DAIKIN

TECHNICAL SERVICES

# GoodNews Tech Tips

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**NATE Certification**

**Goodman encourages and supports HVAC contractors who earn NATE Certification. The NATE badge is a symbol recognized by an ever-increasing number of homeowners as the official mark of technician excellence.**

## New Line of High-Efficiency Furnaces

Al Lush

In August, we began production of a new line of high-efficiency furnace models. This line is made up of five furnace model groups.

### All Models Will Have the Following New Features

34.5" in height
Hot Surface Igniter #0130F00008
Factory-installed internal drain trap
"D"-shaped fan wheel hub
No kit required to install furnace horizontally
Thumb screws on doors
Vertical gas valve – simplifies gas line connection
White-Rodgers single-stage & two-stage gas valves

### Hybrid Models

DM96HS - Up-flow/horizontal installation positions
DC96HS - Down-flow / horizontal installation positions
Two-stage gas valve with timed transition to high fire

### Single-Stage Models 92% New Features

*MSS9*/DM92SS Up-flow/horizontal installation positions – no kit required to install horizontally
*CSS9* / DC92SS Down-flow/horizontal installation – no kit required to install horizontally.
New PSC blower motors from Nidec
New control boards using the #0130F00008 115-volt silicon nitride igniter

### Two-Stage 96% Non-Communicating

*MEC96 / DM96VE Up-flow/horizontal installation positions
Nidec multi-speed ECM
Two-stage control W1, W2, Ylo, Y inputs
Operates with single- or two-stage thermostats
When a single-stage heating thermostat is used, the control uses timed transition to high fire (10 minutes, 20 minutes, or auto mode), which varies from 1 to 12 minutes, based on the length of previous run cycles.

### Two-Stage 96% Communicating

*MVC96 / DM96VC Up-flow / horizontal installations
*CVC96 / DC96VC Down-flow / horizontal installations
Operates with legacy or communicating thermostats.

### Modulating 97%

*MVM97 / DM97MC Up-flow/horizontal installations
*CVM97 / DC97MC -Down-flow/horizontal installation
Operates with legacy or communicating thermostats

# PREPARING FOR WINTER

## Chris Trussell

With winter approaching, we need to start shifting gears and think about heating season. The following are a few service tips that you need to keep in the forefront of your mind, to ensure the equipment is operating properly.

### Reversing Valves

Our current heat pumps energize the reversing valve in the cooling mode and de-energize the reversing valve in the heating mode.

### Flue Gas

One thing that our technical support service specialists occasionally receive calls about is the recirculation of flue gas, which causes the system to fire then shut off or short cycle. At other times, the system will fire then the bottom burner will go out while the system stays on because the flame sensor is located on the top burner.

To troubleshoot this problem, please check the following: 1.) ensure that the chute is securely attached to the draft motor, 2.) ensure that the flue hood is properly assembled with the flue gas discharging out and away from the unit and 3.) ensure that the unit is not installed in such a way that the flue gas can be re-circulated back into the combustion air hood. This is sometimes seen when the unit is installed in an alcove and the flue gas is not being dissipated from the area of the unit.

### Gas Pressures

Gas pressure needs to be checked and adjusted upon install of the equipment and upon every preheating season maintenance check. A good tip is to complete a startup check list or test data sheet on the system and leave with the equipment for future reference.

Note: We are working on adding "Startup Checklist" to all of the Installation and Operating instructions for this very reason, which will ensure the necessary data is with the equipment for future reference as needed.

# AHRI ARCHIVED CERTIFICATES

## Steve Perry

AHRI recently introduced their new online form for requesting archived certificates for AHRI matches. Any contractor, homeowner, utility, OEM etc. can go to this site and submit a request for an archived rating. All that is needed is the original AHRI number.

The web site is located at www.ahridirectory.org. Simply copy the link below and paste it into a web browser. This link will take you to the site, where you fill out the requested information.

https://www.ahridirectory.org/ahridirectory/pages/Techsupport/support.aspx

AHRI Air-Conditioning, Heating, and Refrigeration Institute

AHRI CERTIFIED www.ahridirectory.org

**Technical Support**

**If you are trying to locate AHRI certified models and matched systems, AHRI Reference Numbers, certified performance ratings, or to download an AHRI Certificate of Product Ratings, then you have come to the right place!** All of this is available to you in the free, searchable AHRI Directory of Certified Products Ratings. If you are experiencing difficulty navigating the Directory, we recommend reviewing our FAQ page. If you still require assistance, please submit a ticket in the online form below and it will be addressed in the order it was received.

**If you would like to verify the contents of a previously issued AHRI certificate, please visit www.ahridirectory.org/verify**

*Although AHRI Reference Numbers and certificates of Product Ratings are often required for rebate applications, please contact your rebate program provider for all questions specific to a rebate program.*

*Additionally, AHRI is unable to address Inquiries related to service requests, equipment troubleshooting, or product warranties. Please address such inquiries to your equipment installer or equipment manufacturer.*

*** indicates a required field**

*First Name | *Last Name
Organization
*Email | *Phone Number
I am a | Please Select

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# HKA, HKR AND HKS HEAT KIT CHANGES

## Steve Perry

Heat Kits are being redesigned to meet UL1995 4th Edition standards, which requires that both legs-of-power to the heating element be de-energized in the "OFF" cycle. This redesign involves replacing sequencers with contactors on all of the heat kits and factory-installed heat kits in the AWUF and ACNF air handler series. Wiring diagrams shipped with the heat kits will reflect this change.

There will be no changes to any of the wiring in the air handlers. To avoid confusion, heat-kit wiring diagrams will be removed from the air handler installation instructions and from the units. The change to the HKS, HKR, HKA heat kits and the AWUF, ACNF air handler series will go into affect the first quarter of 2015. The AWUF and ACNF air handler units will have a minor revision change to the model number.

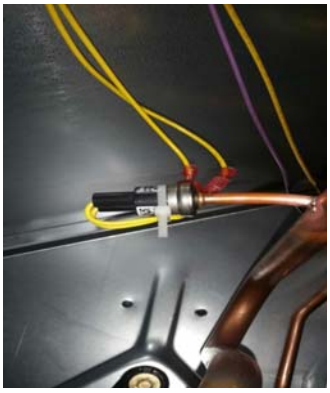
| Model | | | |
|---|---|---|---|
| Cur Rev | New Rev | Cur Rev | New Rev |
| AWUF180316BA | AWUF180316BB | AWUF310516AA | AWUF310516AB |
| AWUF180516BA | AWUF180516BB | AWUF310816AA | AWUF310816AB |
| AWUF180816BA | AWUF180816BB | AWUF321016AA | AWUF321016AB |
| AWUF240316BA | AWUF240316BB | AWUF360516BB | AWUF360516BC |
| AWUF240516BA | AWUF240516BB | AWUF360816BB | AWUF360816BC |
| AWUF240816BA | AWUF240816BB | AWUF361016BB | AWUF361016BC |
| AWUF241016BA | AWUF241016BB | AWUF370516BA | AWUF370516BB |
| AWUF300516BB | AWUF300516BC | AWUF370816BA | AWUF370816BB |
| AWUF300816BB | AWUF300816BC | AWUF371016BA | AWUF371016BB |
| AWUF301016BB | AWUF301016BC | | |
| Model | | | |
| Cur Rev | New Rev | Cur Rev | New Rev |
| ACNF180516DA | ACNF180516DB | ACNF240516DA | ACNF240516DB |
| ACNF240616DA | ACNF240616DB | ACNF300516DA | ACNF300516DB |
| ACNF300616DA | ACNF300616DB | ACNF180616DA | ACNF180616DB |
| ACNF180816DA | ACNF180816DB | ACNF241016DA | ACNF241016DB |
| ACNF240816DA | ACNF240816DB | ACNF301016DA | ACNF301016DB |
| ACNF300816DA | ACNF300816DB | | |

# RESIDENTIAL PACKAGE UNITS

## Chris Trussell

### "H" Series Package Heat Pumps

In August, engineering implemented a change to the "H" series package heat pumps in order to address the concern of pressure switch failures. The change that occurred creates a drip loop in the wire of the pressure switch to prevent water from entering the switch that could cause premature failure. Below are two different views of pressure switches that show the drip loop.



Low Pressure Switch

High Pressure Switch

### Quality Changes and Improvements to Detect and Prevent Leaks

Over the past several months, quality has implemented several changes and improvements to detect and prevent leaks within the systems. The most recent changes have been focused on the copper coils. Some of the changes and improvements are Braze Training & Skills Assessment throughout the facility, which includes a Braze and Leak Check Certification Program, copper autobraze manifold and flux system improvements, improved data collection for quicker root cause analysis and new Inficon 3000 leak detectors on the assembly lines.

### Recently Released Package Unit Service Bulletins

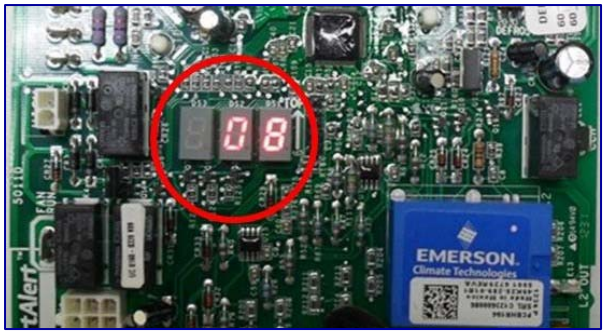
**SP-034 -** Miswired Economizer Plug for Residential Package Units
**SP-033 -** A/GPC13/1436H41** and DP13/14CH3641AA Suction Process Tube Cracking
**SP-032 Rev. 1 -** Incorrect Speed Limit Data in Genteq EonTM Motors in APH15 and DPH 15 "M" Model Package Heat Pump Units
**SP-031 -** Availability of Replacement Draft Inducer Capacitor for Package Gas Units

# PCBHR104 UNITARY HEAT-PUMP BOARD

## Steve Perry

The new PCBHR104 UC board has been introduced in the 16 and 18 SEER communicating heat pumps. This board resolves the issue of the "b0" no blower code that appeared on the CTK03 and CTK04 thermostat when the unit switched from defrost mode to heat mode. There was a timing issue between the outdoor and indoor board that caused the indoor blower to stop momentarily and restart when changing modes.

The new board has a 7-segment LED code display and new fault code label on the control box cover.




**7-Segment LED Code Display on the PCBHR104 Control Board**

The previous control board had diagnostic lights.

**Diagnostic Lights on the PCBHR103 Control Board**

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# DAIKIN UNITARY INVERTER CHARGING FUNDAMENTALS

Rodney White

As with any HVAC system, proper system charge is also critical for optimal performance for Daikin Unitary Inverter units. There are different methods to charge a Daikin Unitary Inverter system depending on which system you are working on.

First thing to know, Daikin Unitary Inverter units use PVE oil. This is different than the POE oil used in R410A systems. PVE oil is not compatible with POE oil. It is highly recommended that technicians have a separate set of gauges and hoses when working on all inverter systems.

To determine the additional amount of R410A refrigerant, always refer to installation manual. The Daikin Unitary Inverter unit comes pre-charged for 15 foot line set and should be charged by weighing in the refrigerant (addition of .06 ounces per foot) or by sub cooling depending on the outdoor ambient temperature. Refer to charging table below for proper outdoor temperature ranges.

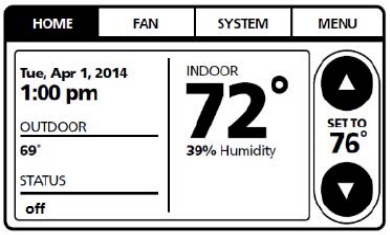
**Charging Table**

| OD Ambient Temp (degF) | < 65 °F | 65°F to 105°F | > 105 °F |
|---|---|---|---|
| **Subcooling (degF)** | Weigh in Charge | 7°F to 9°F | Weigh in Charge |

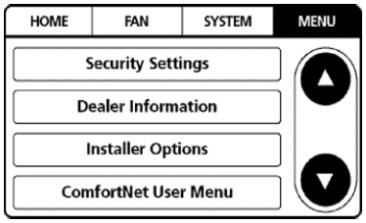
Note: Subcooling information is valid only while the unit is operating at 100% capacity or 100% of compressor speed in CHARGE MODE. Compressor speed is displayed under STATUS menu in the thermostat.

For Unitary Inverter Units there is a CHARGE MODE menu in the CTK04 thermostat that must be accessed to charge the unit. Below are the menu steps to access the CHARGE MODE. **Note:** The Installer password is the Date Code located on the Thermostat and is available by entering the EQUIPMENT STATUS menu and scrolling to the Bottom (complete detailed info listed in I&O).

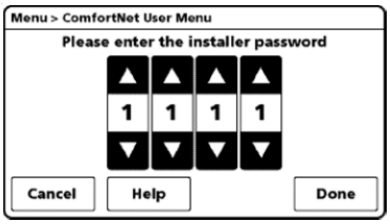
Press MENU



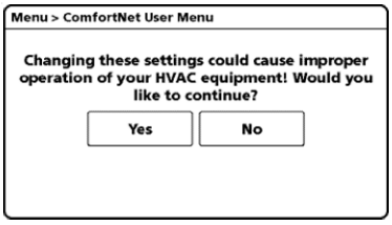

Select COMFORTNET USER MENU



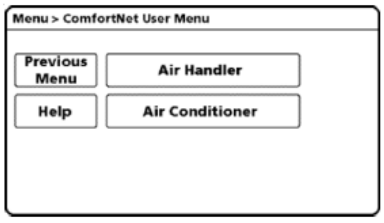

Enter Installer's Password



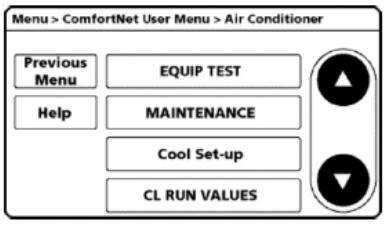

Select YES



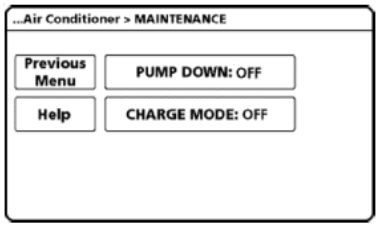

Select AIR CONDITIONER



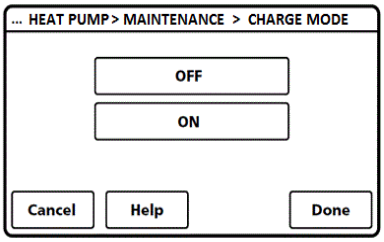

Select MAINTENANCE



Select CHARGE MODE




Select ON then press DONE




After CHARGE MODE is selected, the unit will run at 100% for 1 hour. The unit needs run at full speed for a minimum 10 minutes. Next check the subcooling on the unit and it should be between 7-9°F. Adjust refrigerant accordingly to achieve a sub-cooling of 7-9°F.

Each time you add or remove refrigerant, you must let the system stabilize for a minimum of 10 minutes. It is recommended adding refrigerant in four ounce increments. If you do not stop CHARGE MODE, after 1 hour the thermostat will either return to cooling mode if the thermostat is set for COOL mode, or stop if the thermostat is set for FAN or HEAT mode.

If charging is not complete after 1 hour, repeat CHARGE MODE to get system properly charged. To terminate CHARGE MODE, select CHARGE mode screen again. Press OFF. Press DONE to terminate CHARGE MODE. Once CHARGE MODE is complete and has been terminated, navigate to HOME screen. Enter normal operation with temperature offset or thermostat schedule, as desired.

## ATTENTION INSTALLER - IMPORTANT NOTICE!

***Please read carefully before installing this unit.***

- For DX20VC, do not install the 24 Volt Transformer that is included with the **CTK04** Thermostat in the Condensing Unit; **it is not needed**.
- Do not attach any wires to the R & C Terminals on the Condensing Unit, as they are not needed for inverter unit setup.
- Data line terminals #1 and #2 are polarity sensitive. *Only the data lines, 1 and 2, are required between the indoor and outdoor units.*
- Data line terminal #1 from outdoor unit must connect to terminal #1 on indoor unit and data line terminal #2 from outdoor unit must connect to terminal #2 on indoor unit. *Verify wires are not reversed.*
- It is strongly recommended to use wire nuts at the indoor unit when connecting multiple data lines or low voltage wires together. It is not recommended to use the terminal block to connect two or more wires.
- Calculate the Line Set length and weigh in 0.6 ounces per foot of R410A refrigerant for any length over 15 feet.

**Or**

- Charge by Sub-cooling.
  Sub-cooling should be between 7° and 9°F. Allow 10 minutes of running in Charge Mode between each amount of refrigerant added.

### PREFERRED DEHUMIDIFICATION SETTINGS

- Ensure "Dehum" is ON in the ComfortNet™ user menu (COOL SETUP). When necessary, set the cooling airflow profile to "Profile D". See Installation Manual for complete airflow profile details.
- For additional dehumidification control, airflow settings are field adjustable to a value that is comfortable for the application from a range of +10% to -10%. See Installation Manual for complete details.
  "Dehum" is ON and the cooling airflow profile is "Profile D" in factory setting.
- For additional control, dehumidification "over cool" settings are adjustable from 0° to 3°F.

# NEW ENHANCEMENTS TO DAIKIN'S LIGHT COMMERCIAL LINE

## Tom Hicks

Daikin continues to add new enhancements to its light commercial product line.

Jade Economizer – All economizers have shifted to the use of the new Honeywell Jade Control. Unlike the previous control that was adjusted by the use of screws or "pots", the new Jade control has an interactive back-lit interface for ease of configuration. This control also offers many more options for the contractor to meet specific job specifications. The economizers still have a plug-and-play type connection.

Contactors – All contactors have been enhanced for extended durability. The contactor coils went from a 3UEW- to a 2UEW-type insulation for better heat resistance. In addition, the contacts themselves are now Silver/Cadmium type contacts to decrease the pitting and sticking of the contacts.

Capacitors – All capacitors have gone from a "Class B" to a "Class A" rating. Class A capacitors have a substantially greater lifespan and durability than their Class B counterparts.

Power Blocks – All middle chassis light commercial products, 7.5 – 12.5 ton models, now have power blocks for incoming line voltage power to be secured too. Wiring to the center contactor is no longer required on these units. Small chassis, 3 – 6 ton, and large chassis, 15 – 20 (460V and 575V) ton will be following in the coming months.

Blower deck anchors – All small and middle chassis, 3 – 12.5 ton, have anchors in the blower deck in place of the 5/16" screws which secure the back of the blower mounting plate to the blower deck. This was implemented to address some reports of blower vibration and subsequent screws loosening or stripping.

## Technical Services

1810 Wilson Parkway
Fayetteville, TN 37334

Tel: 1-888-593-9988
Fax: 1-713-316-5541
E-mail:
HACServicerSupport@goodmanmfg.com

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