

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR, ORGANIZATIONAL FIELD AND DEPOT MAINTENANCE MANUAL

MICROWAVE CALIBRATION TEST SET AN/USM234

(THEORY OF OPERATION, TROUBLESHOOTING, REPAIR AND OVERHAUL)

This copy is a reprint which includes current
pages from Change 1.

HEADQUARTERS, DEPARTMENT OF THE ARMY
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MICROWAVE CALIBRATION TEST SET AN/USM234

	Paragraph	Page
CHAPTER 1. INTRODUCTION	1-2, 1-2	1-1
2. THEORY OF OPERATION		
Section I. Theory of signal source	2-1 - 2-9	2-1 - 2-18
II. Theory of microwave measurement techniques	2-10 - 2-15	2-21 - 2-29
CHAPTER 3. TROUBLESHOOTING		
Section I. General	3-1, 3-2	3-1
II. Operational checks and troubleshooting of system measurement setups	3-3 - 3-13	3-1 - 3-27
III. Signal source rf head troubleshooting	3-14 - 3-16	3-33 - 3-76
CHAPTER 4. REPAIR AND OVERHAUL		
Section I. Parts, tools, and equipment for field and depot maintenance	4-1, 4-2	4-1
II. General maintenance	4-3 - 4-7	4-1, 4-2
III. Removal and reinstallation of equipment in combination cases	4-8 - 4-15	4-2 - 4-10
IV. Disassembly and assembly of rf plug-in heads	4-16 - 4-23	4-13 - 4-49
V. Removal and installation of a combination case drawer and disassem bly and assembly of combination case	4-24 - 4-26	4-54
VI. Alignment procedures for rf plug-in signal sources	4-27	4-57
VII. Sealing, finishing and painting	4-28 - 4-30	4-58
CHAPTER 5. INSPECTION	5-1 - 5-3	5-1
6. SHIPMENT, STORAGE, AND DESTRUCTION OF MATERIAL TO PREVENT ENEMY USE		
Section I. Shipment and storage	6-1 - 6-3	6-1, 6-2
II. Destruction of materiel to prevent enemy use	6-4 - 6-9	6-2 - 6-4

CHAPTER 1

INTRODUCTION

1-1. Scope

a. This manual is published for the information and guidance of personnel concerned with the troubleshooting, repair and overhaul of microwave calibration test set AN/USM234 (figure 1-1). This manual contains a brief functional description, the theory of operation, and instructions for troubleshooting, repair, overhaul, shipment, storage, and destruction to prevent enemy use. This information is for use by calibration and depot personnel.

b. Information concerning items of the test set is contained in three technical manuals. The designation and content are as follows:

(1) TM 9493129415/1, description, inspection operation, operator's maintenance, and preventive maintenance.

(2) **TM 9-4931-294-15/2**, theory of operation, troubleshooting, repair and overhaul.

(3) TM 9493129415/3, calibration procedures.

c. The appendices included in TM 9493129415/1 contain the following information:

(1) Appendix A contains a list of current references, including supply and technical manuals, forms and other available publications applicable to the test set.

(2) Appendix B contains the maintenance allocation charts which list maintenance responsibilities allocated to each echelon of maintenance.

(3) Appendix C lists the basic issue items available for operation.

d. The three technical manuals listed above do not contain detailed information for the commercial catalog equipment of the test set. Detailed information is provided in the form of additional technical manuals or manufacturer's handbooks. Equipment that is supplied

with manufacturer's handbooks is listed in table 1-1.

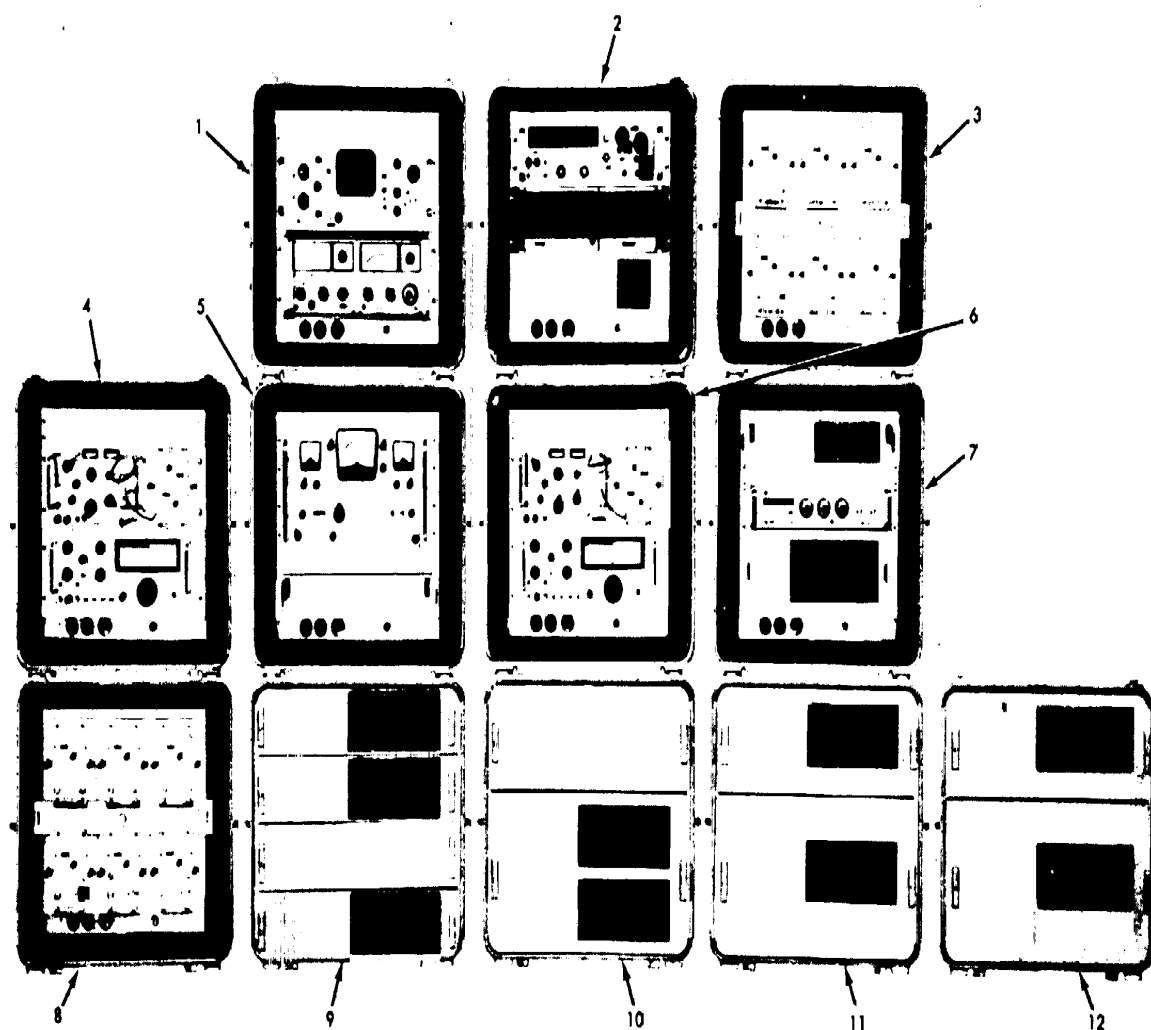
Table 1-1. Equipment Supplied with Manufacturer's Handbook

Item	Identifying No.
Amplifier, video	7911959
Decade box, resistor, power	7907284
Measurement system, frequency, time	7910628
Meter, power	7910462-3
Meter, SWR	7910160-3
Modulator	7912821
Modulator, PIN	7912581
Modulator, PIN	7912582
Modulator, PIN	7912583
Modulator, PIN	7912822
Multimeter, service	7904729
Oscilloscope, with	791065-3
Amplifier, dualtrace, plug-in	7911441-2
Time base unit, plug-in	7912040-2
Power supply, regulated	7912817
Power supply, BWO	7923106
Receiver, microwave	7923103
Standing wave detector	8579859
Synchronizer, tunable	7923102
Voltmeter, digital, ac/dc	7912073-3
Voltmeter, rms	7911058-3

e. Report of errors, omissions, and recommendations for improving this equipment manual by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to: Commander, U. S. Army Missile Command, ATTN: AMSMIMFM, Redstone Arsenal, Alabama 35809.

1-2. Functional Description

The test set is a self-contained mobile laboratory designed to make fundamental microwave



MI (C) 4931-294-15/2 1-1 (TM)

Figure 1-1. Microwave Calibration Test Set AN/USM2.

Change 1 1-2

1Combination case no. 2—7923002	8-Combination case no. 4- 7923004
2Combination case no. 5—7923005	9-Combination case no. 9- 7923009
3Combination case no. 4—7923004	10-Combination case no. 6- 7923006
4Combination case no. 1—7923001	11-Combination case no. 7- 7923007
5Combination case no. 3—7923003	12-Combination case no. 8- 7923008
6Combination case no. 1—7923001	
7Combination case no. 10—7923335	

Figure 11. Continued

measurements of frequency, rf power, magnitude of reflection coefficient (or VSWR) and attenuation. Frequency calibration of passive devices such as cavity resonators and narrow-band filters may also be made. The test set operates over a frequency range from 500

MHz to 40 GHz in eight bands and is used for the calibration and testing of microwave components and equipment. A complete functional and physical description of the test set is given in chapter 1 of TM 9-4931-294-15/1.

Change 1 1-3