

Heatpac Personal Heater

- * Snipers, OP-personnel, security and MP personnel and operators on vital and costly crew served weapon and the like - will suffer when forced to remain still, and become less consequently be equipped with the Personal Heater.
- * The Personal Heater is a light weight (approx. 2 lbs.) self contained charcoal burner that produces from 50-200 watts. On rare occasions the use of two burners may be desirable in temperatures below -40 degrees F/C.
- * The Personal Heater requires replacement of one D-cell battery and one charcoal element every 8-24 hours pending output (which can be regulated)
- * The Personal Heater should be worn near the torso inside outer clothing (but not directly against bare skin). The heater distributes warm air through a foursplit distribution tube and ensures warm air to the extremities (arms, legs) as required.
- * The fume from the burning charcoal will pass through a catalyst which will clean it to an extent where it is less toxic than the smoke from one cigarette. However, when newly lit and a few minutes until the catalyst has been heated to working temperature, the combustion will produce smoke and fumes. When used in closed compartments (small tents, sleeping bag, etc.) ensure that the exhaust is given free outlet.
- * Maintenance is limited to regular cleaning. Do remove old fuel elements and any loose bits or ash left in the combustion chamber before a new charcoal element is inserted. If the motor runs uneven, do check battery contacts. The heater is durable with a life span of at least 8-10 years. By failure the heater should be condemned.
- * The Heater system is US classified and NSN-numbered. It is available in the US supply system.

The Heatpac Components

- * The Rescue Bag
 - is made for easy cleaning (washing or dry cleaning and is durable)
 - can and will often also be used to carry or slide the wounded in forward battle area. (Stretchers are unnecessary and do not insulate)
 - can just poorly be replaced by a sleeping bag or blankets
- * The Heatpac Personal Heater
 - is a self-contained, small, light weight charcoal burner with built-in catalyzer producing from 50 to 200 watts. In extreme cold below -40°C/F the use of two heaters may be desirable
 - requires replacement of one D-cell dry battery and one charcoal element every 8 to 24 hours pending output (can be regulated)
 - maintenance is limited to regular cleaning. Do remove old fuel elements and any loose bits or ash left in the combustion chamber before a new charcoal element is inserted. If motor runs uneven, do check for battery contacts. The heater is durable with a life span of at least 8-10 years. By failure the heater should be condemned.

Availability

- * The Heatpac system is US classified and NSN-numbered. Parts of the system is available in the US supply system.

Heatpac Casualty Handling

in cold & wet climate
from temp of +60 degrees F (+15 °C) and below

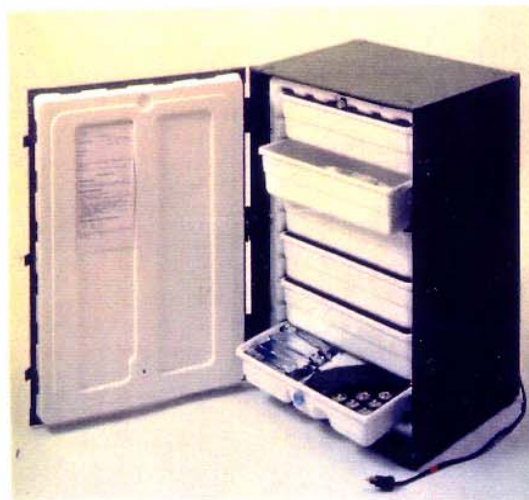
- * It is well known that a great number of casualties - in peace and wartime - are lost because of hypothermia on way to or even after arrival at hospital. Hypothermia kills! The prevention of Hypothermia is therefore vital.
- * Hypothermia occurs already at a temperature of +60 degree f (15 °C) and certainly evolves much faster in a situation with lower temperature and in wet conditions.

The Heatpac solution

- * In order to increase the survival rate of the casualty on the battlefield or in peace time for someone rescued from drowning, it is imperative to maintain the casualties body temperature at normal level. Wrapping the casualty in the Heatpac Rescue Bag avoids heat loss by insulation against outside cold and wet and at the same time prevents humidity to escape the bag and thereby draw heat from the body. In order to maintain and even increase the body temperature, a Heatpac Personal Heater that produces from 50-200 watts, should be added inside the casualty bag.
- * Warnings:
 - a casualty that already has reached deep hypothermia (not conscious) should not be treated as above; he needs rewarming of the blood which hardly can be done unless in a hospital
 - a lite burner shall not be carried next to the skin
 - the exhaust will not produce any hazard, but should be given free outlet

Heatpac Medical Storage Container

- * In sever cold, most fluid medicine will freeze if not kept heated. Heating of field medical stocks is therefor necessary.
- * I.V fluid present a special problem. The administration of cold i.v. fluid may create or aggravate an existing hypothermia. I.V. fluid should be given preheated to a temperature close to normal deep body temperature.
- * Norwegian Defence Research Establishment - NDRE has, in cooperativ with HEATPAC AS developed a medical storage container for use under winter field conditions. The 60 liter, light weight container is equipped with plastic drawers to allow convenient packaging of a 25-30 kg medical stores kit / 30 one-litre bags of infusion fluid.
- * The Medical Storage Container;
 - if flitted with heating elements for connecting to 12 or 24 Volts power supply
 - has 5 m extension cord with battery connector
 - in alternative use with Heatpac personal heater, the bottom drawer has been adapted to accomodate the heater
 - has a waterproof innercontainer
 - will keep the contents from freezing at ambient temperatures down to -50°C
 - can easily be carried by use of handles on the sides of the cabinet
 - can alternatively, without heating, be used to protect warm contents for several hours at low temperatures.



Medical Storage Container (cont.)

Specifications:

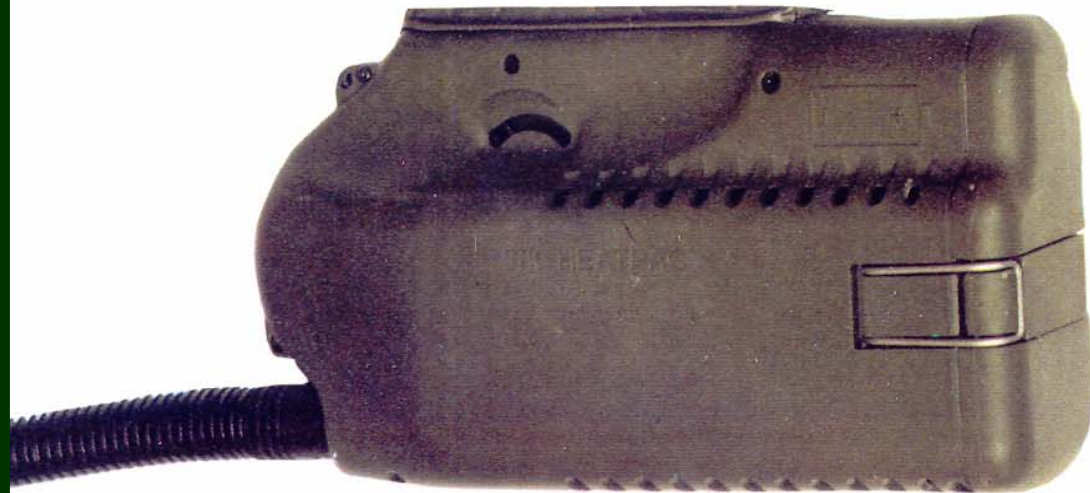
Height..... 68 cm
 Width..... 46 cm
 Depth..... 37 cm
 Weight..... 16 kg
 Inside volum..... 56 L

The following operating times ?? charcoal element can be expected when surrounding temperature varies.

Surroundings (°C)	Operating time	Storage- temperature °C	
		Bottom drawer	Top drawer
0	20	36	27
-25	16	30	20
-50	8	20	12

Operating time and Storage temperature as a function of the surrounding temperature when the Personal Heater thermostat indicates a average temperature.

PERSONAL HEATER



- can be attached to the body
- distributes heat to all part of the body via flexible tubes
- is robust, small and light weight
- burns small charcoal elements which are simple to supply
- has a catalytic system to eliminate Co
- keeps a casualty warm enough under all conditions
- must be available where the casualties occur
- in operational use to keep soldiers (observers, weapon crews etc.) comfortably warm under extreme conditions
- to be part of rescue equipment in aircraft, ships and ground vehicles
- to heat sleeping bags or mattresses (optimal accessory)



Normeca^A
SUPPLIER OF MOBILE HOSPITALS

HEATPAC

PERSONAL HEATER (cont.)

Fuel alternatives:



Charcoal element (All weather use)

- encased in a aluminium box
- with fuse for easy ignition
- weight 160 grams



Charcoal stick (Low cost fuel)

- plain charcoal stick
- igniting over a flame
- weight 110 grams

Required in addition:

- a separate combustion chamber line

Heatpac Rescue Bag

- * The Rescue Bag is used to prevent a casualty from becoming cooled by wind, humidity and cold or dampness from the body. Used in conjunction with a personal heater, the casualty's microclimate is maintained within the Rescue Bag.
- * The Rescue Bag can be used as a "stretcher" for carrying casualties, and finally to prevent infusion fluid and other medicine from becoming imperative in the cold.
- * The Rescue Bag provides extra insulation and beyond that allowed by field clothing and is more effective in capturing body heat. The Rescue Bag far surpasses a sleeping bag with respect to insulation, in that it is constructing to prevent humidity to getting into the bag and at the same time prevent dampness from escaping.
- * The Rescue Bag is the solution, - because:
 - it is developed for use at the incident cite or rescue operation in general
 - it is designed to provide the base for a secured microclimate for the casualty in cold and wet weather.
 - the casualty is tucked into the bag with a personal heater attached to the body
 - it has a vapor barrier enabling a person with soaked clothing to keep warm
 - it is equipped with carrying straps and can be handling gliding on the snow
 - it is stretcher convertible by means of two roads
 - it has low weight and volume
 - possible airlift



INFUSION SLEEVE



- developed for intravenous injection in sub-zero temperatures
- accommodated to standard infusion equipment
- by heating with connection to a Heatpac Personal Heater
- can be used for storing up to 2 litres infusion fluid



Normeca^A
SUPPLIER OF MOBILE HOSPITALS

HEATPAC

The Thermal Over-Boot

- * For many years there has been a hunt for a boot which would accommodate all needs for protection against cold as well as wet climatic conditions. The solution found is the Over-Boot.
- * The Over-Boot is a "slip-over" boot made of light weight polyurethane-coated high pile material, with canvas extension up the legs.
- * The Over-Boot is worn over the combat boot resulting in a three-layer protection of the foot. The Over-Boot provides for a waterproof boot when crossing swampy terrain. Under extreme cold conditions the Over-Boot will hold an insulating layer of air around the leather boot and thereby protect against the cold. In snow it will prevent the snow from melting on the leather boot avoiding the boot to become damp.
- * The Over-Boot is the solution, because:
 - it is a flexible approach by applying an add-on article to existing combat boots
 - it is a simple, light weight and economical way of providing protection against wet and cold
 - it has grooves on heels to fit the Nordic combat ski binding
 - it is estimated to have a lifetime of 1-2 years, maintenance is limited to regular cleaning. Wear and tear results in condemnation.



CAMERAWARMER



Heatpac has developed a camerawarmer which prevents your videocamera from exposure to cold and humidity. It is a well known problem that the possibility for functioning-failures and the wear and tear of your camera will keep your camera warm and operational during the whole working day. The heater is developed at The Norwegian Defence Research Establishment and is frequently used as a personal heater and for medical use. The well known norwegian filmphotographer Hallgrim Ødegård, who has long experience in filming in artic climates, adapted the heater for use as a camerawarmer.

The camerawarmer:

- Keeps the camera warm and dry in cold climates.
- Protects the camera against snow/rain and slush.
- Eliminates condensation/moistureproblems in temperature-changes.
- Reduces mechanical wear and tear and the danger for technical breakdown.
- Easy to use and dependable. Fits Betacam/Sony and Ampex.
- After a 12 hours working day in - 20°C the temperature inside the camerabody is 10°C.



Normeca^A
SUPPLIER OF MOBILE HOSPITALS

HEATPAC