DRAWIT

PERSONAL DEVELOPMENT

Turn your ATARI Computer into an animated easel
(ages 8 and up)

by James Burton

Requires: One ATARI Joystick Controller

Cassette version (1):	ATARI 410 Program Recorder
(APX–10209)	16K RAM
Diskette version (1):	ATARI 810 Disk Drive
(APX–20209)	16K RAM

Edition B

CONSUMER-WRITTEN PROGRAMS FOR

ATARI®
HOME COMPUTERS

APX
ATARI Program Exchange

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James Burton

Program and Manual Contents ©1983 James Burton

Distributed By

The ATARI Program Exchange
P.O. Box 3705
Santa Clara, CA 95055

To request an APX Product Catalog, write to the address above, or call toll-free:

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IMPORTANT!

**DUPLICATE
THIS
DISKETTE
BEFORE
USING
THIS
PROGRAM!**

This APX diskette is unnotched to protect the software against accidental erasure. However, this protection also prevents a program from storing information on the diskette. The program you've purchased involves storing information. Therefore, before you can use the program, you must duplicate the contents of the diskette onto a notched diskette that doesn't have a write-protect tab covering the notch.

To duplicate the diskette, call the Disk Operating System (DOS) menu and select option J, Duplicate Disk. You can use this option with a single disk drive by manually swapping source (the APX diskette) and destination (a notched diskette) until the duplication process is complete. You can also use this option with multiple disk drive systems by inserting source and destination diskettes in two separate drives and letting the duplication process proceed automatically. (Note. This option copies sector by sector. Therefore, when the duplication is complete, any files peviously stored on the destination diskette will have been destroyed.

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Introduction

OVERVIEW

DRAWIT is exceptional among the drawing programs available for ATARI Home Computers because of its well chosen, easy-to-use features. It can turn your creations into a "slide show" (for which you control the timing) and an automatic message cycling system.

The cassette or diskette actually contains two programs: DRAWIT allows you to create and save your drawings, and ANIMATOR brings them to life. With ANIMATOR, you can list commands to add motion and special effects to your pictures.

With 48K of computer memory, you can create up to nine pages of multicolored drawings in memory at a time; with 16K of memory, you can create one page, and with 32K of memory, you can create five pages. Using four color pens, you can choose from sixteen different colors and eight different hues. You can easily draw outlined and solid circles, lines, boxes, different sized text, and freehand sketches. DRAWIT also has a fill feature, along with design relocation, page merging, and two zoom levels for detail work. The program comes with three quick reference pages you can load into memory (if you have the appropriate amount of minimum memory) and use for handy recall while you're working. You can store pages on either cassette or diskette and recall them at a later time.

You can use your drawings in several ways. For example, DRAWIT includes a program that lets you incorporate your drawings into BASIC programs. And with ANIMATOR, you use a simple set of commands to combine pages in imaginative ways, such as fading one page into another, creating page wipes from any of four directions, displaying pages in any order with your own specified time delay, and repeating any of these features. You can turn your ATARI Home Computer into a visual aid for presentations or into an automatic sales or demonstration device. DRAWIT also includes an animation demonstration. You'll really enjoy experimenting with this program!

REQUIRED ACCESSORIES

One ATARI Joystick Controller

Cassette version

16K RAM
ATARI 410 Program Recorder

Diskette version

16K RAM
ATARI 810 Disk Drive

OPTIONAL ACCESSORIES

ATARI BASIC Language Cartridge

CONTACTING THE AUTHOR

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808/737-9976

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help in writing the manual.

Getting started

LOADING DRAWIT INTO COMPUTER MEMORY

1. Remove any program cartridge from the cartridge slot of your computer.

2. Plug your Joystick Controller into the first controller jack of your computer console.

Note. DRAWIT is actually two separate programs. You use DRAWIT to create pictures, and ANIMATOR to add motion and special effects. With the diskette version, you make your choice from a menu; with the cassette version, you must load either one program or the other.

3. If you have the cassette version of DRAWIT:

   a. Have your computer turned OFF.

   b. Turn on your TV set.

   c. Insert the DRAWIT cassette into the program recorder's cassette holder and press REWIND on the recorder until the tape rewinds completely. Set the tape counter at zero. Then press PLAY to prepare the program recorder for loading the program.

   d. Turn on the computer while holding down the START key.

   e. When you hear a beep, release the START key and press the RETURN key. The program will load into computer memory and start automatically.

   f. Make a note of the new tape counter setting. This number is the beginning of the ANIMATOR program.

   g. To load the ANIMATOR program now, turn your computer OFF.

   h. Press PLAY to prepare your program recorder to load the program.

   i. Turn on the computer while holding down the START key.

   j. When you hear a beep, release the START key and press the RETURN key. The program will load into computer

memory and start automatically.

Note. In the future, you can load ANIMATOR without having to load DRAWIT first. Have your computer turned OFF, and turn on your TV set. Insert the cassette in the program recorder and press REWIND. Advance the tape to the number you recorded in step F, above, and press PLAY. Turn on the computer while holding down the START key. When you hear a beep, release the START key and press the RETURN key. The ANIMATOR program will load into computer memory and start automatically.

If you have the diskette version of DRAWIT:

a. Have your computer turned OFF.

b. Turn on your disk drive.

c. When the BUSY light goes out, open the disk drive door and insert the DRAWIT diskette with the label in the lower right-hand corner nearest to you. Close the door.

d. Turn on your computer and your TV set. The program will load into computer memory and start automatically.

THE FIRST DISPLAY SCREEN

When the program has loaded into computer memory, the following screen appears if you have the diskette version:

MENU

1   DRAWIT

2   ANIMATOR

3   DIRECTORY

ENTER SELECTION?

Figure 1   First display screen

If you have the cassette version, the title, copyright, and author's name appear.

DRAWIT screen

If you have the diskette version, type 1 to see the title, the copyright, and the author's name. Then (in both cassette and diskette versions) the following screen appears:

```
--------------------------------------------
X=79 Y=47 x=79 y=47 #=1 C=Orng I=4 P=1
--------------------------------------------

                    +


--------------------------------------------
```

Figure 2   Drawing screen

The plus sign in the middle of the screen is the cursor.

The top band of the drawing screen is called the "status window." It shows the information you need to develop your drawings.

The first set of coordinates (the capital X and Y at the left) indicate the vertical column and horizontal row position of the cursor you control.

The second set of coordinates (the lower case x and y) show the column and row of the "lastpoint". This term means a marker of a position that you're going to connect to the position of the flashing cursor. For example, you might draw a line between the lastpoint and the flashing cursor.

The # sign shows the number of the "pen" you're using. It's set at 1, but you can change it to 0, 2, or 3 as you use the program. Refer to the section on "Pens, colors, and intensities".

The letter C stands for the color. "Orng" in Figure 1 is an abbreviation for "orange." Type the letter C repeatedly to see the many color changes available.

The letter I denotes the intensity of the color. Type the I key repeatedly to see the variations.

The number beside the letter P is the number of the "page" (the screen) you're currently using. The numbers range from 1 to 9 if you have 48K of memory. (If you have 40K, you're limited to 7; if you have 32K, you can use 5; with 24K you can use 3, and with 16K you can use only one.)

Cursor control

JOYSTICK MOVEMENT

Use your joystick to control the movement of the cursor. For
very fine control, hold down the CTRL (CONTROL) key and press
the arrow keys.

CHANGING THE CURSOR

There are three ways to display the cursor while you work on
DRAWIT:

Press + to select a cross as the cursor and a dot as the
lastpoint.

Press * to select a dot as the cursor and another dot as
the lastpoint.

Press ; to turn the cursor and the lastpoint off.

CURSOR SPEED

Type Q (for "quick") to have the joystick move the cursor rapidly.

Type S to have the joystick move the cursor slowly.

Pens, colors, and intensities

PENS

To create a picture, you first select a "pen." This is the medium for your artwork. You're determining the background color and intensity for the setting, and the color or colors for the figures and letters you impose on the background.

You can draw with any one of four pens, numbered from 0 through 3. The program is set for Pen 1, but you can type 0, 2, or 3 to change it. When you select a new pen, you see a new color and intensity in the status window. You can change these, too. Whenever you return to the pen with that number, the color and intensity you chose appear automatically.

Since Pen 0 is the background color, you can set the pen to 0 to change your background. You can set different colors for Pens 1,2, and 3 to draw a four-color screen. If you don't reset the pens, Pen 0 is a low intensity of gray, almost black; Pen 1 is orange; Pen 2 is green, and Pen 3 is light blue.

COLORS

Type C repeatedly to select the color of the pen you're using. An abbreviation of the name of the color appears in the status window. The quick reference sheet section, later in this manual, lists all the colors.

INTENSITY

Type I repeatedly to select the intensity of the pen. Different intensities give fine variations to each of the colors you've selected. The intensities are numbered from 0 through 7.

You can choose from over one hundred colors by selecting different color and intensity combinations.

Drawing commands

SETTING THE LASTPOINT

To draw a line, box, or circle, you must establish a lastpoint at some distance from the flashing cursor. To do this, move the flashing cursor to the place where you want the lastpoint to be. Type U to set the lastpoint right under the flashing cursor. As you move the cursor away from that spot, you see a dot blinking on and off in its place. The blinking dot is the lastpoint; its coordinates appear in the status window (as lower case x and y).

Move the cursor about the screen and type U several times. Each time you type U, the lastpoint is moved (or "updated") to the cursor position, and the previous lastpoint disappears from the screen.

You can also press the red joystick button to update the lastpoint. This is different from typing U, because this way you draw a single dot on the screen.

Move the flashing cursor to a new place and update the lastpoint again. If you typed U, above, the original lastpoint disappears. If you pressed the joystick button, the dot you drew remains on the screen, even though the lastpoint has been removed from that spot.

If you use the line, box, or circle commands (described below), the lastpoint is automatically updated.

DRAWING FREEHAND

To do freehand drawings, hold down the joystick button while you move the cursor around with the joystick. As long as you hold the button down, the lastpoint will be updated with the cursor position continuously.

CLEARING THE SCREEN

To clear the screen of all your drawing, hold down the SHIFT key and press the CLEAR key. You see only the background color on the screen. This only clears the page that's currently on the screen; it doesn't affect other screens in memory.

DRAWING LINES

To draw a line, move the flashing cursor to a point on the screen that you want to be one end of the line. Press the joystick button or type U to set the lastpoint (LP), as in Part A of the diagram below.

> Note. If nothing seems to be happening, check to be sure you're not drawing with the same color pen as the background.

(FC)   (FC)   (LP)

(LP)   (LP)   (FC)

A   B   C
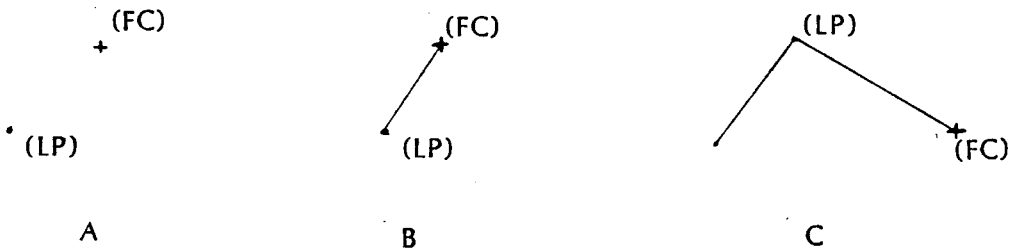
Figure 3 Drawing a line

Then move the flashing cursor (FC) to another position (the other end of the line). Type L, and the program draws a line from the lastpoint to the flashing cursor, as in Part B of Figure 3.

After drawing a line, the program updates the lastpoint to where the flashing cursor is. To draw a connecting line, move the flashing cursor to a new position and type L, as in Part C of Figure 3.

DRAWING A BOX

To draw a box, move the flashing cursor to a point on the screen that you want to be a corner of the box. Type U or press the joystick button. Then move the flashing cursor to another point on the screen: wherever you want the diagonally opposite corner of the box to be, as in Part A of the following diagram:

(FC)   (FC)
                         +

        (LP)   (LP)

                   A   B
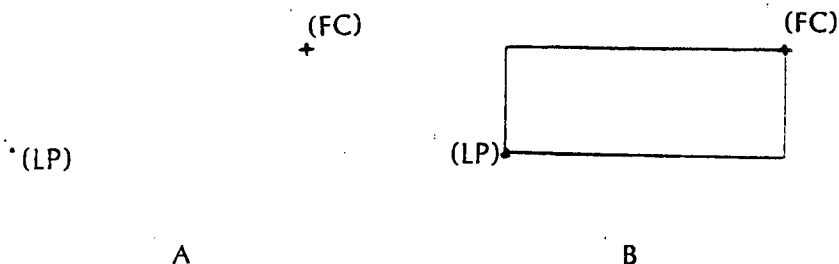
              Figure 4   Drawing a box

    Type B and the program draws a box. The positions of the
    lastpoint and the flashing cursor determine the length and width
    of the box, as in Part B of Figure 4.

    To draw a solid box, hold down the CTRL (CONTROL) key while
    typing B.

DRAWING CIRCLES

    Position the flashing cursor at a point on the circumference of
    the circle you want to draw. Type U or press the joystick button
    to set that point as the lastpoint. Move the flashing cursor to
    the center of the circle, as in Part A of the following diagram:

           (LP)   (LP)

              +   +
               (FC)   (FC)

                   A   B
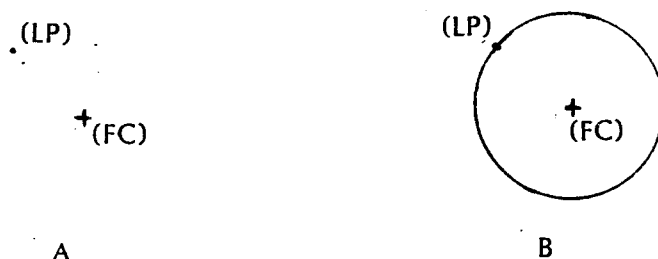
              Figure 5   Drawing a circle

    Type O and watch the program draw a circle. The radius is the
    distance between the flashing cursor and the lastpoint, as shown
    in Part B of Figure 5.

    To draw a solid circle, hold down the CTRL (CONTROL) key while
    you type O.

FILLING IN A FIGURE

Draw any outlined shape, making sure it's completely enclosed, and it contains no dots of the same color. Position the flashing cursor inside the figure, as in the following diagram:
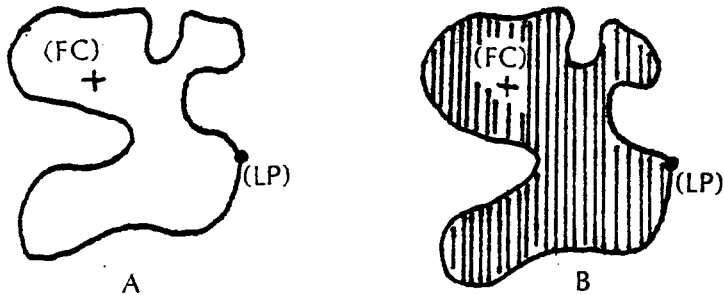
Figure 6   Filling in a figure

Type F and the program fills in the enclosed figure. Press the SPACE BAR to interrupt the fill process.

> <u>Note</u>. Make sure that the color you're using to fill in the figure is the same as the color of the outline itself. Otherwise, bands of color just sweep across the borders of the screen. (If this happens, press the SPACE BAR to stop the bands of color.)
>
> Also make sure that inside the figure there are no dots or points of the same color as the outline. Again, the color starts filling in from the borders of the screen. Press the SPACE BAR to stop it if this happens.

RELOCATING A SCREEN

This function allows you to move a figure you've drawn to a different screen position.

First, update the lastpoint on the figure you want to move. Then move the flashing cursor to the new position, as in the following diagram:
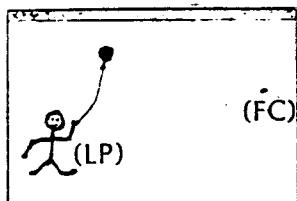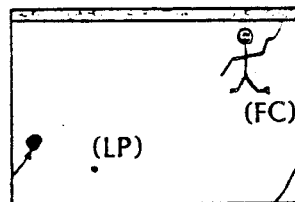
A   B

Figure 7   Relocating a screen

Type R to move the figure marked by the lastpoint to the place
marked by the flashing cursor. Part B of Figure 7 shows a figure
in its new position by the flashing cursor.

Actually, the entire screen moves to position the lastpoint under
the cursor. If a part of the drawing moves off the screen to the
top, it "wraps around" to appear at the bottom; likewise, if it
moves off the left of the screen, it reappears at the right.

SELECTING SCREENS

Each drawing fills a "page" on the screen. Type P whenever you
want to turn the page, or change to another picture. The amount
of memory you have determines how many pages you can fill, as
follows:

48K — 9 screens
40K — 7 screens
32K — 5 screens
24K — 3 screens
16K — 1 screen

For each page, you select a pen, a color, and an intensity, and
then begin drawing your picture. Suppose you draw a picture on
page 1, then type P to go to page 2. Whenever you type P enough
times to return to Page 1, your pen choice and picture reappear
on the screen.

MERGING SCREENS

This option allows you to merge one screen (or page) of drawing
under another, if you have enough memory to hold more than one
screen (24K or more). First, select the screen you want to merge.
Type P (for page) until it appears, and then type M to mark this

screen.

> Note. The screen doesn't change to show that you've
> marked it.

Type P again to select a screen to merge the first one into.
Choose the background color of the second screen by typing its
pen number (usually 0). This color will be "painted" with the
pattern of the first screen you marked.

Hold down the SHIFT key and press the INSERT key to merge the
first under the second screen.

> Note. While you're learning how to merge screens, it's
> easy to lose a picture. It's a good idea to first save the
> screen you're merging. See the section on saving screens
> later in this manual.

You can create some interesting effects with the merge option as
you grow more familiar with it. Try using pen numbers other
than zero.

ZOOM

DRAWIT'S two-level zoom lets you view your drawing up close.
This feature is helpful when you're drawing intricate patterns,
and you need to examine each dot on the screen.

Type Z to select the next zoom level. You can do all the same
things (such as drawing circles and relocating screens) at each
level. To return to the first level, type Z again.

In the zoom mode, the cursor is a large, flashing dot, and you
don't see the lastpoint. Press the + key to bring back the cursor
you usually see. Press the ; key to turn it off.

WINDOW TOGGLE

You can turn the status window off and on by typing W. There's
a separate status window for each zoom level. If you turn the
status window off for one level, and then zoom, the status
window will be on for the next level.

> Note. To see your design clearly, type ; to turn off the
> cursor, and W to turn off the status window.

DRAWING LETTERS AND CHARACTERS

You can display many sizes of text on the screen--tall, thin letters to short, wide ones.

Move the flashing cursor to the approximate position of the upper left corner of the letter. Update the lastpoint, and move the flashing cursor down to the lower right corner of the letter, as in the following diagram:
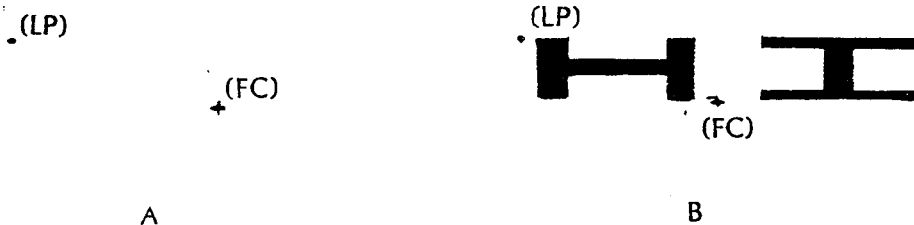
Figure 8   Drawing letters

Press the OPTION key. The cursor stops flashing. Type some letters on the keyboard. The program draws letters as close as possible to the size of the dimensions you chose.

> Note. If the size of the letter exceeds the width of the screen, the program returns to the drawing mode (as you can see from the flashing cursor). Follow the steps above again, but this time, make the dimensions of the letters smaller.

Saving and loading screens

SAVING A SCREEN

Cassette version

> Type K (for "keep") and the following prompt appears in the
> status window:
>
> ### KEEP FILENAME C:
>
> Press the RETURN key. The computer will beep twice. Then
> position the tape and press PLAY and RECORD on the program
> recorder. Press the RETURN key again.

Diskette version

> Type K (for "keep") and the following prompt appears in the
> status window:
>
> ### KEEP FILENAME D1:____
>
> If you're using one disk drive, remove the program diskette and
> insert a blank formatted diskette. Then type a name for your
> screen and press the RETURN key.
>
> If you're using two disk drives, press the DELETE BACK S key to
> erase the 1: in the status window. Type 2: instead, so that your
> entry begins with D2: Then type the name of your file and press
> the RETURN key.
>
> > Note. Press the DELETE BACK S key to erase any typing
> > errors before you press the RETURN key.
> > 10

LOADING A SCREEN

Cassette version

> To load a screen that you've stored, type G (for "get") and the
> following prompt appears in the status window:
>
> ### GET FILENAME C:
>
> If you're using a cassette, press the RETURN key. The computer

will beep once. Then position the tape and press PLAY on the program recorder. Press the RETURN key.

Diskette version

To load a screen that you've stored (or one of the screens the program has available), type G (for "get"). The following message appears in the status window:

GET FILENAME D1:____

If you're using one disk drive, and your file is stored on another diskette besides the program diskette, remove the program diskette from the disk drive. Insert the diskette that contains your file. Type the name of your file and press the RETURN key.

If you're using two disk drives, insert the diskette containing your file into disk drive two, and close the door. Press the DELETE BACK S key to erase the 1: and type 2: so that your entry begins D2: Type the name of the file and press the RETURN key.

Special reminders

Suppose you've loaded one screen into memory and you want to load a second screen. Make sure to type P to get to another page before you load the second screen. Otherwise, you erase the one you loaded first.

SAMPLE SCREENS

The diskette version of DRAWIT includes many sample screens. You can load them into computer memory just like the files you create.

Type G. When the program prompts you to type the file name, type a file name like one of the following: ELEPHANT, DOLPHIN, BALDM, and CASTLE. (If you're using two disk drives, press DELETE BACK S to erase the 1: and type 2: before you type one of the file names.)

It's a good idea to use these screens to experiment with DRAWIT. ANIMATOR uses many of these drawings too. Try loading them into memory and using some of the program's special effects on them.

MENUS

There are three "menus" of information included in the diskette version of DRAWIT. Refer to them when you need a reminder about the functions of different keys. The same information appears on the "Quick reference sheet" later in this manual.

The file names of the menus are MENU1, MENU2, and MENU3. Load them into computer memory using the procedure above (beginning with typing G).

If you load one of these menus into each of three of the pages in the program, you can refer to any one easily by typing P until it appears on the screen.

> Note. If you have 16K of computer memory, you can only have one screen in memory at a time.

Advanced technical information

USING DRAWIT SCREENS FROM BASIC

You can display the screens you create in DRAWIT in a BASIC program. Follow the steps to save your screen on diskette or cassette. (Begin by typing K.)

Then bring up BASIC in the usual way. When the READY prompt appears, insert the DRAWIT diskette, and type the following:

LOAD "D:SCREEN"

Press the RETURN key.

If you have the cassette version of DRAWIT, you must type the program on the next page.

Now type LIST to look at the program. The machine language routine is called at line 10040. Make sure to meet the following conditions:

1. The Graphics 7 or 7 + 16 screen must be up.

2. The second argument of the user function must be the address of the valid filename ending with a [RETURN] character (CHR$(155)).

The routine uses control block #5 to load the screen and the color registers.

The sample BASIC program will load the three menus, one on top of the other, and loop infinitely at line 180.

```
10 REM * BASIC SCREEN LOADER PROGRAM
11 REM *       BY JAMES BURTON
12 REM *         01/07/83
13 REM !
14 REM
20 REM INITIALIZE
30 FOR I=6.5*256 TO 6.5*256+87
40 READ D
50 POKE I,D
60 NEXT I
70 DATA 104,162,80,169,4,157,74,3,169,128,157,75,3,104,157,69,3,104,157,68,3,169
,3,157,66,3,32,86,228,169,7
80 DATA 157,66,3,165,88,157,68,3,165,89,157,69,3,169,0,157,72,3,169,15,157,73,3,
32,86,228,169,196,157,68,3
90 DATA 169,2,157,69,3,169,5,157,72,3,169,0,157,73,3,32,86,228,169,12,157,66,3,7
6,86,228
95 REM
100 DIM NAME$(15)
110 GRAPHICS 7+16
120 REM ****** YOUR CODE **********
130 FOR I=1 TO 3
140 READ NAME$
150 GOSUB 10000
160 NEXT I
170 DATA D:MENU1,D:MENU2,D:MENU3
180 GOTO 180
190 REM !
10000 REM **** SCREENLOAD ****
10010 REM
10020 NAME$(LEN(NAME$)+1)=CHR$(155)
10040 A=USR(6.5*256,ADR(NAME$))
10050 RETURN
```

SPECIAL NOTES

The BREAK key is disabled.

If you have the cassette version, pressing the SYSTEM RESET
key returns you to page 1.

If you have the diskette version and you have the program
diskette installed, pressing the SYSTEM RESET key returns you
from DRAWIT to the first menu (Figure 1). If you want to go to
DOS instead, you must insert a formatted diskette into the disk
drive with the following files on it:

                    DOS.SYS
                    DUP.SYS
                    MEM.SAV

Then press the SYSTEM RESET key.

To return from DOS to DRAWIT, select M from the DOS menu and
press the RETURN key. Then type 2000 and press the RETURN
key.

    Note. In all cases pressing the SYSTEM RESET key
    causes the operating system to build a Graphics 0 screen,
    which wipes out the bottom 1/4 of the last screen.

Quick reference sheet

COMMANDS

0	Pen #0
1	Pen #1
2	Pen #2
3	Pen #3
B	Outlined box
CTRL B	Solid box
C	Change pen color
F	Fill area
G	Get picture
I	Change intensity
K	Keep picture
L	Draw line
M	Mark page
O	Outline circle
CTRL O	Solid circle
P	Page flip
Q	Quick cursor movement
R	Relocate picture
S	Slow cursor movement
U	Update lastpoint
W	Window toggle
Z	Zoom
CTRL(UP)	Fine move up
CTRL(DOWN)	Fine move down
CTRL(LEFT)	Fine move left
CTRL(RIGHT)	Fine move right
SHIFT CLEAR	Clear page
SHIFT INSERT	Insert background
OPTION	Draw letter
;	No cursor
+	Cross cursor
*	Dot cursor

COLOR SELECTIONS

Grey.....Grey

Gold.....Gold

Orng.....Orange

Red......Red

Pink.....Pink

Purp.....Purple

PuBl.....Purple blue

Blue.....Blue

Blue.....Blue

LBlu.....Light blue

Turq.....Turquoise

GrBl.....Green blue

Grn......Green

YGrn.....Yellow green

OGrn.....Orange green

LOrng....Light orange

Using ANIMATOR

SPECIAL EFFECTS

ANIMATOR lets you display your drawings with special effects.
You can fade pages into one another, sweep pages over one
another in four directions, display them in any order with time
delays, and repeat any of the special effects as many times as
you like.

SELECTING ANIMATOR

The loading instructions in the "Getting started" section earlier
in this manual show you how to load ANIMATOR into computer
memory from a cassette. If you have the diskette version, you
can press the SYSTEM RESET key to return from DRAWIT to the
first display screen (Figure 1). Then type 2.

The program displays the following choices on the diskette
version:

```
              ANIMATOR

         (C)1983 JAMES BURTON

             1 RUN
             2 FORMAT
             3 DOS

         ENTER SELECTION?
```

Figure 9   ANIMATOR menu - Diskette

The cassette version of the ANIMATOR menu is shorter, as
follows:

```
                   ANIMATOR

            (C)1983 JAMES BURTON

                  1 RUN
                  2 FORMAT

            ENTER SELECTION?

     Figure 10  ANIMATOR menu - Cassette
```

RUNNING THE DEMONSTRATION

If you have the diskette version, you can type 1 to see the a
demonstration of the program. First a title screen appears, with
a hand holding a pen and painting the words DRAW IT on the
screen. Then a tune plays and the following screen replaces the
title:

```
                   SALES
                   DEMO
                SLIDESHOW

            PRESS ANY KEY OR
         THE JOYSTICK TRIGGER
           TO SEE EACH SLIDE

          Will repeat 3 times
```

     Figure 11 ANIMATOR demonstration

When you follow the instructions to press any key or the red
joystick button, a bar graph entitled "Monthly Sales 81" appears.
Press another key or the red button again, and a new bar graph
appears, this time the monthly sales for 82. The third bar graph,
monthly sales for 83, shows discouraging sales but imaginative
graphing. The display of these three graphs repeats three times
as you continue to press keys or the joystick button.

Next different graphic screens fade into each other, and pages
sweep from all four directions so that you can see everything
ANIMATOR can do.

When you've seen enough, press the BREAK key. The program
returns to the ANIMATOR menu (Figure 9 or 10).

FORMATTING A FILE

After you've seen all of ANIMATOR's special effects, you're ready to carry them out on some of your own screens. Before you do, you must have some screens stored on a cassette or diskette file.

To use ANIMATOR, you create a file of commands to program the effects you want. You can create this file using most word processors (such as AtariWriter) or assemblers. You can also create it directly from ANIMATOR by selecting the format option. The advantage to using the word processor or assembler is that you can return to a line to edit it.

Type 2 to select the FORMAT option. The screen is blank except for the word "FORMATTER" at the top. You write a list of the commands ANIMATOR uses to bring your screens to life. The Sample Format File, below, is a list of all the commands used to make the demonstration (Option 1 from the ANIMATOR menu) run.

> Warning. When you finish listing your commands, enter a blank line. The program then writes your instructions to the diskette or cassette. With the diskette version, the file name will be FORMAT.SYS. Make sure you've removed the program diskette or cassette, and inserted a blank one, before you enter that blank line. Otherwise, you could erase an important part of the program itself.
>
> If you have the cassette version, prepare your cassette before you type that blank line. Insert your cassette and position the tape. Record the number of the tape setting. Press PLAY and RECORD. Then press the RETURN key twice. The program saves the commands on the cassette. Record the number of the tape setting again. The program returns to the ANIMATOR menu (Figure 10).

In the following guide to the commands, note that a lower case p stands for the page number (from 1 through 9 if you have 48K of computer memory, fewer screens if you have less). When you see the lower case p in the command, replace it with the number of a page.

Note that lower case nn stands for any integer number from 0 through 255.

Use the following commands. The explanations refer to the line
numbers in the Sample Format File.

C   Clear current page.
        Generally begin a list of
        commands (other than the ;
        command) with this one.
        See line 40.

Fp   Fade page p onto current page.
        Line 530 shows a fade
        command applied to page 3.
        You can write the word out
        as in line 520.

Gp"D:filename Get into page p from
        D:filename
        Type the name of a file
        you've stored on a diskette.
        For a cassette, just type C:
        in place of D:filename.
        Be sure the pages are in
        the order you want on
        your cassette.
        Line 470 shows a command to
        Get the file entitled
        LOGO from the diskette.

I"D:filename Run another list of commands
        (with another file name
        besides FORMAT.SYS)
        This must be the last command
        in a command list.
        (Any commands following
        this one will not be executed.)

J   Jump to the start of the
        command file.
        Line 640 shows a jump.
        This means the program
        starts over again and again.

M

Music.
Type M, tempo, note value,
note value, etc.
Tempo is the duration of
each note in ticks, and ranges
from 0-255
(a tick is 1/60 second).
(0 means 256).
Note values are numbers
from 0-256, giving the
pitch. (See the BASIC
Reference Manual.)
Line 270 shows music
with a tempo of 7 and 16
notes.

N

Next repeat.
This is the end of a loop
begun by R below.
Line 510 begins a loop that
ends on line 560.

Pp

Display page p after
delaying one tick
(a tick is 1/60 second).
This makes a very small
adjustment in the speed
of your display.
Line 190 shows a P command.

Rnn

Repeat nn times everything
between this line and the
next unmatched N command.
Line 360 begins a loop that
ends at line 430.
It's repeated 3 times.
If you type 0 in place of
nn, the program will just go
on repeating.
Repeats can be nested
50 times.
Lines 510 through 560 show
one loop nested inside
another (500 - 630)

Snn	Delay nn seconds. You can't type a 0 here. This pauses your display. Line 230 shows a command to delay. It makes no difference if you type a whole word before entering the number.
Tnn	Delay nn ticks (nn can't be 0). A tick is 1/60 second. Line 170 shows a delay of one tick.
W	Wait for user to press a key or the red joystick button. The program beeps as a cue. Line 380 shows a wait.
Vp	Sweep page p onto the current page from top to bottom. Line 580 is an example.
^p	Hold down the SHIFT key and type * Sweep page p onto the current page from bottom to top. See line 600.
>p	Sweep page p onto the current page from left to right. Line 610 shows an example.
<p	Sweep page p onto the current page from right to left. See line 590

;   Comments only, having no
                           effect on the program
                           Line 10 is an example.

The sample format file follows on the next two pages.

```
10 ;     SAMPLE FORMAT FILE
20 ;
30 P1
40 Clear screen......
50 G1 "D:TITLE.1" ;LAST QUOTE OPIONAL
60 G2 "D:TITLE.2
70 ;anything can come between
80 ;the "G" and the "3" in the
90 ;line below.
0100 Get into page 3      "D:TITLE.3
0110 G4 "D:TITLE.4
0120 G5 "D:TITLE.5 ; COMMENT
0130 ;
0140 R10 --For I=1 TO 10--
0150   P1
0160    R60 ;these three lines are
0170    T1  ;equivalent to  S1
0180    N   ;(60 TICKS=1 SECOND)
0190   P2
0200   P3
0210   P4
0220   P5
0230   Seconds 1     WAIT ONE SECOND
0240 Next I --- SAME AS "N"----
0250 ;
0260 Music: tempo=7, notes are
72,72,60,60,81,81,60,60,91,91,72,72,81,81,81,81,91,91
0270 M7
91,81,96,96,121,121,108,108,128,128,121,121,121,121,121,121
0280 ;
0290 P1 ;look at page one
0300 C  ;then clear
0310 G1 "D:SALES.MES
0320 G2 "D:SALES.81
0330 G3 "D:SALES.82
0340 G4 "D:SALES.83
0350 Wait
0360 R3   3 times
0370   P2          '81
0380   W ait
0390   P3          '82
0400   W ait
0410   P4          '83
0420   W
0430 N
0440 ;
```

```
0450 P1 ;FADE & WIPE ONTO PAGE 1
0460 C
0470 G2 "D:LOGO
0480 G3 "D:CIRCLE
0490 G4 "D:CIDER
0500 Repeat 3 times (outside loop)
0510   R5              (inside loop)
0520     Fade 2 --logo

0530     F3      --circle
0540     F4      --cider
0550     F5      --title
0560     N             (end inside loop)
0570     R5   (second inside loop)
0580     V2
0590     <3    --wipes--
0600     ^4
0610     >5
0620     N    (end of inside loop)
0630 N     (end of outside loop)
0640 J ump to start and repeat forever
```

You can type anything between the command character and the number value; the program just ignores it. Line 230 could have been typed as S1.

If you type a command that's invalid or a number value that's out of range, you hear a beep that signals an error. It doesn't stop the program from running. At the end of the commands, you return to the ANIMATOR menu.

Press the SYSTEM RESET key to go to the DOS menu.

Suppose your computer has less than 48K of memory and you can't use all nine pages. If you write a command that includes a number you can't use, the program just displays static on the screen.

The maximum length of a format file is about 2,000 bytes. You could destroy a screen if you exceed this amount. Use the I command if you want to incorporate more files.

After you've written all the commands and saved them on the diskette (in a file named FORMAT.SYS), or on the cassette, select the RUN option and you see your animated screens carrying out the commands you wrote.

USING DOS TO LIST YOUR COMMANDS

If you have the diskette version, you can list the commands you've written by using the DOS menu. First return to the ANIMATOR menu (Figure 9). Before making a choice, remove the program diskette from the disk drive and insert another diskette that contains the following files:

DOS.SYS
DUP.SYS
MEM.SAV

Type 3 to see the DOS menu on the screen. Select "Copy" by typing C. The following prompt appears:

COPY--FROM, TO?

Type these instructions:

FORMAT.SYS,S:

The list of all your commands begins on the screen.

EDITING YOUR LIST

Typing errors can be a problem, since you can't go back and change a list of commands when you're in the FORMAT option. But you can use ATARIWRITER, the ATARI Editor Assembler Cartridge, EASMD, Text Wizard, or MAC65 to edit the FORMAT.SYS file. Use any one of these editors to create your format file.

ANIMATOR ignores line numbers before a command.

When you save the file, use FORMAT.SYS as the file name.

Using the directory

If you have the diskette version of DRAWIT, you can request a list of all file names. When you see the menu on the first display screen (Figure 1), type 3.

The program lists the files. At the bottom of the screen, you see this message:

ANY KEY FOR MENU

Press any key to return to Figure 1.

Review Form

We're interested in your experiences with APX programs and documentation, both favorable and unfavorable. Many of our authors are eager to improve their programs if they know what you want. And, of course, we want to know about any bugs that slipped by us, so that the author can fix them. We also want to know whether our instructions are meeting your needs. You are our best source for suggesting improvements! Please help us by taking a moment to fill in this review sheet. Fold the sheet in thirds and seal it so that the address on the bottom of the back becomes the envelope front. Thank you for helping us!

1. Name and APX number of program.

   Drawit (209)

   _____

2. If you have problems using the program, please describe them here.

   _____

   _____

   _____

3. What do you especially like about this program?

   _____

   _____

   _____

4. What do you think the program's weaknesses are?

   _____

   _____

   _____

5. How can the catalog description be more accurate or comprehensive?

   _____

   _____

6. On a scale of 1 to 10, 1 being "poor" and 10 being "excellent", please rate the following aspects of this program:

   _____ Easy to use
   _____ User-oriented (e.g., menus, prompts, clear language)
   _____ Enjoyable
   _____ Self-instructive
   _____ Use (non-game programs)
   _____ Imaginative graphics and sound

7. Describe any technical errors you found in the user instructions (please g
page numbers).

_____

_____

_____

8. What did you especially like about the user instructions?

_____

_____

_____

9. What revisions or additions would improve these instructions?

_____

_____

_____

10. On a scale of 1 to 10, 1 representing "poor" and 10 representing "excellent", how
would you rate the user instructions and why?

_____

_____

11. Other comments about the program or user instructions:

_____

_____

_____

From

_____

_____

_____

STAMP

APX ATARI Program Exchange
P.O. Box 3705
Santa Clara, CA 95055

{seal here}

Using Animator

1. make format list
2. Take out Draw it - insert ~~new~~ another diskette
3. Hit Return - Program goes on new diskette under "Format. sys"

4. Make sure picture files are on same disc.

<u>RUN</u>

5. Insert Draw it - go to animator

6. Remove draw it - put in own disc with files.
7. Hit RUN. (1)