

TM

9-4931-381-14&P-2

TECHNICAL MANUAL

**OPERATOR'S ORGANIZATIONAL, DIRECT SUPPORT,
AND GENERAL SUPPORT MAINTENANCE MANUAL
INCLUDING REPAIR PARTS AND SPECIAL TOOLS
LIST (INCLUDING DEPOT MAINTENANCE REPAIR
PARTS AND SPECIAL TOOLS)**

**VOLUME IV
MAINTENANCE**

THERMAL SYSTEM TEST SET

(4931-01-119-7092)

DISTRIBUTION STATEMENT: Approved for public release; distribution is unlimited.

HEADQUARTERS, DEPARTMENT OF THE ARMY

DECEMBER 1986

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 31 December 1986

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RPSTL current as of technical manual date

Software PN 12303273 Revision D, current as of technical manual date.

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 Publication and Blank Forms), or DA Form 2028-2 located in back of this manual direct to: Commander, U.S. Army Armament, Munitions and Chemical Command, Attn: AMSMC-MAS, Rock island, Illinois 61299-6000. A reply will be furnished to you.

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NOTE

This manual is divided into three bindings. The first binding consists of volumes I, II, and III and front matter for all three bindings. The second binding consists of volume IV and an index for volumes I through IV. Test set schematic and functional diagrams are contained in the third binding.

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TECHNICAL MANUAL

**VOLUME IV
MAINTENANCE**

THERMAL SYSTEM TEST SET

CHAPTER I GENERAL MAINTENANCE INFORMATION

1-1. Scope

This volume contains maintenance tasks for the thermal system test set. The maintenance procedures and information presented in this volume are intended for repair of the Thermal System Test Set.

1-2. Equipment Group Breakdown. The chapters in this volume are broken down by maintenance groups as follows:

- a. Thermal System Test Controller (chapter 2)
- b. Accessory Storage Assembly (chapter 3)
- c. Holding Fixtures (chapter 4)

1-3. Cleaning.

WARNING

Many solvents burn easily. Do not use solvents near open fire. Solvents may give off harmful vapor. Use in well ventilated area.

a. Mechanical Parts. Use one of the following methods to remove dirt, grease, oil, etc. from all metal surfaces:

- o Dip tank: stir or shake fast for 1 minute in each tank.
- o Vapor degreaser: soak for about 2 to 3 minutes.
- o Wipe with rags: dip rags in dry cleaning solvent.
- o Stiff brush or scraper: clean hard-to-get at areas with stiff-bristle brush or scraper.

b. Electrical Parts. Clean dirt, grease, oil, etc. from metal surfaces, connectors, and parts by dipping into container of freon (Item 13, appendix C) and acid swabbing brush (Item 8, appendix C). Dip stiff brush into freon and brush off parts you cannot dip. Dry with compressed, oil-free air or wipe dry with clean rag (Item 24, appendix C).

1-4. Painting. Look in TM 9-208-1 for ways to clean and mix material for pointing. Look in TM 9-213 for ways to paint and supplies to use.

1-5. Disposition of Parts. During maintenance tasks you will be told to "get rid of" and "turn in" bad and replaced parts. These terms are defined as follows:

- **Get rid of** - Dispose of metal parts or parts containing metal (lockwashers, cotter pins, gaskets, etc.) in accordance with local policy and standing operating procedures. Dispose of parts that are not made of metal (gaskets, seals, packings, etc.) in a refuse container.
- **Turn in** Turn over components and/or parts to your immediate supervisor (motor sergeant, motor officer, section chief, etc.) who will in turn dispose of in accordance with local policy and standing operating procedures.

CHAPTER 2 THERMAL SYSTEM TEST CONTROLLER

2-1. General. This chapter contains job tasks that tell you how to repair the thermal system test controller. The job tasks tell you how to remove and install components and assemblies of the chassis assembly and case assembly. Defective components and assemblies removed from the test controller are not covered in this manual for repair at this maintenance level. These defective items are turned in for repair. Repair of the test controller at this maintenance level is done by replacing any bad components or assemblies that are found by good components or assemblies.

2-2. Equipment Items Covered. Table 2-1 lists the equipment items covered in this chapter. The assemblies making up the thermal system test controller are listed along with the section and page number where they are found in this chapter.

Table 2-1. Equipment Items Covered

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2-3. Equipment Items Not Covered. None

2-4. General Maintenance Instructions. The following maintenance practices must be followed any time you are working on the test set.

NOTE

Electrical connector repair kit 12285360 contains instructions and tools needed for repair and replacement of connectors, receptacles, contacts, and wires.

a. Soldering Techniques. Solder connections must be bright clean before soldering. Remove dirt and grease from connections with freon (Item 13, appendix C) Type II and acid swabbing brush (Item 8, appendix C). Solder (Item 29, appendix C) must be non acid type. Rosin flux (Item 25, appendix C) should be used. All wires, parts, and solder iron must be pre-tinned for good connection and maximum transfer of heat. Clean all solder joints with acid swabbing brush (Item 8, appendix C) and isopropyl alcohol (Item 17, appendix C) after soldering to obtain a clean, bright surface.

b. Crimping Wires. Cutoff and get rid of broken, bent, or discolored contacts with pliers. Strip insulation from wires with a thermal wire stripper.

NOTE

Color bands on contacts indicate size of wire; for example, contacts with green color bands are for 22-26 gauge wire. Contacts with red color bands are for 20-24 gauge wire.

Put contact into crimping tool with color band toward rear. Put bare wire into contact and squeeze crimping tool. Take out crimped contact from tool and check crimp by looking through inspection hole. You must be able to see end of bare wire.

c. Tagging Electrical Wires. Look at component or part to see if wiring or component has numbers or letters. Write numbers or letters on tag (Item 34, appendix C) with pencil (Item 19, appendix C). Fasten tag on wire. Remove tags after parts or wires are installed. If you cannot tag a wire or component for some reason, write down the wire location and terminating point. After connecting wires without tags, check continuity of wire to make sure it is connected to the correct point.

d. Replacing Wires.

WARNING

Use solvent in a well-ventilated area away from open flame. Solvent can burn easily and may give off harmful vapors.

Cut shrinkable sleeving from terminals of wire to be replaced. Unsolder wire or cut if crimped. When soldering or unsoldering wires, hold the bare wire near the soldering point with long round nose pliers. Pliers act as a heat sink preventing heat damage to electrical and electronic components. Cut new wire to desired length and slide new heat-shrinkable tubing over ends of wire. Push sleeving back and strip insulation off wire with thermal wire stripper. Solder or crimp wire to end terminal. Clean soldered joint with acid swabbing brush (Item 8, appendix C) and solvent cleaning compound (Item 30, appendix C). Slide sleeving over connection. Using thermal gun, shrink sleeving.

e. Installing Heat-Shrinkable Tubing. Heat-shrinkable sleeving should be twice the diameter of the part it will be shrunk over. Slide sleeving over wire and terminal. Hold thermal gun 4 to 5 inches away from sleeving and apply heat for 30 seconds. Take thermal gun away as soon as sleeving forms to shape of wire and terminal. Let sleeving cool 30 seconds before handling.

f. Replacing Diodes (semiconductors), Relays, Potentiometers, Switches, Circuit Breakers, Wires, and Capacitors:

WARNING

Capacitors may hold high voltage that can cause injury. Before removing capacitors, short them to ground.

CAUTION

Use low-wattage soldering iron when replacing components or parts on printed circuit boards, cards or connectors. Printed circuits or connectors can be damaged if high-wattage soldering iron is used.