TECHNICAL INFORMATION COMMUNICATION

Quality and Continuous Improvement

Number: TIC2022-0010 **Date:** 6/13/2022

Title: Software PCM V10.0 Release

Product Category: Infinity®/Evolution Extreme™ 26 & 24 Condensing Unit

Products Affected:

Carrier	Bryant
24VNA6	186CNV
25VNA4	284ANV

Situation

A new software update has been released via OTA and will be available on HVACPartners on or before June 24th. All previous versions of software have been implemented in this release (9.01 and 9.02 specifically).

Updates:

- Updated indoor airflow control to prevent indoor coil freeze during cooling mode operation in susceptible conditions such as low humidity and arid environments.
- Resolved an issue where diagnostic code (13-82) “System Control Upgrade Recommended” was incorrectly activated when paired with a system control model SYSTXBBECC01-C
- Resolved an issue where diagnostic code (53-01) “OST Open” was incorrectly activated when replacing the PCM in ***AC units*** built without an OST sensor. An OST sensor will need to be added to any AC unit to resolve the 53-01 code if it has a PCM not manufactured with PCM 10.0 software. In other words, a field software update (SD Card or STA) to the PCM V10.0 will not resolve a 53-01 fault code.

TECHNICAL INFORMATION
COMMUNICATION

Primary Control Board (PCM) Outdoor Unit	VFD Software Outdoor Unit	Blue Tooth Module (BTM) Outdoor Unit	System Control Indoor Wall Control
V2.0 - V4.0	Any	Any	Any
V5.0	A029	2.0	3.40
			3.60 or 3.94
			4.05
	A036	2.0	3.40
		3.0	3.60 or 3.94
		3.0	4.05
V6.0	A029	2.0	3.40
			3.60 or 3.94
			4.05
	A036	2.0	3.40
		3.0	3.60 or 3.94
		3.0	4.05
V7.0, V8.0, V9.0, V9.01, V9.02 & 10.0	A029	2.0	3.40
		3.0	3.60 or 3.94 or 4.05
		3.0	4.17
	A036	2.0	3.40
		3.0	3.60 or 3.94 or 4.05
		3.0	4.17

Red	Not Allowed
Orange	Will Work, not recommended
Yellow	Will Work
Green	Recommended

Only trained and qualified personnel should design, install, repair and service HVAC systems and equipment. All national standards and safety codes must be followed when designing, installing, repairing and servicing HVAC systems and equipment. It is the responsibility of the Dealer to ensure local codes, standards, and ordinances are met.

Revision History

Version 9.02 (December 2021)

This version of software will not be sent OTA (Over the Air) due to its special use case. A small percentage of systems will benefit by this software update due to the compressor shutdown condition that creates an 85-54 malfunction resulting in a 2 hour lockout.

- Removed the 2 hours lockout associated with diagnostic code (85-54) “"VFD System Lockout - DC Over Volt" and changed the designation from malfunction to fault.
- Resolved instances where **the following** faults could prematurely progress to the malfunction status before meeting the occurrence and timing requirements.
  - 32-55
  - 33-55
  - 36-55
  - 61-53
  - 81-53, 81-54
  - 82-53, 82-55, 82-56, 82-57
  - 83-55, 83-56
  - 85-53, 85-54
  - 86-46
  - 87-53
  - 88-55, 88-71, 88-73, 88-74, 88-75, 88-76, 88-78, 88-79

Version 9.01 (September 2021)

Situation

A new software update will be released and available on HVACPartners. *This version of software will not be sent OTA (Over the Air) due to its special use case.* A small percentage of systems will need this software update because of the system application and environment.

Updates:

- Modified airflow parameters to deliver 400 cfm/ton on maximum indoor airflow setting with 26/24VS outdoor units. System airflow cfm is determined by outdoor delivered capacity.

Version 9.0 (August 2021)

- Implemented heating mode charge compensation to reduce occurrences of (31-58) "Compressor High Pressure Limit" in systems experiencing charge imbalance due to differences between indoor and outdoor coil sizes and short line set lengths.

- Modified activation threshold for diagnostic code (64-41) "EXV-H Phase Open" to prevent nuisance trip due to power dropout.

Version 8.0 (July 2021)

Updates:

Change to the system sequence of operation when the wall control and system settings are set in a specific way system setting: *Heat Pumps only*, Mode *(Auto)*, Heat Source *(System in Control)*, Overcool to Dehum *(On)*, Deadband *(3°F or less)* and Aux heat during defrost *(On)*. If the system is setup in this specific way and it changes modes from Dehum to Heating the system may go into an operating condition where both cooling and heating are active at the same time. The Wall Control equipment operation status will indicate the system is in defrost. This situation is more likely to occur in a zoned system.

Implemented a strategy where the heat pump can indicate defrost mode operation when a transition from cooling to heating occurs and the compressor remains in active operation. This change will result in the heat pump shutting down when changing between cooling and heating mode.

Version 7.0 (March 2021)

Updates:

- Improve defrost cycle operation 41-13 Faults – Defrost Timeout/ Overrun Condition
- Fixed 61-13 and 61-53 Fault/Malfunction – Reversing Valve Timeout

Version 6.0 (January 2021)

Updates:

- Implemented sump heat using VFD stator heat.
- Implemented Indoor Coil Freeze Protection.
- Improved coordination with the system control for outdoor unit heating immediately after defrost cycle to reduce cold blow.

- Implemented ALT/OST sensor for an AC unit as well as (53-01) “OST Open” and (53-02) “OST Shorted” diagnostics.
- Improved compressor envelope management in regard to changes in maximum discharge. pressure. Made it less sensitive to 35-11 “Compressor High Compression Limiting” diagnostic.
- Adjusted compressor speed and indoor airflow which caused diagnostic codes (31-11) and (31-58) “Compressor High Pressure Limit” to activate for some equipment combinations.
- Resolved an issue where the reversing valve did not switch on entrance to defrost because of startup control in low suction pressure mode, or because compressor envelope management was holding the compressor speed below 2700 RPM.
- Resolved an issue where defrost did not properly terminate when
  - Outdoor fan failed to turn off after a reversing valve switch.
  - A malfunction occurs during heat pump defrost.
  - A 50 PSI differential (DP-SP) is not achieved to support reversing valve transition within a 10-minute (61-13) timeout diagnostic.
- Resolved an issue where compressor restart was delayed awaiting a proper coil / ambient temperature difference (after defrost).
- Resolved an issue where a 3T VFD with a 4/5T PCM model plug did not properly flag (25-63) “VFD System Lockout - Model Mismatch”.
- Resolved an issue where status code recall would sometimes show currently active diagnostic codes instead of previous active codes.
- Resolved an issue where an abrupt power down could corrupt the diagnostic record.
- Resolved an issue where diagnostic code (17-06) “Lost BTM Communication” was incorrectly activated.
- Resolved an issue where diagnostic code (32-59) “Low Pressure Lockout” was incorrectly activated.
- Resolved an issue where diagnostic code (39-15) “Unexpected Fan Shutdown” was incorrectly activated.
- Resolved an issue where diagnostic codes (66-41) “VFD Control Relay Open Lockout”, (66-42) “VFD Control Relay Shorted Lockout”, (82-13) “VFD Reset with Power Dropout” and (88-15) “VFD Internal Fault – Unexpected Reset” were incorrectly activated.
- Resolved an issue where diagnostic code (81-58) “VFD System Lockout – Wiring Error” was incorrectly activated.
- Resolved an issue where diagnostic codes (86-06) “VFD System Fault - Communication”, or (82-13) “VFD Reset with Power Dropout” were incorrectly activated.

Version 5.0 (November 2020)

Removed the Heat Pump bug when in defrost. If an Outdoor fault occurs during the defrost cycle the 25VNA4/284ANV heat pump units can become locked in Defrost mode. This can lead to auxiliary heat remaining engaged during the four-hour lockout causing an over conditioning of the space.

Version 4.0 (August 2020)

- Implemented (Silencer System II™).
- Enhanced matrix display and STATUS LED display.
- Implemented compressor reverse wiring diagnostic and modified various diagnostic messages for consistency with service manual.
- Enhanced logic for model plug discrimination.
- Enhanced cooling capacity and indoor airflow to improve dehumidification control.
- Enhanced VFD temperature control and diagnostic.
- Modified 5 EXV diagnostics to be local.
- Allow reprogramming of the VFD in presence of various VFD active diagnostics
- Reduced opportunity for high pressure during furnace transition to heating.
- Enhanced performance of shutdown on 3T HP before or after defrost on code 85-xx or 82-xx
- Enhanced performance related to loss of suction superheat at subzero ambient temperature
- Enhanced performance where (83-57) “VFD Compressor Lockout - Current 1” was erroneously set

Version 3.0 (May 2020)

- Enhanced communication stability with system control.
- Enhanced the reporting of diagnostic codes to system control and service technician mobile application.
- Enhanced reliability of EXV positioning.
- Reduced false diagnostic codes and adjusted recovery time for several diagnostics.
- Enhanced performance for compressor speed control with low suction pressure during startup
- Enhanced performance for outdoor fan slow ramp during startup/shutdown, as well as the fan starting after the compressor

- Enhanced performance for stuck in startup compressor speed, and stuck in suction pressure control after defrost
- Enhanced performance preventing VFD reprogramming in fault conditions.
- Enhanced performance regarding reprogramming "serial flash erase error"
- Enhanced performance for charging pump down, evacuation, and sub-cooling
- Enhanced performance in incorrect fan speed control when outside temperature is above 115°F

Version 2.0 (April 2020)

Released software with launch of product.

Updates are released for Over the Air updates first (unless otherwise noted), then posted to HVACPartners and the consumer websites later.