



## Maintenance Bulletin (MB-0032) Version 1, June 2013

### Motor Burnout Precautions and Recommendations

If a compressor failure is caused by or results in a motor burnout, harmful chemicals or particulate will be introduced into the system. This can occur while the compressor is running therefore harmful matter (corrosive material) can be circulated throughout the entire system. It is important when changing the motor or the compressor that this issue is addressed so that the system can be properly cleaned up. If the circuit and/or system is not cleaned, the replacement compressor and motor can be affected. Depending on the size and cost of the system and/or compressor, not all of these following checks are warranted.

The reason for the electrical motor failure must be investigated and corrective action taken to remedy the problem. If it is not determined, the second compressor / motor is destined to fail.

The following procedures are the minimum recommended processes for cleaning the system. Follow-up monitoring and checks of the system / compressor are required to ensure the system was properly cleaned.

#### **Pre Motor / Compressor Change:**

If possible, on-site oil sample test for acid content should be completed as a pre-disassembly requirement.

Although the oil will be drained from the compressor, this pre-check will establish a baseline for future clean-up procedures. Refrigerant sampling prior to disassembly will also assist in future system clean-up procedures.

#### **During Motor / Compressor Change:**

The preferred process is to recover all of the existing refrigerant charge. Follow proper recovery / reclaim standards. For minor burnouts, the refrigerant is usually acceptable for continued use providing the system is cleaned. For major burn-outs, the refrigerant should be replaced. Extreme caution should be exercised as the existing refrigerant may be contaminated with a high level of acid.

A quick check to determine how severe a system may be contaminated is by checking the discharge piping for evidence of sludge or burnt oil. If there is evidence, this will indicate that the compressor was in operation when the motor failed resulting in carryover of burnt refrigerant and oil to the system. If this area is clean and free of sludge type material, then the motor failure possibly occurred at a normal call for compressor operation and failed at start-up.

On heavily contaminated systems after a motor failure, all components should be checked for cleanliness including thermal expansion valves, solenoids, check valves, suction accumulators, etc.

Be sure to replace all liquid line and suction filter driers. If suction side filter drier housings were not installed, it is highly recommend these be installed to assist in system cleaning. There are filter driers specifically geared towards motor burnouts (burnout core blocks) and cleaning up of not only moisture but also acid contamination. It may be necessary to replace this filter with the original type (if used) once the system is cleaned up.

### **Post Motor / Compressor Change:**

After a few hours of operation with the new compressor, check the oil again.

After 1 to 2 days of operation, a complete oil change is generally required.

Polyolester (POE) lubricants are very hygroscopic and must be used accordingly. An oil sample should be taken and analyzed to determine if any contaminants remain and then the final course of clean-up can be determined. Submit the oil for an analysis for quality of the oil. An acid test can also be done but is not as informative regarding the overall quality of the oil. Pending the results, a second (or even third) oil change may be required (with an additional oil analysis).

Monitor and replace filter driers as needed depending on the pressure drops across the inlet and outlet of the core housing.

Once the system is considered clean, standard filter driers should be reinstalled for normal operation of the system.

All operational parameters, including safeties should be verified and adjusted as required to place the system back in “normal” status.

It is also recommended to draw a sample of the refrigerant and test for purity and corrective measures taken as necessary.