

# UNIVERSAL ENGINE HEATER SPECIFICATIONS AND INSTRUCTIONS PAGE

## Models and sub-models

Universal Engine Heaters currently has 3 basic electrical heater designs, described as {the Gemco II model design, a 10 model design and a 30 model design}. All are made of die-cast aluminum. A regulating/safety thermostat is mounted at the top of these heaters to keep the element from over heating. The Gemco II model design comes with a 5/8" hose port and has a capacity of 1/4 quart (.23 liters). The 10 model design only comes with a 5/8" hose port and has a fluid capacity of 1/2 quart (.47 liters). The 30 model design comes with a selection of 5/8", 3/4" and 1" hose ports and has a capacity of 1 quart (.95 liters). When ordering the sub-models of these heaters, please define the voltage application needed.

The sub-models of these designs are as follows;

### **Gemco II MODEL DESIGN**

Gemco II-500            This contains a 500 watt element with a 120 volt rating  
Gemco II-850            This contains a 850 watt element with a 120 volt rating

These sub-models were designed for light duty applications. Light duty applications we define a short time heating needs, i.e. from overnight to just a few hours. Not a 24hr/7days per week application. These sub-models we recommend for use on applications where a cab heater is involved.

### **10 MODEL DESIGN.**

UH-07-M                This contains a 750 watt element with a 120 volt rating  
UH-10-M                This contains a 1000 watt element with a 120 volt or 240 volt rating  
UH-15-M                This contains a 1500 watt element with a 120 volt or 240 volt rating

These sub-models were designed for light duty applications. Light duty applications we define as short time heating needs, i.e. from overnight to just a few hours. Not a 24hr/7days per week application. These sub-models we recommend for use on applications where a cab heater is involved.

The above sub-models have only a 15 amp rated thermostat (B-2) and utilize and ball valve on the inlet port to keep the flow of fluid from reversing direction

UH-07-R                This contains a 750 watt element with a 120 volt rating  
UH-10-R                This contains a 1000 watt element with a 120 volt or 240 volt rating  
UH-15-R                This contains a 1500 watt element with a 120 volt, a 240 volt rating,  
277 volt rating, or a 480 volt rating.

These sub-models were designed for heavy duty applications. Heavy duty applications we define as 24 hours per day/7 days a week. These have a 25 amp rated regulating/safety thermostat (C-4) mounted at the top and do not utilize the ball valve. We highly recommend that these models be used with our 59-T-58 adjustable thermostat for longer heater life. (See 59-T adjustable thermostat specifications)

UH-07-R/59-T            This contains a 750 watt element with a 120 volt rating  
UH-10-R/59-T            This contains a 1000 watt element with a 120 volt or 240 volt rating  
UH-15-R/59-T            This contains a 1500 watt element with a 120 volt, a 240 volt rating

## 30 MODEL DESIGN

UH-20-XX	This contains a 2000 watt element with a 120 volt or 240 volt rating
UH-25-XX	This contains a 2500 watt element with a 120, 240, 277, or 480 volt rating
UH-30-XX	This contains a 3000 watt element with a 120, 240, 277, or 480 volt rating

The XX pertains to the hose port size needed, (i.e. UH-30-3/4).

All these sub-models have a 25 amp rated regulating/safety thermostat (C-4) mounted at the top. (see thermostat specifications)

UH-20-XX/59-T	This contains a 2000 watt element with a 120 volt or 240 volt rating with adjustable thermostat
UH-25-XX/59-T	This contains a 2500 watt element with a 120, 240, 277, or 480 volt rating with adjustable thermostat
UH-30-XX/59-T	This contains a 3000 watt element with a 120, 240, 277, or 480 volt rating with adjustable thermostat

The XX pertains to the hose port size needed, (i.e. UH-30-3/4/59-T).

All these sub-models have a 25 amp rated regulating/safety thermostat (C-4) mounted at the top and a 25 amp rated adjustable thermostat to maintain a regulated fluid heat level. (See thermostat specifications)

## 59-T ADJUSTABLE THERMOSTAT

The 59-T-XX adjustable thermostat is designed to maintain a temperature of the fluid that is being heated. It can be adjusted from 90 degrees to 150 degrees. When the fluid reaches the set temperature, the heater shuts off until the temperature drops 5-7 degrees below the setting, then will re-activate the heater to continue heating the system until temperature is reached again. As in the case of an emergency generator system that must be ready to start when the electricity goes out, the heat level of the engine can be maintained at a temperature that will easily allow the engine to start and reduce wear on the moving parts of the engine.

The XX pertains to the hose port size needed.

See thermostat specifications for more information.

**The following specifications are for trouble-shooting problems with the engine heater**

### ELEMENT SPECIFICATION

ELEMENT TYPE	AMPS	OHMS
500 watt/120 volt	4.2	28.8-29.0
850 watt/120 volt	7.1	17.0-17.5
750 watt/120 volt	6.3	19.5-20.0
1000 watt/120 volt	8.3	14.0-14.5
1000 watt/230 volt	4.3	53.0-54.0
1500 watt/120 volt	12.5	9.0-10.0
1500 watt/230 volt	6.5	37.9-38.0
1500 watt/277 volt	4.3	54.1-54.3

1500 watt/480 volt	3.1	150.9-151.1
2000 watt/115 volt	17.4	7.0-7.2
2000 watt/230 volt	8.7	28.0-29.0
2500 watt/120 volt	20.8	5.9-6.5
2500 watt/230 volt	10.9	22.0-23.0
2500 watt/277 volt	9.0	33.1-33.3
2500 watt/480 volt	5.2	87.6-87.8
3000 watt/120 volt	25.0	4.7-4.8
3000 watt/230 volt	13.0	18.0-19.0
3000 watt/277 volt	10.8	26.3-26.5
3000 watt/480 volt	6.3	72.0-72.2

## THERMOSTAT SPECIFICATIONS

THERMOSTAT TYPE	AMP RATING	OFF/ON TEMP. (F)	VARIABLE (DEGREES F.)	TYPE
C-4	25	190/210	7-8	SNAP DISC
B-2	15	190/210	7-8	SNAP DISC
K-12	25	ADJUSTABLE 90-150 DEGREES F.	7-8	SNAP DISC

## ELECTRICAL CORD SPECIFICATIONS

ELECTRICAL CORD	AMP RATING	JACKET RATING	TEMP. RATING (C.)	PLUG TYPE	VOLTAGE
18/3 SEOOW		600 VOLT	105	NONE	
16/3 SJEOOW	13	300 VOLT	105	5-15	120
16/3 SJEOOW	13	300 VOLT	105	6-15	240
14/3 SJEOOW		300 VOLT	105	5-20	120
14/3 SJTOW		300 VOLT	90	5-20	120
12/3 SJEOOW	25	300 VOLT	105	NONE	120

## INSTRUCTIONS SHEETS

Your UNIVERSAL ENGINE HEATER is good for many years of service with little danger of the element burning out provided there is good circulation of the coolant at all times.

The heaters operate on the thermo-syphon principle. There is no pump built inside the heater.

### **PROPER INSTALLATION OF THE HEATER IS THE MOST IMPORTANT.**

The heater must be mounted as low as possible (at least 2" below the point where the heated fluid will enter the motor or fluid reservoir. The top port valve outlet (hot fluid) should be as short and direct as possible. The bottom (inlet valve port) may be longer but should not have any bends where air can collect and impair the circulation. If the heater is hot but the engine or fluid reservoir is cold, it is a sign of poor circulation. Re-check installation of the heater carefully. If the heater has previously been working correctly but the same problem occurs, then check for air that may have accumulated in the heater.

### TIPS

To remove air that has accumulated in the heater, loosen the mounting brackets, slightly tip the heater at a 10 degrees angle allowing the top valve port to angle upwards. This should allow the air to circulate back into the motor or fluid reservoir.

# MOUNTING INSTRUCTIONS

THESE DIAGRAMS SHOW THE HOOK-UP OF THE ENGINE HEATERS ONLY AND DO NOT PERTAIN TO ANY PARTICULAR MAKE OR MODEL.

①

TO CAB HEATER

AT LEAST 2"

HOSE MUST HAVE A STEADY RISE

RADIATOR DRAIN PLUG

Engine Heater connected to draw water from radiator drain petcock and to inject it into engine through cab heater hose using "T" connection.

②

DRAIN PLUG

TO CAB HEATER

AT LEAST 2"

Take the cold water from the motor drain plug and inject the hot water into the hose line going to the water pump.

This installation MUST be used on:-  
Motors which have the car heater hose entering directly under the thermostat and some FORD & MERCURY motors which are equipped with a vacuum operated heater control valve.

③

AT LEAST 2"

On motors with over-head water manifolds, inject hot water from the engine heater into the bottom of the block so that the thermostat will not open.

④

TO CAB HEATER

TO MOTOR DRAIN PLUG

AT LEAST 2" BELOW

T- 3/4" T-FITTING

Engine Heater connected to draw water from the motor block drain plug and to inject it into the engine through the cab heater hose using "T" connection.