Liebert DA080/085 System
Warranty Inspection Check Sheet

The following information must be fully completed and forwarded to your local Liebert sales office to establish your equipment warranty.

Installer _____ Address _____

_____

_____

Owner _____ Address _____

_____

_____

Owner e-mail address _____

Installation Date _____

Was the equipment received in good condition? ☐ **Yes** ☐ **No**

If no, has the carrier been notified? ☐ **Yes** ☐ **No**

Have the manuals been kept with equipment? ☐ **Yes** ☐ **No**

PRE-INSPECTION

Evaporator Serial Number: _____

Evaporator Model Number: _____

Compressor 1
Model Number

_____

Compressor 1
Serial Number

_____

Compressor 2
Model Number

_____

Compressor 2
Serial Number

_____

Circuit #1
Condenser Serial Number: _____

Circuit #1
Condenser Model Number: _____

Circuit #2
Condenser Serial Number: _____
(If Applicable)

Circuit #2
Condenser Model Number: _____
(If Applicable)

EconoPhase Pump
Module Serial Number: _____
(If Applicable)

EconoPhase Pump
Module Model Number: _____
(If Applicable)

EconoPhase Pump 1
Model Number

_____

EconoPhase Pump 1
Serial Number

_____

EconoPhase Pump 2
Model Number

_____

EconoPhase Pump 2
Serial Number

_____

WARNING

Arc flash and electric shock hazard. Open all local and remote electric power disconnect switches, verify with a voltmeter that power is off and wear personal protective equipment per NFPA 70E before working within the electric control enclosure or any hazardous voltage electric connection enclosure. Failure to comply can cause serious injury or death.

With the electric power to the unit OFF check the following items as noted:

- ☐ Internal piping clamps tight and secure on Evaporator, Condenser and EconoPhase.
- ☐ Field piping properly supported and secure.
- ☐ Hot Gas line pitched according to User Manual.
- ☐ Field piping trapped according to User Manual.
- ☐ Field piping properly sized according to the User Manual.
- ☐ Liquid Line from the receiver outlet to EconoPhase inlet piping is sloped 2 inches per 10 foot. (If Applicable)
- ☐ ALL electrical connections are tight and properly terminated on Evaporator, Condenser and EconoPhase.
- ☐ Heat Rejection Interlock wiring has been correctly installed between Evaporator and Condenser(s) (70, 71, & 230).
- ☐ CAN Communication cable has been correctly installed between Evaporator, Condenser(s) and EconoPhase.
- ☐ Equipment is installed level.
- ☐ Remove all debris from unit area.
- ☐ Water supply line(s), condensate pump, or gravity drain connections are tight and do not leak. Drain lines are open and clear of dirt and debris.
- ☐ Duct work is complete, and secured. (If Applicable)
- ☐ Filters are installed in the unit?

Filter Size _____ **Quantity** _____

EC Fans

- ☐ EC plug fan Assemblies tight and secured?
- ☐ Fans secured in **UP** position?
- ☐ Fans secured in **DOWN** position?

EC Plug fan HP _____ **Voltage** _____

Evaporator Inspection

⚠ WARNING

Risk of electric shock, contact with high speed moving parts and hot surfaces, Can cause serious injury or death. Use extreme caution when working inside the unit cabinet of an energized unit near bare live hazardous voltage terminals, high speed moving parts such as blower wheels and shafts, pulleys, belts, EC fan blades and hot surfaces such as motors, heater elements, hot gas lines, and humidifier bulbs

1. Check voltage at disconnect and record.

L1-L2 _____ **L2-L3** _____ **L1-L3** _____

2. Close all local and remote electric power disconnect switches. Verify with a voltmeter that power is on and the supply voltage matches the marked unit voltage rating.

⚠ WARNING

Arc flash and electric shock hazard. Wear personal protective equipment per NFPA 70E before working within the electric control enclosure or any hazardous voltage electric connection enclosure. Use extreme caution when checking the status of live hazardous voltage circuits. Failure to comply can cause serious injury or death.

- **Check unit electrical phasing with a phase meter. If phasing is incorrect, change wiring at input source to unit. Do not change any unit or component phasing.**
- **Check the compressors for proper rotation by bumping the contactors and watching the gauge pressures. If the pressures are equalized and the compressor sounds noisy, then compressor is running backwards.**

3. Check and record control voltage transformers for proper output. (Secondary voltage should not be under 23 VAC or exceed 27 VAC under load, change tap if necessary).

T1_____Volt

4. Record iCOM Software Version: _____

Note: *The software version is located in the Network Menu that is located in Service Menus.*

Control Set-up

Based on the DA unit model number you are inspecting, there are a few settings that may need adjusted before you begin.

5. Set the following Parameters in the EEV Menu that is located in the Advanced Menus. The EEV Menu requires Level 4 Password.

A. DA080/085 EEV Settings: **When Condenser is above Evaporator, greater than 10 feet.**

Parameter	Setting
E144	MAN
E160	0.7
E161	250
E162	4.2

B. DA080/085 EEV Setting: **When Condenser and Evaporator are at same level**

Parameter	Setting
E144	MAN
E160	1.5
E161	250
E162	2.5

C. Set the Airflow Calibration in the Setpoint Menu that is located in the Service Menus.

Airflow Calibration (S151)		
Unit Size	**Fans UP**	**Fans DOWN**
DA080	8.6V	8.0V
DA085	9.3V	8.7V

NOTE: *Check operation of each component by utilizing the Service Menu that is located in the Service Menus on the iCOM Control.*

6. Enable Manual Mode.

7. Enable Fans and record Main Fan amperage.

L1 _____ **L2**_____ **L3**_____ **Fuse** _____

L1 _____ **L2**_____ **L3**_____ **Fuse** _____

8. Enable Reheats and record amperage. Disable Reheats after test.

L1 _____ **L2** _____ **L3** _____ **Fuse** _____

***NOTE:** On units with Infrared humidifiers, fill pan with water before turning on the lamps. Check water level and adjust high limit float for proper operation.*

9. Enable Humidifier and record amperage. Check for leaks at all piping connections. Disable Humidifier after test.

WARNING

Risk of electric shock and contact with extremely hot parts, can cause serious injury or death. Use extreme caution when working near bare live hazardous voltage terminals or energized humidifier bulbs.

L1 _____ **L2** _____ **L3** _____ **Fuse** _____

10. Check condensate pump for proper operation by filling pump with water. Check for leaks at all piping connections. Record pump amperage. (If Applicable)

WARNING

Risk of electric shock and contact with hot motor surfaces, Can cause serious injury or death. Use extreme caution when working near bare live hazardous voltage terminals or the energized condensate pump motor. Do not remove the condensate pump electric connection terminal cover. Use extreme caution and do not spill water on the motor or the electric connection cover.

L1 _____ **L2** _____ **Fuse** _____

Refrigerant Charging

Notes:

- *An initial refrigerant charge of at least 75% to 80% of the calculated charge should be added to each circuit before starting the compressors.*
- *Digital compressors must be at fully loaded operation.*
- *Charge only one circuit at a time.*
- *An accurate sight glass level will not be present until EEV operation is stable and superheat is around 13°F.*
- *Refrigerant level will vary with outside temperature and return air temperature. Check refrigerant level after the circuit has been on for at least 15 minutes and the return air temperature is stable.*
- *After adding refrigerant, wait at least 10-15 minutes for the system to stabilize before checking the receiver level and adding additional charge.*

10. Enable compressor in the Charge Mode and allow the system to operate for 10-15 minutes. In the EEV Menu check lines E106 (Superheat) and E107 (Valve Opening), verify the EEV valve is not modulating and the superheat is stable. Add refrigerant to the circuit to achieve the proper superheat of 13°F while monitoring the refrigerant level in the receiver. Once you have achieved a superheat of 12° to 14°F verify the refrigerant level in the receiver. Top the charge to the sight glass level listed below that is based on your return air and ambient temperatures.

Receiver Refrigerant Level with a stable return air of 75˚F to 85˚ F

Sight Glass Levels

☐ 40°F (4.5°C) and lower—bottom sight glass is 3/4 full

☐ 40 (4.5°C) and higher — bottom sight glass is full

Receiver Refrigerant Level with a stable return air of 65˚F to 74˚F

Sight Glass Levels

☐ 40°F (4.5°C) and lower—charge to the bottom of the top sight glass

☐ 40 (4.5°C) and higher — top sight glass is 1/4 full

11. Check the appropriate box above based on the conditions you were charging at.

12. Record Suction and Discharge Pressure for each circuit.

Suction Pressure **Circuit #1**	Discharge Pressure **Circuit #1**
_____	_____
Suction Pressure **Circuit #2**	Discharge Pressure **Circuit #2**
_____	_____

13. Record the superheat for each circuit. Obtain the superheat reading from the EEV Menu. Superheat should be approximately 13°.

Circuit 1 _____°F **Circuit 2** _____°F

14. Record Total Charge

Circuit #1 _____ LBS **Circuit #2** _____ LBS

15. Record compressor amperage.

Compressor #1

L1 _____ **L2** _____ **L3** _____ **Fuse** _____

Compressor #2

L1 _____ **L2** _____ **L3** _____ **Fuse** _____

16. Record compressor crankcase heater amperage.

Compressor #1 _____ **Compressor #2** _____ **Fuse** _____

NOTE: Scroll and Digital Scroll Compressor — Additional Oil Requirements

System charges over 40lbs (18kg) per circuit may require additional oil charge to be added. Refer to DA/DSE User Manual for the amount required for various system charge levels and associated safety alerts. After the system has been fully charged with refrigerant, use a hand pump to add the additional oil at the suction side of the system while the system is running. The amount of oil added by field service must be recorded on the tag marked "Oil Added Field Service Record," attached to each compressor. The date of oil addition must be included as well.

Condenser Inspection

1. Check voltage at disconnect and record.

   Condenser #1

   L1-L2 _____ **L2-L3** _____ **L1-L3** _____

   Condenser #2
   (If Applicable)

   L1-L2 _____ **L2-L3** _____ **L1-L3** _____

2. Check and record control voltage transformers for proper output. (Secondary voltage should not be under 23 VAC or exceed 27 VAC under load, change transformer tap if necessary.)

   Condenser #1 T1_____Volt **Condenser #2 T1**_____Volt
   (If Applicable)

3. Record condenser control board software version.
   (Software version can be viewed in the Global Condenser Menu.)

   Condenser #1 _____ **Condenser #2** _____
   (If Applicable)

4. Record Fan Amperage for applicable fans.

   Condenser #1

   Fan #1 **L1** _____ **L2** _____ **L3** _____ **Fuse** _____

   Fan #2 **L1** _____ **L2** _____ **L3** _____ **Fuse** _____

   Fan #3 **L1** _____ **L2** _____ **L3** _____ **Fuse** _____

   Fan #4 **L1** _____ **L2** _____ **L3** _____ **Fuse** _____

Condenser #2
(If Applicable)

Fan #1 **L1** _____ **L2** _____ **L3** _____ **Fuse** _____

Fan #2 **L1** _____ **L2** _____ **L3** _____ **Fuse** _____

Fan #3 **L1** _____ **L2** _____ **L3** _____ **Fuse** _____

Fan #4 **L1** _____ **L2** _____ **L3** _____ **Fuse** _____

5. Record the following information from the condenser control board(s) with the circuit operating after fully charged.

Condenser or Circuit #1

Submenu ID	Parameters	Reading
F00	Condenser Pressure Circuit 1	
F02	Ambient Temperature	
F03	Condenser Temperature Circuit 1	
F10	Fan 1 Actual Speed	
F20	Fan 2 Actual Speed	
F30	Fan 3 Actual Speed	
F40	Fan 4 Actual Speed	

Condenser or Circuit #2

Submenu ID	Parameters	Reading
F01	Condenser Pressure Circuit 2	
F02	Ambient Temperature	
F04	Condenser Temperature Circuit 2	
F10	Fan 1 Actual Speed	
F20	Fan 2 Actual Speed	
F30	Fan 3 Actual Speed	
F40	Fan 4 Actual Speed	

EconoPhase Inspection

1. Check voltage at disconnect and record.

   L1-L2 _____ **L2-L3** _____ **L1-L3** _____

2. Check and record control voltage transformers for proper output. (Secondary voltage should not be under 23 VAC or exceed 27 VAC under load, change tap if necessary).

   Circuit #1 T1_____Volt **Circuit #2 T1**_____Volt

3. Record EconoPhase Control Board software version
   (Software version can be viewed in the EconoPhase Menu.)

   Circuit #1 _____ **Circuit #2** _____

4. Check operation of the pumps by utilizing the Service Menu that is located in the Service Menus on the iCOM Control.

   a. Set Manual Mode to Yes

   b. Turn Fans On. Verify the fans are operating at the standard speed via Analog Output 1 (S341)

   c. Locate EconoPhase menu in the Advanced Menus

   d. Enter level 4 Password

   e. Verify pump operation is “Enabled” on line P002

   f. Navigate to line P015. On this line you can select PB1 Test (Pump 1), PB2 Test (Pump 2) or PB1/PB2 Test (Pump 1 & 2 at the same time. Select what test you would like to run. During the pump test the compressors will operate for about one minute before the pump(s).

   g. Watch the Pump differential readings. You should see a positive pressure reading. If you have a negative pressure reading, then the pumps are rotating backwards. Turn OFF the Main Disconnect on the EconoPhase module. Change wiring at output of VFD. **Do not change module or component phasing.**

   h. On line P017, iCOM will give a pass/fail criteria based on whether positive pump differential could be achieved.

   Note: *If one or both of the pump tests fail, you can rerun either that single or both pump test again.*

4. Record Pump test results below.

Pump 1 **Pass** ☐ **Fail** ☐

If circuit did not pass, give brief explanation.

_____

_____

Pump 2 **Pass** ☐ **Fail** ☐

If circuit did not pass, give brief explanation.

_____

_____

5. Disable Manual Mode in the Service Menu.

Adjust all set-points for proper operation after testing.

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Warranty Inspection Check Sheet

Your Warranty Inspection is now complete.

Your input is important to us. Did you encounter any factory or field issues? If YES, please check the YES box and supply detailed description below. If NO, please check the NO box; however please feel free to provide any additional comments or suggestions.

☐ **YES** ☐ **NO**

Comments:

_____

_____

_____

_____

_____

_____

PERFORMED BY: _____ **DATE:** _____
(Please print name)

COMPANY_____ **PHONE #** _____

IMPORTANT:

This form must be properly completed and returned to your local Liebert Sales office. If you do not know who your local Liebert sales office is, call 1-800-Liebert or check our website at:

https://www.vertivco.com/en-us/products/brands/liebert/