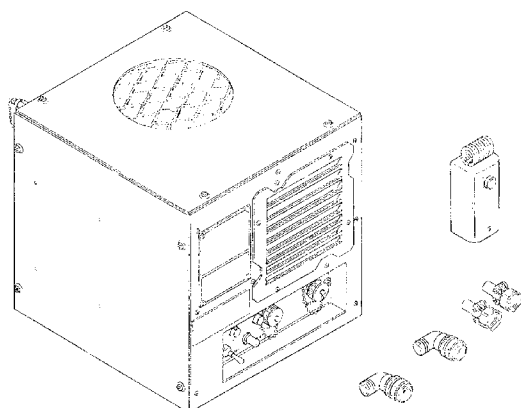


TECHNICAL MANUAL**OPERATOR'S, UNIT,
AND DIRECT SUPPORT
MAINTENANCE MANUAL**

**HEATER, SPACE, DIESEL,
WITH BLOWER
15,000 BTU/HR, 28VDC
(MODEL UH48-E, TYPE IV)**

(NSN 4520-01-368-9594)

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HEADQUARTERS, DEPARTMENT OF ARMY

30 JANUARY 1995

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DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 30 January 1995

OPERATOR'S, UNIT, AND DIRECT SUPPORT MAINTENANCE MANUAL

HEATER, SPACE, DIESEL, WITH BLOWER
15,000 BTU/HR, 28VDC
NSN 4520-01-368-9594

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 these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual directly to: Commander, US Army Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798 or E-mail to AMSATIMP@st-louis-emh7.army.mil. Fax to (314) 263-9033. A reply will be furnished directly to you.

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HOW TO USE THIS MANUAL

You must familiarize yourself with the entire maintenance procedures before beginning the maintenance task.

Access to the information contained in this technical manual is made easy by the use of front cover index. This index lists the major divisions of the technical manual (i.e. chapters, appendices, glossary, and index) and relates each division title to the contents of that division by lining up heavy black margin marks on the cover with a corresponding heavy black margin mark on the right hand side of the first page of the related major division.

Personnel needing general information on the equipment should refer to Chapter 1.

Personnel tasked with operation of the equipment should refer to Chapters 2 and 3.

Personnel tasked with maintenance at unit and direct support maintenance echelons should refer to Chapters 4 and 5, respectively. Higher maintenance echelon personnel may use lower echelon procedures as needed.

This technical manual contains operating instructions and information, unit and direct support maintenance procedures for a 15,000 BTU/hour diesel space heater with blower.

A listing of general warnings associated with the equipment and the tasks covered in this technical manual is contained in the front of this technical manual. WARNINGS, CAUTIONS, and NOTES are used within the technical manual to alert the user to potential personnel hazards, equipment hazards, and helpful explanatory information.

A detailed table of contents is provided that will allow the user to locate specific chapters and sections within the technical manual.

The instructions, information, and procedures in this technical manual are divided into chapters and sections. Each chapter is specifically targeted to the intended user of that chapter, as described in the chapter titles. Examples of these chapter titles are: OPERATING INSTRUCTIONS, OPERATOR MAINTENANCE INSTRUCTIONS, and DIRECT SUPPORT MAINTENANCE INSTRUCTIONS. These chapters attempt to communicate to a user having specific skills and capabilities. Appendices contain supplementary information to support the user of this technical manual. The types of information contained in the appendices are:

- Appendix A, References, contains a listing of other documents that are related to the equipment covered in this technical manual.
- Appendix B, Maintenance Allocation Chart, identifies all maintenance and repair functions authorized at various maintenance levels, designates overall responsibility for performance of maintenance functions, lists tools and test equipment needed for specific maintenance functions, and supplemental instructions and explanatory notes.
- Appendix C, Components of End Item (COEI) and Basic Issue Items (BII) Lists, provides information that will help using activities to inventory items required for safe and efficient operation of the equipment.
- Appendix D, Additional Authorization List, lists additional items the using activity is authorized for support of the equipment.
- Appendix E, Expendable and Durable Items List, provides information on supplies and materials required to operate and maintain the equipment.
- Appendix F, Illustrated List of Manufactured Items, provides illustrations, a list of required materials, and necessary dimensions and procedures for items that must be manufactured.
- Appendix G, Torque Limits, provides standard torque values for various fasteners.
- Appendix H, Mandatory Replacement Parts, provides a list of parts that are automatically replaced during maintenance procedures.

A glossary is provided after Appendix H. It contains information on abbreviations and terms used in this technical manual. Following the glossary is an alphabetical index to allow the user to easily find specific information contained in the technical manual.

Procedures and instructions contained in this technical manual are simply written and heavily illustrated to make them easy to understand and use.

With the exception of Chapters 1 and 2, the order of presentation of the instructions, information, and procedures contained within each chapter is in the order of the Maintenance Allocation Chart contained in Appendix B.

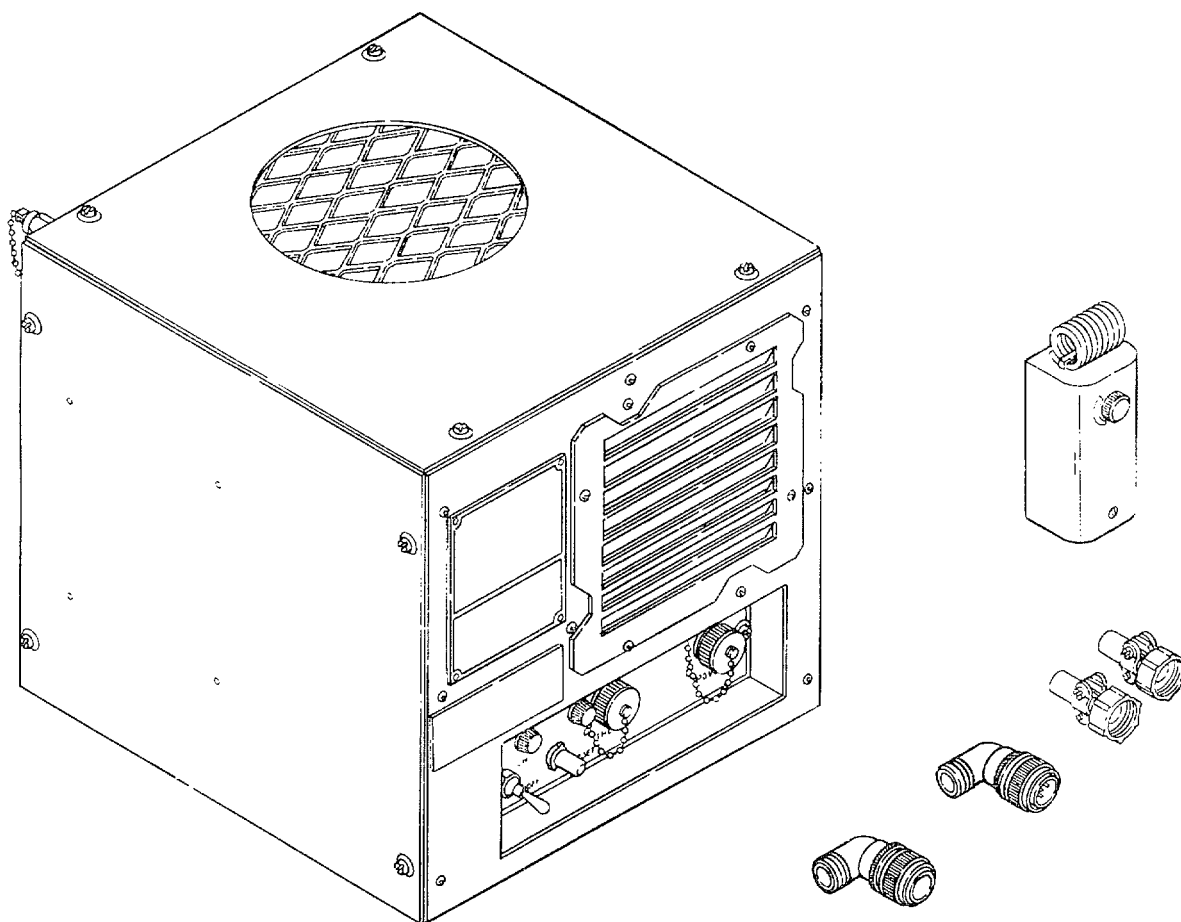


Figure 1-1. Diesel Space Heater With Blower.

CHAPTER 1

INTRODUCTION

SECTION I. GENERAL INFORMATION

1-1. SCOPE.

- a. Type of Manual. Operator's, Unit, and Direct Support Maintenance Manual.
- b. Model Number and Equipment Name. Model UH48-E, Type IV; Heater, Space, Diesel, with Blower, 15,000 BTU/hour, 28 VDC.
- c. Purpose of Equipment. Heats enclosed areas.

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS.

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738- 750, The Army Maintenance Management System; DA Pam 738-751, Functional Users Manual for The Army Maintenance Management System - Aviation (TAMMS-A); or AR 700-138, Army Logistics Readiness and Sustainability.

1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.

For destruction procedures for materiel, refer to TM 750-244-3.

1-4. PREPARATION FOR STORAGE OR SHIPMENT.

See unit maintenance instructions (paragraph 4-29) for procedures that ensure safe storage or shipment of the heater.

1-5. QUALITY ASSURANCE (QA).

Workmanship shall be of the highest quality and shall permit no defects not repaired in accordance with the instructions in this manual. All metal parts shall be clean and free of sand, dirt, etc. The inside and outside of the heater shall be clean and free of foreign material.

1-6. OFFICIAL NOMENCLATURE, NAMES, AND DESIGNATIONS.

Shortened nomenclature is used in this manual to make procedures easier for you to read. A cross-reference between the shortened nomenclature and the official nomenclature is shown in the following table.

Table 1-1. Nomenclature Cross-Reference

Manual Nomenclature	Official Nomenclature
Heater	Heater, Space, Diesel, With Blower, 15,000 BTU/hour, 28 VDC

1-7. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

If your heater 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 or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to Commander, U.S. Army Aviation and Troop Command, ATTN: AMSAT-I-MDO, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. We will send you a reply.

1-8. REPAIR PARTS; TOOLS; SPECIAL TOOLS; TEST, MEASUREMENT AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT.

Repair parts and special tools are listed and illustrated in TM 9-4520-260-23P. Special tools are also listed in Section III of the Maintenance Allocation Chart (MAC) located in Appendix B of this manual.

1-9. SAFETY, CARE, AND HANDLING.

a. General Safety. The heater does not present any safety hazards; however, during maintenance some parts may be exposed which are subject to high temperatures.

(1) Be careful when testing the heater with top and side cover panels removed. Electrical parts have a potential of high voltage during operation.

(2) During normal operation, with all cover panels installed, electrical parts and burner parts subject to heat are enclosed and guarded in the heater.

(3) Observe all warning and caution notes that appear before each maintenance operation. Refer also to the Warning Page.

b. Handling. The heater weighs approximately 34 pounds and may require two personnel for lifting and moving.

1-10. CORROSION PREVENTION AND CONTROL (CPC).

a. Corrosion Prevention and Control of Army materiel is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items.

b. While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials, such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of the materials may be a corrosion problem.

c. If a corrosion problem is identified, it can be reported using Standard Form 368, Product Quality Deficiency Report. Use of key words such as "rust," "deterioration," "corrosion," or "cracking" will ensure that the information is identified as a CPC problem. The form should be submitted to the address specified in DA Pam 738-750.

SECTION II. EQUIPMENT DESCRIPTION AND DATA

1-11. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

- a. The heater is designed to operate from a 28 VDC source. The heater has a maximum output of 15,000 British Thermal Units (BTU) per hour. The heater is designed for wall or floor mounting. Heater control is provided by a remotely controlled room thermostat to maintain temperature within 35° to 95F (1.7° to 35°C) up to the rated output of the heater.
- b. The heater is equipped with a removable discharge louver for directing the outlet air. A screened air inlet opening provides entry of circulating air. Combustion air for the burner head is provided by a separate blower and enters the heater through the rain shield at the rear of the heater.
- c. The Electronic Control Unit (ECU) controls the starting and stopping of the heater as the room thermostat reaches its desired setting.
- d. The proper fuels (Item 7, Appendix E) to use at various ambient temperatures are listed in Table 1-2.

Table 1-2. Types of Fuel

Ambient Temperature	Specification	Military Symbol
Above 20°F (-6.70C)	VV-F-800	DF-2
+20°F (-6.7°C) to -25°F (-32.2°C)	VV-F-800	DF-1
Below -25°F (-32.20C)	VV-F-800	DF-A

1-12. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.

- a. Cover Panels (1). The side cover panel and the top cover panel are interchangeable to provide alternate air intake installation.
- b. Rain Shield (2). The rain shield provides combustion air intake to the burner. It has a removable rain shield cover. The rain shield cover is reversible for use in outside installations.
- c. Bulkhead Fitting (3). The bulkhead fuel inlet fitting is mounted to the back of the case and to the strainer to provide fuel to the fuel pump.
- d. Control Panel (4). The control panel controls the heater operation with an ON-OFF switch, a reset circuit breaker, a fuse, a spare fuse holder, a power receptacle, and a thermo receptacle.
- e. Fuel Pump (5). The 28 VDC pulsating-type electric fuel pump draws fuel from the strainer and fuel supply and pumps it to the carburetor. A filter removes contaminants which may have passed through the strainer.
- f. Ignition Pack (6). The ignition pack converts 28 VDC input to the high voltage output necessary to provide a hot spark at the igniter in the burner head. This spark ignites fuel vapors to start combustion. A shielded high voltage cable connects the secondary of the ignition pack to the igniter.
- g. Burner (7). The burner head is mounted to the heat exchanger. It provides mounting for the glow plug, igniter, and carburetor. Combustion air is supplied to the burner head by the motor fan assembly. The air and fuel mixture ignites in the burner head combustion chamber.
- h. Strainer (8). The strainer traps and holds dirt, moisture, and other contaminants to keep them from entering the heater fuel system. A metal disc-type element is contained in the sediment bowl.