

**Start Up Procedure**

**Pre-start Checklist**

- Item**
- Flow switch is wired and installed at outlet of boiler
- Low Water Cutoff is wired and installed above highest point of heat exchanger
- System pressure is set to a minimum of 15 PSIG
- Condensate trap is primed and filled, neutralizer medium is present
- Horizontal section of vent is properly pitched
- Drain Tee is installed on venting
- Enable/Disable signal is wired to Remote Operator (if required)
- DHW sensor or aquastat is wired to blue wire #81 and #82 contacts (if required) System sensor is wired to the System Sensor contacts (if required)
- Outdoor sensor wired to boiler, according to electrical diagram
- Lead Lag wiring is present and polarity is correct (if required)
- BMS wiring is present and polarity is correct (if required)
- 4-20mA/2-10Vdc wiring is present (if required)
- Verify all electrical connections in the boiler are firmly engaged
- Natural Gas
  - 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.
  - If a gas booster is supporting boiler operation, booster has been started up and proper operation and gas pressures have been verified
- Propane Gas
  - Inlet gas pressure is set to 11” w.c.
  - Gas line size to the appliance matches Part 3 in I&O for recommended gas pipe size
  - Leak test on all gas connections
  - Protonode is correctly programmed and communicating with the boilers
  - Water Pressure Gauges and Thermometers installed to check proper operation
  - All BMS are set up and have been tested
  - Outdoor air temperature sensor has been installed on a Slave Boiler
  - System sensor is wired to the designated Lead Boiler
  - All required field wiring is installed, all points have been connected, checked and verified

Print Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Tel: \_\_\_\_\_ Cell: \_\_\_\_\_ Email: \_\_\_\_\_

Date: \_\_\_\_\_

**By signing this request form you are guaranteeing and responsible for all items on this sheet. If we are on site and cannot perform start up due to any incomplete items on this sheet, you will be charged a minimum of 4-hours which must be paid in full prior to returning.**



## 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.