



## Start Up Procedure

### Pre-start Checklist

<input checked="" type="checkbox"/>	Item
<input type="checkbox"/>	Flow switch is wired and installed at outlet of boiler
<input type="checkbox"/>	Low Water Cutoff is wired and installed above highest point of heat exchanger
<input type="checkbox"/>	System pressure is set to a minimum of 15 PSIG
<input type="checkbox"/>	Condensate trap is primed and filled, neutralizer medium is present
<input type="checkbox"/>	Horizontal section of vent is properly pitched
<input type="checkbox"/>	Drain Tee is installed on venting
<input type="checkbox"/>	Enable/Disable signal is wired to Remote Operator (if required)
<input type="checkbox"/>	DHW sensor or aquastat is wired to blue wire #81 and #82 contacts (if required)
<input type="checkbox"/>	System sensor is wired to the System Sensor contacts (if required)
<input type="checkbox"/>	Outdoor sensor wired to boiler, according to electrical diagram
<input type="checkbox"/>	Lead Lag wiring is present and polarity is correct (if required)
<input type="checkbox"/>	BMS wiring is present and polarity is correct (if required)
<input type="checkbox"/>	4-20mA/2-10Vdc wiring is present (if required)
<input type="checkbox"/>	Verify all electrical connections in the boiler are firmly engaged
<input type="checkbox"/>	<u>Natural Gas</u> Inlet gas pressure to appliance. DF0500 – 0750: Between 3" to 14" w.c. DF1100 – 1200: Between 3.5" to 14" w.c. DF1500 – 6000: Between 4.5" to 14" w.c.
<input type="checkbox"/>	<u>Propane Gas</u> Inlet gas pressure is set to 11" w.c.
<input type="checkbox"/>	Gas line size to the appliance matches Part 3 in I&O for recommended gas pipe size
<input type="checkbox"/>	Leak test on all gas connections

**START UP CAN ONLY BE PERFORMED WHEN ALL THE ABOVE IS CONFIRMED**



## Start Up Procedure

1. Open water valves to appliance. **DO NOT** open the gas valve connection.
2. DF2000 – 6004: Attach test tube kit to Air+ and Air- of gas valve to monitor differential air pressure
3. Turn power on to boiler
4. Verify that all temperature sensors are operational
5. Enable boiler by setting Local/Remote switch to Local  
The boiler will perform pre-purge and initiate ignition sequence. Allow this sequence to operate for 5-10 minutes to ensure all air is bled from the heat exchanger and this will also allow for condensation to accumulate inside the combustion chamber. It is preferred to initially fire the boiler at water temperatures less than 100°F.
6. Monitor differential air pressure.
  - a. This must be between 0.6 – 1.0" w.c. for reliable ignition.
7. Open gas valve connection to appliance.  
Recycle power to boiler if boiler is an ignition failure condition.  
**NOTE:** Boiler may require 2-3 tries for successful ignition due to air trapped in the gas line.
8. Operate boiler at high fire at high for 5-10 minutes before performing combustion analysis.
  - a. Adjust high fire adjustment screw if necessary to meet combustion values in Part 9 of the I&O manual.
  - b. Delta-T across inlet and outlet: 20-25°F
9. Allow boiler to operate at low fire for 5-10 minutes before performing combustion analysis.
  - a. Adjust low fire adjustment screw if necessary to meet combustion values in Part 9 of the I&O manual.
10. Operate boiler at high fire to re-check combustion values.
11. Extinguish the flame by removing the flame sensor wire.
12. Perform 5 ignition attempts to verify that ignition is quiet and rumble free.
  - a. If ignition is rough or unreliable re-start procedure at step 6.
13. Record combustion values at low fire and high fire.
14. Verify that condensate runs out of boiler and is unobstructed
15. Verify that vent is not leaking flue gas into mechanical room
16. Verify operation of safeties on boiler and record on start-up report
17. Confirm operation of Protonode, if equipped.