START-UP OF EMX AND RHT SERIES GAS AND OIL WATER BOILERS

FOR DETAILED INFORMATION SEE INSTALLATION & MAINTENANCE MANUAL

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

1) Visually inspect boiler and components for damage and proper installation.
2) Check all electrical connections for tightness, proper voltage, and proper grounding.
3) Check tank to make sure it is full of water.
4) Check fan rotation.
5) Check air shutter setting (guideline on burner tag).
6) Drill hole in vent pipe 12" to 24" from boiler flue outlet but below draft regulator (for analysis equipment).
7) Attach voltmeter to controller to record flame signal.
8) **Gas Units:** Check inlet static gas pressure before gas train **(Must not exceed minimum listed on decal).**
   a) Attach manometer to manifold to read pressure (tapping closest to burner).
   b) Turn off main manual gas valve and start burner on pilot (if burner has separate pilot).
   c) Set pilot to give good flame signal with just enough gas to reliably light pilot.

   NOTE: If there is no pilot, set gas pressure (guideline on burner tag).

   d) Slowly open main gas and set gas pressure **(guideline on burner tag).**
   e) Check inlet flow gas pressure before gas train **(should meet or exceed minimum listed on decal).**
9) **Oil Units:**
   a) Connect a 300-psi gauge to pressure side of oil pump.
   b) Connect vacuum gauge to supply side of oil pump **(15" hg maximum allowed).**
   c) Set oil pressure to pressure on data decal **(refer to I&M manual for two stage burner).**
10) Check flame signal (should be in range called for by control).
11) Check vent draft in stack (should be negative .02” to negative .06” W.C.).
12) Perform flue gas analysis after achieving water temperatures above 120°F.

    NOTE: Modulating burners should be checked at 25% increments.

    a) Net stack temperature should be 275ºF - 375°F **(read in stack, all units).**
    b) O2 should be from 4% to 7%.
    c) **Gas Units:** CO2 should be from 8% to 10%. **Oil Units:** 10% to 12%.
    d) CO should not exceed 200 PPM.
    e) **Oil units:** Smoke should be #1 or less.

Note: A complete and proper start-up of this equipment is necessary to ensure its safe and reliable operation. The attached startup form must be filled out completely and immediately provided to your Riverside Hydronics® representative. Report all discrepancies to Riverside Hydronics® Customer Service Department at 1-800-990-5918.

START-UP REPORT

EMX and RHT Series Gas and Oil Water Boilers

Warning: Startup must be performed by a qualified service installer, service agency or the gas supplier.

Model Number:_____ Serial Number: _____

Job Name: _____

Address: _____

GENERAL INFORMATION

Restart? ☐ Yes ☐ No Installation is: ☐ New ☐ Replacement/Renovation ☐ Indoor ☐ Outdoor

Primary operating voltage supply: _____VAC Voltage from neutral to earth ground: _____(should be zero)

Thermostat Setting: _____ °F Thermostat Setting: _____ °F Hi-Limit Setting: _____ °F

Is the Pressure Relief Valve plumbed to a suitable drain? ☐ Yes ☐ No

Energy management System (EMS) Interface? ☐ Yes ☐ No Mfg./Model: _____

EMS Function(s): ☐ Remote On-Off ☐ Staged- Firing ☐ Outdoor Reset ☐ Other: _____

EMS connected to which boiler terminals: _____

EMS Field wiring - Wire Gauge: _____ Distance from EMS panel: _____ Ft.

BOILER INSTALLATIONS (Closed Loop Heating System)

Boiler water supply and return piping size _____

Supply water temperature: _____ °F Return water temperature: _____°F

What is the GPM of the building loop circulator pump? _____ VFD? ☐ Yes ☐ No

What is the location of the circulator pump? ☐ Downstream from boiler ☐ Upstream from boiler

Is there a balancing valve (circuit setter) in the secondary loop? ☐ Yes ☐ No

VENTING and COMBUSTION AIR

Vent Material: _____ Vent Type: ☐ Through-the-roof ☐ Through Sidewall

Vent Diameter: _____ inches; Vent Horizontal Length:_____ feet; Vent Horizontal Length:_____ feet

Does vent have condensate drain? ☐ Yes ☐ No Draft Regulator? ☐ Yes ☐ No

Does vent have elbows? ☐ Yes ☐ No; Qty / Type: _____

Does vent contain any of these devices? ☐ Power Vent ☐ Draft Inducer ☐ Other _____

Is vent device interlocked with boiler? ☐ Yes ☐ No Vent device connected to which boiler terminals: _____

Direct-ducted combustion air? ☐ Yes ☐ No Duct diameter _____ inches. Duct length _____ feet.

Duct Material: _____ Does duct have elbows? ☐ Yes ☐ No; Qty / Type _____

Is combustion air supplied by louvers ☐ or openings ☐ Qty: _____ Size: _____

Are louvers interlocked with boiler? ☐ Yes ☐ No Louvers connected to which boiler terminals: _____

Boiler Model Number:_____ Serial Number: _____

GAS SUPPLY

Type of Gas: ☐ Natural ☐ LP Gas Supply Pipe Size: _____

Max available gas pressure: _____ Intermediate Gas Regulator Model: _____ Range: _____

Inlet Static Gas Pressure: _____ " W.C. (See rating decal for maximum inlet gas pressure)

Inlet Flow Gas Pressure: _____ " W.C. (See rating decal for minimum inlet gas pressure)

Combination Gas Pressure Switch Setting: High _____ " W.C. Low _____ " W.C.

OIL SUPPLY

Type of OIL: ☐ No.1 ☐ No.2 Oil Supply Pipe Size: _____ Pump Inlet Pressure/Vacuum:_____ PSI / Hg

Oil Pump Outlet Pressure: _____ PSI Bypass Return Pressure: _____ PSI Two-pipe Return System? ☐ Yes ☐ No

Remote Oil Pump? ☐ Yes ☐ No Day Tank ☐ Lift in feet _____ Filter/Strainer installed? ☐ Yes ☐ No

COMBUSTION ANALYSIS

BURNER MODEL NO.:	**BURNER SERIAL NO.:**				
Combustion Data (Full modulation)	Low fire	25%	50%	75%	High fire
Flame Safeguard Model:					
Flame Signal					
Burner Air Adjustment Position					
Purge Pressure					
Manifold Gas Pressure					
Oxygen O_2 (5-7% Gas; 4-6% Oil)					
Carbon Dioxide CO_2 (8-9% Gas; 10-12% Oil)					
Carbon Monoxide CO (less than 200 PPM)					
Smoke					
Nitrogen Oxide (NO_x ppm)					
Vent Pressure (-.02 to -.06" W.C.)					
Gross Vent Temperature °F					
Ambient Air Temperature °F					
Net Vent Temperature °F (gross stack less ambient air)					
Combustion Efficiency %					
Combustion Data (Single or 2- Stage)	1st stage				2nd stage

Important: You must submit the original copy of the completed form to your RIVERSIDE HYDRONICS representative before the warranty will become effective on this product.

Comments: _____

Service Company Name: _____ Phone: _____

Service Company Address: _____

Start-up Performed By: _____ Date: _____

Customer Representative: _____ Date: _____