THE DESIGNER'S PENCIL™

Instructions for the Atari® Home Computers

Adapted by Paul Willson

INTRODUCTION

The Designer's Pencil™ is a powerful but easy tool. We recommend that you simply play with it awhile. And when you feel ready, begin reading these instructions. Soon, you will be able to design thousands of pictures, as well as compose or transcribe four-part music. Along the way, you are introduced to many important computer programming concepts and will earn their gratifying rewards.

A Message from Designer, Garry Kitchen

I created **The Designer's Pencil**™ to give the personal computer user an easy way to program high resolution color graphics and music. Here are some tips to becoming a top notch designer.

Study the demo programs to understand how the individual instructions work and to pick up some of the techniques used to achieve various effects. Try modifying the programs to see how changes affect them. Many of those demos were written by Activision's staff designers, so you're learning from the best.

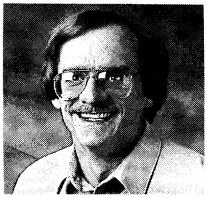
If your programs become very long, make a listing on a printer and write comments on it describing what certain areas are doing. This will help you to be a more organized (and more successful) designer.

Lastly, stretch your imagination and think of new uses for **The Designer's Pencil**™. Try designing your own music video. Or maybe print custom greeting cards. You can even create your own **games!** Most importantly, have fun and be creative.

When you come up with something that you're proud of, send me a copy. I'd love to see it. And remember, the Pencil is in your hands now!

Garry Kitchen

P.S. Special thanks to my fellow Activision staff designers for developing the great demonstration programs at the front of the disk!



Garry Kitchen

GETTING STARTED

- Set up your computer system. Follow manufacturer's instructions.
- Insert cartridge into your computer with power OFF. Then, turn power on.
- Hit **SYSTEM RESET** to return to title screen at any time. Be careful not to accidentally hit SYSTEM RESET while writing a program. Doing so will destroy the program you may have been working on.

THE CONTROLS

The Designer's Pencil™ can be controlled by either the keyboard or a Joystick plugged into port one.

NOTE: *This manual assumes you are using a Joystick. If using the keyboard, press the space bar when we refer to the button on the Joystick.*

Exit the title screen by pushing the button on the Joystick or pressing the space bar on the keyboard. **Try it!**

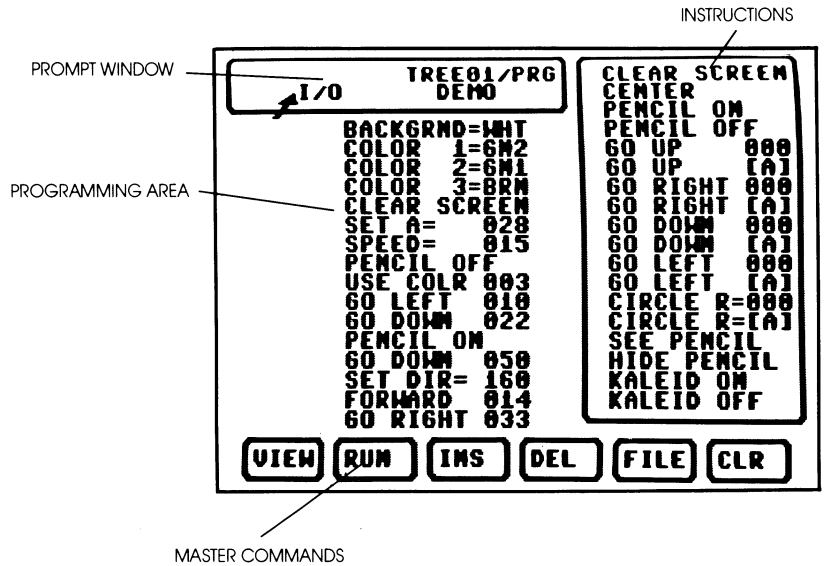
You are now looking at the **PROGRAMMING SCREEN.** All program designing is done here. The flashing arrow is your programming pointer. Right now, you can see that it is pointing at the VIEW command. Move the arrow UP, DOWN, LEFT or RIGHT with the Joystick. If using the keyboard, use the four directional arrow keys on the right side of the keyboard. **Try it!** Move the arrow around a bit. Then, return the arrow to the VIEW command.

Using **The Designer's Pencil**™ is just like programming except that you don't need to type or memorize any commands or instructions. **All of the program designing is done by a combination of moving the arrow to the command or instruction you desire and pressing the button.** By pressing the button, you are executing a command or initiating an instruction.

THE PROGRAMMING SCREEN

The diagram below shows the PROGRAMMING SCREEN divided into its four main sections.

ID: PROGRAMMING SCREEN DIAGRAM



THE MASTER COMMANDS

The six small rectangles at the bottom are your **Master Commands.** To execute one, point the arrow to the command desired and press the button. The Master Commands are:

VIEW: VIEWS the DRAW PAGE. To exit the draw page, press the button again. Exiting the draw page always returns you to the programming screen with the arrow pointed at the VIEW command.

RUN: RUNS the program that is in the PROGRAM AREA of the programming screen. Your TV set will automatically flip to the DRAW PAGE, and you will see your program actually being run or "drawn". You may interrupt a RUN and return to the programming screen at any time by pressing the button.

INS: INSERTS a blank line at the blue rectangular cursor in the PROGRAM AREA. (See "INSERT AND DELETE".)

DEL: DELETES the line at the blue rectangular cursor in the PROGRAM AREA. (See "INSERT AND DELETE".)

FILE: Handles various FILING jobs. The arrow will automatically go to the PROMPT WINDOW for you to make your selections. (See "PROMPT WINDOW".)

CLR: CLEARS the PROGRAM AREA of any program, prompted by YES/NO in the PROMPT WINDOW. (NOTE: Unless your program is "SAVED", there is no way to retrieve it once the Program Area is cleared.)

THE PROMPT WINDOW

The PROMPT WINDOW is where you access the eight **DEMO**nstrations that show some of the capabilities of **The Designer's Pencil.**™ It is also where you will SAVE and LOAD your own programs and pictures. (More on SAVE and LOAD later.)

You will normally use or enter the PROMPT WINDOW by first pointing the arrow at the FILE command at the bottom of the screen and pressing the button. The arrow automatically jumps to the PROMPT WINDOW. Then, point the arrow at the "prompted" decision you choose to make. Remember to press the button to execute your "prompted" decision.

NOTE: Normally, to enter the PROMPT WINDOW, point the arrow at the FILE command first, and press the button.

TO RUN DEMONSTRATIONS:

1. Enter the **PROMPT WINDOW** through the **FILE** command as explained.
2. Point the arrow at "**DEMO**" and press the button. The arrow jumped up one line and is pointing at "**BEGINR.PRG**". This is the name of the first demonstration. To cycle through the list of eight "DEMO" names, push the Joystick forward and pull it back. Lean the Joystick left and right to cycle forward and backward quickly.
3. Return to "BEGINR.PRG" and press the button.
4. Move the arrow to "**YES**" and press the button. You have just LOADED this program into the PROGRAM AREA. (If you had chosen "**NO**", the program already residing in the PROGRAM AREA would have remained unchanged.)
5. RUN the program using the RUN command.

   To RUN the rest of the demonstrations, follow the same procedure. Select a different demonstration "filename" each time.

   Oh, yes. Turn the volume up on your TV. You'll soon hear why.

BLANKING THE DRAW PAGE

When you begin to program your own designs, always blank-out the draw page first. This allows you to start with a "fresh piece of paper."

HERE'S HOW!

1. Move the arrow to the **CLR** command and press the button. The arrow jumps to the Prompt Window.
2. Execute the "**YES**" instruction. The **CLR** and **YES** combined clear the Program Area.
3. Execute the **RUN** command. After clearing the Program Area, the **RUN** command blanks the Draw Page.

Four important conditions exist once you blank the page and are ready to begin a new program:

1. The page is WHITEish.
2. You can SEE the pencil, as opposed to being invisible.
3. The pencil is located at the CENTER of the page.
4. The pencil is ON the page. This means that the pencil will draw when moved about, as opposed to simply being repositioned **without drawing** when moved about.

NOTE: *Always blank the draw page when you begin programming a new design.*

CREATING A SIMPLE CIRCLE

You are now ready to create your first program. After returning to the programming screen by pressing the button, you will notice the blinking cursor. **The blinking cursor marks the location of the next instruction of your program.**

The first five lines you see in the Programming Area are always included for you at the start of any program.

TO CREATE A CIRCLE:

1. Move the arrow over to the instruction window and point to "CIRCLE R=000". (Scroll up or down through the instructions until you find the one you need.)
2. Press the button. You'll notice that your instruction is now part of your program. Because this instruction needs additional information, the blue cursor automatically positions itself over the 'O'.
3. Move the Joystick until the number 35 appears and press the button.
4. Execute the RUN command.

Congratulations! You have just completed your first program.

TO EXPERIMENT WITH OTHER CIRCLE SIZES:

1. Point the arrow at the "35".
2. Press the button.
3. Move the Joystick to select a radius for other sizes.
4. Press the button again.
5. Execute the RUN command.

NOTE: *Instructions that are highlighted with the blue cursor in the Programming Area require additional information, or some sort of change.*

THE PROGRAMMING AREA

As you can see, the Programming Area and the Instruction Window work very closely with each other. The Programming Area is where you "build" or "create" your programs. The Instruction Window is where you select the instructions.

Many instructions in your programs, like "CIRCLE R=35", can be changed once they are already in the Programming Area. Point the arrow to where you wish to make the change and press the button.

TO MAKE A CHANGE IN PROGRAMMING AREA:

Using your circle program,

1. Point the arrow at "1 6" in the first program instruction "BACKGRND=1 6".
2. Press the button.
3. Move the Joystick until "2 8" appears.
4. Press the button and execute a RUN.

The BACKGROUND changed from WHITE to YELLOW.

NOTE: To CHANGE a color, numerical value or musical note in the Programming Area, point the arrow where you wish to make the change and press the button. Move the Joystick to make your new selection, then press the button again.

INSERT and DELETE

There are many occasions when writing a program that you will want to INSERT a new instruction between two existing instructions, or even DELETE an instruction. Both are very simple to do with **The Designer's Pencil.**™

Let's use your circle program to learn how to INSERT an instruction.

FIRST, DO THIS:

1. Draw a circle with a radius of 17.
2. Change the background to BACKGRND= 1 8.
3. RUN the program.

You should see a pinkish circle on a white background. When you are finished admiring your work, return to the programming screen.

NOW, TO INSERT AN INSTRUCTION:

1. Point the arrow **at the beginning** of your "CIRCLE R=17" instruction and press the button. The blue cursor should highlight the entire "CIRCLE R=17" instruction.
2. Point the arrow at the **INS** command and press the button once. The "CIRCLE R=17" instruction dropped down one line. Each time you press the button, one blank line is inserted.
3. Point the arrow at the "USE COLR 000" instruction in the Instruction Window and press the button once.
4. Change the "0" to "3".
5. RUN the program.

Wonderful! You just INSERTED an instruction which in this case turned your circle blue. Can you figure out why your circle turned blue?

The answer is that when you INSERTED "USE COLR 3", the pencil drew with the COLOR that was set in COLOR 3 at the top of your program, which was BLUE.

TO DELETE AN INSTRUCTION:

Point the arrow directly **at the beginning** of the instruction that you want to DELETE and press the button. Then point the arrow at the **DEL** command and press the button. Each time you press the button, you DELETE one line.

TRY THIS!

Delete the "USE COLR 3" instruction as just explained. Be certain to press the button only once! Otherwise, you will also delete your "CIRCLE R=17" instruction. Now, RUN your program.

Your circle has returned to pink. The reason is that **The Designer's Pencil**™ always draws with the color in "COLOR 1" at the top of your program unless you specify otherwise.
Well, you're getting pretty good. You can move the arrow around the screen. You can execute the commands. You can draw a circle and change colors. It's time to learn each instruction in the Instruction Window.

Many of them are self-explanatory. Just by experimenting, you could probably figure them out. But, don't worry. You can't harm the system by putting in a wrong command. If you don't like what you have, just blank the draw page and start over.

What follows is an explanation of ALL of the instructions; even the ones that seem obvious to you.

THE INSTRUCTIONS

To start off, let's make it just a bit easier. By scrolling up and down the Instruction Window, you will notice that many instructions have near-duplicates. For example, fine the instructions:

GO UP 000, and
GO UP [A].

The second instruction includes the **"variable [A]". Variables** are very important functions to programming, and we will discuss them as a topic themselves. (See "VARIABLES, LOOPS and LABELS".)

Also, we will skip some of the instructions as they appear in order in the Instruction Window and discuss them later.

CLEAR SCREEN Clears the draw screen as your program runs.

CENTER: Puts the pencil at the center of the screen. The screen contains 160 dots horizontally (X Axis) numbered 0-159, and 184 dots vertically (Y Axis) numbered 0-183. The center is at 79,91 (X,Y).

PENCIL OFF/ON: Pencil will move around without drawing when OFF, and draws with the selected color when ON.

SEE PENCIL: The pencil is visible as it moves around.

HIDE PENCIL: The pencil is invisible.

KALEID OFF/ON: When ON, anything that is drawn will be copied automatically in the other 3 quadrants of the screen. This instruction creates wonderful effects, and is best used with the pencil hidden! When OFF, kaleidoscope effect does not occur.

FILL: Fills an enclosed area. The pencil must be positioned **within the area** (not on the edge). Sometimes the pencil will not completely fill an area. When this happens, reposition the pencil in the unfilled area(s) and use the FILL instruction again. FILL automatically puts the PENCIL ON the page.

PAUSE 001: Pauses program execution for 1/60 of a second when set at 1. Range is 1-255. Maximum setting pauses for about 4 seconds.

SPEED= 000: Sets the drawing speed (0=SLOW, 15=FAST). If you don't use this instruction, the program runs at SPEED 4.

BACKGRND=: Changes the background color to the one selected. When this instruction is used, the two numbers that follow are for color (1st) and luminosity (2nd). Color ranges from 1-16, while luminosity (brightness) ranges from 1-8, with 1 being the darkest and 8 being the brightest. The color/luminosity selected displays over the numbers. All 128 Atari color/luminosity combinations are available.

COLOR 1, 2, 3=: Changes the colors selected at the top of your program. (See "BACKGRND=" for color/luminosity choices.)

USE COLR 000: Selects which of the four colors (0-3) to draw with. USE COLR 0 uses the background color, and is equivalent to erasing.

PENCIL X= 000: Positions the pencil at any point on the X axis. Ranges 0-159.

PENCIL Y= 000: Positions the pencil at any point on the Y axis. Ranges 0-183.

GO UP,RIGHT, DOWN, LEFT 000: Moves the pencil by that number and in that direction. The number ranges 0-255.

SET DIR= 000: Draws diagonal lines. Pencil direction used only in conjunction with FORWARD/BACKGROUND instructions. (See below.) Pick direction (angle) from 0-255. 0=UP, 64=RIGHT, 128=DOWN and 192=LEFT.

FORWARD 000: Move pencil in selected direction (see above) by amount selected. Ranges 0-255.

BACKWARD 000: Move pencil in opposite direction from FORWARD by amount selected. Ranges 0-255.

ROTATE R 000: Adds an offset to direction. "ROTATE R 64" turns a quarter of a circle to the right. Ranges 0-255.

ROTATE L 000: Subtracts offset from directions. "ROTATE L 64" turns quarter of a circle to the left. Ranges 0-255.

VARIABLES, LOOPS and LABELS

Variables are letters (A-Z) that store numbers. Whereas a number itself cannot ever be worth a different numeric value (3 is always equal to 3), a **variable** can store a different number at different times throughout a program.

Let's pretend that you want to hear all three octaves that **The Designer's Pencil**™ supports. That includes 36 notes; 12 notes per octave. Using a **variable [A]** you could hear all 36 notes by writing just four instructions.

HERE'S HOW!

1. Clear any program in memory.
2. Point the arrow at the "SET A=000" instruction and press the button. Move the Joystick and see that you can cycle through all 26 letters in the alphabet. Return to "A" and press the button again. Then, press the button again, leaving "SET A=000".
3. Put the instruction "NOTE CH1=[A]" on the next program line.
4. Scroll back up the Instruction Window and find the instruction "A=A+000", and press the button. (You can scroll both "A's" through all of the letters, but leave them both as "A".) Then, move the Joystick so the instruction reads "A=A+1" and press the button again. (NOTE: "A=A+1" is not a correct mathematical expression. That would be impossible. With computers, "A=A+1" means that the left-side "A" is now equal to itself "plus 1". This is called a "counter".
5. Find the instruction "JUMP TO L001" and press the button. Press the button again, leaving the instruction "JUMP TO L1". ("JUMP TO L001" will be explained later.)
6. Lastly, position the arrow to the FAR LEFT edge of the screen on the "NOTE CH1 [A]" line, and press the button. "L1" should appear. Press the button again. The FAR LEFT edge is reserved for "labels". To MOVE a "label", point the arrow at it, press the button and move the label anywhere up or down the FAR LEFT edge of the Program Area. If you want to get rid of a label, you can "hide" it under another label and it will disappear from your program. "L1" is a label. (See "JUMP TO L001" for a further discussion of labels.)

YOUR PROGRAM SHOULD LOOK LIKE THIS:

```
    BACKGRND=1  6
    COLOR 1=5  4
    COLOR 2=14  3
    COLOR 3=10  5
    CLEAR SCREEN
    SET A= 0
L1  NOTE CH1=[A]
    A=A+1
    JUMP TO L1
```

Now, RUN your program. Press the button after you have heard all of the notes play a couple of times.

HERE'S WHAT HAPPENED:

You set "A" equal to 0. Then you played a note in channel 1 equal to 0. Next, you increased the value of "A" by 1, so that "A" now equals 1. Lastly, your "JUMP TO L1" instruction sent the program back to the instruction with the "label", in this case "L1". Your program then played a note in channel 1 equal to 1. The process repeated itself indefinitely, increasing the value of "A" by 1 each time.

This program is said to have gone into an infinite LOOP. It will NEVER stop cycling through the infinite LOOP of playing all five octaves unless you press the button.

Loops do not have to be infinite, however. To make your program discontinue its loop AND still hear all 36 notes, insert the instruction "SKIP IF A=000" between "A=A+1" and "JUMP TO L1". Change "SKIP IF A=0" to "SKIP IF A=37". Then, RUN the program again.

Instructions within your programs are normally executed from top to bottom. LOOPS change this execution sequence.

INSTRUCTIONS CONTINUED

CIRCLE R 000: Draws a circle of radius 0-255.

RADIUS = 000: Used in combination with the "ARC instruction. (See next instruction.)

ARC A TO 000: Draws a portion of a circle clockwise from point "A" to point "000" with a radius set by the "RADIUS" instruction above. Points are 0-255 clockwise around a circle similar to direction.

EXAMPLE: SET A = 000
RADIUS = 020
ARC A TO 128

This will draw the right half of a circle with a radius of 20.

SKIP IF A =,>,<: Skips the next instruction if operation is true. Otherwise, executes next instruction. > means greater than, < means less than.

SKIP IF J2=UP: Use to draw free-hand by entering the following instructions with Joystick plugged into Port 1.

```
        PENCIL OFF
L5      SKIP IF J2=UP
        JUMP TO L1
          GO UP
L1      SKIP IF J2=DN
        JUMP TO L2
          GO DOWN 1
L2      SKIP IF J2=LF
        JUMP TO L3
          GO LEFT 1
L3      SKIP IF J2=RT
        JUMP TO L4
          GO RIGHT 1
L4        PENCIL OFF
        SKIP IF B2 ON
        JUMP TO L5
          PENCIL ON
        JUMP TO L5
```

RUN the program. Then, plug a Joystick into Port 2 and draw freehand by moving the Joystick and pressing the button. See what happens when you don't press the button.

SKIP IF B2 ON: Skips the next instruction if the button on the Port 2 Joystick is pressed. (See above.)

JUMP TO L001: Changes the normal program flow by jumping to its accompanying label. "JUMP TO L2" jumps to label "L2". "JUMP TO..." and its accompanying label ranges 1-255. Labels MUST be defined for JUMP TO..., JSUB TO...and RECURSE or the program will stop.

JSUB TO L001
RETURN: Jumps to a subroutine in your program. A subroutine is a section of the program that ends in a RETURN. The RETURN brings you back to the instruction AFTER the JSUB. This is useful when a task must be performed several places in the program.

RECURSE: THIS INSTRUCTION IS FOR THOSE OF YOU WHO ARE VERY ADVANCED USERS OF THE DESIGNER'S PENCIL™. Recursion is a complex programming technique that enables a program to "call upon itself" while it is RUNNING. The sequence is as follows:

* L1 MUST precede the RECURSE A B instruction.
* When the program reaches the RECURSE A B instruction, it is sent back to L1. This would continue forever if there was no way to specify how many "levels" of recursion you want to execute before continuing on with the program. Once the program reaches the final "level", it backtracks back to the original recur- The second variable "B" specifies how many levels to "recurse", and automatically increases by 1 every time the "RECURSE" instruction is executed. Therefore, by testing "B", you can decide how many levels of recursion to execute.

EXAMPLE:

The form of a recursion program.

```
        SET A=002
L001    SKIP IF B<007
        STOP
        A=A+2
        GO UP [A]
        GO RIGHT [A]
        RECURSE A B
        GO DOWN [A]
        GO LEFT [A]
        STOP
```

Notice how for every level of recursion, the size of the box gets bigger. This is the value of [A] being incremented by 2. On the way back from the highest level, [A] contains its previous value.

SEE 'TREE01' and 'CUBES' in the demos for recursion examples. Also books on other languages with recursion will give applicable examples of uses of recursion.

STOP: Stops the program. A blank line will also stop the program. (See "RECURSION" for additional STOP information.)

SET A=000: Sets "A" equal to the value "0". There are 26 variables to chose from (A-Z). Value ranges 0-255.

SET A=RN 000: Sets "A" equal to a random number between 0 and whichever number you place in the "000" portion of the instruction. Ranges 0-255.

SET A=PENC X: Sets "A" equal to the current numeric value of the pencil's location along the X axis. Ranges 0-159.

SET A=PENC Y: Sets "A" equal to the current numeric value of the pencil's location along the Y axis. Ranges 0-183.

A=A+,-,X,/: Left-side "A" is equal to itself +,-,X,/ the number or numeric value of the variable "A".

WRITE "A" Writes the alphabet, numbers, punctuation, the Activision LOGO and graphics characters. "WRITE" automatically puts the pencil ON the page. However, when you are through "WRITE"ing, the pencil will be OFF the page. To resume drawing, you must put the PENCIL ON the page.

SET A=DAT+A
DATA AT L001
DATA 000: These three are used together and are for ADVANCED user's of the Designer's Pencil™. In combination, they allow the program to read data from the list of numbers in the "DATA 000" instructions(s) located at the specified label. The first "DATA 000" instruction MUST be labeled with the same lable number as in the "DATA AT L1" instruction. The "SET A=DAT+A" instruction tells the program which one of the "DATA 000" instructions to get data from.

EXAMPLE:

```
        DATA AT L1
        SET B=0
        SET A=DAT+B     /Read the 1st entry-7
        SET B=4
        SET A=DAT+B     /Read the 5th entry-222
        ...
        ...
L1      DATA 7          /B=0
        DATA 1          /B=1
        DATA 23         /B=2
        DATA 34         /B=3
        DATA 170        /B=4
        DATA 222        /B=5
```

NOTE CH1,2,3,4
RST: Plays a note for 1/10th of a second in the specified channel, (1,2,3,4). There are 4 channels, each supporting 3 octaves. **RST** means rest, and no note will be heard. Instruction format is NOTE CH1=C#3.. where 1 is the channel and 3 is the octave (1-3). Channel 1 (CH1) MUST be played before channels 2,3 or 4. Do not place any instructions that are not NOTEs between

Ch1 and CH2, CH3 or CH4, or else CH2, CH3 and CH4 will not be heard. To play a note longer than 1/10th of a second, repeat the NOTE instruction.

DEBUG OFF/ON: When ON, instructions are displayed as the program RUNS. Values for each variable is displayed, as well as the X/Y coordinates of the pencil. All displays are along the bottom of the screen. "DEBUG" may be turned ON or OFF at any time.

This ends our discussion of the Instructions. The intent is not to learn all of them at once. Nor is the intent to learn ANY of them by just reading about them.

The best method for learning is DOING. Select the ones that you understand best and EXPERIMENT with them. Write short and simple programs first. Add new instructions and SEE what effect they have on your designs. You'll be surprised how easy most of the instructions are to use and how quickly you'll understand the others.

Another good way to learn is to watch the DEMO programs in action. Study them. Change their "SPEED" instruction(s) to slow them down. Add your own instructions. It won't be long before you'll be designing programs that are just as good...or BETTER!

SAVE AND LOAD

Your "computer programs" and "designs" can be SAVED to diskette or tape. This is important because once you turn your computer OFF, you lose your program and design. By SAVING, you can later LOAD your program or design back into the computer as though you had never turned the computer off.

HOW TO SAVE YOUR PROGRAMS AND PICTURES

The upper right corner of the Prompt Window is where you "name" your programs and pictures. All of the programs and pictures that you want to SAVE must have unique names. Give them each a name that helps you remember what they are. For example, if you want to SAVE a picture of a house, then you might name your picture "HOUSE". If you wanted to SAVE another picture of a house, then you might name the second house, "HOUSE1". Just remember: DO NOT NAME TWO PICTURES OR TWO PROGRAMS WITH THE IDENTICAL NAME. If you do, you will lose your first picture or program.

To NAME a program or picture:

1. Point arrow at the current "FILENAME" and press the button.
2. Move the Joystick until the first letter you want in your "new" name appears. Then press the button.
3. Continue changing the rest of the letters until the arrow automatically points at "PRG". Move the Joystick and "PRG" changes to "PIC". "PRG" is for saving your programs, whereas "PIC" is for saving your pictures.

To SAVE your program or picture:

1. Execute the FILE command.
2. Execute "I/O". I/O stands for Input/Output.
3. Execute "PROGS". Execute "SAVE".
4. Execute "DISK" or "TAPE", whichever applies.
5. Execute "YES" or "NO".

- If you selected "DISK" AND "YES", then your program or picture will automatically SAVE to DISK.
- If you selected "TAPE" AND "YES", follow further instructions at the bottom of the screen.

NOTE: If you accidentally try to save to tape and do not have a tape player, or do not have it hooked up, hit the "BREAK" key to return control back to you.!)

- If you selected either "DISK" or TAPE" and then chose "NO", the arrow will jump to the VIEW command and you will have to start the SAVE procedure over.

  When SAVING to TAPE, write down the FILENAME of your program or picture AND the beginning counter number of your tape player on a piece of paper. If you don't, you will NOT know the FILENAME or where to position the tape when you try to LOAD the program or picture back into the computer.

  It is not necessary to write down FILENAMEs on a piece of paper when SAVING to diskette.

To LOAD from diskette:

1. Execute FILE command.
2. Execute "I/O". Execute "PROGS".
3. Execute "LOAD".
4. Execute "DISK".

- The FILENAMEs of the programs and pictures that you had previously SAVED automatically LOAD into the computer and you can cycle through the list the same way that you did when cycling through the list of DEMO names. When the FILENAME that you want appears, press the button, execute "YES", and the program or picture will LOAD.

To LOAD from tape:

1. Change the FILENAME line until the program or picture FILENAME that you want is exactly as you had previously SAVEd it.
2. Position your tape at the starting point for the program or picture that you wish to LOAD.

3. Execute steps 1., 2. and 3. as described above for diskette.
4. Execute "TAPE".
5. Execute "YES", being certain that the FILENAME and position of tape in the tape player are accurate.
6. Press "PLAY" on tape.

- Your program or picture will begin LOADING.

NOTE: If you accidentally try to LOAD from a tape and do not actually have a tape player hooked-up, press the "BREAK" key to return control back to you.)

PRINTING

The Designer's Pencil™ allows you to **PRINT** your programs or pictures. Of course, you must have a printer to enjoy this capability. The EPSON RX-80, MX-80, EPSON FX-80, MX III, GEMINI, ATARI 1025 and the OKIDATA 82A (program listing only) printers are compatible with **The Designer's Pencil**™.

Other printers may be used if equivalent to those listed above.

To PRINT your program listing:

1. Execute the FILE command. Execute PROGS.
2. Execute PRINT.

- Your program will then print.
- If your printer does not have graphics capabilities, a graphics character represented in the **WRITE "A"** command will be printed as a "?".

To PRINT your pictures:

1. Execute the FILE command. Execute PROGS.
2. Execute PRINT.
3. Select SMALL or LARGE.

- Your picture will then print in the size selected.

ERROR MESSAGES

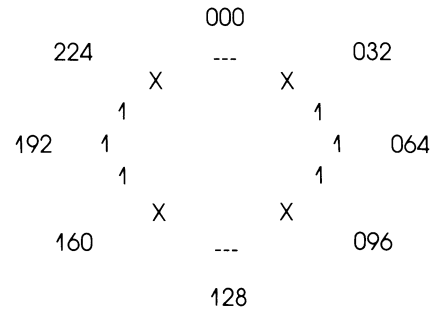
The message "**I/O ERROR**" may appear at the bottom of the Programming Screen. This is a warning to you that something is not behaving as expected. Examples of causes are:

- Disk Drive, Printer or Tape Player is not connected to your computer or is not turned on.
- Wrong FILENAME is used.
- Diskette or tape are destroyed.
- Tape is not positioned properly.
- Incompatible printer (See "**PRINT**")
- Disk Drive, Printer or Tape Player are not functioning.
- Diskette has a "write protect" tab over write notch.

All "I/O ERROR" messages are followed by a number. By looking up this error number in appropriate Atari manual(s), you will find a more detailed description of the problem.

CHART FOR DIRECTIONS AND ARC VALUES (0-255)

000 = UP
032 = 45 DEGREES
064 = RIGHT
128 = DOWN
192 = LEFT



LET'S GET TO KNOW EACH OTHER

We're working hard to design the kind of home computer entertainment you want. And we'd love to hear your comments. So, drop us a note. We'll put you on our special mailing list. Send $3.00 and we'll mail you our disk. Also, if you'd like to find out about our newest computer software, call 800-633-4263 anytime on weekends. In California, call (415) 940-6044/5 (weekdays only).

ACTIVISION, INC.
P.O. BOX 7287
Mountain View, CA 94039

NOTES

NOTES

NOTES

NOTES

NOTES

NOTES

ACTIVISION® LIMITED WARRANTY

Activision, Inc. warrants to the original consumer purchaser of this Activision product that it will be free from defects in materials and workmanship for a period of one (1) year from the date of purchase. Activision agrees to either repair or repair or replace, at its option, free of charge, any product discovered to be defective within the warranty period upon receipt of the product, postage paid, with proof of date of purchase, at its Factory Services Center.

This warranty is limited to the electronic circuitry and mechanical parts originally provided by Activision and is not applicable to normal wear and tear. This warranty is in lieu of all other express warranties an no other representation of claims of any nature shall be binding on or obligate Activision. Any implied warranties applicable to this product are limited to the one-year period described above. In no event will Activision be liable for any special, incidental or consequential damage resulting from possession, use or malfunction of this product.

Some states do not allow limitations on how long an implied warranty lasts and or the exclusion or limitation of liability may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

CONSUMER REPLACEMENTS

Consumer Relations
Activision, Inc.
2350 Bayshore Frontage Rd.
Mountain View, CA 94043

U.P.S. or registered mail is recommended for returns.

For information about new releases, call 800-633-4263 **anytime on the weekend.** In California, call (415) 960-6044/5.

Commodore 64,™ Commodore MPS801™ and Commodore 1526™ are trademarks of Commodore Electronics, Limited.

Okimate 10™ is a trademark of Okidata.

D-102-09