

START-UP CHECKLIST FOR 30GX,HX LIQUID CHILLERS
(Remove and use for job file.)

A. Preliminary Information

JOB NAME _____

LOCATION _____

INSTALLING CONTRACTOR _____

DISTRIBUTOR _____

START-UP PERFORMED BY _____

EQUIPMENT:

MODEL _____

S/N _____

COMPRESSORS:

CIRCUIT A

CIRCUIT B

1) MODEL # _____

1) MODEL # _____

S/N _____

S/N _____

2) MODEL # _____

2) MODEL # _____

S/N _____

S/N _____

COOLER:

MODEL # _____

S/N _____

CONDENSER: (30HX ONLY)

MODEL # _____

S/N _____

AIR-HANDLING EQUIPMENT:

MANUFACTURER _____

MODEL # _____

S/N _____

ADDITIONAL AIR-HANDLING UNITS AND ACCESSORIES _____

B. Preliminary Equipment Check

IS THERE ANY SHIPPING DAMAGE? _____ IF SO, WHERE _____

WILL THIS DAMAGE PREVENT UNIT START-UP? _____

- UNIT IS LEVEL IN ITS INSTALLATION
- UNIT IS SUPPLIED WITH THE PROPER CONTROL VOLTAGE _____ VAC
- ELECTRICAL CIRCUIT WIRING HAS BEEN SIZED AND INSTALLED PROPERLY
- UNIT GROUND WIRE HAS BEEN CONNECTED
- ELECTRICAL CIRCUIT PROTECTION HAS BEEN SIZED AND INSTALLED PROPERLY
- ALL TERMINALS ARE TIGHT
- ALL CABLES AND THERMISTORS HAVE BEEN INSPECTED FOR CROSSED WIRES
- ALL PLUG ASSEMBLIES ARE TIGHT

CHECK AIR-HANDLING SYSTEM

- ALL AIR HANDLERS ARE OPERATING
- ALL CHILLED WATER VALVES ARE OPEN
- ALL FLUID PIPING IS CONNECTED PROPERLY
- ALL AIR HAS BEEN VENTED FROM THE SYSTEM
- CHILLED WATER PUMP (CWP) IS OPERATING WITH THE CORRECT ROTATION

CWP AMPERAGE: RATED: _____ ACTUAL: _____

PUMP PRESSURES: INLET: _____ OUTLET: _____

CHECK CONDENSER SYSTEM (30HX ONLY):

- ALL CONDENSER WATER VALVES ARE OPEN
- ALL CONDENSER PIPING IS CONNECTED PROPERLY

ALL AIR HAS BEEN VENTED FROM THE SYSTEM

- CONDENSER WATER PUMP IS OPERATING WITH THE CORRECT ROTATION

CONDENSER WATER PUMP AMP: RATED: _____ ACTUAL: _____

PUMP PRESSURES: INLET: _____ OUTLET: _____

CHECK REMOTE CONDENSER SYSTEM (30HXA ONLY):

- ALL CONDENSER PIPING IS CONNECTED PROPERLY
- CONDENSER LINES/CONDENSER HAS BEEN EVACUATED, AS REQUIRED

C. Unit Start-Up

- CWP STARTER HAS BEEN PROPERLY INTERLOCKED WITH THE CHILLER
- ALL LIQUID VALVES ARE BACKSEATED
- ALL DISCHARGE VALVES ARE OPEN
- ALL SUCTION VALVES ARE OPEN, IF EQUIPPED
- ALL OIL LINE VALVES ARE OPEN
- UNIT HAS BEEN LEAK CHECKED

LOCATE, REPAIR, AND REPORT ANY REFRIGERANT LEAKS _____

- CHECK VOLTAGE IMBALANCE: AB _____ AC _____ BC _____
 AVERAGE VOLTAGE = _____ (SEE INSTALLATION INSTRUCTIONS)
 MAXIMUM DEVIATION = _____ (SEE INSTALLATION INSTRUCTIONS)
 VOLTAGE IMBALANCE = _____ (SEE INSTALLATION INSTRUCTIONS)
- VOLTAGE IMBALANCE IS LESS THAN 2%

DO NOT START CHILLER IF VOLTAGE IMBALANCE IS GREATER THAN 2%. CONTACT LOCAL POWER COMPANY FOR ASSISTANCE.

- ALL INCOMING POWER VOLTAGE IS WITHIN RATED VOLTAGE RANGE

CHECK COMPRESSOR RUNNING CURRENT:

COMPRESSOR	NO LOADERS	ONE LOADER	FULL LOAD
COMP A1,L1	_____ AMPS	_____ AMPS	_____ AMPS
COMP A1,L2	_____ AMPS	_____ AMPS	_____ AMPS
COMP A1,L3	_____ AMPS	_____ AMPS	_____ AMPS
COMP B1,L1	_____ AMPS	_____ AMPS	_____ AMPS
COMP B1,L2	_____ AMPS	_____ AMPS	_____ AMPS
COMP B1,L3	_____ AMPS	_____ AMPS	_____ AMPS
COMP A2,L1	_____ AMPS	_____ AMPS	_____ AMPS
COMP A2,L2	_____ AMPS	_____ AMPS	_____ AMPS
COMP A2,L3	_____ AMPS	_____ AMPS	_____ AMPS

CHECK COOLER WATER LOOP:

WATER LOOP DESIGN VOLUME: _____ GALLONS (LITERS)

CALCULATED VOLUME _____ GALLONS (LITERS)

3 GALLONS/NOMINAL TON (3.32 LITERS/kW) FOR AIR CONDITIONING

6 GALLONS/NOMINAL TON (6.65 LITERS/kW) FOR PROCESS COOLING

- PROPER LOOP VOLUME ESTABLISHED
- PROPER LOOP CORROSION INHIBITOR INCLUDED _____ GALLONS (LITERS) OF _____
- PROPER LOOP FREEZE PROTECTION INCLUDED, IF REQUIRED
 _____GALLONS (LITERS) OF _____
- PIPING INCLUDES ELECTRIC HEATER TAPE, IF EXPOSED TO THE OUTSIDE
- INLET PIPING TO COOLER INCLUDES A 40 MESH STRAINER

CHECK PRESSURE DROP ACROSS THE COOLER:

ENTERING COOLER: _____ PSIG (kPa)

LEAVING COOLER: _____ PSIG (kPa)

(LEAVING – ENTERING) × 2.31 FT OF H₂O/PSIG = _____ FT OF H₂O

(LEAVING – ENTERING) × 0.334 M OF H₂O/kPa = _____ M OF H₂O

PLOT COOLER PRESSURE DROP ON PERFORMANCE DATA CHART (IN PRODUCT DATA LITERATURE) TO DETERMINE TOTAL GALLONS/MINUTE (GPM) OR LITERS PER SECOND (L/S) AND FIND UNIT’S MINIMUM FLOW RATE.

TOTAL GPM (L/S): _____

GPM/NOMINAL TON (L/S PER TON) = _____

- TOTAL GPM (L/S) IS GREATER THAN UNIT’S MINIMUM FLOW RATE
- TOTAL GPM (L/S) MEETS JOB SPECIFIED REQUIREMENT OF _____ GPM (L/S)
- COOLER HEATER FUSE INSTALLED, AND HEATERS ARE ACTIVE (IF USED)

CHECK CONDENSER WATER LOOP:

PROPER LOOP CORROSION INHIBITOR INCLUDED
_____ GALLONS (LITERS) OF _____

INLET PIPING TO CONDENSER INCLUDES A 40 MESH STRAINER

CHECK PRESSURE DROP ACROSS THE CONDENSER (30HXC ONLY):

ENTERING CONDENSER: _____ PSIG (kPa)

LEAVING CONDENSER: _____ PSIG (kPa)

(LEAVING – ENTERING) × 2.31 FT OF H₂O = _____ FT OF H₂O

(LEAVING – ENTERING) × 0.334 M OF H₂O/kPa = _____ M OF H₂O

PLOT CONDENSER PRESSURE DROP ON PERFORMANCE DATA CHART (IN PRODUCT DATA LITERATURE) TO DETERMINE TOTAL GALLONS/MINUTE (GPM) OR LITERS PER SECOND (L/S) AND FIND UNIT’S MINIMUM FLOW RATE.

TOTAL GPM (L/S): _____

GPM/NOMINAL TON (L/S PER TON) = _____

- TOTAL CONDENSER GPM (L/S) IS GREATER THAN UNIT’S MINIMUM FLOW RATE
- TOTAL GPM MEETS JOB SPECIFIED REQUIREMENT OF _____ GPM (L/S)

PERFORM TEST FUNCTION (INDICATE POSITIVE RESULT):

ONCE POWER IS SUPPLIED TO THE UNIT, CHECK THE DISPLAY FOR ANY ALARMS, SUCH AS PHASE REVERSAL. FOLLOW THE TEST FUNCTION INSTRUCTIONS IN THE CONTROLS AND TROUBLESHOOTING LITERATURE. BE SURE TO CHECK FOR PROPER FAN ROTATION WITH THE FAN TEST SECTIONS. BE SURE ALL SERVICE VALVES ARE OPEN BEFORE BEGINNING THE COMPRESSOR TEST SECTION. ITEMS MARKED WITH “†” CAN BE TESTED ONLY IF THE UNIT IS CONFIGURED FOR THIS OPTION. DO NOT RUN OIL PUMPS FOR MORE THAN 20 SECONDS.

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|---|---|
| <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">1</div> <div style="border: 1px solid black; padding: 2px 5px; font-size: 8px;">TEST
ALARM</div> </div> <input type="checkbox"/> LOADER A1 | <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">2</div> <div style="border: 1px solid black; padding: 2px 5px; font-size: 8px;">TEST
ALARM</div> </div> <input type="checkbox"/> LOADER B1 |
| <input type="checkbox"/> LOADER A2 | <input type="checkbox"/> LOADER B2 |
| <input type="checkbox"/> MINIMUM LOAD VALVE A† | <input type="checkbox"/> MINIMUM LOAD VALVE B† |
| <input type="checkbox"/> CIRCUIT A OIL HEATER | <input type="checkbox"/> CIRCUIT B OIL HEATER |
| <input type="checkbox"/> A1 MOTOR COOLING SOLENOID | <input type="checkbox"/> B1 MOTOR COOLING SOLENOID |
| <input type="checkbox"/> A2 MOTOR COOLING SOLENOID† | <input type="checkbox"/> B2 MOTOR COOLING SOLENOID† |
| <input type="checkbox"/> CIRCUIT A OIL PUMP | <input type="checkbox"/> CIRCUIT B OIL PUMP |
| <input type="checkbox"/> OIL SOLENOID A1 | <input type="checkbox"/> OIL SOLENOID B1 |
| <input type="checkbox"/> OIL SOLENOID A2† | <input type="checkbox"/> OIL SOLENOID B2† |

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| <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">4</div> <div style="border: 1px solid black; padding: 2px 5px; font-size: 8px;">TEST
ALARM</div> </div> <input type="checkbox"/> CIRCUIT A EXV | <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">3</div> <div style="border: 1px solid black; padding: 2px 5px; font-size: 8px;">TEST
ALARM</div> </div> <input type="checkbox"/> FAN 1 (30GX)† |
| <input type="checkbox"/> CIRCUIT B EXV | <input type="checkbox"/> FAN 2 (30GX)† |
| <input type="checkbox"/> CIRCUIT A WATER VALVE† | <input type="checkbox"/> FAN 3 (30GX)† |
| <input type="checkbox"/> CIRCUIT A% FAN SPEED (GX)† | <input type="checkbox"/> FAN 4 (30GX)† |
| <input type="checkbox"/> CIRCUIT B% FAN SPEED (GX)† | <input type="checkbox"/> FAN 5 (30GX)† |

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|---|--|
| <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;">8</div> <div style="border: 1px solid black; padding: 2px 5px; font-size: 8px;">SRVC</div> </div> <input type="checkbox"/> COMPRESSOR A1 | <input type="checkbox"/> FAN 6 (30GX)† |
| <input type="checkbox"/> COMPRESSOR A2† | <input type="checkbox"/> COOLER PUMP† |
| <input type="checkbox"/> COMPRESSOR B1 | <input type="checkbox"/> CONDENSER PUMP† |
| <input type="checkbox"/> COMPRESSOR B2† | <input type="checkbox"/> COOLER HEATER† |
| | <input type="checkbox"/> ALARM RELAY† |

- CHECK FOR COMMUNICATING MODULES (BLINKING RED AND GREEN LEDs)
- CORRECT FLUID SET POINTS ARE ENTERED

1

SET

COOL SET POINT 1 _____

COOL SET POINT 2 _____

- CORRECT DATE, TIME, AND OPERATING SCHEDULE(S) ARE SET

REVIEW AND RECORD FACTORY CONFIGURATION CODES, 5 SRVC

CONFIGURATION CODE 1: _____

CONFIGURATION CODE 2: _____

CONFIGURATION CODE 3: _____

CONFIGURATION CODE 4: _____

CONFIGURATION CODE 5: _____

REVIEW AND RECORD SOFTWARE VERSION, 1 SRVC

SOFTWARE CESR500100 VERSION _____

REVIEW AND RECORD FIELD CONFIGURATION, 2 SRVC

COOLER FLUID SELECT _____

COOLER PUMP CONTROL _____

MIN LOAD VALVE SELECT _____

CONDENSER PUMP CONTROL _____

LOADING SEQ. SELECT _____

CONDENSER FLOW SWITCH _____

LEAD/LAG SEQ. SELECT _____

CONDENSER WATER SENSORS _____

HEAD PRESSURE CONTROL _____

MOTORMASTER SELECT _____

WATER VALVE TYPE _____

EXTERNAL RESET SENSOR _____

COOLER PUMP INTERLOCK _____

TO START THE CHILLER:

BE SURE THAT ALL SERVICE VALVES ARE OPEN, AND ALL PUMPS ARE ON BEFORE ATTEMPTING TO START THIS MACHINE. ONCE ALL CHECKS HAVE BEEN MADE, MOVE THE SWITCH TO "LOCAL" OR "REMOTE" FROM "STOP."

UNIT STARTS AND OPERATES PROPERLY.

TEMPERATURES AND PRESSURES:

ONCE THE MACHINE HAS BEEN OPERATING FOR A WHILE AND THE TEMPERATURES AND PRESSURES HAVE STABILIZED, RECORD THE FOLLOWING:

COOLER EWT _____

COOLER LWT _____

AMBIENT TEMPERATURE _____

CONDENSER EWT
(ENTERING WATER TEMP) _____

CONDENSER LWT
(LEAVING WATER TEMP) _____

CIR. A OIL PRESS _____

CIR. A SUCTION PRESS _____

CIR. A DISCHARGE PRESS _____

CIR. A DISCHARGE TEMP _____

CIR. A LIQUID LINE TEMP _____

CIR. B OIL PRESS _____

CIR. B SUCTION PRESS _____

CIR. B DISCHARGE PRESS _____

CIR. B DISCHARGE TEMP _____

CIR. B LIQUID LINE TEMP _____

NOTE: OIL FILTER PRESSURE DROPS MUST BE CHECKED AFTER INITIAL 200-300 HOURS OF COMPRESSOR OPERATION. SEE OIL FILTER MAINTENANCE SECTION, PAGE 56.

NOTES:

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.