SERVICE BULLETIN

Title: 3200MP Code 97
Models Affected: All with 3200MP Controls

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File: Controls - Wiring

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Purpose:

This bulletin was written to inform field personnel of a new 3200MP status code included in EPROM's introduced in 1993 (HK98EZ101, -111, -121, -131, -141, -151)

Background:

Certain chillers have experienced nuisance lock-ups. Equipment room conditions (surges, spikes, poor grounds, etc.) can affect microprocessors and in rare cases cause them to "lock up" or freeze their outputs.

Design Improvement:

The 101 series EPROM's, 131 series EPROM's, and some engineering check samples have had code 97 added to their programming. This addition was made so that personnel would be alerted that the chiller is in the locked-up condition. When the software recognizes the locked-up condition, code 97 is displayed on the S/D board, and the chiller is shut down with standard post lube and water pump logic.

During this condition, the ESP displays code 81 (communications malfunction), while the 2-digit display on the Setpoint/Display board displays code 97. If a chiller is not equipped with an ESP the S/D board will still display code 97. If the ESP is used in lead/lag operation it will display code 33 or 34 (lead/lag temporarily decoupled, lead {lag} communication error). A POR is required to reset the machine.

Procedure:

Code 97 should rarely appear. However, if this condition persists, it may be necessary to replace one or more of the following: ribbon cable, M/X board, processor board, I/O board, EPROM's, ESP. Check all Molex terminal and pin connections thoroughly. As a general troubleshooting technique, run the chiller with just the basic control (disconnect CCN, ESP, M/X board) and see if the problem continues. Proceed with the recommendations below.

If a chiller with older software appears to lock-up, install new software and observe the following recommendations.

Recommendations:

I. Microprocessor controls are especially sensitive to varying ground voltages among motor and control components. These erratic voltages could result in ground loops. Circuit boards cannot reliably operate under these conditions. Be sure individual electrical assemblies are individually grounded to a grid or earth in accordance with bulletin C8912. Both motor and control grounds must be individually connected to the starter ground; that is, connected in parallel. Do not daisy-chain connections; that is, connect in series.

II. Microprocessor controls are sensitive to abrupt movements of ribbon cables caused by either handling or excessive vibration. Care must be observed when connecting or disconnecting terminal plugs. Circuit board components and pin connections should not be touched as they are delicate and can easily be degraded or destroyed by electrostatic discharge. Use a grounding wrist strap to provide for control of static electricity if it becomes necessary to work inside a control panel. Be sure control panel power is disconnected before entering.

III. The 3200MP generates, uses, and can radiate radio frequency energy, and, therefore is sensitive to radio frequency interference. Interference could very easily have detrimental effects on microprocessor components. Be sure equipment in the vicinity, such as variable speed drives and other microprocessor controllers, which also radiate radio frequency energy have been installed in accordance with the manufacturer's instructions. In addition, peripherals attached to the 3200MP must comply with the same Federal Communication Commission (FCC) limits for which the 3200MP was rated, that is, Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation with noncertified peripherals is likely to result in interference to the 3200MP. Shielded cables and ferrite cores must be used on all interface cables with the equipment. Should interference occur in a particular situation, either or both the unit transmitting the interference and the unit receiving the interference should be physically and electrically relocated. If necessary, consult an experienced radio technician for additional suggestions. Be sure the 3200MP control panel door is closed when the controls are energized.