

KOBIE KOOLING, INC.

INDOOR AIR QUALITY DIVISION

"HOME OF THE MOLD DETECTIVE"

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FREON LEAKS AND LEAK TESTS

One of the most common repair diagnosis in air conditioning is a refrigerant problem. The Freon in your HVAC system is under constant attack from **UNDER-EDUCATED "TECHNICIANS" that have no HVAC certification**. Before you take any action regarding your HVAC system, be sure your "technician" is a trained and certified **N.A.T.E.** Technician, and ask them to show you their credentials.

LEAK TESTS:

There are many different types of Freon leaks that can affect your system. All of the leak types have the same need – fix the leak now!. The most common leaks include:

1. **HOLES** – a puncture, crack, etc. This will normally cause the entire freon charge to leak out under pressure.
2. **PRESSURE LEAKS** – Freon will only leak out under extremely high pressure, or lack of pressure.
3. **VALVE LEAKS** – Exposed valves that leak from bad gaskets, loose cores, stripped cores, overheated valves, loose caps, lack of Teflon or sealant, etc.
4. **BAD BRAZE JOINTS/WELDING LEAKS** – This type of leak can be a factory or field weld and can cause leaks from impure materials, poor brazing habits, cheap raw materials, etc.
5. **CORROSION RELATED LEAKS** – normally found at connections, joints, valves, center line tubing, and metal fatigue. Also related to Formacary Corrosion, a type of microscopic leak.

When choosing how to find a leak(s) in the Freon system a technician should consider costs, history of the brand and machine, and weigh the probabilities. When looking for leaks, the obvious leaks are easy to find. **Finding them all is not easy and takes a more comprehensive test.** Testing options include from the very simple to the extreme, and of course the expense changes along with the testing type.

The new type of refrigerant (R410a) is also a blend of two refrigerants that leak out at different pressures. These two refrigerant blends evaporate at different temperatures. When you have a leak in a system with R410a, it is recommended that the leak is found, fixed, and then the freon charge evacuated and replaced using the pure mix of R410a. This will help prevent issues in the future.

The single biggest Freon problem we have in the field is a Freon charge from an unqualified "technician" without proper training and credentials. **ALL BRANDS RECOMMEND USING ONLY N.A.T.E. Certified Mechanics** to service your system.

LEAK TEST METHODS:

1. **COMPONENT ISOLATION TEST** – this test will separate the evaporator, the two freon lines, and the condenser coils to be independently tested using

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vacuum and extreme pressure to identify the faulty component. This can take from two hours to several days to complete.

2. **FREON ELECTRONIC SNIFFER**- this electronic gas detector or battery powered detector is passed over a suspect area and there is an audible alarm if the device detects the gas. This is a hand held device and is as accurate as the user, and the exposure of the freon piping. The device must be calibrated prior to each use, and is only useful in finding medium to large leaks. This tool is often misused, and has limited use in the field.
3. **DYE INJECTION TEST** – Using ultra-violet dye, the system is injected with dye and allowed to run for at least 24 hours, but preferable for 5-7 days. A return trip is arranged and the system is scanned using a special light, and goggles to identify any ultra-violet dye leaking through. In some conditions the return trip must be in the dark to find all the dye. This method is a valuable tool, limited only by the exposure to the freon tubing.
4. **SOAP BUBBLES**- This is a very limited test used when searching small areas such as a weld, or fitting. It's a very common tool, and is accurate for medium to large leaks in a very isolated area.

The leak method you chose will depend on costs and a professional technician's opinion. You must decide what is best for your situation. When a leak is identified, the best repair is to change the component affected. Patching copper or aluminum is not recommended. These "temporary repairs have a high fail rate, and we do not recommend temporary repairs. If a technician offers a "spot weld" or temporary repair – you are heading for trouble. If a technician tells you to "just add a pound of freon and don't test it" - you are heading for trouble. Relying solely on a "sniffer" test – you are heading for trouble. We know these tests are expensive, but if you do not find all of the leaks, fixing the obvious leaks won't help. The only way to test correctly for leaks is to test thoroughly, and using the right method for the right situation will always be less expensive in the long run.

The Kobie Family thanks you for selecting us to help with your HVAC needs. We really do appreciate the business.

28 plus years in the HVAC industry, State of Florida Certified HVAC Contractor, State of Florida Certified Home Inspector, State of Florida Certified Mold Assessor, Bachelors Degree in Business Administration, Certified Thermographer, Nationally Certified Home Inspector, State of Florida Certified Radon Measurement Technician, Certified Indoor Environmentalist, Certified Indoor Air Quality Professional, Certified Mold Technician, Certified HVAC Environmental Professional, Certified Mold Specialist, Certified Air Filtration Specialist, Certified Environmental Manager, Certified Mold Consultant, Court Certified Expert in Indoor Air Quality, Mold Investigation, Environmental Investigation, HVAC Design and repair, Certified NATE Air Conditioning Mechanic/installer, Certified NATE Heat pump Mechanic/installer, Certified Nate Gas Furnace Service /Installer, Certified Nate Air duct Mechanic/ installer, Certified Moisture Management Inspector, Certified in Environmental Assessment, Certified Home Air Check Professional Sampling, Wright Soft Qualified Designer, Court Certified HVAC Expert, Court Certified Indoor Air Quality Expert, Court Certified Mold Expert, Court Certified Humidity Expert, Chief Environmental Investigator- Kobie Kooling, Inc, Former National Dealer Indoor Air Quality Advisor – Lennox Industries, Member of : Indoor Air Quality Association, National Air Filtration Association, American Energy Engineers, Environmental Assessment Association, Nationally Recognized Indoor Air Quality Expert.

Professionally,

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