

# TP970 and TP9600 Series Pneumatic Thermostats

SERVICE DATA

GENERAL

The TP970 and TP9600 Series Pneumatic Thermostats are one-, two-, or three-pipe, proportioning thermostats with bimetal elements. They are suitable for controlling dampers and/or valves in HVAC systems.

APPLICATION

TP970A-D and TP9600A,B

The TP970 and TP9600 are single-temperature, pilot-bleed, two-pipe thermostats. The TP970A and TP9600A are used for heating (Direct Acting [DA]), the TP970B and the TP9600B for cooling (Reverse Acting [RA]), and the TP970C and D for heating/cooling. There are TP970A and B models with Limited Control Range (LCR) for energy conservation. The TP970C and D have a wide throttling range capability, allowing an adjustable Zero Energy Band (ZEB) between heating and cooling operations.

TP971A-E and TP9610A,B

The TP971A-E and TP9610A,B are two-temperature, pilot-bleed, two-pipe thermostats for DAY/NITE operation, with automatic switchover from mainline pressure. The TP971C is a three-pipe thermostat for unit ventilator DAY/NITE application.

TP972A and TP9620A

The TP972A and TP9620A are single-temperature, pilot-bleed, two-pipe thermostats with cooling/heating cycles and automatic switchover from mainline pressure. The TP972A2143 is designed specifically for replacing Johnson cooling/heating thermostats (see SPECIFICATIONS section).

TP973A,B and TP9630A,B

The TP973A, B and TP9630A,B are one- or two-pipe bleed-type thermostats for heating or cooling applications.

TP974A

The TP974A is a pneumatic space temperature sensor for either one- or two-pipe applications. It is suitable as a remote temperature indicator or as the sensor for a receiver controller.

TP978A-E

The TP978 is a dual-element bleed-type thermostat used in dual one-pipe applications, suitable for use with variable volume systems. These thermostats may be used to control separate heating and cooling actuators in sequence, with a Zero Energy Band (ZEB) for energy conservation. The heating setpoint is limited to 73F (23C) maximum, and the cooling setpoint is limited to 77F (25C) minimum. Heating and cooling are available in both DA and RA configurations. Except for the TP978E, there are no upgraded replacements for the TP978.

TP979A-E

The TP979 contains two cooling/heating, DAY/NITE thermostats. They are one- or two-temperature, two-pipe thermostats for independent proportioning control of heating and cooling.

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## SPECIFICATIONS

**Maximum Safe Air Pressure:**  
25 psi (172 kPa)

**Maximum Safe Temperature:**  
150F (66C)

See Tables 1 through 6 for additional specifications. These tables represent the direct replacements of existing thermostats at the time of the introduction of the 2000 series of thermostats. For replacement parts, see PARTS and ACCESSORIES.

**Table 1. TP970A-D Thermostat Specifications.\***

Old Model No.	New Model No.	Description	Setpoint	Supply Air Pressure psi (kPa)	Degrees Throttling Range	Special Features
TP970A 1004	TP970A 2004	DA, 2-Pipe	60-90°F	18 (124)	Adjustable 2-10°F (1.1-5.6°C)	—
TP970A 1012	TP970A 2012		4079°F			—
TP970A 1020	TP970A 2020		15-30°C			—
TP970A 1038	TP970A 2038		60-90°F			Universal Modernization Kit with Universal Window Cover
TP970A 1053	TP970A 2053		60-90°F			Honeywell Thermostat Modernization Kit with Universal Window Cover
TP970A 1062	No Replacement		60-90°F Controls at 72°F Maximum			Limited Control Range (LCR)
TP970A 1087	TP970A 2087		60-72°F			Universal Modernization Kit with Universal Window Cover
TP970A 1095	TP970A 2095		40-70°F			Universal Modernization Kit with Universal Window Cover
TP970A 1103	TP970A 2103		60-90°F			Includes 25 ft (7.6m) Twin Tubing and 14004407-300 Cover
TP970A 1111	TP970A 2111					Includes 25 ft (7.6m) Twin Tubing and 14004407-121 Cover
TP970A 1129	TP970A 2129					Includes 25 ft (7.6m) Sheathed Tubing and 14004406-300 Cover
TP970A 1137	TP970A 2137					Includes 25 ft (7.6m) Sheathed Tubing and 14004406-121 Cover
TP970A 1145	TP970A 2145					Convertastat Kit with Universal Window Cover. Replacement for 2-pipe only; Johnson T4002 & T4100, Powers TH192, Robertshaw TP2211 & TP2212
—	TP970A 2152					Quick Mount with 14004407-300 Cover
—	TP970A 2160					Quick Mount with 14004407-121 Cover
—	TP970A 2178					Quick Mount with 14004407-111 Cover
—	TP970A 2186					Quick Mount with 14004406-300 Cover
—	TP970A 2194					Quick Mount with 14004406-121 Cover
—	TP970A 2202		Quick Mount with 14004406-111 Cover			
TP970B 1002	TP970B 2002	RA, 2-Pipe	60-90°F	—		
TP970B 1010	TP970B 2010		15-30°C	—		
TP970B 1028	TP970B 2028		60-90°F	Universal Modernization Kit with Universal Window Cover		
TP970B 1036	TP970B 2036		60-90°F	Honeywell Thermostat Modernization Kit with Universal Window Cover		
TP970B 1044	No Replacement		60-90°F Controls at 78°F Minimum	Limited Control Range (LCR)		

\*All single-temperature, pilot bleed.

(continued)

**Table 1. TP970A-D Thermostat Specifications (continued).\***

Old Model No.	New Model No.	Description	Setpoint	Supply Air Pressure psi (kPa)	Degrees Throttling Range	Special Features			
TP970B 1069	TP970B 2069	RA, 2-Pipe	60-90°F	18 (124)	Adjustable 2-10°F (1.1-5.6°C)	Includes 25 ft (7.6m) Twin Tubing with 1400406-121 Cover			
TP970B 1077	TP970B 2077					Convertastat Kit with Universal Window Cover			
—	TP970B 2085					Quick Mount with 14004407-300 Cover			
—	TP970B 2093					Quick Mount with 14004407-121 Cover			
—	TP970B 2101					Quick Mount with 14004407-111 Cover			
—	TP970B 2119					Quick Mount with 14004406-300 Cover			
—	TP970B 2127					Quick Mount with 14004406-121 Cover			
—	TP970B 2135					Quick Mount with 14004406-111 Cover			
TP970C 1000	TP970C 2000	DA, 2-Pipe			Adjustable 5-25F (2.8-13.9C)	Wide Throttle Range Allows Zero Energy Band (ZEB)			
TP970C 1018	No Replacement					Universal Zero Energy Band (ZEB) Modernization Kit			
TP970D 1008	TP970D 2000	RA, 2-Pipe						Adjustable 5-25F (2.8-13.9C)	Wide Throttle Range Allows Zero Energy Band (ZEB)
TP970D 1016	No Replacement								Universal Zero Energy Band (ZEB) Modernization Kit

\*All single-temperature, pilot bleed.

**Table 2. TP971A-E Thermostat Specifications.\***

Old Model No.	New Model No.	Description	Setpoint	Supply Air Pressure psi (kPa)	Degrees Throttling Range	Special Features
TP971A 1003	TP971A 2003	DA, Heating, 2-Pipe	60-90°F DAY Range	13 or 18 (90 or 124)	Adjustable 2-10°F (1.1-5.6°C)	—
TP971A 1011	TP971A 2011		15-30°C DAY Range			—
TP971A 1029	TP971A 2029		60-90°F DAY Range	16 or 21 (110 or 145)		—
TP971A 1037	TP971A 2037			13 or 18, 16 or 21 (90 or 124, 110 or 145)		Universal Modernization Kit Honeywell Thermostat Modernization Kit with Universal Window Cover
TP971A 1052	TP971A 2052		15-30°C DAY Range	16 or 21 (110 or 145)		—
TP971A 1060	TP971A 2060		60-90°F DAY Range			Includes 14004406-901 Cover
TP971A 1078	No Replacement		60-90°F 50-75°F	13 or 18 (90 or 124)		Adjustable 5-25°F (2.8-13.9°C) DAY, 2-10°F (1.1-5.6°C) NITE
TP971A 1086	TP971A 2086		60-90°F DAY Range	20 or 25 (138 or 172)	Adjustable 2-10°F (1.1-5.6°C)	—
TP971A 1094	TP971A 2094					Includes 25 ft (7.6m) Twin Tubing and 14004407-121 Cover
TP971A 1102	TP971A 2102			13 or 18, or 16 or 20 (90 or 124, or 110 or 145)		Convertastat Kit with Universal Window Cover

\*All DAY/NITE, two-temperature, pilot-bleed.

(continued)

Table 2. TP971A-E Thermostat Specifications (continued).\*

Old Model No.	New Model No.	Description	Setpoint	Supply Air Pressure psi (kPa)	Degrees Throttling Range	Special Features	
—	TP971A 2110	DA, Heating, 2-Pipe	60-90°F DAY Range	13 or 18	Adjustable 2-10°F (1.1-5.6°C)	Quick Mount with 14004407-300 Cover	
—	TP971A 2128			(90 or 124)		Quick Mount with 14004407-121 Cover	
—	TP971A 2136			Quick Mount with 14004407-111 Cover			
—	TP971A 2144			Quick Mount with 14004406-300 Cover			
—	TP971A 2151			Quick Mount with 14004406-121 Cover			
—	TP971A 2169			Quick Mount with 14004406-111 Cover			
TP971B 1001	TP971B 2001	RA, Heating, 2-Pipe	15-30°C DAY Range	16 or 21 (110 or 145)		—	
TP971B 1019	TP971B 2019					—	
TP971B 1027	TP971B 2027			13 or 18 (90 or 124)		—	
TP971B 1035	TP971B 2035			16 or 21 (110 or 145)		Includes 14004406-901 Cover	
TP971B 1043	TP971B 2043			20 or 25		—	
TP971B 1050	TP971B 2050			(138 or 172)		Includes 25 ft (7.6m) Twin Tubing with 14004407-121 Cover	
TP971C 1009	TP971C 2009	DA,	15-30°C DAY Range	13 or 18,		With Secondary Branch	
TP971C 1017	TP971C 2017	Heating, 3-Pipe		(90 or 124)			
TP971C 1025	TP971C 2025	DA, Cooling,	60-90°F DAY Range	16 or 21 (110 or 145)			
TP971C 1041	TP971C 2041	3-Pipe		20 or 25			
TP971D 1007	TP971D 2007	DA, Cooling, 2-Pipe		(138 or 172)			
TP971E 1004	TP971E 2004	RA, Cooling, 2-Pipe		13 or 18 (90 or 124)			

\*All DAY/NITE, two-temperature, pilot-bleed.

**Table 3. TP972A Thermostat Specifications.\***

Old Model No.	New Model No.	Action		Setpoint	Supply Air Pressure psi (kPa)	Degrees Throttling Range	Special Features
		Left Bimetal	Right Bimetal				
TP972A 1002	TP972A 2002	R.A.	D.A.	60-90°F	13 (Cooling) or	Adjustable	—
TP972A 1010	TP972A 2010			15-30°C	18 (Heating)	2-10°F	—
TP972A 1028	TP972A 2028			60-90°F	(90 or 124)	(1.1-5.6°C)	Universal Modernization Kit with Universal Window Cover
TP972A 1036	TP972A 2036			60-90°F (Cooling)		Separately Adjustable 2-10°F (1.1-5.6°C)	Energy Conservation, Separate Setpoints
TP972A 1044	TP972A 2044			(50-75°F (Heating)			Honeywell Thermostat Modernization Kit with Universal Window Cover
TP972A 1051	No Replacement			78-90°F (Cooling) 60-72°F (Heating)			Limited Control Range (LCR)
TP972A 1077	No Replacement			75-90°F (Cooling)			Setpoint Stop at 75F Minimum
TP972A 1085	No Replacement			50-75°F (Heating)	16 (Cooling) or 21 (Heating) (110 or 145)		
TP972A 1093	No Replacement			78-90°F (Cooling)	13 (Cooling) or 18 (Heating)		Limited Control Range (LCR)
TP972A 1101	No Replacement			60-72°F (Heating)	(90 or 124)		Universal Limited Control Range (LCR) Modernization Kit
TP972A 1119	No Replacement			78-90°F (Cooling)	13 (Cooling) or 18 (Heating)		Limited Control Range (LCR)
TP972A 1127	No Replacement			55-65°F (Heating)	(90 or 124)		Universal Limited Control Range (LCR) Modernization Kit
TP972A 1143	TP972A 2143	D.A.	R.A.	60-90°F	14 (Heating) or 19 (Cooling) (97 or 131)	Separately Adjustable 2-10°F	Specifically for replacing Johnson Cooling/Heating Thermostats
TP972A 1150	TP972A 2150	R.A.	D.A.	15-30°C Cooling 12-24 Heating	13 (Cooling) or 18 (Heating) (90 or 124)	(1.1-5.6°C)	Energy Conservation, Separate Setpoints
TP972A 1168	TP972A 2168	D.A.	R.A.	60-90°F (Cooling) 50-75°F (Heating)	16 (Cooling) or 21 (Heating) 110 or 145)		
TP972A 1176	TP972A 2176	D.A.	R.A.		20 (Cooling) or 25 (Heating) (138 or 172)		
TP972A 1184	TP972A 2184				13 (Cooling) or 18 (Heating)		Includes 14004406-901 Cover, Separate Setpoints
—	TP972A 2192	R.A.	D.A.	60-90°F	(90 or 124)		Includes Universal Window Cover
—	TP972A 2200	D.A.	R.A.		14 (Cooling) or 19 (Heating) (97 or 131)		—

\*All single-temperature, tw0-pipe, two-element, automatic changeover, and cooling/heating.

**Table 4. TP973A and B Thermostat Specifications.\***

Old Model No.	New Model No.	Action	Setpoint	Supply Air Pressure psi (kPa)	Degrees Throttling Range	Special Features
TP973A 1068	TP973A 2068	DA	60-90°F	18 (124)	Adjustable 2-10°F (1.1-5.6°C)	Universal Modernization Kit with Universal Window Cover
TP973A 1076	TP973A 2076					—
TP973A 1084	TP973A 2084		15-30°C			—
TP973A 1092	TP973A 2092		60-90°F			Honeywell Thermostat Modernization Kit with Universal Window Cover
TP973A 1100	TP973A 2100					Includes 14004406-901 Cover
TP973A 1117	No Replacement					Includes 25 ft (7.6m) Twin Tubing and Blank Plastic Cover
TP973A 1126	No Replacement					
TP973A 1134	No Replacement					
TP973A 1142	No Replacement					
TP973A 1159	TP973A 2159					—
TP973A 1167	TP973A 2167					Includes 14004407-121 Cover
TP973A 1175	TP973A 2175					Includes 14004407-300 Cover
TP973A 1183	TP973A 2183					—
TP973B 1066	TP973B 2066	RA				—
TP973B 1074	TP973B 2074		15-30°C			—
TP973B 1090	TP973B 2090		60-90°F			Includes 1400406-901 Cover
TP973B 1108	TP973B 2108					—
TP973B 1116	TP973B 2116					—
TP973B 1124	TP973B 2124		15-30°C			—
TP973B 1132	TP973B 2132		60-90°F			Includes 14004407-121 Cover
TP973B 1140	TP973B 2140					Includes 14004407-300 Cover
TP973B 1157	TP973B 2157					Includes 25 ft (7.6m) Twin Tubing and 14004407-121 Cover

\*All one- or two-pipe, bleed type.

Table 5. TP974A, TP978A-E, TP979A-E Thermostat Specifications.

Old Model No.	New Model No.	Action	Setpoint	Supply Air Pressure psi (kPa)	Degrees Throttling Range	Special Features
TP974A 1000	TP974A 2000	DA, 1- or 2-Pipe Sensor Bleed Type	50-100°F (10-38°C) Range	18 (124) 3-15 (21-103) Output	—	Sensor for use with RP908 & RP920 Controller
TP978A 1006	No Replacement	DA Heating DA Cooling	60-73°F Heating	18 (124)	2-10°F (1.1-5.6°C)	ZEB Energy Conservation, Setpoint Stop 73°F (Heating), 77°F (Cooling)
TP978B 1004	No Replacement	RA heating DA Cooling	77-90°F Cooling			
TP978C 1002	No Replacement	DA Heating RA Cooling				
TP978D 1000	No Replacement	RA Heating RA Cooling				
TP978E 1007	TP978E 2007	RA (Right Side) DA (Left Side)	68-82°F	0.18 (1)	1-4°F	Includes Cover Special System-Powered Thermostat for Carrier
TP979A 1005	TP979A 2005	DA Heating DA Cooling	60-90°F	18 (124)	Adjustable 2-10°F (1.1-5.6°C)	—
TP979B 1003	TP979B 2003	RA Heating RA Cooling				—
TP979C 1001	TP979C 2001	DA Heating or Cooling RA Heating or Cooling				—
TP979D 1009	TP979D 2009	DA Heating DA Cooling		13 (90) Day 18 (124) Nite		Day/Nite Heat with night set down; Cool with night set up.
TP979E 1006	TP979E 2006	DA Heating RA Cooling				

Table 6. TP9600 Thermostat Specifications.

Model No.	Description	Setpoint Slot	Includes Stat.
<b>Single Temperature, Two-Pipe:</b>			
TP9600A 1007	DA, Open Windows	Open	TP970A 2004
TP9600B 1006	RA, Open Windows	Open	TP970B 2002
TP9603A 1001	DA, Close Windows	Closed	TP970A 2004
TP9603B 1000	RA, Close Windows	Closed	TP970B 2002
<b>Day/Night, Two-Pipe:</b>			
TP9610A 1006	DA, Open Windows	Open	TP971A 2003
TP9610B 1005	RA, Open Windows	Open	TP971B 2001
TP9613A 1000	DA, Close Windows	Closed	TP971A 2003
TP9613B 1009	RA, Close Windows	Closed	TP971B 2001
<b>Heating/Cooling, Two-Pipe:</b>			
TP9620A 1005	DA, Open Windows	Open	TP972A 2002
TP9623B 1009	RA, Close Windows	Closed	TP972B 2002
<b>Single Temperature, One or Two-Pipe:</b>			
TP9630A 1004	DA, Open Windows	Open	TP973A 2076
TP9630B 1003	RA, Open Windows	Open	TP973B 2066
TP9633A 1008	DA, Close Windows	Closed	TP973A 2076
TP9633B 1007	RA, Close Windows	Closed	TP973B 2066

## OPERATION

### TP970A,B and TP9600A,B

When using a TP970A or TP9600A (Fig. 1) in heating applications with a normally open valve, a fall in temperature lowers Branchline Pressure (BLP) to the valve. This lower BLP provides proportional valve action matching the existing load requirements. When a TP970B or TP9600B is used in a cooling application, a rise in temperature causes the TP970B or TP9600B to lower BLP. The energy conservation models limit control temperature to a maximum (heating) or minimum (cooling) of 72F (24C).

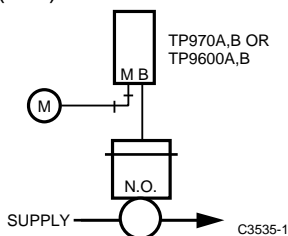


Fig. 1. TP970A,B and TP9600A,B Typical Operation.

### TP970C and D

The TP970C and D with wide throttling range (Fig. 2 and 3) allow use of heating and cooling valve assemblies with either selected spring ranges (Fig. 4) or ratio relays (Fig. 5) to achieve a ZEB range.

Various ZEB ranges, heating control points, and cooling control points are obtained by selecting the appropriate thermostat setpoint, throttling range, and spring range or ratio relays.

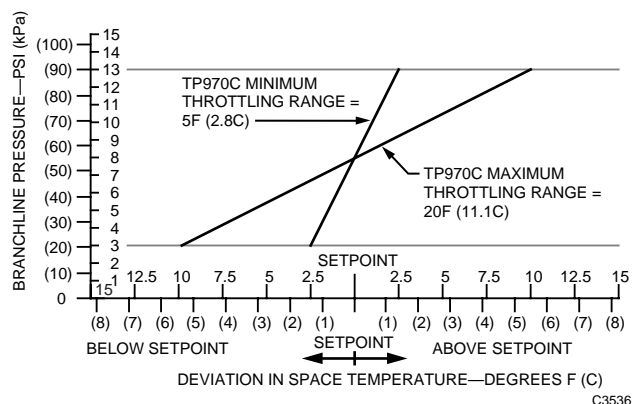
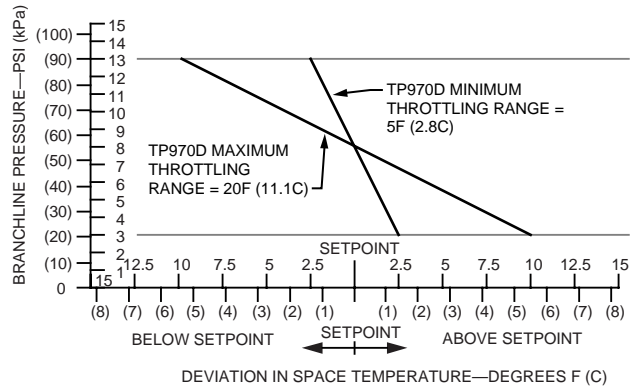
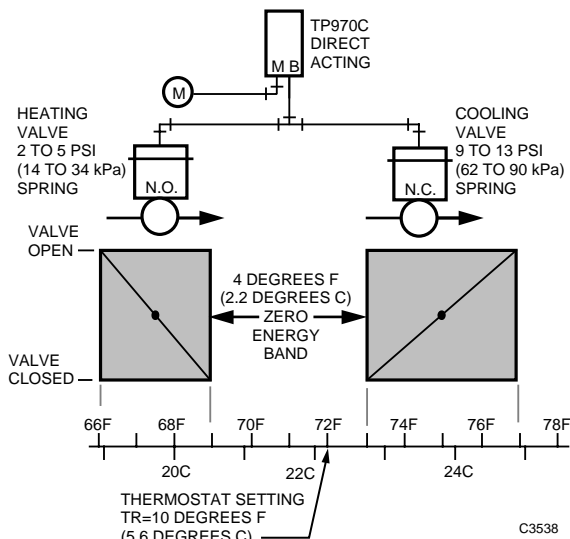


Fig. 2. TP970C Space Temperature vs. Branchline Pressure.

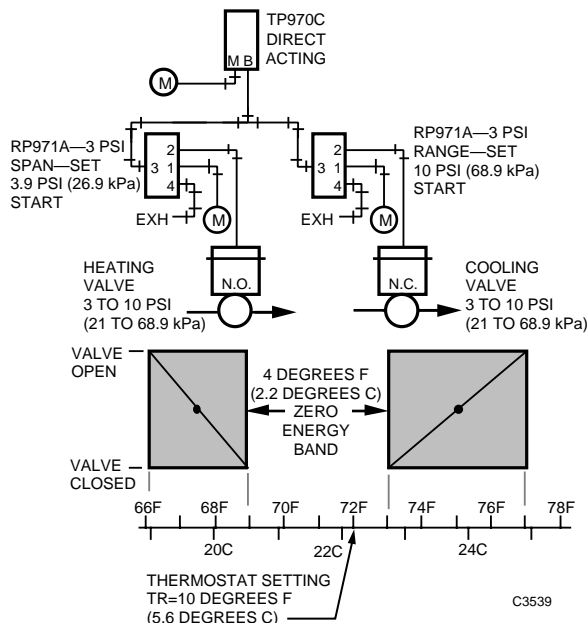




**Fig. 3. TP970D Space Temperature Vs Branchline Pressure.**



**Fig. 4. Typical TP970C Operation Using Selected Spring Range Valve Operators.**

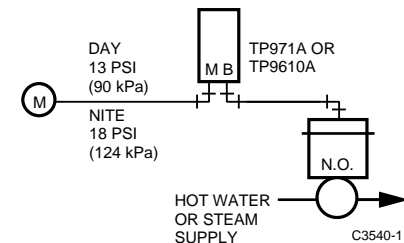


**Fig. 5. Typical TP970C Operation Using Ratio Relays.**

## TP971A, B, D, E and TP9610A,B

These thermostats provide a BLP proportional to the ambient temperature. In a heating application with a normally open valve (Fig. 6), a fall in room temperature causes the thermostat to lower the BLP to the valve, providing a proportional action matching the existing load requirement. When the supply air pressure is 13 psi (90 kPa), the thermostat controls at the normal DAY setting. When the supply air is switched to 18 psi (124 kPa), the thermostat controls at the reduced NITE setting. Models with 16 or 21 psi (110 or 145 kPa) pressure are available. The TP971D is the same as the TP971A with the addition of NITE setup. The TP971E is the same as the TP971B with the addition of NITE setup.

The manual reset lever protrudes through the DAY/AUTO slot in the cover. The lever is used to manually reset the thermostat from AUTO to DAY to restore day operation. The lever automatically returns to the AUTO position when the supply air reaches DAY pressure.



**Fig. 6. TP971A and TP9610A Typical Operation.**

## TP971C

The TP971C can be used with a unit ventilator to control a heating valve, outdoor- and return-air dampers, and blower motor (Fig. 7). When supply air pressure is 13 psi (90 kPa), the TP971C controls the valve and damper at the normal DAY setpoint. When supply air pressure is 18 psi (125 kPa), the TP971C closes the outdoor-air damper and switches the blower from constant to automatic operation. The TP971C then cycles the unit at reduced night setpoint. Models with 18 or 21 psi (125 or 145 kPa) pressure are available.

The manual reset lever protrudes through the DAY/AUTO slot in the cover. The lever may be used to manually reset the TP971C from AUTO to DAY to restore DAY operation, including outdoor-air damper operation. The reset lever automatically returns to the AUTO position when the supply air reaches DAY pressure.

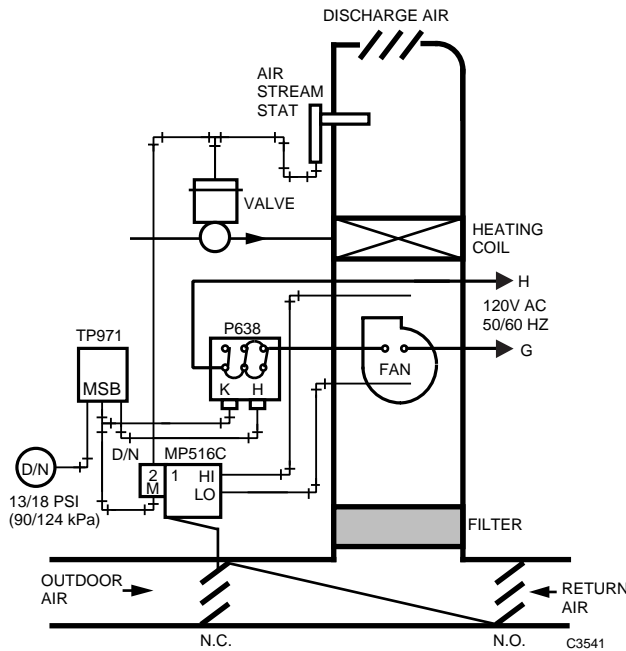


Fig. 7. TP971C Typical Operation.

## TP972A and TP9620A

The standard TP972A and TP9620A is RA for cooling and DA for heating. A rise in temperature at the TP972A and TP9620A with main air pressure at 13 psi (90 kPa) causes the TP972A and TP9620A to lower BLP, opening the valve to control the temperature with chilled water. A fall in temperature at the TP972A and TP9620A with main air pressure at 18 psi (124 kPa) causes the TP972A and TP9620A to lower BLP, opening the valve to control the temperature with hot water (Fig. 8).

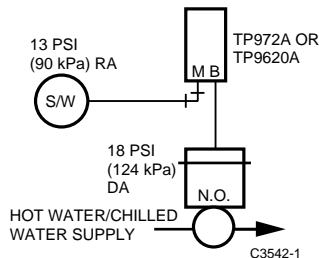


Fig. 8. TP972A and TP9620A Typical Operation with a Normally Open Water Valve Assembly.

Models are available that limit the cooling setpoint to a minimum of 75 or 78F, the heating setpoint to a maximum of 72 or 75F. They work with 13/18, 16/21, 25/20, 19/14, or 20/25 psi changeover. Some models are DA for both cooling and heating.

## TP973A,B and TP9630A,B

A fall in temperature at the TP973A or TP9630A causes the TP973A or TP9630A to lower BLP, providing proportional control of existing load requirements for heating (Fig. 9). A rise in temperature at the TP973B or TP9630B causes the TP973B or TP9630B to lower BLP, providing proportional control of existing load requirements for cooling.

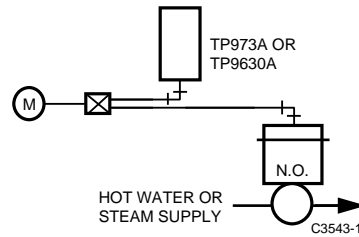


Fig. 9. TP973A and TP9630A Typical Operation, One-Pipe Using External Restriction.

## TP974A

The TP974A Sensor (Fig. 10) provides a pneumatic output signal of 3 to 15 psi (21 to 103 kPa) in direct relation to the sensed temperature, allowing direct and remote readout of the temperature. An RP908 or RP920 Controller is used with the TP974A to convert the output into a usable signal to operate a pneumatic valve, damper, or other equipment.

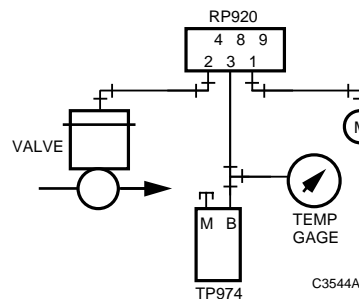


Fig. 10. TP974 Typical Operation.

## TP978E

NOTE: To vary the ZEB between heating and cooling operation, adjust the setpoints on the TP978E.

A fall in temperature within the cooling range at the TP978E causes the TP978E to increase the BLP of the cooling element. This action proportionally closes the normally open cooling valve (Fig. 11) to maintain the temperature set on the high range portion of the TP978E. The normally open heating valve is held closed by the high BLP on the DA side of the TP978E.

A continued fall in temperature, into the heating range at the TP978E, lowers the BLP of the heating element. This action proportionally opens the normally open heating valve to maintain the temperature set on the low range portion of the TP978E.

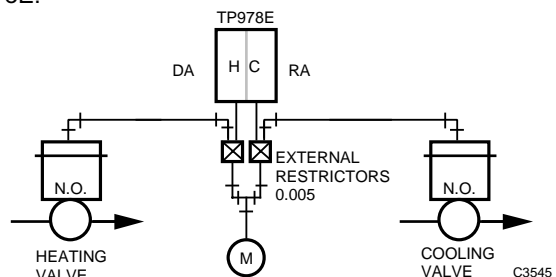


Fig. 11. TP978A Typical Operation.

## TP979A-E

The TP979 thermostats provide independent control of heating and cooling with dual thermostats and separate setpoints and branch lines. This enables ZEB operation without selected actuator springs or ratio relays (Fig. 12).

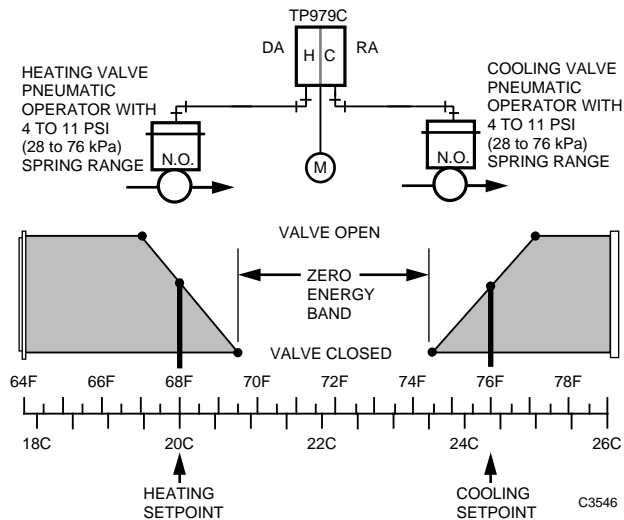


Fig. 12. TP979 Typical Operation.

The TP979D and E models provide automatic night setback of setpoint for heating and setup for cooling. Figure 13 shows potential energy savings with night setback operation.

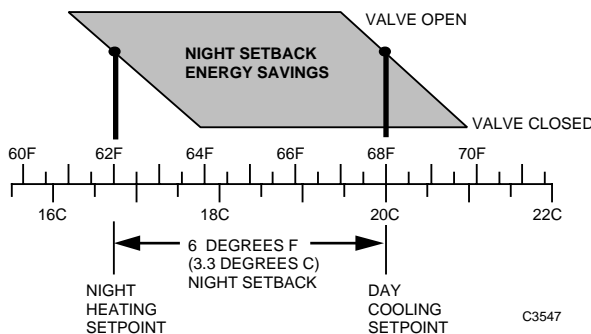


Fig. 13. Night Setback Operation, TP979.

## Covers

Both metal and plastic covers are available offering a wide selection of windows. See Tables 11 and 12 in the ACCESSORIES section for more information.

## MAINTENANCE

### General

See Figure 14 for tools necessary to calibrate TP970 and TP9600 Series thermostats.

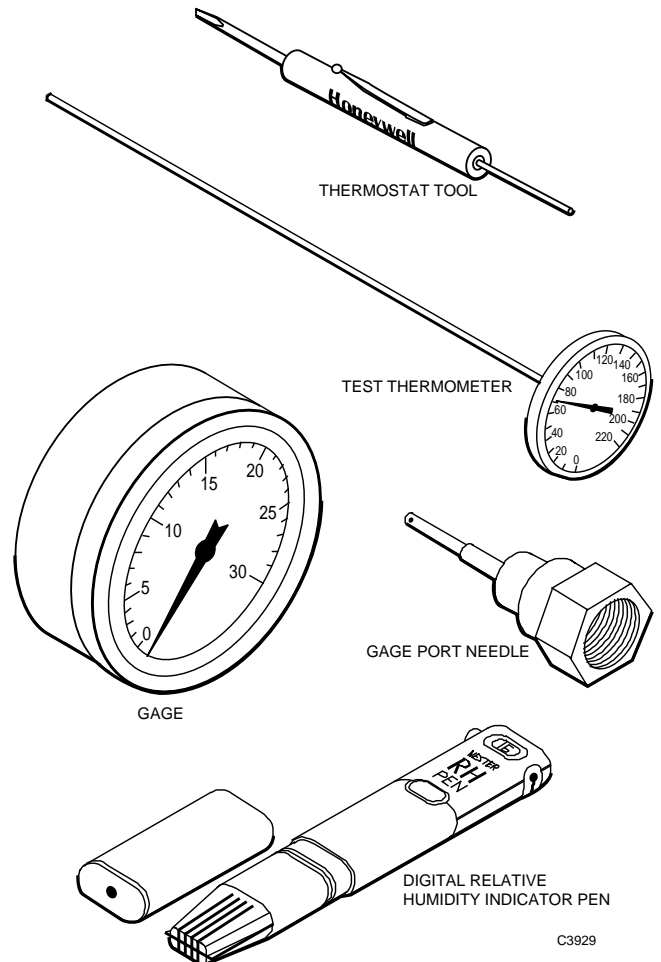


Fig. 14. TP970 and TP9600 Series Thermostat Calibration Tools.

### Cleaning

Remove the thermostat cover and clean or dust the thermostat using a soft brush or air hose. In extremely dirty or dusty environments, clean the thermostats more frequently. DO NOT use a high pressure air hose to remove dust. Use only a soft brush to clean the throttling plate nozzle assembly. No lubrication is necessary.

## Calibration

### NOTES:

1. The antihum spring (Fig. 15) 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 starting with 2000, i.e., TP972A2143 and TP9600 series).
2. The thermostats are very sensitive and should not be heated by excessive handling during calibration.
3. Calibration of the TP974 is not recommended.
4. To check calibration or to recalibrate the Limited Control Range (LCR) thermostats, the space temperature must be 78F (26C) or above for cooling applications, and 72 or 68F (22 or 20C) or below for heating applications, depending on the model. TP972A1119 and TP972A1127 are 68F (20C). The setpoint limitation is nonadjustable.
5. To check calibration or to recalibrate the TP978 ZEB thermostats, measure actual room temperature with a test thermometer. The 75F (24C) limit is nonadjustable.

## Calibration Check

1. 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. The BLP at the thermostat should build up within 30 seconds.
2. Turn the setpoint indicator adjustment up (DA) or down (RA) slowly. The thermostat should begin to bleed off audibly between 1 and 3 degrees F (0.56 and 1.7 degrees C) below (DA) or above (RA) room temperature.

## Thermometers

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 MQT970 to twist the thermostat thermometer calibration bobbin (Fig. 15) until the thermostat thermometer reading is correct.

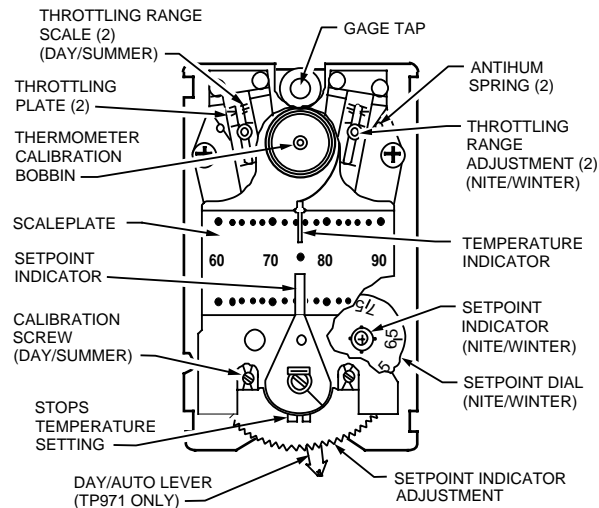
## Calibration Set-Up (For All Thermostats)

1. Start with the main air pressure at the recommended setting.
2. Remove the thermostat cover.
3. All thermostats except the TP978E: Install Gage 305965 (0 to 30 psi [0 to 207 kPa]) with Gage Adapter 315161A (Fig. 14) into the branchline pressure gage tap (except TP978E).  
TP978E: Install a 0 to 30 psi (0 to 207 kPa) gage in the branchline remote from the TP978E.
4. Turn the setpoint indicator adjustment until the setpoint indicator reads the existing temperature.

## TP970A,B and TP9600A,B

1. Set throttling range to value specified on the job drawing.
2. Turn the calibration screw (Fig. 15) until the gage reads 0 psi (0 kPa).

3. Turn the calibration screw in the opposite direction until the gage reads  $8 \pm 1$  psi ( $55 \pm 7$  kPa).
4. The TP970 and TP9600 are now calibrated. The setpoint indicator and thermometer should be within 1 degree F (0.56 degree C) of each other.
5. Remove the gage and gage adaptor and replace the cover.
6. Turn the setpoint indicator adjustment until the setpoint indicator is at the desired setting.



**Fig. 15. Thermostat Front View, Cover Off, Showing Controls and Indicators.**

## TP970C and D

1. Set the throttling range to value specified on the job drawing.
2. Check the mechanical throttling range by turning the setpoint indicator adjustment to determine the difference in setpoint indicator readings when BLP reads 3 psi (21 kPa) and 13 psi (90 kPa). It may be necessary to turn the calibration screw to obtain this measurement.
3. Reset the throttling range to within  $\pm 2$  degrees F ( $\pm 1.1$  degrees C) of the specified throttling range for accurate control. If either the throttling range adjustment or calibration screw were changed, recalibrate the thermostat.
4. See TP970A and B, beginning at Step 1, for the balance of TP970C and D calibration.

## TP971A-E and TP971A,B

1. With 13 psi (90 kPa) main air pressure, turn the DAY (SUMMER) (left) calibration screw (Fig. 15) until the gage reads 0 psi (0 kPa).
2. Turn the calibration screw in the opposite direction until the gage reads  $8 \pm 1$  psi ( $55 \pm 7$  kPa).
3. With 18 psi (124 kPa) main air pressure, rotate the NITE (WINTER) setpoint dial until the setting agrees with the indicated temperature.
4. Repeat Steps 1 and 2 using the NITE (WINTER) (right) calibration screw (Fig. 15). The TP971 is now calibrated.
5. Remove the gage and replace the cover.

## TP972A and TP9620A

1. With 13 psi (90 kPa) main air pressure, turn the DAY (SUMMER) (left) calibration screw (Fig. 15) until the gage reads 0 psi (0 kPa).
2. Turn the calibration screw in the opposite direction until the gage reads  $8 \pm 1$  psi ( $55 \pm 7$  kPa).
3. With 18 psi (124 kPa) main air pressure, repeat Steps 1 and 2 using the NITE (WINTER) (right) calibration screw (Fig. 15). The TP972 and TP9620 are now calibrated.
4. Remove the gage and replace the cover.

## TP973A,B and TP9630A,B

If the TP973A, B and TP9630A,B are not properly calibrated but the remainder of the system is operating properly, turn the calibration screw until the TP973A, B or TP9630A,B performs as in Step 2 under CALIBRATION CHECK.

## TP974A

Field calibration of the TP974A is not recommended.

## TP978A-E

If a TP978 thermostat is not properly calibrated but the remainder of the system is operating properly, turn the calibration screw until the thermostat performs as in Step 2 under CALIBRATION CHECK.

## TP979A-C

1. Turn the calibration screw (Fig. 15) until the gage reads 0 psi (0 kPa).
2. Turn the calibration screw in the opposite direction until the gage reads  $8 \pm 1$  psi ( $55 \pm 7$  kPa).
3. The thermostat is now calibrated. The setpoint indicator and thermometer should be within 1 degree F (0.56 degree C) of each other.
4. Remove the gage and gage adaptor and replace the cover.
5. Turn the setpoint indicator adjustment until the setpoint indicator is at the desired setting.

## TP979D and E

1. With 13 psi (90 kPa) main line pressure, turn the DAY (SUMMER) (left) calibration screw (Fig. 15) until the gage reads 0 psi (0 kPa).
2. Turn the calibration screw in the opposite direction until the gage reads  $8 \pm 1$  psi ( $55 \pm 7$  kPa).
3. With 18 psi (124 kPa) main air pressure, rotate the night setpoint dial until the setting agrees with the indicated temperature.
4. Repeat Steps 1 and 2 using the NITE (WINTER) (right) calibration screw (Fig. 15). The thermostat is now calibrated.
5. Remove the gage and replace cover.

## Switchover Calibration

Switchover allows for normal supply line fluctuations.

### TP971A-E and TP9610A,B

1. Ensure that main line pressure is set to low (13 psi) pressure requirement.
2. Turn the setpoint indicator adjustment until the setpoint indicator reads 5 degrees F (2.8 degrees C) below actual temperature.
3. BLP gage should read 0 psi (0 kPa) (RA) or 13 psi (90 kPa) (DA). If it does not, turn switchover adjustment screw (Fig. 16) clockwise until it does.
4. Turn the switchover adjustment screw counterclockwise until the pressure begins to increase (RA) or decrease (DA). This indicates switchover. Allow the gage to go to full line pressure (RA) or 0 psi (0 kPa) (DA).
5. Turn the switchover adjustment screw counterclockwise until pressure decreases to 0 psi (0 kPa) (RA) or increases to full main line pressure (DA). Turn the switchover adjustment screw an additional 1/8 to 1/4 turn clockwise. Switchover is calibrated.

### TP972A and TP9620A (Cooling, RA; Heating, DA)

1. Ensure that main line pressure is set to low (13 psi) pressure requirement.
2. Turn the setpoint indicator adjustment until the setpoint indicator reads 5 degrees F (2.8 degrees C) below actual temperature.
3. BLP gage should read 0 psi (0 kPa). If it does not, turn the switchover adjustment screw (Fig. 16) clockwise until it does.
4. Turn the switchover adjustment screw counterclockwise until the pressure begins to increase. This indicates switchover. Allow the gage to go to full main line pressure.
5. Turn the switchover adjustment screw counterclockwise until pressure decreases to 0 psi (switchover point). Turn the switchover adjustment screw an additional 1/8 to 1/4 turn clockwise. Switchover is calibrated.

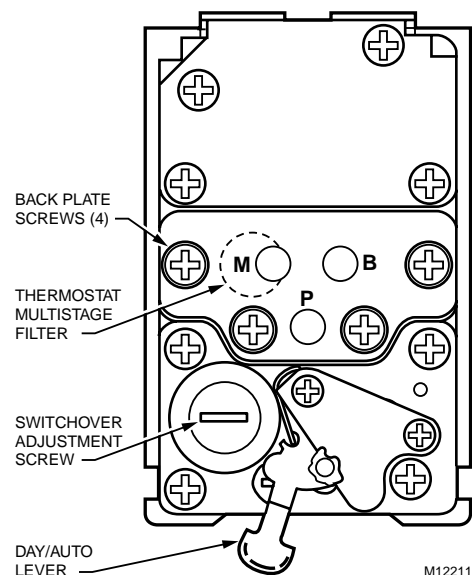


Fig. 16. Back View of Thermostat Showing Switchover Adjustment Screw and DAY/AUTO Lever.

## TROUBLESHOOTING

See Table 7 for troubleshooting procedures.

**Table 7. TP970 Series Thermostat Troubleshooting Procedures.**

Problem	Possible Cause	Solution*
Excessive noise	If there is an antihum spring, it is not touching the throttling plate.	Reposition spring to touch throttling plate.
		Stick an adhesive paper dot on the throttling plate across the hinge between the two rivets so that the dot is directly below the "A" in MAX printed on the bimetal.
	If there is no antihum spring or cone, the adhesive paper dot has fallen off of the throttling plate.	Stick an adhesive paper dot on the throttling plate as described above.
	Air leak in restrictor block and filter assembly.	Use a bubble solution to locate the leak and repair it.
		Replace the restrictor block assembly and filter.
		Install Stiffener Plate 14004609-001 on the backplate.
	Oil or moisture in lines.	Replace the restrictor block assembly and filter. Also ensure that the air supply to the thermostat is dry and clean.
Slow response	Inadequate air flow caused by a partially clogged restrictor block assembly and/or filter cartridge.	Replace restrictor block assembly and/or filter.
Thermostat instability	System gain is too high.	Move throttling range adjustment toward MAX position and then recalibrate.
Inaccurate readings	Inaccurate calibration.	Recalibrate thermostat.
	Metal cover setscrews over-tightened.	Turn setscrews in.
	Backplate over-tightened.	Install Stiffener Plate 14004609-001 on the backplate.
Thermostat not switching over at changeover pressure	Pressure at thermostat is incorrect.	Readjust compressed airline to proper switching pressure.
	Switchover pressure in thermostat is incorrectly calibrated.	Turn switchover adjustment screw to recalibrate pressure for proper switching.
Air leak	Branch line plug leaking.	Install Plug 14002172.
Cannot calibrate thermostat	Oil or moisture in lines.	Replace the restrictor block assembly and filter. Also ensure that the air supply to the thermostat is dry and clean.

\*If these solutions fail, replace the thermostat.

## REPAIR

### Thermometer Replacement

NOTE: The following procedure requires a 1/4-in. (6 mm) nut driver and a small screwdriver.

1. Insert the blade of a small screwdriver under the bimetal (Fig. 17) and pry up. Older style thermostats have a locking ring. Insert the blade between the ring and white nylon bushing and pry the ring from the thermometer bimetal mounting post.
2. Remove the bimetal and bushing by lifting the top of the plate to which the scaleplate is attached, near the hex of the bimetal mounting post.



### CAUTION

The new bimetal can be easily distorted if extreme care is not used when handling it.

3. Press the new bimetal and bushing into the thermometer post using a 1/4-in. (6 mm) nut driver over the bobbin. Allow the bimetal to cool down to the ambient temperature after handling. Slowly rotate the bushing until the thermometer pointer is aligned with the existing ambient temperature on the scaleplate.

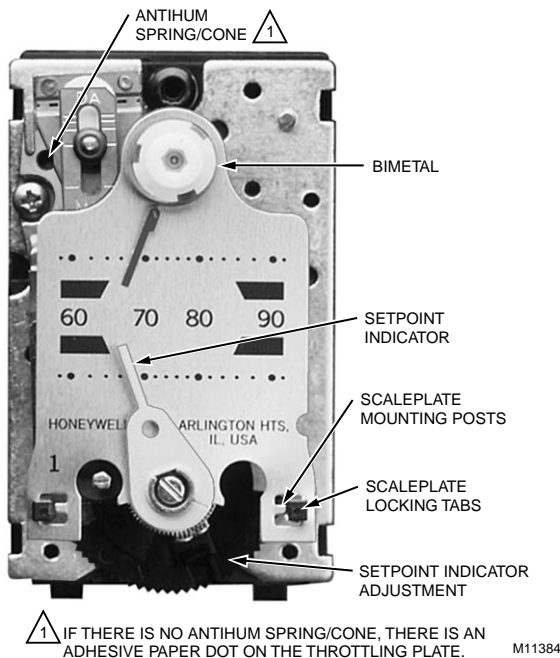


Fig. 17. Internal View of Thermostat.

### Setpoint Indicator Adjustment Replacement

NOTE: Dual temperature thermostats require removal of only one of the bimetal assemblies.

1. Remove the setpoint indicator (Fig. 17) by prying it off the indicator post with a small screwdriver.
2. Remove the thermometer bimetal (Fig. 17) by lifting the plate to which the scaleplate is attached, at the hex of the bimetal mounting post.
3. Bend the scaleplate locking tabs (Fig. 17) up and compress the scaleplate mounting posts (Fig. 17) together with the thumb and forefinger to free the scaleplate from the holding notches in the post.
4. Remove and replace setpoint indicator adjustment (Fig. 17), using caution not to damage or distort the bimetal sensing element(s). On models with DAY-NITE temperature setpoint wheel (located under the right sensing element), see the NOZZLE, THROTTLING PLATE, and BIMETAL ASSEMBLY REPLACEMENT section for removal of the bimetal and DAY-NITE scale prior to removing the setpoint indicator adjustment.
5. Reassemble in reverse order and recalibrate if required. It is not necessary to re-engage the scaleplate locking tabs (Fig. 17) in the holding notches of the scaleplate mounting posts, as they are primarily for shipping purposes.

### Nozzle, Throttling Plate and Bimetal Assembly Replacement

1. Remove cover.
2. Remove the thermometer bimetal, temperature indicator, and scaleplate as previously described, if applicable.
3. Unscrew center holding screw (TP978) or thermometer mounting post using Thermostat Tool CCT735A (MQT735A).
4. Remove the Phillips head screw and the defective assembly (Fig. 18).
5. Replace with new assembly being sure the rubber O-ring, if used, is properly aligned around the nozzle opening in the recess on the bottom of the aluminum block.
6. Insert spring cone (if used) into new assembly from the bottom.
7. Reassemble the thermostat.
8. Check that the antihum spring or cone (if used) is properly positioned so that the spring just touches the throttling plate and the base of the spring (larger end) is seated properly in the recess of the spring mounting hole (Fig. 17).
9. Calibrate the thermostat.

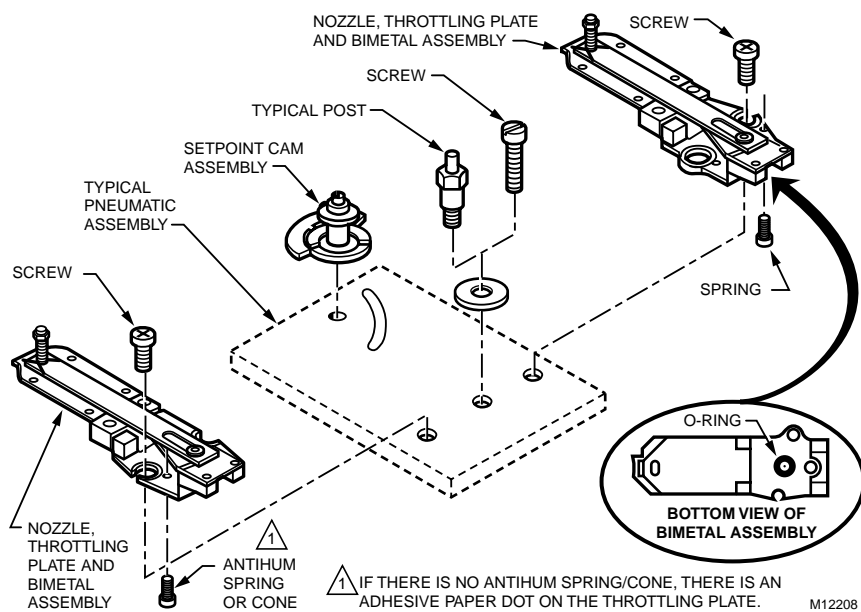


Fig. 18. Nozzle, Throttling Plate, Bimetal Assembly Replacement.

## Restrictor Block and Filter Replacement

### CAUTION

When replacing these parts, use extreme caution to prevent dirt, dust, or chips from entering various chambers and openings of the thermostat.

1. Remove the four Phillips head screws which fasten the restrictor block and filter (Fig. 19) to the back of the thermostat.
2. Carefully remove the restrictor block assembly (plate, restrictor, filter, gasket[s]).
3. Replace the restrictor block and filter.
  - a. Align the appropriate gasket over the corresponding holes in the thermostat.
  - b. Insert the filter into the gasket until it bottoms.
  - c. Position the restrictor block.
  - d. Align the other gasket on the restrictor block.
  - e. Position the plate.
  - f. Replace screws and tighten.

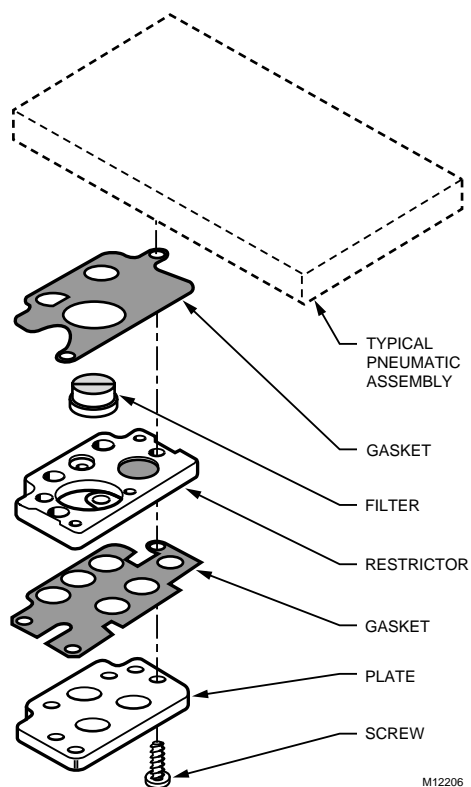


Fig. 19. Restrictor Block and Filter Replacement.



## Day/Auto Lever Assembly Replacement

1. Remove the three Phillips head screws that fasten the lever mechanism to the back of the thermostat (Fig. 20).
2. Lift off the cover plate and remove the lever (with attached seal).
3. Lift the spring from the post.
4. Install the replacement parts in reverse order.
5. Replace and tighten screws.

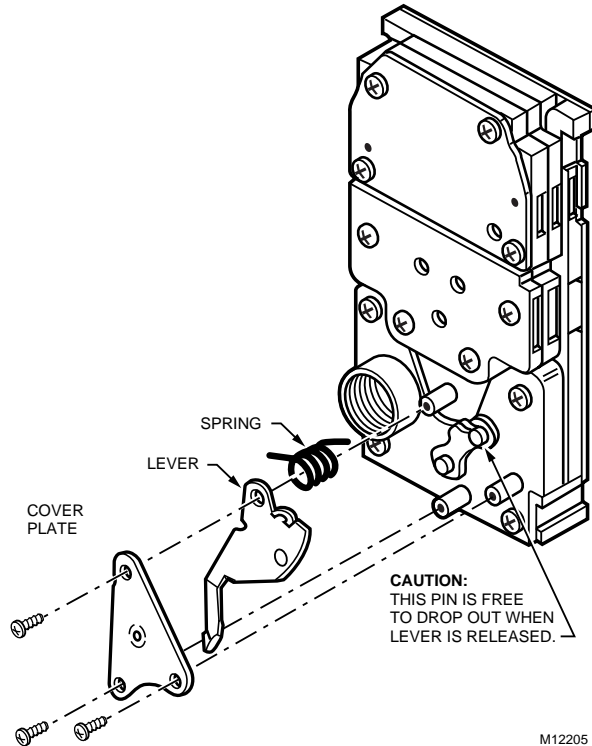


Fig. 20. DAY/AUTO Lever Assembly Replacement.

## Switchover Adjustment Spring Replacement

1. Using a screwdriver, carefully remove the screw and switchover adjustment spring (Fig. 21). See PARTS LIST in PARTS and ACCESSORIES section for available springs.
2. Replace the spring, then carefully position and replace the screw.
3. Calibrate the thermostat.

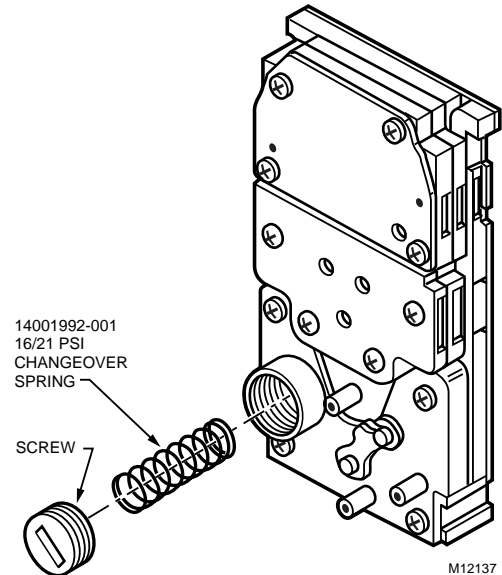


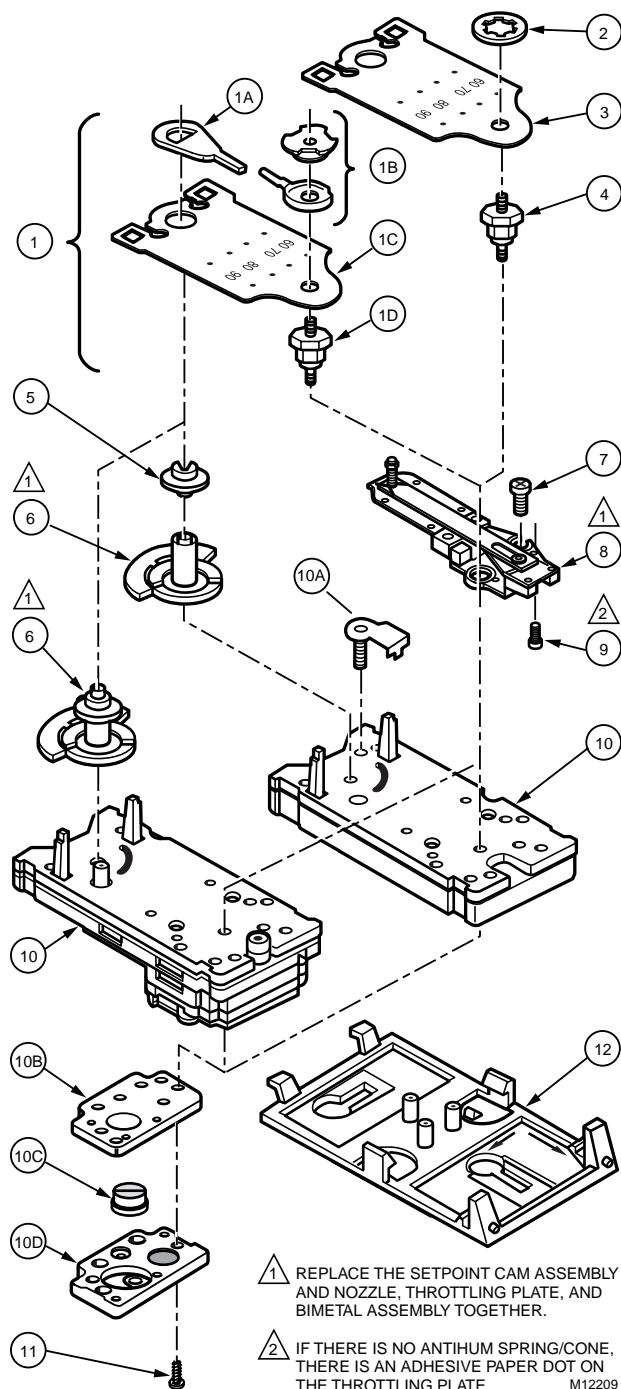
Fig. 21. Switchover Adjustment Spring Replacement.

## PARTS AND ACCESSORIES

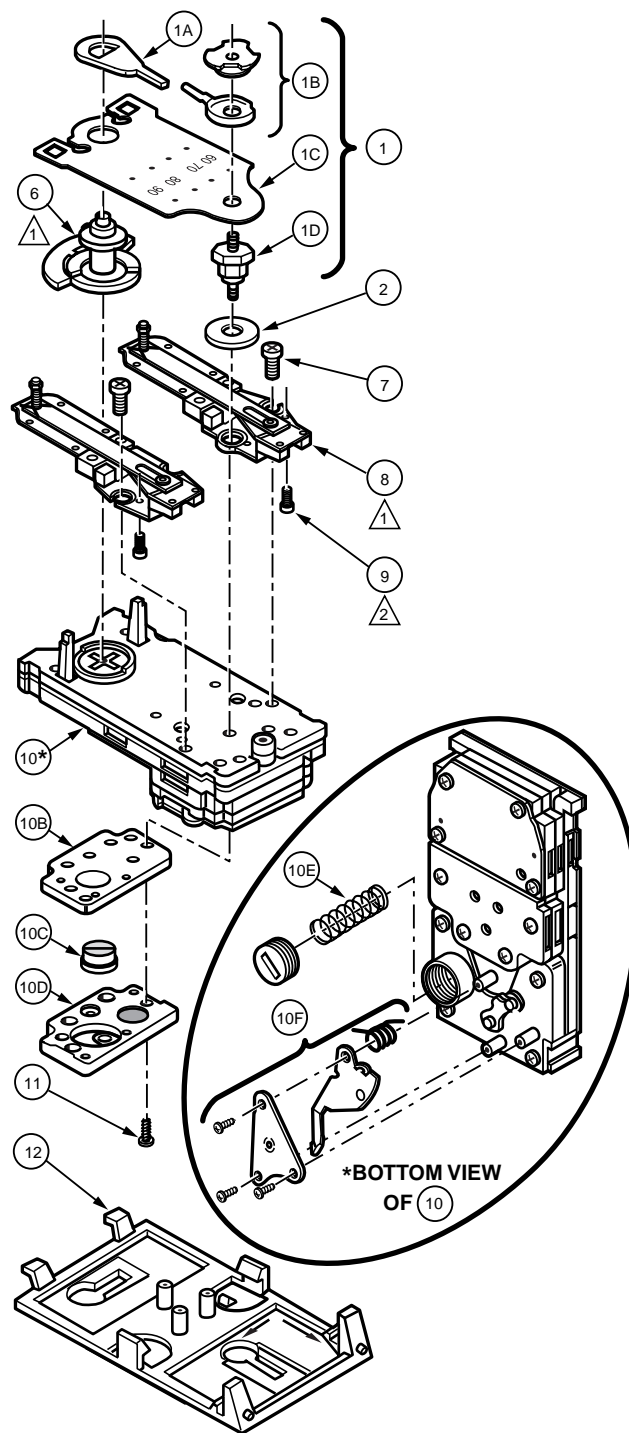
### Parts List

#### TP970-TP974 and TP9600-TP9630

See Figures 22 and 23, and Table 8 for TP970-TP974 and TP9600-TP9630 Thermostat repair parts and assemblies.



**Fig. 22. Single Element Thermostat Exploded View Showing Repair Parts and Assemblies.**



- 1 REPLACE THE SETPOINT CAM ASSEMBLY AND NOZZLE, THROTTLING PLATE, AND BIMETAL ASSEMBLY TOGETHER.
- 2 IF THERE IS NO ANTIHUM SPRING/CONE, THERE IS AN ADHESIVE PAPER DOT ON THE THROTTLING PLATE.

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**Fig. 23. Dual Element Thermostat Exploded View Showing Repair Parts and Assemblies.**

Table 8. TP970-TP974 and TP9600-TP9630 Thermostat Repair Parts and Assemblies.

Key No.	Part No.	Description
1	14004459-001	Scaleplate Bag Assembly (60 to 90F) - TP970A-D, TP973A, B
	14004459-002	Scaleplate Bag Assembly (40 to 70F) - TP970A-D
	14004459-003	Scaleplate Bag Assembly (15 to 30C) - TP970A-D, TP973A, B
	14004459-004	Scaleplate Bag Assembly (60 to 90F) - TP971A-E
	14004459-005	Scaleplate Bag Assembly (15 to 30C) - TP971A-C
1A	—	Pointer
1B	—	Thermostat Assembly
1C	—	Scaleplate
1D	—	Thermostat Mounting Post
2	—	Retainer Ring (Fig. 23)
2	—	Washer (Fig. 24)
3	—	Scaleplate
4	—	Post, Thermostat Assembly
5	—	Bushing - TP973
*	14004447-001	Setpoint Cam Assembly - TP970A1004, A1012, A1020, A1038, A1046, A1053, A1095, A2004, A2012, A2020, A2038, A2053, A2095; TP970C; TP972A1143, A2143; TP973A1001, A1019, A1127
	14004447-002	Setpoint Cam Assembly - TP970B1002, B1010, B1028, B1036, B2002, B2010, B2028, B2036; TP970D; TP972A1002, A1010, A1028, A1044, A2002, A2010, A2028, A2044; TP973B1009, B1017, B1025, B1108
	14004447-003	Setpoint Cam Assembly - TP971A, C, D; TP972A1168, A2168, A2176
	14004447-004	Setpoint Cam Assembly - TP971B, E; TP972A1036, A1077, A1085, A1150, A1184, A2036, A2150
	14004447-005	Setpoint Cam Assembly - TP970B1044; TP972A1051, A1101
	14004447-006	Setpoint Cam Assembly - TP970A1061, A1087, A2087
	14004447-007	Setpoint Cam Assembly - TP972A1093, A1127
	14004447-008	Setpoint Cam Assembly - TP972A 1119
	14004429-001	Setpoint Cam - TP973A1035, A1043, A1050, A1068, A1076, A1084, A1092, A1100, A2068, A2076, A2084, A2092, A2100
	14004429-002	Setpoint Cam - TP973B1033, B1041, B1058, B1066, B1074, B1090, B2066, B2074, B2090
7	—	Screw, No. 4-3/16 pan head
8*	14004460-001	Nozzle, Throttling Plate, Bimetal Assembly, DA, Left Side - TP970A; TP971A, C, D; TP972A; TP973A
	14004460-002	Nozzle, Throttling Plate, Bimetal Assembly, RA Left Side - TP970B; TP971B, E; TP972A; TP973B
	14004460-003	Nozzle, Throttling Plate, Bimetal Assembly, DA, Right Side - TP971A, C; TP972A
	14004460-004	Nozzle, Throttling Plate, Bimetal Assembly, DA - TP970C
	14004460-005	Nozzle, Throttling Plate, Bimetal Assembly, RA - TP970D
	14004460-006	Nozzle, Throttling Plate, Bimetal Assembly, DA, Right Side - TP971D
	14004460-007	Nozzle, Throttling Plate, Bimetal Assembly, RA, Right Side - TP971E
9†	—	Antihum Spring/Cone

\*Replace the Setpoint Cam Assembly and Nozzle, Throttling Plate, Bimetal Assembly together.

†If there is no antihum spring or cone, there is an adhesive paper dot on the throttling plate.

(continued)

**Table 8. TP970-TP974 and TP9600-TP9630 Thermostat Repair Parts and Assemblies (continued).**

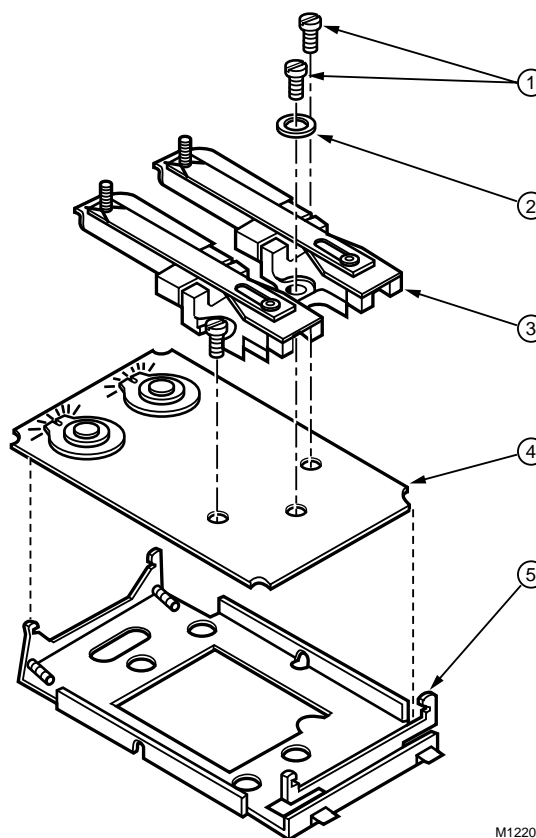
Key No.	Part No.	Description
10	14002051-001	Pneumatic Assembly, TP970-TP973 - Includes 10B and 10C below
	14002102-004	Pneumatic Assembly, TP974A - Includes 10B and 10C below
10A	—	Tab and Screw - TP974A
10B	14004419-001	Gasket, Restrictor block (included with 14002374-XXX)
10C	14001865-001	Filter
10D	14002374-001	Restrictor Block Assembly (0.005 restrictor, 2 pipe) - TP970A-D; TP971A, B, D, E; TP972A; TP973A, B
	14002374-005	Restrictor Block Assembly (0.005 restrictor, 3 pipe) - TP971C
	14002374-006	Restrictor Block Assembly (0.007 restrictor, 2 pipe) - TP974A
10E	14002373-001	Switchover Spring Assembly, silver - 16 to 21 psi (110 to 145 kPa)
	14002373-002	Switchover Spring Assembly, gold - 13 to 18 psi (90 to 124 kPa)
	14003923-001	Switchover Spring Assembly, blue - 20 to 25 psi (140 to 175 kPa)
10F	14002372-001	DAY/AUTO Lever Assembly
11	—	Screw, No. 4-40 x 5/8 an head (included with 14002374-XXX)
12	14002053-001	Wall Plate Assembly with setscrews 14003454-001 (2)

\*Replace the Setpoint Cam Assembly and Nozzle, Throttling Plate, Bimetal Assembly together.

†If there is no antihum spring or cone, there is an adhesive paper dot on the throttling plate.

## TP978E

See Figure 24 and Table 9 for TP978E Thermostat repair parts and assemblies. The TP978A-D Thermostats have not been replaced.



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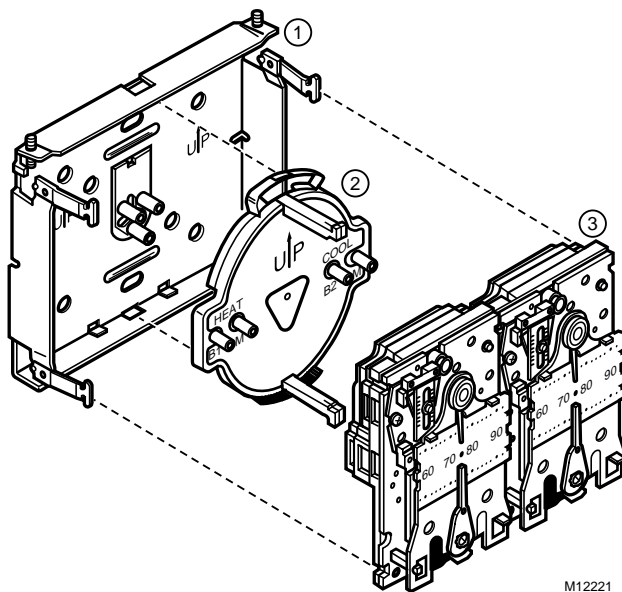
**Fig. 24. TP978E Exploded View.**

**Table 9. TP978E Thermostat Repair Parts and Assemblies.**

Model					Key No.	Part No.	Description
A	B	C	D	E			
					1	—	Screw, No. 4 x 3/16 pan head (2)
X		X			2	—	Washer
				X	3	14002387-004	Nozzle, Throttling Plate, Bimetal Assembly (DA, left)
				X		14002098-004	Nozzle, Throttling Plate, Bimetal Assembly (RA, left)
				X		14002098-005	Nozzle, Throttling Plate, Bimetal Assembly (DA, right)
					4	14003855-005	Base and Cam Assembly
					5	14002095-001	Mounting Plate Assembly
	X		X			14002387-005	left side (R.A.) 60-73
X	X					14002387-006	Right side (D.A.) 77-90
			X	X		14002387-007	Right side (R.A.) 77-90

## TP979A-E

See Figure 25 and Table 10 for TP979A-E Thermostat repair parts and assemblies.



**Fig. 25. TP979 Exploded View.**

**Table 10. TP979A-E Thermostat Repair Parts and Assemblies.**

Key No.	Part No.	Description
1	14004057-001	Mounting Plate Assembly
2	14004058-001	Manifold Assembly
3	TP979A	Requires two TP970A2004
	TP979B	Requires two TP970B2002
	TP979C	Requires one TP970A2004 and one TP970B2002
	TP979D	Requires one TP9712003 and one TP971D2007
	TP979E	Requires one TP971B2001 and one TP971E2004


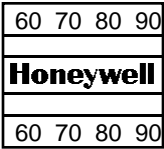
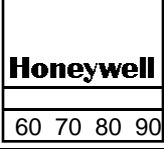
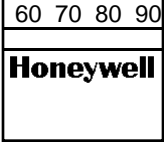
## Accessories

See TP970-TP974 and HP970 Series Fittings Installation Instructions 95-7134 for illustrations or further information on the following pneumatic fittings.

Table 11. TP970 Series Thermostat Accessories.

Part No.	Description
	Airhead:
14000686-002	Two-pipe red—angled
14000742-002	Two-pipe red—straight
14001527-001	Three-pipe —white, straight
14004558-002	Tube-Spring assembly—6 inch branch, black
14004558-001	Tube-Spring assembly—6 inch main, red
14002172-001	Branch Line Gage Tap Plug
	Cable Assembly:
14001494-001	One-pipe—8 ft (2.5m) poly sheathing
14001494-002	Two-pipe—8 ft (2.5m) poly sheathing
14001494-003	Three-pipe—8 ft (2.5m) poly sheathing
See Tables 11 & 12	Covers:
14004505-001	Double Elbow—Used with airheads
14002362-001	Duct Sampling Chamber with Shallow Wall Plate Fittings
14001496-001	Electrical Box Adapter Plate
311699	Internal Tubing Spring—Used as strain relief inside plastic tubing
	Modernization Fitting, Universal:
14002573-001	One- and Two-Pipe
14002573-002	Three-Pipe
14003192-001	Serviceline Adapter Kit (for Honeywell stats prior to 1985)
	Mounting Ring:
14004458-001	Flush
14004458-001	Surface
14000885-001	Standoff Plaster Ring
14004300-001	Setpoint (Indicator Adjustment) Knob Retainer Kit—Used to prevent setpoint knob breakage on TP970 and TP973 thermostats with metal covers. Kit contains two socket-head screws, an Allen key, two round spacers, and a bar. The bar fits across the bottom of the thermostat to shield setpoint knob.
14002430-001	Thermostat Heavy Duty Guard
14002424-002	Wall Box—Aspirating with 8 ft (2.5m) 5/32-in. O.D. plastic tubing
AK3970	Cover for Aspirating Wall Box
	Wall Box—Deep:
14001494-001	One-Pipe—8 ft (2.5m) copper tubing assembly
14001494-002	Two-Pipe—8 ft (2.5m) copper tubing assembly
14001494-003	Three-Pipe—8 ft (2.5m) copper tubing assembly
14001492-001	Two-Pipe—8 ft (2.5m), 5/32-in. plastic tubing assembly (modified 1985)
14001354-001	Mounting Bracket—Deep Wall Box
14001355-001	Box alone
	Wall Box—Shallow:
14001615-001	One-Pipe—8 ft (2.5m) copper tubing assembly (modified 1985)
14001616-001	One-Pipe—8 ft (2.5m), 5/32-in. plastic tubing assembly (modified 1985)
14001615-002	Two-Pipe—8 ft (2.5m) copper tubing assembly (modified 1985)
14001616-002	Two-Pipe—8 ft (2.5m), 5/32-in. plastic tubing assembly (modified 1985)
14001614-001	Plate alone
	Wall Plate:
14002136-004	Black
14002136-005	Beige
14002540-002	Q629 A-C Fan Speed Switch
14004401-002	Convertastat Adapter
14001905-001	Wall Plate Assembly—blank, beige, with screws
14002053-001	Mounting Plate Assembly (Before 1985 this was a metal plate requiring an airhead. Now it is plastic and includes tube connection barbs.)
14004609-001	Steel Stiffener Plate (for stronger support of 14002053-001)


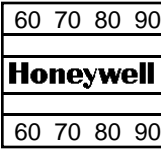
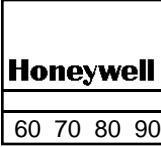
Table 12. TP970 Series Thermostat Covers—Satin Chrome.

Window Insert	Display Unit	Part Number 14004406-XXX*							
		Honeywell Logo				No Logo			
		Setpoint Slot				Setpoint Slot			
		Open		Closed		Open		Closed	
		Mounting		Mounting		Mounting		Mounting	
		Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz
	None	—	—	-300	-400	—	—	†	-800
	Setpoint	Thermometer							
	15-30 (C)	15-30 (C)		-110	-210	-310	—	—	—
	60-90 (F)	60-90 (F)		-111	-211	-311	—	-511	-611
	40-70 (F)	40-70 (F)		-112	—	—	—	—	—
	Heat range/ Cool range 60-90 (F)	60-90 (F)		-114	—	—	—	—	—
	15-30 (C)	—		-120	—	-320	—	—	—
	60-90 (F)	—		-121	—	-321	—	—	—
	40-70 (F)	—		-122	—	—	—	—	—
	COOLER/ WARMER	—		-123	—	—	—	—	—
	—	15-30 (C)		—	—	-330	—	—	—
	—	60-90 (F)		—	—	—	—	—	—

\*When ordering, use complete part number including three-digit suffix.

†14004406-008 Cover also suitable for vertical mounting.

**Table 13. TP970 Series Thermostat Covers—Beige Plastic.**

Window Insert	Display Unit	Part Number 14004407-XXX*							
		Honeywell Logo				No Logo			
		Setpoint Slot				Setpoint Slot			
		Open		Closed		Open		Closed	
		Mounting		Mounting		Mounting		Mounting	
		Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz
	None	—	—	-300	-400	—	—	†	-800
	Setpoint	Thermometer							
	15-30 (C)	15-30 (C)		-110	-210	—	—	—	—
	60-90 (F)	60-90 (F)		-111	—	-311	—	-511	—
	15-30 (C)	60-90 (F)		-113	—	—	—	—	—
	60-90 (F)	—		-121	—	—	—	—	—

\*When ordering, use complete part number including three-digit suffix.

†14004406-008 Cover also suitable for vertical mounting.

14004407-XXX Covers are paintable. See HP970-72 and TP970-74 Pneumatic Sensors, Humidistats, and Thermostats Installation Instructions 95-5597 for painting information.



**Fig. 26. TP9600 Series Thermostat.**

**Table 14. TP9600 Series Thermostat Covers.**

Model	Setpoint	Thermometer
TP9600A	Visible and adjustable	Visible
TP9600B	Visible and adjustable	Visible
TP9603A	Concealed	Concealed
TP9603B	Concealed	Concealed
TP9610A	Visible and adjustable	Visible
TP9610B	Visible and adjustable	Visible
TP9613A	Concealed	Concealed
TP9613B	Concealed	Concealed
TP9620A	Visible and adjustable	Visible
TP9623B	Concealed	Concealed
TP9630A	Visible and adjustable	Visible
TP9630B	Visible and adjustable	Visible
TP9633A	Concealed	Concealed
TP9633B	Concealed	Concealed

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