

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



Sequence of Operations – PowerVent Spark Ignition

Tank is cold, full of water, gas supply is connected	NO	Fill tank
to gas control valve and heater is plugged in to a		Ensure gas connections are present and no leaks
120V circuit. Gas valve is set to the ON position.		Ensure water heater is properly vented
YES		
Turn electric main power to ON; open control panel	1	
and turn ON/OFF switch to ON		
YES	1	
120V is extended from the switch to the electric	NO	Check for 120V at thermostat terminal 1
thermostat and ECO.	110	Check ECO for 120V at thermostat terminal 2
(First safety)		Check ECO for 120 v at thermostat terminar 2
(First sajety)	J	
12077 :	l NO	Diamon materials and attention
120V is extended thru the thermostat to:	NO	Blower motor begins rotation.
1.) the blower motor		Check for 120V at blower motor plug
2.) the 24V transformer]	Check for 24V at far side of transformer
YES	7	1
Blower motor creates vacuum in tube and causes	NO	Check tube for proper size, serviceability, kinks
vacuum switch to operate		and blockages.
		Check vacuum switch
YES	_	
(Second Safety) Vacuum switch has now provided	NO	Check ignition control module for 24V at the
verification that the blower motor is operating. 24V		"24V" terminal lug.
is allowed to pass through the vacuum switch to the		Check vacuum switch
ignition control module		Check vacuum tubing
		Check blower motor
YES	ı	
Ignition module extends 24V to energize the pilot	NO	Check for 24V on the "PV" terminal lug of the
gas valve operator.	110	GAS VALVE
YES	J	OND THEVE
ILO		
Pilot valve opens allowing gas to flow to the pilot	NO	Check gas pressure
burner	110	Check gas pressure Check pilot burner
Durner		
		Check pilot supply tube for crimping Check for 24V on the "PV" terminal lug of the
NEG]	GAS VALVE
YES	1	TY: 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Electric spark generator in the ignition module		Visually check pilot electrode assembly for spark
produces a continuous 10,000V spark pulse through		Check ignitor cable for continuity
the ignitor cable	j	Check ignition control module
YES	,	
Gas flows through gas valve and pilot supply tube	NO	Check gas pressure
to pilot burner. Pilot lights and flame is rectified.		Check pilot burner for obstructions.
(Third Safety) Safety shut off with continuous retry		No flame rectification with pilot burner (flame is
for 90 seconds. After a six minute wait, the ignition		not pointed in proper direction).
module se starte the ignition sequence		Charle anoult ignitor for anoulta

Check spark ignitor for cracks.

YES

module re-starts the ignition sequence.



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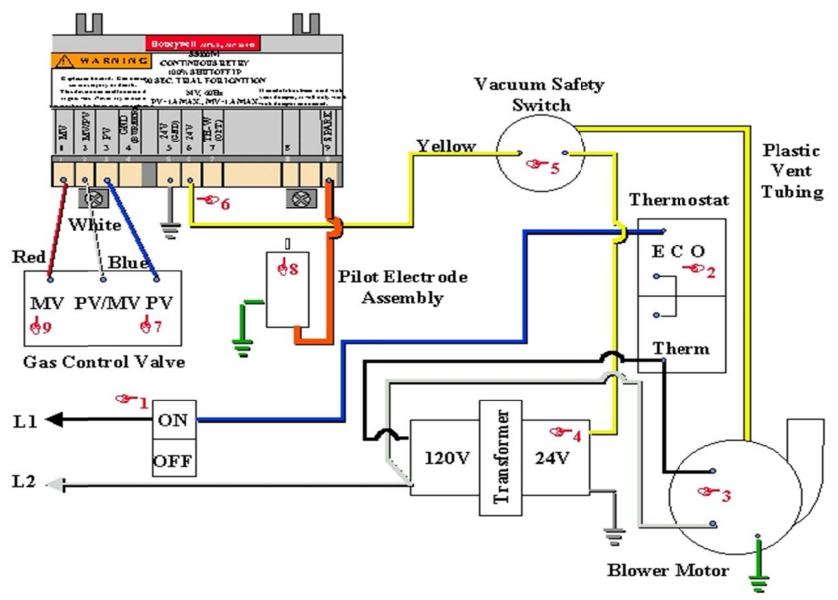
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	_	
Pilot ignites main burner.	NO	Check for 24V on the "MV" terminal lug of the
		GAS VALVE
Spark generator shuts off.		Check gas pressure
		Check main burner orifice for obstructions.
		Check main burner supply tube and venturi for
		obstructions.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



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Technical Competence, Product Confidence