TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, AND DIRECT SUPPORT MAINTENANCE MANUAL

HEATER, SPACE MULTIFUEL WITH BLOWER, 15,000 BTU/HR, 28 VDC (VBM MODEL VBM 15-IV) NSN 4520-01-032-7363

HEADQUARTERS, DEPARTMENT OF THE ARMY

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REPORTING OF ERRORS

You can help improve this manual by calling attention to errors and by recommending improvements, using DA Form 2028 (Recommended Changes to Publications and Blank Forms) or DA Form 2028-2 (Test), located in back of manual, or by a letter, and mail directly to Commander, U.S. Army Troop Support Command, ATTN: DRSTS-MTPS, 4300 Goodfellow Blvd., St. Louis. MO 63120, A rely will be furnished directly to you.

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. SCOPE. This manual is for your use in operating and maintaining the Heater, Space, Multifuel, with Blower, 15,000 Btu/hr (3780 kg-c), 28 vdc Model VBM 15-IV.

1-2. MAINTENANCE FORMS AND RECORDS.

a. Maintenance forms and records that you are required to use are as follows:

(1) DA Form 2402 (Exchange Tag).

(2) DA Form 2404 (Equipment Inspection and Worksheet).

(3) DA Form 2407 (Maintenance Request Used for Requesting Support Maintenance).

(4) DA Form 2407-1 (Continuation Sheet Used for Requesting Support Maintenance).

b. For additional forms and records pertaining to your particular equipment, refer to TM 38-750 (The Army Maintenance Manual System [TAMMS]).

1-3. ADMINISTRATIVE STORAGE.

a. General.

(1) Equipment that is placed in administrative storage should be capable of being readied to perform its mission within a 24-hour period or otherwise may be prescribed by the approving authority.

(2) Report equipment in administrative storage in Materiel Readiness and Unit Readiness reports as prescribed for all reportable equipment.

(3) Perform inspections, maintenance services, and lubrications in accordance with the instructions in this manual.

b. Storage Site.

(1) Select the best available site for storage. Separate stored equipment from equipment in use. Conspicuously mark the area “Administrative Storage”.

(2) Covered space is preferred. Open sites should be improved hardstand, if available. Unimproved sites should be firm, well-drained, and kept free of excessive vegetation.

c. Storage Plan.

(1) Store equipment so as to provide maximum protection from the elements and to provide access for inspection, maintenance, and exercising.

(2) Take into account environmental conditions, such as extreme heat or cold; high humidity; blowing sand, dust, or loose debris; soft ground; and take adequate precautions.

d. Maintenance Services and Inspection.

(1) Prior to storage, perform the next scheduled major preventive maintenance checks and services. Inspect and approve equipment.

(2) Correct all shortcomings and deficiencies. Clean the equipment of dirt, grease, and other contaminants.

(3) Remove rust and damaged paint by scraping, wire brushing, sanding, or buffing. Sand to a smooth finish and spot paint, as necessary.

(4) After cleaning and drying, immediately coat unpainted surfaces with an oil or grease as appropriate.

(5) Install all covers; close and secure all openings except those required for venting and draining. Seal openings to prevent entry of rain, snow, or dust. Place equipment and provide adequate blocking to allow for draining of water.

1-4. EQUIPMENT SERVICEABILITY CRITERIA. This equipment is not covered by an ESC.

1-5. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.

a. Destruction by Misuse.

(1) Pour sand and gravel into the fuel supply.

(2) Block air inlet and outlet passages with oil-soaked rags or debris.

b. Mechanical Destruction. Using an axe, pick, mattock, sledge, or any other heavy implement, damage all vital elements such as controls, fuel pump, switches and valves, motor and any other major assemblies and components.

c. Destruction by Fire. Pour fuel over unit and pile quantities of flammable material around unit. Burn assemblies and components on a priority basis if possible. Proper concentration of equipment to be burned will produce a hotter, more destructive fire. Fires should be lit after mechanical destruction has been accomplished.

d. Destruction by Gunfire.

WARNING

Point blank firing at equipment should not be attempted unless the safety of all personnel in the area is assured.

Fire on the equipment with the heaviest weapons available, aiming at the major assemblies and controls.

e. Use of Natural Surroundings.

(1) Submergence of equipment and repair parts underwater (lakes, ponds, bogs, swamps, etc.), or by concealment by hiding material in caves or preferably by burial, can be used effectively.

(2) Widely dispersed scattering of material, preferably into heavy underbrush, can serve as a denial or delaying measure. In the event the area is recaptured, effort should be made to recoup concealed items.

1-6. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS.

EIRIs will be prepared on SF Form 368, Equipment Deficiency Report. Instructions for preparing EIR's are provided in TM 38-750, THE ARMY MAINTENANCE MANAGEMENT SYSTEM (TAMMS). EIR's should be mailed directly to Commander, U.S. Army Troop Support and Aviation Materiel Readiness Command, St, Louis, Missouri 63120. A reply will be furnished to you ,

Section II. DESCRIPTION AND DATA

1-7. DESCRIPTION.

NOTE

Dimensions and tolerances are given in U.S. Standard and metric units. Metric units are enclosed in parentheses.

a. The Model VBM 15-IV Multifuel Space Heater is designed for heating enclosures at which a source of 28-volt direct current power source is available. It has a maximum output of 15,000 Btu (3780 kg-c) per hour, and is designed for floor or wall installation. The heater is controlled by a remotely mounted thermostat to maintain a selected temperature in an enclosed space within the range of 35° to 95°F (1.7° to 35°C) up to the rated output of the heater.

b. The heater will operate satisfactorily on any gasoline conforming to Specification MIL-G-3056, VV-G-76, or any other gasoline (leaded or aromatic) of up to 100-octane grade. It will also burn diesel fuel which conforms to Specification VV-F-800, Class DF-1, DF-2, or DF-A, having a cloud point of not less than -55°F (-48°C) . Air craft turbine fuels JP-4 and JP-5, conforming to Specification MIL-T-5624, will also operate this heater.

c. The heater is equipped with a removable discharge louver (fig. 1-1) for directing the outlet air. A screened air inlet opening provides for entry of circulating air. Combustion air is provided by a separate impeller assembly and enters the heater through an opening at the rear of the heater.

d. The heater is equipped with a timed ignition control for safe starting without continuous operator supervision. A safety control will shut off the power if ignition does not occur within 5 seconds, minimizing risk of fire or explosion and protecting the unit from damage in the event of equipment malfunction or loss of fuel .

e. Once the heater is in full operation, an additional safety control will shut off the flow of fuel if the unit reaches an overheat temperature of 250° ±6°F (98.9° ±6.7°c).

f. The organizational maintenance paragraphs of this manual contain detailed descriptions of the heater components.

1-8. DIFFERENCES IN MODELS.

This publication covers only Heater, Space, VBM Corporation Model VBM 15-IV, serial numbers 001 through 632. No known differences exist for models in this serial number range.

1-9. TABULATED DATA.

a. Identification. The heater has four major identification plates, as follows:

(1) The U.S. Government data plate (fig. 1-2) lists the heater nomenclature, national stock number, part number, contract number, serial number, and weight.

(2) The wiring diagram plate is mounted on the inside of the top cover panel of the heater.

(3) The electrical schematic plate is mounted on the inside of the solid right side cover panel of the heater.

(4) The instruction plate (fig. 1-1) provides abbreviated operating instructions for the heater.

b. Tabulated Data. Tabulated data applicable to the space heater and its components is given in table 1-1.

c. Electrical Schematic and Wiring Diagram. Refer to figure 1-3 for the electrical schematic diagram. Refer to figure 1-4 for the wiring diagram.

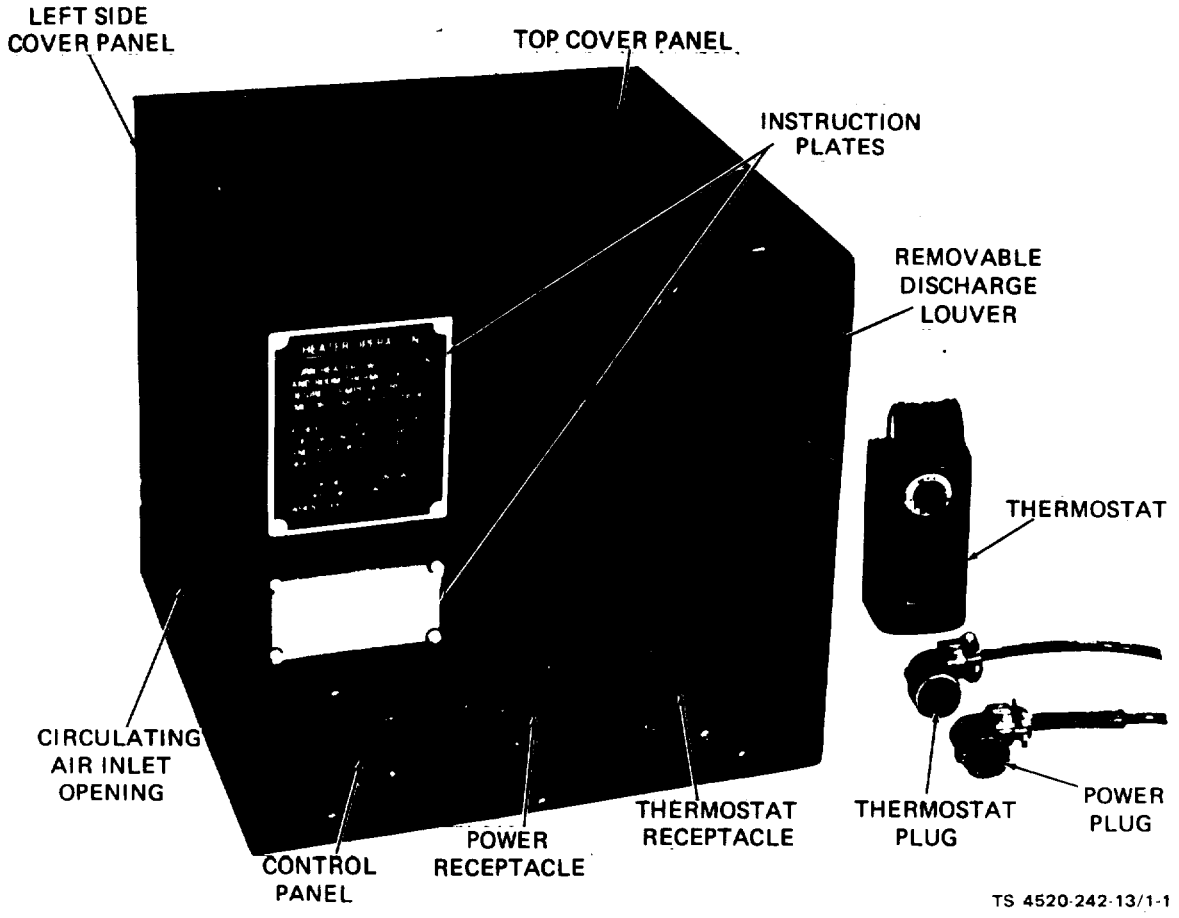


Figure 1-1. Multifuel space heater, left front three-quarter view.

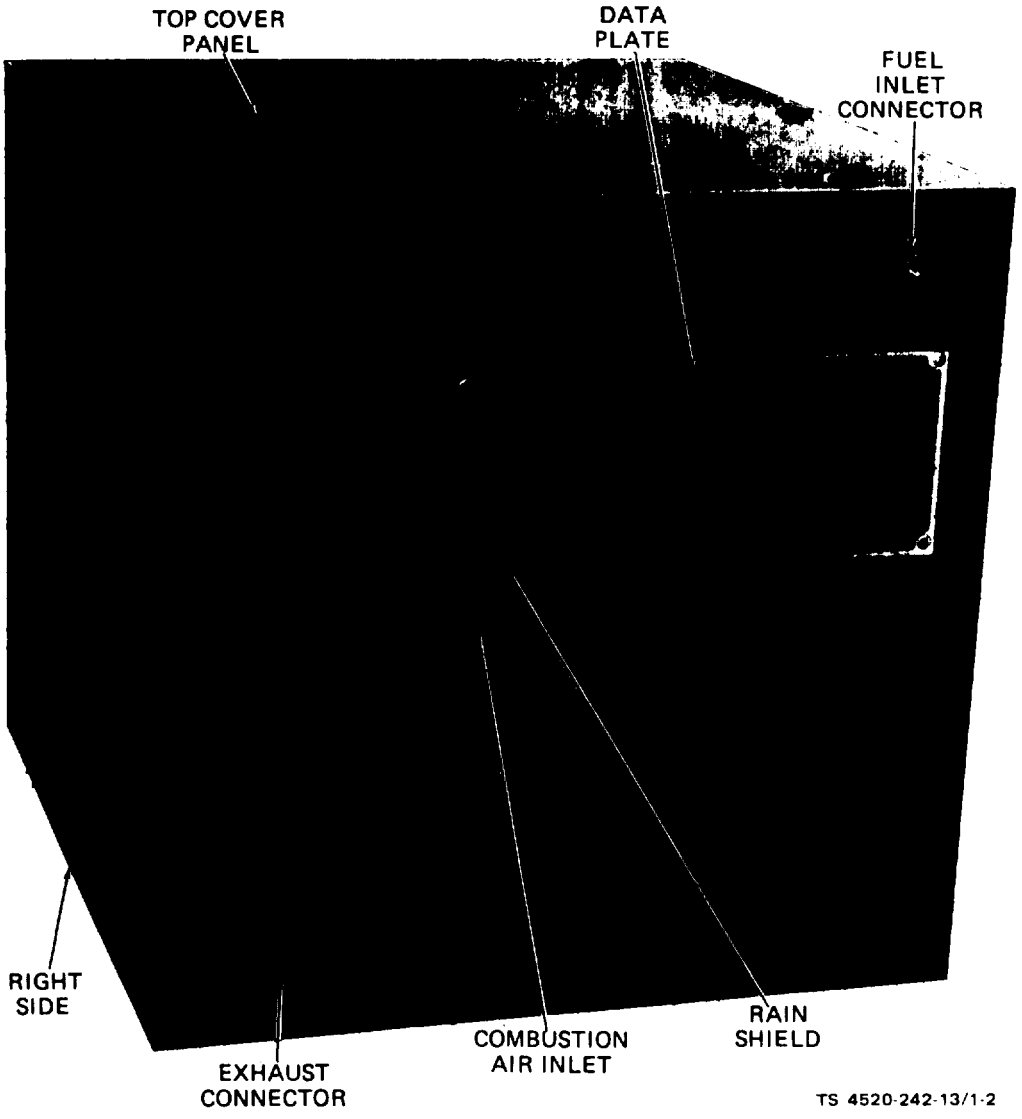
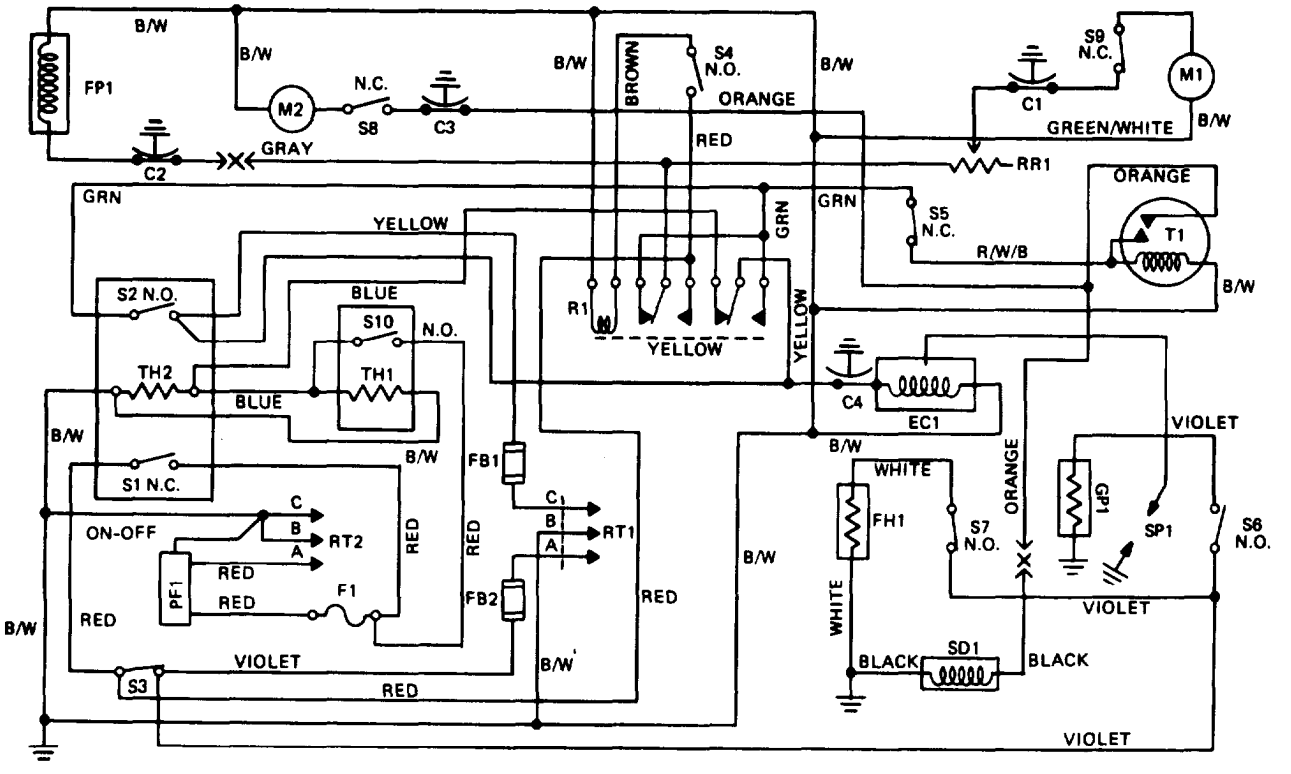


Figure 1-2. Multifuel space heater, right rear, three-quarter view.



KEY TO DIAGRAM			
C1	Capacitor-Vent. & Comb. Motor	S4	Sw. Safety Thermostat
C2	Capacitor-Fuel Pump	S5	Sw. Overheat Thermostat
C3	Capacitor-Compressor	S6	Sw. Glow Plug Thermostat
C4	Capacitor-Ignition Coil	S7	Sw. Fuel Heater Thermostat
F1	Fuse	S8 & S9	Sw. Overheat Protector
FH1	Fuel Heater	S10	Sw. Maintenance Thermostat
FP1	Fuel Pump	SD1	Solenoid
EC1	Ignition Coil	SP1	Spark Plug
GP1	Glow Plug	T1	Timer
M1	Vent. & Comb. Motor	TB1 & TB2	Terminal Block
M2	Compressor	TH1 & TH2	Timer Heater
R1	Relay-DPDT	R/W/B	Red, White, Blue
RR1	Resistor	B/W	Black, White
RT1	Receptacle-Thermostat	GRN	Green
RT2	Receptacle-Power 28 V.D.C.	YEL	Yellow
S1	Sw. Reset Thermostat	WHT	White
S2	Sw. Delay Thermostat	FB1 & FB2	Ferrite Beads
S3	Sw. On-Off	PF1	Power Filter

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Figure 1-3. Electrical schematic diagram.