



ANA Tech
Eagle Evolution
User Guide

October, 1999

ANA Tech Part Number 70476

Table of Contents

1. Getting Started.....	1	FCC Compliance.....	18
Principles of Operation	1	EMC Compliance	18
The Eagle Evolution Scanner	1	Troubleshooting During Installation.....	19
Scanner Controls	2	3 How to Scan	20
What is Scanning ?.....	3	Eagle Evolution Controls.....	20
Software	4	Power.....	21
Evolution 4 Upgrade	4	Reset	22
Specifications	5	Remote Scan	22
Scanner Speed.....	6	Jog Reverse.....	22
2. Installation.....	8	Jog Forward	22
Unpacking	8	Paper Tension	22
Inventory	9	Starting Scanner Interface Software.....	23
Site Preparation	9	Document Scanning	23
Setting Up SCSI on Host Computer	9	Loading Documents for Scanning.....	24
Scanner Setup.....	11	Positioning Document.....	25
Installing Software	13	4. Cleaning the Roller.....	26
Calibration.....	15	5. Replacing the Fuse	30
Calibration Errors.....	16	6. Troubleshooting Scanner Operations.....	31
SCSI Cables	17	I. Index	I-1
SCSI Terminators.....	17		
Power Cord	17		

Foreword

This document covers the Eagle Evolution scanners. ANA Tech believes the information in this document is accurate as of its publication date. Software and hardware features, specifications, and upgrades are subject to change.

Document Conventions

The following typographical conventions are used throughout this manual:

Text to be entered via the keyboard appears in a monospaced font as follows:

enter this text

Emphasized text appears in italics:

this is emphasized text

Text that cautions the user about actions that may result in injury, equipment or software damage or malfunction, or may interfere with the proper operation of the scanner is preceded by the word **Warning**.

Text that presents useful information or valuable tips may be preceded by the word **Note**.

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1. Getting Started

Congratulations on your purchase of the Eagle Evolution scanner! The Eagle Evolution scanner combines the latest technology from ANA Tech for production scanning with superior data quality and ANA Tech's commitment to Customer Support.

Principles of Operation

To scan, insert the document face-up into the scanner. Press the paper tension spring switch to close the spring, which holds the document firmly against a highly accurate roller to ensure straight document motion without slippage. As the document travels under the scanning head (optical head), the scan line region is illuminated and the reflected light is collected by the sensor array. The sensor array digitizes the light into an eight-bit grayscale value for each pixel. The sensing device is divided into thousands of tiny cells. Each cell accumulates a small electrical charge that varies depending on how much light strikes the cell. After a short time interval, measured in millionths of a second, the scanner collects electrical charges from each cell in the sensor array and converts them into a digital signal. The scanner organizes data into scan lines, which represent the "line" of data captured by the sensor array.

The digital signals generated by scanning are initially grayscale values. For conversion of grayscale pixels to black-and-white line art, the grayscale pixels are processed onboard the scanner electronics, using thresholding algorithms. Thresholding determines how dark each grayscale pixel must be to be interpreted as black or white. Depending on the selected output format, data compression may be implemented by the scanner, using the run length concept. Run lengths indicate contiguous sequences of black or white pixels. When scanning line art, it is often more efficient to encode data as run length sequences rather than a stream of individual pixel values. After processing, data is output via a SCSI bus to the host computer, where it is stored in the selected file format on the host's hard drive.

The Eagle Evolution Scanner

The Eagle Evolution Scanner is an optical scanning device that scans documents up to 40 inches (101.6 cm) in width by roll length, with an active scan width of 38 inches (96.5 cm). The Evolution 4 model scans at variable resolutions between 1-400 dpi. The Evolution 8 model scans at variable resolutions between 1-800 dpi.

GETTING STARTED

Data can be output in either grayscale format or in line art format, using onboard thresholding routines. Documents that can be scanned include paper, vellum, linen, acetate, or other flexible media. Documents are fed, face up, through the scanner. A highly accurate roller system transports the document through the scanner and under the imaging head. A cold cathode fluorescent bulb provides scanner illumination. The bulb provides a consistent illumination source, with low heat output.

The imaging head contains all the optical components that capture document data. This includes the sensor array, a base assembly that houses the sensor array, and circuitry to perform routing of control signals to the sensor array and pixel data from the sensor array to the onboard scanner electronics. The analog-to-digital conversion of pixel data also occurs in the imaging head.

Scanner electronics include the power supply, pixel processing circuits, and SCSI transfer electronics. The power supply is a self-adapting, international power supply that functions automatically with different power standards available in various countries. No rewiring or setting of switches is needed to connect power. Pixel processing circuitry is contained within an internal circuit board that receives grayscale pixel data from the imaging head. The board converts the grayscale data into line art, using thresholding settings selected in the control software.

Document sensors in the Eagle Evolution paper path detect the document. The document sensors act in conjunction with the scanner interface software, SCANSMITH SCAN, to provide an automatic setup option for scan drawing size selection, which specifies the active scan area for a scan. Data outside the active scan area is ignored and does not appear in the scanned output.

The Eagle Evolution does not output color data files, although other ANA Tech Eagle scanners do output color data files.

Scanner Controls

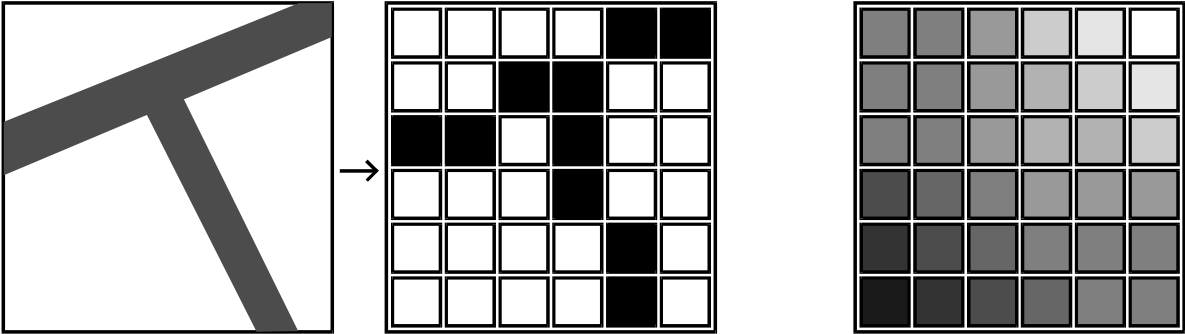
Controls include a multi-function strip switch on the optical head, a reset switch, and the power on/off switch. The multi-function switch has the following controls:

Remote Scan	Starts scan
Jog Reverse	Spins the roller in the reverse direction
Jog Forward	Spins the roller in the forward direction
Spring Open/Close	Opens or closes the paper tension spring

What is Scanning?

Scanning is a form of data conversion. Information stored on a physical medium such as paper or film is converted into a computer file. The computer file can then be edited, archived, or may undergo additional processing such as conversion from raster to vector format.

Scanners such as the Eagle Evolution produce raster data. Raster data consists of pixels. Each pixel represents a tiny chunk of the entire scanned image. See below.



Converting an Image into Line Art Pixel Data

Grayscale Pixels

Depending on the format of the scan, the pixels may be in the form of grayscale data or line art data. Grayscale data pixels represent a shade of gray. Line art pixels represent either black or white. Line art is sometimes also called bi-level, binary, or monochrome data.

You can choose whether to save scanned data in a grayscale or line art format. Whether you choose grayscale or line art depends on your application. Grayscale data preserves more information, but takes more space to store. Line art data is compact and is an efficient data form to use for archiving or editing raster data.

Software

The Eagle Evolution scanner is operated with the SCANSMITH Productivity Suite software package that comes with the scanner. The Productivity Suite includes

- | | |
|---------------------|--|
| SCANSMITH SCAN | A full featured scanning interface with complete access to scanner features. |
| SCANSMITH EASY SCAN | An easy-to-use version of SCAN, simplified for fast and effortless control of basic scanning operations. |
| SCANSMITH TWAIN | An interface allowing TWAIN compliant applications to scan using the Evolution scanner. |
| SCANSMITH SCAN PLOT | This utility allows faster Windows plotting. |
| SCANSMITH PREDITOR | A powerful raster editor featuring many drawing and editing tools. |

This Windows-based software provides most scanner control functions, such as selecting output formats, setting thresholding parameters, and controlling the active scan area. The software has an offline input mode that allows previously scanned data to be "rescanned" from disk.

Evolution 4 Upgrade

The Evolution 4 scanner scans from 1-400 dpi, while the Evolution 8 scanner scans from 1-800 dpi. You can upgrade an Evolution 4 scanner to Evolution 8. Contact ANA Tech Sales to obtain details and pricing for the Evolution 4 to Evolution 8 upgrade.

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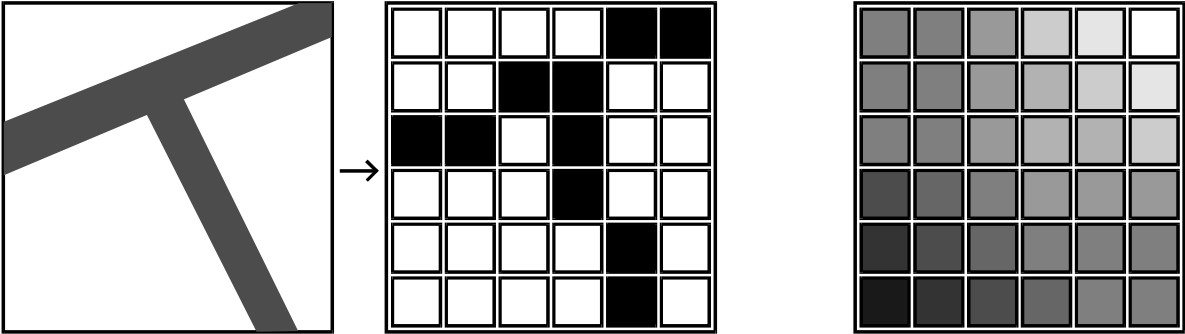
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Specifications

Operating Platforms

PCs, Windows® 3.1, Windows 95® or Windows NT™

General

Document media	Opaque or transparent
Document type	Paper, photographic paper, sepia, mylar
Document width	40 inches (101.6 cm) x roll length
Maximum scan width	38 inches (96.5 cm)
Scanning technology	Sensor array
Illumination	Cold cathode fluorescent
True resolution	200 dpi - Evolution 4 400 dpi - Evolution 8
Resolution range	
Evolution 4	1-400 dpi (variable)
Evolution 8	1-800 dpi (variable)
Scan accuracy	±0.020 inches (0.051 cm) over 38 inches (96.5 cm)
Paper skew	±0.1 %
Document Thickness	0.010 inches (0.025 cm)

Upgrades

Evolution 4 Upgrade

Physical characteristics

Scanner design	Roller—document transported under imaging head
Dimensions (W x D x H)	48 inches x 17 inches x 7.4 inches (121.9 cm x 43.2 cm x 18.6 cm)
Weight	85 lbs (38.5 kg)

Electrical requirements

Voltage	100-240 VAC / 47-63 Hz
Fuse	5x20mm, 3.15 Amp, Fast, IEC (Part number 30147)

Operating environment

Heat dissipation	985 BTU/Hour
Temperature range	65 – 85 degrees Fahrenheit 18 – 30 degrees Celsius
Humidity range	15% to 90% (non-condensing)

Software

SCANSMITH Productivity Suite 98

Note Software and hardware features, specifications, upgrades and options are subject to change.

Scanner Speed

The Eagle Evolution scans at speeds listed below. The scan speed can be reduced in SCAN if needed to accommodate the host system.

Evolution 4

Size Inches (cm)	Resolution (dpi)	Inch / Sec	Seconds / Scan
E 34 x 44 in (86.4 x 111.8 cm)	200	3.3	27 seconds
	400	1.6	14 seconds
	400 Turbo	3.3	14 seconds
D 24 x 44 in (61.0 x 86.4 cm)	200	1.6	15 seconds
	400	3.3	7 seconds
	400 Turbo	3.3	7 seconds
C 17 x 24 in (43.2 x 61.0 cm)	200	1.6	10 seconds
	400	3.3	5 seconds
	400 Turbo	3.3	5 seconds
A 8.5 x 11 in (21.6 x 27.9 cm)	200	1.6	5 seconds
	400	3.3	3 seconds
	400 Turbo	3.3	3 seconds

For grayscale scans, a much greater amount of data must be transferred, therefore you will usually need to slow down the scanner from full speed, in order to allow the host computer enough time to store the scanned grayscale data. Use the SCAN speed setting to reduce scanner speed. Note that if you have the Auto Slow feature enabled, the scanner will automatically restart a scan at a lower speed if the data rate is too high. So you can always simply set the speed to 100% and start the scan — the scanner will scan and rescan the document until it can scan the document without data overflow on the host. Turbo Mode doubles the speed of scans at 400-800 dpi using Y axis interpolation. X axis resolution is unaffected by turbo mode.

Evolution 8

Size Inches (cm)	Resolution (dpi)	Inch / Sec	Seconds / Scan
E 34 x 44 in (86.4 x 111.8 cm)	800	0.8	54 seconds
	800 Turbo	1.6	27 seconds
	400	1.6	27 seconds
	400 Turbo	3.3	14 seconds
D 24 x 44 in (61.0 x 86.4 cm)	800	0.8	29 seconds
	200	1.6	15 seconds
	400	1.6	15 seconds
	400 Turbo	3.3	7 seconds
	200	3.3	7 seconds
C 17 x 24 in (43.2 x 61.0 cm)	800	0.8	21 seconds
	200	1.6	10 seconds
	400	1.6	10 seconds
	400 Turbo	3.3	5 seconds
	200	3.3	5 seconds
A 8.5 x 11 in (21.6 x 27.9 cm)	800	0.8	10 seconds
	200	1.6	5 seconds
	400	1.6	5 seconds
	400 Turbo	3.3	3 seconds
	200	3.3	3 seconds

2. Installation

Installation topics include unpacking, inventory, site preparation, setup, calibration, and starting up the scanner.

Unpacking

The Eagle Evolution is shipped in a reinforced cardboard crating box. The unit should remain flat during shipment and should not be subjected to excessive shocks. To ensure proper handling, the crate is fitted with a ShockWatch indicator that reveals if any improper handling has occurred during shipment. **Upon arrival of the Eagle Evolution shipment, the ShockWatch indicator should be checked IMMEDIATELY.** If the indicator has been activated, this indicates improper handling by the shipper. If improper handling has occurred, do not open the crate. Contact ANA Tech Customer Support.

1. Ensure that the crate is correctly positioned (i.e. not upside-down). Refer to the arrow symbol printed on the outside of the crate.
2. Remove the banding straps.
3. Lift off the crate cover. The side and end panels of the crate then fold out.
4. Remove the foam end caps from the scanner.
5. With two people, lift the scanner by its base out of the crate and place the scanner on a sturdy surface.
6. Remove the plastic bag. Save the crate materials.



Warning

Do NOT lift the scanner by the scanning head. This may damage the scanner. The proper way to support the scanner is by lifting the scanner by the base. Two people are required to lift the scanner. The scanner weighs 85 pounds (38.5 kg).

Inventory

Gather all items recovered from the scanner box and inventory them. The following items should be included:

- Eagle Evolution Scanner
- Power cord
- Eagle MicroSCSI-to-MicroSCSI Cable
- Active MicroSCSI terminator
- SCANSMITH Productivity Suite 98

If any items are missing, make a note of this and contact ANA Tech Customer Support.

Site Preparation

The Eagle Evolution scanner should be placed on a level surface capable of supporting the scanner, such as a sturdy table. The scanner voltage is auto-adjusting to international voltage standards, so no voltage adjustment is needed. It may be necessary to prepare or obtain the electrical power cord for international sites.

The scanner should be close enough to the host computer so that the SCSI cable can connect the scanner to the host.

Setting Up SCSI on the Host Computer

The host computer must have an ASPI compatible SCSI port to connect the scanner. Many PCs come equipped with a compatible SCSI bus. Customers with a host PC that does not have built-in SCSI may purchase the *Eagle PCI Bus Interface* from ANA Tech. Alternatively, an ASPI compatible SCSI adapter may be purchased from a third party vendor. Note that more than one device can be daisy-chained on a single SCSI bus, as long as the bus length and termination requirements are met — you do not need a separate adapter for every SCSI device you install.

INSTALLATION

Here is the general procedure to install a SCSI adapter.

1. Power down and unplug the PC and scanner.
2. Refer to the manufacturer's documentation to check base I/O address and IRQ level settings. It may be necessary to change the base I/O address and IRQ level of the adapter if a hardware conflict exists with another adapter in the PC. (See note below.)
3. Slide the adapter into a free slot in the PC. Be careful not to touch connectors with fingers. Also, use precautions to avoid damage to the adapter due to electro-static discharge. Replace the PC cover and power up the PC.
4. Install the SCSI device driver software supplied by the SCSI adapter vendor. Review the manufacturer's documentation included in the *Eagle PCI Bus Interface*. The general procedure for installing SCSI device driver software is as follows:
 - For Windows NT™ systems, select Windows NT Setup–Options–Add/Remove SCSI Adapters, then select Add to install the driver from the CD.
 - For Windows® 3.1 systems, install the driver file on the hard disk and add a line to config.sys of the form.
device=<pathname\driverfile> /d
The /d option causes a report to be displayed when the driver is loaded during bootup, so you know it was loaded.
 - For Windows® 95 systems, in Control Panel select the option Add New Hardware. Driver setup then occurs automatically.

Note If you have more than one SCSI adapter installed in your system, this creates potential bus conflicts between the adapter boards. The boards must be assigned different IRQ and base I/O addresses. The EZ-SCSI installation routine configures the installed adapter board to avoid bus conflicts automatically. Other boards may require changes to board settings. Refer to the manufacturer's documentation. Indications that a board conflict exist include PC hang upon bootup, or hang whenever a SCSI device is used.

Scanner Setup

Installing the scanner hardware involves positioning the scanner device, connecting cables, and connecting power. Follow this sequence:

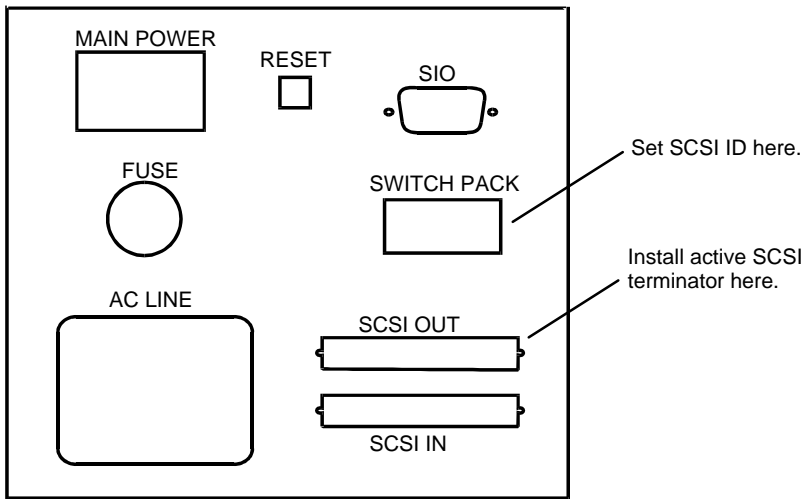
1. Place the scanner on a stable, flat surface, capable of supporting 85 lbs (38.5 kg).
2. Ensure that the host computer is shut down. Then connect the SCSI cable between the scanner and the host computer. Ensure the SCSI terminator plug is installed on the scanner's SCSI OUT port. If additional SCSI devices are connected to the host through the scanner's SCSI OUT port, then only the last device in the chain should have the terminator installed.

The Eagle Evolution uses a MicroSCSI connector on the connector panel. One connection accepts the SCSI cable from the host and the other accepts the MicroSCSI terminator, or another connection to another SCSI device.
3. Set the scanner SCSI ID on the DIP switch on the scanner connector panel. Make a note of the ID you set. This information is needed for the software installation. The default ID of 2 will work unless there is some other SCSI device on the SCSI bus that uses SCSI ID 2. If the switch needs to be changed, be sure to power down the host machine and the scanner while changing the switch.

SCSI ID

	SWITCH POSITION								
	1	2	3	4	5	6	7	8	
SCSI ID 0	0	0	0	0	0	0	0	0	0 = OFF 1 = ON
SCSI ID 1	1	0	0	0	0	0	0	0	
SCSI ID 2	0	1	0	0	0	0	0	0	
SCSI ID 3	1	1	0	0	0	0	0	0	
SCSI ID 4	0	0	1	0	0	0	0	0	
SCSI ID 5	1	0	1	0	0	0	0	0	
SCSI ID 6	0	1	1	0	0	0	0	0	
SCSI ID 7	1	1	1	0	0	0	0	0	

INSTALLATION



Connector Panel

Warning

Do not change SCSI connections while the host computer is running. The host computer should be shut down when connecting the scanner. This may result in data corruption or damage to SCSI devices such as the hard disk drive.

4. Ensure that the scanner is powered off. Then connect power. The power system automatically senses the source voltage, so no special configuration is needed to connect to standard international power levels (compatible source power types are listed in the Specifications section.)
5. After connecting power and SCSI, power up the scanner. After a few seconds, power up the PC. This sequence allows the PC to recognize the scanner on the SCSI bus.

Note The scanner should remain powered on, even when you are not using it. This ensures that the scanner illumination system is always warmed up before making scans.

Installing Software

Requirements

- 486 or higher level host computer
- 16 MB memory
- 15 MB disk space
- Windows® 3.1, Windows® 95, or Windows NT™
- CD drive (required for installation)
- ANA Tech Eagle black and white scanner
- Adaptec ASPI compatible SCSI port

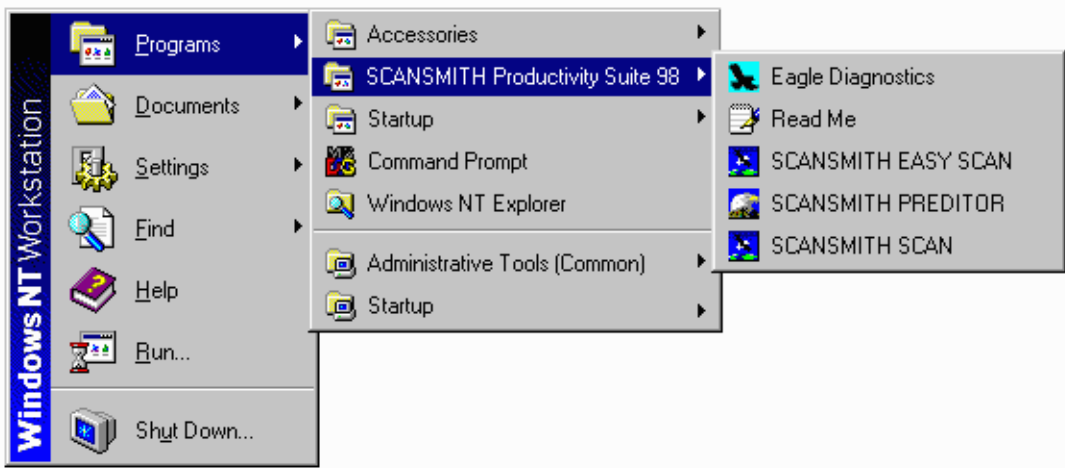
1. Exit all applications except Windows. If you are running any previous SCANSMITH software, exit this software. Also, if you are using any text editors to view previously installed README files, exit these applications.
2. Insert the SCANSMITH Productivity Suite 98 CD in the CD drive.
3. In File Manager, open the CD drive and locate the file setup.exe. Double click on setup.exe to start the installation routine.
4. Follow the prompts. When prompted, enter
 - Your name and company name
 - Name of destination directory
 - Name for program folder

Note The Windows® 3.1 installation routine automatically checks for the presence of the necessary Win32S driver libraries. If the libraries are not present or are out of date, the installation routine runs once to install the driver and after restarting Windows, runs again to complete the installation. Just follow the prompts to perform the installation.

5. The SCANSMITH Productivity Suite 98 program group is installed automatically.

INSTALLATION

- The installation program group contains icons or menu items to launch SCAN and PREDITOR, plus Eagle Diagnostics. You can also view the Read Me file. Additionally, the Windows® 3.1 and Windows NT™ program group contains an Uninstall icon. (To uninstall SCAN under Windows® 95, use Control Panel-Add/Remove Software Programs.)



- After the SCANSMITH Productivity Suite 98 installation is complete, you may optionally install the Adobe Acrobat reader software to read online documentation in Adobe Acrobat (PDF) format.
- Run SCAN and perform scanner calibration. The scanner calibration procedure is required and must be performed during initial installation of the scanner. You *do not* need to repeat the calibration procedure for software updates.

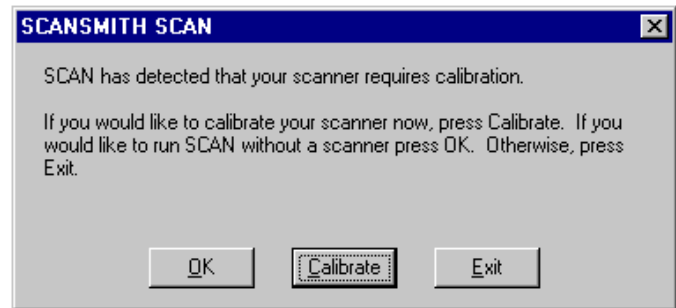
Calibration

The scanner requires an Initial Calibration prior to scanning, which consists of measuring the light levels reflected from the roller. After the lights have been powered on for 12 hours, a second Fine Tuning calibration is performed.

Initial Calibration

SCAN automatically prompts you to perform Calibration during installation. Once this calibration is performed, there is no need to re-calibrate again. The calibration data is saved in a configuration file on your PC. If you connect the scanner to a different PC, you can recalibrate to recreate the calibration file.

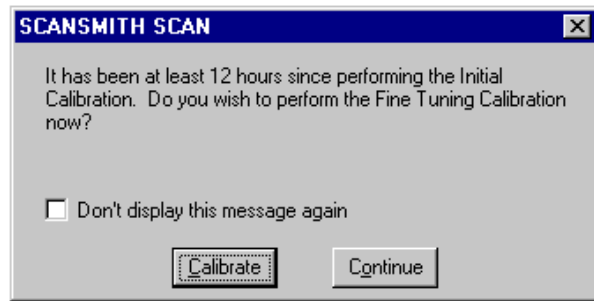
1. Ensure the scanner is connected and powered on as described in the Scanner Setup section.
2. Run SCAN. The alert box shown at right appears. Select Calibrate. Then follow the prompts to conduct the calibration procedure.



Final Calibration

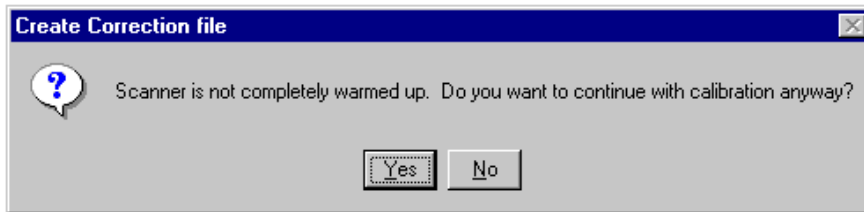
After the scanner has remained powered on for at least twelve hours, run SCAN. The dialog at right appears.

Press Calibrate to perform the Fine Tuning calibration. Pressing Continue skips the Fine Tuning Calibration. It is recommended that you perform the Fine Tuning calibration to get the best data quality.



Calibration Errors

The following error message may occur during calibration:



If you get this message during scanner calibration, allow the scanner to warm up for a few minutes, then repeat the calibration procedure.

Eagle PCI Bus Interface

Some ASPI compatible SCSI connection to the host PC is required to operate the Evolution scanner. If you do not already have such a SCSI port, you can obtain the Eagle PCI Bus Interface from ANA Tech.

The Eagle PCI Bus Interface, available from ANA Tech, is a SCSI PCI bus interface. This adapter board has a MicroSCSI SCSI output port. To connect this interface to the Eagle Evolution scanner, the Eagle MicroSCSI-to-MicroSCSI Cable included with the Eagle Evolution scanner, or an equivalent SCSI cable, is required.

The driver software for this interface is supplied by the adapter manufacturer and is installed during installation of EZ-SCSI.

Other SCSI Adapters

Other ASPI compliant SCSI adapters may be used. Use of these adapters is not guaranteed to work. Some vendors have different implementations of ASPI SCSI communications.

Obtain the driver for other adapters from the manufacturer.

SCSI Cables

Use of high quality SCSI cables is critical for successful scanning. Lower quality cables may result in data corruption and intermittent performance problems. The Evolution scanner is shipped with a SCSI cable suitable for scanning operations. Use of the SCSI cable that is shipped with the scanner is recommended.

SCSI Terminators

The SCSI bus is a daisy-chain bus. We recommend that the scanner be installed as the last device in the chain of SCSI devices. An active terminator (included with the scanner) must be installed on the scanner installed as the last device on the SCSI bus. Failure to use the proper SCSI terminator on the last device in the SCSI bus will result in data corruption on the SCSI bus, possibly affecting all devices on the bus, such as hard drives.

Power Cord

For units operating at 100-120V: The power cable is a UL-listed, CSA-certified, 18/3 AWG, type SVT or SJT, cable 15-foot (4.6 meter) maximum. It is terminated on one end by a 125V, 15A grounding-type attachment plug body. It is terminated at the other end by a 125V, 15A parallel blade, grounding-type attachment plug.

For units operating at 200-240V: The power cable is a UL-listed, CSA-certified, 18/3 AWG, type SVT or SJT, cable 15-foot (4.6-meter) maximum. It is terminated on one end by a 250V, 15A grounding-type attachment plug body. It is terminated at the other end by a 250V, 15A tandem blade, grounding-type attachment plug.

The power cable for international units is an 18/3 AWG, type SJT, cable 15-foot (4.6-meter) maximum. It is terminated on one end by a 250V, 15A grounding-type attachment plug body. It is terminated at the other end by a 250V, 15A grounding-type cord connector body. The cord set is marked HAR to signify appropriate safety approvals.

FCC Compliance

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.

EMC Compliance

The Eagle Evolution complies with the EMC Directive 89/336/EEC which is mandatory January 1, 1996. Emissions meet EN 55022 requirements for Class A devices and Immunity meets IEC 801-2, -3 and -4 requirements.

Troubleshooting During Installation

Question: *What do I do if I turn on the scanner and nothing happens?*

Answer: Ensure that AC power is properly connected and the power switch is ON.

Question: *What type of calibration files do I need? How often do I need to do this calibration?*

Answer: The correction data is created automatically by the Create Correction calibration routine and saved in the files corrctb.dat, corrctg.dat, and corrcto.dat. The calibration is performed only once, upon installation of the scanner.

Question: *I get an error message. What do I do?*

Answer: Common error messages are listed in the table below.

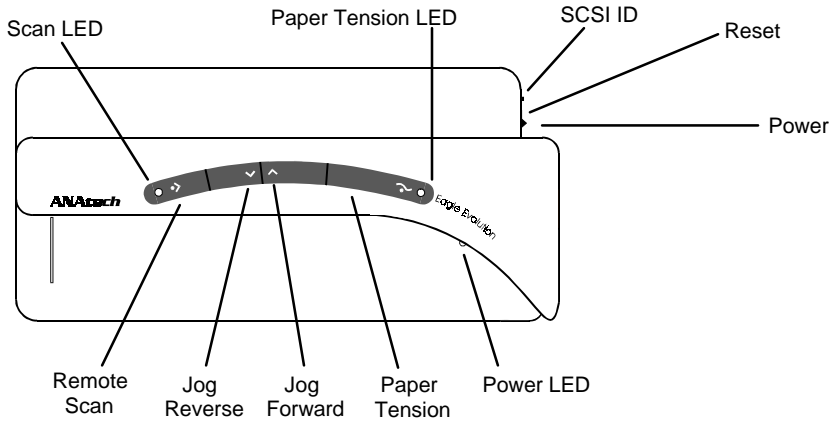
PROBLEM	CAUSE AND REMEDY
Unable to open Eagle correction file...	Scanner requires calibration. Refer to the Calibration procedure in this section.
scsi open error	SCSI cable is not properly connected or terminated. Check the cable connections and termination.
error decoding ccitt raster data	This error occurs during offline input scanning when attempting to read a line art file and output a grayscale file, or when attempting to read an unrecognized file format.
Scan was unable to communicate with your scanner (no scanner found)	Scanner SCSI cables are unplugged, or scanner is not powered up, or scanner requires a RESET. Also, the SCSI ID DIP switch on the scanner connector panel may be improperly set. (The SCSI ID DIP switch setting must not conflict with other SCSI IDs on the same bus.) Note that by watching the text that appears on your PC's monitor during the bootup sequence, you can determine if the PC sees the scanner.
SS_NO_ASPI - no ASPI manager found.	SCSI device driver not properly installed. Review the SCSI and Software Installation procedures described in this section.

3. How to Scan

This section provides guidance on controlling the scanner.

Eagle Evolution Controls

The scanner is controlled by the semicircular, pressure sensitive switch located on the top of the scanner. The switch is divided into four sections. Each section of the switch performs a different function. The switch is used to control loading and positioning of documents in the scanner, and to abort scans. The control of scanner settings such as resolution and thresholding is handled in the scanner interface software running on the host computer.



Power

The Power switch on the connector panel of the scanner turns power to the scanner on or off. The scanner has an auto-sensing power supply that automatically determines the voltage level of the power source. Therefore, it is not necessary to manually configure the scanner for different voltage levels when installing the scanner at international sites.

The Eagle Evolution scanner uses a SCSI connection to transfer data to the host computer and receive control signals. Because the SCSI bus is typically used to communicate with the host's hard disk drive(s), certain precautions must be taken in the scanner power on and power off sequence to avoid potential data corruption on the host's hard disk drive(s).

POWER ON - POWER OFF SEQUENCE

Always power on the scanner first, before powering on the host. The host should be powered off, or at least shut down with the hard disk drive heads parked, before powering on the scanner. Ensure that proper SCSI termination is installed and then power on the scanner. After the scanner has powered up, power up or start the host computer. This sequence ensures that the scanner is present on the SCSI bus so that it will be properly recognized by the SCSI control system on the host. Failure to follow this sequence or to use proper SCSI termination may result in spurious data on the SCSI bus, which can harm the host hard disk drive(s).

Always power off or shut down the host first. After the host is powered off or shut down, power off the scanner. The rationale for this sequence is the same as for the power on sequence.

Warning Be sure to follow the power on/power off sequence outlined above. Failure to do so may result in data corruption on the host's hard disk drive(s).

Reset

The Reset button is used to clear the scanner's internal memory and restart scanner-host communications. The Reset button is used to re-initialize scanner-host communications, or to restart the scanner when unexpected problems occur.

Remote Scan

When the Enable Remote Scanning option is enabled in the SCAN Preferences dialog or in your EASY SCAN workspace, you can start scans using the Remote Scan switch on the Eagle Evolution scanner rather than at the host computer. The LED light in the Remote Scan switch slowly blinks when remote scanning is enabled.

Jog Reverse

The Jog Reverse switch runs the roller motor in the reverse direction, causing the document to rewind. The document moves while the Jog Reverse switch is depressed.

Jog Forward

The Jog Forward switch runs the roller motor in the forward direction, causing the document to advance. The document moves while the Jog Forward switch is depressed.

Note that the Jog Forward and Jog Rewind switches are used only for manual positioning of the document prior to scanning. Document movement during the scan is automatic.

Paper Tension

The Paper Tension switch engages and disengages the paper tension spring, which holds the document against the roller. The spring holds the document firmly against the roller to ensure accurate movement of the document through the scanner when the roller turns. When the spring is engaged, an LED light next to the switch remains lighted. Note that if the scanner is powered off while the spring is engaged, the spring stays engaged, even though the LED light goes out.

Starting Scanner Interface Software

The host software for running the Eagle Evolution scanner is SCAN, EASY SCAN, and TWAIN. To run the software, double click on the SCAN or EASY SCAN icon. To run the scanner using a TWAIN compliant application, use the TWAIN commands Select Source to select the Evolution scanner and Acquire to start the Evolution scanner interface.

The SCAN or EASY SCAN dialog should appear. If the dialog fails to appear, review the Installation.



You control the Eagle Evolution scanner with the SCAN or EASY SCAN interface. All thresholding settings, rewind and paper handling options, use of automatic document sizing using the built-in document sensors, and other controls are accessed through software.

Document Scanning

To scan a single document, follow these steps:

1. Run SCAN or EASY SCAN. SCAN offers complete control of scanning operations, while EASY SCAN offers a simple interface that is easy to learn.

You may find it convenient to start scanning with EASY SCAN and when you are familiar with scanner operation, use SCAN which offers more detailed control over the scanner. You can also use SCAN to create scanning workspaces that can be loaded into EASY SCAN.

2. Set scan parameters. In EASY SCAN, you only need to enter an output filename. In SCAN, you can select other parameters, such as resolution and thresholding options.
3. Press the SCAN button to start the scanner. The output data from the scanner is saved to disk.

Note Refer to the SCAN User Guide or EASY SCAN User Guide for instructions on use of the scanning software.

Loading Documents for Scanning

Documents are inserted face up in the scanner. The maximum document width is 40 inches (101.6 cm).

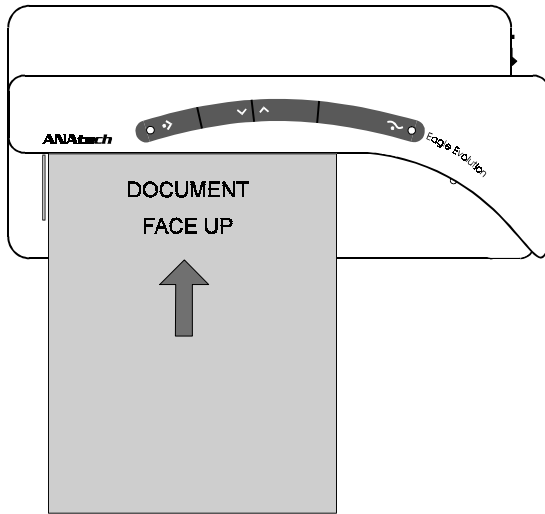
1. To load a document, press the Paper Tension switch to open the paper tension spring, if it is not already open. The Paper Tension LED is off when the paper tension spring is disengaged.
2. Slide the document, face up, into the scanner. The document should go under the scanning head so that a portion of the document lies above the roller. Align the document when inserting so that it appears straight. This ensures proper travel of the document through the scanner and helps ensure the scanned data is properly aligned. Don't worry if the document alignment is not perfect when inserting the document. SCAN has a deskew feature which lets you interactively rotate the data to remove any misalignment due to inserting the document at a slight angle.
3. Press the Paper Tension switch to engage the paper tension spring. When the spring is engaged, the document is seated and cannot be removed. If the document is still loose after engaging the paper tension spring, this means that the leading edge was not placed far enough over the roller prior to engaging the spring. If this happens, repeat Steps 1 - 3 and slide the document farther into the scanner before engaging the paper tension spring.

Caution Do not pull or move documents by hand while the paper tension spring is engaged. Do not remove the document from the scanner while the paper tension spring is engaged. This may result in tearing or damage to the document. Always disengage the paper tension spring with the Paper Tension switch before removing or repositioning documents by hand.

Note Refer to the SCAN User Guide for further information on the Document Handling options available in the SCAN interface.

Positioning Document

1. The document can be positioned by hand while the paper tension spring is disengaged.
2. If the paper tension spring is engaged, you can also reposition the document using the Jog Reverse and Jog Forward switches. Press Jog Reverse and Jog Forward as needed to reverse or advance the document in the scanner.



Be sure to justify the paper against the paper guide on the left side of the document. This ensures that the active scan area for preset document sizes selected in the SCAN interface captures the correct document region.

Inserting Document into Scanner

4. Cleaning the Roller

The roller is a precision manufactured instrument that helps to ensure the quality of your scanned data. The rubber material of the roller accumulates unwanted dirt over time. Most dirt is accumulated due to the passage of documents through the scanner. The roller may collect dust, graphite particles from pencil markings, loose ink particles, and other debris.

Cleaning the roller occasionally helps to ensure good data quality from the scanner. Keeping the roller clean may also prevent unwanted abrasion to documents. The scanner will continue to function with a dirty roller.

The more documents that are scanned, the more dirt will accumulate on the roller. Thus, heavily used scanners will require more frequent roller cleaning. There is no fixed rule for how often the roller must be cleaned. Some document types cause dirt to accumulate faster on the roller than other document types. For example, pencil drawings tend to have loose graphite particles and the scanner roller will probably get dirty faster if you are scanning pencil drawings than if you are scanning sheets of mylar. **AS A GENERAL RULE, WE SUGGEST THAT YOU CLEAN THE ROLLER AFTER EVERY 1,000 SCANS, OR EVERY THREE MONTHS, WHICHEVER COMES FIRST.**

WARNING Before cleaning the roller, make sure that the roller has completely stopped rotating after removing the front apron. **DO NOT** attempt to clean the roller if it continues to move after removing the front apron; call a service representative. Do not allow loose clothing, long hair, or jewelry to become caught in the roller cavity while cleaning. Remove hands from the roller cavity when using the Jog switch to turn the roller.

WARNUNG Bevor Sie mit der Reinigung der Andruckwalze beginnen, vergewissern Sie sich, daß diese nach Abnahme der vorderen Abdeckung vollständig zum Stillstand gekommen ist. Versuchen Sie nicht, die Andruckwalze zu reinigen, wenn diese nach Abnahme der vorderen Abdeckung weiterhin in Bewegung ist. Verständigen Sie in diesem Fall den technischen Service. Achten Sie darauf, daß beim Reinigen der Andruckwalze keine losen Kleidungsstücke, lange Haare, Schmuck o.ä. in den Bereich der Andruckwalze gelangen. Nehmen Sie Ihre Hände von der Andruckwalze, bevor Sie die Vor-/Rücklaufaste betätigen.

CLEANING THE ROLLER

ATTENTION Avant de nettoyer le rouleau, assurez-vous que celui-ci n'est plus en mouvement après avoir enlevé le tablier frontal. N'essayez pas de nettoyer le rouleau s'il est encore en mouvement après avoir enlevé ce tablier; faites appel au support technique.

Prenez garde que des vêtements flottants, des longs cheveux ou des colliers ne soient coincés dans la cavité du rouleau pendant le nettoyage. Retirez les mains de la cavité du rouleau quand l'interrupteur Jog commandant la mise en marche du rouleau est activé.

CUIDADO Antes de limpiar el rodillo y después de quitar la parte frontal, debe estar seguro de que el rodillo está completamente parado. NO intente limpiar el rodillo si todavía está en movimiento después de quitar la parte frontal; llame al servicio técnico autorizado. No permita que la ropa suelta, cabellos largos ó joyas queden atrapadas cuando se limpia el alojamiento del rodillo. Quitar las manos del alojamiento del rodillo cuando se utilize el interruptor de avance que hace girar el rodillo.

警告:

当需清洗滚轴时，一定确保打开前盖前，滚轴彻底停止旋转。打开前盖时，如滚轴仍未完全静止，千万不要进行清洗；此时，要请技术人员进行检查。在清洗滚轴腔过程中，要防止将衣物，长头发或首饰等物品掉在腔体内。当用轻推开关转动滚轴时，手要离开滚轴腔。

- 주의 -

롤러(ROLLER)를 청소하기 전에 앞 덮개를 제거한 후 롤러의 회전이 완전히 정지했는지 확인하십시오.

앞 덮개를 제거한 후에 롤러가 회전을 계속한다면 청소를 시도하지 말고, 서비스 담당자에게 연락하십시오.

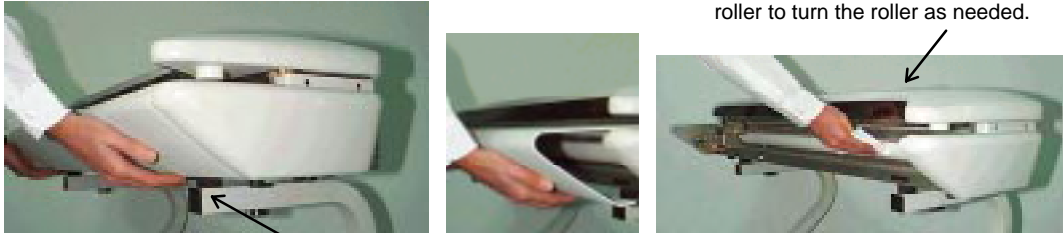
청소하는 동안, 롤러 사이에 옷이나 머리카락, 목걸이 등이 끼이지 않도록 주의하십시오.

롤러를 돌리기 위해 Jog 스위치를 사용할 때 롤러 사이에 손을 넣지 마십시오.

CLEANING THE ROLLER

To clean the roller:

1. Depress the quick release spring latches on the underside of the front apron. If the scanner is on a table or on a Deluxe stand, it will be necessary to move the scanner close to the edge of the table or stand in order to access the quick release screws (in the case of the Deluxe stand, the scanner must be unmounted from the stand to be moved). Use caution when moving the scanner.
2. Carefully pull the front apron back and remove. Set the apron down in a safe location. Remove the front apron.
3. Wipe the roller with cotton swabs or a lint-free cloth and isopropyl alcohol, or use a disposable alcohol-impregnated wipe.



Wipe the roller with swabs or a lint free cloth and isopropyl alcohol. Use the Reverse Jog Switch on the roller to turn the roller as needed.

Quick release spring latches are located under the front apron on the right and left sides.

4. Press the **Reverse Jog Switch** on the hood momentarily (about one second) to turn the roller.

CLEANING THE ROLLER

5. Continue cleaning.
6. Repeat Steps 3-5 until the roller is cleaned.
7. When finished, ensure that all cleaning materials have been removed.
8. Replace the front apron. Slide the apron into position so that the quick release spring latches are engaged.
9. Ensure that the apron is fully seated. If the apron is not fully seated, the scanner will not function properly and an error message will appear. When fully seated, the apron engages a limit switch that enables scanner operation.

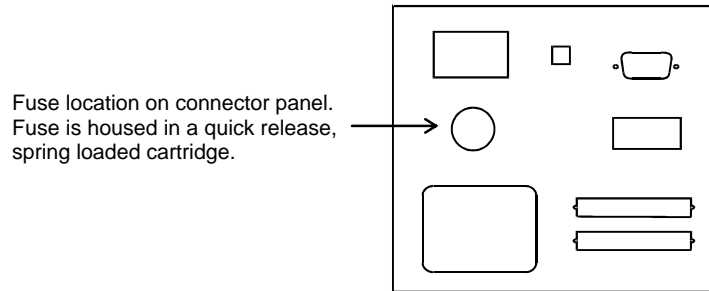
5. Replacing the Fuse

The fuse protects the main input power circuit for the scanner. The fuse normally does not require maintenance or replacement. However, it is possible that an outside power surge could blow the fuse. If this happens, the fuse can easily be replaced. The fuse is housed in a spring loaded cartridge that can be accessed from the exterior of the connector panel. The fuse, which is ANA Tech part number 30147, is a standard fuse with the following specification:

5x20mm, 3.15 Amp, Fast, IEC

Here is the procedure to replace the fuse:

1. Power down the host computer, then power down the scanner. Disconnect power to the scanner.
2. Remove the fuse from the scanner by unscrewing the spring loaded fuse cartridge from its mount on the connector panel.
3. Remove the old fuse and insert a new fuse into the fuse cartridge. Screw the fuse cartridge with the new fuse into its mounting hole in the connector panel.
4. Reconnect power, then power up scanner, then the host computer.



6. Troubleshooting Scanner Operations

Use the list below to analyze scanner problems.

The table below lists some problems that may occur. If you cannot resolve a problem, call your ANA Tech Customer Support representative.

Question: *I can't scan at 100% speed. The software interrupts the scan when it is in progress.*

Answer: The scanner automatically detects a buffer overflow condition and reduces scanner speed when needed (this happens when a large amount of data must be transferred and the PC cannot save the data fast enough). Allow the scanner interface to automatically adjust itself to the appropriate speed (Auto Slow), or set a lower speed.

Question: *What do I do if I turn on the scanner and nothing happens?*

Answer: Ensure that AC power is properly connected and the power switch is ON.

Question: *What do I do if the scanner fails the Calibration test?*

Answer: The scanner may fail the Create Correction portion of the Calibration test if the roller is dirty. Remove the front apron and clean the roller as described in the section "Cleaning the Roller."

Question: *What do I do if a document gets stuck inside the scanner?*

Answer: Document guides are installed around the roller to prevent misfeeding. However, if a misfeed occurs, remove the front apron to access the scanner interior and clear the misfeed. Refer to the section "Cleaning the Roller" for a description of removing the front apron.

TROUBLESHOOTING SCANNER OPERATIONS

Index

A

Adobe Acrobat, 15
ASPI compatible SCSI, 9
aspi compliant SCSI adapters, 17
auto slow, 6

B

base I/O address, 10
bus conflicts, 10

C

cables, 17
calibration, 15
calibration errors, 16
cleaning roller, 26
connector panel, 12
controls, 2, 20
crating, 8

D

description, 1
deskew, 24
diagram, 20
document alignment, and deskew, 24

document, loading, 24

E

Eagle PCI bus interface, 10, 17
EASY SCAN, 4
electronics, 2
EMC Compliance, 18
error messages, scanner, 19
errors, during calibration 16
Evolution 8 upgrade, 4
EZ-SCSI, 10

F

FCC Compliance, 18
final calibration, 16
front apron, removing, 28
fuse, 12, 30

G

grayscale data, 3

I

imaging head, 2
initial calibration, 15
installing software, 13

international power, 12
inventory, 9
IRQ level, 10

J

jog forward, 2, 22
jog forward switch, 20
jog reverse, 2, 22
jog reverse and roller cleaning, 28
jog reverse switch, 20
jog switches, 25

L

LEDs, 20
line art data, 3
loading document, 24

O

offline input, 4
operation, principles, 1

P

paper tension, 22, 24
paper tension LED, 20

paper tension switch, 20
power cord, 18
power LED, 20
power on/off, 21
power switch, 20, 21
PREDITOR, 4
program group, 14

R

raster data, 3
remote scan, 2, 22
remote scan switch, 20
reset, 22
reset switch, 12, 20
roller, cleaning, 26
run lengths, 2

S

SCAN, 4
SCAN PLOT, 4

scan LED, 20
scanner setup, 11
scanner, description, 1
scanning, 3
scanning head, 2
scanning head, lift warning, 8
scanning sequence (Document Scanning), 23
SCANSMITH Productivity Suite CD, 13
SCANSMITH SCAN, 4
SCSI adapter, installing, 10
SCSI bus length, 17
SCSI ID, 11
SCSI ID DIP switch, 11
SCSI ID, switch location, 12
SCSI ports, 12
SCSI setup, 9
SCSI terminator, 17
sensor array, 1
sensors, 2
shock watch indicator, 8
site preparation, 9

software, 4
software, installing, 13
software, starting, 23
specifications, 5
speed, 6
spring open/close, 2
switches, 20

T

troubleshooting, during installation, 19
turbo mode, 6
TWAIN, 4

U

uninstall, 14
unpacking, 8
upgrade, Evolution 4 to Evolution 8, 4

W

Win32S, 13

