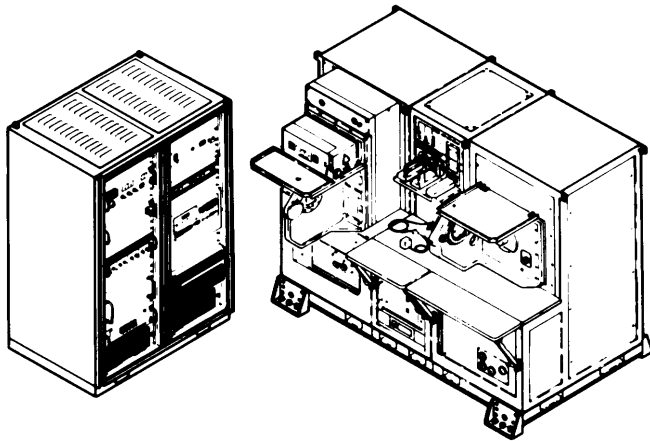


TM 11-6625-3081-23-1

TECHNICAL MANUAL
ORGANIZATIONAL AND DIRECT SUPPORT
MAINTENANCE MANUAL
FOR
ELECTRONIC EQUIPMENT TEST FACILITY
TADS/PNVS AUGMENTATION EQUIPMENT
13082808-39, 13231600, 13231650 AND 13231800

INTRODUCTION
ORGANIZATIONAL MAINTENANCE



"Approved for public release; distribution is unlimited."

HEADQUARTERS,
DEPARTMENT OF THE ARMY

**EQUIPMENT DESCRIPTION
AND DATA (P 1-7)**

**PRINCIPLES OF
OPERATION (P 1-116)**

**PREVENTIVE MAINTENANCE
CHECKS AND SERVICES (P 2-39)**

**SELF-TEST
PROCEDURES (P 2-62)**

**ELECTRONIC STATION
MAINTENANCE PROCEDURES (P 2-181)**

**DAYSIDE TEST BENCH 2A1
MAINTENANCE PROCEDURES (P 2-248)**

**TEST CONSOLE TEST BENCH 2A2
MAINTENANCE PROCEDURES (P 2-254)**

**NIGHTSIDE TEST BENCH 2A3
MAINTENANCE PROCEDURES (P 2-311)**

**TEST PROGRAM SETS
MAINTENANCE PROCEDURES (P 2-317)**

1 FEBRUARY 1986

ORGANIZATIONAL AND DIRECT SUPPORT
 MAINTENANCE MANUAL
 FOR
 ELECTRONIC EQUIPMENT TEST FACILITY
 TADS/PNVS AUGMENTATION EQUIPMENT

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, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, U. S. Army Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Blvd, St. Louis, MO 63120-1798. A reply will be furnished to you.

	Page
HOW TO USE THIS MANUAL	v
CHAPTER 1. INTRODUCTION	1-1
Section I. General Information	1-1
II. Equipment Description and Data	1-7
III. Principles of Operation	1-116
CHAPTER 2. ORGANIZATIONAL MAINTENANCE INSTRUCTIONS	2-1
Section I. Repair Parts; Special Tools; Test, Measurement, and Diagnostic Equipment (TMDE); and Support Equipment	2-2
II. Controls and Indicators	2-3
III. Preventive Maintenance Checks and Services (PMCS)	2-39
IV. Self-Test Procedures	2-62
v. Troubleshooting	2-143
VI. Genreal Maintenance Procedures.	2-152
VII. Electronic Station Maintenance Procedures	2-181
VIII. Dayside Test Bench 2A1 Maintenance Procedures	2-248
IX. Test Console Test Bench 2A2 Maintenance Procedures	2-254
X. Nightside Test Bench 2A3 Maintenance Procedures	2-311
XI. Test Program Sets Maintenance Procedures	2-317
XII. Preparation for Storage or Shipment	2-323

TABLE OF CONTENTS (cont)

	Page
CHAPTER 3. WIRING DATA	3-1
Section I. Repair Parts; Special Tools; Test, Measurement and Diagnostic Equipment (TMDE); and Support Equipment	3-2
II. Electronic Station to Electro-Optical Test Bench Set.	3-3
Interconnection Wiring Data	3-6
III. Electronic Station Wiring Data	3-35
IV. Electro-Optical Test Bench Set Interconnection Wiring Data	3-71
V. Dayside Test Bench 2A1 Wiring Data	3-151
VI. Test Console Test Bench 2A2 Wiring Data	3-280
VII. Nightside Test Bench 2A3 Wiring Data	3-309
VIII. Test Program Sets Wiring Data	3-309
CHAPTER 4. DIRECT SUPPORT MAINTENANCE INSTRUCTIONS ELECTRONIC STATION	4-1
Section I. Repair Parts; Special Tools; Test, Measurement and Diagnostic Equipment (TMDE); and Support Equipment	4-2
II. Electronic Station Maintenance Procedures	4-3
CHAPTER 5. DIRECT SUPPORT MAINTENANCE INSTRUCTIONS ELECTRO-OPTICAL TEST BENCH SET	5-1
Section I. Repair Parts; Special Tools; Test, Measurement and Diagnostic Equipment (TMDE); and Support Equipment	5-2
II. Electro-Optical Test Bench Set General Maintenance.	5-3
Procedures	5-45
III. Dayside Test Bench 2A1 Maintenance Procedures	5-131
IV. Test Console Test Bench 2A2 Maintenance Procedures	5-159
V. Nightside Test Bench 2A3 Maintenance Procedures	5-159
CHAPTER 6. DIRECT SUPPORT MAINTENANCE INSTRUCTIONS TEST PROGRAM SETS	6-1
Section I. Repair Parts; Special Tool; Test, Measurement and Diagnostic Equipment (TMDE); and Support Equipment	6-2
II. Major Test Adapter Maintenance Procedures	6-3
III. Cable and Self-Test Connector Maintenance Data.	6-12
IV. Test Fixture Maintenance Procedures	6-13
CHAPTER 7. TROUBLESHOOTING	7-1
Section I. Introduction	7-2
II. Electronic Station 1 Troubleshooting Procedures	7-15
III. Dayside Test Benchg 2A1 Troubleshooting Procedures.	7-31
IV. Test Console Test Bench 2A2 Troubl eshooting Procedures	7-122
V. Nightside Test Bench 2A3 Troubl eshooting Procedures	7-179
CHAPTER 8. ALIGNMENT	8-1

TABLE OF CONTENTS (cont)

	Page
APPENDI X A. REFERENCES	A-1
APPENDI X B. MAINTENANCE ALLOCATION CHARTS (MAC)	B-1
APPENDI X C. EXPENDABLE SUPPLIES AND MATERIAL LIST	C-1
APPENDI X D. ILLUSTRATED LIST OF MANUFACTURED ITEMS	D-1
APPENDI X E. REFERENCE DESIGNATIONS	E-1
APPENDI X F. UUT/TPS/INTERFACE DEVICE MATRIX	F-1
GLOSSARY	GLOSSARY-1
I NDEX	I NDEX-1

LIST OF ILLUSTRATIONS

TM 11-6625-3081-23-1

Figure	Title	Page
F0-1	EETF TADS/PNVS Augmentation Equipment Block Diagram	F0-1
F0-2	Electronic Station Block Diagram	F0-3
F0-3	Control Unit Assembly 1A1 Block Diagram	F0-3
F0-3.1	Temperature Control Unit 1A1 Block Diagram	F0-4.1
F0-4	488 Controller Power Supply Assembly 1A2 Block Diagram	F0-5
F0-5	Programmable Power Supply Assembly 1A3 Block Diagram	F0-7
F0-6	DC Power Supply Assembly 1A4 Block Diagram	F0-7
F0-7	AC Control Panel Assembly 1A5 Block Diagram	F0-9
F0-8	PMT Controller 1A7 Block Diagram	F0-9
F0-9	Deleted	
F0-9.1	Extender Assembly 1A9 Block Diagram	F0-12.1
F0-10	Deleted	
F0-10.1	Digital Computer Assembly 1A11 Block Diagram	F0-12.1
F0-11	Pneumatic Leveling and Isolation System Block Diagram	F0-13
F0-12	Dayside Test Bench 2A1 Block Diagram	F0-13
F0-13	Optical Signal Analyzer 2A1A1 Block Diagram	F0-15
F0-14	Relay Assembly 2A1A1A12 Block Diagram	F0-15
F0-15	Filter and Detector Assembly 2A1A1A14 Wiring Diagram	F0-15
F0-16	Inner Module 2A1A2 Block Diagram	F0-17
F0-17	Laser Cover Assembly 2A1A2A19 Block Diagram	F0-19
F0-18	Laser Power Supply Assembly 2A1A6 Block Diagram	F0-19
F0-19	Test Console Test Bench 2A2 Block Diagram	F0-21
F0-20	Programmable Digi tizer 2A2A1 Block Diagram	F0-23
F0-21	Optical Signal Generator 2A2A3 Block Diagram	F0-25
F0-22	Test Adapter Panel Assembly 2A2A4 Block Diagram	F0-27
F0-23	Deleted	
F0-24	Multi programmer Assembly 2A2A6 and Multi programmer Extender Assembly 2A2A11 Block Diagram	F0-29
F0-25	Electronics Drawer Assembly 2A2A7 Block Diagram	F0-29
F0-26	Relay Assembly 2A2A7A4 Block Diagram	F0-31
F0-27	Temperature Measurement Block Diagram	F0-31
F0-28	Matrix Switch Assembly 2A2A10 Block Diagram	F0-33
F0-29	Switch Controller Assembly 2A2A12 Block Diagram	F0-33
F0-30	Analog to Digital Converter Assembly 2A2A13 Block Diagram	F0-35
F0-31	Nightside Test Bench 2A3 Block Diagram	F0-37

TM 11-6625-3081-23-2

F0-32	System Interconnection Diagram	F0-39
F0-33	AC Power Distribution Diagram	F0-41
F0-34	DC Power Distribution Diagram	F0-43
F0-34.1	Chassis Ground Diagram	F0-52.1
F0-35	Laser Interlock Circuit Diagram	F0-53
F0-36	Deleted	
F0-37	Dayside Test Bench 2A1 Interconnection Diagram	F0-57
F0-38	Optical Signal Analyzer 2A1A1 Interconnection Diagram	F0-59
F0-39	Test Console Test Bench 2A2 Interconnection Diagram	F0-61
F0-40	Nightside Test Bench 2A3 Interconnection Diagram	F0-63

HOW TO USE THIS MANUAL

There are five manuals used in support of the electronic equipment test facility TADS/PNVS augmentation equipment. To become familiar with these manuals, spend some time looking through them to see what they contain. TM 11-6625-3081-23-1 includes equipment description, principles of operation, self-test instructions, and organizational maintenance instructions. TM 11-6625-3081-23-2 contains wiring data for the electronic station and electro-optical test bench set. TM 11-6625-3081-23-3 contains wiring data for test program sets. TM 11-6625-3081-23-4 contains direct support maintenance instructions, appendixes, alphabetical index, and glossary. TM 11-6625-3081-23-5 contains troubleshooting methodology and fault isolation. Once you are familiar with this manual, there are three ways to find information:

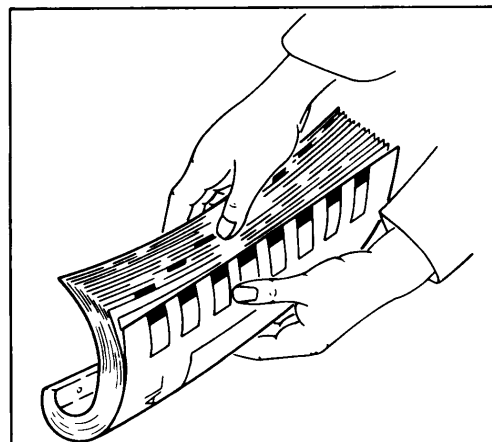
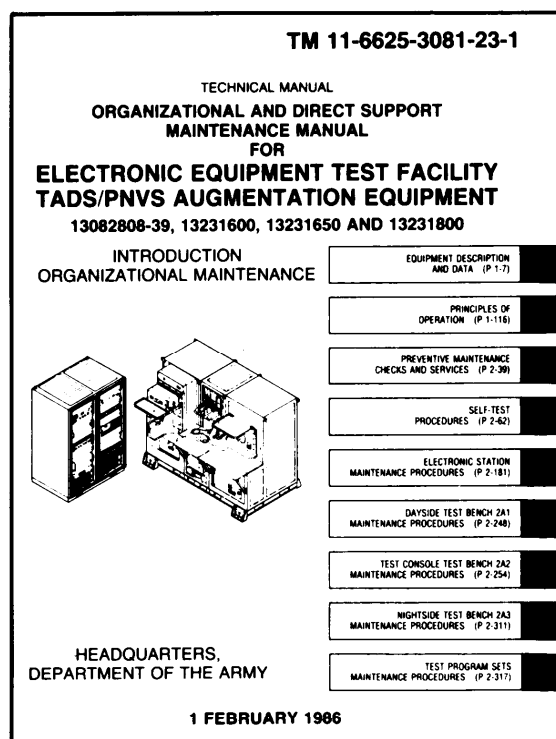
- Use The Front Cover Index
- Use The Table of Contents
- Use The Alphabetical Index

Use The Front Cover Index

1. Suppose you have been told to replace control unit assembly 1A1 in the electronic station at the organizational level.
2. Look at the cover of TM 11-6625-3081-23-1. See the black bars with subject titles next to them. You will find "ELECTRONIC STATION MAINTENANCE PROCEDURES (page 2-181)." If you turned to the page indicated, you would be at the section you would use to replace control unit assembly 1A1.

OR

3. You can use the black bars to quickly find the section. If you were to bend the pages a little, you would see black bars on them. The bars on the pages will line up with the black bars on the cover.
4. If you were to put your thumbnail on the first page with the black bar that lines up with the one on the cover for "ELECTRONIC STATION MAINTENANCE PROCEDURES," your thumbnail would be on page 2-181.



HOW TO USE THIS MANUAL (cont)

5. When you open the book to page 2-181 you will see that you are in section VII and that there is an index of the paragraphs in section VII.
6. The example below shows you that control unit assembly 1A1 replacement is performed in paragraph 2-26 on page 2-187. Note that the maintenance paragraphs are organized in reference designation sequence.

Section VII. ELECTRONIC STATION MAINTENANCE PROCEDURES			
Subject	Para	Page	
Electronic Station Cabinet Repair	2-25	2-181	
Control Unit Assembly 1A1 Replacement	2-26	2-187	
Control Unit Assembly 1A1 Repair	2-27	2-187	
48B Controller Power Supply Assembly 1A2 Replacement	2-26	2-187	
48B Controller Power Supply Assembly 1A2 Repair	2-29	2-187	
Programmable Power Supply Assembly 1A3 Replacement	2-30	2-210	
Programmable Power Supply Assembly 1A3 Repair	2-31	2-204	
DC Power Supply Assembly 1A4 Replacement	2-32	2-209	
DC Power Supply Assembly 1A4 Repair	2-33	2-213	
Blower Assembly 1A6 or 1A10 Replacement	2-34	2-221	
PMT Controller 1A7 Replacement	2-35	2-224	
PMT Controller 1A7 Repair	2-36	2-226	
Extender Assembly 1A9 Replacement	2-37	2-227	
Extender Assembly 1A9 Repair	2-38	2-230	
Disc/Tape Drive Assembly 1A10 Replacement	2-38.1	2-234.1	
Digital Computer Assembly 1A10 Replacement	2-39	2-235	
Digital Computer Assembly 1A11 Replacement	2-39.1	2-240.1	
Digital Computer Assembly 1A10 or 1A11 Repair	2-40	2-241	

2-25. ELECTRONIC STATION CABINET REPAIR			
This task covers replacement of:			
Para	Item	Para	Item
1.	Blank panel	3.	Cable carrier
2.	Drawer slide	4.	Door handle

INITIAL SETUP	Equipment Conditions
Personnel Required	Power removed (para 2-24.1)
39B ATE Repairer	Electronic station positioned for maintenance required for para 3 and 4 only (TM 11-6625-3085-12)
References	FOLLOWUP
TM 11-6625-3085-12	Electronic station positioned for operation (required for para 3 and 4 only) (TM 11-6625-3085-12)

Change 4 → 2-181

2-26. CONTROL UNIT ASSEMBLY 1A1 REPLACEMENT	
INITIAL SETUP	References
Tools	TM 11-6625-3085-12
Goggles	Equipment Conditions
Rubber apron	Power removed (para 2-24.1)
Materials (Appendix C)	Electronic station positioned for maintenance (TM 11-6625-3085-12)
Artist brush (Item 8)	FOLLOWUP
Cheesecloth pad (Item 11)	Calibrate in accordance with
Chemical film (Item 12)	TB 11-6625-3161-50
Rubber gloves (Item 16)	Electronic station positioned for operation (TM 11-6625-3085-12)
Emery paper, 400 grit (Item 35)	
Zinc chromate primer (Item 39)	
Lacing tape (Item 44)	
Trichloroethylene (Item 48)	
Personnel Required	
39B ATE Repairer	
One assistant	
REMOVAL	
1. On rear of electronic station, open right rear cabinet door for access to rear panel of control unit assembly (11).	
2. Remove screw (2), lockwasher (3), washer (4), and chain (5).	
3. On rear panel of control unit assembly, disconnect the following connectors:	
P1 (6) from SOURCE A (7) P2 (8) from SOURCE B (9) P3 (10) from SOURCE C (11)	
4. Loosen two screws (17) and disconnect connector P1 (13) from IEEE BUS (14).	

Change 3 → 2-187

9. INITIAL SETUP lists tools, materials, and personnel required to perform the task and condition the equipment should be in before performing the task.
10. FOLLOWUP should be performed after the basic task has been completed.
11. Following the INITIAL SETUP are illustrated step-by-step procedures for replacement of control unit assembly 1A1.
12. Procedural steps are illustrated and keyed by callout numbers in the text and on-the illustration.
13. A black arrow head in the lower right corner of a page indicates the task is continued on the following page.

7. Following is a reproduction of page 2-187. The beginning of the paragraph has an INITIAL SETUP. This tells you what you will need to perform the procedure.
8. INITIAL SETUP means, DO THIS FIRST BEFORE STARTING THE TASK. Review the INITIAL SETUP table and become familiar with the requirements.

HOW TO USE THIS MANUAL (cont)

Use The Table Of Contents

1. The table of contents is a list of all the chapters and sections in the manual.
2. Using the same example, you could go directly to the table of contents. There you would see Chapter 2 ORGANIZATIONAL MAINTENANCE INSTRUCTIONS (page 2-1).
3. Turning to page 2-1, you will find an index of the sections in chapter 2. Then you would proceed using the section index as in the previous example.

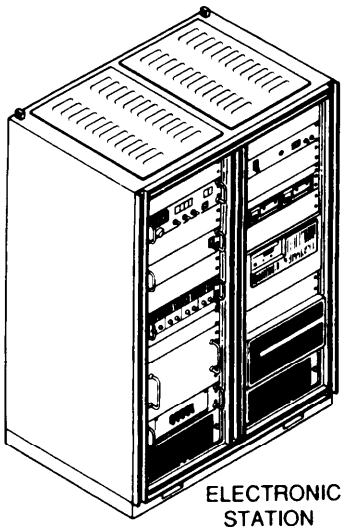
Use The Alphabetical Index

1. The alphabetical index lists all of the subjects that are in each manual in alphabetical order. It provides a reference to the paragraph number(s) that provide coverage for the subject. Note that paragraph numbers of prime paragraphs are provided on both sides of the page to make it easier to find a specific paragraph.
2. Each subject is listed two or three ways so that it can be easily located. For example, "Secondary heat source assembly 2A3A1A17" is also listed as 'Heat source assembly, secondary heat source assembly 2A3A1A17."
3. This index is most useful when you know the name of the equipment or item you are trying to locate.

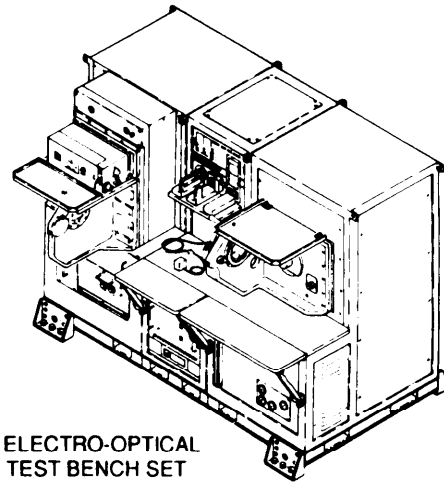
TM 11-6625-3081-23	
CHAPTER 2	
ORGANIZATIONAL MAINTENANCE INSTRUCTIONS	
	Section Page
Repair Parts; Special Tools; Test, Measurement and Diagnostic Equipment (TMDE); and Support Equipment	I 2-2
Control and Indicators	II 2-3
Preventive Maintenance Checks and Services (PMCS)	III 2-39
Self-Test Procedures	IV 2-62
Troubleshooting	V 2-142
General Maintenance Procedures	VI 2-152
Electronic Station Maintenance Procedures	VII 2-181
Dayside Test Bench 2A1 Maintenance Procedures	VIII 2-248
Test Console Test Bench 2A2 Maintenance Procedures	IX 2-254
Nightside Test Bench 2A3 Maintenance Procedures	X 2-311
Test Program Sets Maintenance Procedures	XI 2-317
Preparation for Storage or Shipment	XII 2-323

OVERVIEW	
<p>This chapter provides instructions for organizational maintenance of the Electronic Equipment Test Facility (EETF) TADS/PNVS Augmentation Equipment. Also included are principles of operation, controls and indicators, preventive maintenance checks and services (PMCS), self-test, troubleshooting, and general maintenance procedures. Refer to TM 11-6625-3081-23P for repair parts and special tools list.</p>	

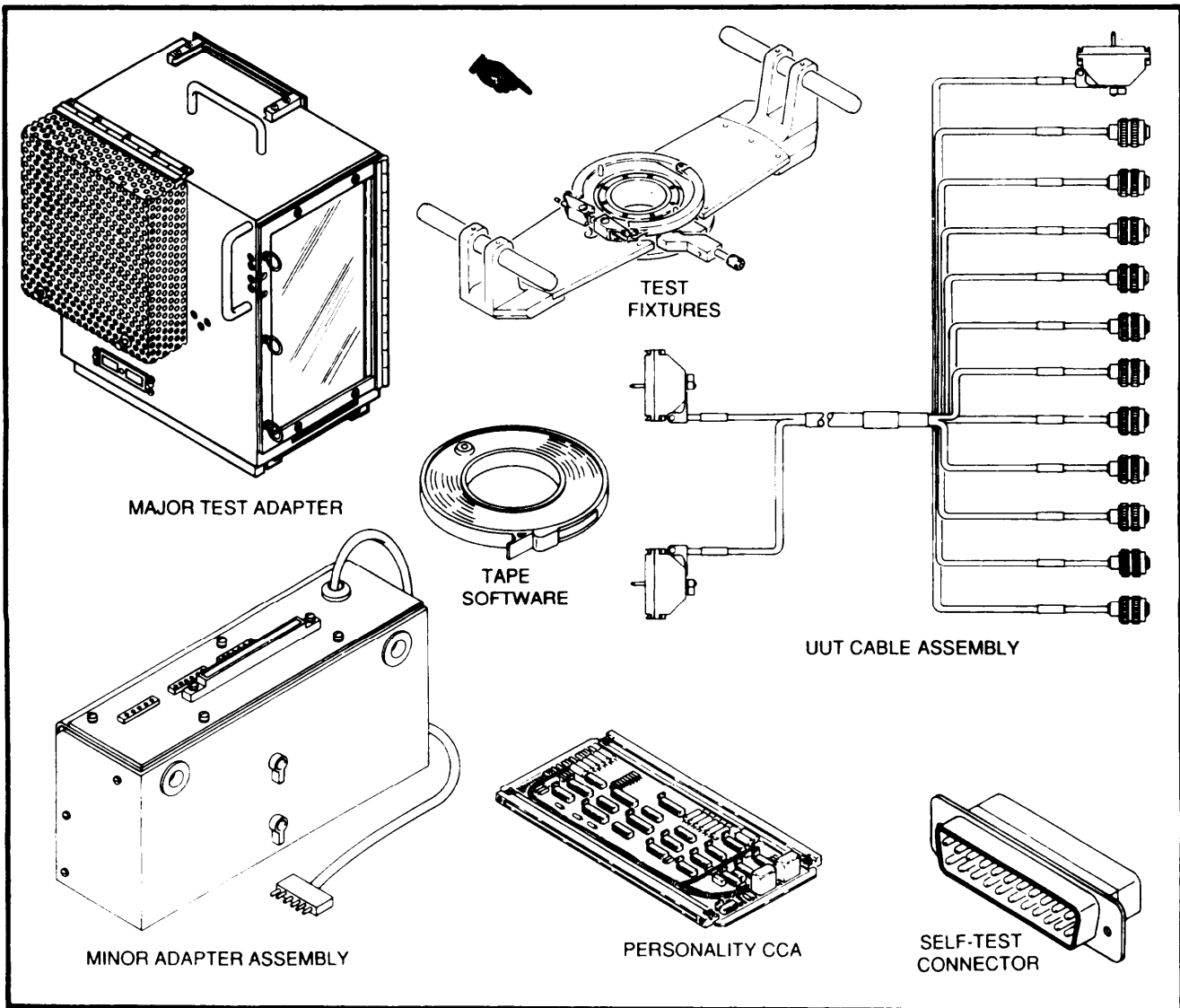
2-1



ELECTRONIC STATION



ELECTRO-OPTICAL TEST BENCH SET



MAJOR TEST ADAPTER

TEST FIXTURES

TAPE SOFTWARE

UUT CABLE ASSEMBLY

MINOR ADAPTER ASSEMBLY

PERSONALITY CCA

SELF-TEST CONNECTOR

Electronic Equipment Test Facility (EETF)
TADS/PNVS Augmentation Equipment

CHAPTER 1

INTRODUCTION

	Section	Page
General Information	I	1-1
Equipment Description	II	1-7
principles of operation	III	1-116

OVERVIEW

This chapter provides general information and descriptions of the Electronic Equipment Test Facility (EETF) TADS/PNVS Augmentation Equipment.

Section I. GENERAL INFORMATION

Subject	Para	Page
Scope	1-1	1-1
Maintenance Forms, Records, and Reports	1-2	1-2
Preparation for Storage or Shipment	1-3	1-2
Nomenclature Cross-Reference List	1-4	1-3
Reporting Equipment Improvement Recommendations (EIR)	1-5	1-6
Calibration	1-6	1-6
Operating Procedures	1-7	1-6
Reference Designations	1-8	1-6

1-1. SCOPE 1-1

a. **TYPE OF MANUAL.** This manual provides organizational and direct support maintenance instructions for the Electronic Equipment Test Facility (EETF) TADS/PNVS Augmentation Equipment.

b. **MODEL NUMBER AND EQUIPMENT NAME.** (To be supplied).

c. **PURPOSE OF EQUIPMENT.** The EETF TADS/PNVS Augmentation Equipment provides the electro-optical and electronic test capabilities for the Target Acquisition Designation Sight (TADS) and the Pilot Night Vision Sensor (PNVS) line replaceable units (LRUs) and shop replaceable units (SRUs). These LRUs and SRUs are tested as unit-under-test (UUT) at the organizational maintenance level and at the direct support maintenance level.

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS

1-2

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-751, The Army Maintenance Management System (TAMMS).

1-3. PREPARATION FOR STORAGE OR SHIPMENT

1-3

Refer to paragraph 2-70 for any unique instructions about preparation for storage or shipment.