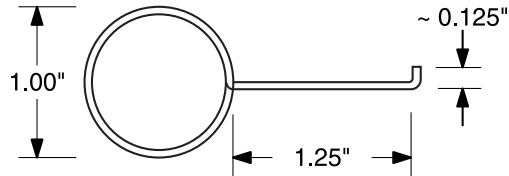


## Exchanging the 68HC11 Microcontroller

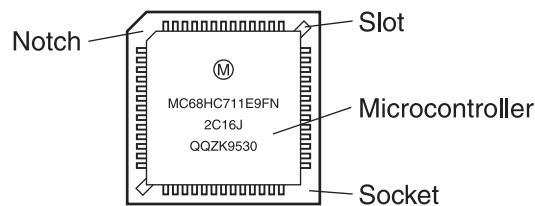
Products that use the Motorola 68HCx11 microcontroller are typically upgraded by replacing the IC with one that contains a new firmware revision. The procedure is easy because the processor is in a socket but it requires a 52-pin PLCC type chip extractor. A substitute can be made for the chip extractor by bending a large paper clip as shown below.



Most products that use this microcontroller store the user settings in the memory on-board this IC. The memory contents remain intact when the IC is removed from the socket but the device does not have access to the memory once the IC is removed. User settings will need to be reprogrammed when the device is placed back into service.

### Removing the old microcontroller IC

Disconnect power and all cables to the product that will receive the upgrade processor. Remove the appropriate screws to gain access to the product circuit board. Remove the circuit board from the enclosure if necessary. Use the necessary precautions for handling static sensitive devices.



The microcontroller is a small black square IC that sits in a 52 pin PLCC socket. The socket is usually brown plastic but it may be black. Remove the microcontroller from the socket using a 52-pin PLCC chip extractor or use a paper clip extractor.

When using the paper clip extractor, carefully insert the end with the small hook into one of the two corners of the socket that has a slot to accept it. The hook should slip under the corner of the microcontroller. Grasp the ring end of the extractor and pull firmly, straight up. Repeat the process at the other corner until the microcontroller is lifted clear of the socket.

*It is tempting to insert a small screwdriver into the slots at the corners of the socket and attempt to pry the processor out of the socket. DO NOT TRY THIS! The corners of the socket cannot take the pressure and the socket will break.*

Handle and store the microcontroller using normal precautions for static-sensitive devices. You may want to save this microcontroller as a spare in case of emergency.

## **Installing the new microcontroller IC**

To install the new microcontroller, align the notched corner of the microcontroller IC with the notched corner of the empty socket. There is an arrow inside the base of the socket that points toward the top (beveled) edge of the microcontroller.

Make sure that all contacts are aligned with the appropriate slots on the socket. Push the microcontroller firmly, straight down until the top of the chip is flush with the top of the socket.

Reinstall the PC board in the chassis and replace any panels and/or bezels that were removed from the device.

