SERVICE BULLETIN

Title: **Benshaw, Inside Delta, SMM-less Starter**
Models Affected: **19XL/XR, 23XL with Benshaw Starters**

Number: **C9807A**
Date: **5/8/98**
Supersedes: **C9807**
Date: **4/20/98**

Purpose:
To inform the field of several problems that have been identified recently with Benshaw's Inside Delta, SMM-less starters. These starters have been shipped with machines since November 1997.

Information:
Several problems have been identified and some have solutions identified. Below is a list of problems identified to date with a status for each one.

File: Installation, Start-up, Operation

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1.) PROTECTIVE LIMIT: NO MOTOR CURRENT. This is a PIC control fault. Benshaw has provided a change in software (EPROM Part Number, CDMOD1 Dated: 2/10/98) for the Redistart Micro controls to limit the motor current signal sent to the PSIO to a maximum of 250% RLA. This problem can be considered fixed with the installation of the new EPROM listed below.

2.) LOSS OF COMMUNICATION WITH STARTER. This is a Benshaw starter fault. Benshaw has visited a job site in Phoenix, Arizona, analyzed the fault and developed a fix. An error in software programming in the Redistart Micro controls has caused incorrect information to be sent to the PIC controls through the RS485 communication bus. The fault involves the Compressor Motor kW signal. When the PIC controls called for updating the point for Compressor Motor kW, Benshaw would continue to send kW even when the PIC control stopped calling to update the point. This would cause a LOSS OF COMMUNICATION fault with the starter. Contact Mike Kelly at Benshaw Inc., (412) 487-8235 for a new EPROM CDMOD1 / 4-23-98. If the interim EPROM was used, it should be changed to the new EPROM. The chilled water flow switch must be connected to the proper terminals and the jumper removed. Instructions for replacing the EPROM can be found at the end of this bulletin.

3.) No line voltage sensed by the PIC control. This is a Benshaw fault. All information from the Redistart Micro controls is being sent to the PIC controls except for Line Voltage Percent and Actual Line Voltage. These two points are zero as displayed in the STATUS01 screen. Current analysis has determined a hardware fault on the Benshaw CPU card. A few attempts to correct this fault in the field have been successful. The fix involved checking all connections on the CPU including the software EPROM to confirm that all connections are tight and seated properly. This has not worked consistently enough to prove that a loose connection is

at fault. Benshaw is currently looking at components on the CPU to determine whether there is a problem with the hardware design.

4.) RUN AUX CONTACT FAULT. This is a Benshaw fault. Recent analysis has determined that the CPU in the Redistart Micro controls is being reset during the normal run mode. The starter will shutdown and the PIC controls will display PROTECTIVE LIMIT: RUN AUX CONTACT FAULT. This reset or POR (power on reset) is thought to be caused by the Redistart Micro display or the ribbon cable connecting the display to the CPU card in the Benshaw control. If this fault occurs, reset the fault and start the chiller. Then disconnect the ribbon cable from the CPU card (terminal JC2). The fault should not occur again. Benshaw is currently looking into the fault reset function on the Redistart Micro display to determine a corrective action.

REDISTART MICRO
EPROM REPLACEMENT INSTRUCTIONS

Current EPROM:	CDMOD1 Date Code 2-10-98
Replace with EPROM:	CDMOD1 Date Code 4-23-98
Location:	Computer Card (CPU) BIPCM1CPU-B4
Reference ID Number:	IC-17

The following procedure should be used to replace the EPROM integrated circuit chip in the Benshaw Redistart Micro. This applies to the SMM-less version ONLY.

1. Record all of the system parameters. Utilize the parameter setting sheet that was sent with the starter if possible.
2. Remove all power to the starter.
3. Using a small flat blade screw driver, carefully lift and remove IC-17 from the socket. This EPROM has a silver sticker on it.
4. Observing correct orientation insert the new EPROM (CDMOD1 / 4-23-98) into IC socket 17.
5. Re-apply power to the starter.
6. At this time the system parameters will need to be verified and re-entered if necessary. This procedure is clearly outlined in the instruction manual supplied with the starter.

Machines shipped from the Syracuse factory starting May 11, 1998 (week 20) will have the proper software installed.

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