

*DOC'S BLOCKS*  
**AUTOMOTIVE AIR CONDITIONING REPAIR**

**Question:**

What is superheat?

**Answer:**

To understand what superheat is, reference has to be made to water and its reaction to heat.

All substances have three states of matter: a solid, a liquid, and a vapor. Temperature is responsible for the substance to change its condition. To explain, ice melts from a solid to a liquid when temperature is above 32 degrees. As long as there is ice, the water temperature around the ice will be 32 degrees. As the ice disappears, the water will take on additional heat referred to as sensible heat. The water will stay liquid until it starts to boil at 212 degrees. As the water boils and is in contact to the steam, the steam and the water will be the same temperature. When all the water is boiled away, if the steam was trapped, the steam temperature could be increased. Through compression, the steam would be superheated. This is referred to as latent heat or hidden heat. The amount of compression would determine the increase in temperature.

These temperatures will vary from one refrigerant to another. Refrigerant R-12 is a solid around 250 degrees below zero, a liquid up to -21 degrees, and then a vapor. In the AC system, the vapor is trapped, compressed, and its temperature is increased or superheated.

Pressure can't read what the latent temperature is. Pressure and superheat will be relevant as long as there is not excessive friction or pressure in the compressor.

Latent heat can be read with a temperature-sensing device.