BULLETIN

Carrier Corporation

Carrier
A United Technologies Company

North American Operations

Number:	C0005	Date:	7/17/00	Supersedes:	C9915	Date:	11/4/99
Title:	Version 12 Software for PIC-II Benshaw Starters						
Category:	*GENERAL*				Termination Date:		
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Dept:	CSS Service Engineering						

Models: CAC: 19XR & 23XL chillers
Affected: BDP:

Purpose:
The bulletin is to inform the field regarding newly released software Version 12 for PIC-II Benshaw solid-state starters.

Information:
Benshaw software Version 12 for PIC-II solid-state starters supersedes original production Version 5 for shipments beginning in June 2000. While Version 5 was, up to this point, the only officially released version of Benshaw software for PIC-II, a small number of field machines will have been refitted with intermediate versions (e.g., Version 6, 10 and 11). While this revision (12) addresses several important issues and is considered a recommended software upgrade, none of the problems with Version 5 poses a risk of harm to persons or hardware.

When examining a PIC-II Benshaw solid-state starter in the field, its software version may be identified from a white label on a 28-pin EPROM microchip located in the center of the starter's CPU board. When the starter's right side door is opened, the CPU board with the EPROM is the lower left circuit board which directly faces you. The software designation on the label is shown in black letters as: **810001 -01 -05** (for Version 05).

The EPROM may be replaced with simple tools if care is taken to avoid damaging the legs of the microchip. When replacing, be sure to keep the position of the small rounded indentation on the EPROM in the same position as the original (normally to the right). When the unit is powered up the first time with the new software, a "Fault #29, Bad RAM Battery" message may appear in the Benshaw Micro Display. In order to clear this (and enable the new software) press and hold the ↓ button, then press the **FAULT RESET** button (on the Micro Display) a couple of times. A new message "Fault #30, Def. Param Loaded" should appear once, then clear to show the normal default display "Stop..."

Mail Keys: 2.33A, 2.33B, 2.33D, 2.40, 2.40A, 2.40B, 2.40D, 2.40M, 2.46A, 5.25G

Key Changes in the New Software (since Version 5):

- The problem which caused nuisance shutdowns wrongly interpreted (by the controls) as Remote Contacts opening or Spare Safety Fault has been fixed. In the former case, an alarm message may not appear, and the chiller might restart after the 15-minute timer expires. This problem is explained in more detail in Service Bulletin #C9915. (This was corrected in Version 6.)
- Calibration factors have been added to permit more accurate readings of voltage, current, ground fault current, and power factor.
- A "dry run" test mode has been added to permit a more thorough startup test without energizing a real motor.
- The threshold level for declaring the Motor Amps Not Sensed fault has been changed from 15% to 5% to be consistent with ISM changes.
- Open SCR Fault detection has been modified to eliminate inappropriate nuisance faulting. (Previously a loss of current in one phase might be declared as an Open SCR Fault.)
- Previously a Loss of Communications would not always be declared if either the + or - communications signal was disconnected. This has been corrected.
- Now all faults (except #29 and #30 mentioned above) can be reset from the CVC only. Reset is only performed if no other starter faults remain.
- Modifications have been made to reduce the potential for Loss of Communications faults.
- The Current While Stopped fault has been modified to be less sensitive (now requires persistence of 120 cycles).
- Corruption of I^2t overload values (introduced in Revision 6) has been corrected.
- Values sent to the CVC's Power Table are now held for only 3 seconds after a fault occurring. (They are still retained in the ISM History table.)
- When a fault is declared, pumps and fans are now energized as required.

Field Retrofit Implementation:

Distribution of Version 12 software to field sites for the purpose of retrofit is being coordinated by Service Engineering in Syracuse.