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Service BULLETIN

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Compressor Burnout – Replacement Guidelines

Fujitsu's compressors are very reliable and compressor failures are rare. In the unlikely event of a compressor failure (burnout), it is recommended that the contractor follow industry best practices for replacing the failed compressor. Examples of standard burnout replacement procedures include:

RSES Compressor Replacement Procedure
Honeywell Genetron® ST-20™ Flush Procedure
Catch-All Clean up Procedure
Nu-Calgon (RX-11) Procedure Flush System After Burnout

In addition, a contractor performing a compressor replacement for a Fujitsu inverter-driven mini-split, HFI or VRF system should pay extra attention to the following:

1. **Verify installation:** Compressor failure is typically the result of additional strain placed on the compressor which is usually caused by an improper installation. If a failure occurs, the first step is to review the installation to ensure that the system has been installed according to Fujitsu guidelines. This must be completed prior to performing any other work on the system.
    a. Verify that all piping lengths are within the design limitations (minimum and maximum) for the installed system.
    b. Verify that the refrigerant piping does not have any filter driers or oil traps installed. (Except for filter driers isolated from active piping with ball valves.)
    c. Inspect all refrigerant lines and check for kinks or sharp turns that may restrict flow.
    d. Calculate proper refrigerant charge and determine from installing contractors notes (if available) if system was charged correctly.

2. **Clean-up:** It is critically important that all refrigerant lines are clear of debris, sludge or acid prior to installing the new compressor. Any contaminants left in the refrigerant lines will damage the new compressor and void the warranty.
    a. If inspection shows that the refrigerant lines are contaminated with acid, debris, etc, the lines will need to be flushed with a solvent such as RX-11 or ST-20.
    b. A complete system flush of all refrigerant lines is the best way to insure against subsequent compressor failures.

3. **Install a Temporary Filter/Drier:** A temporary filter/drier should be installed on the suction line. Suction filter/driers are not bi-directional so the unit must be in cooling-only when the filter/drier is installed.
    a. Provide method for measuring pressure drop across filter/drier.
    b. Measure pressure drop 1 hour after resuming operation. If pressure drop is greater than 8psi, replace filter/drier.
        a. One hour after resuming operation with a new filter/drier, pressure drop must be measured. If pressure drop exceeds 8psi, the filter/drier must be replaced.
    c. Units with multiple circuits require filter/driers on every circuit.
    d. Include isolation valves for easy filter/drier replacement and removal.

4. **Install New Compressor:**
    a. Fujitsu's compressors contain either PVE or POE oil. If left open to the atmosphere, PVE/POE oil will quickly become contaminated with moisture. Exposure to the atmosphere must be limited to 15 minutes or less.
    (Less time exposed = greater the chance of a successful replacement)

5. **Weigh-in Refrigerant Charge:**
    a. Proper refrigerant charge is critical to the successful operation of the system. If the correct refrigerant charge is not known, it will be necessary to measure all refrigerant lines and calculate the charge needed for the system. Information on calculating the proper refrigerant charge can be found in the installation manual.

6. **Run the System in Test-Run** (approximately 1-2 hours):
    a. Measure pressure drop across filter/drier; replace if greater than 8psi.
    b. Test strainers for blockage. If the temperature rise/drop across a strainer is greater than 1°F, this requires further evaluation. The strainer may be blocked and might need to be replaced.

7. **Remove Filter/Drier:**
    a. Conduct a moisture and acid test to ensure equipment has been properly cleaned.
    b. Remove filter/drier. Filter/Drier should never remain on the system for more than 7 days or 100 hours of run time. (If the filter/drier is not removed, compressor damage/failure will occur.)