



**ELECTRA
STEAM, INC.**

**4407 MARTINSBURG PIKE CLEAR
BROOK, VA 22624
PHONE 540-662-3811, FAX 800-726-4215**

Serial No.: 61107 and Up

**OPERATING INSTRUCTIONS
MODEL AR. STEAM GENERATORS**

The REIMERS MODEL AR is available in either automatic or hand fill versions. The steam generator with a 2-gallon capacity is designed for operation at pressures from 5 to 85 PSI. Designed to the ASME Boiler Code & registered with the National Board of Boiler Inspectors, it is safe when installed, maintained, and used properly. Standard equipment includes: steam gauge, steam valve, blow-down valve, water-fill funnel (hand filled models only) or valve, safety valve, water level gauge, adjustable pressure control, low water cut off with manual reset, and water level control on automatic fill models only. OPTIONAL: Pump, tank system, Jewelry Pkg. Dental Pkg.

CAUTIONS:

READ ALL INSTRUCTIONS BEFORE INSTALLATION/OPERATION. ELECTRICAL WORK MUST BE ACCOMPLISHED BY A CERTIFIED ELECTRICIAN. VALVES/PIPES ARE HOT WHEN UNDER PRESSURE OR HEATING UP. DO NOT TOUCH.

IF A LEAK IS EVIDENT

STEAM FITTINGS CAN BECOME LOOSE DURING SHIPMENT & SUBSEQUENTLY LEAK.
IT IS EASY TO RESOLVE THESE LEAKS IF YOU ARE CAREFUL.

1. ENSURE BOILER IS COLD/DRAINED & HAS NO PRESSURE/ELECTRICITY.
2. TIGHTEN *PACKING NUT GENTLY 1/4TH OF A TURN.

CAUTION: DO NOT OVERTIGHTEN, AS THIS WILL RESULT IN GAUGE GLASS BREAKAGE OR IN VALVE STEM FREEZING & VALVE FAILURE

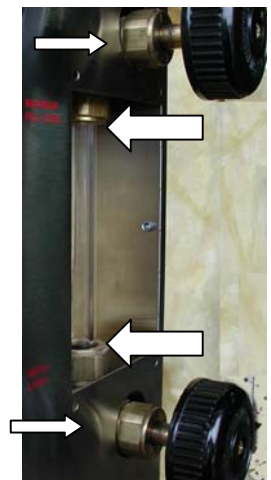
3. FILL BOILER & OPERATE NORMALLY.
4. OBSERVE FOR MORE LEAKS & REPEAT STEPS 1 & 2 AS REQUIRED.

PACKING NUT LOCATIONS

1. ON EACH VALVE STEM UNDER HANDLE
2. TOP & BOTTOM OF GAUGE GLASS

NOTE:

The safeguards and instructions appearing on these pages are not meant to cover all possible situations that may occur. Understand that common sense, caution, and care are factors which cannot be built into any product. These factors must be supplied by the person operating the unit.



RETAIN THIS OPERATING MANUAL WITH BOILER. DO NOT DISCARD

ADJUSTMENTS: All controls have been set at the factory and should require no adjustments.

MODIFICATION/MISUSE: Any modifications or misuse of this unit could result in a dangerous situation. Reimers Electra Steam, Inc. is not liable for any product that has been modified or improperly used.

REGISTRATION: Most states and cities require boiler registration/inspection. Check with local government authorities.

REPAIR: Only experienced personnel must attempt repair of this unit. For repair instructions see the included information.

INSTALLATION

PIPE INSTALLATION: Steam piping must be of black pipe, not galvanized. Work must be done by an experienced steamfitter. All state and local codes must be met.

ELECTRICAL: 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.
VOLTAGE FROM L1 OR L2 TO NEUTRAL MAY NOT EXCEED 120 VOLTS OTHERWISE CIRCUIT BOARD WILL FAIL.

WATER: Ensure that all electrical components (Electric Foot Switches, etc.) are in a dry location not subject to steam or water. Water quality will affect performance & vessel longevity. Do not oversize water feed.

BLOW-DOWN VALVE: When the blow-down valve is utilized a large volume of hot water and steam is discharged. Ensure that this valve is properly piped for this discharge. State and local codes must be met as applicable.

SAFETY VALVE: 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 and any aisles.

LEAKAGE : It is normal for steam fittings to become loose during shipment & subsequently leak. After boiler is cold/drained & has no pressure/electricity, tighten leaking packing nut gently 1/4th of a turn. Do not overtighten!

OPERATION:

1. Make sure power switch (# 04213) on unit is in off position. Turn on wall electrical switch.
2. Close blow-down valve (#03346) 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 generator will fill to factory set level.
6. Push "low water" manual reset switch (#03943). The light (#04215) will stay on until the preset working pressure is reached.
7. When the water level gets low, the unit will automatically refill.

MAINTENANCE

CAUTIONS:

***REPAIR MUST BE ATTEMPTED ONLY BY EXPERIENCED PERONNEL. A CERTIFIED ELECTRICIAN MUST ACCOMPLISH ELECTRICAL WORK. ALL STANDARD ELECTRICAL/STEAM SAFETY PRECAUTIONS MUST BE TAKEN.
BEFORE REPAIR: ENSURE BOILER IS COLD/DRAINED & HAS NO PRESSURE/ELECTRICITY.***

TO BLOWDOWN: (FREQUENCY = MINIMUM ONCE PER WEEK)

CAUTIONS:

STAND CLEAR OF SCALDING WATER AND STEAM. ENSURE BLOWDOWN IS PROPERLY AND SAFELY PIPED.

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.

TO ADJUST STEAM PRESSURE: (FREQUENCY = FACTORY PRESET/SELDOM REQ'D)

CAUTION:

ADJUSTMENT MUST BE DONE BY EXPERIENCED PERSONEL. ALL STANDARD ELECTRICAL/STEAM SAFETY PRECAUTIONS MUST BE TAKEN. STAND CLEAR OF SAFETY VALVE & SCALDING STEAM.

Disconnect electric power prior to adjustments. Turn black plastic hand wheel on rear pressure control clockwise (when operated from the front of the unit) to reduce steam pressure and counter clockwise when increasing steam pressure.

TO TEST SAFETY VALVE: (FREQUENCY = MINIMUM ONCE PER MONTH)

CAUTION:

STAND CLEAR OF SAFETY VALVE & SCALDING STEAM.

NOTES: Safety valve should be tested at maximum operating pressure.

If discharge pipe is required, pipe should never be smaller than valve outlet & must be rigidly supported, placing no weight on valve itself.

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.

TO TEST ELEMENT:

CONDITION: Unit will not operate when filled with water and both manual reset switches are pushed, and no alarm lights are on.

1. **VOLTAGE TEST** = read (AR3=120 volts; AR4/8=240 volt) across element. CONTACT FACTORY FOR 208V)
If no voltage reading, test pressure switches and contactor. If voltage is okay, go to step #2.
2. **AMPERAGE TEST** = AR3: 12.5A per element, AR 4/8: 16.7A per element.
If no amperage reading, replace element:
AR-3: #02283
AR4/8: #04241

TO TEST LOW WATER CUTOFF:

CONDITION: If boiler will not operate when filled with water and "low water" manual reset switch is pushed and "low water" alarm light is off, follow this procedure.

CAUTIONS:

USE ONLY INSULATED ELECTRICAL WIRE WITH PROPER TERMINALS FOR JUMPER. DISCONNECT ELECTRICAL POWER WHEN ATTACHING JUMPER.

1. Remove cover from upper electrical enclosure and observe circuit board.
If the heating light is on, probe is working, go to step #2.
If the heating light is not on, jump circuit board terminals G and LLCO. This will bypass probe.
If heating light comes on, check probe for mineral deposits.

CAUTION:
ENSURE BOILER IS COLD/DRAINED & HAS NO PRESSURE/ELECTRICITY.

- a. Open boiler cabinet cover, which gives access to the probe.
 - b. Remove probe from shell and clean probe rod with emery cloth.
 - c. Reinstall probe & check wires for loose connections. Otherwise replace circuit board (PART #04316)
2. Bypass probe and circuit board = Jump relay (mounted on circuit board) terminals COM & NO. This eliminates low water protection. If “heating light comes on, replace circuit board. (#04316)
If light does not come on, contact factory.

TO TEST WATER FEED CIRCUIT:

CONDITION: If boiler will not fill when water available and water level to low and power turned on.

CAUTIONS: BOILER MAY FLOOD DURING TESTING, BE PREPARED.

Remove cover from upper electrical enclosure and observe circuit board.
If right LED is on, circuit board is working, check solenoid valve/pump for voltage reading.
Replace as necessary.
If right LED is not on, replace circuit board (PART #03382)

TO REPLACE GAUGE GLASS: (FREQUENCY=MINIMUM ONCE PER YEAR)

CAUTIONS:

ENSURE BOILER IS COLD/DRAINED & HAS NO PRESSURE/ELECTRICITY.
BE CAREFUL NOT TO BREAK GLASS

1. Close gauge glass valves (top and bottom).
2. Remove gauge glass cover
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.

TO REPLACE HEATING ELEMENT:

CAUTION:

ENSURE BOILER IS COLD/DRAINED & HAS NO PRESSURE/ELECTRICITY.

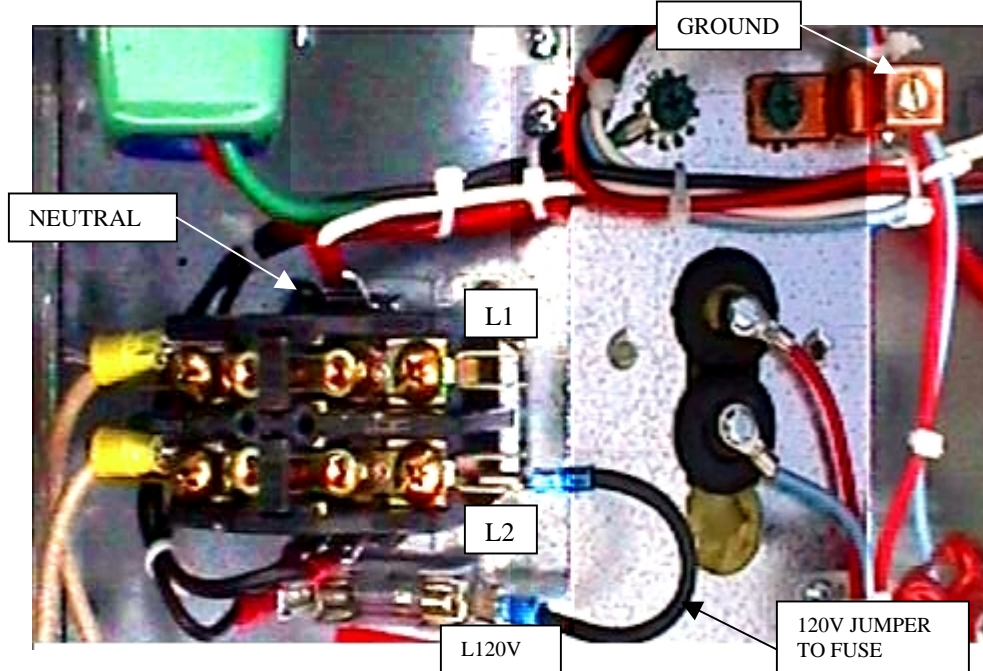
1. Remove gauge glass hand wheels.
2. Remove lower front panel.
3. Disconnect wires from element terminals.
4. Remove 4 nuts from element flange and pull out heating element.
5. Clean flange surface before installing new element & gasket.

NOTE:

MOST STATES & CITIES REQUIRE BOILER REGISTRATION & INSPECTION.
CHECK WITH YOUR GOVERNMENT AUTHORITIES.

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

ELECTRICAL CONNECTIONS



**SEE APPROPRIATE
WIRING DIAGRAM
FOR YOUR MODEL
BOILER**

OPTION #1

240V/ 4 WIRE
(L1, L2, NEUTRAL, GROUND)

NOTE TANK MODELS WITH CORDS
MUST BE CONNECTED WITH OPTION #1

CONNECT:

- 240V-WIRES TO L1&L2
- NEUTRAL WIRE TO NEUTRAL
- GROUND WIRE TO GROUND

CAUTION:
**VOLTAGE FROM L1/L2 TO NEUTRAL
MAY NOT EXCEED 120V!**

OPTION #2

240V/ 3WIRE
(L1, L2, WITH SEPARATE GROUND)
120V/ 3 WIRE
(L/ BLACK, N/ WHITE, GROUND)

**REMOVE AND DISCHARD 120V JUMPER
WIRE!**

CONNECT:

- 240V-WIRES TO L1&L2
- 120V BLACK WIRE TO FUSE
(L120V-TERMINAL)
- 120V WHITE WIRE TO NEUTRAL
- GROUND WIRE TO GROUND

CAUTION:
**VOLTAGE FROM L1/L2 TO NEUTRAL
MAY NOT EXCEED 120V!**

REF: NATIONAL ELECTRICAL CODE HANDBOOK 1993

ARTICLE 215 – FEEDERS

215-8 Means of Identifying Conductor with the Higher Voltage to Ground.

On a 4-wire, delta-connected secondary where the midpoint of one phase is grounded to supply lighting and similar loads, the phase conductor having the higher voltage to ground shall be identified by an outer finish that is orange in color or by tagging or other effective means. Such identification shall be placed at each point where a connection is made if the grounded conductor is also present.

PARTS LIST FOR MODEL AR-STEAM GENERATOR

PART#	PART DESCRIPTION
04396	LIGHT SOLICO NEON LIGHT 125V
20720	LIGHT ALARM ASSEMBLY
20592	RESET SWITCH & WIRE TO RELAY
02585	SOLENOID VALVE 3/8" 120V WATER
03693	PUMP 120V 1PH 50/60Hz
02692	CHECK VALVE 1/2" BALL-CONE SPRING TYPE
02472	BALL VALVE 1/4"
03346	BALL VALVE WITH LATCH (BLOWOFF)
02319	GLOBE VALVE 1/4"
02010	SAFETY VALVE 3/4", 15PSI
02637	SAFETY VALVE 1/2", 100PSI
02394	PRESSURE GAUGE 2", 30PSI
02299	PRESSURE GAUGE 2", 160PSI
04213	POWER SWITCH 120V, 15A
03690	MANUAL RESET SWITCH
04316	RELAY SOLID STATE 120/240 30A
MBJ-38	ELECTRODE FITTING LOW WATER CUT OFF 5 13/16"
03445	CONTACTOR 35A 2POLE 120V COIL
04313	HEATING ELEMENT 4000W 240V
02281	GASKET FOR ELEMENT
03084	STUDS FOR ELEMENT FLANGE
01314	NUTS FOR ELEMENT FLANGE
02396	GAUGE GLASS FIXTURE SET
02006	GAUGE GLASS WASHER (RUBBER)
02448	GAUGE GLASS WASHER (BRASS)
04180	GAUGE GLASS 5/8" x 3"
04245	GAUGE VALVE REPAIR KIT

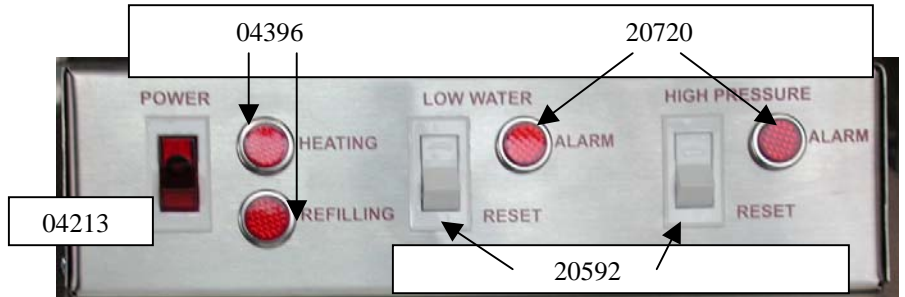
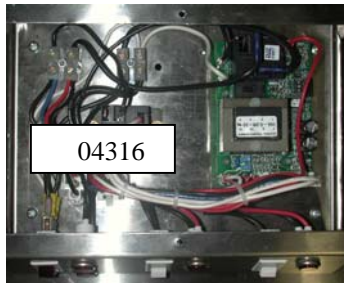
JEWELRY OPTION:

02472	BALL VALVE 1/4"
04157	SOLENOID VALVE 1/4" 120V STEAM
20058	JET, BRASS #53
20708	FOOTSWITCH

DENTAL OPTION:

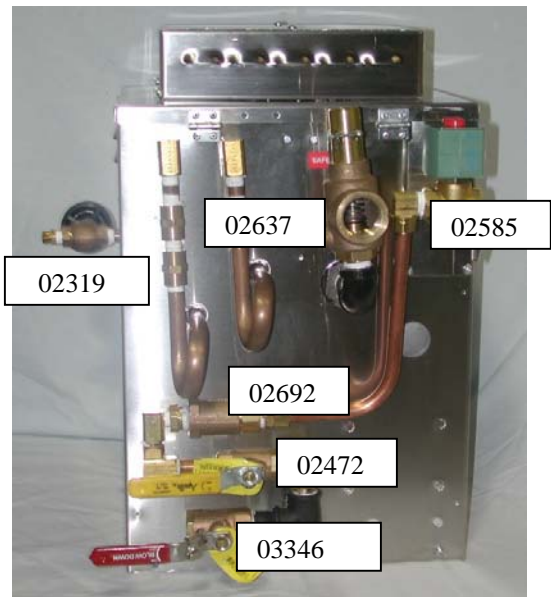
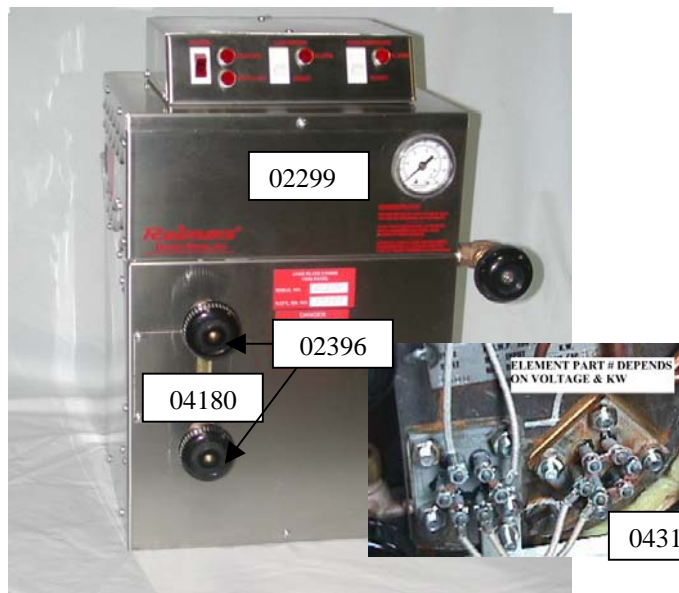
03553-DENT	STEAM GUN ASSEMBLY W/NOZZLE & 201T-7 HOSE
02480	FILTER ASSEMBLY
02481	FILTER CARTRIDGE
02482	FILTER GASKET (SMALL)
04140	BALL CHECK VALVE 1/8"
04386	VALVE NEEDLE .125"
03557	STEAM GUN REPAIR KIT

AR8 (STANDARD, JEWELRY & DENTAL MODELS)



STANDARD AR MODEL

STANDARD AR MODEL REAR



JEWELRY FRONT VIEW

JEWELRY REAR VIEW

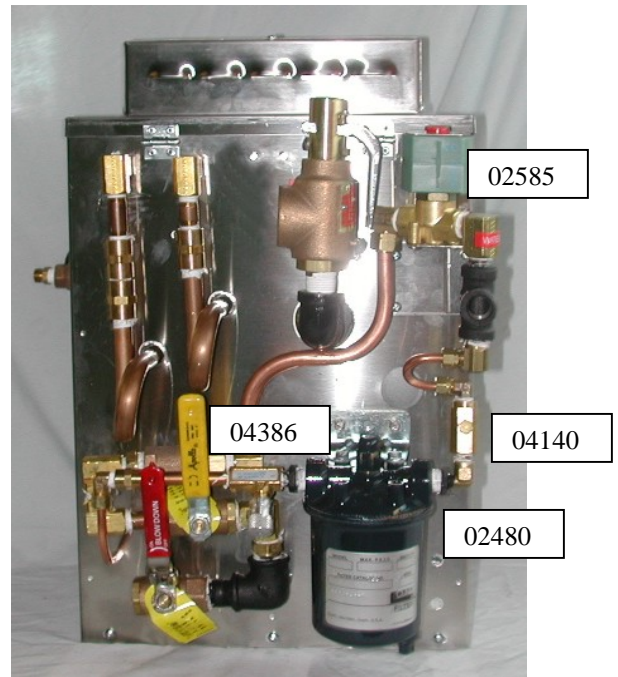


DENTAL MODEL

DENTAL FRONT



DENTAL REAR



This unit has a combination steam and water mixture feature. To increase or decrease water volume into the steam adjust at needle valve indicated above. To adjust steam flow use valve 02319 on the side of unit (labeled STEAM).