

MS-2 and MS-4 Field Software Change Procedure

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Firmware Change

This procedure outlines the mechanical installation steps required to install a PROM in the MS-2 & MS-4.

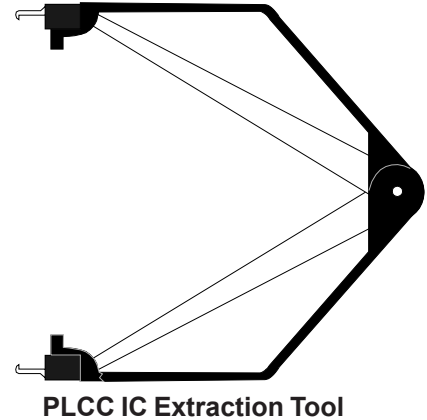
Handling precautions for integrated circuits

Static electricity can destroy integrated circuits (ICs)! To prevent damage to the PROM, a wrist strap and a static-free PLCC IC insertion/extraction tool is highly recommended. The manufacturer cannot be responsible for damage to the PROM as a result of improper handling.

System Power Sources

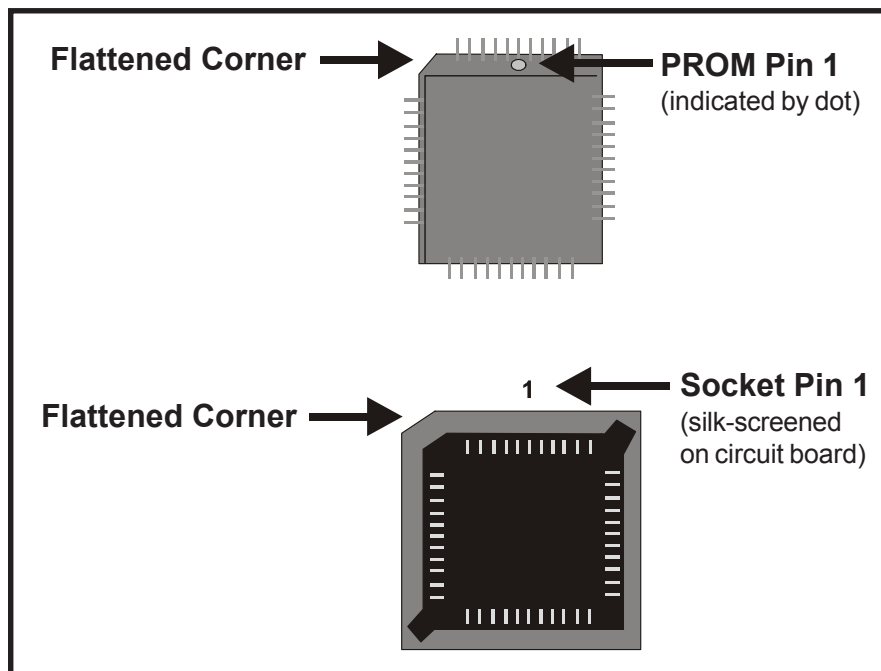
Always remove primary and secondary power before working on the system!

1. Disconnect battery backup power before working on the system!
2. Proceed by disconnecting AC power to the panel at the main service circuit breaker (not the circuit breaker on the fire control panel's power supply).
3. Wait 60 seconds to allow for capacitive discharge before touching any of the system's components.
4. Reverse the procedure for powering up the system - AC first, then batteries.



Integrated Circuit Pin Conversion

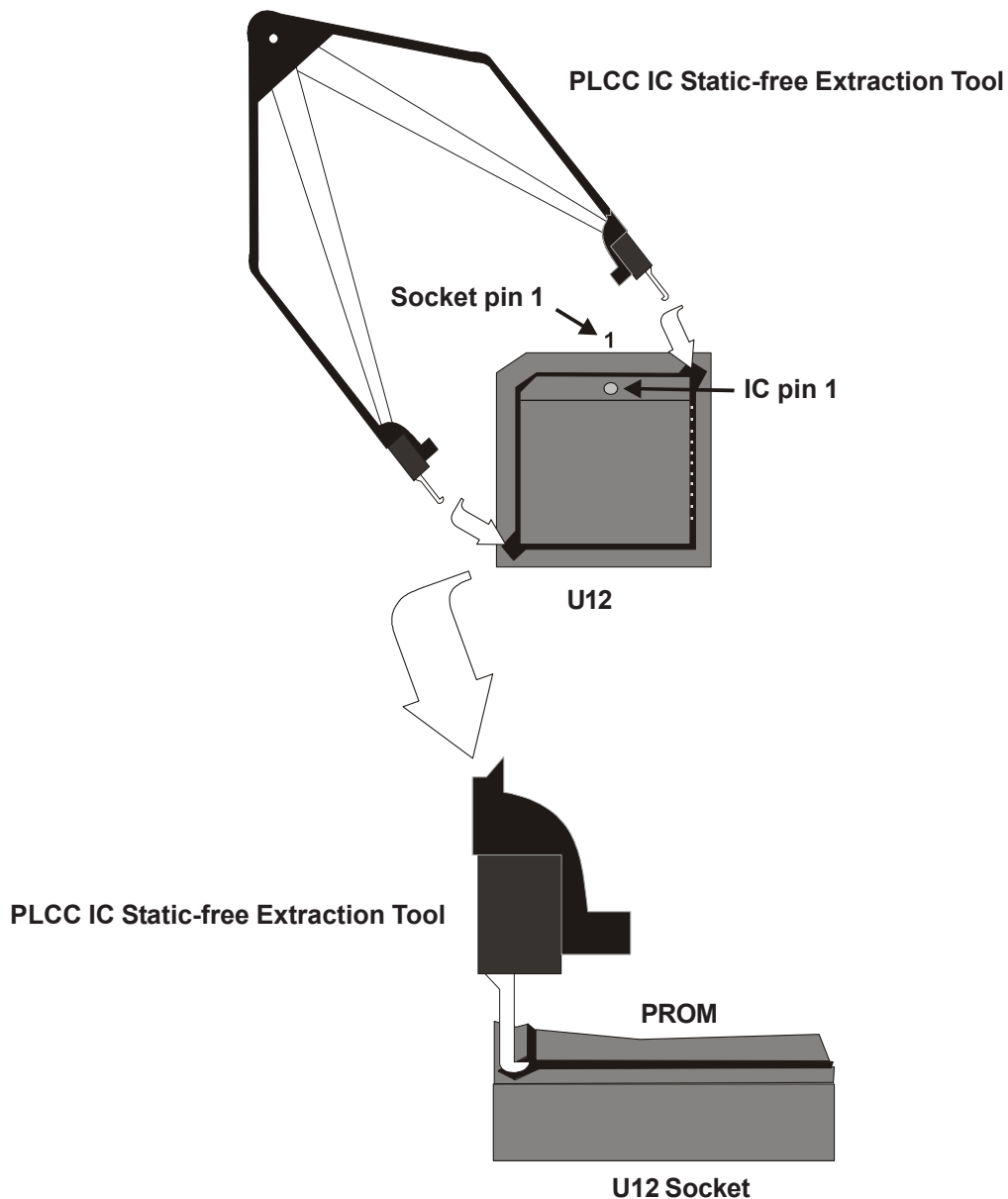
Observe proper orientation of any IC removed or installed! Note location of Pin 1 with respect to the flattened corner and dot on the body of the IC and the relationship to the flattened corner on the IC socket and the **1** silk-screened on the circuit board near the IC socket. The replacement PROM must be installed in the same manner as the PROM removed. Failure to observe this orientation will result in destruction of the PROM.

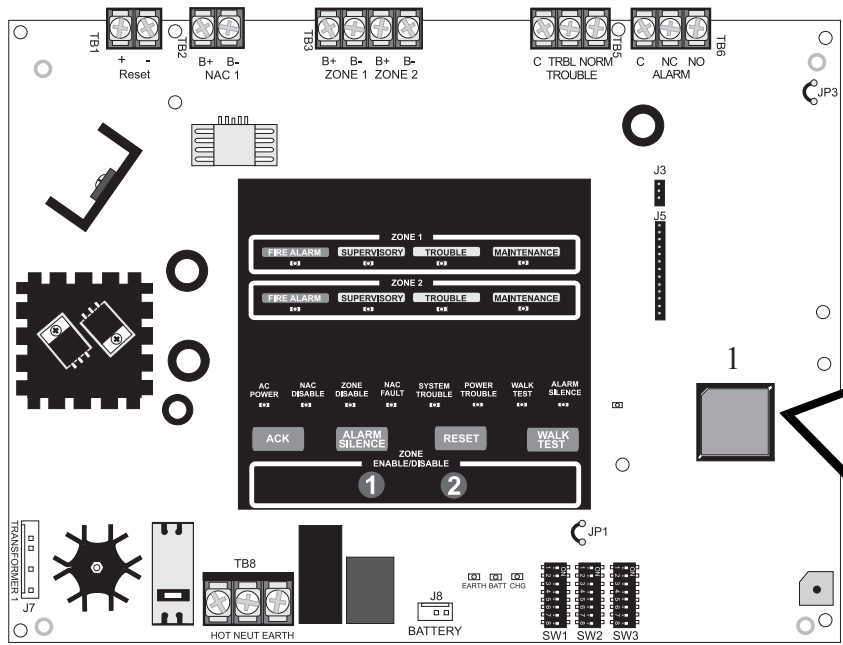


PROM Replacement

Observe proper orientation of any IC removed or installed! To replace the PROM, complete the following steps:

1. Remove all power (AC and battery) before proceeding with PROM replacement.
2. If necessary, disconnect any installed option modules which may inhibit access to PROM.
3. Locate U12 in the center right of the MS-2 or MS-4 board (refer to the illustration on the following page).
4. Replace the PROM in U12 using a static-free PLCC IC extraction tool as follows:
 - a) Insert hooks of IC extraction tool into the slots of the IC socket (refer to illustration below).
 - b) Gently squeeze the handles of the removal tool and pull to lift the existing firmware IC from the socket.
 - c) Save the removed firmware IC in the event the replacement IC is damaged during installation.
 - d) Line up the replacement IC so that its polarization corner (flattened) is aligned with the polarization corner of the socket and IC pin 1 is aligned with socket pin 1. Insert the replacement IC by gently pushing it into the socket. The IC should be flush with the socket.
5. Reconnect any option modules which were removed in Step 2.
6. Reconnect power (AC and battery).

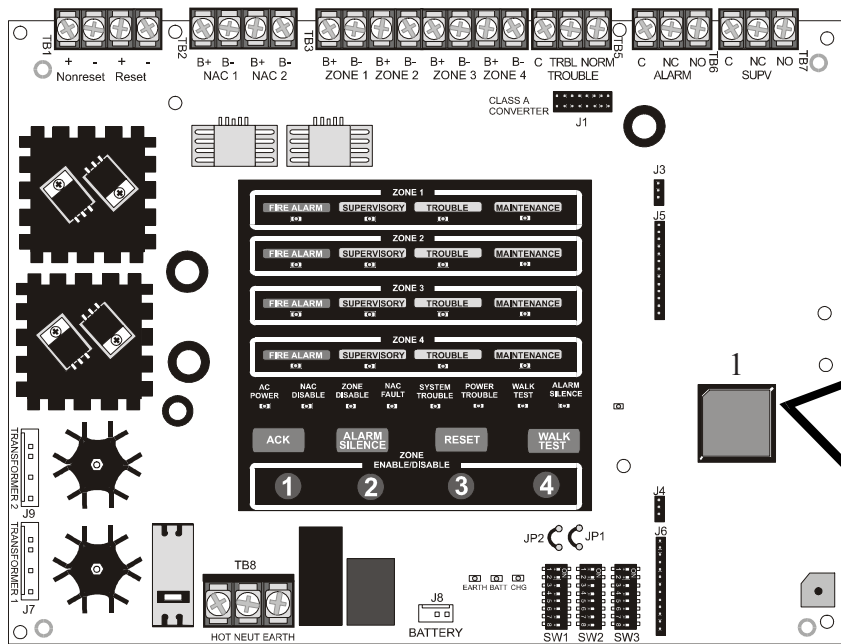




PROM (U12)

Note that the dot on the PROM must align with the number 1 which is silk-screened on the circuit board near the U12 socket.

MS-2



PROM (U12)

Note that the dot on the PROM must align with the number 1 which is silk-screened on the circuit board near the U12 socket.

MS-4

Programming and Testing

Recheck all site-specific programming and test the MS-2 or MS-4 after PROM replacement.

MS-2 and MS-4 Software Changes

The following Table summarizes the MS-2 and MS-4 software changes, specifying these changes by PROM Number and Release Number.

| PROM # | Release # | Summary of Changes |
|---------------|------------------|---|
| #MS2/4V1.0 | 1.0 | Initial Release |
| #MS2/4V1.1 | 1.1 | Add Nonsilenceable Waterflow Option for Combination Circuit. |
| #MS2/4V1.2 | 1.2 | Change Verification Time to 73 sec. and Add NAC Synchronization |