S C A N ▸ X ®

ScanX Classic & ScanX Intraoral
Digital Imaging Systems

Instruction Manual

ScanX Classic
Part No. F3700T

ScanX Intraoral
Part No. F3600T

AIR TECHNIQUES
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ISO 13485
CERTIFICATION ™
Intertek

CONGRATULATIONS

Congratulations on your purchase of ScanX, the latest Digital Imaging System from Air Techniques, a leading manufacturer of equipment for the dental professional since 1962. This manual covers the installation, operation and maintenance of:

1. ScanX Intraoral Digital Imaging System, part number F3600T.
2. ScanX Classic Digital Imaging System, part number F3700T.

The ScanX Classic is capable of processing both intraoral and extraoral imaging plates while the ScanX Intraoral, is designed to process intraoral imaging plates **only**. For details, see the Unpacking and Specifications sections. The ScanX Intraoral and ScanX Classic are hereafter referred to as ScanX in this manual. Each has been designed and manufactured using state-of-the-art technology to give many years of dependable service.

For product support and information on the ScanX, contact your authorized Air Techniques dealer; call our Technical Support at +1-800-247-8324 or visit the web site, **www.airtechniques.com**.

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PURPOSE OF THIS MANUAL

This document is a guide to the proper use of ScanX. It provides the information necessary for the setup, operation and routine care and maintenance of the device. Review and follow the guidelines included in this Instruction Manual to ensure that your ScanX gives you the highest level of performance.

This manual is not to be used as a replacement for training in radiography.

For information regarding the computer system and imaging software, refer to the appropriate documentation provided with your computer hardware and software.

GENERAL SAFETY

ScanX has been designed to minimize exposure of personnel to hazards. While the equipment is designed for safe operation, certain precautions must be observed. Use of ScanX **not** in conformance with the instructions specified in this manual may result in permanent failure of the unit.

General.

- Check with your dealer for packing material requirements if it is necessary to return the product to the manufacturer. Correct packing guarantees optimal safety of the device during transport. Should it become necessary to return the device to the manufacturer during the warranty period or other times, the manufacturer will not accept claims for damage arising from using incorrect packing materials.

- Before every use, the operator must check the functional safety and the condition of the device.

- The operator must be knowledgeable in the operation of the device.

Use of Accessory Equipment.

The use of ACCESSORY equipment not complying with the equivalent safety requirements of this equipment may lead to a reduced level of safety of the resulting system.

Use of ACCESSORIES or cables other than those specified or provided by the manufacturer may result in increased EMISSIONS or decreased IMMUNITY of the EQUIPMENT.

Do Not Attempt Internal Service.

The interior of each component of ScanX is only accessible by removing hardware with special tools and should only be opened and serviced by an authorized dealer service technician.

Contact your local Air Techniques authorized dealer for service. Failure to heed this directive may result in equipment damage and voids the warranty.

Electrical Safety Notes.

- ❏ The power line cord is the mains power disconnect device.
- ❏ Use only the line cord and power supply provided with the unit.
- ❏ Use only grounded electrical connections.
- ❏ To avoid risk of electric shock, fire, short-circuit or dangerous emissions, never insert any metallic object into the equipment.
- ❏ Only use connection cable(s) delivered with the device.
- ❏ Check the device cables for possible damage before switching on. Damaged cables, plugs and sockets must be replaced before use.
- ❏ Never touch open supply outlets and patients simultaneously.
- ❏ Do not locate unit where it could be sprayed with water, or in a damp environment.

GENERAL SAFETY

Knowledge of Warnings and Cautions.
Users must exercise every precaution to ensure personnel safety, and be familiar with the warnings and cautions presented throughout this manual and summarized below. In this manual, the following definitions apply for all WARNING and CAUTION Statements:

WARNING: Any operation, procedure or practice, which, if not strictly observed, may result in injury or long-term health hazards to personnel.

CAUTION: Any operation, procedure or practice, which, if not strictly observed, may result in destruction of equipment or loss of effectiveness or damage to equipment and Phosphor Storage Plates (PSPs).

DANGER: Opening ScanX by removing any covers or components makes the equipment into a Class III b Laser Product. [Class 3B Laser Product (IEC 60825)].

Warnings -

Only trained professionals should use this device. Federal law prohibits the sale of this device to individuals other than trained professionals. Use of this device, other than as described in this manual, may result in injury.

ScanX contains a laser and is a Class 1 [Class 1 (IEC 60825)] Laser Product. Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. The laser is on only during an active scan.

Only a trained technician from an authorized dealer should remove a cover from the ScanX. Direct eye contact with the output beam from the laser may cause serious damage and possible blindness.

Equipment Lifting. ScanX weighs 20 kg or more and two people may be required to prevent injury when lifting.

Do not open the equipment to maintain it. ScanX contains no interior user serviceable parts. If there is a service problem, contact your authorized dealer.

Operate ScanX in dry environment. To prevent fire or electrical shock, do not expose this appliance to rain or moisture.

Equipment Disposal. Disposal of ScanX units, electronic circuitry and PSPs must be accomplished only at the appropriate facilities for recovery and recycling. Make sure to dispose of such items in accordance with current federal, national, state and local government rules and regulations.

Cautions -

EMC Compliance Requirements. Use USB cables not exceeding 3m to connect between the computer and the scanner. Cable lengths greater than 3m may violate EMC compliance.

Stacking or using the scanner adjacent to other equipment may violate EMC compliance and interfere with the scanner operation.

Do not use damaged Phosphor Storage Plates (PSPs). Damaged PSPs may not provide reliable diagnostic images.

Cautions (Continued)-

Completely clean and erase PSPs before taking an X-ray exposure.

See the PLATE PREPARATION section of this manual.

Minimize exposing an X-ray exposed PSP to light. Transfer the PSP into the inlet slot quickly to minimize exposure to light.

Use care in handling PSPs - Avoid fingerprints and scratching.

Refer to the instructions provided with the PSP package for further information on handling.

Use of other manufacturer's imaging plates. Do not put PSPs designed for drum-type or other scanners in the ScanX. The hooks and/or frames on the ends or around these PSPs, or PSPs of different thickness (especially thicker ones) will damage the ScanX.

Contraindications. None known.

Markings.

The following terms or symbols are used on the equipment or in this manual to denote information of special importance:

CAUTION
CLASS 1 LASER PRODUCT

CLASS 3B LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM

DANGER

LASER RADIATION WHEN OPEN AVOID DIRECT EXPOSURE TO BEAM

COVER REMOVED MAKES THIS DEVICE A CLASS IIIb LASER PRODUCT

ScanX is a Class I Laser Product [Class 1 Laser Product (IEC)]

This warning label identifies ScanX as such a product and describes the potential danger to humans in the event the product is opened during service. There is no laser radiation from this product when operated and maintained as instructed.

The Laser Product Accession Number is 0212282-00

Alerts users to important Operating and Maintenance instructions. Read carefully to avoid any problems.

Warns users that uninsulated voltage within the unit may be of sufficient magnitude to cause electric shock.

CE Indicates that ScanX complies with the Medical Device Directive 93/42/EEC.

Identifies the name of the manufacturer.

Indicates date of manufacture

EC REP Medical Device Safety Service
Schiffgraben 41
30175 Hannover, Germany

Indicates item used only once. Discard after use.

Indicates that the unit conforms with WEEE Directive 2002/96/EC and must be disposed of only at the appropriate facilities for recovery and recycling.

Manufacturer:
Air Techniques, Inc.
1295 Walt Whitman Road
Melville, New York 11747 USA

c **UL** US
LISTED
LABORATORY EQUIPMENT
60CB
E234737

Indicates the ScanX is a UL Listed product.

UNPACKING & INSPECTION

Warning: ScanX weighs 20 kg or more and two people may be required to prevent injury when lifting.

Unpacking
Unpack each component of ScanX and inspect for physical damage such as scratched panels, damaged connectors, etc. If there is any damage, notify your Air Techniques authorized dealer immediately so corrective action can be taken. Save all cartons and packing materials to protect ScanX in the event that it is to be transported or shipped in the future. ScanX consists of the indicated main assembly and accessory kit as listed below. Verify that all listed items were received. If any item is missing, notify your dealer.

Included System Components
ScanX consists of the indicated main assembly and accessory kit as listed below: (See the Technical Data section for ratings and identification for specific models.)

System Components		
ScanX Assembly	ScanX Classic, P/N F3700T	ScanX Intraoral, P/N F3600T
24 VDC Power Supply Adapter	Quantity 1	Quantity 1
Power Cord	Country Specific	Country Specific
2.0 USB Cable (2 meter)	Quantity 1	Quantity 1
Accessory Kit containing:		
Size 0 Phosphor Storage Plates	Quantity 2	Quantity 2
Size 2 Phosphor Storage Plates	Quantity 18	Quantity 18
Size 0 Barrier Envelopes	Quantity 100	Quantity 100
Size 2 Barrier Envelopes	Quantity 300	Quantity 300
Size 0 Plate Guide	Quantity 1	Quantity 1
Size 1 Plate Guide	Quantity 1	Quantity 1
Size 2 Plate Guides	Quantity 4	Quantity 4
Size 3 Plate Guide	Quantity 1	Quantity 1
Exit side Plate Supports	Quantity 2	-
Intraoral Plate Transfer Box	Quantity 1	Quantity 1
Standard Cleaning Sheet Sample	Quantity 1	-
ScanX I/O Cleaning Sheet Sample	-	Quantity 1
User Information Folder containing:		
ScanX Quick Start Guide	Quantity 1	Quantity 1
CD Disk containing Drivers, Utilities & Manual	Quantity 1	Quantity 1
PSP Cleaning Wipe Sample Pack	Quantity 2	Quantity 2

General Notes.

❏ All instructions in this manual form an integral part of the unit. They must be kept close to the unit and in readiness whenever required. Precise observance of these instructions is a pre-condition for use of the unit for the intended purpose and for its correct operation. This manual should be passed on to any future purchaser or operator.

❏ Safety of the operator as well as trouble-free operation of the unit are only ensured if use is made of original equipment parts. Moreover, use may only be made of those accessories that are specified in the technical documentation or that have been expressly approved and released by the manufacturer for the intended purpose. The manufacturer cannot warranty for the safety or proper functioning of this unit in the case where parts or accessories are used that are not supplied by the manufacturer.

❏ There is no guarantee against damage arising where parts or accessories are used that are not supplied by the manufacturer.

❏ Observe the usage and storage conditions.

❏ Appliances which accumulate condensation or become wet through a change of temperature may only be operated after they are fully dry again.

❏ The manufacturer regard themselves as being responsible for the equipment with regard to safety, reliability and proper functioning only if assembly, resetting, changes or modifications and repairs have been carried out by an authorized dealer and if the equipment is used in conformity with the instructions contained in this manual.

❏ The device conforms to the relevant safety standards valid at this time.

Correct Usage

❏ Operation of ScanX may only be carried out by suitably qualified personnel.

❏ ScanX is only to be used in the processing of exposed PSPs.

❏ If the device is stored in a cool environment and brought to a warmer one, condensation can build up. Do not connect the device until it has warmed up to room temperature and is absolutely dry.

❏ The immediate working area should be free of all possible interferences (e.g. strong magnetic fields), as these could affect the operation.

❏ ScanX may only be operated together with authorized software.

❏ Correct usage includes observing all adherence to the set-up, operation and maintenance instructions.

❏ Any use, above and beyond that described in this manual as correct usage, will invalidate the warranty.

Incorrect Usage

❏ Any use that is not described in this manual as correct usage is considered as incorrect usage. The manufacturer is not to be held liable for any damage caused as a result of incorrect usage. The operator bears all risks.

SYSTEM DESCRIPTION

General

ScanX is a self-contained digital imaging scanner/eraser system that utilizes reusable photostimulable or Phosphor Storage Plates (PSP) in place of X-ray film to produce quality digital radiographs. The PSPs are durable and reusable thousands of times. Upon exposure to X-rays, the plate stores a latent image, which is scanned by the ScanX. After scanning, the image is processed via the user-supplied computer running authorized software and ready for viewing in seconds. In addition to immediate display of the resultant images, the software allows image enhancement processing, storage (hard drive or CD), and sharing/retrieval.

An additional feature of ScanX includes a patented in-line plate erase function that removes the latent image from the plate immediately after scanning. This design provides an efficient one-operation scanning and erasing process leaving the user with a PSP ready for the next X-ray procedure.

Features

❏ High resolution digital images in seconds.

❏ Share results anywhere, anytime.

❏ Lightweight extruded aluminum frame resists dents.

❏ Patented, built-in eraser with manual or auto erase function.

❏ Works with a wide range of X-ray sources

❏ Adjustable settings for optimum dynamic range.

❏ Sturdy, isolating/damping feet eliminate potential image quality issues due to vibration.

Figure 1. ScanX Classic (P/N F3700T) and ScanX Intraoral (P/N F3600T) Digital Imaging System,

Electrical Requirements:

Supply Voltage:	Universal: 100V to 240V (90V to 264V) 50/60 Hz
Supply Current:	1.2 A Maximum
Line Cord:	Country specific 3-meter power cord
Power Supply:	24 Volt Power Supply, P/N B7495 provided

Physical Properties:	ScanX Intraoral, P/N F3600			ScanX Classic, P/N F3700 & ScanX Ortho, P/N F3750		
Dimensions:	Length	Width	Height	Length	Width	Height
	39.4 cm	39.4 cm	40.6 cm	39.4 cm	39.4 cm	62.2 cm
Weight:		20 Kg			23.1 Kg	

Environmental Conditions:

Unit in Operation
   Temperature: 10° to 40°C
   Humidity: 10 to 80% (Non-condensing)

Storage and Transport   (Scanner and accessories)
   Temperature: -29° to 54°C
   Humidity: 5 to 95% (Non-condensing)

Storage and Transport   (PSP Plate)
   Temperature: Maximum 33°C
   Humidity: Maximum 80% (Non-condensing)

Note: Resolution of the device is dependent on operating mode and specific imaging plate type used.

Resolution (LP/mm)	Vertical	Horizontal
Classic	3 to 18	3 to 12+
Intraoral	10 to 18	10 to 12+

Compliance Data:

Laser Classification:	Class I Laser Product Compliance with FDA HHS 21 CFR 1040.10 and IEC 60825-1
Laser Product Report Accession Number:	0212282-00

Classification:

Class 1, No Applied Parts, Transportable, Continuous Operation,
Equipment not suitable for use in the presence of flammable anaesthetic mixture(s).

Electromagnetic Interference:

Electromagnetic interference between the equipment and other devices can occur. Do not use the equipment in close conjunction with sensitive devices, or devices creating high electromagnetic disturbances.

COMPUTER SYSTEM REQUIREMENTS

IMPORTANT: To operate ScanX, it must be connected to a compliant Computer System supplied by the customer. In addition, authorized Imaging Software, purchased from your dealer or other company, must be installed on the computer in order to operate ScanX. Contact your dealer for available Computer System and Software options.

Computer System Components. The minimum computer system, computer and monitor, requirements necessary to operate ScanX are listed below.

Operating System(s)	Microsoft Windows 7 Professional, Enterprise, or Ultimate with Service Pack 1 or later for an Intel 32-bit or an Intel 64-bit extended (x64) processor;
	Microsoft Windows 8.1 Professional or Enterprise for an Intel 64-bit extended (x64) processor; or
	Microsoft Windows 10 Professional or Enterprise for an Intel 64-bit extended (x64) processor.
Software	Compatible authorized third-party software or TWAIN compliant third-party software (not included with product) required.
CPU/Speed	Intel Pentium IV compatible, 1.4 GHz or faster required. 3.0 GHz Intel CORE2 recommended.
System RAM	1 GB Required. 2 GB recommended.
Hard Drive	At least 2 GB of free space is required to install the software. At least 200 MB of free space is required to start scanning. 500 GB recommended.
Optical Drive	Drive capable of reading a CD-ROM is required.
Monitor	32-bit 1024 x 768 or higher resolution required.
	SVGA 24 inch, 1280 x 1024 or higher resolution, contrast ratio 10,000:1, .22 dot pitch recommended
Video Display Adapter	32 MB RAM or more recommended
USB Port/Version	USB 1.1 required.
	USB 2.0 or USB 3.0 high-speed port recommended
Keyboard, Mouse and Printer	Required.
Other	Backup device and surge protector recommended.

COMPUTER SYSTEM REQUIREMENTS

System Properties.

If unsure of the operating system version installed, check that it meets the necessary requirements by checking the **System Settings** window as shown below.

The **System Settings** window can also be opened from the **Control Panel** button. Just press the *Start* button and select **Control Panel** and then click the *System* icon.
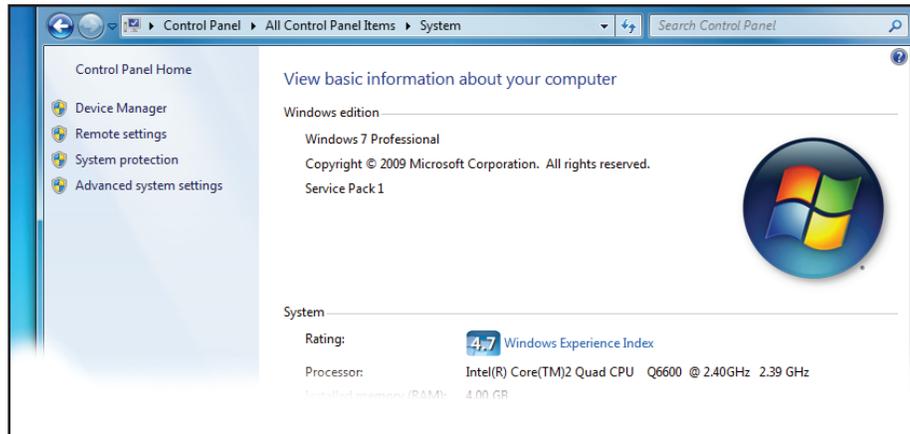
ABBREVIATIONS

Abbreviations used in this manual are summarized below.

A	ampere(s)		m	meter
AC	alternating current		MB	megabytes ($2^{20} \approx 10^6$ bytes)
CD-ROM	compact disk, read-only memory		mm	millimeter (10^{-3} m)
CFR	Code of Federal Regulations		MONTH YYYY	date (Month, 4 digit year)
CPU	central processing unit (your computer)		Phosphor	a luminescent material
cm	centimeter		P/N or PN	part number
GB	gigabyte ($2^{30} \approx 10^9$ bytes)		PSP	photostimulable storage phosphor plate (imaging plate)
GHz	Gigahertz (10^9 of Hertz)			
H	height		RAM	random access memory
Hz	Hertz (cycles per second)		RH	relative humidity
IEC	International Electro-technical Commission		SVGA	Super Video Graphics Array
IMS	Image Management Software		USB	Universal Serial Bus
IP	imaging plate		UL	Underwriters Laboratories
kg	kilogram (10^3 gram)		V	Volts
LED	Light emitting diode		W	Watts, width
L	length		°C	degree Celsius
lp/mm	line pair per mm			
lux	a measure of light intensity			

SYSTEM SETUP

IMPORTANT: ScanX is designed to be installed by your authorized dealer. The user must provide appropriate and compliant computer hardware. In addition, authorized Imaging Software purchased from your dealer or other company, must be installed on the computer in order to operate ScanX.

Site Selection

ScanX may be located almost anywhere in the office. Follow these guidelines for optimum performance:

❑ Lighting conditions: Set up the scanner in ordinary room light, however, direct sunlight and light fixture(s) above and near ScanX producing more than 400 lux of light at the PSP inlet must be avoided.

❑ Provide a stable, flat counter top large enough to hold the scanner, plus provide a working area for resting and opening cassettes.

❑ Locate the computer within 2 meters from unit.

❑ Access to a hospital grade grounded electric Mains AC outlet using the line cord and power supply adapter provided, must be within line cord length.

Device Driver Installation

Before connecting ScanX to your computer or attempting to use it for the first time, run the Setup program on the Drivers and Utilities Disk. This CD contains the necessary device drivers to communicate with the imaging software installed on the user's computer. Normally, this program runs automatically when the CD is inserted into the drive for the first time. If not, run the Setup program located in the root directory of the CD (typically **D:\Autorun.exe**).

ScanX Connection Procedure

Refer to Figure 2 and perform the following procedure to connect ScanX for operation to a computer for the first time.

1. Select a location that meets the **Site Selection** guidelines.
2. Make sure that the computer meets all requirements (see page 10) necessary to support ScanX operation. Set up the computer according to the manufacturer's recommendations.
3. Verify that an authorized Imaging Software and the supplied USB drivers are installed properly on the computer.
4. Connect the high speed USB cable between the USB Type B connector located on ScanX rear panel and the USB Type A connector located on the computer.

> **Note:** Connect the 24V Power Supply Adapter to ScanX prior to plugging the line cord into the Mains outlet.

5. Connect the 24V Power Supply Adapter Output Connection Cable to the Inlet Power Jack located on ScanX rear panel.
6. Connect the line cord between the Mains outlet and the 24V Power Supply Adapter. The scanner is now in the Standby mode.
7. Switch ScanX from standby to ON by pressing the push button POWER switch (⏻) located on the Control Panel on the front of the scanner. Verify that both the blue LED indicators, for the READY and ERASER switches, respectively illuminate.
8. With both ScanX and computer turned on, Windows detects ScanX as a new USB Device and the Found New Hardware Wizard will appear.
   Windows should automatically find the drivers installed from ScanX Drivers and Utilities Disk.

Exit Side Plate Supports Installation (ScanX Classic only)

The supports are used to catch extraoral plates after processing. Refer to Details C and D below and install the supports as follows.

CAUTION: ScanX weighs 20 kg or more. Two people may be required to perform this installation to prevent damage to the unit.

1. Carefully tilt the ScanX back enabling access to the slots under of the ScanX.
2. Align the two quick connect clips of each support with the corresponding slots.
3. Insert each support into the slots until a click is heard.
4. Return the ScanX to the upright position on the installation site counter top.

Note: The power line cord is the Mains disconnect device.

Detail A

Power Supply

Line Cord

Line Cord

Power Supply

To ScanX Inlet Power Jack

Type B USB Connector

Type A USB Connector to Computer

USB

Type B USB Receptacle

24V DC - 2.1A

Inlet Power Jack

ScanX Side

Detail B
ScanX Power and Computer
Receptacles Located on Right Rear Panel

TO POWER SUPPLY

ScanX Underside

Detail D
Snap Supports in Place

Slots

Detail C
Align Clips & Slots

Quick Connect Clips

Figure 2. ScanX Power and Computer Connections

CONTROLS & INDICATORS
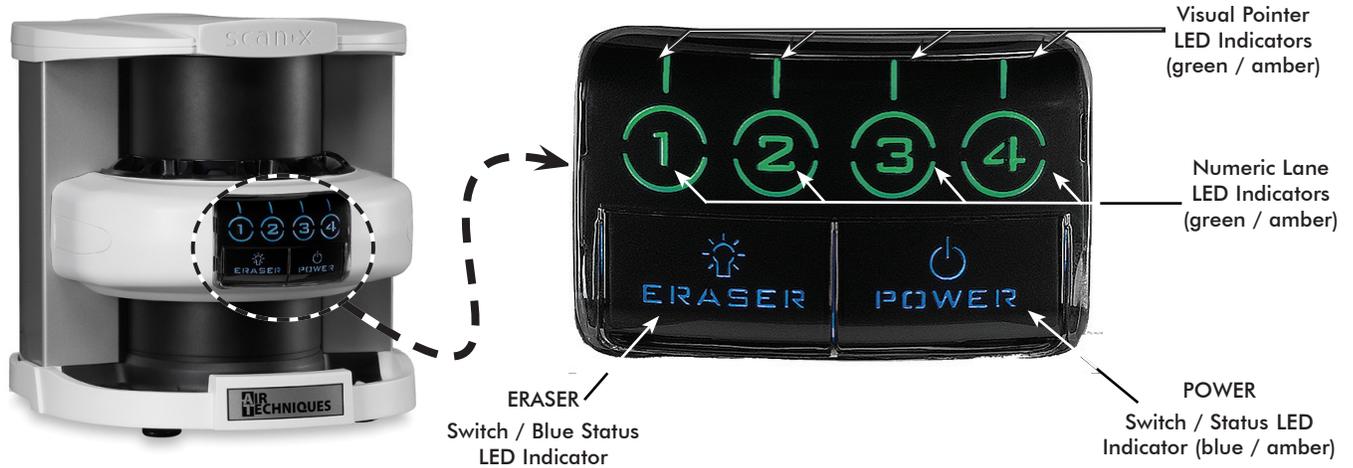
Figure 3. Front Panel Control and Indicator Locations

Control Switch and Indicator Functions

Item	Function
POWER Switch	Toggles between the Standby and Ready mode as follows: 1. Press to switch from the Standby mode to the Ready mode. 2. Press and hold down for at least 2 seconds to switch to the Standby mode from the Ready mode.
POWER Status LED Indicator	Displays the device status as set by the POWER Switch: 1. Illuminates dim amber to indicate that ScanX is the Standby mode of operation. 2. Illuminates blue to indicate that ScanX is the Ready mode of operation. 3. When extinguished, it indicates that AC MAINS are interrupted and no operating power is present.
ERASER Switch	**Note:** The switch has no effect once the plate scanning operation begins. Enables or disables the erase function operation: 1. Press and hold for 2 seconds to disable the erase function completely. 2. Press and hold for 2 seconds a second time to enable the erase function.
ERASER Blue Status LED Indicator	Displays the erase function status as set by the ERASER Switch: 1. Extinguished when the AC MAINS are interrupted. No power. 2. Extinguished when the system is set to the Standby mode 3. Illuminated bright blue when the In-Line Erase function is enabled. (Default mode has eraser enabled.) 4. Flashing when the In-Line Erase is disabled.
Numeric Lane Indicator with Visual Pointer LED Indicators (Bi-Color LEDs)	Displays the operational status of each scanner lane: 1. Extinguished when the AC MAINS are interrupted. No power. 2. Extinguished when the system is set to the Standby mode. 3. Extinguished when ScanX is not activated by imaging software on the host computer. (Imaging software not set to acquire images.) 4. Illuminates green when activated by imaging software denoting that the imaging software is set to acquire images and the corresponding lane is ready to process a PSP plate. 5. Illuminates amber while the corresponding lane is busy processing.

IMPORTANT: Never power down or remove power from ScanX during a scanning session.

READY Mode of Operation

ScanX is designed to be left on continuously in the READY mode, during the active day. When ScanX is set in this mode of operation, the POWER and ERASER Status LED Indicators illuminate bright blue as shown by Figure 4. The Numeric Lane Indicator with Visual Pointer LED Indicators are not lit.

STANDBY Mode of Operation

At the end of the day, or whenever desired, power down ScanX simply by pressing and holding the POWER switch for approximately two seconds, until the ERASER and POWER LED Indicators extinguish. The Status LED READY Indicator illuminates dim amber indicating that ScanX is set to the STANDBY mode of operation.

MAINS Disconnect

The power line cord is the Mains disconnect device. All front panel indicators extinguish when the AC MAINS are interrupted when the line cord is disconnected or the main facility power circuit fails.

Visual Pointer & Numeric Lane LED Indicators Extinguished

POWER
Switch / Status LED Indicator Illuminated Blue

ERASER
Switch / Status LED Indicator Illuminated Blue

Figure 4. READY Mode Front Panel Indicators

PLATE CARE & PREPARATION

IMPORTANT: Make sure to wear disposable gloves when handling PSPs.

Prior to performing the imaging procedure provided on the following pages, the user must be familiar with the care, handling and preparation of the PSP in order to ensure successful image scanning. Figure 5 shows the configuration of a typical Intraoral Size #2 PSP while Figure 6 shows a typical extraoral plate.

| Printed Side | Tube or Sensitive Side | Black Side or Back of PSP | White or Sensitive Side or Front of PSP |
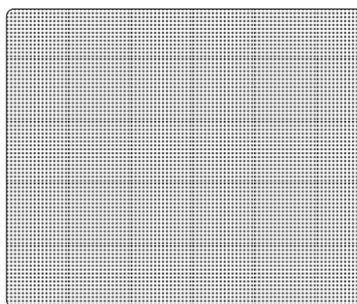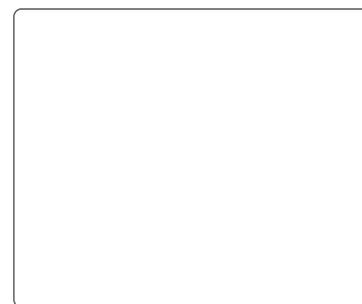
Figure 5. Intraoral PSP Configuration   Figure 6. Typical Extraoral Plate Configuration

PLATE CARE & PREPARATION

Handle PSPs with Care.

❑ Do not crease PSPs.

❑ Avoid scratching or soiling PSPs.

❑ Do not store PSPs in a hot or moist area.

❑ Protect the PSPs from direct sunlight and ultraviolet rays.

❑ Pick up the PSPs using two fingers around the edges to avoid unnecessary contact with the plates.

Plate Protection

When storing or transferring extraoral size PSPs use an X-ray Cassette for PSPs so as not to scratch or soil the sensitive surface or nick the edges.

> **Note:** Cassettes must <u>not</u> contain intensifying screens when using PSPs.

X-ray Cassette. Place the PSP into the appropriate X-ray Cassette with the sensitive (front) side of the PSP towards the Tube-side of the cassette and close cassette.

> **IMPORTANT:** PSPs must always be erased prior to use.

> **Note:** Use PSPs within 24 hours of last erasure. Repeat erasing process if PSPs have been stored longer than 24 hours.

Erasing PSPs

Each PSP should be used (i.e. X-ray exposed and scanned) within 24 hours of erasure since natural radiation will add noise to the PSP. Erase PSPs by simply using the In-Line Erase Feature. Erasing of PSPs can be accomplished using one of the following methods.

> **Note:** Both erasing methods will result in an erased PSP suitable for reuse. The user will not observe any difference in ScanX operation when using either method.

Method #1

Perform the Activate Scanner and the Scanning and Erasing Plates procedures on pages 19 thru 21 for either intraoral or extraoral as necessary. Except when performing step 4 of the Activate Scanner procedure, select the *Erase* option from the installed imaging software to activate ScanX. This method does **not** scan the plate and no image will be acquired.

Method #2

Perform the Activate Scanner and the Scanning and Erasing Plates procedures on pages 19 thru 21 for either intraoral or extraoral as necessary. This method scans the plate and then erases the plate. Using this method, the imaging software may acquire a "junk image" (scanned latent plate image) that should be subsequently deleted from the imaging software.

Cleaning Phosphor Storage Plates

For the best images, PSPs should be handled carefully and kept clean. Use specially formulated PSP Cleaning Wipes (P/N B8910) to clean all PSPs. These single-use, extra soft, 100% polyester fabric wipes will not scratch or damage while safely removing dust, hair, dirt and smudges from the imaging surface. Use one wipe and clean plates as follows:

Figure 7. PSP Cleaning

1. As shown by Figure 7, gently wipe the PSP Cleaning Wipe over the dry Plate surface. Wipe back and forth and then in a circular motion.

2. Allow the plate surface to air dry. Make sure that the PSP is completely dry before re-using.

Disinfecting the Phosphor Storage Plates

There is no reason to routinely disinfect the PSPs unless contamination is suspected. If a PSP has touched a contaminated surface, it may be immersed briefly in a cold sterilant (such as a 2% Gluteraldehyde solution) according to sterilant manufacturers directions. Do not immerse the plate if there is any evidence of deep scratches in the surface of the plate or nicks in the edges of the plate. After disinfection, clean and dry the plate using the instructions above.

Disposal of Phosphor Storage Plates

Consult with your federal, national, state and local government, for rules and regulations on disposal of Phosphor Storage Plates.

Barrier Envelope Handling

Always guard against contamination by using standard infectious control procedures when handling individual barrier envelopes. It is best to discard suspected contaminated envelopes since no cleaning or disinfection procedure exist or are required for barrier envelopes.

 Indicates item used only once. Discard after use.

Preparing Intraoral Plates for Patient Use

Insert the erased PSP into the Barrier Envelope so the printed side of the PSP is visible through the transparent side of the envelope. Peel off the adhesive strip and seal the envelope as shown by Figure 8.

| View A. | View B. | View C. |
| Insert the PSP into the envelope. | Peel off the adhesive strip. | Seal the Barrier Envelope. |

Figure 8. Sealing the PSP in the Barrier Envelope

INTRAORAL IMAGING PROCEDURE

IMPORTANT: The following procedures are not to be used as a replacement for training in radiography. Only trained radiography professionals should perform X-ray procedures.

Notes: 1. The orientation letter "**a**", printed on the PSP, may be used for reference as you would use the dot on an intraoral X-ray film. In addition, a backwards "**a**" (i.e. "   "), appearing in an image, is an indication that the image has been flipped.

2. If using holders with alligator clips, it is advisable to file down the points to avoid puncturing the Barrier Envelope. It is important to take care not to puncture the Barrier Envelope or damage the PSP.

3. Refer to Appendix A, X-ray unit settings, which provides standard recommended values. The dentist determines the individual setting of the exposure values.

Intraoral Plate X-ray Procedure. Put an image on an intraoral PSP as follows.

1. Place the erased intraoral PSP in the sealed Barrier Envelope into the patient's mouth exactly as you would use X-ray film. Make sure the opaque side of the Barrier Envelope is facing the tubehead.

2. Take the exposure. The X-ray dose may typically be reduced by 80 - 85% of that required for D-speed intraoral film (depending on X-ray system used; the actual X-ray dose should be determined through experimentation).

3. Wearing gloves, remove the exposed PSP from the patient's mouth and place to the side making sure the sensitive side of the barrier envelope is facing away from any light source.

4. Repeat steps 1 through 3 as necessary to complete the patient's X-ray series. When all necessary plates in the X-ray session have been exposed, prepare each plate by performing the procedure below.

IMPORTANT: Be sure that the sensitive side of the PSP is facing down when it lands inside the box (See Figure 9). If it is not sensitive side down, TURN IT OVER IMMEDIATELY. Failure to do so may result in erasure of the PSP.

Preparing the Exposed Intraoral Plate for Scanner Processing

1. Disinfect the Barrier Envelope (with plate still inside) and your gloves by washing with disinfectant hand soap and water. Dry the Barrier Envelope thoroughly.

2. Remove gloves and wash any powder from hands. Powder on a PSP will degrade the image, and an accumulation of powder in the scanner will lead to degradation of scanner performance.

3. Open the Plate Transfer Box with the lid away from you. Then, remove the exposed PSP from its washed and dried envelope as follows:

    a. Hold the enveloped exposed PSP, with the printed side facing up, parallel to and about 2.5 cm above the open Plate Transfer Box.

    b. Tear the envelope lengthwise starting at the notch to eject the PSP into the open Transfer Box. See Figure 9.

4. Bring the Plate Transfer Box with all the exposed PSPs properly prepared to ScanX. The PSP is now ready to be scanned to read the image by performing the Intraoral Imaging Procedures.

Figure 9. Ejecting a Plate into the Plate Transfer Box

Configure the Intraoral Plate Guides. If the desired Plate Guides are not in place, install the guides for the plate size to be scanned. Do not operate the scanner without a full complement of four guides in place. Any combination of Guides may be used. See Figure 10.
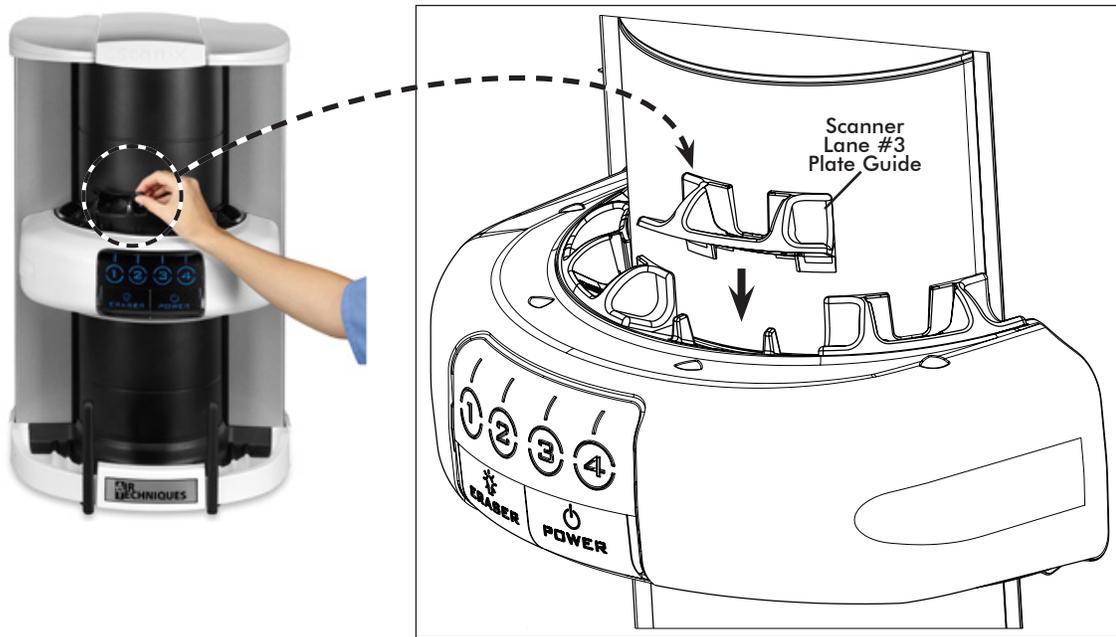
Figure 10. ScanX Plate Guide Installation

Activate Scanner. Activate ScanX by performing the following procedures.

1. Make sure the computer and ScanX are correctly connected as shown in Figure 2.
2. Switch the scanner from STANDBY to the READY mode by pressing the POWER switch.
3. Verify that the POWER and ERASER Status LED Indicators illuminate bright blue.
4. Activate the Scanner and select the desired image type and resolution via the imaging software.
5. Verify that the four Numeric Lane Indicators with Visual Pointer LED Indicators illuminate bright green as shown by Figure 11 when the Scanner has been activated, indicating that the imaging software is set to acquire images and PSPs can be fed into the corresponding lane Plate Guides.
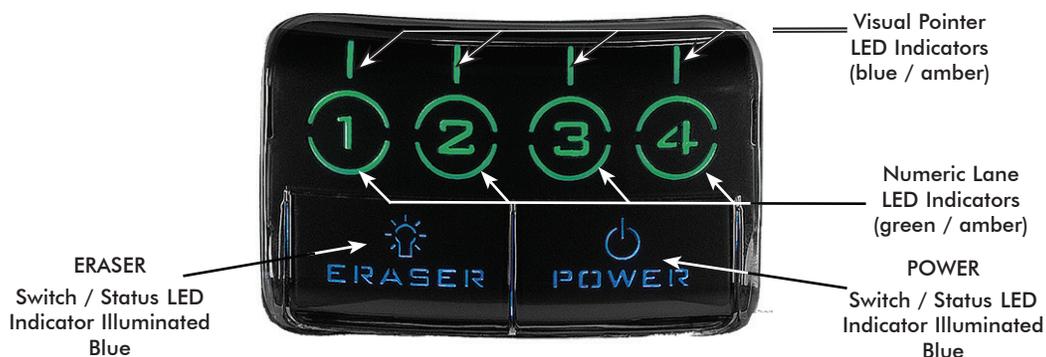
Figure 11. Front Panel Indicators of Activated ScanX Set in the READY Mode

INTRAORAL IMAGING PROCEDURE

> **IMPORTANT:** Transfer the PSP from the Plate Transfer Box to the Plate Guide slot quickly. Always keep the sensitive side away from any light source to minimize image loss.

Scanning and Erasing Intraoral Plates. Scan and erase an intraoral PSP in one operation as follows.

1. Carefully open the Plate Transfer Box.

2. Grasp a PSP by the by long between your thumb and index finger. See Figure 12.

3. With the printed side facing you, carefully and quickly insert the PSP into the corresponding plate guide slot as far as possible.

4. Immediately press the PSP all the way down until the scanner's transport mechanism takes over and the PSP moves down on its own.

5. Verify that both the corresponding lane and pointer LED indicators light amber, indicating the Plate Guide slot is in use processing the plate.
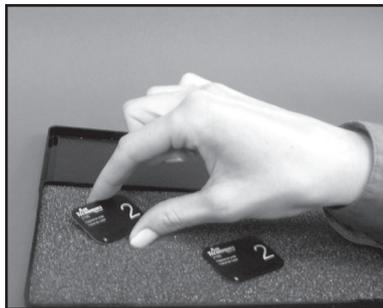
PSP Pick-up.	Feeding Intraoral Plate.	Fully Inserted Plate.

Figure 12. Feeding an Intraoral Plate

> **Note:** Up to four PSPs can be processed simultaneously. One PSP can be inserted into each Plate Guide at a time as long as the corresponding track indicator light is illuminated bright green. The next PSP may be fed into a Plate Guide slot only after the corresponding track indicator LED changes from amber to green.

6. Observe that a red glow emanates from the scanner exit slot.

7. Repeat steps 2 through 6 to process additional PSPs as necessary. Another PSP may be fed into any Plate Guide slot as long as the track indicator light illuminates green.

8. Observe that each scanned and erased PSP drops into the receiving tray at the bottom of the scanner. Since the default operation is with the erase mode enabled (ERASER Status LED Indicator lit steadily blue), each PSP is erased and ready for reuse.

> **Note:** The lane and pointer LED indicators remain lit green as long as the imaging software is set to acquire images.

9. Observe that the associated track indicator light illuminates amber when processing PSPs. Verify that the track indicators return to green when the processing ends.

10. Also verify that the red glow from the exit slot extinguishes after the last PSP drops to the tray.

> **CAUTION:** Always use exercise care in handling the PSPs so as not to scratch the sensitive surface or nick the edges.

11. Retrieve the processed (scanned and erased) PSPs for reuse or storage. Make sure not to scratch the sensitive surface or nick the edges when removing from the scanner outlet.

12. View and save each scanned image using the user-supplied imaging software.

IMPORTANT: The following procedures are not to be used as a replacement for training in radiography. Only trained radiography professionals should perform X-ray procedures.

Note: Make sure to remove intensifying screen from the X-ray cassette when using PSPs. Intensifying screens degrade images when using PSPs as X-ray media.

Extraoral Plate X-ray Procedure. Put an image on an extraoral PSP as follows.

1. Place the erased PSP into the appropriate X-ray cassette, with the Tube side (sensitive side) of PSP facing towards Tube side of cassette.

2. Load cassette into the exposure device as previously done for film, and follow the X-ray device manufacturer's instructions for PSP exposure.

3. Bring the cassette containing the exposed extraoral PSP to the ScanX. The PSP is now ready to be scanned to read the image by performing the Extraoral Imaging Procedures.

Activate Scanner. Activate ScanX by performing the following procedures.

1. Make sure the computer and ScanX are correctly connected as shown in Figure 2.

2. Switch the scanner from Standby to the Ready mode by pressing the POWER switch.

3. Verify that the POWER and ERASER Status LED Indicators illuminate bright blue.

4. Activate the Scanner and select the desired image type and resolution via the imaging software.

5. Verify that the four Numeric Lane Indicators with Visual Pointer LED Indicators illuminate bright green as shown by Figure 11 when the Scanner has been activated, indicating that the imaging software is set to acquire images.

Note: 1. Leave the four Plate Guides in place when scanning extraoral PSPs.

2. Only one extraoral exposed PSP can be fed into the ScanX at a time. The next PSP may be fed only after all lane indicator light LEDs change from amber to bright green.

Scanning and Erasing Extraoral Plates. Scan and erase an extraoral PSP in one operation as follows.

1. Orient the cassette so that the Tube side is facing down and the hinge is away from you.

2. Open the cassette and grasp the PSP by its ends with your finger tips, and quickly (minimizing exposure to ambient light) move it to the ScanX, with Tube side of PSP towards the unit.

3. Position the extraoral plate behind the four Plate Guides against the curved surface and gently slide the plate down (See Figure 13) until the transport mechanism takes over and the plate moves on its own.

4. At this point, the track lights will turn amber, indicating the PSP has been sensed and the ScanX is transporting the PSP.

Figure 13. Feeding a Panoramic Plate into the ScanX Classic

PLATE ERASING OPTIONS

IMPORTANT: PSPs will **not** be erased after scanning when operating ScanX with the eraser disabled. PSPs must always be erased prior to exposure to X-rays for new images.

Scanning Plates without Erasing

ScanX can be operated with the in-line eraser feature turned off. When the eraser mode is disabled, the device scans the same as when the eraser is enabled except that the PSPs are **not** erased after scanning. Scan an intraoral PSP without erasing the image as follows.

1. Activate the scanner by performing the procedures on previous page.

> **Note:**   Upon turn-on, ScanX defaults with the eraser mode enabled. This must be disabled prior to scanning to prevent erasing of the scanned PSP.

2. Disable the eraser mode of operation by pressing the membrane ERASER switch located on the Control Panel. See Figure 14.

3. Verify that the blue ERASER LED indicator flashes blue indicating that the Erase function is OFF. PSPs will **not** be erased after scanning.

4. Insert the exposed PSPs to be scanned into the ScanX Plate Guides by performing the Scanning and Erasing Plates procedures provided on the previous page. When the scanner is operating with the eraser disabled, the exit slot will be unlit (no red glow).

5. The scanned PSPs still contain latent images that require erasure. Make sure to erase each PSP prior to reuse for new images.

Important: ERASER Indicator flashes blue to alert that eraser is disabled and PSPs will **not** be erased after scanning.

ERASER Switch / Blue Status LED Indicator

Visual Pointer LED Indicators (green / amber)

Numeric Lane LED Indicators (green / amber)

POWER Switch / Status LED Indicator
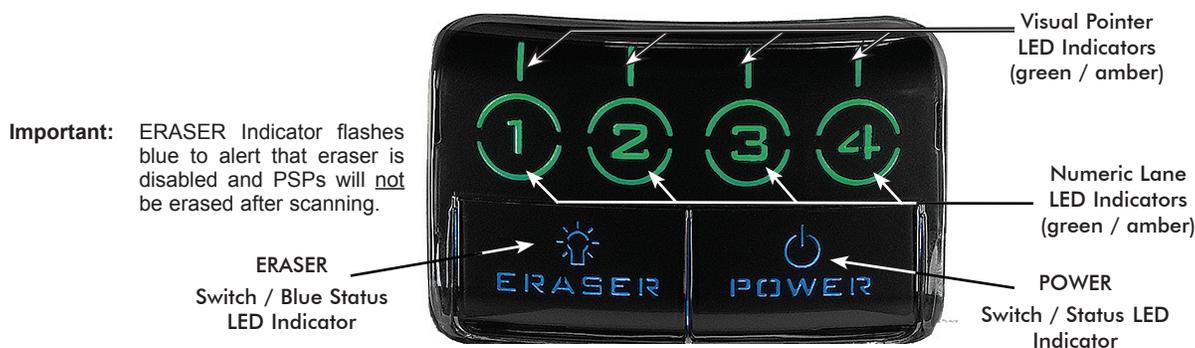
Figure 14. Front Panel Indicators of Activated ScanX Set in the READY Mode

Erase Only Mode

ScanX can be used to just erase PSPs. This is done simply by selecting the Erase option (instead of Scan) from the installed authorized imaging software when activating the ScanX. During the Erase Only mode just the in-line eraser is activated. The PSP is transported through the unit as a normal scan but is **not** scanned. No image is acquired and the PSP is erased and ready for reuse as necessary. See Erasing PSPs on page 16.

Maintenance Procedures

ScanX is designed for many years of trouble-free operation. Maintenance as described herein is minimal.

> **IMPORTANT:** Do **not** spray solvents or liquid **directly** on the scanner, power supply or connectors. Make sure that the connectors are clean, dry and free of damage or discoloration before reconnecting.

Cleaning the ScanX

Turn off ScanX, disconnect the line cord from the Mains wall outlet and disconnect the computer connection cable from ScanX before cleaning. Wipe the outside surfaces with a soft paper towel dampened with a disinfectant solution or non-abrasive household cleaner. Be careful not to allow solvents TO RUN OR DRIP into the ScanX. This could cause damage to the ScanX. Allow to air dry before plugging in or turning back on.

Cleaning the Plate Transport

Over time, small debris and dust can accumulate in the plate transport mechanism causing a loss in image quality and possible damage to the PSPs.

To ensure optimal performance of the ScanX, the plate transport should be cleaned at least once per week using a new ScanX Cleaning Sheet each time. Sample sheets are included with ScanX and additional sheets can be purchased from your dealer.

Phosphor Storage Plates (PSPs)

PSP's are subject to "wear" on the black side during normal handling and use. They can appear scratched, while the sensitive grey or white side remains relatively "smooth". This scratched look on the black side has absolutely no effect on the quality of the image and should be expected under normal conditions. If the phosphor side is scratched make sure the plates are being handled properly and not being dragged from ScanX tray area or other surfaces that could cause scratching of the plate. Make sure to review the Plate Care and Preparation information provided on pages 15 thru 17 of this manual.

SCHEDULED MAINTENANCE

Like all precision products, ScanX requires a certain amount of care on a regularly scheduled basis. A well-organized maintenance program aids dependable equipment operation and reduces problems to a minimum. Routine checks help to detect general overall wear, and replacement of parts can often be made before a problem occurs. Adherence to the maintenance schedule will ensure that ScanX will continue performing at its best with uninterrupted service.

Understanding this, we have established two basic maintenance kits that will help insure continuous operation of the device. The kits and their associated parts number along with the recommended performance schedule are listed below.

> **IMPORTANT:** All service requiring access to the interior of the ScanX unit must be performed only by an authorized dealer service technician with the proper training.

Service Requirement	Schedule	Kit Part No.
Replace transport drive belts and springs	2 years	B7920
Replace complete transport belt drive belt assembly	4 years	B7434

	Trouble	Possible Cause	Corrective Action
1	No power - POWER switch not lit.	• Power line cord and or power supply adapter not plugged in. • No power at Mains Outlet • Defective power supply	• Check that both the line cord and power supply are correctly connected. • Make sure outlet is grounded and has power. • Call your authorized dealer.
2	Blue, Amber or Green indicator does not light.	• Defective light or circuitry.	• Call your authorized dealer.
3	Imaging Software does not recognize ScanX when selected.	• Inadequate Computer System. • ScanX has not been turned on. • The computer connection cable is loose or defective. • The computer does not recognize that ScanX is connected. • ScanX hardware problem.	• Verify Computer System requirements (Page 10). • Make sure that the POWER and ERASER Status LED Indicators illuminate blue. • Reconnect the cable. Check for tightness. Replace if necessary. • Verify that the Setup program was correctly installed (Page 12). • Call your authorized dealer.
4	Plate does not scan properly.	• The PSP was not pushed far enough into the ScanX. • Worn transport belt or belt driver.	• Check the plate edges and fully feed the PSP into the ScanX. • Call your authorized dealer to replace defective transport belt or belt driver.
5	No image appears after scanning. **Important:** Do not allow the PSP to be exposed to light between X-ray taking and scanning with the ScanX.	• The PSP fed backwards (printed side towards ScanX). • The PSP was erased prior to scanning. • X-ray source failed or low exposure. • Hardware failure.	• Quickly re-feed the plate with the printed side out. If a substandard image results, retake image. • Feed the PSPs into the scanner immediately and quickly after removal from the cassette. • Call your authorized dealer. • Call your authorized dealer.
6	Image is too dark.	• PSP has been overexposed	• Use software to adjust brightness. If this is not possible, retake image with proper (lower) exposure and a newly erased PSP. • Make sure intensifying screens are removed.
7	Image appears skewed on monitor.	• PSP was fed skewed. **Note:** Make sure to feed Size 2 plates with the wide edge into the plate guide and short edges on the vertical sides. • Worn transport belt or belt driver.	• When inserting PSP into feed slot, be sure to "feel" for resistance of light seal brush, align PSP, and then push down uniformly on top edge of PSP. • Call your authorized dealer to replace defective transport belt or belt driver.
8	Image contains ghost images or shadows.	• PSP was not completely erased prior to use. • Imaging Plate was exposed with the back facing the tubehead. • PSP has been stored too long. • Partial erasure of the image due to exposure to light during PSP handling.	• Make sure ScanX is operating with the eraser turned on (blue ERASER LED indicator is lit steadily). • Make sure the plates are inserted properly into the barrier envelope or cassette with the proper orientation to the X-ray source. • Do not store PSPs for more than 24 hours. • Do not leave exposed PSPs in well lit areas. Transfer PSPs from their protective cassettes or envelope to ScanX within one hour of exposure.
9	Image shows artifacts or white or black lines.	• The PSP surface is not clean and has dirt, stains or scratches on it. • ScanX plate transport path may contain an obstruction, debris or dust.	• Clean the PSP with PSP wipes (P/N B8910). • Make sure to handle plates properly. • Do not reuse the PSP if scratched or stained. • Clean transport path using a ScanX Cleaning Sheet (P/N B2010, B2020, B3010 or B3020).

Warranty - ScanX

ScanX is warranted to be free from defects in material and workmanship from the date of installation for a period of 2 years (24 months). ScanX is designed solely for use in a dental office environment and this warranty is not applicable to other applications.

All part and component returns and replacement equipment under warranty require a Return Materials Authorization (RMA). Warranty returns must be received within three months of the RMA issue date. Items returned without an RMA, or included with other products for which an RMA has been issued, may be returned to the customer at the discretion of Air Techniques.

Any item returned under warranty, will be repaired or replaced at our option at no charge provided that our inspection shall indicate it to have been defective. Air Techniques, Inc. is not liable for indirect or consequential damages or loss of any nature in connection with this equipment. Dealer labor, shipping and handling charges are not covered by this warranty.

Warranty credit will not be applied to product returns that exhibit damage due to shipping, misuse, careless handling or repairs by unauthorized service personnel. Credit, or partial credit, will not be issued until product/parts have been received and assessed. Warranty is void if product is installed or serviced by anyone other than authorized Air Techniques dealer service personnel. This warranty is void if ScanX is operated with any covers removed.

This warranty is in lieu of all other warranties expressed or implied. No representative or person is authorized to assume for us any liability in connection with the sale of our equipment.

Warranty - Phosphor Storage Plates
The Air Techniques Phosphor Storage Plates (PSPs) are designed for use with ScanX and will be replaced for a period of 30 days from the date of purchase if defective in manufacturing or packaging.

ONLINE WARRANTY REGISTRATION

Quickly and easily register your new ScanX scanner online. Just have your product model and serial numbers available. Then go to the Air Techniques web site, **www.airtechniques.com**, click the *Warranty Registration* link at the top of the page and complete the registration form. This on-line registration ensures a record for the warranty period and helps us keep you informed of product updates and other valuable information.

ASSISTANCE CONTACT

Air Techniques ScanX systems are designed and manufactured to high standards. They are easy to install and use and typically deliver high-quality performance. If any difficulties are encountered with this product, please contact Air Techniques Technical Support at **+1-800-247-8324**.

For additional information, contact your authorized dealer or visit our web site, **www.airtechniques.com.**

ACCESSORIES

The following lists the ordering number and description for accessory components and consumable items available to use and maintain the ScanX to meet your professional needs. Contact your authorized dealer for information.

Intraoral Phosphor Storage Plates

Size	Order No.	Qty
0	73445-0	2
1	73445-1	2
2	73445-2	4
3	73445-3	2
4	73445-4	1

PSP Cleaning Wipes

• PN B8910, Box of 50

Patented, Easy-Open Barrier Envelopes

Size	Order No.	Qty
0	73248-0	100
1	73248-1	100
2	73248-2	300
2	73248-2K	1000
3	73248-3	100
4	73248-4	50

ScanX Cleaning Sheets

Description	Order No.	Qty
ScanX Classic Sheets	B2010	12
ScanX Classic Sheets	B2020	25
ScanX Intraoral Sheets	B3010	12
ScanX Intraoral Sheets	B3020	25
One re-usable Release Liner is included in each box of Sheets.		
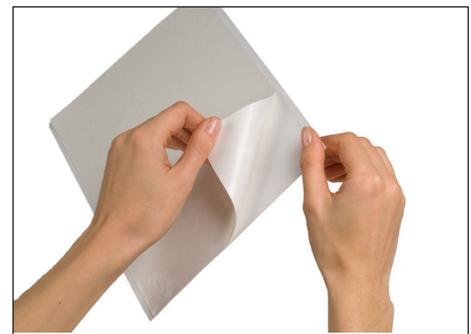
Extraoral Phosphor Storage Plates

Description	Order No.	Qty
Panoramic Size 5 x 12 in.	73578-5	1
Panoramic Size 15 x 30 cm	73578-6	1
Cephalometric Size 8 x 10 in.	73578-8	1
TMJ Size 5 x 7 in.	73578-57	1

REPLACEMENT PARTS

The following lists the ordering number and description of available external parts that can be replaced by the user to keep the ScanX operational. Please note that only a trained dealer technician should perform service that requires replacement of internal parts. Contact your authorized dealer for information.

Description	Quantity	Order Number
24 VDC, 100 Watt, Power Supply Adapter	1	B7495
IEC Power Cord	1	Country Specific
2.0 USB Cable (2m)	1	D5226

Plate Guides

Size	Order No.	Qty
0	73566-0	1
1	73566-1	1
2	73566-2	1
3	73566-3	1
4	73566-4	1

Plate Transfer Box

• PN 73470, Qty. 1

APPENDIX A - X-RAY UNIT SETTINGS

Intraoral X-ray units

The indicated standard values are a recommendation, the dentist determines the individual setting of the exposure values.

A setting of 60 kV is preferred provided it can be set on the X-ray unit.

The standard exposure values for F-speed film (e. g. Kodak Insight) can be used.

The following table shows the standard values for the exposure time and the dose area product of a PSP for an adult patient.

	DC radiator, 7 mA Tube length 20 cm					
	without X-ray field limitation		X-ray field limitation 0.8 x1.2 in² (20 x 30 mm²)		X-ray field limitation 1.2 x 1.6 in² (30 x 40 mm²)	
	60 kV	mGycm²	60 kV	mGycm²	60 kV	mGycm²
Incisor	0.08 s	14.6	0.08 s	3.1	0.08 s	6.2
Premolar	0.12 s	21.9	0.12 s	4.6	0.12 s	9.3
Molar	0.17 s	31.1	0.17 s	6.6	0.17 s	13.2
Bite wing	0.18 s	32.9	0.18 s	7.0	0.18 s	14

	DC radiator, 6 mA Tube length 30 cm					
	without X-ray field limitation		X-ray field limitation 0.8 x1.2 in² (20 x 30 mm²)		X-ray field limitation 1.2 x 1.6 in² (30 x 40 mm²)	
	70 kV	mGycm²	70 kV	mGycm²	70 kV	mGycm²
Incisor	0.13 s	11.8	0.13 s	2.5	0.13 s	5.0
Premolar	0.18 s	16.4	0.18 s	3.4	0.18 s	6.9
Molar	0.25 s	22.8	0.25 s	4.8	0.25 s	9.6
Bite wing	0.27 s	24.6	0.27 s	5.2	0.27 s	10.4

The following table shows the standard values for the exposure time and the dose area product of a PSP for a pediatric patient

Children are more sensitive to radiation than adults Keep the exposure parameters as low as possible taking into consideration the image quality Refer also to the the FDA information on pediatric X-ray imaging
 (refer to the FDA website on this topic, see https://tinyurl com/FDAPediatric)

	without X-ray field limitation		DC radiator, 7 mA Tube length 20 cm X-ray field limitation 0.8 x1.2 in² (20 x 30 mm²)		X-ray field limitation 1.2 x 1.6 in² (30 x 40 mm²)	
	60 kV	mGycm²	60 kV	mGycm²	60 kV	mGycm²
Incisor	0.05 s	9.1	0.05 s	1.9	0.05 s	3.8
Premolar	0.07 s	12.8	0.07 s	2.7	0.07 s	5.4
Molar	0.11 s	20.1	0.11 s	4.2	0.11 s	8.5
Bite wing	0.11 s	20.1	0.11 s	4.2	0.11 s	8.5

	without X-ray field limitation		DC radiator, 6 mA Tube length 30 cm X-ray field limitation 0.8 x1.2 in² (20 x 30 mm²)		X-ray field limitation 1.2 x 1.6 in² (30 x 40 mm²)	
	70 kV	mGycm²	70 kV	mGycm²	70 kV	mGycm²
Incisor	0.08 s	7.3	0.08 s	1.5	0.08 s	3.1
Premolar	0.11 s	10.0	0.11 s	2.1	0.11 s	4.2
Molar	0.14 s	12.8	0.14 s	2.7	0.14 s	5.4
Bite wing	0.14 s	12.8	0.14 s	2.7	0.14 s	5.4

NOTES

For over 50 years, Air Techniques has been a leading innovator and manufacturer of dental products. Our priority is ensuring complete satisfaction by manufacturing reliable products and providing excellent customer and technical support. Whether the need is digital imaging, utility room equipment or merchandise, Air Techniques can provide the solution via our network of authorized professional dealers. Air Techniques' family of quality products for the dental professional include:

❑ **Digital Imaging**
- Digital Radiography
- Intraoral Camera
- Caries Detection Aid
- X-ray Systems
- Film Processors

❑ **Utility Room**
- Dry Vacuums
- Wet Vacuums
- Air Compressors
- Amalgam Separator
- Utility Accessories
- Utility Packages

❑ **Merchandise**
- Imaging Accessories
- Chemistry
- Processor Cleaners
- Surface Disinfectant
- Instrument Cleaner
- Hand Sanitizer & Hand Lotion
- Evacuation System Cleaner
- Waterline Cleaner

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