TECHNICAL MANUAL

OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL

INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST

TEST SET, RADIO FREQUENCY AN/GRM-62

This copy is a reprint which includes current pages from Changes 1 through 3.

H E A D Q U A R T E R S , D E P A R T M E N T O F T H E A R M Y

OCTOBER 1967

WARNING

DANGEROUS VOLTAGES EXIST IN THIS EQUIPMENT

Be careful when working on the 115-volt ac line connections and the +105, +150, +250, +360, +645, +650, and +800 volts dc present in this equipment. Serious injury or death may result from contact with these points.

DO NOT TAKE CHANCES!

CAUTION

Make certain that the louvers located on the top and bottom of the cabinet are clear of all obstructions. Proper cooling of the equipment requires free air passage through the louvers.

CHANGE
No. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *28 November 1977*

Operator's and Organizational Maintenance Manual
TEST SET, RADIO FREQUENCY AN/GRM-62
(NSN 6625-00-935-4201)

TM 11-6625-656-12, 25 October 1967, is changed as follows:
1. The title is changed as above.
2. New or changed material is indicated by a vertical bar.
3. Remove and insert pages as indicated below.

Remove	**Insert**
i and ii	i and ii
1-1 and 1-2	1-1 and 1-2
13 through 1-4.1	1-3 through 1-4.1
1-5 through 1-8	1-5 through 1-8
4-1 and 4-2	4-1 and 4-2
C-1 through C-3	C-1 through C-5
D-1 through D-6	D-1/(D-2 blank)

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

By Order of the Secretary of the Army:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Brigadier General, United States Army
The Adjutant General

Distribution:
To be distributed in accordance with DA Form 12-51, Direct and General Support maintenance requirements for AN/GRM-62.

TECHNICAL MANUAL
No. 11-6625-656-12

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *25 October 1967*

OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL
TEST SET, RADIO FREQUENCY AN/GRM-62
(NSN 6625-00-935-4201)

Current as of August 1977

TABLE OF CONTENTS - Continued

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This manual describes Test Set, Radio Frequency AN/GRM-62 (fig. 1-1) and covers the installation, limited operation, and operator and organizational maintenance. It includes instructions for operation under normal conditions, cleaning and inspection of the equipment, and replacement of parts available to the operator and organizational repairman.

b. Operation of Test Set, Radio Frequency AN/GRM-62 in conjunction with other test equipment (para 1-10) to test components of the AN/GRC-50(*)(V) (para 1-5*a*) is covered in the maintenance manual for the AN/GRC-50A(*) (V) (TM 11-5820-461-35).

c. Official nomenclature followed by (*) is used to indicate all models of the equipment items covered in this manual.

(1) Radio Sets AN/GRC-50(*) (V) represents Radio Sets AN/GRC-50(V) 1, 2, 3, 4, and 5, and AN/GRC-50A (V) 1, 2, 3, 4, 5, 6, and 7.

(2) Amplifier-Oscillator AN/1958(*)/GRC represents AM-1958/GRC and AM-1958A/GRC (assemblies 2A2).

(3) Amplifier-Converter AN-1955(*)/GRC represents AM-1955/GRC and AM-1955A/GRC (assemblies 3A1).

(4) Amplifier-Converter AM-1956(*)/GRC represents AM-1956/GRC and AM-1956A/GRC (assemblies 3A2).

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 (Packaging Improvement Report) as prescribed in AR 700-58/NAVSUPINST 4030.29/AFR 71-13/MCO P4030.29A, and DSAR 4145.8.

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

1-4. Reporting of Errors

You can help improve this manual by calling attention to errors and by recommending improvements and stating your reasons for the recommendations. Your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) should be mailed direct to Commander, US Army Electronics Command, ATTN: DRSEL-MA-Q, Fort Monmouth, New Jersey 07703. A reply will be furnished direct to you.

1-4.1. Reporting Equipment Improvement Recommendations (EIR)

EIR's will be prepared using DA Form 2407 (Maintenance Request). Instructions for preparing EIR's are provided in TM 38-750, The Army Maintenance Management System. EIR's should be mailed direct to Commander, US Army Electronics Command, ATTN: DRSEL-MA-Q, Fort Monmouth, New Jersey 07703. A reply will be furnished direct to you.

1-4.2. Administrative Storage

Administrative storage of equipment issued to and used by Army activities shall be in accordance with TM 740-90-1.

1-4.3. Destruction of Army Electronics Materiel

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.

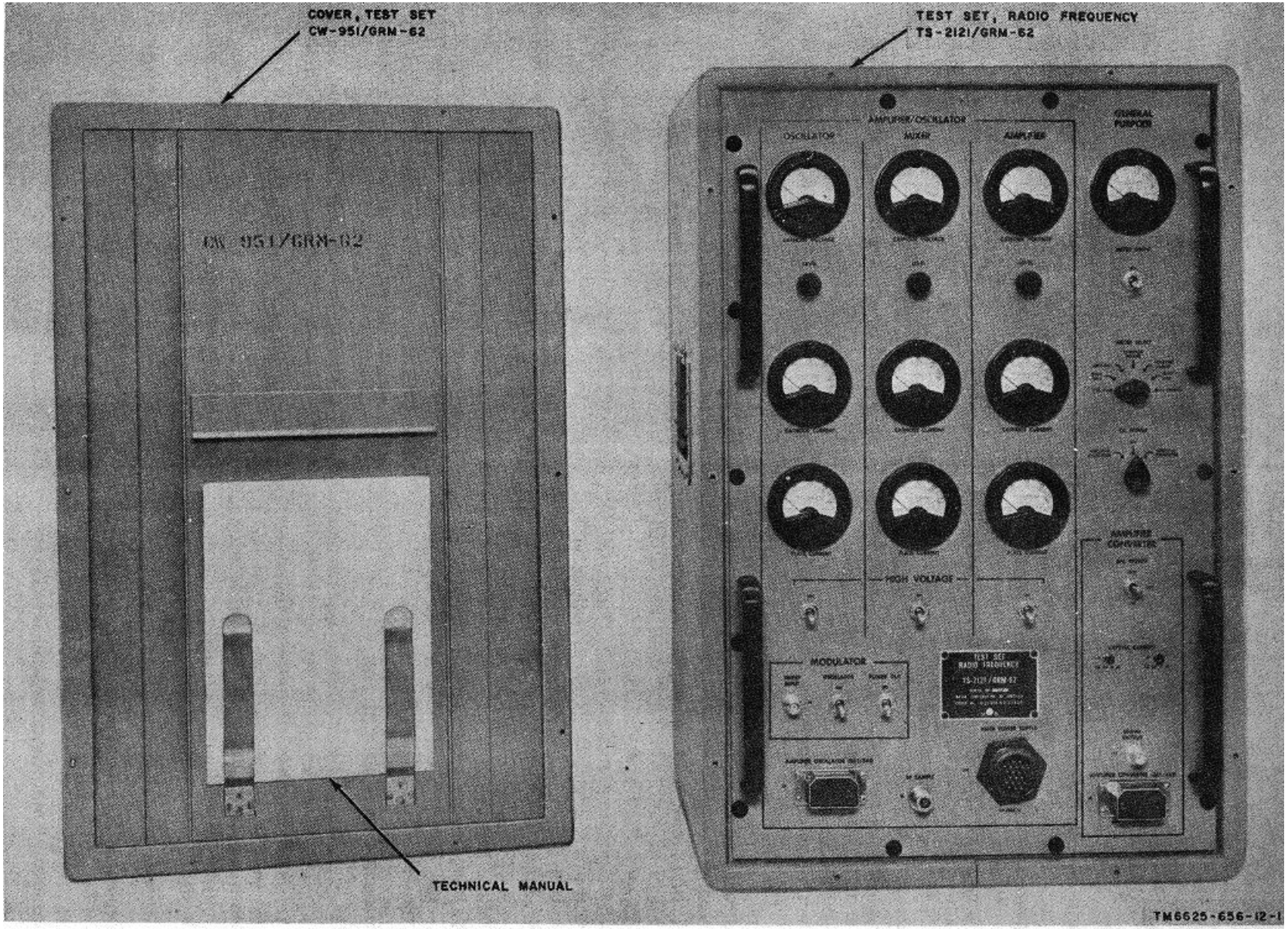

Figure 1-1. Test Set, Radio Frequency, AN/GRM-62, less Cable Assembly, Radio Frequency CG-3434/U (4 ft 2 in), and running spares.

Section II. DESCRIPTION AND DATA

1-5. Purpose and Use

NOTE

Throughout this manual, the AN/GRC-50(*) (V) assembly under test is referred to as AUT.

a. Test Set, Radio Frequency AN/GRM-62 (hereinafter referred to as *radiofrequency test set*) when used in conjunction with additional equipment (para 1-10) comprises a test set that enables the operator to check the alignment, operation, and performance, and to troubleshoot the following assemblies of Radio Set AN/GRC-50(*) (TM 11-5820-461-35):

(1) Amplifier-Oscillator AM-1957/GRC (2A1) and AM-1958(*)/GRC (2A2) (used in Transmitter, Radio T-893(P)/GRC).

(2) Amplifier-Converter AM-1955/GRC (3A1) and AM-1956(*)/GRC (3A2) (used in Receivers, Radio R-1148(P)/GRC and R-1331(P)/GRC).

b. The radiofrequency test set is inclosed in a metal cabinet which houses all the assemblies and components necessary for operation. The assemblies which comprise the test set are -

(1) Regulator assembly A1 (identical with regulator assembly 2A6 in T-893(P)/GRC).

(2) Modulator assembly A2 (identical with modulator assembly 2A5 in T-93(P)/GRC).

(3) Second intermediate frequency (IF) simulator A3.

c. Also, a number of panel meters are provided for monitoring the results of tests, switches for the application of power and various test setups, connectors and test jacks for the application of external signals and for monitoring test results, and multipin connectors for connecting the AUT's and the external power supply to the radiofrequency test set.

d. The front panel of the radiofrequency test set is divided into three discrete functional areas: amplifier-oscillator, amplifier-converter, and general purpose.

(1) The amplifier-oscillator area provides meters' for monitoring the cathode voltages, cathode currents, and plate currents of the oscillator, mixer, and amplifier circuits of the AUT units, AM-1957/GRC, and AM-1958(*)/GRC. This area also contains switches for applying and removing the high voltage supplies to the AUT, as well as for activating modulator assembly A2. Connectors are provided for connecting the AUT and the auxiliary high voltage power supply to the radiofrequency test set. Also, connectors are provided for applying test signals and for monitoring test results.

(2) The amplifier-converter area provides facilities to test AUT units, AM 1955(*)/GRC and AM-1956(*)/GRC. It contains test connectors for monitoring purposes, a switch which controls the automatic frequency control (afc) motor in the AUT, and a connector which provides the means to connect the AUT to the radiofrequency test set.

(3) The general purpose area has a meter for monitoring the status of various AUT functions. It also contains two multiposition rotary switches; one for selection of the circuit to be monitored by the meter, and the second for selecting the application of direct current (dc) power to either AUT.

e. The radiofrequency test set is used with auxiliary test equipment which provide test signals and additional monitoring facilities. The test setups and procedures for checking the associated AN/GRC-50(*) (V) assemblies are given in TM 11-5820-461-35. The functions tested by these setups are -

(1) *Amplifier-Oscillator AM-1957(*)/GRC and AM-1958(*)/GRC (2A1/2A2).* General alignment, frequency tracking, radiofrequency (RF) output, wavemeter accuracy, and duplexer alignment and insertion loss.

(2) *Amplifier-Converter AM-1955(*)/GRC and AM-1956(*)/GRC (3A1/3A2).* General alignment, frequency tracking, wavemeter accuracy, preselector alignment and insertion loss, and afc motor operation (when equipped with this motor).

1-6. Technical Characteristics

a. Current Regulator.

Oscillator current..... 83 ± 3 ma (10 to 40 vdc).
Mixer current..... 83 ± 3 ma (20 to 40 vdc).
Amplifier current..... 115 ± 4 ma (10 to 40 vdc).

b. Modulator. The modulator has an overall response as shown in figure 1-2, when its output is terminated with 100 ohms. The output is 17.0 volts root mean square (rms) minimum.

c. Power Requirements.

(1) Power required for Test Set, Radio Frequency AN/GRM-62, supplied by Power Supply PP-2054/GRC, is as follows:

105 vdc.....13 ma.
150 vdc.....10 ma
250 vdc.....54 ma.
360 vdc.....65 ma

(2) The power required for 6.3 volts alternating current (ac), supplied by the filament transformer in the AN/GRM-62, is 3.25 amperes.

d. Miscellaneous.

Operating temperature range.	50°F (10° C) to 100°F (37.8°C).
Nonoperating temperature range.	-80°F (-62°C) to 160°F (71°C).
Weight (packed)	90 lb (40.7 kg).

1-7. Components

NOTE

This listing is based on original shipment of Order No. FR-36-039-H-32182(E).

Quantity	*Item*	*Dimensions (in.)*			*Unit weight (lb.)*	*Figure No.*
		Height	*Width*	*Depth*		
1	Test set, Radio Frequency TS-2121/GRM-62.	27 (68.6 cm).	18 1/2 (47 cm).	17 1/2 (44.4 cm).	61 (27.67 kg).	1-1.
1	Cover, Test Set CW-951/GRM-62.	26 (66 cm).	1 1/2(3.8 Cm).	17 1/2 (47 cm).	5 (2.27 kg).	1-1.
1	Cable Assembly, Radio Frequency CG-344/U (4 ft 2 in.)	.....	.....	.....	.....	1-5.
2	TM 11-662-66-12 Running spares; electron tubes: 1 ea 6AH6WA 1 ea 6AN5WA 1 ea 12AT7 WA 1 ea 6146W 1 ea 6688					

1-7.1. Items Comprising an Operable Test Set, Radio Frequency AN/GRM-62 (NSN 6625-00-935-4201)

NSN	*QTY*	*Nomenclature*
6625-00-935-4191	1	Test Set, Radio Frequency TS-2121/GRM62
6625-00-935-1479	1	Cover, Test Set CW-951/GRM-63
6625-00-935-4195	1	Cable Assembly, Radio Frequency CG-3434/U (4 ft 2 in)

1-8. Description of Test Set, Radio Frequency AN/GRM-62 (fig. 1-1).

a. Test Set, Radio Frequency AN/GRM-62 consists of Test Set, Radio Frequency TS-2121/GRM-62 and minor assemblies. The TS-2121/GRM-62 is housed in a rectangular metal cabinet, the front cover (CW-951/GRM42) of which is secured with 10 captive screws. The cabinet itself can be placed on a suitable workbench or any flat surface that permits free air circulation through the bottom and top louvers. A hinged rear (lift-off) door, secured with seven quarter-turn fasteners, provides access to the cabinet interior.

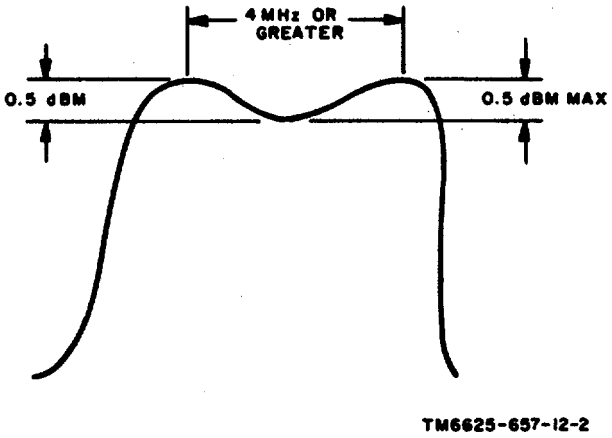

Figure 1-2. Modulator overall response.

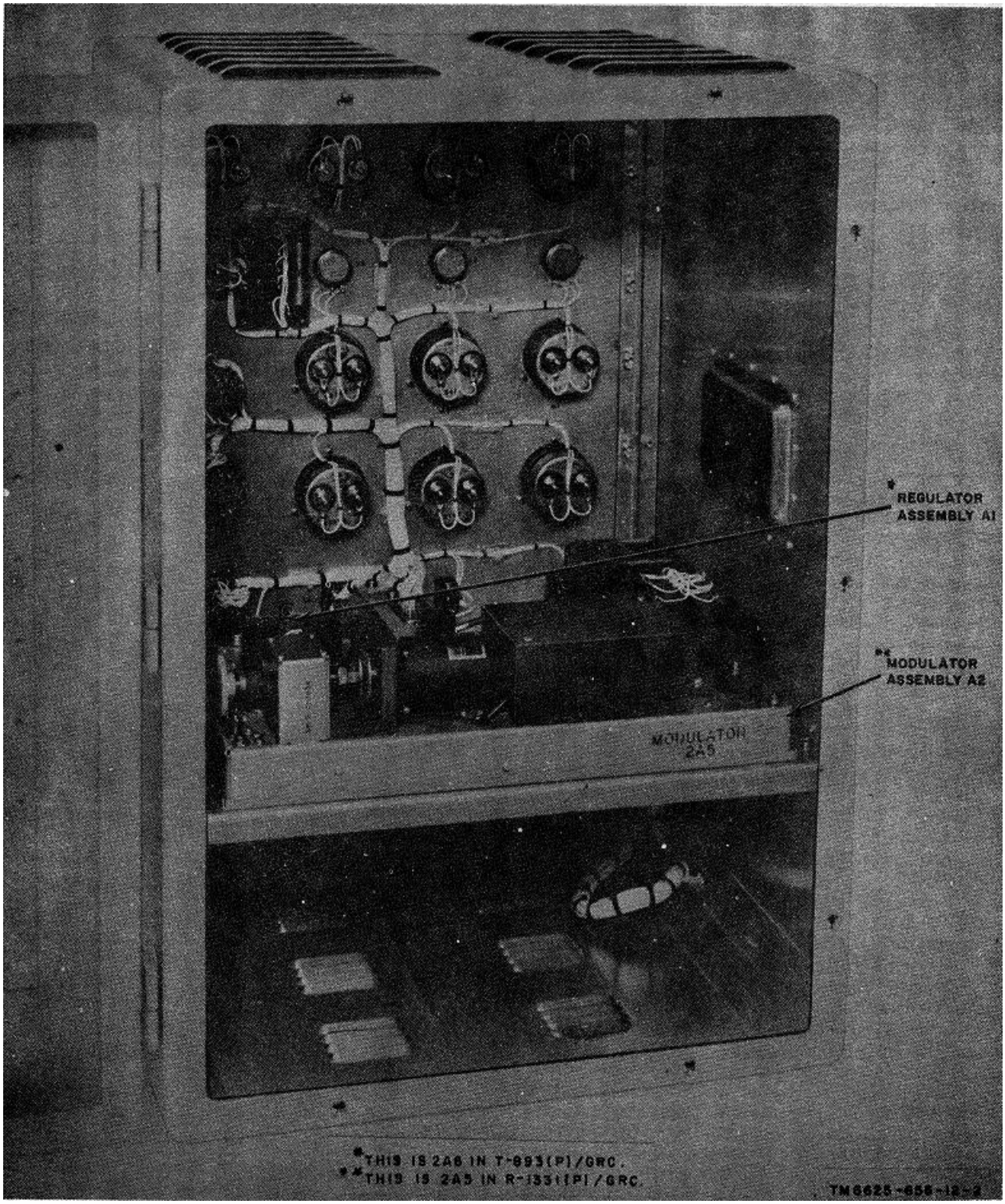

Figure 1-3. Test Set, Radio Frequency TS-2121/GRM-62, rear view.

b. Regulator assembly A1 and modulator assembly A2 are both mounted on a chassis as shown in figure 1-3. Second IF simulator assembly A3 is mounted on the lower part of the front panel. Assemblies A1 and A2 are accessible by removing the rear door, while assembly A3 is accessible! by removing the front panel (fig. 1-4).

c. Power is supplied to the radiofrequency test set by Power Supply PP-2054/GRC (part of AN/GRC-50(*) (V)). This unit provides regulated 115 volts ac plus the following dc voltage: +105, +150, +250, +360, +645, and +800. Filament voltage of 6.3 volts ac for the AUT, as well as for the assemblies within the radiofrequency test set, are supplied by two transformers in the radiofrequency test set.

1-9. Description of Minor Assemblies

One minor assembly, Cable Assembly, Radio Frequency CG-3434/U (4 ft 2 in.), is provided with the radiofrequency test set. Details of this cable are given in figure 1-5. *Its length is critical and a substitute must not be used.*

1-10. Additional Equipment Required

a. Test Equipment. The following equipment is not supplied as part of the radiofrequency test set, but is needed for the test setups to check out the associated AN/GRC-50(*) (V) assemblies.

			Assembly under test	
Nomenclature	**NSN**	**Technical manual**	**AM-1957/GRC or AM-1958(*)/GRC**	**AM-1955(*)/GRC or AM-1956(*)/GRC**
Dummy Load DA-189/GRC (part of AN/GRC-50(*)/ (V).	5820-00-892-3861	TM 11-5820-461-12	X	
Power Supply PP-2054/GRC (part of AN/GRC-50(*) (V).	5820-00-889-0857	TM 11-5820-461-12	X	X
Wattmeter AN/URM-98(*)[a]	6625-00-566-4990	TM 11-6625-433-15	X	X
Includes:				
Bolometer, RF MX-2144(*)/U[b]	6625-00-519-2414			
Test Set, RF Power TS-779(*)/U[c]	66250-00-507-3677			
Frequency Counter, Digital Readout AN/USM-207.	6625-00-911-6368	TM 11-6625-700-10	X	
Oscilloscope AN/USM-140A.	6625-00-066-2525	TM 11-6625-535-15	X	
Generator, Signal TS-452D/U[d]	6625-00-828-6410	TM 11-6625-575-15	X	
includes:				
Detector, RF DT-149/U.	6625-00-245-9616			
RF Voltmeter AN/URM-145.	6625-00-973-3986	TM 11-6625-524-14		X
20-db Attenuator, Microlab AA-20N.				
Test Facilities Kit MK-715/GRV-50(*) (V).		TM 11-5820-461-35	X	X
Generator, Signal AN/URM-159.	6625-00-903-3501	TM 11-6625-1633-12		X
The following signal generators may be used in lieu of the AN/URM-149:				
Generator, Signal AN/URM49(*)[e]	6625-00-669-5131	TM 11-6625-280-15		AM-1955(*)/GRC
Generator, Signal AN/URN-64(*)[f]	6625-00-570-5721	TM 11-6625-299-15		AM-1956(*)/GRC

[a] AN/URM-98(*) represents AN/URM-98 and AN/URM-98A.
[b] MX-2144(*)/U represents MX-2144/U, MX-2144A/U, and MX-2144B/U.
[c] TS-779(*) represents TS-779/U, TS-779A/U, and TS-779B/U.
[d] The TS-452B/U and TS-452C/U cannot be substituted for the TS-452D/U.
[e] AN/URM-49(*) represents AN/URM-49, AN/URM-49A, AN/URM-49B, and AN/URM-49C.
[f] AN/URM-64(*) represents AN/URM-64 and AN/URM-64A.

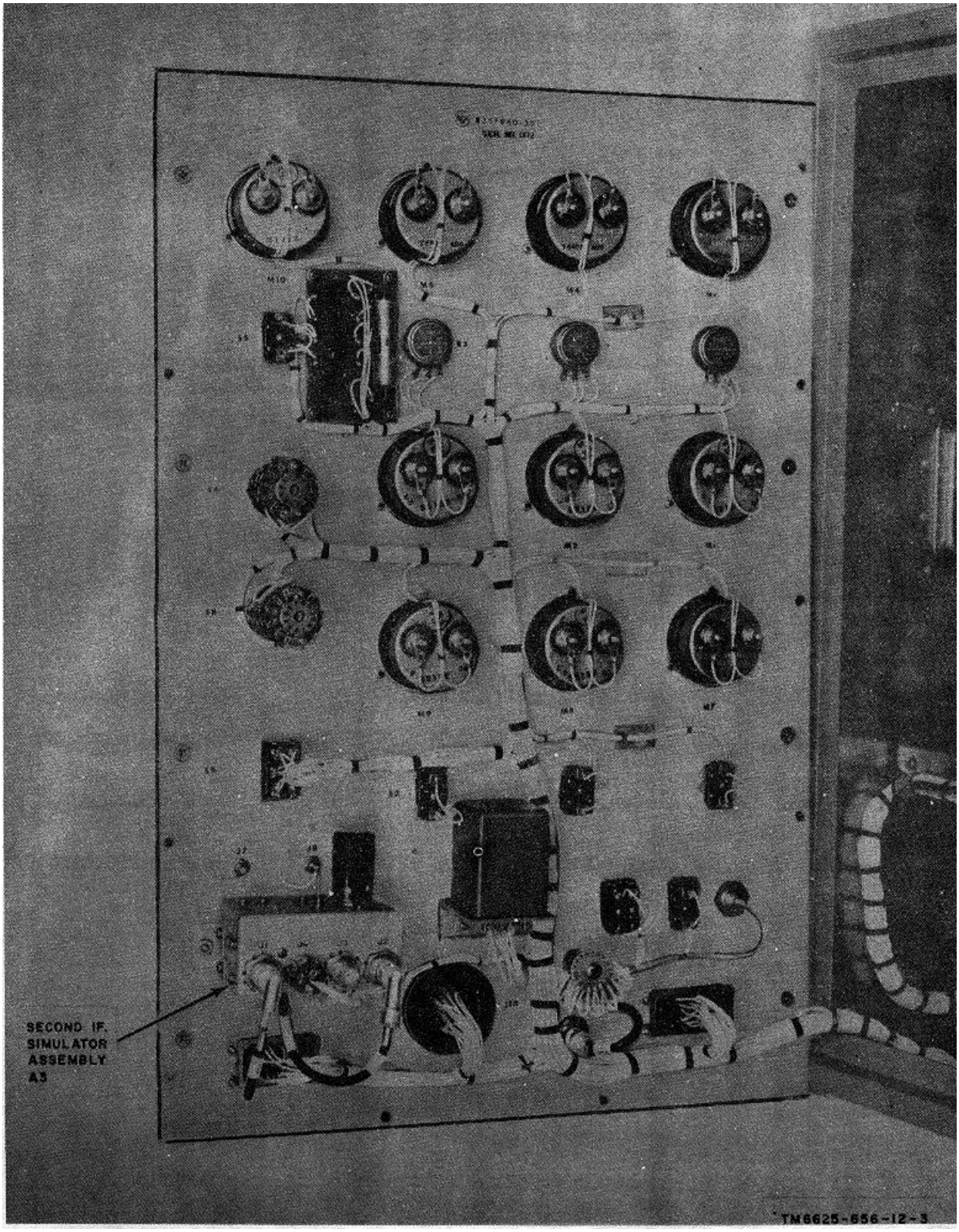

Figure 1-4. TS-2121/GRM-62, rear view of front panel.

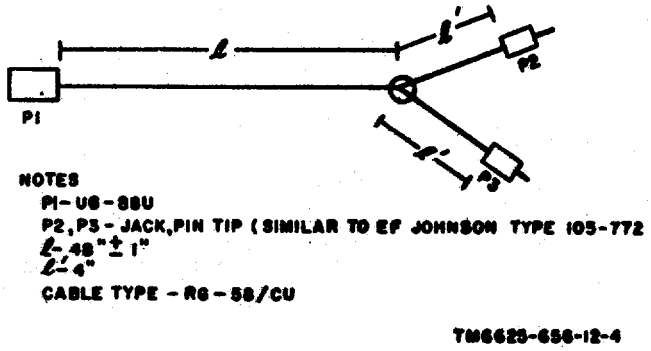

Figure 1-5. Cable Assembly, Radio Frequency CG-3434/U (4 ft 2 in.).

b. Cables and Adapters. A number of test cables and adapters are required for using the radiofrequency test set to check out the associated AN/GRC-5O(*) (V) assemblies. These items are not supplied as part of the basic issue of the radiofrequeney test set. The required cables and adapters are tabulated below.

Cable/adapter designation	Number required	NSN	Assembly under test: AM-1957/GRC or AM-1958(*)/GRC	Assembly under test: AM-1955(*)/GRC or AM-1956(*)/GRC	Notes
Test Facilities Kit MK-715/GRC650 (V), from which the following item is required:	-	6625-00-868-8335			
Extender, Module MX-6988/GRC-50(V).	1	.....	X	X	
Cable Assembly, RF CG-718B/U (6 ft).	2	5995-00-889-0853	X	.....	Part of AN/GRC-50(*)(V)
Cable Assembly, Power, Electrical CX-4558/U (3 ft, 6 in.).	1	5995-00-889-0848	X	X	Part of AN/GRC-50(*) (V)
Cable Assembly, Power, Electrical CX-4559/U (8 ft, 6 in.).	1	5995-00-889-1079	X	.....	Part of AN/GRC-50(*) (V)
Connector, Adapter U-211/G.	1	5935-00-973-0187	X	.....	Part of AN/GRC-50(*) (V)
Adapter UG-564/U (C male-to-N male).	1	5935-00-258-9891	X		
Adapter UG-635/U (BNC male-to-C female).	-	5935-00-201-8420	X	X	
Connector Adapter UG-273/U (BNC-female to-UHF male).	2	5935-00-149-3534	X	.....	Part of TS-452(*)/U and AN/GRM-63.
Adapter UG-491/U (BNC-male).	1	5935-00-681-5013	.....	X	
Adapter UG-29B/U (N-female-to-N female).		5935-00-549-1154	.....	X	
Special Adapter (N female-to-N female)[a]	1	5935-00-643-0875	.....	X	
Special Adapter (N male-to-microdot MTM female)[a]	1				

[a]Automatic Metal Products, N.Y.C., N.Y., type Z1720 adapter.

CHAPTER 2
INSTALLATION

2-1. Unpacking

a. Packing Data. When packed for shipment, the methods applied may vary as to the shipping containers used which depend on the supply source. A typical shipment box and its contents are shown in figure 2-1.

b. Dimensions. When packed for shipment, the outside dimensions of the radiofrequency test set are 34 3/4 inches (88.3 centimeters (cm)) high by 28 1/4 inches (59.1 cm) wide by 24 inches (61 cm) deep; the volume is 11.4 cubic feet (0.323 cubic meter); the packed weight is 90 pounds (40.7 kilograms (kg)).

c. Removing Contents.

(1) Cut and fold back the metal straps.

Caution:

Do not attempt to pry off the top and sides; equipment damage may result.

(2) Remove the nails from the top and one side of the box with a nailpuller. Remove the top and side.

(3) Remove the envelope that contains the manuals.

(4) Remove the outer carton that is wrapped in the waterproof barrier.

(5) Open the outer carton and remove the carton that contains the spare parts and tools.

(6) Remove the inner carton that is wrapped in a moisture-vaporproof barrier.

(7) Open the moisture-vaporproof barrier and the inner carton.

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 (para 1-3).

b. See that the equipment is complete as listed on the packing slip. If a packing slip is not available, check the equipment against the basic issue items (app. B). Report all discrepancies in accordance with TM 38-750. Shortage of a minor assembly or part that 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 310-7.

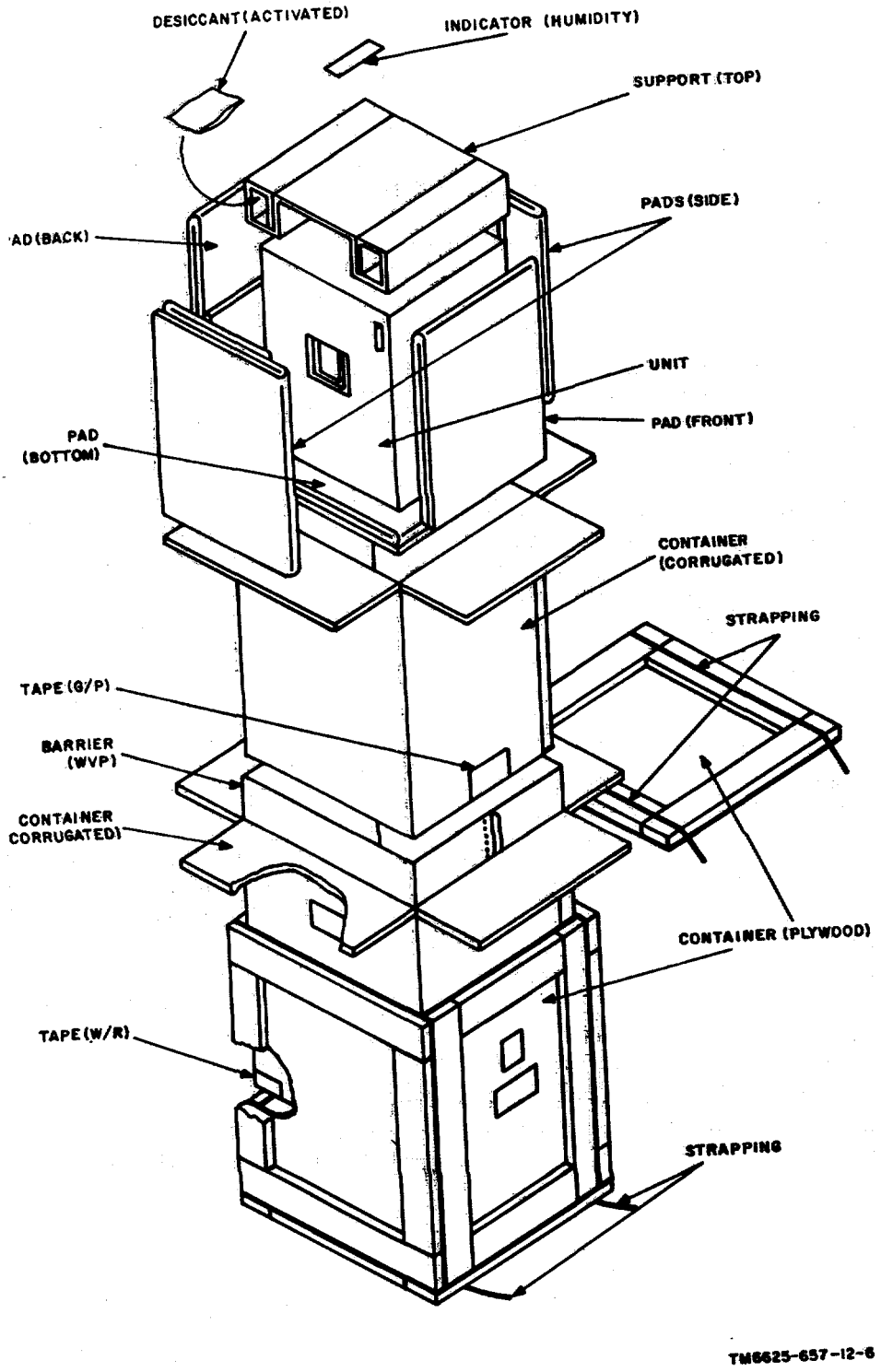

Figure 2-1. Typical packaging diagram.

CHAPTER 3
OPERATING INSTRUCTIONS

Section I. OPERATOR'S CONTROLS AND INDICATORS

Note.

This section covers only items used by the operator; items used by maintenance personnel are covered in instructions for the appropriate maintenance category.

3-1. Placement of Equipment

The following precaution should be taken before operating the radiofrequency test set. The unit must be mounted on a suitable workbench or any solid flat surface. The top and bottom covers must be free of all obstructions which would impede or block the flow of air. Proper cooling of the radiofrequency test set requires the circulation of air through the cabinet.

3-2. Controls and Indicators (fig. 3-1)

The operating controls, indicators, and connectors are listed in the charts below. Throughout this manual the AN/GRM-50(*) (V) *assembly under test* is referred to as *AUT*.

Paragraph	Chart
3-3	Amplifier-oscillator are controls, indicators, connectors, and receptacles.
3-4	Amplifier-converter area controls, connectors, and receptacles.
3-5	General purpose area controls and indicator.

3-3. Amplifier-Oscillator Controls, Indicators, Connectors, and Receptacles

Control or indicator	Sw pos	Function
OSCILLATOR meter group:		
CATHODE VOLTAGE		Indicates AUT oscillator circuit cathode voltage.
CATHODE CURRENT		Indicates AUT oscillator circuit cathode current.
PLATE CURRENT		Indicates AUT oscillator circuit plate current.
MIXER meter group:		
CATHODE VOLTAGE		Indicates AUT mixer circuit cathode voltage.
CATHODE CURRENT		Indicates AUT mixer circuit cathode current.
PLATE CURRENT		Indicates AUT mixer circuit plate current.
AMPLIFIER meter group:		
CATHODE VOLTAGE		Indicates AUT amplifier circuit cathode voltage.
CATHODE CURRENT		Indicates AUT amplifier circuit cathode current.
PLATE CURRENT		Indicates AUT amplifier circuit plate current.
OSCILLATOR LEVEL control		Adjusts level of current drawn by AUT oscillator circuit.
MIXER LEVEL control		Adjusts level of current drawn by AUT mixer circuit.
AMPLIFIER LEVEL control		Adjusts level of current drawn by AUT amplifier circuit.
	Sw pos	**Function**
OSCILLATOR HIGH VOLTAGE switch	ON	Connects high voltage to AUT oscillator circuit.
	OFF	Disconnects high voltage.
MIXER HIGH VOLTAGE switch	ON	Connects high voltage to AUT mixer circuit.

Control or indicator	Function	
	Sw pos	**Function**
AMPLIFIER HIGH VOLTAGE switch	OFF	Disconnects high voltage.
	ON	Connects high voltage to AUT amplifier circuit.
	OFF	Disconnects high voltage.
MODULATOR SWEEP INPUT connector	Connects output of an external sweep generator signal to modulator A2 amplifier circuit.	
	Function	**Sw pos**
MODULATOR OSCILLATOR switch	ON	Connects 105 vdc to oscillator circuit in modulator A2.
	OFF	Disconnects this voltage supply.
MODULATOR POWER OUT switch	ON	Connects +250 vdc and +360 vdc to modulator A2.
	OFF	Disconnects these voltages.
RF SAMPLE connector	Provides a sample of amplifier-oscillator AUT power amplifier output.	
AMPLIFIER-OSCILLATOR (2A1/2A2) receptacle	Connects, by means of MX-6988/GRC-50(V), amplifier-oscillator AUT to radiofrequency test set.	
XMTR POWER SUPPLY receptacle	Connects, by means of CX-4588/U, external transmitter power supply (PP-2054/GRC) to the radio frequency test set	

3-4. Amplifier-Converter Controls, Connectors, and Receptacle

Control or indicator	Function	
	Sw pos	**Function**
AFC MOTOR switch	CCW	Activates AUT afc motor (when applicable) counterclockwise.
	OFF	Deactivates AUT afc motor.
	CW	Activates AUT afc motor clockwise.
CRYSTAL CURRENT test connectors	Monitors operation of AUT crystal current circuits.	
60 MHz OUTPUT connector	Output of second IF simulator assembly A3.	
AMPLIFIER-CONVERTER (3A1/3A2) receptacle.	Connects, by means of MX-6988/GRC-50(V), amplifier-converter AUT to radiofrequency test set.	

3-5. General Purpose Controls and Indicator

Control or indicator	Function	
GENERAL PURPOSE meter	Indicates condition of various AUT functions as selected by METER SELECT switch.	
METER SHUNT switch	In ON position, adds shunt to meter to provide on-scale meter indications.	
METER SELECT switch	Selects AUT functions for indication on GENERAL PURPOSE meter.	
	Sw pos	**Function**
	OFF	Disconnects GENERAL PURPOSE meter.
	MAIN TUNE[a]	Connects GENERAL PURPOSE meter to wavemeter when tuning for main tune frequency.

Control or indicator		Function
	AMPLIFIER[a]	Connects GENERAL PURPOSE meter to AUT wavemeter when tuning for output frequency.
	FORWARD POWER[a]	Connects GENERAL PURPOSE meter to AUT directional coupler.
	REFLECTED POWER[a]	Connects GENERAL PURPOSE meter to AUT directional coupler.
	RCVR OSC[b]	Connects GENERAL PURPOSE meter to AUT wavemeter output.
	CRYSTAL[a]	Connects GENERAL PURPOSE meter to CRYSTAL CURRENT test connectors J7 and J8.
DC POWER switch	AMPLIFIER-OSCILLATOR[a]	Applies ac and dc supply voltages to AUT connected to J5.
	OFF	Removes ac and dc supply voltages from AUT.
	AMPLIFIER-CONVERTER[b]	Applies ac and dc supply voltages to AUT connected to J9.

[a]For these switch positions, the AUT is the AM-1957/GRC or AM-1958(*)/GRC
[b]For these switch positions, the AUT is the AM-1955(*)/GRC or AM-1956(*)/GRC.

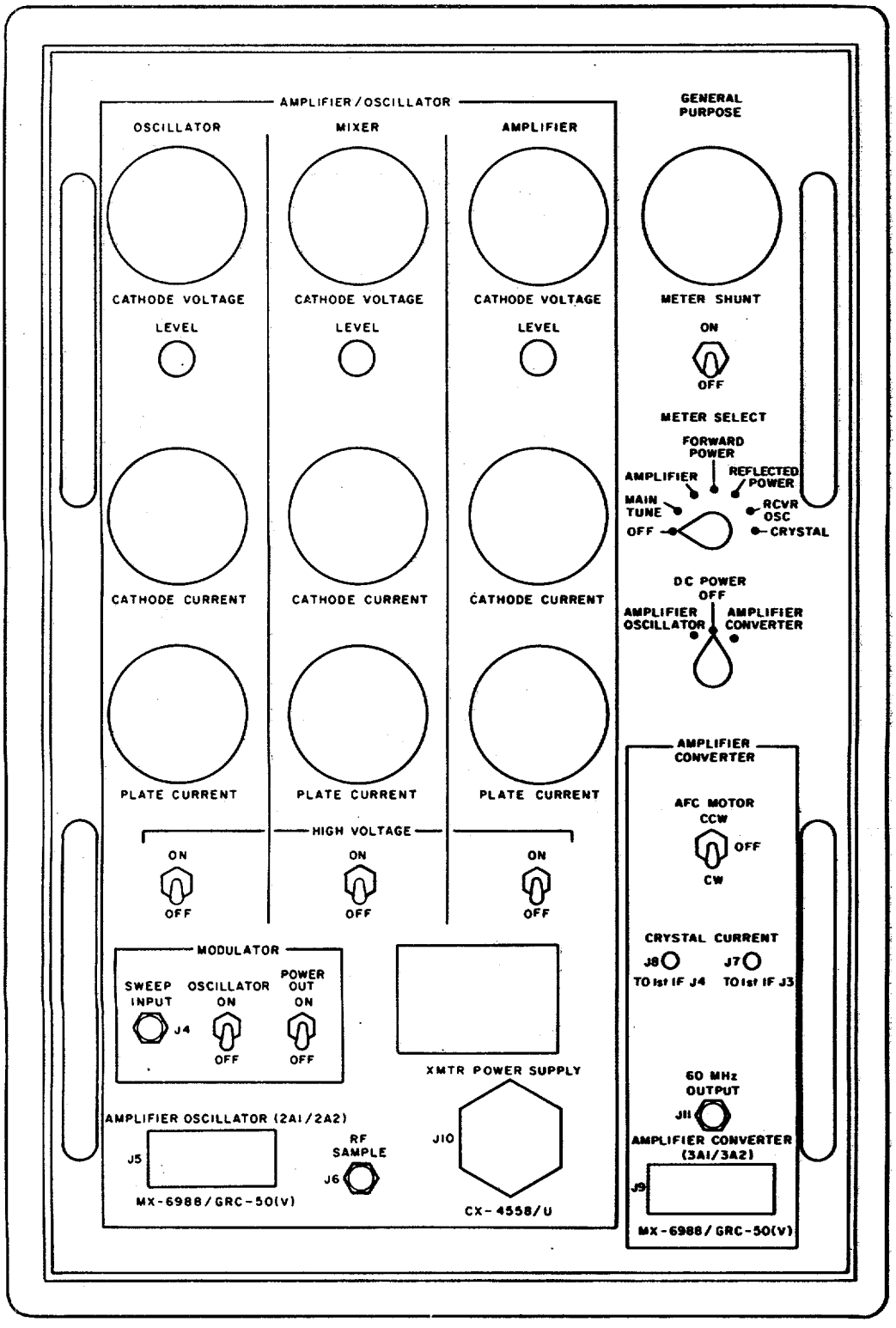

Figure 3-1. Test Set, Radio Frequency TS-2121/GRM-62, front view showing operator controls and indicators.

Section II. OPERATION UNDER USUAL CONDITIONS

3-6. Types of Operation

a. Test Set, Radio Frequency AN/GRM-62, when used with additional test equipment (para 1-10), permits the operator to check the alignment, performance, and operation, and to troubleshoot the following components of Radio Set AN/GRC-50(*) (V):

(1) Amplifier-Oscillator AM-1957/GRC (assembly 2A1) and AM-1958(*)/GRC (assembly 2A2).

(2) Amplifier-Converter 1955 (*)/AM-GRC (assembly 3A1) and AM-9156/GRC (assembly 3A2).

b. For any type of operation, perform the following procedures:

(1) Preliminary starting procedure (para 3-7).

(2) Starting procedure (para 3-8).

(3) Operating procedures (para 3-9 and 3-10).

(4) Stopping procedure (para 3-11).

3-7. Preliminary Starting Procedure

a. Check to see that the top and bottom louvers are free of obstruction.

b. Remove the front cover by unscrewing the 10 captive screws.

c. Set the following switches to the OFF position: METER SELECT, DC POWER, AFC MOTOR, HIGH VOLTAGE (three switches), MODULATOR OSCILLATOR, and MODULATOR POWER OUT.

d. Release the seven quarter-turn fasteners on the rear hinged door and swing it open.

e. Remove the CG-3434/U (4 ft 2 in.) from the inside of the rear door and refasten the door.

3-8. Starting Procedure

a. Insert the MX-6988/GRC-50(V) (part of MK-715/GRC-50(V)) into either J5 or J9 as required for the AUT being tested. Connect the AUT to other end of the MX-6988/GRC-50(V).

Note.

If testing either the AM-1957/GRC or the AM-1958(*)/GRC, make sure that the fan is mounted on the AUT chassis and is connected to the terminal box on the MX-6988/GRC-50(V).

b. Connect Power Supply PP-2054/GRC to J10 with the CX-4558/U.

c. Connect Power Supply PP-2054/GRC to an ac source with the CX-4559/U and Connector, Adapter UG-211/U; activate the power supply by setting the AC POWER switch to ON and OPERATE-STANDBY switch to OPERATE.

d. On the PP-2054/GRC, the FIL lamp will light; approximately 75 seconds later, the LV and HV lamps will light. Allow the equipment to warm up for 30 minutes before proceeding with the tests.

3-9. Testing Amplifier-Oscillator AM-1957/GRC (2A1) and AM-1958(*)/GRC (2A2)

a. Start the equipment as indicated in paragraph 3-8.

b. Set the DC POWER switch to the AMPLIFIER-OSCILLATOR position.

c. Refer to TM 11-5820-461-35 for the procedure on checking the AM-1957/GRC and AM-1958(*)/GRC with the radiofrequency test set.

3-10. Testing Amplifier-Converter AM-1955(*)/GRC (3A1) and AM-1956(*)/GRC (3A2)

a. Start the equipment as indicated in paragraph 3-8.

b. Set the DC POWER switch to the AMPLIFIER-CONVERTER position.

c. Refer to TM 11-5820-461-35 for the procedure on checking the AM-1955 (*)/GRC and AM-1956(*)/GRC with the radiofrequency test set.

3-11. Stopping Procedure

a. Set the DC POWER switch to OFF position.

b. Set all switches on additional test equipment to OFF position.

c. Remove all cables from the front panel connectors and receptacles.

d. Remove the ac power from the PP-2054/GRC.

CHAPTER 4
MAINTENANCE INSTRUCTIONS

Section I. GENERAL

NOTE

Do not apply torque to check bolts, screws, or nuts for tightness. Do not replace tubes; higher maintenance category is required for tube replacement.

4-1. Scope of Maintenance

The maintenance duties assigned to the operator and organizational maintenance man of Test Set, Radio Frequency AN/GRM-62 are listed below together with reference to the paragraphs covering the specific maintenance functions. These duties do not require special tools or test equipment.

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

b. Weekly preventive maintenance checks and services (para 4-5).

c. Monthly preventive maintenance checks and services (para 4-7).

d. Quarterly preventive maintenance checks and services chart (para 4-8).

e. Cleaning (para 4-6).

f. Touchup painting instructions (para 4-9).

g. Troubleshooting (para 4-10).

4-2. 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 4-3 through 4-7 cover routine systematic care and cleaning essential to proper upkeep and operation of the equipment.

b. Preventive Maintenance Checks and Services. The preventive maintenance checks and services charts (paras 4-4, 4-5, 4-7, and 4-8) outline functions to be performed at specific intervals. 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 charts indicate what to check, how to check, and what the normal conditions are. The *Reference column* lists the illustrations, paragraphs, or manuals that contain detailed repair or replacement procedures. If the defect cannot be remedied by performing the corrective action indicated, a higher maintenance or repair category is required. Records and reports of these checks and services must be made in accordance with the requirements set forth in TM 38-750.

4-3. Preventive Maintenance Checks and Services Periods.

Preventive maintenance checks and services of the radiofrequency test set are required daily, weekly, monthly, and quarterly.

a. Paragraph 4-4 specifies checks and services that must be accomplished daily and under the special conditions listed below.

(1) When the equipment is initially installed.

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

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

b. Paragraphs 4-5, 4-7, and 4-8 specify additional checks and services that must be performed on a weekly, monthly, and quarterly basis respectively.

c. Since Test Set, Radio Frequency AN/GRM-62 does not have indicator lamps, fuses, or a self-contained power supply, the maintenance checks and services at this maintenance category are confined to mechanical checks.

Section II. OPERATOR'S MAINTENANCE

4-4. Daily Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	Completeness	See that the equipment is complete.	Para 1-7.
2	Cleanliness	See that the equipment is clean.	Para 4-6.
3	Connectors	Check tightness of all connectors.	
4	Meter glasses	Check all meter glasses for cracks	
5	Controls	Observe that the mechanical action of each knob, dial, and switch is smooth and free of external or internal binding and no excessive play is apparent.	

4-5. Weekly Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	Cables	Inspect external cords, cable, and wires for chafed, cracked, or frayed insulation. Replace connectors that are broken, arced, stripped, or worn excessively.	
2	Handles and latches	Inspect handles, latches, and hinges for looseness. Replace or tighten as necessary.	

4-6. Cleaning

Inspect the exterior surfaces of the radiofrequency test set. The exterior surfaces should be clean and free of dust, 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 cases; use a cloth dampened (not wet) with cleaning compound.

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

CAUTION

Do not push on the meter face (glass) when cleaning; the meter may become damaged.

d. Clean the front panels, meters, and control knobs; use a soft, clean cloth If dirt is difficult to remove, dampen the cloth with water, use mild soap if necessary.

Section III. ORGANIZATIONAL MAINTENANCE

4-7. Monthly Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	Pluckout items	Inspect clamps, connectors, and adapters for proper seating. Check for bent, or broken parts.	

Sequence No.	Item to be inspected	Procedure	References
2	Hardware	See that all bolts, nuts, and washers are present and properly tightened.	
3	Connectors	Check to be sure that jacks, connectors, and adapters fit snugly and make good contact.	
4	Transformer terminals	Inspect the terminals on filament transformer. All nuts must be tight. No dirt or corrosion should be evident.	
5	Records	If equipment records and logbooks are set up for the equipment, inspect them to see that they are properly filled out and are up to date.	TM 38-750.
6	Exterior surfaces	Inspect exposed metal surfaces for rust, corrosion, and bare metal areas. Clean and touch up paint as required.	Para 4-9.

4-8. 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	Check DA Pam 310-7 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.	TM 38-750 and DAPam 310-7.
3	Spare parts	Check all spare parts for general condition and method of storage. There should be no evidence of overstock, and all shortages must be on valid requisitions.	App. B.

4-9. Touchup Painting Instructions

Remove rust and corrosion from metal surfaces by lightly sanding them with fine sandpaper. Brush two thin coats of paint on the bare metal to protect it from further corrosion. Refer to the applicable cleaning and refinishing practices specified in TM 9-213.

4-10. General Troubleshooting Information

Troubleshooting by the operator is based on operational check out of the radiofrequency test set. Since Test Set, Radio Frequency AN/GRC-62 cannot be operationally tested at this maintenance category (without the use of AUT and additional test equipment), troubleshooting by the operator is not possible. Therefore, troubleshooting of the radiofrequency test set is accomplished, at the depot level as described in TM 11-6625-656-50.

4-11. Cable Repair

Use electrical insulation tape to temporarily repair all breaks, cuts, kinks, deterioration, strain, and fraying of cables until non-defective replacement cables are available. To repair or replace RF cable connectors, follow the procedure shown in figure 4-1.

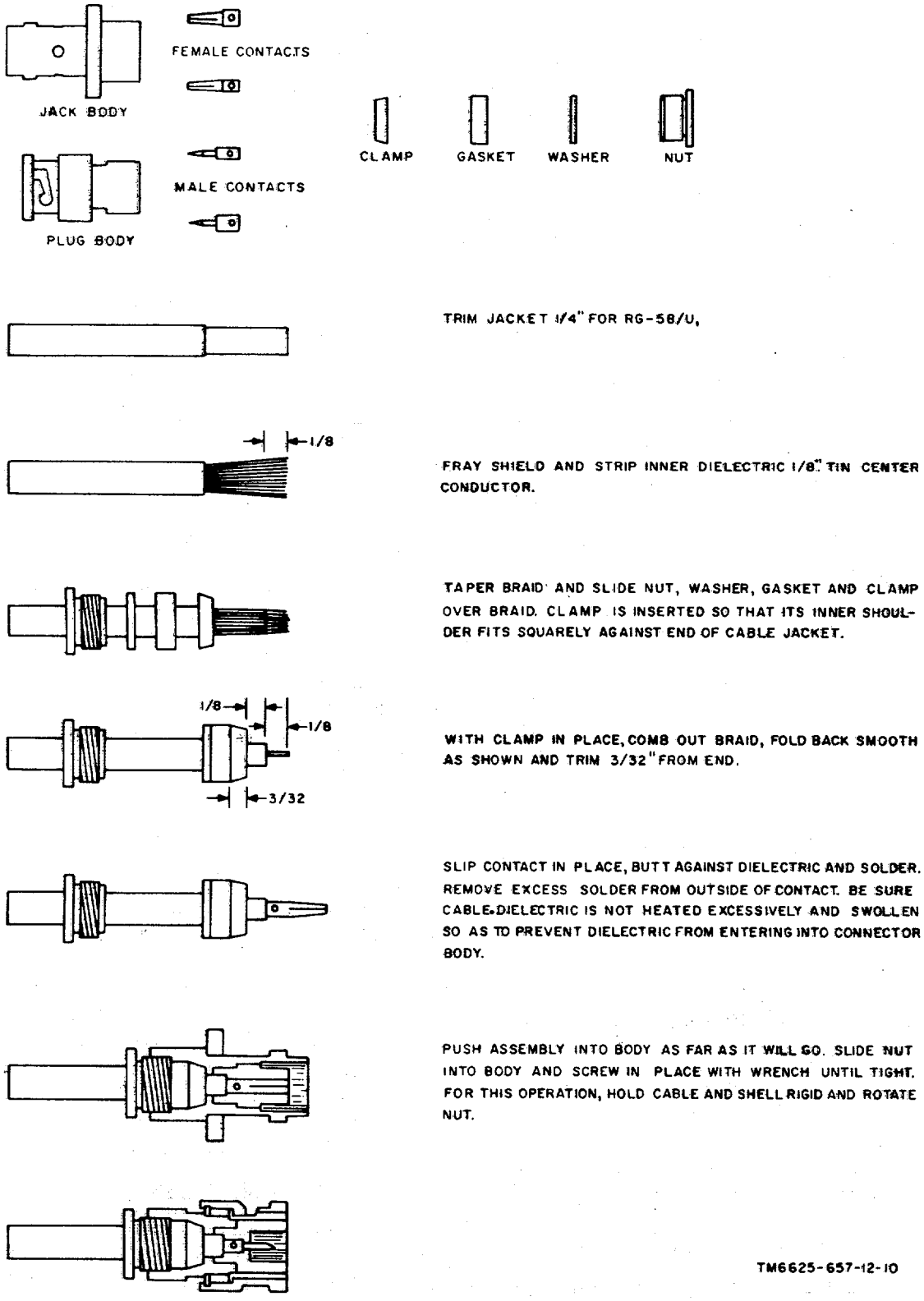

Figure 4-1. RF connector repair or replacement.

CHAPTER 5
SHIPMENT, LIMITED STORAGE, AND DEMOLITION TO PREVENT ENEMY USE

Section I. SHIPMENT AND LIMITED STORAGE

5-1. Disassembly of Equipment

To disassemble Test Set, Radio Frequency AN/GRM-62 proceed as follows:

a. Perform the stopping procedure (para 3-11).

b. Release the rear door quarter-turn fasteners.

c. Store the CX-3434/U (4 ft 2 in.) in the rear door; refasten the cover with the seven quarter-turn fasteners.

d. Replace the front cover and secure with the 10 captive screws.

e. Store all components of Test Facilities Kit MK-715/GRC-50(V) in the test facilities kit case.

5-2. Repacking for Shipment or Limited Storage (fig. 2-1)

The exact procedure for repacking depends on the material available and the conditions under which the equipment are to be shipped or stored. Adapt the procedures outlined below whenever circumstances permit. The information concerning the original packaging (para 2-1) will also be helpful.

a. Material Requirements. The following materials are required for packaging the radiofrequency test set. For stock number of materials, consult SB 38-100.

Material	Quantity
Waterproof wrapping paper.	12 sq ft (1.1 sq meter).
Paperboard wrapping cushioning.	14 sq ft (1.3 sq meter).
Waterproof pressure-sensitive adhesive tape (3 in. wide).	16 ft (4.9 meters)
Gummed paper tape (3 in. wide).	15 ft (4.6 meters)

b. Packaging. Package the items of the radiofrequency test set as outlined below.

(1) *Technical manuals*. Package the technical manuals within a close-fitting bag fabricated of waterproof wrapping paper. Seal the bag securely with waterproof pressure-sensitive tape.

(2) *Running spares.* Wrap each item with paperboard wrapping cushioning. Secure the cushioning with gummed paper tape.

(3) *Test Set, Radio Frequency AN/GRM-62.* Place the items packaged in (2) above within the space provided in the metal cabinet. Close and secure the lid. Cushion the case by wrapping it with paperboard wrapping cushioning. Secure the cushioning with gummed paper tape. Overwrap the cushioned case with waterproof wrapping paper.

c. Packing (fig. 2-1).

(1) Plate the radiofrequency test set in a wooden box (where required).

(2) Place the packaged technical manuals on top of the radiofrequency test set.

(3) Nail down the lid of the wooden box.

(4) Strap the nailed wooden box only when it is to be shipped overseas.

(5) Mark the box as prescribed in MIL-STD-129B.

Section II. DEMOLITION OF MATERIEL TO PREVENT ENEMY USE

5-3. Authority for Demolition

The demolition procedures given in paragraph 5-4 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.

5-4. Methods of Destruction

The tactical situation and time available will determine the method to be used when destruction of equipment is ordered. In most cases, it is preferable to demolish completely some portions of the equipment rather than partially destroy all the equipment units.

a. Smash. Use sledges, axes, hammers, crowbars, or any other heavy tools available to smash the interior units of the set.

(1) Use the heaviest tools on hand to smash the connectors, meters, knobs, and dials.

Note.

Heavy tools will effectively destroy the external parts mentioned in (1) above, but the remainder of the exposed surfaces of the equipment are constructed of heavy aluminum; attempts to damage it by smashing will be useless.

(2) Remove the panel from the cabinet. With a heavy hammer or bar, smash as many of the exposed parts of the various chassis as possible.

b. Cut. Use axes, handaxes, machetes, and similar tools to cut cabling, cording, and wiring. Cut all cord and cables in a number of places.

Warning:

Be extremely careful with explosives and incendiary devices. Use the items only where the need is urgent.

c. Burn. Burn the technical manuals first. Burn as much of the equipment as is flammable; use gasoline, oil, flamethrowers, and similar materials. Pour gasoline on the cut cables and internal wiring and ignite it. Use a flamethrower to burn spare parts or pour gasoline on the spares and ignite them. Use incendiary grenades to complete the destruction of the unit.

d. Explode. Use explosives to complete demolition or to cause maximum damage, before burning, when time does not permit complete demolition by other means. Powder charges, fragmentation grenades, or incendiary grenades may be used. Incendiary grenades usually are most effective if destruction of small parts and wiring is desired.

(1) Use a fragmentation grenade to destroy the interior of the radiofrequency test set. Open the rear door of the case and drop the grenade into the interior.

(2) For quick destruction of the radiofrequency test set, place an incendiary grenade on top of the unit. Get away from the unit after the grenade is placed.

e. Dispose. Bury or scatter destroyed parts or throw them in nearby waterways. This is particularly important if a number of parts have not been completely destroyed.

APPENDIX A
REFERENCES

Following is a list of applicable references available to the operator and organizational repairman of Test Set, Radio Frequency AN/GRM-62.

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins and Lubrication Orders
DA Pam 310-7	Index of Modification Work Orders
MIL-STD-129B	Marking for Shipment and Storage
SB 11-573	Painting and Preservation Supplies Available for Field Use for Electronic Command Equipment
SB 38-100	Preservation, Packaging, and Packing Materials, Supplies, and Equipment used by the Army
TM 9-213	Painting Instructions for Field Use
TM 11-5820-461-12	Organizational Maintenance Manual: Radio Sets AN/GRC-50(V)1, 2, 3, 4, and 5 and Radio Sets AN/GRC-50A(V)1, 2, 3, 4, and 5
TM 11-5820-461-35	DS, GS, and Depot Maintenance Manual: Radio Sets AN/GRC-50(V)1, 2, 3, 4, and 5 Radio Sets AN/GRC-50A(V)1, 2, 3, 4, 5, 6, and 7; and Test Facilities Kit MK-715/GRC-50(V)
TM 11-6625-280-15	Organizational, Field and Depot Maintenance Manual: Signal Generators AN/URM-49, AN/URM-49A, AN/URM-49B, and AN/URM-49C
TM 11-6625-575-15	Operator, Organizational, Field and Depot Maintenance Manual: Signal Generator TS-452/U
TM 11-6625-299-15	Operator, Organizational, Field and Depot Maintenance Manual; Signal Generators AN/URM-64 and AN/URM-64A
TM 11-6625-433-15	Organizational, DS, GS, and Depot Maintenance Manual: Wattmeter AN/URM-98 and AN/URM-98A
TM 11-6625-524-14	Operator, Organizational, and Field Maintenance Manual: Voltmeter, Electronic AN/URM-145
TM 11-6625-535-15	Organizational, DS, GS, and Depot Maintenance Manual: Oscilloscope AN/USM-140A
TM 11-6625-656-50	Depot Maintenance Manual: Test Set, :Radio Frequency AN/GRM-62
TM 11-6625-700-10	Operator's Manual: Digital Readout, Frequency Counter AN/USM-207
TM 38-750	Army Equipment Record Procedures
TM 11-6625-1633-12	Organizational Maintenance Manual: Generator, Signal AN/URM-149

APPENDIX B

DELETED

APPENDIX C
MAINTENANCE ALLOCATION

Section I. INTRODUCTION

C-1. General

This appendix provides a summary of the maintenance operations for AN/GRM-62. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

C-2. Maintenance Function

Maintenance functions will be limited to and defined as follows:

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

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

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

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

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

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

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

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

i. Repair. The application of maintenance services (inspect, test, service, adjust, align, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system. This function does not include the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.

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

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

C-3. Column Entries

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

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

c. Column 3, Maintenance Functions. Column 3 lists the functions to be performed on the item listed in column 2. When items are listed without maintenance functions, it is solely for purpose of having the group numbers in the MAC and RPSTL coincide.

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

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

e. Column 5, Tools and Equipment. Column 5 specifies by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function.

f. Column 6, Remarks. Column 6 contains an alphabetic code which leads to the remark in section IV, Remarks, which is pertinent to the item opposite the particular code.

C-4. Tool and Test Equipment Requirements (Sect. III)

a. Tool or Test Equipment Reference Code. 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 or test equipment for the maintenance functions.

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

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

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

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

C-5. Remarks (Sect. IV)

a. Reference Code. This code refers to the appropriate item in section II, column 6.

b. Remarks. This column provides the required explanatory information necessary to clarify items appearing in section II.

(Next printed page is C-3)

SECTION II MAINTENANCE ALLOCATION CHART
FOR
TEST SET, RADIO FREQUENCY AN/GRM-62

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT.	(6) REMARKS
			C	O	F	H	D		
00	TEST SET RADIO AN/GRM-62 (1)	Inspect	0.1						
		Test					1.5	1 thru 13	
		Repair		0.4				16	A
		Repair					1.0	14,15	
		Align					1.5	13,14,15	
		Overhaul					3.0	1 thru 15	
01	Test Set, Radio Frequency TS-2121/GRM-62								
0101	Regulator Assembly (1A1)	Replace					0.75	14,15	
		Repair					0.5	14,15	
0102	Regulator Assembly (1A2)	Replace					0.5		
		Repair		0.2				16	B
		Repair					0.75	14,15	
0103	Front Panel Assembly	Repair					0.5	14,15	
010301	Second IF Simulator Assembly (1A3)	Replace					0.5	14,15	
		Repair					0.75	14,15	

SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS FOR TEST SET, RADIO FREQUENCY AN/GRM-62

Tool or Test Equipment Ref Code	Maintenance Category	Nomenclature	National/NATO Stock Number	Tool Number
1	D	POWER SUPPLY PP-3735/U	6625-00-635-7991	
2	D	TEST SET, METER TS-682/GSM-1	6625-00-669-0747	
3	D	MULTIMETER TS-352B/U	6625-00-553-0142	
4	D	COUNTERS, ELECTRONIC, DIGITAL READOUT AN/USM-207A	6625-00-044-3228	
5	D	GENERATOR, SIGNAL TS-452D/U	6625-00-828-6410	
6	D	TEST FACILITIES KIT MK-715( )/GRC-50	6625-00-868-8335	
7	D	LOAD, AMPLIFIER/OSCILLATOR		
8	D	POWER SUPPLY PP-2054/GRC	5820-00-889-0857	
9	D	GENERATOR, SIGNAL AN/USM-44A	6625-00-539-9685	
10	D	VOLTMETER, ELECTRONIC AN/URM-145	6625-00-973-3986	
11	D	TEST SET, INTERMEDIATE FREQUENCY AN/GRM-63	6625-00-089-4653	
12	D	MULTIMETER ME-26D/U	6625-00-913-9781	
13	D	TEST SET, ELECTRON TUBE TV-2/U	6625-00-669-0263	
14	D	TOOL KIT, ELECTRONIC EQUIPMENT TK-100/G	5180-00-605-0079	
15	D	TOOL KIT, ELECTRONIC EQUIPMENT TK-105/G	5180-00-610-8177	
16	D	TOOL KIT, ELECTRONIC EQUIPMENT TK-101/G	5180-00-064-5178	

SECTION IV. REMARKS
TEST SET, RADIO FREQUENCY AN/GRM-62

Reference Code	Remarks
A	By replacement of knobs and RF Cable Assembly CG-3434/U's.
B	By replacement of electron tubes.

APPENDIX D

DELETED

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 12-51 requirements for depot maintenance applicable to AN/GRC-50.

☆ U.S. GOVERNMENT PRINTING OFFICE : 1991 0 - 281-486 (42690)

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

THEN...JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL.

SOMETHING WRONG WITH PUBLICATION

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE

BE EXACT PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.

IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT.

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER	SIGN HERE

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE.

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 decagram = 10 grams = .35 ounce
1 hectogram = 10 decagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

PIN: 020982-000