.1
ONE RACK (1 REC.)	1.4
ONE RACK (2 REC.)	2.7
ONE RACK (3 REC)	4.0
ONE RACK (4 REC)	5.0
SHIELDED CABLE (AVERAGE OF ALL SIZES, PER FOOT)	0.16
ONE PLUG (AVERAGE OF ALL SIZES)	0.1
MECHANICAL LINKAGE, PER FOOT	0.12
* - MOUNTING PLATE	0.12
** - MOUNTING PLATE	0.04

Figure 8–57. Model AN/ARC-5 Aircraft Radio Receiving Equipment, Component Installation Dimensions and Weights

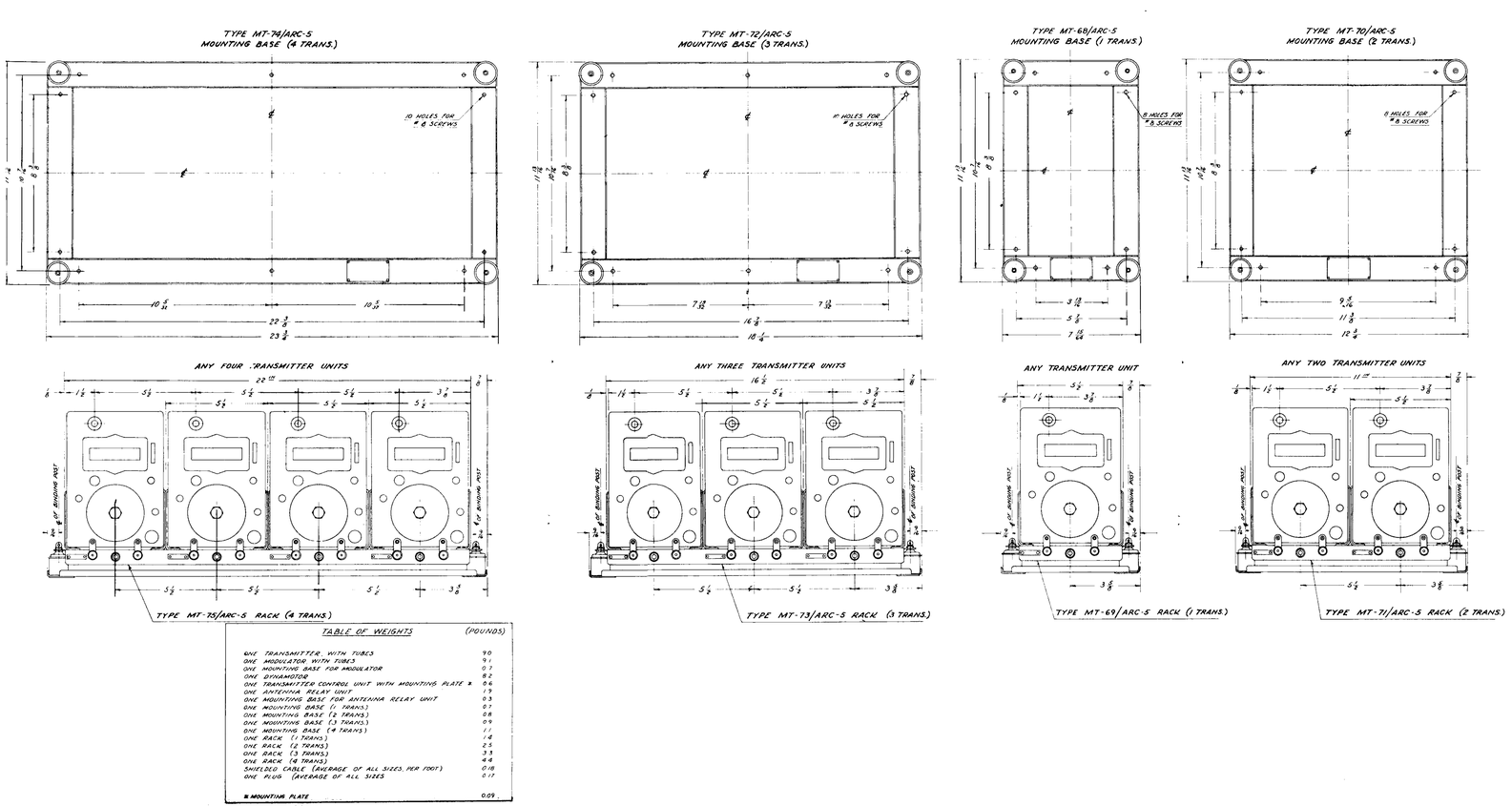


TABLE OF WEIGHTS (POUNDS)

ONE TRANSMITTER, WITH TUBES	9.0
ONE MODULATOR WITH TUBES	9.1
ONE MOUNTING BASE FOR MODULATOR	0.7
ONE DYNAMOTOR	8.2
ONE TRANSMITTER CONTROL UNIT WITH MOUNTING PLATE *	0.6
ONE ANTENNA RELAY UNIT	1.3
ONE MOUNTING BASE FOR ANTENNA RELAY UNIT	0.3
ONE MOUNTING BASE (1 TRANS.)	0.7
ONE MOUNTING BASE (2 TRANS.)	0.8
ONE MOUNTING BASE (3 TRANS.)	0.9
ONE MOUNTING BASE (4 TRANS.)	1.1
ONE RACK (1 TRANS.)	1.4
ONE RACK (2 TRANS.)	2.5
ONE RACK (3 TRANS.)	3.3
ONE RACK (4 TRANS.)	4.4
SHIELDED CABLE (AVERAGE OF ALL SIZES, PER FOOT)	0.18
ONE PLUG (AVERAGE OF ALL SIZES	0.17
* MOUNTING PLATE	0.09

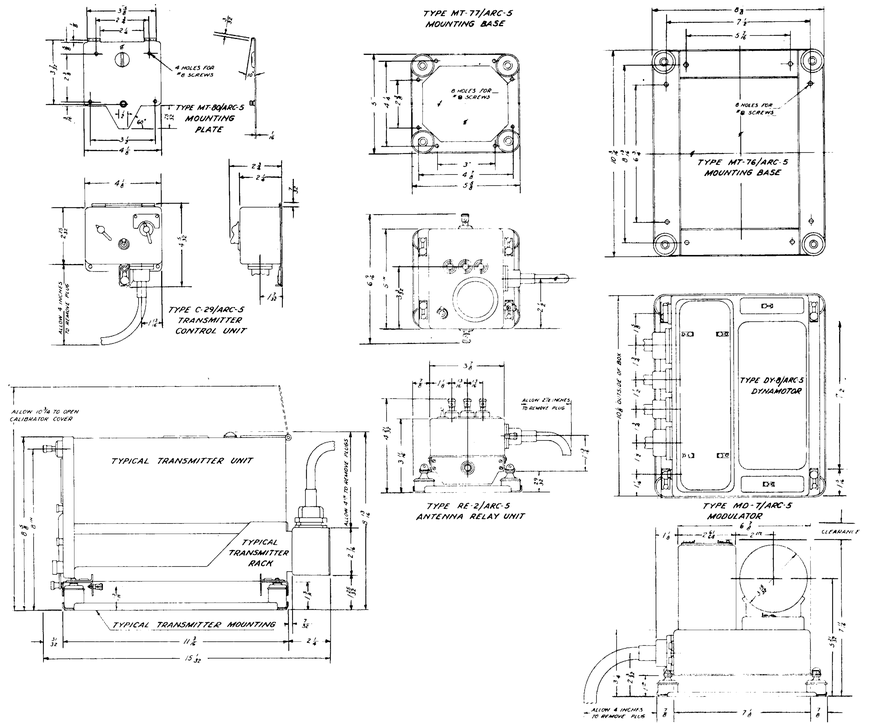
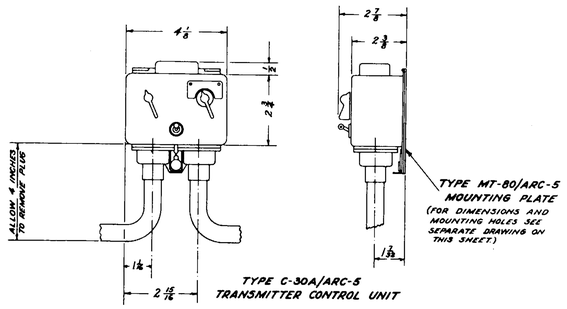


Figure 8—58. Model AN/ARC-5 Aircraft Radio Transmitting Equipment, Component Installation Dimensions and Weights

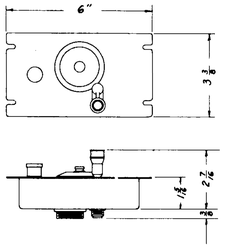
AN 16-30ARC5-2

AN 16-30ARC5-2

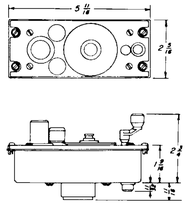
AN 16-30ARC5-2



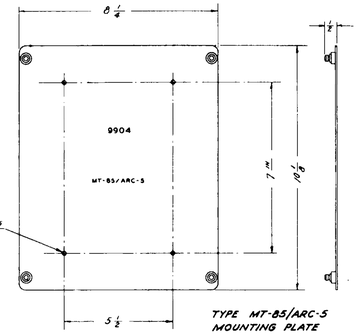
TYPE C-30A/ARC-5 TRANSMITTER CONTROL UNIT



TYPE C-125/ARC-5 CONTROL PANEL



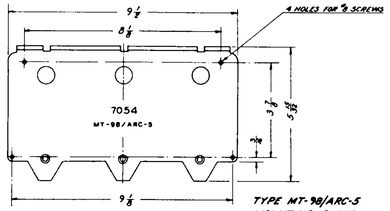
TYPE C-744ARC-5 RADIO SET CONTROL



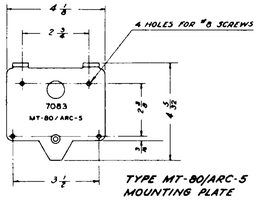
TYPE MT-85/ARC-5 MOUNTING PLATE

TABLE OF WEIGHTS		POUNDS
C-30A/ARC-5	TRANSMITTER CONTROL UNIT	0.7
C-38/ARC-5	MAIN CONTROL UNIT	1.8
C-39/ARC-5	AUXILIARY CONTROL UNIT (INCLUDES MASK MIC. & JACK CORD)	0.81
C-48/ARC-5	AUXILIARY CONTROL UNIT (INCLUDES MASK MIC. & JACK CORD)	0.91
C-125/ARC-5	CONTROL PANEL	0.6
J-16/ARC-5	JACK BOX (INCLUDES MASK MIC. & JACK CORD)	0.36
J-17/ARC-5	JUNCTION BOX	3.54
J-17A/ARC-5	JUNCTION BOX	3.70
J-22/ARC-5	JACK BOX (INCLUDES MASK MIC. & JACK CORD)	0.46
J-22A/ARC-5	JACK BOX (INCLUDES MASK MIC. & JACK CORD)	0.50
J-228/ARC-5	JACK BOX (INCLUDES MASK MIC. & JACK CORD)	0.50
J-28/ARC-5	JUNCTION BOX	0.41
J-34/ARC-5	JUNCTION BOX	0.51
MT-78/ARC-5	MOUNTING PLATE	0.04
MT-80/ARC-5	MOUNTING PLATE	0.09
MT-85/ARC-5	MOUNTING PLATE	0.56
MT-98/ARC-5	MOUNTING PLATE	0.31

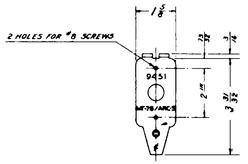
NOTE: SEE FIGURES 57 AND 58 FOR WEIGHTS AND DIMENSIONS OF OTHER CONTROL UNITS.



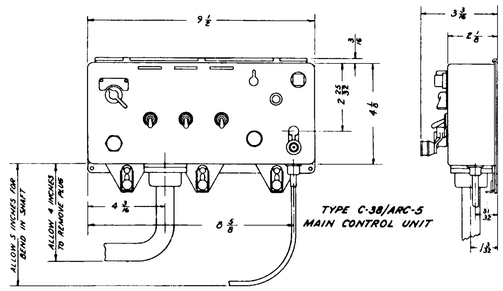
TYPE MT-98/ARC-5 MOUNTING PLATE



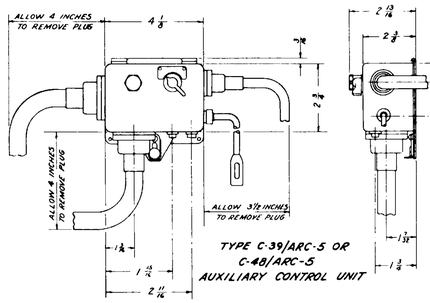
TYPE MT-80/ARC-5 MOUNTING PLATE



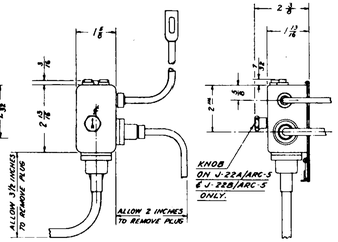
TYPE MT-78/ARC-5 MOUNTING PLATE



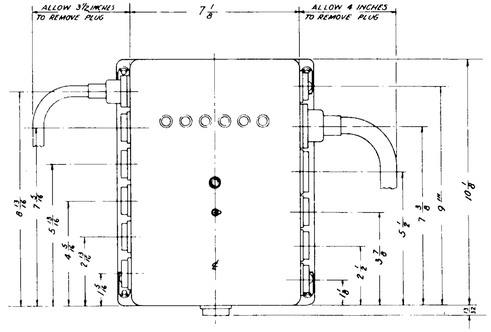
TYPE C-38/ARC-5 MAIN CONTROL UNIT



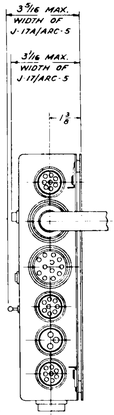
TYPE C-39/ARC-5 OR C-48/ARC-5 AUXILIARY CONTROL UNIT

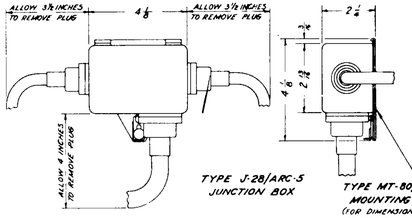


TYPE J-16/ARC-5, J-22/ARC-5, J-22A/ARC-5 OR J-228/ARC-5 JACK BOX



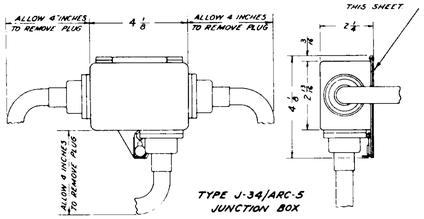
TYPE J-17/ARC-5 OR J-17A/ARC-5 JUNCTION BOX





TYPE J-28/ARC-5 JUNCTION BOX

TYPE MT-80/ARC-5 MOUNTING PLATE (FOR DIMENSIONS AND MOUNTING HOLES SEE SEPARATE DRAWING ON THIS SHEET)



TYPE J-34/ARC-5 JUNCTION BOX

Figure 8—59. Control Units, Junction Boxes, and Jack Boxes, Installation Dimensions and Weights

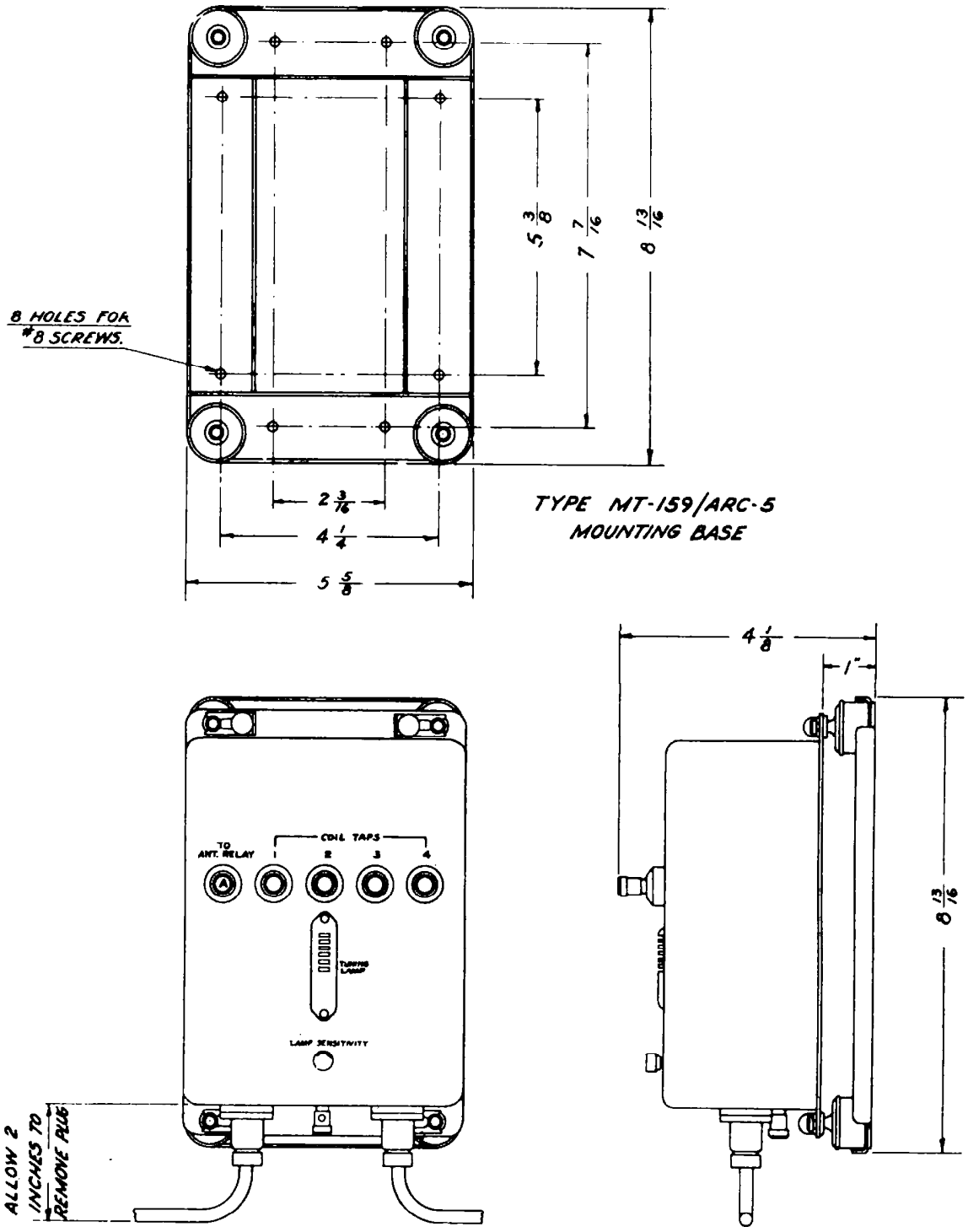
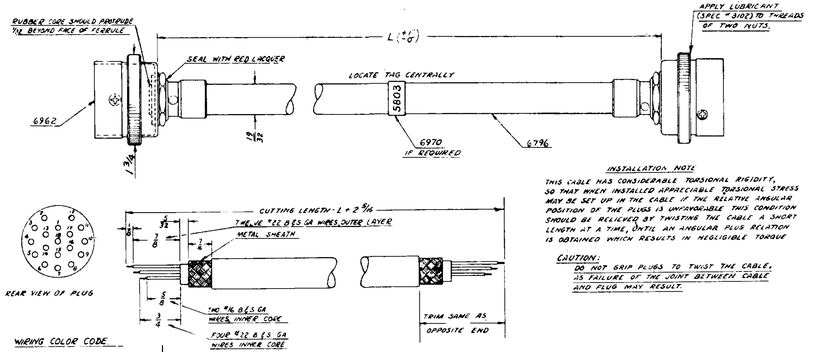


Figure 8—60. Antenna Loading Coil TN-6/ARC-5, Installation Dimensions and Weight



WIRING COLOR CODE

OUTER LAYER
1 WHITE (BETWEEN BROWN & RED)
2 WHITE BETWEEN RED & ORANGE)
3 RED
4 GREEN
5 WHITE (BETWEEN ORANGE & YELLOW)
6 BLUE
7 WHITE (BETWEEN GREEN & YELLOW)
8 ORANGE
9 WHITE (BETWEEN BLUE & GREEN)
10 YELLOW
11 BROWN
12 WHITE (BETWEEN BROWN & BLUE)

INNER CORE
13 YELLOW
14 BLUE
15 BLACK (#16 B&S GA)
16 GREEN
17 RED
18 WHITE (#16 B&S GA)

(* GROMMETED BY SCREW)

ASSEMBLY PROCEDURE

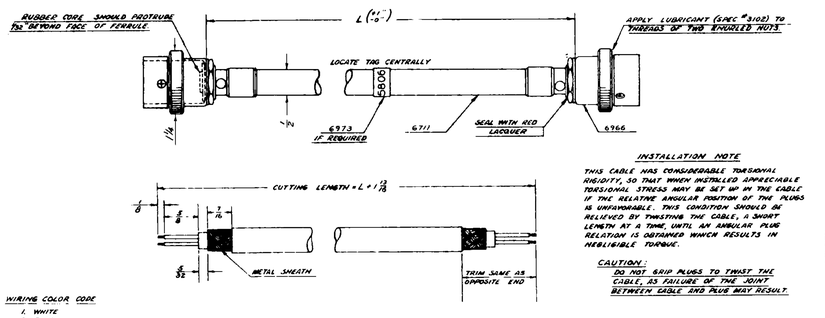
A. STRIP CABLE ENDS TO DIMENSIONS INDICATED
B. TIN ENDS OF CONDUCTORS.
C. INSERT CABLES INTO PLUG ASSEMBLIES.
D. BACK OFF NUTS, WASHERS AND SHELLS.
E. SOLDER WIRES TO RESPECTIVE JACKS PER WIRING COLOR CODE 30 AS TO PRODUCE MINIMUM CROSS-OVERS OF CABLE CONDUCTORS.
F. SOLDER FERRULES THOROUGHLY TO SHEATH THROUGH 8 SIDE HOLES WITH FERRULE PINS IN LINE WITH JACKS *7.
G. ASSEMBLE INSULATOR ASSEMBLIES INTO SHELLS WITH SCREWS; BRING PINS INTO SLOTS IN SHELLS. THEN TIGHTEN AND SEAL NUTS.

INSTALLATION NOTE

THIS CABLE HAS CONSIDERABLE TORSIONAL RIGIDITY, SO THAT WHEN INSTALLED APPRECIABLE TORSIONAL STRESS MAY BE SET UP IN THE CABLE IF THE RELATIVE ANGULAR POSITION OF THE PLUGS IS UNFAVORABLE. THIS CONDITION SHOULD BE RELIEVED BY TWISTING THE CABLE A SHORT LENGTH AT A TIME, UNTIL AN ANGULAR PLUG RELATION IS OBTAINED WHICH RESULTS IN NEGLIGIBLE TORQUE

CAUTION:
DO NOT GRIP PLUGS TO TWIST THE CABLE, AS FAILURE OF THE JOINT BETWEEN CABLE AND PLUG MAY RESULT.

CABLE ASSEMBLY
MODULATOR UNIT TO TRANSMITTER CONTROL BOX



WIRING COLOR CODE

1. WHITE
2. BLACK
3. RED
4. BLUE (GROUND)
5. GREEN
6. YELLOW
7. BROWN
8. ORANGE

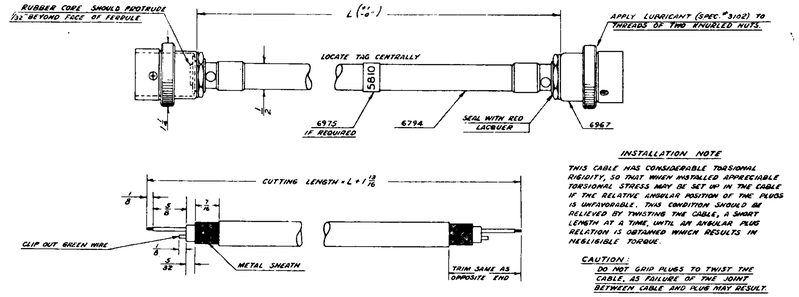
ASSEMBLY PROCEDURE

A. STRIP CABLE ENDS TO DIMENSIONS INDICATED.
B. TIN ENDS OF CONDUCTORS
C. INSERT CABLES INTO PLUG ASSEMBLIES
D. BACK OFF NUTS, WASHERS AND SHELLS.
E. SOLDER WIRES TO RESPECTIVE JACKS PER WIRING COLOR CODE 30 AS TO PRODUCE MINIMUM CROSS-OVERS OF CABLE CONDUCTORS
F. SOLDER FERRULES THOROUGHLY TO SHEATH THROUGH 8 SIDE HOLES WITH FERRULE PINS IN LINE WITH JACKS *4.
G. ASSEMBLE INSULATOR ASSEMBLIES INTO SHELLS WITH SCREWS; BRING PINS INTO SLOTS IN SHELLS; THEN TIGHTEN AND SEAL NUTS.

INSTALLATION NOTE

THIS CABLE HAS CONSIDERABLE TORSIONAL RIGIDITY, SO THAT WHEN INSTALLED APPRECIABLE TORSIONAL STRESS MAY BE SET UP IN THE CABLE IF THE RELATIVE ANGULAR POSITION OF THE PLUGS IS UNFAVORABLE. THIS CONDITION SHOULD BE RELIEVED BY TWISTING THE CABLE, A SHORT LENGTH AT A TIME, UNTIL AN ANGULAR PLUG RELATION IS OBTAINED WHICH RESULTS IN NEGLIGIBLE TORQUE.

CAUTION:
DO NOT GRIP PLUGS TO TWIST THE CABLE, AS FAILURE OF THE JOINT BETWEEN CABLE AND PLUG MAY RESULT.



WIRING COLOR CODE

1. YELLOW
2. RED
3. BLACK (GROUND)
4. WHITE
5. BLUE

ASSEMBLY PROCEDURE:

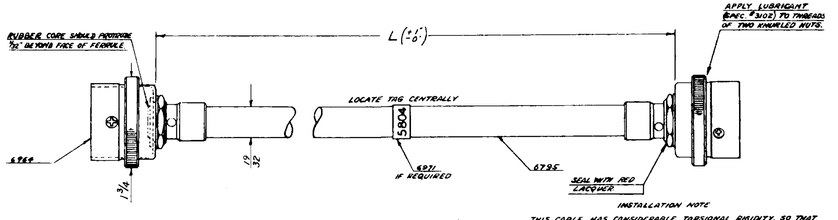
A. STRIP CABLE ENDS TO DIMENSIONS INDICATED.
B. TIN ENDS OF CONDUCTORS.
C. INSERT CABLES INTO PLUG ASSEMBLIES.
D. BACK OFF NUTS, WASHERS AND SHELLS.
E. SOLDER WIRES TO RESPECTIVE JACKS PER WIRING COLOR CODE 30 AS TO PRODUCE MINIMUM CROSS-OVERS OF CABLE CONDUCTORS.
F. SOLDER FERRULES THOROUGHLY TO SHEATH THROUGH 8 SIDE HOLES WITH FERRULE PINS IN LINE WITH JACKS *3
G. ASSEMBLE INSULATOR ASSEMBLIES INTO SHELLS WITH SCREWS; BRING PINS INTO SLOTS IN SHELLS; THEN TIGHTEN AND SEAL NUTS.

INSTALLATION NOTE

THIS CABLE HAS CONSIDERABLE TORSIONAL RIGIDITY, SO THAT WHEN INSTALLED APPRECIABLE TORSIONAL STRESS MAY BE SET UP IN THE CABLE IF THE RELATIVE ANGULAR POSITION OF THE PLUGS IS UNFAVORABLE. THIS CONDITION SHOULD BE RELIEVED BY TWISTING THE CABLE, A SHORT LENGTH AT A TIME, UNTIL AN ANGULAR PLUG RELATION IS OBTAINED WHICH RESULTS IN NEGLIGIBLE TORQUE.

CAUTION:
DO NOT GRIP PLUGS TO TWIST THE CABLE, AS FAILURE OF THE JOINT BETWEEN CABLE AND PLUG MAY RESULT.

CABLE ASSEMBLY
TRANSMITTER BACK TO ANTENNA RELAY UNIT



WIRING COLOR CODE

1. OUTER WHITE
2. OUTER BLACK
3. RED
4. INNER LARGE WHITE
5. INNER LARGE BLACK (GROUND)
6. BLUE
7. GREEN
8. YELLOW
9. ORANGE
10. ORANGE
11. INNER SMALL WHITE
12. INNER SMALL BLACK

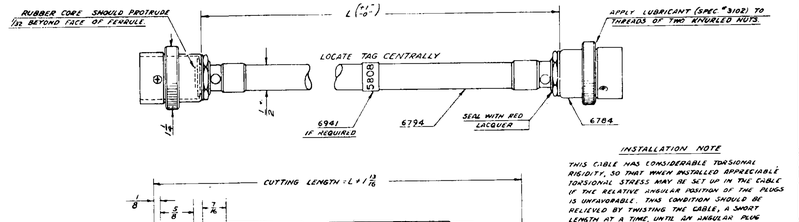
ASSEMBLY PROCEDURE:

A. STRIP CABLE ENDS TO DIMENSIONS INDICATED.
B. TIN ENDS OF CONDUCTORS
C. INSERT CABLES INTO PLUG ASSEMBLIES.
D. BACK OFF NUTS, WASHERS AND SHELLS.
E. SOLDER WIRES TO RESPECTIVE JACKS PER WIRING COLOR CODE 30 AS TO PRODUCE MINIMUM CROSS-OVERS OF CABLE CONDUCTORS.
F. SOLDER FERRULES THOROUGHLY TO SHEATH THROUGH 8 SIDE HOLES, WITH FERRULE PINS IN LINE WITH JACKS *6.
G. ASSEMBLE INSULATOR ASSEMBLIES INTO SHELLS WITH SCREWS; BRING PINS INTO SLOTS IN SHELLS. THEN TIGHTEN AND SEAL NUTS.

INSTALLATION NOTE

THIS CABLE HAS CONSIDERABLE TORSIONAL RIGIDITY, SO THAT WHEN INSTALLED APPRECIABLE TORSIONAL STRESS MAY BE SET UP IN THE CABLE IF THE RELATIVE ANGULAR POSITION OF THE PLUGS IS UNFAVORABLE. THIS CONDITION SHOULD BE RELIEVED BY TWISTING THE CABLE, A SHORT LENGTH AT A TIME, UNTIL AN ANGULAR PLUG RELATION IS OBTAINED WHICH RESULTS IN NEGLIGIBLE TORQUE.

CAUTION:
DO NOT GRIP PLUGS TO TWIST THE CABLE, AS FAILURE OF THE JOINT BETWEEN CABLE AND PLUG MAY RESULT.



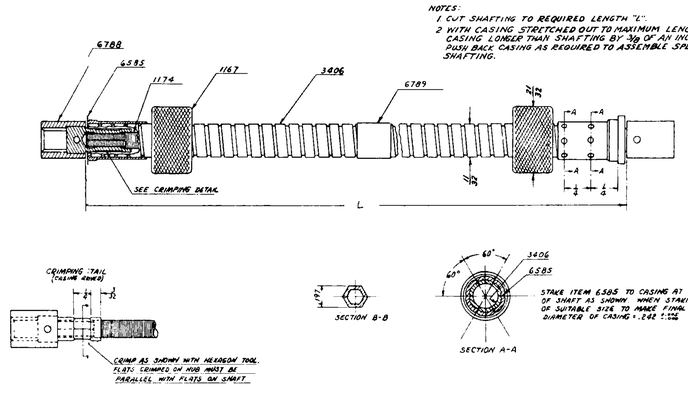
WIRING COLOR CODE

1. BLUE
2. RED
3. BLACK (GROUND)
4. GREEN
5. YELLOW
6. WHITE

ASSEMBLY PROCEDURE:

A. STRIP CABLE ENDS TO DIMENSIONS INDICATED.
B. TIN ENDS OF CONDUCTORS.
C. INSERT CABLES INTO PLUG ASSEMBLIES
D. BACK OFF NUTS, WASHERS AND SHELLS.
E. SOLDER WIRES TO RESPECTIVE JACKS PER WIRING COLOR CODE 30 AS TO PRODUCE MINIMUM CROSS-OVERS OF CABLE CONDUCTORS.
F. SOLDER FERRULES THOROUGHLY TO SHEATH THROUGH 8 SIDE HOLES WITH FERRULE PINS IN LINE WITH JACKS *3.
G. ASSEMBLE INSULATOR ASSEMBLIES INTO SHELLS WITH SCREWS; BRING PINS INTO SLOTS IN SHELLS; THEN TIGHTEN AND SEAL NUTS.

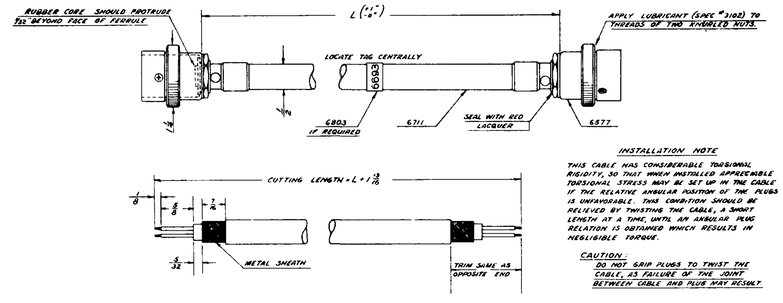
CABLE ASSEMBLY
MODULATOR UNIT TO RECEIVER RACK



LUBRICATION:
FOR SHAFT; STANDARD OIL CO. "UNIVIS" #40 OR EQUIVALENT
FOR THREADS ONLY; APPLY ANTI-SEIZE LUBRICANT

MECHANICAL LINKAGE ASSEMBLY

Figure 8–61. Cable Assemblies and Mechanical Linkage, Assembly and Fabrication Diagrams (Sheet 1 of 3)



INSTALLATION NOTE

THIS CABLE HAS CONSIDERABLE TORSIONAL RIGIDITY, SO THAT WHEN INSTALLED APPRECIABLE TORSIONAL STRESS MAY BE SET UP IN THE CABLE IF THE RELATIVE ANGULAR POSITION OF THE PLUGS IS UNFAVORABLE. THIS CONDITION SHOULD BE RELIEVED BY TWISTING THE CABLE, A SHORT LENGTH AT A TIME, UNTIL AN ANGULAR PLUG RELATION IS OBTAINED WHICH RESULTS IN NEGLIGIBLE TORQUE.

CAUTION:

DO NOT GRIP PLUGS TO TWIST THE CABLE, AS FAILURE OF THE JOINT BETWEEN CABLE AND PLUG MAY RESULT.

WIRING COLOR CODE

1. WHITE
2. RED
3. BLUE
4. GREEN (GROUND)
5. YELLOW
6. BLACK
7. BROWN
8. ORANGE

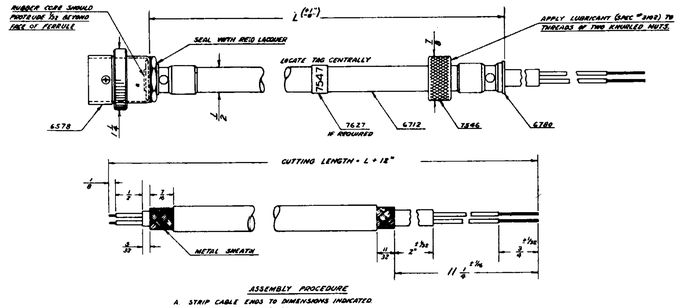


REAR VIEW OF PLUG

ASSEMBLY PROCEDURE:

A. STRIP CABLE ENDS TO DIMENSIONS INDICATED.
B. TIN ENDS OF CONDUCTORS
C. INSERT CABLES INTO PLUG ASSEMBLIES
D. BACK OFF NUTS, WASHERS AND SHELLS.
E. SOLDER WIRES TO RESPECTIVE JACKS PER WIRING COLOR CODE SO AS TO PRODUCE MINIMUM CROSS-OVERS OF CABLE CONDUCTORS.
F. SOLDER FERRULES THOROUGHLY TO SHEATH THROUGH 8 SIDE HOLES, WITH FERRULE PINS IN LINE WITH JACKS "A
G. ASSEMBLE INSULATOR ASSEMBLIES INTO SHELLS WITH SCREWS, BRING PINS INTO SLOTS IN SHELLS; THEN TIGHTEN AND SEAL NUTS.

CABLE ASSEMBLY
RECEIVER RACK TO RECEIVER CONTROL BOX



ASSEMBLY PROCEDURE

A. STRIP CABLE ENDS TO DIMENSIONS INDICATED.
B. TIN ENDS OF CONDUCTORS.
C. INSERT CABLE WITH PLUG ASSEMBLY AND FERRULE.
D. BACK OFF NUTS, WASHER AND SHELL.
E. SOLDER WIRES TO RESPECTIVE JACKS PER WIRING COLOR CODE.
F. SOLDER FERRULES THOROUGHLY TO SHEATH THROUGH 8 SIDE HOLES. FERRULE PIN OF PLUG 6578 SHOULD BE IN LINE WITH JACK "2.
G. ASSEMBLE INSULATOR ASSEMBLY INTO SHELL WITH SCREW; BRING PIN INTO SLOT IN SHELL; THEN TIGHTEN AND SEAL NUT.

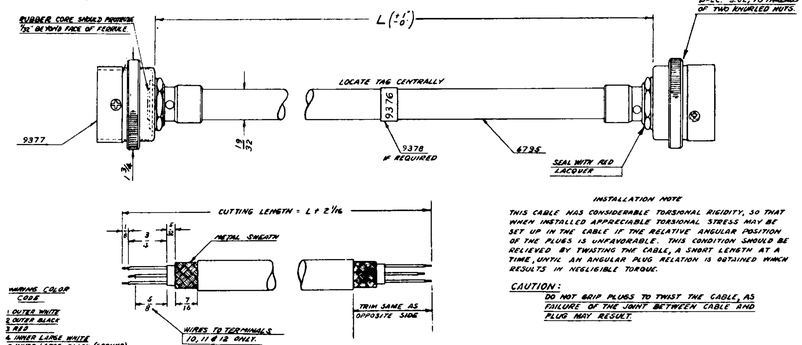
WIRING COLOR CODE

1. WHITE
2. BLACK (GROUND)



REAR VIEW OF PLUG

CABLE ASSEMBLY
PRIMARY POWER SUPPLY TO RECEIVER RACK



INSTALLATION NOTE

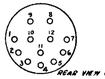
THIS CABLE HAS CONSIDERABLE TORSIONAL RIGIDITY, SO THAT WHEN INSTALLED APPRECIABLE TORSIONAL STRESS MAY BE SET UP IN THE CABLE IF THE RELATIVE ANGULAR POSITION OF THE PLUGS IS UNFAVORABLE. THIS CONDITION SHOULD BE RELIEVED BY TWISTING THE CABLE, A SHORT LENGTH AT A TIME, UNTIL AN ANGULAR PLUG RELATION IS OBTAINED WHICH RESULTS IN NEGLIGIBLE TORQUE.

CAUTION:

DO NOT GRIP PLUGS TO TWIST THE CABLE, AS FAILURE OF THE JOINT BETWEEN CABLE AND PLUG MAY RESULT.

WIRING COLOR CODE

1. OUTER WHITE
2. OUTER BLACK
3. RED
4. INNER LARGE WHITE
5. INNER LARGE BLACK (GROUND)
6. BLUE
7. GREEN
8. YELLOW
9. BROWN
10. ORANGE
11. INNER SMALL WHITE
12. INNER SMALL BLACK

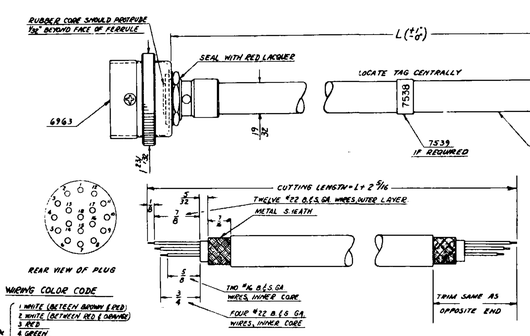


REAR VIEW OF PLUG

ASSEMBLY PROCEDURE:

A. STRIP CABLE ENDS TO DIMENSIONS INDICATED.
B. TIN ENDS OF CONDUCTORS
C. INSERT CABLES INTO PLUG ASSEMBLIES.
D. BACK OFF NUTS, WASHERS AND SHELLS.
E. SOLDER WIRES TO RESPECTIVE JACKS PER WIRING COLOR CODE SO AS TO PRODUCE MINIMUM CROSS-OVERS OF CABLE CONDUCTORS.
F. SOLDER FERRULES THOROUGHLY TO SHEATH THROUGH 8 SIDE HOLES, WITH FERRULE PINS IN LINE WITH JACKS
G. ASSEMBLE INSULATOR ASSEMBLIES INTO SHELLS WITH SCREWS; BRING PINS INTO SLOTS IN SHELLS; THEN TIGHTEN AND SEAL NUTS.

CABLE ASSEMBLY
MODULATOR UNIT TO TRANSMITTER RACK



INSTALLATION NOTE

THIS CABLE HAS CONSIDERABLE TORSIONAL RIGIDITY, SO THAT WHEN INSTALLED APPRECIABLE TORSIONAL STRESS MAY BE SET UP IN THE CABLE IF THE RELATIVE ANGULAR POSITION OF THE PLUGS IS UNFAVORABLE. THIS CONDITION SHOULD BE RELIEVED BY TWISTING THE CABLE, A SHORT LENGTH AT A TIME, UNTIL AN ANGULAR PLUG RELATION IS OBTAINED WHICH RESULTS IN NEGLIGIBLE TORQUE.

CAUTION:

DO NOT GRIP PLUGS TO TWIST THE CABLE, AS FAILURE OF THE JOINT BETWEEN CABLE AND PLUG MAY RESULT.

REAR VIEW OF PLUG

WIRING COLOR CODE

OUTER LAYER:
1. WHITE (BETWEEN BROWN & RED)
2. WHITE (BETWEEN RED & ORANGE)
3. RED
4. GREEN
5. WHITE (BETWEEN ORANGE & YELLOW)
6. BLUE
7. WHITE (BETWEEN GREEN & YELLOW)
8. ORANGE
9. WHITE (BETWEEN BLUE & GREEN)
10. YELLOW
11. BROWN
12. WHITE (BETWEEN BROWN & BLUE)

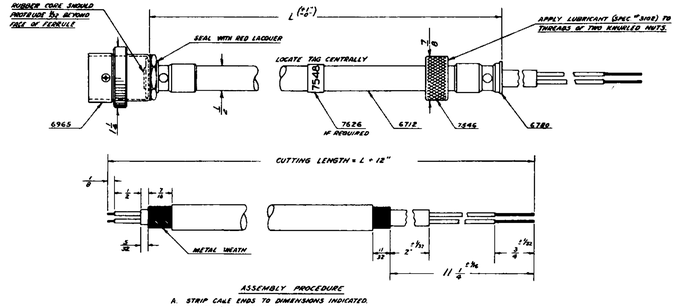
INNER CORE:
13. YELLOW
14. BLUE
15. BLACK (#16 B & S GA.)
16. BROWN
17. RED
18. WHITE (#16 B & S GA.)

(*) GROUNDED BY SCREW)

ASSEMBLY PROCEDURE

A. STRIP CABLE ENDS TO DIMENSIONS INDICATED.
B. TIN ENDS OF CONDUCTORS.
C. INSERT CABLES INTO PLUG ASSEMBLIES.
D. BACK OFF NUTS, WASHERS AND SHELLS.
E. SOLDER WIRES TO RESPECTIVE JACKS PER WIRING COLOR CODE SO AS TO PRODUCE MINIMUM CROSS-OVERS OF CABLE CONDUCTORS.
F. SOLDER FERRULES THOROUGHLY TO SHEATH THROUGH 8 SIDE HOLES, WITH FERRULE PINS IN LINE WITH JACKS "1.
G. ASSEMBLE INSULATOR ASSEMBLIES INTO SHELLS WITH SCREWS; BRING PINS INTO SLOTS IN SHELLS; THEN TIGHTEN, AND SEAL NUTS.

CABLE ASSEMBLY
JUNCTION BOX J-17/ARC-5 TO MAIN CONTROL UNIT C-38/ARC-5



ASSEMBLY PROCEDURE

A. STRIP CALE ENDS TO DIMENSIONS INDICATED.
B. TIN ENDS OF CONDUCTORS.
C. INSERT CBLE INTO PLUG ASSEMBLY AND FERRULE.
D. BACK OFI NUTS, WASHER AND SHELL.
E. SOLDER WIRES TO RESPECTIVE JACKS PER WIRING COLOR COE.
F. SOLDER FERRULES THOROUGHLY TO SHEATH THROUGHEWE SIDE HOLES. FERRULE PIN OF PLUG 6965 SHOULD BE IN LINE WITH JACK "2.
G. ASSEMBLI INSULATOR ASSEMBLY INTO SHELL WITH SCREW; BRNB PIN INTO SLOT IN SHELL; THEN TIGHTEN UND SEAL NUT.

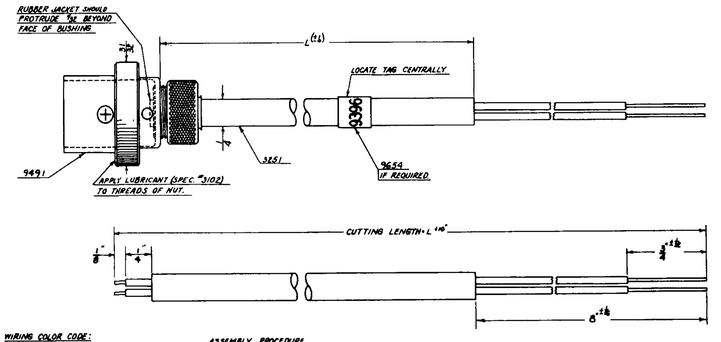
WIRING COLOR CODE

1. WHITE + JUMPER
2. BLACK (GROUND)
3. JUMPER



REAR VIEW OF PLUG

CABLE ASSEMBLY
PRIMARY POWER SUPPLY TO MODULATOR UNIT



WIRING COLOR CODE:

1. RED
2. BLACK (GROUND)



REAR VIEW OF PLUG

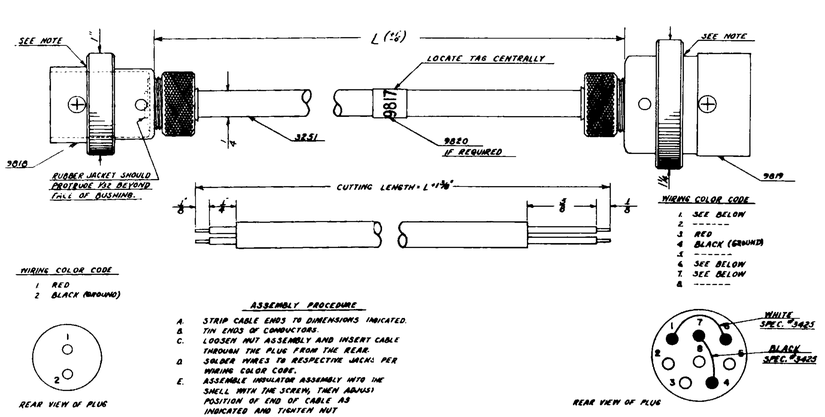
ASSEMBLY PROCEDURE

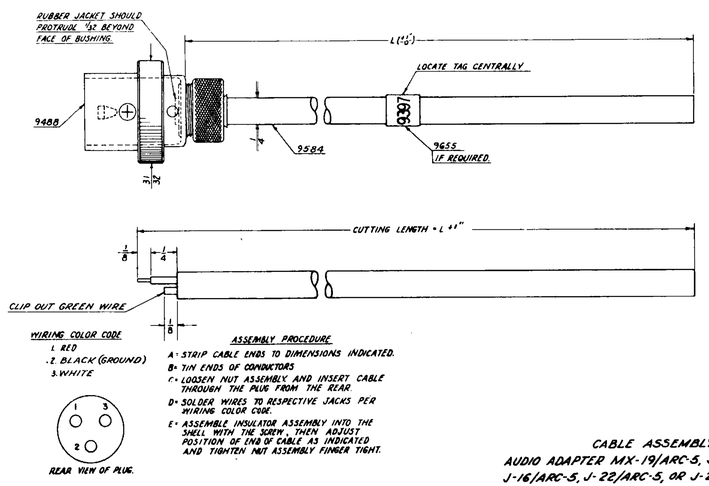
A = STRIP CABLE ENDS TO DIMENSIONS INDICATED.
B = TIN ENDS OF CONDUCTORS.
C = LOOSEN NUT ASSEMBLY AND INSERT CABLE THROUGH THE PLUG FROM THE REAR.
D = SOLDER WIRES TO RESPECTIVE JACKS PER WIRING COLOR CODE.
E = ASSEMBLE INSULATOR ASSEMBLY INTO THE SHELL WITH THE SCREW, THEN ADJUST POSITION OF END OF CABLE AS INDICATED AND TIGHTEN NUT ASSEMBLY FINGER TIGHT.

CABLE ASSEMBLY
CRYSTAL FREQUENCY GENERATOR O-4/ARC-5 TO PRIMARY POWER SUPPLY.

Figure 8–61. Cable Assemblies and Mechanical Linkage, Assembly and Fabrication Diagrams (Sheet 2 of 3)

AN 16-30ARC5-2
AN 16-30ARC5-2





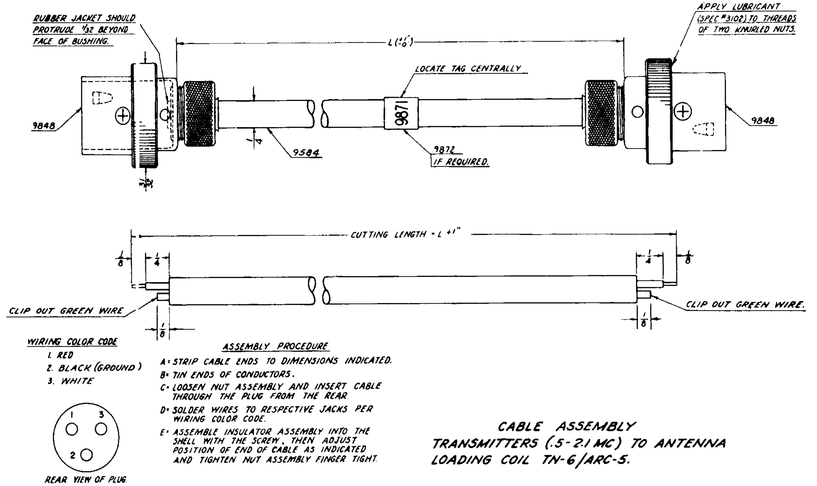
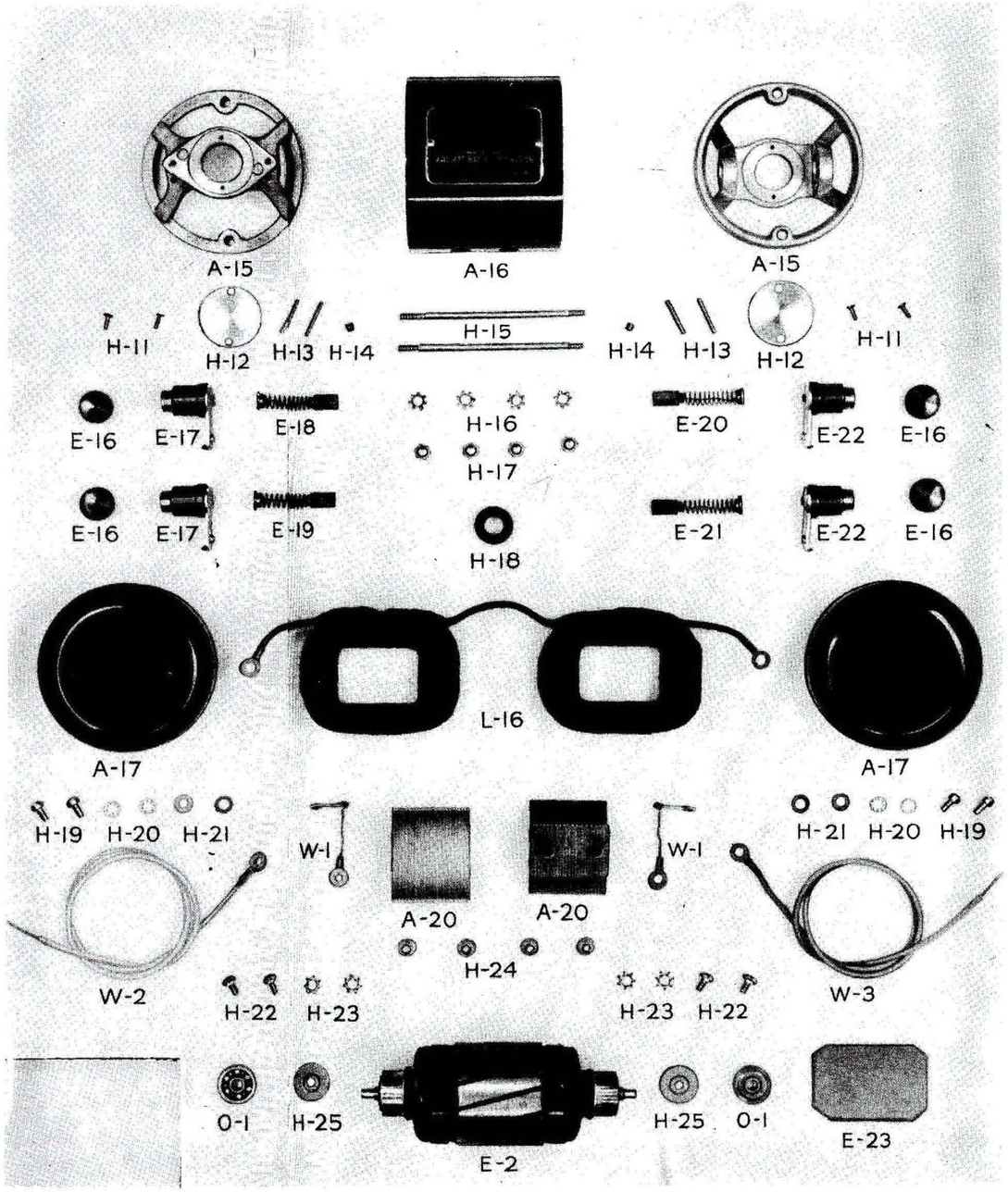
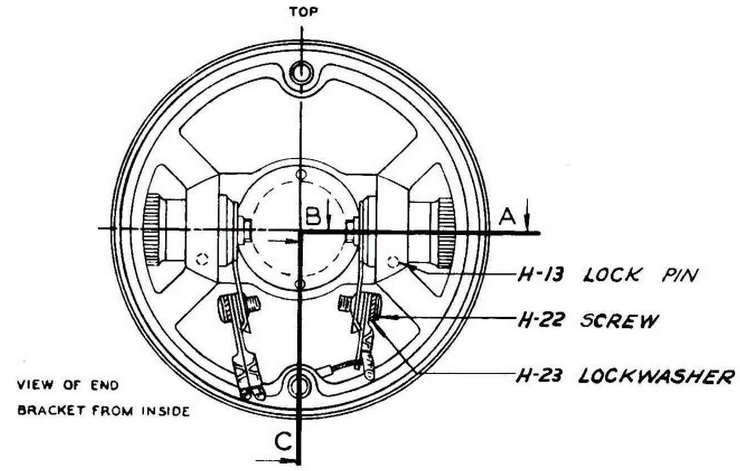


Figure 8–61. Cable Assemblies and Mechanical Linkage, Assembly and Fabrication Diagrams (Sheet 3 of 3)

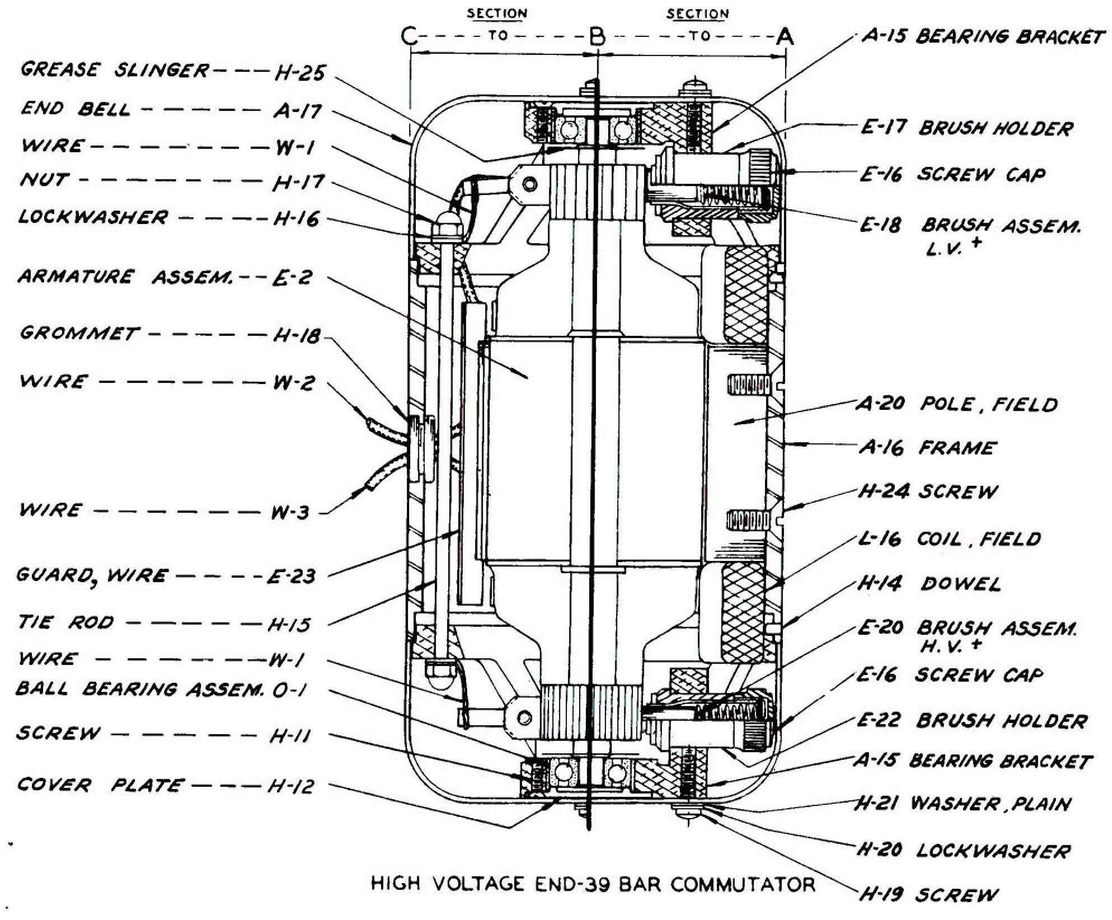
AN 16-30ARC5-2



CONTINENTAL ELECTRIC CO. TYPE DM-310 DYNAMOTOR
ASSEMBLY NUMBER 25926-WS-7610



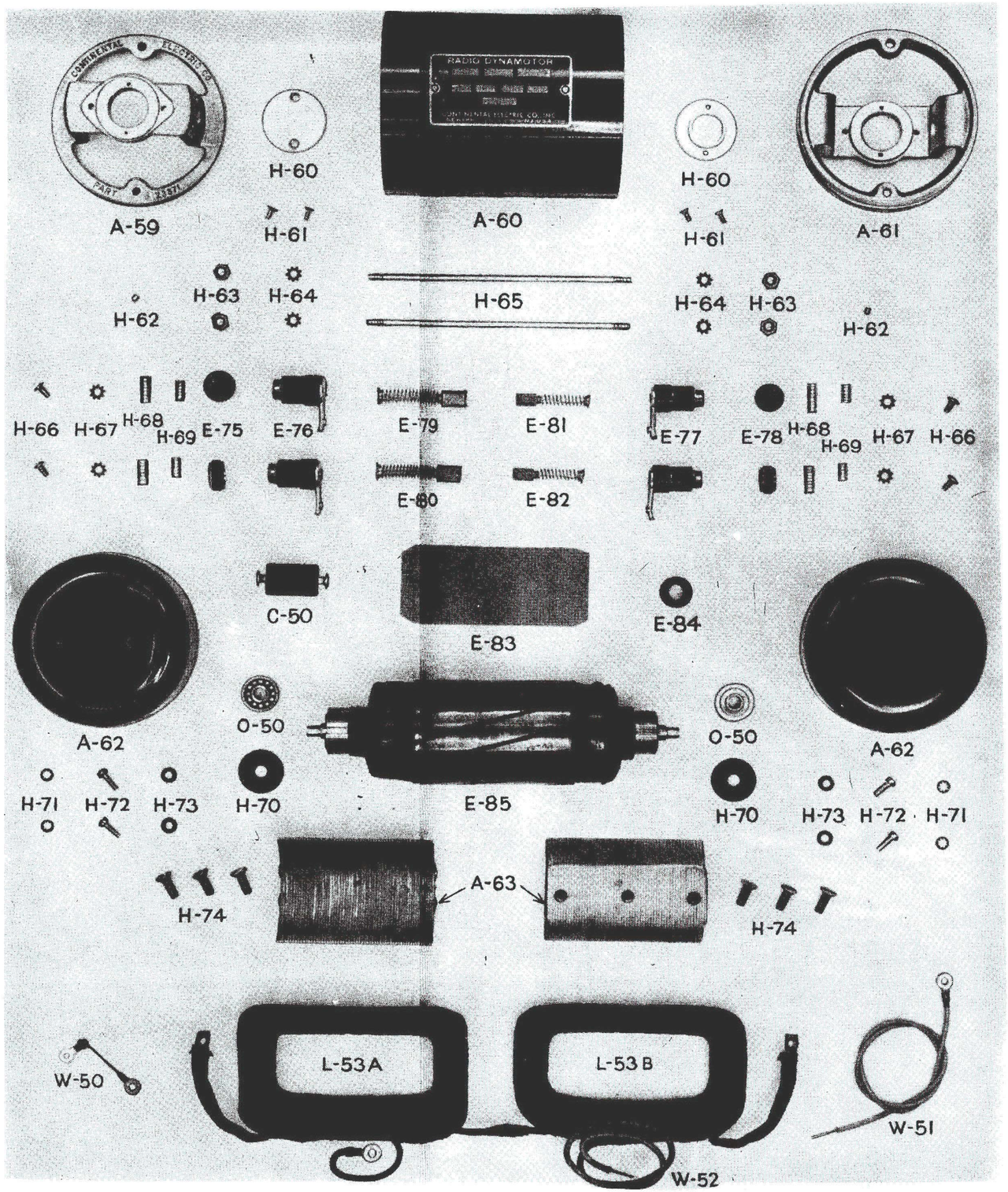
LOW VOLTAGE END-26 BAR COMMUTATOR



HIGH VOLTAGE END-39 BAR COMMUTATOR

Figure 8—62. Dynamotor ★ DY-2A/ARR-2, Detail Parts and Cross-Section

AN 16-30ARC5-2
AN 16-30ARC5-2
AN 16-30ARC5-2



CONTINENTAL ELECTRIC CO. TYPE DM-424 DYNAMOTOR
ASSEMBLY NUMBER 27824-WS-7666

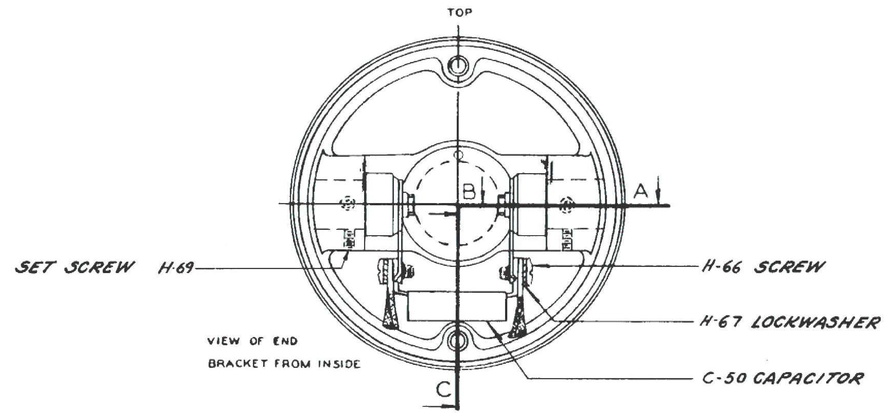
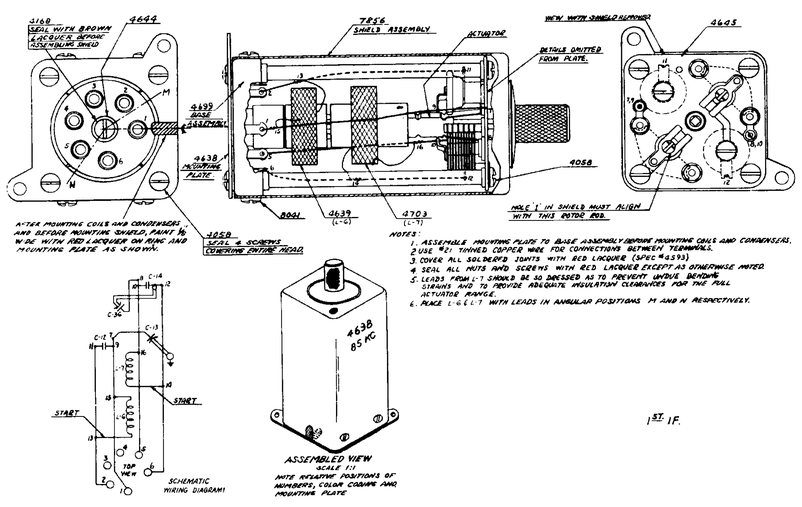


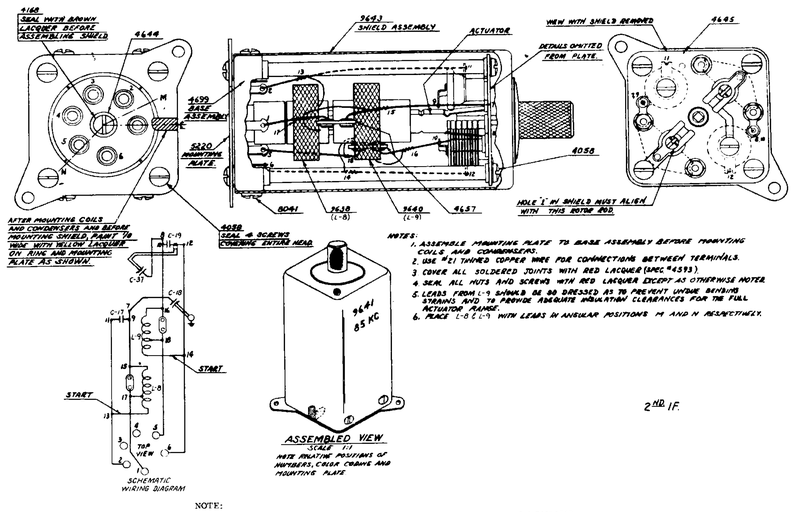
Figure 8—63. Dynamotor DY-8/ARC-5, Detail Parts and Cross-Section

AN 16-30ARC5-2

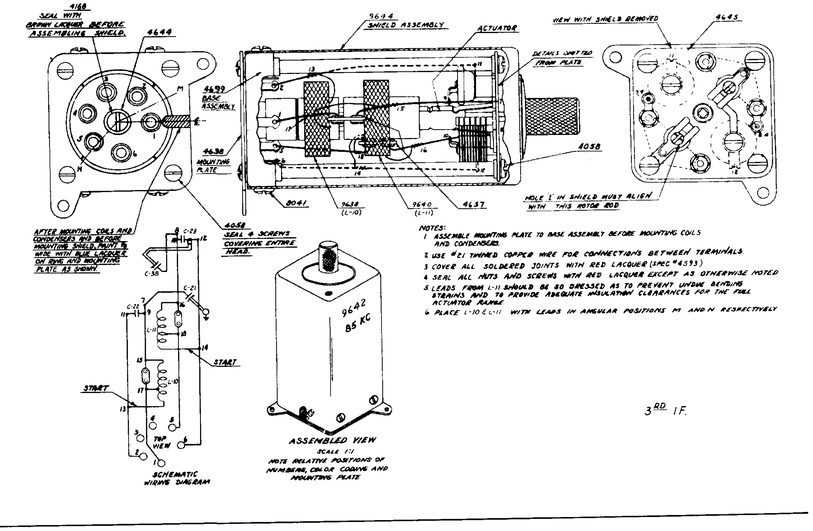
AN 16-30ARC5-2



1ST I.F.

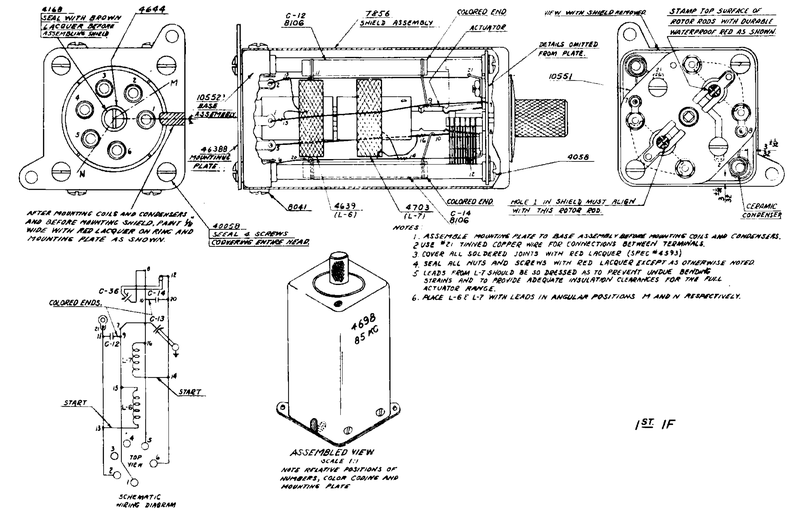


2ND I.F.

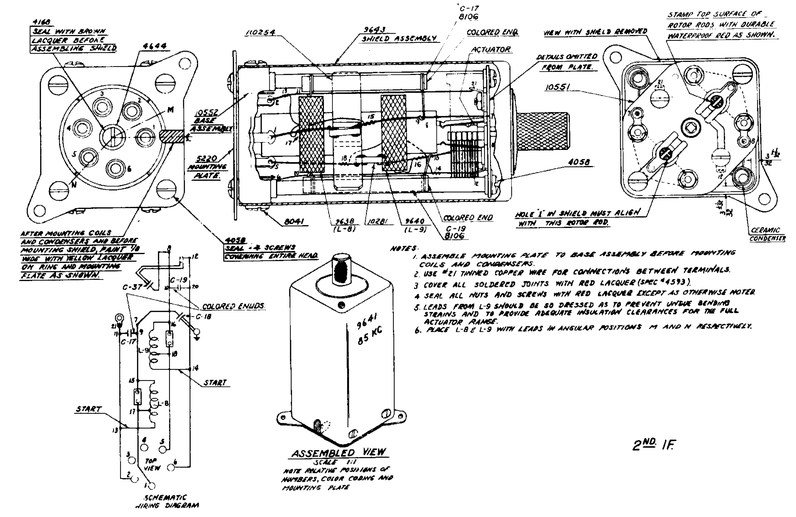


3RD I.F.

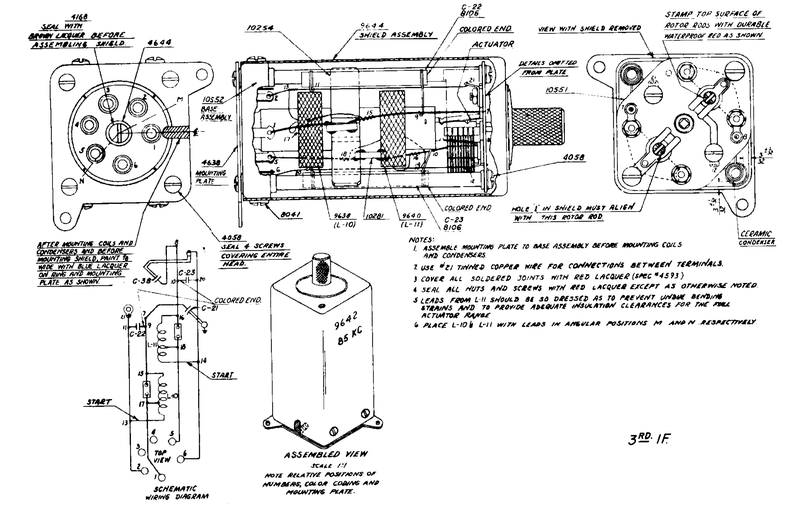
NOTE:
TOP ROW APPLIES TO R-23/ARC-5 RECEIVERS DELIVERED PRIOR TO 1 JAN 1945 AND BOTTOM ROW TO LATER R-23/ARC-5 RECEIVERS.) SEE FIGURE 8-65 FOR 85 KC I-F UNITS USED IN ALL R-23A/ARC-5 AND R-148/ARC-5X RECEIVERS.



1ST IF



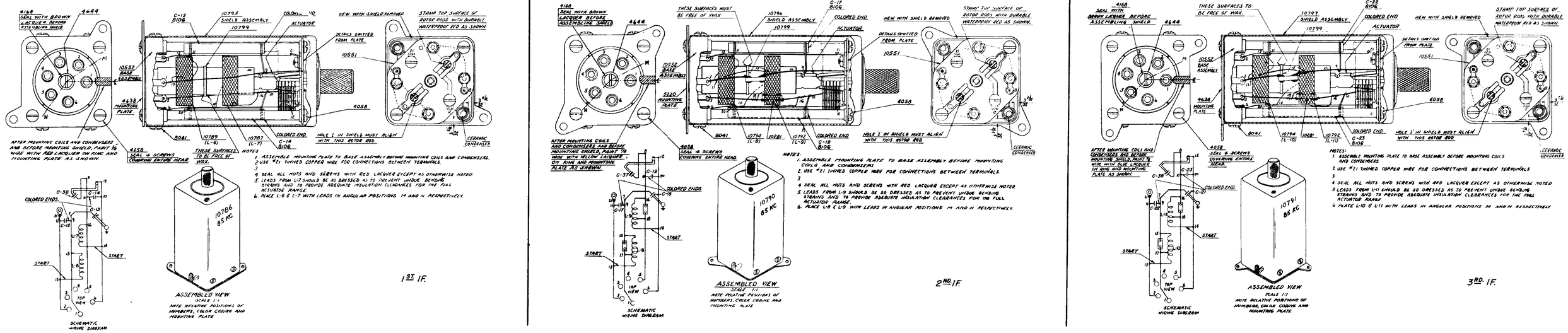
2ND IF



3RD IF

Figure 8—64. Radio Receiver R-23/ARC-5, 85-KC I-f Coupling Units, Assembly Diagrams

AN 16-30ARC5-2
AN 16-30ARC5-2
AN 16-30ARC5-2

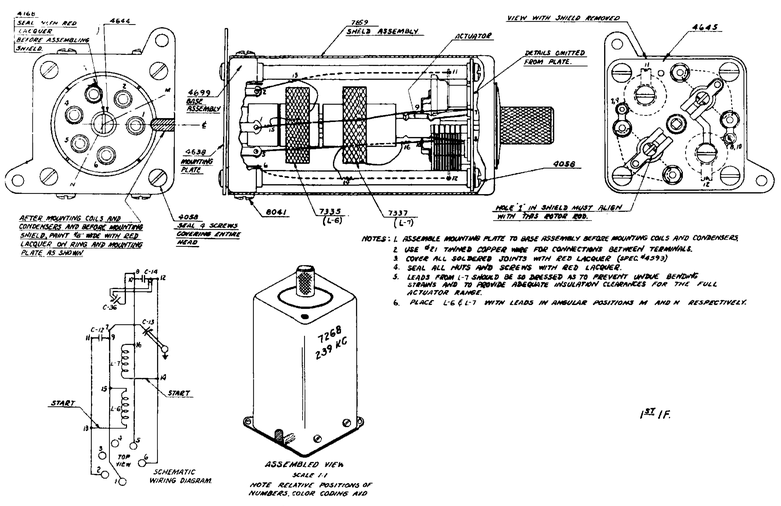


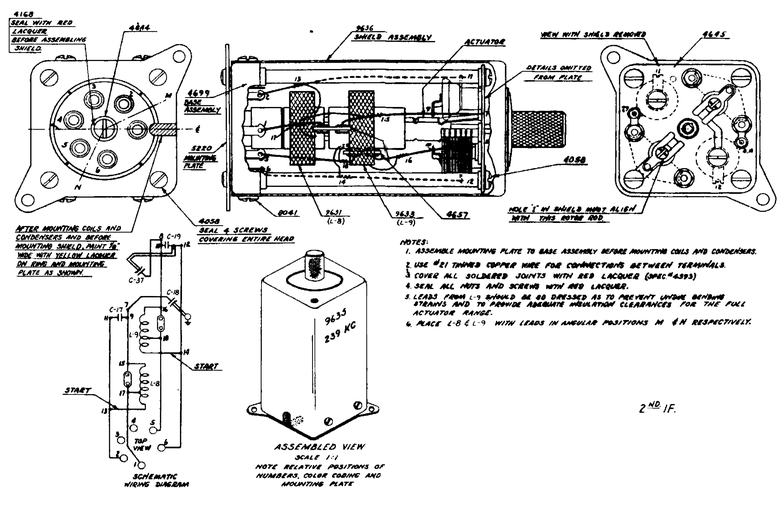
NOTE:

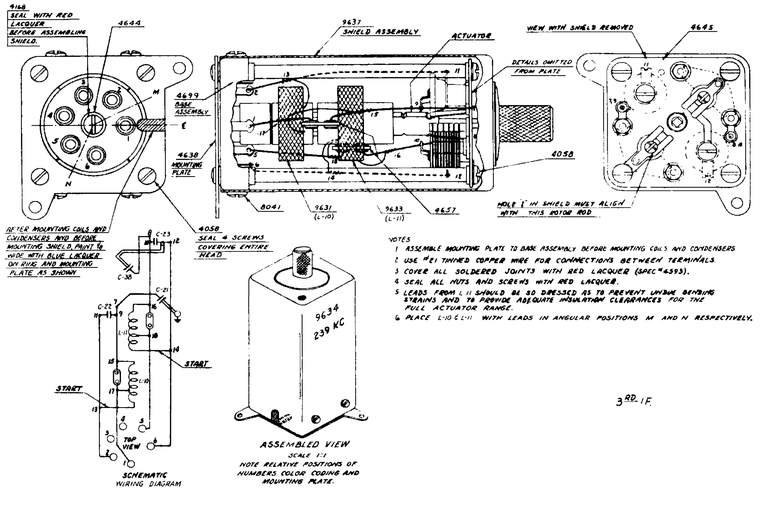
THESE UNITS USED IN R-23A/ARC-5 AND R-148/ARC-5X RECEIVERS. SEE FIGURE 8-64 FOR B[illegible] I-F UNITS USED ON R-23/ARC-5 RECEIVERS.

Figure 8—65. Radio Receiver R-23A/ARC-5 and R-148/ARC-5X, 85-KC I-f Coupling Units, Assembly Diagrams

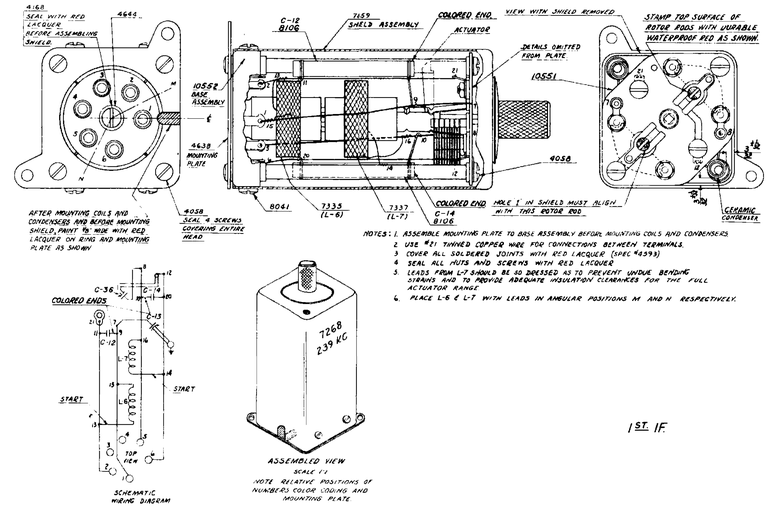
AN 16-30ARC5-2
AN 16-30ARC5-2
AN 16-30ARC5-2

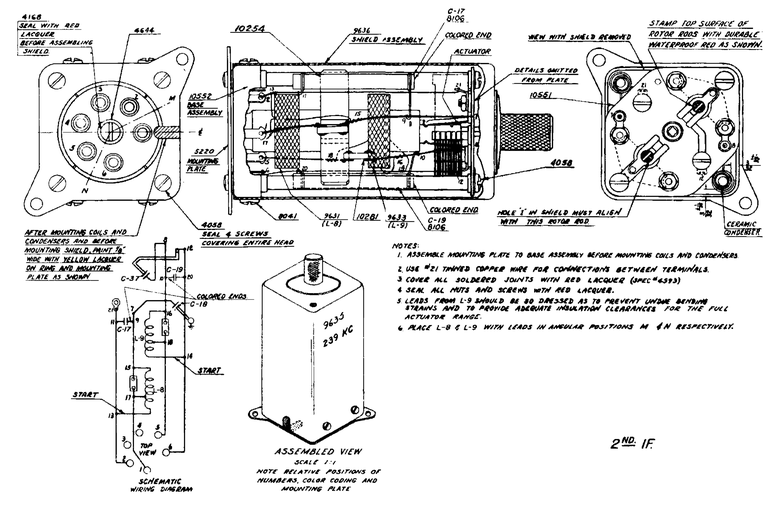






NOTE:
TOP ROW APPLIES TO UNITS DELIVERED PRIOR TO 1 JAN 1945, AND BOTTOM ROW TO LATER UNITS.





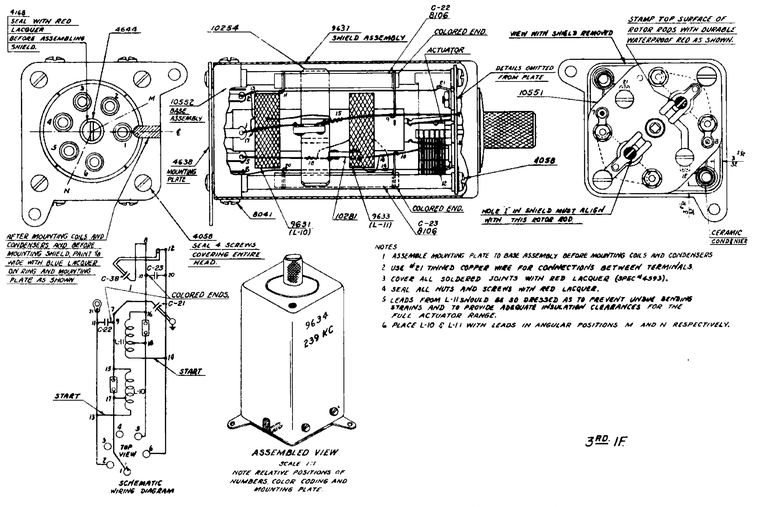
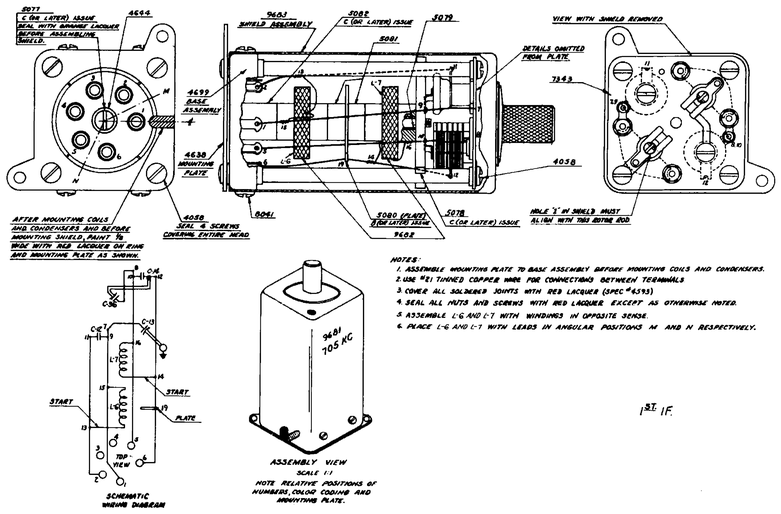


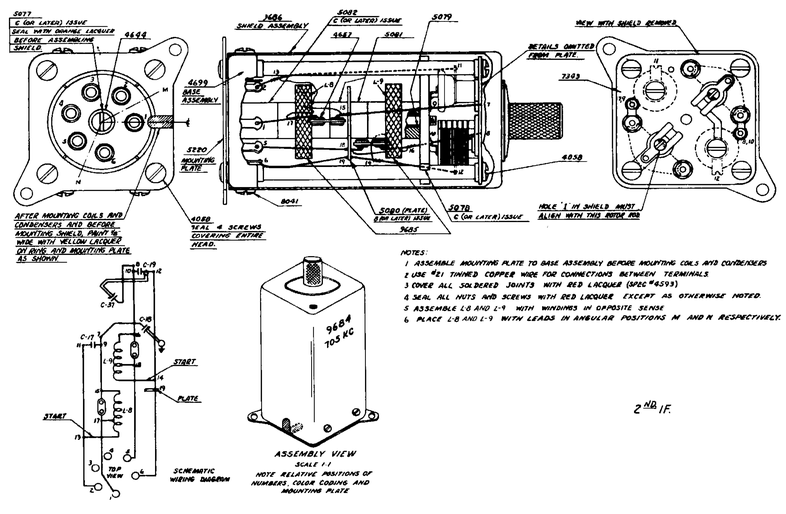
Figure 8–66. Radio Receivers 239-KC I-f Coupling Units, Assembly Diagrams

AN 16-30ARC5-2
AN 16-30ARC5-2
AN 16-30ARC5-2



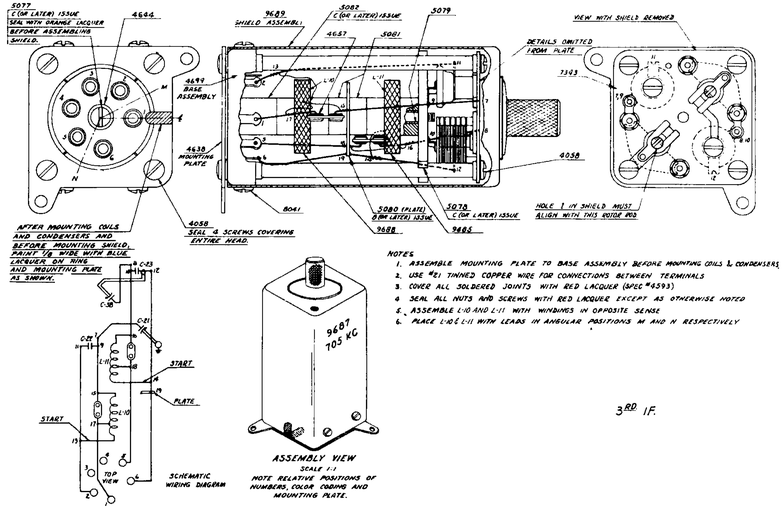
1. ASSEMBLE MOUNTING PLATE TO BASE ASSEMBLY BEFORE MOUNTING COILS AND CONDENSERS.
2. USE #21 TINNED COPPER WIRE FOR CONNECTIONS BETWEEN TERMINALS
3. COVER ALL SOLDERED JOINTS WITH RED LACQUER (SPEC #4593)
4. SEAL ALL NUTS AND SCREWS WITH RED LACQUER EXCEPT AS OTHERWISE NOTED.
5. ASSEMBLE L-6 AND L-7 WITH WINDINGS IN OPPOSITE SENSE.
6. PLACE L-6 AND L-7 WITH LEADS IN ANGULAR POSITIONS M AND N RESPECTIVELY.

1ST IF.



1. ASSEMBLE MOUNTING PLATE TO BASE ASSEMBLY BEFORE MOUNTING COILS AND CONDENSERS
2. USE #21 TINNED COPPER WIRE FOR CONNECTIONS BETWEEN TERMINALS
3. COVER ALL SOLDERED JOINTS WITH RED LACQUER (SPEC #4593)
4. SEAL ALL NUTS AND SCREWS WITH RED LACQUER EXCEPT AS OTHERWISE NOTED.
5. ASSEMBLE L-8 AND L-9 WITH WINDINGS IN OPPOSITE SENSE.
6. PLACE L-8 AND L-9 WITH LEADS IN ANGULAR POSITIONS M AND N RESPECTIVELY.

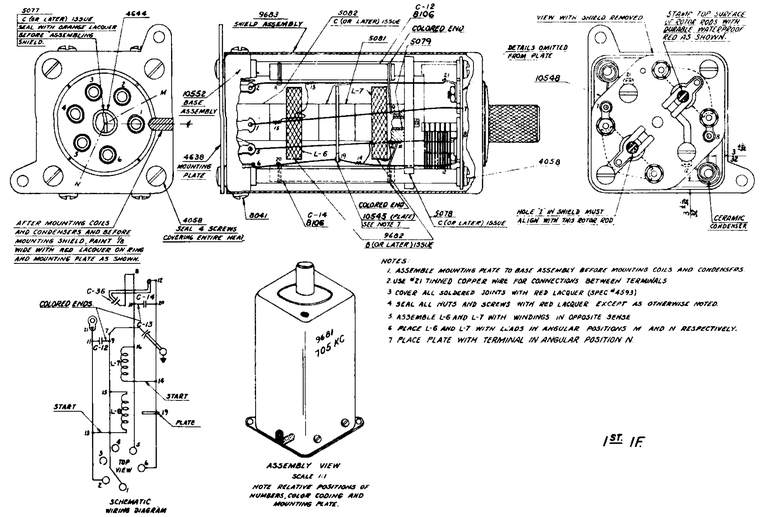
2ND IF.



1. ASSEMBLE MOUNTING PLATE TO BASE ASSEMBLY BEFORE MOUNTING COILS & CONDENSERS.
2. USE #21 TINNED COPPER WIRE FOR CONNECTIONS BETWEEN TERMINALS
3. COVER ALL SOLDERED JOINTS WITH RED LACQUER (SPEC #4593)
4. SEAL ALL NUTS AND SCREWS WITH RED LACQUER EXCEPT AS OTHERWISE NOTED
5. ASSEMBLE L-10 AND L-11 WITH WINDINGS IN OPPOSITE SENSE.
6. PLACE L-10 & L-11 WITH LEADS IN ANGULAR POSITIONS M AND N RESPECTIVELY.

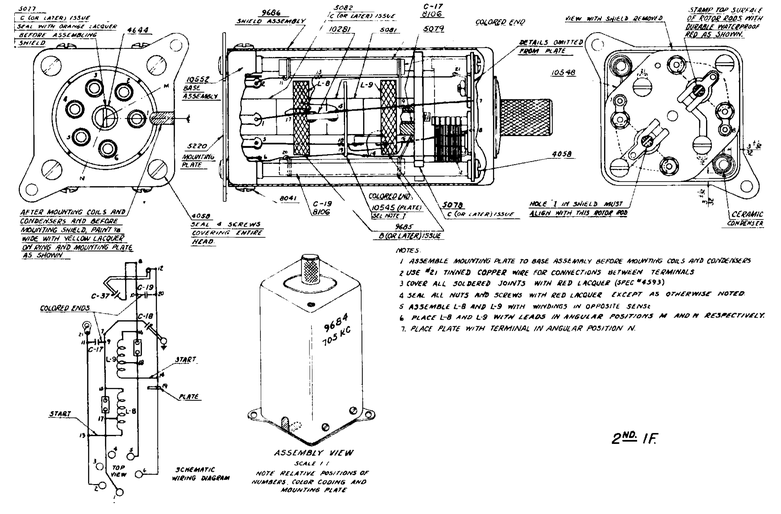
3RD IF.

NOTE:
TOP ROW APPLIES TO UNITS DELIVERED PRIOR TO 1 JAN 1945, AND BOTTOM ROW TO LATER UNITS.



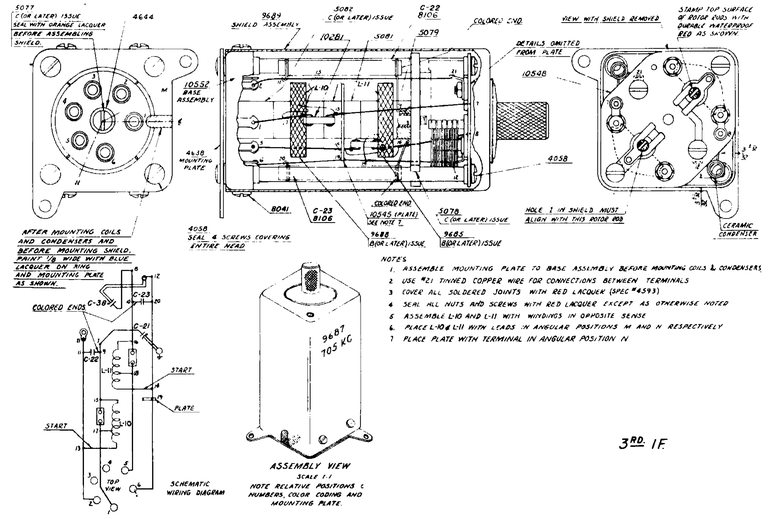
1. ASSEMBLE MOUNTING PLATE TO BASE ASSEMBLY BEFORE MOUNTING COILS AND CONDENSERS.
2. USE #21 TINNED COPPER WIRE FOR CONNECTIONS BETWEEN TERMINALS
3. COVER ALL SOLDERED JOINTS WITH RED LACQUER (SPEC #4593)
4. SEAL ALL NUTS AND SCREWS WITH RED LACQUER EXCEPT AS OTHERWISE NOTED.
5. ASSEMBLE L-6 AND L-7 WITH WINDINGS IN OPPOSITE SENSE.
6. PLACE L-6 AND L-7 WITH LEADS IN ANGULAR POSITIONS M AND N RESPECTIVELY.
7. PLACE PLATE WITH TERMINAL IN ANGULAR POSITION N.

1ST IF.



1. ASSEMBLE MOUNTING PLATE TO BASE ASSEMBLY BEFORE MOUNTING COILS AND CONDENSERS
2. USE #21 TINNED COPPER WIRE FOR CONNECTIONS BETWEEN TERMINALS
3. COVER ALL SOLDERED JOINTS WITH RED LACQUER (SPEC #4593)
4. SEAL ALL NUTS AND SCREWS WITH RED LACQUER EXCEPT AS OTHERWISE NOTED
5. ASSEMBLE L-8 AND L-9 WITH WINDINGS IN OPPOSITE SENSE.
6. PLACE L-8 AND L-9 WITH LEADS IN ANGULAR POSITIONS M AND N RESPECTIVELY.
7. PLACE PLATE WITH TERMINAL IN ANGULAR POSITION N.

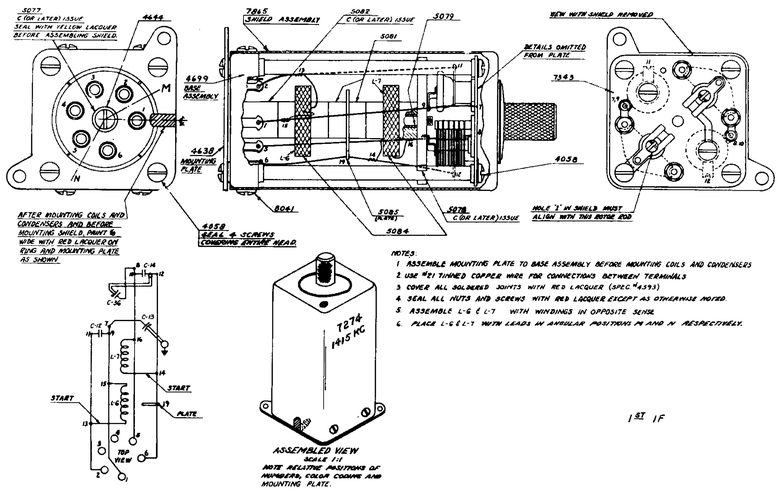
2ND IF.



1. ASSEMBLE MOUNTING PLATE TO BASE ASSEMBLY BEFORE MOUNTING COILS & CONDENSERS.
2. USE #21 TINNED COPPER WIRE FOR CONNECTIONS BETWEEN TERMINALS
3. COVER ALL SOLDERED JOINTS WITH RED LACQUER (SPEC #4593)
4. SEAL ALL NUTS AND SCREWS WITH RED LACQUER EXCEPT AS OTHERWISE NOTED
5. ASSEMBLE L-10 AND L-11 WITH WINDINGS IN OPPOSITE SENSE.
6. PLACE L-10 & L-11 WITH LEADS IN ANGULAR POSITIONS M AND N RESPECTIVELY
7. PLACE PLATE WITH TERMINAL IN ANGULAR POSITION N

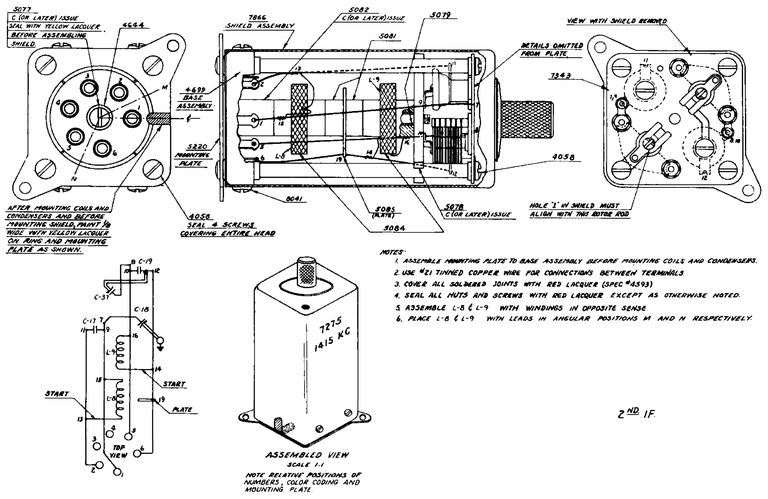
3RD IF.

Figure 8–67. Radio Receivers 705-KC I-f Coupling Units, Assembly Diagrams



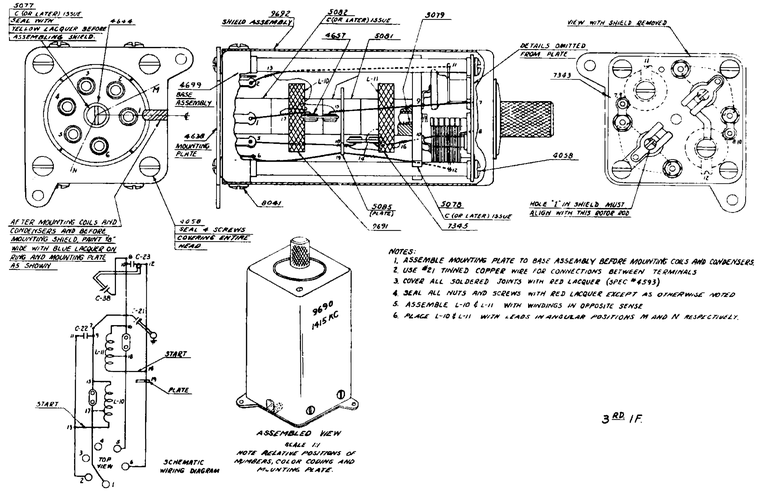
NOTES:
1. ASSEMBLE MOUNTING PLATE TO BASE ASSEMBLY BEFORE MOUNTING COILS AND CONDENSERS
2. USE #21 TINNED COPPER WIRE FOR CONNECTIONS BETWEEN TERMINALS
3. COVER ALL SOLDERED JOINTS WITH RED LACQUER (SPEC #4593)
4. SEAL ALL NUTS AND SCREWS WITH RED LACQUER EXCEPT AS OTHERWISE NOTED
5. ASSEMBLE L-6 & L-7 WITH WINDINGS IN OPPOSITE SENSE.
6. PLACE L-6 & L-7 WITH LEADS IN ANGULAR POSITIONS M AND N RESPECTIVELY.

1ST I.F.



NOTES:
1. ASSEMBLE MOUNTING PLATE TO BASE ASSEMBLY BEFORE MOUNTING COILS AND CONDENSERS.
2. USE #21 TINNED COPPER WIRE FOR CONNECTIONS BETWEEN TERMINALS
3. COVER ALL SOLDERED JOINTS WITH RED LACQUER (SPEC #4593)
4. SEAL ALL NUTS AND SCREWS WITH RED LACQUER EXCEPT AS OTHERWISE NOTED.
5. ASSEMBLE L-8 & L-9 WITH WINDINGS IN OPPOSITE SENSE.
6. PLACE L-8 & L-9 WITH LEADS IN ANGULAR POSITIONS M AND N RESPECTIVELY.

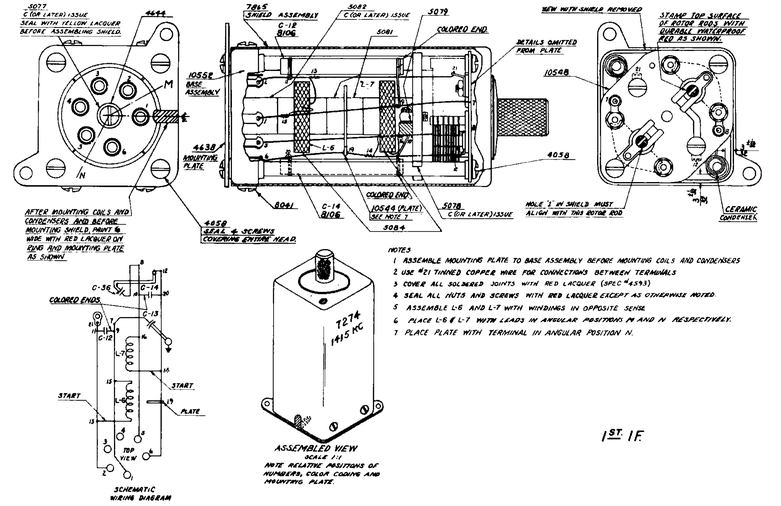
2ND I.F.



NOTES:
1. ASSEMBLE MOUNTING PLATE TO BASE ASSEMBLY BEFORE MOUNTING COILS AND CONDENSERS.
2. USE #21 TINNED COPPER WIRE FOR CONNECTIONS BETWEEN TERMINALS
3. COVER ALL SOLDERED JOINTS WITH RED LACQUER (SPEC #4593)
4. SEAL ALL NUTS AND SCREWS WITH RED LACQUER EXCEPT AS OTHERWISE NOTED
5. ASSEMBLE L-10 & L-11 WITH WINDINGS IN OPPOSITE SENSE.
6. PLACE L-10 & L-11 WITH LEADS IN ANGULAR POSITIONS M AND N RESPECTIVELY.

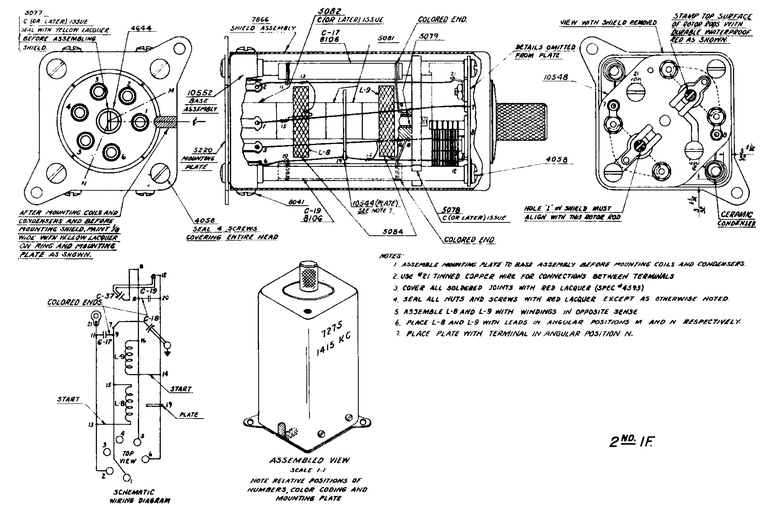
3RD I.F.

NOTE:
TOP ROW APPLIES TO UNITS DELIVERED PRIOR TO 1 JAN 1945, AND BOTTOM ROW TO LATER UNITS.



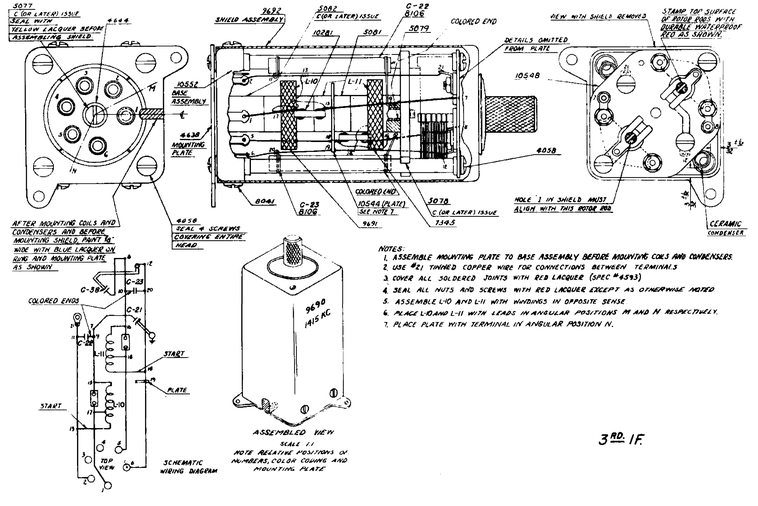
NOTES:
1. ASSEMBLE MOUNTING PLATE TO BASE ASSEMBLY BEFORE MOUNTING COILS AND CONDENSERS
2. USE #21 TINNED COPPER WIRE FOR CONNECTIONS BETWEEN TERMINALS
3. COVER ALL SOLDERED JOINTS WITH RED LACQUER (SPEC #4593)
4. SEAL ALL NUTS AND SCREWS WITH RED LACQUER EXCEPT AS OTHERWISE NOTED.
5. ASSEMBLE L-6 AND L-7 WITH WINDINGS IN OPPOSITE SENSE.
6. PLACE L-6 & L-7 WITH LEADS IN ANGULAR POSITIONS M AND N RESPECTIVELY.
7. PLACE PLATE WITH TERMINAL IN ANGULAR POSITION N.

1ST I.F.



NOTES:
1. ASSEMBLE MOUNTING PLATE TO BASE ASSEMBLY BEFORE MOUNTING COILS AND CONDENSERS.
2. USE #21 TINNED COPPER WIRE FOR CONNECTIONS BETWEEN TERMINALS
3. COVER ALL SOLDERED JOINTS WITH RED LACQUER (SPEC #4593)
4. SEAL ALL NUTS AND SCREWS WITH RED LACQUER EXCEPT AS OTHERWISE NOTED.
5. ASSEMBLE L-8 AND L-9 WITH WINDINGS IN OPPOSITE SENSE.
6. PLACE L-8 AND L-9 WITH LEADS IN ANGULAR POSITIONS M AND N RESPECTIVELY.
7. PLACE PLATE WITH TERMINAL IN ANGULAR POSITION N.

2ND I.F.



NOTES:
1. ASSEMBLE MOUNTING PLATE TO BASE ASSEMBLY BEFORE MOUNTING COILS AND CONDENSERS.
2. USE #21 TINNED COPPER WIRE FOR CONNECTIONS BETWEEN TERMINALS
3. COVER ALL SOLDERED JOINTS WITH RED LACQUER (SPEC #4593)
4. SEAL ALL NUTS AND SCREWS WITH RED LACQUER EXCEPT AS OTHERWISE NOTED
5. ASSEMBLE L-10 AND L-11 WITH WINDINGS IN OPPOSITE SENSE.
6. PLACE L-10 AND L-11 WITH LEADS IN ANGULAR POSITIONS M AND N RESPECTIVELY.
7. PLACE PLATE WITH TERMINAL IN ANGULAR POSITION N.

3RD I.F.

Figure 8–68. Radio Receivers 1415-KC I-f Coupling Units, Assembly Diagrams

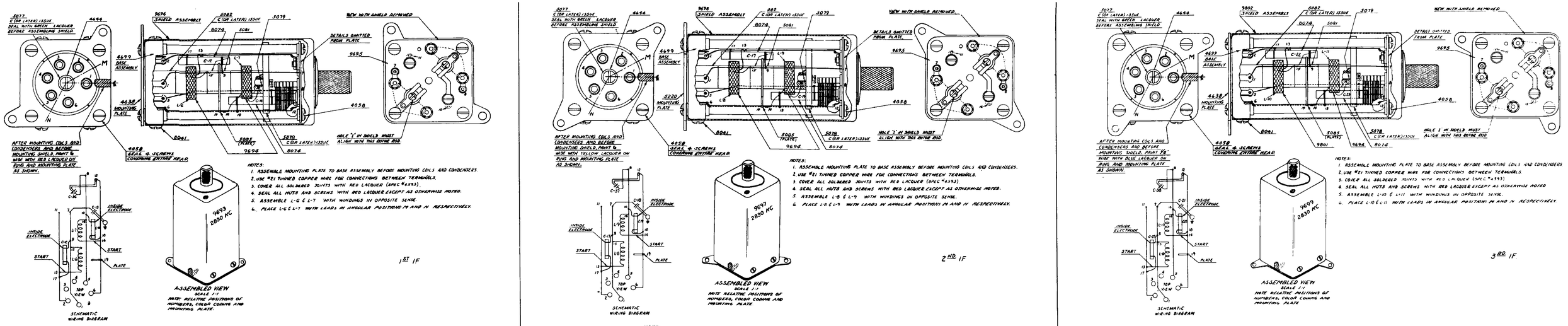


Figure 8–69. Radio Receivers 2830-KC I-f Coupling Units, Assembly Diagrams

RECEIVER TEST SET #7918 & TRANSMITTER TEST SET #9558

RECEIVER TEST SET #7918 CONSISTS OF THE FOLLOWING:

- 1 RECEIVER TEST UNIT #7369.
- 1 RACK (1 REC.) TYPE MT-7A/ARR-2
- 1 MOUNTING BASE (1 REC.) TYPE MT-5/ARR-2
- 1 CABLE ASSEMBLY #7382
- 1 LOCAL TUNER (KNOB ASSEMBLY) #6743

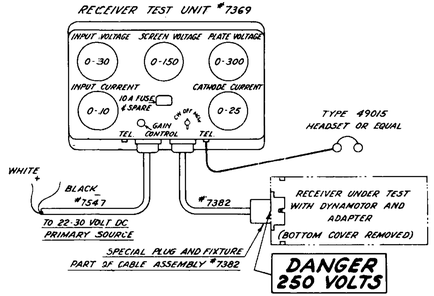
TRANSMITTER TEST SET #9558 CONSISTS OF THE FOLLOWING:

- 1 TRANSMITTER TEST UNIT #9556
- 1 RACK (1 TRANS.) TYPE MT-69/ARC-5
- 1 MOUNTING BASE (1 TRANS.) TYPE MT-68/ARC-5
- 1 PHANTOM ANTENNA #7777
- 1 CABLE ASSEMBLY #9557
- 1 SET OF 5 CRYSTALS ARC #7785 AS FOLLOWS: 3 MC, 4 MC, 5.3 MC, 7 MC & 9.1 MC.

NOTE:

THESE TEST SETS ARE USED IN TESTING, BUT ARE NOT PARTS OF AN/ARC-5 AIRCRAFT RADIO EQUIPMENT. THE RECEIVER TEST SET MAY BE USED TO TEST RECEIVERS WHICH ARE A PART OF MODEL ARA, RAT, RAT-1 OR RAV AIRCRAFT RADIO EQUIPMENTS. THE TRANSMITTER TEST SET CANNOT BE USED TO TEST MODEL ATA TRANSMITTERS.

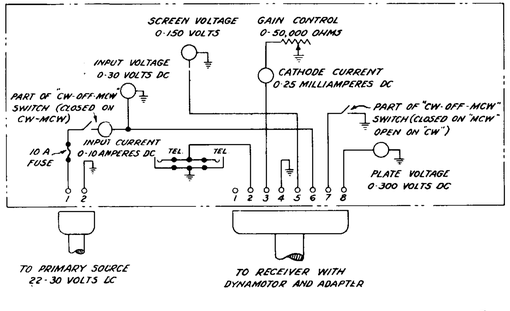
AN 16-30ARC5-2



METER LABELLED	READS	METER READINGS FOR "CW" OR "MCW" POSITIONS OF CONTROL SWITCH GAIN CONTROL AT MAXIMUM
INPUT VOLTAGE	PRIMARY SOURCE (VOLTS)	28.0
SCREEN VOLTAGE	SCREEN GRID SUPPLY TO 12SF7, 12SH7 & 12K8 TUBES (VOLTS)	75-100
PLATE VOLTAGE	PLATE SUPPLY TO 12SF7, 12SH7 & 12K8 TUBES & SCREEN GRID SUPPLY TO 12A6 TUBE (VOLTS)	230-250
INPUT CURRENT	TOTAL CURRENT FROM PRIMARY SOURCE (AMPERES)	1.4-1.7
CATHODE CURRENT	CATHODE CURRENT OF RF AMP & 1ST IF AMP 12SH7 TUBES (MILLIAMPERES)	11-15

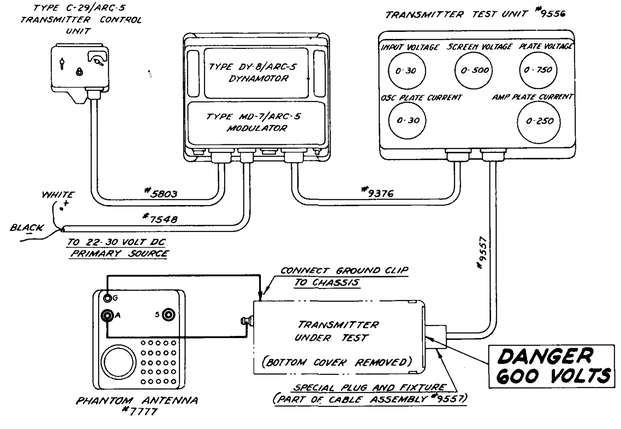
CONNECTIONS FOR SERVICING RECEIVERS

(THIS ARRANGEMENT PROVIDES FOR ACCESS TO THE ELECTRICAL COMPONENTS INSIDE THE RECEIVER UNDER TEST)



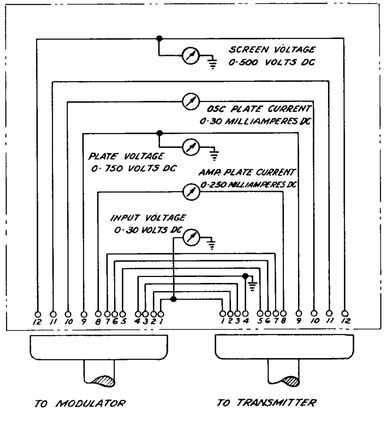
SCHEMATIC CIRCUIT DIAGRAM OF RECEIVER TEST UNIT #7369

AN 16-30ARC5-2



CONNECTIONS FOR SERVICING AN/ARC-5 TRANSMITTERS

(THIS ARRANGEMENT PROVIDES FOR ACCESS TO THE ELECTRICAL COMPONENTS INSIDE THE TRANSMITTER UNDER TEST.)



SCHEMATIC CIRCUIT DIAGRAM OF TRANSMITTER TEST UNIT #9556

WARNING

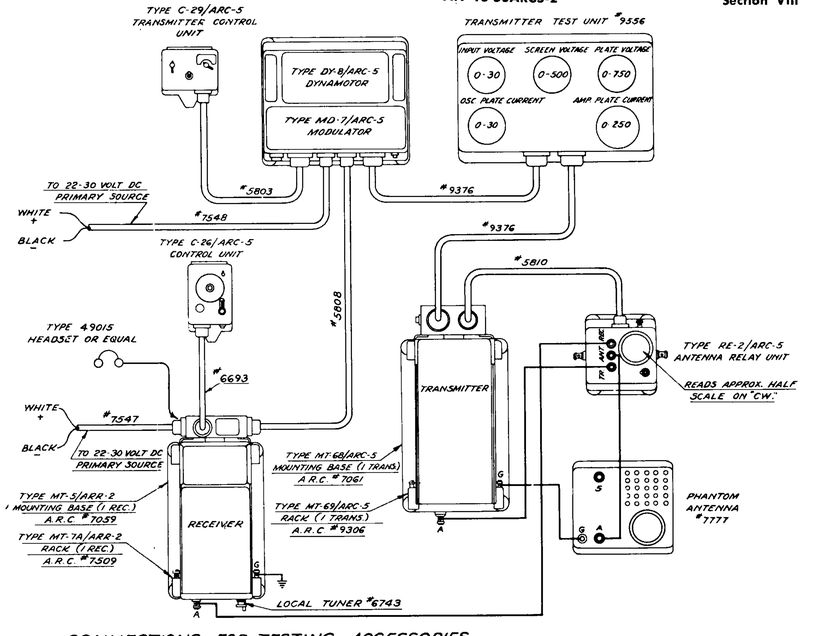
TRANSMITTER DYNAMOTOR GENERATES 600 VOLTS DC

DO NOT ATTACH OR DETACH PLUGS WHILE DYNAMOTOR IS RUNNING

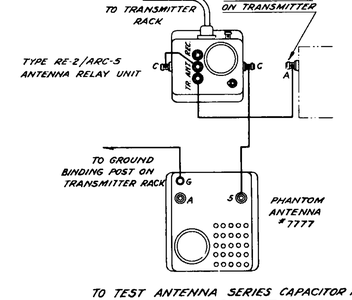
METER LABELLED	READS	*METER READINGS FOR THE THREE POSITIONS OF TRANSMITTER CONTROL		
		TONE	CW	VOICE
INPUT VOLTAGE	PRIMARY SOURCE (VOLTS)	28.0	28.0	28.0
SCREEN VOLTAGE	SCREEN GRID SUPPLY TO RF POWER AMPLIFIERS (VOLTS)	145-160	250-310	145-160
PLATE VOLTAGE	PLATE SUPPLY TO RF POWER AMPLIFIERS (VOLTS)	530-580	530-570	530-580
OSC PLATE CURRENT	PLATE CURRENT MASTER OSCILLATOR (MILLIAMPERES)	17-24	17-24	17-24
AMP PLATE CURRENT	PLATE CURRENT TO BOTH RF POWER AMPLIFIERS (MILLIAMPERES)	70-105	155-205	70-105
AMPERES RF (IN ANTENNA 7777)	ANTENNA CURRENT AMPERES	1.7-2.4	2.4-3.3	1.7-2.4

* TRANSMITTER MUST BE ACCURATELY TUNED AND COUPLED FOR MAXIMUM ANTENNA CURRENT INTO ANTENNA #7777 FOR EACH TYPE OF EMISSION.

AN 16-30ARC5-2



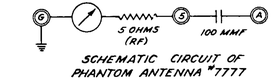
CONNECTIONS FOR TESTING ACCESSORIES



WARNING

TRANSMITTER DYNAMOTOR GENERATES 600 VOLTS DC

DO NOT ATTACH OR DETACH PLUGS WHILE DYNAMOTOR IS RUNNING



TO TEST ANTENNA SERIES CAPACITOR IN ANTENNA RELAY UNIT CONNECT AS SHOWN ABOVE.

Figure 8-70. Test Set 7918 and 9558, AN/ARC-5 Bench Test Interconnection Diagrams and Schematic Diagrams

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