SIEMENS

Technical Bulletin
Document No. 155-255P25
TB 241
Rev. 2, December, 2001

Powers™ Controls

Test Head Kit for Testing Room Thermostat and Transmitter Air Lines

Product Number 832-179

Description

The test head kit is used for testing one-pipe transmitters and TH 180, TH 182, TH 192, TH 194, **Free Energy Band**™ TH 193 HC, and "D" room thermostat air lines for leakage. The kit contains all the items listed in Table 1. The test head kit assembly is shown in Figure 1. Recommended test procedures follow.

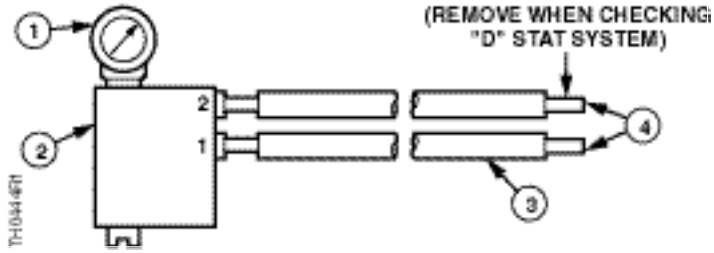

Figure 1. Test Head Assembly.

Table 1. Test Head Kit Parts List.

Item	Description	Quantity
1	1-1/2-inch pressure gauge, 0 to 30 psi and 0 to 200 kPa	1
2	Test head	1
3	5/32-inch (4 mm) O.D. plastic tubing, 12 inches (305 mm) long	2
4	1/8-inch (3.2 mm) O.D. terminal	2
5	D thermostat terminal adapter	1
6	Terminal adapter gasket	1
7	Screws 6-32 × 3/8-inch long	2

Test Procedure for the TH 180, TH 182, TH 192, TH 193 HC, and TH 194 Two-pipe Air Lines

See Figure 2 for the proper connections of the test head to the wall plate.

1. Remove the thermostat from the terminal to be tested and connect the test head to the wall plate.
2. Open the valve in the test head by turning it counterclockwise with a screwdriver. Allow time for the supply air to fill the return line (R or R1) and the controlled device. The pressure gauge should read supply pressure.
3. Close the valve in the test head (turn clockwise) and note any pressure change on the gauge.
4. If pressure does not drop or drops very slowly, there are no serious leaks in the system.
5. If there is an appreciable pressure drop, more than 4 psi (28 kPa) in 10 minutes, the leak must be located and eliminated.

The test procedure is complete.

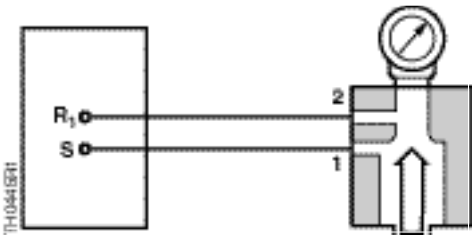

Figure 2. Test Head To Wall Plate Connection.

Test Procedure for One-pipe Transmitter and Thermostat Air Lines

1. Remove the transmitter or thermostat from the terminal to be tested and connect the test head to the terminal. See Table 2 for the proper connections.

Table 2. Terminal Connections.

One-Pipe Instrument	Test Head Terminal No.	Connects To	Wall Plate Terminal
TH 180	1	→	R (See Note)
TH 182			
TH184			
TH186	2	→	S
TH 192	1	→	S
TH 193 HC	2	→	R_1 (See Note)

NOTE: Although one-pipe instruments have two connections shown, only one is functional.

Test Procedure for One-pipe Transmitter and Thermostat Air Lines, Continued

As an example, see Figure 3 which shows the proper connections for the TT 184 transmitter.

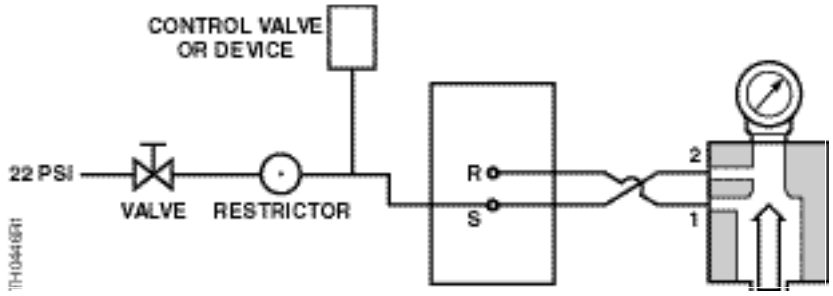

Figure 3. TT 184 Transmitter Connections.

2. Close the valve in the test head by turning it clockwise with a screwdriver. Allow time for the restricted supply air to fill the line and controlled device. The pressure gauge should read supply pressure.
3. Close the hand valve in the supply line ahead of the restrictor.
4. Pressure drop allowance is calculated in the following manner:
   a. For each 100 feet (31 m) of 1/4-inch (6.4 mm) O.D. plastic tubing, the pressure must not drop below 11 psi (76 kPa) in less than one hour. For 200 feet (61 m) the time is two hours, etc.
   b. For each 100 feet (31 m) of 1/4-inch (6.4 mm) O.D. copper tubing, the pressure must not drop below 11 psi (76 kPa) in less than 1-1/2 hours. For 200 feet (61 m) the time is three hours, etc.
   c. The leakage mentioned in steps a) and b) amounts to 3 Standard Cubic Inches per Minute (SCIM) (0.8 ml/s), the maximum that can be tolerated by one-pipe transmitters.

The test procedure is complete.

Test Procedure For D Thermostat Air Lines

See Figure 4 for the proper connections of the D thermostat.

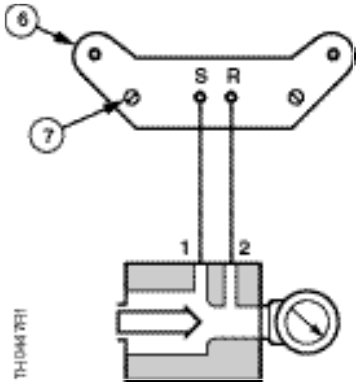

Figure 4. "D" Thermostat Air Line Connections.

Test Procedure For D Thermostat Air Lines, Continued

1. Remove the D thermostat from the terminal to be tested and connect the terminal adapter and gasket, items 5 and 6, to the terminal head in the base of the D thermostat.

2. Connect the test head to the terminal adapter.

3. Open the valve in the test head by turning it counterclockwise with a screwdriver. Allow time for the supply air to fill the return line (R) and the controlled device. The pressure gauge should read supply pressure.

4. Close the valve in the test head (turn clockwise) and note any pressure change on the gauge.

5. If the pressure does not drop or drops very slowly, there are no serious leaks in the system.

6. If there is an appreciable pressure drop, more than 4 psi (28 kPa) in 10 minutes, the leak must be located and eliminated.

The test procedure is complete.