



**Electra Steam, Inc.**

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MODEL:

SERIAL #:

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## SR4 – SR8 Boiler Models



## Instructions Manual

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# READ AND HEED FOR YOUR SAFETY

## SHOCK AND BURN WARNINGS AR – BOILER MODELS



You have just purchased a quality steam boiler designed to the ASME Boiler Code and registered with the National Board of Boiler Inspectors. Treat this industrial equipment with care and respect. It is safe when installed, maintained, and used properly. Read the instruction carefully, refer to the enclosed identification photos and contact the factory if you have any questions.

### 1.) ADJUSTMENTS:

All controls have been set at the factory and should require no adjustments. However, the boiler must be level.

### 2.) BLOWDOWN VALVE:

This valve is utilized to blow impurities from the boiler chamber. When opened, a large volume of hot water and steam is discharged. Ensure that this valve is properly piped for such discharge. State and local codes must be met as applicable.

### 3.) ELECTRICAL:

All wiring must be in accordance with the National Electric Code and any local codes that may apply. Wiring must be made by a competent certified electrician. Use copper wire only.

### 4.) GAUGE GLASS:

The gauge glass protector must be installed at all times. When replacing glass be sure that the unit is not under pressure and is cool to touch. To do otherwise could cause scalding. Gauge glasses should be replaced annually due to internal wear.

**HOT!** The valves and piping on this unit are hot when under pressure or heating up. Don't touch!

If a leak is evident: Steam fittings can become loose during shipment and subsequently leak. Leaks through the gauge glass packing nuts occur more frequent than on other pipe fittings. It is easy to resolve these leaks if you are careful:

1. Ensure that the boiler is cold, drained and has no pressure or electricity.
2. Tighten leaking packing nut gently a quarter of a turn. Do not over tighten, as this will result in gauge glass breakage or in valve failure.
3. Fill boiler and operate normally.
4. Observe for more leaks and repeat steps 1 and 2 as required.



### 5.) INSTRUCTIONS:

Read instructions before installing or operating this steam boiler. These are provided as general guidelines.

### 6.) MODIFICATION/MISUSE:

This boiler has been designed and constructed in accordance with the ASME Boiler Code. Any modification or misuse can result in a dangerous situation. Reimers Electra Steam, Inc. is not liable for any product that has been modified or improperly used.

**7.) PRESSURE GAUGE:** The pressure gauge indicates the internal pressure of the boiler. It can fail. Periodically have your boiler inspector compare the gauge with a known gauge utilizing the test valve arrangement provided. Ensure that the boiler is cold, not pressurized and electrically disconnected.

### 8.) REGISTRATION:

Most states and cities require boiler registration and inspection. Check with your government authorities.

### 9.) REPAIR:

Repair of this unit must be attempted only by experienced personnel. Before commencing a repair, ensure that the boiler is cold, not pressurized and electrically disconnected. All standard electrical and steam safety precautions must be taken during testing.

### 10.) SAFETY VALVE:

The safety valve is designed to discharge hot steam when the set pressure is exceeded. Ensure that the discharge port is pointing toward the back of the unit away from the operator or any aisles. Test the safety valve periodically to ensure that it is operating properly. Test carefully at full pressure by lifting lever using pliers and "slapping" shut. Steam discharge can scald. Ensure no one is exposed!

### 11.) STEAM INSTALLATION:

Steam piping must be stainless steel pipe, not galvanized. Work must be done by an experienced steam fitter. All state and local codes must be met as applicable.

### 12.) WATER:

Ensure that all electrical components are in a dry location, free from any possibility of water soaking. Electric foot switches must not be placed on a wet floor. They must be placed on dry surface not subject to steam or water

## **LIMITED WARRANTY - STEAM BOILERS**

Reimers Electra Steam, Inc. warrants the following products of its own manufacture against defects in materials and workmanship under normal use and service. This warranty is in lieu and excludes all other expressed or implied warranties or merchantability of fitness for any particular use. No person is authorized to extend the terms of this warranty or assume any other liability except by written statement signed by an officer of Reimers Electra Steam, Inc. Clear Brook, Virginia 22624.

### **WARRANTY PERIOD**

The pressure vessel, electrical and mechanical components are warranted for one year from date of shipment from Reimers Electra Steam, Inc. in Clear Brook, VA 22624.

### **LIMITATIONS**

Products must be installed, used and maintained in accordance with our instructions, including reasonable and necessary maintenance by the user. Users are responsible for the suitability of the products to their application. There is no warranty damage resulting from improper installation, abuse, power failure, fire, flood, lightning, improper water, misuse, improper specification, misapplication or other operating conditions beyond our control or parts that are normally expendable in usual course of operation.

Claims against carriers for damage in transit must be filed by the buyer. Reimers liability, if any, will not exceed the price of Reimers products claimed to be defective.

Components manufactured by any supplier other than Reimers shall bear only that warranty made by the manufacturer of that product and service for that warranty shall be the responsibility of that manufacturer and not Reimers.

### **REMEDY**

Claims under this Limited Warranty must be made by obtaining a Return Authorization Number from our office (PHONE: 540-662-3811, FAX: 540-665-8101) and returning defective part, freight prepaid to: Reimers Electra Steam, Inc., 4407 Martinsburg Pike, Clear Brook, Virginia 22624.

Defective items will be repaired or replaced as necessary within a reasonable time without charge, other than incidental charges such as freight prepayment. Such repair or replacement within a reasonable time is the exclusive remedy available from Reimers Electra Steam, Inc., under this Limited Warranty.

### **CONSEQUENTIAL DAMAGES**

Reimers Electra Steam, Inc., is not liable for labor costs incurred in the removal, reinstallation, or unauthorized repair of product, or for damages of any type whatsoever, including incidental and/or consequential damages.

**THIS WARRANTY SUPERSEDES ALL PREVIOUS WARRANTIES.**

# 1. Installation

**REIMERS ELECTRA STEAM, INC.** boilers are heated by one or more immersion type heating elements. Automatic controls are provided to maintain pre-set operating pressure and proper water supply. Safety features include automatic low water cutoff, automatic pressure control, safety valve and visible water level gauge. Each boiler is manufactured in accordance with ASME I Power Boiler Code Standards and is individually inspected and stamped by an authorized National Board Insurance Inspector. All boilers are registered with the National Board of Boiler and Pressure Vessel Inspectors.

**NOTE:**

**ASME DATA PLATE IS LOCATED ON END OF PRESSURE VESSEL  
BEHIND LABEL STAMPED WITH NATIONAL BOARD NUMBER OF UNIT.**

When boiler is received, make sure it has not been damaged in shipment.

## 1.1 Location

Place the boiler in a level position, close to the equipment which it is to supply. This will insure minimum heat losses and allow more economical piping arrangements. All steam lines should be insulated.

### a.) Working space:

Electric boiler spacing is dictated by NFPA-70, Table 110.26 as follows:

Nominal Voltage To Ground (Volts)	Minimum Clear Distance		
	Condition 1	Condition 2	Condition 3
0 – 150	3ft (914mm)	3ft (914mm)	3ft (914mm)
151 – 600	3ft (914mm)	3.5ft (1.07m)	4ft (1.22m)

Note: Where the conditions are as follows:

**Condition 1** — Exposed live parts on one side of the working space and no live or grounded parts on the other side of the working space, or exposed live parts on both sides of the working space that are effectively guarded by insulating materials.

**Condition 2** — Exposed live parts on one side of the working space and grounded parts on the other side of the working space. Concrete, brick, or tile walls shall be considered as grounded.

**Condition 3** — Exposed live parts on both sides of the working space.

(a) *Dead-Front Assemblies.* Working space shall not be required in the back or sides of assemblies, such as dead-front switchboards or motor control centers, where all connections and all renewable or adjustable parts, such as fuses or switches, are accessible from locations other than the back or sides. Where rear access is required to work on non-electrical parts on the back of enclosed equipment, a minimum horizontal working space of 762 mm (30 in.) shall be provided.

b.) Alcove or closet installation per UL834: Proper location of this boiler model with regard to combustible and noncombustible surfaces and materials is coded on the boiler name plate. The following decoding sketch and description is provided for the user information:

AR Models	Dimension In.						
	A	B	D	EL	ER	F	G
	12	C12	12	6	6	NC	72

Description of dimensions and symbols

**A** – Clearance above top of boiler

**B** – Clearance from front of boiler

**Prefix C** to numeral indicates suitability for closet or alcove installation

**Prefix A** indicates suitability for alcove but not for closet installation

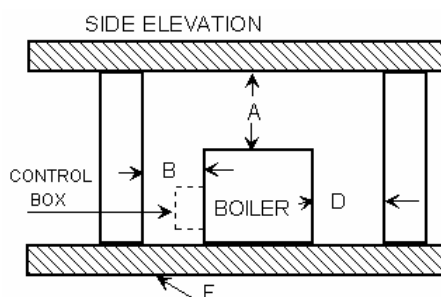
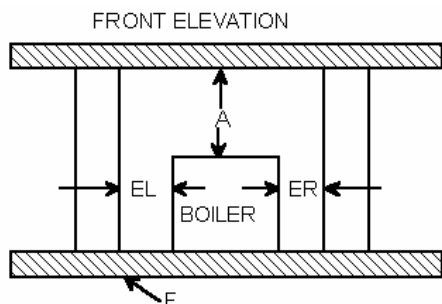
**D** – Clearance from back of boiler

**EL** – Clearance from left side of boiler

**ER** – Clearance from right side of boiler

**F** – Indicates type of flooring: "NC" for noncombustible floor / "C" for combustible floor. Numeral indicates minimum clearance below suspended units to combustible floor

**G** – Indicates total minimum free area in square inches of closet ventilating openings.



## 1.2 Water Supply

On models with pump and/or solenoid valve, connect incoming water supply to strainer on intake side of solenoid valve. On models furnished with condensate return tank, connect water line to makeup valve located at tank end.



**CAUTION**

**On all stainless steel models, the specific resistivity of the boiler feed water must be above 1Mohms\*cm. In addition, boiler feed water must be free of chlorine.**

## 1.3 Steam Outlet

Connect steam line of sufficient size from steam line valve to the equipment. Steam piping must be of stainless steel pipe, not galvanized. Work must be done by an experienced steamfitter. All state and local codes must be met.

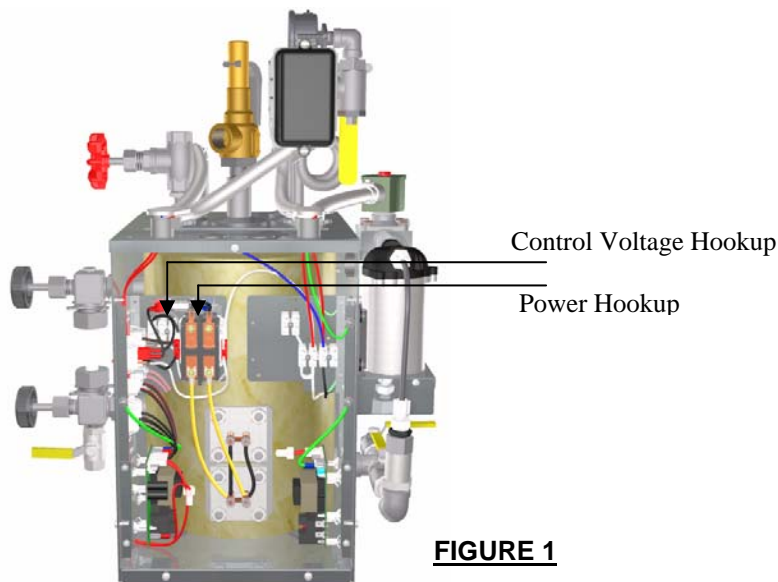
## 1.4 Electrical



**WARNING**

**All wiring must be in accordance with the National Electric Code and any local codes that may apply. Wiring must be done by a competent, certified electrician. Use only copper wire.**

If you have purchased a boiler with field wired power supply (no power cord installed), then proceed as indicated in FIGURE 1, using the wiring diagram:



**FIGURE 1**

Note: Voltage from L1 and L2 to Neutral may not exceed 120V AC., otherwise circuit board will fail.  
If you have purchased a boiler with field wired power supply (no power cord installed), then proceed as follows:

## 2. Operation

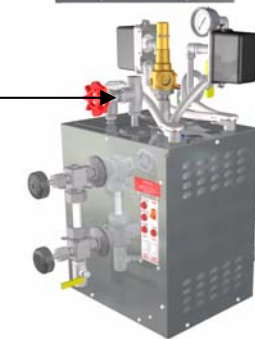
1. Ensure that the "POWER" switch on unit is in off position. Turn on fused disconnect switch or if unit is equipped with power cord, plug unit into 240V wall outlet.



2. Close blow-down valve located at rear of unit.

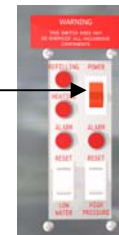


3. Release air from unit by opening steam valve.

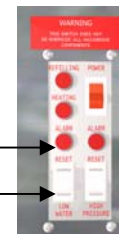


4. Turn on water supply.

5. Turn on "POWER" switch on unit. Steam boiler will fill to factory set level.



6. If any alarm lights ("LOW WATER" or "HIGH PRESSURE") are lit, press the corresponding "RESET" switch.



The "HEATING" light will stay on until the preset working pressure is reached.

7. When the water level gets low, the unit will automatically refill.

## 3. Maintenance

### 3.1 Blow-Down

Blow-down should be performed once per week.



**CAUTION**

**Stand clear of scalding water and steam. Ensure that blow-down is properly and safely piped.**

#### 3.1.1. Manual Blow-Down

1. Turn power off.
2. Allow pressure to drop to 5psi.
3. Open blow-down valve for ten seconds, this will blow out any sediment.

#### 3.1.2. Automatic Flush and Drain

1. Turn power off
2. As soon as pressure dropped below 10psi, automatic blowdown valve opens automatically

### 3.2 Adjust Steam Pressure:

The operating steam pressure of all AR-steam boiler models is factory set. To change the steam pressure or after installing a new operating pressure switch, please proceed as indicated below:



**CAUTION**

**Adjustment must be done by experienced personnel. All standard electrical and steam safety precautions must be taken. Stand clear of safety valve and scalding steam.**

1. Disconnect electric power prior to adjustments
2. Remove cover from pressure control that is not labeled with "DO NOT ADJUST" and turn black plastic hand wheel of pressure control clockwise to increase steam pressure and counter clockwise to decrease steam pressure

### 3.3 Test Safety Valve:

Test safety valve once per month. Safety valve should be tested at maximum operating pressure. If discharge pipe is required, pipe should never be smaller than valve outlet and must be rigidly supported, placing no weight on valve itself.



**CAUTION**

**Stand clear of safety valve and scalding steam.**

1. Hold trip lever open for five seconds in order to flush off any sediment that may have accumulated on valve seat.
2. Permit valve to "slap" shut. If steam leakage evident, repeat test or replace valve as required.

### 3.4 Replace Gauge Glass

Replace gauge glass minimum once per year.



**CAUTION**

**Ensure boiler is cold and drained and has no pressure or electricity. Be careful not to break glass.**

1. Close gauge glass valves (top and bottom).
2. Remove gauge glass protector
3. Loosen nuts at top and bottom of glass.
4. Slide glass up, pull out on bottom of glass and remove.
5. Install glass by reversing above procedure. NOTE: Always install new rubber washers.

### 3.5 Replace Heating Element



**CAUTION**

**Ensure boiler is cold and has no pressure or electricity.**

1. Remove boiler cabinet side panel.
2. Disconnect wires from element terminals.
3. Remove 4 nuts from each element flange and pull out heating element.
4. Clean flange surface before installing new element and gasket.



## 5. Trouble Shooting



**CAUTION**

**Repair must be attempted only by experienced personnel. A certified electrician must accomplish electrical work. All standard electrical and steam safety precautions must be taken.**

**Before Repair: Ensure boiler is cold and drained and has no pressure or electricity.**

Boiler Status	Quick Fix
POWER switch on boiler controller turned on, but no lights lit on the front panel of the boiler controller	<ul style="list-style-type: none"> <li>- Check circuit breaker or fuse of the wall outlet where the boiler control voltage circuit is hooked up to. If the circuit breaker is tripped or the fuse blown, check whether other appliances are plugged into outlets that are fed by the same circuit breaker/fuse. If that is the case, then plug those other appliances into outlets that are protected by other circuit breakers or fuses.</li> </ul>
LOW WATER alarm light on boiler controller panel lit:	<ul style="list-style-type: none"> <li>- Press the LOW WATER reset button</li> <li>- Check water level. Water must be visible in gauge glass. If no water is visible in gauge glass, check water feed solenoid valve and pump and if necessary replace</li> <li>- If water is visible in the gauge glass, check the float control wire(s) for continuity. If necessary, replace the float control.</li> </ul>
HIGH PRESSURE alarm light on boiler controller panel lit:	<ul style="list-style-type: none"> <li>- Press the HIGH PRESSURE reset switch</li> <li>- If the pressure gauge indicates steam pressure above the preset value, reduce pressure and press the HIGH PRESSURE reset switch again.</li> </ul>
Unit won't build up pressure when POWER switch is on, boiler filled to nominal water level with water and HEATING light on the boiler controller is lit.	<ul style="list-style-type: none"> <li>- Voltage Test: Read voltage across each element. If no voltage reading, check the voltage before and after the element contactor. If no voltage before the contactor, check fuses in fused disconnect switch. If no voltage reading after the contactor and contactor pulled in, replace contactor. If voltage reading after the contactor, go to Amperage Test.</li> <li>- Amperage Test: Read amperage on each element wire. If no amperage reading on one or more element wires, replace heating elements.</li> </ul>
Pump and/or solenoid valve energized, but no water enters the boiler	<ul style="list-style-type: none"> <li>- Check water inlet strainer</li> <li>- Check whether the water feed shutoff valve is open</li> </ul>
Boiler overfills or floods	<ul style="list-style-type: none"> <li>- Check water feed solenoid valve for sticking</li> <li>- Check the float control wires to the boiler controller for continuity</li> <li>- Remove float control from boiler shell and check for sticking floats. If necessary, replace float control.</li> </ul>
Fuse blown	<ul style="list-style-type: none"> <li>- Short circuit or overload has occurred. Before replacing fuse, locate the short circuit or overload.</li> <li>- Poor contact between fuse and fuse clips can cause fuse to blow. If surface that makes contact with the fuse clips is discolored, fuse has been making poor contact with the clips. Installing a larger fuse will not help. Replace the fuse holder.</li> </ul>
Contactor(s) don't pull in	<ul style="list-style-type: none"> <li>- Ensure that the contactor coil is receiving proper voltage</li> <li>- If contactor pulls in but chatters, clean magnetic core of contactor</li> <li>- Further problems would indicate mechanical difficulties within the contactor.</li> <li>- Complete contactor replacement is usually the least expensive solution</li> </ul>

If trouble shooting did not resolve problem, please contact our service technicians at:

Phone: 540-662-3811

Email: [sales@reimersinc.com](mailto:sales@reimersinc.com)

LIVECHAT [www.reimersinc.com](http://www.reimersinc.com)

## PARTS LIST FOR MODEL AR-STEAM GENERATOR

REF. NO.	PART NO.	PART DESCRIPTION
1	04396	LIGHT SOLICO NEON LIGHT 125V
2	20720	LIGHT ALARM ASSEMBLY
3	20592	RESET SWITCH & WIRE TO RELAY
4	03609	SOLENOID VALVE 1/2" 120V WATER
5	03693	PUMP 120V 1PH 50/60Hz
6	03575	CHECK VALVE 1/2" BALL-CONE SPRING TYPE
7	03576	BALL VALVE 1/2"
8	03792	BALL VALVE WITH LATCH (BLOWOFF)
9	03857	BALL VALVE 1/4"
	03576	BALL VALVE 1/2"
10	03750	SAFETY VALVE 3/4", 15PSI
	03571	SAFETY VALVE 1/2", 100PSI
11	04823	PRESSURE GAUGE 2", 30PSI
	03739	PRESSURE GAUGE 2", 160PSI
12	04213	POWER SWITCH 120V, 15A
13	04316	RELAY SOLID STATE 120/240 30A
14	04424	FLOAT ASSEMBLY
15	03445	CONTACTOR 35A 2POLE 120V COIL
16	03783-PACIFY	HEATING ELEMENT 4000W 240V, PASSIVATED
17	02281	GASKET FOR ELEMENT
18	03084	STUDS FOR ELEMENT FLANGE
19	01314	NUTS FOR ELEMENT FLANGE
20	03573	GAUGE GLASS FIXTURE SET
21	02690	GAUGE GLASS 5/8" x 7.25"
22	04422	PRESSURE CONTROL 90#
	04762	PRESSURE CONTROL 15#

