ON–LINE SYSTEMS
PRESENTS

TABLET--GRAPHICS

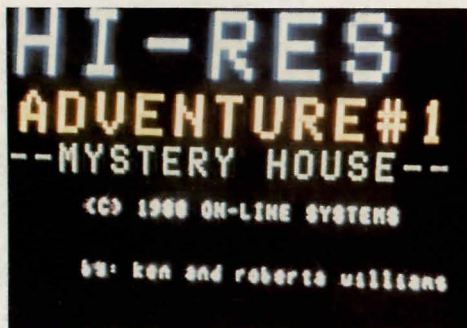**Copyright 1980 On-Line Systems**
$49.95/Disk 48K
Applesoft & Machine Language

A complete, professional graphics preparation system for your APPLE II Computer.

* Upper/Lower case text in any direction or color.
* Shape tables may be automatically constructed from any item on the Hi-Res screen in color!
* Color fill with any of 21 Hi-Res colors.
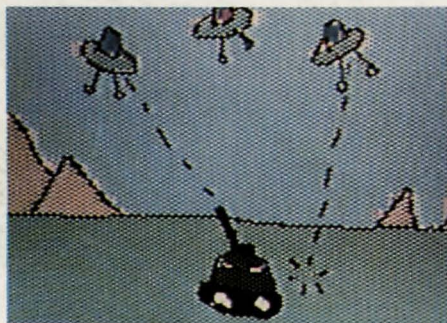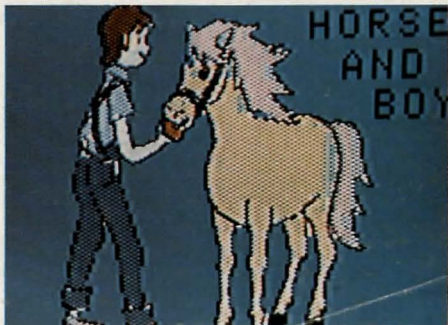* Automated image generation via shape tables.

For use − −

in business (slide show preparation)

at home (fun for children)

game development

art

1. Introduction

Thank you for purchasing **TABLET-GRAPHICS**. We think it has tremendous capabilities for graphics preperation.

The normal approach to creating a picture with **TABLET-GRAPHICS** is to:

1) Choose a background color
2) Outline your drawing
3) Color fill it
4) Add any appropriate text
5) Add in Shapes

First in order to select a background color an understanding is necessary of how the color fill routines work. Color fill refers to a fast method of 'coloring-in' an outlined figure. For example, if a blue square were wanted a square should be outlined on the screen and the color fill function used to fill it in. Unfortunately the color fill routines will color only on white or black. If color filling on black the outline may be any color. In the instance where we wanted a blue box, a blue outline on a black background would work. A white outline would have put a border around the box. As you experiment you will find whether you prefer a white or a black background to start out. Important! Remember the background mentioned in the step above can only be white or black if you intend to use color fill. This should not be a problem because you can always use color fill to change the white or black background to the desired color in your final drawing. The initial background color is chosen by color filling an empty screen.

Outlining (main menu function) is where all free-form drawing takes place.

Text in general should be added to a picture after color fill has taken place. Otherwise if you try to fill around the letters some parts of the screen will not fill easily.

Use of the Apple Shape Table capabilities are a great way to create a picture. As an example of this we have included a Shape Table of ours 'Electronic Shapes' with which schematics may easily be constructed. You may wish to create a Shape Table with trees, Appliances, your company logo or any other commonly drawn figure. Its contents may easily be recalled and printed anywhere on the Hi-Res screen.

TABLET GRAPHICS is primarily intended for creating pictures which are fixed in nature. This means there are no capabilities for animating text. However, it should be remembered that text may be created using the text writer then

turned into a Shape Table entry using the Shape Maker and easily animated or scrolled from your basic program.

In summary, please feel free to experiment with TABLET-GRAPHICS and remember to frequently save your picture when pioneering. We do suggest that you read these instructions as you go through, as TABLET-GRAPHICS is as complex as it is powerful.

2. The Command Hierarchy

This option is reached by specifying '3' out of the main menu. In order to ensure that TABLET-GRAPHICS is calibrated to your Graphics Tablet, we suggest that this utility be run the first time you boot TABLET-GRAPHICS. Unless the plastic overlay on the Graphics Tablet is removed it should never require running again. You will be asked to press the pen to the alignment marks on the top left and lower right corners of the plastic overlay. After calibration is complete you will automatically be returned to the main menu.

3. Outlining A Figure

This option is reached by specifying '1' out of the main menu. It is used to do drawing or correcting of pictures. Both drawing modes under this function work only in the standard 8 Apple Hi-Res colors. If you wish a figure to be one of the non-standard colors, outline it in white or black and use the color fill function.

Color selection is through use of the second row of menu boxes at the top of your Graphics Tablet. Two drawing modes may be selected; sketch mode or line plot. The last page of this instruction manual has the overlay that should be taped onto the menu of your Graphics Tablet for quick reference.

Two draw modes may be selected from. They are:

A) Sketch mode: This mode is selected by pressing the pen to the first menu box on the first row. It is also the default when you first go into outline mode. This mode permits free-form drawing or correction with the pen in color. The default color is white but other colors may be selected by pressing the pen to one of the menu boxes on the second row.

B) Line plot mode: This mode is used for drawing lines on a point to point basis rather than free-hand. Each time the pen is pressed to the surface of the Graphics Tablet a line is drawn from the last point that the pen was pressed. To start this mode press the pen to the second menu box

on line 1, then press it to the third box to specify that you wish to mark the starting point of a line. If you wish to guarantee that the line which will be drawn when you again press the pen to the Tablet will be horizontal or vertical you may press the pen to the fourth or fifth menu boxes before to the main Tablet surface respectively. The pen color may be changed simply by pressing the pen to one of the menu boxes on the second row of the menu.

Pressing the pen to the sixth menu box on line one will return you to the main menu. You may flip back and fourth between line plot and sketch modes at any time.

4. Color fill

Color fill is a fast way of filling a drawing with color. It may also be used to color the entire screen.

To use color fill select a color (1-21). Your picture will suddenly appear with a blinking cursor. Using the pen, position the cursor to any white or black portion of the screen. Pressing the pen will cause the outlined area where the cursor is positioned to be filled with the color you have selected.

The color fill command will occasionally not fill all areas of the outlined figure. With practice you will find the best place to position the cursor to fill an entire figure in the least time. In general, find the portion of the outline with the greatest uninterrupted distance between the top and the bottom.

If a portion of the figure is missed or you wish to fill some other figure, simply move the cursor and press the pen again. To select a different color type 'Q' to return to the color selection menu.

5. Retrieving a picture from disk

To retrieve a picture from disk select option '8' from the main menu. You will be prompted for the picture name. Before you press return, the disk containing the picture must be in the drive. After the picture has loaded you will be returned to the main menu. At this point, reinsert the 'TABLET-GRAPHICS' disk. The next command you use such as color fill will show you your picture.

6. Saving a picture to disk

To save a complete picture to disk select option '7' from the main menu.

You will be prompted for the picture name. Before pressing return you must place the disk upon which you would like the picture saved into the drive. After the picture is saved TABLET-GRAPHICS will return to the main menu. At this time, re-insert the TABLET-GRAPHICS disk into the drive. If you change your mind about saving your picture you may respond 'Q' to the 'enter picture name' prompt to return to the main menu.

7. Adding text to a picture

TABLET-GRAPHICS has a facility which will allow you to type onto your Hi-Res screen. Text may be written in upper or lower case as well as in the English or Greek alphabets. Text may also be written in any direction or in any of eight colors.

To invoke this facility specify '6' from the main menu. You will recieve the text writer option selection menu. From this menu you can change the defaults that will be used to write text. These will be discussed separately.

1) Examine setup: This subcommand will cause the text writing options to be displayed for your review before beginning to type. Displayed will be the direction you will type, the size, the color and the font.

2) Format: By selecting this subcommand you will be able to request that text be written left to right (normal), from the top of the screen to the bottom, from the bottom of the screen to the top or right to left (backwards).

3) Size: This option controls the size of the letters placed on the screen. Size 1 is the same character set the Apple uses on the normal text screen. Size 5 produces approximately 2 inch tall letters. Because of the way in which the Apple II provides color, colored letters at size 1 will appear blurred. This effect is even worse when writing sideways. Try to define your pictures so that colored letters can be drawn at size 2 or larger (this includes white or black letters drawn on a colored background). White on black and black on white do not experience this problem.

4) Color: This option will allow you to select the color in which your letters will be written on the Hi-Res screen. Additional comments on color appear in the previous section on size.

5) Erase-store-recall: This section is provided as a faster method of saving, retrieving, or blanking the Hi-Res screen without having to return to the main menu. These funtions operate the same as options '9', '7', and '8' in the main menu and are provided at this point for convenience only.

6) Font: The character set with which TABLET-GRAPHICS writes text may be either English or Greek. To specify English respond 'E' after selecting this option or 'G' for Greek. We are hoping to add other character sets in the future.

7) Write: After you have selected the options for writing text, entering '7' will put you into the mode to write text and your picture will appear. Move the flashing cursor (by using the return key and space bar) to where you would like the first character and begin typing. To return to the text-writer option selection menu type CTRL-L. To switch to lower-case press the 'ESC' key. Pressing it again will return you to upper-case. If you mis-type, and need to backspace use the left arrow. You may not backspace up a line and backspacing against a colored background will leave holes in your picture. Of course, these holes may be filled back in using color fill mode.

To return to the main menu enter 'Q' from the options selection menu.

8. Creating a Shape Table

Applesoft has a feature which permits entire objects to be displayed and animated very easily from an Applesoft program. TABLET-GRAPHICS permits these objects to be created infinitely easier than the method outlined in the Applesoft reference manual. A Shape Table can contain any number of different objects and can be stored on disk to be easily recalled by your basic program (contrary to the instructions in the Applesoft user manual).

Creating a shape is done by outlining it by using option '1' from the main menu then selecting option '2' to color it in. After it is on the screen (of course it could have been created by software other than TABLET-GRAPHICS), specify '5' from the main menu to call up the Shape Table creation program.

Upon entering the Shape Maker, you will be asked whether you would like to work with a new Shape Table or an existing one. If you wish to create a new table you will be asked how many shapes you would like it to contain. This is so that space may be reserved in the index portion of your Shape Table for future expansion. Each shape you allow room for takes 2 bytes in the directory but doesn't waste any other

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At this point your picture will appear. You should move the cursor to the upper-left corner of the object you would like in your Shape Table. To find this point, imagine a box surrounding the object on the screen. The upper-left corner is where you should place the cursor. At this point, press the pen to lock the position, then move the cursor to the lower-right corner of the imaginary box and press the pen again. A box will appear around the object and you will see TABLET-GRAPHICS tracing the picture. when this process has finished

you will be asked for the name under which to save your updated Shape Table. Pressing return will cause the Shape Table to not be saved but kept in for additional updating or displaying. Entering a name will cause the Shape Table to be written to disk, It is still in memory though in case you would like to add to it or use the Shape Table inspect function.

At this point you will be returned to the original prompt which asked whether you would like to work with a new or existing Shape Table. Specifying 'Q' will return you to the main menu.

9. Picture creation using Shape Tables

After a Shape Table has been built using the Shape Table creation routines it may be recalled and displayed or printed on the Hi-Res screen. To do this specify '4' from the main menu. You will be asked to enter a Shape Table name. Pressing return at this point will cause the Shape Table already in memory to be used. If you request that a Shape Table be loaded make sure the disk it is on is in the drive before pressing return.

When you have specified a Shape Table your picture will appear with the first entry in your Shape Table as the cursor. This shape may be moved anywhere on the screen by holding the pen close to the surface. In addition, the following actions may be taken:

Pressing the pen-print the shape on the screen at its current location

R - Rotate by 45 degrees the current shape
D - Display the next shape in the Shape Table
CTRL-D - Causes you to be prompted for the exact drawing
            number to be displayed
L - Lists the current drawing number and rotation
Q - Returns you to the prompt which asks for Shape Table name

When asked to enter Shape Table name you may enter 'Q' to return to the main menu.

10. Color conflict

Thanks to the unique way in which the Apple II Computer generates color, some colors may not be placed side by side with out distortion of colors. Basically, the following rules will explain the problem:

1) No interference will ever occur when two colors touch at the top or bottom.
2) Blue will never clash with orange, black1, or white1.
3) Green will never clash with violet, black2, or white2.
4) Black1, black2, white1, and white2 will clash invisibly.

In order to achieve more than the standard 8 Hi-Res colors TABLET-GRAPHICS mixes colors. There new colors can be thought of as two color groups which will not clash when put onto the screen next to a color from the same color group.

Color Group 1 (Blue-Orange)

```
 1  Black2
 2  White2
 5  Orange
 7  Blue
 9  Avocado
11  Dark Orange
```

```
13  Dark Blue
15  Gold
17  Light Blue
19  Light Purple
21  Light Yellow
```

Color Group 2 (Violet-Green)

```
 0  Black1
 3  White1
 4  Green
 6  Violet
 8  Silver
10  Dark Green
12  Dark Purple
14  Lime Green
16  Pink
18  Brown
20  Aqua
```

11. Recalling Shape Tables from your programs

To use a Shape Table from your program you must poke its address into address E8-E9. This must be poked into memory lo byte first so that hex address 9000 would be put into memory as: 00 in E8 and 90 in E9. In decimal this would be poke 232,0 and poke 233,144. Before you reference the Shape Table you must load it into memory at the address you poked.

You may load your Shape Table into memory at any location that does not interfere with BASIC or DOS. We suggest hex 4000 (decimal 16384) if using hires page 1 or hex 6000 (decimal 24576) if using page 2.

Because of the way Shape Tables work you will find that your Shape Table will retain its original colors only if:

1) The Shape Table and the background are all from the same color group.
2) The shape is drawn on an odd or even X coordinate depending on where it was when it was created.

This really isn't as difficult as it sounds. Give some thought to rule 1 above when creating your shape and background. Then when calling it back up test drawing it at an even then an odd X coord to see which gives the correct colors. You

will then have to put a fix into your program if you are animating the shape to only draw it on even or odd X coords as appropriate.

12. Backing up your TABLET-GRAPHICS

We at On-Line Systems feel that it is unfair and no fun for users not to be able to back up their own software. Unfortunately we also have to eat (precluded by everyone pirating software). After many months of effort we have come up with a protection scheme which seems to provide the best of both worlds. The TABLET-GRAPHICS disk may be backed up but the backup will not execute. Should your TABLET-GRAPHICS disk ever get wiped out (but not munched) simply copy from your backup onto the disk.

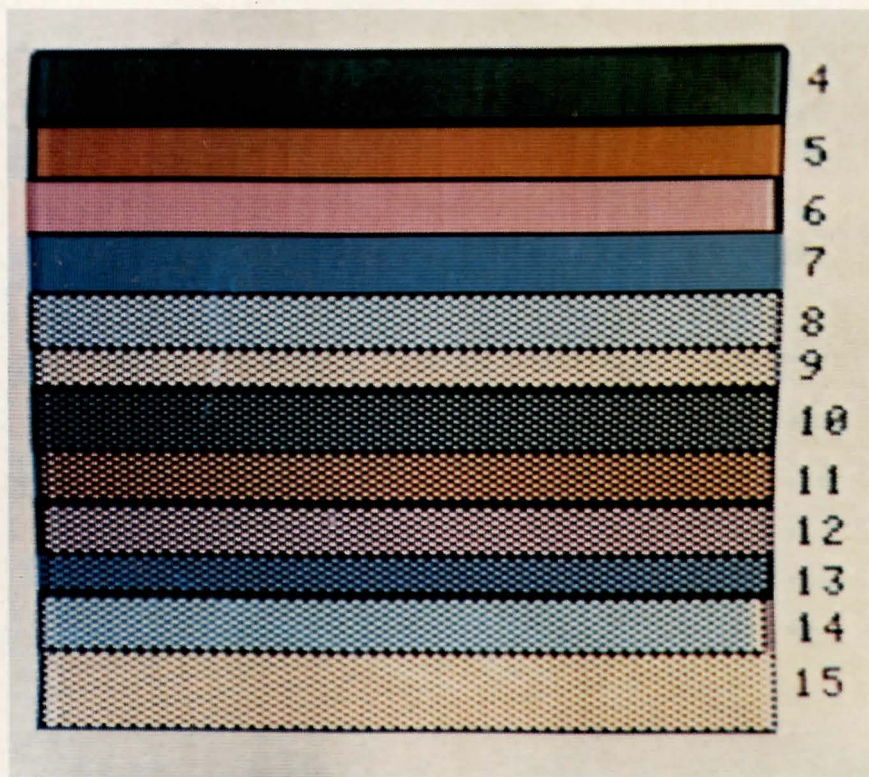Should you munch your disk completely please send the remains with 5 dollars to:

ON-LINE SYSTEMS
36575 Mudge Ranch Rd.
Coarsegold, CA 93614
(209) 683-6858

XII. Backing up your TABLET-GRAPHICS

We at On-Line Systems feel that it is vital and fair for the user to be able to back up their own software. Unfortunately we also have to be protected; Hackers are a serious problem. After many months of effort we have come to use a protection scheme which should provide the best of both worlds. The TABLET-GRAPHICS disk may be backed up but the backup will not execute. Should your TABLET-GRAPHICS disk ever get wiped out you can function simply copy from your backup onto the disk.

Should you exceed your disk allotment please send the person with 5 dollars to:

ON-LINE SYSTEMS
36575 Mudge Ranch Rd
Coarsegold, CA 93614
(209) 683-6858

COLOR REFERENCE
CHART

Due to differences in color televisions and the manner
in which APPLE II generates color, these colors may
appear differently on your television.