JOHNSON CONTROLS®

24-3929-5, Rev. B

T-4506
Day-Night Room Thermostat

The T-4506 is a dual temperature thermostat designed to provide individual day control and night or weekend setback. The change from day to night is accomplished with a change in supply pressure.

Models

Action	Mtg	T-4506 Suffix w/Switch	T-4506 Suffix w/o Switch
Direct	Horiz.	201	203
	Vert.	202	204
Reverse	Horiz.	209	217

Specifications

Supply Pressure	Lower Element	13 to 18 PSIG (91 to 126 kPa) Nominal 15 PSIG (105 kPa)
	Upper Element	17 to 25 PSIG (119 to 175 kPa) Nominal 20 PSIG (140 kPa)
Sensitivity		Adjustable from .75 to 4 PSI/F° (9 to 50 kPa/C°); Factory Set at 2.5 PSI/F° (31 kPa/C°)
Switchover Pressure		Factory Set at 17.5 PSIG (122 kPa) Adjustable 15 to 20 PSIG (105 to 140 kPa)
Air Consumption		20 SCIM (5.5 mL/s)
Output Flow Capacity		400 SCIM (109 mL/s)
Ambient Temp. Limits		-20 to 130F (-29 to 54°C)
Air Connections		Barbed Fittings for 5/32 in. O.D. Polytubing

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

Factory Calibration

The T-4506 is factory calibrated to send an 8 ± 1 PSIG (56 ± 7 kPa) output signal when room temperature is at the setting on the dials. The lower element (and dial) is in control at 15 PSIG (105 kPa) supply pressure and the upper element (and dial) is in control at 20 PSIG (140 kPa) supply pressure. The switchover point is calibrated at 17.5 PSIG (122 kPa), midway between the usual 15 and 20 PSIG supply pressures.

Mounting

NOTE: When handling the unit, leave the front of the blisterpack on to protect the instrument until mounting is complete.

Room thermostats can be connected directly with 5/32 in. O.D. polytubing to barbed fittings on the back of the unit. The fittings are marked "S" for supply and "O" for output. If the installation was roughed in with 1/4 in. polyurethane tubing, use short lengths of black 5/32 in. tubing as couplers to make the connection. Secure the thermostat tight against the mounting bracket with the hex head screws on the corners of the unit.

If the installation was roughed in with a terminal connector on the mounting bracket , simply fit the barbed fittings into the the terminal connector and secure the thermostat tight against the mounting bracket with the hex head screws on the corners of the unit.

If the thermostat is to be installed on an old T-4000 pipehead, install two 1/2 in. long 5/32 in. pieces of polyurethane tubing on the fittings. Secure the thermostat tight against the mounting bracket and install the unit over the pipehead.

When mounting is complete, attach the DAY and NIGHT labels to the appropriate levers connected to the elements.

Switchover Pressure Adjustment

For dual supply pressures other than 15/20 PSIG, readjust the switchover pressure as follows:

1. Remove the controller from the mounting bracket.
2. Connect a variable pressure source to the supply connection and attach a gage or dead-ended chamber to the output connection.
3. Set supply pressure to the desired switchover point.
4. Slowly turn the switchover point adjusting screw (See Fig. 1) clockwise to increase or counterclockwise to decrease the switch point. Always adjust the switchover pressure from the low side. Note: Do not turn the switch point adjusting screw more than three and one half complete revolutions.
5. Recheck the switchover point by increasing and decreasing the supply pressure over the switch point to see that switchover occurs at the desired value.
6. Remove the gage and tubing and replace the instrument on the mounting bracket.

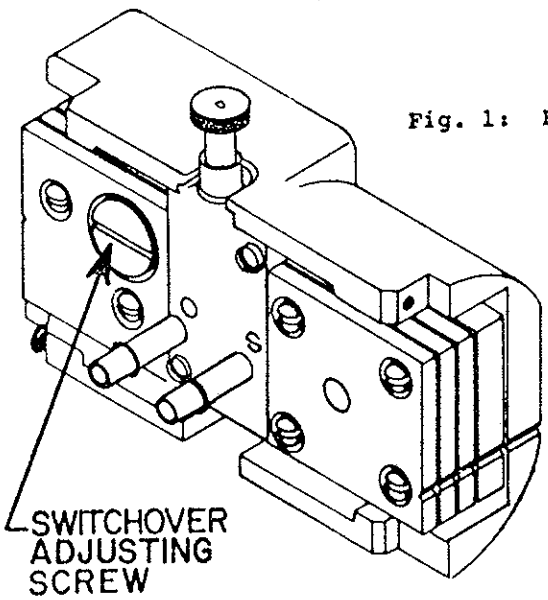


Fig. 1: Back View of Instrument

Set Point Adjustment (See Fig. 2)

Lower Element

1. Furnish 15 PSIG (105 kPa) supply pressure to the instrument.
2. Note the temperature at the element.
3. Turn the lower set point dial to that temperature.
4. Turn the lower calibration screw to provide an output pressure equal to the mid spring range of the controlled device.
5. Turn the set point dial to the desired temperature.

Upper Element

1. Furnish 20 PSIG (140 kPa) supply pressure to the instrument.
2. Repeat Steps 2 through 5 above on the upper element and dial.

Operational Checkout

1. Furnish 15 PSIG (105 kPa) supply pressure to the instrument.
2. Slowly increase the lower dial setting.
3. Check for a gradual decrease in output pressure on the direct acting (DIR) model or increase in output pressure on the reverse acting (REV) model.
4. Slowly decrease the lower dial setting.
5. Check for a gradual increase in output pressure on the DIR model or decrease in output pressure on the REV model.
6. Repeat the procedure on the upper element using 20 PSIG (104 kPa) supply pressure.
7. If a pressure buildup and drop is not observed as mentioned above, refer to Repair Information.

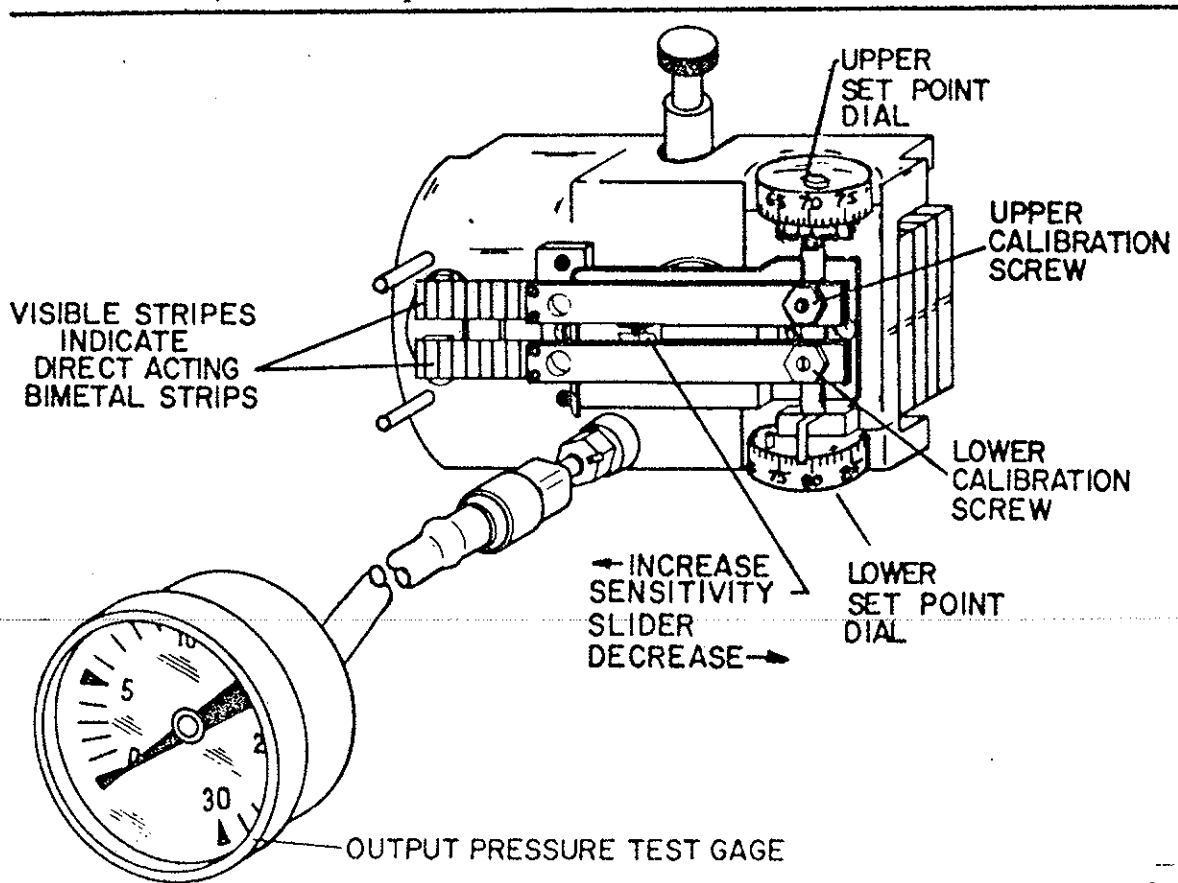


Fig. 2: T-4506 Adjustments

Sensitivity Adjustment

The T-4506 is factory set at 2.5 ± 0.5 PSI/F° (31 ± 6 kPa/C°). Some situations may require a sensitivity adjustment for proper instrument operation. To do so, move the sensitivity slider to the left to increase or to the right to decrease the sensitivity setting. If the output pressure changes due to moving the slider, restore the output pressure to its original value by turning the adjustment screw on the slider clockwise to decrease or counterclockwise to increase the pressure. Note: This screw is not intended for set point calibration. Refer to Figure 2.

Manual Indexing Switch

This pushbutton switch is offered on some models to provide a means of restoring day control to the thermostat during the night cycle. The switch can be unlatched manually or will unlatch automatically with the next day cycle.

Repair Information

If the T-4506 fails to operate within its specifications, refer to the Counterline Catalog for appropriate repair parts.

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