

Some notes on adding refrigerant

The pressure in the system is always changing depending on a number of factors:

- Adding refrigerant will increase the pressure in the system
- The pressure typically decreases as the compressor runs. If it does not decrease the compressor may be broke.
- When the compressor turns off the pressure in the system will rise.
- As the temperature of the cooling system decreases the pressure in the system will decrease
- If the compressor has not run for several hours some of the refrigerant will be absorbed in the oil. As the compressor runs the compressor will heat up causing the refrigerant to leave the oil in the compressor. This will cause a rise in pressure.

Pressure Measurements

When the pressure in the system is above atmospheric pressure it is measured in PSI. If there is a vacuum in the system, when the pressure is below 0 PSI, pressure is measured in inches of water. The units are on the outer perimeter of the pressure gauge.

Operation of AC compressors

If an AC compressor is turned off and is immediately turned on again it will not run for several minuets. Until the operation of the compressor resumes it will hum and draw about 5 amps.

Connecting Hoses

If the system is low on refrigerant the pressure may go below 0 PSI when the compressor is running. If the hoses are connected when the compressor is running and there is a vacuum in the system air may be sucked into the system. As a consequence it is better to connect the hoses when the compressor is not running,

The Schrader valve on the compressor is similar to that on a car tire. If the pressure in the system is below 0 PSI depressing the center of the valve will let air into the system. If the pressure is above 0 PSI depressing the valve will let gas out of the system.

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A hose connected to a Schrader valve should have a small pin at the center of the threaded coupling at the hose end. This pin pushes the Schrader valve open.

To assure there is no air in the hose when connecting to the compressor purge the hose by letting gas run through it for 1 or 2 seconds.

How Much Gas Should be Added

The entire amount of gas in the system is only 2 ounces. Probably 1 ounce or less of gas will have to be added. This is a small fraction of the contents of a 12 ounce can. To see how much gas is added the can be weighed with a postal scale. The can should sit on the scale while the gas is added. Typically the hose does not interfere with the measurement.

Observing the Cooling Process

For a refrigerator the back wall contains the cooling coils. Cooling starts at the top of the back wall and works its way down. The temperature sensor is located 6 inches from the bottom of the back wall, this is where cooling typically stops.

Cooling of the back wall can be sensed with your hand, it can also be observed by looking at the frost or condensation pattern on the back wall. The top of the back wall should start cooling in less than 10 minutes.

For the R19: First the back wall of the top compartment is cooled then the back wall of the lower compartment.

For Freezers: Most freezers contain the freezer coils in the ceiling and back wall, the ceiling is cooled first.

For the RF12: The RF12 contains 3 cooling surfaces in series, first the ceiling of the freezer is cooled, then the floor of freezer, then the back wall of the refrigerator. If you are low on refrigerant there may not be enough refrigerant to reach the back wall of the refrigerator.