



Published Manual Number/ECN: H000000029/99502N

- Publishing System: TPAS
- Access date: 1/23/02
- Document ECN's: Latest Available

# Kit Instruction— KXMIC00115

# Please Read

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## References to Yellow Troubleshooting Pages

This manual may contain references to "yellow pages." Although the pages containing troubleshooting procedures are no longer printed on yellow paper, troubleshooting instructions, if any, will be contained in the easily located "Troubleshooting" chapter or section. See the table of contents.

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## **NEW STYLE 8085 PROCESSOR BOARD**

To complete this conversion the processor board will be replaced and a separate battery backup board will be installed. When the software is installed on the new processor board complete programming of the micro processor will be required. The approximate time to complete this retrofit is one person working 4 man hours to installed the hardware. In addition, it will take approximately 1 man hours to program the micro processor. Prior to beginning the conversion, it is necessary to familiarize yourself with all safety precautions in the equipment's manuals; please observe all safety precautions. It is also imperative that these instructions are read prior to beginning the retrofit. While working on any electrical or electronic equipment, tag and lockout the power. Also, inventory the parts received with the kit.

Tools required for this retrofit are: a drill, wire cutters, digital volt meter and common hand tools.

### **1. OVERVIEW**

The 08BSPX MK 1 processor board has an 8085 processor and 64K of memory. The 08BSMPT MK1 processor board has an 8085 processor and 64K of memory and a port to drive a CRT. The 08BSPAX MK1 processor board is an 8085 processor with 256K of memory. All three boards have the battery used for memory retention mounted directly on the board.

The 08BSPX, 08BSMPT, and 08BSPAX processor boards are no longer available. All three boards are replaced by a new board, 08BSPAAX. This new board has an 8085 processor with selectable memory capacity. The battery used for memory retention mounted separately on a battery backup board. In addition to the separate battery backup board the 08BSPAAX has a "super cap" mounted directly to the board. This super cap will retain memory for a short period of time (approximately two hours) if it becomes necessary to disconnect the battery board from the processor. The 08BSPAAX has a port to drive a CRT. This CRT port is on this new style board to replace the capability of the 08BSMPT processor board only.

This conversion requires the separate battery backup board be mounted near the processor board. Four holes must be drilled in the cabinet. The kit contains all the parts needed to mount this battery board and the harness to connect the battery board to the replacement board.

All programming decisions will be lost when the board is replaced. If possible all formulas and configuration information should be copied before removing the defective board. If you have any questions please contact MILNOR TECHNICAL SUPPORT, at (504) 467-9591 ext. 276, before beginning the replacement.

## 2. SELECTING PROPER MEMORY CAPACITY

The 08BSPAAX has selectable memory capacity. This capacity is selected using four jumpers located on the board. They are identified as J1, J2, J3, and J4. This is a two position jumper. The board is sent with the jumpers installed in one position. These can be removed and placed in the other position if needed. The jumper setting is determined by the board being replaced.

If you are replacing the 08BSPB,T,X, or Z all jumpers are between pins 2 & 3.

If you are replacing the 08BSPAB,T,X, or Z all jumpers are between pins 1 & 2.

If you are replacing the 08BSMPT all jumpers are between pins 2 & 3.

## 3. REMOVING THE DEFECTIVE BOARD

Remove the MTA connectors from the defective processor board then, remove defective processor board from the machine. The board is secured with plastic fasteners. Any missing fasteners should be replaced when the new board is installed.

## 4. REMOVING SOFTWARE FROM THE DEFECTIVE BOARD

If the software from the defective board is to be used in the new board it should be removed at this time and placed in the new board. Place the two boards together on a clean, dry, **NON-CONDUCTING** surface. The software may consist of one, two, three, or four chips. Each chip should have a sticker with the software date code and chip number on it. Each chip also has a notch in one end that lines up with the notch

in one end of the socket. The notches must be lined up and the proper chip replaced in the proper socket on the new board.

Remove the software chips one at a time, gently prying at each end so the chip is lifted evenly out of the socket. Failure to lift the chip evenly out of the socket will result in bent pins on the chip that may prevent the chip from plugging into the new board.

#### 5. INSTALLING THE SOFTWARE IN THE NEW BOARD

After carefully removing the chip, plug the chip into the corresponding socket in the new board. The software is installed in sockets IC7, IC8, IC9 and IC10 depending on the number of chips in the set. The number one chip plugs into IC7, the number two chip plugs into IC8, etc. Repeat the process for all chips.

#### 6. IF NEW SOFTWARE IS TO BE INSTALLED

Use the same procedure outlined above for installing the software. The pins on the chip that has never been plugged into a board may need to be bent in *SLIGHTLY* to allow plugging it in the socket. The pins should be at right angles (90 degrees) to the chip. If it is necessary to bend the pins in place the chip on its side on a clean, hard, flat surface.

*GENTLY* rock the chip so the pins are bent in. When all chips have been moved to the new board, place the new board in a safe place until the battery board has been mounted.

#### 7. MOUNTING THE BATTERY BOARD

The battery board must be mounted so the harness will reach from the battery board connector MTA41 to the connector on the new processor board marked "TO BATTERY." The battery board can be mounted at any convenient place in the cabinet. Make sure it does not interfere with existing components or mounting the processor board. The harness must be able to reach from the battery board to the processor board. The preferred method of mounting the battery board is vertical with the battery leads up.

1. Measure the hole pattern for the battery board.

**WARNING DO NOT SKIP THIS STEP!!!** Prior to drilling, cover all the electronics with card board or other nonconducting material to prevent metal shavings from coming in contact with the electronics. **DO NOT USE PLASTIC** to cover the electronics because it can create a static discharge. When removing the material used to cover up the electronics, make sure that the metal shaving do not get on the electronics.

2. Using this measurement as a guide, use the #25 drill bit supplied in the kit to drill the four holes .
3. Snap the four fasteners in the holes.
4. Mount the new battery board.
5. Install the harness provided to the battery board. Plug the connector marked "MTA41" onto the battery board.

At this point the new processor board can be mounted. Replace all MTA plugs including the new plug from the battery board. Recheck all connections. Secure harness using nylon ties. The stick-on tie mount is to be used to secure the ferrite bead on the new harness. You will notice harnesses in the machine have this bead that resembles a large black spacer. Secure this bead in the same manner as the existing harnesses. It is important to secure the ferrite bead. Vibrations from the machine operating may cause the bead to wear through the insulation on the wires causing the machine to malfunction. At this point the machine can be powered. Configure the machine. Clear memory and reprogram the machine. Refer to the machine technical manual for the correct procedure or contact MILNOR TECHNICAL SUPPORT (504) 467-9591 ext. 276.