TECHNICAL MANUAL

OPERATOR'S, ORGANIZATION
DIRECT SUPPORT AND GENERAL SUPPORT
MAINTENANCE MANUAL
INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS

METER, MODULATION
ME-57A/U
(NSN 6625-00-432-7312)

HEADQUARTERS, DEPARTMENT OF THE ARMY

30 MAY 1975

WARNING

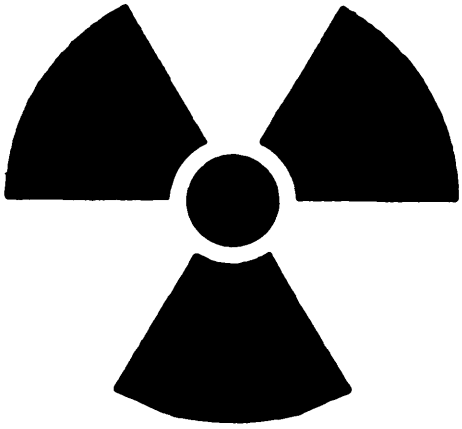
Be careful when working on the 115- or 230-volt ac line connections and the B + supply circuits. Serious injury or death may result from contact with these voltages.

CAUTION

Insure the DEVIATION RANGE-KC switch is in the 1000 TUNE position before energizing the equipment or damage to the DEVIATION meter may result .

WARNING

DON'T TAKE CHANCES!



STD-RW-2

CO 60

Tube type 5651 WA used in this test set contains radioactive material. This tube is potentially hazardous when broken; see qualified medical personnel and the Safety Director if you are exposed to or cut by broken tubes. Be extremely careful when replacing these tubes (para 4-13) and follow the safety procedures in their handling, storage, and disposal.

Never place radioactive tubes in your pocket.

Use extreme care not to break radioactive tubes while handling them.

Never remove radioactive tubes from cartons until ready to use them.

TECHNICAL MANUAL

No. 11-6625-2629-14&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C. ,*30 May 1975*

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS

METER, MODULATION ME-57A/U

(NSN 6625-00-432-7312)

Current as of 10 April 1975

LIST OF ILLUSTRATIONS

LIST OF TABLES

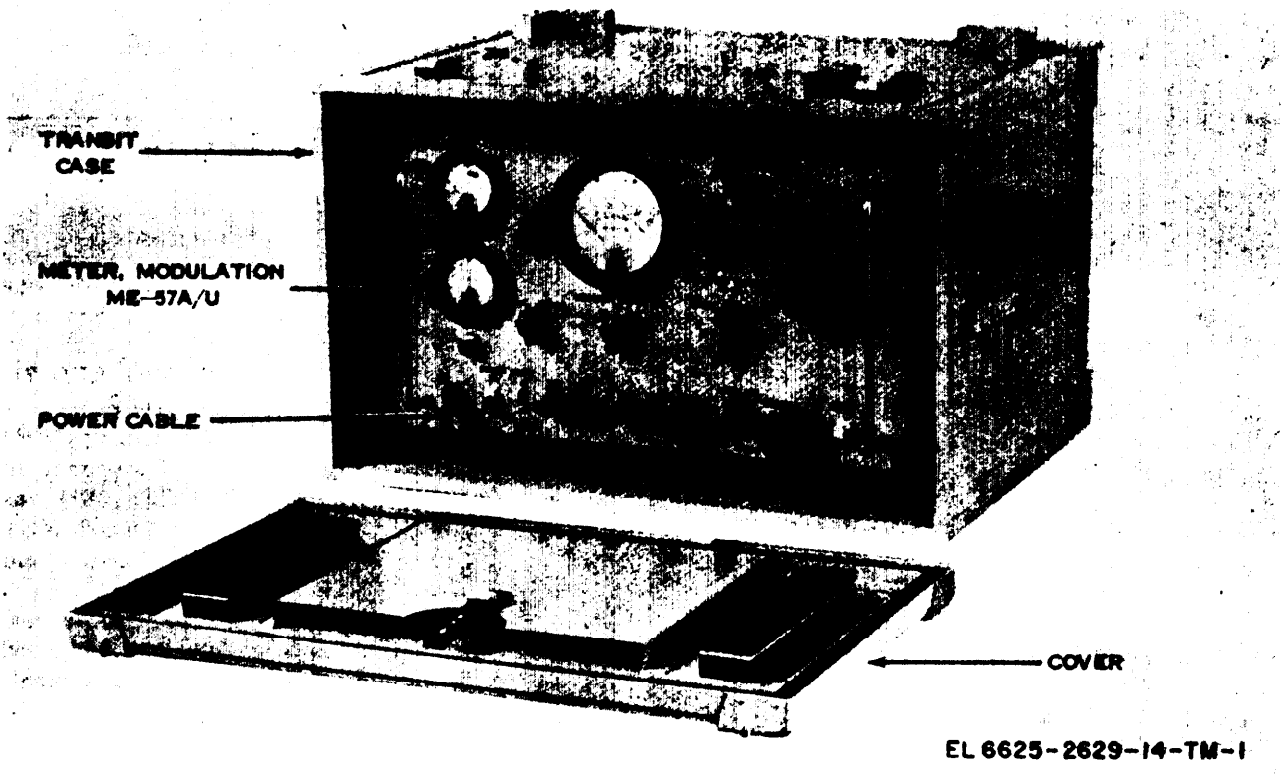


Figure 1-1. Meter, Modulation ME-57A/U

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This manual describes Meter, Modulation ME-57A/U (fig. 1-1) and provides instructions for operation, organizational maintenance, direct support (DS) maintenance, and general support (GS) maintenance. Instructions are provided for the operator and the organizational repairman for installation, operation, preventive maintenance and replacement of parts available at organizational maintenance. Circuit functioning is included for general support maintenance, together with instructions appropriate to that category of maintenance for troubleshooting, testing, adjusting, aligning and repairing the equipment and replacing maintenance parts. There are no maintenance functions for the ME-57A/U assigned to the direct support level.

b. Throughout this manual, Meter, Modulation ME-57A/U will be referred to as the modulation meter. Specific meters within the equipment are referred to by the associated front panel markrngs.

c. Appendixes B and C are current as of 10 April 1975.

1-2. Indexes of Equipment Publications

a. DA Pam 310-4. 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. DA Pam 910-7. Refer to DA Pam 310-7 to determine whether there are modification work orders (MWO's) pertaining to the equipment.

1-3. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Packaging Improvement Report) as prescribed in AR 700-58/NAVSUPINST 4030.29/AFR 71-13/MCO P4030.29A, and DSAR 4145.8.

c. *Discrepancy in Shipment Report (DISREP) (SF 361).* Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33A/AFM 75-18/MCO P4610.19B, and DSAR 4500.15.

d. Administrative Storage. For procedures, forms and records, and inspections required during administrative storage of this equipment, refer to TM 740-90-1.

1-4. Destruction of Army Materiel

Appropriate procedures for destruction of Army materiel to prevent enemy use and the circumstances surrounding said destruction are covered in TM 750-244-3.

1-5. Reporting of Equipment Publication Improvements

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 (Recommended Changes to Publications and Blank Forms) and forwarded direct to Commander, US Army Electronics Command, ATTN: AMSEL-MA-Q, Fort Monmouth, NJ 07703.

1-6. Calibration

Pertinent publications on calibration of this equipment shall be referenced. Refer to DA Pam 310-4.

Section II DESCRIPTION AND DATA

1-7. Purpose and Use

The modulation meter determines the accuracy of frequency deviation calibrations of frequency modulated (fro) signal generators and fm transmitters. The equipment rapidly measures deviation over a range from O to 1,000 kiloHertz

(kHz) at radio frequencies (rf) from 20 to 1,000 megaHertz (MHz). The modulation frequency may be from 50 to 70,000 Hertz (Hz). The equipment operates on either 115 or 230 volts alternating current (at), ± 10 percent, 50 to 420 Hz.

1-8. Description

The modulation meter (see fig. 1-1) consists of a panel-chassis assembly with a removable louvered dust cover. The dust cover is attached to the chassis with four captive screws at the rear. The equipment may be rack mounted in a standard 19-inch-wide equipment rack. All operating controls and connections are located on the front panel. The power cord is permanently attached to the chassis and a plug storage receptacle is provided at the lower right side of the front panel. The modulation meter is shipped in a metal transit case. The lid for the transit case has compartments for the running spares.

1-9. Differences Between Models

The modualtion meter described in this technical manual was manufactured under type designation ME-57A/U. Previously manufactured units were designated ME-57/U. These units are similar in appearance, function, and technical capability. As a very brief synopsis of physical and electrical differences: ME-57A/U employs an integrated circuit in place of four if. amplifiers of the ME-57/U; ME-57A/U employs improved tube types; ME-57A/U incorporates all field modifications applicable to the ME-57/U; and the ME-57A/U includes circuit changes to accommodate the integrated circuit and other minor circuit improvements. Technical data for ME-57/U is covered in TM 11-6625=400-12 and TM 11-6625-400-35.

1-10. System Application

The modulation meter may be used as a portable test equipment for general use or may be permanently mounted in an equipment rack with a transmitter to provide a constant check of the performance of that transmitter.

1-11. Tabulated Data

Number of tubes	13
Number of integrated circuits	1
Frequency, rf:	
Band A	20 to 55 MHz.
Band B	55 to 120 MHz.
Band C	120 to 250 MHz.
Band D	250 to 500 MHz.
Band E	500 to l,000 MHz.
If	12 MHz
Deviation, full-wale	20, 50, 100, 300, 1,000 kHz.

Deviation range	Modulating frequency	
	20 to 50,000 Hz	20 to 70 kHz
0 - 20 kHz	± 0.75 kHz	±1.5 kHz
0 - 50 kHz	± 2.0 kHz	±4.0 kHz
0 - 100 kHz	±5.0 kHz	± 10 kHz
0 - 300 kHz	±15.0 kHz	± 30 kHz
0 - 1,000 kHz	±100 kHz	±100 kHz

Modulating frequencies	50 to 20,000 Hz, with carrier frequencies of 20 to 100 MHz, 250 to 70,000 Hz, with carrier frequencies of 100 to 1,000 MHz
Input sensitivity	0.005 volt required for limiting
Input impedance	50 ohms
Voltage standing wave ratio	Less than l.3to lover the range of 20 to 1,000 MHz
Carrier shift accumcy	10% of indicated value
Amplitude modulation	Operation with amplitude modulation of 50% is not affected
Stability	Local oscillator drift does not exceed 200 cps l fter 30-minute warmup
Audio output	1 volt ac rms corresponding to 40 kHz deviation on the 0.50 kHz deviation mnge
Audio distortion	Harmonic distortion does not exceed 0.5 percent up to 900-kHz deviation
Noise and hum	63 dB below 1 volt at 40-kHz deviation
Power input requirements	115 *or* 230 volts (10), 50 to 420 Hz
Power consumption	140 watts
Weight	57 lb
Environment	
Temperature	
Operating	–4°F to +125°F (–20”C to +51.6”C)
Storage	–65°F to +160”F (–54°C to +73”C)
Humidity	To 95% (non-conducting)

1-14. Items Comprising An Operable Equipment

The ME--57A/U is a self-contained test set. The modulation meter measures approximately 19 inches wide, 10% inches high, and 14½ inches deep. The modulation meter is provided with a transit case that measures approximately 22 Ys inches wide, 14 Y: inches deep, 16-3/8 inches high, and weighs approximately 18 pounds (75 pounds with modulation meter contained inside).

CHAPTER 2

SERVICE UPON RECEIPT AND INSTALLATION

Section I. SERViCE UPON RECEIPT OF MATERIAL

2-1. Siting

The modulation meter is an item of portable (or rack mountable) test equipment. It is not intended for outdoor locations unless protected from sun, rain, etc, or under environmental conditions hostile to human habitation. Normal operation can be expected with ambient temperatures and humidity levels as indicated in paragraph 1-1.

2-2. Unpacking

a. *Packaging Data.* When packed for shipment, the modulation meter is placed in a waterproof carton and packed in a wooden packing case. A typical packing case and its contents are shown in figure 2-1.

b. Removing Contents (Wooden Packing Case). Perform all of the procedures in (1) through (5) below when unpacking an equipment in a wooden packing case.

(1) Cut and fold back the metal straps.

CAUTION

Do not attempt to pry off the sides; this may damage the equipment.

(2) Remove the nails from the cover and one side of the wooden packing case with a nailpuller. Remove the cover and one side.

(3) Open the moistureproof barrier that covers the outer corrugated carton. Remove the carton.

(4) Open the outer corrugated carton and the moisture-vaporproof barrier within the carton. Remove the inner corrugated carton.

(5) Open the inner corrugated carton and remove the instrument.

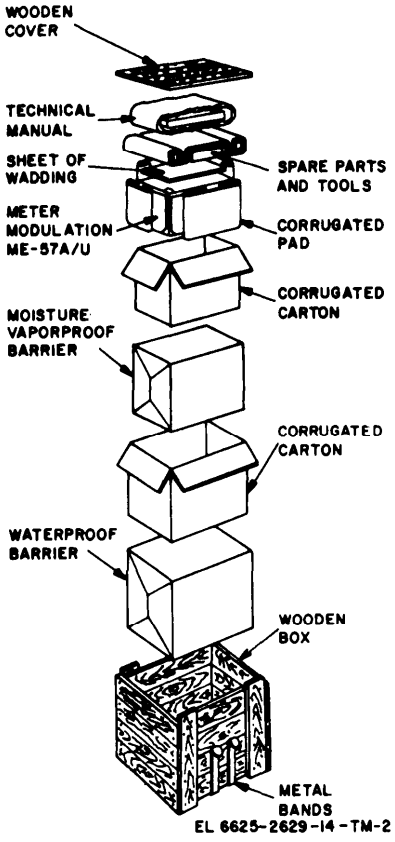


Figure 2-1. Typical packaging.

2-3. Checking Unpacked Equipment

a. Inspect the equipment for damage incurred during shipment. If the equipment has been

damaged, report the damage on DD Form 6 (para 1-3).

b. Check the equipment against packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions of TM 38-750. The equipment should be placed in service even though a minor assembly or part that does not affect proper functioning is missing.

c. Check to see whether the equipment has been modified. (Equipment which has been modified will have the MWO number on the front panel, near the nomenclature plate.) Check also to see whether all currently applicable MWO's have been applied. (Current MWO's applicable to the equipment are listed in DA Pam 310-7.)

Section II. INSTALLATION INSTRUCTIONS

2-4. Assembly and Installation

a. The modulation meter is fully assembled when shipped. It may be used as a free-standing test equipment on a work bench or may be mounted in a standard 19-inch relay rack.

b. To install the modualtion meter in an equipment rack, proceed as follows:

(1) Refer to figure 2-2 and drill and tap the holes for eight mounting screws.

NOTES

Most equipment racks have tapped holes at regular intervals to match the slots on the modulation meter front panel.

Choose an equipment rack location that has sufficient ventilation and is not subject to excessive heat from other equipment in the rack.

(2) Mount the modulation meter using all eight screw-slot locations.

(3) Locate a power receptacle convenient to the modulation meter.

(4) Set the modulation meter line voltage selection switch to match the available power (para 3-3).

(5) Insert the modulation meter power plug into the receptacle and perform the operator's checkout procedure (para 4-9).

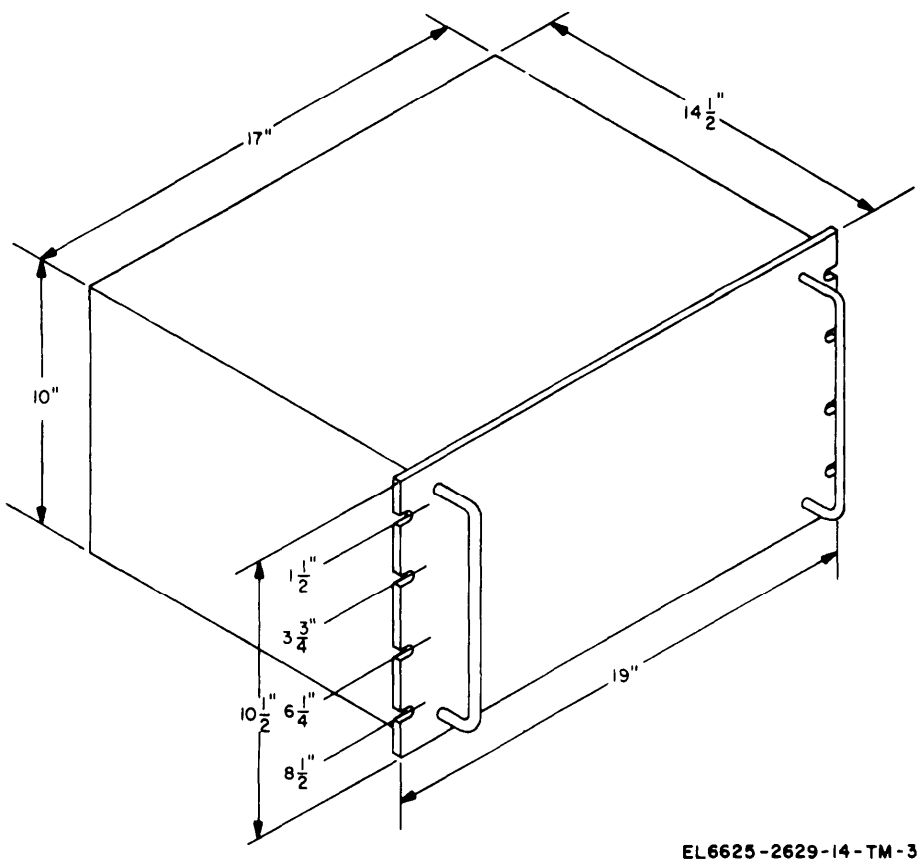


Figure 2-2, Rack mounting dimensions.

2-5. Interconnections

No cable connections are necessary for operation of the modulation meter except the primary power plug, an indicator or earphones at the AUDIO OUTPUT binding posts (if desired), and an rf input cable to the INPUT jack (para 3-4).

CHAPTER 3

OPERATING INSTRUCTIONS

Section I. CONTROLS AND INSTRUMENTS

3-1. Damage from Improper Settings

The DEVIATION RANGE KC switch must be in the 1000 TUNE position before energizing the equipment. Failure to do so could result in damage to the DEVIATION meter.

3-2. Operator's Controls

The controls and indicators for the modulation meter are on the front panel; their functions are described in the following chart and their locations shown in figure 3-1.

Table 3-1. Controls and Indicators

Control, indicator, or connector	*Function*
POWER- switch	Turns modulation meter on or off.
Line voltage eelector switch	Permits operation from either 115 or 230 volts ac.
Power indicator lamp	Lights when POWER switch is at ON position.
CARRIER SHIFT meter	Indicates proper tuning and amount of shift of carrier frequency from resting frequency due to modulation.
LIMITING meter	Indicates adequate signal level when in black area.
TUNE-FINE TUNE switch	Selects display range for CARRIER SHIFT meter. *Switch position* — *Action* TUNE — Sets CARRIER SHIFT meter for course tuning of modulation meter. FINE TUNE — Sets CARRIER SHIFT meter for fine tuning of modulation meter.
DEVIATION meter	Indicates amount of deviation of fm signal.
DEVIATION RANGE-KC switch	Selects one of 5 display ranges for DEVIATION meter. *Switch position* — *Action* 20 — Sets meter to read deviation to 20 kHz. 50 — Sets meter to read deviation to 50 kHz. 100 — Sets meter to read deviation to 100 kHz. 300 — Sets meter to read deviation to 300 kHz. 1000 TUNE — Sets meter to read deviation to 1000 kHz.
FREQUENCY MC dial	Calibrated to indicate carrier resting frequency of signal input in megaHertz.
FREQUENCY RANGE-MC switch	Selects one of 5 tuned circuits for local oscillator. Switch *position* — *Action* *20-65* — Provides tuning of modulation meter, with use of TUNING knob, between 20 and 55 MHz. 55-120 — Provides tuning of modulation meter, with use of TUNING knob, between 55 and 120 MHz. 120-250 — Provides tuning of madulation meter, with use of TUNING knob, between 120 and 250 MHz. 250-500 — Provides tuning of modulation meter, with use of TUNING knobs, between 250 and 500 MHz. 500-1000 — Provides tuning of modulation meter, with use of TUNING knob, between 500 and 1000 MHz.
TUNING knob	Permits tuning of local oscillator over its entire range when used in conjunction with FREQUENCY RANGE-MC switch.
INPUT connector	Permits convenient coupling of signal generators and transmittal coupling coils to modulation meter.
AUDIO OUTPUT	Permits aural monitoring of input signal modulation and monitoring of distortion of input signal modulation when a spectrum analyzer is used.
AUDIO ADJ	Permits adjustment of signal level at AUDIO OUTPUT jacks.

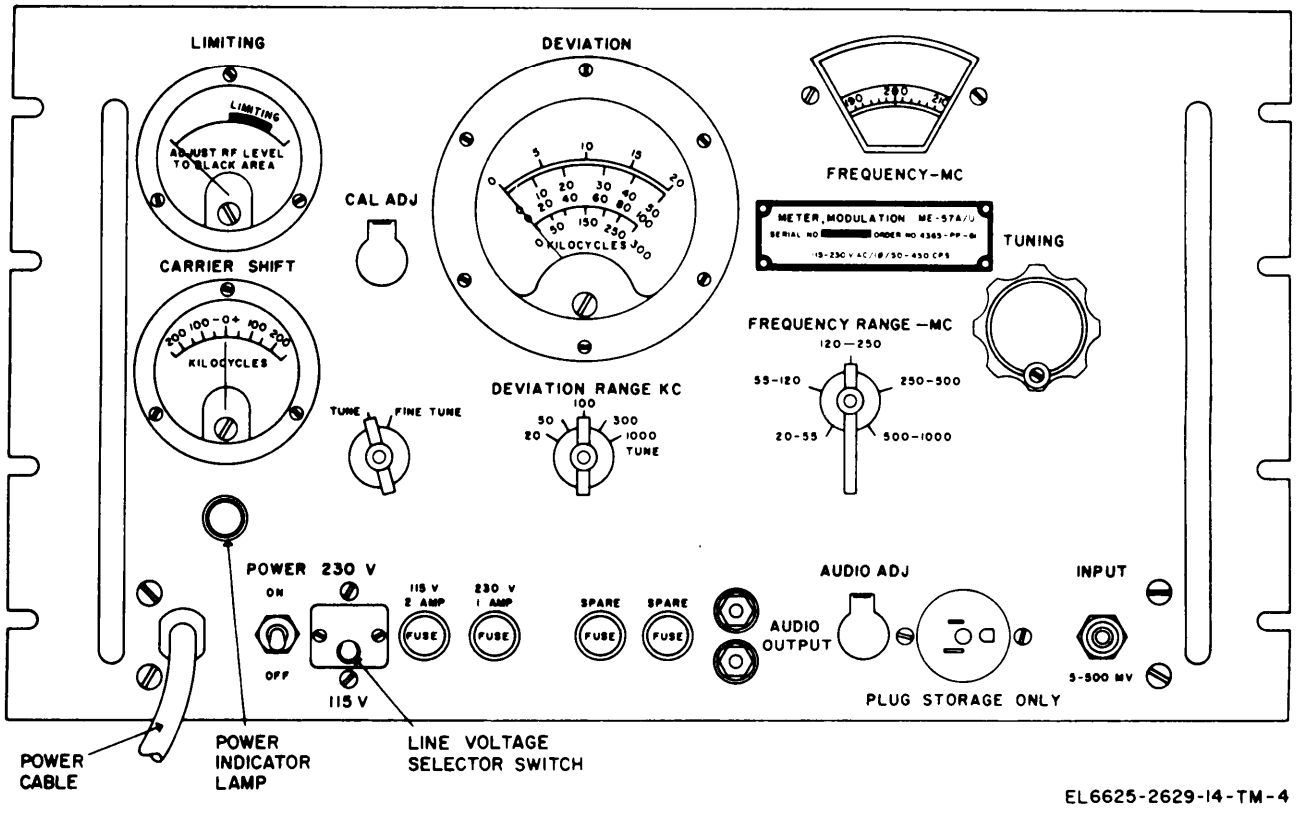


Figure 3-1. Meter, Modulation ME-57A/U, controls, indicators, and connectors.

Section II. OPERATION UNDER USUAL CONDITIONS

CAUTION

Insure that the DEVIATION RANGE KC switch is in the 1000 TUNE position before energizing the equipment or damage to the DEVIATION meter may result .

3-3. Preliminary Starting Procedures and Initial Adjustments

Before power is applied to the modulation meter, perform preliminary operations listed below.

u. Check the line voltage selector switch and be sure that it is set to the correct liner voltage. Be sure that the proper fuses are in use. Use a 2-ampere fuse for 115-volt operation, and a 1. ampere fuse for 230-volt operation.

b. Plug the modulation meter into the power· source.

c. Set the TUNE-FINE TUNE switch to the TUNE position.

d. Set the DEVIATION RANGE KC switch to the 1000 TUNE range.

e. Set the FREQUENCY RANGE MC switch to the range containing the input signal frequency.

f. Set the FREQUENCY MC dial to the approximate frequency of the expected signal; use the TUNING knob.

3-4. Operating Procedure

NOTE

If an abnormal indication is obtained during the operating procedure, refer to the troubleshooting chart Table 4-3.

Operate the equipment as follows:

a. Check the controls to be sure that they are set as required by the preliminary starting procedure (para 3-3).

b. Set the POWER switch to the ON position and allow 30 minutes for warmup.

c. Measure deviation from either side of the resting frequency as follows:

(1) Connect an unmodulated carrier to the INPUT connector of the modulation meter.

(2) Rotate the TUNING knob until the CARRIER SHIFT meter indicates zero.

(3) Switch the TUNE-FINE TUNE switch to the FINE TUNE position.

(4) Rotate the TUNING knob until the CARRIER SHIFT meter again indicates zero. The FREQUENCY-MC dial now indicates the carrier resting frequency of the input signal.

NOTE

If necessary, adjust the signal generator output or vary the coupling when measuring a transmitter.

(5) Check the LIMITING meter to be sure that it indicates in the black area.

NOTE

Usually signal generators can be connected direct to the INPUT connector if their level is relatively low. When the deviation of an fm transmitter is measured, loosely couple the output of the transmitter to the INPUT jack of the modulation meter with a pickup coil of a few turns.

(6) Apply modulation to the carrier.

(7) Rotate the DEVIATION RANGE-KC switch without pegging the meter. The DEVIATION meter now indicates the deviation of the carrier from its resting frequency due to modulation. If the 1000-TUNE position is used, multiply the 0-100 scale reading on the DEVIATION meter by 10.

(8) If my shift in the resting frequency has taken place due to the modulation, the amount of shift will be indicated on the CARRIER SHIFT meter.

(9) The AUDIO OUTPUT jacks can be used for audio monitoring of the input signal modulation. With a spectrum analyzer connected to the AUDIO OUTPUT jack, distortion of input signal modulation can be measured. The output level can be varied by adjusting the AUDIO ADJ control.

3-5. Procedure for Placing Equipment in Standby Condition

The modulation meter does not employ standby facilities. If standby operation is necessary, set the DEVIATION RANGE KC switch to 1000 TUNE and leave the POWER switch ON.

3-6. Procedures for Shutdown

Stop the modulation meter as follows:

a. Set the DEVIATION RANGE-KC switch to the 1000 TUNE position.

b. Set the TUNE-FINE TUNE switch to the TUNE position.

c. Set the POWER switch to OFF.

3-7. Preparation for Movement

The modulation meter is provided with a transit case to contain and protect the unit and its accessories. If the modulation meter is used as a reck-mounted teat equipment, proceed as follows; if used as a free-standing test equipment, disregard steps *c* and *d*

a. Disconnect any test leads (that may be connected to AUOIO OUTPUT binding posts or INPUT connector).

b. Disconnect the main power plug.

c. Remove eight screws that secure the modulation meter to the equipment rack.

CAUTION

Support the back of the modulation meter when the screws are removed; the unit weighs 57 pounds.

d. Withdraw the modulation meter from the equipment rack.

e. Slide the modulation meter into the transit case, face of the modulation meter toward the case opening.

f. Plug the power connector into PLUG STORAGE ONLY receptacle (on the face of the modulation meter) and coil the power wire between the ttransit case and the equipment.

g. Place the transit case cover in place and snap closed the eight fasteners that secure the lid to the case. The modulation is prepared for movement unless shipment is involved (fig. 2-1).

CHAPTER 4

OPERATOR AND ORGANIZATIONAL MAINTENANCE

Section I. TOOLS AND EQUIPMENT

4-1. General

This section contains a list of materials required for operator and organizational maintenance. Repair parts, special tools, special test equipment, and accessories prescribed for use with the modulation meter are listed in appendix B.

4-2. Tools and Equipment Required

The following tools and equipment are required for maintenance of the modulation meter:

a. Tool Kit, Electronic Equipment TK-105/G.
b. Trichloroethane, technical.
c. Brush, MIL-G-7241.
d. Fine sandpaper, No. 000.
e. Lint-free cloth.

Section II. REPAINTING AND REFINISHING INSTRUCTIONS

4-3. Paints and Finishes

When Meter, Modulation ME-57A/U requires repainting, refinishing, or touchup painting, refer to Federal Standard No. 595a for a matching color. SB 11-573 lists painting tools and miscellaneous supplies required for painting.

4-4. Touchup Painting Instructions

a. Refer to TB 746-10 for instructions on painting and preserving Electronics Command equipment. In touchup painting a perfect match with the exact shade of the original paint surface may not be possible. There are many reasons for this, such a change in the original pigment because of oxidation and differences as a result of manufacture. The prevention of corrosion and deterioration is the most important consideration in touchup painting; appearance is secondary. This, however, should not be construed to mean that appearance of the equipment is not important. Touchup paint should be accomplished neatly and in good workmanshiplike manner. Inspection personnel in the field should make allowances for slight color mismatch where minor touchup has been done, but not for neglect, poor workmanship, or in cases where the need for refinishing is obvious.

b. Remove rust and corrosion from metal surfaces by lightly sanding them with fine sandpaper. Brush two thin coats of paint on the bare metal to protect it from further corrosion.

Section III. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

4-5. General

a. This section describes preventive maintenance checks and services which may be performed by operator and organizational maintenance activities.

NOTE

The modulation meter does not require lubrication and none is recommended.

b. To insure that the modulation meter is always ready for operation, it must be inspected systematically so that defects may be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance checks and services to be performed are listed and described in tables 4-1 and 4-2. The item numbers indicate the sequence of an minimum inspection required. Defects discovered during operation of the modulation meter will be noted for future correction to be made as soon as operation has ceased. Stop operation immediately if a deficiency is noted during operation which would damage the modulation meter. Record all deficiencies together with corrective action taken on applicable forms prescribed in TM 38-750. In-

structions for performing the required checks are identified as periodic checks in this manual.

4-6. Checks and Services

The modulation meter shall be checked and serviced periodically in accordance with tables 4-1 and 4-2.

NOTE

If the equipment must be kept in continuous operation, check and service only those items that can be checked and serviced without disturbing operation; make the complete checks and services when the equipment can be shut down.

Table 4-1. Operator's Preventive Maintenance Checks and Services

D– Daily
Time-0.7

Interval and Sequence No.	ITEM TO BE INSPECTED PROCEDURE	Work time (N/H)
D		
1	COMPLETENESS Check to see that the equipment is complete.	0.1
2	EXTERIOR SURFACES Clean the exterior surfaces, including the panel and meter glasses (pare 4-5). Check all meter glasses and the indicator lens for crocks.	0.1
3	CONNECTORS Check for tightenss of all connectors.	0.1
4	CONTROLS AND INDICATORS Observe that the mechanical action of each dial, and switch is smooth and free of external or internal binding, and that there is no excessive looseness. Check meters for sticking or bent pointers.	0.2
5	OPERATION Operate the equipment in accordance with the instructions contained in paragraph 3-4.	0.2

Table 4-2. Organizational Preventive Maintenance Checks and Services

Total man-hours required:

Interval and Sequence No.				ITEM TO BE INSPECTED PROCEDURE	Work time (M/ H)
W	M	Q	e		
1				CABLES Inspect cords, cables, and wires for chafed crocked, or frayed insulation. Replace connectors that are broken, arced, stripped, or worn excessively.	
2				HANDLES AND LATCHES Inspect handles, latches, and hinges for looeeness. Replace or tighten as necessary.	
	1			METAL SURFACES Inspect exposed metal surfaces for rust and corrosion. Clean and touchup paint as required.	
	2			JACKS Inspect jacks for snug fit and good contact.	
			1	INTERIOR Clean interior of chassis and cabinet.	
			2	PLUCKOUT ITEMS Inspect seating of pluckout items. Make sure that tube clamps grip tube bases tightly.	
			3	TRANSFORMER TERMINALS Inspect the terminals on the power transformer. All nuts must be tight. There should be no evidence of dirt *or* corrosion.	
			4	TERMINAL BLOCKS Inspect terminal blocks for loose connections and crocked or broken insulation,	
			5	RESISTORS AND CAPACITORS Inspect the resistors and capacitors *for* recks, blistering, or other detrimental defects.	

Table 4-2. Organizational Preventive Maintenance Checks and Services –Continued

Interval and Sequence No. W	M	Q	ITEM TO BE INSPECTED PROCEDURE	Work time (M/H)
		6	GASKETS AND INSULATORS Inspect gaskets, insulators, bushings, and sleeves for cracks, chipping, and excessive wear.	

Section IV. TROUBLESHOOTING

4-7. General

This section contains troubleshooting instructions for the modulation meter. Any malfunction that is beyond the scope of the organizational maintenance activity to correct shall be referred to general support maintenance.

4-8. Procedure

When the modulation meter fails to operate correctly, turn it off and check the following items:

a. Wrong control settings or improper input connections (para 3-3 and 3-4).

b. Damaged or incorrectly connected power cord.

c. Defective power fuse (fig. 3-1). Following the instructions contained in paragraph 4-10.

Section V. MAINTENANCE OF MODULATION METER

4-9. General

This section contains maintenance instructions applicable to organizational maintenance activities. Maintenance of the modulation meter by this activity is limited to the following items:

a. Fuse and lamp replacement (para 4-10).
b. Cleaning (para 4-11).
c. Functional testing (para 4-12).
d. Tube replacement (para 4-13).

4-10. Removal/Replacement

a *Replacement of Fuse (fig.* 3-1).

CAUTION

DO NOT use a fuse rated above the specified value (para 3-3). Damage to the equipment may result.

(1) Turn the fuse-holder cap counterclockwise to unlock.

(2) Pull out the fuseholder cap with the defective fuse. Remove the defective fuse and replace it with a new one.

(3) With the new fuse installed, insert the fuseholder cap into the fuseholder. Press in on the freeholder cap and turn it clockwise to lock.

b. Replacement of Power Indicator Lamp (fig. 3-l).

(1) Unscrew (counterclockwise) the indicating light lens and remove it to expose the lamp.

(2) Press in on the lamp and turn it counterclockwise to unlock.

(3) Remove the defective lamp and replace it with a new one. Push in on the lamp and turn it clockwise to lock.

(4) Replace the lens by screwing it on (clockwise).

4-11. Cleaning

Inspect the exterior of the equipment. The exterior should be clean, and free of dust, dirt, grease and fungus.

a. Remove dust and loose dirt with a clean lint-free cloth.

WARNING

The fumes of trichloroethane are toxic. Provide thorough ventilation whenever used. DO NOT use near an open flame. Trichloroethane is not flammable, but exposure of the fumes to an open flame converts the fumes to highly toxic, dangerous gases.

b. Remove grease, fungus, and ground-in dirt from the cases; use a cloth dampened (not wet) with trichloroethane. After cleaning, wipe dry with a clean lint-free cloth.

c. Remove dust or dirt from plugs and jacks with a soft-bristled brush.

CAUTION

DO NOT press on the meter face (glass) when cleaning; the meter may become damaged.

d. Clean the front panel, meters, l nd control knobs; us a soft clean lint-free cloth. If necssary, dampen the cloth with water mild soap may b. used for more effective cleaning. Wipe dry with a clean lint-free cloth.

Table 4-3. Organization Troubleshooting

Malfunction	Probable cause	Corrective action
Power indicator does not light,	*a.* Defective fuse. *b.* Defective lamp.	*a.* Replace fuse (pus 4-10), *b.* Replace lamp (para 4-10).
LIMITING meter does not indicate in black l raa.	Defective vacuum tube V2.	Replace vacuum tube V2.
CARRIER-SHIFT meter does not indicate zero,	Defective vacuum tube V2, V7, V8 or V9,	*Replace* defective vacuum tube.
DEVIATION meter does not deflect.	Defective vacuum V10, V11, W12, V13 or V14.	Replace defective vacuum tube.

4-12. Functional Testing

The modulation meter should be checked for correct operation after any maintenance is per. formed. Appropriate checks are contained in paragraphs 3-4 l nd 3-6. Successful completion of these checks insures that the modulation meter is ready for operation. Should the modulation mater not perform properly, *refer to* table 4-3 for the corrective action for *a* particular abnormal in. dication. If the indicated corrective action does not correct the abnormality, the modulation meter must be sent for higher level maintenance.

4-13. Vacuum Tube Replacement

(fig. 4-1)

u. If tube failure is suspected (V2 through V18), use the applicable procedure ((1) or (2) below) to remove and replace the tubes. Replacement of V1 should be made by the general support maintenance level.

b. Removal and Replacement *of Tubes.*

CAUTION

DO NOT rock or rotate a tube when removing it from a socket. pull it straight Out with a tube puller.

Tubes with shields. To remove the tube shield, press. it down and turn it counterclockwise to unlock, Remove the tube shield. After replacing the tube, replace the tube shield by pressing the tube shield down and turning it cbckwise until it locks in place.

(2) *Tubes with retainers.* To remove the tube retainer, compress the spring portion of the retainer that fits on the post and lift up. After replacing the tube; place the retainer over the post, compress the spring, and fit the retainer over the tube by lowering it on the post. When the retainer is in its proper position, release the spring.

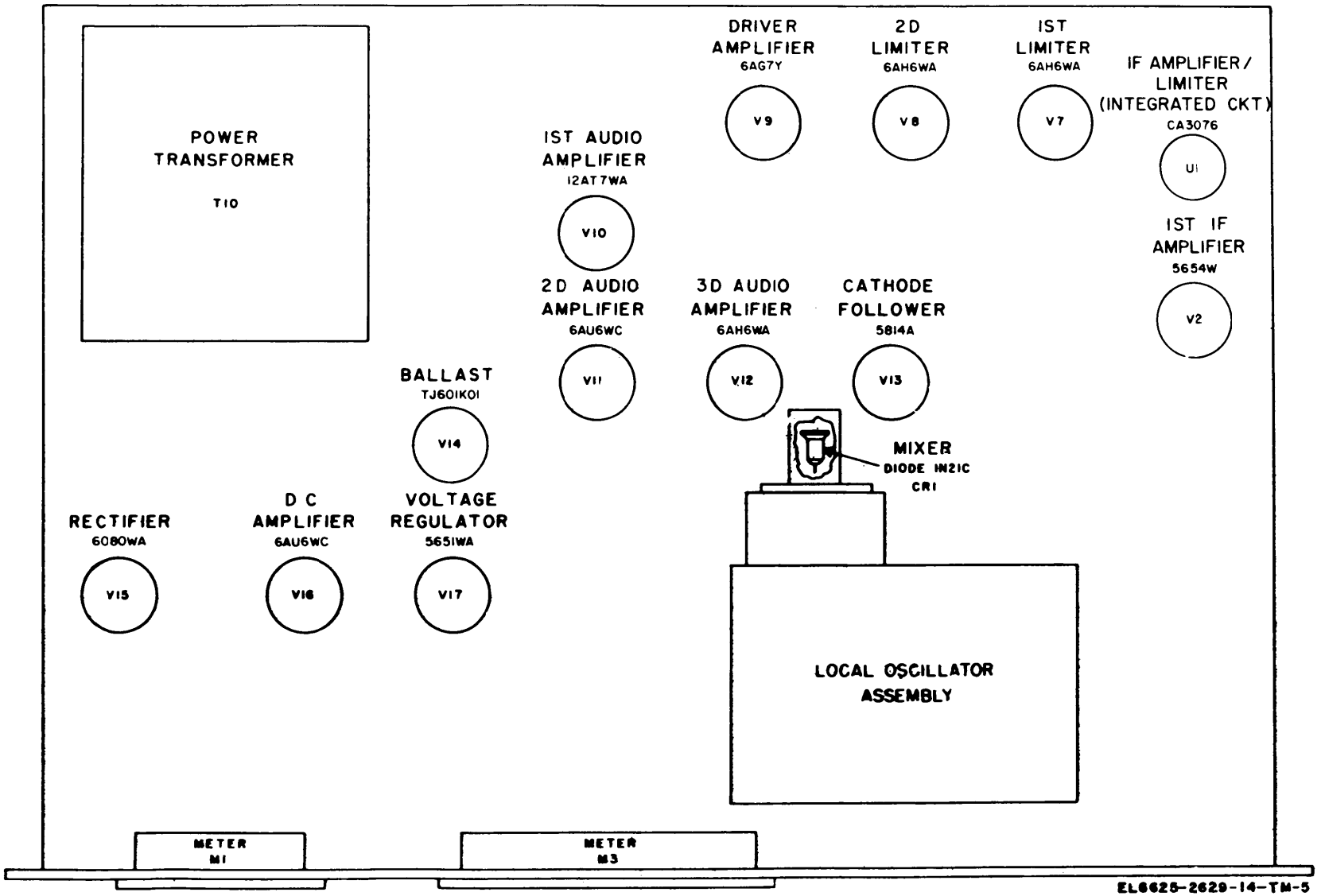


Figure 4-1. Tube and integrated circuit location diagram.

CHAPTER 5

FUNCTIONING OF EQUIPMENT

Section I. GENERAL

5-1. Introduction

The modulation meter is essentially an fm receiver which is used to measure deviation and carrier shift of frequency modulated signal generators and transmitters. In brief it operates by converting the incoming radio frequency signals to a controlled-amplitude (adjustable limited) intermediate frequency, employs a discriminator to detect the modulation (or deviation), a precision divider network to provide wide measurement range, an adjustable-gain amplifier to drive output circuits, and power amplifiers to drive a deviation meter and audio output jack.

5-2. Block Diagram Description

(fig. 5-1)

a. *Oscillator V1.* The oscillator is self-contained and is mounted on top of the chassis. It provides a signal to mix with the incoming radio frequency (rf) signal. The modulation meter input frequency is covered in five ranges selected by the FREQUENCY RANGE-MC switch,

b. Mixer CR1. The mixer is mounted on the back of the oscillator. A crystal diode is used to mix the radio of signal with the oscillator signal. The resulting intermediate frequency (if) signal is fed to the if amplifier/limiter section consisting of VI, Ul, V7, and V8.

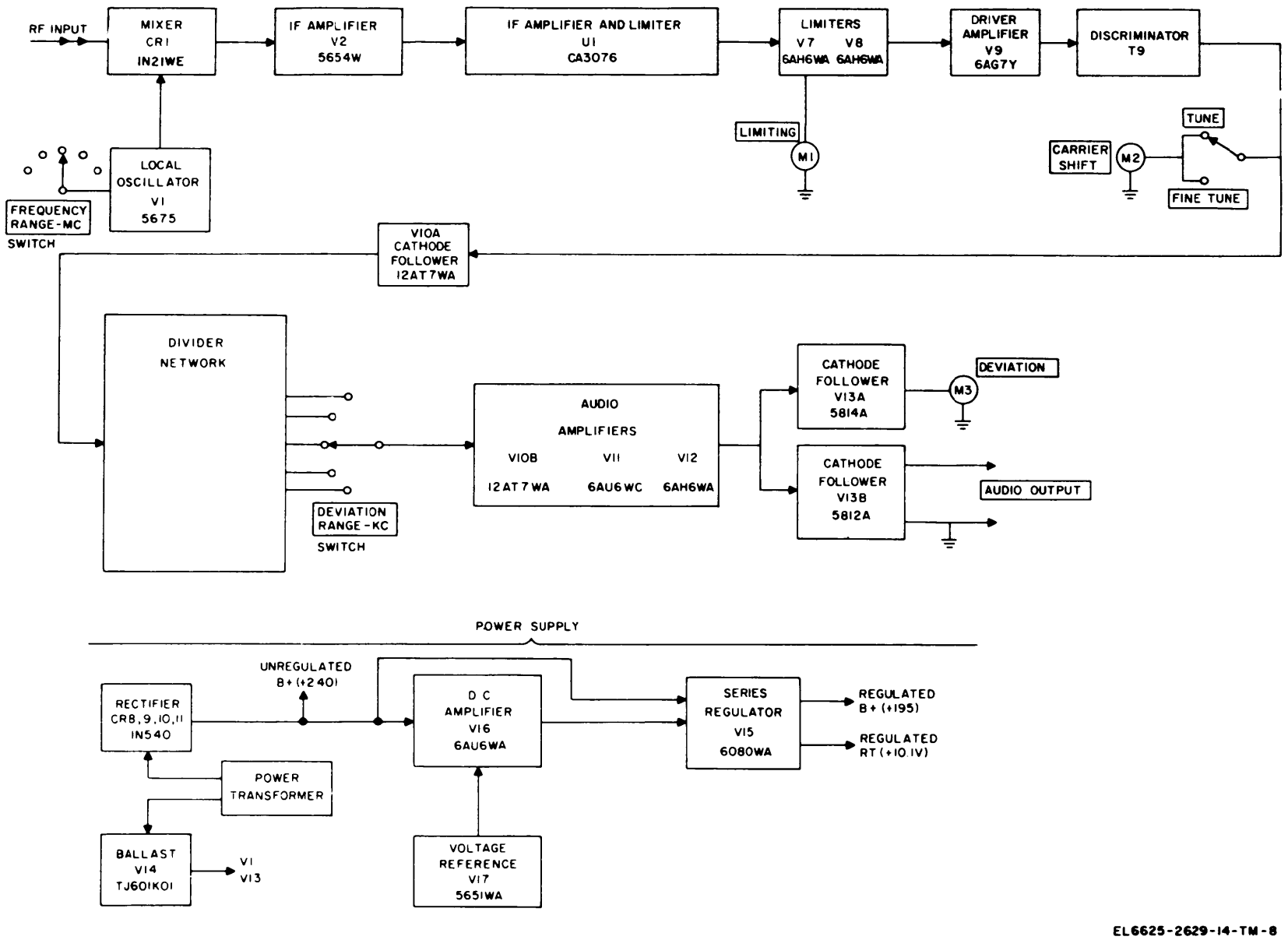


Figure 5-1. Meter, modulation ME-57A/U, block diagram.

c. If Amplifier V2. The if amplifier rejects undesired output frequencies of the mixer and provides primary amplification at the 12 MHz intermediate frequency which is fed to integrated circuit U 1.

d. If Amplifier and Limiter U1. The if amplifier and limiter possesses very high gain and a self-limiting capability at moderate input signal levels. It has the ability to accommodate a wide range of input signal level, and eliminates the need for automatic volume control (avc) elsewhere in the circuit.

e. *Limiters V7 and V8.* Two cascaded limiter stages use high conductance pentodes to achieve further limiting of the if signal. They are broad-band tuned and the output of V8 is fed to the driver amplifier circuit.

f. LIMITING Meter M1. The LIMITING meter is fed from the second limiter stage. When the meter pointer is in the back range, it indicates that the level of the rf input is sufficient for proper operation of the modulation meter.

g. *Driver Amplifier V9.* The driver amplifier amplifies the limited if signal to the level required for optimum discriminator operation.

h. Discriminator T9. The discriminator converts the frequency-modulated if signal to voltages corresponding to the amount of modulation applied to the signal. The discriminator output is fed to CARRIER SHIFT meter M2 and audio circuits.

i. CARRIER SHIFT Meter M2. Meter *M2 is* a zero-center meter that indicates the amount of carrier shift caused by the modulation of the rf signal. Readings are in kiloHertz (kHz).

j. Divider Network. This precision divider is used to select the amount of signal required for full-scale readings on the DEVIATION meter, as set by the DEVIATION RANGE-KC switch. The signal is then fed to the audio amplifiers.

k. Audio Amplifiers V10 through V13. The audio amplifiers are resistance-capacitance (rc) coupled stages with cathode follower input and outputs. The band-pass is flat up to 70,000 Hertz (Hz). The output is fed to the DEVIATION meter and the AUDIO OUTPUT binding posts.

l. DEVIATION Meter M3. This three-scale, five-range meter indicates deviation of fm signal generator or transmitter output.

m. *Power Supply.* Full-wave rectification is accomplished by a bridge rectifier consisting of CR8 through CR11. It has an unregulated 240-volt dc output. A regulated 195-volt dc output is obtained by the use of voltage regulator stage V17, direct current (de) amplifier stage V16, and a series regulator stage V15. Ballast tube V14 provides a regulated filament voltage for use with oscillator V1 and audio output cathode follower V13. Zener diode CR12 provides 10.1-volts dc regulated as operating voltage to integrated circuit V1. The regulated +195-volt dc supply is the power source for zener diode regulator CR12.

Section II. CIRCUIT ANALYSIS

5-3. General

Paragraphs 5-4 through 5-10 provide detailed analysis of the modulation meter. Figure FO-2 is the schematic diagram and figure FO-3 is the wiring diagram which represent the ME-57A /U.

5-4. Oscillator VI

(fig. FO-2)

u. The local oscillator generates a signal that is fed to the mixer to be mixed with the incoming signal from a frequency-modulated signal genemtor or transmitter. The oscillator is tunable over a range from 32 through 512 MegaHertz (MHz) in five bands, which are selected by the FREQUENCY RANGE-MC switch. The frequency of the oscillator signal is always 12 MHz higher than the incoming signal, except on the 500-1000 range where the second harmonic of the oscillator is used.

b. A 5676 pencil triode is used in the shunt-fed modified Colpitts oscillator. Regulated filament voltage is applied through filter network Z1. Filter network Z1 keeps all rf signals shorted to ground. Plate voltage is fed through Z2, which functions the same as Z1. Plate current flows only when the FREQUENCY RANGE-MC switch is in one of the five frequency bands and keeps V1 nonoperating while changing frequency ranges. This prevents unwanted oscillations which would occur if V1 were kept operating.

c. The frequenty determining circuit is composed of Cl, a two-section, air-dielectric, variable capacitor, and one of five inductances (represented by LB) selected by the FREQUENCY RANGE-MC switch. Inductances and resistances (represented by LA and R4) are used to couple the oscillator output to the mixer. They are selected by the FREQUENCY RANGE-MC switch, and are designed to give optimum crystal injection, Capacitor C107 and resistor R7 form a grid leak bias circuit.

5-5. Mixer CR1

(fig. FO-2)

The crystal mixer CR1 receives the oscillator signal and the rf signal; the resultant if signal is fed to the first stage of if amplification. The oscillator signal is injected through R 1, which provides signal separation from the local oscillator, to diode CR1.

5-6. 1st If Amplifier V2 and Integrated Circuit U1

(fig. FO-2)

If amplifier stage V2 and integrated circuit U1 form a high-gain, wide-band circuit operating at a center frequency of 12 MHz with an overall bandwith of 3 MHz. The if amplifier V2 rejects undesired output frequencies of the mixer and provides primary amplification for integrated circuit U1. IC U1 has the ability to accommodate a wide range of input signal level, and eliminates the need for automatic volume control.

5-7. Limiters V7 and V8 and Driver Amplifier V9

(fig. FO-2)

Limiting is achieved by grid limiting action in stages V7 and V8. The two stages are used to obtain the required amplitude-modulated (am) rejection characteristics. The signals from the amplifier stages are limited and fed to the driver amplifier stage V9. The grid return for V7 is R50, which is in series with LIMITING meter M 1. LIMITING ADJ control R51 sets the LIMITING meter to the start of the black area when the signal input level to the equipment is 5 millivolts. Capacitor C54 is the bypass for the LIMITING meter.

5-8. Discriminator T9

(fig. FO-2)

The discriminator is a modified Fester-Steel type and is completely enclosed in the. can for transformer T9. The discriminator receives the signals from the driver amplifier and converts the information to an audio signal with its amplitude determined by the amount of deviation from the carrier frequent y. This audio signal is then fed to the audio amplifier circuits. Resistor R66 broadens the response of the transformer primary to accept 10.5 to 13.5 MHz. Capacitor C81 acts as a stabilizer to keep the dc level constant when no deviation is present. Carrier shift indication is displayed on CARRIER SHIFT meter M2. The deflection of the meter is *proportional to* the voltage at pin 3 of the discriminator. Two ranges of carrier shift are available by use of the TUNE-FINE TUNE switch S4. In the TUNE position (positions shown) of S4, the entire S-curve of the discriminator is displayed. In the FINE TUNE position, carrier shift up to 250 kHz is displayed. Resistors R73 and R74 are in series with the CARRIER SHIFT meter to limit current through the meter. Resistor R75 is a calibration potentiometer for the FINE TUNE position of S4.

***5-9.* Audio Amplifier V10, V11, V12, and V13**

(fig. FO-2)

The audio amplifier circuit (V10, V11, V12, and V13) is comprised of four resistor-capacitor (rc) coupled stages. The low-distortion, high-stability circuit has a cathode follower input and output. The signal inputs from the discriminator are amplified and fed to DEVIATION meter M3 and the AUDIO OUTPUT terminals.

a. Tube V10 is the cathode follower input and first audio stage. Operating bias for V10A is developed by the drop across R79. Attenuation of the audio output of V 10A is obtained by tapping off a fixed portion of the voltage applied to the voltage divider consisting of R78, R82, R83, R84, and R85. This effectively varies the range of the DEVIATION meter. Capacitor C85 provides coupling from V 10A cathode to the attenuator circuit. Coupling from the attenuator to the grid of V10B is through C86. The cathode of V10B is tied to the voltage divider in the cathode of V12. The cathode voltage is raised or lowered as necessary to give constant gain throughout the amplifier circuit. A bypass circuit in the plate of V10B, comprised of R89 and C88, is used to short frequencies above the audio range to ground. Signals from the plate of V10B are coupled to the grid of V11 through C106.

b. Tubes V11 and V12 are conventional audio amplifier stages. Operating bias for V12 is developed by the drop across R105 and R106. The junction of R105 and R106 is the return for the cathode of B10B. Two outputs are taken from this stage. The signal from the plate is coupled through C94 to the grid of V13A. The signal from the junction of R103 and R104 is coupled through C98 to the grid of V13B.

c. Tube V 13 provides two cathode follower output stages. The cathode load for V13A is R112. Coupling from the cathode of V13A to the DEVIATION meter rectifier circuit is through C96. Rectification of the audio signal is achieved by CR7 and R113. Resistor R116 limits current through the meter. Meter calibration is obtained by the setting of CAL ADJ R118. Grid bias for V13B is developed by the drop across R117. Operating bias is developed by the drop across R115. The load for the cathode of V13B is comprised of R119, R120, and R121. Resistor

R120 is adjusted to give 1-volt root mean square (rms) out for 40-kHz deviation on the 0-5-kHz deviation range. Capacitor C99 couples the audio output to the AUDIO OUTPUT binding post. Plate decoupling for V13B is through R114 and C97 .

5-10. Power Supply

(fig. FO-2)

a. The 115- or 230-volt ac line voltage is stepped up by the high voltage secondary winding of T10. A full-wave bridge rectifier consisting of CR8, CR9, CR10, and CR11 provides rectification of the ac voltage. Capacitors C101, C102, and C103, and inductors L11 and L12 comprise the filter network for the power supply.

b. Filtered dc voltage is applied to the plates of series regulator V 15. The regulated 195-volt output is taken from the cathode of V15. Bias for the grids of V15 is obtained from the plate of dc amplifier V16. Part of the load for the cathode of V15 is comprised of R126, R127, and R128. The setting of R127 controls the fixed bias on the grid of V 16. Variation in the regulated 195 volts are. coupled through C100 to the grid of V16. The screen voltage for V16 is controlled by the setting of R123. Resistors R129, R123, and R192 form a voltage divider to provide the proper screen voltage. Plate load for V 16 is R124. The cathode of V 16 is held constant by voltage regulator V17, If the voltage varies, the change is felt on the grid of V16. Tube V 16 changes its conduction, which varies the bias on the series regulator V15. Tube V15 then changes the conduction to obtain the correct output voltage.

c. Transformer T 10 has four separate filament windings. The output at terminals 7 and 8 is 6.3 volts ac. The power ON indicator lamp is DS1. The output at terminals 11 and 12 is fed to ballast tube V14. Resistor R131 in series with V14 provides a regulated 6-volt output, which is used for filaments of V1 and V13.

CHAPTER 6

DIRECT SUPPORT MAINTENANCE

6-1. Scope of Direct Support Maintenance

No maintenance functions for the modulation meter are assigned to the direct support level.

CHAPTER 7

GENERAL SUPPORT MAINTENANCE

Section I. GENERAL

7-1. Introduction

This chapter contains voltage and resistance measurement diagrams, parts location diagrams and troubleshooting information. In addition, it also contains repair and replacement information, alignment and general support testing procedures.

7-2. Voltage and Resistance Diagrams

The voltage and resistance measurement information appears on figures 7-4 ① 7-4 ②, and 7-5. The specific conditions under which this information was gathered are listed on the diagrams.

7-3. Parts Location and Schematic Diagrams

Parts locations are shown on figures 7-1, 7-2, and 7-3. A schematic diagram for the overall modulation meter is contained on figure FO-2. The overall wiring diagram is figure FO-3.

Section II. TOOLS, TEST EQUIPMENT AND TROUBLESHOOTING

7-4. Tools and Test Equipment Required

This section contains a listing (table 7-1) of test equipment required for maintenance of the modulation meter. No special tools are required.

Table 7-1. Required Test Equipment

Test equipment	*Common name*	*Technical manual*
Analyzer ZM-3/U	Capacitor tester	TM 11-5043-12
Analyzer, Spectrum TS723(*)/U	Spectrum analyzer	TM 11-5097
Audio Oscillator TS-382	Audio oscillator	TM 11-6625-261-12
Crystal Rectifier Teat Set TS. 268/U	Crystal test set	TM 11-1242
Counter, Electronic Digital Readout AN/USM-207	Counter	TM 11-6625-700.10
Electronic Multimeter ME-26(*)/U	Vtvm	TM 11-6625-200-15
Generator, Signal SG.92/U	Sweep generator	TM 11-319
Indicator, Panoramic ID-173/U	Panoramic indicator	TM 11.5086
Meter Test Set, TS-662/GSM-1	Calibration test set	TM 11-2535B
Oscilloscope AN/USM.281A	Oscilloscope	TM 11-6625-1703-15
Rf Signal Generator AN/URM-25(*)	Low frequency generator	TM 11-5551B
Signal Generator, AN/USM-44	Am generator	TM 1143625-508-10
Teat Set, Oscillator Set AN/PRM. 10	Oscillator test set	TM 11-6625-276-10
Test Set, Electrical Meter TS-656/U	Meter tester	TM 11-6625-226.12
Teat Set, Electron Tube TV-2/U	GS tube teeter	TM 11-6625.316-12
Voltmeter, Electronic ME-30B/U	Electronic voltmeter	TM 11-6625-320-12

WARNING

When servicing the modulation meter, be careful when working on the ac line or dc voltages. Always disconnect the power cord from the source before changing *any* component.

7-5. General Instructions

Troubleshooting at general support maintenance level includes all the techniques outlined for all lower maintenance levels and any special *or* additional techniques required to isolate a defective part. The systematic troubleshooting procedure includes sectionalizing and localizing techniques.

7-6. Organization of Troubleshooting Procedures

a. General. The first step in servicing a

defective modulation meter is to sectionalize the fault. Sectionalization means tracing the fault to a major circuit responsible for the abnormal operation. The second step is to localize the fault. Localization means tracing the fault to a defective component which is responsible for the abnormal condition. Some faults may be located by sight; however, the majority of the trouble must be located by checking voltages and resistances.

b. Sectionalization. The modulation meter consists of five main sections: the local oscillator, the intermediate frequency amplifier, the discriminator, the audio amplifier, and the power supply. The first step in tracing trouble is to locate the circuit or circuits at fault as follows:

(1) *Visual inspection.* Visual inspection will help locate faults without testing or measuring circuits. A 11 meter readings and other visual signs should be observed and an attempt made to sectionalize the fault to a particular section.

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

c. *Localization.* The tests listed below will aid in isolating the trouble. First, localize the trouble to a single stage or circuit, and then isolate the trouble within that circuit by voltage, resistance, and continuity measurements.

(1) *Signal tracing.* Signal tracing (para 7-10) will help in isolating the fault to a specific stage.

(2) *Voltage and resistance measurements.* Abnormal voltage or resistance measurements may pin-point a fault, Use resistor inductor, and capacitor color codes (fig. FO-1) to find normal readings and compare them with reading taken.

(3) *Troubleshooting chart.* The general support troubleshooting chart contains symptoms which will aid in localizing trouble to a component part.

(4) *Intermittent troubles.* In all tests, the possibility of intermittent troubles should not be overlooked. Usually, this type of trouble can be made to occur by tapping or jarring the equipment. Check the wiring and connections to the parts of the modulation meter (fig. FO-3).

CAUTION

Do not attempt removal or replacement of parts before reading the instructions in paragraph 7-14.

7-7. Checking Filament and B + Circuits for Shorts

a. When to Check. When any of the following conditions exist, check for short circuits and clear the troubles before applying power.

(1) When the modulation meter is being serviced and the nature of the abnormal symptoms is not known.

(2) When the abnormal symptoms reported from operational test (para 3-4) indicate possible power supply troubles.

b. Conditions for Test.

(1) Remove the dust cover.

(2) Remove all tubes from their sockets.

(3) Remove the power indicator lamp.

c. *Measurements.* Use the multimeter and make the resistance measurements indicated in the following chart. If abnormal results are obtained, make the additional isolating checks outlined below. When the fault y part is found, repair the trouble before applying power to the unit.

Table 7-2. Resistance Measurements

Point of measurement	Normal indication	Isolating procedure
Between ground and pin 9 of XV13.	Resistance should be approximately 36 ohms.	If resistance is zero, check for short at XV13 (fig. *7-2)* or shorted lead from J4 (fig. 7-1) or at Z1 on the oscillator. If the resistance is infinite, check for open resistor R131 on TB6 (fig. 7-2).
Between ground and pin 4 of XV16.	Infinite resistance.	If a short or finite resistance is read, check the wiring to and at sockets XV15 ami XVIG (fig. 7-2).
Between ground and pin 9 of XV10.	Infinite resistance.	If a short or finite resistance is read, check the wiring to and at sockets XV10, XV11, and XV12 (fig. 7-2).
Between ground and the junction of C101A and C102. Be sure of meter polarity to obtain correct reading. (The higher of the two readings is the correct one.) Note: If using the TS-352(*)/U, the lead connected to the OHMS connector should be grounded.	Resistance should be approximately 250K.	If resistance is zero, check for shorted filter capacitor C101A or C102. If resistance is approximately 110 ohms, check for short in C103. If resistance is approximately 165 ohms, check for short in C101 B or bypass capacitor C50, If any other resistance below 250K is observed, check all the bypass capacitors (fig. 7-3 and FO-2).

Table 7-2. Resistance Measurements – Continued

Point *of* measurement	Normal indication	Isolating procedure
Between ground and pin 6 of XV15.	Resistance should be approximately 10K; reading will be determined by setting of R130.	If resistance is less than 10K, check all screen bypass capacitors (fig. 7-3 and FO-2). If resistance is higher than 10K, check R130 for open (fig, 7-2).

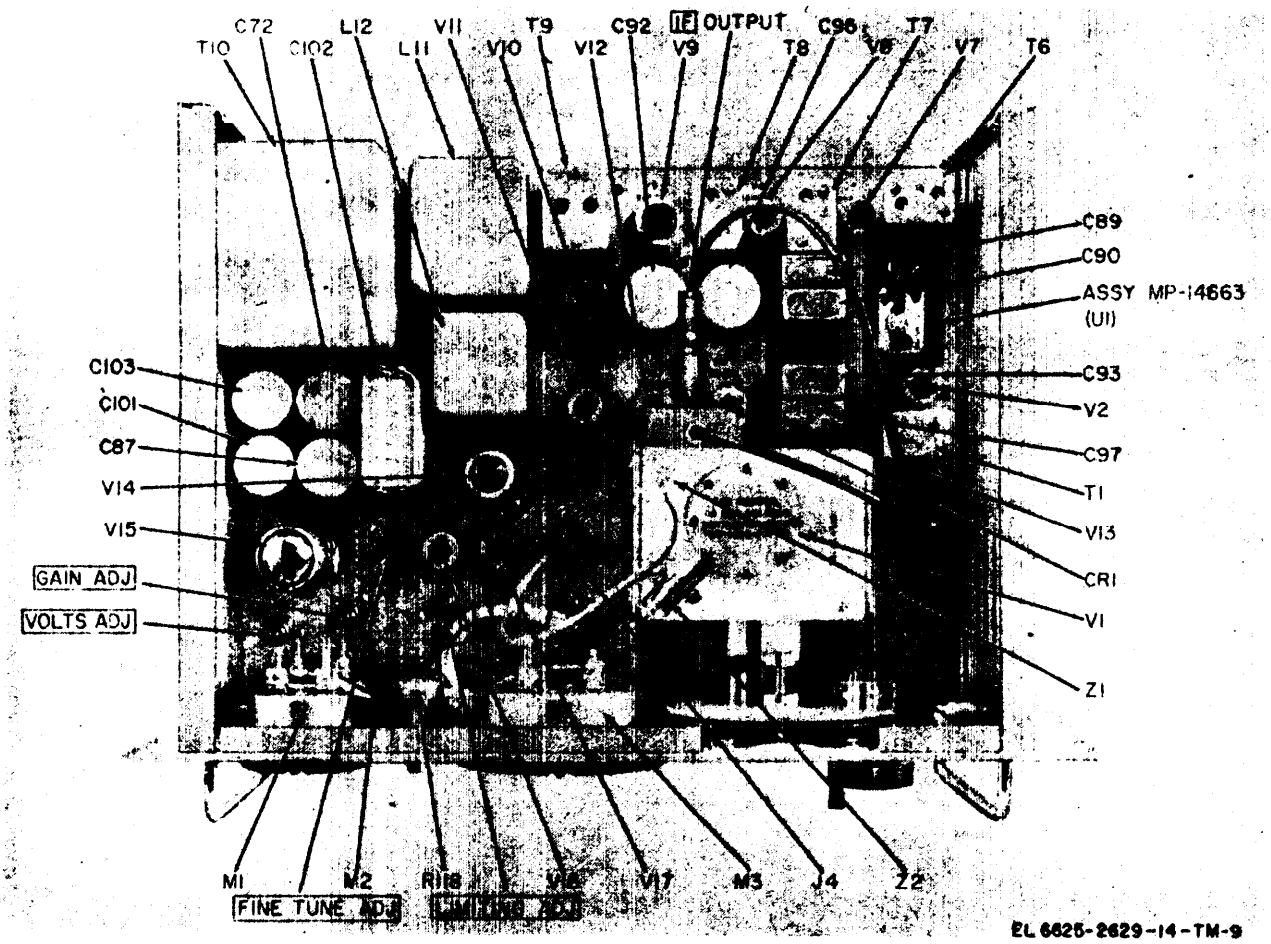


Figure 7-1. Modulation meter chassis, parts location, top view.

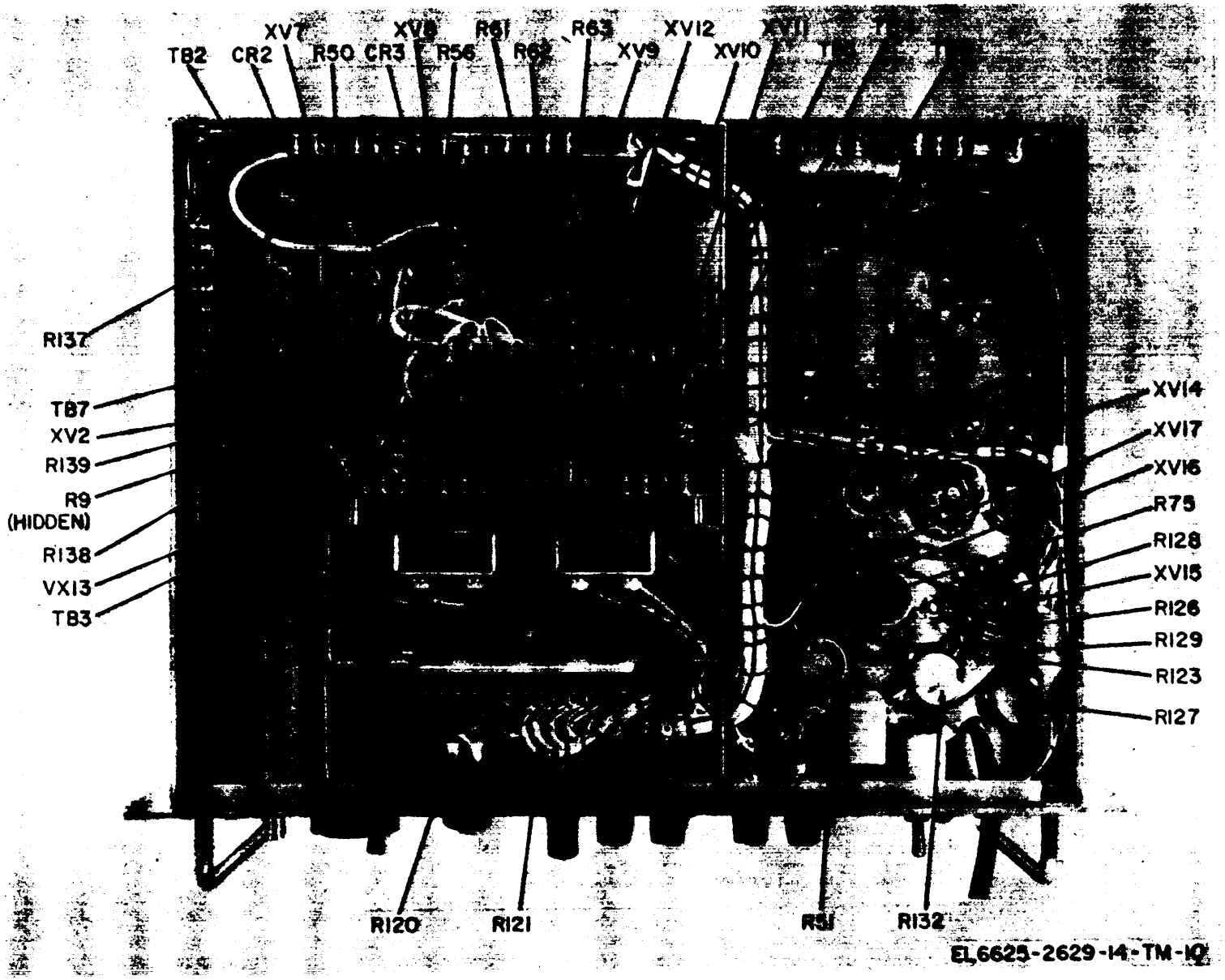


Figure 7-2. Modulation meter chassis, resistor location, bottom view.

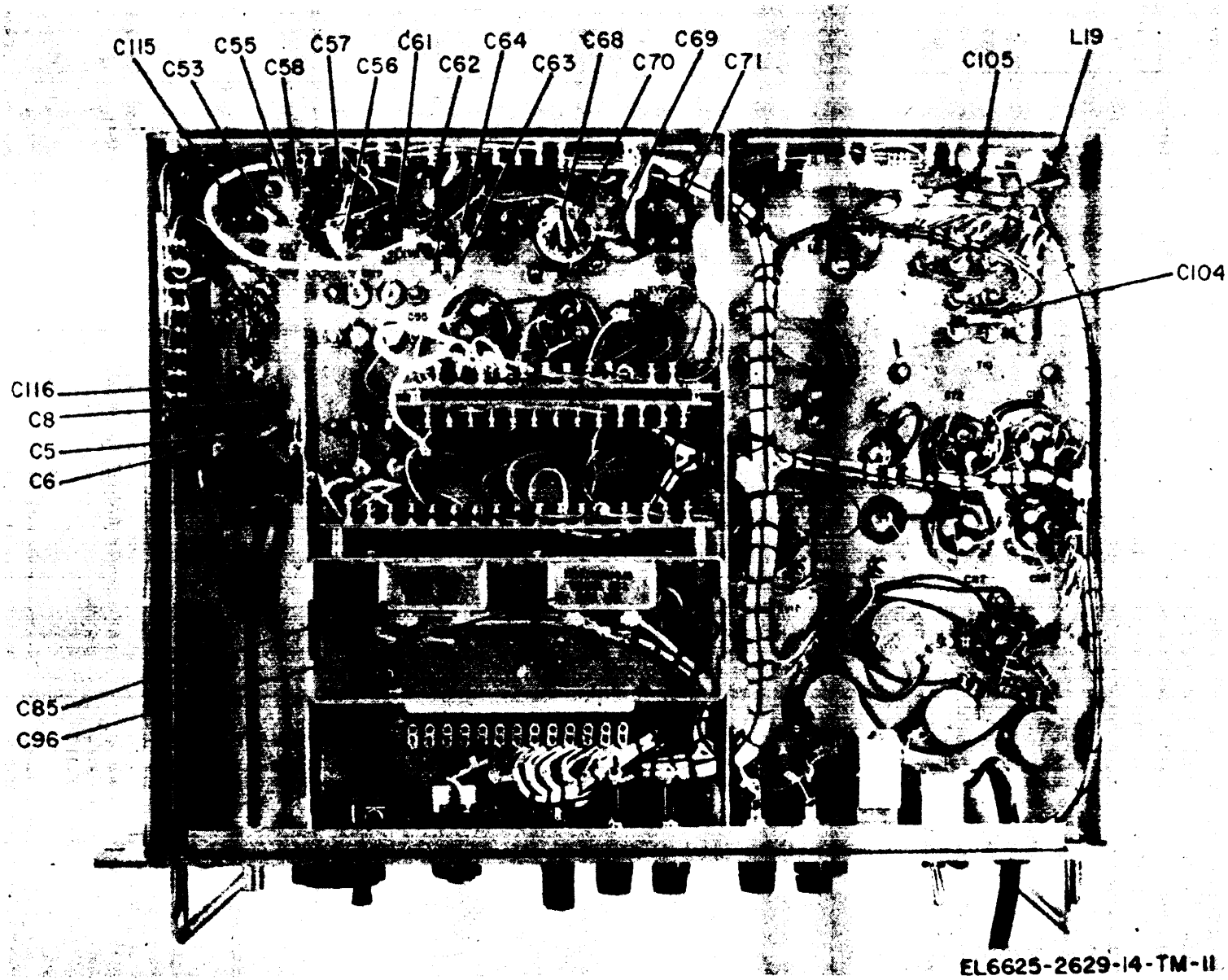


Figure 7-3. Modulation meter chassis, inductor and capacitor location, bottom view.

7-8. Test Setup

a. The modulation meter measures deviation of a frequency-modulated carrier. Some faults with the modulation meter can be determined by using an unmodulated carrier input. The use of an unmodulated carrier. can help determine faults in the local oscillator, if, limiter, and discriminator circuits. A modulated carrier is required to completely check the discriminator and the audio circuits.

b. Connect the output of the fm signal generator to the input connector of the modulation meter (fig. 7-13). Connect the vacuum-tube voltmeter to the audio output of the modulation meter. Use a shielded lead.

7-9. Localizing Trouble

a. General. The procedures in the troubleshooting chart are presented in sequence so that the user can trace the fault to the particular stage. When trouble has been traced to a stage, a tube check or voltage and resistance measurements should disclose the defective component part,

b. Use of Chart. The troubleshooting chart is designed to supplement the organizational troubleshooting chart (table 4-3). If no operational symptoms are known, perform the functional testing (para 4-12),

CAUTION

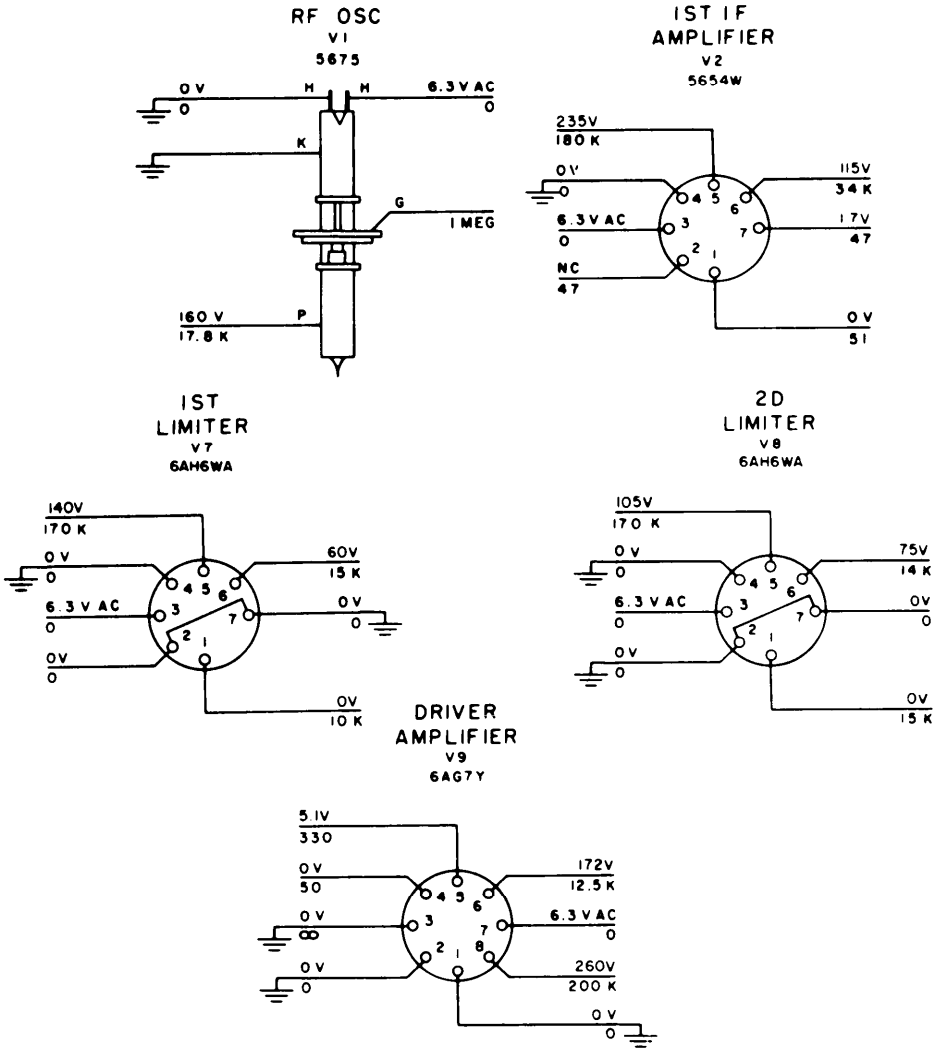
If operational symptoms are not known, or if they indicate the possibility of short circuits, check for shorts as described in paragraph 7-7.

Table 7-.3. *General Support Troubleshooting Chart*

Symptom	Probable trouble	Correction
1. Power indicator lamp DS1 does not light, no filament or B+ voltage.	No ac power is applied to the power transformer.	Check ac source. Check power cord.
	Defective POWER switch S1.	Replace switch S1.
	Open fuse F1 or F2 in power supply.	Replace fuse. If replaced fuse blows, check size of both fuses (2 amp, 250V, type 3AG for 115. volt operation and 1 amp, 250V, type 3AG for 230-volt operation). Check capacitors C101 and C102 for short circuit.
2. Power indicator lamp DS1 does not light. Modulation meter is operative.	Defective lamp DS1 or defective lamp socket.	Replace lamp DS1. Replace socket.
3. With unmodulated carrier input, LIMITING meter Ml does not read at any position of the FREQUENCY RANGE-MC switch or TUNING control.	Defective mixer diode CR1.	Replace CR1.
	Defective local oscillator tube V1.	Replace V1 (para 7-26c).
	Defective if amplifier stage V2.	Check tube and voltages and resistances (fig. 7-4).
	Defective integrated circuit V1 (assy MP-14603),	Check voltages and resistances (fig. 7-4).
	Defective limiter stage V7.	Check tube. Check voltages and resistances.
	A defective component in the limiting indicator circuitry.	Check Ml and R51.
4. With unmodulated carrier input, LIMITING meter Ml reads at frequency other than that of incoming signal. FREQUENCY RANGE-MC switch setting is correct, Note: Be sure that the frequency at which the LIMITING meter is indicating is not an image.	Dial slipped on tuning shaft.	Set dial to proper reading; tighten setscrews (fig. FO-4).
5. With unmodulated carrier input, LIMITING meter Ml reads at frequency not within the correct FREQUENCY RANGE-MC setting.	Rotor in oscillator is not aligned with FREQUENCY RANGE-MC switch setting.	Set rotor to correct band; align shafts and knob (fig. FO-4).
6. With unmodulated carrier input, CARRIER SHIFT meter M2 does not respond as TUNING control is varied.	Defective limiter tube V7.	Replace V7.
	Defective stage V8 or V9.	Replace defective tube. Check voltages and resistances (fig. 7-4 and 7-5).

Table 7-3. General Support Troubleshooting Chart -Continued

Symptom	Probable trouble	Correction
	Defective components within T9.	Check and replace any defective part in T9.
	Faulty contacts on switch S4.	Replace switch S4 (para 7-21).
	Defective meter M2 or associated circuitry.	Replace defective components.
7. With unmodulated input, DEVIATION meter M3 reads some amount of deviation.	Unstable local oscillator caused by defective component in local oscillator circuit.	Check and replace any defective component in the local oscillator circuit.
8. Frequency-modulated signal applied to input. LIMITING and CARRIER SHIFT meters read correctly . DEVIATION meter does not read. No audio output at AUDIO OUTPUT terminals.	Defective tube V10, V11, V12, or V13.	Replace defective tube.
	Defective component in audio amplifier circuitry.	Replace defective component.
	Faulty contacts in switch S4.	Replace switch S4 (pars 7-21).
9. With modulated carrier, DEVIATION meter readings are present; no audio output.	Defective tube V13.	Replace V 13.
	Defective component in V13B circuit.	Measure voltages and resistances (fig. 7-4 and 7-5).
		Replace defective component.
10. With modulated carrier, no DEVIATION meter readings are present; voltages are at AUDIO.	Defective tube V13.	Replace.V 13.
	Defective meter M3.	Replace meter M3.
	Defective components in V13A circuit.	Measure voltage and resistance (fig, 7-4 and 7-5).
11. CARRIER SHIFT and DEVIATION meter readings are normal. No limiting indication on LIMITING meter. Adjustment of R51 has no effect.	Defective meter M1.	Replace meter M1.
	Shorted potentiometer R51.	Replace R51.
	Shorted capacitor C54.	Replace C54.
12. CARRIER SHIFT and DEVIATION meter readings are normal. LIMITING meter needle is pegged at top of scale.	Improper adjustment of R51 (LIMITING ADJ).	Adjust R51 ADJ.
	Open potentiometer R51.	Replace R51.
13. With modulated signal input, LIMITING and DEVIATION meter readings are correct; CARRIER SHIFT meter does not read as TUNING control is varied.'	Resistor R73 or R74 open.	Replace R73 or R74.
	Capacitor C82 or C83 shorted.	Replace C83 or C84.
	Defective meter M2.	Replace meter M2.
	Defective switch S4.	Replace switch S4.
14. With modulated signal input, all meters do not read.	Defective power supply.	Warning: The 5651 WA tube contains radioactive material. Handle carefully to avoid breaking. Check all power supply components.
	Defective mixer diode CR1.	Replace CR1.
	Defective oscillator stage V1.	Check all components in the local oscillator.
	Defective if amplifier stage V2.	Check tube and voltage and resistance readings (fig. 7-4 and 7-5).
	Defective integrated circuit V1 (assy MP-14663).	Check voltages and resistances (fig. 7-5) .

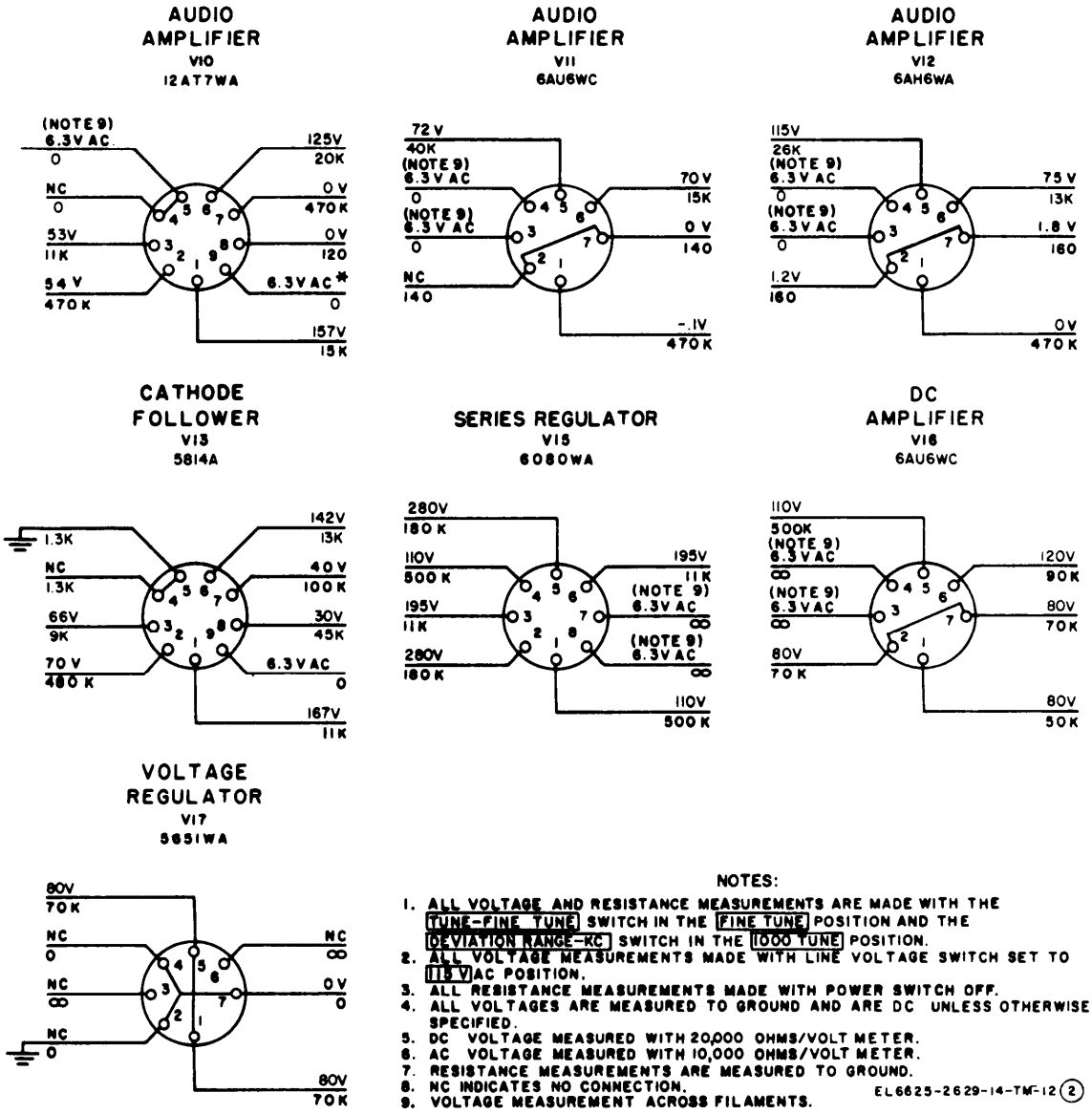


NOTES:

1. ALL VOLTAGE AND RESISTANCE MEASUREMENTS MADE WITH THE [TUNE-FINE TUNE] SWITCH IN THE [TUNE] POSITION AND THE [DEVIATION RANGE-KC] SWITCH IN THE [1000 TUNE] POSITION.
2. ALL VOLTAGE MEASUREMENTS MADE WITH LINE VOLTAGE SWITCH SET TO [115 V] AC POSITION.
3. ALL RESISTANCE MEASUREMENTS MADE WITH POWER SWITCH OFF.
4. ALL VOLTAGES ARE MEASURED TO GROUND AND ARE DC UNLESS OTHERWISE SPECIFIED.
5. DC VOLTAGE MEASURED WITH 20,000 OHMS/VOLT METER.
6. AC VOLTAGE MEASURED WITH 10,000 OHMS/VOLT METER.
7. RESISTANCE MEASUREMENTS ARE MEASURED TO GROUND
8. NC INDICATES NO CONNECTION

EL6625-2629-14-TM-12 (1)

Figure 7-4. Tube socket voltage and resistance diagram (part 1 of 2).

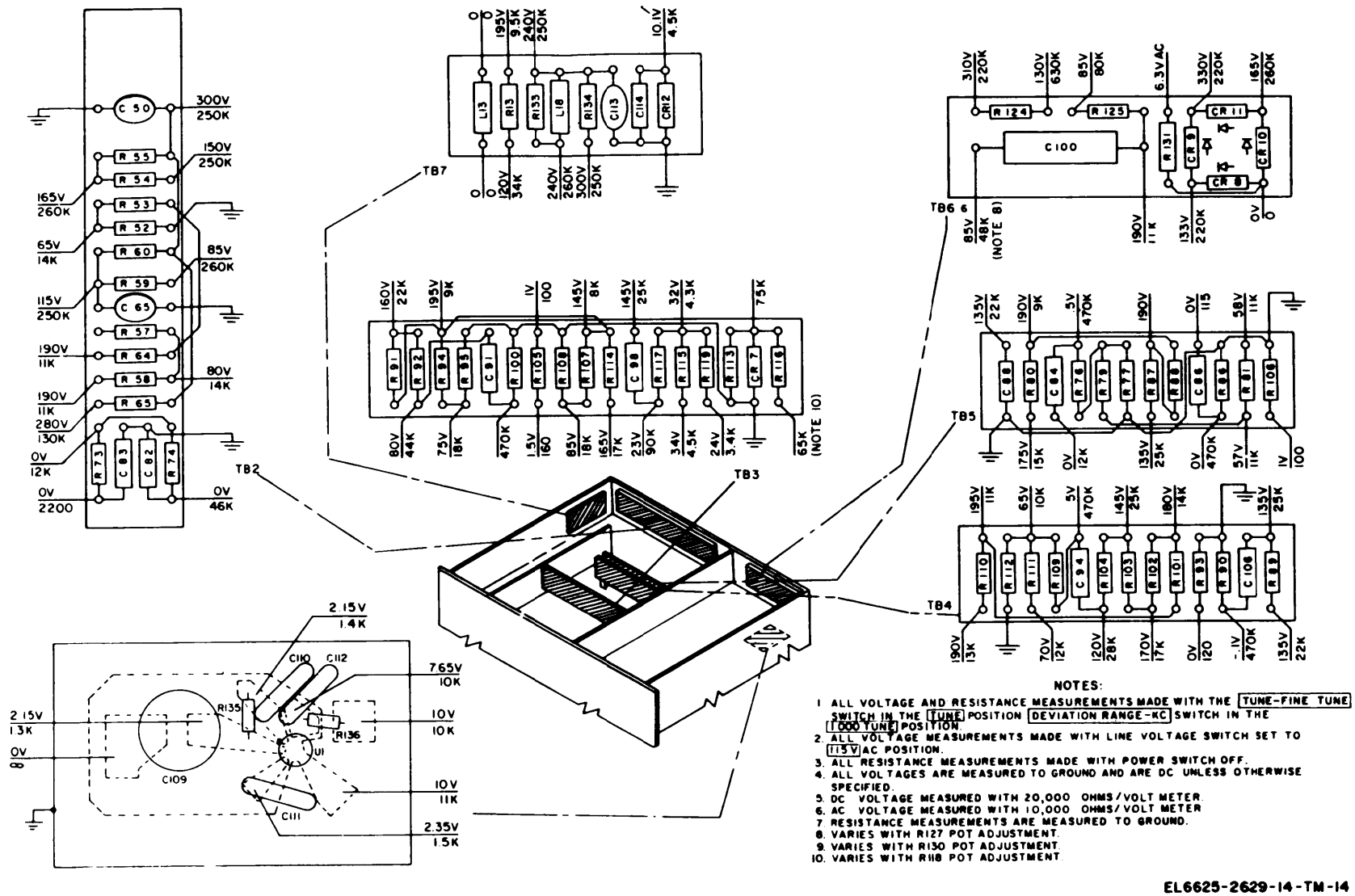


NOTES:

1. ALL VOLTAGE AND RESISTANCE MEASUREMENTS ARE MADE WITH THE TUNE-FINE TUNE SWITCH IN THE FINE TUNE POSITION AND THE DEVIATION RANGE-KC SWITCH IN THE 1000 TUNE POSITION.
2. ALL VOLTAGE MEASUREMENTS MADE WITH LINE VOLTAGE SWITCH SET TO 115 V AC POSITION.
3. ALL RESISTANCE MEASUREMENTS MADE WITH POWER SWITCH OFF.
4. ALL VOLTAGES ARE MEASURED TO GROUND AND ARE DC UNLESS OTHERWISE SPECIFIED.
5. DC VOLTAGE MEASURED WITH 20,000 OHMS/VOLT METER.
6. AC VOLTAGE MEASURED WITH 10,000 OHMS/VOLT METER.
7. RESISTANCE MEASUREMENTS ARE MEASURED TO GROUND.
8. NC INDICATES NO CONNECTION.
9. VOLTAGE MEASUREMENT ACROSS FILAMENTS.

EL6625-2629-14-TM-12 (2)

Figure 7-4 (2). Tube socket voltage and resistance diagram (part 2 of 2).



NOTES:

1. ALL VOLTAGE AND RESISTANCE MEASUREMENTS MADE WITH THE [TUNE-FINE TUNE] SWITCH IN THE [TUNE] POSITION [DEVIATION RANGE-KC] SWITCH IN THE [1000 TUNE] POSITION.
2. ALL VOLTAGE MEASUREMENTS MADE WITH LINE VOLTAGE SWITCH SET TO [115V] AC POSITION.
3. ALL RESISTANCE MEASUREMENTS MADE WITH POWER SWITCH OFF.
4. ALL VOLTAGES ARE MEASURED TO GROUND AND ARE DC UNLESS OTHERWISE SPECIFIED.
5. DC VOLTAGE MEASURED WITH 20,000 OHMS/VOLT METER.
6. AC VOLTAGE MEASURED WITH 10,000 OHMS/VOLT METER
7. RESISTANCE MEASUREMENTS ARE MEASURED TO GROUND.
8. VARIES WITH R127 POT ADJUSTMENT.
9. VARIES WITH R130 POT ADJUSTMENT.
10. VARIES WITH R118 POT ADJUSTMENT.

Figure 7-5. Terminal board voltage and resistance diagram.

7-10. Signal Substitution

a. General Signal substitution procedures help to localize troubles to a section or stage in the modulation meter. An externally generated signal is substituted for the signal normally present in each stage. The test equipment required is listed in table 7-1. In the following tests, ground one side of the external generator to the modulation meter chassis and the other side to the point indicated in the test procedures below.

b. Oscillator Substitution. If the oscillator is suspected of malfunctioning or nonoperation, the am generator maybe used to apply an if signal to the if amplifier strip. Proceed as follows:

(1) Disconnected the rf cable at the if input mixer connection (fig. 7-1).

(2) Connect the am generator output to this cable. (Be sure that the modulation selector switch is in. the OFF position.)

(3) Tune the am generator to 12 MHz and increase the output until the LIMITING meter indicates in the black area.

(4) Check the indication on the CARRIER SHIFT meter. It should read nearly zero with TUNE-FINE TUNE switch in FINE TUNE position. If it does not read zero, tune the am generator until it does.

(5) If LIMITING and CARRIER SHIFT meter readings are indicated, the oscillator-probable is faulty.

(6) If the LIMITING meter reading cannot be indicated, the trouble is probably in the if amplifiers. If the if amplifiers are suspected *of* being fault y, use the test method given in c below.

c. Intermediate Frequency Amplifiers.

(1) Connect the rf output of the sweep generator to the if input of the modulation meter.

(2) Connect the sweep output of the sweep generator to the external sweep connections on the oscilloscope.

(3) Set the sweep generator frequency to 12 MHz and the sweep from 10.5 through 13.5 MHz.

(4) Use the oscilloscope to observe the bandpass of the if amplifiers. Start at pin 4 (output) of integrated circuit V1. If no bandpass is present at this point, check at the cathode of V2. Check all the components of the faulty stage.

d. Discriminator Substitution. If a modulated signal input gives an indication on the CARRIER SHIFT meter, but does not indicate deviation, the audio circuit is probably faulty. Use the audio oscillator to simulate the discriminator output,

(1) Disconnect pin 3 of the discriminator can (T9) an connect the lead to the audio oscillator output .

(2) Set the audio oscillator frequency between 50 and 70,000 Hertz (Hz)

(3) Monitor the audio oscillator level with the vtvm. Set the voltage at 0.16 volt rms.

(4) Use the oscilloscope and observe the waveform in the audio circuit.

7-11. Audio Circuit Stage Gains

Follow the procedure in paragraph 7-10 *d* to check the gain of each audio stage. The gain for each stage is shown in table 7-4.

Table 7-4. Audio Amplifier Stage Gain

Test connections	Input voltage	Output voltage	Gain
Pins 2 (grid) and 1 (plate) of V1OA	0.16	0.11	0.7
Pins 7 (grid) and 6 (plate) of V1OB	0.11	0.07	0.07
Pine 1 (grid) and 5 (plate) *of* Vll	0.07	3.6	52
Pins 1 (grid) and 5 (plate) of V12	3.6	9.7	2.7
Pins 2 (grid) and 1 (plate) of V13A	9.7	9.2	0.94
Pine 7 (grid) and 6 (phtd .of V13B	9.2	8.7	0.94

7-12. Isolating Trouble Within Stage

When trouble has been localized to a stage, either through operational checks, troubleshooting (para 7-9), or signal substitution (para 7-10), use the following techniques to isolate the defective part:

WARNING

The 6661 WA tube contains radioactive material. Handle carefully to avoid breaking.

a. Test the tube involved either in a tube tester, or by substituting a similar type tube which is known to be operating normally.

b. Take voltage measurements at the tube sockets (fig. 7-4 and 7-5) and other related points to the stage in question.

c. If voltage readings are abnormal, take resistance readings (fig. 7-4 and 7-5) to isolate open and short circuits. Refer to the dc resistances of transformers and coils (table 7-5).

d. If signals are weak and all checks fail to

indicate a defective part, check the alignment of the if and limiter stages (para 7-23 and 7-24).

e. Use the wiring diagram (fig. FO-3) to trace circuits and isolate the faulty component.

7-18. Additonal Troubleshooting Data

The items listed below will help the repairman troubleshoot the modulation meter.

a *Dc Resistances of Tranuformers anti Coils.* The dc resistances of the transformer windings in the modulation meter are Wed in table 7-5.

Toble 7-5. *Transformer and Coil Dc Resistance*

Transformer or coil	Terminals	Ohms
T10	1-2	1.5
	3-4	1.5
	5-6	14.0
L1	1-2	115
L2	1-2	170

b. Band Switching Difficulty.

(1) If the FREQUENCY RANGE-MC switch does not operate properly, the trouble may be with the detent mechanism (fig. FO-4). The detent is properly positioned when it locks into the notch on the rotor while all rotor contacts are fully engaged in the mating contacts on the tuning capacitor and output block.

(2) If the FREQUENCY RANGE-MC switch rotates freely, check the setscrews (fig. FO-4) that hold the rotor to the shaft or the dial or shutter to the shaft. They may have become loose.

Section III. MAINTENANCE, ALIGNMENT, AND CALIBRATION

7-14. General Parts Replacement Techniques

Most of the parts of the modulation meter can be reached and replaced easily without special tools or procedure. Observe the following precautions:

a. When replacing diodes CR2 through CR11, use a pair of pliers or some other device which will act as a heat sink on the wire between the soldering iron and the diode. This protects the diode from excessive heat.

b. Remove the cover to replace parts in the discriminator circuit (contained in T9, fig. 7-1). It may be necessary to remove the entire assembly from the chassis. When replacing the cover, be sure that the connections on C73 do not touch the can. These connections are at high potentials to ground.

7-15. Removal of Oscillator Unit

a *Removal.*

(1) Loosen the setscrews on the TUNING knob and pull off the knob.

(2) Remove the cross receesed screw from the FREQUENCY RANGE-MC knob and pull off the knob.

(3) Disconnect P3 from J4 by unscrewing P9. Disconnect the if cable from the mixer housing (fig. 7-l).

(4) Remove the shielde and tubee Vll, V12, and V13.

(5) Hold oscillator assembly and remove the four screws on the underside of the chaeeia that hold the omillator unit to the chassis. (fig. 7-3).

(6) Carefully lift the oscillator unit from the chassis.

b. Replacement.

(1) Place the oscillator unit on the chassis in its approximate location.

(2) Use the four screws removed in a (6) above to l hold the oscillator unit to the chassis (fig. 7-3).

(3) Replace tubes Vll, V12, and V18 and their shields.

(4) Reconnect P3 to J4. Connect the if cable to the mixer housing (fig. 7-l).

(5) Place the FREQUENCY RANGE-MC knob on the rotor shaft and replace the cross recessed screw. Be sure that the pointer is in the correct position.

(6) Place the TUNING knob on the tuning shaft and tighten the setscrews.

7-16. Disassembly and Reassembly of Local Oscillator

(fig. FO-4)

To replace any part of the oscillator remove the oscillator unit from the chassis (para 7-15).

a. *Disassembly.*

NOTE

Disamemble the oscillator unit only as far as needed to replace a worn or broken component.

(1) Rotate the rotor (23) to a position between two bands, to disengage the contacts attached to the tubeholder assembly (17) and capacitor contact assembly (28). This will prevent damaging them.

hub (2) Loosen the setscrews (24) in the rotor

(3) Remove the retaining ring (10) from the groove in the rotor shaft (9).

(4) Release the tension on the detent arm (5) by loosening the screw (3) that holds it to the detent bracket (4).

(5) Hold the rotor (23) and pull the rotor shaft (9) out.

(6) Remove the rotor (23).

(7) Remove tube Vl (para 7-20).

(8) Remove resistors R7 (60) and R8 (61) from the grid and plate contacts of V1.

(9) Loosen the two setscrews (38) that "hold the tuning capacitor (31) shaft to the coupling (39). Pull out the coupling (39) until it is flush with the inside of the housing (l).

(10) Remove the screws (3), lockwashers (6), and hexagonal nuts (7) that hold the tuning capacitor (31) to the mounting bracket (30).

(11) Remove the tuning capacitor (31) and the plateholder assembly (17), capacitor contact assembly (28), and the rotor contacts.

b. Reassembly.

(1) Mount the plateholder assembly(17) and capacitor contact assembly (28) on the tuning capacitor (31).

(2) Replace the tuning capacitor (31) on the mounting bracket (30); use the screws (3), lock-washers (6), and hexagonal nuts (7).

(3) Place the coupling (39) over the tuning capacitor shaft.

(4) Tighten the setscrews (38) on the shaft.

(5) Tighten the screws that hold the tuning capacitor (31) to the bracket (30). Be sure that the shaft rotates freely.

(6) Replace resistors R7 (60) and R8 (61) to the capacitor contact assembly (28) an plateholder assembly (17) contacts.

(7) Replace V1.

(8) Replace the rotor shaft (9) in its original position.

(9) Push the rotor shaft (9) into position.

(10) Tighten the detent arm (5) by tightening the screw (3) attached to the detent bracket (4).

(11) Replace the retaining ring (10) in the groove in the rotor shaft (9).

(12) With the rotor in position, tighten the setscrew (24) on the rotor hub.

c. *Replacement of Electron Tube* VI (fig. 7-6).

(1) Remove 8 screws with lockwashers holding the lid, then remove the lid that covers the tube enclosure.

(2) Remove the two machine screws that hold the tube socket bracket assembly.

(3) Lift off the tube socket bracket assembly.

(4) Remove the two remaining screw.

(5) Lift off the housing, the holder, and the cover.

(6) Pull the tube straight up to remove it from the plate contact.

(7) Insert new tube into the plate contact.

(8) Be sure that the grid makes contact with the grid contact mounting of the tuning capacitor.

(9) Replace the cover, holder, and housing.

(10) Replace the two screws that do not hold the bracket.

(11) place the bracket assembly over the tube pins.

(12) Replace the two screws that hold the bracket.

(13) Check the continuity of filament circuit.

(14) position the lid and secure it in place with 8 screws and lockwashers.

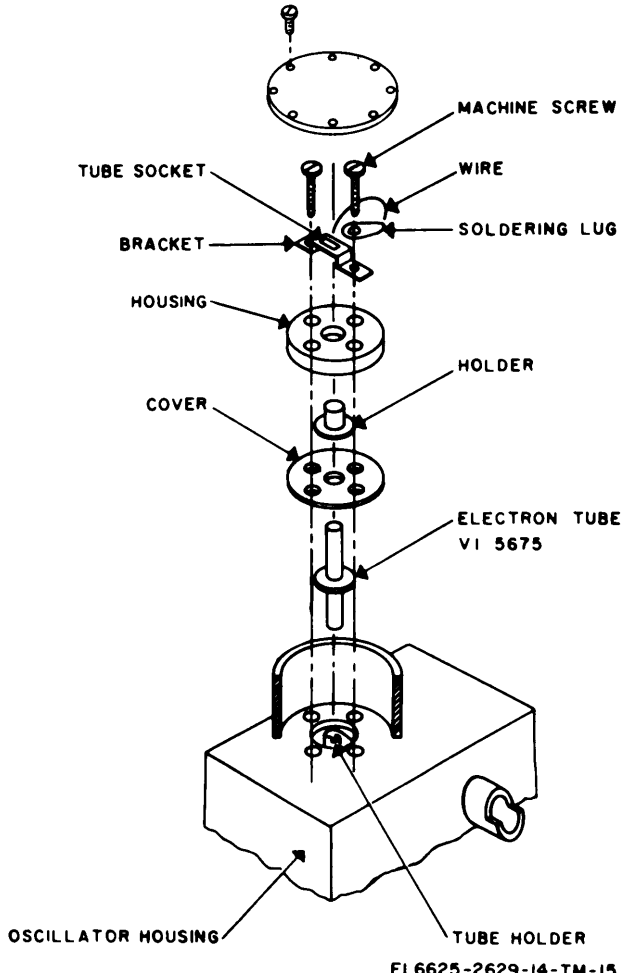


Figure 7-6. Disassembly diagram for replacement of tube V1.

7-17. Replacement of Semiconductor Diode CR1

CAUTION

DO NOT hold CR1 by both ends at the same time. Static dischargee can break down the elements of this diode. When removing or inserting CR1, hold one finger on the crystal-holder.

a. Disconnect the cable at the mixer housing connector P1 (fig. 7-7).

b. Unscrew the connector housing J2 by turning it counterclockwise.

c. Pull the semiconductor out of its retainer and replace it with a new one.

cf. Screw the connector assembly onto the mixer until it is snug. DO NOT use any tools to tighten the assembly to the mixer.

c. Connect the cable.

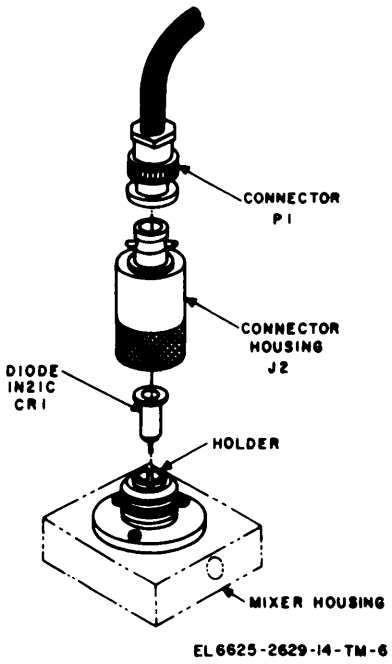


Figure 7-7. Replacement of diode CR1.

7-18. Replacement of Connector Housing

a. Disconnect the cable at the mixer housing connector P1 (fig. 7-7).

b. Unscrew the connector housing J2 by turning it counterclockwise.

c. Screw the new housing J2 in place by turning it clockwise.

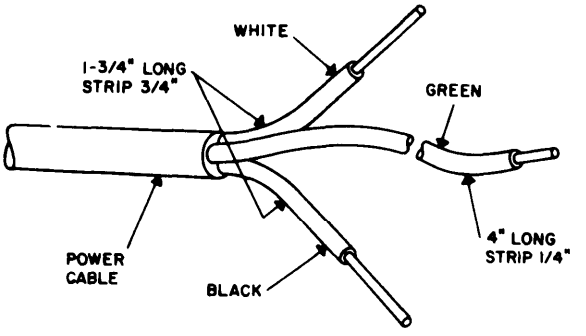
d. Reconnect the cable to the new housing.

7-19. Replacement of Power Plug UP131M

a. Remove the old plug UP131 M from the power cord by taking out the the screws as shown (fig. 7-8).

b. Prepare the cord as shown. Crimp the spade lug to green lead.

c. Fasten the connectors to the plug. Be sure that the green lead is the ground connection.



A. PREPARATION OF POWER CABLE

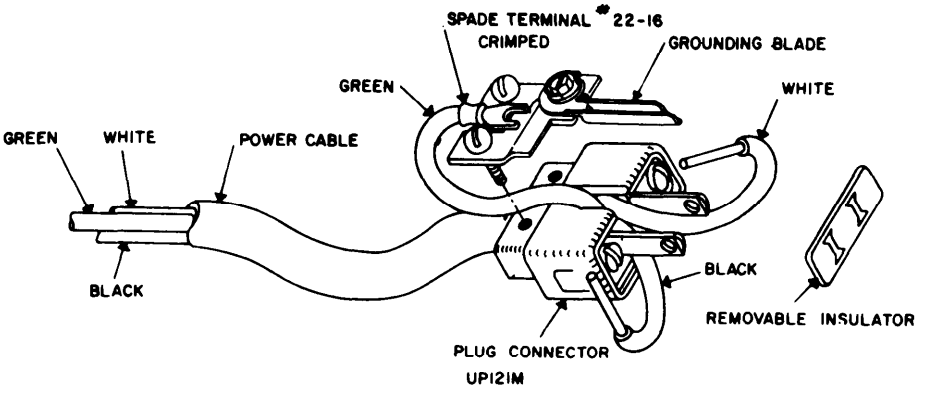


Figure 7-8. Replacement of power plug UP131M,

7-20. Equipment Adjustments

If repairs or replacements have been made within the oscillator unit, it may be necessary to adjust the shutter or dial on its shaft. Make the adjustments as follows:

a. Shutter Assembly (fig. FO-4).

(1) Rotate the rotor (23) to the position that will put the 20- to 55-MHz coil on the rotor (23) in contact with the tuning capacitor (31).

(2) Loosen the setscrews (33) on the drive sprocket (47).

(3) Rotate the drive sprocket (47) on the shaft (46) until the shutter assembly (45) is in the position for the 20-55 MHz band.

(4) Tighten the setscrew (33) that holds the drive sprocket (47) to the shaft (46).

b. Tuning Drive Mechanism (fig. FO-4). If the drive mechanism for the tuning capacitor has been disassembled, it may be neceasary to adjust the gears for optimum mesh. Make this adjustment as follows:

(1) Loosen the screws that hold the bracket to the front panel so that the bracket may be positioned. The holes are oversize.

(2) Move the bracket so that the intermediate gear meshes with the dial gear.

(3) Hold the bracket in the desired location and tighten the screws. Use a small clamp to hold the bracket.

7-21. Replacement of Components on Modulation Meter Chassis

a *Switches.*

(1) Remove the hexagonal nut that holds the switch to the front panel.

(2) Remove the wires from the switch contacts. Tag each wire as it is removed so that it can be rewired to the same contact on the new switch.

(3) Connect and solder the wires to the new switch.

(4) Replace the switch on the front panel and secure it with the hexagonal nut.

b. Potentionmeters.

(1) *remove* the hexagonal nut that holds the potentiometer to the chassis.

(2) Remove the wires from the potentiometer. Tag each wire as it is removed so that it can be rewired to the same contact on the new potentiometer.

(3) Connect and solder the wires to the new potentiometer.

(4) Replace the potentiometer on the chassis and secure it with the hexagonal nut.

c. *Tranaformer T10.*

(1) Remove all wires from the lugs on the bottom of the transformer. Tag each wire with the lug number as it is removed.

(2) Remove the four nuts that hold the transformer to the chassis and remove the transformer.

(3) Place the new transformer on the chassis in the same position as the old transformer and secure it with the four nuts.

(4) Replace all the wires on the lugs; note their correct location. Solder all the wires to the lugs.

d. Capacitors C72, C87, C92, C95, C101, and C109.

(1) Unsolder wires from all terminal lugs of the capacitor to be replaced. Tag each wire to assure replacing the lead in the same location.

(2) Note the position of the ground lug by marking the chassis with a pencil opposite the white lug.

(3) Unscrew the nut from the bottom of the capacitor and remove it with its lockwasher. Remove the old capacitor.

(4) Place the new capacitor into its hold with the white lug opposite the mark made in (2) above. Tighten the nut with the lockwasher under it so that the capacitor is snug and will not move.

(5) Connect and solder the leads removed in (1) above.

7-22. Oscillator Calibration

NOTE

Perform this alignment only after the discriminator is aligned (para 7-25).

a. Set the FREQUENCY RANGE-MC switch to 20-50.

b. Loosen the setscrew that holds the dial (32, fig. FO-4) to the shaft.

c. Connect the output of the am generator to the rf input of the modulation meter.

d. Connect the mixer if output (fig. 7-12) to the frequency meter. Use the T-Connector (UG-107 B/U).

e. Set the am generator for an output level of 5,000 u-volts at 35 MHz without modulation.

f. Set the counter to measure a frequency of 47 MHz on channel A.

g. Turn on the equipment and let it warm up for a few minutes.

h. Adjust the am generator redline reading on the OUTPUT meter.

i. Turn the TUNING control on the modulation meter until the LIMITING meter indicates in the LIMITING portion of the scale.

j. Turn the TUNING control until the CARRIER SHIFT meter reads O. Switch the TUNE-FINE TUNE switch to FINE TUNE and continue to tune for O indication on the CARRIER SHIFT meter.

k. The counter should read between 1,998,800 and 2,001,200.

l. Set the tuning dial to 35 MHz and tighten the setscrew.

7-23. If. Amplifier Alignment

Whenever repairs are made to circuitry involving V2 or V1, the alignment of the if. amplifiers should be checked. The response curve should resemble that shown in figure 7-9. If the response curve is not the proper configuration, the if amplifier will need alignment. Check and align the if amplifier as follows:

a. Disconnect the if cable from the mixer housing (fig. 7-l).

b. Connect the sweep generator output to the if cable.

c. Set the sweep generator to center frequency of 12 MHz and sweep 6 MHz.

d. Connect the sweep voltage output of the sweep generator to the horizontal input terminal of the oscilloscope.

e. Connect a shielded cable, with a 10,000-ohm resistor m series, to the vertical input of the oscilloscope. Connect a 0.01 uf capacitor across

the vertical input terminals of the oscilloscope. Connect the other end *of* the cable to pin 6 of V7 and to ground.

f. Adjust the oscilloscope controls to obtain a presentation of the response curve.

g. Loosely couple a marker of 12 MHz into pin 7 of V2. "Use the low frequency generator to generate the 12-MHz marker. This marker should appear approximately at the center of the response curve.

h. Adjust the markers to the 3-decibel (dB) points on the response curve. These points should be at approximately 10.5 and 13.5 MHz.

i. If the response curve does not resemble closely that shown in figure 7-9, adjust the trimmers of T6, C109, and T1 in that order. Repeat as required.

j. Disconnect the test equipment.

k. Reconnect the if cable to the mixer housing.

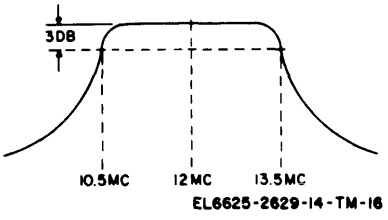


Figure 7-9. If amplifier response curve.

7-24. Limiter Alignment

U. Repeat the procedure given in paragraph 7-23 *a* through *d.*

6. Connect the shielded cable (para 7-23) from pin 5 of V9 to the vertical input of the oscilloscope.

c. Adjust the oscilloscope controls to obtain a response curve presentation. Increase the output level of the sweep generator until limiting occurs as indicated by a sudden widening of the response curve.

d. Loosely couple a marker of 12 MHz into V9. It should appear approximately at the center of the response curve. Check the location of the markers at 10, 12, and 14 MHz. The response curve should be flat within 1 dB over this band.

e. If the response does not resemble closely that shown in figure 7-10, adjust trimmers of T7 first, and work toward the integrated circuit, U1.

f. Disconnect the test equipment.

g. Reconnect the if cable to the mixer housing.

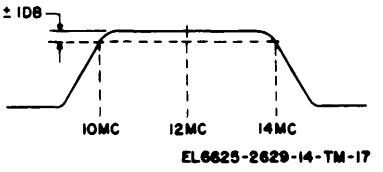


Figure 7-10. Limiter response curve.

7-25. Discriminator Alignment

a. Repeat the procedures given in paragraph 7-23 *a* through *d.*

b. Connect a shielded cable from the junction of R73 and R74 to the vertical input terminals of the oscilloscope. Use a 10,000-ohm resistor in series; NO NOT use the bypass capacitor to ground.

c. Adjust the signal level until limiting occurs as indicated by a. rapid decrease of noise level on the oscilloscope.

d. Adjust the oscilloscope controls to obtain a response curve that covers about two-thirds of the screen.

e. Loosely couple a marker to the probe and check the location of the 10-, 12-, and 14-MHz markers. These points should be as shown in figure 7-11.

f. If the discriminator is out *of* alignment, adjust C73 for proper center frequency. Adjust C77 for proper peak separation.

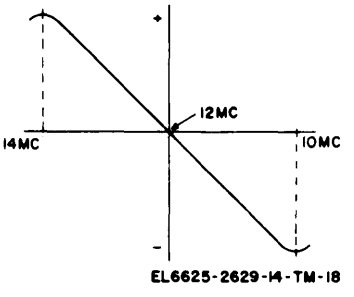


Figure 7-11. Discriminator response curve.

7-26. Deviation Meter Calibration

To determine the accuracy of the DEVIATION meter calibration, calibrate the output of the fm signal generator by using the panoramic indicator.

a. Connect the equipment as shown in figure 7-13.

b. Adjust the controls of the panoramic indicator as follows:

CENTER FREQ: On vertical marker.

SWEEP WIDTH: Maximum clockwise position.

RESOLUTION: Maximum clockwise position.

INTENSIFIER: Maximum counterclockwise position.

SCALE SELECTOR: LIN.

GAIN: Midrange

SWEEP SELECTOR RATE: 30

VIDEO FILTER: OUT

c. Adjust the controls of the am signal generator as follows:

Frequency: 95 MHz

Modulation selector: OFF

d. Adjust the controls of the audio oscillator as follows:

RANGE: X100

ATTENUATOR (OUTPUT MULTIPLIER): 1

e. Adjust the controls of the fm signal generator as follows:

FREQ. RANGE-MC: l(K) -200.

DEV MULT: X5

MODULATION: OFF.

Frequency: 100 MHz

f. Adjust the controls of the modulation meter as follows:

deyiation range-KC: 1000 TUNE.

TUNE-FINE TUNE: TUNE.

FREQUENCY RANGE-MC: 55-120.

DEVIATION RANGE-KC: 50.

g. Turn the equipment on and let it warm up for 30 minutes.

h. Adjust the FOCUS, BRILLIANCE, and HORIZONTAL POSITION controls of the panoramic indicator to obtain the proper presentation on the scope.

i. Adjust the OUTPUT LEVEL control of the audio oscillator to obtain a 1-volt output.

j. Set the MODULATION switch of the fm signal generator to EXT and increase the DEVIATION control to obtain the first null indication on the panoramic indicator. If the proper presentation cannot be obtained, adjust the output levels of the two signal generators.

k. Disconnect the output cable of the am signal generator from the panoramic indicator.

1. Turn the MODULATION control *of* the fm signal generator to OFF. Adjust the TUNING control of the modulation meter to 100 MHz as indicated by a O reading on the CARRIER SHIFT meter. If the LIMITING meter is not reading in the black area, increase the output of the fm signal generator to obtain a reading in the black area. Turn the TUNE-FINE TUNE switch to FINE TUNE and adjust the TUNING control for 0 indication on the CARRIER SHIFT meter.

m. Turn the MODULATION control of the fm signal generator to EXT. The DEVIATION' meter should read 40 kHz ± 2. If it does not read correctly, adjust the CAL ADJ control until it does.

Section IV. GENERAL SUPPORT TESTING PROCEDURES

7-27. General Testing Procedures

a. Purpose. The testing procedure are prepared for use by Electronic Field Maintenance Shops and Electronic Service Organizations reaponsible for general support maintenance of electronic equipment to determine the acceptability of repaired equipment. These procedures set forth specific requirements that repaired equipment must meet before it is returned to the using organization. A summary of performance standards is given in paragraph 7-28.

b. Preliminary Instructions. Follow 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 actions required in the Control settings column; then perform each specific teat procedure, and verify it against its performance standards.

7-28. Physical Tests and Inspection

a. Test Equipment. None required.

b. Test Connections and Conditions

(1) No connections are necessary.

(2) Remove modulation meter from its case

c. Procedure.

Step No.	Control Settings		Test Procedure	Performance Standard
	Test Equipment	Equipment Under Test		
1	N/A	Controls may be in any position.	*a.* Inspect case and chassis for damage, missing parts, and condition of paint. Note. Touchup painting is recommended in lieu of refinishing whenever practicable; screwheads, binding posts, 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 do not show bare metal. Panel lettering is legible.
			b. Inspect all controls and mechanical assemblies for loose and missing screws, bolts, and nuts.	*b.* Screws, nuts, bolts are tight and none missing.
			c. Inspect all connectors, sockets, receptacles, and fuseholders for looseness, damage, or missing parts.	*c.* No looseness or damage evident.
2	N/A	Controls may be in any position.	*a.* Rotate all panel controls throughout their limits of travel.	*a.* Controls rotate freely without binding or excessive looseness.
			b. Operate all switches.	*b.* Switches operate properly.

7-29. Frequency Range Checks

a. Test Equipment.

(1) Signal Generator AN/USM-44.

(2) Digital Readout Electronic Counter AN/USM-207.

b. Test Connections and Condition. Connect the equipment as shown in figure 7-12.

c. Frequency Range Test.

Step No.	Control Settings		Test Procedure	Performance Standard
	Test Equipment	Equipment Under Test		
1	*AN/USM-44* Range: B MOD: CW MICROVOLTS: 5,000 TUNING DIAL: 20 *AN/USM-207* POWER: TRACK FUNCTION: FREQ SENSITIVITY: Highest voltage for reliable count.	*ME-57A/U* FREQUENCY RANGE-MC: 20-55 TUNING: 20 TUNE-FINE-TUNE: TUNE DEVIATION RANGE-KC: 1000 TUNE	Allow test equipment and modulation meter to warm up for 30 minutes.	None.
2	*AN/USM-44* Same as in step No. 1.	*ME-57A/U* Same as in step No. 1.	*a.* Tune the AN/USM-44 until the CARRIER SHIFT meter on the ME-57A/U indicates 0. *b.* Check calibration of AN/USM-44 output attenuator and adjust OUTPUT LEVEL control to recalibrate if necessary.	*a.* None. *b.* AN/USM-207 indicates between 1,998,800 and 2,001,200.
3	*AN/USM-44* Same as step No. 2 except: TUNING: 35 *AN/USM-207* Same as preceding step.	*ME-57A/U* Same as step No. 2 except: TUNING: 35	Same as step No. 2.	Same as step No. 2.
4	*AN/USM-44* Same as step No. 2 except: TUNING: 50 *AN/USM-207* Same as step No. 2.	*ME-57A/U* Same as step No. 2 except: TUNING: 50	Same as step No. 2.	Same as step No. 2.
5	*AN/USM-44* Same as step No. 2 except: RANGE: C TUNING: 87.5 *AN/USM-207* Same as step No. 2.	*ME-57A/U* Same as step No. 2 except: TUNING: 87.5	Same as step No. 2.	Same as step No. 2.
6	*AN/USM-44* Same as step No. 2 except: RANGE: D TUNING: 100 *AN/USM-207* Same as step No. 2.	*ME-57A/U* Same as step No. 2 except: TUNING: 100	Same as step No. 2.	Same as step No. 2.
7	*AN/USM-44* Same as step No. 2 except: RANGE: D TUNING: 130	*ME-57A/U* Same as step No. 2 except: FREQUENCY RANGE-MC: 120-250 TUNING: 130	Same as step No. 2.	Same as step No. 2.

Step No.	Control Settings		Test Procedure	Performance Standard
	Test Equipment	Equipment Under Test		
	AN/USM-207 Same as step No. 2.			
8	*AN/USM-44* Same as step No. 2 except: RANGE: D TUNING: 185 *AN/USM-207* Same as step No. 2.	*ME-57A/U* Same as step No. 2 except: FREQUENCY RANGE-MC: 120-250 TUNING: 185	Same as step No. 2.	Same as step No. 2.
9	*AN/USM-44* Same as step No. 2 except: RANGE: E TUNING: 240 *AN/USM-207* Same as step No. 2.	*ME-57A/U* Same as step No. 2 except: FREQUENCY RANGE-MC: 120-250 TUNING: 240	Same as step No. 2.	Same as step No. 2.
10	*AN/USM-44* Same as step No. 2 except: RANGE: E TUNING: 260 *AN/USM-207* Same as step No. 2.	*ME-57A/U* Same as step No. 2 except: FREQUENCY RANGE-MC: 250-500 TUNING: 260	Same as step No. 2.	Same as step No. 2.
11	*AN/USM-44* Same as step No. 2 except: RANGE: E TUNING: 375 *AN/USM-207* Same as step No. 2.	*ME-57A/U* Same as step No. 2 except: FREQUENCY RANGE-MC: 250-500 TUNING: 260	Same as step No. 2.	Same as step No. 2.
12	*AN/USM-44* Same as step No. 2 except: RANGE: E TUNING: 225 *AN/USM-207* Same as step No. 2.	*ME-57A/U* Same as step No. 2 except: FREQUENCY RANGE-MC: 250-500 TUNING: 450	Same as step No. 2.	Same as step No. 2.
13	*AN/USM-44* Same as step No. 2 except: RANGE: E TUNING: 275 *AN/USM-207* Same as step No. 2.	*ME-57A/U* Same as step No. 2 except: FREQUENCY RANGE-MC: 500-1000 TUNING: 550	Same as step No. 2.	Same as step No. 2.

Step No.	Control Settings		Test Procedure	Performance Standard
	Test Equipment	Equipment Under Test		
14	*AN/USM-44* Same as step No. 2 except: RANGE: E TUNING: 375 *AN/USM-207* Same as step No. 2.	*ME-57A/U* Same as step No. 2 except: FREQUENCY RANGE-MC: 500-1000 TUNING: 750	Same as step No. 2.	Same as step No. 2.
15	*AN/USM-44* Same as step No. 2 except: RANGE: E TUNING: 300 *AN/USM-207* Same as step No. 2.	*ME-57A/U* Same as step No. 2 except: FREQUENCY RANGE-MC: 500-1000 TUNING: 900	Same as step No. 2.	Same as step No. 2.

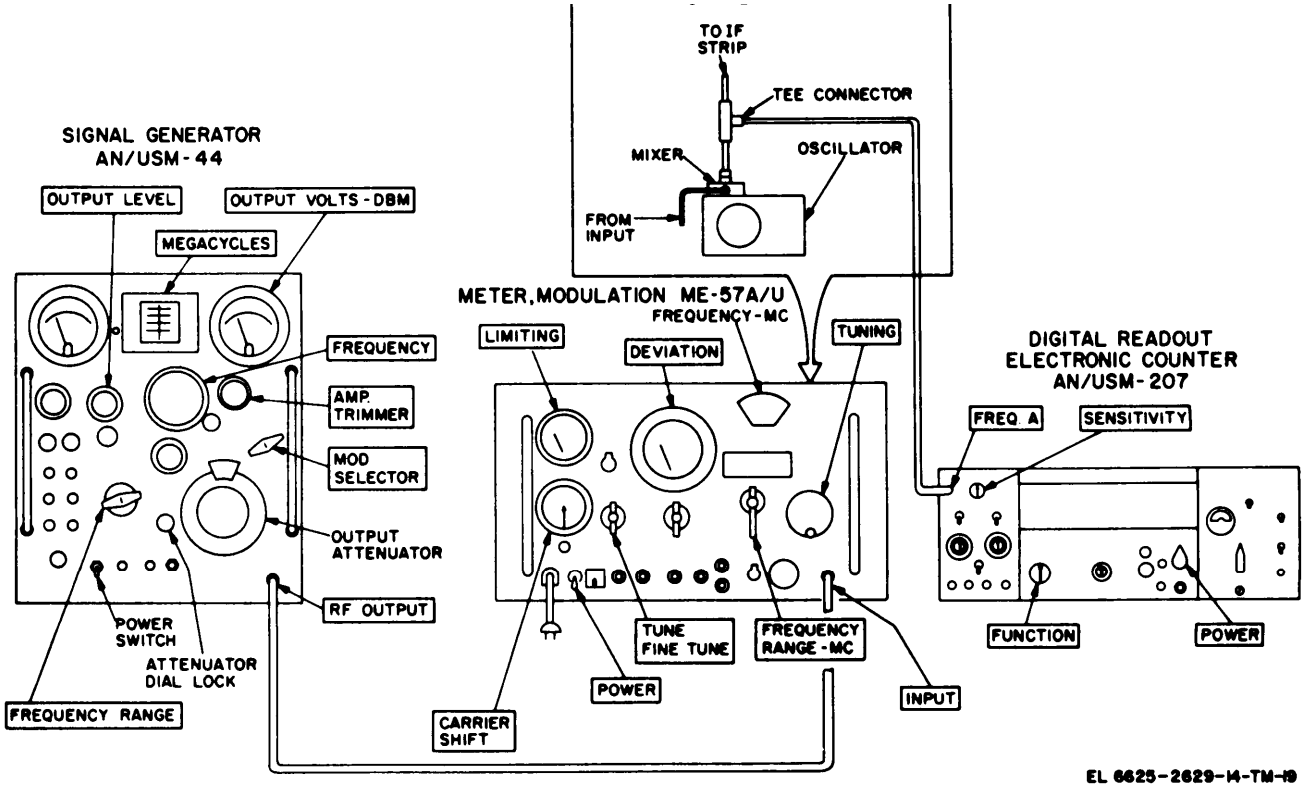


Figure 7-12. Frequency range check, test connections.

7-30 Deviation Accuracy Check

a. Test Equipment.

(1) Signal Generator AN/USM-44.
(2) Panoramic Indicator IP-173(*)/U.
(3) Audio Oscillator TS-382(*)/U
(4) Signal Generator AN/URM-70.

b. Test Connections and Conditions. Connect the equipment as shown in figure 7-13.

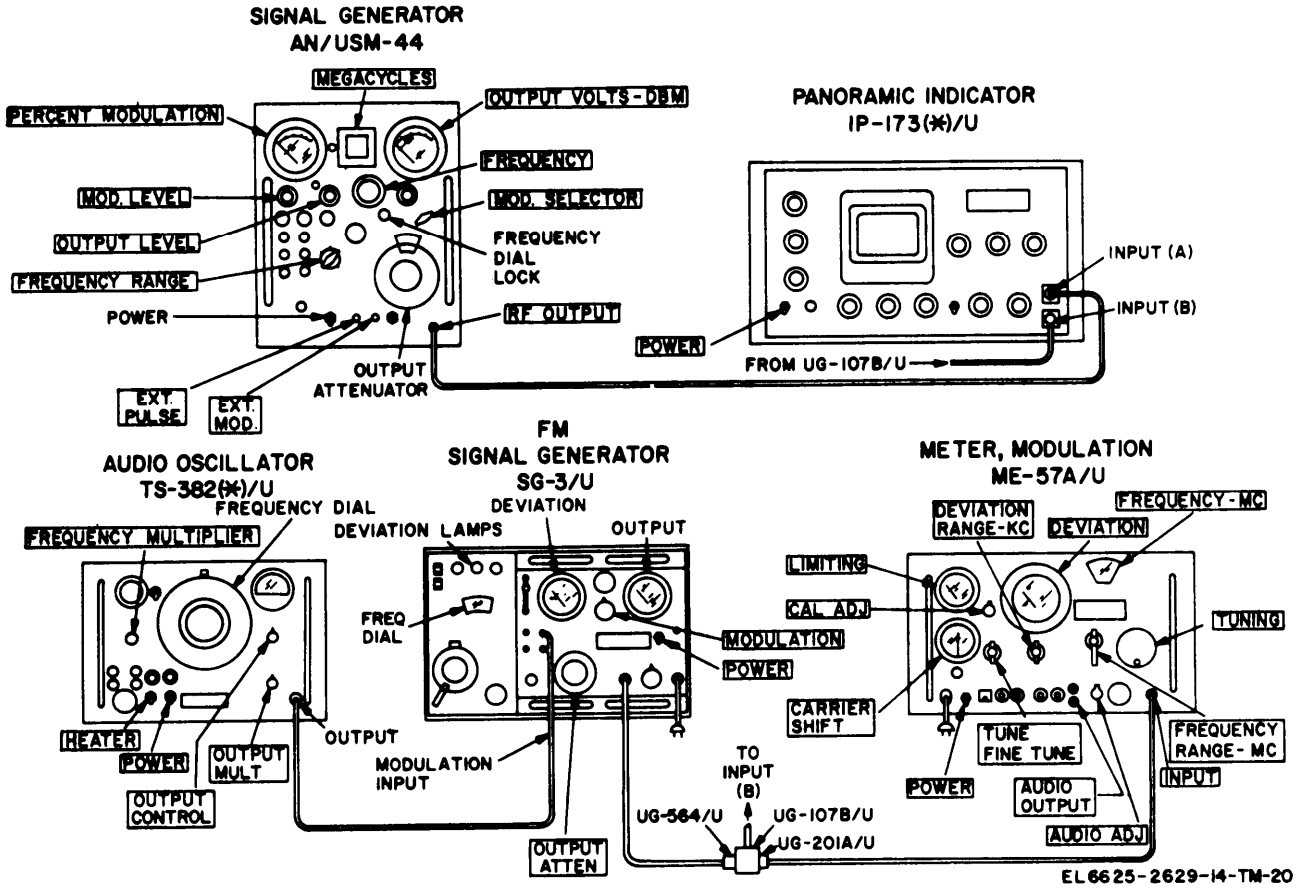


Figure 7-19. Deviation accuracy check, test connections.

c. Deviation Accuracy Test.

Step No.	Control Settings: Test Equipment	Control Settings: Equipment Under Test	Test Procedure	Performance Standard
1	*IP-173 (*)/U* CENTER FREQ: Vertical marker. SWEEP WIDTH: Maximum clockwise. RESOLUTION: Maximum clockwise. INTENSIFIER: Maximum clockwise. SCALE: LIN GAIN: Mid-range SWEEP: 30 VIDEO FILTER: OUT *AN/USM-44* RANGE: D FREQUENCY: 95 MHz MODULATION: CW *TS-382 (*)/U* RANGE: D OUTPUT MULTIPLER (ATTENUATOR): 1 TUNING DIAL: 166 *SG-3/U* FREQUENCY RANGE-MC: 100-200 DEV. MULT.: X5 FREQUENCY: 100 MHz	*ME-57A/U* DEVIATION RANGE-KC: 1000 TUNE. TUNE-FINE-TUNE: TUNE FREQUENCY RANGE-MC: 55-120	*a.* Adjust SWEEP WIDTH, RESOLUTION, FOCUS, BRILLANCE and HORIZONTAL selectors of IP-173(*)/U for properly centered and convenient presentation on the scope. *b.* Increase DEVIATION control of SG-3/U to obtain the first null indication on the scope. *c.* Disconnect output cable of the AN/USM-44 from the IP-173(*)/U. *d.* Tune ME-57A/U to 100 MC until the CARRIER SHIFT meter indicates 0. Turn TUNE-FINE-TUNE switch to FINE TUNE and readjust the TUNING control for 0 indication on CARRIER SHIFT meter. If LIMITING meter does not read in black area, increase the output of the SG-3/U until it does. *e.* Allow equipment to warm up for 30 minutes.	*a.* None. *b.* None. *c.* None. *d.* None. *e.* None.
2	*IP-173 (*)/U* Same as step No. 1. *AN/USM-44* Same as step No. 1. *TS-382 (*)/U* Same as step No. 1. *SG-3/U* Same as step No. 1 except: MODULATION: EXT	*ME-57A/U* Same as step No. 1 except: DEVIATION RANGE-KC: 50	Perform step No. 1 *a* through *d*.	DEVIATION METER indicates 40 kHz ± 2 kHz.
3	*IP-173 (*)/U* Same as step No. 1. *AN/USM-44* Same as step No. 1 except: RANGE: C FREQUENCY: 45 MHz	*ME-57A/U* Same as step No. 1 except: FREQUENCY RANGE-MC: 20-55	*a.* Connect the output cable of the AN/USM-44 to the U0-173(*)/U and perform step No. 1 *a* through *d*.	*a.* None.

Step No.	Control Settings		Test Procedure	Performance Standard
	Test Equipment	Equipment Under Test		
	TS-382 (*)/U Same as step No. 1 except: TUNING: 66 *SG-3/U* Same as step No. 1 except: FREQUENCY: 50 FREQUENCY RANGE-MC: 50-100 DEV MULT: XI MODULATION: OFF		*b.* Disconnect the output cable of the AN/USM-44 and perform step No. 1 *a* through *d.*	*b.* None.
4	*IP-173 (*)/U* Same as step No. 1. *AN/USM-44* Same as step No. 3. *TS-382/U* Same as step No. 3. *SG-3/U* Same as step No. 3.	*ME-57A/U* Same as step No. 3 except: DEVIATION RANGE-KC: 20	Perform step No. 1 *a* through *d.*	DEVIATION METER indicates 16 kHz ± 0.75 kHz.
5	*IP-173 (*)/U* Same as step No. 1. *AN/USM-44* Same as step No. 1 except: RANGE: D FREQUENCY: 145 MHz *TS-382 (*)/U* Same as step No. 1 except: TUNING: 33 *SG-3/U* Same as step No. 1 except: FREQUENCY: 150 MHz MODULATION: OFF	*ME-57A/U* Same as step No. 1 except: FREQUENCY RANGE-MC: 120-250	Perform step No. 1 *a* through *d.*	None.
6	*IP-173 (*)/U* Same as step No. 1. *AN/USM-44* Same as step No. 5 *TS-382 (*)/U* Same as step No. 5 *SG-3/U* Same as step No. 5 except: MODULATION: EXT	*ME-57A/U* Same as step No. 1 except: DEVIATION RANGE-KC: 100	Perform step No. 1 through *d.*	Deviation meter indicates 80 KHz ±10 KHz.

Step No.	Control Settings: Test Equipment	Control Settings: Equipment Under Test	Test Procedure	Performance Standard
7	*IP-173 (*)/U* Same as step No. 1 *AN/USM-44* Same as step No. 1 except: RANGE: D FREQUENCY: 195 MHz *TS-382 (*)/U* Same as step No. 1 except: TUNING: 29 *SG-3/U* Same as step No. 1 except: FREQUENCY RANGE-MC: 200-400 FREQUENCY: 200 MHz MODULATION: OFF	*ME-57A/U* Same as step No. 1 except: FREQUENCY RANGE-MC: 120-250	*a.* Connect the output cable of the AN/USM-44 to the IP-173(*)/U and proceed as in step No. 1 *a* through *d*. Increase deviation selector to obtain the 3rd null indication on the IP-173(*)/U. *b.* Disconnect the output cable of the AN/USM-44 and proceed as in step No. 1 *a* through *d*. Increase deviation selector to obtain the 3rd null indication on the IP-173(*)/U.	*a.* None. *b.* None.
8	*IP-173 (*)/U* Same as step No. 1 *AN/USM-44* Same as step No. 7 *TS-382 (*)/U* Same as step No. 7 *SG-3/U* Same as step No. 7 except: MODULATION: EXT	*ME-57A/U* Same as step No. 7 except: DEVIATION RANGE-KC: 300	Perform step No. 1 *a* through *d*.	Deviation meter indicates 250 KHz ± 30 KHz.
9	*IP-173 (*)/U* Same as step No. 1 *AN/USM-44* Same as step No. 1 except: FREQUENCY: 395 MHz *TS-382 (*)/U* Same as step No. 1 except: TUNING: 68 *SG-3/U* Same as step No. 1 except: FREQUENCY: 400 MHz MODULATION: OFF	*ME-57A/U* Same as step No. 1 except: FREQUENCY RANGE-MC: 250-500	Perform the procedure in step 7 except increase deviation selector for the 4th null indication on the ID-173(*)/U.	None.
10	*IP-173 (*)/U* Same as step No. 1 *AN/USM-44* Same as step No. 9	*ME-57A/U* Same as step No. 9 except: DEVIATION RANGE-KC: 1000 tune	Perform step No. 1 *a* through *d*.	Deviation meter indicates 800 KHz ± 100 KHz.

Step No.	Control Settings		Test Procedure	Performance Standard
	Test Equipment	Equipment Under Test		
	TS-382 (*)/U Same as step No. 9 *SG-3/U* Same as step No. 9 except: MODULATION: EXT			

7-31. Quieting Signal Sensitivity Check

a. Test Equipment.

(1) Signal Generator AN/URM-70

(2) Electronic Voltmeter ME-30B/U/

b. Test Connections and Conditions. Connect the equipment as shown in figure 7-14.

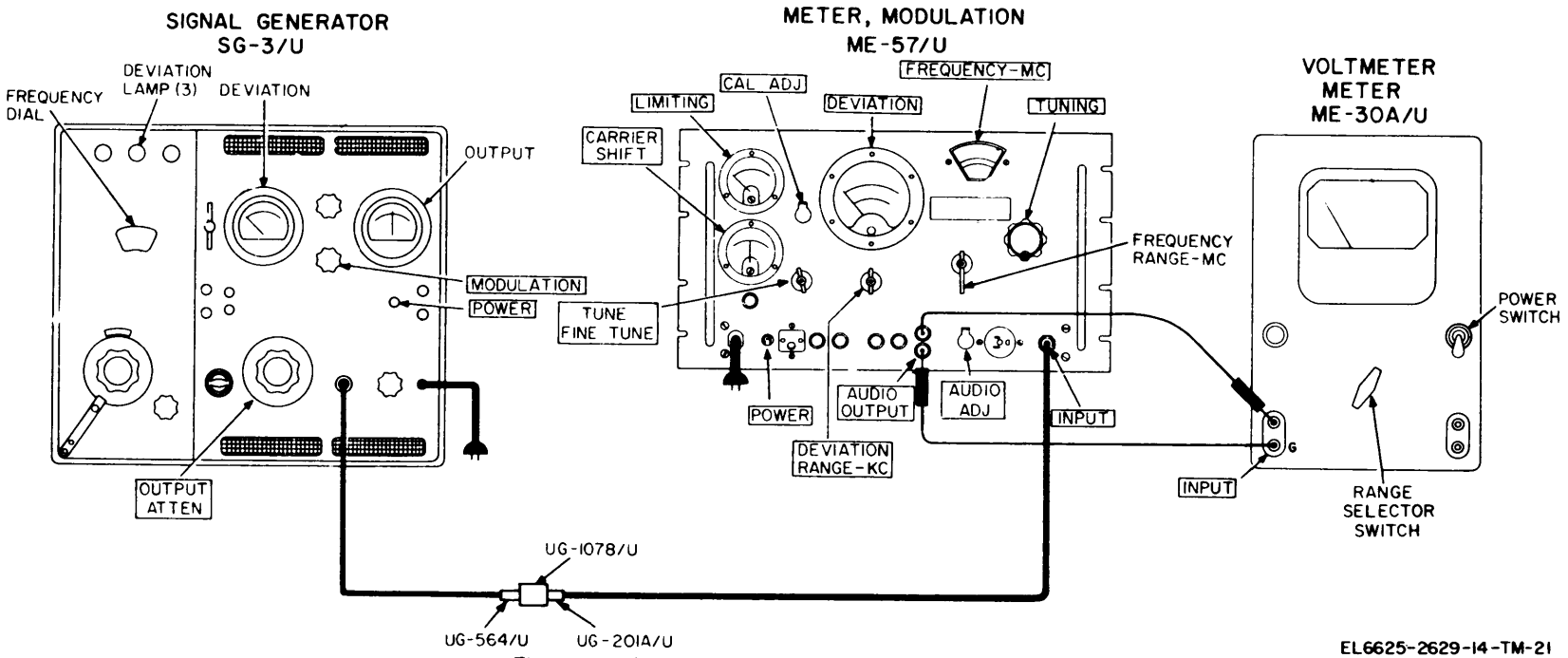


Figure 7-14. Sensitivity check, test connections.

c. Quieting Signal Sensitivity Test.

Step No.	Control Settings		Test Procedure	Performance Standard
	Test Equipment	Equipment Under Test		
1	*SG-3/U* FREQUENCY RANGE-MC: 50-100 MODULATION: 1000 Hz Output attenuator 100 K the set selector to 10 K FREQUENCY: 50 MHz	*ME-57A/U* FREQUENCY RANGE-MC: 20-55 DEVIATION RANGE-KC: 1000 TUNE TUNE-FINE-TUNE: TUNE	Adjust ME-57A/U tuning control for carrier shift meter indication on the LIMITING meter.	None.
2	*SG-3/U* Same as step No. 1	*ME-57A/U* Same as step No. 1 except: TUNE-FINE-TUNE: TUNE	Same as step No. 1	None.
3	*SG-3/U* Same as step No. 1 except: MODULATION: OFF	*ME-57A/U* Same as step No. 2.	*a.* Reduce rf output of SG-3/U until ME-30A/U reaches peak voltage indication note the voltage. *b.* Raise the rf output the SG-3/U until a 20 db reduction in voltage is indicated by the ME-30A/U.	*a.* None. *b.* Output attenuator dial of the SG-3/U indicates 3,500 microvolts or less.

APPENDIX A

REFERENCES

The following is a list of references that are available to the operator, organizational and general support maintenance personnel.

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7,8, and 9), Supply Bulletins, and Lubrication Orders.
DA Pam 910-7	Index of Modification Work Orders.
SB 11-573	Painting and Preservation Supplies Available for Field Use for Electronics Command Equipment.
TB 746-10	Field Instructions for: Painting and Preserving Electronics Command Equipment.
TM 11-319	Sweep Generators SG-92/U and SG-92A/U.
TM 1101242	Crystal Rectifier Test Sets TS-268/U, TS-268A/U, TS-268B/U, TS-268C/U, TS-268D/U, and TS-268E/U.
TM 11-1268	Signal Generator AN/URM-70.
TM 11-2535B	Meter Test Set TS-682A/GSM,
TM 11-5043-12	Operator's and Organizational Maintenance Manual: Analyzers ZM - 3/U and ZM-3A/U.
TM 11-5097	Spectrum Analyzers TS-723A/U, TS,723B/U, TS-723C/U, and TS-723D/U.
TM 11-5651B	R. F. Signal Generator Set AN/URM-25A.
TM 11-6625-200-15	Operator's Organizational, DS, GS, and Depot Maintenance Manual; Multimeters ME-26A/U, ME-26B/U, ME-26C/U, and ME-26D/U.
TM 11-6625-226-12	Operation and Organizational Maintenance: Electrical Meter Test Set TS-656/U.
TM 11-6625-261-12	Operator's and Organizational Maintenance Manual: Audio Oscillators TS-382A/U, TS-382B/U, TS-382D/U, TS-382E/U, and TS-382F/U.
TM 11-6625.276-10	Operator's Manual: Test Oscillator Set AN /PRM-10.
TM 11-6625-316-12	Operator and Organizational Maintenance Manual: Test Sets, Electron Tube TV-2/U, TV-2A/U, TV-2B/U, and TV-2C/U.
TM 11-6626-320-12	Operator and Organizational Maintenance Manual: Voltmeter, Meter ME-30A/U Voltmeters, Electronic ME-30B/U, iME-30C/U and ME-30E/u.
TM 11-6625-508-10	Operator's Manual: Signal Generator AN/USM-44 and AN/USM-44A.
TM 11-6625-700-10	Operator's Manual: Digital Readout, Electronic Counter AN/USM-207.
TM 11-6625-1703-15	Operator, Organizational, DS, GS, and Depot Maintenance Manual Including Repair Parts and Special Tools Lists: Oscilloscope AN/USM-281A.
TM 38-750	The Army Maintenance Management System (TAMMS).
TM 740-00-1	Administrative Storage of Equipment
TM 750-244-2	Procedure for Destruction of Equipment to Prevent Enemy Use (Electronics Command).

APPENDIX B

OPERATOR'S, ORGANIZATIONAL DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST (INCLUDING DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS)

Section I. INTRODUCTION

B-1. Scope

This appendix lists repair parts; and other support equipment required for operation and performance of organizational, direct support, and general support maintenance of the ME-57A/U.

B-2. General

This Repair Part. List is divided into the following sections:

a Section *II-Repair Parts List.* A list *of* repair parts authorized for use in the performance of maintenance. The list also includes- parts which must be removed for replacement *of* the luthorized parts. Parts lists are composed of functional groups in ascending numerical sequence, with the parts in each group listed in figure and item number sequence.

b. Section III–Special Tools List. Not applicable.

c. *Section IV-Federal Stock Number and Part Number Index. A list, in* ascanding numerical sequence, *of* all Federal Stock numbers lppearing in the listings, followed by a list, in l lphameric sequence, of all part numbers appearing in the listings. Federal stock number and part numbers are cross-referenced to each illustration figure and item number l ppearance.

B-3. Explanation of Columns

The following provides an explanation of columns found in the tabular listings:

a. Illustration. This column is divided as followsl:

(1) *Figure number.* Indicates the figure number of the illustration in which the item is shown.

(2) *Item number.* The number used to identify each item called out in the illustration.

b. Source, Maintenance, and Recoverability Codes (SMR).

(1) Source Code. Source codes are assigned to support items to indicate the manner of acquiring support items for maintenance, repair, or overhaul of end items. Source codes are entered in the first and second Position of the Uniform SMR Code format as follows:

Code	*Definition*
PA	Item procured and stocked for anticipated or known usage.
AH	I tern to be assembled at general support maintenance level.
XB	Item is not procured or stacked. If not l vailable through salvage, requisition.

NOTE

Cannibablization or salvage may be used as a source of supply for l ny items source coded above except those coded XA, CD end aircraft support items as restricted by AR 700-42.

(2) *Maintenance Code.* Maintenance codes are assigned to indicate the levels of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the Uniform SMR Code format l s follows: I

(a) The maintenance code entered in the third position will indicate the lowest maintenance level authorized to remove, replace, and use the support item. The maintenance code entered in the third position will indicate one of the following levels of maintenance:

Code	*Application/Explanation*
o	support item is removed, replaced, used **at** the organizational level.

H. . . . . support item b removed, replaced, wed at the general support level.
D... . . support items that are removed, replaced, used at dept, mobile depot, specialized repair activity only .

(b) The maintenance code entered in the fourth position indicates whether the item is to be repaired and identified the lowest maintenance level with the capability to perform complete repair (i.e., all authorized maintenance functions). This position will contain one of the following maintenance codes:

Code	*Application/Explanation*
D	The lowest maintenance level capable *of* complete repair of the support item is the depot level, performed by depot.
z ., ...	Nonreparable. No repair is authorized.

(3) *Recoverability Code.* Recoverability codes are assigned to support items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the Uniform SMR Code format l s follows:

Recoverability Codes	*Definition*
z	Nonreparable items. When unserviceable, condemn and dispose at the level indicated in position 3.
D.	Reparable item. *When beyond lower level repair* capability, return to depot. Condemnation l nd disposal not authorized below depot level.

c. *Federal Stock Number.* Indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

NOTE

To convert a Federal stock number (FSN) to a National stock number (NSN), add "00" after the Federal supply Classification (FSC) code (first four digits). For *example,* FSN 6625-553-0142 when converted is NSN 6625-00-553-0142.

d. Part Number. Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements, to identify an item- or range of items.

NOTE

When a stocked numbered item is requisitioned, the repair part received may have a different part number than the part being replaced.

l . *Federal Supply Code for Manufacturer* (FSCM). The FSCM is a 5-digit numeric code listed in SB 708-42 which is used to identify the manufacturer, distributor, or Government agency, etc.

f. Description. Indicates the Federal item name and, if required, a minimum description to identify the item.

g. Unit *of Measure (U/M).* Indicates the standard of the basic quantity of the listed item as used in performing the actual maintenance function. This measure is expressed by a two-character, alphabetical abbreviation (e.g., ea. in, pr, etc). When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

h. Quantity Incorporated in Unit. Indicates the quantity of the item used in the breakout shown in the illustration figure, which is prepared for a functional group.

B-4. Special Information

Not applicable.

B-5. How to Locate Repair Parts

a. When Federal Stock Number or Part Number is *Unknown:*

(1) *First.* Using the table *of* contents, determine the functional group within which the repair part belongs. This is necessary since illustrations are prepared for functional groups, and listinge are divided into the same groups.

(2) *Second.* Find the illustration covering the functional group to which the repair part belongs.

(3) *Third.* Identify the repair part on the illustration and note the illustration figure and item number of the repair part.

(4) *Fourth.* Using the Repair Parts Listing, find the figure and item number noted on the illustration.

b. When Federal Stock Number or Part Number is Known:

(1) *First.* Using the Index *of Federal Stock* Numbers and Part Numbers, find the pertinent Federal stock number or part number. This index is in ascending FSN sequence followed by a list of part. numbers in ascending alphameric sequence, cross-referenced to the illustration figure number and item number.

(2) *Second. After* finding the figure and item number, locate the figure and item number in the repair parts list.

B-6. Abbreviations

Not applicable.

(Next printed *page* is B-5.)

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) FEDERAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION	USABLE ON CODE	(7) UNIT OF MEAS	(8) QTY INC IN UNIT
						GROUP 00: MODULATION METER, ME-57A/U			
B1	1	XBDDD	6625-432-1436	SM-D-399101	80063	CASE ASSEMBLY, TRANSMIT		EA	1
B1	2	XBDDD		SM-D-207941	80063	METER, MODULATION		EA	1
B2	1	XBDDD	6625-432-1439	SM-D-399102	80063	CASE ASSEMBLY		EA	1
B2	2	XBHZZ	6625-001-1390	SM-C-399107-1	80063	FRAME		EA	2
B2	3	XBHZZ		C530X33-64	84841	RIVET, TUBULAR		EA	120
B2	4	XBHZZ	5305-832-1506	MS35495-78	96906	SCREW, WOOD		EA	24
B2	5	XBHZZ		SM-B-399119	80063	BLOCK		EA	12
B2	6	XBHZZ	5340-116-2033	SM-C-399111	80063	CORNER, CASE		EA	4
B2	7	XBHZZ		C530X39-64	84841	RIVET, TUBULAR		EA	24
B2	8	XBHZZ		SM-C-399107-4	80063	ANGLE		EA	2
B2	9	XBHZZ	6625-001-1393	SM-C-399107-3	80063	FRAME		EA	2
B2	10	XBHZZ	5340-952-6892	SC-D-33365	80063	HANDLE, CHEST		EA	2
B2	11	XBHZZ	6625-001-1388	SM-C-399107-2	80063	FRAME		EA	2
B2	12	XBHZZ	5305-071-1324	MS51960-67	96906	SCREW, MACHINE		EA	6
B2	13	XBHZZ	5305-059-3657	MS51958-61	96906	SCREW, MACHINE		EA	24
B2	14	XBHZZ	5340-419-3438	SM-B-399112	80063	CATCH, CLAMPING		EA	6
B2	15	XBHZZ	5310-422-0310	XX58550	61864	PLATE, NUT		EA	24
B2	16	XBHZZ	6625-455-6874	SM-C-399104-2	80063	PANEL, SIDE, CASE		EA	1
B2	17	XBHZZ		SM-C-399128	80063	CORNER, CASE		EA	4
B2	18	XBHZZ		508X1-4	84841	RIVET, TUBULAR		EA	16
B2	19	XBHZZ		SM-C-399127-2	80063	FRAME		EA	2
B2	20	XBDDD	6625-172-3655	SM-D-399120	80063	COVER ASSEMBLY		EA	1
B2	21	XBHZZ	6625-177-1952	SM-B-399114	80063	CUSHION ASSEMBLY		EA	4
B2	22	XBHZZ		MIL417RRNRN510	81349	RUBBER STRIP		EA	16
B2	23	XBHZZ		SM-B-399114-2	80063	RIB		EA	16
B2	24	XBHZZ		MILR6130-2C	81349	RUBBER STRIP		EA	16
B2	25	XBHZZ	6625-001-1382	SM-C-399103	80063	PANEL, BOTTOM, CASE		EA	1
B2	26	XBHZZ	6625-172-3650	SM-C-399122	80063	POCKET		EA	1
B2	27	XBHZZ	5305-151-3720	MS35493-32	96906	SCREW, WOOD		EA	4
B2	28	XBHZZ		530X3-16	84841	RIVET, TUBULAR		EA	1
B2	29	XBHZZ	6625-432-1438	SM-B-399123	80063	CATCH, ASSEMBLY		EA	1
B2	30	XBHZZ		SM-C-399127-1	80063	FRAME		EA	2
B2	31	XBHZZ	5340-422-0617	SM-B-399130	80063	STRAP		EA	1
B2	32	XBHZZ		530X9-16	84841	RIVET, TUBULAR		EA	29
B2	33	XBHZZ	5310-531-9514	AN960C6	88044	WASHER, FLAT		EA	1
B2	34	XBHZZ	6625-432-1440	SM-B-399121	80063	POCKET ASSEMBLY		EA	1
B2	35	XBHZZ	6625-432-1435	SM-C-399129	80063	PANEL		EA	1
B2	36	XBHZZ	5330-476-4647	SM-B-399131	80063	GASKET		EA	1
B2	37	XBHZZ		530X5-8	84841	RIVET, TUBULAR		EA	8
B2	38	XBHZZ	6625-172-3653	SM-B-399118	80063	CUSHION ASSEMBLY		EA	4
B2	39	XBHZZ	6625-172-3652	SM-B-399116	80063	RIB ASSEMBLY		EA	8
B2	40	XBHZZ		MILF8193-062	81349	FELT STRIP		FT	8

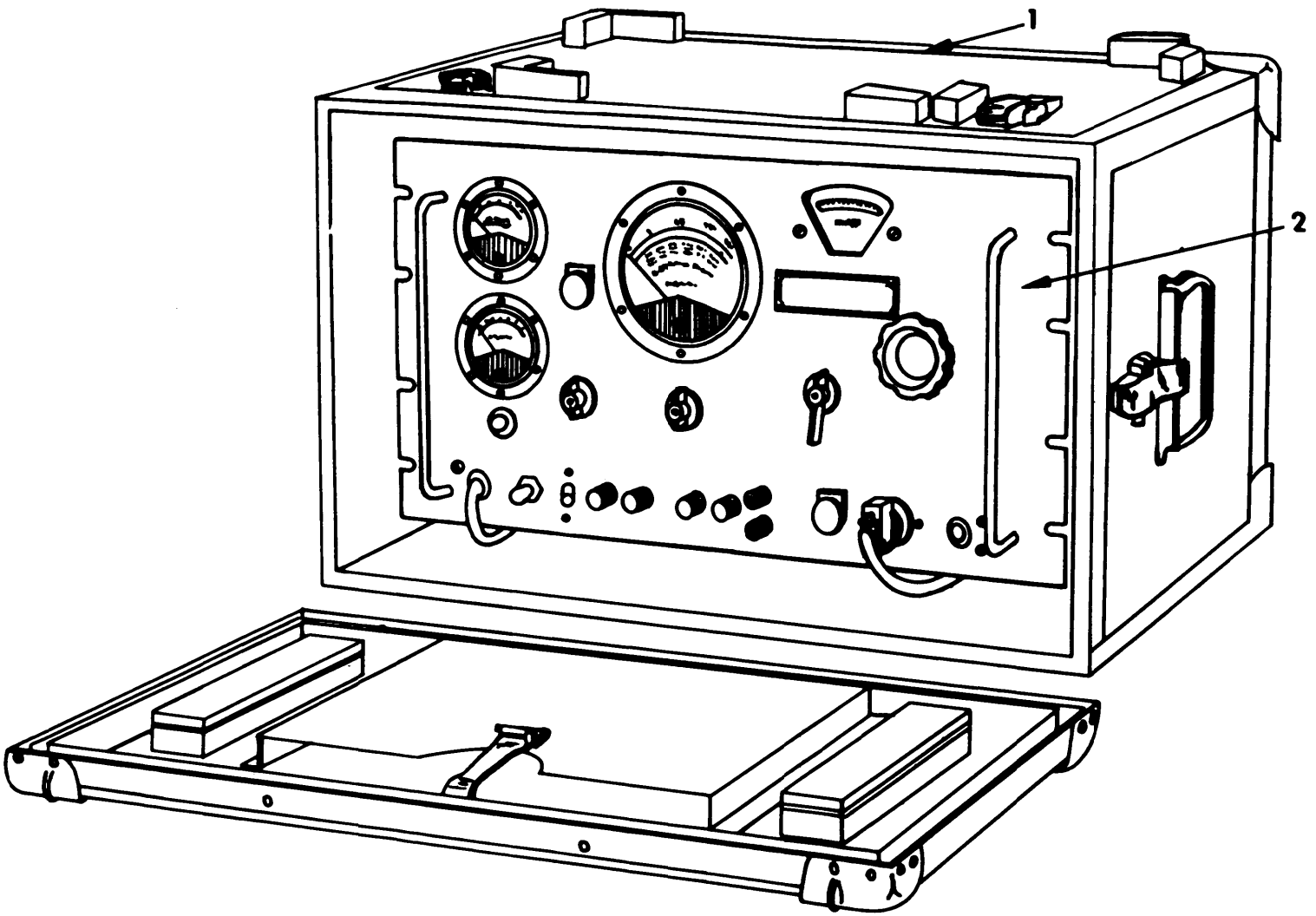


Figure B-1. Modulation Meter ME-57A/U.

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) FEDERAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION	USABLE ON CODE	(7) UNIT OF MEAS	(8) QTY INC IN UNIT
B2	41	XBHZZ		SM-B-399117	80063	RIB		EA	8
B2	42	XBHZZ	6625-172-5788	SM-B-399115	80063	CUSHION ASSEMBLY		EA	4
B2	43	XBHZZ	6325-001-1391	SM-C-399106-2	80063	FRAME		EA	2
B2	44	XBHZZ	6625-172-3654	SM-C-399105	80063	PANEL, END, CASE		EA	2
B2	45	XBHZZ	6625-001-1392	SM-C-399106-1	80063	FRAME		EA	2
B2	46	XBHZZ	6625-455-6872	SM-C-399104-1	80063	PANEL, SIDE, CASE		EA	1
B3	1	PAHZZ	5950-878-5525	SM-D-360274	80063	TRANSFORMER, INTERMEDIATE FREQUENCY		EA	1
B3	2	PAOZZ	5960-542-7004	6AH6WA	81349	ELECTION TUBE		EA	3
B3	3	PAHZZ	5910-949-5027	CE45C220R	81349	CAPACITOR, FIXED, ELETROLYTIC		EA	6
B3	4	PAHZZ	5960-295-7768	12T	88245	CLAMP, ELECTION TUBE		EA	1
B3	5	PAOZZ	5960-188-8565	6AG7Y	81349	ELECTRON TUBE		EA	1
B3	6	PAHZZ	5935-835-0508	UG88DU	80058	CONNECTOR, PLUG, ELECTRICAL		EA	2
B3	7	PAHZZ		RG-58/U	81349	CABLE, RADIO FREQUENCY		FT	2
B3	8	PAHZZ	5950-415-6124	SM-C-359295	80063	TRANSFORMER, INTERMEDIATE FREQUENCY		EA	1
B3	9	PAHZZ	5950-415-6122	SM-C-359294	80063	TRANSFORMER, INTERMEDIATE FREQUENCY		EA	1
B3	10	PAHZZ	5960-686-8085	M24251-6-2	96906	SHIELD, ELETRON TUBE		EA	6
B3	11	PAHZZ		SM-C-359293GR2	80063	TRANSFORMER, INTERMEDIATE FREQUENCY		EA	1
B3	12	PAHZZ	5995-408-0471	SM-B-399079	80063	CABLE ASSEMBLY, RADIO FREQUENCY		EA	1
B3	13	PAHZZ		CP91B1EE105K	81349	CAPACITOR, FIXED, PAPER DIELECTRIC		EA	4
B3	14	PAHZZ	5960-858-5172	M24251-6	96906	SHIELD, ELECTRON TUBE		EA	1
B3	15	PAOZZ	5960-134-6031	5654W	81349	ELECTRON TUBE		EA	1
B3	16	XBHZZ	5910-577-7940	CP091SB5	81349	BRACKET, CAPACITOR		EA	4
B3	17	PAHZZ		SM-C-359288	80063	TRANSFORMER, INTERMEDIATE FREQUENCY		EA	1
B3	18	PAOZZ	5960-262-0210	5814A	81349	ELECTRON TUBE		EA	1
B3	19	XBDDD		SM-D-207942	80063	OSCILLATOR, RADIO FREQUENCY		EA	1
B3	20	XBHZZ	5310-209-1366	MS35335-58	96906	WASHER, LOCK		EA	52
B3	21	XBHZZ	5305-054-6650	MS51957-26	96906	SCREW, MACHINE		EA	4
B3	22	PAHZZ		CP55B1EB205K	81349	CAPACITOR, FIXED, PAPER DIELECTRIC		EA	1
B3	23	PAHZZ	5935-295-3365	80MC2M	02660	CONNECTOR, PLUG, ELECTRICAL		EA	1
B3	24	PAHZZ	5935-518-8696	80PC2F	29587	CONNECTOR, RECEPTACLE, ELECTRICAL		EA	1
B3	25	XBHZZ	5310-934-9761	MS35649-264	96906	NUT, PLAIN, HEXAGON		EA	45
B3	26	XBHZZ	5305-054-6652	MS51957-28	96906	SCREW, MACHINE		EA	17
B3	27	PAHZZ	5995-401-3698	SM-B-399082	80063	CABLE ASSEMBLY, RADIO FREQUENCY		EA	1
B3	28	PAHZZ		SM-B-399083	80063	CABLE, RADIO FREQUENCY		EA	1
B3	29	PAOZZ	5960-262-0286	5651WA	81349	ELECTRON TUBE		EA	1
B3	30	PAHZZ		32-3-1-4	88245	POST, ELECTRICAL		EA	2
B3	31	SBHZZ		SM-D-207955	80063	WIRING HARNESS, BRANCHED		EA	1
B3	32	PAOZZ	5960-681-9802	6AU6WC	81349	ELECTRON TUBE		EA	2
B3	33	XBHZZ		SM-D-283736	80063	WIRING ASSEMBLY, PANEL		EA	1
B3	34	PAHZZ	5905-114-3242	RV4NAYSD502A	81349	RESISTOR, VARIABLE		EA	1
B3	35	PAHZZ	5905-556-3350	RV4NAYSD103A	81349	RESISTOR, VARIABLE		EA	1
B3	36	PAHZZ		42-4-1-4	88245	POST, ELECTRICAL		EA	1
B3	37	AHHDD	6625-432-1434	SM-D-321033	80063	PANEL ASSEMBLY,FRONT		EA	1

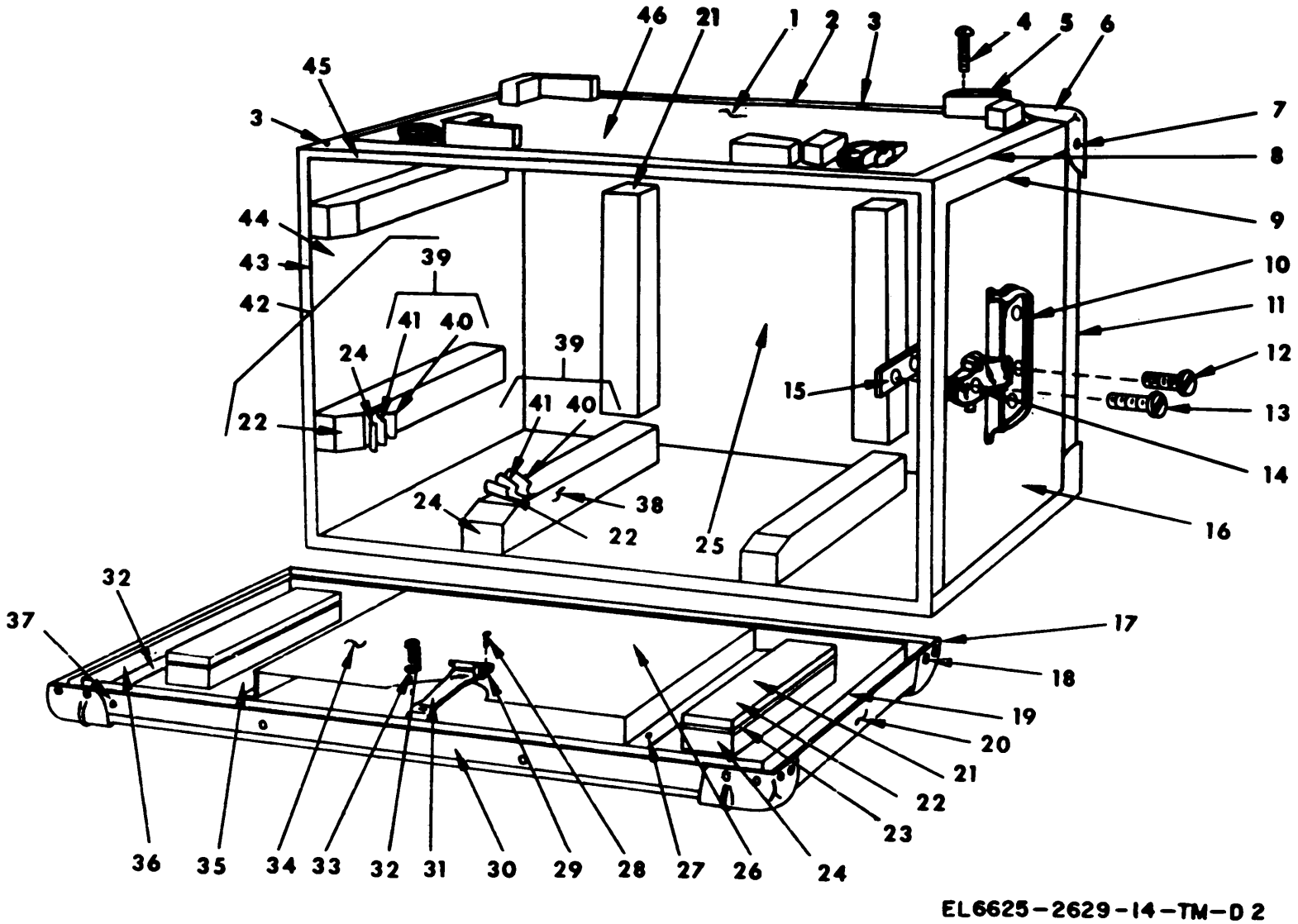


Figure B-2. Transit case.

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) FEDERAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION	USABLE ON CODE	(7) UNIT OF MEAS	(8) QTY INC IN UNIT
B3	38	XBHZZ	5310-209-1239	MS35335-60	96906	WASHER, LOCK		EA	16
B3	39	XBHZZ		MS35234-63	96906	SCREW, MACHINE		EA	8
B3	40	PAHZZ		681	79963	TERMINAL, LUG		EA	6
B3	41	PAHZZ	5905-572-8160	RV4NAYSD503A	81349	RESISTOR, VARIABLE		EA	1
B3	42	PAHZZ	5905-107-9252	RV4NAYSD104A	81349	RESISTOR, VARIABLE		EA	1
B3	43	PAHZZ	5960-078-7796		88245	CLAMP, ELECTRON TUBE		EA	1
B3	44	PAOZZ	5960-179-3252	6080WA	81349	ELECTRON TUBE		EA	1
B3	45	XBHZZ		CP072SC2	81349	BRACKET, CAPACITOR		EA	2
B3	46	PAOZZ		TJ601K01	81349	ELECTRON TUBE		EA	1
B3	47	XBHZZ	5310-058-3599	MS35335-57	96906	WASHER, LOCK		EA	47
B3	48	XBHZZ	5305-718-9442	MS35233-13	96906	SCREW, MACHINE		EA	11
B3	49	PAHZZ	5960-273-2434	2	88245	CLAMP, ELECTRON TUBE		EA	1
B3	50	PAHZZ	6625-036-3940	SM-D-320940	80063	COVER ASSEMBLY		EA	1
B3	51	XBHZZ	5305-763-0219	SM-B-320945	80063	SCREW, EXTERNALLY RELIEVED BODY		EA	4
B3	52	PAHZZ	5950-843-2532	SM-D-399059	80063	TRANSFORMER, POWR STEP-DOWN AND STEP-UP		EA	1
B3	53	PAHZZ	5910-880-0380	CP70B1EF405K1	81349	CAPACITOR, FIXED, PAPER DIELECTRIC		EA	1
B3	54	PAHZZ	5950-415-6129	SM-C-399061	80063	REACTOR		EA	1
B3	55	PAHZZ	5950-415-6128	SM-C-399060	80063	REACTOR		EA	1
B3	56	PAHZZ	5960-860-7710	TS103U02	81349	SHIELD, ELECTRON TUBE		EA	2
B3	57	PAOZZ	5960-179-4446	12A77WA	81349	ELECTRON TUBE		EA	1
B3	58	PAHZZ	5935-935-2231	TS101C01	81349	SOCKET, ELECTRON TUBE		EA	1
B3	59	PAHZZ		CK63AW103E	81349	CAPACITOR, FIXED, CERAMIC DIELECTRIC		EA	14
B3	60	PAHZZ	5905-500-7272	RC32GF331K	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B3	61	PAHZZ	5935-812-4936	TS103P01	81349	SOCKET, ELETRON TUBE		EA	2
B3	62	XBHZZ		AN505C6-6	88044	SCREW, MACHINE		EA	7
B3	63	XBHZZ	5325-291-9366	MS35489-11	96906	GROMMET, RUBBER		EA	1
B3	64	XBHZZ		SM-D-207954	80063	WIRING HARNESS, BRANCHED		EA	1
B3	65	XBDDD		SM-D-207946	80063	CHASSIS, ELECTRICAL EQUIPMENT		EA	1
B3	66	XBHZZ	5310-614-3552	MS35335-59	96906	WASHER, LOCK		EA	6
B3	67	XBHZZ	5310-934-9759	MS35649-284	96906	NUT, PLAIN, HEXAGON		EA	4
B3	68	PAHZZ		CP05A1EE103M	81349	CAPACITOR, FIXED, PAPER DIELECTRIC		EA	2
B3	69	PAHZZ	5910-838-9421	CK60AW102M	81349	CAPACITOR, FIXED, CERAMIC DIELECTRIC		EA	3
B3	70	XBHZZ		SM-C-359287	80063	WIRING HARNESS, BRANCHED		EA	1
B3	71	XBHZZ	5310-934-9756	MS35650-304	96906	NUT, PLAIN, HEXAGON		EA	6
B3	72	PAHZZ		1414-10	83330	TERMINAL, LUG		EA	6
B3	73	PAHZZ	5935-935-2231	TS101P01	81349	SOCKET, ELECTRON TUBE		EA	2
B3	74	PAHZZ	5905-120-0167	RCR32G513JS	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B3	75	PAHZZ	5940-500-7606	BT19	91663	TERMINAL, STUD		EA	2
B3	76	PAHZZ	5905-299-2005	RCR32G823JS	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B3	77	PAHZZ	5905-299-2014	RC32GF473K	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B3	78	PAHZZ	5905-106-1276	RC32GF104K	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B3	79	PAHZZ	6625-222-5047	SM-B-399026	80063	COVER		EA	2
B3	80	XBHZZ	6625-432-1442	SM-B-399023	80063	BRACKET ASSEMBLY		EA	1

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) FEDERAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION	USABLE ON CODE	(7) UNIT OF MEAS	(8) QTY INC IN UNIT
B3	81	XBHZZ	5305-054-5651	MS51957-17	96906	SCREW, MACHINE		EA	4
B3	82	PAHZZ	5940-820-6235	1416-4	83330	TERMINAL, LUG		EA	11
B3	83	PAHZZ	5930-296-9062	MS35059-23	96906	SWITCH, TOGGLE		EA	1
B3	84	PAHZZ	5920-280-4156	FHM2601	71400	FUSEHOLDER		EA	2
B3	85	PAOZZ	5920-228-7882	F02B125V2A	81349	FUSE, CARTRIDGE		EA	2
B3	86	PAHZZ		RC20GF681K	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B3	87	PAHZZ	5905-933-3925	RV4NAYSD252A	81349	RESISTOR, VARIABLE		EA	1
B3	88	PAHZZ	5940-178-0174	2013	71785	TERMINAL BOARD		EA	1
B3	89	XBHZZ		MS35233-15	96906	SCREW, MACHINE		EA	38
B3	90	XBHZZ	5310-934-9748	MS35649-244	96906	NUT, PLAIN, HEXAGON		EA	24
B3	91	PAHZZ	5995-409-1162	SM-B-399081	80063	CABLE ASSEMBLY, RADIO FREQUENCY		EA	1
B3	92	PAHZZ	5910-164-7509	CP54B1KB205K1	81349	CAPACITOR, FIXED, PAPER DIELECTRIC		EA	2
B3	93	XBHZZ	5305-059-3658	MS51958-62	96906	SCREW, MACHINE		EA	4
B3	94	XBHZZ	5310-274-8680	MS35333-13	96906	SCREW, MACHINE		EA	10
B3	95	XBHZZ	5305-054-6654	MS51957-30	96906	SCREW, MACHINE		EA	7
B3	96	XBHZZ		MS35233-30	96906	SCREW, MACHINE		EA	7
B3	97	XBHZZ	5310-722-5998	MS15795-805	96906	WASHER, FLAT		EA	3
B3	98	PAHZZ	5970-883-8517	MS75009-1	96906	INSULATOR, WASHER		EA	2
B3	99	XBHZZ	5305-616-8350	AN51506-36	88044	SCREW, MACHINE		EA	1
B3	100	PAHZZ	5905-114-5438	RC20GF510J	81349	RESISITOR, FIXED, COMPOSITION		EA	1
B3	101	PAHZZ	5905-108-6922	RC20GF151K	81349	RESISTOR, FIXED, COMPOSITION		EA	2
B3	102	PAHZZ	5905-141-1168	RC20GF222K	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B3	103	PAHZZ	5905-171-2002	RC20GF470K	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B3	104	PAHZZ	5905-106-1273	RC20GF153K	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B3	105	PAHZZ	5905-141-0591	RC20GF103K	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B3	106	PAHZZ		1N196	81349	SEMICONDUCTOR DEVICE, DIODE		EA	2
B3	107	PAHZZ	5940-821-6217	1416-6	83330	TERMINAL, LUG		EA	12
B3	106	PAHZZ		UK50-473	31538	CAPACITOR		EA	1
B3	109	PAHZZ		CM15CD101JW3	81349	CAPACITOR, FIXED, MICA DIELECTRIC		EA	2
B3	110	XBHZZ	5305-054-5649	MS51957-15	96906	SCREW, MACHINE		EA	38
B3	111	PAHZZ	5935-260-0516	TS102P01	81349	SOCKET, ELECTRON TUBE		EA	7
B4	1	XBDDD	6625-432-1437	SM-C-321035	80063	PANEL, WELDED ASSEMBLY		EA	1
B4	2	PAHZ	5905-107-9252	RV4NAYSD104A	81349	RESISTOR, VARAIBLE		EA	1
B4	3	PAHZZ	6625-738-8183	SM-C-399003	80063	METER, DEVIATION		EA	1
B4	4	PAHZZ	5905-174-0906	RN70D3571F	81349	RESISTOR, FIXED, FILM		EA	1
B4	5	PAHZZ	5905-088-3110	RN70D1211F	81349	RESISTOR, FIXED, FILM		EA	1
B4	6	PAHZZ	5905-050-1123	RN70D8060F	81349	RESISTOR, FIXED, FILM		EA	1
B4	7	PAHZZ	5905-765-8702	RN70D2800F	81349	RESISTOR, FIXED, FILM		EA	1
B4	8	PAHZZ	5905-076-6916	RN70D1210F	81349	RESITOR, FIXED, FILM		EA	1
B4	9	XBHZZ	5310-934-9761	MS35649-264	96906	NUT, PLAIN, HEXAGON		EA	2
B4	10	XBHZZ		MS35233-28	96906	SCREW, MACHINE		EA	2
B4	11	XBHZZ	5310-209-1366	MS35335-58	96906	WASHER, LOCK		EA	2
B4	12	PAHZZ		SM-B-399004	80063	WINDOW, DIAL		EA	1

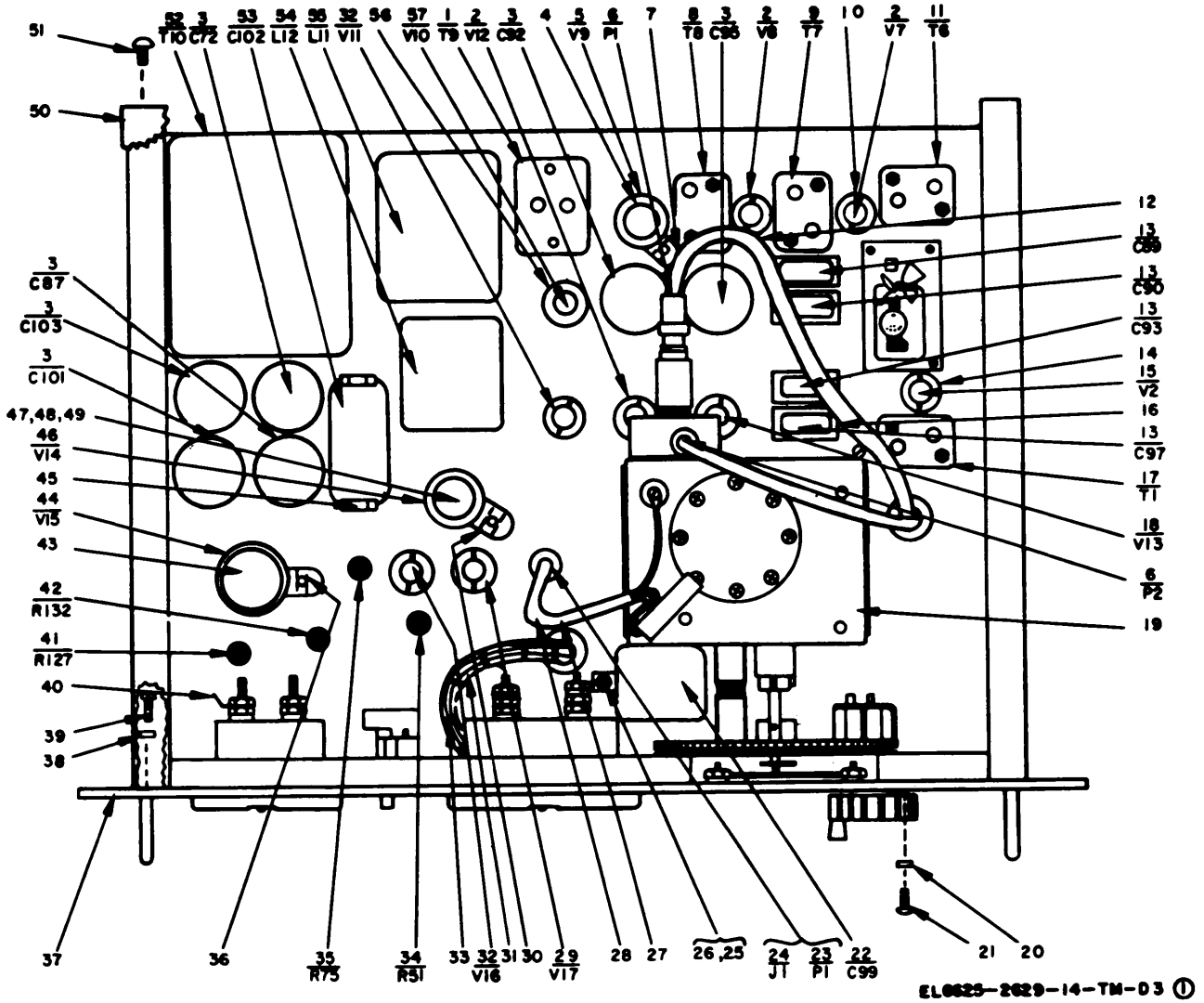


Figure B-3. ① *Modulation meter* (sheet 1 of 2).

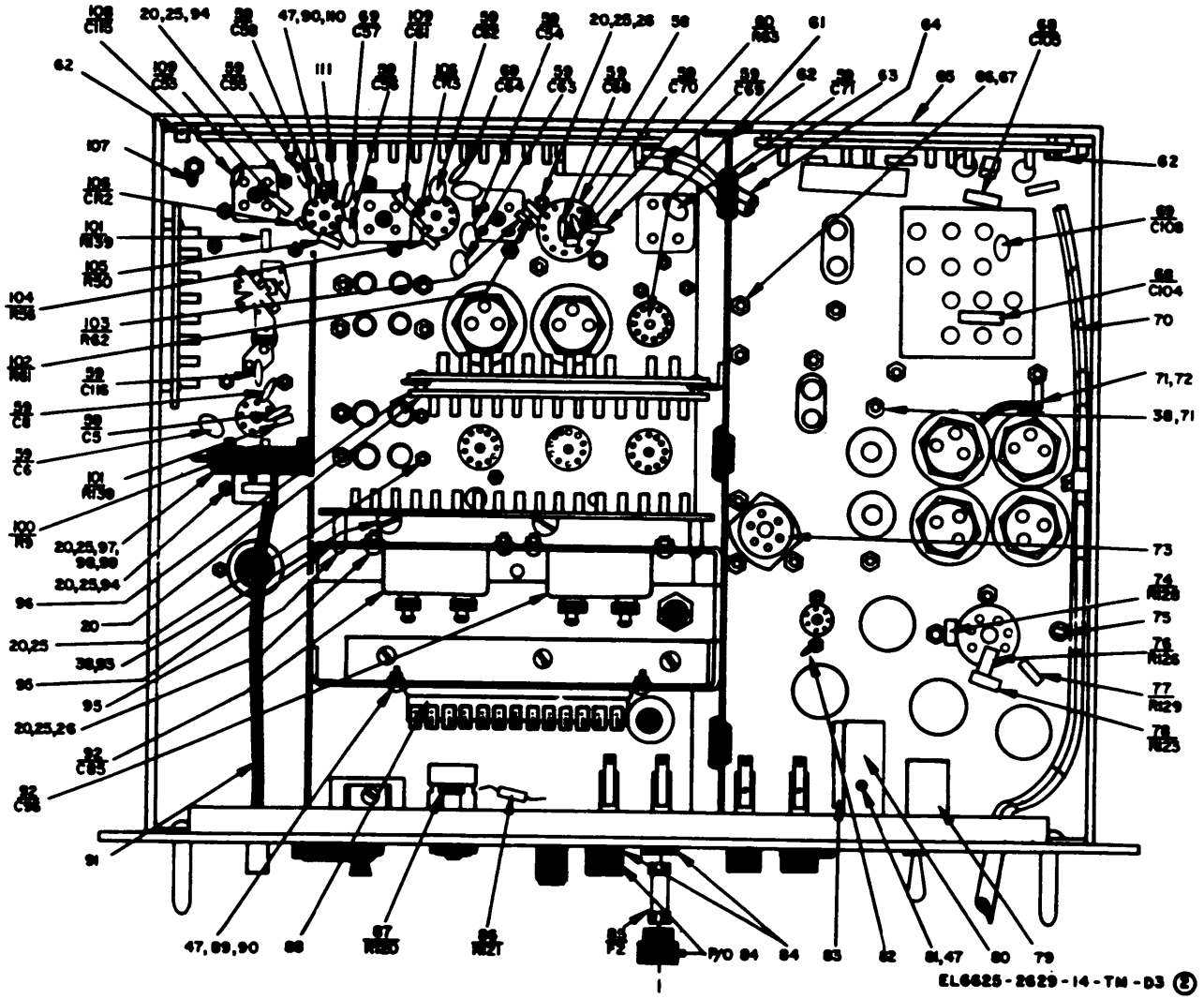


Figure B-3. ② Modulation meter (sheet 2 of 2).

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) FEDERAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION	USABLE ON CODE	(7) UNIT OF MEAS	(8) QTY INC IN UNIT
B4	13	XBHZZ	9905-074-3126	SM-B-399076	80063	PLATE, INDENTIFICATION		EA	1
B4	14	XBHZZ	5305-054-5637	MS35233-3	96906	SCREW, MACHINE		EA	4
B4	15	XBHZZ	5340-980-7351	SM-B-399074	80063	HANDLE, BOW		EA	2
B4	16	PAHZZ	5355-841-8145	K1375	99813	KNOB		EA	1
B4	17	XBHZZ	5305-054-5648	MS35216-13	96906	SCREW, MACHINE		EA	3
B4	18	XBHZZ	5310-058-3599	MS35335-57	96906	WASHER, LOCK		EA	3
B4	19	PAHZZ	5355-781-0319	MS91525-3	96906	KNOB		EA	1
B4	20	XBHZZ	5310-934-9760	MS35649-204	96906	NUT, PLAIN, HEXAGON		EA	4
B4	21	XBHZZ	5305-550-3877	MS35233-61	96906	SCREW, MACHINE		EA	4
B4	22	XBHZZ	5310-209-1239	MS35335-60	96906	WASHER, LOCK		EA	4
B4	23	PAHZZ	5935-553-2249	UG909U	80058	CONNECTOR, RECEPTACLE, ELECTRICAL		EA	1
B4	24	XBHZZ	5305-054-6668	MS35233-43	96906	SCREW, MACHINE		EA	4
B4	25	PAHZZ	5935-755-3447	5258	74545	CONNECTOR, RECEPTACLE, ELECTRICAL		EA	1
B4	26	PAHZZ	5935-681-1004	J1301-1	99813	COVER, JACK		EA	2
B4	27	PAHZZ		257R	83330	POST, BINDING		EA	1
B4	28	PAHZZ	5940-805-1310	257B	83330	POST, BINDING		EA	1
B4	29	PAHZZ	5920-280-4156	FHN26G1	71400	FUSEHOLDER		EA	2
B4	30	PAHZZ	5930-425-2551	SM-A-321037	80063	SWITCH, ROTARY		EA	1
B4	31	XHBZZ	5305-054-5636	MS35233-2	96906	SCRE, MACHINE		EA	2
B4	32	PAHZZ	6625-455-6828	SM-B-399075	80063	COVER		EA	1
B4	33	PAHZZ	4730-541-1866	AK5075-1	99813	COUPLING, INSULATED, BUSHING-SHAFT		EA	1
B4	34	PAHZZ	5930-655-1575	MS35059-22	96906	SWITCH, TOGGLE		EA	1
B4	35	PAHZZ	6145-284-0579	SM-B-399078	80063	CABLE, POWER, ELECTRICAL		EA	1
B4	36	PAHZZ	5935-843-3762	UP131M	96906	CONNECTOR, PLUG, ELECTRICAL		EA	1
B4	37	PAHZZ	5940-636-5593	34541	00779	TERMINAL, LUG		EA	1
B4	38	PAHZZ	6150-402-7283	SM-B-399077	80063	CABLE ASSEMBLY, POWRE, ELECTRICAL		EA	1
B4	39	XBHZZ	5975-273-0788	SR6P	28520	BUSHING, STRAIN RELIEF, CABLE		EA	1
B4	40	PAHZZ	6210-993-7388	81-0410-0111-301	83330	LAMPHOLDER		EA	1
B4	41	PAOZZ		MS-15571-2	96906	LAMP, INCANDESCENT		EA	1
B4	42	PAHZZ		SM-A-399000	80063	SWITCH, ROTARY		EA	1
B4	43	PAHZZ	5355-616-9659	MS91525-1	96906	KNOB		EA	2
B4	44	PAHZZ		SM-C-399002	80063	METER, CARRIER SHIFT		EA	1
B4	45	PAHZZ	6625-738-1525	SM-C-399001	80063	METER, LIMITING		EA	1
B5	1	PAHZZ		SM-C-283727	80063	TERMINAL BOARD ASSEMBLY		EA	1
B5	2	PAHZZ		SM-B-283732	80063	SPACER, SLEEVE		EA	5
B5	3	PAHZZ	5950-714-3561	4608	76493	CHOKE, RADIO FREQUENCY		EA	2
B5	4	PAHZZ	5905-195-6451	RC20GF472K	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B5	5	PAHZZ	5905-114-3937	RCR20G562JS	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B5	6	PAHZZ	5910-154-0547	CSR13F496KL	81349	CAPACITOR, FIXED, ELECTROLYTIC		EA	1
B5	7	PAHZZ		1N758A	81349	SEMICONDUCTOR DEVICE, DIODE		EA	1
B5	8	PAHZZ	5910-810-4852	CK63AW103M	81349	CAPACITOR, FIXED, CERAMIC DIELECTRIC		EA	6
B5	9	PAHZZ		4610	76493	CHOKE, RADIO FREQUENCY		EA	1
B5	10	PAHZZ	5905-299-2019	AC32GF223K	81349	RESISTOR, FIXED, COMPOSITION		EA	5

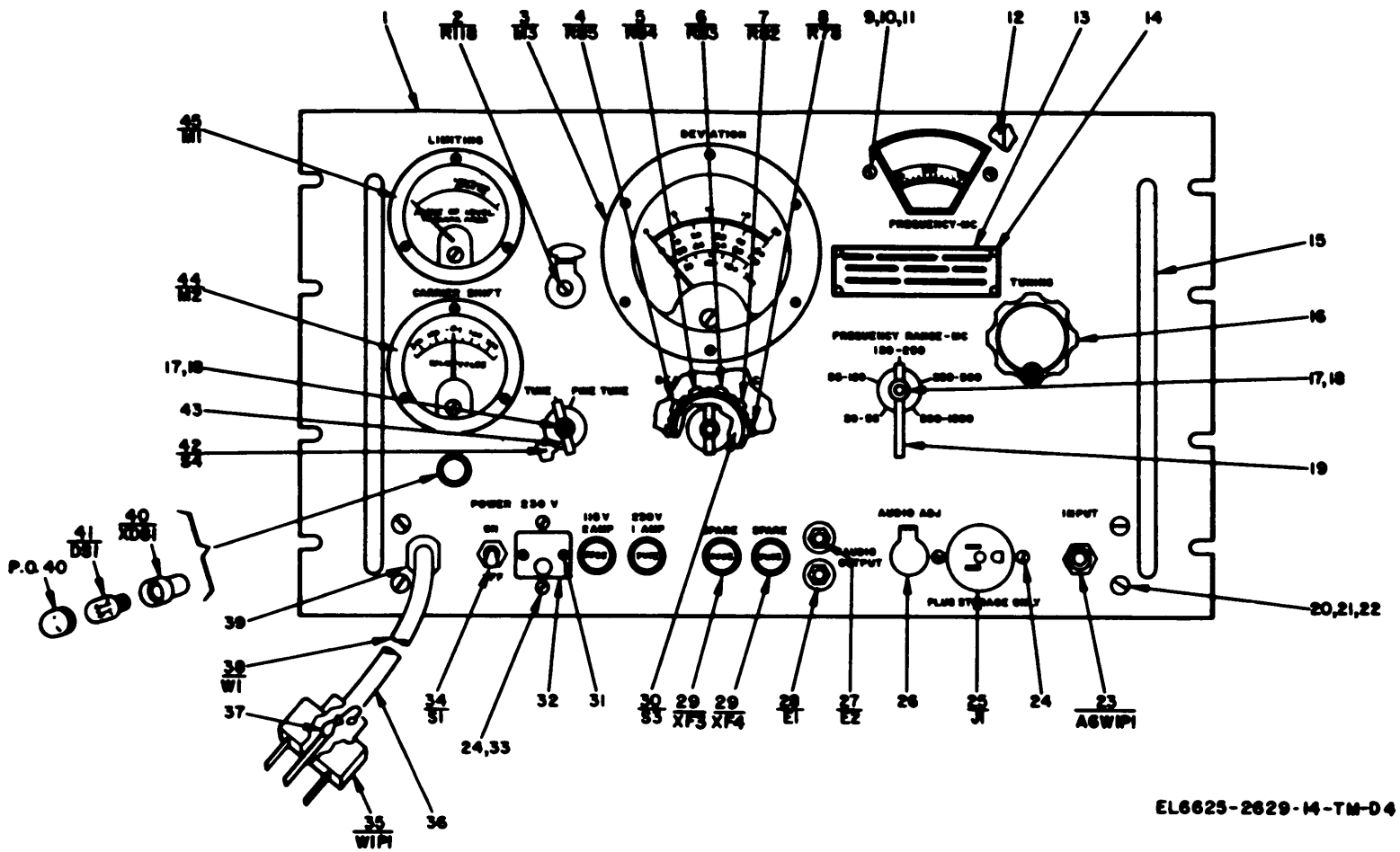


Figure B-4. Front panel assembly.

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) FEDERAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION	USABLE ON CODE	(7) UNIT OF MEAS	(8) QTY INC IN UNIT
B5	11	PAHZZ	5940-410-8355	SM-C-399072	80063	TERMINAL BOARD		EA	1
B5	12	PAHZZ	5905-141-1071	RC20GF474K	81349	RESISTOR, FIXED, COMPOSITION		EA	6
B5	13	PAHZZ	5905-247-8737	RCR32G683JS	81349	RESISTOR, FIXED, COMPOSTION		EA	1
B5	14	PAHZZ	5905-279-3417	RC42GF360J	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B5	15	PAHZZ		1N540	81349	SEMICONDUCTOR DEVICE, DIODE		EA	4
B5	16	PAHZZ	5340-419-3116	2500D1-8	86577	POST, ELECTRICAL		EA	4
B5	17	PAHZZ		CP05A1KE474K	81349	CAPACITOR, FIXED, PAPER DIELECTRIC		EA	1
B5	18	PAHZZ	5940-409-1395	SM-C-399070	80063	TERMINAL BOARD		EA	1
B5	19	PAHZZ		CM20CD501JW3	81349	CAPACITOR, FIXED, MICA DIELECTRIC		EA	1
B5	20	PAHZZ		CP05A1KE333K	81349	CAPACITOR, FIXED, PAPER DIELECTRIC		EA	3
B5	21	PAHZZ	5905-233-0849	RN70D1000F	81349	RESISTOR, FIXED, FILM		EA	2
B5	22	PAHZZ		RC32GF103K	81349	RESISTOR, FIXED, COMPOSITION		EA	2
B5	23	PAHZZ	5905-256-3361	RC42GF102K	81349	RESISTOR, FIXED, COMPOSITION		EA	3
B5	24	PAHZZ	5905-121-9861	RCR32G102JS	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B5	25	PAHZZ	5905-106-9346	RCR32G103JS	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B5	26	PAHZZ		RC32GF332K	81349	RESISITOR, FIXED, COMPOSITION		EA	2
B5	27	PAHZZ		SM-C-399068	80063	TERMINAL BOARD		EA	1
B5	28	PAHZZ	5905-233-0851	RN70D1001F	81349	RESISTOR, FIXED, FILM		EA	2
B5	29	PAHZZ	5905-200-9631	RN70D3010F	81349	RESISTOR, FIXED, FILM		EA	2
B5	30	PAHZZ	5910-823-1143	CP05A1KE473K3	81349	CAPACITOR, FIXED, PAPER DIELECTRIC		EA	1
B5	31	PAHZZ	5905-993-5984	RN70D5621F	81349	RESISTOR, FIXED, FILM		EA	1
B5	32	PAHZZ	5905-299-3058	RCR32G332JS	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B5	33	PAHZZ	5905-111-8357	RCR200681JS	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B5	34	PAHZZ	5910-577-7936	CP05A1KE333K3	81349	CAPACITOR, FIXED, PAPER DIELECTRIC		EA	1
B5	35	PAHZZ	5905-114-5361	RC20GF121K	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B5	36	PAHZZ	5905-892-6484	RN70D6811F	81349	RESISTOR, FIXED, FILM		EA	1
B5	37	PAHZZ		MS35045-111	96906	RESISTOR, FIXED, COMPOSITION		EA	1
B5	38	PAHZZ	5940-409-1391	SM-D-399066	80063	TERMINAL BOARD		EA	1
B5	39	PAHZZ	5905-104-5757	RC32GF273K	81349	RESISTOR, FIXED, COMPOSITION		EA	4
B5	40	PAHZZ	5905-993-5980	RN70D51R1F	81349	RESISTOR, FIXED, FILM		EA	1
B5	41	PAHZZ		CP05A1KE473K	81349	CAPACITOR, FIXED, PAPER DIELECTRIC		EA	1
B5	42	PAHZZ	5905-079-0786	RN70D2213F	81349	RESISTOR, FIXED, FILM		EA	1
B5	43	PAHZZ	5905-204-7440	RN70D4022F	81349	RESISTOR, FIXED, FILM		EA	1
B5	44	PAHZZ		2500D1-2	86577	POST, ELECTRICAL		EA	1
B5	45	PAHZZ	5961-688-9057	1N933M	81349	SEMICONDUCTOR DEVICE, DIODE		EA	1
B5	46	PAHZZ	5905-279-3494	RCR200823JS	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B5	47	PAHZZ	5905-408-8951	RN70D4751F	81349	RESISTOR, FIXED, FILM		EA	1
B5	48	PAHZZ		SM-C-283729	80063	CIRCUIT CARD ASSEMBLY		EA	1
B5	49	PAHZZ		SM-C-283733	80063	CAPACITOR, VARIABLE, CERAMIC DIELECTRIC		EA	1
B5	50	PAHZZ		RC07GF510K	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B5	51	PAHZZ	5905-683-2243	RCR07G151JS	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B5	52	PAHZZ		SM-C-283734	80063	INTEGRATED CIRCUIT		EA	1
B5	53	PAHZZ		SM-C-283730	80063	PRINTED WIRING BOARD		EA	1

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) FEDERAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION	USABLE ON CODE	(7) UNIT OF MEAS	(8) QTY INC IN UNIT
B5	54	PAHZZ		SM-D-207952	80063	TERMINAL BOARD		EA	1
B5	55	PAHZZ	5905-141-0593	RC20GF182K	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B5	56	PAHZZ	5905-141-1168	RC20GF222K	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B5	57	PAHZZ	5905-171-1976	MS35045-115	96906	RESISTOR, FIXED, COMPOSITION		EA	1
B5	58	PAHZZ	5905-038-5953	RN70D3322F	81349	RESISTOR, FIXED, FILM		EA	1
B5	59	PAHZZ		CP05A3EB224K	81349	CAPACITOR, FIXED, PAPER DIELECTRIC		EA	2
B5	60	PAHZZ	5905-993-5991	RN70D6813F	81349	RESISTOR, FIXED, FILM		EA	1
B5	61	PAHZZ	5905-192-0626	RC42GF123K	81349	RESISTOR, FIXED, COMPOSITION		EA	2
B6	1	XBHZZ		SM-B-207945	80063	COVER		EA	1
B6	2	SBHZZ	5340-702-7356	SM-B-321005	80063	BRACKET		EA	1
B6	3	PAHZZ	5935-201-2622	131-15-12-011	71785	SOCKET, ELECTRON TUBE		EA	1
B6	4	XBHZZ		441-00-11-082	71785	MOUNTING RING		EA	1
B6	5	PAHZZ	6625-001-6408	SM-B-321003	80063	HOLDER		EA	2
B6	6	XBHZZ	6625-222-6932	SM-B-321002	80063	COVER		EA	1
B6	7	XBHZZ	6625-455-6760	SM-B-321004	80063	HOUSING		EA	1
B6	8	XBHZZ		MS35233-28	96906	SCREW, MACHINE		EA	3
B6	9	PAHZZ	5940-821-6217	1416-6	83330	TERMINAL, LUG		EA	3
B6	10	XBHZZ	5305-054-6653	MS51957-29	96906	SCREW, MACHINE		EA	2
B6	11	XBDDD		SM-D-207943	80063	HOUSING, OSCILLATOR ASSEMBLY		EA	1
B6	12	PAHZZ	5950-448-5051	SM-B-320988	80063	CORE, ADJUSTABLE TUNING		EA	1
B6	13	XBHZZ	5340-486-7047	SM-B-321010	80063	BRACKET ANGLE		EA	1
B6	14	XBHZZ	5310-209-1366	MS35335-58	96906	WASHER, LOCK		EA	11
B6	15	XBHZZ	5310-934-9761	MS35649-264	96906	NUT, PLAIN, HEXAGON		EA	8
B6	16	XBHZZ	5930-415-6085	SM-B-321011	80063	DETENT		EA	1
B6	17	XBHZZ		MS35233-26	96906	SCREW, MACHINE		EA	2
B6	18	PAHZZ	5910-412-1105	SM-C-320972	80063	CAPACITOR ASSEMBLY		EA	1
B6	19	XBHZZ	5340-498-5808	SM-B-320987	80063	BRACKET, ANGLE		EA	1
B6	20	PAHZZ		SM-C-320973	80063	CAPACITOR, VARIABLE AIR DIELECTRIC		EA	1
B6	21	PAOZZ	5960-188-3899	5675	81349	ELECTRON TUBE		EA	1
B6	22	PAHZZ	5960-415-6084	SM-B-320974	80063	HOLDER, TUBE		EA	1
B6	23	PAHZZ	5905-107-2918	RCR20G105JS	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B6	24	PAHZZ	5910-410-1739	SM-B-320977	80063	CAPACITOR, FIXED, PLASTIC DIELECTRIC		EA	1
B6	25	XBHZZ	5310-934-9748	MS35649-244	96906	NUT, PLAIN, HEXAGON		EA	3
B6	26	XBHZZ	5310-058-3599	MS35335-57	96906	WASHER, LOCK		EA	12
B6	27	PAHZZ		SM-B-320980	80063	CONTACT ASSEMBLY		EA	1
B6	28	XBHZZ	6625-738-8181	SM-B-321012	80063	BRACKET ASSEMBLY, TUNING		EA	1
B6	29	XBHZZ	5305-249-0532	MS51017-24	96906	SETSCREW		EA	2
B6	30	XBHZZ	3020-455-8277	SM-B-321013	80063	GEAR, SPUR		EA	2
B6	31	XBHZZ	3040-455-8824	SM-B-321015	80063	SHAFT, STRAIGHT		EA	1
B6	32	XBHZZ	5365-298-6564	MS16624-4025	96906	RING, RETAINING		EA	4
B6	33	XBHZZ	6625-455-6831	SM-C-321014	80063	BRACKET, TUNING		EA	1
B6	34	XBHZZ	6625-738-8179	SM-B-321016	80063	SHAFT, STRAIGHT		EA	1
B6	35	PAHZZ	6625-455-6829	SM-B-320991	80063	COUPLING ASSEMBLY		EA	1

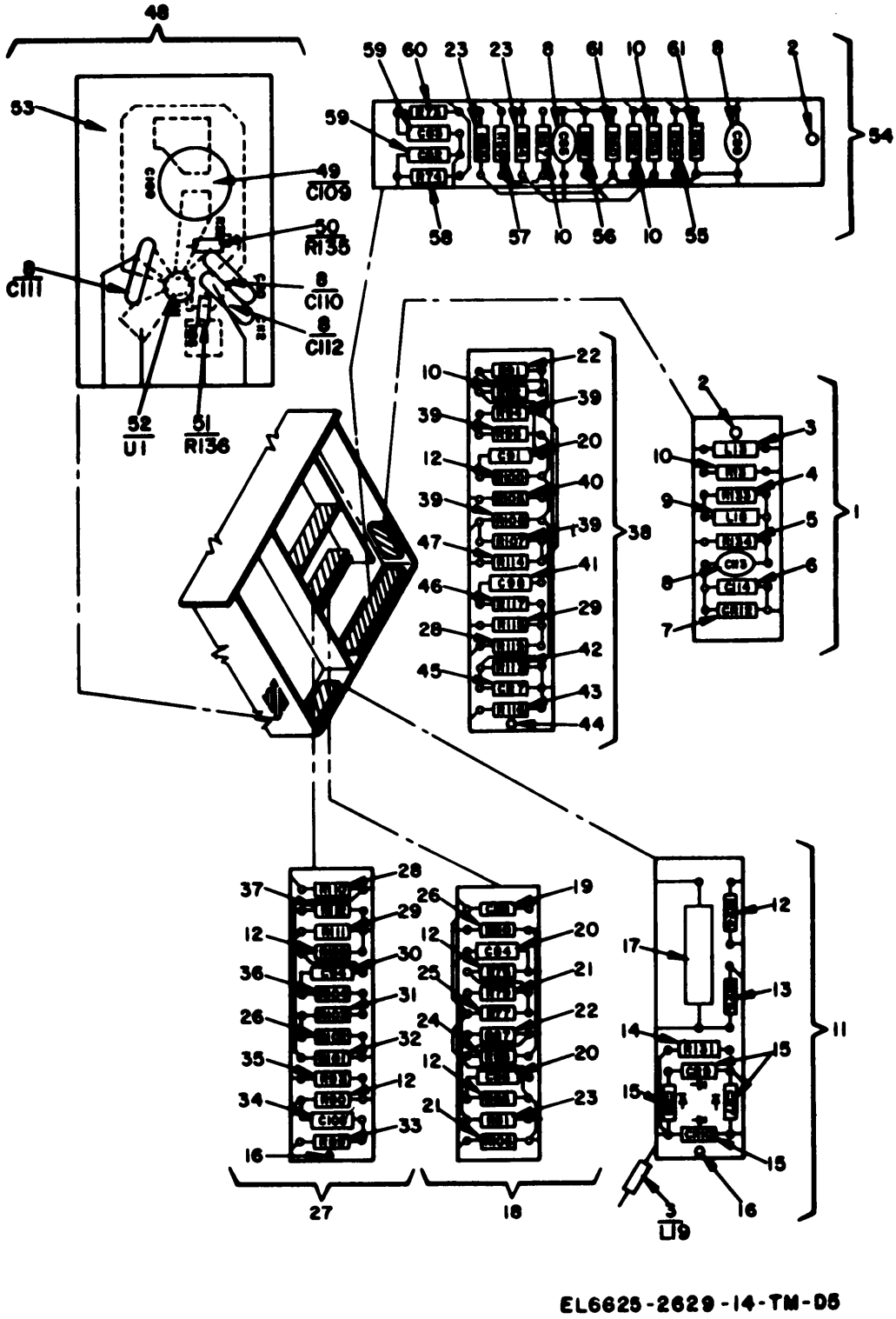

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Figure B-5. 1

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) FEDERAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION	USABLE ON CODE	(7) UNIT OF MEAS	(8) QTY INC IN UNIT
B6	36	PAHZZ	3120-465-6631	SM-B-320968	80063	BUSHING		EA	1
B6	37	XBHZZ	5305-800-7261	MS51021-9	96906	SETSCREW		EA	4
B6	38	PAHZZ	6625-845-6272	SM-B-320992	80063	COUPLING		EA	1
B6	39	PAHZZ	3120-824-3711	SM-B-320967	80063	BUSHING		EA	1
B6	40	XBHZZ	5315-844-5644	MS16562-194	96906	PIN, SPRING		EA	1
B6	41	XBHZZ	3040-463-3904	SM-B-320993	80063	SHAFT, STRAIGHT		EA	1
B6	42	XBHZZ	5305-719-5329	MS51963-20	96906	SETSCREW		EA	2
B6	43	XBHZZ	5355-435-2418	SM-D-320995	80063	DIAL, SCALE		EA	1
B6	44	XBHZZ		MS35232-1	96906	SCREW, MACHINE		EA	4
B6	45	PAHZZ		SM-C-321000	80063	WINDOW, DIAL		EA	1
B6	46	XBHZZ	5355-843-2521	SM-C-320997	80063	SHUTTER, DIAL		EA	1
B6	47	XBHZZ	4010-435-2441	SM-B-321001	80063	CHAIN, BEAD		EA	1
B6	48	XBHZZ	6625-738-8178	SM-B-321009	80063	SHAFT, SHOULDERED		EA	1
B6	49	XBHZZ		SM-B-360277	80063	SPROCKET WHEEL		EA	1
B6	50	XBHZZ	5305-051-4503	MS51973-28	96906	SETSCREW		EA	4
B6	51	XBDDD	6625-738-8176	SM-D-321017	80063	ROTOR ASSEMBLY		EA	1
B6	52	PAHZZ	5950-896-3009	SM-B-399085	80063	COIL, RADIO FREQUENCY		EA	1
B6	53	PAHZZ	5905-114-5438	RC20GF510J	81349	RESISTOR, FIXED, COMPOSITION		EA	5
B6	54	XBHZZ		9050T12	80063	STANDOFF		EA	2
B6	55	PAHZ	5950-434-2473	SM-B-399084	80063	COIL, RADIO FREQUENCY		EA	1
B6	56	PAHZZ	5950-442-5450	SM-B-321022	80063	COIL, RADIO FREQUENCY		EA	2
B6	57	PAHZZ	5950-843-3622	SM-B-321021	80063	COIL, RADIO FREQUENCY		EA	1
B6	58	PAHZZ	6625-455-6882	SM-D-321018	80063	ROTOR MOLD ASSEMBLY		EA	1
B6	59	XBHZZ	5310-595-6211	MS15795-803	96906	WASHER, FLAT		EA	1
B6	60	XBHZZ	5310-722-5998	MS15795-805	96906	WASHER, FLAT		EA	1
B6	61	XBHZZ		MS35233-30	96906	SCREW, MACHINE		EA	2
B6	62	XBHZZ	3040-434-4495	SM-B-321007	80063	SHAFT, SHOULDERED		EA	1
B6	63	XBHZZ	5365-282-7120	MS16624-4037	96906	RING, RETAINING		EA	1
B6	64	XBHZZ		MS35234-63	96906	SCREW, MACHINE		EA	4
B6	65	XBHZZ	5310-209-1239	MS35335-60	96906	WASHER, LOCK		EA	4
B6	66	XBHZZ	5305-282-3570	AN505C6-8	88044	SCREW, MACHINE		EA	2
B6	67	XBHZZ	3120-259-2138	SM-B-321006	80063	BEARING, PLAIN		EA	1
B6	68	PAHZZ	5340-702-7234	SM-B-360279	80063	PLUG, THRUST		EA	1
B6	69	XBHZZ	6625-036-3939	SM-B-320956	80063	COVER ASSEMBLY, FRONT		EA	1
B6	70	PAHZZ	5905-279-2295	RC42GF682K	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B6	71	PAHZZ	5915-471-3728	SM-C-360273	80063	FILTER, BAND SUPRESSION		EA	2
B6	72	XBHZZ	6625-036-3942	SM-B-320958	80063	COVER ASSEMBLY, REAR		EA	1
B6	73	XBHZZ	5305-054-6668	MS35233-43	96906	SCREW, MACHINE		EA	2
B6	74	XBHZZ	5310-614-3552	MS35335-59	96906	WASHER, LOCK		EA	2
B6	75	XBHZZ		MS35233-15	96906	SCREW, MACHINE		EA	11
B6	76	XBHZZ	6625-222-6975	SM-C-320970	80063	COVER		EA	2
B6	77	PAHZZ	5999-098-8086	SM-B-320971	80063	GASKET		EA	2
B6	78	XBDDD		SM-C-321024	80063	MIXER ASSEMBLY		EA	1

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) FEDERAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION	USABLE ON CODE	(7) UNIT OF MEAS	(8) QTY INC IN UNIT
B6	79	PAHZZ	5905-978-7095	RN65D1500F	81349	RESISTOR, FIXED, FILM		EA	1
B6	80	XBHZZ		SM-C-321025	80063	HOUSING		EA	1
B6	81	PAHZZ	5935-835-0510	UG625BU	80058	CONNECTOR, RECEPTACLE, ELECTRIC		EA	1
B6	82	PAHZZ	6625-038-7361	SM-B-321027	80063	LOCATOR		EA	2
B6	83	PAHZZ	5970-408-0507	SM-B-321028	80063	INSULATOR, DISK		EA	2
B6	84	PAHZZ	5365-763-0156	SM-B-321029	80063	PLUG		EA	1
B6	85	PAHZZ	5935-851-5112	SKT12	89291	JACK, TIP		EA	1
B6	86	PAHZZ		1N21WE	81349	SEMICONDUCTOR DEVICE, DIODE		EA	1
B6	87	PAHZZ	5935-738-1546	SM-B-321032	80063	HOUSING, CONNECTOR		EA	1
B6	68	PAHZZ	5935-412-1101	SM-B-321030	80063	CONNECTOR, RECEPTACLE, ELECTRICAL		EA	1
B6	89	PAHZZ		SM-B-321031	80063	CONTACT, ELECTRICAL		EA	1
B6	90	PAHZZ		UG625AU	80058	CONNECTOR, RECEPTACLE, ELECTRICAL		EA	1
B6	91	PAHZZ	5340-422-0380	SM-B-320969	80063	POST, ELECTRICAL		EA	1
B6	92	PAHZZ		SM-C-207944	80063	CAN ASSEMBLY		EA	1
B6	93	XBHZZ		MS35233-17	96906	SCREW, MACHINE		EA	2
B6	94	XBHZZ		MS35233-18	96906	SCREW, MACHINE		EA	2
B6	95	PAHZZ	5940-820-6235	1416-4	83330	TERMINAL, LUG		EA	1
B6	96	XBHZZ	5305-054-5652	MS51957-18	96906	SCREW, MACHINE		EA	2
B6	97	XBHZZ	5905-718-9442	MS35233-13	96906	SCREW, MACHINE		EA	2
B7	1	PAHZZ	5910-284-4720	SM-B-360272	80063	CAPACITOR, VARIABLE, CERAMIC DIELECTRIC		EA	2
B7	2	XBHZZ	5310-045-5202	MS15795-903	96906	WASHER, FLAT		EA	4
B7	3	XBHZZ	5310-939-1063	MS35335-85	96906	WASHER, LOCK		EA	6
B7	4	XBHZZ	5310-753-4007	MS35649-46	96906	NUT, PLAIN, HEXAGON		EA	6
B7	5	PAHZZ	5307-008-9341	SM-B-360269	80063	STUD, PLAIN		EA	2
B7	6	PAHZZ	5910-850-7991	CM15C151JN3	81349	CAPACITOR, FIXED, MICA DIELECTRIC		EA	1
B7	7	PAHZZ		RC20GF562F	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B7	8	PAHZZ	5940-408-0529	SM-B-360266-1	80063	TERMINAL BOARD		EA	1
B7	9	PAHZZ	5950-001-1386	SM-B-360270-1	80063	COVER, MODIFIED		EA	1
B7	10	PAHZZ		SM-C-360259	80063	TRANSFORMER, INTERMEDIATE FREQUENCY		EA	1
B7	11	PAHZZ	5310-410-1741	SM-B-360263	80063	CAPACITOR ASSEMBLY		EA	1
B8	1	PAHZZ	5910-284-4720	SM-B-360272	80063	CAPACITOR, VARIABLE, CERAMIC DIELECTRIC		EA	2
B8	2	XBHZZ	5310-045-5202	MS15795-903	96906	WASHER, FLAT		EA	4
B8	3	XBHZZ	5310-939-1063	MS35335-85	96906	WASHER, LOCK		EA	6
B8	4	XHBZZ	5310-753-4007	MS35649-46	96906	NUT, PLAIN, HEXAGON		EA	6
B8	5	PAHZZ		SM-C-360259GR5	80063	TRANSFORMER, INTERMEDIATE FREQUENCY		EA	1
B8	6	PAHZZ	5905-141-1168	RC20GF222K	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B8	7	PAHZZ		SM-B-360266-6	80063	TERMINAL BOARD		EA	1
B8	8	PAHZZ		SM-B-360270-6	80063	COVER, MODIFIED		EA	1
B8	9	PAHZZ	5307-008-9341	SM-B-360269	80063	STUD, PLAIN		EA	2
B8	10	PAHZZ	5310-410-1741	SM-B-360263	80063	CAPACITOR ASSEMBLY		EA	1
B9	1	PAHZZ	5910-284-4720	SM-B-360272	80063	CAPACITOR, VARIABLE, CERAMIC DIELECTRIC		EA	2
B9	2	XBHZZ	5310-939-1063	MS35335-85	96906	WASHER, LOCK		EA	6
B9	3	XBHZZ	5310-753-4007	MS35649-46	96906	NUT, PLAIN, HEXAGON		EA	6

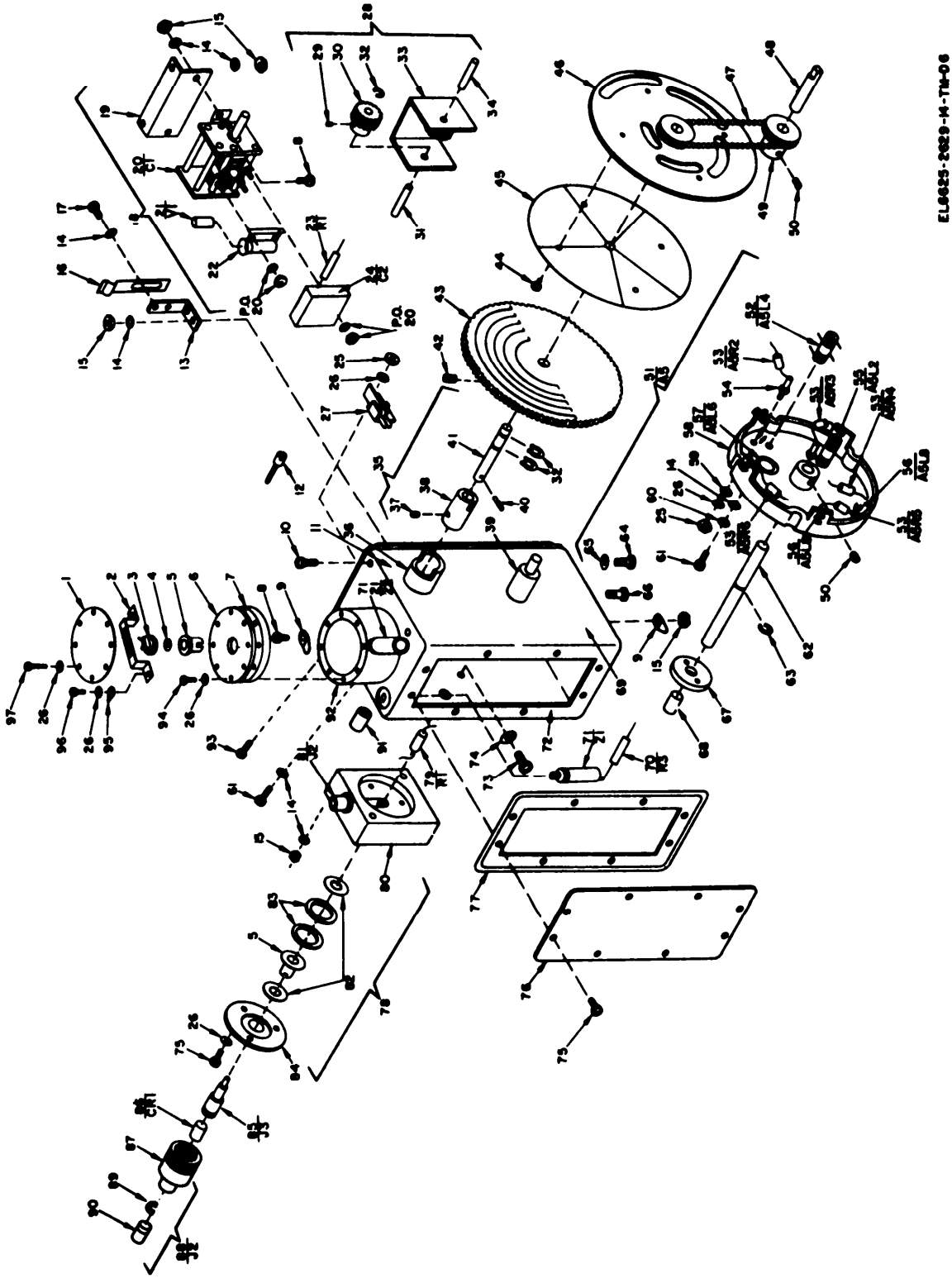


Figure B-6. Radio frequency oscillator.

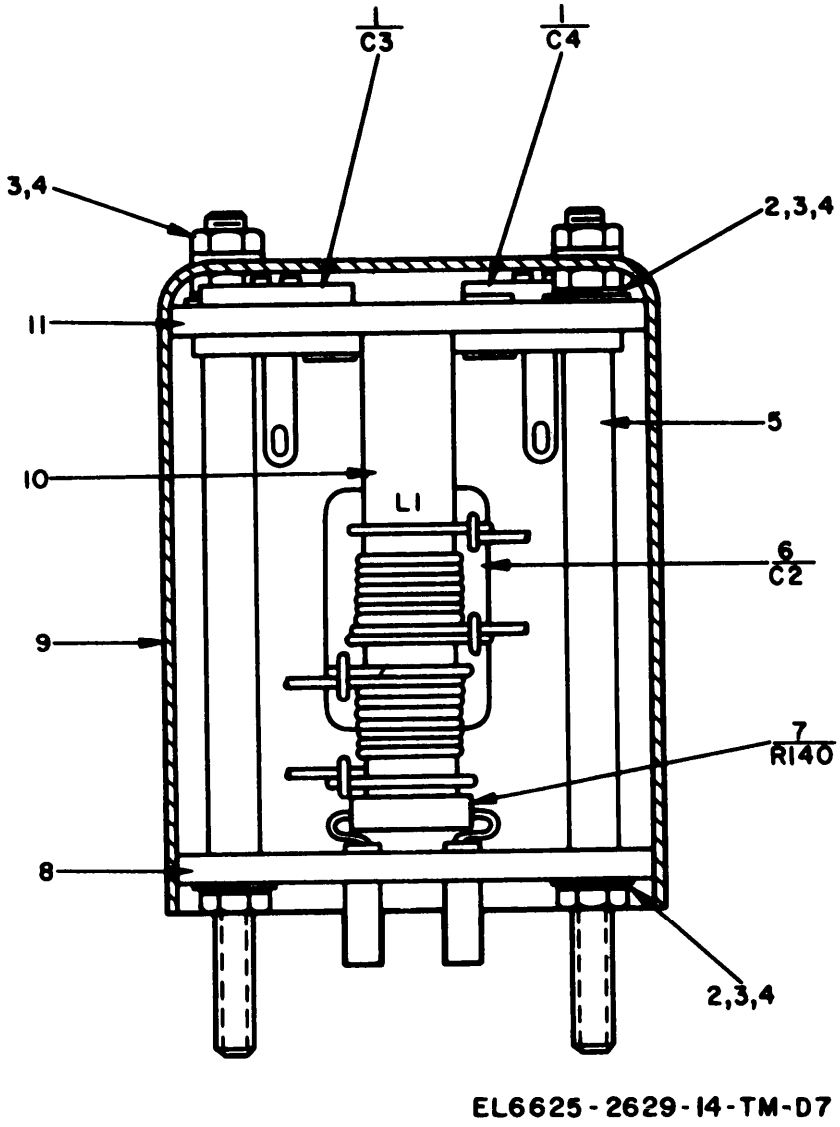


Figure B-7. Intermediate frequency transformer.

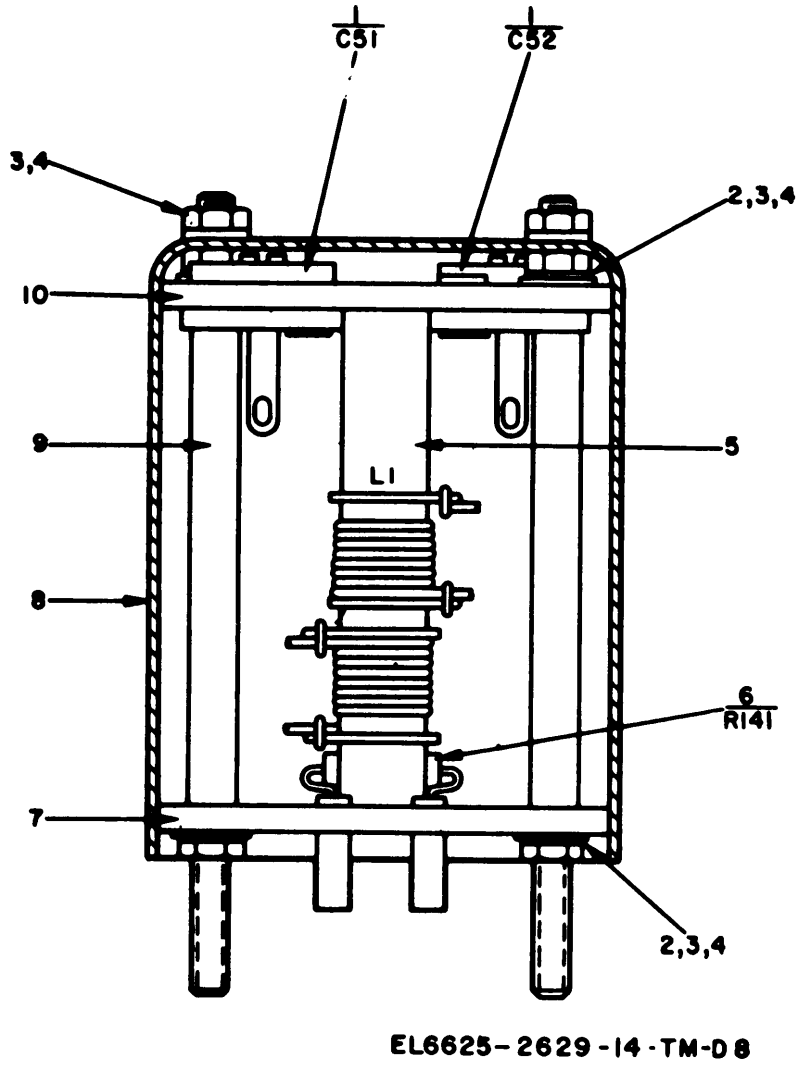


Figure B-8. Intermediate frequency transformer

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) FEDERAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION	USABLE ON CODE	(7) UNIT OF MEAS	(8) QTY INC IN UNIT
B9	4	XBHZZ	5310-045-5202	MS15795-903	96906	WASHER, FLAT		EA	4
B9	5	PAHZZ	5307-008-9341	SM-B-360269	80063	STUD, PLAIN		EA	2
B9	6	PAHZZ	5905-110-0310	RC20GF392K	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B9	7	PAHZZ	5940-408-0536	SM-B-360266-7	80063	TERMINAL BOARD		EA	1
B9	8	PAHZZ		SM-B-360270-7	80063	COVER, MODIFIED		EA	1
B9	9	PAHZZ		SM-C-360259	80063	TRANSFORMER, INTERMEDIATE FREQUENCY		EA	1
B9	10	PAHZZ	5310-410-1741	SM-B-360263	80063	CAPACITOR ASSEMBLY		EA	1
B10	1	PAHZZ	5910-284-4720	SM-B-360272	80063	CAPACITOR, VARIABLE, CERAMIC DIELECTRIC		EA	2
B10	2	XBHZZ	5310-045-5202	MS15795-903	96906	WASHER, FLAT		EA	4
B10	3	XBHZZ	5310-939-1063	MS35335-85	96906	WASHER, LOCK		EA	6
B10	4	XBHZZ	5310-753-4007	MS35649-46	96906	NUT, PLAIN, HEXAGON		EA	6
B10	5	PAHZZ	5307-008-9341	SM-B-360269	80063	STUD, PLAIN		EA	2
B10	6	PAHZZ		SM-B-360270-8	80063	COVER, MODIFIED		EA	1
B10	7	PAHZZ	5940-408-0538	SM-B-360266-8	80063	TERMINAL BOARD		EA	1
B10	8	PAHZZ	5905-141-1168	RC20GF222K	81349	RESISTOR, FIXED, COMPOSITION		EA	1
B10	9	PAHZZ		SM-C-360259	80063	TRANSFORMER, INTERMEDIATE FREQUENCY		EA	1
B10	10	PAHZZ	5310-410-1741	SM-B-360263	80063	CAPACITOR ASSEMBLY		EA	1
B11	1	PAHZZ	5910-126-1619	CV11A250	81349	CAPACITOR, VARIABLE, CERAMIC DIELECTRIC		EA	1
B11	2	PAHZZ		CC20CH100J	81349	CAPACITOR, FIXED, CERAMIC DIELECTRIC		EA	3
B11	3	PAHZZ	5950-432-7076	SM-C-399056	80063	TRANSFORMER, INTERMEDIATE FREQUENCY		EA	1
B11	4	XBHZZ		MS35649-245	96906	NUT, PLAIN, HEXAGON		EA	8
B11	5	PAHZZ	5940-409-1392	SM-B-399050	80063	TERMINAL BOARD		EA	1
B11	6	PAHZZ	5905-201-6784	RN70B1002F	81349	RESISTOR, FIXED, FILM		EA	2
B11	7	PAHZZ	5905-059-7483	RN70B3321F	81349	RESISTOR, FIXED, FILM		EA	4
B11	8	PAHZZ	5940-409-1396	SM-C-399052	80063	TERMINAL BOARD		EA	1
B11	9	PAHZZ	5905-661-0682	RN70B5601F	81349	RESISTOR, FIXED, FILM		EA	1
B11	10	PAHZZ	5910-462-3188	SM-B-399048	80063	CAPACITOR ASSEMBLY		EA	1
B11	11	PAHZZ	5910-556-9440	CV11A070	81349	CAPACITOR, VARIABLE, CERAMIC DIELECTRIC		EA	1
B11	12	PAHZZ		SM-B-399055	80063	COVER, MODIFIED		EA	1
B11	13	XBHZZ	5310-595-6211	MS15795-803	96906	WASHER, FLAT		EA	4
B11	14	PAHZZ		1N198	81349	SEMICONDUCTOR DEVICE, DIODE		EA	2
B11	15	PAHZZ		CC20CH270J	81349	CAPACITOR, FIXED, CERAMIC DIELECTRIC		EA	2
B11	16	PAHZZ	5910-556-9430	CC20CH150J	81349	CAPACITOR, FIXED, CERAMIC DIELECTRIC		EA	2
B11	17	PAHZZ	5307-452-3511	SM-B-399080	80063	STUD, PLAIN		EA	2

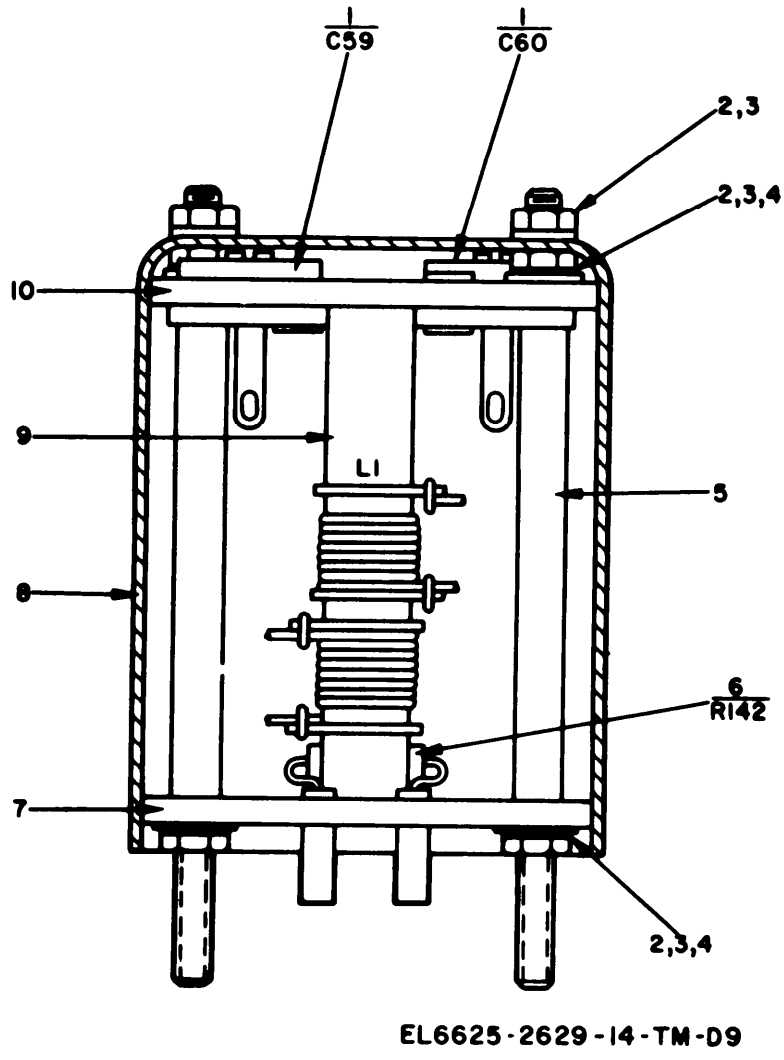


Figure b-9. Intermediate frequency transfomer

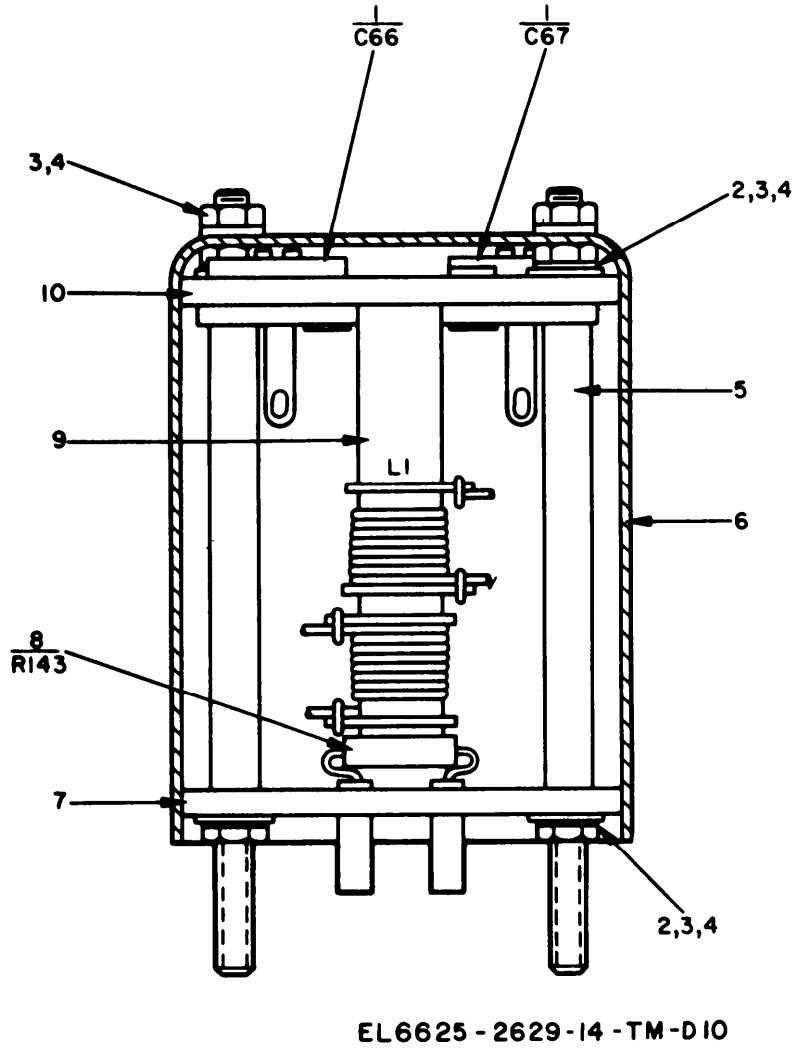


Figure *B-10. Intervmediate frequency transformer.*

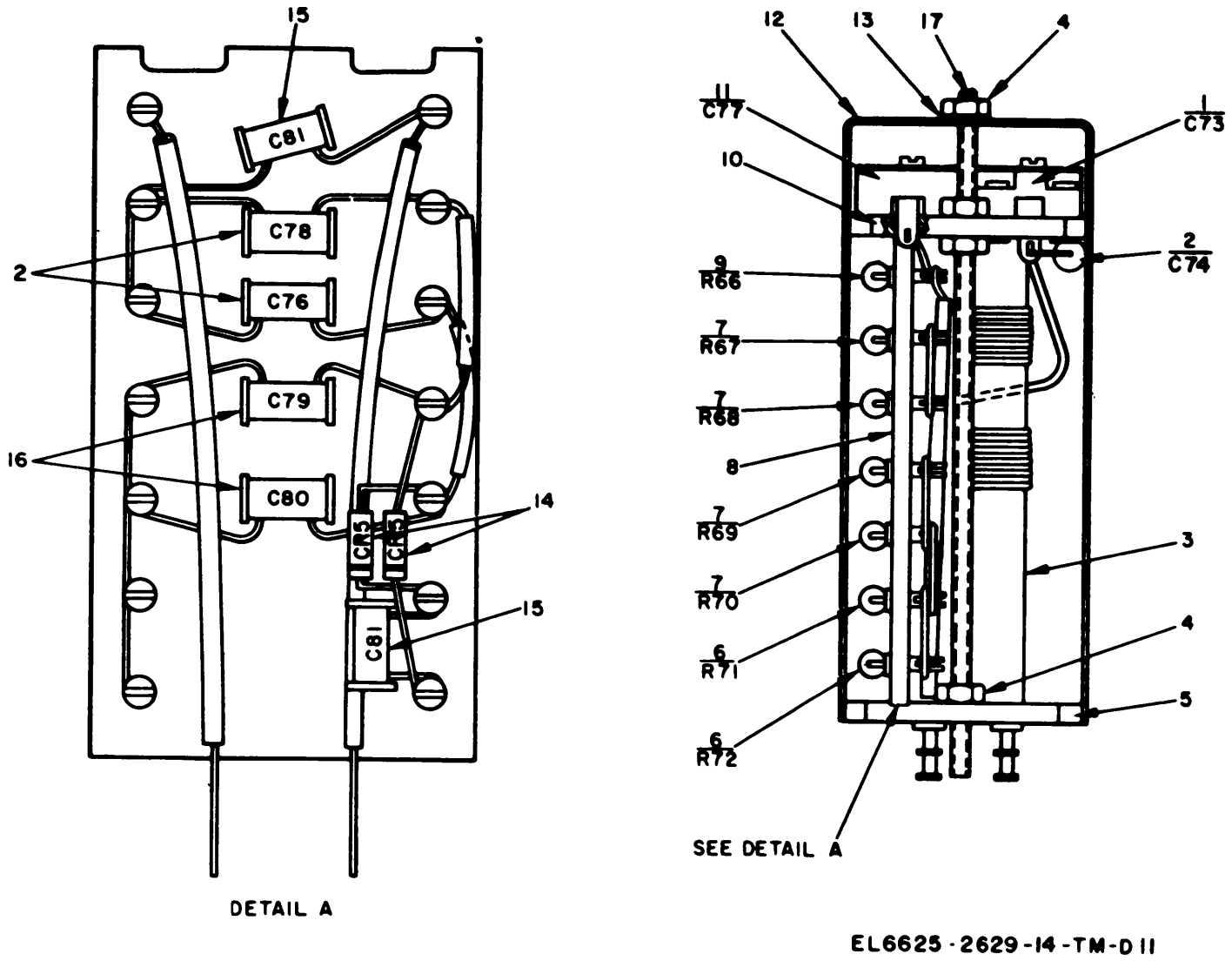


Figure B-11. Intermediate frequency transformer.

SECTION IV FEDERAL STOCK NUMBER AND PART NUMBER INDEX

STOCK NUMBER	FIG. NO.	ITEM NO.	STOCK NUMBER	FIG. NO.	ITEM NO.
3020-455-8277	B6	30	5310-422-0310	B2	15
3040-434-4495	B6	62	5310-531-9514	B2	33
3040-455-8824	B6	31	5310-595-6211	B6	59
3040-463-3904	B6	41	5310-595-6211	B11	13
3120-259-2138	B6	67	5310-614-3552	B3	66
3120-465-6631	B6	36	5310-614-3552	B6	74
3120-824-3711	B6	39	5310-722-5998	B6	60
4010-435-2441	B6	47	5310-722-5998	B3	97
4730-541-1866	B4	33	5310-753-4007	B7	4
5305-051-4503	B6	50	5310-934-9748	B3	90
5305-054-5636	B4	31	5310-934-9748	B6	25
5305-054-5637	B4	14	5310-934-9756	B3	71
5305-054-5648	B4	17	5310-934-9759	B3	67
5305-054-5649	B3	110	5310-934-9760	B4	20
5305-054-5651	B3	81	5310-934-9761	B3	25
5305-054-5652	B6	96	5310-934-9761	B4	9
5305-054-6650	B3	21	5310-934-9761	B6	15
5305-054-6652	B3	26	5310-939-1063	B7	3
5305-054-6653	B6	10	5310-939-1063	B8	3
5305-054-6654	B3	95	5310-939-1063	B9	2
5305-054-6668	B4	24	5310-939-1063	B10	3
5305-054-6668	B6	73	5315-844-5644	B6	40
5305-059-3657	B2	13	5325-291-9366	B3	63
5305-059-3658	B3	93	5330-476-4647	B2	36
5305-071-1324	B2	12	5340-116-2033	B2	6
5305-151-3720	B2	27	5340-419-3116	B5	16
5305-249-0532	B6	29	5340-419-3438	B2	14
5305-282-3570	B6	66	5340-422-0380	B6	91
5305-550-3877	B4	21	5340-422-0617	B2	31
5305-616-8350	B3	99	5340-486-7047	B6	13
5305-718-9442	B3	48	5340-498-5808	B6	19
5305-718-9442	B6	97	5340-702-7234	B6	68
5305-719-5329	B6	42	5340-702-7356	B6	2
5305-763-0219	B3	51	5340-952-6892	B2	10
5305-800-7261	B6	37	5340-980-7351	B4	15
5305-832-1506	B2	4	5355-435-2418	B6	43
5307-008-9341	B7	5	5355-616-9659	B4	43
5307-008-9341	B8	9	5355-781-0319	B4	19
5307-008-9341	B9	5	5355-841-8145	B4	16
5307-008-9341	B10	5	5355-843-2521	B6	46
5307-452-3511	B11	17	5365-282-7120	B6	63
5310-045-5202	B7	2	5365-298-6564	B6	32
5310-045-5202	B8	2	5365-763-0156	B6	84
5310-045-5202	B9	4	5905-038-5953	B5	58
5310-045-5202	B10	2	5905-050-1123	B4	6
5310-058-3599	B3	47	5905-059-7483	B11	7
5310-058-3599	B4	18	5905-078-6916	B4	8
5310-058-3599	B6	26	5905-079-0786	B5	42
5310-209-1239	B3	38	5905-088-3110	B4	5
5310-209-1239	B4	22	5905-104-5757	B5	39
5310-209-1239	B6	65	5905-106-1273	B3	104
5310-209-1366	B3	20	5905-106-1276	B3	78
5310-209-1366	B4	11	5905-106-9346	B5	25
5310-209-1366	B6	14	5905-107-2918	B6	23
5310-274-8680	B3	94	5905-107-9252	B3	42
5310-410-1741	B7	11	5905-107-9252	B4	2
5310-410-1741	B8	10	5905-108-6922	B3	101
5310-410-1741	B9	10	5905-110-0310	B9	6
5310-410-1741	B10	10	5905-111-8357	B5	33

SECTION IV FEDERAL STOCK NUMBER AND PART NUMBER INDEX

STOCK NUMBER	FIG. NO.	ITEM NO.	STOCK NUMBER	FIG. NO.	ITEM NO.
5905-114-3242	B3	34	5910-577-7940	B3	16
5905-114-3937	B5	5	5910-810-4852	B5	8
5905-114-5361	B5	35	5910-823-1143	B5	30
5905-114-5438	B3	100	5910-838-9421	B3	69
5905-114-5438	B6	53	5910-850-7991	B7	6
5905-120-0167	B3	74	5910-880-0380	B3	53
5905-121-9861	B5	24	5910-949-5027	B3	3
5905-141-0591	B3	105	5915-471-3728	B6	71
5905-141-0593	B5	55	5920-228-7882	B3	85
5905-141-1071	B5	12	5920-280-4156	B3	84
5905-141-1168	B3	102	5920-280-4156	B4	29
5905-141-1168	B5	56	5925-738-8179	B6	34
5905-141-1168	B8	6	5930-296-9062	B3	83
5905-141-1168	B10	8	5930-415-6085	B6	16
5905-171-1976	B5	57	5930-425-2551	B4	30
5905-171-2002	B3	103	5930-655-1575	B4	34
5905-174-0906	B4	4	5935-201-2622	B6	3
5905-192-0626	B5	61	5935-260-0516	B3	111
5905-195-6451	B5	4	5935-295-3365	B3	23
5905-200-9631	B5	29	5935-412-1101	B6	88
5905-201-6784	B11	6	5935-518-8696	B3	24
5905-204-7440	B5	43	5935-553-2249	B4	23
5905-233-0849	B5	21	5935-681-1004	B4	26
5905-233-0851	B5	28	5935-738-1546	B6	87
5905-247-8737	B5	13	5935-755-3447	B4	25
5905-256-3361	B5	23	5935-812-4936	B3	61
5905-279-2295	B6	70	5935-835-0508	B3	6
5905-279-3417	B5	14	5935-835-0510	B6	81
5905-279-3494	B5	46	5935-843-3762	B4	35
5905-299-2005	B3	76	5935-851-5112	B6	85
5905-299-2014	B3	77	5935-935-2231	B3	58
5905-299-2019	B5	10	5940-178-0174	B3	88
5905-299-2058	B5	32	5940-408-0529	B7	8
5905-408-8951	B5	47	5940-408-0536	B9	7
5905-500-7272	B3	60	5940-408-0538	B10	7
5905-556-3350	B3	35	5940-409-1391	B5	38
5905-572-8160	B3	41	5940-409-1392	B11	5
5905-661-0682	B11	9	5940-409-1395	B5	18
5905-683-2243	B5	51	5940-409-1396	B11	8
5905-765-8702	B4	7	5940-410-8355	B5	11
5905-892-6484	B5	36	5940-500-7606	B3	75
5905-933-3925	B3	87	5940-636-5593	B4	37
5905-978-7095	B6	79	5940-805-1310	B4	28
5905-993-5980	B5	40	5940-820-6235	B3	82
5905-993-5984	B5	31	5940-820-6235	B6	95
5905-993-5991	B5	60	5940-821-6217	B3	107
5910-126-1619	B11	1	5940-821-6217	B6	9
5910-154-0547	B5	6	5950-001-1386	B7	9
5910-164-7509	B3	92	5950-415-6122	B3	9
5910-284-4720	B7	1	5950-415-6124	B3	8
5910-284-4720	B8	1	5950-415-6128	B3	55
5910-284-4720	B9	1	5950-415-6129	B3	54
5910-284-4720	B10	1	5950-432-7076	B11	3
5910-410-1739	B6	24	5950-434-2473	B6	55
5910-412-1105	B6	18	5950-442-5450	B6	56
5910-462-3188	B11	10	5950-448-5051	B6	12
5910-556-9430	B11	16	5950-714-3561	B5	3
5910-556-9440	B11	11	5950-843-2532	B3	52
5910-577-7936	B5	34	5950-843-3622	B6	57

SECTION IV FEDERAL STOCK NUMBER AND PART NUMBER INDEX

STOCK NUMBER	FIG. NO.	ITEM NO.
5950-878-5525	B3	1
5950-896-3009	B6	52
5960-078-7796	B3	43
5960-134-6031	B3	15
5960-179-3252	B3	44
5960-179-4446	B3	57
5960-188-3899	B6	21
5960-188-8565	B3	5
5960-262-0210	B3	18
5960-262-0286	B3	29
5960-273-2434	B3	49
5960-295-7768	B3	4
5960-415-6084	B6	22
5960-542-7004	B3	2
5960-681-9802	B3	32
5960-686-8085	B3	10
5960-858-5172	B3	14
5960-860-7710	B3	56
5961-688-9057	B5	45
5970-408-0507	B6	83
5970-883-8517	B3	98
5975-273-0788	B4	39
5995-401-3698	B3	27
5995-408-0471	B3	12
5995-409-1162	B3	91
5999-098-8086	B6	77
6145-284-0579	B4	36
6150-402-7283	B4	38
6210-993-7388	B4	40
6625-001-1382	B2	25
6625-001-1388	B2	11
6625-001-1390	B2	2
6625-001-1391	B2	43
6625-001-1392	B2	45
6625-001-1393	B2	9
6625-001-6408	B6	5
6625-036-3939	B6	69
6625-036-3940	B3	50
6625-036-3942	B6	72
6625-038-7361	B6	82
6625-172-3650	B2	26
6625-172-3652	B2	39
6625-172-3653	B2	38
6625-172-3654	B2	44
6625-172-3655	B2	20
6625-172-5788	B2	42
6625-177-1952	B2	21
6625-222-5047	B3	79
6625-222-6932	B6	6
6625-222-6975	B6	76
6625-432-1434	B3	37
6625-432-1435	B2	35
6625-432-1436	B1	1
6625-432-1437	B4	1
6625-432-1438	B2	29
6625-432-1439	B2	1
6625-432-1440	B2	34
6625-432-1442	B3	80
6625-455-6760	B6	7
6625-455-6828	B4	32
6625-455-6829	B6	35
6625-455-6831	B6	33
6625-455-6872	B2	46
6625-455-6874	B2	16
6625-455-6882	B6	58
6625-738-1525	B4	45
6625-738-8176	B6	51
6625-738-8178	B6	48
6625-738-8181	B6	28
6625-738-8183	B4	3
6625-845-6272	B6	38
9905-074-3126	B4	13

SECTION IV FEDERAL STOCK NUMBER AND PART NUMBER INDEX (CONTINUED)

PART NUMBER	FSCM	FIG. NO.	ITEM NO.
AK5075-1	99813	B4	33
AN505C6-6	88044	B3	62
AN505C6-8	88044	B6	66
AN515C6-36	88044	B3	99
AN960C6	88044	B2	33
BT19	91663	B3	75
CC20CH100J	81349	B11	2
CC20CH150J	81349	B11	16
CC20CH270J	81349	B11	15
CE45C220R	81349	B3	3
CK60AW102M	81349	B3	69
CK63AW103E	81349	B3	59
CK63AW103M	81349	B5	8
CM15CD101JN3	81349	B3	109
CM15C151JN3	81349	B7	6
CM20CD501JN3	81349	B5	19
CP05A1EE103M	81349	B3	68
CP05A1EE333K	81349	B5	20
CP05A1EE473K	81349	B5	41
CP05A1EE474K	81349	B5	17
CP05A1KE333K3	81349	B5	34
CP05A1KE473K3	81349	B5	30
CP05A3EB224K	81349	B5	59
CP072SC2	81349	B3	45
CP091SB5	81349	B3	16
CP54B1EB205K1	81349	B3	92
CP55B1EB205K	81349	B3	22
CP70B1EF405K1	81349	B3	53
CP91B1EE105K	81349	B3	13
CSR13F476KL	81349	B5	6
CV11A070	81349	B11	11
CV11A250	81349	B11	1
C530X33-64	84841	B2	3
C530X39-64	84841	B2	7
FHN26G1	71400	B3	84
FHN26G1	71400	B4	29
F02B125V2A	81349	B3	85
J1301-1	99813	B4	26
K1375	99813	B4	16
MILF8193-062	81349	B2	40
MILR6130-2C	81349	B2	24
MIL41/RRNRN510	81349	B2	22
MS150/1-2	96906	B4	41
MS15795-803	96906	B6	59
MS15795-803	96906	B11	13
MS15795-805	96906	B3	97
MS15795-805	96906	B6	60
MS15795-903	96906	B7	2
MS15795-903	96906	B8	2
MS15795-903	96906	B9	4
MS15795-903	96906	B10	2
MS16562-194	96906	B6	40
MS16624-4025	96906	B6	32
MS16624-4037	96906	B6	63
MS35035-111	96906	B5	37
MS35045-115	96906	B5	57
MS35059-22	96906	B4	34
MS35059-23	96906	B3	83
MS35216-13	96906	B4	17
MS35232-1	96906	B6	44
MS35233-13	96906	B3	48
MS35233-13	96906	B6	97
MS35233-15	96906	B3	89
MS35233-15	96906	B6	75
MS35233-17	96906	B6	93
MS35233-18	96906	B6	94
MS35233-26	96906	B6	17
MS35233-28	96906	B4	10
MS35233-28	96906	B6	8
MS35233-3	96906	B4	14
MS35233-30	96906	B3	96
MS35233-30	96906	B6	61
MS35233-43	96906	B4	24
MS35233-43	96906	B6	73
MS35233-61	96906	B4	21
MS35234-63	96906	B3	39
MS35234-63	96906	B6	64
MS35333-13	96906	B3	94
MS35335-57	96906	B3	47
MS35335-57	96906	B4	18
MS35335-57	96906	B6	26
MS35335-58	96906	B3	20
MS35335-58	96906	B4	11
MS35335-58	96906	B6	14
MS35335-59	96906	B3	66
MS35335-59	96906	B6	74
MS35335-60	96906	B3	38
MS35335-60	96906	B4	22
MS35335-60	96906	B6	65
MS35335-85	96906	B7	3
MS35335-85	96906	B8	3
MS35335-85	96906	B9	2
MS35335-85	96906	B10	3
MS35489-11	96906	B3	63
MS35493-32	96906	B2	27
MS35495-78	96906	B2	4
MS35649-204	96906	B4	20
MS35649-244	96906	B3	90
MS35649-244	96906	B6	25
MS35649-245	96906	B11	4
MS35649-264	96906	B3	25
MS35649-264	96906	B4	9
MS35649-264	96906	B6	15
MS35649-284	96906	B3	67
MS35649-46	96906	B7	4
MS35649-46	96906	B8	4
MS35649-46	96906	B9	3
MS35649-46	96906	B10	4
MS35650-304	96906	B3	71
MS51017-24	96906	B6	29
MS51021-9	96906	B6	37
MS51957-15	96906	B3	110
MS51957-17	96906	B3	81
MS51957-18	96906	B6	96
MS51957-26	96906	B3	21
MS51957-28	96906	B3	26
MS51957-29	96906	B6	10
MS51957-30	96906	B3	95

SECTION IV FEDERAL STOCK NUMBER AND PART NUMBER INDEX (CONTINUED)

PART NUMBER	FSCM	FIG. NO.	ITEM NO.
MS51958-61	96906	B2	13
MS51958-62	96906	B3	93
MS51960-67	96906	B2	12
MS51963-20	96906	B6	42
MS51973-28	96906	B6	50
MS75009-1	96906	B3	98
MS91525-1	96906	B4	43
MS91525-1	96906	B4	43
MS91525-3	96906	B4	19
M24251-6-2	96906	B3	10
RCR07G151JS	81349	B5	51
RCR20G105JS	81349	B6	23
RCR20G562JS	81349	B5	5
RCR20G681JS	81349	B5	33
RCR20G823JS	81349	B5	46
RCR32G102JS	81349	B5	24
RCR32G103JS	81349	B5	25
RCR32G332JS	81349	B5	32
RCR32G513JS	81349	B3	74
RCR32G683JS	81349	B5	13
RCR32G823JS	81349	B3	76
RC07GF510K	81349	B5	50
RC20GF103K	81349	B3	105
RC20GF103K	81349	B3	105
RC20GF121K	81349	B5	35
RC20GF151K	81349	B3	101
RC20GF153K	81349	B3	104
RC20GF182K	81349	B5	55
RC29GF222K	81349	B3	102
RC20GF222K	81349	B5	56
RC20GF222K	81349	B8	6
RC20GF222K	81349	B10	8
RC20GF392K	81349	B9	6
RC20GF470K	81349	B3	103
RC20GF472K	81349	B5	4
RC20GF474K	81349	B5	12
RC20GF510J	81349	B3	100
RC20GF510J	81349	B6	53
RC20GF562F	81349	B7	7
RC20GF681K	81349	B3	86
RC32GF103K	81349	B5	22
RC32GF104K	81349	B3	78
RC32GF223K	81349	B5	10
RC32GF273K	81349	B5	39
RC32GF331K	81349	B3	60
RC32GF332K	81349	B5	26
RC32GF473K	81349	B3	77
RC42GF102K	81349	B5	53
RC42GF123K	81349	B5	61
RC42GF360J	81349	B5	14
RC42GF682K	81349	B6	70
RG-58/U	81349	B3	7
RN65D1500F	81349	B6	79
RN70B1002F	81349	B11	6
RN70B3321F	81349	B11	7
RN70B5601F	81349	B11	9
RN70D1000F	81349	B5	21
RN70D1001F	81349	B5	28
RN70D1210F	81349	B4	8
RN70D1211F	81349	B4	5
RN70D2213F	81349	B5	42
RN70D2800F	81349	B4	7
RN70D3010F	81349	B5	29
RN70D3322F	81349	B5	58
RN70D3571F	81349	B4	4
RN70D4022F	81349	B5	43
RN70D4751F	81349	B5	47
RN70D4751F	81349	B5	47
RN70D51R1F	81349	B5	40
RN70D5621F	81349	B5	31
RN70D6811F	81349	B5	36
RN70D6813F	81349	B5	60
RN70D8060F	81349	B4	6
RV4NAYSD103A	81349	B3	35
RV4NAYSD104A	81349	B3	42
RV4NAYSD104A	81349	B4	2
RV4NAYSD252A	81349	B3	87
RV4NAYSD502A	81349	B3	34
RV4NAYSD503A	81349	B3	41
SKT12	89291	B6	85
SM-A-321037	80063	B4	30
SM-A-399000	80063	B4	42
SM-B-207945	80063	B6	1
SM-B-207945	80063	B6	1
SM-B-283732	80063	B5	2
SM-B-320945	80063	B3	51
SM-B-320956	80063	B6	69
SM-B-320958	80063	B6	72
SM-B-320967	80063	B6	39
SM-B-320968	80063	B6	36
SM-B-320969	80063	B6	91
SM-B-320971	80063	B6	77
SM-B-320974	80063	B6	22
SM-B-320977	80063	B6	24
SM-B-320980	80063	B6	27
SM-B-320987	80063	B6	19
SM-B-320988	80063	B6	12
SM-B-320991	80063	B6	35
SM-B-320992	80063	B6	38
SM-B-320993	80063	B6	41
SM-B-321001	80063	B6	47
SM-B-321002	80063	B6	6
SM-B-321003	80063	B6	5
SM-B-321004	80063	B6	7
SM-B-321005	80063	B6	2
SM-B-321006	80063	B6	67
SM-B-321007	80063	B6	62
SM-B-321009	80063	B6	48
SM-B-321010	80063	B6	13
SM-B-321011	80063	B6	16
SM-B-321012	80063	B6	28
SM-B-321013	80063	B6	30
SM-B-321015	80063	B6	31
SM-B-321016	80063	B6	34
SM-B-321021	80063	B6	57
SM-B-321022	80063	B6	56
SM-B-321027	80063	B6	82
SM-B-321028	80063	B6	83
SM-B-321029	80063	B6	84

SECTION IV FEDERAL STOCK NUMBER AND PART NUMBER INDEX (CONTINUED)

PART NUMBER	FSCM	FIG. NO.	ITEM NO.
SM-B-321030	80063	B6	88
SM-B-321031	80063	B6	89
SM-B-321032	80063	B6	87
SM-B-360263	80063	B7	11
SM-B-360263	80063	B8	10
SM-B-360263	80063	B9	10
SM-B-360263	80063	B10	10
SM-B-360266-1	80063	B7	8
SM-B-360266-6	80063	B8	7
SM-B-360266-7	80063	B9	7
SM-B-360266-8	80063	B10	7
SM-B-360269	80063	B7	5
SM-B-360269	80063	B8	9
SM-B-360269	80063	B9	5
SM-B-360269	80063	B10	5
SM-B-360270-1	80063	B7	9
SM-B-360270-6	80063	B8	8
SM-B-360270-7	80063	B9	8
SM-B-360270-8	80063	B10	6
SM-B-360272	80063	B7	1
SM-B-360272	80063	B8	1
SM-B-360272	80063	B9	1
SM-B-360272	80063	B10	1
SM-B-360277	80063	B6	49
SM-B-360279	80063	B6	68
SM-B-399004	80063	B4	12
SM-B-399023	80063	B3	80
SM-B-399026	80063	B3	79
SM-B-399048	80063	B11	10
SM-B-399050	80063	B11	5
SM-B-399055	80063	B11	12
SM-B-399074	80063	B4	15
SM-B-399075	80063	B4	32
SM-B-399076	80063	B4	13
SM-B-399077	80063	B4	38
SM-B-399078	80063	B4	35
SM-B-399079	80063	B3	12
SM-B-399080	80063	B11	17
SM-B-399081	80063	B3	91
SM-B-399082	80063	B3	27
SM-B-399083	80063	B3	28
SM-B-399084	80063	B6	55
SM-B-399085	80063	B6	52
SM-B-399112	80063	B2	14
SM-B-399114	80063	B2	21
SM-B-399114-2	80063	B2	23
SM-B-399115	80063	B2	42
SM-B-399116	80063	B2	39
SM-B-399117	80063	B2	41
SM-B-399118	80063	B2	38
SM-B-399119	80063	B2	5
SM-B-399121	80063	B2	34
SM-B-399123	80063	B2	29
SM-B-399130	80063	B2	31
SM-B-399131	80063	B2	36
SM-C-207944	80063	B6	92
SM-C-283727	80063	B5	1
SM-C-283729	80063	B5	48
SM-C-283730	80063	B5	53
SM-C-283733	80063	B5	49
SM-C-283734	80063	B5	52
SM-C-320970	80063	B6	76
SM-C-320972	80063	B6	18
SM-C-320973	80063	B6	20
SM-C-320997	80063	B6	46
SM-C-321000	80063	B6	45
SM-C-321014	80063	B6	33
SM-C-321024	80063	B6	78
SM-C-321025	80063	B6	80
SM-C-321035	80063	B4	1
SM-C-359287	80063	B3	70
SM-C-359288	80063	B3	17
SM-C-359293GR2	80063	B3	11
SM-C-359294	80063	B3	9
SM-C-359295	80063	B3	8
SM-C-360259	80063	B7	10
SM-C-360259	80063	B9	9
SM-C-360259	80063	B10	9
SM-C-360259GR5	80063	B8	5
SM-C-360273	80063	B6	71
SM-C-399001	80063	B4	45
SM-C-399002	80063	B4	44
SM-C-399003	80063	B4	3
SM-C-399052	80063	B11	8
SM-C-399056	80063	B11	3
SM-C-399060	80063	B3	55
SM-C-399061	80063	B3	54
SM-C-399068	80063	B5	27
SM-C-399070	80063	B5	18
SM-C-399072	80063	B5	11
SM-C-399103	80063	B2	25
SM-C-399104-1	80063	B2	46
SM-C-399104-2	80063	B2	16
SM-C-399105	80063	B2	44
SM-C-399106-1	80063	B2	45
SM-C-399106-2	80063	B2	43
SM-C-399107-1	80063	B2	2
SM-C-399107-2	80063	B2	11
SM-C-399107-3	80063	B2	9
SM-C-399107-4	80063	B2	8
SM-C-399111	80063	B2	6
SM-C-399122	80063	B2	26
SM-C-399127-1	80063	B2	30
SM-C-399127-2	80063	B2	19
SM-C-399128	80063	B2	17
SM-C-399129	80063	B2	35
SM-D-207941	80063	B1	2
SM-D-207942	80063	B3	19
SM-D-207943	80063	B6	11
SM-D-207946	80063	B3	65
SM-D-207952	80063	B5	54
SM-D-207954	80063	B3	64
SM-D-207955	80063	B3	31
SM-D-283736	80063	B3	33
SM-D-320940	80063	B3	50
SM-D-320995	80063	B6	43
SM-D-321017	80063	B6	51
SM-D-321018	80063	B6	58

SECTION IV FEDERAL STOCK NUMBER AND PART NUMBER INDEX (CONTINUED)

PART NUMBER	FSCM	FIG. NO.	ITEM NO.
SM-D-321033	80063	B3	37
SM-D-360274	80063	B3	1
SM-D-399059	80063	B3	52
SM-D-399066	80063	B5	38
SM-D-399101	80063	B1	1
SM-D-399102	80063	B2	1
SM-D-399120	80063	B2	20
SR6P	28520	B4	39
TJ601K01	81349	B3	46
TS101C01	81349	B3	58
TS101P01	81349	B3	73
TS102P01	81349	B3	111
TS103P01	81349	B3	61
TS103U02	81349	B3	56
UG625AU	80058	B6	90
UG625BU	80058	B6	81
UG88DU	80058	B3	6
UG909U	80058	B4	23
UK50-473	31538	B3	108
UP131M	96906	B4	35
XX58550	61864	B2	15
1N198	81349	B3	106
1N198	81349	B11	14
1N21WE	81349	B6	86
1N540	81349	B5	15
1N758A	81349	B5	7
1N933M	81349	B5	45
12AT7WA	81349	B3	57
12T	88245	B3	4
131-15-12-001	71785	B6	3
1414-10	83330	B3	72
1416-4	83330	B3	82
1416-4	83330	B6	95
1416-6	83330	B3	107
1416-6	83330	B6	9
2	88245	B3	49
2013	71785	B3	88
2500D1-2	86577	B5	44
2500D1-8	86577	B5	16
257B	83330	B4	28
257R	83330	B4	27
3	88245	B3	43
32-3-1-4	88245	B3	30
34541	00779	B4	37
42-4-1-4	88245	B3	36
441-00-11-082	71785	B6	4
4608	76493	B5	3
4610	76493	B5	9
508X1-4	84841	B2	18
5258	74545	B4	25
530X3-16	84841	B2	28
530X5-8	84841	B2	37
530X9-16	84841	B2	32
5651WA	81349	B3	29
5654W	81349	B3	15
5675	81349	B6	21
5814A	81349	B3	18
6AG7Y	81349	B3	5
6AH6WA	81349	B3	2
6AU6WC	81349	B3	32
6080WA	81349	B3	44
681	79963	B3	40
80MC2M	02660	B3	23
80PC2F	29587	B3	24
81-0410-0111-301	83330	B4	40
9050T12	80063	B6	54

APPENDIX C

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

C-1. General

This appendix provides a summary of the maintenance operations for ME-57A/U. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

C-2. Maintenance Function

Maintenance functions will be limited to and defined as follows:

a. *Inspect.* To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

b. Test. To verify serviceability and to detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. *Service.* Operations required periodically to keep an item in proper operating condition, i.e., to clean, preserve, drain, paint, or to replenish fuel/lubricants/hydraulic fluids or compressed air supplies.

d. Adjust. Maintain within prescribed limits by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.

e. Align. To adjust specified variable elements of an item to about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipment used in precision measurement. Consists of the comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. *Install.* The act of emplacing, seating, or fixing into position an item, part, module (component or assembly) in a manner to allow the proper functioning of the equipment/system.

h. Replace. The act of substituting a serviceable like-type part, subassembly, model (component or assembly) for an unserviceable counterpart.

i. Repair. The application of maintenance services (inspect, test, service, adjust, align, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability y to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module/component/assembly, end item or system.

j. Overhaul That periodic maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (e.g., DWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like-new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like-new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours, miles, etc.) considered in classifying Army equipment/components.

C-3. Column Entries

a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies and modules with the next higher assembly.

b. Column 2, Component/Assembly. Column 2 contains the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Functions. Column 3 lists the functions to be performed on the item listed in column 2.

d. Column 4, *Maintenance Category.* Column 4 specifies, by the listing of a "worktime" figure in the appropriate subcolumn (s), the lowest level of maintenance authorized to perform the function listed in column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate " worktime" figures will be shown for each category. The number of man-hours specified by the '' worktime" figure represents the average time required to restore an item (assembly, subassembly, component, module, end item or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time and quality assurance/quality control time in additional to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. Subcolumns of column 4 are as follows:

C – Operator/Crew
O– Organizational
F – Direct Support
H – General Support
D–Depot

e. *Column* 6, *Tools and' Equipment.* Column 6 specifies by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function.

C-4. Tool and Test Equipment Reqwuirements Table 1)

a. Tool or Test Equipment Reference Code. The numbers in this column coincide with the numhers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool or test equipment for the maintenance functions.

b. Maintenance Category. The codes in this column indicate the maintenance category allocated the tool or test equipment.

c. *Nomenclature.* This column lists the noun name and nomenclature of the tools and test equipment required to perform the maintenance functions.

d. National/NATO Stock Number. This column lists the National/NATO stock number of the specific tool or test equipment.

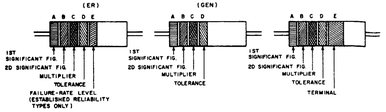
e. *Tool Number.* This column lists the manufacturer's part number of the tool followed by the Federal Supply Code for manufacturers (5-digit) in parentheses.

SECTION II MAINTENANCE ALLOCATION CHART FOR METER, MODULATION, ME-57A/U

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQUIPMENT
				O	F	H	D	
00	METER, MODULATION	Inspect		.5				10, 17, 18
		Test		1.0				
		Service		.5				
		Adjust				1.0		5, 10, 13, 18, 19
		Adjust					1.0	5, 10, 13, 18, 19
		Test				1.0		1, 4, 9, 17, 18, 19, 20
		Test					1.0	1, 4, 9, 15, 16, 18, 19, 20
		Align				1.0		7, 10, 11, 14, 18, 19
		Align					1.0	7, 10, 11, 14, 18, 19
		Calibrate				1.0		3, 6, 8, 12, 18, 19
		Calibrate					1.0	2, 3, 6, 8, 12, 18, 19
		Overhaul					2.0	1 thru 20
		Rebuild					2.0	1 thru 20
		Repair				2.0		1, 3 thru 20
		Repair					2.0	1 thru 20

TABLE C-1 TOOL AND TEST EQUIPMENT REQUIREMENTS
FOR
METER, MODULATION, ME-57A/U

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	H,D	ANALYZER, ZM-3/U	6625-00-229-1060	
2	D	ANALYZER, SPECTRUM, TS-723/U	6625-00-668-9418	
3	H,D	AUDIO OSCILLATOR, TS-382/U	6625-00-192-5094	
4	H,D,	CRYSTAL RECTIFIER TEST SET, TS-268/U	6625-00-669-1215	
5	H,D,	ELECTRONIC MULTIMETER, ME-26/U	6625-00-360-2493	
6	H,D	GENERATOR, SIGNAL, AN/URM-70	6625-00-519-2104	
7	H,D	GENERATOR, SIGNAL, SG-92/U	6625-00-546-6662	
8	H,D	INDICATOR, PANORAMIC, IP-173/U	5820-00-224-5500	
9	H,D	METER TEST SET, TS-682/GSM	6625-00-669-0747	
10	O,H,D	MULTIMETER, TS-352/U	6625-00-553-0142	
11	H,D	OSCILLOSCOPE, AN/USM-281	6625-00-228-2201	
12	H,D	RF SIGNAL GENERATOR, AN/URM-25	6625-00-649-5193	
13	H,D	SIGNAL GENERATORK, AN/USM-44	6625-00-669-4031	
14	H,D	TEST SET, OSCILLATOR SET, AN/PRM-10	6625-00-339-2046	
15	H,D	TEST SET, ELECTRICAL METER, TS-656/U	6625-00-806-4425	
16	H,D	TEST SET, ELECTRON TUBE, TV-2/U		
17	O,H,D	TEST SET, ELECTRON TUBE, TV-7/U	6625-00-820-0064	
18	O,H,J	TOOL KIT, ELECTRONIC EQUIPMENT TK-105/G	5180-00-610-8177	
19	H,D	COUNTER, ELECTRONIC DIGITAL READOUT AN/USM-207		
20	H,D	VOLTMETER, ELECTRONIC ME-30B/U	6625-00-643-1670	



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	.....	SOLDERABLE
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	0.01					
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.

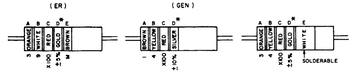
RESISTANCES IDENTIFIED BY NUMBERS AND LETTERS (THESE ARE NOT COLOR CODED.)

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

2R7 = 2.7 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
RESISTANCE TOLERANCE ±5%
FAILURE RATE LEVEL M

COMPOSITION-TYPE RESISTORS

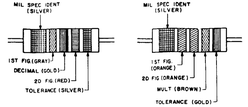
NOMINAL RESISTANCE 1,400 OHMS
RESISTANCE TOLERANCE ±10%

NOMINAL RESISTANCE 3,900 OHMS
RESISTANCE TOLERANCE ±5%
TERMINAL SOLDERABLE

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 THE CODING FOR AN 8.2UH CHOKE IS GIVEN. AT B, THE COLOR BANDS FOR A 330 UH INDUCTOR ARE ILLUSTRATED.

TABLE 7
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 COIL.

B. COLOR CODE MARKING FOR MILITARY STANDARD INDUCTORS.

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

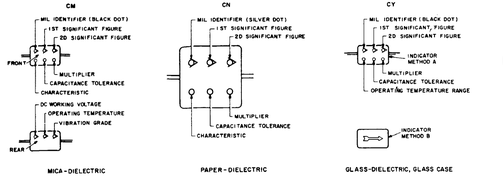
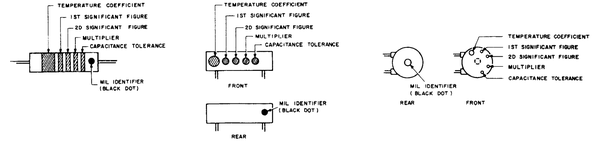


TABLE 3 — FOR USE WITH STYLES CM, CN, CY AND CB.

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	CB	CM	CX CM	CM
BLACK	CM CY CB	0	0	1			±20%	±20%	A				-55°TO +70°C	10-55 H z
BROWN		1	1	10					B	E	B			
RED		2	2	100	±2%		±2%	±2%	C				-55°TO +85°C	
ORANGE		3	3	1,000		±30%			D		D	300		
YELLOW		4	4	10,000					E				-55°TO +125°C	10-2,000H z
GREEN		5	5		±5%				F			500		
BLUE		6	6										-55°TO +150°C	
PURPLE (VIOLET)		7	7											
GRAY		8	8											
WHITE		9	9											
GOLD				0.1		±5%	±5%							
SILVER	CN			0.01	±10%	50%	±10%	±10%						

TABLE 4 — 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	-80	2	2	100	±2%	±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				
GRAY		8	8	0.01[3]			
WHITE		9	9	0.1[3]	±10%		
GOLD	+100			0.1		±1.0 UUF	
SILVER				0.01			

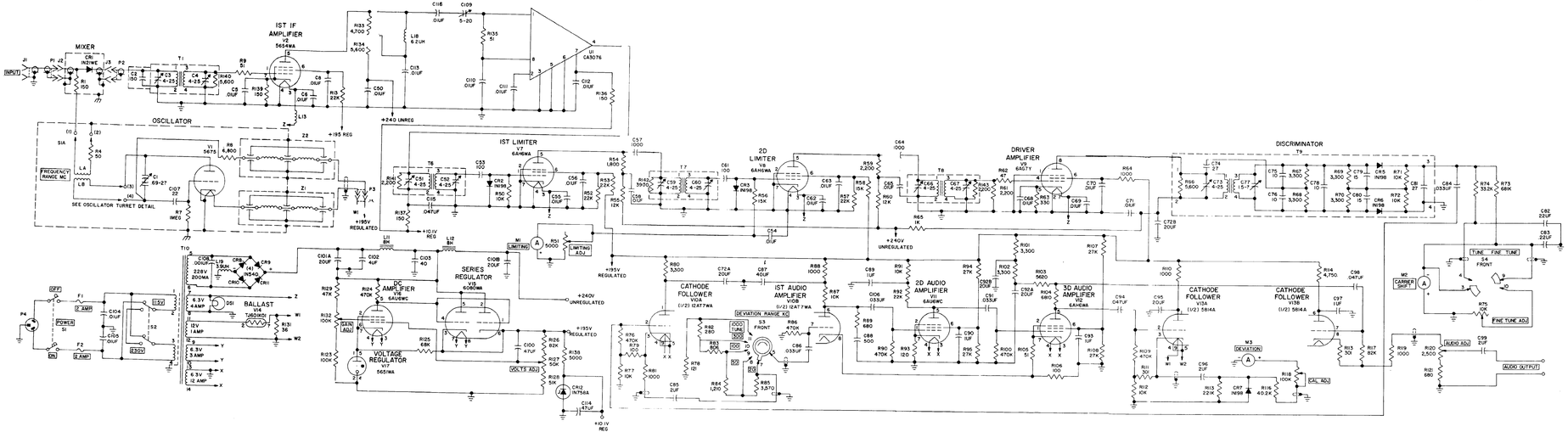


1. THE MULTIPLIER IS THE NUMBER BY WHICH THE TWO SIGNIFICANT (SIG) FIGURES ARE MULTIPLIED TO OBTAIN THE CAPACITANCE IN UUF.
2. LETTERS INDICATE THE CHARACTERISTICS DESIGNATED IN APPLICABLE SPECIFICATIONS: MIL-C-5, MIL-C-290, MIL-C-11272B, AND MIL-C-20900C RESPECTIVELY.
3. LETTERS INDICATE THE TEMPERATURE RANGE AND VOLTAGE-TEMPERATURE LIMITS DESIGNATED IN MIL-C-11015D.
4. TEMPERATURE COEFFICIENT IN PARTS PER MILLION PER DEGREE CENTIGRADE.
* OPTIONAL CODING WHERE METALLIC PIGMENTS ARE UNDESIRABLE.

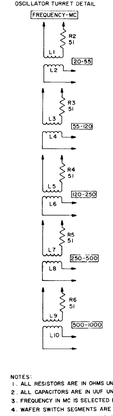
C. COLOR CODE MARKING FOR MILITARY STANDARD CAPACITORS.

ESC FM 913 73

Figure PO-1. Color code marking for MIL-STD resistors, inductors and capacitors.



OSCILLATOR TURRET DETAIL



NOTES:
1. ALL RESISTORS ARE IN OHMS UNLESS OTHERWISE SPECIFIED.
2. ALL CAPACITORS ARE IN UUF UNLESS OTHERWISE SPECIFIED.
3. FREQUENCY IN MC IS SELECTED BY RANGE KNOB.
4. WAFER SWITCH SEGMENTS ARE VIEWED FROM KNOB END OF SWITCH.
5. ▭ INDICATES EQUIPMENT MARKING.

EL6625-2629-14-TM-22

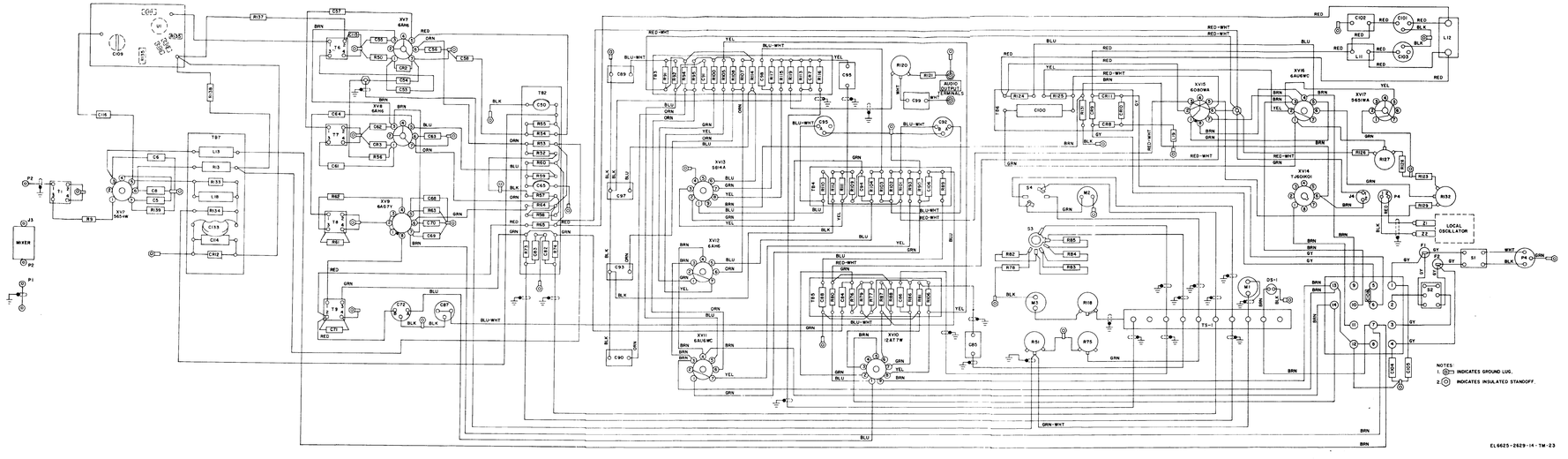


Figure FO-3. Meter, Modulation ME-57A/U, wiring diagram.

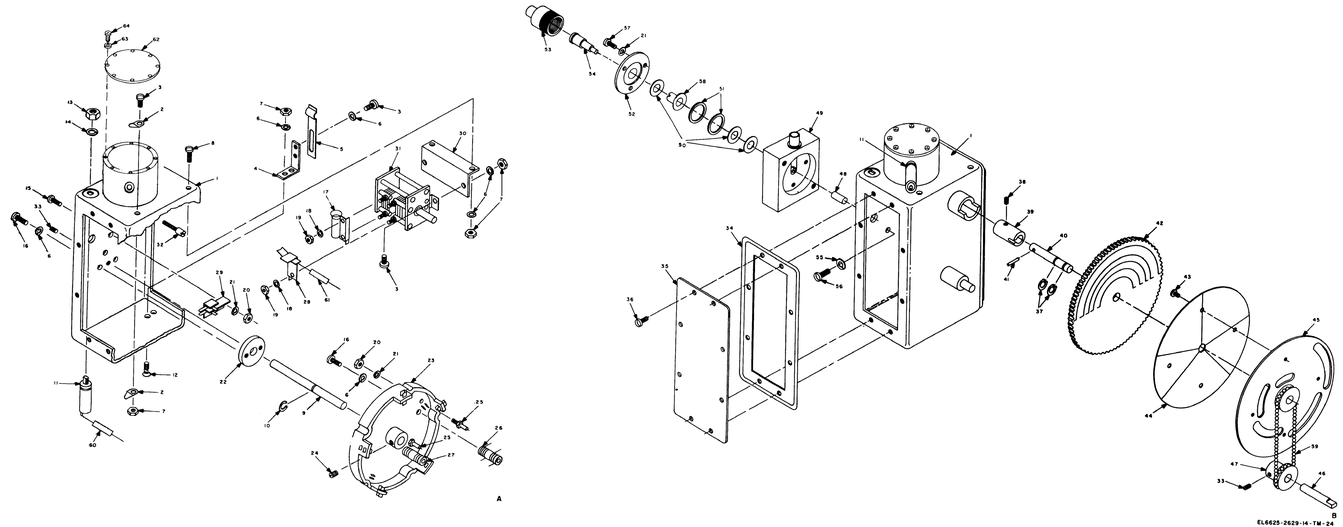


Figure PO-4. Oscillator assembly, exploded view.

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LBAD (14)
TOAD (14)
USA Dep (2)
Sig Set USA Dep (2)
Sig Dep (2)
ATS (1)
MAAG (1)
WRAMC (1)
USARMIS (1)
USAERDAA (1)
USAERDAW (1)
Sig FLDMS (1)
Units org under fol TOE: 1 ea.
11-97
11-117
11-127
11-500(AA-AC)
29-134
29-136

ARM3: Stata AG (3).

USAR: None.

For explanation *of* abbrevation used, see AR 310-50.

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THE METRIC SYSTEM AND EQUIVALENTS

NEAR MEASURE

. Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

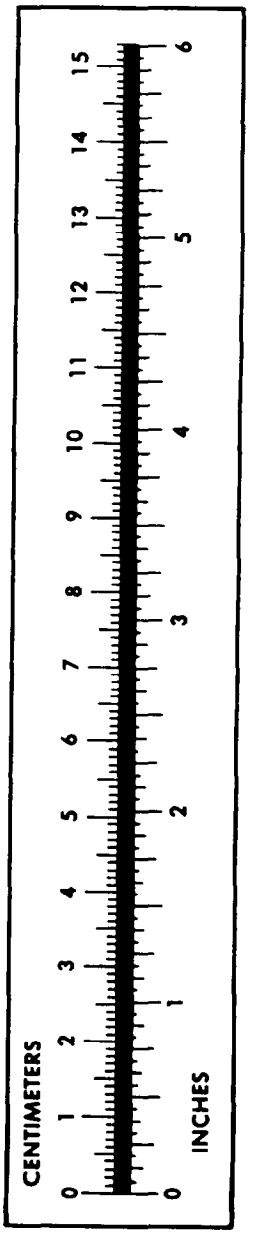
TEMPERATURE

5/9(°F - 32) = °C
212° Fahrenheit is evuivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5C° + 32 =°F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
ıts	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
lometers per Liter	Miles per Gallon	2.354
meters per Hour	Miles per Hour	0.621



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