**COMPRESSOR FAILURE ANALYSIS**

<table>
<thead>
<tr>
<th>Reciprocating Type</th>
<th>Rotary Type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td><strong>10PA / 10S</strong></td>
</tr>
<tr>
<td><strong>Displacement</strong></td>
<td>Fixed</td>
</tr>
<tr>
<td><strong>R134a</strong></td>
<td>ND oil 8</td>
</tr>
<tr>
<td><strong>R1234Yf</strong></td>
<td>ND oil 12</td>
</tr>
</tbody>
</table>

**Problem description:** No variable displacement, system blockage or compressor seizure.

**Cause of failure:** PAG oil added to the refrigerant cycle. PAG oil and PAG oil do not mix and will cause creation of paraffin-like substance.

**Resulting in:** Clogging of control valve and/or refrigerant cycle.

**Problem description:** Excessive noise and/or compressor seizure.

**Cause of failure:** POE oil added to the refrigerant cycle. POE oil and POE oil do not mix properly.

**Resulting in:** A high percentage of POE will reduce lubrication performance.

**Problem description:** Compressor seizure.

**Cause of failure:** Insufficient lubrication caused by 1) System blockage or 2) No run in procedure.

**Resulting in:** Low refrigerant amount or partially blocked refrigerant cycle.

**Problem description:** Leak stop additive or conditioner added to the refrigerant cycle.

**Cause of failure:** Chemical reaction of the leak stop or conditioner caused blockage of the compressor control valve and/or expansion valve.

**Resulting in:** Inadequate rubber hose due to aging or a reaction with conditioners, sealers or flushing agents.

**Problem description:** Drive belt noise or drive belt diangaged.

**Cause of failure:** Incorrect removal or installation of the drive belt.

**Resulting in:** Deterioration of rubber hose due to aging or a reaction with conditioners, sealers or flushing agents.

**Problem description:** Drive belt noise or drive belt diangaged.

**Cause of failure:** 1) Incorrect removal or installation of the drive belt.

**Resulting in:** Excessive force was applied to the pulley resulting in cracks or shattering of the pulley.

**Problem description:** Clear separation of two different oil substances; one transparent and the other not.

**Cause of failure:** No variable displacement, system blockage or compressor seizure.

**Resulting in:** Rubber seals are swollen and do not fit in the original position.

**Problem description:** Clear separation of two different oil liquids; one is forming droplets on the other.

**Cause of failure:** No variable displacement, system blockage or compressor seizure.

**Resulting in:** Rubber particles at suction and discharge port.

**Problem description:** The suction port is dirty and black.

**Cause of failure:** No variable displacement or compressor seizure.

**Resulting in:** Insufficient cleaning of refrigerant cycle and/or not all required parts replaced.

**Problem description:** Suction port is clean and dry.

**Cause of failure:** Leaking system blockage or compressor seizure.

**Resulting in:** Inadequate rubber hose due to aging or a reaction with conditioners, sealers or flushing agents.

**Problem description:** A hardened or a gel-like substance inside the oil or suction port.

**Cause of failure:** Insufficient lubrication of compressor inner parts.

**Resulting in:** Insufficient lubrication caused by 1) System blockage or 2) No run in procedure.

**Problem description:** Discharge port is black and discolored.

**Cause of failure:** Liquid lock.

**Resulting in:** No variable displacement or compressor seizure.

**Problem description:** Broken hub limiter of the DL-Pulley.

**Cause of failure:** Alternator free run pulley seized, broken belt tensioner, crankshaft damper or dual mass flywheel.

**Resulting in:** Drive belt noise or drive belt diangaged.

**Problem description:** A hardened or a gel-like substance inside the oil or suction port.

**Cause of failure:** Excessive engine rpm at first time of operation provides insufficient time for oil and refrigerant to mix before returning to the compressor.

**Problem description:** Rubber seals are swollen and do not fit in the original position.

**Cause of failure:** Insufficient cleaning of refrigerant cycle and/or not all required parts replaced.

**Resulting in:** Insufficient lubrication caused by 1) System blockage or 2) No run in procedure.

**Problem description:** Swept or shattered plastic pulley.

**Cause of failure:** Insufficient lubrication caused by 1) System blockage or 2) No run in procedure.

**Resulting in:** Excessive drive belt movement results in negative force to the compressor pulley.