RAE Corporation APEX Start-Up Form

<table>
<thead>
<tr>
<th>Century Refrigeration</th>
<th>Technical Systems</th>
<th>Refrigeration Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Model #:</td>
<td>Unit Serial #:</td>
<td></td>
</tr>
<tr>
<td>Voltage/PH/Hz:</td>
<td>Refrigerant:</td>
<td></td>
</tr>
<tr>
<td>First Day of Start-Up:</td>
<td>Last Day of Start-Up:</td>
<td></td>
</tr>
<tr>
<td>Job Name:</td>
<td>Job Street Address:</td>
<td></td>
</tr>
<tr>
<td>Job City:</td>
<td>Job State and ZIP:</td>
<td></td>
</tr>
</tbody>
</table>

Equipment Installation Service Company Information:

<table>
<thead>
<tr>
<th>Company Name:</th>
<th>Company Address:</th>
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</thead>
<tbody>
<tr>
<td>Company City:</td>
<td>Company State and ZIP:</td>
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Maintenance & Labor Warranty Service Company Information:

<table>
<thead>
<tr>
<th>Company Name:</th>
<th>Company Address:</th>
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<tr>
<td>Company City:</td>
<td>Company State and ZIP:</td>
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PART A - Pre Start-Up System Check:

Has the unit been checked for shipping damage? Yes No
If there is any shipping damage, please list all damage in detail:

Have all fittings been checked for tightness (NOTE: Always use backup wrenches!)? Yes No
Has all field piping been piped and verified correct? Yes No
Has all field wiring been wired and verified correct? Yes No
Has a grounded conductor been installed from the main panel to ground earth? Yes No
If the ambient is above the low ambient lockout, has the lockout been reset? Yes No
Have all water filters been installed in the proper position and order? Yes No
Is supply water pressure between 40 and 90 PSI?  Yes  No
What is the source of the supply water (tank, city, water, etc.)?  
Is the supply water line exterior to the unit heat traced or drainable for winterization?  Yes  No
Have all water filter canisters been checked for leaks?  Yes  No
Has air been vented out of the filter canisters?  Yes  No
Has the high pressure pump been bled of air via the bleed port on top of the pump?  Yes  No
Supply water gauge pressure reading: ________________

**Main Voltage Check:**
Voltage L1 to L2: ____________  Voltage L2 to L3: ____________  Voltage L3 to L1: ____________
Voltage L1 to G: ____________  Voltage L2 to G: ____________  Voltage L3 to G: ____________
Main fuse or breaker size: ________________  amps

**Control Voltage Check:**
Voltage H to N: ______________  Voltage H to G: ______________  Voltage N to G: ______________

**PART B - Start-Up:**
Have all water filter canisters been checked for leaks?  Yes  No
Has air been vented out of the filter canisters?  Yes  No
Has the high pressure pump been bled of air via the bleed port on top of the pump?  Yes  No
Supply water gauge pressure reading: ________________
Ambient Temperature Reading: ________________
With pump VFD enabled at min speed and at least one stage enabled do the following:
Is the suction pressure above 31 PSI at all times?  Yes  No
Supply water gauge pressure reading at min speed: ________________
Is the pump rotating the correct direction?  Yes  No
Record pump voltage at the line side of the VFD at leg to leg and leg to ground: ________________
Record pump amps at the line side of the VFD on each leg: ________________
Discharge water gauge reading at min speed: ________________
Is the drain pan or drain leaking excessively?  Yes  No
Describe any areas in detail where this is occurring:
Energize stages and record the following:

<table>
<thead>
<tr>
<th>Reading</th>
<th>C1-S1</th>
<th>C1-S2</th>
<th>C2-S1</th>
<th>C2-S2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump Avg Volts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pump Avg Amps</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Pump Suction PSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Pump VFD Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pump Discharge PSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Excess Spray Area?</td>
<td>Y/N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excess Leakage?</td>
<td>Y/N</td>
<td></td>
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<td></td>
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</table>

Has the proper shut down on the last stage off been verified? Yes No
Has proper shut down on loss of pump enable been verified? Yes No
Has the low side cutout been verified? Yes No
Has the high side cutout been verified? Yes No
Has the low ambient lockout been verified? Yes No
Has the low ambient lockout rest been verified? Yes No

WARNING! If the low side drain is opened and then closed the pump must have the air bled our before restarting!
Have all dry contacts been tested for proper function? Yes No

Final pressure switch settings:

<table>
<thead>
<tr>
<th>Pressure Switch</th>
<th>Cut In</th>
<th>Cut Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Side</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Side</td>
<td></td>
<td></td>
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</table>

Were any parameters changed on the VFD? Yes No

Record what parameters changed, what they changed from and to, and why in the field below:

Other:

Does any work need to be completed on the unit after start-up? Yes No

Please list any additional work in detail:
Start-up performed by (Print):______________________________

Start-up performed by (Signature):______________________________

Date: __________________

To validate equipment parts warranty, return completed form within (10) day of start-up to:

RAE Corporation
Attn: Service Department
4492 Hunt St
Pryor, OK 74361
(918) 825-7222
service@rae-corp.com
4492 Hunt St - Pryor, OK 74361 - (918) 825-7222 - Fax (918) 825-6366