



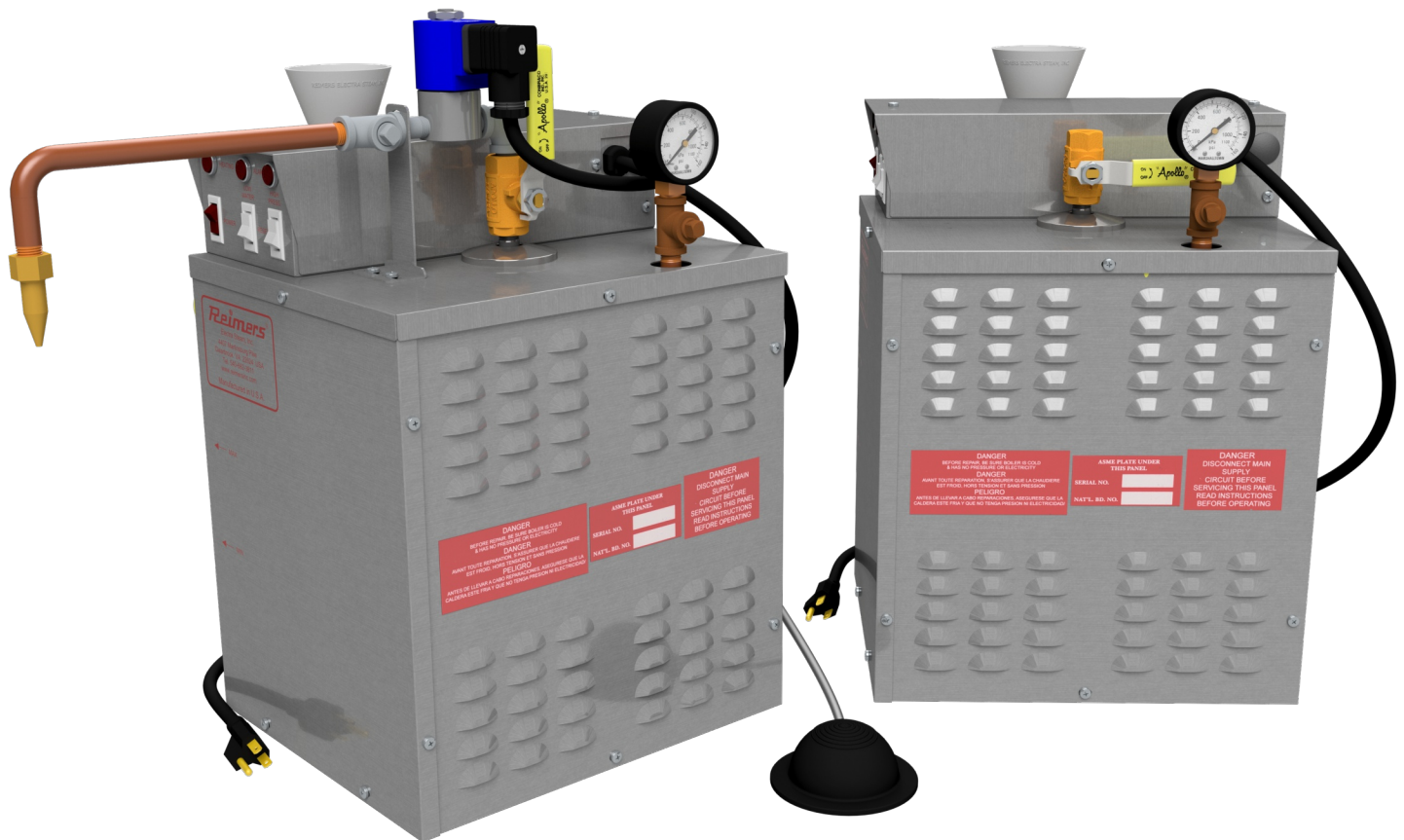
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USA

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MODEL:

SERIAL#:

## JJ- and JG-Steam Boiler Models

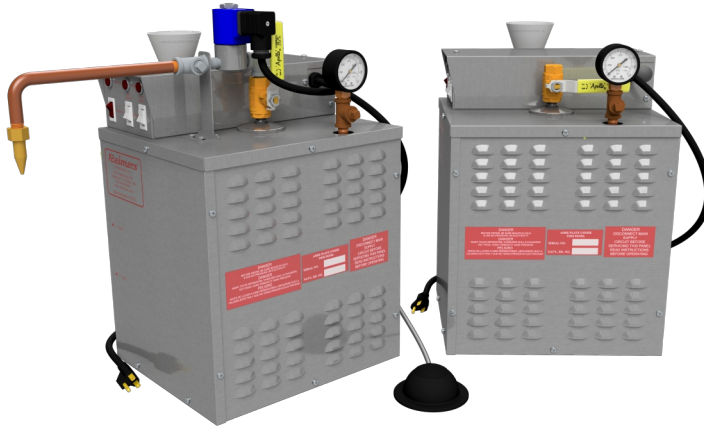


## Instructions Manual

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## JJ- and JG-Steam Boiler Features



- Miniature boiler max. vessel volume 0.29ft<sup>3</sup>
- Maximum safety valve setting 100psi
- All boilers are manufactured in accordance with the requirements of the A.S.M.E. Boiler and Pressure Vessel Code and A.S.M.E. CSD-1. Each boiler bears the National Board Stamp "M".
- High quality saturated steam, operating pressure range 0 – 85psig
- All enclosed sleek design, all controls accessible from boiler front, very suitable for installation in tight spaces such as autoclaves.
- Heavy duty carbon steel pressure vessel. Vessel jacket and electrical enclosure 304 stainless steel.
- Large selection of optional equipment

### Standard Equipment of Each Boiler Includes:

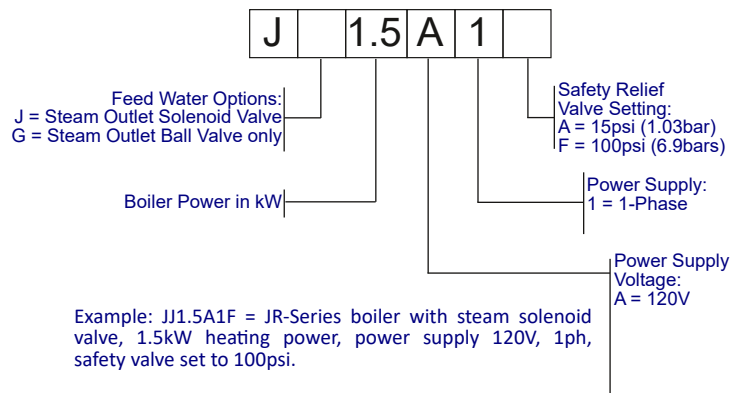
- A.S.M.E. pressure relief valve
- One (1) quick opening boiler bottom blowoff valve as per A.S.M.E. Code B31.1
- 1/4" NPT Bronze steam outlet ball valve
- Low water cutoff control with manual reset
- One (1) high pressure cutoff control with manual reset
- One (1) operating pressure control
- Main supply power distribution block
- Indicator lights for POWER, HEATING, ALARMS
- Pressure and water level gauge

### Applications

- Process Steam
- Pressing Irons
- Bees Wax Extraction
- Jewelry Cleaning
- Hat Steamers
- Tailoring

HEATING POWER KW	OUTPUT CAPACITY LBS/hr (KG/HR) <sup>(4)</sup>	BHP	NO. OF HEATING STAGES	VOLTAGE <sup>(1)</sup>	PHASE	SHIP WEIGHT <sup>(2)</sup> lbs (kg)	PRESSURE VESSEL CAPACITY GAL. (L)	OPERATING PRESSURE RANGE psi (bar)	STEAM OUTLET (NPT)	
									LP <15psig	HP >15psig
1.5 KW	5.12 (2)	0.2		120	1	70 (32)	2.14 (8.10)	0 - 85 (0 - 5.86)	1/4	1/4

## Model Number Key



<sup>(1)</sup>The STEAM CAPACITY listed above is based on the evaporation rate from and at 212°F, at 0 psig. If the boiler feed water temperature is 50°F, then the STEAM CAPACITY for each model listed above is approximately 15% lower.

Please note that all information provided within this brochure is approximate and subject to change without notice. Please contact Reimers Electra Steam, Inc. with any questions regarding the specifications or dimensions detailed within.

## **LIMITED WARRANTY – STEAM GENERATORS**

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 and electrical & 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 & necessary maintenance by the user. Users are responsible for the suitability of the products to their application. There is no warranty for damage resulting from improper installation, abuse, power failure, fire, flood, lightening, 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) & returning the 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.**



## Read this manual before installing and using this product. Failure to do so can result in serious injury or death.

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 and contact the factory if you have any questions.

This manual contains safety messages. Each of the safety messages are preceded by one of the following signal word panels:



Safety messages preceded by this label contain information, that if not followed will result in death or serious injury.



Safety messages preceded by this label contain information, that if not followed could result in death or serious injury.



Safety messages preceded by this label contain information, that if not followed could result in minor or moderate injury.



Messages preceded by this label contain important information, but are not hazard-related.

Ensure that this manual is available to the boiler operator at any time.

Read carefully all safety labels attached to the boiler. If any safety label was damaged during shipment, contact the factory immediately:

Ph. 540-662-3811; e-mail: sales@reimersinc.com

### Important Safety Information



**1. 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.

**2. ELECTRICAL:** All field wiring to the boiler 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. Ensure that all electrical components are in a dry location, free from any possibility of water soaking. Electric foot switches when supplied must not be placed on a wet floor. They must be placed on dry surface, not subject to steam or water.

**3. GAUGE GLASS:** The gauge glass protector guards must be on at all times. When replacing the glass, be sure that the unit is not under pressure and is cool to touch. The gauge glass should be replaced once per year. If cracks or wear is evident, replace the gauge glass immediately.

**4. MODIFICATION/MISUSE:** This boiler has been designed and constructed in accordance with the ASME Boiler and Pressure Vessel 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.

**5. 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

**6. REGISTRATION:** Most states and cities require boiler registration and inspection. Check with your government authorities.

#### **7. INSTALLATION AND REPAIR:**

Installation and repair work of this unit must be performed 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.

**8. 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 let it "slapping" shut. Steam discharge can scald. Ensure no one is exposed.

#### **9. STEAM INSTALLATION:**

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

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

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

## 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:

Some maintenance and troubleshooting work performed on this boiler model may require the boiler to remain electrically energized. For this purpose, leave ample space between any live part when the boiler electrical enclosure is open and the opposite side as per the NFPA-70, Table 110.26 below:

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:

MODEL JR	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

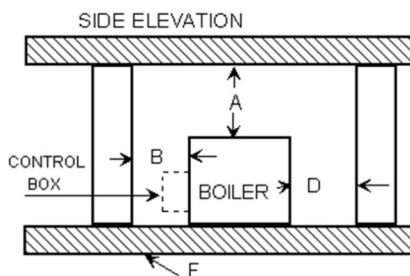
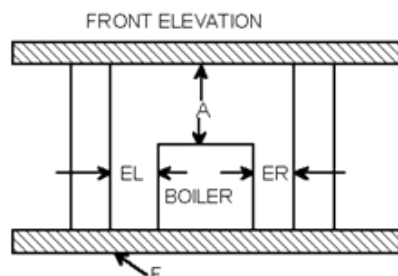
**Prefix A** indicates suitability for alcove but not for closet installation

**D** — Clearance from back of boiler

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

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

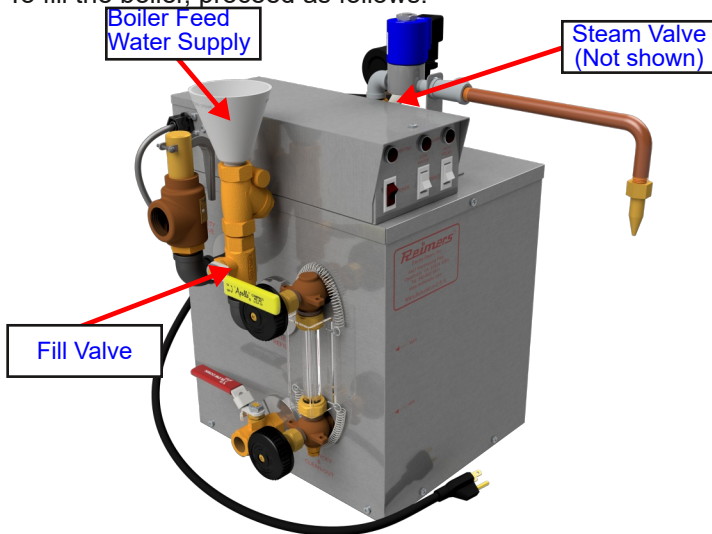
**F** — Indicates type of flooring: "NC" for noncombustible floor / "C" for combustible floor. Numeral indicates minimum clearance below suspended units to combustible floor





## 1.2 Water Supply

This boiler model is equipped with a manual fill funnel (4). To fill the boiler, proceed as follows:



1. Open fill valve (6) and release air from unit by opening steam valve (2). On JJ-models: Release air by pressing foot switch with power switch of electronic boiler control (9) on.
2. Pour water into funnel (4) until it reaches the "Max." level mark beside the gauge glass. Do not overfill. Close fill valve (6).

NOTE: Overfilling will cause dirt and rust to be carried into the steam lines and onto goods. It will also cause the steam release valve to leak. Use tap water only!

In order to ensure long term trouble-free boiler operation, we recommend that the water used as boiler feed water to be tested for hardness. If the water in your area is harder than 1grain (17mg/L), use a water softener. The main cause for premature heating element failure in electric steam boilers is water hardness. If severe corrosion during inspection of the pressure vessel as indicated in chapter 3.4 of this manual becomes evident, additional tests of your boiler feed water must be performed. A water analysis should be performed by a qualified and recognized water treatment company located in your area.

Recommended levels for boiler feed water:

WATER PROPERTY	MAX. LIMIT
Total hardness	17 mg/L
Dissolved Oxygen	0.04 mg/L
Total Iron	0.1 mg/L
Total Copper	0.05 mg/L
pH	> 8.5
Specific Resistivity	25kΩ * cm

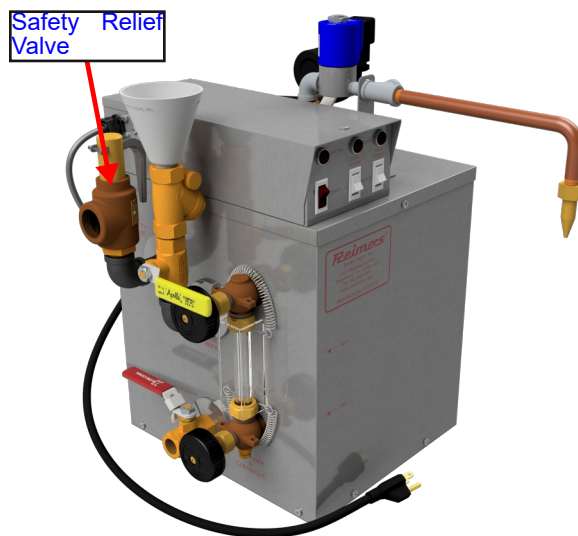
Recommended levels for boiler water (water inside pressure vessel when boiler is operating)

PROPERTIES	MAX. LIMIT
Total Alkalinity	350 mg/L
Total Dissolved Solids	3500 mg/L
Total Suspended Solids	300 mg/L
pH	10.5 - 12

**NOTICE** Do not add any chemicals to the boiler feed water unless specifically recommended by a qualified and recognized water treatment company.

## 1.3 Safety Relief Valve

Ensure that the discharge port is pointing toward the back of the unit away from the operator or any aisles. If it is required that discharge piping be installed from the safety valve, the pipe should not be smaller than the valve outlet and should be rigidly supported so as not to place weight on the valve itself. Important: No valve in this line!



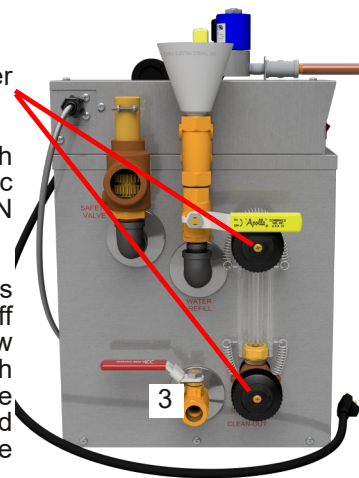
## 1.3 Electrical

This boiler model is equipped with a 15Amp, 120V AC power cord and plug. As power supply, provide a 15Amp, 120V AC wall outlet and ensure that there is no other significant load on the same circuit as this boiler model draws approximately 12.5Amps.

## 2. Operation

### 2.1 Boiler Startup

- a. Close blowdown valve (3).
- b. Open upper and lower gauge glass fixture valve.
- c. Turn on the power switch (16) on the electronic boiler control (9) to the ON position.
- d. When the water level gets low, the unit will shut off automatically and the "low Water" alarm light (15) with be lit. To refill, turn off the power switch (16) and allow the steam pressure to drop to zero.
- e. If the boiler controller indicates any alarms, then press the corresponding RESET button(s).



As soon as no boiler alarms are indicated, the HEATING light turns on and the boiler starts to build up pressure. Observe the pressure gauge while pressure builds up, until working pressure is reached. The working pressure should have been factory set to your specification. However, if you wish to change the working pressure setting, proceed as follows.

**⚠ WARNING** Stand clear of scalding water or steam. Disconnect the boiler from all power supplies.

All pressure controls are factory preset and require no adjustment. However, if a change of the operating steam pressure is required, then proceed as follows:

- Disconnect all power supplies from the boiler.
- Close the steam outlet valve
- Remove the cover from the pressure control enclosure.
- Turn the black knob of the operating pressure switch clockwise to increase the pressure and counterclockwise to decrease the pressure.
- Connect power supply to the boiler, open the steam outlet valve, and install the pressure control enclosure cover.

h. To shut off the boiler, turn the POWER switch on the boiler controller OFF.

### 3. Boiler Maintenance

**⚠ WARNING** **WARNING** Boiler repairs must be performed by experienced personnel only. Ensure boiler water is cold and drained and that there is no pressure and all electricity to the boiler is shut-off.

#### 3.1 Boiler Blowoff

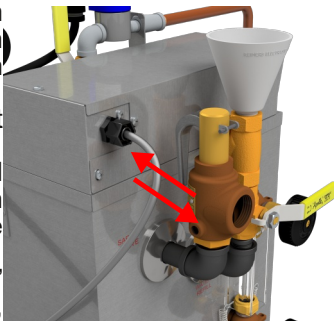
All boilers must be blown off periodically to remove minerals, scale and other foreign matter, which accumulate inside the pressure vessel. The concentration of this deposit depends in part upon the condition of the water in the area. When water is naturally soft, or has been softened chemically, boiler blowoffs are required less often than in areas where hard water is found. Water softeners are suggested in hard water areas to minimize the formation of hard scale on heating elements. Another factor affecting water condition is the amount of condensate, if any, that is being returned to the boiler. Since condensate is essentially clean distilled water, it contains very few impurities. If a large part of the condensate is being returned and little make-up water is used, the boiler need not be blown down as often as when little or no condensate is returned to the boiler. We recommend blowoff of newly installed steam boilers once per day until the first heating element and pressure vessel inspection is performed (refer to chapter 3.4). If no significant amount of sediment is found on the bottom of the pressure vessel and on the heating element sheaths, then the boiler blowoff frequency can be reduced accordingly.

#### 3.2 Safety Valve Test

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

This test should be performed once per month. Proceed as follows:

- Increase the steam pressure as shown in chapter 2.1. to maximum operating pressure.
- Keep the steam outlet valve closed
- Pull the trip lever and hold open for five (5) seconds in order to flush off the valve seat.
- Permit the valve to “slap” shut. If a leak occurs, repeat this test and if necessary, replace the valve.

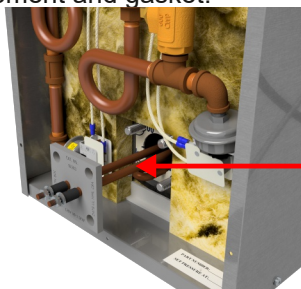


### 3.3 Element Replacement and Element Cleaning

**⚠ WARNING** Ensure that the boiler is cold, drained and all power supplies are disconnected.

Clean the element rods every six (6) months. To clean the rods, or if an element must be replaced, proceed as follows:

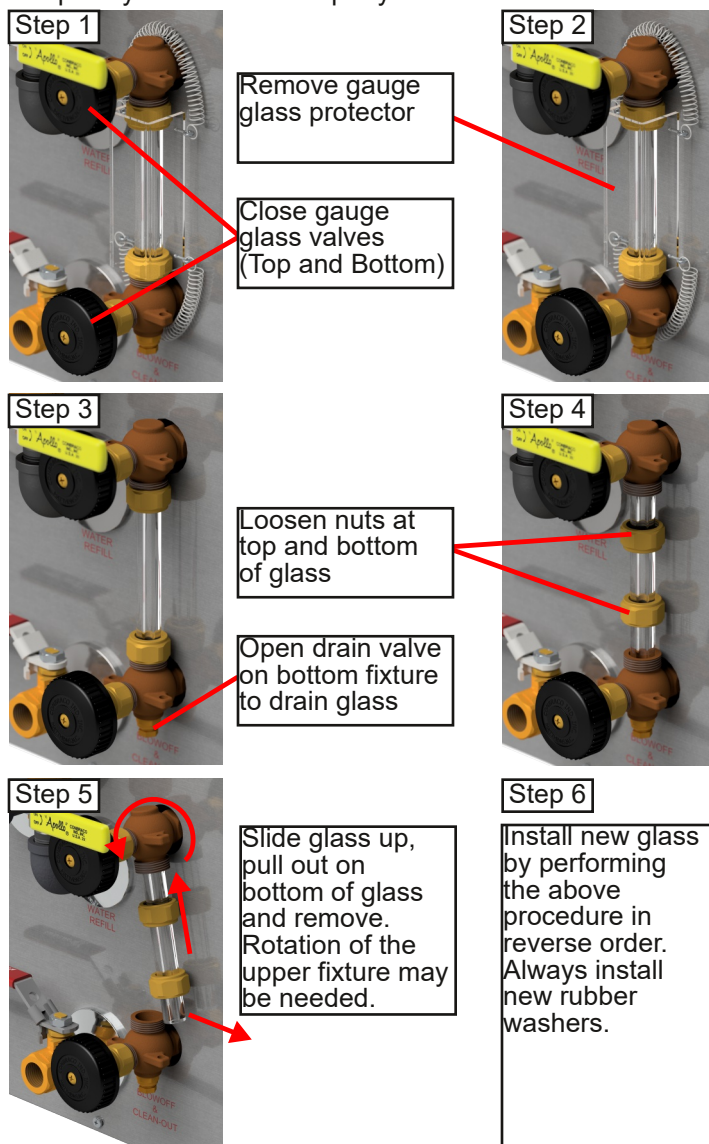
- Remove the element terminal cover from the front of the boiler.
- Disconnect and label the terminal wires
- Remove all four (4) nuts from the element flange and pull out the heating element.
- Use a stiff wire brush to remove all scale and foreign matter from the element rods.
- Clean the element flange surfaces before installing new element and gasket.



Element Rods

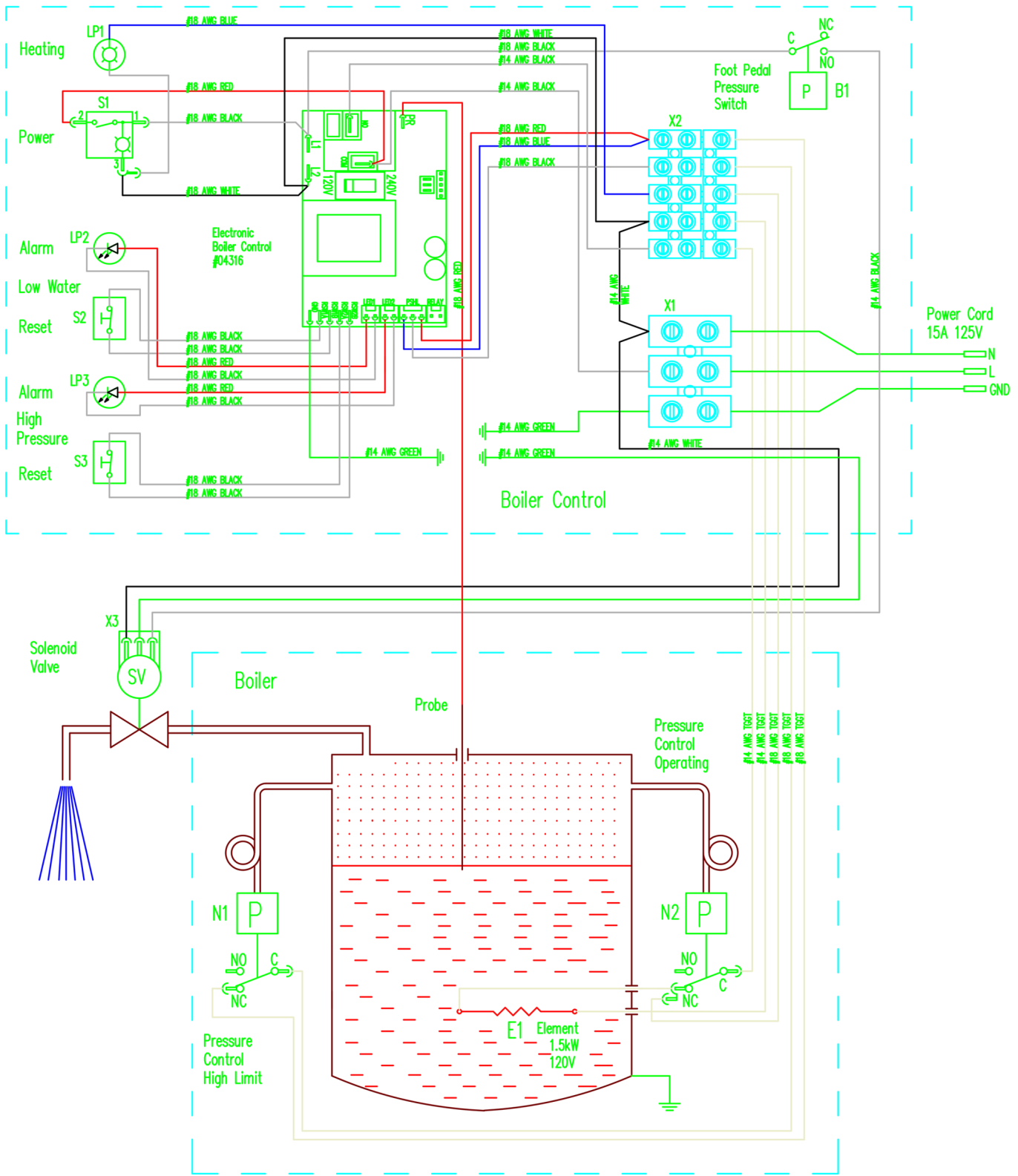
#### 3.8 Gauge Glass Replacement

Frequency: Minimum once per year.





REV	DATE	BY	CHKD	DESCRIPTION



**Reimers®**  
**Electra Steam, Inc.**  
 P.O. Box 37 Clear Brook VA 22624  
 540/662-3811 (Fax: 540/665-8101)

DRN. E.D.	TITLE	REV.
CHKD.	JJ1.5A1F_2006	
DATE 9/4/2006	LINE VOLTAGE: AC 120V	CONTROL VOLTAGE: AC 120V
	FREQUENCY: 60Hz	PHASE: 1Ph
	DOCUMENT NO. JJ1.5A1F_2006	

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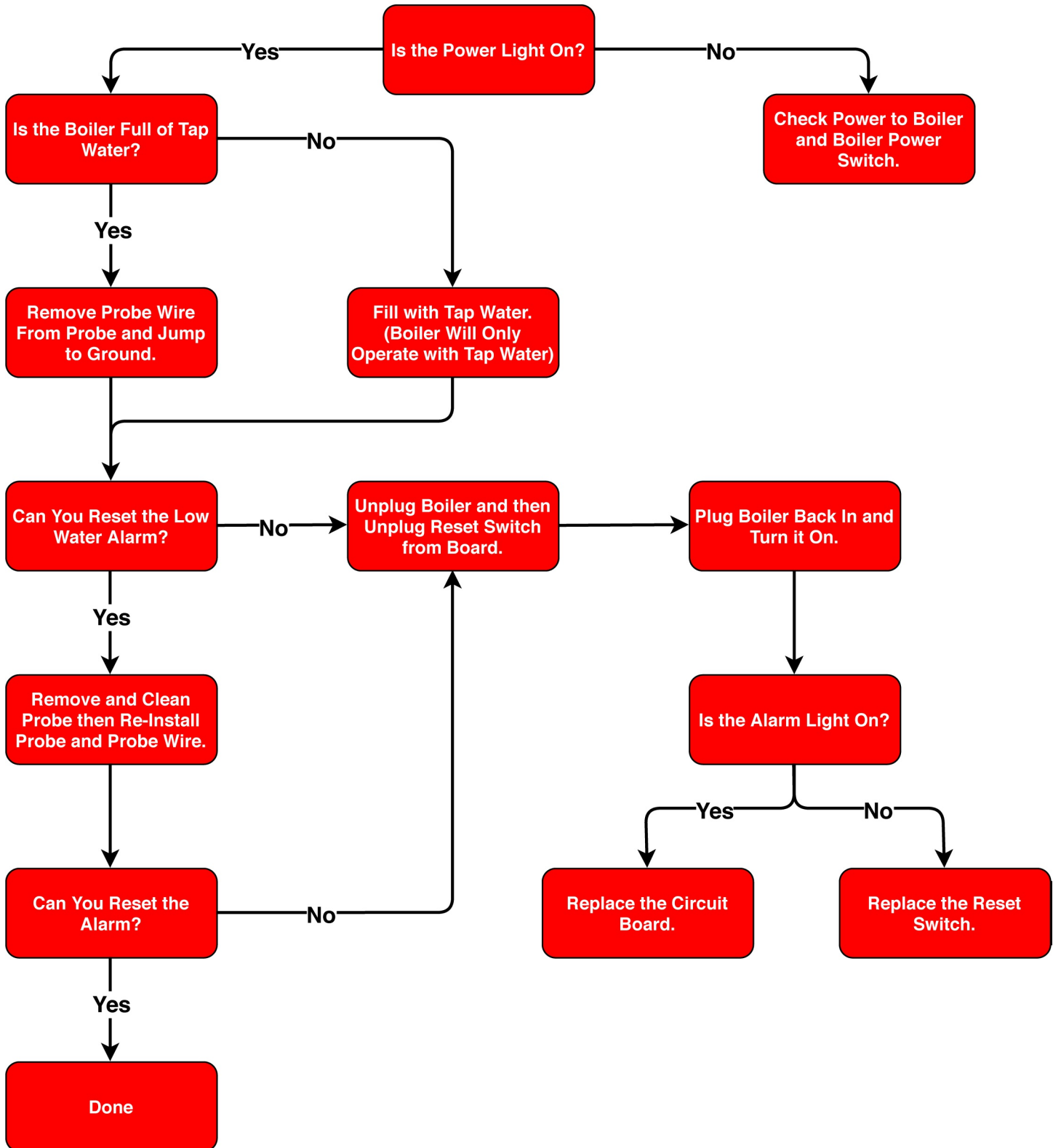
## 4. Troubleshooting

**⚠ WARNING** Ensure that the boiler is cold and has no pressure.  
Electrical trouble shooting must be performed by a qualified electrician.

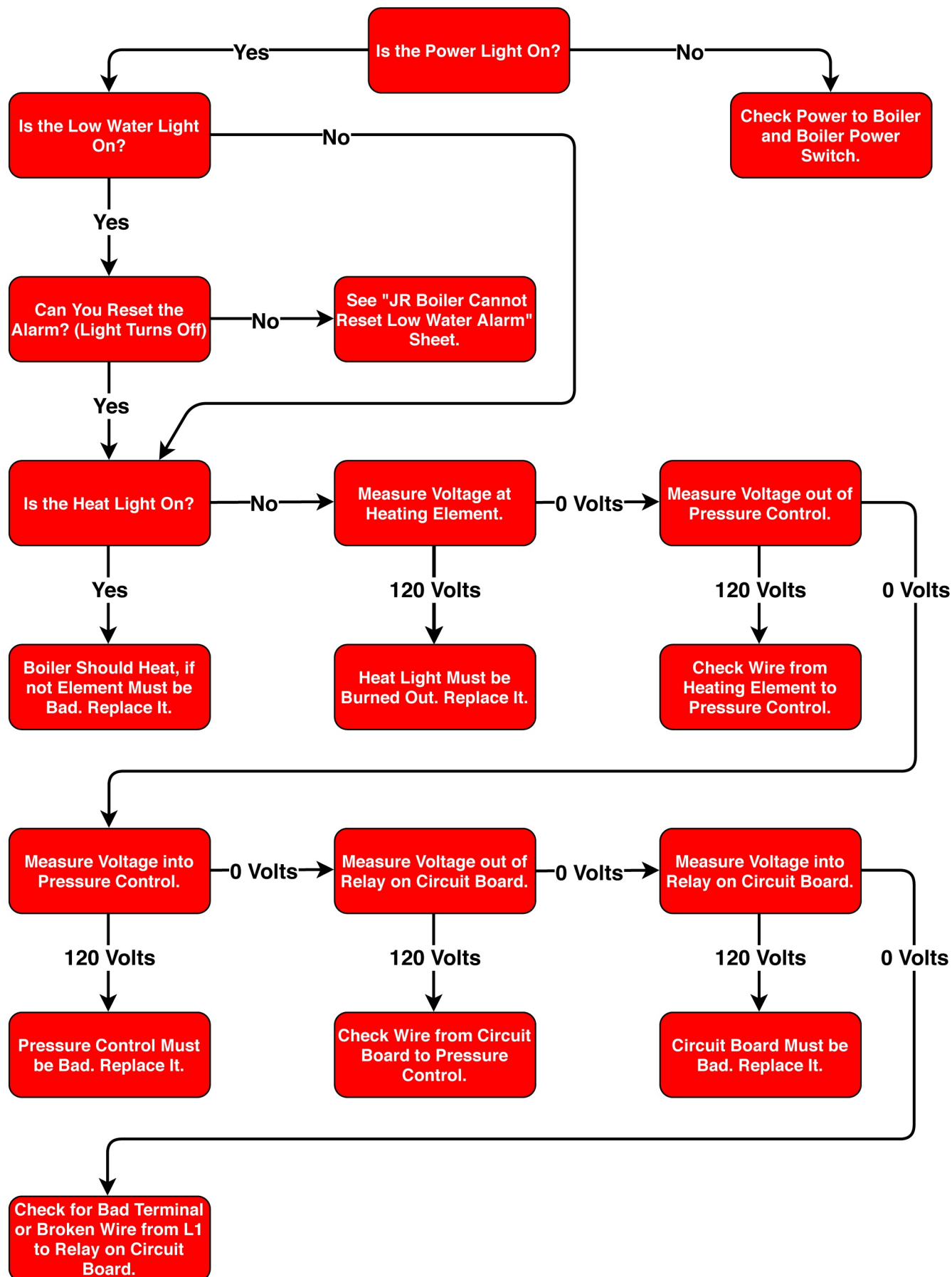
Boiler Status	Quick Fix
Power cord plugged into wall outlet, power switch on boiler control turned on, but no lights lit on the front panel of the boiler control:	<ul style="list-style-type: none"><li>– Check circuit breaker or fuse of the wall outlet where the boiler is plugged in. If the circuit breaker 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 lit:	<ul style="list-style-type: none"><li>– Press the “Low Water” reset button</li><li>– Check Water Level. Water level must be above the “Min.” mark.</li><li>– Ensure that the boiler is filled with tap water and not distilled water.</li></ul>
“High Pressure” alarm light 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>
On JJ-Models: Pressure gauge shows pressure, but no steam can be is charged through jet when foot switch pressed:	<ul style="list-style-type: none"><li>– Ensure that the steam outlet ball valve (2) is open</li><li>– Ensure that the steam solenoid valve generates a “click” noise when the foot switch is pressed. If no “click” noise, then check the air hose of the foot switch for breakage or other damage.</li></ul>
Boiler is hard to refill manually. When refilling, water gurgles in fill funnel:	On JJ-Models: <ul style="list-style-type: none"><li>– Plug the power cord of the boiler into the wall outlet.</li><li>– Turn the power switch on the boiler control on.</li><li>– Open the steam outlet ball valve.</li><li>– Press the foot switch while refilling.</li></ul>

If troubleshooting did not resolve problem, please contact your local distributor/mechanical contractor

# JR Boiler Can't Reset Low Water Alarm



# JR Boiler Not Heating





## 5. Parts list for JJ and JG Boiler Models (JR-Series)

**WARNING** Use Reimers replacement parts. All components are designed and approved to be used in this Underwriters Laboratories listed and ASME National Board Stamped boiler. Failure to do so may cause serious injury or death.

Ref. No.	Part No.	Description
1	04661	Pressure Gauge 0-160psi
2	02472	Ball Valve 1/4" NPT
3	03346	Ball Valve 1/2" NPT with latch
4	MBJ-1	Fill Funnel
5	02462	Swing Check Valve 1/2" NPT
6	02490	Ball Valve 1/2" NPT
7	02637	Safety Valve 1/2" NPT 100psi
8	02396	Gauge Glass Fixture Set 1/2" NPT
	05595	Gauge Glass 5"
	04670	Gauge Glass Protector 5"
	02006	Gauge Glass Washer (Rubber)
	02448	Gauge Glass Washer (Brass)
9		Electronic Boiler Control, see parts 14-19
10	03266	Power cord 125V
11*	05612	Solenoid Valve 1/4" NPT 120V
12*	20708	Foot Switch Pneumatic Assembly
13*	20058	Steam Jet Brass #53
14	04396	Heating Light 125V
15	20720	Alarm Light Assembly
16	04213	Power Switch 16A 250V
17	20592	Reset Switch Assembly
18	04316-JR	Low Water Cut-Off Circuit Board
19	MBJ187	Electrode Fitting 7.375"
20	02283	Heating Element 1500W, 120V
	02281	Heating Element Gasket
21	05245	Nuts for Element Flange
22	04163	Pressure Control Operating
23	04296	High-Limit Pressure Control

\*JJ models only

