Note: This Challenger II is equipped with Ohio Scientific's revolutionary new scanned keyboard. This new keyboard system provides all the features of the conventional 53 key ASCII keyboard plus several additional features. The keyboard system is made up of a 256 byte subroutine located in an EPROM at FD00 up. The EPROM is labeled 65K. This keyboard input subroutine is accessed by the other PROM monitors such that this additional keyboard input subroutine is totally transparent to the user. That is, all conventional Challenger II software will run on systems with scanned keyboards.

Hardware for the scanned keyboard includes a bi-directional keyboard port located on the 540 video board and the scanned keyboard itself. Under normal operating conditions; when a program requests keyboard input, it calls the normal input routine located in the 65V monitor. The 65V monitor on this computer is modified to jump to the keyboard input routine located in the 65K PROM. This routine then scans the keyboard looking for a key closure. When key closure is detected, it is translated to the corresponding ASCII character and the subroutine returns to the main routine with the ASCII character in the accumulator. The scanned keyboard is capable of upper and lower case character generation and can be programmed for many special functions including direct key stroke representation of graphics. Also, the individual key contacts are addressable so that the keyboard can be used as a momentary contact switch array for games and other special applications. Computer operation with this scanned keyboard varies slightly from the documented instruction of the ASCII keyboard. Here are the differences: With a conventional ASCII keyboard, any key can be typed to exit a cassette "LOAD" routine in BASIC or any other high level program. When using the scanned keyboard, you must type a space, i.e., depress the space bar once to exit a "LOAD" routine. On ASCII keyboard systems, it is necessary to type control C and hold down the repeat key to force a break condition. On scanned keyboards, simply typing control C forces a break condition from BASIC. On the scanned keyboard, all keys have a built in auto repeat feature. If a key is held down for more than approximately one second, it will start to repeat automatically. This feature is usually found only on the most expensive CRT terminals. The keyboard is programmed to generate both upper and lower case characters by the use of the shift lock key. However, most OSI software requires the use of upper case characters only so that for normal operation, the shift lock key must be kept in the down position or lock position, that is, its keytop should be recessed slightly from the other keys on the board. Lower case characters will not be generated on your video screen even if the keyboard is putting out lower case, unless your 540 video

board is equipped with the new CG4 character generator ROM. This character generator ROM is capable of upper and lower case characters as well as about 180 individual graphics characters. The new scanned keyboard is capable of fully supporting this character generator ROM with direct key stroke graphics.

Additional information on the theory of operation of the keyboard and on programming procedures for unique applications is covered in an article in the March-April, 1978, issue of the Ohio Scientific Small Systems Journal.