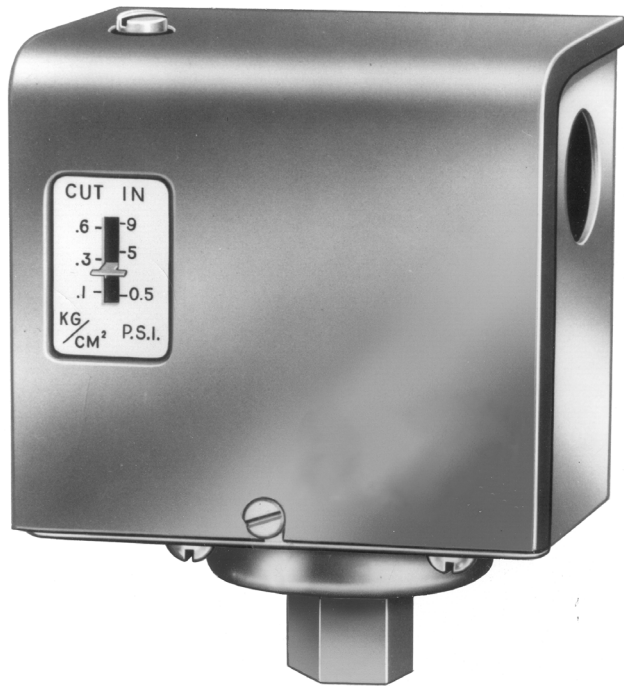


# PA404A, B Pressuretrol Controllers

## PRODUCT DATA



## APPLICATION

The PA404 is a series 40 (2-wire, spst) Pressuretrol Controller for use in 24, 120, 240 or 277 volt control circuits or in self-powered (millivoltage) applications.

## FEATURES

- The PA404A is a pressure actuated high limit, safety control for steam heating boilers; it breaks an electrical circuit to shut down the burner if steam pressure rises above a safe level.
- The PA404B is used with suspension-type unit heaters to make the fan circuit when a pressure rise indicates the presence of steam.
- Each model contains an spst MICRO SWITCH snap-acting switch.
- Sensitive pressure-actuated diaphragm expands or contracts with pressure variations, moving a lever mechanism which operates the snap switch.
- A screw on top of the case allows set point adjustment without removing the cover.
- Differential is adjusted by means of a dial located inside the case.

## SPECIFICATIONS

### Models:

PA404A Pressuretrol Controller. Pressure-actuated safety control. Available with additive or subtractive differentials.  
PA404B Pressuretrol Controller. Pressure-actuated fan control. Additive differential.

**Maximum Operating Pressure:** 20 psi.

**Maximum Ambient Temperature:** 150 °F (65.6 °C).  
**ELECTRICAL RATING (amperes):**

**Switch:** Pressure actuated spst, snap-action.

**Adjustment Means:** Operating range set point screw on top of case; differential set point dial inside of case.

**Mounting Means:** 1/4 inch female pipe threads.

**Case Dimensions in in. (mm):**  
4-15/32 high, 3-3/8 wide, 2-1/4 deep  
(114 high, 85 wide, 57 deep)

**Finish:** Gray enamel.

**Wiring Access:** 1/2 inch conduit.

**Accessory:**

No. 14026 steam trap. Underwriters' Laboratories, Inc. listed:  
File No. MP466, Guide No. MBPR.

Canadian Standards Association listed: File No. LR1620.

**Table 1. Operating Characteristics.**

Model	Adjustable Operating Range (psi)	Adjustable Differential (psi)	Switch Action	
			On Pressure Fall	On Pressure Rise
PA404A (Subtractive Differential)	3.0 to 15	1 to 5	Makes at set point <sup>a</sup> minus differential	Breaks at set point
PA404A (Additive Differential)	0.5 to 9	1 to 5	Makes at set point	Breaks at set point plus differential
PA404B (Additive Differential)	0.5 to 9	1 to 5	Breaks at set point	Makes at set point plus differential

<sup>a</sup> Recommended minimum set point is differential setting plus 1-1/2 psi.

## INSTALLATION

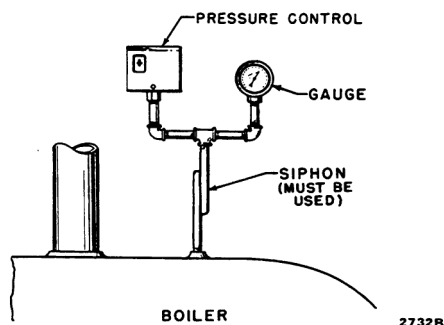
The PA404B must be mounted in the steam line ahead of the unit heater. See Fig. 2.

### When Installing this Product...

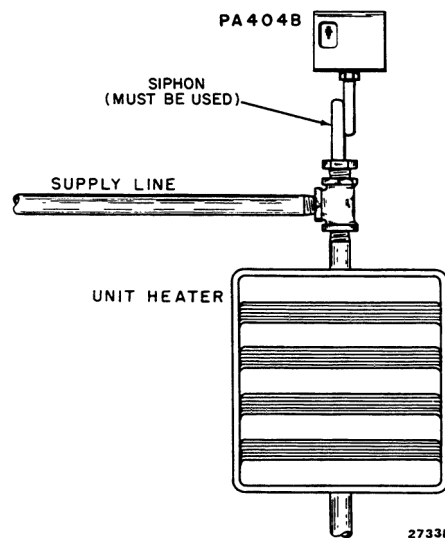
1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Installer must be a trained, experienced service technician.
3. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
4. Disconnect power supply before making wiring connections to prevent electrical shock and equipment damage.
5. All wiring must comply with applicable codes and ordinances.
6. Do not exceed the ratings given in the Specifications section.
7. Always conduct a thorough checkout when installation is complete.

### Mounting

The PA404A must be located above the water line in a steam boiler, either adjacent to a pressure gauge or in another location recommended by the boiler manufacturer. See Fig. 1.



**Fig. 1. Typical installation of the PA404A, mounted with a gauge on a boiler.**



**Fig. 2. Typical installation of the PA404B, mounted on the supply line of a unit heater.**

A siphon must always be connected between the unit and the boiler or steam line. The siphon acts as a trap to prevent corrosive vapors or scale, resulting from the use of boiler compounds, from damaging the control.

### Wiring



### CAUTION

**Disconnect power supply before making wiring connections to avoid electrical shock or equipment damage.**

All models are equipped with 2 terminals located on the switch, inside the cover. A wiring hole is provided for 1/2-inch rigid or flexible conduit. All wiring must comply with local electrical codes. See Fig. 3, 4, and 5 for typical wiring connections.

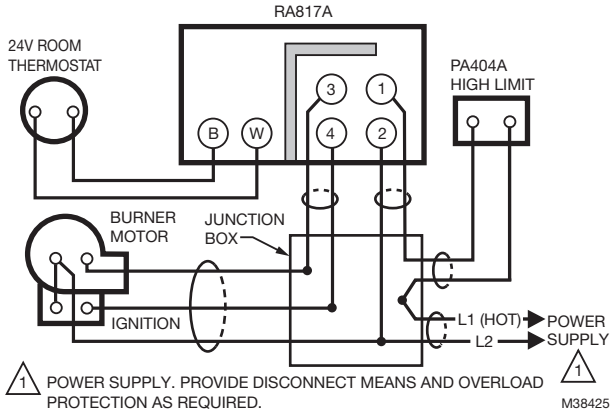


Fig. 3. Typical connections for a PA404A used as a high limit in an oil-fired steam system.

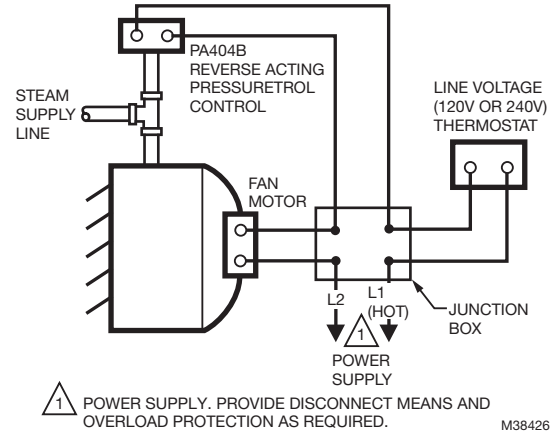


Fig. 5. Typical connections for a PA404B used in a unit heater installation.

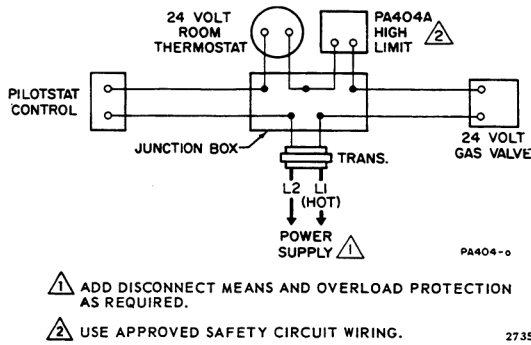


Fig. 4. Typical connections for a PA404A used as a high limit in a gas-fired steam system.

## SETTINGS

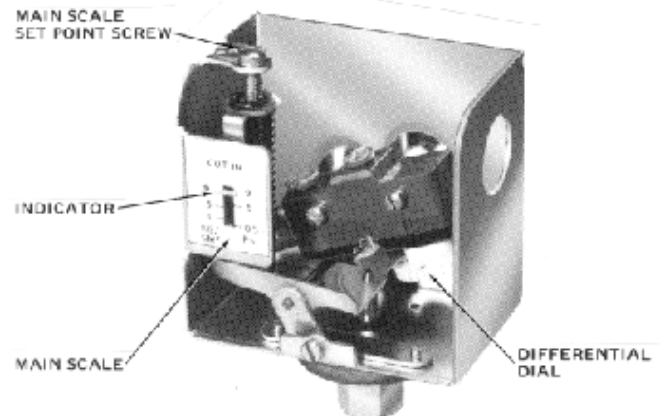
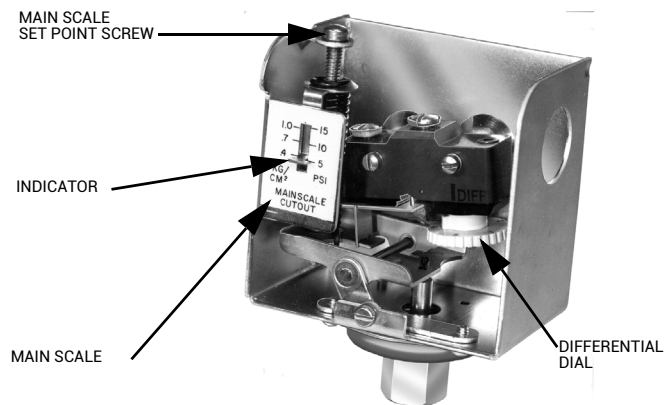
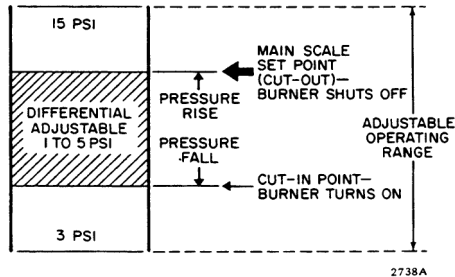


Fig. 6. Cover-off view of PA404, showing adjustment screws.

See "Switch Action" in Table 1.

**TO SET THE PA404A WITH SUBTRACTIVE DIFFERENTIAL (SEE FIG. 7)**

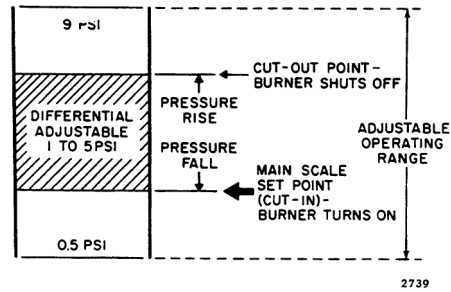
1. Set main scale indicator at desired cutout point by turning main scale set point screw until indicator (see Fig. 6) corresponds to pressure at which electric circuit should break. The recommended minimum setpoint is the differential setting plus 1-1/2 psi.



**Fig. 7. PA404A (subtractive differential).**

**TO SET THE PA404A WITH ADDITIVE DIFFERENTIAL (SEE FIG. 8)**

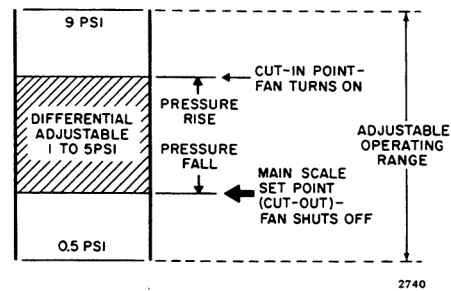
1. Set main scale indicator at desired cut-in point by turning main scale set point screw until indicator (see Fig. 6) corresponds to pressure at which electric circuit should make.
2. Set differential adjustment dial to number of pounds that pressure should rise above main scale cut-in point before the electric circuit breaks.



**Fig. 8. PA404A (additive differential).**

**TO SET THE PA404B WITH ADDITIVE DIFFERENTIAL (SEE FIG. 9)**

1. Set main scale indicator at desired cutout point by turning main scale set point screw until indicator (see Fig. 9) corresponds to pressure at which electric circuit should break.
2. Set differential adjustment dial to number of pounds that pressure should rise above main scale cutout point before electric circuit makes.



**Fig. 9. PA404B (additive differential).**

## CHECKOUT

Operate equipment through at least 1 complete cycle to make certain equipment is controlled as intended.