Honeywell

Pneumatic Hesitation Relay

MODEL NUMBER RP975A

General

The RP975A is a special three-port pneumatic hesitation relay designed to control an MP909 or MP918 damper actuator in large volume unit ventilator applications.

Features

- Manually adjustable minimum position.
- Sharp barb air connections (3) for 5/32 in. (4 mm) O.D. plastic tubing.
- Factory mounted scale plate and knob; factory calibrated at 8 psi (55 kPa) at the 20 mark on the scale plate.
- Scale plate markings (0 to 100) equal 7 to 12 psi (50 to 85 kPa) hesitation setting.
- Molded plastic construction with neoprene diaphragms, music wire spring, and steel shaft.
- Metal mounting clip, 1-1/2 in. (38 mm) diameter, supplied with device.

Specifications

OUTPUT

Factory calibrated for 7 to 12 psi (50 to 85 kPa), manually adjustable; may be field recalibrated for any 5 psi (35 kPa) span in the 0 to 18 psi (0 to 125 kPa) range.

NORMAL OPERATING PRESSURES

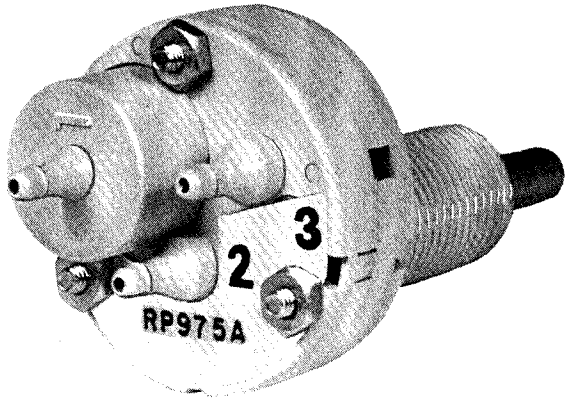
Main supply (Port 1): 18 psi (125 kPa).
Branch output (Port 2): 0 to 18 psi (0 to 125 kPa).
Pilot input (Port 3): 0 to 18 psi (0 to 125 kPa).

MAXIMUM SAFE AIR PRESSURE

30 psi (205 kPa)

AIR CONSUMPTION

0.022 SCFM max. (10 ml/s)



AMBIENT OPERATING LIMITS

Temperature: 32 to 125F (0 to 52C)
Humidity: 5 to 95%

DIMENSIONS

Refer to Fig. 1

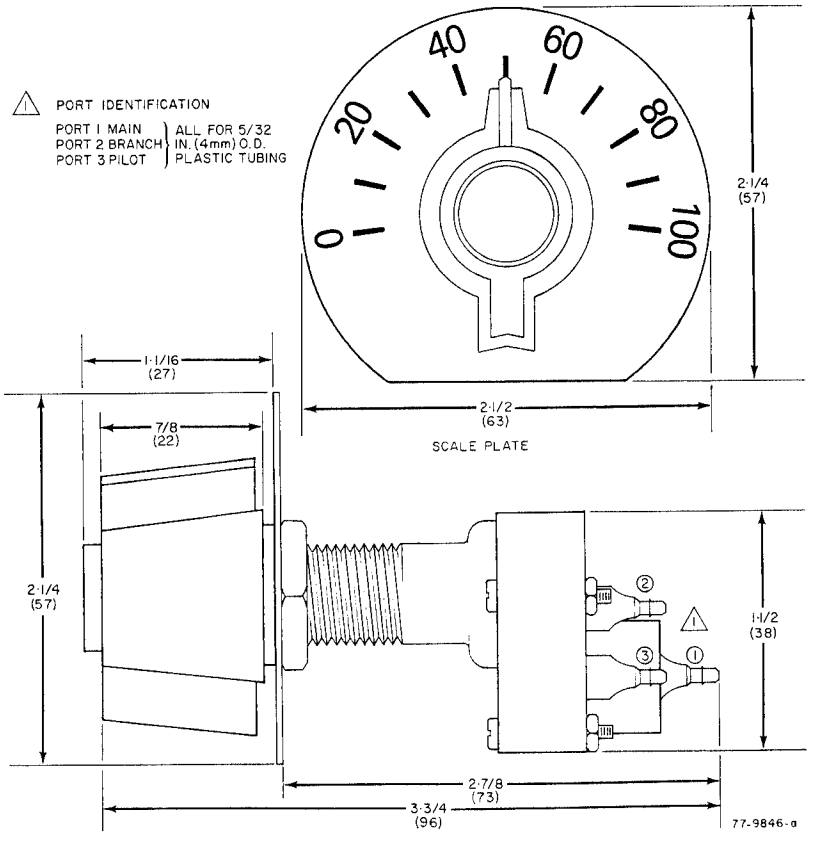


FIG. 1–APPROXIMATE DIMENSIONS OF RP975A WITH SCALE PLATE AND KNOB IN INCHES (MILLIMETERS)

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Commercial Div.

AMBIENT OPERATING LIMITS

Temperature: 32 to 125F (0 to 52C)
Humidity: 5 to 95%

ACCESSORIES

MP904 or MP909 Damper Operator with 7 to 13 psi (50 to 90 kPa) spring range.

SCALE PLATE AND KNOB

The scale plate is marked from 0 to 100 for a knob rotation of 188 degrees, limited by break-away stops. This represents minimum position output pressures of from 7 to 12 psi (50 to 85 kPa). If the stops are broken away maximum knob rotation is 300 degrees, representing output pressures of from 5 to 13 psi (35 to 90 kPa). The minimum position output of the RP975A varies in direct proportion to the knob setting.

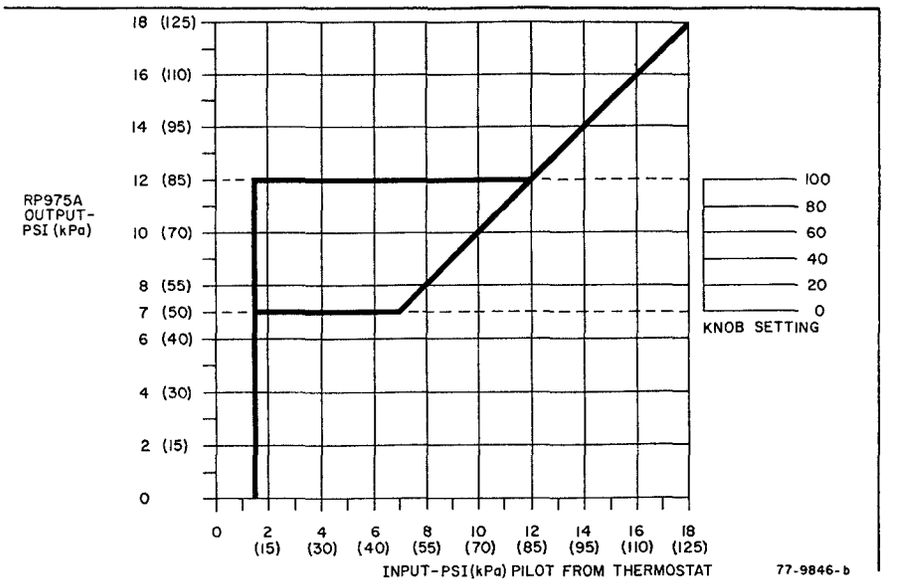

FIG. 2–RP975A HESITATION RELAY OUTPUT PRESSURE VS KNOB SETTING

Typical Operation (Refer to Figs. 3, 4 & 5)

Output pressure from the RP975A to the damper operator will remain at 0 until pilot (input) pressure from the thermostat reaches approximately 1-1/2 psi (10 kPa). The output pressure from the Hesitation Relay will then increase to the preset minimum position as determined by the knob setting and the damper blades will open to the preset minimum ventilation position.

The relay branch output pressure will hesitate at that point, holding the damper blades in position until pilot pressure equals output pressure. If the pilot pressure continues to increase, the output pressure from the RP975A to the damper operator will increase in direct proportion, modulating the damper toward the fully open position.

When a restricted branch line is involved in an existing application (Fig. 5) it is possible to modernize and update the system by using an RP975A Hesitation Relay in conjunction with an RP470B relay piped as a repeater and achieve the same control.

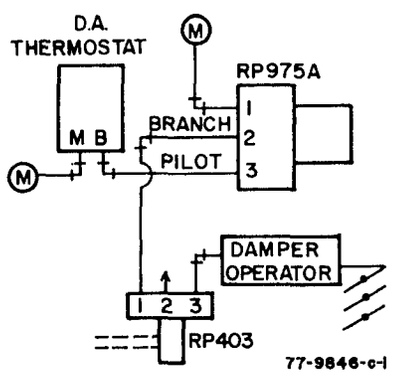

FIG. 3–TYPICAL RP975A APPLICATION

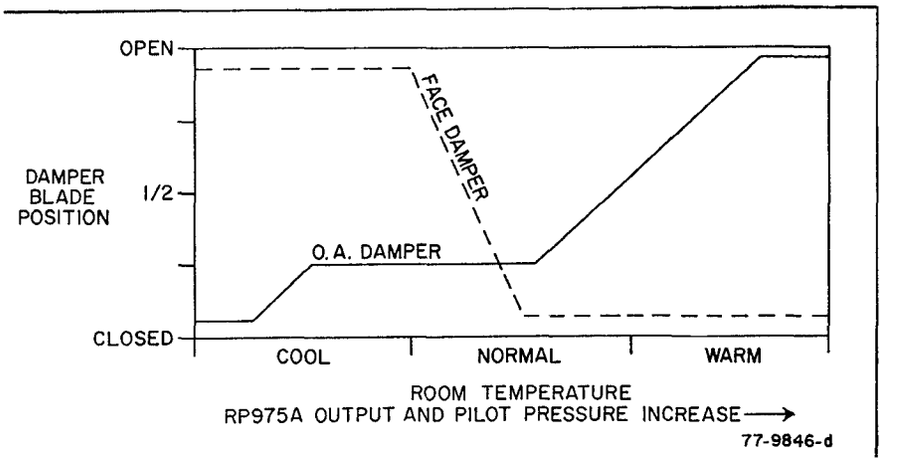

FIG. 4–DAMPER BLADE POSITION WITH RESPECT TO THE RP975A OUTPUT PRESSURE AND ROOM TEMPERATURE FOR TYPICAL ASHRAE CYCLE 2 CONTROL SEQUENCE

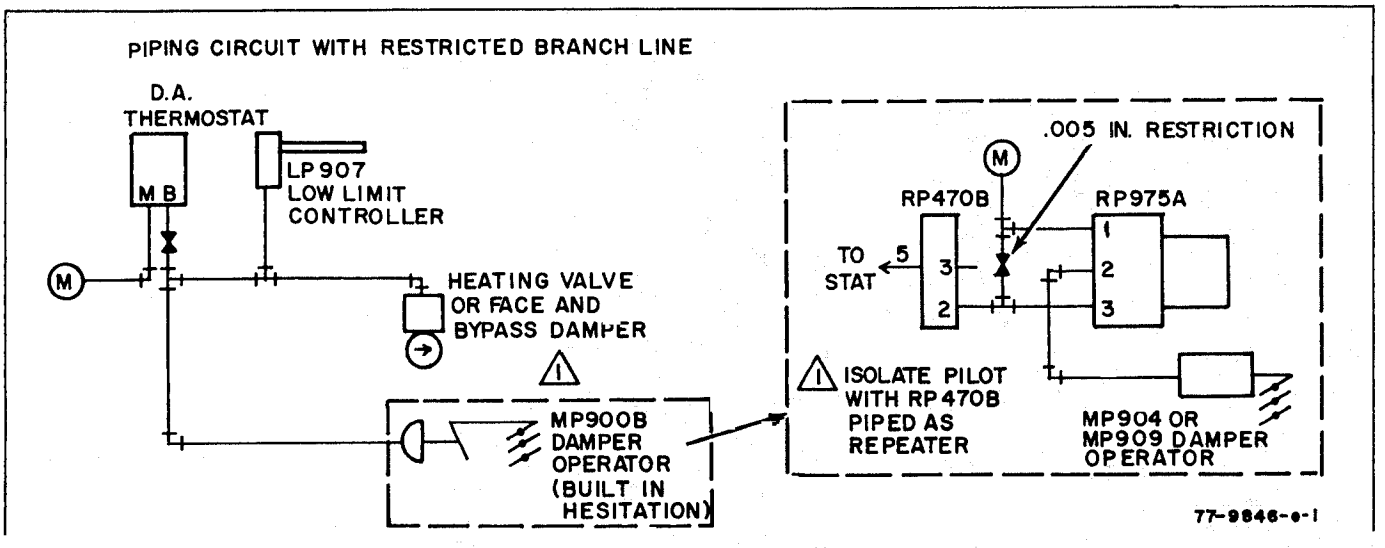

FIG. 5–RP975A APPLICATION IN A RESTRICTED BRANCH LINE CIRCUIT

AMBIENT OPERATING LIMITS

Temperature: 32 to 125F (0 to 52C)
Humidity: 5 to 95%

ACCESSORIES

MP909 or MP918 Damper Actuator with 7 to 13 psi (50 to 90 kPa) spring range.

SCALE PLATE AND KNOB

The scale plate is marked from 0 to 100 for a knob rotation of 188 degrees, limited by break-away stops. This represents minimum position output pressures of from 7 to 12 psi (50 to 85 kPa). If the stops are broken away maximum knob rotation is 300 degrees, representing output pressures of from 5 to 13 psi (35 to 90 kPa). The minimum position output of the RP975A varies in direct proportion to the knob setting.

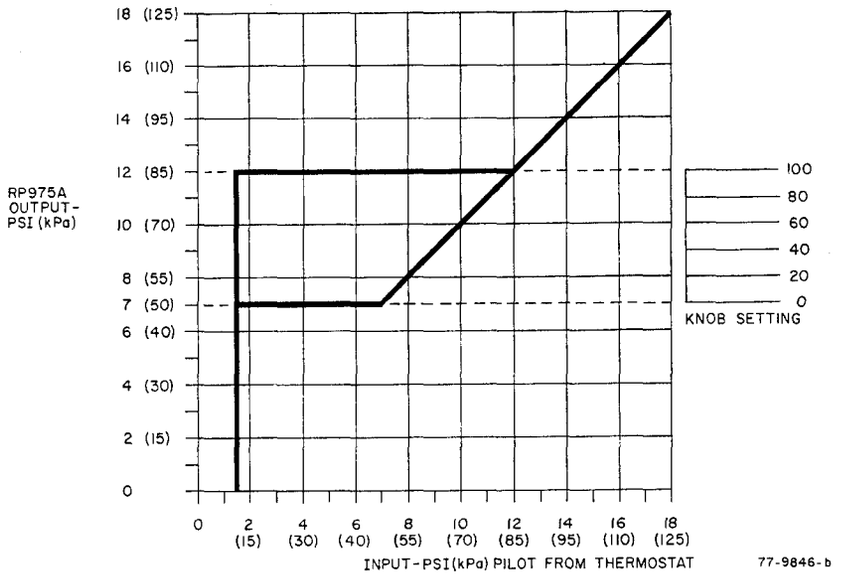

FIG. 2—RP975A HESITATION RELAY OUTPUT PRESSURE VS KNOB SETTING