hand, latches up 8 bits, 4 bits at a time, and inputs this
information to the data bus when the input switch (EF4) is
pressed. Figure 2 contains a summary of the EF flag usage
for both systems.

ELF-II

EF1 video interface   EF1 video interface
EF2 cassette interface   EF2 cassette interface
EF3 available   EF3 hex keypad
EF4 hex keypad   EF4 available

FIGURE 2 -
EF FLAG USAGE

HARDWARE MODIFICATIONS

Refer to figure 3 for details to implement a VIP type dynamic
keypad to your ELF-II. The keyboard circuit can be hooked
directly to the data bus, bit it is easier to use the exis-
ting output port. The numbers in () are actual pin numbers
at the output port on the Giant Board. Although a CD4514
should be used, I used the TTL equivalent (74154) with no
problems. Since pins 6, 7, and 8 are not presently used on
the output port, you can jumper +5V, ground, and EF3 or EF4
to them from anywhere on the Giant Board. Use EF4, if not
already in use, and you already have a diode for use at the
hex/term switch location. These are the only hardware modi-
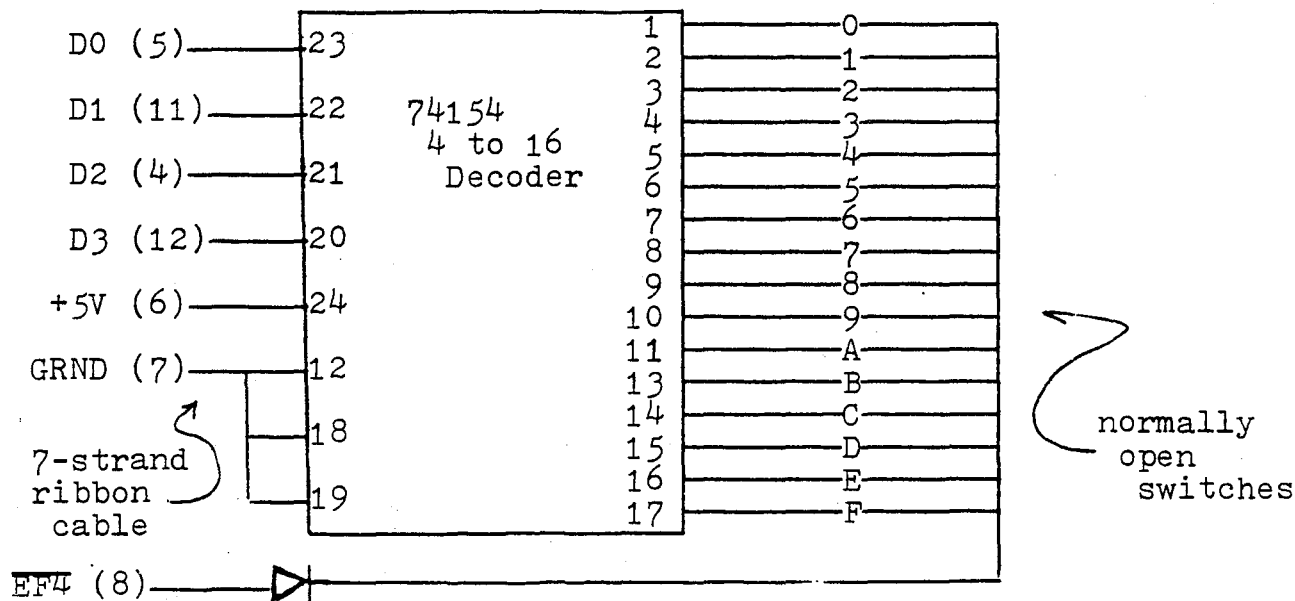fications required to your ELF-II

FIGURE 3 - HEX KEYBOARD