LightningScan® GS

Setup and Scanning Guide

LightningScan® GS

Setup and Scanning Guide

Acknowledgements

Electronics: Vic Bull and Tom Mathews; Software: Tom Mathews, Doug Penney and Tom Petrie; **Mechanics**: Bruce Kirwan; **Coordination**: Brian Smith; **User's Guide**: John McGuire; **Support**: Phil Bennett and Scott Smallwood; **Mousing**: Sam the Cat.

FCC ID: BR5 GSHSØ1

Certified to comply with Class B limits, FCC Rules Part 15. See the next section if interference to radio reception is suspected.

FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference with radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient or relocate the receiving antenna,
- relocate the computer with respect to the receiver,
- plug the equipment into an outlet on a circuit different from that to which the receiver is powered.
- move the computer away from the receiver,
- if necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

Caution: Only equipment certified to comply with Class B (computer input/output devices, terminals, printers, etc.) should be attached to this equipment, and must have shielded interface cables. Finally, any changes or modifications to the equipment by the user not expressly approved by the grantee or manufacturer could void the users authority to operate such equipment.

Copyright

Table of Contents

Chapter One — Before You Begin

About LightningScan GS

LightningScan GS, the hand-held scanner from Thunderware, was created specifically for use on any Apple IIGS with at least 512K of memory. LightningScan allows you to scan images from nearly any flat surface. You can create scanned images from all sorts of materials: photographs, drawings, illustrations, logos, maps, sketches, halftones, handwriting, clothing, wallpaper, tile and other flat surfaces.

Scanning is the process that puts an image into the Apple IIGS. By rolling the scanner across a surface, the image is translated into a series of dots. This process is called **digitizing**. The pattern of dots used to represent different shades is called a **dither**. LightningScan has three dither settings as well as a setting for line art (images that are black and white and have no grays). Because LightningScan is hand-held, you can use it to create unusual special effects. After you have scanned an image, you can use brightness and contrast controls to fine-tune an image. Once you have your image "picture perfect", you can save it in a variety of formats.

About the Software

There are three applications and GS/OS included on a single 3-1/2 inch disk.

- **LightningScan GS** is the program that lets you scan and save images. It also gives you control over the contrast and brightness of your images.
- **ThunderScan GS** lets you open files, colorize images, print, and tile print.
- **ThunderScan** also lets you open files, colorize images and print. You can also use ThunderScan to change images into High and Double Res images and has a special *print grays* option.

How To Use This Guide

This guide shows you how to install the peripheral card and connect the scanner to your Apple IIGS. It has a lesson to teach you how to scan and save your images. The different scanning options available with LightningScan GS are also explained.

This guide assumes that you are familiar with your Apple IIGS. You should know how to use the mouse, open applications and documents, do simple editing, and use the Finder. For more information, please refer to your *Apple IIGS User's Guide*.

This guide is divided into six chapters:

- This chapter will help you make the best use of your equipment.
- Chapter Two, *Installing LightningScan*, shows you how to install the peripheral card and connect the scanner to your computer.
- Chapter Three, *Learning LightningScan*, explains how to scan and save your images.
- Chapter Four, *Using ThunderScan GS*, explains how to use the ThunderScan GS application to open images, how to use the filter and histogram controls to change an image, and how to print.
- Chapter Five, *Using ThunderScan*, explains how to use the ThunderScan application to open images, how to switch displays, and how to use the filter and histogram controls to change an image, and how to print.
- The final chapter, *Troubleshooting and Maintenance*, gives advice about typical problems, maintenance, and storing the scanner.

Making a Working Copy of the Software

Before you start using your scanner, you'll want to use a utility program to make a working copy of your original disk. If something happens to the working disk, you still have the original disk to make another working copy. Once you have made a working copy, store the original disk in a safe place. If you are not using a hard disk, you should also have some formatted disks ready to store your scanned images. Image files can be quite large, so be sure to have plenty of disk space before scanning.

Making the Best Use of Your System

LightningScan GS stores images in memory (RAM). The more memory there is, the larger the area you will be able to scan. The following suggestions will help you free up additional memory.

- Turn off the RAM **Disk** and **RAM Cache** in the **Control Panel.**
- Turn off your Apple IIGS after making these changes and restart.

Setting Up Your System

The programs come on a disk and are ready to use, but you may need to move files around to customize them for the equipment you have:

- If you have a megabyte or more of memory, you should boot (that is, startup your computer) with GS/OS version 5.0.2 (included on the LightningScan GS disk).
- If you have less than a megabyte of memory, you should boot with ProDOS 16 instead of GS/OS. You'll be able to scan longer images at higher resolutions with ProDOS 16 because it requires less RAM to run than GS/OS. ProDOS 16 is not included on the LightningScan GS program disk, but is available from Thunderware at no charge. If you'd like Thunderware to send a ProDOS 16 version of the LightningScan GS disk, return your original LightningScan GS disk to Thunderware (be sure to make a copy for yourself first!). Include a note with the disk requesting the ProDOS 16 version.

Using LightningScan GS on a Hard Disk

If you have a hard disk, you'll want to copy the file **LightningScanGS** from your working disk to your hard disk. To use the ThunderScan and ThunderScan GS programs included with LightningScan GS, you'll also want to copy the folders **ThunderScan** and **ThunderScan.GS** onto your hard disk.

Chapter Two — Installing LightningScan

The Components of LightningScan GS

Installing the scanner in your Apple IIGS is easy. All you'll need is a Phillips screwdriver and these parts from the package:

- The **scanner**, the device that transfers your images from paper into your Apple.
- The **peripheral card**, the circuit board that transfers the data from the scanner to the computer. The peripheral card is connected to a **connector card** with a **ribbon cable**. The connector card connects the scanner to the peripheral card.
- **SnapGuide™**, a plastic guide that attaches to the scanner to help you scan straight.
- The **rule**, a 13 inch (33 cm) straight edge that is used with SnapGuide.
- The **tutorial image** (mask), for learning how to scan.
- This **user's guide**.

Figure 2-1
The components of LightningScan GS.

Once you've unpacked everything, store the box in a safe place. Use the box when you need to transport your scanner.

Safety Precautions

The scanner and peripheral card are sensitive electronic devices which can be damaged or cause harm if abused. They are not meant to be dropped, hit, or exposed to moisture. Improper installation or negligence may result in damage to the peripheral card, scanner, computer and/or other peripherals.

Like most computer products, the peripheral card and scanner are sensitive to static electricity. Be sure to discharge static by touching a grounded metal object before installing the peripheral card. Take these precautions to protect yourself, your Apple IIGS, and all connected peripherals:

- Never install or remove the peripheral card while your computer is powered on.
- Never connect or disconnect the scanner while the computer is powered on.
- Always keep your computer plugged into a grounded outlet while connecting or disconnecting the peripheral card. This keeps your computer system grounded.

Removing the Lid from the Apple IIGS

Before you open the lid of your Apple IIGS , switch off the power. If you have a monitor on top of your computer, set it aside. With your Apple IIGS in front of you, reach around each side and push on the lid latches. With the latches held in, gently lift the lid up with your thumbs and middle fingers. If you have any trouble, consult your *Apple IIGS Owner's Reference*.

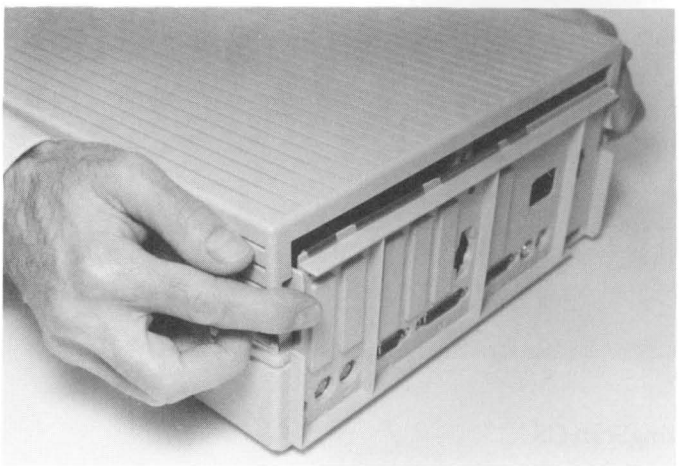

Figure 2-2
Removing the lid from the Apple IIGS.

Handling the Peripheral Card

The peripheral card comes sealed in a plastic anti-static bag that protects the card against static electricity. As when handling any peripheral card, be sure to take these precautions with LightningScan GS:

- Make sure the power to your computer is turned off, but keep the power cord plugged into a grounded outlet. This keeps your computer system grounded.
- Handle the card only by its edges. Do not touch the gold contact fingers. These contacts carry information between your Apple IIGS and the card. Dirt and other foreign substances on these contacts can damage the card.

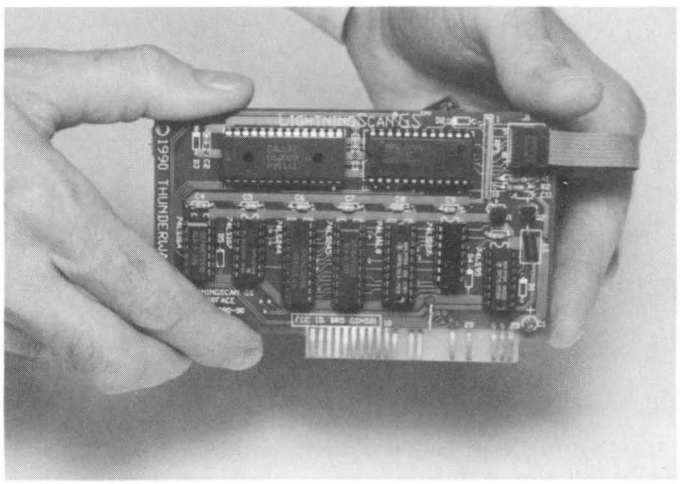

Figure 2-3
The proper way to handle a peripheral card.

Installing LightningScan GS

The following sections explain how to install the peripheral card and connect the scanner to your Apple IIGS. There are three main steps:

- Attach the connector card to the back panel of your Apple IIGS .
- Install the peripheral card into a nearby empty slot.
- Attach the scanner to the connector on the back of your Apple IIGS .

That's it! The following sections explain each of these steps in detail.

Installing the Connector Board

The connector board is connected to the peripheral board with a ribbon cable. To install the connector board to the your Apple IIGS:

- Touch the power supply case inside the computer. This discharges any static electricity that may be on your clothing or your body.
- Place the peripheral card on the power supply case on top of the anti-static bag (see Figure 2-3).

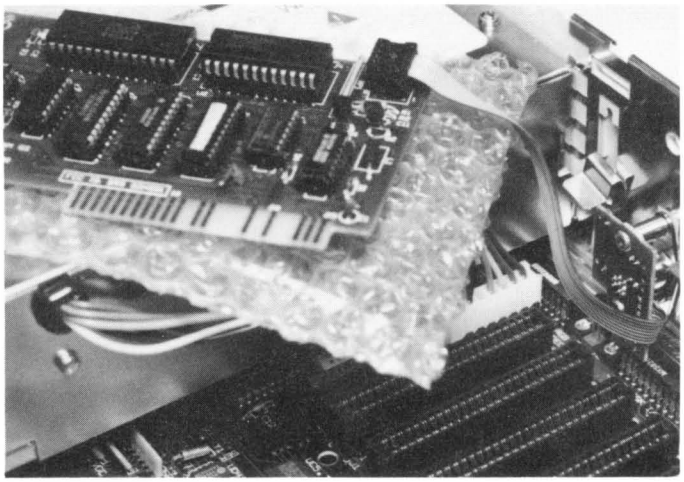

Figure 2-4
The peripheral card resting on the power supply case.

- Decide which slot you'll be using for the peripheral card. We recommend using either slot three or slot four, but any slot will work.
- Find the small opening on the back panel of the Apple IIGS above the disk drive port. Remove the plastic plug by turning the metal plug retainer (from inside the case) 90 degrees counterclockwise. Then remove the plug itself.
- Remove the screw from the connector board farthest from the ribbon cable. Partially loosen the other screw on the connector board.
- Insert the connector board into the opening. The remaining screw on the connector board should rest in the screw recess at the bottom of the opening.
- While holding the connector board into the opening (from inside the case), partially tighten the bottom screw with a Phillips screwdriver. Screw in and tighten the top screw and then tighten the bottom screw.

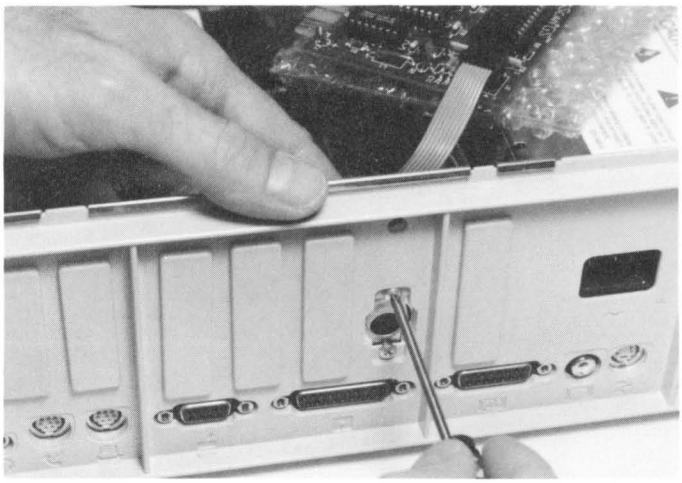

Figure 2-5
Tightening the screws on the connector board.

Installing the Peripheral Card

The peripheral card can be installed in any slot, but we recommend using either slot three or slot four. If you are using AppleTalk™, you cannot install the peripheral card in the AppleTalk slot. You can find out your AppleTalk slot in the **Control Panel** in the **Apple** menu (or by holding down the **Command** and **Control** keys while pressing **Escape**). To install the card:

- Turn off your Apple IIGS and all connected peripherals. Be sure to leave your Apple IIGS plugged in.
- Discharge any static by touching the power supply case.
- Align the gold fingers with the slot. The side of the card with the integrated circuits should face away from the power supply case. When you handle the card, avoid touching the gold fingers along the bottom edge of the card.
- Gently rock the card forward and back until it's firmly seated in the slot. You'll have to exert some pressure to seat the card securely in the slot, but don't wiggle it from side to side.

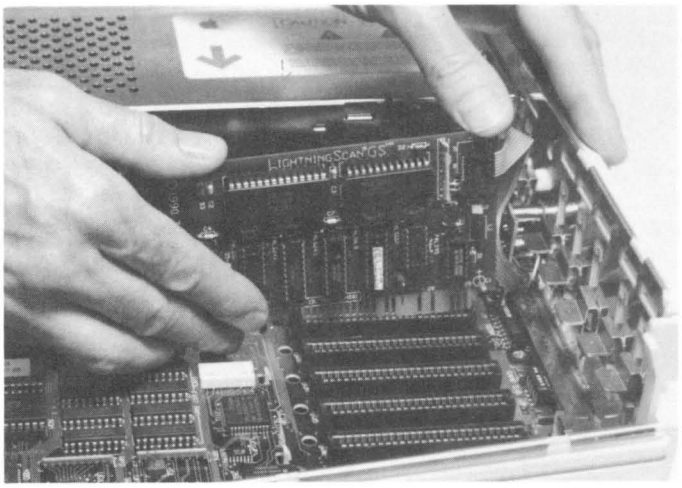

Figure 2-6
Installing the peripheral card.

- Check to be sure the peripheral card is completely seated in the slot. The peripheral card should be square with the logic board, not tilted to the front or rear.
- Make sure the ribbon cable and connector board do not come in contact with any other cards you have installed.
- Replace the cover on your Apple IIGS.

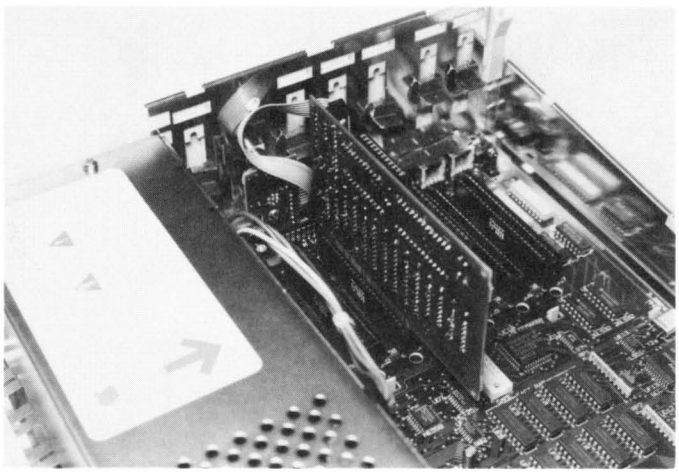

Figure 2-7
The peripheral card and connector board installed.

Connecting the Scanner

To connect the scanner, make sure your computer is turned off. Plug the scanner cable into the port on the connector board. The arrow on the scanner's plug should point away from the power switch. Push the plug firmly to ensure that it is snugly in place.

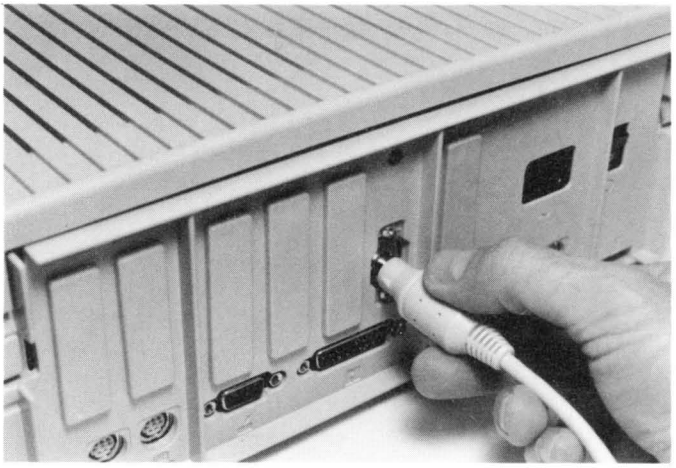

Figure 2-8
Connecting the scanner to LightningScan's connector board.

Important Note: Never connect or disconnect the scanner with the computer turned on.

About SnapGuide

SnapGuide™ helps you align your scanner so it can scan straight. It snaps easily onto the scanner.

Installing SnapGuide

SnapGuide attaches to the back of the scanner by gripping the seam that joins the top and bottom of the scanner. To install SnapGuide:

- Position SnapGuide underneath the scanner's cord with the lip facing up.
- Snap the lip of SnapGuide into the seam. Note that the left side grips the dithering switch recess. SnapGuide's right side grips the resolution switch recess.

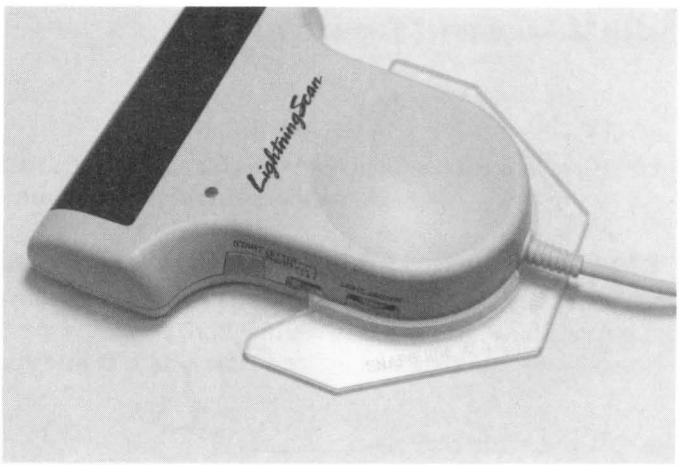

Figure 2-9
SnapGuide completely installed on LightningScan.

Where to Go Next

Now that you've installed the peripheral and connector boards, connected the scanner to the Apple IIGS and attached SnapGuide to the scanner, you're ready to learn how to scan. Chapter Three, *Using LightningScan GS*, shows you how.

Chapter Three — Using LightningScan GS

This chapter has step-by-step instructions that will teach you the fundamentals of scanning with LightningScan GS.

Learning to Use the Scanner Controls

You can now turn your attention to the scanner itself. Look at Figures 3-1 and 3-2 to see the controls on the scanner. There are five: a dithering switch, a resolution switch, a brightness dial, a start button, and an overrun indicator.

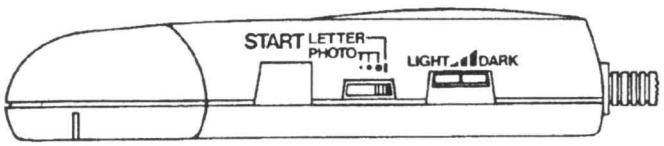

Figure 3-1
The start button, dithering switch, and brightness dial.

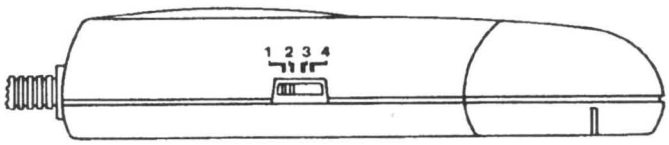

Figure 3-2
The resolution switch.

The Dithering Switch

The dithering switch has four settings: three increasingly larger dots labeled PHOTO and a LETTER setting. The **PHOTO** setting uses *dithering* to simulate shades of gray by using patterns of black and white dots. The smallest dither setting (with the switch set to the smallest dot) works best for scanning photographs and other originals with a range of colors or grays. The larger dither settings can be used to create special effects. The final setting, marked LETTER , is for use with text and line art. The **LETTER** setting renders images in black and white only.

The Resolution Switch

Resolution determines the size and amount of detail in the image. The higher the resolution, the larger your images will appear on screen and the more memory your scanned image will require. Resolution is expressed in dots per inch (DPI). The higher the DPI, the greater the resolution. Each setting on the resolution switch equals 100 DPI. Thus, setting 1 is 100 DPI, setting 2 is 200 DPI, and so on.

The Brightness Dial

The brightness dial determines the brightness of the scan image. For a line art image, setting the dial at the halfway point usually works best. You can create different effects by changing the brightness while scanning. If your images are too light, make the image darker by turning the dial toward DARK. If your images are too dark, lighten them by turning the dial toward LIGHT.

The best way to set brightness is to adjust the brightness dial while scanning. When the brightness on screen looks about right, press the R key to restart the scan using the best brightness setting for the original image.

The Start Button

The start button must be pressed during scanning. If the button is not pressed, nothing is scanned. You can combine many different images in one file by releasing the start button, positioning the scanner over another original, and continuing the scan.

The Overrun Indicator

Moving the scanner too quickly may cause your image to become distorted due to data loss. The overrun indicator flickers when you scan so quickly that the scanner cannot capture the image. Slowing your scan speed will steady the overrun indicator. If you continue to scan too fast, the indicator will turn off. This means that the image has been distorted by an overrun.

Learning to Scan

Scanning with LightningScan GS is fast and easy. Just follow these steps:

- Boot a working copy of the LightningScan GS program disk. (If you are using a Unidisk, you'll need to use the Installer program to install the Unidisk drivers.) If you are using a hard disk, launch the LightningScan GS application.
- Find the tutorial image that came with your scanner and put it on your desk.
- Choose the finest dither setting (set at the smallest dot size).
- Set the resolution switch to 300 DPI (position 3).
- Set the brightness dial at the halfway point.

If you're running from a copy of the program disk, the LightningScan GS Program Selector appears:

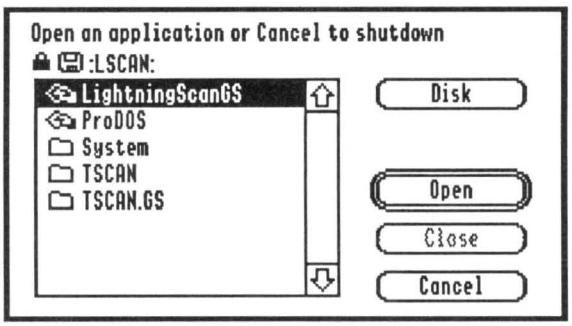

Figure 3-3
The LightningScan GS Program Selector.

The Program Selector allows you to select the application you want to use. To launch LightningScan GS, double-click on **LightningScan GS**.

Setting the Slot

Before you begin, you will need to tell the program the slot where you installed the LightningScan GS peripheral card. To set the slot:

- Choose **Scanner Slot** from the **Scanner** menu.

A dialog box appears:

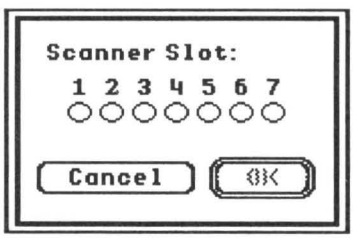

Figure 3-4
The scanner slot dialog box.

- Click on the radio button that represents the slot where you installed the LightningScan GS peripheral card (or press the number key of the slot you are using).
- Click on the **OK** button (or press the Return key).

Your scanner slot setting is saved to a file named **LS.CONFIG** in the System Folder of the boot disk. The slot setting stays the same until you change it (unless your startup disk is locked).

Selecting the Scan Mode and Display Option

Now select **New Scan...** from the **Scanner** menu (or press Command-N). The New Scan dialog box appears:

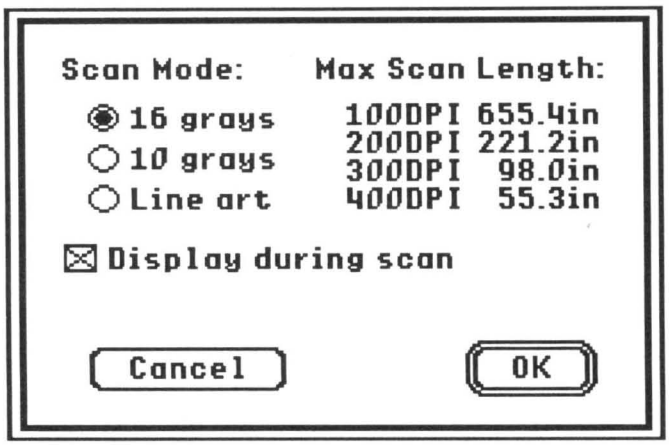

Figure 3-5
The New Scan dialog box.

The New Scan dialog box lets you select a **Scan Mode**. There are three options: **16 Grays**, **10 Grays**, and **Line Art**.

- The **16 Grays** option is best for highest quality gray scale scanning.
- The **10 Grays** option creates images twice the size of the 16 Grays option. This option is best for images you wish to print using ThunderScan and ThunderScan GS software.
- The **Line Art** option is best for highest quality line art scanning (images without intermediate shades). It creates very large files at high resolution settings.

The New Scan dialog box has a checkbox for displaying the left part of the image as you scan. It's convenient to see part of the image while scanning to make sure you're scanning straight. You can scan faster when the Display During Scan box is not selected.

Before you begin scanning, it's important to know whether or not you'll have enough memory in your Apple IIgs to scan the image you want. Scanned images can take up a lot of memory, particularly at high resolution settings and when using the Line Art option. The **Max. Scan Length** indicates the maximum length in inches at the four scanner resolution settings given the available memory in your Apple IIgs and the scan mode selected.

Your scan mode settings, like the scanner slot setting, are saved to the file LS.CONFIG in the System Folder of the startup disk.

For purposes of learning how to scan, select 16 Grays for the Scan Mode and Display During Scan.

Scanning

Click on the **OK** button or press the **Return** key to start the scan. (Clicking on the Cancel button or pressing the ESC key returns you to the main window.) The scanner illuminates and the scan window appears:

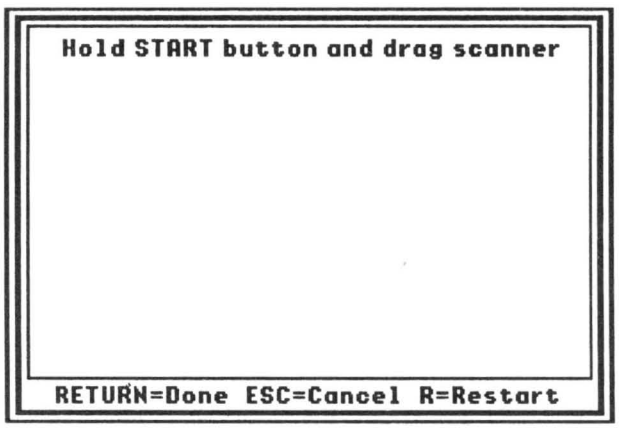

Figure 3-6
The scan window.

Place the scanner's glowing LED strip just above the top edge of the tutorial image. Hold down the scanner's start button and slowly drag the scanner across the image. You must keep the start button pushed the entire time you are scanning. If you release the button, the scanner stops scanning. If you press the start button again, scanning continues.

As you scan, the screen starts filling with the image. The screen looks like this:

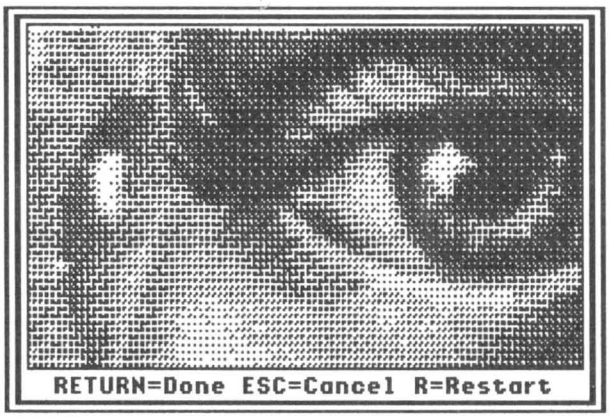

Figure 3-7
The scan window while scanning.

The scan window shows only the left edge of the image, so the display may seem confusing at first, but the image is being stored as a continuous strip.

Scanning Speed

At lower resolutions, you can move the scanner quickly. At higher resolutions, the scanner sends much more information to your Apple IIGS. You'll need to move the scanner more slowly to capture all of the data. If you go too fast, your computer will make a low-pitched clicking sound to warn you to slow down. If you continue to scan too quickly, your computer will make a high pitched clicking sound to warn you that part of the image may have been lost. If you hear the high pitched clicking sound, you should press the R key to restart your scan.

Important Note: If your computer does not beep when you overrun, check your speaker volume in the Control Panel. You may need to turn it up.

Finishing the Scan

When you are done scanning, press the Return key. After a moment, your image will appear in an untitled window.

Figure 3-8
The tutorial image in an untitled window.

Using SnapGuide

LightningScan GS comes with a 13-inch rule for scanning with SnapGuide. To use SnapGuide:

- Hold the rule to one side of the image to be scanned.
- Position the scanner against the rule.
- Drag the scanner alongside the rule while pressing the Start button.

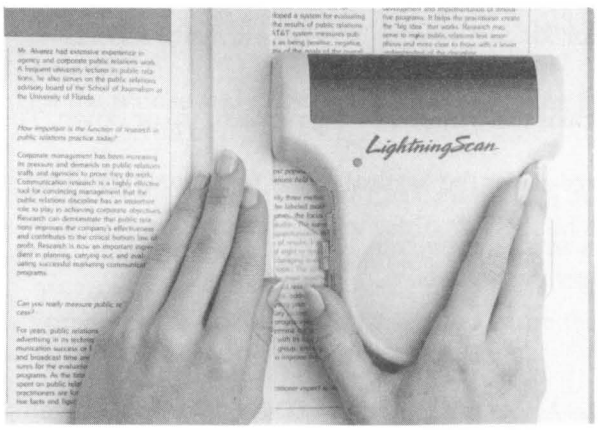

Figure 3-9
Using SnapGuide.

Due to manufacturing variations in the scanner, you may need to rotate the scanner slightly to achieve perfect alignment. When scanning, you can look through the scanner's window to verify that your original is properly aligned with the scanner. If the image is slightly askew, reposition the rule and begin the scan again.

Understanding the Relationship between Scan Mode and Resolution

You can create an image of many different sizes and appearances with LightningScan GS. The Scan Mode and Resolution settings let you determine both the size and the "look" of you scanned images. Try experimenting with different modes and DPI settings to get the appearance you like. The chart below shows the different image sizes possible with each combination of settings.

	Line Art	10 Grays	16 Grays
100 DPI	2.9	1.0	0.5
200 DPI	5.8	1.9	1.0
300 DPI	10.1	3.4	1.7
400 DPI	13.5	4.5	2.5

Figure 3-10
Size of scanned image in relation to size of original with different Scan Mode and DPI settings.

Scrolling

You can scroll an image that is larger than the window — right or left, up or down. To scroll:

- Move the pointer onto the arrows of either the vertical or the horizontal scroll bars of the image window.
- Click the mouse button to move in small increments.
- Slide the scroll box to move in larger increments.

The Clipboard

LightningScan GS does not support the Apple IIgs Clipboard. The Edit menu, as well as the Undo, Cut, Copy, Paste and Clear commands are dimmed when using LightningScan GS.

Changing Brightness and Contrast

The brightness and contrast controls are similar to the controls on a television set. The brightness control makes the image lighter or darker. The contrast control alters the range of grays in an image. When contrast is increased, dark grays become black and light grays become white. The brightness and contrast settings affect the entire image.

To adjust the brightness and contrast of your image:

- Select **Brightness & Contrast** from the **Display** menu (or press Command-B).

The brightness and contrast controls appear on screen:

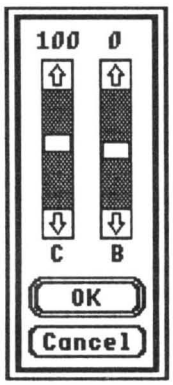

Figure 3-11
The brightness and contrast controls.

The standard settings are 0 for brightness and 100 for contrast. To change the brightness and contrast:

- Use the mouse and click on the arrows or drag the scroll box of the brightness and contrast scroll bars.

Notice the changes to the image? Click on the **OK** button (or press the **Return** key) when you have reached the satisfactory settings. Click on the Cancel button (or press the **ESC** key if you wish to ignore your changes).

Note: Some brightness and contrast settings cause the pointer to disappear. If this happens, press the ESC key to cancel your settings.

Inverting an Image

The **Invert** command in the **Display** menu lets you invert your image. Blacks become white, light grays become dark grays, and dark grays become light grays. To invert your image, simply select **Invert** from the **Display** menu. If you aren't satisfied with the results, choosing Invert again will reverse the changes.

Saving an Image

After you've finished playing with your image, you may wish to save it. LightningScan GS saves images in many popular file formats so you can use them with almost any Apple IIGS program that uses graphics.

To save a scanned image:

- Select **Save As...** from the **File** menu (or press **Command-S**). A dialog box appears:

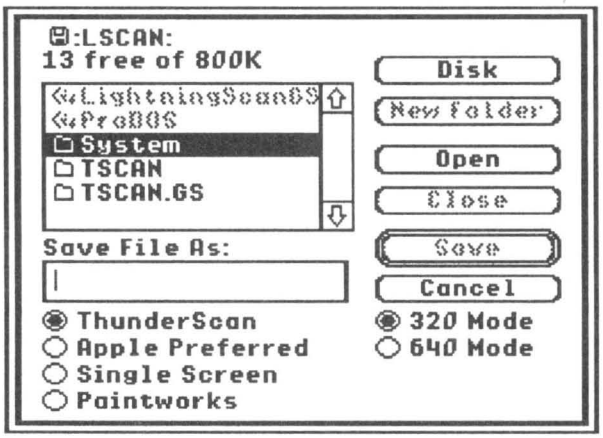

Figure 3-12
The Save dialog box.

Saving Images as ThunderScan Files

Saving an image as a ThunderScan file saves the entire image that was scanned. ThunderScan files can be loaded into ThunderScan and ThunderScan GS where they can be altered, saved, and printed. It's a good idea to save your file as a ThunderScan file so that you can change and print it later.

Saving Images as Screen Files

Screen files can be used with a variety of different programs, but they cannot be loaded into ThunderScan and ThunderScan GS. LightningScan GS saves screen files in both Super Res display modes: 320 and 640. The 320 mode is best for using scanned images with painting programs such as Paintworks™ and DeluxePaint™. The 640 mode is required for using scanned images with desktop publishing programs such as AppleWorks™ GS and GraphicWriter™. Before saving an image as a screen file:

- Make sure the brightness and contrast controls are set to your liking.
- Select **Show 320 Screen** or **Show 640 screen** from the **Display** menu to view the image as it will be saved.
- Use the scroll bars to position the image for saving. The Apple Preferred and Paintworks file formats save two screens of an image: the screen being viewed and the screen directly below it. The Single Screen format saves only the screen being viewed.
- Select **Save As...** from the **File** menu. Use the radio buttons to select the file format and mode.
- Type in the file name.
- Click on the **Save** button (or press the **Return** key).

About Single Screen Files

The Single Screen (type $C1\0) file saves one screen of an image. It is an uncompressed file and will require 65 blocks on disk. Single Screen files can be imported into virtually any painting program.

About Apple Preferred Files

The Apple Preferred (type $C0\2) file saves two screens of an image: the screen being viewed and the one directly below it. Apple Preferred files are compressed. This file format can be used for single-screen images to be used in DeluxePaint, Paintworks Gold and AppleWorks GS.

About Paintworks Files

The Paintworks (type $C0\0) file saves two screens of an image. Paintworks files are compressed. This file format can be used for double-screen images to be used in Paintworks.

Transferring to Another Program

Transfer allows you to launch another program (such as ThunderScan or ThunderScan GS) without having to quit and reload. To transfer to another application:

- Select **Transfer** from the **File** menu. A dialog box appears.
- Use the mouse to select the program to launch and click on the **Open** button. The selected program will be loaded.

Quitting

When you're finished using your scanner, choose **Quit** from the **File** menu. If you've forgotten to save an image, a dialog box will appear to give you the opportunity to save or cancel instead of quitting.

Where to Go Next

Now that you've learned to scan and save an image, you're ready to learn about the other programs that are included on your LightningScan GS program disk: ThunderScan and ThunderScan GS. Chapter Four, *Using ThunderScan GS*, and Chapter Five, *Using ThunderScan*, explain everything you need to know to colorize, print, and save your image for use in High Res and Double Res applications.

Chapter Four — Using ThunderScan GS

About ThunderScan GS

ThunderScan GS is a disk-based application that requires a minimum of 768K of memory. ThunderScan GS allows you to display images in both the 640 and 320 modes. It lets you copy files to the clipboard, colorize, and tile print.

Opening Images

To launch ThunderScan GS:

- Choose **ThunderScan GS** in the Program Selector.

ThunderScan GS loads files saved in the ThunderScan format. It will not load screen files. To load an image:

- Select **Open...** from the **File** menu (or press **Command-O**).
- Click on the **Disk** button to change volumes.
- Select the file you want and click on the **Open** button (or press the **Return** key). ThunderScan GS loads the file.

Scrolling an Image

You can scroll an image that is larger than the window—right or left, up or down. To scroll:

- Move the pointer onto the arrows of either the vertical or horizontal scroll bars of the image window.
- Click the mouse button to move in small increments.
- Slide the scroll box to move in larger increments.

When you release the mouse button, ThunderScan GS pauses to refresh the screen by reading a new section of the image from disk.

Using the Clipboard

Copy puts a selected part of an image into the Clipboard. The **Cut** and **Paste** commands do not work and are dimmed. An image copied to the Clipboard will not retain its contrast, brightness and filter settings.

To copy an area to your Clipboard:

- Choose **Copy** from the **Edit** menu (or press **Command-C**). The pointer (↗) changes into a cross bar (+).
- Move the cross bar onto the image area.
- To select a portion of the image, hold down the mouse and drag the cross bar over the portion of the image you desire (the maximum area that can be copied is a single screen).

Changing Contrast and Brightness

ThunderScan's contrast and brightness controls are identical to the controls in LightningScan GS. The brightness control makes the image lighter or darker. The contrast control alters the range of grays in an image. When contrast is increased, dark grays become black and light grays become white. Contrast and brightness settings affect the entire image.

To adjust the contrast and brightness of your image:

- Select **Contrast & Brightness...** from the **Scanner** menu (or press **Command-B**).

The contrast and brightness scroll bars appear on screen:

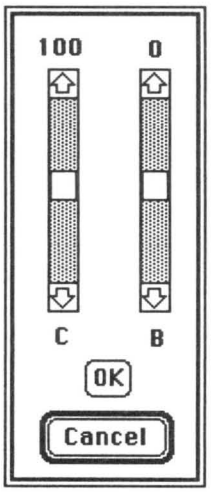

Figure 4-1
The contrast and brightness controls.

The standard settings are 0 for brightness and 100 for contrast. To change the contrast and brightness:

- Use the mouse and click on the arrows or drag the scroll box of the brightness and contrast scroll bars.

Click on the **OK** button when you have reached the satisfactory settings. Or, click on the **Cancel** button (or press **Return**) if you wish to cancel your changes.

Protect Controls

Changes to contrast and brightness affect the entire screen, including the menus, windows and all other controls. This means that it is possible to make the controls disappear if extreme changes are made to contrast and brightness. To guard against this, ThunderScan GS comes with **Protect Controls** turned on. If Protect Controls is turned off, you may notice that when the brightness or contrast controls are adjusted to either extreme, the screen may turn completely black or white. Press the **Return** key to cancel the contrast and brightness controls and return to the image window. When using Protect Controls brightness and contrast settings will not affect the absolute black and white pixels of an image.

Using the Filter

The **Filter** allows you to create a multitude of special effects. You can create negatives, add color, or simply view the percentage of grays that make up the image.

To use the filter:

- Select **Filter...** from the **Scanner** menu (or press **Command-F**).

The filter dialog box appears:

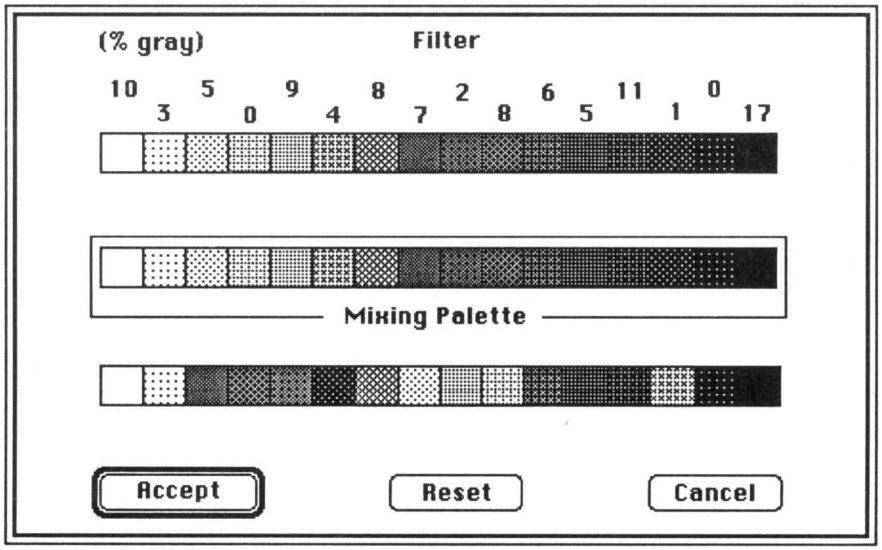

Figure 4-2
The filter dialog box.

There are three palettes: **gray, mixing** and **color**. The top palette, the **gray palette**, shows the 16 possible shades of gray. The numbers at the top of the gray palette show the percentage of each shade present in the screen currently being viewed. The percentages of gray values will serve as a reference when using the color palette.

The **mixing palette** lets you combine gray values from the gray palette and colors from the color palette to change an image. Shades or colors are dragged from the gray or color palettes onto the mixing palette. Here are a few ideas:

- To invert an image, reverse the order in the mixing palette. Drag grays from the gray palette onto the mixing palette so white is represented by black, black by white, and so on.
- To posterize an image, copy one shade to three or four shades in the mixing palette. The end result is an image that has fewer levels of gray.

Try it for yourself. When you feel you have achieved a desired effect, click on the **Accept** button to view the image. You can revert to the standard the gray palette by clicking on the **Reset** button.

In the 640 mode (Ultra Res), the mixing palette consists of four mini-palettes with four entries in each. Changes made to one mini palette affect all mini-palettes.

The black and white values in the mixing palette will affect the menus, windows and all other controls. Consequently, you should never set black and white to the same value. Otherwise, menus and commands will become invisible. If Protect Controls is turned on, you will not be able to alter the black and white values in the mixing palette. If you make your controls invisible, simply press **Command-F** to return to the filter screen and correct the palette.

Switching Display

ThunderScan GS allows you to change the format and mode of images. To change format or mode:

- Select **Switch Display...** from the **Scanner** menu. The switch display dialog box will appear:

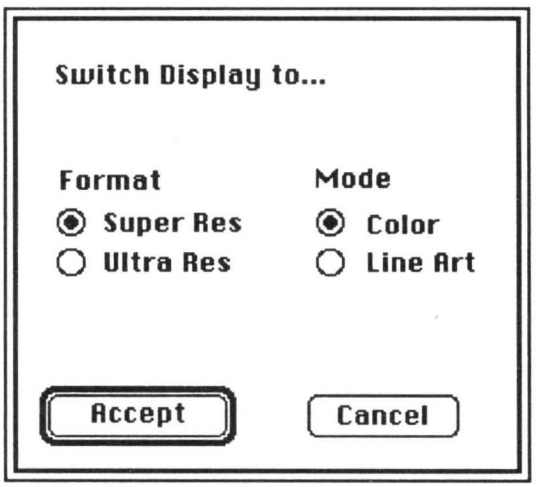

Figure 4-3
The switch display dialog box.

Use the mouse to select the desired settings. You can change the format from 320 (Super Res) to 640 (Ultra Res) or switch modes from color to line art. The Line Art mode is available in the Ultra Res format and will be dimmed when Super Res is selected. Click on the **Accept** button to view your changes. Click on the **Cancel** button to ignore the changes and return to the image window.

Saving Scanned Images

After you have finished playing with your image, you may wish to save it. ThunderScan GS saves images in the popular file formats so they can be used with almost any graphic program for the Apple IIGS.

To save a scanned image:

- Select **Save As...** from the **File** menu (or press **Command-S**). The scan file format box appears:

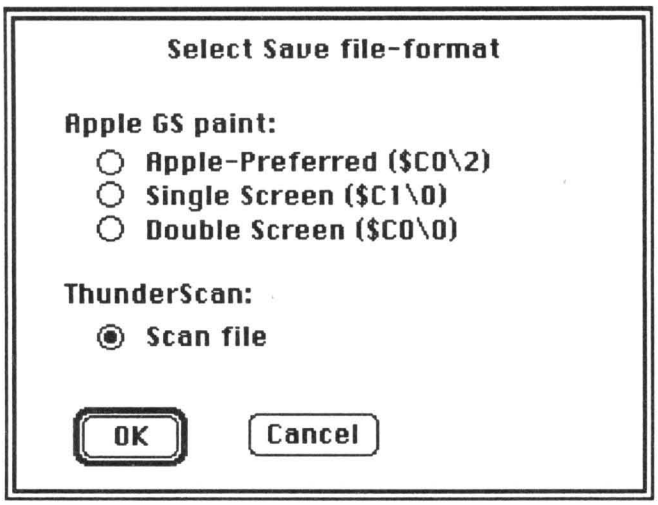

Figure 4-4
The scan file format box.

Saving as a ThunderScan File

Saving as a ThunderScan file saves the entire image you've created. Scan files can be reloaded in ThunderScan GS or into ThunderScan so you can make changes to brightness, contrast, and the filter. Scan files are the only files ThunderScan GS can load. Be sure to keep a copy of your images as scan files in case you need to use them again.

Saving as Screen Files

Screen files can be used with a variety of different programs, but they cannot be loaded into ThunderScan GS or into ThunderScan. Before saving an image as a screen file:

- Make sure the brightness, contrast, and filter controls are set to your liking.
- Use the scroll bars to position the image for saving. The area displayed will be saved.

The **Apple-Preferred ($C0\2)** file saves one screen of the image. It is a compressed file and takes up less space than the Single Screen file. The Apple-Preferred file is supported in programs like DeluxePaint II, Paintworks Gold, and AppleWorks GS.

The **Single Screen ($C1\0)** also saves one screen. It is an uncompressed file and will require 65 blocks on disk. Single screen files can be imported into almost any painting program.

The **Double Screen ($C0\0)** saves two screens of an image, the screen being viewed and the one directly below it. It is a compressed file. Double screen files can be used in Paintworks Plus and Paintworks Gold.

Once you have decided on a file format:

- Use the radio buttons to select your choice.
- Click on the **OK** button (or press the **Return** key). Clicking on the **Cancel** button will exit the save dialog and return to the image window.

After clicking on the OK button, another dialog box will appear:

- Type in a filename.
- Click on the **Accept** button (or press the **Return** key).

Printing with an ImageWriter

ThunderScan GS allows you to print with an ImageWriter. This section explains how to print an image with the ImageWriter and the options available.

- Use the scroll bars to position the image in the window to be printed. ThunderScan GS prints an 8 X 10 inch area from the upper left corner of the image being displayed.
- Select **Choose Printer...** from the **File** menu and select the desired printer.
- Choose **Print...** from the **File** menu (or press **Command-P**).

The ImageWriter **page setup** dialog box appear:

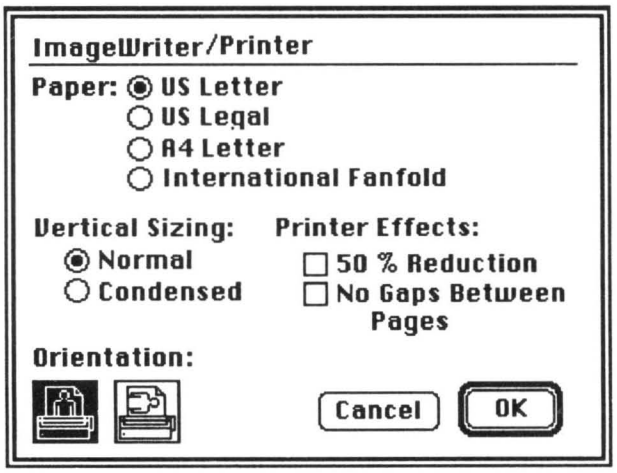

Figure 4-5
The ImageWriter page setup dialog box.

Normal should be selected for the **Vertical Sizing** option. **Condensed** will cause images to be compressed vertically in size. **50% Reduction** should be used when you are printing line art images. Gray shade images may appear too dark when printed at 50% reduction with an ImageWriter.

After the page setup options are set to your liking, click on the **OK** button to proceed. The print dialog box appears with further printing instructions:

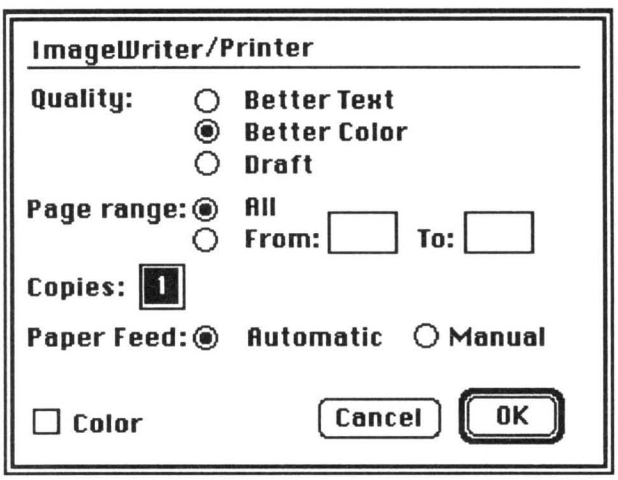

Figure 4-6
The ImageWriter print dialog box.

- **Better Color** should selected as the **Quality** (**Better Text** and **Draft** are used for printing text).
- If you have an ImageWriter II and a color ribbon, you'll be able to print your images in color. (You'll want to colorize your image using the filter palettes first).
- Click on the **OK** button.

Printing begins after a few moments.

Stopping Printing Early

To stop printing before the ImageWriter is finished:

- Hold down the **Command** key and type a period(.).

After a few moments, printing will stop. ThunderScan GS returns to the image window.

Printing with a LaserWriter

If you have a LaserWriter available, you'll be able to print PostScript® halftones. Before you begin you'll want to make sure your system is properly configured for use with a LaserWriter. Since the ImageWriter requires the printer port, your LaserWriter should be connected to the modem port. To prepare your LaserWriter for printing:

- Make sure the LocalTalk™ cable is connected to the modem port on your Apple IIGS.
- Enter the **Control Panel** and make sure it is configured for AppleTalk in slot 7 and **Your Card** in slot 2.
- Select **Choose Printer...** from the **File** menu.
- Use the mouse to choose printer type (LaserWriter) and printer port (Modem). Click on the **OK** button.

Choose **Page Setup** from the **File** menu. The LaserWriter page setup dialog box appears:

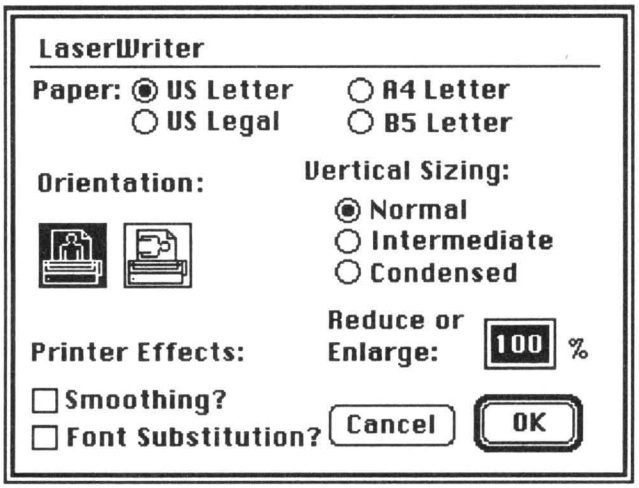

Figure 4-7
The LaserWriter page setup dialog box.

You can make changes to printed resolution and orientation through Page Setup. The **Vertical Sizing** options are generally used for printing text files, but can also alter printed graphics. The **Intermediate** and **Condensed** options will compress images vertically. The **Smoothing** and **Font Substitution** options are ignored in ThunderScan GS.

The **Reduce or Enlarge** option controls the printed resolution and size of printed images. Use **100%** to print the image at actual size as it appears on the screen. Use a **50%** reduction to print an image that is half the length and width of the actual size (1/4 of the area) with twice the resolution.

To print to the LaserWriter, choose **Print...** from the **File** menu (or press **Command-P**).The LaserWriter print dialog box appears:

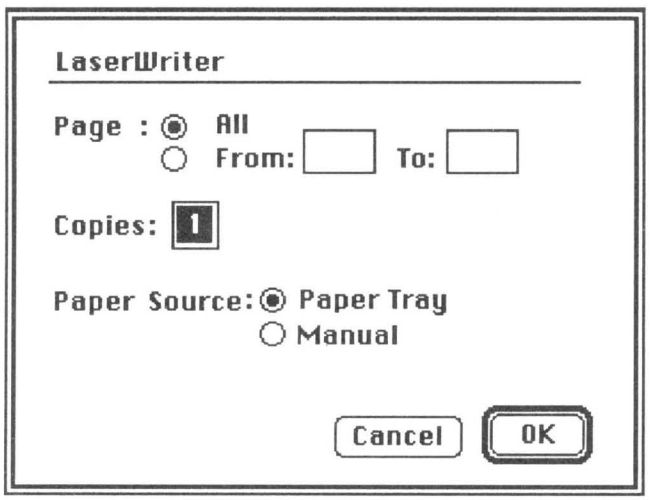

Figure 4-8
The LaserWriter print dialog box.

- Set the number of copies and the paper source.
- Click on the **OK** button.

In a few minutes, your image will print.

Tile Printing

Tile printing prints your entire scanned image on a series of pages (when the image is larger than 8 X 10 inches). Tile printing starts at the upper left corner of the image displayed on screen and continues printing the entire image on separate pages. The pages may then be pasted or taped together. Tile printing is ideal for creating posters. In most cases, you'll want to use the tile printing option. The Apple IIGS requires extra memory to large images, so it is possible to create an image that is too large to print.

To tile print:

- Scroll the image to be printed so that the upper left corner of the area to be printed image is in the upper left corner of the screen.
- Access the **Control Panel** to select the desired printer.
- Select **Tile Print** from the **File** menu (or press **Command-T**).

The print dialog box appears.

- Set the mode for printing.
- Click on the **OK** button.

ThunderScan GS will prepare the data for printing. Tile printing can take a while. Because of the nature of Apple's printer drivers, extraneous data may be printed to the right side of the image. This strip of misprinted area can be trimmed away with scissors.

Quitting ThunderScan GS

When you're finished using ThunderScan GS and want to leave the application:

- Choose **Quit** from the **File** menu (or press **Command-Q**).
- Click on the **Yes** button to exit ThunderScan GS.

If you have not saved the current image, a dialog box will appear:

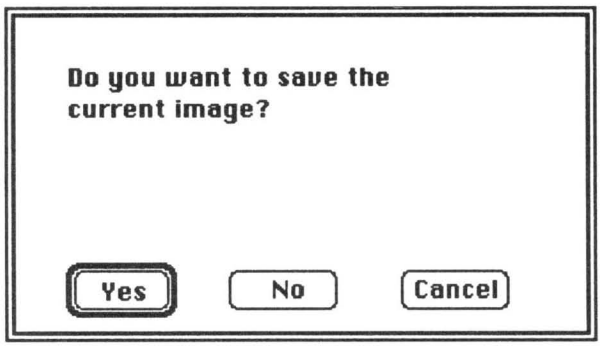

Figure 4-9
The save changes dialog box.

- Click on the **Yes** button if you want to save the image.
- Click on the **No** button if you don't wish to save your image or any changes you might have made.
- Click on the **Cancel** button to return to the image window.

Chapter Five — Using ThunderScan

About ThunderScan

ThunderScan is a ProDOS 8-based program that requires only 64K of memory to load images from disk. ThunderScan has a special print grays option for printing high quality gray scale images. You can use it to change images to the High Res and Double Res formats. ThunderScan is compatible with the Apple IIe, IIc, and IIGS computers.

Launching ThunderScan

To launch ThunderScan:

- Select **ThunderScan** from the Program Selector.

ThunderScan's Main Menu appears:

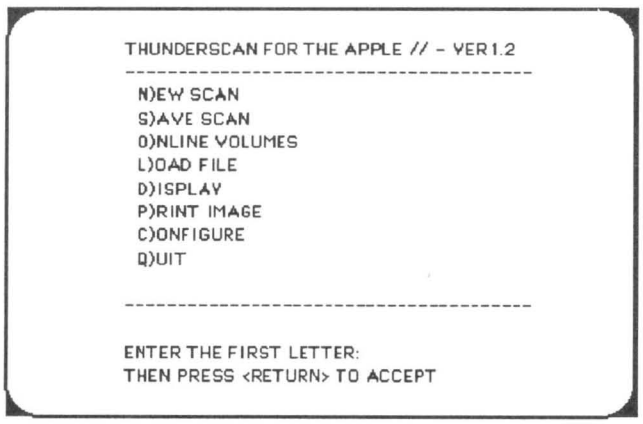

Figure 5-1
ThunderScan Main Menu.

Checking Online Volumes

To check the online volumes:

- Press O (for Online) from the Main Menu.

Find the volume of the file you wish to load. You'll need to know the volume name where the image resides in order to load it.

Loading an Image from Disk

To load an image, start from the Main Menu:

- Type **L** (for Load) and press the Return key.

The load screen appears:

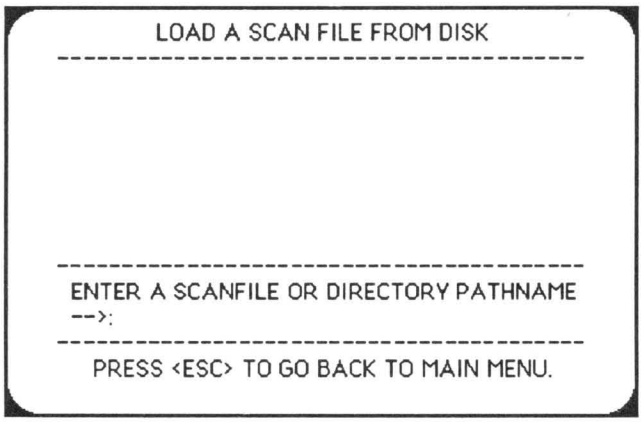

Figure 5-2
The load screen.

- Type the complete pathname and press the **Return** key.
- If you don't know the complete pathname, type the volume name and press the Return key. The files and/or directories on the volume are listed. Use the **Up** and **Down Arrow** keys to move the highlighting to a Scan Image file (or directory) from the list.
- Press the **Return** key to accept your choice. The file name (or directory) you've chosen appears after the name of the current disk. (If you selected a directory, repeat this process until the complete pathname appears.)
- Press the **Return** key to confirm your choice.

Changing Format and Mode

ThunderScan allows you to change the format and mode of images scanned with LightningScan GS. **Format** determines the resolution and number of shades or colors displayed in an image. You can choose from four formats: Special, High Res, Double Res, Ultra Res, and Super Res. The Super Res and Ultra Res formats in ThunderScan are the identical to the 320 and 640 modes in LightningScan GS.

format	resolution (horiz. x vert.)	display shades
Special	280 x 192	2
High Res	280 x 192	2
Double Res	560 x 192	2
	140 x 192	16
Super Res	320 x 200	16
Ultra Res	640 x 200	4

Figure 5-3
Formats, resolution and displayed shades.

Depending on the format selected, there are four modes: Halftone, Line Art, Grays and Color. **Mode** determines how an image is displayed on your screen.

Halftone uses black and whites dots to represent shades of gray. Halftone is not available in the Super Res and Ultra Res modes.

Line Art displays images in high contrast. Lighter areas have more white dots, while darker areas have more black dots. Line Art is not available in the Super Res mode.

Color displays images in color and/or grays. See the section *Using the Filter*, in this chapter, to learn more about assigning colors to shades of gray. Color is not available in the Special and High Res modes.

To change the format and mode of an image:

- Press **D** (for display).

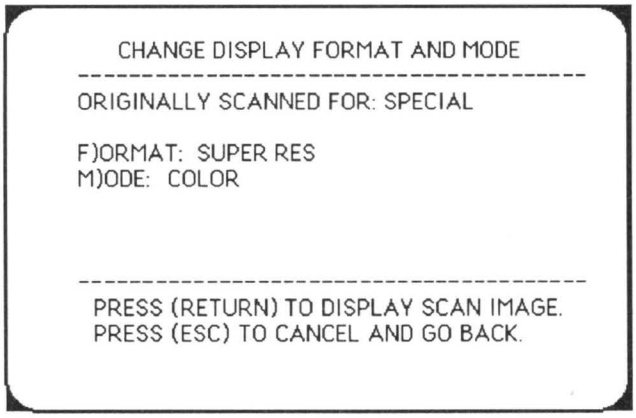

Figure 5-4
The switch display screen.

- Press **F** (for format) until the desired format appears.
- Press **M** (for mode) until the desired mode appears.
- Press the **Return** key to view your image with the new display settings.

Scrolling an Image

The screen is just a "window" over the larger image. To scroll the image:

- Use the appropriate **Arrow** key (Up, Down, Right, or Left) to move the image in the direction you want.

To scroll inches at a time:

- Hold down the **Option** or **Command** key while scrolling. When you've reached the edge of your image, your computer will beep.

Adjusting Brightness and Contrast

ThunderScan — like LightningScan GS and ThunderScan GS — gives you the ability to change brightness and contrast. To adjust the brightness of your image:

- Press **B** (for Brightness).

The brightness and contrast control appear at the bottom of the screen. You operate the slider on these controls with the Left and Right Arrow keys.

- Press the **Right** or **Left Arrow** key to move the **B** in the brightness control to the right or left.

Each time you press an **Arrow** key, you change the brightness by one point. The effects are instantaneous.

To adjust the contrast of your image:

- Press **C** (for Contrast).
- Press the **Right** or **Left Arrow** key to move the contrast higher or lower.
- To reset brightness and contrast to their normal setting, press **C** or **B**, and then press **N** (for Normal).

Important Note: Adjusting contrast and brightness to the maximum or minimum settings may cause the screen to turn completely gray. Press the **ESC** key to cancel your settings.

Using the Filter

You access the filter for the format and mode you've selected by pressing **F** (for Filter) while an image is on screen. Depending on the format and mode that you've chosen to be displayed, one of three color filters will appear on screen. The **actual** shades in the left column are the 16 possible grays ranging from white to black. The **palette**, on the right, is a collection of grays (or colors) that you can use to represent the actual grays on the screen or in printing. The **assigned** shades, in the middle, are the shades chosen from the palette for each actual shade. Normally, the assigned shades are the same as the actual shades.

If you've changed the display to either High Res or Double Res, the **Halftone/Line Art Gray Filter** will let you choose from the standard palette of 16 levels of gray (except in the color mode). Although the High Res and Double Res formats don't actually display grays on the screen, this filter determines the distribution of white and black dots for the dithered image which represents grays.

You can use this filter to make a negative image. Simply reverse the order of the assigned shades, so that white is represented by black, black by white, and so on.

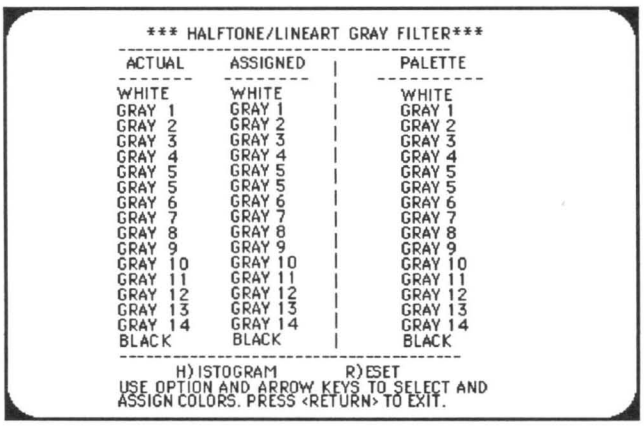

Figure 5-5
Halftone/Line Art Gray Filter.

If you have a color monitor and have selected the Color mode, the **Double Res Color Filter** appears. It lets you assign different colors to grays. Color allows you to create different and unusual effects with your images.

Figure 5-6
Double Res Color Filter.

If your image is displayed in the Super Res or Ultra Res format, the **Super/Ultra Res Gray/Color Filter** will appear. It lets you select *either* 16 grays *or* colors from a palette of 16 grays and 16 colors. You can choose all gray, all color, or a combination.

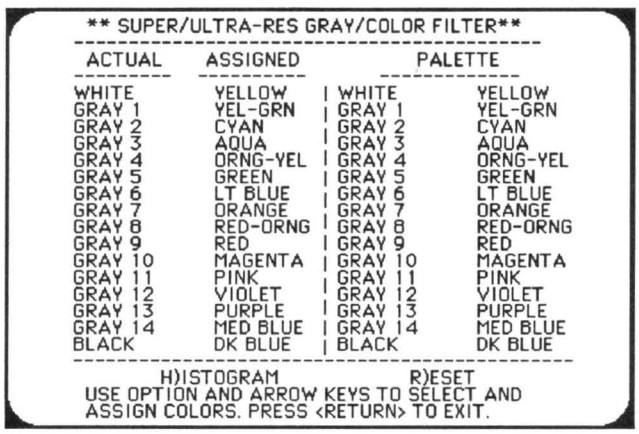

Figure 5-7
Super/Ultra Res and Gray/Color Filter.

If you've chosen the Ultra Res format and Line Art mode, the **Ultra-Res Line Art Filter** appears. It provides a palette of four levels of gray.

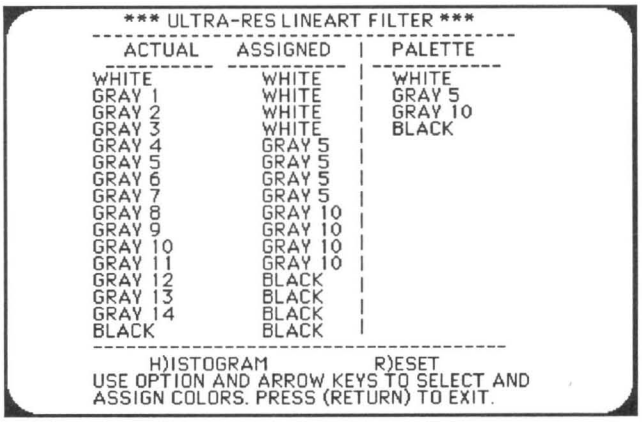

Figure 5-8
Ultra Res/Line Art Filter

Important Note: The Super Res and Ultra Res filters default to grays. Press **R** (for Reset) to toggle between between color and gray palettes.

Using Filters to Change Shades

You can adjust the way that shades of gray and colors are displayed on the screen by assigning alternate shades from the palette. First choose the filter you want, then adjust the assigned shades.

You can look at the filters when you are displaying an image. To see the filter for your format and mode :

- Press **F** (for Filter).

You can choose new grays or colors from the palette to represent the actual grays recorded for an image. The instructions for changing the shades are the same for all filters.

To select the shade you wish to change, you must first make sure the Assigned Shades column is activated by highlighting the **Assigned** column head:

- If the column head is not already highlighted, press the **Left Arrow** key.

You may now proceed to select a shade to change. You select a shade by highlighting it:

- Press the **Down** and **Up Arrow** keys to move the highlighting up and down in the Assigned Shade column.

Once you've highlighted a shade, you can change it. The currently assigned shade is highlighted in the palette. You can select a different shade from the palette to represent the assigned shade.

To select a different shade from the palette:

- Press the **Right Arrow** to activate the **Palette** column. The column head will be highlighted.
- Press the **Up or Down Arrow** keys to select a different shade.

As you move the highlighting through the shades of the palette, the setting of the assigned shade changes. To change another shade, use the Left Arrow to activate the Assigned Shades column once more, and repeat the above procedure.

Copying Assigned Shades

If you want the image to appear in just a few shades for a posterized effect, you can copy shades instead of changing each assigned shade individually. To copy an assigned shade:

- Activate the Assigned Shades column, and select the shade you wish to change by highlighting it with the **Up** or **Down Arrow** keys.
- Activate the Palette column by pressing the **Right Arrow** key and selecting the first shade you want to copy.
- Use the **Left Arrow** key to return to the Assigned Shades column.
- Hold down the **Option** key or the **Command** key and press the **Up Arrow** key to copy up, or the **Down Arrow** key to copy down.

Each time you press the Up or Down Arrow key, you copy the selected palette shade to the adjacent assigned shade.

Resetting the Filter

If you decide you don't like the changes you make to a filter, you can reset it to normal. To reset a filter:

- Press **R** (for Reset).

The assigned shades become the same as the actual shades once again. If you're using the Super Res or Ultra Res format, pressing **R** more than once will cause a filter to alternate between standard settings for grays and color.

Using the Histogram

ThunderScan's **Histogram** shows what percentage of each shade is present in a screen image. It serves as a guide when you are using the filters to assign shades and colors.

You can see a histogram when you are using the filters to assign shades and colors. To see a histogram:

- Press **H** (for Histogram).

A histogram like this one appears:

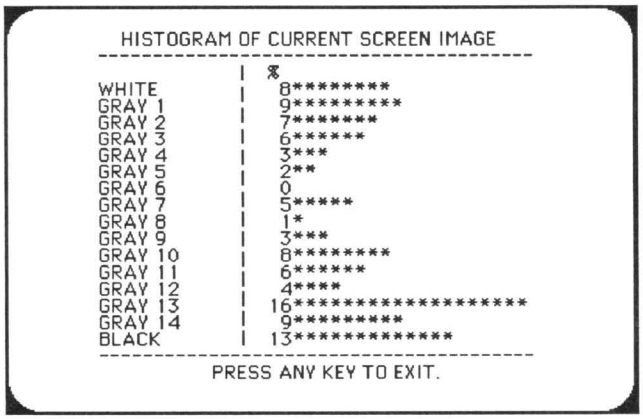

Figure 5-9
The histogram screen.

If you press **H** before a screen is completely refreshed, the histogram will reflect only a portion of the screen showing instead of the entire screen. To leave the histogram press any key.

Saving an Image

Images can be saved in two ways: as scan files or as screen files. The **scan file**, identical to the ThunderScan file in ThunderScan GS and LightningScan GS, saves the entire image. Scan files are the only kind that ThunderScan can load. The **screen file** saves only the image showing on the screen. Screens may be saved in High Res, Double Res, Super Res or Ultra Res formats for importing into other programs. Before saving as a screen file, be sure your image is displayed in the format accepted by the program you wish to use it in.

There are three additional screen file formats that are available in Super or Ultra Res:

- A **Paintworks Screen file** can be used with painting programs like Paintworks. This file is a single screen in size.
- A **Paintworks Paint file** saves the screen showing and a full screen below it. It can be used with painting programs like Paintworks.
- A **DeluxePaint II file** saves the screen showing in Apple's Preferred File Format. It can be used with painting programs like DeluxePaint II.

The following sections explain how to save an image in both the Scan Image and Screen File formats.

Saving a Screen File

To save an image as a screen file:

- While displaying an image, use the arrow keys to position it on screen.
- Use the contrast, brightness, and filter controls to fine-tune your image.
- Press **S** (for Save). A screen appears:

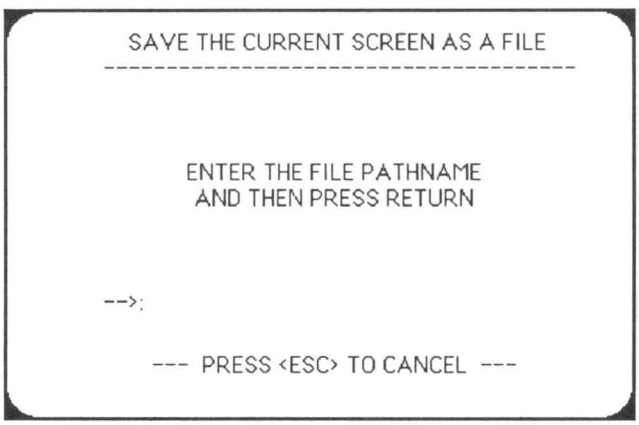

Figure 5-10
The screen save screen.

- Type a slash (/) followed by a *full* pathname. The name of the screen file must be different than the name of the scan file to avoid errors.
- Press the **Return** key.

If your image is displayed in Super Res or Ultra Res, an additional screen will appear:

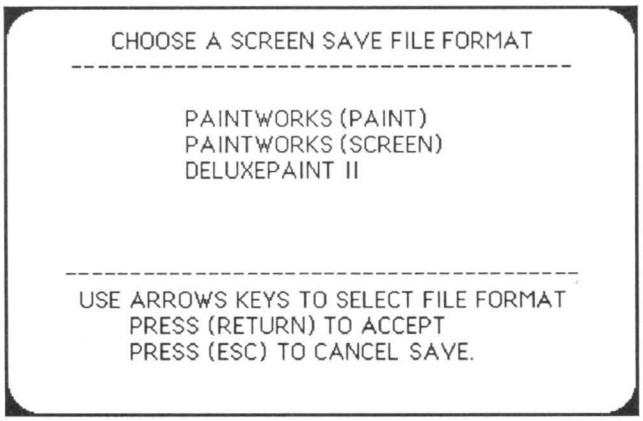

Figure 5-11
The screen save file format screen.

Printing an Image

ThunderScan offers many options for printing on your ImageWriter. Before printing an image, you must load a scan file. To print with an ImageWriter:

- Go to the Display screen and use the arrow keys to position the image on the screen. The upper left corner of the screen will be the upper left corner of your printout. If you want to print the entire image, use the **Arrow** keys to move to the upper left corner. (You'll know you've reached an edge when your Apple beeps.)
- Make sure you've adjusted the image to your satisfaction with the contrast and brightness controls.
- Press the **ESC** key to go to the Main Menu.
- Type **P** (for Print) and press the **Return** key.

A screen appears:

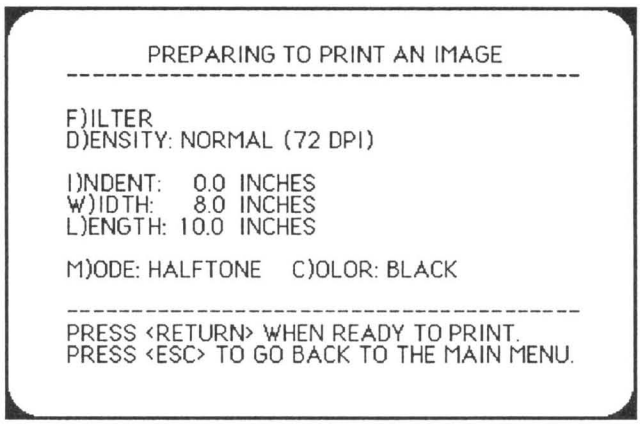

Figure 5-12
The prepare to print screen

The prepare to print screen lets you change the filter for printing, select the print density, specify a location on your page for the image to print, and change styles for printing. ThunderScan prints images in three different styles: halftone, line art, or gray.

- The **Halftone** style is usually best for images that contain grays, such as photographs.
- The **Line Art** style is best for high contrast images with few or no grays. Maps, schematics, and logos are examples of images that usually print best in the line art style.
- The **Gray** style is usually best for low contrast images with a lot of intermediate grayshades. ThunderScan directs the ImageWriter to make extra passes to create a layered effect for more accurate printing of grays. Expect images printed in the gray style to appear darker. For best results, use a well-used printer ribbon to compensate for the increased saturation of gray style printing.

You may wish to experiment with different printing styles to get the effect you desire. The following samples illustrate the difference between printing styles.

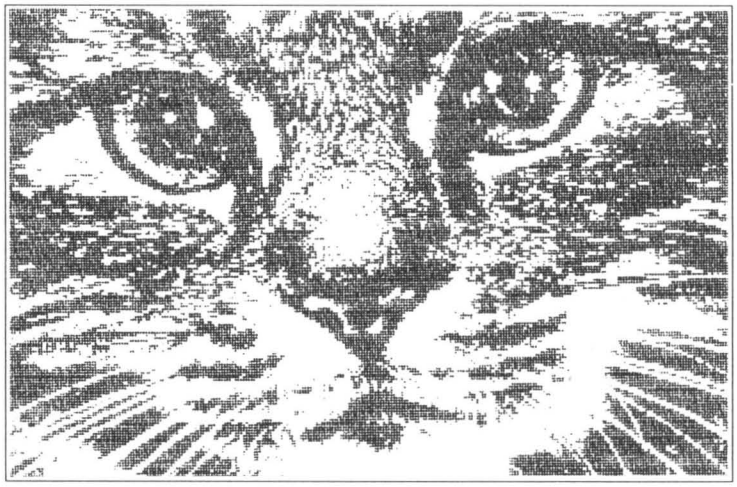

Figure 5-13
An example of ThunderScan's line art printing.

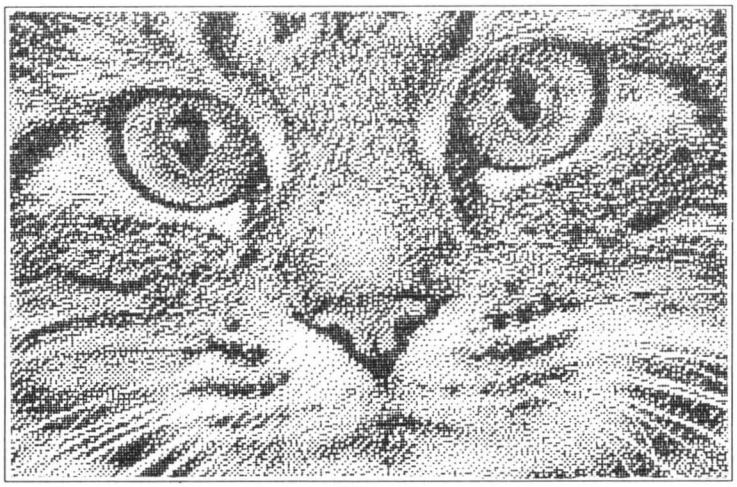

Figure 5-14
An example of ThunderScan's halftone printing.

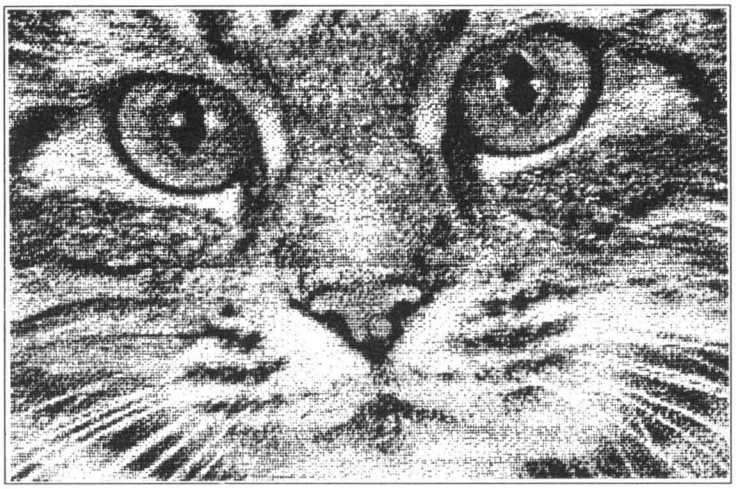

Figure 5-15
An example of ThunderScan's gray printing.

Important Note: When printed in the halftone mode, some images may look slightly different from the way they appear on screen. If at first you don't achieve a desired result, use the contrast and brightness controls to alter the image to your satisfaction and then reprint it.

About Color Printing

If you have an ImageWriter II and a color ribbon, you'll be able to print your images in any single color or in a variety of color combinations. To specify a single color:

- Press the **Return** key to return to the prepare to print screen, if necessary.
- Press **M** (for Mode) until you see the Halftone, Line Art, or Gray style you desire.
- Press **C** (for Color) until you see the color you want.

If you choose to print with your ImageWriter II using the COLORS mode, your image can be printed in up to seven colors. Using the **ImageWriter II Color Filter**, you can assign each of the 16 levels of gray to a color:

- Press **M** (for Mode) from the prepare to print screen, until you see the colors mode.
- Press **F** (for Filter).

The **ImageWriter II Color Filter** appears:

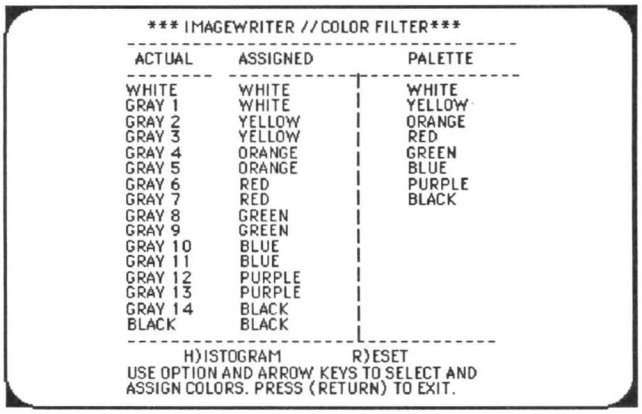

Figure 5-16
The ImageWriter II color filter.

This filter gives you control over the appearance of your printout. The ImageWriter II Color Filter works in the same way the filters work which control the appearance of an image on the screen. To help you decide which colors to assign to grays, you can use the Histogram and Reset options as outlined in other sections. To achieve other color effects, you may wish to use the printing options found in many painting programs.

Choosing a Density

You can print your image at normal density, or you can specify higher density printing to print at 50% reduction. If you select **High Density**, you'll get an image half the size (1/4 the size by area) but double the resolution. If you choose this option, you may want to increase the brightness and lower the contrast of the image (while the image is on screen) or use an older ribbon with slightly faded ink when printing.

Determining Location and Printout Size

The indentation setting determines how far from the left edge of the page the image will print. The width and length settings determine how much of the image (up to 8" by 10") will be printed. To change indentation, width, or length:

- Press the letter for the setting you want to change.
- Use the **Left** and **Right Arrow** keys to adjust the settings.

When you're finished with the printing setting, press the **Return** key.

A screen appears with some reminders. Be sure that there is paper in the printer. Turn on the printer and check to see that the select light is on. When you're ready to print:

- Press the **Return** key.

ThunderScan starts to print your image. After printing is finished, you return to the Main Menu.

Stopping Printing Early

To stop printing before the ImageWriter is finished:

- Press the ESC key.

Quitting ThunderScan

When you're finished using ThunderScan, go to the Main Menu to quit:

- Type **Q** (for Quit) and press the **Return** key.

If you're using a working copy of the program disk, you'll return to the program selector.

Chapter Six — Troubleshooting and Maintenance

If You're Having Problems

If you're having trouble using LightningScan GS, this chapter should help you. Find the section that best describes the trouble you're having and use the suggestions given to solve the problem.

Alert Boxes

This section takes a brief look at some of the alert boxes you may experience while using LightningScan GS. The following are the most common problems and their solutions.

Memory Errors

Problem: You've used up the available memory during the scan.
Solution: Click on either the **Done Scan** or **Restart** Scan buttons. To free up memory, close desk accessories. If you are using a RAM disk, turn it off and restart your computer.

Problem: You have used up all available disk space.
Solution: This is an example of an operating system error. Save your image to another disk where space is available.

Scanner Errors

Problem: To prevent the scanner from being left on accidentally, the software turns the scanner off after being idle for 45 seconds.

Solution: Click on either the **Done Scan** or **Restart Scan** buttons in the alert box.

Streaked Scans

Bright overhead lights can cause vertical streaks in images created with hand-held scanners. If you notice vertical streaks in images, dim the lights or cover the tinted window of the scanner with a piece of paper while scanning.

Problems when Changing Resolutions While Scanning

Changing the resolution switch without restarting the scan can cause the software to become confused. The image may become distorted and pressing the ESC key will have no effect. If this happens, press the start button and drag the scanner a few inches. This will unlock the software and the ESC key should function properly.

If You Can't Scan

If you are having problems scanning, follow these steps to get the scanner running:

- Select **Set Slot** from the **Scanner** menu and verify the slot you are using.
- Quit the LightningScan GS application.
- Turn off your Apple IIGS and all other peripherals.
- Check to see that the peripheral card and scanner are all properly connected.
- Turn your Apple IIGS on and launch LightningScan GS.

If you are still encountering problems, try installing the LightningScan GS peripheral card in a different slot.

Taking Care of Your Scanner

Be kind to your peripheral card and scanner. Treat them as you would any piece of precision electronic equipment. They are pretty sturdy, but not unbreakable. They will hold up well under normal use. Avoid dropping them, of course, and try not to bump

them against hard objects. Avoid using your scanner on abrasive surfaces. This will prevent the lens from becoming scratched and will prevent the roller and elevating legs from wearing out.

The scanner is virtually maintenance-free. If you notice dust gathering on the plastic window on the bottom of the scanner, use a cotton swab to brush out the dust gently. If you accidentally get dirt or a fingerprint on the plastic shield, brush away the large particles and clean it with a cotton swab moistened with glass or lens cleaning fluid. Gently rub the lens and dry it with the other end of the swab.

Periodically, you may wish to clean your scanner, and may need to remove SnapGuide. To remove SnapGuide, slide one side off at a time. If your scanner becomes extremely dirty, call our technical support department for information on a thorough cleaning.

Don't put things on top of the card or scanner. Put your scanner in a safe place when it's not in use. You might store the scanner in its original box or in a desk drawer. When storing the scanner always take special care of the clear plastic lens on the bottom. Scratches in the lens may result in diminished scan quality. Available from Thunderware is **ScanPac™**. ScanPac is a royal blue, all cotton, durable zippered pouch designed to store your LightningScan. Call our customer service department to order ScanPac. Use the anti-static bag included with LightningScan GS for storing and transporting the peripheral card.

Returning Your Scanner for Service

If you are still encountering problems after reading the above sections, contact us. If a member of our technical support department determines that your scanner needs service, he or she will issue a Returned Material Authorization (RMA) number for you to note on the outside of your package.

If your scanner is under warranty, you must return a copy of your sales receipt to confirm the purchase date. Thunderware will promptly repair scanners and return them postpaid. Any repair work not covered under the warranty must be paid before we can return your scanner. To expedite the return of a scanner which requires an out-of-warranty repair, please provide us with a MasterCard or VISA credit card number, expiration date, and the full name shown on the card, along with your scanner.

Important Note: Thunderware cannot accept any unit without the required RMA number, so be sure to note it clearly on the outside of the package containing your scanner. Please make a note of your RMA number in case you need to inquire about the status of a returned scanner later.

Index

Thunderware®

21 Orinda Way ▪ Orinda, CA 94563 U.S.A. ▪ 415/254-6581 ▪ Fax 415/254-3047

608-1601