

INCH-POUND

MIL-PRF-44466A  
25 April 1997  
SUPERSEDING  
MIL-H-44466  
11 June 1993

## PERFORMANCE SPECIFICATION

### HEATER, WATER AND RATION (HWR)

This specification is approved for use by all Departments and Agencies of the Department of Defense (DoD).

#### 1. SCOPE

1.1 Scope. This specification covers one type of heater for use by mounted troops that will heat rations, water for beverages and for limited personal hygiene (see 6.1).

#### 2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Natick Research, Development and Engineering Center, Natick, MA 01760-5018 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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2.2 Government documents.

2.2.1 Standards. The following standards form part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

## STANDARDS

## MILITARY

- |             |  |
|-------------|--|
| MIL-STD-461 | - Control of Electromagnetic Interference Emissions and Susceptibility, Requirements for |
| MIL-STD-462 | - Electromagnetic Interference Characteristics, Measurement of                           |
| MIL-STD-810 | - Environmental Test Methods and Engineering Guidelines                                  |

(Unless otherwise indicated, copies of the above standards are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094).

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

## THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME/ANSI PTC 25.3 - Safety and Relief Valves

(Application for copies should be addressed to the American Society of Mechanical Engineers, United Engineering Center, 345 East 47th Street, New York, NY 10017).

## NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

Standard No. 70 - National Electrical Code

(Application for copies should be addressed to the National Fire Protection Association, One Battery March Park, Quincy, MA 02269-9101).

## NSF INTERNATIONAL

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Standard No. 2 - Food Service Equipment

Standard No. 4 - Commercial Cooking, Rethermalization and Powered Hot Food Holding and Transport Equipment

(Application for copies should be addressed to NSF International, 3475 Plymouth Road, P. O. Box 1468, Ann Arbor, MI 48105).

## UNDERWRITERS LABORATORIES, INC. (UL)

Standard 499 - Standard for Safety of Electric Heating Appliances

(Application for copies should be addressed to the Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096).

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.1.1.

3.2 Operating requirements. The Heater, Water and Ration (HWR) shall satisfy the following operating requirements.

3.2.1 Temperature selection settings. The HWR shall have a low temperature setting of 155°F ± 5°F and a high temperature setting of 185°F ± 5°F.

3.2.2 Heating water. The HWR shall be capable of heating water.

3.2.3 Heating rations. The HWR shall be capable of heating 40 ounces of water in the main compartment and 5 Meal, Ready-to-Eat (MRE) entrees.

3.2.4 Capacity. The HWR shall have a minimum capacity of 1 gallon of water in the main compartment. The removable inner container shall have a minimum capacity of 40 fluid ounces and 5 MRE entrees.

3.2.5 Control panel. The control panel shall consist of a low, off, high temperature selection switch, a power use indicator light (green), a heating element operation indicator light (white), an electric supply receptacle and a water spigot.

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3.2.6 Safety. The HWR shall be safe to operate in accordance with the standards specified herein.

3.2.6.1 Pressure relief. The HWR shall have the capability to relieve pressure buildup within the heating unit.

3.2.6.2 Automatic shutdown. The HWR shall automatically shut off power when the water level in the main compartment is empty or the internal temperature exceeds 205°F. Following cooldown, the HWR shall be capable of heating water.

3.2.6.3 Spillage. Closure and securing of the HWR lid shall form a watertight seal to prevent spillage.

3.3 **Interface and interoperability requirements**. The HWR shall satisfy the following interface and interoperability requirements.

3.3.1 Operating current. The HWR shall operate on a 24/28 Volt DC system while drawing a current not less than 10 amps and not greater than 15 amps at 28 volts.

3.3.2 Low voltage detector. The HWR shall have a low voltage detector which activates the heater off latch if the voltage falls below 20 Volts DC.

3.3.3 Dimensions. The unit shall have overall dimensions no greater than those shown on figure 1.

3.3.4 Electric supply receptacle. The electric supply receptacle, pins and polarizing key location shall be as shown on figure 1. The pin connections shall be Pin A positive, Pin B negative, and Pin C no connection. National Stock Number (NSN) 5935-01-191-4015 or equivalent shall be utilized to meet this requirement.

3.3.5 Mounting studs. The mounting studs shall be permanently attached and threaded, positioned and dimensioned as shown on figure 1.

3.3.6 Food contact zone. The surfaces of the main compartment and inner container shall be nontoxic and resistant to cleaning agents used during current field practice for cleaning cooking utensils.

3.4 **Support or ownership requirements**. The HWR shall satisfy the following support or ownership requirements.

3.4.1 Reliability. The HWR shall demonstrate a mean time between essential mission failure (MTBEMF) of at least 640 operational hours at a minimum confidence level of 80%.

3.4.2 Weight. The maximum net weight of the empty HWR shall be 20 pounds.

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3.4.3 Maintainability. Routine maintenance and servicing of the HWR shall require only standard hand tools. Placement of components and access panels shall consider maintenance and servicing.

3.4.3.1 Electrical wiring. Electrical wiring shall be arranged, supported and marked to allow identification with the wiring diagram.

3.4.4 Marking. Identification, instruction, and control plates shall be of corrosion-resistant material permanently attached to the outside of the unit. Numbering and lettering shall be legible and permanently inscribed and shall be no less than 1/16 inch in height. All plates shall have a nonreflective surface.

3.4.4.1 Identification plate. The identification plate information shall include the manufacturer's name, contract number and date, the Commercial and Government Entity (CAGE) number and the technical manual number, if applicable, (see 6.2 and 6.5).

3.4.4.2 Instruction plate. The instruction plate shall contain the following instructions:

This system is designed to  
ONLY HEAT:

- Meals, Ready-to-Eat (MRE).
- Sealed containers of food.
- Drinkable water.

This system will NOT cook, boil, or  
fry foods, and it will NOT disinfect  
or decontaminate water.

The REMOVABLE CONTAINER and  
HANDLE will be extremely HOT.

Use Gloves or other hand protection.

Do NOT use removable container for personal hygiene  
(shaving, washing, etc.)

Use only APPROVED cleaning material  
as defined in the technical manual.

3.4.5 Durability. The HWR shall remain operable, not leak or malfunction after being subjected to simulated field handling conditions.

3.5 Environmental requirements. The heating units shall satisfy the following

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environmental requirements.

3.5.1 Ambient temperature. The HWR shall start and operate in ambient temperatures of -25°F and +140°F.

3.5.2 Storage. The HWR shall remain operable after storage at temperatures of -60°F and +160°F.

3.5.3 Humidity. The HWR shall operate at a temperature of 140°F and 94%  $\pm$  4% humidity.

3.5.4 Heat retention. The HWR shall retain temperature for a minimum of 3 hours after shutdown.

3.5.5 Electromagnetic compatibility. When specified (see 6.2), the HWR shall not exceed the emission and susceptibility limits for ground applications.

3.5.6 Vibration. The HWR shall remain operable after being subjected to vibration testing.

#### 4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.1.1)
- b. Conformance inspection (see 4.1.2)

4.1.1 First article inspection. When a first article inspection is required (see 3.1 and 6.2), a sample shall be examined for all the verifications listed in table I.

4.1.2 Conformance inspection. Conformance inspections of the HWR shall consist of all the verifications listed in table I, except the verification testing specified for the requirements of paragraphs 3.2.1 through 3.2.3, 3.2.6.2 and 3.2.6.3, 3.4.1, 3.4.5 and 3.5.1 through 3.5.6. shall not be done. Sampling for this inspection shall be as specified in the contract or order (see 6.2).

4.2 Order of verification. The verifications listed in table I can be performed in any sequence, but the verifications for table II shall be performed in the sequence specified.

TABLE I. Verification methods

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Title	Requirement	Verification	Title	Requirement	Verification
<b>OPERATING REQUIREMENTS</b>	3.2	4.3.2	<b>SUPPORT OR OWNERSHIP REQUIREMENTS</b>	3.4	4.3.4
Temperature selection settings	3.2.1	4.3.2.1	Reliability	3.4.1	4.3.4.1
Heating water	3.2.2	4.3.2.2	Weight	3.4.2	4.3.4.2
Heating rations	3.2.3	4.3.2.3	Maintainability	3.4.3	4.3.4.3
Capacity	3.2.4	4.3.2.4	Electrical wiring	3.4.3.1	4.3.4.4
Control panel	3.2.5	4.3.2.5	Marking	3.4.4	4.3.4.5
Safety	3.2.6	4.3.2.6	Identification plate	3.4.4.1	4.3.4.5.1
Pressure relief	3.2.6.1	4.3.2.7	Instruction plate	3.4.4.2	4.3.4.5.2
Automatic shutdown	3.2.6.2	4.3.2.8	Durability	3.4.5	4.3.4.6
Spillage	3.2.6.3	4.3.2.9	<b>ENVIRONMENTAL REQUIREMENTS</b>	3.5	4.3.5
<b>INTERFACE AND INTEROPERABILITY REQUIREMENTS</b>	3.3	4.3.3	Ambient temperature (low)	3.5.1	4.3.5.1
Operating current	3.3.1	4.3.3.1	Ambient temperature (high)	3.5.1	4.3.5.2
Low voltage detector	3.3.2	4.3.3.2	Storage	3.5.2	4.3.5.3
Dimensions	3.3.3	4.3.3.3	Humidity	3.5.3	4.3.5.4
Electric supply receptacle	3.3.4	4.3.3.4	Heat retention	3.5.4	4.3.5.5
Mounting studs	3.3.5	4.3.3.5	Electromagnetic compatibility	3.5.5	4.3.5.6
Food contact zone	3.3.6	4.3.3.6	Vibration	3.5.6	4.3.5.7

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TABLE II. Verification test sequence

Test Sequence	Requirement Paragraph	Characteristic	Verification Paragraph
1	3.3.1	Operating current	4.3.3.1
2	3.2.2	Heating water	4.3.2.2
3	3.5.1	Ambient temperature	4.3.5.1/4.3.5.2
4	3.2.3	Heating rations	4.3.2.3
5	3.2.1	Temperature selection settings	4.3.2.1
6	3.5.2	Storage	4.3.5.3
7	3.5.4	Heat retention	4.3.5.5
8	3.5.3	Humidity	4.3.5.4
9	3.4.5	Durability	4.3.4.6
10	3.2.6.3	Spillage	4.3.2.9
11	3.5.5	Electromagnetic compatibility	4.3.5.6
12	3.2.6.2	Automatic shutdown	4.3.2.8
13	3.4.1	Reliability	4.3.4.1
14	3.5.6	Vibration	4.3.5.7

4.3 Verification methods. Verification methods can include visual examination, measurement, testing, simulation, modeling, engineering evaluation, component properties analysis, certification and similarity to previously-approved or previously-qualified designs.

4.3.1 Verification alternatives. The contractor may propose alternative test methods, techniques, or equipment, including the application of statistical process control, tool control, or cost-effective sampling procedures to verify performance (see 6.4).

4.3.2 Operating requirements verification. Complete each verification in section 4.3.2.

4.3.2.1 Temperature selection settings verification. The HWR shall be connected to a 24/28 Volt DC power supply at an ambient air temperature of 70°F. One-half gallon of water at approximately 70°F shall be added to the main container. The temperature selection switch shall be set to the low temperature setting for 2 hours. Verify the water temperature to be 155°F  $\pm$  5°F. Repeat above test at the high temperature setting and verify the water temperature to be 185°F  $\pm$  5°F.



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4.3.2.2 Heating water test. The HWR shall be connected to a 24/28 Volt DC power supply at an ambient air temperature of approximately 70°F. One gallon of water at approximately 40°F (T1) shall be added to the main container. The temperature selection switch shall be set to the high temperature setting for 1 hour. Upon completion of 1 hour, the unit shall be shut off and the temperature of the water taken (T2). Verify that  $T2 - T1 \geq 100^\circ\text{F}$ .

4.3.2.3 Heating rations test. The HWR shall be connected to a 24/28 Volt DC power supply at an ambient air temperature of 70°F. Forty ounces of water at approximately 70°F shall be added to the main compartment and 5 MREs with any water necessary for convection shall be placed into the inner container. Set the temperature selection switch to the high temperature position. At 5-minute intervals the external surface temperature of the HWR and the MRE's temperature shall be taken and recorded. A surface temperature  $\leq 120^\circ\text{F}$  and an MRE temperature of  $185^\circ\text{F} \pm 5^\circ\text{F}$  shall be verified.

4.3.2.4 Capacity verification. The capacity of the main compartment and the removable inner container shall be verified.

4.3.2.5 Control panel verification During the heating tests, verification shall be made that the low/off/high temperature selection switch works properly; the indicator lights are colorcoded (power - green; heating - white) and functioning; the electrical supply receptacle is properly located, and that the spigot is heavy-duty and properly guarded to prevent accidental activation.

4.3.2.6 Safety certification and inspection. Safety requirements shall be verified as follows.

4.3.2.6.1 Wiring certification. Wiring practices used in the heating units shall be certified as conforming to NFPA Standard No. 70 by submission of the manufacturer's certification, a certified test report, or appropriate labels or listing marks.

4.3.2.6.2 Underwriters Laboratories, Inc. (UL). Evidence of meeting the applicable requirements of the Underwriters Laboratories Standard 499 shall be the UL label, a UL listing mark, or a certified test report from a recognized independent laboratory indicating that the HWR conforms to the applicable requirements of the specified UL standards.

4.3.2.6.3 NSF International. Evidence of meeting the applicable requirements of NSF International Standards 2 and 4 shall include display of the NSF International Mark and Listing in the "NSF Listings, Food Equipment and Related Products, Components and Materials," a letter from the NSF International stating that the HWR has been evaluated under their one time evaluation program for Government contracts and meets applicable requirements of NSF Standards 2 and 4; or a certified test report from an independent testing laboratory, acceptable to the Army Surgeon General, stating that the HWR was evaluated and conforms to the applicable requirements of NSF International Standards 2 and 4. Independent laboratories acceptable to the Army Surgeon General include Underwriters Laboratories, Sanitation and Incchape Testing Services.

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4.3.2.6.4 The American Society of Mechanical Engineers (ASME). The contractor shall submit a written certificate of compliance as proof that the HWR meets the applicable requirements of ASME/ANSI PTC 25.3.

4.3.2.7 Pressure relief verification. Visually verify that the capability to relieve pressure does not exceed a maximum of one-third psig.

4.3.2.8 Automatic shutdown verification. The temperature selection switch shall be set to the "high" position. Verify that the over temperature control stops the current and shuts down the HWR when the main compartment temperature exceeds 205°F. The HWR shall be given sufficient time to cool down. Proper operation of the HWR shall be verified by performing the test procedure specified in 4.3.2.2.

4.3.2.9 Spillage test. One-half gallon of water shall be placed into the HWR and the lid shall be secured. The container shall be placed on its side and left for 10 minutes. The container shall then be placed on its next side by rotating 90° and again left for 10 minutes. This procedure shall be repeated until all 4 sides have been done. The HWR shall then be turned upside down so that the HWR is resting on its lid. Verify that no leakage, except leakage through the pressure relief valve has occurred.

4.3.3 **Interface and interoperability requirements verification**. Complete each verification in section 4.3.3.

4.3.3.1 Operating current test. The HWR shall be connected to a 24/28 Volt DC power supply. The temperature selection switch shall be set to the "high" position and to the "low" position for 20 seconds each. Drawing of a current no less than 10 amps or no greater than 15 amps shall be verified.

4.3.3.2 Low voltage detector test. Verify that the low voltage detector monitors the power supply and activates the heater off latch when the voltage level is  $\leq 20$  Volts DC.

4.3.3.3 Dimensions verification. Verify that overall dimensions of the HWR are no greater than indicated on figure 1.

4.3.3.4 Electric supply receptacle verification. Verify that the receptacle, pins and polarizing key location are as shown on figure 1. Verify that the pin connections are Pin A positive, Pin B negative, and Pin C no connection.

4.3.3.5 Mounting studs verification. Verify the permanency of the mounting stud attachment and that the stud thread, location, and dimensions are as indicated on figure 1.

4.3.3.6 Food contact zone verification. Verify that the surfaces of the main compartment and the inner container are nontoxic, cleaning agent resistant and have a stainless steel number 3 finish in accordance with food zone requirements of NSF Standards 2 and 4.

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4.3.4 **Support or ownership requirements verification.** Complete each verification in section 4.3.4.

4.3.4.1 **Reliability test.** The HWR shall demonstrate a minimum of 1030 operation cycles (approximately 1030 hours of operational test time) without failure. Up to 10 HWRs may be utilized concurrently to achieve the total number of test cycles. A cycle is one iteration of the procedure outlined in 4.3.2.2. Achievement of a temperature rise  $\geq 100^{\circ}\text{F}$  per cycle and no component failure shall be verified.

4.3.4.2 **Weight verification.** Verify that the empty HWR does not exceed 20 pounds.

4.3.4.3 **Maintainability verification.** Demonstrate and verify that all components are accessible for ease of installation, adjustment, maintenance, servicing and replacement without the removal of any other component and that there is no requirement for special tools.

4.3.4.3.1 **Alternative maintainability analysis.** When a technical manual is furnished as part of the contract, it shall be analyzed for proper service and maintenance procedures in lieu of the demonstration specified in 4.3.4.3.

4.3.4.4 **Electrical wiring inspection.** Visually verify that all wiring is marked to allow identification with the wiring diagram.

4.3.4.5 **Marking inspection.** Visually verify that all identification, instruction and control plates are permanently attached to the outside of the heating unit, lettering is permanently inscribed, legible and not less than 1/16 inch high, and plates have a nonreflective surface.

4.3.4.5.1 **Identification plate inspection.** Visually verify that all information is complete and accurate.

4.3.4.5.2 **Instruction plate inspection.** Visually verify that all instructions are complete and accurate and that the plate is located as indicated on figure 1.

4.3.4.6 **Durability test.** One half-gallon of water shall be placed into the HWR and the temperature selection switch set to the "high" temperature setting. While operating, the HWR shall be raised 12 inches from the floor and dropped onto a concrete surface 5 times. The HWR shall continue to be operated for 2 hours. Verify the water temperature to be  $185^{\circ}\text{F} \pm 5^{\circ}\text{F}$  and that no leakage or malfunction has occurred.

4.3.5 **Environmental requirements verification.** Complete each verification in section 4.3.5.

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4.3.5.1 Ambient temperature (low) test The test procedures specified in 4.3.2.2 shall be followed, except that the ambient air temperature shall be changed to -25°F. Verify that  $T_2 - T_1 \geq 100^\circ\text{F}$ .

4.3.5.2 Ambient temperature (high) test. The test procedure specified in 4.3.2.2 shall be followed, except that the ambient air temperature shall be changed to 140°F. Verify that  $T_2 - T_1 \geq 100^\circ\text{F}$ .

4.3.5.3 Storage test. The HWR shall be subjected to a temperature of -60°F for 4 hours and then the temperature shall be increased to the normal ambient room temperature after which the HWR shall be operated for 1 hour. The HWR shall then be subjected to a temperature of 160°F for 4 hours and then the temperature shall be decreased to the normal ambient room temperature after which the HWR shall be operated for 1 hour. Verify that no failure to operate occurred, there has been no permanent set or loss of resiliency of gaskets, or discoloring, cracking or bulging of the unit.

4.3.5.4 Humidity test. The HWR shall be subjected to a temperature of 140°F and  $94\% \pm 4\%$  humidity for 4 hours followed by 1 hour of operation. Verify proper operation of the HWR.

4.3.5.5 Heat retention test. The HWR shall be connected to a 24/28 Volt DC power supply at an ambient air temperature of approximately 70°F. One gallon of water shall be added to the main container. The temperature selection switch shall be set to the "high" temperature setting for 2 hours. After 2 hours, the switch shall be turned to the "off" setting and the temperature of the water shall be taken and recorded as the maximum achieved temperature,  $T_3$ . The switch shall remain in the "off" position for 3 hours. After 3 hours, the temperature of the water shall be taken and recorded as  $T_4$ . Verify that the HWR has retained not less than 45% of the maximum achieved temperature  $T_3$ . ( $T_4 \geq .45 T_3$ ).

4.3.5.6 Electromagnetic compatibility test. When electromagnetic compatibility is required (see 6.2), the HWR shall be tested in accordance with MIL-STD-462 following the measurement procedures for methods: CE102, CS101, CS114, RE102, and RS103. An EMI test report shall be compiled documenting the results of all tests performed. The HWR shall meet the appropriate electromagnetic emission and susceptibility requirements of MIL-STD-461 and the required methods of MIL-STD-462 for ground applications.

4.3.5.7 Vibration test. The HWR shall be mounted utilizing the mounting studs and accompanying wing nuts and tested in accordance with MIL-STD-810 for Category 8 Ground Mobile Vehicles. The HWR shall be subjected to the vibration environment of Table 514.4-AXVI for installed equipment on the sponsons of the M113 armored personnel carrier, following the requirement of Test Procedure I and Test Conditions I-3.4.7. A vibration test report shall be compiled documenting the results of all tests performed. The HWR shall meet the criteria defined in section I-4.11 of MIL-STD-810 and shall not leak.

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## 5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or purchase order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory).

6.1 Intended use. The HWR is intended for use by mounted troops and is designed to heat rations, water for beverages and for limited personal hygiene using the power from a 24/28Volt DC source.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification
- b. Issue of DoDISS to be cited in the solicitation, and, if required, the specific issue of individual documents referenced (see 2.2.1 and 2.3)
- c. When a first article is required (see 3.1, 4.1.1 and 6.3)
- d. When a technical manual is required (see 3.4.4.1 and 6.5)
- e. When electromagnetic compatibility is required (see 3.5.5 and 4.3.5.6)
- f. Sampling plan for conformance inspection (see 4.1.2)
- g. Packaging requirements (see 5.1)

6.3 First article. When requiring a first article inspection, contracting documents should provide specific guidance to offerors. This guidance should cover whether the first article is a first article sample, a first production item, or the number of test items. These documents should also include specific instructions regarding arrangements for examinations, approval of first article test results, and disposition of first articles. Pre-solicitation documents should provide Government waiver rights for samples for first article inspection to bidders offering a previously-acquired or tested product. Bidders offering such products who wish to rely on such production testing must furnish evidence with the bid that prior Government approval is appropriate for the pending contract.

6.4 Verification alternatives. Contracting documents should provide guidance to offerors

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regarding the submission of alternatives to specified verification methods (see 4.3.1).

6.5 Technical manuals. The requirement for technical manuals should be considered when this specification is applied on a contract. If technical manuals are required, specifications and standards that have been cleared and listed in DoD 5010.12-L, Acquisition Management Systems and Data Requirements Control List (AMSDL) must be listed on a separate Contract Data Requirements List (DD Form 1423), which is included as an exhibit to the contract. The technical manuals must be acquired under a separate contract line item in the contract.

6.6 Recycled, recovered, or environmentally preferable material. Recycled, recovered or environmentally preferable materials should be used to the maximum extent possible, provided the material meets or exceeds the operational and maintenance requirements and promotes economically advantageous life cycle costs.

6.7 Subject term (key word) listing.

Heat rations  
Heat water  
Hygiene  
Mounted troops  
Meal, Ready-to-Eat (MRE)  
Track vehicle  
24/28Volt DC power source

6.8 Supersession data. MIL-H-44466 (GL), which provides a detailed configuration of the heating unit, is superseded by this performance specification. MIL-H-44466 and an associated drawing is available to the contractor on an information basis.

6.9 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodians:

Army - GL  
Air Force - 99

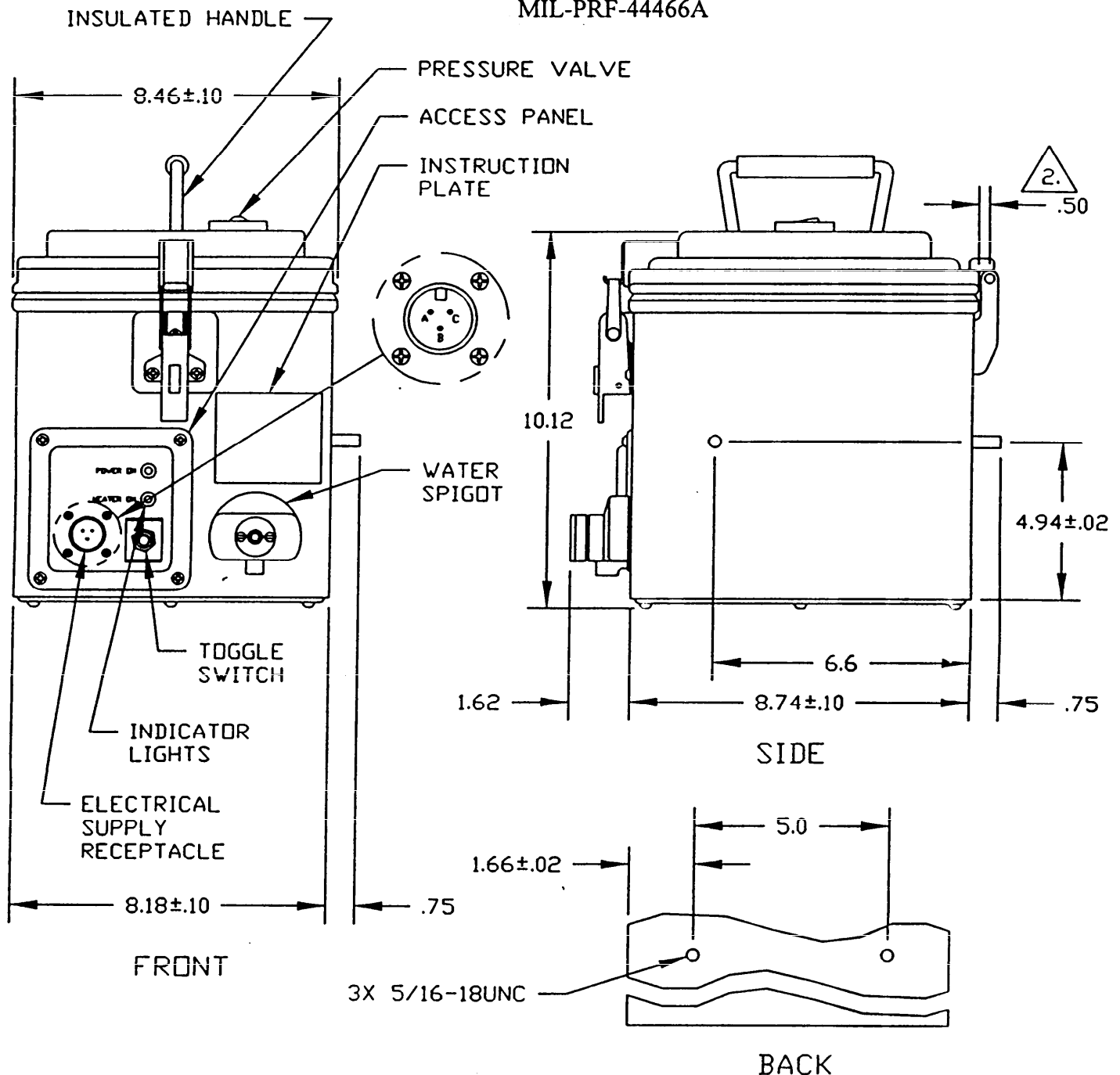
Preparing activity:

Army - GL  
(Project 7310-0876)

Review Activities:

Army - AV, MD1, QM1  
Air Force - 35, 84

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## NOTES:

1. ALL ITEMS DEPICTED WITHOUT DIMENSIONS REPRESENT POTENTIAL LOCATIONS ON THE SURFACE SHOWN.

2. THE DIMENSION AT POTENTIAL HINGE LOCATION REPRESENTS MAXIMUM DIMENSION ALLOWED.

3. ALL DIMENSIONS ARE IN INCHES. UNLESS OTHERWISE NOTED, TOLERANCES SHALL BE ±.05.

FIGURE 1. Interface requirements for a heater, water and ration (HWR)



# STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

## INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

**NOTE:** This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

**I RECOMMEND A CHANGE:**

1. DOCUMENT NUMBER  
MIL-PRF-44466A

2. DOCUMENT DATE (YYMMDD)  
97-04-25

3. DOCUMENT TITLE Heater, Water and Ration (HWR)

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)

b. ORGANIZATION

c. ADDRESS (Include Zip Code)

d. TELEPHONE (Include Area Code)

7. DATE SUBMITTED  
(YYMMDD)

(1) Commercial  
(2) AUTOVON  
(If applicable)

a. NAME

U.S. Army Natick RD&E Center

b. TELEPHONE (Include Area Code)

(1) Commercial  
508-233-5175

(2) AUTOVON  
256-5175

c. ADDRESS (Include Zip Code)

Commander, U.S. Army Natick RD&E Center  
Attn: SSCNC-WEF  
Natick, MA 01760-5018

IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:

Defense Quality and Standardization Office  
5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466  
Telephone (703) 756-2340 AUTOVON 289-2340