

For Windows® 95

Canon



Canon Film Scanner

CanoScan 2700F

Getting Started



Safety Information

FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

*Use of shielded cable is required to comply with Class B limits in Subpart B of Part 15 of FCC Rules.

Do not make any changes or modifications to the equipment unless otherwise specified in this manual. If such changes or modifications should be made, you could be required to stop operation of the equipment.

Industry Canada

This Class [B*] digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe [B*] respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

A Note of Caution

Exercise due caution regarding the following points when using the Film Scanner to duplicate images.



CAUTION:

- Copying paper currency, coins and negotiable securities is an offense and subject to criminal prosecution
- The unauthorized duplication of identification materials, licenses, travel tickets, official documents or private materials is against the law and subject to criminal prosecution.
- Copyrighted material may not be duplicated without permission of the copyright holder except for use by an individual or within the confines of their own residence or a limited area.

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- All other products or name brands are trademarks of their respective holders.

How to Use the *Getting Started* Guide

Thank you for selecting the Canon CanoScan 2700 F Color Film Scanner. This *Getting Started* guide explains how to use the Film Scanner hardware.

How to Use this Guide

For component names and functions see _____	p. 8 <i>Components Guide</i>
For essential safety precautions see _____	p. 10 <i>Safety Precautions</i>
For installing SCSI host adapter cards see _____	p. 13 <i>Step 1</i>
For positioning and connecting your Film Scanner see _____	p. 27 <i>Step 2</i>
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For Canon Customer Support Help Desk see _____	p. 58 <i>Canon Customer Support Help Desk</i>

About the Symbols and Conventions Used in this Guide.

In this guide, the following symbols are used to draw your attention to particularly important instructions that you are advised to read.



WARNING:

This symbol denotes actions or incorrect usage of the Film Scanner that may result in injury or accident. Always carefully read and follow the instructions in these warnings.



CAUTION:

This symbol denotes topics about general restrictions or operations that require caution. Please read these notes to avoid causing malfunctions in your equipment.



SUGGESTION:

This symbol denotes supplementary information that will assist you in operating the Film Scanner.

Refer to these notes at your convenience.

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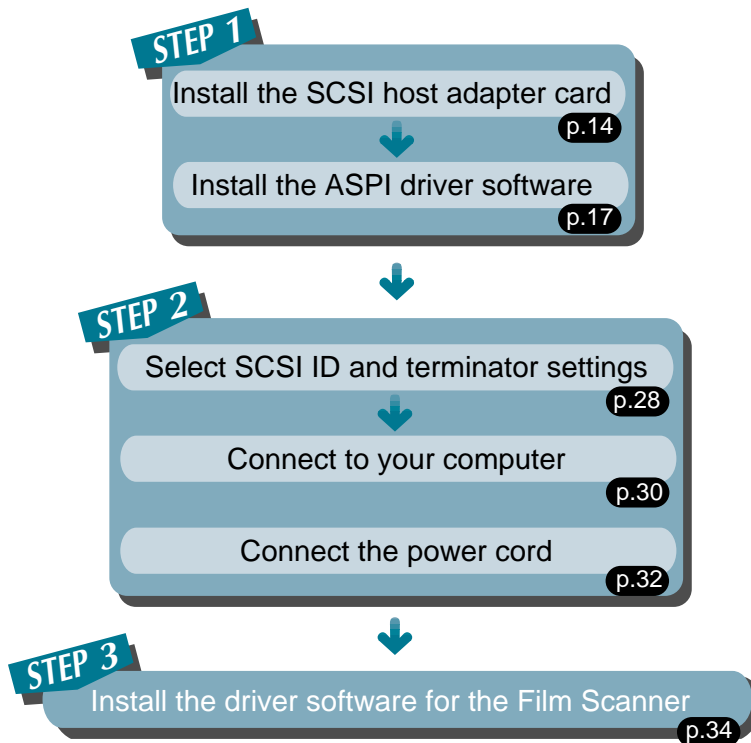
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Procedures for Setting Up the Film Scanner

Set up the Film Scanner in the following order.



CAUTION:

- To operate your CanoScan 2700F, you must use a SCSI host adapter card that supports ASPI. Use the AVA-1502AP SCSI host adapter card that accompanied the CanoScan 2700F. Use of a non-ASPI supportive SCSI host adapter card may result in malfunctions.

Special Features of the CanoScan 2700 F

The 2,720 dpi Canon CanoScan 2700 F Color Film Scanner is equipped with the following special features.

Natural Color Reproduction

The Canon CanoScan 2700 F Color Film Scanner is equipped with a Xenon fluorescent lamp that enables natural color reproduction close to the qualities of natural sunlight. The Film Scanner also features a proprietary electrode construction that ensures consistent light intensity so that original image colors are reproduced faithfully. Moreover, it has the added attractions of long life, low power consumption and stable image scanning immediately after power-up.

Crisp Color Gradations, High-Quality Images

The Film Scanner uses special line sensors that deliver 2,720 dpi resolution for each red, green and blue colour element. In addition, it features high-speed, single-pass scanning with minimal colour leaching. Each colour is captured with 10-bit data scanning technology and output at 8 bits, producing crisp color gradations and high-quality images.

Complete Negative Film Compatibility

The Film Scanner accepts virtually all varieties of the major brand name negative films, including Fuji, KONICA, Kodak and AGFA. The color reproduction of the photographed image is easily enhanced with the simple selection of the film type.

IX240 Film Support

A viewer for IX240 is included as standard equipment with the Film Scanner. IX240 film cartridges for the Advanced Photo System standard can be scanned as easily as regular 35 mm (135) film.

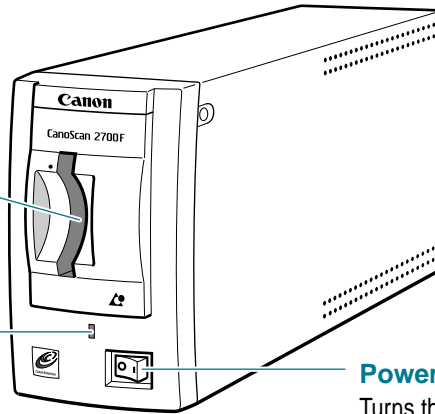
Advanced Functions

The Film Scanner boasts of advanced but easy operation. Scanning is initiated with the mere click of a button on your computer screen. Moreover, it automatically compensates for focus, brightness and color matching, producing the ultimate in scanning quality.

Components Guide

Film Guide

The slot into which you insert film in holders or mounted 35 mm film. The film viewer is set with the film guide in the open position.



Power Indicator

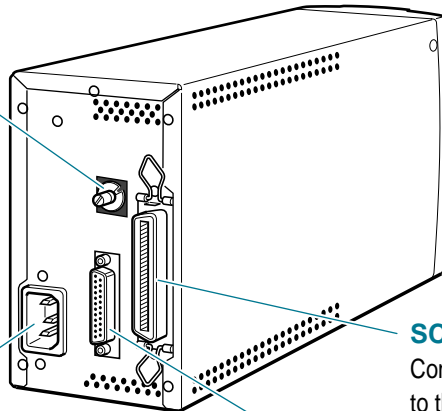
Lights when the power switch is set to the ON position.

Power Switch

Turns the Film Scanner on and off.

SCSI Dial

Use this dial to select SCSI ID and terminator settings.



Power Cord Socket

Attach the supplied power cord here.

SCSI Interface Connector

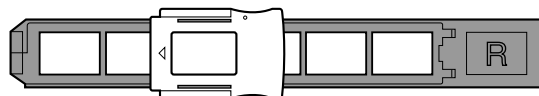
Connect full-pitch, 50-pin SCSI cables to this port.

SCSI Interface Connector

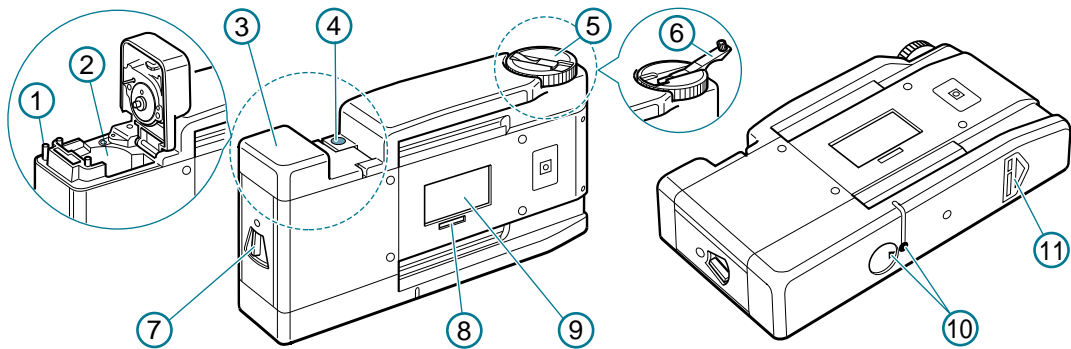
Connect D-Sub 25-pin SCSI cables to this port.

35 mm Film Holder

Place 35 mm negatives or unmounted 35 mm positive films into this holder for scanning.



IX240 Film Viewer



(1) Exposure Tab

After a film is processed, the exposure tab on the cartridge is snapped downward. The winder will free wheel unless this tab has been adequately depressed. If the winder is not rolling the film, first check that the film has been processed and then further depress this tab before attempting to use the winder.

(2) Film Cartridge Chamber

This is the chamber that holds the IX240 film cartridge for viewing.

(3) Film Cartridge Chamber Lid

The lid is opened by matching the indicator marks on the viewer's underside and pushing the open lever in the direction of the "open" mark. The lever will return to the closed position once the chamber lid has been closed and will lock until the indicator marks on the viewer's underside are properly aligned and the film has been completely rewound.

(4) Film Indicator

The film indicator will be red when the film cartridge is first inserted or has been completely rewound, but will be blank when the film is partially or fully extended around the rollers. As a safety feature, the film cartridge chamber lid cannot be opened unless this indicator is red, even when the indicator marks on the viewer's underside are properly aligned.

(5) Winder

Turn the winder counter-clockwise to unroll the film for viewing. Turning it clockwise rewinds the film into the cartridge. The winder will not operate with partially exposed film that is mistakenly inserted into the film cartridge chamber.

(6) Crank

This crank is useful for quickly winding or rewinding film.

(7) Open Lever

This lever is for opening the lid of the IX240 film cartridge chamber.

As a safety feature, the lever will not operate unless the indicator marks on the viewer's underside are properly aligned (using the) and the film cartridge has been completely rewound (the film indicator is red).

(8) Film Counter Window

The number of the picture frame appearing in the scanning window will appear in this window.

(9) Scanning Window

The film appearing in this window will be scanned. Align the desired picture frame within the scanning window in preparation for scanning, using the crank to wind and rewind the film as required.

(10) Indicator Marks

These marks must be properly aligned, using the winder, to allow the film cartridge chamber lid to be opened.

(11) Insertion Arrow

Insert the film viewer into the Film Scanner in the direction indicated by this arrow.



- The insertion arrow is not pre-labeled when it arrives from the factory. You must stick the label on yourself.

Safety Precautions

To use this scanner safely, please observe the following precautions.

Finding the Right Location



CAUTION:

- Place the scanner on a sturdy, level surface.
- Keep ambient room conditions within the following ranges:
 - Temperature: 5 °C to 35 °C or 41 °F to 95 °F
 - Humidity: 10% to 90% relative humidity (avoid condensation)
- Avoid placing the scanner in direct sunlight or near a heat source. Parts within the scanner operate at high temperatures and can cause injury. If placement near a window is unavoidable, be sure to block direct sunlight with curtains or other devices.
- Do not place the scanner in locations where temperature and humidity levels fluctuate significantly. Avoid moving the scanner from a hot area to a cold one to avoid condensation, which will adversely affect scanned image quality. If it becomes necessary to move the scanner between temperature gradients, allow it to adjust to ambient room conditions before initiating operation.
- Keep the scanner away from devices generating magnetic or electromagnetic interference. Such interference can cause the scanner to operate incorrectly.
- Avoid placing the unit in areas subject to vibration and dust, or near sources of flame and water.
- Do not position the scanner in laboratories, areas in which chemical reactions occur, or in environments that have salty or oily air or corrosive gases. These conditions can damage the scanner.

Power Source Considerations



CAUTION:

- Only use power sources (standard household electrical outlets) within the following ranges:
 - Voltage: 110V to 240V AC $\pm 10\%$
 - Frequency: 50 Hz or 60 Hz ± 2 Hz
- Avoid connecting several devices to the same electrical outlet as the scanner. In particular, avoid connecting an air conditioner, photocopier, shredder or a similar device to the same outlet. This may lead to power drains and noise interference that cause scanner malfunctions. If you must connect multiple devices to the same electrical outlet, use a power bar equipped with a circuit breaker and a high-frequency noise elimination filter.
- Ensure that the electrical outlet you use for the scanner has sufficient power output.
- If you must use an extension cord, be sure the total combined length of the cords does not exceed 5 meters (16.5 feet). Extensions exceeding this length may cause a drop in voltage, which will adversely affect scanner operations.

Standard Operating Procedures



WARNING:

- Never let liquids, metallic objects or flammable objects reach the interior of the scanner. Injury, fires or electrical shocks may result from contact with its internal mechanisms.



CAUTION:

- Avoid dropping or subjecting the scanner to shocks.
- Do not place parts of your hand or objects other than film into the scanner.
- Operate the scanner in a vertical position only. Do not use it lying on its side.
- Ensure that the power switch is set to OFF before connecting or disconnecting the SCSI cable or power cable.
- Do not allow anything to rest on the power cord and never place the power cord where it may be trampled.
- Keep the area around the scanner's electrical outlet clear so that it can be easily unplugged. Always grip the electric plug, not the cord, when unplugging the scanner.
- Always have a qualified technician perform any disassembly, maintenance or repairs not described in this manual. Never perform these actions by yourself without adequate qualifications.
- When performing any maintenance activities, always unplug the power cord first. Never use liquid detergents or aerosol detergents to clean the exterior of the scanner. Instead, dampen a clean, soft cloth with water or a mild cleaning agent and wring it out thoroughly before using it to gently wipe the exterior surfaces.
- The scanner does not require lubrication of any kind.
- If any of the following occurs, unplug the scanner and contact your Canon vendor.
 - the electric plug or cord is damaged
 - liquid has entered into the scanner
 - the scanner has suffered exposure to rain or water
 - the scanner is dropped or damaged in any way
 - a marked change occurs in the scanner's operation
 - the scanner emits smoke, strange odors or unusual sounds

This equipment complies with VCCI Class 2 Information Device Standards. This equipment is intended for use in the home environment. Nevertheless, there is a possibility that interference to radio or television reception may occur if the equipment is operated in close proximity to another device. Please follow the instructions in the Getting Started Guide for the correct handling of this equipment.

Package Contents Check

Before using your Film Scanner, check to make sure that all the following items were included in the package. If any items are missing, please contact the retail outlet from which you purchased your package.

Film Scanner Package Contents

Film Scanner Unit
35 mm Film Holder
Film Viewer IW-50
SCSI Host Adapter Card, AVA-1502AP
Power Cord
SCSI Interface Cable
Quick Start Guide

CD-ROM

- ScanCraft FS Application Software Programs
- Getting Started (this manual / Start.pdf)
- ScanCraft FS Users Guides (Scancrft.pdf)

Floppy Disk

- SCSI Host Adapter Card Configuration Utility Software
- ASPI Driver for AVA-1502AP SCSI Host Adapter

Installing a SCSI Host Adapter Card

How to install a SCSI Host Adapter Card in your computer.

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**CAUTION:**

- To operate your CanoScan 2700F, you must use a SCSI host adapter card that supports ASPI. Use the AVA-1502AP SCSI host adapter card that accompanied the CanoScan 2700F. Use of a non-ASPI supportive SCSI host adapter card may result in malfunctions.

1. Before You Start...

Here are some essential precautions for handling and installing the SCSI host adapter card supplied with your Film Scanner.

Handling Precautions

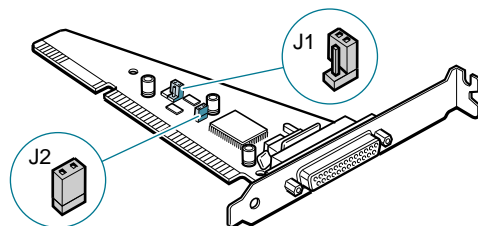


CAUTION:

- SCSI host adapter cards are precision components that are sensitive to discharges of static electricity. They must be handled delicately to avoid damage and malfunctions. Before touching a card, discharge any static charges in your body by first touching something else that is grounded, such as a metal surface on your computer case.
- Don't remove the SCSI host adapter card from its protective wrapping until you are ready to install it. If you must set the SCSI host adapter card down for a short period of time, place it on top of or inside the protective wrapping.
- Never touch the terminals or circuitry on the SCSI host adapter card with your fingers. Hold the card by its edges.
- Operating your computer with an improperly installed SCSI host adapter card can cause damage to the card. Do not operate the computer until you have ensured that the card is installed strictly in accordance with the instructions that follow.
- If the SCSI host adapter card does not operate correctly after following the proper installation procedures, contact the retail outlet from which you purchased your Film Scanner.

About the Jumper Switches

Two jumper switches (J1 and J2) are installed on the SCSI host adapter card. Windows 95 users have no need to change these switch settings.



CAUTION:

- The J1 jumper switch is provided for computers lacking Plug and Play capabilities. The J1 jumper switch enables the I/O port address setting to be changed. On the open setting (factory setting), the I/O port address is [140]. The address for the closed setting is [340].
- Do not change the J2 jumper switch setting. The SCSI host adapter card will not function if this jumper switch setting is altered. The factory setting is closed.

2. Installing the SCSI Host Adapter Card

To install the SCSI host adapter card supplied with your Film Scanner into your computer, ensure that you have a Phillips screwdriver (+ shaped tip) at hand and follow the instructions provided below.



CAUTION:

- Your computer may require specialized tools. Consult with the vendor of your computer or a qualified technician if you are not sure about the required tools before attempting the installation.



Turn off the computer's power switch, disconnect the power cord and detach all of the devices connected to your computer.

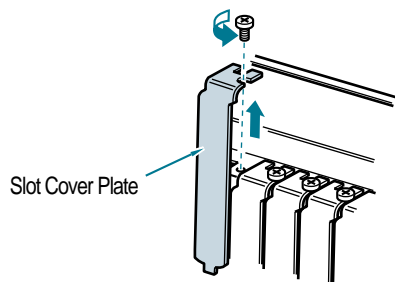


Remove the computer case.

Refer to the instructions that accompanied the computer for the correct procedures to remove the computer case.



Remove the cover plate from the ISA bus slot in which you will install the SCSI host adapter card.

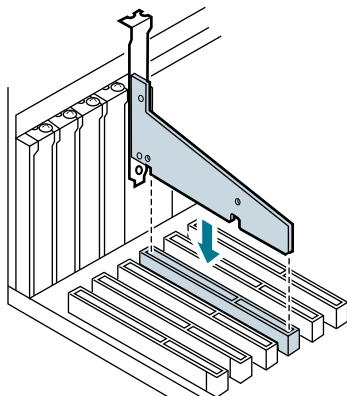


CAUTION:

- Be careful not to lose the screw that attached the cover plate to the slot. You will need it to attach the SCSI host adapter card to the slot.



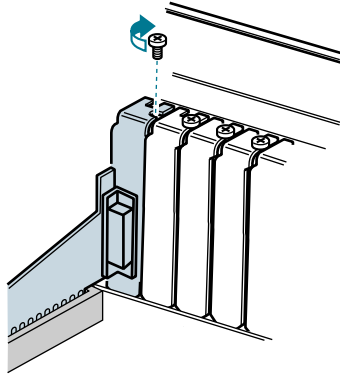
Carefully but firmly insert the SCSI host adapter card into the ISA bus slot.



CAUTION:

- Be careful to insert the SCSI host adapter card straight into the slot. Avoid inserting it at an angle.

-
- 5** Secure the SCSI host adapter card in the slot with the screw from the cover plate.



- 6** Replace the computer case and reattach all the required device cables.
Refer to the instructions that accompanied your computer for the correct procedures to replace the case and reattach the cables.

3. Installing the ASPI Driver Software

Once you have installed the SCSI host adapter card into your computer, you must install driver software to operate the card. The Windows 95 program will prompt you to install the SCSI host adapter card driver software that accompanied your computer. However, a newer driver has been provided with your SCSI host adapter card. First install the Windows 95 driver as prompted and then install the new version, the ASPI driver.



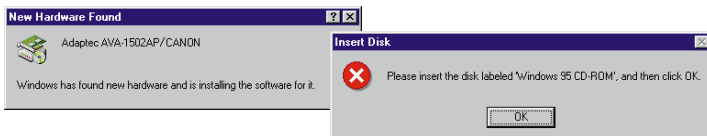
CAUTION:

- Install the driver software as described below before installing ScanCraft FS or other application software included in your Film Scanner.



Turn the computer power switch to the On position.

After a moment the [New Hardware Found] dialog box will appear and a message will prompt you to insert the Windows 95 system disk into the computer.



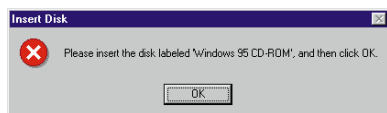
CAUTION:

- If you are replacing a previously installed SCSI host adapter card with this card, the [New Hardware Found] dialog box may not appear. In this event, start at procedure 3 below and follow the instructions to switch drivers.



Insert the Windows 95 system disk or CD-ROM into the floppy drive or CD-ROM tray as appropriate and click the [OK] button.

If the system is provided on floppy disks, insert the disk labeled with the number specified in the dialog box.



The required driver will install automatically and start the Windows 95 program.



CAUTION:

- Once the Windows 95 program has started, continue with the procedures on the next page to change the driver.
- If another scanner is already connected to your SCSI host adapter card, an Install Driver dialog box will appear after the procedures outlined above. Select the [Select from a list of alternate drivers] option and then choose the [Unsupported Device] option from the next dialog.
- In the new version of windows 95, the [Update Device Driver Wizard] dialog box appears when windows 95 is started. In the first dialog box, click the [Next] button without inserting anything into the disk drive. In the next dialog box, click the [Finish] button and start windows 95.



CAUTION:

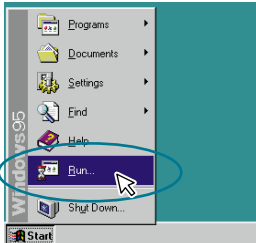
- If the [New Hardware Found] dialog box did not appear when you first started your computer after installing the SCSI host adapter card, follow the procedures starting at 3 below.

3

Insert the disk entitled "ASPI Driver for AVA-1502AP Host Adapter" that was supplied with the AVA-1502AP SCSI Host Adapter card into the floppy disk drive.

4

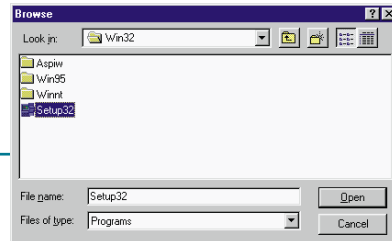
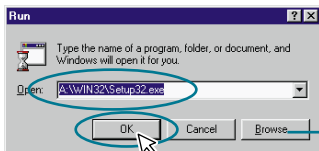
From the [Start] menu, select [Run].



5

Type [A:\WIN32\SETUP32] in the space provided and click the [OK] button.

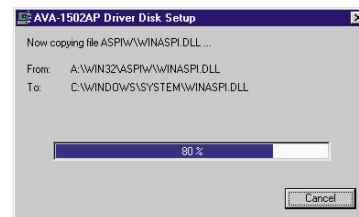
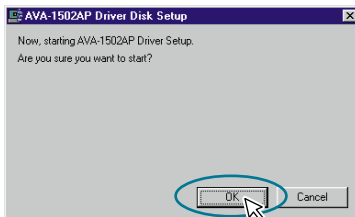
You may also click on the [Browse] button and select the [Setup32] option from within the [Win32] folder on the "A" drive.



6

Click the [OK] button.

The ASPI Driver program for the AVA-1502AP will begin to install.

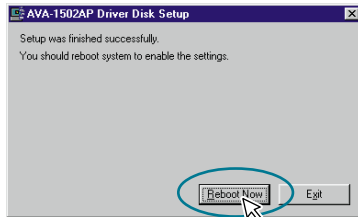


After the installation ends, a message prompting you to restart the computer will be displayed.

7

Click the [Reboot Now] button.

A message will prompt you to remove the floppy disk.



8

Remove the floppy disk from the drive and click on the [OK] button.

The computer will reboot and you will be able to use the SCSI host adapter card with Windows 95.

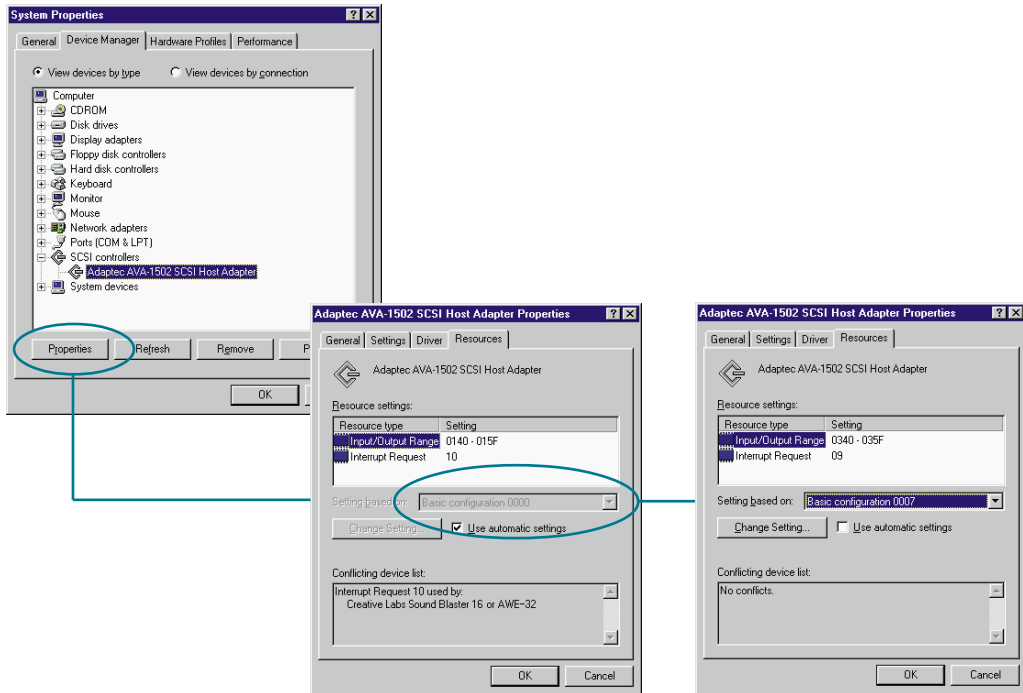


CAUTION:

- If the [New Hardware Found] dialog box does not appear and the [SCSI controllers] icon is not displayed, please check your SCSI interface cable or verify that the SCSI host adapter card is properly installed.

What To Do When an IRQ or I/O Port Address Conflict Arises

If you have installed cards other than the SCSI host adapter card, such as sound or network cards, conflicts between cards may arise if IRQ or I/O port addresses are duplicated. In this case, use the Windows 95 [Device Manager] to change the IRQ or I/O port addresses of one of the cards.



CAUTION:

- The IRQ default factory setting for the SCSI host adapter card is [10]. This setting may be changed to either [9], [11] or [12].
- The I/O port address default factory setting for the SCSI host adapter card is [140]. This setting may be changed to [340].
- To change the IRQ or I/O port address settings of other cards, please refer to the instructions that accompanied the card.
- After you have used the Device Manager to change these settings, be sure to restart Windows 95 from the [Start] menu.

4. Configuring The AVA-1502AP Card

A host adapter configuration utility program, SCSISelect has been included in your Film Scanner to view and change your host adapter card settings. If you need to check or alter the settings, start the SCSISelect utility following the instructions below.



CAUTION

- The AVA-1502AP card has default settings that are correct for most computers. Usually, there is no need to change these default settings.
- Only change the settings once you have fully understood how the changes will affect the card.

Starting SCSISelect

Follow the procedures below to use the SCSISelect utility.



1 Turn your computer power Off.

Close all applications, then close Windows 95 by selecting the [Shutdown] option from the [Start] menu. At the prompt, turn your computer power off.

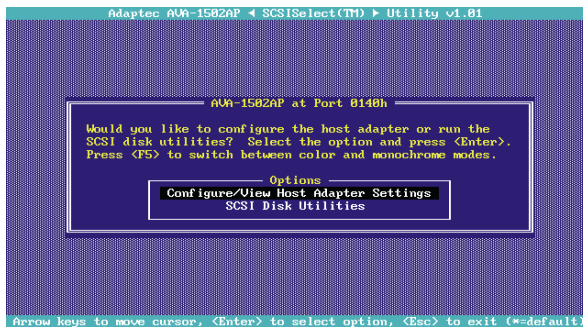


2 Insert the disk containing the “Host Adapter Configuration Utility (SCSISelect)” into your floppy disk drive.



3 Turn on your computer power.

After a short pause, the SCSISelect utility program will start and display its main menu as seen below.



How to use SCSISelect

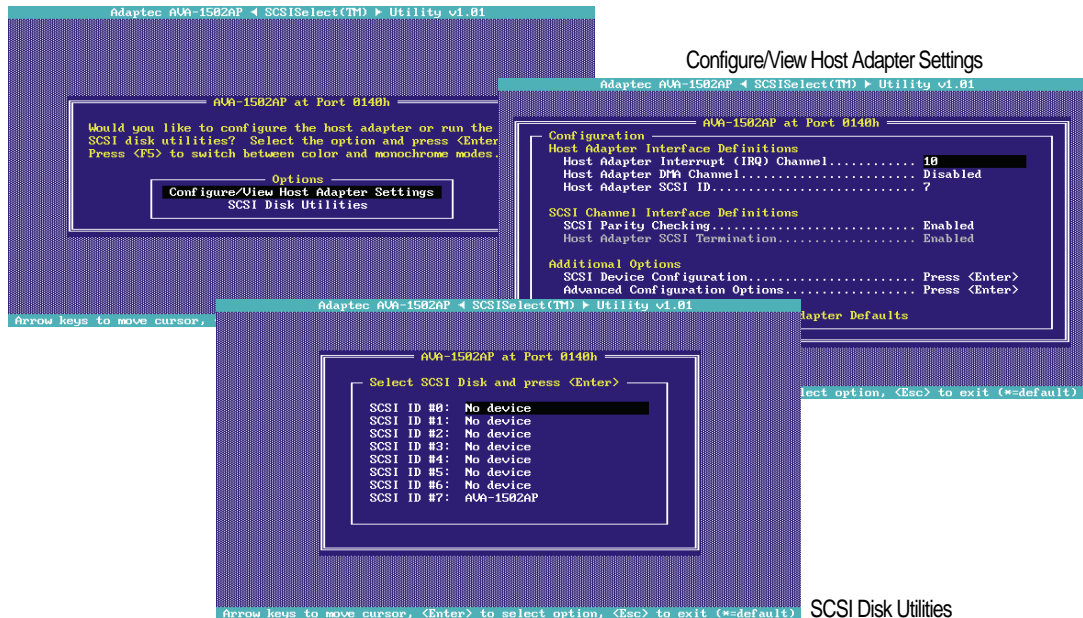
Here is a summary of the keys used to operate SCSISelect.

Key	What it dose
[←], [↑], [↓], [→]	: Moves cursor (highlighted item) up, down, left or right
[Enter]	: Displays or selects highlighted item
[Esc]	: Stops or cancels the settings session
[F6]	: Restores the default settings (factory settings) for all items.

SCSISelect Functions

The SCSISelect program features the following two menus [Configure/View Host Adapter Settings] and [SCSI Disk Utilities].

Selecting the [Configure/View Host Adapter Settings] menu will allow you to view the SCSI host adapter settings. Selecting the [SCSI Disk Utilities] menu will present the list of currently connected SCSI devices.



CAUTION:

- Only use the [SCSI Disk Utilities] menu selection to confirm the list of connected SCSI devices. Do not press the [Enter] key when this menu item is selected.

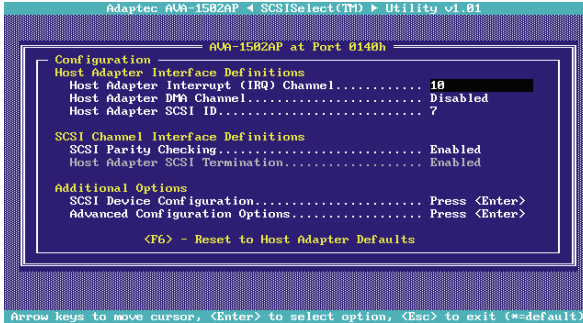
The SCSISelect settings

The following is a description of the settings for the SCSISelect utility program.

Host Adapter Interface Definitions

Host Adapter Interrupt (IRQ) Channel

This function sets the IRQ channel value for the SCSI host adapter card if the computer does not support Plug & Play functions. The default IRQ of the AVA-1502AP SCSI Host Adapter card is set at [10] at the factory.



CAUTION:

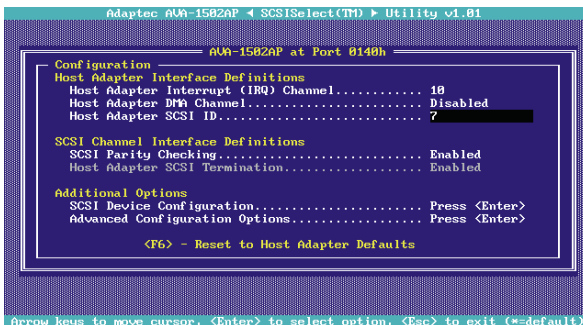
- If the computer supports Plug & Play functions, see What To Do When an IRQ or I/O Port Address Conflict Arises ([page 20](#)) for instructions on how to change the IRQ.

Host Adapter Direct Memory Access (DMA) Channel

This function sets the DMA setting for the AVA-1502AP SCSI Host Adapter card. The default setting is [Disabled]. We do not recommend changing this setting.

Host Adapter SCSI ID

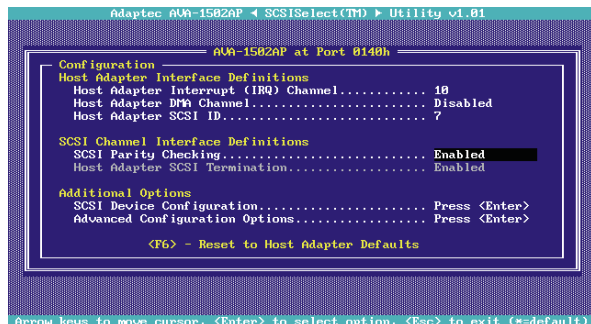
Sets the SCSI ID for the AVA-1502AP card. The default setting 7 has the highest priority. We recommend that do not change this setting.



SCSI Channel Interface Definitions

SCSI Parity Checking

This function enables or disables the SCSI parity check. The default setting is [Enabled]. Change this setting only when the connected SCSI device does not support SCSI parity checking. This setting is unlikely to require changing because most SCSI devices support parity checking.



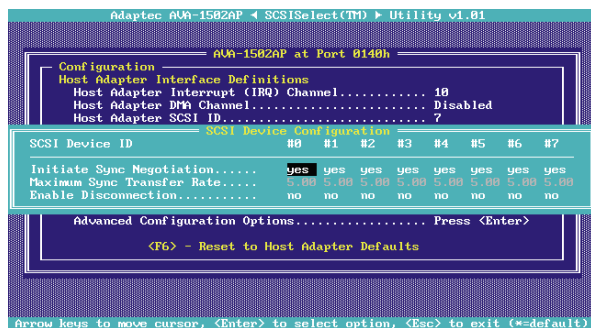
Host Adapter SCSI Termination

This function enables or disables SCSI termination on the SCSI host adapter card and of the SCSI cable. The AVA-1502AP SCSI Host Adapter card only supports externally connected SCSI devices. Therefore, the default setting, [Enabled], must remain unchanged.

Additional options

SCSI Device Configuration

Selecting this option displays the following items for each SCSI ID:



- Initiate Sync Negotiation

This setting toggles the synchronous data transfer function on and off to control the transfer of data between the SCSI host adapter card and a SCSI device. The default setting is [Yes]. This should only be changed to [No] if a SCSI device does not support synchronous data transfers.

- Maximum Sync Transfer Rate

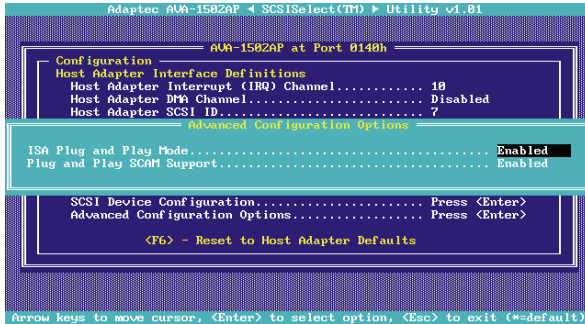
This setting cannot be changed. The AVA-1502AP SCSI Host Adapter card supports a maximum synchronous data transfer of 5.0 megabits per second.

- Enable Disconnection

This setting determines whether the AVA-1502AP SCSI Host Adapter card will allow a SCSI device to disconnect from the SCSI bus (sometimes referred to as Disconnect). The default is [No]. Use the [Yes] setting when two or more device are connected to the host adapter card and the [No] setting when only device is connected.

Advanced Configuration Option

Selecting this option displays the following items:



- ISA Plug & Play Mode

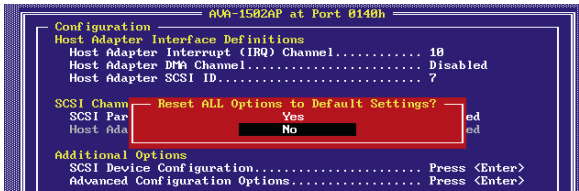
This setting enables Plug & Play functions for an ISA bus. The default is [Enabled]. We recommend leaving this setting unchanged for the AVA-1502AP SCSI Host Adapter card.

- Plug & Play SCSI Configured AutoMagically (SCAM) Support

This setting enables SCAM support, which allows the AVA-1502AP SCSI Host Adapter card to automatically assign a SCSI ID to a connected device supporting SCAM protocol. The default is [Enabled]. Use this setting unless you experience malfunctions arising from older SCSI devices not supporting SCAM protocol.

Restoring SCSISelect defaults

Press the [F6] key to reset all settings to the factory default.



Selecting [Yes] restores all settings to the factory default value.

Selecting [No] cancels the operation (no settings are changed) and displays the previous screen.

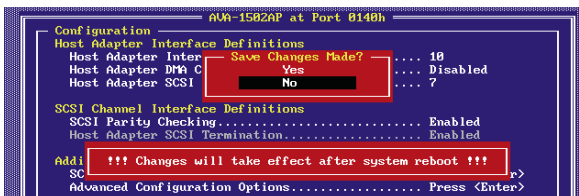
Quitting SCSISelect

Follow these procedures to save or cancel your changes and quit the SCSISelect utility program.



To save your changes to the settings, press the [Esc] key and select [Yes] with the cursor keys and the [Enter] key.

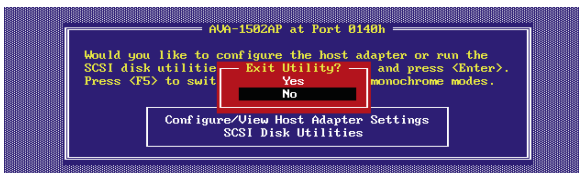
You will return to the main menu.



To quit SCSISelect, press the [Esc] key and select [Yes] with the cursor keys and the [Enter] key.

When you restart the system, the changes to the settings will take effect.

If you select [No], you will return to the main menu.



CAUTION

- Remember to remove the "Host Adapter Configuration Utility (SCSISelect)" disk from your floppy disk drive before restarting your computer.



Connecting to a Computer

How to connect your Film Scanner to your computer.

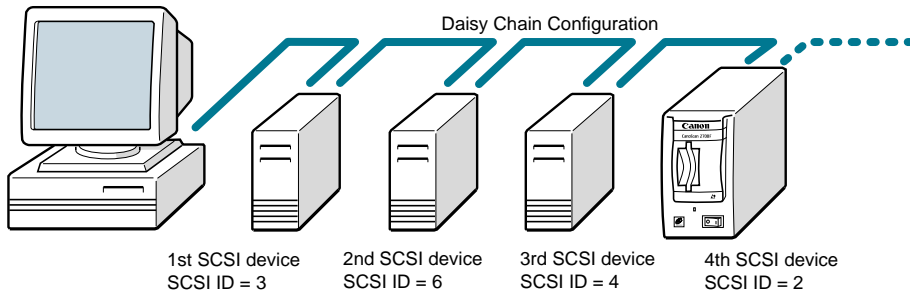
1. Determining the SCSI ID	28
2. Selecting SCSI ID and Terminator Settings	29
3. Connecting to Your Computer	30
About Connector Shapes and SCSI Interface Cables	31
4. Connecting the Power Cord	32

**CAUTION:**

- If you intend to use an existing or generic interface cable, first ensure that it is a high-impedance interface cable.
- Before using an existing SCSI host adapter, always check with the outlet from which you purchased the Film Scanner or with the Canon Customer Support Help Desk listed at the back of this guide to ensure that it fully supports the Film Scanner. We cannot guarantee that the Film Scanner will function correctly with a noncompatible SCSI host adapter (p. 58).

1. Determining the SCSI ID

When you connect SCSI devices to your computer, you need to select a unique SCSI ID number for each device. It is particularly important to ensure that no two devices are set to the same SCSI ID when other SCSI devices are, or will be, connected to the computer.



SCSI host adapter: SCSI ID = 7

SCSI hard disk drive when used as the boot disk: SCSI ID = 0

Several SCSI devices may be connected to a SCSI host adapter or computer SCSI connector in a series, which is called a daisy chain. To enable the computer to distinguish between devices, each must be assigned a unique SCSI ID number from 0 to 7.



CAUTION:

- Allowing more than one SCSI device to have same SCSI ID may result in computer malfunctions as well as the incorrect functioning of the SCSI devices.



SUGGESTION:

- The Film Scanner SCSI ID is set at 2 in the Terminator On range at the factory. Before connecting the scanner, check your computer's SCSI settings for internal devices, host adapters and other SCSI devices to ensure this setting is not already taken. If necessary, change the Film Scanner SCSI ID setting to an unallocated number as described in the next section of this guide.
- Computers with internal devices, such as hard disk drives, generally reserve the following SCSI ID numbers. Set your Film Scanner SCSI ID so that it does not duplicate any of these numbers.
 - 0: Internal hard disk drive (boot disk)
 - 1: Internal hard disk drive (when the SCSI controller ID is 0)
 - 7: Host adapter or internal SCSI controller

2. Selecting SCSI ID and Terminator Settings

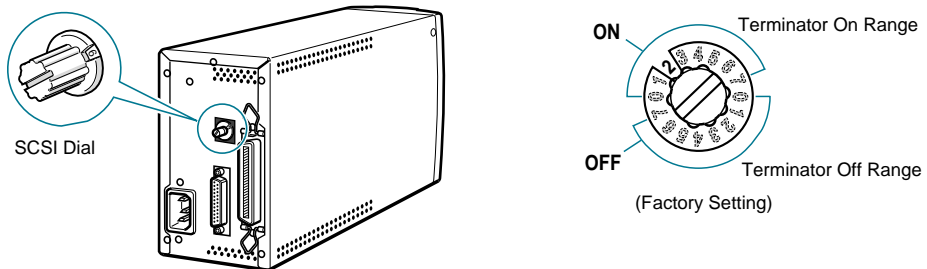
The last device in a daisy chain of SCSI devices attached to your computer must be fitted with a terminator or, if it has the capability, must be set to the Terminator On range.

Your Film Scanner has a built-in terminator that can be set to either the On range or the Off range as required by your device configuration.



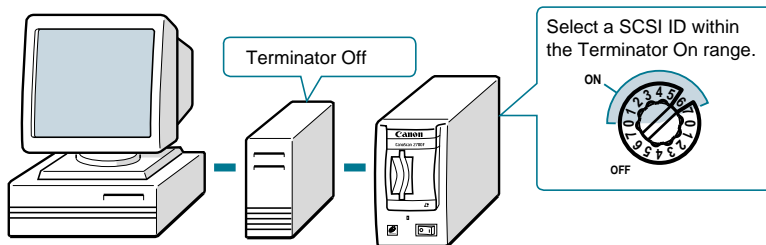
CAUTION:

- Your Film Scanner has been set at the factory to SCSI ID 2 on the Terminator On range. If you are using your Film Scanner in the middle of a daisy chain configuration, always set the SCSI ID to an appropriate number on the Terminator Off range.



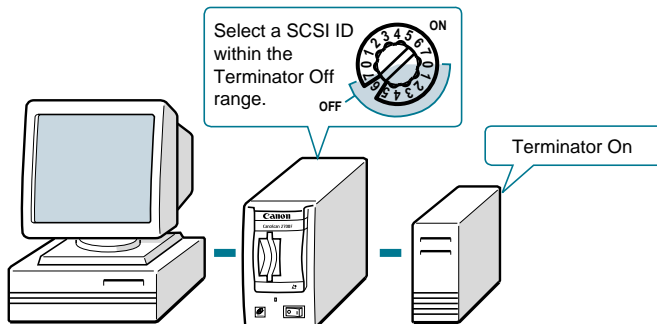
Sample Configuration with the Film Scanner at the End of a Daisy Chain

If your Film Scanner is the last device in the daisy chain, set the SCSI ID to an unreserved number between 0 and 6 on the Terminator On range of the SCSI dial.



Sample Configuration with the Film Scanner Somewhere in the Midst of a Daisy Chain

If your Film Scanner is not the last device in the daisy chain, set the SCSI ID to an unreserved number between 0 and 6 on the Terminator OFF range of the SCSI dial.



3. Connecting to Your Computer

Once you have unlocked the Film Scanner , set the SCSI ID and terminator to the appropriate settings, put the Film Scanner in the position in which it will be used and connect it to your computer or another device in a daisy chain with a SCSI interface cable.



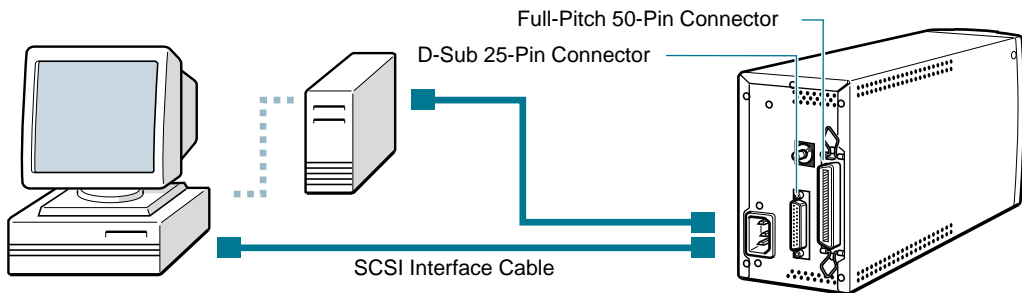
CAUTION:

- Always ensure that the power switches of all devices, including the Film Scanner and your computer, are in the Off position before attempting to connect the SCSI interface cable. Failure to do so may cause malfunctions.
- Be sure to use and tighten both screws or fasteners on the connectors when attaching any cable.



SUGGESTION:

- Refer to the installation guide included with the host adapter card for details on the host adapter and its connections.



CAUTION:

- If you are using connectors other than those shown above on your computer or SCSI devices, purchase or obtain an appropriate interface cable (high impedance type) to connect the Film Scanner.
- D-Sub 25-Pin connectors are designed to meet the same standards (Centronix) as parallel interface connectors (for printers) on computers. Ensure that you are connecting the SCSI interface cable to the correct connector on your computer.

About Connectors and SCSI Interface Cables

Your Film Scanner is equipped with Full-Pitch 50-Pin and D-Sub 25-Pin SCSI interface connectors. Check the shape of the SCSI connector on your computer or SCSI device to ensure that your interface cable can be used with the Film Scanner.

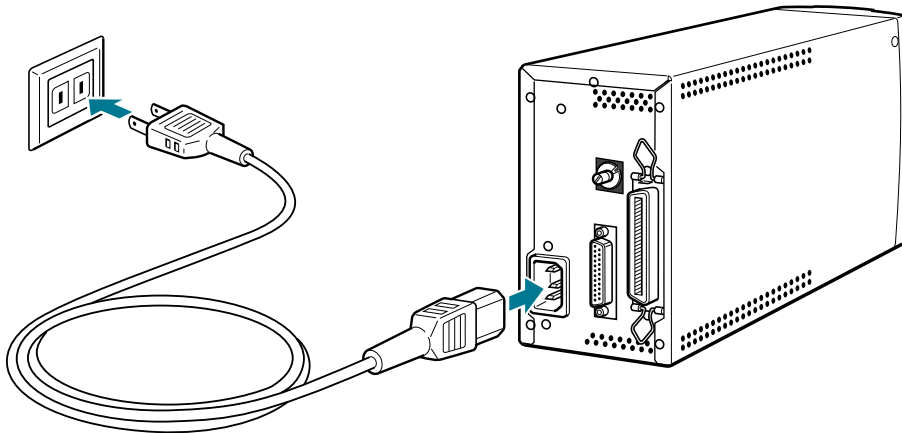


CAUTION:

- Your Film Scanner include SCSI interface cables (cable length 1.8 m or 5.9 ft) with a D-Sub 25-Pin and Full-Pitch 50-Pin connector on either end.
- If you are using a generic or other type of interface cable, ensure that it is a high-impedance type cable. If the wrong (non-high-impedance) type of cable is used, the Film Scanner may not be detected by your computer.
- The connectors of SCSI host adapter cards for SCSI II devices on the market are generally of the Half-Pitch 50-Pin variety. To connect your Film Scanner in this case, purchase an interface cable with a Half-Pitch 50-Pin connector on one end and a Full-Pitch 50-Pin connector on the other end, or a Half-Pitch 50-Pin connector on one end and a D-Sub 25-Pin connector on the other end.

4. Connecting the Power Cord

Connect the power cord supplied with the Film Scanner to the power cord socket in its back panel. Plug the other end into a standard electrical outlet.



CAUTION:

- Use only the power cord supplied with the scanner.
- Ensure that the power switch is in the OFF position before inserting the power cord.



Installing the Supporting Software

How to install the driver software programs required to operate your Film Scanner with your computer.

1. Installing the Software 34

1. Installing the Software

The Film Scanner should include the ScanCraft FS driver software for Windows 95 users. Once you have connected the Film Scanner to your computer or SCSI daisy chain, turn on the power switches of your computer and the Film Scanner. Then install the ScanCraft FS software once you have correctly set up the connection with the SCSI host adapter card as described in [Step 1](#). This program supports the TWAIN standard.



SUGGESTION:

- Please refer to the Users Guide accompanying ScanCraft FS for detailed instructions on how to install the driver software.
- ScanCraft FS may be used independently of other programs or opened from within application programs that support the TWAIN standard.
- The ScanCraft FS Users Guide can be read with the Adobe Acrobat Reader, a version of which is supplied on the CD-ROM disk shipped with your CanoScan 2700F package.
- To see installation instructions for Adobe Acrobat Reader, open the [Readme] file on the CD-ROM.
- To read the Users Guide, look on the CD-ROM for the [Manual] folder, and double-click on the [Scancrft.pdf] file to open it in Adobe Acrobat Reader.

Inserting Film in the Scanner

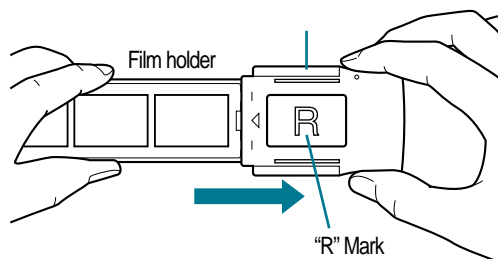
How to insert film of various types into the Film Scanner.

1. 35 mm Film	36
2. Mounted Slides	39
3. IX-240 Film	40

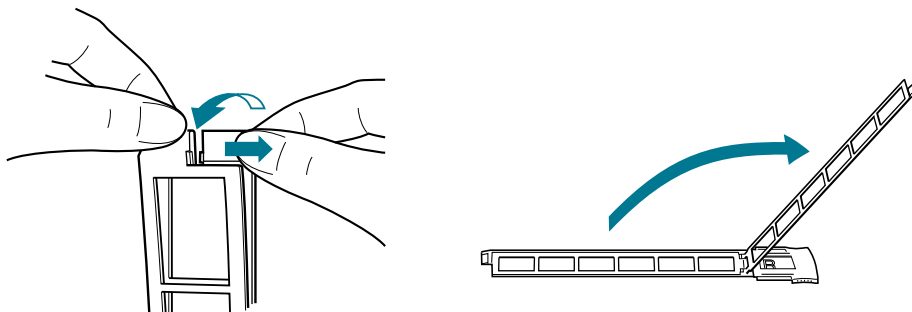
1. 35 mm Film

Follow the procedures below to place 35 mm negative film or unmounted 35 mm positive film (unmounted slide film) into the film holder for scanning.

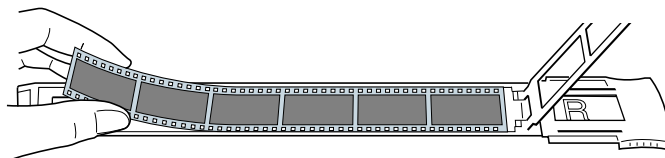
- 1** Slide the guide toward the end of the film holder marked with an “R”.



- 2** **Open the film holder.**
Open the film holder by gently twisting the tabs on the end and pulling up as shown.



- 3** **Place the film into the holder.**
Place the film holder so that the letter 'R' is facing upward. Place the film with the top surface upward so that images and words are viewed from above with the correct perspective.



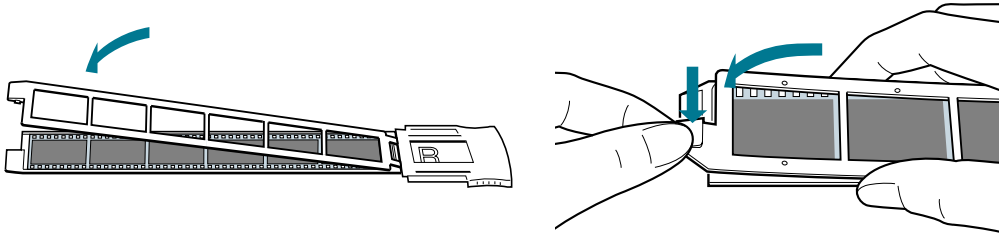
SUGGESTION:

- The driver software can correct the orientation of a scanned image even if the film has been reversed or inverted.

4

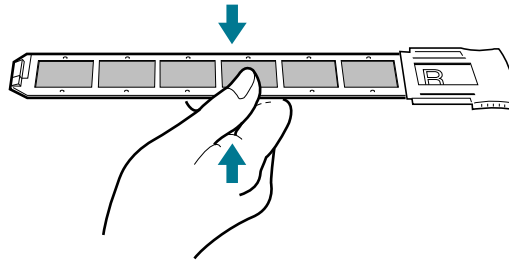
Close the film holder.

Close the two halves of the film holder and gently lock the tab as shown below.



CAUTION

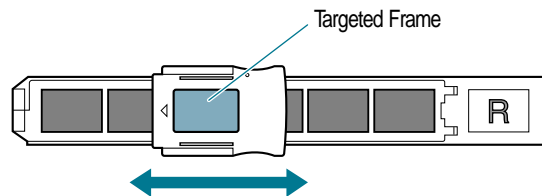
• Ensure that the film holder snaps closed along its length. If the middle portions remain raised after the tab on the end has been locked, gently pinch them closed with your fingers as shown below.



5

Align the guide over the desired frame.

If you slide the guide left and right over the film holder, it will automatically click into the notches in position over each frame. Make sure that the guide clicks fully into the notch over the desired frame before scanning.



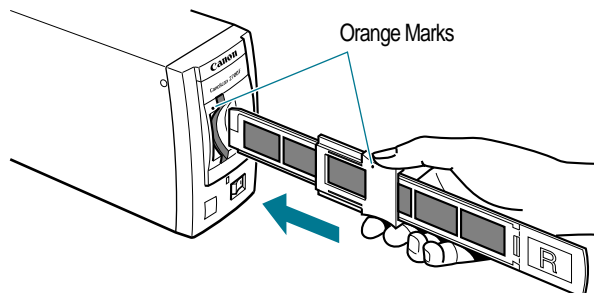
CAUTION

• Reposition the film in the film holder if the end protrudes from the holder or the guide is difficult to slide.

6

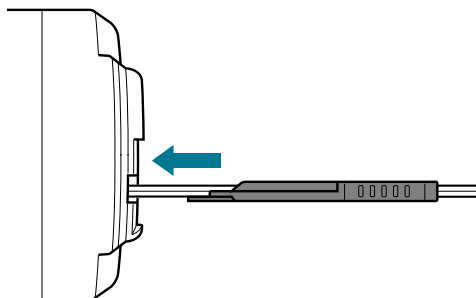
Insert the film holder into the Film Scanner.

As shown in the diagram, insert the film holder so that the orange marks align.

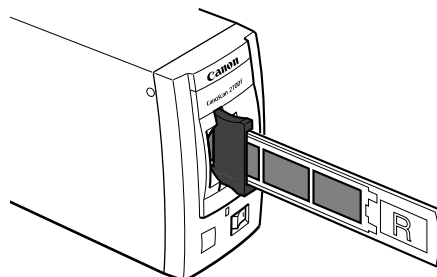


CAUTION:

- If you insert the film holder at an angle, the guide position may be altered and you will not be able to insert it properly.
- Be sure to orient the film holder for insertion as shown below. You will be unable to insert the film holder all the way into the scanner unless the guide is facing the correct direction.



Top View

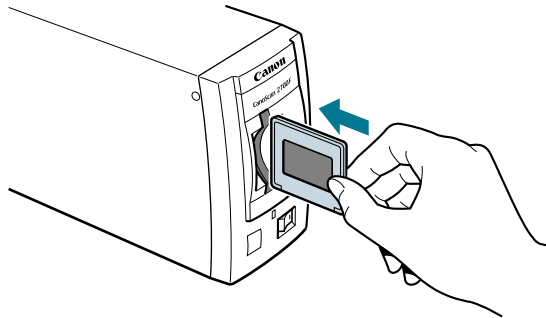


Keep film holder straight

2. Mounted Slides

Use the following procedures to insert slide-mounted 35 mm positive film into the Film Scanner for scanning.

- 1** Hold the slide on edge with the image you wish to scan oriented to the left.



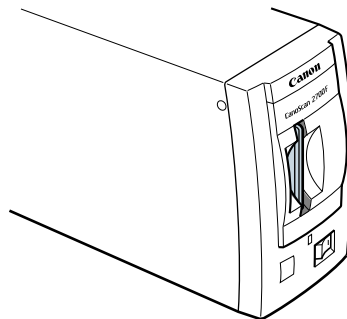
SUGGESTION:

- The driver software can correct the orientation of a scanned image even if the film has been reversed or inverted.



2 Insert the slide as far as possible into the scanner slot.

Push the slide straight into the scanner slot as far as it will go.



CAUTION:

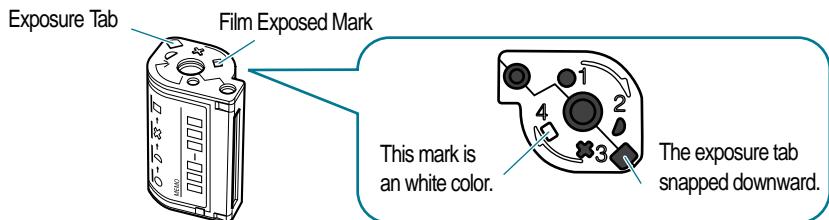
- You will not be able to insert the slide all the way to the back of the slot if it is held at an angle.
- If a slide jams because it has been inserted crookedly into the Film Scanner, open the film guide and remove the slide.

3. IX240 Film

Use the following procedures to place IX240 film in the supplied IX240 Film Viewer for insertion into the Film Scanner.

1 Prepare the IX240 film cartridge.

Confirm that the cartridge has been fully exposed and the exposure tab snapped downward.

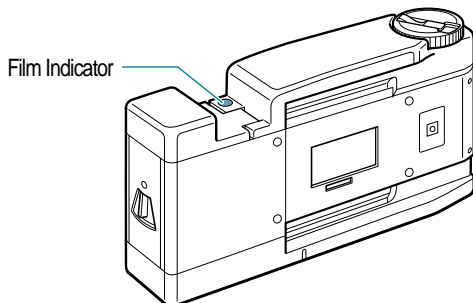


CAUTION:

- A partially used cartridge that is mistakenly placed in a IX240 Film Viewer cannot be unwound.



2 Confirm that the Film Indicator on the IX240 Film Viewer is an orange color.

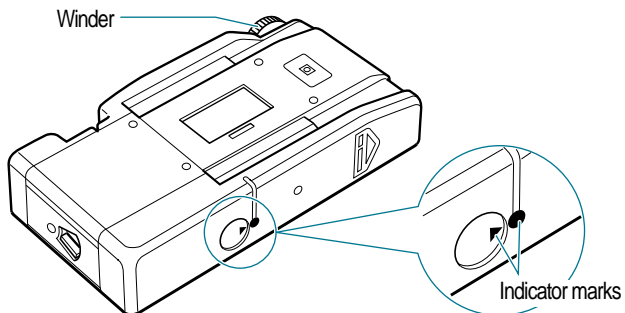


CAUTION:

- If the Film Indicator is not an orange color, another cartridge is already in the viewer. Rewind, remove and replace this cartridge with the one you wish to scan.



3 Use the winder to align the indicator marks on the bottom of the IX240 Film Viewer.

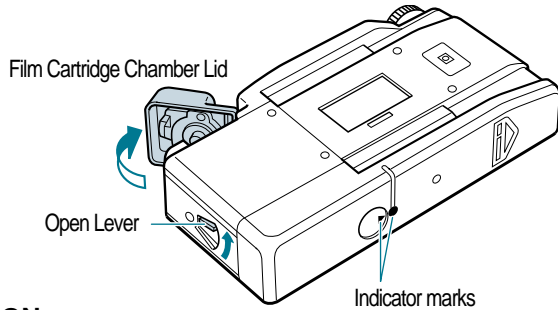


CAUTION:

- The open lever will not operate the film cartridge chamber lid unless the indicator marks on the bottom are aligned.

4

Open the film cartridge chamber lid by moving the open lever to the Open position.

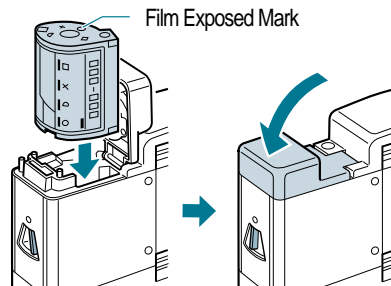


CAUTION:

- The open lever will not operate the film cartridge chamber lid unless the indicator marks on the bottom are aligned.

5

Insert the film cartridge into the film cartridge chamber with the film exposed mark facing upward and close the film cartridge chamber lid.

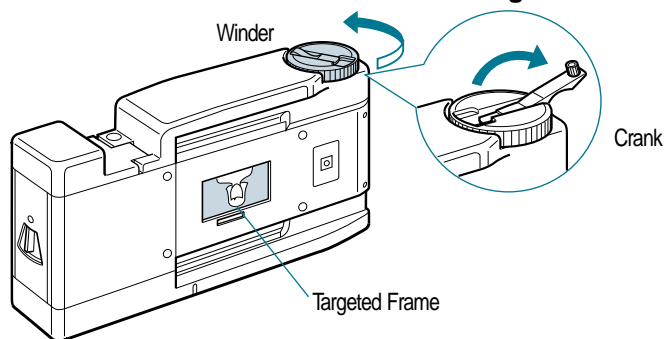


CAUTION:

- The cartridge will not enter the chamber unless it is properly oriented.
- Press the lid downward until you hear a clicking sound and the lid is securely fastened.

6

Use the winder to unwind the film in a counterclockwise direction until the frame you desire is positioned in the IX240 Film Viewer's scanning window.



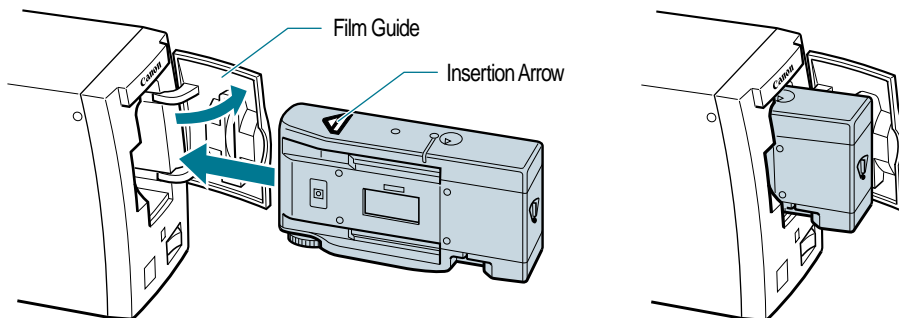
SUGGESTION:

- Use of the crank speeds up winding and unwinding.



Swing open the Film Scanner's film guide and insert the IX240 Film Viewer into the cavity. Make sure that the IX240 Film Viewer's crank handle is folded over flush with the surface of the winder.

To insert the IX240 Film Viewer, hold it with the arrow on its top surface pointing toward the Film Scanner. Insert it to the back of the Film Scanner ensuring that you keep it level during the operation.



CAUTION:

- The IX240 Film Viewer will not enter the Film Scanner if the crank handle is protruding. Check the crank to ensure that it is completely folded over before attempting to insert the IX240 Film Viewer into the Film Scanner.
- When removing the IX240 Film Viewer from the Film Scanner, take care to pull it straight out.

Removing Film Cartridges from the IX240 Film Viewer

Use the following procedures to remove film cartridges from the IX240 Film Viewer.

- (1) Use the winder to wind the film in a clockwise direction until the film is completely rewound. The film indicator will show orange.
- (2) Align the indicator marks on the bottom of the IX240 Film Viewer using the winder.
- (3) Open the film cartridge chamber lid by pushing the open lever to the Open position. The cartridge may now be removed.

Scanning

How to use the basic functions of the Film Scanner.

1. Turning the Power On and Off	44
Procedures for Turning the Power On	44
Procedures for Turning the Power Off	45
2. Scanning with the Windows 95 Operating System	46

A Note of Caution

Exercise due caution regarding the following points when using the Film Scanner to duplicate images.



CAUTION:

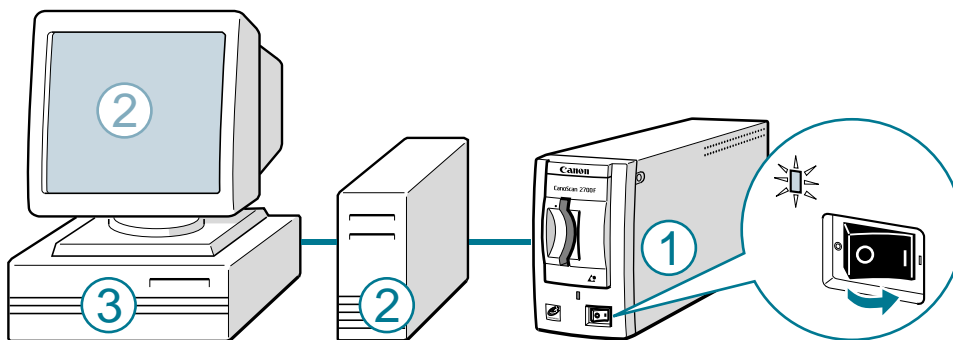
- Copying paper currency, coins and negotiable securities is an offense and subject to criminal prosecution
- The unauthorized duplication of identification materials, licenses, travel tickets, official documents or private materials is against the law and subject to criminal prosecution.
- Copyrighted material may not be duplicated without permission of the copyright holder except for use by an individual or within the confines of their own residence or a limited area.

1. Turning the Power On and Off

Procedures for Turning the Power On

Follow the sequence below to turn on the Film Scanner and other devices.

- 1 Move the power switch of the Film Scanner to the On position.**
The power switch of the Film Scanner is located on the lower right front panel. Push the switch in the direction of (|) symbol to turn on the power.
 - The power indicator will light and the scanning unit will return to the home position.
- 2 Turn on the power of all the other devices attached to the computer.**
If the power switch of your computer display is independent of the computer power switch, turn on the display power switch at this time too.
- 3 Turn on the power switch of your computer last.**



CAUTION:

- Turn on all of the SCSI devices attached to your computer even if you do not intend to use them at this time.

Procedures for Turning the Power Off

Follow the sequence below to turn off the Film Scanner and other devices.

1 Once you have closed all your application programs and completed your ordinary shutting down procedures, turn off the power switch of your computer.

2 Turn off the power switch of all the other SCSI devices connected to your computer except for the Film Scanner.

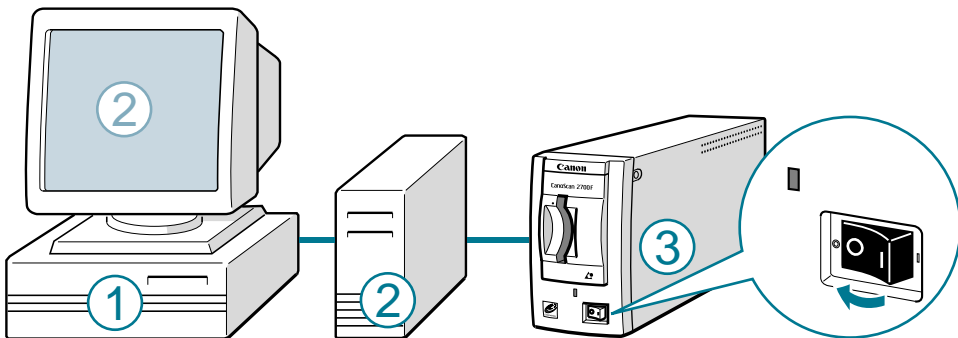
If the power switch of your computer display is independent of the computer power switch, turn off the display power switch at this time too.

3 Turn off the power switch of the Film Scanner.

The power switch of the Film Scanner is located on the lower right front panel.

Push the switch in the direction of (O) symbol to turn off the power.

• The power indicator will go off.



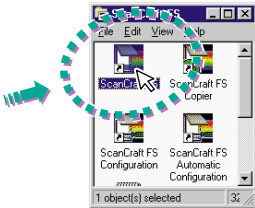
CAUTION:

• Always wait for more than 2 seconds after turning off the Film Scanner power switch before turning it on again.

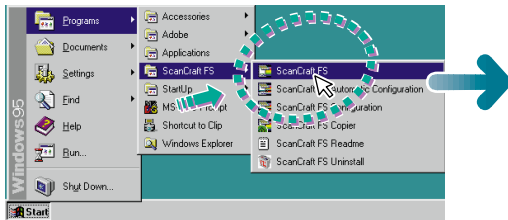
2. Scanning with the Windows 95 Operating System

When using the Windows 95 operating system, start up the previously installed ScanCraft FS driver software from the Windows Start Menu or Explorer, or from within a program that supports the TWAIN standard.

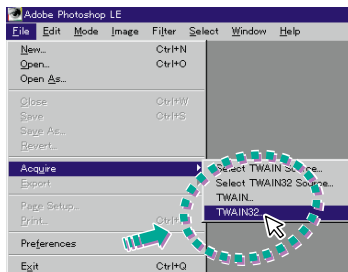
Double click on the ScanCraft FS icon in the ScanCraft FS folder



or
Select ScanCraft FS from the Windows Start Menu



or
(Using PhotoShop as an Example)



Select [TWAIN32] from the pulldown menu.



The ScanCraft FS operating panel.



SUGGESTION:

- Please refer to the ScanCraft FS Users Guide for instructions on how to use ScanCraft FS.
- The ScanCraft FS Users Guide can be read with the Adobe Acrobat Reader, a version of which is supplied on the CD-ROM disk shipped with your CanoScan 2700F package.
- To see installation instructions for Adobe Acrobat Reader, open the [Readme] file on the CD-ROM.
- To read the Users Guide, look on the CD-ROM for the [Manual] folder, and double-click on the [Scancrft.pdf] file to open it in Adobe Acrobat Reader.



What to do when

How to maintain the Film Scanner and what do when a problem is suspected.

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1. Troubleshooting Tips

If you think there is a problem with the Film Scanner, try to solve it by first referring to the table below.

If the problem is not addressed below or the recommended procedure fails to correct the problem, unplug the Film Scanner and contact your Canon vendor or the nearest [Canon Customer Support Help Desk](#) listed at the back of this guide.



SUGGESTION:

- Please refer to the Readme file or the on-screen HELP facility if you have a problem with the installation or operation of the driver software.

The Power Indicator Does Not Light.

Cause 1: The power cord is not attached.

Solution: Ensure that the power cord is properly attached. (-> p. 32)

Cause 2: The power switch is in the Off position.

Solution: Turn the power switch to the On position. (-> p. 44)

Cause 3: The power voltage is too low.

Solution 1: Connect the power cord to a different power outlet. (-> p. 10)

Solution 2: Use a voltage regulator device that will provide a stable power supply.

Cause 4: The outlet is not receiving any electricity.

Solution: Check the fuse breaker box.

The Film Scanner is Not Detected.

Cause 1: The SCSI interface cable is disconnected.

Solution: Correctly connect the SCSI interface cable. (-> p. 30)

Cause 2: The SCSI interface cable is incorrectly connected.

Solution: Correctly connect the SCSI interface cable. (Check that you haven't mistakenly connected the D-Sub 25-Pin SCSI interface cable to your computer's parallel port) (-> p. 30)

Cause 3: The SCSI terminator is incorrectly set.

Solution: Install a terminator on the last SCSI device in the daisy chain or, if the Film Scanner is the last device in the daisy chain, set the SCSI ID to a number in the Terminator On range. (-> p. 29)

Cause 4: The settings for the SCSI ID, IRQ or I/O port address are duplicated by another card or device.

Solution: Please read Step-1. (-> p. 13)

Cause 5: The ASPI driver software has not been installed.

Solution: Install the ASPI driver software. (-> p. 17)

Cause 6: The scanner's power switch was in the off position when Windows 95 was booted.

Solution: Start your computer after you have switched on your Film Scanner. (-> p. 44)

The Driver Software Will Not Start

Cause 1: The scanner power switch is off.

Solution: Restart your computer after first turning on the Film Scanner power switch. (-> p. 44)

Cause 2: The driver has not been installed correctly.

Solution: Reinstall the driver software included in your Film Scanner being sure to follow the correct procedures. (-> p. 34)

The Scanned Image is Reversed Left to Right or Top to Bottom

Cause: The film has been inserted in a reversed state.

Solution: Position and insert the film with the correct orientation.

Irregularities or Lines Appear in the Same Place

Cause 1: There is dirt or dust on the film.

Solution: Remove the dirt from the film with a blower brush or other device. (-> p. 52)

Cause 2: The film is damaged.

Solution: Use a film that is not damaged.

The Image is Blurry

Cause 1: The manual focus setting was incorrect.

Solution: Set the manual focus to the correct setting or scan the image with auto focus. (-> [See the software Users Guide](#))

Cause 2: The focus was incorrectly set when the film was shot.

Solution: The film cannot be used.

The Scanning Quality is Poor

Cause 1: The film is dirty.

Solution: Rescan the film after cleaning it. (-> p. 52)

Cause 2: The resolution (output device) is incorrectly set.

Solution: Rescan the film after selecting an appropriate resolution. (-> [See the software Users Guide](#))

The Color Quality is Poor

Cause 1: The film has faded.

Solution: In some cases, retouching the image with image processing software can alleviate the problem to some extent.

Cause 2: The (negative) film is difficult to color correct with the "Auto" film type function.

Solution: Rescan the film using the "Manual" setting to specify the film type and scan speed. (-> [See the software Users Guide](#))

Cause 3: The film type is incorrectly specified with the "Manual" setting (negative film).

Solution: Rescan the film with the film type set to the correct setting for the film brand. (-> [See the software Users Guide](#))

A Slide Is Jamming Inside the Scanner

Cause : The slide was inserted crookedly.

Solution: Open the film guide, remove the slide and make sure it is straight when reinserted. (-> p. 39)

Scanning Is Taking a Long Time

Cause: The resolution is set too high.

Solution: Rescan with the minimum possible resolution setting for the application. (-> [See the software Users Guide](#))

2. Regular Maintenance

Cleaning the Film Scanner Body

Follow the procedures below to clean the exterior of the scanner if it becomes dirty or dusty.

1 Turn the scanner power switch to the OFF position and remove the power cord plug from the electrical outlet.

2 Dampen a clean, soft cloth with water or a mild cleaning agent. Thoroughly wring out the cloth and use it to wipe the dirt or dust from the scanner.

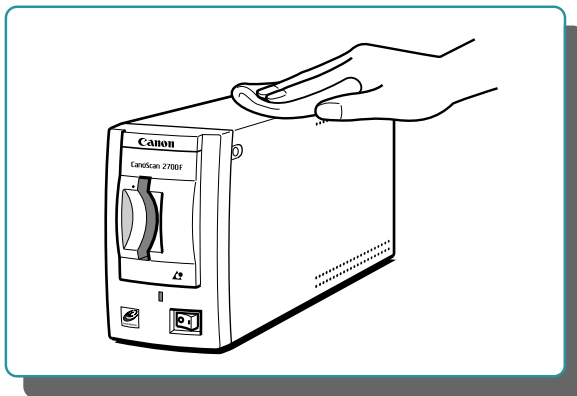


CAUTION:

- Be careful not to dampen the connector sockets at the back of the Film Scanner or any of its metallic parts. If these parts become wet, wipe them with a dry cloth.
- Always thoroughly wring out the dampened cloth before wiping the Film Scanner. Avoid spraying water or cleaning agents directly on the Film Scanner to prevent liquids from seeping into the interior, which can degrade the scanning quality.
- Never clean with alcohol, or cleaners containing thinners, benzene or other chemicals. These can distort, discolor or dissolve the Film Scanner case.



3 Remove remaining moisture with a clean, dry cloth.



- Never use alcohol, or cleaners containing thinners, benzene or other chemicals on the Film Scanner.

Cleaning Film

If your film is dirty or dusty, clean it using the following procedures.

If the Film is Dirty

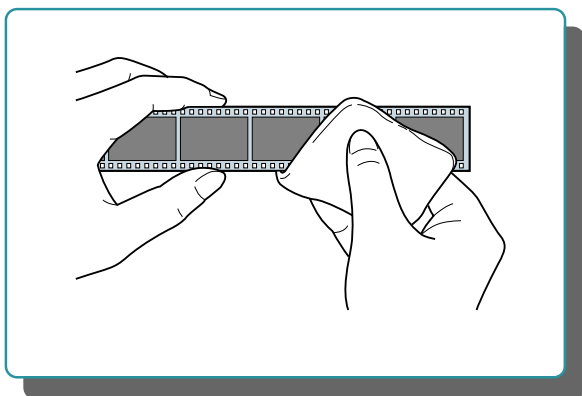
7

Wipe the film gently with a soft lens cleaning cloth to remove the dirt.



CAUTION:

- Never use force to wipe the film. Strong wiping may damage the film.
- Never use water, alcohol, or cleaners containing thinners, benzene or other chemicals to clean the film. These substances will cause the emulsion to peel, or alter or dissolve the film.

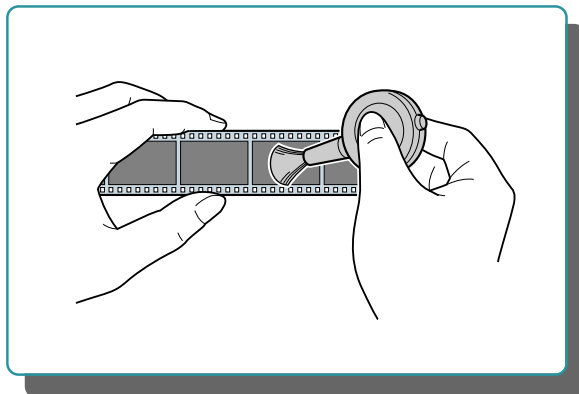


- Never use water, alcohol, thinners, benzene or other chemicals.

If the Film is Dusty

1

Grasp the edges of the film lightly with your fingers and remove the dust with a blower brush.

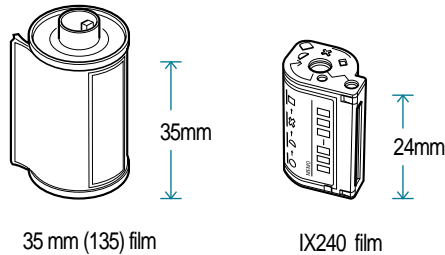


3. Basic Information Regarding Film

This section provides an explanation of various film characteristics to assist in selecting films and processing options.

Film Varieties

The most widely utilized product is 35 mm (135) film, which derives its name from its width. Advanced Photo System (IX240) film is a recently released product that is compact, easier to use and equipped with added features.



The CanoScan 2700F film scanner accommodates both film formats. Please base your selection of either film based on the camera with which you are shooting.



CAUTION

- The 35 mm and IX240 films are not interchangeable in their respective cameras. An IX240 film cartridge will not fit a 35 mm camera and a 35 mm film will not fit an Advanced Photo System camera.
- The CanoScan 2700F will not scan large-format professional films, such as 4x5 format films.

Color/Monochrome Films

The CanoScan 2700F can scan both color and monochrome (black and white) films. Moreover, it can scan color film on a monochrome setting, thereby eliminating the need to use monochrome film for images that will be ultimately printed in monochrome.

Negative/Positive Films

Negative films are used to make paper prints and are characterized as having light and dark areas in inverse order to the original photographic subject.



Negative Color Film

Negative film provides the greatest latitude in selecting exposure (light) settings. An incorrect exposure setting at the time of shooting can be corrected to a certain extent at the print-making stage. Negative film is recommended for situations when the photographer doesn't wish to pay strict attention to exposure settings and when paper prints are desired.

However, the color of the film base (the substrate upon which the emulsion is applied) varies between film manufacturers and products. As a result, the CanoScan 2700F must perform extra processing to accurately reproduce the correct colors of the original film, a task it performs with its Automatic Color Adjustment Function.

Positive film reproduces the light and dark areas of photographic subjects in the same order as they originally appear, permitting relatively immediate evaluation of the content and colors. Positive films are primarily selected when the goal is to mount the images in slide covers or use them to make printing plates.

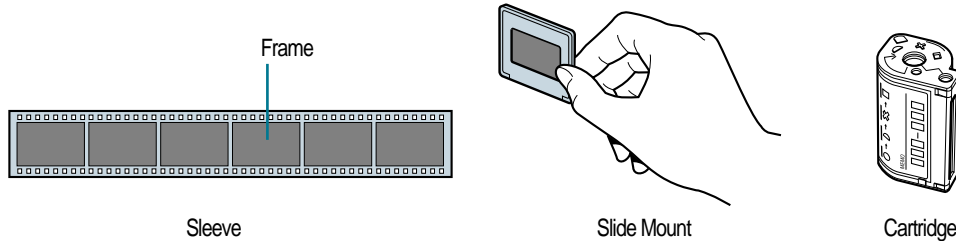


Color Positive Film

Positive film offers less latitude than negative film with exposure settings. Nonetheless, it doesn't require color correction to compensate for the variance of film base colors between brands, thereby eliminating the need to specify the film manufacturer and product name as well as the extra time to process the scanned image with the Automatic Color Adjustment Function.

Final Film Formats

At the developing stage, the photographer must choose between placing 35 mm film in a sleeve or mounting it in a slide cover.



The standard format for negative film is to place it in a sleeve fitting six frames. Positive film may be placed in either a six-frame sleeve or individual slide mounts.

In the case of IX240 film, the developed film remains in the cartridge, negating the need for format selection.

The CanoScan 2700F can accommodate all of the above formats, permitting the photographer to freely select between them according to the constraints of other equipment, such as the camera.

So What Film Is Best?

If a 35 mm camera is to be used, negative color film developed in a standard sleeve is recommended to allow casual photo shooting and reproduction in the form of paper prints.

If the purpose of the photo shoot is to produce materials for slide presentations and the photographer is technically competent, color positive film is recommended. The final format will depend upon the application.

Specifications

Type:	Moving Film Carriage Type / Desktop Model
Scanning element:	Charge-Coupled Device 3 Line Color Image Sensor
Light source:	Xenon fluorescent lamp
Scanning resolution:	2,720 dpi
Scanning modes:	Color / Greyscale / Black and White
Scanning gradation:	10-bit Scanning / 8-bit Output
Scanning speed:	35mm Film : Positives 26 sec. / Negatives 26/52/78 sec. (Switchable) IX240 Film : Positives 20 sec. / Negatives 20/40/60 sec. (Switchable)
Scanning area:	35mm Film : 24.2 x 36.3mm IX240 Film : 17.4 x 31.3mm
Focal modes:	Auto/Manual
Prescan:	7 seconds / 170 dpi
Power on self test:	Within 30 seconds
Magnification:	6.25 / 12.5 / 25 / 50 / 100 %
Interface:	SCSI II
Interface connectors:	Full-Pitch 50-Pin / D-Sub 25-Pin
Power supply:	85~264 Volts AC (50~60 Hz)
Maximum power consumption:	Standby: >13 W Operating: >35 W
Dimensions:	85 mm (w) x 321 mm (l) x 147 mm (h) (3.3 in x 12.6 in. x 5.8 in.)
Weight:	Approximately 2.4 kg (5.3 lb.)

• These specifications may change without notice.

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