



Service Information

File In/With:

SI0345

New

517

Equipment Affected: YLAA

YLAA - Brazed Plate HX Freeze Damage - KDD

PROBLEM OR GENERAL OR BACKGROUND

Some of our installed base of YLAA chillers have experienced evaporator freeze-up and damage. We believe that the freeze-ups were due to multiple factors occurring at the same time.

POTENTIAL ROOT CAUSES:

1. Continuous low suction pressure operation either due to low charge or other causes.
2. Very low water flow rate can close the flow switch. This may cause the chiller to start and run outside design conditions.
3. After a flow switch safety the refrigerant pumpdown period was too long.
4. Danfoss controllers open the EEV slowly at startup. This creates low suction pressure and low wall temperatures at the heat exchanger. This low wall temperature can cause localized freezing. Repeated localized freezing at system startups can cause heat exchanger failure.

CHILLERS AFFECTED: YLAA chillers produced during calendar year 2015 with Danfoss EEV

List of Chillers: https://my.jci.com/sites/BE/Quality/_layouts/15/WopiFrame.aspx?sourcedoc=%7B51434680-E00F-4DB6-A049-CA942DF98DCB%7D&file=KDD-051%20YLAA%20by%20Region_2017.05.01.xlsx&action=default

KDD - 051 START DATE: 05/2017

KDD - 051 END DATE: 09/30/2017

ALLOCATED TIME AND COST FOR KDD – 051 RETROFIT/CHILLER:

Labor: 4 hrs labor permitted including travel/chiller.

- The labor portion can be broken down by individual chiller and an individual SD claim can be submitted per chiller.
- If any site has multiple chillers on location, please ensure that the chillers are reworked on 1 trip if possible to avoid additional travel time.

Work on this equipment should only be done by properly trained personnel who are qualified to work on this type of equipment. Failure to comply with this requirement could expose the worker, the equipment and the building and its inhabitants to the risk of injury or property damage.

The instructions on this service bulletin are written assuming the individual who will perform this work is a fully trained HVAC & R journeyman or equivalent, certified in refrigerant handling and recovery techniques, and knowledgeable with regard to electrical lock out/tag out procedures. The individual performing this work should be aware of and comply with all Johnson Controls, national, state and local safety and environmental regulations while carrying out this work. Before attempting to work on any equipment, the individual should be thoroughly familiar with the equipment by reading and understanding the associated service literature applicable to the equipment. If you do not have this literature, you may obtain it by contacting a Johnson Controls Service Office.

Should there be any question concerning any aspect of the tasks outlined in this bulletin, please consult a Johnson Controls Service Office prior to attempting the work. Please be aware that this information may be time sensitive and that Johnson Controls reserves the right to revise this information at any time. Be certain you are working with the latest information.

Product Technical Support

MATERIAL

- **Kit # 325-49974-000** includes all the required components for this retrofit.
- **You are not required to order the parts individually.**
- NA (U.S/Canada) branches – Kits containing the required components for this retrofit will be provided from Baltimore parts to your office; **DO NOT ORDER KIT(s) FROM BALTIMORE PARTS**
- All other regions - **ORDER THE KIT** (as shown above) **FROM THE APPROPRIATE PARTS HUB**. Please order the total quantity of kits on 1 PO. Example: If your branch has 10 chillers under your responsibility, please order 10 kits on 1 order and submit 1 SD claim for the 10 kits. This is to ensure you obtain the required # of kits and to cut down on the quantity of SD claims to be submitted.

CLAIM SUBMISSION

Submit a KDD - 051 claim via SD warranty for cost recovery.

- **US and Canada branches** - All KDD – 051 request should be submitted through the Warranty Service Team for tracking purposes .Please create a SR and schedule the work to be completed. Once a SR has been created, submit your claim request to the warranty service team via email BE-NA-WarrantyServicesTeam@jci.com. Your subject line should be **KDD-051 – SR#1-xxxxxxxx**.
- **All other branches** – Please submit the KDD – 051 SD claim via the SD claim process, clearly mentioning the KDD – 051 in the first line of comments. Contact cg-eswarrantyadmin@jci.com with questions on the submission process.
- 1 claim for all kits per branch office (not applicable to U.S branches as kits will be provided) – please see ‘list of chillers’ for chillers associated with your area/branch.
- The labor portion can be broken down by individual chiller and an individual SD claim can be submitted per chiller.

SOLUTION

The solution to alleviate the risk associated with this freeze damage involves 4 changes:

1. Install New Software

New software increases the resolution of the suction and discharge pressure readings to provide more accurate control. It also increases the flow switch safety pump down cutoff pressure from 80 psi to 105 psi.

2. Install New IFM Flow Switch

We will provide a new IFM flow sensor that has the close point changed from 20cm/sec to 60cm/sec.

3. Re-program the Danfoss Control

Below is an instruction on how to change the program in the Danfoss EEV to provide quicker action of the EEV Valve during start-up.

4. Suction pressure cutout change from 80 psi to 87 psi

5. Enabling data logging

PROCEDURE

1. Install Software

- Turn the Unit Switch Off.
- Insert the new program card in to the SD card reader slot.
- Press the Unit Options key multiple times until the FLASH CARD UPDATE DISABLED message is displayed.

- d. Press the Up Arrow key once to change the setting to FLASH CARD UPDATE ENABLED. (DO NOT cycle power while the program is updating since this may render the microboard unusable)
- e. The unit will automatically reboot after the program update.

PART NUMBER – SOFTWARE	SOFTWARE VERSION NUMBER
031-02755-004	C.MMC.16.13

2. Install New IFM Flow Switch

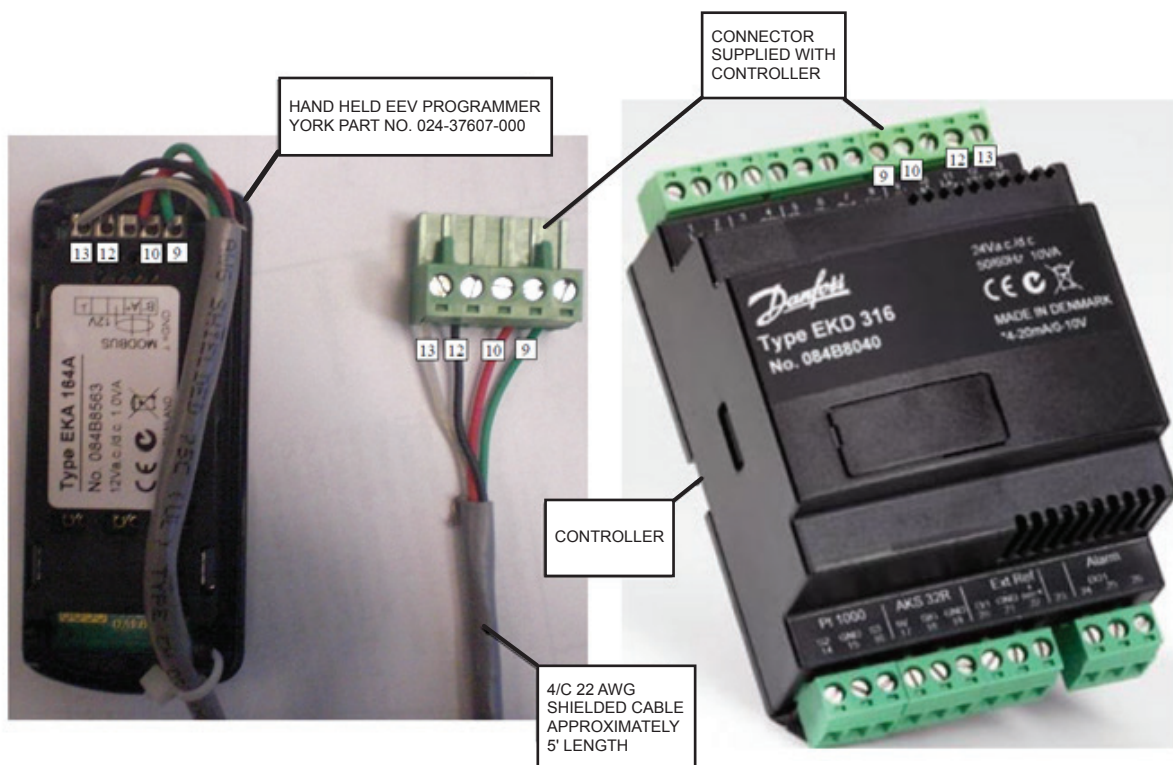
- a. Shut the chiller off and shut the evaporator pump off.
- b. Isolate the chilled liquid flow switch if valves exist.
- c. Disconnect the wiring from the flow switch.
- d. Remove the chilled liquid flow switch and install the new IFM flow switch.
- e. Re-connect the wiring to the new flow switch

PART NUMBER	IFM EFECTOR PART NUMBER	FLOW VELOCITY
025-43553-001	SC0519	60 CM/S

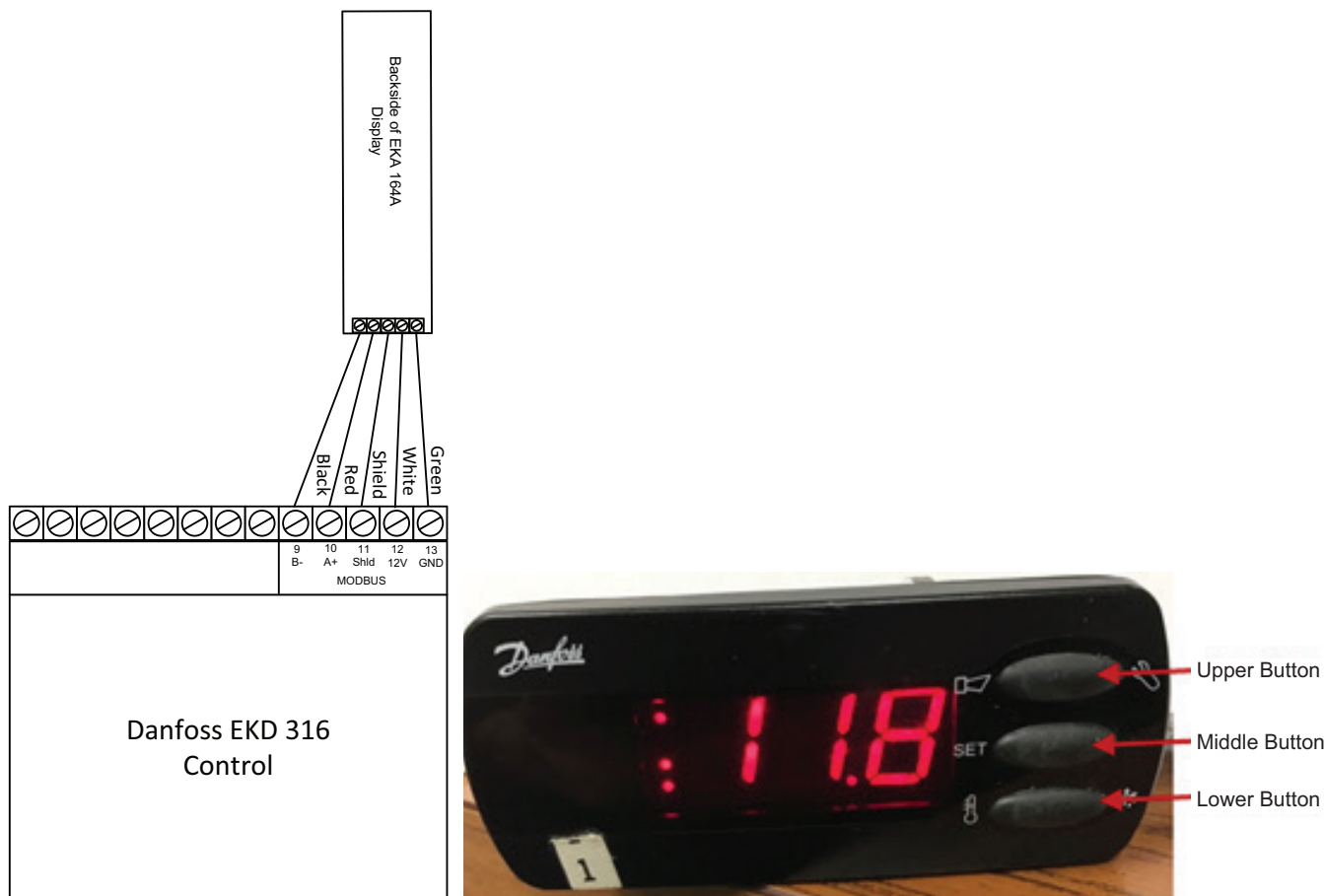
3. Re-Program the Danfoss EKD 316 EEV Controller

- a. Power off the chiller and connect the Danfoss controller display EKA 164A to the Danfoss control EKD 316 as shown below using a four conductor cable with a shield. Note that the shield is the center terminal on the display and the control.

PART NUMBER – EEV PROGRAMMER
024-37607-000



LD22126



LD22127

- b. Power up the chiller and wait for the Danfoss display to complete the ini (Initialization) process.
- c. Press and hold the Danfoss display upper button until the display changes to program mode and **r05** is displayed.
- d. Press the lower display button until the first parameter to be changed **n04** is displayed.
- e. Press the middle display button (SET) to select the parameter to change.
- f. Press the upper button to increase the value or the lower to decrease the setpoint value as needed.
- g. Once the setpoint is set to the desired value, press the middle button (SET) to save the new setpoint.
- h. Press the lower display button until the next parameter to be changed is displayed and then repeat steps 5 through 7.
- i. Set the parameters as shown below.

DESCRIPTION	PARAMETER	CURRENT SETTING	NEW SETTING
P: Amplification factor Kp	n04	2.0	3.0
Max. value of superheat reference	n09	14.4	12.6
Min. value of superheat reference	n10	10.8	9.0
StartUp time (seconds)	n15	0	30
Start OD (%)	n17	0	25

- j. Power off the chiller and remove the Danfoss display and associated wiring from the Danfoss controller.
- k. Re-apply power to the chiller.
- l. Run the chiller and check for proper operation.

4. Suction Pressure Cutout Change from 80 psi to 87 psi

- a. The suction pressure cutout for water cooling should be changed from 80 to 87 psi
- b. Suction Pressure Cutout is a programmable value in YLAA software. It is listed under the Program mode. This mode may be entered by the following series of keystrokes:
 1. Depress the **PROGRAM** Key
 2. Press the **ENTER/ADV** Key
 3. Press **ENTER/ADV** Key to navigate to the suction pressure cutout screen. The display should be similar to the display below.

SUCTION PRESSURE CUTOUT = XXXX PSIG

4. Use the key ↓, key ↑ to change the suction pressure cutout and press the **ENTER/ADV** key to set the new value.

5. Enabling Data Logging

- a. Power unit off
- b. Insert SD Flash card (Max SD Card size is 2GB)
- c. Under Options set DATA LOG TO FLASHCARD to ON