



## TRAY RATION HEATER SYSTEM (TRHS)

### PURPOSE:

The Tray Ration Heater System (TRHS) is a fully-mobile system with heat-on-the-move capability to feed up to 250 Marines with UGR-H&S™ rations in a single, remote location. The system also provides the flexible capability for feeding up to 500 Marines in three different locations. The TRHS can be utilized to support non-mobile field feeding requirements as well.

### CHARACTERISTICS:

The TRHS is designed to be mounted on a HMMWV for heating UGR-H&S™ rations while on the move from one field feeding site to another. The TRHS can also operate in a static location when it is plugged into any 120 VAC, 60 Hz electrical source. The primary component of the TRHS is the Tray Ration Heater (TRH), a stainless steel, 30 gal (114 L) hot-water tank with a burner that operates from its own 5 gallon (19 L) can fuel source. In theater use of the TRH has shown that 20 gal of water can be heated to between 180°F (83°C) to 200°F (94°C) in 20 min. The burner by a small 75-watt motor with a double-shafted design that combustion air, a simple compressor to supply atomizing air, and self-priming fuel pump to deliver fuel to the atomizers.

Once the TRH is filled with potable water and connected to the fuel and electrical power it is ready for operation. The TRH is supported by other system components to aid in the serving of rations, including 3 serving tables, 5 insulated beverage containers, side-loading pan carriers, multiple serving utensils, can opener, and rain cover kit. When the HMMWV arrives at the feeding location, serving tables and equipment are deployed, and a serving line is established. Hot tray packs are taken from the heater or side loading pan carriers, opened, and served. As hot tray packs taken from the heater, they are replaced with cold ones, which will ready to serve at the next feeding site. When serving is completed, equipment are put back on the HMMWV and secured for travel.



### CAPABILITIES & BENEFITS:

- System can support both mobile and non-mobile field feeding requirements utilizing the UGR-H&S™.
- Designed for feeding 250 Marines in one location, or 500 Marines in three locations.
- Able to heat 18 tray packs for serving in 40 min.
- Thermostatically controlled burner is the only required heat source for the TRH tank; burner can burn continuously for 10 hrs on 5 gal (19 L) of fuel.
- Burner features an automatic safety off-switch if the vehicle rolls over; a 30° tilt in any direction causes the burner to shut off automatically.
- Able to operate in ambient temperatures as low as -65°F (-54°C) and as high as 125°F (52°C).

### COMMENTS:

The TRH, the main component of the complete TRHS is an integral part of the soon-to-be-fielded Expeditionary Field Kitchen. A modified TRH is also a component being leveraged by the Army for use in Containerized Kitchen as part of the Pre-Planned Product Improvement project.

A TRH maintenance kit is included with the TRHS. It is encased in a 14 cu in (229 cu cm) stainless steel box with assembly tray and contains a spare burner, test box, burner power test cord, and various spare parts.

### POINT OF CONTACT:

#### DoD Combat Feeding Directorate

Phone: COMM (508) 233-4670, DSN 256-4670

E-Mail: usarmy.natick.nsrdec.mbx.nati-amsrd-nsc-cf@mail.mil

Website: hotchow.natick.army.mil

### AT A GLANCE:

- **FEEDING CAPACITY:**  
250 Marines in one remote site; up to 500 Marines in 3 remote sites per day
- **WEIGHT:**  
TRH tank is 285 lbs (128 kg) empty and 400 lbs (180 kg) when loaded with trays and water
- **OPERATING TEMPERATURE:**  
Ambient temperatures of -65°F to 125°F (-54°C to 52°C)
- **FUEL CAPACITY:**  
Combusts 0.5 gallons of JP-8 per hour
- **FUEL REQUIREMENTS:**  
Diesel or JP-8; burner achieves temperature of 2,000 degrees and combustion gases are removed to the outside of the HMMWV
- **ELECTRICAL REQUIREMENTS:**  
The burner and controls require 120 VAC, 60 Hz power and the system comes with a DC/AC inverter to make use of transport vehicle power for 'heat on the move' capability

