

Atari Logo PrinterPac

- 1) THE TURTLE AND THE 1020 PRINTER / PLOTTER
- 2) EPSON MX-80 GRAPHICS DUMP

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The Turtle and the Plotter:

A Tale of Fantasy and Triumph starring Atari Logo
and the Atari 1020 Printer/Plotter.

The enclosed procedures will enable the 1020 Plotter to be used to print out turtle drawings as well as Logo text. Using the 1020 with the procedures enclosed requires that a few points be observed:

1) All commands to the 1020 should be in a procedure; optimum results will not be obtained in immediate mode.

2) Certain steps must be taken when writing the procedures. They are as follows:

A) The first command of the procedure should be PLON; this opens the 1020 with a SETWRITE "P".

B) The second procedure needs to be PGRM if you want to print "turtle drawings". PGRM puts the plotter in the graphics mode.

C) After any command that changes the turtle's position such as FD, BK, SETX, HOME, etc, PLOT should be used. PLOT is not necessary when the turtle's heading is changed.

D) The last command before END should be PLOFF. This turns the printer off and directs any additional Logo instructions back to the screen.

E) When using the plotter in the text mode, PLON and PLOFF are used as in the graphics mode. The procedures PL20, PL40, and PL80 are used to select print sizes. The 1020 always starts in text mode with 40 columns when the PLON command is given.

The following example procedure prints all the procedures in the workspace to the 1020 in 80 column format:

```
TO PRINT.PROCEDURES
  PLON
  PL80
  POPS
  PLOFF
  END
```

NOTE: When typing in the procedure PERM the following line should be typed as follows:

```
( PR "M240,0\X\X\X INT 1.5 * XCOR", INT 1.5 *  
YCOR )
```

The backslash "\" will be visible when typing in the program using the Logo editor but will not be visible when exiting the editor and printing the procedure to the screen or printer using the SETWRITE command. However, if the procedure is PO'd to the screen or SAVED "P: to the printer, the backslash will be visible.

3) Additional points to keep in mind:

A) Only one printer should be turned on at a time. When using the plotter, turn off any other printer you may have connected.

B) Do not make drawings in the WRAP mode, use WINDOW instead.

C) The PHOME command homes the plotter. After a CS, use PHOME to avoid a "turtle trail".

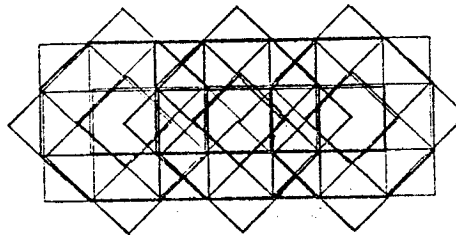
D) Forward the paper two or three inches before drawing. This will prevent the paper from being sucked up too far and not having enough paper available for drawing.

E) PLABLE prints text in one of four directions and one of 64 sizes. PLNTYP selects between various sizes of solid and dotted lines. BARF is a non-existent procedure. It causes Logo to print an error message if improper inputs are given.

DRAWING WITH COLORED PENS

The enclosed procedure COLORED.SQUARES is a sample ~~sample~~ for using the 1020 in the graphics mode. The subprocedures PENBLACK, PENRED, PENGREEN and PENBLUE enable the plotter to draw in the appropriate color. For example, PENRED tells the plotter to select the red pen and prepare to draw. The subprocedures SETPENS.BLUE, SETPENS.RED, and SETPENS.GREEN set the screen turtles pens to the same colors as the plotter's pens. As a result, the patterns and colors that

appear on the screen are duplicated on the plotter. The subprocedure PRLIST selects the black pen on the plotter and then prints the listing for COLORED.SQUARES underneath the COLORED.SQUARES drawing.



```
TO COLORED.SQUARES
  PLON
  PGRM
  SETPENS.GREEN
  PLOT
  SQ
  PU LT 90 FD 50 PLOT
  SETPENS.RED
  PLOT
  PD RT 90 SQ
  PU LT 90 FD 50 PLOT
  SETPENS.BLUE
  PLOT
  PD RT 90 SQ
  PRLIST
  PLOFF
  END
```

COLORED.SQUARES
FOR THE ATARI 1020 PLOTTER/PRINTER
JG/10/83

TO COLORED.SQUARES

PLON

PGRM

SETPENS.GREEN

PLOT

SQ

PU LT 90 FD 50 PLOT

SETPENS.RED

PLOT

PD RT 90 SQ

PU LT 90 FD 50 PLOT

SETPENS.BLUE

PLOT

PD RT 90 SQ

PRLIST

PLOFF

END

TO PENBLACK

(TYPE CHAR 67 CHAR 48)

END

TO PENBLUE

(TYPE CHAR 67 CHAR 49)

END

TO PENRED

(TYPE CHAR 67 CHAR 51)

END

TO PENGREEN

(TYPE CHAR 67 CHAR 50)

END

TO SETPENS.GREEN

SETPN 2

SETPC 2 99

PENGREEN

END

TO SETPENS.BLUE

SETPN 1

SETPC 1 56

PENBLUE

END

```
TO SETPENS.RED
SETPN 0
SETPC 0 34
PENRED
END
```

```
TO PRLIST
PLON
PGRM
PENBLACK
PLON REPEAT 4 [PR []]
FO [COLORED.SQUARES]
PLOFF
END
```

```
TO PGRM
( TYPE CHAR 27 CHAR 27 CHAR 7 )
( PR "M240,0\*I\*M INT 1.5 * XCOR ", INT 1.5 * YCOR )
END
```

```
TO PLON
SETWRITE "P:
END
```

```
TO PLOFF
SETWRITE []
END
```

```
TO PLOT
( PR IF PEN = "PD ["D] ["M] INT 1.5 * XCOR ", INT 1.5 * YCOR )
END
```

```
TO SQUARE
REPEAT 4 [FD 50 PLOT RT 90]
END
```

```
TO SQ
REPEAT 8 [SQUARE FD 30 PLOT RT 360 / 8]
END
```

THE FOLLOWING PROCEDURES MAY BE USED WITH THE ATARI 1020
PLOTTER/PRINTER

PC/10/83

TO PL30
(TYPE CHAR 27 CHAR 27 CHAR 19)
END

TO PL40
(TYPE CHAR 27 CHAR 27 CHAR 14)
END

TO PL20
(TYPE CHAR 27 CHAR 27 CHAR 16)
END

TO PLABEL :ANGL :SIZE :LIST
IF NOT MEMBERP :ANGL [0 1 2 3] [BARF]
(PR "Q :ANGL " * "S INT :SIZE " * "P :LIST)
(PR "M INT 1.5 * XCOR ", INT 1.5 * YCOR)
END

TO PLNTYP :TYP
IF OR (:TYP < 0) (:TYP > 15) [BARF]
(PR "L INT :TYP)
END

TO PHOME
PR "M0,0
END

TO PLOT
(PR IF PEN = "PD ["D] ["M] INT 1.5 * XCOR ", INT 1.5 * YCOR)
END

TO PGRM
(TYPE CHAR 27 CHAR 27 CHAR 7)
(PR "M240.0 * I * M INT 1.5 * XCOR ", INT 1.5 * YCOR)
END

TO PLOFF
SETWRITE []
END

TO PLON
SETWRITE "P:
END

SCREEN DUMP TO EPSON GRAPHICS PRINTER (MX-80)

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Note: This program will be published in a forthcoming book of Logo projects by the Atari Cambridge Research Laboratory. It is provided for your personal use and not for publication.

Create your turtle drawings in the usual way, then type EPSON to copy the graphics screen to the printer (Epson MX-80 only). The full graphics screen is printed to the printer, even if your display screen is in the split screen or text screen mode.

```
TO EPSON
SETWRITE "P:
TYPE CHAR 27
TYPE "A
TYPE CHAR 6
EPLINES 16384 48
TYPE CHAR 27
PR "@"
SETWRITE []
END
```

```
TO EPLINES :LOC :NUM
IF :NUM = 0 [STOP]
EPLINE :LOC 40 0
PR []
EPLINES :LOC + 80 :NUM - 1
END
```

```
TO EPLINE :LOC :BYTES :SPACE
IF :BYTES < 3 [EPBYTE 65536 * .EXAMINE :LOC 65536 * .EXAMINE :LOC + 40 STOP]
EPBYTE EXAM3 :LOC EXAM3 :LOC + 40
EPLINE :LOC + 3 :BYTES - 3 :SPACE
END
```

```
TO EPBYTE :BYTE1 :BYTE2
IF AND :BYTE1 = 0 :BYTE2 = 0 [MAKE "SPACE :SPACE+1 STOP]
REPEAT :SPACE [TYPE "\ \ \ \ ]
MAKE "SPACE 0
TYPE CHAR 27
TYPE "K
TYPE CHAR 24
TYPE CHAR 0
EPBYTE1 :BYTE1 :BYTE2 4194304
END
```

```
TO EPBYTE1 :BYTE1 :BYTE2 :POS
TYPE2 CHAR (IF :BYTE1 > (:POS-1) [56] [0]) + (IF :BYTE2 > (:POS - 1) [7] [0])
IF :POS = 1 [STOP]
EPBYTE1 REMAINDER :BYTE1 :POS REMAINDER :BYTE2 :POS :POS/4
END
```

```
TO EXAM3 :LOC
OP65536 * (.EXAMINE :LOC) + 256 * (.EXAMINE :LOC + 1) + .EXAMINE :LOC + 2
END
```

```
TO TYPE2 :CHAR
TYPE :CHAR
TYPE :CHAR
END
```