

## 3VO START UP CHECKLIST

The 3VO has an important function that normally operates in the background; the INI (Initialization) process, but at time of initial start up, we need your help in running a Z-INI (Zero Initialization). Within 2 minutes of powering the appliances up, a question will be presented on screen: "A ZERO INI IS REQUIRED—RUN NOW?" YES or NO, unless the entire system is fully commissioned and operating normally, answer NO. The question will be presented every 15 minutes until you finally select "YES". It is best not to answer YES until all appliances are started and combustion

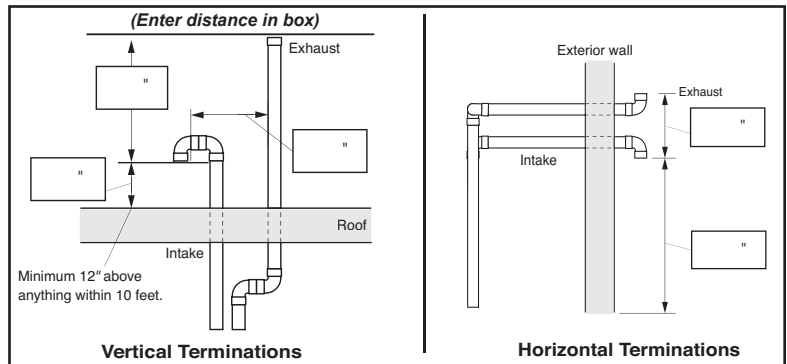
set. When they are all ready, turn off power to all at the switch on the front near the display. Go back to the appliance with two displays, power it and all others on, and when the question is presented again (two minutes or less), answer YES on each individual appliance. The Z-INI should be completed in less than 10 minutes.

**For more specific INI information see the Owners Manual for the 3VO, Section 6 A, INI Process and Procedures.**

Distributor/Salesperson: \_\_\_\_\_ Model: \_\_\_\_\_ Date: \_\_\_\_\_  
 Location: \_\_\_\_\_ Serial: \_\_\_\_\_ Tag: \_\_\_\_\_  
 Installation Date: \_\_\_\_\_ Pictures:  Yes  No Requested:  Yes  No  
 Site Name: \_\_\_\_\_ Site Phone: \_\_\_\_\_  
 Site Contact (owner/end user): \_\_\_\_\_ Installer (Service Company): \_\_\_\_\_  
 Distributor (Service Person): \_\_\_\_\_

**Venting** Primary concern is that the venting (both intake & exhaust) match exactly to one of the two following diagrams.

- 1.) **Distance** from the closest exhaust to combustion air intake: \_\_\_\_\_
- 2.) **Distance** exhaust is from:  
Other Boilers/Heaters \_\_\_\_\_ Dryers \_\_\_\_\_  
Heating Equipment \_\_\_\_\_
- 3.) **Distance** from closest wall to exhaust: \_\_\_\_\_
- 4.) **Height** of the adjoining wall above exhaust: \_\_\_\_\_
- 5.) Does **venting slope back** to appliance?  Y  N  
If so, total drop (inches): \_\_\_\_\_
- 6.) Possibility of chemicals drawn into intake air?  Y  N
- 7.) Total length of inlet & exhaust piping: \_\_\_\_\_
- 8.) Qty. of elbows: 90° \_\_\_\_\_ 45° \_\_\_\_\_ Qty. of tees: \_\_\_\_\_
- 9.) Exhaust pressure: \_\_\_\_\_ (TR5) Inlet pressure: \_\_\_\_\_ Fan Pressure: \_\_\_\_\_ (TR1) Read STATUS screen on appliance.



## Water Circulation & Temperature Regulation

- 1.) Piping Diameter \_\_\_\_\_"
- 2.) Total length of straight pipe between heater & tank (or boiler and primary loop): \_\_\_\_\_'
- 3.) Qty. of elbows: \_\_\_\_\_ Qty. of Tees: \_\_\_\_\_
- 4.) Temperature rise between heater inlet & outlet after 5 min. of firing at high fire: \_\_\_\_\_°F \_\_\_\_\_°C  
Second Test: \_\_\_\_\_°F \_\_\_\_\_°C
- 5.) Water temperature set point: \_\_\_\_\_
- 6.) Test of Water Flow Safety Function:  Y  N
- 7.) Static and Dynamic water pressures: Static - HX Inlet: \_\_\_\_\_ (TR3) HX Outlet: \_\_\_\_\_ (TR4) Read STATUS screen on appliance.  
Dynamic - HX Inlet: \_\_\_\_\_ (TR3) HX Outlet: \_\_\_\_\_ (TR4)

**Condensate Drain** Primary concern is that we have the ability to freely drain condensate.

- 1.) Inside piping diameter: \_\_\_\_\_"
- 2.) Total Length: \_\_\_\_\_'
- 3.) Is the condensate neutralizer filled with water?  Y  N
- 4.) Total drop in height from heater drain outlet to drain piping exit point: \_\_\_\_\_
- 5.) Any additional trap points?  Y  N
- 6.) Check the level of the heater/boiler; it should be level to insure that the condensate drains correctly.
- 7.) Perform pH Test. \_\_\_\_\_pH of condensate leaving neutralizer

**Ohm Readings** (from confirmed earth ground: please note that number will **never** be zero. Use lowest range on meter.)

- 1.) Piping near appliance: \_\_\_\_\_ ohms
- 2.) Heat Exchanger: \_\_\_\_\_ ohms
- 3.) Cabinet: \_\_\_\_\_ ohms

**Power Supply**

- 1.) Incoming Voltage \_\_\_\_\_ Phase \_\_\_\_\_
- 2.) Control Board Version \_\_\_\_\_ (marked on transformer)
- 3.) Is there a ground connection to the building ground system?  Y  N

**Altitude** (this information is in the password protected parameters—section “ALTITUDE”)

- 1.) Elevation: \_\_\_\_\_ ft.
- 2.) Elevation setting on display: \_\_\_\_\_

**Gas Supply** (See table on the following page for recording gas pressures)

- 1.) Gas piping to heater is:
  - Rigid Metal: \_\_\_\_\_
  - Flexible : \_\_\_\_\_
  - Flexible Brand: \_\_\_\_\_
- 2.) Piping ID \_\_\_\_\_”
- 3.) Is there a secondary regulator?  Y  N
- 4.) Pressure Regulator Rating / Size \_\_\_\_\_
- 5.) Incoming pressure to regulator \_\_\_\_\_
- 6.) Distance from heater: \_\_\_\_\_’
- 7.) Model & Brand: \_\_\_\_\_
- 8.) Incoming gas pressure (read from display) \_\_\_\_\_ (TR2) Read STATUS screen on appliance.

There are three types of measurements that must be taken to provide the data to ensure product performance.

- **Lock-up pressure** - pressure in gas piping at appliance inlet with no load, **may not exceed 14” wc. at any time!**
- **Minimum load** - at ignition of a single unit (or first on unit in a multiple unit rack).
- **Maximum load** - all appliances on at full fire that are connected to the same regulator.

**Outdoor Air (OA) Reset** (Testing can be done using canned air, commonly used for dusting electronics)

- 1.) Verify location of OA sensor: \_\_\_\_\_

*OA sensors should be located on the north side of building or have a northern exposure. Sensors exposed to direct sunlight should be shielded to prevent false readings. Please note that radiant heat from exterior building materials can also cause false readings.*

**Outdoor Air (OA) Reset continued**

- 2.) Verify existence of parameters within software. Verify reset ramp by spraying OA sensor with compressed air to falsely reset OA temperature, causing system to reset to new setpoint and verify operation.

**Pre-Test**

T6 or S6: \_\_\_\_\_  
• Setpoint: \_\_\_\_\_

**During Test**

T6 or S6: \_\_\_\_\_ (T6 is on single appliance and S6 is from Cascade—read from Status screen)  
• Setpoint: \_\_\_\_\_ (Read from the home screen on the appliance or Cascade)

**Outdoor Air (OA) Reset continued**

2.) Verify existence of parameters within software. Verify reset ramp by spraying OA sensor with compressed air to falsely reset OA temperature, causing system to reset to new setpoint and verify operation.

**Pre-Test**

- ou: \_\_\_\_\_
- Setpoint: \_\_\_\_\_

**During Test**

- ou: \_\_\_\_\_
- Setpoint: \_\_\_\_\_ *(Read by pressing reset after ou. Setpoint is calculated by controller)*

**Combustion and Gas Pressure Tests**

	<b>LEAD</b>	<b>LAG 1</b>	<b>LAG 2</b>	<b>LAG 3</b>	<b>LAG 4</b>
<b>HIGH FIRE CO<sub>2</sub></b>					
<b>LOW FIRE CO<sub>2</sub></b>					

<b>LOCK-UP PRESSURE:</b>	<b>MINIMUM LOAD:</b>	<b>FULL LOAD:</b>
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**Gateway Communication** *(if equipped or connected)*

Written verification from temperature control contractor of Gateway status and communication operation is required.

**Safety Controls** *(if equipped or connected)*

1.) Test additional safety controls.

- Adjustable manual reset high limit: \_\_\_\_\_
- High pressure gas switch: \_\_\_\_\_
- Low water cut off: \_\_\_\_\_
- Low pressure gas switch: \_\_\_\_\_

**Alarms** *(if equipped or connected)*

Induce fault condition to test alarm function.

1.) Turn off gas supply to appliance and attempt to fire. When F5 appears, does the alarm circuit close?  Y  N

**Field Changes/Comments:**

**Please upload digital pictures of installation to dropbox.**

- 1.) Go to [www.hamiltonengineering.com/serviceupload](http://www.hamiltonengineering.com/serviceupload)
- 2.) Login
  - Username: HEI Service
  - Password: Hamilton34000