

# AN ARMY MARCHES ON ITS STOMACH



## RAK - Water & Ration Heater

The RAK15 is the only unit available which has been designed in compliance with MIL-PRF-44466A





# SUSTENANCE ON THE MOVE

RAK Water and Ration Heaters designed for the demands of modern mechanised forces.



• **Insulated Handle** - To enable safe use and easy transport of the water and ration heater.

• **Quick Release Locking Latch** - The sturdy and knock proof catch helps prevent accidental spillages or contamination of contents by maintaining the watertight seal.

• **Instruction Plate** - Instructions readily available, intuitive design and minimal training required.

• **Pull Tap** - Water outlet for safe and easy water on demand. Can be removed for cleaning.

• **Toggle Switch** - Toggles between HIGH / LOW and OFF.

• **2.0m Power Cable** (AZ9224) to connect to the vehicles power supply. Five variants available to meet different requirements.

Power Indicator LED •

Heater Indicator LED •

The RAK15 and RAK30 cooking vessels are designed in compliance with MIL-PRF-44466A

## Tried and tested worldwide

Electrothermal were originally awarded a contract to design and manufacture 10,000 RAK units for supply to the US Army. We now have 20,000+ combat-tested units in the field all over the world, which have been installed into support and front-line vehicles such as the Abrams M1A1, Bradley LAV, M109 Paladin, MLR's, M113's, Foxhound, Ocelot, Scorpion, Jackal, and Warthog. In addition, all the British Army MAN trucks in the support vehicle fleet are equipped with our RAK units, and most of the others are too, i.e. Warthog, Mastiff and Jackal, along with the Foxhound armoured patrol vehicle. They have proved especially beneficial in the recent war in Afghanistan, as having the RAK units installed in the cab ensures that vehicles stay

on the move and are consequently less vulnerable to attacks from insurgent groups. It is fair to say that our RAK Water and Ration Heaters have gained many satisfied customers over the years, and are so integral to troops' morale that they are affectionately referred to as the "B.V. Morale Booster" or "Crock Pot" within the UK and US military respectively.





**Feeding the  
forces for  
over 25 years**



## **An Army Marches On Its Stomach**

The human body's mechanisms of energy production are complex, but it is an irrefutable fact that we require food and water to metabolise glycogen into useable energy and water is a primary driving force of energy production inside the cells, so that even the slightest loss of water makes us feel lethargic.

Experiments conducted on athletes have demonstrated the potentially catastrophic effects of dehydration. Roughly speaking, for every 1% of bodyweight lost through dehydration, there's a corresponding 5% drop in performance. If dehydration reaches 4-5% of bodyweight performance drops by 20-30% and a fluid loss of 9-12% can be fatal. Simply put, dehydration results in immediate fatigue and this can be the difference between success and failure in warfare.

## **Keeping Morale High**

The RAK cooking vessel (C.V.) is the optimal size to fit into the cramped quarters of a tank and provide hot meals and drinks for its five person crew, heating 2 pints of water and 5 Meals Ready to Eat (MRE) simultaneously. When used for water only, the RAK can heat up to one gallon of potable water for drinks, washing or medical purposes. Depending on the power rating, the RAK unit does this in just 20 minutes under normal ambient conditions, and it does of course work in extreme climates too, but may take longer to heat the contents if the prevailing temperature is bitterly cold. When switched off with the cover closed and locked, the thermally insulated unit keeps its contents piping hot for between four and six hours.

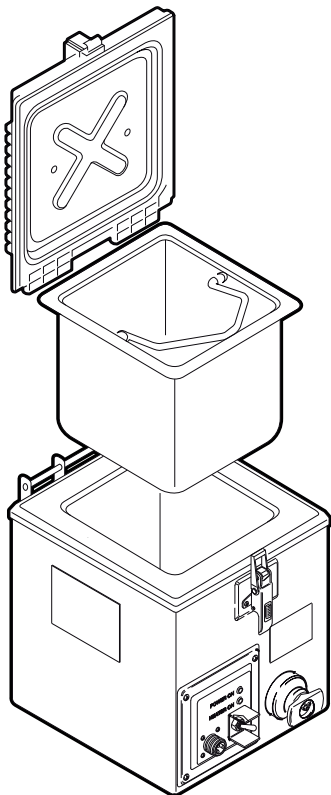
## **Reliable Connectivity**

The RAK connects with standard military connectors to the auxiliary power supply of 24 volts DC in armoured and soft-skinned vehicles. The RAK15 has a low power uptake and only pulls 15 amps of power. With a built-in intelligent sensor, the unit automatically switches off if the battery power is getting low and drops to 22 volts; there is a similar over-voltage protection feature in the event of a sudden power surge to over 39 volts.

## **Low Thermal Signature**

The outside of the RAK unit remains cool-to-touch to ensure safe transit should the product be mounted on the back door of a vehicle, or be located in an exposed position. The cool-to-touch feature also gives the unit a very low thermal signature, which is critically important for maintaining discretion during military operations. Constructed from a robust stainless steel outer casing, the unit is sealed to be water-tight, so that any steam is retained within its interior. It has both low and high temperature settings and has its own built-in control, so that a separate control unit is not necessary. The choice of heating ranges is either 66 to 71°C (on LO setting), or 82 to 88°C (on HI setting). The RAK's quality and reliability are renowned, since of more than 20,000 units supplied to date, less than 0.05% of them have been returned under warranty.

## RAK Technical Specifications



### Electrical Characteristics

- 24V DC (connects to the vehicle's auxiliary power supply).
- Typical power rating 15 or 30 amps.
- Low power detection and over-power protection.

### Key Features

- Non-spill relief system.
- Insulated throughout to minimize heat loss.
- Robust portable/non corrosive stainless steel outer case.

### Heating Specification

- Heating range (LO) (66 - 71°C) (150 - 160°F).
- Heating range (HI) (82 - 88°C) (180 - 190°F).
- 'Boil-Dry' condition detected, if internal temperature rises to greater than (96°C) (205°F).
- Heating (water only) temperature of one gallon of water will be raised by (56°C) (100°F) in one hour (max) from an ambient temperature of (21°C) (70°F) using (HI) switch setting.
- Heating (rations & water) temperature of five MRE entrees and 2 pints of water will rise to between (66°C) (150°F) and (71°C) (160°F) from an ambient temperature of (21°C) (70°F) in approximately 20 minutes using (HI) switch setting. The water used to heat the MRE's remains pure and can then be used for making hot beverages.
- Heat retention is better than 45% of selected heating range at three hours after HW&R is turned off, if the cover remains closed and latched.
- Automatic shutdown if power supply voltage is less than 22V DC.
- Overvoltage protection if power supply voltage is greater than 39V DC.

## Ordering Information

Part No.	NCAGE	NSN	NIIN	Power Supply	Dimensions, (HxWxD) mm	Weight
RAK15/2	U0891	7310-01-387-1305	01-387-1305	24V DC, 15A	267 x 216 x 292	7.7 kg
RAK15/4	U0891	7310-99-991-1710	99-991-1710	24V DC, 15A	267 x 216 x 292	7.7 kg
RAK15/5	U0891	7310-99-498-9085	99-498-9085	24V DC, 15A	267 x 216 x 292	7.7 kg
RAK30	U0891	7310-99-362-3482	99-362-3482	28V DC, 30A	267 x 216 x 292	8.7 kg

## Accessory Information

Part No.	Part Description	Connector Description	Dimensions
AZ9177	Power Cable Harness	One right-angle 3 pin socket, one right-angle 4 pin plug.	2.5m semi-armoured cable.
AZ9217	Harness and Socket	One straight 3 pin socket, one straight 2 pin plug. Separate 0.5m semi-armoured cable with a 2 pin socket and exposed wires at the opposite terminal.	2.5m semi-armoured cable.
AZ9224	Harness Issue E	One straight 3 pin plug, one straight 3 pin socket.	2.0m semi-armoured cable.
AZ9245	Cable Harness CV	One straight 3 pin socket, one right-angle 3 pin socket.	0.6m semi-armoured cable.
AZ9121	Power Cable Harness	One right-angle 3 pin socket. On the opposing end, labelled exposed positive and negative wires.	2.0m semi-armoured cable.



Thank you for reading this data sheet.

For pricing or for further information, please contact us at our UK Office, using the details below.



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Please note - Product designs and specifications are subject to change without notice. The user is responsible for determining the suitability of this product.