

**RESIDENTIAL WATER HEATING MODELS**  
(NOT FOR SPACE HEATING APPLICATIONS)



## **OWNER'S MANUAL**

READ THE GENERAL SAFETY SECTION BEGINNING ON THE NEXT PAGE AND THEN THIS ENTIRE MANUAL BEFORE INSTALLING OR OPERATING THIS UNIT. IF YOU DON'T FOLLOW THESE SAFETY RULES, THE UNIT MAY NOT OPERATE PROPERLY AND COULD CAUSE, SERIOUS BODILY INJURY, PROPERTY DAMAGE AND/OR DEATH.

READ YOUR WARRANTY. WARRANTY OF YOUR UNIT WILL DEPEND ON PROPER INSTALLATION AND OPERATION. THE WARRANTY SHALL BE VOID IF THE UNIT HAS BEEN ALTERED IN ANY WAY WHATSOEVER. THE MANUFACTURER OF THIS HEATER WILL NOT BE LIABLE FOR ANY DAMAGES DUE TO FAILURE TO COMPLY WITH THE INSTALLATION AND OPERATING INSTRUCTIONS OUTLINED ON THE FOLLOWING PAGES.

THE INSTALLATION MUST CONFORM TO ALL INSTRUCTIONS IN THIS MANUAL AND TO ALL LOCAL AND NATIONAL CODES.

IF YOU HAVE ANY QUESTIONS OR REQUIRE ANY ASSISTANCE WITH THE INSTALLATION OR THIS UNIT, PLEASE CALL OUR CUSTOMER SERVICE DEPARTMENT AT THE NUMBERS LISTED BELOW. PLEASE HAVE THE INFORMATION LISTED BELOW WHEN CALLING :

SERIAL #: \_\_\_\_\_ MODEL #: \_\_\_\_\_ INSTALLATION DATE: \_\_\_\_\_

**SEISCO INTERNATIONAL LIMITED**

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# GENERAL SAFETY

SEISCO residential heaters are designed to take in cold or pre-heated water and heat it to temperatures suitable for normal domestic usage up to a maximum of 130°F.

To obtain optimum performance and energy savings, the unit should be located as near as possible to the point of use.

The unit is supplied with ¾" NPT plumbing connections. Do not use a torch on any pipe connected to the heater, as serious damage will result. Use Teflon tape, ensuring no debris enters the heater. Do not use any petroleum based pipe dope or PVC primers or glue on the unit or any fittings connected to the unit.

Ensure that the plumbing lines are clear of installation debris before connecting the unit.

## WARNING

VERIFY THAT THE HEATER HAS THE CORRECT NUMBER OF DEDICATED UNIQUE 208/240V CIRCUITS, USING CORRECTLY RATED WIRES AND CIRCUIT BREAKERS AND THAT CIRCUIT BOARD JUMPERS ARE INSTALLED WHERE NECESSARY. FAILURE TO **GROUND THE SYSTEM** MAY RESULT IN DEATH OR SERIOUS INJURY

## WARNING

IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTENANCE CAN CAUSE **DEATH, SERIOUS BODILY INJURY OR PROPERTY DAMAGE**. REFER TO THIS MANUAL FOR ASSISTANCE OR CONSULT QUALIFIED PERSONNEL.

## WARNING

**HAZARD OF ELECTRICAL SHOCK!** BEFORE REMOVING THE COVER OR SERVICING THE UNIT, MAKE SURE THE ELECTRICAL SUPPLY TO THE WATER HEATER IS DISCONNECTED. FAILURE TO DO THIS COULD RESULT IN DEATH, SERIOUS BODILY INJURY, OR PROPERTY DAMAGE. DEPENDING ON YOUR INSTALLATION, IT MAY BE NECESSARY TO TURN OFF **MULTIPLE BREAKERS** TO COMPLETELY POWER DOWN YOUR UNIT.

## WARNING

WHEN INSTALLING THE UNIT IN ANY AREA WHERE LEAKS OF ANY NATURE COULD CAUSE PROPERTY DAMAGE, A **DRAIN PAN** AND DRAIN LINE SUFFICIENT TO CONTAIN THE FLOW OF WATER PROVIDED BY THE SUPPLY LINE **MUST** BE INSTALLED.

WHEN INSTALLING THE UNIT IN ANY AREA WHERE LEAKS OF ANY NATURE COULD CAUSE PROPERTY DAMAGE OR ANY OTHER AREAS THAT ARE NOT READILY VISIBLE OR ROUTINELY MONITORED INCLUDING CLOSETS, CABINETS AND ATTICS: A **150-PSI MAXIMUM PRESSURE RELIEF VALVE** WITH DRAIN LINE **MUST** BE INSTALLED.

# SEISCO INTERNATIONAL LIMITED

241 Airtex Dr. • Houston, TX 77090 • Phone (888) 296-9293 • Fax (281) 876-3338 • www.seisco.com

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# INTRODUCTION TO SEISCO

Congratulations on your purchase of the

## **SEISCO® ON-DEMAND TANKLESS WATER HEATER**

You are now in a rapidly growing and highly discriminating group of individuals and businesses that:

- Prefer the freedom of managing ones own lifestyle through technologically advanced equipment
- Have the need and desire for hot water WHEN they want it from an ENDLESS SUPPLY.

No more waiting, no more running out of hot water.

Early civilization relied on hot water springs to supply all the hot water needed for cleansing and for therapeutic purposes. However, as civilization progressed, the accepted method of producing hot water has become restrictive – the storage tank water heater. We have become conditioned to the statement “We can’t do the laundry after the family showers”. Or in the winter months, “I have to wait an hour for enough hot water to take my shower”

For the past 70 years little change has been made in the most common water heater delivery system, the cumbersome inefficient storage tank heater that still delivers only a LIMITED SUPPLY OF HOT WATER. Even the classic flow through water heaters around since the Victorian period are inherently inadequate for the lifestyle enjoyed by most of the Western world.

Only in the past several years has technology advanced to the point that:

- Metal parts used in demanding applications can be replaced with glass fiber reinforced, heat stabilized nylon resin.
- Micro-control has reached a new high level of speed and proficiency

The **SEISCO®** uses a patented\* technology that combines and implements the best of both.

Only SEISCO has been able to develop a water heater that is inherently highly energy efficient, modular, rust free, scale resistant, and endlessly responsive to the varying demands of flow.

The development of such a system was no small task. Your **SEISCO®** heater’s patented technology represents the culmination of over 10 years and millions of dollars of intensive development and testing. We have outlined what we think are major benefits in this manual. After reading the manual, YOU DECIDE which is the most important to you.

Congratulations again. We know you are already beginning to enjoy the benefits of your new

## **SEISCO CONTINUOUS WATER HEATING SYSTEM**

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**\*U.S. Patents:** #6,246,831 issued June 12, 2001;  
#6,080,971 issued June 23, 2000;  
#5,866,880 issued February 2, 1999;  
#5,325,822 issued July, 1994;  
#5,216,743 issued June, 1993.

In addition to the U.S. patents, there are many foreign patents issued and in process.

# FEATURES & BENEFITS

Your **SEISCO®** is a CONTINUOUS WATER HEATING SYSTEM. Seisco International Limited is the exclusive distributor for the **SEISCO®** line of water heaters. Your new **SEISCO®** may be the last water heater you will own. The ten-year limited warranty on the chamber body and electronic circuit board reflects the quality of the unique design, materials and the construction of this unit (READ YOUR WARRANTY). Your **SEISCO®** water heater will provide you with a continuous supply of hot water for all your hot water requirements.

## **YOU CAN SAVE MONEY BY NOT WASTING ENERGY**

Your **SEISCO®** saves energy by never reheating the same water over and over again. Additional savings can be achieved by insulating the connections to your **SEISCO** and any accessible hot water pipes in your home.

## **REDUCTION IN SCALING AND MINERAL DEPOSITS**

Over a short period of years, a conventional storage tank heater can accumulate large amounts of mineral deposits and scale that are very difficult to remove. This buildup reduces the efficiency of the heater and contributes to the failure of the tank. The use of glass fiber reinforced, heat stabilized nylon resin in molding of the **SEISCO®** chamber body, combined with its patented electronically controlled electrical delivery system, results in marked reduction in scaling and mineral deposits. Any deposits that occur in your **SEISCO®** are easily and completely discharged by occasional removal of the service base plates.

## **REDUCTION OR ELIMINATION OF ODORS**

Some water supplies are high in sulfur content. Your **SEISCO®** is designed to significantly reduce the odors associated with the use of high sulfur content water in water heating applications.

## **ANOTHER WAY YOU SAVE**

Because of the state-of-the-art design, you can expect a long service life from the heater components. All maintenance, even major requirements, including replacement of the electronic control board can easily be diagnosed and completed in minutes. In the unlikely event you do have a problem, the ten year limited warranty (READ YOUR WARRANTY) assures you low cost replacement even for major components.

## **CONTINUOUS NEVER ENDING HOT WATER**

Take, ten, twenty, one hundred baths or showers one right after another and never run out of hot water. As long as you need hot water, your **SEISCO®** heats the water you use AS YOU USE IT – CONTINUOUSLY.

## **ENJOY IT ANYWHERE**

Because of its compact, lightweight size, your **SEISCO®** not only saves space, but can be installed anywhere electric service is available - even your second home, ranch, room addition, cabin, casita or pool house.

## **SAFETY**

Your **SEISCO®** provides safe operation with multiple safety features. For example: (1) The solid state circuitry provides temperature control, (2) high temperature thermostats are used to alert the control system and disengage the power supply if overheating occurs, (3) water level detector circuitry minimizes the chance of chamber body and element damage when there is not adequate water in the **SEISCO®**; (4) In addition to surge suppression circuitry, the high power elements of your unit are automatically disengaged from the main power supply when not in use, (5) built-in leak detector and alarm on the unit can warn you in time to shut off the water supply to prevent flooding.

## **COMPLIANCE LISTINGS**

U.L. 499 Listed US and Canada (Certain models as marked) "Electric Heating Appliances"

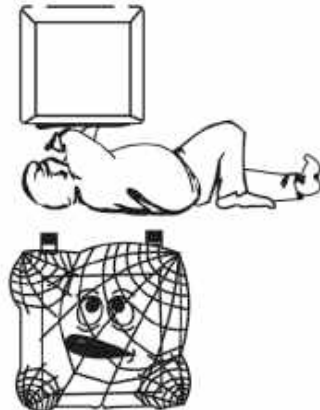
U.L. Certified in accordance with NSF/ANSI 372 for Lead Content of Products in Contact with Potable Water

U.L. - NSF Compliance with ANSI Standards 61 & 51

HUD, NEC

# DOs & DON'Ts

Your **SEISCO®** is designed for easy maintenance. **AVOID INSTALLATION IN CONFINED SPACES.** Allow at least 18 inches of working space above and below your unit. Installing any water heater in your attic or any other location that is not easily monitored can result in unexpected property damage. Your **SEISCO®** is so small and attractive, you should NEVER need to install it in attics or areas difficult to monitor or service.



**WHEN INSTALLING THE SEISCO IN ANY AREA WHERE LEAKS OF ANY NATURE COULD CAUSE PROPERTY DAMAGE OR ANY OTHER AREAS THAT ARE NOT READILY VISIBLE OR ROUTINELY MONITORED INCLUDING CLOSETS, CABINETS, ATTICS: A 150-PSI MAXIMUM PRESSURE RELIEF VALVE WITH DRAIN LINE AND A DRAIN PAN AND DRAIN LINE SUFFICIENT FOR CONTAINING THE FLOW OF WATER PROVIDED BY THE SUPPLY LINE MUST BE INSTALLED.**

**WHEN LEAVING YOUR HOME FOR MORE THAN TWO DAYS, TURN OFF THE SUPPLY WATER OR ALTERNATIVELY THE POWER TO THE HEATER.**

Your **SEISCO®** should require very little maintenance. In areas of hard water, it is advisable annually, to remove its detachable base plates and clean out any mineral deposits from the chambers.



**NEVER POUR OR SPRAY LIQUIDS DIRECTLY ON THE UNIT THAT MIGHT ENTER THE CASE, POSSIBLY CAUSING DAMAGE TO YOUR UNIT.**

Your **SEISCO®** is designed for safe operation and ease of service. Qualified service personnel must service your unit only. **BEFORE YOUR UNIT IS TO BE SERVICED, ALWAYS TURN OFF ALL MAIN, POWER CIRCUIT BREAKERS TO THE UNIT.** After servicing, always **RUN WATER** through your unit before turning the power on.



**YOUR SEISCO® MUST BE INSTALLED AND SERVICED BY QUALIFIED PERSONNEL. DAMAGE TO YOUR UNIT, SERIOUS PERSONAL INJURY OR DEATH MAY OCCUR IF INSTALLED OR HANDLED IMPROPERLY. CARE MUST ALWAYS BE USED TO AVOID ELECTRICAL ACCIDENTS WHEN INSTALLING OR SERVICING. NEVER USE PARTS THAT ARE NOT ORIGINAL EQUIPMENT OR APPROVED ALTERNATE REPLACEMENT PARTS.**



Protect your **SEISCO®** from the weather. It is an appliance, and you must avoid installing this **SEISCO®** in unprotected areas where it might be exposed to rain, excess humidity, freezing conditions, etc.

Your **SEISCO®** is designed to operate **ONLY** when mounted vertically. Do not attempt to mount any other way as permanent damage to your unit will result with possible catastrophic failure and significant water leakage.



# INSTALLATION GUIDE

**NOTE:** THIS WATER HEATER MUST BE INSTALLED TO MEET THE CURRENT NATIONAL ELECTRIC CODE, AND ANY APPLICABLE LOCAL PLUMBING, ELECTRICAL, HEATING AND AIR CONDITIONING CODES AS WELL AS THE FOLLOWING MANUFACTURER'S REQUIREMENTS:

**WARNING:** YOUR SEISCO® MUST BE INSTALLED AND SERVICED BY QUALIFIED PERSONNEL. DAMAGE TO YOUR UNIT, SERIOUS PERSONAL INJURY OR DEATH MAY OCCUR IF INSTALLED OR HANDLED IMPROPERLY. CARE MUST ALWAYS BE USED TO AVOID ELECTRICAL ACCIDENTS WHEN INSTALLING OR SERVICING. NEVER USE PARTS THAT ARE NOT ORIGINAL EQUIPMENT OR APPROVED ALTERNATE REPLACEMENT PARTS.

## GENERAL

Unpack the water heater from the shipping carton carefully. **DO NOT CUT THE SHIPPING CARTON WITH A SHARP INSTRUMENT.** Stand the unit upright and remove the plastic wrap. Locate the four (4) mounting holes in the metal back plate. Position the unit against the wall with the two inlet and outlet fitting tubes pointed up toward the ceiling. Refer to Mounting Clearances in this section of the manual. Make sure the unit is level and attach to the wall with inch or larger lag bolts that are at least 1½ inches long. If attaching to sheet-rock or paneling, anchors or molly bolts should be used to prevent the screws from pulling through the wall. If the water heater is to be installed on a cinder block or concrete wall, attach a ½ or ¾ inch section of plywood (20 x 20 inches square) to the wall first, then use wood screws to attach the water heater to the plywood.

## PROPERTY DAMAGE PROTECTION

**WHEN INSTALLING THE SEISCO IN ANY AREA THAT IS NOT READILY VISIBLE OR ROUTINELY MONITORED INCLUDING CLOSETS, CABINETS, ATTICS OR ANY OTHER AREAS WHERE LEAKS OF ANY NATURE COULD CAUSE PROPERTY DAMAGE, A 150-PSI MAXIMUM PRESSURE RELIEF VALVE WITH DRAIN LINE AND A DRAIN PAN AND DRAIN LINE SUITABLE FOR CONTAINING THE FLOW OF WATER PROVIDED BY THE SUPPLY LINE MUST BE INSTALLED. WHEN LEAVING YOUR HOME FOR MORE THAN TWO DAYS, TURN OFF THE SUPPLY WATER OR ALTERNATIVELY THE POWER TO THE HEATER.**

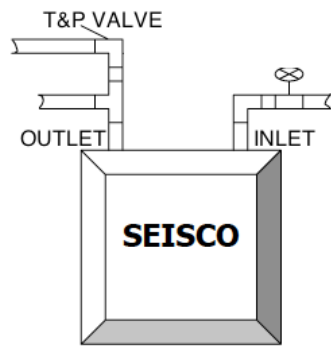
## PLUMBING CONNECTIONS

### ATTACHING THE WATER SUPPLY

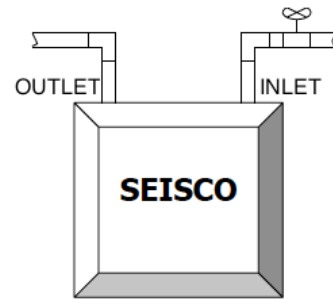
**WARNING #1:** Always use two wrenches when making any attachments of the water supply. Hold the water heater's inlet and outlet fittings secure while attaching the cold water and hot water lines. Never attempt to attach water lines to the heater's fittings without using a second wrench to hold the fittings secure. The heater's inlet and outlet fittings are designed to turn freely.

**WARNING #2:** Never solder water supply lines to the water heater's fittings. Heat from the soldering may damage the heat exchanger.

**WARNING #3:** Do not use Plumber's Putty or PVC/CPVC primer and glue on the threads of the water heater's inlet and outlet fittings. Some of the putty compounds on the market are very aggressive and could potentially dissolve the threads on the heater's fittings. PVC/CPVC primer and glue will also dissolve the threads on the heater's fittings. Teflon Tape is the only sealer that should be used on the threads of the inlet and outlet fittings.



Plumbing connections with T&P



Plumbing connections without T&P

## TEMPERATURE & PRESSURE RELIEF VALVES

Neither Seisco nor the national code requires a *combination* temperature and pressure relief valve for this appliance, however local codes may require it. **HOWEVER, WHEN INSTALLING THE SEISCO IN ANY AREA THAT IS NOT READILY VISIBLE OR ROUTINELY MONITORED INCLUDING CLOSETS, CABINETS, ATTICS OR ANY OTHER AREAS WHERE LEAKS OF ANY NATURE COULD CAUSE PROPERTY DAMAGE, A 150-PSI MAXIMUM PRESSURE RELIEF VALVE WITH DRAIN LINE IS REQUIRED.**

- The discharge from the temperature and/or pressure relief valve should be piped to the ground or into a drain system to prevent exposure or possible burn hazards to humans or other plant or animal life. Follow local codes. Water discharged from the relief valve could cause severe burns instantly, scalds, or death.
- The temperature and/or pressure relief valve must be manually operated once a year to check for correct operation.
- The temperature and/or pressure relief valve should be added to the hot water outlet line according to the manufacturer's instructions. DO NOT place any other type valve or shut off device between the relief valve and the water heater.
- Do not plug the temperature and/or pressure relief valve and do not install any reducing fittings or other restrictions in the relief line. The relief line should allow for complete drainage of the valve and the line.
- If a temperature and/or pressure relief valve discharges periodically, this may be due to thermal expansion in a closed water supply system. Contact the water supplier or local plumbing inspector on how to correct this situation. Do not plug the relief valve.

## DRAIN PAN

The Seisco heater must be located in an area where water leakage of the unit or connections will not result in damage to the area adjacent to the appliance or to lower floors of the structure. When such locations cannot be avoided, it is **required** that a suitable drain pan, adequately drained, be installed under the appliance. A splash cover must be included to protect the area of attachment to the wall. The pan must be large enough to protect the area below the heater and must be piped to a suitable drain with the complete drain pan/splash cover/pipe/drain combination sufficient to contain the full flow of the supply line in the event of a leak and sufficient to prevent any property damage.

**NOTE: THIS WATER HEATER MUST BE INSTALLED TO MEET THE CURRENT NATIONAL ELECTRICAL CODE, AND ANY APPLICABLE LOCAL PLUMBING, ELECTRICAL, OR HEATING AND AIR CONDITIONING CODES AS WELL AS THE INCLUDED MANUFACTURER'S REQUIREMENTS.**



# ELECTRICAL INSTALLATION GUIDE

## CONNECTION TO POWER SUPPLY

**WARNING:** YOUR SEISCO® MUST BE INSTALLED AND SERVICED BY QUALIFIED PERSONNEL. DAMAGE TO YOUR UNIT, SERIOUS PERSONAL INJURY OR DEATH MAY OCCUR IF INSTALLED OR HANDLED IMPROPERLY. CARE MUST ALWAYS BE USED TO AVOID ELECTRICAL ACCIDENTS WHEN INSTALLING OR SERVICING. NEVER USE PARTS THAT ARE NOT ORIGINAL EQUIPMENT OR APPROVED ALTERNATE REPLACEMENT PARTS.

**NOTE:** THIS WATER HEATER MUST BE INSTALLED TO MEET THE CURRENT NATIONAL ELECTRIC CODE, AND ANY APPLICABLE LOCAL PLUMBING, ELECTRICAL, HEATING AND AIR CONDITIONING CODES.

Install wiring (see wiring diagram) from the unit to the Main Power Circuit Breaker Panel. Connect the wiring to the unit as shown on the wiring diagram attached to the inside of the unit's cover.

### WARNING

MOST MODELS REQUIRE MULTIPLE POWER SOURCES. WHEN WIRED DIRECTLY TO THE BREAKER BOX, THEY REQUIRE MORE THAN ONE DOUBLE POLE CIRCUIT BREAKER.

**RISK OF ELECTRICAL SHOCK.** HEATING ELEMENT IS NOT GROUNDED. ALL UNITS CAN HAVE MULTIPLE POWER SUPPLIES. DISCONNECT ALL POWER SUPPLIES BEFORE SERVICING.

IF USING STRANDED WIRE, MAKE SURE THAT ALL STRANDS ARE IN SECURELY PLACED IN THE TERMINAL BLOCK. A LOOSE STRAND IN CONTACT WITH THE CIRCUIT BOARD CAN IMPAIR PERFORMANCE OR DAMAGE THE BOARD.

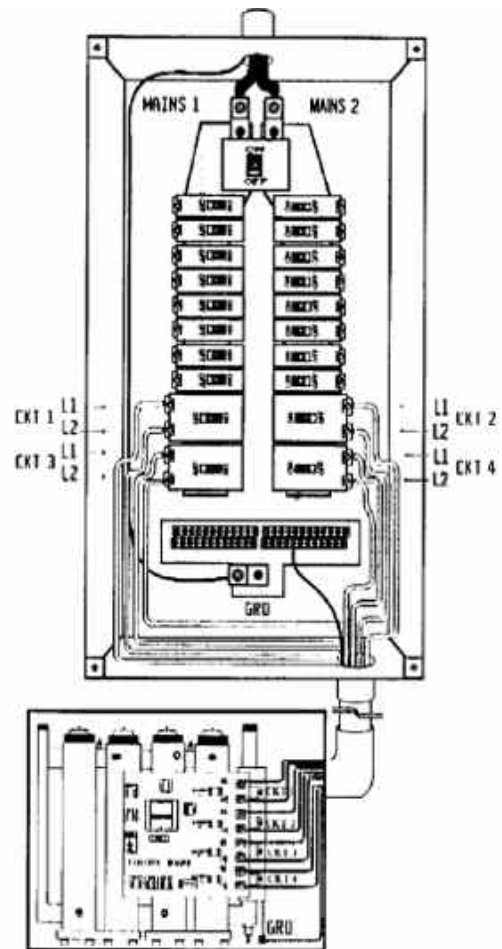
### HEATER SUPPLY SIDE CONNECTION

FOR TWO CHAMBER MODELS INSTALLED WITH A SINGLE BREAKER AND WITH JUMPERS INSTALLED ON THE CIRCUIT BOARD, ONE PAIR OF WIRES SHOULD BE ATTACHED WITHIN THE UNIT AT POWER CIRCUIT 1 (CKT 1)-ONE WIRE TO L1 AND ONE WIRE TO L2. FOR TWO CHAMBER MODELS INSTALLED WITH A TWO BREAKERS AND WITH JUMPERS REMOVED (OR FOUR CHAMBER MODELS WITH JUMPERS INSTALLED), A SECOND PAIR OF WIRES MUST ALSO BE ATTACHED AT POWER CIRCUIT 2 (CKT2)- ONE TO L1 AND ONE TO L2.

FOR FOUR CHAMBER MODELS WITH JUMPERS REMOVED, A THIRD AND FOURTH PAIR OF WIRES ARE REQUIRED FOR POWER CIRCUITS 3 AND 4 (CKT 3 & CKT 4).

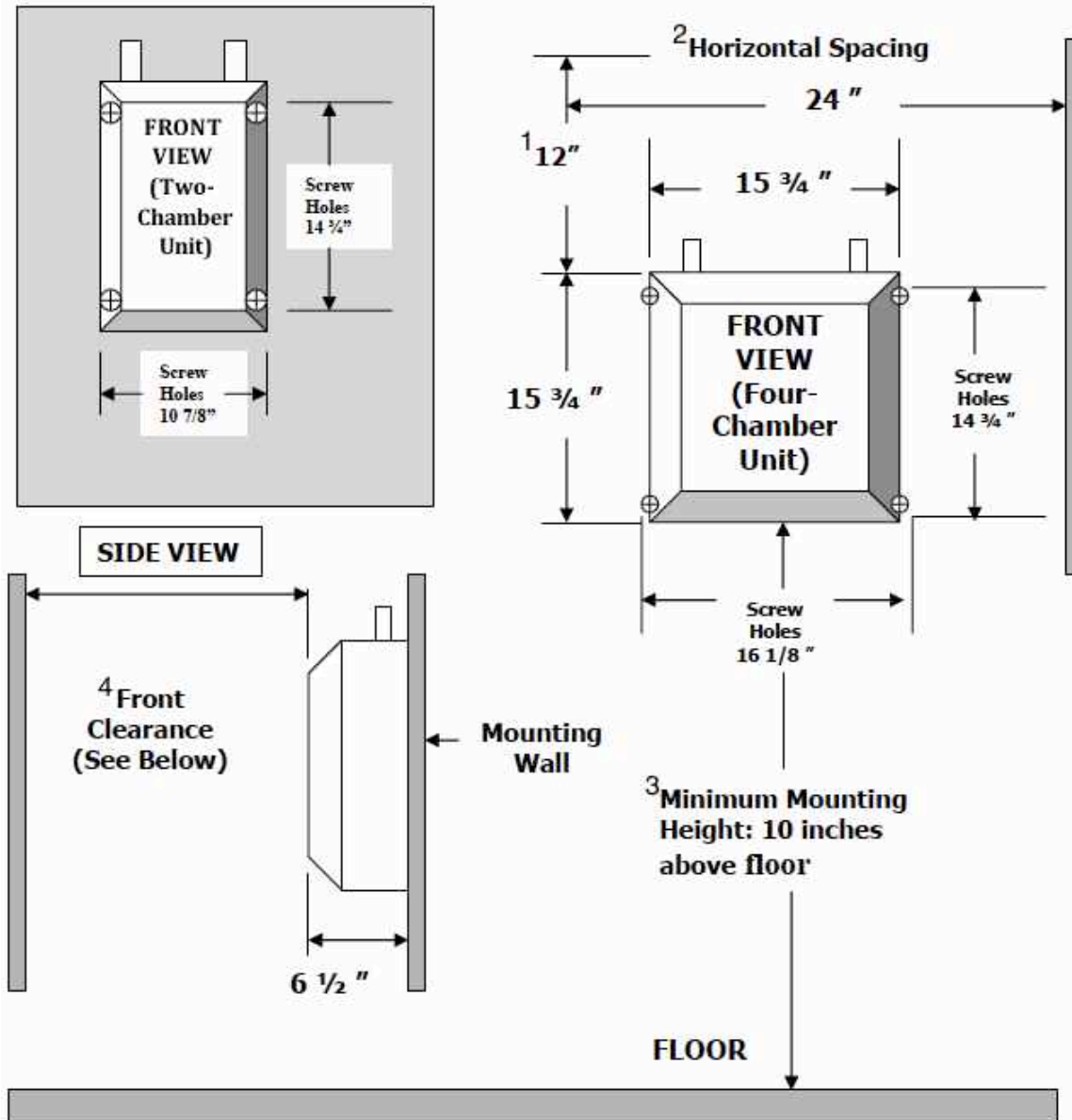
JUMPERS ARE FACTORY INSTALLED ON SMALLER KW MODELS AND ARE INCLUDED IN THE BOX FOR OPTIONAL INSTALLATION ON LARGER KW MODELS. CONSULT THE WIRING DIAGRAM OR SEISCO CUSTOMER SERVICE FOR ADDITIONAL INFORMATION.

### MAIN POWER CIRCUIT BREAKER



**WHERE REQUIRED BY CODE USE A DISCONNECT SWITCH ADJACENT TO THE WATER HEATER. WHEN MAKING THIS TYPE OF INSTALLTION, BE SURE THE MAIN FEEDER WIRES USED ARE PROPERLY SIZED.**

# SEISCO MOUNTING CLEARANCES



- <sup>1</sup> **Top Clearance:** For removal of heating elements and to provide room for plumbing connections, a minimum of 12 inches is required.
- <sup>2</sup> **Side Clearance:** Allow an overall minimum horizontal space for the heater of 24 inches for removal of protective cover screws and access to electrical wires entering the heater from the side.
- <sup>3</sup> **Mounting Height:** For safety, ease of installation and service, the suggested height above the floor is 42 to 48 inches, (minimum 10 inches). Do not install electrical disconnect or sub-panels below heater as this may interfere with access to the clean out plates located under the heater.
- <sup>4</sup> **Front Clearance:** In the absence of a door or removal access panel in front of the heater, allow 32 to 36 inch clearance in front of the heater for protective cover removal and ease of service.

# START-UP FUNCTIONAL CHECKS

## PRE-POWER CHECK

- After all electrical connections have been made; every effort should be made to verify a safe installation. Again check to be sure all connections in the unit disconnect and/or circuit breaker panel are secure. Check to be sure that an adequate ground has been properly connected. Check to be sure that adequate size breakers have been installed properly. Remember that breakers that are too large are more dangerous than breakers that are too small.
- RUN WATER THROUGH THE UNIT UNTIL ALL AIR IS PURGED.

## POWER CHECK

- Check only after the Pre-Power Check has been completed and the unit filled with water. Turn on the Main Power Circuit Breakers. Verify that the water heater's GREEN POWER-ON "FLASHING" indicator light is illuminated.

## USE EXTREME CAUTION WHEN CHECKING VOLTAGE TO THE UNIT.

- Check the voltage available to each active power circuit. SEISCO models rated 5KW to 28KW are designed to operate from a 208V to 240V power supply. Connect a voltmeter at power circuit 1 (CKT 1) between L1 and L2. (For models with multiple power circuits utilized, continue to check voltage at each additional power circuit.)

## OPERATIONAL CHECKS

- Turn water on MEDIUM-LOW utilizing any sink allowing water to run for a couple of minutes to ensure that all air is purged from the unit. You will hear a "click" as the relays on the circuit board engage. It is normal to hear a "hissing" or "crackling" noise from the heat exchanger after the unit is started. With the unit's cover removed, verify with an ammeter that there is ELECTRICAL CURRENT through each heating element circuit. DISREGARD THE WATER TEMPERATURE WHILE DOING THIS TEST.
- TURN OFF FAUCETS after completing Operational Check.
- Thermostat settings are factory preset to approximately 120°F and are adjustable with the potentiometer on the board.

**A QUALIFIED AND LICENSED CONTRACTOR MUST PERFORM THIS INSTALLATION.**  
Refer to your local electrical and plumbing codes for additional information

After the initial start-up, following the Pre-Power and Operational Checks described in the Electrical Installation section of this manual, it may be necessary to make adjustments to the system to insure that the water heater is functional and providing hot water.

### **BEEPS & FLASHING LIGHTS – WHAT DO THEY MEAN?**

It is normal at start-up or any time the water heater is powered-on for the control board to beep and the LED to flash red and then green. Normal status of the heater is for the control to flash all green repeatedly. The initial 2 to 4 red flashes and beeps after power-on are normal, but should not continue.

### **SEISCO PROVIDES ON-BOARD SELF-DIAGNOSTICS**

However, in the event that the LED light continues to flash a red sequence after power-on, then there may be a need for further investigation. The heater's control provides self-diagnostics by emitting a red flashing code. The code definitions and possible solutions can be found in the Troubleshooting section of the Seisco Service Manual.

Some of the most common problems discovered during installation and initial start-up are as follows:

- Circuit breakers are not turned-on (especially, heaters with multiple circuits)
- Incoming power wires to the water heater are out-of-phase (heaters with multiple circuits)
- Water supply valve not turned-on, no water in the heater chamber
- Water supply lines are reversed; hot and cold reversed
- Water supply connection(s) are leaking
- T&P Relief Valve (where required by local code) is leaking or stuck open

### **THE SEISCO HEATER ALERTS THE USER OF WATER LEAKS!**

Diagnostic codes are designed to tell the installer or user if there is a problem and what the problem might be. Also, the water heater has a built in alarm that will sound if there is water leaking onto the water heater, possibly from a leaky water line connection or from a leaky T&P Relief Valve. Check equipment connected nearby the water heater for the possibility of leaks and spraying onto the water heater. It is important to turn off all of the circuit breakers and water supply to the water heater whenever a leak is detected to prevent possible damage to the control board. After the leak is discovered and repaired, it is important to dry any moisture or water accumulation on the water heater. This can be done with a standard household hair dryer or dry towel. Any attempts to dry the water heater should be done with all the power off to the water heater.

## **SYSTEM MATCH – FAUCETS AND HEATER**

When a Seisco water heater is selected for the home or building, the faucets should also be selected to match the flow rating and temperature rise specifications of the heater. The Seisco water heater specifications can be found in the Product Description and Specifications section of the Product Guide. Sometimes, this is overlooked and the user discovers that the faucets in the home are a higher flow rate than the design of the Seisco model(s) selected.

## **SOLUTIONS FOR HIGH FLOW APPLICATIONS**

Another oversight may be the lifestyle of the user. For instance, if the user wants to take two showers at the same time or run the washing machine and the bathtub at the same time, then the flow rate demands of the water heater are increased, sometimes beyond the capability of the Seisco heater. Multiple Seisco heaters are used for higher flow applications, such as for multiple task lifestyles, whirl pool and Jacuzzi tubs and body spa showers as well. Refer to Product Applications and Diagrams section of the Product Guide for recommended multiple Seisco heater arrangements. Note, it is important to evaluate the electrical capacity of the home or building when selecting multiple Seisco heaters for a high flow application. Refer to the Electrical Service Requirements and Sample Load Calculations section in the Product Guide.

### **Typical Flow-Use Rates in Gallons per Minute (GPM)**

<b>Fixture Type</b>	<b>Lavatory</b>	<b>Bathtub</b>	<b>Shower</b>	<b>Kitchen Sink</b>	<b>Pantry Sink</b>	<b>Laundry Sink</b>	<b>Dishwasher</b>
<b>Flow Rates</b>	0.5-1.5	2.0-4.0	1.5-3.0	1.0-1.5	1.5-2.5	2.5-3.0	1.0-3.0

## **TEMPERATURE ADJUSTMENT**

After the water heater has been installed and the operational checks are completed, the output of the hot water can be measured and adjusted if necessary. The temperature-adjusting knob can be found on the left side of the control board. The factory setting is usually between 118 and 122 degrees F. The knob will usually be in the 2 to 3 o'clock position. Turning the knob to the left decreases the temperature and turning it to the right increases the temperature.

Note: it is important to understand the effects of increasing the temperature above the factory setting as follows:

- A higher temperature setting could cause the water heater to use more power, thus energy savings are reduced.
- A higher temperature setting could increase the potential for scaling and sediment build-up.
- The water heater may not achieve a higher temperature setting, if the flow rate is greater than its designed temperature rise capacity. Check to insure that the proper size model has been chosen for the application.

# LIMITED WARRANTY

Seisco International Limited, hereinafter SEISCO, warrants the Chamber Body of its RA Series residential water heaters against defects in materials and workmanship for three (3) years. The Chamber Body as referred to herein shall mean the plastic body of the heat exchanger only, and does not include component parts attached to it. SEISCO warrants the electronic Circuit Board for a period of 18 months. SEISCO warrants all other component parts to be free of defects in materials and workmanship for a period of one year. This warranty begins on the date of original retail purchase or, in the absence of proof of purchase, from the date indicated by the serial number affixed to the water heater.

SEISCO reserves the right to use reconditioned or remanufactured parts and units when repair or replacement becomes necessary. During the first year of this warranty, SEISCO will reimburse up to 1 hour of reasonable labor expenses to a maximum of \$95.00 to repair any defects in material or workmanship under the terms of this warranty. All costs for shipping and handling are NOT included in this warranty including the cost of return. When advance shipping is requested, full payment for replacement parts and shipping is required. Upon return, review and inspection of the returned parts for warranty coverage, the purchase price of the parts deemed to be covered by warranty, will be refunded to the customer. An RMA number is required for all returns to SEISCO.

Circuit Board or Chamber Body replacements to the original purchaser, made after the initial warranty expires and not later than ten years will be replaced by SEISCO, subject to replacement charges not to exceed 25% of the current manufacturer's suggested retail price of the unit model for which it was originally installed, or a currently sold comparable unit. Shipping charges are not included.

## EXCLUSIONS AND LIMITATIONS OF THESE LIMITED WARRANTIES

THE LIMITED WARRANTIES PROVIDED HEREIN ARE IN LIEU OF ANY AND ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND THE FITNESS FOR A PARTICULAR PURPOSE; PROVIDED, HOWEVER, THAT IMPLIED WARRANTIES ARE NOT DISCLAIMED DURING THE ONE YEAR PERIOD FROM THE DATE OF ORIGINAL RETAIL PURCHASE.

SEISCO SHALL HAVE NO LIABILITY HEREUNDER EITHER DIRECT OR CONTINGENT, FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

This warranty gives you specific legal rights, and you may have other rights THAT vary from state to state.

These warranties shall be void and have no effect:

- If the SEISCO heater is not used for its intended application;
- If the design or structure of the SEISCO heater is modified or altered in any way;
- If appliances or equipment not approved by SEISCO are attached to the water heater;
- If the water heater is not properly installed in compliance with the latest issue of (1) the National Electric Code, (2) the applicable plumbing codes, (3) all local ordinances and regulations pertinent to similar water heaters, and (4) the manufacturer's recommendations and guidelines contained in this and other documents included with the water heater;
- If the SEISCO water heater is not operated within the factory calibrated temperature limits;
- If leaks in the tank or defects in other parts arise as the result of improper use, improper installation, negligence in operation, failures resulting from accident, or from inability of the SEISCO water heater or any parts to function because of improperly made replacements and repairs, or damage by fire, floods, lightning, or any other act of God;
- If the plumbing design allows reverse flow through the SEISCO heater;
- If the SEISCO heater element or elements fail due to air entrapment;
- If the SEISCO heater or connecting water lines are allowed to freeze;
- If the serial number label has been altered or removed;
- If the SEISCO heater is installed in any area where it is not routinely monitored for proper operation or leakage of the tank or connections would result in property damage of any kind, or where such a location is unavoidable, a suitable drain pan was not installed under the water heater along with a 150 PSI maximum pressure relief valve;
- If the SEISCO heater or any of its components warranted herein are used other than as a part of the complete and integrated system as sold to the original purchaser;
- If leaks in the tank or defects in other parts arise as a result of (1) being operated with deionized water, (2) as a result of sizing that does not comply with the manufacturer's published sizing recommendations, (3) use with preheated water in excess of 140°F without the use of an approved tempering valve, or (4) operation above 100 PSI.

Replacements and/or repairs furnished under warranty carry only the unexpired portion of the original warranty or 90 days whichever is longer.

The terms of this warranty may not be varied by any person whether or not purporting to represent or act on behalf of SEISCO.

# WARRANTY CLAIMS PROCEDURE

**RETURN MATERIAL AUTHORIZATION (RMA)** – Upon verifying that a unit or part is covered under warranty, service personnel must complete a "Return Material Authorization" with the following information:

- |                            |                                     |
|----------------------------|-------------------------------------|
| 1. Model and SERIAL NUMBER | 5. Date of original installation    |
| 2. Name of owner           | 6. Customer's replacement parts     |
| 3. Service address         | 7. Shipping address                 |
| 4. Defective part          | 8. Payment information for Shipping |

Replacement unit/part(s) will be shipped when the unit/part(s) have been received, inspected and verified to be under warranty. Or if the customer desires, the unit/part(s) will be advance shipped with prepayment immediately. If the unit/part(s) are advance shipped Seisco will reimburse the customer for the cost of the unit/part(s) upon receipt inspection and verification that a defective unit/part is covered by a warranty. SHIPPING COSTS FOR PARTS OR UNITS RETURNED TO THE MANUFACTURER ARE TO BE PREPAID BY CLAIMANT AND SUCH SHIPPING COSTS ARE NOT COVERED IN THE WARRANTY. Return the completed "Return Merchandise Authorization" to Seisco International Limited clearly identifying the unit or part(s) and nature of defect. Any return shipment must have the RMA number clearly marked on the package or it may be refused.

If service personnel have repaired the unit to operable condition with their own inventory, Seisco International Limited, upon receipt of defective parts, will replace or issue credit for those parts verified to be under warranty.

Owner must promptly notify the installing contractor/dealer to obtain service under warranty. Prepare to give the nature of the problem, the model and serial number of the heater, and the date of original purchase. If for any reason the installing contractor/dealer cannot be located or fails to provide satisfactory warranty service, the Owner should contact Seisco International Limited by telephone or mail.

Seisco International Limited  
241 Airtex Dr.  
Houston, TX 77090  
(281)876- 3300  
service@seisco.com

**REFER TO YOUR MANUFACTURER'S LIMITED WARRANTY  
FOR COMPLETE DETAILS**

This product was manufactured under quality control guidelines established by the manufacturer. Certification Approvals received by this product after extensive testing were received with the component parts chosen and installed by the manufacturer.

**FAIURE TO USE EQUIPMENT, COMPONENT PARTS APPROVED BY THE MANUFACTURER VOIDS ALL WARRANTIES. FAILURE TO USE MANUFACTURER'S APPROVED COMPONENT PARTS MAY RESULT IN BODILY INJURY INCLUDING DEATH AND/OR DAMAGE TO PROPERTY.**

# TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Unit "Clicks" periodically when no hot water is being used	<p>Cold water use causes reverse flow through heater.</p> <p>Unit has been in standby for an extended period with no hot water use.</p>	<p>Install check valve on outlet</p> <p>NORMAL OPERATION. Unit will activate as needed to maintain a reference temperature to ensure quick start-up on next use.</p>
Hot water supply is warm but does not get HOT!	<p>FLOW is too high.*</p> <p>ONE OF THE MAIN POWER BREAKERS may be tripped.</p> <p>BAD Element or Sensor.</p>	<p>Reduce flow.</p> <p>Check power panel. Reset breaker if tripped.</p> <p>Call local service contractor.**</p>
Hot water supply is COLD!	<p>FLOW is too high.*</p> <p>HIGH TEMPERATURE LIMIT SWITCH may be tripped.</p> <p>ONE OF THE MAIN POWER BREAKERS may be tripped.</p> <p>BAD Heating Element or Temperature Sensor.</p> <p>CIRCUIT BOARD failure.</p>	<p>Reduce flow.</p> <p>Verify if Limit Switch is tripped. Reset if tripped.</p> <p>Check power panel. Reset breaker if tripped.</p> <p>Call local service contractor.**</p> <p>Call local service contractor.**</p>
Hot water temperature fluctuates.	<p>FLOW is too high.*</p> <p>ONE OF THE MAIN POWER BREAKERS may be tripped.</p> <p>BAD Heating Element.</p> <p>BAD Temperature Sensor.</p>	<p>Reduce flow.</p> <p>Check power panel. Reset breaker if tripped.</p> <p>Call local service contractor.**</p> <p>Call local service contractor.**</p>

\* Do not attempt to fill a large bathtub at full faucet flow. Tub faucets are designed to dump hot water from a storage tank heater to maximize the useful quantity available. Your SEISCO will take longer to fill a tub, especially in the cooler months of the year but you will have continuous hot water for as long as you wish to bathe for as many baths as you desire.

\*\* Check listings in your area for local Heating & Plumbing or Appliance Repair companies for labor estimates. Check for Warranty coverage on labor charges. For further assistance, call **SEISCO at 888-296-9293**, Central Time, during regular business hours for available parts, diagnostics and repair information or email [service@seisco.com](mailto:service@seisco.com).



# PRODUCT SPECIFICATIONS

## PHYSICAL DESCRIPTION

Model & Number	Height	Width	Depth	Pipe Size (NPT)	Approx. Shipping Weight
Two Chamber	15 ¾ "	10 ¼ "	6 ¼ "	¾ "	17 lbs.
Four Chamber	15 ¾ "	15 ¾ "	6 ¼ "	¾ "	23 lbs.

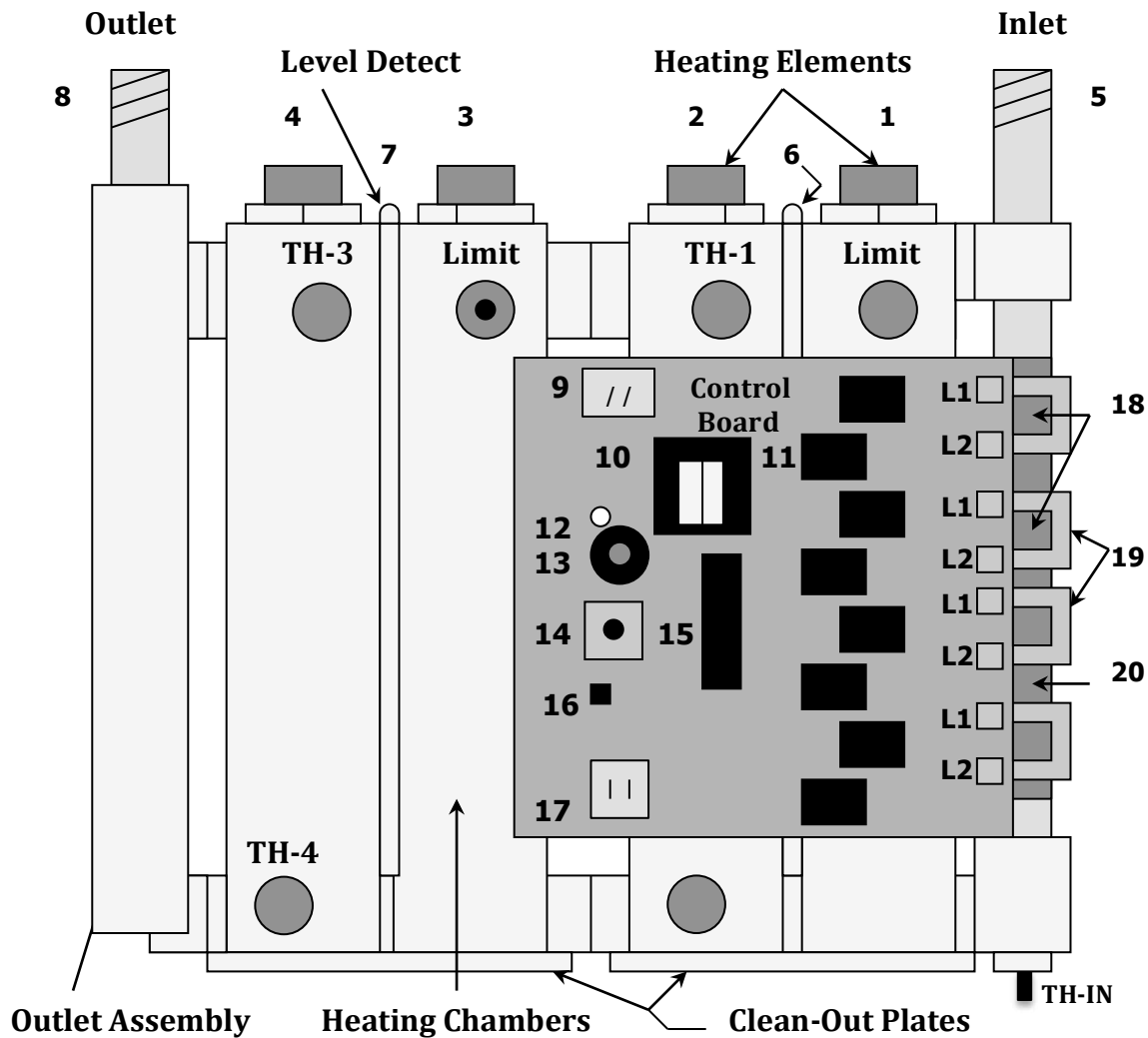
## RATINGS - ELECTRICAL

Model & Number	Kilowatts (KW)	Voltage (VAC)	Maximum Amperes (AMPS)	Number of Circuit Breakers , Type & Amp Rating	
				Without Jumpers	With Jumpers
RA-14	14	240	58	<i>(2) 2-pole, 30A<sup>1</sup></i>	(1) 2-pole, 60A
RA-16	16	240	67	(2) 2-pole, 40A	<i>(1) 2-pole, 70A<sup>1</sup></i>
RA-18	18	240	75	<i>(2) 2-pole, 40A<sup>1</sup></i>	(1) 2-pole, 75A
RA-22	22	240	91	<i>(4) 2-pole, 25A<sup>1</sup></i>	(2) 2-pole, 50A
RA-28	28	240	116	(4) 2-pole, 30A	<i>(2) 2-pole, 60A<sup>1</sup></i>
RA-32	32	240	134	(4) 2-pole, 40A	<i>(2) 2-pole, 70A<sup>1</sup></i>

<sup>1</sup>Optional wiring method shown in italics - **VERIFY CORRECT JUMPER INSTALLATION** on control board when using a single breaker for two Chamber Models or 2 breakers for Four Chamber models. Be sure to **REMOVE JUMPERS** when using two breakers for two chamber models or 4 breakers for four chamber models. Jumpers are included with heater when not factory installed for use with optional wiring methods.

# FOUR CHAMBER MODELS

## INTERNAL WORKINGS AND PARTS IDENTIFICATION

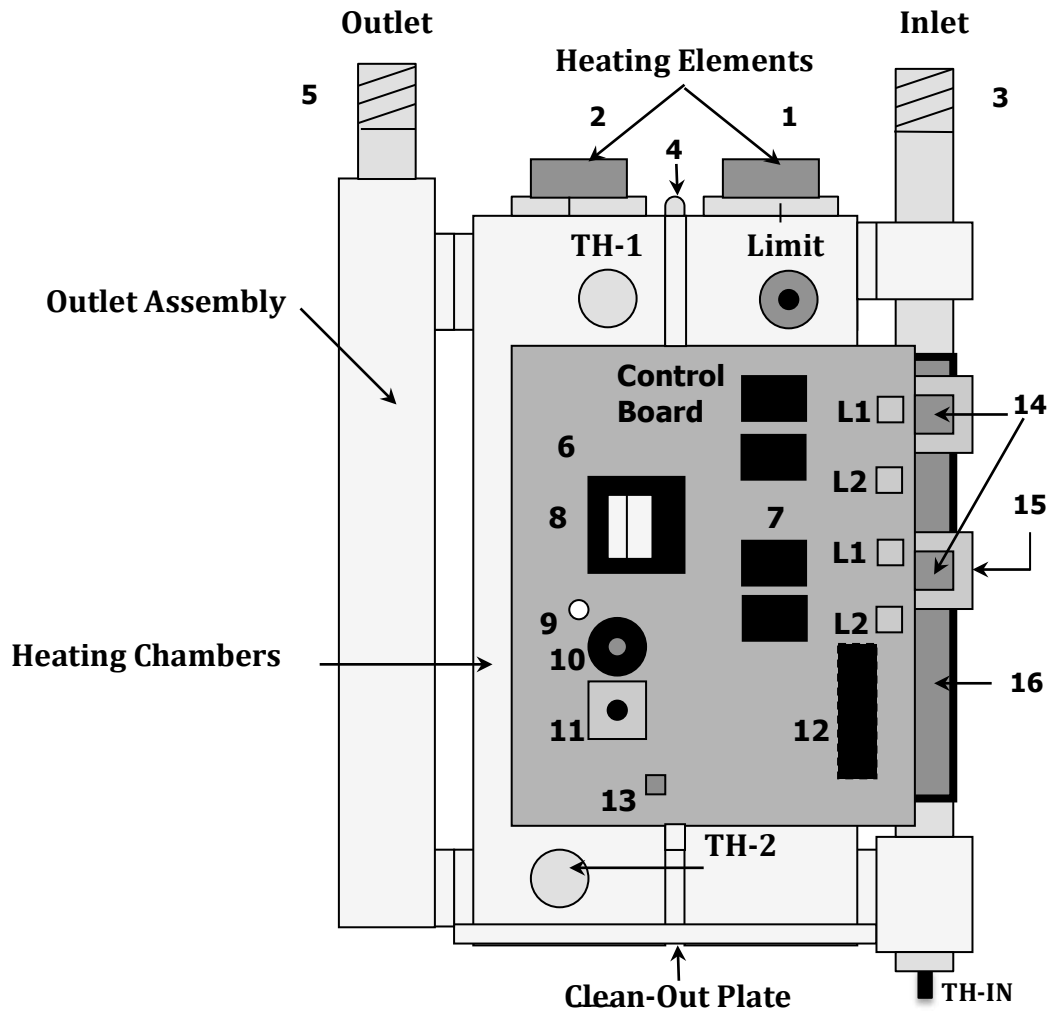


- LEGEND**
- 1 - Heating Element #1
  - 2 - Heating Element #2
  - 3 - Heating Element #3
  - 4 - Heating Element #4
  - 5 - Inlet Water Tube, 3/4" NPT
  - 6 - Water-Level Detect Screw
  - 7 - Water-Level Detect Screw
  - 8 - Outlet Water Tube, 3/4" NPT
  - 9 - Disable, Demand Control
  - 10 - Transformer
  - 11 - Heating Element Relays (8 ea.)
  - 12 - LED Light Indicator
  - 13 - Audible Speaker
  - 14 - Output Temperature Control
  - 15 - Microprocessor Control Chip

- LEGEND**
- 16 - Blue Button; Manual Audible Activation
  - 17 - Terminal Spades for Leak Detect Wires
  - 18 - Triacs (4 each)
  - 19 - Triac Mounting Blocks to Heat Sink (4 ea.)
  - 20 - Copper Heat Sink Tube
  - L1 - Power Connection Lugs (208 - 240 VAC)
  - L2 - Power Connection Lugs (208 - 240 VAC)
- Limit: Over Temperature Limit Switches (2)
- TH-IN: Inlet Temperature Sensor  
 TH-1: Chamber Temperature Sensor #1  
 TH-2: Chamber Temperature Sensor #2  
 TH-3: Chamber Temperature Sensor #3  
 TH-4: Chamber Temperature Sensor #4

# TWO CHAMBER MODELS

## INTERNAL WORKINGS AND PARTS IDENTIFICATION



### LEGEND

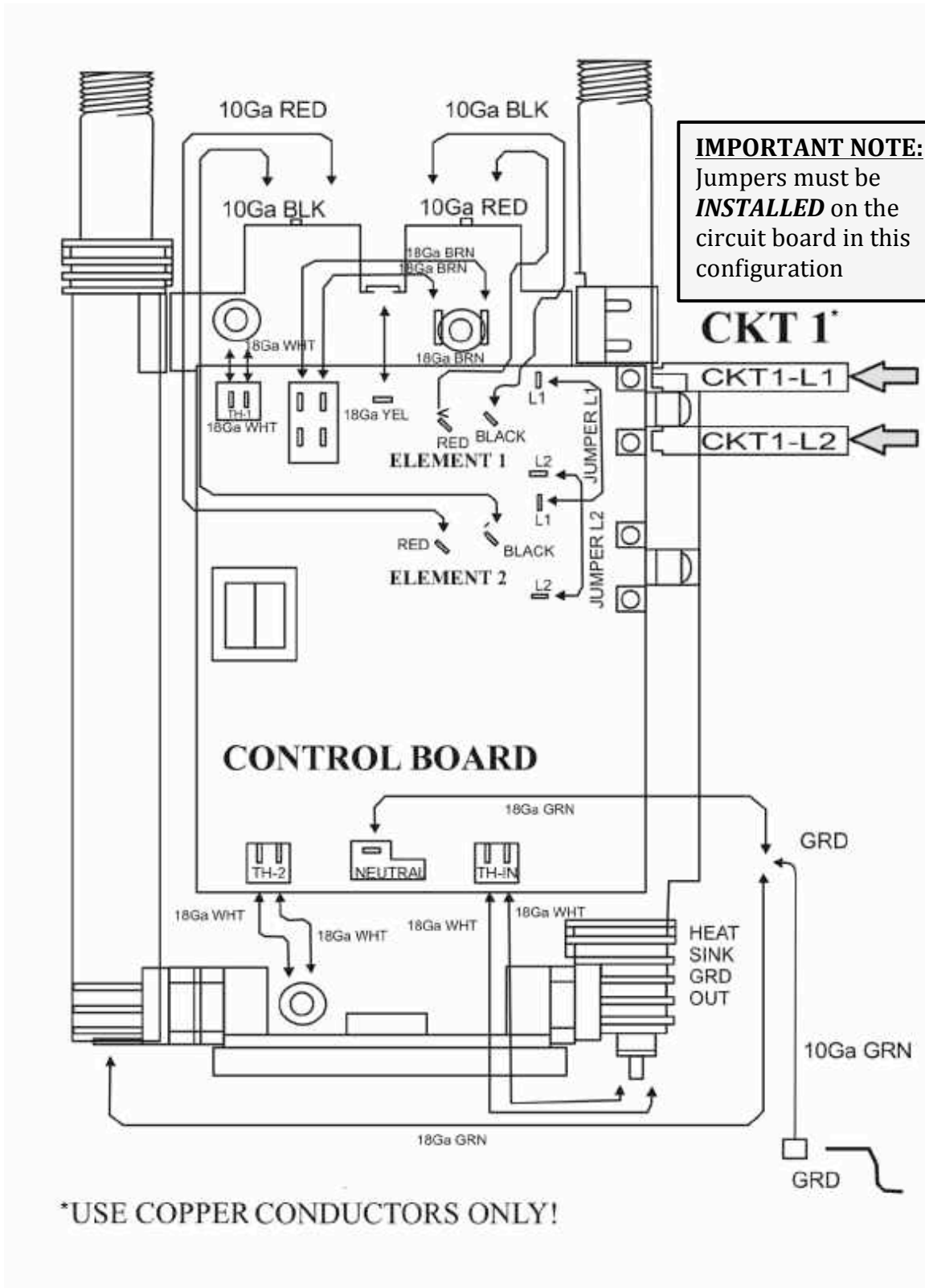
- 1 - Heating Element #1
- 2 - Heating Element #2
- 3 - Inlet Water Tube, 3/4" NPT
- 4 - Water-Level Detect Screw
- 5 - Outlet Water Tube, 3/4" NPT
- 6 - Disable, Demand Control Switch
- 7 - Heating Element Relays (4)
- 8 - Transformer
- 9 - LED Light Indicator
- 10 - Audible Speaker
- 11 - Output Temperature Control
- 12 - Microprocessor Control Chip
- 13 - Blue Button; Manual Audible Activation

### LEGEND

- 14 - Triacs (2)
- 15 - Triac Mounting Blocks to Heat Sink (2)
- 16 - Copper Heat Sink Tube
  
- L1 - Power Connection Lugs (208 - 240 VAC)
- L2 - Power Connection Lugs (208 - 240 VAC)
  
- Limit: Over Temperature Limit Switch
- TH-IN: Inlet Temperature Sensor
- TH-1: Chamber Temperature Sensor #1
- TH-2: Chamber Temperature Sensor #2

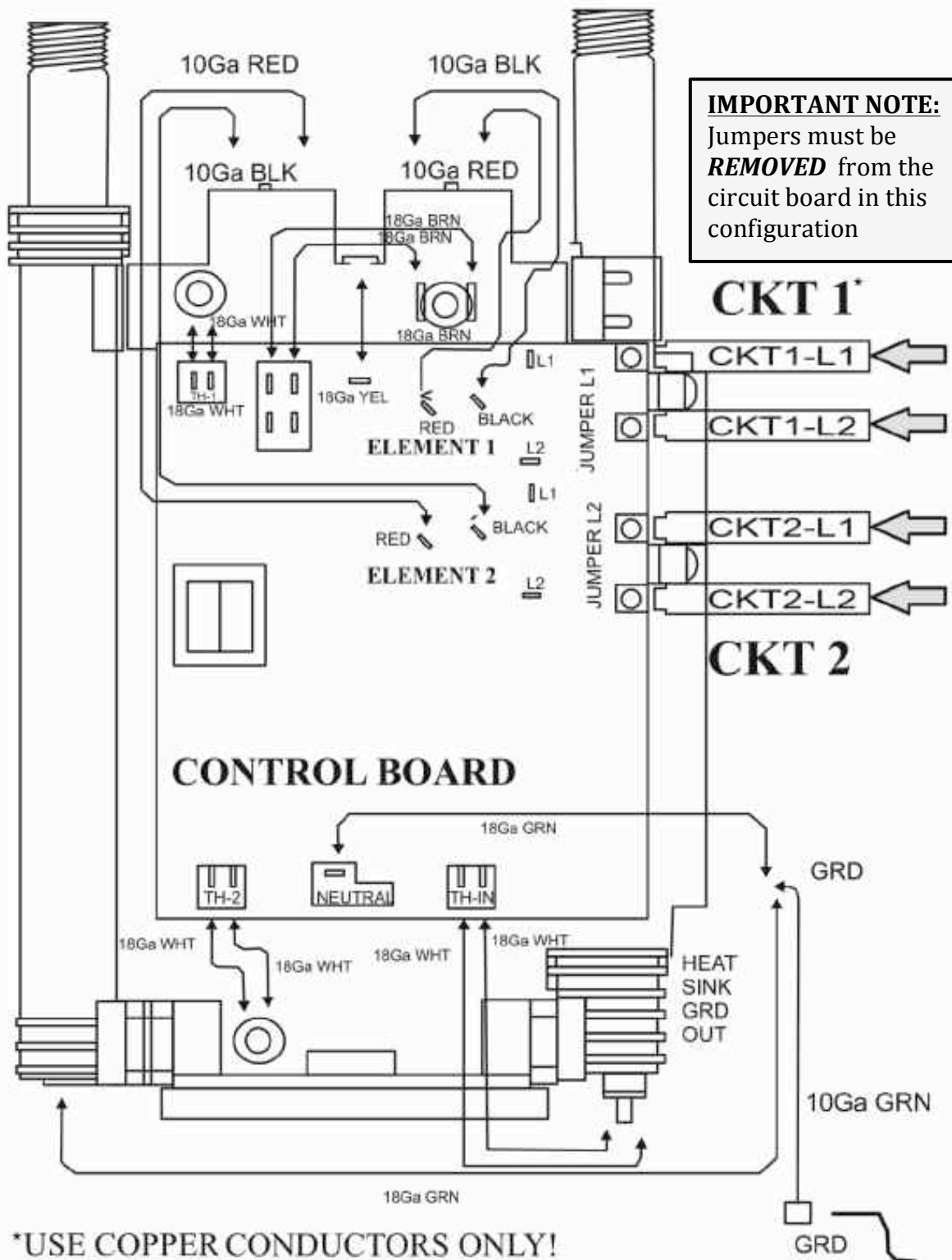
# WIRING DIAGRAMS

## TWO CHAMBER - SINGLE CIRCUIT



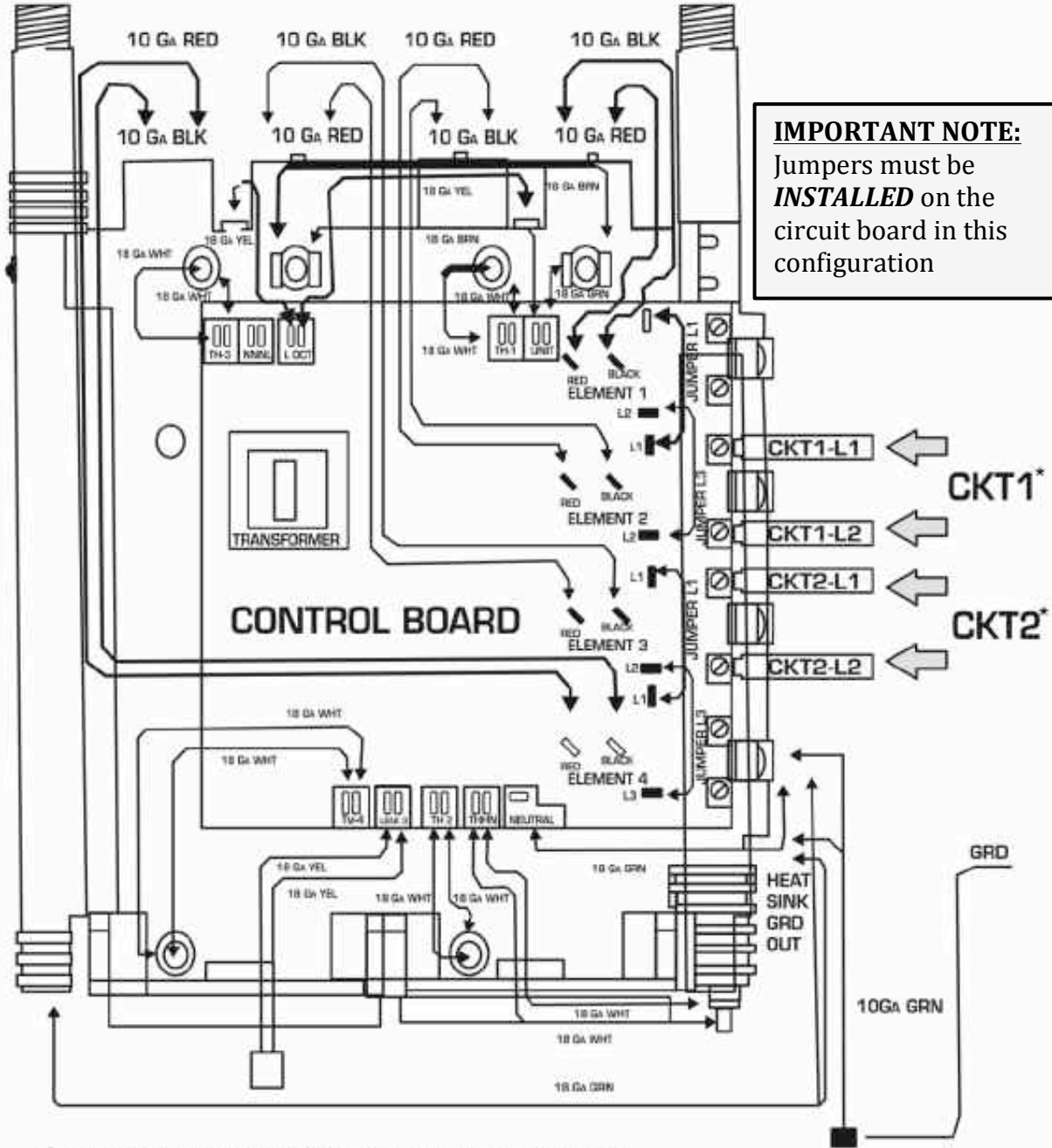
# WIRING DIAGRAMS

## TWO CHAMBER - DUAL CIRCUITS



# WIRING DIAGRAMS

## FOUR CHAMBER - DUAL CIRCUITS



**IMPORTANT NOTE:**  
Jumpers must be **INSTALLED** on the circuit board in this configuration

**\*USE COPPER CONDUCTORS ONLY!**



# SERVICE & WARRANTY RECORD

Purchased from: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

Serial #: \_\_\_\_\_

Name: \_\_\_\_\_

Model #: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## NOTES AND SERVICE

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Your SEISCO can be serviced by most major brand authorized appliance repair or heating and plumbing centers in your area. If your preferred service center does not already have service information, **Seisco International Limited** will, upon request and with no charge, promptly fax the information to the service center. For information regarding service companies in your immediate area you may contact your original installer or **Seisco International Limited**.

## **SEISCO INTERNATIONAL LIMITED**

241 Airtex Dr. • Houston, TX 77090

• Toll Free (888) 296-9293

Phone (281) 876-3300 • Fax (281) 876-3338 • seisco.com