Tech Info Library

Apple II Hardware: The Apple II Keyboard

Revised: 11/20/84
Security: Everyone

Apple II Hardware: The Apple II Keyboard

===

The keyboard on the Apple II has an upper-case-only encoder. It can produce
ASCII characters 0 through 95, excluding _ , \ , [, CTRL-_ , CTRL-[, and
CTRL-\. The Apple III uses the very same encoder. However, the Apple III
also has a second keyboard port; with this port, the Apple III can
independently to sense the shift, control, and alpha lock keys, as well as a
number of other functions.

You can modify an existing Apple II to allow it to sense whether or not the
shift keys are depressed. This modification is supported by system software
such as Pascal 1.1 and Pilot, as well as some word processing software. The
core of the modification is a wire running from the shift keys to button input
2 of the game I/O port which button input the paddles don't use. This
modification is not recommended for in-warranty Apples and should be only
performed by an authorized service technician.

Since the modified Apple can sense whether or not the shift key is being
pressed, it can distinguish 51 new characters: CTRL-SHIFT-A thru Z excluding
M, N, and P, SHIFT-A thru Z excluding M, N, and P, SHIFT-0, SHIFT-RETURN,
SHIFT-ESC, SHIFT-LEFT ARROW, and SHIFT-RIGHT ARROW. This raises the total
number of distinguishable characters to 141, which easily encompasses the 128
member ASCII character set.

To facilitate the most natural use of the keyboard, software sometimes
rearranges the interpretation of these characters so that the keyboard
resembles that of a typewriter. Apple has employed several types of keyboards
on the Apple II since its introduction, so the modification has two
appearances.

1. On the older style keyboard, a wire should be run between pin 2 of the
   74LS00 and pin 4 of the keyboard connector on the keyboard.

2. On the newer style keyboard with the "piggy-back" electronic assembly, the
   wire should be run between pin 9 of the 74LS00 closest to the keyboard
   connector and pin 4 of the keyboard connector.

In either case, a second wire should connect the bottom of pin 4 at location

A7 to pin 7 at location J14 on the motherboard. Check carefully that the wire isn't connected to pin 7 of H14. The keyboard cable acts as a connection between these two wires.

Apple Tech Notes

Tech Info Library Article Number:492