EPSON HX-20
NOTEBOOK COMPUTER

QUICK REFERENCE

TERMINOLOGY

Item	Description
address	An integer expression.
array name	A variable that contains a matrix of elements.
array variable	An array name without any subscript.
background color	The color displayed by a PRESET or GCLS statement.
color code	See the "Color Sets and Codes" panel.
color set	See the "Color Sets and Codes" panel.
constant	Examples: 1, 2, ..., 9999999999999
cursor switch	Settings: 0 = no cursor display; 1 = cursor display.
device name	KYBD: keyboard SCRN: LCD screen/display adapter LPTØ: microprinter CAS1: external cassette CASØ: internal microcassette COMØ [<(blpsc)>]: RS-232C port PACØ: ROM cartridge BRCD: bar-code reader A: disk unit A B: disk unit B C: disk unit C D: disk unit D
digit	A constant, where: 0<=digit<=9.
expression	Types: numeric expression integer expression string expression
file descriptor	[<device name:>] [<file name>]
file name	An 8-character (maximum) string constant with a 3-character (maximum) extension after a period (.): --------.---.
file number	A constant, where: 1<=constant<=16.
foreground color	The color displayed by a PSET statement.
format string	A string constant; defines the numeric or string fields in a PRINT USING statement.
function	A routine that manipulates data, e.g., LEFT$ (X$,I).
graphic device	An LCD or display adapter.
height	An integer expression; represents vertical (line) height, in lines.
I, J	Integer expressions.
increment	A positive integer expression.

Item	Description
integer expression	Types: integer variable constant expression operator expression
letter range	A = A G,H = G, H C-F = C, D, E, F
line number	A constant, where: 0<=constant<=63999.
margin	An integer expression; represents the number of characters from the edge of the screen to the character position at which horizontal scrolling begins.
mode	Types: "I" = input "O" = output "R" = random access
numeric expression	Types: numeric variable constant expression operator expression
numeric variable	A name that contains a numeric value.
offset value	An integer expression; the number of bytes from the beginning of the RAM file area to the current RAM file.
period	See the panel for "The SOUND Function."
program area number	A constant, where: 1<=constant<=5.
prompt string	A string constant; the string that is displayed on the LCD or the optional display adapter before keyboard input. NOTE: A semicolon (;) after the prompt string causes a question mark (?) to be displayed after the format string. A comma (,) after the prompt string suppresses the question mark.
RAM file size	An integer expression; identifies the size, in bytes, of the RAM file area.
record number	An integer variable, where: 0<=variable<=255.
record size	An integer expression; identifies the size, in bytes, of each record within a RAM file.
scale	See the panel for "The SOUND Function."
statement	Any item in the "Commands, Functions, Statements, and Variables" panel that is identified by the letter "s".
string	Types: string constant string variable
string area size	An integer expression; identifies the number of bytes in memory that are set aside for calculated strings.

Item	Description
string constant	Example: "characters".
string expression	Types: string string + string function (string)
string variable	A name that contains a string.
text device	An LCD or display adapter
variable	Types: string variable numeric variable integer variable
W, X, Y, Z	Numeric expressions.
W$, X$, Y$, Z$	String expressions.
width	An integer expression; represents horizontal (line) width, in characters.
X step	An integer expression; the cursor step size for an X axis.
Y step	An integer expression; the cursor step size for a Y axis.
,R	Used with LOAD, LOADM, LOGIN, and RUN statements to run the specified program and to prevent any open files from being closed when execution begins.

CONSTANTS AND VARIABLES

Constant Types

Type	Example
Integer	1234
Fixed-Point	12.34 12.34# (double-precision)
Floating-Point	1.234E6 1.234D6 (double-precision)
Hexadecimal	&H1FFF
Octal	&O1234 or &1234
String	"1234"

Variable Types

Type	Example
Integer	A%
Single-Precision	A or A!
Double-Precision	A#
String	A$

COMMANDS, FUNCTIONS, STATEMENTS AND VARIABLES

Type Abbreviations:

c = Command
f = Function
nf = Numeric function
nv = Numeric variable
of = Output function
s = Statement
sf = String function
sv = String variable
v = Variable

Type	Syntax
nf	ABS (X)
nf	ASC (X$)
nf	ATN (X)
c	AUTO [<line number>] [,<increment>]
nf	CDBL (X)
sf	CHR$ (I)
nf	CINT (X)
c	CLEAR [<string area size>[,<RAM file size>]]
s	CLOSE [[#]<file number>[,[#]<file number,...,file number>]]
s	CLS
s	COLOR [<foreground color>] [,[<background color>] [,<color set>]]
c	CONT
s	COPY
nf	COS (X)
nf	CSNG (X)
nf	X=CSRLIN
s	DATA <constant,constant,...,constant>
sv	DATE$=X$
	X$=DATE$
nv	DAY=I
	I=DAY
s	DEFDBL <letter range>[,<range,...,range>]
s	DEFINT <letter range>[,<range,...,range>]
s	DEFSNG <letter range>[,<range,...,range>]
s	DEFSTR <letter range>[,<range,...,range>]
s	DEFFIL <record size>,<offset value>
s	DEFFN <variable>[(<parameter,...,parameter>)]=<expression>
s	DEFUSR [<digit>]=<I>
c	DELETE [<line number>] [-[<line number>]]
s	DIM <variable(<I>),...,variable(<I>)>
s	END
nf	EOF (<file number>)
s	ERASE <array variable,...,array variable>
nv	ERL
nv	ERR
s	ERROR <I>
s	EXEC <I>
nf	EXP (X)

Type	Syntax
c	FILES ["<device name>"]
nf	FIX (X)
s	FOR <W>=<X> TO <Y> [STEP <Z>]
	•
	•
	•
s	NEXT [<W>][,<X,...,Z>]
nf	FRE (<X[$]>)
s	GCLS
s	GET% <record number>,<W>[,<X,...,Z>][,X$]
s	GOSUB <line number>
	•
	•
	•
	RETURN
s	GOTO <line number>
sf	HEX$ (I)
s	IF <expression> THEN <statement(s) or line number> [ELSE <statement(s) or line number>]
	IF <expression> GOTO <line number> [ELSE <statement(s) or line number>]
sf	X$=INKEY$
s	INPUT[# <file number>,][<"prompt string">;] <variable,...,variable>
sf	INPUT$ (I[,[#]J])
nf	INSTR ([I,]X$,Y$)
nf	INT (X)
s	KEY I,X$
s	KEY [L]LIST
sf	LEFT$ (X$,I)
nf	LEN (X$)
s	[LET] <variable>=<expression>
s	LINE [(X1,Y1)]-(X2,Y2), <PSET or PRESET>[,<color code>]
s	LINE INPUT [# <file number>,]["prompt string";]< string variable>
c	LIST [<"file descriptor">,][<start line>][-[<end line>]]
c	LLIST [<line number>][-[<line number>]]
c	LOAD [<"file descriptor">][,R]
c	LOAD? [<"file descriptor">]
c	LOADM [<"file descriptor">][,<offset address>][,R]
s	LOCATE <X>,<Y>[,<cursor switch>]
s	LOCATES <X>,<Y>[,<cursor switch>]
nf	X=LOF (<device number>)
	X=LOF (<file number>)
nf	LOG (X)
c	LOGIN <I>[,R]
s	LPRINT [USING <"format string">;]<expression,...,expression>
c	MEMSET [<I>]
c	MERGE [<"file descriptor">][,R]
sf	MID$ (X$,I[,J])
s	MID$ (<string expression1>,I[,J])=<string expression2>
c	MON

Type	Syntax
s	MOTOR
	MOTOR OFF
	MOTOR ON
c	NEW
sf	OCT$ (I)
s	ON ERROR GOTO <line number>
s	ON <expression> GOTO <line number,...,line number>
s	ON <expression> GOSUB <line number,...,line number>
s	OPEN <"mode">,[#]<file number>,<"file descriptor">
s	OPTION BASE 0
	OPTION BASE 1
s	PCOPY <program area number>
nf	PEEK (I)
s	POKE I,J
nf	POINT (<X>,<Y>)
nf	POS (<file number>)
s	PRESET (<X>,<Y>)
s	PRINT [# <file number>,] [USING <"format string">;]<expression,...,expression>
s	PSET (<X>,<Y>) [<,color code>]
s	PUT% <record number>[,<W>,<X>,...,<Z>][,X$]
s	RANDOMIZE [<I>]
s	READ <variable,...,variable>
s	REM <remark>
c	RENUM [[<new line number>][,[<old line number>][,<increment>]]]
s	RESTORE [<line number>]
s	RESUME [<line number>]
	RESUME NEXT
sf	RIGHT$ (X$,I)
nf	RND [(X)]
c	RUN ["[<file descriptor>]"][,R]
c	SAVE "<file descriptor>"[,A][,V] Note: The [,A] option saves the file in ASCII format.
c	SAVEM "[<device name:>]<file name>",<start address>,<end address>,<entry address> [,V]
s	SCREEN [<text device>][,<graphics device>]
s	SCROLL [<speed>][,[<mode>][,[<X step>,<Y step>]]]
nf	SGN (X)
nf	SIN (X)
s	SOUND <scale>,<period>
sf	SPACE$ (X)
of	SPC (I)
nf	SQR (X)
s	STAT [<program area number>]
	STAT ALL
s	STOP
sf	STR$ (X)
sf	STRING$ (I,J)
	STRING$ (I,X$)
s	SWAP <variable>,<variable>

Type	Syntax
of	TAB (I)
nf	TAN (X)
nv	I=TAPCNT
sv	X$=TIME$
	TIME$=X$
c	TITLE X$
	TITLE "["]
c	TRON
c	TROFF
f	USR [<digit>](<X[$]>)
nf	VAL (X$)
nf	VARPTR (<variable name>)
	VARPTR (#<file number>)
	WIDTH <width>,<height>,<margin>
	WIDTH "<device name>",<width>
	WIND [(X)]

COLOR SETS AND CODES

Color Set 0

Graphic 1 (Default)		Graphic 2		L.C.D.	
Code	Color	Code	Color	Code	Color
0	Green	0	Black	0	White
1	Yellow	1	Green	1	Black
2	Blue	2	Green	2	Black
3	Red	3	Green	3	Black

Color Set 1

Graphic 1 (Default)		Graphic 2		L.C.D.	
Code	Color	Code	Color	Code	Color
0	White	0	Black	0	White
1	Cyan	1	White	1	Black
2	Magenta	2	White	2	Black
3	Orange	3	White	3	Black

THE CHARACTER SET

X	HEX(X)	Character or Function	Key or Key Combination
0	0	Null	CTRL@
1	1	Cursor to left edge of virtual screen.	CTRL A
2	2	Undefined.	CTRL B
3	3	Break in Auto Mode.	CTRL C
4	4	Move cursor X step positions to the right. (See the SCROLL statement.)	CTRL→ or CTRL D
5	5	Delete to end of line.	CTRL E
6	6	Cursor to right edge of virtual screen.	CTRL F
7	7	Undefined.	CTRL G
8	8	Delete one character.	DEL or CTRL H
9	9	Horizontal Tab.	TAB or CTRL I
10	A	Line Feed.	CTRL J (but not valid from BASIC)
11	B	Home cursor.	HOME or CTRL K
12	C	Clear virtual screen.	CLR or CTRL L
13	D	Carriage Return.	RETURN or CTRL M
14	E	Undefined.	CTRL N
15	F	Undefined.	CTRL O
16	10	Move window up. (Scroll text down.)	SCRN or CTRL P
17	11	Move window down. (Scroll text up.)	SHIFT SCRN or CTRL Q
18	12	Toggle insert mode.	INS or CTRL R
19	13	Move cursor X step positions to the left. (See the SCROLL statement.)	CTRL ← or CTRL S
20	14	Undefined.	CTRL T
21	15	Undefined.	CTRL U
22	16	Make cursor visible.	CTRL V
23	17	Make cursor invisible.	CTRL W
24	18	Undefined.	CTRL X
25	19	Undefined.	CTRL Y
26	1A	Delete from cursor to end of virtual screen.	CTRL Z
27	1B	Escape Code.	CTRL [or SHIFT PAUSE
28	1C	Move cursor right.	→ or CTRL \
29	1D	Move cursor left.	← or CTRL]
30	1E	Move cursor up.	SHIFT ← or CTRL ^
31	1F	Move cursor down.	SHIFT → or CTRL ___
32	20	Undefined.	Space Bar
33	21	!	!
34	22	"	"
35	23	#	#
36	24	$	$
37	25	%	%
38	26	&	&
39	27	'	'
40	28	(	(
41	29	)	)

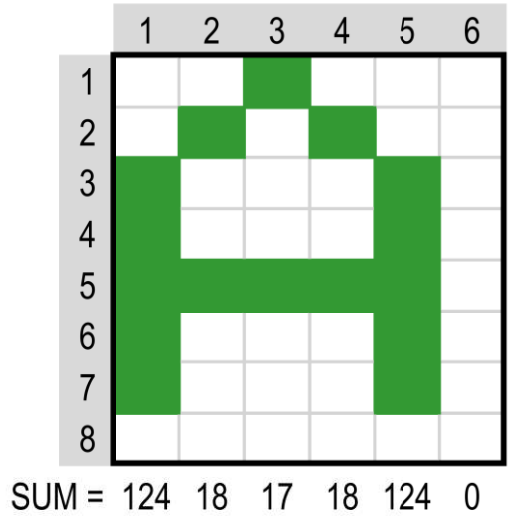
X	HEX(X)	Character or Function	Key or Key Combination
42	2A	*	*
43	2B	+	+
44	2C	,	,
45	2D	-	-
46	2E	.	.
47	2F	/	/
48	30	0	0
49	31	1	1
50	32	2	2
51	33	3	3
52	34	4	4
53	35	5	5
54	36	6	6
55	37	7	7
56	38	8	8
57	39	9	9
58	3A	:	:
59	3B	;	;
60	3C	<	<
61	3D	=	=
62	3E	>	>
63	3F	?	?
64	40	@	@
65	41	A	A
66	42	B	B
67	43	C	C
68	44	D	D
69	45	E	E
70	46	F	F
71	47	G	G
72	48	H	H
73	49	I	I
74	4A	J	J
75	4B	K	K
76	4C	L	L
77	4D	M	M
78	4E	N	N
79	4F	O	O
80	50	P	P
81	51	Q	Q
82	52	R	R
83	53	S	S
84	54	T	T
85	55	U	U
86	56	V	V
87	57	W	W
88	58	X	X
89	59	Y	Y
90	5A	Z	Z
91	5B	[	[
92	5C	\	\
93	5D	]	]
94	5E	^	^
95	5F	—	—
96	60	`	GRPH [
97	61	a	a
98	62	b	b

X	HEX(X)	Character or Function	Key or Key Combination
99	63	c	c
100	64	d	d
101	65	e	e
102	66	f	f
103	67	g	g
104	68	h	h
105	69	i	i
106	6A	j	j
107	6B	k	k
108	6C	l	l
109	6D	m	m
110	6E	n	n
111	6F	o	o
112	70	p	p
113	71	q	q
114	72	r	r
115	73	s	s
116	74	t	t
117	75	u	u
118	76	v	v
119	77	w	w
120	78	x	x
121	79	y	y
122	7A	z	z
123	7B	{	{
124	7C	¦	¦
125	7D	}	}
126	7E	~	GRPH \
127	7F	Undefined.	GRPH]
128	80	┼	GRPH S
129	81	┴	GRPH X
130	82	┬	GRPH W
131	83	┤	GRPH D
132	84	├	GRPH A
133	85	─	GRPH T
134	86	│	GRPH R
135	87	┌	GRPH Q
136	88	┐	GRPH E
137	89	└	GRPH Z
138	8A	┘	GRPH C
139	8B	▒	GRPH J
140	8C	▉	GRPH F
141	8D	▬	GRPH G
142	8E	▌	GRPH H
143	8F	●	GRPH Y
144	90	○	GRPH U
145	91	♠	GRPH I
146	92	♥	GRPH O
147	93	♦	GRPH P
148	94	♣	GRPH @
149	95	♪	GRPH K
150	96	◘	GRPH V
151	97	♦	GRPH ,
152	98	◘	GRPH M
153	99	¥	GRPH N
154	9A	₧	GRPH B
155	9B	↑	GRPH ;

X	HEX(X)	Character or Function	Key or Key Combination
156	9C	↓	GRPH .
157	9D	×	GRPH ;
158	9E	÷	GRPH /
159	9F	±	GRPH L
160	A0	Undefined.	GRPH =
161	A1	Undefined.	Undefined.
•	•	•	•
•	•	•	•
•	•	•	•
223	DF	Undefined.	Undefined.
224	E0	—	GRPH 0
225	E1	—	GRPH 1
226	E2	—	GRPH 2
227	E3	—	GRPH 3
228	E4	—	GRPH 4
229	E5	—	GRPH 5
230	E6	—	GRPH 6
231	E7	—	GRPH 7
232	E8	—	GRPH 8
233	E9	—	GRPH 9
234	EA	—	CTRL *
235	EB	—	CTRL +
236	EC	—	CTRL ,
237	ED	—	CTRL -
238	EE	—	CTRL .
239	EF	—	CTRL /
240	F0	—	CTRL 0
241	F1	—	CTRL 1
242	F2	—	CTRL 2
243	F3	—	CTRL 3
244	F4	—	CTRL 4
245	F5	—	CTRL 5
246	F6	—	CTRL 6
247	F7	—	CTRL 7
248	F8	—	CTRL 8
249	F9	—	CTRL 9
250	FA	—	CTRL :
251	FB	—	CTRL ;
252*	FC	—	CTRL <
253	FD	—	CTRL =
254*	FE	—	CTRL >
255	FF	—	CTRL ?

*These are special codes used by MENU and function keys. Avoid entering them from the keyboard.
—User definable.

User Defined Character



Example: character data between 0x1000 and 0x1005

```
MEMSET &H1006
REM pointer to start of data (&H1000)
POKE &H011E,&H10
POKE &H011F,&H00
```

Either POKE the character definition into memory:

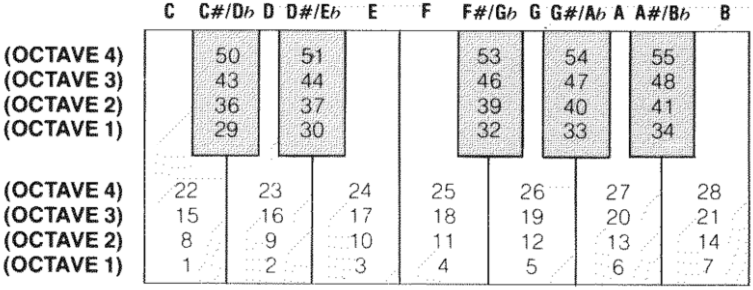
```
REM data from &H1000 to &H1005
POKE &H1000,124
POKE &H1001,18
POKE &H1002,17
POKE &H1003,18
POKE &H1004,124
POKE &H1005,0
```

Or: use a loop to READ and POKE the data to memory:

```
FOR A%=&H1000 TO &H1005
 READ I%
 POKE A%,I%
NEXT A%
DATA 124,18,17,18,124,0
```

THE SOUND FUNCTION

(Four-Octave Chromatic Scale)



MIDDLE C = 1
A (440) = 6
PERIOD = 0-255; it represents the time value of a note in intervals of 1/10th of a second (10 = 1 second, 15 = 1.5 seconds, etc.).

MONITOR COMMANDS

General Purpose Commands

Command	Meaning
B	Return to the caller.
K<key stack sequence> CTRL/@	Select the power-up keyboard sequence.

Register and Memory Commands

Command	Meaning
A	Enter the memory locations for READ, WRITE, or VERIFY.
D<address>	Dump memory.
G<address1>[,<address2>]	Enter the memory location(s) for GOTO routine [,break point].
S<address>	Set memory.
R<device>,<file name>[,R]	Read the object file into memory.
V<device>,<file name>	Verify that the object file is saved on the device.
W<device>,<file name>	Write the object file to the device.
X	Display/change the 6301 register value.

Device Codes

Code	Represents
C	An external cassette.
M	The microcassette.
R	A ROM cartridge.
0-7	Serial communication devices (including disk drives).

ERROR MESSAGES

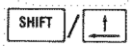
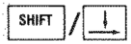
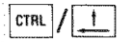
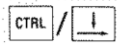
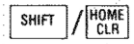
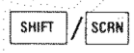
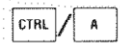
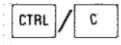
Error Code	Error Number	Message
/0	11	Division by zero
AO	52	File already open
BD	58	Bad data in file
BF	51	Bad file mode
BN	50	Bad file number
BO	61	Buffer overflow
BS	9	Bad subscript
CN	17	Can't continue
DD	10	Duplicate definition
DS	56	Direct statement in file
DU	60	Device unavailable
FC	5	Illegal function call
FD	55	Bad file descriptor
FN	23	FOR without NEXT
ID	12	Illegal direct
IE	54	Input past end
IO	53	Device input/output error
IU	59	Device in use
LS	15	String too long
MO	22	Missing operand
NE	63	File does not exist
NF	1	NEXT without FOR
NO	57	File not open
NR	19	No RESUME
OD	4	Out of data
OM	7	Out of memory
OS	14	Out of string space
OV	6	Overflow
PP	62	Protected program
RG	3	RETURN without GOSUB
RW	20	RESUME without error
SN	2	Syntax error
ST	16	String formula too complex
TM	13	Type mismatch
UF	18	Undefined user function
UL	8	Undefined line number
UP	21	Unprintable error
WE	24	WHILE without WEND
WH	25	WEND without WHILE

RESERVED WORDS

ABS
ALL
AND
ASC
ATN
AUTO
BASE
CDBL
CHR$
CINT
CLEAR
CLOSE
CLS
COLOR
CONT
COPY
COS
CSNG
CSRLIN
DATA
DATE
DAY
DEF
DELETE
DIM
ELSE
END
EOF
EQV
ERASE
ERL
ERR
EXEC
EXP
FILES
FIX
FN
FOR
FRE
GCLS
GET
GO
HEX$
IF
IMP
INKEY$
INPUT
INSTR
INT
KEY
LEFT$
LEN
LET
LINE
LIST
LLIST
LOAD
LOCATE
LOF
LOG
LPRINT
MEMSET
MERGE
MID$
MOD
MON
MOTOR
NEW
NEXT
NOT
OCT$
OFF
ON
OPEN
OPTION
OR
PCOPY
PEEK
POINT
POKE
POS
PRESET
PRINT
PSET
PUT
RANDOMIZE
READ
REM
RENUM
RESTORE
RESUME
RETURN
RIGHT$
RND
RUN
SAVE
SCREEN
SCROLL
SGN
SIN
SOUND
SPACE$
SPC(
SQR
STAT
STEP
STOP
STR$
STRING$
SUB
SWAP
TAB(
TAN
TAPCNT
THEN
TIME
TITLE
TO
TROFF
TRON
USING
USR
VAL
VARPTR
WEND
WHILE
WIDTH
WIND
XOR

THE KEYBOARD

Screen Editor Keys

Key	Function
	Moves the cursor left by 1 column. Terminates insert mode.
	Moves the cursor right by 1 column. Terminates insert mode.
	Moves the cursor up by 1 line. Terminates insert mode.
	Moves the cursor down by 1 line. Terminates insert mode.
	Moves the cursor to position 10 on the physical screen and scrolls the text left 10 columns (or by the value set by the BASIC SCROLL command).
	Moves the cursor to position 10 on the physical screen and scrolls the text right 10 columns (or by the value set by the BASIC SCROLL command).
	Clears the virtual screen and homes the cursor.
	Homes the cursor.
	Moves the cursor right by 8 columns.
	Scrolls the text up the screen by 4 lines (or by the amount set with the BASIC SCROLL command).
	Scrolls the text down the screen by 4 lines (or by the amount set with the BASIC SCROLL command).
	Changes modes: upper case to lower case, lower case to upper case, or numeric mode to lower case.
	If the cursor is at the beginning of a logical line, deletes the character at the cursor. Otherwise, deletes the character to the left of the cursor.
	Enters or exits from insert mode.
	Enters numeric mode or exits from numeric to upper-case mode.
	In conjunction with any key but a letter key, yields the upper character or function on the given key. In conjunction with a letter key, yields a lower-case character if the HX-20 is in upper-case mode, or an upper-case letter if the HX-20 is in lower-case mode.
	If the HX-20 is in upper-case mode, pressing this and another key yields a graphics character. In lower-case or numeric mode, has no effect.
	Displays the leftmost portion of the virtual screen.
	Breaks from the auto mode.

Key	Function
CTRL / D	Scrolls right.
CTRL / E	Deletes from cursor to the end of the logical line.
CTRL / F	Moves the cursor to the rightmost portion of the virtual screen.
CTRL / H	Same as INS DEL.
CTRL / I	Tabs horizontally (8 columns).
CTRL / J	Moves the cursor down by 1 line. (Has no effect in BASIC mode.)
CTRL / K	Homes the cursor.
CTRL / L	Clears the virtual screen and homes the cursor.
CTRL / M	Yields a carriage return.
CTRL / P	Scrolls the text down by 4 lines (or by the amount set with the BASIC SCROLL command).
CTRL / Q	Scrolls the text up by 4 lines (or by the amount set with the BASIC SCROLL command).
CTRL / R	Enters or exits from insert mode.
CTRL / S	Scrolls left.
CTRL / V	Makes the cursor visible.
CTRL / W	Makes the cursor invisible.
CTRL / Z	Deletes from the cursor to the end of the virtual screen.

Special Function Keys

Key	Function
PAUSE	Suspends system execution. When a value (0-9) is entered after this key is pressed, the value determines the screen scrolling speed (0 = slowest, 9 = fastest).
BREAK	Interrupts system execution.
MENU	Displays the HX-20 menu.

Keys PF1 through PF5 and shifted PF1 through PF5 (PF6 through PF10) are described in their initialized state. ALL PF keys may be redefined by the user.

∧M represents a carriage return.

PF1	AUTO
PF2	LIST∧M
PF3	LLIST∧M
PF4	STAT

Key	Function
PF5	RUN∧M
SHIFT / PF1	?DATE$:?TIME$∧M
SHIFT / PF2	LOAD
SHIFT / PF3	SAVE
SHIFT / PF4	TITLE
SHIFT / PF5	LOGIN
CTRL / PF1	Enters the manual microcassette mode (the tape counter displays). In this mode, the PF keys function as follows:

PF1 : Fast forward.

PF2 : Slow forward.

PF3 : Stop.

PF4 : Rewind.

PF5 : Exit from the manual microcassette mode.

SHIFT / PF1 : Reset the microcassette's digital tape counter to zero.

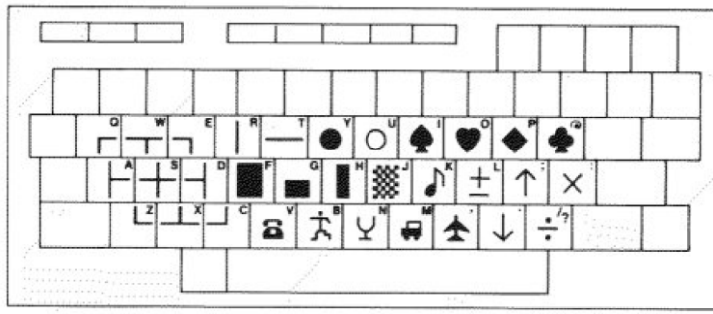
CTRL / PF2 — Prints a hard copy of the LCD screen.

CTRL / PF3
CTRL / PF4
CTRL / PF5

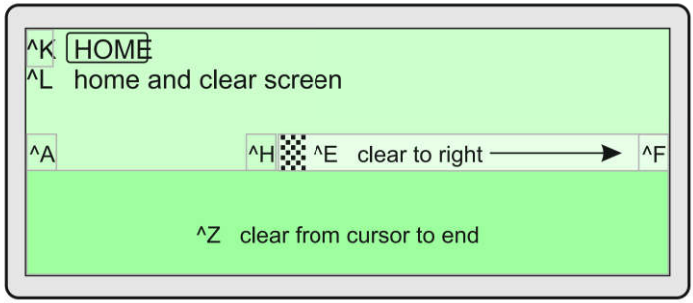
Yields a user-defined, machine-code vector address, as follows:

KEY	VECTOR
PF3	$126-$127
PF4	$128-$129
PF5	$12A-$12B

Graphics Keys



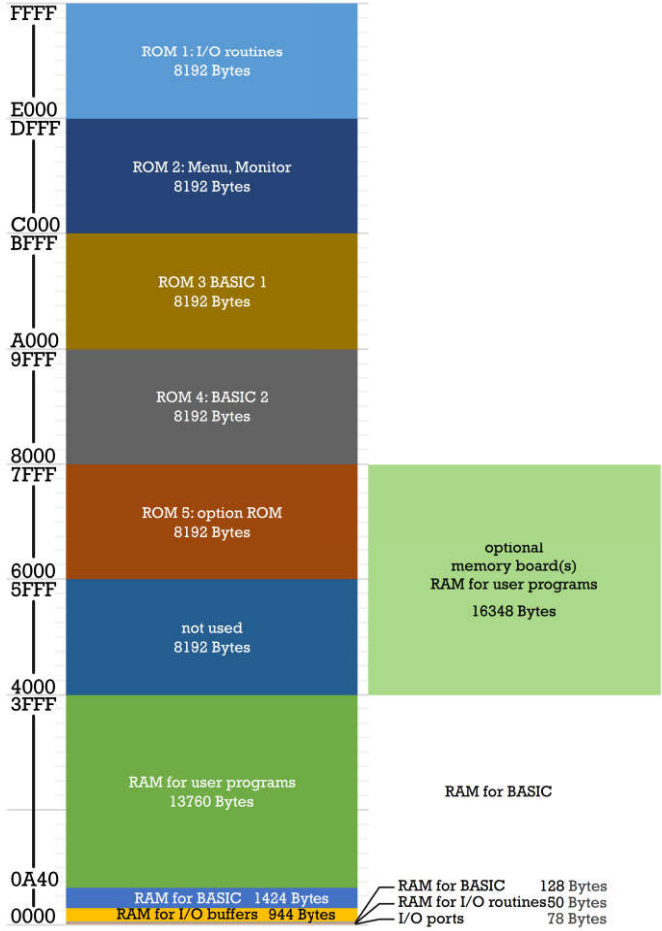
NOTE: For graphics production, the HX-20 must be in upper-case mode. Each letter key must be pressed in conjunction with the GRPH key.



alternative
cursor motion
(German keyboard)

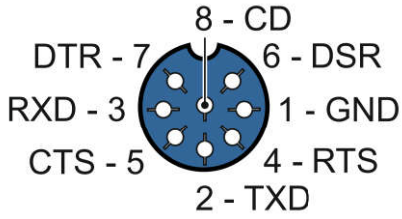
^L CLR clear screen
^R INS insert
^I tab right
^S tab left

^V show cursor
^W hide cursor
^D scroll right
^S scroll left



RS-232C

view on female socket



OPEN "*m*", #*n*, "COM0:(*blpsc*)"

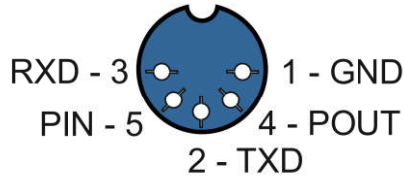
- *m*: I - input, O - output
- *n*: file number
- *b*: 0 - 110 baud, 1 - 150 baud, 2 - 300 baud, 3 - 600 baud, 4 - 1200 baud, 5 - 2400 baud, 6 - 4800 baud
- *l*: 7 or 8
- *p*: N, E, O
- *s*: 1 or 2
- *c*: defaults

c	CTS	DSR	RTS	CD
0	N	N	L	N
1	N	N	L	I
2	N	N	H	N
3	N	N	H	I
4	N	I	L	N
5	N	I	L	I
6	N	I	H	N
7	N	I	H	I
8	I	N	L	N
9	I	N	L	I
A	I	N	H	N
B	I	N	H	I
C	I	I	L	N
D	I	I	L	I
E	I	I	H	N
F	I	I	H	I

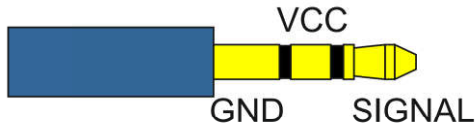
N	normal usage
I	ignored
H	held high
L	held low

Serial

view on female socket

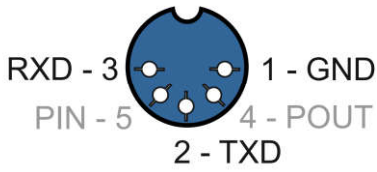


Barcode



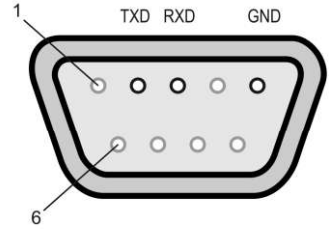
Serial

DIN - 5-pin
view on solder cups



RS-232C

DB9 - female
view on solder cups

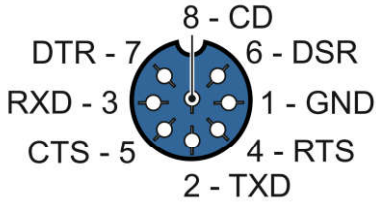


GND	1 ↔ 5	GND
TXD	2 → 2	RXD
RXD	3 ← 3	TXD

High-Speed Cable
(for connecting to a PC)

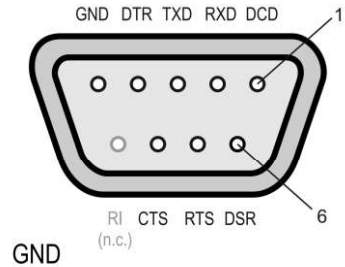
RS232C

DIN - 8-pin
view on solder cups



RS-232C

DB9 - male
view on solder cups



1 — 5	GND
2 — 3	RXD
3 — 2	TXD
4 — 7	RTS
5 — 8	CTS
6 — 6	DSR
7 — 4	DTR
8 — 1	DCD

Interface Cable with IBM-AT style connector
(e.g. for printer,
use null-modem to connect to another PC)