

T18/TR18 & T19/TR19 Series



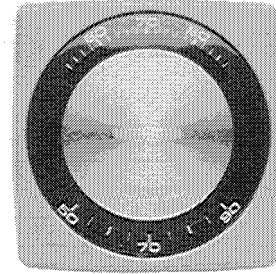
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Two-Pipe Pneumatic Room Thermostats General Instructions

APPLICATION

The T18/TR18 & T19/TR19 Series Pneumatic Room Thermostats are designed for proportional control of pneumatic devices and actuators in environmental control systems. These two pipe thermostats incorporate a highly sensitive bimetal element and a pilot operated relay with pneumatic feedback for accuracy and stability over the entire operating range.

Thermostat covers are available in various styles to meet particular requirements. Cover options include models with setpoint scale and thermometer, setpoint scale only, thermometer only, or blank. An external setpoint adjustment cover is available with all models and can be field installed on covers where required.



Full Dial Shown
Covers Must Be Ordered Separately

SPECIFICATIONS

Action: Proportional.

Setpoint Range: 55 to 85 °F.

Throttling Range: 2 to 12 °F/12 psi adjustable, factory set 3 °F.

Construction:

Components, Die cast aluminum, stainless steel and nylon.

Diaphragms, Fabric-reinforced neoprene.

Air Filter, Internal.

Supply Air Pressure: Clean, dry, oil free air required (ref. EN-123).

Minimum, 8psig.

Nominal, 20psig.

Maximum, 30psig.

Connections: Fittings for spring-reinforced 3/16" plastic tubing (order separately)

Air Consumption: 0.009 scfm.

Calibration Point: 9 psig branch line pressure when ambient temperature equals setpoint.

Setpoint Adjustment: Serrated thumbwheel, external or concealed.

Mounting: Upright position on wall.

Dimensions: See Figure-1.

Table-1 Specifications.

Model Number	Action	Comments
T18-301	Direct	
T19-301	Reverse	
T18-3011*	Direct	
T19-3011*	Reverse	
TR18-3011*	Direct	See Table 2
TR19-3011*	Reverse	See Table 2
TR18-3091*	Direct	See Table 3
TR19-3091*	Reverse	See Table 3

*These models have factory installed dial stops.

ACCESSORIES

6-371	Mounting ring (use with mounting heads)\
10-07	Mounting head, 2 tube, copper
10-15	Aspirating box, 2 pipe
10-53	Metal thermostat guard
10-57	Mortar joint fitting, 2 tube copper
10-58	Mounting ring (use with N5-52)
10-59	Internal stop kit
10-62	Clear plastic cover thermostat guard
10-63	Insulating backplate, for plastic guards
10-64	Tubing assembly with eyelets and fittings
10-66	Mortar joint fittings, 2 "FR" tubes
10-67	Mounting ring, vinyl adhesive
10-72	Concealed adjustment cover, for metal covers
10-73	Drywall mounting fitting (snap-in)
10-76	Opaque plastic guard
10-77	Adaptor plate
10-78	Insulating backplate
10-81	Concealed adjustment cover, for plastic cover
MCS-GA	Gauge tap adaptor
N2-4	Calibration tool
N5-49	Adaptor (for use with N5-53)
N5-52	Bracket, drywall mount
N5-53	Bracket, stud mount rough-in
N5-95	Wall thermostat, conversion kit

Table-2 TR1X-3011 Includes:

Part Number	Description
T1X-3011	Thermostat
10-11	Tube Assembly
10-58	Mounting Ring
10-77	Adaptor Plate
N4-109	(2) 1/4" x 3/16" Reducer
CTR-11 ^a	Universal Cover Kit

^a See CT/CTR General Instructions, F-23927, for cover installation.

Table-3 TR1X-3091 Includes:

Part Number	Description
T1X-3011	Thermostat
CT-21 ^a	Cover
RC-3-185	Cover Insert
N5-95 ^b	Thermostat Conversion Kit

^a See CT/CTR General Instructions, F-23927, for cover installation.

^b See N5-95 General Instructions, F-23932, for the use of conversion kit.

Table-4 Covers (Must be Ordered Separately For T18 & T19 Series Only).

Material		Dial Adjustment Marking				Thermometer			
Plastic (Beige)	Metal (Satin Chrome)	°F	°C	C-W	None	°F	°C	None	Internal
CT-11	CT-21	X				X			
CT-11-400	CT-21-400	X						X	
CT-11-403	CT-21-403				X	X			
CT-11-404	CT-21-404				X			X	
CT-11-407	CT-21-407				X				X
CT-11-420	CT-21-420			X		X			
CT-11-421	CT-21-421			X				X	
	CT-21-116		X				X		
	CT-21-410		X					X	
	CT-21-413				X		X		

All covers are supplied with concealed adjustment cover. The concealed adjustment cover is factory installed on the -403, -404, -407, and -413 models.

PRE-INSTALLATION

Inspection

Visually inspect the carton for damage. If damaged, notify the appropriate carrier immediately. Visually inspect the device for obvious damage due to shipping. Return damaged parts.

Required Installation Items

- Piping Diagrams
- Tools (not provided):
Appropriate screwdriver(s) for mounting screws
Mounting screws, two(2) #5-40, provided
- Appropriate accessories

INSTALLATION

Caution:

- Installer must be a qualified, experienced technician.
- Make all connections in accordance with the piping diagram.
- Do not locate the device in areas subjected to excessive vibration or corrosive atmospheres.
- A thermostat should be mounted where it will be affected only by the average room temperature. Free circulation of air must exist at the selected location. Avoid locations that are affected by drafts or by radiant heat from the sun, water pipes, air ducts, etc.
- Installation on outside walls should be avoided. If such a location is necessary, the thermostat should be mounted on an insulated backplate (accessory item).
- Thermostats should be mounted AFTER WALL SURFACES HAVE BEEN FINISHED.
- Do not exceed ratings of the device.

Clean, Dry Oil Free Air Supplies for Pneumatic Systems

Caution: A refrigerated air dryer, particulate filter and a coalescing filter will provide clean, dry, oil free air required (reference EN-123).

Compressor oil must be non-paraffin mineral base or naptha base. Synthetic or paraffin base oils will destroy pneumatic controls and void the warranty.

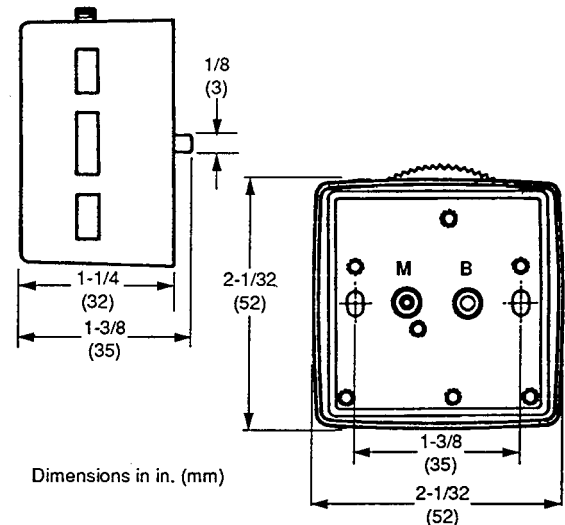


Figure-1 Mounting Dimensions.

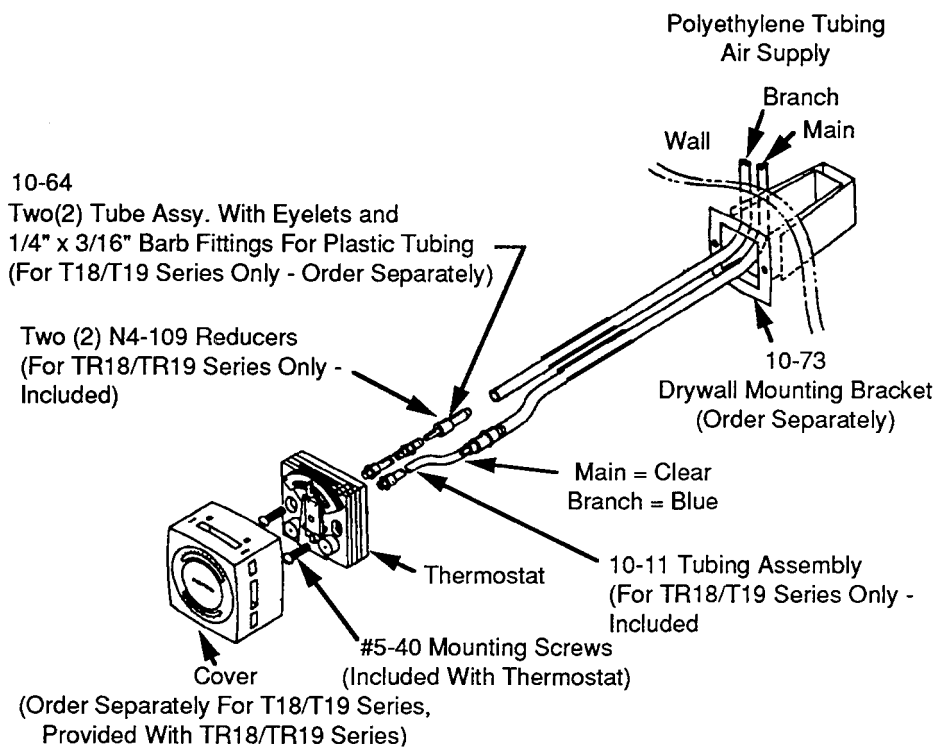


Figure-2 Typical Snap-In Drywall Mounting.

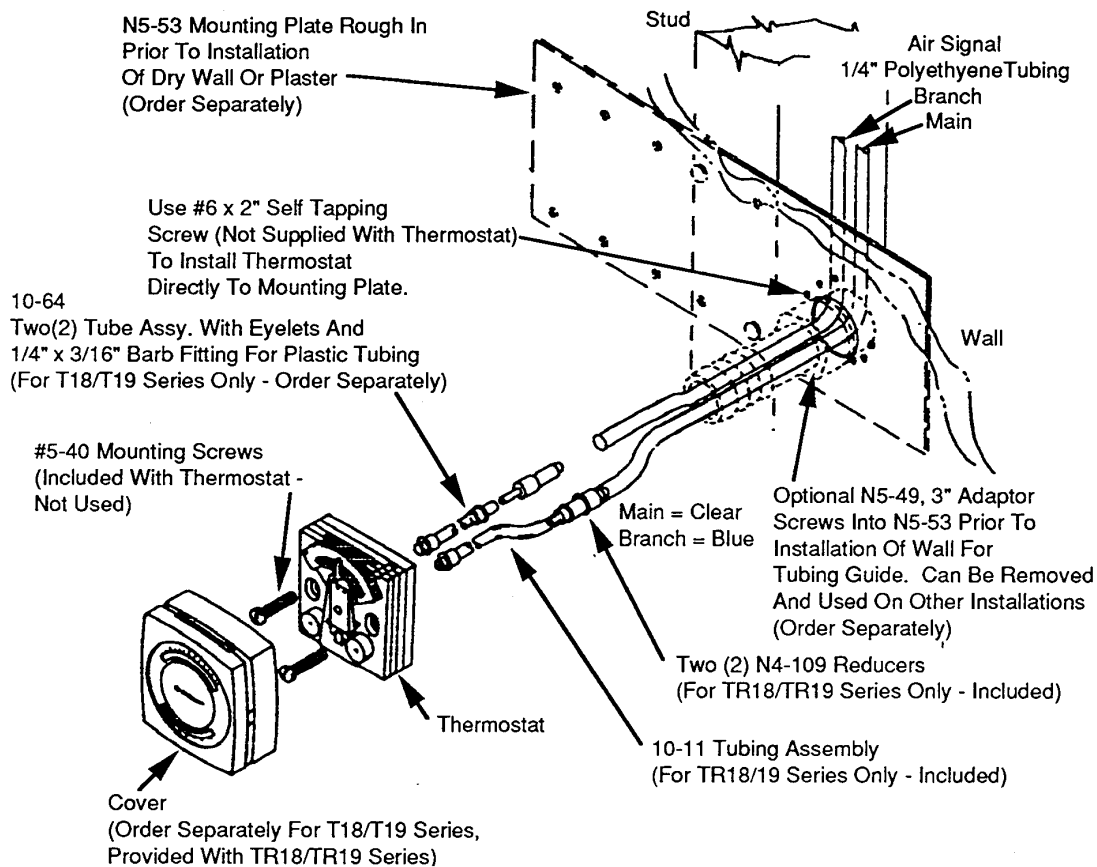


Figure-3 Typical Stud Mounting.

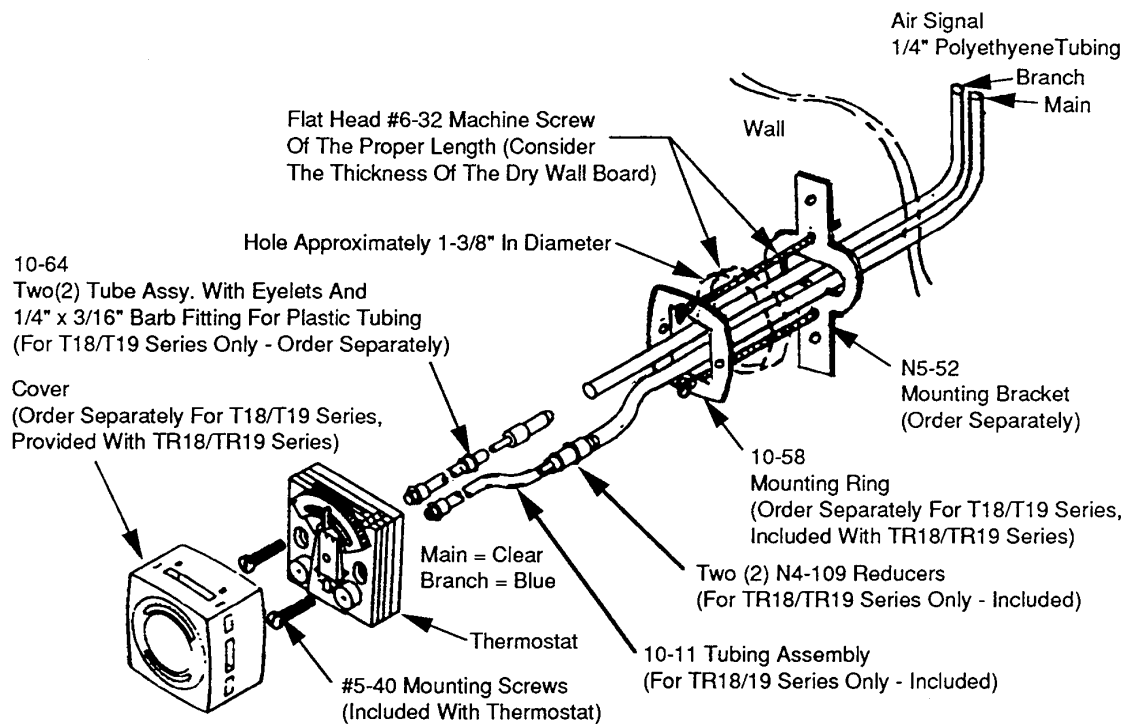


Figure-4 Typical N5-52 Drywall Mounting.

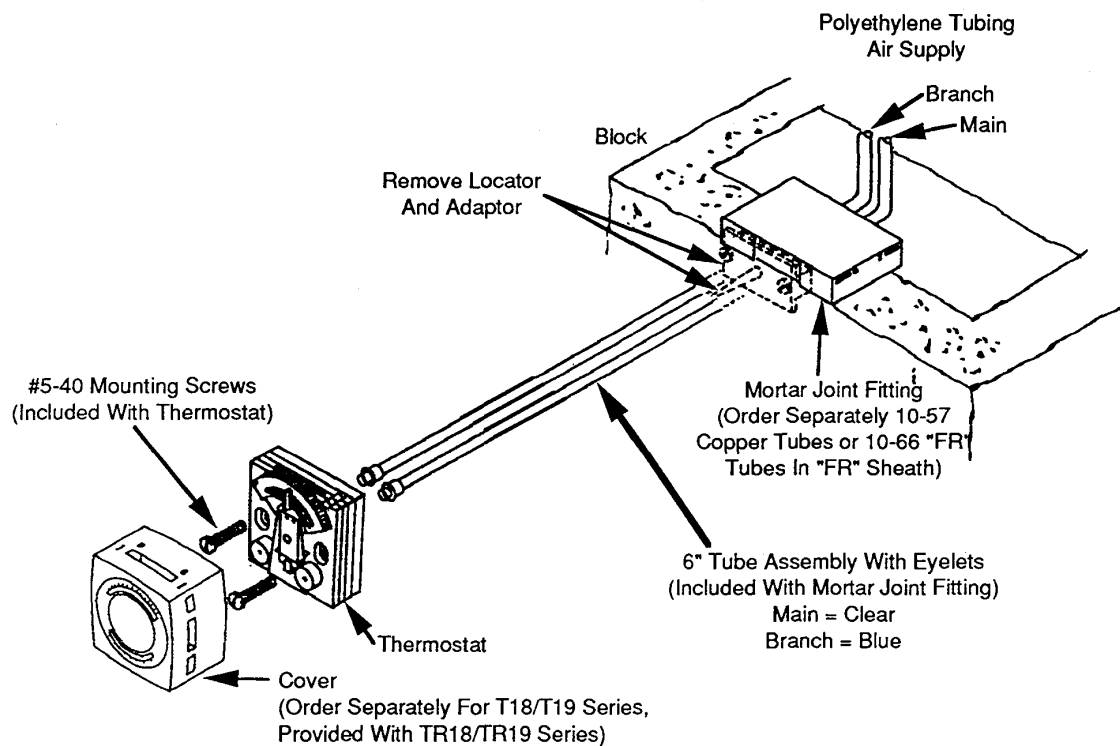


Figure-5 Typical Mortar Joint Fitting in Masonry Wall.

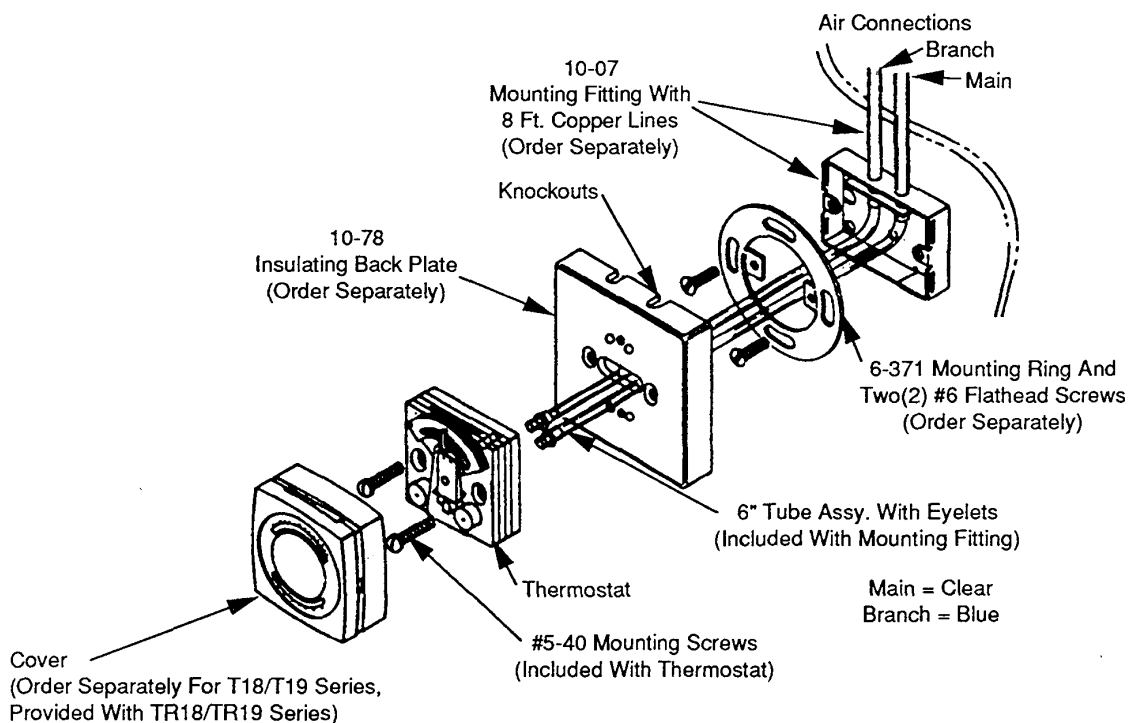


Figure-6 Typical Surface Mount.

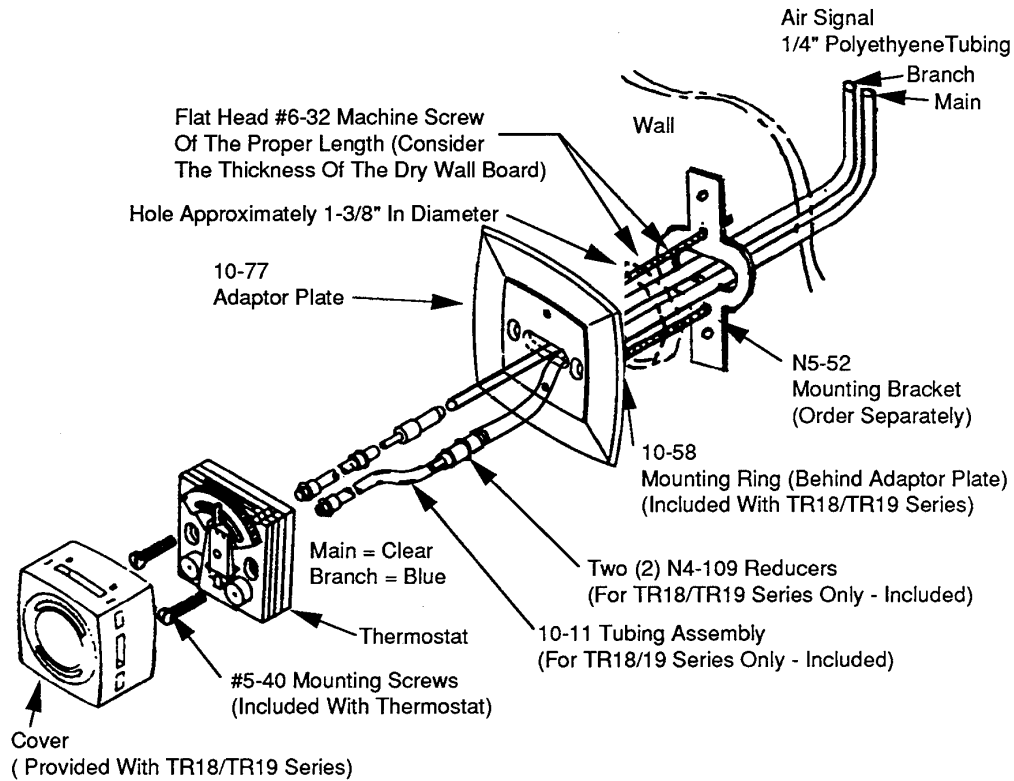


Figure-7 Typical Replacement Mounting Using TR18/TR19.

INTERNAL ADJUSTABLE STOPS

The 10-59 dial stop kit consists of two screws and two nuts. To install, move the setpoint adjustment to one extreme limit. Place a nut in the depression of the top plate and move the adjustment cam over the nut to where the slot in the cam exposes the threads of the nut. Turn a stop screw into the nut far enough to allow the stop to slide in the slot. Repeat on the other side. Move the setpoint adjustment to the desired temperature, using the internal setpoint indicator. Slide the stops to the desired limits and tighten both screws.

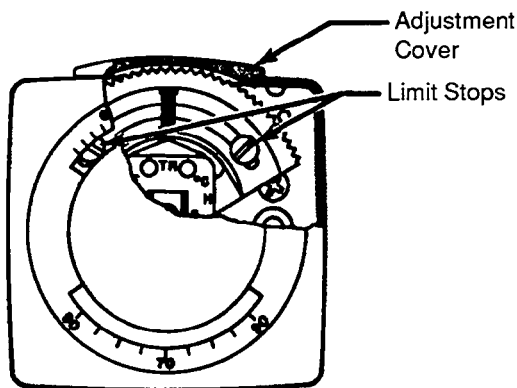


Figure-8 T1X/TR1X Accessories.

CALIBRATION

The T18/TR18 & T19/TR19 thermostats are factory calibrated and are shipped with the throttling range set at 3°F and should not require calibration upon installation.

If it is necessary to change the calibration or change throttling range setting, remove the thermostat cover and install a MCS-GA branch tap gauge adaptor into the branch pressure tap hole and measure the ambient temperature with an accurate thermometer.

This temperature **MUST BE WITHIN THE THERMOSTAT RANGE**. Move the Setpoint Adjustment to the measured ambient temperature, using the Internal Setpoint Indicator. Taking care not to breathe on or hold hand near the bimetal, use a 1/16" hexhead wrench (N2-4 calibration tool) to turn the Calibration Screw until the branch line pressure indicates 9 psig. Clockwise rotation increases the branch line pressure. Counterclockwise rotation will lower branch line pressure. Reinstall the thermostat cover. Set thermostat to required setpoint.

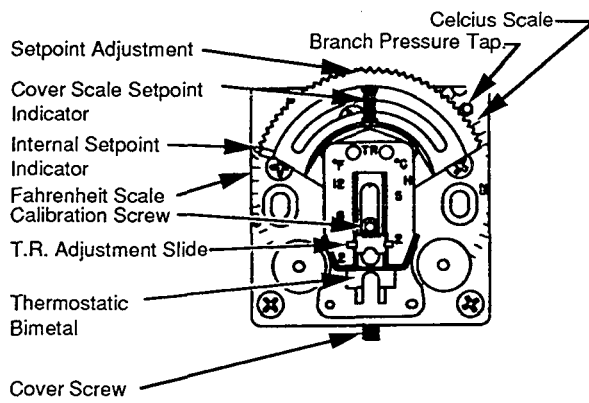


Figure-9 T1X/TR1X With Cover Removed.

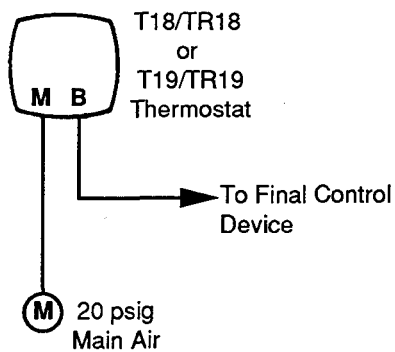


Figure-10 T1X/TR1X Typical Application.

MAINTENANCE

Regular maintenance of the total system is recommended to assure sustained optimum performance.

REPAIR

None - replace the entire device.

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F-23919-2



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