Kodak

Scanner 3000/4000 Series

User's Guide

A-61159

Contents

1 General Information

Introduction

The *Kodak Digital Science*™ Scanner 3000/4000 Series includes the following mid-volume scanner models:

- Scanner 3500
- Scanner 3510
- Scanner 3520
- Color Scanner 3590C
- Color Scanner 4500

These scanners combine the most robust paper feed and transport in the industry with high image quality and productivity. They are easy to use and maintain, and handle a broad range of paper weights and sizes. And they do it all so quietly, you can place them in your front office.

The Scanner 3520DP and Color Scanner 4500DP include a document printer that can print a date, time, fixed string, and/or sequential number on document fronts.

Kodak Digital Science Diagnostic Software (Diagnostic Software) is included on the CD that is packed with each scanner.

NOTES: The software screens shown in this guide are examples from the Diagnostic Software. Your software may be different.

The scanner inside and certain replacement parts shown in this guide may appear different from the ones you have. However, the actions described in the procedures are the same.

Site Specifications

Locate the scanner:

- in a clean area with temperature and relative humidity typical of an office environment
- on a stable, level work surface capable of supporting the following weights:
  - 31.8 kg (70 lb.) for Scanner 3500, Scanner 3510, and Scanner 3520
  - 34 kg (75 lb.) for Color Scanner 3590C and Color Scanner 4500

Provide the following minimum clearances:

- 45.7 cm (18 in.) on the right side (for access for changing lamps, removing jams, etc.)
- 20.3 cm (8.0 in.) on all other sides around the scanner

Safety Information

- When locating the scanner, make sure that the electrical power outlet is located within 1.52 metres (5 feet) of the scanner and is easily accessible.
- Before changing a lamp, **always power down the scanner and let it cool a minimum of 10 minutes** before proceeding (refer to the following section, “Warning Labels”).

Warning Labels

This label is attached inside your scanner in three places and is intended to communicate the following message:

CAUTION: Hot surface. Avoid contact.

The label is attached to both ends of the illumination lamp in the scanner pod, and to one end of the illumination lamp behind the side access door.

Refer to “Replacing Lamps” in Chapter 5, *Maintenance*, for pictures that show the exact locations of this label in your scanner.

This label is attached on scanner models with printers and is intended to communicate the following message:

CAUTION: Moving parts. Avoid contact.

The label is attached to the bar behind the printer access door.

Refer to “Installing an Ink Cartridge” in Chapter 3, *Document Printer*, for the exact locations of this label in your scanner.

WARNING: The printer access door must be in place and closed during scanner operation, except when changing the printhead location or replacing the ink cartridge.

When the printer access door is removed, DO NOT allow loose clothing, jewelry, hair, or other objects to enter the printer opening.

Environmental Information

- The *Kodak Digital Science* Scanner 3500, Scanner 3510, Scanner 3520, Color Scanner 3590C, and Color Scanner 4500 are designed to meet worldwide environmental requirements.
- Guidelines are available for the disposal of consumable items that are replaced during maintenance or service; follow local regulations or contact Kodak locally for more information.
- The *Kodak Digital Science* Scanner 3500, Scanner 3510, Scanner 3520, Color Scanner 3590C, and Color Scanner 4500 contain lead and mercury. Disposal of lead and mercury may be regulated due to environmental considerations. For disposal or recycling information, please contact your local authorities or visit the Electronics Industry Alliance web site at www.eiae.org.
- The product packaging is recyclable.
- Parts are designed for reuse or recycling.

Safety and Regulatory Agency Approvals

The *Kodak Digital Science* Scanner 3500, Scanner 3510, Scanner 3520, Color Scanner 3590C, and Color Scanner 4500 conform to all applicable national and international product safety and electronic emission regulatory requirements. This includes, but is not limited to, the following:

- Underwriters Laboratories Inc. listing to UL 1950
- Underwriters Laboratories Inc. listing to CSA C22.2 No. 950
- TUV Rheinland of North America approval to EN60950
- CFR 47 Part 15, Subpart B (FCC Class A)
- Canadian ICES–003 Class A
- CE Mark (Europe)
- CISPR22 Class B
- EN55022 Class B
- C-Tick Mark (Australia)
- VCCI Class A
- Taiwan CNS 13438 Class A

Electromagnetic Compliance Statements

For the United States

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

For Japan

This equipment is in the Class A category (Information Technology Equipment to be used in commercial and/or industrial areas) and conforms to the standards set by the Voluntary Control Council For Interference by Information Technology Equipment aimed at preventing radio interference in commercial and/or industrial areas.

Consequently, when used in a residential area or in an adjacent area thereto, radio interference may be caused to radio and TV receivers, etc.

Read the instructions for correct handling.

この装置は、第一種情報処理装置（商工業地域において使用されるべき情報処理装置）で商工業地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会(VCCI)基準に適合しております。
従って、住宅地域またはその隣接した地域で使用すると、ラジオ、テレビジョン受信機等に受信障害を与えることがあります。
取扱説明書に従って正しい取り扱いをして下さい。

For Taiwan

WARNING: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，
可能會照造成射頻干擾，在這種情況下，使用者
會被要求採取某些適當的對策。

General Features

- Excellent paper handling, image quality, and reliability
- Easy to use and maintain
- Handles a broad range of paper weights and sizes
- Small footprint; fits easily on a desktop or table
- Low noise level
- Easy 30-minute installation
- *Kodak Digital Science* Diagnostic Software is included on the CD that is packed with each scanner
- ISIS and TWAIN device drivers are included on the CD that is packed with each scanner
- International language support
- Simplex and duplex models (Scanner 3520 and Color Scanner 3590C are duplex only)
- Top/front side printer (Scanner 3520DP/Color Scanner 4500DP only)
- Kodak Perfect Page scanning technology (Scanner 3520D/ Scanner 3520DP only): exclusive Kodak image processing technology that captures and automatically deskews scanned images, resulting in consistent, high-quality image output at production speed
- SCSI-2 connectivity
- Automatic overlap/multifeed detection
- All scanner models support multiple electrical power requirements for use worldwide
- May be user-calibrated at any time
- Lamp-save option
- Red, green, and blue dropout lamps (imaging elements) available for special applications
- Color Scanner 3590C provides simplex color and duplex bitonal (black-and-white) scanning capability in one product; a patch document enables “on the fly” switching between color and bitonal scanning (output options include simplex color, simplex bitonal, duplex bitonal, or duplex with color front and bitonal back)
- Color Scanner 4500 provides simplex and duplex output in color, bitonal, and “dual stream” (simultaneous duplex color and bitonal)

Image Quality Features

Bitonal Scanners

- Built-in Adaptive Threshold Processing (ATP), image compression, despeckle, and dithering for bitonal scanning
- Perfect Page scanning technology (Scanner 3520D/Scanner 3520DP only) with better edge detection (which assists in providing superior deskew and ultimately sharper, crisper characters)
- Image capture resolution: 600 dpi
- Image output resolution: 200 dpi and 300 dpi

Color Scanners

- Built-in Adaptive Threshold Processing (ATP), image compression, despeckle, and dithering for bitonal scanning
- Auto-color balancing (auto-white balancing) to ensure good color balance after calibration

  A white spot just outside the imaging area (located on the front imaging guide for Color Scanner 3590C and on the front and rear imaging guides for Color Scanner 4500D and Color Scanner 4500DP) is used as a constant reference to compensate for changes in lamp brightness
- Pixel and color correction for the best color image quality
- Multiple color tables available from within the Diagnostic Software (for the TWAIN device driver only) to optimize color image quality (Color Scanner 4500 only)
- Dual stream (simultaneous color and bitonal) output available (Color Scanner 4500 only)
- JPEG compression allows images to be viewed in many image viewers
- Image capture resolution: 600 dpi for bitonal scanning (Color Scanner 3590C only); 150 dpi for color scanning
- Image output resolution: 200 dpi and 300 dpi for bitonal scanning (Color Scanner 3590C only); 100 dpi and 150 dpi for color scanning

Paper Transport Features

- Automatic and manual feeding
- Top entry, bottom exit paper transport
- Multifeed detection (by document length in Scanner 3500; by document length and/or document thickness in Scanner 3510, Scanner 3520, Color Scanner 3590C, and Color Scanner 4500)
- Automatic feeder with operator-assisted “infinite” and single-sheet feeding

Standard Configurations

Feeder and output tray specifications by product	Scanner 3500	Scanner 3510	Scanner 3520	Color Scanner 3590C	Color Scanner 4500
Automatic 150-sheet feeder	x			x	
Automatic 250-sheet feeder		x	x		x
250-sheet output tray	x			x	
350-sheet enhanced output tray		x	x		x

NOTE: The Scanner 3500 and Color Scanner 3590C can accommodate the *Kodak Digital Science* Feed Module 250 (automatic 250-sheet feeder) and the *Kodak Digital Science* Enhanced Output Tray (350-sheet tray). Contact your Kodak Reseller to purchase an upgrade kit.

Maintenance/ Troubleshooting Features

- Easily replaceable lamps, rollers, and other wear parts
- Easy one-step paper jam clearance
- User-accessible error logs via the *Kodak Digital Science* Diagnostic Software that is included on the CD that is packed with each scanner
- LED indicators for power, ready, paper jam, and error/service operating conditions

Paper Transport Speed/Capacity (Throughput)

A page fed into the scanner can be up to 30.5 cm (12 in.) wide, but the maximum image width that is captured is 29.7 cm (11.7 in.).

Scanner 3500

- 75 ppm: mixed-size, landscape-oriented, 200 dpi
- 50 ppm: letter-size (or A4), landscape-oriented, 300 dpi

The Scanner 3500's automatic document feeder is capable of 150-sheet feeding, and operator-assisted "infinite" and single-sheet feeding, of 75g (20 lb.) paper having a length of 6.4 to 43.2 cm (2.5 to 17 in.) and a width of 8.9 to 30.5 cm (3.5 to 12 in.).

Scanner 3510

- 75 ppm: mixed-size, landscape-oriented, 200 dpi
- 85 ppm: letter-size (or A4), landscape-oriented, 200 dpi
- 57 ppm: letter-size (or A4), landscape-oriented, 300 dpi

The Scanner 3510's automatic document feeder is capable of 250-sheet feeding, and operator-assisted "infinite" and single-sheet feeding, of 75g (20 lb.) paper having a length of 6.4 to 43.2 cm (2.5 to 17 in.) and a width of 8.9 to 30.5 cm (3.5 to 12 in.).

Scanner 3520

- 75 ppm: mixed-size, landscape-oriented, 200 dpi
- 85 ppm: letter-size (or A4), landscape-oriented, 200 dpi
- 57 ppm: letter-size (or A4), landscape-oriented, 300 dpi

Color Scanner 3590C

- 75 ppm: mixed-size, landscape-oriented, 200 dpi bitonal or 100 dpi color output
- 50 ppm: mixed-size, landscape-oriented, 300 dpi bitonal or 150 dpi color output
- 85 ppm: letter-size (or A4), landscape-oriented, 200 dpi bitonal or 100 dpi color output
- 57 ppm: letter-size (or A4), landscape-oriented, 300 dpi bitonal or 150 dpi color output

The Color Scanner 3590C's automatic document feeder is capable of 150-sheet feeding, and operator-assisted "infinite" and single-sheet feeding, of 75g (20 lb.) paper having a length of 6.4 to 43.2 cm (2.5 to 17 in.) and a width of 8.9 to 30.5 cm (3.5 to 12 in.).

Color Scanner 4500

- 75 ppm: mixed-size, landscape-oriented, 100 dpi color output
- 50 ppm: mixed-size, landscape-oriented, 150 dpi color output
- 85 ppm: letter-size (or A4), landscape-oriented, 100 dpi color output
- 57 ppm: letter-size (or A4), landscape-oriented, 150 dpi color output

The Color Scanner 4500's automatic document feeder is capable of 250-sheet feeding, and operator-assisted "infinite" and single-sheet feeding, of 75g (20 lb.) paper having a length of 6.4 to 43.2 cm (2.5 to 17 in.) and a width of 8.9 to 30.5 cm (3.5 to 12 in.).

Preparing Documents for Scanning

- A batch of documents to be fed into the scanner must be arranged so that the leading edges of all documents are aligned and centered under the automatic paper feeder; this allows the feeder to introduce documents into the scanner one at a time.
- Torn, damaged, or crushed pages can be transported successfully through the scanner. However, no scanner can transport every possible type of damaged paper. If in doubt about whether a specific damaged document can be transported through the scanner, place the document in a clear protective sleeve. Sleeves should be manually fed, one at a time, **folded edge first, while pressing the gap release button on the scanner**.
- When scanning documents in a clear protective sleeve, the input tray guides must be adjusted to accommodate the width of the sleeve.

NOTE: Kodak scanners have been tested with a range of documents that represent the broad spectrum of document types found in the most common business applications. Optimal scanner performance is achieved when scanning documents within the recommended document specifications listed below. Scanning documents that are outside of these specifications may lead to undesirable results in terms of scanner reliability, image quality, and/or consumable life.

Acceptable Document Materials

- Virgin and recycled papers
- Photographic papers
- Transparencies
- Clear protective sleeves meeting size and thickness requirements specified later in this section

Recommended Paper Types

- Bond
- Laser
- Inkjet
- Offset

NOTE: Torn, damaged, or crushed pages can be transported successfully through the scanner, but no scanner can transport every possible type of damaged paper. If in doubt about whether a specific damaged document can be transported through the scanner, place the document in a clear protective sleeve and feed it manually, folded edge first, while pressing the gap release button on the scanner.

Recommended Paper Weights

The document feeder handles a broad range of paper weights, from 50g (13 lb.) bond paper to 200g (110 lb.) index paper.

Acceptable Document Sizes

- Length:
  - Maximum of 66 cm (26 in.), operator-assisted document feeding and stacking

    NOTE: The maximum length for unattended document feeding is 43.2 cm (17 in.).
  - Minimum of 6.4 cm (2.5 in.)
- Width:
  - Maximum of 29.7 cm (11.7 in.) (A3 width)
  - Minimum for automatic feeding of 8.9 cm (3.5 in.)
  - Minimum for manual feeding of 6.4 cm (2.5 in.)

Acceptable Document Thickness

- 0.038 mm (0.0015 in.) to 0.76 mm (0.030 in.)
- For multifeed detection by document thickness, paper must be 0.05 to 0.18 mm (0.002 to 0.007 in.) thick

NOTE: Document batches must be of uniform thickness to use the multifeed detection feature successfully.

Paper Inks for Scanned Documents

NOTE: All inks on the paper must be dry before scanning is started.

- Standard offset printing
- Inkjet printer
- Thermal transfer
- Handwriting inks

Acceptable Paper Correction Fluids for Scanned Documents

- Liquid Paper
- Tipp-Ex
- Wite-out
- Other correction fluids similar to the above

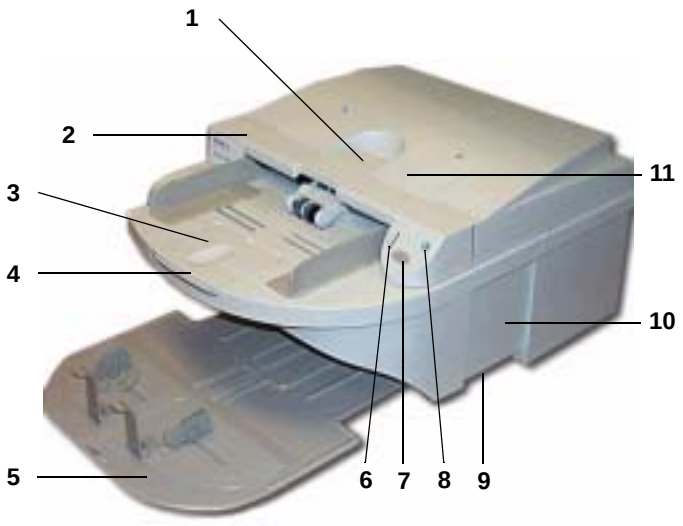
Maximum Document Batch Height for Automatic Feeding

- When feeding batched documents using the Feed Module 150 (included with the Scanner 3500 and Color Scanner 3590C), the maximum height of the batched documents is 15.2 mm (0.6 in.) or approximately 150 sheets of 75g (20 lb.) paper.
- When feeding batched documents using the Feed Module 250 (included with the Scanner 3510, Scanner 3520, and Color Scanner 4500), the maximum height of the batched documents is 25.4 mm (1.0 in.) or approximately 250 sheets of 75g (20 lb.) paper.

Scanner Components

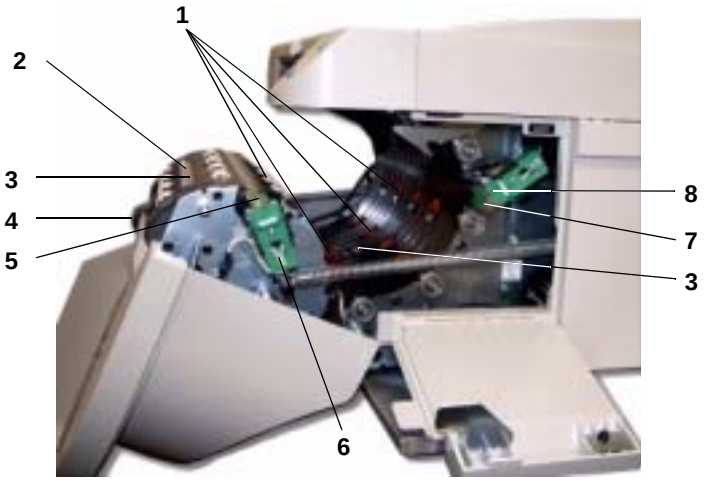
External :

1 Release latch
2 Feed module
3 Input tray extender
4 Pod
5 Output tray
6 Indicator lights
7 Pause button
8 Resume button
9 Power switch
10 Side access door
11 Printer door (Scanner 3520DP and Color Scanner 4500DP only)



Internal

1 Drive rollers
2 Ink blotter strips (Scanner 3520DP and Color Scanner 4500DP only)
3 Paper path sensors
4 Separator roller
5 Front imaging guide
6 Front lamp
7 Rear imaging guide
8 Rear lamp



Rear

1 SCSI ID switch
2 Power cord connector
3 SCSI connectors

2 Installing the Scanner

Unpacking the Scanner

NOTE: Save all packing materials.

1. Carefully cut the tape.
2. Open the box.
3. Remove the output tray and set it aside.

4. Remove the foam cover and set it aside.

5. Open the bag and remove the materials packed inside.

6. Use **two** people to lift and move the scanner to a stable, level work surface.

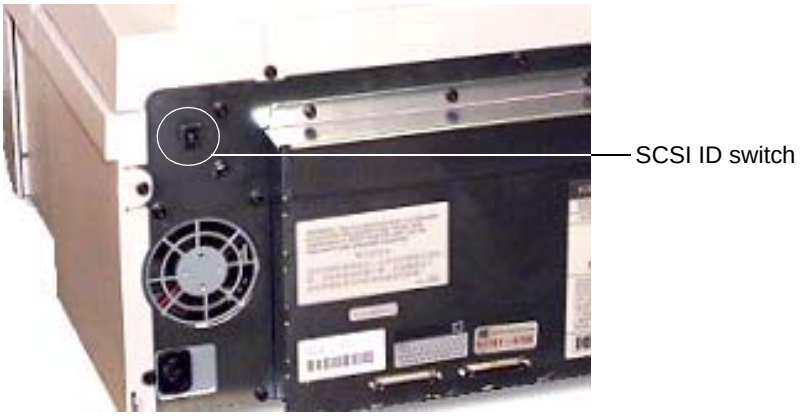
7. Replace the packing materials.
8. Store the box for possible future use.
9. Read the “Read Me Now” document that is taped to the top of your scanner.

SCSI Connection

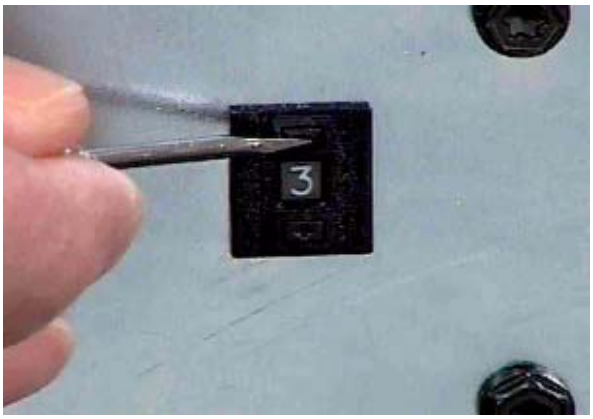
Two SCSI-2, 50-pin, high-density D-Shell connectors are provided on the rear panel for SCSI connectivity. A switch is provided on the rear panel to select the SCSI target ID number for the scanner.

NOTE: The SCSI-2 cable (standard 50-pin, D-shell) is **not** supplied with the scanner.

1. Locate the SCSI ID switch.



2. Use the blade of a small screwdriver to press the switch and set the SCSI ID number.



For most applications, this number should be set to “1”.

NOTE: The scanner should be the only device in the SCSI chain. If you change the SCSI ID number after installation, reboot your PC.

3. Connect the SCSI-2 cable to the scanner.

4. Connect the other end of the cable to your computer.

Power Setup

NOTE: Make sure that the power outlet is located within 1.52 metres (5 feet) of the scanner and is easily accessible.

- For the United States and Canada, attach the power cord that is supplied with the scanner.

NOTE: Outside the United States and Canada, where appropriate, the user or the scanner supplier shall supply an appropriately rated power cord to attach to the scanner.

Attaching the Output Tray

1. Align the output tray's center slot with the scanner.
2. Lift the scanner slightly.
3. Position the output tray so that it is under the scanner and supported by the work surface.

NOTE: Slide the output tray in or out as needed to accommodate different document sizes.

Lowering the Deflector

1. Locate the deflector.
2. Pull the deflector down.
3. Lower it onto the output tray.

NOTE: When scanning lightweight documents that tend to curl, raise the deflector.

Installing the Diagnostic Software

The Diagnostic Software is an easy-to-use tool for setting up, testing, updating, and troubleshooting your scanner. Installing the Diagnostic Software is strongly recommended. It is an easy, standard Windows setup procedure that takes only a few minutes.

NOTE: Software screens and functions described in this User's Guide apply to the Kodak-supplied Diagnostic Software. Integrator-supplied software will be different.

To install the Diagnostic Software and select the TWAIN or ISIS driver, see your scanner's Installation CD.

For fastest installation of the Diagnostic Software, accept the default selections on each setup screen by clicking on **Next** or **I Agree**.

IMPORTANT: The TWAIN-compatible and ISIS-compatible device drivers are loaded from within the Diagnostic Software.

If you are installing the Diagnostic Software in Windows 95, Microsoft Internet Explorer v4.0 or greater must be installed on the computer.

After completing the installation, refer to "Testing the System" in Chapter 6, *Diagnostics*. Open the Diagnostic Software to run both tests.

NOTE: For more information about the Diagnostic Software, refer to Chapter 6, *Diagnostics*.

Registering Your Scanner

It is very important that you register your scanner so Kodak can provide you with the best possible service and support that helps maintain your continuous scanning. Registering your scanner will help us provide you with firmware and hardware updates as they become available.

You can register online at **www.kodak.com/go/docimaging**. Or see the form packed with your scanner and register by fax, mail, or phone.

3 Document Printer

The Scanner 3520DP and Color Scanner 4500DP include a factory-installed, pre-configured document printer. The printer operates at full scanner speed, and prints on the document before scanning on the front side of the document (top side as placed in the input tray). The document printer can add a date, time, fixed string, and/or sequential number on document fronts. Printing is controlled through software.

IMPORTANT: Clean the scanner's internal components daily when you use the document printer.

Overview

Many applications with capture needs up to 10,000 pages per day, particularly in the finance, insurance, and public administration industries, require a document printer. Furthermore, forms processing applications in all areas can benefit from the use of a printer.

The document printer included with the Scanner 3520DP and Color Scanner 4500DP is unique in that the document print string can be configured to include both literal (static) information (i.e., information that stays the same for each document, such as batch name, scan station, or operator) and dynamic information (i.e., information that may change for each page scanned, such as sequential document number). The software controls static fields; any information that the software allows you to enter can be sent to the printer.

All printer controls and functions are accessible through ISIS and TWAIN drivers. Printing must be enabled or disabled for each scan session. A maximum of 40 characters, which can include any alphanumeric and special characters from the printable ASCII character set (see chart below), is allowed.

Printer information is posted to an image footer record, accessible via a SCSI command.

Printable ASCII Character Set

blank	!	“	#	$	%	&	‘	À	Á	Â	Ã	Ä	Å	Æ	Ç
(	)	*	+	,	-	.	/	È	É	Ê	Ë	Ì	Í	Î	Ï
0	1	2	3	4	5	6	7	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×
8	9	:	;	<	=	>	?	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
@	A	B	C	D	E	F	G	à	á	â	ã	ä	å	æ	ç
H	I	J	K	L	M	N	O	è	é	ê	ë	ì	í	î	ï
P	Q	R	S	T	U	V	W	ð	ñ	ò	ó	ô	õ	ö	÷
X	Y	Z	[	\	]	^	_	ø	ù	ú	û	ü	ý	þ	ÿ
`	a	b	c	d	e	f	g	¡	¢	£	¤	¥	¦	§	
h	i	j	k	l	m	n	o	©	ª	«	¬	-	®	¯	
p	q	r	s	t	u	v	w	±	²	³	´	µ	¶	·	
x	y	z	{	|	}	~	‘	¹	º	»	¼	½	¾	¿	
’	¨	°	¸												

Dynamic Print Field Options

Sequential Document Number—the starting sequential document number is specified by the host during job setup, and has a maximum of nine digits. You may suppress the printing of leading zeros. The sequential number increments by one for each document scanned.

If the sequential number rolls over (e.g., three digits are specified, and the number 1000 is reached), the scanner **stops and displays an error**.

Date—this field can be specified to be in MMDDYYYY, DDMMYYYY, or YYYYMMDD format. Date delimiters (dash, slash, comma, or blank separators) may be specified and will be counted as part of the 40-character string length limit.

Time—this field is in the format HH:MM, where HH is in 24-hour format. The hours and minutes are separated with a colon (:). This field therefore uses five characters of the 40 character limit.

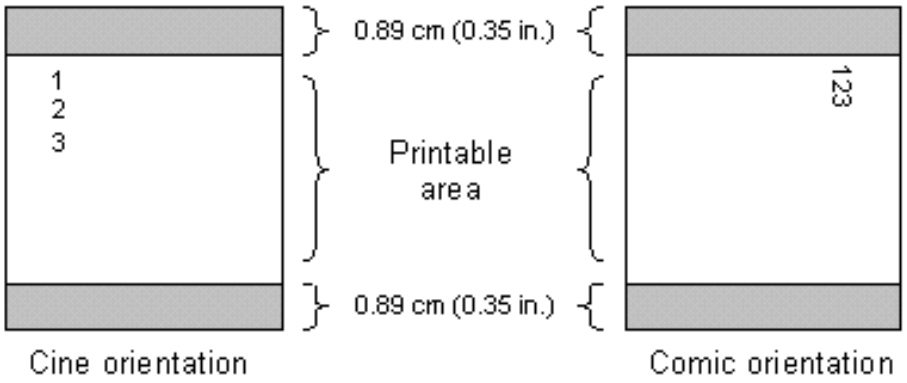
Control of the Printer—any combination of dynamic and static fields is allowed as long as the total print string does not exceed 40 characters. There is no “default” print string. The format of the print string, along with the starting sequential document number, if used, is created on the host and is downloaded to the scanner at the beginning of each scan session.

Characters can be printed in two orientations, Cine and Comic, and two sizes, Large and Small. Small is approximately two-thirds the size of normal, and is designed to fit 10 characters per inch when printed in Comic orientation.

The resolution of the character fonts is 96 dpi across the width of the scanner. However, the font resolution varies with the direction that the paper is fed into the scanner. This variable allows the creation of an easy-to-read character string. The approximate resolution of the printed output is shown below.

Resolution (dpi)		
	Large	**Small**
Cine	63 dpi	85 dpi
Comic	85 dpi	115dpi

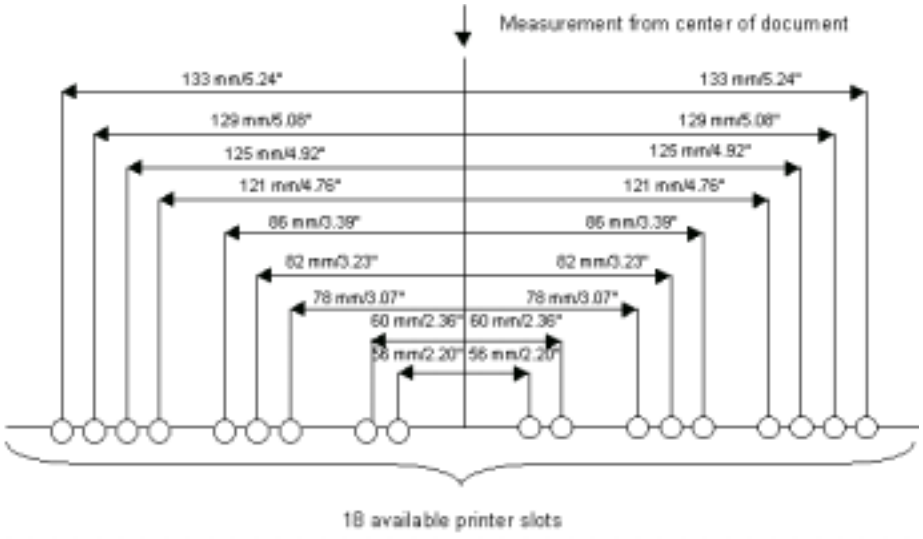
Printing cannot be done within 0.89 cm (0.35 in.) of the leading or trailing edge of the document. It prints in either Cine (no rotation) or Comic (90° rotation) orientation, as shown below.



Changes to the print string, other than automatic, sequential number advances, require a host SCSI command to restart the printer. You must initiate a change between documents or batches. Changes cannot be done automatically or between documents “on the fly.”

NOTE: The minimum document width for using the document printer is 14 cm (5.5 in.).

The document printer can be manually placed in 18 horizontal print positions, as shown below.



Printer Specifications

Characteristic	Description
Maximum lines	1
Print locations (horizontal)	18, manually set
Print locations (vertical)	Set by host
Print orientation	Cine, Comic
Font size	2 selectable, normal and small
Ink cartridge	HP51604A or compatible
Print side	Front (pre-scan)
Minimum printing distance from document edge	0.89 cm (0.35 in.)
Static fields available	User-specified via host
Dynamic fields available	Up to nine-digit sequential document number, date, four-digit time
Languages supported	Any phonetic language (for example, Danish, Dutch, English, Finnish, French, German, Italian, Norwegian, Portuguese, Spanish, Swedish)

Setting Up the Document Printer

The Diagnostic Software contains a Printer tab to set up options for the document printer (Scanner 3520DP and Scanner 4500DP only).

Enable—click on the box to enable the options in the Printer tab.

String text display box—shows the selected strings that will make up the print string.

String item selection list—choose the item(s) that you want included in the print string. Select one of the three Date formats, Time, Counter, Message, and/or Blanks. Click on the Add button for each item selected. The string will appear in the text display box. Select a string and click on the Delete button to remove the string from the string text display box.

Counter—indicates the number at which the counter will begin printing.

Counter Format—allows you to set the number of digits (1-9) that the counter will count to until it rolls over (e.g., if “3” is specified, the counter will print sequential numbers up to 999, and the next scan counter number will be 000).

Select **Display Leading Zeroes** in the Counter Format drop-down box if you want leading zeroes in the counter to print. Choose **Suppress Leading Zeroes** if you do not want leading zeroes to print.

Message—allows you to enter a text message that will be printed. The number of characters allowed depends on the number of characters specified in the print string.

Date Delimiter—allows you to specify the way the date will be printed.

Font—allows you to select the font the string will be printed with: Large Comic, Large Cinema, Small Comic, or Small Cinema.

Y Offset—allows you to specify how far from the left margin you want the string to be printed. Specify the desired units of measure: Inches, Centimeters, Picas, Points, 20^{th} of Points, or Pixels.

Printer Test—allows you to print the string on a document so you can verify any changes before saving them.

Defaults—allows you to return all values to their factory defaults.

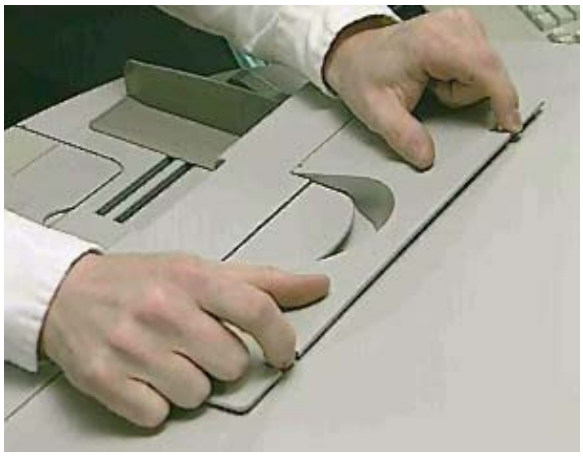
Copy—allows you to copy the values you specified for the front camera and enter them for the rear camera, if Duplex is specified in the Scan Mode field.

OK—saves the values and closes this dialog box. The values are sent to the scanner when scanning is started.

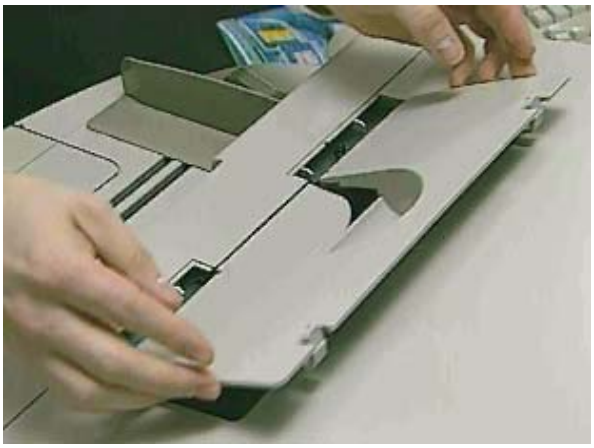
Cancel—closes this dialog box without saving any changes. All previous values are restored.

Opening the Printer Access Door

1. Locate the printer access door on the top of the scanner.
2. Pull the printer access door latches toward you to release the door.



3. Lift the printer access door and set it aside.



WARNING: ***The printer access door must be in place and closed during scanner operation, except when changing the printhead location or replacing the ink cartridge.***

When the printer access door is removed, DO NOT allow loose clothing, jewelry, hair, or other objects to enter the printer opening.

Purging an Ink Cartridge

One ink cartridge is included with the Scanner 3520DP and Color Scanner 4500DP. Additional ink cartridges may be purchased from an office supply retailer near you.

You must purge the ink cartridge before installing it.

1. Remove the ink cartridge from the box and inner wrappings.
2. Hold the cartridge and insert a straightened paper clip into the larger hole on the top of the ink cartridge.

3. Rotate the ink cartridge until the bottom is face up.
4. Gently press the paper clip against the side of the ink bladder until a small bead of ink appears on the ink flow point on the ink cartridge bottom.

CAUTION: Do not puncture the ink bladder with the paper clip.

5. Remove the paper clip.
6. Allow the ink bead to absorb back into the ink cartridge.
7. Blot the excess ink with a lint-free tissue.

CAUTION: Do not touch the ink flow point or you may cause improper ink flow.

Installing an Ink Cartridge

You must purge the ink cartridge before installing it (refer to “Purging an Ink Cartridge” in this chapter).

NOTE: Additional ink cartridges may be purchased from an office supply retailer near you.

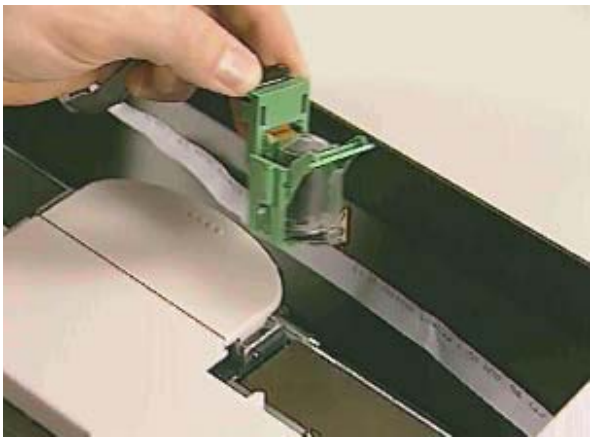
1. Open the printer access door on the top of the scanner (refer to “Opening the Printer Access Door” in this chapter).
2. Slide the green ink cartridge carrier out of its slot.

3. Raise the locking bar if it is not already in the raised position.
4. Remove the empty ink cartridge, if one is present.

NOTE: Dispose of empty ink cartridges properly. Do not incinerate ink cartridges.

5. Insert a new, purged ink cartridge.

6. Lower the locking bar around the ink cartridge.



7. Slide the green ink cartridge carrier into its slot.

NOTE: You may change slots. Refer to the following section, “Setting the Printer Position.”

8. Replace the printer access door and close it.

WARNING: The printer access door must be in place and closed during scanner operation, except when changing the printhead location or replacing the ink cartridge.

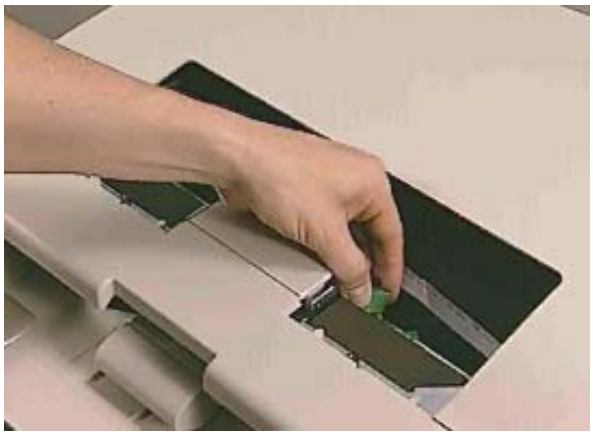
When the printer access door is removed, DO NOT allow loose clothing, jewelry, hair, or other objects to enter the printer opening.

Setting the Printer Position

There are 18 possible positions for the printer. Make sure that the printer is in the correct position for your documents.

1. Locate the printer positioning slots.

2. Determine which position is suitable for your printing needs.
3. Slide the green ink cartridge carrier out of its slot.



4. Slide the green ink cartridge carrier into the desired slot.

Document Printing Problems

If you are having problems printing on scanned documents:

- The tip of the ink cartridge may be plugged. Purge (prime) the ink cartridge (refer to “Purging an Ink Cartridge” in this chapter). If the ink still does not flow properly, replace the ink cartridge. Dispose of used ink cartridges properly.
- Verify that the ink cartridge is not empty. The ink bladder inside the cartridge is flat when it is empty.
- Make sure that the ink cartridge is properly installed in the document printer.
- Make sure that the ink cartridge is located in the correct position for printing.
- Make sure that the ink cartridge carrier is properly seated in its slot.
- Verify that all printer connectors are securely fastened and that the printer cables are not folded or creased.
- Verify that the printer has been enabled through the Diagnostic Software and that the expected print string has been specified.
- Conduct a print test diagnostic using the Diagnostic Software.

Document Printer Maintenance

The ink cartridges, ink blotter strips, and ink cartridge carriers used in the document printer need replacing occasionally.

Expected Life of Document Printer Components

- Document printer ink cartridge: approximately 650,000 characters per cartridge.
- Ink blotter strips: replace as necessary when soiled.
- Ink cartridge carrier: approximately 600,000 pages.

Replacing an Ink Cartridge

Refer to “Installing an Ink Cartridge” in this chapter for information about replacing an empty ink cartridge.

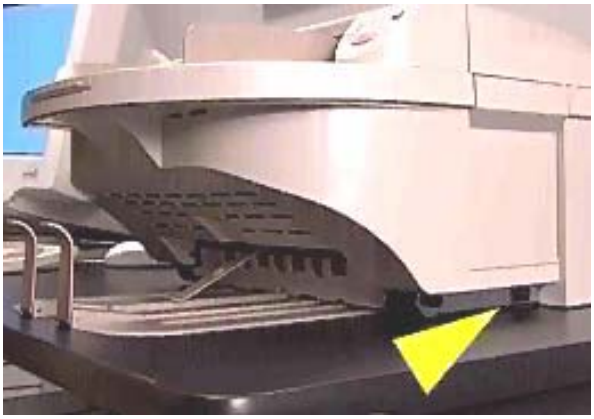
NOTE: Additional ink cartridges may be purchased from an office supply retailer near you.

Replacing the Ink Blotter Strips

The ink blotter strips collect ink overflow. They should be replaced as necessary. Replacement blotter strips are included with the Scanner 3520DP and Color Scanner 4500DP.

To order additional ink blotter strips, refer to Appendix B, *Supplies*.

1. Power down the scanner.



2. Disconnect the power cord.

3. Remove the output tray.

4. Remove any documents from the feeder area.
5. Move the scanner forward to the front edge of the work surface.
6. Grasp the pod with one hand.
7. Pull the release latch with the other hand.

8. Gently lower the pod.
9. Locate the four ink blotter strips (two short, two long).
10. Grasp a blotter strip and carefully pull it off the transport channel.

11. Discard the soiled strip.
12. Remove the three other blotter strips and discard them.

13. Remove the backing from the new blotter strip.

14. Align the blotter strip in the transport channel.

Make sure that you align the blotter strips in the transport channel before pressing the adhesive side into the channel.

15. Press the blotter strip firmly into the channel.
16. Repeat Steps 13-15 for the other three blotter strips.

17. Close the pod firmly.

Replacing the Ink Cartridge Carrier

To order ink cartridge carriers, refer to Appendix B, *Supplies*.

1. Open the printer access door on the top of the scanner (refer to “Opening the Printer Access Door” in this chapter).
2. Slide the green ink cartridge carrier out of its slot.

3. Raise the locking bar if it is not already in a raised position.
4. Remove the ink cartridge, if one is present.

5. Squeeze the metal strips on the connector and pull the connector away from the ink cartridge carrier.

6. Push the connector firmly into a new ink cartridge carrier.

7. Replace the ink cartridge.
8. Lower the locking bar around the ink cartridge.
9. Slide the green ink cartridge carrier back into its slot.
10. Replace the printer access door and close it.

WARNING: ***The printer access door must be in place and closed during scanner operation, except when changing the printhead location or replacing the ink cartridge.***

When the printer access door is removed, DO NOT allow loose clothing, jewelry, hair, or other objects to enter the printer opening.

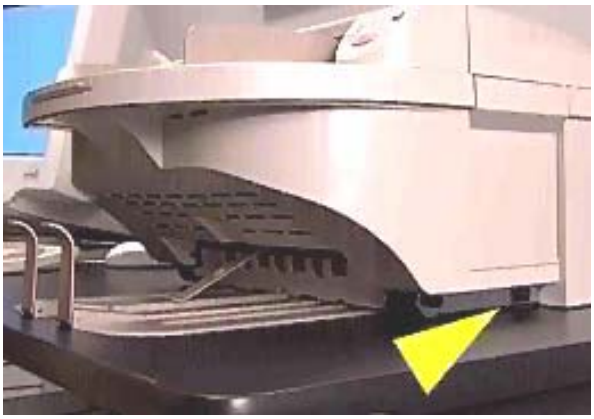
4 Using the Scanner

Powering Up/Down the Scanner

- Press the button on the scanner's bottom right side to power it up.

  or

- Press the button on the scanner's bottom right side to power it down.



After you power up the scanner, the green indicator light flashes. When the green indicator light stops flashing and the lamps have been on at least 30 seconds, the scanner is ready to begin scanning.

IMPORTANT: Always power up the scanner to its ready state before powering up the host computer.

Starting and Stopping Scanning

Before you start scanning, make sure that the lamps have been on for at least 30 seconds.

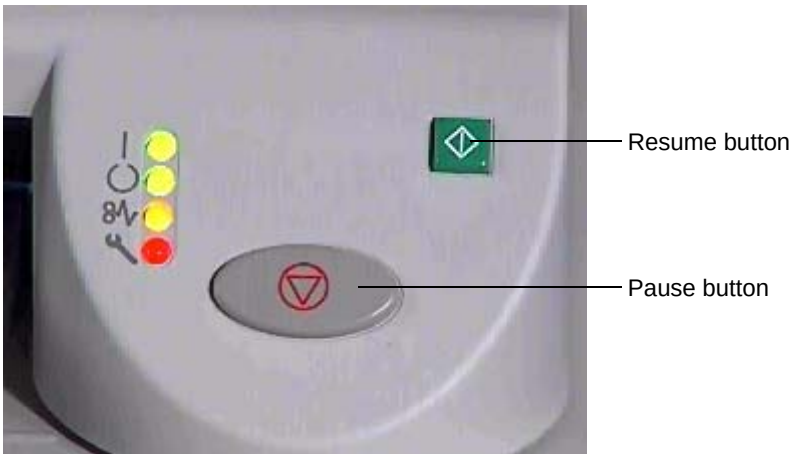
Scanning is controlled by integration software developed for your application (the dialog box shown below is from the *Kodak Digital Science* Diagnostic Software that is included with the scanner).

To start and stop scanning, refer to the documentation provided with your integration software.

Pausing and Resuming Scanning

- Press the **Pause** button on the scanner to stop scanning.
- Press the **Resume** button on the scanner to restart scanning after it has been paused.

  Note that the Resume function is active only for a specific, configurable amount of time after scanning is paused.



Automatic Feeding

To scan a batch of documents, follow the guidelines for size, type, quantity, etc., in Chapter 1, *General Information*.

For faster throughput, feed documents into the feeder in landscape orientation (longer side as the leading edge).

1. Align the leading edges of the stacked documents.
2. Position the leading edge of the documents just under the feed module.

3. Adjust the output tray.
4. Start scanning.

For fastest throughput of a batch of same-size documents, you can enable a special scanning mode for documents that are the same size (length and width). Refer to “Scanning Same-Size Documents” in this chapter.

Continuous Feeding

Continuous feeding allows you to place additional batches of documents in the feeder for “infinite” feeding (with operator assistance).

- When only a few documents from one batch remain in the feeder, place the next batch under those documents.

Scanning Same-Size Documents

Your scanner has a selectable function that enables faster scanning of documents that are the same size (length and width). When enabled, this function speeds the scanning of same-size documents by approximately 13%.

Same-size document scanning is designed for documents that are:

- the same size (length and width)
- the same orientation
- autofed, not manually fed
- centered in the paper transport
- fitted within the side transport guides with minimal skew

Enabling Same-Size Document Scanning

1. Click in the **Same Size Documents** check box so that a check mark appears.

2. Click on **OK**.

Disabling Same-Size Document Scanning

When scanning documents of mixed sizes, be sure to disable the same-size documents scanning function.

1. Click on the **Same Size Documents** check box to remove the check mark.

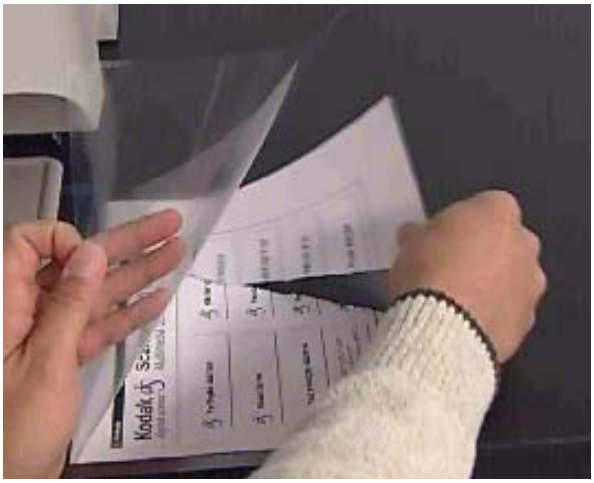
2. Click on **OK**.

Manual Feeding

Follow the guidelines for document size, type, weight, quantity, etc., in Chapter 1, *General Information*.

Damaged Documents

1. Place damaged documents into a protective sleeve.



2. Feed the sleeve into the scanner folded edge first.

3. Press and hold the gap release button (this provides more clearance to ease document feeding).

Business Cards

Feed business cards manually by placing them directly under a feed roller on either side of the feed module.

NOTE: You cannot manually scan business cards this way on the Scanner 3520 or the Color Scanner 4500.

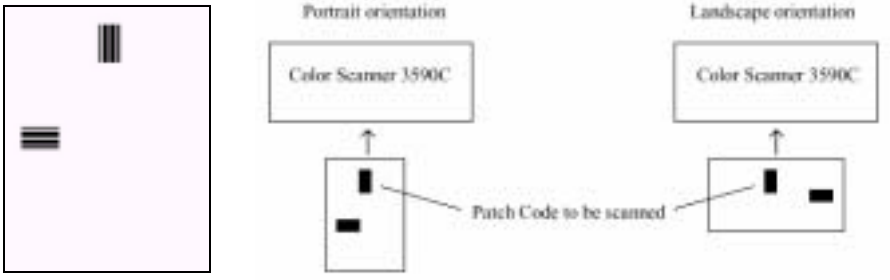
Switching Scan Modes (Color Scanner 3590C Only)

The Color Scanner 3590C contains two cameras: one captures bitonal (black-and-white) images on both sides of documents and the other captures color images on the front side of documents. Only one camera at a time can be in position to capture images. You can control the switch between bitonal and color scanning quickly and easily, on the fly, by feeding the Kodak-designed patch document into the scanner in portrait or landscape orientation.

NOTE: The patch document is in a .pdf file is on the Installation CD.

The Patch Document

The patch document contains two identical patch codes (similar to a bar code). One patch code is positioned to be scanned if the patch document is fed in portrait orientation (shorter side first). The other patch code is positioned to be scanned if the patch document is fed in landscape orientation (longer side first). The patch document must be fed into the scanner as shown below.



When you feed the patch document into your Color Scanner 3590C, the scanner detects the patch code and switches to the opposite scan mode. If the scanner is in color scan mode, the patch code causes a switch to bitonal scanning; if the scanner is in bitonal scan mode, the patch code causes a switch to color scanning. For a mixed batch of color and bitonal documents, place a patch document between your color and bitonal documents.

The patch document .pdf file is on the Installation CD. Print the quantity of patch documents you need (refer to “Patch Document Specifications” in this chapter) using a black-and-white laser printer. A laser printer delivers the sharpest image quality on the patch code. The performance of inkjet-printed patch documents and photocopies of laser-printed patch documents cannot be guaranteed.

You do not need different patch code documents to switch from bitonal to color scanning and vice versa. The patch document is designed to switch to the opposite scanning mode, regardless of the current mode. Only one type of patch document is required.

Once the Color Scanner 3590C detects the patch code, it takes three to four seconds for the scanner to switch cameras, then document feeding starts again automatically.

The scanned patch document is not saved as an image file. It does not take up space on your hard drive or network.

Patch Document Specifications

Paper color	White
Paper size	Width: 8.8 to 29.3 cm (3.5 to 11.7 in.) Length: 21.3 to 42.5 cm (8.5 to 17 in.)
Ink color	Black
Type of printer	A laser printer is recommended.
Contents	The patch document should contain only the two patch codes (one for portrait, one for landscape). No other images or text should be on the patch document.
Skew tolerance	20x
Read rate	99%

Patch Code Specifications

Dimensions	Height: > 2.5 cm (1.0 in.) Width of narrow elements: 0.175 cm (0.07 in.), ±10% Width of wide elements: 0.45 cm (0.18 in.), ±10%
Quality	Reflectance of white elements must be > 65% Reflectance of black elements must be < 5%
Positioning	When you print the patch document, the leading edge of the patch code must appear 1.25 to 3.8 cm (0.5 to 1.5 in.) from the leading edge of the paper. It is best to have the patch code centered across the width of the paper, but it must appear at least 1.25 cm (0.5 in.) in from either side of the paper.

Enabling Patch Detection

1. Click on the **Enable Color Patch Detection** check box so that a check mark appears.

2. Click on **OK**.
3. Obtain a laser-printed patch document.

NOTE: The patch document .pdf file is on the Installation CD.

4. Feed a patch document in the correct orientation with your documents into the Color Scanner 3590C.

NOTE: It takes three to four seconds to switch scan modes after a patch code has been detected.

Disabling Patch Detection

- Click on the **Enable Color Patch Detection** check box to remove the check mark.

Multifeed Detection

Your scanner has a selectable function that can alert you when a multifeed occurs. A multifeed is when two or more documents pass through the feeder simultaneously.

NOTE: The Scanner 3500 has a different multifeed detection setup than the Scanner 3510, Scanner 3520, Color Scanner 3590C, or Color Scanner 4500.

Enabling Multifeed Detection for the Scanner 3500

When enabled, this function causes an alarm tone to sound when a multifeed is detected (alarm volume must be set higher than 0--see Step 3).

When enabling multifeed detection, you can

- choose to detect a multifeed by length
- set the alarm volume
- choose whether scanning is to
  - stop when a multifeed is detected

    or
  - continue with an audible alarm to indicate multifeeds

1. Select a number in the **Length Detection** box to set the length limit.

   The Multifeed Stops Scanning check box is enabled.

2. Select the unit of measure (inches, millimeters, or pixels).

NOTE: Users of the ISIS-compatible device driver:

When defining a multifeed detection length limit, it is recommended that you set the limit at least 0.7 inches (18 mm) longer than the length of the documents you are scanning.

3. Choose an Alarm Volume setting under the Multifeed Stops Scanning check box for an alarm tone that sounds when a multifeed is detected.

Settings range from 0 (volume off) to 15 (the loudest volume).

4. Click on **OK**.

Disabling Multifeed Detection for the Scanner 3500

- To disable multifeed detection, click on the **Length** check box to remove the check mark.

Enabling Multifeed Detection for Scanners 3510 and 3520 and Color Scanners 3590C and 4500

When enabled, this function causes an alarm tone to sound when a multifeed is detected (alarm volume must be set higher than 0--see Step 16).

When enabling multifeed detection, you can

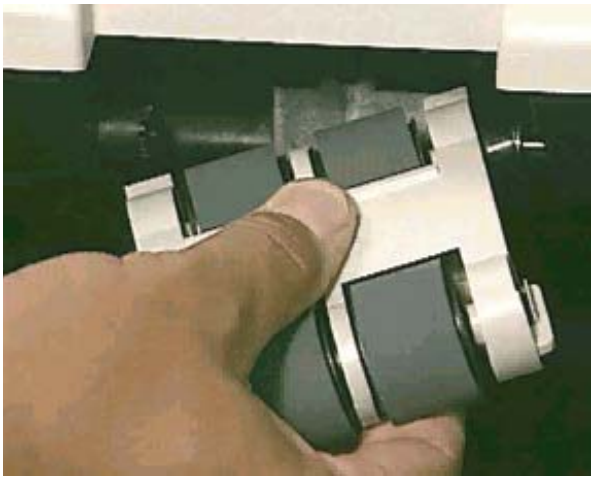
- choose to detect a multifeed by length and/or thickness
- set the alarm volume
- choose whether scanning is to
  - stop when a multifeed is detected

    or
  - continue with an audible alarm to indicate multifeeds

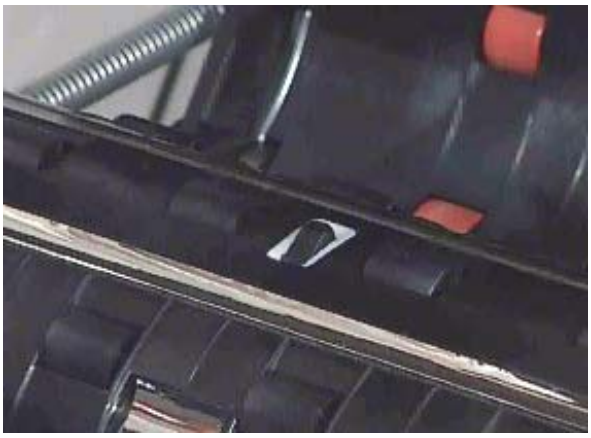
Multifeed detection is enabled partly on the scanner itself and partly in the scanning software.

1. Remove any documents from the feeder.
2. Lower the pod.

3. Remove the feed module by pushing it to the right and lifting it out.



4. Locate the multifeed detection button.



5. Use a small pointed object, such as a pen, to push the button down into the enable position.

6. Replace the feed module by aligning the pins and fitting it into position.
7. Close the pod firmly.

The remainder of the multifeed detection enabling occurs in the scanning software.

8. Click on the **Thickness Detection Enable** check box so that a check mark appears, if you wish to detect multifeeds by thickness.

If you enabled **Thickness Detection**, you must calibrate a multifeed thickness setting.

9. Click on the **Calibration** button.
10. Click on **Multifeed Thickness** and follow the prompts.
11. Locate a sheet of paper that is the same thickness as the documents to be scanned
12. Insert the paper into the scanner.
13. Select a number in the **Length Detection** box to set the length limit, if you wish to detect multifeeds by length.

The Multifeed Stops Scanning check box is enabled.

14. Select the unit of measure (inches, millimeters, or pixels).

NOTE: Users of the ISIS-compatible device driver:

When defining a multifeed detection length limit, it is recommended that you set the limit at least 0.7 inches (18 mm) longer than the length of the documents you are scanning.

15. Choose the scanning action that will follow the detection of a multifeed—you can choose to stop scanning or continue scanning. You must choose one or the other.
16. Choose an Alarm Volume setting under the Multifeed Stops Scanning check box for an alarm tone that sounds when a multifeed is detected.

Settings range from 0 (volume off) to 15 (the loudest volume).

17. Click on **OK**.

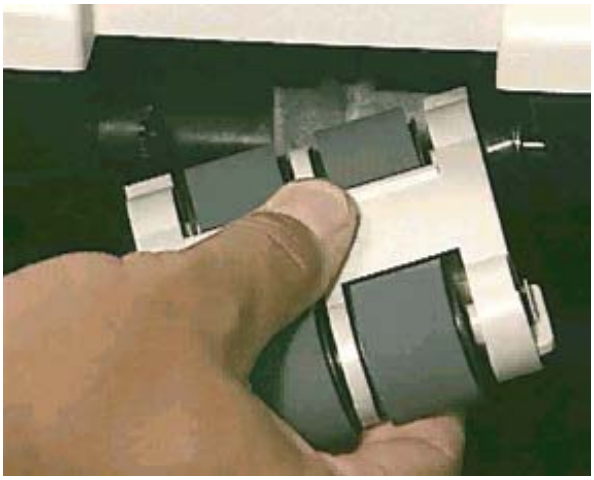
NOTE: Do not set the scanning action to “Continue Scanning” and the alarm volume to a very low level. Doing so will effectively “disable” multifeed detection—the alarm will not be audible and the scanner will continue scanning after a multifeed is detected.

Disabling Multifeed Detection for Scanners 3510 and 3520 and Color Scanners 3590C and 4500

Multifeed detection is disabled partly on the scanner itself and partly in the scanning software.

1. Remove any documents from the feeder.
2. Lower the pod.

3. Remove the feed module by pushing it to the right and lifting it out.



4. Locate the multifeed detection button.

5. Use a small object, such as a pen, to push the button to the disable position.

6. Replace the feed module by aligning the pins and fitting it into position.
7. Close the pod firmly.
8. Click on the **Thickness Detection Enable** check box to remove the check mark.

   The alarm volume box grays out.
9. Set the **Length Detection** limit to “0.”

Calibrating the Scanner

Calibration optimizes the optical system in your scanner in order to achieve the best overall quality of scanned images. Frequent calibration is not needed or recommended. When you do calibrate (e.g., after changing a lamp), be sure that the lamps have been on for at least three minutes, then follow this procedure.

1. Clean both imaging guides.

   Refer to “Imaging Guides” in Chapter 5, *Maintenance*.

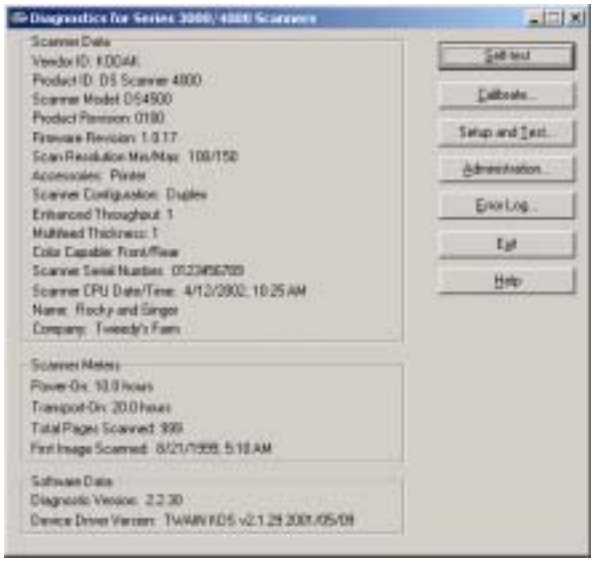
2. Wait three minutes after the pod has been closed to allow the lamps to warm up.

3. Obtain a proper calibration target—use a clean, blank, white sheet of paper with a matte surface (not glossy).

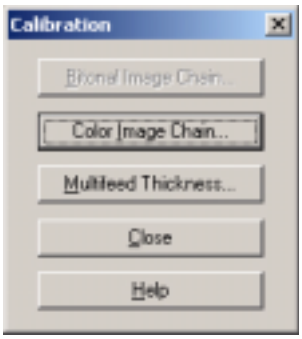
   Make sure that the target is wider than the documents to be scanned. It is best to use the 30.5 cm (12 in.) square calibration target available from Kodak (Cat. No. 127-1436).

4. Open the Diagnostic Software.

5. Click on **Calibrate** in the Diagnostics dialog box.



The Calibration dialog box appears. Available calibration options depend on the scanner model.

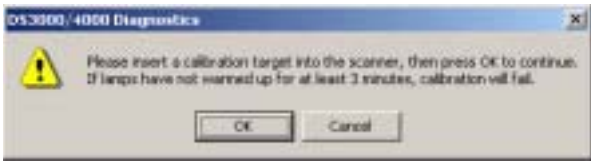


NOTES: The Multifeed Thickness calibration option is used only when enabling multifeed detection by document thickness. For more information, refer to “Multifeed Detection” in this chapter.

For more information about calibration, refer to the online help provided with the Diagnostic Software.

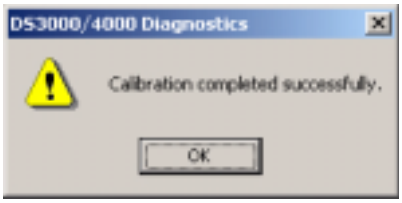
6. Click on the button for the calibration mode you wish to use.

   A message appears.



7. Insert the calibration target into the scanner.
8. Click on **OK**.

   Calibration begins. A confirmation box appears when calibration has finished.



Color Adjustment

The default color table provides robust image quality for a wide range of input and applications (Color Scanner 3590C and Color Scanner 4500 only).

However, through the Diagnostic Software (TWAIN only), you may download color tables for varying document types and applications needs, such as photographs, text for OCR, and so forth.

5 Maintenance

Expected Life of Customer-Replaceable Wear Parts

- *Kodak Digital Science* Feed Module 150 (150-sheet automatic paper feeder): 600,000 - 1,000,000 document pages
- *Kodak Digital Science* Feed Module 250 (250-sheet automatic paper feeder): 600,000 - 1,000,000 document pages
- *Kodak Digital Science* Separator Roller: 300,000 - 600,000 document pages
- *Kodak Digital Science* White Imaging Lamp: up to 500 hours
- *Kodak Digital Science* Red, Green, and Blue Imaging Elements: up to 300 hours

NOTES: The composition of the roller materials was engineered to provide the ultimate in feeding reliability across the broadest range of document types, sizes, and thicknesses. Expected life figures are offered as guidelines for operations that follow the recommended scanner cleaning procedures in this chapter and that scan document types within the recommended paper types (refer to “Preparing Documents for Scanning” in Chapter 1, *General Information*).

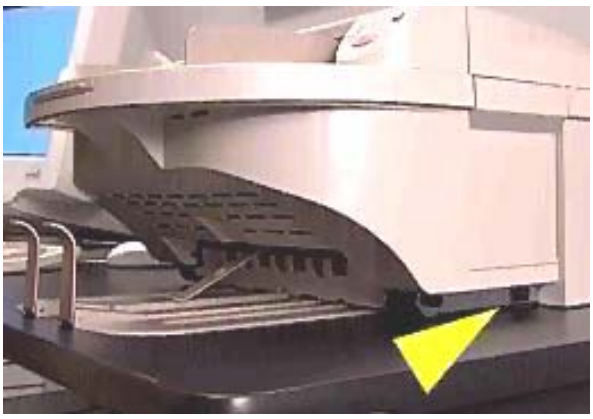
Your experience may vary. Certain paper types (such as carbonless paper), failure to clean regularly, and/or use of non-recommended cleaning solvents can shorten roller life.

The inside of the scanner and certain replacement parts shown in this chapter may appear different from the ones you have. However, the actions described in the procedures are the same.

To order additional cleaning supplies or replacement parts, refer to Appendix B, *Supplies*.

Lowering the Pod

1. Power down the scanner.



2. Disconnect the power cord.

3. Remove the output tray.

4. Remove any documents from the feeder area.
5. Move the scanner forward to the front edge of the work surface.
6. Grasp the pod with one hand.
7. Pull the release latch with the other hand.

8. Gently lower the pod.

NOTE: The pod does not have to be lowered completely in order to clear a document jam (refer to “Clearing Document Jams” in Chapter 7, *Troubleshooting*).

Closing the Pod

- Close the pod by lifting the front of the pod until it snaps into place.

Cleaning the Feed Module

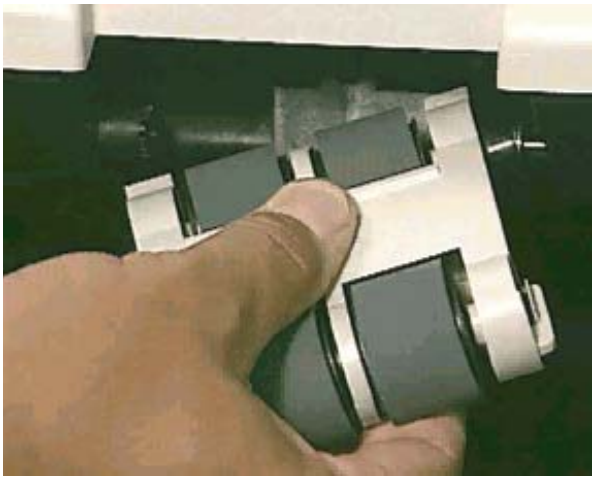
For best scanner performance, clean the feed module rollers at least once per week using the recommended Cleaning Pad (CAT No. 853-5981). Use of any other cleaning materials could damage your scanner.

NOTE: Clean the rollers daily if you are scanning carbonless paper or if you are using the document printer (Scanner 3520DP or Color Scanner 4500DP only).

1. Follow all of the steps in “Lowering the Pod” in this chapter.

NOTE: You do not have to lower the pod completely to remove the feed module.

2. Remove the feed module by pushing it to the right and lifting it out.



3. Wipe the rollers with a cleaning pad until all residue is removed.

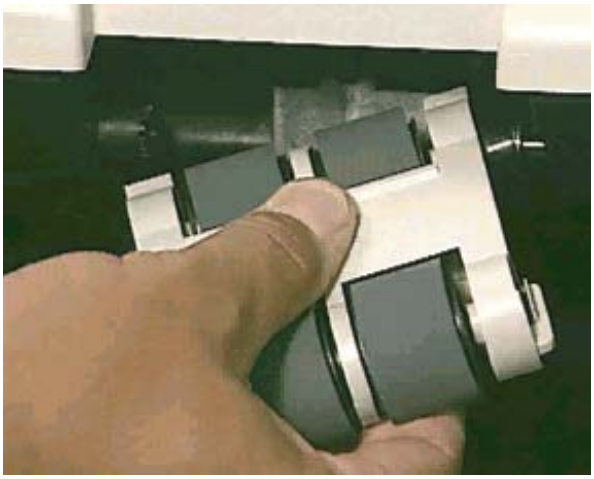
4. Inspect the rollers.

   If the rollers show signs of wear or damage, replace them.

5. Replace the feed module by aligning the pins and fitting it into position.
6. Close the pod firmly.

Replacing the Feed Module Roller Tires

1. Follow all of the steps in “Lowering the Pod” in this chapter.
2. Remove the feed module by pushing it to the right and lifting it out.



3. Place the feed module on a flat surface with the side tabs up.
4. Press the locking tabs (one on each side) and pull the upper housing up and away from the rollers.

5. Remove one core assembly.
6. Replace each tire by sliding the tire off the core.

7. Install each new tire by gently stretching it over the core.

IMPORTANT: Disregard the arrow on the side of the tire. It makes no difference in which direction the arrows point.

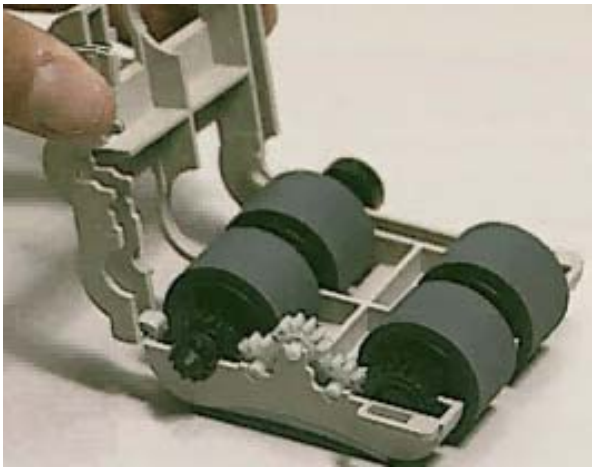
Do not overstretch the tire; it may tear.

Make sure that the tire is centered on the core and is lying flat on the core.

8. Replace the core assembly in the feed module (align the gears).

9. Repeat Steps 5 - 8 for the other core assembly.

10. Align the rear tabs on the lower housing with the rear tabs on the upper housing.



11. Press the upper and lower housings together until they snap into place.

12. Replace the feed module by aligning the pins and fitting it into position.
13. Close the scanner pod.

Separator Rollers

Cleaning the Separator Roller

For best scanner performance, clean the separator roller at least once per week using the recommended Cleaning Pad (CAT No. 853-5981). Use of any other cleaning materials could damage your scanner.

NOTE: Clean the rollers daily if you are scanning carbonless paper or if you are using the document printer (Scanner 3520DP or Color Scanner 4500DP only).

1. Follow all of the steps in “Lowering the Pod” in this chapter.
2. Open the separator roller access cover.

3. Remove the separator roller by pushing it to the right and lifting it out.

4. Wipe the separator roller with a cleaning pad until all residue has been removed.

5. Inspect the roller.

   If the roller show signs of wear or damage, replace it.

6. Replace the separator roller by aligning the pins and fitting it into position.
7. Close the access cover.
8. Close the pod firmly.

Replacing the Separator Roller Tires

1. Follow all of the steps in “Lowering the Pod” in this chapter.
2. Open the separator roller access cover.
3. Remove the separator roller by pushing it to the right and lifting it out.

4. Replace each tire by sliding the tire off the core.

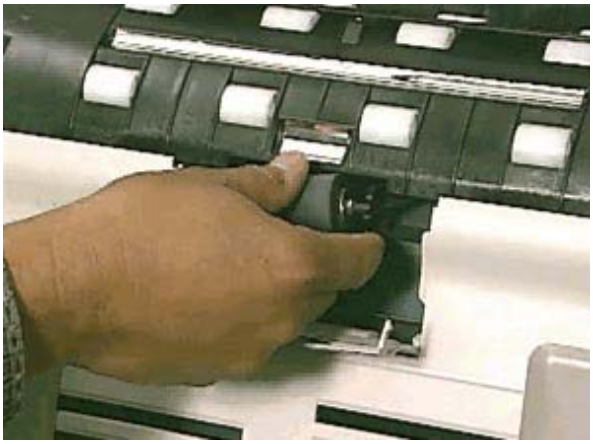
5. Install each new tire by gently stretching it over the core.

IMPORTANT: Disregard the arrow on the side of the tire. It makes no difference in which direction the arrows point.

Do not overstretch the tire; it may tear.

Make sure that the tire is centered on the core and is lying flat on the core.

6. Insert the separator roller by aligning the pins in the grooved brackets.



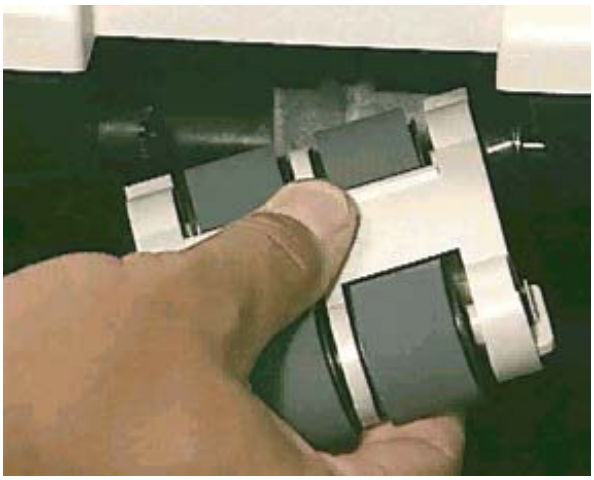
7. Close the separator roller access cover.
8. Close the scanner pod.

Cleaning the Drive Rollers

For best scanner performance, clean the drive rollers at least once per week using the recommended Cleaning Pad (CAT No. 853-5981). Use of any other cleaning materials could damage your scanner.

NOTE: Clean the rollers daily if you are scanning carbonless paper or if you are using the document printer (Scanner 3520DP or Color Scanner 4500DP only).

1. Follow all of the steps in “Lowering the Pod” in this chapter.
2. Remove the feed module by pushing it to the right and lifting it out.



3. Open the side access door.

4. Wipe the drive rollers with a cleaning pad until all residue has been removed.

5. Clean any dust or debris in the slots around the drive rollers.
6. Close the side access door.
7. Replace the feed module by aligning the pins and fitting it into position.
8. Close the pod firmly.

Cleaning the Imaging Guides

For best image quality, clean both imaging guides at least once per day (or more often if necessary) using the recommended Staticide Wipe (CAT No. 896-5519). Use of any other cleaning materials could damage your scanner.

NOTES: Clean the imaging guides daily if you are scanning carbonless paper or if you are using the document printer (Scanner 3520DP or Color Scanner 4500DP only).

During cleaning, avoid getting fingerprints on the imaging guides.

1. Follow all of the steps in “Lowering the Pod” in this chapter.
2. Open the side access door.

3. Grasp the end of the imaging guide that is behind the side access door and slowly pull it straight out.

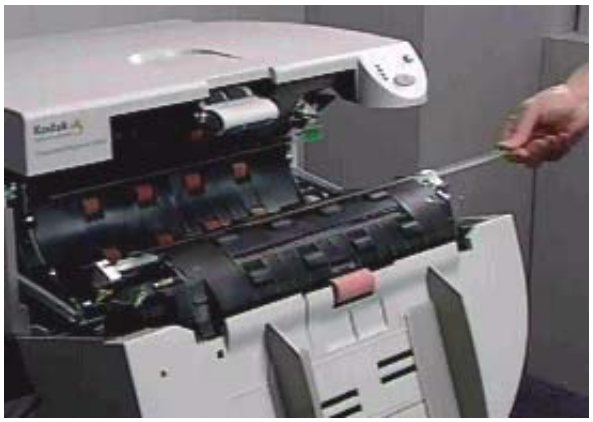
4. Wipe the imaging guide with a Staticide Wipe until all residue has been removed.

   If streaking occurs, allow the wipe to partially dry and re-clean the imaging guide.

5. Replace the imaging guide.

   Make sure it is fully seated in its slot.

6. Grasp the end of the imaging guide that is in the pod and slowly pull it straight out.



7. Wipe the imaging guide with a Staticide Wipe until all residue has been removed.
8. Replace the imaging guide in the pod.

   Make sure it is fully seated in its slot.

9. Close the side access door.
10. Close the pod firmly.

Replacing the Imaging Guides

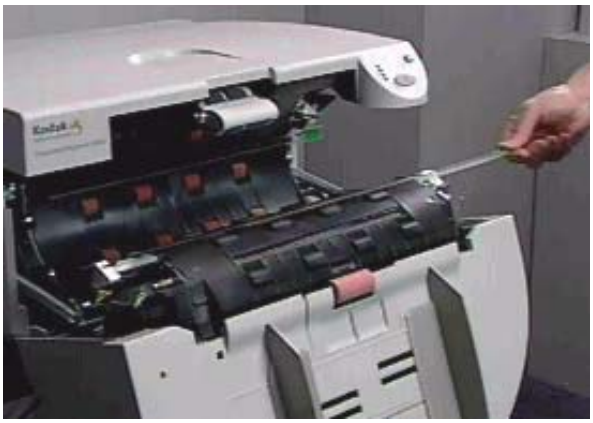
1. Follow all of the steps in “Lowering the Pod” in this chapter.
2. Open the side access door.

3. Grasp the end of the imaging guide that is behind the side access door and slowly pull it straight out.

4. Replace the imaging guide.

   Make sure it is fully seated in the slot.

5. Grasp the end of the imaging guide that is in the pod and slowly pull it straight out.



6. Replace the imaging guide in the pod.

   Make sure it is fully seated in the slot.

7. Close the side access door.
8. Close the pod firmly.

Paper Path and Sensors

Cleaning the Paper Path

For best scanner performance, clean the paper path at least once per week using the recommended Transport Cleaning Sheet (CAT No. 169-0783). Use of any other cleaning materials could damage your scanner.

NOTE: Clean the paper path daily if you are scanning carbonless paper or if you are using the document printer (Scanner 3520DP or Color Scanner 4500DP only).

1. Remove the wrapping from the Transport Cleaning Sheet.

2. Adjust the paper feeder guides to fit the cleaning sheet.

3. Feed the cleaning sheet (adhesive side up) twice through the scanner in portrait orientation.

4. Adjust the feeder guides to fit, then feed the cleaning sheet (adhesive side up) twice through the scanner in landscape orientation.

5. Using the same cleaning sheet, repeat Steps 2 and 3, but feed the cleaning sheet through the scanner with the adhesive side down.

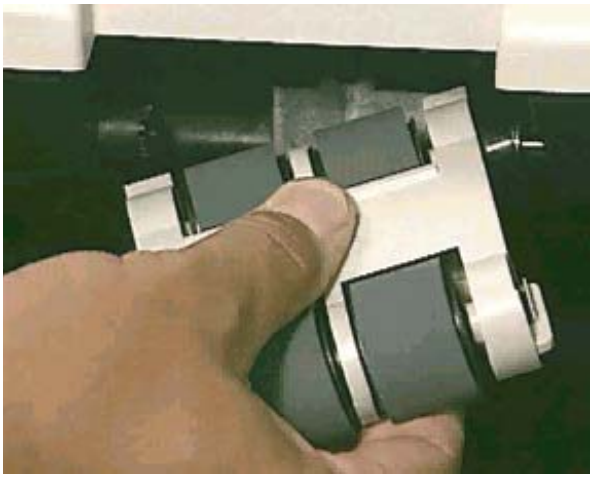
NOTE: When a cleaning sheet gets very dirty, discard it and use a new one.

Cleaning the Sensors

For best scanner performance, clean the sensors at least once per week using a clean, dry, lint-free cloth or a camel hair brush. Use of any other cleaning materials could damage your scanner.

NOTE: Clean the sensors daily if you are scanning carbonless paper or if you are using the document printer (Scanner 3520DP or Color Scanner 4500DP only).

1. Follow all of the steps in “Lowering the Pod” in this chapter.
2. Remove the feed module by pushing it to the right and lifting it out.



3. Wipe the sensors with a clean, dry, lint-free cloth or camel hair brush.

4. Wipe the sensor reflective strips directly opposite each sensor.
5. Replace the feed module by aligning the pins and fitting it into position.
6. Close the pod firmly.

Cleaning the Transport Baffles

Clean the baffles daily if you are scanning carbonless paper or if you are using the document printer (Scanner 3520DP or Color Scanner 4500DP only).

1. Follow all of the steps in “Lowering the Pod” in this chapter.
2. Wipe the transport baffles with a roller cleaning pad.

3. Dry the transport baffles with a lint-free cloth.
4. Close the pod firmly.

Lamps

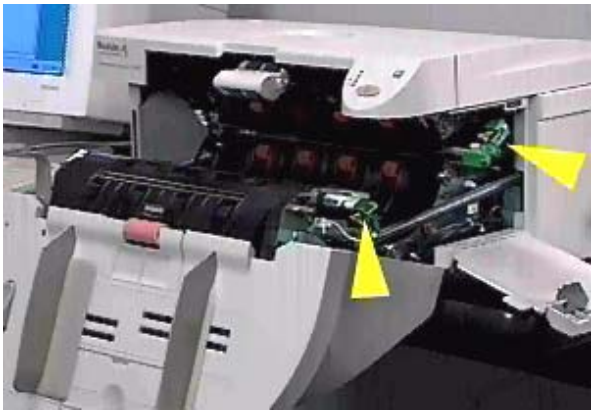
The scanner has a lamp saver feature to prolong lamp life. The lamps shut off after 10 minutes of scanner idle time. Do not mistakenly replace lamps that are off due to the lamp saver mode.

IMPORTANT: If you disable the lamp saver feature, your lamps will wear out more quickly.

Replacing Lamps

There are two identical lamps in the scanner. The procedure below shows how to replace the lamp behind the side access door. Use the same procedure to replace the lamp in the pod.

NOTE: To order lamps, refer to Appendix B, *Supplies*.



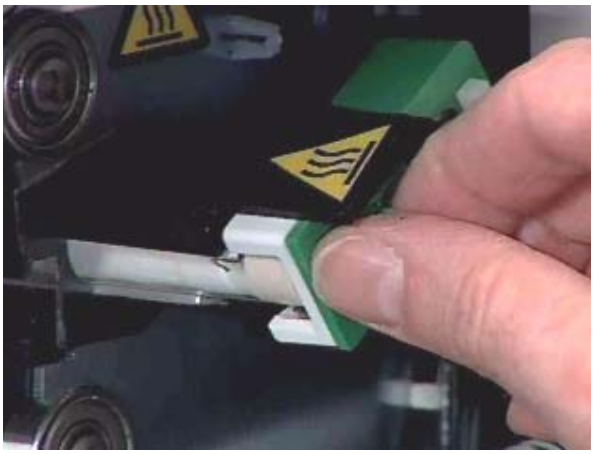
CAUTION: Lamps that have been operating are HOT. Make sure that the lamp has cooled before you replace it.

1. Follow all of the steps in “Lowering the Pod” in this chapter.
2. Open the side access door.

CAUTION: Make sure that the scanner is turned off, and allow it to cool for 10 minutes before attempting to replace the lamp.

3. Remove the imaging guide.

4. Grasp the green handle of the lamp connector.



5. Slightly raise the edge of the black holder and remove the lamp connector.

6. Grasp the end of the lamp and slowly pull the lamp straight out.

7. Position the new lamp in the lamp holder.

IMPORTANT: Make sure that the clear surface of the lamp is positioned facing the imaging guide.

Use a slight downward pressure as you push the lamp into the scanner. This will help the lamp slide in easily.

8. Push firmly on the end of the lamp to seat the lamp into the connector on the other end.
9. Replace the lamp connector and push in firmly so that the connector is fully seated.
10. Replace the imaging guide.
11. Close the side access door.
12. Close the pod firmly.

6 Diagnostics

Introduction

The host diagnostic software described in this section refers to the *Kodak Digital Science* Diagnostic Software. Integrator-supplied software will be different.

The Diagnostic Software is an easy-to-use tool for setting up, testing, updating, and troubleshooting your scanner. A password feature allows the system administrator to provide or restrict access to functions in the Diagnostic Software.

The Diagnostic Software is installed on your PC during the initial scanner setup process and can be used by scanner operators and system administrators.

IMPORTANT: If you are installing the Diagnostic Software in Windows 95, Microsoft Internet Explorer v4.0 or greater must be installed on the computer.

The Diagnostic Software allows functions (some may be password protected) such as:

- selecting scanner settings
- selecting a device driver
- performing tests and calibration
- capturing an image
- viewing the error log and service log

The Diagnostic Software also allows certain administrative functions, such as:

- setting password protection
- downloading firmware
- changing the user registry

NOTE: For more information about the Diagnostic Software features, refer to the online help in the software.

Testing the System

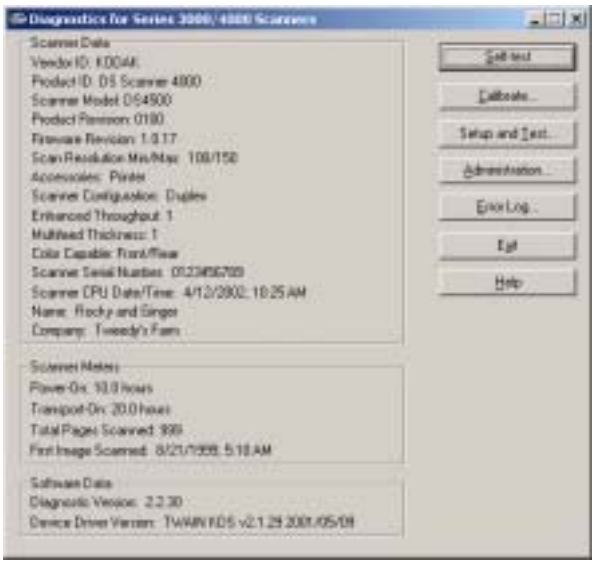
Two brief tests can be run to check scanner performance: self-test and scan system test.

- A self-test checks the image processing hardware in the scanner.
- A scan system test checks the scanner's ability to capture an image.

In order to perform a self-test or scan system test, the Diagnostic Software must be installed on your PC.

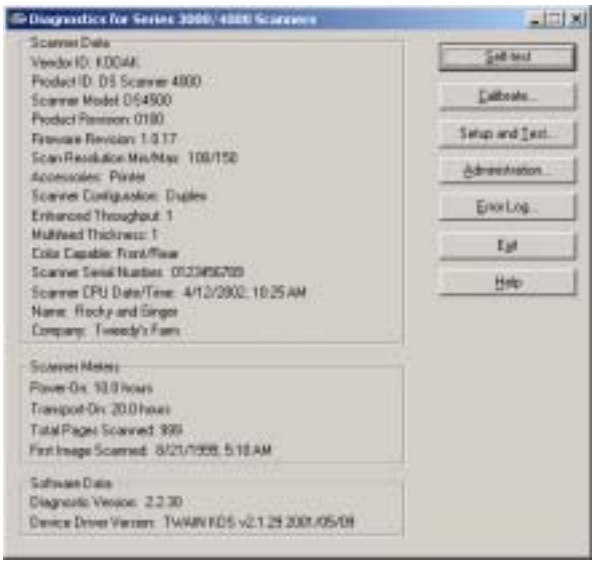
Performing a Self-Test

- Click on **Self-test** in the Diagnostics dialog box.



Testing the Scan System

1. Click on **Setup and Test** in the Diagnostics dialog box.



The Setup and Test dialog box appears.

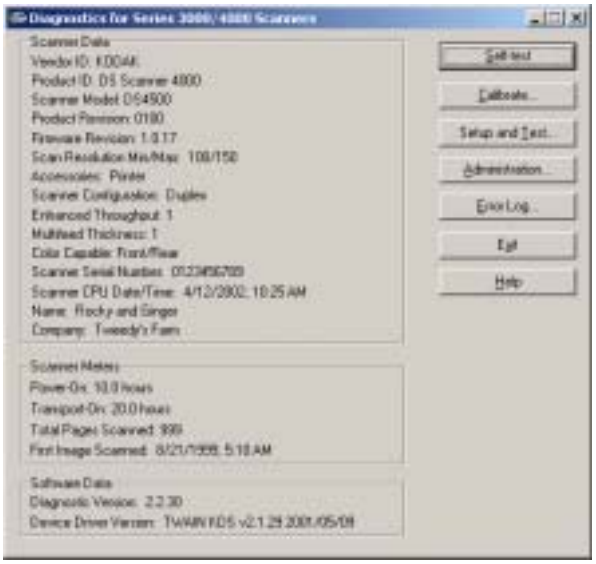
2. Place a document into the feeder area.
3. Click on **Scan One Page**.

   The document should be scanned.

Downloading the Date and Time

If you wish, you can set the scanner's date and time to the host computer's date and time.

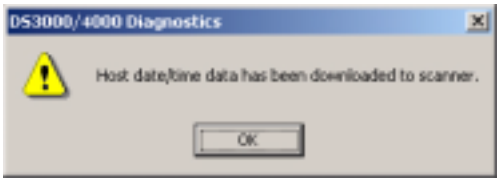
1. Click on **Administration** in the Diagnostics dialog box.



A password may be required. The Administration dialog box appears.

2. Click on **Download Host Date/Time**.

The date and time are downloaded. A confirmation box appears.



Calibrating the Scanner

Calibration optimizes the optical system in your scanner in order to achieve the best overall quality of scanned images. Frequent calibration is not needed or recommended. When you do calibrate (e.g., after changing a lamp), be sure the lamps have been on for at least three minutes, then follow this procedure:

1. Clean both imaging guides.

   Refer to “Imaging Guides” in Chapter 5, *Maintenance*.

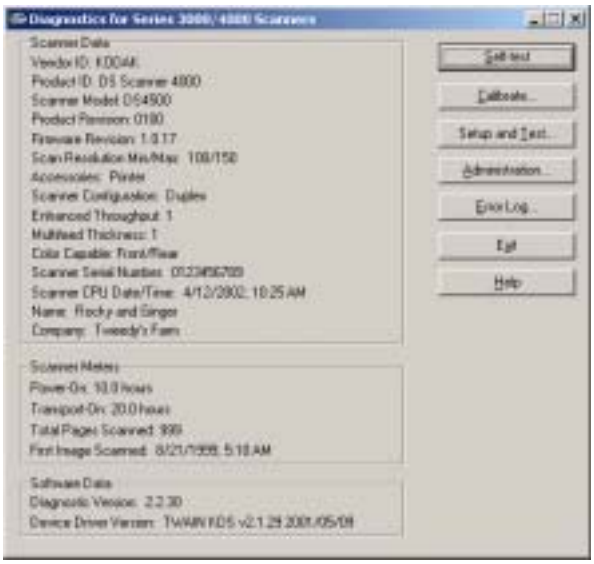
2. Wait three minutes after the pod has been closed to allow the lamps to warm up.

3. Obtain a proper calibration target—use a clean, blank, white sheet of paper with a matte surface (not glossy).

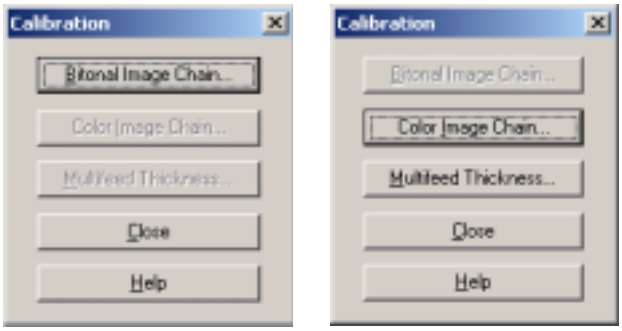
   Make sure that the target is wider than the documents to be scanned. It is best to use the 30.5 cm (12 in.) square calibration target available from Kodak (Cat. No. 127-1436).

4. Open the Diagnostic Software.

5. Click on **Calibrate** in the Diagnostics dialog box.



The Calibration dialog box appears. Available calibration options depend on the scanner model.

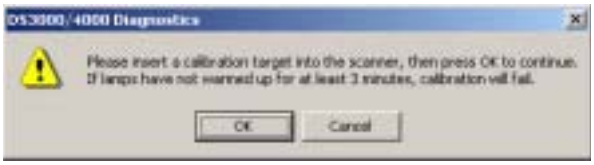


NOTES: The Multifeed Thickness calibration option is used only when enabling multifeed detection by document thickness. For more information, refer to “Multifeed Detection” in Chapter 4, *Using the Scanner*.

For more information about calibration, refer to the online help provided with the Diagnostic Software.

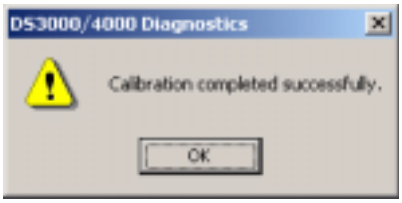
6. Click on the button for the calibration mode you wish to use.

   A message appears.



7. Insert the calibration target into the scanner.
8. Click on **OK**.

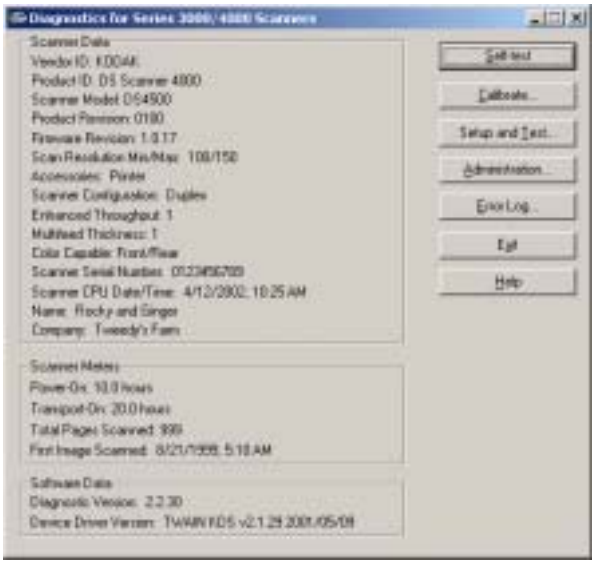
   Calibration begins. A confirmation box appears when calibration has finished.



Downloading Firmware

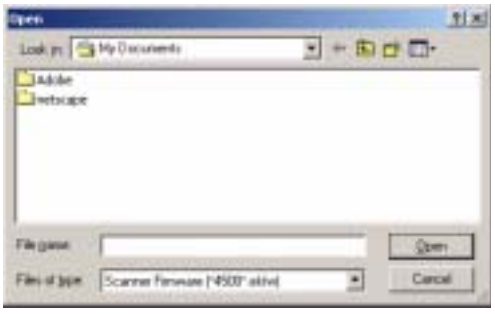
Firmware is the scanner's internal software. It is possible to download a firmware file to the scanner.

1. Click on **Administration** in the Diagnostics dialog box.



A password may be required. The Administration dialog box appears.

2. Click on **Download File**.



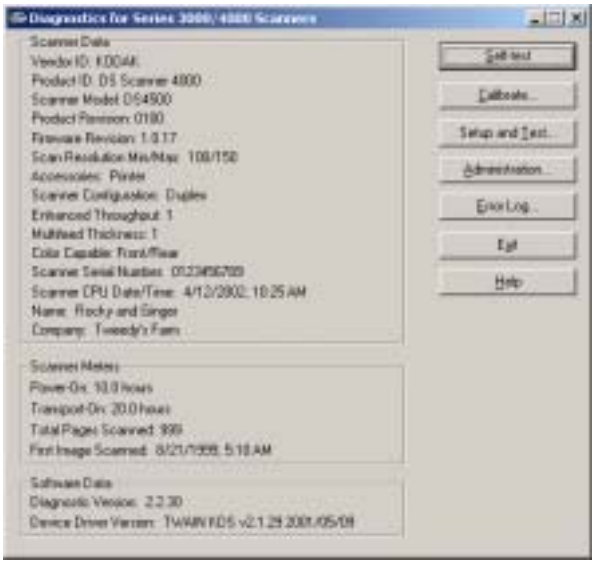
3. Click on the firmware file (.ekfw extension) that you want to download.
4. Click on **Open**.

   The firmware file is downloaded.

Error Log

The error log in the Diagnostic Software contains information about any errors that have occurred during scanner operations.

- Click on **Error Log** in the Diagnostics dialog box.

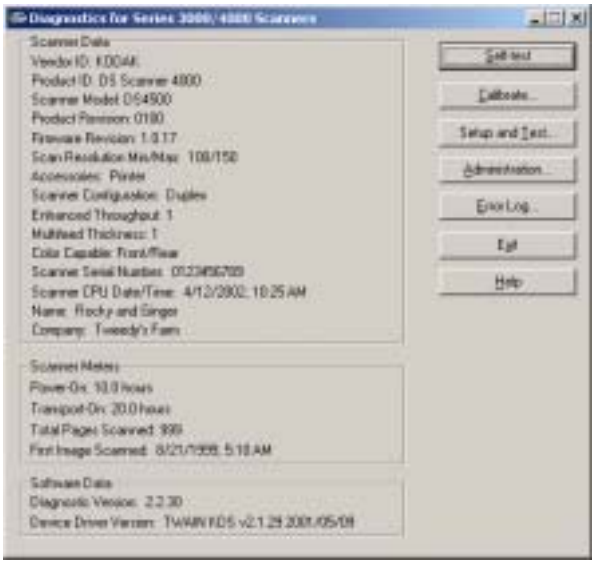


The current error log (if any) appears.

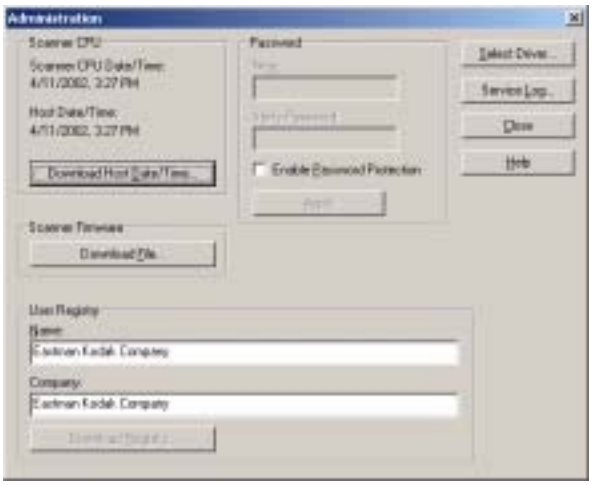
Service Log

The service log in the Diagnostic Software allows you to log any repairs, parts replacement, or maintenance performed on the scanner.

1. Click on **Administration** in the Diagnostics dialog box.



A password may be required. The Administration dialog box appears.



2. Click on **Service Log**.

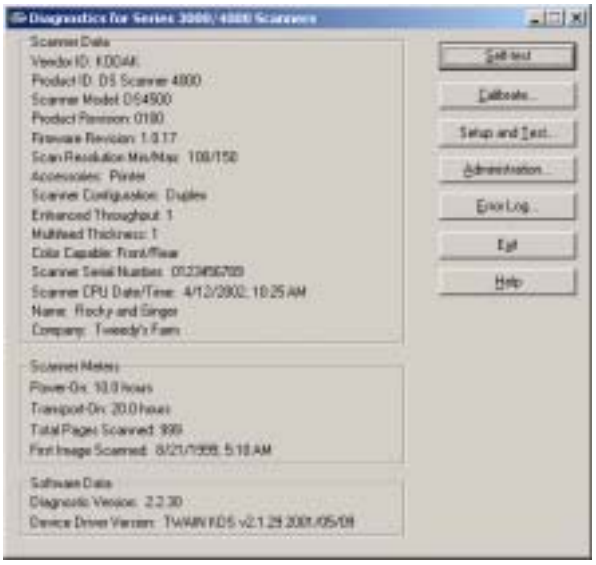
   The current service log (if any) appears.

Selecting a Driver

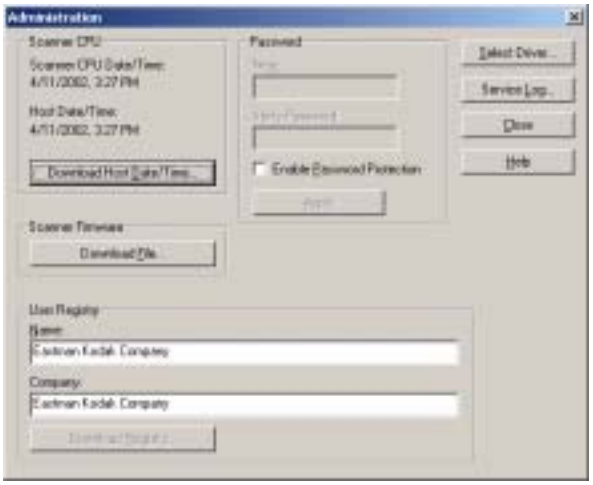
Two device drivers are provided in the Diagnostic Software:

- TWAIN-compatible
- ISIS-compatible

1. Click on **Administration** in the Diagnostics dialog box.



A password may be required. The Administration dialog box appears.



2. Click on **Select Driver**.

   The Select Driver dialog box appears.

3. Click on the driver for your application.

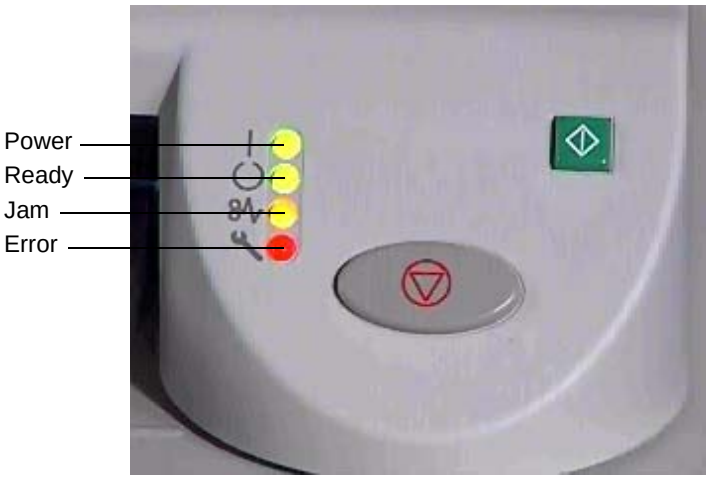
NOTE: Click on the down arrow for driver options.

4. Click on **OK**.

7 Troubleshooting

Indicator Lights

There are four indicator lights on the front of the scanner.



	On	Off	Flashing.
Power (Green)	Electrical power is on (normal operation)	Electrical power is off	Scanner is in lamp saver or diagnostic mode
Ready (Green)	Scanner is ready to scan (normal operation)	Scanner is not currently scanning, or is not ready to scan due to various hardware or software conditions	Scanner is powering up or is in lamp warm-up or calibration mode
Jam (Yellow)	Not a valid state	No paper jams are being detected (normal operation)	Sensor failure or paper jam during scanning
Error (Red)	A failure or a document multifeed has occurred	No errors are being detected (normal operation)	An error has occurred

NOTE: If the red light is on or flashing, check the error log in the Diagnostic Software.

Clearing Document Jams

1. Remove any documents from the feeder.
2. Lower the pod slightly and open the side access door.

CAUTION:The lamps are HOT. Avoid contact with the hot lamps.

3. Locate the jammed document and remove it.

NOTE: Avoid getting fingerprints on the imaging guides.

4. Close the side access door.
5. Close the pod firmly.

Some jams can be cleared without opening the side access door. To clear a document jam from the front of the scanner, lower the pod slightly, remove the document, and close the pod firmly.

For greater access to the area, you can remove the feed module (refer to “Feed Module” in Chapter 5, *Maintenance*).

Color Image Quality

Color image quality is highly subjective because people perceive color images differently. Here are some things to consider when scanning in color:

- The differing color outputs of scanners, printers, and monitors can affect the perception of the scanned document.
- Computer monitor displays and printer output can vary from model to model, and from manufacturer to manufacturer. An image may be acceptable on one monitor and unacceptable on another.
- Area lighting (fluorescent, natural, incandescent) can affect color perception.
- The appearance of a colored area within an image can be perceived differently, based on what surrounds it.
- The characteristics and condition of a document can have an impact on color consistency.
- Color requirements may differ between environments (e.g., in a business document environment, images are generally viewed on a monitor, whereas in a “print on demand” environment, scanned images are printed).

To ensure that your scanner is delivering the best image:

- Clean the scanner. Contamination within the scanner degrades image quality. (Refer to Chapter 5, *Maintenance*, for cleaning information.)
- Calibrate the scanner at least once per week.
- Make sure that the calibration target is clean and unwrinkled.
- Change the color table. Individual results may vary.

  The default color table provides robust image quality for a wide range of input and applications. However, additional specialized color tables are available from within the Diagnostic Software (for TWAIN only) for varying document types and applications needs, such as photographs, text for OCR, and so forth.

NOTES: Calibrate the scanner before you change the color table.

Color scanning is available only on the Color Scanner 3590C and Color Scanner 4500.

Error Log

The error log in the Diagnostic Software contains information about any errors that have occurred during scanner operations. For more information about the error log, refer to “Error Log” in Chapter 6, *Diagnostics*.

NOTE: For more information about the Diagnostic Software features, refer to the online help in the software.

Testing the System

Two brief tests can be run to check scanner performance: self-test and scan system test.

- A self-test checks the image processing hardware in your scanner.
- A scan system test checks the scanner’s ability to capture an image.

For more information about these tests, refer to “Testing the System” in Chapter 6, *Diagnostics*.

NOTE: In order to perform a self-test or scan system test, the Diagnostic Software must be installed on your PC.

Service Information

If you are having a problem with your scanner, first perform the appropriate tasks in this chapter or in Chapter 5, *Maintenance*, or Chapter 6, *Diagnostics*. The section “Problem Solving” in this chapter has a chart that may be useful in diagnosing problems.

If the problem persists and you believe that your scanner needs service, contact your reseller directly. Your reseller will arrange for service.

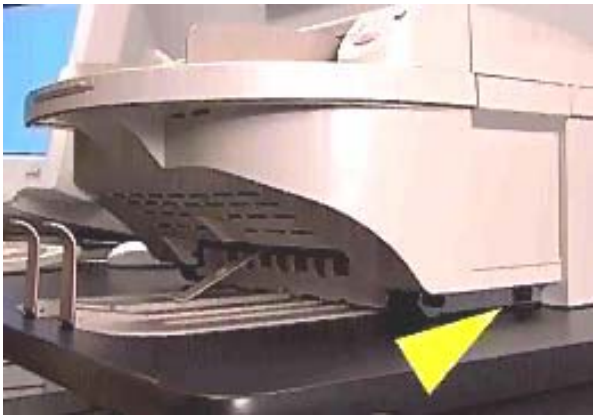
Moving the Scanner

If it becomes necessary to move the scanner after installation, you must repack the scanner using the original packaging materials.

If you do not have the original packaging materials, contact your supplier to order a Scanner Relocation Kit (CAT No. 825-6083).

To repack the scanner:

1. Power down the computer.
2. Turn off the scanner.



3. Disconnect the power cord from the back of the scanner.

4. Disconnect the SCSI-2 cable from the back of the scanner.

5. Remove the output tray and set it aside for now.
6. Using **two** people, lift the scanner and place it in the foam base that is inside the box.

7. Place the power cord in the box.
8. Cover the scanner with the bag.

9. Place the foam cover on top of the scanner.

10. Place the output tray on top of the foam cover.

11. Close the box.

    The scanner is now ready for moving.

Problem Solving

Occasionally, you may experience a problem with your scanner. In many cases, you can easily fix the problem yourself. Try the solutions in the order in which they appear. To perform suggested maintenance or diagnostic tasks, refer to Chapter 5, *Maintenance*, or Chapter 6, *Diagnostics*.

Problem	Possible Solution
The scanner will not scan/ feed documents	Make sure that: • the power cord is plugged in and the power is on. • the side access door and pod are completely closed. • the printer access door (Scanner 3520DP or Color Scanner 4500DP) is completely closed. • the proper power-up sequence was followed and the software has enabled scanning. • the top green indicator light on the front panel is on. • documents are making contact with the feed module. • the height of batched documents is less than: – 15.2 mm (0.6 in.) on a scanner using the Feed Module 150. – 25.3 mm (1.0 in.) on a scanner using the Feed Module 250. • for documents stacked near the maximum heights listed above, you position the batch 12.7 mm (0.5 in.) away from the baffle housing. • documents meet specifications for size, weight, and height of batched documents, etc. • for thicker documents, you press the gap release button during feeding. • you check the feed module and separator roller for signs of wear, and replace these parts if necessary. • you try to scan a document using the Diagnostic Software.
Image quality is poor or has decreased	Make sure that: • the lamps have been on at least three minutes. • the scanner is calibrated (refer to “Calibrating the Scanner” in Chapter 6, *Diagnostics*). • the imaging guides are clean (refer to “Imaging Guides” in Chapter 5, *Maintenance*). • you use the Diagnostic Software to scan a document using different settings to see if image quality improves. If unsatisfactory image quality persists, or if the scanner fails calibration, replace the lamps (refer to “Lamps” in Chapter 5, *Maintenance*). Be sure to calibrate the scanner after installing the new lamps. Make sure that the new lamps have been on at least three minutes before you calibrate.

Problem	Possible Solution
The first few scanned images are very dark	Make sure that the lamps have been on for at least 30 seconds, then scan the images again.
Both green indicator lights on the front panel are flashing	The 48-megabyte image buffer is full. Stop scanning momentarily and wait for the host computer to “catch up” with the scanner output. This will free up space in the image buffer. Make sure that there are no problems with your scanning software.
The amber indicator light on the front panel is flashing	Most likely, a document jam has occurred in the paper transport area. Refer to “Clearing Document Jams” in this chapter.
The red indicator light on the front panel is on or flashing	If the red indicator is on, a failure (power-up, lamp, hardware, software, accessory, calibration, or multifeed) has occurred. If the red indicator is flashing, an error (for example, a lost or corrupted image) has occurred. Refer to “Error Log” in this chapter, then access the Diagnostic Software and check the error log for information. Refer to the appropriate chapter (Chapter 5, *Maintenance*, Chapter 6, *Diagnostics*, and/or Chapter 7, *Troubleshooting*) to correct the problem identified in the error log.
Calibration has failed	Make sure that: • the lamps have been on at least three minutes. • you are using a proper calibration target. Use a clean, blank sheet of white paper with a matte surface (not glossy). The calibration target should be wider than the documents you are scanning. It is best to use the 30.5 cm (12 in.) square calibration target available from Kodak. You may use a different target if it meets the conditions above, but the target **must** be at least 20 cm (8 in.) in length. • the imaging guides are clean (refer to “Imaging Guides” in Chapter 5, *Maintenance*). • the transport area is clear of obstructions. Try calibration again. If calibration fails again, replace the lamps (refer to “Lamps” in Chapter 5, *Maintenance*). Be sure to calibrate the scanner after installing the new lamps. Make sure the new lamps have been on at least three minutes before you calibrate. If calibration still fails, request assistance.
“False” paper jams are occurring	If the amber indicator light on the front panel is flashing, and no paper is jammed inside the scanner, make sure that the paper transport sensors are clean (refer to “Paper Path and Sensors” in Chapter 5, *Maintenance*). Very dirty sensors can cause a false paper jam to be indicated.

Problem	Possible Solution
Documents are jamming	Make sure that: • the output tray and guides are adjusted for the length of documents being scanned. • all jammed documents have been removed from the paper transport area. • documents meet specifications for size, weight, and height of batched documents, etc. • the sensors, and the reflective tape opposite the sensors, are clean. • the separator roller access cover is properly seated. • the separator roller and feed module are clean and properly installed. • the paper transport rollers are clean. • the imaging guides behind the side access door are properly installed.
Documents are skewed during scanning	Make sure that: • the feeder guides are adjusted to fit the documents being fed. • documents are being fed perpendicular to the feed module. • documents are being fed in the center of the feeder, with the full width of the feeder rollers making contact with all documents. • the feed module, separator roller, and paper transport rollers are clean.
35.6 cm (14 in.) or longer documents are not feeding or are jamming	Make sure that: • the input tray extender is opened to provide support for long documents. • the output tray is adjusted for the length of the documents being scanned. • the output tray is installed properly under the scanner. The output tray's center rib must be located in the center slot under the scanner so that you can easily slide the tray in or out.
Documents are multifeeding	Make sure that: • the leading edges of all batched documents are centered under the automatic paper feeder so that each document comes in contact with the feeder rollers. • the feed module and separator roller are clean and not worn. • documents with an unusual texture or surface are fed manually.

Problem	Possible Solution
There are frequent multifeed detection errors	Make sure that: • multifeed thickness has been calibrated. • the pod and side access door are completely closed.
The output tray cannot be adjusted in or out	Make sure the output tray is installed properly under the scanner. The output tray's center rib must be located in the center slot under the scanner so that you can easily slide the tray in or out.
Roller marks appear on documents after scanning	Clean the feed module rollers, separator roller, and drive rollers. Refer to Chapter 5, *Maintenance*.
The first few color images are very bright	Make sure that the lamps have been on at least three minutes, then scan the images again.
On the Color Scanner 3590C, the back side of documents does not appear in color	This is normal. Color scanning on the Color Scanner 3590C is for the front side of documents only.
On the Color Scanner 3590C, the patch document is not detected; therefore, the scan mode does not change between color and bitonal (black and white)	Make sure that: • patch detection is enabled in your software. • the patch document meets specifications. For more information, refer to "Switching Scan Modes" in Chapter 4, *Using the Scanner*.

Appendix A Specifications

Scanner Type	**Scanner 3500:** Bitonal simplex/duplex scanner with ADF **Scanner 3510:** Bitonal simplex/duplex scanner with ADF **Scanner 3520:** Bitonal simplex/duplex scanner with ADF; optional document printer **Color Scanner 3590C:** Color and bitonal simplex/duplex scanner with ADF **Color Scanner 4500:** Color simplex/duplex scanner with ADF; optional document printer
Image Capture Resolution	**Scanner 3500:** 600 dpi bitonal scanners **Scanner 3510:** 600 dpi bitonal scanners **Scanner 3520:** 600 dpi bitonal scanners **Color Scanner 3590C:** 600 dpi bitonal/150 dpi color **Color Scanner 4500:** 150 dpi color
Image Output Resolution	**Scanner 3500:** 200 and 300 dpi bitonal **Scanner 3510:** 200 and 300 dpi bitonal **Scanner 3520:** 200 and 300 dpi bitonal **Color Scanner 3590C:** 200 and 300 dpi bitonal/100 and 150 dpi color **Color Scanner 4500:** 100 and 150 dpi color
Scan Area	**Length:** 6.4 to 43.2 cm (2.5 to 17 in.) **Width:** 8.9 to 30.5 cm (3.5 to 12 in.) NOTE: A page fed into the scanner can be up to 30.5 cm (12 in.) wide, but the maximum image width that is captured is 29.7 cm (11.7 in.).
Electrical Requirements	**Scanner 3500, Scanner 3510, and Scanner 3520:** 100-127V AC 50/60 Hz, 1 phase 200-240V AC 50/60 Hz, 1 phase **Color Scanner 3590C and Color Scanner 4500:** 100-130V AC 50/60 Hz, 1 phase 210-240V AC 50/60 Hz, 1 phase
Dimensions	**Height:** 31.8 cm (12.5 in.) **Width:** 53.5 cm (21.0 in.) **Depth:** 70.0 cm (27.5 in.)
Weight	**Scanner 3500, Scanner 3510, and Scanner 3520:** 31.8 kg (70 lb.) **Color Scanner 3590C and Color Scanner 4500:** 34 kg (75 lb.)

Host Connection	**Interface:** SCSI-2 Two SCSI-2, 50-pin, high-density D-Shell connectors are provided on the rear panel for SCSI connectivity. A switch on the rear panel allows you to select the scanner's SCSI ID number.
Operating Temperature	15 to 35°C (59-95°F)
Humidity	15 to 76% (dry bulb)
Altitude	Up to 2440 m (8000 ft)
Acoustic Noise	Data was measured in accordance with DIN 45 635, ANSI S12.10-1985, and ISO 7779 in a hemi-anechoic chamber. **Scanner 3500, Scanner 3510, and Scanner 3520:** • Operator position sound pressure levels (L_{pA}) - Standby: 55.0 dB(A) - Full system: 64.0 dB(A) - Instantaneous peak values ≥ 130 dB(C): None • Sound power levels (L_{wA}) - Standby: 62.0 dB(A) - Full system: 70.0 dB(A) **Color Scanner 3590C and Color Scanner 4500:** • Operator position sound pressure levels (L_{pA}) - Standby: 49.1 dB(A) - Full system: 62.4 dB(A) - Instantaneous peak values ≥ 130 dB(C): None • Sound power levels (L_{wA}) - Standby: 60.4 dB(A) - Full system: 70.0 dB(A)

Specification values apply to all of the Scanner 3000/4000 Series except where noted. All of these specifications are subject to change without notice.

Appendix B Supplies

Contact your scanner supplier to order supplies such as lamps, cleaning materials, and replacement parts.

To order consumables, visit us online at **http://www.kodak.com/go/shop**

Item	CAT No.
Lamps/Imaging Elements	
Kodak Digital Science White Imaging Lamp for Series 3000 Scanners	876-6545
Kodak Digital Science Red Imaging Element, 3000/5000/7000 (2)	126-0884
Kodak Digital Science Green Imaging Element, 3000/5000/7000 (2)	132-9812
Kodak Digital Science Blue Imaging Element, 3000/5000/7000 (2)	800-1307
Replacement Parts	
Kodak Digital Science Imaging Guide for Series 3000 Scanners	806-6318
Kodak Digital Science Front Imaging Guide for Color Scanner 3590C	156-9664
Kodak Digital Science Feed Module 150 (Scanner 3500, Color Scanner 3590C)	153-7240
Kodak Digital Science Feed Module 250 (Scanner 3510/3520, Color Scanner 4500)	159-2195
Kodak Digital Science Separator Roller for Series 3000/4000 Scanners	828-0604
KODAK Separator Roller, Type 2, for Series 3000/4000 Scanners	158-8052
Kodak Digital Science Output Tray (Scanner 3500 and Color Scanner 3590C)	181-6826
Kodak Digital Science Enhanced Output Tray (Scanner 3510/3520, Color Scanner 4500)	876-7485
Kodak Digital Science Output Deflector for Series 3000/4000 Scanners	858-3858
Kodak Digital Science Imaging Guide for 4000 Scanners	825-0698
Recommended Calibration Target	
Kodak Digital Science Calibration Target for Kodak Scanners (5)	127-1436
Maintenance Kit	
Kodak Digital Science Consumables Kit for Series 3000 Scanners (includes Imaging Guides [2], Feed Module 150, Separator Roller, White Imaging Lamps [2], Transport Cleaning Sheets, Roller Cleaning Pads, Staticide Wipes, and a Calibration Target)	854-6012
Upgrade Kit	
Kodak Digital Science Feed Module 250 and Enhanced Output Tray Upgrade Kit (to upgrade the Scanner 3500 and Color Scanner 3590C)	843-1686

Item	CAT No.
Cleaning Supplies	
Kodak Digital Science Transport Cleaning Sheets (50)	169-0783
Kodak Digital Science Roller Cleaning Pads (24)	853-5981
Staticide Wipes for *Kodak* Scanners (144)	896-5519
Document Printer Supplies	
Kodak Digital Science Printer Ink Blotters for Series 3000 / 4000 Scanners (24 [12 short, 12 long])	839-4306
Kodak Digital Science Printer Ink Cartridge Carrier for Series 3000 / 4000 Scanners	838-4885
Replacement Packing Materials	
Kodak Digital Science Relocation Kit for Series 3000 Scanners	825-6083

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