



START-UP OF POWER VT[®] WATER HEATERS OR BOILERS

****FOR DETAILED INFORMATION SEE INSTALLATION & MAINTENANCE MANUAL ****

WARNING: These startup instructions are prepared for a qualified service installer, service agency or gas supplier and require and rely on the experience and training of these qualified gas appliance technicians to be safely completed. Attempting to follow these instructions without such training and experience can result in property damage, exposure to hazardous materials, personal injury or death.

1. Check the water heater tank to make sure it is full of water. (Remove air through T&P valve)
2. Remove enclosure panel cover on the water heater to expose control circuit. A wiring diagram, included in this packet, will show the controls used in our circuitry.
3. Visually check that all components are intact and no damage has occurred during transit.
4. Check all connections within the control cabinet. A loose connection could cause intermittent shutdowns.
5. Check flue gases with an electronic flue analyzer to make final settings of gas pressure regulator.
6. The readings need to be taken from a hole in the vent several inches downstream of the fan outlet connection.
7. Insert 0-6" W.C. manometer into the test opening in the vent. Pressure in stack should not exceed 2" W.C.
8. When water in tank is above 120°F, insert analyzer or O₂ testing in test opening; take O₂ reading in percentage.
9. Increase manifold gas pressure at the main gas pressure regulator taking O₂ reading at each adjustment of gas regulator until optimum O₂% (5-7%) is reached. If O₂% decreases, reduce the gas pressure to last reading where the greatest reading is achieved.
10. CO should not exceed 200 ppm. A reading greater than 200 ppm indicates lack of air. Reduce manifold gas pressure slightly and take readings until CO is within proper range. Optimum reading is no CO.
11. If manifold pressure was changed during startup, take a final CO and O₂ reading.
12. Record CO₂ and NO_x if applicable. (See I&M if NO_x measurement is required).
13. Insert vent temperature gauge in test opening and read gross vent temperature; maximum gross stack is to be 250°F. If an excessively high gross vent temperature is recorded, consult the factory.
14. Check each operating and limit control to be sure they function properly by lowering and raising the temperature setting on each of the controls, causing burner to cycle on and off.
15. NOTE: During the initial firing of the burner, smoke that is not related to the burner will be emitted from the heater. This is normal during "burn in" and could possibly continue for several hours.
16. Complete the attached startup report.

Important – Contact PVI Customer Service, 800-433-5654, if any recommended setpoint or analysis reading falls outside of the recommended ranges before completing startup.



START-UP REPORT

POWER VT® WATER HEATERS OR 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 T & P Relief Valve plumbed to a suitable drain? Yes No

BOILER INSTALLATIONS (Closed Loop Heating System)

Boiler water supply and return piping size _____ Is there a Primary (boiler bypass) loop? Yes No
Primary (boiler bypass) loop contains: Modulating 3-way valve Manual valve No valve
What is the horsepower of the primary (boiler loop) circulator pump? _____ VFD? Yes No
What is the location of the primary circulator pump? Downstream from boiler Upstream from boiler
Is there a balancing valve (circuit setter) in the primary loop? Yes No
Supply water temperature: _____ °F Return water temperature: _____ °F
What is the horsepower of the secondary (main heating loop) circulator pump? _____ VFD? Yes No
What is the location of the secondary circulator pump? Downstream from boiler Upstream from boiler
Is there a balancing valve (circuit setter) in the secondary loop? Yes No

WATER HEATER INSTALLATIONS

Type of piping connected to heater: Copper Brass Galvanized
Is there a check valve in the supply water piping? Yes No
Is there a water softener on the cold water supply? Yes No Operational? Yes No
Is there a mixing valve on the hot water supply? If yes; temperature setting: _____ °F No
Is there expansion relief in the cold water supply? If yes, what type: tank valve No
Is there a recirculation loop? Yes Circulating pump horsepower: _____ No
Is there a floor drain in the room? Yes No



Model Number: _____ Serial Number: _____

VENTING and COMBUSTION AIR

Vent Material: _____ (CPVC – Water Heaters Only; AL29-4C Stainless Steel – Boilers or Water Heaters)
 Vent Diameter: _____ inches; Vent Length: _____ feet Vent Type: Through-the-roof Through Sidewall
 Does vent have condensate drain? Yes No Does vent have elbows? Yes; Qty _____ No
 Does vent contain any of these devices? Power Vent Draft Inducer Draft Regulator Flue Damper
 Combustion air louvers or openings? Yes; Qty: _____ Size: _____ No Interlocked? Yes No
 Have direct-ducted combustion air? Yes; duct diameter _____ inches, length _____ feet. No
 Duct Material: _____ Does duct have elbows? Yes; Qty _____ No

GAS SUPPLY

Type of Gas: Natural LP Inlet Static Gas Pressure: _____ "W.C. (14"W.C. maximum)
 Gas Supply Pipe Size: _____ Inlet Flow Gas Pressure: _____ "W.C. (see data label)
 Combination Gas Pressure Switch Setting: High _____ "W.C. Low _____ "W.C.

COMBUSTION ANALYSIS

	Heaters	Boilers	
		1 st Stage	2 nd Stage
Pilot Gas Pressure			
Manifold Gas Pressure			
Carbon Dioxide CO ₂ (8-9%)			
Oxygen O ₂ (5-7%)			
Carbon Monoxide CO (less than 200 ppm)			
Nitrogen Oxide NO _x (if available)			
Vent Pressure (+.25" to + 2.0" W.C.)			
Gross Vent Temperature (maximum 230°F)			
less Room Temperature °F			
= Net Vent Temperature °F			

Important: You must submit the original copy of the completed form to your PVI representative before the warranty will become effective on this product. Contact Customer Service for assistance at 1-800-433-5654.

Service Company Name: _____ Phone: _____

Service Co. Address: _____

Start-up Performed By: _____ Date: _____

Customer: _____ Phone No.: _____ Date: _____

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