

TABLE II

ASCII CHARACTER CODE USED IN T.V. TYPEWRITER

Char	A6	A5	A4	A3	A2	A1	Char	A6	A5	A4	A3	A2	A1
@	0	0	0	0	0	0	blank	1	0	0	0	0	0
A	0	0	0	0	0	1	!	1	0	0	0	0	1
B	0	0	0	0	1	0	"	1	0	0	0	1	0
C	0	0	0	0	1	1	#	1	0	0	0	1	1
D	0	0	0	1	0	0	\$	1	0	0	1	0	0
E	0	0	0	1	0	1	%	1	0	0	1	0	1
F	0	0	0	1	1	0	&	1	0	0	1	1	0
G	0	0	0	1	1	1	'	1	0	0	1	1	1
H	0	0	1	0	0	0	(	1	0	1	0	0	0
I	0	0	1	0	0	1	)	1	0	1	0	0	1
J	0	0	1	0	1	0	*	1	0	1	0	1	0
K	0	0	1	0	1	1	+	1	0	1	0	1	1
L	0	0	1	1	0	0	comma	1	0	1	1	0	0
M	0	0	1	1	0	1	,	1	0	1	1	0	1
N	0	0	1	1	1	0	.	1	0	1	1	1	0
O	0	0	1	1	1	1	/	1	0	1	1	1	1
P	0	1	0	0	0	0	0	1	1	0	0	0	0
Q	0	1	0	0	0	1	1	1	1	0	0	0	1
R	0	1	0	0	1	0	2	1	1	0	0	1	0
S	0	1	0	0	1	1	3	1	1	0	0	1	1
T	0	1	0	1	0	0	4	1	1	0	1	0	0
U	0	1	0	1	0	1	5	1	1	0	1	0	1
V	0	1	0	1	1	0	6	1	1	0	1	1	0
W	0	1	0	1	1	1	7	1	1	0	1	1	1
X	0	1	1	0	0	0	8	1	1	1	0	0	0
Y	0	1	1	0	0	1	9	1	1	1	0	0	1
Z	0	1	1	0	1	0	:	1	1	1	0	1	0
[	0	1	1	0	1	1	;	1	1	1	0	1	1
/	0	1	1	1	0	0	<	1	1	1	1	0	0
]	0	1	1	1	0	1	=	1	1	1	1	0	1
^	0	1	1	1	1	0	>	1	1	1	1	1	0
und.	0	1	1	1	1	1	?	1	1	1	1	1	1

To input a character, the proper code above is set up and the Keypressed input is suddenly brought to ground. A "0" is any voltage from 0 to +0.8 volts. A "1" is any voltage from +3 to +5 volts.

If you are using a computer, a modem, or a commercial keyboard with the full eight bit code, the eighth or parity bit is ignored. If bits 6 and 7 together are NOT "0", the characters above get input. If bits 6 and 7 together are "0", regardless of the code, you get a simultaneous line feed and carriage return, and a "CTRL" output.

TABLE III-A

WHAT DO THE CONNECTOR PINS DO?

- Ground** — all boards
- Input ASCII code from keyboard.** Sent to memory A and memory B as needed. A6 and A7 also go to cursor for CTRL detection. True TTL logic.
- Memory buss.** Memory A, Memory B, or outside world act as sources. Memory A character generator or outside world act as loads. P channel, silicon gate MOS compatible. Only one source should be enabled at a time.
- Memory clocks.** Normally +5V. Each goes low briefly 512 times per frame to clock main memory. 32 times on line No. 1; 32 times on line No. 13; 32 times on line No. 25, etc. Negative TTL logic.
- Goes low on lines 1, 13, 25.** normally high. Used to change

line register from recirculate to update each time a new line of characters is needed.

- Line Register clock.** 32 clock pulses delivered every line, normally high. TTL negative logic.
- Self test.** Superimposes "1" = white on video picture when connected to any TTL point in system.
- Video output.** Composite video for outside world of rf modulator. Sync = ground. White = maximum positive.
- 9-12 Blank.** Goes high on lines 9-12, 21-24, 33-36, etc. to prevent register from clocking video when blanks are wanted. TTL positive logic.
- Keypressed.** Goes to ground when key is pressed. Signal is conditioned by cursor and then used for update.
- Blinker.** Source of 4-Hz signals used for cursor winking, repeat, or outside world special applications. TTL.
- Clear and UNclear.** 24 goes to +5V on clear, is otherwise grounded. 25 goes to ground on clear, is otherwise +5V.
- Up-down direction control.** If 26 is grounded, cursor moves up a line on linefeed. If 26 is connected to P clock on 29, cursor moves down a line on linefeed.
- Right left controls.** If these pins are open, the character cursor backs up a space. If they are shorted, they go forward a space on command. NOT directly TTL compatible.
- Cursor ON.** Ground turns cursor OFF. Blinking update gives brief positive signal to turn cursor ON above indicated character. Not directly TTL compatible.
- Protect A.** Prevents character entry if grounded.
- Calculator control.** Optional signal. Goes to ground when line scan rather than full frame scan is selected.
- Protect B.** Prevents character entry if grounded.
- Enable A.** Enables Memory A and connects it to output bus if +5; disables it if grounded.
- Enable B.** Prevents character entry if grounded.
- Line/Frame scan select.** Connects to clock on 37 for special scans, is open otherwise. P clock connected to pin 37 may be optionally combined with logic for the display of one character through 12 whole lines of characters. Characters are continuously input or output in line mode. Normal operation is in frame scan, and this clock is not used.
- Sync.** Composite V and H sync. Normally positive TTL negative logic. Position controlled by jumpers on timing board.
- 39-42, 44, 46 Spare pins for add-ons.**
- Flash Display.** Optional. Ground puts out display for emphasis of one word, one line, or full frame. Useful with external timing to flash information, particularly negative numbers in a calculation.
- Output load command.** Loads characters into output register a suitable time delay after each character slot. TTL. Falling edge provides load command.
- Video Clock.** "A" clock of 4.561 MHz. Marches characters out of output register as serial video if not inhibited by pin 21 9-12 blank.
- 48-50 "What character line is it?"** commands used to tell character generator which row of dots to work on. TTL positive logic. 000 = line 1, 001 = line 2 (put down top row of dots), 002 = line 3 9 put down next row of dots), etc. . .
- Update.** Normally low TTL. goes high in proper slot for character update. Generated by cursor. Used by memory. Inhibited at memory if protected or CTRL being received. Overridden at memory during clear.
- CTRL** goes to ground if inputs A6 and A7 are grounded. Indicates a transparent or machine command has been received. Interpreted as a carriage return and line feed in basic unit.
- Horizontal out.** Optional 15,840 (with crystal specified) or 15,750 Hz (with external phase lock loop) output useful for interlace and video titling.
- Interlace Reset.** Optional. Holds entire vertical counter at maximum count when grounded. First horizontal clock edge following starts new frame.
- V output.** 60 Hz used by cursor for synchronizing. Handy for scope sync. Optionally useful for interlace.
- 12-V** **25-mA available**
- 5-V** **25-mA available**