AMIGA® **OS 3.1**

Workbench

C Commodore

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Welcome

The Commodore®Amiga® line of personal computers offers a unique combination of versatility, computing power, and usability.

By working with the Amiga's easy-to-learn, easy-to-use Workbench™ interface, any level user—even a beginner— can quickly accomplish tasks or run programs. With Workbench there is no need to memorize long lists of commands. All you have to do is use your mouse to select icons (small pictures that represent tasks) or items from list-like menus to control your Amiga.

Workbench also offers you the freedom to design your own custom system configuration using the Preferences editors and Tools programs provided. You can, for example, create icons and menus for the tasks that you do most. You can fine-tune the system to take ultimate advantage of your Amiga's superior graphics capability.

Workbench lets you work in your own language and use the monetary and numeric symbols with which you are familiar. Through a simple easy-to-follow process, you can display the Workbench in the language of your choice.

Workbench is not only user-friendly and flexible, but it is also extremely powerful. The Workbench takes full advantage of the Amiga's ability to multitask, or run several independent programs simultaneously. By simply clicking on an icon, you can switch between programs when you need to. Not only can programs run at the same time on the Amiga, but they can also share information and computer resources, allowing you to do more work without requiring additional software and memory.

Your Amiga and the Workbench provide you with a powerful tool for work or pleasure. Enjoy it!

Using This Manual

This manual provides operational instructions and reference material for using your Amiga Workbench. If you have never used an Amiga before, read the entire manual to become familiar with the general operations of your Amiga and the Workbench system. Once you learn the basics, this document can serve as a reference tool. If you are already familiar with the Amiga, be sure to read through the manual for new information that you may not know.

Chapter 1. Before You Start: This chapter provides instructions for things you need to do and information you need to know before you start using your Amiga, including language selection and installation procedures.

Chapter 2. Basic Operations: This chapter describes starting your Amiga, creating and managing disks and files, and using your mouse and keyboard.

Chapter 3. Fundamentals of Workbench: This chapter describes the elements that comprise the Workbench environment, including screens, windows, menus, icons, gadgets, and requesters.

Chapter 4. Workbench: This chapter provides an overview of the Amiga Workbench system, including descriptions of the Workbench programs and the environment.

Chapter 5. Preferences: This chapter details the information needed to set your Amiga to work with monitors, printers, and other peripherals and how to customize your individual Workbench environment.

Chapter 6. Localization: This chapter describes the localization options available on the Amiga Workbench including language, date, time, and numeric format.

Chapter 7. Monitors: This chapter describes the monitors that you can use with your Amiga. It includes choosing a monitor and monitor settings for your system, Advanced Graphics Architecture™ (AGA or AA)-specific information, and a list of the monitor display modes.

Chapter 8. Fonts: This chapter explains how to install and use both bitmap and outline fonts on the Amiga.

Chapter 9. Printers: This chapter describes printers and printer options for producing the output that best suits your needs and equipment.

Chapter 10. Other Amiga Programs: This chapter explains the programs in the Tools and Commodities drawers.

Chapter 11. CrossDOS: This chapter describes CrossDOS™, which allows you to read and write MS-DOS formatted disks on your Amiga.

Chapter 12. ED Editor: This chapter explains how to use the ED text editor to create and edit text files.

Appendix A. Troubleshooting: This appendix provides solutions to common problems that can occur.

Appendix B. Using Floppy-Only Systems: This appendix provides information for using floppy-only Amigas, including how to copy disks, how to set Preferences, and how to work faster.

Appendix C. AmigaGuide: This appendix describes AmigaGuide, a hypertext on-line help system available with some applications. Included in this chapter are instructions for using AmigaGuide and descriptions of its menus.

Appendix D. Special Early Startup Control Options: This appendix provides information on special boot options that allow you to choose display options, diagnose expansion board failures, and to disable devices and processor caches for software compatibility.

Documentation Conventions

The following conventions are used in this manual:

KEYWORDS	Keywords are displayed in all upper case letters, however, the arguments are not case-sensitive.
\<n\>	Angle brackets enclose variable information that you must supply. In place of \<n\>, substitute the value, text, or option desired. Do not enter the angle brackets when entering the variable.
`Courier`	Text appearing in the Courier font represents information displayed on your screen.

Key1 + Key2   Key combinations displayed with a + (plus) sign connecting
                   them indicate pressing the keys simultaneously. For
                   example, Ctrl+O means to hold down the Ctrl key and, while
                   holding it down, press O.

Key1, Key2   Key combinations displayed with a comma separating them
                   indicate pressing the keys in sequence. For example,
                   Esc,O,P means to press the Esc key, followed by the O
                   key, and then followed by the P key.

Amiga keys   Two keys on the Amiga keyboard used for special
                   functions. The left Amiga key is to the left of the space bar
                   and is marked with a large solid A. The right Amiga key is
                   to the right of the space bar and is an outlined A.

Related Documentation

The following additional Amiga manuals are available through your
dealer:

AmigaDOS™ *User's Guide*

ARexx User's Guide

Chapter 1
Before You Start

Before you start using your Amiga, there are a few things you should know and must do. If you have never used an Amiga before, there are terms and instructions in this chapter with which you may not be familiar. This information is provided here to get you started without having to know everything about your system. Although you may never have used an Amiga before, by following the instructions you can make language and keyboard selections and, if necessary, install your software. We recommend that you read all instructions before beginning any operations. We also recommend that you read through this manual to familiarize yourself with Workbench, its components, and how to use it.

This chapter provides you with information about:

- Using a compatible monitor
- Choosing a language
- Choosing a keyboard
- Installing the complete Workbench software
- Installing languages
- Getting started

Monitor Compatibility

Your monitor allows you to interact with your Amiga. Many different monitors are compatible with the Amiga, which offers a variety of display options to suit your monitor's capabilities. Through the ScreenMode Preferences editor provided by the Workbench software, you can choose how your monitor's display appears.

Not all monitors are compatible with your Amiga when it is powered on (booted) for the first time. All Amigas, except those equipped with a hardware display enhancer, require that the monitor used for the first boot be able to display 15 kHz scan modes. If you are using a multiscan monitor or other monitor that can display 15 kHz modes, you should have no problem seeing and using your display after the initial boot. If you are not sure if your monitor syncs to 15 kHz, consult the documentation that came with it or contact your dealer.

If you do not have the hardware display enhancer and your monitor is VGA-only or does not sync to 15 kHz, your display will be distorted until an appropriate ScreenMode Preferences editor setting is made. Since you cannot reach this editor the first time you power on your Amiga using a VGA-only monitor, we recommend that you make and save your initial settings using a monitor that displays 15 kHz modes. We also recommend that you make at least one backup floppy disk copy of your Workbench software containing these initial ScreenMode editor settings in case you ever need to recover your display. If you have a problem doing this, consult your dealer or request that your dealer makes your initial settings for you.

You should be able to use your VGA-only monitor with the Advanced Graphics Architecture™ (AGA) chip set; however, there may be limitations on the screen display modes that you can use. Most games do not work with VGA-only monitors. See Chapter 7 for more information on scan rates and screen display modes.

Choosing a Language

If you wish to interact with the Workbench in any language other than English, you must select your preferred language after you initially boot the system or following successful software installation. We recommend that you load all of the languages that you may want to use during the installation. However, if your language is not available, you can install it at a later time. For instructions on selecting a language for Amiga Workbench processing, see Chapter 6 in this manual.

If you have a floppy-only system, to use a language other than
English, you must follow the procedures for copying information and
setting preferences described in Appendix B.

Choosing a Keyboard

If you wish to use a keyboard other than the default American, you
must choose a keyboard type in the Input Preferences editor to
activate it. For your keyboard to be available in the Input editor's
keyboard list, its corresponding keymap must be present in the
Devs/Keymaps drawer. If you are not sure which keyboard/keymap
combination you have, consult your dealer.

Note   If you are reinstalling your system software, be sure to
         select your keymap since the installation process
         overwrites the existing keymap file, deleting the old
         contents.

If your keymap is not in DEVS:Keymaps, you can load it during
software installation or you can drag its icon from the
Storage/Keymaps drawer on your disk set to the Devs/Keymaps
drawer as described with the Input Preferences editor in Chapter 5.
The Input editor description includes a list of keyboards and their
corresponding keymaps. (Floppy-only system users follow the same
procedures described in Chapter 5.)

Note   If you are working in a language other than English
         and you are using a keyboard other than USA, you
         must use dead keys to produce accented characters.
         See the KeyShow description in Chapter 10 for
         information about using dead keys.

Software Installation

Workbench software comes preinstalled on most Amiga hard drive models. In this case, you do not need to install system software unless:

- You are upgrading your software from a previous release level.
- You reformat your hard disk.

If you are not certain your system is preloaded, consult your dealer.

Once your software is installed, if your system does not have all the languages that you want to use, the Installer lets you load any of them at a later time without running a full installation.

Installing System Software

The following procedures describe how to install the system software on your hard drive:

1. Insert the Amiga Install disk into any floppy disk drive.

2. Boot your system (turn it off and on again).

3. Moving your mouse on a flat surface, place the tip of the pointer on the screen onto the icon (picture) labeled Install and quickly press (click) the left mouse button twice. A window containing drawer icons is displayed on the screen.

4. Using your mouse, move the tip of the pointer onto the icon for the Install drawer and quickly press the left mouse button twice. A window containing icons representing the various languages is displayed on the screen.

5. Using your mouse, move the tip of the pointer onto the icon for the language that you want to use during the installation and quickly press the left mouse button twice. This selects a language for the installation process only.

   If you choose any language other than English and LOCALE: is not available, a message asking you to insert the disk containing the Locale drawer is displayed. Remove the Install disk from the floppy disk drive and insert the disk containing the Locale drawer. A message prompts you to reinsert the Install disk after

Locale has been read. Clicking on the Help button displays help in your chosen language.

6. The next screen allows you to continue the installation or abort. Click on Proceed to continue.

7. Choose between installing the complete software or updating languages only on the next screen. If you are installing the software, click on the Install Release button. If you only need to install a language, click on the Update Languages button and follow the instructions.

8. Select an installation mode on the next screen. Click the left mouse button once on the button to the left of your choice. Then click the left mouse button once on the Proceed With Install button.

9. The next three screens ask you which languages, printer drivers, and keymaps you wish to install. On every screen click once in the box next to each of the languages, printer drivers, and keymaps you intend to use. Click on the Proceed button when you are done with each screen.

   If you are not sure which keymap is appropriate for your particular keyboard, consult your dealer. Printer drivers are described in detail in Chapter 9.

10. The Installer starts loading the software from the disks. Follow the instructions on the screen, inserting disks as requested.

11. When the installation is complete, remove the Install floppy and reboot your system. Select Proceed to reboot or you can reboot manually.

12. To use Workbench in any language other than English, you must select your preferred language in the Locale Preferences Editor. See Chapter 6 for instructions and information on choosing a language.

13. To use any keymap/keyboard other than the default American keymap/keyboard, you must select a keyboard in the Input Preferences editor to activate the corresponding keymap in DEVS:. See Chapter 5 for instructions on activating your keyboard and a list of keyboards and corresponding keymaps.

Getting Started

Once your software, printer drivers, keymaps, and languages are all loaded and selected, if you have never used an Amiga before, it is helpful to read through this manual, concentrating on Chapters 2 through 4 to learn basic operational information about the Amiga and the Workbench.

The following table indicates where you would find information to do the following tasks:

Task	Where to find it
Booting/rebooting your system	Chapter 2
Using your mouse	Chapter 2
Managing disks and files	Chapter 2
Learning the parts of the Workbench	Chapter 3
Making backup copies	Chapter 3
Formatting disks	Chapter 4
Using Workbench	Chapter 4
Opening a Shell window	Chapter 4
Making devices available	Chapter 4
Customizing Workbench	Chapter 5
Activating a nondefault keyboard	Chapter 5
Localizing your Workbench environment	Chapter 6
Using CrossDOS	Chapter 11
Choosing fonts	Chapter 8
Setting up printers and printing	Chapter 9
Using Workbench tools	Chapter 10
Text editing	Chapter 11
Trouble shooting	Appendix A
Choosing a display mode	Chapter 7

Task	Where to find it
Using floppy-only Amigas	Appendix B
Using AmigaGuide	Appendix C
Freeing memory for large games	Appendix D

Chapter 2
Basic Concepts

Before using your Amiga, you should familiarize yourself with the basic Amiga system concepts and techniques provided in this chapter. These include:

- Booting your system
- Using the pointers
- Using the mouse
- Handling disks and using disk drives
- Creating and accessing files and directories

Booting/Rebooting Your System

Booting powers on your computer and loads the operating system information from a disk to the computer's memory. Each time the Amiga is booted, the system must find the Amiga system software on a bootable hard disk or floppy disk inserted into a disk drive. If there are no bootable disks when the system is powered on, an animated screen requests that you insert a bootable disk into a floppy drive.

Rebooting resets your computer without turning off the power. This process terminates any active programs and erases any data stored in the Amiga's memory.

For information about booting and rebooting floppy-only systems, see Appendix B.

Each time the Amiga is booted or rebooted, the following events occur:

1. The Amiga executes a script file called the Startup-sequence. The
    Startup-sequence file contains AmigaDOS commands that load
    the Amiga software and handle various hardware and software
    setup tasks.

2. The Startup-sequence executes a script file called User-startup, if
    you have created it. In general, User-startup files contain your
    own customized configurations, resident commands, and directory
    assignments. Appendix B offers some instructions and
    suggestions of items that you can place in a User-startup file.

3. The Amiga Workbench screen appears, as illustrated in
    Figure 2-1.
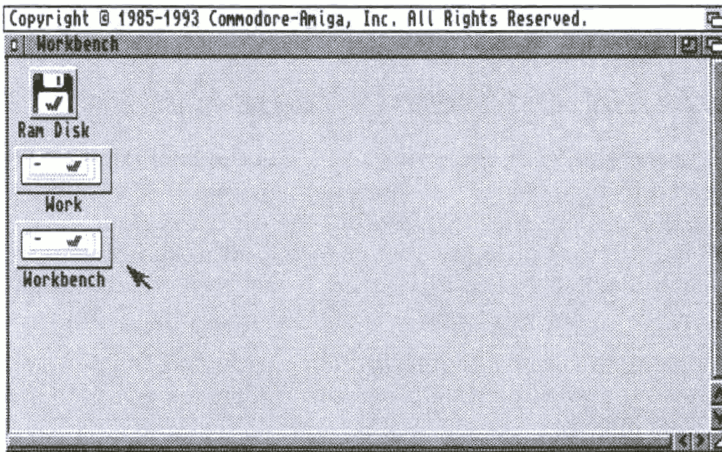
Figure 2-1. Workbench Screen

4. Workbench runs any programs whose icons are in the WBStartup
    drawer. By placing program icons in the WBStartup drawer, you
    can also customize your system startup.

Do not alter the Startup-sequence file, doing so can prevent the
Amiga from booting properly.

To reboot your system:

1. Be sure that all disk activity has stopped and that all floppy disk drive and hard disk drive lights are unlit.

2. If you are rebooting from a floppy disk drive, insert a copy of the Workbench disk into a floppy disk drive.

3. Simultaneously hold down the Ctrl (Control), left Amiga, and right Amiga keys and then release them.

Special Boot Options

Extra memory used for maintaining devices can prevent floppy-based games from running. See Appendix D for information about how to avoid this problem.

Using the Workbench Pointers

The Workbench has two pointers: the mouse pointer and the busy pointer.

Mouse Pointer

The mouse pointer is a small movable picture that is used to indicate to the system the location at which you wish to do some operation. By default the mouse pointer is an image of an arrow. The mouse pointer is moved and positioned with the mouse. The tip of the pointer has a hot spot, which is one pixel (a dot of light that makes up the monitor screen display) that the system is programmed to recognize as the pointer's locator. The pointer indicates to the system the position of an item that you wish to work with. Through the mouse, you communicate the action that the system should take on this item. You can change the shape and color of the mouse pointer using the Pointer Preferences editor, described in Chapter 5.

Busy Pointer

The busy pointer, also referred to as the wait pointer, is displayed in place of the mouse pointer to indicate that the system is attempting to execute an instruction. By default the busy pointer is an image of a stopwatch. Most Workbench operations are unavailable while the busy pointer is displayed. However, you can still move, size, and depth-arrange windows with the busy pointer. The appearance of this pointer can also be changed using the Pointer Preferences editor described in Chapter 5.

Using the Mouse

The Amiga comes equipped with a mouse, illustrated in Figure 2-2, used to communicate with the system through the pointer. The mouse pointer is positioned by moving the mouse. Manipulating the mouse so that the pointer is located over various objects and pictures on the screen and pressing the mouse buttons tells the Amiga what to do.
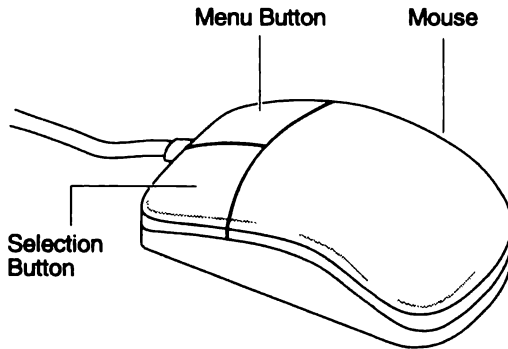
Figure 2-2. Amiga Mouse

Holding the Mouse

Hold the mouse on a flat surface with the cable extending away from you so that the mouse box rests under the palm of your hand with the buttons under your fingertips. In this position, the left mouse button is the selection button and the right mouse button is the menu button.

Mouse Operations

When using the mouse,

Pointing	means moving the mouse so that the tip of the pointer is positioned over an object on the screen. The pointer moves in the same direction you move the mouse. The mouse can be lifted and repositioned at any time. Lifting the mouse does not move the pointer.
Clicking	means pressing and releasing the selection button.
Double-Clicking	means clicking the selection button twice in rapid succession. Double-clicking on an icon causes a window to appear or a program to start.
Holding Down	means pressing the mouse button until your action is completed.
Dragging	means moving screens, windows, and icons by holding down the selection button and moving the mouse.

Using the Selection Button

The left mouse button is the selection button, used for selecting items on the monitor display for processing. This button is also used to move, or drag, items on the screen. For information about these operations, see Chapter 3.

Using the Menu Button

The right mouse button is the menu button, which is used to display the menu bar and menus and to choose items from them. Menu bars contain the headings of each menu available for a selected window, program, or icon. Menus contain lists of options for the operations that you can do with the selected item.

Using Menus

Menu bars appear across the top of the screen, containing any menu headings available.

Hold down the menu button to display the menu bar as illustrated in Figure 2-3. Hold down the menu button while pointing to the different menu headings to show the available items listed beneath each. To choose a particular item, move the pointer down and release the menu button when the pointer touches it.

```
Workbench  Window   Icons  ◄─── Menu Bar
   Backdrop        ⟨A⟩B
 Execute Command... ⟨A⟩E
 Redraw All
 Update All
 Last Message
 About...          ⟨A⟩?
 Quit...           ⟨A⟩Q
```
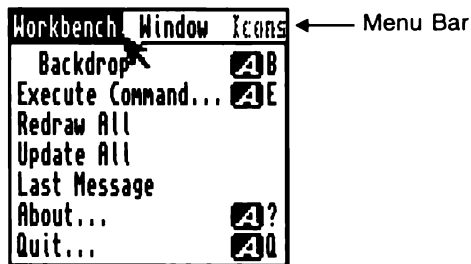
Figure 2-3. Sample Menu Bar and Menu

Some menu items have submenus, which are additional related options that appear to the right of the menu item when it is selected. The symbol » after the item name indicates a submenu. If a menu has submenus, select one of the submenu options. Choosing a main menu item without choosing one of its submenus has no effect. In addition to the » symbol, other symbols may appear on the menu:

• An ellipsis (...) follows the name of menu items that open a requester.

• A checkmark in the area to the left of a menu item indicates that the item is an option that is currently selected. When this area is empty, the option is deselected.

To execute several menu options at once, hold down the menu button and, using the selection button, click on the menu options of your choice.

The menu button can also be used to cancel operations being performed by the selection button, such as drag selection.

Ghosted Menu Items

If a menu item is not available for a particular operation, it is ghosted or displayed less distinctly than the others, as illustrated in Figure 2-4.
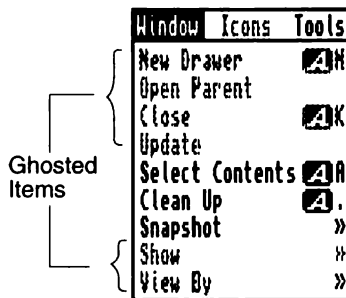
Figure 2-4. Ghosted versus Available Menu Items

Cancelling an Operation

Cancel the operation being performed with the selection button by clicking the menu button while still holding down the selection button. The following operations can be cancelled:

• Selecting

• Dragging

• Drag selection

• Changing the size of a window

Using the Amiga Without a Mouse

All mouse actions can also be done using the keyboard. Certain key combinations allow use of the keyboard to move the pointer, select icons, and choose menu items. Keyboard shortcuts appear in the menu boxes to the right of some options. Holding down the right Amiga key and simultaneously pressing the letter displayed attains the same results as activating that menu option. Using the keyboard shortcuts instead of the menus speeds your work. For a full description of key functions, see the hardware manual for your Amiga model.

Using Disk Drives

Disk drives are devices from which information is retrieved or to which information is written or stored. An Amiga can have one or more hard disk drives, as well as floppy disk drives, depending on the model. All Amiga floppy disk drives can use low density floppy disks. However, if you have a high density floppy disk drive on your Amiga, you can also use high density floppy disks. Refer to the hardware manual that came with your system if you are not sure about the type of floppy disk drive you have.

Each disk drive has a device name, such as DF0: for the internal floppy drive. (Additional floppy drives are designated DF1:, DF2:, and DF3:.) A disk icon is displayed on the Workbench screen for each disk inserted in a drive and for each hard disk partition.

The device name and the volume name are two ways of identifying a given disk. For most purposes use either name to refer to the disk when entering a path or within a file requester. The device name refers to the disk that is in the specified disk drive. The volume name refers specifically to a particular disk. For example, if you have a floppy disk in device DF0: with a volume name of Mydisk, you can reference it as either DF0: or Mydisk:. Referencing the disk as Mydisk: lets you insert Mydisk into any drive, not only DF0:.

Each drive has an activity light that is lit when the device is in use, either reading or writing data.

Caution **Never reboot or turn off your Amiga and never remove a floppy disk from a floppy disk drive when any of the drive activity lights are lit or you risk damaging the drive and/or the files on the disk.**

Inserting Floppy Disks

The standard 3.5-inch floppy disk can be inserted only one way. Insert the disk into the disk drive with the label side facing up and the metal end with the indicator arrow entering first.

Using Floppy Disks

Floppy disks must be write-enabled and formatted before information can be written on them. To write-enable a floppy disk, turn the disk to its back side and push the plastic tab in the upper left corner down to cover the hole. Conversely, to write-protect a floppy disk, push the plastic tab up, uncovering the hole. Figure 2-5 illustrates the write-enable/protect tab on a floppy disk. Formatting floppy disks is described in Chapter 3.
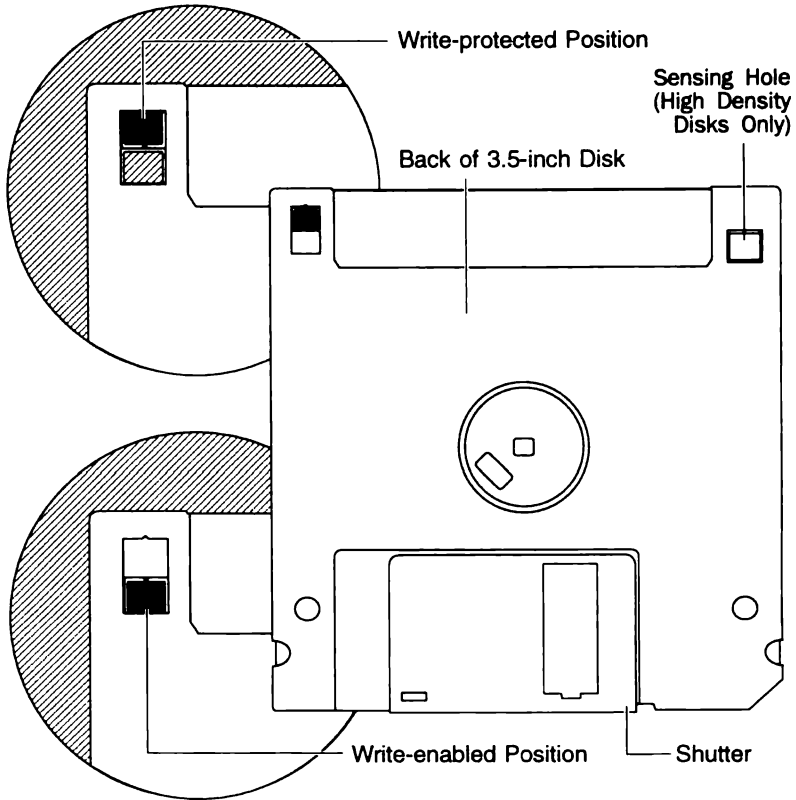
Figure 2-5. Write Protecting/Enabling Floppy Disks

The disk from which information is copied is referred to as the source disk (FROM disk). The disk to which the information is copied is referred to as the destination disk (TO disk). The source disk should always be write-protected to avoid accidental erasure. The destination disk can be a blank disk or a previously used disk whose contents are no longer needed. This disk must be write-enabled to accept the information from the source disk.

Using the Ram Disk

The Ram Disk icon represents RAM:, an area of the Amiga's internal memory that is set up as a file storage device like a disk. Files, directories, and entire floppy disks (available memory permitting) can be copied to RAM: for temporary storage. The Ram Disk serves as a work area that the system can quickly access.

The size of RAM: is dynamic. It is never any larger than necessary to hold its contents. Therefore, it is always 100% full. Its maximum size is limited by the amount of free memory.

The primary advantage of RAM: is speed. Since it is electronic rather than mechanical, storage and retrieval are almost instantaneous. The disadvantage of RAM: is that data stored in RAM: does not survive when the computer is powered down or rebooted. You must save to floppy disk or to hard disk anything in the Ram Disk that you want to use again.

Applications commonly use RAM: to store temporary files created when the program runs or for backup files created when the program is exited. RAM: can also be used as storage for experimental script files, as a destination for testing command output, and when the creation of a file on an actual disk is too slow, risky, or inconvenient.

Be careful when using RAM: for storing important files. If the Amiga loses power, has a software failure, or you reboot, everything stored in RAM: is lost. Be sure when working with RAM: to regularly back up any important files onto disk.

Note   You cannot copy a disk to RAM: by dragging the source disk icon over the Ram Disk icon. To copy a disk to RAM:, open the Ram Disk icon and drag the floppy disk icon into the Ram Disk window. This creates a drawer with the name and contents of the floppy disk.

Backup Disks

Backup disks ensure against a loss of data in the event of damage, corruption, or accidental erasure of the original disk. We recommend that you make backup copies of important disks and files, following

the licensing agreements provided with your applications software. Making and distributing unlicensed copies of disks is a copyright violation known as software piracy. Store your original disks in a safe place and use your backup disks for everyday purposes. For information on making backup copies of your system disks on floppy-only systems, see Appendix B.

Managing Your Files

The basic units of data management on your Amiga are files, directories, and drawers. Files are organized collections of data that are given a name and are stored on the system or on removable media. Files are contained in directories or drawers. Directories and drawers are the same thing—a subdivision in your Amiga's filing system that is used to organize files and other directories/drawers (subdirectories).

Organizing Information on Disks

Information should be stored on disk in a logical manner to allow easy access to your files. The Amiga Workbench organizes information into a hierarchical system of drawers.

A drawer—a directory in AmigaDOS—is a container for items that are related. These items can be files and even other drawers.

On any disk you can create multiple drawers containing multiple files, as available disk space allows. Workbench also allows the creation of drawers within drawers, subdrawers or subdirectories, for further file management. Create as many drawers and subdrawers on your disk as needed.

A drawer icon is displayed in the disk window for each drawer created on a particular disk. Each drawer window contains the icons of the files and subdrawers that exist in it.

Paths

A path is a complete description of the location of a particular file on a disk. When a program requests the name of a file for retrieval, specify the file's path, including the volume or device name and all the drawers that lead to that file.

The method for specifying paths varies from program to program. Most programs use a file requester with a scrolling list, in which the disk name, any drawer names, and the file name are displayed. Click on the appropriate names to specify the path. However, for some programs you may have to type in the complete path name.

To enter a complete path:

- Type the name of the disk followed by a colon. This name is the volume name of the disk, such as Mydisk:. You can substitute the disk's device name, such as DF0:, in place of the disk name. However, if you enter the device name rather than the volume name, be sure the correct disk is in that device.
  ```
  Diskname:
  ```

- For a file that is not in a drawer, specify the file name after the colon following the disk name to complete the path.
  ```
  Diskname:filename
  ```

- For a file in a drawer, after the colon following the disk name specify the drawer name followed by a slash (/) followed by the file name.
  ```
  Diskname:drawername/filename
  ```

- If there are more drawers in the path, each drawer must be specified followed by a slash.
  ```
  Diskname:drawername/subdrawername/filename
  ```

Note   File and drawer names containing spaces can cause recognition problems. We recommend that you avoid using spaces in file or drawer names. If you have trouble referencing a name that contains a space, enclose the entire path in double quotation marks.

File and Drawer Names

The following rules apply for naming files and drawers:

- Names can be up to 30 characters long. Names can contain upper case letters and any punctuation marks that are not reserved.
- Colons (:) and slashes (/) are not allowed within a name. These characters are reserved for path statements. However, other non-alphabetic characters can be used.
- The use of spaces before or after names should be avoided due to the possibility of omission.
- Upper and lower case differences (capitalization) are preserved and displayed by the Amiga. However, the system is not case-sensitive: upper and lower case are considered the same.
- Duplicate file names are not allowed within the same drawer. If you save a file with the same name as an existing file in a drawer, it overwrites the original file in that drawer.
- Two files with the same name can exist in separate drawers or within different paths.

Trashcan

The Trashcan is a special drawer that can be placed on a disk for storing files that you no longer need and may wish to delete. Discard icons or pseudo-icons for the files to be deleted by dragging them into the Trashcan. If the icon to be discarded is a drawer, its associated files are also moved to the Trashcan.

Choosing Empty Trash from the Icons menu deletes the icons and all of their associated files from the Trashcan. Before choosing Empty Trash, you can still recover any of the Trashcan's contents by opening its window and dragging the icons back out.

For more information about putting a Trashcan on a disk, see the Format Disk description in Chapter 3.

Using Application Software

Applications are software programs, such as databases, video and sound programs, word processing programs, recreational programs, and educational programs that are available for use on your Amiga. Most Amiga programs use windows, menus, and gadgets in ways very similar to the Workbench programs on your system disks. However, you should always read the documentation that comes with your applications for directions on using unfamiliar menu items and gadgets.

Chapter 3
Fundamentals of the Workbench

This chapter describes the elements of the Amiga Workbench including:

- Screens
- Menus
- Windows
- Gadgets
- Icons
- Requesters

Screens

A screen is one of the key features of the Amiga's display system. The screen is an area of the monitor display with a given display mode and set of properties, including the resolution, size, and number of colors. Screen resolution is determined by the number of pixels—the tiny dots of light that make up the screen display—placed horizontally and diagonally. Different display modes are used for different purposes and present different memory and processing loads on the system. (For more display mode information, see Chapter 7.) A screen is always at least the full width of the monitor display. All windows open within a screen. The Workbench screen, shown in Figure 3-1, is the first thing displayed when you turn on your Amiga or following reboot.

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Workbench

Ram Disk
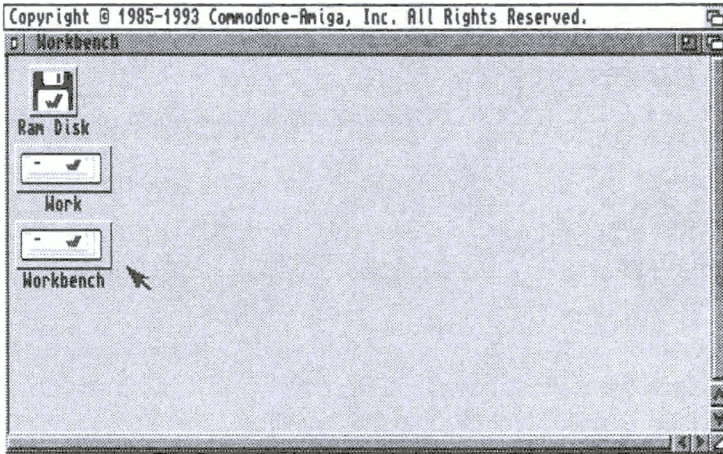
Work

Workbench

Figure 3-1. Workbench Screen

Using Screens

Several screens can be open at the same time. New screens normally open on top of other screens, covering them. To view and access screens that are covered by others, drag the frontmost screen down or use gadgets or keyboard shortcuts to depth-arrange them. When working with screens, remember these helpful hints:

- Use left Amiga+M to page through open screens.
- Use left Amiga+N to bring the Workbench screen to the front, regardless of how many other screens are open.
- Items cannot be dragged between screens, although the mouse pointer moves freely from screen to screen.
- Only one window on one screen at a time can accept keyboard or mouse input.
- Most screens have a title bar that you can use to move them. Screens that do not might still respond to mouse clicks in the depth area. A screen with no title bar can be dragged using the qualifier key set in the IControl Preferences editor, described in Chapter 5.

- Screens larger than the monitor's display area can be opened. The Amiga can be set to scroll the unseen areas of the screen into view when you move the pointer to the edges of the viewable area.

- A screen cannot be dragged so that the bottom of the screen rises above the bottom of the monitor display.

Dragging a Screen

If your Workbench screen, a terminal program screen, and a text editor screen are open all at the same time, you can see parts of each screen by dragging them into view.

To drag a screen:

1. Point to the screen's title bar.

2. Hold down the selection button.

3. Move the mouse down.

To expose a screen, you can drag any screens that are in front of it down. If a screen is larger than a monitor's display area, you can drag it up or down or side to side so that you can see all areas of the screen.

To drag a screen when its title bar is covered by windows or not on the visible part of the display, hold down the left Amiga key and then the selection button. This lets you drag the screen, regardless of the mouse pointer position.

Menus

Menus are lists of commands and options displayed on a screen by holding down the mouse menu button. These commands control the actions of the program in the currently selected window. Most Amiga programs have menus for some or all of their functions. For example, you can rename a disk or copy a file by choosing items from the Workbench menus.

Using Menus

Menus vary from program to program; however, the steps used in choosing menu items are the same for all Amiga software. A program's window must be selected to see its menus. Click in a window to select it. For detailed information about using menus, see the menu button description in Chapter 2.

Windows

Windows are areas on a screen that display and accept information. When you first boot the Amiga, the Workbench window is displayed on the Workbench screen. When you double-click on the Workbench disk icon the Workbench disk window opens on the Workbench window, as illustrated in Figure 3-2. Many of the Workbench icons create windows when opened.
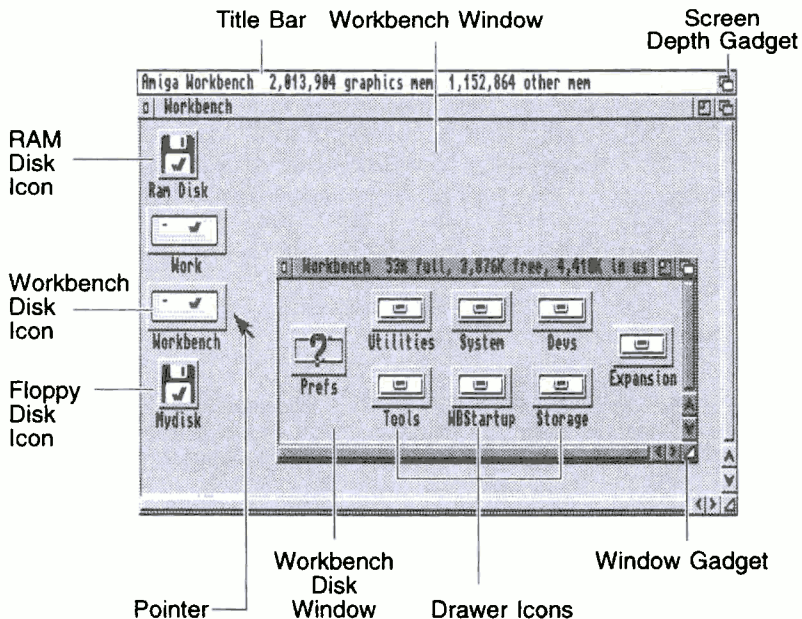
Figure 3-2. Workbench Disk Window Open on Workbench Window

Working with Windows

A new window appears on the front of the screen when you open almost any icon. Unlike screens, windows usually cover only a portion of the display area. Although several windows can be open on a screen at one time, only the selected window can accept information. The selected window's border or frame is a different color than the other windows on the screen.

Several open windows on one screen often overlap one another. To see particular windows, arrange them using the gadgets in the window's border; as explained on page 3-7. Windows can also be manipulated using the Window menu.

The following sections describe the mouse operations that can be performed with windows, including selecting, opening, and dragging.

Selecting Windows

To select a window, click the selection button anywhere inside the window or its title bar, but not over an icon. To deselect a window, click anywhere outside that window.

When a window is selected, the frame surrounding the window changes color. Only one window can be selected at a time. The selected window is the one that accepts your mouse and keyboard input.

Opening a Window

Double-clicking on an icon opens a window or starts a program. Adjust the time allotted for a double-click with the Input Preferences editor, explained in Chapter 5.

Dragging a Window

When several windows are open on the Workbench screen, they might overlap each other. Rearrange the windows on the screen by dragging them, to show the information presented in all the windows.

To drag a window:

1. Point to the title bar, but make sure the pointer is not over any of the gadgets at either end.

2. Hold down the selection button and move the mouse. An outline of the window appears and moves across the screen.

3. Drag the outline into position and then release the selection button. The window appears in the new location.

AppWindows

An AppWindow is a type of window that allows you to drag an icon into it to run a program or display files that the icon represents. The following are AppWindows:

MultiView window	Displays the text, graphic, or animation represented by the icon. For more information about MultiView, see Chapter 4.
IconEdit window	Has three separate blocks into which you can drag an icon for editing. For more information about IconEdit, see Chapter 10.
File requesters	Displays the path of the files represented by the icon. For more information on file requesters see page 3-20.
Preferences editor windows	Presets can be dragged into the Preferences editors windows for loading.

Gadgets

Gadgets are programmed graphic images that appear in a window, requester, or screen. Like icons, gadgets often have a raised three-dimensional appearance and when selected appear to sink into the screen. Like icons, they are selected with the mouse. Cancel the selection of button-type gadgets by moving the pointer off the gadget button before releasing the selection button.

Window Gadgets

Window borders often contain several gadgets for moving windows, changing their size, scrolling (moving) their contents, and closing them. Figure 3-3 illustrates some typical window gadgets.
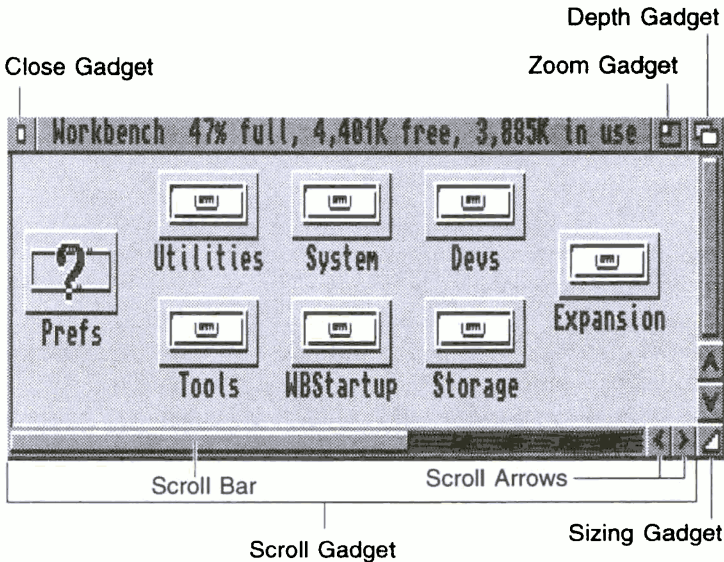
Figure 3-3. Window Gadgets

Window borders can contain any of the following gadgets:

Title Bar

The title bar is a gadget that identifies each window or screen in the system. The title bar of a disk window also contains:

- The name of the disk.
- The percentage of the disk that is full.
- The number of free bytes available for storage in Kilobytes (K) or Megabytes (M).
- The number of bytes in use for existing data.

Depth Gadget

The Depth gadget changes the depth position of a window or screen. Selecting the depth gadget on the front-most window on the screen moves it to the rear.

Selecting the depth gadget on any window other than the front moves it to the front. A window brought to the front with the depth gadget is automatically selected.

Holding down Shift while selecting the depth gadget on any window always sends it to the rear.

Zoom Gadget

The Zoom gadget provides a quick way to switch between two different window size/position settings. The zoom gadget toggles between two window sizes and positions. The first use of the gadget zooms the window to a preset size and position. Selecting the gadget again returns the window to its original size and position. The window may be moved or resized to change its zoomed or original position.

Sizing Gadget

The Sizing gadget allows you to change the size of a window. To size a window:

1. Point to the sizing gadget.

2. Hold down the selection button and move the pointer. An outline of the window appears with its lower right corner following the pointer.

3. Release the selection button. The window is redrawn to the size indicated by the outline.

The sizing operation can be cancelled by pressing the menu button before releasing the selection button.

Scroll Gadgets

The Scroll gadgets move the area inside a window to show unexposed icons without changing the window's size. Use scroll gadgets after resizing a window or choosing Show All Files. Scroll boxes, scroll bars, and scroll arrows are all scroll gadgets.

Scroll bars are the highlighted rectangular areas inside the scroll boxes. They indicate how much of a window's contents is visible. When the scroll bar completely fills a scroll box, all of the window's icons are visible. When the scroll bar fills half of the scroll box, only half of the window's icons are visible.

To see the area of a window that is not visible:

1. Point at the scroll bar.

2. Hold down the selection button.

3. Drag the scroll bar to an empty area of the scroll box. The viewing area is redrawn to show the new position when you release the scroll bar.

Another method to move the scroll bar is:

1. Point to an empty area of the scroll box.

2. Click the selection button.

The scroll bar moves towards the area where you pointed.

Scroll arrows are for scrolling continuously through the viewing area of a window. By pointing to a scroll arrow and holding down the selection button, you shift the viewing area in the direction of the arrow. Move the window contents one pixel at a time by holding down Shift while selecting a scroll arrow.

Close Gadget

Selecting the close gadget closes the window and removes it from the screen. If the last window of an application program is closed, the program is usually exited.

Action Gadgets

Action gadgets are found in requesters, Preferences editors, and other windows, usually at the bottom of the window. The most common action gadgets in Workbench windows include:

Save	Implements and saves any changes to program settings and closes the window.
Use	Implements changes to program settings without saving them and closes the window. Rebooting the Amiga returns to the default or previously saved changes.
Cancel	Cancels changes to program settings that you made in the window. The settings in effect prior to opening the window remain the same.
OK	Acknowledges and closes a requester.
Retry	Retries the current operation after you have attempted to correct what the requester indicates is wrong, such as a disk error or a write-protected disk.
Continue	Starts next step of operation.
Help	Displays help information.

Additional Gadgets

In addition to the gadgets described previously, there are several other types of standard gadgets used by Amiga programs. Always read your application documentation carefully for exact information about their use.

Check Box

Check boxes indicate if an option is turned on or off. When an option is on, the box contains a check mark. If the option is off, the box is empty. To change the check box setting, click on the box.

Cycle Gadget

Cycle gadgets contain lists of options. The displayed option is the selected option. Pointing to the cycle gadget and repeatedly clicking the selection button cycles through the list, showing the available options. Cycle backwards through the list by holding down Shift while selecting.

Radio Button

Radio buttons allow you to select one option from a fully displayed list. Each option in the list has a radio button next to it.

Selected radio buttons are highlighted and appear indented. Unselected radio buttons remain one color and appear raised above the screen.

Select a radio button by clicking on it. The previously selected option in the list is automatically deselected.

Text Gadget

A text gadget is a rectangular box within a requester or window for entering a file name, drawer name, or other text. More information on text gadgets appears on page 3-19.

The following keyboard shortcuts can be used for editing text within a text gadget:

Del	Erases the character highlighted by the cursor.
Backspace	Erases the character to the left of the cursor.
Right Amiga+X	Erases all the text in the gadget.
Right Amiga+Q	Retrieves the information that was in the gadget before the text was changed.
Left Arrow	Moves the cursor one character to the left.
Right Arrow	Moves the cursor one character to the right.
Shift+left arrow	Moves the cursor to the beginning of the line.
Shift+right arrow	Moves the cursor to the end of the line.

Shift+Del   Erases the character highlighted by the cursor and
                           all characters to the right of the cursor.

Shift+Backspace   Erases all the characters to the left of the cursor.

When you are finished entering the text, press Return to perform the
action.

Scrolling List Gadgets

Scrolling list gadgets allow you to select from options displayed in a
scrolling list.

A scrolling list shows all of the available choices when scrolled, rather
than one option at a time. To select an option, click on it. The
selected option is highlighted. In some scrolling lists, you can select
more than one option.

Scrolling list gadgets also contain scroll arrows and a scroll bar
similar to window scroll gadgets.

If a text gadget appears under the scroll gadget, you can type in a
choice not displayed in the scrolling list, such as a new file name for
saving information.

Slider Gadget

Slider gadgets allow you to select a value within a given range. These
are similar to scroll gadgets in that you drag a slider bar through a
slider box to select a specific value.

The slider value shown next to the slider is the value associated with
the current position of the slider bar.

To change the value, drag the slider bar. When the desired value is
shown, release the selection button.

Icons

Icons are movable graphic representations of disks, drawers, files, and programs that you manipulate with the mouse.

The Workbench uses the following types of icons:

A disk icon represents any disk that is available or accessible by the Workbench. Disk icons appear only in the Workbench window.

A drawer icon represents a directory, which is a subdivision of the disk storage area.

A tool icon represents a specific program, such as the Clock utility. When a tool icon opens, the program is started.

A project icon represents a file created or used by a tool, such as the Prefs Preset icons.

A project pseudo-icon represents a project file that does not have an icon.

A drawer pseudo-icon represents a directory that does not have an icon.

A tool pseudo-icon represents a tool file that does not have an icon.

The Trashcan represents a special drawer used to store unwanted items until you remove them from the disk. A Trashcan is found in the Work partition.

Working with Icons

This section describes the mouse operations that can be done with icons, including selecting, dragging, and copying.

Selecting an Icon

To work with an icon you must first select it. Once an icon is selected, you can make a copy of it, change its name, or delete it.

All icons are surrounded by a box. When an icon is not selected, the box appears raised above the screen or window surface. When you

select an icon, the box appears to sink into the screen or window surface. Icons also change color or shape when selected. For example, drawer icons change from a closed drawer to an open drawer when selected.

To select an icon:

1. Point to the icon, making sure the pointer tip is within the icon's box.

2. Click the selection button. The icon changes to show that it is selected.

If you click the selection button while the pointer is elsewhere on the screen or window, the icon is deselected and returns to its original appearance.

Selecting Multiple Icons

You can select several icons at one time. When multiple icons are selected, you can treat them as a single entity, deleting, moving, or copying the entire group in one operation.

The two methods for selecting multiple icons using the mouse are drag selection and extended selection.

Drag selection uses the mouse to draw a box around all of the icons that you wish to select, as follows:

1. Move the pointer just outside of the outermost icon to be included in the box. That point is one corner of the box. Make sure it is not on an icon or gadget.

2. Hold down the selection button and move the mouse to place the opposite corner of the box. A dotted outline of the box is shown as you move the pointer.

3. When the box encloses all the icons to be selected, release the mouse button. All of these icons are now selected.

The extended selection method is for selecting icons that are not in a group that can be enclosed in a box, as follows:

1. Select the first icon.

2. Hold down Shift.

3. While holding down Shift, select each of the other icons.

4. Release Shift. All of the chosen icons remain selected until you select a different icon or click within a Workbench window while not holding down Shift.

Dragging an Icon

You can move icons within a window or to another window by dragging them.

To drag an icon:

1. Point to the icon.

2. Hold down the selection button and move the mouse. An image of the selected icon moves with the pointer.

3. Release the selection button when the icon is in position.

If you selected several icons, you can drag all of them at once. Hold down Shift, point to one of the icons, hold down the selection button, and move the mouse. All the selected icons move as you move the mouse.

Copy by Dragging

Copy a drawer, project, or tool to another disk by dragging the icon over the other disk's icon or into the other disk's window. The original icon stays on the original disk and a copy is created in the destination disk's window.

You cannot make a copy of an icon on the same disk with this method. To copy something onto the same disk, select its icon, and then use the Copy menu item.

You can copy several icons at once using drag selection or extended selection. When the icons to be copied are selected:

1. Hold down Shift.

2. Point to one of the selected icons and then drag it over the other disk's icon or into the other disk's window. As you drag one icon, the rest follow.

3. Release the selection button to copy the icons.

Note   When drag-copying several icons, be sure the tip of the pointer is over the icon or window to which you are copying when you release the selection button.

Icon Tool Types

Tool Types specify parameters used by a program. Tool Types are usually in the form of KEYWORD = argument. Case differences do not matter when entering the information. Do not use any spaces around the equals sign in a Tool Type entry.

Any changes you make to a program's Tool Types take effect the next time you run the program. Tool Types are found in an icon's Information window.

To use Tool Types:

1. Select the appropriate icon.

2. Choose Information from the Icons menu.

When the window appears, you can add, delete, or change Tool Types in the Tool Types field.

For convenience, Workbench programs usually have all their possible Tool Types already entered. The Tool Types that are optional or do not set default values are disabled or commented. Commented Tool Types are enclosed in parentheses and are ignored when the icon is opened.

All icon programs provide the DONOTWAIT Tool Type. Normally the Workbench waits for one program to finish before it opens the next. The DONOTWAIT option overrides this delay, which can cause

unwanted requesters after booting. DONOTWAIT does not take an argument.

Uncommenting

Uncomment or make available Tool Types by removing the parentheses. Where there are angle-bracketed parameters in the Tool Type, the parameter and brackets must be replaced with an appropriate value or option.

Changing a Tool Type

1. Select the appropriate icon and choose Information from the Icons menu.

2. Select the Tool Type that you want to change from the list. It is copied to the text gadget below.

3. Edit the text in the text gadget and press Return.

4. Select the Save gadget. Be sure to make all your changes before selecting Save because it closes the Information window.

Adding a Tool Type

1. Select the appropriate icon and choose Information from the Icons menu.

2. Select the New gadget.

3. Type in the new Tool Type and press Return.

   Repeat Steps 2 and 3 for each additional Tool Type you want to add.

4. Select the Save gadget to save the new information. If you do not wish to save your changes, select Cancel or the window's close gadget.

Deleting a Tool Type

1. Select the appropriate icon and choose Information from the Icons menu.

2. Select the Tool Type to be deleted.

3. Select the DEL gadget.

   Repeat Steps 2 and 3 for each Tool Type you wish to delete.

4. Select the Save gadget to save the change. If you do not wish to save your changes, select Cancel or the window's close gadget.

Note   Commenting out Tool Types that you do not currently need rather than deleting them makes recalling them easier the next time you need them.

AppIcons

An AppIcon is an icon that is created by an application program. The function of these icons is determined by the application. For specific information on how a particular AppIcon works, read the documentation that came with the application that uses it.

Requesters

Requesters are prompts that appear in small windows. You must respond to a requester to continue. A requester always contains text explaining what you must do to satisfy the request. Menu items that generate requesters are followed by an ellipses (...).

Action Requesters

Action requesters require you to proceed with or cancel an operation by clicking on the appropriate action gadget: OK, Continue, Retry, or Cancel. Figure 3-4 illustrates an action requester window.
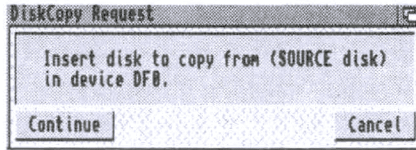
Figure 3-4. Action Requester

Keyboard shortcut: To proceed (OK, Continue, or Retry), press left Amiga+V. To Cancel, press left Amiga+B.

Message Requesters

Message requesters inform you about something that occurred in the system or a program. They require an acknowledgment by clicking on a gadget.

Text Requester

Text requesters ask you to enter text into a text gadget, as illustrated in Figure 3-5. The text gadget is automatically selected and text is entered at the cursor position (the small highlighted box inside the text gadget).
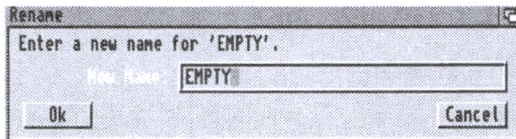
Figure 3-5. Text Requester

File Requesters

File requesters allow you to select or enter the name of a file that you want to open or save. Figure 3-6 illustrates a file requester window.
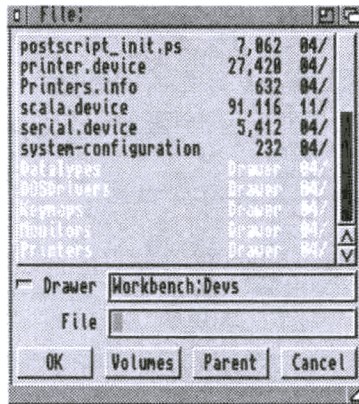
Figure 3-6. File Requester

A file requester contains a scrolling list of files and drawers, plus several other gadgets for locating your file. Read through the list by dragging the scroll bar up or down or selecting the scroll arrows. If your file is in a different drawer or on another disk, the gadgets in the requester allow you to look for that file.

The gadgets are used as follows:

Volumes   Displays a list of available floppy disks, hard disk partitions, and assigned directories. List the available files and drawers on a disk by clicking on the name. Click on the drawer names to list their contents. In addition to volume, drawer, and file names, the scrolling list displays the file size in bytes, file and drawer timestamps, and volume use statistics. Use the sizing gadget to make the file requester wider for viewing this information.

Parent   Lists the current drawer's parent. Selecting Parent when the current drawer is the root of a particular volume is the same as selecting the Volumes gadget.

OK	Loads/saves the selected file. Same as pressing Return. In a Load or Open requester, the shortcut is to double-click on the file name. In a Save requester, distinguished by the reversed colors on its scrolling list, you cannot save by double-clicking. This gadget can be labelled OK, Load, or Save.
Cancel	Cancels the requester.
Pattern	An optional text gadget labelled Pattern, when present, allows use of AmigaDOS pattern matching to control the list of files. Users familiar with AmigaDOS pattern matching can enter their own pattern statements.

The standard Amiga file requester has a Control menu with the following items:

Last Name/ Next Name	Moves up and down through the listed names. (The up and down arrow keys or the right Amiga key shortcuts in the menu can also move you through the list.) The current name appears in the File text gadget; a highlighted bar appears in the list if the current name is a file name.
Restore	Recalls the scrolling list and text gadget contents that were displayed when the requester opened.
Parent	Has the same function as the Parent gadget.
Volumes	Has the same function as the Volumes gadget.
OK	Has the same function as the OK gadget.
Cancel	Has the same function as the Cancel gadget.
Delete	Deletes files from the file requester. Select the file name or type the name into the File text gadget and choose Delete. A requester appears, requiring confirmation. Select OK to delete or Cancel to return to the file requester without deleting.

Because the file requester window is an AppWindow, you can also choose a file by dragging its icon into the window. The contents of the drawer containing the icon are listed with the file's path loaded into the Drawer and File gadgets.

Font Requesters

Font requesters list the available fonts on the system. Figure 3-7 illustrates the font requester window.
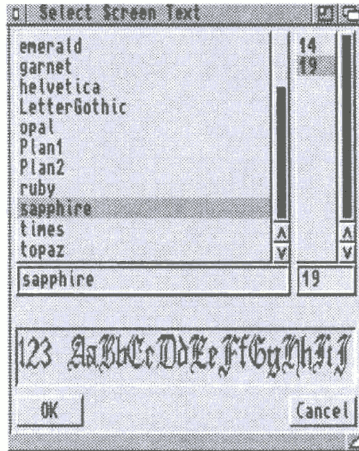
Figure 3-7. Font Requester

Fonts are sets of characters of the same design. Using font requesters, applications allow you to choose the font style and point size. Some applications might also allow you to select font attributes (plain, bold, italicized, or underlined) and colors for the text and/or background. The display box above the OK and Cancel gadgets shows an example of text in the selected font. Use the requester's sizing gadget to widen the requester to show more characters.

When you select a font name, the display box shows that font in the currently selected font size, scaling the font as necessary. Depending on whether the font is an outline font or a bitmap font, there can be a delay in displaying the font. Some bitmap fonts sizes may appear distorted.

For more information about fonts, see Chapter 8.

ScreenMode Requesters

ScreenMode requesters work similarly to the ScreenMode Preferences editor. Detailed ScreenMode information appears in Chapter 5.

Chapter 4
Using Workbench

This chapter describes the Amiga Workbench, an icon-based environment that allows you to give instructions by manipulating graphic symbols with a mouse rather than by typing in commands at a keyboard. Included in this chapter are descriptions of the following:

- The Workbench Screen
- The Workbench Window
- The Workbench Menus
- Workbench Programs

Workbench Screen

The Workbench screen, illustrated in Figure 4-1, is the primary visual component of your system. Icons and other windows appear on it.

The Workbench screen is identified by the Amiga Workbench title bar located along the top border of the display. The Workbench screen's title bar also displays the number of bytes of graphics (Chip) memory and other (Fast) memory currently available when any window, except a Shell window is selected.

The Amiga provides Preferences editors (described in Chapter 5) that allow you to customize the Workbench screen. You can define an extra-large virtual Workbench screen that is larger than the viewable area with more space for windows.

Workbench Window

When you boot your Amiga, the Workbench window fills the Workbench screen. This window contains icons for any floppy disks

inserted into floppy drives, the Ram Disk, and any other icons determined by your system's configuration.

Although the Workbench window appears and functions like an application window, it is an essential part of the Workbench screen.
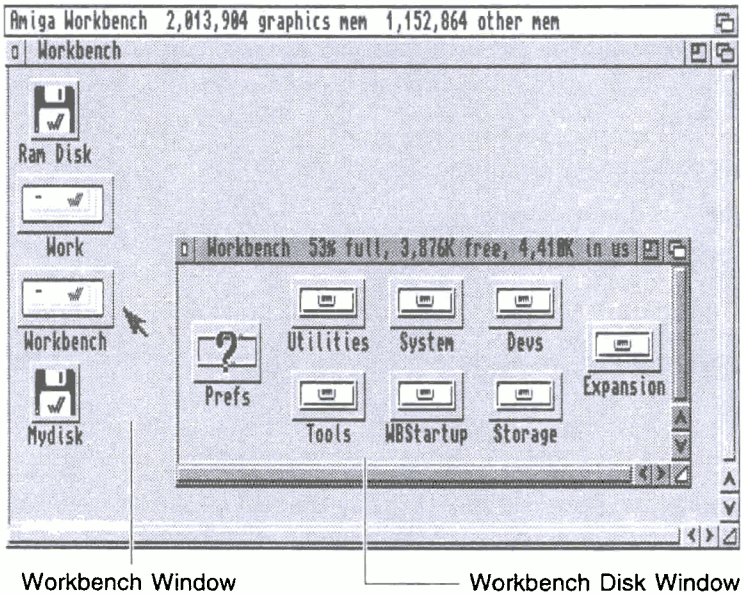
Figure 4-1. Workbench Screen

Workbench Menus

The Workbench has the following four menus:

Workbench	Contains options for working with Workbench and windows opened on the Workbench screen.
Windows	Contains options for working within the currently selected window.
Icons	Contains options for working with the currently selected icon or group of icons.

Tools   Is available for applications to use or for user-created
                        menu items.

Workbench Menu

The Workbench menu contains general Workbench options and
options for windows opened on the Workbench screen. You can, for
example, use the Workbench menu to update the screen display or see
which version of the system software is in use.

On the Workbench menu you can select the following options:

Backdrop $\mathbb{A}$B

The Backdrop menu item creates more room on the Workbench
screen for displaying windows and icons. Backdrop switches between
a normal window for your Workbench and a special borderless
window that is always behind other windows opened on the
Workbench.

Choosing Backdrop removes the Workbench window borders so that
the disk icons appear to be on the Workbench screen without being
enclosed in a window. To return to the normal Workbench window,
choose Backdrop again. Backdrop is reset to off if you power off or
reboot your computer. To save your Backdrop selection choose the
Snapshot item in the Windows menu while the Workbench window is
selected.

Execute Command $\mathbb{A}$E

Note   This menu item is provided for users familiar with
          AmigaDOS.

The Execute Command executes (starts) an AmigaDOS command
without opening a Shell window. Figure 4-2 illustrates an Execute
Command requester.
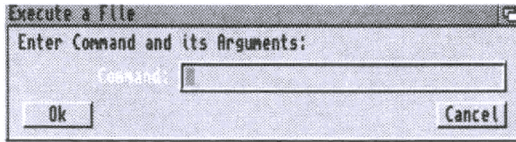
Figure 4-2. Execute Command Window

Enter the command and all of its arguments in the requester.

A Workbench Output Window is automatically opened when a command results in output and it remains there until you select its close gadget. The current directory for an Execute Command operation is RAM:.

Redraw All

Redraw All redraws all open Workbench windows on the Workbench screen and can be used in the event of a disturbance to the Workbench. If Redraw All does not restore the windows to their proper appearance, reboot the computer.

Update All

Update All reopens each open Workbench window, updating its appearance to show its current state.

Note   If you have several windows open and have been using the Shell or an application to change to the contents of a disk, the changes may not be reflected in its windows until you close the windows and reopen them or choose Update All.

Last Message

Last Message retrieves the last information or error message that appeared on the title bar.

About

About opens a requester showing the internal version number of the
Workbench and Kickstart software, as well as copyright information.
Select the OK gadget to close the requester.

Quit A Q

Quit closes all Workbench operations, making additional RAM
available if needed. The Workbench does not close if there are any
programs running, including programs that do not open a window
and programs that are in your WBStartup drawer.

The only windows that can remain open while using Quit are the
disk, drawer, and Shell windows. Once you OK the Quit requester, a
Shell window is your only link to the Amiga. You can use the Shell
icon in the System drawer to open a Shell window before quitting the
Workbench.

Return to the Workbench by typing LOADWB (load Workbench) at
the Shell prompt and pressing Return. If there is no Shell window
open, you must reboot to return to the Workbench.

The close gadget on the Workbench window is the same as choosing
Quit.

Window Menu

The Window menu is only available when a Workbench window is
selected. The Window menu allows you to create new drawers, select
the contents of the window, rearrange the contents, change how the
contents are displayed, and close the window. The available window
options are:

New Drawer   ⌘N

To create a new drawer:

1. Select the window in which you want to create the drawer.

2. Choose New Drawer from the Window menu. The drawer is created and named "Unnamed1".

3. A Rename requester prompts you to change the name of the drawer.

4. Delete the existing name using the DEL key, enter a new name, and press Return or select OK. Selecting Cancel leaves the default name on the new drawer.

Open Parent

A window's parent is the window that contains its icon. With the exception of the Workbench window, every Workbench disk window has a parent window.

Open Parent opens the selected window's parent or brings it to the front of the display if it is already open.

Close   ⌘K

Close closes and removes the selected window from the screen.

Mouse shortcut: For many windows, you can select the close gadget in the upper left corner of the window.

Update

Update redraws the selected window, including any changes made to the contents through the Shell or the Execute Command menu item. Such changes are not reflected until the window is updated or reopened.

Select Contents   ⌘A

Select Contents selects all of the icons in the current window.

Clean Up

Clean Up automatically arranges all the icons in the selected window so that they do not overlap. This arrangement is not saved until you use the Snapshot menu item described below.

Snapshot

Snapshot saves the arrangement and position of icons in a window. It is commonly used following Clean Up. Snapshot has a submenu containing two items: Window and All.

Snapshot Window saves the position and size of the selected window, as well as the Show and View By settings described below. However, it does not save the position of the icons in the window.

Snapshot All saves the position and other settings of all the icons in the selected window, as well as the position and size of the window.

Show

Show controls the types of icons that are displayed on a window. Show has two submenu items: Only Icons and All Files.

Show Only Icons is the default Show mode, displaying only those files and drawers that have icons (.info files).

Show All Files provides a pseudo-icon for each file or drawer in the selected window that does not have a real icon. Pseudo-icons can be treated like any other icon, including manipulating them with the menu items in the Icon menu.

You may have to scroll in the window to see the new pseudo-icons.

View By

View By changes how the information in the window is displayed. View By has four submenu items: Icons, Name, Date, and Size.

View By Icons is the window's default mode.

Choosing View By Name, View By Date, or View By Size displays a window's contents in text form, including the size of the file, its

attributes (whether it can be read, deleted, executed, or written to), and its timestamp.

File and drawer names can be selected, opened, dragged, and manipulated just like icons.

View By Name sorts the file list in alphabetical order.

View By Date sorts the list in chronological order, with the most recently created file listed first.

View By Size sorts the list by size, listing the smallest file first.

Icons Menu

The Icons menu allows you to work with the icons on the screen. An icon must be selected before the menu options illustrated in Figure 4-3 become available.

```
┌─────────────────────┐
│ Icons  Tools        │
├─────────────────────┤
│ Open  🖰       🄰 O  │
│ Copy           🄰 C  │
│ Rename...      🄰 R  │
│ Information... 🄰 I  │
│ Snapshot       🄰 S  │
│ UnSnapshot     🄰 U  │
│ Leave Out      🄰 L  │
│ Put Away       🄰 P  │
├─────────────────────┤
│ Delete...           │
│ Format Disk...      │
│ Empty Trash         │
└─────────────────────┘
```
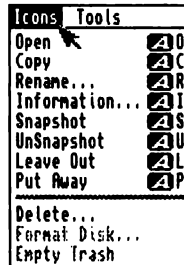
Figure 4-3. Icons Menu

Open $\mathcal{A}$O

Opening an icon makes a program or window available.

When you open a disk or drawer icon, a window displays the icons contained on that disk or in that drawer. When an individual project or tool is opened, the corresponding program starts.

Open an icon by selecting it and choosing Open.

Mouse Shortcut: Point to the icon and double-click the selection button.

Copy   *A C*

Copy allows you to duplicate disks, drawers, programs, or files within a window. To copy material to another window, use the drag-copy method described in Chapter 3. Drag-copying is the easiest method of copying a disk on a two-floppy system.

Use Copy for making backup copies of your disks.

To copy a drawer, project, or icon:

1. Select the icon.

2. Choose Copy from the Icons menu.

Copying disks on single-floppy disk drive systems entails a process known as swapping. Source and destination disks are swapped in the single drive as the system first reads information from the source disk and then writes it to the destination disk. The destination disk must be write-enabled, but need not be formatted since Copy formats the disk as it writes to it. Be sure to copy to disks of the same density as the original disks.

To copy a disk on a single-floppy disk drive system:

1. Insert the source disk into the Amiga's internal disk drive.

2. Select the source disk's icon.

3. Choose Copy from the Icons menu. Insert the Workbench disk, if necessary.

4. If the disk copy requires at least five swaps, a requester tells you how many swaps are needed. Closing any unnecessary windows or stopping any unwanted programs helps reduce the number of swaps.

5. Select the Continue gadget in the swap requester. During the disk copy, the icon for the disk being copied is unavailable and is labelled "BUSY".

6. Insert the source disk into the drive when prompted and select Continue. A horizontal bar gauge shows the percentage of the disk copy completed.

7. Insert the destination disk into the drive when prompted and select Continue to copy the information read in from the source

disk. Swap the disks as often as requested. When the copy is finished, a **Disk Copy Finished** message appears.

8. Remove the destination disk from the drive and label it. The destination disk's icon is labelled with a copy_of_ prefix (for example, copy_of_DataDisk).

Rename   *A*R

Rename changes the name of an icon. It is used to remove the copy_of_ prefix from something you copied, as well as for changing the names of drawers, disks, and files.

To rename an icon:

1. Select the icon.

2. Choose Rename from the Icons menu. A requester containing a text gadget displays the current name of the icon.

3. Delete the old name using Backspace or right Amiga+X and enter the new name. Do not use spaces before or after the new name. Because embedded spaces are not visible, they can cause confusion if you have to type in the icon name again.

4. Press Return. The new name appears under the icon.

Information   *A*I

Information displays status information about the selected icon's file. Certain data can also be modified in the Information window. Figure 4-4 illustrates the Information window.
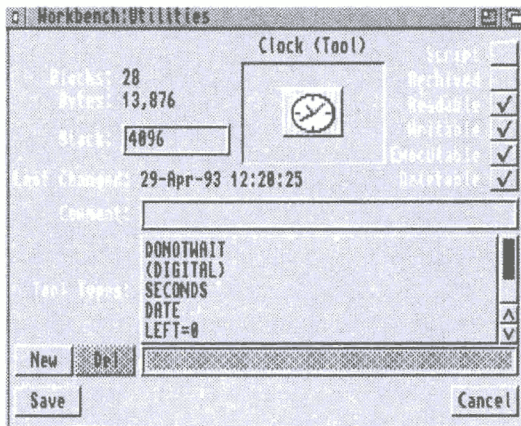
Figure 4-4. Icon Information Window

Although the contents of the window varies with the icon, the
following information is always displayed:

title bar	The window title bar indicates the path to the icon.
name	The icon name and its type in parentheses (Volume, Drawer, Tool, Project, or Trashcan).
image	A picture of the icon.
size	The number of blocks and bytes that the disk, project, or tool fills.
stack	The amount of memory reserved as temporary storage for a specific tool.
last changed date	The date on which the icon was created or the last time it was changed (its timestamp).

For a disk icon, the window also shows whether a disk is
write-enabled (Read/Write) or write-protected (Read Only).

For a drawer, trashcan, project, or tool, the following attributes can
be set or cleared by clicking on the attribute's check box.

Script	If set, the file is a script (a text file of AmigaDOS commands) and can be run without using the EXECUTE command.

Archived   This attribute is set by backup programs to indicate that a
                    file or directory has been archived (backed up). It is
                    cleared whenever the file is saved.

Readable   If set, information in the file can be read. If this attribute
                    is clear, a tool will not run and a project cannot be loaded
                    by its Default Tool.

Writable   If set, information can be written into the file. Unless
                    Writable is set, you cannot make changes to the file.

Executable   If set, the file is a tool that can be run from Workbench or
                    the Shell. If this attribute is clear, the tool cannot be run
                    from the Shell.

Deletable   If set, the drawer, project, or tool can be erased from the
                    disk. If clear, the object is protected from deletion.

If the icon represents a project, there is a Default Tool gadget. This specifies the path to the tool that created the project. When the project icon is opened, the default tool is also opened to work on the project.

If there is a Comments box, you can add a note of up to 79 characters by selecting the text gadget next to Comments, entering the text, and pressing Return.

The Tool Types box specifies different startup options for some programs or files. Icon Tool Types are described in Chapter 3.

To save any changes made to the Information window, select the Save gadget in the lower left corner.

Snapshot   𝐴S

Snapshot saves the positions of all the currently selected icons. The next time you open the window, the icons that you selected appear in their saved positions. You can save the positions of several icons at one time by using drag selection or extended selection.

To save the position of an icon:

1. Select the icon.

2. Choose Snapshot.

UnSnapshot   ℘U

UnSnapshot cancels the snapshot position of an icon. The next time you open the window, the icons are rearranged.

To release the snapshot position of an icon:

1. Select the icon.

2. Choose UnSnapshot.

Leave Out   ℘L

Leave Out moves an often-used icon out of its original window and into the Workbench window for faster access. The file represented by the icon remains in its original drawer on the disk; only the icon is moved. The icon remains in the Workbench window, even if the machine is rebooted. This menu item cannot be used with disks or the Trashcan.

To use Leave Out:

1. Select the icon.

2. Choose Leave Out.

The icon moves into the Workbench window.

Put Away   ℘P

Put Away returns an icon that was left out to its original drawer.

To use Put Away:

1. Select the icon.

2. Choose Put Away.

Delete

Delete erases files and their icons from your disks.

**Caution   Use Delete with caution; you cannot retrieve
                something that was deleted.**

To delete a file or drawer:

1. Select its icon. Use drag selection or extended selection to choose
    more than one icon to be deleted. Disks and the Trashcan cannot
    be removed with Delete.

2. Choose Delete from the Icons menu. A warning requester
    appears, listing the number of files and drawers currently
    selected. Verify that you want to erase permanently the items
    listed. Remember that if you delete a drawer, everything
    contained in it is also deleted.

3. Select the OK gadget. The icon and the files associated with it
    are erased from your disk. If you do not want to delete everything
    currently selected, select the Cancel gadget.

Format Disk

Formatting a disk prepares it for storing information. Format disks
that are new and unformatted, disks that develop errors, or disks on
which you wish to use different file system options.

**Caution   Formatting erases all information on a disk. Be
                careful not to format disks that hold information that
                you do not want to lose, particularly your original
                system and software applications disks.**

Select the icon of the disk to be formatted and choose Format Disk
from the Icons menu. The Format window, illustrated in Figure 4-5,
displays the current information about the disk. If the disk is already
formatted, its volume name and the percentage of the disk currently
in use are displayed. A text gadget allows you to enter a new Volume
name for the disk.
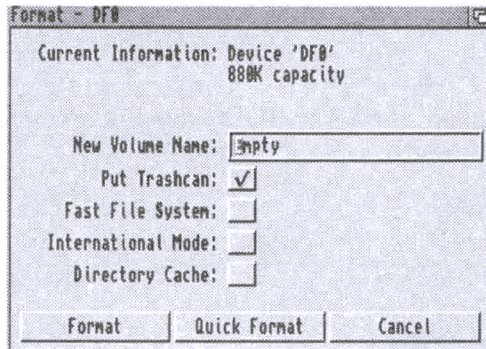
Figure 4-5. Format Window

Four items can be selected (checked) in the Format window:

Put Trashcan   Allows you to put a Trashcan on the disk.

Fast File System   Allows the Amiga to fit more information on a disk. It is faster than the standard file system. Fast File System disks are incompatible with Workbench software releases prior to 2.0 and should not be selected for disks that are also used on pre-Release 2 Amigas.

International Mode   Fully supports international characters in file names. We recommend that you set this option on. International Mode is incompatible with Workbench software releases prior to 2.0 and should not be selected for disks that are also used on pre-Release 2 Amigas.

Directory Cache   Speeds up the opening of drawers, file requesters, and listings. This option is off by default. Disks using Directory Cache are incompatible with Workbench software releases prior to 3.0 and should not be selected for disks that are also used on pre-Release 3 Amigas.

Fast File System, International Mode, and Directory Cache can only be specified for AmigaDOS disks. Selecting the Directory Cache option automatically selects International Mode. Disks created with the Directory Cache option can only be read by Amigas running Workbench Release 3.0 and above.

Quick Format is for reformatting a disk that was previously formatted. You cannot format a new blank disk with Quick Format. Choosing the Quick Format option is faster than formatting the entire disk; however, it does not detect any read/write errors on the disk that could be eliminated by a full format.

When the disk is formatted, if you did not change the name in the Format window, it is labelled Empty. This name can be changed using the Rename item in the Icons menu.

Formatting Hard Disks

You must format your hard disk under the following conditions if:

- It is a new unformatted disk.
- You have a serious unrecoverable disk error.
- You have repartitioned the disk.
- You wish to use a different file system option on the disk, such as the Directory Cache option.

Before reformatting your hard disk, be sure to back up all important information from the disk.

The Ram Disk cannot be formatted. If you accidentally select the Ram Disk for formatting, a requester reports that there is a format failure and requires you to select Cancel.

If you have more than one disk icon selected, more than one Format window opens when the Format Disk item is selected from the Icons menu. The Format windows open one on top of another so that only one Format window is initially visible. Drag the windows until all are visible. Be sure to check the Current Information field in the Format window for the intended Device and Volume names before allowing the format to continue.

Caution   **Check the device and volume names carefully. If you accidentally reformat your hard disk instead of a floppy, you will erase all of your files.**

Formatting Floppy Disks

The Amiga does not recognize floppy disks that are not formatted; therefore, blank disks must be formatted before anything can be written on them. Disks can be formatted at any time, including while running one or more applications. Disks usually have to be formatted only once.

To determine if a floppy disk is formatted, insert it into a floppy drive and check the disk icon on the Workbench screen. If the Amiga cannot recognize the disk, four question marks (????) follow the drive designation in the icon's label.

To format a blank disk:

1. Write-enable the disk and insert it into a floppy drive.

2. Select its disk icon when it appears on the Workbench screen.

3. Holding down the menu button, point to the Icons menu, move the pointer to the Format Disk item, and release the button.

4. If you have a hard drive on your Amiga, skip to Step 7. If you do not have a hard drive on your Amiga, at the requester insert the Workbench disk into any drive.

5. When the Format program has been loaded from the Workbench disk, remove the disk from the drive.

6. At the requester, insert the blank disk and select the Continue gadget.

7. In the Format window, change the volume name of the disk from the default Empty; choose whether to put the Trashcan on the disk and other options. Then select Format to continue.

8. A requester warning that all data will be lost if you continue the format appears on the screen. Select either Format or Cancel.

9. During the format a window is displayed that shows the percentage of disk that has been formatted. This window also has a Stop gadget that allows you to cancel the format at any time.

A disk that is partially formatted is not usable.

To format a disk as an MS-DOS disk through CrossDOS, you must have a CrossDOS DOSdriver activated. If the PC0 DOSdriver is active, select the disk icon labelled PC0:???? for formatting.

Empty Trash

Empty Trash deletes the contents of the Trashcan. To use the Trashcan, drag an icon over the Trashcan icon and release the selection button. The icon is then stored in the Trashcan drawer until you decide to permanently throw it away with Empty Trash.

To delete an icon with Empty Trash:

1. Drag the icon over the Trashcan and release the selection button. If you open the Trashcan, the icon appears in the Trashcan window.

2. Make sure the Trashcan icon is selected (the lid is displayed open) and choose Empty Trash from the Icons menu. The Trashcan contents are deleted.

An icon can be retrieved from the Trashcan as long as Empty Trash is not chosen. Retrieve an icon by opening the Trashcan window and dragging the icon into any window. You may wish to open the Trashcan window in Show All Files mode and verify its contents before choosing Empty Trash.

The following rules apply to the Trashcan:

*   Icons can only be moved to a Trashcan on the same volume.
*   Disks cannot be deleted using the Trashcan.
*   The Trashcan cannot be moved into a drawer.
*   The Trashcan cannot be left out.
*   The Trashcan cannot be deleted with the Delete menu item.

Tools Menu

The Tools Menu initially contains only ResetWB for resetting the Workbench. Other Amiga applications and utilities can add items to the Tools menu. Consult the documentation that came with your application software for information on adding items to the Tools menu.

Workbench Programs

The Workbench disk window contains a number of drawers that
contain system and utility files.

These drawers are:

- System
- Utilities
- Devs
- Storage
- WBStartup
- Expansion
- Tools

System Drawer

The System drawer contains programs that control system functions.
Some offer access to Amiga accessory programs, such as AmigaDOS
or ARexx.

FixFonts

FixFonts should be used after fonts are added to or deleted from your
Fonts drawer.

For more information on fonts and FixFonts, see Chapter 8.

Format

Format a disk by opening the Format icon. Double-clicking on the
Format icon opens a requester asking you to select a device to format.
Click on the device you wish to format. Click on the Continue button
to display the Format window. The rest of the procedure follows the
same steps as used with the Icon menu's Format Disk item, described
on page 4-17.

Intellifont

Intellifont manages the installation of Intellifont® outline fonts onto your Amiga. Intellifont and fonts are described in Chapter 8.

NoFastMem

Some very old programs may not run properly when memory other than graphics (chip) memory is present in the Amiga system. In this case, double-clicking on the NoFastMem icon forces the Amiga to use only the available graphics memory. The other mem display in the Workbench title bar drops to 0 (zero). The icon works like a toggle switch. To restore expansion (Fast) memory to the system, double-click on the NoFastMem icon again. NoFastMem does not open a window.

RexxMast

RexxMast is the interpreter for the optional ARexx programming language. If the RexxMast icon is not present, you do not have ARexx on your system. To use RexxMast, double-click on its icon. To run RexxMast each time you boot, drag the icon into WBStartup.

Shell

Shell opens an Amiga Shell window, which gives you complete access to the AmigaDOS command line environment.

Utilities Drawer

The Utilities drawer contains programs that are helpful, but not necessary for working with your Amiga.

Clock

Clock displays the time and date on your Workbench screen. It can also be used as an alarm clock to signal you at a specified time.

When you open the Clock icon, a window with a round (analog) clock face appears. If the time shown is incorrect, use the Time editor in the Prefs drawer, described in Chapter 5, to set the correct time.

Clock has two menus for changing the display and settings: Project and Settings.

The Project menu contains the following items:

Analog	Displays the round Clock face. Analog is the default; its window size can be changed.
Digital	Displays a digital (numeric) clock the height of the title bar using your screen font.
Quit	Closes the Clock.

The Settings menu contains the following items:

Date	Displays the date beneath the analog clock. The date and time are alternately displayed on the digital clock. Date off is the default.
Seconds	Displays the time with a sweep second hand on the analog clock. The default setting shows no seconds. The Display Seconds item is overridden by the Digital Format setting when using the digital clock.
Digital Format	Displays the time in a 12 or 24 hour format, with or without seconds, for the digital clock only.
Alarm	Allows you to turn the alarm on or off. A checkmark indicates that the alarm is on.
Set Alarm	Allows you to set the time for the alarm to signal you. Because the signal is a short audible tone, you must have audio output on your Amiga to use this feature.

Save Settings   Saves your Clock settings. Each time you run the Clock program it opens with these settings until you change them.

To set the alarm:

1. Choose the Set Alarm menu item.

2. Change the time setting by dragging the hour and minute sliders to the right to increase the value or the left to decrease the value until the correct time is displayed.

3. When the requester displays the desired alarm time, select the Use gadget. This automatically turns the alarm on, as indicated by the checkmark next to the Alarm menu item. Select the Cancel gadget to restore the previous alarm setting and exit.

The alarm remains on and beeps at the same time each day until you deselect Alarm or close the Clock. The Clock must be running for the alarm to work. The next time you open the Clock, the alarm must be reset.

Tool Types

Tool Types in the Clock icon's Information window allow you to save the menu, size, and position settings on the Clock. The Clock's Tool Types are the same as its keywords in AmigaDOS.

More

More displays ASCII text files on the Workbench screen. More does not have an icon, although it resides in the Utilities drawer. More has been superseded by the MultiView program (described on page 4-23), but is retained for compatibility with files that use More as their Default Tool.

The following key sequences can be used to move through the More display and to get help for using More:

Space bar or down arrow   Displays the next page.

Backspace or up arrow   Displays the previous page.

H   Help (displays a list similar to this one).

When the last page of the display is reached, an End of File message is displayed at the bottom of the screen. Press the space bar at this point or click the close gadget at any time to exit More.

MultiView

MultiView lets you view files, including picture files, text files, AmigaGuide help files, sound files, and animated graphics files. It can display any type of file for which there is a data type file in DEVS:DataTypes. For more information on the data types used by MultiView, see page 4-28.

MultiView uses a standard file requester for loading files. You can load files into MultiView using the file requester provided or, because the MultiView window is an AppWindow, you can drag icons onto MultiView to load them.

When you load a standard Amiga sampled sound file into MultiView, clicking on the file's icon plays the sampled sound if your Amiga or monitor has speakers.

When you load an animated file into MultiView, the window or screen on which the animation is displayed has a control panel for manipulating the display. The control panel gadgets allow you to start and stop the animation and move forward or backward through it. This screen is illustrated in Figure 4-6.
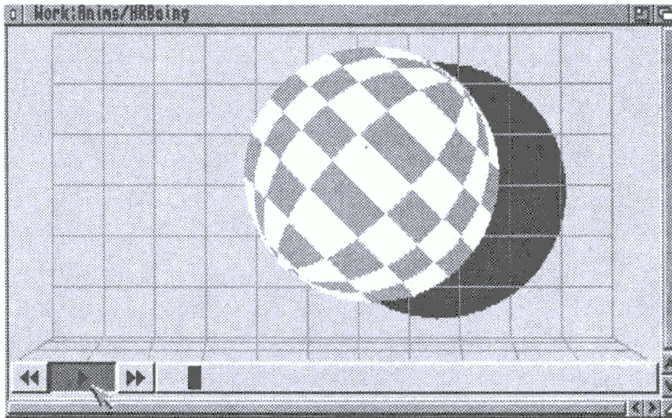
Figure 4-6. MultiView Window with Animation Control Panel

MultiView has four menus: Project, Edit, Windows, and Settings.

Project Menu

Open	Brings up a file requester to allow you to choose another file to display.
Save As	Saves object as ILBM or text files.
Print	Prints selected blocks or files.
About	Shows the MultiView release information and the type of document being viewed.
Quit	Quits MultiView.

Edit Menu

Mark	Turns on the block selection cursor and lets you select a block. (This is only available for picture files.)
Copy	Copies selected block to the Clipboard and deselects the block. If no block is selected, copies the whole file.
Select All	Selects the whole file.
Clear Selected	Clears the selected block or file without copying or printing.

Windows Menu

Use Separate Screen	Toggles between displaying the file on its own screen and in a window on the Workbench screen.
Minimize	Makes the window as small as it can be.
Normal	Sizes the window to the contents size.
Maximize	Makes the window the same size as the screen.

Settings Menu

Save As Defaults	Saves the size, position, and location of the window for future use.

Tool Types

MultiView supports the following Tool Types:

CLIPBOARD	View the Clipboard instead of the file.
CLIPUNIT= <number>	Specify the Clipboard unit to use when using the CLIPBOARD keyword. The range is 0 to 255; the default is 0.
SCREEN	Indicate that you want the object to appear on its own screen, using the environment specified by the object. For example, if an ILBM was Low Res, then the screen would match.
PUBSCREEN= <name>	Indicate that you want the window to open on the named public screen.
FONTNAME= <name>	Font to use when viewing text objects. Note that the .font extension must be left off.
FONTSIZE= <number>	Font size to use when viewing text objects.
BOOKMARK	Go to the object and position specified by the bookmark.
BACKDROP	Indicate that the window should be a backdrop window.
WINDOW	Open the MultiView window on the Workbench screen without an object so that items can be dragged into it.

PORTNAME= <ARexx   Allows you to specify an ARexx port name when
port name>   you run MultiView. This name allows you to refer to
                        a particular MultiView display from within an ARexx
                        script. If no name is specified, each MultiView
                        invocation is given a default name.

For more information on using MultiView with ARexx, see the
AmigaDOS User's Guide.

WBStartup Drawer

The WBStartup drawer is provided to hold icons for programs that
you want opened at the time the Workbench is started. For example,
you may want the Clock program running when you reboot or power
on your Amiga. Drag the icon for each desired program into the
WBStartup window. The WBStartup drawer is empty by default.

Tool Types

Programs in the WBStartup drawer can include the following Tool
Types:

DONOTWAIT   Normally the Workbench waits for one program to
                        finish before it opens the next. DONOTWAIT
                        overrides this, which can cause unwanted
                        requesters after booting. DONOTWAIT does not
                        take an argument.

WAIT= <seconds>   Specifies how many seconds the Workbench
                        should wait before opening the next icon in the
                        WBStartup drawer.

STARTPRI= <priority>   Assigns a priority to an icon so that it opens before
                        or after other icons. By default, all icons have a
                        priority of 0. The acceptable range is from -128 to
                        +127; the higher the value, the higher the program's
                        priority.

Expansion Drawer

The Expansion drawer is used to store software drivers for additional
hardware devices that you install on your Amiga. If a hardware
device uses the Expansion drawer, it is explained in the
documentation packaged with that product. To activate the new
device, drag the icon for the device's software driver into the
Expansion drawer and then reboot your system to make the device
available.

Devs Drawer/Storage Drawer

The Devs and Storage drawers both contain the following
subdrawers:

- DataTypes
- DOSDrivers
- Keymaps
- Monitors
- Printers

Note   Floppy disk-only systems use either the Storage disk or
           Storage drawer found in the software floppy disk set.

The Devs drawer contains the device driver files for the devices that
are currently active on the system. The Storage drawer or disk is for
device driver files that are not currently in use. Storing unused files
in the Storage drawer or disk can save disk space on your boot disk
and reduces clutter in Preferences editor windows.

To activate a monitor or DOS driver:

1. Double-click on the icon. The file is then active during the current session only.

2. To have the icon active in all sessions, drag it from the Storage drawer into the corresponding Devs drawer and reboot your system.

To activate a keymap:

1. Drag keymap files from the Storage drawer on the floppy disk into the Devs drawer.

2. Select the appropriate Keyboard Type in the Input Preferences editor.

To activate a printer driver:

1. Drag printer files from the Storage drawer on the floppy disk into the Devs drawer.

2. Select the appropriate Printer Type in the Printer Preferences editor.

Data Types

Data types are software files used by tools, utilities, editors, and applications. They are used to describe file formats to the system, such as picture files, sound files, and text files. The following default data types are included with the system software:

8SVX	IFF sound files
AmigaGuide	Amiga Help files
FTXT	IFF text files
ANIM	ANIM-format animation files
CDXL	CDXL-format animation files
ILBM	Bitmap picture files

Adding data types from other applications into the Devs/DataTypes drawer makes them available for use by the Workbench, as well as the application. Add new data types by dragging them into the Devs/DataTypes drawer and double-clicking on them.

DOSDrivers

DOS drivers are software drivers that extend the capabilities of AmigaDOS. The following DOSDrivers are included with the system software:

PC0/PC1   CrossDOS drivers for DF0: and DF1:, respectively (see Chapter 11 for details)

CD0   CD-ROM driver (see below for details)

PIPE   Pipe driver (see the *AmigaDOS User's Guide* for details)

AUX   Auxiliary serial Shell driver (see the *AmigaDOS User's Guide* for details)

RAD   Recoverable RAM disk driver (see Appendix B for details)

Using CD-ROM

CD-ROM drives allow you to read information from CD-ROM disks. When the CD0 device driver is activated, you can use the device name CD0: to refer to a connected CD-ROM. Refer to the documentation that came with your CD-ROM device for specific information about connecting and using the device with the Amiga.

To be sure that the CD-ROM drive works with your Amiga, you must determine the name of the device driver that provides the interface for the CD-ROM drive, typically scsi.device. You must also determine the unit number of the CD-ROM drive, which is included in the drive's documentation. The default device name is scsi.device and the default unit number is 2.

If your CD-ROM drive and interface device do not match the default, change the device name and the unit number to those appropriate for your CD-ROM drive as follows:

1. Select the Execute Command item from the Workbench menu.

2. Enter the following command and click on the OK button:

    ```
    ED SYS:Storage/DOSDrivers/CD0
    ```

3. Replace the device name on the DEVICE = line with the appropriate device name for your drive.

4. Replace the unit number on the UNIT= line with the appropriate unit number for your drive.

5. Save your changes by selecting the Save item in the Project menu.

6. Quit ED by selecting the Quit item in the Project menu.

Keymaps

Keymaps control how text characters are mapped into the Amiga keyboard. For any Keyboard Type other than the default American to be available in the Input Preferences editor, the keyboard's keymap must be in DEVS:Keymaps. A list of keyboards and their corresponding keymaps appears in the Input editor section of Chapter 5.

Monitors

The Devs/Monitors drawer and the Storage/Monitors drawer contain icons for the available monitor types that you can use on your system. For any monitor type other than the default (NTSC or PAL, depending on your country) to be available in the ScreenMode Preferences editor, the corresponding monitor driver must be in DEVS:Monitors. See Chapter 7 for more details on using monitors.

Printers

The Devs/Printers drawer holds your printer drivers. Printer drivers that have not been loaded onto your system are located in the Storage/Printers drawer within the software floppy disk set. On a floppy disk system Devs/Printers initially holds only the Generic printer driver. On hard drive systems, the printer drivers specified during installation are installed there.

Activating a printer driver that is not already in DEVS:Printers is the same for floppy and hard disk systems. To load a printer driver and use a printer with your Amiga:

1. Open the Devs drawer on your Workbench disk.

2. Insert your Storage disk or disk containing the Storage drawer and open the Printers drawer.

3. Drag your printer's icon onto the Devs/Printers drawer icon. (For single floppy systems, follow the messages to change disks.)

4. Open the Printer Preferences editor.

5. Select the appropriate printer type from the Printer Type field in the Printer editor window.

On hard drive systems, you can store unused printer drivers in the Storage/Printers drawer.

See Chapter 9 for more details on using printers and activating printer drivers.

Chapter 5
Preferences

This chapter explains the Preferences editors found in the Prefs drawer. These editors allow you to customize your Amiga environment by:

- Choosing a keyboard type
- Setting your preferred language
- Changing the Workbench screen display
- Changing the Workbench colors
- Changing the shape of the pointer
- Specifying a printer and setting it up for output
- Setting up a modem for use with the Amiga
- Setting the time and date

This chapter contains the following Preferences editor information:

- Contents of the Prefs drawer
- Editor menus
- Presets drawer
- Descriptions of each Preferences editor

Prefs Drawer

The Prefs drawer contains the icons for the Preferences editors and
the Preset drawer. Figure 5-1 illustrates the Preferences editors
window.
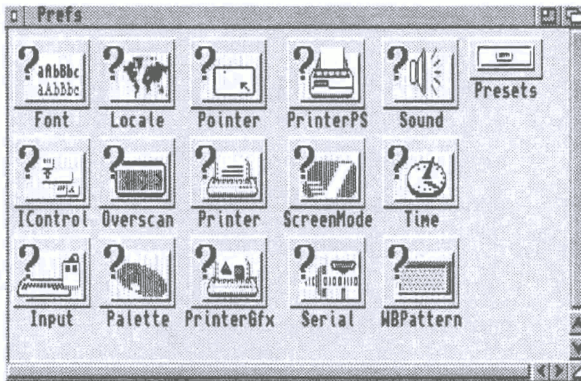
Figure 5-1. Preferences Window

The following editors are listed in the order in which they are
described in this chapter:

Font	For changing the fonts used in the different areas of the screen.
IControl	For choosing miscellaneous system options, such as the key used for screen drag.
Input	For changing the mouse speeds, key repeat speeds, and selecting keyboard type.
Locale	For selecting the language and locality.
Overscan	For adjusting the size of the display area for text and for graphics.
Palette	For changing the Workbench colors.
Pointer	For changing the size, shape, and color of the mouse pointer and busy pointer.
Printer	For specifying the printer driver that matches your printer and for specifying options, such as paper size and margin width.

PrinterGfx	For setting up your printer to print graphics.
PrinterPS	For controlling output to a PostScript printer.
ScreenMode	For choosing a different monitor display mode.
Serial	For setting the specifications for the serial port, which is used to communicate through modems or networking systems.
Sound	For determining the sound your Amiga produces for its display beep.
Time	For setting the time and date.
WBPattern	For selecting or creating background patterns for the Workbench windows and screen.
Presets	For storing different Preferences editor configurations changed through the Project menu.

Editor Menus and Presets Drawer

With the exception of Time, each editor has three menus: Project, Edit, and Settings. The Project menu lets you save and load Prefs preset files, which allow you to quickly change to different configurations. By default, these files are saved in the Presets drawer (SYS:Prefs/Presets), although they can be saved to any location you specify. If you save icons for the files (by selecting Create Icons?), you can activate the settings by opening the file's icon, rather than opening the actual editor.

When you save settings in the Preferences editors by clicking on the Save button, the system stores those settings in the following location:

```
SYS:Prefs/Env-Archive/Sys/editorx.prefs
```

where SYS: is the name of the volume containing the file and editorx is the name of the specific Preferences editor. The settings saved to the Env-Archive drawer are the ones used when you boot. We recommend when you use the Save As option that you use the path provided or a completely different path than this for storing Preset files.

Project Menu

The following Project menu options let you save the editor settings to a specific file and open previously saved files:

Open	Loads the information from a specified preset file.
Save As	Specify the preset file in which to save the currently displayed settings. The requester provides a default file name in the Presets drawer. Change this to a different name if you have more than one preset for that editor.
Quit	Exits the editor without performing any changes. The same as Cancel gadget.

Edit Menu

The Edit menu options allow you to restore previously used settings or the default settings. The options are:

Reset to Defaults	Returns the editor settings to the system default settings.
Last Saved	Returns the editor settings to the last settings you saved with the Save gadget (not the Save As item).
Restore	Returns the editor to the settings displayed when you opened the editor first.

The WBPattern and Pointer Edit Menus have the following additional options:

Cut	Copies and clears the whole work area to the Clipboard.
Copy	Copies the whole work area to the Clipboard.
Paste	Replaces the whole work area with the last thing cut or copied.
Erase	Deletes everything in the work area.
Undo	Undoes the last action performed.
Load Image	Opens a file requester for entering the name of an image file to use as a background pattern or picture.

These options make editing patterns and pointer images easier. Use Cut, Copy, and Paste to transfer images between the editor and a Clipboard-aware program with more extensive drawing tools, such as IconEdit. Use Load Image to import any standard IFF bitmap image

into the editor. (Images larger than the editor work area are cut off on the bottom and right sides when loaded or pasted.)

Settings Menu

The Settings menu contains the Create Icons? item that allows you to save project icons for the preset files. For example, if you save printer specifications to the SYS:Prefs/Presets/Printer.pre file, an icon for the file appears in the Presets window. Double-click on the icon to activate the file's settings.

Using the Presets Drawer

Open the Presets drawer and double-click on a preset's project icon to use its settings. Or open the editor, choose the Open menu item, and use the Load requester to select the preset. Select Use to use the settings until you reboot or open another editor file.

Font Editor

The Font editor changes fonts used on the Amiga.

For information on fonts and on using the Font Preferences editor, see Chapter 8.

IControl Editor

The IControl editor, illustrated in Figure 5-2, lets you change system settings, such as the screen drag qualifier key and the text gadget filter.
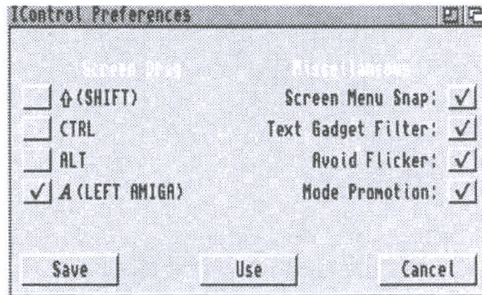

Figure 5-2. IControl Preferences Editor Window

Screen Drag

The Screen Drag gadget specifies other keys that can be used in addition to, or in place of, the left Amiga key as the qualifier for dragging the Workbench screen. This is useful if, for example, an application uses left Amiga and the selection button for other functions.

The available keys are Shift, Ctrl, left Amiga, and Alt. To select a key, click on its check box.

If you select Ctrl, you must hold down Ctrl to drag the screen. If Ctrl and Shift are selected, you must hold down both Ctrl and Shift to drag the screen.

Screen Menu Snap

Screen Menu Snap is provided for users who work with screens that are larger than the monitor's display area. Normally the Workbench menus appear at the top left corner of the screen. If the left-most side of the screen is not visible, Screen Menu Snap shifts the Workbench

screen so that the menus are still accessible. The screen shifts only while the menu button is held down.

Text Gadget Filter

The Text Gadget Filter affects whether control characters function as characters or as editing commands when entered into text gadgets. A control character is a key combination (usually Ctrl and an alphabetical key) that normally performs a certain function.

The standard control characters for text entry are:

Ctrl+M	Same as pressing Return.
Ctrl+H	Deletes one character to the left of the cursor (same as Backspace).
Ctrl+X	Deletes the entire line.
Ctrl+U	Deletes all characters to the left of the cursor.
Ctrl+K	Deletes all characters from the cursor to the end of the line.
Left Arrow	Moves the cursor one character to the left.
Right Arrow	Moves the cursor one character to the right.
Ctrl+A	Moves the cursor to the beginning of the line.
Ctrl+Z	Moves the cursor to the end of the line.

When Text Gadget Filter is selected, entering one of these control characters when the cursor is in a non-numeric text gadget has the function indicated above. When the filtering is off, the control character is included in the string entered; on the screen the control characters appear as an open box or other nonstandard character.

You can insert control characters into the text gadget whether filtering is turned on or not by pressing Ctrl+left Amiga along with the desired alphabetical key. For example, to enter Ctrl+M into the text gadget, press Ctrl+left Amiga+M.

Note   In certain windows with several text gadgets, pressing
            Tab moves the cursor to the next text gadget. In these
            windows, even if the Text gadget filter is off, you must
            still press left Amiga+Tab to enter a Tab into the
            gadget.

Avoid Flicker

The Avoid Flicker option prevents a back screen from becoming
interlaced when the front screen is pulled down to reveal it. The
default for this option is on.

Mode Promotion

The Mode Promotion gadget controls the software de-interlacing
feature of Amigas with the AGA chip set. Selecting Mode Promotion
allows NTSC and PAL screens opened by applications to be promoted
to a nonflickering display mode. We recommend that you turn this
option off when doing video work. For more information about Mode
Promotion, see Chapter 7.

Input Editor

The Input editor allows you to change the speed at which the mouse
and keyboard operate and to select your keyboard type. Figure 5-3
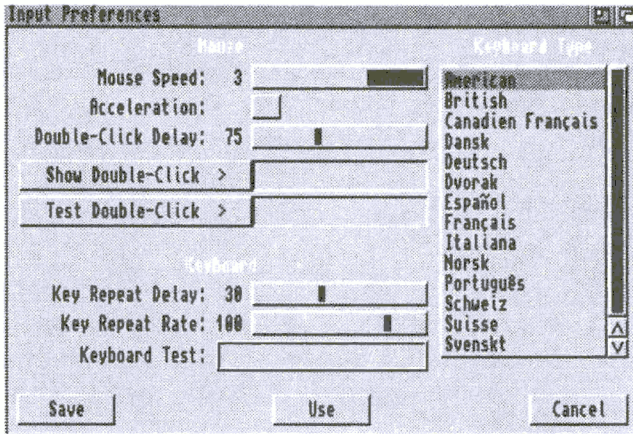illustrates the Input Preferences editor window.

Figure 5-3. Input Preferences Editor Window

Mouse Speed

The Mouse Speed slider determines how fast the mouse pointer moves across the screen relative to mouse movement. The faster the pointer moves across the screen, the less surface space and effort is needed to move the mouse.

Choose from three mouse pointer speeds: 1, 2, and 3, where 1 is the slowest and 3 is the fastest. Set the mouse pointer speed by dragging the slider bar until the desired value is displayed. The mouse speed takes effect while you set it, allowing you to try each speed without exiting the editor. The default value is 3.

Acceleration

The Acceleration feature is used for moving the pointer quickly over large screen areas while retaining fine control for smaller movements. If acceleration is on, the pointer speed remains constant within a small area. However, as the pointer is moved further across the screen, its speed increases, moving it quickly over a large area of the screen.

Select the check box to turn acceleration on or off. The default value is off.

Double-Click Delay

The Double-Click Delay slider determines how fast you click the selection button to register a double-click.

The range is from 1 to 200, with 1 being the least delay. The Show Double-Click gadget shows the amount of time for the selected value by displaying shading in the gadget for the length of the delay. The default value is 75, which allows approximately one second between clicks.

Test your chosen speed by double-clicking in the Test Double-Click gadget. When the double-click takes place within the allotted time, a **Double-Clicked** message appears next to the gadget; if not, a **Too Slow** message appears.

Key Repeat Delay

Most of the keys on the keyboard automatically repeat when held down. Change the delay that occurs before the key repeats with the Key Repeat Delay slider.

The current setting is shown next to the slider. The range is from 1 to 75, with 1 being the least delay. Drag the slider bar to the right to increase the delay and to the left to decrease it. The default value is 30.

Key Repeat Rate

The Key Repeat Rate slider determines the rate at which the keys repeat after the initial key repeat delay.

The range is from 1 to 125, where 1 is the slowest. Drag the slider bar to the right to increase the speed and to the left to decrease it. The default value is 100.

Keyboard Test

The Keyboard Test gadget allows you to test the settings chosen for the key repeat delay, the key repeat rate, and the keyboard type.

Select the gadget and hold down one of the alphabetic keys on the keyboard. The Keyboard Test gadget shows the character for that

key in the selected keyboard type, repeating according to the current key delay and key repeat rate.

Keyboard Type

The Keyboard Type list lets you select the appropriate keyboard type for your localized system. The correct keyboard type matches the characters printed on your keyboard's keys and gives you quick access to the special characters that are part of your language and locale. If you are using a keyboard other than USA, you can use dead keys to produce accented characters. See the KeyShow description in Chapter 10 for dead key information.

Note   If your keyboard type is not the default American, you must activate your appropriate keymap/keyboard. Consult your dealer if you are not sure which keymap/keyboard you should use.

Choosing a particular keyboard type activates the corresponding keymap file in the Devs/Keymaps drawer. Select your keyboard type in the Input Preferences editor by clicking on it.

The available keymaps and the corresponding keyboards are:

Keymap	Keyboard Type
gb	British
cdn	Canadien Français
dk	Dansk
d	Deutsch
usa2	Dvorak
e	Español
f	Français
i	Italiana
n	Norsk
po	Português

Keymap (cont'd)	Keyboard Type (cont'd)
ch2	Schweiz
ch1	Suisse
s	Svenskt

If your keyboard type does not appear in the Keyboard Type list, it means that the corresponding keymap is not present in the Devs/Keymaps drawer. Install the corresponding keymap to correct this using the following steps:

1. Insert either the Storage floppy disk or the disk containing the Storage drawer in any drive.

2. Open the Storage window and then open the Keymaps drawer.

3. Drag the correct icon into the Devs/Keymaps drawer.

When this is complete, you can return to the Input Preferences editor to activate your keyboard type. To check your keyboard layout, use the KeyShow program in the Tools drawer. For more information about KeyShow, see Chapter 10.

Locale Editor

The Locale editor lets you choose the languages with which you interact with the Amiga. The default setting is USA English; however, you can use the Locale editor to choose another language. See Chapter 6 for a full description of the Locale editor.

Overscan Editor

The Overscan editor, illustrated in Figure 5-4, enlarges the size of your screen to use the extra space normally unused around the edges of the monitor screen, known as the overscan area.
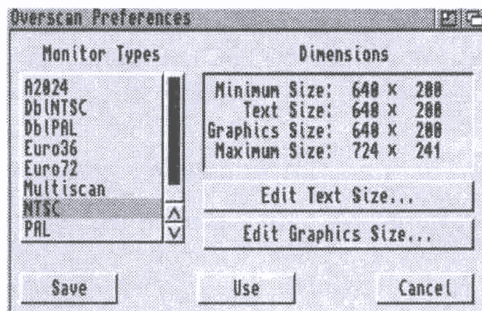
Figure 5-4. Overscan Preferences Editor Window

The Monitor Types available reflect the monitor drivers that are currently active. Monitor files that are in DEVS:Monitors when you boot are automatically activated. Each monitor type controls a set of display modes, called a display group.

When you change the overscan values for a particular monitor type, all modes within that type are affected. To change the overscan values for a monitor type, select its monitor type from the scrolling list. The selected group is highlighted. See Chapter 7 for listings of the maximum available overscan sizes for each display mode.

Text and Graphics Overscan

The Overscan editor allows you to set two different types of overscan: Text and Graphics. Most users can ignore the difference and set both to the same maximum value appropriate for their monitor. Having two settings can help those who use a television set as a monitor or whose monitor is unable to display a sharp image across its entire width.

The screen size and position set as Text overscan is the setting used by the Workbench screen. It can be any size between the minimum and maximum Dimensions limits, but it cannot be any larger than the Graphics overscan setting. If it is enlarged beyond the current Graphics setting, the Graphics setting is adjusted to match.

The screen size and position set as Graphics overscan are the limits within which the Text overscan area must fit and is the maximum for application screens in that display group. Graphics overscan can be

any size between the minimum and maximum Dimensions limits. If the Graphics overscan area is sized or moved, the current Text overscan setting is adjusted as necessary to fit.

Using Different Text and Graphics Overscan

A television image normally extends beyond the edges of the screen itself, so that the outermost edges of the image are not visible. If some part of the Amiga's display runs off the edges of the screen on your television set or monitor or is distorted at the edges, use different Text and Graphics overscan settings.

Confine the Workbench and application screens that must remain legible to the visible area by setting Text overscan to the minimum size and centering it on the screen. The Graphics overscan area can be larger, allowing graphic images and other material for which legibility is less important to fill more of the monitor screen.

Overscan Edit Screens

Selecting either the Edit Text Size or Edit Graphics Size gadgets displays a separate screen, illustrated in Figure 5-5, on which you graphically adjust the overscan size. The Overscan editor allows you to set two different overscan regions.
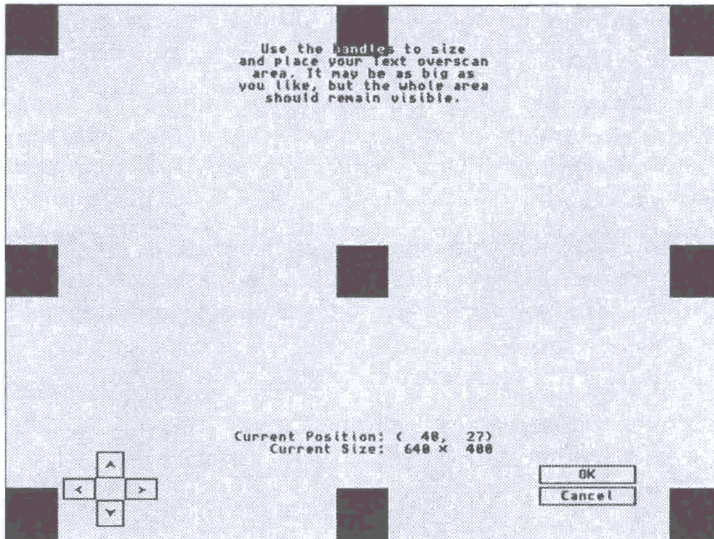
Figure 5-5. Edit Text Size Window

The black rectangles on the screen are handles and the line connecting the handles represents the outermost area where the Amiga's output can be displayed. Enlarge the display area by pointing to a handle, holding down the selection button, and dragging the handle to the edge of the screen. Only the active handle is visible on the screen when you drag it.

Moving any part of the handle off the screen or out of the viewing area over enlarges it, losing a portion of the visible image.

For monitor types other than NTSC and PAL, there are four arrow gadgets in the lower left area of the edit screen. The arrow gadgets allow you to shift the entire display area up, down, right, and left to center it. Move the display in the direction of the arrows by clicking on them. Depending on your monitor type, it is possible to move the display too far to the right or left, causing the monitor to go out of sync. This can result in the colors fading or a total disruption of the display. Because this condition can damage your monitor, it is important not to leave it this way for any period of time. If this happens, you can use the arrow keys on the keyboard to move the

display back into position or press the Escape key, which undoes any changes you made and returns to the Overscan editor window.

Use the center handle to position the display area within the viewable area when the screen is not at maximum size. By dragging the handle, you can shift the display area in any direction to center it on your monitor screen.

The Current Position figures show the x/y distance in pixels from the upper left corner of the screen to the upper left corner of the display area. Current Size shows the size of the viewable area defined by the handles.

To accept changes and return to the Overscan editor, select OK. To exit the screen without accepting any changes and return to the Overscan editor, select Cancel or press the Escape key.

Dimensions

The different sizes of the overscan areas are displayed on the right of the Overscan window. The sizes are given in number of pixels, representing the width and the height of the screen.

For PAL or NTSC groups, the sizes correspond to the sizes for a standard High Res screen. If Multiscan is selected, the sizes for a non-interlaced Productivity screen are given. All other display modes in a group are affected proportionally.

The size categories are:

Minimum	The standard, non-overscan size of a screen.
Text	The current Text Overscan size.
Graphics	The current Graphics Overscan size.
Maximum	Maximum allowable overscan size, Text or Graphics.

Palette Editor

The Palette editor, illustrated in Figure 5-6 lets you change the colors
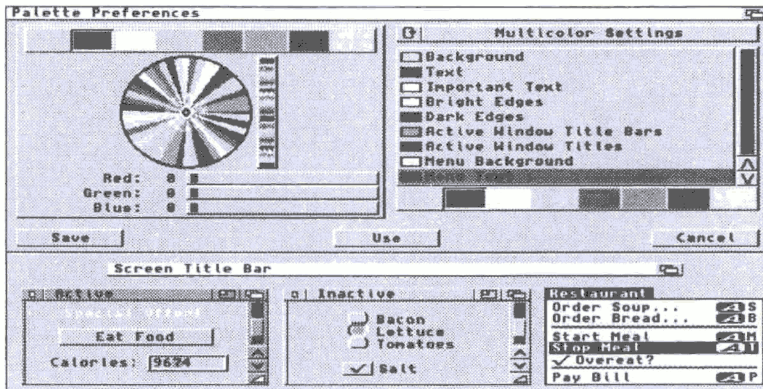of the Workbench.

Figure 5-6. Palette Preferences Editor Window

On Amigas with the AGA chip set, the left side of the Palette
Preferences editor window displays either the four or eight current
Workbench colors in the selection gadget, a color wheel, a gradient
intensity indicator, and color sliders that can be RGB (red, green,
blue) or HSB (hue, saturation, brightness) depending on your Slider
Color Model menu selection. (RGB is the default setting.)

On Amigas with the ECS chip set, a gadget labelled Color Wheel... is
displayed in place of the color wheel. Click on this gadget to display a
screen containing the color wheel and intensity indicator. When you
have made your color selection on this screen, press OK to activate it
or Cancel to cancel. Pressing either gadget returns you to the Palette
Preferences editor window.

The right side of the Palette Preferences editor window has a Color
Mode cycle gadget with two settings: Multicolor Settings and 4 Color
Settings. The Multicolor Settings gadget is for setting eight
Workbench colors. The 4 Color Settings gadget is for setting four
Workbench colors. Both modes should be set to accommodate editors
and applications that use one setting or the other.

The Palette Preferences editor window displays the following nine window items for which you can select specific colors:

- Background
- Text
- Important Text
- Bright Edges
- Dark Edges
- Active Window Title Bars
- Active Window Titles
- Menu Background
- Menu Text

Below the Workbench items list is a color selection gadget containing four or eight color boxes similar to the color selection gadget above the color wheel.

Depending on the display mode, width, and height set in the ScreenMode Preferences editor, the bottom of the Palette Preferences editor window can display a sample window that changes as you change color selections. This display shows the elements contained in a typical Workbench window, including a screen title bar. If the sample does not appear on your Palette Preferences editor window, a Show Sample gadget is displayed instead. Clicking on this gadget displays the sample window showing your color selections. You can click on the items in the sample to select the elements whose colors you wish to change.

You can choose the color or item you wish to change by clicking on:

- A color box within one of the two color selection gadgets.
- An item in the window elements list.
- An item on the sample window.

The following four methods can be used to change colors or their shade:

- Using the RGB mode color sliders.
- Using the HSB mode color sliders.

• Using the color wheel.

• Using the gradient slider next to the color wheel.

Changing the black and white settings can affect the three-dimensional appearance of the screen. Be sure colors replacing black are darker than colors replacing white.

To change color using the color wheel:

1. Point to a color in the selection gadget above the color wheel or below the Workbench items list and click the selection button.

2. Point to the color intensity indicator (the highlighted dot within the color wheel) and hold down the selection button.

3. Moving the mouse pointer moves the indicator on the color wheel, changing the color in the display box and on the sample screen as the indicator moves. Release the selection button when you reach the color you want.

To change a color's shade using the gradient slider:

1. Point to a color in the selection gadget above the color wheel or below the Workbench items list and click the selection button.

2. Point to the highlighted bar within the gradient slider and hold down the selection button.

3. Moving the mouse pointer up or down within the gadget lightens and darkens the color.

To change a color in RGB mode:

1. Point to a color in the selection gadget above the color wheel or below the Workbench items list and click the selection button.

2. Use the slider gadgets to change the selected color. The color in the display box and on the sample screen changes as the bar is dragged through the slider box.

To change a color in HSB mode:

1. Point to a color in the selection gadget above the color wheel or below the Workbench items list and click the selection button.

2. Use the slider gadgets to change the selected color. The color in the display box and on the sample screen changes as the bar is dragged through the slider box.

   The Hue slider changes the basic color, the Saturation slider changes the amount of color, and the brightness slider changes the lightness or darkness of the color.

In addition to the standard Preferences menus, the Palette editor also has a Presets menu item in the Edit menu that contains predetermined color settings and a Settings menu item that lets you determine which Slider Color Model to use for changing your colors.

If you have a monochrome monitor or if you choose a color setting of 2 in the ScreenMode Preferences editor, the Palette Preferences editor only displays RGB color sliders.

Pointer Editor

The Pointer editor lets you change the color, size, and shape of the mouse pointer and the busy pointer. Figure 5-7 illustrates the Pointer editor window. A magnified view of the current pointer is shown to the left. To the right are reduced copies of the pointer, showing how it looks against the Workbench colors.
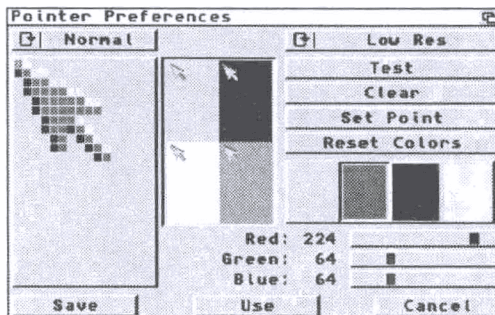
Figure 5-7. Pointer Preferences Editor Window

The Pointer cycle gadget above the magnified view box lets you select either the mouse pointer or the busy pointer for editing.

The pointer has three changeable colors on an unchangeable background. Areas using the background color are transparent.

To change the colors of the existing pointer:

1.   Select a color from the color selection gadget.

2.   Change the amounts of red, green, and blue in that color using the three color sliders.

To create a new pointer, you can draw it pixel by pixel:

1.   Select the Clear gadget to erase the contents of the magnified view box.

2.   Select the color with which to draw.

3.   Point within the magnified view to position a pixel and click the selection button. Hold the selection button down to draw with that color.

     Repeat Steps 1 through 3 until your design is complete.

4.   Select the Set Point gadget and then click on one of the pixels in the pointer to position the pointer's hot spot.

5.   Click on Use to use the pointer you created in this session or Save to use it across sessions.

The Test gadget lets you change the screen pointer to see how it looks at actual size without closing the editor.

The Cancel gadget cancels all changes and closes the editor window.

The Clear gadget erases the magnified view box. All pixels change to the background color for drawing a new pointer.

The Resolution cycle gadget lets you choose between High Res and Low Res settings. This is available only on Amigas with the AGA chip set. Selecting High Res provides twice as many pixels to work with, giving you finer detail and more control over your drawing.

The Set Point gadget lets you choose where to put the pointer's point or hot spot. In the magnified view, the point pixel is surrounded by a

different color. Select the Set Point gadget and click on the position where the hot spot is to be located.

The Reset Color gadget returns the last set of colors that were in use when you entered the editor.

The Project and Edit menus have the Open, Save As, Quit, Cut, Copy, Paste, Erase, Undo, Load Image, Reset to Defaults, Last Saved, and Restore items described starting on page 5-4.

Printer Editor

The Printer editor lets you specify the type of printer you are using, and the type of output you want. The Printer Preferences editor is described in detail in Chapter 9.

PrinterGfx Editor

The PrinterGfx editor supports extended printer graphics features. For example, PrinterGfx lets you determine your margins, select and correct the colors, set the dithering method, and scale your graphics. The PrinterGfx Preferences editor is described in Chapter 9.

PrinterPS Editor

The PrinterPS editor controls the features of PostScript printers. This editor only applies if you have a PostScript printer and if you choose PostScript in the Printer Preferences editor. The PrinterPS editor is described in Chapter 9.

ScreenMode Editor

The ScreenMode editor, illustrated in Figure 5-8, lets you select the display mode for the Workbench screen. Since the modes have different properties and hardware requirements, review the descriptions provided here and in Chapter 7 to determine which modes are available on your system and best meet your needs.
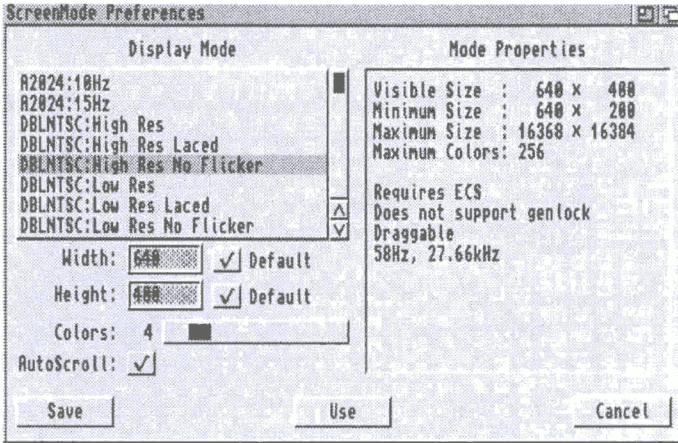
Figure 5-8. ScreenMode Preferences Editor Window

The available display modes are listed on the left; the properties of the mode selected are displayed on the right.

Using the ScreenMode Editor

The available display modes are shown in the Display Mode list. Scroll through the list to see all modes available. The available modes reflect the currently active monitor drivers. Place the associated monitor files in the Devs/Monitors drawer to have its display modes available at all times.

Select a display mode from the list by clicking on it. The selected mode is highlighted. Select Save to use the mode and save it as the default in future sessions. Select Use to use the mode for the current session only. When trying different display modes, select Use rather than Save when you exit ScreenMode. When you have settled on the display mode you intend to use, save it. This makes recovery easier if you select a mode that is not compatible with your monitor. Select Cancel to exit the editor without making any changes.

If you select Save or Use while an application or Shell window is open on the Workbench screen, a requester appears, asking you to close any open windows other than drawers. When you have closed the

last open Shell or application window, the Workbench screen automatically resets to the new display mode.

Your chosen display mode pertains only to the Workbench screen. Applications opening their own screens supply documentation of the display modes they support.

Mode Properties

The Mode Properties display box lists information about the display mode selected. It displays screen sizes and maximum displayable colors for the selected display mode and other mode properties.

Screen sizes corresponding to the currently selected display mode are given in pixels. The first number represents the width of the screen; the second number represents the height.

Visible Size	The size of the visible area of the screen as determined by the Text Overscan settings.
Minimum Size	The smallest, or minimum, screen size supported by the selected display mode.
Maximum Size	The largest, or maximum, screen size supported by the selected display mode. The amount of Chip memory available can further restrict this size.
Maximum Colors	The maximum number of colors displayable on a screen in the selected display mode.

The possible mode properties that can be displayed include:

Interlaced	The display mode is interlaced.
Requires ECS	Only available if your Amiga has at least the Enhanced Chip Set; this is also available to systems with the AGA chip set.
Supports Genlock	The display mode supports the use of video genlock equipment.
Draggable	The display mode supports a draggable Workbench screen. A draggable screen can be pulled down to reveal any other open screens behind it.

Width/Height

Use the Width and Height text gadgets to customize the size of your Workbench screen. Enter a number between, or equal to, the minimum and maximum width and height. Once the number is entered, that number remains constant no matter what display mode is selected until the corresponding Default gadget is selected.

Entering numbers larger than the maximum or smaller than the minimum is the same as specifying the maximum or minimum.

The Default check box to the right of each gadget lets you select the default setting for the width and/or height. This equals the Visible Size.

You can specify a Width and Height much larger than the visible size. This extra-large virtual Workbench screen lets you open larger and more non-overlapping windows than otherwise possible, limited only by available Chip memory.

Colors

The Colors slider gadget lets you select the number of colors that can be displayed on the screen. The fewer colors selected, the faster the screen can be redrawn and the less memory used.

AutoScroll

When AutoScroll is selected, the screen automatically scrolls when the mouse reaches the edge of the screen's visible portion. This is useful when you have defined a Width or Height for the screen that is larger than the visible size.

Serial Editor

The Serial editor, illustrated in Figure 5-9, sets specifications for serial communication on your system.

```
Serial Preferences                                          回凸
                    Baud Rate:   9,600 _____■____
              Input Buffer Size:   512 ■_____

    XON/XOFF ⊙       None ⊙          7 ⌣          1 ⊙
     RTS/CTS ⌣       Even ⌣          8 ⊙          2 ⌣
        None ⌣        Odd ⌣
                     Mark ⌣
                    Space ⌣

     Save                    Use                  Cancel
```
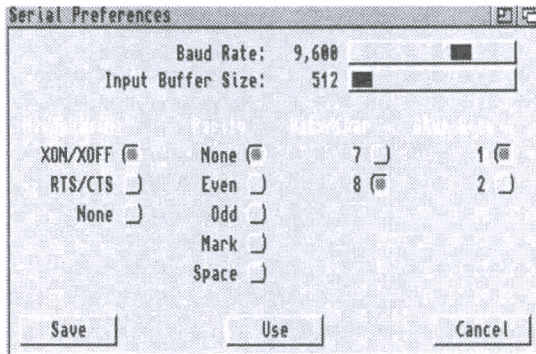
Figure 5-9. Serial Preferences Editor Window

Serial information sent and received through modems or networks must be in a form compatible with the device with which you are communicating. Refer to the documentation packages that came with your serial device to determine appropriate settings.

Baud Rate

The baud rate determines the number of bits transferred through the serial port each second. In serial communication, information is sent and received one bit at a time. Since characters are usually 10 bits (1 start bit, 8 data bits, 1 stop bit), dividing the baud rate by 10 approximates how many characters per second (cps) are transmitted.

The selected baud rate must match the rate of the device with which you are communicating. The larger the value, the faster the data is transferred. The available rates are: 110, 300, 1200, 2400, 4800, 9600, 19200, and 31250 baud. The current rate setting is shown to the left of the slider. The default setting is 9600.

Input Buffer Size

The input buffer is an area of memory set aside for incoming serial data. The available sizes are: 512, 1024, 2048, 4096, 8192, 16384, 32768, and 65536 bytes. The current size is shown to the left of the slider. Use a larger buffer when working with a high baud rate or when the Amiga is performing many tasks. The default setting is 512.

Handshaking

Handshaking controls the flow of information through the serial port and the attached device. The same handshaking method must be set for both the computer and the device to allow communication. The available choices are:

XON/XOFF   This is the most common method. Special characters called XON and XOFF are embedded in the data stream between the two devices to regulate the data flow.

RTS/CTS   Separate control lines called RTS (Request to Send) and CTS (Clear to Send) regulate the data flow. This method requires a properly wired serial cable.

None   Handshaking is shut off, allowing communication between devices without restriction or regulation. Use this option with caution.

Parity

Parity detects transmission errors by checking a bit of each character, called the parity bit, for its setting. The available parity settings are:

None   All bits are used for data. This should be used when Bits/Char is set to 8. No parity checking occurs.

Even   The total number of ON bits in each character should always be an even number.

Odd   The total number of ON bits in each character should always be an odd number.

Mark   The parity bit is always ON.

Space   The parity bit is always OFF.

Bits/Char

Bits per character specifies the number of bits that are sent through the serial port for each character and the number of bits expected for each character received.

This setting should correspond with the setting for parity. If parity is set to Even, Odd, Mark, or Space, set bits per character to 7 since some systems use the eighth bit of data for parity checking. If parity is set to None, set bits per character to 8.

Stop Bits

Stop bits are extra bits added at the end of a character to allow the computer to interpret spacing between words and indicate when a transmission ends. This applies to characters both sent and received through the serial port.

Slower processing computers usually require two stop bits. Computers that transfer information at 300 baud or faster generally require one stop bit. If you are using eight data bits, use only one stop bit or you may lose data during transmission.

Multiple Units

If you have additional serial ports on your system, you can specify a default unit by adding a UNIT command line option or putting a UNIT Tool Type in the program's icon. This causes a Default Unit text gadget to appear in the Serial editor window. In this gadget, enter the unit number of the port that should be used when a particular port has not been otherwise specified. Entering 0 or 1 specifies the motherboard serial port. The documentation for your serial expansion device should give the unit numbers to use for its ports. Settings made in the Serial editor affect all ports.

Sound Editor

The Sound editor lets you determine the type of sound and sound attributes produced by your Amiga. The Amiga can flash the screen and/or issue a beep to signal of an application prompt or error in processing. The Sound editor window is illustrated in Figure 5-10.
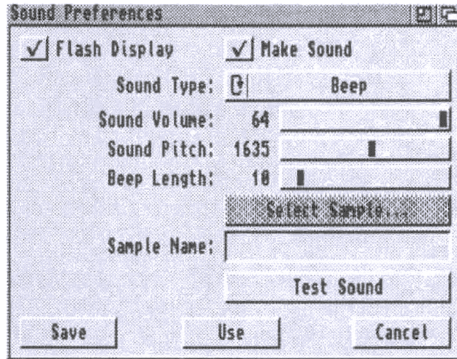
Figure 5-10. Sound Preferences Editor Window

Note   Your Amiga or monitor must be equipped with
            speakers for it to make sound. Consult your hardware
            documentation or Amiga dealer for information on
            connecting speakers.

You can choose Make Sound, Flash Display, or a combination of both.
Do not turn both functions off at the same time since that disables all
signaling capability, which could cause you to miss a prompt.

Choosing Flash Display alone causes the Amiga to signal a prompt or
error by flashing the screen.

If you choose Make Sound, you have the following options:

Sound Type   Select Beep or Sampled Sound. The Beep is a simple
                      tone. The Sample Sound Type is a standard sampled
                      sound file. You can create a sound file yourself with a
                      sound digitizer or load from a sample sound file, for
                      which you have a sound data type. Sampled sound
                      files that are created for the Amiga can be purchased.

Sound Volume   Set Sound Volume between 1 for the quietest and 64
                      for the loudest.

Sound Pitch	Set Sound Pitch between 1 for the lowest pitch and 3000 for the highest. For a beep, Sound Pitch controls the tone pitch (high or low frequency; for sampled sounds it controls the play back speed (the number of samples played per second), which affects both the pitch of the sound and its duration.
Beep Length	Set Beep Length between 1 for the shortest duration to 100 for the longest duration.
Select Sample	Use the Select Sample gadget with the file requester to select the file name of the sample. Sound accepts sound sample files for which you have a data type, such as 8SVX. If you save this sample setting, the sample file must be available each time you reboot, either on hard or floppy disk.

After you choose Beep or designate your sample sound, you can test the sound to be sure it has all the attributes that you want by selecting Test Sound. The Save, Use, and Cancel gadgets do not work while the sound is being tested.

Time Editor

The Time editor lets you set the date and time on your system. Figure 5-11 illustrates the Time Preferences editor window.
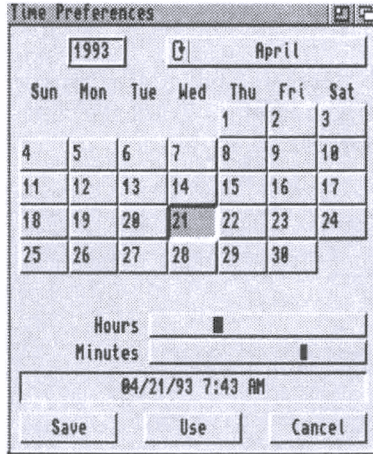
Figure 5-11. Time Preferences Editor Window

To set the date:

1. Click the cycle gadget in the upper right corner until the correct month is displayed.

2. Select the year text gadget, delete the incorrect year, and enter the correct year.

3. Select the correct day from the calendar display. The day is highlighted when selected.

To set the time:

1. Point to the slider bar in either the Minutes or Hours slider.

2. Drag the bar to the right to increase the value and to the left to decrease the value. When the correct value is shown, release the selection button. Repeat these steps for the other slider.

WBPattern Editor

The WBPattern editor lets you change the background display of the screen and the Workbench and its windows. The WBPattern editor window is illustrated in Figure 5-12.
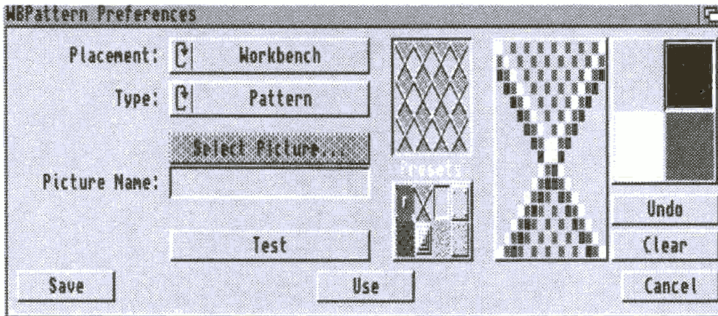
Figure 5-12. WBPattern Preferences Editor Window

The Placement cycle gadget lets you select the following for displaying a background:

Workbench   The Workbench window, regardless of whether Backdrop is selected.

Windows   Disk or drawer windows, but not the Shell or tools windows.

Screen   The Workbench screen when Backdrop is not selected.

The Type cycle gadget lets you select:

Pattern   Allows you to create a pattern or use a preset pattern to apply to the Workbench, Windows, or Screen display.

Picture   Lets you select a picture to apply to the Workbench, Windows, or Screen display.

Applying Background Patterns

You can select an already existing pattern or create your own to fill any open areas of the window. The default is no pattern.

To choose a preset pattern:

1. Make a selection in the Placement cycle gadget: Workbench, Windows, or Screen.

2. Select Pattern from the Type cycle gadget.

3. Select one of the patterns in the Presets gadget to show a sample in the display box above it.

4. You can optionally select the Test gadget to apply the pattern to the screen without exiting the editor.

To create a pattern:

1. Make a selection in the Placement cycle gadget: Workbench, Windows, or Screen.

2. Select Pattern from the Type cycle gadget.

3. If there is a pattern in the magnified view box, select the Clear gadget to fill the magnified view box with the currently selected color as a background.

4. Select a color for drawing from the color selection gadget. Or select a pattern from the Presets gadget and use the mouse to edit it.

5. Point within the magnified view box to where you wish to draw and click the selection button.

    One pixel of the selected color appears where you position the mouse pointer. Holding down the selection button and moving the mouse fills in several pixels at once. Select and draw in other colors as necessary.

    As the pattern is created in the magnified view, it also appears in the actual-size box so you can see how the pattern looks tiled onto a larger area. If you make a mistake while drawing, use the Undo gadget to erase the last action performed by the mouse.

6. When the pattern is completed, select the Test gadget to see how it appears on the screen.

Applying Pictures

You can apply a picture or graphic file to the background of the
Workbench, Windows, or Screen. Pictures can be created in a paint
package or you can load digitized picture files into the editor.
Pictures are mapped to the colors of the screen.

To select an existing picture file:

1. Select Picture from the Type cycle gadget.

2. Click on the Select Picture gadget.

3. In the file requester, enter the file name of the picture you wish to
    use.

4. Optionally select the Test gadget to apply the picture to the
    screen without exiting the editor.

WBPattern Edit Menu

The WBPattern Edit menu has items that let you use other drawing
programs to create and edit patterns and to use existing images from
other sources. For example, you can use the drawing capabilities of
the IconEdit tool, described in Chapter 10, to create a design and then
load it into WBPattern.

Cut	Copies the contents of the magnified view to the Clipboard and clears the view to the background color.
Copy	Copies to the Clipboard without clearing the view.
Paste	Copies an IFF image from the Clipboard to the magnified view, replacing whatever is currently there. (Images larger than the 16 x 16 pixel view are cut off on the bottom and right sides.)
Erase	Clears the magnified view to the background color.
Undo	Operates the same as the Undo gadget, exchanging the contents of the Undo and magnified views.
Load Image	Opens a file requester for entering the name of an image file to use as a background pattern.
Reset to Defaults	Resets WBPattern to default settings (no patterns).
Last Saved	Returns the last saved settings.

Restore   Restores the settings in effect when the editor was opened.

When you Save or Use, all selected patterns or pictures are saved and/or applied where designated. Selecting Cancel also cancels any patterns or pictures applied with Test gadget.

Chapter 6
Localization

Using the Workbench localization features, you can display information in the language, date/time, and numeric format of your choice.

This chapter describes the following:

- The features that are localized
- The Locale Preferences editor, which controls the localization features

Localized Features

You can modify the following features:

text
Screen titles, window titles, menus, requesters, and messages are all presented in the language chosen in the Locale Preferences editor.

calculator
The keypad for the calculator reflects the keypad associated with your country and language selections. For example, the decimal separator can be a comma or a decimal point.

clock
The time format on the clock adapts to the local standards associated with your country and language selections.

date
The date format adapts to the local standards associated with your country and language selections.

time/date stamps
The time and date formats for directory listings reflect the local notation associated with your country and language selections.

numbers
Numbers are displayed in the format associated with the country and language selection. For example, the thousands separator can be a comma or a space.

Locale Preferences Editor

The Locale Preferences editor, illustrated in Figure 6-1, allows you to
select your country, your time zone, and your preferred languages.
When you install Workbench software on your hard disk, you choose
the languages that you want available on your system. The default
setting is English; however, you can use the Locale editor to choose
from a variety of other languages.

Note   If you install your software on a hard drive, you can
choose a language other than English for the
installation process. However, as soon as the system
reboots following the installation, the Workbench
defaults to English. Use the Locale Preferences editor
to select the language in which you want to work.

                 When you are installing your Workbench software, be
sure to select all the languages that you intend to use.
However, if you neglect to install a particular language,
you can install the missing language from the Locale
disk or Locale drawer found in the system floppy disk
set at a later time.
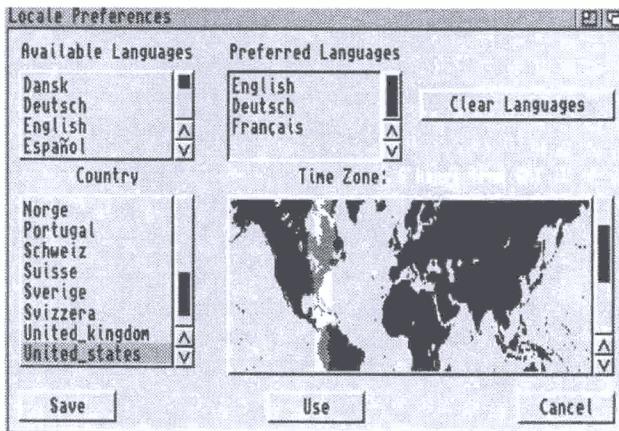
Figure 6-1. Locale Preferences Editor Window

The Available Languages box indicates the languages currently installed on your system. By clicking on the languages in the Available Languages box, you can specify a preference for the primary languages that you intend to use. Each language you click on appears in the Preferred Languages box.

Select the languages in order of preference from most preferred to least preferred. If your first choice of language is not listed first in the Preferred Languages box, select Clear Languages and start the selection process again. If there is nothing in the Preferred Language box, English is the default.

Applications that use the Amiga localization features reference the list of preferred languages to determine which language to use. If the application cannot provide the most preferred language, it goes down the list until it reaches a language it can provide. If it fails to find a language from the preferred list, it uses its default language.

The Country gadget allows you to select your country, which affects the way the time and date are formatted and the convention for numeric data.

The Country selection determines the following parameters:

- Country name
- Country code
- Telephone code
- Measuring system
- Combined and separate date and time
- Short combined and separate date and time
- Number format
- Positive monetary format
- Negative monetary format
- Small currency symbol
- International monetary symbol

To set the time zone, click on your location on the map. The Time Zone indicator tells you how many hours from GMT (Greenwich Mean Time) your zone is. Workbench does not use the time zone setting, but some applications may.

To save and apply your Locale settings, select Save and reboot your system. To use changes made in the Locale settings for the current session only, select Use. If you select Use, the Workbench menus, title bar, and disk windows change immediately to the preferred language; however, tools such as Clock and IconEdit that were already open remain in the previous language. To see a localized tool in the new preferred language, the tool must be opened with that language in effect.

Select Cancel to exit the Locale Preferences Editor without making any changes.

Chapter 7
Monitors

There are many different types of monitors that you can use with your Amiga. Because of the numerous options involved, it can sometimes be difficult to find the optimum graphics configuration for the software and monitor you are using. This chapter describes the options and provides additional information about monitors and video modes that you need to know to take advantage of your Amiga's superior graphics capability. In particular this chapter includes information about:

- Your video system
- Monitor drivers
- Choosing a monitor
- Scan rates
- Screen display modes
- Screen centering and overscan
- Working with the AGA chip set
- Mode promotion

Your Video System

Your video system consists of one hardware and two software elements that work together to produce the image you see on the screen. These are:

- The monitor.
- The monitor driver, which is the Amiga software that manages the basic communication between the monitor and the computer.

• The display mode—a set of specific parameters supplied by a driver—that controls the actual characteristics of an Amiga screen. These characteristics include the number of displayable colors, the available scan rates, and resolution.

The hierarchical relationship among these elements is illustrated in Figure 7-1.

Monitor

Software options for
selecting a monitor

Driver 1	Driver 2	Driver 3
Display modes	Display modes	Display modes
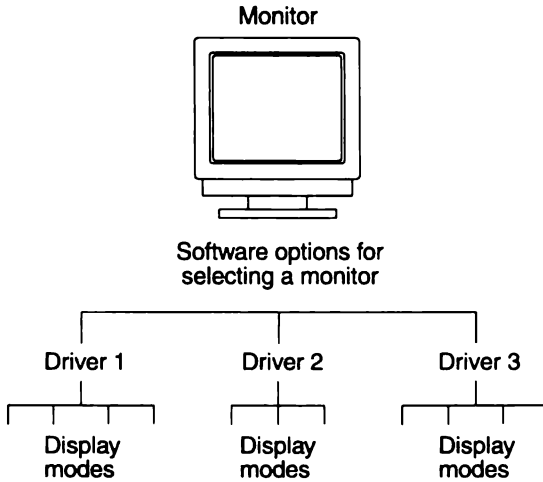
Figure 7-1. Video System Hierarchy

For each type of monitor, you can select more than one driver and, within a driver, more than one display mode. You must, however, ensure that your selections are compatible. We strongly recommend that you read this chapter through completely before setting up or purchasing a monitor to use with your new Amiga.

Monitor Guidelines

When setting up a monitor to work with your Amiga, follow these three general monitor guidelines:

1. Choose a monitor that suits your needs and is compatible with the Amiga monitor drivers. Check your monitor's documentation for

the horizontal and vertical scan rate specifications and compare these to the scan rates listed starting on page 7-6.

Scan rates are listed in kilohertz (kHz). The numbers represent the speed at which the monitor updates the screen display. In general, higher scan rates produce a higher resolution screen with a more stable display.

2. When you have determined the kind of monitor you will be using, choose a monitor driver that provides the display modes your particular monitor can display.

    Available monitor drivers are present in the Devs/Monitors drawer. Monitor drivers that are not in DEVS:Monitors can be moved there from the Storage drawer. Activate a monitor driver by double-clicking on it. See Chapter 4 for more information on making monitors available.

3. When you know which monitor drivers you can use, you can select a display mode. The possible display modes are described and listed starting on page 7-7. Depending on your Amiga chip set, you can have a number of display modes from which to choose. Before settling on a particular display mode, try the different modes available for the monitor driver.

    Note that the activation of a driver and the selection of the display mode is accomplished in one step—when you choose a display mode in the ScreenMode Preferences editor.

    Some display modes within that monitor driver can appear distorted even though your monitor matches a particular driver. If you choose an incompatible display mode, you should try others until you find one that is clear. Leaving your monitor in an incompatible display mode can cause serious damage to it. If you save a setting before you are sure it is compatible and your display becomes distorted, you can recover using the procedure described on page 7-15. For more information on using the ScreenMode Preferences editor, see Chapter 5.

Types of Monitor

The Amiga requires an analog RGB (color) monitor or high quality
color television. There are three general types of analog RGB
monitors that you can use with your Amiga. The difference between
them is in the horizontal sync frequencies (also called the scan rates)
they accept:

1. Video monitors, such as the Commodore 1084 series, accept only
    the standard Amiga 15 kHz scan rate (NTSC and PAL display
    modes); a television is considered a video monitor.

2. VGA-only monitors accept only the 31 kHz VGA scan rate (DBL,
    Multiscan, and Productivity modes).

3. Multiscan (multiple horizontal sync frequency or multi-sync)
    monitors, such as the Commodore 1942, 1950 and 1960, accept a
    range of scan rates.

Choosing a Monitor

There are a few things to consider before you choose a monitor. To
determine whether a given monitor works with your Amiga, you must
compare the specifications of the monitor you are considering against
the scan rates listed starting on page 7-6. If the monitor accepts the
scan rate of the monitor driver listed, the monitor should work with
the display modes the monitor driver provides.

In practice, it is unusual to find a monitor that can display all of the
Amiga's display modes. However, there is really no need to do so.
Many modes have similar resolutions and differ only in their scan
rates. The large number of video modes with different scan rates
allows you the flexibility to use any of various types of monitors that
are available to you.

Monitor Drivers

A monitor driver contains the range of parameters that a monitor can support. The display mode is a specific subset of those parameters. The display mode you choose must be compatible with your monitor or your screen display may be distorted.

A display mode is defined by:

- Resolution (horizontal and vertical dimensions in pixels)
- Vertical and horizontal scan rates (the speed at which the monitor updates the display)
- Color palette (the largest number of colors that can be displayed on the screen at one time and the size of the palette from which the displayable colors can be chosen)

To determine if you can use a particular display mode, check the horizontal and vertical scan rates listed in this section against the specifications for your monitor. If the display mode's scan rates are outside your monitor's acceptable range, you cannot use that mode.

When choosing a monitor and monitor driver, you should consider the following:

- Certain important Amiga screens, such as alerts and the Early Startup Control screen, always appear in one of the 15 kHz modes, as do many games and certain other applications. A VGA-only monitor cannot properly display these screens.
- A 15 kHz-only monitor can display all system screens and virtually all Amiga applications, but cannot take advantage of Mode Promotion or the higher resolutions and enhanced displays that the AGA chip set offers.
- Vertical scan rates (also called the refresh rate) for display modes available under Release 3 vary from 48 to 73 Hz.

Check the specifications for a multiscan monitor carefully, however, as not all multiscan monitors accept 15 kHz input.

If you are not using a monitor that scans to 15 kHz, it is important to have your initial system settings made using a monitor that displays 15 kHz modes. Once your initial settings are made and you can use your regular monitor, you should make at least one backup floppy

copy of your Workbench software containing these settings. If your ScreenMode editor display settings are accidentally changed, you can use this floppy disk to recover your display. Procedures for recovering a distorted display are described on page 7-15.

Required Scan Rates

The following sections group the monitor drivers according to the three basic horizontal scan rates that they require.

Video Monitors

Monitor Driver	Horizontal Scan Rate	Vertical Scan Rate
NTSC	15.72 kHz	60 Hz
PAL	15.60 kHz	50 Hz
Euro:36Hz	15.76 kHz	73 Hz

VGA Monitors

The standard VGA horizontal scan rate is 31.5 kHz. Most, but not all, VGA-only monitors can also display the 27 kHz promoted modes produced by the DBLNTSC and DBLPAL monitor drivers.

If you are attempting to use a VGA monitor with the DBL or Multiscan modes and it does not display those modes correctly, activating the VGAOnly monitor driver can help. It modifies the scan rates slightly to better match the VGA rates. However, this does cause the left edge of the screen to flash when scrolling horizontally, so you should not use VGAOnly unless it is necessary.

The next table shows the normal scan rate followed by the rates as modified by VGAOnly. If you activate or deactivate VGAOnly, you should delete the file ENVARC:Sys/overscan.prefs and reboot before editing your ScreenMode and Overscan Preferences settings.

Monitor Driver	Horizontal Scan Rates Normal/VGAOnly	Vertical Scan Rates Normal/VGAOnly
DBLNTSC	27.66 kHz / 29.20 kHz	58 Hz / 59 Hz
DBLPAL	27.50 kHz / 29.45 kHz	48 Hz / 50 Hz
Euro:72Hz	29.32 kHz / 31.43 kHz	69 Hz / 70 Hz
Multiscan	29.29 kHz / 31.44 kHz	58 Hz / 60 Hz

Multiscan Monitors

A multiscan monitor can potentially display any of the previously listed rates, plus the following:

Monitor Driver	Horizontal Scan Rates	Vertical Scan Rates
Super72	23.21 kHz / 24.62 kHz	71 Hz / 72 Hz

Choosing a Display Mode

You can choose a display mode using the ScreenMode Preferences editor. Instructions on choosing the display mode and how to activate the monitor driver if it is not available appear in the ScreenMode editor description in Chapter 5.

The tables in this section list display modes available on the Amiga. They are grouped according to the Amiga chip set, showing the possible modes that all chip sets can use first, followed by those that require either ECS or AGA chip sets, and then those that are available for the AGA chip set only.

Within the groups, the modes are listed by the monitor file name. To use any of the display modes shown, you must have the full custom chip set required and the appropriate monitor driver icon must be present in DEVS:Monitors.

Screen Resolution is given in pixels, with the horizontal size followed
by the vertical size. For example, 640 x 400 is a screen 640 pixels
wide and 400 pixels high. The overscan sizes shown are the
maximum visible size for the given mode. In the Color Palette
column, the maximum number of displayable colors is given first,
followed by a slash, and then the size of the palette for that mode.
For example, 16/4096 is a maximum of 16 displayable colors from a
total palette of 4096 colors.

Most display modes have an interlace option. Interlacing doubles the
vertical resolution to allow you to get twice as much information on
the screen. It also makes the output of many display modes video-
compatible. Interlaced screens may, however, flicker when used with
certain monitors. Consult your monitor documentation to make sure
that it supports interlacing before selecting this feature.

Some display modes have a Super-High Res option, which doubles the
number of pixels displayable horizontally. On ECS systems, as this
increases the screen resolution, it reduces the number of colors
available.

The DBLNTSC and DBLPAL display modes are available for use on
Amiga systems containing the AGA chip set. Although you can use
them on ECS systems, they provide no benefit on systems without the
AGA chip set. Additionally, these display modes do not work with
some VGA-only monitors.

Monitor Drivers Available on All Amigas

Note   On Amigas using the AGA chip set the color palette for
            all monitors is 256/16 million, except for A2024
            monitors.

NTSC Monitor

Display Mode	Screen Resolution	Overscan Size	Color Palette
High Res	640 x 200	724 x 241	16 / 4096
High Res Laced	640 x 400	724 x 482	16 / 4096
Low Res	320 x 200	362 x 241	32 / 4096
Low Res Laced	320 x 400	362 x 482	32 / 4096

PAL Monitor

Display Mode	Screen Resolution	Overscan Size	Color Palette
High Res	640 x 256	724 x 283	16 / 4096
High Res Laced	640 x 512	724 x 566	16 / 4096
Low Res	320 x 256	362 x 283	32 / 4096
Low Res Laced	320 x 512	362 x 566	32 / 4096

Note that the Low Res modes are particularly helpful to users who
are visually impaired since they offer an enlarged display.

A2024 Monitor

Display Mode	Screen Resolution	Color Palette
NTSC	1008 x 800	4 / 16
PAL	1008 x 1024	4 / 16

The following are additional display modes that are available under
the original Amiga chip set. These display modes can be used by
applications, but not the Workbench screen.

NTSC Monitor

Display Mode	Screen Resolution	Overscan Size	Color Palette
HAM	320 x 200	362 x 241	4096 / 4096
HAM Laced	320 x 400	362 x 482	4096 / 4096
Extra Halfbrite	320 x 200	362 x 241	64 / 4096
Extra Halfbrite Laced	320 x 400	362 x 482	64 / 4096

PAL Monitor

Display Mode	Screen Resolution	Overscan Size	Color Palette
HAM	320 x 256	362 x 283	4096 / 4096
HAM Laced	320 x 512	362 x 566	4096 / 4096
Extra Halfbrite	320 x 256	362 x 283	64 / 4096
Extra Halfbrite Laced	320 x 512	362 x 566	64 / 4096

Monitor Drivers Available on ECS and AGA Amigas

The following additional display modes are available for the Workbench screen on ECS and AGA Amiga models:

NTSC Monitor

Display Mode	Screen Resolution	Overscan Size	Color Palette
Super-High Res	1280 x 200	1440 x 241	4 / 64
Super-High Res Laced	1280 x 400	1440 x 482	4 / 64

PAL Monitor

Display Mode	Screen Resolution	Overscan Size	Color Palette
Super-High Res	1280 x 256	1440 x 283	4 / 64
Super-High Res Laced	1280 x 512	1440 x 566	4 / 64

Multiscan Monitor

Display Mode	Screen Resolution	Overscan Size	Color Palette
Productivity	640 x 480	680 x 495	4 / 64
Productivity Laced	640 x 960	680 x 990	4 / 64

A2024 Monitor

Display Mode	Screen Resolution	Color Palette
10Hz	1024 x 800	4 / 16
15Hz	1024 x 800	4 / 16

(On PAL Amigas, A2024 modes have a vertical resolution of 1024.)

Note   A2024 modes require an A2024-style monochrome
        monitor. Do not attempt to use an A2024 mode if you
        do not have such a monitor.

Euro:36Hz Monitor

Display Mode	Screen Resolution	Overscan Size	Color Palette
Low Res	320 x 200	360 x 200	32 / 4096
Low Res Laced	320 x 400	360 x 400	32 / 4096
High Res	640 x 200	720 x 200	16 / 4096
High Res Laced	640 x 400	720 x 400	16 / 4096
Super-High Res	1280 x 200	1440 x 200	4 / 64
Super-High Res Laced	1280 x 400	1440 x 400	4 / 64

Euro:72Hz Monitor

Display Mode	Screen Resolution	Overscan Size	Color Palette
Productivity	640 x 400	680 x 414	4 / 64
Productivity Laced	640 x 800	680 x 828	4 / 64

Super72 Monitor

Display Mode	Screen Resolution	Overscan Size	Color Palette
High Res	400 x 300	468 x 314	16 / 4096
High Res Laced	400 x 600	468 x 628	16 / 4096
Super-High Res	800 x 300	936 x 314	4 / 64
Super-High Res Laced	800 x 600	936 x 628	4 / 64

Note   If you have an Amiga model with Display Enhancer
          circuitry, you should disable the Display Enhancer in
          Super-High Res, Euro:36Hz, Euro:72Hz, and Super72
          modes to avoid distortion of the display.

DBLNTSC Monitor

Display Mode	Screen Resolution	Overscan Size	Color Palette
High Res Laced	640 x 800	744 x 934	4 / 64
High Res No Flicker	640 x 400	744 x 467	4 / 64
Low Res Laced	320 x 800	372 x 934	16 / 4096
Low Res No Flicker	320 x 400	372 x 467	16 / 4096

DBLPAL Monitor

Display Mode	Screen Resolution	Overscan Size	Color Palette
High Res Laced	640 x 1024	744 x 1128	4 / 64
High Res No Flicker	640 x 512	744 x 564	4 / 64
Low Res Laced	320 x 1024	372 x 1128	16 / 4096
Low Res No Flicker	320 x 512	372 x 564	16 / 4096

Monitor Drivers Available on AGA Amigas Only

The following are display modes that are only available for the Workbench screen on AGA chip set Amiga models. The overscan sizes indicated are without VGAOnly activated; overscan sizes are slightly larger when VGAOnly is activated.

DBLNTSC Monitor

Display Mode	Screen Resolution	Overscan Size	Color Palette
High Res	640 x200	720 x 227	256 / 16 million
High Res Laced	640 x 800	720 x 908	256 / 16 million
High Res No Flicker	640 x 400	720 x 454	256 / 16 million
Low Res	320 x 200	360 x 227	256 / 16 million
Low Res Laced	320 x 800	360 x 908	256 / 16 million
Low Res No Flicker	320 x 400	360 x 454	256 / 16 million

DBLPAL Monitor

Display Mode	Screen Resolution	Overscan Size	Color Palette
High Res	640 x 256	720 x 275	256 / 16 million
High Res Laced	640 x 1024	720 x 1100	256 / 16 million
High Res No Flicker	640 x 512	720 x 550	256 / 16 million
Low Res	320 x 256	360 x 275	256 / 16 million
Low Res Laced	320 x 1024	360 x 1100	256 / 16 million
Low Res No Flicker	320 x 512	360 x 550	256 / 16 million

Clearing a Display Mode

If you accidentally select a display mode that is not compatible with your monitor, it can severely disrupt your display and potentially damage your monitor. Should this happen, you must reboot the system to clear the display. If you saved this selection in ScreenMode, you must follow these steps to return the display to normal:

1. Insert your Workbench floppy disk into a disk drive and boot your Amiga.

   Note   Floppy-only users must reboot using their original unmodified Workbench floppy disk or, if they are using a VGA-only monitor, a backup Workbench floppy disk containing their initial ScreenMode editor settings to return the display to normal.

2. Remove your Workbench floppy disk and insert your Extras floppy disk. Double-click on its icon.

3. Open the Prefs drawer and double-click on the ScreenMode icon.

4. Select your Display Mode from the Display Mode field or use the default selection.

5. From the Project menu, choose the Save As item.

6. In the Save ScreenMode Preferences requester, click on the Volumes gadget to display all available volumes.

7. Select the volume containing the Prefs drawer.

8. In each subsequent window click on the Prefs, Env-Archive, and Sys drawers and on screenmode.prefs until the Drawer field of the requester contains the following path:
    DeviceX:Prefs/Env-Archive/Sys and the File field displays **screenmode.prefs**. (Where DeviceX is the hard disk partition containing Prefs or the floppy disk drive where the volume containing Prefs is to be inserted.)

Note   Floppy-only users should insert their backup copy of the Workbench floppy disk into the device chosen for copying the changed ScreenMode setting.

9. Click on OK in the Save requester and then Cancel on the ScreenMode Preferences window to close it.

10. Reboot your system.

Screen Centering and Overscan

The display modes produced by different monitor drivers can vary in their size and centering on the monitor screen. You can control this by first saving your preferred Workbench display settings in the ScreenMode and Overscan Preferences editors and then using the monitor's horizontal and vertical size/centering controls for the best display. If certain display modes produce screens on which some part is not visible, a further adjustment of the monitor controls or activating the VGAOnly monitor driver as described on page 7-6 can help.

Note   When changing between screens whose display modes
do not have the same scan rates, such as DBLNTSC
and Super72 modes, a multiscan monitor must re-sync
to the new scan rate. While the monitor adjusts itself,
the image jumps or the display can go blank briefly,
depending on the monitor. This is normal and does not
indicate a problem with the Amiga or the monitor.

General AGA Information

Some Amigas, such as the A4000 and A1200, are built around the
AGA custom chip set, which supersedes the earlier ECS and original
chip sets in graphics capability.

The main graphics features of AGA Amigas include:

- All color display modes can display up to 256 colors from a palette
  of 16.8 million (up from a maximum of 64 colors from a 4096-color
  palette on earlier Amigas).
- The new HAM-8 mode, available in any display resolution, can
  display over 256,000 colors at once, from the 16.8 million-color
  palette (up from a maximum of 4096 colors using the earlier HAM
  mode).
- The Mode Promotion feature uses scan-doubling to turn the
  standard 15 kHz screens used by most Amiga applications to a
  stable, non-flickering VGA-quality display. Earlier Amigas
  required additional hardware to eliminate interlace flicker.
- Sprites, including the mouse pointers, can now be high-resolution
  and can be up to four times larger.
- New monitor driver files allow the Amiga to use additional screen
  resolutions and adapt to a wider variety of monitors.
- An autoscrolling A2024 monitor screen larger than the display
  can be defined.
- AGA retains virtually complete compatibility with software
  developed for ECS and earlier Amigas.

Tips for Working with AGA

To get the most from your AGA Amiga, we recommend:

• **Using a multiscan monitor that can sync down to 15 kHz if possible.** A monitor that can display 15 kHz modes is required for initial setup of the Amiga.

• **Selecting the Mode Promotion gadget in the IControl Preferences editor to enable Mode Promotion.** Be sure the appropriate monitor driver (DBLNTSC for NTSC Amigas, or DBLPAL for PAL Amigas) is in DEVS:Monitors.

• **Placing only the monitor drivers for the display modes you need in DEVS:Monitors.** This reduces clutter in the ScreenMode Preferences editor.

• **Turning off Mode Promotion when doing video work or choosing an NTSC or PAL display mode if the application allows it.** Video devices require 15 kHz output.

• Using the Amiga Early Startup Control options in case of software compatibility problems. If an application appears not to work on an AGA/Release 3 Amiga, try first booting the system with the Enhanced or Original custom chip set emulation available from the Display Options screen.

Mode Promotion

Mode Promotion is a feature of AGA Amigas intended to give you the best possible display. When an application tries to open a normal NTSC or PAL (15 kHz) screen while Mode Promotion is enabled, the screen is promoted to a solid, non-flickering 27 kHz display.

A non-interlaced screen (200/256 pixel high) is scan-doubled, which fills in the blank scan lines; an interlaced screen (400/512 pixels high) is de-interlaced so that horizontal lines do not flicker. This is similar to the operation of the Commodore Display Enhancer circuitry in the Amiga 3000. By default, Mode Promotion is off.

Not all display modes can be promoted. Only standard NTSC and PAL screens are promoted. (Super-High Res modes are promoted by changing them to autoscrolling DBL High Res screens.) Certain screens are not promoted if the program that opens the screen does

not allow it. Video applications in particular may force a standard NTSC/PAL screen. Also, games and other applications that bypass the operating system are not promoted.

Note   The horizontal and vertical overscan available when using the DBLNTSC and DBLPAL monitors is slightly less than that of the equivalent non-promoted screen.

Enabling Mode Promotion

To enable promotion, make sure the Mode Promotion gadget in the IControl Preferences editor is checked and that you select Use or Save to exit the editor. Also, the DBLNTSC or DBLPAL monitor driver must be in DEVS:Monitors and be activated. If you did not boot with a given monitor in DEVS:Monitors and want to activate it, double-click on its icon after dragging it into DEVS:Monitors.

Chapter 8
Fonts

A font or typeface is a graphic design applied to all numbers, alphabetic characters, and symbols. Using fonts, you can change the appearance of the text on your screen or on your printed documents. Because fonts can have attributes applied to them, such as italic or bold, you can use fonts to add emphasis to your text or create a particular impression in your documents: informal, scholastic, journalistic, and so forth. This chapter describes using fonts on the Amiga, including:

- Types of fonts
- Fonts
- Font requesters
- Font Preferences editor
- FixFonts
- Intellifont

Types of Fonts

Two types of fonts are available on the Amiga: bitmap and outline. Bitmap fonts are defined as a pattern of dots that compose a character. Bitmap font files are stored on disk for each size. Outline font character shapes are defined mathematically and are generated to whatever size or resolution is needed.

Topaz, the Amiga's default font, is a bitmap font stored in ROM. Other bitmap fonts, such as Helvetica, Courier, and Times are included on your Amiga disks. You can, however, create or purchase additional bitmap and outline fonts.

When choosing a font, you also specify a size in pixels, which describes the height of a character. After you have selected a font, the available sizes for it are displayed in a scroll box in a font requester. Higher numbers represent larger fonts. The maximum size allowable is 124 points.

You can use available font sizes or enter a new size. The Amiga can scale both bitmap and outline fonts to a specified size. However, scaled bitmap fonts often appear distorted.

Using Bitmap Fonts

Although bitmap fonts produce acceptable screen displays, their resolution is usually too low for high quality printouts.

Bitmap scaling stretches or squeezes the bitmap pattern, causing scaled bitmap fonts to appear distorted. If you enter a size that is not listed for a bitmap font, try to double an available size or cut an available size in half to preserve the font's proportions. For example, to produce a font between an 18 and 24 point Helvetica, use 22 since it is twice the height of the existing 11 point font. Fonts can also be scaled with the Fonts Preferences editor described on page 8-5.

Some application programs include their own fonts, font management utilities, or font scaling technology. These may use the Amiga's fonts and font technology. Read the application's manual carefully to learn how to produce the fonts you need.

Using Outline Fonts

Outline fonts are available on Amiga systems with Release 2 and higher system software. The Amiga uses Agfa Compugraphic Intellifont® technology that is managed through the Intellifont utility, described in this chapter. Compugraphic fonts for MS-DOS computers can be purchased and used on the Amiga.

Because of their large size and memory requirements, outline fonts are best suited to expanded systems equipped with hard disks. You can use them with floppy disk systems, but you may need to delete items from the Workbench backup disk to make room for them.

Outline fonts can be printed at the highest resolution of your printer, typically better than screen resolution. Outline fonts do not have separate files for each point size; instead, outline fonts are mathematically generated as required. As a result it can take longer on the first try to access an outline font than a bitmap font.

Using Proportional and Nonproportional Fonts

Both bitmap and outline fonts can be proportional or nonproportional. Proportional fonts are those in which each character occupies only the amount of space it actually needs. For example, a w character uses more space than an i character. These fonts are used to display normal text. Nonproportional fonts, also called monospaced fonts, are those in which each character occupies the same amount of horizontal space. Such fonts are easier to handle when creating numeric tables.

Fonts

On the Amiga, fonts are stored in FONTS, which can be a drawer or disk. On a hard drive system, the FONTS: directory is typically on the SYS: partition. For floppy-only systems, fonts are contained on your Fonts disk or in a Fonts drawer on your system floppy disk set. For those familiar with AmigaDOS, you can use the ASSIGN command to add disks or drawers to the FONTS: search path.

For every font you find in FONTS:, there is a file named **fontname.font**. For bitmap fonts there is also a subdirectory named fontname in which the file names are numbers corresponding to the font size this file contains. For outline fonts, each has a second file named **fontname.otag** and a file in the subdirectory _bullets_outlines named **fontname.type**.

Font Requester

A Font requester, shown Figure 8-1, allows you to change your font
and font sizes. The standard Amiga font requester is used by the
Font Preferences editor and by some applications.
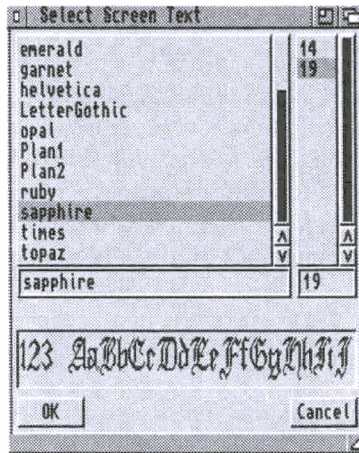
Figure 8-1. Example Font Requester

The Amiga font requester window displays the available fonts and
corresponding point sizes in adjacent scroll boxes. The name of the
selected font and current point size are displayed in gadgets beneath
the scroll boxes.

Underneath the text gadgets, a display box shows a sample of the
selected font and its size. Tall fonts may not fit within the box. Drag
the font requester's sizing gadget to the right to show more of the
characters in the font.

Selecting a new font name in the requester does not change the
current font size. If the newly selected font does not exist in the
current size, it is scaled to that size. Remember that bitmap fonts can
appear rough or distorted when scaled. For better quality, select one
of the font's existing sizes. If the new font is an outline font, there is
a delay while the new font is generated.

The Amiga font requester has a Control menu with six items:

Last Font	Moves through the displayed font list backwards.
Next Font	Moves through the displayed font list forwards.
Restore	Recalls the font and size selected when the requester opened.
Rescan Disk	Looks through the FONTS: search path for newly added fonts.
OK	Uses the displayed font. The same as using the corresponding gadget.
Cancel	Restores the original setting. The same as using the corresponding gadget.

The keyboard shortcuts for these menu items do not work when one of the text gadgets is selected.

Font Preferences Editor

The Font Preferences editor, illustrated in Figure 8-2, allows you to choose the style and size of fonts that the Amiga uses for its user interface.

Note   Many applications choose their own fonts and are not affected by your choices in the Font editor.
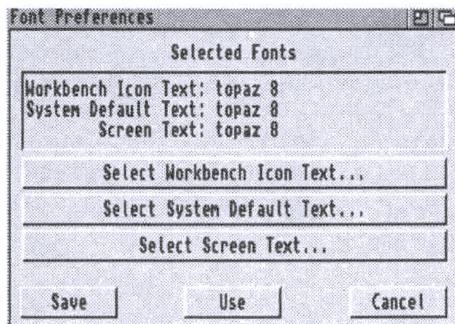
Figure 8-2. Font Preferences Editor Window

Selected Fonts Field

The Selected Fonts display shows the current font settings for each type of text on your display.

Font Selection Gadgets

The three gadgets in the middle of the Font editor window allow you to select the type of text to be changed.

Workbench Icon Text	Changes the font used below icons in the Workbench windows. This is the only text for which colors can be specified.
System Default Text	Changes the font that the Amiga uses to display information, such as the text in the Workbench Output Window and the View By Name mode.
Screen Text	Changes the font appearing in menus, title bars, and most requesters.

You can only change the font for one type of text at a time. However, you can change the font for each type without exiting the Font editor.

Selecting Save or Use closes the Font editor; Save saves the changes across sessions and Use lets you use the changes for the current session only. Workbench automatically tries to reset to display the new font choices. You are requested to close any open project, tool, or Shell windows. Disk or drawer windows can remain open.

> Note   Changing the Workbench Icon Text font forces a cleanup of the icons in all open windows. Select the Update All menu item to recall the previous positions.

Selecting the Cancel gadget closes the Font editor without making any changes.

Font Selection Requesters

The three Font selection requesters display the available fonts and point sizes, as well as the current font for the selected type of text.

All fonts can be used for Workbench text or Screen text. However, the font used for the System default text must be a nonproportional font, such as Topaz or Courier. Nonproportional, or monospaced, font characters are all the same width.

Drag the scroll bar or use the scroll arrows to scroll through the names of the available fonts. Select a font by pointing to it and clicking the selection button. Then choose a size for the font by selecting one of the sizes listed or entering a new size.

The font requester for Workbench Icon Text lets you specify the color for the text or the text and field (character background) with the Mode cycle gadget:

- Selecting Text in the Mode gadget displays the text in the color specified by the Text color selection gadget; the field is transparent.

- Selecting Text and Field lets you specify an opaque color for the field. This option lets you ensure that text is legible, regardless of the background pattern.

- Change the color of the text or field by clicking in the color field next to the display button for both Text and Field. Be sure to select two different colors for the text and the field; if the text blends in with the field, the words will not be legible.

The number of available colors is determined by the current Workbench screen mode and the colors themselves are determined by the Palette editor. Workbench screen colors can only be changed within the Palette editor.

FixFonts

FixFonts is a utility for updating .font files after fonts have been added or deleted. Running FixFonts updates all the .font files to match the corresponding font drawers. Double-clicking on the FixFonts icon activates it without opening a window. A requester appears asking for the disk containing Fonts if it is not mounted and there are no assignments for fonts.

Intellifont

The Intellifont utility, which is in the System drawer on the Workbench disk, manages Intellifont outline fonts on your Amiga. Intellifont installs new outline fonts on your system, specifies new sizes for existing fonts, and deletes fonts that are no longer needed. Intellifont also allows you to create bitmap versions of any size outline font that can be used in applications that do not support outline fonts directly. These fonts load faster since they are not computed every time they are used.

Intellifont can use Agfa Compugraphic fonts from MS-DOS FAIS disks, as well as font disks for the Amiga. Since standard Compugraphic FAIS disks are in MS-DOS format, CrossDOS, an Amiga Bridgeboard, or other MS-DOS emulator must be used to convert the files to AmigaDOS format. When the fonts are properly installed, they are available to any application programs that can use them.

Installing Outline Fonts

Figure 8-3 illustrates the Intellifont window.
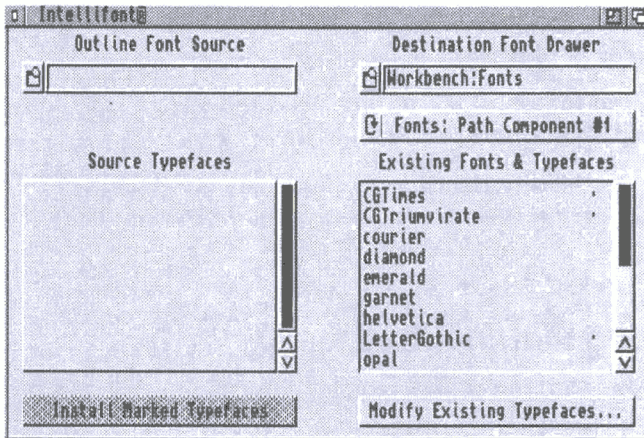
Figure 8-3. Intellifont Window

Note   On-line Help is available in Intellifont at all times by pressing the Help key. Click on the various items in the Intellifont window for an explanation of their function. Press Esc to exit Intellifont Help.

To install an outline font:

1. Enter the complete path to the fonts you want to install in the Outline Font Source text gadget or select the file folder gadget next to it to open a file requester. The path should end with the directory that contains the outline typeface .type files.

2. Select OK and the Source Typefaces scroll gadget displays the available outline fonts in that directory.

3. Verify that you want to install the fonts in the drawer displayed in the Destination Font Drawer text gadget. If you have more than one font directory set up in your FONTS: assign path, use the Fonts: Path Component cycle gadget to switch between them. A non-assigned directory can also be entered. (In this case, the

cycle gadget displays Not in Fonts: Path.) The contents of the Destination Font Drawer are shown in the Existing Fonts and Typefaces scroll gadget. Outline fonts are indicated with a small bullet (•) on the right in the scroll window.

4. In the Source Typefaces display, click on each typeface to be installed. A plus sign (+) indicates selection.

5. Select the Install Marked Typefaces gadget to copy the typefaces to the Destination Font Drawer.

6. Select the Modify Existing Typefaces gadget to add or delete point sizes for any of the outline fonts listed in the source typeface display.

Modifying Outline Fonts

Using the Modify Existing Typefaces window, you can create or remove point sizes and bitmap images for a typeface. The window, illustrated in Figure 8-4, lists the typefaces and sizes available in the drawer you selected on the Intellifont window.
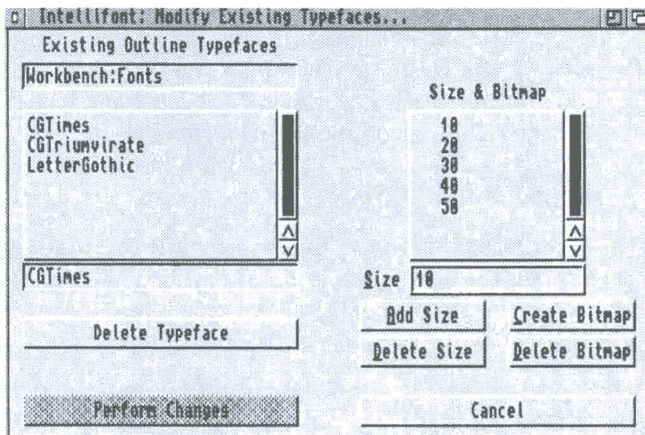
Figure 8-4. Modify Existing Typefaces Window

Click on the tyepface you want to modify. Use the gadget in the lower half of the screen to:

Delete Typeface Select one of the Existing Outline Typefaces. The selected typeface moves to the display box. Click on the Delete Typeface gadget.

Add Size Enter a new size into the Size display box and choose the Add Size gadget.

Delete Size Select a size or enter one into the Size display box and choose the Delete Size gadget.

Create Bitmap Creates a bitmap font based on the selected outline typeface and size. If you routinely use one size, create a bitmap for it. Note that this can use a large amount of disk space.

Delete Bitmap Deletes the bitmap file for the size displayed. The size is still available as an outline font.

Perform Changes Saves your changes.

Cancel Returns to the original Intellifont window.

The Close gadget closes the Intellifont windows and exits the program.

Keyboard shortcut: Instead of selecting the gadgets previously described, press the initial letter of the gadget (underlined on the display).

Changing Environment Variables

Intellifont can use two environment variables to store specifications about your outline fonts: Intellifont and Diskfont. The Intellifont environment variable is used to create the list of sizes that are typically presented by applications in their font menus. The default sizes are 15, 30, 45, 60, and 75. Create the Intellifont variable if you frequently use other sizes. Use a text editor to create a file containing a list of sizes saved in ASCII format; the maximum number of sizes is 20. Save the file to SYS:Prefs/Env-Archive/Sys/Intellifont.

The Diskfont variable specifies the parameters used by the diskfont.library when it converts an outline typeface into an Amiga graphics font. The format of the variable is:

```
XDPI/N, YDPI/N, XDOTP/N, YDOTP/N
```

The XDPI and YDPI parameters adjust the aspect ratio, which by default is 1:1. If the fonts are to be used in the High Res display mode, adjust the aspect ratio by changing the XDPI value to 100 and the YDPI value to 50. Use a text editor to change the values and save the file to SYS:Prefs/Env-Archive/Sys/Diskfont. For example:

```
XDPI 100 YDPI 50
```

If XDPI is specified, YDPI must also be specified.

The XDOTP and YDOTP parameters control the dot size percentage (the space a dot fills in relation to the screen resolution). The default value for both XDOTP and YDOTP is 100 (a dot fills the same size as implied by the resolution) and should not need changing. If XDOTP is specified, YDOTP must also be specified.

> Note   Very large or very small values of XDOTP or YDOTP
> are required before you can see a difference.

Chapter 9

Printers

There are many types of printers that can be used on the Amiga.
Your choice of printer and the software that controls it (the printer
driver) should accommodate all the types of printing you intend to do.
If you want to produce specialized output, such as graphics and
PostScript files, some additional configuration steps are required..
This chapter provides the following information:

- Setting up your printer
- Configuring your printer
- Connecting your printer
- Choosing and activating a printer driver
- Using the Preferences editors to make your printer settings
- Using printer escape sequences to implement special printer
  features

Setting Up Your Printer

When setting up a printer with your Amiga, follow these four general
printer setup steps:

1. Configure the printer using the controls on the printer itself.

2. Connect the printer or printers to the Amiga.

3. Select and activate the printer driver.

4. Make the proper Preferences editor settings.

Configuring Your Printer

All printers have switches or other controls on them to let them adapt to various hardware and software setups and to suit your personal needs. Front panel controls typically set the print font, spacing, mode (draft or near letter quality), and other final print options. The controls' settings can usually be overridden by the software you use to print. Other printer controls, such as DIP switches, affect lower-level parameters that cannot be overridden, such as:

• The character set used

• How linefeeds are handled

• Printer emulations

Consult your printer manual to determine the optimum settings. Every printer is different; with most, a certain amount of experimentation is necessary to determine the correct configuration. Two general rules to follow:

• If your printer model is not among those for which the Amiga has a specific printer driver, but the printer offers emulation of various other printers, set the printer to emulate one of the supported printers.

• Set the printer to use a USA or International character set. Do not set it for your country's character set; this is handled by the Amiga printer driver.

Connecting Your Printer

Most printers are Centronics-compatible and connect to a parallel port. However, a printer can also be connected to a serial port. You can have more than one printer connected, but you can print to only one at a time. Use the Printer Preferences editor to switch between parallel and serial printing. This is described on page 9-8. If you need to do a serial connection, you must also use the Serial Preferences editor, described in Chapter 5, to configure the interface.

Follow the instructions in your printer's documentation for using the proper printer cable. Connect it to the appropriate port on the Amiga according to the Amiga hardware manual.

If you have more than one printer connected to your Amiga or you have a printer connected to a port other than the standard serial or parallel ports, see *"Connecting Multiple Devices"* below. When using an expansion device that offers additional serial and/or parallel ports, the device's documentation should explain how to connect these ports.

Connecting Printer Output Devices

The standard Amiga printer output device is PRT:, which sends its input to the currently selected printer driver. You can bypass the Amiga printer driver by redirecting output to PAR: or SER:, which sends the output directly to the parallel or serial port, respectively, without any alteration. This is useful, for example, if you need to send a raw PostScript file to a PostScript printer attached to either port.

Connecting Multiple Devices

It is possible to use both a parallel and a serial printer with your Amiga system. You can also use more than one parallel or serial printer by using an expansion device that offers additional serial and/or parallel ports. On such systems, you must use the Printer Preferences editor to select which output device to use. On systems with additional ports, the device's documentation should give the unit number assignments for each port in your system. You then can use the Unit options of the Printer and Serial Preferences editors to specify the correct printer. The following table contains instructions for switching between printers on systems with more than one.

System Configuration	Switching to a Different Printer
Standard ports only with one serial and one parallel printer	In the Printer Preferences editor, switch the Printer Port gadget between Serial and Parallel. Change serial settings in the Serial Preferences editor if necessary.

Additional parallel ports and more than one parallel printer	Enable the Printer Preferences editor's UNIT Tool Type, then enter the parallel port number for the desired printer in the Device Unit gadget in the Printer Preferences editor.
Additional serial ports and more than one serial printer	Enable the Printer Preferences editor's UNIT Tool Type, then enter the serial port number for the desired printer in the Device Unit gadget in the Printer Preferences editor. Change serial settings in the Serial Preferences editor if necessary.

For more information on the UNIT Tool Type, see the descriptions of the Printer Preferences editor in this chapter and the Serial Preferences editor in Chapter 5.

Printer Drivers

A printer driver, which is selected in the Printer Preferences editor, acts as a translator that enables the Amiga to communicate with a particular model of printer. Different printers require information in different formats. The printer driver takes the information from the Amiga and translates it into the proper format for the particular printer. The printer driver you select is used for both the text and graphic output.

Choosing a Printer Driver

The Amiga system software offers a wide variety of standard printer drivers for most of the commonly marketed printers. Some word processing and desktop publishing applications come with their own printer drivers. Commercial and freely distributable printer drivers are also available from third party vendors. These printer drivers may take better advantage of a printer's special capabilities than the standard drivers.

The Amiga printer drivers are named according to the printers and printer standards they emulate. For example, the EpsonX printer driver corresponds to the standards for Epson printers with an X in their name, such as FX-80.

The available printer drivers for the Amiga include the following:

CalComp_ColorMaster	HP_DeskJet	PostScript
CalComp_ColorMaster2	HP_DeskJetOld	Seiko_5300
CanonBJ10	HP_LaserJet	Seiko_5300a
CBM_MPS1000	HP_PaintJet	Sharp_JX-730
Diablo_630	HP_ThinkJet	Tektronix_4693D
EpsonQ	ImagewriterII	Tektronix_4696
EpsonX	NEC_Pinwriter	Toshiba_P351C
EpsonXOld	Okidata_293I	Toshiba_P351SX
Generic	Okidata_92	Xerox_4020
Howtek_Pixelmaster	Okimate_20	

To determine which printer driver you should use, first read the documentation that came with your printer for information concerning the printer standards it uses. If there are no corresponding printer drivers for your printer, you can choose the Generic printer driver. For many printers, this allows you to print plain text without graphics or other type styles, such as italics or boldface.

If you choose the Generic printer driver and your printer still does not produce output, you should check your other Printer Preferences settings and the cabling. Be sure to read the printer's documentation carefully. If you still have a problem, contact your dealer.

Activating a Printer Driver

A printer driver must be in DEVS:Printers (the Printers drawer in the Devs drawer of the Amiga's boot volume) for it to be available for use. Printer drivers are shipped in the Storage/Printers drawer found on either the Storage floppy disk or within the system floppy disk set.

On hard drive systems, the printer drivers are preloaded in either DEVS:Printers or Storage/Printers. If you reinstall software on hard drive systems, the Installer lets you select and load the printer drivers you intend to use. However, if you do not select any printer drivers during installation, none are loaded and any previously loaded printer drivers, except Generic, are deleted. To use a printer

driver other than Generic, you must manually copy it from the Storage/Printers drawer into DEVS:Printers and double-click on it to activate it.

If the printer driver you need is not in DEVS:Printers, copy it from the Storage/Printers drawer. The following are instructions for copying printer drivers:

1. Select the Workbench window and open the Devs drawer.

2. Insert the Storage floppy disk or the software system disk containing the Storage drawer into your disk drive and open its window.

3. Open the Storage/Printers drawer.

4. Scroll through the printer driver icons until you find the driver for your printer.

5. Drag the appropriate printer driver icon over the Printer drawer icon in the Workbench Devs window.

    On a single drive system, requesters ask you to swap the system disks to complete the copy.

    On a dual floppy drive system, insert a disk in each drive to complete the copy.

Preferences Settings for Printers

There are four Amiga Preferences editors that you can use when setting up your printer and setting up how your printing appears:

Printer	Specifies a printer driver, the serial or parallel port, and non-PostScript text settings.
PrinterGfx	Affects printing of non-PostScript graphics.
PrinterPS	Used only with PostScript printers.
Serial	Used only with Serial printers. The Serial editor is described in Chapter 5.

Printer Preferences Editor

The Printer Preferences editor lets you select a printer driver, the
printer port, and various text options. The settings made in the
Printer Preferences editor (as well as PrinterGfx and PrinterPS) are
defaults that are used when print settings have not been made
elsewhere. Applications, such as word processors, typically provide
corresponding options that override the Preferences settings. Figure
9-1 illustrates the Printer Preferences editor window.
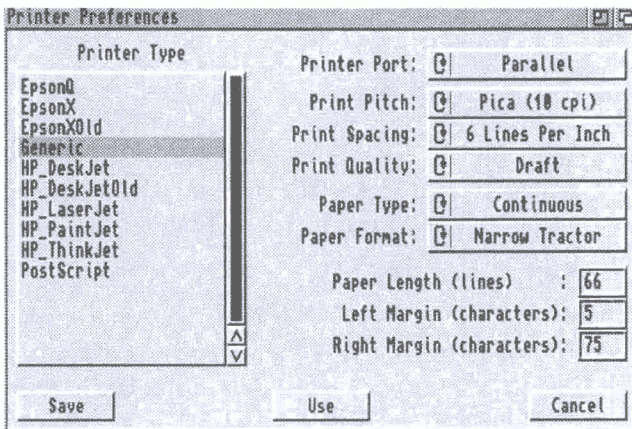
Figure 9-1. Printer Preferences Editor Window

The Printer Type scroll gadget displays a list of available printer
drivers currently installed in DEVS:Printers.

Select a printer driver by pointing to its name and clicking the mouse
selection button. The selected driver is highlighted.

Note   If you selected the PostScript printer driver, use the
            PrinterPS editor to make text and graphics settings.
            This overrides the settings made in the Printer
            Preferences and PrinterGfx Preferences editors.
            However, you must still select a Printer Port here.

If a driver for your printer (or a printer that your printer emulates) is not in DEVS:Printers or the Storage/Printers drawer, select Generic.

The Printer Preferences editor window contains the following gadgets:

Printer Port

Specifies the type of port where the printer is attached: Serial or Parallel. If Serial is selected, you must also make sure that the serial transmission settings in the Serial Preferences editor are appropriate for your printer.

Print Pitch

Specifies the pitch, which is the number of characters printed per inch (cpi) horizontally. The higher the number, the narrower the characters. Choose between Pica, Elite, and Fine.

Print Spacing

Specifies the number of lines of text that are printed in one vertical inch of space. Select 6 lines per inch (lpi) or 8 lpi; the higher the number, the less space between the lines.

Print Quality

Determines the quality of the printout. Selecting Draft produces faster, lower quality printouts. Selecting Letter produces slower, higher quality printouts.

Paper Type

Specifies the type of paper used. The options are Continuous (tractor feed paper) or Single (individual sheets).

Paper Format

Specifies the size of paper used. Selecting Custom as the paper size can eliminate printing problems that occur with dot matrix printers.

If Custom is selected, be sure to specify in the Paper Length gadget the correct number of lines that fit on the paper.

Paper Length

The total number of lines of text printable on the page, including top and bottom margins. For example, 11-inch paper with 6 lines per inch has a Paper Length of 66 lines. To change the default value, select the gadget, delete the existing value, type in the new number, and press Return.

Left Margin

The width, in numbers of characters, from the left edge of the paper to the starting text position. The Print Pitch setting (number of characters in a horizontal inch) affects the size of the margin. For example, when Print Pitch is Pica (10 cpi), a Left Margin setting of 10 gives a one-inch margin. To change the default value, select the gadget, delete the existing value, type in the new number, and press Return.

Right Margin

The width, in number of characters, from the left edge of the paper to the position where the right margin is to begin. To change the default value, select the gadget, delete the existing value, type in the new number, and press Return.

Device Unit

The Device Unit text gadget appears in the Printer Preferences editor only if the UNIT Tool Type for Printer is enabled. Use it to direct printing to the desired port when you have expansion hardware that provides additional parallel or serial ports. Enter the number for the printer port specified in the expansion hardware documentation.

PrinterGfx Preferences Editor

The PrinterGfx Preferences editor provides options to control the printing of graphics. Before using the PrinterGfx editor, be sure to select the printer driver for your printer with the Printer Preferences editor. Figure 9-2 illustrates the PrinterGfx Preferences editor window.

Note   If you selected the PostScript printer driver, use the PrinterPS Preferences editor to make graphics settings. This overrides settings made in the PrinterGfx Preferences editor.
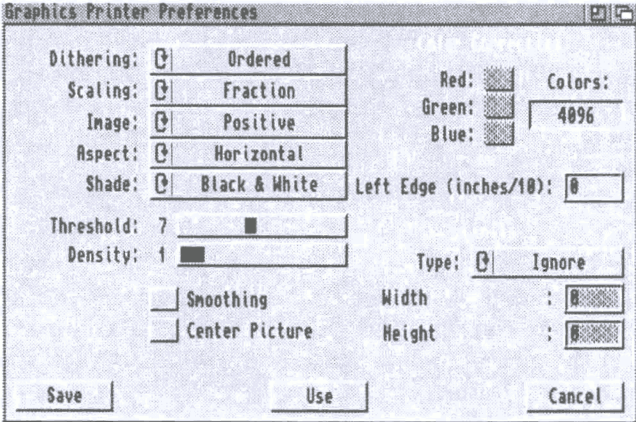
Figure 9-2. PrinterGfx Preferences Editor Window

The PrinterGfx Preferences editor contains the following gadgets:

Dithering

Dithering prints patterns of dots in different colors (or different densities) so that they appear as one color or as shades of grey. This has the affect of smoothing out the picture and giving the impression of more colors. The available dithering options are:

Ordered   The standard type of dithering. Color intensities are formed using an ordered pattern of dots. The dots can vary in color, but are of the same density and are printed in straight rows and columns.

Halftone   Color intensities are formed by varying the size and density of the dots.

Floyd-Steinberg   Color intensities are formed by a complex algorithmic formula. Floyd-Steinberg dithering yields smoother shading by distributing the intensities of each pixel throughout the dots comprising that pixel, as well as throughout neighboring dots.

Figure 9-3 illustrates the results of the different dithering methods; the pictures were generated on a 300 dot per inch printer.
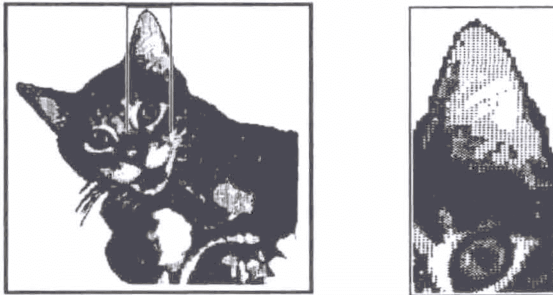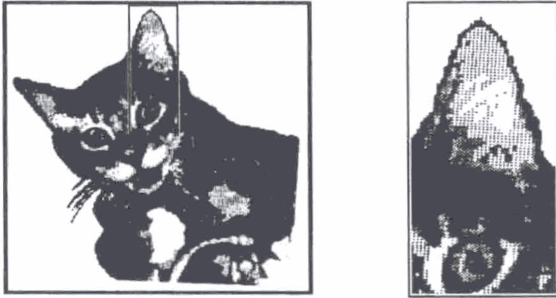
Halftone

Floyd-Steinberg

Figure 9-3. Dithering Methods

Scaling

Scaling is the process of changing the size of an image. The actual size of the printout is determined by the Limits setting, described on page 9-15. The available Scaling options are:

Fraction   Closely matches the size you have set in Limits, possibly distorting the image. Pixels are enlarged or reduced as necessary. This option works best when printing pictures with extensive shading.

Integer The number of dots in the printout is an integer multiple of the number of pixels on the screen. (If a picture on the screen is 320 x 200, the printed picture can be 320 x 200, 640 x 400, 960 x 600, and so on.) Select this option when printing a picture that contains thin vertical and horizontal lines (such as a grid) or text.

Image

Determines whether an image is printed normally or with a reverse shading. This option affects only Black & White and grey scale printing. When set to Positive, the image is printed as it appears on the screen. When set to Negative, the image is reversed, similar to a photographic negative.

Aspect

Determines the direction on the paper the image is printed. When set to Horizontal (often called Portrait), the image is printed as it appears on the screen. When set to Vertical (often called Landscape), the image is printed sideways.

Shade

Allows you to select the colors to print. Not all printers support these options. The available options are:

Black & White Colors are printed as either black or white, determined by the Threshold setting. Dithering has no effect.

Grey Scale 1 Colors are printed in varying shades of grey.

Grey Scale 2 This option supports a maximum of four shades of grey and is used for printing pictures designed using the A2024 monitor.

Color Colors are printed as they appear on the screen. This can only be used with color printers.

Threshold

Determines the colors on the screen that are printed as black or as white. This setting is effective only in Black & White mode.

Increasing the Threshold value causes more colors to be printed as black. Figure 9-4 shows the results of different Threshold settings.
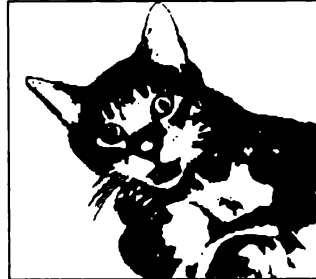
Threshold = 8   **Threshold = 13**

Figure 9-4. Threshold Settings

Density

Selects the graphics print density. The lower the density, the faster the image prints on those printers with multiple densities. When a higher density is selected, more dots create a sharper image. However, it takes longer for the image to print.

This option is not supported by every printer.

Smoothing

Used to smooth any diagonal lines that appear jagged. This option is best suited for use with programs that do graphic dumps of text. When smoothing is turned on, printing may be slower.

Floyd-Steinberg dithering cannot be used with Smoothing.

Center Picture

Horizontally centers the printed picture on the page. Any value entered for the Left Offset is ignored when Center Picture is on.

Color Correction

Matches the colors on your printout more closely to the colors on the screen. Color correction can be used on red, green, or blue or on a combination of colors.

Color correction reduces the number of printed colors. When color correction is not used, all the available colors displayed by the Amiga can be printed on a color printer. For each color that is chosen for correction, several shades of that color are lost. The number of colors that can be printed is shown in the Colors gadget to the right of the color correction boxes.

Left Edge

Determines the distance to shift, or offset, the printed picture. This is similar to setting up a left margin. The Center Picture option disables Left Edge.

To enter the value, select the Left Edge gadget, delete the current value, enter the correct value, and press Return. Choosing Use Metric System? in the Settings menu lets you specify the value in millimeters rather than tenths of inches.

Limits/Type

Interprets the Width and Height limits, depending on the Type setting. The available options are:

Ignore   Ignores Width and Height limits. The printed picture's size is the size requested by the application. The only restrictions are that its width cannot be greater than:

$$\frac{(right\ margin - left\ margin) + 1}{characters\ per\ inch\ or\ mm}$$

Height is usually restricted to the length of the paper.

Bounded   The printed picture's size is bounded by the Width and Height limits.   Width and Height are interpreted in tenths of inches by default or millimeters if Use Metric System? has been chosen in the Settings menu. For example, if the printed picture can be up to 4.0 x 5.0 inches, set Width to 40, Height to 50, and select Bounded.

Absolute   The Width and Height limits are interpreted as absolute values. For example, if the printed picture should be exactly 4.0 x 5.0 inches, set Width to 40, Height to 50, and select Absolute. This distorts the picture as needed to fit. To use this option fraction scaling should also be selected. Choosing Use Metric System? in the Settings menu lets you specify the value in millimeters rather than tenths of inches.

You can, however, use Absolute to get a normal aspect ratio printout that is a specific width or a specific height, but not both. Set either the Width or Height limit to the desired dimension and set the other limit to zero. For example, if Width is set to 40 and Height to 0, then the printed picture is 4.0 inches wide and as tall as necessary for the correct aspect ratio. If both dimensions are set to zero, the printed picture is as wide as possible and as tall as necessary to retain the picture's proportion.

Pixels   The Width and Height limits are interpreted as pixels. If one of these values is set to zero, the same rules as for the Absolute option apply. The printout is the width or height specified and as tall or as wide as necessary to retain proportion.

Multiply   The Width and Height limits are used to multiply the source picture's width and height. For example, if you specified a Width of 2 and a Height of 4, the printed picture is two times the source picture's width in pixels and four times the source picture's height.

Width/Height   Lets you specify the dimensions of your printout. The value is interpreted as increments of tenths of an inch or millimeters, unless Pixels or Multiply is the selected Type. To enter a value, select the text gadget, delete the current value, type the correct value, and press Return.

Hints for Faster Graphics Printing

- Lower the Density setting.
- Use the horizontal rather than the vertical Aspect setting.
- Set Shade to black and white if you are using a two color image. This is faster than grey scale or color printing.
- Use Smoothing for final copies only since it can double the printing time.

- Use Ordered or Halftone dithering because they do not increase printing time. Floyd-Steinberg dithering doubles printing time.
- Speed up a High Res screen print that uses more than four colors by moving the screen to the back of the display after printing has started. Press left Amiga+N to do this.

PrinterPS Preferences Editor

The PrinterPS Preferences editor, illustrated in Figure 9-5, allows you to control text and graphics printing on PostScript printers. Use this editor only if you have a PostScript printer and if you choose PostScript in the Printer Preferences editor.
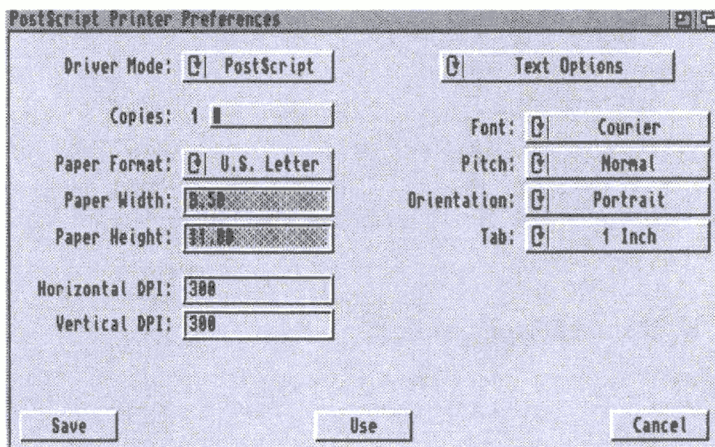
Figure 9-5. PrinterPS Preferences Editor Window

The PrinterPS Preferences editor has an additional item in the Settings menu: Measuring System. Its submenu lets you select Centimeters, Inches, or Points. The selected units are used to display values of your width, height, and margin settings. The default setting is Inches.

The PrinterPS Preferences editor contains the following gadgets:

Driver Mode

Driver Mode lets you select either PostScript or Pass Through. In PostScript mode the driver converts any text output it receives to PostScript and sends the results to the port selected in the Printer Preferences editor. The Pass Through option bypasses the PostScript driver and sends data directly to the port. The Pass Through option lets programs that output PostScript send their PostScript code directly to the printer.

Copies

This specifies the number of copies of each page to print, from 1 to 99.

Paper Format

Paper Format lets you define the size of the paper to be used: U.S. Letter, U.S. Legal, DIN A4, and Custom. Clicking on this gadget sets the values in the Paper Width and Paper Height cycle gadget to match the named format.

Paper Width and Paper Height

The Paper Width and Paper Height gadgets let you specify the exact paper dimensions for custom page sizes. These two gadgets are ghosted unless Custom is selected in the Paper Format gadget.

Horizontal DPI and Vertical DPI

The Horizontal and Vertical DPI gadgets allow you to specify the dots per inch to use in the printout. The driver uses this resolution for all its dithering and other processing. Using different DPI settings from those of your PostScript printer can result in printouts with a distorted aspect ratio.

Panel Cycle Gadget

The Panel cycle gadget lets you select from four additional option panels: Text Options, Text Dimensions, Graphics Options, and Graphics Scaling. The panel selected determines the set of gadgets displayed.

Text Options

Text Options gadgets are illustrated in Figure 9-6.
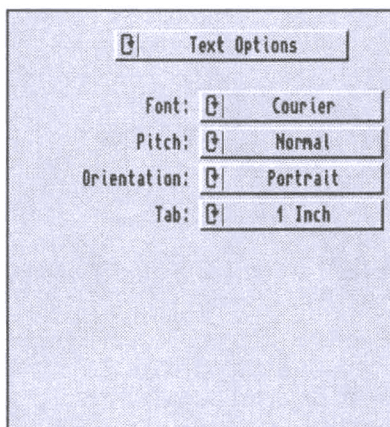
Figure 9-6. PrinterPS Preferences Window/Text Options

Font   Select the font to use in your printout. These are built-in printer fonts and are used whenever text is sent to the printer.

Pitch   Select either Normal, Compressed, or Expanded character width.

Orientation   Select between Portrait or Landscape printing. Use Landscape printing for envelopes.

Tab   Specify how to handle tabs in the printed file. The available selections are 4 Characters, 8 Characters, 1/4 Inch, 1/2 Inch, and 1 Inch. Use inch settings with proportional fonts.

Text Dimensions

Text Dimensions gadgets are illustrated in Figure 9-7.
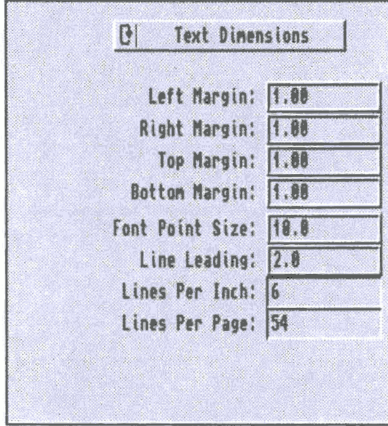
Figure 9-7. PrinterPS Preferences Editor Window/ Text Dimensions

Margin Gadgets	Specify all four margins for text printing. The values entered are relative to the respective edges of the paper, given the paper's width and height values specified previously.
Font Point Size	Specify the size of the font to use whenever text is sent to the printer.
Line Leading	Specify the amount of leading between lines of text. This is the distance in points from the bottom of one line to the top of the following line.
Lines Per Inch	Displays the approximate number of lines per inch, based on the values of the Font Point Size and Line Leading options.
Lines Per Page	This text display area shows the number of lines printable per page, based on the values of the Font Point Size, Line Leading, Paper Height, Top Margin, and Bottom Margin.

Graphics Options

Graphics Options gadgets are illustrated in Figure 9-8.
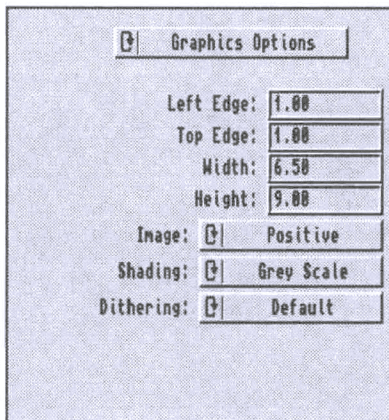
Figure 9-8. PrinterPS Preferences Editor Window/ Graphics Options

Edge/Dimension Gadgets	Similar to the four Margin gadgets, but specifying the print region used for graphics printing.
Image	Positive/Negative.
Shading	Select between Black & White, Grey Scale, and Color.
Dithering	Select Default, Dotty, Vertical, or Horizontal dithering when Grey Scale shading is selected. Default is standard halftone shading. Dotty is similar to halftone shading, but with very large dots for a special effect. Vertical and Horizontal represent grey shades with closely-spaced vertical and horizontal lines of varying thickness.

Graphics Scaling

Controls the size, orientation, and aspect ratio of the printed graphic image. The effects of the different options available under Graphics Scaling are shown by the four Sample Scalings images at the bottom right of the window. The shaded areas represent print regions of varying sizes and shapes. As you change the settings of the cycle

gadgets, the rendering of the source picture changes accordingly.
Figure 9-9 shows Graphics Scaling selected in the Panel Cycle gadget.
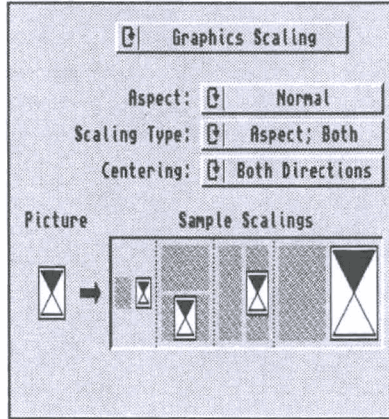
Figure 9-9. PrinterPS Preferences Editor/Graphics Scaling

Aspect   Specify Normal or Sideways for printing graphics. This
                    operation is performed before any other graphic
                    operations, including scaling.

Scaling Type   Select one of seven scaling types. All scaling types
                    control how the picture is printed within the print region
                    specified by the Edge/Dimension gadgets. The Aspect
                    scaling types preserve the image's aspect ratio; the Fits
                    types do not. The types are:

1   None. Prints the picture with no scaling. The picture
      can be clipped on the right or bottom edges to fit
      within the region specified.

2   Aspect; Width. Makes the horizontal dimension as
      wide as the print region and scales the vertical
      dimension to preserve the aspect ratio. The vertical
      dimension is clipped to the print region if it gets too
      tall.

3   Aspect; Height. Makes the vertical dimension as tall
      as the print region and scales the horizontal
      dimension to preserve the aspect ratio. The
      horizontal dimension is clipped to the print region if it
      gets too wide.

4   Aspect; Both. Makes the picture as big as possible while ensuring it fits in the print region and preserves its aspect ratio.

5   Fits; Wide. Makes the horizontal dimension as wide as the print region and scales the vertical dimension to preserve the aspect ratio or until the vertical dimension gets as tall as the print region. The difference between this type and type 2 is that the vertical dimension always fits within the print region instead of being clipped.

6   Fits; Tall. Makes the vertical dimension as tall as the print region and scales the horizontal dimension to preserve the aspect ratio or until the horizontal dimension gets as wide as the print region. The difference between this type and type 3 is that the horizontal dimension always fits within the print region instead of being clipped.

7   Fits; Both. This makes the picture take up an entire print region in both dimensions, distorting the aspect ratio as needed.

Centering   Specify None, Horizontal centering, Vertical centering, or both. Centering is the last operation performed in the printing process, after scaling.

Using Printer Escape Sequences

Each printer has its own set of escape sequences that are used in programs to control that particular printer's features. There are also standard ANSI escape sequences that control special printer features. By using the ANSI escape sequences, you can create a program that can be used on any printer for which there is a printer driver without making changes. We recommend using the standard ANSI escape sequences; however, do not confuse or mix your printer's escape sequences with these since they are likely to be different.

The Amiga printer device (PRT:) accepts standard ANSI escape sequences. The active printer driver translates ANSI escape sequences into control sequences your printer understands. For example, you can use escape sequences to set margins, turn on styles

such as boldface or italics, and specify spacing. If a feature is not supported by your printer or printer driver, the escape sequence for it is ignored. Consult your printer documentation to verify the feature settings your printer accepts.

Escape sequences are typically used when you print to the printer device directly from the Shell or when you insert print commands into a program.

A typical escape sequence (to turn on boldfacing) is shown as follows:

```
Esc[1m
```

This indicates that you must press the following keys in sequence: Esc, [, 1, m. Escape sequences are case-sensitive. For example, to enter the following escape sequence:

```
Esc[4W
```

press the Esc, [, 4, and Shift+W keys.

Numbers inserted into the escape sequence are indicated by <n>. For example, the escape sequence used to set the left and right margins is:

```
Esc[<n>;<n>s
```

If you want to specify a left margin of 5 and a right margin of 75, type:

```
Esc[5;75s
```

To send an escape sequence to the printer from the Shell:

1. Redirect the keyboard input to the printer by entering:

   ```
   1> COPY * to PRT:
   ```

2. Wait until disk activity stops and type an escape sequence, such as:

   ```
   Esc[2"z
   ```

To terminate keyboard output to PRT:, press Ctrl+\.

You can also create printer command files consisting of several escape sequences by redirecting keyboard input to a file. For example:

1. Redirect the keyboard input to a file:

    ```
    1> COPY * TO RAM:EscapeFile
    ```

2. Enter the escape sequences, such as:

    ```
    Esc[2"z     (turns near letter quality on)
    Esc[2w      (turns elite type on)
    Esc[1m      (turns boldface on)
    ```

3. Press Ctrl+\ to terminate keyboard output to the file.

4. To send these escape sequences to the printer, enter:

    ```
    1> COPY RAM:EscapeFile TO PRT:
    ```

Standard ANSI Escape Sequences

The following is a list of standard ANSI printer escape sequences for typical dot matrix printer text features:

Feature	Escape Sequence	Name
Reset printer	Escc	aRIS
Initialize printer	Esc#1	aRIN
Line feed	EscD	aIND
Return line feed	EscE	aNEL
Reverse line feed	EscM	aRI
Normal character set	Esc[0m	aSGR0
Italics on	Esc[3m	aSGR3
Italics off	Esc[23m	aSGR23
Underline on	Esc[4m	aSGR4
Underline off	Esc[24m	aSGR24
Boldface on	Esc[1m	aSGR1
Boldface off	Esc[22m	aSGR22

Feature	Escape Sequence	Name
Set foreground color	Esc[30m to Esc[39m	aSFC
Set background color	Esc[40m to Esc[49m	aSBC
Normal pitch	Esc[0w	aSHORP0
Elite pitch on	Esc[2w	aSHORP
Elite pitch off	Esc[1w	aSHORP1
Condensed fine pitch on	Esc[4w	aSHORP4
Condensed off	Esc[3w	aSHORP3
Enlarged pitch on	Esc[6w	aSHORP6
Enlarged pitch off	Esc[5w	aSHORP5
Shadow print on	Esc[6"z	aDEN6
Shadow print off	Esc[5"z	aDEN5
Doublestrike on	Esc[4"z	aDEN4
Doublestrike off	Esc[3"z	aDEN3
Near Letter Quality on	Esc[2"z	aDEN2
Near Letter Quality off	Esc[1"z	aDEN1
Superscript on	Esc[2v	aSUS2
Superscript off	Esc[1v	aSUS1
Subscript on	Esc[4v	aSUS4
Subscript off	Esc[3v	aSUS3
Normalize the line	Esc[0v	aSUS0
Partial line up	Esc1	aPLU
Partial line down	EscK	aPLD
US character set	Esc(B	aFNT0
French character set	Esc(R	aFNT1
German character set	Esc(K	aFNT2
UK character set	Esc(A	aFNT3
Danish I character set	Esc(E	aFNT4
Swedish character set	Esc(H	aFNT5
Italian character set	Esc(Y	aFNT6

Feature	Escape Sequence	Name
Spanish character set	Esc(Z	aFNT7
Japanese character set	Esc(J	aFNT8
Norwegian character set	Esc(6	aFNT9
Danish II character set	Esc(C	aFNT10
Proportional spacing on	Esc[2p	aPROP2
Proportional spacing off	Esc[1p	aPROP1
Proportional spacing clear	Esc[0p	aPROP0
Set proportional offset	Esc[<n> E	aTSS
Auto left justify	Esc[5 F	aJFY5
Auto right justify	Esc[7 F	aJFY7
Auto full justify	Esc[6 F	aJFY6
Auto justify off	Esc[0 F	aJFY0
Letter space (justify)	Esc[3 F	aJFY3
Word fill (auto center)	Esc[1 F	aJFY1
1/8" line spacing (8 lpi)	Esc[0z	aVERP0
1/6" line spacing (6 lpi)	Esc[1z	aVERP1
Set form length to <n>	Esc[<n>t	aSLPP
Perf skip <n> (n >0)	Esc[<n>q	aPERF
Perf skip off	Esc[0q	aPERF0
Left margin set	Esc#9	aLMS
Right margin set	Esc#0	aRMS
Top margin set	Esc#8	aTMS
Bottom margin set	Esc#2	aBMS
Top and bottom margins	Esc[<n>;<n>r	aSTBM
Left and right margins	Esc[<n>;<n>s	aSLRM
Clear margins	Esc#3	aCAM
Set horizontal tab	EscH	aHTS
Set vertical tabs	EscJ	aVTS
Clear horizontal tab	Esc[0g	aTBC0

Feature	Escape Sequence	Name
Clear all horizontal tabs	Esc[3g	aTBC3
Clear vertical tab	Esc[1g	aTCB1
Clear all vertical tabs	Esc[4g	aTCB4
Clear all horizontal and vertical tabs	Esc#4	aTBCALL
Set default tabs	Esc#5	aTBSALL
Extended commands	Esc[<n>"<x>	aESTEND

Extended Commands

An extended command lets you specify a printer escape sequence for your specific printer within an ANSI escape sequence. In this case, <n> represents the number of bytes in the command and <x> represents the actual command. In an extended command, one character equals one byte. Esc is one character. For example, if your printer recognizes Esc k 1 as the command to use a sans serif font, type:

```
Esc[3"Esck1
```

If you are entering extended commands within a program, be sure that the commands are applicable to the printer in use. A printer's documentation should list its supported escape sequences.

Chapter 10
Other Workbench Programs

This chapter describes the programs found in the Tools and Commodities drawers.

Tools Drawer

The Tools drawer window, illustrated in Figure 10-1, contains numerous utility programs that, for example, expand your printing options, prepare memory cards for use, define new keys, and create new icons.
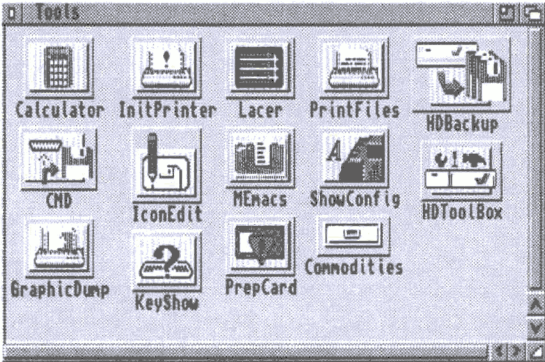
Figure 10-1. Tools Window

The following programs are found in the Tools drawer:

Calculator   A standard, four-function calculator.

CMD   Allows you to redirect printer output to a file.

GraphicDump   Allows you to print screen images.

IconEdit   Allows you to change and create icons.

InitPrinter   Initializes your printer.

KeyShow   Displays the current keyboard layout.

Lacer   Turns video interlace on and off.

MEmacs   A text editor, explained in the *AmigaDOS User's Guide*.

PrepCard   Prepares PCMCIA memory cards for use on systems with a
                    PCMCIA slot.

PrintFiles   Sends files to the printer.

ShowConfig   Shows configuration information.

Commodities   A drawer containing programs that monitor your keyboard
                    and mouse input.

HDBackup and HDToolbox are also included in the Tools drawer on
hard disk systems only. For information on these programs, see the
Amiga Hard Drive User's Guide.

Calculator

The Calculator is a standard four-function calculator for adding,
subtracting, multiplying, and dividing. Opening the Calculator icon
activates it.

The calculator works like any standard calculator. The buttons on
the calculator are gadgets. The numbered gadgets represent the
digits 0 through 9. The non-numerical gadgets represent:

CA   Clear all previous entries. Resets the calculator to 0.

CE   Clear the current entry.

x   Multiply.

÷   Divide.

+   Add.

-   Subtract.

.   Decimal point.

«   Delete the last digit entered.

±   Change the sign of the current entry. Positive numbers become negative; negative numbers become positive.

=   Display the result of the operation.

To press a button, select the gadget with the mouse or press the corresponding key on the keyboard. You can use either the keyboard or numeric keypad keys. Return and the keypad Enter key are equivalent to the equals (=) button. The left arrow key is equivalent to the « button.

The calculator displays a message for Overflow and Divide By Zero errors.

Select the close gadget to exit the Calculator.

Calculator menus

The calculator has three menus: the Project menu, the Edit menu, and the Windows menu.

On the Project menu:

Clear Entry   Clears the current entry only.

Clear All   Clears all entries and resets the display to zero.

Quit   Closes off the calculator.

On the Edit menu:

Cut   Copies and clears the current entry to the Clipboard.

Copy   Copies the current entry to the Clipboard without clearing the area.

Paste   Places the current Clipboard contents into the calculator.

Show Tape is the only Window menu option. It displays a window showing the calculator entries and results. Show Tape can also be copied, but since it does not have a menu, use drag-select and Amiga+C to copy its contents to the Clipboard.

CMD (Change Main Device)

CMD directs your printer output to a file rather than to a printer, capturing output on disk.

To use CMD, Tool Types must be added in the CMD icon's Information window and you must indicate where to send the printer output.

The following lists the CMD Tool Types and their recognized KEYWORDS, arguments, and default settings.

DEVICE=<port> The Amiga port where your printer is attached, either parallel or serial. DEVICE=parallel is the default.

FILE=<filename> The name of the file to which the printer output is sent. FILE=ram:CMD_file is the default.

SKIP=true Tells CMD to skip any short initial write. The first write sent to the printer may be a printer reset. You can use SKIP=true to ignore it. The default is SKIP=false (initial writes are not skipped).

MULTIPLE=true Tells CMD to redirect more than one file. The default is MULTIPLE=false (only one file is redirected).

NOTIFY=true Tells CMD to display progress messages. When CMD intercepts the file, a typical message that may appear is as follows:

```
Redirected <# of bytes> from
parallel.device to <filename>
```

After the output is sent to the file and CMD is turned off, another message may state:

```
CMD redirection of parallel.device
removed
```

The default is NOTIFY=false (messages are not displayed).

To use CMD, double-click on its icon. The next time information is sent to your printer, it goes to the designated file instead.

GraphicDump

GraphicDump prints (or dumps) entire screens, including menus and icons, just as they appear on your monitor. Your printer must be capable of printing graphic images. (Most printers can print GraphicDump output.)

Before using GraphicDump, make sure the settings in the Printer, PrinterPS, and PrinterGfx Preferences editors are appropriate for your printer. You can specify the dimensions of the printout with the Limits setting in the PrinterGfx editor. Otherwise, the printout is the full width allowed by the printer.

To use GraphicDump, double-click on its icon. After a ten second delay, the front-most screen image is sent to the printer. The mouse pointer is not printed.

Tool Types

GraphicDump supports a SIZE Tool Type. The acceptable arguments for SIZE and the resulting size of the printout are:

SIZE=tiny   1/4 the total width allowed by the printer.

SIZE=small   1/2 the total width allowed by the printer.

SIZE=medium   3/4 the total width allowed by the printer.

SIZE=large   Full width allowed by the printer (default).

The height of the printout maintains the perspective of the screen. The Limits Type gadget in the PrinterGfx editor must be set to Ignore for GraphicDump, or else the size of the printout is determined by the Limits setting.

To set specific dimensions in a Tool Type, use:

```
SIZE=<xdots>:<ydots>
```

Substitute the width, in number of printer dots, for the <xdots> argument and the height for the <ydots> argument.

IconEdit

IconEdit personalizes your Workbench by changing the appearance of existing icons and creating new ones.

The window shown in Figure 10-2 appears when you open the IconEdit icon.
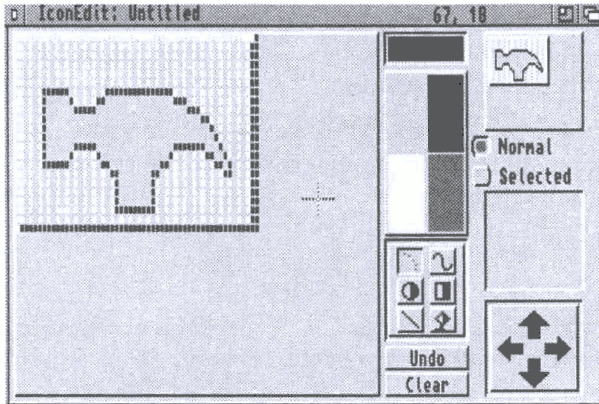
Figure 10-2. IconEdit Window

Draw and edit icons in the magnified view box of the IconEdit window. The Normal and Selected view boxes show the icon images at actual size. Several gadgets in the window draw squares, circles, and straight lines, giving you more control over your drawing.

There are three subwindows in IconEdit: the Normal and Selected view boxes and the Magnified View Box, which fills most of the window. Each of these is an AppWindow into which you can drag an icon to load it, rather than using menus. (AppWindows are described in Chapter 3.) Clicking in the Normal view box displays the selected image of the icon as long as you hold down the selection button.

Color Selection Gadget

The Color Selection gadget lets you select a color for drawing. In addition to the standard method for selecting a color by pointing to it

and clicking the selection button, this gadget allows you to choose two-color patterns. The patterns are used with the Fill, filled Circle, and filled Box gadgets.

To create a checkerboard pattern, select the first color, hold down Shift, then select the second color.

To create a pattern of vertical bars, select the first color, hold down Alt, then select the second color.

Keyboard shortcuts: Press P to cycle forward through the colors. Press Shift+P to cycle through dithered patterns using the background color. Press / (slash) to reset the color to a solid pattern.

Magnified View Box

Use the mouse to draw your icon in this box. Click the selection button to display a pixel of the selected color. Hold down the selection button to draw while moving the mouse.

The pointer turns into cross hairs when it is in the magnified view box. The new pixels appear at the center of the cross hairs. Pixel coordinates (relative to the upper left corner) appear in the IconEdit window title bar to show the position of the crosshair.

To load an existing icon into IconEdit, drag the icon into the magnified view box.

Freehand Gadget

The Freehand gadget lets you quickly draw unstructured shapes. If you select this gadget and then draw in the magnified view box, the pixels fill in as the mouse passes over them. However, you may not get a continuous line and some pixels may not be filled in. Use this gadget to sketch an icon that you intend to fill in the details on later.

Keyboard shortcut: Press S to select the freehand gadget.

Continuous Freehand Gadget

The Continuous Freehand gadget is similar to the freehand gadget, except that it produces a continuous line. When drawing continuous lines, there is a delay before the display catches up with your movement.

Keyboard shortcut: Press D to select the continuous freehand gadget.

Circle Gadget

To draw a circle or oval:

1. Select the circle gadget.

2. Point inside the magnified box at the point where you want the center of the circle, hold down the selection button, and move the mouse.

3. Release the selection button when you reach the correct size and shape.

Selecting the right portion of the gadget draws filled circles. To fill the circle with a dithered pattern, select two colors from the selection gadget.

Selecting the left portion of the gadget draws an outline of a circle. To double the thickness of the circle's outline, hold down Ctrl before releasing the selection button.

Keyboard shortcut: Press E (for ellipse) to draw an outlined circle; Shift+E for a filled circle.

Box Gadget

To draw a box:

1. Select the box gadget.

2. Point inside the magnified box at the point where you want a corner of the box, hold down the selection button, and move the mouse.

3. Release the selection button when the box is the correct size and shape.

Selecting the right portion of the gadget draws filled boxes. To fill the box with a dithered pattern, select two colors from the color selection gadget.

Selecting the left portion of the gadget draws an outline of a box. To double the width of the box's sides, hold down Ctrl before releasing the selection button.

To draw a three-dimensional box, similar in appearance to the Workbench gadgets, hold down an Alt key while drawing a box outline. To draw an unselected box hold down left Alt. To draw a selected box, hold down right Alt.

Keyboard shortcut: Press R for an outlined box; Shift+R for a filled box.

Line Gadget

To draw a straight line:

1. Select the line gadget.

2. Position the mouse where you want the line to start.

3. Hold down the selection button.

4. Move the mouse to the line ending position.

5. Release the selection button.

Double the thickness of the line by pressing Ctrl before releasing the selection button.

Keyboard shortcut: Press L to select the line gadget.

Fill Gadget

Use the fill gadget to fill an area of the magnified view box with the selected color. Select the fill gadget, then click within the area you want to change to the same color as the dot under the crosshair.

Note   The fill gadget does not fill a patterned area. However, solid areas can be filled with the checkerboard or vertical bar patterns, if selected.

Keyboard shortcut: Press F to select the fill gadget.

Undo

Select Undo to cancel the last mouse action performed in the magnified view box. Undo acts as a toggle switch; selecting it again undoes the Undo.

Keyboard shortcut: Press U to select the Undo gadget.

Clear

Select the Clear gadget to erase the contents of the magnified view box. The magnified view box fills with the currently selected color.

Keyboard shortcut: Press Shift+C to select the Clear gadget.

Normal/Selected Radio Buttons

The Normal and Selected radio buttons switch between unselected and selected images for an icon. The normal image is how an unselected icon looks. The selected image is how a dual-image icon looks after you have clicked on it.

When the Normal radio button is selected, any image drawn in the magnified view box appears in the normal view box at the top of the window.

When the Selected radio button is used, you can create the image that appears when the icon is selected. You can only use this radio button

when the Image menu item is chosen from the Highlight menu. Any image created appears in the selected view box.

Keyboard shortcut: Press Shift+S to select the Selected radio button; Shift+N for the Normal radio button.

Arrows

The arrows let you shift your image. Clicking on an arrow moves the image in the magnified view in the direction of the arrow. Use these arrows to control the placement of your image within the box surrounding the finished icon.

Note   Any part of the image that is moved off the edge of the magnified view box is lost.

Keyboard shortcut: Press the corresponding arrow key to move the image.

Project Menu

The items in the Project menu let you open and save icon files.

New	⌘N	Loads the default icon for the currently chosen type of icon. (The type of icon is determined by the Type menu.) Any changes in the window that have not been saved produce a requester asking if you want to save them.
Open	⌘O	Opens an existing icon file. A requester appears for entering the name of the file. Only the names of drawers and .info files appear in the IconEdit Open file requester.
Save	⌘S	Saves an existing icon file, overwriting any file with the same name. In this case the previous icon is lost.
Save As	⌘A	Allows you to specify a file name for saving the current image. A requester lets you enter the destination for the edited icon. Use Save As to prevent overwriting an existing icon file.

Save As **Default Icon**	ⒶD	Saves the current image as the default icon for the currently selected icon type. This image is used for any new icon or pseudo-icon of that type created, including those made with the New menu item in the IconEdit Project menu.
		For example, if you create a drawer icon and then choose Save As Default Icon, that icon is used to represent drawers when you choose the Show All Files menu item.
Quit	ⒶQ	Exits the IconEdit program. If you have not saved the current image, a requester asks if you want to save the image before exiting IconEdit.

Edit Menu

The items in the Edit menu allow you to use the Amiga's Clipboard to import IFF ILBM clips that were created with other programs.

Cut	ⒶX	Deletes the image in the magnified view box and copies it to the Clipboard.
Copy	ⒶC	Copies the image in the magnified view box to the Clipboard.
Paste	ⒶV	Copies any image in the Clipboard to the magnified view box, replacing the current contents.
Erase		Erases any image in the magnified view box. You can erase everything or save before erasing.
Open Clip		Copies an existing IFF file into the Clipboard. A requester asks for the name of the file to open. You can then Paste the file into IconEdit.
Save Clip As		Saves the current contents in the Clipboard to a specified file.
Show Clip		Displays the current contents in the Clipboard using the MultiView program. If the MultiView program is unavailable, Show Clip cannot work.

Type Menu

The items in the Type menu let you specify the type of icon changed
or created.

Disk   A1   Represents the disk icons appearing in the
Workbench window.

Drawer   A2   Represents the drawer icons appearing in a disk
window, such as the Utilities or Tools drawer.

Tool   A3   Represents a tool, such as the Calculator, Clock, or
IconEdit program.

Project   A4   Represents a project, a file that has been created by
a tool, such as any of the icons in the drawers of the
Storage directory.

Garbage   A5   Represents the Trashcan drawer.

Highlight Menu

The items in the Highlight menu let you determine how an icon
appears when it is selected.

Complement   A7   Highlights the entire icon, including the background
of the box surrounding the icon. For example, if you
are using the default Workbench colors and the icon
is surrounded by a field of grey, the grey becomes
blue when the icon is selected.

Backfill   A8   Highlights the icon, but not the background of the
box. For example, if you are using the default
Workbench colors and the icon is surrounded by a
field of grey, the grey remains the same when the
icon is selected.

Image   A9   Allows an entirely different image for the selected
icon (a dual image icon). For example, the drawer
icons on the Workbench are dual image. When you
select a drawer, a new image of an open drawer
appears.

Images Menu

The items in the Images menu let you manipulate the images in the
normal and selected view boxes and import IFF images created with
other graphics programs.

Exchange	*A*E	Swaps the images that appear in the normal view and the selected view.
Copy		Copy is dependent on the selected radio button. If Normal is used, the image in the normal view is copied to the selected view. If Selected is used, the image in the selected view is copied to the normal view.
Use Template		Copies a box resembling the standard Workbench icon tile into the magnified view. You can then create your new icon within this box.
Load		Loads previously saved images, without changing the name of the icon being edited. When you point to the Load menu item, a submenu (described below) appears.
Save Image	*A*K	Saves an image as a standard IFF ILBM brush, rather than an icon.
Restore	*A*R	Returns the IconEdit window to its state prior to opening the window or selecting New or Open.

The available Load submenu items are:

Image	*A*J	Allows you to load an image data type file created by another program as either the normal or selected view, depending on which radio button is selected.
		When you choose an item from the submenu, a requester asks you to specify the file to be loaded. You must specify the correct drawer and file name.
Normal Image	*A*Y	Loads the unselected image of the specified icon into the normal or selected view box, depending on which radio button is selected. (This is equivalent to dragging an icon into one of the boxes.)
Selected Image	*A*U	Loads the selected image of the specified icon into the normal or selected view box, depending on which radio button is selected.

Both Images   *A*| Loads both the normal and selected images of the specified icon into the appropriate view boxes.

Extras Menu

The items in the Extras menu control additional convenience features of IconEdit.

Recolor   *A*M   Swaps the second and third colors in the color selection gadget. By default the second color is black and the third color is white. Use this to convert pre-Release 2 icons to the current color scheme.

Auto TopLeft *A*T   Moves the image to the upper left corner of the magnified view box.

Color Palette   Opens the Preferences Palette editor to change the default colors.

Settings Menu

The items in the Settings menu allow you to save various IconEdit options.

Use Grid?   Use Grid? displays each pixel in the magnified view box distinctly, with the background color surrounding it. When Use Grid? is not chosen, the pixels blend together smoothly. The default is for the grid to be on.

Create Icons?   Create Icons? saves an icon for the IFF brush file created by the Save Image menu option. If Create Icons? is not chosen, no icon is saved. The default is for icons to be saved.

Save Settings   Save Settings saves all of the current IconEdit settings, including the size and position of the IconEdit window, the file requesters, and all of the menu item settings.

Tool Types

IconEdit supports the following Tool Types:

CLIPUNIT=<n>   Specifies the Clipboard unit to use. The default is 0.

XMAG=<n>   Enlarges the width of the magnified view box. XMAG accepts a number from 4 to 16. The default is 4.

YMAG=<n>   Enlarges the height of the magnified view box. YMAG accepts a number from 4 to 16. The default is 4.

LEFTEDGE=<n>   Specifies where to place the left edge of the editor window.

TOPEDGE=<n>   Specifies where to place the top edge of the editor window.

FRLEFTEDGE=<n>   Specifies where to place the left edge of the file requester, relative to the editor window. For example, FRLEFTEDGE=0 aligns the left edge of the file requester with the left edge of the editor window.

FRTOPEDGE=<n>   Specifies where to place the tgp edge of the file requester, relative to the editor window.

FRWIDTH=<n>   Specifies the width, in pixels, of the file requester.

FRHEIGHT=<n>   Specifies the height, in pixels, of the file requester.

PALETTE=<path>   Specifies the complete path to the Palette editor when the Color Palette menu item is chosen. The default is SYS:Prefs/Palette. Change this only if you have moved your Palette editor.

SHOWCLIP=<path>   Specifies the complete path to the utility used to display the Clipboard. The default is SYS:Utilities/MultiView.

NOICONS   Disables the ability to create icons when saving support files, such as when saving a file as an IFF brush.

NOGRID   Disables the use of the grid in the magnified view box.

ICONDRAWER=<path>	Specifies the default drawer used by the file requesters that appear when the Open and Save As menu items in the Project menu are chosen.
ILBMDRAWER=<path>	Specifies the default drawer used by the file requesters that appear when the Load and Save menu items in the Images menu are chosen.
CLIPDRAWER=<path>	Specifies the default drawer used by the file requesters that appear when the Open Clip and Save As Clip menu items in the Edit menu are chosen.
SRCDRAWER=<path>	Specifies the default drawer used by the file requester that appears when the Save as C Source menu item is chosen.
ALTDRAWER=<path>	Specifies the default drawer used by the file requesters that appear when the Load menu item in the Images menu is chosen.

InitPrinter

InitPrinter sends the printer options specified in the Printer and PrinterGfx Preferences editors to the printer. It initializes your printer and loads it with the new or changed specifications when you turn on the printer and double-click on the InitPrinter icon.

Your printer resets automatically when it receives and processes initialization information on first access during a session. If you turn the printer off, you might need to use InitPrinter to reinitialize it.

KeyShow

The KeyShow program shows the current keyboard type layout on your Amiga. Opening the KeyShow icon displays the keyboard layout as selected in the Input Preferences editor. The default American keyboard layout is illustrated in Figure 10-3.
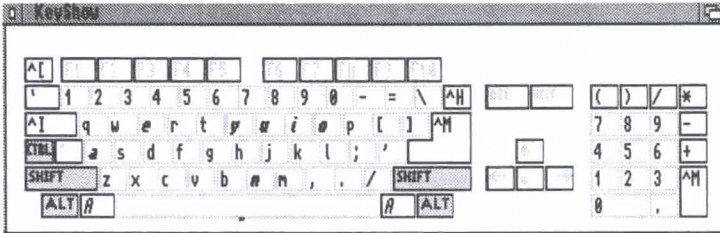
Figure 10-3. Default KeyShow Window

The initial display shows the characters that appear when a single key is pressed. For example, the Q key shows a lower case q. However, when you press a qualifier key with a character key, you can get different output. For KeyShow the acceptable qualifier keys are Ctrl, Shift and both Alt keys.

To see the characters that are output when a qualifier key is pressed simultaneously with a character key:

1. Select any of the qualifier keys that appear in the KeyShow window. That qualifier key is highlighted.

2. The KeyShow display changes to indicate the output that you get if you press the selected qualifier key along with a character key. You can select any combination of qualifiers and the display changes accordingly.

3. Select the qualifier key again to return it to its unpressed state.

Keyboard shortcut: Instead of pointing to the qualifier key in the display, you can press the corresponding key on the keyboard. The following list is a guide to interpreting the KeyShow display:

•   Qualifier keys not currently pressed are shown in the Workbench background color (normally grey). For example, when you first open the KeyShow window, Ctrl, Shift, and Alt appear in grey. This is because KeyShow is not using those keys in the initial display.

•   Dead keys are shown in the Workbench highlight color (normally blue). A dead key is one that, in combination with an Alt key, modifies the output of the key pressed immediately afterward. For example, on the USA keyboard, the Alt+G combination is a

dead key representing the grave accent. If you press Alt+G, then press E, you superimpose the accent symbol over the e (è).

- Bold-italics indicate that a key can be used in conjunction with a dead key. In the previous example, E can be modified by a dead key. However, not all bold-italic keys are affected by all dead keys. For example, n responds only to the Alt+J dead key. The final character must exist in the Amiga character set to be available through a dead key.
- $$ indicates that it takes more than one character to define the key.
- If a character is preceded by a tilde (~) or a caret (^), it is a control character.
- Blank keys are undefined for the currently selected qualifiers.

Lacer

The Lacer program only works when a genlock device is attached to your Amiga. It toggles the display between interlaced and non-interlaced mode. This is used primarily for video recording and genlocking by allowing the Amiga to provide the interlaced input required by video devices.

MEmacs

MEmacs (MicroEmacs) is a screen-oriented text editor. A text editor works the same as a word processor, but it does not support style formatting options. MEmacs is described in detail in the _AmigaDOS User's Guide_.

PrepCard

The PrepCard utility is used for preparing PCMCIA credit card-size memory cards. It runs only on Amiga models equipped with a PCMCIA card slot. PCMCIA is the organization that sets the standards for memory card slot devices.

PrepCard prepares static RAM cards either as a disk device or as system RAM according to PCMCIA standards. A card prepared as a disk can be used like a floppy disk: you can read from and write to the card just as you normally do from applications, the Workbench, or the Shell. Because the card's memory is battery-backed, the contents of the card remain when you remove the card or turn off the Amiga. Read and write operations using memory cards are very fast.

When prepared as system RAM, the card memory is added to the other memory in the Amiga, as if additional memory were installed internally. Cards are available in many sizes: from 64 KB to over a megabyte.

Open the PrepCard window, illustrated in Figure 10-4, by double-clicking its icon. If a card is inserted, its size and other information are displayed. The message FAILED in the Battery display box indicates that the card's battery has run down and must be replaced before the card can be used.
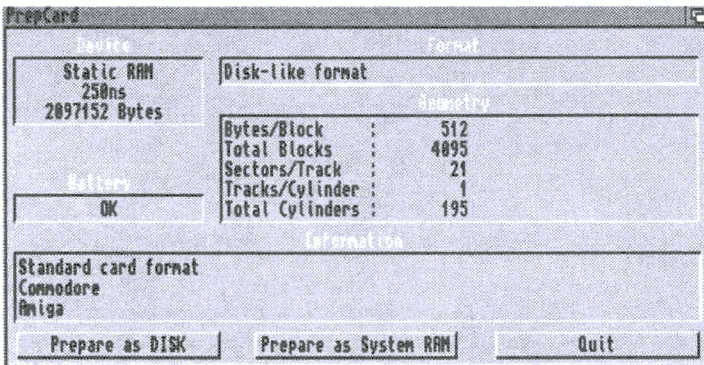
Figure 10-4. PrepCard Window.
PrepCard Display for a 512KB Card Prepared as Disk

You can use PrepCard to prepare cards that are new (unformatted) or that have been previously prepared as disk or RAM.

1. Select the appropriate gadget, either Prepare as DISK or Prepare as System RAM. A warning requester appears, reminding you that any information currently on the card will be erased if you continue.

2. Select Continue to prepare the card or Cancel to return to the PrepCard window. Preparation takes only a few seconds.

Note   Preparation does not continue if the card is write-protected. You can flip the write-protect switch to make it write-enabled without removing the card from the card slot.

3. Select Quit to exit when you are finished with PrepCard. An icon for a card you have prepared as a disk immediately appears, labeled Empty.

You can work with the card disk as a normal disk, rename it, and reformat it with the Workbench Format program. A card disk is device CC0:.

To use the memory on a card prepared as system RAM, you must reboot. (The card must be write-enabled and inserted when you boot or reboot for its memory to be added to the Amiga's RAM.) Card memory is added to Fast (other) memory.

PrepCard has an Advanced Settings window listed on the menu. This window allows a variety of low level card configuration parameters to be altered from the default settings for diagnostic purposes.

Note   Only those with sufficient technical knowledge should change the default settings in the Advanced Settings window. Improper settings do not harm the card or the Amiga, but it can keep the card from functioning properly.

When using PCMCIA cards, note the following:

- PrepCard does not run if a card is currently in use as RAM. To run PrepCard again on a card prepared as RAM, insert the card after booting.

- Removing a card that is currently in use as RAM immediately reboots the Amiga.

- Do not write-protect a card while it is in use as RAM; this causes the Amiga to lock up, requiring you to reboot.

- The PCMCIA card slot is disabled when Fast RAM is configured to more than 4MB.

PrintFiles

PrintFiles sends text files to your printer. It can accept multiple files selected with drag selection or extended selection. If PrintFiles cannot find or open one of the files, it skips it and goes to the next one. The files are printed using the settings specified in the Printer or PrinterPS Preferences editor.

To use PrintFiles:

1. Select the icon of the first file to be printed, hold down Shift and select the icons of any additional files to print. You can also use drag selection to select the icons.

2. Hold down Shift and double-click on the PrintFiles icon.

When printing multiple files, adding a form feed between each file puts it on a new page. Without a form feed, the next file starts printing on the same page on which the previous file ends. Add a form feed with the FORMFEED=true Tool Type in the Printfiles Information window.

ShowConfig

ShowConfig, illustrated in Figure 10-5, displays system configuration information, including processor information, custom chips, software versions, RAM information, and any plug-in boards. Double-click on

the ShowConfig icon to display the information for your system. Use this information when requesting hardware/software technical support.
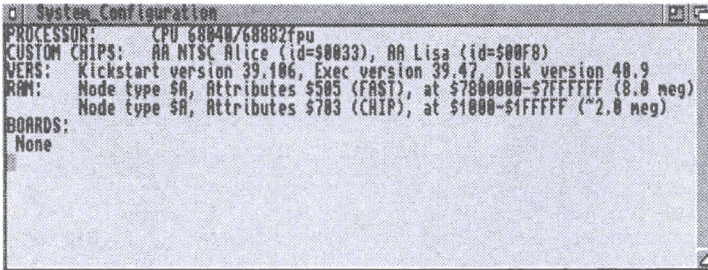
Figure 10-5. ShowConfig Window

Commodities Drawer

The Commodities drawer, illustrated in Figure 10-6, is in the Tools drawer and contains the Commodities Exchange programs. These programs monitor your keyboard and mouse input to the Amiga.
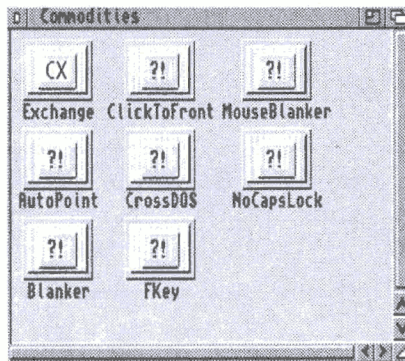
Figure 10-6. Commodities Window

AutoPoint	Automatically activates the window under the pointer.
Blanker	Causes the screen to go blank if there has been no keyboard or mouse activity for a specified period of time.
ClickToFront	Lets you bring a window to the front of the screen by double-clicking in it.
CrossDOS	Controls text options for CrossDOS drives. See Chapter 11 for more information.
Exchange	Monitors and controls all the other Commodities programs.
FKey	Assigns special functions to keys.
MouseBlanker	Causes the mouse pointer to go blank when you are typing.
NoCapsLock	Temporarily disables the Caps Lock key.

Using Commodities Tool Types

All of the Commodities programs share a common Tool Type:

CX_PRIORITY=<n>   Assigns priorities to the Commodities Exchange programs.

All the programs are set to a default priority of 0. If you enter a Tool Type that changes the priority to a higher value, that program has priority over any other Commodities Exchange program of lower priority.

For example, you can have two commodities that allow you to assign operations to function keys. If both programs have an operation assigned to F1, the program with the higher priority intercepts the key, making it unavailable to any other Commodities programs.

There are two Tool Types that apply only to programs that open a window:

CX_POPUP   When set to NO, prevents the program window from opening when the icon is opened. The program activates when you double-click on its icon, but its window remains closed. The default is **CX_POPUP=YES**.

CX_POPKEY   Determines the hot key for a commodity. When the hot key or key combination is pressed, the program's window is automatically brought to the front of the screen. If the window is hidden, it is opened. Hot keys do not start commodities that are not already running. The syntax for specifying hot keys is **CX_POPUP=<key>**.

When specifying key combinations, leave a space between the two keys. For example:

```
CX_POPKEY=F9
CX_POPKEY=Shift F4
CX_POPKEY=LShift LAlt LAmiga X
```

Acceptable Key Combinations

When specifying key combinations for a Commodities Exchange program, you can use any of the function keys (F1 through F10) and any of the keys in the typewriter area of the keyboard (numbers, letter, symbols, and so forth). Keys from the typewriter area must be preceded by a qualifier. The allowable qualifiers are:

Qualifier	Key
Alt	Either Alt key
RAlt	Right Alt only
LAlt	Left Alt only
Shift	Either Shift key
RShift	Right Shift only
LShift	Left Shift only
LAmiga	Left Amiga
RAmiga	Right Amiga
CTRL	Ctrl
Numericpad	Specifies a key on the numeric keypad
Rightbutton	Hold down the menu button
Leftbutton	Hold down the selection button
Middlebutton	Hold down the middle button of a three-button mouse

Qualifiers can also be used before function keys, but are not mandatory. You can use any combination of qualifiers; however, they must be followed by a standard key or function key. A qualifier is only recognized once in a combination:

```
LAlt RAmiga LAlt F10
```

is the same as

```
LAlt RAmiga F10
```

The following are acceptable combinations:

```
Alt F6
LAmiga 8
Ctrl LShift Y
Leftbutton Ctrl CapsLock 1
Numericpad 82
```

[1] Hold down the selection button, then press Ctrl+Caps Lock.
[2] Use the 8 in the numeric keypad. The 8 in the typewriter area does not satisfy the combination.

AutoPoint

AutoPoint lets you select windows without clicking the selection button. To start AutoPoint, double-click on its icon. AutoPoint does not open a window.

AutoPoint automatically activates the window that is underneath the pointer, eliminating the need to click the selection button.

To disable AutoPoint, double-click on its icon a second time or open the Exchange window, select AutoPoint from the scroll gadget, and then select the Remove gadget.

Blanker

When the Blanker program is running, the screen automatically goes blank if no input has been received during a specified period of time.

The Blanker window allows you to specify the amount of time (in seconds) before the screen goes blank. The default time is 60 seconds. If you do not press a key or move the mouse during a 60 second period, the screen goes blank. To change this value, enter an alternative in the text gadget after Seconds.

Blanker can also cycle through a series of colors if you check the Cycle Colors gadget box. Checking the Animation gadget displays a random spline display.

To disable Blanker, open the Exchange window, then select Blanker, select Remove, or pick the Quit item from the Blanker window's Project menu. The hot key for Blanker is Ctrl+Alt+B.

Tool Types

Blanker has the following Tool Types:

SECONDS=60	The number of seconds of keyboard/mouse activity before the screen is blanked. Default is 60.
ANIMATION=YES	Whether Blanker screen displays animation. Default is yes.
CYCLECOLORS=YES	Whether colors on the blanker screen are cycled. Default is yes.

ClickToFront

ClickToFront lets you bring a window to the front of the screen without selecting the window's depth gadget. To bring a window to the front with ClickToFront, hold down left Alt and double-click anywhere in the window. (The use of left Alt can be changed with Tool Types.)

To start ClickToFront, double-click on its icon. ClickToFront does not open a window.

To disable ClickToFront, open the Exchange window, select ClickToFront from the scroll gadget, then select Remove or double-click on its icon again.

Tool Types

ClickToFront supports a QUALIFIER Tool Type, allowing you to specify a qualifier key that must be pressed while double-clicking in the window you want to bring to the front of the screen. The four acceptable key arguments are:

Lalt	Left Alt (Default)
Left_Alt	Left Alt
Ralt	Right Alt
Right_Alt	Right Alt
CTRL	Ctrl
CONTROL	Ctrl
None	No qualifier necessary

For example, if you have specified QUALIFIER=CTRL and ClickToFront is activated, hold down Ctrl and double-click in the window you want frontmost.

CrossDOS

The CrossDOS commodity controls text options for active CrossDOS drives. The CrossDOS commodity window shows the available drives and allows you to set Text Filtering or Text Translation separately for each. Hot key: Ctrl+Alt+C. For more information on the CrossDOS commodity, see Chapter 11.

Exchange

Exchange manages the background utilities contained in the Commodities drawer. The hot key for Exchange is Ctrl+Alt+Help.
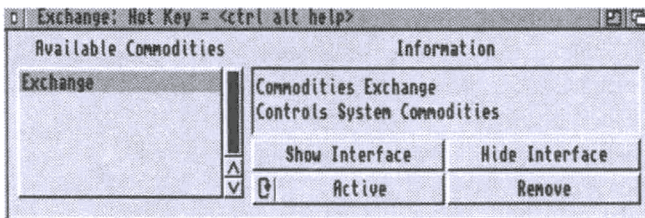
Figure 10-7. Exchange Window

The Exchange window, illustrated in Figure 10-7, lists the commodities that are running and displays information about each one as it is selected.

Remove	Turns off commodities.
Show Interface	Displays the commodity window, allowing you to interact with it as if you pressed the commodity's hot key.
Hide Interface	Closes the commodity window without turning the commodity off.

FKey

FKey allows you to assign functions to keys, eliminating the need for repetitive typing.

When you double-click on the FKey icon, the window illustrated in Figure 10-8 appears:
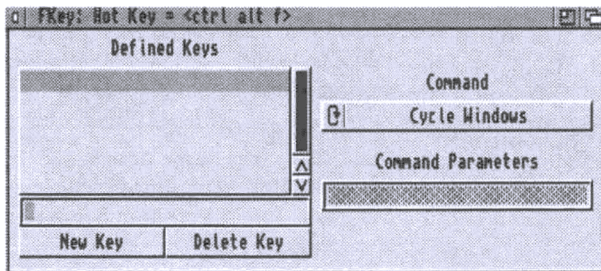
Figure 10-8. FKey Window

FKey lets you assign any of eight commands to any key sequence that you can enter.

The Defined Keys scrolling list shows all the currently defined key sequences.

The New Key and Delete Key gadgets let you add and remove key sequences.

The Command cycle gadget lets you pick a command for the current key sequence. The possible commands are:

Cycle Windows	Brings the rearmost application window on the Workbench screen to the front of the display and selects it.
Cycle Screens	Brings the rearmost screen to the front of the display.
Enlarge Window	Enlarges the selected window to its maximum size, taking into account the edges of the screen.
Shrink Window	Shrinks the selected window to its minimum size.
Toggle Window Size	Zooms the selected window as if you had selected its zoom gadget. It also works on windows that only have a zoom gadget and no sizing gadgets.
Insert Text	When the key sequence is entered, the specified string is inserted in a console window or text gadget. It has no effect if something that accepts keyboard input is not selected. The string to insert is specified in the Command Parameters gadget.
Run Program	Lets you run a program by entering any key sequence. The program name and its arguments are specified in the Command Parameters gadget.
Run ARexx Script	Lets you run an ARexx script by entering any key sequence. The script name and its arguments are specified in the Command Parameters gadget. Putting quotes around the script name turns it into an ARexx string file.

The Command Parameters text gadget lets you specify arguments for three of the commands.

For example, to designate Alt F1 as the key sequence to start MultiView, follow these steps:

1. Select the New Key gadget.

2. Enter the key sequence in the string gadget as Alt F1 (be sure to enter a space between Alt and F1).

3. Select the Run Program option in the Command cycle gadget.

4. Enter the path for MultiView (SYS:Utilities/MultiView) in the Command Parameters text gadget.

MouseBlanker

MouseBlanker blanks the mouse pointer from the display when you are typing at the keyboard. The mouse pointer returns to the screen when you move the mouse again.

To enable MouseBlanker, double-click on its icon. To disable MouseBlanker, double-click on its icon again or open the Exchange window, select MouseBlanker from the scroll gadget, and select the Remove gadget.

NoCapsLock

NoCapsLock disables the Caps Lock key. The Shift keys still function normally, but Caps Lock has no effect if pressed accidentally.

To start NoCapsLock, double-click on its icon. It does not open a window. To disable NoCapsLock, open the Exchange window, select NoCapsLock from the scroll gadget, and select the Remove gadget or double-click on its icon again.

Chapter 11
CrossDOS

CrossDOS™ lets you read from and write to MS-DOS formatted disks using your standard Amiga drives. This allows you to transfer information for text, font, database, and graphics files between Amiga and MS-DOS computers. While CrossDOS does not make it possible to run MS-DOS programs on your Amiga, it does allow you to work with MS-DOS disks and files using all the familiar Amiga methods.

This chapter describes the following:

- CrossDOS drivers
- Activating CrossDOS drivers
- Adding CrossDOS drivers
- Using CrossDOS
- The CrossDOS commodity

CrossDOS Drivers

The standard DOS drivers for CrossDOS are PC0: and PC1:, which correspond to DF0: and DF1:. These two drivers allow an Amiga floppy drive to read and write 720KB or 1.44MB MS-DOS disks, depending on the capacity of your Amiga disk drive.

Activating CrossDOS Drivers

You can activate a CrossDOS driver whenever you boot by moving the PC0/PC1 icon to DEVS:DOSDrivers. To temporarily activate a DOS driver, double-click on the icon in the Storage/DOSDrivers drawer. The DOS driver is activated until you reboot.

When you activate a CrossDOS driver, the Workbench displays two icons for any disk inserted in the drive: one for PC0: or PC1: and one for the corresponding DF0: or DF1: drive. For an MS-DOS disk in DF0:, Workbench displays a special floppy disk icon with the disk's name and an icon labelled DF0:????. For an Amiga disk, Workbench shows the usual floppy icon and another labelled PC0:????.

Note   When you insert a disk into a CrossDOS drive, there is normally a brief delay between the appearance of the DFx: disk icon and the PCx: disk icon.

When you open an MS-DOS disk, CrossDOS automatically displays its contents in Show All mode.

Adding CrossDOS Drivers

You can create additional DOS drivers if you have other drives with which you wish to use CrossDOS.

To create a PC2 DOS driver for an external DF2: floppy drive:

1. If the PC0 icon is not already present in DEVS:DOSDrivers, open the Storage/DOSDrivers drawer and drag it onto DEVS:DOSDrivers.

2. Open DEVS:DOSDrivers and select the PC0 icon.

3. Select Copy from the Icons menu.

4. Select Rename from the Icons menu. Change the name of the copied icon from copy_of_PC0 to PC2 and select OK.

5. Select Information from the Icons menu, change the UNIT Tool Type from UNIT=0 to UNIT=2, and press Return.

6. Select Save.

Using CrossDOS

Once a CrossDOS driver has been activated, you can work with MS-DOS disk directories and files in that drive just as you normally do on the Amiga. You can copy, move, rename, and delete using standard

Workbench icon and menu techniques. You can load and save files on MS-DOS disks from any Amiga program by using the disk's volume name or the CrossDOS drive's device name (for example, MYDOSDISK: or PC0:). MS-DOS disks can be formatted the same way you format Amiga disks.

Names

File naming conventions for MS-DOS apply when accessing or creating file and directory names. Under MS-DOS, file names can be no more than eight characters long with an optional three-character extension.

Invalid Characters

The following characters are not valid for MS-DOS names:

<	Left Angle Bracket
>	Right Angle Bracket
.	Period (other than for a single extension)
"	Double Quote
I	Vertical Bar
+	Plus Sign
=	Equal Sign
;	Semicolon
,	Comma
\	Backslash
/	Slash
[	Left Bracket
]	Right Bracket
:	Colon

Although some of these characters are valid for AmigaDOS file names, avoid using them. The slash, backslash, left bracket, right bracket, and colon characters in particular are reserved for special use.

File Name

The file (or directory) name is limited to eight alphanumeric characters. The characters can be specified as lower case, but are converted to upper case automatically. The space character is allowed between other alphanumeric characters, but it is not recommended.

File Extension

The optional file (or directory) extension is limited to three alphanumeric characters preceded by a dot (.). There can be only one extension per file name. The characters can be specified as lower case, but are converted to upper case automatically. The space character is allowed between other alphanumeric characters, but it is not recommended.

Workbench Extension (".info")

One exception to the three character extension is the Amiga extension .info. When the file name is read from the MS-DOS disk by CrossDOS, a .INF extension is automatically expanded to .info to allow the file to be recognized by Workbench. Subsequently, when a file is written to the MS-DOS disk with a .info extension, it is stored on the disk as .INF.

The original file that has a Workbench .info file associated with it must not have any other extensions in the name. Create files on the MS-DOS disk with no file extension so that applications that automatically create .info files work correctly.

Root Name Qualifier (:)

The colon (:) character is used as a root name qualifier to refer to the physical device name, the volume name of the disk, or the logical name of a directory path. For example:

    PC0:FILENAME.EXT

Volume Name

A volume name under MS-DOS is limited to eleven alphanumeric characters with spaces allowed between characters. The characters can be specified as lower case, but are converted to upper case automatically.

The volume name is normally written to the disk during a format. It is possible for disks formatted on MS-DOS systems to be unnamed, in which case CrossDOS uses the boot block identification name and a creation date of January 1, 1980 as the volume information for AmigaDOS. For example, the following two paths are equivalent:

```
IBM  3.1:FILENAME.EXT
PC0:FILENAME.EXT
```

Directory Name Qualifiers

The directory name qualifier is the standard AmigaDOS slash (/) character. This character is used to separate directory paths. For example,

```
PC0:SUBDIR/FILENAME
```

Icons

Disks created on MS-DOS computers do not have icons. You can display pseudo-icons for files and directories on these disks by selecting the Show All Files option, described in Chapter 3.

You can create real Amiga icons on MS-DOS disks in any of the following ways:

- Dragging an Amiga icon into the disk's window
- Saving a file to the disk with a program that creates icons when it saves
- Creating a drawer on the disk with the New Drawer menu item
- Creating an icon in IconEdit and saving it to the disk

MS-DOS converts the .info extension of the icon files to .INF, but CrossDOS still recognizes them as .info files. Under MS-DOS or other PC operating systems, these files are not recognized and icon information in them is meaningless.

Formatting Disks

Format disks as MS-DOS using the normal disk format procedure described in Chapter 3. Be sure, however, to select the MS-DOS disk's icon, volume name, or device name to format the disk as MS-DOS and not AmigaDOS. For example, to format a disk as MS-DOS in the DF0:/PC0: drive select the PC0:???? icon and choose the Format Disk menu item.

CrossDOS Mount Files

Mount files are text files that contain lists of parameters and values needed to mount devices or make them available to the system. The PC0/PC1 DOS drivers are mount files for specific CrossDOS drives. By creating a mount file or altering that of an existing CrossDOS drive, you can make a new DOS driver that allows use of other devices with CrossDOS.

View an existing mount file such as PC0 by using MultiView, which is described in Chapter 4. The file contains various pieces of technical information that describe the drive and certain settings that AmigaDOS uses to access it. Some of this information is specific to the drive and should be obtained from the manufacturer's documentation.

Use a text editor, such as ED, to create or edit CrossDOS mount files. You may want to edit an existing CrossDOS mount file, since much of the information stays the same for other types of drives. The following example illustrates a mount file that could be used for a drive, such as a removable media Syquest™ cartridge:

```
FileSystem          = L:CrossDOSFileSystem
Device              = scsi.device
Unit                = 2
Flags               = 1
Surfaces            = 2
BlocksPerTrack      = 34
LowCyl              = 0
HighCyl             = 2096
Buffers             = 5
BufMemType          = 1
StackSize           = 600
Priority            = 5
GlobVec             = -1
DosType             = 0x4D534800
```

CrossDOS Commodity

The CrossDOS commodity, illustrated in Figure 11-1, controls text options for the active CrossDOS drives. The CrossDOS commodity window shows the available drives and allows you to set Text Filtering or Text Translation separately for each.
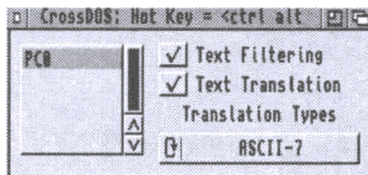
Figure 11-1. CrossDOS Commodity Window

The scrolling list on the left lists the device names of currently mounted (active) CrossDOS drives. Select a drive to display its setting.

Note   The Text Filtering and Translation options should be
          selected only to transfer text files with CrossDOS.
          Turn these options off when transferring font, graphics,
          or binary files to avoid altering their data.

Text Filtering

The Text Filtering option filters carriage returns and end-of-file (EOF) markers in text files transferred through CrossDOS. MS-DOS text files normally have a carriage return (Ctrl+M) followed by a linefeed (Ctrl+J) at the end of a line. MS-DOS files can also have one or more end-of-file markers (Ctrl+Z) at the end of the file.

Amiga text files only need linefeeds and Amiga files do not use EOFs. Selecting the Text Filtering option adds carriage returns before linefeeds and places an EOF at the end of the text when you write to an MS-DOS disk. It removes EOFs and carriage returns before linefeeds when reading from an MS-DOS disk.

Text Translation

The Text Translation option controls the translation between the Amiga and MS-DOS character sets where they differ. Some MS-DOS files set the high bit of certain ASCII characters in the file to give that character a special meaning. Selecting Text Translation with ASCII-7 in the Translation Types gadget makes the file conform to standard ASCII text. Text Translation only filters the high bit when reading the file from an MS-DOS disk. It does not set the high bit when writing the file to the MS-DOS disk.

There are two types of Text Translation:

Complete	To filter file names as well as the data in the file, select the Text Translation option and make a selection in the Translation Types cycle gadget.
File Name Only	To filter only the file names, do not select the Text Translation option. However, you must make a selection from the Translation Types cycle gadget.

Translation Types

The Translation Types cycle gadget allows you to select one of the following choices for text filtering or translation:

ASCII-7	Makes the file conform to standard ASCII text.
INTL (International)	Preserves international characters (for example, ü, ç, ê).
DANSK	Filters Danish text files.
MAC	Filters Apple Macintosh ASCII files that have been transferred to an MS-DOS disk.

Chapter 12
ED Editor

A text editor or word processing program is necessary for creating or editing text files and script files. Amiga Workbench software comes with the ED text editor, which has the basic functionality of a word processor. However, ED does not support style formatting options, such as italics, page numbering, or different fonts. This chapter describes how to use ED, including the following:

- Starting ED
- Using ED
- ED commands
- ED menus
- Customizing ED
- Printing from ED
- Quitting ED

ED is a full screen ASCII text editor that uses menus and function keys to access its features. It is easy to use and is suitable for editing scripts, startup files, MountLists, and other simple files. Use either a mouse or the keyboard to perform operations with ED. Although ED's menus are preprogrammed, when you are familiar with the program, you can reconfigure them as needed.

Note   ED does not accept files containing binary code. To edit these types of files, use EDIT or MEmacs.

The bottom line of the ED window is the status line used for displaying messages, prompts, and commands. Error messages displayed on the status line remain until you enter another ED command. Figure 12-1 illustrates the ED window showing the status line.

Status
Line

creating new file
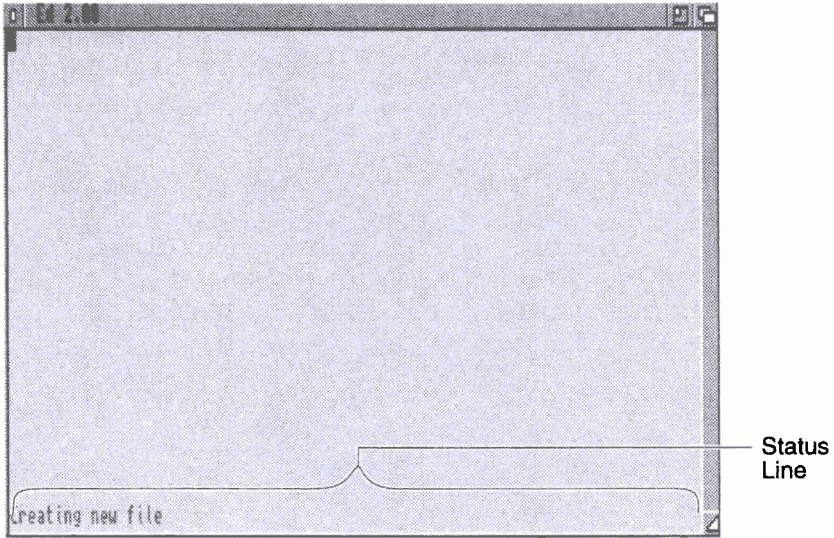
Figure 12-1. ED Window with Status Line

Starting ED

Start ED from a Shell or with the Workbench Execute Command
menu item. Open ED at the prompt by entering **ED** and a new or
existing file name, as follows:

```
1> ED <filename>
```

where <filename> is the name of an existing file or a new file to be
used for saving your work. If the file name specified cannot be found
in the current directory, ED opens a blank window and displays the
message **Creating new file**.

The format for ED is the following:

ED [FROM] <filename> [SIZE <n>] [*WITH* <filename>]
[*WINDOW* <window spec>] [TABS <n>] [WIDTH | COLS <n>]
[HEIGHT | ROWS <n>]

The FROM argument specifies the source file to be edited. This
argument is required, but the FROM keyword is optional.

The SIZE argument changes the ED buffer size. ED has a default text buffer size of 40,000 bytes. For example:

```
1> ED Script SIZE 55000
```

increases the size of the buffer to 55,000 bytes.

The WITH argument specifies an ED command file that can contain any sequence of ED extended mode commands. When WITH is specified, ED executes the commands contained in the command file.

The WINDOW argument specifies the console type, such as RAW:0/0/640/256/EdWindow or CONSOLE:.

TABS sets the tab stop interval, which is the number of spaces to the right that the cursor moves when you press the Tab key. The default value for TABS is 3.

The WIDTH and HEIGHT arguments adjust the size of the ED window by specifying the number of characters to display horizontally and vertically.

Using ED

All ED commands have key sequences and many are available through menus. You can enter ED commands in either of the following ways:

1. By choosing the command's menu item.

2. By typing in the command's key sequence and pressing Return.

In addition, you can use the mouse to perform some commands, such as those that control cursor movement.

You can work on files in ED with the following two command modes:

Immediate   Commands are executed as soon as typed. ED opens in immediate mode.

Extended   Commands are not executed until you press Return or Esc.

Immediate Commands

In immediate mode, ED executes commands right away. Specify an immediate command by pressing a single key or Ctrl+key combination or by using the mouse. All immediate commands have corresponding extended versions.

Immediate commands control the following:

- Cursor movement
- Text scrolling
- Text insertion
- Text deletion
- Repetition of commands

Moving the Cursor in Immediate Mode

The cursor can be positioned anywhere in text by moving the pointer to the desired spot and clicking the selection button. To move the cursor with the keyboard, use the arrow keys, Tab, and Ctrl+key combinations.

Note   In ED, the Tab key only moves the cursor. It does not insert Tab characters or spaces in a line.

Move the cursor one position in any direction by pressing the appropriate arrow key. If the cursor is on the right edge of the screen, ED scrolls the text to the left to display the rest of the line. ED scrolls the text vertically one line at a time and horizontally ten characters at a time. You cannot move the cursor beyond the left edge of the line. If you try to move the cursor beyond the top or bottom of the file, ED displays a **Top of File** or **Bottom of File** message.

Additional key combinations that control cursor movement are:

Shift+up arrow	Top of the file.
Shift+down arrow	Bottom of the file.
Shift+left arrow	Left edge of the ED window (regardless of the margin setting).

Shift+right arrow	End of the current line.
Ctrl+]	Right edge of current line (if cursor is already there, it is moved to the left edge).
Ctrl+E	Start of the first line on the screen (if cursor is already there, it is moved to the end of the last line on the screen).
Ctrl+T	Start of the next word.
Ctrl+R	Space following the previous word.
Tab	The next tab position (multiple of the TABS value; 3 by default).

If your file has more lines than can fit in the ED window, you can scroll through the file vertically. Scroll one line at a time by pressing the up or down cursor key to move in the corresponding direction. Move the text in jumps by pressing:

Ctrl+D	Moves 12 lines down through the file.
Ctrl+U	Moves 12 lines up through the file.

These commands do not move the cursor position in the window; they redraw the text in the window with the new line at the cursor position.

If something disturbs your screen, such as an alert from another program appearing in the ED window or message remarks in the status line, press:

Ctrl+V	Refreshes the window display.

Inserting Text in Immediate Mode

Any characters typed in immediate mode are inserted at the current cursor position and the cursor is shifted to the right. Any characters to the right of the cursor are shifted to make room for new text. If the line is wider than the width of the window, the window scrolls to the right to show what you are typing. If you move the cursor beyond the end of the line, ED inserts spaces between the end of the line and any new characters inserted.

There is maximum limit of 255 characters in a line. If you add more characters, ED displays a **Line Too Long** message.

To split the current line at the cursor, press Return. Any text to the left of the cursor remains on the original line. All text under and to the right of the cursor moves down onto a new line. Pressing Return at the end of the line creates a new blank line.

Deleting Text in Immediate Mode

ED has no typeover mode. To replace a word or line, you must delete the existing words and insert new information with the following keys and key combinations:

Backspace	Deletes the character to the left of the cursor.
Del	Deletes the character highlighted by the cursor.
Ctrl+O	If the cursor is over a space, all spaces up to the next character are deleted. If the cursor is over a character, all characters up to the next space are deleted.
Ctrl+Y	Deletes all characters from the cursor to the end of the line.

When text is deleted, any characters remaining on the line shift to the left and any text beyond the right edge of the screen becomes visible.

Changing Case in Immediate Mode

You can change the case of text by positioning the cursor and pressing Ctrl+F. If the letter is lower case, it becomes upper case and vice versa. Ctrl+F does not change non-alphabetic characters or symbols.

After you press Ctrl+F, the cursor moves to the right. You can hold down Ctrl+F to repeat the command until you change all the letters on the line.

Extended Commands

In extended mode, commands are displayed on the command line— or status line— at the bottom of the window. ED does not execute these commands until you press Return or Esc. If you use Esc to execute extended commands, ED remains in extended mode. If you use Return to execute extended commands, ED returns to immediate mode.

Extended commands manage the following:

- Program control
- Cursor movement
- Text modification
- Block control
- Searching and exchanging text

To enter extended mode, press Esc. An asterisk appears as a prompt in the status line. Extended commands consist of one or two characters. Multiple extended commands can be typed on a single command line by separating them with a semicolon. Commands can be grouped together for ED to repeat automatically. Use Backspace to correct mistakes.

You can also execute commands through the programmable menu and function keys. Reconfigure the menus and functions keys by assigning a command to the key or menu item of your choice as described on page 12-19.

Using String Delimiters

In some cases, commands require arguments, such as a number or a text string. A string argument for an ED command must be enclosed in a pair of identical delimiter characters. In unambiguous situations you can omit the trailing delimiter. Valid delimiters include ", /, \, !, :, +, -, and %. You cannot use the same delimiter character inside your string. Invalid delimiter characters include letters, numbers, spaces, semicolons, question marks, brackets, and control characters. If a command needs two string arguments, you can enter them together, inserting a third delimiter character. For example, "string1"string2".

Using a File Requester

You can also ask ED to use a file requester, allowing you to view the contents of the drives and directories in your system.

To invoke a file requester for a load or save command, you must place a question mark (?) before the required string argument. Be sure to include a space before the question mark (for example, **sa ?/Text/**).

Normally, when a command is followed by a string, ED treats the string as the file to be loaded or saved and attempts the operation immediately. However, the question mark indicates that you want to specify the file through a file requester. You must still specify a string after the question mark, but the string becomes the text that appears in the file requester title bar.

ED Menus

ED has two sets of command mefu assignments: default and expanded. The default menu assignments, as illustrated in Figure 12-2, are set up by the S:Ed-startup file, which is automatically executed each time you run ED. The S:Ed-startup file is a command file of ED extended mode commands, without the Escape characters. You can edit this file to set up custom menus, as described on page 12-19, or define preprogrammed function key assignments with the Set FN Key menu item.
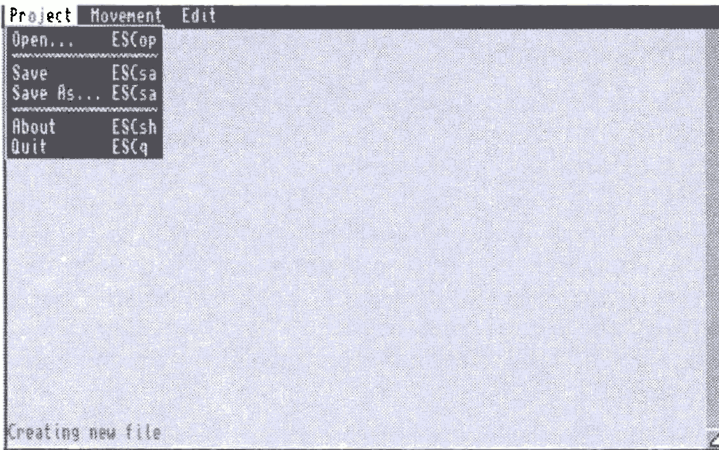
Figure 12-2. Default Menu Assignments

Enabling Expanded Menus

The expanded command menu assignments, as illustrated in Figure 12-3, can be enabled by renaming or deleting the default

S:Ed-startup file. If ED cannot find a file named S:Ed-startup, it opens with the expanded set of menus, providing more options.
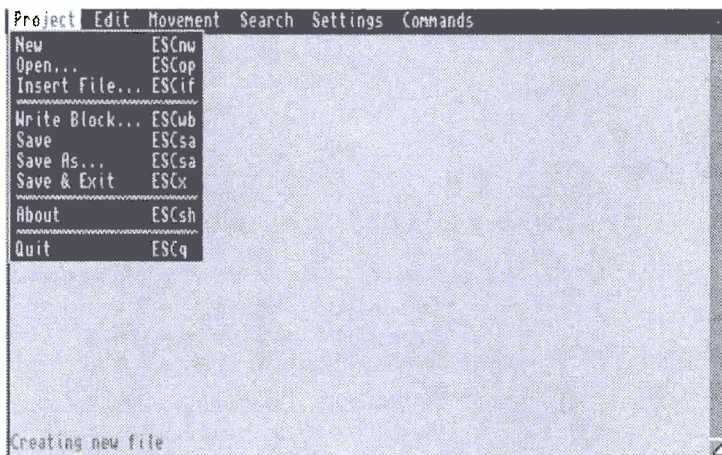
Figure 12-3. Expanded Menu Assignments

Rather than deleting your S:Ed-startup file, we recommend that you rename it as follows:

1. In the Workbench window, go to the Window menu and select Show All Files.

2. Double-click on the S drawer icon.

3. Click on the Ed-startup icon.

4. Go to the Icons menu and choose Rename.

5. Delete the name in the Rename requester's New Name text gadget and enter a new name for Ed-startup.

6. Select OK.

You can also create your own customized file of startup options. Avoid including Quit commands in the S:Ed-startup file since they can cause ED to quit immediately after opening.

The menu items in both the default and expanded menus have the same function regardless of which set you use. All of the ED

commands are available through the keyboard using extended mode commands even if they do not appear in any menu.

The following sections describe the menu items found in the expanded menus and their corresponding extended and immediate mode commands. An ellipsis (...) indicates that an argument is required or that a menu item opens a requester or prompt.

Project Menu

The following are the expanded Project menu items:

New	Esc,N,W	Creates a new file, replacing the existing file. The message **Edits will be lost -- type Y to confirm:** is displayed. Press any key (except Y) to abort the command.
Open...	Esc,O,P...	Opens a file. Specify the file by entering the path to the file as a properly delimited string. (If slashes appear in the path to a file, do not use the slash as a delimiter.) The message **Edits will be lost -- type Y to confirm:** reminds you that you are replacing the current file.
Insert File...	Esc,I,F...	Inserts a file into the current file. ED reads into memory the specified file at the point immediately following the current line.
Write Block...	Esc,W,B...	Writes the currently marked block to a specified file. ED overwrites any other files with that name and copies the block to the file.
Save	Esc,S,A	Saves the text to the current file, overwriting the existing text in the file. Use Save As to save to a different file. SA followed by Q is equivalent to the X command.
Save As...	Esc,S,A...	Saves the text to the specified file name.
Save & Exit	Esc,X	Exits ED, saving the current file to the designated file name. ED writes the text it is holding in memory to the file that was specified when ED was opened and then terminates.

About	Esc,S,H	Shows the current state of the editor. The screen displays information, such as the value of tab stops, current margins, block marks, and the name of the file being edited.
Quit	Esc,Q	Exits ED without saving changes. If you made any changes to the file, ED asks if you want to quit. If you press Y, ED terminates immediately without saving the changes to the file.

Edit Menu

The following are commands used for editing:

Undo Line	Esc,U	Reverses changes made to the current line. However, ED cannot undo a line deletion. Once you have moved from the current line, the U command cannot undo a change.
Start Block **End Block**	Esc,B,S Esc,B,E	Identifies the beginning and end of a block of text. To specify a block of text to be moved, inserted, or deleted, place the cursor on the first line that you want in the block and enter the BS command. Move the cursor to the last line that you want in the block and enter the BE command.
		You cannot start or finish a block in the middle of a line.
Show Block	Esc,S,B	Redraws the display so the block is at the top of the screen.
Insert Block	Esc,I,B	Inserts a copy of the block after the current line. The block remains defined until you change the text. Use IB to insert copies of the block throughout the document.
Delete Block	Esc,D,B	Deletes a block.
Delete Line	Esc,D Ctrl+B	Deletes the entire line.

Movement Menu

The following commands move the cursor around the screen:

Top	Esc,T Shift+up arrow	Top of the file; first line of the file is brought to the top of the window.
Bottom	Esc,B Shift+dow n arrow	Bottom of the file; last line of the file is brought to the bottom of the window.
Next Page	Esc,P,D Ctrl+D	Go to next page.
Previous Page	Esc,P,U Ctrl+U	Go to previous page.
Go To Line...	Esc,M...	Move the cursor to the specified line. Enter the line number on the status line and press Return. The line specified is brought to the top of the window. If no number is given, the cursor goes to the top of the window.

Search Menu

The following commands let you search through the file for specific instances of text. You can substitute one pattern of text with another (search and replace) and have ED request confirmation of (query) each replace. If the specified text is not found or there are no more instances of the text, the message **Search failed** is displayed. When using the Find and Replace menu commands, ED prompts for the text strings. Enter the text without delimiters. When using extended mode, include delimited strings with the command.

Find... **Find Next**	Esc,F...	Finds the next occurrence of the specified string of text. The search starts one character beyond the current cursor position and continues forward through the file. If the string is found, the cursor moves to the start of the located string. The search is case-sensitive, unless the UC command is used. Find Next repeats the command.

Reverse Find... Reverse Find Next	Esc,B,F...	Searches backwards through the file for the specified string. This command finds the last occurrence of the string before the current cursor position. The search continues through to the beginning of the file. Reverse Find Next repeats the command.
Replace...	Esc,E...	Exchanges one occurrence of text with another.
		In extended mode, enter the strings enclosed by three delimiters. For example, to replace the word to with too, enter **"to"too"**. Specify empty strings by typing two delimiters with nothing between them. If the first string is empty, ED inserts the second string at the current cursor position. If the second string is empty, ED searches for the next occurrence of the first string and then deletes it. Note that ED ignores margin settings when exchanging text.
Global Replace...	Esc,R,P, E...	Exchanges all occurrences of text.
Query-Replace...	Esc,E,Q...	Searches for the text to be exchanged and requests verification by displaying **Exchange?**. Enter Y to exchange or another other key to abort.
Global Query-Replace...	Esc,R,P, E,Q...	Searches for all occurrences of the text to be exchanged and requests verification for each. Enter Y to exchange or any other key to abort.

Settings Menu

The following commands are used for setting up your ED environment:

Set FN Key...	Esc,S,F...	Defines the function keys and other programmable keys. Defining function key and Ctrl+key commands is similar to defining menu items. See page 12-14 for instructions for defining function keys and an example of the Set FN Key command.

Show FN Key...	Esc,D,F <key>	Displays the setting for the function key specified by <key>. Enter a space and a key slot number for <key>.
Reset Keys	Esc,R,K	Resets the key definitions to the default. See page 12-15 for a table of special key mappings.
Right Margin...	Esc,R,K...	Sets the right margin. To specify the right margin, use the SR command followed by a number indicating the column position.
Left Margin...	Esc,S,L...	Sets the left margin. To specify the left margin, use the SL command followed by a number indicating the column position. The left margin should not be set beyond the right edge of the screen.
Ignore Case	Esc,U,C	Specifies a case-insensitive search. UC instructs all subsequent searches not to make any distinction between upper and lower case text. To make searches case-sensitive again, use the LC command.
Case Sensitive	Esc,L,C	Specifies a case-sensitive search.

Set FN Key

Set FN Key is used to define function keys and other programmable keys. There are 57 immediate key slots ranging from 1 to 57. Any slot number can be redefined and any numbers within the range that do not appear here are not defined. See the special key mappings on page 12-15 for the default key definitions.

The following is the syntax for the Set FN Key command:

```
SF <slot number> /command string/
```

Define Ctrl+key combinations by substituting a caret (^) and the other character for the slot number.

Example Script

This example script assigns function keys to cursor control commands. You can also enter these as a series of extended mode commands. The Top of File, Bottom of File, End of Page, Next Page, Next Line, and Previous Line commands are assigned to the F1

through F6 keys, respectively. Quotation marks are used as delimiters.

```
SF 1 "t"
SF 2 "b"
SF 3 "ep"
SF 4 "pd"
SF 5 "n"
SF 6 "p"
```

Special Key Mappings

The following table shows the default key definitions used in the Reset Keys command:

Slot #	Key/Key Sequence	Function
1-10	F1 through F10	Not defined
11-20	Shift+F1 to Shift+F10	Not defined
21	Shift+left arrow	Move to beginning of line
22	Shift+right arrow	Move to end of line
23	Shift+up arrow	Move to top of document
24	Shift+down arrow	Move to bottom of document
25	Del	Delete character at cursor
26	Not defined	Not defined
27	Ctrl+A	Insert line
28	Ctrl+B	Delete line
29	Ctrl+C	Not defined
30	Ctrl+D	Move down 12 lines
31	Ctrl+E	Move to top or bottom of screen
32	Ctrl+F	Change case
33	Ctrl+G	Repeat last extended command line
34	Ctrl+H	Delete character left of cursor
35	Ctrl+I	Move cursor to next tab position
36	Ctrl+J	Not defined
37	Ctrl+K	Not defined

Slot #	Key/Key Sequence	Function
38	Ctrl+L	Not defined
39	Ctrl+M	Return
40	Ctrl+N	Not defined
41	Ctrl+O	Delete word or spaces
42	Ctrl+P	Not defined
43	Ctrl+Q	Not defined
44	Ctrl+R	Move to end of previous word
45	Ctrl+S	Not defined
46	Ctrl+T	Move to start of next word
47	Ctrl+U	Move up 12 lines
48	Ctrl+V	Redisplay window
49	Ctrl+W	Not defined
50	Ctrl+X	Not defined
51	Ctrl+Y	Delete to end of line
52	Ctrl+Z	Not defined
53	Ctrl+[	Esc (enter extended command mode)
54	Not defined	Not defined
55	Ctrl+]	Move to end or start of line, depending on cursor position
56	Not defined	Not defined
57	Not defined	Not defined

Command Menu

The following commands are for non-text oriented functions:

Extended Command...	Esc,C,M...	Enters extended command mode; equivalent to pressing Ctrl+[or Esc.
Repeat Last	Esc,R,E Ctrl+G	Attempts to repeats the last command.
Run File...	Esc,R,F...	Loads and executes a command file of extended mode commands.

ARexx Command...	Esc,R,X...	Runs the specified ARexx program.
Redisplay	Esc,V,W	Redraws the ED window and clears the status line; equivalent to pressing Ctrl+V.

Other ED Commands

There are also ED commands that do not appear in menus. These commands are listed here in functional groups. Use them in extended mode by entering the following key sequences:

Program Control

The following are program control commands:

Extend Margins	Esc,E,X	Extends the margins for the current line. Once you enter the EX command, ED ignores the right margin on the current line.
Status Line Message	Esc,S,M	Prints a given string on the status line.
Exit with Query	Esc,X,Q	Exits ED unless changes were made to the file. If changes have been made, the message **File has been changed—type Y to save and exit:** is displayed. Press any key (except Y) to abort the exit. XQ is equivalent to clicking the close gadget on the ED window.

Cursor Control

The following commands are used for controlling the cursor:

End Page	Esc,E,P	End of a page.
Previous	Esc,P	Start of the previous line.
Character Left	Esc,C,L	One place to the left.
Character Right	Esc,C,R	One place to the right.
Current End	Esc,C,E	End of the current line.
Current Start	Esc,C,S	Start of the current line.
Tab	Esc,T,B	Next tab position.

| Word Next | Esc,W,N | Start of the next word. |
| Word Previous | Esc,W,P | Space after previous word. |

Modifying Text

The following commands edit text on the screen:

Insert Before	Esc,I...	Inserts the specified string on the line before the cursor. Specify a new line's string after the I command to insert text before the current line containing the cursor.
Insert After	Esc,A...	Inserts the specified string on the line after the cursor. This command works in the same way as I, except that the string is inserted on a new line beneath the current cursor position.
Split	Esc,S Return	Splits the current line at the cursor position.
Join	Esc,J	Joins the next line to the end of the current line.
Delete	Esc,D Ctrl+B	Deletes the current line.
Delete Character	Esc,D,C Del	Deletes the character under the cursor.
Delete Left	Esc,D,L Backspace	Deletes the character to the left of the cursor.
Delete Word	Esc,D,W	Deletes to the end of the current word.
End Line	Esc,E,L	Deletes to the end of the current line.
Flip Case	Esc,F,C	Switches the case of the letters.
Set Tab	Esc,S,T...	Sets the tab stop. To change the current setting of tabs, use the ST command followed by a number.
Next	Esc,N	Start of the next line.

Repeating Commands in Extended Mode

Pressing Ctrl+G repeats a command line. You can set up and execute complex sets of editing commands many times.

You can repeat a command a specified number of times by entering the number before the command. For example:

    4 E/rename/copy

exchanges the next four occurrences of "rename" to "copy".

Use the RP (Repeat) extended command to repeat a command until ED returns an error, such as reaching the end of the file. For example:

    T;RP E/rename/copy/

moves the cursor to the top of the file, then exchanges all occurrences of "rename" with "copy". The T command (Top of File) changes all occurrences of Rename in the whole file. Otherwise, only the occurrences after the current cursor position are changed.

To execute command groups repeatedly, you can group the commands together in parentheses. You can also nest command groups. For example:

    RP (F/Workbench/;3A//)

inserts three blank lines (the null string //) after every line containing Workbench.

To interrupt any sequence of extended commands, press any key during execution. If an error occurs, ED abandons the command sequence.

Customizing ED

You can customize ED with commands that change the menus and function key setup. These commands can be entered individually within ED. They can also be saved as a script, such as S:Ed-startup, or as a file specified with the WITH argument. To execute the file from within ED, use the Run File (Esc,R,F) extended command. For information about changing the function keys, see page 12-14.

Set Menu Item   Esc,S,I   Defines the menu headings and items.
There are 120 menu item slots ranging from
0 to 119. The slot type identifies the
contents of the slot and is a number from 0 to
4. The 0 slot type must be the last defined
slot. Do not create a menu without items; if
you specify a menu heading, include menu
items after it. See page 12-20 for the syntax
of the Set Menu Item command and a table
of the slot types.

Enable Menu   Esc,E,M   Enables menus. You must follow the Set
Menu Item commands with EM to enable the
menu commands. See page 12-21 for an
example script using the Enable Menu
command.

Set Menu Item

The following is the syntax for the Set Menu Item command:

```
SI <slot number> <slot type> /string1/string2/
```

The following table shows the slot types and functions used with the
Set Menu Item command:

Type	Function	String Input
0	End of Menus	No arguments
1	Menu Heading	String1 = heading name
2	Menu Item	String1 = item name String2 = command string
3	Submenu Heading	String1 = heading name String2 = command string
4	Separator bar	No arguments

Example Script

The following is an example script using the Set Menu Item and
Enable Menu commands. Quotation marks are used as the
delimiters.

```
SI  0 1  "Project"
SI  1 2  "Open ... "  "op ? /Open file:/"
SI  2 2  "Save ... "  "sa"
SI  3 4
SI  4 2  "Quit!"  "q"
SI  5 1  "Move"
SI  6 2  "Top"  "t"
SI  7 2  "Bottom"  "b"
SI  8 0
EM
```

This script produces the menus illustrated in Figure 12-4:
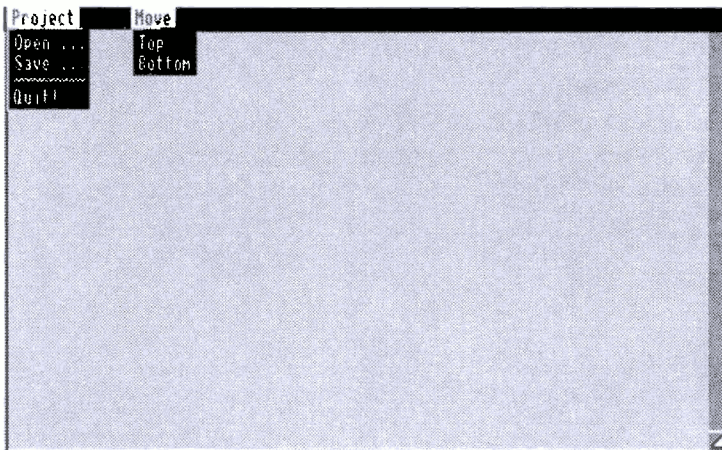
Figure 12-4. ED Custom Menu Example

Printing From ED

Use the following steps to print a file that is open in the current ED
window:

1. Choose the Save As menu item to display a file requester.

2.   Enter **prt:** in the Drawer field.

3.   Select OK.

This prints the file, but does not save it to disk. If you wish to save the file you must select the Save menu item or Save As and a file name. If you wish to print part of a file, mark that part as a block and create a separate file to print using the Write Block command.

Quitting ED

You can exit ED in one of the following three ways:

- Press Esc,X. This method exits ED and saves the current file to a designated file name that was specified when ED was opened.

- Press Esc,X,Q or click on the ED window's close gadget. This method exits ED if no changes were made to the file. If changes were made to the file, ED lets you save the changes or exit without saving.

- Press Esc,Q or select the Quit item in the Project menu. This method exits ED without saving any changes if you confirm the status line warning that changes will be lost.

Appendix A
Trouble Shooting

If you encounter problems while using the system software, the
following table describes how to resolve them:

Symptom	Possible Cause	Suggested Solution
Display is flickering; screen is not positioned properly.	The wrong display mode is selected or the overscan may be set incorrectly.	Open the ScreenMode editor in the Prefs drawer and select the appropriate display mode. If the screen display is totally indecipherable, you may have to reboot with a different Workbench disk.
A requester asks you to insert a particular volume into any drive.	The system cannot find the disk, partition, or assigned directory it is looking for. The disk containing the program may have been removed, renamed, or an ASSIGN was not made.	Check the volume name in the requester. If it is the name of a floppy disk you have removed, insert that disk. If you have mistyped a volume name in a requester or command, select Cancel, then enter the correct name. If the message appears while the Amiga is booting, you may need to add an ASSIGN statement to your User-startup file.

Symptom	Possible Cause	Suggested Solution
A requester states that there is not enough memory to load a program.	You have too many programs running and there is not enough RAM left to start another program.	Close any unnecessary windows and exit unnecessary programs.
You cannot move the pointer and keyboard input has no effect.	A program has crashed the Amiga. Keylock systems may have lock on.	Reboot. Turn key to enable position.
The screen goes blank and then a flashing red box appears stating an error, such as Not Enough Memory.	A program performed an illegal action that was serious enough to cause a system failure.	Press the left mouse button and the computer reboots.
A flashing amber box appears stating Recoverable Alert.	A program performed an illegal action that caused an error from which the system can recover.	Press the left mouse button.
Shortly after booting, a requester appears saying "Program <name> has not returned yet. Shall I wait some more?"	You started a program from the WBStartup drawer and Workbench is waiting for it to finish.	Select the requester's Cancel gadget. To prevent the appearance of this requester in the future, add the Tool Type DONOTWAIT in the program's information window.

Appendix B
Using Floppy-Only Systems

Working with floppy-based Amiga systems (those with no hard drive) differs compared to working with systems with hard drives. This appendix contains information for using a floppy-based Amiga under Release 3 of the Amiga system software.

Although you can use all features of your Amiga with one floppy drive, adding additional drives can make using your system easier. We recommend that you acquire a hard drive or external floppy drive as soon as possible. Adding RAM can also be effective for reducing the limitations of a floppy-only system.

Note   In this appendix the Amiga system software floppy disks are referred to without numeric extensions.

The following lists the basic tasks covered in this appendix:

- Booting the Amiga
- Making working copies of your system disks
- Rebooting from the Workbench working copy
- Copying information from your disks into memory
- Setting preferences
- Working faster on a floppy-based system

This appendix contains steps directing you to enter certain AmigaDOS commands. Familiarity with AmigaDOS is not necessary to use these commands; however, be sure to enter them as shown.

Booting Floppy-Based Systems

When a floppy-based Amiga is turned on, it looks for a bootable floppy disk in any floppy drive. This disk can be a copy of your Workbench disk or a bootable application disk.

If a bootable disk is not found, the Amiga displays an animated screen showing a disk being inserted into a drive. Inserting a bootable floppy disk into the drive causes the screen to go blank while the Amiga loads the necessary system information from the disk. If the Amiga needs information from other disks, insert them when prompted by requesters.

Booting from a Workbench floppy takes from 30 seconds to a minute, depending on your language and font settings. When the process is complete, you should see a screen similar to that illustrated in Figure B-1.
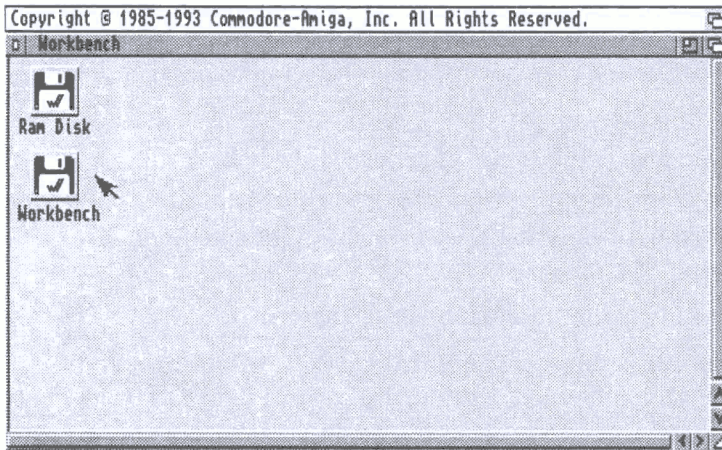
Figure B-1. Floppy System Workbench Screen

Using Different Languages

The Amiga's localization features allow you to select any of several languages for displaying Workbench menus, gadget labels, requesters, and other messages. However, selecting a language other than English requires you to load the text for that language from the Locale disk or Locale drawer found in the system floppy disk set whenever it is needed, which can lead to frequent disk swaps on floppy-only systems.

Boot Tasks

This section describes booting a floppy-based Amiga for the first time and setting your Preferences, including selecting a language other than English. Note that before alternate language settings are chosen and activated, the beginning portion of the system setup must be executed in English.

Booting for the First Time

Once your Amiga system is set up and connected according to the directions in this manual, allow thirty minutes to an hour to boot, make backup copies of your disks, and make all your Preferences settings. Most settings need to be made only once, but you may wish to spend additional time experimenting with some options.

1. Turn on your monitor.

2. Insert the Workbench disk into the Amiga's internal floppy drive.

3. Turn on the Amiga and wait for the Workbench screen to be displayed.

Copying Your System Disks

After booting and before any other operations, you must create working copies of your Amiga system software disks. You will need blank 3.5-inch floppy disks to make the copies, one for each system disk you received. Be sure to copy to disks of the same density as the original disks. Always use these copies when working with your

Amiga. Store the original Workbench disks in a safe place for future use if necessary.

If you have a second floppy drive:

1. Insert a blank disk in the second drive.

2. Drag the icon of the Workbench disk over the blank disk's icon (labeled **DF1:????**) and release the mouse button.

If you do not have an external floppy drive:

1. Select the Workbench disk icon.

2. Choose Copy from the Workbench Icons menu.

3. Select the Continue gadget on the displayed requester. A bar-graph display shows the progress of the copy.

4. When prompted, remove the Workbench disk and insert a blank, write-enabled disk into the floppy drive.

5. Repeat the disk copy process for every disk you received. After each disk copy is complete, a second disk icon appears on the screen with the prefix **Copy_of_** before the disk name. Use the Rename menu item to remove the prefix.

Label each of the copies clearly and write-protect all of them, except the Workbench copy. Write-protect the disk by sliding the tab in the corner so that the hole is uncovered and open.

Rebooting

Insert the Workbench copy into the internal drive and reboot the Amiga by pressing the Ctrl, left Amiga, and right Amiga keys at the same time and releasing them.

Copying Information From Your Disks

When you set your Preferences, the Amiga needs information from each of your system disks, normally requiring repeated disk swaps on floppy-based systems. The following procedure minimizes the amount

of disk swapping by copying information to the Workbench disk or to the Amiga's memory.

If you have two floppy drives and at least 2 MB of RAM, you can leave the Workbench disk in DF0: most of the time and use the second floppy drive (DF1:) for the other disks as they are needed.

1. Open the Ram Disk icon following rebooting.

2. Remove the Workbench disk and insert the disk containing the Storage drawer.

3. Open the Storage drawer or disk icon.

4. Open the Printers, Keymaps, and Monitors drawers in the Storage window.

5. Drag the icons for the printer drivers, keymaps, and monitor drivers that you intend to use from the Storage drawer's Printers, Keymaps, and Monitors windows to the Ram Disk window. Because there is limited space on the Workbench disk to which you are copying these files, select only the files you need. Close the Printers, Keymaps, Monitors, and Storage windows.

6. Remove the disk and insert the Workbench disk. Open the Workbench disk icon.

7. Open the Devs drawer.

8. Copy the printer driver icons into the Devs/Printers drawer by dragging them from the Ram Disk window on the Printers drawer icon.

9. Repeat for both the keymaps and the monitor drivers, copying them into DEVS:Keymaps and DEVS:Monitors, respectively.

10. Remove the Workbench disk from the drive and insert the Extras disk and open its disk icon.

11. Drag the Prefs drawer from the Extras window into the Ram Disk window.

12. When the Amiga finishes copying the Prefs drawer to the Ram Disk, remove the Extras disk and close its window.

13. Insert the Workbench disk.

Setting Preferences

To work in a language other than the default, English, you must first change the Preference settings for language, country, and keyboard type in the Locale and Input Prefs editors.

1. Open the Prefs drawer in the Ram Disk window.

2. Double-click on the Locale Preferences editor icon in the Prefs window. Insert the disk containing the Locale drawer when prompted.

3. Make your Locale settings. See Chapter 6 for directions on using this and the other Preferences editors.

4. When your Locale settings are made and the name of your chosen language appears at the top of the Preferred Languages list, select the Save gadget. The Workbench resets and displays the menus, requesters, and messages in the selected language.

5. Run each of the other Preferences editors similarly, saving your preferred settings for keyboard, display mode, printer driver, and so on. Insert system disks when prompted.

6. When all of your preferences are set, reboot the Amiga to clear the Ram Disk and activate the saved Preferences settings.

If you saved Preferences settings for Locale and Font, the Amiga must access information from the disks containing the Locale and Fonts drawers to boot. This requires several disk swaps, slowing the boot process. Canceling the requesters that ask for disks during booting causes the system to use the default settings: English/USA for language and country, Topaz 8 for system fonts.

Subsequent Preferences Editing

To make adjustments to your Preferences settings in future computing sessions, use the same method as described previously:

Two or more floppy drives:

1. Keep the Workbench disk in DF0:.

2. Insert the Extras disk in DF1:.

3. Load and run the editor from the Extras disk.

To make available additional selections for keyboard type, printer driver, or Workbench display mode, you must copy the appropriate keymap, driver, or monitor file from the Storage disk or drawer to the Workbench disk, as described in Steps 4 - 11 in the *Copying Information From Your Disks* section on page B-4.

Working Faster with Floppies

Disk swapping can be minimized by copying to your Workbench disk the information normally needed from other disks or by copying some information to the Ram Disk.

The following sections explain how to use AmigaDOS to minimize disk swapping and maximize your available work space with the following:

*   Making commands resident
*   Preloading resources
*   Removing files from your Workbench disk
*   Making directory assignments
*   Using the Ram Disk
*   Using RAD:
*   Using directory caching on floppy disks

You can enter the AmigaDOS commands shown using the Execute Command... menu item found in the Workbench menu or in a Shell window. Type in the command and press Return to enter it. If you are entering several commands, using the Shell is more convenient.

Making Commands Resident

The RESIDENT command allows you to load AmigaDOS commands into the Amiga's memory where they become immediately available when invoked. Resident commands are available without inserting the Workbench disk each time the command is used. AmigaDOS users with floppy-based systems are advised to make frequently-used commands resident for quick access and reduced disk swapping.

Since resident commands use RAM space, make resident only those commands you use most often. The more RAM in your system, the more commands you can make resident. Use the LIST command to show an approximation of the memory each command uses. For example, entering **LIST C:COPY** produces output similar to this:

```
Directory "Sys:C" on Monday 15-Jun-92
copy         5496 --p-rwed 03-Jun-92 17:22:02
```

The size of the file appears to the right of the file name. It shows that the COPY command uses approximately 5.5 KB of RAM if made resident.

Note   Only commands that have the p bit set can be made resident.

Recommendations

To conserve as much memory as possible for your applications, make resident only the AmigaDOS commands and programs that you use frequently and are not built into Workbench. These include ASSIGN, ED, STATUS, Format, and DiskCopy. If you have sufficient memory and you use AmigaDOS regularly, you can also make resident commands that have Workbench equivalents, such as COPY, DELETE, DIR, LIST, MAKEDIR, and RENAME.

Do not make resident commands that are not used often, such as the startup command ADDBUFFERS. The following commands cannot be made resident: ADDDATATYPE, BINDDRIVERS, IPREFS, LOADRESOURCE, LOADWB, and SETPATCH.

To make a command resident, include the full path to the command. For most AmigaDOS commands, which are stored in the C directory, the path is C:, as in the following:

```
RESIDENT C:ASSIGN
RESIDENT C:COPY
RESIDENT C:DELETE
RESIDENT C:DIR
RESIDENT C:ED
RESIDENT C:LIST
RESIDENT C:MAKEDIR
RESIDENT C:RENAME
```

```
RESIDENT  C:STATUS
RESIDENT  SYS:Utilities/MultiView
RESIDENT  SYS:System/DiskCopy
RESIDENT  SYS:System/Format
```

Making these commands resident uses approximately 89 KB of RAM. To have the commands available at all times, place the statements in S:User-startup as follows:

1. Enter the command **ED S:User-startup** in the Shell.

2. Type in the RESIDENT commands above as shown, each on a separate line.

3. Press Esc,X,Return.

Enter the command RESIDENT with no arguments to list the Internal and resident commands.

Preloading Resources

Preloading resources into free memory makes them available without inserting the floppy disk each time they are needed. Using the AmigaDOS LOADRESOURCE command, you can preload the following into RAM:

Libraries	Specify the path name to the library.
Devices	Specify the path name to the device; you cannot LOCK devices into memory.
Fonts	Specify the path name to the exact font file to be loaded.
Catalogs	Specify a path name that is relative to LOCALE:Catalogs/<language>.

Catalogs are the files that contain the system texts and messages translated to a different language.

To preload a library, use the following syntax:

```
LOADRESOURCE LIBS:libname.library
```

where **libname.library** is the name of the library you want to load into memory.

To preload a font, use the following syntax:

```
LOADRESOURCE FONTS:fontname/size
```

where **fontname** is the name and **size** is the point size of the font you want to load into memory.

To preload a catalog, use the following syntax:

```
LOADRESOURCE
LOCALE:Catalogs/Language/Sys/catname.catalog
```

where **Language** is a language name and **catname.catalog** is a catalog name, such as monitors.catalog.

Making Room on Your Workbench Disk

Copying printer drivers, fonts, and Preferences editors to your Workbench disk makes them readily available. However, a **Volume Workbench is full** requester can result if you try to copy too much to your Workbench disk. It is possible to delete files from the Workbench disk to make room for other files.

> **Caution**   **When working with your Workbench disk, use a backup copy of the original disk that came with your system. Your original Workbench disk should never be altered, in case you need to restore files or directories from it.**

Deleting any system software results in some limitation of your Amiga's capabilities and can potentially cause an error if an application attempts to use a file that was deleted. If you experience an unexpected requester or error, repeat the same operation using the original Workbench disk. If no error occurs, the application uses something that was deleted and it should be restored.

Document all changes that you make to your system disks. Adding a comment in the disk's User-startup file can remind you that you are working with a non-standard Workbench disk.

Files You Can Delete

• Delete files from your Workbench disk starting with the least critical files, such as the Clock program, and programs that do not apply to your system, such as C:MAGTAPE if you do not use a

tape drive and System/NoFastMem if you do not have any Fast ("other") memory.

- Delete the AmigaDOS text editor C:EDIT to free approximately 18 KB of disk space.
- If you do not need to use CrossDOS, delete DEVS:mfm.device, L:CrossDOSFileSystem, and L:FileSystem_Trans, to free approximately 33 KB.
- Deleting everything in Rexxc, in addition to System/RexxMast, System/RexxMast.info, LIBS:rexxsyslib.library, and LIBS:rexxsupport.library frees almost 50 KB of disk space. However, we do not recommend this since many Amiga applications use ARexx and must call upon these files.

Files to Avoid Deleting

Do not delete the following under any circumstances:

- Any directory normally found on the Workbench disk; delete only the files within directories
- DEVS:parallel.device
- DEVS:printer.device
- DEVS:serial.device
- LIBS:asl.library
- LIBS:commodities.library
- LIBS:diskfont.library
- LIBS:iffparse.library
- LIBS:locale.library (if your language and country are not English and united_states)
- S:Startup-sequence
- L:Port-handler
- Any non-Internal command that appears in the default Startup-sequence

Do not delete any file whose purpose you do not know. Do not delete more files than necessary to fit the new material you intend to add to the disk.

Using the ASSIGN Command

The AmigaDOS ASSIGN command is an important tool for the floppy-only user. It allows you to control where the Amiga looks for the commands and programs it needs. AmigaDOS uses certain standard assigned names to access the directories that contain specific types of files, such as fonts and language files. The assignments you are most likely to change are LOCALE:, FONTS:, LIBS:, and C:.

In some circumstances, such as when you want to prevent the Amiga from requesting another floppy disk, ASSIGN lets you direct AmigaDOS to somewhere other than the default location. For example, you can create a directory called Fonts on your Workbench disk, and copy your preferred fonts to it. When the name FONTS: is assigned to this directory, the Amiga looks there for its fonts, rather than requesting the Fonts disk or the system disk containing the Fonts drawer.

Placing FONTS: on Your Workbench Disk

If you select anything other than the default Topaz 8 or 9 font in the Font Preferences editor, you are asked to insert the Fonts disk or system software disk containing the Fonts drawer when booting so the Amiga can load the custom font. If there is enough room on your Workbench disk, you can copy the needed fonts to it, eliminating the need to insert the Fonts disk or drawer every time you boot.

Follow this procedure to copy a bitmap font such as Diamond or Helvetica to your Workbench disk:

1. Open the Ram Disk window.

2. Choose Show All Files from the Window menu.

3. Place your Fonts disk or disk containing the Fonts drawer in the internal drive and open its disk window.

4. Choose Show All Files from the Window menu. A variety of file and drawer icons appear in the Fonts window. You can ignore the file icons in the Fonts window.

5. Drag the drawer icon with the name of the font you want to use into the Ram Disk window.

6. When copying is complete, remove the Fonts disk or system software disk containing the Fonts drawer and insert the Workbench disk.

7. Open the Workbench disk window.

8. Choose New Drawer from the Window menu.

9. Give the new drawer the name Fonts in the Rename requester.

10. Drag the font drawer from the Ram Disk window to the new Fonts drawer.

11. When copying is complete, choose Execute Command... from the Workbench menu.

12. Enter the command **ASSIGN FONTS: SYS:Fonts** in the Execute Command requester.

13. Choose Execute Command... again.

14. Enter the command **FIXFONTS** in the requester.

On bootup, the system checks for a directory on the boot disk called Fonts and automatically assigns FONTS: there if it is found. The next time you boot, the Amiga looks there for the fonts you selected and does not request the Fonts disk or system software disk containing the Fonts drawer.

For access to more fonts than can fit on your Workbench disk, use an ASSIGN statement to add another disk or directory to the FONTS: assignment. To add a disk called FontDisk to the FONTS: assignment, enter the command **ASSIGN FONTS: FontDisk: ADD** at a Shell or Execute Command prompt or place it in your S:User-startup.

Using the Ram Disk

On a floppy-only system, using the Ram Disk (RAM:) reduces the amount of disk swapping required for floppy-to-floppy transfers.

For example, the most efficient way to copy information from one disk to another on a single-floppy system is to copy the information from the source floppy to the Ram Disk, then remove the source floppy, insert the destination disk, and copy the information to it from the

Ram Disk. This is illustrated in the *Copying Information From Your Disks* procedures on page B-4.

Using the Ram Disk can also speed work with groups of related files. You can load files into RAM: as a group, work with them individually while they are in RAM:, and then copy them back to the floppy disk as a group when the operation is finished.

Note   You cannot copy a disk to RAM: by dragging the source disk icon over the Ram Disk icon. To copy a disk to RAM:, open the Ram Disk icon and drag the floppy disk icon into the Ram Disk window to create a drawer with the name and contents of the floppy disk.

Recoverable Ram Disk

AmigaDOS provides a recoverable Ram Disk, which has the device name RAD:. The contents of RAD: survive reboots and most software failures, making it a safer place for work files. (Data in RAD: is still lost if the Amiga is turned off.)

RAD: is not automatically created. To activate a recoverable Ram Disk, double-click on the RAD icon in the Storage/DOSDrivers drawer of the Storage disk or system software disk containing the Storage drawer. To start RAD: whenever you boot, copy the RAD icon to the Devs/DOSDrivers drawer on the Workbench disk. When RAD: has been activated, a disk icon labeled RAM_0 appears on the Workbench screen.

Unlike RAM:, the size of RAD: is fixed. The size is set in the RAD: mount file's HighCyl parameter. A HighCyl entry of 79 results in a RAD: with the same capacity as a normal 880 KB floppy disk.

A Bootable RAD:

On an Amiga with more than 2 MB of RAM, you can create a floppy-size RAD:. By copying your Workbench files into this RAD: and re-assigning to it all the directories normally assigned to the Workbench disk, it can be used as a recoverable Workbench-in-RAM. This allows you to reboot from RAD: instead of from the Workbench disk.

You can also set up multiple RAD: devices of different sizes by copying the RAD: mount file and changing the name and unit number.

Using Directory Caching on Floppy Disks

Release 3 of AmigaDOS provides a directory cache option for disk formatting. Disks formatted with this option open their windows and perform most disk operations faster than regular disks. This is especially noticeable on floppy-based systems.

To format a disk with the directory cache option, select the Directory Cache gadget in the Format window. For best performance, also select the Fast File System gadget.

Directory Caching on System Disks

To use directory caching on your system disks, copy the contents of the disk to a disk you have formatted with the Directory Cache option. Do this the way you normally copy files and directories:

1. Open the system disk window.

2. Choose Show All Files and Select Contents from the Window menu.

3. Hold down Shift.

4. Drag all the selected icons to the destination disk.

This method, rather than a standard disk copy, is necessary to preserve the directory cache formatting of the destination disk.

The following apply when using directory caching on floppy disks:

- Disks formatted with directory caching hold slightly less than if formatted without directory caching. The exact capacity depends on the number of items on the disk.

  Before copying a full system disk to a directory caching floppy, you might need to delete something from the system disk to fit everything on the destination disk.

- Disks formatted with directory caching are not compatible with pre-Release 3 Amigas.

Appendix C
AmigaGuide

The Amiga Workbench supports a hypertext on-line help function that uses AmigaGuide files. These files are widely used in third-party applications; however, the Release 3 Workbench does not provide any AmigaGuide help about itself other than a help file for AmigaGuide. This appendix describes the following:

- Accessing AmigaGuide files
- Using AmigaGuide
- AmigaGuide menus

Accessing AmigaGuide

When you are running a program or application that uses AmigaGuide, there are three ways to access the AmigaGuide files:

- Pressing the Help button while the mouse pointer is over an item on the screen for which you need help.
- Selecting the Help menu item.
- Opening a .guide file in MultiView.

Figure C-1 illustrates an AmigaGuide Help file found in LOCALE:Help opened in MultiView.
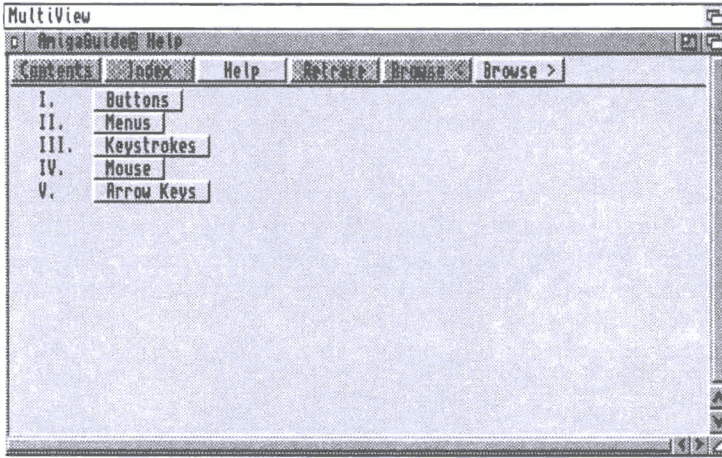
Figure C-1. Example AmigaGuide Help Screen

Using AmigaGuide

Use the buttons across the top of the AmigaGuide Help screen to move through the file.

Contents	Displays the contents of the AmigaGuide file. Click on a topic to display information about it.
Index	Display application-supplied index.
Help	Display either the system help or help supplied by an application.
Retrace	Pages backwards through opened screens. If you select Contents, selecting Retrace returns you to the last screen you had open.
Browse <	Pages backwards through text.
Browse >	Pages forward through text.

The AmigaGuide Help text contains terms that are highlighted as buttons. Clicking on these terms displays screens containing further Help information about them. Selecting Retrace after clicking on a highlighted term returns you to the screen from which it came.

AmigaGuide Menus

The AmigaGuide file contains the following menus:

Project Menu

The Project menu contains the following items:

Open	Opens a file requester.
Save As	Saves the current screen as text.
Print	Prints the current screen as text.
About	Shows the AmigaGuide release information and contents type of the current file.
Quit	Quits the AmigaGuide file.

Edit Menu

The Edit menu contains the following items:

Mark	Not available.
Copy	Copies current screen to the Clipboard as text.
Select All	Not available.
Clear Selected	Clears the selection of the block without copying or printing.

Window Menu

The Window menu contains the following items:

Use Separate Screen	Opens the AmigaGuide file on its own screen.
Minimize	Makes the window as small as it can be.
Normal	Sizes the window to the picture or contents size.
Maximize	Makes the window the same size as the screen.

Prefs Menu

The Prefs menu contains the following item:

Save As   Saves the size and position of the window for future use.
Defaults

Appendix D

Special Early Startup Control Options

This appendix describes the following special boot options in the Amiga Early Startup Control system:

- Disabling devices and processor caches for software compatibility
- Choosing display options for running games
- Diagnosing expansion board failures

The Amiga Early Startup Control Screen, illustrated in Figure D-1, allows you to select Boot Options, Display Options, or Expansion Board Diagnostics. Access the Amiga Early Startup Control Screen by turning on or rebooting your Amiga while holding down both mouse buttons. You can toggle between NTSC and PAL display modes by pressing any key on the keyboard.
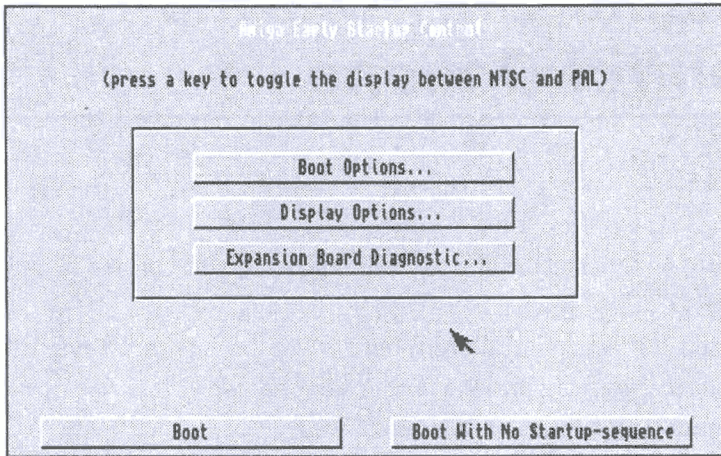
Figure D-1. Amiga Early Startup Control Screen

Exit the Amiga Early Startup Control screen by selecting the Boot
button for a normal system boot or the Boot with No Startup-
Sequence button to boot directly into an AmigaDOS Shell window.

Disabling Devices and Caches

The system software requires additional memory to support the
operation of each hard disk partition or floppy disk drive. The extra
memory that is used to maintain a hard disk or an extra floppy disk
drive can prevent some floppy-based games from running.

Selecting Boot Options from the Amiga Early Startup Control Screen
displays the Boot Options screen, illustrated in Figure D-2. This
screen lets you selectively disable your hard disk partitions and any
external floppy drives to leave more RAM for the programs to run.
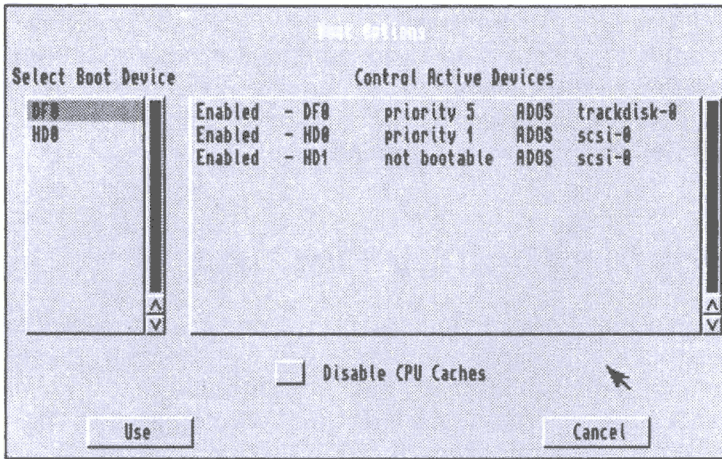
Figure D-2. Boot Options Screen

The Amiga displays a list of hard disk partitions and floppy drives in the Select Boot Device column. The devices in this column are listed in descending priority for the system to access when it boots. You can select any of them to override the priority.

The Control Active Devices column shows the status of the devices. Clicking on the status line toggles between Enabled and Disabled. If you are disabling hard drive devices in order to free memory for games, be sure to leave at least one bootable floppy drive enabled.

Note   If your system has more than one floppy drive and the game lets you use additional drives, you can leave those drives (DF1, DF2, and DF3) enabled in the Control Active Devices column on the Boot Options screen.

The Disable CPU Caches option disables the Data and Instruction caches on 68020, 68030, and 68040 series processors. This allows you to retain compatibility with certain software that does not run properly when CPU caches are on. You should not disable caches if you do not have compatibility problems since caches significantly increase system performance. This option has no effect on systems with a 68000 processor.

Selecting Use implements your boot device choices for the current
session only. When you reboot your Amiga, it returns to the same
configuration as it had before you changed it. Selecting Cancel on the
Boot Options screen cancels any changes you made and returns to the
Amiga Early Startup Control Screen.

Choosing Display Options

Selecting Display Options from the Amiga Early Startup Control
screen displays the Display Options screen, illustrated in Figure D-3.
This option is only available on Amigas with Enhanced Chip Set
(ECS) or Advanced Graphic Architecture (AGA) chip sets. The screen
lets you select the display type and chip set that your system uses.
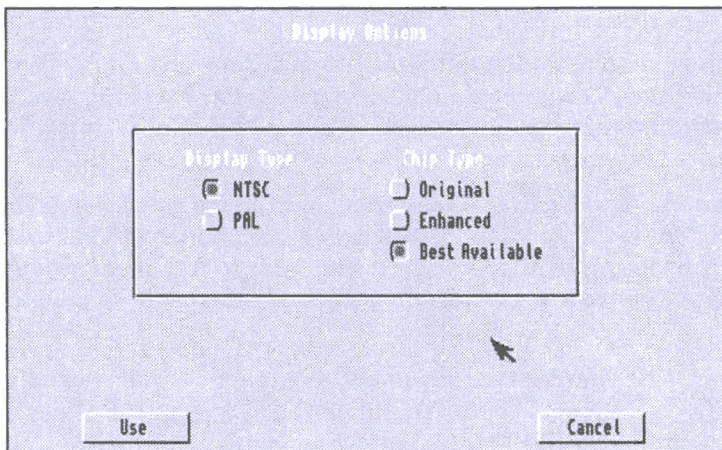
Figure D-3. Display Options Screen

Users with systems containing AGA chip sets can choose the Best
Available selection in which the system uses the AGA chip set. If a
game or application needs either the original chip set or the ECS chip
set you must select either one for the system to emulate. Users with
systems containing the ECS chip set can emulate the original chip set
if selected.

Diagnosing Expansion Board Failures

Selecting the Expansion Board Diagnostic option displays the Expansion Board Diagnostic screen, illustrated in Figure D-4. This screen lets you view information about and the status of expansion boards in your system. If one of your expansion boards fails, this screen is automatically displayed on boot up.
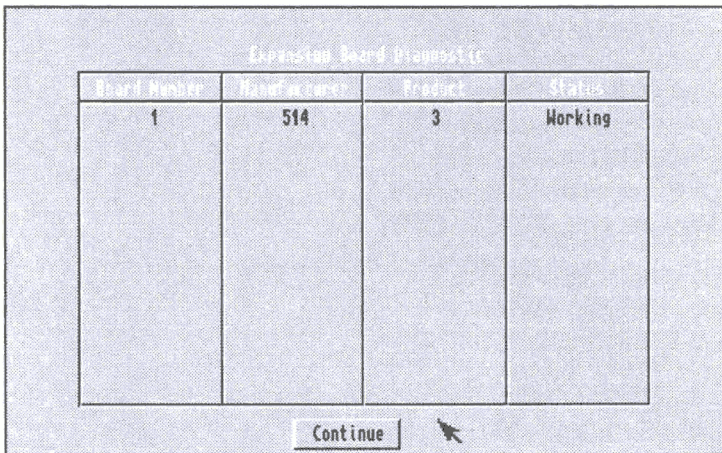
Figure D-4. Expansion Board Diagnostic Screen

Board Number	The number of the expansion board.
Manufacturer	The number of the maker of the board.
Product column	The manufacturer's product number for the board.
Status column	The status of the board: Working or Defective.

We recommend providing the manufacturer with this information when you contact them concerning a failed board.

Glossary

This glossary provides definitions of terms used in the Amiga manuals.

acceleration
    An option, selected through the Input editor, that causes the pointer movement to increase as the mouse is moved at a constant speed. Acceleration provides a higher degree of control for small mouse movements and less control, but greater mouse speed, for large movements.

action gadget
    A gadget in a window that performs an operation in the window when you select the gadget. Common action gadgets are Save, Continue, and Cancel.

active
    Used in reference to the screen, Shell window, or Workbench window that is accepting input..

Advanced Graphics Architecture (AGA)
    An Amiga custom chip set that delivers more displayable colors and improved performance.

alias
    An alternative name for an AmigaDOS command or command string, specified with the ALIAS command.

AmigaDOS
    The disk operating system (DOS) used by Amiga computers. A disk operating system provides the basic functions of the computer.

AppIcon
    An icon created and used by an application.

application

A program or collection of programs that perform a specific task, such as a word processor, database, or video title.

AppWindow

An application window into which you can drag an icon to load the icon file into the application. The MultiView window and Amiga file requester are AppWindows.

archive

1. (n) A backup copy of a file or files.

2. (v) To copy files to disk or tape for backup purposes.

argument

An additional piece of information, such as a file name, value, or option, included along with a command. This information determines the exact action of the command.

argument passing

Specifying parameters on the command line for a program or command to follow.

ASCII (American Standard Code for Information Interchange)

A standardized format for text that assigns code numbers to characters, allowing the exchange of information between different types of computers.

aspect ratio

The proportion of an image's height to its width.

assign

To link a logical device name to a directory name with the ASSIGN command. This lets programs that use that directory use a single device name in all cases. For example, the device name T: is commonly assigned to the directory name RAM:T.

attributes

A series of flags stored with every file. Attributes indicate file type and control the operations (read, write, delete, and so forth) permissible on the file. Also called protection bits.

autoscroll

To automatically move a screen when the pointer reaches the edges of the viewable area.

backdrop
> A special type of window that has no borders, is as large as the screen, and is always behind all other windows on the screen.

backup
> A copy of a file on disk or tape used to replace lost data.

back up
> To make a backup copy.

baud rate
> The speed at which a device receives or transmits information in serial communication. Roughly equivalent to bits per second.

binary
> The base-2 number system that uses only the digits 0 and 1.

bit
> A single binary digit (1 or 0).

bitplane
> An area of RAM that holds screen graphics data. Each bit in a bitplane controls one screen pixel. The number of bitplanes for a screen controls the maximum number of simultaneous colors possible for that screen.

block
> 1. A contiguous series of bytes (usually 512) treated as a single logical unit in RAM or permanent storage media.
>
> 2. A user-marked area of a text file.

boot
> To start the system by reading the information needed from a storage device, such as a floppy or hard disk, into the computer's memory. Also refers to items used in this process: the boot disk. (See reboot.)

bootable
> Refers to a device from which the Amiga can boot. A bootable disk must contain all the system files needed for the computer to start operation.

Bridgeboard
> An expansion board from Commodore that allows hardware emulation of PC-compatible computers.

brush
> An IFF graphics file, usually a section cut from a full-sized picture.

buffer
> A temporary storage area in RAM.

bug
> An error in software or hardware.

busy pointer
> An image of a stopwatch that appears in place of the normal pointer when the Workbench is busy and cannot accept further input. Also called the wait pointer.

byte
> A unit of memory consisting of eight bits, usually equivalent to one character.

cache memory
> A temporary area in memory with extremely fast access that improves the system performance.

catalog
> The files that contain the system texts and messages translated to a different language.

CD-ROM
> A read only storage media. Stores upward of 550 MB on a disk similar to an audio compact disc.

check box
> A gadget that lets you turn an option on or off. When a check mark appears in the box, the option is selected, or on.

chip
> A miniaturized electronic circuit, housed in a small, black, rectangular block edged by metal connector pins. A computer is made up of a variety of specialized chips.

Chip RAM

> The area of RAM accessible to the Amiga's custom chip set. This memory is used for graphics and sound data. Also called graphics memory.

clear

> 1. To change a bit or flag to its 0, off, or disabled state. Opposite of set.

> 2. To erase a screen or window display.

CLI (Command Line Interface)

> A means of communicating with a computer by issuing commands from the keyboard. The Shell is the Amiga's CLI.

click

> To press and release a mouse button. Refers to the selection (left) mouse button unless otherwise specified.

Clipboard

> An area in memory that is used to store text and graphics while they are being transferred between programs.

close

> To remove a window from the screen, to end a program, or to finish the access to a data file.

close gadget

> A gadget that can appear in the upper left corner of a window to allow you to close the window.

cold boot

> To boot the Amiga from a powered off state.

color correction

> A printing option, selected through the PrinterGfx editor, that tries to better match the colors of a printout to the colors on the screen.

command

> A statement given to the Amiga to perform a task or achieve a result.

command history
> A feature of the Shell that allows you to recall previously entered command lines by using the cursor keys.

command line
> The line on which commands and their arguments are typed. Also, all the information that has been typed on the line.

console window
> A window used for the input and output of text, such as a Shell window.

Control-key combination
> A key combination that performs a special function, entered by holding down Ctrl while pressing another key on the keyboard. Some Control-key combinations are executed as soon as they are pressed, such as when Ctrl+C is used to abort the execution of an AmigaDOS command. Some produce a reversed character image and have no immediate effect.

coprocessor
> A separate processor chip that assists the CPU by performing specific tasks, such as mathematical computations or rapid data transfer.

copy and paste
> The act of copying a block of text or graphics and inserting it at a new location.

CPU (Central Processing Unit)
> The "brain" of a computer; the integrated circuit chip primarily responsible for executing the instructions in a program.

current directory
> The current location in the directory structure. The directory AmigaDOS uses as the default directory to operate within, if no other directory is specified.

current window
> The highlighted window that accepts input from the keyboard. A Shell window is current when it is opened.

cursor
   A highlighted rectangle or vertical bar on the screen used to indicate text position.

cycle gadget
   A gadget for selecting one of several options. One option is displayed at a time and as the gadget is selected, the other options become visible. The displayed option is the selected option.

cylinder
   A logical division of a magnetic storage disk. Amiga 3.5 inch floppy disks are divided into 80 cylinders during the formatting process.

data
   A collection of information.

dead key
   A key, or key combination, that modifies the output of the next key to be pressed. For example, on an American keyboard, Alt+H superimposes a caret (^) symbol over the next key to be pressed. Alt+H is a dead key combination.

debug
   To find and fix mistakes in software or hardware.

default
   A value or action assumed if you have not specified something else.

Default Tool
   A tool specified in a project icon's Information window. When the project icon is opened, the Default Tool is automatically loaded and run.

delete
   To erase or discard a file, buffer, or other stored item.

delimiter
   A special character marking the beginning and end of a string.

density
> The number of printer dots per inch. Many printers support several print densities. Usually, the higher the density, the darker and sharper the printout.

depth gadget
> A gadget that may appear in the upper right corner of a window or screen for moving that window or screen in front of or behind other windows or screens. This is sometimes referred to as depth arranging.

destination
> The device, directory, or file that is receiving information.

device
> A physical mechanism, such as a printer or disk drive, or a software entity (logical device), such as CON: or NIL:, used as a source or destination for information.

device name
> A short name, such as DF0:, PC1:, or PRT:, that identifies a particular hardware or software device. Device names must end in a colon (:).

directory
> A subdivision in a computer's filing system used to organize files and other directories (subdirectories). Directories are represented on the Workbench by drawer icons.

disk
> A medium for mass storage of computer data. Most computer disks store information magnetically; optical (laser-read) disks are also used.

disk drive
> A storage device that reads and writes data from and to a storage disk, such as a floppy disk.

disk operating system (DOS)
> The software that controls the basic input and storage functions of a computer.

display box
> A rectangular box, usually under a scroll gadget or next to a selection gadget, that displays the current selection. You cannot edit a display box.

display mode
> A name given to the set of parameters, such as resolution and scan frequency, that define a screen. For example, a High Res display mode is 640 pixels wide and 200 pixels high (for NTSC Amigas).

dithering
> 1. Creating smoother color or grey-scale shading of screen or printed displays by alternating pixel color or density. The PrinterGfx and PrinterPS Preferences editors provides several settings for automatic dithering of printed graphics.

> 2. Creating the illusion of a color by using a pattern of other colors. For example, creating the illusion of purple by alternating pixels of red and blue.

double-click
> To quickly press and release the selection button twice.

drag
> To move an icon, window, gadget, or screen across the display by pointing to the object, holding down the selection button, and moving the mouse.

drag selection
> The process of selecting several icons at once by holding down the selection button and using the mouse to draw a box around the icons you want to select. When you release the mouse button, all the icons in the box are selected.

drawer
> A subdivision of a disk storage area. A drawer corresponds to an AmigaDOS directory.

drive name
> The device name assigned to a disk drive, such as DF0: or DH1:.

dump
> A printout of the image displayed on the screen.

ECS (Enhanced Chip Set)
>   The upgraded versions of the Amiga's Agnus and Denise
>   coprocessor chips. The Enhanced Chip Set offers additional
>   display modes (ECS modes) and expands previous graphics
>   capabilities. Many of the benefits of the ECS are available only in
>   conjunction with Release 2 or higher of the operating system.

editor
>   A program that lets you create and/or modify certain types of
>   files. The Amiga provides Preferences editors to change Prefs
>   settings and the text editors, MEmacs and ED, for changing text
>   files.

escape sequence
>   A sequence of characters, beginning with the Escape character,
>   that performs a special function when entered on a command line
>   or printed as part of a string. Escape sequences are typically used
>   to alter the style of type used by a printer or in a console window.

execute
>   To carry out the instructions in a command line, program, or
>   script.

extended selection
>   The process of selecting several icons at once by holding down
>   Shift while selecting each icon with the mouse.

extension
>   A sequence of characters beginning with a period, such as .info,
>   added to the end of a filename to identify the type of file.

Extra Halfbrite
>   A special graphics mode that doubles the number of colors on the
>   screen by duplicating existing colors at half their brightness.

Fast RAM
>   General memory used by programs and data. As the name
>   implies, normally faster than Chip RAM.

field
>   The screen area behind the text of a Workbench icon label. The
>   color of the field can be changed with the Font editor.

file
> An organized collection of data referred to by a name and stored on some type of media.

file system
> The organization and software that controls the data, files, and directories stored on a volume. The primary types of Amiga file systems are FFS (FastFileSystem) and OFS (OldFileSystem).

floppy disk
> A removable magnetic storage medium. The Amiga uses 3.5 inch, double-sided, floppy disks in a rigid plastic case.

font
> Also called typeface. A particular design of a set of letters, symbols, and numbers used for text display, such as Topaz and Helvetica. Fonts are usually available in several sizes, defined in points (10 point, 12 point, and so on).

format
> 1. To prepare a disk for use with the Amiga. Formatting a disk erases all previously stored data.
>
> 2. A way of describing the proper syntax for AmigaDOS commands.

fragmentation
> A scattered distribution of data on a disk or in memory. Disk fragmentation results in slower disk performance; memory fragmentation can prevent some programs from running properly.

function keys
> Keys at the top of the Amiga keyboard, labeled F1 to F10, that can be programmed to perform special tasks.

gadget
> Any of various programmed graphic images that may appear in a window, requester, or screen and can be manipulated with the mouse to perform a certain function. Each gadget is of a specific type and performs a specific action. Most gadgets appear raised and when selected, appear to sink into the screen.

genlock
> A piece of hardware that allows Amiga graphics to be overlaid onto another video source, for example, from a camera or VCR. A

genlock is typically used for applying titles or captions to video media.

ghosting
Displaying menu or gadget items on the screen less distinctly than normal to indicate that they are currently unavailable.

graphics memory
See Chip RAM.

GUI (Graphical User Interface)
A visually-oriented system allowing you to tell a computer what to do by manipulating graphic symbols rather than by typing in commands. The Workbench is the Amiga GUI.

HAM (Hold And Modify)
An Amiga graphics mode that allows the full Amiga color palette to be displayed on the screen.

handshaking
The electronic protocol required for serial communication between two computing devices.

hard disk
A high-speed, large-capacity mass-storage device from which the disks usually cannot be removed. Often called a hard drive or hard disk drive.

hierarchical
A term used to describe the multi-leveled AmigaDOS file structure in which directories can contain other directories and/or files.

history buffer
A section of memory that stores the most recent commands for a given Shell.

hold down
To continually press a mouse button until instructed to release it.

hot key
A key or key combination used by Commodity Exchange programs to open a hidden window.

hot spot

The pixel in a pointer, normally the tip of an arrow or the center of a crosshair, that must be touching an object on the screen to select it.

icon

An image appearing on the screen to represent a disk, drawer, project or tool. Icons can be moved and selected with the mouse to allow you to work with the items they represent.

IFF (Interchange File Format)

The standardized format in which the Amiga stores picture, sound, and other types of data.

.info file

A file containing the image and position data for an icon (referred to as "dot-info").

initialize

A synonym for format.

input buffer

An area of memory used during serial communication to hold incoming information.

interlace

A property of some Amiga display modes that doubles the vertical screen resolution.

Internal

Refers to an AmigaDOS command that is built into the Shell, rather than loaded from disk.

KB (Kilobyte)

1024 bytes. Often abbreviated as K.

keyboard shortcut

A method for performing a mouse action by pressing a key or key combination.

keymap

A file that determines the arrangement of characters on the keyboard and determines the meaning of each key. Different languages have different keymaps.

keyword
> A word recognized by an AmigaDOS command or a Tool Type entry as identifying an argument or specifying an option.

Kickstart
> Refers to the portion of the Amiga operating system that is in ROM.

library
> An integrated set of functions and data that can be used by different programs. Libraries can be found in ROM and in the LIBS: drawer.

macro
> A single command that represents a sequence of commands. Many editors and applications support the use of macros to facilitate commonly used command sequences. ARexx programs are often called macros.

MB (Megabyte)
> 1024KB (1,048,576 bytes). Often abbreviated as M or Meg.

memory
> The Amiga's internal storage circuitry that holds programs and data. The Amiga has Chip (graphics) memory, Fast (normal) memory, and ROM (Read Only Memory). The amount of RAM (Random Access Memory) limits the size and number of programs that can be operating within the Amiga at one time.

menu
> A list of on-screen options, displayed by using the menu button, from which you can choose commands that control a program.

menu bar
> The list of headings that appears across the top of the screen when the menu button is held down.

menu button
> The right mouse button.

menu item
> An option that appears in a menu. For example, New Drawer is the first menu item in the Workbench's Window menu.

modem
> A device allowing serial communication over telephone lines.

monitor
> A video display terminal on which a computer's visual output is shown. There are many types of monitors; the Amiga's standard output uses an analog RGB color monitor to display both graphics and text.

mouse
> The device used to move the pointer on the screen and to communicate with the Amiga. Its buttons can be used for displaying menus, and for selecting and dragging icons, windows and screens.

multiscan
> A type of video monitor than can accept several different scan rates (types of video output).

multitasking
> The ability to perform more than one operation, or task, at a time. The Amiga's multitasking operating system can have several independent programs running at once. For instance, you could simultaneously be displaying an animation, playing a sound file, communicating with another computer, and formatting a floppy disk.

nonproportional font
> A font, such as Topaz, in which each character takes up an equal amount of space. For example, an uppercase W is allotted the same amount of space as a lowercase l. Also called a monospaced font.

offset
> To shift or move over.

open

To make the selected object available for use. Open an icon by double-clicking on it or by selecting it then choosing the Open menu item from the Icons menu. When you open a disk or drawer icon, a window appears, displaying its contents. When you open a project or tool icon, a program is started.

operating system (OS)

Software, in ROM or supplied on floppy or hard disk, that controls the basic functions of a computer.

overscan area

The normally unused area surrounding a standard-size screen. The Overscan editor allows you to expand your screen to fill this area.

overwrite

To write information to memory, a file, or disk, replacing any information that previously was stored there.

parallel

An interface port that transfers data one complete byte (8 bits) at a time, contrasted to a serial interface that sends a single bit at a time. The Amiga has an external parallel port to which a printer can be connected.

parent

The window from which another window was generated. The directory that contains the current directory or drawer.

parity

A method of detecting errors in serial communication by attaching an extra bit to bytes of data.

partition

A section of the hard disk that the system treats as if it were a separate drive.

path

The series of volume and drawer names that define the location of a file.

pattern matching

An AmigaDOS feature that lets you specify file and directory names by using wildcard characters. With wildcards, you can create search patterns that allow you to refer to a number of files whose names share a common text pattern without naming each file individually.

peripheral

An external hardware device connected to the Amiga.

pitch

The number of characters printed in a horizontal inch.

pixel

The dots of light that make up the Amiga screen display. A pixel is the smallest unit of display information on a given screen. Derived from "Picture Element".

point

1.(v) To place the mouse pointer so that its hot spot is touching the object pointed to.

2.(n) The unit of measurement of vertical font size. Traditionally this is 1/72 of an inch; on the Amiga it means one screen pixel.

pointer

An image on the screen, usually arrow-shaped, that moves as you move the mouse. Use the pointer to select icons and gadgets and to choose menu items.

PostScript printer

A high-resolution printer that can accept text and graphics information in the PostScript page description language.

Preferences (Prefs)

A Workbench drawer containing editors that let you configure and customize your Amiga environment, such as changing the colors of your screen and setting the specifications for communication through the serial port.

printer driver
> A program that enables the Amiga to communicate with a given printer. A printer driver works as a translator between a computer and a printer, taking the information in a standardized form (ASCII characters and ANSI escape sequences) from the computer and presenting it to the printer in a format that the printer can understand.

program
> A series of instructions that tell the Amiga how to perform certain tasks. Applications and system software are programs.

project
> A file in which information created or used by a tool is stored. For example, files created with a text editor or paint program are projects.

prompt
> A message or symbol that indicates that text input to the computer is expected.

protection bits
> (See attributes.)

pseudo-icon
> An icon that is displayed for an object that does not have a .info file when the Show All Files menu item is chosen.

pure
> Describes a command or program that can be made resident. If a file is pure, the p attribute is set.

qualifier
> A key, such as Shift, Ctrl, or Alt, that changes the Amiga's interpretation of a simultaneous or subsequent keystroke or mouse click. Commonly used with Commodity Exchange programs.

radio button
> A circular gadget beside an option on a list. To select an option, select its radio button. You can only select one option from the list at a time.

RAM (Random Access Memory)
> Part of the Amiga's internal memory that can be used for data storage and is directly accessible by the CPU. Applications are loaded into RAM from disk and use additional RAM to process and store data while the computer is on. Data in RAM is lost when the Amiga is rebooted or powered off.

Ram Disk
> A section of RAM set aside to function as if it were a disk drive. This is much faster than a physical drive, since there are no mechanical elements.

read
> To retrieve stored information.

Read Only
> If disk status is Read Only, you can only look at the contents of the disk, you cannot alter them.

Read/Write
> If disk status is Read/Write, you can both look at and alter the contents of the disk.

reboot
> To reset the Amiga by pressing Ctrl, left Amiga, and right Amiga. This is roughly equivalent to turning the power off, then on again. Memory is reset. Also called warm boot.

redirect
> To change the source or destination of a command's input or output from the default by using the special characters < or >.

requester
> A window that appears when the system needs a response from you. A requester contains action gadgets that give you a choice of continuing or aborting the operation in progress. To exit the requester, you must select one of the displayed gadgets.

resident
> Describes a command or program that has been copied into memory, with the RESIDENT command, for quicker execution. Resident commands are specially set up to prevent reloading on subsequent executions. Only pure files can be made resident.

resolution

The dimensions, in pixels, associated with a particular display mode. For example, a normal NTSC High Res screen has a resolution of 640 (horizontal) by 200 (vertical) pixels.

RGB (Red-Green-Blue)

A type of video signal in which the three primary color signals are sent separately. Standard Amiga output uses an RGB monitor.

ROM (Read Only Memory)

Permanent memory that is pre-programmed with system instructions and does not change. The contents of ROM are not affected by user commands or program operation.

root block

The area of a disk that contains the name of the disk and information pertaining to the disk layout. If the root block is erased, you cannot retrieve any information from the disk -- it is effectively blank.

root directory

The main directory on a volume. The root directory is at the top of the filing hierarchy and is created when a volume is formatted. All other directories on the volume exist within the root. The root directory is specified by the volume name followed by a colon.

scaling

Changing the size of an image or font for printing or display. Usually, a screen image is scaled down to a smaller size for printing, but you can also enlarge, or scale up, an image.

screen

An area of the display that has certain graphical attributes, such as resolution and colors. Screens are always at least the full width of the viewable area. The Amiga can have several screens with different attributes open and visible at once.

script
A text file containing a series of commands that can be automatically executed to perform a complex or repetitive task. An example of a script is the Startup-sequence file executed when you boot your Amiga.

scroll
To move through the viewing area of a window or list.

scroll arrows
Gadgets that may appear in a window to allow you to move the viewing area continuously.

scroll bar
The highlighted area within the scroll box that can be dragged to display the hidden contents of a window. It changes in size to indicate the portion of the window that is currently visible.

scroll box
The shaded area within which the scroll bar can be dragged. You can click in the scroll box to move the scroll bar.

scroll gadget
A gadget that can appear in a window to let you move through a list of options or through the viewing area of a window. A scroll gadget is made up of the scroll bar, scroll box, and scroll arrows.

scrolling list
The options that appear inside a scroll gadget. If the list is too long to be displayed in the scroll gadget, you can use the scroll bar or scroll arrows to move (scroll) through the list.

search path
The list of directories that AmigaDOS uses when it is looking for a command. Directories are added or removed from the search path with the PATH command.

select
To choose an item to work with by pointing to it with the mouse, then clicking the selection button.

selection button
The left mouse button.

selection gadget

A gadget from which you can choose one of several displayed options, often used for colors.

serial

An interface port that transfers data a single bit at a time, contrasted to a parallel interface which sends one complete byte (eight bits) at a time. The Amiga has an external serial port to which a modem, MIDI interface, or printer is often connected.

set

To change a bit or flag to its on or enabled state. Opposite of clear.

Shell

The command line interface used to send typed commands to the Amiga. The Shell is a console window that supports many special features, such as command-line history, aliases, and copy and paste operations.

sizing gadget

A gadget that can appear in the lower right corner of a window to allow you to enlarge or shrink the size of the window.

slider gadget

A gadget from which you can select a value by dragging a bar through the gadget. As you move the slider bar, different values are displayed.

slider value

A number that appears next to a slider gadget to indicate the currently selected value.

smoothing

A printing option available in the PrinterGfx editor that attempts to eliminate, or smooth, jagged lines that can sometimes appear in printouts.

snapshot

To save the positions of a window and/or the icons within it.

source
A device, drawer, or file that is supplying information. For example, when you copy a disk, the disk you are copying is the source disk.

stack
A special area of RAM reserved by a program for temporary storage.

Startup-sequence
An AmigaDOS script file, executed when the Amiga is booted, that helps set up the hardware and directory systems.

stop bits
Extra bits added to signal the end of a character, used during serial communication.

string
A piece of text treated as a single unit.

subdirectory
A directory that is within another directory; equivalent to a drawer within a drawer.

submenu
A secondary menu that appears when some menu items are highlighted. If a menu item has a submenu, a » symbol appears to the right of the menu item.

swap
To alternately place different floppy disks into the same drive, as when performing a single-drive disk copy.

SYS:
The name assigned to the volume that the Amiga searches for its system files and directories. Usually the volume booted from.

text gadget
A rectangular box in which you can type information, such as a filename or command. Text gadgets are used by the Rename and Execute Command menu items, as well as many programs.

threshold
 A PrinterGfx value related to color intensity. It determines which colors are printed as black and which are printed as white during black-and-white printing.

timestamp
 The date and time associated with a file or directory. This is usually the date and time when the file or directory was created or last modified.

title bar
 The top border of a screen or window, which commonly displays the name of the screen or window.

toggle
 An option that can be switched between two states, such as on and off.

tool
 A program that creates or uses data, such as a text editor or paint program.

Tool Type
 An optional parameter that you can enter in an icon's Information window to control a program. For example, if you enter the SECONDS Tool Type in the Clock's Information window, the Clock displays the seconds when it is opened.

Trashcan
 A directory for storing files that you want to delete.

type ahead
 A feature of the Shell that lets you enter commands as a previous command's output is being displayed.

User-startup
 A user-created file containing specific system settings that are read and executed during the system startup sequence.

volume
 A mounted storage unit, such as a floppy disk or hard disk partition.

volume name

The name of a volume, as distinguished from its device name. Renaming a disk changes its volume name, not its device name.

wildcard

A symbol used in pattern matching to represent a range of possible values, such as when specifying filenames that all start or end with the same character. The question mark (?), for example, is used as a wildcard to match any single character.

window

A rectangular screen area that can accept or display information. A window has a title bar identifying it and may contain gadgets in its border.

Workbench

The Amiga's icon-based, graphical user interface.

write

To record data in memory or on a storage medium such as a floppy disk.

write-enable

To allow information to be written onto a storage device. When a floppy disk is write-enabled or Read/Write, a small, plastic tab is covering the hole in the corner of the disk.

write-protect

To prevent information from being written onto a storage device. Floppy disks have a plastic tab that can be moved to write-protect the entire disk, making it Read-Only. Also called write-inhibit.

zoom gadget

A gadget that may appear in the upper right corner of a window to allow the window to alternate between two sizes.

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