



Electric Water Heater

OWNER'S MANUAL (AUSTRALIA)

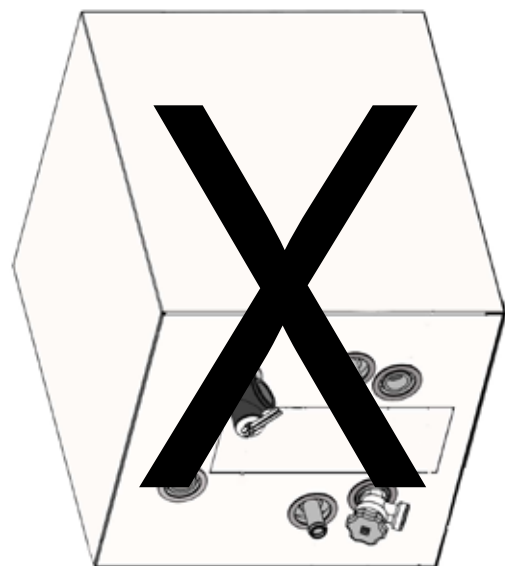
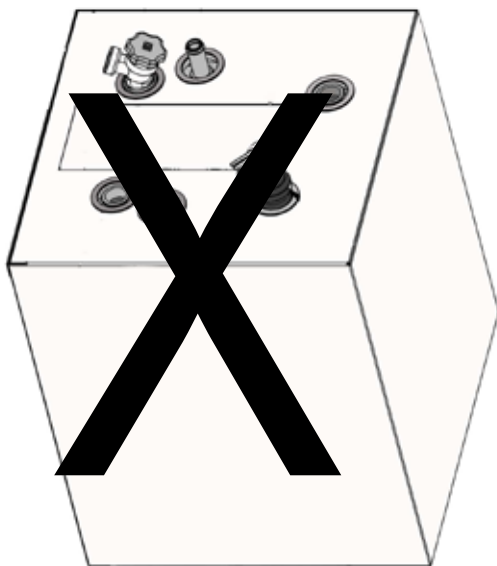
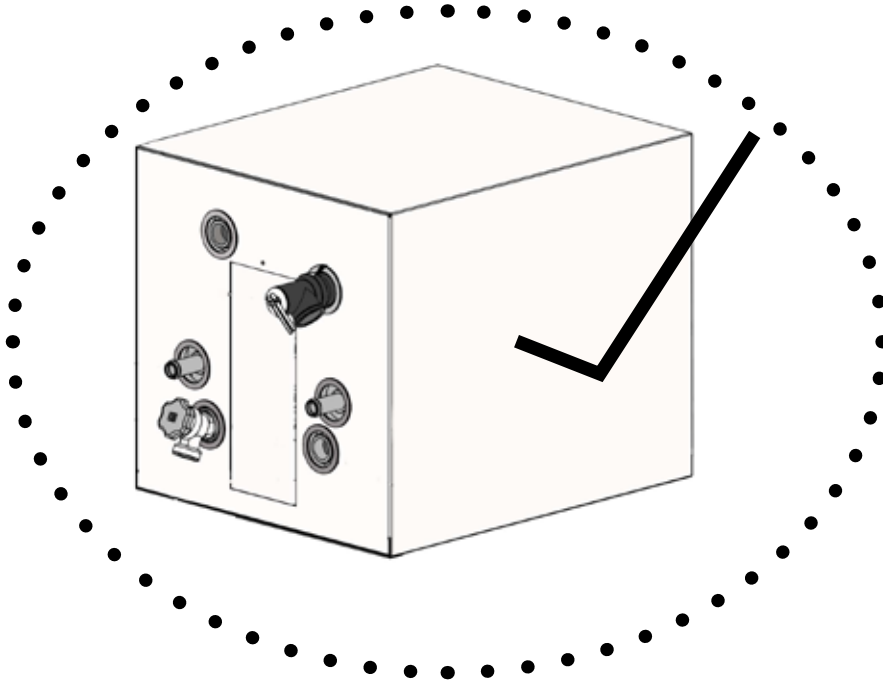
**Marine Water Heater Operation Manual
(Australia)**

Electrical Safety Approval No. ESO130840

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The water heater **must be mounted upright on its base.** The mounting feet should be securely fastened to a stable horizontal surface.

The water heater can not be mounted vertically in any other orientation.



Thank you for selecting a Kuuma Innovations Electric Water Heater. Your unit was carefully inspected and tested at our factory. We take pride in producing one of the finest Water Heaters for marine use. Please take the time to read this manual carefully; many of its instructions are essential to the safe operation of your unit.

Because of the continuing refinement of our product designs, your Water Heater may possess features not discussed in the manual. We have tried to supply all the information you might need, so please take time to read this manual before using your Water Heater.

Kuuma Innovations advises strongly against unauthorized modification of this product, but we do encourage you to correct problems which may arise.

Please make note of the model and serial number of your Water Heater for future reference.

Model # _____ Serial # _____

Any recommendation or advice by Kuuma Innovations, or any of its employees, is given with the understanding that it is solely as an accommodation to the customer. and should not be relied upon by the customer without an independent verification of its applicability in the customer's particular situation.

IMPORTANT SAFEGUARDS

This manual contains important information about the assembly, operation and maintenance of this product and system. General safety information is presented in these first few pages and is also located throughout the manual. Particular attention should be paid to information accompanied by the safety alert symbols:



DANGER!



WARNING!



CAUTION !

Keep this manual for future reference and to educate new users of this product. This manual should be read in conjunction with the labelling on the product.

Safety precautions are essential when any electrical equipment is involved. These precautions are necessary when using, storing, and servicing. Using this equipment with the respect and caution demanded will reduce the possibilities of personal injury or property damage.

The symbols shown above are used extensively throughout this manual. Always heed these precautions, as they are essential when using any electrical equipment.



WARNING! Fire Hazard

Do not smoke or have any flame near an open faucet.

If you have not used this water heater for more than two weeks, hydrogen gas may result. Under these conditions to reduce the risk of injury, open the hot water faucet for several minutes at the kitchen sink before you use any electrical appliance connected to hot water system. If hydrogen is present, you will probably hear sounds like air escaping through the pipe as water begins to flow. Allow the water to flow until these sounds disappear.

CAUTION !

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

CAUTION !

- Do not operate this water heater if it has a damaged power line, if it is not working properly, or if it has been damaged or dropped.
- This water heater should be serviced only by qualified service personnel. Contact nearest authorized service facility for examination, repair, or adjustment.

WARNING!

*This is an electrical appliance that requires a specific energy source. Each unit is manufactured to run on either 120 **OR** 240 volt circuitry. Be sure you have purchased the correct unit based on your power source.*

This heater is equipped with a heat exchanger so that the water may be heated by the coolant from your engine. This may cause the water temperature to get excessively hot unless your unit is equipped with a Temperature Control Valve which holds the temperature at approximately 140 deg F.

CAUTION ! Product Damage.

The tank and heat exchanger are aluminum. Do not use any chemicals in the heat exchanger that may cause damage to it. Use only the engine manufacturer's recommended coolant. Do not use raw water in heat exchanger circuit. Damage caused by a damaging chemical or salt reaction is not covered under warranty.

INSTALLATION

If you are using the heat exchange feature, locate the water heater as close to the engine as possible. The heat exchanger port (or TCV inlet if equipped) must be lower than the coolant output port of the engine.

Your unit is equipped with mounting brackets located either on the sides of the tank or the front and back of the tank. Use stainless steel screws to securely fasten the heater.

Always use pipe lubricant on threads when connecting hot and cold water couplings. It is recommended that a suitable plastic fitting be used. If using engine heat exchanger connect 5/8" diameter SAE 20R3 or equivalent coolant hose to heat exchange tubes at rear or front of water heater. Use a SAE J536a type E hose clamp or equivalent.

Plumbing

1. Connect cold water supply and hot water outlet to the heater as indicated on the front of the tank. (The tank is supplied with 1/2" NPT Female fitting) Kuuma recommend the installation of a check valve on the cold water inlet. Seal all pipe fittings with Teflon tape or Loctite thread sealant.

Note: The maximum inlet water pressure is 500kPa. If the water supply pressure exceeds the rated pressure, a pressure reducing valve is to be fitted into the installation.

Thermal Expansion: When a Water Heater is installed in a closed watersupply system, such as one having a back flow preventer in the cold water supply, means shall be provided to control thermal expansion.

2. The heat exchanger inlet or TVC inlet (if equipped) and the outlet is a 5/8" hose barb fitting. Connect hoses to the hose barb fitting using stainless steel hose clamps.

To reduce the risk of excessive pressures and temperatures in this water heater, a Pressure & Temperature Relief Valve (Reliance RMC model HT-575, 30kW capacity, maximum 990C temperature, pressure setting 1000 kPa) is fitted to this appliance.

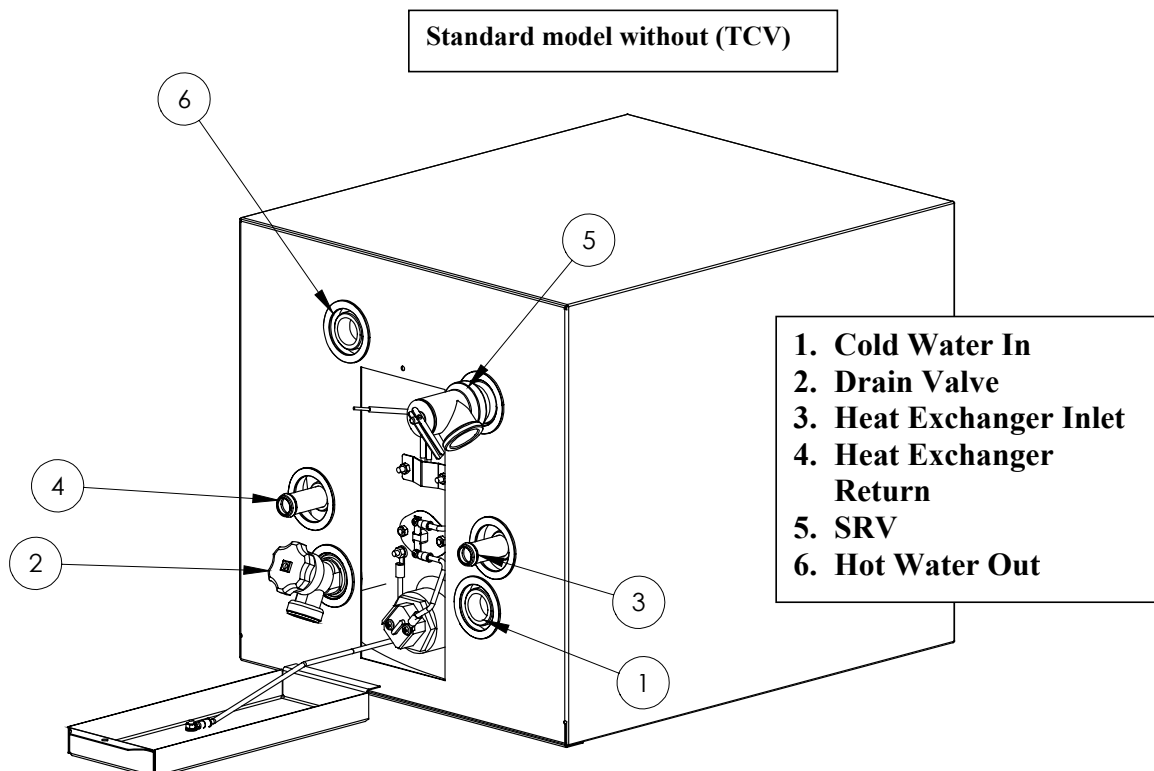
CAUTION !

A discharge pipe is to be connected to the P&T valve in a continuously downward direction and in a frost free enviroment; piping should be terminated so that any discharge from the valve exits only within 15cm's above, or at any distance below, the structural floor, and does not contact any live electrical part.

DANGER!

The discharge opening must not be blocked or reduced in size under any circumstances!

PLUMBING CONNECTIONS

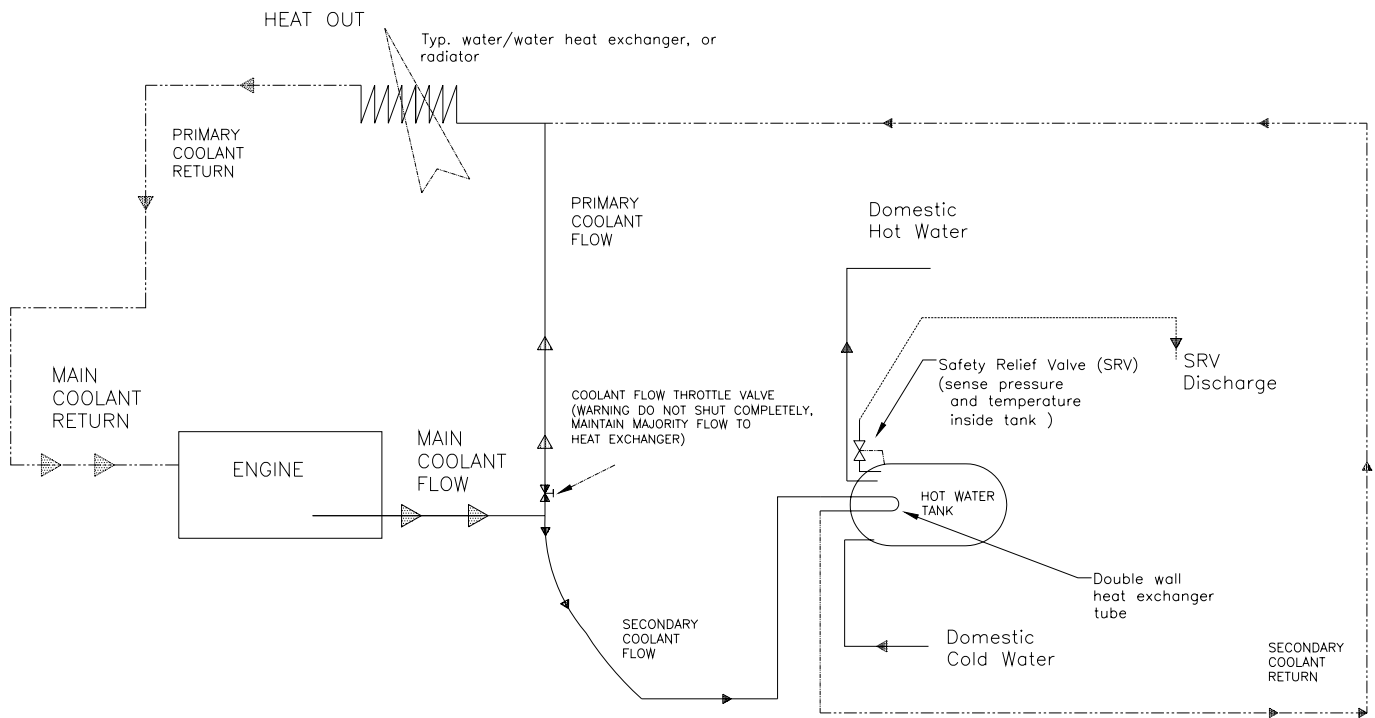


CAUTION!

The tank and heat exchanger are aluminum. Do not use any chemicals in the heat exchanger that may cause damage to it. Use only the engine manufacturer's recommended coolant.

Do not use raw water (salt water) in the heat exchanger circuit.

Damage caused by a chemical or salt reaction is not covered under warranty.



WARNING!

Bleed air from the entire coolant system for proper operation of both engine and water heater.

ELECTRICAL

1. Remove the AC wiring access

2. Connect the electrical supply by a qualified electrician. The electrical supply shall be armored cable or conduit per NEC code ANSI/NFPA 70-1993. Wiring diagram is located on the inside of the removable access panel.

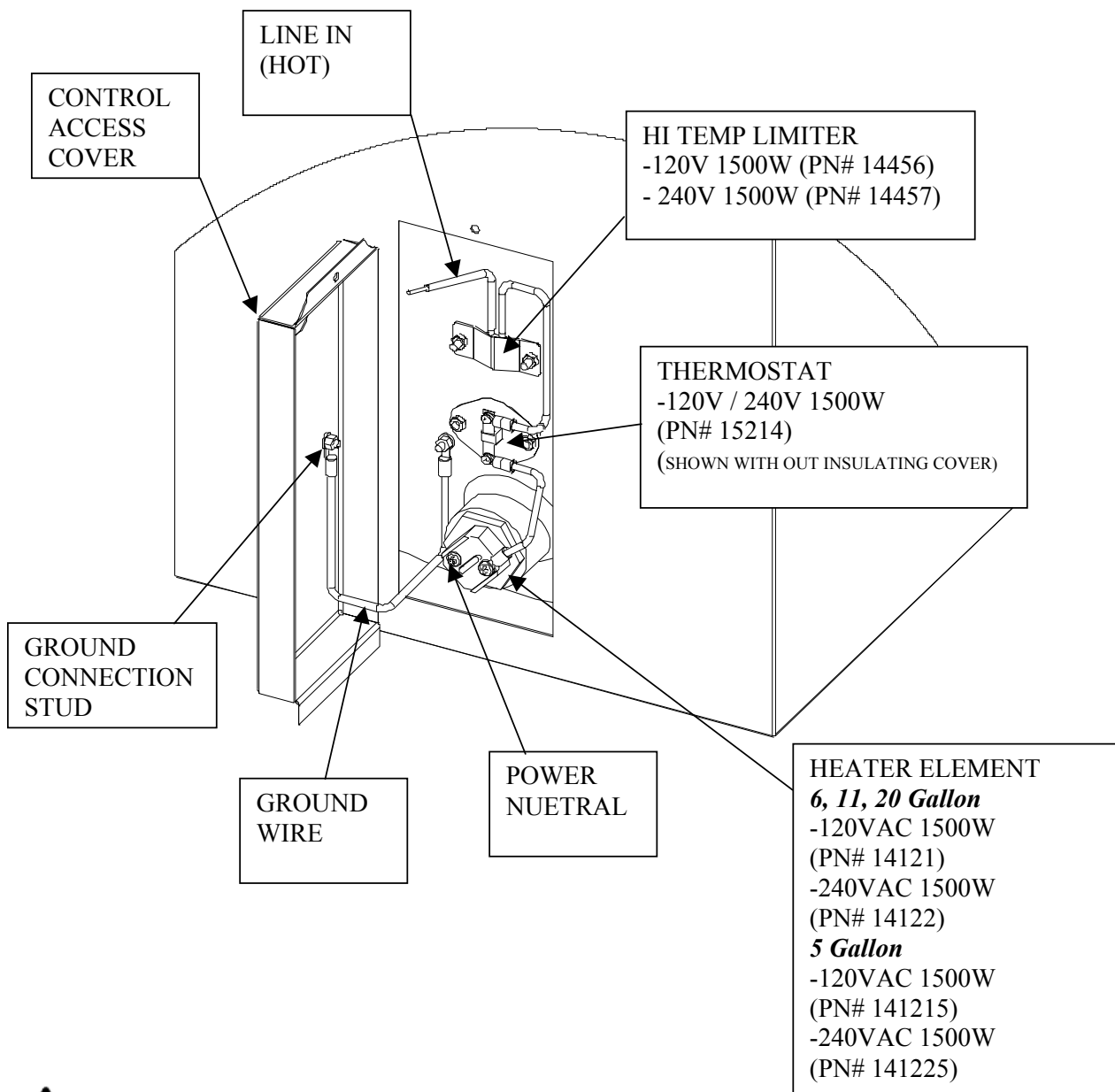
3. Connect Line (Hot) to the pigtail wire coming from the High Temperature Limiter. Connect the Neutral to the unused screw terminal on the heating element marked 'N'.

4. A strain relief should be installed in the hole on the front of the access panel to secure the AC wire.

5. Ground the water heater using the ground connection screw on the inside of the access cover. Do not use a switch in the grounding circuit. For marine installation, use conductors as specified by sub chapter S, part 183.425. table 5 of chapter 1 - Coast Guard Department of Transportation Code of Federal Regulations Title 33.

! CAUTION !

In order to avoid a hazard due to inadvertant resetting of the thermal cutout this appliance must not be supplied through an external switching device, such as a timer or connected to a circuit that is regularly switched on and off by the utility.



! WARNING! Explosion Hazard Marine installations only

Locate circuit breaker switch in an area where ignition protection is not required.

! CAUTION ! Product Damage.

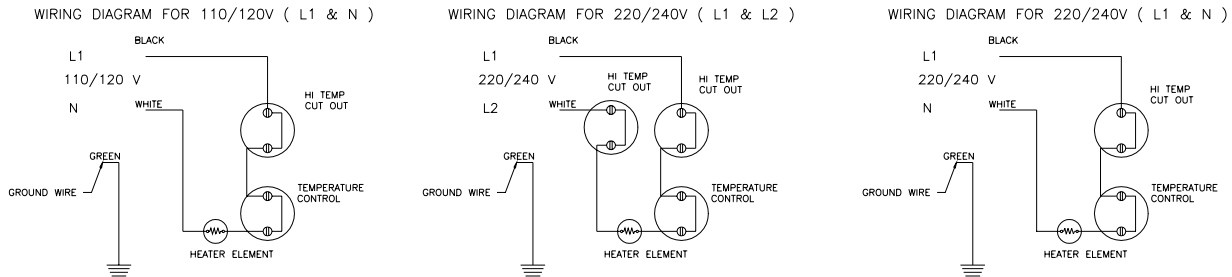
Small DC electric currents move between boat and shore through the safety ground wire in the shore cord, may cause galvanic damage to your water heater. To prevent galvanic damage, this product should be used in conjunction with a galvanic isolator. These devices are inexpensive and easily installed. Galvanic corrosion is not covered by warranty.

Wiring Diagrams

USE COPPER CONDUCTORS ONLY

120V models use UL LISTED ON/OFF switch rated for 15 amps/125VAC.

240V models use UL LISTED ON/OFF switch rated for 10 amps/220-240VAC .



DO NOT CONNECT LINE (HOT) DIRECTLY TO THE ELEMENT

PRIOR TO START UP

Completely Fill the heater with water.

Open the hot water faucet closest to the water heater to allow the air in the system to bleed out. When the water is running steady you can close the hot water faucet. Check all connections for leaks.

⚠ DANGER!

Failure to operate the relief valve easing gear at least once every six months may result in the water heater exploding. Continuous leakage from the valve may indicate a problem with the water heater. Following installation, the valve lever **MUST** be operated **AT LEAST ONCE EVERY SIXMONTHS** by the hot water tank owner to ensure that the water-ways are clear. Certain naturally occurring mineral deposits may adhere to the valve, rendering it inoperative. When manually operating the lever, water will discharge and precautions must be taken to avoid contact with hot water and to avoid water damage. The lever should be operated smoothly as a sudden influx of water may cause the blow-out cage to activate.

BEFORE operating lever, check to see that a discharge line is connected to this valve directing the flow of hot water from the valve to a proper place of disposal otherwise personal injury may result. If no water flows, valve is inoperative.

TURN OFF THE WATER HEATER AND CALL A PLUMBER IMMEDIATELY.

Thermostat is factory set and is not adjustable.

⚠ CAUTION ! Product Damage

Do not operate without water in tank!

Turn remote switch to ON. Your water heater is now operating. The water will be at maximum temperature in (2) hours.

Allow for complete drainage of both valve and discharge line.



WARNING! Scalding

Pressure temperature relief valve is not serviceable, if not functioning it must be replaced.

Tampering with valve will result in scalding injury.

Tampering with valve will void warranty.



WARNING! EXPLOSION

Do not place a valve, plug or reducing coupling on outlet port of pressure temperature relief valve or block the discharge opening.

If you use a discharge line, do not use a reducing coupling or other restriction that is smaller than the outlet of the relief valve.

Install temperature and pressure equipment, required by local codes, to protect against excessive pressures and temperatures.

The Combination Temperature and Pressure relief valve must be installed into the water heater coupling provided and marked.

Orient the valve or provide tubing so that any discharge from the valve will exit only within 6 inches above, or at any distance below the structural floor and cannot contact any live electrical part.

A Pressure Temperature, Relief Valve, dripping while the water heater is running, does not mean it is defective.

During normal expansion of water, as it is heated in a closed water system the Pressure Temperature Relief Valve will sometimes drip.

The water heater tank is designed with an internal air gap at the top of the tank to reduce the possibility of dripping. In time, the expanding water will absorb this air and it must be restored.

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WARNING! Scalding

Turn off water heater before opening pressure-temperature relief valve to establish air space. Storage water must be cool.

TO RESTORE THE AIR GAP FOLLOW THESE STEPS

Turn off main water supply (the pump or water hook up source).

Let water cool or let run until cool.

Open the hot water faucet closest to the water heater.

Pull handle of pressure temperature relief valve straight out and allow water to flow until it stops.

Allow pressure temperature relief valve to snap shut; close faucet and turn on water supply.

Turn on water heater and test.

At least once a year manually operate pressure-temperature relief valve. When pressure-temperature relief valve discharges again, repeat above procedure.

For a permanent solution, we recommend one of the following:

Install a pressure relief valve in cold water inlet line to water heater and attach a drain line from valve to thru hull fitting. Set to relieve at 100-125 PSI.

or

Install a diaphragm-type expansion tank in cold water inlet line. Tank should be sized to allow for expansion of approximately 15 oz. of water and pre-charged to a pressure equal to water supply pressure. These devices can be obtained from a plumbing contractor or service center.

OPERATION

ELECTRIC

When the Water Heater is operating from the AC Power, water temperature in the tank is regulated at 140 deg F (60 deg C). The thermostat is non adjustable.

DANGER!

The operation of the thermal cut-out is an indicates a possibly dangerous situation. Do Not reset the thermal cut out until the water heater has been serviced by a qualified person.

WARNING! HEAT EXCHANGER

When the Water Heater is operating from the Heat Exchanger, water temperature in the tank will approach the temperature of the engine coolant.

MAINTENANCE

WARNING! Scalding

Turn off water heater before opening pressure-temperature relief valve.
Storage water must be cool.

WINTERIZING (FLUSHING) INSTRUCTIONS

To insure the best performance of your water heater and add to the life of the tank, periodically drain and flush the water heater tank.

Before long term storage or freezing weather drain and flush the tank.

Turn off main water supply.

Note: Water heaters sold in Australia may have the hand wheel on the drain valve removed; an 8mm or 5/16" spanner must be used to operate the drain valve.

TROUBLE SHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
No output from the tank	Air Lock in the system	Bleed air from all the water lines
Water does not get hot when plugged into AC Power	High Limiter switch has tripped Failed Thermostat Element has burned out	Cycle AC Power Replace Thermostat Replace Element
Water Dripping from SRV	Thermal Expansion Valve poppet not seated properly	Install Expansion tank Lift lever to flush valve to reset.

SPECIFICATIONS

		405XXX	406XXX	411XXX	418XXX
Capacity		5 Gallon	6 Gallon	11 Gallon	20 Gallon
Tank Material		Aluminum	Aluminum	Aluminum	Aluminum
Case Material		Aluminum	Aluminum	Aluminum	Aluminum
Weight (Dry)		22 lb	25 lb	30 lb	47 lb
Overall Size including mounting plate (W/D/H)					
Front /Back Mount		N/A	13.6" / 20" / 13.6"	16" / 22.5" / 16"	N/A
Front /Back Mount w/ TCV		N/A	13.6" / 20.5" / 13.6"	16" / 23" / 16"	N/A
Side Mount		15.5" / 16.5" / 13.6"	15.5" / 19.5" / 13.6"	18.75" / 21.5" / 16"	N/A
Side Mount w/ TCV		15.5" / 16.75" / 13.6"	15.5" / 20" / 13.6"	18.75" / 22" / 16"	N/A
Cross Mount		N/A	N/A	N/A	18.75" / 18.75" / 29.5"
Standard Heat Exchanger Location		Front	Front	Front	Front
Electrical Rating	120 V	1500 Watts / 12.5A	1500 Watts / 12.5A	1500 Watts / 12.5A	1500 Watts / 12.5A
	240 V	1500 Watts / 6.25A	1500 Watts / 6.25A	1500 Watts / 6.25A	1500 Watts / 6.25A
Ignition Protection		Yes	Yes	Yes	Yes
Certification	120 V	UL 174 (Including Marine Supplement) CSA C22.2 No. 110-94	UL 174 (Including Marine Supplement) CSA C22.2 No. 110-94	UL 174 (Including Marine Supplement) CSA C22.2 No. 110-94	UL 174 (Including Marine Supplement) CSA C22.2 No. 110-94
	240 V	CE	CE	CE	CE
Fittings	Water Inlet	1/2" NPT F	1/2" NPT F	1/2" NPT F	1/2" NPT F
	Water Outlet	1/2" NPT F	1/2" NPT F	1/2" NPT F	1/2" NPT F
	Heat Exchanger	5/8" Hose Barb	5/8" Hose Barb	5/8" Hose Barb	5/8" Hose Barb
	SRV	3/4" NPT F	3/4" NPT F	3/4" NPT F	3/4" NPT F
Warranty		2 Years	2 Years	2 Years	2 Years

Specifications subject to change without notice

Limited Warranty

Kuuma Products Corporation warrants the Hot Water tank to the original consumer to be free from defective material(s) and workmanship while under normal use and service for a period of one (1) year.

During the warranty period, Kuuma Products Corporation will, at its option and without charge, repair and/or replace but not remove or reinstall the faulty product.

The purchaser will return defective products to the address stated below. No product will be accepted by Kuuma Products Corporation without a Return Authorization Number. Return of defective products must be accompanied by written details of the problems and proof of purchase.

The buyer shall be responsible for shipping and insurance charges, if any, on the products returned for repair or replacement under the terms of the warranty. Kuuma Products Corporation will pay shipping of products returned to the buyer.

This limited warranty applies only to products that have been installed and used in accordance to printed instructions of Kuuma Products Corporation and does not cover improper use, vandalism, negligence or accidents.

Note: if your water heater was supplied as standard equipment in a new vessel the warranty period starts from the date of delivery of the vessel as shown on your bill of sale.

In North America contact:

KUUMA PRODUCTS CORPORATION

724 Whitney St.

San Leandro, CA 94577

USA

Tel: 1-866-995-8862 or (920) 321-1880

Email: sales@kuumaproducts.com

For parts and servicing inquiries of all Australian standards water heaters contact:

Marine Import Sales Group Pty. Ltd. t/a

Ocean Solutions

Unit 11 - 65 Business Street

Yatala Qld. Australia

Tel: 1300 791 432 or

International callers dial: +61-7- 3807 - 6033

Email: sales@oceansolutions.com.au

All other regions contact:

KUUMA PRODUCTS CORPORATION

724 Whitney St.

San Leandro, CA 94577

USA

Tel: +1-920-321-1880

Email: sales@kuumaproducts.com

WARRANTY REGISTRATION

Name: _____

Address: _____

City: _____

State/Province: _____

Country: _____

Zip / Postal Code: _____

Telephone: _____

Email address: _____

MODEL # _____ **Purchase Date:** _____

SERIAL # _____

Manufacture of Boat: _____

Model of Boat: _____

Purchased from (Dealer Name): _____

Signature: _____ **Date:** _____

Mail to:

KUUMA PRODUCTS CORPORATION

724 Whitney St.

San Leandro, CA 94577

USA

Fax: +1 510 550 2788

Email: sales@kuumaproducts.com

Australian customers please mail email or fax to:

Marine Import Sales Group Pty. Ltd. t/a

Ocean Solutions

P.O. Box 4446

Eight Mile Plains Qld 4113

Australia

Email: sales@oceansolutions.com.au

Fax: 07 3807 6055