AUTOMOTIVE AIR CONDITIONING REPAIR

Question:

Are operating pressures higher on R134a as apposed to R-12 systems?

Answer:

When R-134a came on the automotive scene, we were lead to believe that it carried higher pressures and did not work as well. Use it anyway until someone comes up with something better. Talk about shooting oneself in the foot!

Charges for R-134a were based on what it would be with R-12 and not what the charge should be for R-134a. No matter what refrigerant is being used, no more refrigerant should be used than the minimum amount it requires to make it operate.

System capacity, as established by the manufacturer, is based on an average ambient temperature of seventy degrees. This covers about eighty percent of the world. The higher pressures start showing up when the ambient temperature reaches ninety degrees or higher.

If reference is made to a pressure/temperature relationship chart, it will be noted that the comparison between the two refrigerants can't even be read by most of the gauge sets used by automotive technicians. For example, on R-12 systems, thirty pounds of pressure is equal to thirty-two degrees. On R-134a systems, twenty-seven pounds pressure equals thirty-two degrees. On R-12 systems, when the ambient temperature is one hundred-ten degree, the pressure is two hundred –thirty six pounds. On R-134a, the pressure is two hundred-forty six pounds. A larger difference is noted when the ambient temperature exceeds one hundred- twenty degrees. On a R-134a gauge set, the low side gauge is graduated in one-degree increments. The high side gauge is graduated in five-degree increments.

Recap, treat R-134a just the same as R-12 and never put any more refrigerant in a system than what is required for the ambient temperatures that the vehicle will be operating in.