

Guide Lines for checking Super heat and sub-cooling.

These are only for your reference. If you have any questions, or your numbers are off quite a bit please call the Seasons 4 service department. 770-489-0716 and ask for service.

Of course this is after verifying coils are clean, condenser fans and blowers are operating as they should. And there's no air restrictions. And keeping in mind the further you get from design conditions, the more the numbers will be affected. All superheat and sub-cooling readings should be taken in the normal AC cycle, hot gas bypass, hot gas reheat coils, compressor unloader(s) should be disabled. **Refrigerant R407C has a large glide pattern. Superheat, pressure to temperature must be read in the vapor or DEW point column, sub-cooling, pressure to temperature must be read in the liquid or BUBBLE column. **

Superheat.

Superheat readings are done at the suction filter. Take the pressure at the suction filter, convert to temperature, Measure the temperature at the outlet of the suction filter, subtract the measured temperature from the converted pressure to temperature, the result is superheat at the compressor. We are looking for 20°F at the compressor. With in 5 degrees either way.

Sub-Cooling;

With out Sub-Cooling coils:

Take the pressure at the liquid filter- drier, convert to temperature, and subtract the measured temperature of the liquid line, at the outlet of the drier. We are looking for 10° F.

With Sub-Cooling coils located on leaving side of DX coil.

Take the pressure at the liquid filter-drier, subtract 5 psig, convert to temperature, and subtract the measured temperature of the liquid line between the sub-cooling outlet, and the inlet to the expansion valve. You should end up with 30 to 40 degrees. Verify Superheat is close.

** When sight glass is before sub-cooling coils there will be bubbles. If the sub-cooling is 30 to 40 deg, and Superheat is good. The circuit is charged.

With Sub-Cooling coils located under the Condenser coil.

With 'active' receivers the Subcooling coil is a circuit at the bottom of the condenser coil. The outlet of the receiver is piped to this circuit. Subcooling is read the same way as noted in the first item, with out Subcooling coil, using the pressure at the drier and the temperature at the outlet of the drier. The Subcooling at this point must be 10 deg F at design conditions.

With hot gas reheat coils downstream of the evaporator coils.

Charge as listed above. Switch to reheat mode and clear sight glass or obtain Sub-cooling and Superheat numbers listed above. * **Note:** when switching between different modes of operation you must be sure system has time to stabilize back out. On circuits with a condenser coil that has a solenoid on it wait until the bleed line is warm. The bleed line will feel cold and sweat while draining the condenser coil. After circuit is charged in reheat mode switch back to cooling mode. After system is stable verify sub-cooling and superheat readings. If within recommendations pump circuit down while watching discharge pressure. Discharge pressure should not increase more than 10-15 psig during pump down.

Low Sub-Cooling:

Low air flow; under charged, or higher than design ambient.

High Sub-Cooling:

Over charge, or colder ambient than design.

Low Super heat:

Low air flow, sensing bulb not mounted correctly or well insulated. TXV seat leaking,

High Super heat:

Flat power head, restriction before or in TXV. low charge,