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DEPARTMENT OF THE ARMY TECHNICAL MANUAL

**ORGANIZATIONAL, GENERAL SUPPORT, AND
DEPOT MAINTENANCE MANUAL
INCLUDING REPAIR PARTS AND SPECIAL
TOOLS LIST**

METER, FIELD STRENGTH ME-61 /GRC

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ORGANIZATIONAL, GS, AND DEPOT MAINTENANCE MANUAL
METER, FIELD STRENGTH ME-61/GRC

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Figure 1-1. Meter, Field Strength ME-61/GRC, with carrying strap.

CHAPTER 1

INTRODUCTION

Section I. General

1-1. Scope

a. This manual contains operator and organizational maintenance, general support (GS) testing procedures and maintenance, and repair of Meter, Field Strength ME-61/GRC. Throughout this manual, Field Strength ME-61/GRC will be referred to as the field strength meter.

b. Included in this manual is the Repair Parts and Special Tools List (appx D).

1-2. Index of Publications

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. DA Pam 310-4 is an index of current technical manuals, technical bulletins, supply manuals, supply bulletins, lubrication orders, and modification work orders that are available through publications supply channels. The index lists the individual parts (-10, -20, -35P, etc) and the latest changes to and revisions of each equipment publication.

1-3. Forms and Records

a. *Reports of Maintenance and Unsatisfactory Equipment.* Use equipment forms and records in accordance with instructions in TM 38-750.

b. *Report of Damaged or Improper Shipment.* Fill out and forward DD Form 6 (Report of Damaged or Improper Shipment) as prescribed in AR 700-58 (Army), NAVSANDA publication 378 (Navy), and AFR 71-4 (Air Force).

c. *Reporting of Equipment Manual Improvements.* The direct reporting of errors, omissions, and recommendations, by the individual user, for improving this manual is authorized and encouraged. DA Form 2028 (Recommended Changes to DA Publications) will be used for reporting these improvement recommendations. This form will be completed using pencil pen, or typewriter and forwarded direct to Commanding General, U. S. Army Electronics Command, ATTN: AMSEL-MR-NMP-AD, Fort Monmouth, N. J. 07703.

Section II. DESCRIPTION AND DATA

1-4. Purposes and Use

Meter, Field Strength ME-61/GRC is a field strength meter and modulation monitor for use with such tactical radio systems as Radio Sets AN/GRC-9, AN/GRC-87, and AN/VRC-34.

a. The field strength meter provides a relative measurement of transmitted radiofrequency (rf) field strength. No actual rf field intensity or exact frequency measurements are possible. A maximum indication of the field strength meter indicates maximum rf output of the referenced transmitters.

b. The field strength meter also provides an audible indication of modulation in the transmitted signal. The presence or absence of distortion in the modulation can be heard in the headset connected to the field strength meter.

c. The field strength meter requires no batteries or auxiliary power and may be used as a completely portable device.

1-5. Technical Characteristics

Frequency range:

Band 1 -----1.5 to 4 MHz.

Band 2 -----4 to 10 MHz.

C 1

Band 3 -----10 to 24 MHz.

Weight -----3 lb.

1-6. Description of Field Strength Meter
(fig. 1-1)

The field strength meter is a single, self-contained unit enclosed in a metal case. The dimensions of the unit are 5-1/4 inches long, by 5-3/4 inches wide, by 4-1/4 inches deep. A shoulder strap is attached to the case to allow the operator free use of his hands. The antenna, controls, and meter are mounted on the

front panel. A rubber seal on the cover prevents water from entering the case. The meter scale is calibrated with five major arbitrary divisions.

1-7. Table of Components

Quantity	Item	Federal stock No.	Figure No.
1	Meter, Field Strength ME-61/GRC.	6625-701-9103	1-1
1	Strap, webbing --	6625-817-9420	1-1

CHAPTER 2

OPERATING INSTRUCTIONS

2-1. Operator's Controls and Indicators (fig. 2-1)

The following chart lists the controls and instruments of the field strength meter and indicates their functions.

Control or indicator	Function
BAND SWITCH -----	Permits selection of frequency range corresponding to transmitted frequency.
TUNING control -----	Permits continuous tuning of field strength meter within the band selected by the BAND SWITCH.
Front panel meter -----	Gives a maximum indication of radiation from transmitting antenna systems when field strength meter is properly tuned.
METER SENSITIVITY --	Permits adjustment of level indicated on front panel meter.
PHONES -----	Allows aural monitoring of modulation of transmitted carrier. Relative loudness permits peak tuning of a weak signal.

2-2. Operating Instructions

a. Preliminary. Adjust and place into operation the transmitting unit which is to be monitored by the field strength meter. Refer to the appropriate technical manual for this information.

b. Relative Field Strength. The following is a typical procedure for operating the field strength meter:

- (1) Extend the telescopic antenna (ANT.) on the field strength meter.

Warning: Do not connect the antenna rod of the field strength meter directly to the transmitter or to the transmitting antenna. Severe injury to the operator or damage to the equipment may result. Use the data in paragraph 5-8c as a guide for the correct distance between the field strength meter and the transmitting antenna.

- (2) Locate the field strength meter in the rf field radiated by the antenna system of the radio transmitter.
- (3) Turn the BAND SWITCH to the range corresponding to the transmitted frequency.
- (4) Turn the METER SENSITIVITY control to approximately midrange.
- (5) Adjust the TUNING control for a reading of between 1-5 arbitrary units on the front panel meter.
- (6) If necessary, adjust the front panel meter indication of the field strength meter by rotating the METER SENSITIVITY control to keep the needle of the front panel meter between 1-5.
- (7) Adjust the transmitter antenna tuning system for the maximum possible output indicated by the front panel meter of the field strength meter. Reduce the METER SENSITIVITY control, as required.

c. Audible Indication. When required, a transmitted modulated rf signal can be heard by connecting a headset to the field strength meter PHONES jack. The transmitter can be peaked by tuning it for maximum loudness of the modulation as heard in the headset.



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Figure 2-1. Meter, Field Strength ME-61/GRC, front panel controls.

CHAPTER 3

OPERATOR AND ORGANIZATIONAL MAINTENANCE

INSTRUCTIONS

Section I. OPERATOR'S MAINTENANCE

3-1. Scope of Maintenance

The maintenance duties assigned to the operator of the field strength meter are listed below together with a reference to the paragraphs covering the specific maintenance function. The duties assigned do not require tools or test equipment other than those issued with the test.

- a. Daily and/or weekly preventive maintenance checks and services (para 3-5).
- b. Cleaning (para 3-6).

3-2. Tools, Test Equipment, and Materials Required

No tools or test equipment are required for operator maintenance. However, the following materials are required:

- a. Lint-free cleaning cloth.
- b. Cleaning Compound (FSN 7930-395-9542).
- c. Soft-bristled brush.

3-3. Preventive Maintenance

Preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent the occurrence of trouble, to reduce downtime, and to assure that the equipment is serviceable.

a. *Systematic Care.* The procedures given in paragraphs 3-4, 3-5, and 3-6 cover routine systematic care and cleaning essential to proper upkeep of this equipment when it is used separately. When this equipment is used as part of a *set* or *system*, follow the procedures established in the *set* or *system* manual.

b. *Preventive Maintenance Checks and Services.* The preventive maintenance checks and services chart (para 3-5) outline functions to be performed at specific intervals; however, if the equipment is used as part of a *set* or *system*, follow the procedures established in the *set* or *system* manual. For equipments operated separately, these checks and services are to maintain Army electronic equipment in a combat serviceable condition; that is, in good general (physical) condition and in good operating condition. To assist operators in maintaining combat serviceability, the chart indicates what to check, how to check, and the normal conditions; the *References* column lists the illustrations, paragraphs, or manuals that contain detailed repair or replacement procedures. If the defect cannot be remedied by the operator, higher category maintenance or repair is required. Records and Reports of these checks and services must be made in accordance with the requirements set forth in TM 38-750.

3-4. Preventive Maintenance Checks and Services Period

Preventive maintenance checks and services of the field strength meter are required daily and/or weekly.

a. Paragraph 3-5 specifies checks and services that must be accomplished at either of the intervals specified below:

- (1) Daily; or
- (2) Under the specified intervals listed below *when* the field strength meter is *part of* a vehicular communications system.

C 1

- (a) Before the vehicle starts on a mission.
 - (b) When the equipment is initially installed.
 - (c) When the equipment is reinstalled after removal for any reason.
 - (d) At least once each week if the equipment is maintained in standby condition.
- b. In addition to the routine daily checks and services, the equipment should be rechecked and serviced immediately before going on a mission and as soon after completion of the mission as possible.

3-5. Daily Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	Telescopic antenna (ANT.)	Extend field strength meter antenna to full height.	Paras 2-1 and 2-2.
2	BAND SWITCH -----	Set field strength meter BAND SWITCH to range of required frequency.	Paras 2-1 and 2-2.
3	Transmitter -----	Tune rf output of transmitter for maximum output.	
4	TUNING control -----	Adjust the field strength meter TUNING control for maximum indication on front panel meter.	Paras 2-1 and 2-2.
5	METER SENSITIVITY.	If necessary, reduce the meter indication by adjusting the field strength meter METER SENSITIVITY control (between 1-5 on scale).	Paras 2-1 and 2-2.
6	Transmitter and modulator.	Apply an audio tone to the cw output (modulated rf signal).	
7	PHONES jack -----	Plug headset (or headset) into PHONES jack to monitor the modulated signal.	Paras 2-1 and 2-2.
8	Performance check on other two bands.	Repeat procedure for sequence numbers 1 through 7 for each of the two remaining bands.	Paras 2-1 and 2-2.
9	Shoulder strap and buckle.	Inspect shoulder strap for excessive wear, dirt, and metal corrosion. Clean as required.	
10	Meter glass -----	Inspect the meter glass for dirt or grease. Clean as required.	Para 3-6.
11	Metal surfaces -----	Inspect exposed metal surfaces for dirt, rust, and corrosion. Clean as required.	Para 3-6.

3-6. Cleaning

Inspect the exterior of the field strength meter. The exterior surface should be free of dust, dirt, grease, and fungus.

a. Remove dust and loose dirt with a clean, soft cloth.

Warning: Cleaning compound is flammable and its fumes are toxic. Provide adequate ventilation. *Do not* use near a flame.

b. Remove grease, fungus, and ground-in dirt from the case; use a cloth dampened (not wet) with cleaning compound.

c. Remove dust or dirt from the PHONES jack with a brush.

Caution: Do not press on the meter face (glass) when cleaning; the meter may be damaged.

d. Clean the front panel and control knobs; use a soft, clean cloth. If dirt is difficult to

remove, dampen the cloth with water; mild soap may be used for more effective cleaning.

Section II. ORGANIZATIONAL MAINTENANCE

3-7. General

a. This section contains instructions covering organizational maintenance of the field strength meter. It includes instructions for performing preventive and periodic maintenance services and repair functions to be accomplished by the organizational repairman. Operating instructions are in paragraph 2-2.

b. Organizational maintenance of the field strength meter includes:

- (1) Preventive maintenance (paras 3-3-3-6).
- (2) Replacement of defective knobs on the METER SENSITIVITY and BAND SWITCH controls only (para 3-16a).
- (3) Replacement of defective rubber seal strip (para 3-16b).
- (4) Replacement of defective or worn carrying strap (para 3-16c).
- (5) Replacement of defective luggage catch (para 3-16d).

3-8. Tools, Materials, and Test Equipment Required

The tools and materials required for organizational maintenance are listed below. The only test equipment authorized for organizational maintenance is an operating transmitter that has a frequency range equal to that of the field strength meter.

a. *Tools.* The only tools required for organizational maintenance are contained in Tool Kit, Radio Repair TK-115/G.

b. *Materials.*

- (1) Cleaning Compound (FSN 7930-395-9542).
- (2) Cleaning cloths.
- (3) Fine sandpaper.

(4) Detergent.

(5) Touchup paint.

3-9. Preventive Maintenance

a. Preventive maintenance is the systematic care, inspection, and servicing of equipment to maintain it in serviceable condition, prevent breakdowns, and assure maximum operational capability. Preventive maintenance is the responsibility of all maintenance categories concerned with the equipment and includes the inspection, testing, and repair or replacement of parts, subassemblies, or units that inspection and tests indicates would probably fail before the next scheduled periodic service. Preventive maintenance checks and services of the field strength meter at organizational maintenance level are made monthly and quarterly unless otherwise directed by the commanding officer. The preventive maintenance checks and services should be scheduled concurrently with the periodic service schedule of the carrying vehicle for all vehicular installations.

b. Maintenance forms and records to be used and maintained on this equipment are specified in TM 38-750.

3-10. Monthly Maintenance

Perform the maintenance functions indicated in the monthly preventive maintenance checks and services chart (para 3-11) once each month. A month is defined as approximately 30 calendar days of 8-hour-per-day operation. If the equipment is operated 16 hours a day, the monthly preventive maintenance checks and services should be performed at 15-day intervals. Adjustment of the maintenance interval must be made to compensate for any unusual operating conditions. Equipment maintained in a standby (ready for immediate operation) condition must have monthly preventive maintenance checks and services. Equipment in limited storage (requires service before operation) does not require monthly preventive maintenance.

3-11. Monthly Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	Operational check -----	Follow procedure outlined in paragraph 3-5 for operational check.	Para 3-5
2	Cleaning -----	Follow procedure outlined in paragraph 3-6 for cleaning equipment.	Para 3-6
3	Insulation washer at antenna base.	Inspect the phenolic (or polystyrene) insulating washer around antenna base for cracks. If replacement is needed, forward to higher maintenance category.	
Caution: Do NOT replace a defective knob on the TUNING control as this is a critical adjustment. Refer to general support maintenance.			
4	Control knobs -----	Inspect the knobs on all controls. If the knobs on the METER SENSITIVITY or BAND SWITCH controls are defective, replace them.	Para 3-16a.
5	Rubber seal strip -----	Inspect the rubber seal strip on cover. If defective or worn, replace it.	Para 3-16b.
6	Webbing strap -----	Inspect the carrying webbing strap. If defective, replace it.	Para 3-16c.
7	Luggage catch -----	Inspect the luggage catch fasteners. If defective, replace one or both, as required.	Para 3-16d.

3-12. Quarterly Maintenance

Quarterly preventive maintenance checks and services on the field strength meter are required. Periodic weekly and monthly services constitute a part of the quarterly preventive maintenance checks and services and must be

performed concurrently. All deficiencies or shortcomings will be recorded in accordance with the requirements of TM 38-750. Perform all the checks and services listed in the quarterly preventive maintenance checks and services chart (para 3-13) in the sequence listed.

3-13. Quarterly Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	Operational check -----	Follow the procedure outlined in paragraph 3-5 for operational check of the field strength meter.	Para 3-5.
2	Completeness -----	Insure that the equipment is complete.	Paras 1-6 and 1-7.
3	Cleanliness -----	Insure that the equipment is clean.	Para 3-6.
4	Preservation -----	Check all surfaces for evidence of fungus. Remove rust, corrosion, or fungus; spot-paint bare spots.	Para 3-16e.

Sequence No.	Item to be inspected	Procedure	References
5	Publications -----	Insure that all publications are complete, serviceable, and current.	DA Pam 310-4.
6	Modifications -----	Check DA Pam 310-4 to determine if new applicable MWO's have been published. All URGENT MWO's must be applied immediately. All NORMAL MWO's must be scheduled.	DA Pam 310-4, and TM 38-750.
7	Telescoping antenna ----	Extend the telescoping antenna to its full height. Inspect all sections for dents, corrosion, and tight fit.	
8	Self-closing access cover on PHONES jack.	Inspect the self-closing gasket cover on the PHONES jack for cracks or excessive wear.	
9	Spare parts -----	Check all spare parts (operator and organizational) for general condition and method of storage. There should be no evidence of overstock, and all shortages must be on valid requisitions.	App B.

Section III. TROUBLESHOOTING

3-14. General

Troubleshooting of this equipment is based upon the operational check contained in the quarterly preventive maintenance checks and services chart (para 3-13). To troubleshoot the equipment, perform all functions starting with item number 1 in the quarterly preventive maintenance checks and services chart (para 3-13) and proceed through the items until an abnormal condition or result is observed. When an abnormal condition or result is observed,

note the item number and turn to the corresponding item number in the troubleshooting chart (para 3-15). Perform the checks and corrective measures indicated in the troubleshooting chart. If the corrective measures indicated do not result in correction of the trouble, higher category of maintenance is required. Paragraph 3-16a through e contains additional information and step-by-step instructions for performing equipment tests and adjustments to be used during the troubleshooting procedures.

3-15. Troubleshooting Chart

Item No.	Trouble symptom	Probable trouble	Checks and corrective measures
1	Broken or missing knobs on METER SENSITIVITY or BAND SWITCH controls.	Defective control or incomplete initial shipment.	Follow procedure given in paragraph 3-16a.
2	Broken or missing knob on TUNING control.	Defective control or incomplete initial shipment.	Forward the field strength meter to a higher category of maintenance for replacement and adjustment.
3	Rust and/or corrosion appears on case, or paint has chipped off.	Excessive use of equipment, or lack of MFP treatment.	Spot-paint bare spots, as required. Refer to paragraph 3-16e.

3-16. Repairs*a. METER SENSITIVITY and BAND SWITCH Knob Replacement.*

Caution: Do NOT replace a defective knob on the TUNING control as this is a more critical adjustment. Refer to general support maintenance, or higher.

(1) Removal of control knob.

- (a) To remove the defective knob, remove the slotted screw in the center of the knob.
- (b) Grasp the control knob and lift upward until the knob is free of the control knob shaft.

(2) Replacement of control knob.

- (a) Place the control knob over the control knob shaft with the indexed portion (white or yellow mark) pointing toward the meter movement. Push downward.
- (b) Replace the slotted screw in the center of the knob and tighten.

Caution: Do not overtighten. Damage may result to the screw or the knob.

b. Rubber Seal Strip Replacement.

- (1) Pry the defective seal strip loose with a pointed instrument, such as a screwdriver. Clean the inside edge of the meter cover, as required.
- (2) Replace with new seal strip by positioning it around all four sides of the inside edge. Press firmly into place around the entire inside edge, insuring that it fits snugly into position.
- (3) Test by closing watertight cover and fastening the luggage catch fasteners on the front and back of the meter case. Visually inspect between the cover and case to insure a tight fit around all four sides of the meter cover and case.

c. Carrying Strap Replacement.

- (1) Remove the strap by sliding it through the strap holders on each side of the meter case. Slide through from the nonbuckle end.

- (2) Replace the strap by inserting the nonbuckle end down through one of the strap holders. Feed around bottom of case and up through the other strap holder. Adjust for equal length of strap on either side of the meter case.

d. Luggage Catch Replacement.

- (1) Release the luggage catch and locate the two sheet metal screws which attach the catch to the metal case. Remove the screws, and remove the defective catch.
- (2) Replace the new catch by attaching it to the case with the two sheet metal screws. Tighten securely.

Caution: Do not overtighten. Damage may result to the screws, fastener, or case.

e. Cleaning and Touchup Painting.

Note. Refer to the applicable cleaning and refinishing practices specified in TB SIG 364.

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

CHAPTER 4

FUNCTIONING OF METER, FIELD STRENGTH ME-61/GRC

4-1. Rf Circuit (fig. 4-1)

Rf energy radiated from the antenna system of the transmitting unit in use is picked up by the antenna rod of the field strength meter. Considering only band 1 (1.5 - 4 MHz), the incoming signal is applied directly to variable tuning capacitor C1, and through terminals 4 and 9 of the rear section of BAND SWITCH S1 to one terminal of inductor L1. The other terminals of C1 and L1 are connected to chassis ground, placing C1 and L1 in parallel. When the combination of L1 and C1 is tuned to resonate at the frequency of the incoming rf signal, the voltage across the circuit will be maximum. The front section of BAND SWITCH S1 short-

circuits inductors L2 and L3 to prevent them from absorbing rf energy. Band 2 (4 - 10 MHz) and band 3 (10 - 24 MHz) operate in a similar manner, except that the frequency ranges are different.

4-2. Metering and Detector Circuit (fig. 4-1)

a. The metering circuit consists of a series combination of crystal diode CR1, direct-current (dc) microammeter M1, variable resistor R1, PHONES jack J1, and bypass capacitor C2. This circuit is parallel-connected with the rf circuit described in paragraph 4-1. Diode CR1 and capacitor C2 function as a detector circuit. Diode CR1 demodulates the rf signal

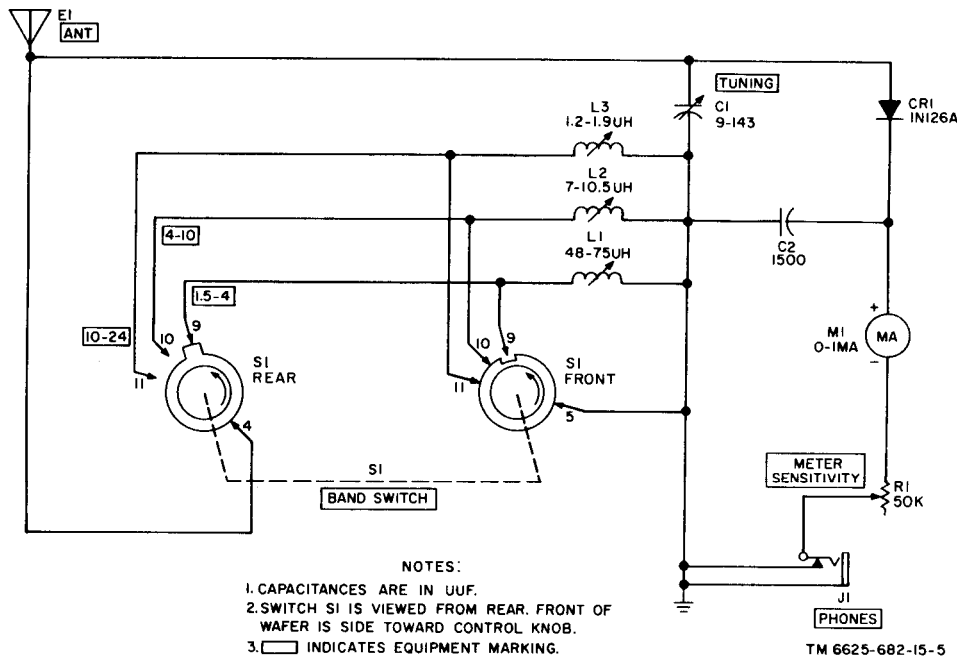


Figure 4-1. Meter Field Strength ME-61/GRC, schematic diagram.

voltage, converting it to pulsating dc, which is then filtered by C2.

b. If the signal being received by the field strength meter is a continuous wave (cw) signal, the filtered pulsating dc voltage then flows through M1 proportional to the transmitted field strength. The meter reading of M1 may be varied by adjusting R1. Meter M1 will show maximum indication when the rf circuit (L1-C1, L2-C1, or L3-C1) is tuned to resonance with the transmitted signal.

c. If the signal being received by the field strength meter is a modulated continuous wave (mcw) signal, the filtered pulsating dc voltage flows through M1 proportional to the transmitted field strength. In addition, an audio signal removed from the modulated carrier is

present in the metering circuit and may be heard in a headset by inserting the headset plug into the PHONES jack. The plug opens the normally closed contacts of J1 and places the headset in series with the metering and demodulation circuit. The meter reading of M1 and audio volume in the headset may be varied by adjusting R1. Meter M1 will show maximum indication and audio volume will be maximum when the rf circuit is tuned to resonance with the transmitted signal.

d. Front panel meter M1 (fig. 2-1) is scaled in arbitrary units of "0" to "5". Because of this scaling system, the field strength meter reads only a relative, or proportional, strength of the rf field being radiated by the transmitting antenna, whether the signal is cw or mcw.

CHAPTER 5

GENERAL SUPPORT MAINTENANCE AND DEPOT OVERHAUL STANDARDS

Section I. GENERAL SUPPOR TESTING PROCEDURES

5-1. General Instructions

a. Testing procedures are prepared for use by general support maintenance level organizations to determine the acceptability of repaired signal equipment. These procedures set forth specific requirements that repaired signal equipment *must* meet before it is returned to the using organization. The testing procedures may also be used as a guide for the testing of equipment that has been repaired at the organizational maintenance level if the proper tools and test equipments are available. A summary of the performance standards is given in paragraph 5-5.

b. Comply with the instructions preceding the body of each chart before proceeding to the

chart. Perform each test in sequence. *Do not vary the sequence.* For each step, perform all the actions required in the *Control settings* column, and then perform each specific test procedure and verify it against its performance standard.

5-2. Test Equipment Required

a. *Test Equipment, Tools, and Materials.* All test equipment, tools, materials, and other equipment required to perform the testing procedures given in this section are listed in the following charts.

(1) Test equipment.

Nomenclature	Federal stock No.	Technical manual
Receiver-Transmitter RT-77/GRC-9	5820-196-9041	TM 11-263, TM 11-5820-453-10
R. F. Signal Generator AN/URM-25Da	6625-649-5193	TM 11-5551D
R. F. Signal Generator AN/URM-25Fa	6625-643-1548	TM 1-5551E
Headset HS-16/B -----	5965-222-0147	None
Multimeter ME-26B/U -----	6625-646-9409	TM 11-6625-200-12

a Either signal generator set may be used. Both are listed for information purposes only.

(2) Tools.

Toolkit	Federal stock no.
Tool Kit TK-100/Ga	5180-605-0079
Tool Kit TK-105/Ga	5180-610-8177

a Either toolkit may be used. Both are listed for information purposes only.

(3) *Materials.* The only materials required are approximately 12 inches of rigid insulated wire (#14 or #16), and an alligator clip for heat shunt for CR1.

b. *Test Facilities.* A dc power source with an output power rating of 6 volts at 27 amperes,

C 1

12 volts at 13.2 amperes, or 24 volts at 7 amperes, plus a vibrator-type or dynamotor-type power supply with the same input voltage and current ratings, is required to furnish the operating voltages for Receiver-Transmitter RT-77/GRC-9. Any one of the power supplies listed in the chart below may be used.

Caution: Insure that the dc (or ac) power

source is correct for the power supply being used with the RT-77/GRC-9.

Available power supplies	Dc or ac source power requirements
Power Supply, Dynamotor DY-105/GRC-9X	24 v at 6.7 amp (approx 160 va).
Power Supply PP-327/GRC-9Y.	110 vac at 0.9 amp (approx 200 va).

5-3. Unit Testing and Inspection Procedures

a. *Test Equipment and Materials.* Field strength meter; screwdriver.

b. *Test Connections and Conditions.* Open the top cover of the field strength meter by releasing the two luggage catches on the front and back of the meter casing.

c. *Procedure.*

Step No.	Control settings		Test procedure	Performance standard
	Test equipment	Equipment under test		
1	N/A	Controls may be in any position.	<p>a. Inspect all controls and mechanical assemblies for loose or missing screws, bolts, nuts, or knobs.</p> <p>b. Inspect the antenna, PHONES jack, rubber seal strip on cover, luggage catch fasteners, and carrying strap for wear, looseness, and damage.</p>	<p>a. Screws, bolts, nuts, and knobs will be tight; none will be missing.</p> <p>b. No wear, looseness, or damage is evident.</p>
2	N/A	Controls may be in any position.	<p>a. Turn the BAND SWITCH to all three band positions.</p> <p>b. Rotate the TUNING control and METER SENSITIVITY control throughout the limits of their travel.</p> <p><i>Note.</i> TUNING control will rotate through 360°.</p> <p>c. Extend the telescoping antenna to its full height. Inspect all sections for dents, corrosion, and fit.</p> <p>d. Inspect the phenolic (or polystyrene) insulating washer at the base of the antenna for cracks and wear.</p>	<p>a. Operate freely on all positions.</p> <p>b. Controls will rotate freely without binding or excessive looseness.</p> <p>c. The antenna is free from dents and other physical damage. All sections fit tightly together.</p> <p>d. The insulating washer is free of cracks and wear and fits snugly into position.</p>
3	N/A	Controls may be in any position.	<p>a. Remove the front panel unit from the outer case by loosening the four corner captive screws. Inspect TUNING capacitor C1, BAND SWITCH S1, and the PHONES jack.</p>	<p>e. Plates on C1 should mesh without the rotor and stator touching. J1 should be fully closed with no headset plugged in. Contacts on the BAND SWITCH should make and break normally on each of the three bands.</p>

4	N/A	Controls may be in any position.	<p>b. Rotate C1 until the marking indicator on the knob points to 1.5 MHz. Examine capacitor C1 to be sure that the plates are fully meshed (maximum capacitance).</p> <p>c. Insure that the connections are well soldered and that there are no broken or damaged wires or connections.</p> <p>Replace the front panel unit into the outer case and fasten the four corner screws. Inspect the rubber protective cap under the lid of the PHONES jack cover.</p>	<p>b. With knob pointing to 1.5 MHz the plates of C1 are fully meshed.</p> <p>c. Insulated tubing (spaghetti) covers all wires. There are no broken wires.</p> <p>The gasket should be free of cracks and not brittle or worn.</p>
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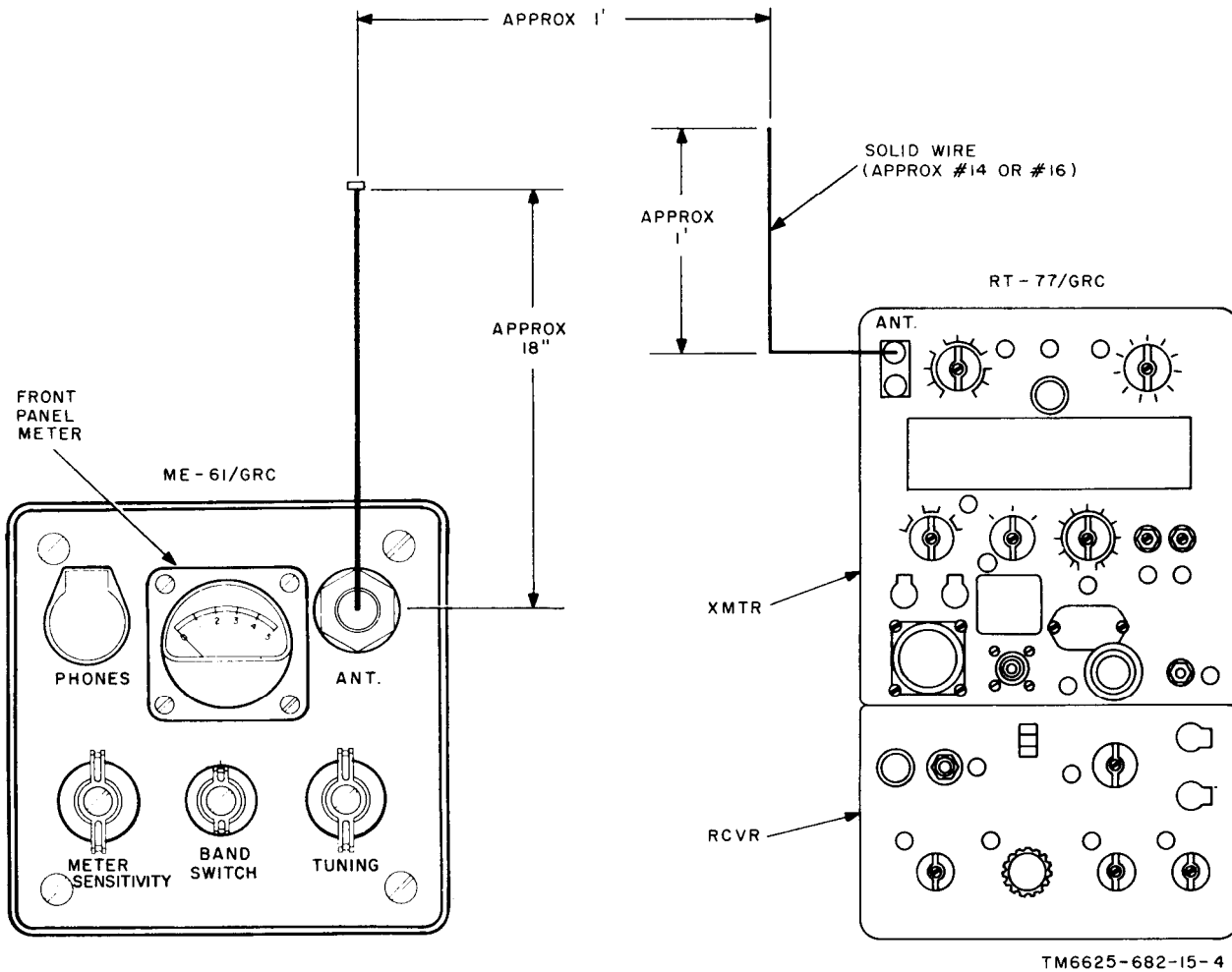


Figure 5-1. Test setup for general support maintenance testing.

5-4. Unit Operational Testing Procedures

a. *Test Equipment and Materials.* Receiver-Transmitter RT-77/GRC-9, with power supply; rigid insulated wire as antenna for RT-77/GRC-9; field strength meter; handset or key for keying transmitter; Headset HS-16/B.

b. *Test Connections and Conditions.* Attach rigid insulated wire to antenna post of RT-77/GRC-9 as shown in figure 5-1. Insert key or handset into the appropriate KEY or MIKE jack on the RT-77/GRC-9 front panel. DO NOT key the transmitter or operate equipment. Open the top cover of the field strength meter by releasing the two luggage catches on the front and back of the meter casing.

c. *Procedure.*

Step No.	Control settings		Test procedure	Performance standard
	Test equipment	Equipment under test		
1	RT-77/GRC-9: SWITCH (E) Off POWER SUPPLY: On SWITCH (E): Send SWITCH (D): CW-LO SWITCH (A): Position 1, 2, 3, or 4 SWITCH (F): Band 3, MO CONTROL (I): Dial setting for 2 MHZ	<i>Field Strength meter:</i> BAND SWITCH: 1.5-4 TUNING: 2.0 MHZ ANT: Extended full METER SENSITIVITY: Approximately midrange	Key the transmitter and peak the antenna INDICATOR (B) for maximum brilliance by adjusting the ANTENNA TUNING control. Place the field strength meter approximately 1 foot from the RT-77/GRC-9 antenna. Adjust the TUNING control on the field strength meter for a maximum indication on the front panel meter. Adjust METER SENSITIVITY control to a meter reading between 1 and 5 arbitrary units on the scale.	The TUNING control should be within plus-minus 15° of dial rotation from the indicated frequency (2 mc). <i>Note.</i> The TUNING control scale contains no index numbers as such; therefore, the readings must be approximated "by eye."
2	Same as above, except tune the RT-77/GRC-9 to a frequency of 4 MHZ.	Same as above, except the field strength meter TUNING control is set to 4 mc on the 1.5-4 MHZ band.	Key transmitter, and peak INDICATOR (B) for maximum. The field strength meter is 1 foot (approximate) from RT-77/GRC. Peak front panel meter on field strength meter by adjusting TUNING control. Adjust METER SENSITIVITY for reading between 1-5 units on meter scale.	The TUNING control should be within plus/minus 15° of dial rotation from the indicated frequency (4 MHZ).
3	Same as above -----	Same as above, except BAND SWITCH is set for 4-10 MHZ, and TUNING is set for 4 MHZ (low end).	Same as above -----E.	Same as above.
4	Same as above, except	Same as above, except the field	Same as above -----	Same as above.

	tune RT-77/GRC-9 for 10 MHZ.	strength meter TUNING control is set for 10 MHZ (high end).		
5	Same as above -----	Same as above, except BAND SWITCH is set for 10-24 MHZ, and TUNING is set for 10 MHZ (low end).	Same as above -----	Same as above.
6	Same as above, except tune the RT-77/GRC-9 for 12 MHZ.	Same as above, except the TUNING control is set to 12 MHZ on the 10-24 MHZ band.	Same as above -----	Same as above.
7	Same as above, except turn control (D) to the MCW-LO mode.	Same as above, except insert headset plug into PHONES jack.	Key the transmitter, and monitor the modulated rf signal with the headset.	An audio tone should be audible in the headset.
8	Same as above, except tune the RT-77/GRC-9 to a frequency of 5 MHZ.	Same as above, except tune the field strength meter to a frequency of 5 MHZ (4-10 MHZ).	Same as above -----	Same as above.
9	Same as above, except tune the RT-77/GRC-9 to a frequency of 2 MHZ.	Same as above, except tune the field strength meter to a frequency of 2 MHZ (1.5-4 MHZ).	Same as above -----	Same as above.

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5-5. Summary of Test Data

Personnel may find it convenient to arrange the checklist in a manner similar to that shown below:

METER, FIELD STRENGTH ME-61/GRC

	TEST DATA	PERFORMANCE STANDARD
1. VISUAL INSPECTION FOR DAMAGE OR LOOSENESS	_____	No wear, looseness, damage, or missing parts are evident.
2. INSPECTION OF BAND SWITCH, TUNING CONTROL, METER SENSITIVITY CONTROL, AND COLLAPSIBLE ANTENNA	_____	Controls operate freely without binding or excessive looseness; antenna is in good condition.
3. INSPECTION OF ELECTRONIC COMPONENTS INSIDE THE FRONT PANEL UNIT	_____	Components function properly, and all wiring connections are correct.
4. INSPECTION OF PROTECTIVE ACCESS CAP UNDER PHONES JACK LID	_____	Cap is free of breaks or cracks.
5. OPERATIONAL CHECK OF FIELD STRENGTH METER AT 2 MHZ (CW OUTPUT FROM RT-77/GRC)	_____	TUNING control is within plus/minus 15° of indicated dial frequency.
6. OPERATIONAL CHECK AT 4 MHZ (1.5-4)	_____	Same as above.
7. OPERATIONAL CHECK AT 4 MHZ (4-10)	_____	Same as above.
8. OPERATIONAL CHECK AT 10 MHZ (4-10)	_____	Same as above.
9. OPERATIONAL CHECK AT 10 MHZ (10-24)	_____	Same as above.
10. OPERATIONAL CHECK AT 12 MHZ (10-24)	_____	Same as above.

TEST DATA

PERFORMANCE
STANDARD

11. AUDIO TEST AT 12 MHZ (10-24) (MCW OUTPUT FROM RT-77/GRC)		Audio tone is audible in headset.
12. AUDIO TEST AT 5 MHZ (4-10)		Same as above.
13. AUDIO TEST AT 2 MHZ (1.5-4)		Same as above.

Section II. TROUBLESHOOTING, REPAIR, AND ALIGNMENT

5-6. Troubleshooting

a. General. The general support maintenance procedures in paragraphs 5-3 and 5-4 supplement the procedures described in paragraphs 3-1 through 3-16 of this manual. The systematic troubleshooting procedures, which begin at the operator and organizational maintenance categories, are carried to a higher maintenance category in this section. When an abnormal symptom indicates that a certain component is defective, refer to the appropriate paragraph in Chapter 3 (para 3-1 through 3-6 for operator maintenance, and para 3-7 through 3-16 for organizational maintenance), and to the appropriate paragraph in this chapter for the unit troubleshooting and repair procedures. A thorough visual check of the equipment should be made when trouble occurs. Check for loose wires and disconnected components. Look for charred, loose, or broken insulation and for components that appear to have overheated and may be defective.

b. Troubleshooting Procedures. The first procedures of troubleshooting are done at the operator and organizational maintenance categories. The troubleshooting procedures contained in this section further isolate the trouble to a defective component or part, and give repair information as applicable to this category of maintenance.

c. Trouble Isolation. Trouble isolation in this section normally isolates the defect to a mal-

functioning part of the unit being tested. Trouble isolation procedures entail the use of schematic diagrams and step-by-step procedures in making resistance measurements to determine continuity of the individual circuits and components.

d. Test Equipment and Tools. The test equipment, tools, and materials required for equipment repair are described in paragraphs 5-2 and 5-3.

Caution: The use of a heat shunt is demonstrated in TM 11-4000 (para 324 and fig. 120). A pair of long-nose pliers is placed between the component and the area being soldered, drawing excess heat into the pliers and protecting the component. A small alligator clip, if available, may be substituted for the pliers. The use of a heat shunt is required whenever there is a danger that the component may be damaged by excessive heat from a soldering iron.

e. Procedures to be Used. Troubleshoot and repair defective components, if any, in accordance with procedures outlined in TM 11-4000. Refer to Chapters 13 and 14 in TM 11-4000 for repairing miniaturized components and for soldering techniques used with miniaturized equipment. Other applicable references may be found in Appendix A of this manual. Refer to figure 4-1 for a schematic diagram of the field strength meter.

f. Troubleshooting Chart.

Note. Perform the operations in the equipment performance checklist (para 5-3 and 5-4) before using this chart, unless trouble has already been localized.

Item	Indication	Probable trouble	Procedure
1	Broken control knob on METER SENSITIVITY and BAND SWITCH controls.	Defective control or incomplete initial shipment.	Refer to paragraph 3-16a.

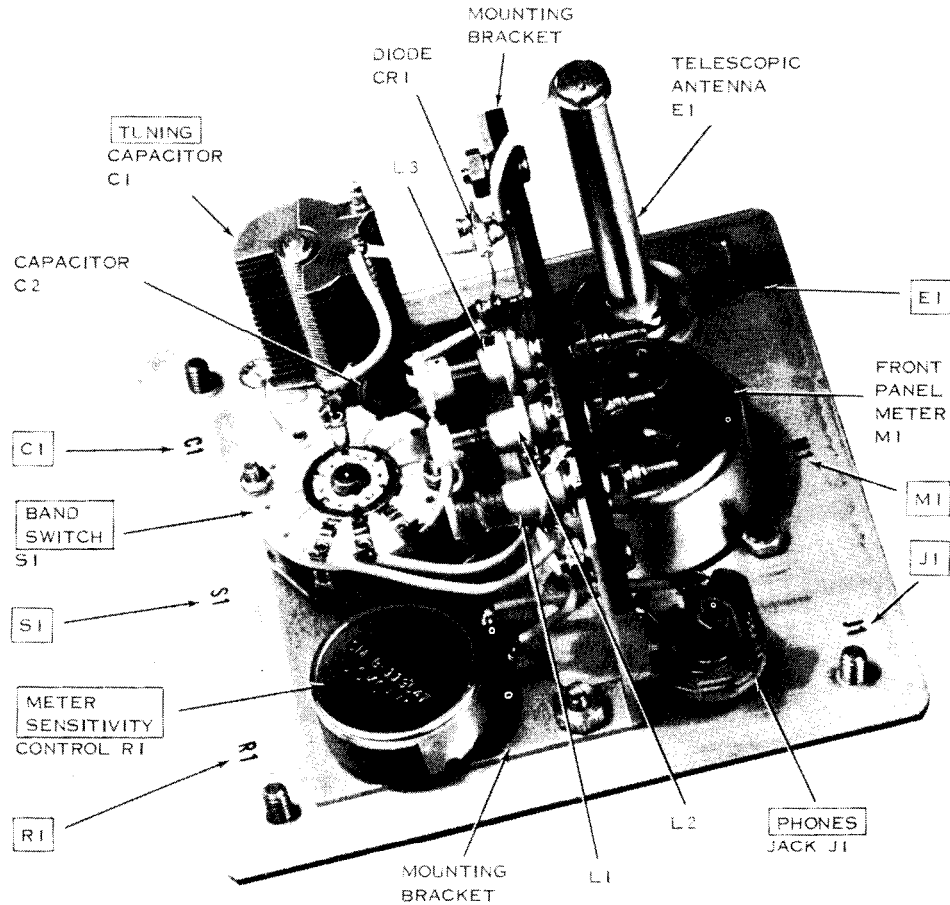
Item	Indication	Probable trouble	Procedure
2	Broken control knob on TUNING control.	Defective controls or incomplete initial shipment.	Refer to paragraph 5-7a.
3	Cracks in polystyrene insulating washer at the base of the telescopic antenna.	Defective component or damage during shipment.	Refer to paragraph 5-7b.
4	Antenna fails to extend fully (seven sections), or dents appear in one or more sections.	Defective component, or damage during initial shipment.	Refer to paragraph 5-7c.
5	Rubber gasket under lid of PHONES jack cover is defective.	Defective component, or damage during initial shipment.	Refer to paragraph 5-7d.
6	Rubber seal strip inside cover is defective.	Defective component, or damage during initial shipment.	Follow procedures given in paragraph 3-16b.
7	Either (or both) luggage catch(es) is defective.	Defective component, or damage during initial shipment.	Follow procedures given in paragraph 3-16d.
8	Carrying strap is worn or frayed.	Excessive wear -----	Follow procedures given in paragraph 3-16c.
9	One or more of the three bands of the BAND SWITCH is inoperative.	BAND SWITCH S1 is defective or intermittent in operation.	Follow procedures given in paragraph 5-7e.
10	Erratic movement or no movement of the front panel meter; scratchy audio or no audio from headset plugged into PHONES jack.	METER SENSITIVITY control R1 is open or intermittent.	Follow procedures given in paragraph 5-7i.
11	No meter movement while adjusting TUNING control on any band.	TUNING control C1 is open or shorted.	Follow procedures given in paragraph 5-7f.
12	No meter movement and no audio can be detected.	PHONES jack is open -----	Follow procedures given in paragraph 5-7g.
13	Meter fails to move -----	Front panel meter M1 is open, or meter movement is defective.	Follow procedures given in paragraph 5-7h.
14	Abnormally low meter movement or none at all; weak audio or none at all when headset is plugged into PHONES jack.	Detector circuit CR1 and CR2 are defective.	Replace as required.
15	One, or more, bands of the field strength meter are inoperative; no audio is detected on the inoperative band.	Rf inductor(s) L1, L2, and/or L3 is defective.	Replace as required.

5-7. Removal and Replacement of Components

a. TUNING Control Knob.

- (1) Remove front panel unit by loosening the four corner captive screws.

- (2) Remove defective knob as stated in paragraph 3-16a.
- (3) Insure that the plates of C1 are fully meshed (maximum capacitance).
- (4) Replace the new knob with the white marker pointing to 1.5 MHz.



TM 6625 682-15-3

Figure 5-2. Meter Field Strength ME-61/GRC, location of components.

Caution: Do not overtighten. Damage to component may result.

- (5) Tighten screw and washer. Replace front panel unit into case, and tighten the four corner captive screws.

b. Antenna Insulating Washer.

- (1) Remove front panel unit by loosening the four corner captive screws.
- (2) Unsolder the wire at the base of the antenna inside the front panel unit. A heavy-duty soldering iron must be used for this.
- (3) Remove the hexagonal nut located next to the washer inside the front panel unit. Remove the inner washer.
- (4) Remove the antenna through the top of the front panel unit.

- (5) Remove the top and bottom insulating washers. Refer to Appendix D for the correct washer replacement, if required.
- (6) To reassemble, insert the antenna through the opening marked ANT. Insure that the shoulder washer insulates the antenna from the exterior of the case.
- (7) From the interior, insert the non-metallic washer around the antenna. Insure that the nonmetallic washer insulates the antenna from the exterior of the case.

Caution: Do not overtighten. Damage to components may result.

- (8) Tighten the hexagonal nut. Insure that the antenna unit cannot move.

- (9) Solder the wire lead to the base of the antenna, using a heavy-duty soldering iron. Replace front panel unit into case, and tighten the four corner captive screws.

c. *Antenna Unit.* Follow the procedure given in b above. If polystyrene or phenolic washers are to be replaced, refer to Appendix D for the description and Federal stock number of the replacement washers.

d. *Rubber PHONES Cover Gasket.*

- (1) Open cover lid. Remove gasket with prying object, such as a screwdriver.
- (2) Replace gasket by applying pressure with fingers and squeezing gasket into position.
- (3) Visually inspect to insure water-resistant fitting.

e. *BAND SWITCH S1.*

- (1) Remove front panel unit by loosening the four corner captive screws.
- (2) Use heat shunt where required. Unsolder wires from all contacts.
- (3) Remove knob as described in paragraph 3-16a. Remove hexagonal nut holding S1 to front panel unit.
- (4) Remove defective unit, and insert new unit from interior of front panel unit into hole marked BAND SWITCH.

Caution: Do not overtighten. Damage to component may result.

- (5) Tighten hexagonal nut. Replace knob, washer, and screw. Insure that the switch positioning key is mated with the punched hole on the mounting bracket.
- (6) Replace front panel unit into case, and tighten the four corner captive screws.

f. *TUNING Control C1.*

- (1) Remove front panel unit by loosening the four corner captive screws.
- (2) Unsolder wires. Remove control knob, screw, and washer as described in paragraph 3-16a.
- (3) Loosen and remove hexagonal nut inside of water-resistant hexagonal boot by loosening and removing the boot. Remove the capacitor.
- (4) Carefully replace C1 from the interior side. Before tightening the hexagonal boot, insure that the cutaway section on the metal housing of C1 clears the

mounting bracket and that the housing seats evenly on the interior surface of the front panel unit.

- (5) Insure that capacitor C1 is positioned so that when the control knob is replaced, C1 is at maximum capacitance (plates fully meshed) when the white marker on the knob points to 1.5 MHz.

Caution: Do not overtighten. Damage to component may result.

- (6) Tighten hexagonal boot, and replace the screw, washer, and knob. Replace front panel unit into case, and tighten the four corner captive screws.

g. *PHONES Jack J1.*

- (1) Remove front panel unit by loosening the four corner captive screws.
- (2) Unsolder wires. Loosen hexagonal nut under lid cover.

Caution: Do not overtighten. Damage to component may result.

- (3) Remove defective jack, and insert new jack from the interior side of the front panel unit. Tighten hexagonal nut.
- (4) Solder wiring connections. Insure that all wires, including the wire which connects the first and second connections of the jack together (sleeve and short tip), are replaced correctly.
- (5) Replace front panel unit into case, and tighten the four corner captive screws.

h. *Front Panel Meter M1.*

- (1) Remove front panel unit by loosening the four corner captive screws.
- (2) Unsolder wires from meter terminals.
- (3) Remove the four fastening screws, washers, and nuts which secure the meter to the front panel unit. Remove the meter by lifting straight up.
- (4) Replace meter through hole marked M1 from the exterior of the front panel unit. Insure that the water-resistant gasket is replaced between the meter and the exterior surface of the front panel unit.

Caution: Do not overtighten. Damage to component may result.

- (5) Replace the four fastening screws, washers, and nuts. Solder the wires to the meter terminals, *being careful*

to observe the correct polarity of the dc microammeter.

- (6) Replace front panel unit into case, and tighten the four corner captive screws.

i. **METER SENSITIVITY Control R1.**

- (1) Remove the front panel unit by loosening the four corner captive screws.
- (2) Unsolder the wires. Remove the water-resistant hexagonal boot from the shaft. Remove the potentiometer from the bottom side of the front panel unit.

Caution: Do not overtighten. Damage to component may result.

- (3) Insert the new unit upward through the hole marked R1. Insure that the switch positioning key is mated with the punched hole on the mounting bracket. Tighten the hexagonal boot. Solder the wiring connections.
- (4) Replace the front panel unit into the case, and tighten the four corner captive screws.

5-8. Alignment

(fig. 5-2)

All alignments performed on each of the three frequency bands of the field strength meter are accomplished at the low end of each band by adjusting the variable tuning slug of the applicable inductor. No trimmer capacitor facilities for the high end of the band are needed. The "Q" of the tuned circuits is low enough to permit frequency overlay on all three bands *when the equipment is used or tested as determined in the operator's and higher category maintenance tests.* Use an insulated alignment tool, and insure that the collapsible antenna is fully extended. Insure that TUNING capacitor C1 is set for maximum capacitance at the low end of the band being aligned (plates fully meshed), except as provided in the band 1 alignment procedure. All alignments are done in the CW-LO mode of the RT-77/GRC-9. Do NOT attempt to align the field strength meter using a signal generator set, as the low "Q" of the tuned circuits will give false indications across the frequency range of the field strength meter. If an RT-77/GRC-9 is not available for alignment purposes, follow the alternate procedure as stated in *b* below.

a. Procedure for alignment.

- (1) *Band 1 (1.5-4 MHz).* Tune the RT-77/GRC-9 for a frequency of 2 MHz; also tune the field strength meter for 2 MHz (midband position). Key the transmitter, and adjust inductor L1 for maximum reading on the scale. Keep the field strength meter approximately 1 foot from the antenna, and adjust METER SENSITIVITY to keep the front panel meter reading between 1-5 arbitrary units.
- (2) *Band 2 (4-10 MHz).* Tune the RT-77/GRC-9 for a frequency of 4 MHz; also tune the field strength meter for 4 MHz at the low end of the band. Key the transmitter, and adjust inductor L2 for maximum reading on the scale. Keep the field strength meter approximately 1 foot from the antenna, and adjust METER SENSITIVITY to keep the front panel meter reading between 1-5 arbitrary units.
- (3) *Band 3 (10-24 MHz).* Tune the RT-77/GRC-9 for a frequency of 10 MHz; also tune the field strength meter for 10 MHz at the low end of the band. Key the transmitter, and adjust inductor L3 for maximum reading on the scale. Keep the field strength meter approximately 1 foot from the antenna, and adjust METER SENSITIVITY to keep the front panel meter reading between 1-5 arbitrary units.
- (4) *Audio circuit (PHONES test).* There is no alignment procedure for the PHONES test. Monitor the modulated rf output as provided in Step 7, paragraph 5-4c. If audio cannot be detected, check CR1 and C2 (fig. 4-1). METER SENSITIVITY control R1, open PHONES jack J1, and front panel meter M1 may also be at fault if both audio and a front panel meter reading are not evident in the unit troubleshooting procedures outlined in paragraph 5-3.

b. Alternate Alignment Procedure.

Note. The use of the alternate procedures requires the use of a transmitter other than the RT-77/GRC-9, but one which has a relatively equivalent frequency

C 1

range. The alternate transmitter must have a frequency range equal to or below 2 MHz and equal to or above 10 MHz in order that alignment on all three bands may be completed. If the transmitter does not have an associated modulator for testing the audio circuit (PHONES test), an alternate procedure for testing the audio circuit in the field strength meter is also provided.

- (1) *Band 1 (1.5-4 MHz)*. Tune the alternate transmitter and the field strength meter to a frequency of 1.5 MHz; if the frequency range of the transmitter cannot be tuned as low as this, use any frequency between 1.5 and 2 MHz. Keep the field strength meter the approximate distance from the transmitting antenna as provided in the chart in *c* below, depending on the radiated power of the alternate transmitter. Key the transmitter, and adjust inductor L1 for maximum reading on the scale. Adjust METER SENSITIVITY control to keep the front panel meter reading between 1-5 arbitrary units.
- (2) *Band 2 (4-10 MHz)*. Tune the alternate transmitter and the field strength meter to a frequency of 4 MHz. Keep the field strength meter the approximate distance from the transmitting antenna as provided in the chart in *c* below, depending on the radiated power of the alternate transmitter. Key the transmitter, and adjust inductor L2 for maximum reading on the scale. Adjust METER SENSITIVITY control to keep the front panel meter reading between 1-5 arbitrary units.
- (3) *Band 3 (10-24 MHz)*. Tune the alternate transmitter and the field strength meter to a frequency of 10 MHz. Keep the field strength meter the approximate distance from the transmitting antenna as provided in the chart in *c* below, depending on the radiated power of the alternate transmitter. Key the transmitter, and adjust inductor L3 for maximum reading on the scale. Adjust METER SENSITIVITY control to keep the front panel

meter reading between 1-5 arbitrary units.

- (4) *Audio circuit (PHONES test)*. There is no alignment procedure for the PHONES test. Monitor the modulated rf output of the transmitter by either transmitting an audio tone or speaking into a microphone connected to the transmitter modulator. If audio cannot be detected, check CR1 and C2. METER SENSITIVITY control R1, open PHONES Jack J1, and front panel meter M1 may also be at fault if both audio and a front panel meter reading are not evident. Use the following alternate procedure to test the audio PHONES circuit if the alternate transmitter does not have a modulator.
- (4) *Alternate audio test*. Set up R.F. Signal Generator Set AN/URM-25(D) (or AN/URM-25F) to a frequency between 1.5 and 4 MHz. Connect the test lead(s), as indicated in TM 11-5551D (or TM 11-5551E), from the HI RF OUTPUT jack directly to the fully extended antenna of the field strength meter. Tune the field strength meter to the same frequency as Signal Generator SG-103/URM-25. Adjust the SG-103/URM-25 for a modulated rf output (audio = 400 or 1,000 Hz). Monitor the audio tone in the headset plugged into the PHONES jack of the field strength meter. If audio cannot be detected, follow the procedures described in *b*(4) above. Repeat this procedure to check out bands 2 and 3 by selecting a frequency between 4-10 MHz and then 10-24 MHz, respectively, to insure an audio check on all three bands.

c. Approximate Distance from Field Strength Meter Antenna to Transmitting Antenna.

Transmitted rf power	Distance between field strength meter and transmitter
1 watt -----	6 inches (or less)
5 watts -----	12 inches
15 watts -----	18 inches
25 watts -----	20 inches
50 watts -----	24 inches (or more)

Section III. DEPOT OVERHAUL STANDARDS

5-9. General

Maintenance for determining depot overhaul standards (DOS) consists of overhauling meter, Field Strength ME-61/GRC. Final tests for the overhauled field strength meter are the same as for the general support maintenance category. Parts available for depot maintenance of the field strength meter are listed in Appendix D.

5-10. Test Equipment, Tools, Materials, and Power Source Required

The test equipment, tools, materials, and power source required for depot maintenance are identical with those listed in the general support testing procedures (paras 5-1 - 5-8). In addition, any depot maintenance shop facility can be used for the necessary maintenance.

5-11. Alternate Depot Alignment Procedures

a. Test Equipment Required. For the procedure described below, the following items of equipment are required:

Nomenclature	Federal stock No.
G R Bridge Oscillator 1330-A ----	NSN
Approx 4-foot length of #18 or -- #20 wire (stranded).	NSN

b. Alternate Alignment and Test Procedure.

- (1) Allow a 5-minute warmup period for the 1330-A bridge oscillator. During this time, use a 4-foot length of small stranded wire, and wrap approximately 2 feet (or less) of the wire into a small loop. Leave the unlooped length as a straight wire, and strip the free end of insulation.
- (2) Place the loop of wire around the extended antenna of the field strength meter, and insert the bared end into the output rf connector. Adjust the 1330-A oscillator for maximum permissible output at 1.5 MHz. Tune the field strength meter for 1.5 MHz, and adjust the TUNING control for

maximum reading on the front panel meter scale. Adjust the METER SENSITIVITY control to keep the front panel meter reading between 1-5 arbitrary units.

- (3) Turn the BAND SWITCH control to the 4-10 MHz band, and set the TUNING control for 4 MHz (low end of band). Adjust the TUNING control for a maximum reading on the meter. Adjust METER SENSITIVITY control to keep the front panel meter reading between 1-5 arbitrary units.
- (4) Turn the BAND SWITCH control to the 10-24 MHz band, and set the TUNING control for 10 MHz (low end of band). Adjust the TUNING control for maximum reading on the meter. Adjust the METER SENSITIVITY control to keep the front panel meter reading between 1-5 arbitrary units.
- (5) If the field strength meter is found to be in need of alignment, follow the GS alignment procedures described in section II of this chapter. The use of the 1330-A bridge oscillator may be substituted for Receiver-Transmitter RT-77/GRC-9 in the alignment procedures.
- (6) If the field strength meter is found to be inoperative, follow the troubleshooting and repair procedures outlined in paragraphs 5-6 through 5-8.
- (7) Modulate the rf carrier output of the 1330-A with an audio tone, and monitor the output of each of three bands with a headset plugged into the PHONES jack to insure that audio is being received by the field strength meter. If an audio tone is lacking, perform the necessary troubleshooting of the demodulation circuit (paras 5-6-5-8). The schematic diagram of the field strength meter is given in figure 4-1.



CHAPTER 6

PREPARATION OF EQUIPMENT FOR RESHIPMENT AND DEMOLITION TO PREVENT ENEMY USE

Section I. PREPARATION OF EQUIPMENT FOR RESHIPMENT

6-1. General

Meter Field Strength ME-61/GRC, when completely enclosed, is a watertight device. The preparations for local shipment and for limited storage are the same.

6-2. Repackaging for Shipment or Limited Storage

The exact procedure for repackaging depends on the material available and the conditions under which the equipment is to be shipped or stored. The following procedure outlines general packaging methods:

a. Secure the equipment by collapsing the telescopic antenna and fastening both luggage catches on the meter casing.

b. Wrap the carrying strap securely around the meter.

c. Cushion all surfaces of the meter with paperboard cushioning wrapping material.

d. Secure the cushioning around the meter with gummed paper tape.

e. Wrap the technical manual with waterproof wrapping paper, and secure with water-resistant pressure-sensitive tape. Place the wrapped manual above the meter.

f. Overwrap both the meter and the manual with waterproof wrapping paper and secure the overwrap with water-resistant, pressure-sensitive tape.

g. Place both cushioned items into a fiberboard box and pack the fiberboard box in a nailed wooden box. Nail down the box lid, and strap the nailed wooden box with flat steel strapping.

6-3. Packing Materials Chart

Note. The following chart indicates the approximate amount of material needed to pack Meter, Field Strength ME-61/GRC. Refer to SB 38-100 for stock numbers of materials.

Materials (estimated)	Quantity
Paperboard, cushioning, wrapping.	3 sq ft
Tape, paper, gummed ----	1.5 ft
Paper, wrapping, water-proof.	5 sq ft
Tape, pressure-sensitive water-resistant.	2.5 ft
Strapping, flat steel (5/8 x 0.020).	12 ft
Box, fiberboard -----	1 ea
Paper, shredded waxed ---	1.5 lb
Twine, cotton wrapping ---	1 cone
Lumber -----	6 bd ft

Section II. DEMOLITION TO PREVENT ENEMY USE

6-4. Authority for Demolition

a. The demolition procedures given in paragraph 6-5 will be used to prevent the enemy from using or salvaging this equipment. Demolition of the equipment will be accomplished only upon the order of the commander.

b. Thorough demolition of equipment will be accomplished through the use of procedures outlined in International Standardization Agreement - STANAG 2113, "Destruction of Military Technical Equipment." Methods of destruction should achieve such damage to equip-

ment and essential spare parts that it will not be possible to restore the equipment to a usable condition in the combat zone either by repair or cannibalization. The reporting of the destruction of equipment is to be done through command channels.

c. If a destruction plan is not provided by higher authority, one should be prepared by the organization using the equipment. In this plan, personnel should be assigned specific destruction tasks, but all personnel in the using organization should be familiar with all aspects of the complete destruction plan. The plan must be adequate and easily carried out in the field and must provide for as complete a destruction as available time, equipment, and personnel will permit. Because the time required for complete destruction may not always be available, the destruction plan must establish priorities so that essential parts of the equipments will be destroyed in the order of their importance. Systematic destruction of the same important units of equipment of a given type will prevent the enemy from learning the important features of the equipment or assembling a complete equipment by cannibalization of partially destroyed equipment. Adequate destruction of some units of equipment should always be accomplished rather than partial destruction of all units. Which of the methods listed in paragraph 6-5 is to be used depends on the time available for destruction.

6-5. Methods of Destruction

a. *Destruction Priority.* STANAG 2113 outlines the general priorities for any equipment which is to be destroyed. These priorities, as applied to Meter, Field Strength ME-61/GRC, are listed below:

- (1) All controls, front panel meter, telescopic antenna, and PHONES jack.
- (2) All electronic components inside of meter to include mounting bracket and antenna.

b. *Smash.* Smash the controls, resistors, capacitors, switches, antenna, and other interior parts; use sledges, hammers, axes, crowbars, or other heavy tools.

c. *Cut.* Cut the cords, cables, and wiring; use axes, handaxes, or machetes.

b. *Burn.* Burn the cords, wiring, manuals and components; use gasoline, kerosene, oil, flamethrowers, or incendiary grenades.

e. *Bend.* Bend the panels, casing, and connectors.

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

f. *Explosives.* If explosives are necessary, use firearms, grenades, or TNT.

g. *Disposal.* Burn or scatter the destroyed parts in slit trenches, foxholes, or other holes, or throw them into nearby streams.

APPENDIX A

REFERENCES

Following is a list of applicable references available to the personnel concerned with Meter, Field Strength ME-61/GRC.

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (Type 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 109	Headset H-16/U.
TB SIG 319	Electronic Equipment Maintenance Kit MK-288/URM.
TB SIG 364	Field Instructions for painting and Preserving Electronics Command Equipment.
TM 11-263	Radio Sets AN/GRC-9, AN/GRC-9A, AN/GRC-9X, AN/GRC-9Y, AN/GRC-9AX, AN/GRC-87, and AN/VRC-34.
TM 11-4000	Troubleshooting and Repair of Radio Equipment
TM 11-5551D	R. F. Signal Generator Set AN/URM-25D
TM 11-5551E	R. F. Signal Generator Set AN/URM-25F
TM 11-5820-453-10	Operator's Manual: Radio Sets AN/GRC-87 and AN/VRC-34
TM 11-5820-453-20	Organizational Maintenance Manual: Radio Sets AN/GRC-87 and AN/VRC-34
TM 11-5820-453-20P	Organizational Maintenance Repair Parts and Special Tools Lists: Radio Sets AN/GRC-87 and AN/VRC-34
TM 11-5820-453-35P	Field and Depot Maintenance Repair Parts and Special Tool Lists: Radio Sets AN/GRC-87 and AN/VRC-34
TM 11-5965-267-15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tools List: Headset, Electrical HS-16/U
TM 11-6625-200-12	Organizational Maintenance Manual: Multimeter ME-26A/U, ME-26B/U, ME-26C/U, and ME-26D/U.
TM 38-750	Army Equipment Record Procedures



APPENDIX B

BASIC ISSUE ITEMS

Section I. INTRODUCTION

B-1. General

This appendix lists items for Meter, Field Strength ME-61/GRC, the component items comprising it, and the items which accompany it, or are required for installation, operation, or operator's maintenance.

B-2. Explanation of Columns

An explanation of the columns in section II is given below.

a. Source, Maintenance, and Recoverability Codes, Column 1.

- (1) *Source code, column 1a.* The selection status and source for the listed item is noted here. The source code used is:

Code	Explanation
P	Applies to repair parts which are stocked in or supplied from the GSA/DSA or Army supply system and authorized for use at indicated maintenance categories.

- (2) *Maintenance code, column 1b.* The lowest category of maintenance authorized to install the listed item is noted here. The maintenance code used is as follows:

Code	Explanation
O	Organizational maintenance

- (3) *Recoverability code, column 1c.* Not used.

Note. When there is no code indicated in the recoverability column, the part will be considered expendable.

b. Federal Stock Number, Column 2. The Federal stock number for the item is indicated in this column.

c. Description, Column 3. The Federal item name and part number are included in this column.

d. Unit of Issue, Column 4. The unit used as a basis of issue (e.g. ea, pr, ft, yd, etc) is noted in this column.

e. Quantity Incorporated in Unit Pack, Column 5. Not used.

f. Quantity Incorporated in Unit, Column 6. The total quantity of the item used in the equipment is given in this column.

g. Quantity Authorized, Column 7. The total quantity of an item required to be on hand and necessary for the operation and maintenance of the equipment is given in this column.

h. Illustration, Column 8.

- (1) *Figure number, column 8a.* The number of the illustration in which the item is shown is indicated in this column.

- (2) *Item or symbol number, column 8b.* Not used.

SECTION II. BASIC ISSUE ITEMS LIST

B-2

(1)			BASIC ISSUE ITEMS LIST						(4)	(5)	(6)	(7)	(8)		
(A) SOURCE CD	(B) MAINT. CD	(C) REC. CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION						(4) UNIT OF ISSUE	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) QTY AUTH	(8) ILLUSTRATIONS	
				MODEL										(A) FIGURE NUMBER	(B) ITEM OR SYMBOL NUMBER
				1	2	3	4	5	6						
			6625-701-9103												
			ORD THRU ACC									1			
			6625-817-9420									1	1	1-1	

MEYER, FIELD STRENGTH ME-61/GRC: 6 in lg X 5-1/2 in w X 5 in h o/a (This item is nonexpendable)

TECHNICAL MANUAL TM 11-6625-682-15

NOTE: For technical manuals the quantity indicates the maximum number of copies authorized for packing (or issue) with the equipment. Where a number of these items are concentrated in a small area, the quantity shown may be reduced to practical levels. Excess publications must be returned to publication supply centers through AF channels.

STRAP, WEBBING: Cotton; 6 ft 1-5/8 in lg X 1 in wd; EODM Awg 30-D-1-233

NOTE: No accessories, tools or test equipment are to be issued with this equipment.

NOTE: No basic issue items are mounted in or on this equipment.

APPENDIX C

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

C-1. General

This appendix provides a summary of the maintenance operations covered in the equipment literature for Meter, Field Strength ME-61/GRC. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

C-2. Explanation of Format for Maintenance Allocation Chart

a. Group Number. Group numbers correspond to the reference designation prefix assigned in accordance with ASA Y32.16, Electrical and Electronics Reference Designations. They indicate the relation of listed items to the next higher assembly.

b. Component Assembly Nomenclature. This column lists the item names of component units, assemblies, subassemblies, and modules on which maintenance is authorized.

c. Maintenance Function. This column indicates the maintenance category at which performance of the specific maintenance function is authorized. Authorization to perform a function at any category also includes authorization to perform that function at higher categories. The codes used represent the various maintenance categories as follows:

Code	Maintenance Category
C	Operator/Crew
O	Organizational Maintenance
F	Direct support Maintenance
H	General Support Maintenance
D	Depot Maintenance

d. Tools and Equipment. The numbers appearing in this column refer to specific tools and equipment which are identified by these numbers in section III.

e. Remarks. Self explanatory.

C-3. Explanation of Format for Tools and Test Equipment Requirements

The columns in the tool and test equipment requirements chart are as follows:

a. Tools and Equipment. The numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool for the maintenance function.

b. Maintenance Category. The codes in this column indicates the maintenance category normally allocated the facility.

c. Nomenclature. This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

d. Federal Stock Number. This column lists the Federal stock number.

e. Tool Number. Not used.

SECTION II. MAINTENANCE ALLOCATION CHART

C-2

MAINTENANCE ALLOCATION CHART														
GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS										TOOLS AND EQUIPMENT	REMARKS	
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL			REBUILD
	METER, FIELD STRENGTH ME-61/GRC	C	C						O	H	D		1 2 thru 7 8	Operational testing and cleaning Replacement of knobs, screws, rubber seal strip, carrying strap, and luggage catch Depot overhaul standards

SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOLS AND EQUIPMENT	MAINTENANCE CATEGORY	NOMENCLATURE	FEDERAL STOCK NUMBER	TOOL NUMBER
		ME-61/GRC (continued)		
1	C	TOOL KIT TK-115/G	5180-856-1578	
2	H	RECEIVER-TRANSMITTER RT-77/GRC-9	5820-196-9041	
3	H	RF SIGNAL GENERATOR AM/JRM-25D	6625-649-5193	
		OR		
		RF SIGNAL GENERATOR AM/JRM-25F	6625-643-1548	
4	H	TOOL KIT TK-100/J	5180-605-0079	
		OR		
		TOOL KIT TK-105/J	5180-610-8177	
5	H	MULTIMETER, ELECTRONIC ME-26B/U	6625-646-9409	
6	H	RIGID INSULATED WIRE (#14 or #16) (12 inches)		
7	H	HEADSET HS-16/B	5965-222-0147	
8	D	GR BRIDGE OSCILLATOR TYPE 1330-A		

APPENDIX D

ORGANIZATIONAL, DS, GS, AND DEPOT REPAIR PARTS

Section I. INTRODUCTION

D-1. General

This appendix contains a list of repair parts required for the performance of organizational maintenance and a list covering the corresponding requirements for direct support, general support, and depot maintenance for Meter, Field Strength ME-61/GRC.

Note. No special tools, test, and support equipment required for the ME-61/GRC.

D-2. Explanation of Sections

This repair parts list is divided into four principal parts:

a. Prescribed Load Allowance List (PLA) - Section II. The PLA is a consolidated listing of repair parts allocated for initial stockage at organizational maintenance. This is a mandatory minimum stockage allowance.

b. Repair Parts for Organizational Maintenance - Section III. Repair parts authorized for organizational maintenance is included in this section.

c. Repair Parts for Direct Support, General Support, and Depot Maintenance - Section IV. This chart lists repair parts authorized for maintenance performance at direct support, general support and depot.

d. Federal Stock Number Cross-Reference Index—Section V. This is a cross-reference index of Federal stock number to illustrations by figure and item number.

D-3. Explanation of Columns

An explanation of the columns in sections II through IV is given below.

a. Source, Maintenance, and Recoverability Codes, Column 1, Sections III and IV.

- (1) *Source code, column 1a.* The selection status and source for the listed item is noted here. Source codes and their explanations are as follows:

Code	Explanation
P--	Applies to repair parts that are stocked in or supplied from the GSA/DSA, or Army supply system, and authorized for use at indicated maintenance categories.

- (2) *Maintenance code, column 1b.* The lowest category of maintenance authorized to install the listed item is noted here.

Code	Explanation
O	Organizational Maintenance
F	Direct Support Maintenance

- (3) *Recoverability code, column 1c.* The information in this column indicates whether unserviceable items should be returned for recovery or salvage. Recoverability codes and their explanations are as follows:

Note. When no code is indicated in the recoverability column, the part will be considered expendable.

Code	Explanation
R--	Applies to repair parts and assemblies which are economically repairable at DSU and GSU activities and normally are furnished by supply on an exchange basis.

b. Federal Stock Number, Column 1, Section II; Column 2, Sections III and IV. The Federal stock number for the item is indicated in this column.

c. *Description, Column 2, Section II; Column 3, Sections III and IV.* The Federal item name, a five-digit manufacturer's code, and a part number are included in this column.

d. *Unit of Issue, Column 4, Sections III and IV.* The unit used as a basis of issue (e.g. ea, pr, ft, yd, etc) is noted in this column.

e. *Quantity Incorporated in Unit Pack, Column 4, Section II; Column 5, Sections III and IV.* Not used.

f. *Quantity Incorporated in Unit, Column 6, Sections III and IV.* The quantity of repair parts in an assembly is given in this column.

g. *Maintenance Allowance, Column 3, Section II; Column 7, Section III and IV.*

- (1) The allowance columns are divided into subcolumns. The total quantity of items authorized for the number of equipments supported is indicated in each subcolumn opposite the first appearance of each item. Subsequent appearances of the same item will have no entry in the allowance columns but will have a reference, in the description column, to the first appearance of the item. Items authorized for use as required but not for initial stockage are identified with an asterisk (*) in the allowance column.
- (2) The quantitative allowances for organizational category of maintenance represents one initial prescribed load for a 15-day period for the number of equipments supported. Units and organizations authorized additional prescribed loads will multiply the number of prescribed loads authorized by the quantity of repair parts reflected in the appropriate density column to obtain the total quantity of repair parts authorized.
- (3) Subsequent changes to organizational allowances will be limited as follows: No change in the range of items is authorized. If additional items are considered necessary, recommendation should be forwarded to Commanding General, U. S. Army Electronics Command, ATTN: AMSEL-MR-NMP-CR, Fort Monmouth, N. J. 07703, for exception or revision to the allowance

list. Revisions to the range of items authorized will be made by the USA ECOM National Maintenance Point based upon engineering experience, demand data, or TAERS information.

- (4) The quantitative allowances for DS/GS categories of maintenance will represent initial stockage for a 30-day period for the number of equipments supported.

h. *One-Year Allowances Per 100 Equipments/Contingency Planning Purposes, Column 8, Section IV.* Opposite the first appearance of each item, the total quantity required for distribution and contingency planning purposes is indicated. The range of items indicates total quantities of all authorized items required to provide for adequate support of 100 equipments for one year.

i. *Illustration, Column 8, Section III; Column 10, Section IV.*

- (1) *Figure number, columns 8a and 10a.* The number of the illustration in which the item is shown is indicated in this column.
- (2) *Item or symbol number, column 8b and 10b.* The number used to reference the item in the illustration is indicated in this column.

j. *Depot Maintenance Allowance Per 100 Equipments, Column 9, Section IV.* This column indicates the total quantity of each item authorized depot maintenance for 100 equipments. Subsequent appearances of the same item will have no entry in this column, but will have a reference in the description column to the first appearance of the item.

D-4. Location of Repair Parts

a. When the Federal stock number is unknown, follow the procedures given in (1) through (3) below.

- (1) In the pertinent publication, find the repair part illustration to which the repair part belongs.
- (2) Locate the applicable illustration and note the figure number and item number.

(3) Use the repair parts list to find the repair part and the figure number and item number as noted on the illustration.

b. When the Federal stock number is known, follow the procedures given in (1) and (2) below.

(1) Use the Index of Federal stock numbers to figure and item numbers and locate the Federal stock number. The Federal stock numbers are listed in numerical sequence and are cross referenced to the figure number and item number.

(2) Use the repair part listing to find the repair part and the figure and item numbers as noted in the Index of Federal stock numbers.

D-5. Federal Supply Codes

This paragraph lists the Federal supply code and the associated manufacturer's name.

Code Number	Manufacturer's name
07450	United Telecontrol Electronics Inc
80063	Army Electronics Command
81349	Military Specifications
91802	Industrial Devices Inc
97539	Apm-Hexseal Corp
96906	Military Standard

SECTION II. PRESCRIBED LOAD ALLOWANCE LIST

PRESCRIBED LOAD ALLOWANCE						
(1) FEDERAL STOCK NUMBER	(2) DESCRIPTION	(3) 15-DAY ORG. MAINT. ALLOWANCE				(4) QTY INC IN UN PK
		(A)	(B)	(C)	(D)	
		1-5	6-20	21-50	51-100	
5305-019-3257	SCREW, MACHINE: F/Mtg knobs; 96906; MS35225-26	*	*	2	2	
5330-838-4942	SEAL, RUBBER STRIP: F/top cover gasket; 1/4 in sq; 80063; SC-C-47169-1	*	*	*	2	
5355-816-6306	KNOB: 1-3/16 in lg X 7/8 in X 15/32 in thk; 91802; 1430/2-4-W	*	*	*	2	

SECTION III. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE

SOURCE CD (1)	MAINT. CD (a)	REC. CODE (c)	REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE						UNIT OF ISSUE (4)	QTY INC IN UN PK (5)	QTY INC IN UNIT (6)	15 DAY ORG. MAINT. ALW. (7)				ILLUSTRATIONS (8)			
			FEDERAL STOCK NUMBER (2)	MODEL (3)								DESCRIPTION (3)	(A)	(B)	(C)	(D)	(A) FIGURE NUMBER	(B) ITEM OR SYMBOL NUMBER	
				1	2	3	4	5											6
P	O	R	6625-701-9103						ea							1-1			
P	O		5340-543-2432						ea	1	*	*	*	*		1-1			
P	O		5355-816-6307						ea	1	*	*	*	*		2-1			
P	O		5355-816-6306						ea	2	*	*	*	*	2	2-1			
P	O		5305-019-3257						ea	3	*	*	2	2		2-1			
P	O		5330-838-4942						ft	2	*	*	*	2		1-1			
P	O		6625-817-9420						ea	1	*	*	*	*		1-1			

D-5

(1)										(4)	(5)	(6)	(7)						(8)	(9)	(10)						
SOURCE CD (A)	MAINT. CD (B)	REC. CODE (C)	REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE										UNIT OF ISSUE	QTY INC IN UN PK	QTY INC IN UNIT	30 DAY MAINT. ALW.						1 YR. ALW. PER 100 EQUIP. CNTG CY PL.	DEPOT MAINT. ALW. PER 100 EQUIP.	(A)	(B)		
			(2) FEDERAL STOCK NUMBER	(3) MODEL												(3) DESCRIPTION	DS				GS						
				1	2	3	4	5	6								IND CD	1-20 (A)			21-50 (B)			51-100 (C)	1-20 (A)	21-50 (B)	51-100 (C)
P	F		5340-820-0933								ME-61/GRC (continued)	ea		1	*	*	*	*	*	*	5	2	1-1				
P	F		6625-817-9421								COVER, ACCESS, SELF CLOSING: F/Jack J1; 80063; SC-C-47164	ea		1	*	*	2	*	*	2	8	3					
P	F		5935-192-4789								JACK, TELEPHONE: 81349; JJ-089	ea		1	*	*	*	*	*	*	5	2	5-2	J1			
P	O		5355-816-6307								KNOB: 23/32 in od X 15/32 in thk; 91802; 14301-4-W	ea		1	*	*	*	*	*	*	5	2	2-1				
P	O		5355-816-6306								KNOB: 1-3/16 in lg X 7/8 in X 15/32 in thk; 91802; 14302-4-W	ea		2	*	*	2	*	*	2	10	4	2-1				
P	F		6625-752-8263								METER, ARBITRARY SCALE: 0 to 10 CW; 07450; 102005	ea		1	*	*	2	*	*	2	8	3	2-1	M1			
P	F		4730-822-3287								NUT, PLAIN, HEXAGONAL: Mts Jack; 80063; SC-B-47162	ea		1	*	*	*	*	*	*	5	2					
P	F		5310-816-6305								NUT, PLAIN, HEXAGONAL: 1/2-24 thd; 07450; 102006	ea		1	*	*	*	*	*	*	5	2					
P	F		6625-797-2419								PLATE, MOUNTING, CAPACITOR: F/Mtg C-1; 80063; SC-B-47160	ea		1	*	*	*	*	*	*	4	1					
P	F		5905-752-6635								RESISTOR, VARIABLE: 50,000 ohms, 2 w ±10%; 07450; 102008	ea		1	*	*	2	*	*	2	8	3	5-2	R1			
P	F		5305-818-1781								SCREW, EXTERNALLY, RELIEVED BODY: F/panel; 80063; SC-B-47161	ea		4	*	*	2	*	*	2	10	4	2-1				
P	O		5305-019-3257								SCREW, MACHINE: F/Mtg knobs; 96906; MS35225-26	ea		3	*	*	2	*	*	2	13	6	2-1				

INDEX — FEDERAL STOCK NUMBER CROSS REFERENCE TO
FIGURE AND ITEM NUMBER OR REFERENCE SYMBOL

STOCK NO.	FIGURE NO.	ITEM NO. REF. SYMBOL	STOCK NO.	FIGURE NO.	ITEM NO. REF. SYMBOL
5905-752-6635		R1			
5910-816-6304		C1			
5910-837-2577		C2			
5930-823-0052		S1			
5935-192-4789		J1			
5950-795-5408		L1			
5950-816-5693		L2			
5950-816-5694		L3			
5960-577-1221		CR1			
5985-816-6150		E1			
6625-752-8263		M1			

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;

Active Army:

USASA (2)
 CNGB (1)
 CC-E (7)
 Dir of Trans (1)
 CofEngrs (1)
 TSG (1)
 CofSptS (1)
 USAARENBD (2)
 USACDCEA (1)
 USACDCEC (10)
 USACDCCBRA (1)
 USACDCCEA (1)
 USACDCCEA (Ft Huachuca) (1)
 USACDCOA (1)
 USACDCQMA (1)
 USACDCTA (1)
 USACDCADA (1)
 USACDCARMA (1)
 USACDCAVNA (1)
 USACDCARTYA (1)
 USACDCSWA (1)
 USAMC (5)
 USCONARC (5)
 ARADCOM (5)
 ARADCOM Rgn (2)
 OS Maj Comd (4)
 LOGCOMD (2)
 USAMICOM (4)
 USASTRATCOM (4)
 USAESC (70)
 USARHAW (5)
 USARYIS (5)
 MDW (1)
 Armies (2) except
 Seventh USA (5)
 Eighth USA (5)
 Corps (2)
 USAC (3)
 1st GM Bde (5)
 Instl (2) except
 Ft Hancock (4)
 Ft Gordon (10)
 Ft Huachuca (10)
 WSMR (5)
 Ft Carson (25)
 Ft Knox (12)
 Svc Colleges (2)
 USASCS (10)

USASESCS (50)
 USAADS (25)
 USAAMS (50)
 USAARMS (10)
 USAIS (10)
 USAES (10)
 USAMPS (10)
 USAQMS (10)
 MFSS (10)
 USATC Armor (2)
 USAECFB (2)
 USATC Inf (2)
 USASTC (2)
 Army Dep (2) except
 LBAD (14)
 SAAD (30)
 TOAD (14)
 LEAD (7)
 SHAD (3)
 NAAD (5)
 SVAD (5)
 CHAD (3)
 ATAD (10)
 Gen Dep (2)
 Sig Sec, Gen Dep (5)
 Sig Dep (12)
 WRAMC (1)
 Army Pic Cen (2)
 USAJFKCENSPWAR (5)
 USAEPG (5)
 USARSG (5)
 MAAG (Iran) (5)
 MAAG (Ethiopia) (5)
 MAAG (Thailand) (5)
 MAAG (Vietnam) (5)
 MAAG (Rep of China) (5)
 USARMIS (Ecuador) (5)
 Sig FLDMS (2)
 AMS (1)
 USAERDAA (2)
 USAERDAW (13)
 USACRREL (2)
 Units org under fol TOE:- 2 ea.
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 5-25
 5-26
 5-35

C 1

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5-37	10-536
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5-52	11-97
5-54	11-98
5-97	11-117
5-112	11-127
5-114	11-155
5-115	11-157
5-116	11-158
5-117	11-500 (AA-AC)
5-118	11-587
5-124	11-592
5-145	11-597
5-146	11-608
5-155	17
5-156	17-51
5-177	19-35
5-237	19-36
5-278	19-37
5-348	19-55
5-500 (HN)	19-56
5-600	19-57
5-605	19-500 (ND)
5-627	20-45
6-401	20-47
6-536	29-1
6-555	29-11
6-556	29-21
7	30-29
8-35	30-500 (FB)
8-137	37
9-7	39-51
9-9	44-2
9-12	44-12
9-17	44-235
9-76	44-236
9-86	44-237
9-117	44-500 (FA, FB)
9-127	44-535
9-197	44-536
9-227	44-537
9-500	55-2
9-510	55-56
10-202	55-58
10-206	57
10-445	

NG: State AG (3).

USAR: None.

For explanation of abbreviations used, see AR 320-50.



