



# INDUSTRY UPDATE

NEWS FROM ICOR INTERNATIONAL, INC.

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## Improving R-22 System Performance A Review of TXV Retrofit Kits

Indianapolis, Indiana

With our industry's ever increasing demand to improve energy efficiency, we should consistently be looking for ways to improve the performance of the air conditioning equipment we service. The Department of Energy's goal is to save 29 billion kilowatt hours of energy by the year 2030. To help reach this aggressive goal, in 2006 the DOE raised the minimum SEER rating from 10 to 13 SEER for new residential air conditioners. This was a costly undertaking for most equipment manufacturers who in turn will pass this cost on to the end user.

With our economy in the condition it is, the average consumer might have second thoughts when informed that his or her equipment should be replaced. Servicing and repairing equipment can be a more practical option than complete equipment replacement. Many residential and light commercial equipment owners will be looking for the edge to help them save a few dollars when it comes to keeping their heating and cooling equipment operational. If they are informed about the opportunity to increase the energy efficiency of their equipment, while making the necessary repairs, I'm sure you would have their attention. Higher efficiency usually translates to lower utility costs.

This is where the new Danfoss TR 6 thermostatic expansion valves can help. Danfoss claims that when removing a fixed orifice type metering device and installing a thermostatic expansion valve (TXV), you can increase the SEER rating of the equipment. This claim is substantiated by the fact that a system using a fixed orifice, refrigerant flow remains the same, regardless of load demand on the system. By installing a TXV, you can match the cooling load of a system, as the load changes through out a cycle. This in turn will increase the efficiency of the equipment.

Independent testing on three different types of residential equipment has shown a 15% to 26% increase in efficiency just by replacing the fixed orifice metering device to the TR 6 TXV. No other work was done to this equipment to increase the EER.

We also tested the TR 6 on two residential units, here at ICOR with our R 22 replacement R-422B (NU-22B®). We determined that the compressor compression ratio improved, which will also improve efficiency.

These valves are available for R22 up to 6 ton units and R410A up to 7 ton units. They are also available for heat pumps. The kits are supplied with a variety of fittings to adapt to different styles of fixed orifice piping designs, which allows for a fairly simple install. If you would like more information on these valves, you can go to the Danfoss website at [www.envisioneering.danfoss.com](http://www.envisioneering.danfoss.com).

Sporlan also has a TXV conversion kit similar to the Danfoss kit, just so you'll know there is a variety to choose from. We have not had the opportunity to test any of the Sporlan kits, at this time. I'm sure they will achieve the same results.

So, now you have the opportunity to improve older 10 SEER equipment efficiency and retrofit to an HFC ozone friendly refrigerant, all in the same service appointment.

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