

TECHNICAL MANUAL

**OPERATORS, ORGANIZATIONAL, DIRECT SUPPORT,
GENERAL SUPPORT, AND DEPOT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS FOR AN/UPM-98C)**

**TEST SETS, RADAR
AN/UPM-98A, AN/UPM-98B, AND AN/UPM-98C**

This copy is a reprint which includes current
pages from Changes 1 through 7.

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**TEST SETS, RADAR AN/UPM-98A, AN/UPM-98B, AND
AN/UPM-98 C**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to: Commander, US Army Communications and Electronics Materiel Readiness Command DRSEL-ME-MQ, Fort Monmouth, New Jersey 07703.

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SECTION O

INTRODUCTION

0-1. Scope

a. This manual describes Test Sets, Radar AN/UPM-98A, AN/UPM-98B, and AN/UPM-98C (referred to as the test sets) and covers the installation and operation, and organizational, general support, and depot maintenance of the equipments.

b. A complete repair parts and special tools list for the AN/UPM-98C appears in Appendix B and the maintenance allocation chart (MAC) is presented in Appendix C. The MAC is current as of 30 September 1976.

0-2. Indexes of Publications

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

b. DA Pam 310-7. Refer to DA Pam 310-7 to determine whether there are any modification work orders (MWO'S) pertaining to the equipment.

0-3. Maintenance Forms, Records, and Reports

a. *Reports of Maintenance and Unsatisfactory Equipment.* Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System.

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 DLAR 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 4610.33B/AFR 75-18/MCO P4610.19C and DLAR 4500.15.

0-4. Administrative Storage

The test sets may be stored in warehouses or other sheltered facilities. Before temporary storage, make the following preparations:

a. Determine the serviceability of the equipment by performing the operator's and organizational maintenance preventive maintenance checks and services.

b. Stow all accessories in the accessory case.

0-5. Destruction of Army Electronics Materiel

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

0-6. Reporting Equipment Improvement Recommendations (EIR)

If your test sets need 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. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications and Electronics Materiel Readiness Command and Fort Monmouth, ATTN: DRSEL-ME-MQ, Fort Monmouth, New Jersey 07703. We'll send you a reply.

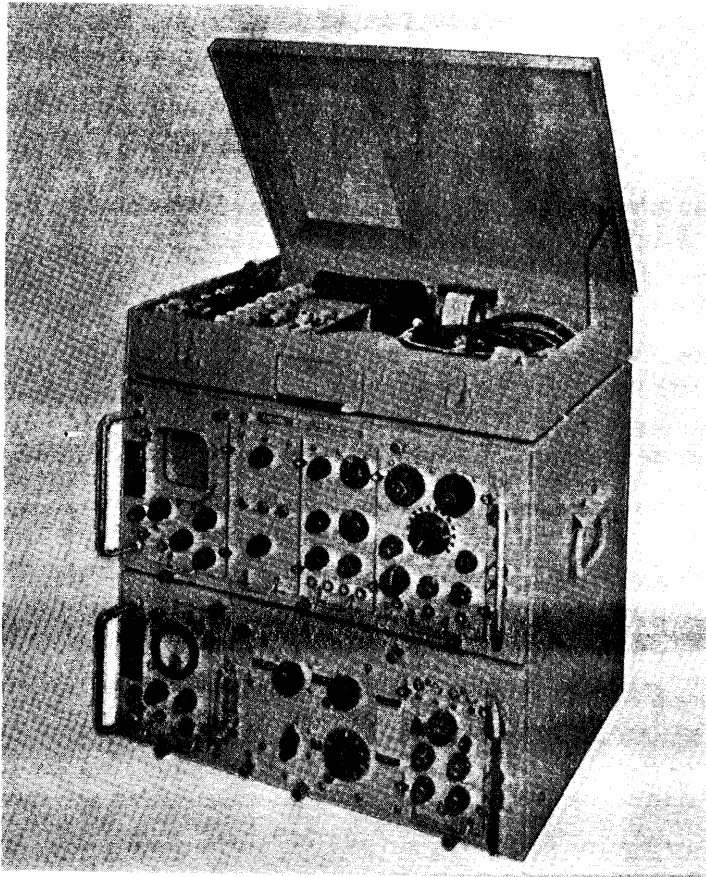


Figure 1-1. Radar Test Set AN/UPM-98A Overall Equipment View

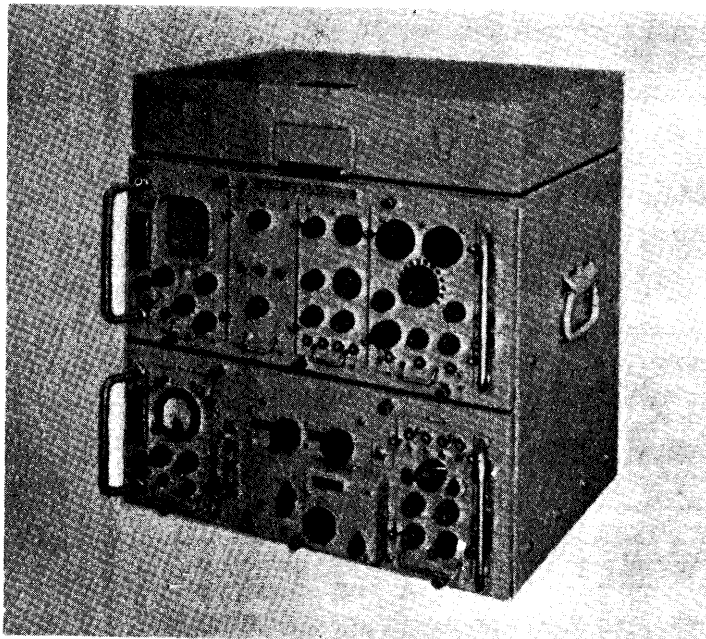


Figure 1-1A. Radar Test Set AN/UPM-98B Overall Equipment View

SECTION 1 GENERAL INFORMATION

1-1 GENERAL DESCRIPTION

a. **SCOPE OF TECHNICAL MANUAL** This technical manual covers Radar Test Sets AN/UPM-98A, AN/UPM-98B, and AN/UPM-98C. Radar Test Set AN/UPM-98A is new equipment designed in its final configuration. Radar Test Set AN/UPM-98B is a former Radar Test Set AN/UPM-98 updated to incorporate the advanced features of Radar Test Set AN/UPM-98A by Navy Field Change No. 3 AN/UPM-98 (NAVSHIPS 0967-291 0040), which also added to the test set the direct frequency indicating wavemeter feature not included in the AN/UPM-98A. Radar Test Set AN/UPM-98C is a test set AN/UPM-98A field modified in accordance with U.S. Army Modification Work Order (MWO) No. 11-6625403402 which added to the test set only the direct frequency indicating wavemeter feature, making test sets AN/UPM-98B and AN/UPM-98C functionally identical except for some detail parts numbers as shown in the supplementary parts list.

NOTE

All information and instructions in this technical manual referring to Radar Test Set AN/UPM-98A, its units and subassemblies also apply to Radar Test Sets AN/UPM-98B and AN/UPM-98C, unless specifically indicated otherwise. Information marked in the manual as applying to Radar Test Set AN/UPM-98B also applied to Radar Test Set AN/UPM-98C (but not to AN/UPM-98A) and is located at the end of each specific paragraph or section of the technical manual. The part number differences between AN/UPM-98B and AN/UPM-98C are listed in Supplementary Parts List for AN/UPM-98C in section 5 of the manual.

b. **PHYSICAL CHARACTERISTICS.** Figure 1-1 shows both Radar Test Sets AN/UPM-98A and AN/UPM-98B. Both are transportable test sets for use with secondary radar equipments and consist of two separately nomenclature drawer assemblies mounted in a common electrical equipment case. The detailed nomenclatures and accessory items applicable to each Radar Test Set are listed in table 1-1.

The upper drawer assembly of AN/UPM-98A, AN/UPM-98B, and AN/UPM-98C test sets contains a main frame chassis into which are plugged the following four functional units: the Display unit Sweep and Intensity Mark unit, Crystal Mark and Sync unit,

and SIF Coder unit. The lower drawer assembly consists of a main frame chassis with two functional plug-in units: the Cal-Control (Calibration-&ntrol) unit and the Interrogation Coder unit. All operating controls, switches, connectors, indicators, and fuses are located on the front panels of the applicable units.

c. **ELECTRICAL CHARACTERISTICS** Radar Test Sets AN/UPM-98A and AN/UPM-98B, and AN/UPM-98C are electrically identical, except for the direct reading frequency indicator of AN/UPM-98B and AN/UPM-98C.

The Radar Test Set performs the following basic functions:

(1) Produces signal (both rf and video) simulating "challenge" (interrogation) signals transmitted by Mark X I FF (identification: friend or foe) SIF (Selective Identification Feature) interrogators. A simulated ISLS (Interrogation Side Lobe Suppression) reference pulse may be added to the interrogation signals when desired. These outputs can be used in testing equipment designed to receive these types of signals.

(2) Produces signals (both rf and video) simulating the replies transmitted by IFF/SIF transponders. Both mode identification pulses and reset tag pulses may be added to the reply video. A delayed interleaved reply signal is provided to simulate multiple reply reception. These can be used in testing equipment designed to receive these types of signals.

(3) Provides an oscilloscope facility for displaying signals from equipment under test and from the test set itself.

(4) Produces synchronizing trigger pulses for use by external equipment and by the test set units.

(5) Demodulates pulse-coded rf signals from transmitters under test, producing pulsed video outputs.

(6) Produces a positive suppressor pulse output for use in "gating off" circuits under test.

(7) Measures the frequency of rf signals by means of a resonant cavity wavemeter.

(8) Measures the pulse repetition frequency (prf) of pulse signals of the types used in IFF/SIF systems.

(9) Produces a calibrated signal for making minimum discernible signal (MDS) checks, and for measuring signal levels by the comparison method.

(10) Measures the peak power of rf signals.

(11) Provides a precision 1030 MHz rf signal from a crystal controlled oscillator for use as a calibrating signal.

(12) Decodes mode 4, 3-pulse replies, producing a single pulse output"

1-1.1. ITEMS COMPRISING AN OPERABLE EQUIPMENT

FSN	Qty	Nomenclature, part No., and mfr code	Fig. No.
6625-912-0429		Radar Test Set AN/UPM-98A	1-1, 1-1A
6625-403-7990		Radar Test Set AN/UPM-98B	
6625-136-2469		Radar Test Set AN/UPM-98C	
		which include:	
NOTE			
The part number is followed by the applicable 5-digit Federal supply code for manufacture (FSCM) identified in SB 708-42 and used to identify manufacturer, distributor, or Government agency, etc.			
5935-842-9614	2	Adapter, Connector: MIL Type UG-201A/U, 96906	1-5
5935-149-3534	3	Adapter, Connector: MIL Type UG-273, 96906	1-5
5935-683-7892	2	Adapter, Connector: MIL Type UG-274B/U, 96906	1-5
5935-143-3535	2	Adapter, Connector: MIL Type UG-309/U, 96906	1-5
5935-557-9862	4	Adapter, Connector: MIL Type UG-636A/U, 96906	1-5
5945-957-6071	2	Cable Assembly, Radio Frequency CG-409E/U: (5'2")	1-7
5995-889-1046	2	Cable Assembly, Radio Frequency CG-409E/U: (10'2")	