

TRANE PURIFIER EVALUATION

To evaluate a purge system many key points need to be examined. To fairly evaluate a purge system service contractors and chiller owners were asked to give their opinion of the Purifier Purge. Listed below were the problems they have encountered.

- * Drier cores become saturated quickly. If they do not get serviced when they become saturated the drier cores fall apart and clog the refrigerant lines. In some cases the drier cores were being changed every other week. The gasket alone was \$ 60.00 each to a contractor in California.
- * To service the drier cores the service technician must climb on the evaporator or use a ladder to reach the purge system which must be mounted above the condenser. This makes it difficult to service and many owners are concerned about safety.
- * To read the moisture indicator the service technician or operator must use a ladder or climb on top of the evaporator. Because it is not easily read it is normally not serviced.
- * The Purifier is very slow at removing noncondensibles. In some cases operators had to come in a day in advance of the work week to start the purge system.
- * The estimated time to change the drier cores and leak check the purge after drier cores are changed is 4 hours. At \$ 50.00 per hour and considering they are changed 4 times per year the annual cost for drier core replacement alone will be \$ 800.00 per year.
- * Many owners were confused because they were told the Purifier could be operated continuously. However, it states in the operation and maintenance manual to limit the purge operation to the "Automatic" mode unless the chiller will not start.

The Trane Purifier Purge System is designed for tight systems with minimal inleakage. A machine should not operate with known leaks. However, in real world situations sometimes it is necessary to operate a machine with a leak until the operator can schedule downtime to repair the leaks. In cases where the machine can not be made "tight" the Purifier Purge will be ineffective removing large amounts of air.

PURIFIER PLUS EVALUATION

The Purifier Plus evaluation has a few questions which must be answered when determining it's advantages. The following questions and explanations may be used to aid in the evaluation.

* How does the Purifier Plus carbon tank actually work?

The Purifier Plus carbon adsorbs refrigerant released through the purge exhaust compressor. The activated carbon has a certain capacity for holding refrigerant. Once the carbon is saturated, any refrigerant exhausted through the purge compressor is vented to the atmosphere.

* How long will the Purifier Plus carbon tank actually last?

Trane claims the Purifier Plus tank will last 4.5 years on a tight machine. If the machine has normal inleakage of noncondensibles, is leak tested with nitrogen, or has any service performed in which air will enter the system, the Purifier Plus life will be severely shortened. Average life on typical chillers will be 8 - 16 months.

* How much money can an owner expect to save on refrigerant cost by adding the Purifier Plus carbon tank to the Purifier Purge?

\$ 0 -- The Purifier Purge releases .5 - .7 lbs. of refrigerant per 1 lb. of air purged. The carbon adsorbs the difference from .0049 that Trane claims is normally vented.

* Is the refrigerant from the Purifier Plus put back into the owners machine?

No -- Once the carbon tank has reached its capacity the tank is sent back to Trane Service First and regenerated. The owner pays for a new carbon tank and is charged a core deposit similar to the way compressors are handled.

* What does it mean to regenerate activated carbon?

To reactivate carbon that is saturated with refrigerant 1 of 2 processes take place or a combination of the two. 1. The carbon will be placed in a vacuum. 2. The carbon will be heated to aid in driving the refrigerant from the carbon.

* When the carbon tank is regenerated will the owner get the refrigerant that is recovered back from Trane Service First?

Doubtful -- The refrigerant will have to be reclaimed to ARI 700 standards and will likely be sold back to the Trane Service agencies to be resold to machine owners.

* Is the Purifier Plus an engineering break through or a marketing tool?

It is a marketing tool -- the cost of refrigerant is sky rocketing. It will be more important in the next 2 years to keep the refrigerant in the machine.

The Purifier Plus chamber will not show a refrigerant savings and can not show any payback to the owner. Any consideration given to the Purifier Plus option should be well thought out.