

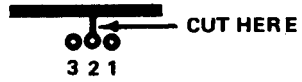
Product: 69/A and 69K Computer Systems
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Modifying the MP-09A and MP-09 Processor Boards
for 69/A and 69/K Computers

Make the following modifications to the MP-09 processor board. Use the component drawing to aid in locating the parts. SWTPC has two slightly different versions of the processor board (MP-09 and MP-09A). The modifications shown below are applicable to both versions of the board. These modifications do not include those already given in SWTPC application note AN #104 for the MP-09 (not MP-09A) processor board.

- (1) Attach and solder a 6.8K 1/4 watt resistor between the R/W line and +5 VDC on the back side of the processor board. Keep the leads short and the component close to the board. Locate the component as shown in the pictorial below.
- (2) Make the following modification (#2) only if you use a ROM other than S-BUG-E (supplied) for IC4. Remove the ROM or EPROM in IC4's socket. Carefully cut the land going to pin 18 on the top side of the board underneath the socket right at pin 18. Most boards use an open frame socket where the trace can be cut without removing the socket (if already installed). If the socket is not an open frame type, it will be necessary to very carefully remove the socket, cut the land and then reinstall the socket. Now attach and solder a piece of wire wrap wire between pin 18 and pin 12 of IC4 on the back side of the board as shown in the pictorial below. Reinstall the ROM or EPROM.
- (3) IC8 on the processor board must be a 74S189 (not 74LS189).
- (4) Resistors R9, R10, R13 and R14 should be 470 ohm 1/4 watt resistors. Resistors R21 - R24 should be omitted.
- (5) Using a hobby knife or pointed object, cut the PC foil on the bottom edge of the back side of the board as shown in the pictorial below. Now solder a piece of light gauge hookup wire along the back side of the board from the M.RDY bus connection to pin 11 of IC20. Now solder another piece of light gauge hookup wire along the back side of the board from pin 9 of IC20 to pin 36 of IC14.
- (6) Use a 74LS132 be used in place of a 74LS00 for IC21. However, if your board already has a 74LS00 soldered in place, we recommend that you not replace it.

- (7) Cut the PC foil trace going to pin 2 of IC20. This cut should be made on the BOTTOM side of the board. Be careful to cut only the trace that runs between pin 2 and the heavier ground foil. Do not cut the heavy ground foil.



- (8) Solder a piece of light gauge wire along the back side of the board from pin 2 of IC20 to pin 4 of IC6.

