KEYBOARD DESCRIPTION

General Description

Refer to the keyboard schematic. The keyboard consists of the following principal circuits: an oscillator, the 4 LSB Counter, the Character Detector, the 4 MSB Counter, the Character Decoder, the B5—B7 Control circuits, the Character Repetition Oscillator, and the Strobe Generator. Their combined purpose is to generate a coded character output on seven data lines labeled KB1 through KB7; to develop a strobe output labeled K STROBE (that accompanies the data bits); and to repeat the keyboard character at a 10 Hz rate when the key is held down more than 1/2 second.

Assume that characters are being entered at the keyboard. The oscillator generates a symmetrical output pulse which is applied to Z1 and Z10. Z1 causes the 4 LSB Counter to continuously cycle through its 16 counts. Each time it completes a cycle, it feeds a pulse to the 4 MSB Counter, causing it to advance one. The 4 MSB Counter eventually cycles through its 16 counts, and the entire performance is repeated. During this operation, the W output of the Character Decoder holds a low on the Z10 gate, causing the output of Z21 to remain high. This inhibits outputs from the Character Output Gates. KSTROBE is also held low during the operation.

When a character key is pressed, contact is made between an output of the Character Decoder and an input of the Character Detector. The output combination from

the 4 MSB Counter into the Character Decoder eventually reaches a code that selects the closed key. Since the 4 LSB Counter continues to cycle, a low is eventually placed on the closed key. This low is applied to the Character Detector, causing its W output to go high. This high provides enabling voltage to Z10 in the Strobe Generator. When the Ø1 output of the oscillator goes high, it causes a positive-going INHB pulse of about 22 ms from the strobe Generator. An INHA pulse from Z10 is input to the oscillator to prevent additional clock pulses from affecting the 4 LSB Counter.

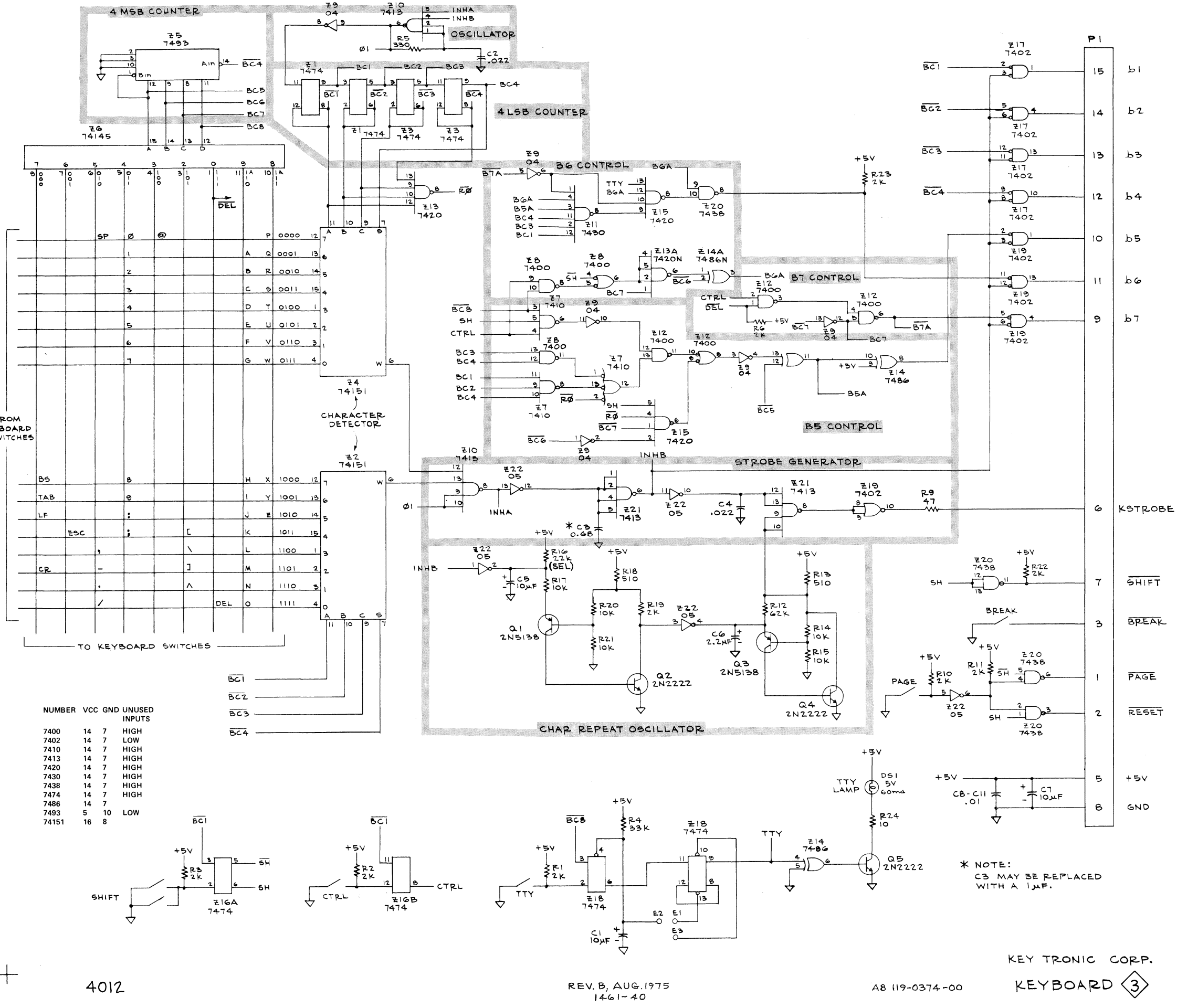
With the count from the 4 LSB and 4 MSB Counters frozen, the B5, B6, and B7 logic circuits place the decoded equivalents of the $\overline{B5}$, $\overline{B6}$, and $\overline{B7}$ information on their respective output Gates. Approximately 22 ms later the INHB goes low, providing an enabling voltage for the Character Output Gates. This action places on the B1—kB7 lines the representative bit combination of the character pressed. $\overline{INHB}$ going low enables the KSTROBE signal that accompanies the data bits.

$\overline{INHB}$ also triggers the Character Repeat Oscillator. If the same key is held down for more than .5 second, the Character Repeat Oscillator strobes Z21 in the Strobe Generator at an approximately 10 Hz repetition rate. This enables KSTROBE 10 times a second . . . thus enabling the terminal to process the character bits at that rate.

The keyboard circuitry maintains the above-stated condition as long as the keyboard key is held down. When the key is released, the high from the W output of the Character Detector is removed from Z10, permitting its output to return to its high state. This ends the B1—B7 and KSTROBE outputs.

Miscellaneous Functions

SHIFT, CONTROL, and TTY keys. Pressing one of these keys causes the outputs of the B5—B7 Control circuits to reflect the appropriate bit configuration for the character code desired. For example, pressing SHIFT in conjunction with an alpha key causes the output configuration of B1—B7 to represent the upper-case alpha character. Pressing the CONTROL (CTRL) key causes the output bit configuration to represent a control character. And pressing TTY permits only upper-case alpha bit configurations to be structured.



NUMBER	VCC	GND	UNUSED INPUTS
7400	14	7	HIGH
7402	14	7	LOW
7410	14	7	HIGH
7413	14	7	HIGH
7420	14	7	HIGH
7430	14	7	HIGH
7438	14	7	HIGH
7474	14	7	HIGH
7486	14	7	
7493	5	10	LOW
74151	16	8	

* NOTE:
C3 MAY BE REPLACED WITH A 1µF.

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KEYBOARD 3