

SCAN▶X[®] Swift

Digital Imaging System

Instruction Manual



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TECHNIQUES equipped for life[®]

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IMPORTANT INFORMATION

1. General**1.1 General Notes**

- These installation and operating instructions form an integral part of the unit. As such they must be kept close to the unit at all times. Observing the instructions is a precondition for the designated use and the correct operation of the unit. New personnel must be instructed and made aware of the contents of this manual and the document should be passed on to future operating staff.
- The safety for the operator and a trouble-free operation of the unit are only guaranteed by using original parts of the unit. Furthermore, only the accessories described in the installation and operating instructions or approved by Air Techniques for use with this unit may be used. If other accessories are used, Air Techniques can assume no warranty for the safe operation and reliable function of the unit. No claims for damages resulting therefrom will be accepted.
- Air Techniques is responsible for the device from the point of view of safety, reliability and function only when installation, new settings, modifications, expansions and repairs are carried out by Air Techniques or by a service center authorized by Air Techniques, and when the unit is used and operated in accordance with this manual.
- These installation and operating instructions conform to the relevant version of the equipment and the underlying safety standards valid at the time of going to press. All copyrights are reserved for the indicated switches, procedures, names, software programs and units.
- Reprinting of this document, in whole or in part, requires the written approval of Air Techniques.
- The packaging should be retained for possible return of the product to the manufacturer. Ensure that the packaging is kept out of the reach of children. Only the original packaging provides adequate protection during transport of the unit. If the unit has to be returned to the manufacturer during the warranty period, Air Techniques will accept no liability for damage occurring during transport resulting from poor packaging.

1.2 Equipment Disposal.

ScanX Swift Unit. Disposal of units, including internal electronic circuitry and external covers must be done only at 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.

Plates. The plate contains a light sensitive material and therefore must be disposed of as appropriate for special waste. Make sure to dispose of such items in accordance with current federal, national, state and local government rules and regulations.

1.3 Medical Device.

Caution: Federal law restricts this device to sale by or on the order of a dentist. Use of this device, other than as described in this manual, may result in injury.

1.4 Correct Usage.

- ScanX Swift has been solely designed for the optical scanning of image data using phosphor storage plates.
- Correct usage of the appliance involves adhering to the installation and operating instructions concerning set-up, operation and maintenance.
- The operator is liable for any damage arising through incorrect usage.
- Correct usage includes observing all local and national regulations concerning health and safety at work and radiation exposure prevention.
- Usage which is not in accordance with the Correct Usage identified above will lead to the warranties of Air Techniques becoming null and void.

IMPORTANT INFORMATION

1.5 Incorrect Usage.

Any usage of the ScanX Swift that is not described here as correct usage is considered as incorrect usage. The manufacturer is not liable for any damages arising from incorrect usage. The operator bears all risks and liabilities.

1.6 Using Plates and Barrier Envelopes.

- Only use ScanX Swift with Air Techniques plates, barrier envelopes, and barrier film.
- Plates and barrier envelopes from other manufacturers can lead to loss of image data or poor quality images, interference with correct operation and greater wear of the ScanX Swift.

1.7 Using software.

- Only use imaging software that has been authorized by Air Techniques. Further information can be found on our web site **www.airtechniques.com**.
- See Section 7 for the supported operating systems and computer requirements.

2. Safety**2.1 General Safety Notes.**

ScanX Swift 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 Swift **not** in conformance with the instructions specified in this manual may result in permanent failure of the unit.

- When using this device all local and relevant regulations must be observed. The operator is responsible for observing these regulations.
- Converting or modifying ScanX Swift in any way is strictly prohibited. Air Techniques can assume no warranty or liability for modified units.
- Installation must be carried out by a trained authorized technician.
- Before every use the operator must check the functional safety and the condition of the unit.
- The operator must be trained and knowledgeable in the operation of the unit.
- The product is not designed to be used in medical treatment areas where the danger of explosion exists. Such areas include those where flammable anesthetic material and oxygen are present. This unit is not to be used in areas where the environment could cause fire.

2.2 Electrical Safety Instructions.

- The appliance may only be connected to a correctly installed electrical outlet socket.
- Before connecting to the electrical outlet, the appliance must be inspected and checked that the supply voltage and the supply frequency correspond to that of the local electrical supply.
- Before initial use and start-up, the device and power supply adapter must be checked for any signs of damage. Damaged parts must be replaced immediately.
- Never come into contact with patients and open plug-in connections on the appliance at the same time.
- When using the ScanX Swift, observe all the relevant electrical safety procedures.

IMPORTANT INFORMATION

3. Warnings and Symbols

3.1 Instruction Manual.

The following warnings and symbols have been used throughout this manual.



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



Alerts users to special instructions and useful notes concerning device usage.



Unplug power supply adapter to remove all power!



ON / OFF button



Only use once (disposable item)



Wear protective gloves

3.2 ScanX Swift.

The model identification plate can be found on the rear of the ScanX Swift. The following terminology and/ or symbols are used in conjunction with this appliance, model identification plate and power unit:



Warning dangerous voltage.



Date of manufacturer

REF
SN

Model No.
Serial No.



Class 2 Power supply adapter



Laser beam class 3B when covers are removed



Alerts user to electrostatic sensitive devices



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

This warning label identifies the ScanX Swift 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



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



The use of equipment and components not complying with the equivalent safety requirements of those specifically listed under accessories may lead to a reduced level of safety of the system.

4. Delivery Contents

4.1 System Components.

ScanX Swift consists of the indicated main assembly and accessory kit as listed below:

Delivered System Components

Main ScanX Swift Assembly

Size #2 Inlet Guide

Accessory Kit containing:

24 VDC Power Supply Adapter

6-Foot 2.0 USB Cable

Size #2 Phosphor Storage Plates (quantity 6)

Size #0 Phosphor Storage Plates (quantity 2)

Size #2 Barrier Envelopes (Box of 300)

Size #0 Barrier Envelopes (Box of 100)

Size #0 Inlet Guide

Barrier Film (Roll of 900 sheets)

ScanX Swift Quick Start Guide

User Information Folder containing:

CD Disk containing Drivers, Utilities and Instruction Manual

Sample Cleaning Sheet

PSP Cleaning Wipe Sample Pack

4.2 Unpacking and Inspection.

Unpack each component of ScanX Swift 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 Swift in the event that it is to be transported or shipped in the future. ScanX Swift consists of the main assembly and accessory kit as listed above. Verify that all listed items were received. If any item is missing, notify your dealer.

IMPORTANT INFORMATION

5. Functional System Description

ScanX Swift 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. These wireless flexible sensors are durable and reusable thousands of times when properly handled. Upon exposure to X-rays, the plate stores a latent image, which is scanned by the ScanX Swift. 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 Swift includes a patented in-line erase function that removes the latent image 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.



Figure 5 -1.
ScanX Swift Digital Imaging System

6. Functional Layout

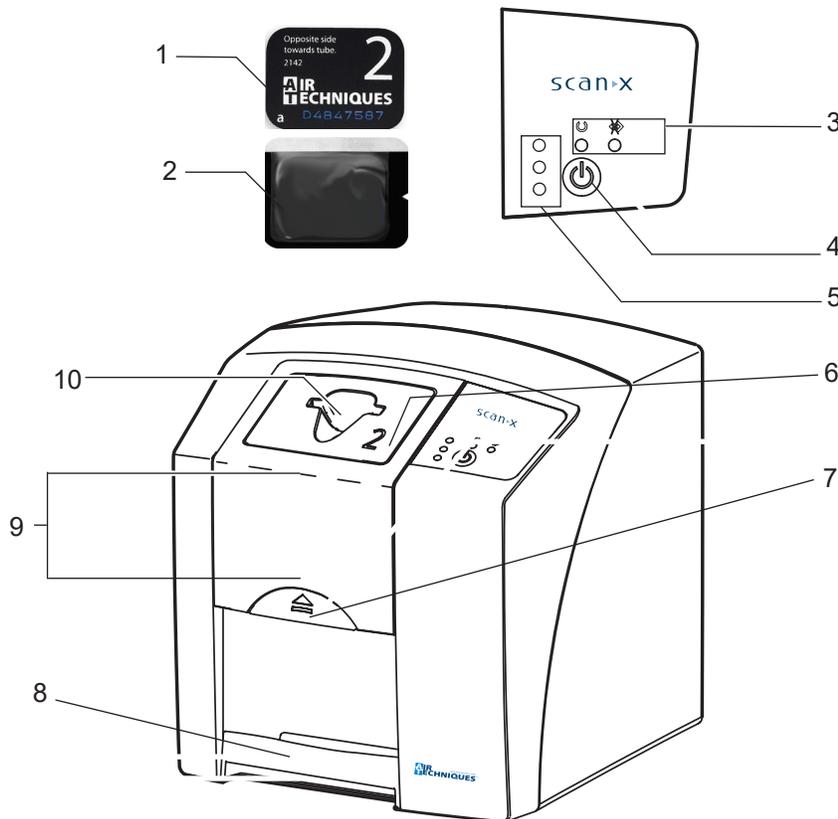


Figure 6 -1. ScanX Swift Controls and Indicators

IMPORTANT INFORMATION**6.1 Controls and Indicators.**

| | | |
|-----|---|--|
| 1. | Plate | The plate serves as the exposure medium for X-rays and stores the image data. |
| 2. | Barrier envelopes | Barrier envelopes protect the patient from infection by contaminated plates. Reduces the risk of damage to the plate in the patient's mouth. Protects the plate from contamination and dirt. Prevents image data on the plate from being erased. |
| 3. | Operational LED indicators  Green LED  Blue LED | General information concerning the operating state of the device is displayed. Indicates unit is ready for operation when illuminated green. Indicates data communication not in process when illuminated bright blue. The unit is idle - no communication with software. |
| 4. | On / Off button  Switch on: Switch off: | Operating power control switch Press the On / Off button. Press the On / Off button for 2 seconds. ScanX Swift shuts down, the green and blue LEDs blink alternately. |
| 5. | Status LED indicators Red LED: Yellow LED: Green LED: | Displays information on status of plate transport. Fault System busy processing a plate. Plate scanning may be started. |
| 6. | Inlet guide | Size #0 and Size #2 Inlet Guides are provided with unit. Used for proper input alignment of corresponding plates to be processed. The Size #0 guide accepts Size #0 PSPs. The Size #2 guide accepts both Size #1 and Size #2 plates. |
| 7. | Inlet guide lock | Unlocks the guide for removal from unit for cleaning and disinfection or to change to a different guide allowing ScanX Swift to accept different size PSPs. |
| 8. | Plate Outlet Pad | After scanning and erasure, plates fall into the detachable plate outlet pad. |
| 9. | Interior image transport | Inside the unit the plates are transported through the film scanning and film erasure units. |
| 10. | Intake slot | The plate is inserted into the plate transport and into the device. |

IMPORTANT INFORMATION**7. Computer System Requirements**

ScanX Swift must be connected to a compliant Computer System supplied by the customer. Optional Imaging Software (PACS) can be used for enhanced features.

Smooth operation of Air Techniques hardware and software can be affected through specific hardware and software incompatibility on site at the client despite meeting system requirements. In this case, Air Techniques cannot guarantee smooth and trouble-free operation of the Air Techniques hardware and software.

Where further systems are connected to the PC please note that this may change the system requirements. Observe the system requirements for all connected systems.

7.1 Computer System Required Components

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

| | |
|----------------------------|--|
| Operating System: | 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. |
| CPU/Speed: | Pentium-4, 1.4 GHz or faster required. |
| USB Port/Version: | USB 2.0 or later |
| Hard Drive: | 2 GB (1 GB available disk space required to start scanning.) |
| System RAM: | 1 GB |
| Image Management Software: | Compatible authorized third-party software (not included with product). |
| Optical Drive: | Device capable of reading a CD-ROM required |

7.2 Recommended Components

The items listed below are recommended (but not required) computer system components to aide in ScanX Swift operation

| | |
|------------------------|---|
| Monitor | SVGA 24", 1280 x 1024 or higher resolution, contrast ratio 10,000:1, .22 dot pitch |
| Video Display Adapter: | 32 MB RAM |
| Peripherals: | Standard Keyboard & Mouse Backup Device External Surge Protector Power supply backup |



Only suitably qualified personnel should set up, install or operate ScanX Swift.



Damage through shock.
During operation and the switching off process (blue and green operational LEDs blinking alternately) ensure that the unit is not moved in any way whatsoever, as the moving parts must be allowed to stop moving completely.

8. Setup

8.1 Room for Set-up.

- ScanX Swift should be set up in a closed, dry and well-ventilated room.
- Room temperature should not fall below 50°F (+10°C) or exceed 95°F (+35°C).



Danger of short circuit due to condensation.
ScanX Swift can only be put into operation once the unit has warmed up to room temperature and is dry.

- Do not install in a utility room, e.g. in a boiler room or in a wet room.
- Set up in ordinary room light. Avoid direct sunlight and bright interior lighting (more than 800 lux) directly above the inlet guide.
- There must be no source of interference in the room for set-up (e.g. strong magnetic field). Any such disturbances can interfere with the operation of the ScanX Swift.



In order to avoid problems when scanning the image data, ScanX Swift should be set up so that will not be subject to knocks, vibration or similar.

8.2 Counter Top/Table Set-up.

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

- Provide a stable, flat counter top large enough to hold the scanner.
- Locate the computer within 6 feet (length of USB cord provided).
- Locate ScanX Swift no further than 6 feet from an AC outlet.
- Make sure to leave the socket outlet easily accessible, so that the unit may be unplugged if necessary. The power supply adapter is the Mains disconnect device.

8.3 Monitor.

Monitors designed for digital X-ray processes with a higher light intensity and broad contrast range should be used. Strong room lighting, direct sunlight and reflections all serve to reduce the diagnostic capabilities of the X-ray exposures.

INSTALLATION



ScanX Swift 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 Swift.

9. Software Installation

Before connecting ScanX Swift 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 software necessary to integrate ScanX Swift with your imaging software. If the startup screen does not appear, double-click **My Computer**, double-click the **CD** drive and then double-click **Autorun.exe**.

10. ScanX Swift Connection Procedure

Refer to Figures 10-1 thru 10-3 and perform the following procedure to connect ScanX Swift for operation to a computer for the first time.

1. Select a location that meets the **Setup** guidelines.
2. Make sure that the computer meets all requirements (see Section 7) necessary to support ScanX Swift 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 ScanX Swift to the computer and power as follows.
 - a. Refer to Figure 10-1 and remove the cover on the rear side of ScanX Swift.
 - b. Connect the high speed USB cable between the USB Type B connector located on ScanX Swift rear panel and the USB Type A connector located on the computer.
 - c. As shown by Figure 10-2, make sure that the adapter connector is properly installed. Install the connector if necessary.

Note: Connect the 24V Power Supply Adapter to ScanX Swift prior to plugging it into the Mains outlet.

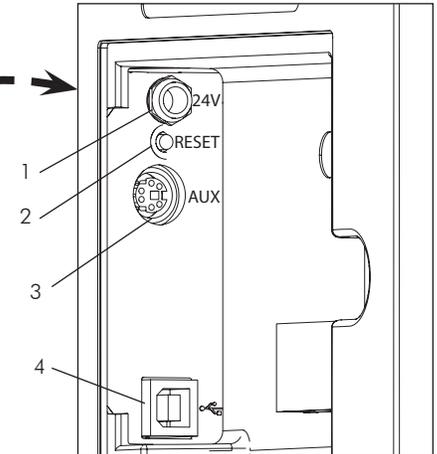
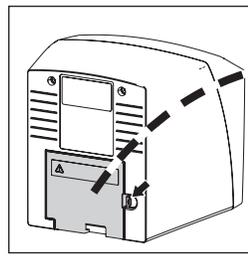
- d. Connect the 24V Power Supply Adapter Output Connection Cable to the Inlet Power Jack located on ScanX Swift rear panel
- e. Secure the cable using a cable clip as shown by Figure 10-3.
- f. Connect the 24V Power Supply Adapter to the Mains outlet. The scanner is now in the Standby mode.

Note: The rear side cover must be correctly fitted when operating ScanX Swift.

- g. Replace and secure the rear cover making sure that it is correctly fitted.
5. Switch ScanX Swift from standby to ON by pressing the push button ON/OFF button (⏻) located on the Control Panel on the front of the scanner. Verify that both the blue communication LED and then the green READY LED illuminate.
 6. With both ScanX Swift and computer turned on, Windows detects ScanX Swift as a new USB Device and the Found New Hardware Wizard will appear. Windows should automatically find the drivers installed from ScanX Swift Drivers and Utilities Disk.
 7. Run the configuration program.

INSTALLATION

1. **24V - Connection** - The 24V connection provides the power to operate ScanX Swift.
2. **Reset Button** - Pressing and holding the Reset button for 15 - 20 seconds while switching on returns all settings of the unit to the original factory settings.
3. **AUX Connection** - The AUX connection is used for diagnosis purposes by our Service Technician.
4. **USB - Connection** - USB Type A connector that allows connection of a computer. ScanX Swift can not operate using USB 1.1. Use USB 2.0 or higher.



IMPORTANT:
Must use USB 2.0 or higher.
Unit can not be operated
using USB 1.1.

Figure 10-1. ScanX Swift Rear Panel Connection Ports

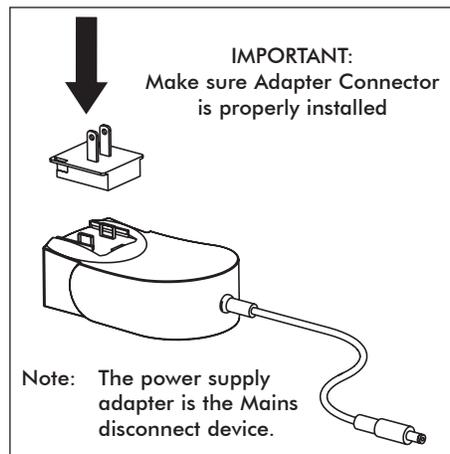


Figure 10-2. ScanX Swift Swift Adapter Connector

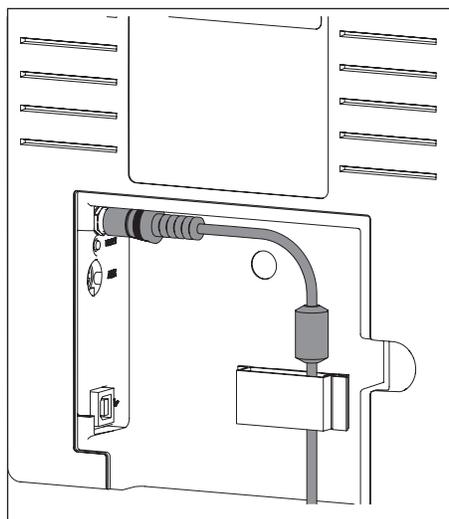


Figure 10-3. Power Cable Secured with Cable Clip

OPERATION**11. Barrier Envelope****11.1 Barrier Envelope Use.**

- Protect the plate from contamination and dirt.
- Protect the plates from stray light.
- Available in different sizes just like plates. Select appropriate size (Size #0, #1 or #2).

**WARNING**

Danger of cross contamination when not using the barrier envelope or when using the barrier envelope more than once.

- Do not use a plate without a barrier envelope.
- Do not use the barrier envelope more than once

**CAUTION**

Loss of image information and functional interference on using the incorrect barrier envelopes

- Only use Air Techniques plates and envelopes.



Figure 11-1.
Typical Air Techniques
Barrier Envelope

11.2 Barrier Envelope Handling.

Always guard against contamination by using standard infection 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.

12. Plates**12.1 General.****CAUTION**

Loss of image information and functional interference on using the incorrect plates.

- Only use Air Techniques Plates.

ScanX Swift is operated in combination with Air Techniques plates in size #0, #1 and #2. (See 4.1 System Components and 19.4 Intraoral Phosphor Storage Plates.) Each size of plate requires the matching barrier envelope. Exposure of the plate must always be carried out on the active side:

Active side:

- The active side is light blue. This side is also marked with an “a” positioning guide.

Inactive side:

- The inactive side is black. This is printed with the size and manufacturer’s information. Furthermore, in one corner there is an “a”; this replaces the slight indentation found on conventional X-ray film. This positioning guide should always be set in the direction of the occlusal plane to allow easier orientation of the resulting X-ray image.

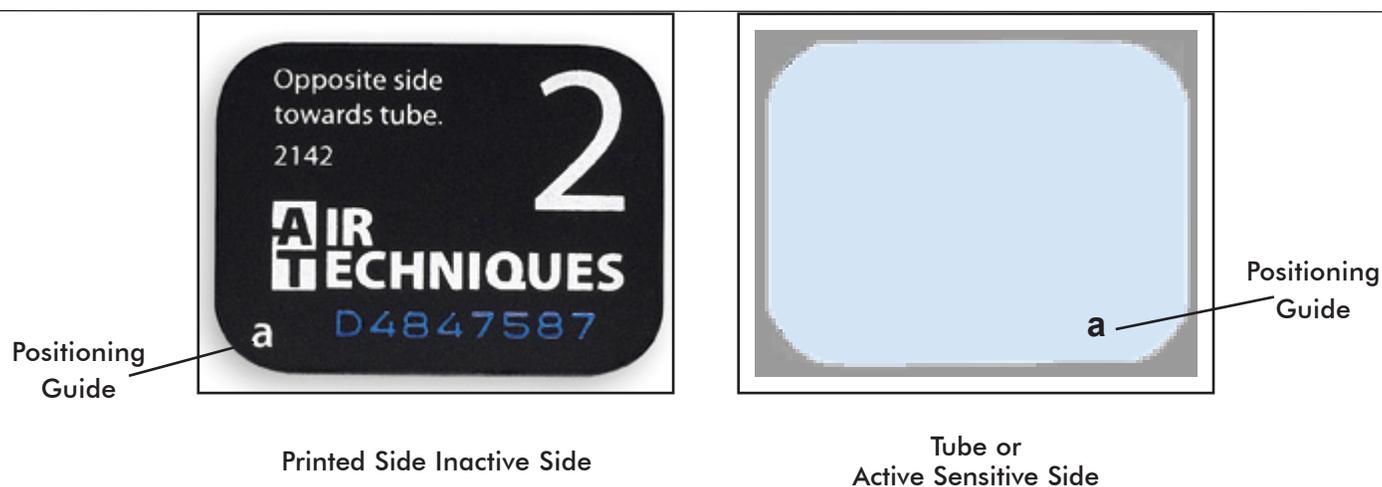


Figure 12-1. Typical Air Techniques Size #2 Plate Configuration

12.2 Working with Plates.

Plates must be visibly checked for signs of damage. Damaged plates (e.g. a torn outer layer, or visible scratches, which will affect the diagnostic quality) must be replaced.

- Plates are flexible like X-ray film.
- Do not bend or subject to pressure.
- Do not scratch or get dirty.
- Do not put in an autoclave.

12.3 Storing Plates.

- Store plates in a dark place.
- Do not store in hot or moist conditions.
- Store intraoral plates in a barrier envelope of the appropriate size.
- If a plate is stored for longer than 24 hours, then it should be erased again before the next X-ray exposure. See section 13.8.
- Protect from direct sunlight and ultraviolet beams.
- If stored in the X-ray room itself then the plates must be protected from pre-exposure caused by scattered X-ray radiation.

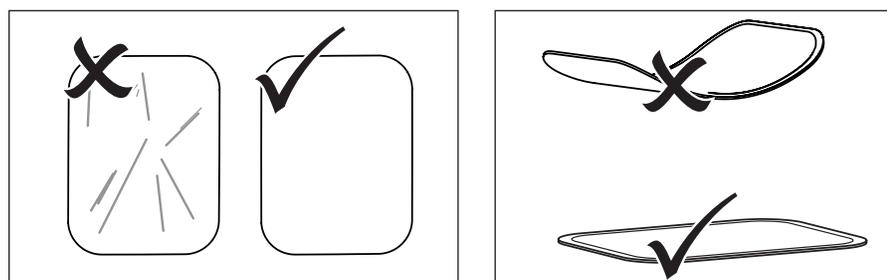


Figure 12-2. Plate Handling

OPERATION

12.4 Cleaning Phosphor Storage Plates.

For the best images, plates should be handled carefully and kept clean. Use specially formulated PSP Cleaning Wipes (P/N B8910) to clean all plates. 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:

1. As shown by Figure 12-3, 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.

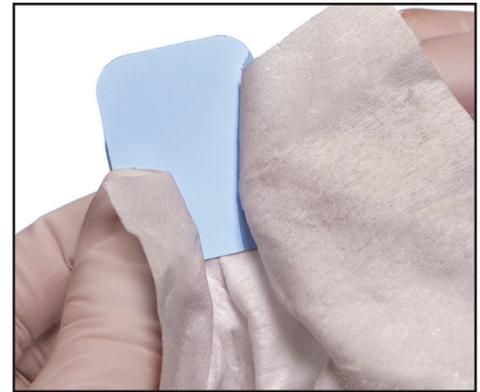


Figure 12-3. PSP Cleaning



Plate must not be put in an autoclave.

Always use standard infection control procedures when handling devices that contact the patient.

12.5 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.

12.6 Disposal of Phosphor Storage Plates.

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



The Barrier Envelope must be used only once and disposed of properly in accordance with local code.

12.7 Preparing Intraoral Plates for Patient Use.

Insert the erased plate 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. See Figure 12-4.



View A.
Insert the Plate.



View B.
Peel off the adhesive strip.



View C.
Seal the Barrier Envelope.

Figure 12-4. Sealing the Plate in the Barrier Envelope

- Note:** 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. “ε”), 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.

12.8 Take an X-ray Image.

Put an image on the PSP by performing the following procedure.

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.

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

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).



CAUTION

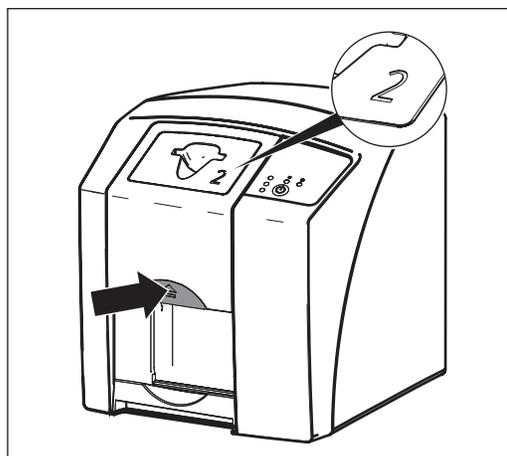
Loss of image information and damage to the device can occur if using the incorrect inlet guide.

- Always use the correct size of inlet guide for the plate being used.
- Before each scanning phase compare the size of plate with the markings on the inlet guide.

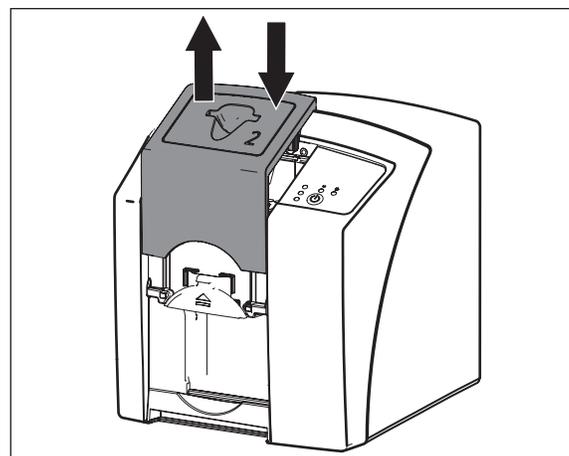
13. Plate Scanning with Swift

13.1 Changing the Inlet Guide.

- ScanX Swift can be used to scan plates Size #0, Size #1 and Size #2.
- Each size of plate requires the matching size inlet guide. Size #0 guide accepts Size #0 PSPs while Size #2 guide accepts both Size #1 and Size #2 plates.
- The size of the plate is clearly marked on the inlet guide.
- Press the locking catch and lift and remove the inlet guide at the same time.
- Place the inlet guide into position from above and slide down until it latches into place.



View A. Unlock Catch .



View B. Lift and remove the inlet guide.

Figure 13-1. Changing the inlet guide

OPERATION

13.2 Scanner Start Up.

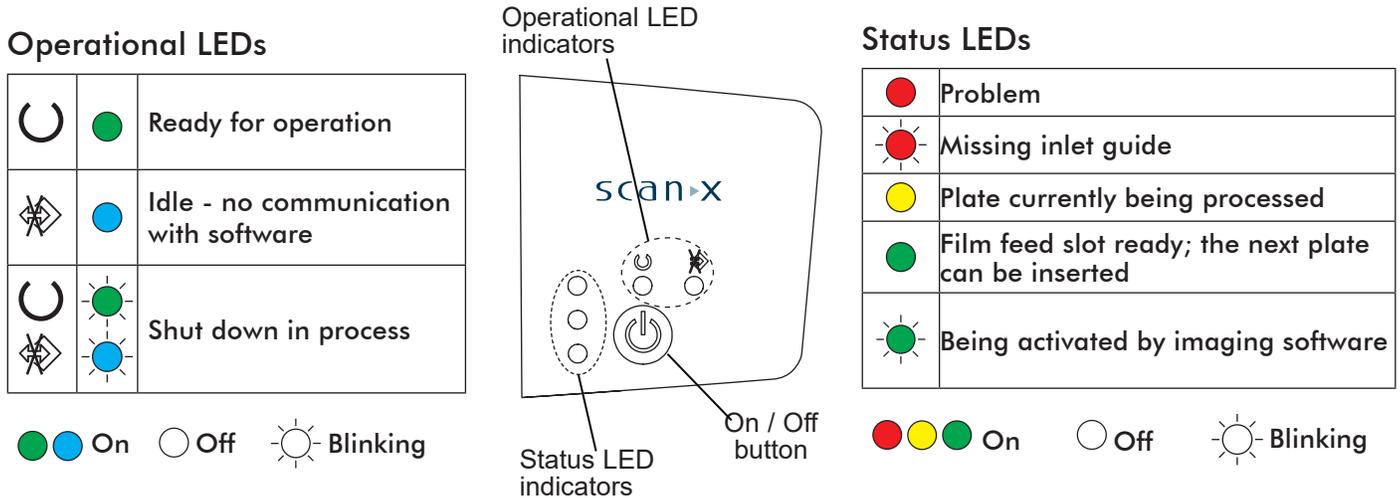
- Switch on PC and monitor.
- Switch on the ScanX Swift at the On/Off switch.

i After switching the unit on the ScanX Swift needs to go through initialization. Ready for operation mode is shown by the green Ready LED being lit.

- Start software.
- Select the correct patient.
- Set desired resolution.
- Ready LED and status LED are both green.

i The green Status LED blinks while the ScanX Swift is being activated by imaging software. As soon as the unit is ready for use, the Status LED lights solid green.

When the On/Off switch is pressed for 2 seconds then the unit shuts down. There may be a slight delay (green and blue LEDs blink alternately). The unit will shut down completely. Do not move the scanner during this phase.



13.3 Scanner Plate Processing Options.

Using the ScanX Swift, the user has the option to perform single plate processing or batch processing depending on their needs. The difference between the two processing procedures is mainly how the plates are handled. Refer to paragraphs 13.4 and 13.5 to perform single plate processing. Paragraphs 13.6 and 13.7 provide the batch processing procedures.



Contamination of the ScanX Swift

Use a new Barrier Film for each patient.

13.4 Single Plate Processing Scanner Preparation

Apply a barrier film to the ScanX Swift input guide making sure to align the opening in the film center with the slot of the inlet guide. See Figure 13-2.

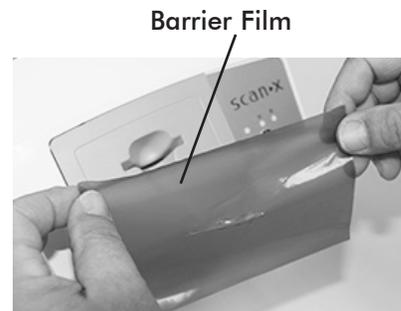


Figure 13-2.
Applying barrier film



Loss of image data

Image data on the plate will be lost when exposed to light. Transfer the PSP from the Barrier Envelope to the Plate Guide slot quickly. Always keep the sensitive side away from any light source to minimize image loss.



Make sure that the user-supplied imaging software is set to scan, the green control LED on the scanner is lit and the Swift Barrier Film is applied

13.5 Feeding Single Plates.

Refer to Figure 13-3 and process a single plate as follows.

1. Disinfect and Dry the Barrier Envelope (with plate still inside).
2. Hold the plate above the inlet guide with the printed side facing you and the notch of the envelope on the bottom as shown.
3. Tear the envelope lengthwise starting at the bottom notch while lowering the plate into the inlet guide.
4. Press the plate all the way down until the unit takes over and moves the plate on its own.
5. Remove and discard the envelope. The plate will drop into the bottom outlet pad when processing is completed.
6. View and save each scanned image using the user-supplied imaging software.



View A



View B



View C



View D

Figure 13-3. Single Plate Feeding and Scanning

OPERATION

Use of the optional Transfer Storage Box is recommended to protect data loss when performing batch processing.

13.6 Preparing Multiple Exposed Plates for Batch Scanner Processing.

Use the optional Transfer Storage Box when performing batch processing. Keep the exposed plate away from light once removed from the barrier envelope. Always keep the sensitive side away from any light source to minimize image loss.

1. Disinfect the Barrier Envelope (with plate still inside) 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.

IMPORTANT: When using optional transfer box, be sure that the sensitive side of the PSP is facing down as it lands on the in the box (See Figure 13-4, View C). If the plate is not sensitive side down, **TURN IT OVER IMMEDIATELY**. Failure to do so may result in erasure of the PSP.

3. Lay the box on a flat surface near the ScanX Swift as shown by Figure 13-4, View A.
4. As shown by Figure 13-4, View B, 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 an inch above the Transfer Storage Box or some other container or cover.
 - b. Tear the envelope lengthwise starting at the notch to eject the PSP onto the box or surface.
5. As shown by Figure 13-4, View C, the PSP is now ready to be scanned to read the image from the PSP by performing scanning procedures.



View A Empty Transfer box



View B
Ejecting PSP to Transfer box



View C PSPs ready for Scanning

Figure 13-4. Preparing the Exposed Plate for Scanning

**Loss of Image Data**

Image data on the plate will be lost when exposed to light. Transfer the PSP from the transfer box to the inlet guide slot quickly. Always keep the sensitive side away from any light source to minimize image loss.

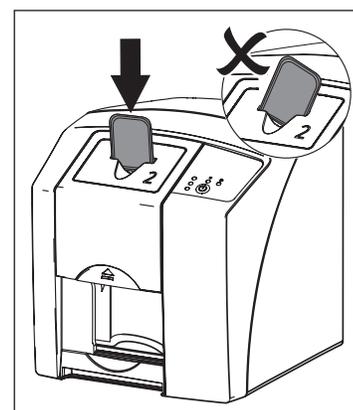


Make sure that the user-supplied imaging software is set to scan and the green control LED on the scanner is lit .

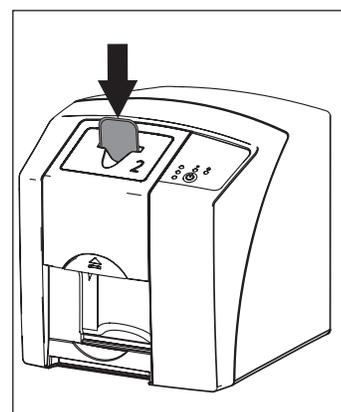
13.7 Scanning Multiple Plates.

Refer to Figure 13-5 and scan and erase a plate as follows.

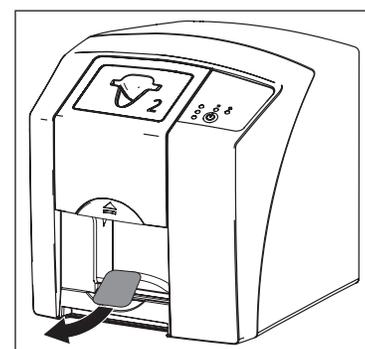
1. Carefully open the Plate Transfer Box.
2. Grasp a plate by the edges between the thumb and index finger.
3. With the printed side facing you, carefully and quickly insert the plate into the plate guide slot as far as possible as shown by View A.
4. Immediately press the plate all the way down until the transport mechanism takes over and moves it on its own as shown by View B.
5. Observe that the plate drops into the outlet pad at the bottom of the scanner as shown by View C.
6. Repeat steps 1 through 5 to process additional plates as necessary.
7. 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.
8. View and save each scanned image using the user-supplied imaging software.



View A



View B



View C

13.8 Erasing the Image Data.

After scanning the plate passes automatically through the erasure unit. Image data still held on the plate will be erased. Afterwards the plate falls into the outlet pad.

Special Erase Mode. The plate must be erased again if:

- The plate has been stored and not used for longer than 24 hours.
- The data on the plate has not been (completely) erased due to a malfunction of the ScanX Swift.



The special Erase mode enables the erasure unit in ScanX Swift to be activated alone. No image data will be transmitted to the software.

To Erase Again:

Choose the special Erase mode in the software and feed the plate.

Figure 13-5.
Plate Feeding and Scanning

OPERATION**14. Disinfection and Cleaning**

Only use disinfection and cleaning agents specifically approved or manufactured by Air Techniques. Other cleaning agents and disinfectants could damage the ScanX Swift and its accessories.

**Damage to ScanX Swift:**

Do not spray disinfection or cleaning solutions on ScanX Swift.
Do not allow fluids to enter the unit.

Where the surfaces of the appliance show signs of contamination or visible dirt, clean and disinfect the unit.

- Switch ScanX Swift off by pressing the ON/OFF switch for 2 seconds.
Wait until the unit has run through the off cycle and has completely shut down.
- Clean the outside of ScanX Swift, dust cover and transfer box using a damp cloth, and then use a disinfection wipe.
- Unlock the inlet guide by pressing the locking catch and lift the inlet guide upwards at the same time and remove.

**Damage to ScanX Swift**

No ScanX Swift parts should ever be disinfected using a thermal disinfection unit or with an autoclave. The plastic parts will be destroyed by the heat!

- Internal parts can be cleaned using a damp cloth, and then disinfected using a disinfection wipe.
- Install the inlet guide.

15. Maintenance**15.1 Yearly Scheduled Maintenance.**

Like all precision products, the ScanX Swift 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. Yearly service carried out by an Air Techniques trained and certified technician will ensure continued uninterrupted operation. These routine checks help to detect general overall wear, and replacement of parts can often be made before a problem occurs.

15.2 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 blue 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 Swift outlet pad area or other surfaces that could cause scratching of the plate. Make sure to review the information about plates provided in section 12 of this manual.

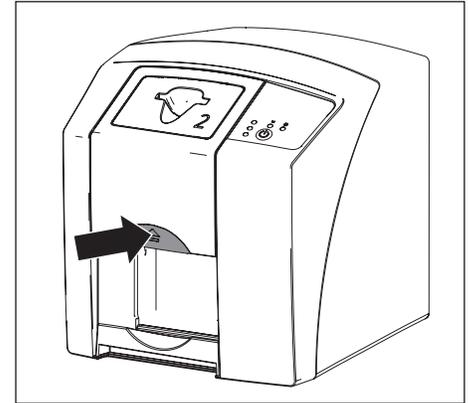


Figure 14-1
Entry and Exit Cleaning

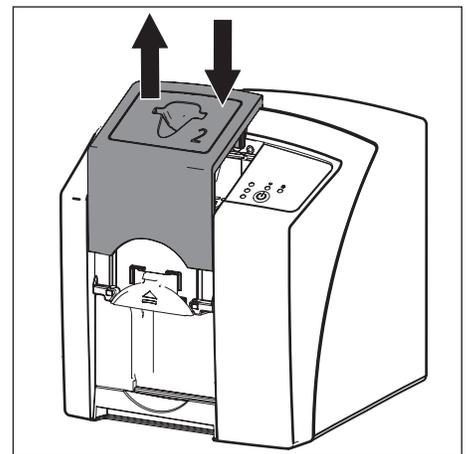


Figure 14-2
Inlet Guide Cleaning

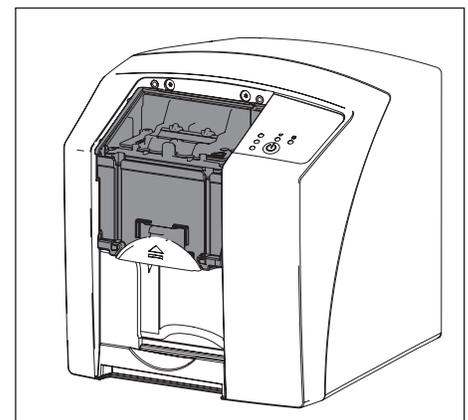


Figure 14-3.
Area to clean with Inlet Guide off

16. Technical Data

16.1 Power Unit Electrical Details

| | |
|--|-----------|
| Voltage (VAC) | 100 - 240 |
| Maximum fluctuation in rated voltage (%) | +/- 10 |
| Frequency (Hz) | 50/60 |
| Maximum Current (A) | 0.8 |

Electrical data ScanX Swift

| | |
|--|--------|
| Voltage (VDC) | 24 |
| Maximum fluctuation in rated current (%) | +/- 10 |
| Maximum Current (A) | 1.25 |
| Power consumption (W) | <30 |

Duty cycle

| | |
|--------------------|----|
| S2 (min) | 25 |
| S6 (%) | 25 |

ScanX Swift Physical Characteristics

| Dimensions | Height | Depth | Width |
|--------------------------------|----------------------|----------------------|----------------------|
| | 9.2 inches (23.4 cm) | 9.6 inches (24.4 cm) | 8.9 inches (22.6 cm) |
| Weight (approximate) | 14.5 lbs. (6.5 kg) | | |

Noise levels

| | |
|----------------------------|-----|
| Ready (db(A)) | <40 |
| Scanning (db(A)) | <60 |

General values

| | |
|---|----------------------|
| Medical appliance category | 1 |
| Laser protection class | 1 (IEC 60825-1:2007) |
| Wavelength | 635 nm10 mW |
| Heat radiation | <40 W |
| Pixel size can be selected from range | .21 to 50 μ m |
| Maximum Resolution (depending on plate) horizontal/vertical | 13/20 Lp/mm |

Conformity Acceptance Procedure

| | |
|--|-----------|
| Medical device | 93/42/EEC |
| Barrier envelope Medical device classification | I |
| Plate Medical device classification | IIa |

EMC

| | |
|---|---|
| Conducted HF - disturbance V_1 according to IEC 61000-4-6 (V_{eff}) | 3 |
| Radiated HF - disturbance V_1 according to IEC 61000-4-3 (V_{eff}) | 4 |

16.2 Ambient Conditions

Operation:

| | | |
|-----------------------|-------------------------|---------------|
| Temperature | 50 to 95° F | +10 to +35 °C |
| Air pressure. | 22 - 31 in Hg | 750 - 1060 mB |
| Altitude. | <6562 ft. | <2000 m |
| Humidity. | 20 to 80 % | |

Storage and Transport

| | | |
|------------------------|-------------------------|---------------|
| Temperature | -4 to 140° F. | -20 to +60 °C |
| Air pressure | 22 - 31 in Hg | 750 - 1060 mB |
| Altitude | <52493 ft. | <16000 m |
| Humidity. | 10 to 95 % | |

TROUBLESHOOTING**17. Troubleshooting**

Repair work, above and beyond the standard maintenance, should only be performed by qualified technicians or our service technicians.

| Problem | Probable cause | Solution |
|--|---|--|
| 1. ScanX Swift does not switch on | <ul style="list-style-type: none"> • No power to unit • On/Off switch defective | <ul style="list-style-type: none"> • Check the power supply adapter and associated connections • Check the main fuse box to building • Inform your Service Technician |
| 2. ScanX Swift quickly switches off again | <ul style="list-style-type: none"> • Mains cable or one of the plugs has not been inserted correctly • Mains supply voltage too low • Hardware defective | <ul style="list-style-type: none"> • Check the mains cable and all connections • Check the supply voltage • Inform your Service Technician |
| 3. Status or operation LED does not light up | <ul style="list-style-type: none"> • LED defective | <ul style="list-style-type: none"> • Inform your Service Technician |
| 4. Loud noises during operation after switching on | <ul style="list-style-type: none"> • If the noises persist longer than 30 seconds, then the motor is defective | <ul style="list-style-type: none"> • Inform your Service Technician |
| 5. Image editing software does not recognise ScanX Swift | <ul style="list-style-type: none"> • ScanX Swift not switched on • Connecting cable between ScanX Swift and PC loose • PC does not register connection to ScanX Swift • Hardware fault | <ul style="list-style-type: none"> • Switch on ScanX Swift • Check the USB cable • USB-driver not installed or inactive • Check the USB cable • Inform your Service Technician |
| 6. ScanX Swift does not react | <ul style="list-style-type: none"> • ScanX Swift has not completed start procedure | <ul style="list-style-type: none"> • Appliance needs 20-30 seconds to completely switch on. Try again when Ready LED illuminates Green. |
| 7. X-ray image does not appear on the monitor after scanning | <ul style="list-style-type: none"> • Plate has been fed backwards and the inactive side scanned • Image data on the plate has been erased, e.g. by ambient light • No image data on the plate • X-ray device is faulty • Problem with the hardware | <ul style="list-style-type: none"> • Re-scan the plate as quickly as possible • Image data on the plate must be scanned as quickly as possible after extraction • Expose plate. • Inform your Service Technician • Inform your Service Technician |
| 8. X-ray too dark / light | <ul style="list-style-type: none"> • Incorrect brightness/ contrast setting in the software • Exposed plate subject to effects of ambient light • X-ray dose is too low or high | <ul style="list-style-type: none"> • Set brightness of radiograph using software. • Use barrier envelope or transfer box to keep plate shielded from ambient light until scanning. • Check X-ray parameters |

TROUBLESHOOTING

| Problem | Probable cause | Solution |
|--|---|---|
| 9. Image presented as mirror image | <ul style="list-style-type: none"> • Plate incorrectly placed in barrier envelope • The plate was placed in the mouth of the patient the wrong way round | <ul style="list-style-type: none"> • Place plate correctly. The black side (printed) of the plate must be visible through the transparent side of the barrier envelope. • The blue sensitive side of the plate must be facing toward the tube. |
| 10. Ghost images and shadows on the X-ray exposure | <ul style="list-style-type: none"> • Image data on the plate has not been sufficiently erased • Exposed plate subject to effects of ambient light | <ul style="list-style-type: none"> • Check the erasure settings • Inform your Service Technician • Replace the Erasure unit • Use barrier envelope or transfer box to keep plate shielded from ambient light until scanning. |
| 11. No image or faint image | <ul style="list-style-type: none"> • The X-ray dose used for the plate was too low • Amplification level too low (HV-value) • Wrong scanning mode used • Threshold setting too high • Plate exposed to ambient light | <ul style="list-style-type: none"> • Check X-ray parameters • Increase the amplification (HV-value) • Choose a suitable scanning mode • Reduce the settings • Use barrier envelope or transfer box to keep plate shielded from ambient light until scanning. |
| 12. Plate does not fit into the intake slot | <ul style="list-style-type: none"> • Incorrect inlet guide (too small) • Different manufacturer PSP | <ul style="list-style-type: none"> • Use Size #0 inlet guide for Size #0 plates. Use Size #2 inlet guide for Size #1 and #2 plates. • Only use Air Techniques plates. |
| 13. X-ray exposure has stripes on image | <ul style="list-style-type: none"> • Plate has been exposed • Part of the plate was exposed to light during handling • Exposed plate subject to effects of ambient light • Plate was dirty or scratched | <ul style="list-style-type: none"> • Only use the plate within 24 hours of data erasure. • Do not expose used plates to light. Exposure and the scanning of the image data should be carried out within half an hour. • Use barrier envelope or transfer box to keep plate shielded from ambient light until scanning. • Clean the plate with PSP cleaning wipes available from Air Techniques. • Replace plates with scratches and call dealer for maintenance service. |
| 14. Pale stripes in image | <ul style="list-style-type: none"> • Too much stray light entered during scanning | <ul style="list-style-type: none"> • Darken the room • Rotate the ScanX Swift so that no direct light falls on the film entry slot |
| 15. Blue LED illuminated steady or blinking | <ul style="list-style-type: none"> • No connection between ScanX Swift and PC | <ul style="list-style-type: none"> • USB-driver not installed or inactive • Check the USB cable • Activate ScanX Swift using software |
| 16. Red status LED blinks | <ul style="list-style-type: none"> • Inlet guide is missing or not correctly in position | <ul style="list-style-type: none"> • Install inlet guide correctly. |

STORAGE

18. Device Shutdown and Storage



Never power down the system during a scanning session.

18.1 Powering Down System.

ScanX Swift is designed to be left on continuously during the active day. At the end of the day, or whenever desired, power down the system as follows:

1. Switch the ScanX Swift from ON to Standby by pressing and holding the ON/OFF button (⏻) on the Control Panel for approximately 2 seconds, until the green LED extinguishes.
2. Remove the main power to ScanX Swift by disconnecting the power supply adapter plug from the main power outlet socket.



CAUTION
 Danger of suffocation
 Keep the protective cover away from children.

18.2 Protective dust cover installation.

- Pull the protective cover, with the yellow marking towards the front, forwards over the unit until it is completely covered.
- Store the protective cover in a clean dry place when not in use.

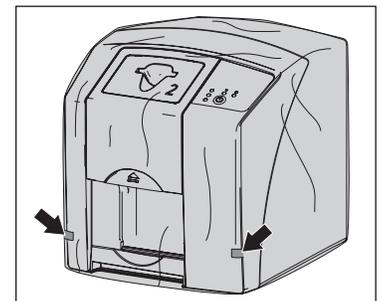


Figure 18-1.
 Protective Dust Cover

PARTS

19. Replacement and Accessory Parts

19.1 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 Swift 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 |
|---------------------------|----------|--------------|
| 24V, Power Supply Adapter | 1 | G8115 |
| 6-Foot USB 2.0 Cable | 1 | B3554 |
| Dust Cover | 1 | G8150 |

19.2 Accessory and Consumable Parts.

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

| Description | Quantity | Order Number |
|-----------------------------|----------------------|--------------|
| ScanX Swift Cleaning Sheets | 12 | G8030 |
| | 25 | G8035 |
| Barrier Film | 1 roll of 900 sheets | G8195 |

19.3 Transfer Storage Box.

Protects the Phosphor Storage plates in every day use and storage. Also used to shield plates from light when transferring plates from patient to ScanX Swift during batch processing.



Transfer Storage Box,
PN 73470

19.4 Intraoral Phosphor Storage Plates.

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



19.5 Barrier Envelopes & PSP Cleaning Wipes.

| Size | Order No. | Qty |
|------|-----------|------|
| 0 | 73248-0 | 100 |
| 1 | 73248-1 | 100 |
| 2 | 73248-2 | 300 |
| 2 | 73248-2K | 1000 |



PSP Cleaning Wipes

- PN B8910, Box of 50



APPENDIX**A-1. Scanning Times**

Time taken to complete scanning process of image data depending on plate format and the pixel size. The times stated are approximate and will depend on the PC system and its current work load.

| Scan mode | Intraoral Very High | Intraoral Standard |
|--------------------------|---------------------|--------------------|
| Theor. Resolution LP/mm | 23.8 | 10 |
| Pixel size μm | 21 | 50 |
| Size #0 | 20 s | 8 s |
| Size #2 | 22 s | 10 s |

A-2. File Size (uncompressed)

File sizes in MB - will depend largely on the actual plate format and the pixel size.

The file sizes here are approximate sizes which have been rounded up. The file sizes can be considerably reduced by using a suitable compression program.

| Scan mode | Intraoral Very High | Intraoral Standard |
|--------------------------|---------------------|--------------------|
| Theor. Resolution LP/mm | 23.8 | 10 |
| Pixel size μm | 21 | 50 |
| Size #0 | 3.4 | 0.6 |
| Size #2 | 5.6 | 1.0 |

APPENDIX

A-3. Intraoral X-ray unit settings

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.

| | without X-ray field limitation | | DC radiator, 7 mA Tube length 20 cm | | X-ray field limitation 1.2 x 1.6 in ² (30 x 40 mm ²) | |
|-----------|--------------------------------|--------------------|---|--------------------|---|--------------------|
| | | | X-ray field limitation 0.8 x 1.2 in ² (20 x 30 mm ²) | | | |
| | 60 kV | mGycm ² | 60 kV | mGycm ² | 60 kV | mGycm ² |
| 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 |

| | without X-ray field limitation | | DC radiator, 6 mA Tube length 30 cm | | X-ray field limitation 1.2 x 1.6 in ² (30 x 40 mm ²) | |
|-----------|--------------------------------|--------------------|---|--------------------|---|--------------------|
| | | | X-ray field limitation 0.8 x 1.2 in ² (20 x 30 mm ²) | | | |
| | 70 kV | mGycm ² | 70 kV | mGycm ² | 70 kV | mGycm ² |
| 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 |

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>).

WARRANTY

Warranty - ScanX Swift

ScanX Swift 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 Swift 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 Swift 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 Swift and will be replaced for a period of 30 days from the date of purchase if defective in manufacturing or packaging.

ONLINE REGISTRATION

Quickly and easily register your new ScanX Swift 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 online registration ensures a record for the warranty period and helps us keep you informed of product updates and other valuable information.

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. Proudly designed, tested and manufactured in the U.S., our products are helping dental professionals take their practices to the next level.

Air Techniques' family of quality products for the dental professional include:

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

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

- ❑ **Merchandise**
 - Surface Disinfectant
 - Enzymatic Cleaner
 - Hand Sanitizer and Lotion
 - Waterline Cleaner
 - Evacuation System Cleaner
 - Imaging Accessories
 - Chemistry
 - Processor Accessories

Corporate Headquarters

1295 Walt Whitman Road | Melville, New York 11747- 3062
Phone: 1-800-247-8324 | Fax: 1-888-247-8481

www.airtechniques.com

