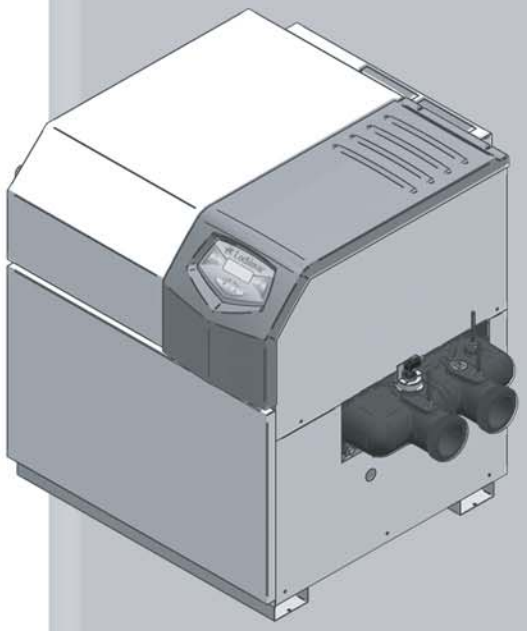
EnergyRite®
Pool & Spa Heater

# User's Information Manual

## Models: ER152, ER202, ER252, ER302, and ER402



**⚠ WARNING**

If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

This appliance MUST NOT be installed in any location where gasoline or flammable vapors are likely to be present.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electric switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency, or the gas supplier.

**Save this manual for future reference.**

DESIGN CERTIFIED®

Lochinvar®
High Efficiency Water Heaters, Boilers and Pool Heaters

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# Hazard definitions

The following defined terms are used throughout this manual to bring attention to the presence of hazards of various risk levels or to important information concerning the life of the product.

**⚠ DANGER** DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

**⚠ WARNING** WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**⚠ CAUTION** CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

**CAUTION** CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

**NOTICE** NOTICE indicates special instructions on installation, operation, or maintenance that are important but not related to personal injury or property damage.

# Please read before proceeding

**NOTICE** This is a gas appliance and should be installed by a licensed electrician and/or certified gas supplier. Service must be performed by a qualified service installer, service agency or the gas supplier.

**⚠ WARNING** If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury, or death.

This pool heater MUST NOT be installed in any location where gasoline or flammable vapors are likely to be present, unless the installation is such to eliminate the probable ignition of gasoline or flammable vapors.

## What to do if you smell gas –

- Do not try to light any appliance.
- Do not touch any electric switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbors phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by a qualified installer, service agency, or the gas supplier.

## Warranty –

Factory warranty (shipped with unit) does not apply to units improperly installed or improperly operated.

Experience has shown that improper installation or system design, rather than faulty equipment, is the cause of most operating problems.

1. Improper maintenance of pool water chemistry resulting in high water hardness and high alkalinity that results in a lime scale build up in the copper tube is not the fault of the equipment and is not covered under the manufacturer's warranty (see *Facts About Water Chemistry in the EnergyRite Service Manual*).
2. Excessive pitting and erosion on the inside of the copper tube may be caused by too much water velocity through the tubes and is not covered by the manufacturer's warranty (see *Water Connections in the EnergyRite Installation and Operation Manual*).

**⚠ WARNING** Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to this manual for assistance or additional information, consult a qualified installer, service agency or the gas supplier.

## Checking equipment –

Upon receiving equipment, check for signs of shipping damage. Pay particular attention to parts accompanying the pool heater which may show signs of being hit or otherwise being mishandled. Verify total number of pieces shown on the packing slip with those actually received. In case there is damage or a shortage, immediately notify the carrier.

**Do not use this pool heater if any part has been under water. The possible damage to a flooded pool heater can be extensive and present numerous safety hazards. Any pool heater that has been under water must be replaced.**

## ⚠ Owner warning –

The information contained in this manual is intended for use by qualified professional installers, service technicians, or gas suppliers. **Consult your local expert for proper installation or service procedures.**

**NOTICE** Consult and follow all local Building and Fire Regulations and other Safety Codes that apply to this installation. Consult a local gas utility company to authorize and inspect all gas and flue connections.

Your conventionally vented gas pool heater must have a supply of fresh air circulating around it during burner operation for proper gas combustion and proper venting.

**⚠ WARNING** Should overheating occur or the gas supply fail to shut off, do not turn off or disconnect the electrical supply to the pump. Instead, turn off the manual gas control valve to the appliance at a location external to the appliance.

## Prevention of freezing –

Heat exchangers and headers damaged by freezing are not covered by warranty.

Refer to the *Winterizing* section of the EnergyRite Service Manual.

# Please read before proceeding

## Spa and hot tub safety –

The following safety rules must be observed while operating spa or hot tub.

1. Spa or hot tub water temperatures should never exceed 104°F (40°C). A temperature of 100°F (38°C) is considered safe for a healthy adult. Special caution is suggested for young children.
2. Drinking of alcoholic beverages before or during spa or hot tub use can cause drowsiness which could lead to unconsciousness and subsequently result in drowning.
3. Pregnant women beware! Soaking in water above 102°F (39°C) can cause fetal damage during the first three months of pregnancy (resulting in birth of brain-damaged or a deformed child). Pregnant women should observe the 100°F (38°C) maximum rule.
4. Before entering the spa or hot tub, users should check the water temperature with an accurate thermometer; spa or hot tub thermostats may err in regulating water temperatures by as much as 4°F (2°C).
5. Persons with a medical history of heart disease, circulatory problems, diabetes or blood pressure problems should obtain their physician's advice before using spas or hot tubs.
6. Persons taking medications which induce drowsiness, such as tranquilizers, antihistamine or anticoagulants, should not use spas or hot tubs.

**⚠ WARNING** To minimize the possibility of serious personal injury, fire, or damage to your pool heater, never violate the following safety rules:

1. Pool heaters are heat producing appliances. To avoid damage or injury, do not store materials against the pool heater or the vent-air intake system. Use proper care to avoid unnecessary contact (especially children) with the pool heater and vent-air intake components.
2. Never cover your pool heater, lean anything against it, store trash or debris near it, stand on it or in any way block the flow of fresh air to your pool heater.
3. UNDER NO CIRCUMSTANCES must flammable materials such as gasoline or paint thinner be used or stored in the vicinity of this pool heater, vent-air intake system or any location from which fumes could reach the pool heater or vent-air intake system.

## Codes –

This pool heater has been designed and certified under the Z21.56/CSA 4.7 Gas Fired Pool Heater Standard, including applicable addenda.

The pool heater shall be installed in accordance with those installation regulations in force in the local area where the installation is to be made. These shall be carefully followed in all cases. Authorities having jurisdiction shall be consulted before installations are made. In the absence of such requirements, the installation shall conform to the latest edition of the National Fuel Gas Code, ANSI Z223.1 and/or CAN/CGA-B149 Installation Code.

As an option, all pool heaters may be ordered with heat exchanger construction that conforms to the latest edition of the ASME Boiler and Pressure Vessel Code, Section IV, Part HLW.

# 1 Maintenance schedule

## Service technician

**(see the EnergyRite Service Manual for instructions)**

**ANNUAL START-UP**

### General:

- Address reported problems
- Inspect interior; clean and vacuum if necessary
- Check for leaks (water, gas, and flue)
- Verify flue and air lines in good condition and sealed tight
- Check control settings per the *Access Setup Menu* in the EnergyRite Service Manual
- Check ignition and flame sense electrodes (sand off any deposits; clean and reposition)
- Check wiring and connections
- Perform start-up checkout and performance verification per Section 9 in the EnergyRite Installation and Operation Manual.
- Flame inspection (stable, uniform)

### If combustion or performance indicate need:

- Clean burners
- Clean heat exchanger

## Owner maintenance

**(see the following pages for instructions)**

| | |
|---|---|
| **Daily** | • Check pool heater area |
| **Monthly** | • Check vent piping<br>• Check air inlet piping (if applicable)<br>• Check relief valve (if applicable) |
| **Periodically** | • Test low water cutoff (if used)<br>• Reset button (low water cutoff) |
| **Every 6 months** | • Check pool heater piping (gas and water) for leaks<br>• Operate relief valve (if applicable) |
| **End of season** | • Shut the pool heater down and winterize if location is subjected to freezing temperatures, see the *Winterizing* section in the EnergyRite Service Manual |

**⚠ WARNING** Follow the maintenance procedures given throughout this manual. Failure to perform the service and maintenance or follow the directions in this manual could result in damage to the pool heater or system, resulting in severe personal injury, death, or substantial property damage.

# 1 Maintenance schedule

## Maintenance procedures

### Pool heater must be serviced and maintained

**⚠ WARNING** The pool heater must be inspected and started annually at the beginning of the heating season by a qualified service technician. In addition, the maintenance and care of the pool heater designated on page 5 of this manual and explained on pages 6 and 7 must be performed to assure maximum pool heater efficiency and reliability. Failure to service and maintain the pool heater and system could result in equipment failure, causing possible severe personal injury, death, or substantial property damage.

**NOTICE** The following information provides detailed instructions for completing the maintenance items listed in the maintenance schedule on page 5. In addition to this maintenance, the pool heater must be serviced and started up at the beginning of each heating season by a qualified service technician.

### Check pool heater area

**⚠ WARNING** To prevent potential of severe personal injury, death, or substantial property damage, eliminate all materials discussed below from the pool heater vicinity and the vicinity of the pool heater combustion air inlet. If contaminants are found:

Remove products immediately from the area. If they have been there for an extended period, call a qualified service technician to inspect the pool heater for possible damage from acid corrosion.

If products cannot be removed, immediately call a qualified service technician to re-pipe vent and air piping and locate vent termination/air intake away from contaminated areas.

1. Combustible/flammable materials -- Do not store combustible materials, gasoline or any other flammable vapors or liquids near the pool heater. Remove immediately if found.
2. Air contaminants -- Products containing chlorine or fluorine, if allowed to contaminate the pool heater intake air, will cause acidic condensate in the pool heater. This will cause significant damage to the pool heater if allowed to continue.

### Check vent piping

1. Visually inspect the flue gas vent piping for any signs of blockage, leakage, or deterioration of the piping. Notify your qualified service technician at once if you find any problems.

**⚠ WARNING** Failure to inspect the vent system as noted above and have it repaired by a qualified service technician can result in vent system failure, causing severe personal injury or death.

### Check air inlet piping (if applicable)

1. Visually inspect the air inlet elbow to be sure it is unobstructed. Inspect the entire length of air piping to ensure piping is intact and all joints are properly sealed.
2. Call your qualified service technician if you notice any problems.

### Check relief valve (if applicable)

1. Inspect the pool heater relief valve and the relief valve discharge pipe for signs of weeping or leakage.
2. If the relief valve often weeps, immediately contact your qualified service technician to inspect the pool heater and system.

# 1 Maintenance schedule *(continued)*

## Test low water cutoff (if installed)

1. If the system is equipped with a low water cutoff, test the low water cutoff periodically during the heating season, following the low water cutoff manufacturer's instructions.

## Reset button (low water cutoff)

1. Testing the low water cutoff shuts the unit off. Press the RESET button on the low water cutoff to turn the unit back on.

## Check pool heater piping (gas and water)

1. Remove the pool heater front access door and perform a gas leak inspection per steps 1 through 6 of the Operating Instructions on page 8. If gas odor or leak is detected, immediately shut down the pool heater following the procedures on page 8. Call a qualified service technician.
2. Visually inspect for leaks around water piping. Also inspect the circulators, relief valve, and fittings. Immediately call a qualified service technician to repair any leaks.

**⚠ WARNING** Have leaks fixed at once by a qualified service technician. Failure to comply could result in severe personal injury, death, or substantial property damage.

3. Replace the front access door.

## Operate relief valve (if applicable)

1. Before proceeding, verify that the relief valve outlet has been piped to a safe place of discharge, avoiding any possibility of scalding from hot water.

**⚠ WARNING** To avoid water damage or scalding due to valve operation, a metal discharge line must be connected to the relief valve outlet and run to a safe place of disposal. This discharge line must be installed by a qualified heating installer or service technician in accordance with the instructions in the EnergyRite Installation and Operation Manual. The discharge line must be terminated so as to eliminate possibility of severe burns or property damage should the valve discharge.

2. Read the pool heater pressure/temperature gauge to make sure the system is pressurized. Lift the relief valve top lever slightly, allowing water to relieve through the valve and discharge piping.
3. If water flows freely, release the lever and allow the valve to seat. Watch the end of the relief valve discharge pipe to ensure that the valve does not weep after the line has had time to drain. If the valve weeps, lift the seat again to attempt to clean the valve seat. If the valve continues to weep afterwards, contact your qualified service technician to inspect the valve and system.
4. If water does not flow from the valve when you lift the lever completely, the valve or discharge line may be blocked. Immediately shut down the pool heater, following the operating instructions on page 8 of this manual. Call your qualified service technician to inspect the pool heater and system.

## Shut pool heater down

1. Follow "To Turn Off Gas to Appliance" on page 8 of this manual.
2. Do not drain the system unless exposure to freezing temperatures will occur.
3. Do not drain the system if it is filled with an antifreeze solution.

# 2 Operating instructions

## FOR YOUR SAFETY READ BEFORE OPERATING

**WARNING: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.**

A. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.

B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

FOR YOUR SAFETY
"WHAT TO DO IF YOU SMELL GAS"

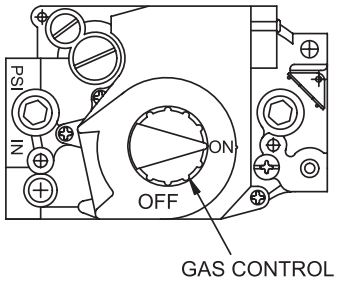
- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

C. Use only your hand to turn the gas control knob. Never use tools. If the knob will not turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

## OPERATING INSTRUCTIONS

1. STOP! Read the safety information above on this label.
2. Turn off all electric power to the appliance.
3. Open control access panel.
4. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.




GAS CONTROL KNOB
SHOWN IN THE "ON" POSITION

5. Push in gas control knob slightly and turn clockwise  to "OFF."

NOTE: On the 36C valve, knob cannot be turned to "OFF" unless knob is pushed in slightly. Do not force.

6. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" in the safety information above on this label. If you don't smell gas, go to the next step".
7. Turn gas control knob counterclockwise  to "ON."
8. Replace control access panel.
9. Turn on all electric power to the appliance.
10. If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.

## TO TURN OFF GAS TO APPLIANCE

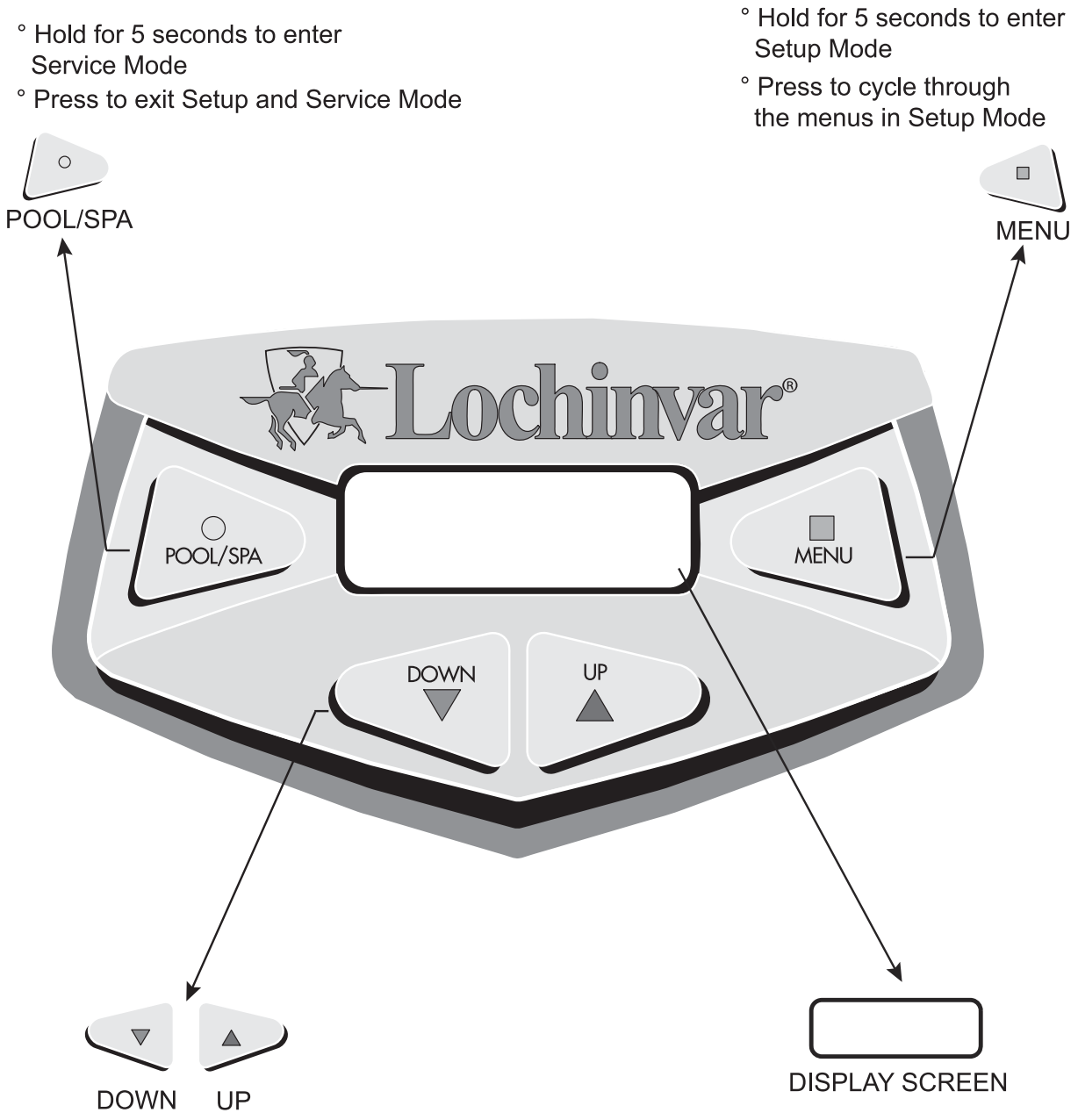
1. Turn off all electric power to the appliance if service is to be performed.
2. Open control access panel.
3. Push in gas control knob slightly and turn clockwise  to "OFF". Do not force.
4. Replace control access panel.

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# 3 EnergyRite control module

Use the control panel (FIG. 3-1) to set temperatures, operating conditions, and monitor pool heater operation.

***Figure 3-1_*** *Control Panel*



# 3 EnergyRite control module

## Access modes

### Modes of operation

There are three modes of operation: 1) Off, 2) Pool, and 3) Spa. The factory default mode is Off.

### Off mode

When in Off Mode the control will display CONTROL OFF and will not monitor any of the inputs.

### Setup menu

Additional features can be accessed and adjusted through the Setup Menu. Please reference the EnergyRite Service Manual for a detailed description of the Setup Menu.

### Service menu

Temperature rise and data logging information can be accessed from the Service Menu. Please reference the EnergyRite Service Manual for a detailed description of the Service Menu.

| Status Display Screens | |
|---|---|
| **Display shows:** | **Description** |
| **Control: OFF** | The control module has been placed in the Off Mode. |
| **Pool: Standby** | The unit has not received a call for heat. |
| **Pool Temp = ***°F** | Indicates the current inlet water temperature. |
| **Pool Mode Prepurge** | A call for heat has been initiated. The blower has been powered and the air pressure switch has closed. The prepurge period is 15 seconds. |
| **Pool Mode Ignition** | After the prepurge period, the unit has begun an 8 second spark period to light the main burners. |
| **Pool: Heating** | The burners have fired and the flame has been detected. |
| **Standby** | Remote is active and has either satisfied the set point or there is no call for heat from the remote. |

# NOTES

Lochinvar®
High Efficiency Water Heaters, Boilers and Pool Heaters
300 Maddox Simpson Parkway
Lebanon, TN 37090
615-889-8900 / Fax: 615-547-1000
www.Lochinvar.com

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