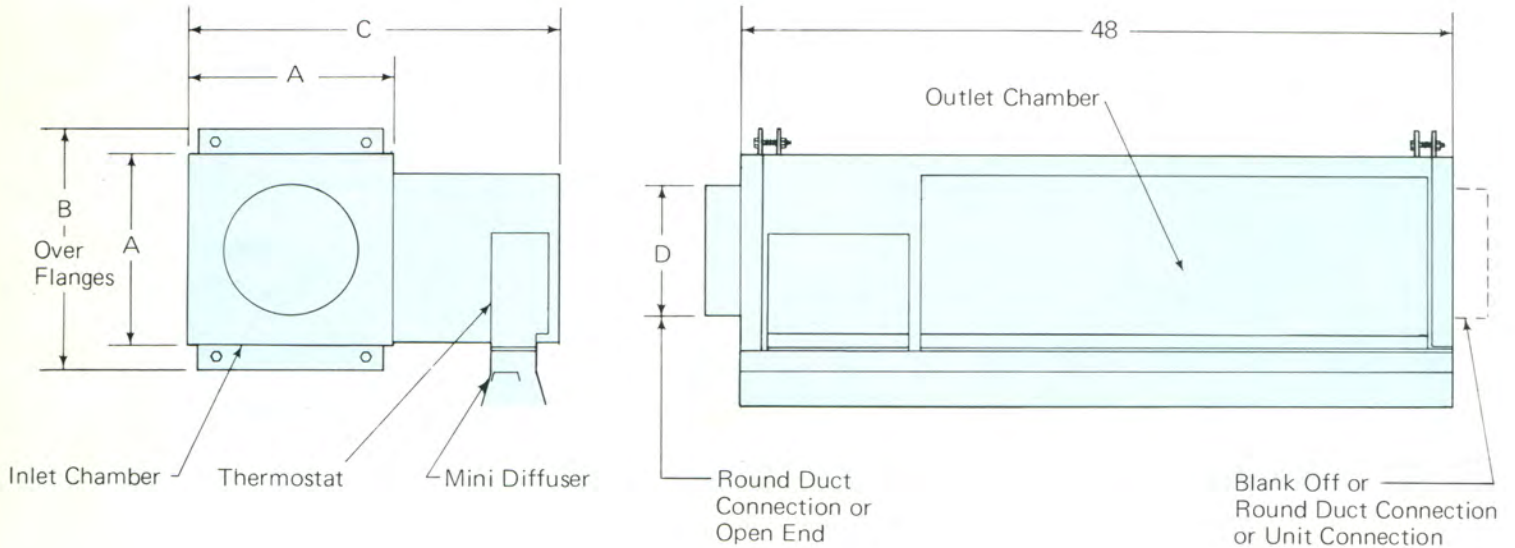


## Model Number

<b>U</b>	<b>S</b>	<b>B</b>	<b>E</b>	<b>A</b>	<b>4</b>	<b>1</b>	<b>12</b>
Unittrol	N = No Thermostat S = VC Unit Mounted W = VC Wall Mounted T = VN Unit Mounted Y = VN Wall Mounted	Inlet End A = 6" B = 8" C = 9" D = Duct Connector	Outlet End E = Blank-Off F = 10" G = 12" H = 14"	Design Series A	Slot Widths (by 1/4") 0 4 6 8	No. of Slots 1 2 3	Plenum Size 09 12 14
Hand of Unit – Unless otherwise described, the factory standard will be right hand, having air entering the end nearest the temperature controls. Looking in the direction of air flow will place the outlet plenum to the right of the inlet plenum.							

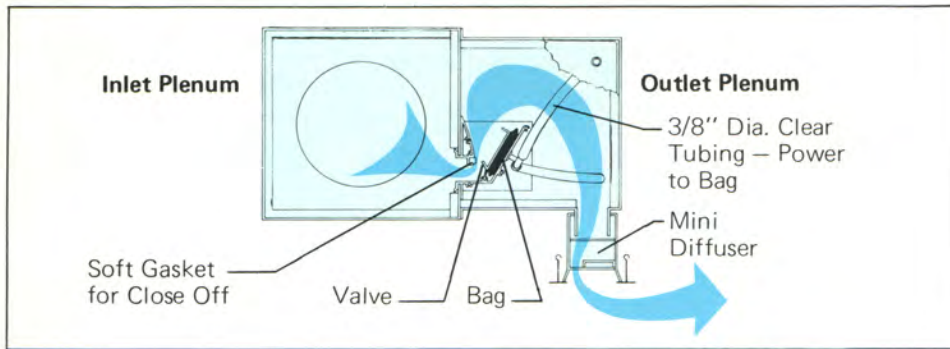
## Dimensions

### MODEL USBEA 4112



INLET CHAMBER CAPACITY	UNIT CAPACITY	A	B	C	D DIA.
800	225	11-3/8	12-7/8	20	6-8-9
1600	225	14-3/8	15-7/8	23	9-10-12
2000	225	16-3/8	17-7/8	25	10-12-14

## Principle of Operation



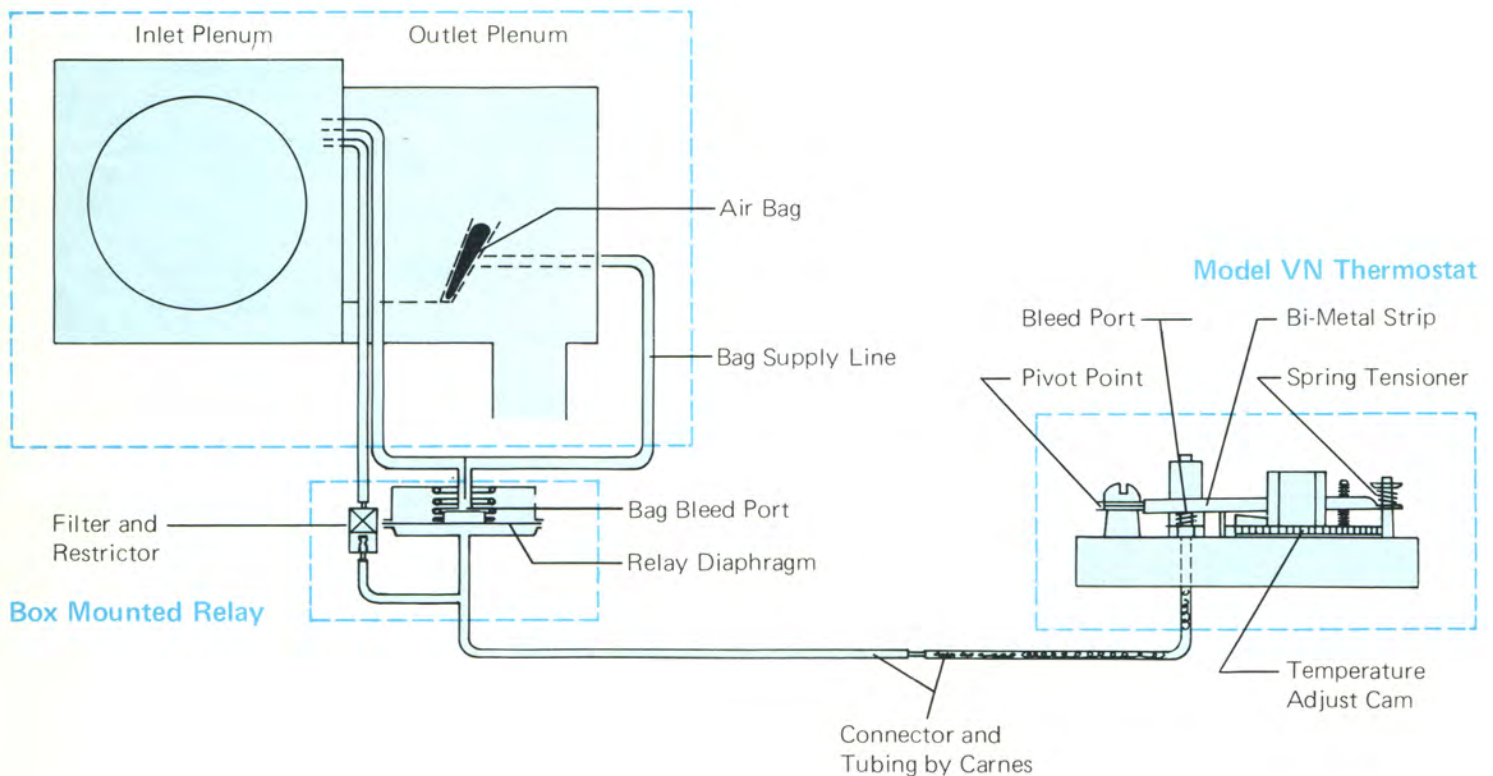
Operation of the valve is in reverse-acting sequence. A drop in room temperature results in increased pressure to the bag which, in turn, throttles the valve.

Double chambers, both lined with 1" fibrous glass at 1.5 PCF density provide excellent sound absorption. The valve assembly is of extruded aluminum parts to assure low friction, close tolerance assembly for accurate control. Bag is made of long life neoprene operating on a well established principle for reliability.

## Control Schematics

The Model VN thermostat varies the position of the Unittrol damper in response to room air temperature requirements. Its bi-metal strip opens or closes the bleed port regulating supply air from the inlet plenum pick-up. As pressure builds up, the control bag expands until equilibrium is reached between the bag bleed port and the relay. A slight air bleed will be occurring at all 'stat temperatures above "normal" (approximately 72°F) as marked on the base. When the thermostat senses a heat loss, the bi-metal strip acts to close the relay bleed port. In turn, the relay closes more tightly, allowing the bag to inflate and closing the air valve.

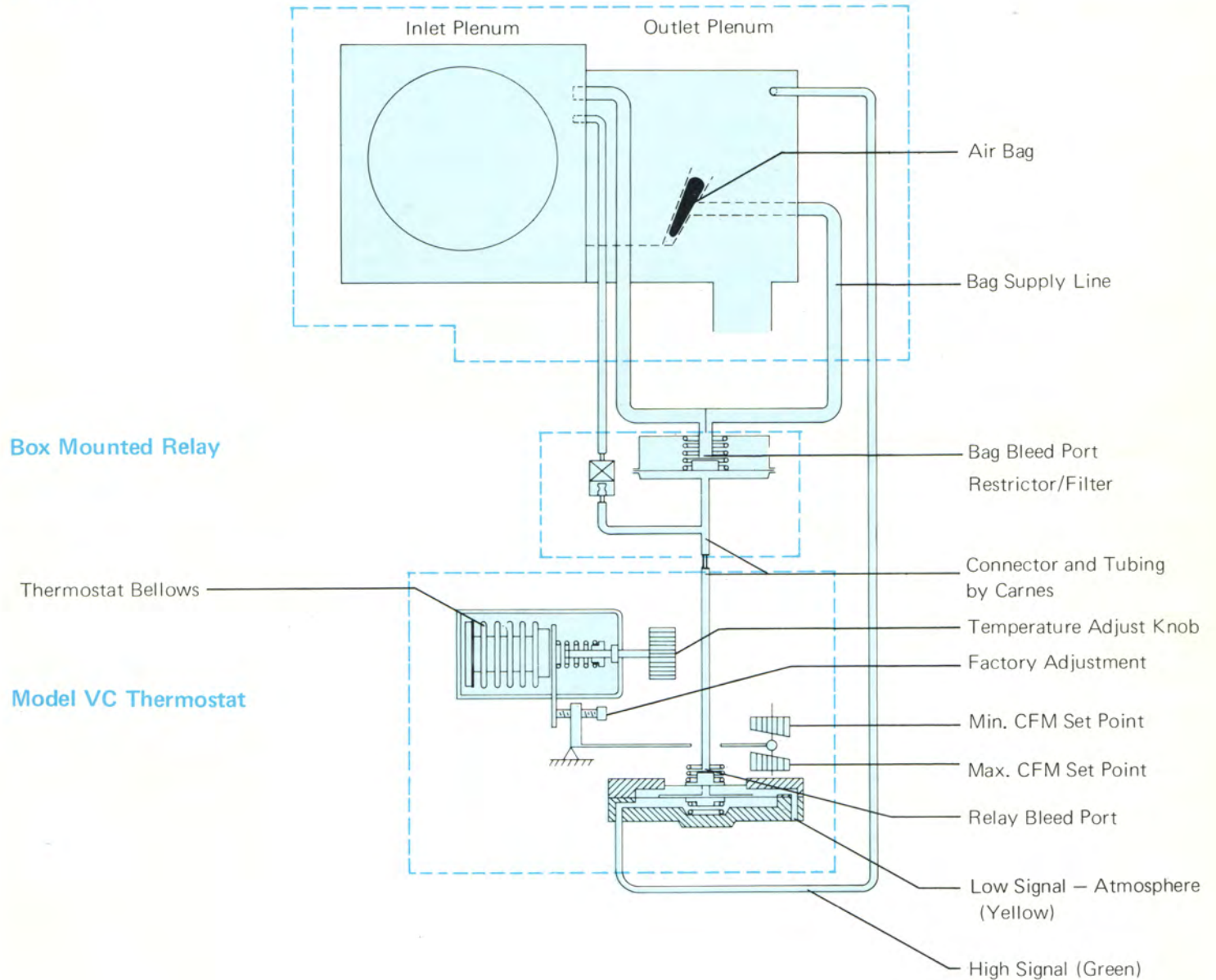
### Unittrol



The VC Thermostat offers a constant volume feature plus independent high/low CFM limits resettable at the thermostat. Basically, the gas-filled bellows, having a response range from 65°F to 95°F, replaces the bi-metal strip as the relay bleed port control. Upon sensing heat gain, the bellows expand, closing the relay bleed port. As the relay bleed port closes, the bag inflates, resulting in a decreased air flow. The minimum/maximum cams merely restrict the range thru which the relay bleed port can operate.

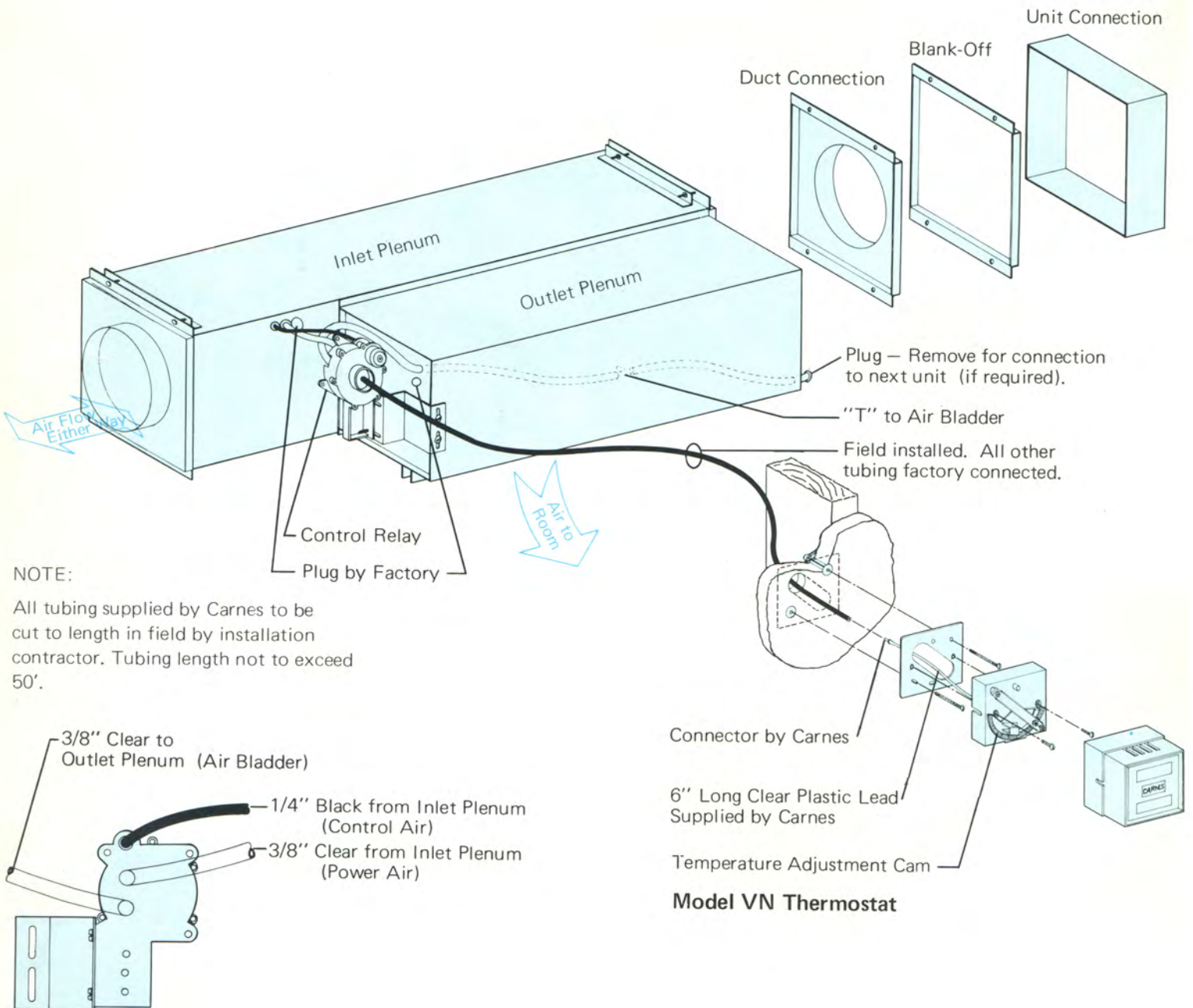
Constant volume is achieved by supplying differential pressure (from the outlet plenum as high side and ambient as low side) to the 'stat. Changes in flow upset the equilibrium point and within the minimum/maximum cam limits, open or close the relay bleed port. The bag then responds accordingly, opening upon a drop in inlet static or closing upon an increase in inlet static.

## Unitrol

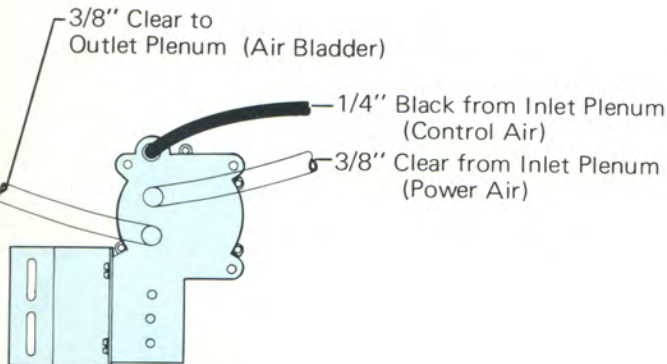


# Installation Schematics

## Remote Mounted VN 'Stat

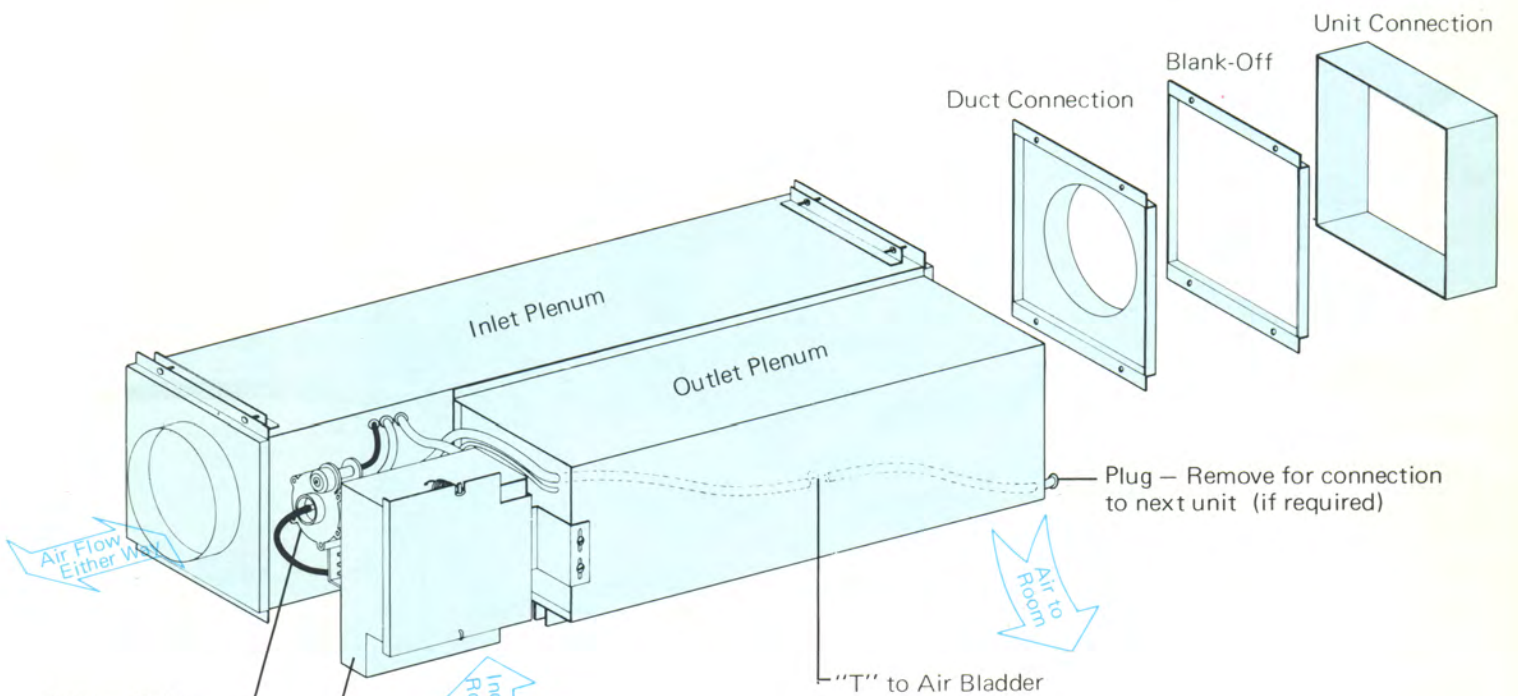


NOTE:  
 All tubing supplied by Carnes to be cut to length in field by installation contractor. Tubing length not to exceed 50'.

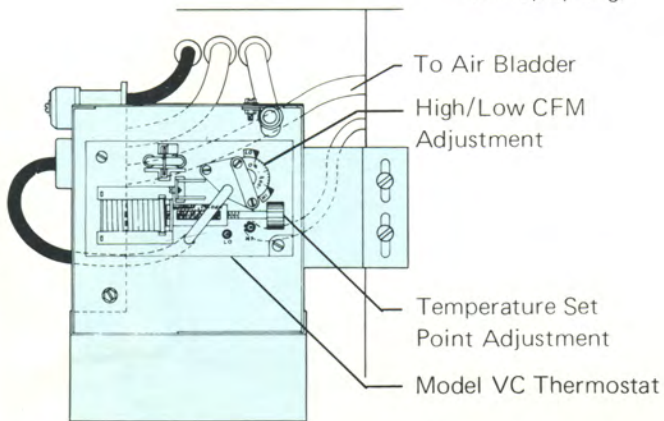


Back View of Control Relay

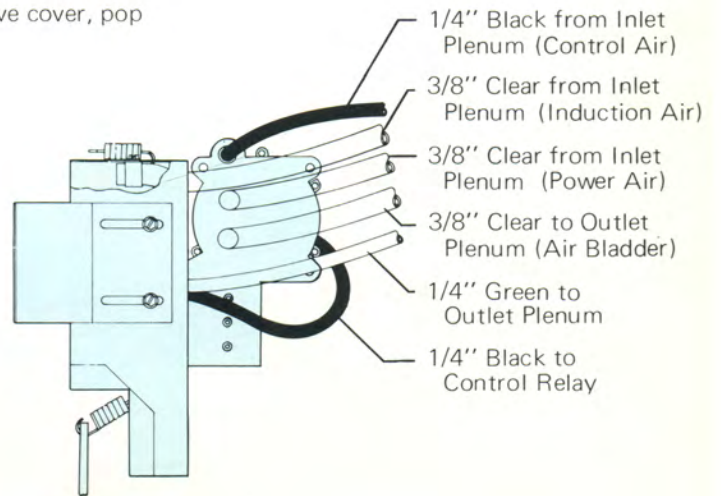
# Remote Mounted VC 'Stat



**NOTE:**  
 Access to sampler must be provided by ceiling contractor. To remove cover, pop off top spring.



**Front View of Temperature Sampler, Cover Removed**



**Right Side of Temperature Sampler**