MAILING LIST FOR HP uCOMPUTER CLUB BUILDERS

| Name | Code | Name | Code |
|---|---|---|---|
| S JOINER | 10 | D NUNGESTER | 2I |
| B DOUGHERTY | 11 | A GREEN | 35 |
| S HOFFMAN | 11L | D VAWTER | 3US |
| M HODAPP | 11L | D GORDON | 42U |
| W BECKETT | 11LT | J YOUDEN | 42U |
| D POCIUS | 11U | T WATANABE | 47U |
| M PIRAMOON | 11U | T BOYLE | 47U |
| J KIM | 11U | D OLLINS | 47U |
| D VANDERWATER | 11U | L STAFFORD | 4A |
| W HINTON | 11U | S ERNST | 4U |
| B WARD | 11U | T PLASS | 4U |
| J THOMPSON | 11U | A DERVAN | 51U |
| V MARIAN | 12 | D HARDING | 52U |
| C SMITH | 12 | R BURRELL | 53U |
| B GOODMAN | 17 | R FROID C/O   B. Garcia | 5L |
| T GILDEA | 18 | K TOBIN | 5L |
| R SHARP | 1T | B GARCIA | 5L |
| E LITTAU | 1U | P ZANDER | 5M |
| R RANDALL | 20BD | J SOCHA C/O   C. Frank | 5M |
| J ENGELHARDT | 20BR | G THOMAS C/O   P. Zander | 5M |
| L CUTLER | 25 | N LYONS | 5M |
| B SCHUCHARD | 25L | J VADEBONCOEUR | 5U |
| H WILSON | 25U | R PINGER | 5U |
| R DINKEY | 25U | S THOMAS | 5U |
| K HICKOX | 25U | P GREY | 5U |
| G HARKINS | 25U | K LANE | 5U |
| D WEIGEL | 25U | L KIYAMA | 5U |
| B KNAPP | 28A | M TALLMON | 6L |
| D LIDDELL | 28B | B LEWIS | 90L |
| D MOBERLY | 28B | D PUNG | 90U |
| K BATES | 28C | R WONG | 90U |
| D MCSORLEY C/O S. Hessel | 29A | R WONG | 9E |
| S HESSEL | 29A | R MCBRIDE | RE-1 |
| D NELSON | 29A | J MEYERS | SSD |

HEWLETT // 7 // PACKARD   ****************  OPTOELECTRONICS DIVISION

640 Page Mill Road, Palo Alto, California 94304 Telephone (415) 857-6261

_____

FROM: Will Beckett          DATE:  3-11-82

   TO: Computer Club Distribution

SUBJECT: Purchase of Epson printer

        Attached is a full discription of the Epson printer.  It is
now time to make your mind up.  Please send your checks to Barry
Lewis Bld 90.  The results of the survey are as follows:

| Club | Outside | Total | | Best Prices |
|------|---------|-------|--------------|-------------|
| 17 | 15 | 32 | Base MX-80 | $425 |
| 18 | 5 | 23 | ROM | $15 |
| 9 | 4 | 13 | HPIB IEEE 488 | $52 |
| 9 | 0 | 9 | RS 232 | $69 |
| 1 | 0 | 1 | Friction Feed | $100 |

        We found out that the Graphics option, which contains three
ROM's, will not work with the RS232 interface.  If we order just
the printer and ROM's now we can get the HPIB later if a board is
made for our computer.  Please get all checks in by the end of the
month.  Shipping charges will be no more than $5, there is no tax.
----------------------------------------------------------------------
Make checks payable to H.P.U.C.I.G.

PRINTER PURCHASE ORDER FORM

I would like to order the following:

QTY    Price    Name:_____  Bld #_____

_____  $425    Epson MX-80 Printer

_____  $ 15    3ea 2716 ROM's to be burned in with Epson Graphics

_____  $ 52    HPIB IEEE 488 Interface (can be ordered later)

_____  $ 69    RS232 Interface (our best unit price $69 )

_____  $ 25    Cable (sepcify both ends)

        Total $ for this order. +$5  Shipping

## 1.4 General Specifications of MX-80

### 1.4.1 Printer

| | | |
|---|---|---|
| (1) | Printing Method ............ | Impact dot matrix |
| (2) | Character Set ............. | ASCII 96 + Graphic 64 + 9 special characters/symbols (Selectable by operator) |
| (3) | Character Font ............. | 9 × 9 dot matrix |
| (4) | Character Size ............. | 2.1 mm (W) × 3.1 mm (H) (0.08" × 0.12") |
| (5) | Paper Feed ................ | Adjustable sprocket feed |
| (6) | Paper .................... | Fanfold paper |
| (7) | Paper Width .............. | 101.6 mm (4") — 254 mm (10") |
| (8) | Copies ................... | One original plus two carbon copies |
| (9) | Paper Thickness........... | 0.3 mm (0.01") max. |
| (10) | Line Spacing ............. | 4.23 mm (1/6") or programmable |
| (11) | Columns ................. | 80 (Normal size) |
| | | 40 (Enlarged size) |
| | | 132 (Condensed size) |
| | | 66 (Condensed-enlarged size) |
| (12) | Print Speed ............... | 80 CPS (Normal) |
| (13) | Ribbon ................... | Cartridge Ribbon (exclusive use), Black |
| (14) | Dimensions .............. | 374 mm (W) × 305 mm (D) × 107 mm (H) (14.7" × 12.0" × 4.2") |
| (15) | MTBF .................... | $5 \times 10^6$ lines (excluding print head) |
| (16) | Print Head Life ............ | $100 \times 10^6$ characters |

### 1.4.2 Parallel Interface (Standard)

| | | |
|---|---|---|
| (1) | Date transfer rate .......... | 1,000 CPS (max.) |
| (2) | Synchronization ........... | By externally supplied $\overline{\text{STROBE}}$ pulses. |
| (3) | Handshaking .............. | By $\overline{\text{ACKNLG}}$ or BUSY signals |
| (4) | Logic level ............... | Input data and all interface control signals are compatible with the TTL level. |

## 1.1 Features of MX-80

The MX-80 is a serial dot matrix printer featuring 80 CPS bi-directional printing with logical seeking capability and 9×9 dot-matrix character formation, and is a fruit of our constant efforts in pursuit of miniaturization, light weight and high performance. The Printer is thus capable of fully displaying its intended performance when used with various computers. The MX-80 also has optional interface boards to permit the connection of the Printer to any of the computers which are provided with various interfaces. By merely adding these optional interface boards to the MX-80, data transfer is possible between the computer and the MX-80.

## 1.2 Features of Interfaces

The MX-80 has a Centronics-compatible parallel interface as the standard equipment. With this standard interface, the MX-80 can be connected to any of various personal computers for data communication.

In addition to the standard interface, the MX-80 has the following interface options which permit the user to connect his Printer to almost all the computers equipped with various interfaces.

(1) RS-232C/Current Loop Serial Interface

This optional interface is of a 20mA/60mA current loop type which is the same as the level prescribed for serial interfaces by the EIA Standards, TTY, etc., and permits the Printer to receive data at a bit rate ranging from 75 to 9,600 BPS.

(2) IEEE 488 Interface

This optional interface has the bus structure defined by the IEEE Std. 488-1975, and permits the Printer to be connected parallelly to any computer or measuring instrument which is equipped with this bus structure. Thus, information such as measured data, etc. from the computer or measuring instrument can be recorded on the MX-80 printer.

(3) APPLE II Interface

This optional interface permits the MX-80 to transfer data to and from an APPLE II (or II Plus) personal computer manufactured by the Apple Computer Inc. when it is incorporated into the computer.

(4) TRS-80 Interface

This optional interface is connected to the bus system of a TRS-80 computer manufactured by the Tandy Radio Shack, to permit printing of the TRS-80 programs and other data on the MX-80.

As described above, the MX-80 is configured to cope with various interfaces. For further information on the respective interface options, refer to the user manual separately published for each interface.

## 1.3 Serviceability

The MX-80 has been designed to minimize maintenance and repair in operation under its normal use.

Should maintenance or repair be required, the printer mechanisms and circuit boards of the MX-80 are readily replaceable. Access to the respective mechanical components can be obtained easily. Accordingly, the user is permitted to perform minimum maintenance and repair with ease by referring to this manual.

(3) Power supply circuit

The power supply circuit is partially located on the main circuit board. However, the power transformer and line filter are mounted separately on the lower case. The power supply circuit supplies all the voltages required for the MX-80. The line filter consisting of capacitors blocks noises to and from an external source.
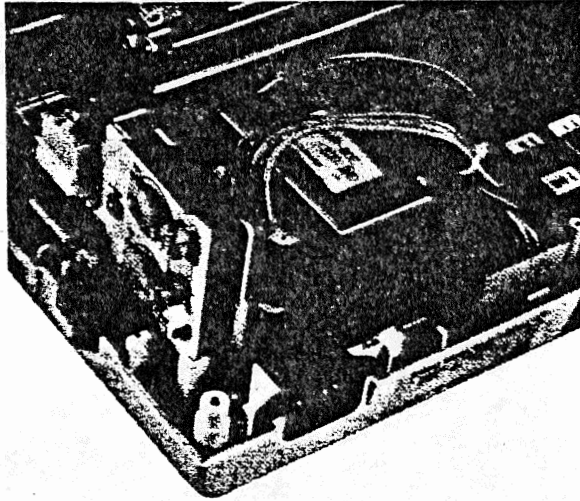


Fig. 1.3   Power Supply Circuit

(4) Housing

The housing of the MX-80 consists of an upper case and a lower case, and accommodates all the components described in paragraphs (1), (2) and (3) above. The lower case has been designed to facilitate mounting of the above-mentioned components.
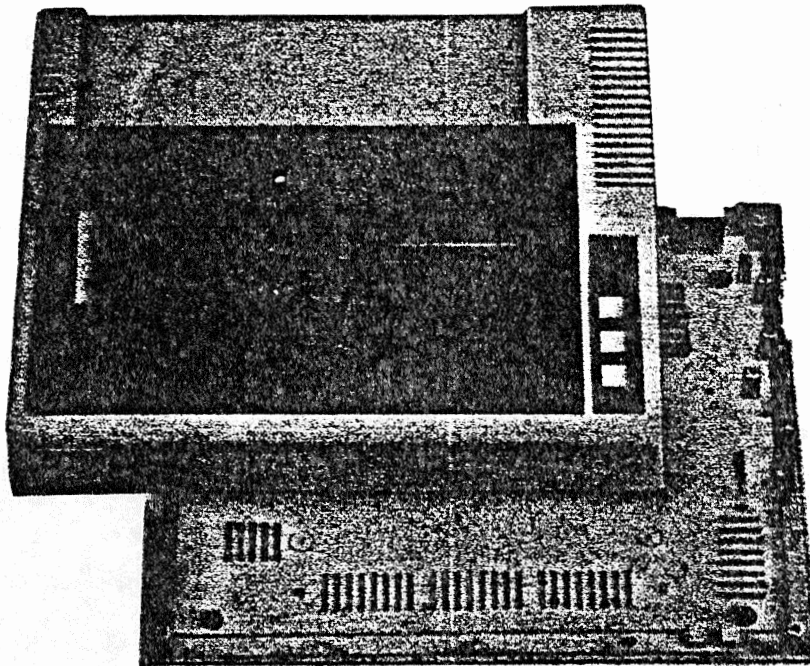


Fig. 1.4   Upper and Lower Cases

## 1.5 Major Components

The MX-80 consists, in a broad classification, of the following four major components.

(1) Model 3210 printer mechanism

This mechanism is an assembly of all the mechanical functions of the MX-80, and consists mainly of two stepper motors, a print head, a ribbon feeding mechanism, a carriage assembly, sensors and a frame section. One stepper motor functions as the print head carriage motor, while the other works as the paper feeding motor. The M-3210 has been designed extremely simple to permit easy maintenance as described later in this manual.
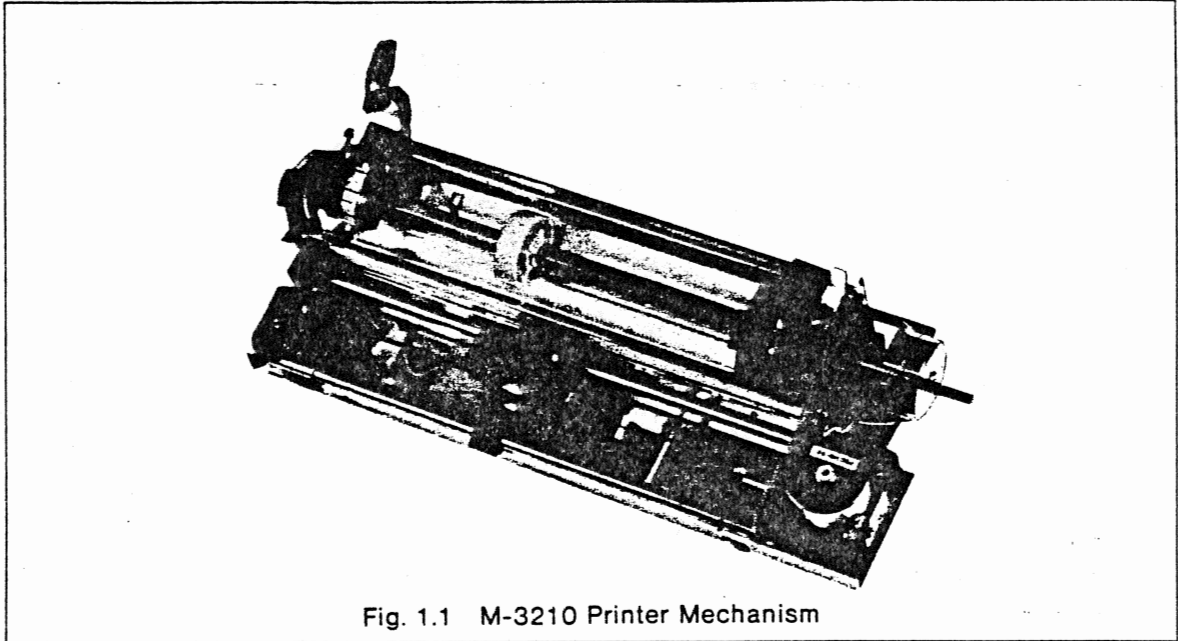


Fig. 1.1   M-3210 Printer Mechanism

(2) Circuit boards

The MX-80 is provided with two printed circuit boards as the standard equipment. One printed circuit board functions as a main circuit board (control circuit board) with an LSI 8049 for printer control. On the main circuit board, the other printed circuit board serving as a driver circuit board is secured with two screws. The M-3210 is controlled through the 28-pin connector attached to the driver circuit board.



Main Circuit Board

Driver Circuit Board

Fig. 1.2   Main and Driver Circuit Boards

# ORANGE MICRO PRINTER COMPARISON CHART

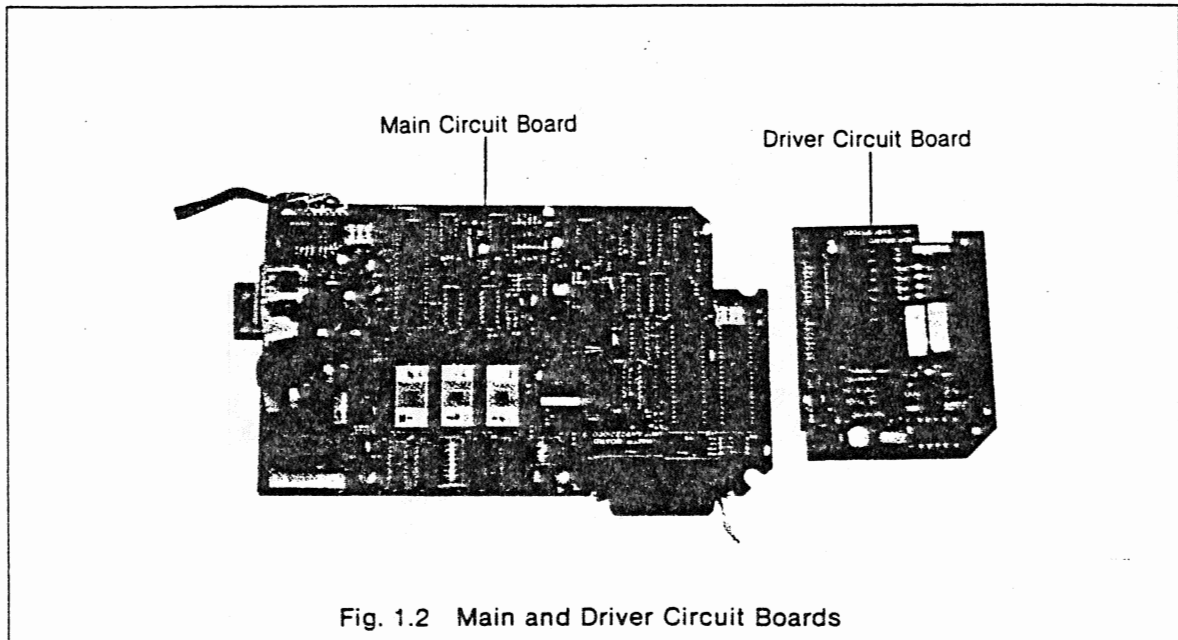| Printer Manufacturer | Model Number | # Printhead Wires | Lowercase Descenders | Speed: Char./Sec. | Block Graphics | Dot Resolution Graphics | Maximum Paper Width (inches) | Top of Form | Adjustable Tractors | Pin Feed | Friction Feed | Roll Paper Holder | RS232 Serial | Parallel | IEEE 488 | 20 MA | Double Wide Characters | Condensed Print | Number Of Copies | Self Test | Lines/Inch | Bi-Directional Printing | Logic Seeking Head | Buffer | Reverse Line Feed | Paper Out Detect | Weight In Pounds | Auto. Skip-Over-Perf. | Proportional Spacing | Underlining | Mfg. List Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Anacom | 150 | 9x9 | • | 150 | | | 15 | • | • | | | | SPC | SPC | | | • | | 5 | • | 6,8 | • | • | OPT | | OPT | 34 | • | | | 1350 |
| Anadex | 9501 | 11x9 | • | 120+ | | 72x75 | 15.6 | • | • | | | | • | • | | • | • | • | 6 | • | 6,8 | • | • | .7K FIFO | | • | 35 | • | | • | 1650 |
| | 9500 | 9x9 | • | 150+ | | 72x60 | 15.6 | • | • | | | | • | • | | • | • | • | 6 | • | 6,8 | • | • | .7K FIFO | | • | 35 | • | | • | 1650 |
| Axiom | GP80M | 5x7 | | 30 | | | 8.5 | | • | | | | SPC | SPC | SPC | SPC | | | 3 | | 6 | | | | | | 12 | | | | 399 |
| Centronics | 730 | 5x7 | | 100 | | | 9.5 | | | • | • | • | OPT | • | | | | • | | 3 | | 6 | | | | | | 11 | | | | 795 |
| | 737 | Nx9 | • | 80 | | | 9.5 | | | • | • | • | OPT | • | | | • | • | | 3 | | 6 | | | | • | | 12 | | • | • | 995 |
| | 739 | Nx9 | • | 100 | | 74x72 | 9.5 | • | | • | • | • | OPT | • | | | • | • | | 3 | • | 6 | | | | • | • | 12 | | • | • | 995 |
| Diablo | 630/3 | FC | • | 40 | | 48x120 | 16 | • | • | | • | | | • | | | | OPT | | 6 | • | VAR | • | | OPT | • | • | 59 | | • | • | 2945 |
| Epson | MX70 | 5x7 | | 80 | | 72x60 | 10 | • | • | OPT | | | | • | | | | | | 3 | • | VAR | | | | | • | 12 | | | | 450 |
| | MX80 | 9x9 | • | 80 | • | 72x60 | 10 | • | • | | OPT | | OPT | OPT | OPT | OPT | • | • | 3 | • | VAR | • | • | 2K OPT | | • | 12 | | | | 645 |
| | MX80FT | 9x9 | • | 80 | • | 72x60 | 10 | • | | | • | | OPT | OPT | OPT | OPT | • | • | 3 | • | VAR | • | • | 2K OPT | | • | 12 | | | | 745 |
| | MX100 | 9x9 | • | 80 | • | 72x60 | 15 | • | • | | • | | OPT | OPT | OPT | OPT | • | • | 3 | • | VAR | • | • | 2K OPT | | • | 26 | | | | 945 |
| IDS Paper Tiger | 445 | 7x7 | | 150+ | | 72x51 | 9.5 | • | • | | | | • | • | | | • | • | 6 | • | 6,8 | • | • | 2K FIFO | | • | 20 | • | | | 894 |
| | 460 | 24x9 | • | 150+ | | 84x84 | 9.5 | • | • | | | | • | • | | | • | • | 6 | • | 6,8 | • | • | 2K FIFO | • | • | 20 | • | • | | 1094 |
| | 560 | 24x9 | • | 150+ | | 84x84 | 15 | • | • | | | | • | • | | | • | • | 6 | • | 6,8 | • | • | 2K FIFO | • | • | 40 | • | • | | 1384 |
| Malibu | 165 | 9x10 | • | 165 | | 72x60 | 16 | • | • | | | | SPC | SPC | | | • | | 6 | • | VAR | • | • | OPT | • | • | 48 | • | | • | 1975 |
| | 200 | 9x10 | • | 200 | | 144x120 | 16 | • | • | | • | | SPC | SPC | | | • | | 6 | • | VAR | • | • | .5K FIFO | • | • | 40 | • | • | • | 2995 |
| NEC | 5510-5 | FC | • | 55 | | 48x120 | 16 | • | OPT | OPT | • | | SPC | SPC | | • | | • | 8 | • | 6,8 | • | | | • | • | 46 | | • | • | 3055 |
| Okidata | M80 | 5x7 | | 80 | • | | 9.5 | | OPT | • | • | • | OPT | • | | | • | | 3 | | 6,8 | | | | | • | 14 | | | | 800 |
| | M82 | 5x7 | | 80 | • | | 9.5 | • | OPT | • | • | • | • | • | | | • | | 3 | • | 6,8 | • | • | | | • | 18 | | | | 960 |
| Qume | 9/45 | FC | • | 45 | | 48x120 | 15 | • | • | | • | | • | | | | • | | 4 | • | 6,8 | • | • | OPT | • | • | 45 | | • | • | 2495 |
| | 5/45 | FC | • | 45 | | 48x120 | 15 | • | OPT | OPT | • | | SPC | SPC | | • | | • | 10 | • | VAR | • | | | • | • | 44 | | • | • | 3275 |
| Vista/C. Itoh | V300 | FC | • | 25/45 | | 48x120 | 15 | • | OPT | | • | | SPC | SPC | | | • | | 3 | • | VAR | • | | | • | • | 50 | | • | • | 1895 |

Key: FC = Fully formed character  
OPT = Optionally available  
VAR = Variable line spacing  
SPC = Specify  

LAST UPDATED: 7/27/81

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THIS IS MY 136 CHARS. MODE
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklm

THIS IS MY 86 CHARS. MODE

## CENTRONICS 739 $595

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!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}^

THIS IS MY 80 CHARS. MODE WITH PROPORTIONAL SPACING
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

MY 40 CHARS. MODE WITH PROPORTIONAL SPACING

## EPSON MX-70 $375

THIS IS MY 80 CHARS. MODE
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijkl
pqrstuvwxyz{|}~ THIS IS MY 40 CHARS. MODE

!"#$%&'()*+,-./0123456789:;<=>?@ABCDEF
GHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmn
pqrstuvwxyz{|}~

## EPSON MX-80 $456 (w/ROM)

THIS IS MY 132 CHARS. MODE
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}

THIS IS MY 80 CHARS. MODE WITH DOUBLE STRIKE FEATURE
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijkl
pqrstuvwxyz{|}

THIS IS MY 40 CHARS. MODE

THIS IS MY EMPHASIZED PRINT MODE
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijkl

## PAPER TIGER IDS 460 $900

THIS IS MY 132 CHARS. MODE WITH PROPORTIONAL SPACING

!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstu
xyz{|}~

THIS IS MY 80 CHARS. MODE WITH PROPORTIONAL SPACING

!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[
^_`abcdefghijklmnopqrstuvwxyz{|}~

THIS IS MY 40 CHARS. MODE WITH PROPORTIONAL
SPACING

## MALIBU $2585

!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklm
GHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~!"#$%&'()*+,-./012345

*!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}*
*bcdefghijklmnopqrstuvwxyz{|}~!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_*
*EFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~!"#$%&'()*+,-./0123456789:;<=>?@ABC*

πσ{}}∫÷[μ₊≠'/~Å0123456789¨"Π≠±/∑∇∞Ψφ←∧Π↑>≠÷∂()∫ΓθΣ→Ξ∠ΔΩΤ≈∨}≠·`¨αβψφ∈~λη≡Ξκω{
∧Π↑>≅÷∂()∫ΓθΣ→Ξ∠ΔΩΤ≈∨}≠≠`¨αβψφ∈~λη≡Ξκω{∨σργθστξ×δχυ⊊●]<απσ{}}∫÷[μ₊≠'/~Å012345