



TECHNICAL SERVICE DEPARTMENT
Technical Service Bulletin
1-800-432-8373



Sequence of Operations – PowerVent Spark Ignition

<p>Tank is cold, full of water, gas supply is connected to gas control valve and heater is plugged in to a 120V circuit. Gas valve is set to the ON position.</p>	NO	<p>Fill tank Ensure gas connections are present and no leaks Ensure water heater is properly vented</p>
<p>YES</p>		
<p>Turn electric main power to ON; open control panel and turn ON/OFF switch to ON</p>		
<p>YES</p>		
<p>120V is extended from the switch to the electric thermostat and ECO. <i>(First safety)</i></p>	NO	<p>Check for 120V at thermostat terminal 1 Check ECO for 120V at thermostat terminal 2</p>
<p>120V is extended thru the thermostat to: 1.) the blower motor 2.) the 24V transformer</p>	NO	<p>Blower motor begins rotation. Check for 120V at blower motor plug Check for 24V at far side of transformer</p>
<p>YES</p>		
<p>Blower motor creates vacuum in tube and causes vacuum switch to operate</p>	NO	<p>Check tube for proper size, serviceability, kinks and blockages. Check vacuum switch</p>
<p>YES</p>		
<p><i>(Second Safety)</i> Vacuum switch has now provided verification that the blower motor is operating. 24V is allowed to pass through the vacuum switch to the ignition control module</p>	NO	<p>Check ignition control module for 24V at the “24V” terminal lug. Check vacuum switch Check vacuum tubing Check blower motor</p>
<p>YES</p>		
<p>Ignition module extends 24V to energize the pilot gas valve operator.</p>	NO	<p>Check for 24V on the “PV” terminal lug of the GAS VALVE</p>
<p>YES</p>		
<p>Pilot valve opens allowing gas to flow to the pilot burner</p>	NO	<p>Check gas pressure Check pilot burner Check pilot supply tube for crimping Check for 24V on the “PV” terminal lug of the GAS VALVE</p>
<p>YES</p>		
<p>Electric spark generator in the ignition module produces a continuous 10,000V spark pulse through the ignitor cable</p>		<p>Visually check pilot electrode assembly for spark Check ignitor cable for continuity Check ignition control module</p>
<p>YES</p>		
<p>Gas flows through gas valve and pilot supply tube to pilot burner. Pilot lights and flame is rectified. <i>(Third Safety)</i> Safety shut off with continuous retry for 90 seconds. After a six minute wait, the ignition module re-starts the ignition sequence.</p>	NO	<p>Check gas pressure Check pilot burner for obstructions. No flame rectification with pilot burner (flame is not pointed in proper direction). Check spark ignitor for cracks.</p>
<p>YES</p>		



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<p>Pilot ignites main burner. Spark generator shuts off.</p>	<p>NO</p>	<p>Check for 24V on the “MV” terminal lug of the GAS VALVE Check gas pressure Check main burner orifice for obstructions. Check main burner supply tube and venturi for obstructions.</p>
<p>YES</p>		
<p>Main burner remains lit. Heats water to thermostat setting</p>	<p>NO</p>	<p>Check for 24V on the “MV” terminal lug of the GAS VALVE Check gas pressure Check main burner orifice for obstructions. Check main burner supply tube for obstructions. Check main burner venturi and ports for obstructions.</p>
<p>YES</p>		
<p>Water is hot. Thermostat contacts open and shunts circuit to: 1). Blower motor 2). 24V transformer</p>	<p>NO</p>	<p>Check thermostat. Power is discontinued to the ignition control module. Power will be resupplied to the blower motor and 24V transformer when thermostat calls for heat.</p>
<p>YES</p>		
<p>Pilot and main valve operators on the gas control valve close.</p>	<p>NO</p>	<p>24V power is suspended to all terminal lugs on the ignition control module and gas valve.</p>
<p>YES</p>		
<p>Main burner and pilot shuts off. Water is hot</p>		
<p>YES</p>		
<p>Water heater is in stand by until the thermostat calls for heat</p>		



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