

Hi Delta 122-322 Sequence of Operations

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1. See wiring diagram 152564. 120V power enters the unit when the main power switch is closed. Immediately, power passes through the 3-pin power terminal block and reaches the transformer, the normally-open (N.O.) contacts of the pump relay, pin F1 of the ignition module, and to pin L1 on the ignition module.
2. 24V power from the transformer goes to the main thermostat connection at pin 2 of the 7-pin terminal block. When the unit is enabled, there will be continuity between pins 2 and 3 (T-Stat or Enable/Disable connection point). 24V power is received at pin 7 (low-fire).

This connection is shipped with a jumper across it. Remove this jumper to disable the unit. When attaching this unit to a system thermostat separate from the stage control, attach at this connection.

From pin 7, power energizes the pump relay and connects to pin R on the ignition module.

Stage connections:

Low fire:	in on pin 7, out on pin 6
High fire:	in on pin 5, out on pin 4

3. There will be 24V power on pin 6 when there is a 1st stage call for heat. From pin 6, power goes to the common contact on the low water cutoff (LWC) option (if present) and jumpers to the L1 power connection on the LWC board. Power also goes to the air pressure switch.
4. Downstream of the LWC connection power goes to the manual reset high limit and the remainder of the safety chain (if the LWC is not present, then power goes directly from pin 6 to the manual reset high limit). Also in the safety chain sequence: the auto reset high limit (optional), the vent pressure switch, and the common contact of the "Knowflo" fast-response temperature sensor. From the output side of the "Knowflo" sensor, 24V power goes to the connection point for the flow switch option. The flow switch is a field-installed option. When the flow switch closes, power goes to pin W on the ignition module.
5. When a 24V signal is received at pin W, the ignition module energizes the blower by sending 120V power on pin F2. When adequate air pressure is generated in the combustion air plenum, the air pressure switch (step 3) closes, power is received at pin PS of the ignition module.
6. The ignition module begins energizing the hot surface ignition (HSI) element by sending power on pin S1. Following the igniter heat-up period, the gas valve is energized for the trial for ignition period. When flame is detected, the igniter is de-energized and the ignition module sends 24V power to the main valve on pin MV1.

7. Power from MV1 goes to pin 5 of the 7-pin terminal block to enable stage 2, and then to the main contacts on the primary gas valve. There is a short jumper on the valve that also brings power to the PV pin on the valve, thereby fully opening the valve.
8. Main fuel is ignited by the HSI element. For on/off units, flame is established across the entire burner tray. For 2-stage units, only the burners governed by the primary valve carry fuel; when main flame is established on those, the unit operates at low fire. The remaining burners remain unfired, with fuel blocked by the solenoid valve. For full rate, the 2nd stage contacts must be closed by a stage controller (continuity across pins 4 and 5 on the 7-pin terminal block), energizing the solenoid valve and allowing fuel to flow through the remaining burners.

If the unit is built as a 2-stage system but ordered without a factory-mounted stage controller, a jumper will be installed across the high-fire connections.