BÖWE BELL+HOWELL



Ngenuity

Operator Manual

S008769 Rev A

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The information given in this Manual is subject to change without notice. Please go to www.bbhscanners.com to download the most current Manual.

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Release Notes

As future revisions of this manual are released, this section will contain a list of any changes that were made for that specific revision of the manual. The list will contain a brief description of each change and a link to the location in the manual where the change occurs.

Item	Status	Location in Manual	Detail
Ngenuity Operator Manual	New		Rev A

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Ngenuity

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Thank You

Thank you for purchasing a BÖWE BELL + HOWELL (BBH) Ngenuity scanner!

The Ngenuity bundle consists of everything you need to connect and operate the scanner. This includes the scanner itself, a USB™ 2.0 cable and the operating software, which includes Ngenuity's OEM version of VirtualReScan® (VRS), 4.2 or newer.

The model number of your Ngenuity scanner can be identified within the Home Screen of the Ngenuity Operator Utility or NOU (see "2.2 Ngenuity Operator Utility" on page 29, specifically "2.2.2.1 Scanner Model" on page 34).

Ngenuity scanners are designed to be reliable, easy to connect, maintain and service. They are also designed to handle a variety of document sizes and types.

Please take a few minutes to review this Operator manual. It contains the detailed information you need to get the most out of your Ngenuity scanner.

This manual is formatted for 2-sided printing.

Registration

Please register your new, Ngenuity scanner! Registering serves as a verification of ownership and confirms your right to protection under the terms and conditions of your warranty. Registration also helps us serve you better if you need to call BBH about this product. Visit the warranty registration page on our web site (www.bbhscanners.com/support/current_products/ngenuity/warranty/index.html) or complete and return the warranty registration card that shipped with the scanner.

About Ngenuity

Your Ngenuity scanner offers the following:

- Integrated feeding system - Seamlessly scans a wider range of documents from rice paper to plastic cards; from documents smaller than business cards to documents up to 200 M in length
- Straight Pass-Through paper path
- 700 page automatic document feeder
- 600 dpi camera capture and output
- Scanning speeds of up to 150 ppm at 200 dpi in color, grayscale, and bitonal
- Ngenuity Operator Utility (NOU)
- USB v2.0 interface
- LED illumination
- Quiet operation

Compliances

EMC Statements

(For United States only)

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.

FCC Warning: To assure continued FCC compliance, the user must use only shielded interface cable and the provided power supply cord. Also, any unauthorized changes or modifications to this equipment would void the user's authority to operate this device.

(For Canada)

THIS CLASS A DIGITAL APPARATUS COMPLIES WITH CANADIAN ICES-003.

CET APPAREIL NUMÉRIQUE DE LA CLASSE A EST CONFORME Á LA NORME NMB-003 DU CANADA.

(For European Union)

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.

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- USB™ is a registered trademark of the Universal Serial Bus Implementers Forum, Inc.

All other product names and logos mentioned herein are the property of their respective companies.

Symbols You Should Know

You will see three types of symbols in this manual; a Warning symbol; a Caution symbol; and a Note symbol.

Each time a symbol appears in the manual, it is followed by important information that you should read and follow carefully. Below are examples of the symbols found in this manual along with a definition for each:



WARNING
This symbol identifies a hazard or procedure that could cause bodily injury or loss of life if performed incorrectly. When you see this symbol, be sure to read all of the information in the section before you continue!



CAUTION
This symbol identifies a hazard or procedure that could damage or destroy equipment if performed incorrectly. When you see this symbol, be sure to read all the information in the section before you continue!



NOTE
This symbol identifies important information that requires special attention. When you see this symbol, be sure to read all the information in the section before you continue!

Getting Started

1.1 How this Manual is Organized

The Operator manual for Ngenuity scanners is broken into various sections containing information pertaining to the operation and maintenance of the scanner.

‘Contact Information” on page ii lists the contact information for pertinent departments of BÖWE BELL + HOWELL Scanners (BBH). The next section called ‘Release Notes” on page iii lists all the updates and changes that have been made to the manual since its last revision (Rev) or release. There is also a section that details all of the various compliances on page x that Ngenuity scanners meet.

Please take a moment to register your scanner! Information on how to do so can be found in the section ‘Registration” on page ix.

Throughout the manual important information in the way of operational, functional and safety requirements is noted and identified through the use of special symbols. The section ‘Symbols You Should Know” on page xi in this manual offers definitions for each symbol. In addition, the section ”1.2 Safety Guidelines” on page 1 includes important safety information for the setup and operation of the scanner.

Please review this document in its entirety before proceeding, paying particularly close attention to the sections Symbols You Should Know and Safety Guidelines.

This documented is formatted for two-sided printing.

1.2 Safety Guidelines

WARNING

Please read these safety guidelines before you operate or maintain the scanner and follow them exactly. These safety guidelines are recommended for your safety and to extend the life of your scanner.

- The scanner weighs approximately 112 pounds (51 kg). Be sure to incorporate the appropriate manpower (taking into consideration your lifting capabilities) before moving or lifting the scanner
- Make sure all electrical outlets are properly grounded. The use of a dedicated power line is recommended

CAUTION

Due to the inconsistencies in power (i.e. power surges, spikes and ground noise), BBH highly recommends the use of a power conditioner with all of its scanning products and attached computer components. The use of a BBH recommended power conditioner eliminates the degradation and possible destruction of sensitive electronic components, as well as any disruptive events that can occur due to unwanted voltage between neutral and ground. For more information, please visit our web site at www.bbhscanners.com or contact BBH Sales at 1-800-SCAN-494.

- The socket outlet must be installed near the equipment and must be easily accessible
- Make sure the scanner is connected to the correct voltage before connecting it to the power line (see "1.6 Specifications" on page 13 for voltage requirements)
- Use a voltage level that does NOT vary more than ±10% from the voltage level marked on the scanner name-plate. The name-plate is located on the back of the scanner
- Only use the power cord supplied with the scanner
- Do NOT use an extension cord
- Do NOT leave the power cord plugged in the AC outlet if the scanner is not used for an extended period
- Do NOT, under any circumstances, remove or obstruct the function of any safety feature
- Do NOT over-ride the safety interlock

NOTE

When the scanner's transport cover is open, a safety interlock removes power from the transport circuitry before any hazardous parts are accessible. This interlock protects the Operator from the possibility of the transport running while the scanner's transport cover is open.

- Place the scanner in a clean, well ventilated room that is free of combustible vapors
- To prevent a fire or shock hazard, do NOT expose this scanner to rain or any type of moisture
- Do NOT place the scanner in direct sunlight or in a cold draft
- Do NOT place the scanner near a heating appliance or air conditioning vent. Do NOT place the scanner in a room with extremely high or low humidity (see "1.6 Specifications" on page 13 for environmental requirements)
- Do NOT place the scanner near other appliances or near machinery that generate large amounts of electro-magnetic interference (EMI)
- Do NOT place the scanner on carpet. Static electricity can cause the scanner to malfunction
- Allow for the minimum clearances stipulated under "1.3 Operating Environment" on page 3 along with an additional 4-5 inches (10 - 13 cm) of clearance at the front, back, and both sides of the scanner for proper ventilation
- Place the scanner at the front edge of a sturdy, level surface

- Do NOT lean on the scanner
- Do NOT place any liquids near the scanner. Accidental spillage of liquid into the scanner may cause severe damage. If this occurs, power OFF the scanner and unplug the power cord. Contact a BBH Authorized Service Provider (ASP). A list of ASPs can be found on the BBH web site at www.bbhscanners.com
- Ngenuity scanners contain Beam Class 1 LEDs. This class is eye-safe under all operating conditions
- Prior to scanning, remove all staples and paper clips from the documents to be scanned
- Remove all jewelry or any other items from the hands and wrists that could become caught on scanner components during operation and maintenance
- Do NOT disassemble the scanner. Doing so will void your warranty. If there is a need to disassemble the scanner, please contact a BBH Authorized Service Provider (ASP). A list of ASPs can be found on the BBH web site at www.bbhscanners.com
- Note to ASPs: Disconnect the scanner from its power source before servicing

1.3 Operating Environment

The scanner equipment has been designed to operate in a normal office environment with emphasis on the following:

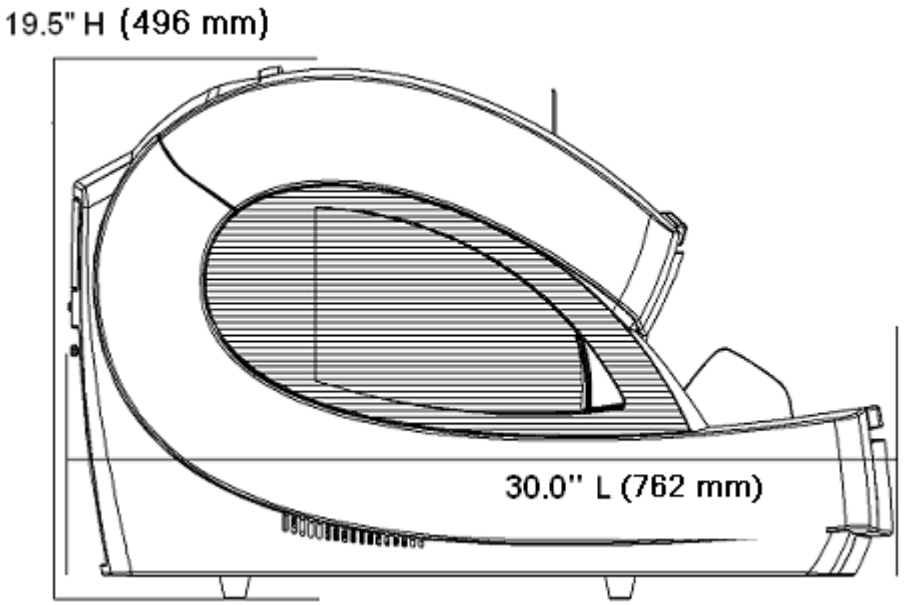
- Place the scanner in a clean, well ventilated room that is free of combustible vapors
- Make sure all outlets are properly grounded. Use of a dedicated power line is recommended

CAUTION

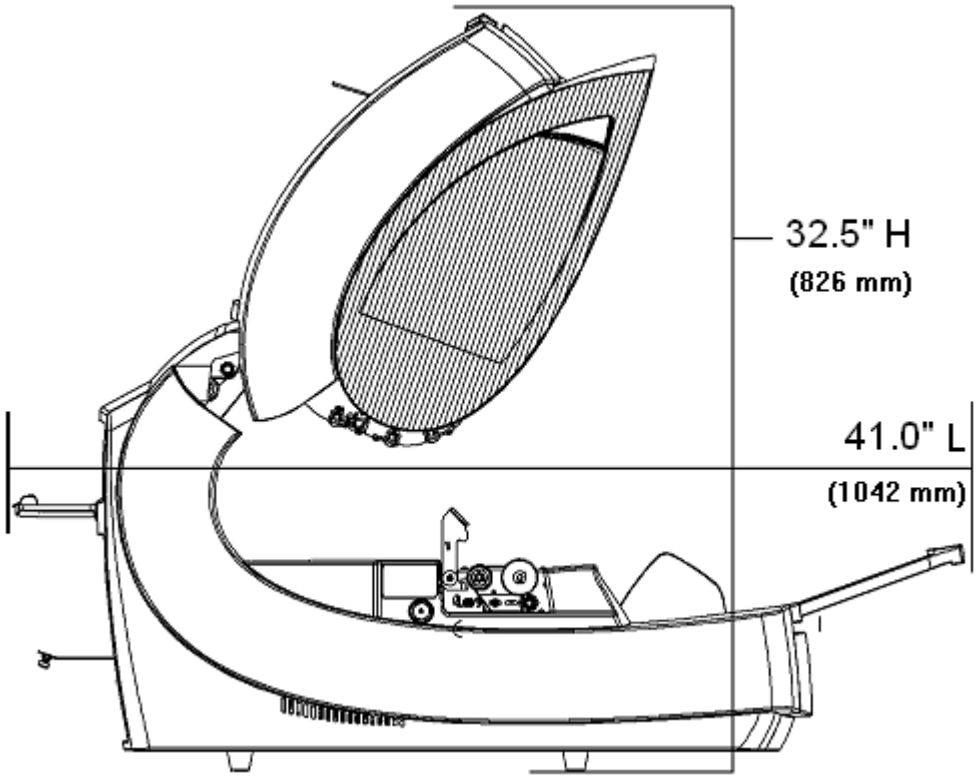
Due to the inconsistencies in power (i.e. power surges, spikes and ground noise), BBH highly recommends the use of a power conditioner with all of its scanning products and attached computer components. The use of a BBH recommended power conditioner eliminates the degradation and possible destruction of sensitive electronic components, as well as any disruptive events that can occur due to unwanted voltage between neutral and ground. For more information, please visit our web site at www.bbhscanners.com or contact BBH Sales at 1-800-SCAN-494.

- The minimum clearances stipulated in the following images (Side View-1 on page 4, Side View-2 on page 4, Top View on page 5, which can be found in this section) are allowed for, with approximately 4-5” (10 - 13 cm) of clearance at the front, back, and both sides of the scanner for proper ventilation:

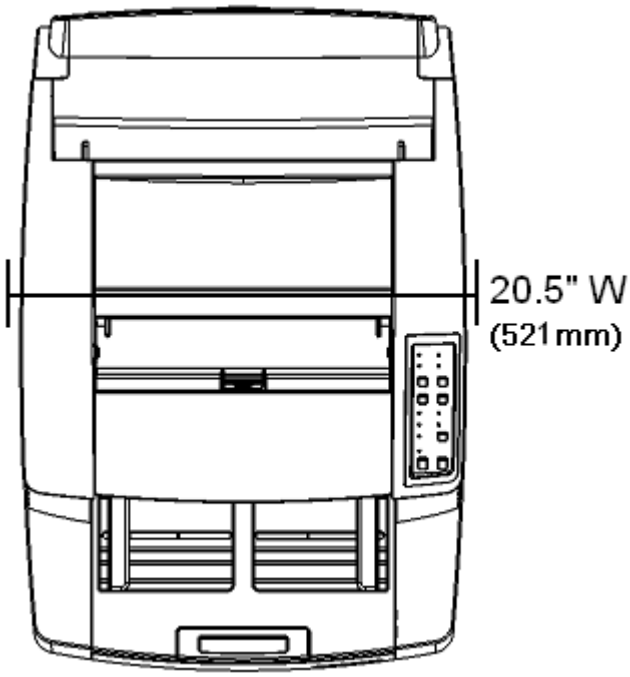
Side View-1 (Transport Cover, Back Imprinter, and Straight Pass-Through doors closed; Length stipulated includes clearance for cables at the back of the scanner)



Side View-2 (Transport Cover, Back Imprinter and Straight Pass-Through doors open; Feeder Table Extended; Length stipulated includes clearance for cables at the back of the scanner)



Top View



CAUTION

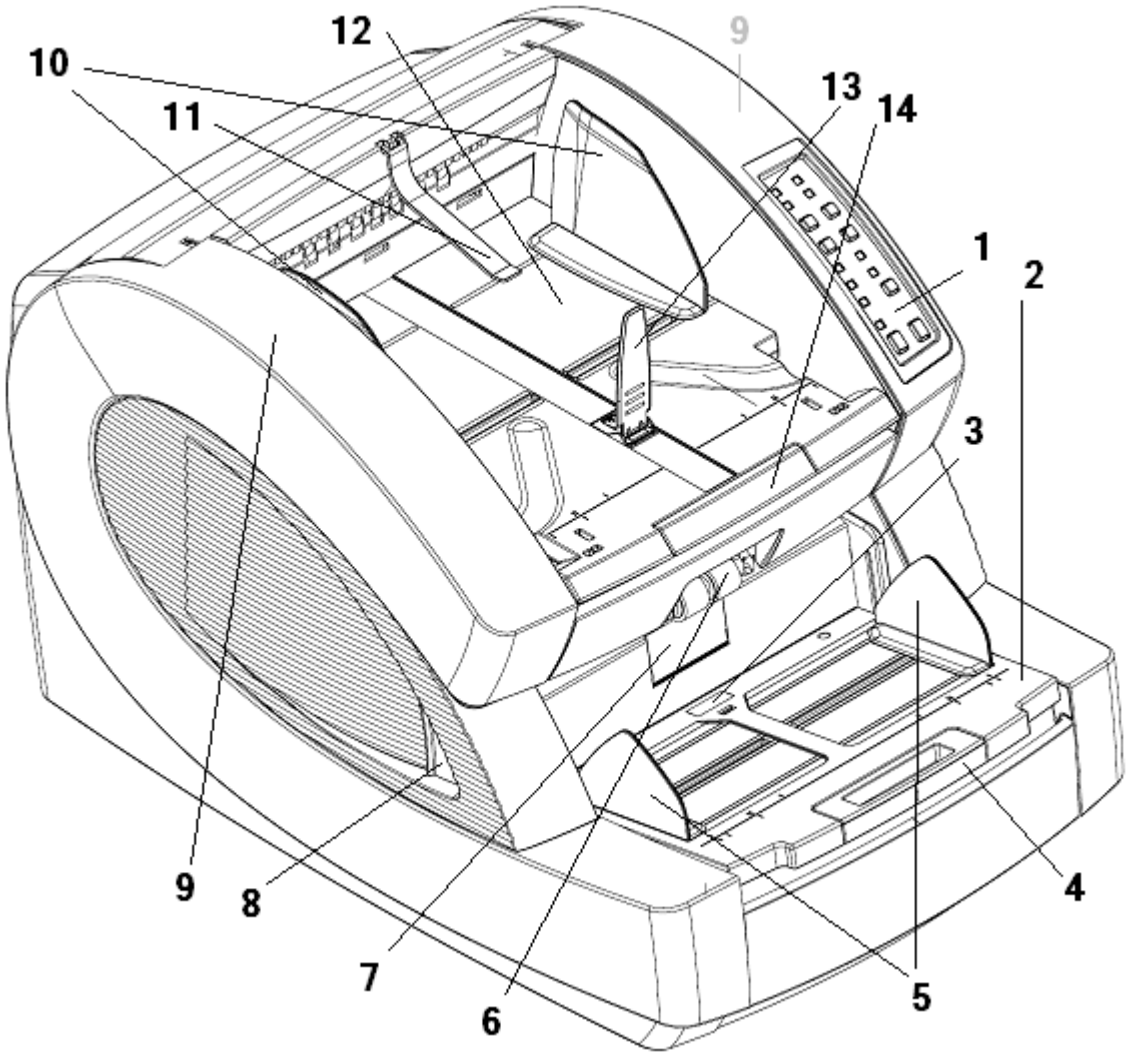
Make sure to maintain an additional 4-5" (10-13 cm) of additional clearance at the front, back, and both sides of the scanner for proper ventilation.

Place the scanner at the front edge of a sturdy, level surface. If the scanner's straight pass-through feature is to be used, make sure to leave enough clearance at the back of the scanner (see Side View-2 on page 4).

1.4 External Component Identification

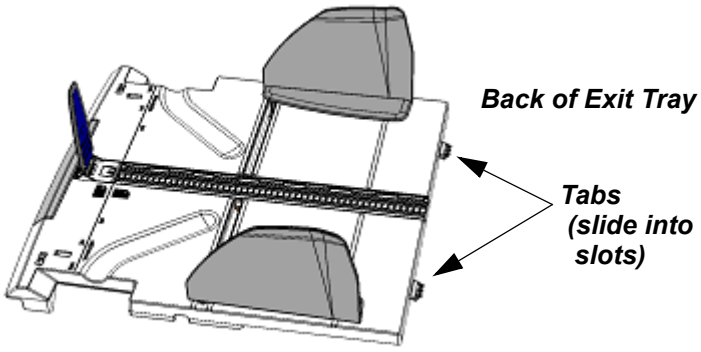
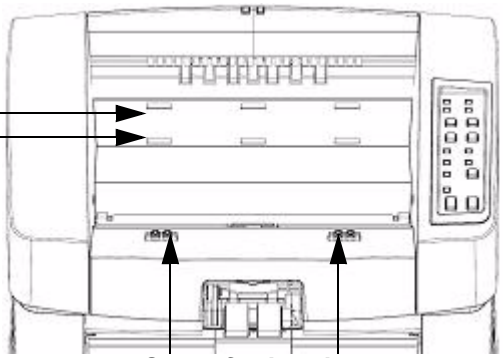
The external components that make up the scanner are identified in this section, along with a detailed description of each.

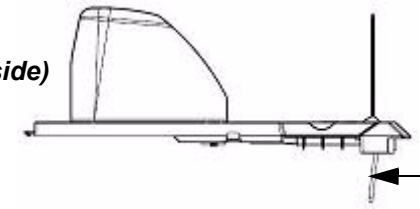
1.4.1 Scanner Front

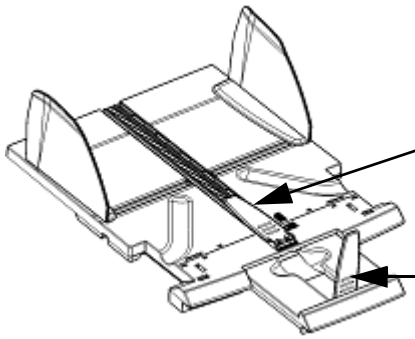


Ref#	Item Name	Description
1	Control Panel	The control panel allows the operator to manipulate certain scanner functions directly from the scanner itself. It is comprised of pushbutton switches, LED indicators, pictogram legends, and text legends (for further information about the control panel, see ”2.1 Control Panel” on page 17).
2	Feeder Table	The feeder table is where the document(s) to be scanned are placed by the Operator. It can be raised and lowered by the Operator using the **Down/ Set** and **Up** buttons (see ”2.1.2 Feeder Table” on page 23) located on the scanner’s control panel (#1 above).
3	Cork Pad	The cork pad assists in preventing multifeeds by making it easier for the skimmer rollers to grab one document at a time from a batch to feed into the scanner. It is a small, rectangular piece of cork that sits in a ‘well’ on top of the feeder table.

Ref#	Item Name	Description
4	Extender, Feeder Table	The extender for the feeder table acts as a support mechanism for longer documents that extend out and beyond its standard length. The extra support allows for better feeding of document(s) into the scanner's transport. The extender can be pulled out to add an approximate 7.0" (18 cm) of length to the feeder table.
5	Document Feed Guides (Left & Right)	The document feed guides and are used to guide document(s) into the scanner's transport with little or no skew. They can be width adjusted independently of one another, which allows the Operator to left, right, or center align documents for feeding into the scanner's transport.
6	Skimmer Module	The skimmer (assembly) contains two rollers that assist in grabbing and feeding documents from the feeder table into the scanner's transport. The skimmer assembly can be placed in an up position (manual feeding - see 2.1.1.5 Feed Modes, 'Manual Mode" on page 21) or a down position (automatic document feeding - see 2.1.1.5 Feed Modes, 'ADF Mode" on page 21). The skimmer rollers can get dirty and wear over time. They require periodic cleaning and eventual replacement to maintain optimal performance (refer to the section 'Maintenance" on page 57 in this manual for more information).
7	Separator Roller Door	Behind the separator roller door is the separator roller. The separator roller assists in separating documents as they feed into the scanner's transport so as to avoid the occurrence of multifeeds. The separator roller can get dirty and wear over time. It requires periodic cleaning and eventual replacement to maintain optimal performance (refer to the section 'Maintenance" on page 57 in this manual for more information).
8	Transport Cover Release Levers	There are two transport cover release levers, one located on the left side of the scanner and one on the right. The Operator is required to pull one or both lever mechanisms towards them while standing in the front of the scanner to release and open the scanner's transport cover for opening in an upward position.
9	Transport Cover	The transport cover is a hinged cover that can be opened to access the scanner's transport. It opens in an upward position and will stay open in a full up position with the support of two gas springs that are located inside the scanner - one on either side (see Side View-2 on page 4 to view an image of the transport cover in a full up position).
10	Document Output Guides (Left & Right)	The document output guides are used to guide the scanned document(s) out of the transport into a neat stack on the exit tray[a]. They can be width adjusted independently of one another, which allows the Operator to left, right, or center align documents exiting the scanner's transport, depending on how the documents are fed into the scanner (see #5 above)
11	Exit Deflector	Hinged deflector that assists in the placement of documents in the Exit Tray

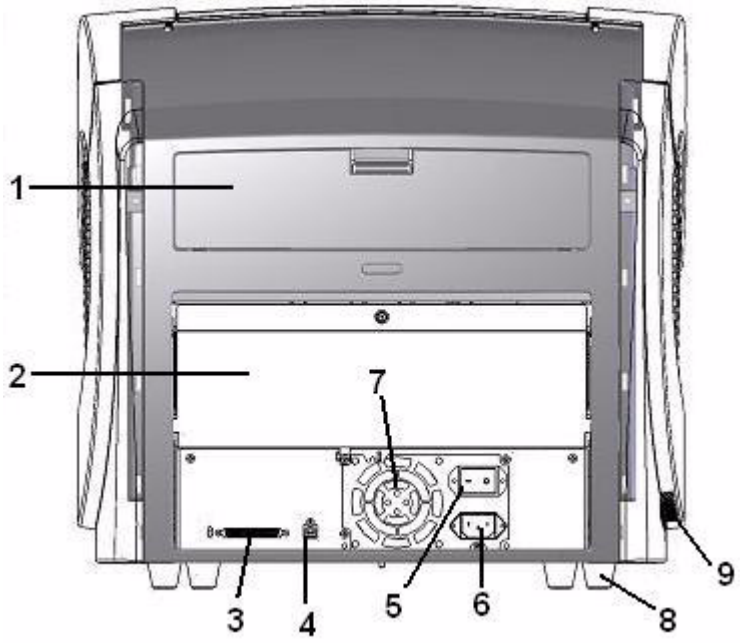
Ref#	Item Name	Description
12	Exit Tray	The exit tray is what the scanner ejects the document(s) into after they have passed through the transport[b]. It is held in place by tabs located on the back of the tray that hinge into slots found in the scanner transport cover, directly below where documents exit. There are two different levels of slots that assist in positioning the exit tray if needed, depending on the types of documents being scanned.  ***Back of Exit Tray*** ***Tabs (slide into slots)*** ***Top/Front View of Scanner - Exit Tray Removed*** ***Slots-*** ***Top Row*** ***Bottom Row***  ***Stops for bracing kickstand wire*** The exit tray can be positioned in one of three ways: **Flat** - Exit tray rests on top of the scanner in a flat, horizontal position, with the tabs on the back of the tray hinged into the bottom-most row of slots in the scanner. **Tilted Forward** - Tabs at the back of the exit tray are installed in the upper-most slots (found directly below where documents exit the scanner). This causes the exit tray to tilt in a downward position towards the front of the scanner. This position is conducive to forward movement which can assist long documents exiting the scanner.

Ref#	Item Name	Description
		Tilted Backward - Tabs at the back of the tray are installed in the bottom-most row of slots, and the hinged kickstand wire located on the bottom of the exit tray is folded down and out. The kickstand wire is braced or positioned against the stops found on the scanner's upper center cover (stops are located directly beneath the exit tray - see image above) so that documents exiting the scanner are positioned to the back of the exit tray. This is useful when scanning small documents such as checks. ***Exit Table*** ***(view from left side)***  ***Kickstand Wire (folded out)*** Located beneath the exit tray is a door that allows access to the front page imprinter (if one is installed). **NOTE** ***Imprinters are a user-installable option available for purchase from BBH. See "4.1 Imprinter" on page 53 for more information on imprinters.***
13	Guide, Document Stop	The document stop guide is adjustable for length and is used to stop forward motion of the document(s) leaving the scanner's transport. It assists the document output guides in positioning the document(s) into a neat stack. Pull the document stop guide out (towards the front of the scanner) to lengthen the distance of forward motion documents travel exiting the scanner or push the document stop guide in (towards the back of the scanner) to shorten the distance of forward motion documents travel when exiting the scanner. The exit tray's document stop guide should be placed in a down position and not used when scanning extra long documents that require the use of the exit tray extender (see #14 in this table). **NOTE** ***Positioning the document stop guide too close to the back of the exit tray (towards the back of the scanner) can cause documents to jam as they exit the scanner if the distance they are allowed to travel is shorter then the length of the actual documents themselves[c].***

Ref#	Item Name	Description
14	Extender, Exit Tray	The exit tray extender is adjustable for length and acts as support for document(s) exiting the scanner's transport that exceed the standard exit tray length[d]. Pull the extender out towards the front of the scanner for longer documents. A second document stop guide is located on the end of the exit tray extender. It performs the same function as the exit tray's document stop guide noted above (see #13 in this table). Since the exit tray's document stop guide's does not extend out along with the exit tray extender, the second document stop guide is needed to stop the forward motion of extra long documents leaving the scanner's transport. It is to be placed in an 'up' position for use and folded down when not.  ***Exit Tray - Extender Pulled Out*** ***Exit tray's document stop guide (down position)*** ***Exit tray extender's document stop guide (up position)***

a. Does not apply if the scanner's Straight Pass-Through feature is being used.
b. See footnote 'a' above
c. See footnote 'a' above
d. See footnote 'a' above

1.4.2 Scanner Back



Ref#	Item Name	Description
1	Back Imprinter Door	The back imprinter is installed and accessed through this door. It requires an additional 3.5” (9 cm) of clearance to open fully (see Side View-2 on page 4). For more information about the imprinter, see ”4.1 Imprinter” on page 53.
2	Straight Pass-Through Door	Enables the use of the Straight Pass-Through scanning feature. When the straight pass-through door is open, documents are fed straight through the scanner and exit out the back of the scanner. This is useful for scanning thick or stiff documents. The straight pass-through door requires an additional 3.5” (9 cm) of clearance to open fully (see Side View-2 on page 4). **NOTE** ***While scanning documents in rotary mode (straight pass-through feature NOT being used), do NOT open the straight pass-through door. Doing so can cause a physical paper jam or cause the scanner’s firmware to issue a paper jam error.***
3	SCSI Connector	Connector for attaching optional SCSI cable (cable and SCSI card not provided). For more information about the optional SCSI connection, see ”4.2 SCSI Connection” on page 53.
4	USB Connector	Connector for attaching supplied USB cable which also attaches to the host PC and is used to establish communication between the two.
5	Power Switch	Toggle switch used to apply or remove power to the scanner. ‘I’ = ON; and ‘O’ = OFF.

Ref#	Item Name	Description
6	Power Connector	Connector for supplied power cable.
7	Fan	Fan for cooling the scanner. The fan is part of the scanner's power supply. Make sure to properly vent the scanner for optimal performance (see "1.3 Operating Environment" on page 3 for more details).
8	Foot	Rubber appendage that the scanner sits on and allows for clearance below the scanner. There are four total; 2 on either side.
9	Intake Vent	The vent that the power supply's fan uses to draw air in for cooling. It is important that the scanner not be positioned in such a way that the intake vent is blocked in any way. **CAUTION** ***Make sure to maintain an additional 4-5" (10-13 cm) of additional clearance at the front, back, and both sides of the scanner for proper ventilation.***

1.5 Unpacking/Repacking

Before completely unpacking your scanner, inspect the shipping cartons and their contents for any signs of damage. If there is damage, notify the freight carrier immediately to file a damage claim.

Save all of the shipping cartons and packaging materials that come with your Ngenuity scanner. If it is ever necessary to move or ship the unit or any of its accessories, pack them in their original cartons.

Scanners and/or accessories must be returned in the original packing carton and inserts. BÖWE BELL + HOWELL and the carrier will not accept responsibility for damages incurred during shipping if the scanner is returned in anything but the original carton and packaging material.

If you need to return the scanner and do not have the original packaging material, a packaging kit can be provided to you. Contact the BBH Sales at 1-800-SCAN-494 for more details (charges may apply).

WARNING
The scanner weighs approximately 112 pounds (51 kg). Be sure to incorporate the appropriate manpower (taking into consideration your lifting capabilities) before moving or lifting the scanner.

1.5.1 What You Should Have Received

The following items are included with each scanner shipment. Confirm the receipt of each. If you did not receive one of the items listed, please contact our Scanner Help Desk at 1-800-SCAN-495.

- Ngenuity scanner
- 10’ Power cord and USB cable
- Ngenuity Installation CD, which includes:
  - Ngenuity Operator manual
  - Ngenuity Quick Install Guide
  - Windows®-based Ngenuity Operator Utility (NOU)
  - VRS Software
  - VRS User Manual and Release Notes
  - USB Drivers
  - Cleaning and Consumable Price Sheets
  - Adobe Reader
  - Warranty Card
  - Quick Reference Maintenance Guide
  - Ngenuity Roller and Cleaning Kit inventory lists and order forms
  - HiZoom Color Utility
- Warranty card
- Camera calibration kit
- Quick Reference Maintenance Guide
- Starter Cleaning Kit
- BBH Scanners Brochure

1.6 Specifications

This section details the scanner’s system specifications, as well as the specifications (minimum and recommended) for the host PC connected to the scanner.

1.6.1 Scanner

Model		9150	9125	9090
Scanning Speed, Letter Size, Bitonal, Color, Grayscale, Simplex/Duplex	Landscape at 200 dpi	150 PPM / 300 IPM	125 PPM / 250 IPM	90 PPM / 180 IPM
	Portrait at 200 dpi	120 PPM / 240 IPM	100 PPM / 200 IPM	70 PPM / 140 IPM
Daily Duty Cycle		Unlimited		
Roller Life (bond)		600,000 scans		
Resolution		Output: 600 dpi; Optical: 600 dpi		
Camera Technology		SHARPSHOOTER Trilinear 7.6K CCD		
Lighting Technology		White LEDs - instant warm-up designed to last the life of the scanner with normal use		
Image Enhancement		Onboard Ngenuity VRS 4.2 (or greater) Professional		
Interface		USB™ 2.0 (cable included); SCSI III		
Support Drivers (included)		ImageControls, ISIS, TWAIN (through VRS)		
Multifeed Detection		Ultrasonic Multifeed featuring: Three sensors, Preemptive Ignore, VRS Ignore, Ignore by Size		
Imprinting		Optional user-installable pre and/or post scan imprinter, time and date stamping, 72 characters		
Document Size (W, L)		1.7 x 2.5 in. (43 x 64 mm) to 12.5 x 40 in. (318 x 1016 mm)		
Doc Size (Very Long Document Mode)		Up to 219 yards (200 m)		
Maximum Image Width		12.25 in. (311 mm)		
Paper Thickness		Rotary: .0015 - .035 in. (.038 mm - 0.89 mm) Straight Pass-Through: .0015 - .070 in. (.038 mm - 1.78 mm)		
Paper Weight		7 to 320 lb. bond (30 - 1,200 gsm)		
Feeder Capacity (20 lb. bond / 75 gsm paper)		700 documents - Variable Feeder Tray Capacity Control		
Scanner Size (HxWxD)[a]		19.5 x 20.5 x 30 in. (49.5 x 52.1 x 76.2 cm)		
Scanner Weight		112 lbs. (51 kg)		
Power Requirement		AC 100-120V / 220-240V; 1.9/.9A; 60/50Hz		
Power Consumption		175W (maximum); 6.7W (Sleep Mode)		
Environment		Temp: 50°F to 100°F (10°C to 37.8°C); Humidity (non-condensing): 10% to 80%		
Additional Features		Straight Pass-Through Paper Path, Special Documents Mode, Advanced Color Functionality		
Additional Contents		USB™ cable, Installation Resource CD with Ngenuity™ Operator Utility and Ngenuity™ VRS Professional, Power Cord, Starter Cleaning Kit, Camera Calibration Kit		
Additional Options		User-installable pre and/or post scan imprinter with time and date stamping, Roller Kit, Cleaning Kit, Power Conditioner		

a. Straight pass-through door closed

1.6.2 Software

The following are BBH's recommended system requirements for the host PC as they pertain to a color scanner. These specifications pertain to the Ngenuity Operator Utility (NOU) and Ngenuity compatible VRS Professional only:

Host PC Operating System	
Microsoft® Windows® Vista Business[a], Windows® XP Professional with SP2, Windows® 2000 Professional with SP4	
Host PC Minimum Specifications	**Host PC Recommended Specifications**
Intel® Pentium® D / AMD Athlon™ 2 GHz	Intel® Core™2 Duo / AMD Athlon™ 64 x 2 Dual Core, 2.4 GHz or better
HDD: 250 GB	HDD: 500 GB
DIMM DDR 2700: 1 GB	DIMM DDR 3200: 2 GB
PCI Bus 32-Bit	
USB 2.0	
	Video AGP or PCIe: 128 MB
SCSI Card - Adaptec 29160 Regular and Low Profile[b]	

a. Microsoft® Windows® Vista Business 32-bit or 64-bit compatible with USB connection; Microsoft® Windows® Vista Business 32-bit only compatible with SCSI connection.
b. SCSI is an optional connectivity type for Ngenuity scanners. If using USB to connect your scanner to the host PC, a SCSI card is not required. For more information on SCSI connectivity, see "4.2 SCSI Connection" on page 53 in this manual.

1.7 Installation

WARNING

The scanner weighs approximately 112 pounds (51 kg). Be sure to incorporate the appropriate manpower (taking into consideration your lifting capabilities) before moving or lifting the scanner.

For instructions on installing the scanner, refer to the Ngenuity Quick Install Guide (S008842). A hard copy of the Quick Install Guide is included with the scanner, and an electronic copy exists on the scanner's installation resource CD-ROM. If you are unable to retrieve an Ngenuity Quick Install Guide from these sources, one can be downloaded from www.bbhscanners.com.

Operating Your Scanner

The scanner's control panel and the Ngenuity Operator Utility are detailed in this section.

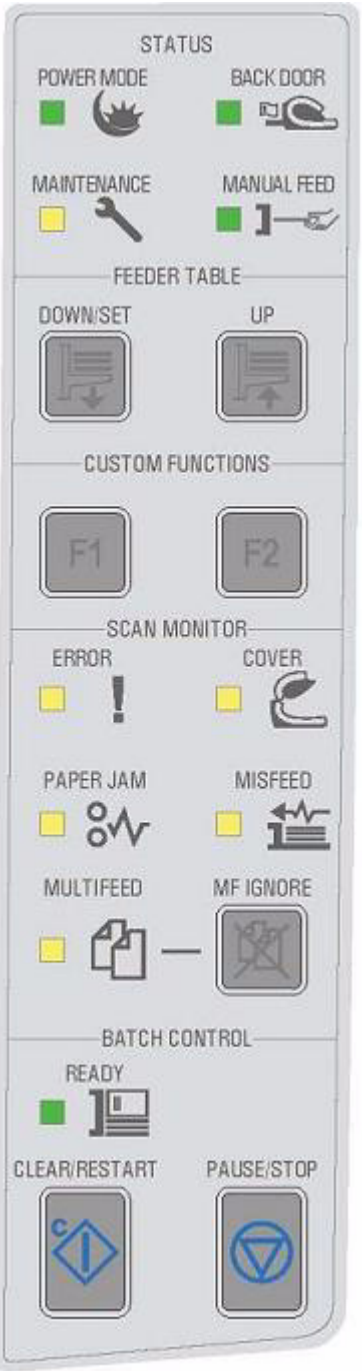
2.1 Control Panel

The control panel is located on the front of the scanner (see "1.4.1 Scanner Front" on page 6). It is comprised of pushbutton switches, LED indicators, universal graphics (pictogram legends), and text legends that allow the Operator to manipulate basic scanner controls.

Through the use of the LED indicators and audible tones (see "2.2.3.4 Audio" on page 38), the control panel also acts as a notification device for the Operator as to the current state of the scanner (e.g. power state, maintenance needed, active features, errors, etc.). It is divided into five sections:

- Status
- Feeder Table
- Custom Functions
- Scan Monitor
- Batch Control

Some of the functionality contained within these sections correlates with the settings and information found in the Ngenuity Operator Utility, which is discussed in greater detail in "2.2 Ngenuity Operator Utility" on page 29.

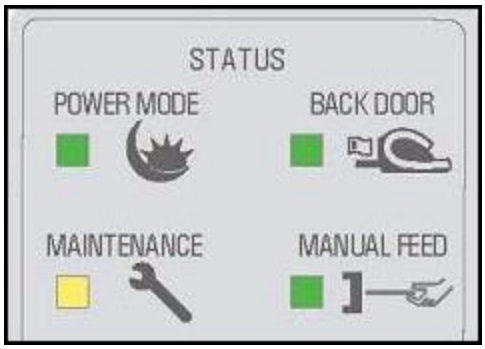


NOTE

The control panel remains powered during SLEEP mode; however, it will be un-powered during the OFF mode, i.e., powered OFF (see "2.1.1.1 Power Mode LED" on page 18 for more information).

2.1.1 Status

The Status area of the control panel consists of the following LED indicators: POWER MODE; BACK DOOR; MAINTENANCE; and MANUAL FEED.



2.1.1.1 Power Mode LED

The POWER MODE indicator uses an LED to indicate the various power states (modes) or the transition between power modes. When lit, the POWER MODE LED indicator is green in color.



The table below identifies the various actions of the POWER MODE LED depending upon the scanner's power state:

Power State or Transition	Power Mode LED
OFF	Off
READY	Blinking, fast rate
SLEEP > READY	Blinking, fast rate
READY/ACTIVE	Steady
READY > SLEEP	Blinking, fast rate
SLEEP	Blinking, slow rate @ 10% duty cycle

Once in SLEEP mode, the POWER MODE LED is the only indicator that will be lit; all others are off (not lit) in order to reduce power consumption.

Depending on the current power mode, the control panel's pushbuttons perform different actions. The table below identifies the functionality of the control panel's pushbuttons during the various power modes and transitions:

Power State or Transition	Pushbutton Function
OFF	N/A - control panel and scanner electronics not powered
READY	Pushbuttons are ignored during this initialization transition
SLEEP > READY	Pushbuttons are ignored during this initialization transition
READY/ACTIVE	All pushbuttons perform their normal operational functions. Press and hold the STOP pushbutton for 5 seconds to put the scanner immediately to sleep
READY > SLEEP	Momentary press of any pushbutton re-triggers the sleep timer and prevents transition to SLEEP mode; scanner resumes a READY mode
SLEEP	Momentary press of any pushbutton wakes up the scanner (starts the SLEEP > READY transition)

2.1.1.2 Back Door LED

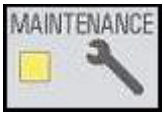


The BACK DOOR LED indicator displays the status of the scanner's straight pass-through door located in the back of the scanner (see "1.4.2 Scanner Back" on page 11). When lit, the BACK DOOR LED indicator is green in color.

The table below identifies the various actions of the BACK DOOR LED depending upon the state of the scanner's straight pass-through door:

Back Door State	Back Door LED
Straight pass-through door is closed; normal full transport path to exit tray is in use	OFF (not lit)
Straight pass-through door is open; documents being scanned will be transported to rear exit rather than normal exit tray	STEADY ON

2.1.1.3 Maintenance LED



When lit, the MAINTENANCE LED indicates that maintenance or service conditions exist in the scanner (see "2.2.2.3 Maintenance Monitor" on page 35 for more information). When lit, the MAINTENANCE LED is yellow in color.

The table below identifies the various actions of the MAINTENANCE LED depending upon the state of the scanner:

Scanner State	Maintenance LED
System OK; no maintenance currently required	OFF (not lit)
Maintenance needed (see "2.2 Ngenuity Operator Utility" on page 29 for more information)	SLOW BLINKING
Scanner Busy/Offline; occurs when scanner is in off-line mode and not capable of scanning (occurs when scanner is in a special mode such as ADF Test, during camera calibration, while downloading firmware, performing an imprinter cleaning)	FAST BLINKING
Self-test failure; needs service (coincides with the reminders displayed in the Maintenance Monitor of the Ngenuity Operator Utility (NOU) - see "2.2.2.3 Maintenance Monitor" on page 35)	STEADY ON

NOTE

In the event a self-test failure occurs, contact your local BBH Authorized Service Provider (ASP). A list of BBH ASPs can be found on our web site at www.bbhscanners.com.

2.1.1.4 Manual Feed LED



The MANUAL FEED LED indicates whether or not the feed mode has been changed from the normal/default ADF (Automatic Document Feed) mode to the Manual mode. When lit, the MANUAL FEED LED is green in color.

The table below identifies the various actions of the MANUAL FEED LED depending upon the feed mode setting on the scanner (see "2.1.1.5 Feed Modes" on page 21 for more information):

Feed Mode Setting	Manual Feed LED
ADF feed mode	OFF (not lit)
Manual feed mode	STEADY ON

2.1.1.5 Feed Modes

The Ngenuity scanner has four available feed modes for feeding documents into the scanner's transport: ADF mode; Manual mode; Assisted Manual mode (type of Manual mode); and Test Feed mode.

With the exception of the Test Feed mode, the type of feed mode the scanner uses is set by the Operator through the scanner properties window that resides within the software application being used for scanning.

ADF Mode

ADF mode is the default feed mode for the scanner. It is used for feeding batches of documents that are similar in size and weight. After being placed on the feeder table, a batch of documents is fed automatically into the scanner's transport one at a time.

Manual Mode

Manual mode is used to feed documents that can't tolerate the separation operation of ADF Mode (e.g. multiple forms). In Manual mode the Operator is required to manually feed documents into the scanner's transport one at a time. When scanning in Manual mode, the MANUAL FEED LED on the scanner's control panel will be lit (see "2.1.1.4 Manual Feed LED" on page 20).

To scan documents using Manual mode, perform the following:

Note

For demonstration purposes, VCDemo (scanning application that automatically loads with the Ngenuity VRS Professional software) is used in the following procedure.

1. Power ON the scanner (see 1.4.2 Scanner Back, "Power Switch" on page 11) and wait to the scanner's initialization sequence to complete
2. Place the skimmer in the up position (for skimmer identification, go to "1.4.1 Scanner Front" on page 6)
3. Boot up the host PC
4. Launch the scanning application (in this example, VCDemo)
5. Select the scanner

   VRS ImageControls®-based Applications

   - Bowe Bell+Howell 9000 with VRS
   - Bowe Bell+Howell 9000 with VRS with AIPE

VRS ISIS-based Applications

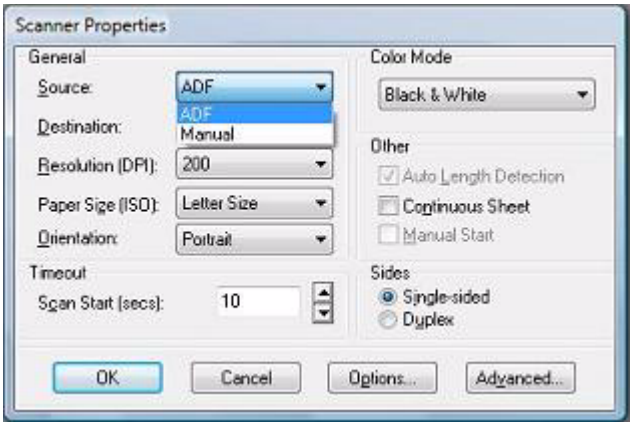
- Kofax VRS Scanner

VRS TWAIN-based Applications

- Kofax Software VRS - TWAIN

6. Open the scanning application's Scanner Properties window

7. Using the drop down arrow for the *Source* control, select Manual



8. Save the change (in the image above - VCDemo Scanner Properties window - clicking the **OK** button saves the changes)

NOTE

The MANUAL FEED LED on the scanner's control panel does not automatically light. It will light to signal that the scanner is in Manual mode once a scan command (single or batch) is issued from the scanning software.

If the Operator changes the feed mode from Manual to ADF, the MANUAL FEED LED won't turn off until a scan command (single or batch) using ADF mode is issued from the scanning application.

9. The feeder table will not rise to the manual feed position until a scan command is issued. Issue a single scan command or a batch scan command, and when the feeder table is in the full up position, begin feeding documents, one at a time, into the scanner's transport.

   Take care to feed each document far enough into the scanner so that the scanner is able to grasp the document and feed it into and through the transport

NOTE

To lower the feeder table for ADF mode scanning, the Operator must lift the skimmer module to the full up position, make sure the paper tray is empty, and change the feeding mode from Manual to ADF in the scanning application and issue a scan command (single or batch).

When a single scan command is issued, the scanner's transport begins to run. The Operator is able to feed documents through the scanner (one at a time); however, because a single scan

command was issued, only the first document's image is kept. To scan and save multiple images, issue a batch scan command.

The scanner will stay in Manual mode until the Operator sets it back to ADF mode, or reestablishes contact between the scanning application and the scanner.

Assisted Manual Mode

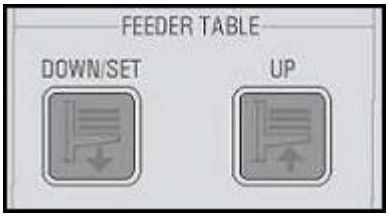
The Assisted Manual mode operates the same way as the Manual mode, with the exception of the skimmer being in the down position (see step #2 above). The skimmer in a down position assists the Operator in feeding the documents into the scanner so that the Operator does not have to push or feed the documents as far into the scanner's transport as they would in regular Manual mode.

Test Feed Mode

The Test Feed mode is used to test and verify the scanner's feeding capabilities, as well as to feed the transport cleaning sheets (see "5.3.5 Cleaning the Transport" on page 82). It allows the Operator or service technician to feed documents without having to generate a scan command from the host PC.

Unlike ADF mode and Manual (Assisted) mode, the Test Feed mode is set or activated from within the Custom Functions section of the Ngenuity Operator Utility or NOU (see "2.2.3.3 Custom Functions" on page 38 for more information) and is only functional when the scanner is set to ADF mode in the scanning application.

2.1.2 Feeder Table



The next area of the control panel is the Feeder Table. The Feeder Table section contains two pushbutton switches: **DOWN/SET**; and **UP**. These two pushbutton switches control the feeder table bottom position for ADF mode, allowing for "continuous" batch size selection.

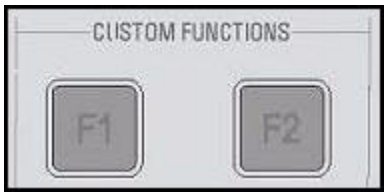
How it works...

- With the feeder empty, press and hold the **DOWN/SET** pushbutton to drive the feeder downward. Release the pushbutton and the table movement stops. This current position becomes the new bottom table stop. If the **DOWN/SET** pushbutton is held indefinitely, table movement stops at the bottom physical limit.

- With the feeder empty, press and hold the **UP** pushbutton to drive the feeder up. Release the pushbutton and the feeder movement stops. This position becomes the new bottom table position.

- With the feeder full (i.e. paper sensor covered), the **UP** pushbuttom performs no function. A **DOWN** pushbutton press will set the current stack size and reset the feeder bottom position accordingly.

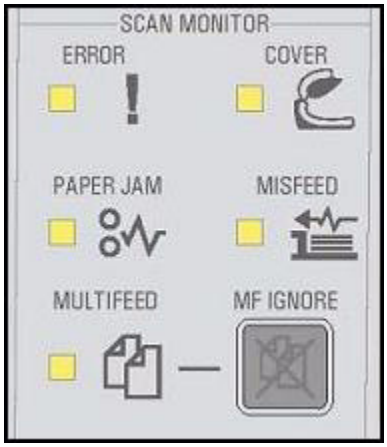
2.1.3 Custom Functions



The next area of the control panel is labeled Custom Functions. The Custom Functions section contains two pushbutton switches, **F1** and **F2**, that perform special Operator-selectable functions.

The functions that the **F1** and **F2** pushbuttons perform are assigned through the Ngenuity Operator Utility (NOU) where there is a pre-defined list of functions that the Operator can choose from (see 2.2.3.3 Custom Functions for more information).

2.1.4 Scan Monitor



The third area of the control panel is the Scan Monitor section which contains error indicators in the form of LEDs that notify the Operator that an error has occurred while scanning. The error indicators are: ERROR; COVER; PAPER JAM; MISFEED; and MULTIFEED.

Within the Scan Monitor section is also a pushbutton labeled **MF IGNORE.** This pushbutton allows the Operator to ignore a single multifeed occurrence

Each error indicator LED and the **MF IGNORE** pushbutton are described in more detail in the following sections.

2.1.4.1 Error LED



When lit, the ERROR LED indicator is yellow in color. It is lit when any scanner error occurs that is not handled by one of the other dedicated indicators (i.e. Paper Jam, Cover, Misfeed, etc.).

If the ERROR LED is lit, refer to the NOU and your scanning application for more information.

2.1.4.2 Cover LED



When lit, the COVER LED indicator is yellow in color. It is lit when the scanner's transport cover is open.

If this error occurs during scanning, pressing the **CLEAR/RESTART** pushbutton on the control panel is required after the open cover is closed to restart the batch and turn the COVER LED indicator off.

When not scanning, the COVER LED indicator identifies that the transport cover is open, but pressing the **CLEAR/RESTART** pushbutton is not required to turn it off.

2.1.4.3 Paper Jam LED



When lit, the PAPER JAM LED indicator is yellow in color. It is lit when a paper jam occurs. The PAPER JAM LED indicator will light if the **CLEAR/RESTART** pushbutton is pressed after a paper jam occurs, but the paper jam condition still exists (i.e. paper is still covering one or more page-detect sensors).

To re-set (turn-off) the PAPER JAME LED, open the scanner's transport cover and remove all paper debris from the transport. Close the transport cover and press the **CLEAR/RESTART** pushbutton.

NOTE

While scanning documents in rotary mode (straight pass-through feature NOT being used), do NOT open the straight pass-through door. Doing so can cause a physical paper jam and a paper jam error.

2.1.4.4 Misfeed LED



When lit, the MISFEED LED indicator is yellow in color. When one of the following errors occur it will display a solid light:

- Skimmer Timeout: Skimmer is active, but the document to be scanned does not move out of the feeder tray (commonly due to roller slippage)
- Feeder Jam: The document to be scanned is fed from the feeder tray, but does not reach the scanner transport within the expected transit time

2.1.4.5 Multifeed LED & MF Ignore Pushbutton



When lit, the MULTIFEED LED indicator is yellow in color. It is lit when the scanner indicates a multifeed error or warning. It will either light steady (remain lit), momentarily, or blink depending on the multifeed condition.

For example:

- If the multifeed mode is set to STOP (error), the MULTIFEED LED indicator remains lit (steady) and the scanner stops
- If the multifeed mode is set to NOTIFY (warning), the MULTIFEED LED indicator will light momentarily, along with an audible signal or prompt for each distinct multifeed that occurs while the scanner is running

For more information on how to set the Multifeed mode condition, refer to ”3.2.1.1 Multifeed Mode” on page 46 in this manual.

NOTE

If the scanner’s audio feature has been set to Mute (see ”2.2.3.4 Audio” on page 38), the multifeed alarm that occurs with the Notify and Stop options will not be audible to the Operator.

VRS MULTIFEED IGNORE

When scanning using VRS, if a multifeed error has already occurred (MULTIFEED LED is lit and the batch has stopped), pressing the **MF IGNORE** pushbutton instructs VRS to retain the image and restart the batch. In this instance, there is no need to press the **CLEAR/RESTART** pushbutton (for more information on the **CLEAR/RESTART** pushbutton, go to ”2.1.5.2 Clear/Restart Pushbutton” on page 28 in this manual).

How it works...

When a multifeed occurs and the multifeed mode condition is set to STOP, the Operator has two choices:

Delete the Multifeed Image

1. Using the Custom Function pushbutton on the control panel that is set to “Page Eject”, eject the multifeed document from the transport (refer to ”2.2.3.3 Custom Functions” on page 38 for more information on Custom Functions)

2. Correct whatever it was that caused the multifeed and place the multifeed document back in the feeder on the top of the batch of documents to be scanned

3. Press the **CLEAR/RESTART** pushbutton on the scanner’s control panel to automatically restart scanning

Retain the Multifeed Image

- Press the **MF IGNORE** pushbutton on the scanner's control panel. After a couple of seconds, the scanner will automatically eject the multifeed document and continue scanning documents, retaining the multifeed image

PREEMPTIVE MULTIFEED IGNORE

The **MF (MULTIFEED) IGNORE** pushbutton toggles the multifeed ignore feature on/off. When on, the scanner will ignore the multifeed sensor during the next page fed (one page only), and the MULTIFEED LED will blink to indicate the activated ignore state.

It works in a preemptive manner in that during batch scanning, the Operator can avoid an impending multifeed alarm without forcing a batch stop by pressing the **MF IGNORE** pushbutton during a batch scan. Doing so turns off the MF alarm detection for a single page starting with the next leading edge seen by the page entry sensor. To turn off MF detection for a series of documents, press and hold the **MF IGNORE** pushbutton.

2.1.1 Batch Control

The final or bottom area of the control panel is labeled Batch Control. The Batch Control section contains an LED indicator and two pushbuttons that deal specifically with scanning start and stop.



2.1.5.1 Ready LED

The READY LED indicator is green in color. It is lit when the Ngenuity scanner is ready to scan (feeder ready, no unresolved errors, and the scanner is not otherwise busy, i.e. internal operations due to activity of Ngenuity Operator Utility).



- ADF Feed Mode - the READY LED is lit steady when the documents to be scanned are in position and ready to feed (assuming no error conditions are active)
- Manual Feed Mode - the READY LED is lit steady when scanning can begin and during scanning

2.1.5.2 Clear/Restart Pushbutton



The **CLEAR/RESTART** pushbutton is used for the following:

- To clear an error (one of the error indicators on the control panel is lit) and resume scanning. This is only successful if whatever caused the error to occur in the first place is resolved (i.e. paper removed from the transport which caused a paper jam error and the PAPER JAM LED to light).
- To clear a multifeed error (when using VRS), which tells VRS to discard the multifeed image and rescan the document
- To resume scanning after a batch pause

2.1.5.3 Pause/Stop Pushbutton



The **PAUSE/STOP** pushbutton is primarily used to stop the scanner's transport.

- If there is no scan command queued, no documents in the transport, and no feeding in progress, pressing this pushbutton simply stops the transport prior to the automatic transport timeout. This does not cause any errors

NOTE
The automatic transport timeout is 20 seconds. The 20 seconds is not Operator adjustable.

- If the scanner is feeding documents, pressing this pushbutton once will initiate a controlled transport motor stop (i.e. stop feeder and continue processing documents until the transport is empty), and a host "scanner paused" error will occur
- If the **PAUSE/STOP** pushbutton is pressed twice or pushed and held for more than one second, a hard stop will occur (scanning stops with documents remaining in the transport) along with a host "scanner stopped" error (this host error will not happen if the scanner is running in Test mode). Press the **Clear/Restart** pushbutton to resume scanning (there is a slight delay before scanning resumes).

NOTE
If the Clear/Restart pushbutton is pressed before all documents are cleared from the transport and one of those documents is covering the exit sensor (refer to images found in "Cleaning Transport Sensors" on page 76 for exit sensor location), an audible alarm on the scanner will sound and the PAPER JAM LED will light. Clear the transport of all documents by pressing and holding the Custom Function pushbutton that is programmed to 'Page Eject' *(see* ***"2.2.3.3 Custom Functions" on page 38) and then press the Clear/Restart pushbutton to resume scanning (there is a slight delay before scanning resumes).***

The **PAUSE/STOP** pushbutton is also used to immediately put the scanner in SLEEP mode by pressing and holding the pushbutton for 5 seconds or longer. This can only be accomplished when the scanner is fully idle (no scan commands queued) and the transport is not running).

2.2 Ngenuity Operator Utility

The Ngenuity Operator Utility (NOU) is a Windows-based application that communicates with the scanner to provide and monitor scanner connectivity, statuses and alerts, and allows Operators to set some of the scanner's configuration parameters.

An Ngenuity scanner must be properly connected to the host PC the NOU resides on and powered ON for the NOU's controls to be accessible and functioning.



To establish communication between the scanner and the NOU, perform the following:

1. Properly connect the USB cable to the back of the scanner (see 1.4.2. Scanner Back, "USB Connector" on page 11) and to the host PC

NOTE
If using the optional SCSI connection, go to "4.2 SCSI Connection" on page 53 in this manual for more information.

2. Power ON the scanner (see 1.4.2 Scanner Back, "Power Switch" on page 11) and wait to the scanner's initialization sequence to complete
3. Boot up the host PC
4. Launch the NOU by double clicking the icon located on the host PC's Desktop (for instructions on installing the scanner - including the NOU - refer to the Ngenuity Quick Install Guide (S008842). A hard copy of the Ngenuity Quick Install Guide is included with the scanner, and an electronic copy exists on the scanner's installation CD. If you are unable to retrieve an Ngenuity Quick Install Guide from these sources, one can be downloaded from www.bbhscanners.com)

   The NOU will run through an initialization sequence that includes a number of self tests. When communication with the scanner is established, the scanner and connection type will be displayed on the Home screen of the NOU (see "2.2.2.1 Scanner Model" on page 34)

If the NOU does not display that communication has been established, check to make sure the USB cable is properly connected to both the scanner and host PC. Power OFF the scanner and host PC, and run through the connection procedure again. If it fails a second time, contact the BBH Help Desk at 1-800-SCAN-495



NOTE

Be aware that the NOU's controls remain accessible, but are not functional after connectivity with the scanner has been established and then the scanner is powered OFF or the USB cable is disconnected. Any changes made to existing settings with the scanner powered OFF will not be present at next power ON.

If the scanner is powered OFF and the NOU application closed, the scanner must be powered ON in order to reestablish connectivity to the NOU.

If the scanner does not pass one or more of its self tests, the NOU will display an error message.



For a list of possible error messages and their resolutions, go to "Self Test Error Messages" on page 85. If the problem persists, contact the BBH Help Desk at 1-800-SCAN-495.

The NOU contains a menu bar across the top of the main Utility window that consists of these menu items: Scanner; Language; and Help. Within the main Utility window are housed three screens used to monitor and configure basic scanner parameters and tasks. They are: Home; Settings; and Maintenance. The default screen is the Home screen which is visible when the NOU is initially launched.

Each of the three screens use various icons and text messages to alert the Operator to the status of the different scanner functions, as well as set parameters. The Home screen also incorporates hyperlinks that will navigate the Operator to specific areas in the other two screens within the NOU that require attention.

A description for all of the items mentioned above is given in more detail below.

2.2.1 Menu Bar

The NOU contains a menu bar across the top of the main Utility window that consists of these menu items: Scanner; Language; and Help.

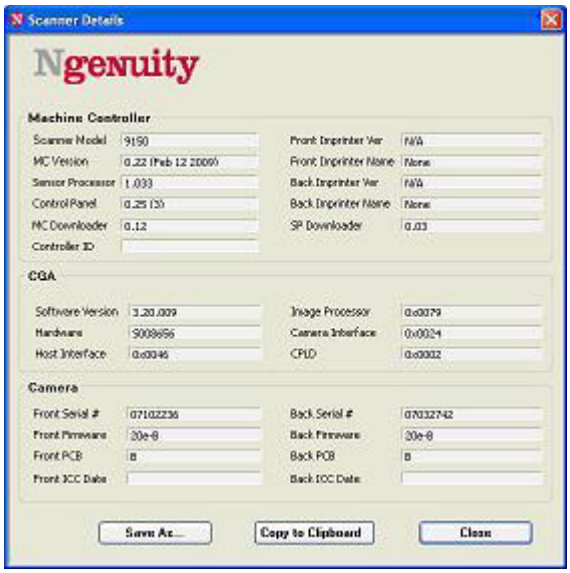
2.2.1.1 Menu - Scanner

Clicking on the Scanner menu displays the following three selections: "Details"; "Update Firmware"; and "Exit". The "Details" and "Update Firmware" selections are only accessible (not grayed out) if the Ngenuity scanner is connected to the host PC that the NOU is installed on.



DETAILS

Clicking "Details" from the Scanner menu will display a dialog window containing version information for all scanner firmware components, along with camera information. In addition, the scanner model identification is displayed in the dialog window.



NOTE

The version information contained in the screen shot (right) is for demonstration purposes only and should not be used as a reference for scanners in the field.

The "Details" dialog window also contains 3 buttons, which are: **Save As...**; **Copy to Clipboard**; and **Close**.

Clicking the **Save As...** button opens a second dialog window from which the Operator or service technician can save the details anywhere on the host PC or a network (if connected) as a text file (.txt).

This function uses the default file path as that of the NOU itself, with a preselected file name of "BBH*ScannerModel*" (e.g. BBH9125DC). Both of these items (file path and name), can be changed by the user; however, they both will revert back to their defaults whenever the NOU is closed and re-started.

NOTE

In future releases (updates) of the NOU, when launching the utility, instead of reverting to it's default, the file path will remember and display the last used (saved to) path. Also, the file name will include the scanner serial number (e.g. BBH9125DC.txt will become BBH9125DC<SerialNumber>.txt or BBH9125DC090312140040.txt).

NOTE
The file type the "Details" information is saved to is a text file format (.txt). For saving the information in a different file type, use the Copy to Clipboard button.

Clicking the **Copy to Clipboard** button copies all of the displayed details to the Windows clipboard, from which it can be pasted into any other application in the standard manner. This is useful for sending the information via E-mail for troubleshooting purposes.

The **Close** button closes the "Details" dialog window.

UPDATE FIRMWARE

Selecting "Update Firmware" from the Scanner menu begins the firmware update process by opening a standard Microsoft Windows browse dialog. If "Update Firmware" has been selected, click the CANCEL button found in the Microsoft Windows browse dialog to close it. This feature is only available for BBH Authorized Service Providers (ASPs). For a list of BBH ASPs, go to the BBH web site at www.bbhscanners.com.

EXIT

Selecting "Exit" from the Scanner menu closes the NOU application entirely. Double click the NOU icon on the host PC's Desktop or go to *Start>Programs>Ngenuity Utilities>Scanner Utility* to launch the NOU.

2.2.1.2 Menu - Language

Clicking on the Language menu displays a list of languages that the text in the NOU will be converted to for viewing and operating the NOU. This is beneficial for non-English speaking Operators. Once a language is selected, the application's text changes immediately.



NOTE
The "Language" feature will not be available at the initial launch of the scanner.

2.2.1.3 Menu - Help

Clicking on the Help menu displays the following four items: "Program Help"; "View Operator Manual"; "Product Support"; and "About Scanner Operator Utility".



PROGRAM HELP

The “Program Help” menu item launches a feature that allows Operators to search for information describing the different functions contained in the NOU.

NOTE
The “Program Help” feature will not be available at the initial launch of the scanner.

VIEW OPERATOR MANUAL

Selecting the “View Operator Manual” menu item launches a copy of the Ngenuity Operator Manual in PDF file format.

NOTE
In order to view the Ngenuity Operator Manual, Adobe Acrobat (Version 7.0 or newer) or Microsoft Internet Explorer must be installed on the PC. Adobe Reader v8.0 will be available on Ngenuity’s Installation CD for downloading.

PRODUCT SUPPORT

Selecting the “Product Support” menu item displays the Product Support dialog window that contains technical support information and links.



The **Close** button closes the Product Support dialog.

ABOUT SCANNER OPERATOR UTILITY

Selecting the “About Scanner Operator Utility” opens the About dialog window. It displays the NOU application version and copyright information.



NOTE
The version information contained in the screen shot (right) is for demonstration purposes only and should not be used as a reference for scanners in the field.

The **Close** button closes the About dialog.

2.2.2 Home Screen

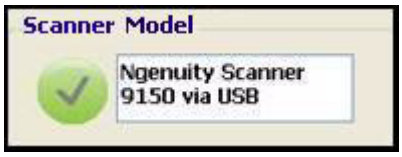
The Home screen of the NOU provides the Scanner Connection status, Scanner Self Test results and a Maintenance section that displays the maintenance status for different scanner components (i.e. optics, rollers, imprinter ink, camera calibration, etc.). The Home screen also incorporates hyperlinks (underlined text that the user can click on to launch a specific control) that will navigate the Operator to the appropriate screen if attention is necessary.

The Home screen is the NOU's default screen when the application is launched.



2.2.2.1 Scanner Model

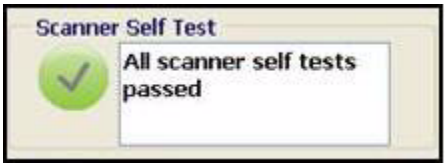
The Scanner Model displays whether or not a scanner is connected to the PC. If connected, the icon indicates a successful connection, and the information area displays the product name, scanner model string, and connectivity type (USB or SCSI).



Any optional imprinters recognized by the scanner are also reported in this section (see "4.1 Imprinter" on page 53 for more information on how the display of the connection status changes with an imprinter(s) installed).

2.2.2.2 Scanner Self Test

The Scanner Self Test section displays the results of internal scanner self tests which are performed automatically by the scanner at power ON. Internal self test failures detected by the scanner are referred as 'Faults'. If there are no faults reported, the appropriate icon is displayed along with the "Self test passed" message.



If there are one or more faults reported, the icon changes and each fault is listed on its own line. The Scanner Self Test area allows for three messages to be viewed. If there are more than three messages, a scroll bar will be displayed so that the Operator can scroll down and read all of the scanner reported messages.

If the Self Test monitor returns a fault(s), make sure the scanner is properly connected to the PC. Power cycle the scanner and check the Scanner Self Test monitor again. If the problem persists, contact your local BÖWE BELL + HOWELL Authorized Service Provider (ASP). A list of BBH ASPs can be found on the web at www.bbhscanners.com.

2.2.2.3 Maintenance Monitor



The Maintenance section (monitor) of the Home screen easily and quickly communicates to the Operator using a set of reminders, whether or not the scanner requires maintenance, and identifies what that maintenance is (*the image right shows that no maintenance is required)*. These reminders display in the form of a tool icon, bar graphs, and alert icons.

Maintenance requirements are monitored for the Feed Rollers (Skimmer - Pick and Drive, and Separator Roller), Transport Rollers, and Optics (Glass Flats, Cameras' Glass Covers, and Sensors), using intervals pre-set by the Operator (see "Configure Maintenance Reminders" on page 41).

NOTE

The Maintenance section of the Home screen also displays alerts to replace an imprinter's ink cartridge (front and/or back) if an optional imprinter has been installed. This alert is hard coded and is not adjustable by the Operator. For more information on Ngenuity's optional imprinter, go to "4.1 Imprinter" on page 53 in this manual.

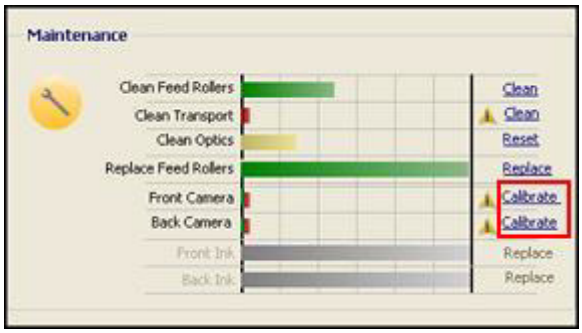
Maintenance Required

If maintenance is required, the tool icon which is normally blue (no maintenance required), changes color and displays as yellow.  . It will mimic the state of the Maintenance LED 

located on the scanner's control panel (see "2.1.1.3 Maintenance LED" on page 19). If the Maintenance LED is lit, the tool icon will change from blue to yellow within the Maintenance monitor.

The Maintenance monitor also displays when or how soon specific maintenance should occur in the form of a bar graph.

As a component's pre-set interval decreases, the bar graph will also shorten accordingly. The closer the interval is to expiring, the green bar graph will change from green, to yellow and finally red.



When a component's pre-set interval expires, the Maintenance LED on the scanner's control panel will light, the tool icon will change from blue to yellow, and that component's bar graph will be red. In addition, an alert for that specific component will display in the form of a triangular yellow exclamation mark icon (see image - specifically "Clean Transport" or either "Front Camera" or "Back Camera").

NOTE

The presence of a red bar graph denotes that maintenance is required for that specific component based on the pre-set interval. The presence of a red bar graph will not disrupt or physically stop the scanner's normal function or operation.

Resetting the Maintenance Reminders

If a component's maintenance interval expires triggering the maintenance reminders, a hyperlink for that component will navigate the Operator to the reset process required to restart the interval count. This reset process is necessary to ensure required maintenance continues to be monitored appropriately (instructions pertaining to the function of each component's hyperlink are detailed fully in "Maintenance Procedures" on page 59).

The maintenance reminders can be singularly disabled if the Operator so chooses; however BBH does not recommend doing so.

NOTE

The alerts for calibrating the front and back cameras are hard coded in the scanner and not adjustable by the Operator. If an alert to calibrate the camera(s) is displayed, click the corresponding hyperlink to reset the reminder and begin calibration. For instructions on how to calibrate the cameras, go to "5.3.4 Camera Calibration" on page 80 in this manual.

2.2.3 Settings Screen

Clicking the **Settings** button found in the NOU displays the Settings screen.

From this screen, the Operator can configure basic scanner settings such as a scanner's sleep timeout delay, adjust the document detection range for multifeeds, specify the functions of the **F1** and **F2** buttons found in the Custom Functions section of the scanner's control panel, and specify and adjust the audio features of the scanner.

The ability to configure advanced settings (see "2.2.3.5 Advanced Settings Button" on page 39), restore settings to their previously saved state (**Restore** button), and save new changes (**Save** button) is also available from the Settings screen.



2.2.3.1 Sleep Timeout

The Sleep Timeout feature allows the Operator to set a specific delay time in hours and minutes that the scanner will sit idle with full power before lapsing into a low-power Sleep Mode.



The default Sleep Timeout is 15 minutes and the maximum time is four hours.

2.2.3.2 Multifeed

The Multifeed control allows the Operator to adjust the scanner's multifeed sensitivity when scanning normal or very thin documents. The two settings available for the Document Detection Range are Normal and Very Thin.



Normal: This setting encompasses documents that range from thick card stock to thin carbon copies and should be used for the majority of documents scanned.

Very Thin: This setting is used to detect multifeeds when scanning ultra thin documents such as rice paper. Attempting to scan any thick card stock with this setting will likely trigger the multifeed alarm.

2.2.3.3 Custom Functions



The Custom Functions section of the Settings screen in the NOU corresponds with the Custom Functions area of the scanner's control panel (see "2.1.3 Custom Functions" on page 24).



The Operator can set each function key (**F1, F2**) for a specific task that is selectable from a drop down list in the NOU.

The available tasks are:

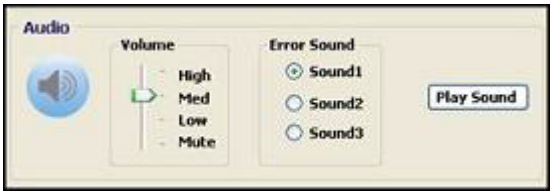
- None (function key performs no function)
- Feed Test Batch (key activates Test Feed mode - go to page 23 for more information on Test Feed mode)
- Page Eject (key invokes a brief transport turn-on to eject multifeed pages or clear the transport after a stop)
- Clean Print Head (key invokes an imprinter print head cleaning cycle)

NOTE

The Clean Print Head task functions only if an optional imprinter has been installed. For more information on Ngenuity's optional imprinter, go to "4.1 Imprinter" on page 53 in this manual.

The available tasks are the same for both the **F1** and **F2** keys and the default setting for each function key is 'None'.

2.2.3.4 Audio



The Audio section of the Settings screen in the NOU allows the Operator to set the scanner's audio volume, as well as the tone sequence used when a scanner error occurs.

The volume level can be set to Mute or a volume range of Low, Med or High by moving the slider to the desired choice.

One of three Error Sounds can be selected by clicking the radio button next to Sound1, Sound2, or Sound3.

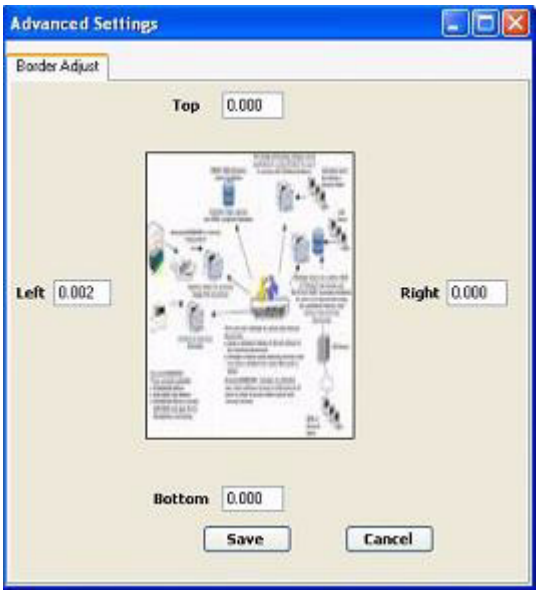
The current or active volume and error sound selection can be heard by clicking on the **Play Sound** button.

2.2.3.5 Advanced Settings Button

Clicking the **Advanced** button in the Settings screen of the NOU opens a separate Advanced Settings window, from which the Operator can set and manipulate the Border Adjust control.



BORDER ADJUST



The image boundaries or borders of a scanned image which are determined by the autocrop process can be modified with the controls found in the Border Adjust tab of the Advanced Settings window.

Borders on a scanned image can be individually adjusted, either by further cropping or by adding extra black border.

The range of adjustment is between -0.500 to 0.500 inches; negative values crop, and positive values add extra border. The default values are 0.000 for all sides (*the graphic image illustrates whether cropping or extra black border will be applied to each page edge. The displayed crop or border is approximate only; the entered values will be accurately applied to the scanned image).*

Clicking the **Save** button saves any changes made and clicking the **Cancel** button cancels or doesn't save any changes made (values revert back to the previously saved settings and the Advanced Settings window closes).

2.2.3.6 Save and Restore Buttons

If changes are made to any of the settings found in the Settings screen of the NOU, the Operator must either save the changes (click the **Save** button) or restore the previously saved settings (click the **Restore** button).



If changes are made and the Operator attempts to navigate out of the Settings screen, a prompt dialog is displayed asking to either Save or Restore the settings.

NOTE

Be aware that the NOU's controls remain accessible, but are not functional after connectivity with the scanner has been established and then the scanner is powered OFF or the USB cable is disconnected. Any changes made to existing settings with the scanner powered OFF will not be present at next power ON.

If the scanner is powered OFF and the NOU application closed, the scanner must be powered ON in order to reestablish connectivity to the NOU.

2.2.4 Maintenance Screen

Clicking the **Maintenance** button found in the NOU displays the Maintenance screen.

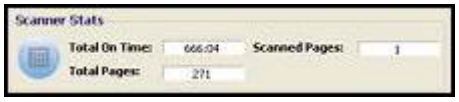
The Maintenance screen contains the scanner statistics (counters) for total hours on, total pages fed and total pages scanned.

The Maintenance screen also allows the Operator to configure reminders for the different maintenance tasks that are required to ensure optimal scanner performance.



2.2.4.1 Scanner Stats

The Scanner Stats section of the Maintenance screen displays scanner statistics for Total On Time (awake and sleeping), Total Pages (fed), and Scanned Pages.



There is no Operator input or change control available for the Scanner Stats. The values are automatically updated upon every entry to this screen, and while in the screen they are updated every 30 seconds so that they are reasonably current.

The numbers displayed will not update at every page increment if feeding or scanning is in progress.

2.2.4.2 Configure Maintenance Reminders



The Configure Maintenance Reminders section of the Maintenance screen allows the Operator to set and/or adjust the interval values for triggering the reminders visible in the Maintenance monitor of the Home screen ("2.2.2.3 Maintenance Monitor" on page 35).

Intervals can be set for cleaning the Feed Rollers (skimmer rollers - pick and drive, and separator roller), the Transport Rollers, the Optics, and to replace the Feed Rollers (skimmer rollers and separator roller). The Operator can also individually enable/disable the maintenance reminder feature for each of these components.

NOTE

Although the ability exists to disable a maintenance reminder, BBH strongly recommends that all maintenance reminders remain enabled on your Ngenuity scanner.

Assuming the reminder is enabled, when the specified interval has been reached, this feature will light the scanner's Maintenance LED 

and a maintenance reminder will display in the Maintenance Monitor section of the NOU's Home screen (see "2.2.2.3 Maintenance Monitor" on page 35).

To enable a specific maintenance reminder, click the check box next to the corresponding component.

To set or change a specific component's interval, use the up/down arrow keys found in the Interval column located to the right of the component label (e.g. the image above shows an Interval of 600,000 to trigger the "Replace Feed Rollers" maintenance reminder.

Intervals refer to the number of pages fed. The available interval settings and their defaults are:

Reminder	Range	Default
Clean Feed Rollers (Skimmer Rollers & Separator Roller)	1K - 50K	10K
Clean Transport Rollers	5K - 100K	50K
Clean Optics (camera glass cover, glass flats, sensors)	5K - 150K	50K
Replace Feed Rollers (Skimmer & Separator Rollers)	100K - 900K	600K

If changes are made to any of the maintenance reminder settings, the Operator must either save the changes (click the **Save** button) or restore the previously saved settings (click the **Restore** button).

If changes are made and the Operator attempts to navigate out of the Maintenance screen, a prompt dialog is displayed asking to either Save or Restore the settings.

Advanced Features

This section documents the Ngenuity scanner's Advanced Features. The controls for operating the Advanced Features are accessible within the VirtualReScan® (VRS) Interactive Viewer. The Ngenuity scanner's Advanced Features are:

- Multifeed
  - Multifeed Mode (Notification)
  - Enable Sensors
  - Ignore by Size
- Document Setup
  - Document Types
  - Allow Large Skew
  - Very Long Document
  - Ignore Holes/Ragged Edges
  - Front/Back Negative Image
- Advanced Color
  - Camera Modes
  - Camera Gamma

NOTE

When VRS is NOT installed, similar settings will be found in your direct ISIS and TWAIN settings.

Direct ISIS and TWAIN drivers compatible with Ngenuity scanners will be available at a later date. Please go to the BBH web site (www.bbhscanners.com) to check for updates as to direct ISIS and TWAIN driver availability.

3.1 Accessing Advanced Features

In order to access the VRS Interactive Viewer, Ngenuity VRS Professional software must be loaded on the host PC that the scanner is connected to, and be active.

VRS Professional will be active once the scanning application being used is launched and a VRS scan source is selected. There are three types of scan sources, depending on the VRS driver used.

VRS ImageControls®-based Applications*

- Bowe Bell+Howell 9000 with VRS
- Bowe Bell+Howell 9000 with VRS with AIPE

VRS ISIS-based Applications

- Kofax VRS Scanner

VRS TWAIN-based Applications

- Kofax Software VRS - TWAIN

NOTE

Direct ISIS and TWAIN drivers compatible with Ngenuity scanners will be available at a later date. Please go to the BBH web site (www.bbhscanners.com) to check for updates as to direct ISIS and TWAIN driver availability.

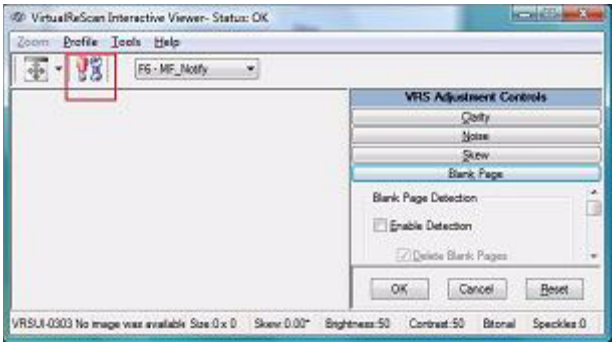
*The Ngenuity Operator Manual only documents the VRS-based scanning setup.

For scanning applications that utilize the VRS-based driver, the VRS icon will display in the Windows Taskbar on the host PC as soon as the scan source (scanner) is selected.



To launch the VRS Interactive Viewer, right click on the VRS Taskbar icon and select **Preview.**

Within the Interactive Viewer, access Ngenuity's Advanced Features by clicking the Scanner Driver Settings icon (tools image).



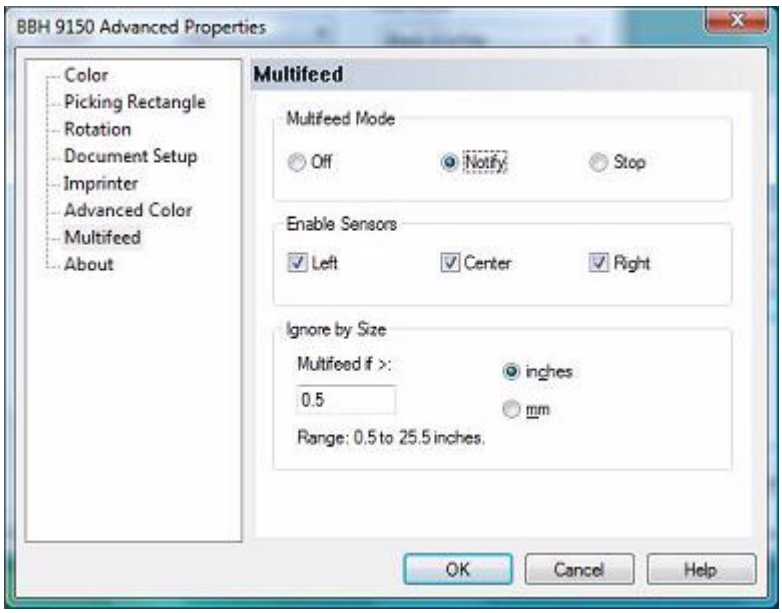
3.2 Ngenuity's Advanced Features

Clicking the Scanner Driver Settings icon  opens the BBH Advanced Properties window.

This window contains a vertical menu tree that lists various hyperlinked menu items.

To display the functions contained within a menu, click the corresponding hyperlink. The control screen will display directly to the right.

The Advanced Properties window also contains three function buttons:



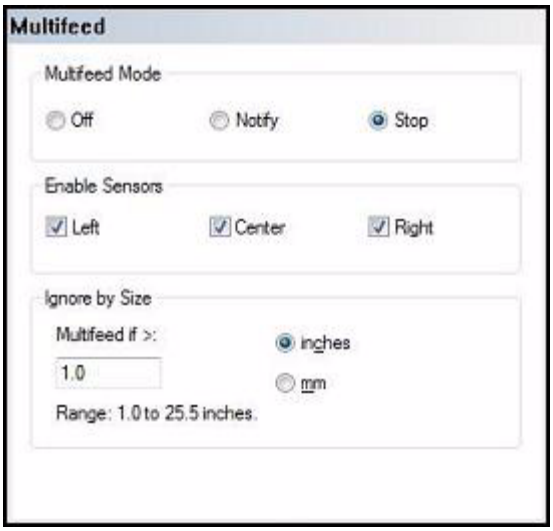
- **OK** - retains any changes made and closes the window
- **Cancel** - reverts the screen settings back to the last saved settings
- **Help** - displays a brief description of the controls located in the Advanced Properties window

NOTE

The settings available in the Advanced Settings screen over-ride the same settings defined in a saved Profile. For more information on scanning with VCDemo and Profiles, see the Kofax VRS 4.2 (or newer) User Guide.

3.2.1 Multifeed Screen

The Advanced Properties *Multifeed* screen contains three sets of controls: Multifeed Mode; Enable Sensors; Ignore by Size.



3.2.1.1 Multifeed Mode

The Multifeed Mode control determines the response of the scanner if a multifeed occurs. There are three available options: Off; Notify; and Stop.

- **Off** - No multifeed detection occurs. Scanning continues and all scanned images are retained
- **Notify** - Scanner responds to the occurrence of a multifeed by sounding an audible alarm and momentarily lighting the MULTIFEED LED on the scanner's control panel (see "2.1.4.5 Multifeed LED & MF Ignore Pushbutton" on page 26); however, scanning continues, the multifeed is ignored, and the image of the multifeed document is retained
- **Stop** - Upon the detection of a multifeed, the scanner sounds an audible alarm, the MULTIFEED LED on the scanner's control panel lights steady (see "2.1.4.5 Multifeed LED & MF Ignore Pushbutton" on page 26), and the scanner's transport stops. The Operator then has two choices:

  Delete the Multifeed Image

  1. Using the Custom Function pushbutton on the control panel that is set to "Page Eject", eject the multifeed document from the transport (refer to "2.2.3.3 Custom Functions" on page 38 for more information on Custom Functions)
  2. Correct whatever it was that caused the multifeed and place the multifeed document back in the feeder on the top of the batch of documents to be scanned
  3. Press the **CLEAR/RESTART** pushbutton on the scanner's control panel to automatically restart scanning

  Retain the Multifeed Image

  - Press the MF IGNORE pushbutton on the scanner's control panel. After a couple of seconds, the scanner will automatically eject the multifeed document and continue scanning documents, retaining the multifeed image

NOTE

For information on using Preemptive Multifeed Ignore, go to "Preemptive Multifeed Ignore" under "2.1.4.5 Multifeed LED & MF Ignore Pushbutton" on page 26 in this manual.

NOTE

If the scanner's audio feature has been set to Mute (see "2.2.3.4 Audio" on page 38), the multifeed alarm that occurs with the Notify and Stop options will not be audible to the Operator.

3.2.1.2 Enable Sensors

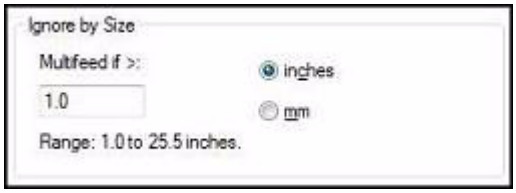
The Enable Sensors control allows the Operator to enable or disable three individual sensors that, when enabled, assist in triggering a multifeed alarm. The three sensors are: Left, Center, and Right.



One or more of these three sensors can be disabled at any given time; however, if all three are disabled, the Enable Sensors control grays out (becomes inactive) and the Multifeed Mode control (see "3.2.1.1 Multifeed Mode" on page 46) automatically sets itself to Off.

3.2.1.3 Ignore by Size

The Ignore by Size control allows the Operator to set the maximum size of a multifeed that will NOT trigger a multifeed error when scanning.

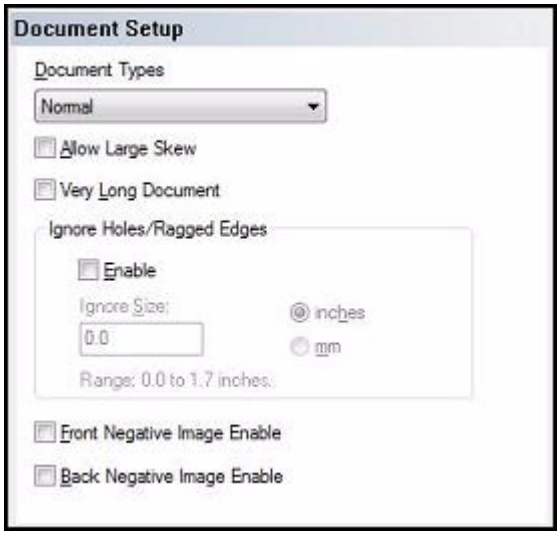


This is used to scan documents with labels (often barcodes) or stickers (mailing labels), documents with taped photographs or receipts - all while still having multifeed detection active.

The Ignore by Size parameter can be set in inches or millimeters (mm), with a range of 1.0 to 25.5 inches (25-647 mm). The default setting for this control is 1.0 inch (25 mm).

3.2.2 Document Setup Screen

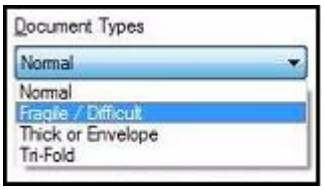
The Advanced Properties *Document Setup* screen contains the following controls: Document Types; Allow Large Skew; Very Long Documents; Ignore Holes/Ragged Edges; and Front/Back Negative Image Enable.



3.2.2.1 Document Types

The Document Types area allows the Operator to invoke changes in speed, feeding, etc., to accommodate the needs of various document types.

Using the drop down menu, the Operator can choose the following:



- **Normal** - Standard document types - top transport speed, full performance mode
- **Fragile/Difficult** - Lower transport speed - useful for delicate documents that can easily tear
- **Thick or Envelope** - Thick paper or envelopes
- **Tri-Fold** - Tri-fold documents

NOTE
Document types other than 'Normal' may under some circumstances reduce scanner speed.

3.2.2.2 Allow Large Skew

If enabled (box checked), the Allow Large Skew control maximizes image data capture for documents that are fed into the scanner at a non-parallel angle (highly skewed), helping to eliminate clipped or missing corners. Auto Orientation and Deskew options are then applied to the entire image in order to adjust image orientation.

3.2.2.3 Very Long Document

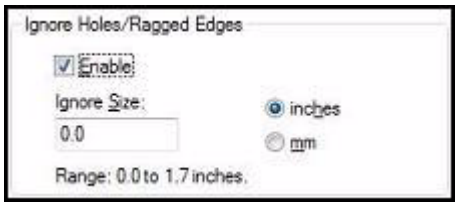
When enabled (box checked), the Very Long Document control adjusts the scanner's transport speed in order that the scanner along with the software is able to segment a long document (more than 40 inches (1016 mm) in length) being scanned into individual images. The size of the images is determined by the Paper Size setting in the scanning application.

The Very Long Document control does not support the simultaneous use of some of the other controls offered through VRS ImageControls and Direct Drivers. Below is a table that identifies those other controls as well as how the scanner and software handles the conflict when an Operator attempts to use them together.

Conflicting Controls	Resolution
Single Page Scan	The scan is terminated and an error message is displayed. The Very Long Document control is not supported with single page scanning. Use the batch scan command.
VRS Administration Utility - Warning Tab	The document is scanned ignoring the warning conditions that are set. No error message is displayed.
On Errors QC Mode	The document is scanned ignoring the On Errors QC Mode options that are set. No error message is displayed.
Every Page QC Mode	The scan is terminated and an error message is displayed. The Very Long Document control is not supported with single page scanning.
First Page QC Mode	The scan is terminated and an error message is displayed. The Very Long Document control is not supported with single page scanning.
Deskew and Auto Crop	The document is scanned ignoring the Deskew and Auto Crop options that are set. No error message is displayed.
Image Rotation of 90, 180, or 270 degrees	Do not select rotation options if scanning using the Very Long Document control.
Auto Orientation	The scan is terminated and an error message is displayed. For best results, do not use the Very Long Document control and the Auto Orientation control at the same time.
Picking Rectangle	For best results, do not use the Very Long Document control and the Picking Rectangle control at the same time.
Automatic Color Detection	For best results, do not use the Very Long Document control and the Automatic Color Detection control at the same time.
Advanced Clarity	For best results, do not use the Very Long Document control and the Advanced Clarity control at the same time.

3.2.2.4 Ignore Holes/Ragged Edges

The Ignore Holes/Ragged Edges control allows the Operator to adjust the entry and exit sensors so that they ignore holes on the leading or trailing edge of a document (e.g. three-hole punched paper), that may cause the scanner to detect false starting or trailing edges of a document.



The parameter can be set using a measurement in inches or millimeters (mm) with a range of 0.0 to 1.7 inches (0 to 43 mm). Set the parameter to a width just slightly larger than the holes in the paper (or whatever may be causing the false detection of the leading or trailing edges of a document).

To activate or enable the Ignore Holes/Ragged Edges control, click the box next to the word "Enable" (see image).

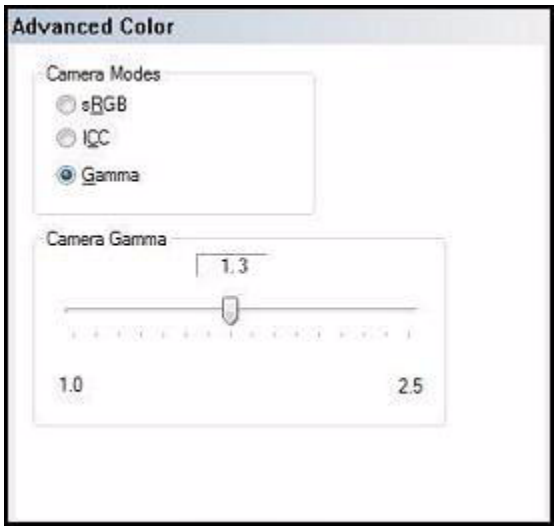
NOTE
Enabling the Ignore Holes/Ragged Edges control may reduce scanning speed.

3.2.2.5 Front/Back Negative Image Enable

The controls to enable Front and/or Back Negative Image allow the Operator to request an inverted or negative bitonal/grayscale image when scanning in black and white or grayscale only. This control is not supported when scanning in color.

3.2.3 Advanced Color Screen

The Camera Modes control and Camera Gamma control reside in the Advanced Color screen. The available options for Camera Modes are: sRGB; ICC; and Gamma.



- **sRGB** - uses specific camera gamma to achieve the best approximation of sRGB color response

NOTE
This setting applies to the camera output only; any post-capture image processing settings affect the final output file's color content.

- **ICC** - Select this option to set up scanner cameras to be compatible with the scanner's ICC color correction profile and to cause VRS to embed ICC-compatible profile data into the image file

  ICC profile data is used by some viewing or printing applications to compensate or adjust colors for optimal quality. ICC data is useful only for applications that are ICC-profile aware.

NOTE
BBH recommends that other post-processing color adjustments NOT be used in combination with ICC profile mode enabled as these color adjustments can conflict with how the ICC data is used by an ICC-aware application.

For the ICC profile data to be successfully embedded, the scanning application must:

- Be an ImageControls, Direct ISIS or Direct TWAIN application
- Be set up for color scanning
- Be set up to store TIFF, JPEG, or PDF image file types
- Not use VRS Automatic Color Detection (images may be converted to black and white)

To properly view the images, the viewing application must be ICC-profile aware.

NOTE

Direct ISIS and TWAIN drivers compatible with Ngenuity scanners will be available at a later date. Please go to the BBH web site (www.bbhscanners.com) to check for updates as to direct ISIS and TWAIN driver availability.

- **Gamma** (default) - uses a specific camera gamma (1.0 - 2.5) as specified by the Operator. The camera gamma value is either typed in or selected by moving the slider to the desired value.

  Select a lower gamma value to enhance color saturation for bright colors and a higher gamma value to enhance color variations for dark colors.

  For most documents, BBH recommends the camera gamma be kept at the default value of 1.3.

Selecting one of these Camera Mode options activates that option for both the front and back camera.

Scanner Options

This section identifies Ngenuity scanners' two available options: Imprinters (front and back); and SCSI connection type.

4.1 Imprinter

Both front page (pre-scan) and/or back page (post scan) imprinters are available for purchase to use with Ngenuity scanners. These user-installable imprinters (same model/part number used for front page and back page) include a circuit board that controls an ink-jet print head that imprints a string of alphanumeric characters on documents as they pass through the scanner's transport.

NOTE

To purchase an Ngenuity Imprinter Kit, contact BBH Sales at 1-800-SCAN-494, go to the BBH web store, or contact a BBH Authorized Spare Parts Reseller (ASPR). A list of ASPRs is available on the BBH web site - www.bbscanners.com. Imprinter kits will be available after the initial launch of the Ngenuity scanner.

The same imprinter is used for both the front page (pre-scan) and back page (post-scan) imprinting; therefore, there is only one imprinter kit (part number: ACC1300).

For imprinter Installation and Operating instructions, see Appendix A (to be included in Rev B and newer of this manual).

4.2 SCSI Connection

The Ngenuity scanner is equipped to accommodate a SCSI connection for communication between the scanner and host PC. The optional SCSI connection can be used in lieu of the standard USB connection.

NOTE

The SCSI and USB connection types cannot be used simultaneously.

To use a SCSI connection, a SCSI card and cable is required. BBH does not provide a SCSI card or cable with the Ngenuity scanner; therefore, these items must be purchased separately. A SCSI connection kit is not available through BBH; however, BBH has certified that Adaptec's 29160 LP or regular profile card is compatible with Ngenuity scanners. The SCSI cable must be a D68-pin SCSI-3 cable.

4.2.1 Installation

The following are instructions for installation of an Ngenuity scanner using a SCSI connection type. These instructions must be followed in the order they appear:

To install and connect using a SCSI device, perform the following:

1. Follow the instructions found in the Ngenuity Quick Install Guide (S008842), taking care to follow the published safety and environmental guidelines (see "1.2 Safety Guidelines" on page 1 and "1.3 Operating Environment" on page 3 in this manual)

   Keep the original packing material (see "1.5 Unpacking/Repacking" on page 12)

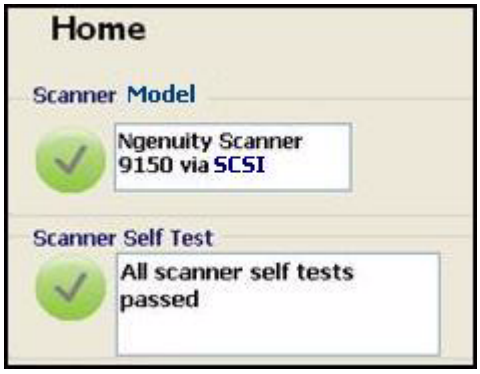
WARNING

The scanner weighs approximately 112 pounds (51 kg). Be sure to incorporate the appropriate manpower (taking into consideration your lifting capabilities) before moving or lifting the scanner.

2. Do NOT connect the scanner to the host PC. Power on the host PC and load the Ngenuity VRS Professional software provided on the Ngenuity Installation Resource CD-ROM (do NOT reboot the host PC after the installation)
3. Load the Ngenuity Operator Utility (NOU) on the host PC (do NOT reboot the host PC after the installation, nor attempt to launch the NOU)
4. Power down the host PC and remove the power cord from the back of it
5. Install the SCSI card (Adaptec 29160) in the host PC
6. Connect the host PC to the scanner
7. Connect power to the scanner and reconnect power to the host PC
8. Power ON the scanner and wait for the initialization sequence to complete
9. Power on the host PC
10. Run through the New Hardware Found wizard
11. Launch the NOU by double clicking on the application's icon found on the host PC's Desktop

    The NOU's Home Screen (default) will update once all the scanner self tests have passed and communication with the scanner has been established. The installation is complete!

    If the NOU failed to connect with the scanner, refer to "4.2.2 Troubleshooting" on page 55 for information.



4.2.2 Troubleshooting

The following steps should be taken if communication cannot be established between the host PC and the scanner using a SCSI connection.

Verify cable connection and initialization sequence is correct.

1. Power OFF the scanner (see 1.4.2 Scanner Back, "Power Switch" on page 11)
2. Power down the host PC
3. Confirm the SCSI cable is securely connected to the host PC and the scanner
4. Power ON the scanner and wait for the scanner's initialization sequence to finish completely
5. Power up the host PC
6. Verify communication between the host PC and the scanner is established (see procedure step 11 under "4.2.1 Installation" on page 54)

Verify the cable and connectors are not damaged.

1. Power OFF the scanner (see 1.4.2 Scanner Back, "Power Switch" on page 11)
2. Power down the host PC
3. Remove the SCSI cable from the host PC and the back of the scanner
4. View the connectors on the SCSI cable, host PC, and scanner. Bent pins or damaged connectors could result in communication not being established and require the replacement of the SCSI cable, SCSI card that resides in the host PC, or the scanner controller board
5. If the SCSI cable contains bent pins, replace the cable
   a. Before reconnecting the new cable, make sure there are no damaged connectors on the SCSI card that resides in the host PC or the connector found on the back of the scanner
   b. If there is no damage, gently connect the new cable
   c. If damage is found on the connectors of the SCSI card that resides in the host PC, replace the card and ensure that the original SCSI cable that was also damaged is not re-used
   d. If damage is found on the connectors of the scanner controller board (back of scanner), the scanner controller board may need to be replaced. Replacement of the scanner controller board requires a BBH Authorized Service Provider (ASP). A list of BBH ASPs can be found on the BBH web site at: www.bbhscanners.com
6. Power ON the scanner and wait for the scanner's initialization sequence to finish completely
7. Power up the host PC
8. Verify communication between the host PC and the scanner is established (see procedure step 11 under "4.2.1 Installation" on page 54)

If neither of the above troubleshooting tips results in communication being established between the scanner and the host PC, contact your local BBH ASP. A list of ASPs can be found on the BBH web site: www.bbhscanners.com.

Maintenance

Keeping the scanner's hardware and software versions current, along with performing routine maintenance such as cleaning and replacing worn parts, will ensure optimal image quality and prolong the life of your scanner.

5.1 Version Numbers

To maintain optimal scanner performance and image quality, it is important to make sure the scanner is being operated using the most current versions of software and firmware that are available for it.

CAUTION

Use only firmware and/or software received from BÖWE BELL + HOWELL Scanners (BBH). Firmware and/or software obtained from other sources are not BBH certified to work with Ngenuity scanners; therefore, serious functional issues may arise. BBH will not support firmware and/or software that is obtained from resources other than BBH.

To view the version numbers found on your scanner, go to the Details section of "2.2.1.1 Menu - Scanner" on page 31, in this manual for more information.

Current software version information can be obtained by visiting our web site at www.bbhscanners.com. Scanner firmware version information can be obtained by contacting the the BBH Help Desk at 1-800-SCAN-495, or by contacting your local BBH Authorized Service Provider (ASP) - a list of ASPs can be found on the BBH web site at www.bbhscanners.com.

5.1.1 Update Firmware

Updating your scanner firmware requires a BBH Authorized Service Provider (ASP). For a list of BBH ASPs, go to the BBH web site at www.bbhscanners.com.

5.2 Maintenance Schedule

Ngenuity scanners allow the Operator to easily follow the BBH recommended maintenance schedule through the use of the Maintenance monitor found in the NOU (see "2.2.2.3 Maintenance Monitor" on page 35).

Once the intervals are set, the Maintenance monitor will display reminders for the Operator on the host PC as to when scanner maintenance will be, or is required (for more information on setting maintenance reminders in the Maintenance screen, see "2.2.4.2 Configure Maintenance Reminders" on page 41).

Based on the intervals set, and in addition to the reminders displayed by the NOU, the Maintenance LED (see "2.1.1.3 Maintenance LED" on page 19) on the scanner's control panel will also light, acting as additional notification to the Operator.

To turn the MAINTENANCE LED off and to reset the interval count so future reminders will display, the Operator must perform a quick confirmation in the NOU after each maintenance procedure is completed. Instructions on how to do this accompany the instructions for each maintenance procedure documented within this section.

Below is a table that contains the BBH recommended schedule for performing basic yet important maintenance functions, along with symptoms that signify maintenance is required. If a symptom is occurring and the Maintenance Reminder set in the NOU has not yet been triggered, the interval for the Maintenance Reminder should be adjusted accordingly.

The environment the scanner is operated in, along with the type of documents and volume of documents being scanned, may require that some of these procedures be performed more frequently. The Range column defines the range of different settings the Operator can specify in the Maintenance screen of the NOU if something other than the Recommended setting is needed:

Maintenance	Recommended	Range	Symptoms
Clean Feed Rollers (Pick, Drive, and Separator Rollers)	10,000 pages	1K - 50K	- Skewed documents - Multifeeds - Feeder jams
Clean Transport Rollers	50,000 pages	5K - 100K	- Multifeeds - Transport jams - Elongated images
Clean Optics (glass flats, cameras glass covers, sensors) **CAUTION** ***For Ngenuity scanners, the label 'Optics' does NOT include lamps. The lamps (LEDs) on Ngenuity scanners should NOT be cleaned or wiped with any type of wipes and/or solvent***	50,000 pages	5K - 150K	**Glass Covers / Flats** - Streaks in the image - Reduced OCR/ICR/Barcode recognition rates - Blurred images **Page Sensors** - Entry/exit sensor errors **Feeder Sensors** - Feed table doesn't lower when out of paper
Camera Calibration	Every 1200 hours	n/a (factory set)	Poor color image quality (e.g. white tinted green, red, or blue)

Maintenance	Recommended	Range	Symptoms
Replace Feed Rollers	600,000 pages	100K - 900K	- Noticeably worn rollers - Page skewing, multifeeds and paper jams continue to occur after cleaning is performed
Ink Cartridge(s) - only relevant if optional imprinter(s) installed	Approx. 34,000 pages (can vary depending on number of characters per page and font used, etc.)	n/a (factory set)	Poor print quality

5.2.1 Items Needed

The following items are required for performing routine maintenance on your Ngenuity scanner:

- Ngenuity Roller Kit
- Ngenuity Cleaning Kit
  - Blower Brush
  - Transport Cleaning Sheets
  - Roller and Glass Cleaner (to be used on transport rollers and glass items only)
  - Lint-free Cleaning Cloths
  - Cleaning Wipes (to be used on skimmer and separator rollers only)
  - Swabs

NOTE

Ngenuity scanners use their own Roller and Cleaning kits. The items contained therein are specific to Ngenuity scanners. To purchase a Ngenuity Roller or Cleaning Kit, go to our online store at www.bbhscanners.com or call BBH Sales at 1-800-SCAN-494. Kits are also available for purchase through BBH Authorized Service Providers (ASPs), and Authorized Spare Parts Resellers (ASPRs). A list of ASPs and ASPRs is available at www.bbhscanners.com.

5.3 Maintenance Procedures

The maintenance procedures documented in the following sections should be performed following the BBH recommended time intervals or sooner if necessary (see ”5.2 Maintenance Schedule” on page 57 above).

Should you have any questions about the following procedures, please contact the BBH Help Desk at 1-800-SCAN-495. Questions about cleaning supplies and kits should be directed Scanner Sales at 1-800-SCAN-494.

WARNING
Before performing any maintenance procedures, power OFF the scanner.

WARNING
Before performing any maintenance procedures on the scanner, remove all jewelry or any items from hands or wrists that could become caught on internal scanner components.

5.3.1 Feed Rollers

The Skimmer (Pick and Drive) and Separator Rollers make up what is referred to as the Feed Rollers.

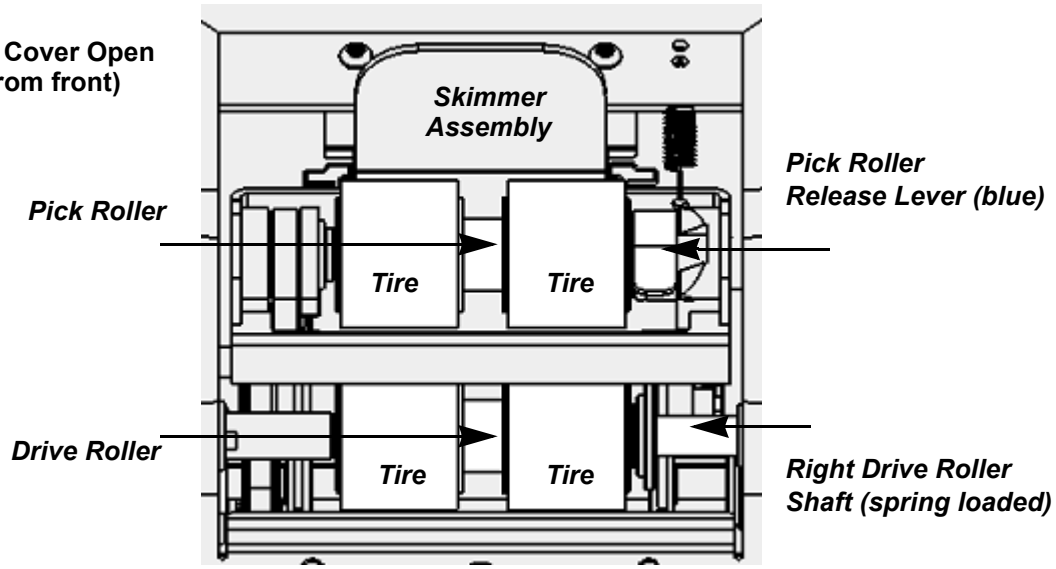
All Feed Rollers should be cleaned and/or replaced at the same time to ensure optimal scanner function. Maintenance reminder intervals (both cleaning and replacing) are based on all Feed Rollers having the same life cycle (see ”2.2.4.2 Configure Maintenance Reminders” on page 41).

5.3.1.1 Skimmer Rollers

The skimmer module is comprised of two rollers; the pick roller and the drive roller (same part number). Both rollers contain two, removable rubber tires (four total). One outer edge of each tire contains at least 3 markers. These markers are used as a point of reference for correctly installing the tires on the roller and also the rollers into the skimmer housing. If the tires are installed incorrectly or the rollers installed in the skimmer housing incorrectly, the skimmer module will not function properly.

If replacing tires, all four tires should be replaced at the same time. When replacing tires, also replace the separator roller (see “Replacing the Separator Roller” on page 67).

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CLEANING THE SKIMMER ROLLERS

Over time the tires on the skimmer rollers (pick and drive rollers) will become dirty and may begin to slip on paper or cause multifeeds. To prevent feeding problems and avoid rubber tire replacements, BBH recommends cleaning the skimmer rollers (tires) every 10,000 pages fed or as needed. Different document types, the condition of the documents being scanned, and the volume of scanning may require more frequent cleanings.

Always remove the rollers from the scanner for cleaning to ensure best results.

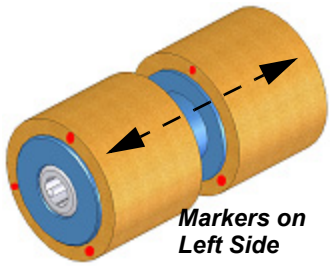
Item(s) Needed

- Cleaning Wipes

To clean the skimmer rollers, perform the following:

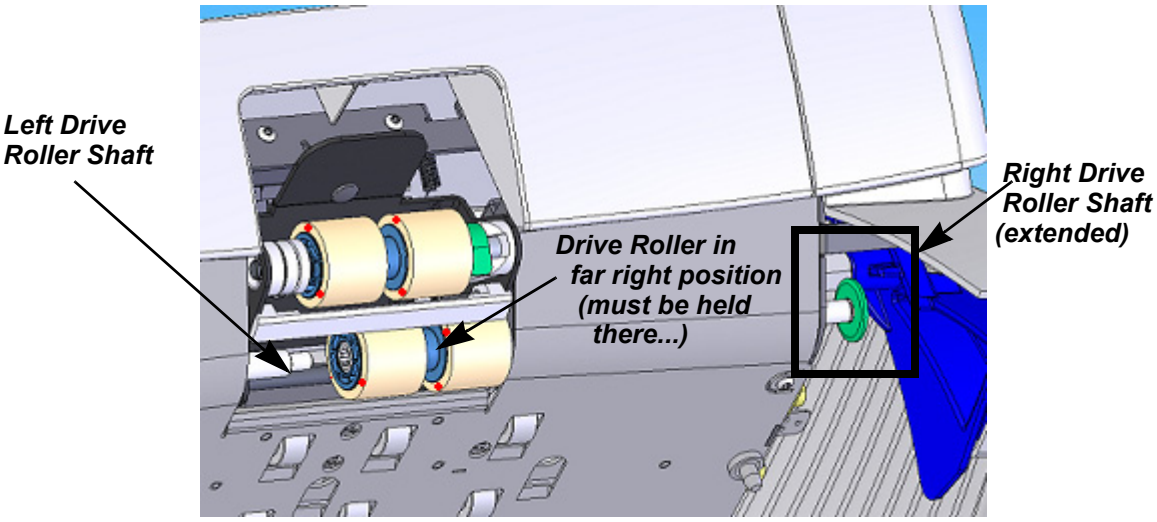
1. Power OFF the scanner (see 1.4.2 Scanner Back, "Power Switch" on page 11)
2. Open the scanner's transport cover (see 1.4.1 Scanner Front, "Transport Cover" on page 7 and "Transport Cover Release Levers" on page 7)
3. Remove the pick roller
   - Hold the pick roller with your left hand
   - With your right thumb, flip the blue pick roller release lever up towards the top of the scanner so that the lever clears the pick roller and the roller can be moved all the way to the far right (as viewed from the front of the scanner).
   - Once in the far right position, the left side of the pick roller should clear the left gear shaft and can be lifted out and away from the scanner (*note - the pick roller's right roller shaft swings out and away from the scanner for easier removal and replacement of the roller*)

4. Using the Cleaning Wipe, scrub the roller tires in a side to side (<-------->) motion, taking care to rotate the roller, cleaning the entire surface. Re-install the clean pick roller back into the scanner



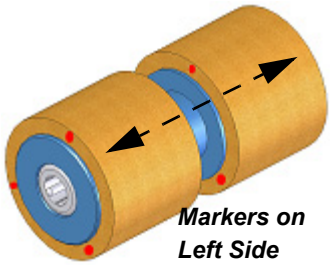
   - With the pick roller positioned so that the markers located on the end of the roller tires are visible on the left side, slide the roller onto the right pick roller shaft (*note - if the pick roller is installed with the markers (red dots) on the wrong side, the roller/skimmer will not function properly)*
   - Angle the left side down or back towards the skimmer housing and then all the way left, onto the left pick roller shaft (*note - the right side of the roller should now be clear of the pick roller release lever*)
   - Bring the pick roller release lever down over the roller shaft and lock (snap) into place, securing the pick roller

5. Remove the drive roller
   - Position the index finger of your left hand on the left side of the drive roller. Push the roller as far right as possible and hold it there
   - The right drive roller shaft which works on a spring, will shift along with the roller and protrude out of the right side of the scanner's upper tray. Position the index finger of your right hand on the area of the drive roller shaft that is protruding out from the right side of the scanner's upper tray and hold the shaft there, in place



   - While holding the right drive roller shaft in place, grasp the entire drive roller with your left hand, ease it off of the remaining part of the right drive roller shaft, and remove it from the scanner
   - Slowly remove your right index finger from the right drive roller shaft, easing it back into its fully engaged position

6. Using the Cleaning Wipes, scrub the drive roller tires in a side to side (<-------->) motion taking care to rotate the roller, cleaning the entire surface of the tires
7. Re-install the clean, drive roller back into the scanner
   - Hold the back drive roller between your thumb and index finger of your left hand with the markers on the roller tires visible on the left side (*note - if the roller is installed with the markers on the wrong side, the roller/skimmer will not function properly)*



Markers on Left Side

   - Angle the right side of the drive roller onto the right drive roller shaft. Push the roller onto the shaft and push the roller and shaft far enough to the right so that the left side of the roller can be positioned onto the left drive roller shaft
   - Once the left side of the drive roller is properly aligned onto the left drive roller shaft, allow the spring action of the right drive roller shaft to push the drive roller into place
8. After cleaning both skimmer rollers, clean the separator roller (see "Cleaning the Separator Roller" on page 66)
9. Close the scanner's transport cover
10. Once both the skimmer rollers and separator rollers are cleaned, reset the maintenance reminder for cleaning the Feed Rollers located in the Maintenance Monitor section of the NOU's Home Screen
    - With the NOU active and communicating with the scanner (see "2.2 Ngenuity Operator Utility" on page 29), click on the Clean hyperlink associated with "Clean Feed Rollers" in the Maintenance monitor of the Home screen
    - A confirmation dialog window will display. Confirm the Feed Rollers have been cleaned by clicking the **YES** button. This will reset the reminder to begin monitoring for the next required maintenance session



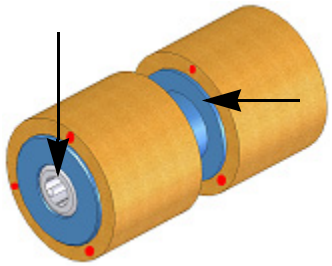
REPLACING TIRES

With proper cleaning, BBH estimates the tire life of each skimmer roller (pick and drive) to equate to approximately 600,000 pages fed. Different document types, the condition of the documents being scanned, and the volume of scanning may alter that number slightly.

If replacing tires, all four tires should be replaced at the same time. When replacing tires, also replace the separator roller (see "Replacing the Separator Roller" on page 67).

To replace the pick and drive roller tires, perform the following:

1. Power OFF the scanner (see 1.4.2 Scanner Back, "Power Switch" on page 11)
2. Open the scanner's transport cover (see 1.4.1 Scanner Front, "Transport Cover" on page 7 and "Transport Cover Release Levers" on page 7)
3. Remove the skimmer rollers (see "Cleaning the Skimmer Rollers" on page 61)
4. With the skimmer rollers removed, make note of the position the old tires are in, i.e. what side the markers are on (in the image, the markers are red in color)
   - Work the old tires off of the shaft with your fingers, leaving the shaft in the same position as a reference for putting on the new tires
   - Another point of reference for correctly installing the tires is: the side of the tire containing the markers should also be on the same side that the metal clutch of the roller is visible on (the opposite side of the roller shaft contains a plastic bushing) - this applies for both tires for each roller (drive and pick)



5. Dispose of the old tires
6. Install new tires with tire markers facing the same side the metal clutch is visible on, taking care to position the tires flush against the inside lip of the plastic hub
7. Install the skimmer rollers (see "Cleaning the Skimmer Rollers" on page 61)
8. Replace the separator roller (see "Replacing the Separator Roller" on page 67)
9. Close the scanner's transport cover
10. Once all four tires and separator roller have been replaced, reset the maintenance reminder for replacing the Feed Rollers located in the Maintenance Monitor section of the NOU's Home Screen
    - With the NOU active and communicating with the scanner (see "2.2 Ngenuity Operator Utility" on page 29), click on the Replace hyperlink associated with "Replace Feed Rollers" in the Maintenance monitor of the Home screen
    - A confirmation dialog window will display. Confirm the Feed Rollers have been replaced by clicking the **YES** button. This will reset the reminder to begin monitoring for the next required maintenance session

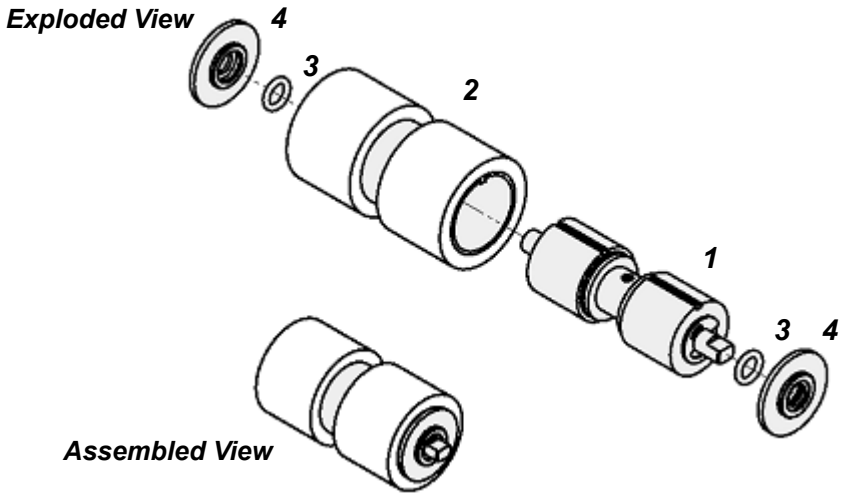


5.3.1.2 Separator Roller

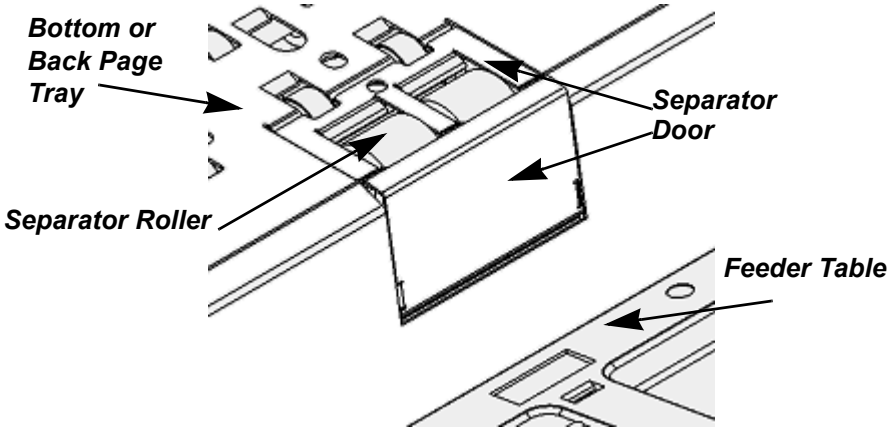
The separator roller is comprised of one separator brake assembly-1, one roller-2, two o-rings-3, and two spacers-4.

NOTE

Unlike the drive and pick rollers, the separator roller does not include replaceable tires.



The separator roller sits on a spring-loaded pivot assembly inside the scanner and is accessed through the separator door. The separator door is hinged at the bottom near the feeder tray and opens outward towards the font of the scanner to expose the separator roller. The scanner's transport cover must be opened in order to open the separator door.



Over time the separator roller will become dirty and may begin to cause multifeeds. To prevent feeding problems, BBH recommends cleaning the separator roller every 10,000 pages fed or as needed. Different document types, the condition of the documents being scanned, and the volume of scanning may require more frequent cleanings.

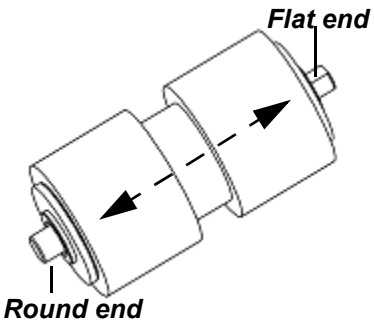
Always remove the separator roller from the scanner for cleaning to ensure best results.

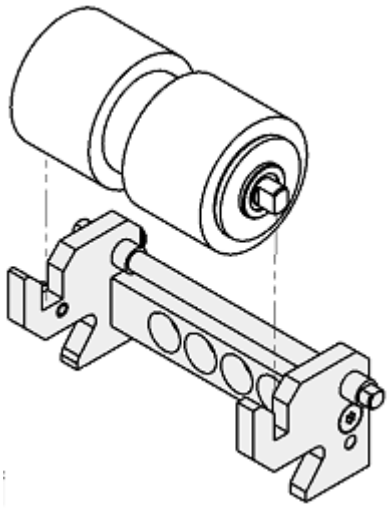
Item(s) Needed

- Cleaning Wipes

To clean the separator roller, perform the following:

1. Power OFF the scanner (see 1.4.2 Scanner Back, "Power Switch" on page 11)
2. Open the scanner's transport cover (see 1.4.1 Scanner Front, "Transport Cover" on page 7 and "Transport Cover Release Levers" on page 7)
3. Open the separator roller door by pulling the door towards the front of the scanner, exposing the separator roller
4. Lift the separator roller out of the scanner
5. Using the Cleaning Wipes, scrub the separator roller in a side to side (<------->) motion, taking care to rotate the roller, cleaning the entire surface
6. Install the clean, separator roller back into the scanner
   - Hold open the separator door
   - Note the two ends of the separator roller, particularly the shaft that protrudes from each side; one is flat, the other rounded. Position the separator roller so that the flat end is on the right side (as viewed from the front of the scanner)





-Place the roller so that the shaft on each side of the roller rests within the slots in the pivot assembly (pivot assembly is stationary inside the scanner), taking care that the flat end of the shaft on the right side sits flush within the plastic bracket.

-Close the separator door to confirm the proper placement of the separator roller

7. Clean the skimmer rollers (see "Cleaning the Skimmer Rollers" on page 61)

8. Once the separator roller and the skimmer rollers have been cleaned, reset the maintenance reminder for cleaning the Feed Rollers located in the Maintenance Monitor section of the NOU's Home Screen

   - With the NOU active and communicating with the scanner (see "2.2 Ngenuity Operator Utility" on page 29), click on the Replace hyperlink associated with "Clean Feed Rollers" in the Maintenance monitor of the Home screen
   - A confirmation dialog window will display. Confirm the Feed Rollers have been cleaned by clicking the **YES** button. This will reset the reminder to begin monitoring for the next required maintenance session



REPLACING THE SEPARATOR ROLLER

With proper cleaning, BBH estimates the life of the separator roller to equate to approximately 600,000 pages fed. Different document types, the condition of the documents being scanned, and the volume of scanning may alter that number slightly.

For optimal performance, if having to replace the separator roller, replace the tires of the skimmer rollers (pick and drive - 4 tires total) at the same time (see 5.3.1 Feed Rollers, "Replacing Tires" on page 63).

To replace the separator roller, perform the following:

1. Power OFF the scanner (see 1.4.2 Scanner Back, "Power Switch" on page 11)
2. Open the scanner's transport cover (see 1.4.1 Scanner Front, "Transport Cover" on page 7 and "Transport Cover Release Levers" on page 7)
3. Remove the separator roller (see "Cleaning the Separator Roller" on page 66)
4. Remove the roller itself from the rest of the assembly as shown in the ***Exploded View*** image of the separator roller found under "5.3.1.2 Separator Roller" on page 65
5. Reassemble the components using a new roller, duplicating the assembly shown in the ***Exploded View*** image of the separator roller found under "5.3.1.2 Separator Roller" on page 65
6. Reinstall the separator roller into the scanner (see "Cleaning the Separator Roller" on page 66)
7. Discard the old roller

8. After replacing the separator roller, replace the skimmer roller tires (4 total) (see 5.3.1 Feed Rollers, "Replacing Tires" on page 63))
9. Once the separator roller and all four skimmer roller tires have been replaced, reset the maintenance reminder for replacing the Feed Rollers located in the Maintenance Monitor section of the NOU's Home Screen
   - With the NOU active and communicating with the scanner (see "2.2 Ngenuity Operator Utility" on page 29), click on the Replace hyperlink associated with "Replace Feed Rollers" in the Maintenance monitor of the Home screen
   - A confirmation dialog window will display. Confirm the feed rollers have been replaced by clicking the **YES** button. This will reset the reminder to begin monitoring for the next required maintenance session



5.3.2 Optics

Glass Flats, Cameras' Glass Covers, and Sensors are the scanner components that make up the group known as the "Optics" for maintenance purposes. BBH recommends that for optimal performance, the scanner's Optics should be cleaned as a group, i.e. at the same time. If one component is to be cleaned, then every component that makes up the scanner's Optics should be as well.

After all of the components that make up the Optics are cleaned, the Optic's maintenance reminder in the NOU needs to be reset (see "2.2 Ngenuity Operator Utility" on page 29) so future reminders will display (including the MAINTENANCE LED on the scanner's control panel). Instructions on how to do this accompany the instructions for each of the Optics' maintenance procedures.

CAUTION

For Ngenuity scanners, the label 'Optics' does NOT include lamps. The lamps (LEDs) on Ngenuity scanners should NOT be cleaned or wiped with any type of wipes and/or solvent.

5.3.2.1 Glass Flats

There are two glass flats in the Ngenuity scanner; one located in the bottom (back page) transport tray and one in the top (front page) transport tray. They are securely set inside black, plastic frames. When removing a glass flat for cleaning or replacement, the entire assembly (glass flat and frame) are removed and replaced as one piece.

The cameras' glass covers are part of the Optics group (see "5.3.2 Optics" on page 68 above).

WARNING
Never attempt to remove the glass flat from its frame. Doing so can cause the glass flat to crack or break and could cause injury to the person holding it.

WARNING
Before performing any maintenance procedures, power OFF the scanner.

WARNING
Before performing any maintenance procedures on the scanner, remove all jewelry or any items from hands or wrists that could become caught on internal scanner components.

CLEANING GLASS FLATS

Over time the glass flats will become dirty with smudges and/or paper dust which can case streaks in images, reduced OCR/ICR/Barcode recognition rates, blurred images, etc.

To prevent these problems, BBH recommends cleaning the glass flats every 50,000 pages fed or as needed. Different document types, the condition of the documents being scanned, and the volume of scanning may require more frequent cleanings.

For best results, remove the glass flats and clean both sides of each.

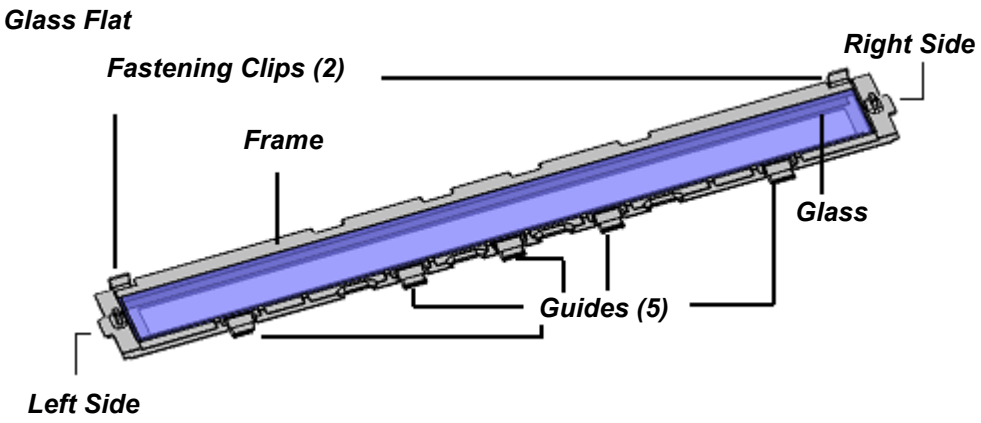
Item(s) Needed

- Roller and Glass Cleaner
- Lint Free Cloth

CAUTION
Never spray the Roller and Glass Cleaner into the scanner.

To clean the bottom (back page) glass flat, perform the following:

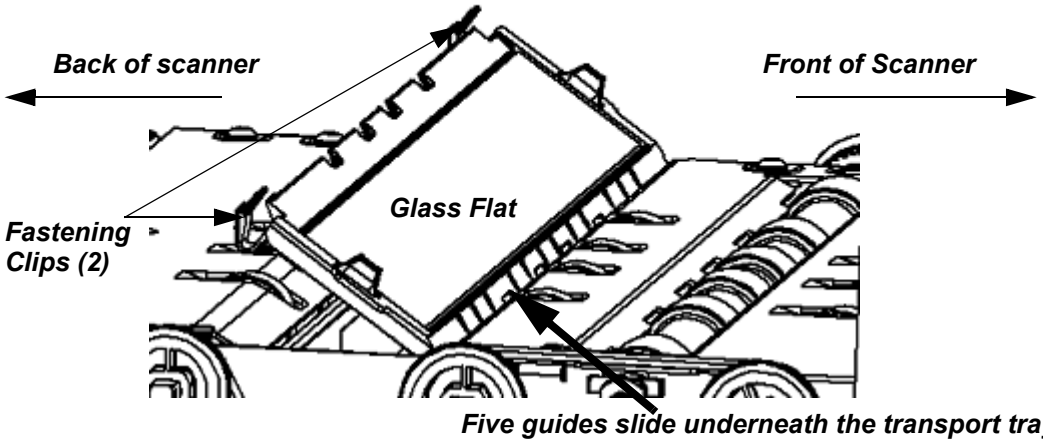
1. Power OFF the scanner (see 1.4.2 Scanner Back, "Power Switch" on page 11)
2. Open the scanner's transport cover (see 1.4.1 Scanner Front, "Transport Cover" on page 7 and "Transport Cover Release Levers" on page 7)
3. Remove the bottom (back page) glass flat



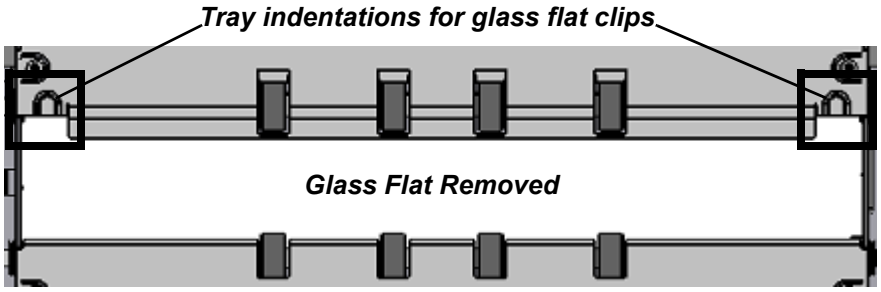
- Locate the 2 fastening clips that secure the glass flat in the scanner. They are located along the back, horizontal edge of the glass flat (closest to the back of the scanner), one on the far left side and the other on the far right. Gently pull the clips with your index finger towards the front of the scanner to release the glass flat from its position
- Holding the left and right sides of the frame around the glass flat, lift the back half of the glass flat up and slide the entire assembly towards the back of the scanner to release the glass flat's frame from the transport (there are 5 guides attached to the glass flat's frame that sit beneath the transport tray)

4. Spray the Roller and Glass Cleaner on the Lint Free Cloth, taking care that any overspray does not fall inside the scanner
5. Wipe down the both sides of the glass flat, taking care not to touch the cleaned glass with your fingers
6. Re-insert the cleaned glass flat into the scanner
   - Hold the frame of the glass flat on the left and right side so that the fastening clips (2) are on the back side of the glass flat (side closest to the back of the scanner). Position the glass flat over the top and slightly behind the opening in the transport tray, centering the glass flat over the opening
   - Slide the guides (5) under the transport tray towards the feeder table

Bottom (back page) Tray - Inserting the Glass Flat
(as viewed from left side)



- Ease the back side of the glass flat (side with 2 fastening clips) down into place (the fastening clips should marry up with corresponding indentations in the transport tray)



Bottom (back page) tray as viewed from the top looking down

- Secure the glass flat in place by gently pushing the 2 fastening clips back towards the back of the scanner until they snap into place

7. Perform the same exercise for the upper (front page) glass flat
8. Clean all the items in the scanner's Optics group (glass flats, cameras' glass covers, sensors)
9. Close the scanner's transport cover
10. Once all the items that make up the scanner's Optics have been cleaned, reset the Optics maintenance reminder in the NOU
    - With the NOU active and communicating with the scanner (see "2.2 Ngenuity Operator Utility" on page 29), click on the Clean hyperlink associated with "Clean Optics" in the Maintenance monitor of the Home screen
    - A confirmation dialog window will display. Confirm the Optics have been cleaned by clicking the **YES** button. This will reset the reminder to begin monitoring for future, required maintenance



REPLACING GLASS FLATS

Although it is necessary to clean the glass flats on a regular basis, replacing a glass flat is only required if one becomes scratched or chipped.

To replace a glass flat, perform the following (instructions refer to the bottom (back page) glass flat):

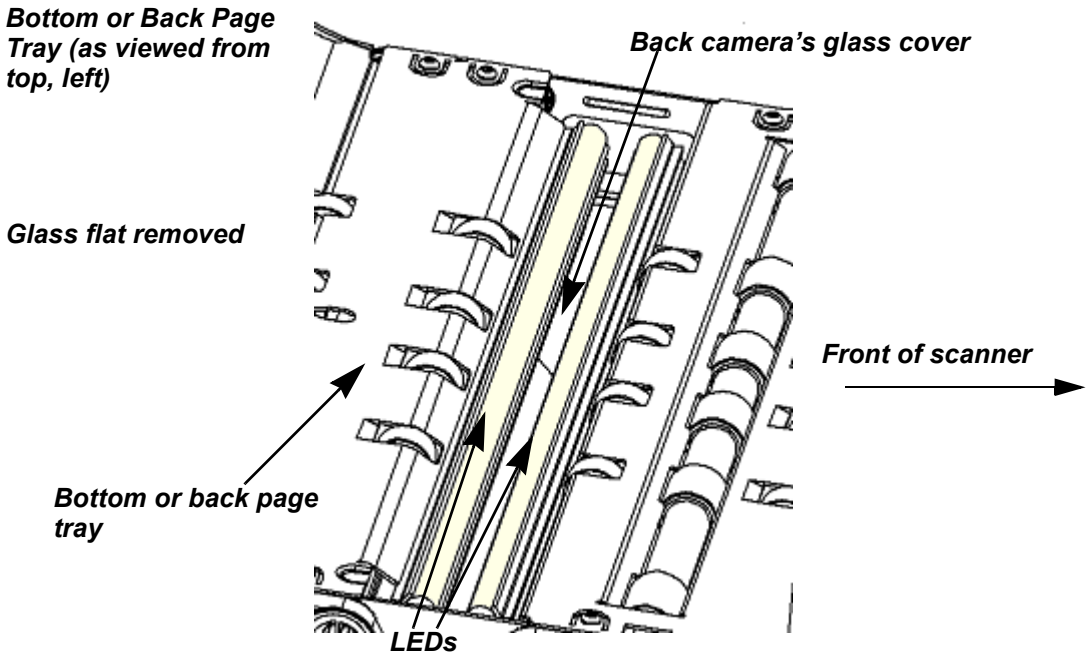
1. Power OFF the scanner (see 1.4.2 Scanner Back, "Power Switch" on page 11)

2. Open the scanner's transport cover (see 1.4.1 Scanner Front, "Transport Cover" on page 7 and "Transport Cover Release Levers" on page 7)
3. Remove the bottom (back page) glass flat (see "Cleaning Glass Flats" on page 69)
4. Clean the new, bottom (back page) glass flat (see "Cleaning Glass Flats" on page 69)
5. Insert the new, bottom (back page) glass flat (see "Cleaning Glass Flats" on page 69)

5.3.3.2 Cameras' Glass Covers

The cameras in Ngenuity scanners contain a glass cover (not to be confused with the glass flat) that protect the camera from dust and paper particles getting inside of it. They are located directly beneath the glass flats, between and below the LED lamps.

The cameras' glass covers are part of the Optics group (see "5.3.2 Optics" on page 68).



CAUTION

The cameras' glass covers should never be replaced. Do NOT attempt to remove a camera's glass cover. They should be cleaned only.

Dust on the cameras' glass covers can cause streaks or make images fuzzy; therefore, the glass covers require cleaning. BBH recommends cleaning the cameras' glass covers every 50,000 pages fed or as needed. Different document types, the condition of the documents being scanned, and the volume of scanning may require more frequent cleanings. A good rule of thumb to follow is, anytime the glass flats are cleaned the cameras' glass covers should be cleaned at the same time.

Item(s) Needed

- Swab

To clean the cameras' glass covers, perform the following (the following instructions pertain to the back camera's glass cover)**:**

WARNING
Before performing any maintenance procedures, power OFF the scanner.

WARNING
Before performing any maintenance procedures on the scanner, remove all jewelry or any items from hands or wrists that could become caught on internal scanner components.

1. Power OFF the scanner (see 1.4.2 Scanner Back, "Power Switch" on page 11)
2. Open the scanner's transport cover (see 1.4.1 Scanner Front, "Transport Cover" on page 7 and "Transport Cover Release Levers" on page 7)
3. Remove the bottom (back page) glass flat (see "Cleaning Glass Flats" on page 69)
4. Using a clean dry Swab, gently wipe across the glass cover to remove any accumulated dust particles

   Do not spray any solvent on the Swab, except in the event where the dry Swab will not remove residue on the glass (e.g. grease, dried liquid, etc.). In the event a solvent is required to thoroughly clean the camera's glass cover, use the supplied Glass and Roller cleaner.

CAUTION
Spray the Glass and Roller cleaner directly on the Swab - NOT IN THE SCANNER. When spraying the swab, spray the Glass and Roller cleaner away from the inside of the scanner so as to avoid getting any overspray inside the scanner.

If using a swab moistened with the supplied Glass and Roller cleaner, take care not to wipe the swab on the LEDs.

Do not re-use Swabs; doing so introduces the dirt from one scanner into another

5. Once the glass cover is clean, re-insert the glass flat (see "Cleaning Glass Flats" on page 69)
6. Perform the same procedure for the front page camera's glass cover
7. Clean all the items in the scanner's Optics group (glass flats, cameras' glass covers, sensors)
8. Close the scanner's transport cover
9. Once all the items that make up the scanner's Optics have been cleaned, reset the Optics maintenance reminder in the NOU
   - With the NOU active and communicating with the scanner (see "2.2 Ngenuity Operator Utility" on page 29), click on the Clean hyperlink associated with "Clean Optics" in the Maintenance monitor of the Home screen
   - A confirmation dialog window will display. Confirm the Optics have been cleaned by clicking the **YES** button. This will reset the reminder to begin monitoring for future, required maintenance



5.3.3.3 Cleaning the Sensors

There are seven sensors on the Ngenuity scanner that will require regular cleaning: the feeder sensor (1); the gap sensor (1); the page entry sensor (3); the straight pass-through sensor (1); and the exit sensor (1). The gap, page entry, straight pass-through, and exit sensors are referred to as the "transport sensors". BBH recommends cleaning all of these sensors every 50,000 pages fed or as needed. Different document types, the condition of the documents being scanned, and the volume of scanning may require more frequent cleanings.

The sensors are part of the Optics group (see "5.3.2 Optics" on page 68).

CAUTION

Avoid using any type of cotton swab or any item that may leave lint behind. These types of cleaning items can cause further problems with sensors functioning properly.

Use the supplied blower brush to clean these sensors. If problems continue to occur, the use of forced air (not supplied) may be required to properly clean the sensors.

WARNING

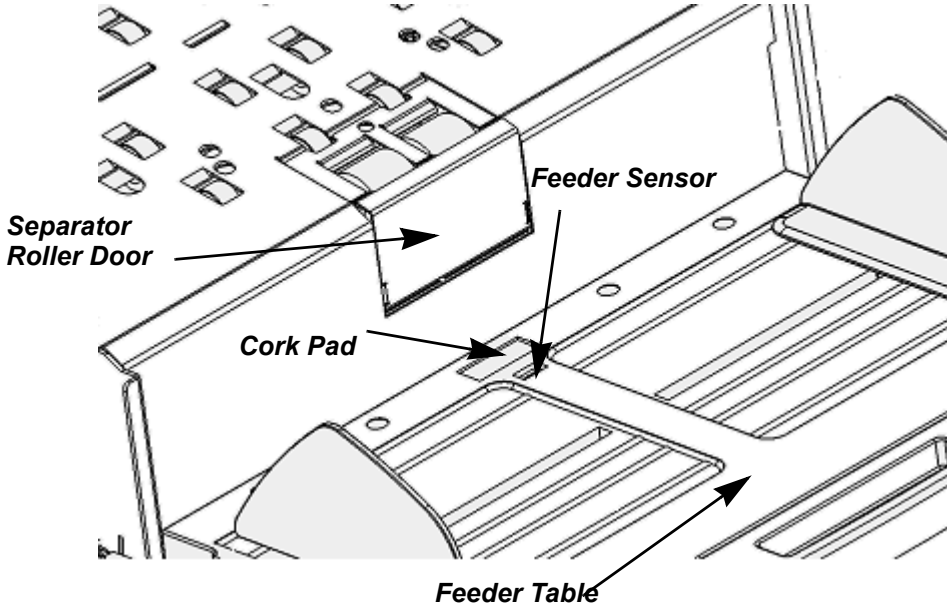
Make sure to power OFF the scanner before applying forced air to the sensors.

CAUTION

If using forced air to clean the sensors, do NOT turn the can of forced air upside down or tip it sideways more than 40 degrees while using. The extension tube can be bent so as to avoid having to tip the can.

CLEANING THE FEEDER SENSOR

The feeder sensor detects paper on the feeder table. Dust and small particles of paper may build up on the sensor, causing the feeder table not to lower after the last page fed. Regular cleaning of the feeder sensor will reduce this problem.



Item(s) Needed

- Blower Brush
- Forced Air (optional, not supplied)

CAUTION

Avoid using any type of cotton swab or any item that may leave lint behind. These types of cleaning items can cause further problems with sensors functioning properly.

WARNING

Make sure to power OFF the scanner before applying forced air to the sensors.

CAUTION

If using forced air to clean the sensors, do NOT turn the can of forced air upside down or tip it sideways more than 40 degrees while using. The extension tube can be bent so as to avoid having to tip the can.

To clean the feeder sensor, perform the following:

1. Power OFF the scanner (see 1.4.2 Scanner Back, "Power Switch" on page 11)

2. Using the supplied blower brush, squeeze the blower brush to push short bursts of air into the opening for the feeder sensor. At the same time, sweep the brush end down into the opening of and across the feeder the sensor
3. When finished, open the transport cover (see 1.4.1 Scanner Front, "Transport Cover" on page 7 and "Transport Cover Release Levers" on page 7) and clean the remaining sensors
4. Clean all the items in the scanner's Optics group (glass flats, cameras' glass covers, sensors)
5. Close the scanner's transport cover
6. Once all the items that make up the scanner's Optics have been cleaned, reset the Optics maintenance reminder in the NOU
   - With the NOU active and communicating with the scanner (see "2.2 Ngenuity Operator Utility" on page 29), click on the Clean hyperlink associated with "Clean Optics" in the Maintenance monitor of the Home screen
   - A confirmation dialog window will display. Confirm the Optics have been cleaned by clicking the **YES** button. This will reset the reminder to begin monitoring for future, required maintenance



CLEANING TRANSPORT SENSORS

The transport sensors consist of the gap (1), page entry (3), pass thru (1), and exit (1) sensors.

To view these sensors, open the scanner's transport cover. All of the transport sensors are located in the scanner's top or front page assembly. With the exception of the exit sensor, all the transport sensors can be viewed by standing in front of the scanner.

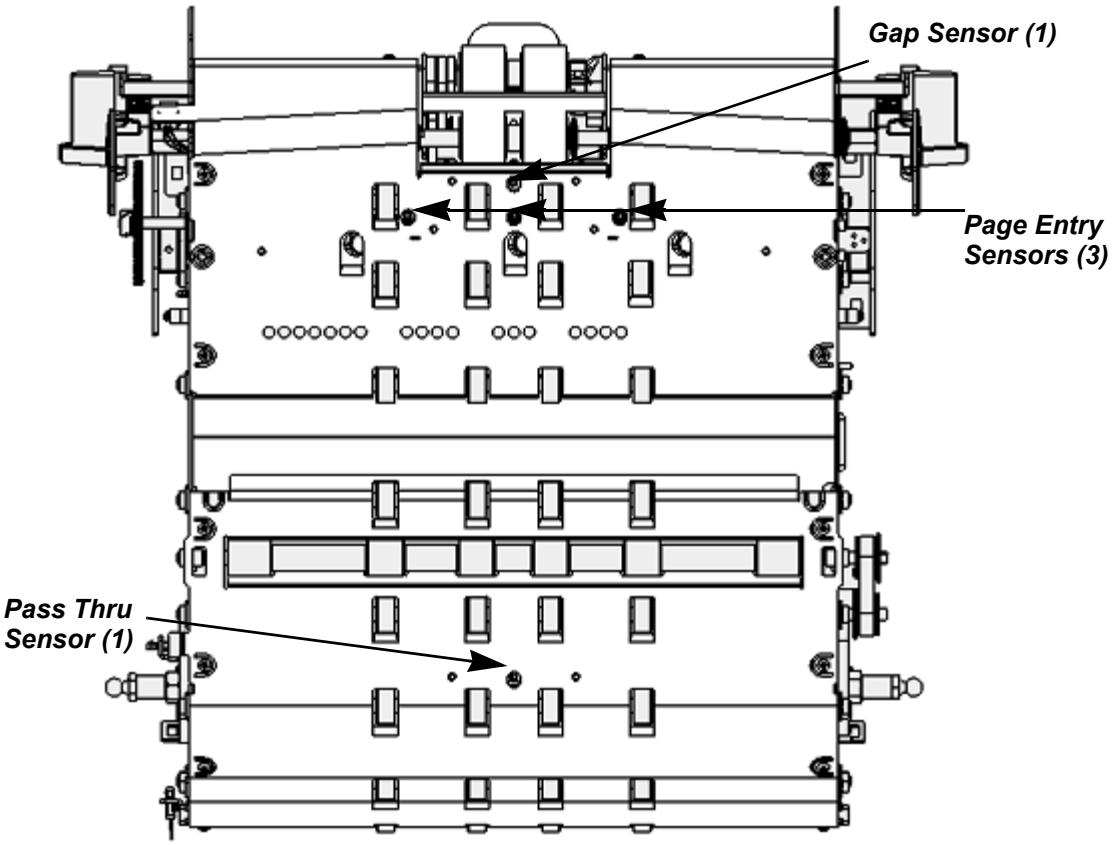
To view the exit sensor, move to the right side of the scanner so as to view the very back of the front transport tray (due to the shape/bend of the front transport tray, the exit sensor actually faces the back of the scanner).

Dust or small pieces of paper may accumulate on these sensors, causing the miss-detection of the leading or trailing edge of a document, which can cause errors in the scanner. Regular cleaning of the transport sensors will prevent this from occurring.

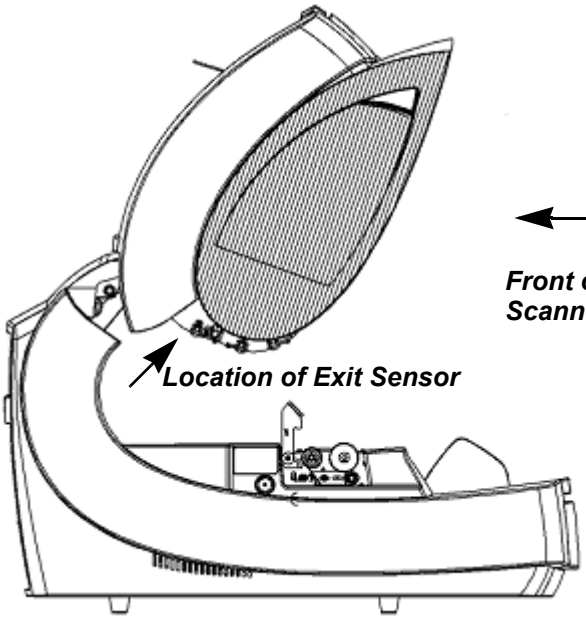
WARNING
Before performing any maintenance procedures, power OFF the scanner.

WARNING
Before performing any maintenance procedures on the scanner, remove all jewelry or any items from hands or wrists that could become caught on internal scanner components.

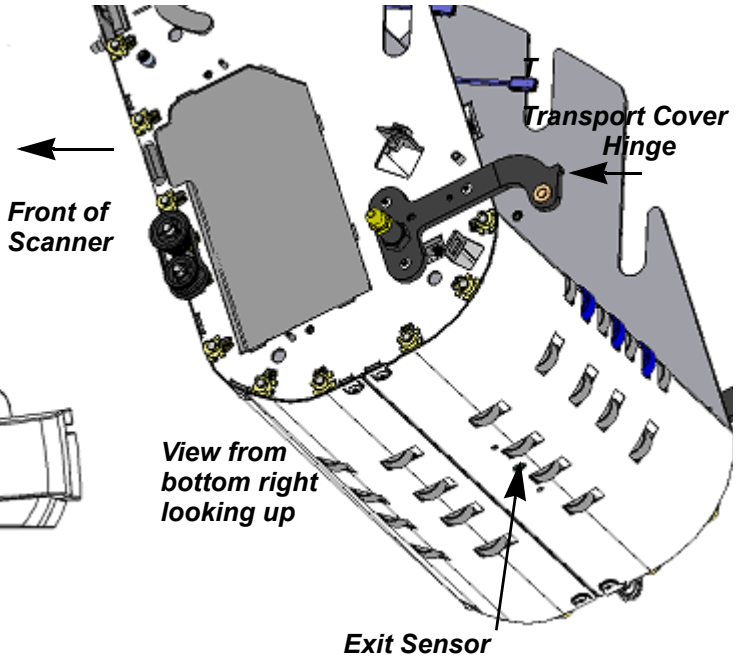
Top or Front Page Tray Assembly
(as viewed from front - transport cover open)



Left Side View - Transport Cover Open



Top or Front Page Assembly - Covers Removed



Item(s) Needed

- Blower Brush
- Forced Air (optional, not supplied)

CAUTION

Avoid using any type of cotton swab or any item that may leave lint behind. These types of cleaning items can cause further problems with sensors functioning properly.

WARNING

Make sure to power OFF the scanner before applying forced air to the sensors.

CAUTION

If using forced air to clean the sensors, do NOT turn the can of forced air upside down or tip it sideways more than 40 degrees while using. The extension tube can be bent so as to avoid having to tip the can.

To clean the transport sensor, perform the following:

1. Power OFF the scanner (see 1.4.2 Scanner Back, "Power Switch" on page 11)
2. Open the scanner's transport cover (see 1.4.1 Scanner Front, "Transport Cover" on page 7 and "Transport Cover Release Levers" on page 7))
3. Using the supplied blower brush, squeeze the blower brush to push short bursts of air into the opening for the sensors. At the same time, sweep the brush end down into the opening of and across each of the sensors
4. Clean all the items in the scanner's Optics group (glass flats, cameras' glass covers, sensors)
5. Close the scanner's transport cover
6. Once all the items that make up the scanner's Optics have been cleaned, reset the Optics maintenance reminder in the NOU
   - With the NOU active and communicating with the scanner (see "2.2 Ngenuity Operator Utility" on page 29), click on the Clean hyperlink associated with "Clean Optics" in the Maintenance monitor of the Home screen
   - A confirmation dialog window will display. Confirm the Optics have been cleaned by clicking the **YES** button. This will reset the reminder to begin monitoring for future, required maintenance



5.3.4 Camera Calibration

Camera calibration is important for maintaining consistent image quality. Calibrating the cameras resets the white level and balance, as well as the black level and balance in the scanner. It performs red, green, blue (RGB) color balance and gain setting, and horizontal light level correction. The final measurement results in a correction function which levels the brightness over the complete scan width.

Two white calibration sheets are used for the camera calibration procedure. These sheets are a part of the camera calibration kit that is included with the scanner. Additional kits can be purchased from our on-line store at www.bbhscanners.com or call BBH Sales at 1-800-SCAN-494. Kits are also available for purchase through BBH Authorized Service Providers (ASPs), and Authorized Spare Parts Resellers (ASPRs). A list of ASPs and ASPRs is available at www.bbhscanners.com.

The Ngenuity scanner's cameras can be calibrated independently or together; however, BBH strongly recommends that cameras always be calibrated together. The duration of the calibration process when calibrating both cameras should take approximately 4-7 minutes.

NOTE
Before calibrating the camera(s), make sure to clean scanner optics to ensure a successful calibration with the best possible results (see "5.3.2 Optics" on page 68).

NOTE
Before calibrating the camera(s), make sure full power is applied to the scanner (not in Sleep mode) for at least 5 minutes.

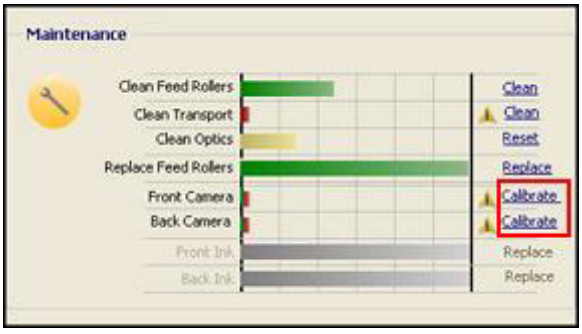
Item(s) Needed

- Two, clean camera calibration sheets, free of folds, tears, marks or any other matter that could cause less than ideal calibration results

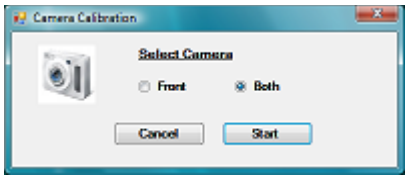
To calibrate the cameras, perform the following:

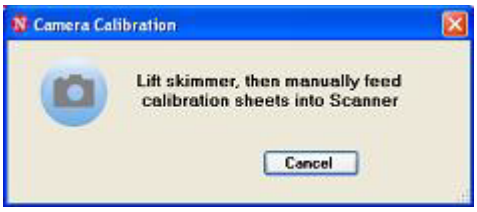
1. Establish communication between the scanner and the NOU (see "2.2 Ngenuity Operator Utility" on page 29)
2. Within the NOU, click on one of the Calibrate links found in the Maintenance section of the NOU's Home page

   Cameras can be calibrated individually; however, BBH strongly recommends that both cameras always be calibrated at the same time.



3. Clicking on either one of the *Calibrate* links (front or back) will display the Select Cameras screen. From this screen the user should select the *'Both'* option for calibrating both cameras and then click the **START** button

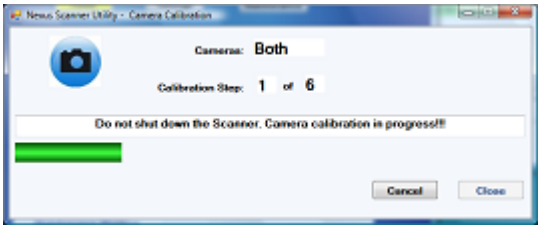




The prompt to lift the skimmer and manually feed the calibration sheets into the scanner will display.

4. Lift the skimmer. The scanner will automatically go into manual mode (see "Manual Mode" on page 21). The feeder table will rise and the transport will begin to run
5. When the feeder table rises to the full up position, feed the stack of 2 calibration sheets into the transport in ***landscape orientation***
6. The calibration process begins and the NOU will display the following dialog

   A counter and a progress bar will mark the progress of the calibration steps.



CAUTION

Do NOT shut down the scanner while calibration is in progress.

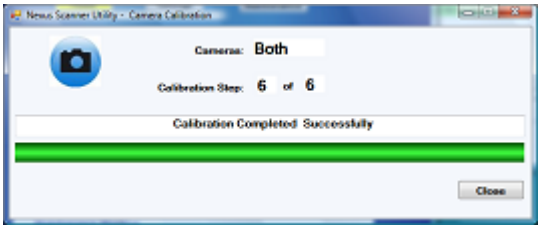
Do NOT open the scanner's transport cover while calibration is in progress.

Do NOT attempt to shut down the host PC while calibration is in progress.

Do NOT manipulate any software applications on the host PC or other host PC controls while calibration is in progress.

Performing any of the above mentioned acts during the calibration process could result in calibration failure.

7. When the calibration function has completed all steps successfully, a confirmation screen will display. Click the **CLOSE** button. The calibration sheets will be automatically ejected from the scanner



NOTE

If the confirmation screen states that the calibration was unsuccessful, power OFF the scanner, shut down the host PC, clean the scanner's optics and begin the procedure again.

If the calibration is unsuccessful a second time, contact the BBH Help Desk at 1-800-SCAN-495 or your local BBH Authorized Service Provider (ASP). A list of ASPs can be found on the BBH web site at www.bbhscanners.com.

5.3.5 Cleaning the Transport

Over time, the transport assembly components will become dirty and may feed documents erratically or skew the documents as they enter the scanner. To prevent erratic feeding, clean the transport every 50,000 pages fed or as needed. Different document types, the condition of the documents being scanned, and the volume of scanning may require more frequent cleanings.

Item(s) Needed

- Transport Cleaning Sheets

NOTE
BBH recommends cleaning the glass flats after cleaning the transport in the event the transport cleaning sheets have left any residue on the glass flats which could cause image issues.

To clean the transport, perform the following:

1. Establish communication between the scanner and the NOU (see "2.2 Ngenuity Operator Utility" on page 29)
2. Within the NOU, make sure one of the Custom Functions is set to "Feed Test Batch" (see "2.2.3.3 Custom Functions" on page 38)
3. Press the F1 or F2 key on the scanner's control panel (see "2.1 Control Panel" on page 17), depending on which key the Custom Function of "Feed Test Batch" was set to in the NOU (see "2.2.3.3 Custom Functions" on page 38), to start the scanner's transport
4. Feed one, new transport cleaning sheet into the scanner's transport (landscape)
5. After it exits the transport, run it through the scanner again
6. Flip the transport cleaning sheet over and run it through two times (repeat steps 4 and 5)
7. Press and hold the **PAUSE/STOP** button  on the scanner's control panel until the transport stops running (about 2-3 seconds)
8. Press the **CLEAR/RESTART** button  on the scanner's control panel
9. Discard the used transport cleaning sheet.

NOTE
After cleaning the transport, BBH recommends cleaning both glass flats, as residue from the transport cleaning sheets can sometimes come loose and remain on the glass (see "5.3.2.1 Glass Flats" on page 68).

5.3.6 Lamps (LEDs)

CAUTION

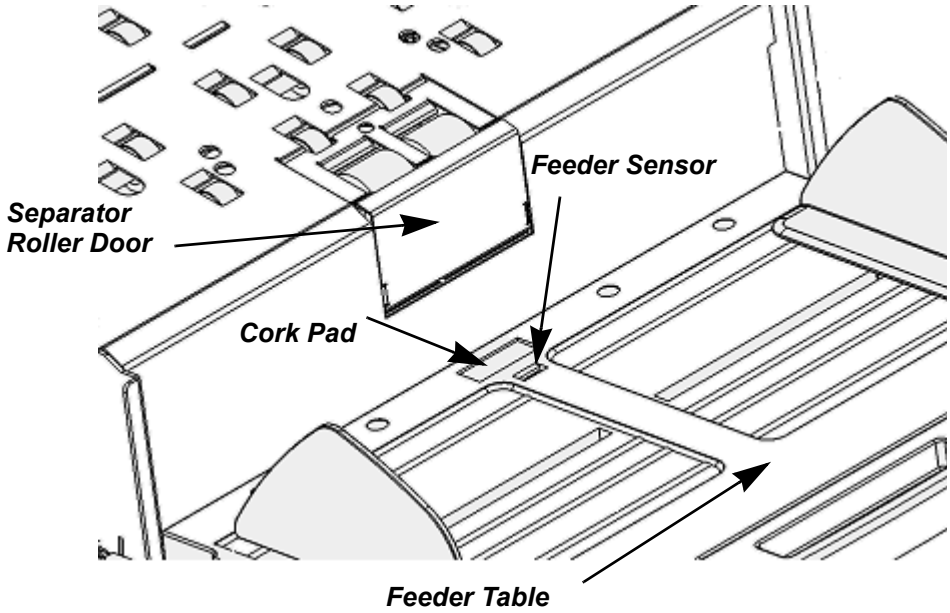
The LEDs on Ngenuity scanners should NOT be cleaned or wiped with any type of wipes and/ or solvent

NOTE

The LED illumination system on Ngenuity scanners should last the life of the scanner with normal use. If something happens that requires the replacement of the LEDs, contact the BBH Help Desk at 1-800-SCAN-495 or your local BBH Authorized Service Provider (ASP). A list of BBH ASPs can be found on the BBH web site at www.bbhscanners.com.

5.3.7 Feeder Cork Pad Replacement

The cork pad located on the feeder table should not need cleaning; however, it may wear over time and require replacement for optimal feeding performance (for more information about the cork pad, see 1.4.1 Scanner Front - "Cork Pad" on page 6).



Item(s) Needed

- New cork pad

To replace the cork pad, perform the following:

1. Power OFF the scanner (see 1.4.2 Scanner Back, "Power Switch" on page 11)

2. Using a small, flat blade screw driver *gently* lift the cork pad from the feeder table, taking care not to scratch the feeder table in the process. Make sure all remnants of the old cork pad are removed
3. Remove the clear cover from the adhesive strip on the back of the new cork pad
4. Position the new cork pad in the well found on the feeder table and apply gentle, but firm pressure to assist in securing it to the surface

Troubleshooting

The following section offers some helpful hints for troubleshooting your Ngenuity scanner should the need arise.

Should you have any questions about the information contained within this section, contact the BBH Help Desk at 1-800-SCAN-495. If your problem(s) persist, contact your local BBH Authorized Service Provider (ASP). A list of BBH ASPs can be found on our web site at www.bbhscanners.com.

6.1 Preliminary Troubleshooting Procedures

Installation/Setup/Connectivity

Symptom	Cause	Remedy
Found New Hardware wizard appears when connecting with USB on a PC that's already had communication established with the scanner	The USB cable was unplugged from one port on the host PC to another after communication had been established with the scanner using the original port.	Move the USB cable back to the original port on the host PC or complete the Found New Hardware wizard
Kofax errors displayed on host PC when attempting to install and use the USB connection with a SCSI card installed	Presence of the SCSI card conflicting with the USB function	Uninstall the SCSI card from the host PC

NOTE
For information on troubleshooting your SCSI connection, see "4.2.2 Troubleshooting" on page 55 under "4.2 SCSI Connection" on page 53 in this manual.

Self Test Error Messages

Error Message	Possible Cause	Possible Remedy
Feeder Table Fault	Can be caused by placing too heavy a load on the feeder table	Remove any heavy load and power cycle the scanner
Internal Communication Fault	The machine control processor has lost communication with one or more of the following: Imprinters, Sensor Processor, or the Control Panel	Service required. Contact your local BBH Authorized Service Provider (ASP). A list of ASPs can be found on the BBH web site at www.bbhscanners.com

Error Message	Possible Cause	Possible Remedy
Bad or Missing Front Camera	The front (top) camera is not communicating	Service required. Contact your local BBH Authorized Service Provider (ASP). A list of ASPs can be found on the BBH web site at www.bbhscanners.com
Bad or Missing Back Camera	The back (bottom) camera is not communicating	Service required. Contact your local BBH Authorized Service Provider (ASP). A list of ASPs can be found on the BBH web site at www.bbhscanners.com
Front and/or Back Imprinter Self Test Failed	An imprinter was detected and enabled, but is no longer communicating	Check that the cable is undamaged and the connector firmly seated
Sensor Fault	One or more sensors could not be calibrated	Check that paper was not left in the transport at power ON, and that sensors are clean and not blocked (see "5.3.3.3 Cleaning the Sensors" on page 74)
Bad or Missing Control Panel (Front Panel)	The scanner's control panel is not communicating	Service required. Contact your local BBH Authorized Service Provider (ASP). A list of ASPs can be found on the BBH web site at www.bbhscanners.com
CGA Port Not Responding	...	Service required. Contact your local BBH Authorized Service Provider (ASP). A list of ASPs can be found on the BBH web site at www.bbhscanners.com
Corrupt or Missing MC Firmware	...	Service required. Contact your local BBH Authorized Service Provider (ASP). A list of ASPs can be found on the BBH web site at www.bbhscanners.com

Image and Feeding

Symptom	Cause	Remedy
Streaks in the image Reduced bard code recognition rates Blurred images Artifacts in the image	Glass flat(s) and/or cameras' glass cover(s) need to be cleaned Camera(s) need to be calibrated	- Clean the glass flats "Cleaning Glass Flats" on page 69 - Clean the cameras' glass covers "Cleaning the Cameras' Glass Covers" on page 73 - Calibrate the camera(s) "5.3.4 Camera Calibration" on page 80

Symptom	Cause	Remedy
Skewed documents Multifeeds Feeder jams	Feeder needs cleaning Skimmer rollers need cleaning	Clean the skimmer rollers "Cleaning the Skimmer Rollers" on page 61 Clean the separator roller "Cleaning the Separator Roller" on page 66
Transport jams Page frame errors	Transport needs cleaning Page sensors need cleaning	Clean the transport area "5.3.5 Cleaning the Transport" on page 82 Clean the transport sensors "Cleaning Transport Sensors" on page 76
Entry/exit sensor errors	Transport sensors need cleaning	Clean the transport sensors "Cleaning Transport Sensors" on page 76
Feeder table doesn't automatically lower after last page is fed	Feeder sensor needs cleaning	Clean the feeder sensor "Cleaning the Feeder Sensor" on page 75
Image is too dark	Camera(s) need to be calibrated	Calibrate the camera(s) "5.3.4 Camera Calibration" on page 80
Slippage of documents or multifeeds	Front skimmer roller (pick roller) is worn out Skimmer needs cleaning	Clean and or replace the skimmer rollers "5.3.1.1 Skimmer Rollers" on page 60
Color image lacks fidelity	Camera(s) need to be calibrated	Calibrate the camera(s) "5.3.4 Camera Calibration" on page 80
Scanner throughput has decreased	Tires on skimmer rollers (pick and drive rollers) installed incorrectly	Confirm skimmer rollers (pick and drive rollers) are installed properly "Replacing Tires" on page 63
Host PC displays a "Peripheral Malfunction" error	Most easily described as a type of multifeed not handled by an Autoresolve. Occurs at the feeding stage of the scan. VRS catches the error and communicates with the scanner that an error occurred. The scanner quits feeding documents, but the transport continues to run until the automatic timeout of 20 seconds occurs. An error light does NOT display on the scanner's control panel.	Click through (resolve) the error displayed on the Host PC, confirm last image saved, and rescan documents beginning with first document's image missed (since one or two documents may get fed after the error occurs, there may be multiple images missed).

Symptom	Cause	Remedy
Dog-earring pages	Most common cause is the straight pass-through door is not fully or completely closed.	Confirm the straight pass-through door is fully closed. If problem persists, contact your local BBH Authorized Service Provider (ASP). A list of ASPs can be found on the BBH web site at www.bbhscanners.com

Glossary

WORD OR TERM	DEFINITION
ADF	Acronym used to refer to Automatic Document Feed.
Ngenuity	Product (scanner) name.
Control Panel	Interface located on the front of the scanner that is used to perform basic scanning functions and to signal scanner statuses through the use of LEDs, pictograms, and text legends.
DPI	Acronym used to refer to Dots Per Inch.
Host PC	Computer used to communicate with the scanner in order to scan documents.
LED	Acronym used to refer to Light Emitting Diode which is the type of light source used in the scanner, both for image capture while scanning and illuminating indicators found on the scanner's control panel.
MF	Acronym used to refer to Multifeed
Multifeed	Scanner feeds more than one document into the scanner at a single time.
Optics	Term that refers to the following scanner components: glass flats, cameras glass covers, sensors. This term does NOT include the scanner's LEDs.
Paper Jam	Refers to a single document that fails to pass through the scanner's transport and exit into the output tray.
Scan Source	Refers to the scanner selected for use through the scanning application on the host PC.
Ngenuity Operator Utility	Utility that resides on the host PC. It provides and monitors scanner connectivity, statuses and alerts, and allows Operators to set some of the scanner's configuration parameters.
SharpShooter	Refers to the technology found in the scanner's cameras
NOU	Acronym used to refer to the Ngenuity Operator Utility
Straight Pass-Through	Alternative transport path that allows scanning of thick card stock, ID cards, etc. Documents enter the transport from the feed tray and exit out the back of the scanner.
USB	Acronym used to refer to Universal Serial Bus which is a connection type used by the scanner to communicate with a host PC.
VRS Interactive Viewer	VRS enabled control window from which the Ngenuity scanner's Advanced Features is accessed.