

TECHNICAL MANUAL

EQUIPMENT
DESCRIPTION
PAGE 1-3

OPERATOR'S, ORGANIZATIONAL,
DIRECT SUPPORT, AND GENERAL
SUPPORT MAINTENANCE MANUAL

DESCRIPTION &
USE OF CONTROLS,
INDICATORS, &
CONNECTORS PAGE 2-1

OPERATOR
PMCS
PAGE 2-4

OPERATION UNDER
USUAL CONDITIONS
PAGE 2-7

ORGANIZATIONAL
MAINTENANCE
PAGE 4-1

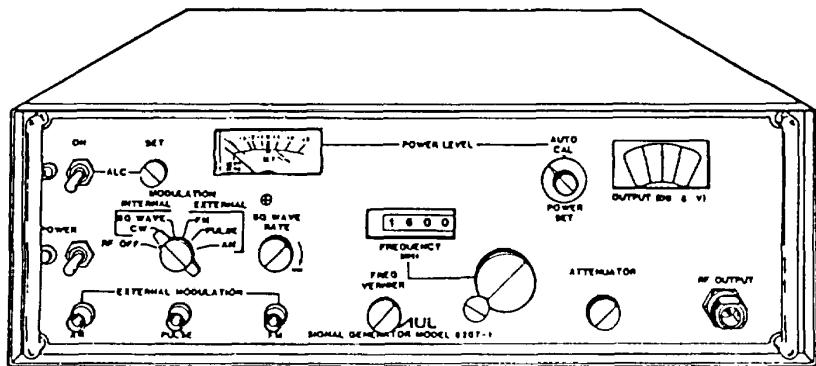
PRINCIPLES OF
OPERATION
PAGE 6-1

GENERAL SUPPORT
ELECTRICAL CHECK
PROCEDURE
PAGE 6-13

GENERAL SUPPORT
ALIGNMENT
PROCEDURE
PAGE 6-27

GENERAL SUPPORT
TROUBLESHOOTING
PAGE 6-47

MAINTENANCE
ALLOCATION CHART
PAGE D-1



**SIGNAL GENERATOR
AN/USM-213B
(NSN 6625-00-872-3215)**

HEADQUARTERS, DEPARTMENT OF THE ARMY
WASHINGTON, DC
26 DECEMBER 1985

TECHNICAL MANUAL
No. 11-6625-3053-14

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 26 December 1985

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT AND
GENERAL SUPPORT MAINTENANCE MANUAL
SIGNAL GENERATOR AN/USM-213B
(NSN 6625-00-872-3215)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS You can help improve this manual. If you find any mistakes or if you know a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual direct to: Headquarters, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-ME-MP, Fort Monmouth, New Jersey 07703-5007. A reply will be furnished to you.

TABLE OF CONTENTS

		PAGE
CHAPTER	1 HOW TO USE THIS MANUAL.....	v
Section	I INTRODUCTION	1-1
	II General Information.....	1-1
	III Equipment Description	1-3
	III Principles of Operation.....	1-8
CHAPTER	2 OPERATING INSTRUCTIONS	2-1
Section	I Description and Use of Controls, Indicators and Connectors	2-1
	II Operator Preventive Maintenance Checks and Services (Operator PMCS)	2-4
	III Operation Under Usual Conditions	2-7
	IV Operation Under Unusual Conditions	2-16
CHAPTER	3 OPERATOR MAINTENANCE.....	3-1
CHAPTER	4 ORGANIZATIONAL MAINTENANCE	4-1
Section	I Repair Parts, Special Tools, Test Measurement and Diagnostic Equipment (TMDE); and Support Equipment.....	4-1
	II Service Upon Receipt	4-1
	III Preventive Maintenance Checks and Services, Troubleshooting, and Maintenance.....	4-2
CHAPTER	5 DIRECT SUPPORT MAINTENANCE.....	5-1

TABLE OF CONTENTS (CONT.)

CHAPTER	Section	Page	
	6	GENERAL SUPPORT MAINTENANCE	6-1
APPENDIX	A	REFERENCES	A-1
APPENDIX	B	MAINTENANCE ALLOCATION CHART(MAC)	B-1
APPENDIX	C	EXPENDABLE SUPPLIES AND MATERIALS LIST	C-1
SUBJECT INDEX		D-1
CHAPTER	Section	Page	
Section	I	Repair Parts, Special Tools, Test Measurement and Diagnostic Equipment (TMDE); and Support Equipment	6-1
II	Technical Principles of Operation	6-1	
III	Electrical Check Procedure	6-12	
IV	Alinement Procedure	6-27	
V	Troubleshooting	6-47	
VI	Disassembly and Assembly	6-84	

LIST OF ILLUSTRATIONS

FIGURE NO.	TITLE	PAGE
1-1	Signal Generator-AN/USM-213B Overall View	vi
1-2	Outline Installation Drawing	1-6
1-3	Simplified Block Drawing	1-10
6-1	Overall Block Diagram	6-2
6-2	A-1 Oscillator Regulator Card Assy.....	6-3
6-3	-325V Regulated Supply	6-4
6-4	-750V Regulated Supply	6-6
6-5	Filament & Grid Power Supplies	6-7
6-6	Klystron Oscillator and Tracking System.....	6-8
6-7	Oscillator Output Power Calibration System	6-10
6-8	Automatic Leveling and Modulation	6-11
6-9	Test Setups for Frequency, Cam, and Mode Alinement	6-32
6-10	Frequency, Cam Tab Locations and Klystron Mode Patterns	6-33
6-11	Repeller Voltage vs. Frequency	6-53
6-12	AI Circuit Card Assy.....	6-71
6-13	A2A1 Circuit Card Assy	6-72
6-14	A2A2 Circuit Card Assy	6-73
6-15	A2A3 Circuit Card Assy	6-74
6-16	A3 Circuit Card Assy	6-75
6-17	A4A1 Board Assy	6-76
6-18	Main Frame Harness	6-77
6-19	High Voltage Power Supply Harness	6-78
6-20	A4 Tuning Head Assy Harness	6-79
FO-1	Top Internal View of AN/USM-213B (2 sheets)	
FO-2	Schematic Diagram AN/USM-213B (3 sheets)	

LIST OF TABLES

TABLE NO.	TITLE	PAGE
2-1	Description and Use of Controls, Indicators and Connectors	2-2
2-2	Operator Preventive Maintenance Checks and Services	2-5
4-1	Organizational Troubleshooting	4-3
6-1	Electrical Checks Procedure Index	6-14
6-2	Electrical Alinement Procedure Index	6-28
6-3	Troubleshooting Symptom Index	6-49
6-4	AN/USM 213B Wire List	6-82
6-5	Index of Replacement Procedures.....	6-84

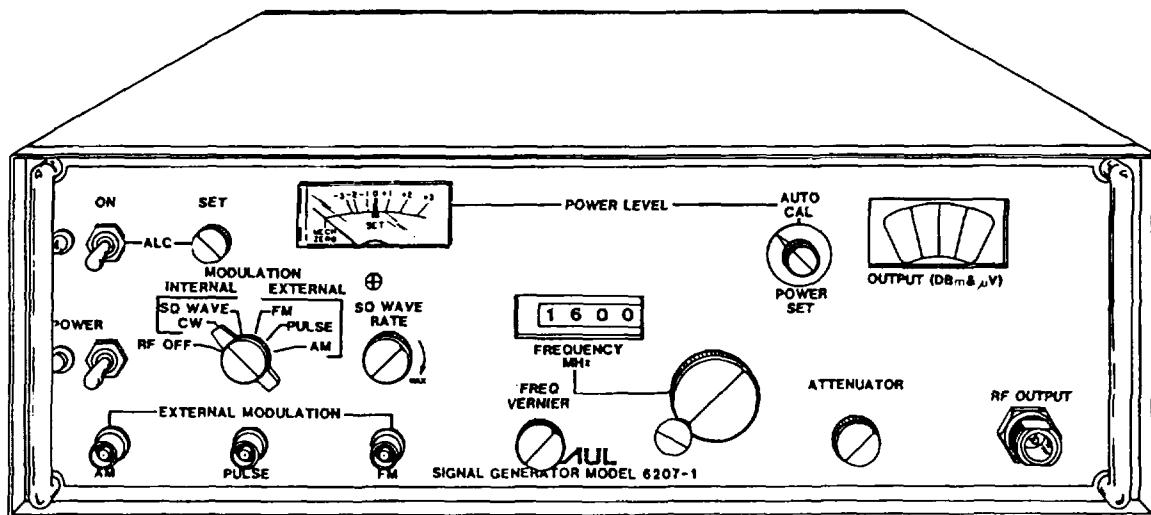
iii/(iv Blank)

HOW TO USE THIS MANUAL

This manual tells about operating and maintaining the AN/USM-213B Signal Generator at the Operator's, Organizational, Direct Support, & General Support Maintenance level.

Use the front cover locator index and corresponding tab marked pages to find quickly those parts of the manual shown on the cover. Those portions of the manual were chosen because they are used often.

This manual has been divided into chapters, sections, and paragraphs which are numbered sequentially. Tables and figures are also numbered this way.



EL9CD001

Figure 1-1. Signal Generator AN/USM-213B

CHAPTER 1

INTRODUCTION

SECTION I. GENERAL INFORMATION

1-1. SCOPE.

This manual describes the operation of Signal Generator AN/USM-213B and covers its Organizational and General Support Maintenance. There is no Operator or Direct Support Maintenance since maintenance at these levels is not authorized by the Maintenance Allocation Chart (MAC) Appendix B.

The Signal Generator provides accurate CW or modulated signals, calibrated to frequency and power, in the range of 800 MHz to 2400 MHz. Its output can be used to test microwave systems and components in that range. See Figure 1-1 for external view of the AN/USM-213B.

1-2. CONSOLIDATED INDEX OF ARMY PUBLICATIONS AND BLANK FORMS.

Refer to the latest issue of DA Pam 310-1 to determine whether there are new editions, changes or additional publications pertaining to the Signal Generator.

1-3. MAINTENANCE FORMS, RECORD, AND REPORTS.

a. Reports of Maintenance and Unsatisfactory Equipment. Maintenance forms, records which are to be used by maintenance personnel at all levels are listed in and prescribed in DA Pam 738-750 as contained in Maintenance Management update.

b. Report Packaging and Handling Deficiencies. Fill out and forward SF364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355.73A/AFR 400-54/MCO 4430.3F.

c. Discrepancy in Shipment Report (DISREP) (SF361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF361) as prescribed in AR 55-38/NAVSUPINST 4610.33C/AFR 75-18/MCO P- 4610.19D/DLAR 4500.15.

1-4. ALINEMENT.

Alinement of this instrument is covered by the procedures in Chapter 6., Section V, Alinement.

1-5. EQUIPMENT IMPROVEMENT RECOMMENDATION.

If your Signal Generator needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Put it on an SF-368 (Quality Deficiency Report). Mail it to Commander, US Army Communications- Electronics Command and Fort Monmouth, ATTN: AMSEL-ME-MP, Fort Monmouth, New Jersey 07703- 5007. We'll send you a reply.

1-6. WARRANTY INFORMATION.

This Signal Generator AN/USM-213B is warranted by Aul Instruments, Inc. against defects in material and workmanship for a period of one year from date of original acceptance and shipment, except for the klystron tube, which is warranted