



## Direct Gas Make-Up Air Quick Start Guide - Pilot Ignition

This quick start document is intended to help with getting the initial unit startup completed, but does not replace the IOM. Please read the IOM for all safety information and precautions before performing any work on the equipment. Complete pre-start checks and blower start-up prior to this procedure.

**Pre-Start Information:** To energize the unit control circuits (*field-wiring shown on diagram with dashed lines*):

- Exhaust fan (*optional*) - Connect terminals R to H
- Supply fan - Connect terminals R to G
- Heating - Connect terminals R to W1
- Cooling (*optional*) - Connect terminals R to Y1

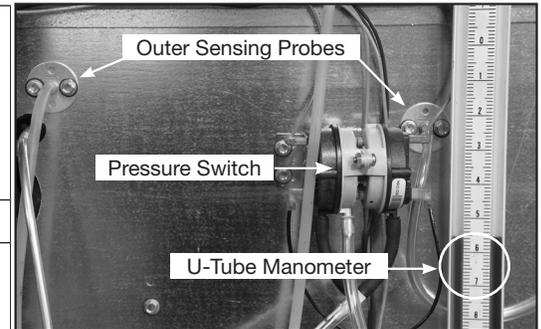
- Energize the supply fan by connecting terminals R to G.
- Verify blower rotation is correct.
  - To reverse the rotation on three phase units, disconnect and lock out the power, then interchange any two power leads going to the motor.
  - Check motor amp draw and compare to motor nameplate FLA – reduce airflow if amp draw is greater than FLA.
- Check burner pressure differential. (**Fig. 1**)
  - Connect manometer to outer sensing probes
  - Should be between 0.6 - 0.7 in wg.
  - To increase the differential pressure, decrease the burner baffle opening evenly or increase airflow.
  - To decrease the differential pressure, increase the burner baffle opening evenly or decrease airflow.
- Verify the unit inlet gas pressure:
  - Inlet gas pressure needs to be equal to or greater than the “minimum for maximum output”, but not to exceed the “maximum gas pressure” listed on the unit gas pressure label.
- Verify inlet air sensor (TS4) setting is set above outside air temp (*if equipped*). If unit has microprocessor, verify heating lockout setting.
- Energize the heating by connecting terminals R to W1. If unit has microprocessor, enable heat by setting heat control to 1%.
- Close main hand valve, then set the pilot gas pressure to 1.5 - 3 in. wg and measure flame signal (>1.25).

- Open main hand valve and then set maximum firing rate to the design temperature rise located on the direct gas nameplate. (**Fig. 2/ Fig. 3**)
  - Send unit to high fire by removing wire connected to terminal 3 of Maxitrol 14/44 amplifier. (*if equipped with the SC25 Amplifier, connect terminals T1 and T2*).
  - While measuring temp rise, adjust combo valve regulator to achieve desired temperature rise. (*Temp rise = discharge temp - inlet temp*)

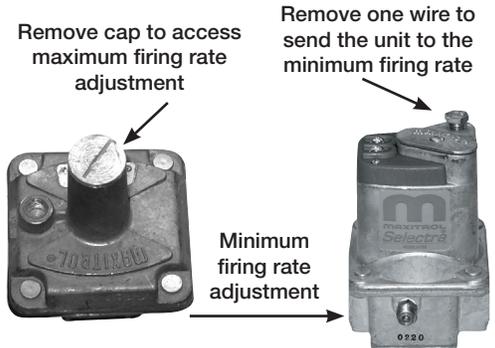
- Set the minimum firing rate to achieve a small ribbon of continuous blue flame across the burner. (**Fig. 2/ Fig. 3**)
  - Disconnect one of the wires going to the modulating valve and isolate.
  - Set the minimum firing rate by adjusting the minimum firing rate adjustment on the modulating valve.
  - Cycle the heat to make sure the burner can light at this low fire setting.

- Remove power to terminal W1 to remove the call for heat. Reconnect wires to Maxitrol amplifier and modulating valve.

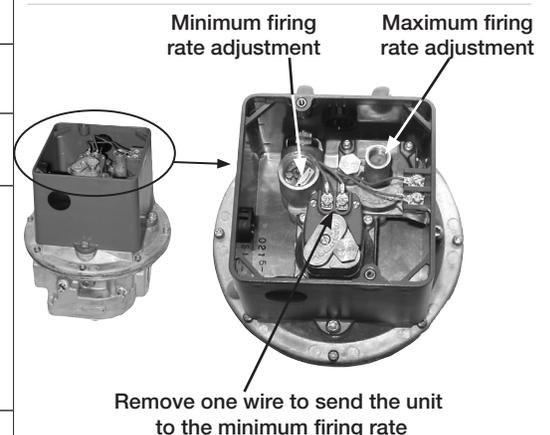
- Re-energize W1 and perform a flame signal check. (**Fig. 4**)
  - Measure DC voltage out of test ports of burner control.
  - Signal should be above 1.25 VDC and steady.



**Fig. 1 Measuring the Pressure Drop**



**Fig. 2 Separate Regulator and Modulating Valves**



**Fig. 3 Combined Modulating Regulator**



**Fig. 4 DC Voltmeter and Flame Amplifier**