



DESIGNJET scanners: 820, 4500, 4520,
HD, T1100, T1120 and T1200 series

Service manual

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2010

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5th edition

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Electrical Shock Hazard

Serious shock hazard leading to death or injury may result if you do not take the following precautions:

- Ensure that the AC power outlet (mains) has a protective earth (ground) terminal.
- Disconnect the product from the power source prior to performing any maintenance.
- Prevent water or any other liquids from running onto electrical components or circuits, or through openings in the enclosure.

Electrostatic Discharge

See [Electrostatic Discharge \(ESD\) Precautions on page 69](#) for precautions you should take to prevent damage to the printer circuits from electrostatic discharge.

Safety Symbols

General definitions of safety symbols are given immediately after the table of contents.

WARNING! The Warning symbol calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a Warning symbol until the indicated conditions are fully understood and met.

CAUTION: The Caution symbol calls attention to an operating procedure, practice, or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product. Do not proceed beyond a Caution symbol until the indicated conditions are fully understood and met.

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Using this Manual

Purpose

This Service Manual contains information necessary to troubleshoot and service:

- HP Designjet 820 MFP, Model Q6685
- HP Designjet 4500 Scanner, Model Q1277A
- HP Designjet 4500 MFP, Model Q1276A
- HP Designjet 4520 Scanner, Model CM770A
- HP Designjet 4520 HD MFP, Model CM769A
- HP Designjet HD Scanner, Model CQ654A
- HP Designjet T1100 MFP, Model Q6713A
- HP Designjet T1120 HD MFP, Model CK841A
- HP Designjet T1200 HD MFP, Model CQ653A

For information about using the product, see the corresponding user guide.

This Service Manual is about the Scanner and the integration with the printer as a copier. In order to troubleshoot the printer, see the corresponding Service Manual for the printer.

Readership

The procedures described in this Service Manual are to be performed by HP Certified service personnel only.

Part Numbers

Part Numbers for service parts are located in Chapter 3, [Parts and Diagrams on page 54](#).

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1 Troubleshooting

- [Troubleshooting tips](#)
- [Is the problem with the Printer or the Scanner?](#)
- [Image-quality problems](#)
- [Output problems](#)
- [Troubleshooting System Error Codes](#)
- [Using the SCANtest 6 Diagnostic Software](#)
- [Troubleshooting Issues](#)
- [Troubleshooting print-quality and copy issues](#)
- [Troubleshooting general scanner issues](#)
- [Troubleshooting Specific Scanner Issues](#)
- [Cleaning the Scanning Area](#)
- [Troubleshooting Specific Panel PC Problems](#)
- [Preventive Maintenance Kit for HP Designjet Scanners](#)

Troubleshooting tips

1. First record whether the problem is with the Printer, the Scanner, or the Touch Screen.
2. Make sure that the scanning area is completely clean.
3. Test 20: Noise Test can help you find where the scanning area is dirty.
4. The SCAN dump files can help you to understand the light profile of the affected scanner.
5. Remember, in order to cancel when copying, press the **Cancel** button on the Touch Screen and the [Cancel](#) button on the printer.

Is the problem with the Printer or the Scanner?

If you experience the following symptoms, the problem could be related to the scanner:

- System Error on the Touch Screen.
- LED's flashing on the Scanner Operator Panel.
- WIDEsysteM error message.
- Vertical lines (either color or black) in the scanned image.

If you experience the following symptoms, then perform an Image Preview and send a Test Print:

- Image Quality Problems.
- No Output
- Output is not as expected.

If the Image preview fails, this points to a problem with the Scanner. If the Test Print fails, this points to a problem with the Printer.

Image-quality problems

If you have Image Quality problems in any prints, try the following:

1. Print out a file already stored or print out a demo file.
 2. Once the print is finished, insert it into the Scanner.
 3. Once scanned, print out the scanned image.
- If the original print is the same as the copied print, then the problem is associated with the Printer.
 - If the original print is NOT the same as the copied print, then the problem is associated with the Scanner.

Output problems

If the output is not as you expected it to be, try the following:

- Check all the settings in the Software: Color Settings and Margins.
- Check media settings: Media profile (in software) and media loaded in the printer (front panel selection) should be the same.
- Perform Color Calibration (both Scanner and printer).
- Check the Preview Image.

If there is no output at all, then try the following:

- Check the connection between the Printer and the scanner.
- Check the selected settings: List, Collate, Scan to file...

Troubleshooting System Error Codes

Chapter 2, [System Error Codes on page 33](#), contains a list of system error codes and their respective descriptions and recommended corrective actions. Only try one recommended action at a time and check if the error code has disappeared.

Using the SCANtest 6 Diagnostic Software

Here we briefly describe the various tests found in the SCANtest 6 Diagnostic Software, for more detail of some of the Adjustments shown below see Chapter 5, [Scanner Adjustments and Calibrations on page 170](#).

The purpose of the SCANtest 6 diagnostic software is to support the troubleshooting and adjustment of the Scanner.

To access the software you must go to the **Setup** tab and to: **Options, System, Service** (this part is password protected, the password is '**support**' **Scantest**).

When the SCANtest 6 diagnostic software has been started, the Scanner is switched ON in Test Mode, and the Diagnostic LED on the Operator Panel is turned ON.

Scanner Test Program Menu

- Test 1: Scanner Information
- Test 2: LED Test
- Test 3: Key Test
- Test 4: Original-Sensor Test
- Test 5: Lamp Test
- Test 6: Motor Test
- Test 7: Complete Hardware Test
- Test 9: Camera Adjustment
- Test 11: Stitching and Vertical Alignment

- Test 12: Adjust Y-Axis Scaling
- Test 13: Switch Scanner to Test Mode
- Test 20: Noise Test
- Test 21: Scan Dump
- Test 27: Camera Adjustment Wizard
- Test 28: Original Guide Sensor Test
- Test 30: Calibrate ATAC
- Test 31: Driver Board Communication Test

If SCANtest 6 is started when the scanner is in Error Mode, the Error Code Number and a short description of the error will be displayed on the screen.

Test 1: Scanner Information

This test displays general information regarding the scanner. When executed, the test displays the following:

- Scanner Model:
- Firmware Release:
- Firmware Release Date:
- Firmware Build:
- FPGA Revision:
- FPGA Release Date:
- Boot Code Revision:
- Boot Code Release Date:
- Scanner ID Switch:
- SCSI ID:

Test 2: LED Test

This test checks the functionality of the LED Indicators on the Operator Panel. When the test is executed, all the LEDs are sequentially switched ON/OFF until Test 2 is terminated. If any of the LEDs fail, you will NOT get an error message, instead the LED will NOT switch ON or OFF. If the LED test fails, replace the Right Cover (which contains the Operator Panel).

Test 3: Key Test

This test checks the functionality of the Keys on the Operator Panel. When the test is executed, each key on the Operator Panel will turn the LED ON when pressed.

Key	LED
Forward and Reverse	Ready (Green)

Key	LED
Power	Wait (Yellow)
ATAC control key	

The only way to know if the test fails is by inspection, there is no error message that is displayed.

If the Key test fails, replace the Right Cover (which contains the Operator Panel).

Test 4: Original-Sensor Test

This test checks the functionality of the Media Sensors.

When the test is executed, the following LEDs turn ON when one of the Media Sensors is activated.

Actuator	LED
Media Entry Sensor	Ready (Green)
Media Exit Sensor	Ready (Green)

To test the Media Sensors, load a Sheet of media (A4) and the Ready LED switches ON and when you remove it the Ready LED switches OFF.

If the test fails (if any of the LEDs fail to switch ON), then the problem will be related to corresponding Sensor.

Test 5: Lamp Test

This test checks the functionality of the Lamp and associated electronics.

When the test is executed, a message on the screen will indicate whether the **Lamp** is turned ON or OFF (**Lamp power is turned ON/OFF**) and whether the **Light** is ON/OFF (**Light is detected or not**). The Lamp is delayed for approximately 2 seconds when switched ON.

Test 6: Motor Test

This test checks the functionality of the Stepper Motor and any associated electronics.


When the test is executed, a menu appears that allows you to select the motor speed and the motor direction.

If the Stepper Motor or the Driver Board fails to run when the test is executed, then the Stepper Motor should be replaced.

Test 7: Complete Hardware Test

This test checks the various functions of the Driver and Camera Boards.

Test 9: Camera Adjustment

 **NOTE:** This is the recommended way to adjust the cameras. However, Test 27 (the Camera Adjustment Wizard) is provided as an easier alternative.

This test contains a Software Oscilloscope that allows you to check and adjust the CCD-Cameras. The following functions can be selected from the Test Program Menu.

- Uncorrected or Corrected Light Profile.
- Red, Green, or Blue Color Channel.
- Special Detail Views for Light Profile, Scan Width, and Vertical Positioning.
- Forward / Reverse controls for the Camera Motor.
- Save screen images.
- Print screen images.

The content of the Detail Views is marked on the upper overview window by red vertical lines. The continuous lines refer to the left Detail View and the dashed lines to the right Detail View.

Test 11: Stitching and Vertical Alignment

This test is also included in the Scanner Maintenance Software.

This test performs Automatic Vertical Alignment and Horizontal Stitching.

Once the test has been started:

- Insert Calibration Sheet.
- Select Vertical Alignment to align the cameras.
- Select Horizontal Stitching to stitch the cameras.

The screen image can be saved or printed.

This test allows manual setting of the Stitch Values. The Stitch Values are stored in the Flash Memory on the Driver Board.

The Vertical Alignment may be adjusted manually by controlling the Camera Motor from the control field '<< dddd >>'. The two buttons marked '<<' **respectively** '>>' are used to start the motor and to determine the direction of rotation. When started, the motor runs for dddd mili-seconds as entered into the control field.

Test 12: Adjustment of Y-Axis Scaling

This test allows you to adjust the Y-Axis Scaling.

The scaling (dpi) in the mechanical scan direction (Y-Axis) depends on the speed of the stepper motor relative to the scanline Exposure Time. The default motor speed can be changed $\pm 1\%$, either from Test 12 or by using the '**Scanner Setup/Correction factor ...**' option of SW copying. The correction factor is stored in the Flash Memory on the Driver Board.

Test 13: Switch Scanner to Test Mode

This test allows you to switch the scanner back to Test Mode. Useful if the scanner gets out of Test Mode, e.g. if it has to be turned OFF/ON during troubleshooting.

Test 20: Noise Test

The purpose of this test is to detect and locate the possible cause (dust, dirt, scratches,..) of vertical lines running from top to bottom of the scanned image.

When the test is executed, it scans the White Calibration Area of the Calibration Sheet and displays, for each color channel, the graytone values of each separate pixel averaged over the scanned band.

The displayed image of the Calibration Sheet will be superimposed by low level noise caused by the CCD chip, and larger spikes most likely caused by dust, dirt, scratches, or similar defects on the Glass Plate. In rare cases, larger spikes may be caused by dust, dirt, or pixel faults on the CCD chip.

The positions of larger spikes are shown by the numbers (cm or inch units) opposite to the spikes. The numbers refer to the Sideload-ruler on the scanner. Larger spikes going downwards are often caused by dust, dirt, scratches, or similar defects on the Glass Plate and may be removed by cleaning the Glass Plate. Downward spikes often show up as darker vertical lines in the scanned image.

Larger spikes going upwards are often caused by dust or dirt present on the Glass Plate during the last calibration with Scanner Maintenance. These defects are memorized by the Light Profiles stored in the Flash Memory and can only be removed by cleaning of the Glass Plate followed by running Scanner Maintenance again. Upward spikes show up as very bright vertical lines in the scanned image.

White vertical lines in the scanned image may be found even if Noise Test shows a perfectly 'clean' scanner. In this case, the cause may be white dust or particles on the backside of the Glass Plate having the same color as the white background. In this case, the Light Profiles of SCANTest 6, Test 9 may show upwards going spikes when a dark original is placed in the scan area.

Test 21: SCANDump

SCANDump is a tool for remote diagnostic. SCANDump saves the light profile from the cameras, error codes, and statistics.

When the test is executed, the file SCANDump.con will be placed in the directory **c:\Temp**.

Test 27: Camera Adjustment Wizard

This allows you to adjust the camera using a wizard that guides you through the complete process. Use this test (instead of Test 9) only if you have no experience in adjusting the camera. See Adjusting the Camera Using the Camera Wizard.

Test 28: Original Guide Sensor Test

This is to test the Guide Plate Sensors which are located under the Guide Plate. See Original Guide Sensor Test.

Test 30: Calibrate ATAC (Automatic Thickness Adjustment Control)


This test sets the current level at which the ATAC will stop if something is preventing it from moving down. See Calibrate ATAC (Automatic Thickness Adjustment Control).

Test 31: Driver Board Communication Test

This test checks the communication between the Scanner and the Driver Board. See Driver Board Communication Test.

Troubleshooting Issues

The following guide will help you to find a solution to some typical problems that some customers may experience. The problems (**P#**) that can be solved remotely through on-phone support and customer intervention are marked **C**. The problems that require on-site intervention performed by a Support Technician are marked **T**.

 **NOTE:** Before sending a Support Technician to the customer, identify whether the problem is related to the scanner or the Panel PC (PPC).

If the problem is scanner-related, erase the parameter block and run the scanner maintenance. Then perform the system recover using the most recent version of the software.

If the problem is PPC-related, perform the system recovery using the most recent version of the software.

If the problem persists, try the solutions listed in the tables below.

Troubleshooting print-quality and copy issues

P#	Category	Problem	Q#	Question	Yes/No	C/T	Solution
1	Copy problem	The colors on one side of the copy do not correspond to the colors on the other side of the copy	1	Have you cleaned and calibrated your scanner recently?	No	C	Camera differences - The scanner needs to be cleaned and calibrated (see P24 on page 19 and P25 on page 19)
					Yes		See Q2
			2	Have you upgraded the system software to the latest version?	No	C	Upgrade system software (use Update System DVD)
					Yes	T	Cameras need adjusting or the Camera Board replacing

P#	Category	Problem	Q#	Question	Yes/No	C/T	Solution
2	Copy problem	I get thin lines of wrong colors in my copy	1	Are the lines vertical and also present in your preview?	Yes	C	Erase the parameter block and run the scanner maintenance. Then clean and calibrate the scanner (see P24 on page 19 and P25 on page 19)
					No		See Q2
			2	Are the lines horizontal and equally spaced?	Yes	C	Check printheads by starting printhead test on Printer. By using the built-in test print function in the Designjet Scan Copy application, you can also get an idea whether the Printer is performing OK
					No		See Q3

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
			3	Are the lines horizontal, but irregular (maybe only 1 line)?	Yes	C	The lines could be caused by a data error. Upgrade system software
					No		See Q4
			4	Do you have a great number of regular spaced lines very close to each other and restricted to one side (1 camera) only?	Yes	T	You have a camera error. Replace Camera Board

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
3	Copy problem	I get thick lines of slightly wrong colors in my copy	1	Are the lines vertical and also present in your preview?	Yes	C	The scanner needs to be cleaned and calibrated (see P24 on page 19 and P25 on page 19)
					No		See Q2
			2	Are the lines horizontal and equally spaced?	Yes	C	Check printheads by starting printhead test on Printer. By using the built-in test print function in the Designjet Scan Copy application, you can also get an idea whether the Printer is performing OK
					No		See P2 on page 8

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
4	Copy problem	Some colors are not the same when I compare the master print with the copy	1	Is the scanner clean and calibrated?	No	C	See P1 on page 8 . Clean and calibrate the scanner (see P24 on page 19 and P25 on page 19)
					Yes		See Q2
			2	Do you use the correct media profile for the actual media?	No	C	If you are using e.g. Glossy Media for this copy, the media profile selected should also be for Glossy Media.
					Yes		See Q3
			3	Is the media profile valid?	No	C	Create a new media profile (see P26 on page 19)
					Yes		See Q4
			4	Is the option 'Ink Printer Original' set in accordance with your original?	No	C	If original was printed using an Inkjet Printer, set this option (see P27 on page 19)
					Yes		See Q5

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
			5	Is the media you are printing on the same type as the original?	No	C	e.g. Use Glossy Media to reproduce a Glossy original
					Yes	C	Create a new media profile (see P26 on page 19)

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
5	Copy problem	Only a part of the master print is being copied	1	Are you scanning a thick original?	Yes	C	Uncheck extended media handling box in scanner settings (using extended media will load the original between both entry and exit rollers before scanning - this means that you will not have the start of the thick original scanned. Also the scan speed will be slower, and no "back - ups"/reversing is allowed while scanning)
					No		See Q2
			2	Have you selected 'Auto size'?	Yes	C	The scanner needs to be cleaned (see P24 on page 19)
					No		See Q3
			3	Is the length too short and the width OK?	Yes	C	The problem may be with the Printer (not able to print close to the edges) or Panel PC (Hard Disk is full).
					No	C	Check that the margins that are set are not too big. Also check Scanner Media Offsets

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
6	Copy problem	Which setting will give me the best result when copying?	-	-	-	C	See section about media profile (P4). Use copy quality best. Choose the correct Type of original ("Map" for maps, "Photo" for photos, etc). Eventually go to Original Setup to fine adjust colors and sharpening. (See also online help for more details - button with "?" symbol)

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
7	Copy Problem	Nesting feature is not working	1	Is the correct printer selected?	No	C	Select the correct Printer
					Yes		See Q2

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
			2	Is the Hard Disk close to being full?	Yes	C	Free up some space, or try to run a nesting job with only 2 or 3 small pictures. If that works, see P27 on page 19
					No	C	Make sure that Nesting is set: Select: Output Layout Nesting optimized

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
8	Copy problem	The Collate Copy function does not work	1	Is your Hard Disk close to full?	Yes	C	Free up some space, or try to run a collate job with a smaller picture.
					No	C	Follow the step by step instructions in the online help under Collate Copy .

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
9	Copy problem	The lines are not accurate	1	Are the lines wavy and irregular?	Yes	C/T	C: The original could be curled or crumpled. Try to flatten the original (in case of very irregular waves there could be a mechanical problem with the scanner). T: check motor and belt drive tension according to TSM
					No		See Q2
			2	Are the lines not sharp?	Yes	C/T	C: Are you using the correct copy method? Try sharpening. If sharpness is different between Cameras, you may have a Focus Problem. T: Check focus of cameras with Focus Adjustment Pattern.
					No		See Q3
			3	Are the lines broken and the errors situated in a vertical column between 2 columns?	Yes	C	You might have a visible stitching error (see P28 on page 20)
					No	C	Check the dpi. In the case of too low resolution, jagged diagonal lines will appear.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
10	Copy Problem	One side of the preview is black	1	Have you upgraded the scanner firmware to the latest version?	No	C	Upgrade scanner firmware to latest version. See Upgrade Scanner Firmware on page 200 .
					Yes		See Q2
			2	Have you upgraded the system software to the latest version?	No	C	Upgrade system software (use System Recovery DVD).
					Yes	T	Most likely a Camera Error. Perform the Manual Camera Adjustment (Test 9). Replace the Camera Board if necessary.

Troubleshooting general scanner issues

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
11	Copy problem	Only a part of the master print is being copied	1	Are you scanning a thick original?	Yes	C	Uncheck extended media handling box in scanner settings (using extended media will load the original between both entry and exit rollers before scanning - this means that you will not have the start of the thick original scanned. Also the scan speed will be slower, and no "back - ups" / reversing is allowed while scanning).
					No		See Q2
			2	Have you selected 'Auto size'?	Yes	C	The scanner needs to be cleaned (see P24 on page 19)
					No		See Q3
			3	Is the length too short and the width OK?	Yes	C	The problem may be with the Printer (not able to print close to the edges) or Panel PC (Hard Disk is full).
					No	C	Check that the margins that are set are not too big. Also check Scanner Media Offsets.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
12	System Error	What should I do when the program hangs?	1	Are you running a copy job?	Yes	C	Making a copy takes a lot of resources according to the settings. Wait till the copy is done before performing another action.
					No		Restart the system. If the problem is coming back, run the System recovery (see P17 on page 14)

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
13	File problem	When I scan to file, the file is very big	1	Are you scanning in color?	Yes	C	Scanning large drawings will generate very big files. An A0 color drawing scanned at 300 dpi will generate a file size of approx. three Gigabytes when scanned in an uncompressed format. In order to reduce file size, select TIFF - pack bits as format. You can reduce size even more by selecting JPEG format, but this format will reduce picture quality.
					No		See Q2
			2	Are you scanning in gray tones?	Yes	C	Scanning large drawings will generate big files. An A0 gray tone drawing scanned at 300 dpi will generate a file size of approx. 300 Mbytes when scanned in an uncompressed format. In order to reduce file size, select TIFF - pack bits as format. You can reduce size even more by selecting JPEG format, but this format will reduce picture quality.
					No		In order to reduce file size on scanned B/W drawings, select TIFF group 4 compression.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
14	File problem	When I scan to file my application it cannot read the file	1	Did you get an error message when creating the file?	Yes	C	Check that you have enough disk space and scan to file again, choosing TIFF uncompressed as format
					No	C	We only recommend to use the built-in viewer for file viewing. Large format drawing files may not load correctly in other viewers due to file size. Try to scan a smaller original (A4).

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
15	Network Problem	I cannot access the system from the network	1	Is the PC connected to the network?	Yes	C	Do basic network troubleshooting.
					No	C	Connect the PC to the Network.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
16	Scan to network (feature only available in T1100 MFP)	I cannot access network drivers	1	With the Panel PC connected to the LAN, can you access the Panel PC from another computer on the network?	Yes	C	Go to Q2
					No	C	Check the network performance and connection to the scanner Panel PC.
			2	Is the folder of the server you are trying to map already mapped by another user in the Panel PC?	Yes	C	Windows does not allow the same server to be mapped by two different users on one computer. Use the access connection previously mapped or delete the connection and map a new access connection.
					No	C	Go to Q3
			3	Do you have permission to access and write to the network folder you are trying to map?	Yes	C	Go to Q4
					No	C	You cannot access this network folder. Select a network folder for which you have read and write permissions.
			4	Are you using the correct user name and password?	Yes	C	Try to map the network file from another computer by selecting Windows Explorer, Tools, Map network drive . If you are able to map the drive in this manner, you should also be able to map through the Panel PC.
					No	C	Use the correct user name and password.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
17	Recovery	How and when is the Recovery DVD used?	-	-	-	C	The recovery DVD is used if the system needs to be reinstalled. Insert the DVD in to the PC and reboot the system.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
18	Scanner Calibration Problem	Scanner Maintenance did not succeed	1	Did any error occur when performing the Scanner Maintenance?	Yes	C	See Q2
					No	C	Clean the scanner and then run Scanner Maintenance again (see P24 on page 19 and P25 on page 19). If that does not help, see Q5.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
			2	Error: Basic calibration was performed. but failed to stitch scanner or Could not find horizontal line or Could not read bar lines or Could not recognize the scanned IT8 picture.	Yes	C	Clean the scanner and then run Scanner Maintenance again (see P24 on page 19 and P25 on page 19). If that does not help, see Q5.
					No		See Q3.
			3	Error: Sheet not recognized.	Yes	C	Reinsert calibration sheet correctly and run Scanner Maintenance again. If that does not help, see Q5.
					No		See Q4.
			4	Error: No movement in camera position has been detected during vertical camera alignment.	Yes	T	Check the camera.
					No		See Q5.
			5	Have you upgraded the system software to the latest version?	No	C	Upgrade system software (use Update System DVD). Clean the scanner and then run Scanner Maintenance again (see P24 on page 19 and P25 on page 19).
					Yes	T	Check the camera.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
19	System error	I cannot install my application on the system.	-	-	-	C	The copy system is only meant to handle the factory installed software and applications.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
20	Updating	How do I update the system?	-	-	-	C	Insert the System Recovery DVD into the DVD drive and reboot the Panel PC.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
21	Start-up Problem	The system does not power up	1	Is the system dead (no LEDs are lit, the Panel PC screen is black, and no fan-noise can be heard)?	Yes	C	<ol style="list-style-type: none"> 1. Check that all power switches on the equipment are ON. 2. Check if there is power at the wall outlet. 3. Check power cables between wall outlet and the individual units.
					No		See Q2.
			2	Does Panel PC start with the normal initial screen?	Yes	C	See Q5.
					No		See Q3.
			3	Does Panel PC start normally, but the software does not work?	Yes	C	Reinstall system software
					No		See Q4
			4	Is the Panel PC dead (no fan noise can be heard and no screen image appears)?	Yes	T	Troubleshoot the Panel PC.
					No		See Q5.
			5	Is the Scanner dead (no fan noise can be heard and no LEDs are lit)?	No		See Q6.
					Yes	T	Check, and if necessary replace: <ol style="list-style-type: none"> 1. Power Supply Unit 2. Driver Board
			6	Does the scanner hangup with all LEDs lit?	Yes	T	Try the following: <ol style="list-style-type: none"> 1. Erase parameter block 2. Update the system software 3. Replace the Main Board
					No		See P23 on page 17.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
22	Mechanical Problem	I cannot load the original	1	Please try to load a new piece of A4 paper at the center of the scanner. Does this paper load?	Yes	C	You have a problem with your original. Please check that paper edges are not bent or curled in any way.
					No		See Q2.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
			2	Can paper be loaded by pressing the "Forward" key?	Yes	C	See Q3.
					No	T	Try replacing the following: <ol style="list-style-type: none"> 1. Driver Board 2. Power Supply Unit 3. Feed Motor 4. Main Board
			3	Does the Ready LED turn ON when activating Original Sensor (insert paper)?	No	T	Check, and if necessary replace: <ol style="list-style-type: none"> 1. Original Sensors 2. Main Board
					Yes	C	Check the settings in the software for media loading.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
23	Error code	I get an Error Code, what do I do?	-	-	-	-	Re-power the system, and check if the error code reappears. If it does, see Q1.
			1	Have you upgraded the system software to the latest version?	No	C	Upgrade the system software by using the System Recovery DVD). Check if Error Codes reappears. If it does, see P23a on page 17 .

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
23a	Error Code	I still get an error code, what do I do?		Does the Diagnostic LED (and, in some cases also other LEDs) blink?	Yes	C	Lower Guide Plate to Normal position, start Preview Scan to obtain an Error Code or check if WIDESystem gives an Error Code.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
		Error Code 100: 3002 to 3013 3019 to 3037		Have you cleaned the white background and glass plate, and performed Scanner Maintenance?	Yes	T	Check Camera Adjustment. If necessary, replace the Camera Board.
					No	C	See P24 on page 19 and P25 on page 19 .
		Error Code 100: 3014 to 3018		Have you cleaned the white background and glass plate, and performed Scanner Maintenance?	Yes	T	Try the following: 1. Upgrade the firmware 2. Check the Stitching Wire 3. Check Camera Adjustment 4. Replace Main Board
					No	C	See P23 on page 17 and P25 on page 19 .
		Error Code 100: 4003x and 4004x	1	Does the Lamp light up?	No	T	Try replacing the following: 1. Lamp 2. Driver Board 3. Main Board
					Yes		See Q2.
			2	Have you cleaned the white background and glass plate, and performed Scanner Maintenance?	Yes		See complete list.
					No	C	See P24 on page 19 and P25 on page 19 .
		Error Code 100: 500xx	1	Have you performed Scanner Maintenance?	No	C	See P24 on page 19 and P25 on page 19 .
					Yes	T	Replace Main Board
		Error Code 600xx	1	Is it Error Code 600xx	Yes	T	Replace Interface Board
		"No scanner found"	1	Does the scanner start normally?	No	C	See P23 on page 17 .
					Yes	C	See Q2.
			2	Are the interface cables (USB or FireWire) properly connected to the scanner and the Panel PC?	Yes	C	See Q3.
			3	Have you run the System Recovery DVD?	Yes	T	1. Replace Interface Cable 2. Replace Interface Board

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
24	Cleaning	How do I clean the scanner?	-	-	-	C	Clean the Glass Plate on both sides with mild detergent, and wipe thoroughly with a lint-free cloth until dry. Check for scratches. Deep scratches on the glass plate or background platen means replacement of the part.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
25	Color Calibration	How do I color calibrate the scanner?	1	Do you have the correct and "as new" scanner maintenance sheet for the scanner?	Yes	C	Clean scanner (see P24 on page 19). Insert the scanner maintenance sheet. Start scanner maintenance. The process is automatic and will also include stitching.
					No	C	Get Correct/New Scanner Maintenance Sheet.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
26	Media Validation	What is media validation? How do I validate?	—	—	-	C	If the validate feature is chosen, a new color patch sheet is printed and can be scanned for validation. In this way it can be determined whether the produced color map has passed.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
27	Ink Printer Original	What is Ink Printer Original?	-	—	-	C	When the original has been printed on an Inkjet printer this option should be enabled.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
28	Visible stitching Errors	What is a visible stitching error?	-	-	-	C	A visible stitching error appears typically as a column of broken lines between 2 cameras. Normally it can be solved by running Scanner Maintenance, which will perform an automatic stitching adjustment. With some curled or creased/crumpled originals it is necessary to straighten out the original to prevent it from lifting from the glass plate. With thick originals it can be necessary to adjust the stitching (stitching used for thick originals only, set this in scanner setup). A visible stitching error should not be confused with the error message Error 32 - Could not stitch Camera A and B.

Troubleshooting Specific Scanner Issues

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
29	Vertical lines (possible dust problem)	The image has a vertical, white or black line, which could be caused by dust. To verify that the line is caused by dust, preview the image and inspect the preview using the viewing section buttons.	-	-	-	C	Perform Scanner Maintenance: Cleaning and Camera Alignment. Using Test 20 from SCANtest 6 may help to identify dusty/ dirty areas.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
30	Firmware	You are receiving firmware-related errors.	-	-	-	C	Try upgrading the firmware version. See Upgrade Scanner Firmware on page 200 .

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
31	Stepper Motor	The Stepper Motor does not work.	-	-	-	C	<p>Try the following:</p> <ol style="list-style-type: none"> 1. Use Test 6: Motor Test to check the functionality of the Stepper Motor. 2. Replace the Driver Board. 3. Replace the Stepper Motor.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
32	Lamp	The lamp does not work.	-	-	-	C	<p>Try the following:</p> <ol style="list-style-type: none"> 1. Reseat the lamp cartridge. 2. Ensure that the Driver Board is connected to the power supply unit. 3. Ensure that the lamp sensor and the Driver Board are functioning correctly.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
33	Skewing	There is a skewing problem	-	-	-	C	<p>Try the following:</p> <ol style="list-style-type: none"> 1. Ensure that the Guide Plate is closed and latched. 2. Replace the Guide Plate. 3. Clean the rollers with isopropyl alcohol. 4. Replace the rollers.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
34	Media Loading	The media cannot be loaded or there are other media loading problems.	-	-	-	C	<p>Try the following:</p> <ol style="list-style-type: none"> 1. Check the Original Sensor (green LED when loading media), or use Test 4: Original-Sensor Test to check the functionality of the sensor. 2. Use Test 6: Motor Test to check the functionality of the Stepper Motor.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
35	Fan	The fan is not working	-	-	-	C	<p>Try the following:</p> <ol style="list-style-type: none"> 1. Ensure that the fan is correctly connected. 2. If the fan is connected and still doesn't work, replace the Driver Board or the fan. 3. If the fan and driver board are working correctly, the problem could be related to the NTC Sensor.

P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
36	Software	You are experiencing problems with the software	-	-	-	C	<p>Try the following:</p> <ol style="list-style-type: none"> 1. Use the System Recovery DVD to reload the software. 2. After reloading the software, set-up the system on the network again (if necessary). 3. If the problems persist, run the System Recovery DVD again, and delete the user's files (press F12).


P#	Category	Problem	Q#	Question	Yes/ No	C/T	Solution
37	Firmware	<p>All of the LEDs in the scanner's front panel are flashing when you turn on the scanner (as shown in the image below), indicating that printer firmware needs to be upgraded.</p> <p>NOTE: This describes a different situation than when the scanner is turned on in special boot mode, in which the LEDs also flash.</p>	-	-	-	C	<p>The most probable reason for this situation is that the last firmware upgrade attempt was not successful. To remedy this situation, upgrade the firmware (see Upgrade Scanner Firmware on page 200).</p> <p>NOTE: Before launching the firmware upgrade utility, verify that the scanner is connected directly to the touchscreen by the FireWire cable, and then press the rescan bus button. The scanner will not detect the necessary connection without the use of the FireWire.</p>



Cleaning the Scanning Area

The following parts must be cleaned using a soft lint-free cloth and a mild, streak-free, cleaning detergent. Alternatively, the parts may be cleaned without the use of cleaning detergents by using a damp micro-fibre cleaning cloth (soak the cloth with water and wring until damp):

- Main scanner cover. Clean the main scanner cover to ensure that no dust is introduced into the scanning area when you scan an original.
- White Background Plate on the Guide Plate
- The Glass Plate. If you clean both sides, be very careful not to touch the Stitching Wire (located under the Glass Plate) out of position. Do not use solvents, as this may dissolve the paint used for the black masks on the Glass Plate. Do not recommend that customers clean the underside of the glass plate; it should only be cleaned by an HP support technician.
- The Mirrors. It is necessary to remove the Mirror Chassis to get access to the Mirrors for cleaning. The Camera Adjustment must be checked and if necessary readjusted after the replacement of the Mirror Chassis.

 **NOTE:** The mirrors are normally "Out of Focus", therefore small dust particles on the mirrors will not deteriorate the scanning result.

- The Feed Rollers. These may be cleaned with a damp micro-fibre cleaning cloth.

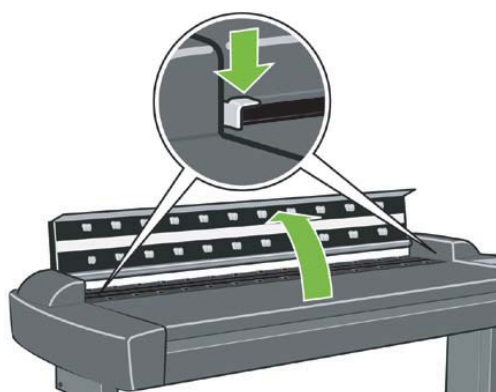
Once all these procedures have been completed, the scanner will be ready to work correctly.

The Cleaning Procedure

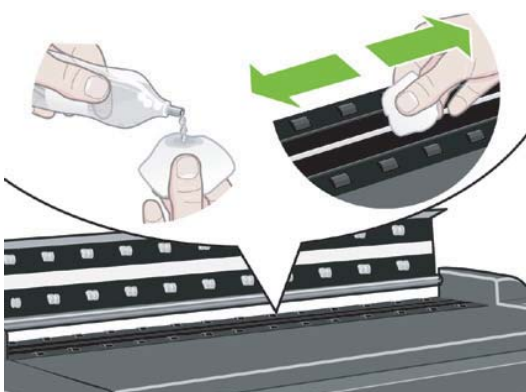
When cleaning any part of the scanning area DO NOT use abrasives, acetone, benzene or fluids that contain these chemicals. Do not spray liquids directly onto the scanner glass plate or anywhere else in the scanner.

1. Turn the scanner power off.
2. Disconnect the scanner power cable.

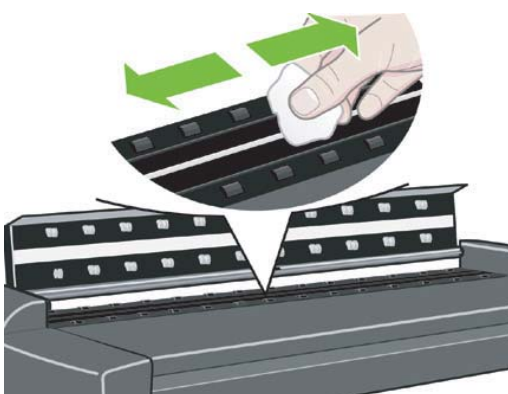
3. Open the Guide Plate by pushing down on the left and right locking levers and flip it upwards to expose the scan area.



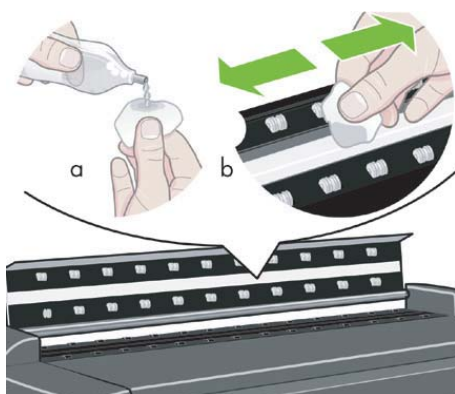
4. Gently wipe the Glass Plate. Clean the glass with a lint-free cloth and a mild, streak-free, glass cleaner.



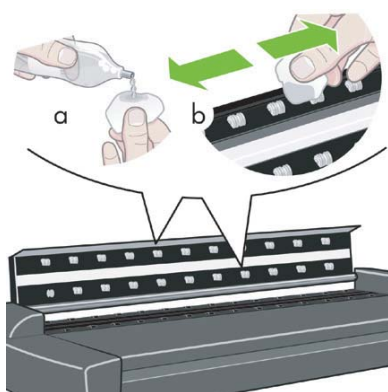
5. Dry the glass completely using a separate clean, dry lint-free cloth like the one provided with the maintenance kit.



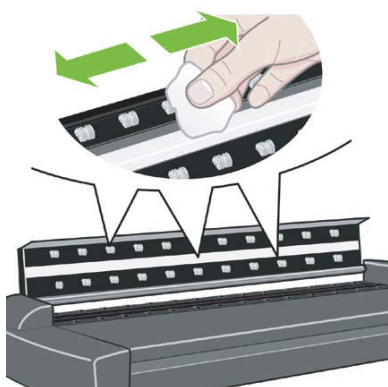
6. Clean the white background assembly. Wipe the white metal area with a lint-free cloth and a mild, streak-free, glass cleaner.



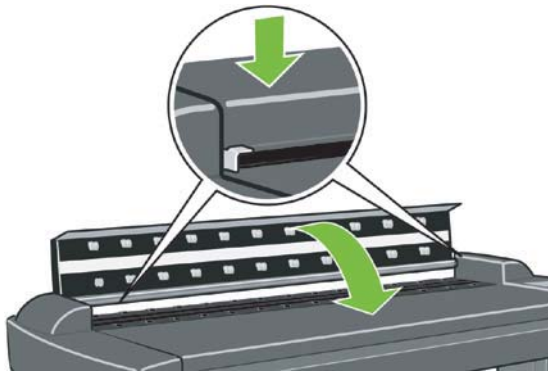
7. Clean the platen rollers. Wipe the rollers with a lint-free cloth and a mild, streak-free, glass cleaner.



8. Dry the platen and rollers completely using a separate clean, dry lint-free cloth.



9. Close the Guide Plate.



10. Use the dust sheet to protect the Scanner when not in use.



△ **CAUTION:** Ensure that the scanner is turned off before covering it with the dust sheet. The scanner will overheat if covered while turned on.

Troubleshooting Specific Panel PC Problems

- [Power failure](#)
- [Boot up fails](#)
- [LCD/Inverter fails](#)
- [No backlight and no display](#)
- [With backlight but no display](#)
- [How to check the voltage of the Power Supply Unit in the PanelPC.](#)
- [How to check the voltage of the Inverter PCA in the PanelPC](#)
- [The HDD fails](#)
- [DDR DRAM fails](#)
- [DVD-ROM fails](#)
- [The CD/DVD is stuck in the DVD-ROM and can't be ejected out](#)

The following section is related to the PanelPC and it's related components.

Power failure

If the power has been turned on, and there is no message on the screen, try the following:

- Make sure the power cord is correctly connected.
- Plug the power cord to another power outlet.

- The DVD-ROM indicator lights should flash.
- The system fan should start up if there is power in the PanelPC. If not, replace the PSU. See [Power Supply Unit on page 167](#).

Boot up fails

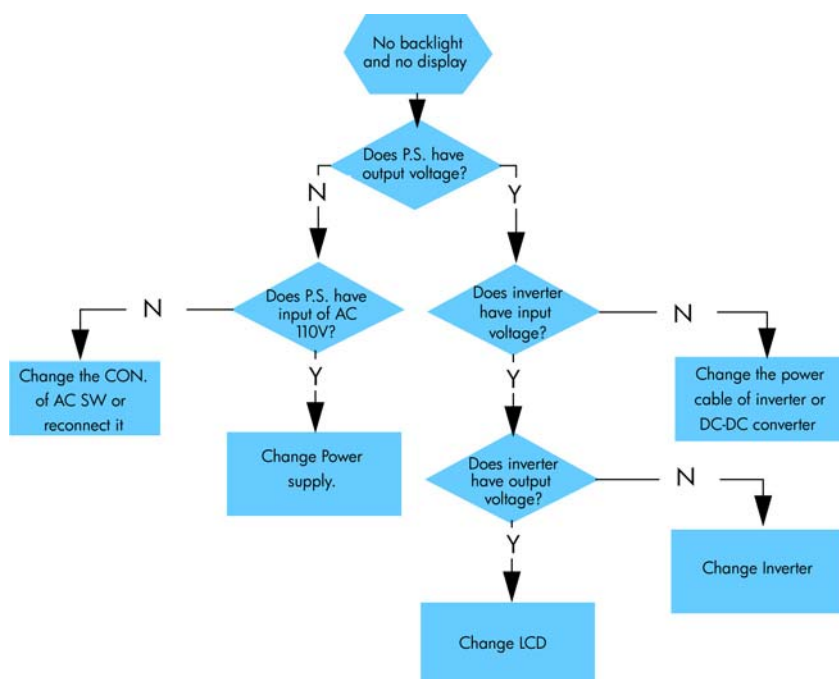
The PanelPC issues a series of beeps which can be used to identify which part is failing.

- One short beep: No error during POST (Power on Self-Test).
- One long beep followed by two short beeps: Video initial error.
- One long beep followed by nine short beeps: BIOS Bootblock error.
- Single long beep repeatedly: DRAM error.

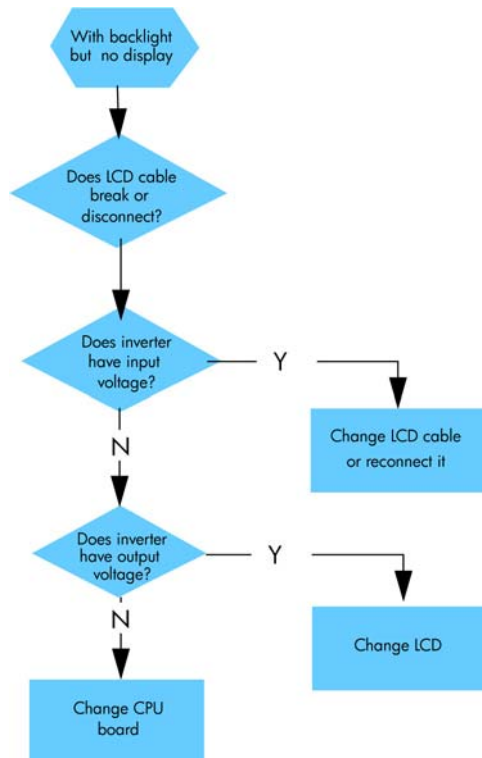
LCD/Inverter fails

The failure of the LCD display can be divided into two issues, the PanelPC has no backlight and no display, or the PanelPC has the backlight but there is no display. Use the two troubleshooting flow charts to solve the problem:

No backlight and no display



With backlight but no display



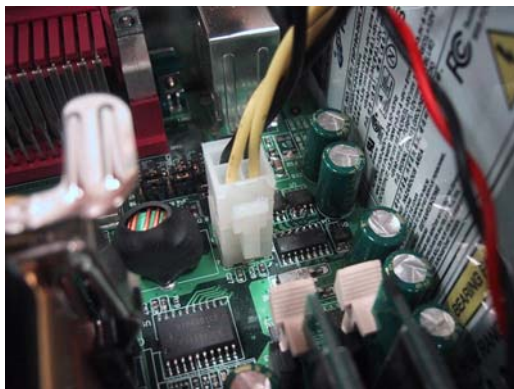
How to check the voltage of the Power Supply Unit in the PanelPC.

With power on, measure the red pins and the yellow pins of the power connector.

- Output voltage of the red pins should be $5V \pm 5\%$.
- Output voltage of the yellow pins should be $12V \pm 5\%$.



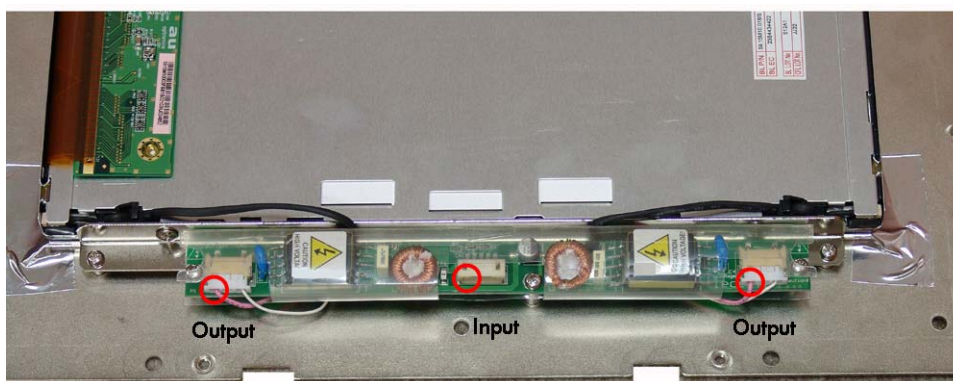
- Output voltage of the yellow pins should be $12V \pm 5\%$.



How to check the voltage of the Inverter PCA in the PanelPC

With power on, measure pin 1 of the Inverter PCA input and output connectors.

- Output voltage should be between 600V and 710V (typical value is 640V).
- Input voltage should be $12V \pm 10\%$.



The HDD fails

The HDD is running, and the system configuration has identified the HDD's ID while booting up. Try the following:

- Set the type of hard disk to AUTO in STANDARD CMOS SETUP.
- Reconnect the cable between HDD and main board.
- Change the HDD. See [Hard Disk Drive on page 158](#).

The HDD is not running, and the system configuration can not identify the HDD's ID while booting up. Try the following:

- Reconnect the cable between HDD and main board.
- Change the cable between HDD and main board.
- Change the HDD. See [Hard Disk Drive on page 158](#).

DDR DRAM fails

If the computer repeatedly makes a long beep, and the display is blank when you power on, this indicates a DDR DRAM error, replace the DDR DRAM. See [DRAM PCA on page 155](#).

DVD-ROM fails

The DVD-ROM indicator light is on when you switch on. Try the following:

- Check the possible damage on the cable between DVD-ROM and main board.
- The DVD-ROM indicator light is off when power up and the screen show no message of any DVD-ROM installed.
- Check for DVD-ROM auto detection in the BIOS setup:

Procedure to do this: In the BIOS setup, select standard CMOS features, set all IDE detections (ie Primary master, Primary slave, secondary master, secondary slave) to **AUTO**.

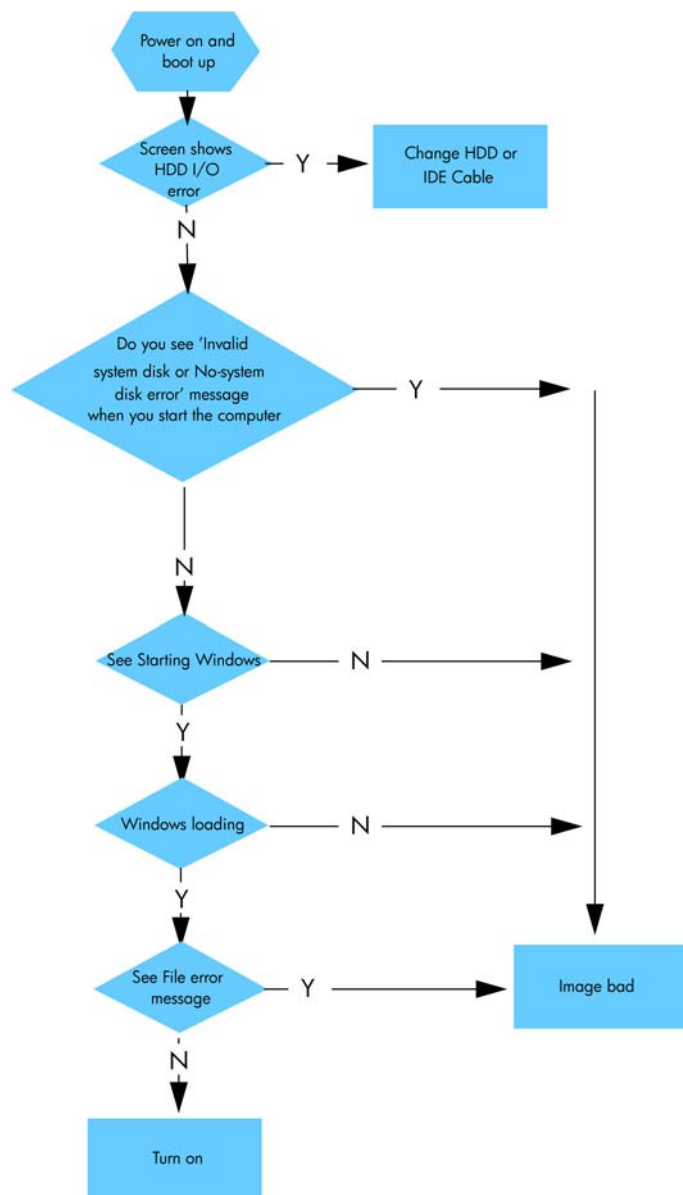
- Reconnect the cable between DVD-ROM and main board.
- Replace the DVD-ROM. See [DVD Drive on page 156](#).

The CD/DVD is stuck in the DVD-ROM and can't be ejected out

- Push a pin into the hole at the right side of the DVD-ROM eject button.

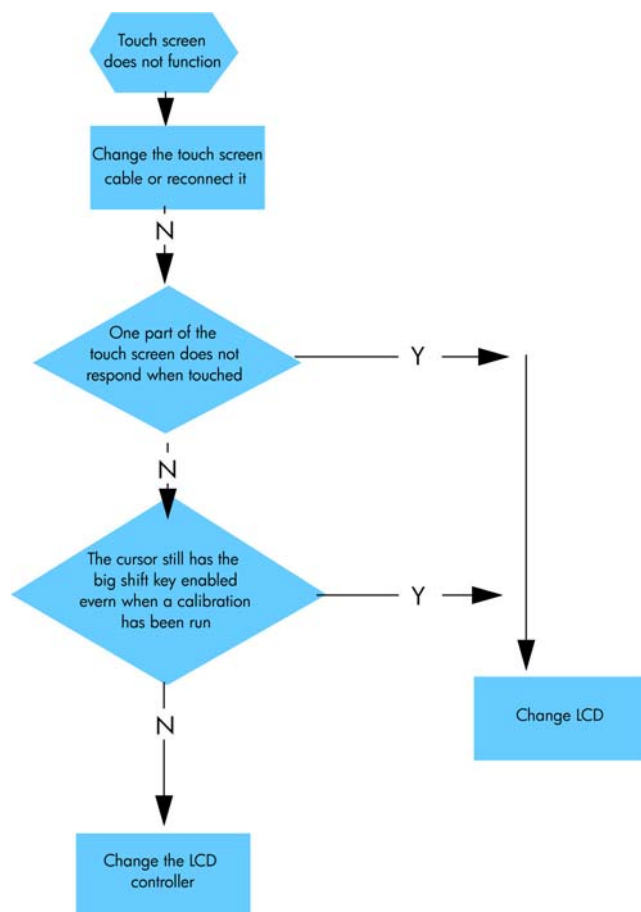
Image fails

Follow the steps in the flowchart below to quickly check an image problem:



Touch screen fails

Follow the steps in the flowchart below to quickly check if the touch screen fails:



Touch screen is working but can't control the cursor

Try the following:

- Run the calibration program.
- Check that the cable between the LCD controller and the LCD is connected in the correct position.
- Replace the LCD controller. See [LCD Controller PCA on page 160](#).
- Replace the LCD. See [LCD on page 150](#).

Preventive Maintenance Kit for HP Designjet Scanners

The following scanner messages are shown on the touch screen. They are all shown in the "scanner messages" window that pops up automatically if a message should be notified to the user, and the window can also be recalled manually by pressing the progress bar area of JETimage.

User warnings:

- **Scanner Maintenance has not been run for 30 days.**
- **Lamp quality fails. Filter should be replaced at the same time.**

The lamp quality is electrically monitored and the warning appears after 4000 hours of usage. The scanner maintenance warning appears when scanner maintenance has not been performed for 30 days. However, the frequency with which scanner maintenance should be performed depends on scanner usage.

2 System Error Codes

- [System Error Codes for the Scanner Only on page 34](#)
- [Error Codes for the JetImage Software RIP on page 43](#)
- [Error Messages for the Touch Screen on page 49](#)

System Error Codes for the Scanner Only

Introduction

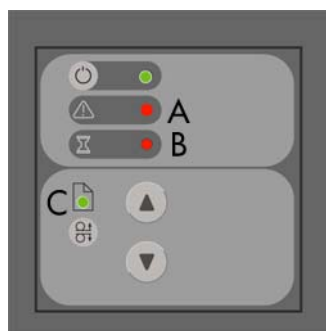
The following pages contain a list of system error codes and their respective descriptions and recommended corrective actions. Only try one recommended action at a time and check if the error code has disappeared.

If you have an error code which is not documented in this Service Manual or you have an error which you cannot resolve, then report the error to the HP Response Center or the nearest HP Support Office. When reporting the error, have the following information ready:

- Model and Serial Number of the scanner.
- Which firmware revision the printer and the scanner is using.
- SW version.
- The complete error number.
- ScanDump of Light Profiles.

Error Codes Displayed on the Operator Panel

A flashing Diagnostic Indicator indicates an error condition. The error can be identified by an error code number being displayed on the Touch Screen and/or by the following combination of flashing indicators on the Operator Panel:



Diagnostic LED (A)	Wait LED (B)	Ready LED (C)	Error Description
Flashing	Flashes once	OFF	Correction of camera A failed
Flashing	Flashes twice	OFF	Correction of camera B failed
Flashing	Flashes 3 times	OFF	Correction of camera C failed
Flashing	Flashes 4 times	OFF	Correction of camera D failed
Flashing	OFF	Flashes once	Error on Main PCA
Flashing	OFF	Flashes twice	Error on Camera Board
Flashing	OFF	Flashes 3 times	Invalid Scanner ID setting
Flashing	OFF	Flashes 4 times	Error on Interface Board
Flashing	Flashing	Flashing	Scanner is in Boot Mode

Diagnostic LED (A)	Wait LED (B)	Ready LED (C)	Error Description
Flashing	OFF	OFF	See Error Codes
OFF	Flashing	Red	Guideplate assembly is not in the right position, to solve it press down the guideplate to move it to the original position (step 0: 2mm/0.8").

The Software Modules

The first set of numbers in the error code refer to a part of the Scanner software or the Scanner.

Software Modules	Comments/Notes
51 - Scanner API	Low level scanner control library. All scanner communication goes through this API.
52 - Image Format Library	Printer and file formatting. All printing and file read/write is formatted/decoded by this library.
53 - Copy Engine	The central processing engine in the (JETimage) software.
54 - Closed Loop Calibration	Color Management math library that calculates the media profiles.
55 - Test Software	Scanner Maintenance / SCANTest.
56 - Jetimage container	All user interface and business logic except for Scanner Maintenance / SCANTest and WIDEsSystem.
57 - WIDEsSystem (WS)	Scanner surveillance utility
100 - Scanner	Mechanical part of the Scanner.

55-203

Cause	Solution
No movement in camera position has been detected during vertical camera alignment. Check the camera.	<p>Try the following:</p> <ul style="list-style-type: none"> • Check that all the cables are connected correctly to the Cameras and the Camera Boards. • Run SCANTest 6, test 9 or 11 and check each Camera Motor functions correctly.

100-3051

Cause	Solution
The scanner's ID switch has been set to an invalid value. Please change switch setting.	<p>Try the following:</p> <ul style="list-style-type: none"> • Check that all the cables are connected correctly to the Main Electronics Board, Control Panel Board in the Right Cover. • Run SCANtest 6, test 7. See Test 7: Complete Hardware Test on page 5. • Replace the Right Cover. See Right Cover on page 75. • Replace the Main Electronics Board. See Main Electronics Board on page 104.

100-3054

Cause	Solution
Unable to write to EEPROM/FLASH	<p>Try the following:</p> <ul style="list-style-type: none"> • Check that all the cables are connected correctly to the Main Electronics Board. • Run SCANtest 6, test 7. See Test 7: Complete Hardware Test on page 5. • Replace the Main Electronics Board. See Main Electronics Board on page 104.

100-3056

Cause	Solution
Flash Error: Unable to erase	<p>Try the following:</p> <ul style="list-style-type: none"> • Check that all the cables are connected correctly to the Main Electronics Board. • Run SCANtest 6, test 7. See Test 7: Complete Hardware Test on page 5. • Replace the Main Electronics Board. See Main Electronics Board on page 104.

100-3057

Cause	Solution
Flash Error: Unable to program	<p>Try the following:</p> <ul style="list-style-type: none"> • Check that all the cables are connected correctly to the Main Electronics Board. • Run SCANtest 6, test 7. See Test 7: Complete Hardware Test on page 5. • Replace the Main Electronics Board. See Main Electronics Board on page 104.

100-3058

Cause	Solution
SCU Board Error	<p>Try the following:</p> <ul style="list-style-type: none"> • Check that all the cables are connected correctly to the Main Electronics Board. • Run SCANtest 6, test 7. See Test 7: Complete Hardware Test on page 5. • Replace the Main Electronics Board. See Main Electronics Board on page 104.

100-3059

Cause	Solution
Camera Board, Error	<p>Try the following:</p> <ul style="list-style-type: none"> • To find out which board has an error, Run SCANtest 6, test 7 and check the performance of each camera. • Check that all the cables are connected correctly to the Cameras Boards. • Run SCANtest 6, test 9 (Test 9: Camera Adjustment on page 5) and check the Camera Board. • Replace the Camera Board. See Camera Board on page 96. • Replace the Main Electronics Board. See Main Electronics Board on page 104.

100-3061

Cause	Solution
There is a problem with the Interface Board.	Try the following: <ul style="list-style-type: none">• Check that the Interface Board is correctly installed.• Run SCANtest 6, test 7. See Test 7: Complete Hardware Test on page 5.• Replace the Interface Board. See Interface Board on page 106.

100-20086

Cause	Solution
Unable to communicate with the ATAC Controller Board.	Try the following: <ul style="list-style-type: none">• Check that all the cables are connected correctly to the ATAC Board and the Main Electronics Board.• Run SCANtest 6, test 7. See Test 7: Complete Hardware Test on page 5.• Replace the ATAC Board. See Elevation Motor Driver Board on page 111.• Replace the Main Electronics Board. See Main Electronics Board on page 104.

100-20219

Cause	Solution
There is a problem with one of the Fans.	Try the following: <ul style="list-style-type: none">• Check that all the cables are connected correctly to the Fans.• Check that all the cables are connected correctly to the Driver Board.• Perform the Driver Board Communication Test. See Driver Board Communication Test on page 199.• Replace the Fan. See Fan on page 102.• Replace the Driver Board. See Driver Board on page 100.

100-20221

Cause	Solution
There is a problem with the Driver Board.	<p>Try the following:</p> <ul style="list-style-type: none"> • Check that all the cables are connected correctly to the . • Perform the Driver Board Communication Test. See Driver Board Communication Test on page 199. • Run SCANtest 6, test 7. See Test 7: Complete Hardware Test on page 5. • Replace the Driver Board. See Driver Board on page 100. • Replace the Main Electronics Board. See Main Electronics Board on page 104.

100-4003x/4004x

Cause	Solution
<p>Error on Camera Board. Use the list below to identify the failing Camera Board.</p> <ul style="list-style-type: none"> • Camera A: 40035, 40039, 40043, 40047 • Camera B: 40036, 40040, 40044, 40048 • Camera C: 40037, 40041, 40045, 40049 • Camera D: 40038, 40042, 40046, 40050 	<p>Try the following:</p> <ul style="list-style-type: none"> • Run SCANtest 6, test 7 to verify the error. • Check that all the cables are connected correctly. • Run SCANtest 6, test 9 and check the light profiles. See Test 9: Camera Adjustment on page 5. • Erase the Parameter Blocks. • Run the Scanner Maintenance. See Scanner Maintenance on page 192. • Replace the Camera Board. See Camera Board on page 96.

100-4017x/4018x

Cause	Solution
<p>Unable to calibrate a camera. Use the following list to identify the failing camera.</p> <ul style="list-style-type: none"> • Camera A: 40170, 40174, 40178, 40182, 40186 • Camera B: 40171, 40175, 40179, 40183, 40187 • Camera C: 40172, 40176, 40180, 40184, 40188 • Camera D: 40173, 40177, 40181, 40185, 40189 	<p>Try the following:</p> <ul style="list-style-type: none"> • Erase the parameter block and perform scanner maintenance. See Scanner Maintenance on page 192. • Check that all cables are connected correctly to the Camera Board and the Main Electronics Board. • Switch Mode Power Supply. • Run SCANtest 6, test 9. See Test 9: Camera Adjustment on page 5. • Replace the Main Electronics Board. See Main Electronics Board on page 104. • Replace the failing Camera Board. See Camera Board on page 96.

100-40075

Cause	Solution
Camera Board, FPGA CB status error.	<p>Try the following:</p> <ul style="list-style-type: none"> • Check that all the cables are connected correctly to the Cameras Boards. • Replace the Camera Board. See Camera Board on page 96. • Replace the Main Electronics Board. See Main Electronics Board on page 104.

100-40076

Cause	Solution
Camera Board, FPGA CB done error.	<p>Try the following:</p> <ul style="list-style-type: none"> • Check that all the cables are connected correctly to the Cameras Boards. • Run SCANtest 6, test 9. See Test 9: Camera Adjustment on page 5. • Replace the Camera Board. See Camera Board on page 96. • Run SCANtest 6, test 7. See Test 7: Complete Hardware Test on page 5. • Replace the Main Electronics Board. See Main Electronics Board on page 104.

100-40084

Cause	Solution
Camera Board, Camera Cables disconnected.	<p>Try the following:</p> <ul style="list-style-type: none"> • Check that all the cables are connected correctly to the Cameras Boards. • Run SCANtest 6, test 9. See Test 9: Camera Adjustment on page 5. • Replace the Camera Board. See Camera Board on page 96. • Run SCANtest 6, test 7. See Test 7: Complete Hardware Test on page 5. • Replace the Main Electronics Board. See Main Electronics Board on page 104.

100-4013x

Cause	Solution
Unable to calibrate an undefined Camera.	<p>Try the following:</p> <ul style="list-style-type: none"> • Erase the parameter block and perform scanner maintenance. See Scanner Maintenance on page 192. • Switch Mode Power Supply. • Check that all the cables are connected correctly to the Cameras Boards. • Run SCANTest 6, test 9. See Test 9: Camera Adjustment on page 5. • Replace the Camera Board. See Camera Board on page 96. • Run SCANTest 6, test 7. See Test 7: Complete Hardware Test on page 5. • Replace the Main Electronics Board. See Main Electronics Board on page 104.

100-500xx

Cause	Solution
Error on the Main Electronics Board.	<p>Try the following:</p> <ul style="list-style-type: none"> • Check that all the cables are connected correctly to the Main Electronics Board. • Run Scanner Maintenance. See Scanner Maintenance on page 192. • Upgrade the Scanner Firmware. • Run SCANTest 6, test 7. See Test 7: Complete Hardware Test on page 5. • Replace the Main Electronics Board. See Main Electronics Board on page 104.

100-50199

Cause	Solution
Incorrect Main Electronics Board and Camera Board. Please validate the combination for this scanner.	<p>Try the following:</p> <ul style="list-style-type: none">• Check that all the cables are connected correctly to the Cameras Boards.• Update the firmware.• Run SCANtest 6, test 9. See Test 9: Camera Adjustment on page 5.• Replace the Camera Board. See Camera Board on page 96.• Run SCANtest 6, test 7. See Test 7: Complete Hardware Test on page 5.• Replace the Main Electronics Board. See Main Electronics Board on page 104.

100-600xx

Cause	Solution
Communications Interface Error.	<p>Try the following:</p> <ul style="list-style-type: none">• Check that all the cables are connected correctly to the Main Electronics Board and the Interface Board is correctly installed.• Run SCANtest 6, test 7. See Test 7: Complete Hardware Test on page 5.• Replace the Camera Board. See Camera Board on page 96.• Replace the Main Electronics Board. See Main Electronics Board on page 104.

Error Codes for the JetImage Software RIP

-19 When combining thick media handling (paper guide in extended position) with auto size detection, the size detection must be done separately by running a preview scan before the final copy or scan operation.

Cause	Solution
When combining thick media handling (paper guide in extended position) with auto size detection, the size detection must be done separately by running a preview scan before the final copy or scan operation.	Try the following: <ul style="list-style-type: none"> Run a preview scan before the final copy or scan operation. Perform the copy or scan to file instead.

-16 error reading the RIP gray balance file.

Cause	Solution
If current media profile specifies to use CSV-file in the RIP gray balance and the file is not found.	Either disable the use of gray balance or attempt to create the file again.

-14 Unable to reserve the scanner.

Cause	Solution
Unable to reserve the scanner.	Check and see if any other application is using the scanner.

-13 Unable to rename the folder.

Cause	Solution
Unable to rename the folder.	Occurs during file browsing operations, usually due to a share issue.

-12 Unable to delete the folder.

Cause	Solution
Unable to delete the folder (occurs during file browsing operations, typically if a folder is shared).	Close all the applications and try again.

-11 The folder must be empty.

Cause	Solution
The folder must be empty (occurs during file browsing operations).	Check that the folder is empty before deleting it.

-9 The currently selected printer is not installed in the system.

Cause	Solution
The windows printer driver for the currently selected printer is not found.	Try the following: <ul style="list-style-type: none"> • Check that the printer driver is installed. • Install the printer driver if not already installed.

-6 No scanner selected or selected scanner not present.

Cause	Solution
No scanner selected or selected scanner not present. If the scanner was turned Off during application start-up.	Try the following: <ul style="list-style-type: none"> • Check that the scanner is turned On. • Check that the scanner is selected.

-2 No media profile selected for current printer.

Cause	Solution
No media profile selected for current printer.	Prepare a Media Profile before performing the operation.

-1 No printer selected.

Cause	Solution
No printer selected.	Select a printer. A printer must be configured in the application before trying to print.

02 Invalid scan coordinates. The paper frame was placed fully outside the scan image.

Cause	Solution
Invalid scan coordinates. The paper frame was placed fully outside the scan image.	Try repositioning the paper frame so that it covers some of the scannable area.

06 Not enough disk space for spool file.

Cause	Solution
Not enough disk space for spool file.	Make sure that the environment TEMP (or secondary TMP) points to a folder with plenty of space.

08 The scanner is currently on standby. Please press the soft power button on the scanner to activate it.

Cause	Solution
The scanner is currently on standby.	Press the soft Power button on the scanner to activate it.

00003 Scanning invalid size of area requested for scanning.

Cause	Solution
Negative scan-width specified.	Reselect the scan area and try again.

01003 Error printing colorsheet.

Cause	Solution
Error printing colorsheet.	<p>Try the following:</p> <ul style="list-style-type: none"> • Check the printer to make sure it is switched ON and connected to the scanner. • Try printing a test print to make sure that the printer is working.

01013 Error detecting index-mark.

Cause	Solution
Skew: Error detecting the index mark.	<p>Try the following:</p> <ul style="list-style-type: none"> • Try restarting the system. • If the problem persists, view the scandump.tif file for further diagnosis.

01014 Sheet bad aligned.

Cause	Solution
Sheet badly aligned.	<p>Try the following:</p> <ul style="list-style-type: none"> • Reinsert the sheet, making sure that it is straight and at the right position. • If the problem persists, view the scandump.tif file for further diagnosis.

01015 Error detecting left margin.

Cause	Solution
Error detecting the left margin of the sheet.	<p>Try the following:</p> <ul style="list-style-type: none"> • Try reinserting the sheet. • If the problem persists, view the scandump.tif file for further diagnosis.

01016 Error detecting right margin.

Cause	Solution
Error detecting the right margin of the sheet.	Try the following: <ul style="list-style-type: none"> • Try reinserting the sheet. • If the problem persists, view the scandump.tif file for further diagnosis.

01017 Error reading colorsheet.

Cause	Solution
Error reading the colorsheet. The end of the sheet is reached before expected.	Check that the correct colorsheet is being used.

01018 CLC aborted.

Cause	Solution
The Close Loop Calibration (CLC) has been aborted.	The user has cancelled the color map operation.

01019 Wrong insert position.

Cause	Solution
The sheet has been inserted in the wrong position.	Try the following: <ul style="list-style-type: none"> • Reinsert the sheet, making sure that it is at the right position. • If the problem persists, view the scandump.tif file for further diagnosis.

01020 Can't find top of sheet.

Cause	Solution
The top of the sheet couldn't be found.	Reinsert the sheet, making sure that it is at the right position.

01021 Can't find bottom of sheet.

Cause	Solution
The bottom of the sheet couldn't be found.	Reinsert the sheet, making sure that it is at the right position.

01022 Does not correspond to this version or clc.dll.

Cause	Solution
Incorrect version of the language resource dll.	Install the correct version of the language resource dll.

02004 Unable to open device for reading.

Cause	Solution
Unable to open the device for reading.	Check that the device (file) is available.

02005 Unable to open device for writing.

Cause	Solution
Unable to open the device for writing.	Check that the device (file or printer) is available.

02006 Unable to read from device.

Cause	Solution
Unable to read from the device.	Try the operation again.

02007 Unable to write to device.

Cause	Solution
Unable to write to the device.	Try the operation again.

02013 Destination already exists.

Cause	Solution
Destination already exists.	Try the operation again with a different file name.

03008 Device not available.

Cause	Solution
Scanner not found.	Try the following: <ul style="list-style-type: none"> • Check that the scanner is turned ON. • Check the connection to the scanner.

13496 The scanner is initializing or warming up.

Cause	Solution
The scanner is initializing.	This happens if you try to scan too quickly after powering ON the scanner. Wait a short while and then try scanning again.

17977 Media is present in scanner, but command was aborted by user.

Cause	Solution
User interfered with the scanner.	Try the operation again.

17980 Paper jam.

Cause	Solution
Paper jam.	Check rollers and mechanical paper detectors for any paper jam. Once paper jam is cleared, try the operation again.

Error Messages for the Touch Screen

BIOS ROM checksum error - system halted.

Cause	Solution
Error during initialization.	Reboot the system and enter the BIOS setting. Load Setup Default and save the BIOS setting.

CMOS battery failed.

Cause	Solution
The battery life is approximately three years before it requires replacement.	Replace the CMOS Battery.

CMOS checksum error - defaults loaded.

Cause	Solution
Error detected in the CMOS.	Reboot the system and enter the BIOS setting. Load Setup Default and save the BIOS setting.

Display switch is set incorrectly

Cause	Solution
Problem found with the Touch Screen.	Connect the Touch Screen to a CRT Monitor and check the resolution setting for the display. If the CRT Monitor is working well then it seems there is an LCD problem. Return the Panel PC to Repair Center for further tests.

Hard Disk install failure.

Cause	Solution
No Hard Disk detected, error related to Hard Disk Drive.	<p>Try the following:</p> <ul style="list-style-type: none"> In the BIOS setup select Standard CMOS Features and check if the IDE detection method is set to AUTO (password to access the BIOS is bigcoco)? <ul style="list-style-type: none"> If Yes: In Advanced BIOS features, set HDD to first boot device. If No: Choose auto for all IDE detection. Check if HDD can be detected in the boot-up system configuration table: <ul style="list-style-type: none"> If Yes: check the boot up files in HDD, recover it if necessary. If No: replace HDD.

Primary master hard disk fail.

Cause	Solution
No Hard Disk detected, error related to Hard Disk Drive.	<p>Try the following:</p> <ul style="list-style-type: none"> In the BIOS setup select Standard CMOS Features and check if the IDE detection method is set to AUTO (password to access the BIOS is bigcoco)? <ul style="list-style-type: none"> If Yes: In Advanced BIOS features, set HDD to first boot device. If No: Choose auto for all IDE detection. Check if HDD can be detected in the boot-up system configuration table: <ul style="list-style-type: none"> If Yes: check the boot up files in HDD, recover it if necessary. If No: replace HDD.

Secondary master hard disk fail.

Cause	Solution
No Hard Disk detected, error related to Hard Disk Drive.	<p>Try the following:</p> <ul style="list-style-type: none"> In the BIOS setup select Standard CMOS Features and check if the IDE detection method is set to AUTO (password to access the BIOS is bigcoco)? <ul style="list-style-type: none"> If Yes: In Advanced BIOS features, set HDD to first boot device. If No: Choose auto for all IDE detection. Check if HDD can be detected in the boot-up system configuration table: <ul style="list-style-type: none"> If Yes: check the boot up files in HDD, recover it if necessary. If No: replace HDD.

Primary slave hard disk fail.

Cause	Solution
No Hard Disk detected, error related to Hard Disk Drive.	<p>Try the following:</p> <ul style="list-style-type: none"> In the BIOS setup select Standard CMOS Features and check if the IDE detection method is set to AUTO (password to access the BIOS is bigcoco)? <ul style="list-style-type: none"> If Yes: In Advanced BIOS features, set HDD to first boot device. If No: Choose auto for all IDE detection. Check if HDD can be detected in the boot-up system configuration table: <ul style="list-style-type: none"> If Yes: check the boot up files in HDD, recover it if necessary. If No: replace HDD.

Secondary slave hard disk fail.

Cause	Solution
No Hard Disk detected, error related to Hard Disk Drive.	<p>Try the following:</p> <ul style="list-style-type: none"> In the BIOS setup select Standard CMOS Features and check if the IDE detection method is set to AUTO (password to access the BIOS is bigcoco)? <ul style="list-style-type: none"> If Yes: In Advanced BIOS features, set HDD to first boot device. If No: Choose auto for all IDE detection. Check if HDD can be detected in the boot-up system configuration table: <ul style="list-style-type: none"> If Yes: check the boot up files in HDD, recover it if necessary. If No: replace HDD.

Floppy disk(s) fail.

Cause	Solution
No Floppy Disk detected.	<p>Try the following:</p> <ul style="list-style-type: none"> Check if the Floppy Disk Drive cable is connected correctly, reconnect the cable if necessary. Replace the Floppy Disk Drive.

Floppy disk(s) fail (40).

Cause	Solution
No Floppy Disk detected.	Try the following: <ul style="list-style-type: none"> • Check if the Floppy Disk Drive cable is connected correctly, reconnect the cable if necessary. • Replace the Floppy Disk Drive.

Floppy disk(s) fail (80).

Cause	Solution
No Floppy Disk detected.	Try the following: <ul style="list-style-type: none"> • Check if the Floppy Disk Drive cable is connected correctly. Reconnect the cable if necessary. • Replace the Floppy Disk Drive.

Keyboard error or no keyboard present.

Cause	Solution
No keyboard has been detected.	Try the following: <ul style="list-style-type: none"> • Check if the Keyboard is connected correctly. Reconnect the cable if necessary. • Replace the Keyboard.

The driver is not ready.

Cause	Solution
The system cannot read from the DVD drive.	Try the following: <ul style="list-style-type: none"> • Eject the DVD currently in the DVD drive and place it into a different DVD drive. Can the DVD be read in the other DVD drive? <ul style="list-style-type: none"> ◦ If Yes: Replace the DVD drive. ◦ If No: Replace the DVD; it could be damaged.

Memory test fail.

Cause	Solution
Memory test has failed.	<p>Try the following:</p> <ul style="list-style-type: none">• Re-install the SDRAM and check if the problem is solved:<ul style="list-style-type: none">◦ If Yes: There was a poor connection between the Main Board and the SDRAM Memory Module.◦ If No: Replace the SDRAM Memory Module.

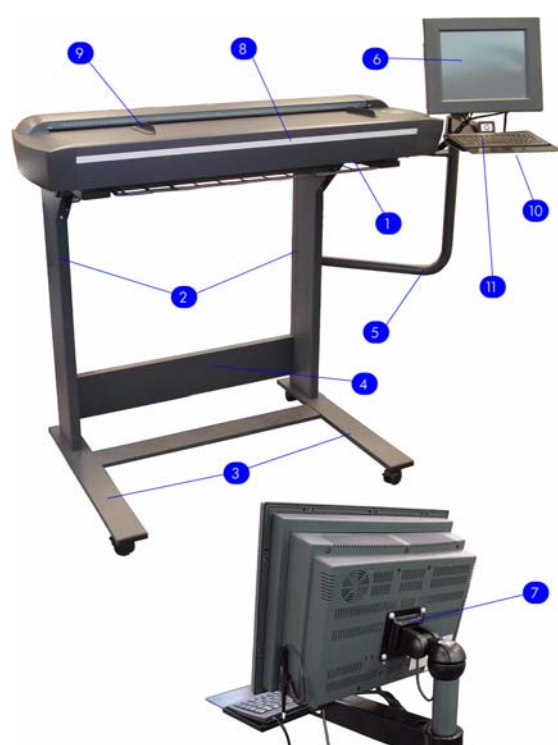
3 Parts and Diagrams

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- [Top Assemblies on page 58](#)
- [Inside Guide Plate on page 59](#)
- [Drive Assemblies on page 60](#)
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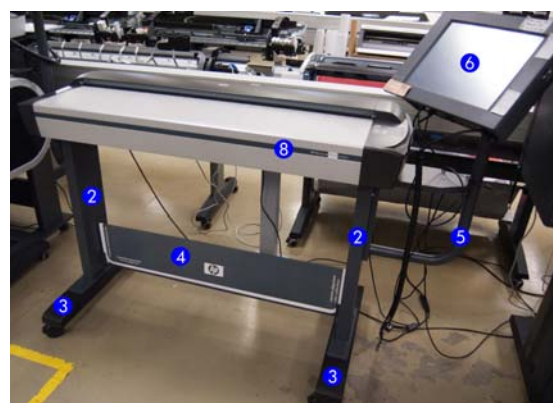
Copier Stand & Touch Screen

Reference in photo	HP part number	Quantity	Scanner model					Description / Comments
			820	45x0	HD	T11x0	T1200	
	CQ653-67002	1					x	Stand (PC not included)
1	Q1277-60037	1		x				Top Bar with Guide
1	Q6685-60004	1	x			x		Top Bar
2	Q1277-60038	2		x	x			Leg
2	Q6685-60005	2	x			x	x	Leg
3	Q1277-60039	2		x	x			Feet (includes Castors)
3	Q6685-60006	2	x			x	x	Feet (includes Castors)
4	Q1277-60040	1		x	x			Rear Bar
4	Q6685-60007	1	x			x	x	Rear Bar
5	Q1277-60041	1		x	x			Arm
5	Q6685-60008	1	x					Arm
5	Q6713-60006	1				x	x	Arm
6	-	1	x	x		x		Touch Screen
	(see also Panel PC on page 63 and the two following sections)							
7	Q1277-60042	1	x	x	x	x	x	Bracket

Copier Stand & Touch Screen



HD & T1200 Copier Stand & Touch Screen (no keyboard)

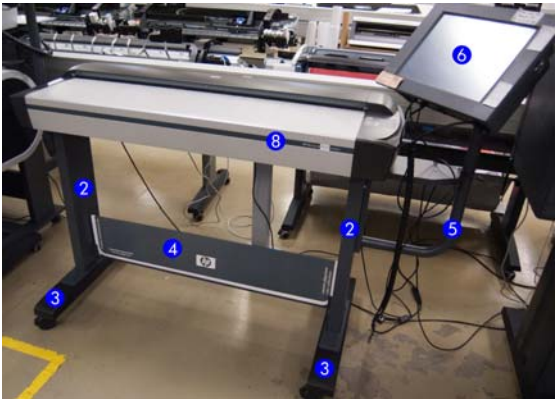


Reference in photo	HP part number	Quantity	Scanner model					Description / Comments
			820	45x0	HD	T11x0	T1200	
8	820: Q6685-60002, 4500: Q1277-60026, 4520: CM770-60002, HD: CQ654-67001, T1100: Q6713-60005, T1120: CK841-60003, T1200: CQ653-67001							Nameplate
9	Q1277-60020	1	x	x	x	x	x	Paper Guides
10	Q1277-60044	1		x				Keyboard Shelf
10	Q6685-60010	1	x			x		Keyboard Shelf
11	Q1277-60045	1	x	x		x		Keyboard English
11	Q1277-60046	1	x	x		x		Keyboard French
11	Q1277-60047	1	x	x		x		Keyboard Italian
11	Q1277-60048	1	x	x		x		Keyboard German
11	Q1277-60049	1	x	x		x		Keyboard Spanish
11	Q1277-60050	1	x	x		x		Keyboard Portuguese
11	Q1277-60051	1	x	x		x		Keyboard Chinese
11	Q1277-60052	1	x	x		x		Keyboard Taiwanese
11	Q1277-60053	1	x	x		x		Keyboard Japanese
	Q6685-60003	1	x			x		Assembly Kit (screws, etc.)
	Q6713-60013	1				x		Assembly Kit (screws, etc.)
	CQ653-67004	1					x	Assembly Kit (screws, etc.)

Copier Stand & Touch Screen



HD & T1200 Copier Stand & Touch Screen (no keyboard)



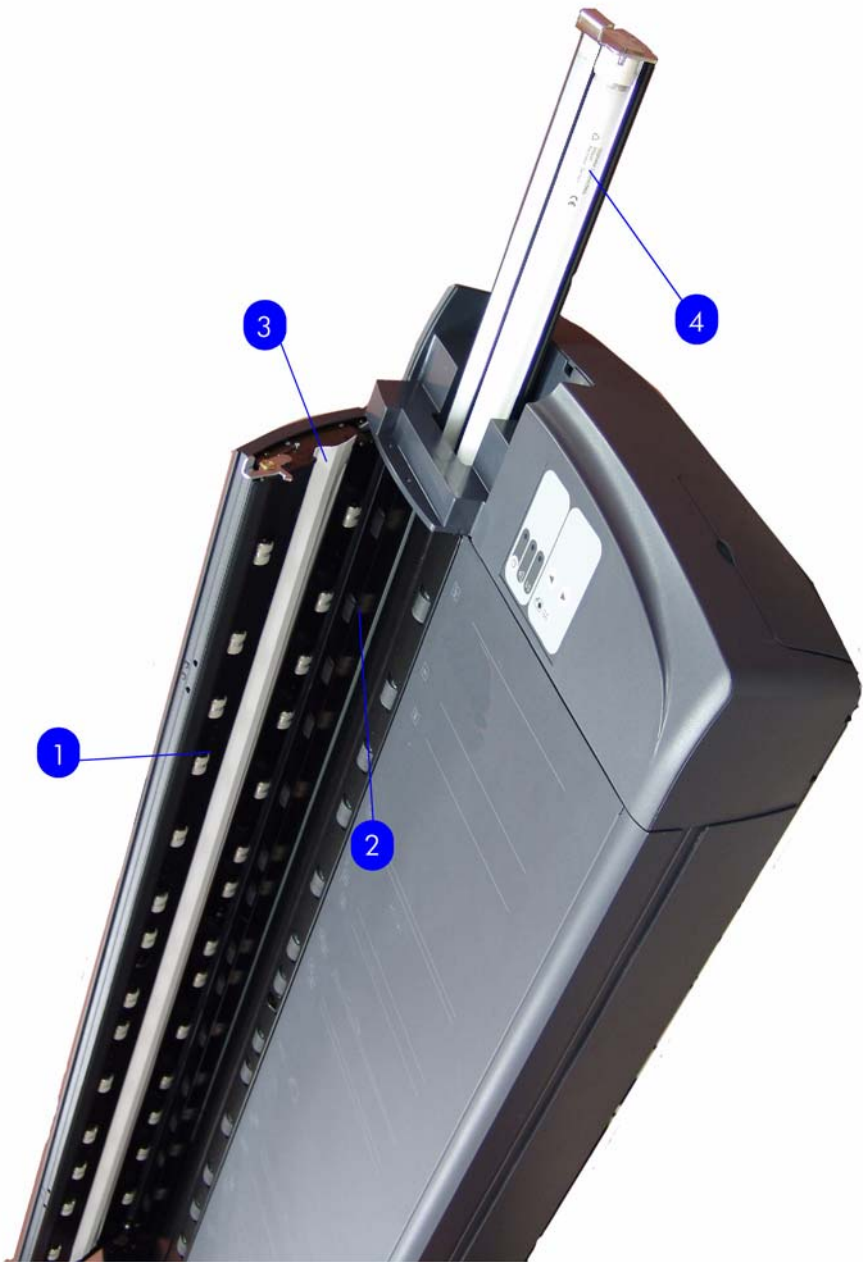
Copier Covers

Reference in photo	HP part number	Quantity	Scanner model					Description / Comments
			820	45x0	HD	T11x0	T1200	
1	Q1277-60023	1	x	x	x	x	x	Top Cover
2	Q1277-60021	1	x	x	x	x		Left Cover
2	Q6713-60008	1					x	End Cover, Left
3	820: Q6685-60012, 4500: Q1277-60022, 4520: CM770-60001, HD: CQ654-67013, T1100: Q6713-60007, T1120: CK841-60004, T1200: CQ653-67005							Right Cover (incl. Front Panel)
4	Q1277-60024	1	x	x				Top Profile
4	Q6713-60003	1			x	x	x	Top Profile
5	Q1277-60029	1	x	x	x	x		FireWire Connector Cover
5	Q6713-60010	1					x	Connector Cover
6	Q1277-60028	1	x	x	x	x		Fluorescent Lamp Access Cover
6	Q6713-60009	1					x	Lamp Cartridge Cover



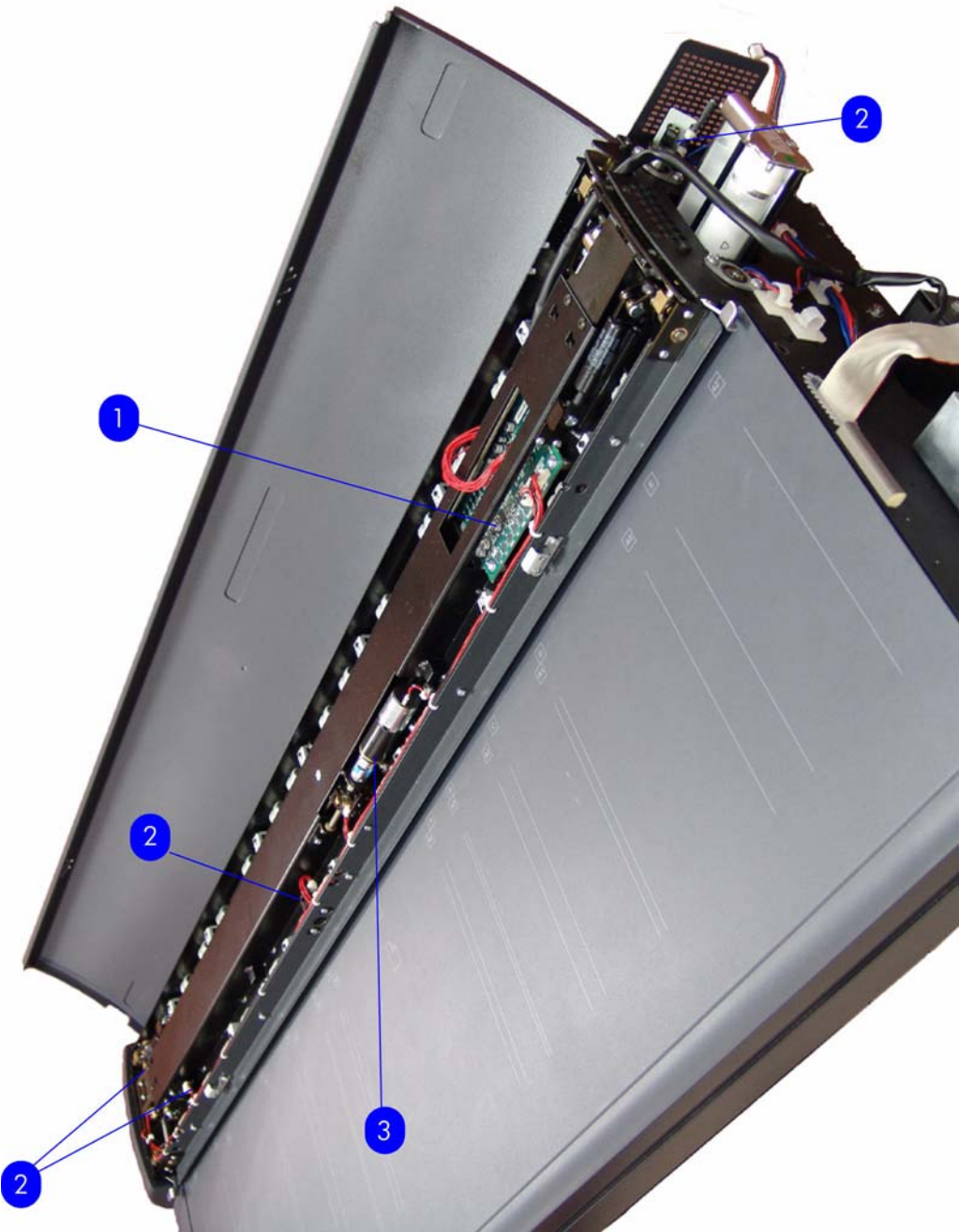
Top Assemblies

Reference in photo	HP part number	Quantity	Scanner model					Description / Comments
			820	45x0	HD	T11x0	T1200	
1	Q1277-60025	1	x	x				Guide Plate Assembly
1	Q6713-60004	1			x	x	x	Guide Plate Assembly
2	Q1277-60014	1	x	x	x	x	x	Glass Plate
3	Q1277-60027	1	x	x	x	x	x	White Background Assembly
4	Q1277-60013	1	x	x	x	x	x	Fluorescent Lamp



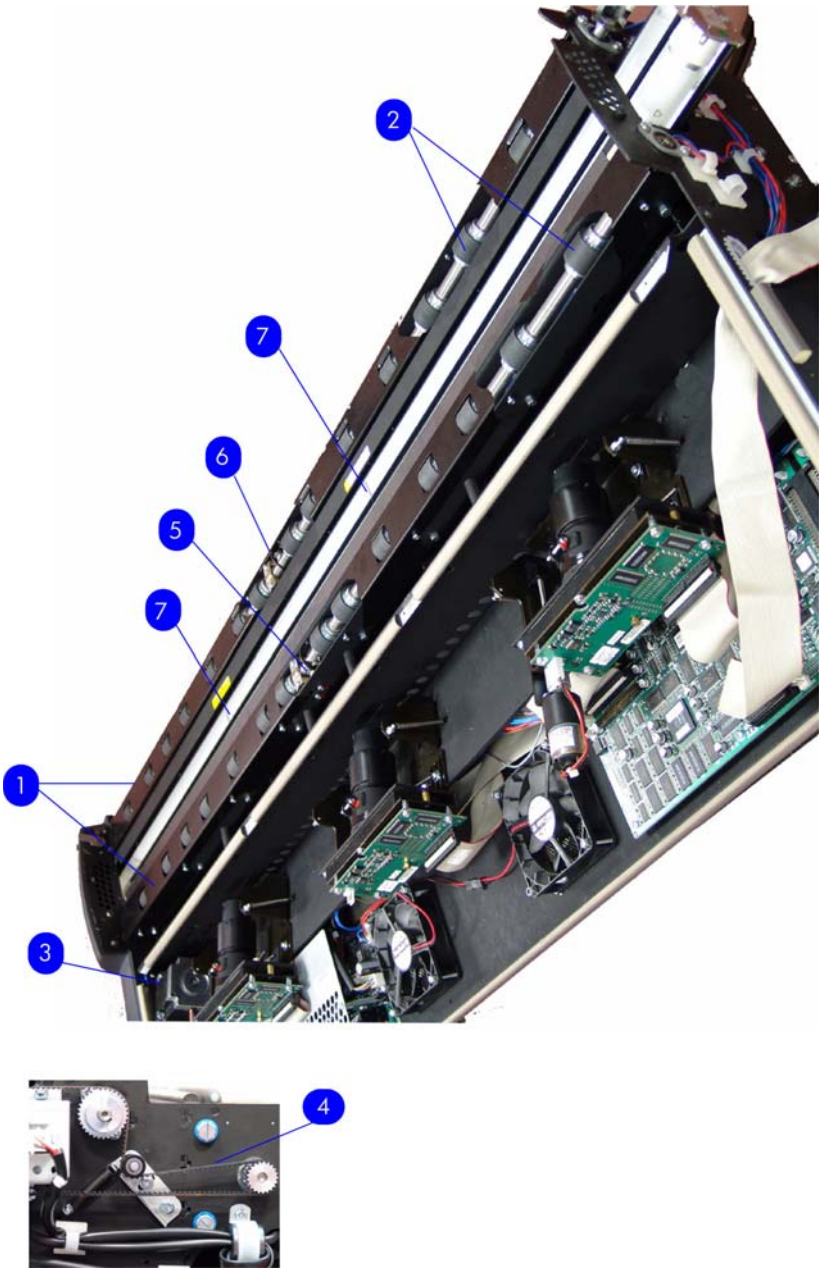
Inside Guide Plate

Reference in photo	HP part number	Quantity	Scanner model					Description / Comments
			820	45x0	HD	T11x0	T1200	
1	Q1277-60005	1	x	x	x	x	x	MDA Board
2	Q1277-60008	1	x	x	x	x	x	Opto Interrupter media sensor
3	Q1277-60011	1	x	x				Elevation Motor
3	Q6713-60002	1			x	x	x	Elevation Motor



Drive Assemblies

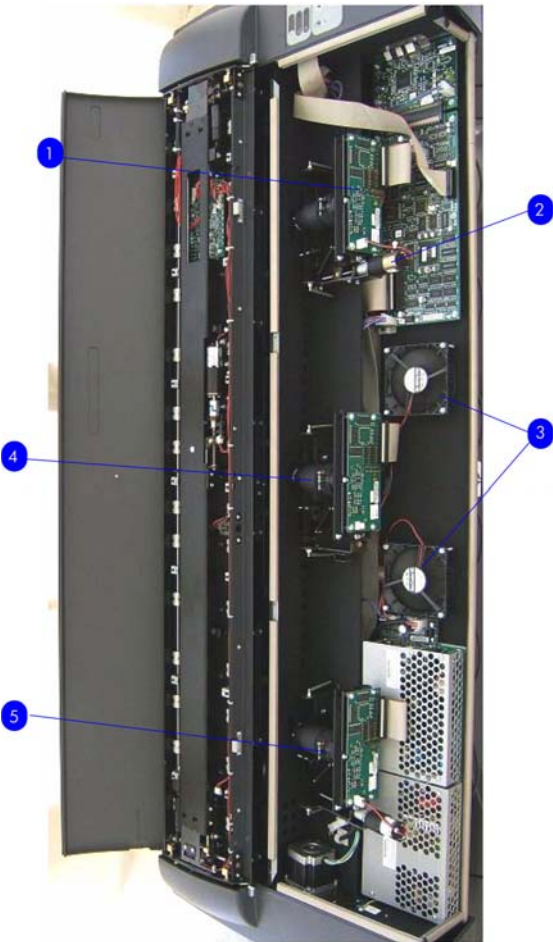
Reference in photo	HP part number	Quantity	Scanner model					Description / Comments
			820	45x0	HD	T11x0	T1200	
1	Q1277-60018	1	x	x	x	x	x	Roller Shields
2	Q1277-60015	1	x	x	x	x	x	Rollers
3	Q1277-60009	1	x	x	x	x	x	Stepper Motor Assembly
4	Q1277-60016	1	x	x	x	x	x	Belt
5	Q1277-60091	1	x	x	x	x	x	Media Sensors Kit
6	Q1261-60008	1	x	x	x	x	x	Stitching Wire



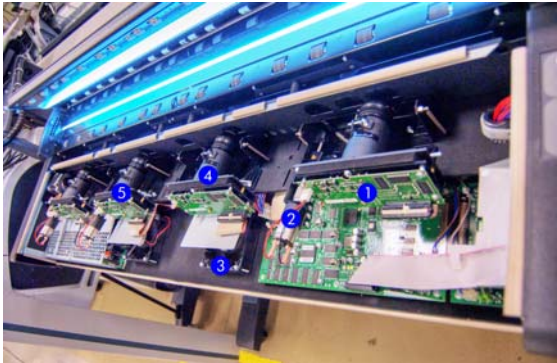
Camera Components and Fan

Reference in photo	HP part number	Quantity	Scanner model					Description / Comments
			820	45x0	HD	T11x0	T1200	
1	Q1277-60002	2	x	x		x		Camera Board
1	CQ654-67002	2			x		x	Camera Board, CBMA
2	Q1277-60010	1	x	x	x	x	x	Camera Motor
3	Q1277-60012	1	x	x	x	x	x	Fan
4	Q1277-60033	1	x	x		x		Complete Camera (without Motor)
4	CQ654-67004	1			x		x	Complete Camera (without Motor), CBMA
5	Q1277-60034	1	x	x		x		Complete Camera (with Motor)
5	CQ654-67005	1			x		x	Complete Camera (with Motor), CBMA

Camera Components and Fan



HD & T1200 Camera Components and Fan



Electronic Boards

Reference in photo	HP part number	Quantity	Scanner model					Description / Comments
			820	45x0	HD	T11x0	T1200	
1	Q1277-60090	1	x	x		x		Scanner PSU
1	CQ654-67011	1			x		x	Scanner PSU, SKYNET
2	Q1277-60001	1	x	x	x	x	x	Driver Board
3	Q1277-60003	1	x	x				Main Board
3	Q6713-60001	1			x	x	x	Main Board
4	Q1277-60004	1	x	x	x	x	x	Interface Board

Electronic Boards



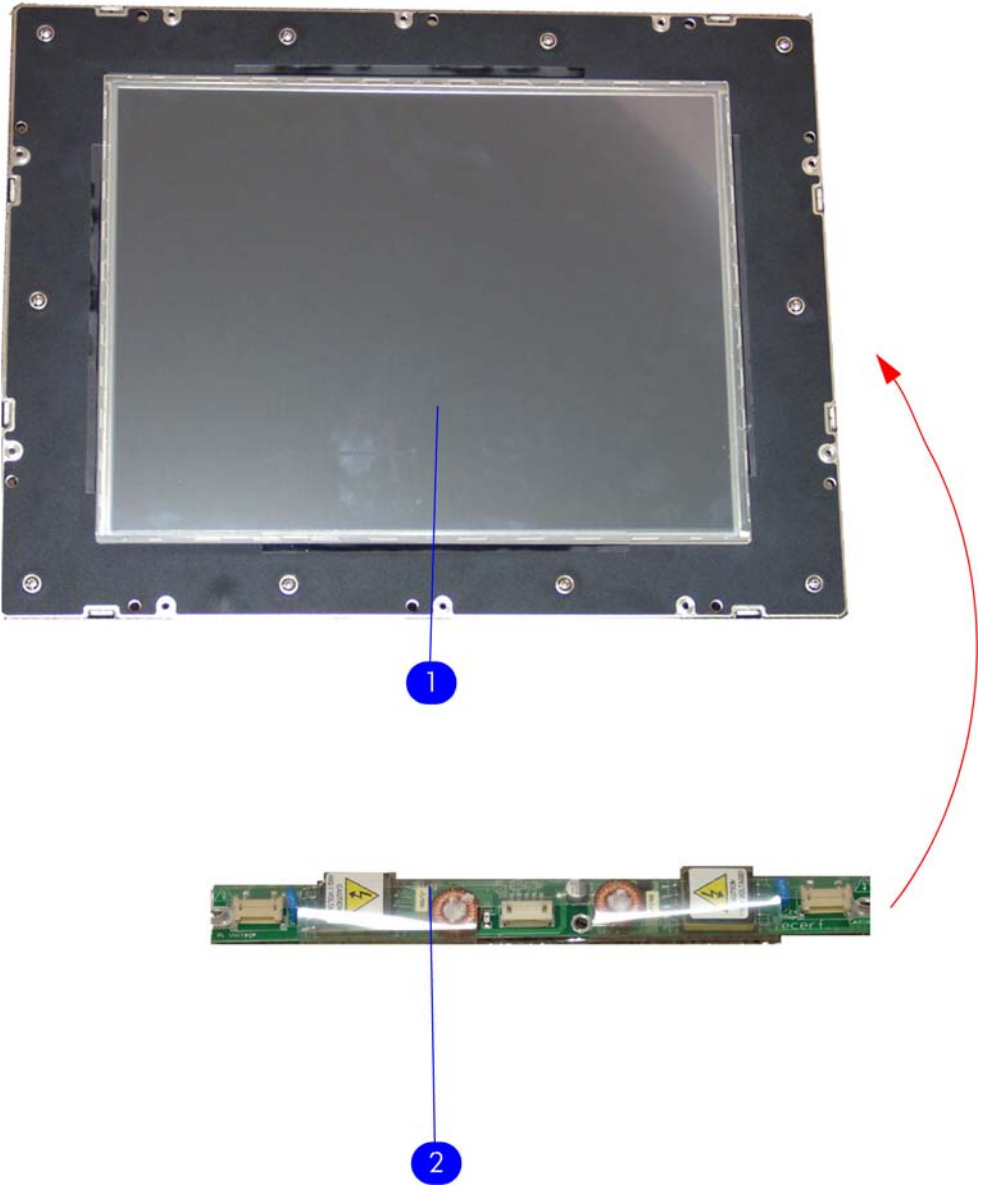
HD & T1200 Electronic Boards



Panel PC

The Panel PC is composed of the Touch Screen, the LCD Controller and the Inverter.

Reference in photo	HP part number	Quantity	Scanner model					Description / Comments
			820	45x0	HD	T11x0	T1200	
1	CQ654-67008	1	x	x	x	x	x	LCD Controller + Touch Screen (with Inverter, numbered 2 below)



Panel PC Cabinet Components (Part 1)

Reference in photo	HP part number	Quantity	Scanner model					Description / Comments
			820	45x0	HD	T11x0	T1200	
1	Q1277-60065	1	x	x	x	x	x	System Fan
2	Q1277-60057	1	x	x	x	x	x	Power Supply Unit
3	Q1277-60056	1	x	x		x		Hard Disk Drive ¹
3	CQ654-67007	1	x	x	x	x	x	Hard Disk Drive
5	Q1277-60061	1	x	x	x	x	x	CPU Fan
6	Q1277-60058	1	x	x	x	x	x	SDRAM Memory Module

¹ Available only until inventory depletion

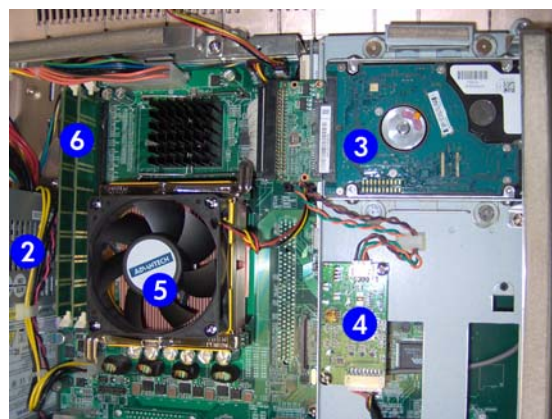
 **NOTE:** The LCD Controller (4) is supplied with the Touch Screen (see [Panel PC on page 63](#)).

NOTE: In the HD & T1200 scanners, the Hard Disk Drive (3) is mounted upside-down and has an IDE to SATA converter.

Electronic Boards



HD & T1200 Electronic Boards



Panel PC Cabinet Components (Part 2)

Reference in photo	HP part number	Quantity	Scanner model					Description / Comments
			820	45x0	HD	T11x0	T1200	
1	Q1277-60054	1	x	x		x		Main board ¹
1	CQ654-67006	1	x	x	x	x	x	Main board
2	Q1277-60055	1	x	x	x	x	x	DVD-ROM
3	Q1277-60062	1	x	x	x	x	x	CPU

¹ Available only until inventory depletion



Miscellaneous items

HP part number	Quantity	Scanner model					Description / Comments
		820	45x0	HD	T11x0	T1200	
Q1277-60030	1	x	x	x	x	x	Service Patterns (includes the focus pattern and the calibration sheet)
Q1277-60031	1	x	x		x		Optical Pattern, 3-camera 518 dpi
CQ654-67003	1			x		x	Optical Pattern, 4-camera 600 dpi
CQ654-67014	1			x		x	Returnable Optical Pattern, 4-camera 600 dpi
Q1277-60032	1	x	x	x	x	x	Calibration Sheet
Q1261-60044	1	x	x	x	x	x	Stylus
Q1277-60035	1	x	x		x		Harness Assembly
CQ654-67012	1			x		x	Harness Assembly
Q1261-60042	1	x	x	x	x	x	A2 Scan Cover
Q1277-60019	1	x	x	x	x	x	Dust Cover 40"
Q1277-60092	1	x	x	x	x	x	Scanner FireWire Cable
Q1277-60084	1	x	x	x	x	x	Adjustment Tools for ATAC Sensors
Q1277-60093	1	x	x	x	x	x	Panel PC cable harness
Q1277-60094	1	x	x	x	x	x	Panel PC power switch button
Q1276-60003	1	x	x	x	x		Printer FireWire cable
Q1277-60095	1			x		x	A0 transparent sheet
Q1277-60097	1			x		x	Gas spring guide plate (150N A)
Q1277-60098	1			x			Paper basket

4 Removal and Installation

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- [Safety Precautions on page 69](#)
- [Electrostatic Discharge \(ESD\) Precautions on page 69](#)
- [Required Tools on page 69](#)
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- [Left Cover on page 73](#)
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- [Rear Cover on page 79](#)
- [Top Profile on page 81](#)
- [Guide Plate on page 84](#)
- [Guide Plate on page 88](#)
- [Glass Plate on page 90](#)
- [Entry Roller Shield on page 91](#)
- [Exit Roller Shield on page 92](#)
- [Camera Motor on page 93](#)
- [Camera Lens Assembly on page 94](#)
- [Camera Board on page 96](#)
- [Power Supply Board on page 98](#)
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- [Fan on page 102](#)
- [Main Electronics Board on page 104](#)
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- [Entry Media Sensor on page 133](#)
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- [Back Plate on page 151](#)
- [CPU Cooling Fan on page 153](#)
- [CPU on page 154](#)
- [DRAM PCA on page 155](#)
- [DVD Drive on page 156](#)
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Introduction

This chapter is a step-by-step guide to the removal and installation of the key components in the product. You may find it useful to tick off the steps as they are performed. Use the illustration at each procedure to identify the parts referred to in the text.

The procedures appear in order of removal. So the whole product can be stripped down by starting at the beginning of this chapter and working through the subsequent procedures.

Safety Precautions

Review WARNING and CAUTION instructions before you service the product. Follow these warnings and cautions for your protection and to avoid damaging the product.

 **NOTE:** Serious shock hazard leading to death or injury may result if you do not take the following precautions:

Ensure that the AC power outlet (mains) has a protective earth (ground) terminal.

Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

Prevent water or other liquids from running onto electrical components or circuits, or through openings in the module.

Electrostatic Discharge (ESD) Precautions

To prevent damage to the product circuits from high-voltage electrostatic discharge (ESD):

1. Do not wear clothing that is subject to static build-up.
2. Do not handle integrated circuits (ICs) in carpeted areas.
3. Do not remove an IC or a printed circuit assembly (PCA) from its conductive foam pad or conductive packaging until you are ready to install it.
4. Ground (earth) your body while disassembling and working on the Scanner. This can be done by touching any metallic part of the Scanner.
5. After removing a cover from the Scanner, attach an earthing (ground) lead between the PCA common and earth ground. Touch all tools to earth ground to remove static charges before using them on the Scanner.
6. After removing any PCA from the Scanner, place it on a conductive foam pad or into its conductive packaging to prevent ESD damage to any ICs on the PCA.

Required Tools


The following tools are required to disassemble and repair the Scanner:

- Screwdriver (0.8 x 5)
- 1.3 mm Allen Key
- 1.5 mm Allen Key
- 5.5 mm Wrench

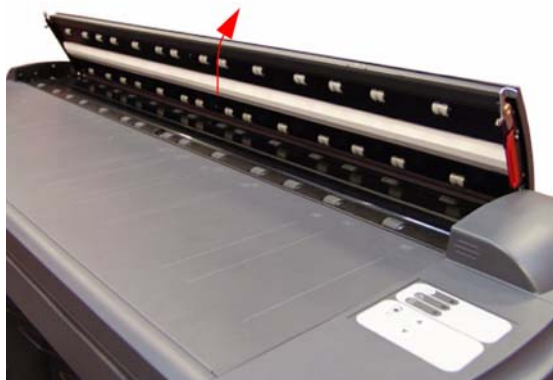
- 6 mm Wrench
- 7 mm Wrench
- 8 mm Wrench
- 13 mm Wrench
- Torx 5 L shape
- Torx 6 L shape
- Torx 8 L shape
- Torx 9 L shape
- Torx 10 L shape
- Torx 20 L shape
- Philips PH1 Screw driver
- Philips PH2 Screwdriver

Top Cover

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

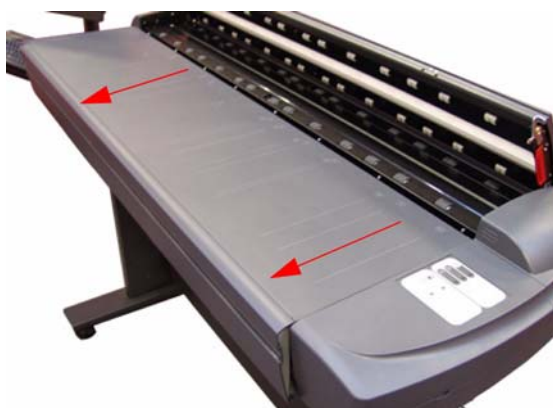
1. Open the Guide Plate.



2. Remove two T20 screws along the lower edge of the Top Cover.



3. Pull the front part of the Top Cover away from the Scanner in order to release the upper part of the Top Cover.




4. Lift up the Top Cover and remove from the Scanner.



Left Cover

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Remove the Top Cover ➡ See [Top Cover on page 71](#).
2. Remove four T10 screws that secure the Left Cover from underneath.



3. Remove two T20 screws that secure the Left Cover from the side.



4. Remove one T20 screw that secures the Left Cover from the top.




5. Remove the Left Cover from the Scanner.



Right Cover

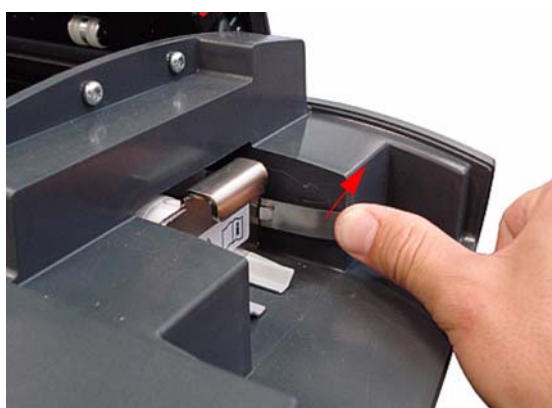
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Remove the Top Cover ➡ See [Top Cover on page 71](#).
2. Remove the Fluorescent Lamp Access Cover.



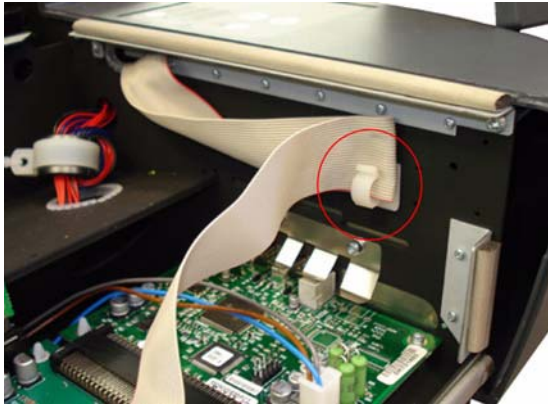
3. Press the metal tab to release the Fluorescent Lamp.



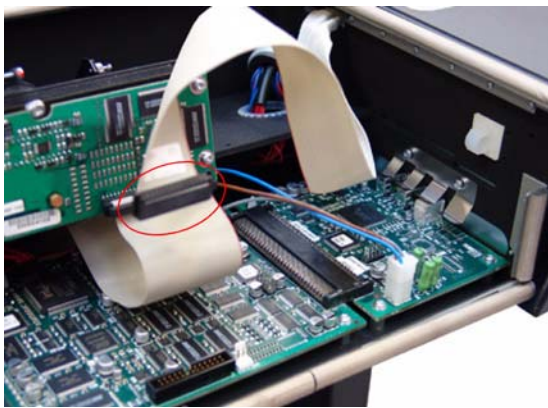
4. Slide out the Fluorescent Lamp.



5. Remove the Operator Panel Cable from a cable clamp.



6. Disconnect the Operator Panel Cable from the Main Electronics PCA.



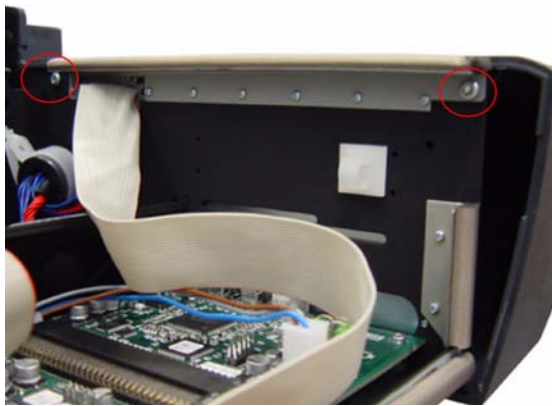
7. Remove four T10 screws that secure the Right Cover from underneath.



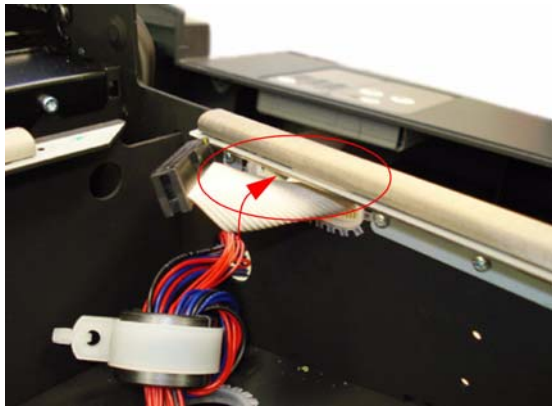
8. Remove two T20 screws that secure the Right Cover from the top.



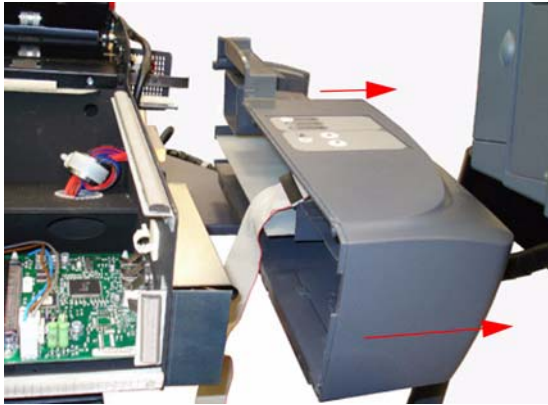
9. Remove two T20 screws that secure the Right Cover from the side.



10. Pass the Operator Panel Cable through an access hole.




11. Remove the Right Cover from the Scanner.



Rear Cover

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

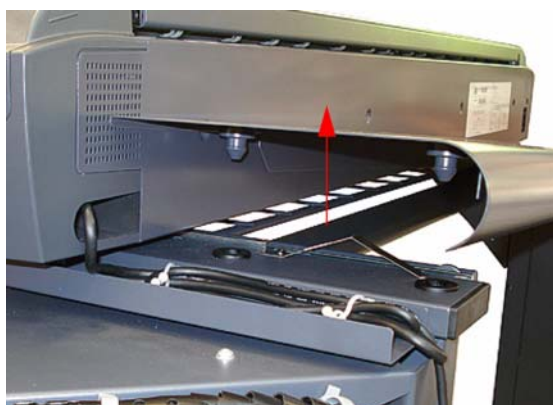
1. Remove five T10 screws (and one washer) that secure the Rear Cover to the rear of the Scanner.



2. Lift up and release the left side of the metal shelf.



3. Lift up and release the right side of the metal shelf.



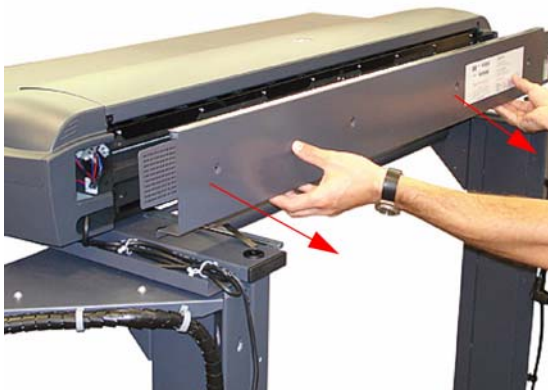
4. Remove the metal shelf.



5. Remove five T10 screws (and one washer) that secure the Rear Cover to the lower edge of the Scanner.




6. Remove the Rear Cover from the Scanner.



Top Profile

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

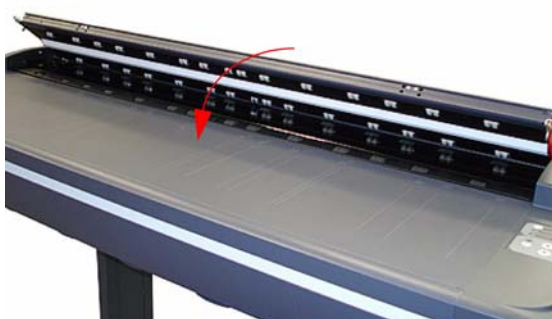
1. Lift the Top Profile so that you can access the rule.



2. Remove the rule from the front of the Guide Plate.



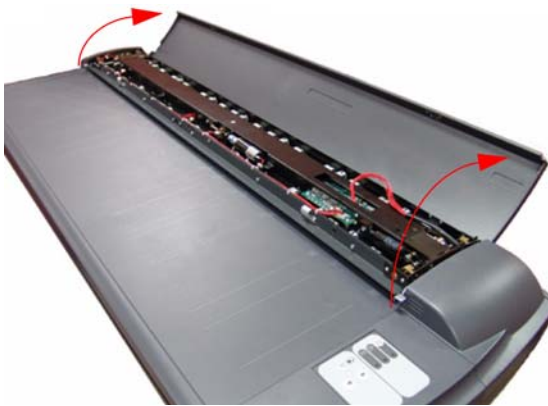
3. Close the Top Profile.



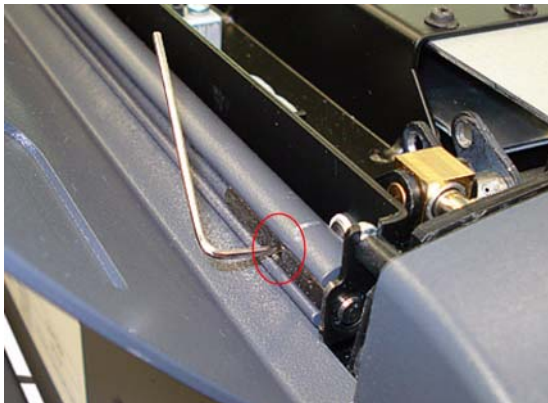
4. Remove four T10 screws that secure the front of the Top Profile to the Guide Plate.



5. Lift up the Top Profile of the Guide Plate.



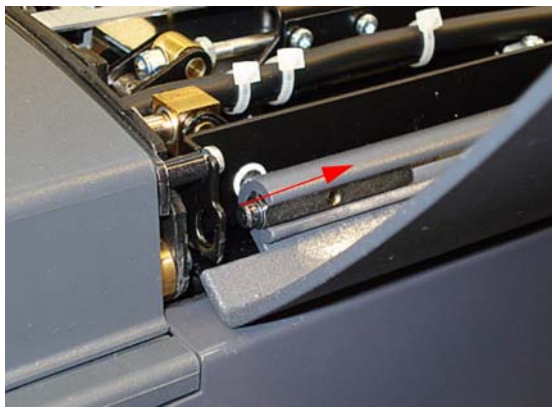
6. Use an Allen key (size 1.5) to loosen the screw at the left side of the scanner.



7. Slide the retainer bar from its fitting to release the left side of the Top Profile.



8. Slide the Top Profile slightly toward the left to release the right side of the Top Profile.




9. Remove the Top Profile.

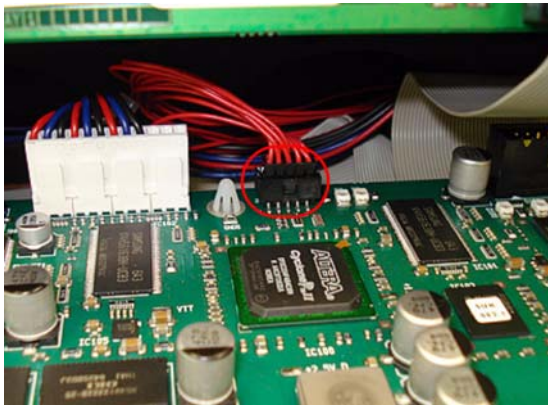


Guide Plate

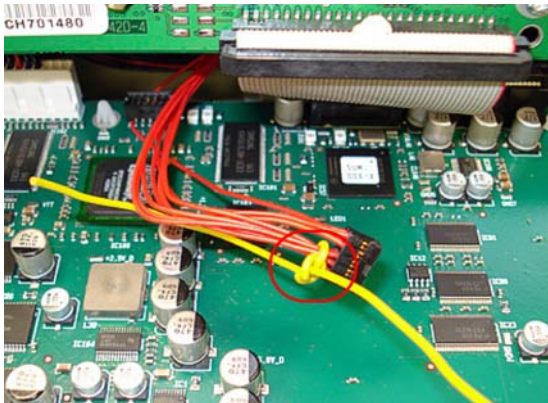
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

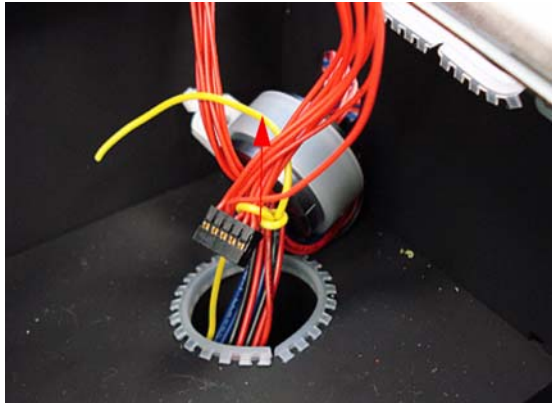
1. Remove the Top Cover ⇒ See [Top Cover on page 71](#).
2. Remove the Right Cover ⇒ See [Right Cover on page 75](#).
3. Remove the Top Profile ⇒ See [Top Profile on page 81](#).
4. Detach the Guide Plate Cable from the Main Electronics Board (J20) in the Guide Plate.



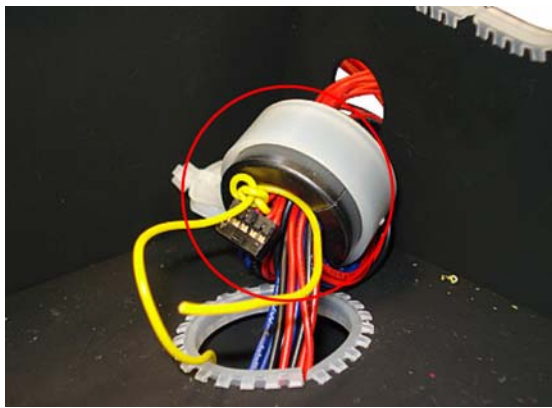
5. Tie a cable or a piece of string (the yellow cable in the photo) to the Guide Plate Cable to facilitate passing the Guide Plate Cable through the access hole.



6. Pass the cable through the access hole.



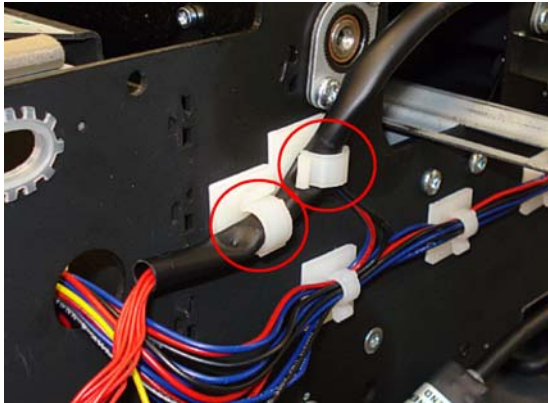
7. Pass the cable through the ferrite core and through the access hole in the side of the chassis.



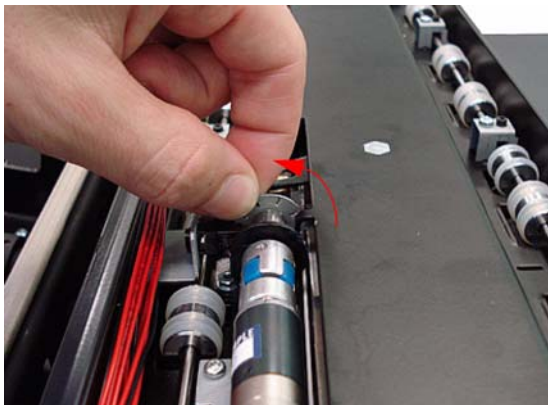
8. After passing the Guide Plate Cable through the access hole and the ferrite core, detach the cable you used to assist in pulling it through.



9. Remove the Guide Plate Cable from the cable clamps.



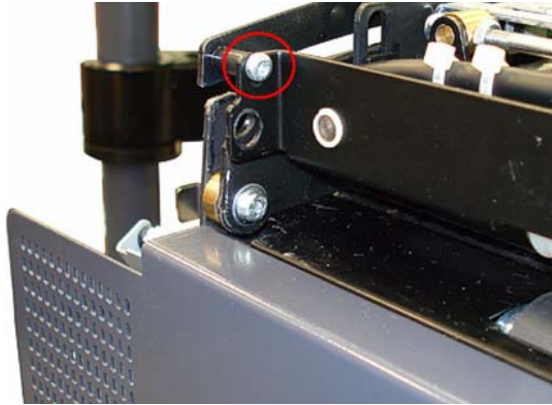
10. The Guide Plate must be in a raised position. Manually rotate the motor wheel toward you (as shown in the photo) until it no longer turns.



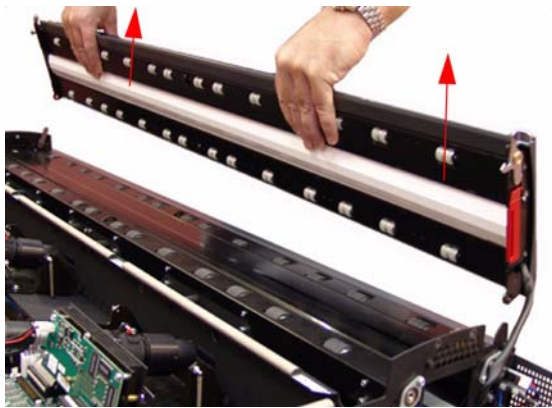
11. Remove one T20 screw that secures the left side of the Guide Plate.



- 12.** Remove one T20 screw that secures the right side of the Guide Plate.




- 13.** Remove the Guide Plate from the Scanner.

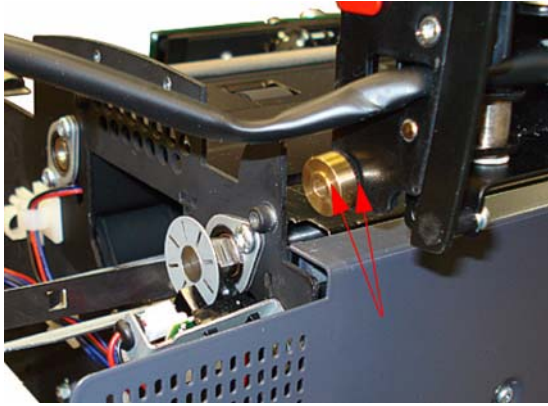


Guide Plate

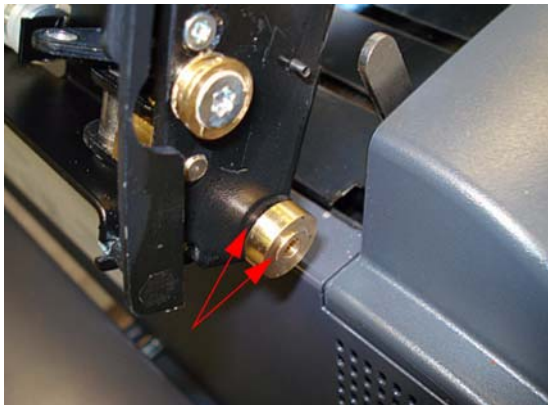
Installation

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

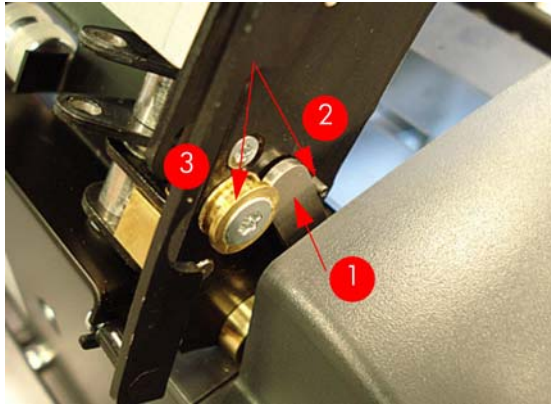
1. On the right side of the scanner, position the brass piece into its fitting as shown in the photo, and then fit the right side of the cover into place.



2. On the left side of the scanner, position the brass piece into its fitting as shown in the photo, and then fit the left side of the cover into place.




3. When closing the cover, be sure to place the gray lever (1) between the pin (2) and the brass piece (3).



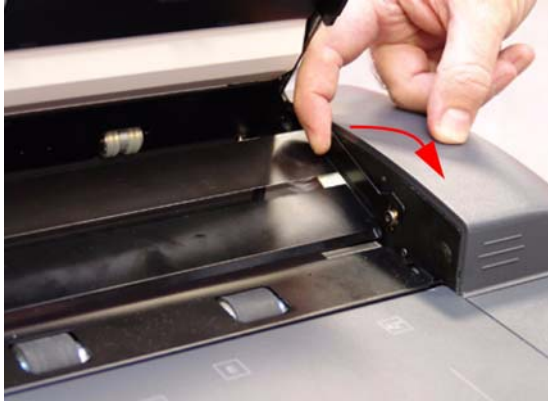
4. To complete the installation of the Guide Plate, follow steps 1-12 from the Guide Plate removal procedure in reverse order.

Glass Plate


Removal

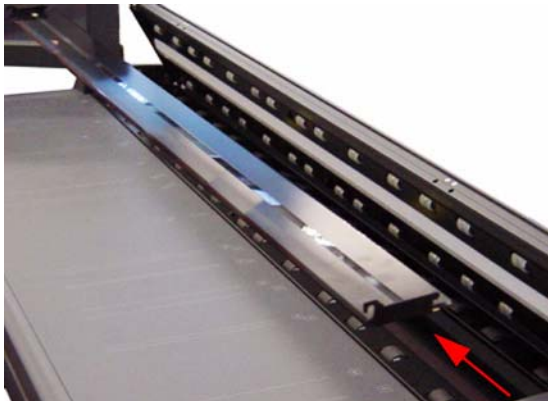
 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Open the Guide Plate.
2. Carefully lift up the rear of the Glass Plate at both ends.




3. Remove the Glass Plate from the Scanner.

 **NOTE:** Always clean the new glass before installation.



Entry Roller Shield

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

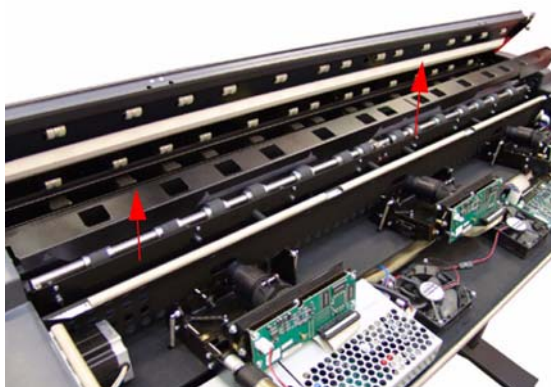
1. Remove the Top Cover ➡ See [Top Cover on page 71](#).
2. Use a size 6 wrench to loosen the eight guide pins on the front side of the Entry Roller Shield.



3. Loosen eight screws on the front side of the Entry Roller Shield.




4. Gently remove the Entry Roller Shield from the Scanner. Be careful NOT to bend it or damage it while removing.



Exit Roller Shield

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Remove the Guide Plate ⇒ See [Guide Plate on page 88](#).
2. Remove the Rear Cover ⇒ See [Rear Cover on page 79](#).
3. Use a size 6 wrench to loosen the eight guide pins on the rear side of the Exit Roller Shield.



4. Loosen eight T8 screws on the rear side of the Exit Roller Shield.




5. Gently remove the Exit Roller Shield from the Scanner. Be careful NOT to bend it or damage it while removing.

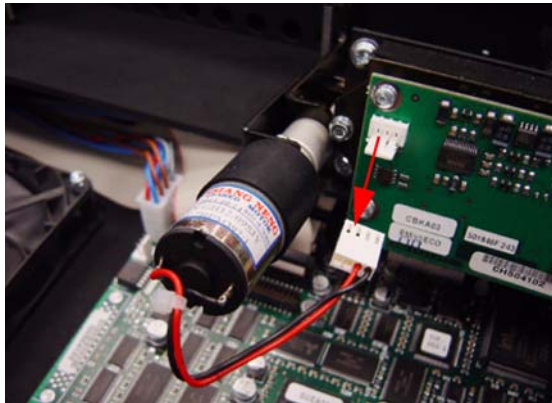


Camera Motor

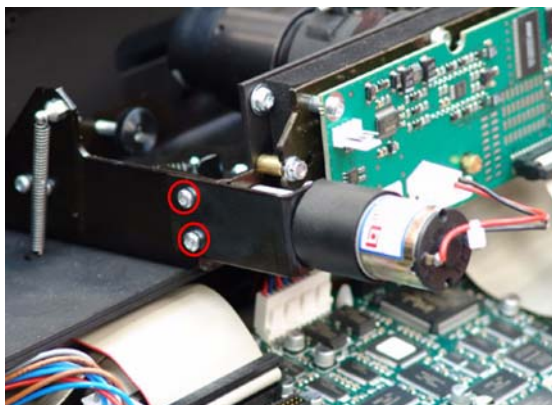
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.


1. Remove the Top Cover ➡ See [Top Cover on page 71](#).
2. Disconnect the Camera Motor cable.



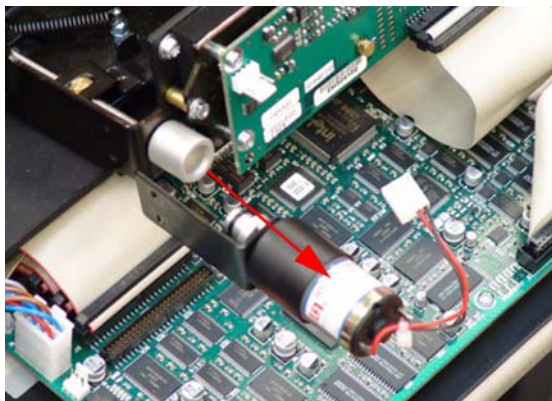
3. Remove the two T10 screws that secure the Camera Motor.



4. Remove the Camera Motor from the Scanner.


 **NOTE:** After reinstalling the Camera Motor, make sure you run the Scanner Maintenance.

NOTE: Camera B does not have a Motor.

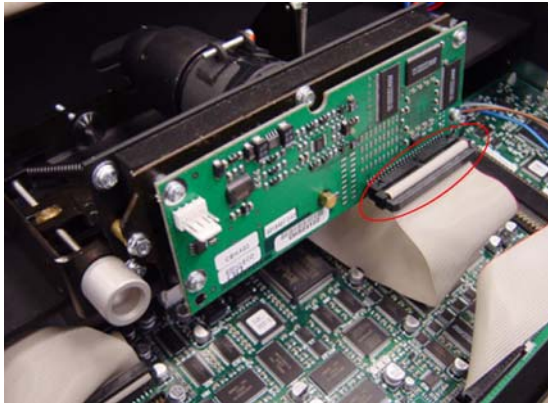


Camera Lens Assembly

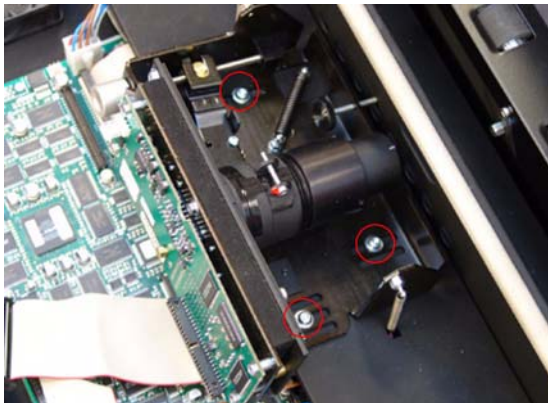
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

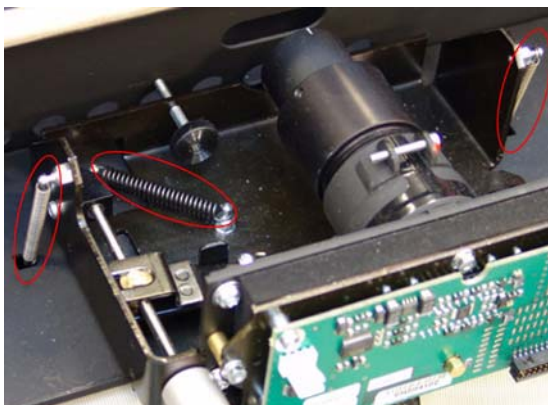
1. Remove the Top Cover ⇒ See [Top Cover on page 71](#).
2. If installed, remove the Camera Motor ⇒ See [Camera Motor on page 93](#).
3. Disconnect the cable from the Camera Board.



4. Remove three T20 screws that secure the Camera Lens to the Chassis.

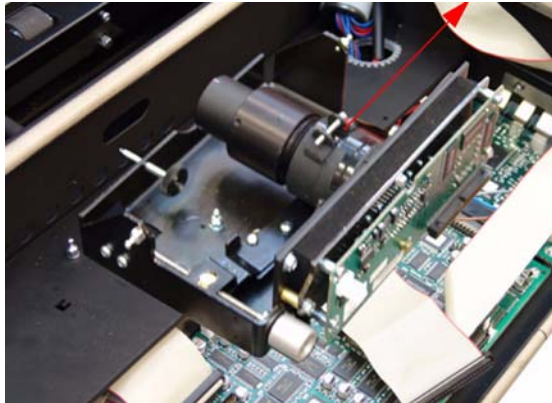


5. Release three springs that secure the Camera Lens to the Chassis.




6. Remove the Camera Lens Assembly from the Scanner.

 **NOTE:** Make sure you perform the Camera Adjustment procedure after replacing the Camera Lens.

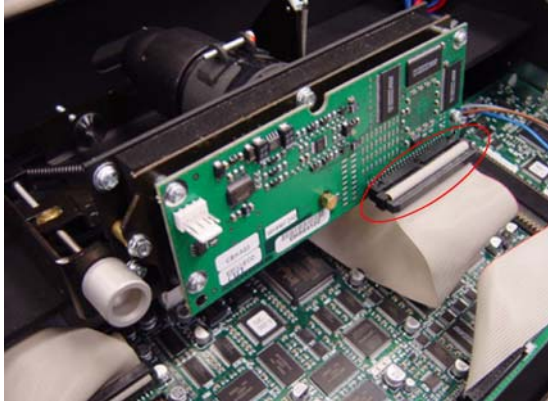


Camera Board

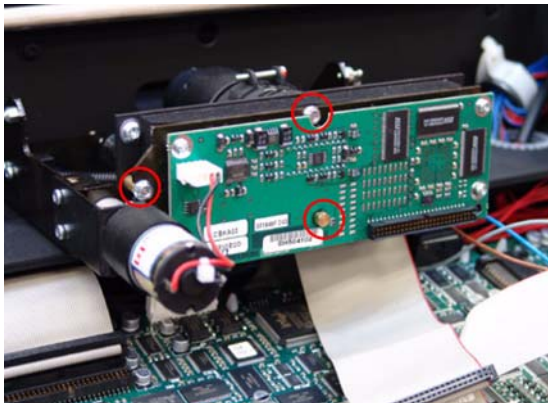
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

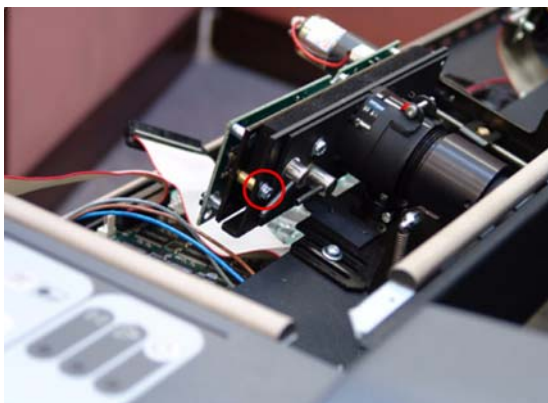
1. Remove the Top Cover ⇒ See [Top Cover on page 71](#).
2. If installed, remove the Camera Motor ⇒ See [Camera Motor on page 93](#).
3. Disconnect the cable from the Camera Board.



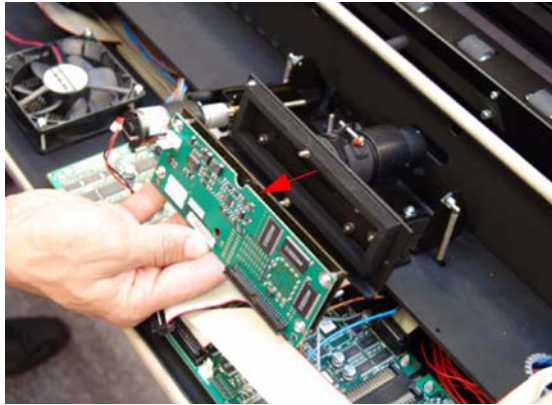
4. Using a size 5.5 wrench, remove the three nuts that secure the Camera Board from the front.



5. Using a size 5.5 wrench, remove one screw that secures the Camera Board from the rear.




6. Remove the Camera Board.




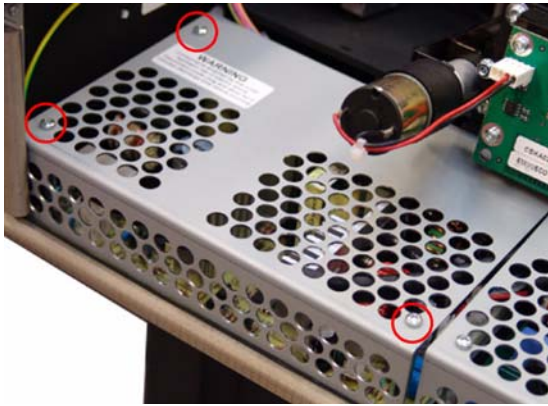
Power Supply Board

Removal

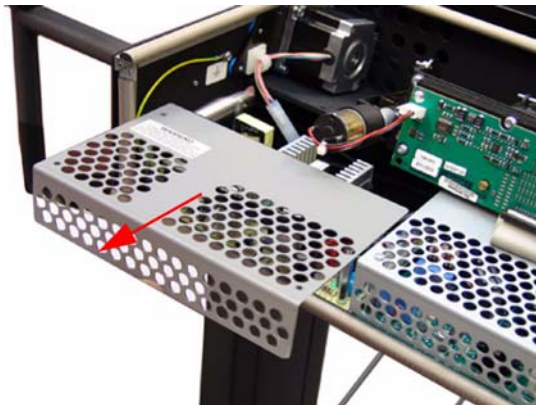
 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Remove the Top Cover ⇒ See [Top Cover on page 71](#).
2. Remove the Left Cover ⇒ See [Left Cover on page 73](#).
3. Remove three T10 screws that secure the Metal Shield that covers the Power Supply Board.

 **NOTE:** The components underneath the Metal shield represent a risk of electric shock, once the power has been disconnected allow three minutes discharge time before touching.



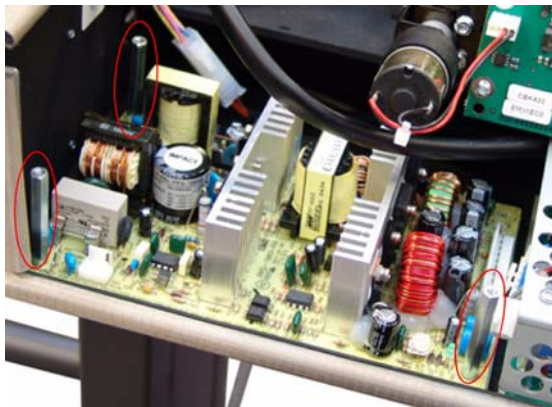
4. Remove the Metal Shield.



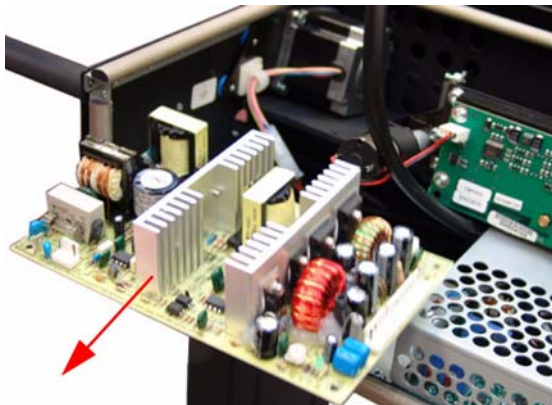
5. Remove the T20 screw that secures the grounding cable to the chassis and disconnect ALL the cables from the Power Supply Board.



6. Remove the three bolts that secure the Power Supply Board.




7. Remove the Power Supply Board from the Scanner.




Driver Board

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Remove the Top Cover ⇒ See [Top Cover on page 71](#).
2. Remove Left Camera Lens Assembly ⇒ See [Camera Lens Assembly on page 94](#).
3. Remove three T10 screws from the Metal Shield that covers the Driver Board.

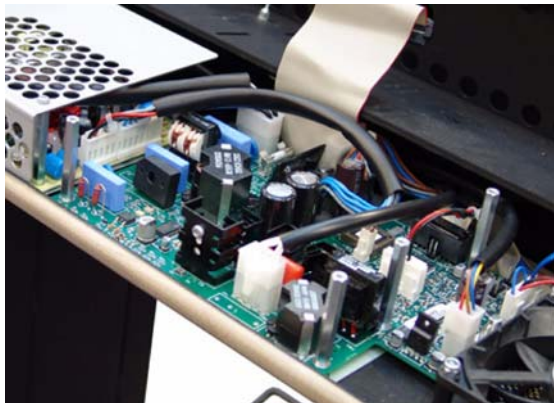
 **NOTE:** The components underneath the Metal shield represent a risk of electric shock, once the power has been disconnected allow three minutes discharge time before touching.



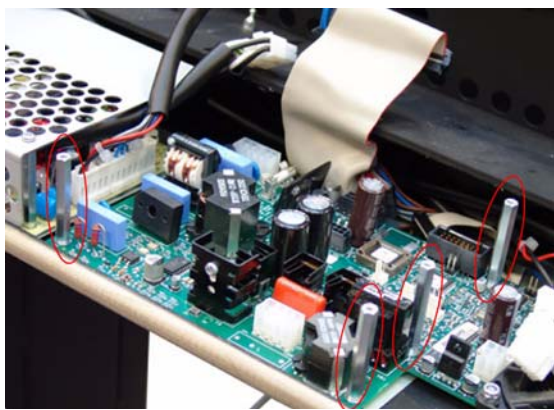
4. Remove the Metal Shield.



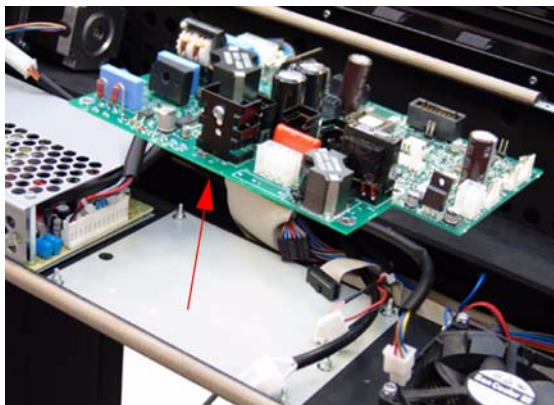
5. Disconnect ALL the cables from the Driver Board.



6. Remove four bolts that secure the Driver Board.




7. Remove the Driver Board from the Scanner.

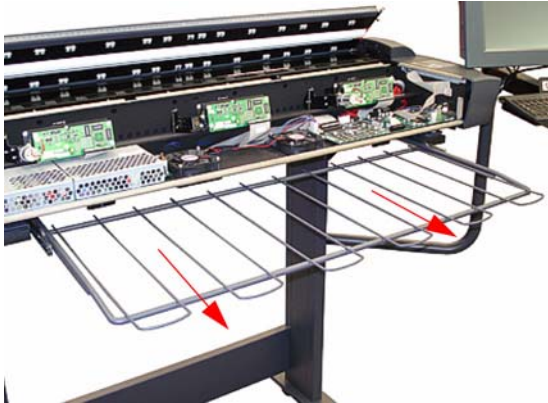


Fan

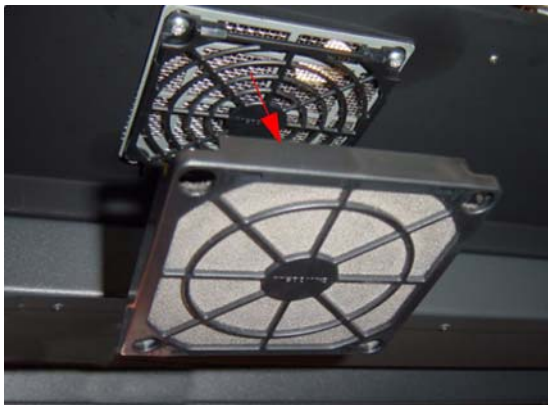
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Remove the Top Cover ⇒ See [Top Cover on page 71](#).
2. Pull out the metal paper bin to gain access to the Fan Filter.



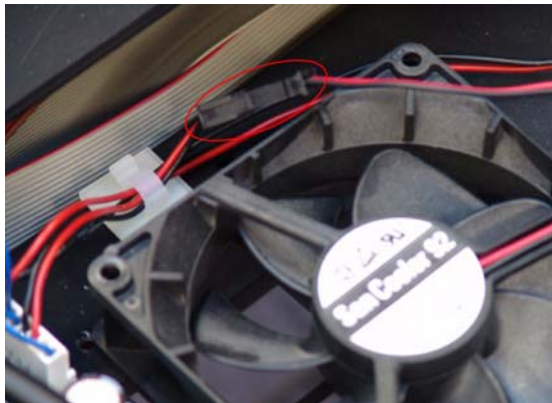
3. Unclip the Fan Filter from underneath the Scanner.



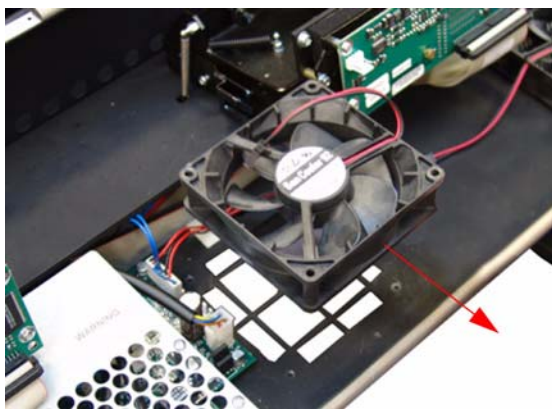
4. Gripping the nuts from the top, remove the four T20 screws from the bottom that secure the Fan.



5. Disconnect the Fan Cable.




6. Remove the Fan from the Scanner.

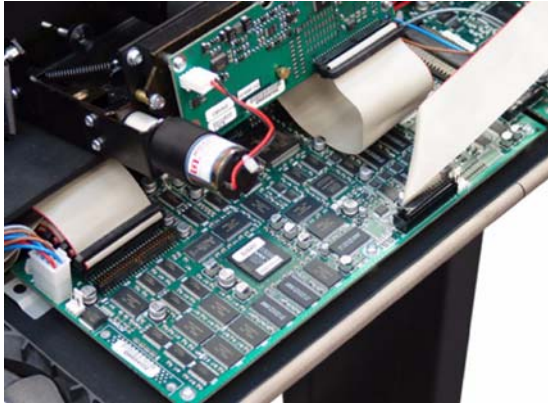


Main Electronics Board

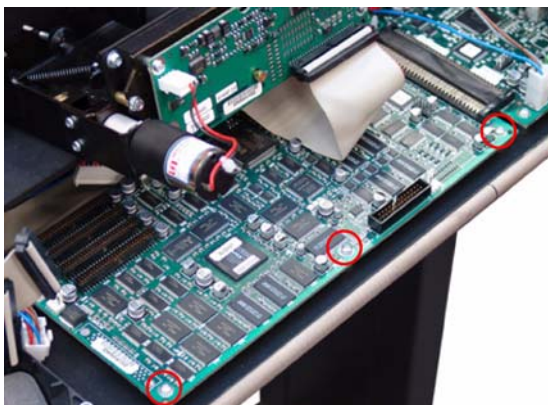
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

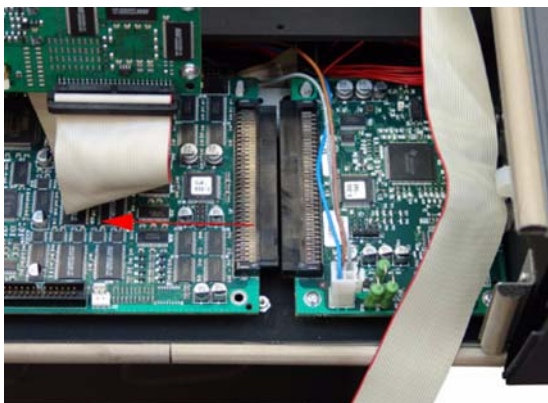
1. Remove the Top Cover ⇒ See [Top Cover on page 71](#).
2. Disconnect ALL the cables from the Main Electronics Board.




3. Remove three T10 screws that secure the Main Electronics Board.

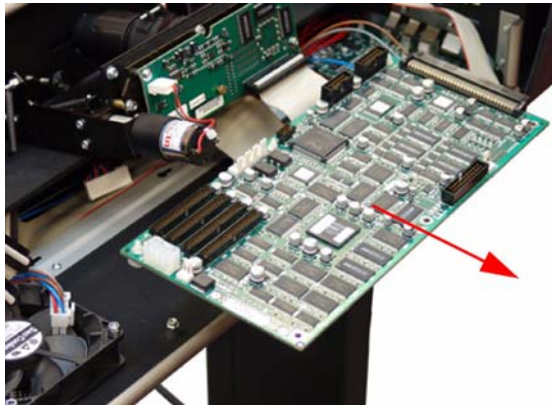


4. Move the Main Electronics Board to the left to disconnect it from the connector and to release it from the three plastic locators (located at the rear of the Board).




5. Remove the Main Electronics Board from the Scanner.

 **NOTE:** After reinstalling the Main Electronics Board, make sure you run the Scanner Maintenance and the ATAC Calibration ➡ See [Calibrate ATAC \(Automatic Thickness Adjustment Control\)](#) on page 198.



Interface Board

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

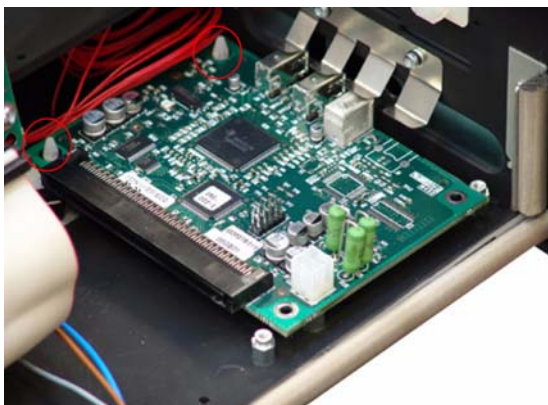
1. Remove the Top Cover ⇒ See [Top Cover on page 71](#).
2. Remove the Main Electronics Board ⇒ See [Main Electronics Board on page 104](#).
3. Disconnect the cable from the board.



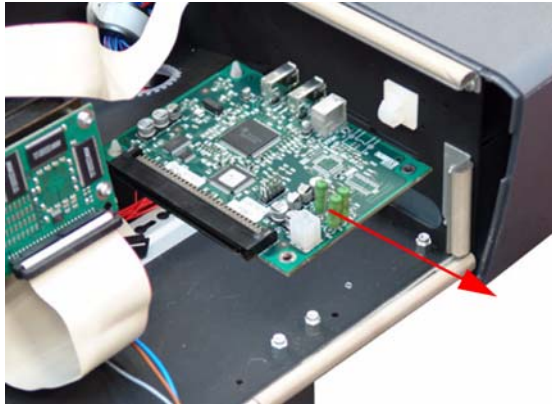
4. Remove two T10 screws that secure the board.



5. Release the board from the two plastic locators located at the rear.




6. Remove the Interface board from the Scanner.

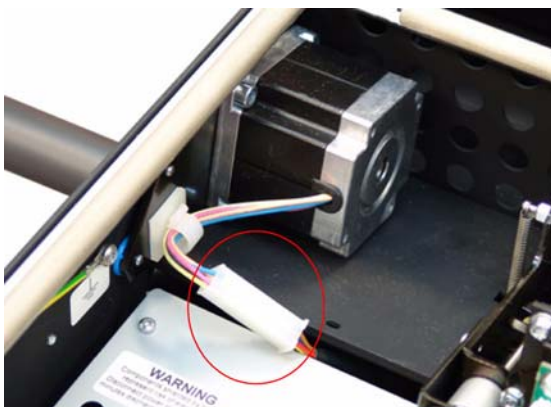


Stepper Motor

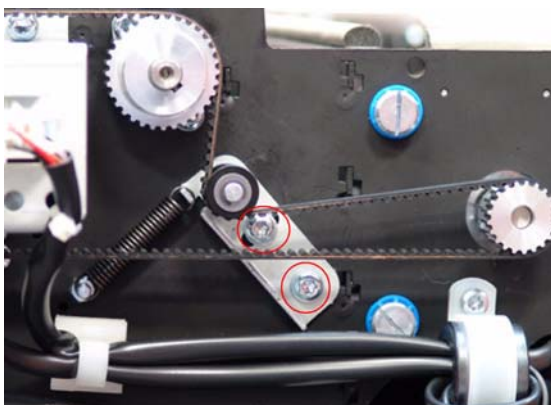
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

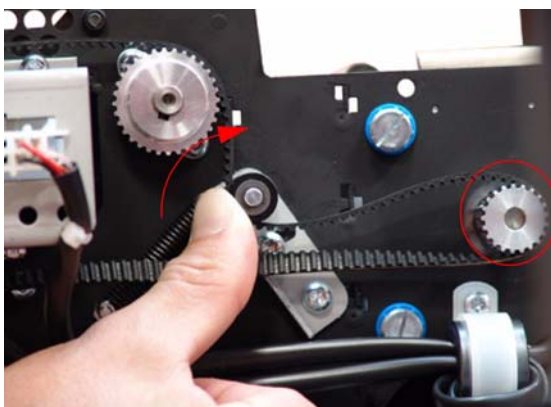
1. Remove the Top Cover ⇒ See [Top Cover on page 71](#).
2. Remove the Left Cover ⇒ See [Left Cover on page 73](#).
3. Disconnect the Stepper Motor cable.



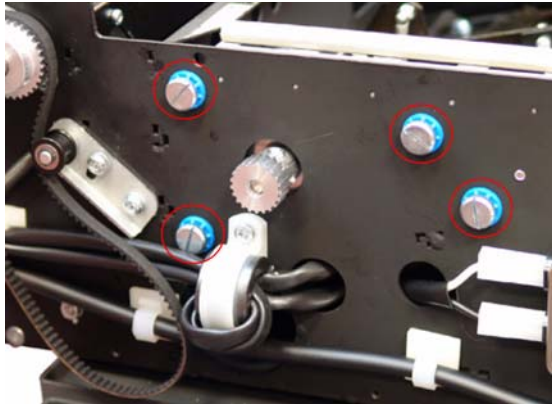
4. Loosen two T20 screws on the Belt Tensioner Bracket.



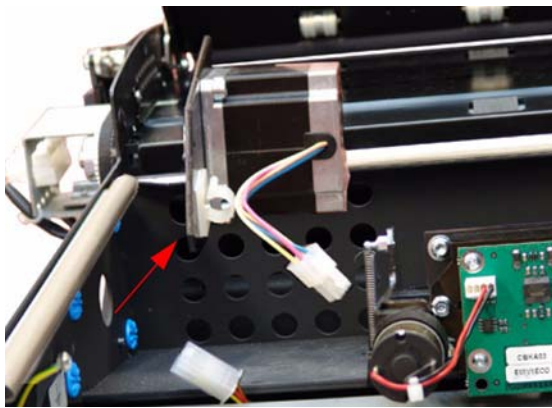
5. Push the belt tensioner assembly to the right to release the belt from the Stepper Motor Pulley.



6. Remove four screws that secure the Stepper Motor to the chassis.




7. Remove the Stepper Motor from the Scanner.

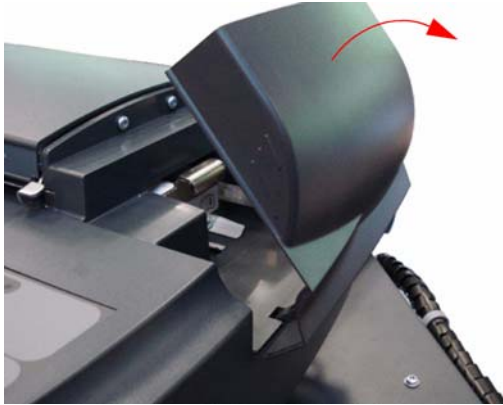


Fluorescent Lamp

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.


1. Remove the Fluorescent Lamp Access Cover.



2. Press the metal tab to release the Fluorescent Lamp.



3. Slide out the Fluorescent Lamp from the Scanner.


 **NOTE:** Take care not to touch the Stitching Wire while removing or installing the Fluorescent Lamp.

NOTE: After installing a new Fluorescent Lamp, you must also install the new Fan Filters which come with the Lamp ⇒ See [Fan on page 102](#).

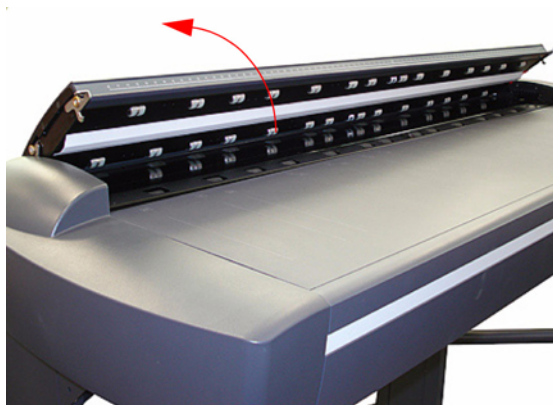


Elevation Motor Driver Board

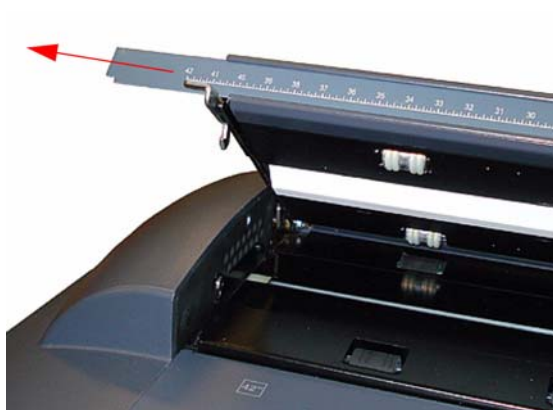
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

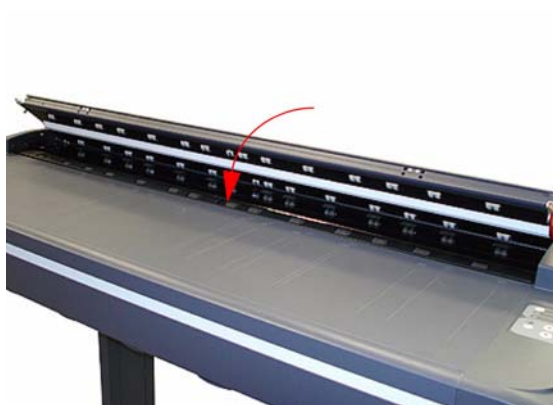
1. Open the Top Profile.



2. Remove the rule from the front of the Guide Plate.



3. Close the Top Profile.



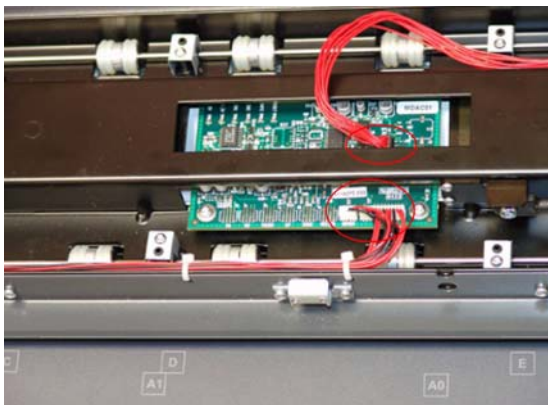
4. Remove four screws that secure the front of the Top Profile to the Guide Plate.



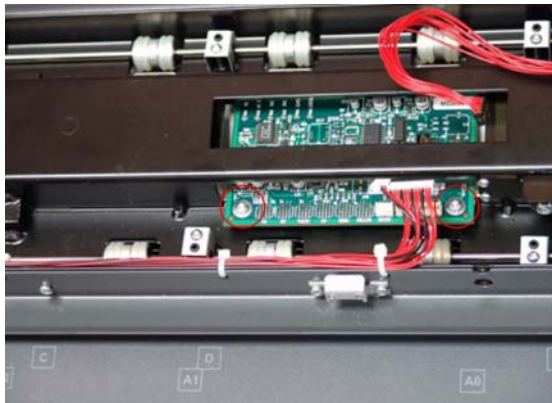
5. Lift up the Top Profile of the Guide Plate.



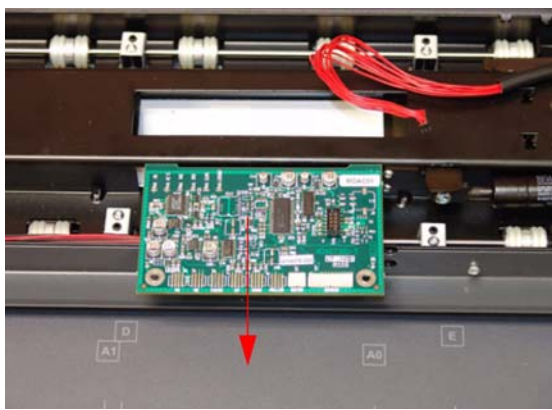
6. Disconnect all cables from the Elevation Motor Driver Board.



7. Remove two T10 screws that secure the Elevation Motor Driver Board to the Guide Plate.




8. Remove the Elevation Motor Driver Board from the Scanner.



Elevation Motor

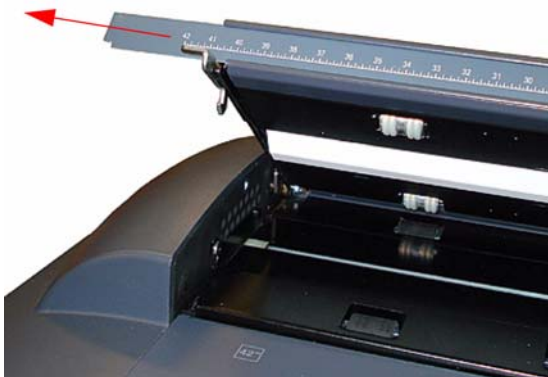
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Open the Top Profile.



2. Remove the rule from the front of the Guide Plate.



3. Close the Top Profile.



4. Remove four screws that secure the front of the Top Profile to the Guide Plate.



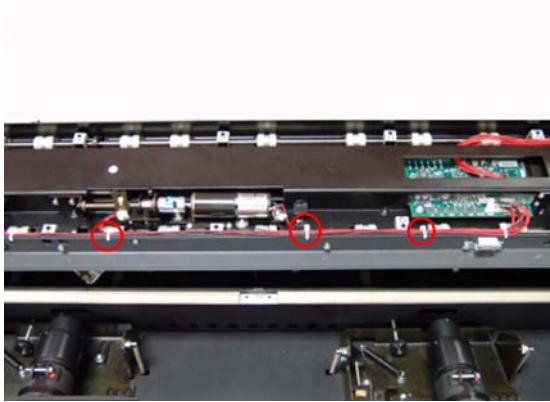
5. Lift up the Top Profile of the Guide Plate.



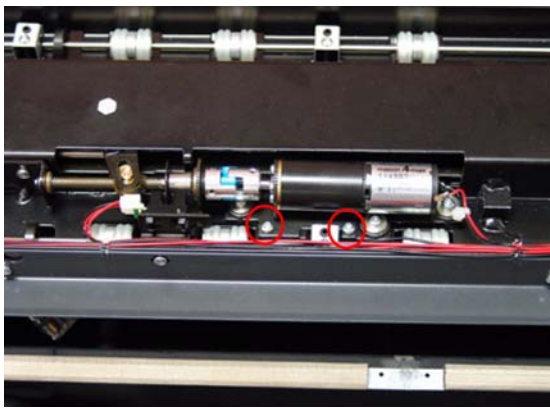
6. Disconnect the Elevator Motor cable (the small connector only) from the Elevation Motor Driver Board.



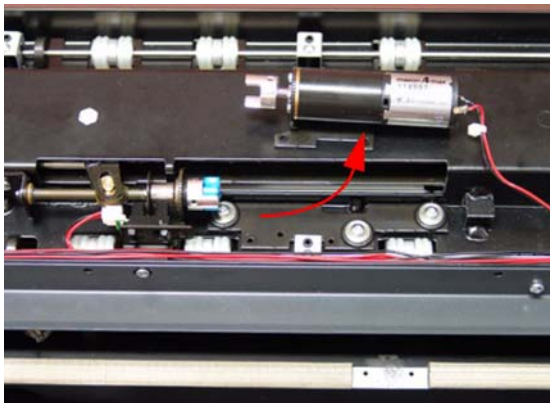
7. Cut the cable clamps holding the cables to the Guide Plate.



8. Remove two T10 screws that secure the Elevation Motor to the Guide Plate Assembly.




9. Remove the Elevation Motor from the Guide Plate Assembly.

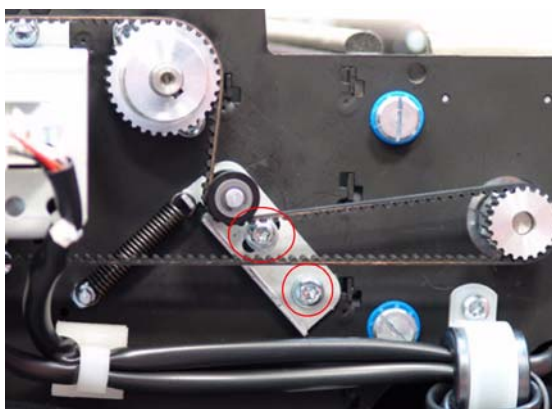


Entry Roller

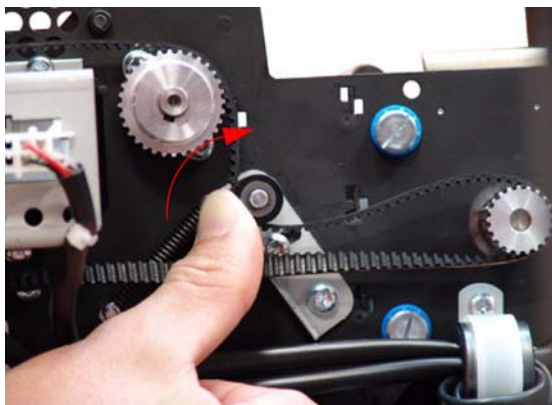
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

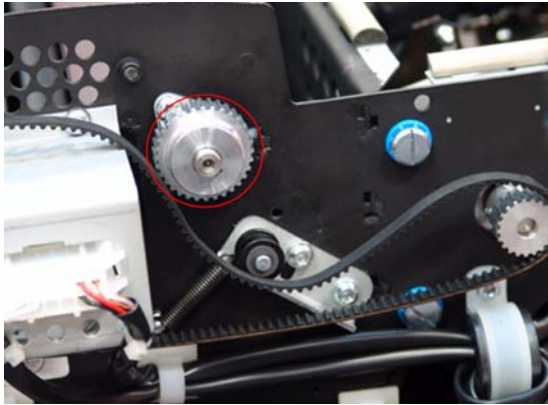
1. Remove the Top Cover ⇒ See [Top Cover on page 71](#).
2. Remove the Left Cover ⇒ See [Left Cover on page 73](#).
3. Remove the Right Cover ⇒ See [Right Cover on page 75](#).
4. Remove the Glass Plate ⇒ See [Glass Plate on page 90](#).
5. Remove the Entry Roller Shield ⇒ See [Entry Roller Shield on page 91](#).
6. Loosen two screws from the Belt Tensioner Bracket.



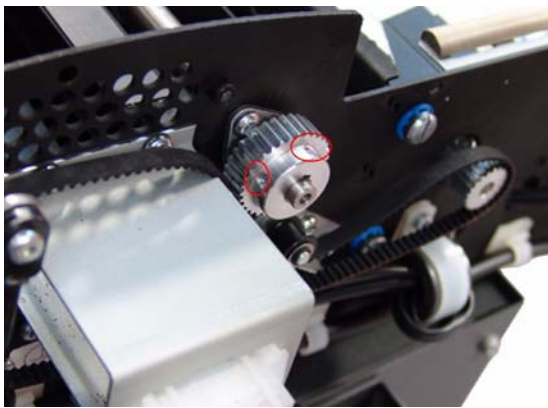
7. Push the Belt Tensioner Bracket to the right to release the belt.



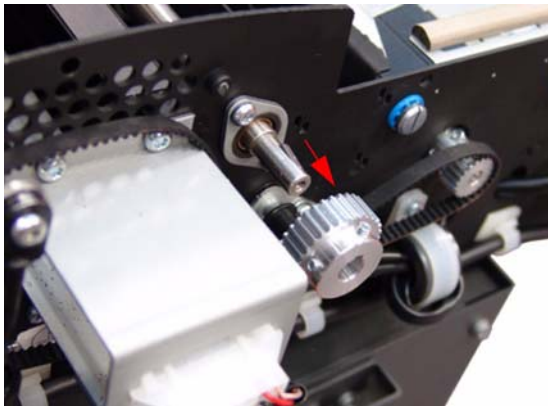
8. Release the Belt from the Entry Roller Gear.



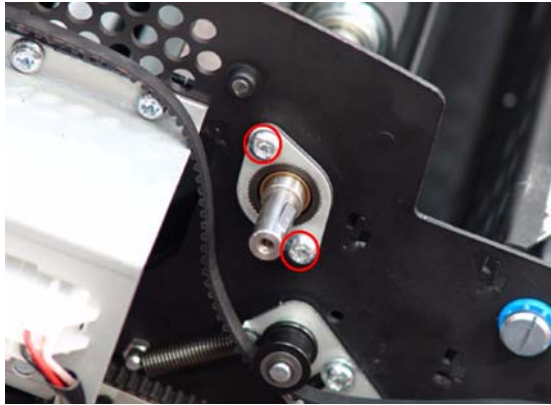
9. Loosen the T8 Allen screws from the Entry Roller Gear on the left side of the Scanner.




10. Remove the Entry Roller Gear.

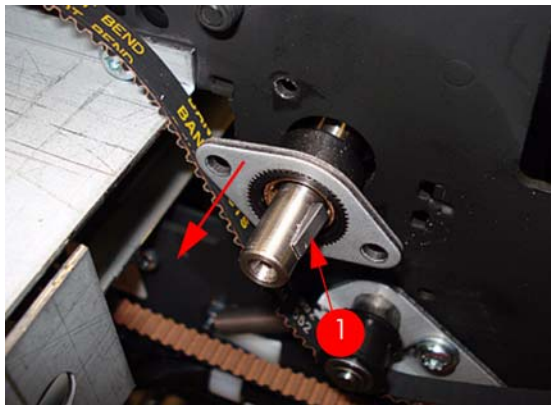


11. Remove two T20 screws that secure the Entry Roller Mount Bushing from the left side of the Scanner.



12. Remove the Entry Roller Mount Bushing.

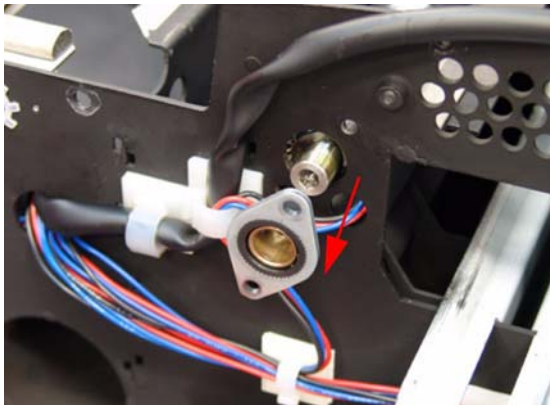
 **NOTE:** Flatten the metal clip (1) with your finger, and then slide off the bushing.




13. Remove two T20 screws that secure the Entry Roller Mount Bushing from the right side of the Scanner.



- 14.** Remove the Entry Roller Mount Bushing.

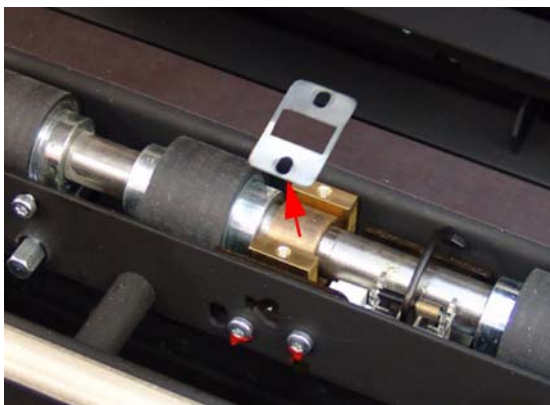


- 15.** Remove the two T10 screws from the Roller Clamp that secures the Entry Roller.

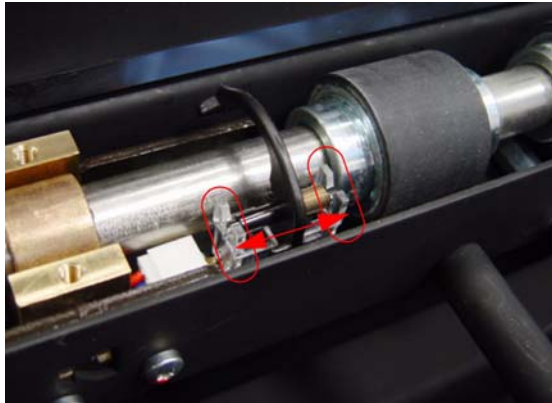
 **NOTE:** The Roller Clamps for the Entry and Exit Rollers must not be interchanged, so please mark the Top Roller Clamp before removing.



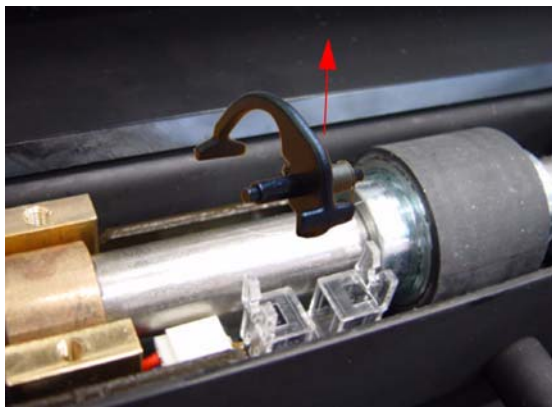
- 16.** Remove the Roller Clamp.



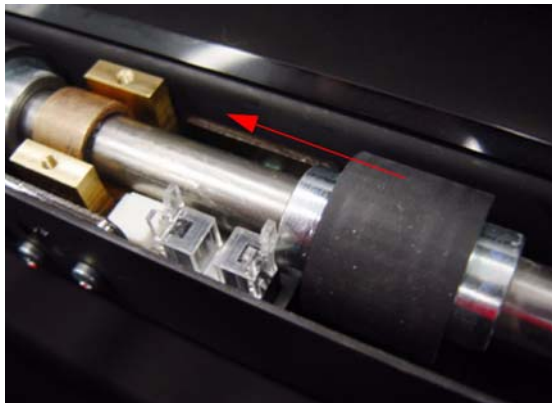
- 17.** Carefully release the Media Entry Switch from the plastic holder.




- 18.** Remove the Media Entry Switch from the Scanner.

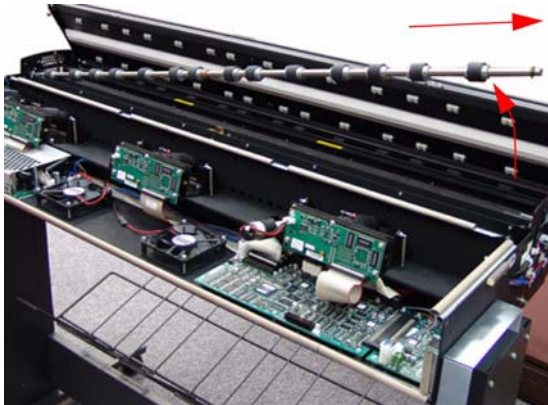


- 19.** Slide the Entry Roller towards the pulley end to remove it out of the bearing at the opposite end.




20. Remove the Entry Roller from the Scanner.

 **NOTE:** When removing the Entry Roller note the number of washers on the end of the shaft so that they can be replaced later.

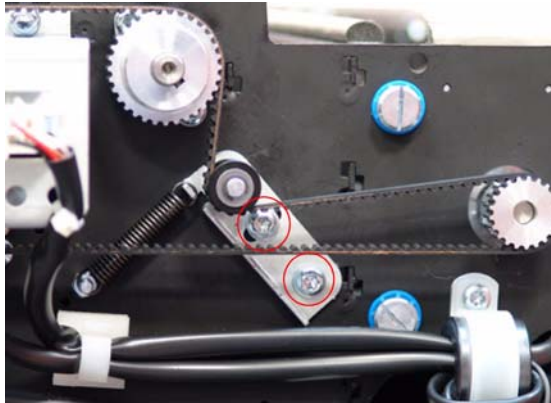


Exit Roller

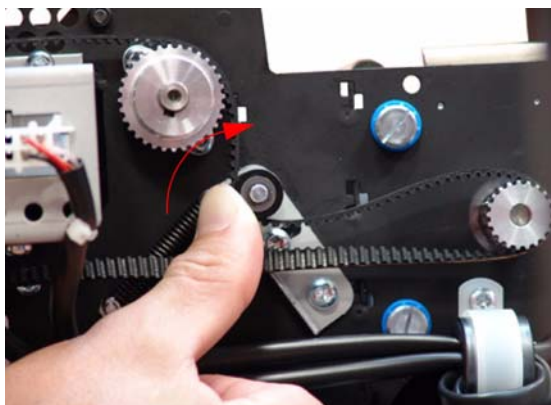
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

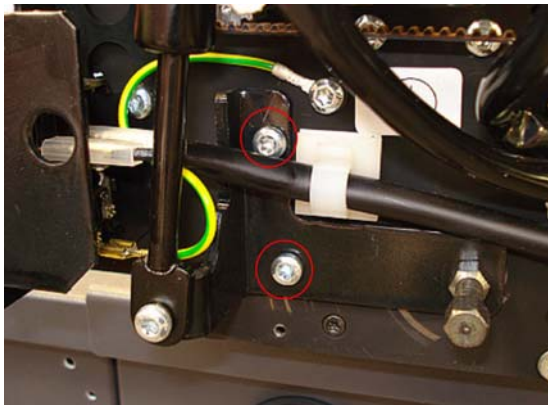
1. Remove the Top Cover ⇒ See [Top Cover on page 71](#).
2. Remove the Left Cover ⇒ See [Left Cover on page 73](#).
3. Remove the Right Cover ⇒ See [Right Cover on page 75](#).
4. Remove the Rear Cover ⇒ See [Rear Cover on page 79](#).
5. Remove the Guide Plate ⇒ See [Guide Plate on page 88](#).
6. Remove the Glass Plate ⇒ See [Glass Plate on page 90](#).
7. Remove the Exit Roller Shield ⇒ See [Exit Roller Shield on page 92](#).
8. Loosen the two T20 screws on the Belt Tension Bracket.



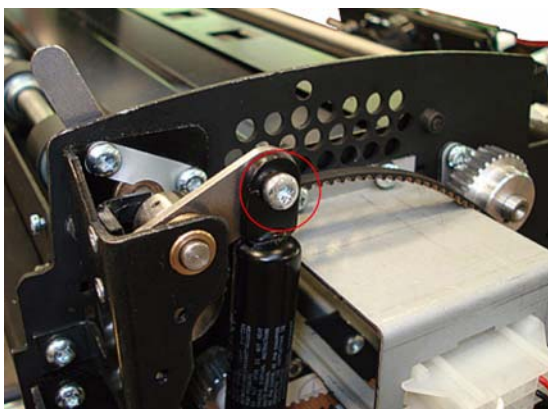
9. Push the Belt Tension Bracket to the right to release the belt.



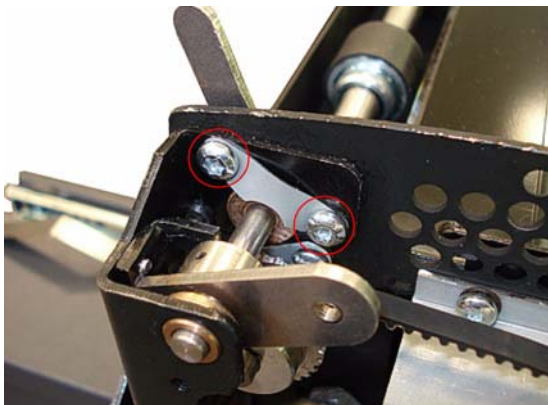
- 10.** Remove the two T20 screws.



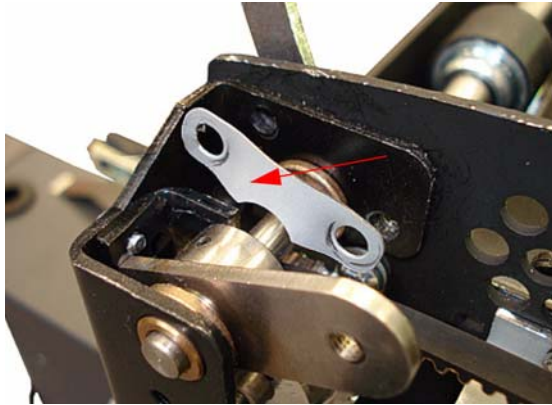
- 11.** Remove the one screw and bushing that secure the piston spring.



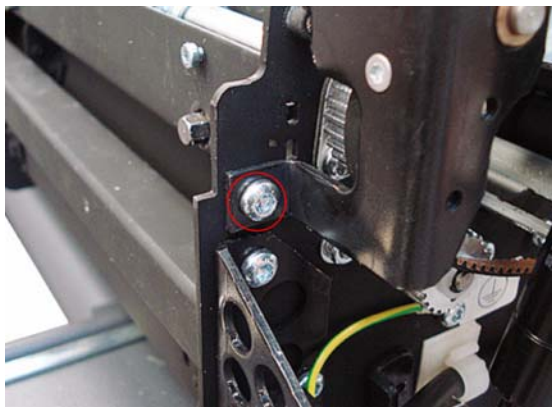
- 12.** Remove the two T20 screws used to secure the small silver plate.



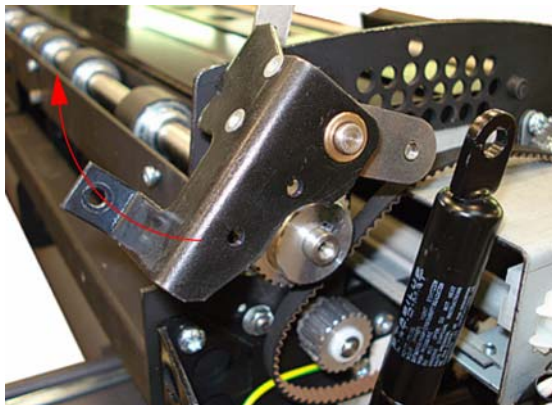
- 13.** Remove the silver plate.



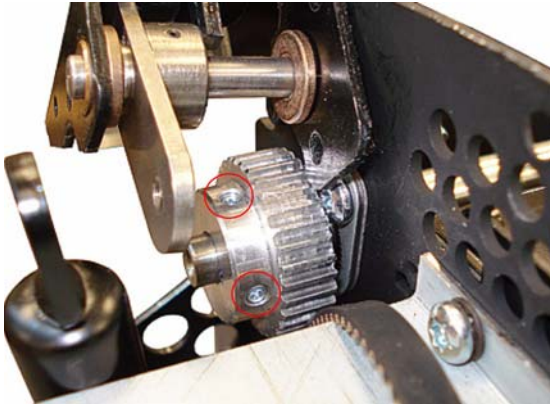
- 14.** Remove one T20 screw.



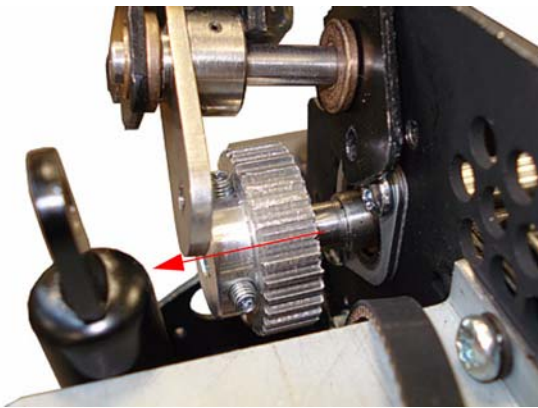
- 15.** Rotate the black piece upward to gain access to the belt, and then free the belt from the Exit Roller Gear.



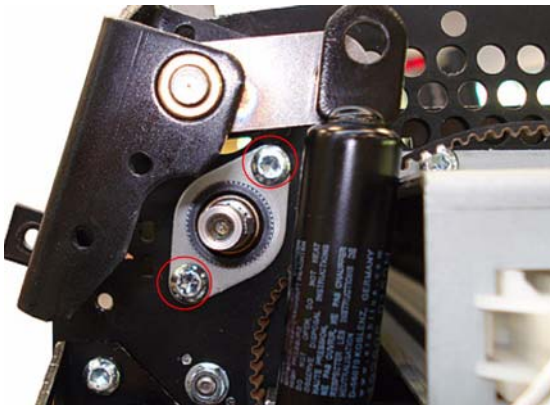
- 16.** Loosen the T8 Allen screws from the Exit Roller Gear on the left side of the Scanner.




- 17.** Remove the Exit Roller Gear by sliding it off of the Exit Roller.

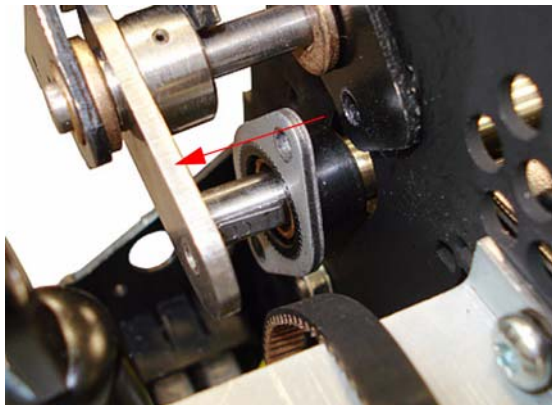


- 18.** Remove the two T20 screws that secure the Exit Roller Mount Bushing from the left side of the Scanner.

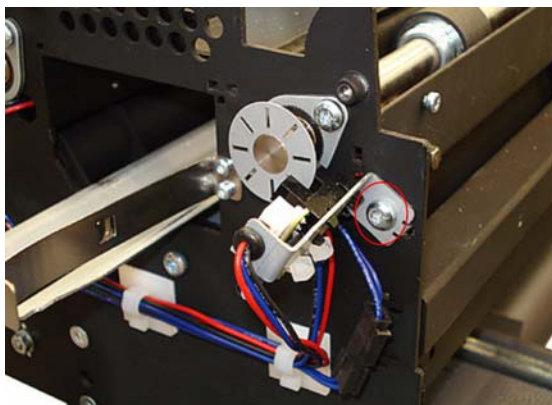


19. Slide the Exit Roller Mount Bushing off of the Exit Roller.

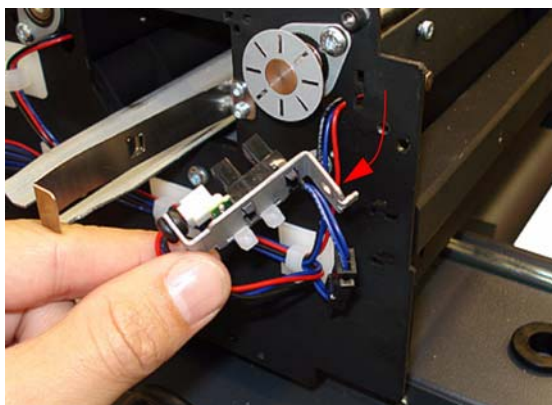
 **NOTE:** Flatten the metal clip (1) with your finger, and then slide off the bushing.



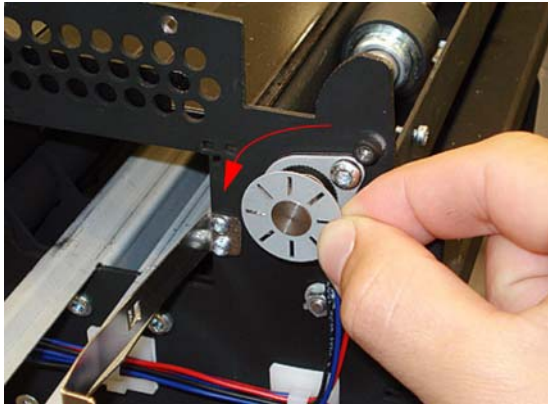
20. Remove the one T20 screw that secures the Encoder Sensor Bracket from the right side of the Scanner.



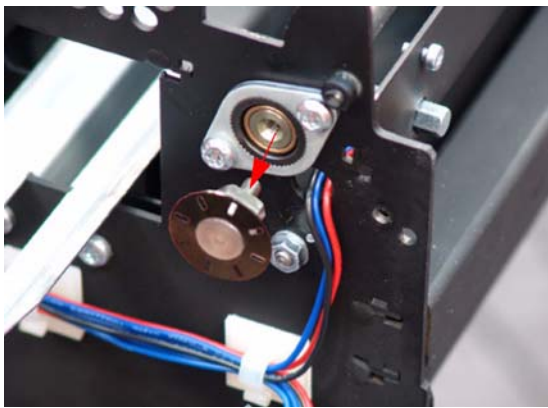
21. Detach the Encoder Sensor Bracket from the Scanner.



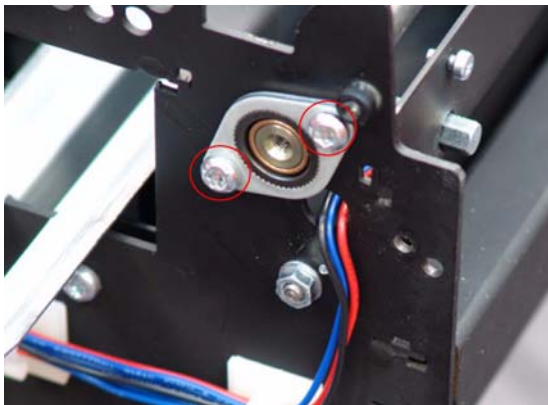
- 22.** Unscrew the Disc Encoder on the right side of the Scanner by turning clockwise.



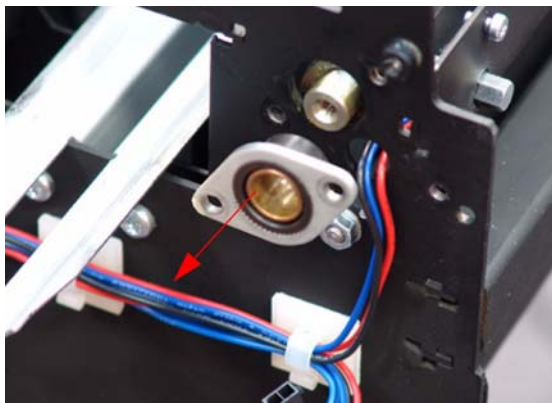
- 23.** Remove the Disc Encoder from the right side of the Scanner.



- 24.** Remove the two T20 screws that secure the Exit Roller Mount Bushing from the right side of the Scanner.



- 25.** Remove the Exit Roller Mount Bushing.



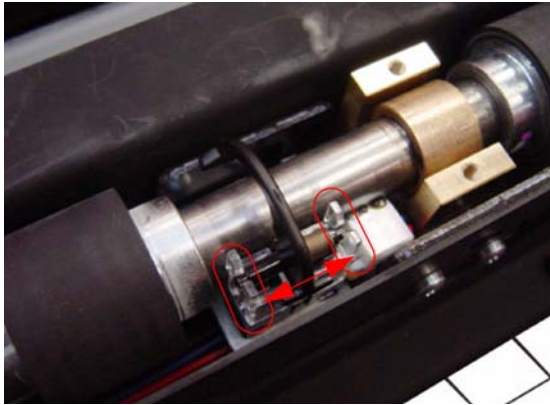
- 26.** Remove the two T10 screws from the Roller Clamp that secures the Exit Roller.



- 27.** Remove the Roller Clamp.



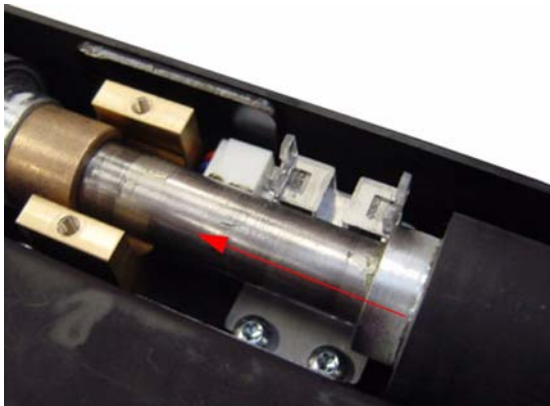
- 28.** Carefully release the Media Entry Rocker Switch from the plastic holder.




- 29.** Remove the Media Exit Rocker Switch from the Scanner.

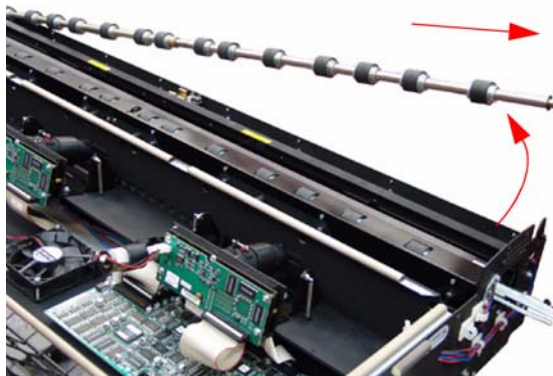


- 30.** Slide the Exit Roller towards the pulley end to remove it out of the bearing at the opposite end.




31. Remove the Exit Roller from the Scanner.

 **NOTE:** As you remove the exit roller from the Scanner, the Roller Mount Bushing and Exit Roller Gear will fall off the left side of the Scanner.




Exit Roller

Installation

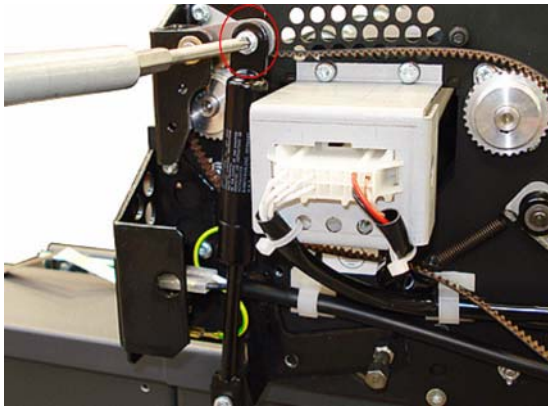
 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. To install the Exit Roller, follow steps 1-31 from the Exit Roller removal procedure in reverse order.

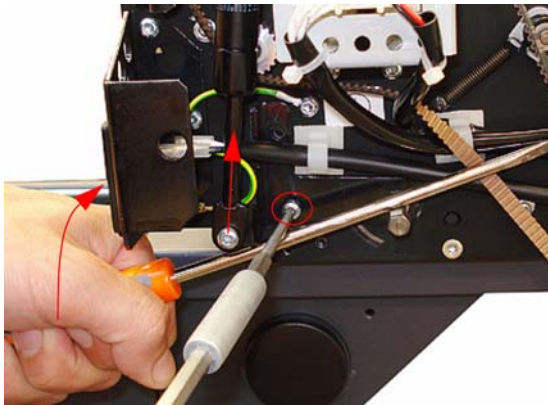
 **NOTE:** When you are ready to reattach the piston spring, be sure to follow steps 10 and 11 from the removal process in reverse order, as highlighted below.

Step 3 (below) guides you in the handling of the piston spring as you affix the screws.

2. First, use the screw to attach the uppermost part of the piston spring.




3. Then use a second screwdriver (or similar implement) to act as a lever, and pry the piston spring upward. You will then be able to affix the screws as shown in the photo and described in step 10 of the removal process.

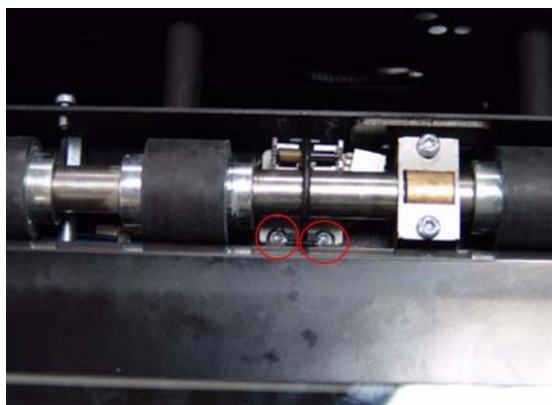


Entry Media Sensor

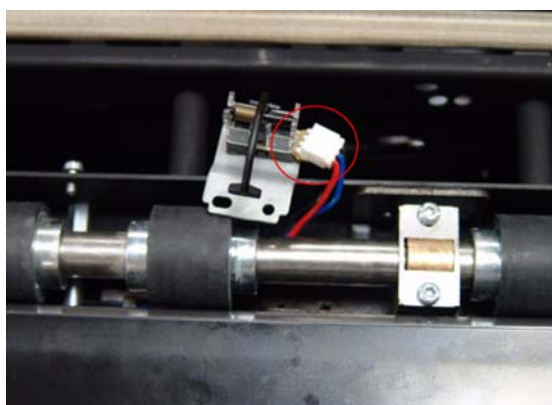
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Remove the Top Cover ⇒ See [Top Cover on page 71](#).
2. Remove the Entry Roller Shield ⇒ See [Entry Roller Shield on page 91](#).
3. Remove two T10 screws that secure the Entry Media Sensor.




4. Pull out the Entry Media Sensor from below the Entry Roller and disconnect the cable to remove.

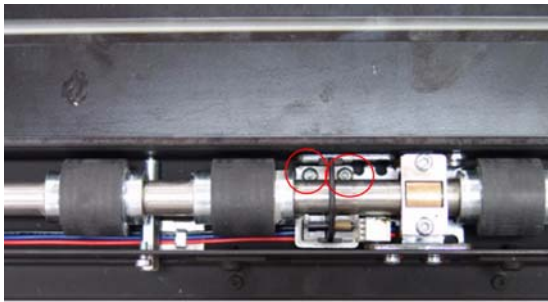


Exit Media Sensor

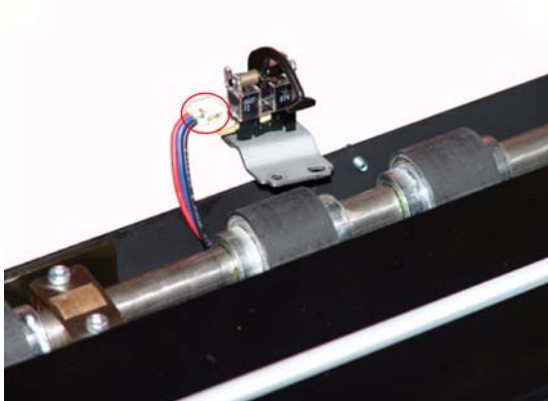
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Remove the Top Cover ⇒ See [Top Cover on page 71](#).
2. Remove the Right Cover ⇒ See [Right Cover on page 75](#).
3. Remove the Rear Cover ⇒ See [Rear Cover on page 79](#).
4. Remove the Guide Plate ⇒ See [Guide Plate on page 88](#).
5. Remove the Exit Roller Shield ⇒ See [Exit Roller Shield on page 92](#).
6. Remove the two T10 screws that secure the Exit Media Sensor.




7. Pull out the Exit Media Sensor from below the Exit Roller and disconnect the cable to remove.

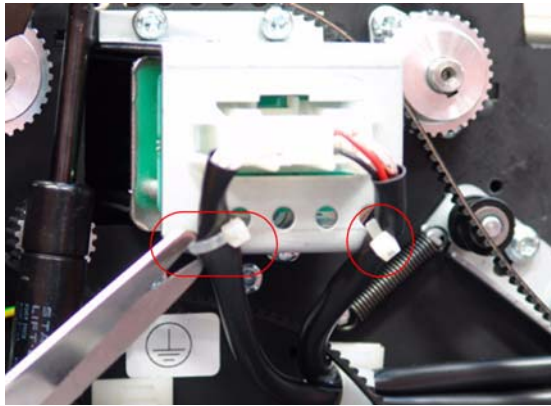


Belt

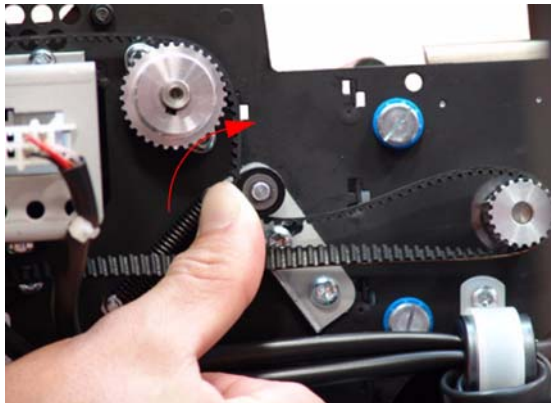
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

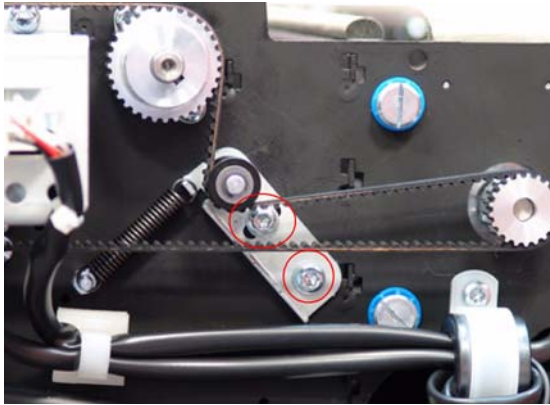
1. Remove the Fluorescent Lamp ⇒ See [Fluorescent Lamp on page 110](#).
2. Remove the Top Cover ⇒ See [Top Cover on page 71](#).
3. Remove the Left Cover ⇒ See [Left Cover on page 73](#).
4. Cut the cable clamps on the Lamp Power Cable on the left of the Scanner.



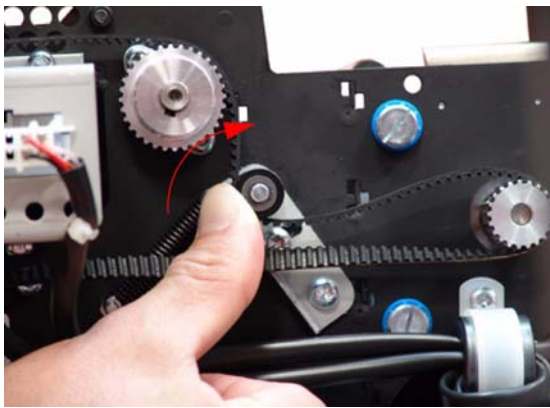
5. Using your finger and a screwdriver (or similar implement), press the clips and disconnect the Lamp Power cable.



6. Loosen two screws from the Belt Tension Bracket.



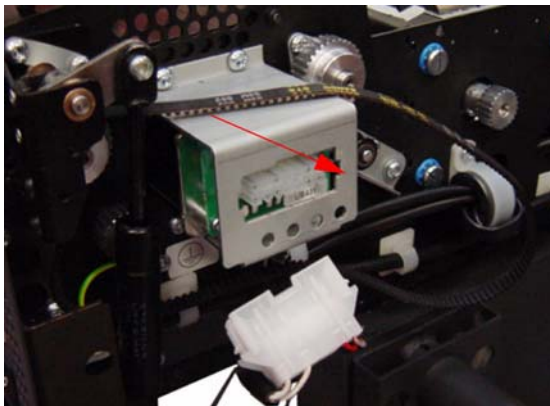
7. Push the Belt Tension Bracket to the right to release the belt from tension.



8. Remove the belt from the Scanner.




NOTE: When reinstalling the Belt, make sure that you adjust the belt tension when securing the Tension Bracket.

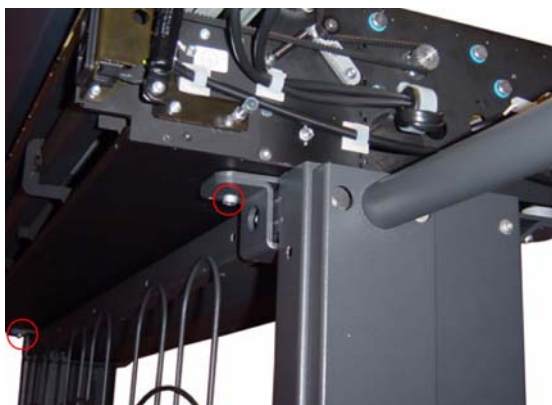


Bottom Cover

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Remove the Top Cover ⇒ See [Top Cover on page 71](#).
2. Remove the Left Cover ⇒ See [Left Cover on page 73](#).
3. Remove the Right Cover ⇒ See [Right Cover on page 75](#).
4. Remove the Rear Cover ⇒ See [Rear Cover on page 79](#).
5. Use a size 2.5 Allen key to remove the two screws that secure the rear of the Scanner to the legs.



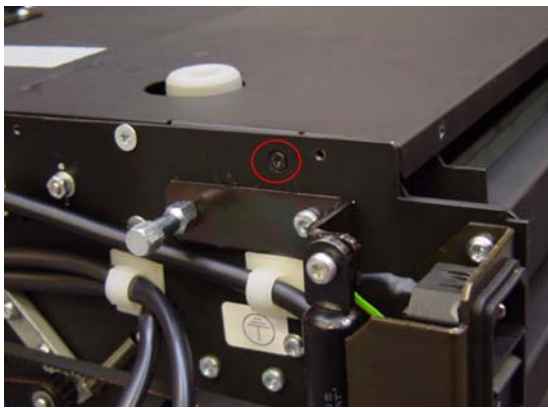
6. Remove two screws that secure the front of the Scanner to the legs.



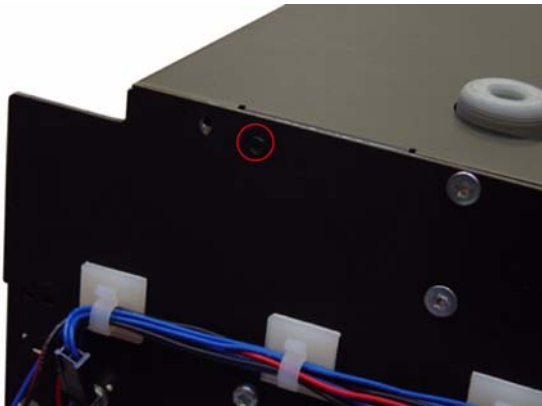
7. Turn the Scanner upside down.



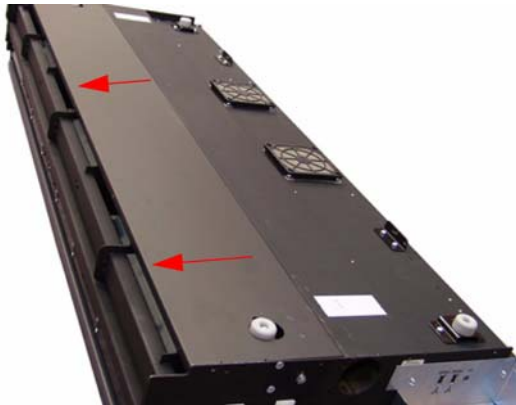
8. Remove the one T10 screw that secures the left side of the Bottom Cover.



9. Remove the one T10 screw that secures the right side of the Bottom Cover.



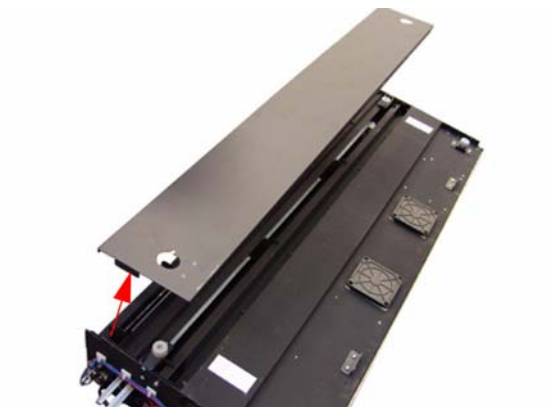
- 10.** Slide the Bottom Cover backwards.



- 11.** Raise the cover slightly from the front.




- 12.** Remove the Bottom Cover from the Scanner.



Mirror Chassis

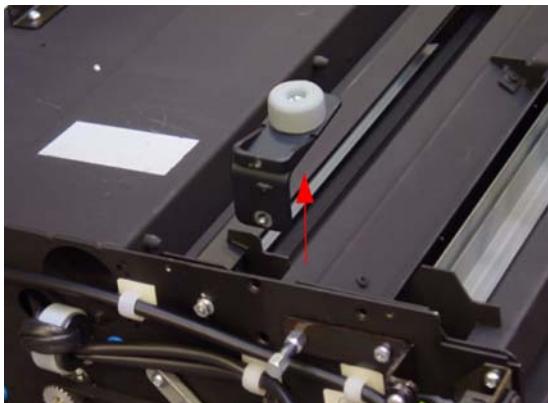
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

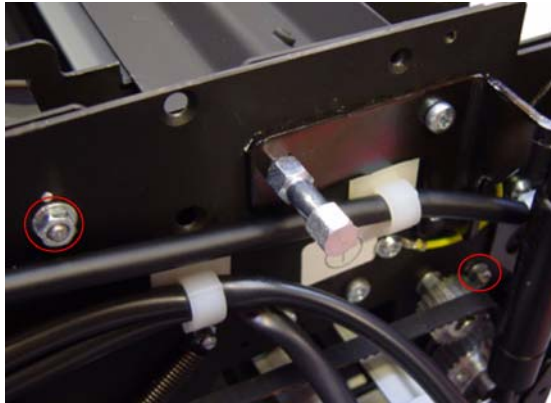
1. Remove the Top Cover ⇒ See [Top Cover on page 71](#).
2. Remove the Left Cover ⇒ See [Left Cover on page 73](#).
3. Remove the Right Cover ⇒ See [Right Cover on page 75](#).
4. Remove the Rear Cover ⇒ See [Rear Cover on page 79](#).
5. Remove the Bottom Cover ⇒ See [Bottom Cover on page 137](#).
6. Remove two screws from each plastic foot (only the two rear feet).



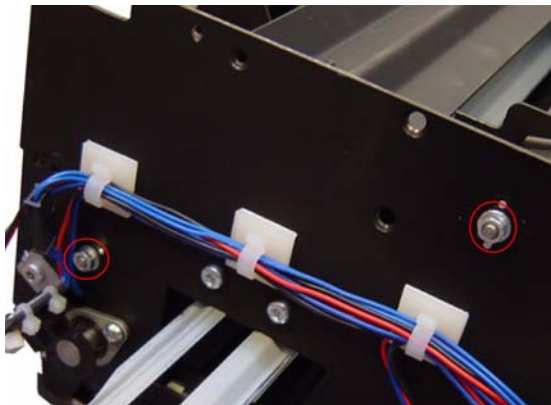
7. Remove the two rear plastic feet.



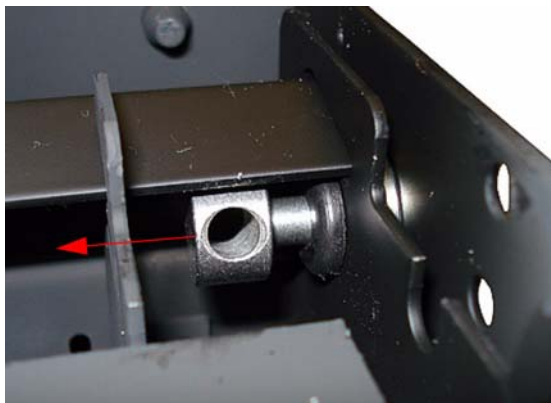
8. Remove two nuts that secure the left side of the Mirror Chassis.



9. Use a size 7 wrench to remove the two nuts and one washer that secure the right side of the Mirror Chassis.




10. Remove two locating screws from both sides of the Mirror Chassis. Upon installation, ensure that the rubber is not squeezed. Wiggle the screw to verify that it is correctly fitted.

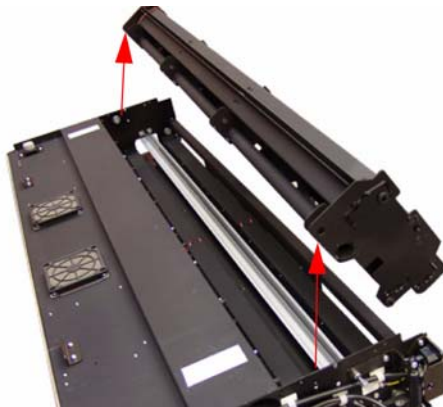


- 11.** Raise the cover slightly from the Rotate the Mirror Chassis towards you and lift up.




- 12.** Remove the Mirror Chassis.

 **NOTE:** Always clean the mirrors before replacing the Mirror Chassis.

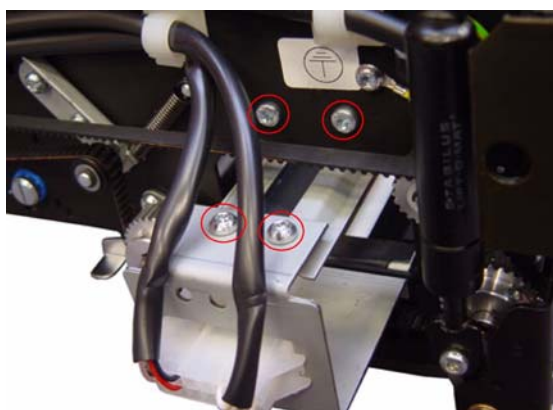


Stitching Wire

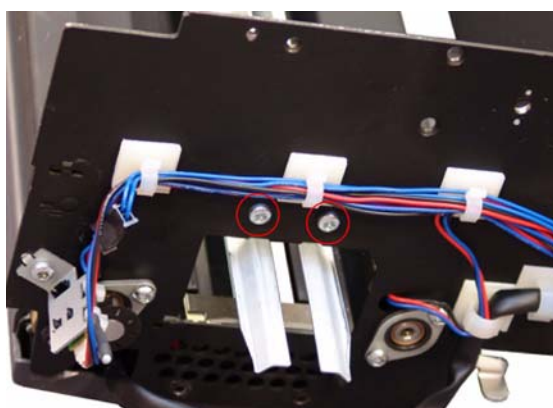
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Remove the Top Cover ⇒ See [Top Cover on page 71](#).
2. Remove the Left Cover ⇒ See [Left Cover on page 73](#).
3. Remove the Right Cover ⇒ See [Right Cover on page 75](#).
4. Remove the Fluorescent Lamp ⇒ See [Fluorescent Lamp on page 110](#).
5. Remove the Bottom Cover ⇒ See [Bottom Cover on page 137](#).
6. Remove the Mirror Chassis ⇒ See [Mirror Chassis on page 140](#).
7. Remove the four T20 screws that secure the Fluorescent Lamp Guides to the left side of the Scanner.



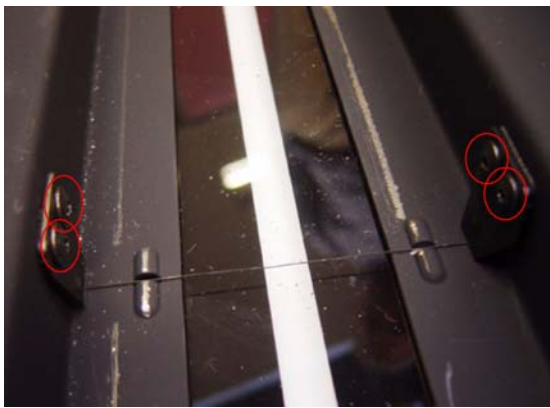
8. Remove the two T20 screws that secure the Fluorescent Lamp Guides to the right side of the Scanner.



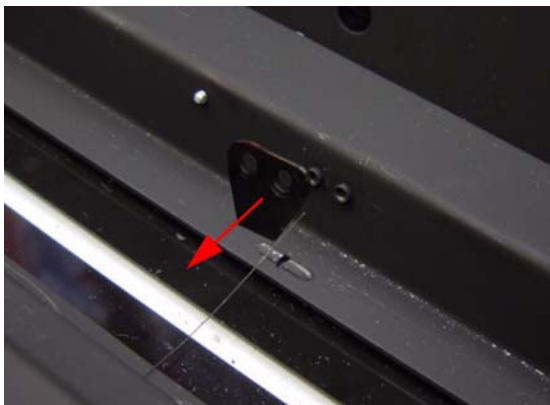
- 9.** Remove the Fluorescent Lamp Guides from the Scanner.



- 10.** Use a 2.5 size Allen key to remove the four screws that secure the Leaf Springs.




- 11.** Remove the Leaf Springs and the Stitching Wire.



White Background Assembly


Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Open the Guide Plate.
2. Remove the Red Retaining Cover from the right of the Guide Plate.



3. Slide out the White Background Assembly from the Guide Plate.

 **NOTE:** You cannot remove and replace the White Background if the Guide Plate is in the elevated position.

When replacing the White Background make sure it is fully inserted and the Red Retaining Cover is installed before you close the Guide Plate.




PanelPC

This chapter is a step by step guide to the removal and installation of the key components in the PanelPC.

Open Cabinet

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

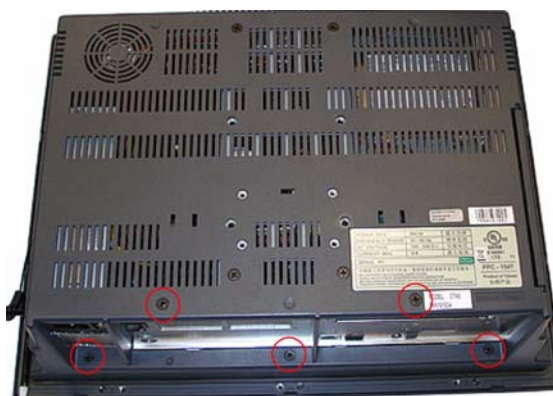
1. Disconnect all of the cables from the Panel PC.



2. Remove the four T20 screws that are used to secure the Cabinet to the Bracket.



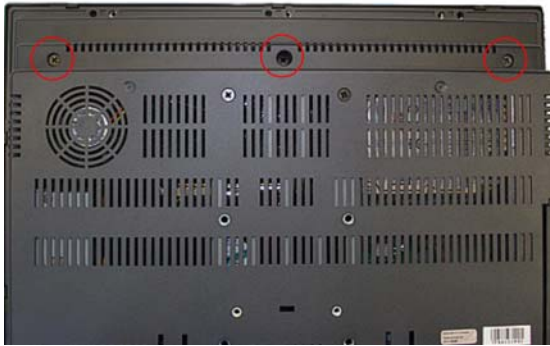
3. Use a Phillips screwdriver to remove the five screws at the back of the Cabinet.



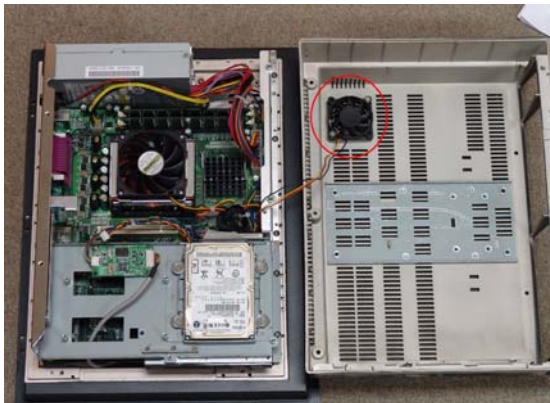
4. Remove the three rubber covers to gain access to the screws underneath them.



5. Use a Phillips screwdriver to remove the three screws at the back of the Cabinet.




6. As you open the Cabinet, make sure that you do not damage the cables to the System Fan.

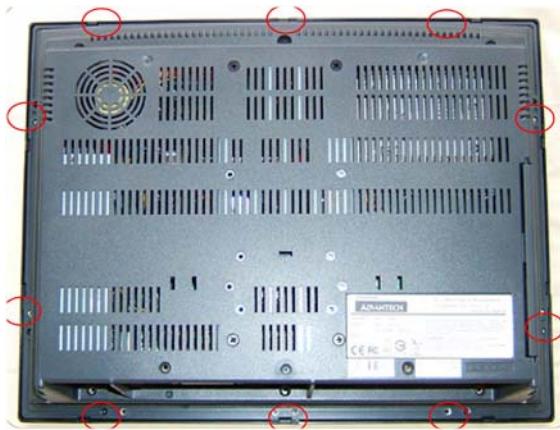


Screen Bezel

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Apply pressure with a flat head screw driver at the rear of the Cabinet at the places indicated.




2. Remove the Screen Bezel from the Cabinet.



LCD

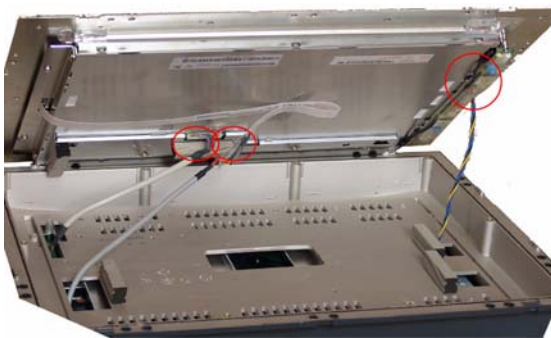
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Remove the Screen Bezel ⇒ See [Screen Bezel on page 149](#).
2. Remove ten screws that secure the LCD to the PanelPC.



3. Carefully lift up the screen and disconnect ALL three cables.




4. Remove the LCD.



Back Plate

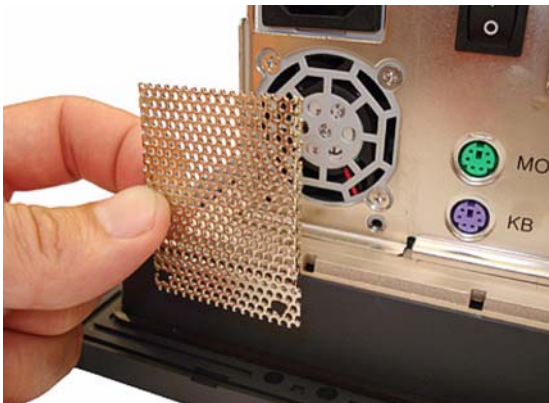
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

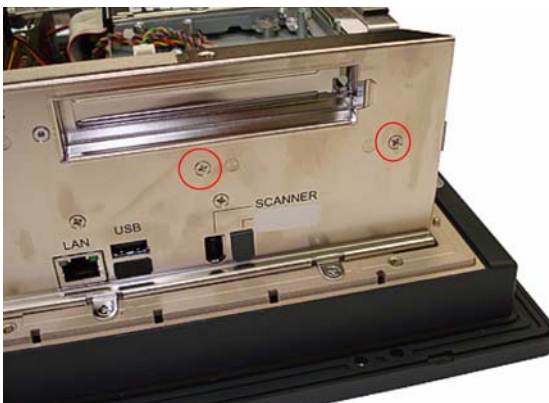
1. Open the Cabinet ⇒ See [Open Cabinet on page 147](#).
2. Use a Phillips screwdriver to remove the three screws that secure the PSU to the Back Plate.



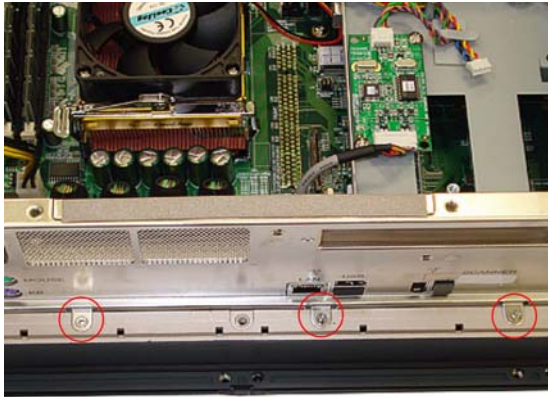
3. Remove the metal cover.



4. Use a Phillips screwdriver to remove the two screws that secure the HDD/DVD deck to the Back Plate.




5. Use a Phillips screwdriver to remove the three screws that secure the Back Plate to the Cabinet.

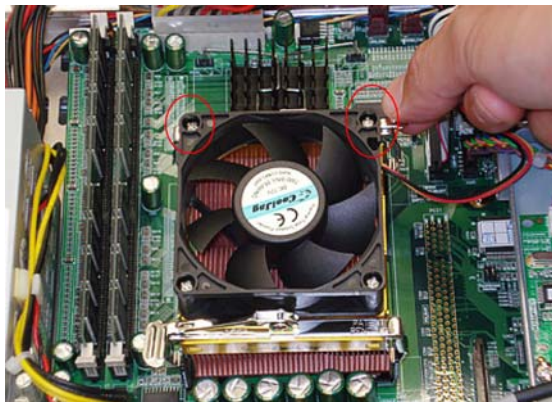


CPU Cooling Fan

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Open the Cabinet ⇒ See [Open Cabinet on page 147](#).
2. Pull up on the two clips that secure the CPU Cooling Fan.




3. Disconnect the CPU Cooling Fan Cable from the Power PCA.

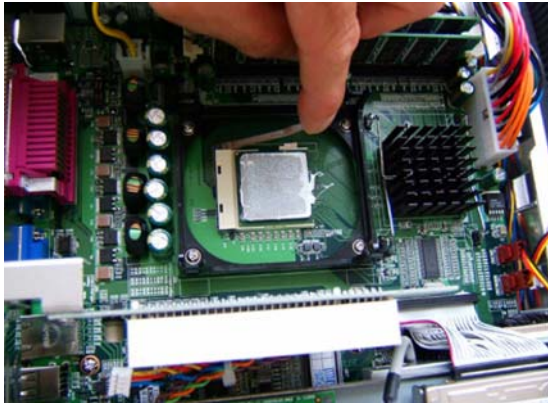


CPU

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Open the Cabinet ⇒ See [Open Cabinet on page 147](#).
2. Remove the CPU Cooling Fan ⇒ See [CPU Cooling Fan on page 153](#).
3. Pull aside the clip securing the CPU.




4. Remove the CPU.



DRAM PCA

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Open the Cabinet ⇒ See [Open Cabinet on page 147](#).
2. Push the securing clips to the side to release the DRAM PCA.




3. Remove the DRAM PCA.

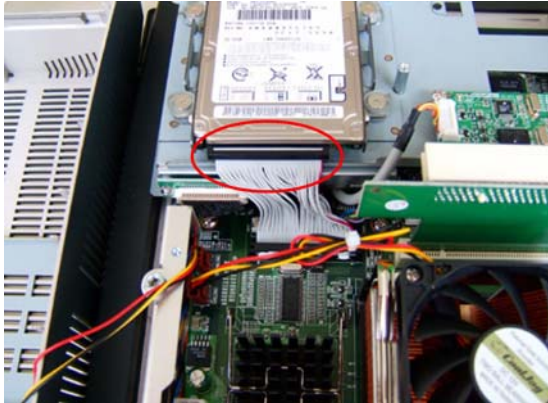


DVD Drive

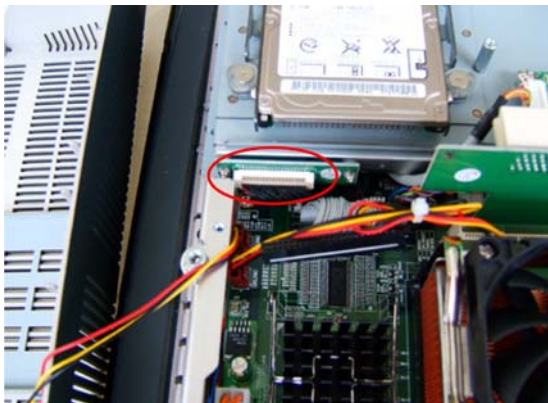
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

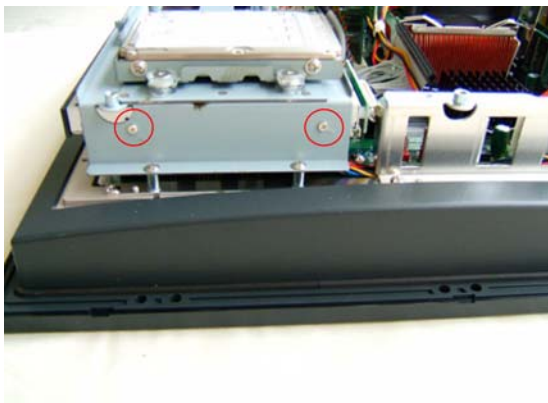
1. Open the Cabinet ➡ See [Open Cabinet on page 147](#).
2. Disconnect the cable from the HDD.



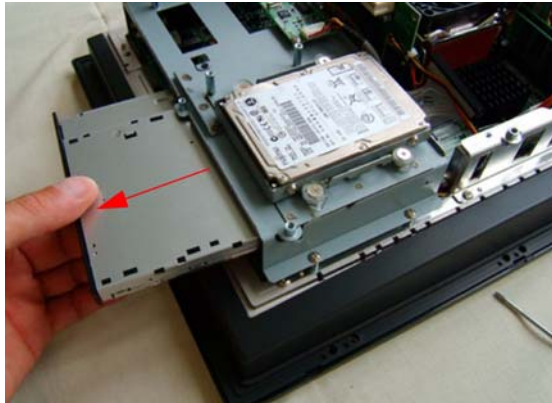
3. Disconnect the cable from the DVD.



4. Remove two screws that secure the DVD.




5. Remove the DVD by sliding it out from the PanelPC.



Hard Disk Drive

Removal

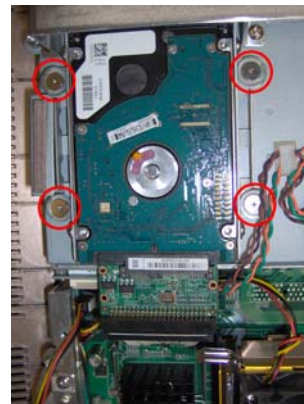
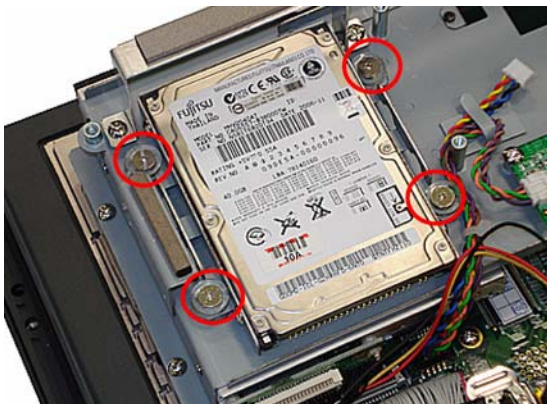
 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Open the Cabinet ➡ See [Open Cabinet on page 147](#).
2. Disconnect the cable from the Hard Disk Drive.



3. Remove four screws that secure the Hard Disk Drive.

 **NOTE:** In the HD Scanner (on the right), the Hard Disk Drive is mounted upside-down and has an IDE to SATA converter.



4. Remove the Hard Disk Drive from the PanelPC and remove four screws (two each side) from the frame surrounding the Hard Disk Drive.

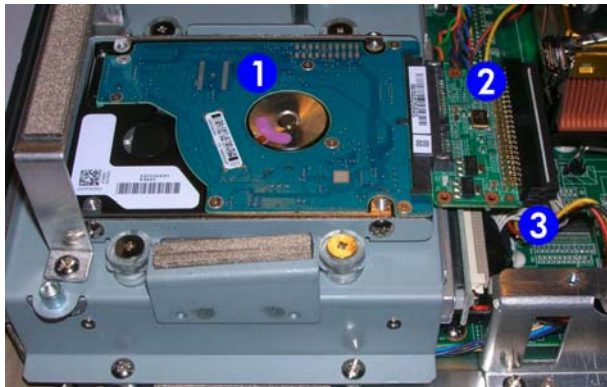
 **NOTE:** After reinstalling the Hard Disk Drive you will need to reinstall the system software.



Installation (HD Scanner)

When installing the Hard Disk Drive on a system originally equipped with a PATA Hard Disk Drive, please note that the new drive should be placed bottom up, as shown in the photo. Also install the SATA to PATA Adapter as shown.


In this case, the IDE cable (sliced-up ribbon cable) is connected straight: that is, without a 180-degree twist.



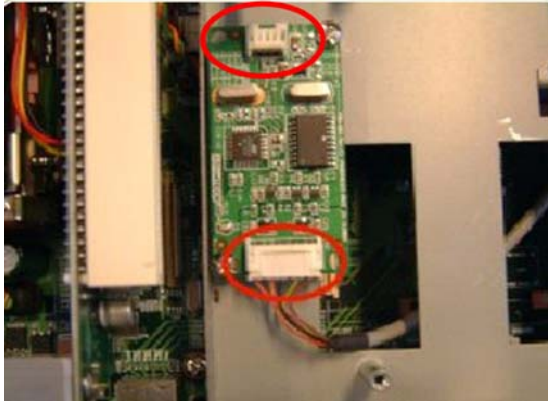
1. Hard Disk Drive
2. SATA to PATA Adapter
3. IDE cable

LCD Controller PCA

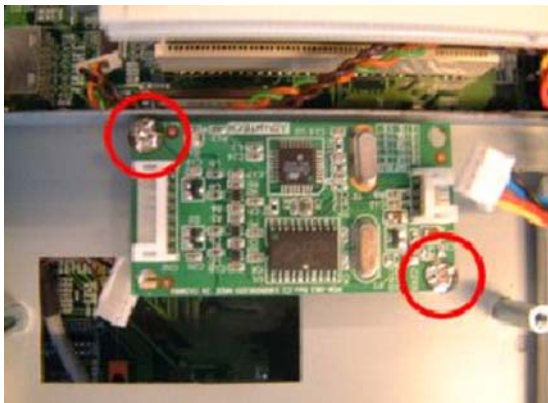
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Open the Cabinet ⇒ See [Open Cabinet on page 147](#).
2. Disconnect ALL cables connected to the LCD Controller.




3. Remove two screws that secure the LCD Controller.



Inverter PCA

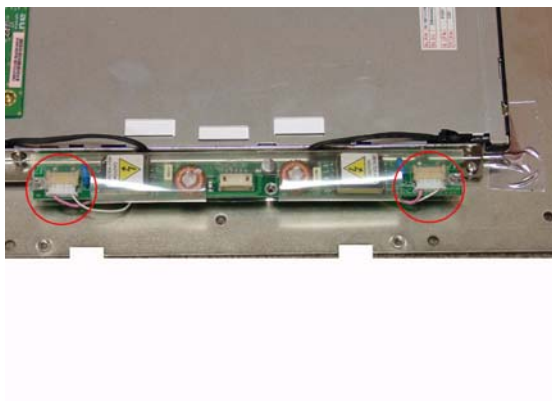
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

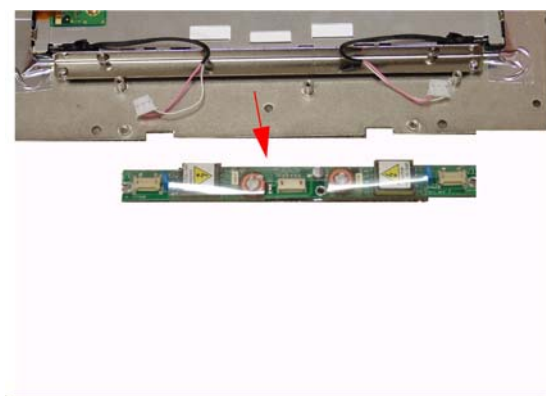
1. Remove the Screen Bezel ⇒ See [Screen Bezel on page 149](#).
2. Remove the LCD.
3. Remove three screws that secure the inverter PCA to the LCD.



4. Disconnect two cables from the inverter PCA.




5. Remove the inverter PCA.



HDD/DVD Deck

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

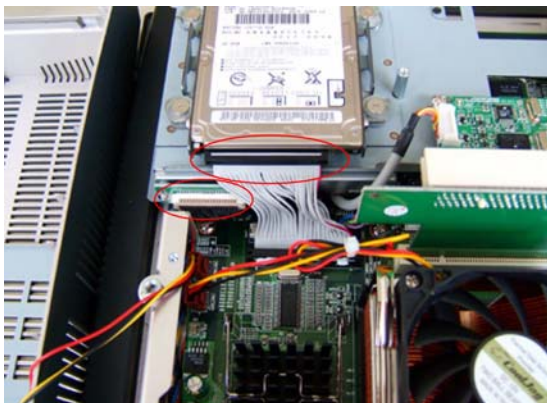
1. Open the Cabinet ➡ See [Open Cabinet on page 147](#).
2. Remove two screws that secure the HDD/ DVD Deck to the Back Plate.



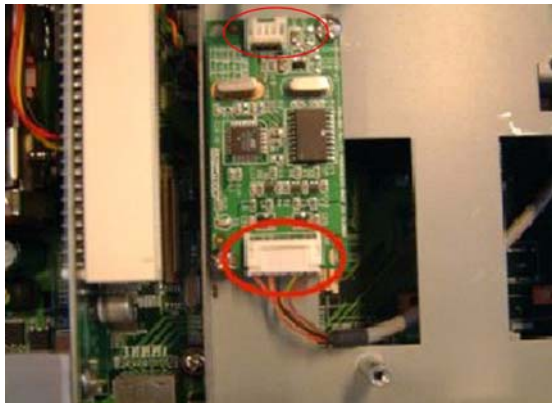
3. Remove two screws that secure the HDD/ DVD to the Cabinet.



4. Disconnect two cables from the DVD and the HDD.



5. Disconnect all cables from the LCD Controller PCA.




6. Remove the HDD/DVD Deck from the Panel PCA.

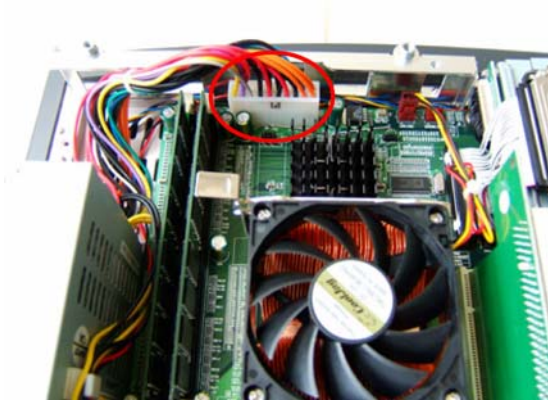


Main PCA

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.


1. Open the Cabinet ⇒ See [Open Cabinet on page 147](#).
2. Remove the Back Plate ⇒ See [Back Plate on page 151](#).
3. Remove the HDD/DVD Deck ⇒ See [HDD/DVD Deck on page 162](#).
4. Disconnect the ATX PSU Cable.

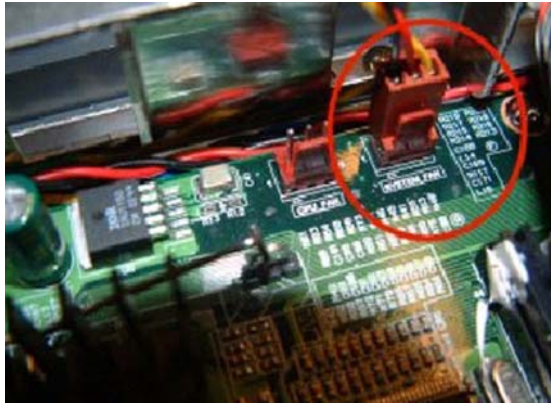


5. Disconnect the P4 ATX power cable.

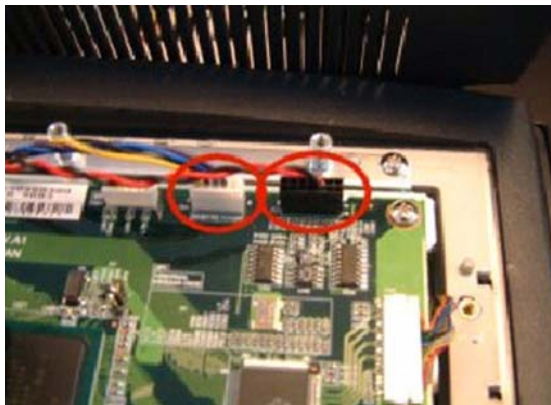


6. Disconnect the System Fan Cable.

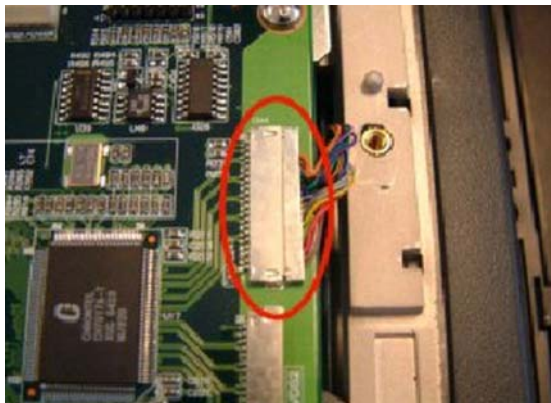
 **NOTE:** For the purpose of installing a new Main PCA, take note of the cable routing before you remove.



7. Disconnect the Inverter PCA Power Cable and the Power ON Switch Cable.



8. Disconnect the LVDS1 cable carefully.



9. Remove eight screws that secure the Main PCA.



10. Remove all nuts from the Back Plate.




11. Remove the Main PCA from the PanelPC.




NOTE: When installing a new Main PCA, make sure you install the components from the old Main PCA.

Power Supply Unit

Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Open the Cabinet ⇒ See [Open Cabinet on page 147](#).
2. Remove three screws that secure the Power Supply Unit to the Back Plate.

 **NOTE:** These three screws also secure the System Fan shield to the Back Plate.



3. Remove two screws that secure the Power Supply Unit to the Cabinet.



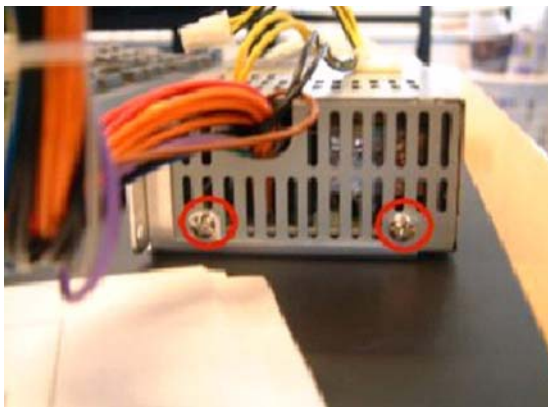
4. Disconnect the ATX Power Supply Unit Cable.



5. Disconnect the P4 ATX Power Cable.




6. Remove two screws that secure the Power Supply Unit to the metal cover.

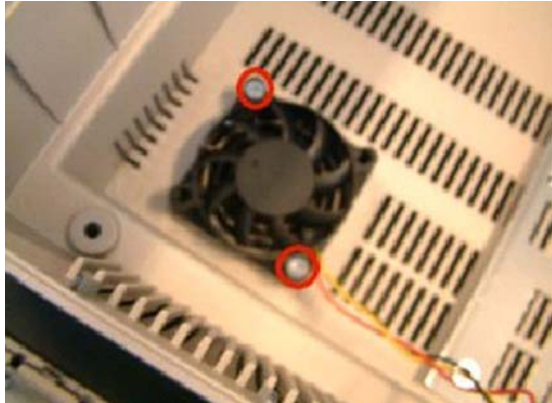


System Fan

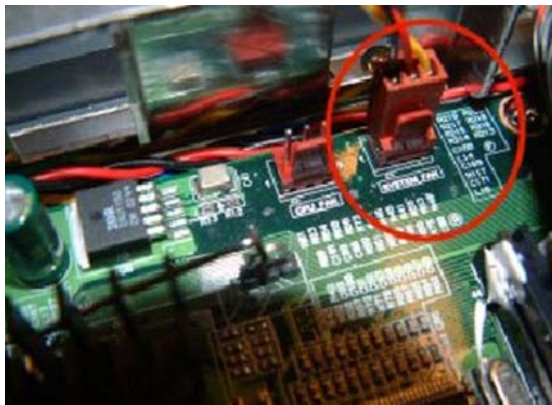
Removal

 **NOTE:** Switch off the printer, the scanner, and the PC, and then disconnect them from the power source prior to performing any maintenance.

1. Open the Cabinet ⇒ See [Open Cabinet on page 147](#).
2. Remove two screws that secure the system fan.



3. Disconnect the System Fan Cable.



5 Scanner Adjustments and Calibrations

- [Introduction](#)
- [Tools Required](#)
- [Terminology](#)
- [Camera Design Overview](#)
- [Adjusting the Camera manually](#)
- [Adjusting the Camera Using the Camera Wizard](#)
- [Scanner Maintenance](#)
- [ATAC Position Sensors check](#)
- [Original Guide Sensor Test](#)
- [Calibrate ATAC \(Automatic Thickness Adjustment Control\)](#)
- [Driver Board Communication Test](#)
- [Upgrade Scanner Firmware](#)

Introduction

This chapter explains how to adjust the scanner for optimal scanning quality. It describes the adjusting procedures in detail and provides additional information regarding acceptance criteria.

A general concept when adjusting the scanner is to loosen screws just slightly. If you loosen the screws too much, you will have difficulties controlling the adjustments, because of too much play in the adjustment levers and other adjustment points. Unless this chapter states otherwise, always loosen screws and nuts only slightly. They should be snug; there should be no play when you try to wiggle them. When tightening a set of screws, tighten all of them little by little, rather than fully tightening one, and then another, and so on.

Tools Required

To perform the Camera Adjustment you will need:


- Focus Adjustment Pattern sheet (included in the Service Patterns)
- Optical Adjustment Pattern for 3 or 4 cameras as appropriate
- Torx 10
- Torx 20

To perform the Sensor Adjustments you will need:

- Adjustment Tools for ATAC Sensors
- Torx 10

Terminology

Throughout this chapter a number of visual elements are used to guide you through the adjustment process.

 **WARNING!** The exclamation mark is used to point out possible sources of errors. If something can go wrong when performing a specific action, this visual item describes it.



Thumbs up symbol is used with hints, tips and tricks that make a specific action easier to complete.



A hand in an illustration means that this particular adjustment does not require a tool. It can be adjusted with your fingers.



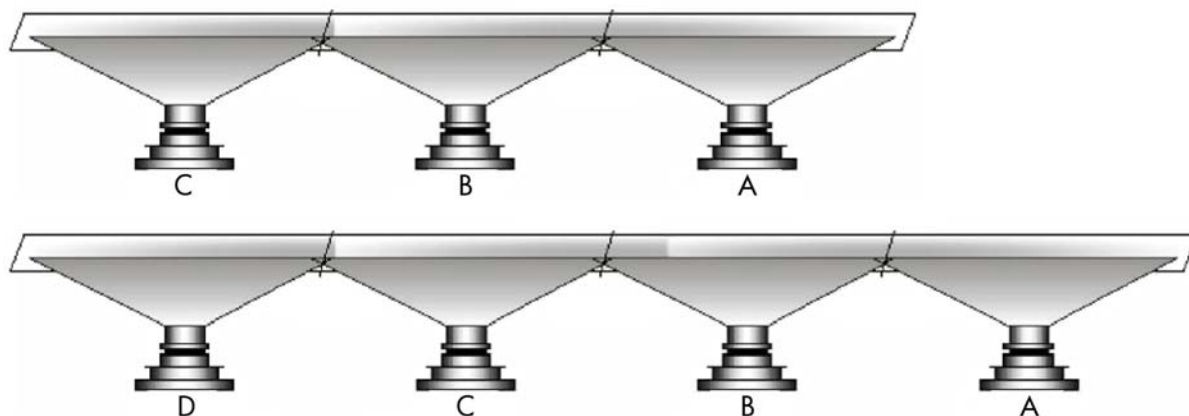
A screwdriver in an illustration means that this particular adjustment requires a tool. It cannot be adjusted with your fingers alone.

Text in **bold** describes a mechanical part, an item, or a program button, which can be located in one of the illustrations.

Camera Design Overview

Introduction

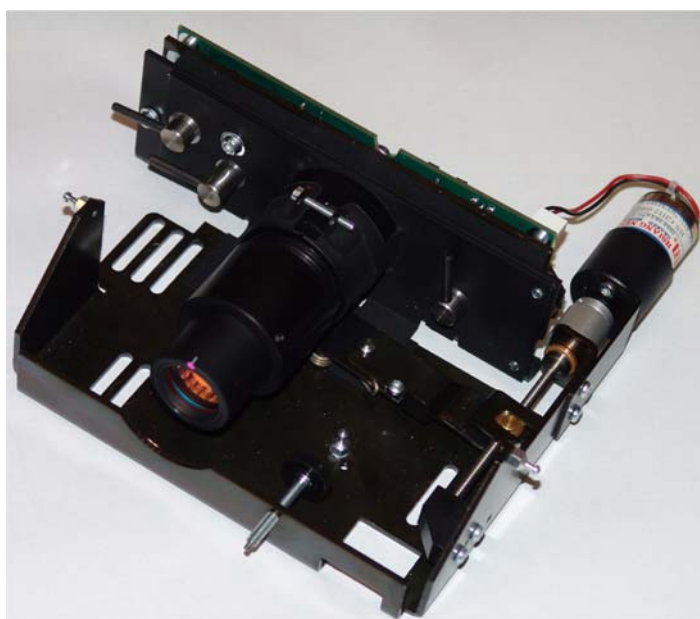
HP Designjet scanners use three or four cameras. Each camera scans its own part of the image.



The cameras are named A, B, C and (for the HD and T1200 scanners) D, from right to left. The scan area of each camera overlaps slightly, to ensure that the scanner scans the complete image.

Most of the scanner adjustments are focused on getting the correct scan width. The adjustment ensures that a camera scans the right amount of image data so that the basic DPI resolution of the camera is precise. This fine-tunes the accuracy of the scanner. A metal wire (**stitching wire**) in the overlapping area helps the scanner to adjust the cameras electronically.

The following picture shows what the camera looks like. Cameras A, C and D have a motor at the rear; camera B has no motor.



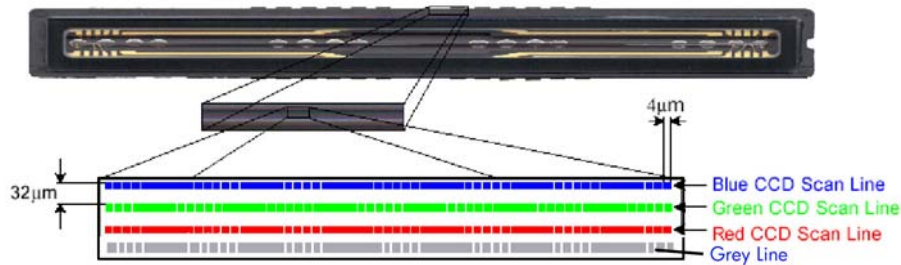
The CCD Element

The central component of the Camera is the Sony CCD (Charge Coupled Device) element, which is responsible for capturing the colors reflected from the original image.



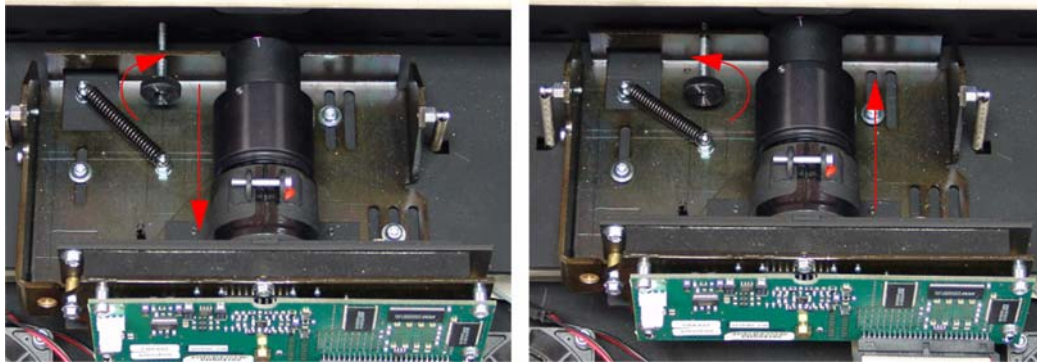
The CCD is formed as a chip, and is inserted into a standard dual in-line socket just like a normal chip. The chip has 4 rows each containing 7500 pixels.

The four rows each scan a different color. Combined, the three rows provide 24 bit color. The last row is for panchromatic scanning. Each CCD pixel is formed as a square with a side length of 5 μm . There is 40 μm between the adjacent lines.



Camera Board Adjustments

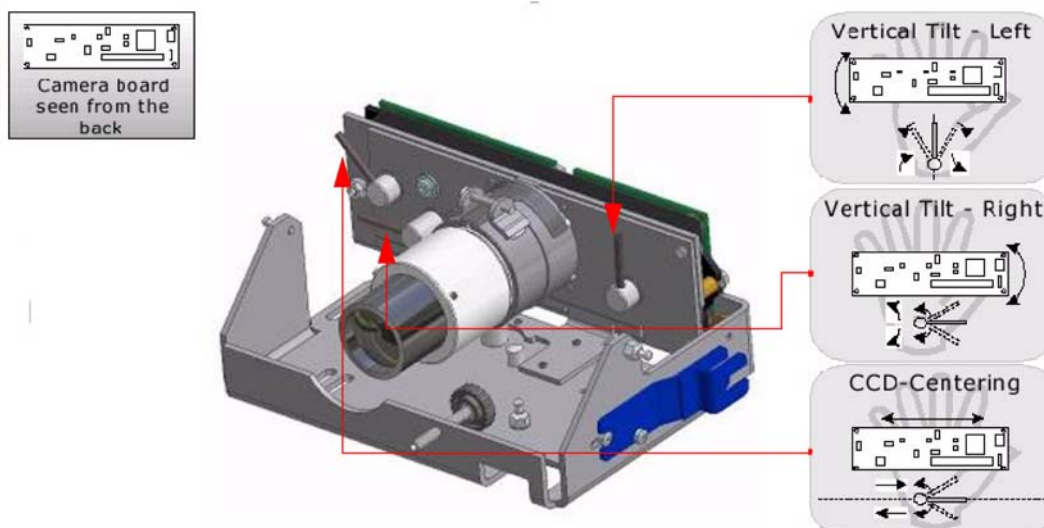
The **Scan-Width Adjustment Screw** moves the camera backwards and forwards, which influences the Scan-Width of the camera.



When the **Scan-Width Screw** is screwed in, as illustrated on the left side of the above picture, the camera has a greater possible scan-width. When it is screwed out (right side of picture), the camera has a smaller possible scan-width.

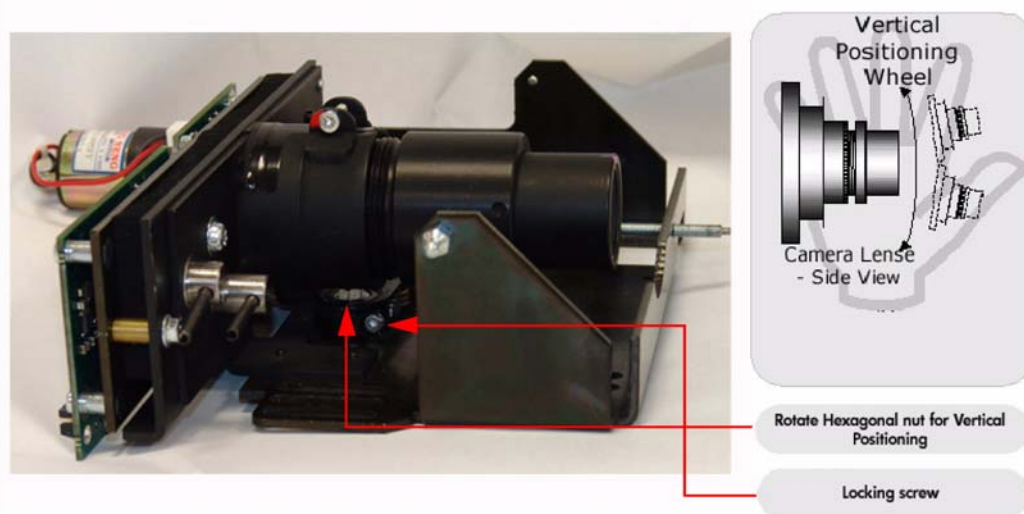
⚠ **WARNING!** The **Scan-Width Screw** is fixed on the camera assembly and not on the scanner chassis. This means, that when screwing the screw backwards, you have to loosen two T15 screws and push the camera forward manually to decrease the scan-width. When screwing forward, the screw will push the camera backwards on it's own.

The CBE Camera Board, where the CCD is placed, can be moved relative to the camera using three adjustment levers.



This is an easy and quick way of adjusting the camera, as it does not involve moving the camera itself, but only the camera board, which can be done very precisely.

- Vertical Tilt – Left: Moves the left upper edge of the **CCD Mounting Plate** and the **CBE Camera Board** up and down, making the field of vision tilt in proportion to the horizon.
- Vertical Tilt – Right: Moves the right upper edge of the **CCD Mounting Plate** and the **CBE Camera Board** up and down, making the field of vision tilt in proportion to the horizon.
- CCD Centering: Moves the **CCD Mounting Plate** and the **CBE Camera Board** horizontally left and right and thereby making the field of vision move horizontally left and right.



The camera itself can be tilted up and down which causes the field of vision to move up and down. The **Vertical Positioning Hexagonal Nut** is used for coarse adjustments and the **Tilt Levers** are used for finer adjustments. When you rotate the **Vertical Alignment Hexagonal Nut** counter-clockwise you raise the camera and the field of vision and vice versa.

To rotate the **Vertical Positioning Hexagonal Nut** use the adjustment tool which comes with the Camera B, the tool is shown mounted on the side of the camera in the graphic on the previous page.

- ⚠ **WARNING!** When using the **Vertical Positioning Hexagonal Nut**, loosen the **Lock Screw** first, so that the **Vertical Alignment Arm** doesn't move simultaneously. You will normally not adjust directly on the **Vertical Alignment Screw**, but instead via an extension and through a hole in the scanner front.

Adjusting the Camera manually

This chapter explains how to adjust Camera A manually using oscilloscope software which comes with the scanner. In this procedure we focus on Camera A, but the procedure is exactly the same for the other cameras.

It is important that you use this procedure (Test 9) to adjust the camera manually, and **not** the Camera Adjustment Wizard (Test 27).

Light Profile

- 📖 **NOTE:** Make sure that the left and right covers are installed and the top cover is removed. The scanner and the touch screen must be switched ON.
- ⚠ **WARNING!** When you install a camera in the scanner for the first time, the camera is completely out of adjustment. If you get an Error 30 from SCANtest when setting the Light Profile to **Corrected**, start with **Uncorrected** and follow steps 3 and 4 as well as you can and then start over with the **Corrected Light Profile** again.

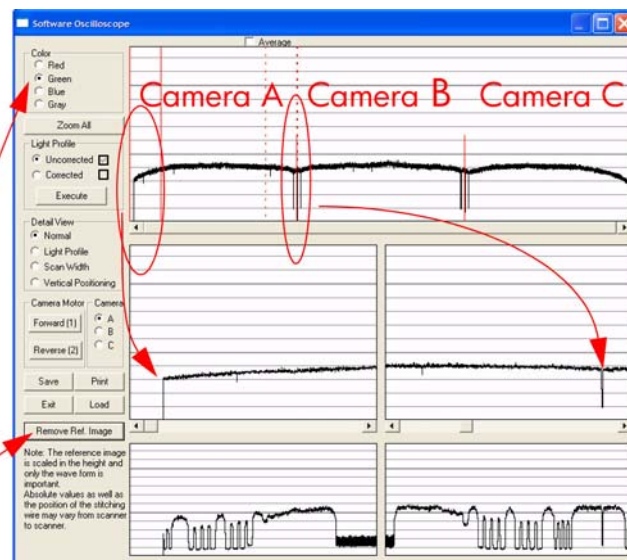
The first thing to be done before adjusting the camera that has been replaced is to ensure that the camera is at least looking in the right direction.

1. Make sure that camera is completely installed and all cables are correctly connected.
2. Select button **9. Camera Adjustment** in SCANtest 6.
3. A software oscilloscope is now activated and looks something like this:

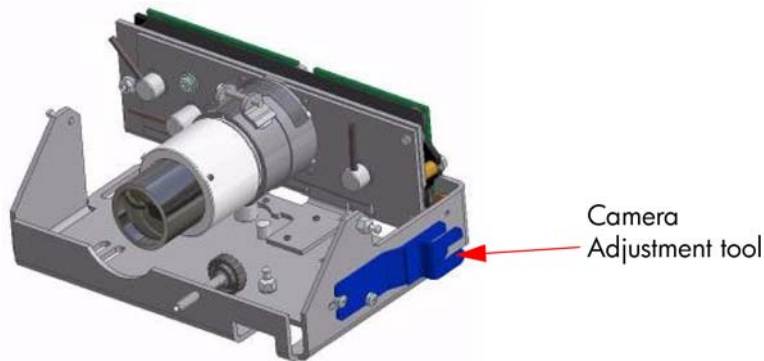
When the uncorrected light profile is selected, verify that the Green color channel is selected. You adjust the scan width, tilt, and height in uncorrected mode.

Select the Reference Image button in order to view the Reference Image section

Reference Image



4. You see the uncorrected light profile, for Cameras A, B and C that the scanner receives from the reflection of the White Background on the back of the Guide Plate. Camera A is on the left, Camera B is in the middle and Camera C is on the right. You can zoom in with the buttons on the touch screen. You can see that the output is lower at the edges. This is because of the lens in the camera. If you get a screen that looks distorted in comparison with the above image, then maybe your camera is looking into the chassis instead of the mirrors in the copier. To correct this, use the tool to rotate the Vertical Alignment Screw located underneath the camera, rotate the screw left or right until you get an oscilloscope image similar to the one shown.

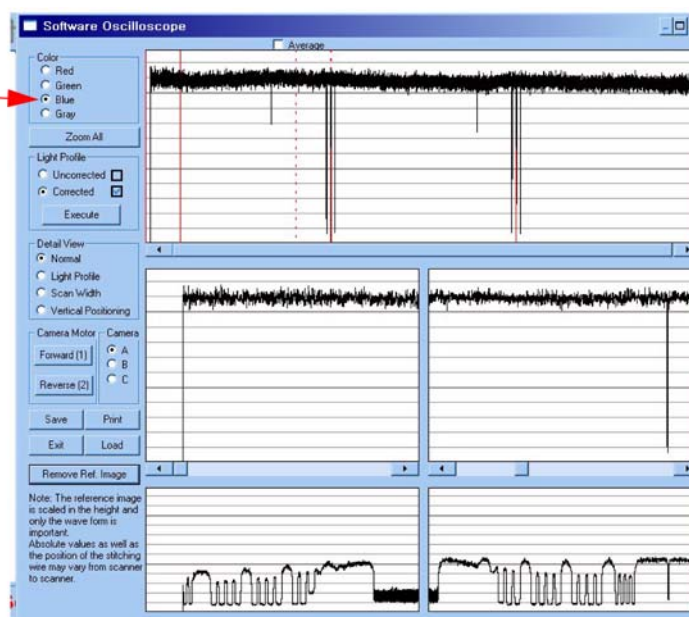


Focus Adjustment

The first adjustment that you need to make is the focus. This adjustment ensures, that the camera has the right focus, so that the following adjustments aren't blurred out. The focus setting is not as sensitive as some of the other adjustments, which makes it a good example to start with. When you are finished with all the adjustments, you should check the focus again just to be sure that it's still OK.

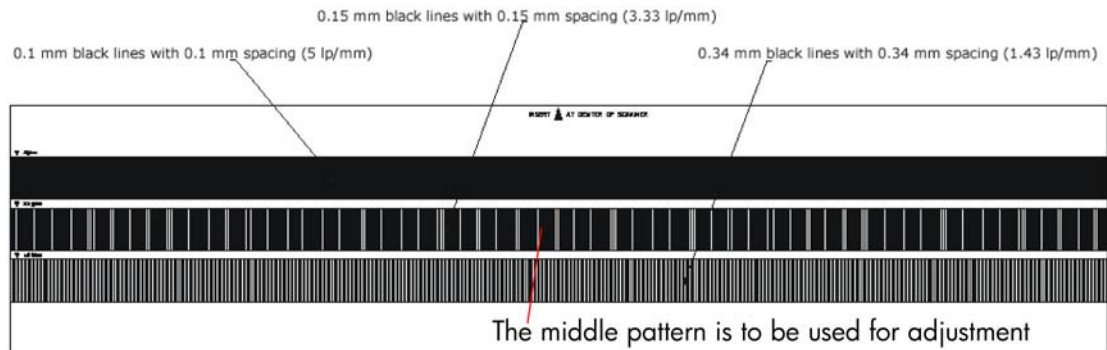
1. Stay in the Software Oscilloscope and select **Corrected** and then press the **Execute** button. Only adjust the focus in the corrected mode. Make sure that the Blue color channel is selected.
2. Wait approximately 90 seconds until SCANtest 6 is ready.

Make sure that the Blue color channel is selected.



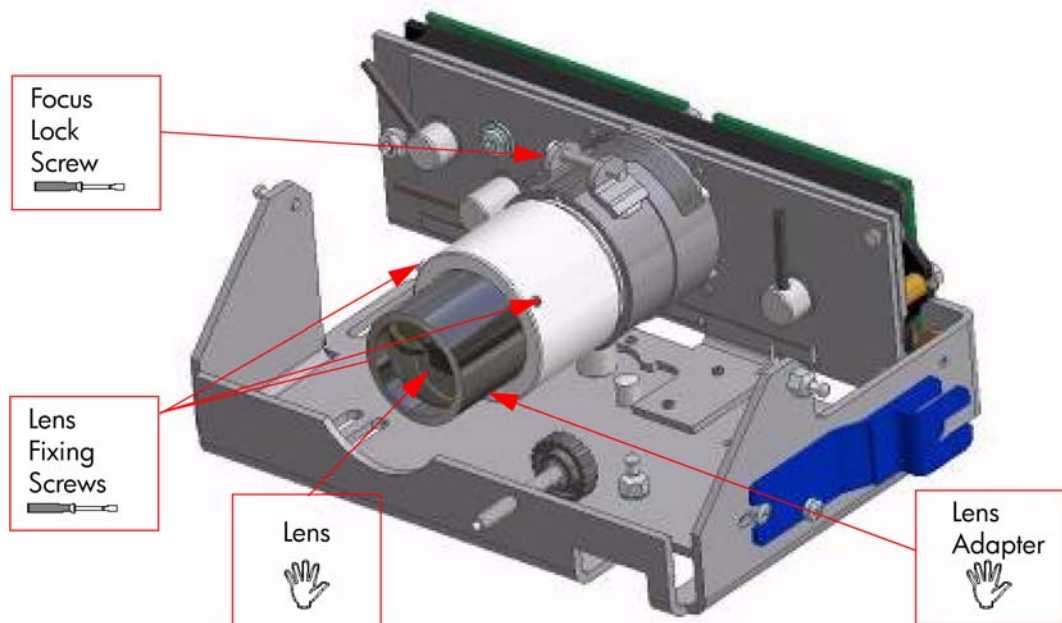
3. Insert the Focus Pattern in the scanner.

👍 It's best to insert the sheet from the back of the copier and use the Reverse Key to position the pattern correctly. This way the sheet won't cover the cameras when you adjust them. It requires a little practice but makes the focus adjustment a lot easier.



Use the operation panel keys to move the sheet so that the cameras see the 3.33 lp/mm pattern.

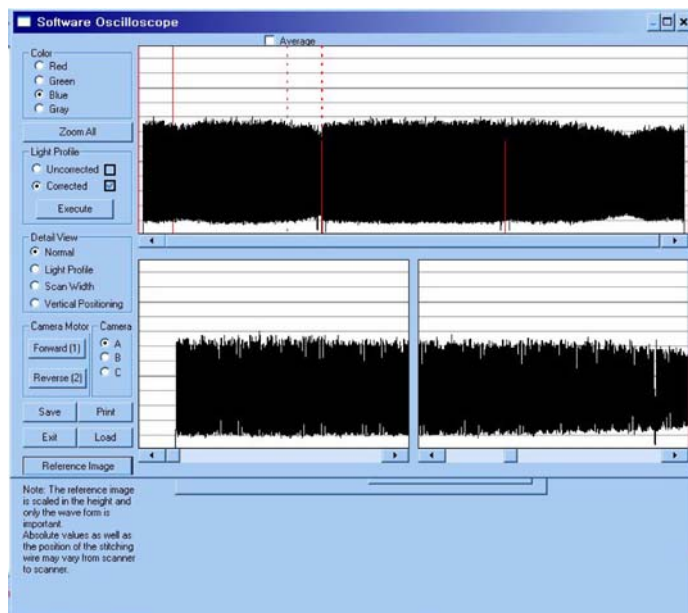
4. Loosen the **Focus Lock Screw** and turn the **Lens Adapter** to adjust the focus.



👍 The Focus adjustment greatly influences the Scan-Width. Therefore, the Scan-Width must be checked and readjusted whenever the Focus adjustment has been changed.

The Focus adjustment, however, is relatively tolerant to Scan-Width adjustments. After adjusting the Scan-Width, check the Focus adjustment again; it will only need further adjusting if the Scan-Width has change greatly. However, you should check both the Focus and the Scan-Width after an adjustment to either to ensure that they are both correctly adjusted.

Loosen the **Focus Lock Screw** and ensure that it is not too loose. Turn the **Lens Adapter** until you get this picture on the software oscilloscope (Camera A has been zoomed in):



The signal has to be as even as possible and especially the ends have to be at their highest possible level.

When the focus is right, tighten the **Focus Lock Screw**.

NOTE: Keep in mind that if you adjusted the Focus, the Scan-Width has changed and must be adjusted.

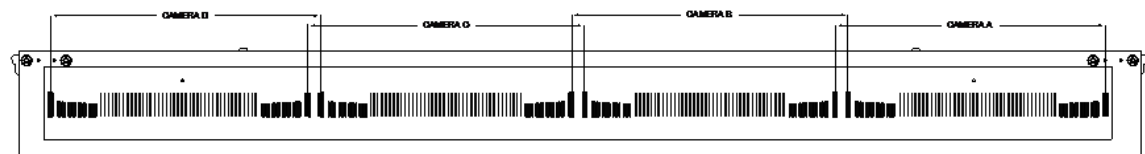
There is a mark on every lens, which indicates its “best position”. If you have completed the focus adjustments and this mark isn’t pointing upwards, mark the upward position on the **Lens Adapter**. Turn the **Lens Adapter** and loosen the **Focus Lock Screw** and the three **Lens Fixing Screws** (with a 1,5 mm Allen key). Then turn the Lens so that the mark is pointing upwards, tighten the **Lens Fixing Screws** again. Turn the **Lens Adapter** back again and check that the focus is still correct before tightening the **Focus Lock Screw**.

Scan-Width Units

When adjusting the Scan Width, you adjust up against some line on an **Optical Adjustment Pattern**.



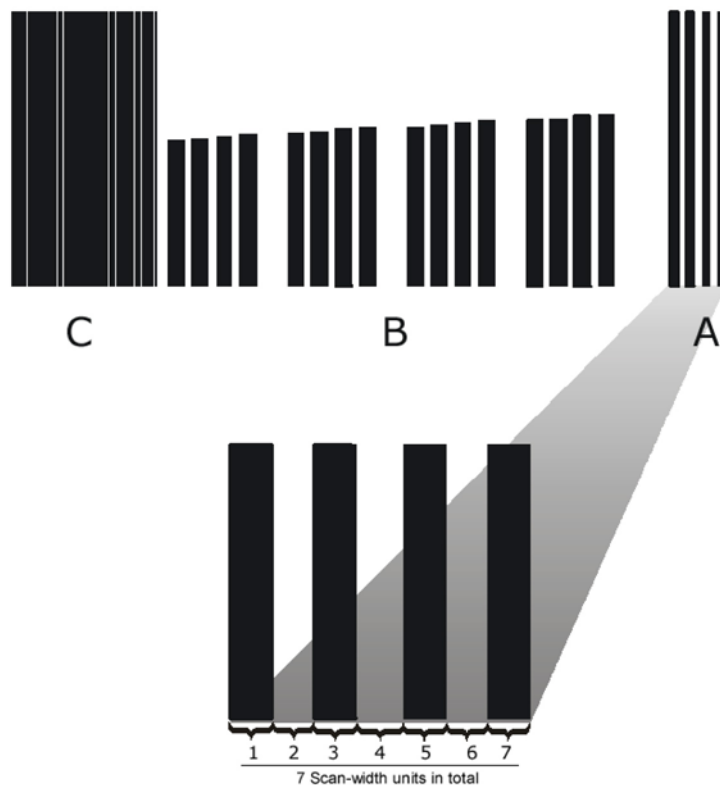
For the four cameras of the HD and T1200 scanners, the pattern includes four identical sections:



The Optical Adjustment Pattern is a metal construction with a pattern glued on one side. This pattern contains three sub-patterns: A, B and C.

- Sub-pattern A contains a pattern used for Scan-Width adjustment.
- Sub-pattern B contains a pattern used for Vertical Position adjustment.

- Sub-pattern C contains a pattern used for coarse Focus adjustment.



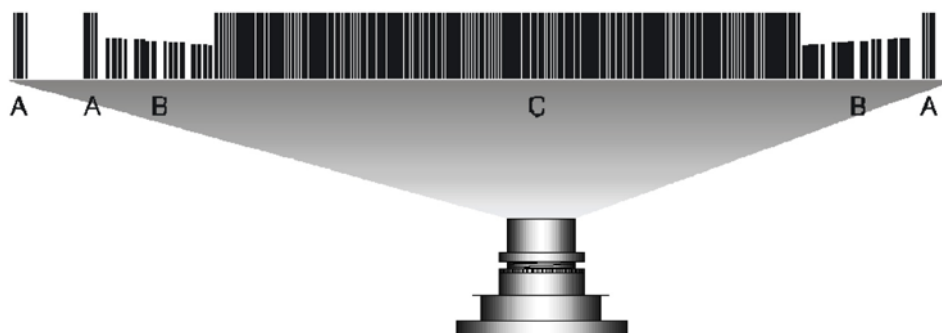
The **A** part of the pattern consists of scan-width units (SWU).

Each of the black lines represents a scan-width unit (SWU) as does the white space in between the lines. This makes a total of seven SWU's.

The black lines and whites spaces work like a marker or indicator that tells you how wide the camera scan-width is.

The scan-width units help you adjust the cameras, so that they have the correct scan-width. This ensures that the scanner has the correct optical resolution. Thereby ensuring that the scaling factor of the scanner is correct.

Camera A has three **A** patterns in its view:



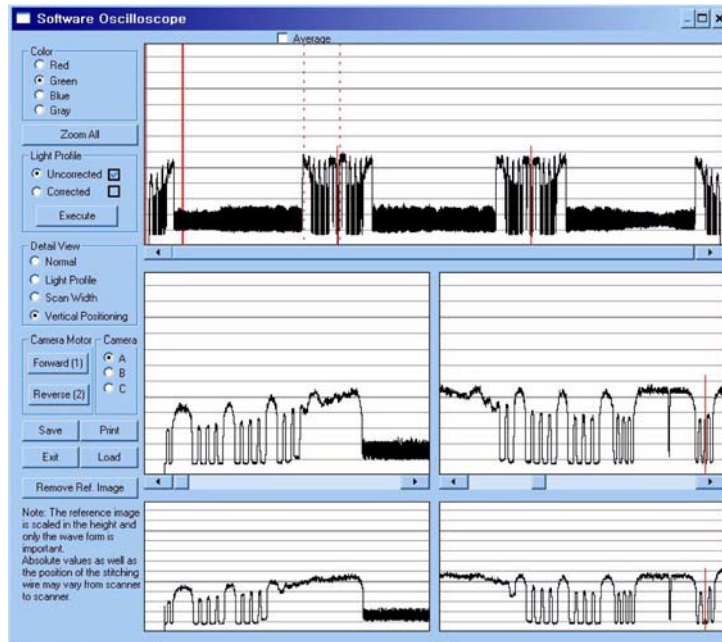
To ensure that the camera has the correct optical resolution, you are going to adjust the camera, so that it covers six scan-width units. This means that the camera has to see a total of six units at the ends of the view field. This can be two on the left and four on the right or five on the left or one on the right. The unit arrangement is not important as long as there are six in total.

Later on you will center the camera, so that there will be three units at each end.

Scan-Width Adjustment

The purpose of Scan-Width adjustment is to position the camera so the field of vision is correct.

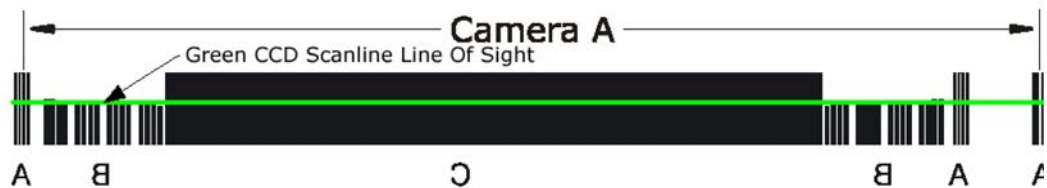
1. Open the Guide Plate and place the Optical Pattern on the scanner. Align the pattern by pressing it to the right towards the operator panel and backwards toward the back of the scanner.
2. If not selected, select button **9** in SCANTest 6. Select **Uncorrected** Light Profile and press **Execute** (make sure that the Green Channel is selected).



3. This is what **Camera A** is going to see, when the scan-width adjustment is finished:



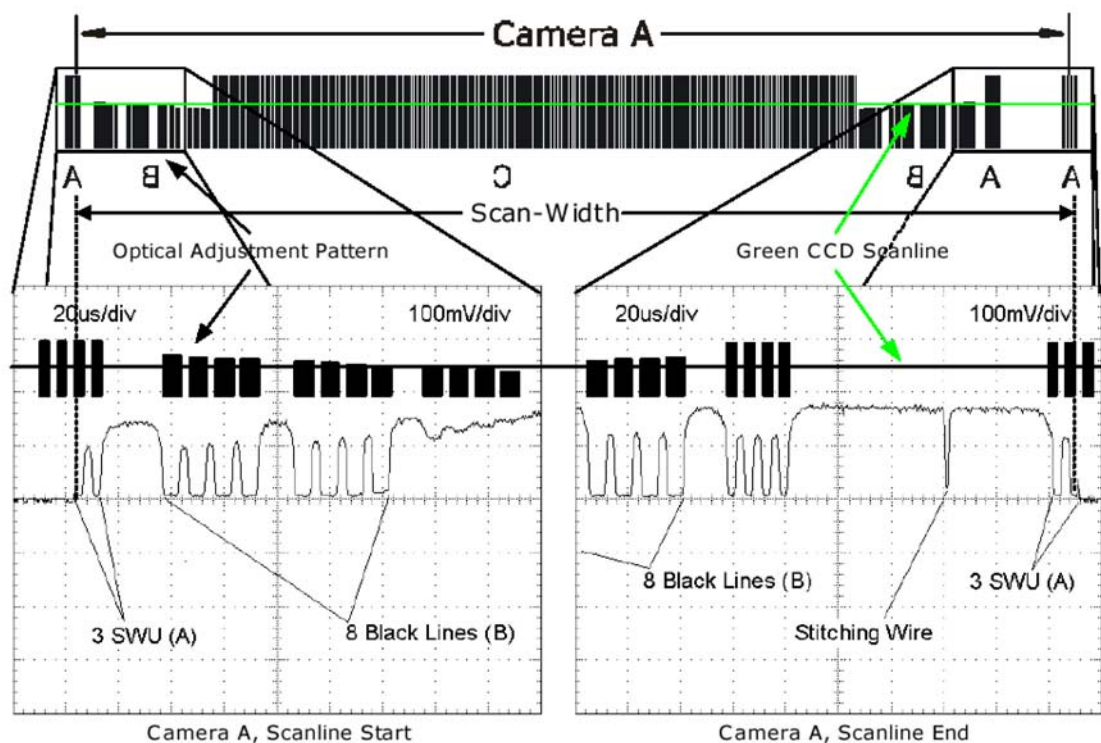
Camera A scans from right to left, so the image above is a mirrored section of the total **Scan-Width pattern** as the copier actually sees it. The camera only sees a single line of pixels with the green CCD pixel line that we enabled under step 2. The goal is to adjust the camera so that the green pixel line of the CCD is positioned as the green line below:



When you have succeeded in getting this, most of the adjustments for **Camera A** are finished.

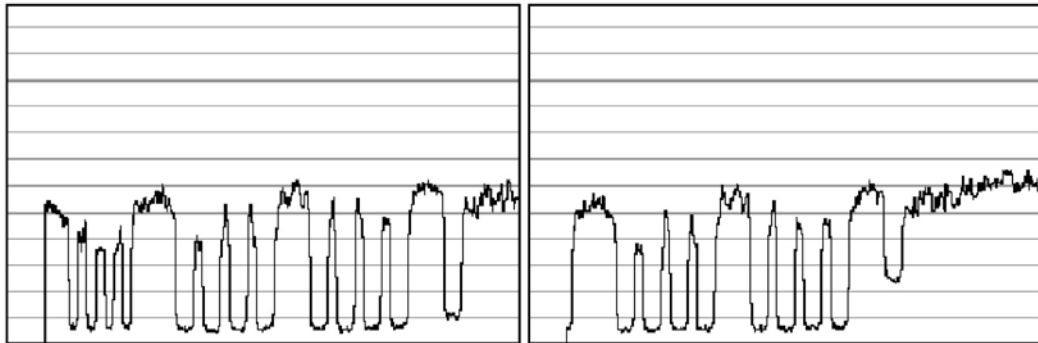
NOTE: If the scan width changes by more than one scan-width unit (SWU), you must check the focus.

But first we start by setting the Scan-Width of Camera A. You use the software oscilloscope to guide you, and this is what you are going to see:



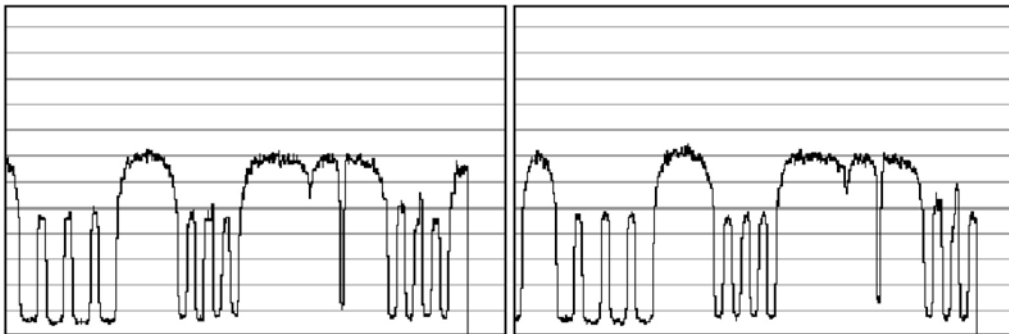
In the image you see a real oscilloscope image of the left- and the right most part of the **Camera A Scan-Width pattern**. Whenever the camera sees a black line, the output level goes down. It goes up when seeing white. When the **Green CCD Scanline** is in the correct position, each end of the camera output will have the appearance as shown.

4. Now press **Scan Width** under Detail View on the software and the program automatically zooms in on the left and right part (Scanline Start / End) of the output. On the left side you will get an output like one of these (or something in between):



The output we are aiming for can be seen below, therefore:

- The left output is too much to the left – if you have an output like this, you need to slide the CCD board to the right by turning the **CCD Centering** tab upwards.
 - The right output is too much to the right – if you have an output like this, you need to slide the CCD board to the left by turning the **CCD Centering** tab downwards.
5. When you have one, two or three scan-width units (SWU) on the left side of the camera, look at the right side of the camera.
6. On the right side (Scanline End) you will get output like one of the following:



Remember how many scan-width units you had on the left side and remember that there has to be six in total.

If you had three SWU's on the left side of the output you also have to have three on the right and the output we are aiming at is as shown below. Therefore:

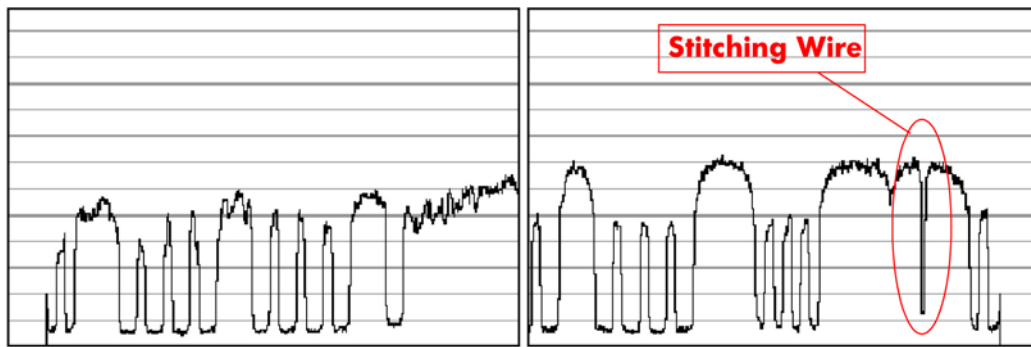
- On the left picture above the Scan-Width is too wide – if you have an output like this, you need to move the camera forward to decrease the Scan-Width.
- On the right picture above the Scan-Width is too narrow - if you have an output like this, you need to move the camera backward to increase the Scan-Width.



Look for the **Stitching Wire**. There's only one of these on the right side of the camera. If you don't see the Stitching Wire, then the camera has to be pulled back quite a lot because the scan-width is too narrow.

7. Repeat steps 4 to 6 until the camera sees a total of six SWU's.

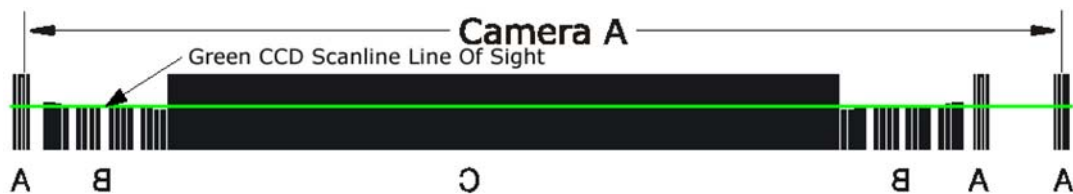
8. When you have six SWU's in total, use the **CCD-Centering** lever to adjust the camera so that there is three SWU's on each side of the camera as shown below:



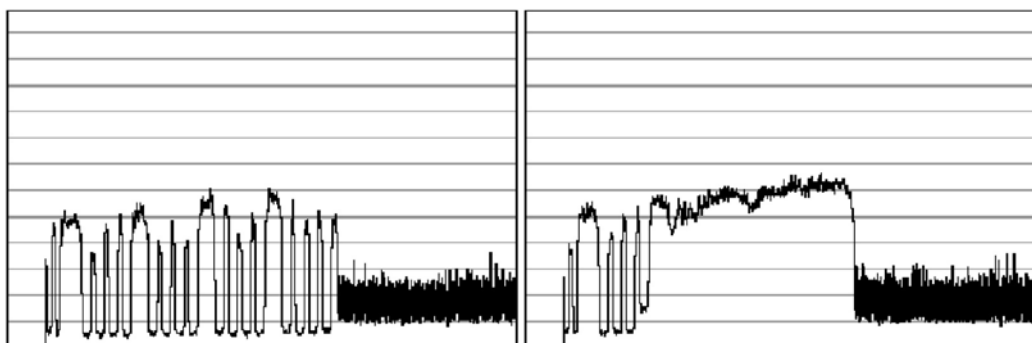
9. Check the focus again because large changes to the Scan-Width adjustment also affects the focus.
10. If the focus needed adjusting, start over with the Scan-Width from step 4, because a slight change in the focus will affect the Scan-width considerably.
11. When you are finished, and both the focus and the Scan-Width are correct, tighten the three **Camera Fixing Screws** without moving the camera.
12. Proceed to the Vertical Positioning section without altering anything about your set-up.

Vertical Positioning

The purpose of the vertical positioning is to adjust the camera, so the **Green CCD Scanline** looks at the correct vertical position on the **Optical Adjustment Pattern** as seen on the picture below. Furthermore it ensures that the Scanline is horizontal.

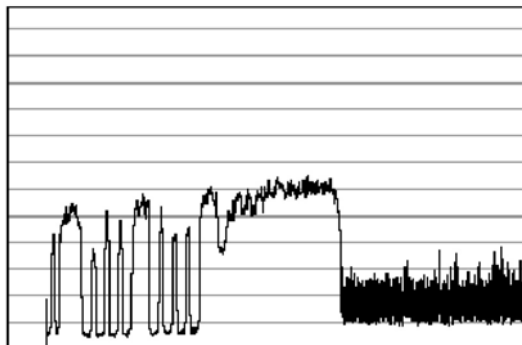


1. SCANtest 6 should still show **Uncorrected Light Profile, Green**. If not, change it to those settings.
2. Loosen the **Camera Back-Plate Fixing Screws** if they are not already loose.
3. Select **Vertical Positioning** under **Detail View** and look at the left part (Scanline Start) of the camera output. You will get an image similar to one of these (or even less lines than shown on the right image):

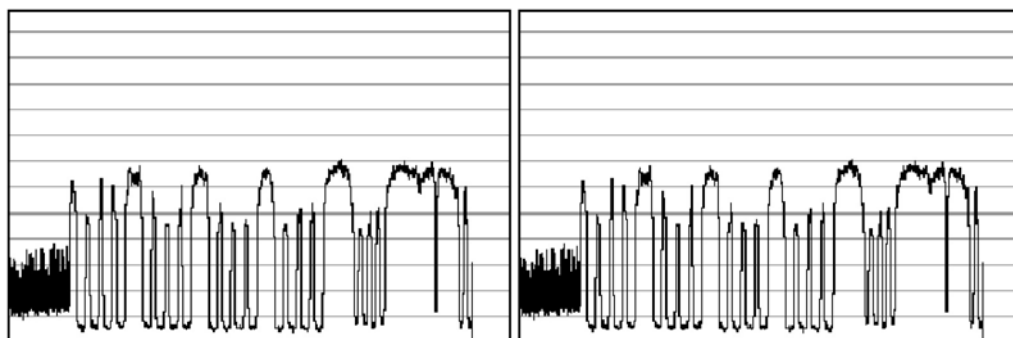


The output we are aiming for can be seen below, therefore:

- On the left image the vertical position is too low – if you have an output like this, you need to lower the left side of camera with the left **Vertical Tilt** lever, by turning to the left.
- On the right image the vertical position is too high - if you have an output like this, you need to raise the left side of camera with the left **Vertical Tilt** lever, by turning it to the right.



4. When you have adjusted the Vertical Tilt so that the output displays eight black lines (your output does not have to be identical to the above picture or the Reference Image, just close) on the left side of the camera, look at the right side of the camera.
5. On the right side (Scanline End) you will get an output similar to one of these:



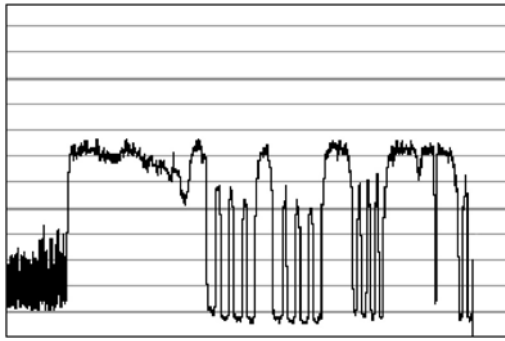
The **Vertical Tilt** lever can't be moved very far before it loses its grip. If this happens while you are adjusting the camera, move the **Vertical Tilt** levers back to the middle position and use the **Vertical Position Pre-Set Screw** to make a coarse adjustment. Then fine tune again with the **Vertical Tilt** lever.

- ⚠ **WARNING!** When adjusting the Vertical Position, you continuously have to readjust the CCD Centering (3 scan-width units) with the **CCD Centering** lever, because the **Vertical Tilt** lever moves the camera a little in the horizontal direction.

The output we are aiming for can be seen below, therefore:

- On the left image the vertical position is too low – if you have an output like this, you need lower the right side of camera with the right **Vertical Tilt** lever, by turning downwards.

- On the right image the vertical position is too high - if you have an output like this, you need raise the right side of camera with the right **Vertical Tilt** lever, by turning it upwards.



When you have adjusted the Vertical Tilt so that the output displays eight black lines and four smaller lines (it doesn't have to be precise, just close to the above picture) on the right side of the camera, look at the left side again to check that it's still okay (it's probably not). It very likely that you have to go back and forth between left and right a couple of times until both sides are adjusted the right way. That is because adjusting one side affects the other side a little.

6. Check that the CCD Centering is OK. That is that you still have three SWU's on each side of the Camera. If you don't then adjust it with the **CCD Centering Lever**.
7. Tighten the **Camera Back-Plate Fixing Screws** gently to prevent the camera from moving out of adjustment.
8. Once the cameras are adjusted, you will need to adjust the whole scanner to fine-tune it by performing the Scanner Maintenance (see [Scanner Maintenance on page 192](#)).


Adjusting the Camera Using the Camera Wizard

Preparing the Scanner

Before you start make sure that you have the following items, which are necessary to complete the Camera Adjustment:

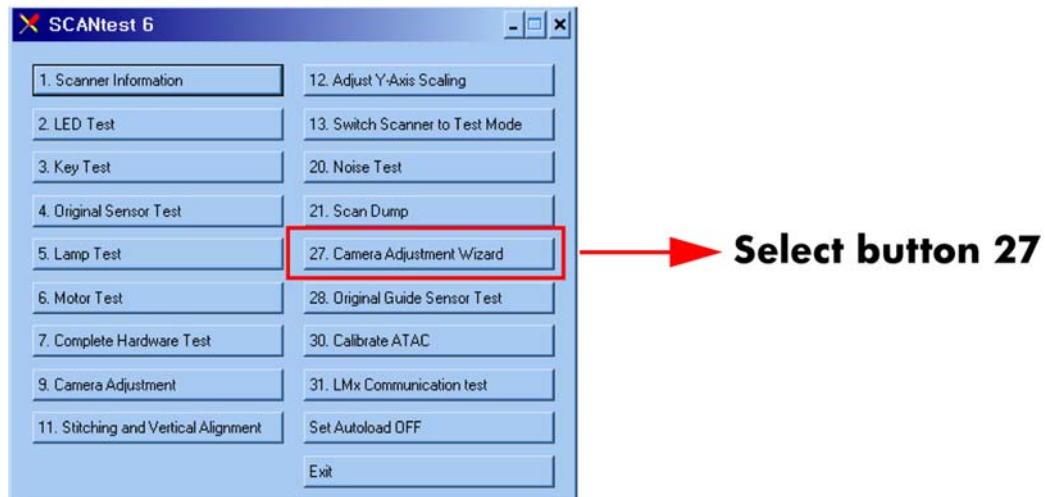
- The SCANtest6 program is installed in the touch screen (programs - Scanner Test Program - Scantest 6)
- Focus Adjustment Pattern sheet (included in the Service Patterns)
- Optical Adjustment Pattern for 3 or 4 cameras as appropriate

Make sure that the scanner you are adjusting is fully functional. If the scanner is not operational, you will not be able to adjust the camera.

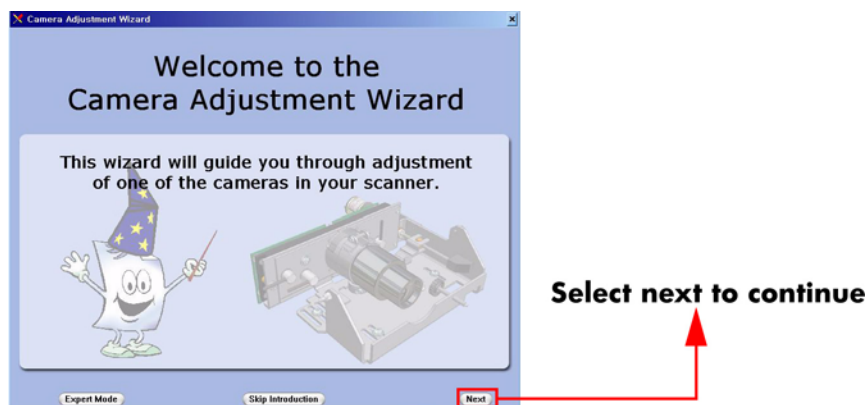
 **NOTE:** Make sure that the left and right covers are installed and the top cover is removed. The scanner and the touch screen must be switched ON.

1. Make sure that the cameras are all installed correctly and all cables are connected.

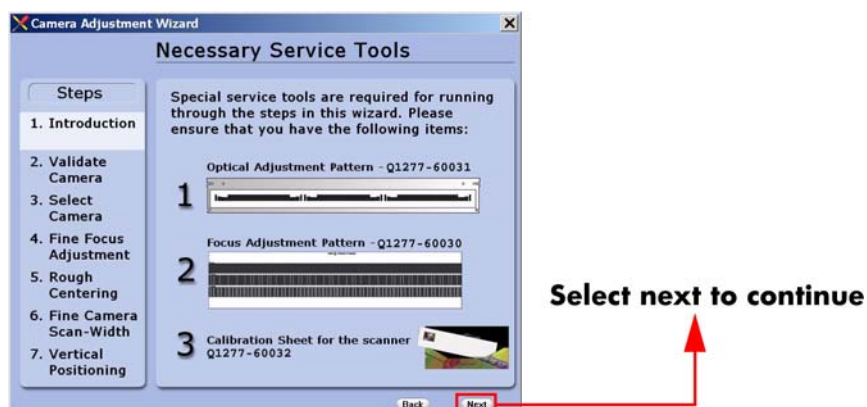
2. Start SCANtest 6 and select: **27. Camera Adjustment Wizard**.



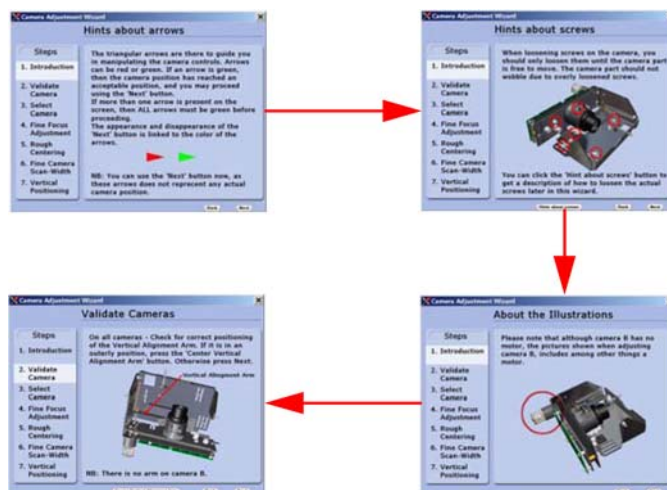
3. The Camera Adjustment Wizard will start with the welcome screen. Select **Next** to continue.



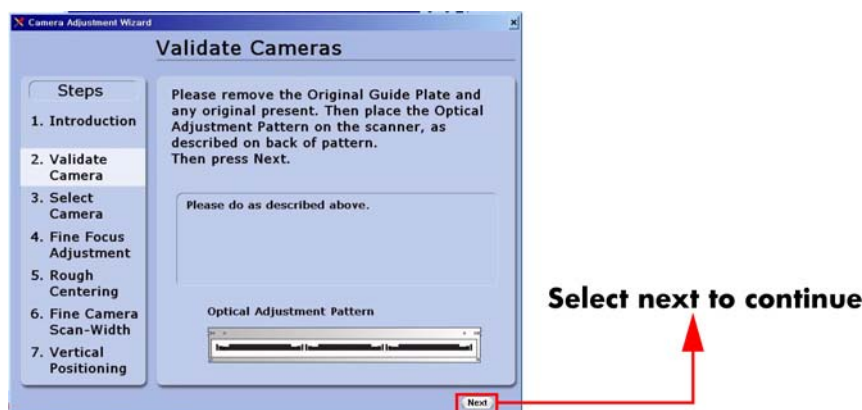
4. The screen will display the list of Service Tools necessary to complete the Camera Adjustment correctly. Select **Next** to continue.



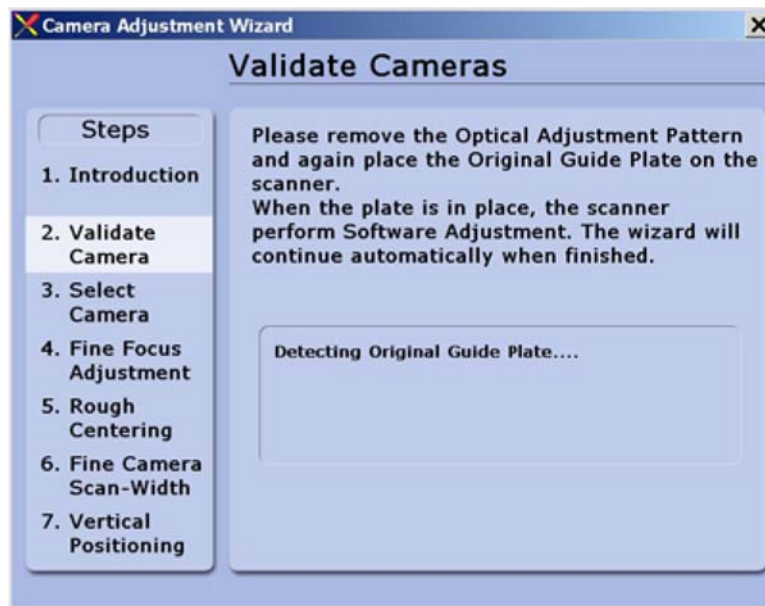
5. The next four screens contain information on how to perform the camera Adjustment correctly. Select **Next** after reading each screen.



6. In order to validate the current state of the cameras you will need to open the Guide Plate and place the Optical Adjustment Pattern on the Scanner. Align the pattern by pressing it to the right towards the Operator Panel and backwards towards the back of the scanner. Once the cameras have been validated, select **Next** to continue.



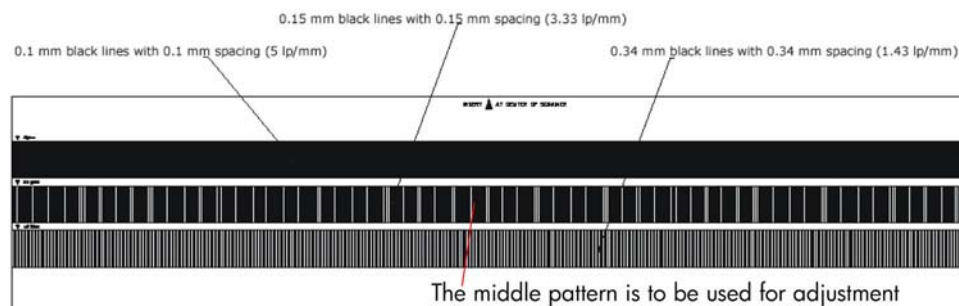
7. The Scanner will now perform some internal adjustments. In order to do this you will need to remove the Optical Adjustment Pattern and close the Guide Plate.



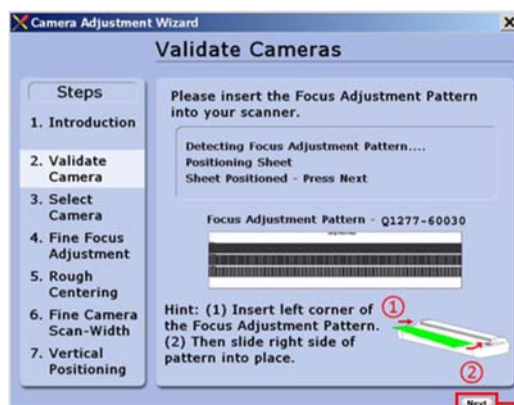
8. Once the internal adjustment has been done, you will need to insert the Focus Adjustment Pattern in the Scanner.



It's best to insert the left corner of the Focus Adjustment Pattern first and then slide the right side of the pattern in to place.

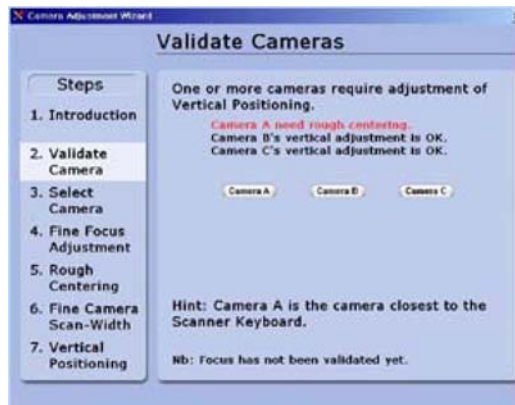


9. Once the Scanner detects that the Focus Adjustment Pattern is correctly positioned you will be able to select **Next** to continue.

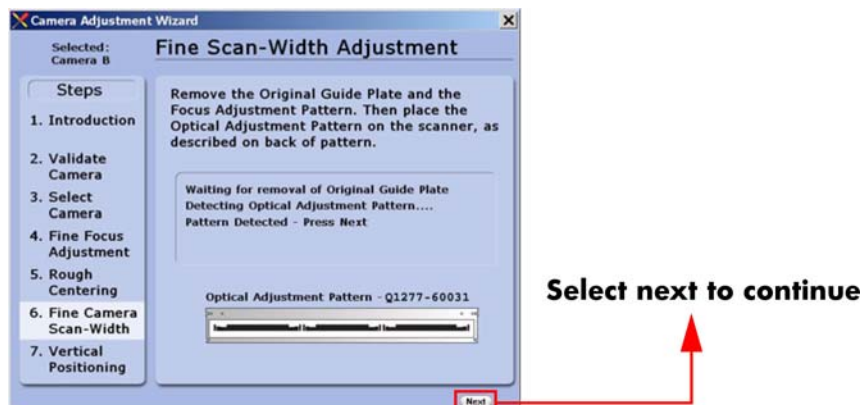


Select next to continue
(when it appears)

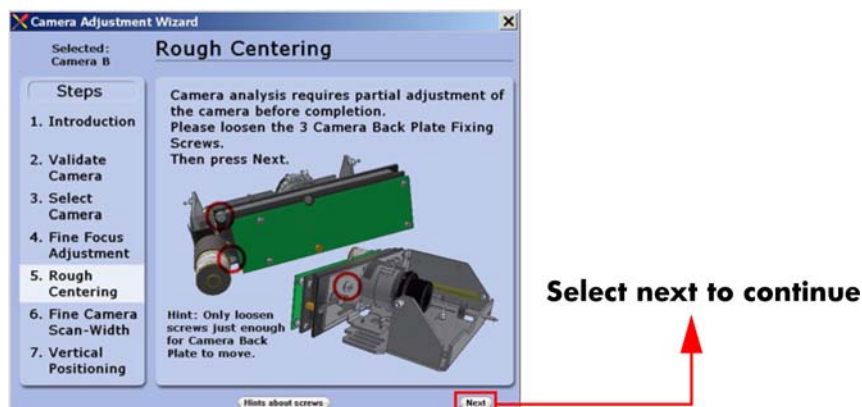
10. Select the camera that you need to adjust. Camera A is the one closer to the front panel.



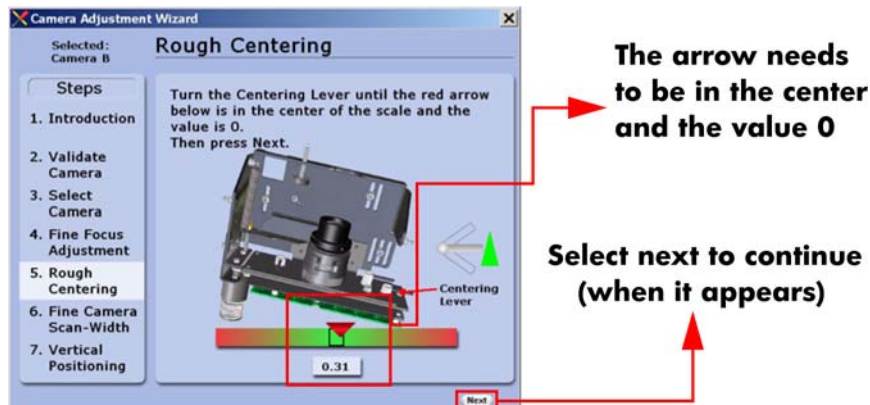
11. Remove the Focus Adjustment Pattern and place the Optical Adjustment Pattern on the Scanner. Align the pattern by pressing it to the right and backwards towards the back of the scanner. Once the pattern has been detected, select **Next** to continue.



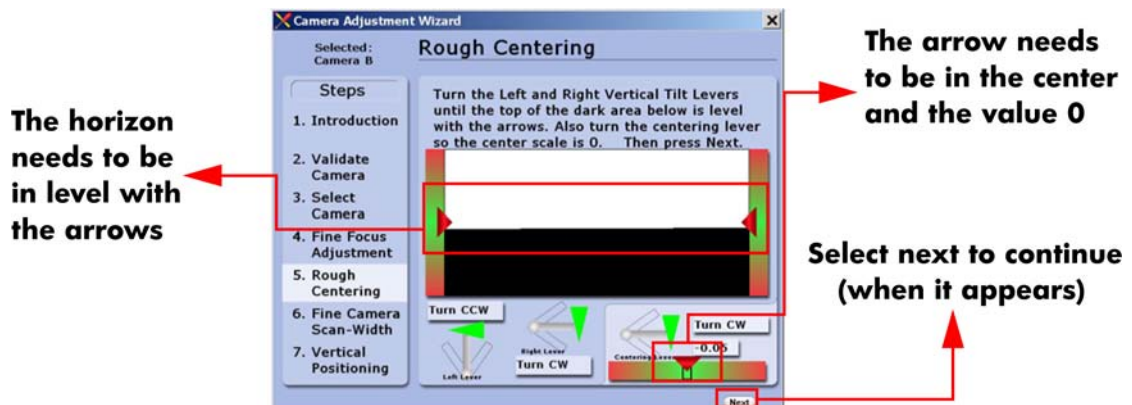
12. In this example, the camera requires partial adjustment before completion. Loosen the **3 Camera Back-Plate Fixing Screws** and then select **Next**.



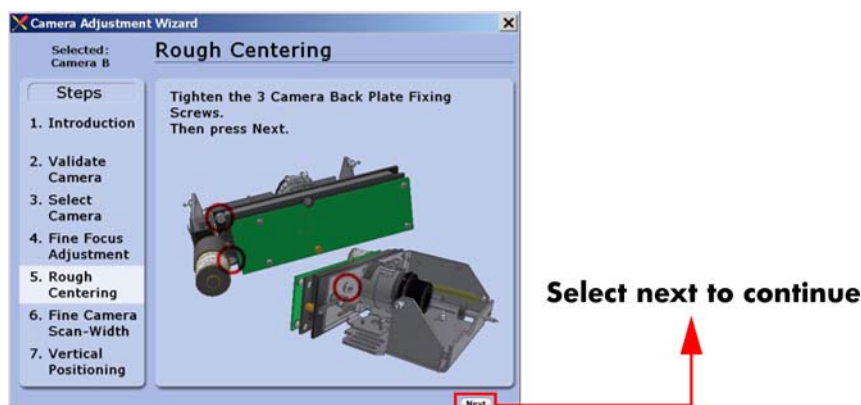
13. Turn the **Centering Lever** until the arrow on the screen is in the center of the scale and the value is 0 (or as close as possible). Once the value is within tolerance, you will be able to select **Next** to continue.



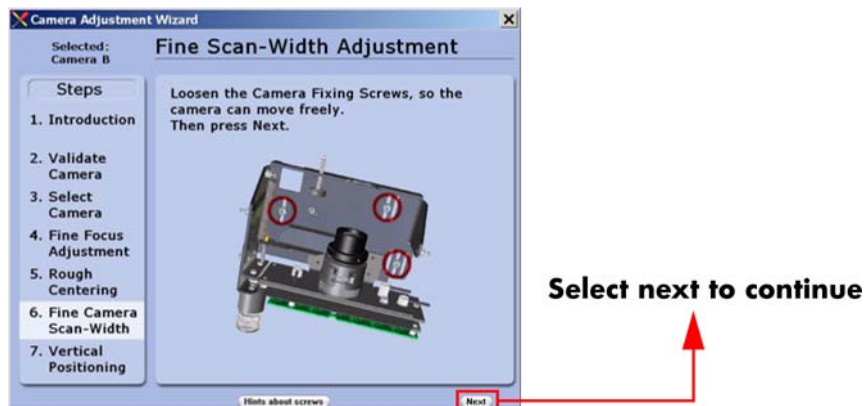
14. Turn the **Left and Right Vertical Tilt Levers** until the horizon is level with the arrows. Also turn the Centering Lever so the center scale is 0 (or as close as possible). Once the value is within tolerance and the horizon is level with the arrows, you will be able to select **Next** to continue.



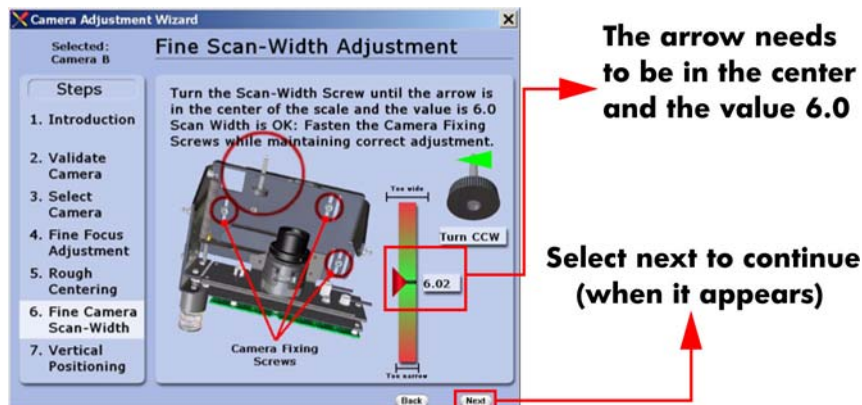
15. Tighten the **3 Camera Back-Plate Fixing Screws** and then select **Next**.



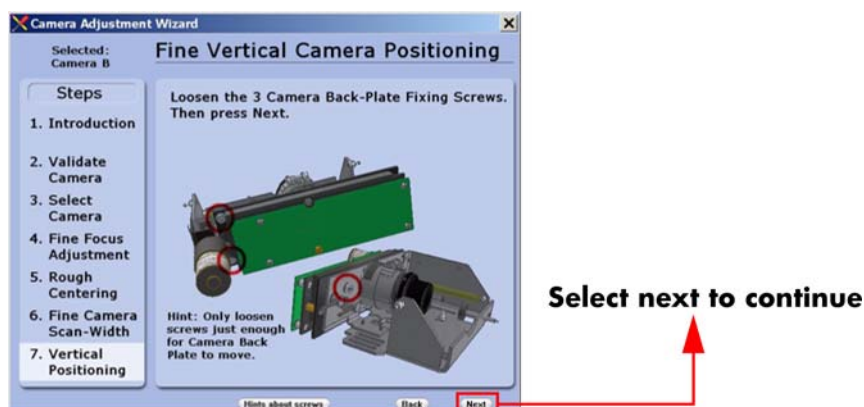
16. Loosen the **Camera Fixing Screws** slightly so that the camera housing can be moved. Select **Next** to continue.



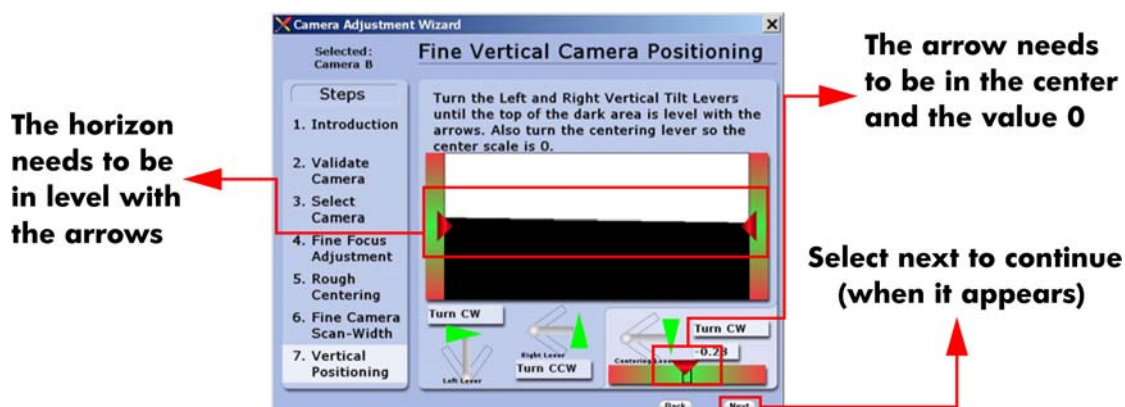
17. Turn the **Scan-Width Screw** until the arrow on the screen is in the center of the scale and the value is 6.0. Once the value is 6.0 (or as close as possible), tighten the **Camera Fixing Screws** while maintaining the correct adjustment. Once the screws are tightened, select **Next** to continue.



18. Loosen the **Camera Back-Plate Fixing Screws** slightly so that the camera housing can be moved. Select **Next** to continue.



19. Turn the **Left and Right Vertical Tilt Levers** until the horizon is in level with the arrows. Also turn the Centering Lever so the center scale is 0. Once the value is 0 (or as close as possible) and the horizon is level with the arrows, you will be able to select **Next** to continue.



20. Tighten the **Camera Back-Plate Fixing Screws** gently to prevent the camera from moving out of adjustment. The Camera Adjustment has now been completed.



21. Perform the Scanner Maintenance to ensure that Color Calibration, Stitching and Vertical Alignment are correct.

Scanner Maintenance

Once the cameras are adjusted, you will need to adjust the whole scanner to fine-tune it by performing the Scanner Maintenance. Scanner Maintenance does the following three things **automatically**:

1. Runs Vertical Alignment, which adjusts the vertical position of the Cameras.
2. Adjusts the Stitching, which controls the overlap between the Cameras.
3. Color Calibrates the Scanner to get optimal colors and gray tones.

Performing Scanner Maintenance

For this part of the adjustments you will need the following item:

- Scanner Maintenance Calibration Sheet 42" (included in the Service Patterns).
1. Start by removing the **Optical Adjustment Pattern**, cleaning the scanning area, and then closing the Guide Plate.
 2. Exit the Camera Adjustment Wizard and exit SCANtest 6.

3. Wait for the Scanner to reboot and then start Scanner Maintenance when only the green lamp is lit up on the scanner keyboard.

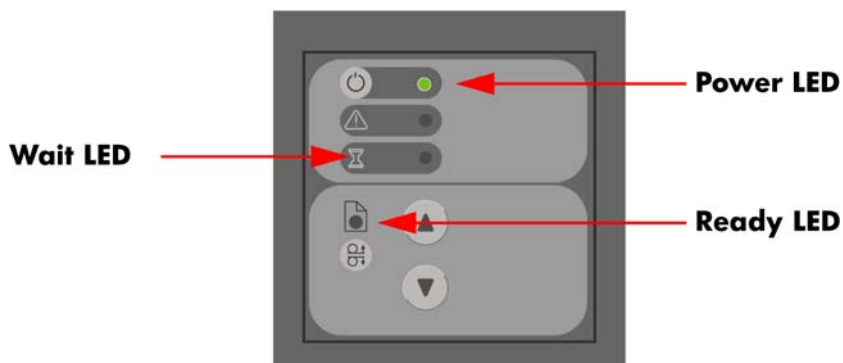


4. Insert the Scanner Maintenance Calibration sheet and press **Next** two times.
5. Wait for Scanner Maintenance to finish. It takes about 20 minutes.
6. Remember to put the calibration sheets back into the original packing, so that they last longer.

ATAC Position Sensors check


This procedure is to check the sensors in the Original Guide come on when the media sensors are activated.

1. Start SCANtest 6 and select **Test 28, Original Guide Sensor Test**.
2. If the guide plate is in the lowered position, press the **UP** Key on the scanner front panel to move the Guide Plate to the Top Position and observe that:
 - Ready LED is OFF
 - Wait LED is OFF
 - The Power LED turns green (Top Position Sensor activated)

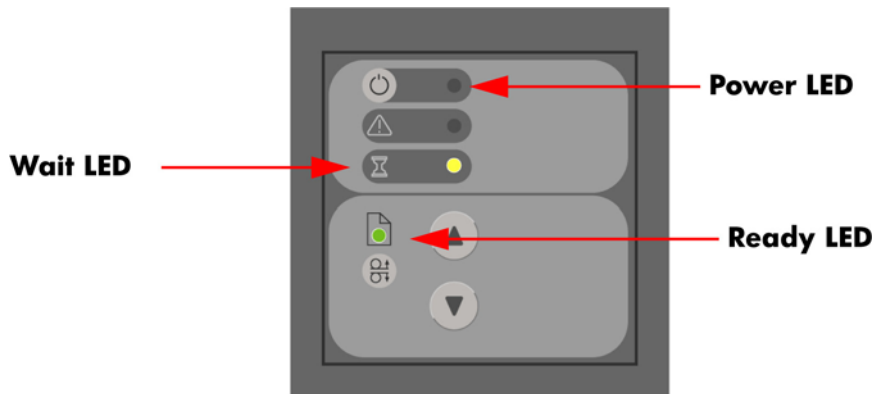


3. Move the Guide Plate down by pressing the **Down** Key on the scanner front panel and observe the LEDs in following sequence:

- Power LED turns OFF
- Wait LED turns yellow (Down Position Sensor activated)

 **NOTE:** The Down Position Sensor cannot be adjusted.

- Ready LED turns green (Roller sensor activated)

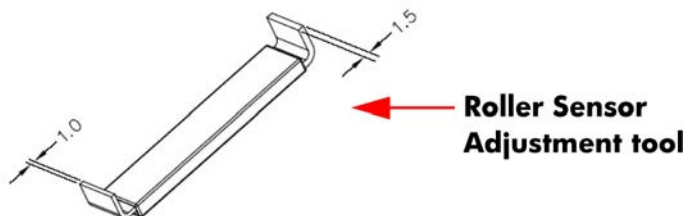


Original Guide Sensor Test

This is to test the sensors which are located inside the Guide Plate.

Adjustment of the Roller Sensor

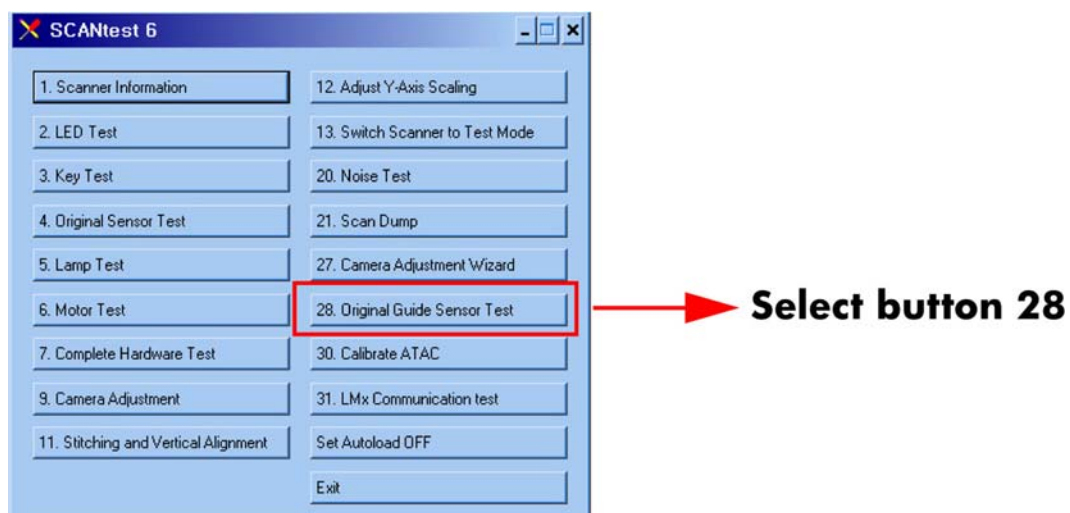
To perform this adjustment you will need the two Roller Sensor Adjustment tools.



1. Perform the following:

- Remove ruler from the front of the Guide Plate.
- Open the Top Profile on the Guide Plate ➡ See [Top Profile on page 81](#).

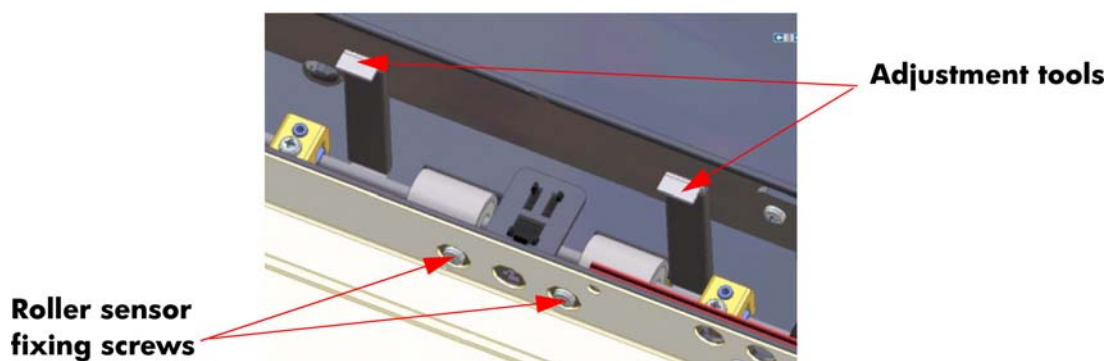
2. Start SCANtest 6 and select **Test 28. Original Guide Sensor Test**.



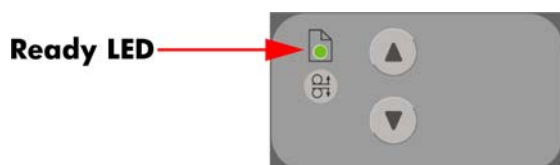
3. Press the **UP** Key on the front panel of the Scanner to move the Guide Plate up until the Ready LED turns OFF.



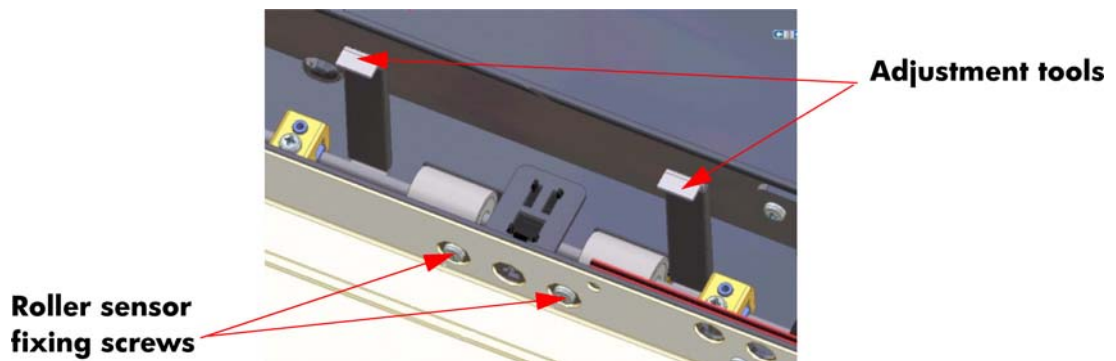
4. Loosen the two screws that secure the Roller Sensor.
5. Using the 1.5 mm end of each of the two Adjustment Tools, insert them on both sides of the Roller Sensor under the roller shaft.



6. Adjust the position of the Roller Sensor so that the green Ready LED just about turns ON.



7. Using the 1 mm end of each of the two Adjustment Tools, insert them on both sides of the Roller Sensor under the roller shaft.



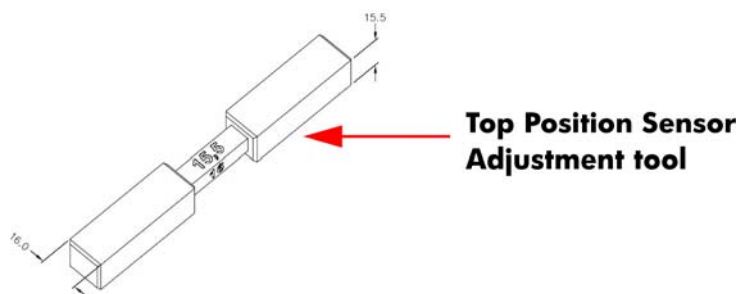
8. Check that the green Ready LED is OFF.



9. Tighten the two screws that secure the Roller Sensor.

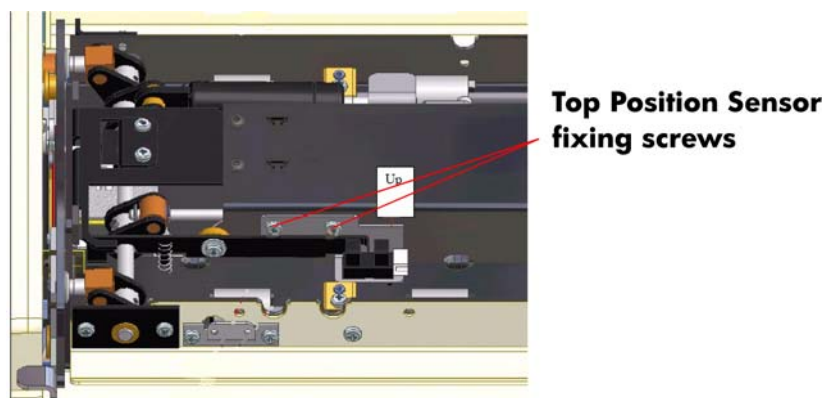
Adjustment of Top Position Sensor

To perform this adjustment you will need the adjustment tool for the Top Position Sensor:



1. Perform the following:
 - Remove the ruler from the front of the Guide Plate.
 - Open the Top Profile on the Guide Plate ⇒ See [Top Profile on page 81](#).
2. Close and lock the Guide Plate.
3. Start SCANtest 6 and select **Test 28. Original Guide Sensor Test**.

4. Loosen the four screws that secure the sensor bracket, move the sensor to its uppermost position and tighten the four screws.



5. Press the **UP** Key to move the Guide Plate to the highest position.



6. Open the Guide Plate.
7. Orientate the two adjustment guides for 16 mm spacing and insert the guides under the Guide Plate at both ends of the scan area.
8. Place the two adjustment guides so that the surface marked "16" is facing the White Background. To avoid possible damage to the White Background, place the cut-out centered over the light aperture of the glass plate.
9. Close the Guide Plate and make sure that both Release Handles are locked.
10. Press the **Down** key to move the Guide Plate down until it automatically stops against the adjustment guides.



If the **Down** key is pressed after the Guide Plate has stopped, the MDA Board turns OFF and you need to power the scanner ON again.

11. Loosen two screws that secure the Top Position sensor.
12. Adjust the Top Position sensor so that the green Power LED just about turns ON.



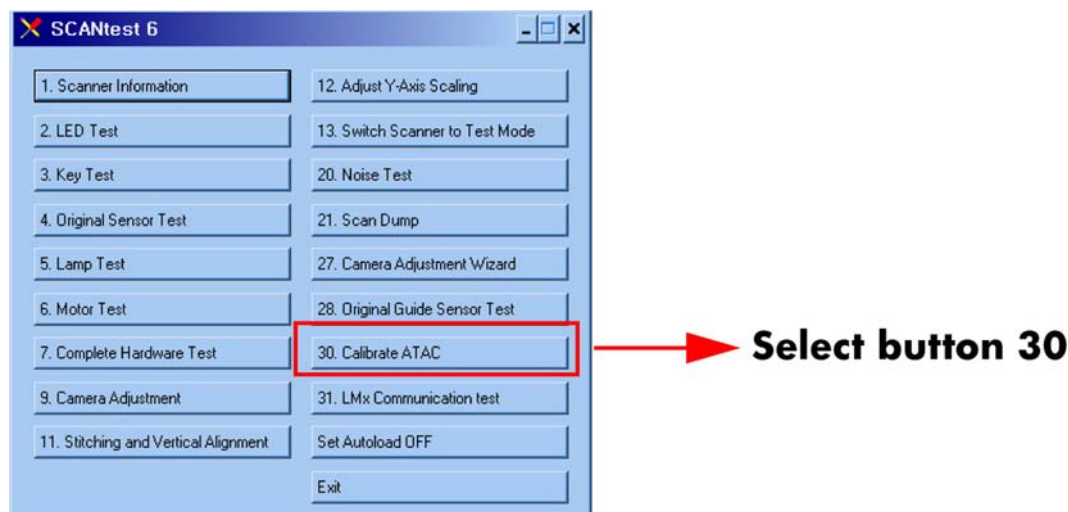
13. Tighten the two screws that secure the Top Position sensor.
14. Open the Guide Plate.

15. Orientate the two adjustment guides for 15.5 mm spacing and insert the guides under the Guide Plate at both ends of the scan area.
16. Place the two adjustment guides so that the surface marked “15.5” is facing the White Background. To avoid possible damage to the White Background, place the cut-out centered over the light aperture of the glass plate.
17. Close the Guide Plate and make sure that both Release Handles are locked.
18. Press the **Down** key on the Scanner front panel to move the Guide Plate down until it automatically stops against the adjustment guides.
19. Check that the Power LED is OFF.

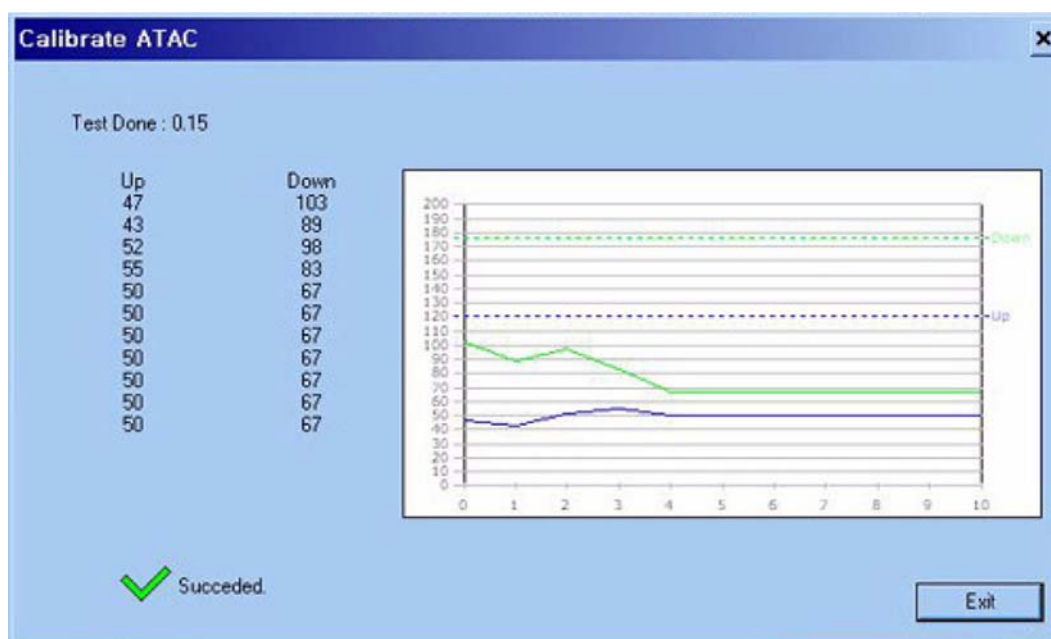


Calibrate ATAC (Automatic Thickness Adjustment Control)

To run this test start SCANtest 6 and select: **30. Calibrate ATAC**.

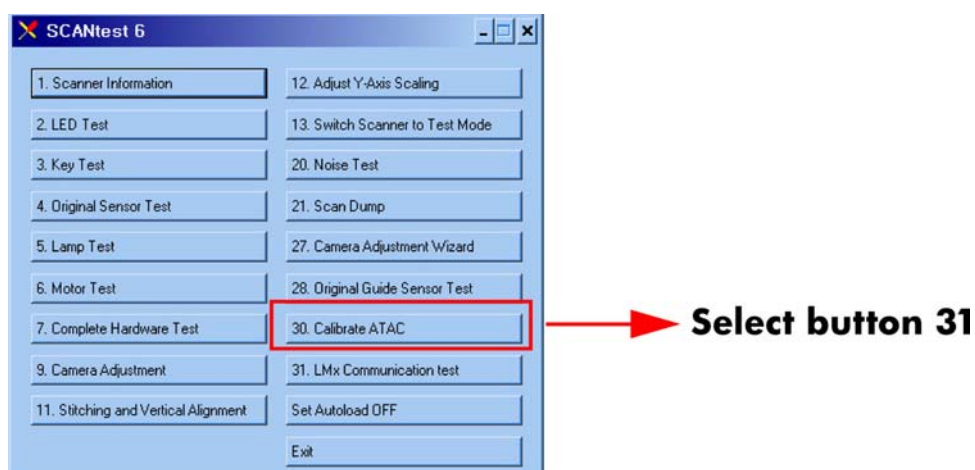


This test sets the current level at which the ATAC will stop if something is preventing it from moving. It is a safety measure designed to prevent fingers from being inadvertently pinched in the guide plate.



Driver Board Communication Test

To run this test start SCANTest 6 and select: **31. LMx Communication Test.**



This tests the communication between the Driver Board and the Scanner. When the test is run it will check the:

- Lamp
- The Light levels
- The two fans



Upgrade Scanner Firmware

Scanner software version 14.X or later

If you have a scanner with software version 14.X or later, you can upgrade the firmware without having to upgrade the entire system. To upgrade the scanner firmware, follow these steps:

1. In the **Setup** tab, press the **Options** button.
2. Press the **System** button.
3. Press the **Service** button.
4. Press the **Upgrade firmware** button.

When the upgrade has finished, you are prompted to reboot the system.

Scanner software version 14 or earlier

If you have a scanner with software version 14 or earlier, you are required to perform a complete system recovery using the most recent software version in order to upgrade the firmware.