TECHNICAL MANUAL

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL

MAINTENANCE KIT,

ELECTRONIC EQUIPMENT

MK-1004A/ARC

This copy is a reprint which includes current pages from Change 1.

HEADQUARTERS, DEPARTMENT OF THE ARMY

MAY 1973

WARNING

DEATH OR SERIOUS INJURY may result from hazards in this equipment unless proper safety measures are observed when operating and maintaining the equipment. 27.5V DC exists when the equipment is energized.

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HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *11* May *1973*

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL

MAINTENANCE KIT, ELECTRONIC EQUIPMENT MK-1004A/ARC

CHAPTER 1
INTRODUCTION

Section 1. GENERAL

1-1. Scope

This manual describes Maintenance Kit, Electronic Equipment MK-1004A/ARC and provides instructions for direct support (DS) and general support **(GS)** maintenance. It includes instructions appropriate to DS and GS for trouble shooting, replacement of parts, testing, aligning, and repairing the maintenance kit.

NOTE

For applicable forms and records, refer to TM 38-750.

1-2. Indexes of Publications

a. Refer to the latest issue of DA Pam 310-4 to determine whether there are new additions, changes, or additional publications pertaining to the equipment.

b. Refer to DA Pam 310-7 to determine whether there are modification work orders (MWO's) pertaining to the equipment.

1-3. Destruction of Army Materiel to Prevent Enemy Use

Refer to TM 750-2442.

1-4. Administrative Storage

Refer to TM 740-90-1.

CAUTION

If the maintenance kit is being prepared for storage, close the pressure equalizer valve on the side of the equipment case to prevent moisture and dust accumulation inside the equipment case. If the maintenance kit is being prepared for air shipment, open the pressure equalizer valve to prevent possible rupture of the equipment case at high altitudes.

1-5. Reporting of Errors

The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028, Recoin mended Changes to Publications and Blank Forms, and forwarded direct to Commander, US Army Electronics Command, ATTN: AMSEL-MA-Q Fort Monmouth, N.J. 07703

Section II. DESCRIPTION AND DATA

1-6. Description

Refer to TM 11-6625-2609-12.

1-7. Tabulated Data

Refer to TM 11-6625-2609-12.

CHAPTER 2

FUNCTIONING OF EQUIPMENT

2-1. Use of Equipment

a. Maintenance Kit, Electronic Equipment MK-1004A/ARC (maintenance kit) is a portable equipment used in field testing and adjusting Radio Set AN/ARC-134.

b. The maintenance kit includes Panel, Test, Electrical SB-3716(P)/ARC (test panel) mounted on the front of the equipment. The test panel houses Control, Radio Set C-7197/ARC-134 (radio control) ; Intercommunication Control Set C–1611D/AIC; various input and output jacks; and switches, indicators, meters, and controls that are used to check and adjust for proper operation of the AN/ARC–134.

c. The intercommunication control set is used to verify proper performance of the intercommunication control set in the vhf communications network under test.

d. The radio control is used to provide power control, receiver volume control, and channel selection for the AN/ARC-134 under test. A COMM TEST switch on the radio control provides a means of checking the operation of the AN/ARC–134 with the receiver squelch circuit disabled.

2-2. Basic Two-Out-Of-Five Frequency-Selection System

a. The two-out-of-five (2 x 5) frequency-selection system requires five control wires for each controlled digit in a channel frequency. Frequencies are selected by simultaneously grounding two wires out of each five-wire group. A, figure 2–1, shows a simplified system for controlling an equipment having only 10 channels. Since each channel may be represented by a single digit, only one group of five control wires is required.

b. For example, when the radio control is set to position 2 (A, fig, 2–1) control wires A and C are grounded. The tuning motor then drives the switches and the frequency-selecting circuits in the controlled equipment to a point where the ground is removed from wires A and C and the operating voltage is removed from the motor, By setting the radio control to the other positions, related two-wire combinations are grounded in accordance with the standard 2 x 5 frequency-selector code shown in figure 2-1.

c. B, figure 2-1, shows a system for controlling an equipment having 100 channels, Since two controlled digits comprise any one frequency channel, two switches are required in both the radio control and the controlled equipment. Two groups of five control wires interconnect the switches, To simplify the explanation, the 100 channels have been assigned frequencies from 100 to 199 MHz, with l-MHz spacing between channels. Switch S1 is the l-MHz selector and switch S2 is the 10-MHZ selector. The radio control is shown set to 112 MHz. Of the five-wire group interconnecting switch S1 in the radio control and switch S1 in the controlled equipment, wires A and C are grounded, representing the digit 2 (2 MHz). Wires A and B, representing the digit 1 (1 MHz), are grounded in the five-wire group interconnecting switch S2 in the radio control and switch S2 in the controlled equipment. The tuning motor is driven until the ground is removed from wires A and C of S1 and A and B of S2. The gearing between the tuning motor and the switches in the controlled equipment is such that switch S1 (the l-MHz switch) makes 10 revolutions for each complete revolution of switch S2. This provides 100 different points (channels) at which the tuning motor may be stopped.

d. Solid-state frequency-selection circuitry that uses the 2 x 5 selection system can be used in the controlled equipment, either in place of, or in combination with, the motor-driven arrangement (fig. 2-1). In any case, a group of five wires is required for each controlled digit, with selection being accomplished by grounding two of the five wires.

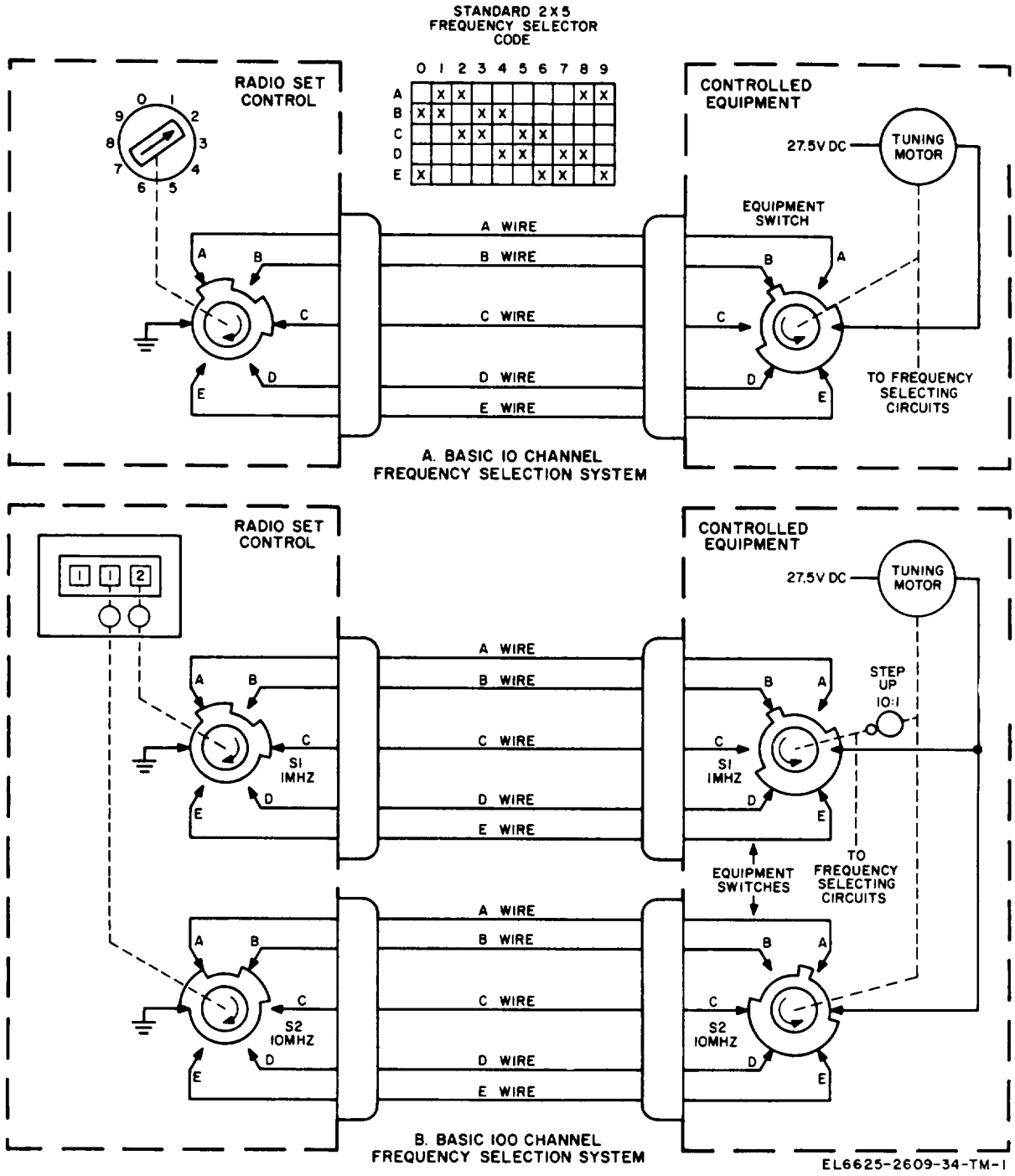

Figure 2-1. Basic two-out-of-five frequency-selection system.

CHAPTER 3

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

Section I. GENERAL

3-1. Scope of Direct Support Maintenance

Direct support maintenance supplements and in-eludes all procedures outlined for organizational maintenance (TM 11-6625-2609-12). In addition, it includes trouble-shooting techniques required to isolate trouble to a specific part within the maintenance kit. Corrective action at direct support includes repair and replacement of parts necessary to return a defective maintenance kit to service. Direct support maintenance also includes testing of the maintenance kit to determine whether it meets necessary performance standards.

Section II. TOOLS AND EQUIPMENT

3-2. Test Equipment Required

The required test equipment is listed in table 3-1.

Table 3-1. Teat Equipment Required

Item	FSN	Reference		Use
		Fig. No.	Paragraph No.	
Generator, Signal AN/USM-44	6625-539-9685	*3-6*	*3-9,* 3-10	*Rf* signal source
Generator, Signal AN/URM-127	6626-783-5964	3-6, 8-7	3-13, 8-14, 3-15, 3-16	Modulating signal source
Wattmeter, Radio Frequency AN/URM-120	6625-557-0389	3-6, 3-7	9-11, 3-12, 3-13, 3-14, 3-16, 3-16	Measure AN/ARC-134 output rf power
Multimeter TS-352B-U	6626-24%6023		3-4	Continuity and resistance checks
Voltmeter, Electronic ME-30A/U	6625-643-1670	3-5, 3-7	8-9, 8-10, 3-16	Audio voltage measurements
Radio Set, AN/ARC-134	5821-072-6018	3-5, 3-6, 3-7	3-9, 3-10, 3-11, 3-12, 3-13, 3-14, 3-15, 8-16	
Power Supply PP-3931/FLR-9 (V), or equal	6130-733-8638	3-6, 3-6, 3-7	3-9, 3-10, 3-11, 3–12, 3-13, 3-14, 3-15, 3-16	Power source for AN/ARC-134
Headset-Microphone H-157/AIC	5965-725-4453	3-5, 3-6, 3-7	3-9, 3-10, 3-12	Teat AN/ARC-134 transmitter circuits
Coaxial Adapter UG-201/U		3-6, 3-7	8-9, 3-10, 3-11, 3-12, 3-13, 3-14, 8-15, 3-16	
Coaxial Connector UG-88/U (2 required)		3-7	3-16	
Dummy load, Electrical DA-75/U	5985-280-3480	8-6, 8-7	9-11, 3-2, 3-13, 8-14, 3-15, 3-16	Provide antenna load
Capacitor, 50 µf, 25 vdc, Sprague Type TL1209 or equal		3-6, 3-7	3-13, 3-14, 3-16, 8-16	
Coaxial Cable RG-58/U (as required)		3-7	3-16	

Section III. TROUBLESHOOTING

3-3. General Instructions

Troubleshooting at direct support includes all the techniques outlined for organizational maintenance and any special or additional techniques required to isolate a defective part. The systematic troubleshooting procedure, which begins at organizational, must be completed by means of localizing and isolating techniques. The paragraphs which follow provide intraunit (within the unit) troubleshooting procedures and describe the localizing and isolating techniques that must be performed at direct support,

3-4. Organization of Troubleshooting Procedure

a. General. The first step in servicing a defective test set is to localize the fault. Localization means tracing the fault to a defective circuit responsible for the abnormal condition. Some faults, such as burned or loose wires, can often be located by sight. The majority of faults, however, must be localized by resistance measurements.

b. Localization. The tests listed in table 3-2 will aid in isolating the trouble. First, localize the trouble to a single circuit and then isolate the trouble within that circuit by resistance and continuity measurements.

(1) *Visual inspection.* The purpose of visual inspection is to locate faults without testing or measuring circuits. All panel lamp indications or other visual signs should be observed and an attempt made to localize the fault to a particular circuit.

(2) *Operational tests.* Operational tests frequency indicate the general location of trouble. In many cases, the tests will help in determining the exact nature of the fault.

(3) *Troubleshooting,* The trouble symptoms listed in table 3-2 will aid in localizing the trouble to a part or circuit. For physical location of parts (figs. 3-1, 3-2, and 3-3).

(4) *Resistance and continuity measurements.* Make the resistance and continuity measurements listed in table 3-3. Where results other than those indicated are obtained, isolate the faulty part by further resistance measurements.

(a) Remove cover from maintenance kit.

(b) Remove test panel from equipment case.

(c) Connect interconnect cable to TRANSCEIVER connector on front of test panel.

(d) Set the switches or controls to the position indicated in the Point of measurement column in table 3–3.

(e) Refer to the schematic diagram (fig. 3–4) and connect the TS-352B/U as indicated in the Point of measurement column (table 3-3). Refer to TM 11–5821–277-35 for the schematic of the radio control.

(5) Intermittent troubles. In all tests, the possibility of intermittent troubles should not be overlooked. If present, this type of trouble often may be made to appear by tapping or jarring the instrument, Check the cables, wiring, and connections of the equipment.

Table 3-2. Troubleshooting

Malfunction	Probable cause	Corrective action
1. 28.7 VDC lamp on test panel and panel lamps on radio control and intercom control do not light.	a. POWER CB circuit breaker CB1 is at OFF.	a. Set POWER CB circuit breaker to ON.
	b. POWER CB circuit breaker CB1 defective.	b. Replace CB1.
	c. Defective lamps	c. Replace lamps.
2. Panel lamps on radio control and intercom control do not light,	a. Diode CR2 defective	a. Replace CR2.
	b. Meter Ml defective	b. Replace Ml.
3. VHF COMM frequency indicator not illuminated.	a. VHF COMM OFF-PWR switch is at OFF.	a. Set VHF COMM OFF-PWR switch to PWR.
	b. Radio control lamps DS1 and DS2 defective.	b. Replace lamps.
	c. Radio control switch S4 is defective.	c. Replace switch S4.
4. No output at RECEIVER OUTPUT jacks with proper 132.500-MHz signal to AN/ARC-134.	a. Open or shorted wiring from W1P2B-35 and W1P2B-36 to test panel jackS J8 and J9.	a. Check and correct wiring.
	b. VHF COMM frequency not set to 132.500 MHz.	b. Set VHF COMM frequency selector switch to 132.500 MHz.

Table 3-2. Troubleshooting—Continued

Malfunction	*Probable cause*	*Corrective action*
	e. Contacts of radio control switches S1 and S2 dirty ***or*** broken.	c. Clean contacts or replace switch S1 and S2 wafers.
5. No output at DATA LINK OUTPUT jacks with proper 132.500-MHz signal to AN/ARC-134.	Open or shorted wiring from W1P2A-15 and W1P2A-16 to test panel jacks J16 and J17.	Check and correct wiring.
6. No output at RECEIVER jack with proper signal to AN/ARC-134.	***a.*** AUDIO switch is at OFF	a. Set AUDIO switch to ON.
	b. EXTERNAL SQUELCH switch at ON.	***b.*** Set EXTERNAL SQUELCH switch to OFF, or readjust EXT. SQUELCH CONTROL.
	c. Radio control potentiometer RI open.	***c.*** Replace R1.
	d. Open or shorted wiring from connector Pi–b and Pi-d to test panel jack J4.	***d.*** Check and correct wiring.
7. No output at RECEIVER jack when COMM TEST switch is depressed.	***a.*** EXT. SQUELCH CONTROL misadjusted.	a. Readjust EXT. SQUELCH CONTROL.
	b. Radio Control switch S3 defective.	***b.*** Replace switch S3.
	c. Open or shorted wiring from P1-g and P1-h to W1P2B-30 and W1P2B-31.	***c.*** Check and correct wiring,
8. EXT. SQUELCH CONTROL has no effect on level at which squelch breaks.	***a.*** EXTERNAL SQUELCH switch at OFF.	***a.*** Set EXTERNAL SQUELCH switch to ,ON.
	b. Test panel potentiometer R1 defective.	***b.*** Replace R1.
	c. Open or shorted wiring between RI and W1P2B-37, W1P2B-38, and W1P2B-39.	***c.*** Check and correct wiring.
9. No output from AN/ARC-134 at antenna connector W1P3.	***a.*** PTT switch is at OFF	***a.*** Set PTT switch to ON.
	b. Open or shorted wire between switch S1 and W1P2A-31.	***b.*** Check and correct wiring.
10. No output at SIDETONE jack	***a.*** Open or shorted wiring between J5 and W1P2B-28 and W1P2B-29.	***a.*** Check and correct wiring.
	b. Open or shorted wiring between W1P2A-31 and P4-35 or W1P2A-30 and P4-26.	***b.*** Check and correct wiring.
	Intercom control defective	***c.*** Repair or replace intercom control.
	d. U-94A/U defective	***d.*** Repair or replace U-94A/U.
11. No evidence of modulation with Generator, Signal AN/URM-127 supplying signal to MIKE INPUT jacks.	Open or shorted wire between J18 and W1P2A-30, or between J19 and ground.	Check and correct wiring.
12, No output at DETECTOR METER jacks with antenna connector W1P3 connected to DET INPUT jack.	Defective detector circuit	Repair or replace detector circuit.

Table. 3-3. Resistance and Continuing Tests

Point of measurements	*Normal indication*	*Isolating procedure*
Between tip contact of test panel jack J22 and W1P2A-31.	Short circuit	Check wiring from J22 to W1P2A-31.
Between ring contact of test panel jack J22 and W1P2A-30.	Short circuit	Check wiring from J22 to W1P2A-30.
With PTT switch at ON, between sleeve contact of test panel jack J22 and W1P2A-31.	Short circuit	Check test panel switch S1 and wiring from J22 sleeve contact to w1P2A-31.
Between test panel jack J18 and W1P2A-30.	Short circuit	Check wiring between J18 and W1P2A-30.

Table 3-3. Resistance and Continuity Tests-Continued

Point of measurements	Normal indication	Isolating procedure
Between test panel jack J19 and ground.	Short circuit ----------	Check wiring between J19 and ground.
Between test panel jack J17 and W1P2A-16.	Short circuit----------	Check wiring between J17 and W1P2A-16.
Between test panel jack J16 and W1P2A-15.	Short circuit----------	Check wiring between J16 and W1P2A-15.
Between test panel jack J15 and W1P2A-23.	Short circuit ----------	Check wiring between J15 and W1P2A-23.
Between test panel jack J14 and W1P2A-22.	Short circuit----------	Check wiring between J14 and W1P2A-22.
Between test panel jack J13 and W1P2A-21.	Short circuit ----------	Check wiring between J13 and W1P2A-21.
Between test panel jack J12 and W1P2A-28.	Short circuit ----------	Check wiring between J12 and W1P2A-28.
Between test panel jack J11 and W1P2A-27.	Short circuit ----------	Check wiring between J11 and W1P2A-27.
Between test panel jack J10 and W1P2A-26.	Short circuit ----------	Check wiring between J10 and W1P2A-26.
Between test panel terminal board TB1-3 and W1P2A-5 and W1P2A-6.	Short circuit ----------	Check wiring between TB1-3 and W1P2A-5 and W1P2A-6.
Between black alligator clip and W1P2A- and W1P2A-2.	Short circuit ----------	Check wiring between black alligator clip and W1P2A-1 and W1P2A-2.
With POWER CB circuit breaker at ON, between alligator clip + 28V and W1P2A–3 and W1P2A-4 (positive terminal of ohmmeter connected to alligator clip).	This is forward-biased resistance of CR2 and resistance of Ml. Resistance will vary with applied voltage.	Check CR1, Ml, and wiring between alligator clip +28V and W1P2A-3 and W1P2A-4.
With VHF COMM OFF-PWR switch at PWR, between W1P2A-9 and ground.	0 ohm	Check radio control switch S4 and wiring between S4 and W1P2A–9.
With VHF COMM OFF-PWR switch at OFF, between TB1-4 and ground (positive probe of ohmmeter to TB1-4).	Approximately 30 ohms	Check radio control lamps DS3, DS4, and DS5, and intercom control lamps DS1 and DS2.
With VHF COMM OFF-PWR switch at PWR, between TB1-4 and ground (positive probe of ohmmeter to TBl-4).	Approximately 20 ohms.	Check radio control lamps DS1 and DS2 and switch S4.
Between test panel jack J5 sleeve and W1P2B-29.	0 ohm ----------	Check wiring between J5 and W1P2B-29.
Between test panel jack J5 tip and W1P2B-28.	0 ohm.	Check wiring between J6 and W1P2B-28.
Between test panel jack J6 and W1P2B-28.	0 ohm.	Check wiring between J6 and W1P2B-28.
Between test panel jack J7 and W1P2B-29.	0 ohm	Check wiring between J7 and W1P2B-29.
Between test panel jack J8 and W1P2B-36.	0 ohm	Check wiring between J8 and W1P2B-35.
Between test panel jack J9 and W1P2B-36.	0 ohm	Check wiring between J9 and W1P2B-36.
With AUDIO switch at ON, between W1P2B-35 and W1P2B-36.	Approximately 500 ohms	Check radio control potentiometer R1 and wiring between W1P2B-35 and W1P2B-36 and radio control.
With radio control and intercom control VOL controls both fully clockwise, between test panel jack J4 tip and sleeve contacts.	Approximately 150 ohms	Check radio control potentiometer R1, intercom control, and wiring to J4.
Between W1P2B-37 and W1P2B-39.	Approximately 10,000 ohms	Check test panel potentiometer RI and wiring between R1 and W1P2B-37 and W1P2B-39.

Table 3-3. Resistance and Continuity Tests-Continued

Point Of measurements	***Normal indication***	Isolating *procedure*
With EXTERNAL SQUELCH switch at ON and EXT. SQUELCH CONTROL fully clockwise, between W1P2B-38 and W1P2B–39.	Approximately 10,000 ohms	Check test panel switch S2, potentiometer RI, and wiring between RI and W1P2B-38.
With SQUELCH DISABLE switch at OFF, between W1P2B-30 and W1P2B-31.	Infinite resistance.	Check test panel switch S4 and wiring between W1P2B–30 and W1P2B-31. Check radio control switch S3.
With SQUELCH DISABLE switch at ON, between W1P2B-30 and W1P2B-31.	0 ohm	Check test panel switch S4 and wiring between W1P2B-30 and W1P2B-31.
With SQUELCH DISABLE switch at OFF, press COMM TEST switch and measure between W1P2B-30 and W1P2B-31.	0 ohm.	Check radio control switch S3 and wiring between W1P2B-30 and W1P2B-31.
Connect alligator clips to + 28-vdc power supply. With POWER CB circuit breaker at ON and U-94A/U transmit switch depressed; measure between P4-15 and ground, then between P4-17 and ground.	0 ohm	Check test panel relay K1 and wiring between K1 and P4-15 and P4-17.
With VHF COMM frequency-selector switches set to 116.000, measure from W1P2B-27 to following points:		
W1P2B-24	0 ohm	Check radio control switch S1A (front).
W1P2B-23	0 ohm	Check radio control switch S1A (rear).
W1P2B-19.	0 ohm	Check radio control switch S1A (rear).
W1P2B-17	0 ohm	Check radio control switch SIB (rear).
W1P2B-13	0 ohm	Check radio control switch SIB (rear).
W1P2B-9	0 ohm	Check radio control switch S2A (rear).
W1P2B-11	0 ohm	Check radio control switch S2A (rear).
W1P2B-1	0 ohm	Check radio control switch S2B (rear).
W1P2B-2	0 ohm	Check radio control switch S2B (rear).
With VHF COMM frequency-selector switches set to 127.125, measure from W1P2B-27 to following points:		
W1P2B-26	0 ohm	Check radio control switch S1A (front).
W1P2B-18	0 ohm	Check radio control switch S1A (rear).
W1P2B-21	0 ohm	Check radio control switch S1A (rear).
W1P2B-12.	0 ohm	Check radio control switch SIB (rear).
W1P2B-10	0 ohm	Check radio control switch S2A (rear).
W1P2B-3	0 ohm	Check radio control switch S2B (rear).
With VHF COMM frequency-selector switches set to 138.250, measure from W1P2B-27to following points:		
W1P2B-21.	0 ohm	Check radio control switch S1A (rear).

Table 3-3. Resistance and Continuity Tests—Continued

Point of measurement		*Normal indication*	*Isolating* procedure
W1P2B-22	O ohm		Check radio control switch S1A (rear).
W1P2B-15	O ohm		Check radio control switch S1B (rear).
W1P2B-6	O ohm		Check radio control switch S2A (rear).
W1P2B-2	O ohm		Check radio control switch S2B (rear),
With VHF COMM frequency-selector switches set to 149.375, measure from W1P2B-27 to following points:			
W1P2B-22	O ohm		Check radio control switch S1A (rear).
W1P2B-23	O ohm		Check radio control switch S1A (rear).
W1P2B-13	O ohm		Check radio control switch S1B (rear).
W1P2B-11	O ohm		Check radio control switch S2A (rear),
W1P2B-4	O ohm		Check radio control switch S2B (rear),
With VHF COMM frequency selector switches set to 140.000, measure from W1P2B-27 to following points:			
W1P2B-17	O ohm		Check radio control switch S1B (rear).
W1P2B-7	O ohm		Check radio control switch S2A (rear).
With VHF COMM frequency-selector switches set to 141.500, measure from W1P2B-27 to following points:			
W1P2B-15	O ohm		Check radio control switch S1B (rear).
W1P2B-6	O ohm		Check radio control switch S2A (rear).
With VHF COMM frequency-selector switches set to 142.600, measure from W1P2B-27 to following points:			
W1P2B-17	O ohm		Check radio control switch S1B (rear).
W1P2B-9	O ohm		Check radio control switch S2A (rear).
With VHF COMM frequency-selector switches set to 143.700, measure from W1P2B-27 to following points:			
W1P2B-16	O ohm		Check radio control switch S1B (rear).
W1P2B-7	O ohm		Check radio control switch S2A (rear).
With VHF COMM frequency-selector switches set to 144.800, measure from W1P2B-27 to following points:			
W1P2B-12	O ohm		Check radio control switch S1B (rear).
W1P2B-10	O ohm		Check radio control switch S2A (rear).

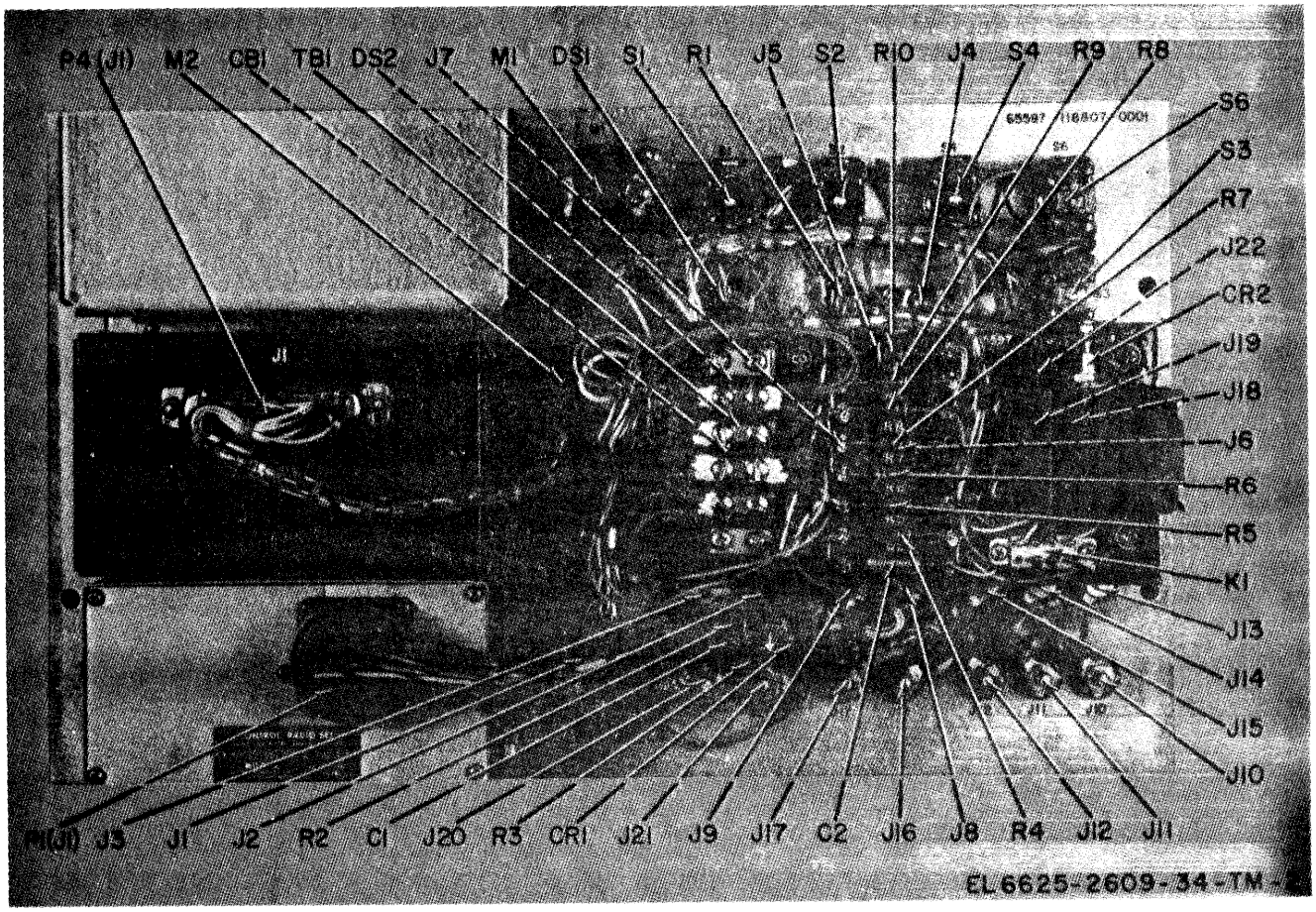

Figure 3-1. Test panel, rear view.

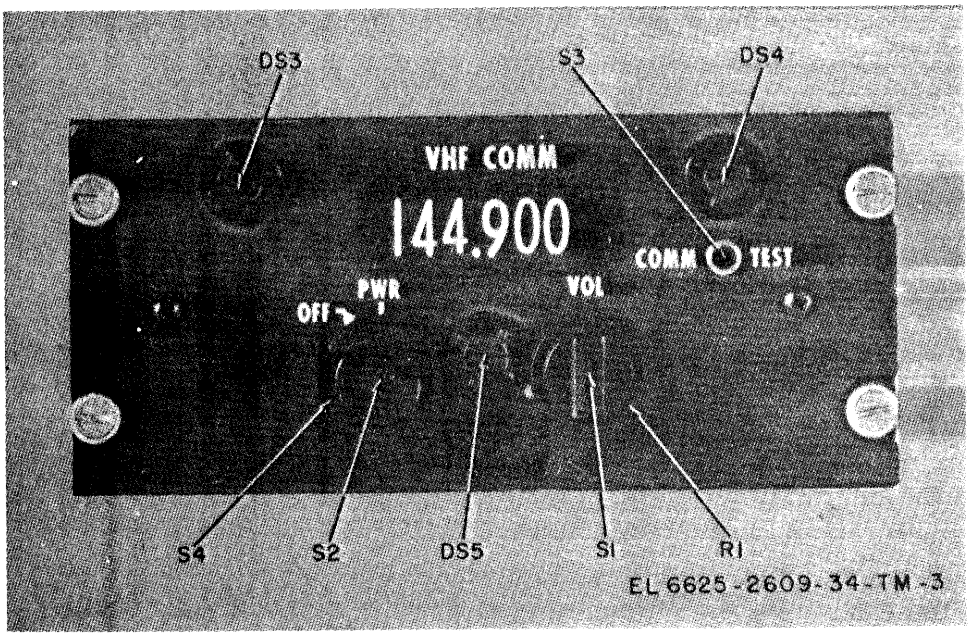

Figure 3-2. Radio control, front view.

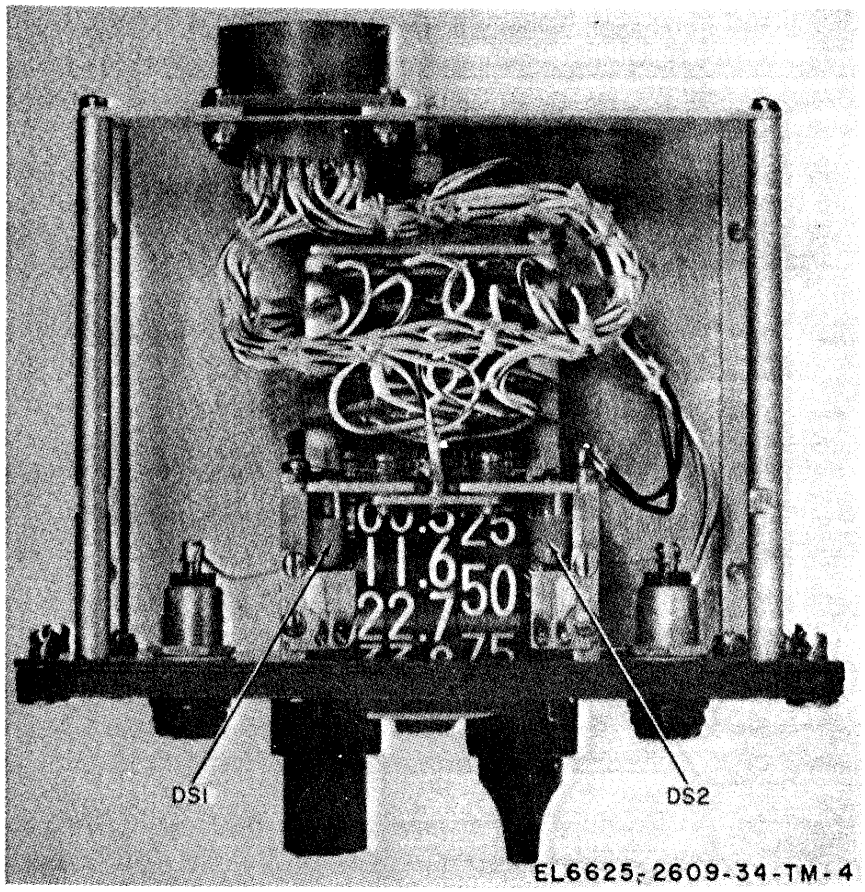

Figure 3-3. Radio control, to cover removed, top view.

Figure 3-4. Test panel, schematic diagram.
(Located in back of manual)

Section IV. MAINTENANCE OF MK-1004A/ARC

3-5. General Parts Replacement Techniques

Except for the radio control and intercom control, the parts of the maintenance kit can be easily reached and replaced without special procedures. Disassembly and reassembly of Radio Set Control C-7197/ARC are covered in TM 11-5821-277-35 and Intercommunication Control Set C–1611D/AIC is covered in TM 11-5831–201-20 or TM 11–5831–201–35. Several parts replacement techniques are presented below.

a. Before a part is removed, note the position of the part and tag or otherwise identify all wiring that is to be disconnected. Make a note of color coding, placement of wires, and method of insulation before unsoldering wires.

b. Use a pencil-type soldering iron with a 25-watt maximum capacity. If the iron must be used with an alternating current (ac) source, use an isolating transformer between the iron and the line.

c. When soldering leads to diodes, solder quickly and use a heat sink (such as long-nose pliers) between the soldered joint and the diode.

Section V. DIRECT SUPPORT TESTING PROCEDURES

3-6. General

a. Testing procedures are prepared for use by maintenance shops and service organizations responsible for DS (direct support) maintenance of electronics equipment to determine the acceptability of repaired electronics equipment. These procedures set forth specific requirements that repaired electronics equipment must meet before

it is returned to the using organization. These procedures may also be used as a guide for testing electronics equipment repaired by organizational personnel if the proper tools and test equipment are available.

b. Comply with the instructions preceding each chart before proceeding to the chart. Perform each step in sequence, Do not vary the sequence. For each step, perform all the action required in the Control settings columns; then perform each specific test procedure and verify it against its performance standard.

3-7. Modification Work Orders

The performance standards listed in the tests (para 3-8 through 3–16) are based on the assumption that all applicable modification work orders have been performed. A listing of current modification work orders will be found in DA Pam 310-7.

3-8. Physical Tests and Inspections

a. *Test Equipment* and *Materials.* None.

b. Test Connections and Conditions.

(1) No connections necessary.

(2) Remove cover from maintenance kit.

(3) Remove test panel from equipment case.

c. *Procedure.*

Step No.	*Test equipment*	Control settings: Equipment under test	Test *procedure*	*Performance* standard
1	None	Controls may be in any position.	a. Inspect CY–7345/ARC (equipment case) and test panel for damage, missing parts, and conditions of paint. NOTE Touchup painting is recommended in lieu of refinishing whenever practical; screwheads, binding posts, plugs, receptacles, and other plated parts will not be painted or polished with abrasives.	a. No damage evident or parts missing. External surfaces intended to be painted will not show bare metal. Test panel lettering will be legible.
			b. Inspect all cables, wiring, resistors, and capacitors for breaks or burns.	b. No broken or burn damage evident.
			c. Inspect all controls and assemblies for loose or missing screws, bolts, and nuts.	c. Screws, bolts, and nuts will be tight. No missing items.
			d. Inspect all connectors, plugs, jacks, receptacles, lamps, and indicators for looseness, damage, or missing parts.	d. No loose parts or damage, No missing parts.
			e. Inspect maintenance kit for missing items.	e. No missing items.
2	None	Controls may be in any position.	a. Rotate all controls throughout their limits of travel.	a. Controls will rotate freely without binding or excessive looseness.
			b. Inspect dial stops for proper operation.	*b.* Stops will operate properly without evidence of damage.
			c. Operate all switches	c. Switches will operate properly.
			d. Connect all plugs to their respective receptacles.	*d.* All plugs will connect smoothly; no binding or forcing required.

3-9. Receiver Circuit Test No. 1

a. Test Equipment and Materials.

(1) Radio Set AN/ARC-134.

(2) Generator, Signal AN/USM-44.

(3) Power supply.

(4) Headset-Microphone H-157/AIC.

(5) Voltmeter, Electronic ME-30A/U.

(6) Adapter.

(7) Fuseholder 11509A (part of MK-1004A/ARC).

(8) l/16-amp, 250-volt fuse F01A250V1-16A (part of MK-1004A/ARC).

b. Test Connections and Conditions. Connect the equipment as shown in figure 3-5. Connect the ME-30A/U to the RECEIVER OUTPUT jacks on the test panel. Place the C–1611D/AIC transmit-interphone selector switch in position 3, the RECEIVERS 3 switch ON, all other RECEIVERS switches to off, and position the VOL control as required. These settings must be maintained during the test.

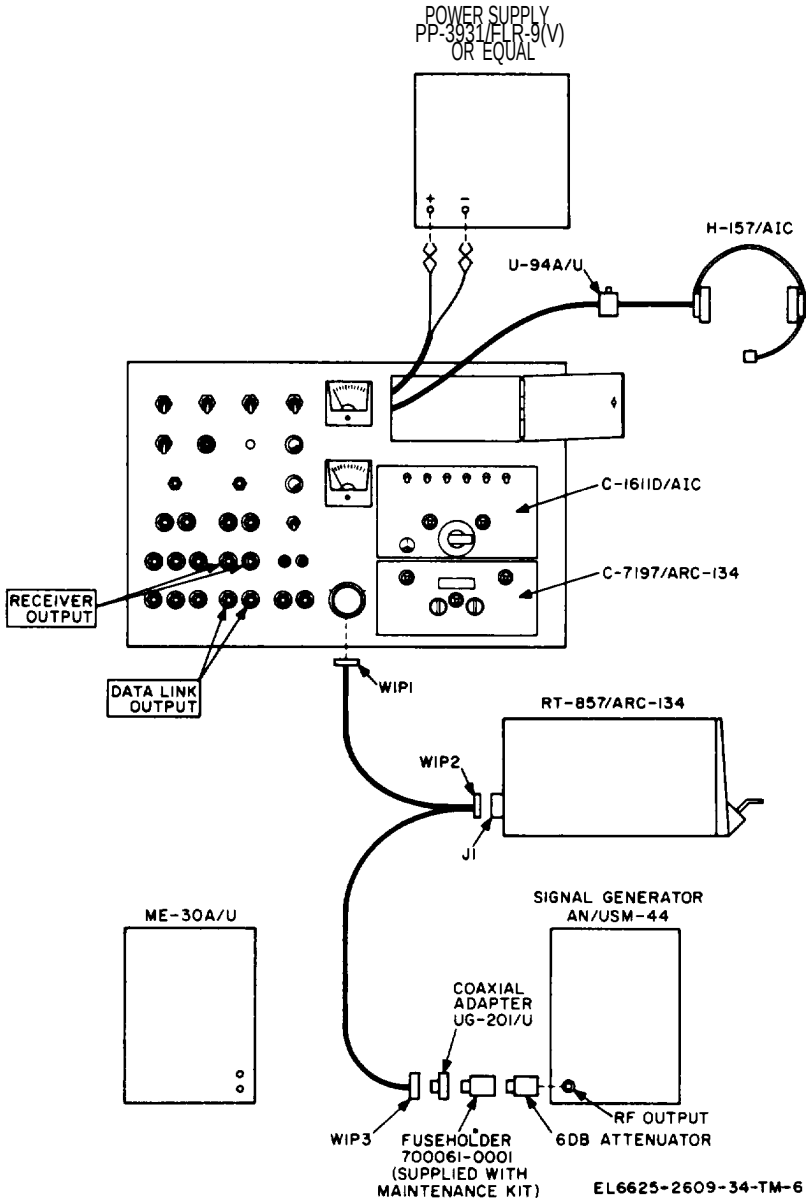

Figure 3-5. Receiver circuit, test setup.

c. *Procedure.*

Step No.	Control settings: Test equipment	Control settings: *Equipment under* test	*Test procedure*	*Performance l tandavd*
1	AN/ARC-134 Set meter switch to LINE V. AN/USM-44 Set output level to zero. ME-30A/U Range scale: 30 vat.	a. Set all test panel switches to OFF. *b.* Set EXT. SQUELCH CONTROL fully counterclockwise.	Apply primary operating power to test equipment and maintenance kit.	None.
2	Leave controls in positions last indicated in step 1.	Leave controls in position last indicated in step 1.	CAUTION Be sure to connect the 11509A fuseholder between the AN/USM-44 output receptacle and maintenance kit antenna connector W1P3 as shown in figure 3-5. The fuseholder must be equipped with a F01A250V1-16A fuse (1/16-amp, 250-volt, normal blow). Do not set the test panel PTT switch to ON when the AN/USM-44 is connected to W1P3. Set maintenance kit POWER CB circuit breaker to ON.	Maintenance kit 28.7 VDC indicator lamp, intercom control panel, and radio control panel lamps must light.
3	Leave controls in positions last indicated in step 2.	Leave controls in position last indicated in step 2.	Set maintenance kit VHF COMM OFF-PWR switch to PWR.	a. Indicator lamps behind maintenance kit VHF COMM frequency counter dials must light. *b.* Meter on AN/ARC-134 must indicate 27.5 Vdc (- 20%, +10%). c. The INPUT CURRENT meter must indicate 2 to 3 amp.
4	AN/ARC-134 Leave controls in positions last indicated in step 1. AN/USM-44 a. Frequency: 132.500 MHz. b. Internal modulation: 30% at 1000 Hz. c. Output level: 6 uv. ME-30A/U Leave controls in positions last indicated in step 1.	Leave controls in positions last indicated in step 2.	Set maintenance kit VHF COMM frequency-selector switches to 132.500 MHz.	An output indication must be obtained *on* the ME-30A/U. NOTE AN/USM-44 frequency *may* have to be readjusted.

3-10. Receiver Circuit Test No. 2

a. *Test Equipment and Material*

(1) Radio Set AN/ARC-134.

(2) Generator, Signal AN/USM-44.

(3) Power supply.

(4) Headset-Microphone H-157/AIC.

(5) Voltmeter, Electronic ME-30A/U.

(6) Adapter.

(7) Fuseholder 11509A (part of MK-1004A/ARC).

(8) 1/16-amp, 250-volt fuse F01A250V1-16A (part of MK-1004A/ARC).

b. Test Connection and Conditions. Connect the equipment as shown in figure 3-5. Connect the ME-30A/U to the DATA LINK OUTPUT jacks on the test panel, Place the C–1611D/AIC transmit-interphone selector switch in position 3, the RECEIVERS 3 switch ON, all other RECEIVERS switches off, and position the VOL control as required, These settings must be maintained during the test.

c. Procedure.

Steps No.	Control settings: Test equiptment	Control settings: Equipment under test	*Test procedure*	*Performance standard*
1	AN/ARC-134 Set meter switch to LINE V AN/USM-44 a. Frequency: 192.500 MHz b. Internal Modulation: *30%* at 1000 Hz c. Output level: 6 uv ME-30A/U Range scale: 3 vac	Set all test panel switches to OFF and set EXT. SQUELCH CONTROL fully clockwise.	a. Apply primary operating power to test equipment and maintenance kit. CAUTION Be sure to connect the 11509A fuseholder between AN/USM-44 output receptacle and maintenance kit antenna connector W1P3 as shown in figure 3-5, The fuseholder must be equipped with a type F01A250V1-16A fuse (1/16-amp, 250-volt, normal blow). Do not set the test panel PTT switch to ON when the AN/USM-44 is connected to W1P3.	a. None.
			b. Set the maintenance kit POWER CB circuit breaker to ON, VHF COMM OFF-PWR switch to PWR, and VHF COMM frequency-selector switches to 132.500 MHz.	b. An output indication must be obtained on the ME-30A/U. NOTE AN/USM-44 frequency may have to be readjusted slightly.
2	Leave control in position last indicated in step 1.	Leave controls in positions last indicated in step 1.	a. Set maintenance kit AUDIO switch to ON.	a. A signal should be heard in the headset.
			b. Set EXTERNAL SQUELCH switch to ON and adjust EXT. SQUELCH CONTROL until signal just disappears. Press maintenance kit COMM TEST switch.	*b.* The signal should again be heard, indicating that the AN/ARC-134 squelch circuit is disabled.
			c. Release COMM TEST switch and set SQUELCH DISABLE switch to ON.	c. Same as *b* above.
3	AN/ARC-134 Leave control in position last indicated in step 1.	Leave controls in position last indicated in step 1.	a. Set the maintenance kit AUDIO switch to ON, SQUELCH DISABLE switch	a. AN/USM-44 output level should not be greater than 1 µv.

Step No.	Control settings: Test equipment	Equipment under test	Test procedure	Performance standard
	AN/USM-44 a. Frequency: 132.500 MHz *b.* Internal Modulation: 30% at 1000 Hz. c. Output Level: 0 µv. ME-30A/U Leave control in position last indicated in Step 1.		to OFF, and EXTERNAL SQUELCH switch to ON. Set EXT. SQUELCH CONTROL fully clockwise. Slowly increase AN/USM–44 output until squelch opens as indicated by tone in headset.	
			b. Set AN/USM-44 output to 0 uv and adjust EXT. SQUELCH CONTROL fully counterclockwise. Slowly increase AN/USM-44 output until squelch opens.	b. AN/USM-44 output level should not be greater than 100 µv. **NOTE** This *level* is set with an internal AN/ARC-134 adjustment.
4	Leave controls in position last indicated in Step 1.	Leave controls in positions last indicated in step 1.	*a.* Set AUDIO switch to ON and EXTERNAL SQUELCH switch to OFF. 6. Set maintenance kit VHF COMM VOL control to its midposition, and adjust AN/USM-44 output to 10 µv. c. Set maintenance kit VHF COMM and AN/USM-44 frequency-selector switches to each of the following frequencies. 116.00 MHz, 126.00 MHz, 136.00 MHz, 146.00 MHz, 147.00 MHz, 148.00 MHz, 149.00 MHz, 140.00 MHz, 141.00 MHz 142.00 MHz, 143.00 MHz, 144.00 *MHz,* 145.00 MHz, 145.10 MHz, 145.20 MHz, 145.30 MHz, 145.40 MHz, 145.50 MHz, 145.60 MHz, 145.70 MHz, 145.80 MHz, 145.90 MHz, 145,95 MHz.	Tone must be heard in headset at each respective frequency.

3-11. Transmitter Output and Control Circuit Test.

a. *Test Equipment and Material.*

(1) Radio Set AN/ARC-134.

(2) Power supply.

(3) Wattmeter, Radio Frequency AN/URM 120.

(4) Adapter.

(5) Dummy Load, Electrical DA-75/U.

b. Test Connections and Conditions. Connect the

equipment as shown in figure 3-6. The AN/URM–127 is not used in this test. Place the C-1611D/AIC transmit-interphone selector switch in position 3, the RECEIVERS 3 switch ON, all other RECEIVERS switches off, and position the VOL control as required. These settings must be maintained during the test.

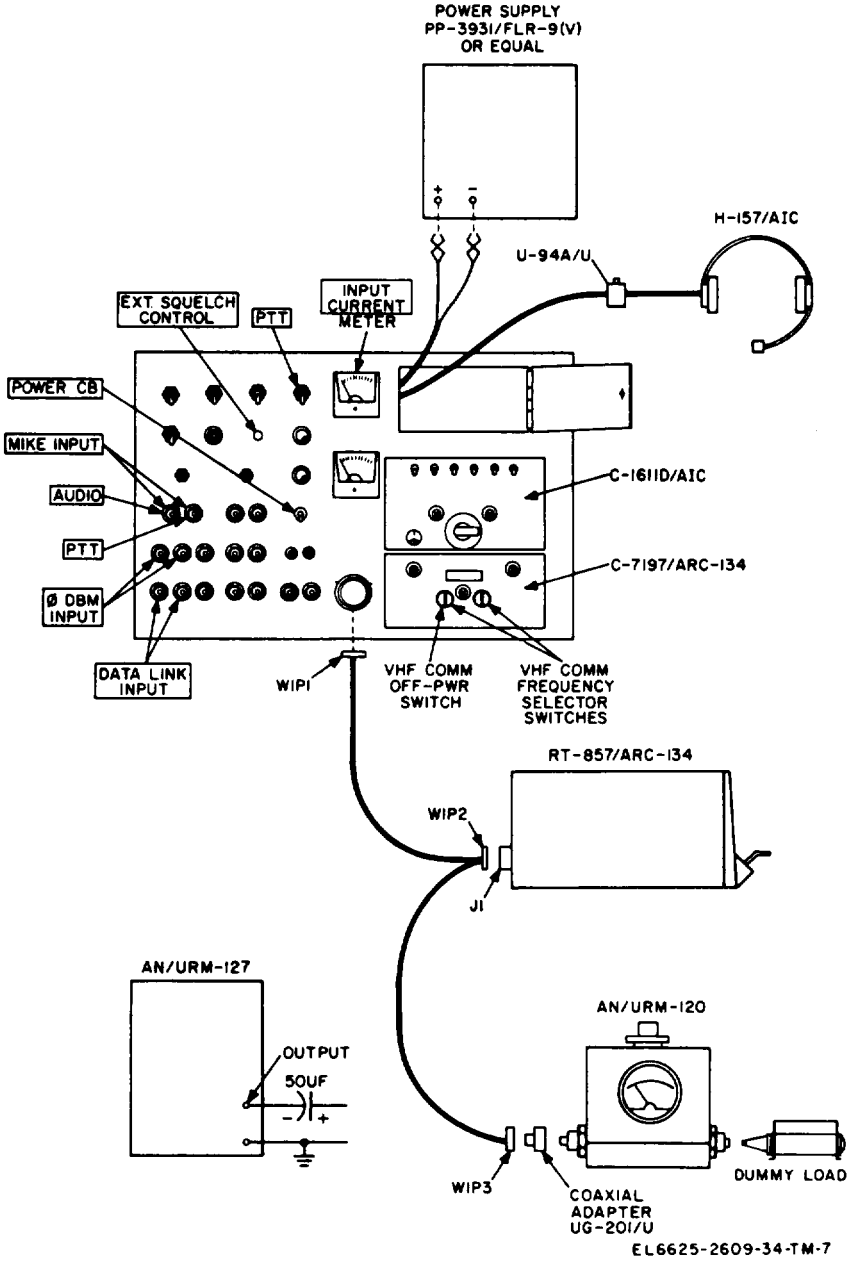

Figure 3-6. Transmitter circuit test setup.

c. Procedure.

steps	Control settings: Test equiptment	Equiptment under test	Test procedure	Performance standard
1	*AN/ARC-134* Set meter switch to LINE V. AN/URM-120 Set above 26.	Set all test panel switches to OFF and set EXT. SQUELCH CONTROL fully counterclockwise.	a. Apply primary operating power to test equipment and maintenance kit.	a. None.

Step No.	Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
			b. Set the maintenance kit POWER CB circuit breaker to ON, VHF COMM OFF-PWR switch to PWR, VHF COMM frequency-selector switches to 132.500 MHz, and allow a few minutes warmup period before proceeding.	*b. None,*
			c. Set maintenance kit PTT switch to ON. Set PTT switch to OFF.	c. A power output indication should be obtained on the AN/URM-120. *d.* The INPUT CURRENT *meter* should indicate 6 to 9 amp.

3-12. Sidetone Circuit Check

a. *Test Equipment and Material.*

(1) Radio Set AN/ARC-134.

(2) Power supply.

(3) Wattmeter, Radio Frequency AN/URM-120A.

(4) Headset-Microphone H-157/AIC.

(5) Adapter.

(6) Dummy Load, Electrical DA-75/U.

b. Test Connections and Conditions. Connect the equipment as shown in figure 3–6. The AN/URM–127 is not used for this test. Place the C-1611D/AIC transmit-interphone selector switch in position PVT, the RECEIVERS 3 switch ON, all other RECEIVERS switches off, and position the VOL control as required. These settings must be maintained during the test.

c. *Procedure.*

Step No.	Test equipment	*Control* settings: Equipment *under test*	*Ted procedure*	*Performance standard*
1	AN/ARC-134 Set meter switch to LINE V. AN/URM-120 Set above 25.	Set all test panel switches to OFF, set EXT. SQUELCH CONTROL fully counterclockwise, and set AUDIO switch to ON.	a. Apply primary operating power to test equipment and maintenance kit.	*a.* None.
			b. Set the maintenance kit POWER CB circuit breaker to ON, VHF COMM OFF-PWR, switch to PWR, VHF COMM frequency-selector switches to 132.500 MHz, and allow a few minutes warmup period before proceeding.	*b.* None.
			c. Key the AN/ARC–134 with the switch on the U-94A/U and speak into microphone. Release switch.	c. The AN/ARC-134 sidetone should be heard in headset.
2	AN/ARC-134 Set meter switch to MOD I. AN/URM-120 Leave controls in position last indicated in step L	Leave controls in positions last indicated in step 1, except set C-1611D/AIC transmit--interphone selector switch to position 3.	Key AN/ARC-134 with switch on the U–94A/U and speak *into* microphone.	The meter on the AN/ARC-134 and the INPUT CURRENT meter on the test panel should fluctuate with modulation.

3-13. Modulation Check, MIKE INPUT Circuit

a. Test Equipment and Material.

(1) Radio Set AN/ARC-134.

(2) Power supply.

(3) Wattmeter, Radio Frequency AN/URM-120.

(4) Generator, Signal AN/URM-127.

(5) Adapter.

(6) Capacitor, 50 uf, 25 vdc.

(7) Dummy Load, Electrical DA-75/U.

b. Test Connections and Conditions. Connect the equipment as shown in figure 3-6. Connect AN/URM-127 through 50- µf capacitor to MIKE INPUT jacks on test panel (capacitor to AUDIO jack). Place the C–161/DAIC transmit-interphone selector switch in position 3, the RECEIVERS 3 switch ON, all other RECEIVERS switches off, and position the VOL control as required. These settings must be maintained during the test.

c. Procedure.

Step No.	Control settings: Test equipment	Control settings: Equiptment under *ted*	*Test. procedure*	*Performance standard*
1	AN/ARC-134 Set meter switch to MOD I. AN/URM-120 Set above 25. AN/URM-127 Set frequency to 1000 Hz.	Set all test panel switches to OFF and set EXT. SQUELCH CONTROL fully counterclockwise.	a. Apply primary operating power to test equipment and test panel.	a. None.
			b. Set the maintenance kit POWER CB circuit breaker to ON, VHF COMM OFF-PWR switch to PWR, VHF COMM frequency-selector switches to 132.500, and allow a few minutes warmup period before proceeding.	b. None,
			e. Set maintenance kit PTT switch to ON and increase AN/URM-127 output level.	c. A modulation indication should be obtained on the AN/ARC-134 meter.
			d. Set PTT switch to OFF.	

3-14. Modulation Check, 0 DBM INPUT Circuit

a. *Test Equipment and* Material.

(1) Radio Set AN/ARC-134.

(2) Power supply.

(3) Wattmeter, Radio Frequency AN/URM-120.

(4) Generator, Signal AN/URM-127.

(5) Adapter.

(6) Capacitor, 50 uf, 25 vdc.

(7) Dummy Load, Electrical DA-75/U.

b. Test Connection and Conditions. Connect the equipment as shown in figure 3–6. Connect the AN/URM-127 to test panel 0 DBM INPUT jacks through the 50-uf capacitor (capacitor to HI jack). Place the C–1611D/AIC transmit-interphone selector switch in position 3, the RECEIVERS 3 switch ON, all other RECEIVERS switches off, and position the VOL control as required. These settings must be maintained during the test.

c. Procedure.

Step No.	*Control* settings: Test equipment	*Equipment under* test	*Test procedure*	*Performance* l *taudard*
1	AN/ARC-134 Set meter switch to MOD I. AN/URM-120 Set above 25.	Set all test panel switches to OFF and set EXT. SQUELCH CONTROL fully counterclockwise.	a. Apply primary operating power to test equipment and maintenance kit.	a. None.

Step No.	Control settings: Test equipment	Equipment under ted	Test procedure	Performance standard
	AN/URM-127 Set frequency to 1000 Hz.		b. Set the maintenance kit POWER CB circuit breaker to ON, VHF COMM OFF-PWR switch to PWR, the VHF COMM frequency-selector switches to 132.500 MHz, and allow a few minutes warmup period before proceeding.	***b. None.***
			c. Set maintenance kit PTT switch to ON and increase AN/URM-127 output level.	c. A modulation indication should he obtained on the AN/ARC-134 meter.
			d. Set PTT switch to OFF.	

3-15. Modulation Check, DATA LINK INPUT Circuit

a. Test Equipment and Material

(1) Radio Set AN/ARC-134.

(2) Power supply,

(3) Wattmeter, Radio Frequency AN/URM-120.

(4) Generator, Signal AN/URM-127.

(5) Adapter.

(6) Capacitor, 60 uf, 25 vdc.

(7) Dummy Load, Electrical DA-75/U.

b. Test Connections and Condition. Connect the equipment as shown in figure 3-6. Connect AN/URM–127 through the 50-µf capacitor to test panel DATA LINK INPUT jacks (capacitor to HI jack). Place the C-1611D/AIC transmit-interphone selector switch in position 3, the RECEIVERS 3 switch ON, all other RECEIVERS switches off, and position the VOL control as required. These settings must be maintained during the test.

c. ***Procedure.***

Step No.	Control settings: Test equiptment	Equipment under test	Test procedure	Performance standard
1	AN/ARC-134 Set meter switch to MOD I. AN/URM-120 Set above 25. AN/URM-127 Set frequency to 1000 Hz.	Set all test panel switches to OFF and set EXT. SQUELCH CONTROL fully counterclockwise.	a. Apply primary operating power to test equipment and maintenance kit.	a. None.
			b. Set the maintenance kit POWER CB circuit breaker to ON, VHF COMM OFF-PWR switch to PWR, the VHF COMM frequency-selector switches to 182.500 MHz, and allow a few minutes warmup period before proceeding.	*b. None.*
			o. Set maintenance kit RTT switch to ON and increase *AN/* URM-127 output level.	c. A modulation indication should be obtained on the AN/ARC-134 meter.
			d. Set PTT switch *to* OFF.	

3-16. Detector Circuit Check

a. Test Equipment and Material.

(1) Radio Set AN/ARC-134.

(2) Power supply.

(3) Wattmeter, Radio Frequency AN/URM-120.

(4) Generator, Signal AN/URM-127.

(6) Voltmeter, Electronic ME-30A/U.

(6) Adapter.

(7) Two coaxial connectors.

(8) One length of cable.

(9) Capacitor, 50 uf, 25 vdc.

(lo) Dummy Load, Electrical DA-75/U.

b. Test Connections and Conditions. Connect the equipment as shown in *figure* 3-7. Place the C-1611D/AIC transmit-interphone selector switch *in* position 3, the RECEIVERS 3 switch ON, all other RECEIVERS switches off. and position the VOL control as required. These settings must be maintained during the test.

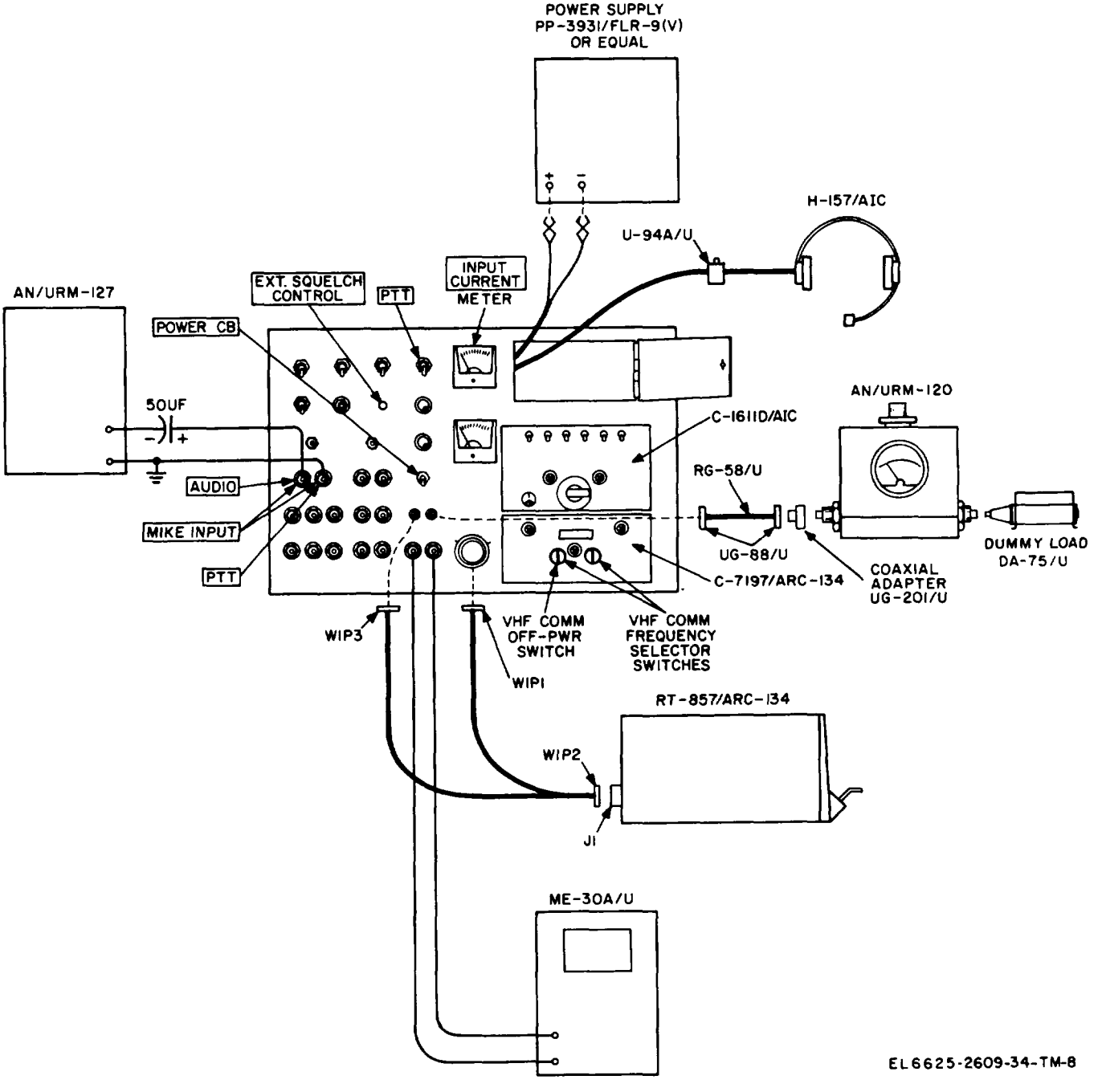

Figure 3-7. Detector circuit, test setup.

c. Procedure.

Steps No.	Control settings: Test *equipment*	Control settings: Equipment under ted	Test *procedure*	*Performance standard*
1	AN/ARC-134 Set meter switch to MOD I. AN/URM-120 Set above 25. ME-30A/U Set range scale to 10 Volta AN/URM-127 Set frequency to 1000 Hz.	Set all test panel switches to OFF and set EXT. SQUELCH CONTROL fully counterclockwise.	*a.* Apply primary operating power to test equipment and maintenance kit.	a. None.
			b. Set maintenance kit POWER CB circuit breaker to ON, VHF COMM OFF-PWR switch to PWR, and VHF COMM frequency-selector switches to 132.500 MHz. Allow a few minutes for warmup before proceeding.	*b. None.*
			c. Set maintenance kit PTT switch to ON and increase AN/URM-127 output level.	c. Modulation should be indicated by a meter deflection on the ME-30A/U.
			d. Set PTT switch to OFF.	

CHAPTER 4

GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

Section I. GENERAL

41. Scope of Maintenance

General support maintenance procedures are identical with those prescribed for direct support in chapter 3.

Section II. GENERAL SUPPORT TESTING PROCEDURES

4-2. Testing Procedures

General support testing procedures are identical with those detailed for direct support in chapter 3.

CHAPTER 5

MATERIEL USED IN CONJUNCTION WITH MAJOR ITEM

Signal Generator AN/USM-44.
Wattmeter, Radio Frequency AN/URM–120.
Dummy Load, Electrical DA-75/U.
Signal Generator AN/URM-127.
Voltmeter, Electronic ME-30A/U.
Multimeter TS-352B/U.
Coaxial Adapter UG-201/U.
Headset-Microphone H-157/AIC.
Coaxial Connector UG–88/U (2 required).
Coaxial Cable RG-58 (as required).
Capacitor, 50 µf, 25 vdc, Sprague Type TL1209, or equal.

Figure 5–1. Color Code markings for MIL-STD resistors, *inductors and capacitors.*

(Located in back of manual)

APPENDIX A

REFERENCES

Following is a list of applicable references available to the DS and GS maintenance repairmen of Maintenance Kit, Electronic Equipment MK-1004A/ARC:

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 7, 8, and 9), Supply Bulletins, and Lubrication Orders.
DA Pam 310–7	U.S. Army Equipment Index of Modification Work Orders.
TB 746-10	Field Instructions for Painting and Preserving Electronics Command Equipment.
TM 11-5821-277-20	Organizational Maintenance Manual: Radio Sets AN/ARC-134, AN/ARC-134A, and AN/ARC-134B.
TM 11-5821-277-35	DS, GS, and Depot Maintenance Manual: Radio Sets AN/ARC-134, AN/ARC-134A, and AN/ARC-134B.
TM 11-5831-201–20	Organizational Maintenance Manual: Control, Intercommunication Set C-1611D/AIC and Discriminator, Discrete Signal MD-736A.
TM 11-5831-201-20P	Organizational Repair Parts and Special Tools List: Control, Intercommunication Set C–1611D/AIC and Discriminator, Discrete Signal MD-736/A.
TM 11-5831-301-35	DS, GS, and Depot Maintenance Manual: Control, Intercommunication Set C1611D/AIC and Discriminator, Discrete Signal MD-736/A.
TM 11-6625-320-12	Operation and Organizational Maintenance Manual: Voltmeter, Meter ME-30A/U and Voltmeter, Electronic ME-30B/U, ME–30C/U, and ME-30E/U.
TM 11-6625-366-15	Operator's Organizational, DS, GS, and Depot Maintenance Manual: Multimeter TS-352B/U.
TM 11-6625-446-16	Operator's, Organizational, DS, GS, and depot maintenance Manual: Wattmeter AN/URM-120.
TM 11-6625-508-10	Operator's Manual: Signal Generators AN/USM-44 and AN/USM-44A.
TM 11-6625-683-15	Operator, Organizational, Direct Support, General Support, and Depot Maintenance Manual: Signal Generator AN/URM-127.
TM 11-6625-1635-24P	Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) : Maintenance Kit, Electronic Equipment MK-1004A/ARC.
TM 11-6625-2609-12	Operator and Organizational Maintenance Manual: Maintenance Kit, Electronic Equipment MK-1004A/ARC.
TM 750-244-2	Procedures for Destruction of Electronic Materiel to Prevent Enemy Use (Electronics Command).

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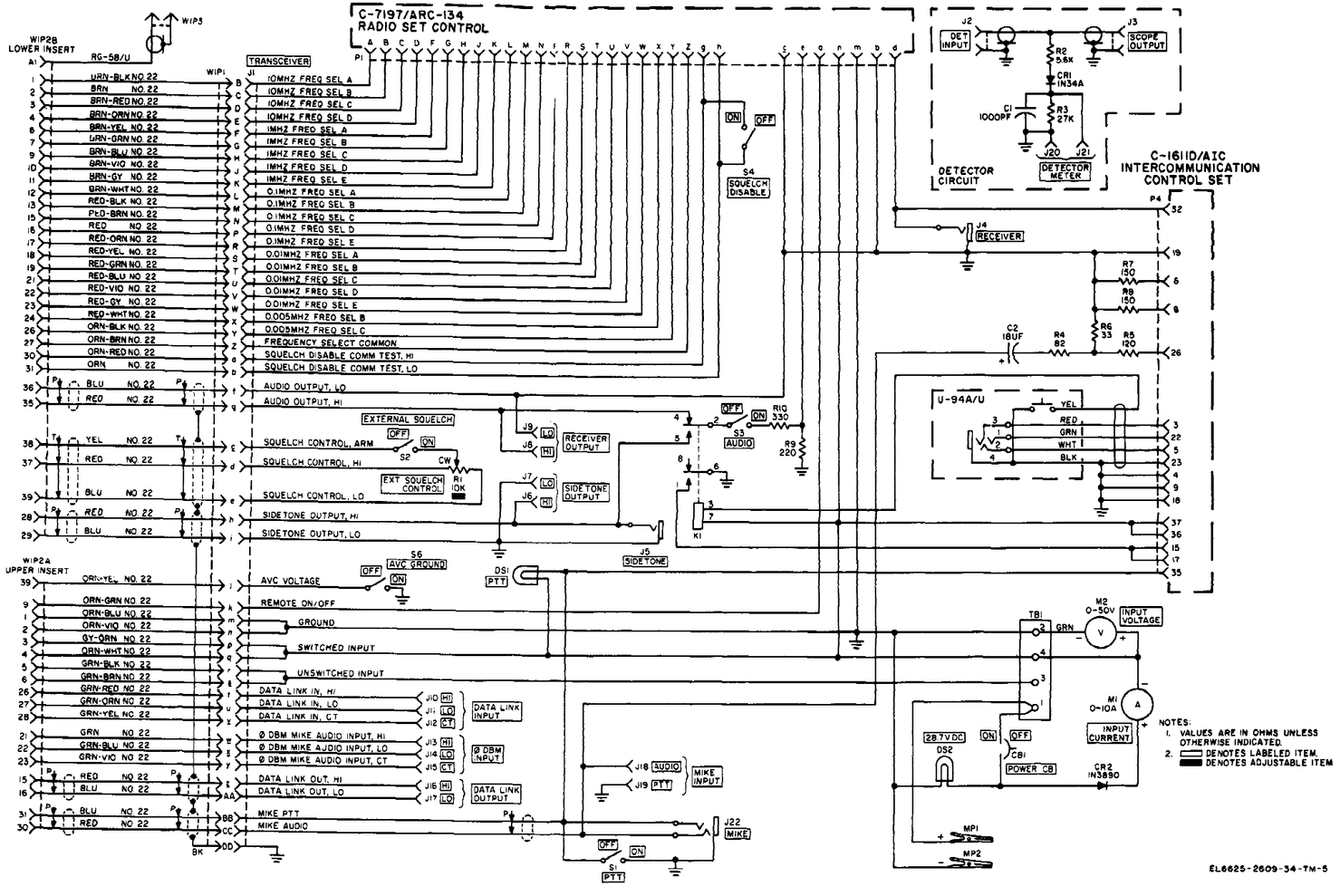
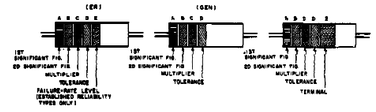


Figure 3-4. Test Panel, schematic diagram.



COLOR CODE MARKING FOR COMPOSITION TYPE RESISTORS.

COLOR-CODE MARKING FOR FILM-TYPE RESISTORS.

TABLE I
COLOR CODE FOR COMPOSITION TYPE AND FILM TYPE RESISTORS.

BAND A		BAND B		BAND C		BAND D		BAND E	
COLOR	FIRST SIGNIFICANT FIGURE	COLOR	SECOND SIGNIFICANT FIGURE	COLOR	MULTIPLIER	COLOR	RESISTANCE TOLERANCE (PERCENT)	COLOR	FAILURE RATE LEVEL	TERM.
BLACK	0	BLACK	0	BLACK	1			BROWN	M=1.0	
BROWN	1	BROWN	1	BROWN	10			RED	P=0.1	
RED	2	RED	2	RED	100			ORANGE	R=0.01	
ORANGE	3	ORANGE	3	ORANGE	1,000			YELLOW	S=0.001	
YELLOW	4	YELLOW	4	YELLOW	10,000	SILVER	±10 (COMP. TYPE ONLY)	WHITE		SOLD.-ABLE
GREEN	5	GREEN	5	GREEN	100,000	GOLD	±5			
BLUE	6	BLUE	6	BLUE	1,000,000	RED	±2 (NOT APPLICABLE TO ESTABLISHED RELIABILITY)			
PURPLE (VIOLET)	7	PURPLE (VIOLET)	7							
GRAY	8	GRAY	8	SILVER	.01					
WHITE	9	WHITE	9	GOLD	0.1					

BAND A — THE FIRST SIGNIFICANT FIGURE OF THE RESISTANCE VALUE (BANDS A THRU D SHALL BE OF EQUAL WIDTH.)

BAND B — THE SECOND SIGNIFICANT FIGURE OF THE RESISTANCE VALUE.

BAND C — THE MULTIPLIER (THE MULTIPLIER IS THE FACTOR BY WHICH THE TWO SIGNIFICANT FIGURES ARE MULTIPLIED TO YIELD THE NOMINAL RESISTANCE VALUE.)

BAND D — THE RESISTANCE TOLERANCE.

BAND E — WHEN USED ON COMPOSITION RESISTORS, BAND E INDICATES ESTABLISHED RELIABILITY FAILURE - RATE LEVEL: PERCENT FAILURE PER 1,000 HOURS). ON FILM RESISTORS, THIS BAND SHALL BE APPROXIMATELY 1-1/2 TIMES THE WIDTH OF OTHER BANDS, AND INDICATES TYPE OF TERMINAL.

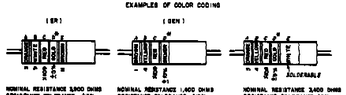
RESISTANCES IDENTIFIED BY NUMBERS AND LETTERS (THESE ARE NOT COLOR CODED.)

SOME RESISTORS ARE IDENTIFIED BY THREE OR FOUR DIGIT ALPHA NUMERIC DESIGNATIONS. THE LETTER R IS USED IN PLACE OF A DECIMAL POINT WHEN FRACTIONAL VALUES OF AN OHM ARE EXPRESSED. FOR EXAMPLE:

5R7 = 5.7 OHMS 10R0 = 10.0 OHMS

FOR WIRE-WOUND-TYPE RESISTORS COLOR CODING IS NOT USED. IDENTIFICATION MARKING IS SPECIFIED IN EACH OF THE APPLICABLE SPECIFICATIONS.

EXAMPLES OF COLOR CODING



NOMINAL RESISTANCE 3,900 OHMS ±20% TOLERANCE, 2% FAILURE RATE LEVEL M

NOMINAL RESISTANCE 1,400 OHMS RESISTANCE TOLERANCE ±20%

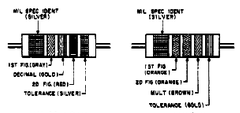
NOMINAL RESISTANCE 3,400 OHMS RESISTANCE TOLERANCE 2% TERMINAL SOLDERABLE

COMPOSITION-TYPE RESISTORS

FILM-TYPE RESISTORS

IF BAND D IS OMITTED, THE RESISTOR TOLERANCE IS ±20% AND THE RESISTOR IS NOT MIL-STD.

A. COLOR CODE MARKING FOR MILITARY STANDARD RESISTORS.



COLOR CODING FOR TUBULAR ENCAPSULATED R.F CHOKES. AT A, AN EXAMPLE OF HOW THE CODING FOR AN 8.2UH CHOKE IS GIVEN. AT B, THE COLOR BANDS FOR A 330UH INDUCTOR ARE ILLUSTRATED

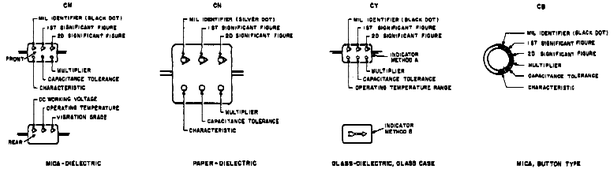
TABLE II
COLOR CODING FOR TUBULAR ENCAPSULATED R.F CHOKES.

COLOR	SIGNIFICANT FIGURE	MULTIPLIER	INDUCTANCE TOLERANCE (PERCENT)
BLACK	0	1	
BROWN	1	10	1
RED	2	100	2
ORANGE	3	1,000	3
YELLOW	4		
GREEN	5		
BLUE	6		
VIOLET	7		
GRAY	8		
WHITE	9		
NONE			20
SILVER			10
GOLD	DECIMAL POINT		5

MULTIPLIER IS THE FACTOR BY WHICH THE TWO COLOR FIGURES ARE MULTIPLIED TO OBTAIN THE INDUCTANCE VALUE OF THE CHOKE (UH).

B. COLOR CODE MARKING FOR MILITARY STANDARD INDUCTORS.

CAPACITORS, FIXED, VARIOUS-DIELECTRICS, STYLES CM, CN, CY, AND CB.



MICA-DIELECTRIC PAPER-DIELECTRIC GLASS-DIELECTRIC, GLASS CASE MICA, BUTTON TYPE

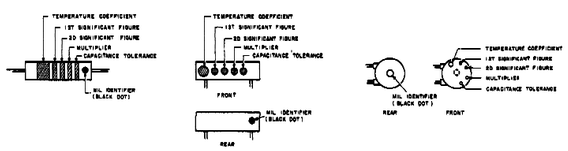
TABLE III — FOR USE WITH STYLES CM, CN, CY AND CB.

COLOR	MIL ID	1ST SIG FIG	2D SIG FIG	MULTIPLIER	CAPACITANCE TOLERANCE			CHARACTERISTIC			DC WORKING VOLTAGE	OPERATING TEMP. RANGE	VIBRATION GRADE
					CM	CN	CY	CB	CM	CN			
BLACK	BODY OR DOT	0	0	1			±20%	±20%	A			-55°TO +70°C	10-55 H
BROWN		1	1	10					B	E	E		
RED		2	2	100	±2%		±1%	±2 %	C			-55°TO +125°C	
ORANGE		3	3	1,000		±30%			D		D	300	
YELLOW		4	4	10,000					E			-55°TO +125°C	10-2,000 H
GREEN		5	5		±5%				F			500	
BLUE		6	6									-55°TO +150°C	
PURPLE (VIOLET)		7	7										
GREY		8	8										
WHITE		9	9										
GOLD				0.1		±5%	±5%						
SILVER		CN			±10%	±10%	±10%	±10%					

TABLE IV — TEMPERATURE COMPENSATING, STYLE CC.

COLOR	TEMPERATURE COEFFICIENT	1ST SIG FIG	2D SIG FIG	MULTIPLIER	CAPACITANCE TOLERANCE		MIL ID
					CAPACITANCES OVER 10 UUF	CAPACITANCES 10 UUF OR LESS	
BLACK	0	0	0	1		±2.0 UUF	CC
BROWN	-30	1	1	10	±1%		
RED	-90	2	2	100	±1 %	±0.25 UUF	
ORANGE	-150	3	3	1,000			
YELLOW	-220	4	4				
GREEN	+330	5	5		±5%	±0.5 UUF	
BLUE	+470	6	6				
PURPLE (VIOLET)	-750	7	7				
GREY		8	8	0.01			
WHITE		9	9	0.1	±10%		
GOLD	+100					±1.0 UUF	
SILVER							

1. THE MULTIPLIER IS THE NUMBER BY WHICH THE TWO SIGNIFICANT (SIG) FIGURES ARE MULTIPLIED TO OBTAIN THE CAPACITANCE IN UUF.
2. LETTERS INDICATE THE CHARACTERISTICS DESIGNATED IN APPLICABLE SPECIFICATIONS: MIL-C-5, MIL-C-255, MIL-C-11272B, AND MIL-C-20900 RESPECTIVELY.
3. LETTERS INDICATE THE TEMPERATURE RANGE AND VOLTAGE-TEMPERATURE LIMITS DESIGNATED IN MIL-E-11183B.
4. TEMPERATURE COEFFICIENT IN PARTS PER MILLION PER DEGREE CENTIGRADE.



C. COLOR CODE MARKING FOR MILITARY STANDARD CAPACITORS.

Figure 5-1. Color code markings for MIL-STD resistors, inductors and capacitors.

PIN : 016126 - 000