EPSON

Color Image Scanner

GT-5500

User's Guide

Scanner Parts

document cover

carriage (in the home position)

document table

OPERATE button

RESET button

ERROR   READY   OPERATE

lights

transportation screw

SCSI ID rotary switch

SCSI

SCSI

storage hole

SCSI interface connectors

AC inlet

terminator switch
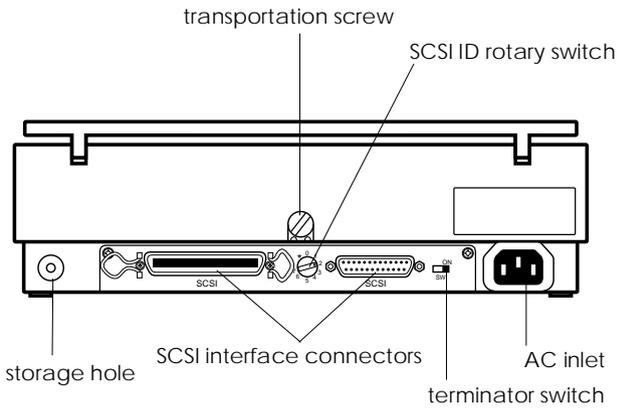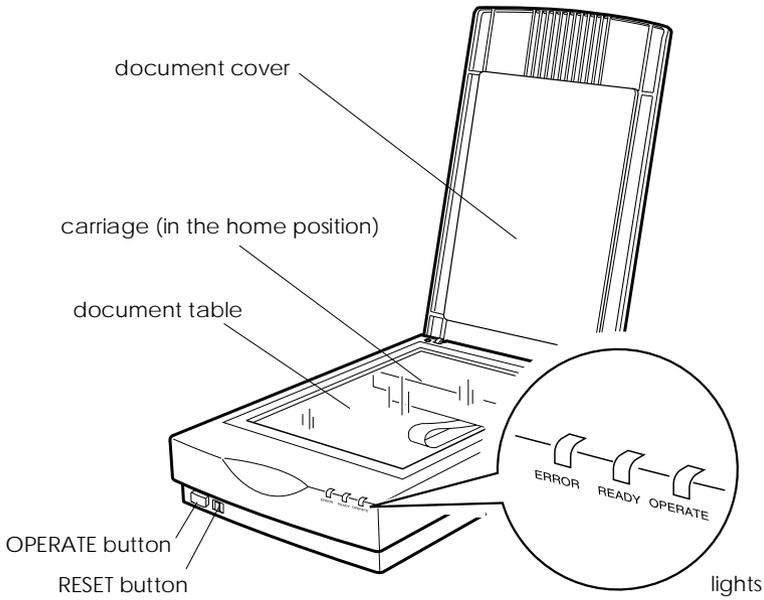
EPSON® GT-5500

Color Image Scanner

User's Guide

Declaration of Conformity

Manufacturer:	SEIKO EPSON CORPORATION
Address:	3-5, Owa 3-chome, Suwa-shi, Nagano-ken 392 Japan
Representative:	EPSON EUROPE B.V.
Address:	Prof. J. H. Bavincklaan 5 1183 AT Amstelveen The Netherlands

Declares that the Product:

Product Name:	Image Scanner
Type Name:	GT-5500
Model:	G670B

Conforms to the following Directive(s) and Norm(s):

Directive 89/336/EEC:

> EN 55022 Class B
> EN 61000-3-2
> EN 61000-3-3
> EN 50082-1
>   IEC 801-2
>   IEC 801-3
>   IEC 801-4

Directive 73/23/EEC:

> EN 60950

August, 1997

Y. Ishii
President of EPSON EUROPE B.V.

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Introduction

Features

The EPSON GT-5500 scanner offers the following features:

❑ Maximum optical resolution of 400 dots per inch (dpi), 30-bit (for input, 24-bit for output), single/triple pass graphics scanner.

❑ Small and light body with A4 or letter size scanning area.

❑ Twice the scan speed of the EPSON GT-5000.

❑ Full color or grayscale (varying shades of gray, from black to white) scanning. You can scan full color (16 million colors), 256 colors, or grayscale up to 256 grays.

❑ The EPSON Scan! II scanner utility and EPSON TWAIN let you take full advantage of your scanner's advanced features.

❑ Auto Area Segmentation (AAS) allows you to separate text from photographs on a page so that grayscale images are clearer and text recognition is more accurate.

❑ Text Enhancement Technology (TET) enhances text recognition accuracy when using your scanner for optical character recognition (OCR) scanning.

❑ A special feature for higher quality output with EPSON TWAIN's "Best & de-screening" option automatically removes unwanted moiré patterns from scanned images.

Options

The following cables are available to expand the versatility of your scanner. For detailed information on the use of these cables, see the guides that come with them.

SCSI System Cable (25-pin to 50-pin) (B860081)
This cable provides a connection between a SCSI device and an
Apple® Macintosh® computer.

SCSI Peripheral Cable (50-pin to 50-pin) (B860091)
This cable provides a connection between two SCSI devices in a
daisy chain.

Warnings, Cautions, and Notes

Warnings *must be followed carefully to avoid bodily injury.*

Cautions *must be observed to avoid damage to your*
equipment.

Notes *contain important information and useful tips on the operation*
of your scanner.

Important Safety Instructions

Read all of these instructions and save them for later reference.
Follow all warnings and instructions marked on the scanner.

❑ Unplug the scanner before cleaning. Clean with a damp
cloth only. Do not spill liquid on the scanner.

❑ Do not place the scanner on an unstable surface or near a
radiator or heat source.

❑ Do not block or cover the openings in the scanner's cabinet.
Do not insert objects through the slots.

❑ Use only the type of power source indicated on the
scanner's label.

❑ Connect all equipment to properly grounded power outlets. Avoid using outlets on the same circuit as photocopiers or air control systems that regularly switch on and off.

❑ Do not let the power cord become damaged or frayed.

❑ If you use an extension cord with the scanner, make sure the total ampere rating of the devices plugged into the extension cord does not exceed the cord's ampere rating. Also, make sure the total ampere rating of all devices plugged into the wall outlet does not exceed the wall outlet's ampere rating.

❑ Except as specifically explained in this user's guide, do not attempt to service the scanner yourself.

❑ Unplug the scanner and refer servicing to qualified service personnel under the following conditions:

If the power cord or plug is damaged; if liquid has entered the scanner; if the scanner has been dropped or the cabinet damaged; if the scanner does not operate normally or exhibits a distinct change in performance. Adjust only those controls that are covered by the operating instructions.

❑ If you plan to use the scanner in Germany, observe the following:

To provide adequate short-circuit protection and over-current protection for this scanner, the building installation must be protected by a 16 Amp circuit breaker.

Note for German-speaking users:
Bei Anschluß des Scanners an die Stromversorgung muß sichergestellt werden, daß die Gebäudeinstallation mit einem 16 A-Überstromschalter abgesichert ist.

For United Kingdom Users

Safety information

Warning: This appliance must be earthed. Refer to the rating plate for voltage and check that the appliance voltage corresponds to the supply voltage.

Important: The wires in the mains lead fitted to this appliance are coloured in accordance with the following code:

Green and yellow — Earth
Blue — Neutral
Brown — Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The green and yellow wire must be connected to the terminal in the plug which is marked with the letter E or with the earth symbol ($\perp$).

The blue wire must be connected to the terminal in the plug marked with the letter N.

The brown wire must be connected to the terminal in the plug marked with the letter L.

If damage occurs to the plug, replace the cord set or consult a qualified electrician.

Replace fuses only with a fuse of the correct size and rating.

Setting Up the Scanner

Choosing a Place for the Scanner

Follow the guidelines listed below when selecting a location for your scanner:

❑ Place the scanner on a flat, stable surface. The scanner will not operate properly if it is tilted or at an angle.

❑ Place the scanner close enough to the computer for the interface cable to reach it easily.

❑ Allow some space behind the scanner for the cables, and make sure to place the scanner where you can easily unplug the power cord. Also allow sufficient space above the scanner so that you can fully raise the document cover.

150 mm or more

443 mm

87 mm

150 mm or more

297 mm

443 mm
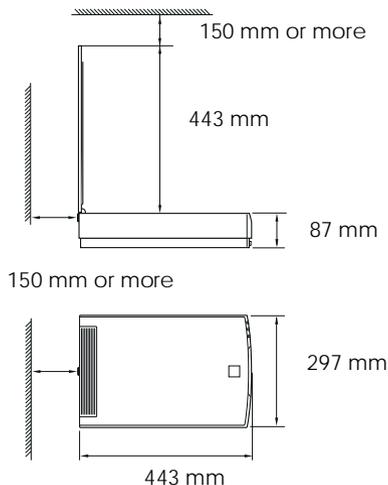
❑ Keep the scanner away from high temperature and humidity. Also avoid using or storing the scanner in places subject to rapid changes of temperature and humidity.

❑ Keep the scanner away from direct sunlight and strong light sources.

❑ Avoid places subject to shocks and vibrations.

Removing the Transportation Screw

Before connecting the scanner to a power source, you must remove the transportation screw.

1. Place the scanner on a flat, stable surface with its rear panel facing you.

2. Remove the screw located in the middle of the rear panel by turning it counter-clockwise, as shown below. If necessary, turn the screw with a coin or screwdriver to loosen it.
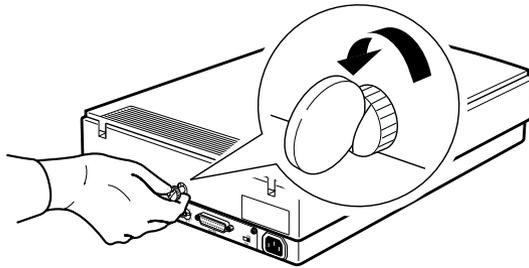
3. Push the screw into the storage hole marked STOCK. It does not screw in. Make sure you push it all the way into the hole.
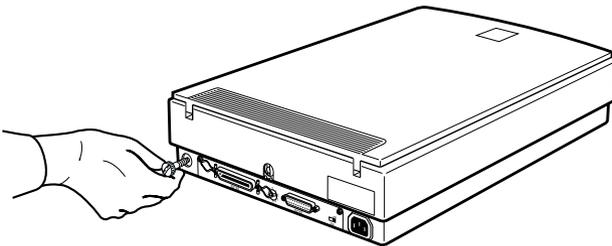
Note:
Do not discard the transportation screw. It must be replaced when storing or transporting the scanner.

Plugging In the Scanner

1. Make sure that the scanner is turned off. It is off when the OPERATE button protrudes from the surface of the front panel.
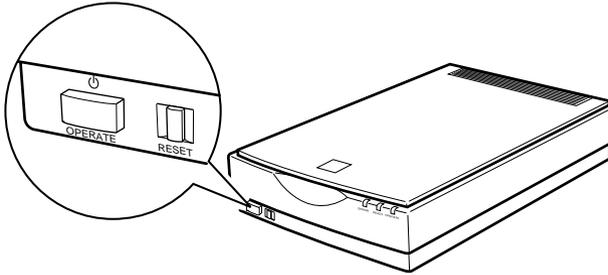
2. Connect the power cable to the power inlet on the rear of the scanner and plug the other end into a properly grounded outlet.
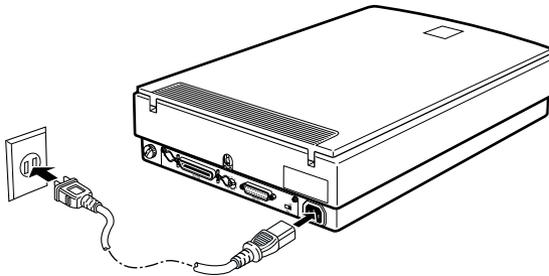
> **!** **Caution:**
> *It is not possible to change the scanner's voltage. If the label on the back of the scanner does not show the correct voltage for your country, contact your dealer.*

Initialization

Before connecting the scanner to your computer, follow the steps below to make sure that the scanner is operating properly.

1. Open the document cover so you can see the operation of the scanner during initialization (startup).

2. Turn on the scanner by pressing the OPERATE button. The OPERATE light comes on.

3. Make sure the fluorescent lamps on the carriage flash, and the carriage moves slightly.

4. The READY light comes on. This means the scanner has completed its initialization.

5. Turn off the scanner.

If the scanner does not work as described, make sure that the power cord is firmly plugged in and that you have removed the transportation screw, then try again.

> **Caution:**
> *Whenever you turn off the scanner, wait at least 10 seconds before turning it back on. Rapidly turning it on and off can damage the scanner.*

Connecting the Scanner to Your Computer

For PC users:

If your PC does not have a SCSI board installed, you need to install one according to the directions that come with the SCSI board. If your PC already has a SCSI board, connect the scanner as described in the next section.

Note:
If you use Windows 95 or NT, install the SCSI driver included in Windows 95 or NT (see your system documentation for instructions) or the driver described in the SCSI board installation documentation. If you use Windows 3.1, install the driver packed with the SCSI board, as described in the SCSI board installation documentation.

For Macintosh users:

All Macintosh computers have SCSI ports; you do not need to install a SCSI board in a Macintosh. Follow the directions below to connect your scanner and computer.

Understanding SCSI connections

Read the following sections to help determine how to set up your SCSI device(s) and if you need any optional SCSI cables.

Daisy Chain
The SCSI interface allows you to connect up to seven devices (such as scanner, hard disk, CD-ROM, and so on) to the computer, in what is called a "daisy chain" arrangement. Only the first SCSI device in a daisy chain is connected to the computer; each of the other devices is connected to another SCSI device.
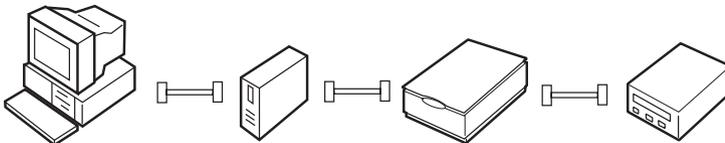
SCSI Cables

Before purchasing a SCSI cable or setting up your SCSI daisy chain, be sure your SCSI cable(s) has the right combination of 50-pin and 25-pin connectors. The combination you need varies depending on the maker of your SCSI device and SCSI interface board.

SCSI ID **and** terminator

Each device has a SCSI ID number: the computer is usually number 7, and each of the other devices must have a different number between 0 and 6. Also, the first device and the last device in the chain (not including the computer) must have a terminator. No other device can have a terminator or if a terminator does exist, it must be turned off.

Setting the SCSI ID number

The scanner's default SCSI ID number is 2.
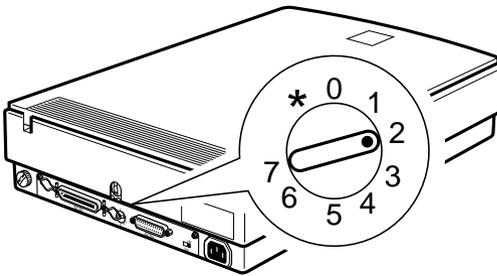
The SCSI ID rotary switch is located at the rear of the scanner.

If you add the scanner to a system in which one of your SCSI devices already has a SCSI ID of 2, change the ID number of the scanner to an unused number. See the table on the next page as a guide.

ID	Availability	Description
0	Not available for Macintosh	Used for hard disk
	Not recommended for Windows	Usually used for hard disk
1	Not recommended	Usually used for hard disk
2		Factory setting of the scanner
3		Not available if your Macintosh has a built-in CD-ROM
4		
5		
6		
7	Not available for Macintosh	Always used for the Macintosh itself
	May not be available for Windows	Usually used for the SCSI board
∗	Not available	Never selected[1]

[1]Otherwise the scanner does not work properly.

> **Caution:**
> *Do not set the SCSI ID to an ID number that is already assigned to another device. Otherwise the computer, scanner, and other devices will not function properly.*

Setting the terminator switch

The scanner has a built-in terminator, which allows SCSI devices to communicate properly with each other. You may need to change the terminator switch setting according to your computer system.
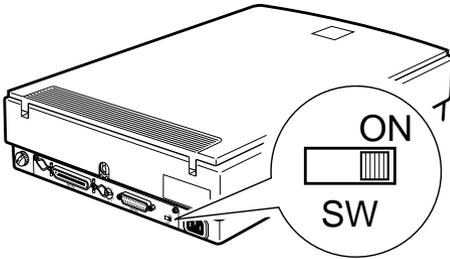
The terminator switch is located at the rear of the scanner.

only the scanner is connected

terminator on
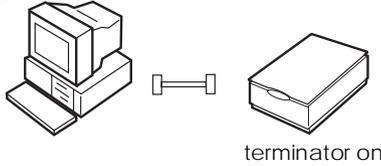
the scanner is the last device in the daisy chain

(other SCSI device)   terminator on
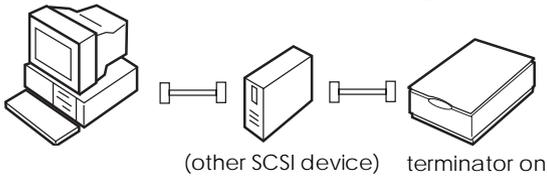
the scanner is in the middle of the daisy chain

terminator off   (other SCSI device)
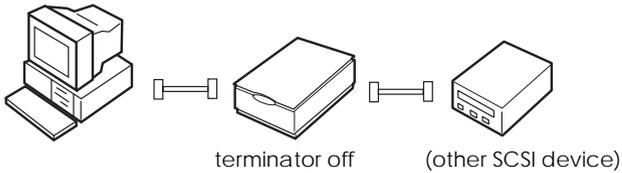
Connecting the scanner

Connect the scanner to your computer or to another SCSI device as follows:

Note:
The combination of 50-pin and 25-pin connectors you need varies depending on the maker of your SCSI device and SCSI interface board.

1. Make sure the scanner, computer, and all other SCSI devices are turned off and unplugged from the power source.

   Caution:
   Do not connect the scanner to the computer or other devices while they are turned on; otherwise damage may occur.

2. Connect one end of the cable to the scanner SCSI connector; then squeeze the wire clips together until they lock in place on both sides.
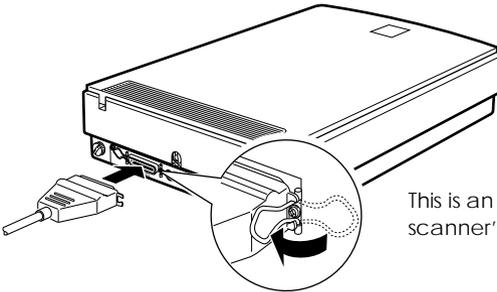
This is an example using the scanner's 50-pin interface.

Note:
❑ *To connect the scanner to a SCSI device other than the computer, the length of cable in the daisy chain must be 6 meters or less; otherwise the system may not work properly.*

❑ *To connect the scanner to a PC using SCSI-2, the length of the cable must be 3 meters or less.*

3. Connect the other end of the cable to the SCSI port of your computer or another SCSI device.

   Note:
   The SCSI port of the Macintosh is the larger port with the SCSI icon ◈ over it.

4. Connect the power cables of your computer, scanner, and other external SCSI devices.

Note:
Before turning on your system, be sure to read "Power-on sequence" below.

Power-on sequence

Keep the following in mind every time you turn on your computer and SCSI devices (such as the scanner).

❑ Be sure to turn on SCSI devices first, then your computer. If you attempt to use a SCSI device which has been turned on after the computer, it may not work properly, or the computer may not work properly.

❑ **For Windows 95 users:**
The first time you turn on the computer after turning on the scanner, either of the following dialog boxes may appear.

If you see either of these, follow the installation instructions in Chapter 1 of your scanner software manual, and then see "Power-off sequence" below.

Power-off sequence

Keep the following in mind every time you turn off your computer and SCSI devices.

❑ When you are finished using your system, turn off your computer first, then the scanner and other SCSI devices.

❑ While using your computer, do not turn off the SCSI device whose terminator is active (on).

❑ Do not turn the scanner off and back on while using your computer, otherwise the scanner may not scan properly.

Now that the connection is completed, you need to install the scanner software. See Chapter 1 of your scanner software manual.

Chapter 2
Using Your Scanner

2

This chapter shows you how the scanner operates. The basic procedure for scanning is as follows.

1. Turn on the scanner. (Keep in mind the 'Power-on sequence' on page 1-11.)

2. Place the document or material you want to scan on the document table. (This is described in detail on page 2-4.)

3. Run the scanner software and enjoy scanning. (See your scanner software manual for details on scanning.)

Lights and Buttons

The scanner has three indicator lights and two buttons.

buttons
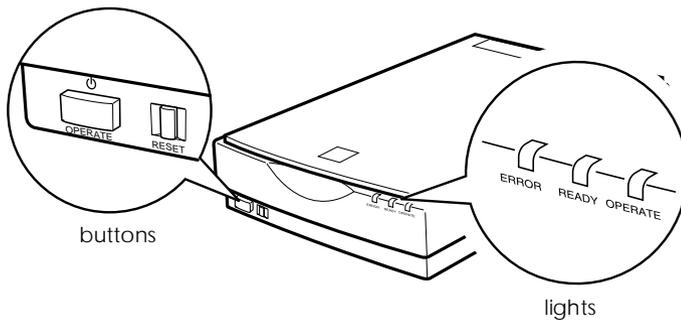
lights

Lights

Indicator		Printer Status
ERROR (red)	■ / ▯̈	An error occurred. This light, along with the READY light, indicates the type of error as shown on page 3-4.
READY (green)	■	Ready to scan images.
	■ / ▯̈	Along with the ERROR light, indicates the type of error. See page 3-4 for troubleshooting information.
OPERATE (green)	■	The scanner is turned on.

■ = on, ▯̈ = flashing

Buttons

Button	Function
OPERATE	Turns the scanner on and off.
RESET	Resets the scanner after an error. Do not press this button while scanning, or you may cause an error.

Placing a Document on the Scanner

Before scanning a document:
Remember to respect the rights of copyright owners. Do not scan published text or images without first checking the copyright status.

1. Turn on the scanner, if necessary, by pressing the OPERATE button. The OPERATE light comes on.
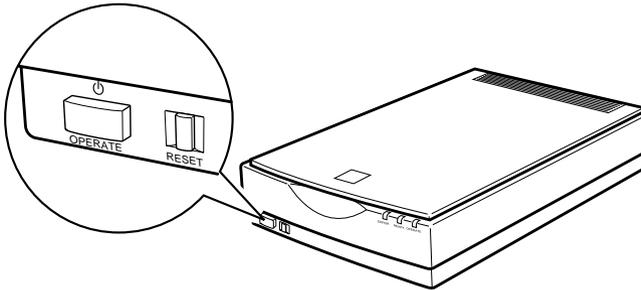
2. Turn on the computer and make sure that the scanner's READY light is on.

3. Open the document cover.
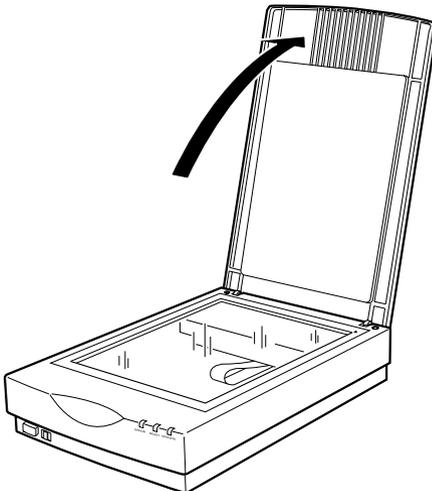
Caution:
Do not open the document cover forcefully, or you may damage the cover's hinge.

4. Place the document on the document table, with the side to be scanned facing down. Make sure that the document is carefully aligned.

corner of the document
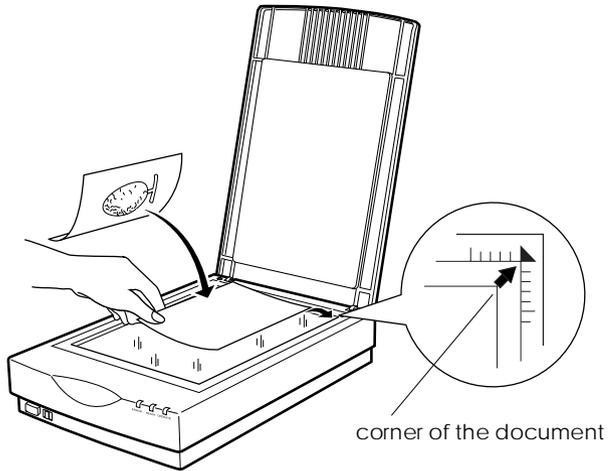
5. Close the document cover gently so that the document does not move.
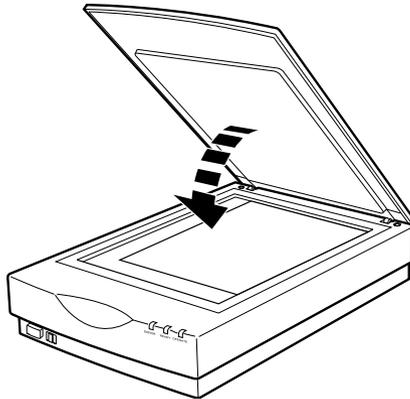
Note:
- ❏ *Make sure the document is flat against the glass surface; otherwise the scanner cannot properly focus and scan your image. Also, make sure to close the document cover. This prevents interference from external light.*

- ❏ *Always keep the document table clean. See "Cleaning the Scanner" in Chapter 3.*

- ❏ *Do not leave photographs on the document table for an extended period of time; they may stick to the glass.*

- ❏ *Do not place heavy objects on top of the scanner.*

6. Start your scanner software, and follow scanning instructions in your scanner software manual.

Removing the Cover for Thick or Large Documents

For thick materials or documents that are larger than the document table, remove the document cover.

Hold the back of the document cover and lift straight up.
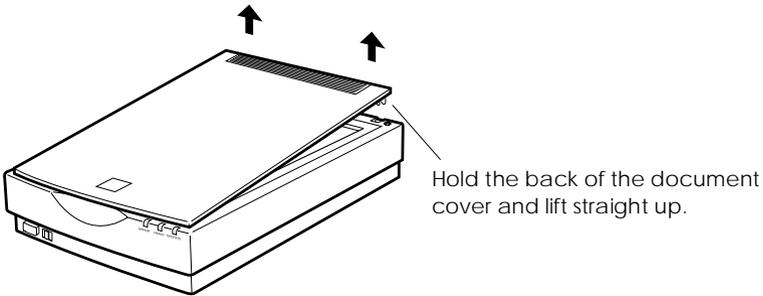
Note:
When scanning with the cover removed, make sure you cover any exposed areas of the document table to prevent interference from external light.

When you are finished scanning, reattach the document cover by pushing straight down on the back of it until it clicks into place.
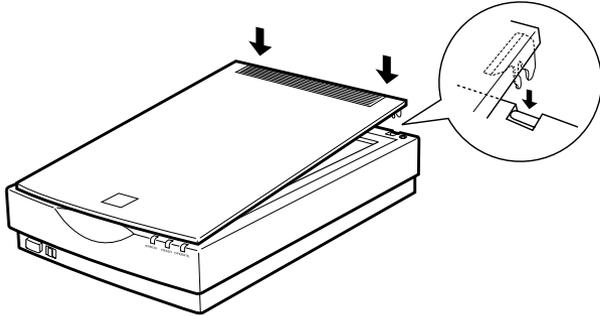
> **Caution:**
> *Make sure that both of the cover's notches are directly above the clips on the scanner before pushing the cover down into place; otherwise you may damage the cover.*

Sizing Up Your System

Your scanner is sufficient for most scanning needs, but if you are not satisified with the quality of the images on your monitor or with the speed of image processing, read this section. While it does not contain specific recommendations, it describes various possibilities for improving your scanning system. For further information, see your dealer or an experienced scanner user.

RAM and hard disk size

Scanned images use much more memory than text files, so you may need more RAM (Random Access Memory) in your computer and a larger hard disk than you have used previously.

Accelerator boards

In addition to memory, processing speed is important because large files take longer to process than small ones. Therefore, you may want to add an accelerator board to your computer.

Video cards

A video card that is sufficient for text may not be good enough for displaying graphic images, especially in color. If all your scanned images look coarse on your monitor, you may want to upgrade your video card. You will need 24-bit color, also called true color or millions of colors, to make the highest quality image reproductions.

Monitors

The resolution of your monitor affects the quality of the image you see. Consider a high resolution monitor if you do precise color work, but also be sure you have a high quality video card.

File compression software

Many different programs are available to make image files smaller for storage or transmission. For example, some compression software can store a 3MB image file on a 1.44MB floppy disk, and compress images and restore them with no loss of data or quality; others compress images more, but the restored file is not exactly the same as the original. The difference between the original and restored files is, however, almost unnoticeable.

Chapter 3
Maintenance and Troubleshooting

3

Maintenance

Cleaning the scanner

To keep your scanner operating at its best, you should clean it periodically, as described below.

1. Unplug the power cable.

2. Clean the outer case with mild detergent diluted in water.

3. If the glass of the document table gets dirty, clean it with a soft dry cloth. If the glass is stained with grease or some other hard-to-remove material, use a small amount of glass cleaner on a soft cloth to remove it. Wipe off any remaining liquid with a dry cloth.

Be sure that there is no dust on the glass of the document table. Dust can cause white spots in your scanned image.

> *Caution:*
> ❑ *Be careful not to scratch or damage the glass of the document table, and do not use a hard or abrasive brush to clean it. A damaged glass surface can decrease the scanning quality.*
>
> ❑ *Never use alcohol, thinner, or corrosive solvent to clean the scanner. These chemicals can damage the scanner components as well as the case.*
>
> ❑ *Be careful not to spill liquid into the scanner mechanism or electronic components. This could permanently damage the mechanism and circuitry.*
>
> ❑ *Do not spray lubricants inside the scanner.*
>
> ❑ *Never open the scanner case.*

Replacing the fluorescent lamps

The luminosity of the fluorescent lamps declines over time. If the lamps break or become too dim to operate normally, the scanner stops working and both the READY and ERROR lights flash. When this happens, the lamp assembly must be replaced. For details, contact your dealer.

> ⚠ *Caution:*
> *Never open the case of the scanner. If you think repairs or adjustments are necessary, consult your dealer.*

Transporting the Scanner

If you transport the scanner a long distance or store it for an extended period, follow the steps below to secure the carriage.

1. Turn on the scanner and wait until the carriage moves to the home position (position nearest the cover hinge). Then turn off the scanner.

2. Remove the transportation screw from the storage hole marked STOCK and screw it into the center hole.
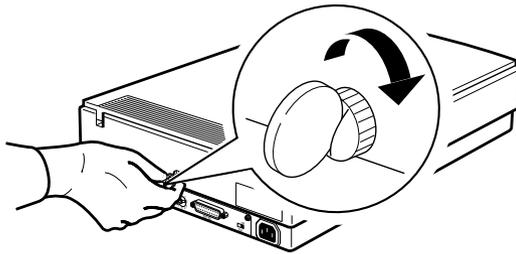
Note:
If the scanner is broken, the carriage may not automatically return to the home position. If it does not, raise the front of the scanner and hold it up until the carriage comes to rest in the home position. Then perform step 2 above.

Problems and Solutions

This section divides scanner problems into three categories:

See the table in "Error indicators" first, and if the information there does not help you solve the problem, go to the category for the type of problem you have and look for the description that most closely matches the problem.

Error indicators

If an error occurs, the scanner stops operating and the READY and ERROR lights show the type of error.

Pattern of lights	Problem and solution	
ERROR READY ■ ■	Cause:	The scanner has received incorrect commands from your scanning software.
	What to do:	Check your software settings and try scanning again. The scanner returns to normal when it receives correct commands. Resetting the scanner has no effect.
ERROR READY ☼ □	Cause:	The interface setup is wrong, or the scanner is not properly connected to the computer.
	What to do:	Check the interface connection. Then push the RESET button or turn the scanner off and back on to reset it.
ERROR READY ☼ ☼	Cause:	The transportation screw has not been removed. Or, one or more fluorescent lamps need to be replaced. Or, the scanner is broken.
	What to do:	Check that the transportation screw has been removed; then push the RESET button. If the scanner still does not operate properly, try turning the scanner off and then back on. If the scanner still does not operate properly, or if this error occurs repeatedly, consult your dealer.

■ = on, □ = off, ☼ = flashing

Operating problems

The problems you may have while using the scanner often involve the operation of your software and computer. Operation problems usually occur because of:

❑ Incorrect setup of the interface (see Chapter 1).

❑ Inappropriate selection of the scanner functions (see your software manual).

❑ Incorrect setup of your computer or software (see Chapter 1 in this guide or the software manual).

❑ Incorrect operation of your software (see your software manual).

Also see the documentation that came with your computer and printer for possible solutions.

The OPERATE light does not come on.

Press the OPERATE button to turn on the scanner.

Make sure the power cable is correctly plugged into the scanner and the power outlet.

The READY light does not come on.

Make sure the scanner is correctly connected to the computer and that the computer is turned on.

The scanner does not start scanning.

Make sure that the READY light is on.

Make sure that you have selected the correct interface port and settings with your software. Also make sure the interface board in your computer is properly installed.

Make sure that the terminator and SCSI ID are correctly set up. See page 1-7.

If you have other expansion boards in your computer, make sure that they are not interfering with the interrupt setting of the interface board for your scanner. (See your computer manual.)

The scanner software does not work properly.

Be sure you have correctly installed your software.

Make sure that your computer system meets the requirements, such as the operating system version, specified for your software.

Confirm that the computer has enough memory for your software. If your computer has many device drivers, or if you are running other software at the same time, or are using RAM-resident programs, the computer may not have enough memory left. (See your software and computer manuals.)

Quality problems

The entire image is distorted or blurred.

Make sure that the document is placed flat against the document table.

You may have accidentally moved the document during scanning. Check the position of the document and do not move it while the scanner is operating.

See that the scanner is not tilted or placed on an unstable surface.

Part of the image is distorted or blurred.

Part of the document may be wrinkled, warped, or not in contact with the document table. Be sure the document is uniformly flat.

[!] Caution:
Do not place heavy objects on the document table.

Edges of the document are not scanned.

The document table has non-readable areas around the edges. If part of your document extends beyond the maximum limits marked on the document table edge guides, you may have to reposition your document so that the image you want to scan is within the readable area.

Color is patchy or distorted at the edges of the image.

If the document is very thick or warped at the edges, the edges of the image may be discolored. Cover the edges of the document with opaque paper to block outside light.

If part of the document extends beyond the document table, that edge may not be in contact with the document table. Change the position of the document.

The image is faint or out of focus.

Check that the document is placed flush against the document table.

Check the Gamma setting in your software.

Check the Exposure setting in your software.

The image is too dark.

Adjust the brightness with your software. Also check the brightness and contrast values of your display screen.

Straight lines in the image are jagged.

The document may be placed at an angle on the document table. Align it so that the horizontal and vertical lines are carefully aligned with the scales on the top and side of the document table.

The image does not look the same as the original.

Try different combinations of image settings using your scanner software.

Your software may not have sufficient color matching and color management features, or these components of your software may not be correctly installed. (See your software and computer manuals.)

If you are importing an image file into your application software, make sure the file format is one your software can read. Also check that the image settings in your application are appropriate for the type of image you want to scan. (See your software manual.)

A line of dots is always missing in the scanned image.

If this happens in your printed image only, your printer or its print head is probably malfunctioning. (See your printer manual.)

If this happens on both your screen and printout, the scanner's sensor may be malfunctioning. Consult your dealer.

When halftoning is used, textured patterns of dots appear on particular areas of an image.

This is normal. See the explanation of moiré patterns in the *Color Guide.*

Colors on your monitor are different from those in the original image.

Check the image settings in your scanner software, especially data format (bits/pixel/color), gamma correction, and color correction. Try a different combination of these settings.

Check the color matching and color management capabilities of your computer, display adapter, and software. Some computers can change the color palette to adjust the colors on your screen. (See your software and computer manuals.)

Exact matching of colors is very difficult. The reason for this is explained in your *Color Guide.* Check your software and monitor manuals for information on color matching and calibration.

Printed colors are different from those in the original image.

Exact reproduction of colors is very difficult. The reason for this is explained in your *Color Guide*. See your software manual or your printing company for guidance on color matching.

The printed image is larger or smaller than the original size.

The image size settings in your software determine the size of the printed image. Do not use the size of the image on your monitor to judge the printed size.

Your image cannot be printed or the printout is garbled.

Check that the printer is properly connected with the computer and is correctly set up. (See your printer manual.)

Check that your software is properly installed and set up for your printer. (See your software manual.)

Appendix A

Technical Specifications

A

Scanning

Scanner type:	Flatbed, color
Photoelectric device:	Color CCD line sensor
Effective pixels:	3400×4680 pixels at 400 dpi, 100%
Document size:	216 mm $\times$ 297 mm (8.5 inches $\times$ 11.7 inches) A4 or US letter size (The reading area can be specified from your software.)
Scanning resolution:	400 dpi (main, sub)
Output resolution:	50 dpi to 1600 dpi in 1 dpi steps
Color separation:	RGB color filters on CCD
Reading sequence:	
Monochrome	One-pass scanning
Color page sequence	Three-pass scanning (R, G, B)
Color byte sequence	One-pass scanning (R, G, B)
Color line sequence	One-pass scanning (R, G, B)
Zoom:	50% to 200% in 1% increments
Image data:	10 bits per pixel per color saved as 8 bits per pixel per color maximum
Brightness:	7 levels
Line Art settings:	Fixed threshold Text Enhancement Technology (enable/disable selectable)
Halftoning process:	AAS (Auto Area Segmentation) Enable/disable selectable 3 halftoning modes (A, B, and C) and 4 dither patterns (A, B, C, and D) for bi-level and quad-level data (2 downloadable dither patterns)
Gamma correction:	2 types for CRT display 3 types for printer 1 type for user-defined

Color correction:	1 type for CRT display
	3 types for printer output (available in color byte sequence mode and color line sequence mode)
	1 type for user-defined
Interface:	SCSI
Light source:	Xe-gas cold cathode fluorescent lamp
Reliability:	100,000 cycles of carriage movements (main unit MCBF)
Dimensions:	Width: 297 mm (11.9 inches)
	Depth: 443 mm (17.7 inches)
	Height: 87 mm (3.5 inches)
Weight:	Approx. 5 kg (11.1 lb)

Electrical

This product is also designed for IT power systems with Phase to Phase voltage 220-240V.

	100–120 V model	220–240 V model
Input voltage range	AC 90 to 132 V	AC 198 to 264 V
Rated frequency	50 to 60 Hz	
Input frequency	49.5 to 60.5 Hz	
Rated current	0.5 A	0.3 A
Power consumption	Approx. 20W	

Note:
Check the label on the back of the scanner for the voltage of your scanner.

Environmental

Temperature:

    Operation   5° C to 35° C (41° F to 95° F)

    Storage   –25° C to 60° C (–13° F to 140° F)

Humidity:

    Operation   10% to 80%, without condensation

    Storage   10% to 85%, without condensation

Operating conditions: Ordinary office or home conditions. Extreme dust should be avoided. Operation under direct sunlight or near a strong light source should be avoided.

Note:
Specifications are subject to change without notice.

Safety Approvals

Safety standards: EN 60950 (VDE)
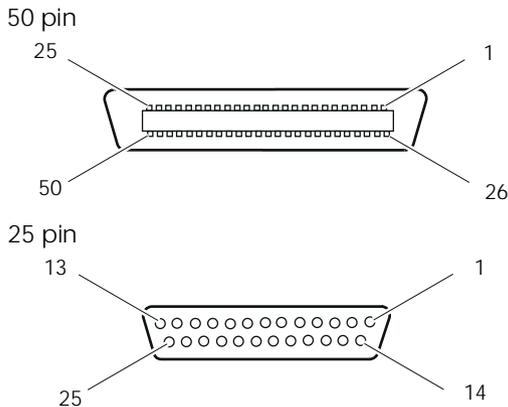   EN 60950 Nordic Deviation (NEMKO)

EMC: EN55022 (CISPR Pub 22) class B
                           EN 61000-3-2
                           EN 61000-3-3
                           EN 50082-1,
                               IEC 801-2
                               IEC 802-3
                               IEC 802-4

SCSI Interface

Interface type:	ANSI X3T9.2/375R Revision 10L (SCSI)
Functions:	BUS FREE phase
	ARBITRATION phase
	SELECTION/RESELECTION phase
	COMMAND phase
	(Logical Unit Number is fixed to 0 and
	command link function is not supported.)
	DATA phase
	Data in phase
	Data out phase
	STATUS phase
	MESSAGE phase
	MESSAGE IN phase
	MESSAGE OUT phase
	ATTENTION condition
	RESET condition
Logic level:	TTL compatible
Electrical standard:	ANSI X3T9.2/375R Revision 10L (SCSI)
ID Setting:	Selectable from 0 to 7
Terminator:	Internal terminator selectable (enable/disable)
Connector type:	25/50-pin connectors

Connector pin arrangement:

Initialization Methods

The scanner can be initialized (returned to a fixed set of conditions) in the following ways:

Hardware initialization	* When the scanner is turned on. * When the scanner receives a SCSI Reset signal from the SCSI interface. * When you push the RESET button.
Software initialization	* When software sends the ESC @ (initialize the scanner) command. * When the scanner receives a SCSI Bus Device Message.

Appendix B
Contacting Customer Support

B

If your scanner is not operating properly and you cannot solve your problem with the troubleshooting information in this guide and online help, contact customer support services for assistance.

We will be able to help you much more quickly if you are able to give the exact information indicated below.

Serial number of your scanner:
(The serial number label is on the back of the scanner.)

Brand and model of your computer:

Scanner software version:
(Click the About button on the Help menu in your application for the version number.)

Version of Windows (95, 3.1, NT 4.0, and so on):

Version of software applications you normally use with your scanner:

For United Kingdom and the Republic of Ireland Users

If you purchased your scanner in the UK or the Republic of Ireland, Epson (UK) Limited provides a range of customer services and technical support.

Note:
For customers in the Republic of Ireland, please use the correct dialing codes when dialing the UK telephone numbers listed in the following sections. For example the Enquiry Desk fax number, 01442 227271, should be dialed as 0044 1442 227271 from the Republic of Ireland.

Enquiry Desk

The enquiry desk team can be contacted by calling 0800 220546 in the UK or 1 800 409132 from the Republic of Ireland, by faxing 01442 227271, and via the Internet at info@epson.co.uk. They can provide the following information:

❑ Information and literature on new EPSON products (also available from Faxon Epson)

❑ Where to purchase genuine EPSON consumables, accessories and options

Customer Support

Our Customer Support team can provide the following services:

❏ Technical information on installing, configuring, and operating your EPSON products

❏ Arranging for faulty EPSON products to be repaired within the warranty period

For information on contacting our Customer Support team, please see the Service and Support Information booklet that came with your EPSON product.

If this booklet is not available, details can be found on Faxon Epson faxback service, EPtec Bulletin Board Service or on EPSON's World Wide Web site. See below for details.

Faxon Epson

Contact Faxon Epson faxback service for:

❏ Literature and specifications on the latest EPSON products

❏ Support information including troubleshooting tips, switch settings and driver information

To use Faxon Epson, call 01442 227332 using a touch-tone phone. You will be asked to follow a simple routine to register your document request, and once you have entered your telephone and fax numbers, Faxon Epson will fax a copy of the document catalogue to your fax machine.

When you have found the documents that you need in the catalogue, call Faxon Epson again and enter the document ID numbers. The documents will be faxed to you automatically.

EPtec - Bulletin Board Service

Call the Epson Bulletin Board Service on 01442 227479 for the latest drivers and utilities. No membership is required. Make sure that your communications software is set to 8 data bits, 1 stop bit, no parity bit, ANSI terminal mode emulation and a modem speed of up to 28.8 Kbps. Downloading protocols supported include Xmodem, Ymodem and Zmodem. See the documentation that came with your communications software and modem for more information.

When you first connect to the Bulletin Board Service, you will be asked for your name, company name, phone number and a password (which you can invent yourself).

World Wide Web

If you can connect to the Internet and have a Web Browser, you can access EPSON's World Wide Web site at http://www.epson.com. Here you will find information on the latest EPSON products, software drivers, and answers to frequently asked questions.

For Australian Users

EPSON Australia wishes to provide you with a high level of Customer Service. As well as this *User's Guide*, we provide the following sources for obtaining information:

EPSON FAXBACK

EPSON FAXBACK will fax you the latest specifications and pricing for most EPSON products offered in Australia. There is also technical information including details of the latest software and drivers available. Phone (02) 9903 9075 and the system will guide you through a number of choices before faxing the information to your fax machine.

EPSON Bulletin Board System

This is where you can download the latest software and drivers. Visit the BBS to check out the latest versions. If you have a modem, phone (02) 9417 5090.

Internet URL http://www.epson.com.au

Access the EPSON Australia World Wide Web pages. Worth taking your modem here for the occasional surf! You can get the same information as offered on the EPSON FAXBACK and the EPSON Bulletin Board plus more.

Your Dealer

Don't forget that your dealer can often help identify and resolve problems. The dealer should always be the first call for advice on problems. They can often solve problems quickly and easily as well as give you advice on the next step to take.

EPSON Helpdesk

EPSON Helpdesk is provided as a final backup to make sure our clients have access to advice. Operators on the Helpdesk can aid you in diagnosing hardware and software problems. They can also advise you on the latest EPSON products and where the nearest dealer or service agent is located. Many types of queries are answered here.

The Helpdesk numbers are:

Phone: (02) 9903 9040
Fax: (02) 9903 9189

We encourage you to have all the relevant information on hand when you ring. The more information you prepare, the faster we can help solve the problem. This information includes the User's Guide for your EPSON product, type of computer, operating system, application programs, and any other information you feel is required.

For Singapore Users

Contact the telephone and fax numbers below:

Phone: (065) 337-7911
Fax: (065) 334-1185

For Hong Kong Users

To obtain technical support as well as other after-sales services, users are welcome to contact EPSON Hong Kong Limited.

Internet home page

EPSON Hong Kong has established a local home page in both Chinese and English on the Internet to provide users with the following information:

❑ Product information

❑ Answers to Frequently Asked Questions (FAQs)

❑ Latest versions of EPSON scanner drivers

Users can access our World Wide Web home page at:
http://www.epson.com.hk.

Electronic bulletin board system

An electronic bulletin board system (BBS) is also available to obtain scanner information and the latest versions of scanner drivers. You can log on to the following number for the BBS service:

BBS: (852) 2827-4244

Technical Support Hotline

You can also contact our technical staff at the following telephone and fax numbers:

Phone: (852) 2585-4399
Fax: (852) 2827-4383

For Philippines Users

To obtain technical support as well as other after sales services, users are welcome to contact the EPSON Philippines Representative Office at the telephone and fax numbers below:

Phone: (632) 813-6552
Fax: (632) 813-6545
BBS: (632) 814-0595

Glossary

additive primary colors
Primary colors which produce white when mixed in a certain proportion. These are red, green, and blue --- the colors of the scanner lamps and color monitor displays.

bi-level data
Image data that is composed of 1 bit per pixel. A pixel is represented by a single bit of digital data that can express only 1 (light) or 0 (dark).

bit
Short for binary digit. The smallest unit of data in computer processing. A bit can represent two values: on and off, or 1 and 0.

bit / pixel
The unit that indicates the number of bits allocated for a pixel. The larger the bit value, the more detail of a pixel will be reproduced.

brightness
A scanner function to lighten or darken the output image data.

byte
A unit of information consisting of eight bits. A byte can represent a control code or character.

carriage
A component of the scanner that contains the optical sensor and light source for scanning.

color correction
A method of adjusting the color image data for a particular type of device so that the reproduction results are as close as possible to the original colors.

color separation
A process to convert full-color images into a limited number of primary colors. The additive primary colors (red, green, and blue) are used by the scanner, and the subtractive primary colors (cyan, magenta, and yellow) plus black are used for printing press separation.

daisy chain
A SCSI bus arrangement that allows several devices to be connected simultaneously in a line to a single computer. See *SCSI*.

default
A set of values used when no other selections have been made. These are sometimes called factory defaults if the original values have not been changed since the scanner has left the factory.

dithering
A process in which software or an output device simulates continuous tones with groups of dots.

document
The physical item, such as a sheet of paper or a book, that you place on the document table for the scanner to read.

dpi
Short for dots per inch. A unit of measurement for resolution. The higher the value, the higher the resolution.

dropout color
A color the scanner does not recognize and ignores. You can select and deselect dropout colors in the scanner software.

ESC/I
Abbreviation for EPSON Standard Code for Image scanners. A system of commands that allows you to control image scanners from your software.

ESC/P
Abbreviation for EPSON Standard Code for Printers. A system of commands that allows you to control printers from your software.

grayscale
Images represented with various shades of gray in addition to black and white.

halftoning
A method of reproducing images with patterns of dots to improve the quality of the output.

home position
The position at the rear (nearest the cover hinge position) of the scanner where its carriage rests before a scanning operation.

imagesetter
A device that uses computer files to produce high-resolution text and graphics output on film or paper. These are usually found in service bureaus and printing companies.

impact dot printer
A printer that transfers ink onto the paper by striking an ink ribbon with a number of small pins.

ink jet printer
A printer that transfers ink onto the paper by spraying it through a number of small nozzles.

interface
A piece of hardware, a method, or a standard used for connection between or among computer devices.

line sequence
A type of color scanning that separates primary colors line by line. The carriage makes only one pass.

monochrome
Black and white images, or images represented only by the intensity of luminosity.

page sequence
The type of color scanning in which the entire image is scanned once for each separation color.

pixel
Short for picture element. Each image is composed of a number of pixels. Pixels are also counted in units of dots.

plain bi-level
Bi-level image data without the halftoning process.

port
An interface channel through which data is transmitted between devices.

primary colors
Basic colors. See *additive primary colors* and *subtractive primary colors.*

resolution
Indication of how finely an image is resolved into pixels. Measured in dots per inch (dpi), pixels per inch (ppi), or samples per inch (spi).

scan
An operation performed by the sensor and the carriage. The image is divided into pixels by scanning.

scanning area
The physical size of the image that can be scanned by the scanner.

SCSI
Small Computer System Interface. This is one method used to connect your computer to peripherals such as scanners, hard disk drives, CD-ROM drives, and so on.

SCSI ID
The numbers that all devices in a SCSI connection (see *daisy chain*) use to identify each other. If the same ID number is used by two devices in the same daisy chain, the devices cannot operate properly.

subtractive primary colors
Primary colors that produce black when mixed in certain proportion. These are cyan, magenta, and yellow. In printing, black is often added to give more definition because mixing of actual inks cannot produce pure black.

terminator
A device that stops electronic signals, and prevents them from proceeding or returning to other devices. This is necessary to stop one signal from continuously bouncing between devices, which would stop all electronic traffic between those devices.

threshold
A reference point that is used to determine whether data will be processed as "on" or "off". If the value of the data is larger than the reference point, the data is considered "on", and if the value is less than the reference point, the data is considered "off". In the case of color image data, "on" means that a certain color will appear in a pixel or dot, and "off" means that color will not appear there.

tone correction
A method of adjusting the tone curve so that the reproduction results on different types of output devices have gradations similar to the original image.

tone curve
The graph that shows the contrast ratio between the input (original image) and output (image data) in image processing.

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EPSON

Color Image Scanner

GT-5500
User's Guide