

# ACCESSORY KIT INSTALLATION MANUAL

## THERMAL EXPANSION VALVE KITS WITH

R-22 – (S1-1TVMCA1, S1-1TVMCB1, S1-1TVMCD1) OR

R-410A – (S1-1TVMBA1, S1-1TVMBB1, S1-1TVMBC1, S1-1TVMBD1)

FOR USE ON COIL MODELS: CF, CM, CU

FOR USE ON AIR HANDLER MODELS: AP, AE, AVC, RFCX\*P2, RFCX\*E2

### GENERAL INFORMATION

This thermal expansion valve (with internal check valve) is to be used with flex coils for models listed above. This kit is required to provide overall rated system performance improvement. The kit can be applied to the listed indoor (ID) coils and air handlers, both for heat pump and cooling applications.

The kit consists of a bolt-on thermal expansion valve (TXV), 2.5 feet of thermal insulation, bulb straps or bulb clamp and this instruction.

When a TXV kit is installed, a hard start kit may be required. Consult your outdoor (OD) Tabular Data Sheet.

Refer to Tabular Data Sheet for specific model TXV/match-up.

S1-1TVMBA1, S1-1TVMBB1, S1-1TVMBC1,  
S1-1TVMBD1 series TXV kits are R-410A A/C and HP compatible.

### INSTALLATION

To install the TXV, use the following steps. The coil may have to be pulled out of the casing for installation access.

#### **WARNING**

*The ID coil is under 30 psig of pressure.*

#### **CAUTION**

*The ID coil is under inert gas pressure. The pressure can be relieved from the coil by depressing the Schrader core at the end of the suction manifold stub out.*

#### **CAUTION**

*The OD unit model numbers ending with an "H" have a factory installed hard start kit. Most OD units require a hard start kit when utilizing a TXV for refrigerant metering. Refer to the OD unit Tabular Data Sheet.*

#### **IMPORTANT**

*If necessary, refer to the Technical Guide for the unit to determine the proper TXV kit to be used on this product.*

1. Relieve holding charge by depressing Schrader core on end of suction manifold stub out.
2. After holding charge is completely discharged, loosen and remove Schrader core from Schrader valve stem at end of suction manifold stub out.

3. Place a backup wrench on distributor, loosen and remove brass distributor nut. Retain brass nut for use on liquid line. Keep Teflon washer in place, and discard clear disk.
4. Install TXV on distributor assembly with supplied fittings. Ensure Teflon washer is seated in distributor. Hand tighten and turn an additional 1/4 turn to seal. Do not overtighten fittings. See Figure 1.

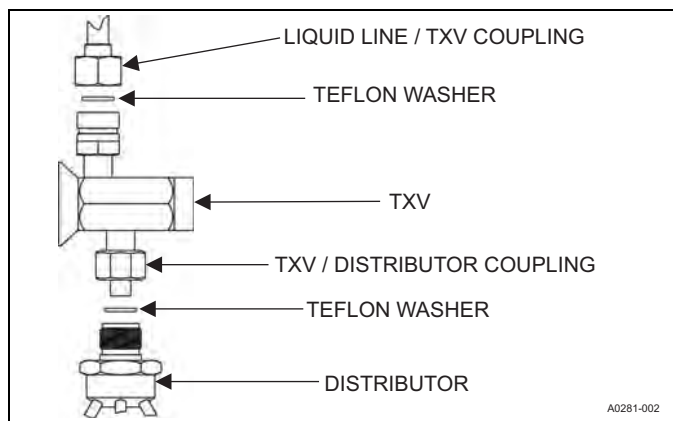


FIGURE 1: TXV Installation

#### **CAUTION**

*Do not overtorque. Do not use slip joint pliers. This will distort the aluminum distributor and the brass fitting (potentially causing leaks).*

5. Slide the nut removed in step 3 over the supplied liquid line. Place supplied Teflon washer from TXV kit in place on TXV, and install liquid line to the top of the thermal expansion valve. Adjust assembly so liquid line aligns with hole in access panel. Hand tighten the liquid line, and apply an additional 1/4 turn to seal.

#### **WARNING**

*Schrader valve core **MUST NOT** be installed when TXV is installed. Poor system performance or system failure could result.*

6. Install the TXV equalizer line onto the vapor line by hand tightening the 1/4" SAE flare nut to the equalizer fitting, and apply an additional 1/3 turn to seal. See Figure 2.

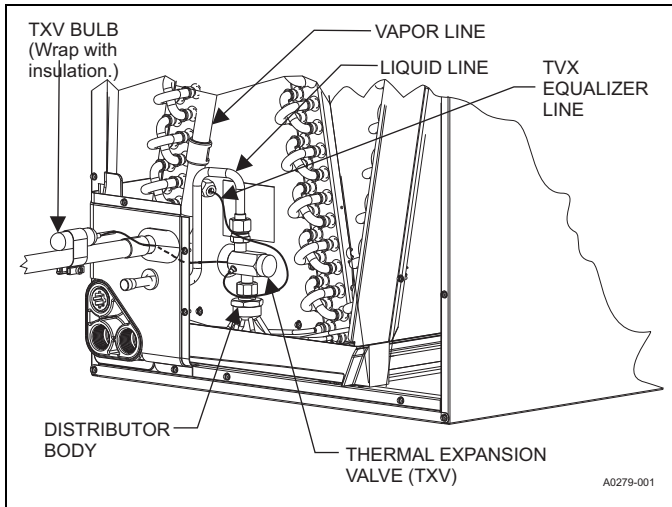


FIGURE 2: TXV Bulb and Equalizer line Installations

## ⚠ CAUTION

*In all cases, mount the TXV temperature sensing bulb after vapor line is brazed and sufficiently cooled.  
Failure to use suction line split grommet may result in grommet TXV failure.*

7. Pass the TXV temperature sensing bulb through the suction line split grommet in the access panel.
8. Install the TXV bulb to the vapor line near the cabinet, using the bulb clamp(s) furnished with the TXV assembly. Ensure the bulb is making maximum contact. See Figures 2 and 3, and accomplish the following:
  - a. If possible, install the temperature bulb on a horizontal run of the vapor line. Ensure that the bulb is installed at a 10 o'clock or 2 o'clock position.
  - b. If bulb installation is made on a vertical run, locate the bulb at least 16" (40.6 cm) from any bend, and on the tubing sides opposite the plane of the bend. Position the bulb with the tail of the bulb at the top, so that the bulb acts as a reservoir. See Figure 4.
  - c. Insulate the bulb using thermal insulation provided to protect it from the effect of the surrounding ambient temperature. Cover completely to insulate.
9. After line set is installed, leak check refrigerant lines and indoor coil connections. If leak free, remove leak check charge, reinstall any Schrader cores that were removed from the OD unit and evacuate refrigerant lines and ID coil. Evacuate through the Schrader access valves of the liquid and vapor service valves on OD unit.
10. After the interconnecting refrigerant lines, the TXV assembly, and the ID coil have been evacuated, open the liquid and vapor line valves at the OD unit to release the refrigerant charge into the system. Follow the proper procedure for opening these valves as described in the OD unit Installation Manual.

11. Charge the ID unit and the 15 feet of interconnecting vapor and liquid lines with the refrigerant charge which was installed in the OD unit at the factory. If interconnecting lines are longer than 15 feet, add more refrigerant charge for the length of the additional lines. Refer to "Refrigerant Piping Guide" (P/N 247077-UAD-H-0209) for method of determining refrigerant charge required for line sets over 15 ft. Refer to the OD unit Installation Manual for determining total system refrigerant charge required. Contact the distributor to obtain the appropriate OD unit Technical Guide for verification of ID coil match charge requirements as some ID coil matches require additional charge. Use a calibrated charging cylinder or other means of accurately weighing the refrigerant to introduced additional charge into the system.

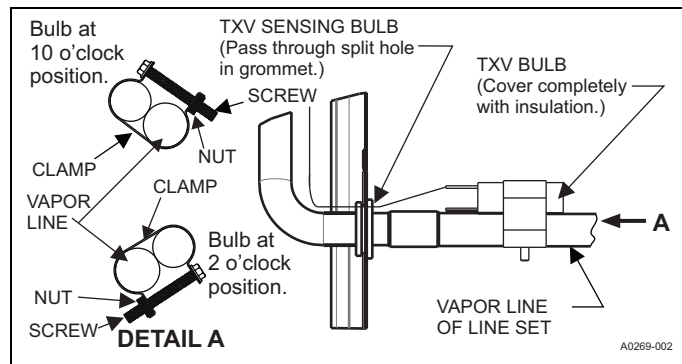


FIGURE 3: Proper Temperature Bulb Location

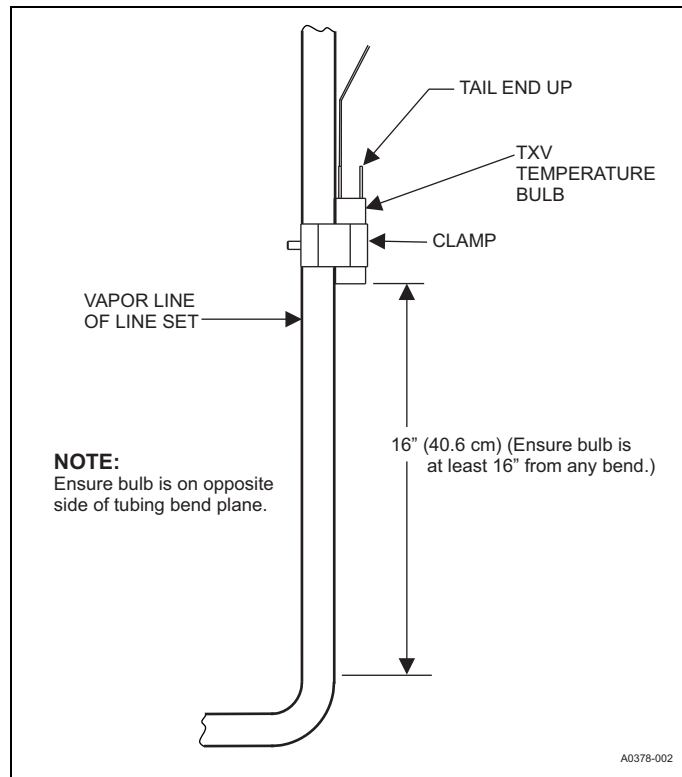


FIGURE 4: Vertical Temperature Bulb Orientation