



F-335 Series
Service Manual

Scanner Specifications

Minimum Host Computer Specifications

- Pentium IV CPU 1.7GHZ or higher
- 1 40GB hard drive to be used for the operating system, application programs, and storage. If IDE, it must be configured as **Primary Master**.
- 1 40GB hard drive capable of a sustained transfer rate of 30MB/sec. This is to be a dedicated drive for the scan data buffer. If IDE, it must either be a **Secondary Master** drive or connected using a serial ATA connection. Drive letter must be N:\ and **it must NOT be formatted**. This should be a 7200rpm drive. See the “Disk Management” chapter for more information on configuring this drive.
- Windows 2000, Service Pack 2
- 512MB of RAM
- A motherboard with an integrated USB 2.0 controller as part of the motherboard chipset. A dedicated port is recommended. USB 2.0 hubs have not been fully tested for reliability.
- Separate AGP Graphics card. Using a motherboard with a built-in graphics card will be problematic.
- Microsoft USB 2.0 drivers.
- SCSI CD-RW drive if both hard drives are IDE. (Plextor 12/10/32S or 40/10/40S recommended, and required for Kodak Picture CD support.) If using a serial ATA hard drive, the CD-R can be an IDE drive. (Plextor CD-R PX-W48, 52/24/52A, or PlexWriter Premium recommended, and required for Kodak Picture CD support)
- 1.5GB Pagefile.(Virtual Memory)

Power

- External power supply
- 15V, 4.6 amps,
- 50-60 Hz Input voltage frequency
- Plug polarity is plus center, minus outside
- 5.5mm outer diameter, 2.1 mm inner diameter

Contents of Box

- F-335 Film Scanner
- 6ft. USB 2.0 Cable
- Software and User Manual CD
- Power supply and power cord

Size

- 17.3”W x 13.6”H x 12.6”D with cover on

Resolutions

There are three supported resolutions.

4Base	1000 x 1500
8Base	1400 x 2100
16Base	2000 x 3000

Light Source

The F-335 uses an LED light source. The LED consists of blue, green, orange, and red LED's. The light source is expected to last for the life of the scanner and should not require maintenance.

Film Types and Variations

- The F-335 is designed to scan film in 35mm and 24mm (APS) formats. Color negative, color reversal (positive or slide) film, black and white, C-41 processed black and white films are all supported.
- APS film can only be scanned once removed from the canister for the F-335, but cannot be cut into strips. All APS formats (C, H, and P) will scan only in full frame (H) format.
- The F-335C can scan APS film while still in the APS canister.
- 35mm cut strips are supported in sizes from 2 frames to 40 frames. However, to ensure DX code reading, the strips must be a minimum of 3 frames.
- Mounted slides are not supported.

DX Code Reading

- 35mm DX codes are read using the ISO 1007 specifications and are used by the host manager.
- APS encoding will only be read by a full roll of film, and will not be read from an APS strip.

Scanner Theory

The F-335 film scanner is a stand alone USB 2.0 device, designed as a high speed scanning solution. It is highly flexible, and can easily be integrated into a larger digital photo processing system, or operated as an independent scanning device, attached to a host computer.

Optical Tower

The scanner is designed around an optical tower, which suspends the lens and CCD assembly above the film track. Both the lens and CCD assembly are on stepper motors that move up and down on these stepper bars. There are four sets of stepper positions: one for 8 Base and 16 Base focus positions for 35MM and APS. Each of these positions are determined by calibration, performed during manufacturing or by authorized service technicians. 4 Base scan resolution uses 16 Base resolution that uses CCD binning to create a lower resolution. The client interface software moves the lens and CCD assembly into the proper position after the user selects the resolution in which to scan.

Light Assembly

At the bottom of the optical tower is a small piece of glass suspended by two set screws. This glass piece is the illuminator, or light transfer bar. The film track transports the film underneath the optical tower, but above the light transfer bar. The light transfer bar illuminates the scanning area. The CCD chip senses the light and converts it into digital information.

The light assembly houses the Digital ICE hardware. This hardware is responsible for removing scratches and defects in the film. When a four channel scan is initialized, this hardware activates. The software then looks at the fourth channel (defect channel) and removes defects from the RGB channels.

CCD Chip and Assembly

The CCD chip is trilinear--it senses three colors: red, green, and blue. A skew in the CCD assembly will cause scanned images to be skewed. The result would turn "Skew" into "*Skew*." (The image would appear slanted, as the italicized "skew" demonstrates.) A skew adjustment procedure is performed during the scanner's original manufacturing calibration process to properly align the CCD board. Epoxy is used to glue the CCD board into the proper skew position.

The CCD board requires a tilt adjustment be done to ensure that the distance from one end of the CCD is the same as the opposite end. If these distances are not equal, then one edge of a scanned picture will be in focus, and the other edge of the picture will be out of focus. This procedure is performed during the scanner's original manufacturing calibration process. Epoxy is used to glue the CCD board into the proper tilt position.

As the film is scanned, the data is converted into raw digital data through the 14 bit A/D chip on the CCD board. This data is transferred from the CCD board to the USB interface board and sent to the host PC. The host computer saves this data in a buffer in a specific path (typically the N:\, which is an unformatted partition), where it is later accessed by the client.

Lens

The lens is mounted to a bracket that can swivel from side to side and forward and backward. During the manufacturing process a lens alignment fixture is used to position the lens in the proper alignment with the film track and CCD chip. Once the proper position is determined, the lens mount bracket is glued so the lens cannot move after the manufacturing calibration process.

Motor Control and DX Board

The motor control and DX functions of the scanner are all performed by the largest circuit board in the scanner. It is located on the undercarriage of the frame. This board controls all motors: lens and CCD steppers, film guides, film rollers, and the filter wheel.

The lens and CCD steppers move the lens and CCD to predefined focus positions, as outlined in the "Optical Tower" section. The film guides open and close the film gate to accommodate 35MM and APS (24MM) film. The film rollers grip the film using rubber o-rings to transport the film through the film track.

Motor Speed

The calibration wizard sets the film speed in the final phase of the calibration procedure. Each resolution, film type, and 3 channel and 4 channel setting must have its own film speed. These settings, as all calibration settings are stored in the EEPROM of the scanner, on the USB board in the scanner.

APS and 35MM Film Guides

The film track is designed to default to 35MM size film. A stepper motor can contract the film track to accommodate APS (24MM) film. The guides will open and close as the user determines the position by selecting the desired film type in the interface software.

DX Sensors

The film track has DX sensors built into the assembly. These sensors are positioned so they have the ability to read DX code on both sides of the film. The DX codes will report film type and film specifier values. They also determine index numbers for each frame. To see requirements for DX code reading, please refer to the “Scanner Specifications” chapter.

USB Board

The F-335 scanner communicates to a host PC via a USB 2.0 interface. The scanner has a USB interface board built into it. This board communicates with the scanner, and then relays that information to the host PC.

The USB board has an EEPROM chip built into it to store calibration information. The Calibration Wizard program writes all calibration data to this EEPROM chip. When the scanner interface software is launched, this calibration data in the EEPROM is written to the Windows registry. This means that a F-335 scanner will be properly calibrated and functional when attached to any PC that meets the Computer Requirements outlined in the first chapter.

MOF Assembly

The MOF reader extracts APS film from an APS cartridge and transports it through the film transport assembly. The MOF assembly opens the APS cartridge door once it has been inserted into the MOF door. Once the operator begins a scan operation, the film will move forward until it is held by both rollers. The scan operation will then begin.

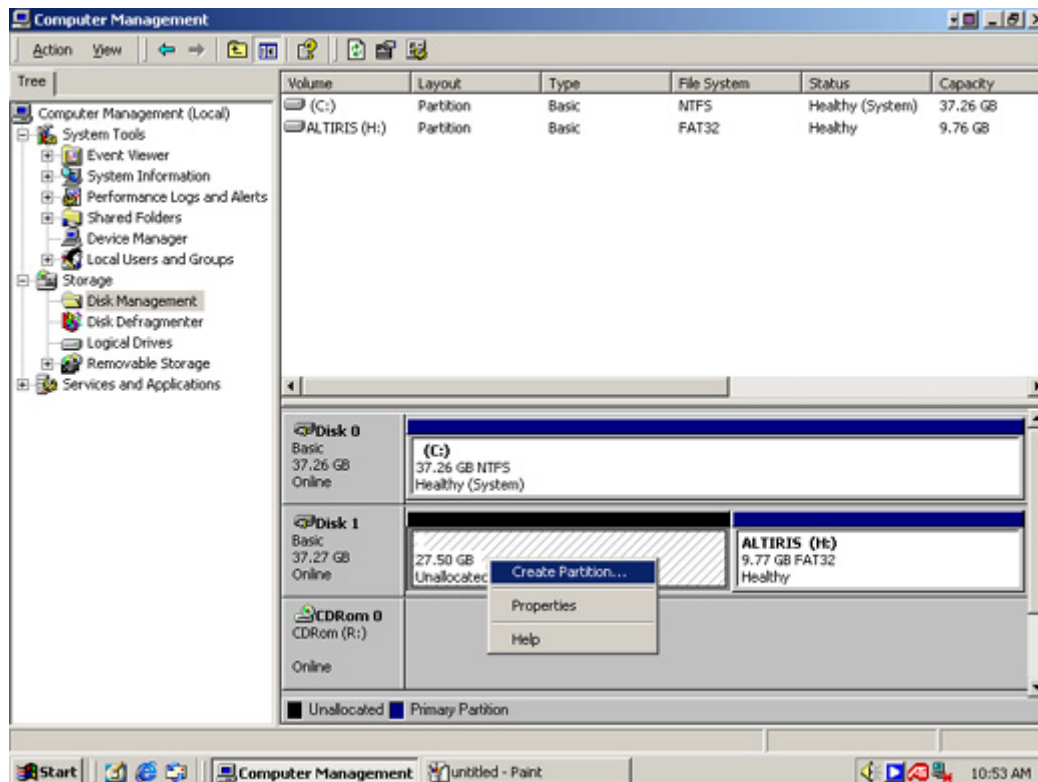
The scanner will recognize the end of the roll of film and rewind the film. While rewinding, the MOF reader will read the data from the film for the three different film aspect ratios (C, H, and P). The cartridge door will be closed when the door is re-opened by the operator.

Hard Disk Configuration

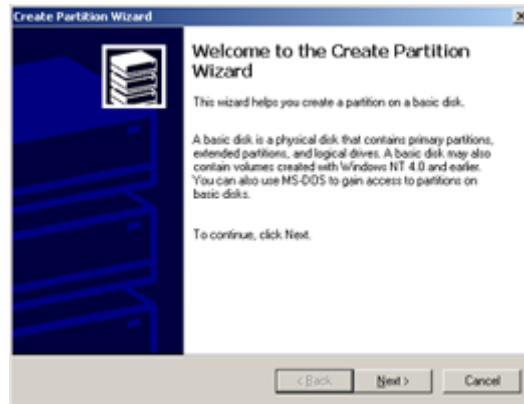
The F-335 software requires that there be a hard drive partition set up specifically for the software to use. This drive needs to be the secondary master drive, configured as the N: drive, and **must NOT be formatted**.

Configure the drive as instructed below:

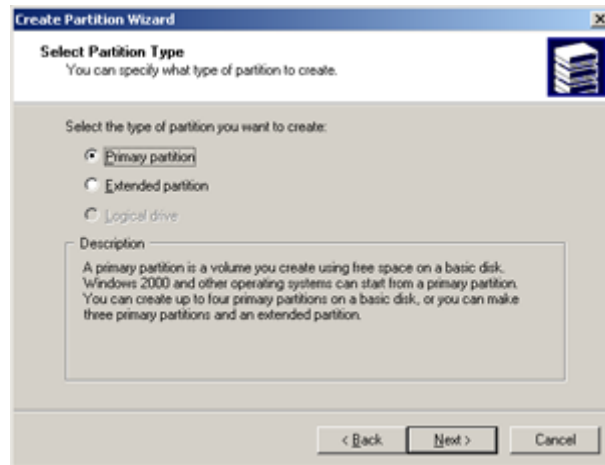
1. Right-click on “My Computer” and select “Manage.”
2. Click on “Disk Management” to begin configuring the drives.
3. Right-click on the un-allocated space on disk 1, which should be the secondary master drive.



4. The “Create Partition Wizard” will open. Click “Next” to begin.

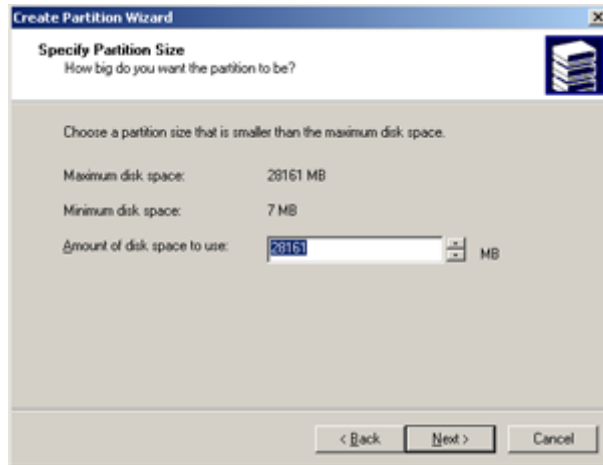


5. Select “Primary Partition” and click “Next.”

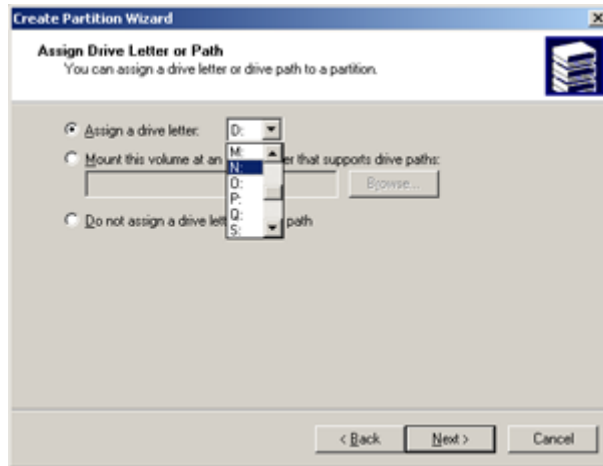


6. Use the full size of the drive, unless making a Disaster Recovery partition.

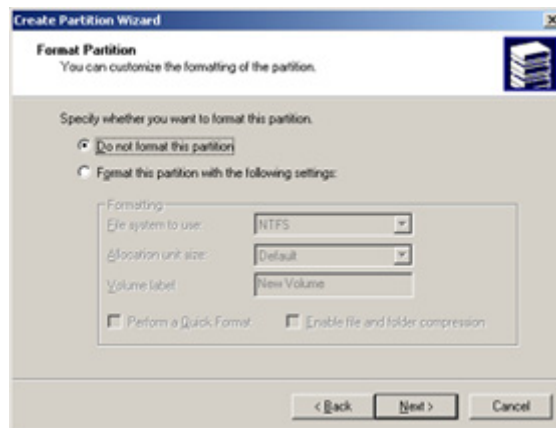
A “Disaster Recovery” partition is used by Pakon, to back-up the C:\ to make a system recovery option available. If no system back-up drive will be used, use the full size of the secondary drive for the scanne buffer drive.



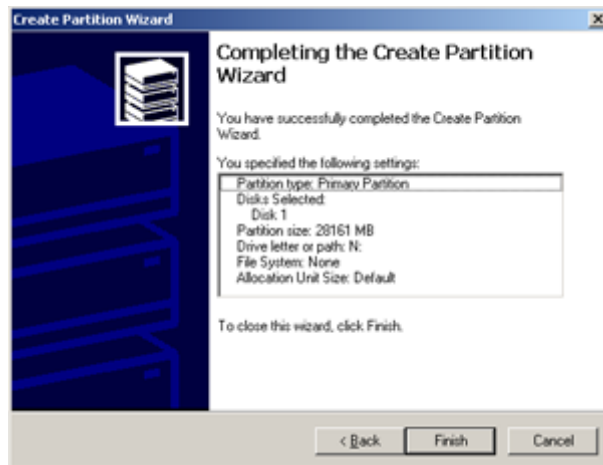
7. Assign this drive to be N:. Select N: and click “Next.”



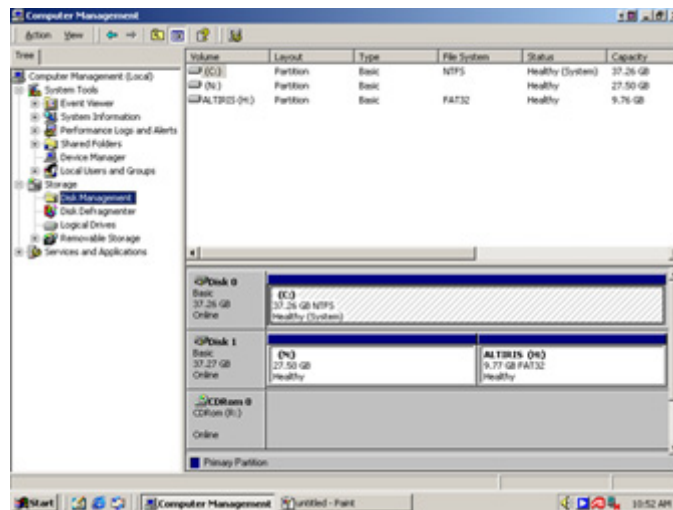
8. It is imperative to **NOT** format this partition. Select “Do not format this partition.”



9. Review the settings on the new drive, to finish click “Next.”



10. Verify that the Disk Management screen looks correct before closing the program.



Installing the F-335

The F-335 is a peripheral device. It must be connected to a computer that meets the required specifications listed on page 1 of this manual.

1. Clear a space near your computer system to place the F-335 scanner. The USB 2.0 cable must be able to reach the PC, so it cannot be more than 6 feet (2m) from the computer. There must also be 4 inches (10cm) clearance above and behind the scanner's ventilation duct.
2. Connect the power cord to the power supply plug on the back of the scanner.



3. Connect the USB 2.0 cable to the back of the scanner.



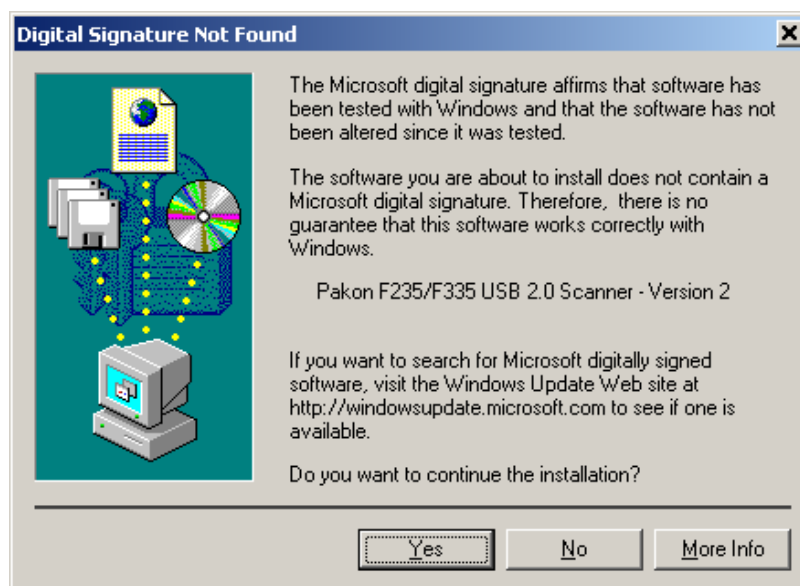
4. Connect the USB 2.0 cable to the back of the computer, in a USB 2.0 port. **Do not plug in to a USB 1.0 connector!**



5. While the computer is on and Windows 2000 is loaded, turn the scanner power switch into the 'on' position.



6. The install will ask for authorization to install the driver despite it not having been "digitally signed." Yes must be selected for the driver to install.



7. After the driver is finished installing, verify that the scanner driver is properly installed, by viewing the scanner properties in the Device Manager under the heading, “Imaging Devices.”
8. As a final step, it is recommended that the installer clean the F-335 from any dust that may be inside the scanner. Please refer to these procedures in the “Operator Maintenance” chapter.

BIOS Configuration

The following BIOS options are used on systems configured by Pakon, and are recommended to be configured as outlined below.

Option	Setting
Plug and Play O/S	Disable
AGP Aperture Size	32MB
PCI Latency Timer	248
ACPI Suspend State	S1 State
USB Boot	Disable
PXE Boot to Lan	Disable
PCI to DRAM Prefetch	Disable

Operational Information

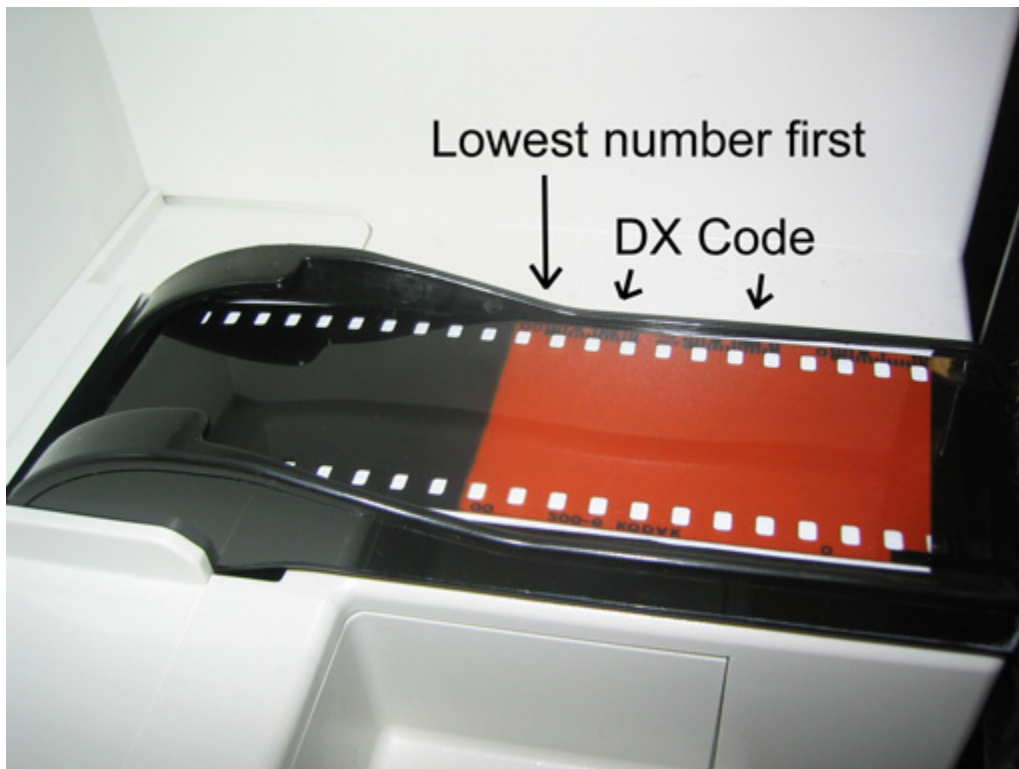
Powering On

Power on the host PC, and allow it to finish loading Windows before turning the F-335 scanner on. This will ensure that the scanner can properly communicate with the host computer.

Operation and Film Insertion

When scanning film, ensure the appropriate film type is selected in the scanner interface software program supplied. Do not attempt to scan 35mm film when APS is selected, and likewise do not scan APS film when 35mm film has been selected.

Inserting the film properly will ensure that the DX codes are read and that the framing will be done correctly. Insert the film with the emulsion up, DX Code to the back of the scanner, and starting with the lowest number first, as shown below:



Do not attempt to remove film from the scanner while the scanner motor is moving! This will cause damage to both the film and the scanner.

APS Cartridge Handling

The F-335C scanner has the ability to scan film from an APS cartridge without having to manually remove the film from the cartridge.

1. Open the MOF door by pressing down on the button to the right of the door itself.



2. Insert the cartridge with the film door facing the film track entrance.



3. Close the door by pushing the drawer forward until it clicks shut.



In the software interface program, select “APS”.

Calibration

There are two types of calibration for the F-335.

Color calibration is set during the manufacturing process, as well as any service that involves the CCD or any optical filter. This is to be performed by trained and authorized service personnel only.

Scanner corrections are performed automatically. They consist of a series of steps performed when the scanner is first turned on, as shown below:

- Start-up corrections
- Initial bulb warm-up
- Gain and exposure Control Corrections
- Run Time Corrections

Format Change

The scanner will automatically change the film guide, lens position, CCD position, or color filter position whenever one of the following steps take place:

- Film Format change between 35mm and APS
- Film type change between color negative, color reversal, and black and white
- Magnification Change (Change of scanning resolution)

Film Gate Change

The film gate opens and closes depending on the size of the film being scanned. It will open for 35mm film and close for APS film. This gate will open or close automatically when a different film size is selected.

LED Indicator Lights

Power LED	Function
Solid Green	+5V is functioning
Off	+5V is not functioning

Status LED	Function
Solid Green	Scanner Ready
Blinking Green	Scanner is Scanning
Blinking Yellow	Scanner is Calibrating
Blinking Red	Scanner Error
Off	Scanner not Functioning

APS LED	Function
Solid Green	Scanner in APS mode
Blinking Green	Scanner is Scanning
Blinking Red	APS mode Error
Off	Scanner in 35MM mode

Digital ICE

Digital ICE is designed to assist in removing scratches, dust, and debris artifacts from scanned film. It should be used as a complement to a photo lab's normal cleaning procedures. Customers are still advised to clean the floors and work surfaces regularly to keep the lab environment as dust-free as possible.

It is also recommended to clean all film with a lint-free cloth before attempting to make prints 8"x10" or higher.

If a lab is having persistent dust problems, it is recommended to perform the following regularly:

- Clean all customer film with a lint-free cloth before scanning it.
- When the scanner is turned off, cover it with a plastic, or lint-free cover.
- Use a lint-free cloth daily to clean the cover of the scanner and the surface of the table it is positioned on.
- Clean or replace the air filter on the back of the scanner once per week.

Operator Maintenance

Warning: These procedures require the operator to remove up to two of the three covers on the scanner. Do not attempt to operate the scanner without these covers properly in place!

WARNUNG: Bei diesen Verfahren muss der Bediener bis zu zwei der drei Abdeckungen am Scanner entfernen. Der Scanner darf nicht betrieben werden, wenn diese Abdeckungen nicht ordnungsgemäß angebracht sind!

ATTENTION : au cours de ces procédures, vous devez ôter deux des trois couvercles du scanner. N'essayez pas de faire fonctionner le scanner sans que ces couvercles de protection soient correctement à leur place !

Dust cleaning of illumination

The F-335 is a precision optical device. A relatively smoke and dust free environment is necessary. The scanner must be cleaned periodically to remove large collections of dust or debris inside the scanner, on the illumination. **This procedure is recommended to be performed every two weeks.** Software is designed to compensate for smaller collections of dust or debris, but cleaning may be required. Digital ICE is only designed to complement the lab's normal cleaning procedures--which should include cleaning the floor and work surfaces regularly.

Follow each step by a verification process to determine if the cleaning was effective. If the verification determines that level of cleaning was ineffective, the next level is required.

1. Simple cleaning with compressed air and or lens brushes.
2. Cleaning with rubbing alcohol and a cotton swab.
3. Service call.

Cleaning the Illumination with Compressed Air

1. Turn off the scanner.
2. Disconnect the USB and power cables.
3. Gently remove the side panel of scanner, by pulling back on it. It should snap out of place.



Do not touch anything inside the scanner while the power is on. The cover is only off to allow dust and debris to be blown out of the scanner.

WARNUNG: Berühren Sie keine Bauteile innerhalb des Scanners, während das Gerät eingeschaltet ist. Die Abdeckung wird nur deshalb abgenommen, damit Staub und Verschmutzungen aus dem Inneren des Scanners heraus geblasen werden können.

ATTENTION : ne touchez aucun élément interne du scanner lorsque ce dernier est sous tension. Le couvercle est ouvert pour permettre d'éliminer poussière et débris du scanner.

4. Connect power to the scanner.
5. Turn the scanner on.
6. Remove the small film path cover.



7. Aim the hose of a can of compressed air into the film path--aiming for the clear piece of glass in the middle.

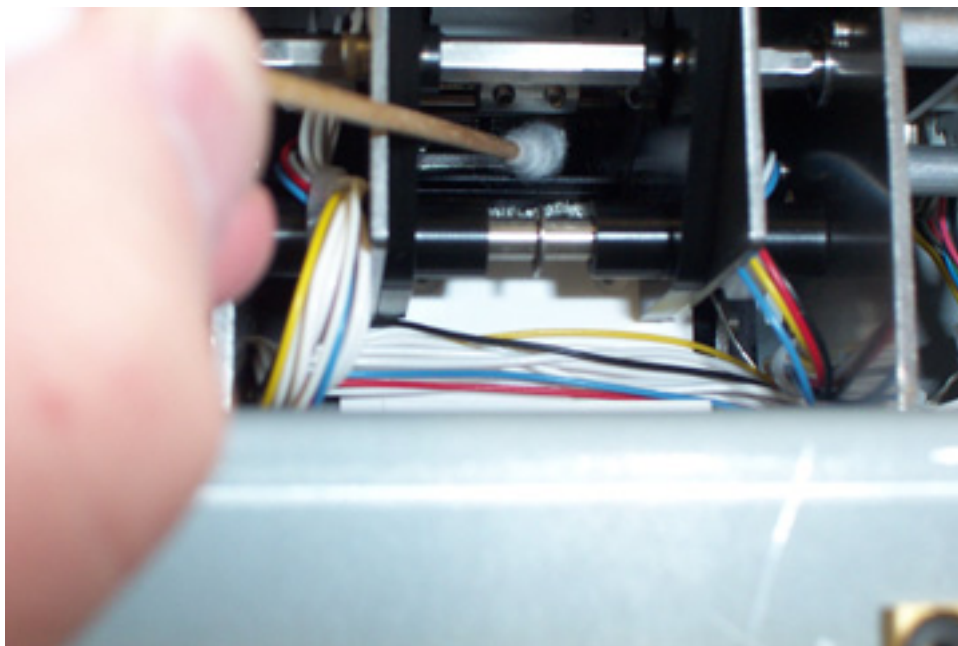


8. It may be beneficial to insert a strip of film into the scanner before blowing it out. This will focus all the air onto the light transfer bar, and should dislodge any dust or debris.
9. When finished, put the film path cover back in place.
Turn off the scanner immediately when finished cleaning the scanner!
10. Turn off the scanner and unplug the power cable.
11. Replace the side cover by snapping into place.
12. Plug in the USB and power cables.

Cleaning Illumination with Cotton Swab

CAUTION--Be Careful not to scratch or damage the top of the glass light bar!

1. Turn off the scanner.
1. Disconnect the USB and power cables.
2. Gently remove the side cover.
3. Using a long cotton swab, dabbed in isopropyl alcohol, clean the illumination bar inside the film track assembly.
4. The illumination bar is a small piece of glass, sitting upright.



5. After cleaning the illumination bar, replace side cover and turn on.

Cleaning the Fan Filter

[Click to Watch Video](#)

The fan filter keeps dust from inside the scanner. This filter needs to be cleaned every two weeks, or more depending on the conditions of the lab environment.

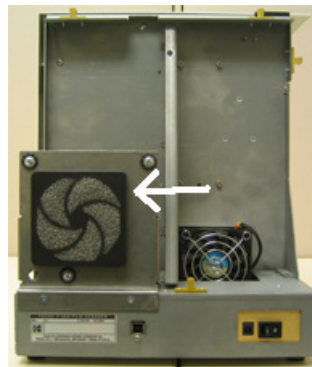
1. Close scanner software.
2. Turn off the scanner.
3. Disconnect USB and power cables.
4. Gently remove side cover by pulling on it. It should snap off.
5. Gently remove back cover by pulling on it. It too, should snap off.

Be Careful not to touch anything other than the fan and filter assembly. Many pieces on the back of the scanner will be hot to the touch, and are to be avoided.

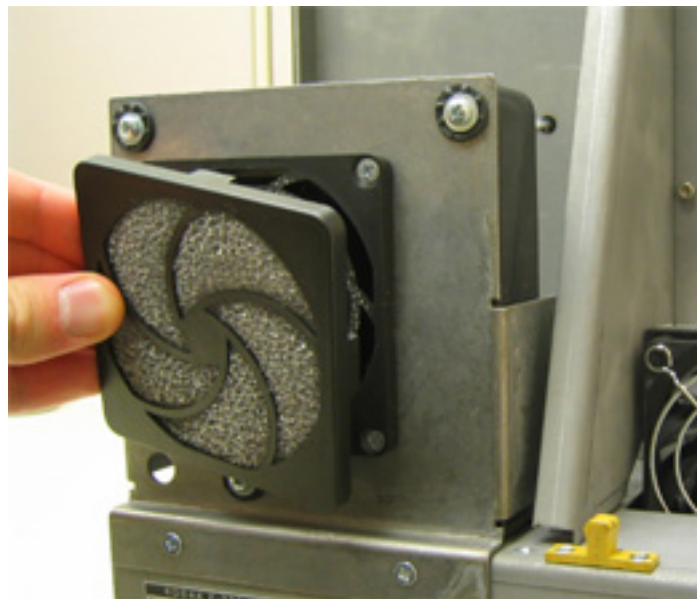
VORSICHT: Berühren Sie keine Bauteile, mit Ausnahme des Ventilators und der Filter. Zahlreiche Bauteile an der Rückseite des Scanners sind heiß und dürfen daher nicht berührt werden.

ATTENTION : ne touchez rien d'autre que le module ventilateur et filtre. De nombreux éléments situés à l'arrière du scanner sont chauds, évitez de les toucher.

6. Locate the Fan filter (123816). It is located on the back of the scanner, just under the plastic fan cover.



7. Pull straight back on the plastic fan cover until it comes free from the scanner housing.



8. Remove the filter from inside the cover, and rinse with tap water; replace if necessary. **Replace the filter only after it has dried completely.**



9. Re-attach the fan cover by applying moderate pressure to each of the four sides, until it snaps back in to place.

Cleaning the Film Track

It is recommended to clean the film track every two weeks, along with the illumination cleaning. Keeping the film track clean will ensure that DX code reading remains reliable. It will also maintain the proper motor speed for each resolution.

1. Remove the film path cover.
2. Position the tip of the compressed air hose on both sides of the film track entrance, and blow.



3. Position the tip of the compressed air hose on both sides of the film track exit, and blow.



4. After cleaning the film track, run the 'Film Track Test' in the client interface program.
5. Verify the scanner is properly reading DX codes by scanning a roll of film.

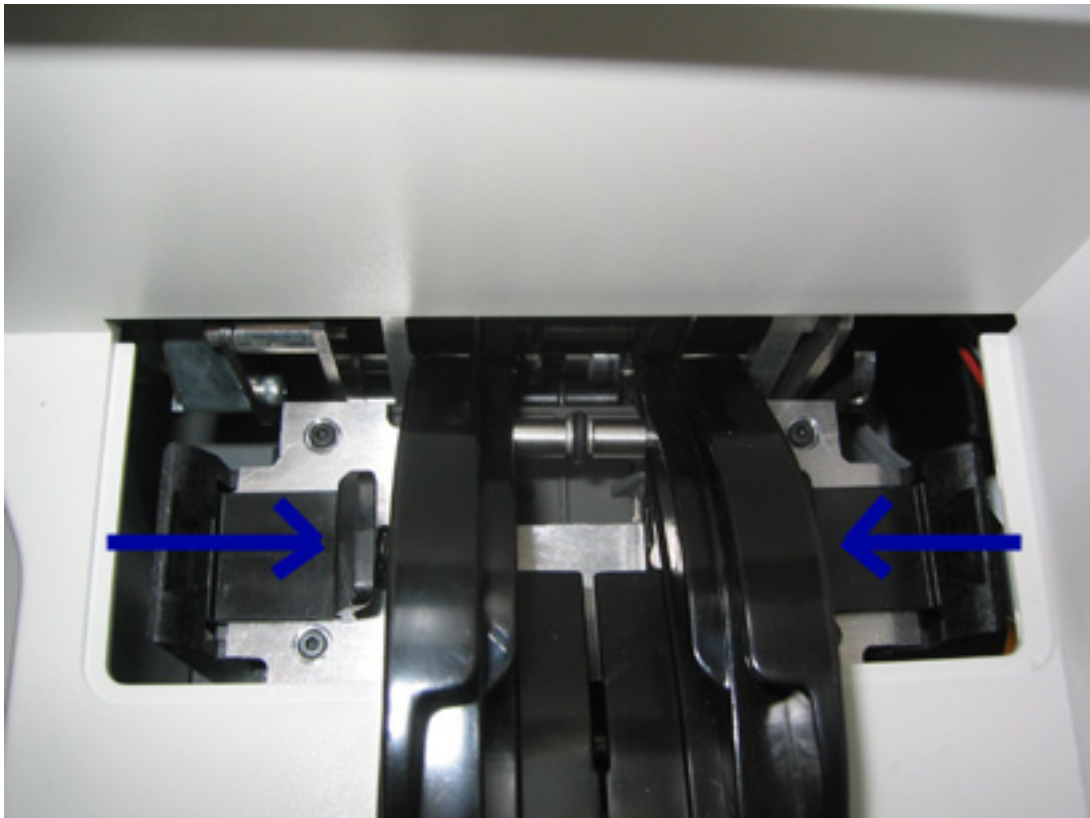
MOF Head Cleaning

The MOF heads on F-335C models require monthly cleaning. These heads read the magnetic data from APS films.

1. Remove the film guide assembly piece shown below:

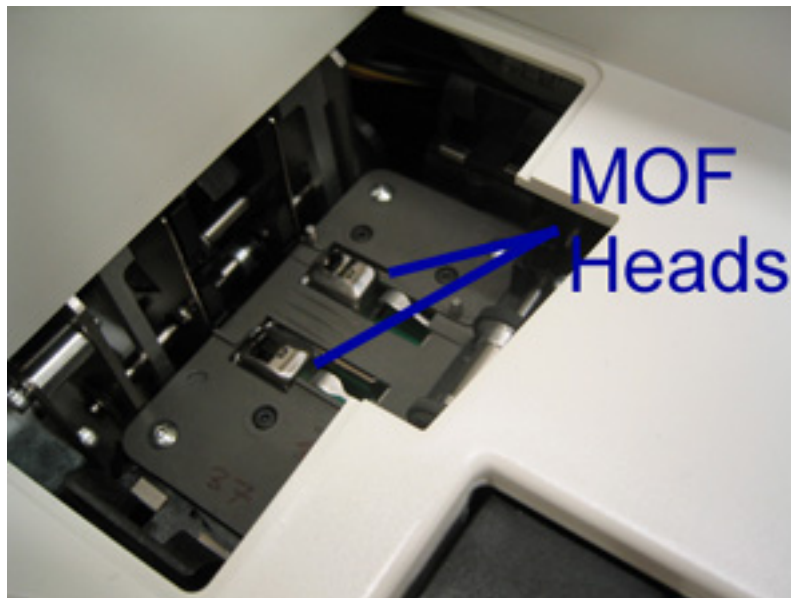


2. Pinching the tab on both sides of the film guide assembly.



3. This will expose the MOF heads on the scanner.

4. Use a cotton swab with isopropyl (rubbing) alcohol to gently clean the MOF heads.



5. Clean the film path guide with compressed air.



Exterior Surface Cleaning

Clean surfaces with lint-free cloths or mild, non-abrasive spray type cleaners, where the cleaner is sprayed onto the cleaning cloth and not directly onto the equipment. Perform this type of cleaning only with the equipment disconnected and powered down.

Field Service

Service and Repair

The scanner has the ability to determine failures at or below the FRU (Field Replaceable Unit) level, in most cases. Only qualified service personnel are authorized to service the F-335 scanner.

Field Replaceable Units
Film Path Assembly (124560)
Blower Assembly (124803)
USB Board (123681)
CCD Power Module (123685)
LED Board
Magnetic Head Module (If Applicable)

Removing Covers - Click to Watch Video

Removing the F-335 covers is made easy by a locking system, that eliminates the need for all but three screws.

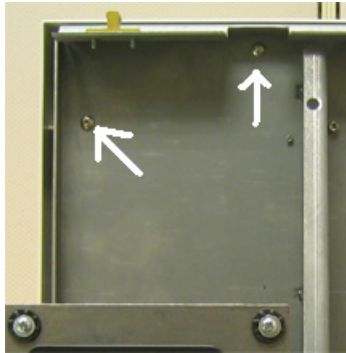
1. Turn off power on scanner.
2. Disconnect all cables from scanner.
3. Remove film catch basket from side of scanner.
4. Gently pull on the side of the scanner. There are three locks that will snap out of place.



5. Gently pull off the back of the scanner. There are three locks that will snap out of place.



6. The fan on the left side of the back side of the scanner will need to be taken off to access one of the three screws for the front cover. Use a phillips screw driver to remove the two screws
7. Gently, but firmly pull up on the fan to dislodge the sealant from the base of the scanner. Put the fan to the side of the scanner.
8. Remove the three screws from the back of the scanner.

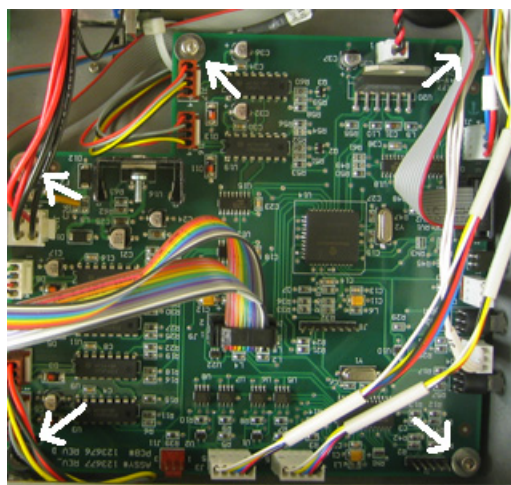


9. Remove the cover in the front on top of the black film entry.
10. Loosen the two screws holding the film entry point in place; and remove the film entry point.

Replacing the Motor Control Board - Click to Watch Video

Important: This procedure requires that the Calibration Wizard program be used. If this program is inaccessible, DO NOT attempt this procedure!

1. Turn off power on scanner.
2. Disconnect all cables from scanner.
3. Remove the bottom plate of the scanner. There is a screw in each corner, and two phillips screws as well.
4. Removing the bottom plate will expose the USB board, motor control board, and filter wheel.



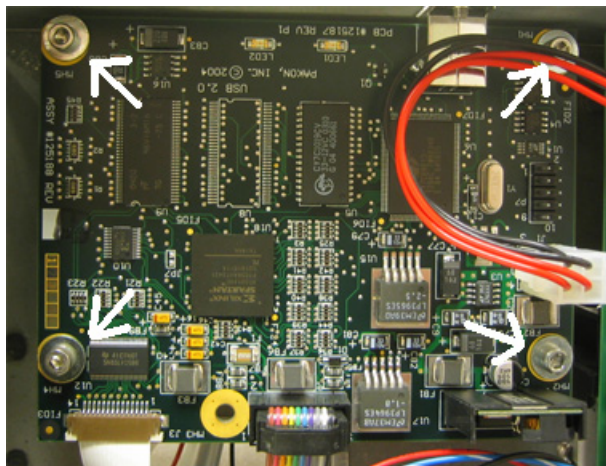
5. Each wire connector is labeled with the board it should connect to, and which pin block.
6. Disconnect each cable from the motor control board.

7. Remove all the screws holding the motor control board in place.
8. Remove the motor control board.
9. Mount the new motor control board into place.
10. Plug in all cables.
11. Mount bottom plate into place.
12. Connect USB and power cables, and turn scanner on.
13. In the calibration wizard, run the “Film Track Test” before attempting a scan. Repeat if necessary.

Replacing the USB Board - Click to Watch Video

Important: This procedure requires that the Calibration Wizard program be used. If this program is inaccessible, DO NOT attempt this procedure!

1. Turn the scanner off.
2. Disconnect USB and power cables.
3. Remove the side cover.
4. Turn scanner onto the exposed side.
5. Unscrew the four screws holding the bottom plate in place.
6. Remove the bottom plate from scanner.



7. Disconnect the wires attached to the USB board.
8. Unscrew the USB board from the scanner frame.
9. Mount new USB board onto frame, and tighten all the screws.
10. Reconnect all wires back to the USB board.
11. Mount bottom plate into place, and tighten the four screws.
12. Put the scanner back into place, and replace the side cover.
13. Plug in USB and power cables.
14. Turn the scanner on.
15. Run the calibration wizard program in C:\Program Files\Pakon\Calibration Wizard\.
16. Complete the full calibration including magnification, film speed, and 64 color matrix generation.

17. If all the calibration data is still stored in the Windows registry, full calibration is not required.

Follow these steps to copy the calibration data to the scanner EEPROM:

- a.Run the Calibration Wizard.
- b.Run the “Film Track Test.”
- c.Enter the proper values for model type, hardware version, and serial number in the “Scanner Initialization” window.

Model Type:	7
Hardware Version:	3
Serial Number:	277
Alignment Target Offset:	78
Motor Speed Target Ratio:	15459

- d.Verify the values, and click “Next.”
- e.Click on the skip button next to “Next” and “Close.”



- f.Select “Scanner Calibration Completion.”

Scanner Initialization
Windowing Adjustment
Skew Adjustment
Tilt Adjustment
Magnification Calculation
Film Speed Determination
64 Patch Color Matrix Generation
End Of Line Quality Tests
Scanner Calibration Completion

- g.After values are displayed on the screen, and not zeroes, click on “Close.”
- h.The calibration values from the registry have now been written to the EEPROM of the scanner.

Replacing the Blower Assembly - Click to Watch Video

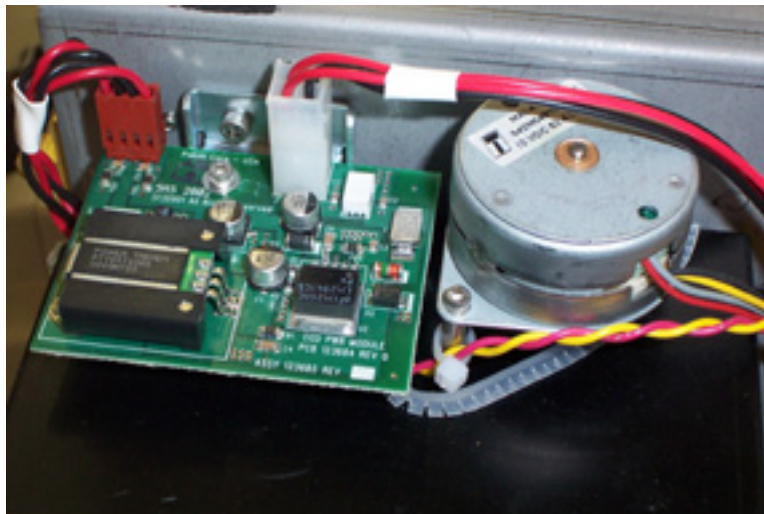
1. Turn the scanner off.
2. Unplug the USB and power cables from the back of the F-235 scanner.
3. Remove the side and back covers from the scanner.



4. Disconnect the blower power from the lamp board.
5. Unscrew the blower assembly from the frame.
6. Remove the blower assembly, and replace with new blower assembly.
7. Mount the blower onto the frame with the two phillips head screws.
8. Reconnect the blower power cable to the lamp board.
9. Replace the back and side covers of the scanner.
10. Reconnect the USB and power cables to the scanner.
11. Turn the scanner on.

Replacing the CCD Power Module

1. Turn the scanner off.
2. Unplug the USB and power cables from the back of the F-235 scanner.
3. Remove all three covers from the scanner.

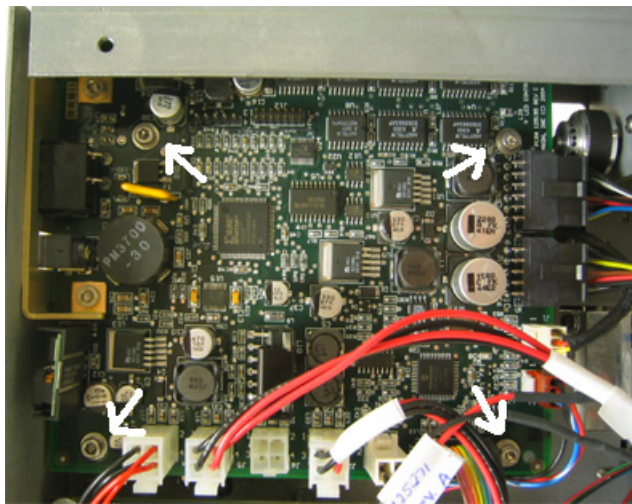


4. Disconnect the power and sync cables from the CCD power module board.
5. Unscrew the CCD power module board from the scanner chassis.
6. Remove the circuit board from the scanner.
7. Mount the new CCD power module board to the scanner chassis.
8. Connect the sync and power cables to the CCD power module board.

9. Replace all three covers.
10. Connect USB 2.0 and power cables.
11. Turn scanner on.

Replacing the LED Board

1. Turn the scanner off.
2. Disconnect USB and power cables.
3. Remove the side cover.
4. Turn scanner onto the exposed side.
5. Unscrew the four screws holding the bottom plate in place.
6. Remove the bottom plate from scanner.



7. Disconnect the wires attached to the LED board.
8. Unscrew the LED board from the scanner frame.
9. Mount new LED board onto frame, and tighten all the screws.
10. Reconnect all wires back to the LED board.
11. Mount bottom plate into place, and tighten the four screws.
12. Put the scanner back into place, and replace the side cover.
13. Plug in USB and power cables.
14. Turn the scanner on.

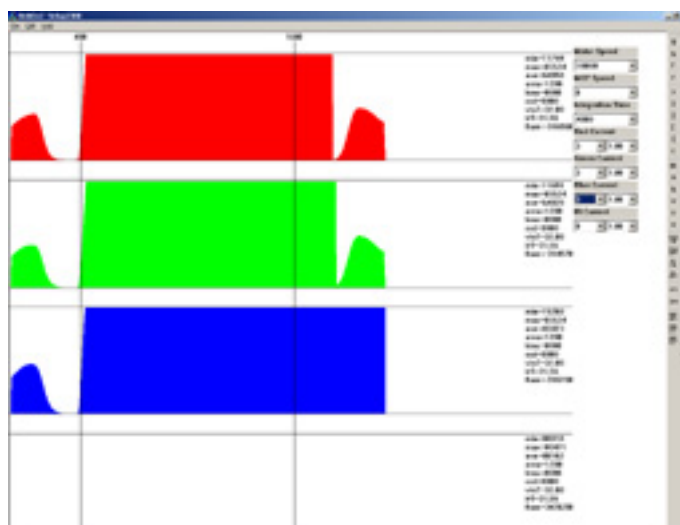
Setup335

Setup335.exe is an important diagnostic tool used to verify basic hardware functionality. This program is accessible in the Pakon software directory, which will vary depending on the client interface software in use. Generally it is in C:\Program Files\Pakon\F-335\TLC COM Server\Setup335.exe.

This program should be used to ensure that the following hardware is functioning properly:

Hardware	Test Function
APS/35MM Gate	Opening and Closing
Lens Stepper	Moving up and Down
CCD Stepper	Moving up and Down
Motor	Moves forwards and backwards

Each button reports its function when the mouse cursor sits on top of it.



Command	Function	Command	Function
g	start filmstrip motor	“	move right cursor -100
h	stop filmstrip motor	L	move right cursor -10
f	move filmstrip forward	l	move right cursor -1
r	move filmstrip reverse	;	move right cursor +1

Command	Function	Command	Function
@	gain/offset correction	:	move right cursor +10
!	fixed pattern correction	‘	move right cursor +100
+	focus calibration	RGB ON	lamp high
	magnification distance	RGB OFF	lamp low
<	move CCD down 100		
{	move CCD down 10		calculate film sizes
[	move CCD down 1	Rese	lamp reset
]	move CCD up 1	&	skew calibration
}	move CCD up 10	REG	load calibration data
>	move CCD up 100	SNS	calibrate insertion sensors
I	move left cursor -100	Lens Test	lens stepper validation test
J	move left cursor -10	CCD Test	CCD stepper validation test
j	move left cursor -1	APS	set filmguides to APS
k	move left cursor +1	35MM	set filmguides to 35MM
K	move left cursor +10	IR ON	IR on
i	move left cursor +100	IR OFF	IR off
x	move lens down 100	MOF OFF	MOF off
c	move lens down 10	MOF EXT	MOF Extract
v	move lens down 1		
b	move lens up 1		
n	move lens up 10		
m	move lens up 100		
“	move right cursor -100		

Appropriate Uses

Deceiving Information

Setup335 is a useful tool, however, it can be misunderstood very easily. In the picture of setup335 shown above, the left side of the three color channels appears to be erroneous. Below

there is a small cross-section of this errata. Though this does not appear correct, this is not a problem. The CCD chip is being flooded with light from the light transfer bar, this will not be the case when film is inside the scanner.

Keep this in mind when using setup335 to diagnose problems. Not everything visible in setup335 can be used for troubleshooting.



Lens Stepper Test

The lens test function is a great way to ensure that the lens stepper is moving correctly. To use this function:

1. Move lens stepper to 2000 using the 'x' key.
2. Click on the "LENS TEST" button.
3. The lens stepper will move one step at a time until it reaches the home position.
4. Setup335 will report the number of steps it took to reach the home position. This number should be equal to the stepper position (2000) before the "LENS TEST" button was clicked.

CCD Stepper Test

The CCD Test function, like the Lens Test function, is a great way to ensure that the CCD stepper is moving correctly. To use this function:

1. Move CCD stepper to 1200 using the '<' key.
2. Click on the "CCD TEST" button.
3. The CCD stepper will move one step at a time until it reaches the home position.
4. Setup335 will report the number of steps it took to reach the home position. This number should be equal to the stepper position (1200) before the "CCD TEST" button was clicked.

Lens Positioning Verification

This will test that the lens is properly aligned. If the scanner fails, the scanner will have to be serviced at a service depot.

1. Click on the "@" button.
2. Select 8 Base 35 Color Negative.
3. Click the "LO" button to turn the lamp into low power mode.
4. Click on "NEG" to move the filter wheel to the negative position.
5. Insert a clear piece of color negative film.

6. Apply light pressure to each side of the lens, and make sure that none of the color channels drop.

APS/35MM Film Gate Verification

This test will ensure that the film gate is opening and closing properly.

1. Click on the “APS” button.
2. Observe the film gate close to the APS position.
3. Click the “35MM” button.
4. Observe the film gate open to the 35MM position.
5. Repeat this procedure ten times to verify functionality.

Drive Motor Verification

This test will ensure that the motor is functioning properly.

1. Click the “g” button.
2. Observe the motor start.
3. Click the “h” button.
4. Observe the motor stop.
5. Repeat this ten times to verify functionality.

Troubleshooting

Basics

The scanner will not work properly unless the scanner is turned on after Windows 2000 has finished the loading process. Ensure this is done before attempting more advanced troubleshooting.

Error Logs

There are four primary error logs generated by the scanner software. These error logs are a very important tool to determine the cause of any reported error codes. When contacting technical support, it is advisable to provide these logs to ensure a more informed response. Dealers and distributors can request a list of the error codes with information on troubleshooting them.

These logs can be located in C:\Program Files\Pakon\TLA COM Server.

These logs include:

PakonErrorLogMain

Logs any errors associated with scanner communications with the host PC.

PakonErrorLogScan

Logs any errors associated with the scan process.

PakonErrorLogSave

Logs any errors associated with the save process.

PakonErrorLogPI

Logs any errors associated with the color correction process.

Error Code 1002 or 1006

These two error codes relate to the speed of the computer hardware. Verify that the host PC meets the requirements outlined in the “Specifications” chapter.

Error Code 1003 (Lost Sync)

Attach grounding straps to film track. Contact Pakon technical support for further information.

Error Code 3016

Verify that there is an N:\ drive is left unformatted, and it is a minimum of 5GB.

Error: EC_PFS_FileSystemExists (Error Code 3001)

The N: is formatted. The N: partition cannot be formatted. Re-create this partition using the instructions in the “Hard Disk Configuration” chapter of this manual.

Error Code 3013

Buffer drive, (N:) is bad. Replace this drive partition.

Scanner will not stop scanning.

Change this registry key:

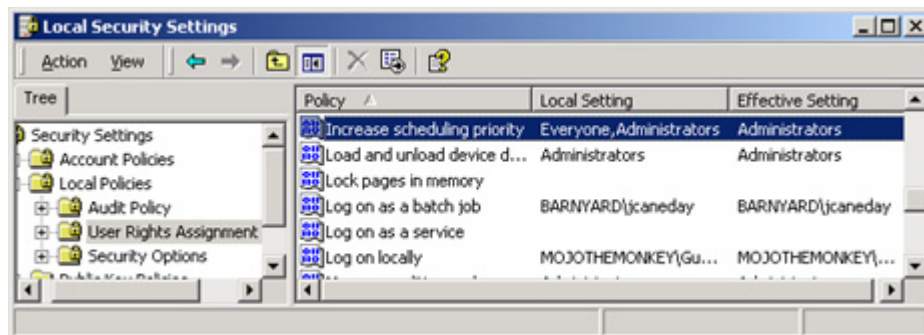
"HKEY_LOCAL_MACHINE\SOFTWARE\Pakon\TLA\Scan\Test\DriverSimultaneous-Packets" to 1.

EC_WIN_SetProcessWorkingSetSize

The operator does not have Administrative privileges, or does not have enough available RAM. 512MB is required, as outlined in the "Specifications" chapter.

Also, try increasing the 'scheduling priority' for all users:

1. Go to the Control Panel.
2. Double-click on "Administrative Tools."
3. Double-click on "Local Security Policy."
4. Select "Local Policies."
5. Select "User Rights Assignment."
6. Select "Increase Scheduling Priority" on the right side of the window.
7. Add "Everyone" to the list.



Decrease the "Ringtail Bytes" as well:

[HKEY_LOCAL_MACHINE\SOFTWARE\Pakon\PSI F-235\Scanner Settings]
Set:

DriverRingTailBytes to 0x800000

ProcessedRingTailBytes to 0x400000.

Images Stretched

Blow out the DX sensors with compressed air. If that does not help:

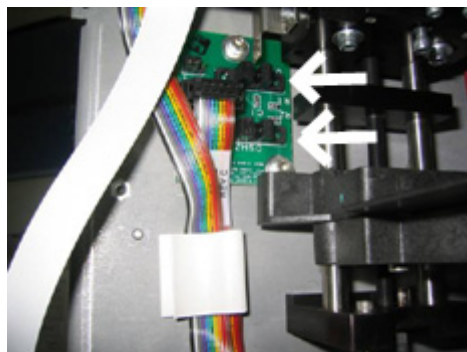
The Calibration Wizard program is required to perform this procedure.

1. Run the calibration wizard, located in C:\Program Files\Pakon\Calibwiz235\Calibwiz235.exe.
2. Click on the button on the bottom left corner of the calibration window.
3. Select "Film Speed Adjustment."
4. Follow the on-screen instructions to set the motor speed and framing adjustment.

Images out of Focus

The Calibration Wizard program is required to perform this procedure.

1. Run the calibration wizard, located in C:\Program Files\Pakon\Calibwiz235\Calibwiz235.exe.
2. Ensure there are no cables blocking the home stepper positions on the scanner.



3. Run the "Magnification Calculation" steps in the calibration wizard.

Images not Framed Properly

Blow out the DX sensors with compressed air. If that does not improve it:

The Calibration Wizard program is required to perform this procedure.

1. Run the calibration wizard, located in C:\Program Files\Pakon\Calibwiz235\Calibwiz235.exe.
2. Click on the button on the bottom left corner of the calibration window.
3. Select "Motor Speed."
4. Follow the on-screen instructions to set the motor speed and framing adjustment.

Image is out of focus in part of frame

The Calibration Wizard program is required to perform this procedure.

If this is a problem on every roll of film, the 'Tilt Adjustment' will need to be run in the calibration wizard.

The problem is that the CCD chip is not parallel with the film--part of the CCD chip is focused, and part of it is out of focus. The 'tilt adjustment' will level the CCD board and put it in parallel with the film and light transport.

Scanning stops after one frame

The scanner calibrations may need to be re-done every two hours because the lamp temperature may vary throughout the day.

DX code reading is not working

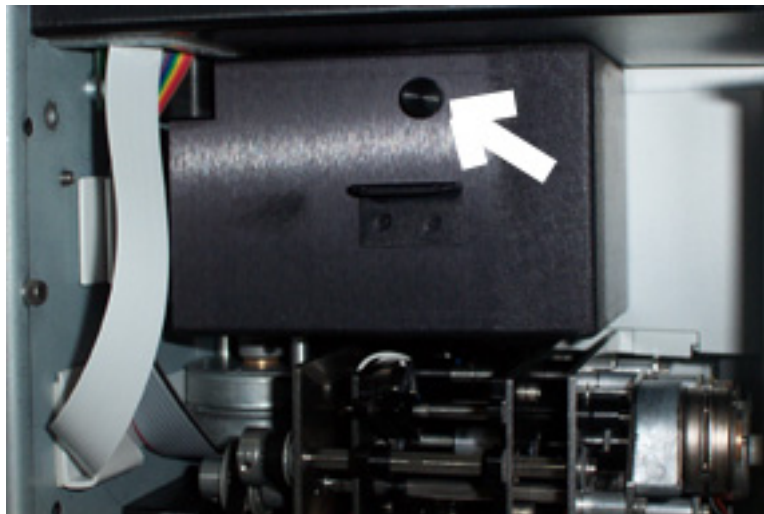
The film track should be cleaned every two weeks to ensure proper DX code reading. This procedure can be found in the “Operator Service” chapter in this manual. When finished, run the “Track Test” calibration in the client interface program.

This requires a four frame strip of film with DX codes on it. Be sure to insert the film emulsion up, starting with the lowest number first, with the DX codes to the back of the scanner.

If DX code reading does not improve after cleaning and running the client film track test, the film track test should be run using the Calibration Wizard program.

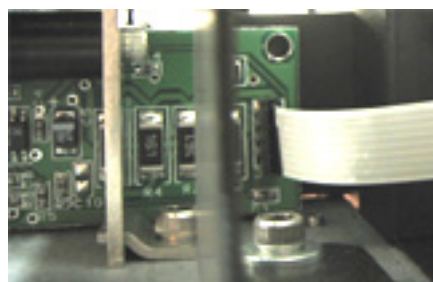
Black images

Black images are usually caused by one of two problems. Firstly, the light shield has a removable piece for cleaning the lens. The screw holding this light shield in place is a thumb screw, and can come loose if shaken during shipment. Ensure this light shield is properly mounted and is not loose.



A fuse on the LED board can be damaged causing this board to flood the CCD board with infra-red light and will cause scanned images to appear black. To test this, unplug the LED cable on either the LED board, or the lamp board.

Removing this cable will remove the defect channel from being used. If the scanner scans



properly after removing this defect channel, the LED board will need to be replaced.

‘1155: File C:\INSTMSIW.EXE was not found’ error when installing PSI

The Windows Installer program is not installed on the host PC. Download the installer from Microsoft’s website, or from www.pakon.com.

<http://www.microsoft.com/downloads/release.asp?releaseid=32832&NewList=1>

Noritsu2611.txt Error Log File

PSI will create an error log file in the C:\Program Files\Pakon\PSI\IQ\Logs folder to report any errors in connecting to a Noritsu 2611 printer.

There are three error levels--one, two, and three. A level one error is informational, reporting that the printer is warming up for example. A level two error is a warning, reporting that the water tank needs to be filled or similar such errors. A level three error is reporting a failure in connecting to the Noritsu 2611 printer.

The Noritsu needs to be turned on, with a SCSI cable connected between the printer and the PC prior to the PC being booted, along with PSI 1.3 or above, and the printer must be in “AUX2” mode for PSI to be able to print to a 2611 printer.

Black bar across top or bottom of image

The Calibration Wizard program is required to perform this procedure.

A black bar at the top or bottom of all images in all rolls of film is caused by the magnification ratio not being set properly. This requires that the scanner be recalibrated using the Calibration Wizard. This program is only supplied to dealers trained in its use, and supplied with the required calibration strips.

Magnetic APS data not being read

Clean the MOF heads, as shown in the Operator Service Chapter. These heads should be cleaned once per month. The film may not contain MOF data, or meet the APS specification. Also, APS film is designed for a limited number of uses, try another film to ensure that this is not the problem.

Regulatory Information



Warning:

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Note:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Note:

Taiwan:

警告使用者:

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Site Conditions

Temperature	59-89.6 degrees Fahrenheit 15-32 degrees Celsius
Humidity	30-75% (non-condensing)
Vibration	Not to Exceed 0.05G RMS 5-200Hz
Ventilation	A 4" clearance above and behind the scanners venti- lation duct is necessary
Lighting	<1000 LUX ambient light
Noise	< 70db(A)

Shipping and Storage Conditions

Temperature: -13 to 140 degrees Fahrenheit

Humidity: 30%-90% (non-condensing)

Contacting Technical Support

When contacting support by phone, please follow these guidelines to ensure timely assistance:

- Have the computer and scanner on.
- Have PSI F-235 loaded, if possible.
- Have any reported error codes written down for quick reference.
- Know the version of PSI being used. [Click here](#) for more information on this.
- Know the serial number of your scanner.

If you prefer to email support, please include the following information in your email request:

- Any applicable error log files.
- Version number of PSI.
- Serial number of your F-235 scanner.
- A sample image, if helpful.
- Your company name and location.
- Details on the problem and what has been attempted so far to resolve the problem.

Pakon Contact Information

Phone:

Within the United States - 877.217.2566
Outside the United States - 952.936.4390

Email:

support@pakon.com

On the Web:

<http://www.pakon.com>
<ftp://ftp.pakon.com>

Important Part Numbers

Part Number	Description
123677	Motor Control Board
123681	USB Board
123685	CCD Power Module
123689	Sensor Board
123691	LED Board (Digital ICE)
123816	Filter, Air
123819	Cooling Fan
124803	Blower Assembly
124943	F-235+ Film Path Assembly
124559	Optical Tower Assembly
12XXXX	Power Supply
123841	Bulb
123936	Cable Data
124805	Lamp Holder Assembly
123938	CCD Cable
123939	USB 2.0 Cable 6ft.
124516	CCD Cable Power
124511-01	Cover, Film Entrance

Warranty

Pakon, Inc. warrants to the original purchaser that each Pakon product is free from defects in workmanship and material for the lesser of 12 months, 2000 metered working hours, or the equivalent thereof in normal usage, from the date of purchase. In the event any Pakon product or component of equipment is replaced by Pakon, Inc. under this warranty, such item is covered by this same warranty for the remainder of the original warranty period, or sixty days from the date of installation, whichever is longer. OEM products supplied by Pakon will be covered by the remainder of the original equipment manufacturer's warranty.

Pakon's obligation during this warranty period is expressly limited to repair, or in its discretion, replacement of non-expendable original equipment or components which it finds defective; service and labor costs for such repairs or replacement will be covered under this warranty for the first 30 days following the date of installation. Upon authorization from Pakon, Inc. a proper party asserting a claim under this warranty shall prepay all transportation costs and return the equipment to a location specified by Pakon, Inc. That party shall also bear all reasonable service and labor charges incident to any warranty claim and those service and labor charges beyond the 30 day labor warranty period.

This warranty does not apply to (1) to any expendable parts, (2) to any Pakon product or component which has been repaired or altered with parts or by persons not approved in writing by Pakon, Inc. provided, however, that such approval is not to be unreasonable withheld, or (3) to any product on which this serial number or name has been altered, defaced or removed. This warranty also shall not apply to any Pakon product whose unsatisfactory performance or condition is due to:

- Use of any expendable parts or consumable products not tested and approved by Pakon, Inc.
- Failure to follow the maintenance or safety procedures recommended for Pakon product operation
- Unusual physical or electrical stress
- Accident, neglect, misuse, failure of electric power, air conditioning, humidity control, transportation or causes other than ordinary use in the purposes for which the product was intended.

The above express limited warranty is in lieu of all other warranties, express or implied, and there are no warranties beyond those stated in this document. The implied warranties of merchantability and fitness for a particular purpose, and all other warranties, express or implied, or inferable from the course, of dealing or usage of trade, are excluded and shall not apply to this product.

The provisions for repair or replacement of defective parts provided in this warranty shall be the exclusive and sole remedy of the purchaser. Pakon, Inc. shall not be liable for any other damages (Whether in tort, due to negligence or otherwise) including but not limited to loss or labor, time, materials, customer profits, goodwill, or any other indirect, special, incidental, or consequential damages in connection with the furnishing operation or faulty performance of this product. This exclusive remedy shall not be deemed to have failed of its essential purpose so long as Pakon is willing and able to repair or replace defective parts in the prescribed manner.

This writing constitutes the final, complete and exclusive expression of the terms of warranty and remedy as agreed to by the parties to this sale. Pakon, Inc. neither authorizes nor adopts any statement made by any representative which differs from the terms of this writing, and all such statements are superseded by this document.

Service Policy

Warranty Period

- Parts - One year (expendables excluded)
- Phone Service & Factory labor - 30 days
- OEM Equipment - Remainder of original manufacturer's warranty

Warranty Service

- Phone Service - First 30 days, no charge
- Defective parts - First year Pakon will send a part replacement (expendables excluded), no charge
- Factory Repair / Replacement - First 30 days, if necessary, Pakon will repair or replace, at its discretion, any defective unit. Pakon, Inc. will pay standard freight costs both ways for the repaired or replaced unit. Any expedited shipping fees are the responsibility of the buyer.

After Warranty Service / OEM Service

- Scanner Phone Service - Incident charge of \$35.00 per incident payable via credit card or with pre-approved credit terms
- OEM Phone Service - Helping buyer install or service Pakon supported OEM equipment or software is considered an incident and charged accordingly. Pakon does not service unsupported products. (Supported products are those sold or recommended by Pakon.)
- Factory Repair / Replacement - Buyer pays freight both ways, plus service labor charges at \$65.00 per hour and packing costs if needed to return unit safely. Beyond one year the buyer is responsible for parts.

Software

Software updates are provided at no charge. Any software offering new features is optional and billable.

Annual Service Contract

Agreement includes scanner telephone technical support. All factory parts (excluding expendables) and factory labor are free. Pakon will pay for all standard freight in case a need for factory repair arises. Any expedited shipping fees are the responsibility of the buyer. The agreement takes effect at the end of the Labor Warranty and is for a 12-month period and may be renewed annually. The price is \$1,000.00 per year payable in advance. If purchased with the unit, the price is \$750.00 and if kept in force can be renewed at the \$750.00 price-an annual savings of \$250.00.

Service Rental Scanners

Pakon will provide a limited pool of scanners for rent, if the customer's scanner is sent in for service. Service rental scanners can be rented for \$250.00 plus freight both ways if available. Availability will be first come first serve priority given to customers on an annual service contract.

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