DEPARTMENT OF THE ARMY TECHNICAL MANUAL

ORGANIZATIONAL, DS, GS, AND DEPOT MAINTENANCE MANUAL

VOLTMETER ME 262/ U

INCLUDING REPAIR PARTS AND SPECIAL TOOL LISTS

This copy is a reprint which includes current pages from Changes 1 and 2.

HEADQUARTERS, DEPART.MENT OF THE AR41MY
7 MARCH 1966

WARNING

Be careful when working on the 115-volt ac line connections. Serious injury or death may result from contact with these terminals or leads.

DON'T TAKE CHANCES!

EXTREMELY DANGEROUS VOLTAGES EXIST IN

THE FOLLOWING SECTIONS OF VOLTMETER ME--262/U:

Power supply chassis	850 volts ac
Amplifier , Chassis	300 volts dc

Change
No. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 16 October 1978

**Organizational, Direct Support, General Support,
and Depot Maintenance Manual Including Repair Parts
VOLTMETER, ELECTRONIC ME-262/U**

TM 11-6625-624-15, 7 March 1966, is changed as follows:
1. A vertical bar appears opposite changed material.
2. Remove and insert pages as indicated in the page list below:

Remove	*Insert*
i and ii	i and ii
1-landl 2	1-1 and 1-2, 1-2. ()
2-1 and 2-2	2-1 and 2-2
A2-1 and A2-2	

3. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

CREIGHTON W. ABRAMS
General, United States Army
Chief of Staff

Official:
VERNE L. BOWERS
Major General, United States Army
The Adjutant General

Distribution:
To be distributed in accordance with DA Form 12-32 (qty rqr block no. 987), Organizational maintenance requirements for AN/GSG-5.

CHANGE
No. **1**

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 17 March 1967

Organizational, DS, GS, and Depot Maintenance Manual
Including Repair Parts
VOLTMETER, ELECTRONIC ME-262/U

TM 11-6625-624-15, 7 March 1966, is changed as follows:

1. The title is changed as shown above.
2. Remove old pages and insert new pages as shown below:

Old pages-	New pages-
1-1 and 1-2 ----------	1-1 and 1-2
A2-1 and A2-2 __----------.	A2-1 and A2-2
A4-1 through A412 ----------	A4-1 through A4-12

3. File this transmittal page in the front of the manual.

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General, United States Army,
***Chief of Staff*.**

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:

To be distributed in accordance with DA Form 12-32, Section III, requirements for Direct and General Support Maintenance Literature for the AN/GSG-5 and AN/GSG-6 Systems.

Technical Manual
No. 11-6625-624-15

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 7March 1966

METER ME-262/U

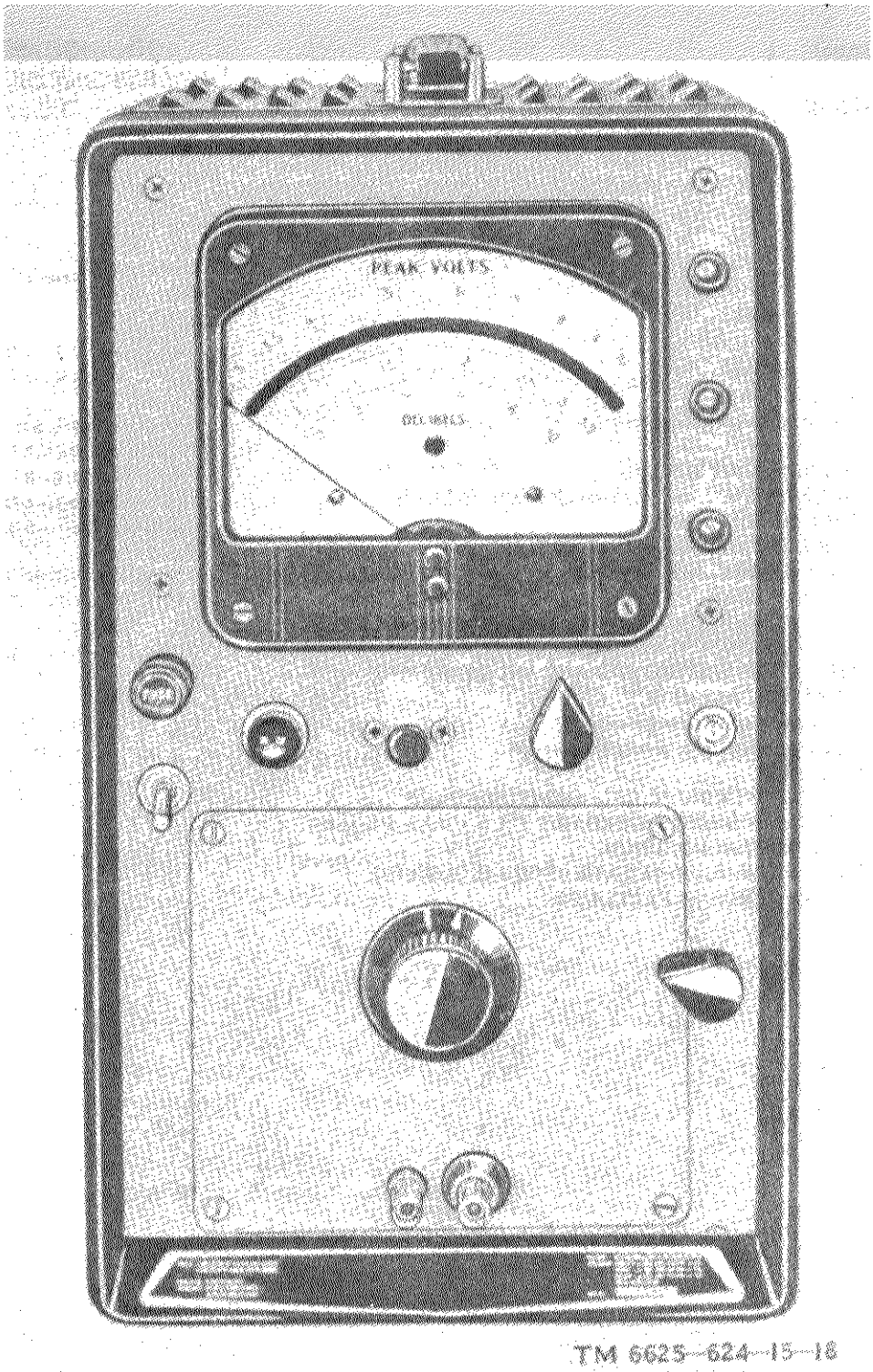


Figure 1-1. Voltmeter ME-262/U, overall 2tew.

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. Scope

This technical manual describes Voltmeter, Electronic ME-262/U (fig. 1-1) and provides instructions for the installation, operation, operator and organizational maintenance, general support, and depot maintenance of the equipment. It includes cleaning and inspection of the ME-262/U, and replacement of parts available to the operator and the organizational, general support, and depot repairmen. Throughout this manual Voltmeter, Electronic ME-262/U is referred to as Voltmeter ME-262/U and test set.

1-2. Indexes of Publications

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

b. DA Pam 310-7. 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 (Report of Packaging and Handling Deficiencies) as prescribed in AR 700-58 (Army)/NAVSUP Pub 378 (Navy)/AFR 71-4 (Air Force)/and MCO P4030.29 (Marine Corps).

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 (Army)/NAVSUP Pub 459 (Navy)/AFM 75-34 (Air Force)/and MCO P4610.19 (Marine Corps).

1-3.1. 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 forwarded direct to Commander, US Army Electronics Command, ATTN: AMSEL-MA-S, Fort Monmouth, NJ 07703.

Section II. DESCRIPTION AND DATA

1-4. Purpose and Use

Voltmeter ME-262/U is a portable, amplifier-detector type, vacuum-tube voltmeter capable of measuring alternating current (ac) signals ranging from 0.9 millivolt (mv) to 1, 000 volts. The range can be extended down to 10 microvolts (uv) with a special adjustment. The ME-262/U is used to measure repetitive sine waves, square waves, sawtooth waves, pulse trains, and complex waveforms. It measures either the positive peak, negative peak, or peak-to-peak amplitude of the applied voltage. The test set also may be used as a wide band, fast risetime amplifier or preamplifier when not employed in metering operations.

1-4.1. Item Comprising an Operable Equipment

Voltmeter, Electronic ME-262/U (FSN 6625-739-1192) comprises an operable equipment and is shown if figure 1-1.

1-5. Technical Characteristics

Power requirements ..... 100 to 130 volts ac, or 200 to 260 volts ac; 58 to 65 cps, single phase.
Power consumption ..... 82 watts.
Meter ranges:
- Volts ..... 1,000-350-100-35-10-3.5.
- Millivolts ..... 1,000-350-100-35-10-3.5.

Decibal scale ..... 0 to 10 db.
Input impedance ..... 2 megohms (capacitively shunted with 25 uuf on ranges below 350 mv, and 10 uuf on 350 mv to 1,000-volt ranges).
Frequency of input signals:
- Undistorted sine waves ..... 5 cps to 500 kc.
- Distorted sine waves ..... 5 cps to 2 mc.
- Undistorted square waves ..... 200 cps to 300 kc.
- Distorted square waves ..... 200 cps to 2 mc.

Input pulse duration ..... 0.5 usec to 2.5 msec.
Input pulse repitition rate ..... 5 pps (minimum).
Accuracy:

Note: The following accuracy characteristics are based upon source power input of 115 volts (or 230 volts) at 60 cycles per second (cps). Each 10 percent of voltage variation will affect the accuracy by +0.15 percent. Each cycle of frequency deviation will effect the accuracy of +0.5 percent.

- Sine waves:
  - 20 cps to 200 kc ..... ±2%.
  - 5 cps to 500 kc ..... ±4%.
  - 200 cps to 300 kc square waves ..... ±3%.
- Pulses:
  - Greater than 3 usec and 100 pps ..... ±3%.
  - Greater than 1 usec and 100 pps ..... ±5%.
  - Less than 1 usec and 100 pps ..... ±5% (using correction factor).
- Waveforms less than 3 mv ..... ±5.

Amplifier section:
- Gain ..... 86±1 db (maximum).
- Output voltage ..... ±70 volts: -40 volts (maximum).
- Source impedance at 1 kc ..... 3 ohms (approx) in series with 0.22 uf.
- Frequencv response (load more than 1 megohm with less than 10 uuf shunt) ..... 5 cps to 500 kc.
- Maximum load ..... 30,000 ohms and 10 uuf.

Number of tubes ..... 14.
Noisefigure ..... 10 to 14 uv effective (rms) referred to first grid.
Weight:
- Unpacked ..... 21 lb.
- Packed for shipment ..... 40 lb.

1-6. Description of Voltmeter ME-262/U

a. Voltmeter ME-262/U is a self-contained test set equipped with a removable powerline cord as shown in figure 1-2. The test set is 15 inches high, 10 inches deep, 8 inches wide, and weighs 21 pounds. The test set is housed in a crinkle-finished metal case equipped with a carrying handle and ventilation ports. The meter assembly, fuse, and all operating controls and terminals are mounted on the front panel. The test set also contains internal controls for corrective maintenance adjustments. The power receptacle for the line cord is mounted at the rear of the unit.

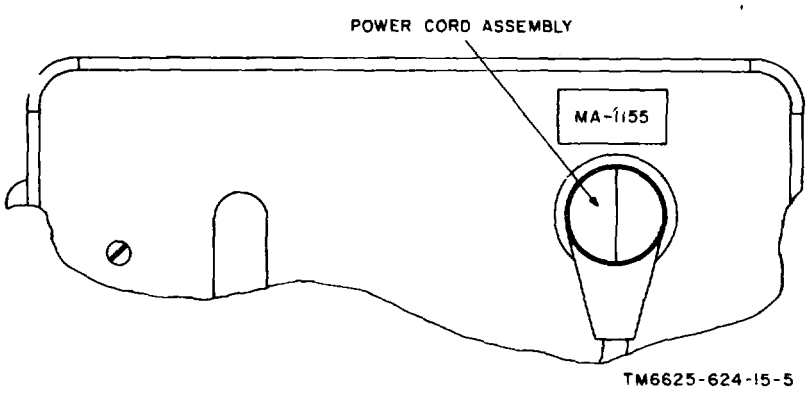


Figure 1-2. Voltmeter ME-262/U, partial rear view, power cord installed.

b. Running spares for the ME-262/U are listed in the chart below.

Quantity	Item
1	Lamp. incandescent, 6.3 volts (DS1).
1	Jewel, lens assembly.
1	Fuse, slow-blow, 1 amp, 125 volts, 3AG (F1).
1	Fuse, slow-blow, 1/2 amp, 250 volts, SAG (F1).
1	FUSE cap.

1-7. Additional Equipment Required

The following equipment is not supplied as a part of the test set but is required for use with the test set.

a. Test Prods. A set of test prods is required to connect an input signal to the test set. Conventional prods, with the hot (red) lead shielded, may be used.

b. Output Cable Assembly. An output cable assembly is required when the test set is used as an amplifier. Normally, the applied load will be equipped with a matching coaxial cable. Connect a BNC coaxial connector to the end of the cable or use another appropriate cable assembly.

CHAPTER 2
INSTALLATION

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

2-1. Unpacking

a. Packaging Data. Voltmeter ME-262/U is packaged for shipment as explained in this paragraph. The dimensions of the outer corrugated carton are 10-1/2 inches wide by 16-1/2 inches high by 11-1/2 inches deep. The dimensions of the inner corrugated carton are 8-1/4 inches wide by 15-1/4 inches high by 10-1/4 inches deep.

b. Removing Contents.

(1) Open the outer corrugated carton and remove the inner corrugated carton and the moisture-vaporproof barrier.

(2) Open the moisture-vaporproof barrier.

(3) Open the inner carton and remove the technical manuals, power cord, and spare parts carton.

(4) Open the spare parts carton and remove contents.

2-2. 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.

b. See that the equipment is complete as listed on the packing slip. Report all discrepancies in accordance with TM 38-750. Shortage of a minor assembly or part which does not affect proper functioning of the equipment should not prevent use of the equipment.

c. If the equipment has been used or reconditioned, see whether it has been changed by a modification work order (MWO). If the equipment has been modified, the MWO number will appear on the front panel near the nomenclature plate. If modified, see that any operational instruction changes resulting from the modification have been entered in the equipment manual.

Note: Current MWO's applicable to the equipment are listed in DA Pam 3104.

Section II. INSTALLATION

2-3. Tools Required for Installation

Since Voltmeter ME-262/U is a portable test instrument, it may be used in a number of different environments. No special tools are necessary for the installation of this test set.

2-4. Tubes and Fuses

Voltmeter ME-262/U is shipped with tubes and fuses installed.

a. Tubes. Check tubes for damage and for proper installation in their sockets. Replace any damaged tubes with the proper replacement type. It is recommended that tubes V2 and V5 (Type 6485) be pre-aged for a period of 50 hours prior to using them as replacements. Tube reference designations can be found on the chassis next to each tube socket (fig. 6-2 and 6-3j). To make the tubes accessible, proceed as follows:

(1) Remove the three screws at the rear of the case.

(2) Tilt the test set forward and carefully slide it out of the case.

(3) When the tube check is completed, restore the test set in its case and secure it with the three screws.

Note: If the test set is to be operated from a 230-volt ac (nominal) power source: omit the procedures given in (3) above.

b. Fuses. Normally, a 1-ampere fuse will be installed in the fuseholder (fig. 1-1) for 115-volt ac (nominal) operation. Remove the fuse cap by turning it counterclockwise and check to see that the 1-ampere fuse is in the fuseholder. If 230-volt ac (nominal) operation is required, replace the 1ampere fuse with a 1/2-ampere fuse. Secure tile fuse in the fuseholder by turning the FUSE cap clockwise. Refer to the running spares chart (para 1-6b) for fuse data.

2-5. Connections for 230-Volt Ac Power Input

(fig. 2-1 and 6-2)

The strapping of the primary winding of power transformer T1 must be changed if the test set is to be operated from a 230-volt ac (nominal) power source.

a. On terminal block TB-1 (fig. 2-1), remove the jumper between the black lead and the red-black lead.

b. Remove the jumper between the black-yellow lead and the black-green lead.

c. Solder a jumper between the black-yellow lead and the black-green lead.

d. Restore the test set in its case and secure with the three attaching screws.

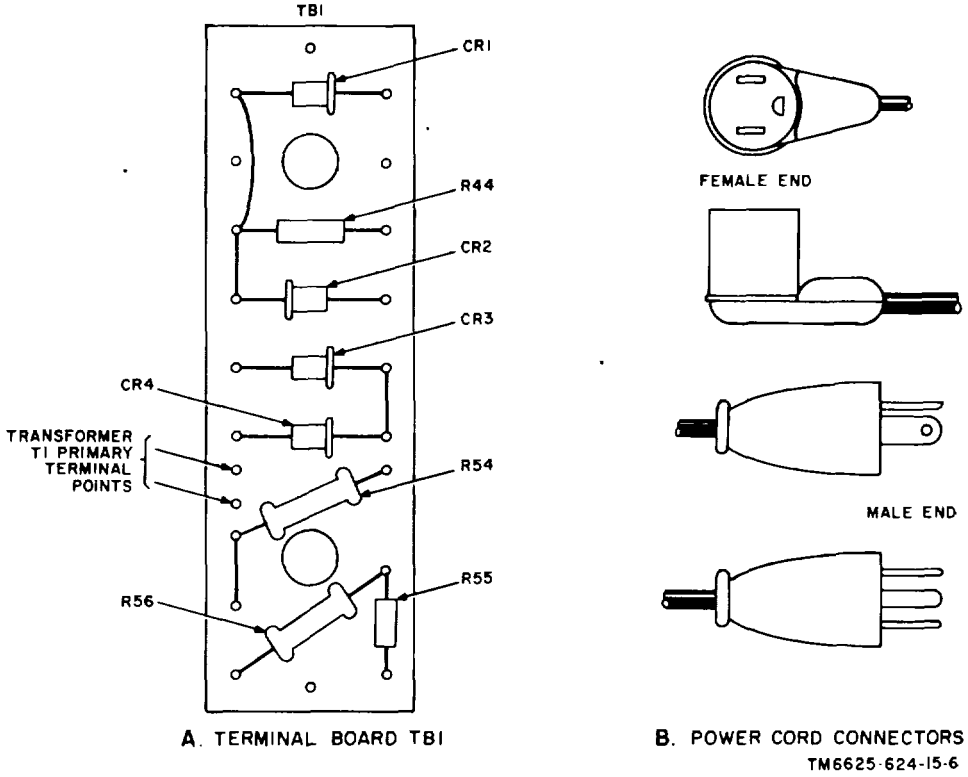


Figure 2-1 Terminal board TB-1 with power transformer (T1), lead locations

2-6. Power Cord

Check to see that the ac power input switch is in the OFF position.

a. Connect the female connector of the power cord to the power receptacle at the rear of the test set (fig. 1-2).

b. Connect the male. plug on the power cord to the required power source (para 1-5).

2-7. Test Prods

Test prods are not supplied with the ME-262/U. Any pair of standard test prods, with the hot (red) lead shielded, may be used with the test set. Connect the black lead of the common prod to the GND input terminal on the front panel of the test set and the red test lead of the hot prod to the remaining input terminal (fig. 1-1).

3-1. Operator's Controls and Indicators

(fig. 3-1)

Note: The Voltmeter ME-262/U user is understood to be the operator regardless of his specific Military Occupational Specialty (MOS). The chapters in this manual which are applicable to test set calibration, alignment, troubleshooting, and repair will be performed normally by maintenance personnel who are assigned to a special MOS for test equipment repair. The contents of this chapter apply particularly to the test set user.

Control, indicator, terminal, or fuse	Function
Ac power input switch	Controls the ac input to test set.
Function switch	Selects the circuits required for various test set functions. *Position* — *Function* PEAK — Indicates peak amplitude of input waveform. PEAK TO PEAK — Indicates peak-to-peak amplitude of input waveforms. AMP — Connects amplifier section to OUTPUT jack and bypasses metering circuits.
OUTPUT connector	Terminal for connecting to output of amplifier section.
METER RESET pushbutton	Depressed position accelerates the decay of meter pointer. (No measurements should be made while switch is depressed.)
Polarity switch	(Used in conjunction with PEAK position of function switch.) POSITIVE position of polarity switch indicates positive peak of input waveform, and NEGATIVE position indicates waveform's negative peak.
FULL SCALE range selector switch	Selects required range to measure input signal. Six positions of switch (marked MILLIVOLTS) are used to measure from 0.9 mv to 1 volt; six positions of switch (marked VOLTS) are used to measure from 0.9 volt to 1,000 volts.
Input terminals	Prod terminals. Used to con-nect input signal to test set.
FUSE	Protects test set from any damage caused by internal short circuits or improper operating voltages.
Pilot lamp indicator	Glows when ac power input switch is in the ON position.
Meter indicator	Indicates amplitude of signal being measured. The lower PEAK VOLTS scale indicates measurements from 0.9 volt to 3.5 volts. The upper PEAK VOI,TS scale indicates measurements from 2.9 volt to 10 volts. The DECIBELS scale indicates measurements from 0 volt to 10 volts.

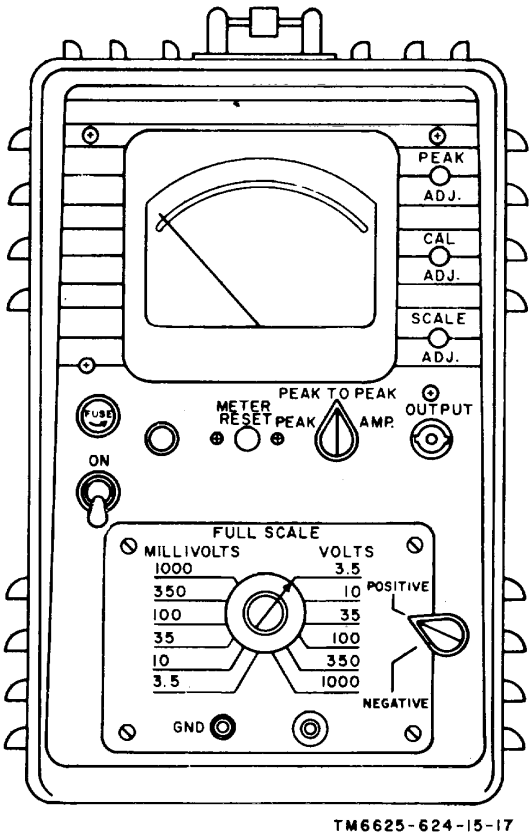


Figure 3-1. Voltmeter ME-26Z,/U, controls and indicators.

3-2. Types of Operation

a. Voltmeter ME-262/U may be used to measure:

(1) Peak-to-peak value of symmetrical (ac) waveforms.

(2) Peak-to-peak value of unsymmetrical waveforms and pulse trains.

(3) Peak amplitude of unsymmetrical waveforms.

b. When not used as a voltmeter, the ME262/U may be operated as an amplifier or preamplifier.

c. Perform the following procedures for any type of operation:

(1) Starting procedure as described in paragraph 3-3.

(2) Procedure for the desired type of operation as described in paragraphs 34 and 3-5.

(3) Stopping procedure as described in paragraph 3-6.

3-3. Starting Procedure

Note: For maximum accuracy, always operate the test set in the vertical, or upright, position in an uncluttered area with adequate ventilation.

a. Swing down the tilt control on the bottom of the case so that the front panel can be viewed conveniently.

b. Operate the ac power input switch to the ON position. (The pilot lamp should glow.)

c. Allow at least 30 minutes for equipment warmup.

Note: For subsequent use, a 10-minute warmup period will be sufficient, provided the test set is used at least once per month.

3-4. Voltage Measurements

a. Meter Indications. The FULL SCALE range selector switch (fig. 3-1) positions are calibrated in 1000 and 350 maximum scale or decimals thereof. Significant meter readings may be taken from the corresponding meter scale. When measuring a series of voltages, the meter pointer's decay speed can be accelerated by depressing the METER RESET pushbutton momentarily between tests.

b. Measuring Known Voltages. When the value of the input voltage is known, operate the FULL SCALE range selector switch (fig. 3-1) to the next highest position before connecting the test prods. If necessary, set the FULL SCALE range selector switch to a lower position for adequate meter deflection of the input voltage.

c. Measuring Unknown Voltages. When the value of the input voltage is not known, operate the FULL SCALE range selector switch to 1, 000 VOLTS before making prod connections. Turn the FULL SCALE range selector switch counterclockwise until the meter indicates adequate deflection for the input voltage.

d. Peak-to-peak Measurements of Symmetrical Ac Waveforms. Measure a symmetrical or nearly symmetrical waveform, on which the ratio of positive-to-negative amplitude is less than 1 to 2, as follows:

(1) Set the function switch to PEAK TO PEAK position.

(2) Set the polarity switch to POSITIVE.

(3) Set the FULL SCALE range selector switch to the required position (b or c above).

(4) Connect the test prods to the input voltage and read meter indication.

e. Peak-to-Peak Measurements of Unsymmetrical Waveforms and Pulse Trains.

(1) Set the function switch (fig. 3-1) to the PEAK TO PEAK position.

(2) Set the polarity switch to the position corresponding to the higher polar amplitude of the input signal. (If the amplitudes are unknown, perform procedure outlined in f below to determine the greater peak.)

(3) Set FULL SCALE range selector switch to the required position (b or c above).

(4) Connect test prods to the input voltage and read the meter indication.

f. Peak Measurements of Nearly Symmetrical Waveforms. Measure a nearly symmetrical waveform, on which the ratio of positive to-negative amplitude is less than 1 to 2, as follows:

(1) Set the function switch to PEAK.

(2) Set the polarity switch to POSITIVE for positive peak measurements, or to NEGATIVE for negative peak measurements.

(3) Set the FULL SCALE range selector

switch to the required position (b or c above).

(4) Connect the test prods to the input voltage and read the meter indication.

g. Peak Measurements of Unsymmetrical Waveforms. Measure an unsymmetrical waveform on which the ratio of amplitudes is greater than 1 to 2 as follows:

(1) Set the function switch to PEAK.

(2) Set the polarity switch to the position corresponding to the higher polar amplitude of the signal. (If the amplitude values are unknown, perform the procedures given in f (2), (3), and (4) above.)

(3) Set the FULL SCALE range selector switch to the required position (b or c above).

(4) Connect the test prods to measure the higher peak amplitude and read the meter indication.

Note: If required, the lower peak may be calculated by subtracting the higher peak value from the peak value (f above).

3-5. Amplifier Operation

Refer to paragraph 1-5 for technical characteristics of the amplifier. If the fast risetime and wide bandwidth are not required, capacitive loading may be increased beyond 10 micromicrofarads (uuf). Resistive loading may also be increased if the maximum output voltage of the amplifier is not required. Set up the test set for amplifier operation as follows:

a. Connect the BNC connector of an output cable assembly (para 1-7b) to the OUTPUT connector (fig. 3-1 on the ME-262/U.

b. Operate the function switch to AMP.

c. Operate the polarity switch to POSITIVE for an in-phase output; if a phase reversal is required, operate the polarity switch to NEGATIVE.

d. Connect the test prods to the input signal.

e. Operate the FULL SCALE range selector switch to the position corresponding to the required amount amplification.

3-6. Stopping Procedure

To shut down or stop the MiE-262/U, operate the ac power switch to OFF.

CHAPTER 4
ORGANIZATIONAL MAINTENANCE NSTRUCTIONS

4-1. Scope of Organizational Maintenance

The maintenance duties assigned to the operator/user of Voltmeter ME-262/U are listed below with references to paragraphs covering the specific maintenance function. These duties do not require special tools or test equipment. Since the test set is provided as a maintenance testing aid for a variety of electronic systems, the operator/user will be a maintenance man. The tool equipment which is normally supplied to the organizational maintenance unit will suffice for these maintenance services.

a. Daily preventive maintenance checks and services (para 4-3).

b. Weekly preventive maintenance checks and services (para 4-4).

c. Monthly preventive maintenance checks and services (para 4-5).

d. Quarterly preventive maintenance checks and services (para 4-6).

e. Instructions for cleaning (para 47).

f. Touchup painting (para 4-8).

g. Lubrication (para 4-9).

h. Replacement of defective components (para 4-10).

4-2. Preventive Maintenance Checks and Services Periods

Preventive maintenance checks and services of Voltmeter ME-262/U are required at the organizational level daily, weekly, monthly, and quarterly.

a. Paragraph 4-3 specifies checks that must be accomplished daily by the user at the organizational level under the conditions listed below:

(1) When the equipment is initially installed.

Note: In certain cases, test equipment will be stored in an organizational equipment pool and must be checked out as needed by the user. In this case, the user assumes that the equipment is initially installed when he draws it from storage and puts it to use.

(2) When the equipment is reinstalled after removal for any reason.

Note: If this test equipment is returned from direct or general support maintenance shops on a completed work order, the daily check will be made by the user at the time the equipment is placed in service.

(3) At least once each week if the equipment is maintained in a standby condition.

Note: Weekly check ((3) above) applies to cases where the equipment is not in storage but in the hands of the user, who does not need the equipment on a steadyuse basis. In this instance, the daily check must be made once each week, along with the weekly check. The maintenance service should be scheduled as prescribed by TM 38-750.

b. Paragraphs 4-4, 45, and 4-6 specify additional checks and services that must be performed on a weekly, monthly, and quarterly basis.

c. Voltmeter ME-262/U must be scheduled for performance testing by the general support and/or direct support shop after 200, 1, 000, and 2, 00C hours of operation. Various services are necessary at these intervals. Schedule this maintenance as prescribed in TM 38-750.

4-3. Daily Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	Completeness	See that equipment is complete. Requisition all necessary components as needed.-	Appendix II.
2	Connectors and binding posts.	Check for tightness of all binding posts and connectors. Tighten as needed.	
3	Meter glass and indicator lens	Check all meter glass and indicator lenses for cracks. Requisition parts as needed and replace.	
4	Controls and indicators.	Check all controls and indicators for signs of mechanical binding or for looseness on shafts. Check whether meter needle is bent or has a binding action. Send equipment to direct or general support shop for repairs.	

4-4. Weekly Preventive Maintenance Checks and Services Chart

Sequence No.	References Item to be inspected	Procedure	References
1	Cords and test leads	Inspect power cord for frayed insulation, cracks, or chafing. Inspect test leads and prods for broken or loose components. Replace test lead assemblies and ac line cord as necessary. Inspect line cord convertor, if one is used, for damage to the ground lead and ground spade lug.	
2	Handles and tilting device.	Inspect the carrying handle and the tilting device for looseness. Replace or tighten as necessary.	
3	Metal surfaces.....	Inspect all exposed metal surfaces for rust and corrosion. Clean and touch up paint as required.	

4-5. Monthly Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	Pluckout items	Inspect the seating of all tubes and their shields. Make sure, that all shield retainer springs hold the tubes firmly in their sockets. Replace damaged or missing tube shields.	
2	Electronic components.	Inspect capacitors and potted components for evidence of overheating. Signs of potting material on the chassis near the components will indicate trouble. Send the equipment to the general support maintenance shop for repair.	
3	Range selector switch.	Inspect the range selector switch for signs of dirt or corrosion. Clean as-necessary.	

4-6. Quarterly Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	Publications	See that all publications are complete, serviceable, and current.	DA Pam 310-4.
2	Modifications	must be applied immediately. All NORMAL MWO's must be scheduled.	TM 38-750.
3	Spare parts	Check all spare parts for general condition and method of storage. There shall be no overstock and all shortages must be on valid requisition	Appendix II.

4-7. Instructions for Cleaning

Inspect exterior surfaces of Voltmeter ME262, 'U. The exterior surfaces should be free of dust, dirt, grease, and fungus.

a. Remove dust and dirt from all exposed surfaces with a clean, soft cloth.

b. Remove grease, fungus, and ground-in dirt from the case; use a cloth dampened (not wet) with Cleaning Compound (FSN 7930- 395-9542).

***Warning*: Prolonged breathing of cleaning compound is dangerous; be sure that adequate ventilation is provided. Cleaning compound is flammable; do not use near a flame. Avoid contact with the skin; wash off any that spills on the hands.**

c. Use a soft-bristled brush to remove loose dust and dirt from terminals, and plugs, and from behind control knobs.

d. Clean meter face and control knobs with a soft, clean cloth. Dampen the cloth with water; use a mild soap if necessary.

***Caution:* Do not apply excessive pressure to the glass face of the meter when cleaning. Do not use excessive water on the cloth.**

e. Remove dust and dirt from the range selector switch assembly by use of air pressure. If necessary, apply a suitable contact cleaner and rotate the switch to allow the self-wiping action of the switch to do the cleaning.

4-8. Touchup Painting Instructions

Remove rust and corrosion from metal surfaces by lightly sanding them with fine sandpaper. (Do not use emery paper on electrical devices.) Brush two thin coats of paint on the bare metal to protect it from further corrosion. Refer to cleaning and refinishing practices specified in TM 9-213 and TB SIG 364.

4-9. Lubrication

There are no specific lubrication orders recommended for this instrument; however, inspect the range selector switch detent assembly for signs of corrosion and, if needed, apply a thin coat of Grease, General Purpose (PSN 9150-334-7948 (Lubriplate 110) (as a protective measure.

4-10. Replacement of Defective Components

a. Fuses (fig. 1-1).

(1) Remove the fuseholder cap by turning it counterclockwise.

(2) Remove the defective fuse and replace it with one of the same rating.

Caution: **Do not overfuse**.

b. Pilot Light (fig. 1-1).

(1) Unscrew the pilot light jewel.

(2) Remove the pilot lamp from its socket.

(3) Replace the defective lamp with one of the same type and rating.

c. Knobs (fig. 1-1).

(1) Loosen the setscrew in the knob assembly.

(2) Remove the damaged knob.

(3) Replace with a new knob.

Caution: **Use the proper size tool for tightening the knob so that the knob and its setscrew will not be damaged.**

d. Binding Posts (fig. 1-1 and 6-3).

(1) Remove the voltmeter unit from its case (para 2-4).

(2) At the rear of the test set panel, use the proper open-end wrench to remove the nuts from the binding post screw shaft.

(3) Slip the damaged binding post from the front panel.

Caution: **Be very careful when removing the binding post to avoid loss of the insulating washers**.

(4) Replace the binding post and tighten the assembly nuts.

Caution: **Avoid excessive pressure when tightening to avoid crushing the insulating ashers. Always use a new lockwasher when replacing these components. Lockwashers have a tendency to lose their holding power when their teeth are dulled.**

e. *Power Cord* (fig. 1-2 and 2-1).

(1) The power cord assembly may be replaced or repaired.

(2) Damaged power cord plugs will be replaced with new three-prong power plugs (fig. 2-1).

(3) A damaged power cord will be replaced by a suitable three-wire insulated cord (fig. 2-1).

CHAPTER 5
FUNCTION OF EQUIPMENT

5-1. General

The information presented in this chapter is applicable to general support and depot maintenance functions. The unit operational functions are essential to trouble analysis of this equipment.

5-2. Functional Block Diagram

(fig. 5-1)

a. Input Attenuator. The input attenuator block is a network of resistors and capacitors which are connected to ganged wafer switch assembly S1A, S1B, S1C, and SID. The attenuator circuit will provide an insertion loss to the input signal which will establish the test set meter ranges (fig. 5-2). The input signal to be measured by the instrument is applied to the signal input and GND binding posts. The signal characteristics may be symmetrical or nonsymmetrical.

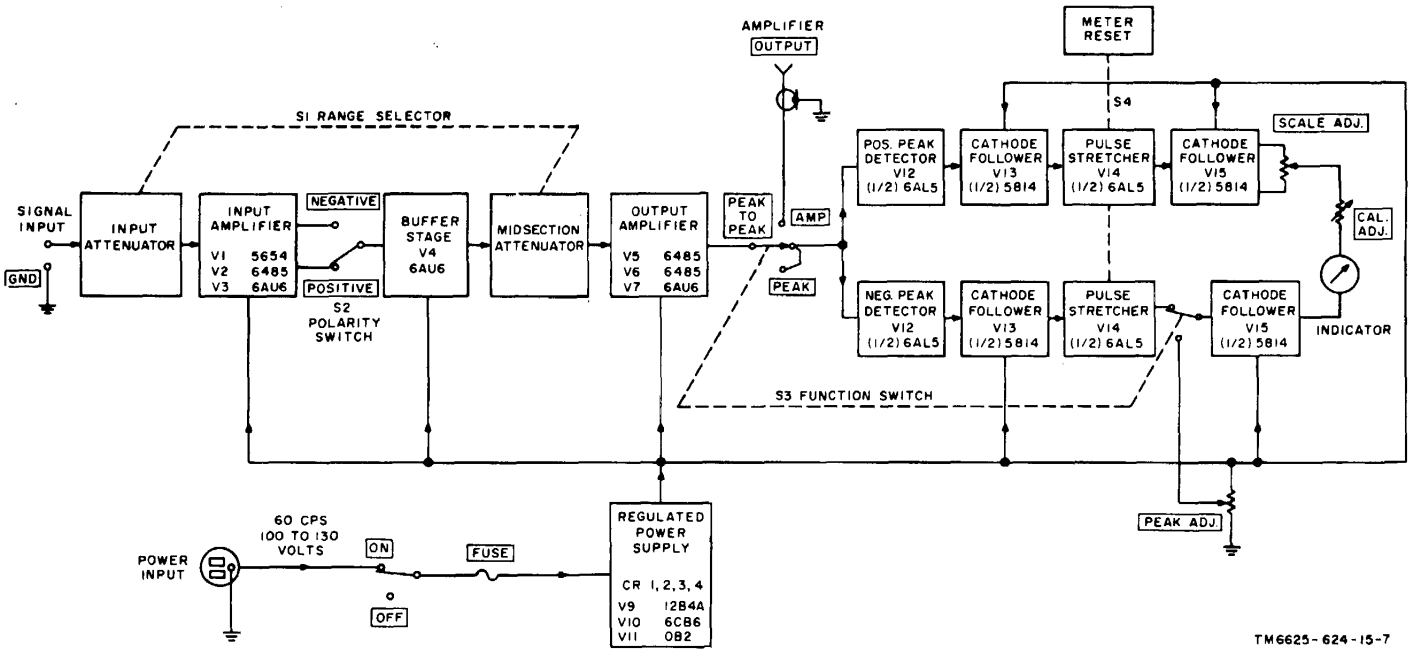


Figure 5-1. Voltmeter ME-262/U, block diagram.

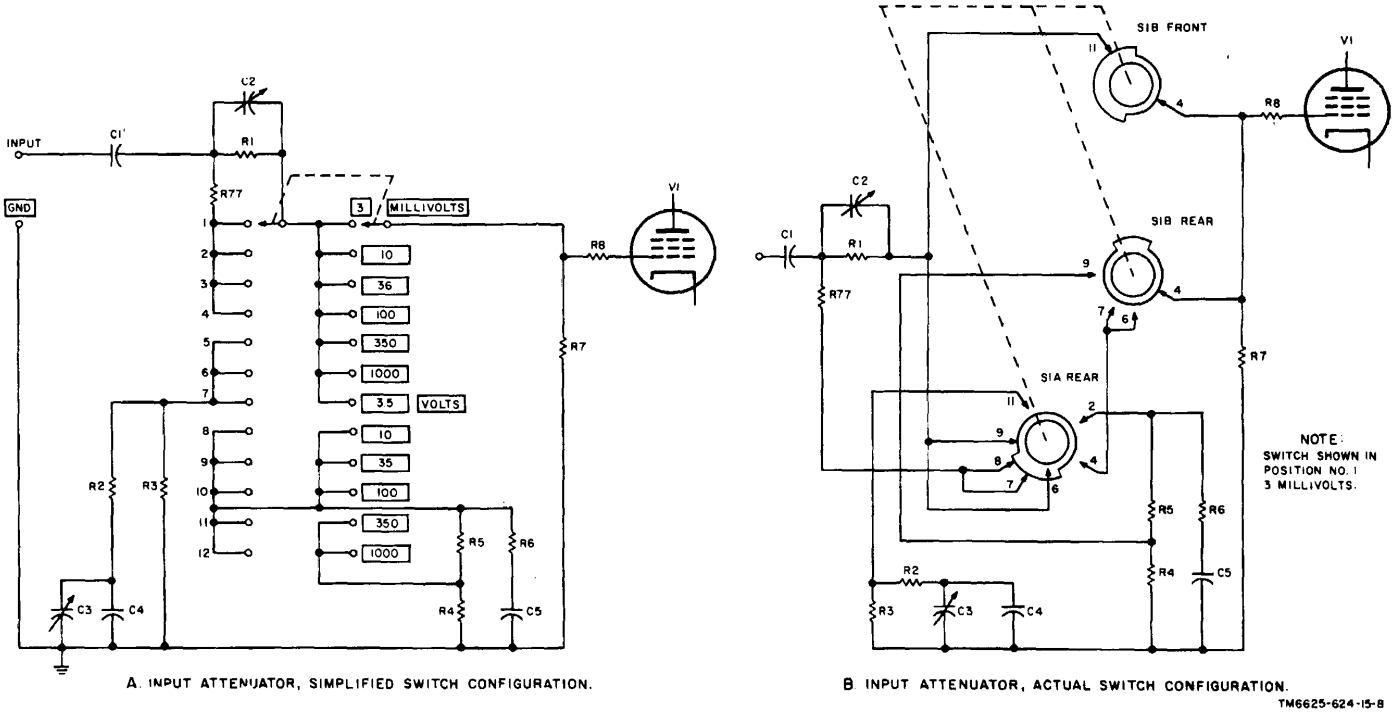


Figure 5-2. Input attenuator switching.

Input Amplifier. The signal to be measured is amplified by three stages of a fixed gain wide band amplifier. The output of this amplifier is adapted to provide a positive or a negative output pulse to a selector switch. The polarity switch (S2) pole can select the pulse polarity to be measured.

c. Buffer Stage. The buffer stage provides a proper interstage impedance match as well as the necessary isolation between the input amplifier and the output amplifier.

d. Midsection Attenuator (fig. 5-3). The midsection attenuator consists of a resistive voltage divider network which is controlled by the action of wafer switch assembly SIB (selector switch). The attenuator will apply an insertion loss ahead of the output amplifier input to help establish the ranges of the instrument. The input attenuator and the midsection attenuator are ganged by the mechanical action of S1. Two attenuators are used, because the bandwidth/gain design of the input amplifier is dependent on a feedback circuit of a limited value. The gain of the one amplifier is insufficient for proper instrument use; consequently, a second feedback amplifier is used which has its own feedback loop. The input attenuator controls the input amplifier; whereas, the midsection attenuator controls the gain of the output amplifier. The overall gain of the instrument depends on both amplifiers working together over the design bandwidth of 5 to 500, 090 cycles per second (cps).

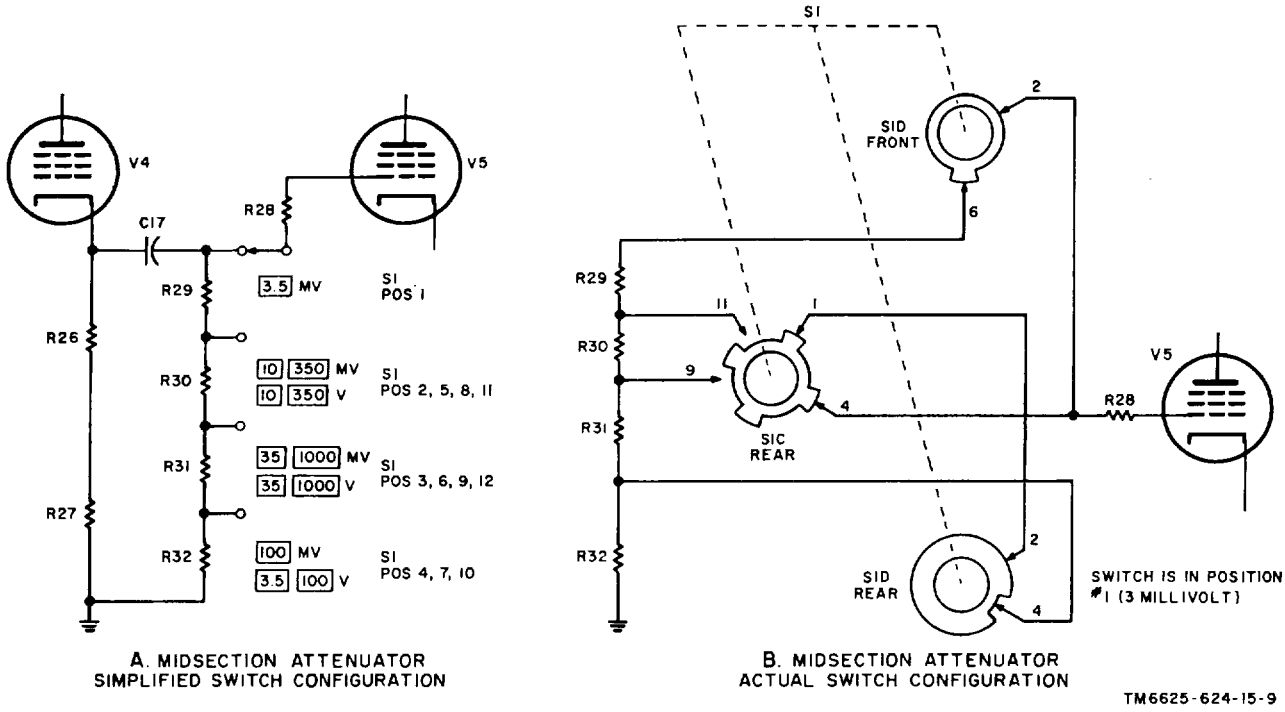


Figure 5-3. Midsection attenuator switching.

e. Output Amplifier (fig. 5-1). The output amplifier is similar in nature to the input amplifier in that it contains a feedback loop to give it the necessary bandwidth gain characteristics. In addition, this feedback makes the instrument less sensitive to inherent noise signals. Vacuum tubes V5 and V6 are the voltage amplifiers followed by an output cathode follower stage. A single-pole triple-throw function switch (S3) will provide a choice of an output to the internal metering circuits or to an external OUTPUT load.

f. Positive Peak Detector. Diode vacuumtube section V12A is used in a half-wave rectifier type of circuit which will respond to the positive alternation of an incoming signal (referenced to ground).

g. Negative Peak Detector. Diode vacuumtube section V12B is used in a half-wave rectifier type of circuit which will respond to the negative alternation of an incoming signal (referenced to ground).

h. Pulse Stretcher Circuits. The instrument uses a moving-coil type of meter movement. It is necessary to hold the meter pointer in a constant position on the scale during the incoming signal alternations in order to indicate the peak or peak-to-peak values of the signals. The pulse stretcher is a resistive-capacitive network with a very long time constant to the incoming signal alternations. Diode vacuum Lube V14A and V14B is used in association with the resistive-capacitive network to provide this action. For peak-to-peak measurements, both the positive and the negative pulse stretchers are active. For peak indications, only the positive pulse stretcher will be used. Function switch S3 chooses the mode of operation desired by the operator of the instrument.

i. Cathode Follower Stages (Metering Circuit). Vacuum tubes V15A and V15B are used in a bridge type of circuit and will be used in association with the indicating meter to provide the proper peak and peak-to-peak readings for the selected meter measurement range. The SCALE ADJ control and CAL ADJ controls are used to set the proper balance into the metering circuit and provide adjustment to compensate for aging of the vacuum tubes used in the instrument. A PEAK ADJ control is provided for use in the peak measuring mode of operation only.

j. Regulated Power Supply. The regulated power supply provides a stable plate voltage to the test set amplifiers. A direct current (dc) full-wave rectifier provides a dc voltage to the filaments of amplifier stages V1, V2, and V5.

5-3. Detailed Circuit Functions

a. Input Attenuator (fig. 5-2 and 5-4).

(1) The waveforms to be measured are applied through test leads to the input and GND binding posts.

(2) A network of resistors and capacitors is connected to ganged wafer switch S1. This range selector switch establishes the meter ranges by changing the attenuator network circuit (fig. 54).

(a) For the first four switch positions, there is a 0-decibel insertion loss (fig. 5-4 (A)).

(b) For the fifth through the seventh switch positions, there is an insertion loss of 30 decibels (fig. 5-4 (C)).

(c) For the 8th through the 10th switch positions, the insertion loss is 60 decibels (fig. 5-4 (B)).

(d) For switch positions 11 and 12, the insertion loss is 90 decibels (fig. 5-4 (D)).

(3) The network input impedance is 2 megohms up to a frequency of 25 kilocycles. Above this frequency, capacitors C2 and C3 will add their effective reactance ratios to keep the attenuation constant. These capacitors are adjusted as needed by applied maintenance procedures.

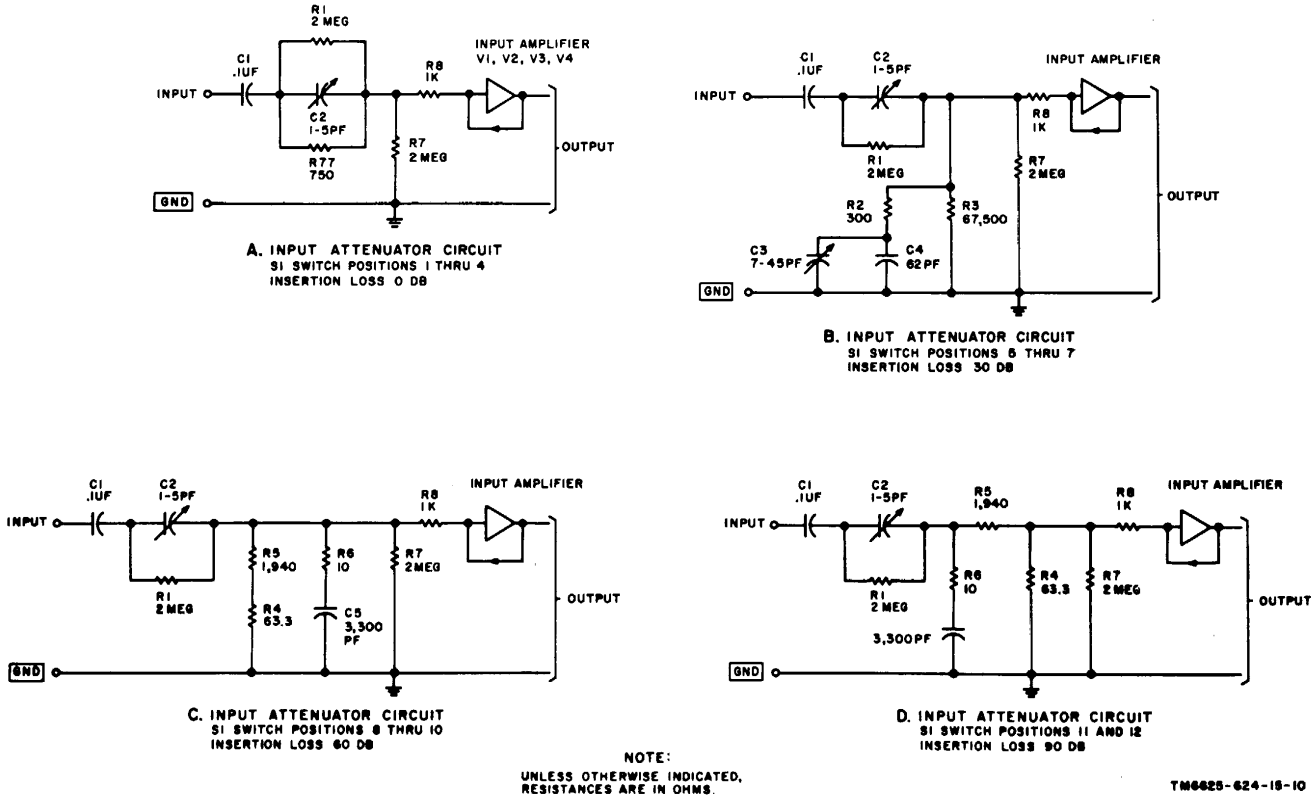


Figure 5-4. Input attenuator circuits.

b. Input Amplifier (fig. 9-3).

(1) The input amplifier consists of two resistance-capacitance coupled pentode stages V1 and V2 with negative feedback of 40 decibels. Direct-coupled split-phase inverter stage V3 is used as the output of the amplifier.

(a) Negative feedback provides the broad bandwidth requirements of the amplifier.

(b) The noise response of the amplifier is reduced to a level of 10 to 14 microvolts by this circuit design.

(2) The first stage is shock mounted and shielded to reduce microphonics and hum pickup.

(3) The first and second stage filaments are operated on de to further reduce hum pickup.

(4) Polarity switch S2 connects the following buffer stage to the plate or the cathode of phase inverter stage V3.

(a) The output amplifier must have a positive input signal.

(b) A fast risetime is assured, and cutoff of the output stage is prevented in this manner.

c. Buffer Stage (fig. 9-3).

(1) Cathode follower stage V4 couples the high source impedance of the plate of the input amplifier to the relatively low impedance of the midsection attenuator.

(2) Variable capacitor C15 is connected into the cathode circuit of amplifier V3 when the signal to V4 is taken from the plate circuit of V3. This capacitor is used to equalize the high frequency response of the input amplifier. Capacitor C15 is not used when the signal to V4 is taken from the cathode of V3.

d. Midsection Attenuator (fig. 5-3).

(1) Resistors R29, R30, R31, and R32 form a four-step string attenuator.

(2) Over most of the frequency range, this attenuator acts as a resistive voltage divider. The circuit forms an L-pad type of network when the selector switch is stepped beyond its position No. 1.

(a) For the 3.5-millivolt position of switch S1, the insertion loss is 0 decibel.

(b) At the 10and 350-millivolt and the 10and 350-volt positions, the insertion loss is 10 decibels.

(c) At the 35and 1, 000-millivolt and the 35and 1, 000-volt positions, there is an insertion loss of 20 decibels.

(d) At the 100-millivolt and the 3.5and 100-volt positions, the insertion loss is 30 decibels.

(e) Ganged range selector switch S1 is designed to cycle the midsection attenuator through its 10-, 20-, and 30-decibel positions as the input attenuator is stepped. The losses in the input attenuator and midsection attenuator are added to give the system overall attenuation.

(3) Fixed capacitors C18 and C19 (fig. 9-3) will provide response correction at the highest frequency range of the instrument.

e. Output Amplifier (fig. 9-3).

(1) Pentode amplifier tubes V5 and V6 form a two-stage capacitively coupled amplifier with a feedback loop of 38 decibels at midfrequencies. The slope of the response curve is expressed as 6 decibels per octave (harmonics) at the low-and the highfrequency ends.

(2) Capacitor C20 can adjust the highfrequency response.

(3) Amplifier tube V5 is operated with dc on its heater to reduce hum pickup.

(4) Screen resistor R41 adjusts the plate voltage of V6.

(5) Vacuum tube V7 is a direct-coupled cathode follower output tube. A neon bulb, V8, limits the cathode voltage of this stage during warmup and aids in protecting the tube.

(6) The gain of this output amplifier plus the gain of the input amplifier are added to give the overall instrument gain. The measurement range of the instrument depends on the at-

tenuator losses in association with the amplifier gains over the frequency of operation.

f. *Peak-to-Peak Detector* (fig. 5-5).

(1) Dual diode tube V12 and V12B is used as a peak-to-peak detector. One-half of the diode rectifies a positive-going signal alternation and the other half rectifies a negative-going alternation.

(2) Charging capacitor C32 is charged initially by a voltage from the junction of resistors R57 and R58 through diode V12 plate to cathode. Voltage divider R57 and R48 provides a dc bias to the detector.

(3) The bias voltage on capacitor C32 will be applied to both grids of dual triode V13. This tube serves as a differential amplifier.

(4) A signal coupled through capacitor C26 to resistor R58 is rectified by the V12 circuits. On the positive swing of the signal, capacitor C32 will charge very rapidly to the peak value of the signal. The time constant is 0.01 microsecond. The discharge path must be through resistor R59 which gives a time constant of 2.2 milliseconds.

(5) The high charge-to-discharge ratio of R59 and C32 insures true peak detection of a signal. (Resistor R59 and capacitor C32 act as an integrator circuit in the input circuit of differential amplifier V13.)

(6) The circuit design assures true peak detection for a wide variety of signal wave shapes and signal pulse widths.

g. *Pulse Stretcher* (fig. 5-5 and 9-3).

(1) Differential amplifier stages V13A and V13B will be in an identical state of conduction in the absence of an input signal.

(2) A resistor-capacitor integrator circuit is parallel connected across the cathode load resistor (R60 and R61) of V13A and V13B.

(3) Capacitor C35 will charge to a peak positive signal swing and capacitor C74 will charge to a peak negative swing. Diode V14A and V14B serves as a peak rectifier. The time constant of R63 and C35 and R64 and C34 is 3.3 seconds long.

(4) Once a signal has been detected by the peak-to-peak detector, the pulse stretcher stores the positive and negative peak levels as a dc potential referenced to ground.

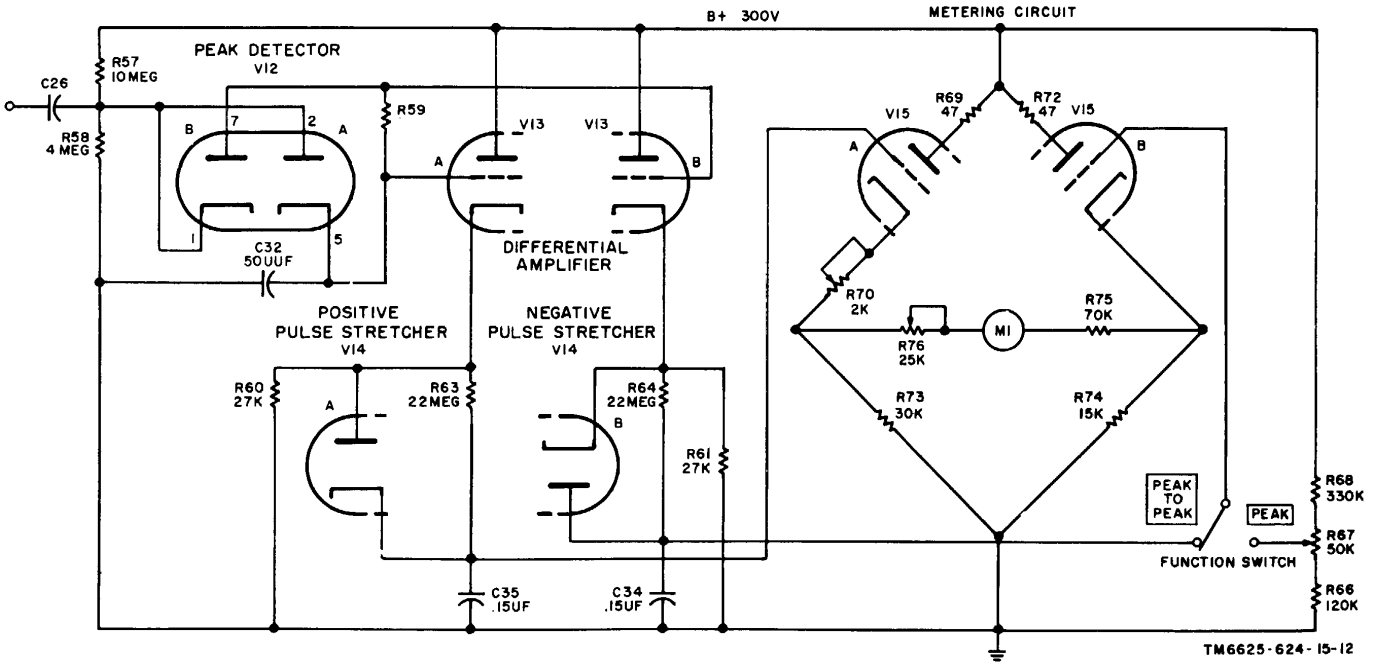


Figure 5-5. Peak detector and metering circuit. schematic diagram

h. Measuring Stage (fig. 5-5).

(1) The two sections of tube V15 are connected into a bridge circuit as illustrated in figure 9-3.

(2) In the absence of a signal, the differential amplifier output voltage is applied to both of the control grids of tube V15.

(3) Since the resistance values in the cathode circuits of the two sections of V15 are different, the effective bias on the tube sections will differ. The conductance of the two tube section.s is adjusted by this bias to balance the bridge circuit under no-signal conditions.

(4) Meter M1 is a shaped, polepiece, moving-coil type of indicator. It has a current range of 190 to 600 microamperes for a range of 0 to 10 decibels.

(5) When signals are stored as peak-topeak values on the pulse stretchers, the resultant dc levels will be applied to the control grids of V15A and V15B.

(6) The bridge circuit is unbalanced to the extent that the indicating meter will register a peak-to-peak voltage in the presence of a signal in the detector system.

(7) For peak reading of voltage waveforms, function switch S3 will remove the negative pulse stretcher voltage level from the grid of V15B and substitute a voltage divider network in its place. Resistors R66, R67, and R68 are used in the peak measuring mode of operation.

(8) CAL ADJ control R76, in series with the indicator, changes the voltage sensitivity of the indicator. This control is used during calibration of the instrument.

(9) SCALE ADJ control R70 affects the balance of the bridge circuit tubes. It influences the on-scale indication and is used to control the scale linearity of the meter.

(10) The heaters of the tubes in the peak detector-pulse stretcher are regulated Lo assure a high stability of balance against line voltage variations. A special transformer, T1, in the power supply is used to accomplish this regulation.

i. Power Supply (fig. 9-3).

(1) A constant voltage self-regulating transformer together with electronic regulation is used in the power supply to stabilize the heater and the B voltages against line voltage variations or load transients.

(2) A silecon rectifier-voltage doubler circuit is used to provide the Bvoltages.

(3) Three separate filament circuits are used. One circuit, marked XX, if for the tube heaters in the power supply. A circuit marked YY is used for tubes in the amplifiers, .and a rectified dc filament circuit is used for tubes V1, V2, and V5.

CHAPTER 6
TROUBLESHOOTING INSTRUCTIONS

Section I. GENERAL TROUBLESHOOTING INFORMATION

Warning: **Be extremely careful when servicing the power supply components. Hazardous voltages exist in this equipment.**

6-1. General Instructions

Troubleshooting at the general support and depot maintenance levels includes all of the techniques outlined for organizational maintenance and any special or additional techniques required to isolate the defective component. The general support and depot maintenance procedures are not complete in themselves, but supplement the procedures outlined in paragraphs 4-2 through 4-10.

6-2. Troubleshooting Procedures

a. General. The first step in servicing a defective Voltmeter ME-262(*)/U is to localize the trouble. Localization means tracing the defect to the faulty part responsible for the abnormal operation or condition. Some defects, such as shorted transformers and burned wires, can be located by smell, sight, or hearing. The majority of defects must be localized by checking voltage and resistance.

b. Localization. The tests listed below will aid in isolating the defective part. Localize the trouble to a single part by use of resistance and voltage measurements.

(1) Resistance measurements, which must be made with the equipment power off, will aid in localizing faults. In general, resistance checks are most valuable to verify the published or color-coded values of a suspect component once this part has been isolated by the voltage checks. In this equipment, there is no published resistance chart. If resistance checks are necessary, refer to the resistance values on the system schematic diagram (fig. 9-3) for determining point-to-point resistance values. It may be necessary in some circuit areas to allow for the normal leakage resistance in the power supply electrolytic capacitors. In the event a resistance check passes back through the power supply, the test ohmmeter needle may tend to respond more slowly when the test leads are applied to test points. In this case, reverse the meter test leads and measure the resistance a second time.

(2) Voltage measurements will check possible faults by putting all components at their required operating voltages and temperatures. Components may test normal on a resistance check but can fail on the voltage check. Voltage readings are a more positive trouble check, as long as there are no short circuits in the system which can cause damage to components. Incorrect voltage readings will lead to the defective component after the maintenance man analyzes the circuit function carefully.

c. Procedure. The equipment troubleshooting chart (para 6-4) and the tube pin voltage chart (para 6-5) provide a method for systematically troubleshooting Voltmeter ME-262/U.

(1) Prepare the instrument for dc voltage checks as follows:

(a) Remove the case (para 2-4a).

(b) Short the input terminals.

(c) Set the controls as follows:

Control	*Setting*
FULL SCALE range selector switch	1,000 VOLTS.
Function switch	PEAK TO PEAK.
Polarity switch	POSITIVE.

(2) Measure the tube pin voltages with Multimeter ME-26/U and compare results with the chart in paragraph 6-5.

6-3. Test Equipment Required

Test equipement	Qty reqd	Applicable literature
Audio Oscillator TS-382/U	1	TM 11-2684
Multimeter TS-352/U ...	1	TM 11-5527
Test Set, Electron Tube TV-2/U	1	TM 11-6625-316-12
Test Set, Electron Tube TV-7/U.....		TM 11-6625-274-12
Multimeter ME-26/U	1	TM 11-6625-200-12
Voltmeter, Meter ME-30(*)/U	1	TM 11-6625-320-12

*Indicates ME-30A/U. ME-30/U. ME-30C/U, and ME-30E/U.

6-4. Troubleshooting Chart

(fig. 6-4, 65, 9-1, 9-2)

Item	Symptom	Probable trouble	Procedure
1	Instrument inoperative.. Pilot lamp does not light.	No power. Blown fuse. Defect in power supply.	Check fuse. Check for short in power supply B+ line or filament lines. Check for presence of input ac power.
2	Meter indicating with no input signal.	Input not shielded, picks up hum. PEAK ADJ out of adjustment Defective tube (heater-to-cathode leak).	Check tube shielding. Check tubes in tube test set for leakage. Check peak adjustment procedures.
3	High error at 60- and in 120-cycle measure-ment.	Hum pickup connections. Ground current in the measuring circuit. Strong magnetic field. Heater damage in tubes VI, V2, and V5. High hum in power supply.	Check shielding and wire dress in the circuits. Check for loose connection or bad soldering connection to ground points. Check the grounding of the instrument case to external ground. Check tubes V1, V2, and V5 for heater damage. Check power supply filter capacitors.
4	Microphonics.....	Microphonic tube V1 or V5. Loose connections.	Replace tubes. Check for loose connections.
5	Unstable indication...	Insufficient shielding in the input test leads. Defective V11. Defective power supply. Misadjusted PEAK ADJ.	Check shielding connection on meter hot test lead. Replace V11. Check power supply regulation. Adjust PEAK ADJ control.
6	Inaccurate peak measurement.	Defective V6.	Replace V6.
7	Impossible to set SCALE ADJ.	Tubes V12, V13, V14, and V15 defective. Resistor R70, R73, or R74 defective.	Check and replace defective tube. Replace defective resistor.
8	High error in the lower part of meter scale.	SCALE ADJ needs adjustment.	Adjust SCALE ADJ control.
9	Error in NEGATIVE position only.	Defective resistor R21.	Replace resistor.

Item	Symptom	Probable trouble	Procedure
10	High-frequency response or short pulse measurement in error in the POSITIVE and NEGATIVE positions.	Frequency response of the amplifiers or attenuators is incorrect.	Check and repair as needed.
11	High-frequency response or short pulse measurement in error in the NEGATIVE position only.	Capacitor C15 out of adjustment.	Adjust capacitor C15.
12	Dc voltages abnormal	Defective power supply tube V9 or V11.	Check and replace tubes.
		Short circuit in the tubes or power supply circuits.	Check and repair shorts.

6-5. Voltage Chart (Tube Pins to Chassis Ground)

(fig. 64)

Pin / Tube	1	2	3	4	5	6	7	8	9
V1	0-0.05	2.1	0	6.1	90	110	2.1		
V2	0-0.2	1.5	12.2	18.3	55-65	100-130	1.5		
V3	55-65	235-255	100	100	235-255	235-255	56-68		
V4		250	100	100	250	250	110		
V5	0-0.05	1.5	6.1	12.2	90-140	100-130	1.5		
V6	0-0.2	1.6	100	100	100-113	130-160	1.6		
V7	100-113	300-310	100	100	300-310	300-310	102-115		
V9	200-310	295	150	150	150		295	385	385
V10	105	107	150	150	295	150	107		
V11	107	0		0	107		0		
V12	70	70	100	100	70				
V13	200-310	70	93	100	100	300-310		93	100
V14	93	93	100	100	93		90[a]		
V15	300	90	100	100	100	300	90[a]	100	100

[a] Measured with METER RESET depressed.

6-6. Signal Tracing of Amplified Circuits

If the reason for the trouble cannot be found by the dc voltage measurements, proceed as follows:

a. Preparation.

(1) Set up Oscillator, Audio TS-382/U as described in TM 11-2684. Allow 30 minutes for warmup.

(2) Set the audio oscillator frequency for a 1,000-cycle output.

(3) Connect 1, 000-ohm impedance matching Adapter UG-514/U to the output of the T-382/U and to the input terminals of Voltmeter ME-262/U.

(4) Adjust the audio oscillator output attenuator controls to provide a 350-millivolt root-mean-square (rms) output level. (Use the panel meter on the TS-382/U.)

(5) Set the ME-262/U meter panel controls as follows:

Control	*Setting*
FULL SCALE range selector switch	1 volt (VOLTS).
Function switch	PEAK TO PEAK.
Polarity switch	POSITIVE.

b. Procedure.

(1) Use Voltmeter, Meter ME-30(*)/U to measure the ac voltage of the tube pins listed in the chart below.

(2) The measured voltages should be within + 10 percent of the listed values.

c. Voltage Chart, Ac Readings From Tube Pins to Chassis G-round.

Tube	Pin No.	Tube element	Voltages ac (rms)
V1	1	Control grid	0.011
V1	2	Cathode	0.0107
V2	1	Control grid	0.0075
V3	1	Control grid	1.45
V3	7	Cathode	1.36
V3	2, 5, 6	Plate	1.36
V4	1	Control grid	1.36
V4	7	Cathode	1.30
V5	1	Control grid	0.13
V5	2, 7	Cathodes	0.126
V6	1	Control grid	0.13 to 0.16
V6	5	Plate	23.5
V7	1	Control grid	23.5
V7	7	Cathode	22.5
V12	1	Cathode	22.5
V12	2	Plate	22.5

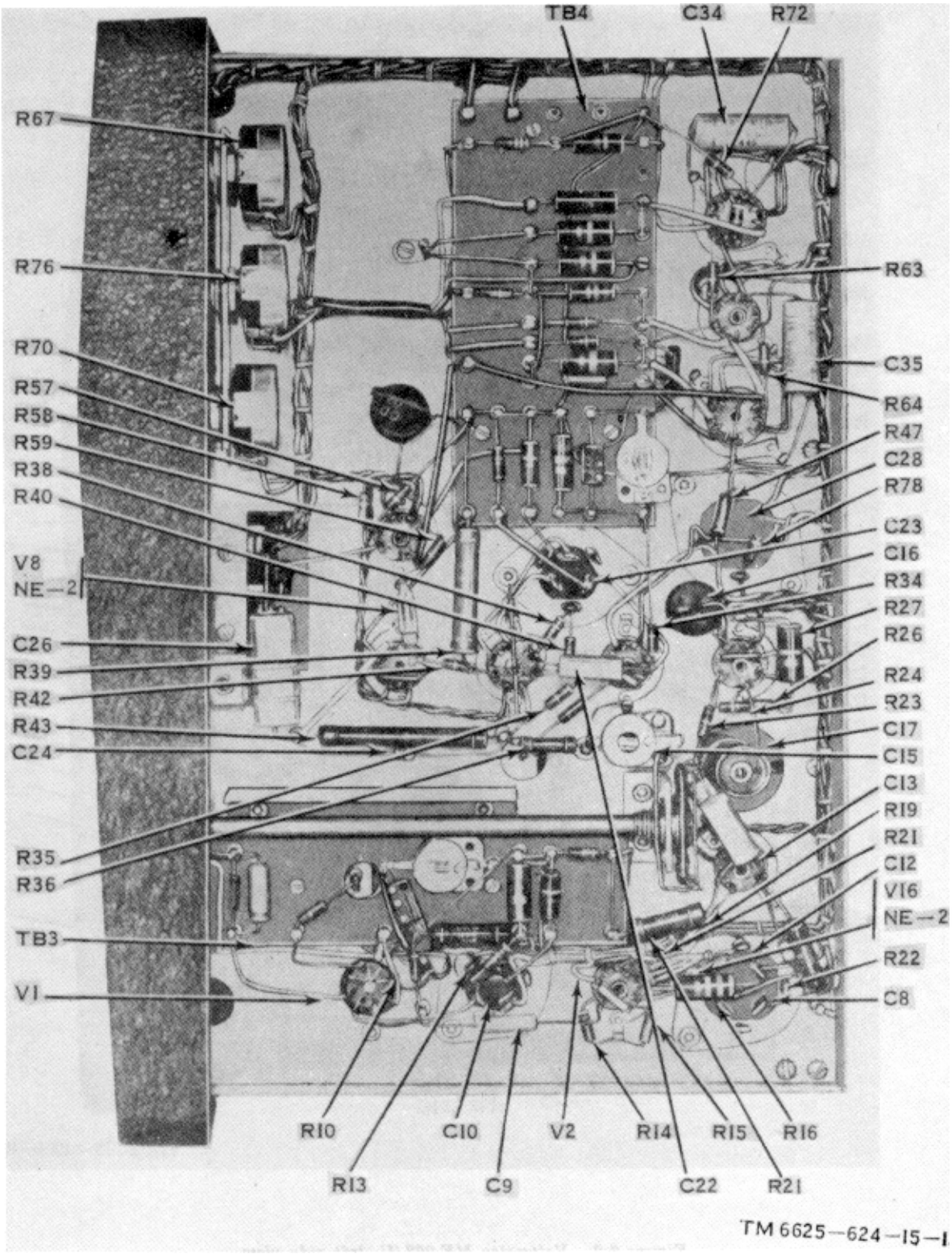


Figure 6.1 Voltmeter ME-262/U, right side view

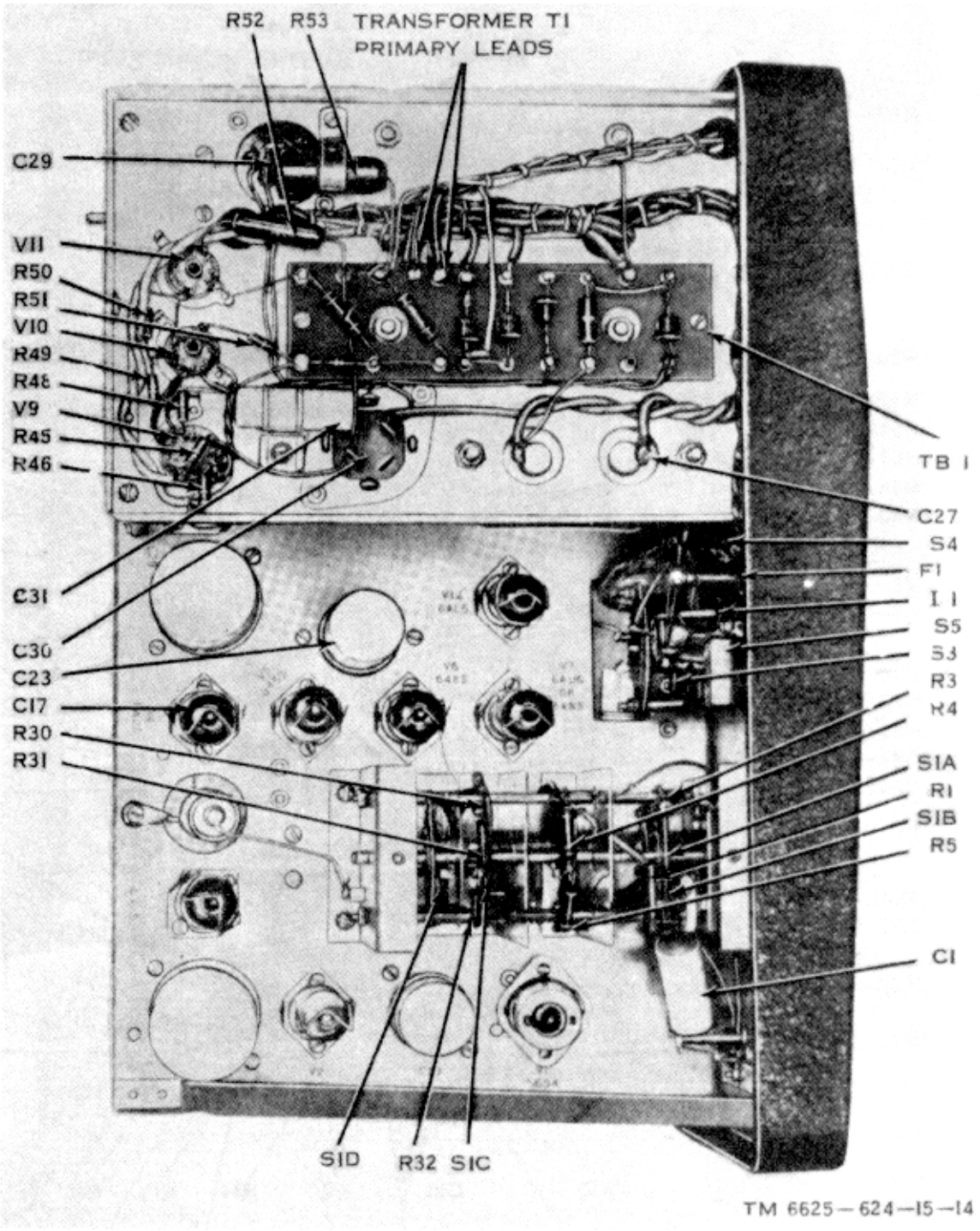


Figure 6-2. Voltmeter ME-262/U, left side view.

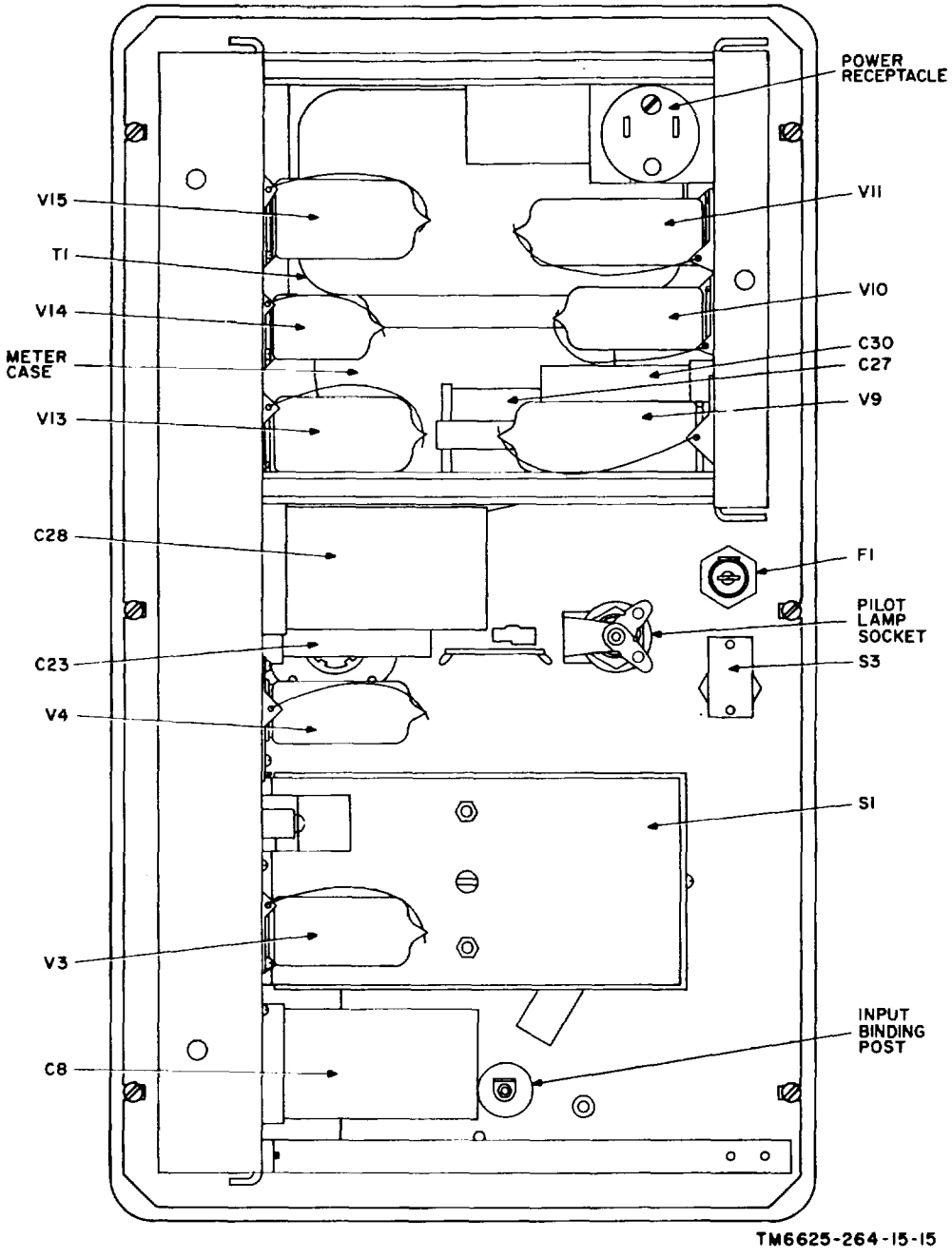


Figure 6-3. Voltmeter ME-262/'U, rear view.

d. Evaluation.

(1) If there is a disagreement in any of the Voltmeter, Meter ME-30/U readings of a particular stage with the chart recommended values, the feedback amplifier in which the discrepancy is found should be checked. For example, if V1 shows abnormal readings, the V2, V3, and V4 stages may be faulty.

(2) If all of the signal voltages read normal and the trouble still exists in the ME-262/U, proceed to the peak detector circuit tests in paragraph 7-2.

6-7. Signal Tracing of Peak Detector Circuits

a. Preparation. Prepare the equipment for these tests as outlined in paragraph 6-6a(1) through (5).

b. Procedure. Measure the cathode-to-chassis voltages as outlined in the chart in c below. Change the range selector switch to the 3.5-volt position after running through the tests at a 1-volt FULL SCALE range.

c. Peak Detector Stage Voltage Checks Chart.

Tube	Pin	1-volt FULL SCALE	3.5-volt FULL SCALE
V13	3	120	104
V13	8	94	97
V15	3	130	112
V15	8	80	97

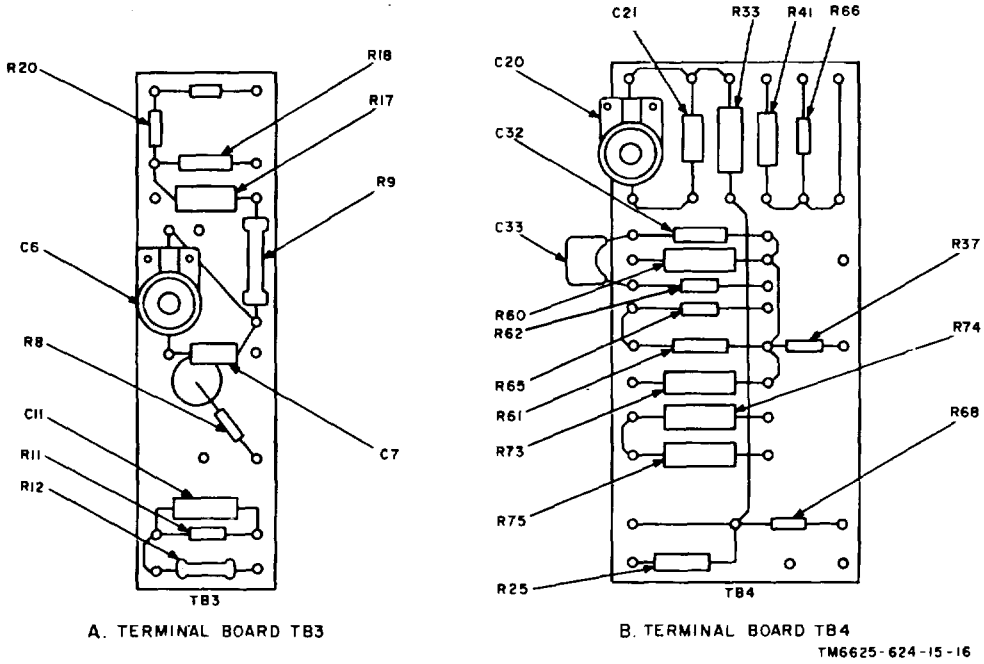


Figure 6-4. Terminal boards TB-3 and TB-4, component locations.

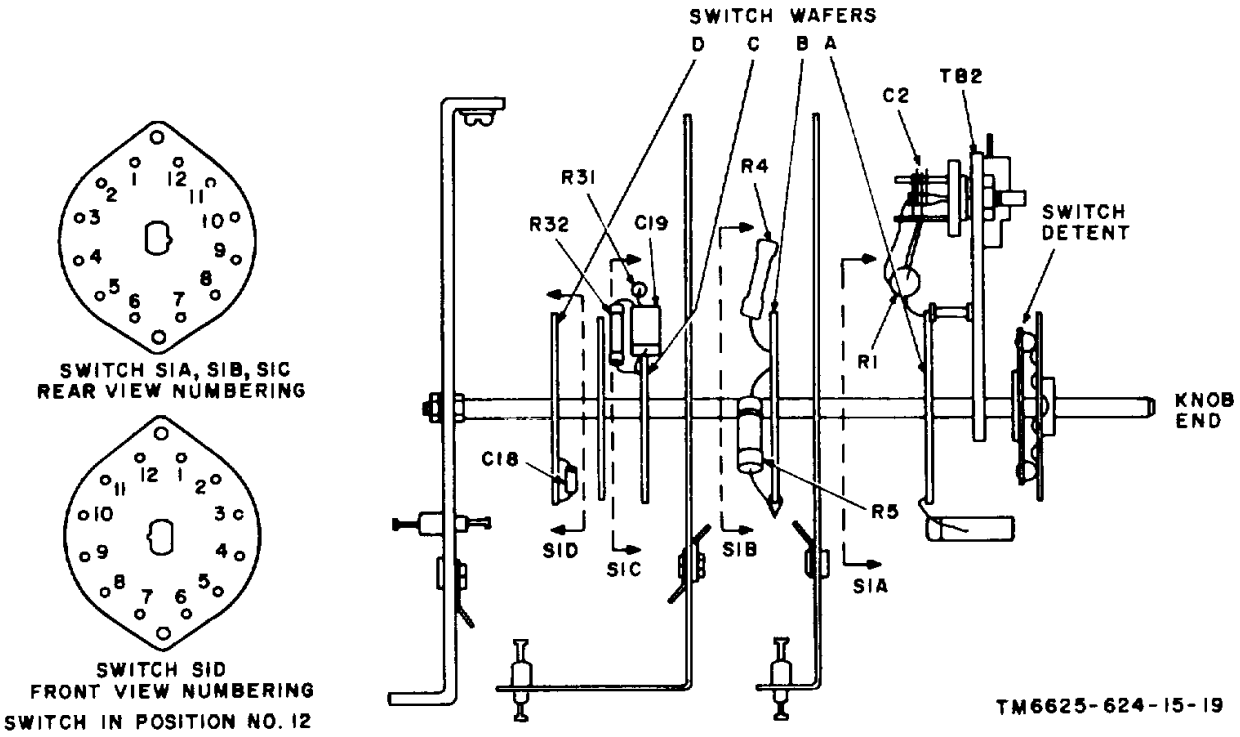


Figure 6-5. FUILL SCALE range selector switch S1, left side view.

CHAPTER 7
DIRECT AND GENERAL SUPPORT TESTING PROCEDURES

7-1. General

The testing procedures given in this chapter will be performed at the general support maintenance level. No maintenance is performed at the direct support level for this equipment. These instructions include all of the organizational maintenance techniques outlined in paragraphs 4-3 through 4-10. The test equipment required is outlined in chapter 8. The tests are to be scheduled at intervals of 200 hours, 1, 000 hours, and 2, 000 hours of use. Use the scheduling procedures outlined in TM 38-750.

7-2. Performance Checks, 200-Hour

(fig. 3-1)

a. PEAK ADJ Control Test Requirements.

(1) This adjustment is to be made when checking perfectly symmetrical waveforms.

(2) The PEAK voltage indication on the meter must be exactly one-half the value of the PEAK TO PEAK scale reading.

b. PEAK ADJ Control Adjustment Procedure.

(1) Allow the ME-262/U a warmup time of at least 1 hour.

(2) Set panel controls as follows:

Control	*Setting*
Function switch	PEAK TO PEAK.
Polarity switch	POSITIVE.
FULL SCALE range selector switch	1,000 MILLIVOLTS (1 volt)..

(3) Set up Oscillator, Audio TS-382/U for an output voltage level of 350 millivolts rms at a frequency of 1, 000 cycles.

(4) Adjust the attenuator of the TS-382/ U for an indication of 10 on the upper scale of Voltmeter ME-262/U.

(5) Set the function switch of the ME262/U to the PEAK position.

(6) The indicator on the ME-262/U meter just show exactly 5 on the upper scale.

(7) If the reading is not exactly 5, adjust PEAK ADJ R67 control (fig. 71) until an indication of 5 percent + 20 is obtained.

c. SCALE ADJ Control Test Requirements (fig. 3-1).

(1) This adjustment is to be made with a symmetrical sine wave signal input to the instrument.

(2) An indication of 10 on the upper scale (using the 1, 000-millivolt FULL SCALE range selector switch position) will change to an indication of 1 on the lower meter scale when the FULL SCALE range selector switch is switched to the 3.5-volt position. The signal input level must remain unchanged in both frequency and amplitude.

d. SCALE ADJ Control R70 Adjustment Procedure.

(1) Allow 30 minutes for the equipment to warm up.

(2) Set up a TS-382/U as an audio signal generator for an output voltage level of 350 millivolts rms at 1,000 cycles.

(3) Connect the output of the TS-382/U through 1, 000-ohm impedance Adapter UG-514/U to the input terminals of Voltmeter ME-262/U.

(4) Set the controls of the ME-262/U as follows:

Control	*Setting*
Polarity switch	POSITIVE.
Function switch	PEAK TO PEAK.
FULL SCALE range selector switch	1,000 MILLIVOLTS (1 volt).

(5) Adjust the attenuator on the TS-382, U until the ME-262/U indicator meter shows a value of 10 on its upper scale.

(6) Switch the FULL SCALE range selector switch to the 3.1-volt range.

(7) The ME-262/U indicator must read 1 on the lower scale.

(8) If the meter does not indicate exactly 1, adjust SCALE ADJ control R70 (fig. 7-1) to obtain a reading of exactly 1.

(9) Repeat procedures in (5) through (8) above until the indicated range agrees with the S1 attenuator range bv + 0.1 percent.

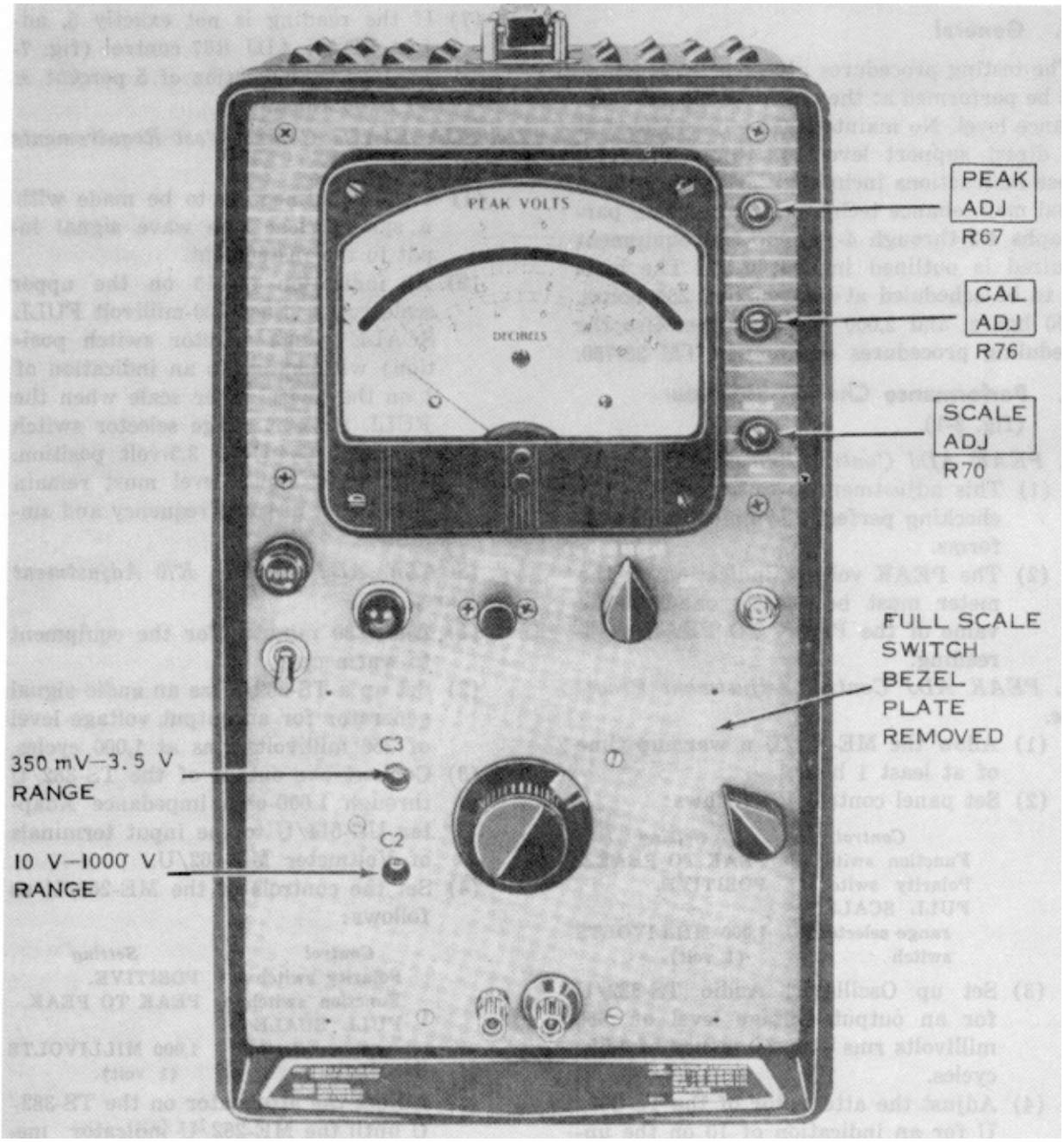


Figure 7-1. Voltmeter .Me -262 /U, location of adjustments.

7-3. Performance Checks, 1,000-Hour

(fig. 3-1 and 7-1)

a. PEAK ADJ and CAL ADJ Control Checks. Perform the PEAK ADJ check as described in paragraph 7-2. Refer to chapter 8 for the CAL ADJ control requirements and adjustment.

The CAL ADJ check requires laboratory standard type of test equipment. If this equipment is not available at this maintenance level, refer the check to the depot maintenance shop.

b. Dc Coupled Stages Check (fig. 6-2 and 6-3).

(1) Remove the instrument case as described in paragraph 2-4a.

(2) Short the test set (ME-262/U) input terminals.

(3) Set FULL SCALE range selector switch S1 to the 1,000-volt range.

(4) Connect input power, turn the power switch on, and warm up the ME262/U for 10 minutes.

(5) Measure the dc voltage on pin 7 to chassis ground of tubes V3 and V7.

(6) The voltage on V3 must be 50 to 68 volts dc. The voltage on V7 must be 100 to 115 volts dc.

(7) If the voltage is out of proper limits, vacuum tube V2 or V6 must be replaced by a tube of similar type. It is recommended that the replacement tube be pre-aged for a period of 50 hours to achieve the most stable instrument operation.

(8) After replacement of the tube, the pin 7 voltage of V3 and V7 should be adjusted to the following values:

Tube	*Pin*	*Voltage range*
V3	7	60 to 68
V7	7	106 to 116

(a) Connect Decade Resistor ZM-16/U in parallel with resistor R18 or R41 (fig. 6-1 and 6-4).

(b) Adjust the decade resistor until the voltage requirement given in (8) above is reached.

(c) Note the decade value and obtain a 1/2-watt carbon resistor of this value from supply sources.

(d) Solder the resistor in parallel with R18 or R41 as needed.

c. Phase Inverter Symmetry Check (fig. 6-1 and 7-1).

(1) Set up Oscillator, Audio TS-382/U as described in paragraph 7-2d(2) and (3).

(2) Set panel controls of the ME-262(*)/U as follows:

Control	*Setting*
Function switch	PEAK TO PEAK.
FULL SCALE range selector	3.5 volts.
Polarity switch	POSITIVE.

(3) Adjust the TS-382/U to produce a readable and accurate indication on the upper third of the ME-262/U meter scale.

(4) Change the polarity switch from the POSITIVE to the NEGATIVE position. Note the meter reading.

(5) Compare the meter readings for both the POSITIVE and NEGATIVE polarity positions. The two readings must not differ by more than 0.5 percent. If the difference is greater than 0.5 percent, proceed to d below.

d. Phase Inverter Symmetry Adjustment (fig. 6-1 and 7-1).

(1) If the POSITIVE response reading is higher than the NEGATIVE, add a 1/2-watt carbon resistor in series with resistor R21.

Note: 100 ohms added in series gives, approximately, a 1-percent correction.

(2) If the NEGATIVE response is higher, shunt a 1/2-watt carbon resistor across (parallel) resistor R21.

Note: 1 megohm of resistance gives, approximately, a 1-percent correction.

(3) Resistor R21 is located between pin 5 of tube V3 and the lower terminal board on the amplifier chassis (fig. 6-1).

c. CAL ADJ Control Tests (fig. 3-1). Refer to the instructions in chapter 8. Do not attempt this adjustment unless the necessary laboratory standard type of test equipment is available at this level of maintenance.

7-4. Performance Check, 2,000-Hour

This check includes all organizational maintenance checks plus the checks outlined in the depot inspection standards in chapter 8. The general support maintenance shop may perform all of these tests and adjustments, provided a rebuild action is not required.

CHAPTER 8
DEPOT INSPECTION STANDARDS

8-1. Applicability of Depot Inspection Standerds

The tests outlined in this chapter ire designed to measure the performance capability of a repaired equipment. Equipment that is to be returned to stock should meet the standards given in these tests.

8-2. Applicable References

a. Repair Standards. Applicable procedures of the depots performing these testsand the general standards for repaired electronic equipment given in,TB SIG 355-1, TB SIG 355-2, and TB SIG 355-3 form a part of the requirements for testing this equipment.

b. Modification Work Orders. Perform all modification work orders applicable to this equipment before making the tests specified. DA Pam 310-4 lists all available MWO's.

8-3. Test Facilities Required

The following iter-cs are required for depot testing:

Item	Common name	Applicable literature
Calibrator (Ballantine Model 421 or equiva-lent).	Calibrator	
Audio Oscillator TS-382/U.	Signal generator	TM 11-2684
Micropotentiometer (Ballantine Model 440 or equiva-lent).	Micropoten-tiometer	
R-F Signal Gener-ator AN/URM-25.	Rf signal generator	TM 11-5551
Transformer, Variable TF-171/USM.	Variac	
Voltmeter, Meter ME-30 () /UL.	Vtvm	TM 11-6625-320-12
Voltmeter (Ballantine Model 665 or equiva-lent).	Dc voltmeter	

[a]Indicates ME-30A/U, ME-30B/U. ME-30C/U. and ME-30E/U.

8-4. General Test Requirements

Most of the tests will be performed under the conditions given below. Testing will be simplified if connections and panel control settings are made initially and modifications are made as required for individual tests.

a. Set the front panel controls as follows:

Control	*Setting*
Range selector switch	3.5 VOLTS
Polarity switch	POSITIVE
Function switch	PEAK TO PEAK
Power switch	ON

b. Always allow at least 2 hours for all equipment to reach stabilized temperatures.

8-5. Line Voltage Tests

Connect the equipment as shown in figure 8-1 and set controls according to paragraph 8-4

a. Set the calibrator for 1-volt, 1-kilocycle (kc), peak-to-peak sine wave input to the ME262(*)/U.

b. Using the variac, set the line voltage to exactly 115 volts ac.

c. Observe the ME-262(*)/U meter. The meter indicates exactly 1. Readjust the SCALE ADJ control if necessary.

d. Using the variac, set the line voltage to 105 volts ac.

e. After 15 seconds, observe the meter *drop.* The meter indicates 1 percent + 0.2.

f. Using the variac, set the line voltage to 125 volts ac.

g. After 15 seconds, observe the meter increaase. The meter indicates 1 percent ± 0.2.

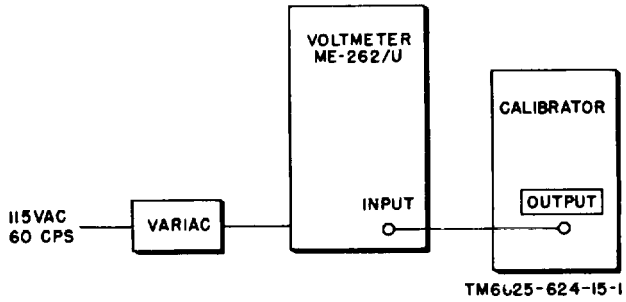


Figure 8-1. Test connection for line voltage checks

8-6. Voltage Regulator Checks

Connect the equipment as shown in figure 8-2 and set the controls according to paragraph 8-4. Adjust the line voltage to exactly 115 volts ac.

a. Adjust the signal generator for 1-volt, 1-kc, peak-to-peak sine wave output.

b. Using the variac, slowly and gradually decrease the ac line voltage until the ME-262/ U meter pointer makes a transient deflection.

c. Observe the level of the ac line voltage. It should be 75 volts or less.

d. Slowly and gradually vary the ac line voltage between the level observed in c above and 130 volts; observe the meter indications. There are no sudden jumps or low-frequency oscillations.

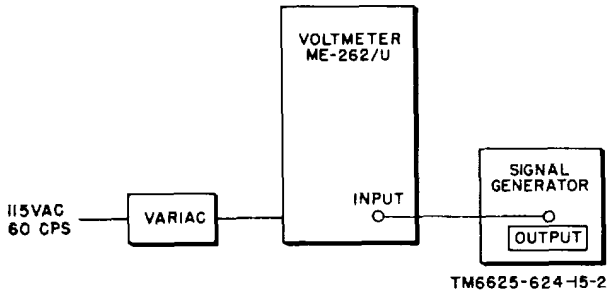


Figure 8-2. Test connections for voltage regulator checks.

8-7. Noise Checks

Connect the equipment as shown in figure 8-1 and set the controls according to paragraph 8-4. Adjust the line voltage to exactly 115 volts ac.

a. Set the calibrator for 3.5 VVP input signal to the ME-262/U. Tap the CAL ADJ control and observe the meter indications. The meter pointer shows full-scale deflection ±4: 0.3 percent.

b. Set the calibrator for 1-volt, 1-kc, peak-to-peak sine wave input signal to the ME-262/ U. Tap the SCALE ADJ control and observe the meter indications. The meter pointer shows on-scale deflection ± 0.3 percent.

c. Place the range selector switch to 10 VOLTS. Set the calibrator for 10-volt, 1-kc, peak-to-peak sine wave input signal to the ME262. 'U.

d. Set the function switch on the ME-262/U to PEAK.

e. Tap the PEAK ADJ control and observe the meter indications. The meter pointer indicatess volts + 0.3 percent.

f. Set the calibrator for 1-volt, 1-kc, peakto-peak sine wave input signal to the ME-262 U.

g. Set the range selector switch to 3.5 MILLIVOLTS and the function switch to PEAK TO PEAK.

h. Rap on the control panel and observe the meter pointer. The meter indicates less than 50 percent of full-scale deflection.

i. Rap the table or the test bench and observe the meter pointer. The meter indicates less than 15 percent of full-scale deflection.

j. Set the range selector switch to 10 MILLIVOLTS.

k. Rap on the control panel and observe the meter pointer. The meter indicates less than 15 percent of fullscale deflection.

l. Rap the table or the test bench and observe the meter pointer. The meter indicates less than 5 percent of full-scale deflection. mn. Set the range selector switch to 35 MILLIVOLTS.

n. Rap on the control panel and observe the meter pointer. The meter indicates less than 5 percent of full-scale deflection.

8-8. Amplifier Output Voltage Noise Checks

Set the controls according to paragraph 8-4.

a. Connect the vtvm to the OUTPUT jack on the ME-262/U.

b. Set the function switch on the ME-262/U to AMP.

c. Set the range selector switch to 3.5 MILLIVOLTS.

d. Shield the ME-262/U input. Observe the vtvm reading. The vtvm indicates less than 450 millivolts rms.

e. Set the polarity switch to NEGATIVE.

f. Observe the vtvm reading. The vtvm indicates less than 450 millivolts rms.

g. Set the range selector switch to 10 MILLIVOLTS.

h. Observe the vtvm reading. The vtvm indicates less than 150 millivolts rms.

i. Set the polarity switch to POSITIVE.

j. Observe the vtvm reading. The vtvm indicates less than 150 millivolts rms.

k. Short the input of the ME-262/U.

I. Observe the vtvm reading. The vtvm indicates less than 80 millivolts rms.

m. Set the polarity switch to NEGATIVE.

n. Observe the vtvm reading. The vtvm indicates less than 80 millivolts rms.

o. Set the range selector switch to 3.5 MILLIVOLTS.

p. Observe the vtvm reading. The vtvm indicates less than 250 millivolts rms.

q. Set the polarity switch to POSTTIVE.

r. Observe the vtvm reading. The vtvm indicates less than 250 millivolts rms.

8-9. Front Panel Adjustments

Connect the equipment as shown in figure 8-3 and set the controls according to paragraph 84.

a. Set the range selector switch to 1000 MILLIVOLTS.

b. Set the calibrator for 0.9-volt, 1-kc, peakto-peak sine wave input to the ME-262(*)/U.

c. Observe the ME-262/U meter pointer. The pointer indicates 9 on the upper scale of the meter.

d. Rotate the CAL ADJ control clockwise and counterclockwise to the control limits while observing the meter indications. The meter varies between 8.5 and 9.9 minimum.

e. Set the calibrator for 1-volt, 1-kc, peak-topeak sine wave input to the ME-161/U. The meter indicates 1 volt.

f. Set the range selector switch to 3.5 VOLTS. The meter indicates 1 volt.

g. Rotate the SCALE ADJ fully clockwise and counterclockwise while observing the lower end of the meter scale. Minimum deflection through the entire range of control is -3 percent, + 5 percent.

h. Set the range selector switch to 1000 MILLIVOLTS.

i. Adjust the CAL ADJ control for a 1-volt indication on the ME-262/U meter.

j. Set the range selector switch to 3.5 VOLTS.

k. Adjust the SCALE ADJ control for a 1volt indication on the lower scale of the meter.

I. Repeat procedures in h through k above, because adjustments are interdependent.

m. Set the range selector switch to 1000 MILLIVOLTS.

n. Set the function switch to PEAK.

o. Observe the meter indication. The meter pointer starts to move to the left.

p. Press the METER RESET switch. The meter pointer moves faster towards the left.

q. Release the METER RESET switch. Rotate the PEAK ADJ control fully counterclockwise.

r. The meter indicates below 4.5 on the upper voltage scale.

s. Short the input terminals of the ME-262/ U.

t. Rotate the PEAK ADJ fully clockwise.

u. The meter indicates above 1.05 on the lower voltage scale.

v. Remove the short from the input terminals. Adjust the PEAK ADJ for 5 on the upper voltage scale.

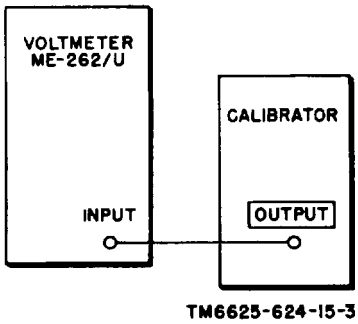


Figure 8-3. Test connections for adjustments and peak reading error checks.

8-10. Gain Adjustment

Connect the equipment as shown in figure 8-3 and set the controls according to paragraph 84.

a. Set the range selector switch to 100 MILLIVOLTS.

b. Connect the calibrator to the input jack of the ME-262/U and set for 100.millivolt peakto-peak input to the ME-262/U.

c. Adjust the CAL ADJ control on the ME262/U to bring the meter pointer exactly to 10 on the meter scale.

d. Set the polarity switch to NEGATIVE.

e. Using the vernier control on the calibrator, measure the meter deviation from the reading noted in c above. The deviation should be within + 0.2 percent.

8-11. Peak Reading Error Checks

Connect the equipment as shown in figure

8-3 and set the controls according to paragraph 8-4.

a. Adjust the calibrator for 1 VPP input to the ME-262/U.

b. Set the range selector switch to 1000 MILLIVOLTS.

c. Observe the ME-262/U meter pointer. The pointer indicates 10.

d. Set the function switch to PEAK.

e. Using the PEAK ADJ control, bring the meter pointer to exactly 5 on the upper scale of the meter.

f. Set the polarity switch to NEGATIVES

g. Observe the ME-262/U meter pointer. The pointer indicates 5 percent + 2 on the upper scale of the meter.

h. Set the range selector switch to 3.5 VOLTS.

i. Adjust the calibrator for 2 VPP input to the ME-262/U.

j. Observe the ME-262/U meter pointer. The pointer indicates 1 percent, -.5 + 1 percent on lower scale of the meter.

k. Set the range selector switch to 1000 MIILIVOLTS.

l. Observe the ME-262/'U meter pointer. The pointer indicates 10 percent, -0.5 + 1 percent on the upper scale of meter.

8-12. Meter Recovery Time Tests

Connect the equipment as shown in figure 8-3 and set the controls according to paragraph 8-4.

a. Set the range selector switch to 35 VOLTS

b. Set the output voltage of the calibrator to 10 VPP.

c. Observe the ME-262, /U meter pointer. The point3r indicates 1 on the upper scale of the meter.

d. Set the range selector switch to 3.5 VOLTS for 30 seconds.

e. Set the range selector switch to 35 VOLTS and observe the recovery time of the ME-262(*)/U meter pointer. The pointer returns to 10-volt indication in less than 5 seconds.

f. Set the range selector switch to 35 MILLIVOLTS for 30 seconds.

g. Set the range selector switch to 35 VOLTS and observe the recovery time of the ME-262(*)/U meter pointer. The recovery time is less than 11 seconds.

8-13. Frequency Response Tests

Connect the equipment as shown in figure 8-4 and set the controls according to paragraph 8-4.

a. Set the range selector switch to 100 MILLIVOLTS.

b. Set the calibrator for a 100-millivolt, peak-to-peak reading on the ME-262/U at 1 kc.

c. Using the dc voltmeter, monitor the dc output of the micropotentiometer.

d. Set the output frequency of the signal generator to 100 kc. Adjust the level for the same dc output from the micropotentiometer as in c above.

e. Observe the voltmeter reading. The dc voltmeter reading is the same as in c above (+ 0.2 percent).

f. Set the output frequency of the signal generator to 200 kc.

g. Observe the dc voltmeter reading. The dc voltmeter reading is the same as in c above (i 0.2 percent).

h. Disconnect the calibrator and connect the radiofrequency (rf) signal generator to the micropotentiometer. Set the output frequency of the rf signal generator to 300 kc and adjust the level for the same dc output from the micropotentiometer as in c above.

i. Observe the dc voltmeter reading. The dc voltmeter reading is the same as c above, -.4 percent, + 0.2 percent.

j. Set the output frequency of the rf signal generator to 400 kc.

k. Observe the dc voltmeter reading. The dc voltmeter reading is the same as in c above, -0.9 percent, + 0.5 percent.

l. Set the output frequency of the rf signal generator to 500 kc.

m. Observe the dc voltmeter reading. The dc voltmeter reading is the same as in a, above -2.0 percent to -1.3 percent.

n. Set the polarity switch to NEGATIVE.

o. Set the output frequency of the rf signal generator to 400 kc. Observe the dc voltmeter indication. The dc voltmeter reading is the same as in c above, + 2.0 percent.

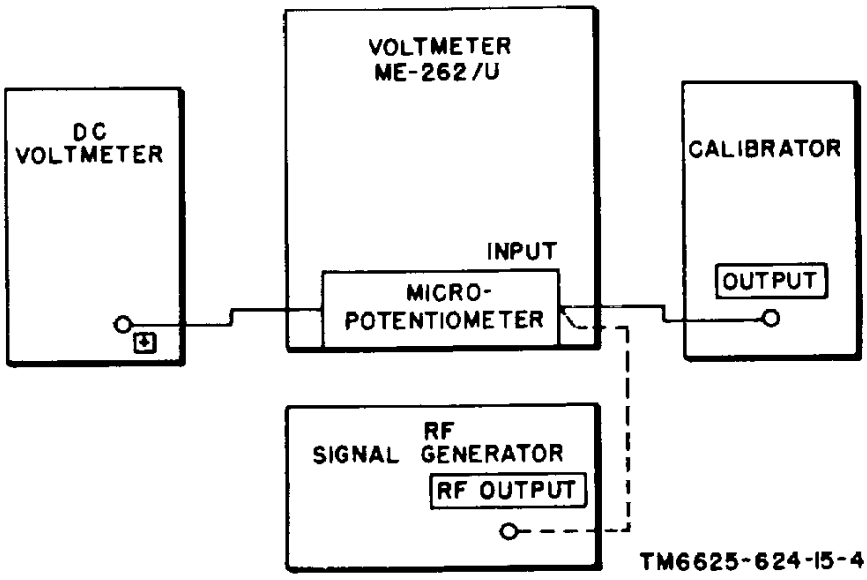


Figure 8-4. Test connections for frequency response tests.

CHAPTER 9
SHIPMENT AND LIMITED STORAGE AND DEMOLITION TO PREVENT ENEMY USE

Section I. SHIPMENT AND LIMITED STORAGE

9-1. Repackaging

The exact procedure for repackaging depends on the material available and the conditions under which the equipment is to be shipped or stored. Under most conditions of shipment and storage, a fiberboard box will be sufficient. Use or adapt the procedures outlined below, according to existing circumstances.

9-2. Material Requirements

The following materials, when required, may be used for the packaging of Voltmeter ME-262/U. For stock numbers of the materials, consult SB 38-100.

Material	*Quantity*
Waterproof paper	10 sq ft
Waterproof tape	15 ft
Cotton twine	12 ft
Corrugated cardboard	12.6 sq ft
Gummed tape	6 ft
Filler material	2 lb

9-3. Packaging

Packaging of Voltmeter ME-262/U is accomplished as follows:

a. Cushion equipment on all surfaces with pads of filler material.

b. Place the cushioned unit , within a wrap of corrugated cardboard.

c. Secure with gummed tape.

d. Pack the package in a wooden box.

Section II. DEMOLITION OF MATERIEL TO PREVENT ENEMY USE

9-4. Authority for Demolition

The demolition procedures given in paragraph 9-5 will be used to prevent the enemy from using or salvaging the equipment. Demolition of this equipment will be accomplished only upon the order of the commander.

9-5. Methods of Destruction

Any or all of the methods of destruction given below may be used. The time available will be the main determining factor for the methods to be used in most instances when destruction of the equipment is undertaken. The tactical situation will also determine the manner in which the destruction order will be carried out.

a. Smash. Use heavy tools, such as sledges, axes, hammers, or crowbars to smash the entire set.

b. Burn. First burn the instruction literature and then burn as much of the equipment as is inflammable; use gasoline, oil, flame throwers, or similar methods.

Warning: **Be extremely careful with expl sive and incendiary devices. Use these items only when the need is urgent.**

c. Explode. Use explosives vhen time does not permit complete demolition by other means. Use powder charges, fragmentation grenades, or incendiary grenades.

d. Dispose. Bury or scatter destroyed parts or throw them into waterways. This is important if a number of parts have not been completely destroyed.

APPENDIX I
REFERENCES

Following is a list of applicable references available to the operator and maintenance personnel of Voltmeter ME-262/U:

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, Lubrication Orders, and Modification Work Orders.
SB 38-100	Preservation, Packaging, and Packing Materials, Supplies, and Equipment Used by the Army.
TB SIG 355-1	Depot Inspection Standard for Repaired Signal Equipment.
TB SIG 355-2	Depot Inspection Standard for Refinishing Repaired Signal Equipment.
TB SIG 355-3	Depot Inspection Standard for Moisture and Fungus Resistant Treatment.
TB SIG 364	Field Instructions for Painting and Preserving Electronics Command Equipment.
TM 9-213	Painting Instructions for Field Use.
TM 11-2684	Audio Oscillators TS-312/FSM-1, TS-312A/FSM-1, and TS-382/U and Signal Generator TS-312B/FSM-1.
TM 11-5527	Multimeters TS-352/U, TS-352A/U, and TS-352B/U.
TM 11-5551	Instruction Book for R-F Signal Generator Set AN/URM-25.
TM 11-6625-200-12	Operator and Organizational Maintenance Manual: Multimeters ME-26A/U, ME-26B/U, and ME-26C/U.
TM 11-6625-274-12	Operator's and Organizational Maintenance Manual: Test Sets, Electron Tube TV-7/U, TV-7A/U, TV-7B/U, and TV-7D/U.
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 116625320-12	Organizational Maintenance Manual: Voltmeter, Meter fE30-A/U and Voltmeters, Electronic ME-30B/U and ME-30C/U.
TM 11-6625-43810	Operator's Manual: Voltmeter, Electronic AN/USM-98.
TM 38750	Army Equipment Record Procedures.

APPENDIX III
MAINTENANCE ALLOCATION

Section I. INTRODUCTION

A3-1. General

a. This appendix assigns maintenance functions to be performed on components, assemblies, and subassemblies by the lowest appropriate maintenance category.

b. Columns in the maintenance allocation chart are as follows:

(1) Part or component. This column shown only the nomenclature or standard item name. Additional descriptive data are included only where clarification is necessary to identify the component. Components, assemblies, and subassemblies are listed in top-down order. That is, the assemblies which are part of a component are listed immediately below that component, and subassemblies which are part of an assembly are listed immediately below that assembly. Each generation breakdown (components, assemblies, or subassemblies) is listed in disassembly order or alphabetical order.

(2) Maintenance function. This column indicates the various maintenance functions allocated to the categories.

(a) Service. To clean, to preserve, and to replenish lubricants.

(b) Adjust. To regulate periodically to prevent malfunction.

(*c) Inspect*. To verify serviceability and detect incipient electrical or mechanical failure by scrutiny.

(d) Test. To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages meters, etc.

(e) Replace. To substitute serviceable components assemblies, or subassemblies, for unserviceable components, assemblies or subassemblies.

(f) Repair. To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes but is not limited to welding, grinding, riveting, straightening, and replacement of parts other than the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.

(g) Align. To adjust two or more components of an electrical system so that their functions are properly synchronized.

(h) Calibrate. To determine, check, or rectify the graduation of an instrument, weapon, or weapons system, or components of a weapons system.

(i) Overhaul. To restore an item to completely serviceable condition as prescribed by serviceability standards developed and published by heads of technical services. This in accomplished through employ ment of the technique of "Inspect and Repair Only as Necessary" (IROAN). Maximum utilization of diagnostic and test equipment is combined with minimum disassembly of the item during the overhaul process.

(j) Rebuild. To restore an item to a standard as near as possible to original or new condition in appearance, performance, and life expectancy. This is accomplished through the maintenance technique of complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserviceable elements using original manufacturing tolerances and or specifications and

subsequent reassembly of the item.
item.

(3) *Operator, organization, direct support, general export, and depot*. The symbol X indicates the categories responsible for performing that particular maintenance operation, but does not necessarily indicate that repair parts will be stocked at that level. Categories higher than those marked by X are authorized to perform the indicated operation.

(4) *Tools required*. This column indicates codes assigned to each individual tool equipment, test equipment, and maintenance equipment referenced. The grouping of codes in this column of the maintenance allocation chart indicates the tool, test, and maintenance equipment required to perform the maintenance function.

(5) Remarks. Entries in this column will be utilized when necessary to clarify any of the data cited in the preceding column.

e. Columns in the allocation of tools for maintenance functions are as follows:

(1) *Tools required for maintenance functions*. This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

(2) *Operator, organization, direct support, general support, and depot*. The dagger (t) symbol indicates the categories normally allocated the facility.

(3) *Tool code*. This column lists the tool code assigned.

A3-2. Maintenance by Using Organizations

When this equipment is used by signal service organizations organic to theater headquarters or communication zones to provide theater communications, those maintenance functions allocated up to and including general support are authorized to the organization operating this equipment.

SECTION II. MAINTENANCE ALLOCATION CHART

PART OR COMPONENT	MAINTENANCE FUNCTION	O/C	O	DS	GS	D	TOOLS REQUIRED	REMARKS
VOLTMETER, ELECTRONIC ME-262/U	service	X						
	adjust				X			
	inspect	X						Visual
	test				X		1 thru 7, 9 thru 11	
	test					X	1 thru 8, 10, 11	
	replace		X				12	Fuses, lamp, knobs, cable
					X		10	
	repair				X		1 thru 7, 9, 10	
	rebuild					X		Depot facilities
	overhaul				X			Shop facilities

Section III. ALLOCATION OF TOOLS FOR MAINTENANCE FUNCTIONS

TOOLS REQUIRED FOR MAINTENANCE FUNCTIONS	O/C	O	DS	GS	D	TOOL CODE	REMARKS
ME-262/U (continued)							
GENERATOR, SIGNAL TS-382/U				†	†	1	
METER, TEST SET TS-682/GSM-1				†	†	2	
MULTIMETER TS-352/U				†	†	3	
MULTIPLIER, ELECTRICAL INSTRUMENT TS-265/UP				†	†	4	
OSCILLOSCOPE AN/USM-81				†	†	5	
RESISTOR DECADE ZM-16/U				†	†	6	
RF SIGNAL GENERATOR SET AN/URM-25				†	†	7	
TEST SET, ELECTRON TUBE TV-2/U					†	8	
TEST SET, ELECTRON TUBE TV-7/U				†		9	
TOOL KIT, RADAR AND RADIO REPAIRMAN TK-87/U				†	†	10	
TOOL KIT, SUPPLEMENTAR RADAT AND RADIO REPAIRMAN TK-88/U				†	†	11	
TOOL & TEST EQUIPMENT Normally assigned user-repairman for his assigned mission.		†				12	

APPENDIX IV
ORGANIZATIONAL, DIRECT AND GENERAL SUPPORT, AND DEPOT REPAIR PARTS LIST

Section I. INTRODUCTION

A4-1. General

a. This appendix includes an organizational, direct and general support, and depot special tools list.

(1) The organizational maintenance repair parts and special tools list lists repair parts authorized for organizational maintenance and is a basis for requisitioning by organizations which are authorized the major item of equipment. End items of equipments are issued on the basis of allowances prescribed in equipment authorization tables and other documents that are a basis for requisitioning.

(2) The general support and depot maintenance repair parts and special tools list lists the quantities of repair parts authorized for general support maintenance and is a basis for requisitioning authorized parts. It is also a guide for depot maintenance in establishing initial levels of spare parts.

b. Columns are as follows:

(1) Source, maintenance, and reversibility code. Source, maintenance, and recoverability codes indicate the commodity command responsible for supply, the maintenance category at which an item is stocked, categories at which an item is installed or repaired, and whether an item is repairable or salvageable. The source code column is divided into four parts.

(a) Column A. This column indicates the materiel code and designates the area of responsibility for supply. AR 310-1 defines the basic numbers used to identify the materiel code. If the part is Electronic materiel responsibility, the column is left blank.

(b) Column B. This column indicates the point within the maintenance system where the part is available. "P" indicates that the repair part is a high mortality part; procured by modify cand stocked in and supplied from the Art depot system, and authorized for use at indicated maintenance categories. "PI" indicates that the repair part is a low mortality part; procured by commodity command stocked only in and supplied from commodity command key depots, and authorized for installation at indicated maintenance categories.

(c) Column C. This column indicates the lowest maintenance category authorized, to install the part.
"O"-Organizational maintenance
"H"-General support maintenance

(d) Column D. Not used.

(2) *Federal stock number.* This column lists the 11-digit Federal stock number.

(3) *Designation by model.* Not used.

(4) *Description.* Nomenclature or the standard item name and brief identifying data for each item are listed in this column. When requisitioning, enter the nomenclature and description.

(5) *Unit of issue.* The unit of issue is each unless otherwise indicated and is the supply term by which the individual item is counted for procurement, storage, requisitioning, allowances, and issue purposes.

(6) *Expendability.* Nonexpendable items are indicated by NX. Expendable items are not annotated.

(7) *Quantity incorporated in unit.* This column lists the quantity of each

part found in a given assembly, component, or equipment.

(8) *Organization.* An asterisk (*) indicates that an item is not authorized for stockage but if required, may be requisitioned for immediate use only.

(9) *Direct support.* No parts authorized for stockage.

(10) *General support.* The numbers in this column indicate quantities of repair parts authorized for initial stockage for use in general support maintenance. The quantities are based on 100 equipments to be maintained for a 15-day period.

(11) *Depot.* The numbers in this column indicate quantities of repair parts authorized for depot maintenance and for initial stockage for maintenance, and for supply support to lower categories. The entries are based on the quantity required for rebuild of 100 equipments.

(12) Illustration. The "Item No. " column lists the reference designations that appear on the part in the equipment. These same designations are also used on any illustrations of the equipment. The numbers in the "Figure No." column refer to the illustrations where the part is shown.

A4-2. Parts for Maintenance

When this equipment is used by electronic service organizations organic to theater headquarters or complication zones to provide theater communications, those repair parts authorized up to and including general support are authorized for stockage by the organization operating this equipment.

A4-3. Electron Tubes

The consumption rates given for tubes are conservative theoretical estimates and are provided for use only when more complete information, such as data based on operating experience, is not available. These figures are based on levels and requirements for equipment actually in use, not on authorizations or equipment stored in depots.

A44. Requisitioning Information

a. The allowance factors are based on 100 equipments. In order to determine the number of parts authorized for initial stockage for the specific number of equipments supported, the following formula will be used and carried out to two decimal places.

$$\text{Specific number of equipments supported} \times \frac{\text{allowable factor}}{100} = \text{Number of parts authorized for initial stockage.}$$

b. Fractional values obtained from above computation will be rounded to whole numbers as follows:

(1) When the total number of parts authorized is less than 0.5, the quantity authorized will be zero.

(2) When the total number of parts authorized is between 0.5 and 1.0, the quantity authorized will be one.

(3) For all values above one, fractional values below 0.5 will revert to the next lower whole number and fractional value 0.5 and above will .advance to the next higher whole number.

c. The quantities determined in accordance with the above computation represent the initial stockage for a 15-day period.

SECTION II. ORGANIZATIONAL FUNCTIONAL PARTS LIST

FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	ORGAN-IZATIONAL	ILLUSTRATION	
							FIGURE NO.	ITEM NO.
		VOLTMETER, ELECTRONIC ME-262/U						
6625-739-1192		VOLTNTTER, ELECTRONIC ME-262/U: Range 0.1 to 1000 vac in 12 steps; O to 86 decibels in 10 db steps; oper power req ac 100 to 130 v; 60 cps, single phase; 8-1/4 X 10 X 15 o/a dim; Ballantine Laboratories Model 305A		NX		1-1		
5995-880-9982		CABLE ASSEMBLY, POWkER, ELECTRICAL: Ballantine Laboratories p/n 4134		1	*			
5920-636-0963		FUSE, CARTRIDGE: Bussman-MDL 1 amp	1	*9-3	F1			
5355-619-1935		KNOB: Raytheon p/n 125-3-2	1	*	MP18			
5355-644-2083		KNOB: Raytheon p/n 79-4-2	2	*	MP17			
5355-926-5256		KICOB: Kurz Kesch, Inc., p/n S328-30	1	*	MP16			
6240-155-7859		LAMP, INCANDESCENT: '!Westinghouse *1815	1	*	DS1			

SECTION III. DIRECT AND GENERAL SUPPORT AND DEPOT FUNCTIONAL PARTS LIST

SOURCE CODE	FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	DIRECT SUPPORT	GENERAL SUPPORT	DEPOT	ILLUSTRATION		BASE DEPOT
										FIGURE NO.	ITEM NO.	
~~A B C D~~			VOLTMETER, ELECTRONIC									
			ME-262/TJ									
	6625-739-1192		VOLTMETER, ELECTRONIC ME-262/U: range 0.1 to 1000 vac in 12 steps; O to 86 decibels in 10 DB steps; oper power req ac 100 to 130 v; 60 cps; single phase; 8-1/4 X 10 X 15 o/a dim; Ballantine Laboratories model 305A		NX					1-1		
P1	O	5995-880-9982	CABLE ASSEMBLY, POWER ELECTRICAL: 11-3,/4 in lg o/a; Ballantine Labs p/n 4134		1			1.5	3.0			5.2
P	H	5910-082-4682	CAPACITOR, FIXED, ELECTROLYTIC: 12 uf, 250 v; Cornell-Dubelier p/n BBR12-250		1			2.2	3.0	6-1	C17	6.8
P	H	5910-644-3785	CAPACITOR, FIXED, MICA: MIL type CM15C180J		1			2.2	3.0	6-5	C19	6.8
P	H	5910-276-6876	CAPACITOR, FIXED, MICA: MIL type CM15E201J		2			3.2	6.0	6-4	C7,C21	12.4
P	H	5910-276-6818	CAPACITOR, FIXED, MICA: MIL type CM15E500J		1			2.2	3.0	6-4	C32	6.8
P	H	5910-666-6767	CAPACITOR, FIXED, MICA.: MIL type CM15E620J		1			2.2	3.0	9-3	C4	6.8
P	H	5910-184-0784	CAPACITOR, FIXED, MICA: MIL type CM3OE332J		1			2.2	3.0	9-3	C5	6.8
P	H	5910-581-8494	CAPACITOR, FIXED, MICA: 0.01 uf, -0 +100, 6 MC tol; Cornell-Dubilier p/n type BYA6S1		1			2.2	3.0	6-1	C16	6.8
P	H	5910-668-3112	CAPACITOR, VARIABLE; AIR DIELECTRIC: 1.5 to 5.0 uuf, 1250 v; Johnson Co p/n 160-102		1	2.2		3.0	6-5	C2	6.8	
P	H		CAPACITOR, FIXED, ELECTROLYTIC: Ballantine p,/n 2751		1	2.2		3.0	6-2	C29	6.8	

SOURCE CODE	FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	DIRECT SUPPORT	GENERAL SUPPORT	DEPOT	ILLUSTRATION		BASE DEPOT
										FIGURE NO.	ITEM NO.	
A B C D			ME-262/U (continued)									
P H	5910-928-1956		CAPACITOR, FIXED, ELECTROLYTIC: Mallory p/n FP227.4		1			2.2	3.0	6-2	C30	6.8
P H	5910-928-3823		CAPACITOR, FIXED PAPER DIELECTRIC: Sprague p/n 148?22494		2			3.2	6.C	6-2	C31	12.4
P H	5910-971-1686		CAPACITOR, FIXED, ELECTROLYTIC: Ballantine p/n 2752		1			2.2	3.C	6-1	C8	6.8
P H	5910-933-6206		CAPACITOR, FIXED, ELECTROLYTIC: Ballantine p/n 2754		1			2.2	3.0	6-1	C28	6.8
P H	5910-933-5284		CAPACITOR, FIXED, ELECTROLYTIC: Ballantine p/n 2753		2			3.2	6.0	6-1	CIO, C23	12.4
P H	5910-059-1078		CAPACITOR, FIXED, PAPER: Sprague p,/n 148P33392 ’		1			2.2	3.0		C14	6.8
P H	5910-054-6796		CAPACITOR, FIXED, PAPER: Sprague p/n 148P15492		2			3.2	6.0	6-1	C34, C35	12.4
P H	5910-690-9104		CAPACITOR, FIXED, PAPER: Sprague p/n 148P10492		1			2.2	3.0	6-1	C13	6.8
P H	5910-064-0444		CAPACITOR, FIXED, PAPER: Sprague p/n 148P22394		1			2.2	3.0	6-1	C9	6.8
P H	5910-937-2600		CAPACITOR, FIXED, CERAMIC, DIELECTRIC Quality Control p/n QC1ROK		1			2.2	3.0	6-1	C24	6.8
P H	5910-937-2601		CAPACITOR, FIXED, MICA: Quality Control p/n QC472K		1			2.2	3.0	6-1	C12	6.8
P H	5910-877-8770		CAPACITOR, VARIABLE: Erie p/n 503-027NP03-12		1			2.2	3.0	6-1	C15	6.8
P H	5910-957-9908		CAPACITOR, FIXED, MICA: Arco Electronics p/n DM19F501J		1			2.2	3.0	6-1	C33	6.8
P H	5910-933-5076		CAPACITOR, FIXED, PAPER: Goodall Elec p/n 663UW473K		1			2.2	3.0	6-1	C22	6.8

SOURCE CODE	FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	DIRECT SUPPORT	GENERAL SUPPORT	DEPOT	ILLUSTRATION		BASE DEPOT
A B C D										FIGURE NO.	ITEM NO.	
			ME-262/U (continued)									
P H	5910-851-6017		CAPACITOR, FIXED, ELECTROLYTIC: Sprague p/n 30D132A1		1			2.2	3.0	6-4	C11	6.8
P H	5910-865-6308		CAPACITOR, VARIABLE: Erie p/n 503-027N500-7-45		3			3.9	9.0	6-4	C3,C6, C20	16.5
P H	5910-928-3832		CAPACITOR, FIXED, PAPER: Goodall Elec Co p/n 355F104J		1			2.2	3.0	6-2	C1	6.8
P H	5910-933-7288		CAPACITOR, FIXED, CERAMIC: Quality Comp Inc p/n QC6R2J		1			2.2	3.0	6-5	C18	6.8
P H	5935-665-5718		CONNECTOR, RECEPTACLE, ELECTRICAL: MIL type UG-1094/u		1			2.2	5.0		J2	6.8
P H	5935-933-4418		CONNECTOR, RECEPTACLE: Ballantine p/n 3390		1			1.5	3.0		J1	5.2
P H	5960-262-3763		ELECTRON TUBE: MIL type OB2WA		1			9.7	100.0	6-2	V11	194.0
P H	5960-814-6010		ELECTRON TUBE: MIL type 6AL5		2			19.4	200.0	6-3	V12, V14	388.0
P H	5960-681-9802		ELECTRON TUBE: MIL type 6AU6		3			15.9	300.0	6-3	V3,V4, V7	317.4
P H	5960-230-5307		ELECTRON TUBE: MIL type 6CB6		1			19.4	100.0	6-3	V10	388.0
P H	5960-262-1357		ELECTRON TUBE: MIL type 5654/6AK5W		1			14.6	100.0	6-1	V1	291.0
P H	5960-262-0210		ELECTRON TUBE: MIL type 5814A		2			14.6	200.0	6-3	V13, V15	291.0
P H	5960-686-0559		ELECTRON TUBE: Raytheon p/n 6485		3			21.9	300.0	6-1	V2,V5, V6	436.5
P H	5960-636-0106		ELECTRON TUBE: RCA type 12B4A		1			14.6	100.0	6-2	V9	291.0
P 0	5920-636-0963		FUSE, CARTRIDGE: Bussman p/n MDL1		1			1.2	20.0	6-3	F1	39.9
P H	5920-892-9092		FUSEHOLDER: Buseman p/n HKPCC		1			1.5	3.0		XF1	5.2

SOURCE CODE	FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	DIRECT SUPPORT	GENERAL SUPPORT	DEPOT	ILLUSTRATION		BASE DEPOT
										FIGURE NO.	ITEM NO.	
A B C D			ME-262/U (continued)									
P H	5970-933-3389		INSULATOR: Ballantine Co p/n 4137		1			1.5	3.0		E1	5.2
P 0	5355-619-1935		KNOB: Raytheon p/rl 125-3-2		1			0.2	3.0	3-1	MP18	5.2
P 0	5355-644-2083		KNOB: Raytheon p/n 70-4-2		2			0.3	6.0	3-1	MP17, MP17A	6.8
P 0	5355-926-5256		KNOB: Kurz-Kasch Inc p/n S328-30		1			0.2	3.0	3-1	MP16	5.2
P H	6240-179-1811		LAMP, GLOW: MIL type NE2		2			5.2	20.0	6-1	V8,V16	23.3
P 0	6240-155-7859		LAMP, INCANDESCENT: GE #1815		1			0.4	15.0	6-2	DS1	10.3
P H	6210-958-7416		LENS: Dialight Corp p/n 91-971 (M5RC3-AO26)		1			2.2	5.0	3-1	MP15	6.8
P H	6210-892-4779		LIGHT INDICATOR: Dialight Corp p/n 81OBF		1			1.5	3.0		XDS1	5.2
P H	5940-877-8166		POST, BINDING: General Radio Corp p/n 938R (M5RC3-A115)		1			1.5	3.0	1-1	E4	5.2
P H	5940-235-7993		POST, BINDING: General Radio Co p/n 938P		1			1.5	3.0	1-1	E2	5.2
P H	5905-195-9639		RESISTOR, FIXED, COMPOSITION: 47 ohm +10%, 1/2 w; Allen Bradley #EB4701		7			6.5	21.0		R51,9 72,19, 23,35, 42	31.4
P H	5905-279-1719		RESISTOR, FIXED, COMPOSITION: MIL type RC32GF103J		1			2.2	3.0	6-4	R25	6.8
P H	5905-807-0065		RESISTOR, FIXED, COMPOSITION: 220 ohms +5%, 1/2w; Allen Bradley p/n EB2215		1			2.2	3.0	6-1	R15	6.8
P H	5905-983-6185		RESISTOR, FIXED, COMPOSITION: 300 ohms +5%, 1/2 w; Allen Bradley p/n EB3015		2			3.2	6.0	6-1	R2, R26	12.4
P H	5905-190-8883		RESISTOR, FIXED, COMPOSITION: MIL type RC20GF100J		1			2.2	3.0	9-3	R6	6.8

SOURCE CODE				FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	DIRECT SUPPORT	GENERAL SUPPORT	DEPOT	ILLUSTRATION		BASE DEPOT
A	B	C	D										FIGURE NO.	ITEM NO.	
	P	H		5905-195-6806		RESISTOR, FIXED, COMPOSITION: MIL type RC20GF102J			3		3.9	9.0	6-4	R8 R28, R34	16.5
	P	H		5905-279-1865		RESISTOR, FIXED, COMPOSITION: MIL type RC20Go106JI			1		2.2	3.0	6-1	R57	6.8
	P	H		5905-192-3981		RESISTOR, FIXED, COMPOSITION: MIL type RC20GF124J			2		3.2	6.0	6-4	R37, R66	12.4
	P	H		5905-279-1757		RESISTOR, FIXED, COMPOSITION: MIL type RC20GF152J			1		2.2	3.0	6-1	RIO	6.8
	P	H		5905-279-2674		RESISTOR, FIXED, COMPOSITION: MIL type RC20GF201J			1		2.2	3.0	6-4	R11	6.8
	P	H		5905-259-2990		RESIST)R, FI:LED, COMPOSITION: MIL type RC20GF226J			3		3.9	9.0	6-1	R59, R63, RP,64	16.5
	P	H		5905-279-2593		RF.SISTOR, FIXED, COMPOSITION: MIL type RC20GF241J			1		2.2	3.0	6-4	R20	6.8
	P	H		5905-190-8865		RESISTOR, FIXED, COMPOSITION: MIL type RC20GF274J			2		3.2	6.0	6-2	R49, R55	12.4
	P	H		5905-279-2519		RESISTOR, FIXED, COMPOSITION: MIL type RC20OF334J			1		2.2	3.0	6-4	R68	6.8
	P	H		5905-279-3505		RESISTOR, FIXED, COMPOSITION: MIL type RC20GF392J			1		2.2	3.0	6-1	R78	6.8
	P	H		5905-107-3084		RESISTOR, FIXED, COMPOSITION: MIL type RC2OGF395J			1		2.2	3.0	6-1	R58	6.8
	P	H		5905-254-9201		RESISTOR, FIXED, COMPOSITION: MIL type RC20GF473J			1		2.2	3,0	6-2	R50	6.8
	P	H		5905-279-2515		RESISTOR, FIXED, COMPOSITION: MIL type RC20GF474J (Item nos R45, R46, R48, R62, R65, R14, R381			1		6.5	21.0		See desc column	31.4
	P	H		5905-195-9481		RESISTOR, FIXED, COMPOSITION: MIL type RC20GF751J			1		2.2	3.0	9-3	R77	6.8

SOURCE CODE				FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	DIRECT SUPPORT	GENERAL SUPPORT	DEPOT	ILLUSTRATION		BASE DEPOT
A	B	C	D										FIGURE NO.	ITEM NO.	
						ME-262/U (continued)									
	P	H		5905-279-1759		RESISTOR, FIXED, COMPOSITION: MIL type RC20GF754J			1		2.2	3.0	6-1	R24	6.8
	P	H		5905-254-7100		RESISTOR, FIXED, COMPOSITION: MIL type RC20GF913J			1		2.2	3.0	6-1	R13	6.8
	P	H		5905-665-6051		RESISTOR, FIXED, COMPOSITION: MIL type RC32GF1OOK			1		2.2	3.0		R44	6.8
	P	H		5905-299-2003		RESISTOR, FIXED, COMPOSITION: MIL type RC32GF104J			1		2.2	3.0	9-3	R18	6.8
	P	H		5905-299-2020		RESISTOR, FIXED, COMPOSITION: MIL type RC32GF273J			1		2.2	3.0	6-4	R61	6.8
	P	H		5905-192-0651		RESISTOR, FIXED, COMPOSITION: MIL type RC42GF203J			1		2.2	3.0	6-1	R27	6.8
	P	H		5905-254-1777		RESISTOR, FIXED, COMPOSITION: MIL type RC420F273J			2		3.2	6.0	6-4	R33, R6o	12.4
	P	H		5905-082-0722		RESISTOR, FIXED, FILM: 694 ohms +1%, 1/2 w; Ballantine p/n 1655			1		2.2	3.0	6-5	R32	6.8
	P	H		5905-989-4291		RESISTOR, FIXED, FILM: 1500 ohms +1%, 1/2 w; Ballantine p/n 1657			1		2.2	3.0	6-5	R31	6.8
	P	H		5905-082-0721		RESISTOR, FIXED, FILM: 4740 ohms ±1%, 1/2 w; Ballantine p/n 1658			1		2.2	3.0	9-3	R30	6.8
	P	H		5905-989-4290		RESISTOR, FIXED, FILM: 15000 ohms ±1%, 1/2 w; Ballantine p/n 1654			1		2.2	3.0	9-3	R29	6.8
	P	H		5905-729-0966		RESISTOR, FIXED, FILM: 2 megohms, ±1%, 1 w; Ballantine p/n 1460			2		3.2	6.0	6-2	R1,R7	12.4
	P	H		5905-299-2009		RESISTOR, FIXED, COMPOSITION: Allen Bradley p/n GB6235			1		2.2	3.0	6-4	R41	6.8
	P	H		5905-252-5434		RESISTOR, FIXED, COMPOSITION: Allen Bradley p/n EB1215			1		2.2	3.0	6-1	R40	6.8
	P	H		5905-279-2675		RESISTOR, FIXED, COMPOSITION: Allen Bradley p/n HB3335			1		2.2	3.0	6-1	R16	6.8
	P	H		5905-171-1976		RESISTOR, FIXED, COMPOSITION: Allen Bradley p/n HB1535			1		2.2	3.0	6-4	R74	6.8

SOURCE CODE				FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	DIRECT SUPPORT	GENERAL SUPPORT	DEPOT	ILLUSTRATION		BASE DEPOT
A	B	C	D										FIGURE NO.	ITEM NO.	
						ME-262/U (continued)									
	P	H		5905-171-1977		RESISTOR, FIXED, COMPOSITIO N: Allen Bradley p/n HB3035			1		2.2	3.0	6-4	R73	6.8
	P	H		5905-190-88671		RESISTORD, FIXED, COMPOSITION: Allen			1		2.2	3-0	6-4	R17	6.8
	P	H		5905-828-7225		RESISTOR, FIXED, FILM: Aerovox p/n CPX1 -2, 254F			1		2.2	3-0	2-1	R54	6.8
	P	H		5905-933-4899		RESISTOR, FIXED, FILM: Aerovox p/n CPMEX1-2 6752 F			1		2.2	3.0	6-2	R3	6.8
	P	H		5905-937-0613		RESISTOR, FIXED, FILM: Aerovox p/n CPX1-2, 1941F			1		2.2	3.0	6-2	R5	6.8
	P	H		5905-937-0664		RESISTOR, FIXED, FILM: Aerovox p/n CPX1-2, 63R3F			1		2.2	3.0	6-2	R4	6.8
	P	H		5905-932-1182		RESISTOR, FIXED, FILM: E electronics-Corning glass p/n N25-303G			1		2.2	3.0	6-4	R9	6.8
	P	H		5905-764-4842		RESISTOR, FIXED, FILM: Aerovox p/n CPX1-2, 69R8F			2		3.2	6.0	6-4	R12	12.4
	P	H		5905-927-9473		RESISTOR, FIXED, FILM: Electronicsvox p/n Corning lass /n L6752F-4-183J			1		2.2	3.0	6-1	R39	6.8
	P	H		5905-937-0662		RESISTOR, FIXED, FILM: Aerovox p/n CPX1-1252F			1		2.2	3.0	6-1	R43	6.8
	P	H		5905-937-4898		RESISTOR, FIXED, FILM: Aerovox p/n			2		3.2	6.0	6-1	R21,	
	P	H		5905-933-4666		RESISTOR, FIXED, FILM: Aerovox p/n CPX1-2, 1353F			1		2.2	3.0	2-1	R56	6.8
	P	H		5905-101-2560		RESISTOR, FIXED, WIREWOUNDLM : Sprague p/n 5KT1-3052J			1		2.2	3.0	6-2	R53	6.8
	P	H		5905-729-0455		RESISTOR, FIXED, WIREWOUNDLM : Sprague p/n 27E253J			1		2.2	3.0	6-2	R52	6.8

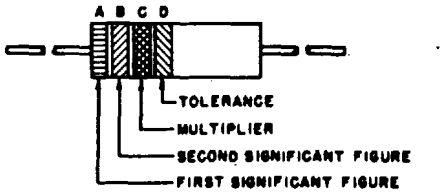
SOURCE CODE				FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	DIRECT SUPPORT	GENERAL SUPPORT	DEPOT	ILLUSTRATION		BASE DEPOT
A	B	C	D										FIGURE NO.	ITEM NO.	
						ME-262/U (Continued)									
	P	H		5905-933-4897		RESISTOR, FIXED, WIREWOUND: Dale Electronics p/n WWA26-703F			1		2.2	3.0	6-4	R75	6.8
	P	H		5905-892-6799		RESISTOR, FIXED, WIREWOUND: Sprague p/n 151E2205			1		2.2	3.0	6-1	R47	6.8
	P	H		5905-642-3951		RESISTOR, VARIABLE: Clarostadt p/n 43-202K			1		2.2	3.0	6-1	R70	6.8
	P	H		5905-553-2131		RESISTOR, VARIABLE: Clarostadt p/n 43-253K			1		2.2	3.0	6-1	R76	6.8
	P	H		5905-581-0445		RESISTOR, VARIABLE: Clarostadt p/n 43-503K			1		2.2	3.0	6-1	R67	6.8
	P	H		5960-529-5862		SEMICONDUCTOR, DEVICE, DIODE: MIL type 1N1217			2		3.2	4.0	2-1	CR3, CR4	12.4
	P	H		5960-899-6822		SEMICONDUCTOR, DEVICE, DIODE: MIL type IN1763			2		3.2	4.0	2-1	CR1, CR2	12.4
	P	H		5960-642-8342		SHIELD, ELECTRON TUBE: Cinch p/n 8660			1		1.5	3.0		MP46	5.2
	P	H		5935-280-2850		SOCKET, ELECTRON TUBE: Elco Corp p/n 199BC			3		3.9	9.0		XVIO, xv13, XVl5	16.5
	P	H		5935-257-9693		SOCKET, ELECTRON TUBE: Elco p/n 241BC			10		7.7	30	.0	XV2,3, 4,5,6, 7,9, 11,12, 14	38.9
	P	H		5935-993-7184		SOCKET, TUBE: Elco p/n XM7UXT1 (M5RC3-A284)			1		2.2	3.0	6-2	XVI	6.8
	P	H		5930-811-5604		SWITCH, PUSH: Oak Mfg Co p/n 64500-170			1		2.2	5.0	6-2	S4	6.8
	P	H		5930-916-9502		SWITCH, ROTARY: Ballantlne Corp p/n 3265			1		2.2	3.0	6-2	S1	6.8

SOURCE CODE	FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	DIRECT SUPPORT	GENERAL SUPPORT	DEPOT	ILLUSTRATION		BASE DEPOT
										FIGURE NO.	ITEM NO.	
A B C D												
			ME-262/U (Continued)									
P H	5930-916-9383		SWITCH, ROTARY: Ballantine p/n 3267			1		2.2	5.0	6-2	S3	6.8
P H	5930-615-2425		SWITCH, ROTARY: Oak type 23, 2 positions			1		2.2	3.0	9-3	S2	6.8
P H	5930-729-8375		SWITCH TOGGLE: Arrow-Hart, Hegeman p/n 80994H			1		2.2	5.0	9-3	S5	6.8
P H	5950-872-3168		TRANSFORMER AND CAPACITOR ASSEMBLY: transformer 105 to 125 v, 60 cps, capacitor 0.85 pf, 850 v, Ballantine p/n 3052 - dwg MCO181B			1		2.2	3.0		T1-C27	6.8
P H	6625-901-2428		VOLTMETER: panel type; 3 scales,NX 2 voltage readings, 1 Decibel reading plastic case, Ballantine Labs p/n 3187			1		1.5	3.0	3-1	M1	5.2

INDEX

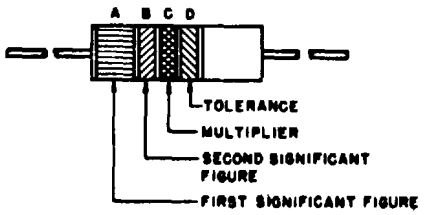
OLOR CODE MARKING FOR MILITARY STANDARD RESISTORS

COMPOSITION-TYPE RESISTORS



BAND A— Equal Width Band Signifies Composition-Type

WIREWOUND-TYPE RESISTORS

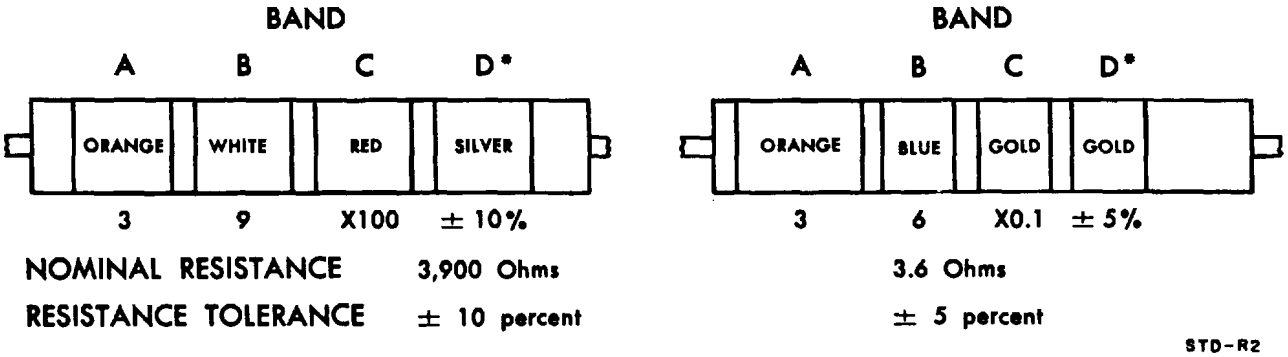


BAND A— Double Width Signifies Wire-wound Resistor

COLOR CODE TABLE

BAND A		BAND B		BAND C		BAND D*	
COLOR	FIRST SIGNIFICANT FIGURE	COLOR	SECOND SIGNIFICANT FIGURE	COLOR	MULTIPLIER	COLOR	RESISTANCE TOLERANCE (PERCENT)
BLACK	0	BLACK	0	BLACK	1		
BROWN	1	BROWN	1	BROWN	10		
RED	2	RED	2	RED	100		
ORANGE	3	ORANGE	3	ORANGE	1,000		
YELLOW	4	YELLOW	4	YELLOW	10,000	SILVER	± 10
GREEN	5	GREEN	5	GREEN	100,000	GOLD	± 5
BLUE	6	BLUE	6	BLUE	1,000,000		
PURPLE (VIOLET)	7	PURPLE (VIOLET)	7				
GRAY	8	GRAY	8	SILVER	0.01		
WHITE	9	WHITE	9	GOLD	0.1		

EXAMPLES OF COLOR CODING



*If Band D is omitted, the resistor tolerance is ±20%, and the resistor is not Mil-Std.

Figure 9-1. Color code marking for MIL-STD resistors.

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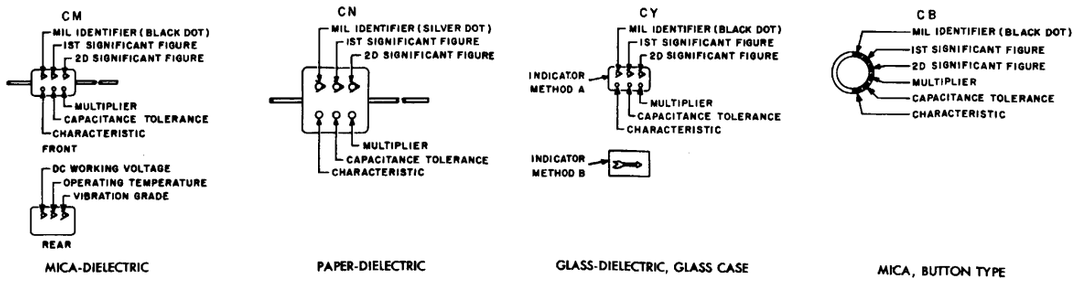
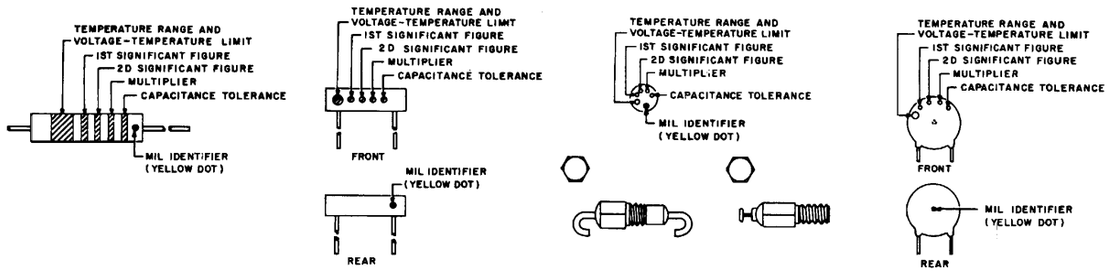
COLOR CODE MARKING FOR MILITARY STANDARD CAPACITORS

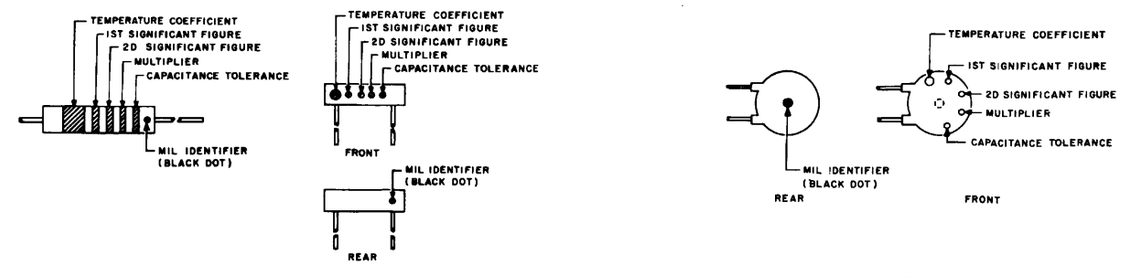
GROUP I Capacitors, Fixed, Various-Dielectrics, Styles CM, CN, CY, and CB



GROUP II Capacitors, Fixed Ceramic-Dielectric (General Purpose) Style CK



GROUP III Capacitors, Fixed, Ceramic-Dieletric (Temperature Compensating) Style CC



COLOR CODE TABLES

TABLE I – For use with Group I, Styles CM, CN, CY and CB

COLOR	MIL ID	1st SIG FIG	2nd SIG FIG	MULTIPLIER[1]	CAPACITANCE TOLERANCE				CHARACTERISTIC[2]				DC WORKING VOLTAGE	OPERATING TEMP. RANGE	VIBRATION GRADE
					CM	CN	CY	CB	CM	CN	CY	CB	CM	CM	CM
BLACK	CM, CY CB	0	0	1			± 20%	± 20%		A				−55° to +70°C	10–55 cps
BROWN		1	1	10					B	E		B			
RED		2	2	100	± 2%		± 2%	± 2%	C		C			−55° to +85°C	
ORANGE		3	3	1,000		± 30%			D			D	300		
YELLOW		4	4	10,000					E					−55° to +125°C	10–2,000 cps
GREEN		5	5		± 5%				F				500		
BLUE		6	6											−55° to +150°C	
PURPLE (VIOLET)		7	7												
GREY		8	8												
WHITE		9	9												
GOLD				0.1			± 5%	± 5%							
SILVER	CN				± 10%	± 10%	± 10%	± 10%							

TABLE II – For use with Group II, General Purpose, Style CK

COLOR	TEMP. RANGE AND VOLTAGE – TEMP. LIMITS[3]	1st SIG FIG	2nd SIG FIG	MULTIPLIER	CAPACITANCE TOLERANCE	MIL ID
BLACK		0	0	1	± 20%	
BROWN	AW	1	1	10	± 10%	
RED	AX	2	2	100		
ORANGE	BX	3	3	1,000		
YELLOW	AV	4	4	10,000		CK
GREEN	CZ	5	5			
BLUE	BV	6	6			
PURPLE (VIOLET)		7	7			
GREY		8	8			
WHITE		9	9			
GOLD						
SILVER						

TABLE III – For use with Group III, Temperature Compensating, Style CC

COLOR	TEMPERATURE COEFFICIENT[4]	1st SIG FIG	2nd SIG FIG	MULTIPLIER[1]	CAPACITANCE TOLERANCE		MIL ID
					Capacitances over 10uuf	Capacitances 10uuf or less	
BLACK	0	0	0	1		± 2.0uuf	CC
BROWN	−30	1	1	10	± 1%		
RED	−80	2	2	100	± 2%	± 0.25uuf	
ORANGE	−150	3	3	1,000			
YELLOW	−220	4	4				
GREEN	−330	5	5		± 5%	± 0.5uuf	
BLUE	470	6	6				
PURPLE (VIOLET)	−750	7	7				
GREY		8	8	0.01			
WHITE		9	9	0.1	± 10%		
GOLD	+100					± 1.0uuf	
SILVER							

1. The multiplier is the number by which the two significant (SIG) figures are multiplied to obtain the capacitance in uuf.
2. Letters indicate the Characteristics designated in applicable specifications: MIL–C–5, MIL–C–91, MIL–C–11272, and MIL–C–10950 respectively.
3. Letters indicate the temperature range and voltage-temperature limits designated in MIL–C–11015.
4. Temperature coefficient in parts per million per degree centigrade.

STD–C2

Figure 9-2. Color code marking for MIL-STD capacitors

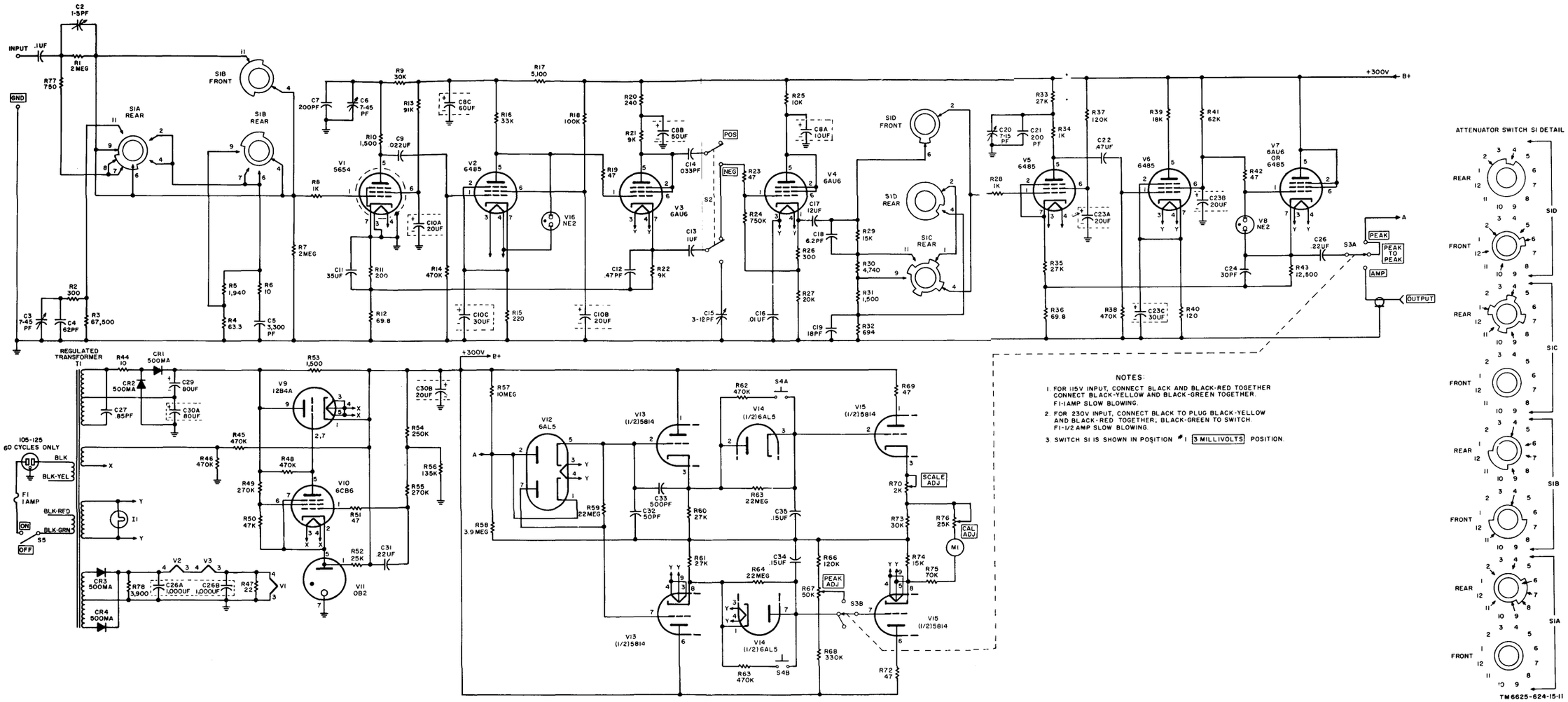


Figure 9-3. Voltmeter ME-262/U, schematic diagram

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