

APH and GPH

TXV Adjustments

>> MANDATORY <<



SINGLE STAGE APPLICATION

1. Purge gauge lines. Connect service gauge manifold to access fittings. Run system at least 10 minutes to allow pressure to stabilize.
2. Temporarily install thermometer on liquid (small) line near liquid line access fitting with adequate contact and insulate for best possible reading.
3. Check subcooling and superheat. Systems with TXV application should have a subcooling of $10 \pm 2^\circ\text{F}$ and superheat of 15 to 18°F .
 - a. If subcooling and superheat are low, **adjust** TXV to 15 to 18°F then check subcooling.
 - b. If subcooling is low and superheat is high, **add** charge to raise subcooling to $10 \pm 2^\circ\text{F}$, then check superheat.
 - c. If subcooling and superheat are high **adjust** TXV valve to 15 to 18°F then check subcooling.
 - d. If subcooling is high and superheat is low, **adjust** TXV valve to 15 to 18°F superheat and remove charge to lower the subcooling to $10 \pm 2^\circ\text{F}$.

The TXV should NOT be adjusted at light load conditions 55° to 60°F , under such conditions only the subcooling can be evaluated. This is because suction pressure is dependent on indoor airflow and wet bulb temperature.

NOTE: Do NOT adjust charge based on suction pressure unless there is a gross undercharge.

4. Disconnect manifold set, installation is complete.

SUBCOOLING = SAT. LIQUID TEM.— LIQUID LINE TEMP.

TWO STAGE APPLICATION

Run the unit on low stage cooling for 10 minutes until refrigerant pressures stabilize. Follow the guidelines and methods below to check unit operation and ensure that the refrigerant charge is within limits.

Charge the unit on LOW STAGE.

1. Purge gauge lines. Connect service gauge manifold to access fittings. Run system at least 10 minutes to allow pressure to stabilize.
2. Temporarily install thermometer on liquid (small) line near liquid line access fitting with adequate contact and insulate for best possible reading.
3. Check subcooling and superheat. Two stage systems running on low stage with TXV application should have a subcooling of 5 to 7°F and superheat of 15 to 18°F .
 - a. If subcooling and superheat are low, adjust TXV to 15 to 18°F then check subcooling.
NOTE: To adjust superheat, turn the valve stem clockwise to increase and counter-clockwise to decrease.
 - b. If subcooling is low and superheat is high, add charge to raise subcooling to 5 to 7°F , then check superheat.
 - c. If subcooling and superheat are high adjust TXV valve to 15 to 18°F then check subcooling.
 - d. If subcooling is high and superheat is low, adjust TXV valve to 15 to 18°F superheat and remove charge to lower the subcooling to 5 to 7°F .

NOTE: Do NOT adjust charge based on suction pressure unless there is a gross undercharge.

4. Disconnect manifold set, installation is complete.

SUBCOOLING = SAT. LIQUID TEM.— LIQUID LINE TEMP.

TXV INFO

- ▶ Typically industry design dictates that 8° to 12° Super Heat is wanted at the tail of the evaporator coil. This can change with sudden loading or unloading of the coil. Under a very heavy or very light load the superheat will overshoot respectively. Allow it time to recover.
- ▶ High Relative Humidity in the conditioned area might cause the high superheat on a system. Excessively High or Low Temperatures may cause Super Heat readings that fall in a range not expected. This can happen if the conditioned area has lost its comfort level, such as the system being off for some time, and the interior has gained temperature or humidity levels that keep the valve completely open position. Once the TXV reaches its limits (fully open or near closed) it simply acts like a fixed orifice until given enough time to recover from this extreme and allow its needle to begin modulating.
- ▶ If reading Super Heat at the outdoor unit while the unit is in Cooling, remember that on a 95° day Lab Testing shows Super Heat Temperature can increase 3° to 5° on a 25' insulated line set. This is why a more accurate reading of Superheat is at the tail of the evaporator coil. The compressor cooling is generally OK even at around 30° superheat at the outdoor unit. However, compressor discharge at this point is critical (NTE 250°) and must be checked.
- ▶ 7 out of 10 Valves returned that are testable (not damaged or overheated during removal/install), are found to have no fault. (This could mean that very few of the failed valves are testable. Don't have the percentage of those not testable.)
- ▶ 10% to 15% show signs of overheating (bellows deflected from overheating at the bulb).
- ▶ Sporlan replacement Power Head is available over-the-counter for R-22 small body valves: KT-VGA-43
- ▶ Sporlan date code is stamped lower right under the BIVE stamp. The first 3 diits are representing the day of the year (001 to 365) and the last 2 represent the year (07 = 2007). Parker date code is similar.