

General Information
Typical Pressure Sensing Line Connection
Fire Pump Controllers & Jockey Pump Controllers

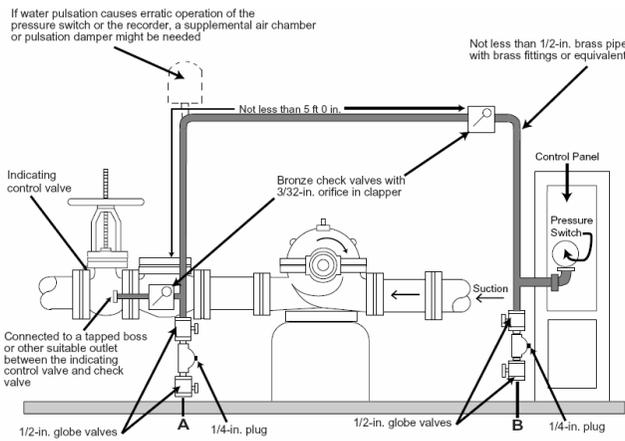


Figure A-7-5.2.1(a) Piping connection for each automatic pressure switch (for fire pump and jockey pumps).

If water is clean, ground-face unions with noncorrosive diaphragms drilled for 3/32-in. orifices can be used in place of the check valves.

For SI units, 1 in. = 25.4mm; 1 ft. = 0.3048m.

Note: Solenoid drain valve used for engine-driven fire pumps can be at A, B, or inside of controller enclosure.

Test connection at A or B

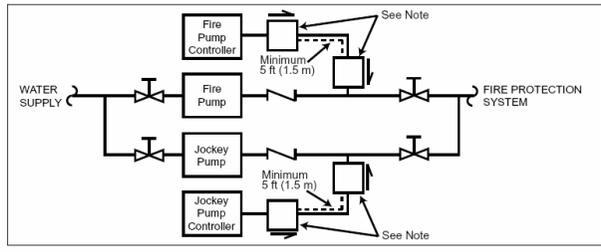


Figure A-7-5.2.1(b) Piping connection for pressure-sensing line.

Note: Check valves or ground-face unions complying with 7-5.2.1.

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7-5.2.1 Water Pressure Control – There shall be provided a pressure – actuated switch having independent high and low calibrated adjustments in the controller circuit. There shall be no pressure snubber or restrictive orifice employed within the pressure switch. This switch shall be responsive to water pressure in the fire protection system. The pressure sensing element of the switch shall be capable of withstanding a momentary surge pressure of 400 psi (27.6 bar) without losing its accuracy. Suitable provision shall be made for relieving pressure to the pressure-actuated switch to allow testing of the operation of the controller and the pumping unit. [See Figures A-7-5.2.1 (a) and (b).]

- (a) For all pump installations, including jockey pumps, each controller shall have its own individual pressure sensing line.
- (b) The pressure sensing line connection for each pump, including jockey pumps, shall be made between that pump's discharge check valve and discharge control valve. This line shall be brass, copper, or series 200 stainless steel pipe or tube, and the fitting shall be of 1/2 inch (12.7 mm) nominal size. There shall be two check valves installed in the pressure sensing line at least 5 ft. (1.5 m) apart with a 3/32 inch (2.4 mm) hole drilled in the clapper to serve as dampening. [See Figures A-7-5.2.1 (a) and (b).]

Exception No. 1: If water is clean, ground-face unions with noncorrosive diaphragms drilled with 3/32-in. (2.4 mm) orifices shall be permitted in place of the check valves.

Exception No. 2: In a nonpressure-actuated controller, the pressure-actuated switch shall not be required.

- (c) There shall be no shutoff valve in the pressure-sensing line.
- (d) Pressure switch actuation at the low adjustment setting shall initiate pump starting sequence (if pump is not already in operation).
- (e) A listed pressure recording device shall be installed to sense and record the pressure in each fire pump controller pressure-sensing line at the input to the controller. The pressure recorder shall be capable of operating for at least seven days without being reset or rewind.

The pressure sensing element of the recorder shall be capable of withstanding a momentary surge pressure of at least 400 psi (27.6 bar) without losing its accuracy.

A-7-5.2.1 Installation of the pressure-sensing line in between the discharge check valve and the control valve is necessary to facilitate isolation of the jockey pump controller (and sensing line) for maintenance without having to drain the entire system. [See Figures A-7-5.2.1 (a) and (b).]

A-7.5.2.1(e) The pressure recorder should be able to record a pressure at least 150 percent of the pump discharge pressure under no-flow conditions. In a high-rise building this requirement can exceed 400 psi (27.6 bar). This pressure recorder should be readable without opening the fire pump controller enclosure. This requirement does not mandate a separate recording device for each controller. A single multichannel recording device can serve multiple sensors.