

### 14003192-001 WALL PLATE ADAPTER KIT (TP970, HP970)

## GENERAL

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The 14003192 Wall Plate Adapter Kit contains the parts required (Table 1) to replace TP900 Series, TP910 Series, and TP923 Thermostats with TP970 Series Thermostats ("Thermostat") and HP900 and HP901 Humid-U-Stats

with HP970 Series Humidistats ("Humidistat"). The Thermostat, Humidistat, and cover are ordered separately. This kit fits one-, two-, or three-pipe thermostats.

## APPLICATION

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The 14003192 Wall Plate Adapter Kit allows replacing TP900 Series, TP910 Series, and TP923 Thermostats with TP970 Series Thermostats and HP900 and HP901 Humid-U-Stats with HP970 Series Humidistats. The replacement

mounts vertically or horizontally; adapts to mortar joint fittings, surface or banjo fittings, or horizontal flush box connections; and accepts the heavy duty guard.

## INSTALLATION

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### NOTES:

1. Table 1 shows which parts are applicable to the thermostat/humidistat being replaced.
2. Discard unused parts.
3. Do not remove the antikink springs from the cut tubing.
4. If Heavy Duty Guard 14002430-001 is required, it must be ordered separately. When using the heavy duty guard, cut the tubing 1/2-in. (13 mm) longer than shown in Figure 7.

Table 1. Adapter Plate Kit Parts.

Adapter Plate Kit Includes Parts Required For: <span style="float: right;">△ 1</span>				
Part	Qty	HP900/HP901 TO900/TP900 Series	TP910 Series	HP900/1 TP923
Air Tubing Connector Assembly	3	X	X	X
Base Plate	1	X	X	X
Base Plate Cover	1	X	X	X
Adapter	1	X	—	—
Tubing Plug	1	—	—	X
Filtered Restriction	1	—	—	X

(Continued)

△ 1 X=use as required.

Table 1. Adapter Plate Kit Parts. (Continued)

Adapter Plate Kit Includes Parts Required For:		△ <sup>1</sup>		
1/4 x 1/4 in. Compression to Barb Fitting	3	—	—	X
1/4 in. O.D. Plastic Tubing	3	—	—	X
1/4 x 5/32 in. Barb Coupling	1	—	—	X
5/32 in. O.D. Plastic Tubing △ <sup>2</sup>	1	—	—	X
Washer-Seal	3	2/3	—	—
Spacer	2	2	—	—
Washer	2	X	—	—
O-Ring (Use when necessary to prevent leaking.)	3	—	X	X
Tinnerman Clips △ <sup>3</sup>	2	X	X	X
Screws, Roundhead △ <sup>3</sup>				
6-32 x 1/2 in. △ <sup>4</sup>	2	X	—	—
6-32 x 3/4 in.	2	X	X	X
6-32 x 7/8 in.	2	—	X	X
6-32 x 1-1/16 in. △ <sup>4</sup>	2	—	X	X
6-32 x 1-1/4 in.	2	X	X	X
6-32 x 1-3/4 in.	2	X	X	X

△<sup>1</sup> X=use as required.

△<sup>2</sup> Use tubing from extra Air Tubing Connector Assembly.

△<sup>3</sup> See specific instructions for type and number of screws and clips.

△<sup>4</sup> Supplied with thermostat.

## TO900/TP900 THERMOSTATS AND HP900/HP901 HUMIDISTATS

1. Attach the air tubing connectors to the adapter (Fig. 1).
2. Place the washer-seals on the open ends of the air tubing connectors.
3. Mount the adapter, air tubing connectors, and washer-seals to the box (Fig. 1). Make sure the air tubing connectors are aligned with their respective outlets.
4. Thread the tubing through the opening in the baseplate. Secure the baseplate with two screws (Fig. 2). Level the baseplate before tightening the screws.
5. Slip the Tinnerman clips onto the baseplate with the threads below the baseplate (Fig. 3).
6. Thread the tubing through the hole in the baseplate cover and position the baseplate cover over the baseplate.
7. If heavy duty guard is required, thread the tubing through the guard base.
8. Connect the tubing to the backplate (Fig. 4) and use the screws to mount the backplate to the baseplate (Fig. 3). This holds the baseplate cover (and guard base) in place.
9. Remove any shipping stops (Fig. 5) and press the Thermostat/Humidistat in place onto the backplate (Fig. 6) until it is fully seated and the retaining clips on the backplate (Fig. 4) have engaged.
10. Proceed to THERMOSTAT CALIBRATION or HUMIDISTAT CALIBRATION.

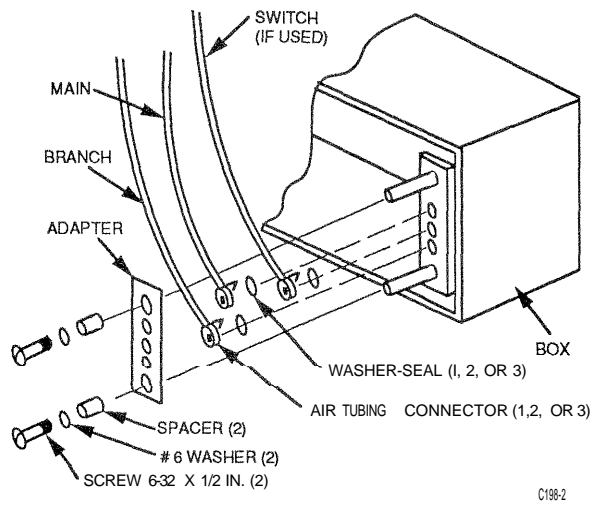


Fig. 1. Adapter Connections.

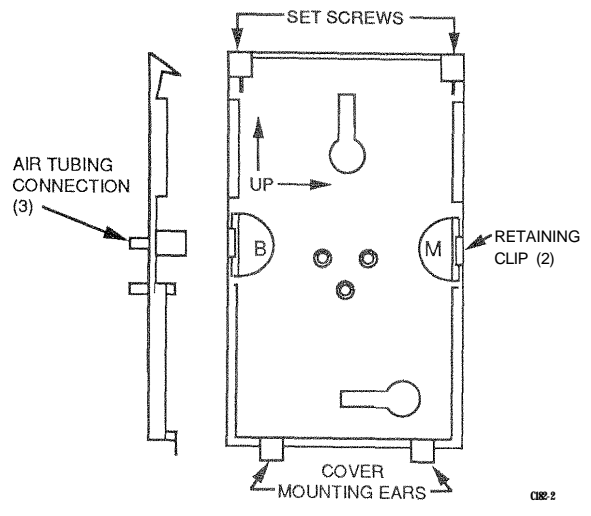


Fig. 4. Backplate.

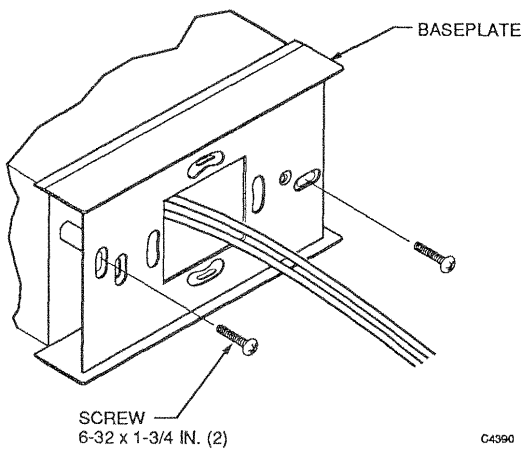


Fig. 2. Baseplate Mounting.

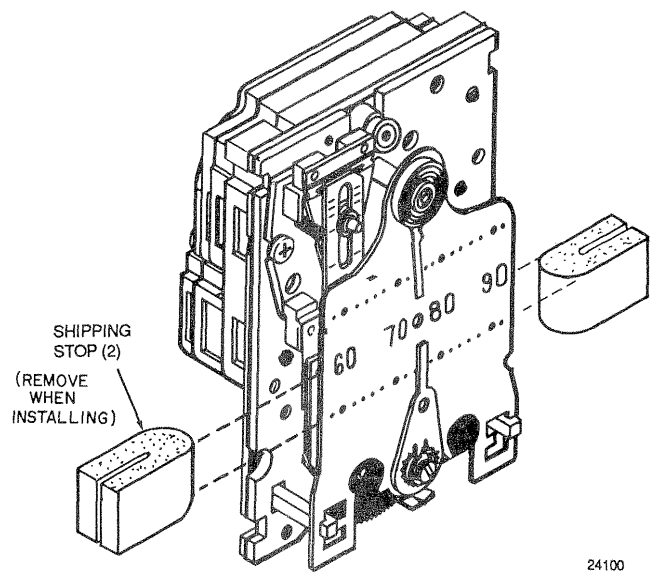


Fig. 5. Removal of Shipping Stops, Thermostat Shown.

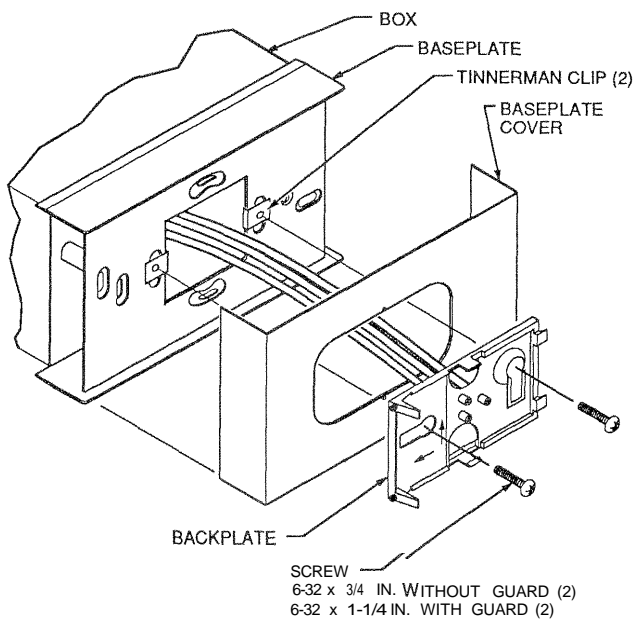


Fig. 3. Backplate to Baseplate Assembly.

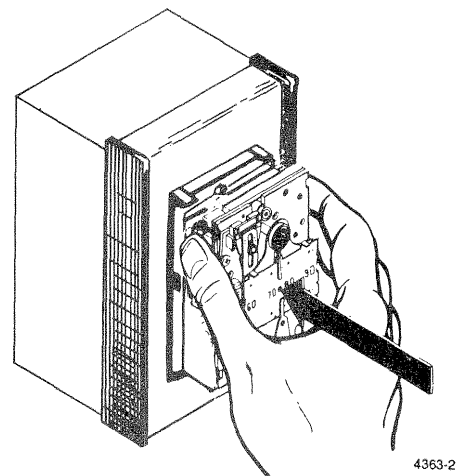


Fig. 6. Thermostat/Humidistat Mounting to Backplate.

# TP9/10 SERIES WITH MORTAR JOINT FITTING

- Trim the tubing to suit the application (Fig. 7) and discard the air tubing connector ends.  
NOTE: Do not remove the antikink springs from the cut tubing.
- Insert the tubing into the O-rings of the main and branch lines of the fittings (Fig. 8).  
NOTE: Use the new O-rings supplied to prevent air leaks.
- Thread the tubing through the opening in the baseplate. Secure the baseplate with two screws (Fig. 9). Level the baseplate before tightening the screws.
- Slip two Tinnerman clips onto the baseplate with the threads below the baseplate (Fig. 10 and 11).
- Thread the tubing through the hole in the baseplate cover and position the baseplate cover over the baseplate (vertical mounting: Fig. 10; horizontal mounting: Fig. 11).
- If the heavy duty guard is required, thread the tubing through the guard base.
- Connect the tubing to the Thermostat backplate (Fig. 4) and use the screws to mount the backplate to the baseplate (vertical mounting: Fig. 10; horizontal mounting: Fig. 11). This holds the baseplate cover (and guard base) in place.  
NOTE: Vertical mounting only: Tubing will cross as main and branch are reversed on TP9/10 Thermostats.
- Remove any shipping stops (Fig. 5) and press the Thermostat on the backplate (Fig. 6) until fully seated and the retaining clips on the backplate (Fig. 4) have engaged.

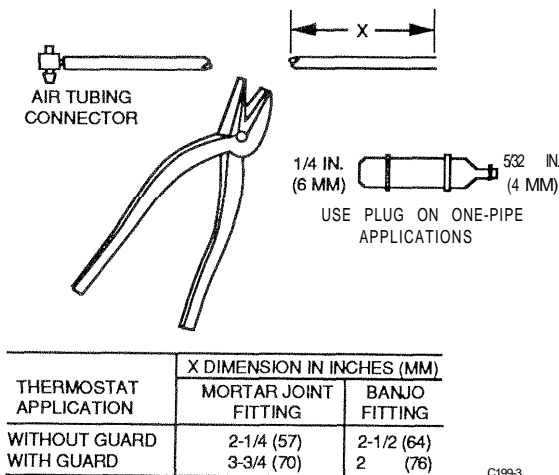


Fig. 7. Tubing Length.

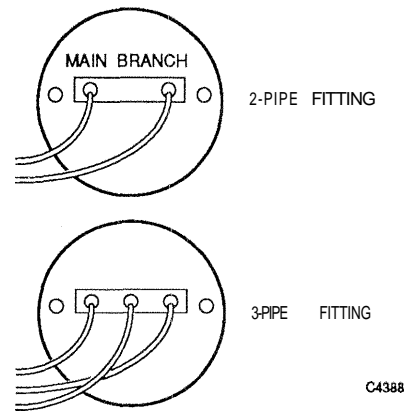


Fig. 8. Tubing Inserted in Banjo Fitting.

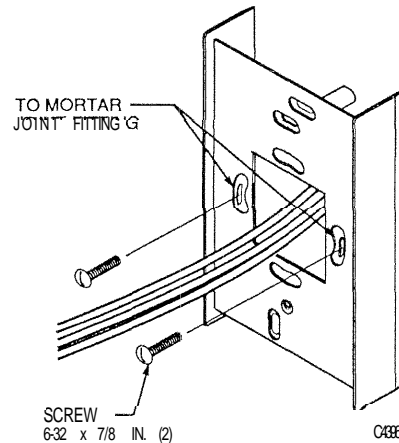


Fig. 9. Baseplate Installation.

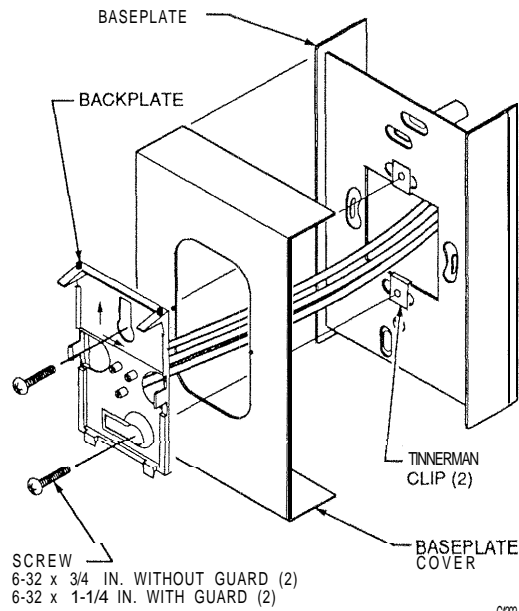
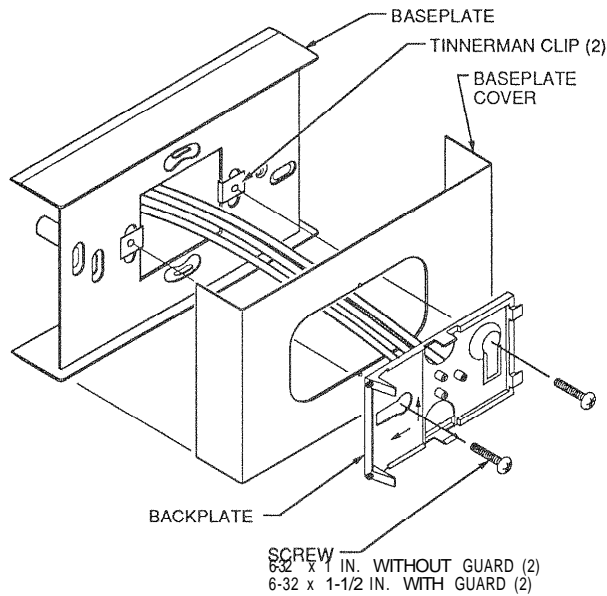


Fig. 10. Vertical mounting, TP9/10 Thermostat Replacement.

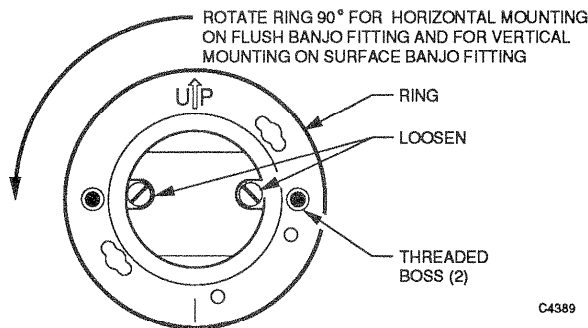


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Fig. 11. Horizontal Mounting, TP910 Thermostat Replacement.

## TP910 SERIES THERMOSTAT WITH FLUSH BANJO FITTING

Follow the procedures for vertical mounting on a mortar joint fitting. Note tubing length in Figure 7. For horizontal mounting, rotate ring 90 degrees (Fig. 12).



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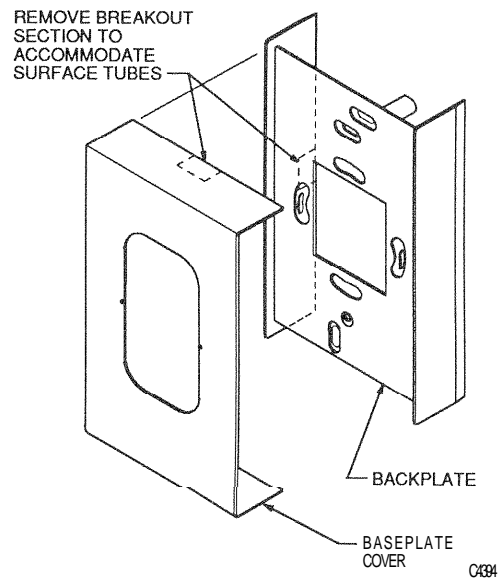
Fig. 12. Banjo Fitting Ring Rotation.

## TP910 SERIES THERMOSTAT WITH SURFACE BANJO FITTING

1. For vertical mounting, rotate the ring 90 degrees (Fig. 12).
2. Cut the tubing (Fig. 7) and insert it into the proper outlets in the banjo fitting.

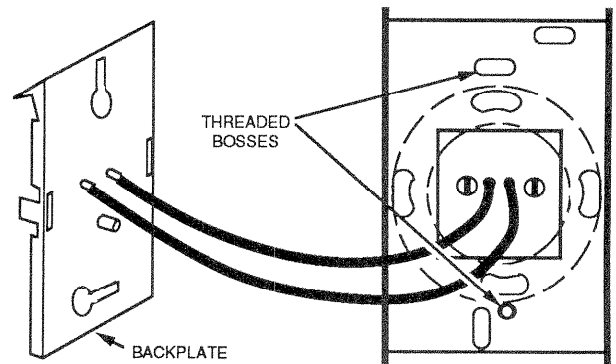
NOTE: Do not remove the antikink springs from the cut tubing.

3. If the tubing to banjo fitting is an exposed run on a wall surface, remove the breakout section of the baseplate or baseplate cover (Fig. 13).
4. Route the tubing through the baseplate (and guard base, if used). Connect the tubing to the backplate (Fig. 14).
5. Mount the baseplate so the threaded bosses on the ring are inserted through slots on the baseplate.
6. Use two 6-32 x 1/2-in. screws to attach the baseplate, baseplate cover, and backplate to the banjo. Substitute 6-32 x 1 in. screws if a heavy duty guard is required.
7. Remove any shipping stops (Fig. 5) and press the Thermostat onto the backplate (Fig. 6) until it is fully seated and the retaining clips on the backplate (Fig. 4) have engaged.



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Fig. 13. Location of Breakout Section for Surface Mounted Tubing.



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Fig. 14. Threaded Bosses Shown Through Slots in Baseplate.

# TP923 THERMOSTAT REPLACEMENT

1. Locate the existing restrictor. If it is remote, replace it with the filter/restrictor supplied in the kit. Figures 15 and 16 show typical filter/restrictor installations. Figure 17 shows a typical replacement installation. Figure 18 shows the connection to the backplate with the main port capped. Follow the instructions for a TP910 Thermostat to complete the installation.
2. If the restrictor is located behind the thermostat and connected to a two-pipe fitting, remove the restrictor and follow the instructions for replacing a TP910 Thermostat.

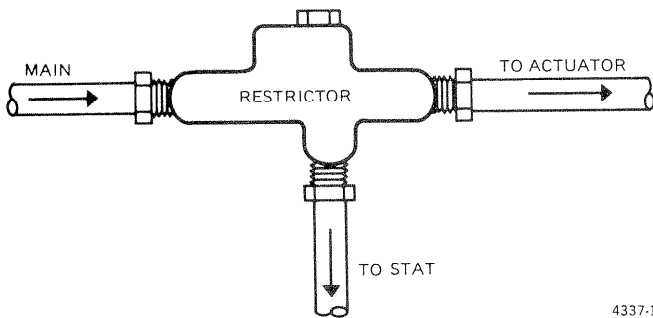


Fig. 15. Typical Adjustable Restrictor with 1/4-in. O.D. Copper Tubing.

## NOTES:

1. The TP973 Thermostat has a built-in restriction and can be piped with either one or two pipes. The main port must be plugged for one-pipe applications (Fig. 18).
2. If a restrictor with a shape other than that shown in Figures 15 or 16 is encountered, determine piping and pipe the replacement as shown in Figure 17.

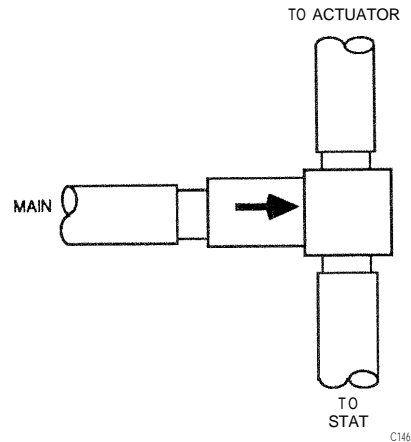
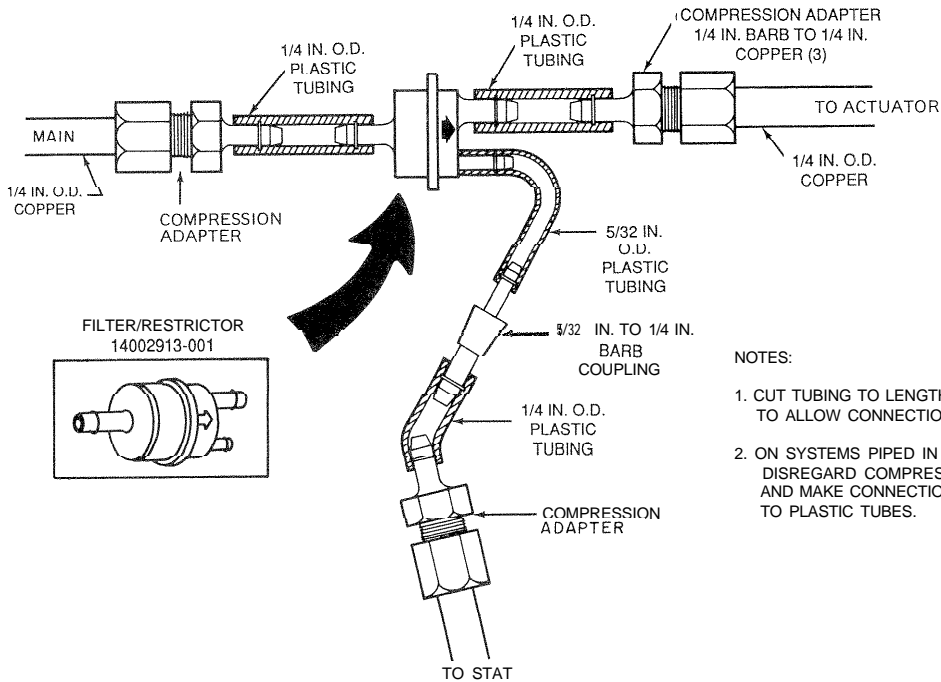


Fig. 16. Typical Tee Restrictor with Plastic Tubing.



## NOTES:

1. CUT TUBING TO LENGTH REQUIRED TO ALLOW CONNECTIONS
2. ON SYSTEMS PIPED IN PLASTIC TUBING; DISREGARD COMPRESSION ADAPTERS AND MAKE CONNECTIONS AS SHOWN TO PLASTIC TUBES.

Fig. 17. Replacement Filter/Restrictor Installation.

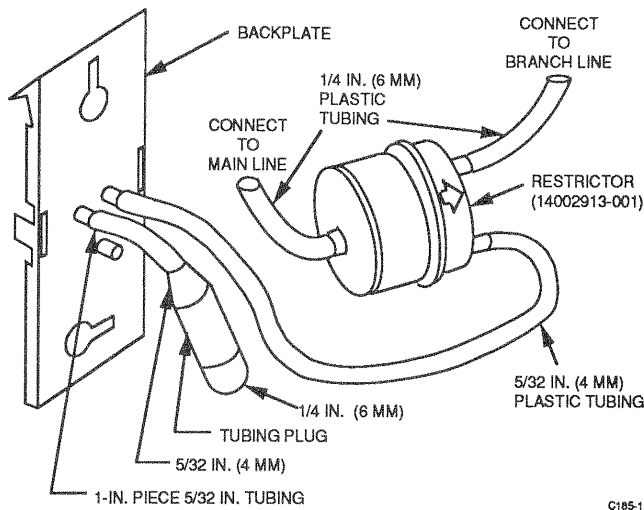
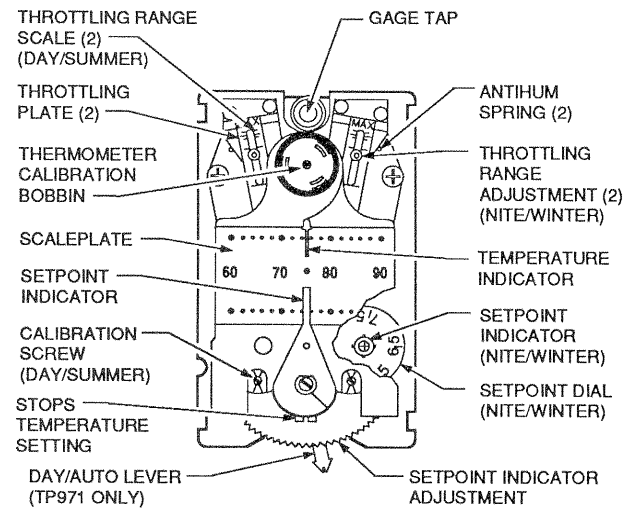


Fig. 18. Backplate Connections for One-Pipe Installation.



NOTE: NOT ALL ADJUSTMENTS ARE ON ALL THERMOSTATS.

Fig. 19. Thermostat Controls and Indicators — Cover Removed.

## CHECKOUT AND TESTING

### THERMOSTAT CALIBRATION

#### NOTES:

1. The Thermostats are factory calibrated and should require only the CALIBRATION CHECK to ensure correct operation.
2. The antihum spring (Fig. 19) must be free. Be sure the spring just touches the throttling plate and is not wedged against it (does not apply to all TP970C and D or any TP970 Series Thermostats starting with 2000, i.e., TP972A2143).
3. The Thermostats are very sensitive and should not be heated by excessive handling during calibration.
4. If the gage tap fails to seal properly after the Pressure Gage and Gage Adapter are removed, bleed off a small amount of air and insert Gage Tap Plug 14002172-001 into the gage tap.

#### EQUIPMENT REQUIRED

Accurate thermometer  
 Pressure Gage 14003519-001 (0 to 30 psi [0 to 207 kPa])  
 Gage Adapter MQP729 (CCT729)  
 Thermostat Tool MQT735A (CCT735A) or 0.05 in. (3/64 in.) hex key  
 Thermometer Calibration Tool MQT970 (for all models or an 1/8-in. hex wrench for TP970 Series Thermostats starting with 2000 [e.g., TP972A2143])

#### CALIBRATION CHECK

1. Set the Thermostat to the desired setpoint and allow the system to stabilize before proceeding.
2. Turn the setpoint indicator adjustment down (DA) or up (RA) until the setpoint indicator reads 5 degrees F (2.8 degrees C) below (DA) or above (RA) room temperature. If the branchline pressure (BLP) at the Thermostat does not build up within 30 seconds, proceed to CALIBRATION PROCEDURE.
3. Turn the setpoint indicator adjustment up (DA) or down (RA) slowly. If the Thermostat does not bleed off audibly between 1 and 3 degrees F (0.56 and 1.7 degrees C) below (DA) or above (RA) room temperature, proceed to CALIBRATION PROCEDURE.

#### CALIBRATION PROCEDURE

1. Measure the ambient temperature with an accurate thermometer. Compare the thermometer reading with the Thermostat thermometer reading.
2. If the difference is more than 1 degree F (0.56 degree C), use the Thermometer Calibration Tool or hex wrench to turn the thermometer calibration bobbin (Fig. 19) until the Thermostat thermometer reading is correct.
3. Ensure the mainline pressure is at the recommended setting.
4. Turn the setpoint indicator adjustment until the setpoint indicator reads the existing temperature.
5. Follow the remaining steps shown for the model of Thermostat being calibrated.

## TP970A AND B

1. Set the throttling range to the value specified on the job drawing.
2. Turn the calibration screw (Fig. 19) until the Pressure Gage reads 0 psi (0 kPa).
3. Turn the calibration screw in the opposite direction until the Pressure Gage reads  $8 \pm 1$  psi ( $55 \pm 7$  kPa).
4. The TP970 is now calibrated. The setpoint indicator and thermometer should be within 1 degree F (0.56 degree C) of each other.
5. Remove the Pressure Gage and Gage Adapter.
6. Turn the setpoint indicator adjustment until the setpoint indicator is at the desired setting.
7. Proceed to THERMOSTAT/HUMIDISTAT COVER MOUNTING.

## TP971 A-E AND TP972A

1. With 13 psi (90 kPa) mainline pressure, turn the DAY/SUMMER calibration screw (Fig. 19) until the Pressure Gage reads 0 psi (0 kPa).
2. Turn the calibration screw in the opposite direction until the Pressure Gage reads  $8 \pm 1$  psi ( $55 \pm 7$  kPa).
3. TP971A-E ONLY: With 18 psi (124 kPa) mainline pressure, rotate the NITE/WINTER setpoint dial until the setting agrees with the indicated temperature.
4. With 18 psi (124 kPa) mainline pressure, repeat Steps 1 and 2 using the NITE/WINTER calibration screw (Fig. 19).
5. Proceed to SWITCHOVER CALIBRATION PROCEDURE.

## TP973A AND B

If the Thermostat is not properly calibrated, but the remainder of the system operates properly, turn the calibration screw until the thermostat performs according to Step 2 under CALIBRATION CHECK.

## SWITCHOVER CALIBRATION PROCEDURE (TP971A-E and TP972A Thermostats)

Switchover allows for proper Thermostat operation in the presence of normal supply line fluctuations.

1. Ensure that the mainline pressure is set to the low (13 psi [90 kPa]) pressure requirement.
2. Turn the setpoint indicator adjustment until the setpoint indicator reads 5 degrees F (2.8 degrees C) below actual temperature.

3. The Pressure Gage should read:  
TP971A-E: 0 psi (0 kPa) (RA) or 13 psi (90 kPa) (DA).  
TP972A: 0 psi (0 kPa). If it does not, turn the switchover adjustment screw (Fig. 20) clockwise until it does.
4. Turn the switchover adjustment screw counterclockwise until the pressure begins to:  
TP971A-E: Increase (RA) or decrease (DA).  
TP972A: Increase.  
This indicates switchover.
5. Allow the Pressure Gage to go to:  
TP971A-E: Full mainline pressure (RA) or 0 psi (0 kPa) (DA).  
TP972A: Full mainline pressure.
6. Turn the switchover adjustment screw counterclockwise until the pressure:  
TP971A-E: Decreases to 0 psi (0 kPa) (RA) or increases to full mainline pressure (DA).  
TP972A: Decreases to 0 psi (0 kPa).
7. Turn the switchover adjustment screw an additional 1/8- to 1/4-turn clockwise.

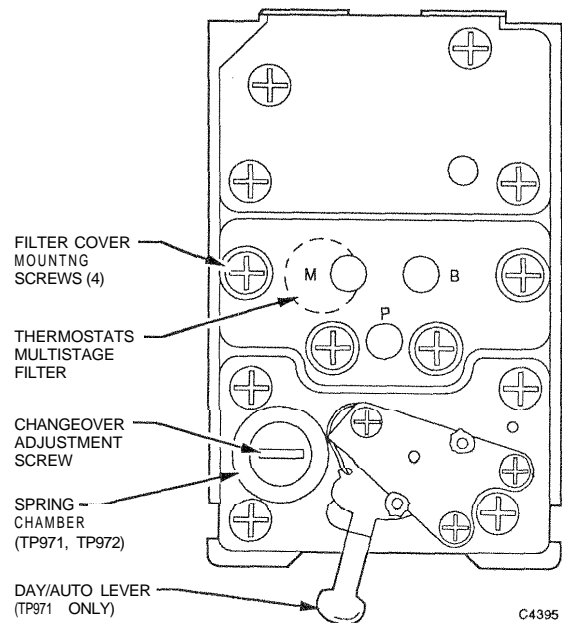


Fig. 20. Back View of Thermostat.

8. Remove the Pressure Gage and Gage Adapter.
9. Proceed to THERMOSTAT/HUMIDISTAT COVER MOUNTING.



# HUMIDISTAT CALIBRATION

## EQUIPMENT REQUIRED

Digital Relative Humidity Indicator Pen CCT915 or other accurate rh measuring device  
Pressure Gage 14003519-001 (0 TO 30 psi [0 to 207 kPa])  
Gage Adapter MQP729 (CCT729)  
Thermostat Tool MQT735A (CCT735A)

## THROTTLING RANGE ADJUSTMENT

The throttling range is factory set and should not require any change under normal operating conditions. If a change in relative humidity causes the system to hunt, reset the throttling range as follows:

1. Slide the throttling range indicator (Fig. 21) to the desired indication on the scale.
2. Move the throttling range indicator up toward minimum on slow response or move it down if hunting or cycling of the controlled device occurs.
3. Recalibrate the Humidistat each time the throttling range is changed.

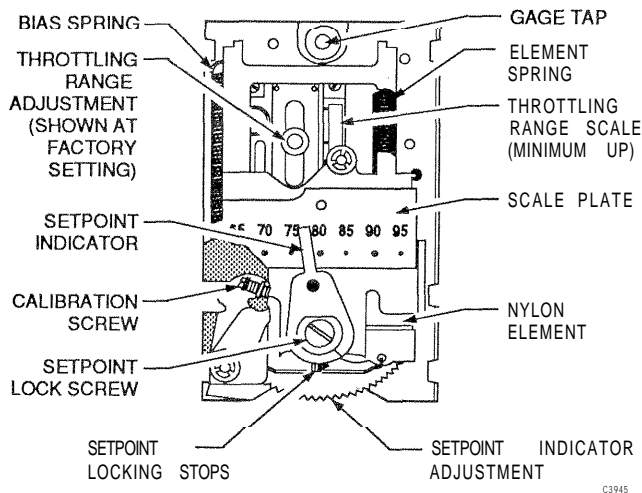


Fig. 21. Humidistat Controls and Indicators — Cover Removed.

## CALIBRATION CHECK

NOTE: Set the Humidistat to the desired setpoint and allow the system to stabilize before making any calibration. Depending on the relative sizes of the controlled space and the humidifier, stabilization can take a few minutes or several hours.

1. Measure the rh with a Digital Relative Humidity Indicator Pen CCT915 or other accurate rh measuring device.
2. Turn the setpoint indicator adjustment (Fig. 21) until the setpoint indicator reads 10 percent below (HP970A) or above (HP970B and HP972B) the indicated rh and allow the Humidistat to build up BLP.
3. Adjust the setpoint indicator up (HP970A) or down (HP970B and HP972B) slowly by turning the setpoint indicator adjustment.
4. If the Humidistat bleeds off at  $\pm 3$  percent rh of the indicated humidity, no further calibration is necessary. If the Humidistat does not bleed off properly, proceed with RECALIBRATION.

## RECALIBRATION

**CAUTION**  
Humidistats are sensitive. Handle them with extreme care during calibration. Do not breathe directly on the element when the cover is off.

1. Ensure the system is stabilized and the mainline pressure is maintained at normal between 13 and 21 psi (90 and 145 kPa). Factory calibration is 18 psi (125 kPa).
2. Install the Pressure Gage into the gage tap (Fig. 21) using the Gage Adapter.
3. Measure the rh with a Digital Relative Humidity Indicator Pen CCT915 or other accurate rh measuring device.
4. Use the setpoint indicator adjustment (Fig. 21) to set the setpoint indicator at the actual relative humidity.
5. Adjust the calibration screw (Fig. 21) until the Pressure Gage reads 0 psi (0 kPa).
6. Readjust the calibration screw slowly until the Pressure Gage reads  $8 \pm 1$  psi ( $55 \pm 7$  kPa).
7. Allow sufficient time for a complete response and stabilization, then recheck pressure. The Humidistat is now calibrated.
8. Remove the Pressure Gage and Gage Adapter.  
NOTE: If the gage tap fails to seal properly after the Pressure Gage is removed, bleed off a small amount of air and insert Gage Tap Plug 14002172-001 into the gage tap.
9. Set the Humidistat at the desired setting.
10. Proceed to THERMOSTAT/HUMIDISTAT COVER MOUNTING.

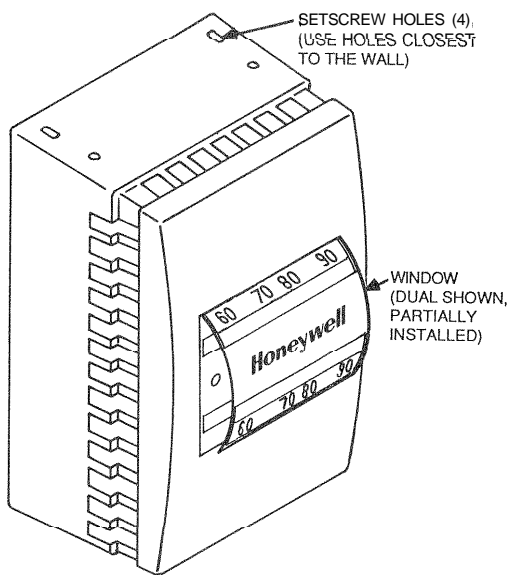
# THERMOSTAT/HUMIDISTAT COVER MOUNTING

1. Remove the caution card from the cover.
2. Select the correct window (vertical or horizontal/dual or blank) and peel the release liner from window back.

## CAUTION

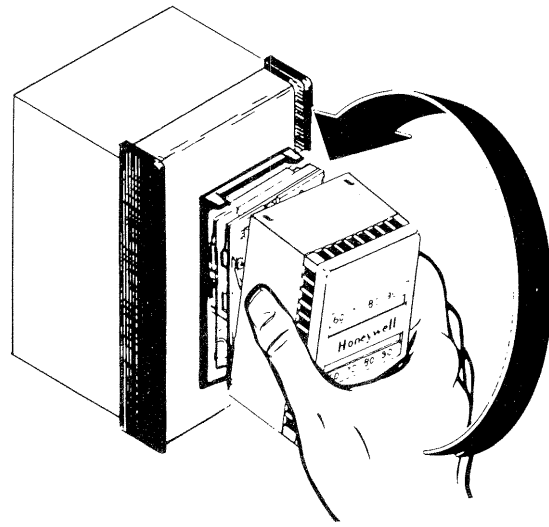
To prevent damage to the window, carefully check the window selection and orientation before installing the window. Once assembled, disassembly may damage the window.

3. Ensure that the window is oriented correctly for the installation. When viewed from the front of the cover, the setpoint and day/auto openings are on the bottom for a vertical Thermostat/Humidistat or on the right for a horizontal Thermostat/Humidistat. The cover has slots which must mate with the mounting ears on the backplate.
  - a. Insert the top edge of the window (Fig. 22) into the slot in the top of the window hole.
  - b. Bend the window slightly and pop the bottom edge into the slot in the bottom of the window hole.
  - c. Press in place to secure window.
4. Mount the cover (Fig. 23) by hooking the two slots on the cover bottom (right end for horizontal mounting) on the mounting ears of the backplate. Swing the cover into place. Back out (counterclockwise) the setscrews (Fig. 22) with the Thermostat Tool to secure the cover.
5. Mount the guard cover, if applicable, using two hex drive socket screws (Fig. 24).



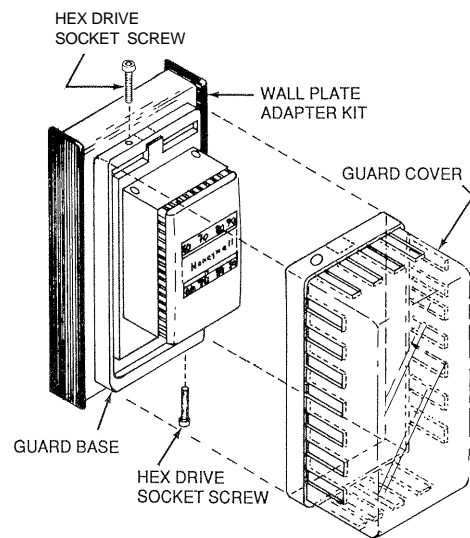
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Fig. 22. Installation of Window Insert.



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Fig. 23. Mounting Cover.



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Fig. 24. Heavy Duty Guard Mounting.

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