GENERAL SERVICE BULLETIN

RTAA-SB-21

Library	**Service Literature**
Product Section	**Refrigeration**
Product	**Rotary Liquid Chillers**
Model	**RTAA 130-400**
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Subject: Upgrade to Fan Staging for RTAA 130-400

Introduction:

Units built prior to July 1998, use fan staging logic that does not pre-stage any fans. Regardless of the outdoor temperature the unit will start with the first fan and increase fans according to the pressure drop across the electronic expansion valve. The revised software will start more fans as required by the outdoor ambient. Once the compressor is on line, the fans will begin to stage according to the pressure drop across the electronic expansion valve.

Discussion:

If the original fan staging logic is not aggressive enough for the application of the unit, upgrading to the revised fan staging software may eliminate some nuisance trips on high pressure cut out and/or low oil flow diagnostics.

NOTE: Be certain to confirm the operation of all other components related to the diagnostics prior to doing the software upgrade.

Units Affected:

As of July 1998, all RTAA 130-400 ton units are manufactured with the revised software to incorporate pre-staging of the fans in high ambient conditions.

Corrective Action

To upgrade the unit in the field, the procedures listed below must be followed.

I Installation of Revised Software

Enclosed in the software kit, KIT06300, is the revised software for the compressor modules (MCSP=1U4 thru 1U7) and the main chiller (CPM=1U1) module. This software will allow pre-staging of the fans with a compressor start that can help avoid HPC or low oil flow diagnostics in high ambient conditions.

The 6200 number is the software part number on a white sticker located on the face of the E-PROM. The X number is the entire module part number located on the white sticker on the sheet metal enclosure over the circuit board.

To upgrade the unit, all of the compressor modules {1U4, 1U5, 1U6 (240-400 ton units only) and 1U7 (340-400 ton units only)} and the main chiller module (1U1) must have software listed in Table 1.

Table 1: Software Required For Pre-staging Fan Capability

Description	Module	Software
CPM - 1U1	X13650362-04 or later ext.	6200-0010-08 or later ext.
MCSP - 1U4, 1U5, 1U6 and 1U7	X13650361-03 or later ext.	6200-0022-08 or later ext.

WARNING

To prevent electrostatic discharge damage to enclosed EPROMs, use the enclosed grounding strap whenever handling EPROMs when they are not in their protective enclosures. Put the wrist strap on your wrist directly against the skin and attach the other end to a good ground.

If possible, an EPROM extractor should be used to remove the existing EPROM. Suggested EPROM extractors are listed in Table 2:

If an EPROM extractor is not available, a small flat blade screwdriver may be used. This method is explained below.

Table 2: E-Prom Extractors

Brand Name	Part Number	Phone Number
Digikey	K158-ND	(800)344-4539
Jenson Tools	125B002	(800)426-1194

To change the E-PROMs, follow each procedure step-by-step.

1. Record the software part number and extension found on the EPROMs provided in the upgrade kit, before installing into the modules. Verify that the numbers on the E-PROMs match the numbers listed in Table 1.
2. Record all settings in menus 1-5. Replacement of the E-PROMs will cause settings to return to the default values.

WARNING

Disconnect all electronic power including remote disconnects before servicing. Failure to disconnect all power before servicing can cause severe personal injury or death.

3. Disconnect all power to avoid electrical shock.
4. Before handling any module, discharge yourself by touching the sheet metal panel.
5. Label and disconnect all wires connected to the CPM module.
6. Remove the CPM from the unit and place on a clean working surface face down.
7. Remove the protective tag board from the back of the module.
8. Locate and remove all of the screws securing the printed circuit board assembly to the sheet metal enclosure. Touch the screw driver to the metal bench before use to avoid a damaging static dis-

charge to the module.

9. Lift the circuit board out of the sheet metal enclosure and lay it on the tag board component side up.
10. For the CPM module, disconnect the ribbon cable connecting the main board to the smaller keypad/display board. There are also a red and black transformer wires that can be disconnected if necessary.
11. Locate the E-PROM on the printed circuit board. There is a white sticker on the E-PROM with a 6200 number that matches Table 1 except for the last two digits.
12. Note the orientation of the E-PROM before removing. The notch on the E-PROM must line up with the notch drawn on the printed circuit board.
13. Touch the screwdriver used to remove the E-PROM to the metal bench before use to avoid a damaging static charge to the module. The screwdriver must be a small blade type with a 1/8" to a 3/16" blade.
14. Remove the E-PROM by inserting the screwdriver between the E-PROM and the socket. Keep the blade near either row of pins since the EPROM does not have a bottom near the center. The screwdriver can damage the printed circuit board if it enters the center region. Do not contact other components on the board with the screwdriver. Pry the E-PROM up, trying not to bend any pins. Work the screwdriver further under the EPROM keeping the blade close to the row of pins on the side.
15. Lift the E-Prom from the socket. Install the new E-PROM with the software matching Table 1. Find the correct EPROM in the kit and examine it for bent pins. As necessary, straighten them with a small needle nosed pliers.

CAUTION: Insure that the printed circuit board is on a flat surface before pressing in the E-PROM.

16. Align the notch on the E-PROM to the notch drawn on the circuit board which should be the same as the orientation of the original E-PROM.
17. Press the E-PROM firmly into place making certain that all pins enter the socket correctly. Verify that no pins are bent.
18. If a pin is bent, remove the E-PROM and attempt to straighten the pin with a small pair of needle nosed pliers. Carefully re-insert the E-PROM in the socket.
19. For the CPM module, re-attach the red and black transformer wires to the circuit board. Make sure each black wire is connected to the terminal labeled "black" and the red wire is connected to the terminal labeled "red".
20. Re-connect the ribbon cable between the main module and keypad/display board. Be certain the keying pin is aligned properly.
21. Install the sheet metal cover torquing the screws to 7-9 in/lbs.
22. Install the protective tag board.
23. Use an ink pen to fill in the blanks on one of the adhesive labels that is included in the kit. Apply the label next to the existing part number/serial number label on the module.
24. Reinstall the board and proceed with the remaining modules by following steps 4-17.
25. Once all of the modules are upgraded, determine if the outdoor air sensor is installed. If it is not, proceed with Section II: Installing the Outdoor Air Sensor. If it is installed, skip section II and proceed with section III Setting the Microprocessor.

II Installation of the Outdoor Air Sensor

The outdoor air sensor is not included in the kit. Be certain to order the sensor separately if the unit does not already have one installed.

1. Install the sensor beneath the condensing coils out of direct sunlight and a direct path of air flow through the coils.
2. Secure the sensor with a locally supplied clamp to the metal frame of the unit with a self-tapping screw.
3. Wire the sensor to the 1U1, TB1-1 and TB1-2.

With the revised software the unit will monitor the outdoor sensor on start-up of a compressor and pre--stage fans accordingly.

III Set-up of the Microprocessor

Nothing in the microprocessor needs to be changed

from the original settings to activate the pre-staging of the fans.

It is recommended that item 58: “Low Ambient Half Air Flow Fans e/d “remain “enabled if the unit has half pitch fans. This enhances the fan staging to incorporate the half-pitch fans during staging to help maintain control in low ambient conditions. If this was disabled in the past to increase the staging of the fans, it can now be re-enabled. The pre-staging of the fans from the outdoor air sensor will allow the fans to cycle on much faster.

Note: Refer to the unit model number, digits 17+ for the proper setting of item 58.

Parts Ordering

Refer to Table 3 for the necessary parts required to upgrade the fan-staging logic in the RTAA 130-400 ton units.

Table 3: Parts Required

Description	Part Number	Qty
E-PROM kit for RTAA 130-400 ton units	KIT 06300	1
Outdoor Air Sensor (if not already installed on unit)	SEN00216	1

To obtain the parts identified in this bulletin, order from your local Trane Service Parts Center.

This bulletin is informational only and does not authorize any parts or labor.