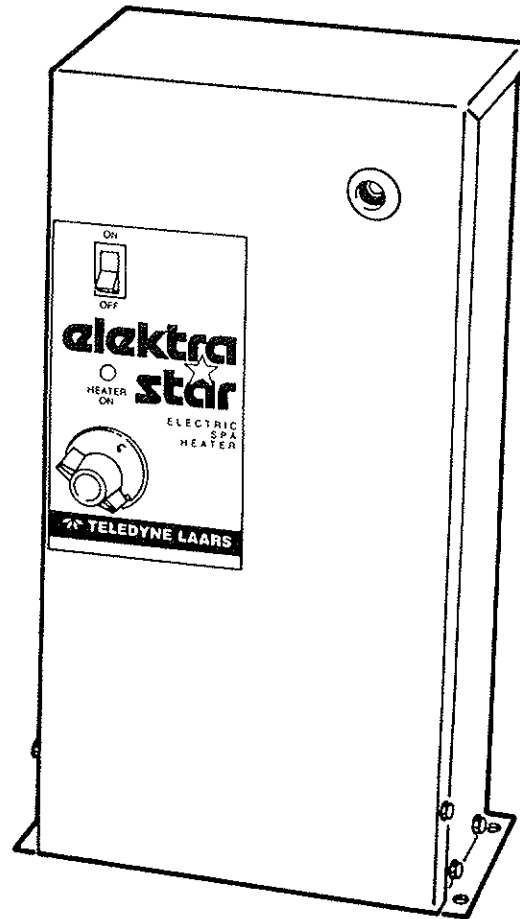


FOR YOUR SAFETY - This product must be installed and serviced by a professional service technician, qualified in pool/spa heater installation. Improper installation and/or operation could cause serious injury, property damage, or death. Improper installation and/or operation will void the warranty.

Installation and Operation Manual for the Elektra Star™ Electric Spa Heater Models TE-55 and TE-110

parts4heating
800-536-1582 Fax: 866-448-9304
info@parts4heating.com



⚠ WARNING

SPA TEMPERATURE: See Section 1, General Information, of this document for important Consumer Product Safety Commission water temperature guidelines for spas.

TO REDUCE THE RISK OF ELECTRIC SHOCK:

- Install heater at least 5 feet (1.5 meters) from the spa and from all metal surfaces.
- Do not permit any electric appliance such as lights, a telephone, radio, or television within 5 feet (1.5 meters) of a spa or hot tub.

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IMPORTANT SAFETY INSTRUCTIONS

READ AND FOLLOW ALL INSTRUCTIONS

Always observe basic safety precautions when using this equipment, including the following:

To reduce the risk of injury:

1. Spa or hot tub water temperature should never exceed 104°F (40°C). A water temperature in excess of 104°F (40°C) is considered unsafe for all persons. Lower water temperatures are recommended for extended use (exceeding 10 to 15 minutes) and for young children.
2. Pregnant women beware! Soaking in water above 102°F (39°C) can cause fetal damage during the first three months of pregnancy (which could result in the birth of a brain-damaged or deformed child). If pregnant women are going to use a spa or hot tub, they should make sure the water temperature is below 100°F (38°C) maximum.
3. Before entering a spa or hot tub, the user should measure the water temperature at several occupant locations using an accurate thermometer since the tolerance of water temperature-regulating devices may vary as much as ±5°F (±3°C).
4. Drinking alcoholic beverages before or during spa or hot tub use can cause drowsiness which could lead to unconsciousness and the possibility of drowning.
5. Persons suffering from obesity or with a medical history of heart disease, diabetes, circulatory or blood pressure problems should consult their physician before using a spa or hot tub.
6. Persons taking any medication which induces drowsiness such as tranquilizers, antihistamines, or anticoagulants should not use a spa or hot tub.

Prolonged immersion in hot water can induce hyperthermia.

Hyperthermia occurs when the internal body temperature reaches a level several degrees above the normal body temperature of 98.6°F (37°C). Symptoms include dizziness, fainting, drowsiness, lethargy, and an increase in the internal temperature of the body.

The effects of hyperthermia include:

1. Unawareness of impending hazard
2. Failure to perceive heat
3. Failure to recognize need to leave spa
4. Physical inability to leave spa
5. Fetal damage in pregnant women
6. Unconsciousness resulting in a danger of drowning

The use of alcohol, drugs or medication can greatly increase the risk of fatal hyperthermia in spas and hot tubs.

The Teledyne Laars heater features a temperature safety control. With the TEMP-LOK™ device, the customer can select a maximum temperature and lock it in place. See Section 1E for instructions on the use of the TEMP-LOK.

SAVE THESE INSTRUCTIONS

SECTION 1.

General Information

1A. Introduction

This manual provides installation and operating instructions for the Teledyne Laars Elektra Star™ Electric Spa Heater.

1B. Description

The Elektra Star heater consists of a stainless steel tank with a heating element, an adjustable water temperature controller, and an indicator light that shows when the heater is on. Safety controls include an adjustable pressure switch and a manual reset high limit control.

The heater also has a TEMP-LOK™ as part of the temperature controller. The TEMP-LOK lets the user determine the best and safest water temperature, then locks the temperature in by preventing the knob from turning higher (see Section 1E).

1C. Warranty

The Elektra Star heater is sold with a limited warranty. Details are specified on the back cover of this manual. A copy of the warranty and a warranty registration card are included in the plastic bag shipped with the heater. Fill out and return the warranty registration card.

Make warranty claims to an authorized Teledyne Laars representative or to the factory. Claims must include the serial number and model number, installation date and the name of the installer. Shipping costs are not included in the warranty coverage.

1D. Therapeutic Spas or Hot Tubs

Therapeutic spas or hot tubs are usually piped and controlled so that very warm or hot water is forced at high speed into a small space. This is usually accompanied by air injection. Both the heat and the energy of the water provide hydro-therapeutic benefits.

Persons using a spa, with its high temperature water, should do so only after consulting a physician. Small children and persons in poor health should not use a high temperature spa. It is a good practice for persons using a spa or hot tub to have someone else nearby but not in the spa. Refer to the inside front cover of this manual for important safety instructions regarding spas or hot tubs.

1E. The TEMP-LOK

The Elektra Star heater's temperature control includes a TEMP-LOK for safety and convenience. The TEMP-LOK has a disk under the temperature control knob with an adjusting slot, a stop, and a screw. To adjust the TEMP-LOK, loosen the screw enough for the disk to turn.

With an accurate thermometer in the water, turn the knob until you find a water temperature that is safe and comfortable. Then turn the TEMP-LOK disk counterclockwise until the stop is snug against the right side of the knob. Tighten the screw to keep the temperature control knob from turning higher.

1F. Water Supply

The Elektra Star heater must be used with fresh water as supplied by municipal water systems. The heater is not warranted to be used with mineral water, sea water, salt water or any other non-drinkable water.

SECTION 2.

Installation Instructions

2A. General

The Elektra Star heater is Underwriter's Laboratory (UL)-listed under Standard 1261 and Canadian Standards Association (CSA) approved for indoor or outdoor installation. Install the Elektra Star heater in accordance with all local codes, ordinances, and utility company requirements. In the absence of such codes, install the heater in accordance with the latest edition of the National Electrical Code (NEC), ANSI/NFPA 70, including the special requirements of Article 680, or with the requirements of the authority having jurisdiction. In Canada, install the heater in accordance with the latest edition of the Canadian Electrical Code (CEC), Part 1, and local codes. Do not install the heater on dirt floors. Use the four holes in the sheet metal flange at the base of the heater to fasten it to skid-mounted systems (see Fig. 1).

2B. Site Location

Install the Elektra Star heater at least 5 feet (1.5 meters [m]) from the inside wall of the tub or spa. Locate the heater where any leaks from tank or pipe connections cannot damage adjacent areas or lower floors of a structure. If necessary, install a drain pan under the heater. The drain pan should be at least

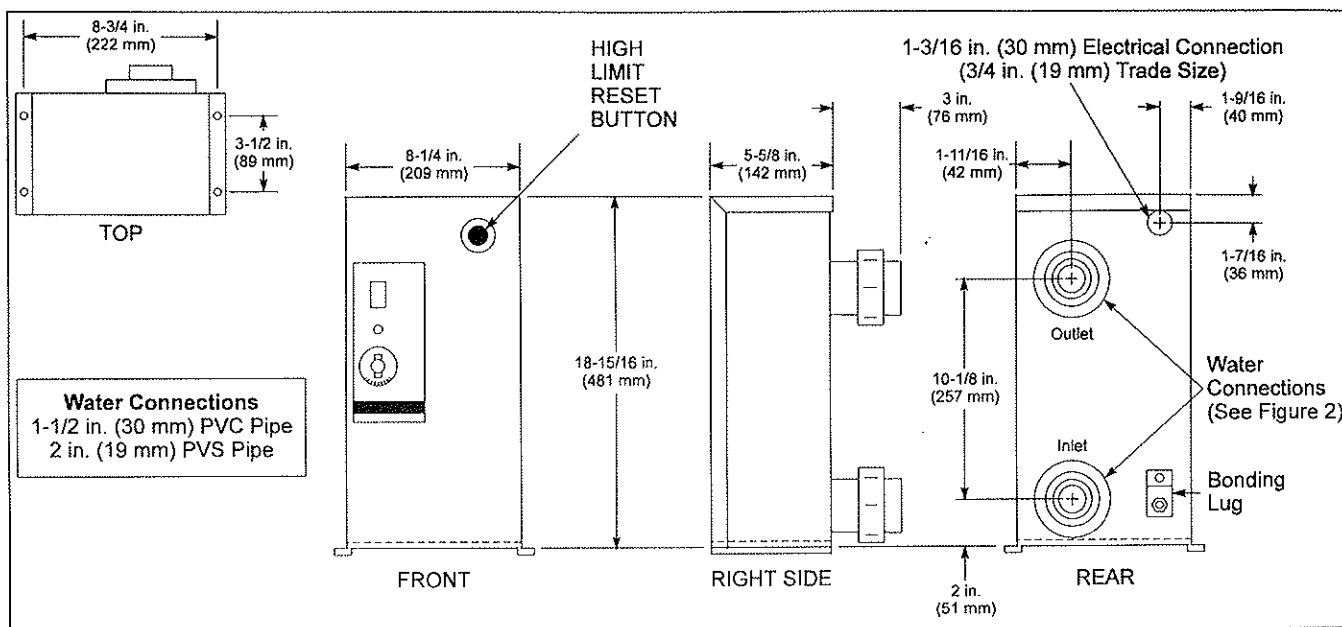


Figure 1. Dimensional Specifications

2 inches (51 millimeters [mm]) deep, at least 2 inches (51 mm) larger than the base of the heater, and piped to a suitable drain.

Allow adequate clearance on all sides of the heater for service. The water and electrical connections are on the rear side of the heater. Access panel screws are on the sides. Most service operations are done from the front or back of the heater.

2C. Water Piping

Do not install a shutoff valve between the heater outlet and the spa or hot tub. The valve could accidentally be left closed. Instead, Teledyne Laars recommends a check valve in the line to prevent water loss when the line is disconnected from the heater for service.

The National Swimming Pool, Spa and Hot Tub Code says a pressure relief valve is not necessary if there is no shutoff valve between the heater outlet and the spa or hot tub. However, make sure the installation conforms to any local code requirements for installing pressure relief valves.

The Elektra Star heater's couplings connect directly to 1-1/2 inch (38 mm) and 2 inch (51 mm) PVC pipe (see Fig. 2).

NOTE: Use a metal "heat sink" pipe between the filter and the heater when using PVC plastic materials in pipes, fittings, grids, and other elements of the filter system.

The Elektra Star heater, having only 6 feet (1.83 m) of water pressure drop at 100 gallons per minute (GPM) (378 liters per minute [LPM]), does not normally need an external flow bypass line. Install a bypass line with an adjustment valve if the system has a flow rate higher than 100 GPM (see Fig. 3).

Provide a minimum flow rate of 10 GPM (38 LPM). Low system water flow due to an under-sized pump, restrictive piping, or a dirty filter can cause nuisance tripping of the high-limit control.

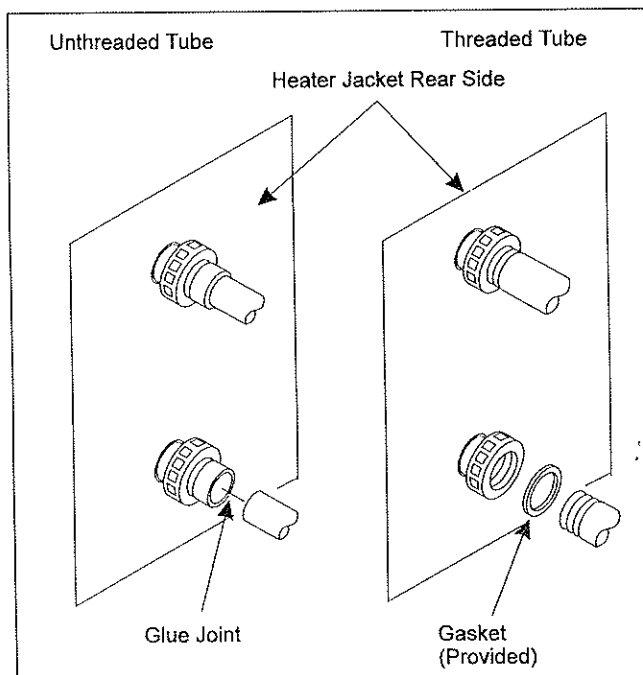


Figure 2. Piping Connections

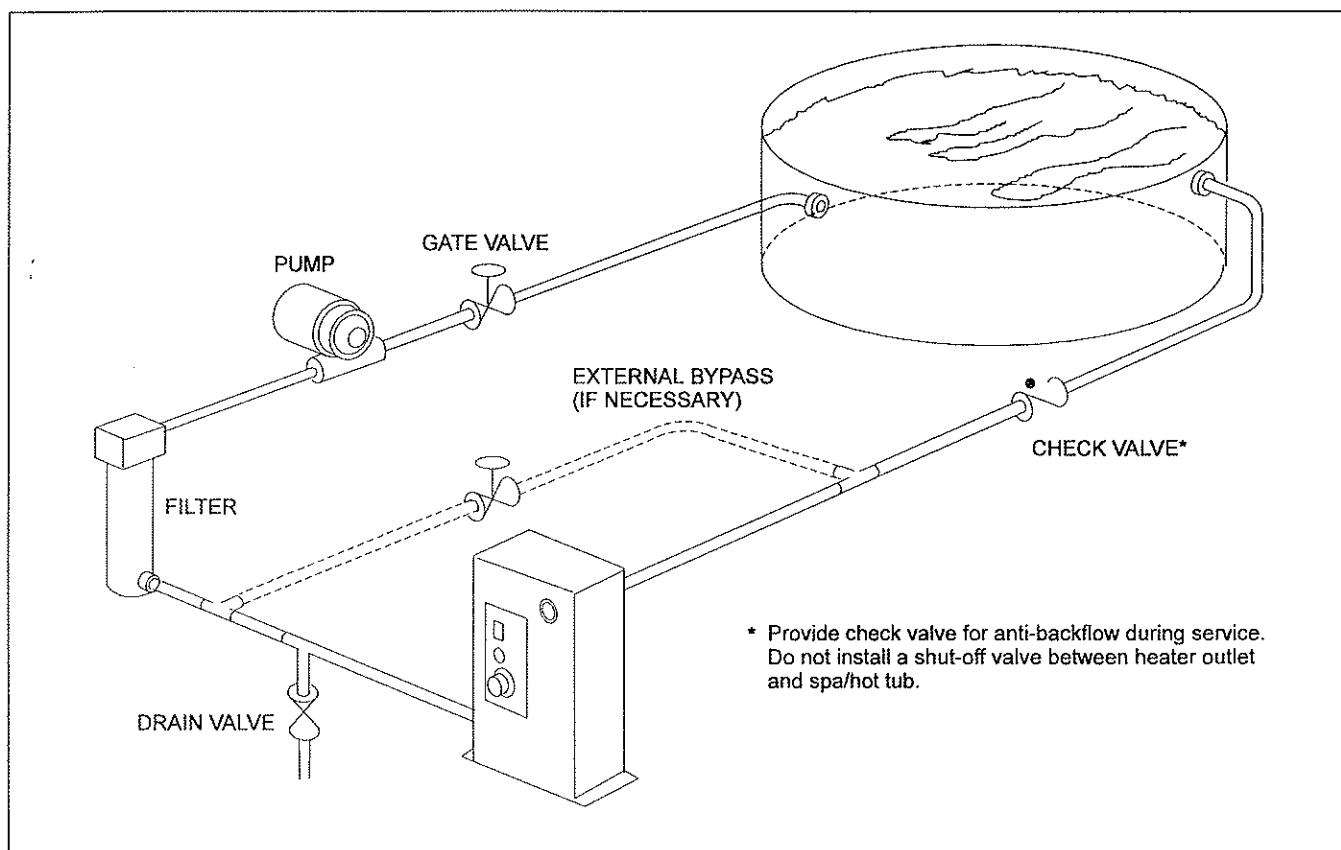


Figure 3. Typical Piping Diagram

2D. Electrical Connections

NOTE: All electrical connections must conform to latest edition National Electrical Codes in the United States and to Canadian Electrical Codes in Canada.

Connect the heater to a suitable power supply (see Fig. 5). Table 1 lists electrical specifications including wire size. Compare the rating plate information to the branch circuit electrical characteristics.

Do not connect the heater to an improper electrical source. Voltage should not vary more than +5%, -10% from the rating plate specification. The heater supply circuit must be protected by a ground-fault circuit interrupt in accordance with NEC, ANSI/NFPA 70, Article 680.

Connect the branch circuit wires inside the heater at the contactor terminals and at the grounding lug. Also, connect the heater to its own grounded branch circuit with over-current protection and a disconnect switch. The NEC requires a bonding wire connected to the exterior lug on the heater.

Table 1. Electrical Specifications

	Model	
	TE-55	TE-110
Unit Volts, Hz, Phase	240V, 60Hz, Single Phase	
Operating Volt. Range	216 to 252V	
kW Rating @ 240V	5.5	11.0
Heating Output		
BTU/H @ 240V	18,770	37,540
Ampacity for Wire Sizing	25	50
Minimum Wire Size		
AWG 75C Copper*	10	6
Maximum Branch Circuit		
Fuse Amps	30	60
*These recommendations are in accordance with NEC and CEC. Consult local authorities to see if other codes apply.		

See the NEC or the CEC for wire size if wire other than that rated for 167 degrees Fahrenheit (°F) (75 degrees Celsius [°C]) is used, voltage drop exceeds 2 percent, or ambient temperature exceeds 86°F (30°C).

In Canada the heater grounding conductor shall be the same or larger than the live power supply conductors. Do not use aluminum wire between the disconnect box and the heater.

IMPORTANT: Do not turn the heater on until the spa is filled with water and the filter pump has run long enough to remove any air from the system (see Section 3).

▲WARNING

Disconnect the heater's power supply when draining the spa or heater. The heater must be operated with the filter pump ON and water flowing.

2E. Automatic Sanitizing Chemical Dispensers

A concentration of sanitizing chemicals in the heater can be very destructive. Damage caused by such a concentration is not covered by the heater warranty.

If an automatic chemical dispenser is used, install it downstream of the heater, in the spa or hot tub return line. It should be at a lower elevation than the heater outlet connection.

IMPORTANT:

- Provide the dispenser with an anti-siphoning device to keep the chemical from siphoning into the heater after the pump shuts off.
- Wire an electric dispenser so it cannot operate unless the filter pump is running. If the dispenser has an independent clock control, synchronize it with the filter clock.
- If the dispenser has its own pump, install it so that it introduces the gas or solution downstream from the heater. If possible, at a lower position than the heater outlet fitting.

2F. Storage of Chemicals

Airborne chemical vapors can cause heater corrosion and component failure. Spray can propellants, cleaning solvents, refrigerants, swimming pool chemicals, calcium or sodium chloride, waxes, and process chemicals are substances which are all potentially corrosive. They are corrosive at very low concentrations and may have little or no odor to indicate their presence.

Do not store products of this type by the heater. Damage caused by chemicals is not covered by the heater warranty.

▲WARNING

Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

SECTION 3. Operating Instructions

3A. Filling the Heater with Water

When all of the electrical and plumbing connections have been completed and checked, open all valves except the drain valves. Fill the spa with water. If the water level in the spa is below the heater, leave the heater OFF, and turn on the system pump to fill the system. It may be necessary to prime the pump.

IMPORTANT: Do not turn on the heater until the spa or hot tub is filled with water. If the heater is turned on too soon and the pressure switch has not been adjusted yet, the heating element could overheat and burn out.

3B. Startup Procedure

With any new spa or hot tub installation, it is a good idea to run the filter pump long enough to completely clean the water. After the water is completely clear, perform the following steps:

1. Turn the heater ON.
2. Turn the temperature control knob high enough to call for heat. If the temperature control is close to 100°F (38°C), the indicator light on the heater will come on.

3. Stop and start the pump several times. The indicator light should go off and on with the pump. If it does not, turn OFF the heater and adjust the pressure switch (see Section 3D).

3C. Adjustable Thermostat and TEMP-LOK

The heater has an adjustable temperature control with a range of approximately 70 to 104°F (21 to 40°C). See Section 1E for instructions on using the TEMP-LOK.

The Elektra Star heater is designed to operate only when the filter pump is running and there is enough water circulating through the system. A non-adjustable high limit control turns the heater off if the water temperature gets too high. The high limit control must be manually reset before the heater will operate again. If the high limit control continues to turn off the heater, call a qualified professional technician.

⚠ WARNING

Electric Shock Hazard. A qualified professional technician should perform inspection, adjustment, service or cleaning.

3D. Pressure Switch

The Elektra Star heater is equipped with an adjustable pressure switch. The pressure switch prevents the operation of the heater unless there is water flowing. It automatically shuts the heater off when the pump stops. All new heaters are provided with switches factory pre-set at 2 pounds per square inch (psi) (or 14 kilopascals [kPa]) which is appropriate for most installations. In some installations, the spa may be located too far above or below the heater for the pressure switch to operate properly.

If the spa is installed 3 to 5 feet (0.91 to 1.52 meters) below the heater, the system pressure may be too low for the factory setting preventing the heater from operating. If the spa is installed 6 to 8 feet (1.83 to 2.44 meters) above the heater, the system pressure may be high enough to allow the heater to run even with the pump not operating. In such cases, adjust the pressure switch as outlined in section 3D-1.

In extreme cases outside the above parameters,

there are additional pressure switches available from the factory. Pressure switch part number R0015500 is adjustable up to 10 psi (69 kPa) and can be used in installations up to 20 feet (6.10 meters) above the heater. Pressure switch part number R0011300 is adjustable down to 1 psi (6.9 kPa) and can be used in installations more than 5 feet (1.52 meters) below the heater. Upon installation of these switches, adjust the pressure switch as outlined in section 3D-1.

3D-1. Adjusting the Pressure Switch

1. Make sure the water filter is clean.
2. Turn the heater power OFF.
3. Set the pressure switch to its lowest setting by turning the thumbwheel **clockwise** as far as it will go away from the body of the pressure switch (see Fig. 4).
4. Turn the filter pump ON.
5. Check the pressure switch with a voltmeter to make sure it closes (see section 4C-4). If the system has a two-speed pump, make sure the pump is operating at the lower speed.
6. Turn the thumbwheel on the pressure switch, **counterclockwise** until the switch contacts open.
7. With the filter pump still running, reduce the pressure slightly by turning the thumbwheel **clockwise** slowly until the contacts close.

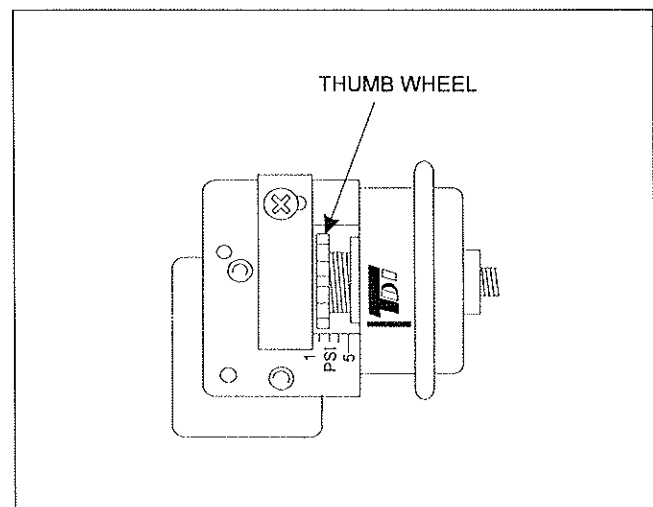


Figure 4. Pressure Switch Adjustment

8. Turn the filter pump OFF. Make sure the contacts open. They *MUST* open when the pump stops.

The correct setting prevents the heater from operating when the filter pump is off, and allows the heater to operate when the pump is running and the filter is clean. It may be necessary to repeat these steps a few times to find the correct setting.

⚠ CAUTION

The pressure switch should be adjusted to turn the heater off when the pump is off. Setting the switch to close at too low of a flow can damage the appliance.

3E. Normal Operation

During normal operation, when the temperature control calls for heat, the HEATER ON light comes on about 5 seconds after the pump starts. The heater stays on until the water temperature reaches the level specified on the control. When the pump shuts off, the heater will shut off immediately after.

When functioning properly, the HEATER ON light can be an aid when troubleshooting the heater. It shows there is power to the heating element and the unit is heating water (unless there is a problem with the wiring or heating element).

3F. Seasonal Care

3F-1. Spring and Fall Operation

During periods when the spa or hot tub is only going to be used once in a while, turn the temperature control counterclockwise to the "MIN" setting, but leave the heater on. This prevents the spa or hot tub from becoming too cold and will require the least amount of time and energy to raise the water back up to the desired temperature.

3F-2. Winterizing

In areas subject to only short freeze periods, turn the heater OFF and run the filter pump continuously for the length of the cold period.

If the spa or hot tub is not going to be used over the winter or your area is subject to freezing temperatures, turn the electrical power off and drain the

system. Leave the drain valve open until the spa or hot tub is going to be used again. Follow proper startup procedures (sections 3A, B) in the Spring.

3G. Water Chemistry

Proper chemical balance in spa or hot tub water is extremely important for satisfactory heater operation and life.

Due to the spa or hot tub's size, high water temperature, and heavy usage, chemical values in a spa or hot tub can fluctuate greatly. This chemical imbalance can result in unsanitary water conditions, and affect the life of the heater.

Maintaining safe water conditions in a spa or hot tub can only be done by regular water changes and the proper addition of sanitizing chemicals. There are kits available from your local pool supply dealer for making the various tests for chemical content of the water. See Table 2 for proper chemical concentrations.

The spa or hot tub owner should have a qualified professional technician perform more extensive chemical testing when necessary.

3G-1. Water Changing

Teledyne Laars recommends regular changing of spa water every 60 days if usage is light, and every 30 days during heavy usage. Be sure to stabilize the water chemistry after every water change.

3G-2. Corrosion

The corrosive action of spa water is increased by the following:

1. Low pH - acidity
2. Low total alkalinity - bicarbonates
3. Low calcium hardness - soft water

Table 2. Proper Chemical Concentrations

Test	Recommended Level
Free Chlorine or Total Bromine	1 to 3 ppm
pH	7.2 to 7.8
Total Alkalinity (TA)	80 to 120 ppm
Calcium Hardness (CA)	200 to 400 ppm
Langelier Saturation Index (SI)	0.5 to +0.5
Cyanuric Acid	30 to 150 ppm
Total Dissolved Solids (TDS)	2000 ppm

3G-3. Testing

Teledyne Laars recommends that spa or hot tub owners purchase a test kit and use it regularly. A minimum kit is one which will measure chlorine and pH levels.

3H. Periodic Inspection**3H-1. Owner Inspection**

Teledyne Laars designs and constructs the Elektra Star heater to provide long performance life when installed and operated properly under normal conditions. The following basic guidelines are suggested for your inspection:

1. Keep the top of the heater clear of all debris.
2. Keep the heater area clean and free of all combustible materials, flammable liquids and vapors, as well as sanitization chemicals (see section 2F).
3. Do not use the heater if any part has been under water. Immediately call a qualified professional technician to inspect the heater and replace any part of the control system which has been under water.

3H-2. Professional Inspection

In addition, annual inspections by a qualified professional technician are recommended to keep the heater operating efficiently through the years. The following basic checks should be performed.

1. Check for loose or broken wires and terminal connections. Tight wire connections at the contactor, the high limit control, and the heating element are critical.
2. Verify pressure switch operation by cycling the spa pump on and off a few times. The HEATER ON light should go off immediately after the pump stops.
3. Inspect the electrical controls, specifically the following:
 - a. High limit control
 - b. Pressure switch
 - c. Temperature control

4. If the heater is equipped with a pressure relief valve, check for corrosion and make sure that water runs freely through it. If corrosion is found, replace the pressure relief valve.
5. Conduct a normal operating cycle and observe that the sequence proceeds as intended (see sections 3A, B).

SECTION 4.

Troubleshooting and Service

4A. General

A qualified professional technician, using Teledyne Laars service procedures must service the Elektra Star heater. Before calling a service technician, however, the owner can check for obvious problems. All of the other components of the spa or hot tub system have an effect on heater operation, including pump, filters, and electrical power. Make sure the pump is operating, the filter isn't clogged, there are no improperly closed water valves, and the electric power isn't shut off, or a circuit breaker tripped.

4B. Contactor Protection Control

The Elektra Star heater contains a contactor protection control (CPC) that delays closing of the contactor for about 5 seconds. If any component in the control circuit opens momentarily, the CPC will complete the electrical circuit 5 seconds after power is restored to it.

4C. High Voltage Checks**⚠ WARNING**

Electric Shock Hazard. High voltage checks are done with power supplied to the spa heater. Take particular care when performing the following tests.

NOTES:

- Be sure the spa or hot tub is full of water before starting the troubleshooting procedure.
- Incorrect or reversed wiring could result in improper operation and personal injury.

Use a volt-ohmmeter and a clamp-on ammeter to troubleshoot the heater. Use the following procedures, Fig. 5 and the troubleshooting flowchart (see Fig. 6) to check the controls.

4C-1. Checking the Supply Voltage

1. Set the volt-ohmmeter on the alternating current (AC) volts scale at a range of at least 250 volts (V).
2. Connect the meter leads to terminals L1 and L2 on the contactor. The meter should read between 216 and 252 volts. If not, the problem could be the fuses, the disconnect switch, circuit breaker, or loose wiring.

4C-2. Checking the Control Circuit

1. Connect the meter leads to contactor terminals T1 and T2 and turn the heater on.
2. If the meter registers voltage, the contact is closed. The closed contact verifies proper operation of the on/off switch, thermostat, pressure switch and the CPC. Proceed to Section 4C-6.

3. If no voltage registers, continue testing in accordance with the following paragraphs.

4C-3. Checking the Temperature Control and On/Off Switch

1. Connect one meter lead to terminal L2 on the contactor. Keep this lead on the terminal until all the controls are checked.
2. With the on/off switch in the ON position, touch the meter lead to switch terminals one at a time.
3. If the meter registers no voltage out at one of the terminals, the switch is defective and needs to be replaced.
4. With the temperature control set to the highest setting, touch the meter lead to each terminal of the temperature control. If voltage is found at both terminals, temperature control is good.
5. If voltage is not found at one of the terminals, the temperature control is open and keeping the heater off; replace it.

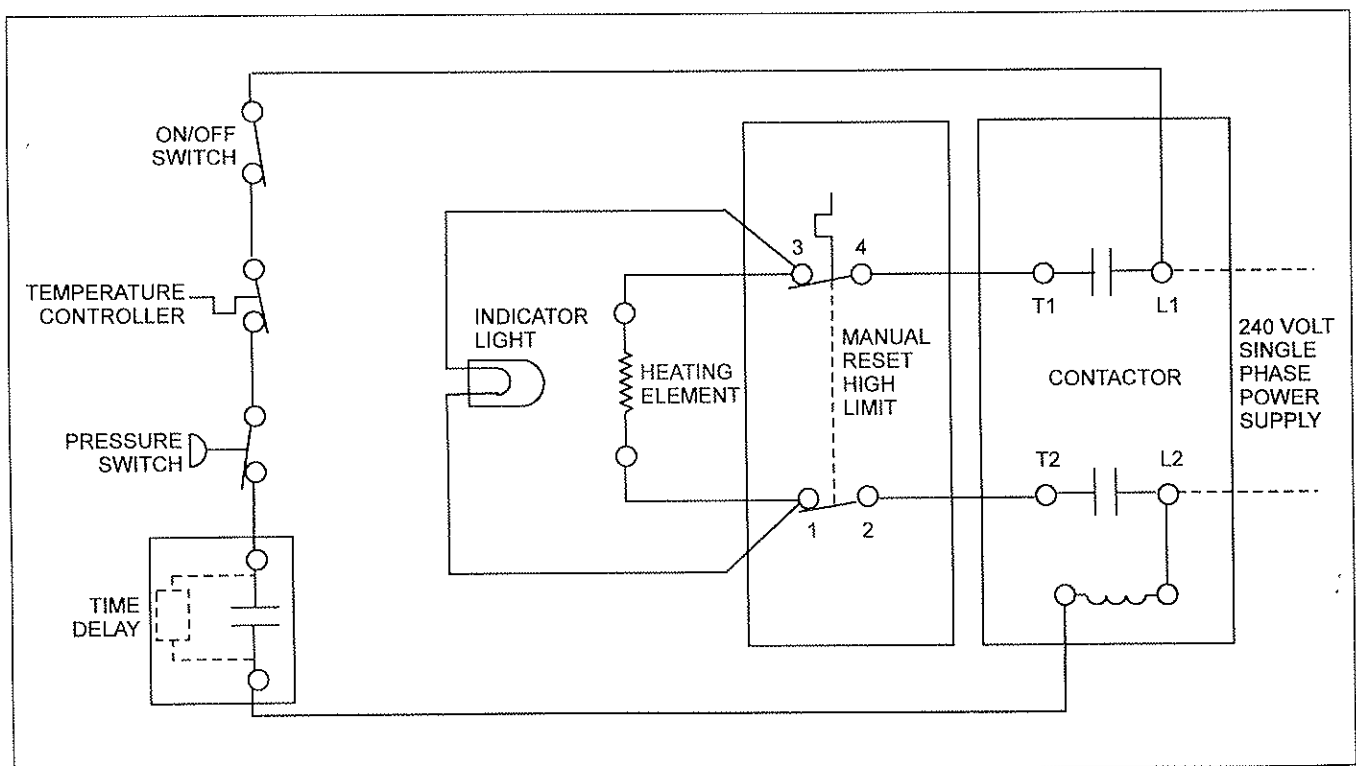


Figure 5. Wiring Schematic

4C-4. Checking the Pressure Switch

1. Touch the free voltmeter lead to the terminals on the pressure switch one at a time.
2. If there is voltage at only one terminal, the pressure switch is preventing the heater from firing. This pressure switch protects the heater from low water flow, so it is important to check for a water flow problem. A dirty water filter, a problem with the system pump, a badly adjusted water valve or a problem elsewhere in the filter circulation system may be causing the pressure switch to sense inadequate flow.
3. Remove the pressure switch and attach a pressure gauge to the tank fitting. Turn the filter pump ON.
4. If the gauge reads less than 2 psi (14 kPa), there may be a flow problem. If the spa is more than 3 feet (0.91 meter) below the heater, adjust the switch as detailed in section 3D-1. If not, there is a flow restriction. Find the restriction and correct it. **Do not adjust the pressure switch to allow the heater to operate.**
5. If the gauge reads more than 2 psi (14 kPa), the pressure switch may be defective. If after following the procedures in section 3D-1 the pressure switch fails to operate, replace it.

4C-5. Checking the Contactor Protection Control

To test the CPC, a time delay relay, test for voltage at the coil of the contactor. If no voltage is found, after a 5 second delay, replace the CPC. If voltage is found and the contactor does not close, replace the contactor.

4C-6. Checking the High Limit Control

1. Put the meter leads on terminals 1 and 3 on the manual reset high limit.
2. If no voltage registers, try to reset the high limit by pushing the button on the front of the switch. The water temperature must be below 105°F (41°C) for the switch to reset.
3. If the high limit resets and voltage does not register, replace the limit.

4C-7. Checking the Heating Element

If there is voltage at terminals 1 and 3, there should be voltage to the heating element and the indicator light should be on. If the light is off, replace the light.

If there is still no heat, check the heating element as follows:

1. **Disconnect power to the heater.**
2. Remove the wires at the heating element.
3. Connect the ohmmeter to the two heating element terminals. The 5.5 kilowatt (kW) element should read 9.9 ohms. The 11.0 kW element should read 4.6 to 5.2 ohms.
4. If the meter reading is outside the range, replace the heating element.

Check amperage to the element as follows:

1. Reconnect power to the heater.
2. Connect a clamp-on ammeter to the wire connector between terminal 3 on the high limit switch and the element. The meter should read about 25 amps on the Model TE-55 and 50 amps on the Model TE-110.
3. If no amps register, replace the element.

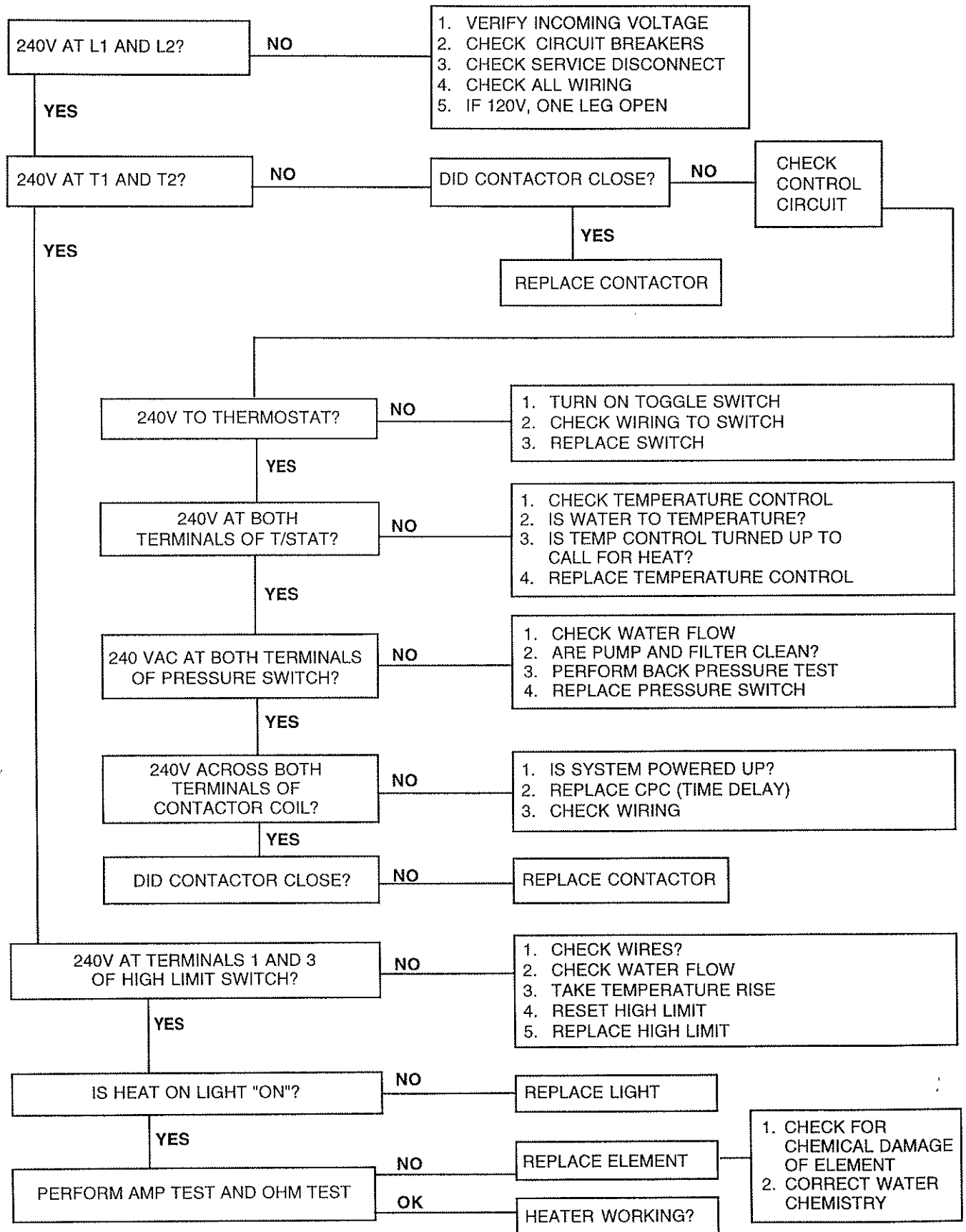


Figure 6. Troubleshooting Flowchart

SECTION 5.

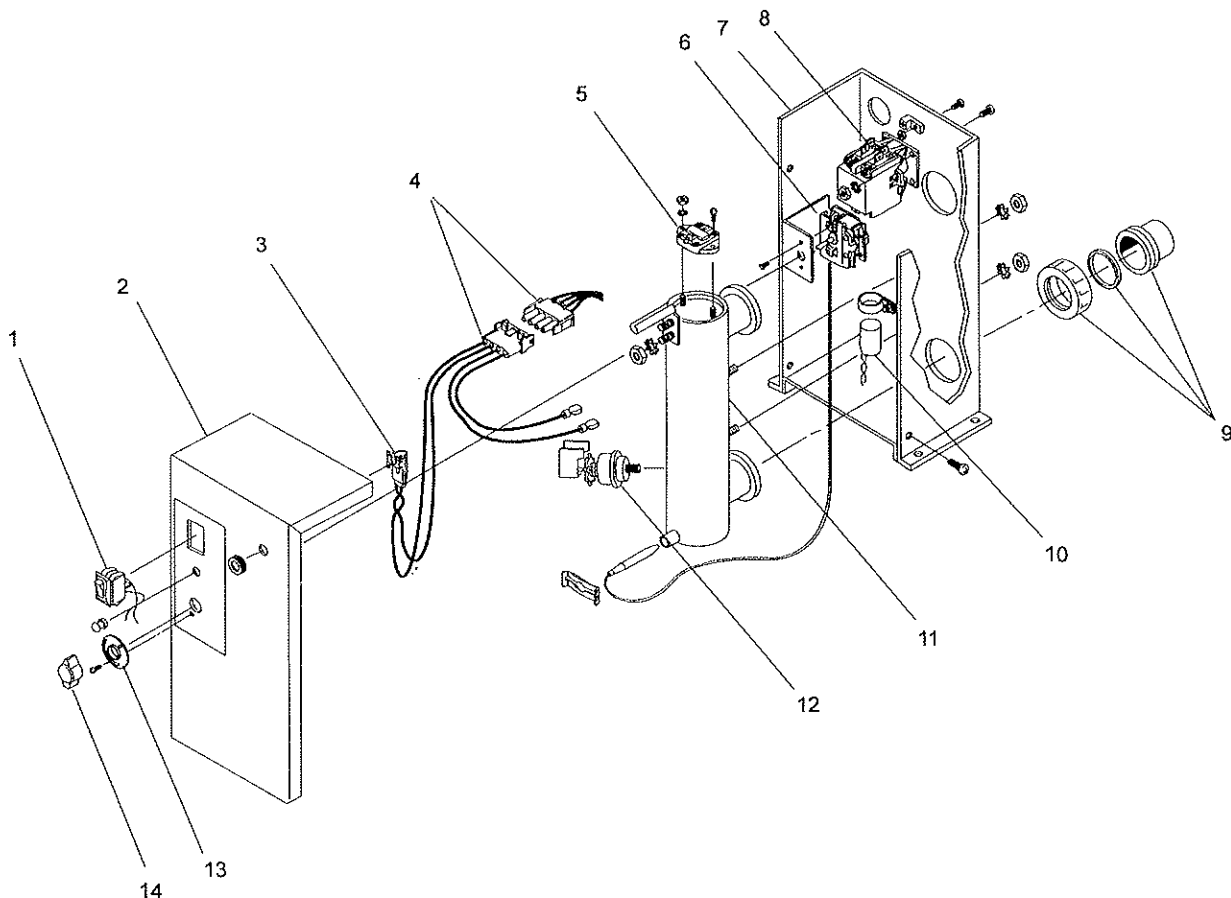
Parts List for the Elektra Star™ Electric Spa Heater

To obtain or order parts for the Teledyne Laars Elektra Star™ Electric Spa Heater, check with your nearest Teledyne Laars Dealer or distributor. They have many of the commonly needed parts in stock. If your dealer cannot supply you, contact Customer Service Department, Teledyne Laars, 6000 Condor Drive, Moorpark, California, 93021, Telephone (805) 529-2000.

Parts List for Elektra Star™ Electric Spa Heater

Item	Description	Part Number	Item	Description	Part Number
1.	On/Off Switch.....	R0099800	10.	Time Delay Relay w/Strap	R0013500
2.	Front Panel	R0150300	11.	Heating Element, 5.5 kW (TE-55)	R0150700
3.	Light and Lens	R0150100		Heating Element, 11.0 kW (TE-110)	R0150800
4.	Wiring Harness	R0150400	12.	Pressure Switch, 2 psi	R0150600
5.	High Limit Control	R0045200		Pressure Switch, 10 psi	R0015500
6.	Temperature Control	R0150500		Pressure Switch, 1 psi	R0011300
7.	Base and Jacket Assembly	R0151100	13.	TEMP-LOK Disk	R0150200
8.	Contactors	R0151000	14.	Temperature Control Knob	R0150000
9.	Coupling Assembly	R0150900	*15.	Hardware Kit	R0151200

*Includes nuts, washers, ground/bond lugs, screws, rubber reset button, temperature sensor bulb retainer clip, and high limit reset rod.



TELEDYNE LAARS ELEKTRA STAR™ LIMITED WARRANTY

Your Teledyne Laars Elektra Star™ Electric Spa Heater is backed by this warranty to assure your complete satisfaction.

ALL COMPONENTS OF THE ELEKTRA STAR™ ARE WARRANTED AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR TWO (2) YEARS FROM DATE OF PURCHASE.

The above warranty applies only if the installation and operating instructions applicable to the model purchased are expressly and completely followed. These instructions are furnished with the unit and are also available by writing to the Teledyne Laars factory. The liability of Teledyne Laars shall not exceed the repair or replacement of defective parts, and shall not include transportation to or from factory, field labor, and consequential or incidental damages. Ship inoperative

parts or complete heater with Serial number, Model number and purchase date, transportation prepaid, directly to address below, attention Customer Service.

This warranty gives you specific legal rights. You may also have other rights which vary from state to state. 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.

TELEDYNE LAARS

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