The program descriptions in this book frequently suggest improvements you may want to write to customize your games and sharpen your computer skills. If you own extra memory above the 4K in your Cosmac VIP, you have the opportunity to create super games for your computer. As Chip-8 programs cannot run directly in memory space above 4K, I will assume that you will be working in machine language. This is not a complete solution to the problem as machine language subs cannot be directly called above 4K from Chip-8 routines. There are ways around this, though, and here is one suggestion.

A machine language sub above 4K could run using a register other than R3 as the program counter. You will need a machine language controller which you first call from your Chip-8 routine. The controller resides in a memory area <u>below</u> the 4K boundary at 0FFF, and it's function is to call the proper routine above the 4K line. The address of the subroutine you want to call above 4K immediately follows the call to the machine language sub. It is said that the "caller passes the address" to the controller sub. For example:

```
0MMM ;CONT -- Do MLS--Call sub controller
1692 ;SUB  -- Address of MLS @ 1692
```