YORK®

Service Information

File In/With: –	SI0394
Supersedes SI0394 (718)	REV 119
Equipment Affected: YIA, YPC, YHAU	
Leak Detection, “Sniff Test”	

GENERAL

This Service Information letter describes a new “best practice” method of leak detection for chillers in the field that operate below atmospheric pressure. It may also be used for difficult to find leaks in other types of centrifugal and screw chillers.

The method incorporates an “inside-out” or “sniff test” procedure that requires the least amount of operator skill, time and concentration to locate a leak. In short, the charge within the unit is removed, the unit is then evacuated then brought into a slight positive pressure with a two component tracer gas. A hand-held leak detector probe is used to run over all unit joints and connections. The leak probe is calibrated to sense only the tracer gas (in this case hydrogen) and will alert the operator when hydrogen is detected.

MATERIALS

- TLD500 Vulkan Loktracer Hydrogen Leak Detector

- Appropriate number of cylinders “Forming Gas” [5% hydrogen, (H2) and 95% nitrogen, (N2)]
- Gas regulator
- CGA 350* fitting to connect the Forming Gas cylinders to a nitrogen gas regulator.
  (* This fitting may not be necessary in all cases. Suggest to inspect cylinders first to determine the connection type required.)
- Appropriate hoses, adaptors and fittings to connect gas cylinder to unit.

Work on this equipment should only be done by properly trained personnel who are qualified to work on this type of equipment. Failure to comply with this requirement could expose the worker, the equipment and the building and its inhabitants to the risk of injury or property damage.

The instructions on this service bulletin are written assuming the individual who will perform this work is a fully trained HVAC & R journeyman or equivalent, certified in refrigerant handling and recovery techniques, and knowledgeable with regard to electrical lock out/tag out procedures. The individual performing this work should be aware of and comply with all Johnson Controls, national, state and local safety and environmental regulations while carrying out this work. Before attempting to work on any equipment, the individual should be thoroughly familiar with the equipment by reading and understanding the associated service literature applicable to the equipment. If you do not have this literature, you may obtain it by contacting a Johnson Controls Service Office.

Should there be any question concerning any aspect of the tasks outlined in this bulletin, please consult a Johnson Controls Service Office prior to attempting the work. Please be aware that this information may be time sensitive and that Johnson Controls reserves the right to revise this information at any time. Be certain you are working with the latest information.

Product Technical Support

DETAILS

Traditional leak detectors usually sense leaks of about 1/10th oz/yr, the TLD500 is able to sense leaks down to 1/100th oz/yr or 1x10-7 atm-cc/s. Hydrogen has an atomic number or 1.0 which makes it the smallest naturally occurring particle known and a superior leak detection tracer gas. Forming gas is a readily available blend of 5% hydrogen and 95% nitrogen, this two component gas mixture actually makes it an inert gas. It is non-flammable, non-toxic, non-corrosive and does not harm the environment. After the job is finished the system may be safely vented legally to atmosphere.

Many chiller manufactures are now using the hydrogen and nitrogen two component gas mixture as an end-of-line test and was developed as a final acceptance test for leak-tightness of an entire chiller. It is used as a “Go / No-Go” test before chiller shipment.