



INFORMATINAL BULLETIN

PARTS & SERVICE DEPARTMENT

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TO: Manufacturers' Representatives, District Sales Managers, Regional Managers, Technical & Customer Service Personnel, Service Agents and Sales & Marketing Personnel, UK Personnel

SUBJECT: Power-Fin 501 - 1300 Sequence of Operation

- 1) The power switch is placed in the "on" position.
- 2) 120 VAC power is supplied to the control junction box and to the external circulating pump (if installed in a primary/secondary boiler system or as a water heater).
- 3) 120 VAC power is supplied to the control Transformer, Ignition Module and Electronic Temperature Controller.
- 4) 24 VAC is supplied to all low voltage controls.
- 5) Water flow from the circulating pump is proven by a Flow Switch.
- 6) Diagnostic Information Center Set Point Temperature is set to call for heat.
- 7) Electronic Temperature Controller initiates a start-up sequence by checking the Temperature Sensors and input signals from the safety controls.
- 8) Electronic Temperature Controller enables the Ignition Module
- 9) Combustion Air Blower starts operation and drives to 100% speed for pre-purge.
- 10) Blower makes the low air switch contact to enable the Ignition Module.
- 11) On M9 models the Blower cycles down to 50% speed and the Ignition Module initiates the heat-up sequence of the Hot Surface Igniter.
- 12) Hot Surface Igniter proves 1800 degrees (Fahrenheit) Ignition Temperature by current draw through the Ignition Module.
- 13) The ignition module supplies 24 VAC to the Main Relay and Redundant Gas Valve.
- 14) Operation of the Igniter, Gas Valves and Safety Switches are proven to the Electronic Temperature Controller.
- 15) On M9 units the Variable Ration Gas Valve senses the pressure from the Combustion Air Blower and supplies gas to the orifice and into the Blower inlet to pre-mix.
On F9 units the Gas Valve opens and supplies gas to the Orifice Inlet to pre-mix.
- 16) The Gas/Air mixture is forced into the Burner and out of the Burner Ports under pressure.
- 17) The Hot Surface Igniter lights the Gas/Air mixture and then serves as a flame sensor to prove Main Burner Flame by rectification.
- 18) Burner is now in a soft start firing at 50% of rated input (M9 Only).
- 19) Electronic Temperature Controller adjusts blower speed based on desired water Set Point Temperature (M9 Only).
- 20) Burner input rate may vary from 25% to 100% of rate as required to satisfy Set Point Temperature programmed into the Diagnostic Information Center (M9 Only).

End of Sequence

- 21) Set Point temperature is satisfied.
- 22) Power to the gas valves is turned off.
- 23) Combustion Air Blower ramps up to 100% speed and runs for a 30 second post purge timing and turns off.
- 24) Electronic Temperature Controller is now in a Standby Mode waiting for the next "Call for Heat".