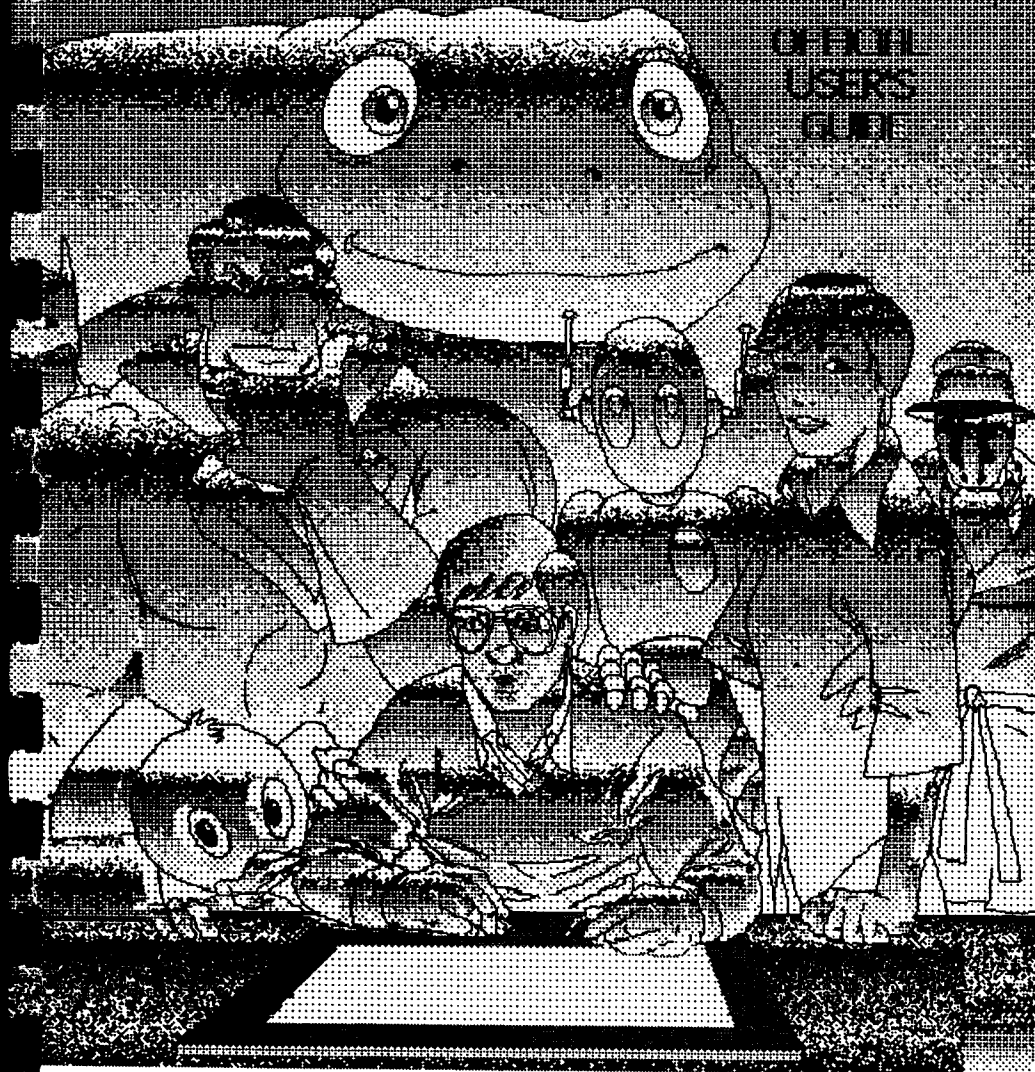


EASYLE

OPEN
USERS
GUI





EASYL USER GUIDE

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TORONTO, CANADA**

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Illustrated by Jeff Evans

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Reorient the receiving antenna.

Relocate the computer with respect to the receiver.

Move the computer away from the receiver.

Plug the computer into a different outlet so that computer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio/TV Interference Problems".

This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock No. 004-000-00345-4.

NOTE: To ensure compliance with the limits for a Class B computing device as defined in Subpart J of Part 15 of FCC Rules, the graphics tablet and interface must be interconnected with the shielded cable provided.

WARNING

This equipment has been certified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of FCC Rules. Only peripherals (computer input/output devices, terminals, printers etc.) certified to comply with the Class B limits may be attached to this computer. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

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PREFACE

Thank you for purchasing the EASYL pad and software for the Amiga. We hope that you will have as much enjoyment using it as we have had in creating it.

The Anakin software team would like to thank Jim Mackraz and Neil Katin at Commodore Amiga for their invaluable assistance during the development of this product.

The development of the technology to this stage of producing a viable product would not have been possible without the vision, support and advice of Dr. Brian Gaines of the University of Calgary, the financial assistance of the Canadian government's IRAP program (file ITS 1757), the support of Toppan Moore Co. Ltd. and the advice of Kiroku Kato and Shizuo Shigeta.

Anakin Research Inc. would like to give particular thanks to Jeff Evans of Vellum Print and Graphics, Concord, Ontario, Derek Grime of Beyond Graphics, Toronto, Ontario, and Nick Poliwko of PixelLight, Toronto, Ontario, all of whom have been generous in their support, advice, and general enthusiasm for the concept of artistic freedom made possible by the EASYL product.

Special thanks go to Margaret Payne, whose tirelessness, dependability, and efficiency in carrying out all the details to make a product a success has enabled all of us to proceed in confidence toward our goals.

Last but not least, a tribute to Brad Fowles, Giorgio Galeotti, Jeff Evans and Wolfgang Dinger for their diligence in ensuring the accuracy and completeness of this manual, and the seemingly endless 8 day weeks and 25 hour days to breathe life into this product.

0. EASYL PAD: SETUP AND CARE

0.1. WRITING ON A PRESSURE-SENSITIVE SURFACE

The PAD is a durable surface over an underlying grid, which translates point pressure (from an object such as a pen or pencil) into an (x,y) coordinate pair. General pressure, such as a hand resting on the surface, will not register. Sharp objects, such as rings, watches or long fingernails on the writing hand may cause point pressure when pressed against the PAD, and may result in erroneous data being registered. This will appear as spurious lines appearing on the screen.

It is common for first-time users of the PAD to press rather lightly when writing. Thus, not all of the drawing will appear on the screen. If you find that gaps appear in the screen image of your hand drawing or tracing, then adjust your pressure on the PAD slightly upwards, and try to apply even pressure throughout your drawing stroke.

0.2. RECOMMENDED DRAWING IMPLEMENT

Although any blunt pointed implement may be used to draw on the PAD surface, including any pen or pencil, it is recommended that a soft-lead pencil be used to maximize the lifetime of the PAD surface. However, even if you make frequent use of a ball-point pen, as long as you do not abuse the PAD, you can expect to enjoy the EASYL product for many years.

Included with the product is a teflon-tipped stylus. Although you will most likely be using pencil or pen with paper for most of your work with EASYL, you may sometimes find the stylus to be handy for tracing. It can

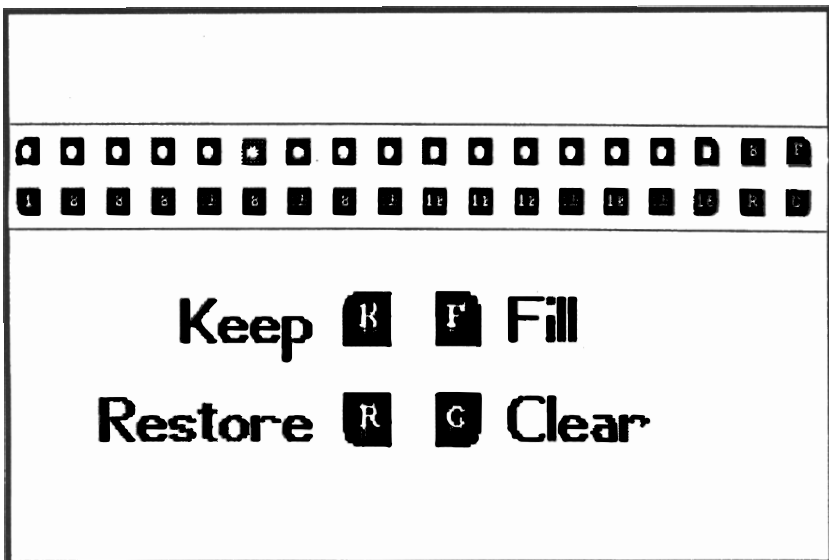


Figure 1 The Easy Command Strip

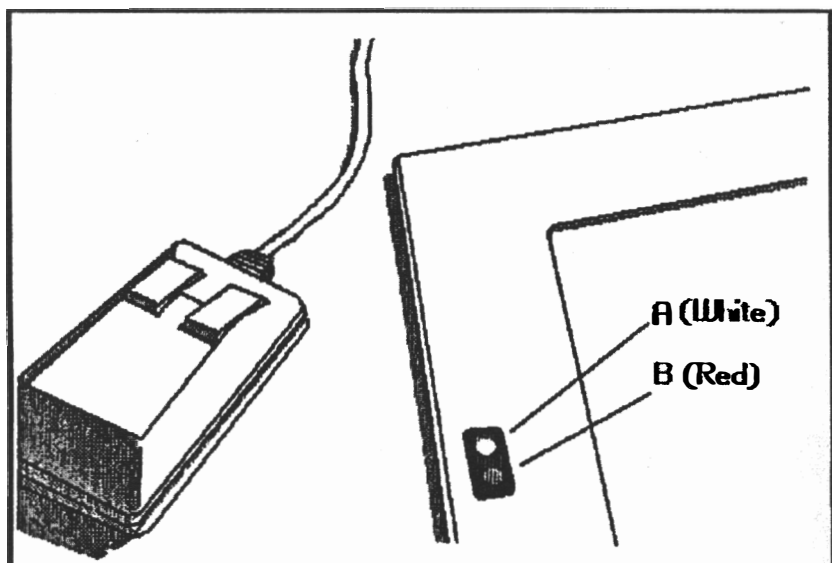


Figure 2 The PAD Frame Buttons

also be convenient for template applications, as described in section 1.11

0.3.THE EASYL COLOUR COMMAND STRIP

On one side of the PAD is the colour command strip, as indicated in Figure 1. This is ONLY used with the EASYL program. It has no function with the EASYL driver with other vendors' software packages. Normally, the user would orient the PAD so that the colour command strip is on the same side as the writing hand. Your product contains several samples of the plastic command strip protector. One is already in place on your PAD.

The clear plastic command strip protector should be in place at all times. See Figure 2. If this becomes considerably marked or deformed through use, it may be easily removed by pulling it out from under the pad frame, and a new one put in place.

CAUTION: If this strip develops a pointed deformity, it may result in constant point pressure on the pad at the deformity, affecting the operation of the pad. Although three strips are provided, new ones may be cut from acetate sheets available from most office supply stores. The recommended thickness is approximately 0.04 mm.

CAUTION: Do not jam the plastic too far under the frame. In general, jamming objects far under the frame may result in constant downward pressure in one location, thus resulting in spurious lines when one draws.

0.4.THE EASYL FRAME BUTTONS

On the opposite side of the PAD to the color command strip are the frame buttons. See Figure 3. There are two: one red, one white. Pressing the RED frame button corresponds to pressing the LEFT mouse button, while pressing the WHITE frame button corresponds to pressing the RIGHT mouse button. Thus, any action performed by

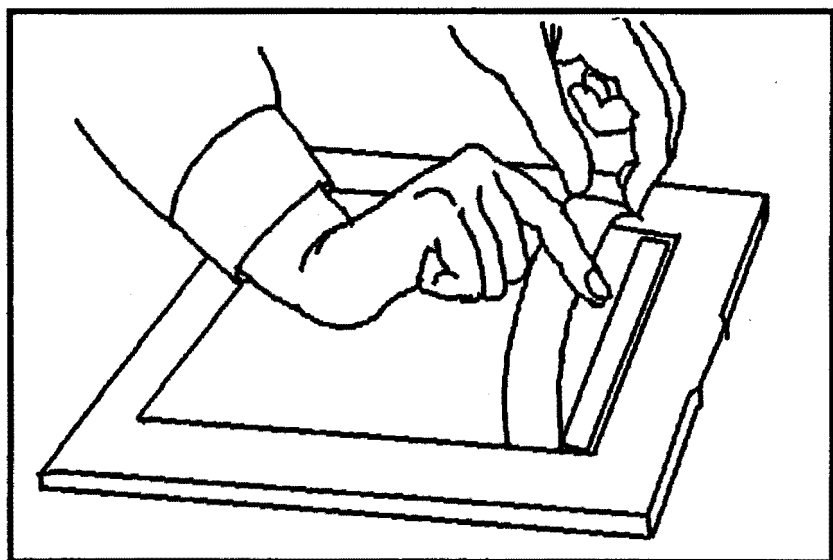


Figure 3 Command Strip Protector

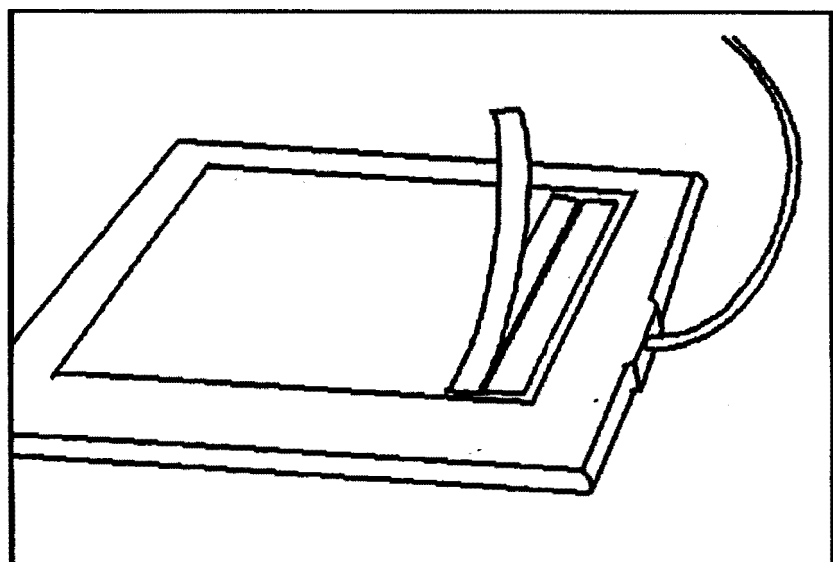


Figure 4 Affixing Tape to the PAD

the mouse with any piece of software can be duplicated by using the PAD frame buttons in conjunction with the pencil and paper on the PAD.

0.5.AFFIXING TAPE TO THE PAD SURFACE

CAUTION: Be careful about the brand of tape placed on the PAD. It is important that the tape have very mild adhesive qualities on both sides. If a strongly adhesive tape is used, it will be difficult to replace the tape without damaging the PAD surface. It will also be difficult to remove a piece of paper without leaving large pieces of paper on the tape, thus decreasing the useability of the tape.

In order to hold a piece of paper in place on the PAD surface as you draw, it is recommended that a piece of double-sided tape be placed on the PAD surface adjacent to the color command strip. Refer to Figure 4.

Shipped with your EASYL is a sample of the 3M product #9415, "High Tack Low Tack" double-sided tape. Put the **MORE STRONGLY ADHESIVE** side on the PAD surface. Attach your piece of paper to the less adhesive side.

0.6.MAINTAINING THE PAD SURFACE

The PAD surface is a durable plastic which should give many years of enjoyment under normal care and use. The following rules for product care should be followed to ensure a long period of trouble-free use:

- ▣ *Do not put the PAD surface near a source of heat. This also means, avoid leaving the PAD in a car on a sunny day.*
- ▣ *Turn the power off before cleaning the PAD.*
- ▣ *The surface of the PAD should only be cleaned with a damp cloth.*

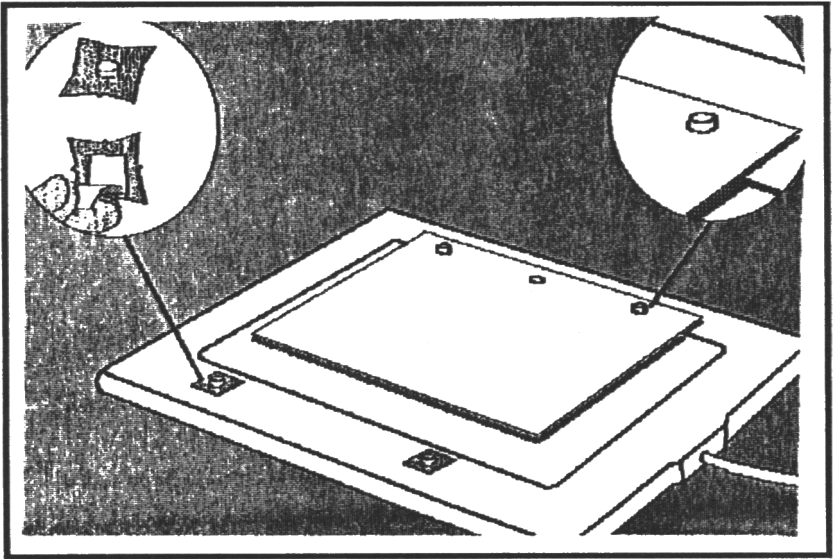


Figure 5 Peg Installation

- ▣ *If a damp cloth cannot remove a mark, use a MILD detergent in the damp cloth. A soft eraser can remove pencil marks. Avoid ink erasers, as they are abrasive.*
- ▣ *Avoid getting moisture or dirt under the plastic surface.*
- ▣ *Do not put cups or mugs or plates of food on the surface. In general, do not put any containers of any liquids or food on or near the PAD surface.*
- ▣ *A soft lead pencil is the recommended drawing implement. This will maximize the lifetime of the pad surface.*

0.7.INSTALLATION OF FRAME PEGS

Included in your package are four pegs and four squares. Two of these can be installed on your PAD frame, and the other two kept as a spare. These pegs enable ordinary punched paper to be positioned on the tablet for a drawing. If you retain the drawing on paper, at any future date the image saved to disk can be loaded,

and the same paper can be placed in the exact position as before, for further image enhancement or manipulation.

Figure 5 illustrates the installation of pegs on the frame of your PAD. Follow these steps:

- ▣ *Place punched paper on the PAD so the holes overlap the PAD frame within a half inch of the PAD surface.*
- ▣ *Position two red squares with yellow pegs on the PAD frame under the two outer holes of the punched paper. Remove the backing on the double-sided tape, so the adhesive surface is exposed.*
- ▣ *With the holes of the punched paper in the desired positions on the PAD frame, put the pegs through the two outer holes of the positioned paper and press the red squares with centred yellow pegs firmly into place on the PAD frame. Remove the punched paper*

Animators often use pegbars for traditional cel animation. The PAD has been designed to make the adaptation to an animation system easy. The frame is two inches wide, so an ACME or OXBURY compatible peg bar can easily be attached to the frame using double-sided tape. If you have such a pegbar, you may find it convenient to install it on the PAD frame using double-sided tape.

CAUTION: Do NOT drill holes in the PAD frame!

1. EASYL WITH OTHER SYSTEMS

1.1.OVERVIEW

The EASYL system provides a generalized driver to enable the pad to be used as an input device to other software systems. It is called generalized because it has been designed to work with all Amiga software which, under AmigaDos 1.2, utilizes the mouse for input. As a result the EASYL PAD becomes a slick and effective substitute for the mouse in all mouse-based software. Thus, the PAD can be used not only for artistic input and tracing, but also as a touch command device to increase efficiency in business applications. See section 1.11.

Each driver actually exists in four variants. The versions "LeftDriver" and "RightDriver" enable lefthanders and righthanders to have equal ease of use. It is expected that a righthander would orient the pad with the color command strip on the right and the frame buttons on the left. It is expected that a lefthander would do the opposite. The other two driver versions are explained in the next section.

1.2.RELATION OF FRAME TO MOUSE BUTTONS

The EASYL driver has been designed so that the pad with a blunt pointed instrument can be used both for drawing and for menu selection. The red frame button on the PAD corresponds to the left mouse button. (RED-LEFT). The white mouse button on the PAD corresponds to the right mouse button (WHITE-RIGHT). When using "LeftDriver" or "RightDriver", the action of pressing the red or white button in conjunction with using the pen corresponds exactly to pressing the left or right button on the mouse. This means that the red button must be held

down with one hand while the other hand is drawing. If the red button is not held down as the pen moves across the paper, the cursor on the screen moves to show the current pen location without actually drawing on the screen. To do menu selections from the top menu bar, press the white button down with one hand while touching the top of the writing surface with the drawing instrument. The menus will appear. Keep the drawing instrument pressed against the pad surface as you move it down to the item desired, lift the drawing instrument, then release the white button.

As you can imagine, it may be inconvenient to keep holding the red button down while drawing. Thus, the driver has been provided as "RLeftDriver" and "RRightDriver". This form reverses the concept of the left mouse button. A lefthander would normally use "RLeftDriver" and a righthander would normally use "RRightDriver". The action of the white button remains as described in the paragraph above. It still corresponds to the action of the right mouse button for menu selection. However, the red button does not need to be held down for normal drawing. It would only be held down if one wanted to determine the corresponding screen location for a location on the drawing paper.

1.3.THE REGULAR DRIVER AND THE PRO DRIVER

The EASYL driver has been developed to maximize speed and minimize driver size. Under AmigaDOS 1.1, the primary constraint was to enable DPaint I to be used in high resolution on a 512 K machine. Thus the EASYL 1.1 driver used only about 8 K. Since DPaint II requires RAM beyond 512 K to work effectively in high resolution, the requirement for such a small EASYL driver was loosened, and the regular EASYL driver uses approximately 14 K. This has allowed code to be put into place to remove the regular EASYL driver from memory using a keystroke.

The regular driver enables the full PAD surface to be mapped onto the full AMIGA screen. To allow the

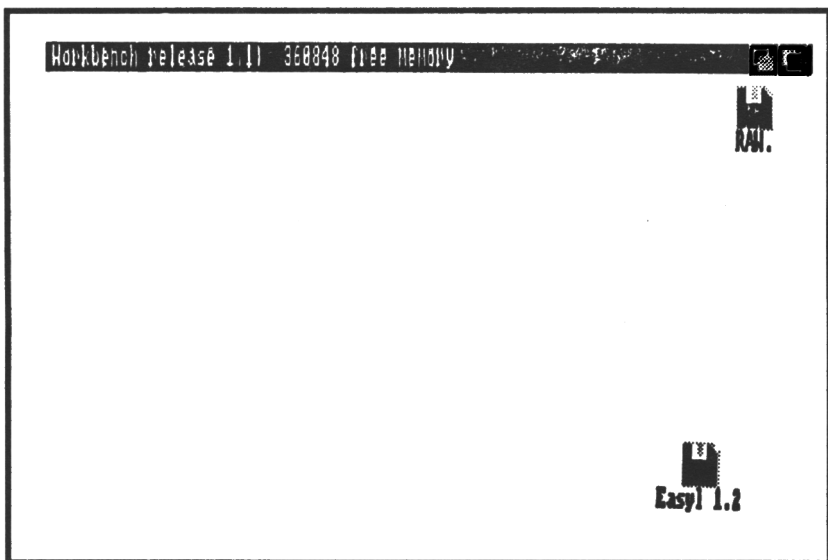


Figure 1 Easy! 1.2 Disk Icon

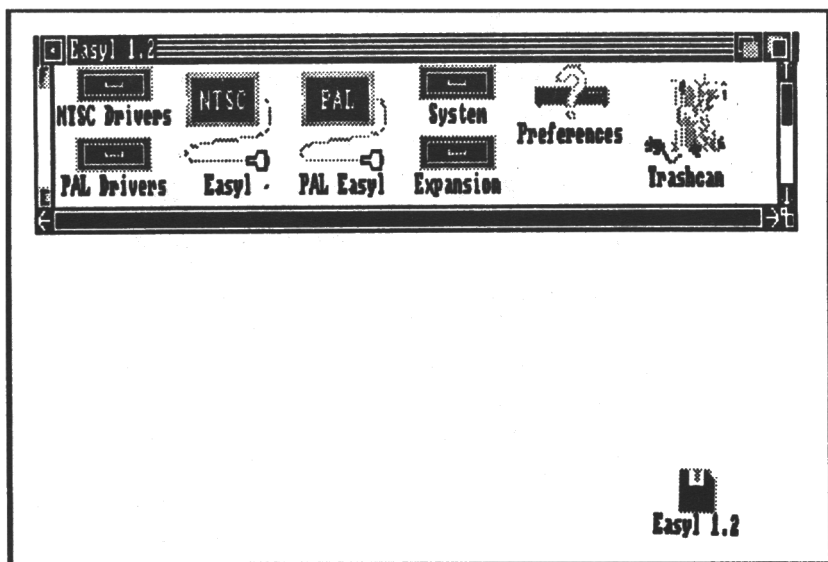


Figure 2 Easy! 1.2 Window

full PAD surface to be mapped onto a smaller section of the Amiga screen, the EASYL package also includes the Pro Driver, in both NTSC and PAL versions, and in both left-handed and right-handed variants. When loaded, it will behave exactly like the regular driver. When the proper keystroke sequence is used, a window appears which can be manipulated and sized at will prior to drawing the image into the window. Since the extra code to provide this feature increases the size of the driver to about 30K, a regular driver lacking this feature is included for those sensitive to RAM requirements.

1.4. NTSC AND PAL VARIANTS

NTSC Amiga machines (Canada and USA) have low-resolution images of 320 by 200 pixels and high-resolution images of 640 by 400 pixels. PAL Amiga machines (almost all of the rest of the world) have low-resolution images of 320 by 256 pixels and high-resolution images of 640 by 512 pixels. As a result, scaling factors differ for the two machines, when transforming an EASYL image to the screen. Thus, the drivers and the EASYL program differs, depending on the machine being used.

1.5. USING THE EASYL 1.2 DRIVER

Under AmigaDos 1.2, one can use EasyL with programs such as DPaint II, PageSetter, Draw Plus, SuperBase, and others by loading the EASYL driver into memory either from the EasyL disk or by installing the driver onto the disk for the software package you intend to run with EASYL. Either method can be used whether one has a one-drive system or a two-drive system.

1.5.A. Loading The Driver For Use

1.5.A.1. One-drive System

After starting the machine with Kickstart 1.2, put the EasyL disk in at the Workbench prompt. Click on the EASYL 1.2 disk icon. See Figure 1. Within the window which opens are drawers labelled NTSC Drivers and PAL Drivers. See Figure 2. Click on the appropriate drawer. Within the window which opens are drawers containing

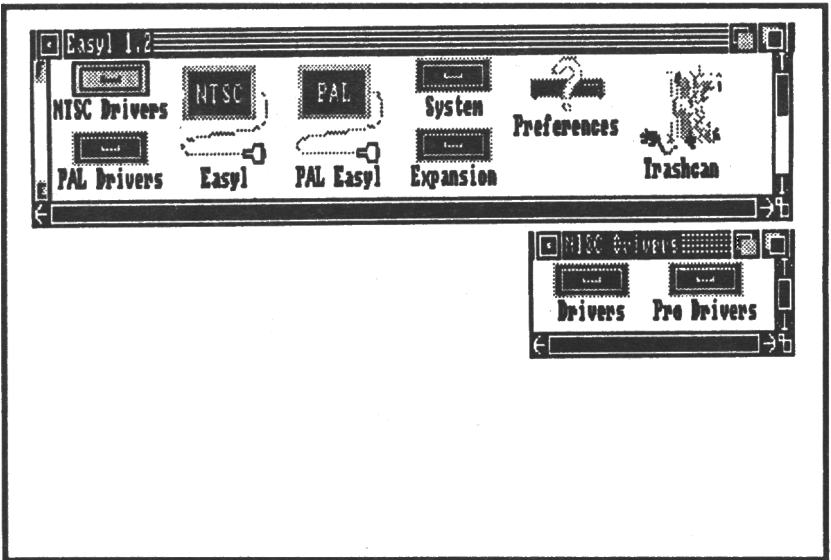


Figure 3 Easy! NTSC Drivers Window

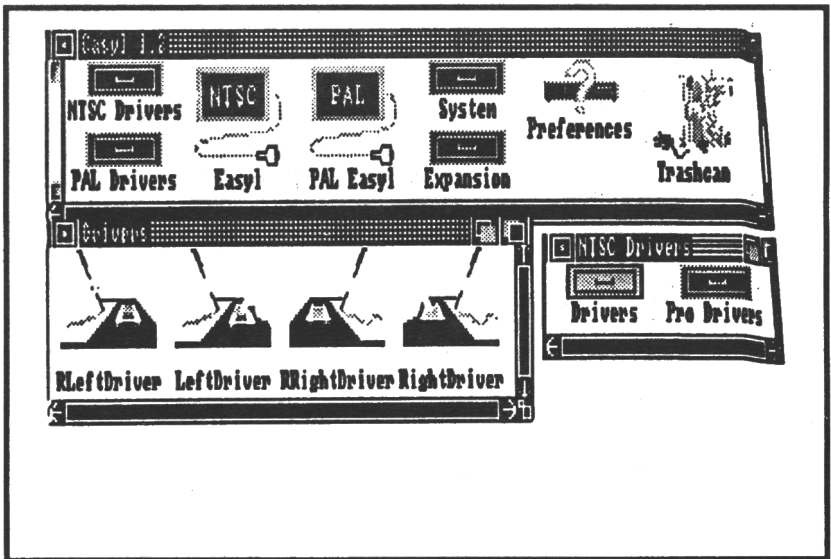


Figure 4 Easy! Drivers Window

the regular Drivers and Pro Drivers. See Figure 3. Click on the appropriate drawer. A window opens containing icons representing four variants of the EASYL driver. Refer to section 1.2 above, and see figure 4. Click on the version suited to your needs. Within one second, the driver will be loaded. Note that if you try to load a second driver by again clicking on one of the four icons, the attempt to load another driver will not succeed. Thus, it is not possible to have more than one EASYL driver in memory at the same time.

With the EASYL driver loaded, click on the close gadgets to close the driver window and the Workbench window for the EASYL disk.

At this point, the EASYL disk may be removed and the applications disk (DPaint II, PageSetter, Draw Plus, or other) inserted. Click on the icon for the program you wish to run. When the program loads, proceed as normal, but now with the option of using either the mouse or pencil and paper for input.

1.5.A.2.Two-drive System

After starting the machine with Kickstart 1.2, put the applications disk (DPaint II, PageSetter, Draw Plus, or other) in the main drive and the EASYL disk in the external drive. Click on the EASYL 1.2 disk icon. Refer to the paragraph in section A above to load the EASYL driver.

With the EASYL driver loaded, click on the close gadgets to close the driver window and the Workbench window for the EASYL disk. Then, click on the icon for the program you wish to run. When the program loads, proceed as normal but now having the option of using either the mouse or pencil and paper for input. Note that you may safely remove the EASYL disk at any time now, if you would like to free up your second drive for data disks or whatever.

1.5.B.2 Two-Drive System

Proceed as follows. Remember to wait for all disk activity to cease before proceeding to the next step.

- ▣ *After starting with Kickstart 1.2, load the applications disk in the main drive at the Workbench prompt. Put the EASYL disk in the second drive.*
- ▣ *Click on the disk icon for the applications disk to open its window.*
- ▣ *Click on the EASYL 1.2 disk icon.*
- ▣ *Click on the appropriate driver drawer (NTSC or PAL).*
- ▣ *Click on the appropriate driver drawer (Drivers or Pro Drivers).*
- ▣ *Drag the appropriate EASYL driver icon from the Drivers window to the applications program window.*
- ▣ *Close all EASYL-related windows, leaving only the applications program window and the contained driver icon, and remove the EASYL disk.*

Installation is now complete. You may wish to rearrange icons for optimum readability.

1.6 REMOVING THE EASYL DRIVER FROM MEMORY

If at any time you wish to remove the EASYL driver from memory once it has been loaded, it is simply a matter of hitting a keystroke sequence to free up the memory. Simply press **CTRL-SHIFT-ALT** with the left hand, while pressing **right SHIFT** with the right hand, and the driver will be removed from memory.

1.7 USING THE EASYL 1.2 PRO DRIVER

Once you have explored the possibilities of the regular driver, you may wish to try the Pro Driver. This driver behaves exactly like the regular driver, and adds the possibility of drawing a full PAD image into any size section of the Amiga screen. With the regular driver, and with the Pro Driver when it is invoked, a PAD drawing is reproduced with the same proportions on the Amiga screen, ie. a circle remains a circle. However, the active

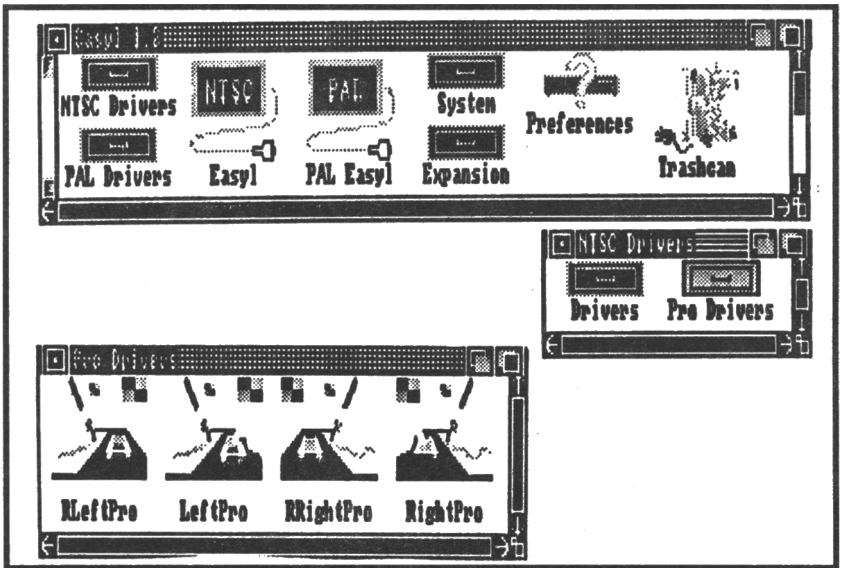


Figure 5 Easy! Pro Drivers Window

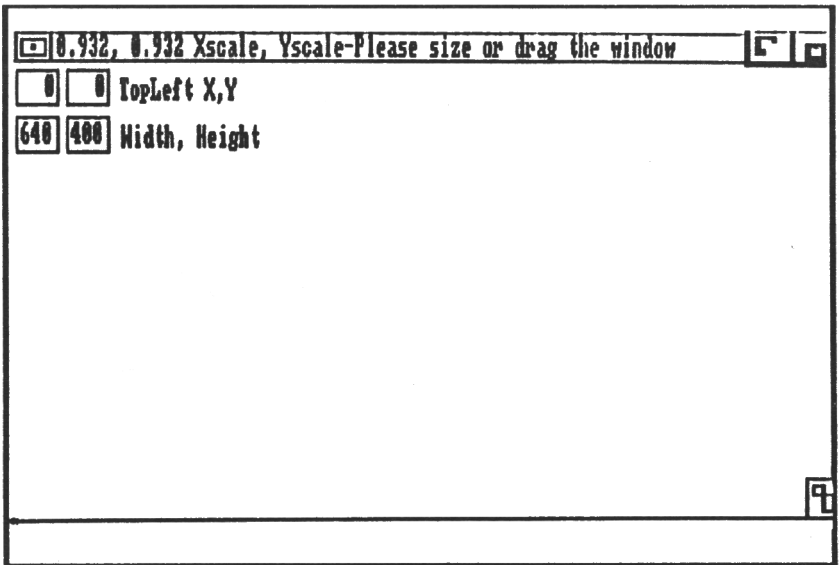


Figure 6 Pro Driver Input Window

PAD surface is larger than the screen (each screen dimension is approximately 93% of the corresponding PAD dimension). With the Pro Driver, a keystroke sequence brings up a window which can be sized as desired. When the close gadget is clicked, you can begin to draw on the PAD, and the image will appear within the window area. As a result, it is possible to easily distort any drawing or tracing on the PAD. At the same time, it is easy to maintain proper proportions as one sizes the input window.

Loading the Pro Driver on either a one-drive or two-drive system follows the same steps as listed in section 1.5 for loading the regular driver. Click on the Pro Drivers drawer as indicated in Figure 3. Again, click on the version suited to your needs. See Figure 5. Optional Pro Driver installation on your applications program disk, be it DPaint II, PageSetter, or whatever, whether you have a one-drive or two-drive system, proceeds as indicated for the regular driver in section 1.5.

Once you have loaded the Pro Driver by clicking on its icon, you may load your applications program, then use mouse or PAD for input. If you are drawing into a graphics package, and you wish to put a full PAD drawing into a reduced screen area, bring up the Pro Driver window by simultaneously pressing Ctrl-Alt with the left hand while pressing right Alt with the right hand. The full-screen window which appears has boxes in the upper left corner for the window's top left x and y coordinate values, and boxes for the window's width and height. See Figure 6. As well, the title bar has the ratios of the PAD-to-screen width and PAD-to-screen height. These ratios are initially equal, and have a value of 0.932. The window also has a sizing gadget in the bottom right hand corner.

You have two options for changing the input window size:

- ▣ *Use the sizing gadget to reduce the size of the window, and the drag bar to move the input window to the desired location.*

▣ *For total control over window position and size, click into each of the boxes in the upper left corner of the window, and enter the desired upper left corner coordinates, and width and height of the window.*

In any case, after sizing or entering values, the new PAD-to-screen ratios will be displayed on the title bar. As long as the ratios are equal or very nearly equal, there will be no distortion of your drawing: a circle remains a circle, though its size may be changed. Distortion may readily be created, of course, by having different ratios in the two dimensions. The greater the relative difference in the ratios, the greater the distortion you will create in the screen representation of your PAD drawing.

Once the input window is the way you wish, click on the close gadget in the upper left hand corner, and proceed to draw on the PAD. The drawing will appear on the screen within the area formerly occupied by the Pro Driver window.

CAUTION: Entering Coordinates or width, height values which would produce a window larger than the screen will result in nothing happening

CAUTION: Window sizing takes memory. If nothing happens when you attempt to size the Pro Driver window, you are low on memory.

SPECIAL NOTE FOR DPAINT II: Opening a window on top of the DPaint screen will result in the loss of the image under the window. To avoid this problem when using the Pro Driver with DPaint II, get into the Workbench screen from DPaint before opening and sizing your input window, then return to the DPaint screen to enter the drawing. There are two ways to access the Workbench screen from within DPaint:

▣ *From the Prefs pull-down menu, select Workbench. This will bring up the Workbench screen. At this point, you can follow the steps outlined earlier in this section to bring*

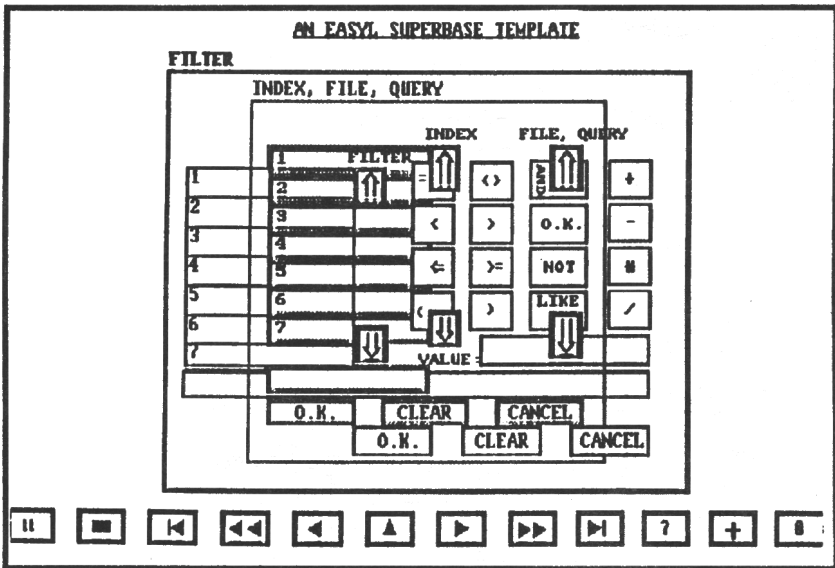


Figure 7 An EasyL-SuperBase Template

up and size the Pro Driver window, then return to the DPaint screen to enter your drawing by clicking on the front-to-back gadget in the upper right corner of the Workbench screen.

While in DPaint, simultaneously press left Amiga-N to bring up the Workbench screen. Then follow the steps outlined earlier in this section to bring up and size the Pro Driver window, then return to the DPaint screen to enter your drawing by simultaneously pressing left Amiga-M.

1.8.REMOVING THE PRO DRIVER FROM MEMORY

The Pro Driver can be removed at any time from memory by choosing Quit from the Pro Driver drop-down menu. Alternatively, it may be removed by simultaneously pressing right-Amiga-Q.

1.9.EASYL APPLICATIONS

1.9.A.DPAINT II NOTES:

If you are using the PAD with DELUXE PAINT frequently, it is recommended that you draw up DELUXE PAINT command templates which you can tape to the PAD at the appropriate position. This will enable you to conveniently select one of the DELUXE PAINT icons simply by touching the appropriate position on the PAD.

Once you have followed the procedure in section 1.5 to load the driver and DELUXE PAINT, you can simply put a piece of paper on the PAD affixed with the recommended brand of double-sided tape, and simply start to draw. Although all DELUXE PAINT features are selectable by using the PAD, the Mouse is conveniently active at the same time as the PAD, so you have the option of using the Mouse to do command selection.

Some particularly nifty features are available using the PAD with DELUXE PAINT:

- *When the FILL command in DELUXE PAINT has been selected, the area to fill can be chosen using the PAD simply by pointing to it (i.e., touching a point within the area to fill).*
- *When the BRUSH command has been selected, simply take a brush implement and draw a diagonal over the area to be picked up as a brush. Then, place the brush at any location on the screen simply by touching the appropriate area of the PAD.*
- *When the MAGNIFY command has been selected, simply touch the location you wish to be magnified.*
- *Hold down the white frame button while drawing, to draw in the background color.*

In order to do selections from the drop-down menus in DELUXE PAINT, hold the white frame button down with one hand as you touch the top of the PAD surface with the blunt end of a drawing implement. The menus will appear. Drag the end of the drawing implement

down to the menu selection and lift the drawing implement before releasing the button.

1.9.B.USING EASYL WITH OTHER 1.2 SYSTEMS

Once the EASYL driver is loaded into memory, the PAD becomes a multi-function productivity tool. It can be used to draw or trace directly into DPaint II, as described above. It can also be used, with appropriate templates, to perform direct touch commands into database, CAD, spreadsheet, and any other software systems compatible with AmigaDos 1.2. See section 1.11 for a description of an example of templates with the popular SuperBase Personal database package.

1.10.USING EASYL WITH AMIGADOS 1.1 SOFTWARE

On the EASYL disk is a drawer labelled EXEC51.1 which contains the four variants of the EASYL driver for 1.1 software such as DPaint I and Aegis Images. These drivers are labelled RRightDriver1.1, RLeftDriver1.1, RightDriver1.1, LeftDriver1.1. Also included are script files, RRightDPHi, RLeftDPHi, RightDPHi, and LeftDPHi, which illustrate the two steps required to make the PAD operational with DPaint I in high resolution under AmigaDOS 1.1. For any 1.1 software, the two steps are:

run program-name

driver-name

where:

program-name is the program you wish to use, eg. DPaint or Images, and

driver-name is the appropriate EASYL 1.1 driver, eg. RRightDriver1.1.

NOTE: ALWAYS use RUN with the program you wish to run. NEVER use RUN with the driver. ALWAYS run the PROGRAM before the DRIVER.

If you put the driver onto your program disk, the above implies you must have the "run" command in the "c" drawer of your program disk. If you put the two steps into a script file, you can "execute" the script file, providing you have the "execute" command in the "c" drawer of your program disk.

If you are not familiar with using the CLI to do the above, consult your dealer or local user group.

For the 1.1 release, unfortunately, it is not possible to terminate the driver program gracefully. Thus, the Amiga must be re-booted, by typing cntrl- Amiga-Amiga simultaneously. This problem has been eliminated in the 1.2 release.

1.11.USING TEMPLATES WITH EASYL

The multitasking AmigaDos operating system allows the EASYL driver to reside comfortably in memory while other programs are running. Thus, it is possible to design templates for your favorite application programs in order to aid your productivity.

By affixing pegs on the frame of your tablet (see section 0.7), you can guarantee that the icon positions on your template will always match the screen locations of the icons. This section describes the process, using the excellent SuperBase Personal database program as an example.

Figure 7 illustrates a possible Superbase EASYL template. In designing this template, all the possible windows and requesters provided by the Superbase program were analyzed, to try to determine an optimum single-sheet template design. The resulting template is designed for database query operations. Others can be designed for data entry or other operations.

The tape-deck control icons of the Superbase program, of course, would have to be included in the template, and are shown at the bottom of figure. Although there are a considerable number of requesters of various sizes and input requirements which can come up when running the Superbase program, there are three

major categories of requesters which can readily be incorporated into a single-sheet template design and together would cover a very high percentage of the input requirements into the Superbase program. These groups are as follows:

(1) The Filter Requesters

The same format requester comes up when you touch the "=" icon in the tape-deck controls, and when you select the Update, Remove Records, Import, Export, Print, or Labels options from the "Process" pull-down menu. The template design illustrated in figure 7 shows this as the outer "FILTER" box, which contains the two arrows in the column labelled "FILTER", the bottom "OK-CLEAR-CANCEL" row, the "VALUE" box, the operator icons, and the left-hand file name boxes numbered 1 to 7.

(2) The Index Requesters

The same format requester comes up when you select any one of the New Index, Open Index, or Remove Index options from the "Project" pull-down menu. The template design illustrated in figure shows this as the inner "INDEX, FILE, QUERY" box, which contains the two arrows in the column labelled "INDEX", the top "OK-CLEAR-CANCEL" row, and the inner file name boxes numbered 1 to 7.

(3) The File and Query Requesters

The same format requester comes up when you select any one of the Open File, Open Query, Close File, Save Query, or Remove File options from the "Project" pull-down menu. The template design illustrated in figure 7 shows this as the inner "INDEX, FILE, QUERY" box, which contains the two arrows in the column labelled "FILE, QUERY", the top "OK-CLEAR-CANCEL" row, and the inner file name boxes numbered 1 to 7.

It must be emphasized that this is a suggested design only. Other icons from other requesters can be added, if it is found that they are frequently used. The point is

that it is possible to make a single-page template design, as long as the software package is reasonably well designed.

It must also be emphasized here that these software packages were not designed with touch template input in mind. Despite this, the design of the Amiga operating system, plus adherence of software developers to the design philosophy of the Amiga, has made it possible to add on touch templates relatively easily. Touch templates could be that much more effective if software for the Amiga were designed from the start with the possibility of touch input in mind.

Before concluding this section, it should be pointed out that the availability of a low-cost powerful microcomputer such as the Amiga with software which readily allows touch input opens up a whole new world to the handicapped. The blind can now become as productive on the Amiga as any individual with full sight (perhaps even more so, since they will more readily take to the enhanced productivity made possible by touch input). For more complete information on this concept, look for the text "Amiga Productivity: A Template Approach" available from Anakin Research.

2. THE EASYL PROGRAM

2.1. INTRODUCTION

In addition to providing drivers to enable you to use the EASYL PAD with all mouse-based Amiga software, Anakin Research Inc. has also developed and provided for you a piece of software which is designed specifically for the PAD, and adheres to the software design philosophy of the Amiga: icon selectable, with options available on a drop-down menu system. The advantages presented by having this software available include:

- ▣ *Ability to take advantage of the high coordinate capture rate of the PAD. This is approximately 250 coordinate pairs a second. To create a driver which works with popular graphics packages, this coordinate capture rate is somewhat crippled to simulate the mouse coordinate capture rate. A higher coordinate capture rate enables finer line drawings to be made, particularly in high resolution.*
- ▣ *Menu-selection of one of four resolution levels. NOTE: CHANGING YOUR RESOLUTION LEVEL WILL REMOVE YOUR CURRENT DRAWING, IN THE CURRENT EASYL RELEASE.*
- ▣ *Ability to customize the software for special applications. The source code, which may be purchased separately, provides you with the basics of interaction between the PAD and the Amiga. This can readily be altered or expanded to perform a new application. ANAKIN RESEARCH INC. provides development support for approved applications. If you have an application idea, call for details.*

The design of EASYL has attempted to differentiate between the processes of setting up the PAD and screen environment, and actually creating an image.

2.2.EASYL PROGRAM STARTUP

If you wish to use the EASYL program provided on the EASYL distribution disk, then follow these steps:

- *Turn on the Amiga and insert Kickstart 1.2.*
- *Instead of Workbench, insert the copy of the EASYL distribution disk.*
- *An icon representing the EASYL 1.2 disk will appear on the screen. Click on the disk icon.*
- *An EasyL window will appear. See figure 1. Icons representing EASYL and PAL EASYL appear within the window. Click on the icon appropriate to your machine. See section 1.4.*
- *After a short delay, the EASYL program will finish loading, the EASYL screen will appear. You can put a sheet of paper on the PAD and start drawing.*

2.3.USING THE MOUSE WITH EASYL

The EASYL program has been designed with the intention that the mouse only be used in initial set-up, when saving an image, or selecting a brush. Otherwise, only a pen or pencil is needed. Thus, the mouse is only used as a menu selection tool to create the desired environment in which to work with an image.

When using the mouse, only a few basic concepts are needed. The top of the EASYL screen provides a title bar (which can be turned off). When the mouse pointer is moved to this bar, pressing the right mouse button causes drop-down menus to appear. Moving the mouse pointer to an item in a menu and releasing the right button causes that item to be "chosen".

A menu item may have options, which will appear when the Intuition Pointer is on the menu item. Moving the Intuition Pointer to the option, and releasing the right button, selects that option.

Choosing certain menu items causes "requesters" to appear. For example, loading or saving an image causes a file requester to appear. The left button of the mouse,

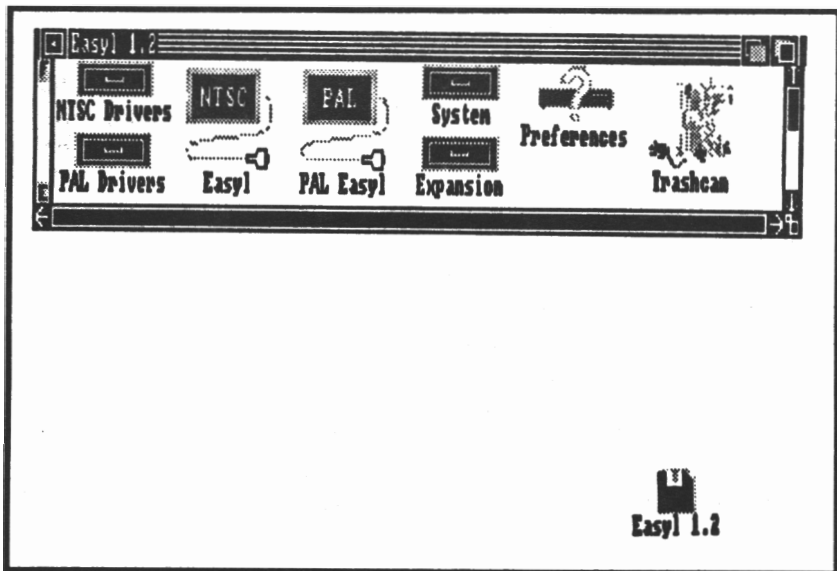


Figure 1 The Easy! 1.2 Window

and the keyboard, come into play. If information is required from the keyboard, the Intuition Pointer is moved to the line provided for that information, and the left mouse button clicked to activate keyboard entry along that line. To proceed with the chosen activity, the mouse pointer is moved to the provided "OK" box, and the left mouse button clicked. Cancelling the chosen activity is achieved by moving the Intuition Pointer to the "CANCEL" box, and clicking the left mouse button.

Explicit instructions regarding use of the mouse to make particular menu choices will be given in subsequent sections, as required.

2.4.CREATING AN EASYL IMAGE

Creating an EASYL image is as simple as following the instructions in section 2.2 for starting up the EASYL software, picking up a pen or pencil and starting to draw on a piece of paper placed on the PAD surface. Color

choice is made by simply touching the desired color box, or numbered color box, and drawing with the chosen color. A rectangular color indicator box will appear in the upper right hand corner of the screen. This color indicator box will go away as soon as you start to draw on the PAD. As a precaution, touch close to the CENTER of a command box. See Appendix C, Technical Notes, section C.1, for an explanation. Instant infill is as simple as touching the "F" command, then touching any point within the area to be filled. The area will be filled with the current color. If you would like to fill the area with a different color, touch a new color, then touch the infill command, and finally touch the area to be filled. If you want to clear your image and start over, simply touch the "C" (for CLEAR) command. A second touch of the "C" command, at the prompt, will result in the screen being cleared. If you are satisfied with your drawing as currently displayed, touch the "K" (for KEEP) command. The image will be copied to a second, unseen screen (the Back Screen), which can be viewed by pulling down the Front Screen. If you create a stroke which you want to remove, and you have been touching "K" as you go along, simply touch "R" (for RESTORE) and the Back Screen will be copied to the Front Screen. An alternative is to select a brush in the current background color and go over the unwanted stroke.

2.5.PRINTING AN IMAGE

The EASYL program does not have a direct print implemented, since a user already has two options available for printing:

- ▣ *Using EASYL as a driver for other packages, using the print capabilities already contained in those packages.*
- ▣ *Since all images created and saved under EASYL are IFF compatible, they can be loaded in other popular graphics packages and printed from those packages.*

2.6.THE PROJECT MENU

Figure 2 shows the project menu which appears when one moves the Intuition Pointer to the left side of the top menu bar and press the right mouse button.

2.6.A.LOAD

2.6.A.1.LOADING AN IMAGE

It is expected that one may wish to use the PAD to modify either previously-created EASYL images, or images created in a compatible format by other software systems (for example, DPaint).

To load an image, move the Intuition Pointer to the top of the screen and hold the right mouse button down to see the menus. While holding the right mouse button down, move to the PROJECT menu, move down to OPEN, across to IMAGE, and release the right mouse button. See Figure 3.

A "requester" will appear, as indicated in Figure 4, which has a slot labelled "File:" in which a file name corresponding to an image may be typed. The window gives a listing of files in the default directory. The window will list another directory by clicking in the "Drawer:" slot and entering the pathname to the desired drawer. To enter the name of the image to be loaded, move the Intuition Pointer to the name of the image in the window and click once with the left mouse button. The image name will be automatically inserted in the "File:" line. Alternatively, you may type in the name of the desired image in the "File:" line, and hit return. In any case, move the Intuition Pointer to "Load", and click the left mouse button.

2.6.A.2.LOADING A PALETTE

The need may arise to use a previously-stored palette or to use the palette in a previously-stored image. To load a palette, move the Intuition Pointer to the top of the screen and hold the right mouse button down to see the menus. While holding the right mouse button down, move

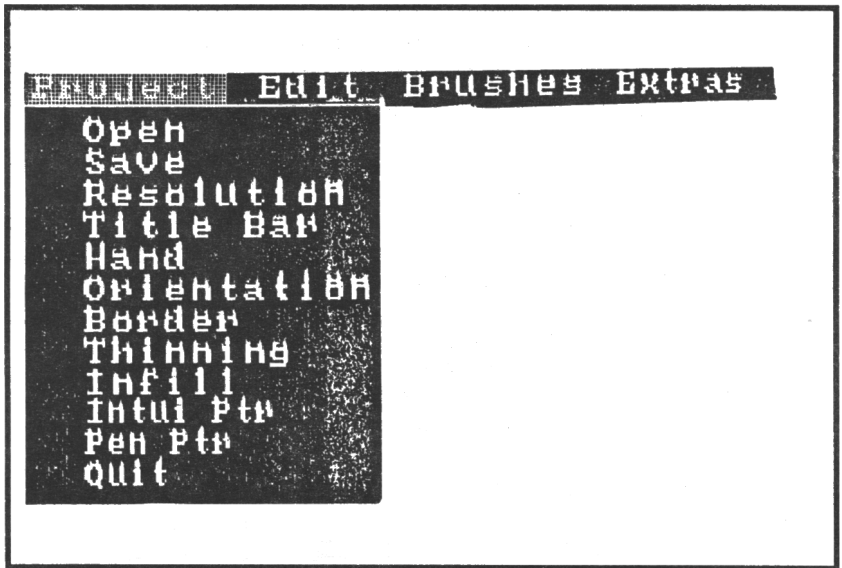


Figure 2 The Project Menu

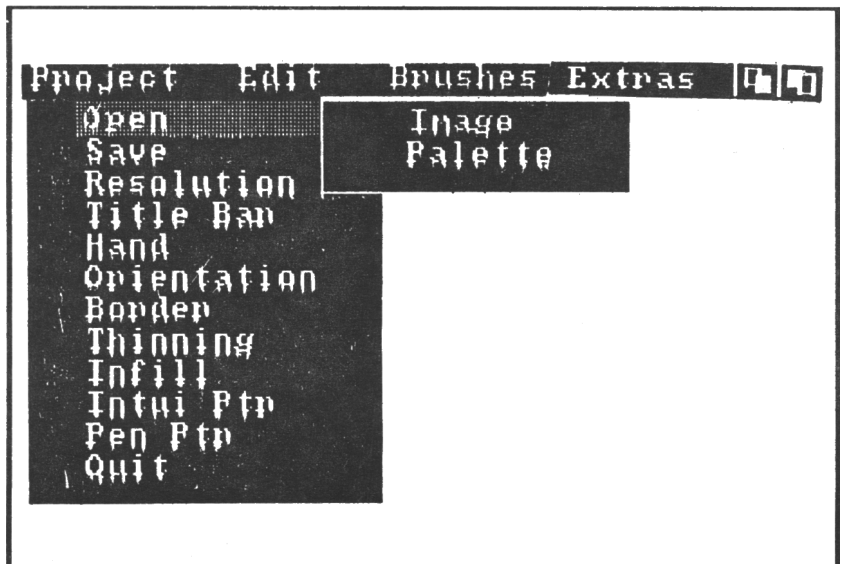


Figure 3 Open: Image or Palette

to the PROJECT menu, move down to OPEN, across to PALETTE, and release the right mouse button.

A "requester" will appear similar to the one in Figure 4, which has a slot labelled "File:" in which a file name corresponding to an image or palette may be typed. The window gives a listing of files in the default directory. The window will list another directory by clicking in the "Drawer:" slot and entering the pathname to the desired drawer. To enter the name of the palette file to be loaded, move the Intuition Pointer to the name of the image in the window and click once with the left mouse button. The image name will be automatically inserted in the "File:" line. Alternatively, you may type in the name of the desired palette file in the "File:" line, and hit return. In any case, move the Intuition Pointer to "Load", and click the left mouse button. If the palette to be loaded is from a file which contains an image, only the palette will be loaded.

2.6.B SAVE

2.6.B.1 SAVING AN IMAGE

To save an image, move the Intuition Pointer to the top of the screen and hold the right mouse button down to see the menus. While holding the right mouse button down, move to the PROJECT menu, move down to SAVE and across to IMAGE, and release the right mouse button. See Figure 5.

The requester which appears follows exactly the same format as the Open requester illustrated in Figure 4. To save a file, follow the same steps as outlined in section A, "LOADING AN IMAGE", above, to enter the correct pathname and filename. Then, move the Intuition Pointer to "Save" and click the left mouse button.

If the name of an image to be saved coincides with the name of a file on the default directory, the file which already exists will be renamed, with the name being replaced by the same name with a ".Back" extension. Then, the current save operation will continue with

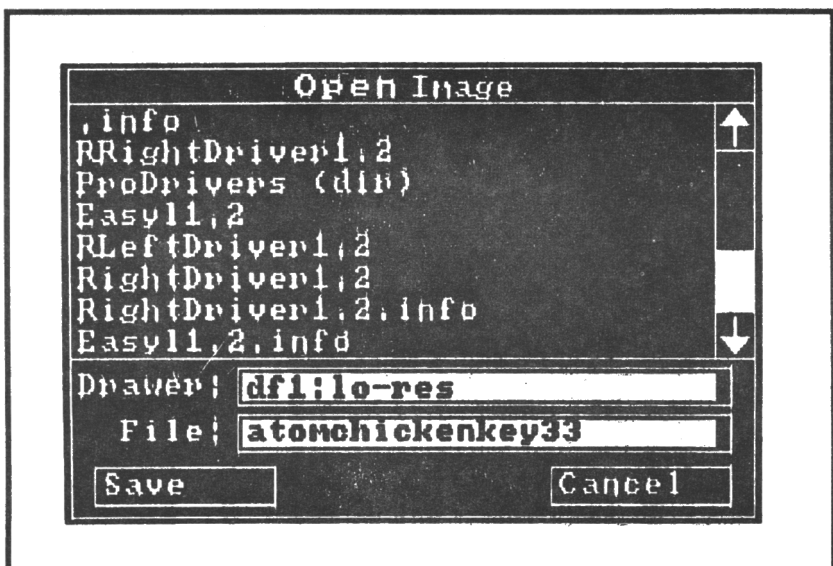


Figure 4 Open Image Requester

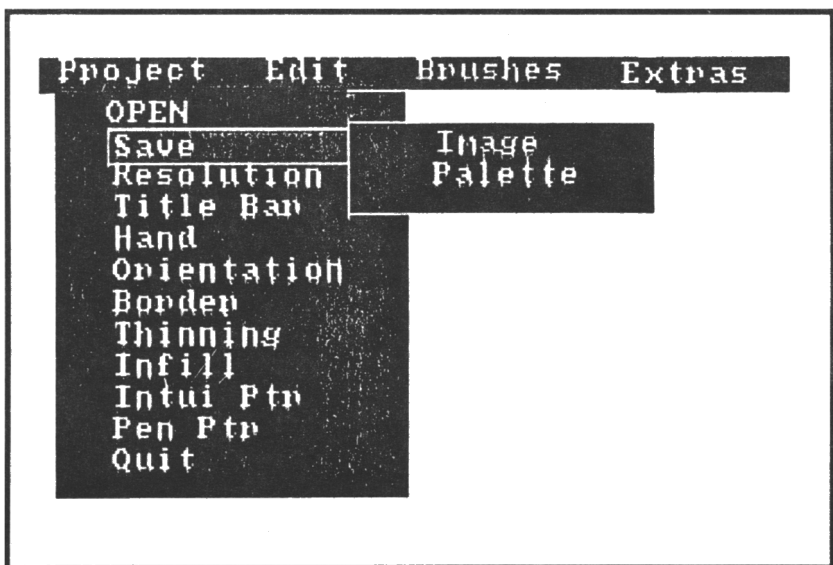


Figure 5 Save: Image or Palette

the desired name. NOTE that this safety mechanism is only one deep. A second attempt to save with the same name will result in a loss of the original backup.

CAUTION: About 22K is needed to invoke the Save option. If you are low in memory, you will not be able to save an image. The Easy1 program contains code to try to prevent this situation from happening, but if you invoke another program AFTER you invoke Easy1, so multitasking is in effect, the built-in precautions may be by-passed, so you may end up with insufficient memory to save an image.

2.6.B.2.SAVING A PALETTE

To save a palette, move the Intuition Pointer to the top of the screen and hold the right mouse button down to see the menus. While holding the right mouse button down, move to the PROJECT menu, move down to SAVE and across to PALETTE, and release the right mouse button.

The requester which appears follows exactly the same format as the Load requester illustrated in Figure 4. To save a palette, follow the same steps as outlined in section A, "LOADING AN IMAGE", above, to enter the correct pathname and filename. Then, move the Intuition Pointer to "Save" and click the left mouse button.

2.6.C.RESOLUTION

You have a set of four choices for the screen resolution of the image you are about to create. This has no effect on the resolution of the PAD surface itself, which remains a constant 1024 by 1024 regardless of the resolution you choose for the screen. NOTE: CHANGING YOUR RESOLUTION LEVEL WILL REMOVE YOUR CURRENT DRAWING.

Figure 6 illustrates the choices which appear when the Intuition Pointer is moved to the Resolution item in the Project menu. A resolution level for the screen dis-

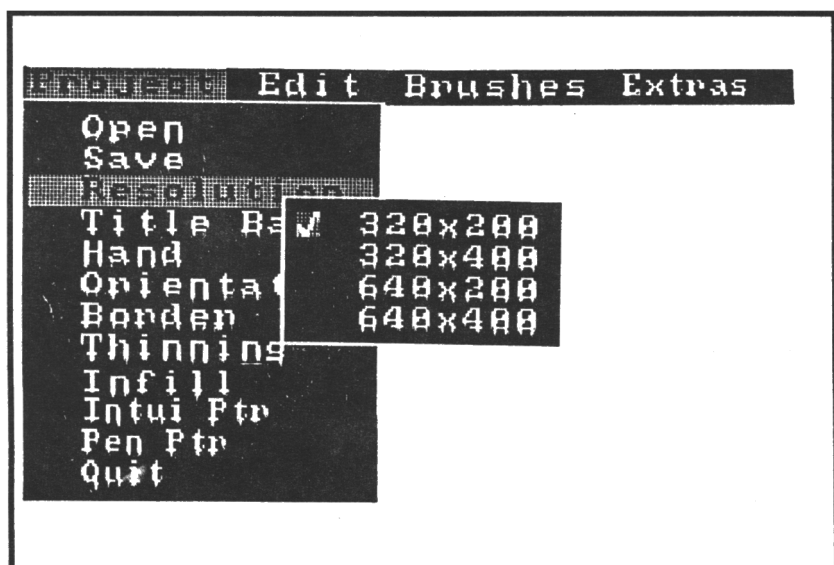


Figure 6 Resolution Options

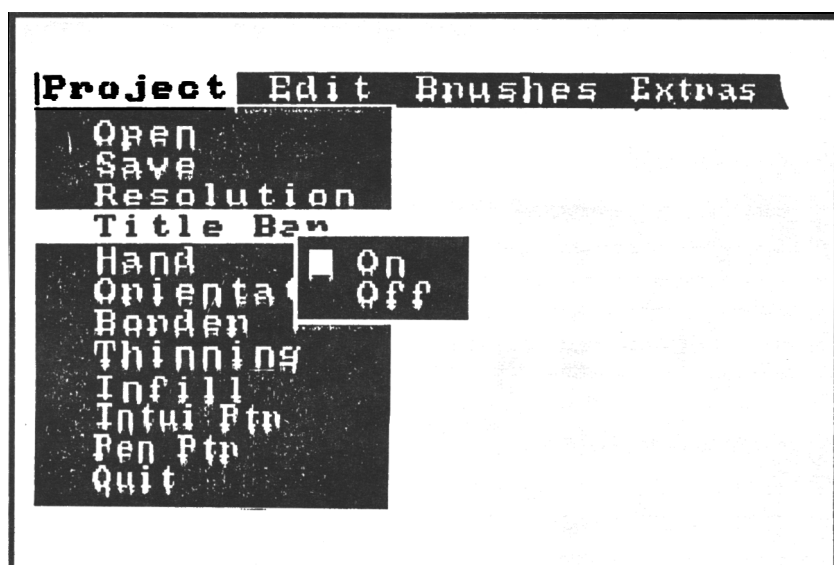


Figure 7 Title Bar Options

play is chosen by moving the Intuition Pointer over the desired resolution, and clicking the left mouse button.

2.6.D.TITLE BAR

If it is desirable to have the entire Amiga screen mapping visible while drawing on the PAD, then the title bar at the top of the screen should be turned off.

To turn off the title bar, move the Intuition Pointer to the top of the screen and hold the right mouse button down to see the menus. While holding the right mouse button down, move to the PROJECT menu, move down to TITLE BAR, and move to either the ON or OFF option from that menu item. Release the right mouse button when the Intuition Pointer is on the desired selection. See Figure 7.

2.6.E.HAND

In LANDSCAPE mode, which means the longest dimension of the PAD is aligned horizontally, the touch commands are either along the right or along the left.

It is expected that an individual will want the touch commands closest to the hand used for writing. Thus, touch commands on the right is designated right-handed mode, while touch commands along the left is designated left-handed mode.

To select the desired hand mode, move the Intuition Pointer to the top of the screen and hold the right mouse button down to see the menus. While holding the right mouse button down, move to the PROJECT menu, move down to HAND, and move to either the LEFT or RIGHT option from that menu item. Release the right mouse button when the Intuition Pointer is on the desired selection. See Figure 8.

2.6.F.ORIENTATION

The PAD can be oriented with its longest dimension vertically aligned (PORTRAIT mode), or its longest dimension horizontally aligned (LANDSCAPE mode).

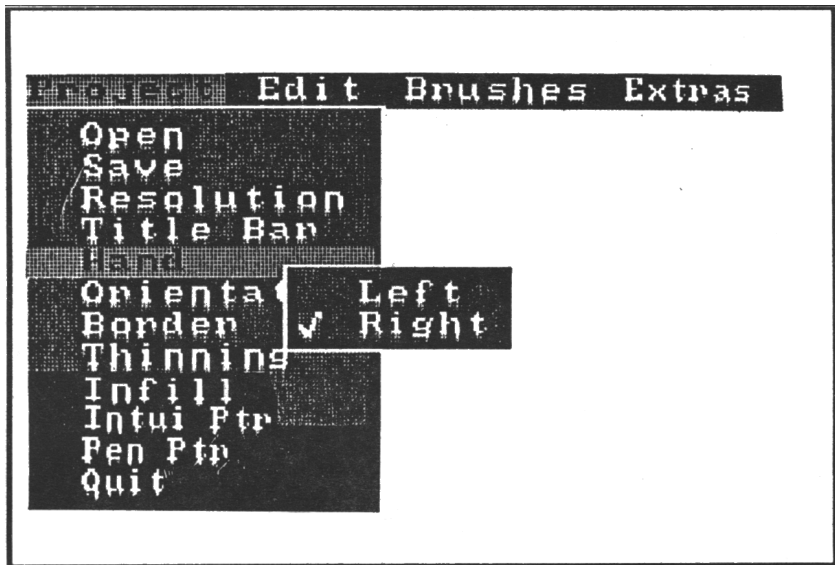


Figure 8 Hand Options

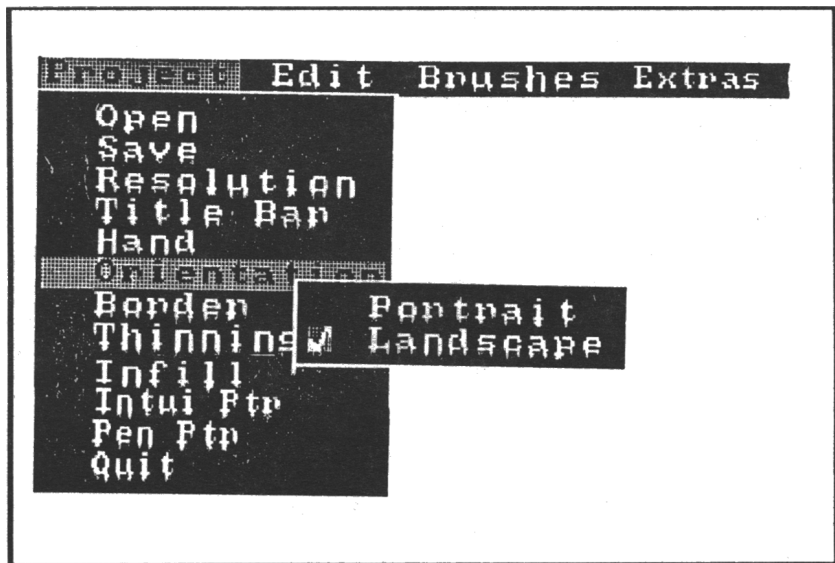


Figure 9 Orientation Options

In **PORTRAIT** mode, the touch commands lie along the top of the PAD. Whatever is written on the PAD will appear on the screen; however, due to differences in aspect ratio between a portrait-mode PAD and the Amiga screen, part of the Amiga screen is not used. (See section **G, BORDER**)

In **LANDSCAPE** mode, the touch commands lie along either the left or the right side of the PAD. (See section **E, HAND**) The aspect ratios of the Amiga screen and the writing surface or PAD are virtually identical, so the PAD surface maps onto the entire Amiga screen.

To select the desired orientation, move the Intuition Pointer to the top of the screen and hold the right mouse button down to see the menus. While holding the right mouse button down, move to the **PROJECT** menu, move down to **ORIENTATION**, and move to either the **PORTRAIT** or **LANDSCAPE** option from that menu item. Release the right mouse button when the Intuition Pointer is on the desired selection. See Figure 9.

2.6.G.BORDER

In **PORTRAIT** mode, which means the longest PAD dimension is aligned vertically, the aspect ratio (i.e., ratio of width to height) of the PAD writing surface differs from the aspect ratio of the Amiga screen. The system has been designed so that you can still draw on the entire PAD surface. As a result, not all of the Amiga screen will be used for your drawing. Sections are lost on the left and right. None of the drawing is lost, but its screen representation is compressed.

If you select **BORDER ON**, the part of the Amiga screen which is not used in **PORTRAIT** mode becomes clearly evident, as it is shown entirely in black. If you select **BORDER OFF**, the unused screen portion becomes indistinguishable from the general background color.

When the **EASYL** system initially comes up, it is in **LANDSCAPE** mode. In this mode, the concept of border is irrelevant, since the entire Amiga screen is used.

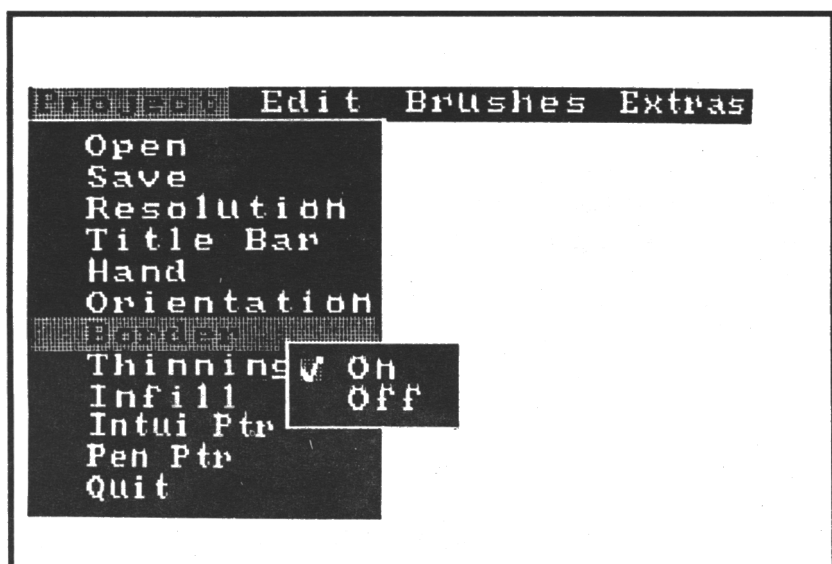


Figure 10 Border Options

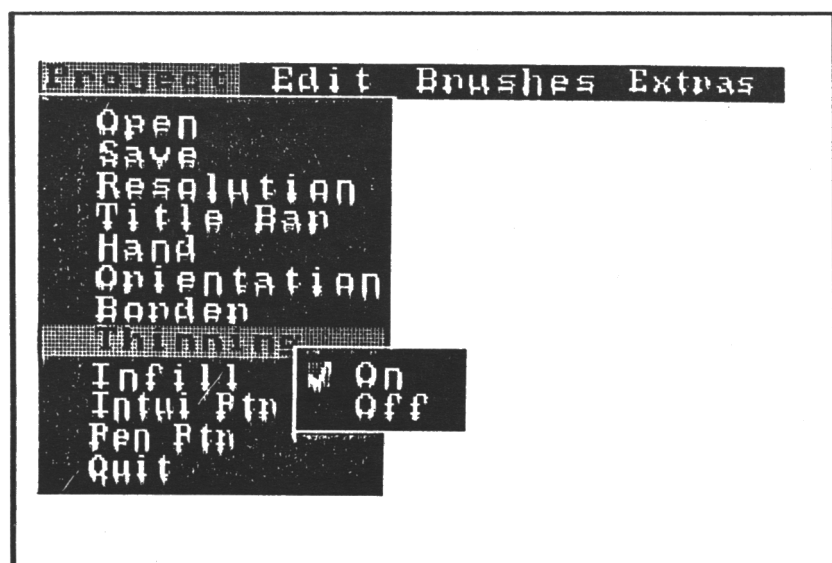


Figure 11 Thinning Options

To select the desired border mode, move the Intuition Pointer to the top of the screen and hold the right mouse button down to see the menus. While holding the right mouse button down, move to the PROJECT menu, move down to BORDER, and move to either the ON or OFF option from that menu item. Release the right mouse button when the Intuition Pointer is on the desired selection. See Figure 10.

Since the aspect ratios of the PAD and Amiga screen are virtually identical in LANDSCAPE mode, the BORDER option does not apply - there is no border.

2.6.H.THINNING MODE

Due to the high sampling rate of the PAD, when a stroke is drawn slowly, or with a blunt instrument, a considerable amount of clustering can occur around sampled points. While this may be desirable if an accurate representation of the drawing is desired, it may sometimes be preferable to reduce, or "thin out", the clustering. By default, initially the thinning mode is turned on.

To select thinning mode, move the Intuition Pointer to the top of the screen and hold the right mouse button down to see the menus. While holding the right mouse button down, move to the PROJECT menu, move down to THINNING, and move to either the ON or OFF option from that menu item. Release the right mouse button when the mouse pointer is on the desired selection. See Figure 11.

2.6.I.INFILL MODE

When this mode is chosen, adjacent sampled points from the PAD will always be joined. Thus, no gaps will appear when a stroke appears on the Amiga screen, unless the pressure while drawing parts of the stroke was too light. By default, initially infill mode is turned on.

To select infill mode, move the Intuition Pointer to the top of the screen and hold the right mouse button down to see the menus. While holding the right mouse button down, move to the PROJECT menu, move down

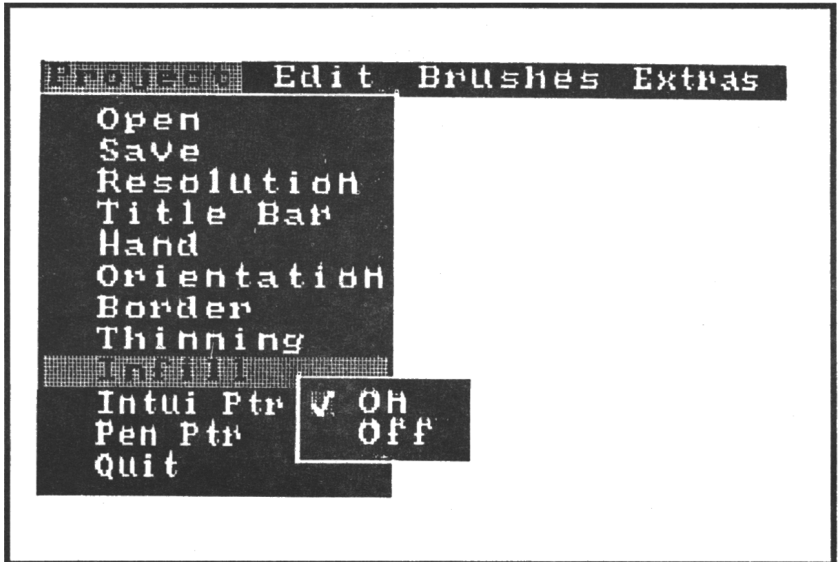


Figure 12 Infill Options

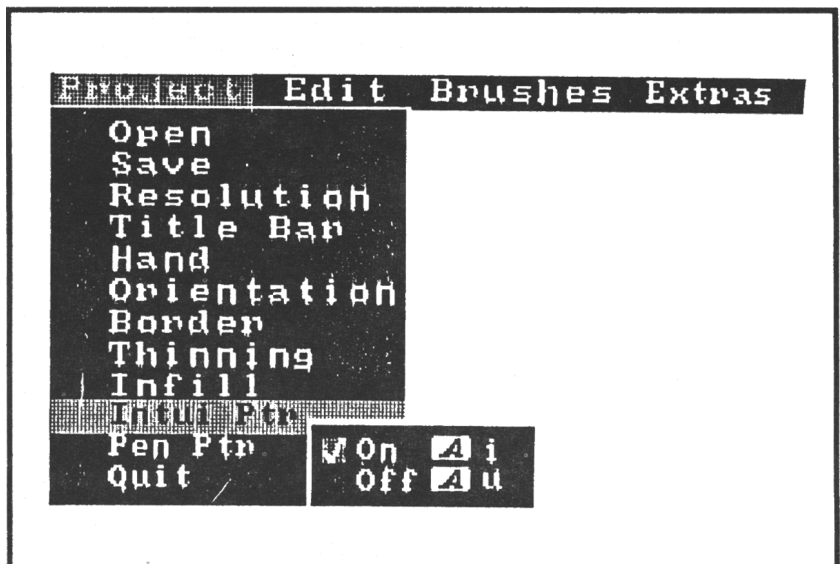


Figure 13 Intuition Pointer Options

to INFILL, and move to either the ON or OFF option from that menu item. Release the right mouse button when the Intuition Pointer is on the desired selection. See Figure 12.

In what is called "direct" drawing mode, which results from INFILL mode being OFF (See 2.6 section I above) and THINNING mode being OFF (See 2.6 section H above), there is a "true" representation on the screen of the pixels captured by the PAD. As a result, the user will see the following:

□ *When a stroke is drawn quickly, gaps may appear on the screen image of the stroke. This is due to a rate of drawing movement from pixel to pixel exceeding the sampling rate of the PAD.*

□ *When a blunt drawing implement is used, a "thicker" screen image of the stroke results. This results from the contact surface of the drawing implement exceeding one pixel.*

2.6.J.INTUITION POINTER

When the EASYL software is run, the pointer from Intuition is visible on the screen. This pointer moves when you move the mouse. If you do not wish to have the pointer cluttering your image, it can be turned off.

To turn off the Intuition pointer, move the pointer to the top of the screen and hold the right mouse button down to see the menus. While holding the right mouse button down, move to the PROJECT menu, move down to Intui Ptr, and move to either the ON or OFF option from that menu item. Release the right mouse button when the mouse pointer is on the desired selection. See Figure 13. Note that the keyboard can also be used to turn the Intuition Pointer on or off. Right Amiga-i, pressed simultaneously, will turn the pointer on, while Right Amiga-u will turn the pointer off.

Note that it becomes difficult to do menu selections and to respond to requesters when the Intuition Pointer is turned off.

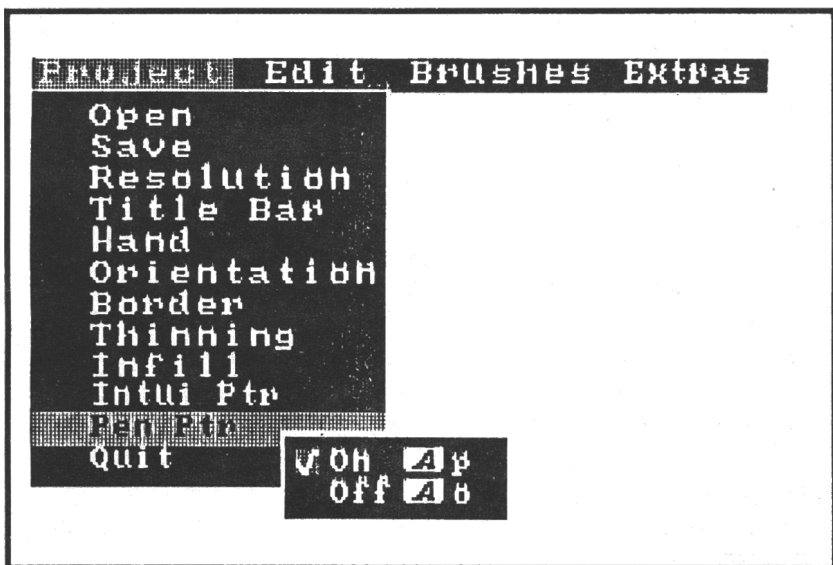


Figure 14 Pen Pointer Options

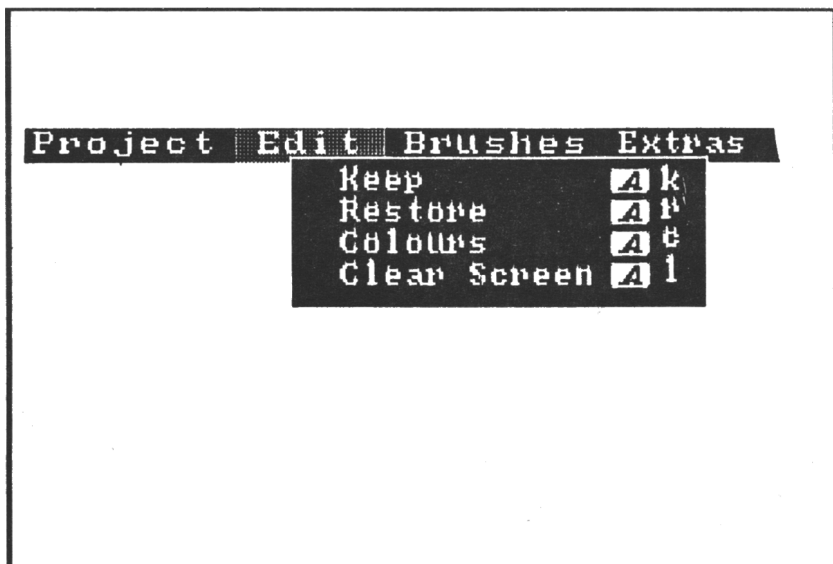


Figure 15 The Edit Menu

2.6.K.PEN POINTER

When the EASYL software is run, a pointer appears on the screen which corresponds to the current drawing location. This pointer moves whenever you move a blunt pointed instrument across the PAD surface, either for drawing or for locating. If you do not wish to have the pointer cluttering your image, it can be turned off.

The red frame button on the PAD can be used for positioning the Pen Pointer without drawing on the screen. To do this, press the red frame button down while touching the PAD with your drawing implement. The Pen Pointer will move to the corresponding screen location without making a mark there. When you wish to begin drawing, release the red frame button and start drawing.

To turn off the Pen Pointer, move the pointer to the top of the screen and hold the right mouse button down to see the menus. While holding the right mouse button down, move to the PROJECT menu, move down to Pen Ptr, and move to either the ON or OFF option from that menu item. Release the right mouse button when the mouse pointer is on the desired selection. See Figure 14. Note that the keyboard can also be used to turn the Pen Pointer on or off. Right Amiga-p, pressed simultaneously, will turn the pointer on, while Right Amiga-o will turn the pointer off.

Note that it becomes difficult to locate the screen position corresponding to your PAD position when the Pen Pointer is turned off.

2.7.THE EDIT MENU

Figure 15 illustrates the Edit menu which appears when the Intuition Pointer is moved to the Menu bar, the right mouse button is pressed, and the pointer moved over the Edit option.

2.7.A.KEEP-RESTORE COMBINATION

The editing concept within the EASYL program centers around keeping two screens for each image: a "back" screen and a "front" screen.

Creating an image consists of drawing one or more strokes. If the work is satisfactory, one would "keep" the image. If the work is not satisfactory, one would "restore" the last kept image.

Keeping an image moves the current front screen to the back screen. Restoring an image moves the current back screen to the front screen.

Both KEEP and RESTORE can be chosen in any of three ways: using the mouse from the EDIT pull-down menu, using the "K" and "R" touch commands, or using the keyboard.

To use the EDIT pull-down menu, move the Intuition Pointer to the top of the screen and hold the right mouse button down to see the menus. While holding the right mouse button down, move to the EDIT menu, move down to either KEEP or RESTORE. Release the right mouse button when the Intuition Pointer is on the desired selection. The keyboard equivalents are "right Amiga-k" for KEEP and "right Amiga-r" for RESTORE.

CAUTION: The EasyL Program will check the memory available, and disable the back screen, if memory is low. In this situation, the Keep-Restore options will be ghosted (unavailable) and the K-R commands on the PAD will have no effect.

2.7.B.VIEWING THE EASYL BACK SCREEN

The EASYL back screen can be viewed at any time by pulling down the front screen, using the mouse.

To do this, move the Intuition Pointer to the top menu bar. Hold the left mouse button down, and drag the screen down.

2.7.C.THE EASYL COLOUR MAP

In the default configuration, 32 colours are pre-assigned and available in 320 by 200 and 320 by 400 resolution levels, and 16 colours in 640 by 200 and 640 by 400 resolution levels.

The colour command strip illustrates 16 colours and 16 numbers. The 16 colours are approximate representations of the default colours obtained by touching a colour box. These are the colour commands available for ANY resolution level. The 16 numbered command boxes represent extra touch colour commands available for a horizontal resolution level of 320. There are default colours assigned to these numbers, but it is expected that particular colours will be required for particular applications. Thus, the user can design a colour palette specific to an application (e.g., a grey-scale).

The 16 default colours for the top row of the colour command strip are, from left to right:

MEDIUM GREY, BLACK, MAGENTA, PURPLE, ULTRA BLUE, PEACOCK BLUE, DARK GREEN, FOREST GREEN, EMERALD GREEN, PRIMROSE YELLOW, MEDIUM YELLOW, ORANGE, PERMANENT RED, CERISE, MAROON, BRUN.

The 16 default colours for the (numbered) bottom row of the colour command strip (available only for horizontal resolutions of 320) are, from left to right, a grey scale from dark grey to light grey and white. In combination with colour 2 (black), you have a complete 16-level grey scale.

The available colour palette (colour or number command boxes) can be easily altered to suit your requirements. See 2.7 section F.

2.7.D.BACKGROUND COLOUR

The current background colour takes on the colour setting for the first colour command box (the first colour in the palette). The default is medium grey.

It is recommended that you keep colour 1, the background colour, a dark colour, to make the drawing more visible. In order to change the background colour, follow the instructions for editing the colour palette, changing only the first colour in the palette (extreme left, top row), as described in section 2.7 F.

2.7.E.PALETTE COLOURS USED BY THE SYSTEM

Changing certain palette settings (see 2.7 F) will affect the appearance of menus, requesters, borders, gadgets, messages, and the title bar. The following colours (numbered along the top row of the colour command bar, from the left) are used by these details:

- *Colour 1 (default medium grey) is used for messages in the menu bars, and for background in requesters, and background in general.*
- *Colour 2 (default black) is used for depth arrangement gadgets. It is also used as the portrait mode border, and the colour in which drawing will appear on the screen until another colour command is touched.*
- *Colour 13 (default permanent red) is used as background for menus, as the border of requesters (except for the colour editor requester), and for messages in requesters.*

2.7.F.SETTING AND MODIFYING A COLOUR

The default colour configuration is outlined in section 2.7.C.

The COLOURS option on the EDIT pull-down menu invokes the process of setting one of the numbered colour commands, or altering one of the colours.

Choosing this menu item brings up a colour palette modification box illustrated in Figure 16.

The large box in the upper left corner displays the colour you are currently setting. The palette of 32 colours (16 in horizontal resolution 640 mode) is displayed on the upper right. The colours represent, left to right and top to bottom, the colour command strip on the PAD, left to right and top to bottom. The three horizontal bars

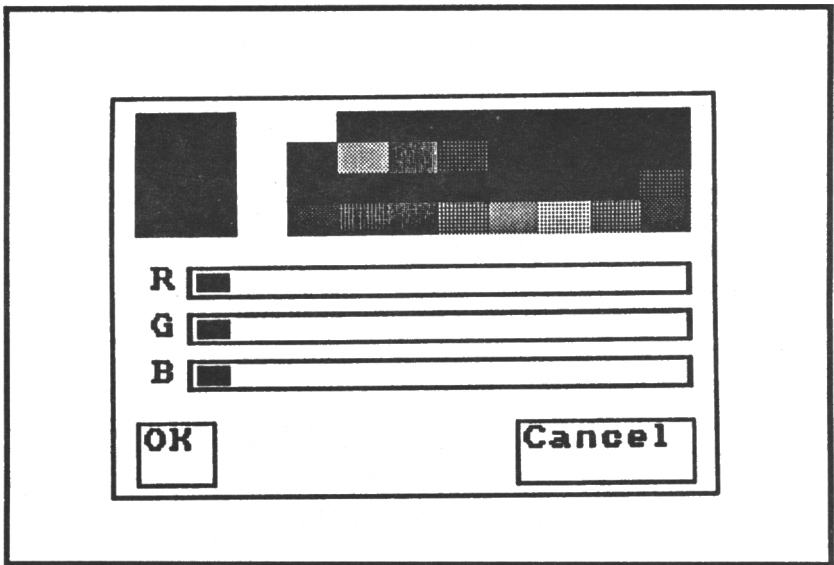


Figure 16 The Colour Requester

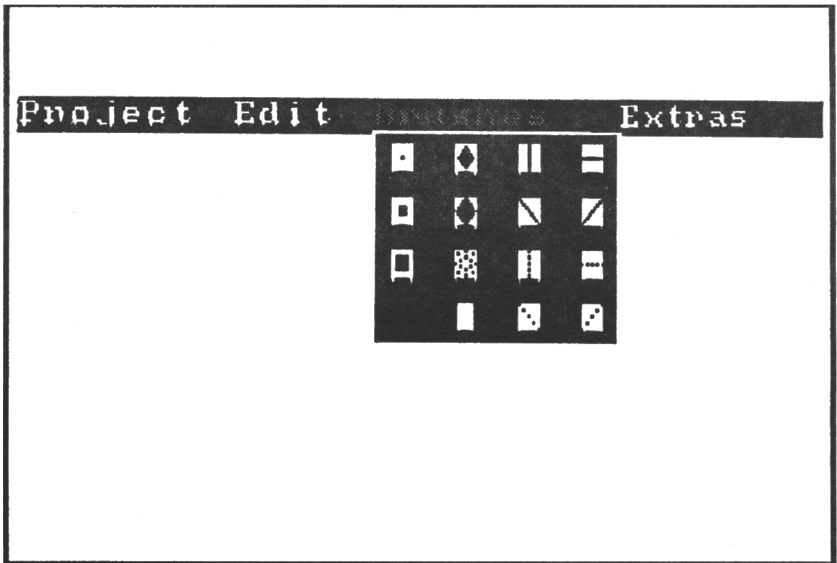


Figure 17 The Brush Menu

labelled R, G, B with block level indicators display the amount of red, green, and blue in the current colour being set. There are 16 separate levels in each of these three horizontal bars.

To set or change a colour, move the Intuition Pointer to point to the colour to be set in the palette. Click the left button. The current setting of the chosen colour will be immediately displayed in the large left box. Then move the Intuition Pointer to one of the R, G, B horizontal levels. There are two ways to change a level. The block level indicator can be "dragged" to a new setting by moving the Intuition Pointer over the level indicator, then pressing and holding down the left mouse button as the level indicator is dragged to the new position. The palette, and the current colour indicator, will immediately reflect the change. A second method would involve moving the Intuition Pointer either to the left or right of the level indicator, depending on whether the level is to be decreased or increased. Each click of the left mouse button moves the level indicator one position towards the Intuition Pointer. As the level indicator moves one notch, the change is immediately reflected in the colour palette and current colour indicator.

When the colour palette meets your requirements, move the Intuition Pointer over the OK box and click the left button. If at any time you wish to abandon all changes made, move the Intuition Pointer over the CANCEL box and click the left button.

The colour editor can also be invoked from the keyboard by "right Amiga-c".

2.7.G.CLEARING THE SCREEN

Clearing the screen is chosen in any of three ways: using the mouse from the EDIT pull-down menu, using the "C" touch command, or using the keyboard. To make the desired selection, move the Intuition Pointer to the top of the screen and hold the right mouse button down to see the menus. While holding the right mouse button down, move to the EDIT menu, and move down to

CLEAR SCREEN. Release the right mouse button when the Intuition Pointer is on the desired selection. The screen can also be cleared by using the keyboard combination "right Amiga-I".

To clear the screen using the "C" touch command, touch the "C" command box. A prompt will appear on the EASYL menu bar, "Touch "C" to Clear". Touch "C" again to perform the clearing of the screen. Anything else will result in the clear command being aborted.

2.8.THE BRUSH MENU

Figure 17 illustrates the menu which appears when the Intuition Pointer is moved to the Menu bar, the right mouse button is pressed, and the pointer moved over the Brush option.

2.8.A.THE BRUSH EFFECT

Normally, drawing a stroke on the PAD creates a one-pixel wide image of the stroke on the screen. Interesting effects result when the location of the pen becomes the center of a pattern of pixels which can be drawn across the screen. The pattern of pixels is called a "brush".

2.8.B.THE EASYL BRUSH SET

The mouse is used to view the brushes currently available with EASYL. Move the Intuition Pointer to the top of the screen and hold the right mouse button down to see the menus. While holding the right mouse button down, move to the BRUSHES menu, and the desired brush among the 16 shown. Release the right mouse button when the Intuition Pointer is on the desired brush selection.

Note that the first brush among the 16 available is a one-pixel brush, which has the same effect as a normal drawing pattern.

2.8.C.RETURN TO NORMAL DRAWING MODE

When the first brush is chosen, the effect is a return to normal drawing mode.

2.9.AREA FILL

To do an instant fill with a desired color in a bordered area, touch the color command box of the color desired, touch the "F" command box, then touch any point within the area to be filled. NOTE that the area to be filled MUST be enclosed, otherwise the fill color will "leak" into the rest of the screen.

Also note that due to memory constraints, area fill on large areas may not work in high-resolution mode with EASYL version 1.2, with 512K or less RAM.

APPENDIX A. ERROR NUMBERS AND THEIR MEANINGS

1000: Another driver or the EasyI program is already running.

1020: Could not find the graphics library. Your Kickstart may be corrupted.

1025: Could not locate a signal bit. Reboot system.

1030: Could not create a port. Try rebooting system.

1040: Could not get a STDIO. Try rebooting system.

1050: Could not open input device. Try rebooting system.

1060: Could not open expansion library. Your Kickstart may be corrupted.

1070: EasyI may not be connected properly.

1080: Not enough memory to open Pro Driver input window. Also may result from running the PAL driver on an NTSC system.

1081: Not enough memory to resize the Pro Driver input window.

1090: Not enough memory to create a new task.

1100: Not enough memory to show the input window in the Pro Driver.

APPENDIX B. OVERCOMING PROBLEMS

Some possible problems and their solutions:

1. When initially running EASYL, the screen comes up, but nothing happens when the pen or mouse is used. This could be due to loose connections (PAD-interface, or interface-Amiga). **BE CAREFUL!** Turn the Amiga off before checking connections.

2. In high-resolution mode, EASYL 1.1 may quit. The system may just come back with error #8, a memory-allocation problem, or it may simply fail to respond to the pen or mouse. In any case, the system must be restarted.

3. Note that the mouse becomes frozen when one of the mouse buttons is pressed while an area infill is being done. You must wait until the infill finishes.

4. Area fill (see section 2.9) may not work in high resolution (640 by 400) due to memory constraints, if your machine has 512 K or less RAM.

5. If the PAD surface is lifting or bubbling, it may be near a source of heat, or it may have been left in a hot place (such as a closed car on a sunny day). Normally, the surface will flatten when it cools down.

6. If a full-size PAD drawing appears on only one quarter of the screen within Deluxe Paint or Images, then the mouse response setting within Preferences should be checked. Run "preferences" and make sure the mouse response setting is 1.

If any other problems occur, please notify immediately:

Anakin Research, 416-744-4246 BIX account: "bmalud"

APPENDIX C. TECHNICAL NOTES

C.1.PAD DIMENSIONS AND RESOLUTION

The PAD has physical dimensions of 8.5 inches by 13 inches, or 215 mm. by 330 mm. The resolution of the PAD surface is 1024 by 1024, giving an effective pixel ratio of 3:2.

About one inch is lost in the long dimension due to the command strip area and paper-holding adhesive area, which reduces the effective drawing surface to a resolution of about 1024 by 944.

Points obtained from the PAD surface are accurate to 0.5 mm. Since the effective dimensions of a PAD pixel are 0.3 mm by 0.2 mm, a coordinate could be off its true value by as much as 3 in 1024 in the shorter dimension, and 2 in 1024 in the longer dimension. This effect is partially offset by filtering and thinning algorithms in the software, and is reduced somewhat by the transformation from the 1024 by 1024 resolution of the PAD to a lower resolution on the Amiga screen.

To be safe, then, touch a color command box close to the center of the box. Touching near the edge of a color command box may result in an adjacent color being selected.

C.2.PAD SAMPLING RATE

The PAD obtains one value (x OR y) every 2 msec. Thus, the effective sampling rate is 250 coordinate PAIRS every second.

In more meaningful terms, if one were to position the PAD in portrait mode, and draw a line very quickly (say, one second) from one side to the other, one would trans-

mit 250 coordinate pairs in that second to the Amiga. If EASYL were in low resolution mode, the 250 coordinate pairs would be mapped onto a maximum of 320 horizontal positions. Thus, a continuous line (i.e., no breaks) on the Amiga screen would not be possible in DIRECT mode (See 2.6.1) for the line drawn quickly on the PAD. However, INFILL mode would compensate.

C.3.INTERCHANGE FILE FORMAT (IFF)

EASYL produces images on disk which adhere to the specifications of the IFF standard as set forth by Commodore-Amiga and Electronic Arts in Appendix H of the ROM Kernel Manual.

Currently, each image created by EASYL and saved to disk creates a single FORM ILBM. It contains a BMHD, CMAP, and BODY. These components are described in the ROM Kernel Manual.

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