

PARKER BOILER CO.
HONEYWELL V4943N AND V4944N
COMBINATION DIAPHRAGM GAS VALVES

BULLETIN 133 H V4943-4
7D

The Honeywell V4943N and V4944N are 115 Volt Solenoid-operated diaphragm gas valves which combine the function of Safety Shutoff and Pressure Regulation in a single unit. The V4943N features rapid opening single stage pressure regulation with natural gas. The V4944N features rapid opening two stage pressure regulation with natural gas. Maximum operating pressure of both valves is 1/2 PSI (14" WC) and they are internally bled to the outlet side of valve eliminating the need for vent tubing. Both valves are Underwriter's Laboratories Listed and AGA certified.

V4943N and V4944N Combination Diaphragm Gas Valves may be furnished on atmospheric natural gas fired Parker Boilers between 400,000 and 2,500,000 BTU as the main gas pressure regulator and one safety shutoff gas valve. The V4944N also acts as a Hi-low fire valve. A secondary safety shutoff gas valve is always recommended, and furnished standard on all Parker Boilers.

CHECKOUT & SERVICING: (On V4944N Valves the black wire is low fire, the blue wire is high fire and Orange is common.)

WARNING: **DO NOT ALLOW FUEL TO ACCUMULATE IN COMBUSTION CHAMBER. IF FUEL IS ALLOWED TO ENTER THE CHAMBER FOR LONGER THAN A FEW SECONDS WITHOUT IGNITING, AN EXPLOSIVE MIXTURE COULD RESULT.**

CAUTION:

1. Only qualified service technicians should attempt to service or repair gas valves, flame safeguard controls or burner systems.
2. Use utmost care during troubleshooting. Line voltage is present right at electrical terminations for the valves and in all controller circuits. Always open Main Line Disconnect Switch before replacing valve.
3. Do not put the system into service until you have satisfactorily completed all applicable tests described in the Operation and Maintenance Manual and in the Checkout section of the instruction sheet for the gas valves and flame safeguard control.
4. Immediately close all manual fuel shutoff valves if any trouble occurs.

CHECKOUT:

1. The performance of the valve can be checked by measuring the outlet pressure at the outlet pressure tap on the bottom of the valve. Burner manifold pressure should be checked at the plugged pressure tap on the elbow fitting downstream of all gas controls.
2. Shutoff gas supply to boiler and make sure valve is closed when setting up pressure measuring equipment.
3. Set controls to energize valve and check final outlet pressure. Allow enough time for system pressure to stabilize.
4. The pressure regulator is factory set and should not require resetting. If required, only a Qualified Service Technician should make field adjustment of gas pressure. With an accurate gas pressure gauge installed at the test port in the ell nearest the burner, remove the pressure regulator adjustment cap(s) and carefully turn adjusting screw clockwise to increase pressure or counter clockwise to reduce pressure.

CAUTION: Maximum (Hi-Fire) setting is 4" W.C. Natural gas.
Minimum (Low-Fire) setting is 1" W.C. Natural gas.

5. Periodic inspection and leak testing of valve is required. Organize a maintenance schedule based on environment and frequency of use, but no less frequently than monthly. Observe operation through several complete cycles to be sure the valve is functioning properly and shuts off with all safety and limit controls.

TROUBLESHOOTING:

A. IF THE VALVE WILL NOT OPEN WHEN THE CONTROLS CALL FOR HEAT:

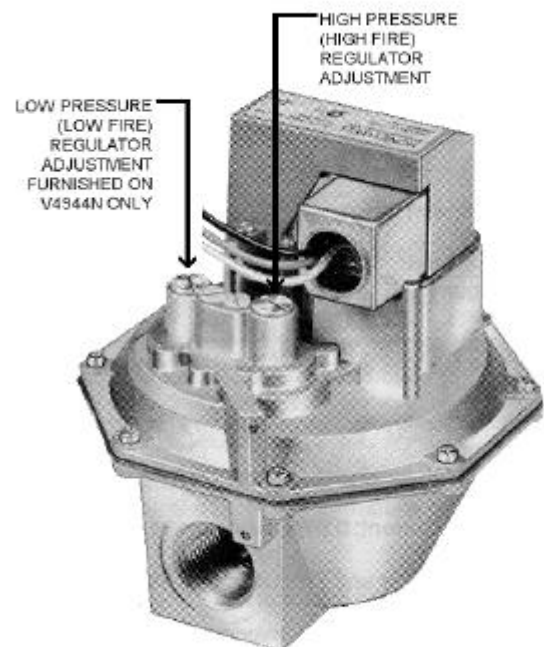
1. Check that there is voltage at the proper electrical terminations. The V4944N cannot achieve the high pressure set point without the first (low) stage being energized.
2. If there is no voltage at the electrical terminations, first make sure line voltage is present at Main Line Disconnect Switch and that Main Line Disconnect Switch is closed and overload protection (circuit breaker or fuse) has not opened the power line.
3. If there is still no voltage at the proper electrical terminations, make sure all the appropriate contacts in the operating control, limit(s) and flame safeguard control are closed. If one or more is open, determine the cause(s) and correct the condition(s) before proceeding.
4. If there is proper voltage at the electrical terminations but the valve still does not open, check that the gas pressure at the valve inlet is normal. Maximum inlet pressure is 1/2 PSI (14" W.C.).
5. If the valve still does not open, replace the valve. Do not attempt to repair valve.

B. IF THE VALVE WILL NOT CLOSE WHEN ONE OR MORE OF THE APPROPRIATE CONTACTS IN THE OPERATING CONTROL, LIMIT(S) OR FLAME SAFEGUARD CONTROL IS OPEN:

1. Make sure the gas flow is in the direction of the arrow on the bottom of the valve body.
WARNING: IF THE FLOW IS NOT IN DIRECTION OF ARROW, VALVE MAY NOT SHUT OFF.
2. Make sure the valve is wired in the correct circuit. Open the Main Line Disconnect Switch to remove power from the valve. If the valve closes, the valve may not be wired properly.
3. Look for a short in the electrical circuit.
4. If it still does not close, replace valve.

C. IF THE VALVE MAKES EXCESSIVE NOISE:

1. Make certain the inlet gas pressure to the valve is between 5 to 14" W.C. maximum.
2. If valve inlet has been exposed to higher pressure than 14" W.C. (1/2 PSI), replace valve.



TYPICAL V4943N – ON-OFF COMBINATION VALVE
TYPICAL V4944N – HI-LOW COMBINATION VALVE