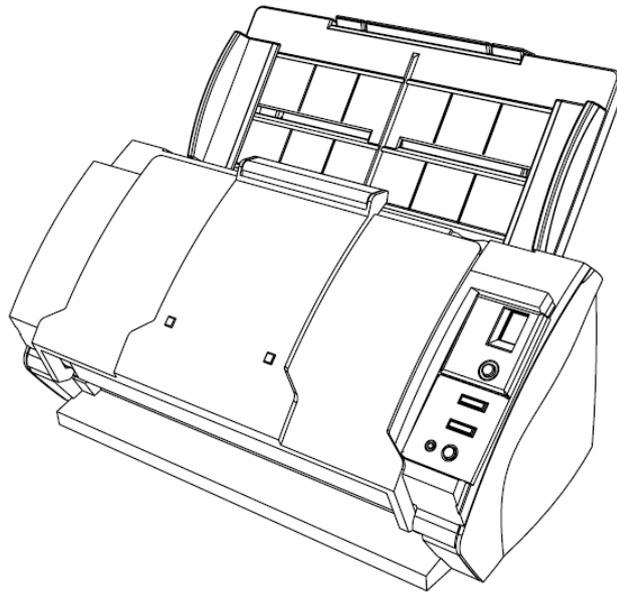


fi-5110C

Image Scanner

Maintenance Manual



05						TITLE	fi-5110C IMAGE SCANNER MAINTENANCE MANUAL		
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Revision Record			
Edition	Date published	Revised contents	
		Pages	Contents
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02	February 20, 2006	P3, 4: Descriptions changed and deleted. P32, 96~104: For RoHS compliance	
03	August 31, 2006	P96, 107: AC CABLE UK added.	
04	October 16, 2006	P96, 104: HK ring (quantity, remarks)	
05	July 7, 2008	P96, 104, 107: Inverter, AC cables and USB cable (part numbers) changed.	
06	August 5, 2008	P96, 107: AC Cable C (deleted part number) restored.	
07	January 7, 2009	P8, 13: A8 size revised. P54: "Isopropyl alcohol" deleted. P46, 68, 96, 107: Pick Shaft ASSY added.	
08	July 16, 2009	P32,P96,P103: AC adapter part number changed.	

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Preface

This manual provides the technical information such as maintenance, troubleshooting procedure and parts replacement procedure for field Engineers on fi-5110C Image Scanner.

This manual is for use as a maintenance tool only. 02

For information that is not contained in this manual, refer to the following manuals:

Item	Manuals	P/N *	Remarks
1	fi-5110C Image Scanner Operator's Guide	P3PC-1082-01EN	Attached to the scanner (CD-ROM)
2	fi-5110C Image Scanner Getting Started	P3PC-1072-01EN	Attached to the scanner (booklet)

Convention

Special information, such as warnings, cautions, are indicated as follows:

WARNING

WARNING indicates that personal injury may result if you do not follow a procedure correctly.

CAUTION

CAUTION indicates that damage to the scanner may result if you do not follow a procedure correctly.

NOTICE

NOTICE provides 'how-to' tips or suggestions to help you perform a procedure correctly.

General note:

Be careful not to power off the scanner while communicating with the host computer. In case the scanner is accidentally powered off during communication with the host, perform the procedure below:

1. Power off the host computer.
2. Power on the scanner.
3. Power on the host computer.

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References to operating systems (OS) and applications are indicated as follows:

Windows 95: Microsoft® Windows® 95 operating system.

Windows 98: Microsoft® Windows® 98 operating system.

Windows Me: Microsoft® Windows® Millennium Edition operating system.

Windows NT 4.0: Microsoft® Windows NT® 4.0 Server operating system,
Microsoft® Windows NT® Workstation operating system.

Windows 2000: Microsoft® Windows® 2000 Professional operating system.

Windows XP: Microsoft® Windows® XP Professional operating system,
Microsoft® Windows® XP Home Edition operating system.

Where there is no distinction between the different versions of the above operating system, the general term “Windows” is used.

~~Adobe Acrobat 6.0: Adobe® Acrobat® 6.0 Standard.~~ [02]

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Chapter 1 Overview

1.1 Scanner Overview

(1) Features

The fi-5110C, image scanner offers color/monochrome scanning of up to A4/Legal size document with 600dpi optical resolution. It provides faster color document scanning speed than the preceding model and has the following features: This scanner has USB 2.0 interface and image scanning is available by the attached TWAIN or ISIS drivers.

(2) Scanner Specification

No.	Items	Specifications		
		fi-5110C		
1	Scanner type	Automatic Document Feeder (ADF)		
2	Light source	White cold cathode fluorescent lamp x 2		
3	Optical resolution	600 dpi		
4	Output resolution	Binary: 50 – 600 dpi Grayscale: 50 – 600 dpi Color: 50 - 600 dpi		
5	Video output	Binary: 1 bit/pixel Grayscale: 8, 4 bit/pixel Color: 24, 8 bit/pixel 8, 3 bit/pixel (Generated by the driver)		
6	Scanning speed *1	Output Resolution	Simplex (Grayscale/Color)	Duplex (Grayscale/Color)
		150 dpi	15 / 15 ppm	30 / 30 ipm
		200 dpi	15 / 10 ppm	30 / 20 ipm
		300 dpi	10 / 8 ppm	20 / 16 ipm
		400 dpi	8 / 4 ppm	8 / 8 ipm
7	Document size (ADF scanning)	500 dpi	4 / 2 ppm	4 / 4 ipm
		600 dpi		
7	Document size (ADF scanning)	Minimum: 53 52 x 74 mm (2.1 x 2.9 inch) (A8, Portrait) *2 07 Maximum: 210 x 297 mm (8.5 x 14 inches) (A4/Legal, Portrait) Long page scanning: 216 x 864 mm (8.50 x 34 inches)		
8	Paper weight	52 to 127 g/m ² (14 to 34 lb.) (Refer to Section 1.2 for details.)		
9	Capacity of ADF	5mm high or Less (50 sheets @ A4, 80g/m ² or 20lb.)		
10	Paper loading	Front facing down		
11	Multi feed detection	Available		
12	Stacker	Detachable		
13	Interface	USB 2.0		

*1 Actual scanning speed may delay due to the system environment of the scanner.

*2 A8 size media shall be 127g/m² or 34 lb paper weight.

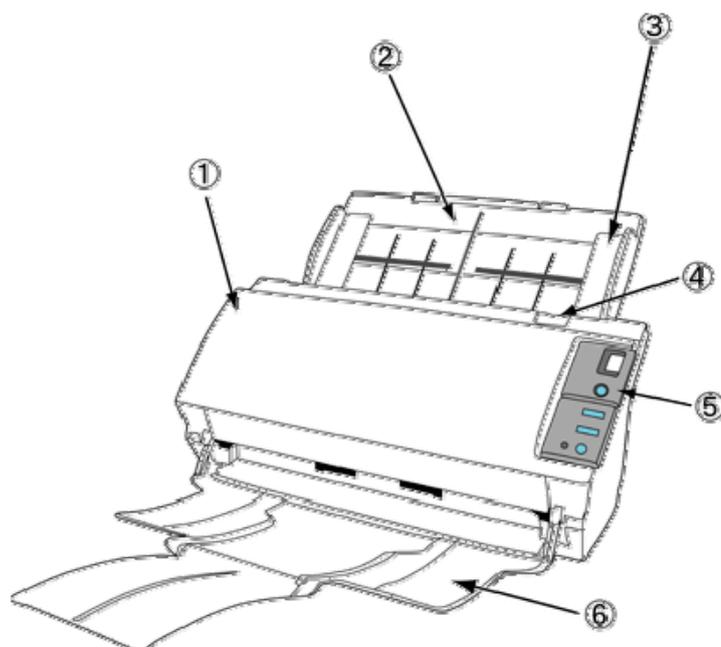
(3) Environmental Specification

No.	Items		Specifications	
1	Input power	Voltage	100 to 120V VAC ± 10% 220 to 240V VAC ± 10%	
		Frequency	50/60 ± 3 Hz	
2	Noise	50 dB or less		
3	Outer dimensions (mm/inch)	Excluding ADF paper chute and Stacker	293.5 (W) x 166 (D) x 130 (H) mm 11.56(W)x 6.54 (D) x 5.12 (H) in.	
		Including ADF paper chute and Stacker	293.5 (W) x 495 (D) x 290 (H) mm 11.56 (W) x 7.68 (D) x 11.42 (H) in.	
4	Installation space (mm/inch)	493.5 (W) x 850 (D) x 380 (H) mm 19.43 (W) x 33.46 (D) x 14.96 (H) in.		
5	Weight (kg/lb.)	2.7 kg / 6.0 lb. or less		
6	Power consumption	28 W or less (Rated power) Sleep mode: 6W or less		

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(4) Appearance

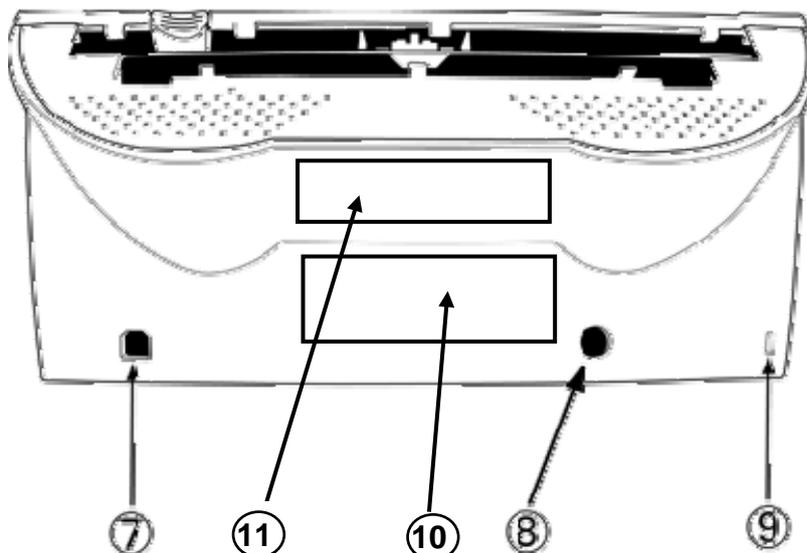
<Front view>



No.	Parts name	Function
1	ADF (Automatic Document Feeder)	It transports the document to the reading position automatically.
2	ADF paper chute	Holds in place the document pages / sheets that are fed into the ADF.
3	Side guide	It is adjusted to the width of the paper in order not to scan skewed pages.
4	ADF open lever	Pull this lever to open the ADF.
5	Operator panel	This panel consists of a Function No. display, four operating push buttons and an LED.
6	Stacker	Scanned documents are ejected from the ADF onto this tray.

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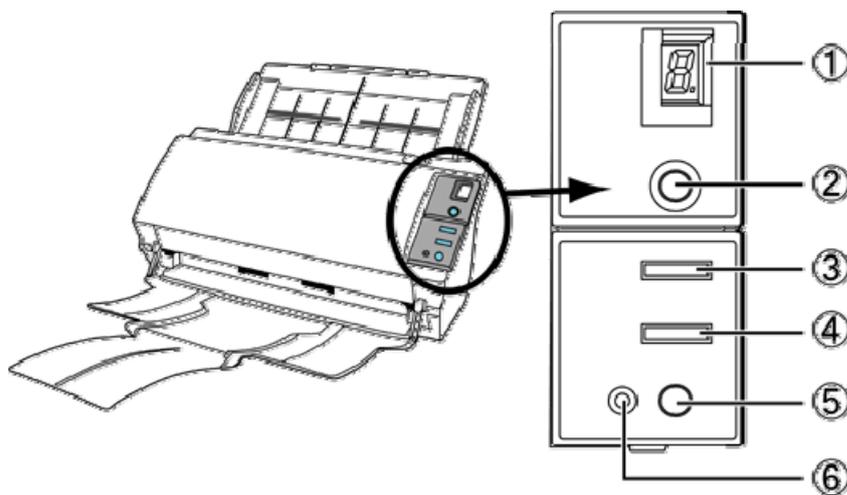
<Rear view>



No.	Parts name	Function
7	USB interface connector	Used for connecting a USB interface cable from a PC.
8	DC inlet	Used for connecting the cable from the AC adapter.
9	Security slot	Used for connecting the security cable. Size: 3 x 7 mm
10	Label A	<p>Manufacturing label</p> <p>MODEL(型号) ***** A ⊕ 1 2 3 4 5 6 7 8 9 PART No.(代号) *****-***** 0 1 2 3 4 5 6 7 8 9 SER.No.(序列号) ***** DATE(生产日期) YYYY-MM * F I 5 1 1 0 C 0 0 0 0 0 0 *</p> <p>PFU Limited a Fujitsu company</p> <p>MADE IN CHINA (中国制造)</p>
11	Label B	<p>Authorize label</p> <p>16V == 1.5A 2.7kg</p> <p>CCC A013300 CE GS C US 223109 FC Tested To Comply With FCC Standards FOR HOME OR OFFICE USE N24 This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.</p>

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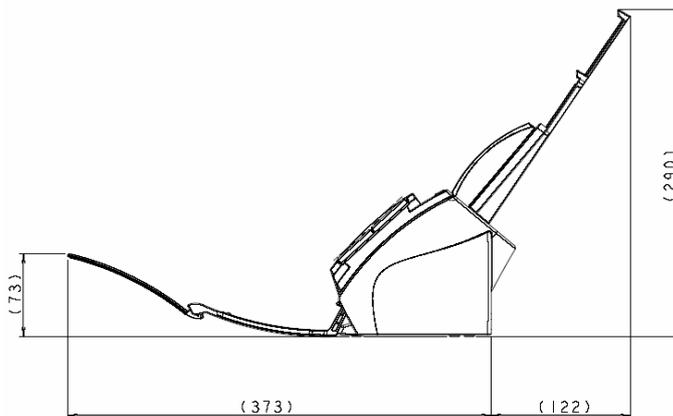
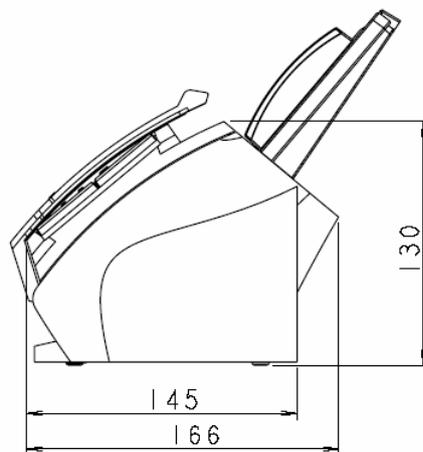
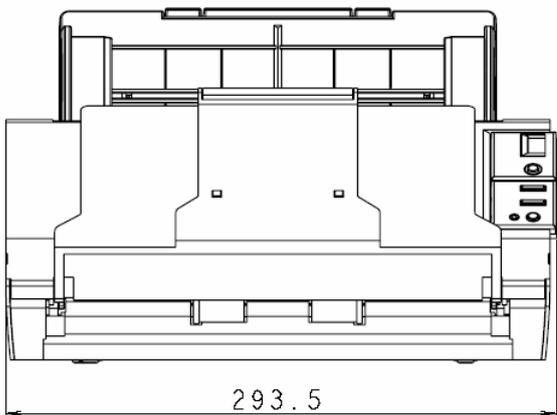
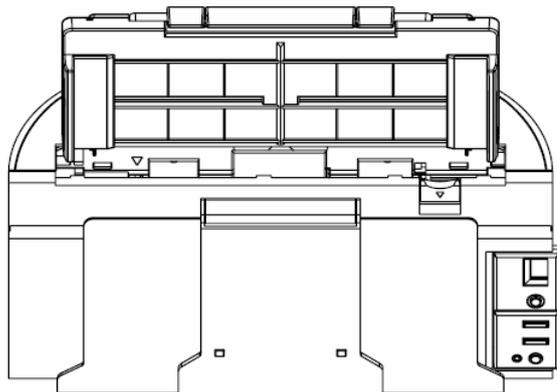
<Operator Panel>



No.	Parts name		Function
1	Function No. display		Indicated the function No. and error status.
2	Buttons	Function	Changes the Function activated by the Send to button.
3		Send to	Launches the linked application software.
4		Scan	
5		Power	Turns the scanner ON and OFF.
6	LED		Lights when the scanner is turned ON.

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(5) Outer Dimensions



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1.2 Document Quality and Thickness

Recommended Document Type

- Woodfree paper
- Paper containing wood

The table below summarizes the types of documents that can be scanned on this scanner.

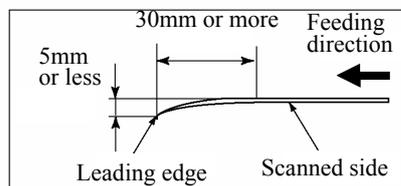
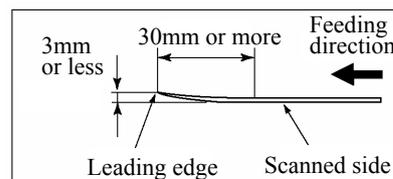
Media	Paper commonly used in offices, Post card, Business card
Paper Weight	52g/m ² to 127g/m ² (14lb to 34lb) (Only paper weight of 127 g/m ² is acceptable for A8-size documents.)
Size	Minimum: A8 (53 52mm x 74mm, Portrait) 07 Maximum: A4 (210mm x 297mm,) or Legal (8.5 x 14 in.) 34-inch (864mm) long paper scanning available.

When setting the following size of documents on the ADF, place them in portrait orientation.

- A8
- Letter
- Legal
- A4

The following documents may not be scanned successfully:

- Documents of non-uniform thickness (e.g. envelopes)
- Wrinkled or curled documents (Refer to the figure on the right for the tolerance range)
- Folded or torn documents
- Tracing paper
- Coated paper
- Carbon paper
- Carbonless paper
- Photosensitive paper
- Perforated or punched documents
- Documents that are not square or rectangular
- Very thin documents



Do not use the following documents:

- Paper-clipped or stapled documents
- Documents on which the ink is still wet
- Documents smaller than A8 (Portrait) in size
- Documents wider than A4 or Letter size (216mm or 8.5 in.)
- Documents other than paper such as fabric, metal foil, or transparencies

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Chapter 2 Installation

2.1 Unpacking the Scanner

Follow the procedure below to unpack the scanner. Make sure that all the accessories are included in the package.

1. Remove the tape to open the package box.
2. Remove the attachment tray, then take out the ADF paper chute and AC adapter.
3. Remove the cushions TL and TR, then take out the scanner and remove the scanner from the polyethylene bag.
4. Remove all the accessories and remove the tape protecting the scanner.

The following table lists the packaging configuration.

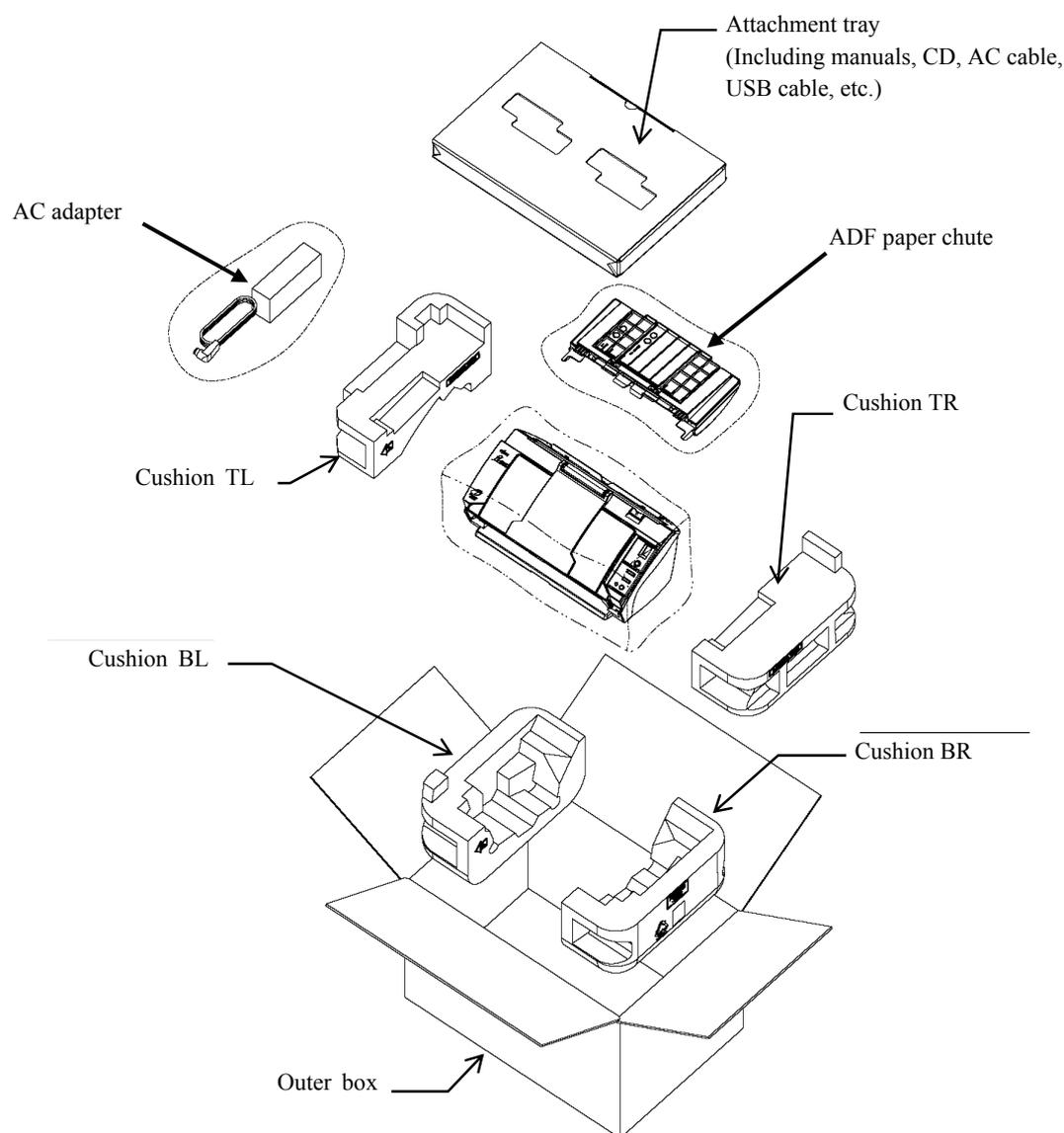


Figure 2.1 Packing configuration

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2.2 Installing the Scanner

2.2.1 For Safety Installation

Before installing the scanner, read the following cautions carefully to avoid scanner trouble.
Refer to section 1.1 “Environmental Specification” for information of input power and scanner dimensions.

- Install the scanner away from strong magnetic fields and other sources of noise.
- Do not install the scanner near heating apparatus or in the direct sunlight.
- Install the scanner in a location that is level and subject to minimal vibration.
- Do not install the scanner in locations subject to humidity and dust.
- Do not block the ventilation ports.
- Protect the scanner from static electricity.
- Use proper AC voltage.

NOTICE

Make sure the rubber pads on the bottom of the scanner are level on the table or desk.

2.2.2 Installation

Install the scanner in the following procedure. Refer to the Operator’s Guide for details. Before connecting the scanner to your PC, install a scanner driver and application software on the PC.

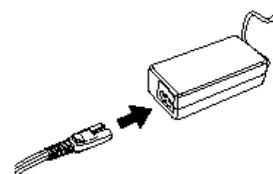
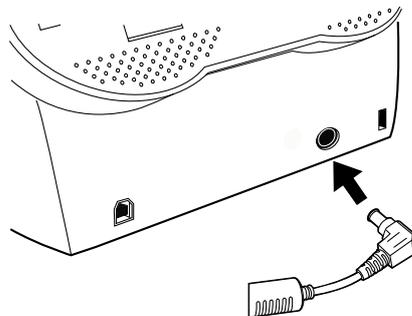
- (1) Install the following software

Referring to the Operator’s Guide, install the following software from two CD-ROMs.

- | | |
|-------------------|----------------|
| - Scanner drivers | - Application |
| FUJITSU TWAIN 32 | ScandAll 21 |
| FUJITSU ISIS | QuickScan Pro™ |

When the installation has been completed, restart the computer, and connect the scanner in the following procedure.

- (2) Place the scanner at its installation site.
For details on the scanner’s dimensions and required installation space, refer to Section 1.1 (2) “Environmental specification”.
- (3) Attach the ADF paper chute. (Refer to Section 6.6.1)
- (4) Connect the AC cable to the AC adapter (picture on the right).
- (5) Connect the AC adapter connector to the scanner’s DC inlet.



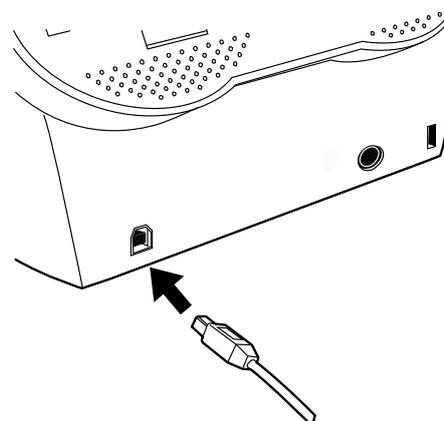
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- (6) Plug the AC cable into the outlet.

Note: The Function No. Display and the LED may flash for an instant when plugging the AC cable into the scanner.

- (7) Connect the USB interface cable to the USB interface connector, then connect the other end of the USB interface cable to the PC.

Note: Be sure to use the USB cable which comes as an accessory with this scanner. Correct operation with commercially available cables is not guaranteed. When connecting to a USB hub, use the first stage USB hub that is closest to the computer. If you use the second or later hub stages, the scanner may not operate correctly.



- (8) Press the power button to turn ON the scanner.
⇒Your scanner will be automatically detected.

For Windows 98:

When a request for inserting the CD-ROM for Windows 98 appears, insert it into the CD drive and click the [OK] button.

For Windows 2000:

When [Digital Signature not Found] appears, click [Yes].

- (9) To confirm whether the installation was successful, perform a scanning operation with an application that complies with either the TWAIN regulations, such as ScandAll 21 or ISIS regulations such as QuickScan Pro™.
* For details on how to confirm, refer to the “fi-5110C Image Scanner Operator’s Guide”

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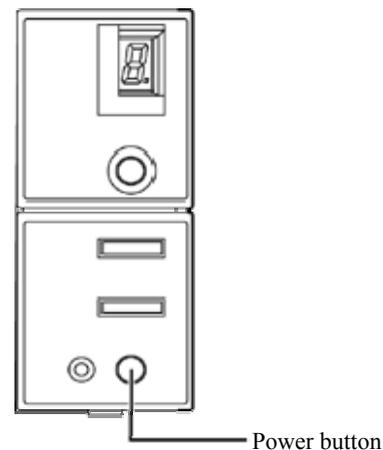
Chapter 3 Operation and Daily Maintenance

3.1 Basic Operation

3.1.1 Power ON/OFF

(1) Turning ON the power

- Press the power button on the operator panel. The scanner is turned ON, and the green LED on the operator panel lights.
 - Also, while the scanner is being initialized, the indication of the Function No. Display changes as follows:
“8” → “P” → “0” → “1”
- The indication “1” means that the operator panel is in the ready status.



(2) Turning OFF the power

- Hold the power button down at least two seconds.

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3.1.2 Loading the Documents on the ADF for Scanning

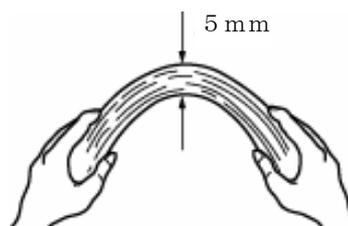
This section describes how to load the documents onto the scanner and scan them.

1. Confirm the documents.
 - 1) Confirm that all the documents have the same width.
 - 2) Check the number of sheets in the document stack.

The standard number of sheets that can be loaded on the scanner is as follows:

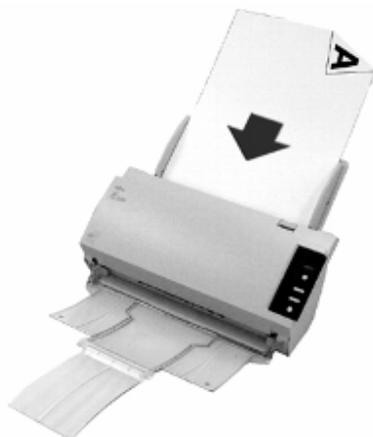
 - A4-size paper or smaller that makes a document stack of 5 mm or less.
 - Maximum 50 sheets at A4, 20 lb, or 80 g/m²

2. Fan the documents as follows:
 - Lightly grip both ends of the document, then bend and fan it.



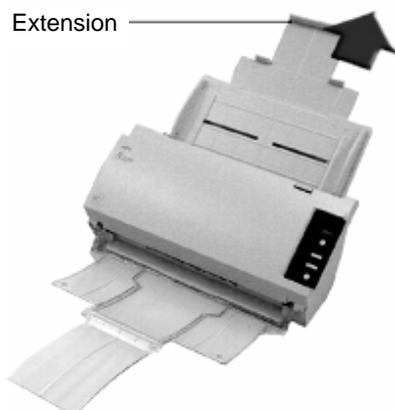
- Repeat this operation a couple of times.
- Rotate the document 90 degrees, then bend and fan it again.

3. Align the edges of the document.
4. Set the documents face-down in the ADF paper chute (so that the side to be scanned faces towards the ADF paper chute).



Load the document facing the ADF paper chute.

Note 1: Before loading A4-size documents, pull out the ADF paper chute extension.



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Note 2: In case of operating with Windows XP OS:
When the document is set on the ADF paper chute, the following window may appear on the screen.

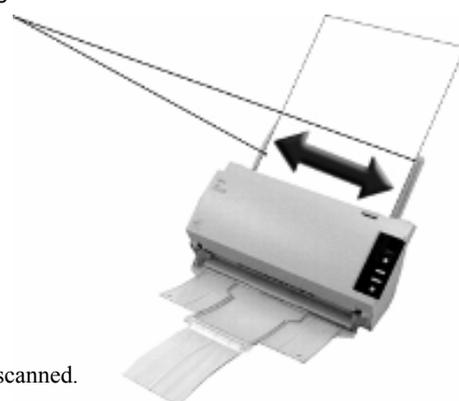
In this window, you can select the application program which will perform the scanning.

By selecting the application program from the “Select the program to launch for this action” menu and clicking the [OK] button, the selected program will be initiated. For further information, please refer to “APPENDIX A” in the “fi-5110C Image Scanner Operator’s Guide”.



5. Adjust the side guides to the width of the documents.
 - Move the side guides so that they touch both sides of the documents. If there is any space between the side guides and the edges of documents, the scanned image may be skewed.

Side guides



The stacker prevents document sheets from dropping after they are scanned. Use the stacker as follows:

- 1) Lift up the stacker towards you by inserting your fingertips into the handle on the stacker.



- 2) Lift the paper stop and swing forward by inserting your fingertips into the indentations on the scanner as shown in right figure.



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6. Load the document on the scanner's ADF paper chute.
 7. Start up ScandAll 21.
Select [Start] – [Program] – [Scanner Utility for Microsoft Windows] – [ScandAll 21].
 8. Select [Select Source] from the [Scan] menu.
 9. Select “FUJITSU fi-5110Cdj” and click the [Select] button.
 10. Click the [Scan To View] button on the tool bar.
 11. Set the scan resolution, paper size and other scan conditions, and click the [Scan] button.
- ➔The document is scanned, and an image of the scanned document appears on the ScandAll 21 screen.
For details on ScandAll 21 functions and operations, refer to ScandAll 21 Help.

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3.2. Cleaning the ADF

CAUTION

Injury: When operating the scanner, the ADF's glass becomes very hot.

Before you clean inside the scanner, turn off its power and unplug the AC adapter from the outlet. Wait for at least 15 minutes.

However you can turn on the scanner when you clean the Feed rollers.

NOTICE

- (1) As a guideline, instruct your user to clean the ADF every 1,000 scans. If cleaning is failed, feeding and transporting the documents may become unavailable. Note that this guideline varies according to the type of the documents the user is scanning.
- (2) Do not use water or neutral detergent to clean the inside of the scanner.
- (3) Do not use aerosol sprays to clean the scanner. Aerosol sprays cause dirt and dust to enter the scanner, resulting in scanner failure and malfunction.

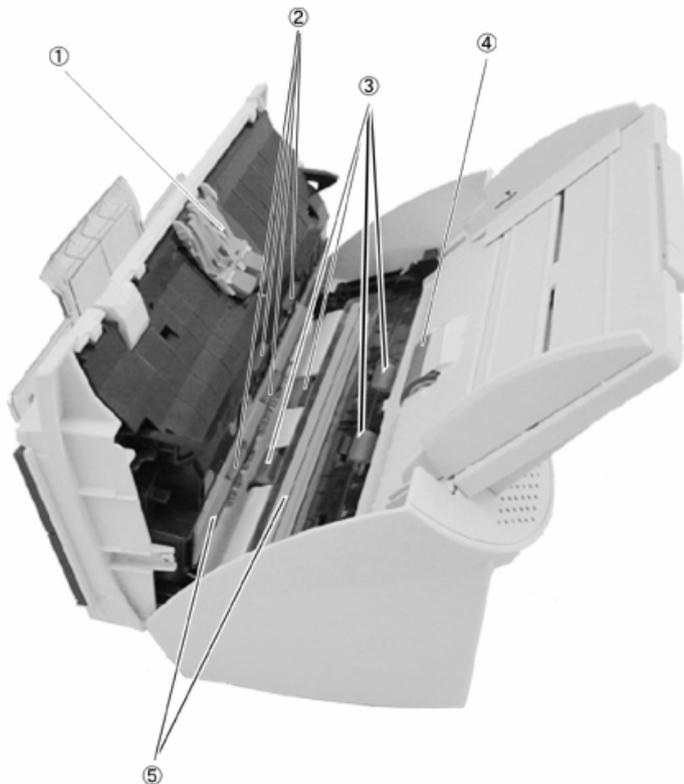
Cleaning Procedure:

- (1) Open the ADF by pulling the ADF open lever.

Note: Be careful not to get your finger pinched by the ADF which may close.

- (2) Clean the following locations with a cloth moistened with cleaner F1.

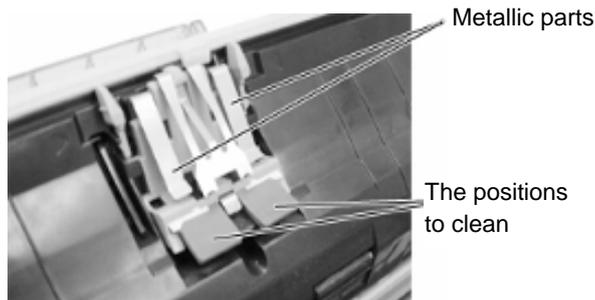
No.	Name
1	Pad ASSY
2	Plastic rollers (x4)
3	Feed rollers (x4)
4	Pick roller
5	Glasses (x2)



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Turn off the scanner before cleaning the following locations.

- Pad ASSY (x1)
Wipe the Pad ASSY (rubber surface) downwards.
When cleaning the Pad ASSY, take care to prevent the cloth from catching on the metallic parts.



- ADF glass surfaces (x2: located on the ADF and the opposite side)
Clean lightly.
Note: If the glass is dirty, vertical streaks may appear in the scanned images.
- Plastic rollers (x4)
Clean them lightly while rotating the rollers with your finger. Take care not to roughen the surface of the rollers. Take particular care in cleaning the Plastic rollers since black debris such as toner on the rollers adversely affect the pickup performance.
- Pick roller (x1)
Lightly clean the Pick roller taking care not to scratch the roller surface and the Mylar sheet. Take particular care in cleaning this roller as black debris such as toner on it adversely affect the pickup performance.

Mylar sheet



Turn on the scanner before cleaning the following locations.

- Feed rollers (x4)
Clean lightly taking care not to roughen the surface of the rollers. Take particular care in cleaning the feed rollers since black debris on the rollers adversely affect the pickup performance.

- 1) When the power-on diagnosis is complete, open the ADF.
- 2) Simultaneously hold down the **Send to** and **Scan** buttons on the operator panel. The Feed rollers start to rotate slowly.

⚠ CAUTION

All the Feed rollers turn at the same time. When cleaning the Feed rollers positioned in the lower part of the ADF, be careful not to touch the other Feed rollers.

- 3) Hold a soft, dry cloth moistened with F1 Cleaner against the surface of the rotating Feed rollers so that it lightly cleans the surface of the rollers.
As a guideline, 6 presses of the **Send to** and **Scan** buttons make the Feed rollers rotate one full turn.

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3.3 Consumables and Replacement

3.3.1 Consumables

If the message on the right appears while the scanner is being used, users need to replace the following consumables at the following intervals. To check the number of scanned documents, go to [Scanners and Cameras] – [fi-5110Cdj Properties] (Refer to Section 5.1 in “fi-5110C Image Scanner Operator’s Guide”).



Table 3.3.1

No.	Part name	Specifications	Standard replacement cycle *	How to check the number of scanned documents	How to replace
1	Pad ASSY	PA03360-0002	50,000 sheets or one year	Refer to Section 7.1.6	Refer to Section 3.3.3.
2	Pick roller	PA03360-0001	100,000 sheets or one year		Refer to Section 3.3.4.

* The consumable replacement cycles are rough guidelines for the case of using A4/Letter (64g/m² or 17lb) woodfree or wood containing paper. The cycle varies according to the type of paper and how frequently the scanner is used and cleaned.

CAUTION

Injury: When operating the scanner, the ADF’s inside glass becomes very hot.

Before you replace the consumables, turn off its power and unplug the AC adapter from the outlet. Wait for at least 15 minutes.

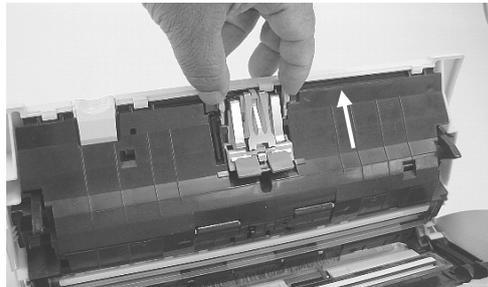
To purchase consumables, contact the store where you purchased your scanner or an authorized FUJITSU scanner service provider.

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3.3.2 Pad ASSY Replacement

Replace the Pad ASSY in the procedure below.

- 1) Remove any documents on the ADF paper chute.
- 2) Open the ADF by pulling the ADF open lever.
Note: Be careful not to get your finger pinched by the ADF which may close.
- 3) Press the knobs on both ends of the Pad ASSY, and pull the Pad ASSY upwards.



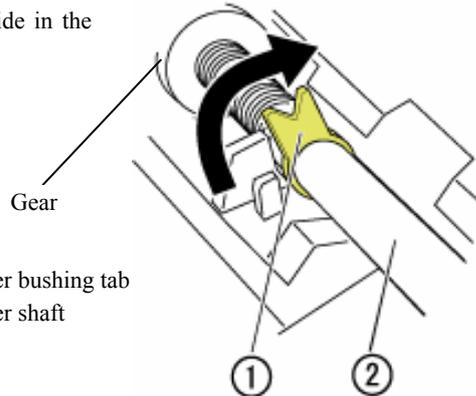
- 4) Hold both ends of the new Pad ASSY and detach it to its installation location.
When doing this, take care not to catch the metallic parts of the Pad ASSY.
Make sure that the Pad ASSY is firmly attached. When the Pad ASSY is not correctly attached, document jams or other feeding errors may occur.
- 5) Close the ADF.
You should hear the ADF click when it returns to its original position.
- 6) Reset the Pad counter (Refer to Section 3.3.4 or 7.1.6).

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3.3.3 Pick Roller Replacement

Replace the Pick roller in the procedure below.

- 1) Remove any documents on the ADF paper chute.
- 2) Remove the ADF paper chute.
- 3) Open the ADF by pulling the ADF open lever.
Note: Be careful not to get your finger pinched by the ADF which may close.
- 4) Grip the knobs on the sheet guide with your fingers, and lift it up to remove.
- 5) Lift up the Pick roller bushing tab at the gear side in the direction of the arrow.



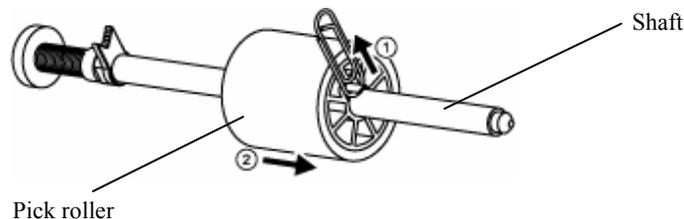
- 6) Remove the Pick roller with its shaft.
- Hold the shaft (near the bushing above), and raise it to remove the shaft from the scanner.

Note: The Pick roller bushing tab is hard to rotate. Do not turn this bushing tab with your fingernails. Use a paper clip for turning the roller bushing if you can not rotate it with your finger.

Attention: If the area around the Pick roller is dirty by paper-powder, it may cause a scanning error. Remove the dirt using a lint-free cloth dampened with F1 Cleaner. Do not use water, mild detergent or air-spray.

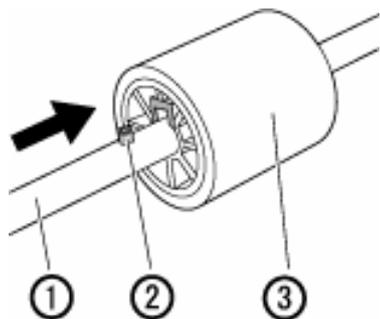
- 7) Move the Pick roller to the direction of arrow (2) while lifting up its tab to the direction of arrow (1), and remove the Pick roller from its shaft.

Note: Push up the pick roller tab using a paper clip. Using your fingernail may cause injury so it is not recommended.



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8) Insert the shaft to the new Pick roller aligning the protrusion with the slot on the Pick roller.

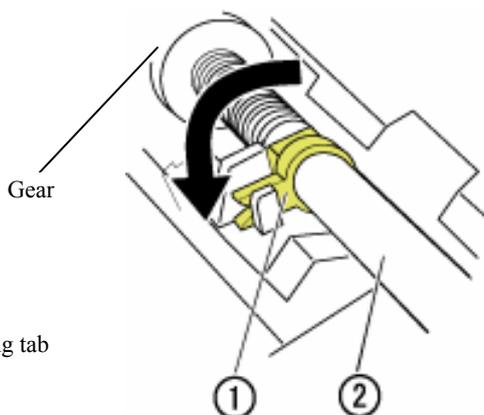


- (1) Pick roller shaft
- (2) Protrusion
- (3) Pick roller

Attention: Make sure that the Pick roller is correctly attached. An improperly attached Pick roller might cause document jams or other feeding errors. When attaching the Pick roller, make sure that the roller clicks in to place.

9) Attach the assembly of the Pick roller and the shaft to the scanner in reverse order of the procedure for removing.

10) Push down the Pick roller bushing tab at the gear side.



- (1) Pick roller bushing tab
- (2) Pick roller shaft

Attention: Make sure that the assembly of the Pick roller and the shaft is correctly attached. An improperly attached assembly might cause document jams or other feeding errors.

11) Re-install the sheet guide to the scanner.

- Pinch the knobs on the sheet guide and attach it to the scanner.
- The sheet guide makes a clicking sound when the knobs fix into position.

Attention: Make sure that the sheet guide is completely attached. Otherwise, document jams or other feeding errors may occur.

12) Close the ADF.

You should hear the ADF click when it returns to its original position.

13) Attach the ADF paper chute.

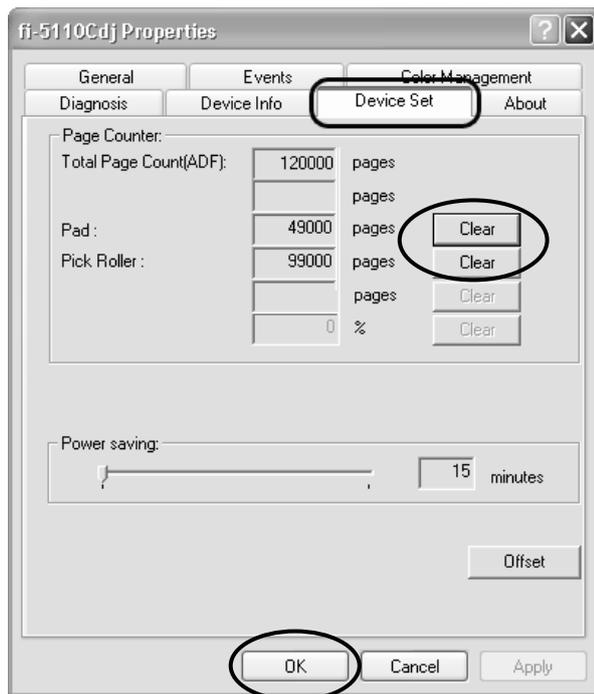
14) Reset the Pick counter (Refer to Section 3.3.4 or 7.1.6).

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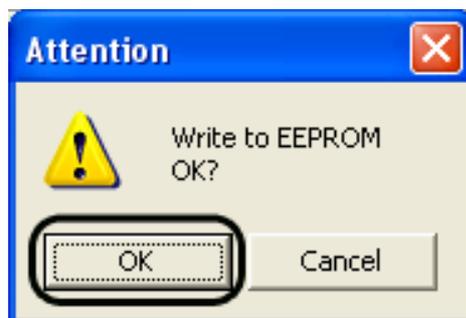
3.3.4 Resetting Consumable Counters

When the Pad ASSY or the Pick roller is replaced, reset its counter in the following procedure.

- 1) When turning ON the power, check that the scanner is connected to your PC.
- 2) Open the [Scanners and Cameras] from the [Control Panel] of your PC.
- 3) Open the [Properties] of [fi-5110Cdj] from the [Scanners and Cameras]
- 4) The [Properties of fi-5110Cdj] dialog box is displayed.
- 5) Click the “Device Set” tab.
 - ➔ The following panel appears.



- 6) After clicking the [Clear] button beside “Pad” or “Pick Roller” in “Page Counter”, click the [OK] button.
 - ➔ The following panel appears.



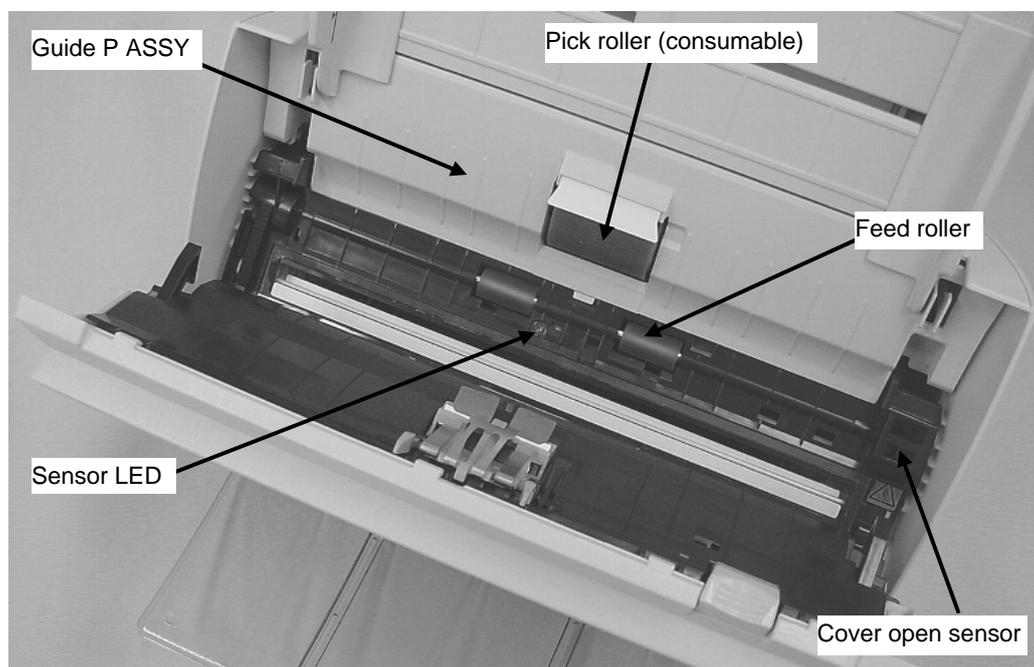
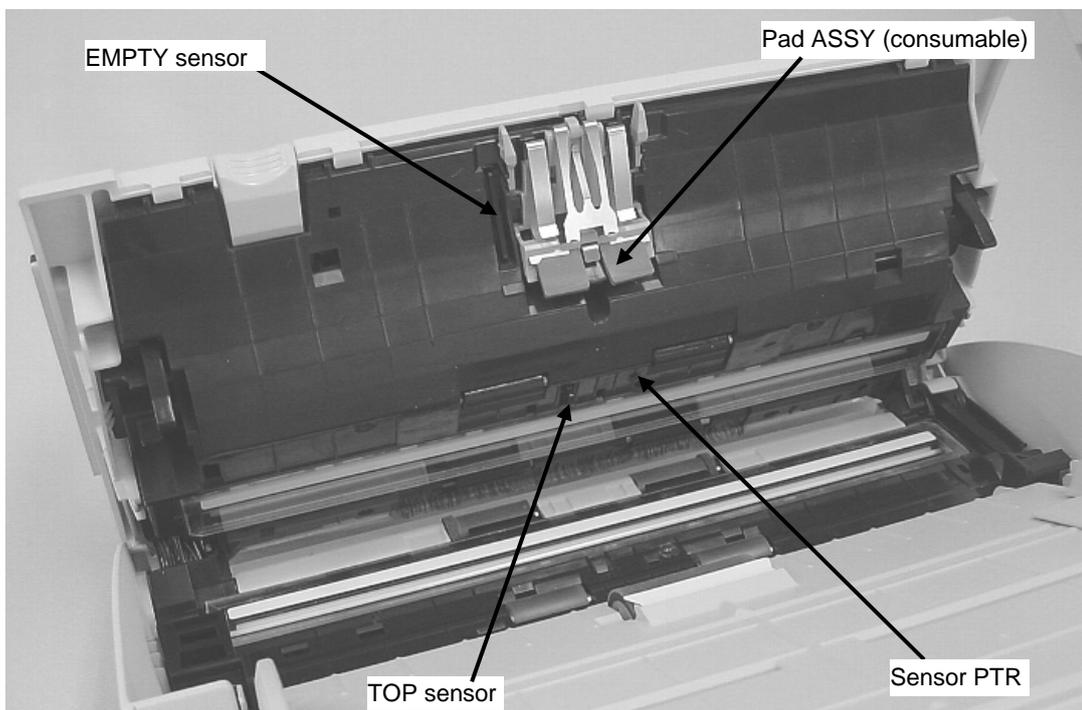
Click the [OK] button.
This returns the pad counter to “0”

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Chapter 4 Scanner Operation Description

4.1 ADF Unit

(1) Names in the ADF

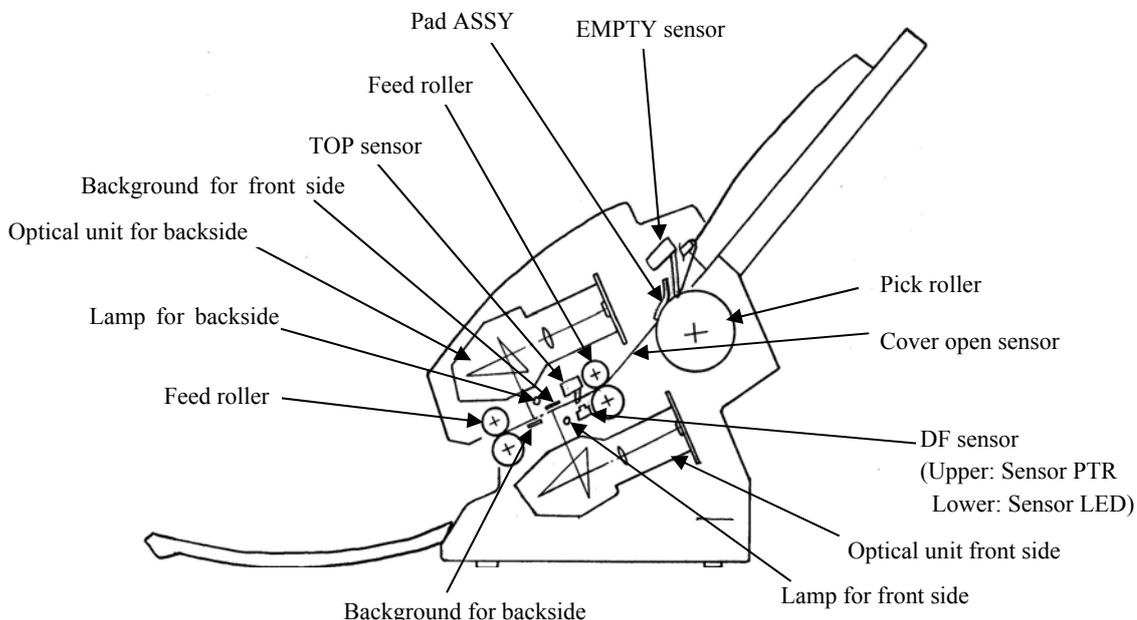


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(2) Paper separation

The Empty sensor detects the document on Paper chute cover. Documents that are set on the Paper chute cover are separated respectively by the Pick roller and the Pad ASSY. The TOP sensor detects the leading edge of scanned paper and paper that jams. The documents are transported by the Feed roller at the speed that corresponds to the specified reading resolution, and they are deposited in to the stacker by the Feed roller.

The Empty sensor, TOP sensor, and Cover open sensor are installed in the scanner.



(3) Consumables

The Pick roller and Pad ASSY are consumables and are the user's responsibility to replace. (Refer to Section 3.3.1 for details). The scanner supports two consumable counters, the Pick roller counter and the Pad ASSY counter. These counters indicate the number of sheets scanned since each consumable has been replaced. Users can check the counters from the driver. And service person can check and reset the counters after the consumables have been replaced. (See Section 3.3.4 or 7.1.6 for details.)

(4) Drive unit

The Pick roller and Feed rollers are turned by the motor. The ADF drive circuit and the motor fuse are located in the Analog PCA. If abnormal electric current runs through the ADF drive circuit, the current is cut off by the motor fuse.

(5) Multi feed detection

The Sensor PTR and Sensor LED detect the change of the light transparence through the document and check the multi feed. (Refer to Section 5.2.1 for details.) A set of the Sensor PTR and the Sensor LED are called "DF sensor".

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4.2 Reading Station

(1) Optical system

Documents are set on the ADF Paper chute, with front side face down. The front side of the document is read by the Optical unit in the Fixed unit, and the backside of the document is read by that in the Upper unit. These two optical units have the same parts number.

The image on the document is projected to a color CCD through a lens and mirror system and converted to image signals that are 10 bit per pixel at 600 dpi resolution.

(2) Light source and heater

The scanner uses lamps (White cold cathode discharge lamp) which light the area scanned by the Optical unit in order to get sufficient CCD output. The lamp is turned ON or OFF by an inverter that is controlled by the Control PCA.

The life of lamp is about 10,000 hours of turn on time, which means the lamps last the life of the scanner.

(3) Scan controller

Before scanning a document, the scanner reads the white background of the reading position and adjusts the gain of the CCD amplifier. If the CCD output does not reach a reference level after the gain adjustment, an Optical alarm is issued.

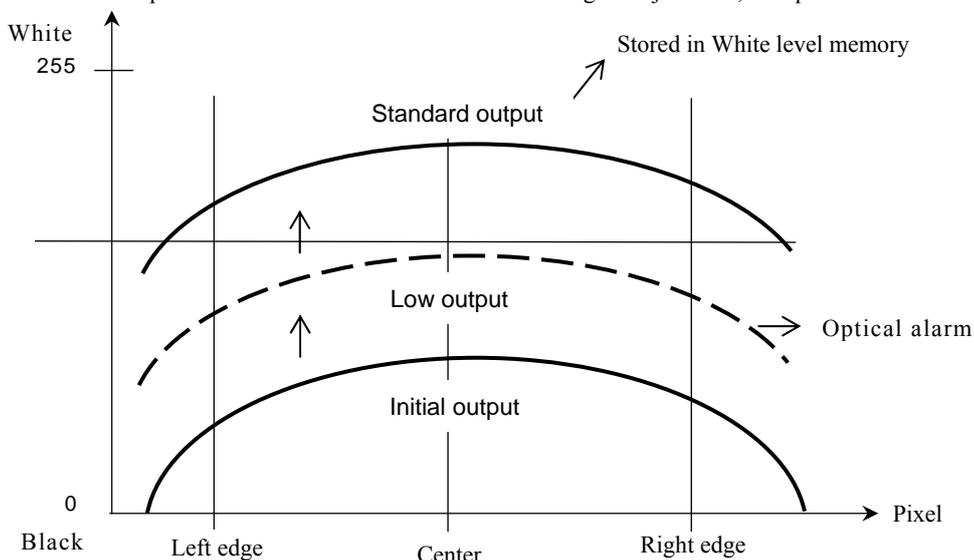


Figure 4.2A AGC (Automatic Gain Control)

When the gain adjustment is completed successfully, the scanner feeds the document to the reading position at the speed that corresponds to the specified reading resolution. The leading edge of the document is detected by the TOP sensor in front of the reading position. When the document is fed from the TOP sensor by some defined length for front and back side scanning (the length which determines sub-scanning offset), the scanner starts reading the image.

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4.3 Controller

(1) Control PCA

The Control PCA controls the units by the firmware.

The Control PCA includes the following connectors (Refer to Section 4.4).

- USB connector (1)
- DC voltage input connector

The firmware can be updated through a USB interface using the firmware update tool.

(2) Analog PCA

This PCA includes mechanical control circuits such as motor drive circuits and fuses.

(3) Panel PCA

The panel PCA on the operator panel includes not only the switches and lamps described in Section 1.1, but also the EEPROM that records the information below. When replacing the panel PCA with a new one, you need to move all the data stored in the EEPROM to the Control PCA temporarily, and then restore the data from the Control PCA to the new panel PCA. Refer to Section 7.2 and 7.1.8 for details.

- Magnification value for main/sub-scanning direction
- Offset correction value for main/sub-scanning direction
- Values of Pad counter and Pick roller counter
- Firmware version No., First date of the scanner operation, the number of documents scanned by ADF

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4.4 Circuit Block Diagram

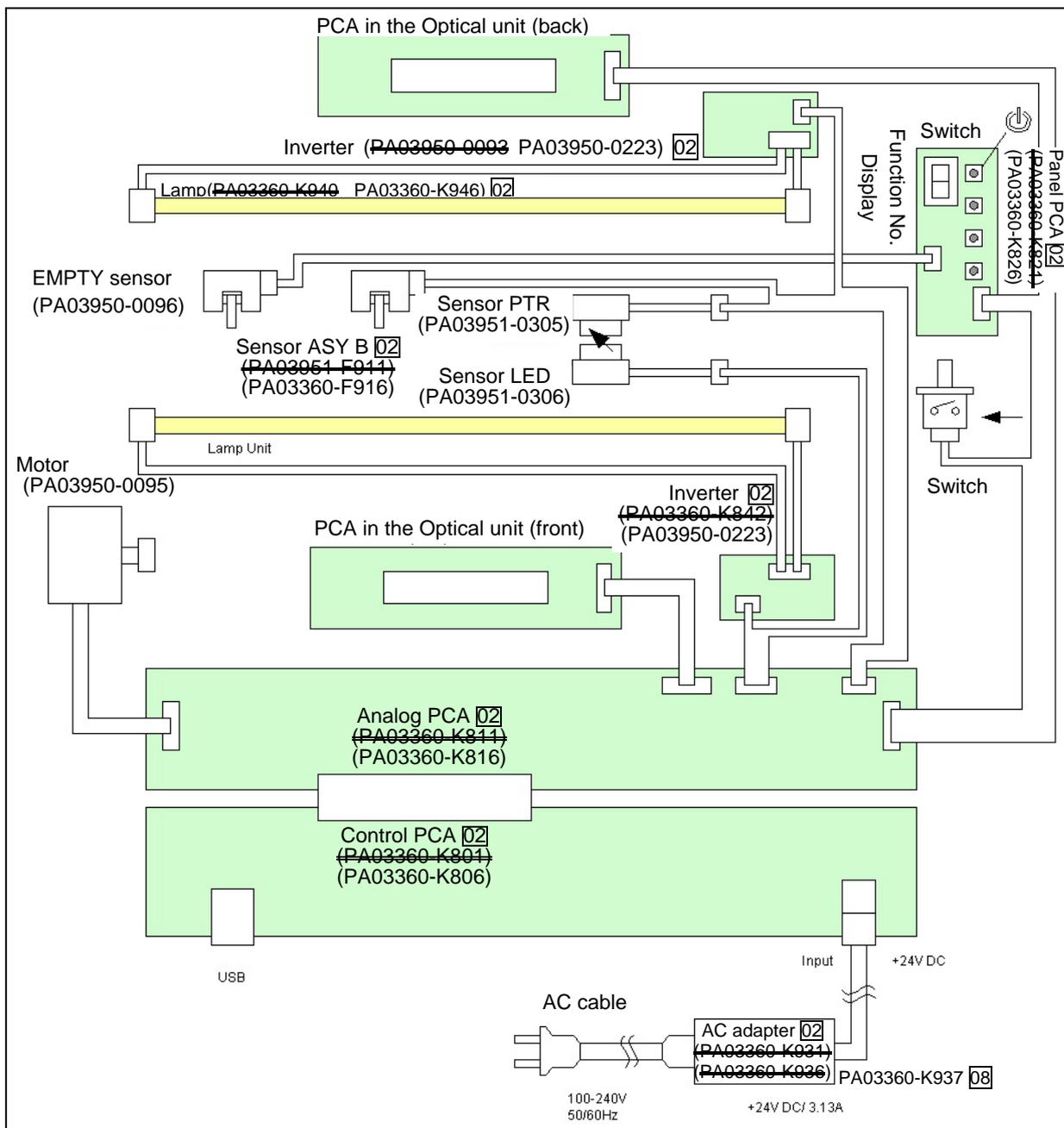


Figure 4.4 Circuit Block Diagram

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Chapter 5 Troubleshooting

5.1 Self-diagnosis function

5.1.1 Scanner status display and self-diagnostics at power-on

(1) Operator panel display sequence at power-on

The following display is shown during initial processing.

Function No. Display	Power LED	Description
8	ON	Displays "8" without blinking. Immediately after power-on, scanner turns all the segments ON.

When the initial processing starts, the following display is shown.

Function No. Display	Power LED	Description
8	ON	Displays "P" without blinking. It indicates scanner is currently in initial processing.

When the lamp intensity is getting close to the standard value, the following display is shown.

Function No. Display	Power LED	Description
8	ON	Displays "0" without blinking. It indicates the lamp intensity is getting close to the standard value.

When the initial processing terminates properly, the following display is shown.

Function No. Display	Power LED	Description
8	ON	Displays default Function No. without blinking. It indicates that scanner is in ready state.

The Function No. is incremented by 1 every time the Function button is pressed. After Function No. 9 is displayed, the number changes to "C" and then returns to "0".

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(2) Self-diagnostics

The scanner checks the following items at power-on and displays error or alarm if any.

No.	Check items	Error display		Reference section
		Scanner display	TWAIN display	
1	ROM sum check	F	None	5.3.21
2	SPC check	Ed	None	5.3.20
3	RAM, LSI check	Ec	None	5.3.19
4	Image SD RAM check	E9	None	5.3.18
5	EEPROM check	E7	None	5.3.17
6	Mechanical initial check	Ejects any documents on TOP sensor	None	None (*1)
		Performs driving test for rollers if no sensor in the ADF detects any paper.	E4	See (*3)
7(*2)	Motor fuse check	E4	See (*3)	5.3.15

(*1): There is no error display immediately after power-on. The error "Paper jam" is displayed when the driver sends Reading command to the scanner.

(*2): When 5V, 3.3V fuse is blown, the scanner does not turn on.

(*3): Irregular status is detected in scanner. If this status recurs after power cycling, please give following Sense key and ASC code to your service provider.

If ASC code is the following, please confirm following status before power cycling?

- When ASC=0x580, confirm if the shipping lock (if any) is set at "Release" position.
- When ASC=0x680, clean the sheet guide (white part) in ADF.

(Code DS42001)

5.1.2 Online self-diagnostics**(1) Self-diagnostics when receiving Load Command**

The scanner checks the following items when receiving Load Command (to feed paper) and displays the result if any error or alarm is detected.

No.	Check items	Error display		Reference section
		Scanner display	TWAIN display	
1	Motor fuse check	E4	See (*1)	5.3.15
2	Paper jam check	UI	"Paper jammed in ADF."	5.3.10

(*1): Irregular status is detected in scanner. If this status recurs after power cycling, please give following Sense key and ASC code to your service provider.

If ASC code is the following, please confirm following status before power cycling?

- When ASC=0x580, confirm if the shipping lock (if any) is set at "Release" position.
- When ASC=0x680, clean the sheet guide (white part) in ADF.

(Code DS42001)

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(2) Self-diagnostics when receiving Read Command

The scanner checks the following items when receiving Read Command (to start scanning) and displays the result if any error or alarm is detected.

No.	Check items	Error display		Reference section and Remarks
		Scanner display	TWAIN display	
1	Light intensity check (gain adjustment for CCD amplifier)	E2	See (*1)	5.3.14
		E3	See (*1)	5.3.14
2	Motor fuse check	E4	See (*1)	5.3.15
3	Paper jam check	UI	“Paper jammed in ADF.”	5.3.10
4	Multi feed detection	U2	A multi feed is detected.	5.3.13 When multi feed is enabled.

(*1): Irregular status is detected in scanner. If this status recurs after power cycling, please give following Sense key and ASC code to your service provider.

If ASC code is the following, please confirm following status before power cycling'

- When ASC=0x580, confirm if the shipping lock (if any) is set at “Release” position.
- When ASC=0x680, clean the sheet guide (white part) in ADF.

(Code DS42001)

5.1.3 Self-diagnostics in Maintenance mode

The scanner checks the following items during maintenance mode and displays the result if any error or alarm is detected.

No.	Check items (*2)		Error display		Reference section
			Scanner display	TWAIN display	
1	ROM sum check		F	None	5.3.21
2	RAM, LSI check		Ec	None	5.3.19
3	Image SDRAM check		E9	None	5.3.18
4	EEPROM check		E7	None	5.3.17
5	Mechanical check	Eject any documents on TOP sensor.	None	None	
		Performs driving test for rollers if no sensor in the ADF detects any paper.	E4	None	5.3.15
6	5V and 2.3V fuse check		- (*1)	None	
	Motor fuse check		E4	None	5.3.15
7	Light intensity check (gain adjustment for CCD amplifier)		E2	None	5.3.14
			E3		5.3.14
8	Paper jam check		U1	None	5.3.10

(*1): In this case, scanner does not power on.

(*2): Maintenance mode #1 does not detect multi feeding.

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5.2 Temporary errors and Alarm detection algorithm

5.2.1 Temporary errors

Temporary errors occur during scanning operation and can be remedied by an operator. The temporary errors are displayed on the PC screen through the driver and/or on the operator panel.

The display and detection algorithm of the temporary errors are described below.

(1) Temporary error scanner display

When a temporary error occurs, the scanner displays the following:

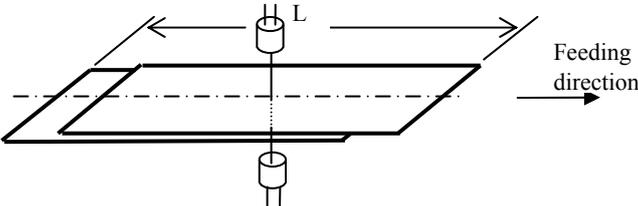
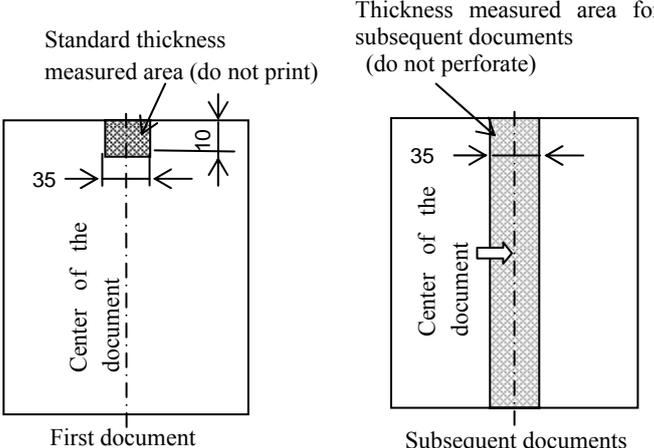
Function No. Display	Power LED	Description (supplement)
	ON	Displays "U" and the error No. (0~8) alternately. Example) When error "U0" occurs, the scanner displays the following: "U" → "0"

When **Scan** or **Send to** button is pressed while the alarm is displayed, the scanner returns to the "Ready" display (Function number display).

(2) Temporary errors and detection algorithm

No.	Error display		Detection algorithm and action to recover						
	Scanner display	TWAIN display							
1	U1	Paper jammed in the ADF (Code DS32002)	<p>Paper jam</p> <p>This error is detected when one of the followings occurs:</p> <ol style="list-style-type: none"> 1) A document does not reach the TOP sensor while the scanner has transported the document about 250 mm to pick. (The scanner performs retry operation.) 2) The trailing edge of a document does not reach the TOP sensor after the scanner transports the document by the length (L) below. (The document may have slipped on the rollers) <table border="1"> <tr> <td>Scan condition</td> <td>Transported length (L) before jam</td> </tr> <tr> <td>ADF fixed size scanning</td> <td>Approximately 450 mm</td> </tr> <tr> <td>Long paper scanning</td> <td>1.2 times of the specified value</td> </tr> </table> <p>How to recover: Remove the jammed document and close the ADF. When the error frequently occurs, refer to Section 5.3.10.</p>	Scan condition	Transported length (L) before jam	ADF fixed size scanning	Approximately 450 mm	Long paper scanning	1.2 times of the specified value
Scan condition	Transported length (L) before jam								
ADF fixed size scanning	Approximately 450 mm								
Long paper scanning	1.2 times of the specified value								
2	None	No paper on ADF paper chute or Hopper (Code DS32003)	<p>No papers on the Chute unit</p> <p>This error occurs when the Empty sensor detects no paper loaded on the Chute unit at the receipt of a Feed command.</p> <p>How to recover: Load documents on the Chute unit. When the error frequently occurs, replace EMPTY Sensor by referring to Section 5.3.11.</p>						

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No.	Error display		Error detection algorithm and action to recover
	Scanner display	TWAIN display	
3	U2	The multi feed is detected. (Code DS32006)	<p>Multi feed Two methods are used to detect this error, either/both of which can be selected by the command. Both methods are set to OFF at default.</p> <p>1) Multi feed detection by paper length Using the TOP sensor, the scanner measures the length of the document transported for the first time after the empty error. The measured length is used as a standard length to be compared with the length of subsequent documents to be scanned. If the second document is shorter than the first one, it means the multi feed occurred at the first document. The scanner detects a multi feed when the detected paper length is larger or smaller than the standard value by $\pm 10\text{mm}$, $\pm 15\text{mm}$ or $\pm 20\text{mm}$ which is specified by the command.</p>  <p style="text-align: center;">L – paper length $> \pm 10, \pm 15, \pm 20$ (selectable)</p> <p>2) Multi feed detection by paper thickness DF sensor measures paper thickness in the shaded area (35mmx10mm) of the left figure below. The measured thickness is used as a standard thickness to be compared with the thickness of subsequent documents to be scanned. If the second document is thinner than the first one, it means the multi feed occurred at the first document. For the subsequent documents, the scanner measures paper thickness in the shaded area (35 mm width) of the right figure below to compare it with the standard thickness.</p>  <p>How to recover: Remove the document and close the ADF. When the error frequently occurs, refer to Section 5.3.13.</p>

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No.	Error display		Detection algorithm and action to recover
	Scanner display	TWAIN display	
4	None	The hopper is open. Close the ADF... (Code DS32005)	<p>ADF cover open</p> <p>This error occurs when the Cover open sensor detects that the ADF is not closed at the receipt of a Feed command. When the imprinter is installed, the switch detects that the printing section is open.</p> <p>How to recover: Close the ADF. When the error frequently occurs, replace the Cover open sensor by referring to Section 5.3.12.</p>

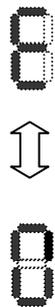
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5.2.2 Alarms

Alarms require the maintenance conducted by an authorized service person. The following table shows the display and detection algorithm for alarms. The alarms are displayed on a PC screen or on the operator panel (Function No. Display).

(1) Alarm displayed on the operator panel

When an alarm occurs, the scanner displays the following on the operator panel:

Function No. Display	Power LED	Description (supplement)
	ON	<p>Displays “E” and one of the alarms (0 ~ 9) alternately.</p> <p>The example shown in the left column is the case of Alarm “E0”. The display sequence is: “E” → “0”</p> <p>The interval of changing the display is approximately 1 second.</p>

When **Scan** or **Send to** button is pressed while the alarm is displayed, the scanner returns to the “Ready” display (Function number display).

(2) Alarms and their detection algorithm

No.	Error display		Error occurrence algorithm and action to recover	Related section
	Scanner display	TWAIN display		
1	E2	<Anomaly in the light intensity of ADF front side lamp.> ... (Code DS42037) or (Code DS42040) Sense Key=0x04 ASC=0x680 DDES=0x74	<p>E2: Optical alarm (front) E3: Optical alarm (back) This alarm occurs if the gain adjustment of the CCD amplifier does not succeed at a READ command for the first document, or during scanning. (Refer to (1) in Section 4.2)</p> <p>Probable causes:</p> <ul style="list-style-type: none"> - The lamp, the optical system or white sheet guide is dirty. - Defective lamp or CCD. - Connector disconnected 	5.3.14
2	E3	<Anomaly in the light intensity of ADF back side lamp.> ... (Code DS42038) or (Code DS42040) Sense Key=0x04 ASC=0x680 DDES=0x75		
3	E4	<Motor fuse is blown.> ... (Code DS42034) Sense Key=0x04 ASC=0x181 DDES=0x81	<p>Motor fuse blown This alarm occurs immediately after the motor fuse is blown. For maintenance, the whole unit of the Control PCA needs replacing because the fuse is soldered to the Analog PCA.</p> <p>Probable causes:</p> <ul style="list-style-type: none"> - A bit of metal material dropped on the Analog PCA - Insulating material of motor cable damaged - Insulation corrupted inside the motor 	5.3.15

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(Continued)

No.	Error display		Error occurrence algorithm and action to recover	Related section
	Scanner display	TWAIN display		
4	E6 (*1)	None	<p>Operator panel alarm When replacing the Panel PCA, the EEPROM data shall be moved to the Control PCA and the information that no data exists on the Panel PCA is written to the EEPROM of the Panel PCA. If the scanner detects that there is no data in EEPROM during initial processing at power-on, this alarm occurs.</p> <p>Probable causes: The Panel PCA on which no data exists is used in the scanner.</p>	5.3.16
5	E7 (*1)	<EEPROM is not accessible.> ... (Code DS42022) Sense Key=0x04 ASC=0x44 DDES=0xD2	<p>EEPROM alarm This alarm is detected by comparing data in EEPROM during initial processing immediately after power-on.</p> <p>Probable causes: Damaged EEPROM in Panel PCA.</p>	5.3.17
6	E9 (*1)	<Memory is not accessible.> ... (Code DS42023) Sense Key=0x04 ASC=0x44 DDES=0xE4 (E5, E6)	<p>Image memory alarm This alarm is detected by checking read/write and bus only while initial processing immediately after power-on.</p> <p>Probable causes: - Defective memory - Defective Control PCA</p>	5.3.18

(*1) The alarm E6 ~ E9 is displayed 3 times before "O" during the initial processing after power-on. When more than 2 of these errors occur simultaneously, they are displayed in the order of the priority described below:

E6 > E7 > E9
High priority ←————→ Low priority

The scanner can perform scan operation even if these alarms occur, but it may not be the same operation as usual. For instance, when EEPROM is damaged, the document is scanned by default settings, which means the settings of magnification, offset and white level may not be optimum for the document to be scanned. When image memory is damaged, irregular image may appear which can be easily detected by visual check.

No.	Error display		Error occurrence algorithm and action to recover	Related section
	Scanner display	TWAIN display		
7	Ec	None	<p>RAM alarm This alarm is detected by checking read/write and bus.</p> <p>Probable causes: - Defective Control PCA</p>	5.3.19
8	Ed	None	<p>SPC alarm This alarm is detected by checking read/write and bus.</p> <p>Probable causes: - Defective Control PCA</p>	5.3.20
9	F	None	<p>Flash memory error This alarm is detected by the flash memory check sum.</p> <p>Probable causes: -Defective Control PCA</p>	5.3.21

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No.	Error display		Error occurrence algorithm and action to recover	Related section
	Scanner display	TWAIN display		
10	None	(See * below) SenseKey=0x5 ASC=0x20	Invalid command Irregular operation of the driver is required. Probable causes: See ** below.	5.3.22
11	None	(See * below) SenseKey=0x5 ASC=0x24	Invalid CDB field Irregular operation of the driver is required. Probable causes: See ** below.	
12	None	(See * below) SenseKey=0x5 ASC=0x25	Unsupported logical unit (LUN) Irregular operation of the driver is required. Probable causes: See ** below.	
13	None	(See * below) SenseKey=0x5 ASC=0x26	Invalid field parameter list Irregular operation of the driver is required. Probable causes: See ** below.	
14	None	(See * below) SenseKey=0x5 ASC=0x2C	Command sequence error Irregular operation of the driver is required. Probable causes: See ** below.	
15	None	(See * below) SenseKey=0x5 ASC=0x22C	Irregular window combination (Main window not defined) Irregular operation of the driver is required. Probable causes: See ** below	

* Anomaly in the command for communicating with the scanner.

Check the scan area setting. If the setting is correct, turn the scanner off, disconnect the interface cable and firmly reconnect it. If the scanner does not return to its normal functioning state, please contact the dealer where you purchased the scanner or an authorized FUJITSU scanner service provider and inform the code displayed below.

** Probable causes: - Connection between PC and scanner is not correct. (Cable connection etc.)

- Scanner does not work with USB Card.

- Defective Control PCA

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5.3 Troubleshooting

When a temporary error or an alarm occurs, find the troubleshooting procedure from the list in this section and go to the related section for maintenance. Before starting the troubleshooting, get the following information from your customer to understand whether the error is scanner-related or system-related.

- Is the scanner operated correctly?
- Are the fault symptoms reproducible or persistent?
(Check if the target scanner causes the same error under other systems.)

NOTICE

The troubleshooting should be conducted from item number 1 to the last item number in a table. Continue the troubleshooting until the error is removed.

Following lists the case of troubleshooting described later in this section.

Error category	Error description	Reference section	Remarks
Device	Scanner does not turn ON. (Display of the operator panel goes out)	5.3.1	
	Scanning does not start.	5.3.2	
	Scanned image is distorted.	5.3.3	
Image	Resolution or gradation of scanned image is unsatisfactory.	5.3.4	
	Too much jitter on scanned image with ADF scanning	5.3.5	
	Scanned image is misaligned with ADF scanning	5.3.6	
	Scan magnification factor abnormal with ADF scanning	5.3.7	
	Vertical streaks appear in scanned image	5.3.8	
	When calibrating color of scanned image	5.3.9	
Temporary error	Frequent paper jam error	5.3.10	
	Error detection of "No paper on the Chute unit"	5.3.11	
	Error detection of "U4: ADF cover open"	5.3.12	
	Frequent "U2: multi feed error"	5.3.13	
Alarm	Paper is not ejected to the stacker smoothly.	5.3.23	
	"E2 or E3: Optical alarm"	5.3.14	
	"E4: Motor fuse blown"	5.3.15	
	"E6: Operator panel alarm"	5.3.16	
	"E7: EEPROM alarm"	5.3.17	
	"E9: Image memory alarm"	5.3.18	
	"Ec: RAM alarm"	5.3.19	
	"Ed: SPC alarm"	5.3.20	
	"F: ROM sum check alarm"	5.3.21	
	Driver error	5.3.22	

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5.3.1 Scanner does not turn ON (No display on the operator panel)

Table 5.3.1

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning OFF and ON the scanner?	Press power button of the scanner for more than 2 seconds to turn it OFF, and after more than 2 seconds elapse, press the power button to turn the scanner ON.
2	Are the AC cable and AC adapter correctly connected?	---
3	Replace the AC cable and AC adapter and see if the error is resolved.	---
4	Replace Control PCA and see if the error is resolved.	Refer to Section 6.7.

5.3.2 Scanning does not start

Table 5.3.2

Item No.	Check items	How/where to check
1	Does the same symptom appear when turning the scanner ON again?	Press power button of the scanner for more than 2 seconds to turn it OFF, and after more than 2 seconds elapse, press the power button to turn the scanner ON.
2	Check the items listed in the right column.	<ul style="list-style-type: none"> • Are the AC cable and AC adapter correctly connected? • Is there documents loaded on Chute unit? • Is ADF cover completely closed? • Is interface cable correctly connected? • If any temporary error or alarm is indicated, follow the corresponding troubleshooting.

5.3.3 Scanned image is distorted

Due to loose connection of connectors, cut wire in cables or defective parts, scanned image may have regular or random pattern distortion on it.

Table 5.3.3

Item No.	Check items	How/where to check
1	Check the items listed in the right column.	<ul style="list-style-type: none"> • Is interface cable correctly connected? • If any temporary error or alarm is indicated, follow the corresponding troubleshooting.
2	Are the cables between Control PCA and Optical unit damaged? Or are the connectors connected correctly?	ADF front scanning: see Section 6.10.2 for checking ADF back scanning: see Section 6.11.4 for checking
3	Replace Optical unit and see if the error is resolved.	ADF front scanning: See Section 6.10.2 for replacement ADF back scanning: See Section 6.11.4 for replacement
4	Replace Control PCA and see if the error is resolved.	Refer to Section 6.7.

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5.3.4 Resolution or gradation of scanned image is unsatisfactory

Table 5.3.4

Item No.	Check items	How/where to check
1	Check the items listed in the right column.	<ul style="list-style-type: none"> Does the document satisfy the paper specifications described in Section 1.2? Are the scan settings correctly specified for the application software used? Is interface cable correctly connected? If any temporary error or alarm is indicated, follow the corresponding troubleshooting.
2	Clean feed rollers and plastic roller and check whether the error is removed.	Refer to Section 3.2.
3	Is the optical unit or lamp dirty? Are the cables damaged? Or are the connectors connected correctly?	ADF front scanning: See Section 6.3.1 for cleaning / checking. ADF back scanning: See Section 6.3.2 for cleaning / checking.
4	Is the Optical unit for this scanner installed?	ADF front scanning: See Section 6.10.2 for removal. ADF back scanning: See Section 6.11.4 for removal.
5	Replace Optical unit and see if the error is resolved.	ADF front scanning: See Section 6.10.2 for replacement. ADF back scanning: See Section 6.11.4 for replacement.
6	Replace Control PCA and see if the error is resolved.	Refer to Section 6.7.

5.3.5 Too much jitter on scanned image with ADF scanning

The following shows the sample of scanned image when “Jitter” error occurs. This error occurs when the ADF feed roller does not transport the document smoothly.

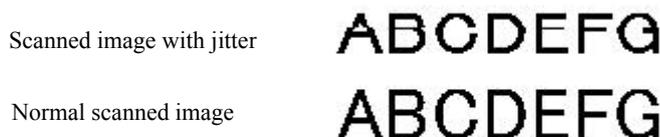


Table 5.3.5

Item No.	Check items	How/where to check
1	Does the document satisfy the paper specification?	Refer to the Operator’s Guide for the paper specification.
2	Clean feed rollers and plastic roller and see if the error is resolved.	Refer to Section 3.2.
3	Replace Pick roller and Pad ASSY and see if the error is resolved.	Check the consumable counter from the TWAIN driver screen (Section 3.3.4) or in the built-in Maintenance mode (Section 7.1.6). When the counter exceeds the values shown in Section 3.3.1, replace Pick roller or Pad ASSY (Refer to Section 3.3.2, 3.3.3).
4	Are the cables between Control PCA and ADF motor damaged? Or are the connectors connected correctly?	Check the motor cable by referring to Section 6.10.3.
5	Replace the motor and see if the error is resolved.	Refer to Section 6.10.3 for checking.
6	Replace Upper unit and see if the error is resolved.	Refer to Section 6.9.
7	Replace Fixed unit and see if the error is resolved.	Refer to Section 6.9.

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5.3.6 Scanned image is misaligned with ADF scanning

Table 5.3.6

Item No.	Check items	How/where to check
1	Check the items listed in the right column.	- Does the document satisfy the paper specifications described in Section 1.2? - Are the scan settings correct for the application software used?
2	Clean feed rollers and plastic roller and see if the error is resolved.	Refer to Section 3.2.
3	Adjust the offset by Maintenance mode	Refer to Section 7.1.4.
4	Is Optical unit installed correctly?	ADF front: Refer to Section 6.10.2. ADF back: Refer to Section 6.11.4.
5	When the backside image is misaligned, replace Upper unit and see whether the error is resolved.	Refer to Section 6.9.
6	When the front side image is misaligned, replace Fixed unit and see whether the error is resolved.	Refer to Section 6.9.

5.3.7 Scan magnification factor abnormal with ADF scanning

Table 5.3.7

Item No.	Check items	How/where to check
1	Check the items listed in the right column.	Are the scan settings correct for the application software used?
2	Adjust the magnification in Maintenance mode.	Refer to Section 7.1.3. When main scanning magnification is abnormal: Go to Item No.3 When sub scanning magnification is abnormal: Go to Item No.6
3	Clean feed rollers and plastic roller and see if the error is resolved.	Refer to Section 3.2.
4	Does any foreign object get inside Upper unit and disturb transporting operation by feed rollers?	Open the ADF and check Upper unit gear.
5	Replace ADF motor and see whether the error is resolved.	Refer to Section 6.10.3.
6	Is Optical unit installed correctly?	ADF (front) scanning: Refer to Section 6.10.2.
7	Replace Optical unit and see whether the error is resolved.	ADF (back) scanning: Refer to Section 6.11.4.

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5.3.8 Vertical streaks appear in scanned image

Table 5.3.8

Item No.	Check items	How/where to check
1	Check the items listed in the right column.	<ul style="list-style-type: none"> Are the scan settings correctly specified for the application software used? Is interface cable correctly connected?
2	Clean glass in the ADF and see if the error is resolved.	Refer to Section 3.2.
3	When the error occurs on ADF front, clean inside of the glass of the Fixed unit. When the error occurs on ADF back, clean inside of the glass of the Upper unit.	ADF front: Refer to Section 6.10.4 for removing and cleaning the lamp. ADF back: Refer to Section 6.11.5 for removing and cleaning the lamp.
4	Is Optical unit dirty? Are cables damaged? Are connectors connected correctly?	ADF front: Refer to Section 6.3.1 for cleaning and checking. ADF back: Refer to Section 6.3.2 for cleaning and checking.
5	Replace Optical unit and see if the error is resolved.	ADF front: Refer to Section 6.10.2 for replacement procedure. ADF back: Refer to Section 6.11.4 for replacement procedure.
6	Replace Control PCA and see if the error is resolved.	Refer to Section 6.7.

5.3.9 When calibrating white of scanned image

Table 5.3.9

Item No.	Check items	How/where to check
1	Check the items listed in the right column.	<ul style="list-style-type: none"> Are the scan settings correct for the application software used? Is the sheet guide (White part) in the ADF dirty?
2	Conduct the white level adjustment by Maintenance mode.	Refer to Section 7.1.5.

5.3.10 Frequent paper jam error

Table 5.3.10

Item No.	Check items	How/where to check
1	Do the documents satisfy paper specification?	Refer to the operator guide for paper specification in Section 1.2.
2	Have the documents been jogged?	<ul style="list-style-type: none"> Align the edge of documents for stable paper feeding. Remove documents with crease or dog-ear. Scanning different width of documents may cause skew and result in paper jam.
3	Replace the Pick roller and the Pad ASSY and see if the error is resolved.	Check the consumable counter from the TWAIN driver screen (Section 3.3.4) or from the built-in Maintenance mode (Section 7.1.6). When the counter exceeds the values shown in Section 3.3.1, replace Pick roller or Pad ASSY (Refer to Section 3.3.2, 3.3.3)
4	Replace the Pick Shaft ASSY (Pick Roller shaft) and check to see if the problem is solved (Refer to Section 6.10.6).	Refer to Section 6.10.7.
4 5	Check the performance of TOP sensor	Refer to Section 7.1.2 for checking.
5 6	Is Cover open sensor malfunctioning?	Refer to Section 7.1.2 for checking.
6 7	Replace the Control PCA.	Refer to Section 6.7.

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5.3.11 Error detection of “No paper on the Chute unit”

Table 5.3.11

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning OFF and ON the scanner?	Press power button of the scanner for more than 2 seconds to turn it OFF, and after more than 2 seconds elapse, press the power button to turn the scanner ON.
2	Is there a slip of paper left near the EMPTY sensor?	Open the ADF and check inside visually.
3	Check the performance of the EMPTY sensor.	Conduct Maintenance mode (refer to Section 7.1.2) to see if the sensor works properly. If the error still occurs, confirm that the cable is correctly connected then replace the EMPTY Sensor. (Refer to Section 6.11.3.)

5.3.12 Error detection of “U4: ADF cover open”

Table 5.3.12

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning OFF and ON the scanner?	Press power button of the scanner for more than 2 seconds to turn it OFF, and after more than 2 seconds elapse, press the power button to turn the scanner ON.
2	Is there a slip of paper left near Cover open sensor?	Open the ADF and check inside visually. (Refer to Section 4.1 for its location.)
3	Check the performance of Cover open sensor.	Conduct Maintenance mode (refer to Section 7.1.2) to see if the sensor works properly. If the error still occurs, confirm that the cable is correctly connected.

5.3.13 Frequent multi feed error

Table 5.3.13

Item No.	Check items	How/where to check
1	Do the documents satisfy paper specification?	Refer to the Operator’s Guide for paper specification, paying attention to the following points: <ul style="list-style-type: none"> Is there any print within 35 mm x 10 mm square in the center of documents on the top? Is multi feed error detected by paper length when scanning documents with different length? Is there perforation in the center of documents?
2	Clean the ADF unit.	Refer to Section 3.2 for cleaning cycle and method. Clean pick roller, Pad ASY and around DF sensor with care.
3	Replace Pick roller and Pad ASSY and see if the error is resolved.	Check the consumable counter from the TWAIN driver screen (Section 3.3.4) or from the built-in Maintenance mode (Section 7.1.6). When the counter exceeds the values shown in Section 3.3.1, replace Pick roller or Pad ASSY. (Refer to Section 3.3.2, 3.3.3.) If the error still occurs, confirm that the cable is correctly connected then replace the Sensor PTR and Sensor LED. (Refer to Sections 6.10.6, 6.11.7.)

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5.3.14 “E2 or E3: Optical alarm”

Table 5.3.14

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning OFF and ON the scanner?	Press power button of the scanner for more than 2 seconds to turn it OFF, and after more than 2 seconds elapse, press the power button to turn the scanner ON.
2	Is sheet guide (white part) in the reading position dirty?	Open the ADF and clean the sheet guide (white part) and the glass. (Refer to Section 3.2.)
3	Is the lamp ON? Are the cables damaged? Are the connectors connected correctly?	Disconnect interface cable and turn the scanner ON. Open the ADF and press Cover open sensor (refer to Section 4.1 for its location) to see if the lamp lights. If not, the error is caused by the defective lamp.
4	Is the optical unit dirty? Are the cables damaged? Are the connectors connected correctly?	E2 (ADF front): Refer to Section 6.3.1 for cleaning and checking. E3 (ADF back): Refer to Section 6.3.2 for cleaning and checking.
5	When the error is E2 (ADF front), check if inside of the grass for the Fixed unit is dirty.	Remove the lamp and clean inside of the glass by referring to Section 6.10.4.
6	When the error is E3 (ADF back), check if inside of the grass for Upper unit is dirty.	Remove the lam and clean inside of the glass by referring to Section 6.11.5.
7	Replace Optical unit and see if the error is resolved.	E2 (ADF front): See Section 6.10.2. E3 (ADF back): See Section 6.11.4.

5.3.15 “E4: Motor fuse blown”

Table 5.3.15

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning OFF and ON the scanner?	Press power button of the scanner for more than 2 seconds to turn it OFF, and after more than 2 seconds elapse, press the power button to turn the scanner ON.
2	Does any foreign object get inside the Analog PCA?	Take out the Analog PCA for checking (Refer to Section 6.7).
3	Are the cables between Analog PCA and the motor damaged? Or are the connectors connected correctly?	Refer to Section 6.10.3 for checking the motor cable.
4	Replace Analog PCA and see if the error is resolved.	Refer to Section 6.7 for replacement.

5.3.16 “E6: Operator panel alarm”

Table 5.3.16

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning OFF and ON the scanner?	Press power button of the scanner for more than 2 seconds to turn it OFF, and after more than 2 seconds elapse, press the power button to turn the scanner ON.
2	It seems the installed Panel PCA has been used in other scanner before and it may be faulty one. Replace it with the new Panel PCA.	Be sure that the EEPROM data is saved in the flash memory in the Control PCA (Section 7.2) and replace the Panel PCA with new one. Then conduct Maintenance mode #7 by referring to Section 7.1.8.

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5.3.17 “E7: EEPROM alarm”

Table 5.3.17

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning OFF and ON the scanner?	Press power button of the scanner for more than 2 seconds to turn it OFF, and after more than 2 seconds elapse, press the power button to turn the scanner ON.
2	Replace the Panel PCA and see if the error is resolved.	Refer to Section 6.11.2 for replacement.
3	Replace the Control PCA and see if the error is resolved.	Refer to Section 6.7 for replacement.

5.3.18 “E9: Image memory alarm”

Table 5.3.18

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning OFF and ON the scanner?	Press power button of the scanner for more than 2 seconds to turn it OFF, and after more than 2 seconds elapse, press the power button to turn the scanner ON.
2	Replace the Control PCA and see if the error is resolved.	Refer to Section 6.7 for replacement.

5.3.19 “Ec: RAM alarm”

Table 5.3.19

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning OFF and ON the scanner?	Press power button of the scanner for more than 2 seconds to turn it OFF, and after more than 2 seconds elapse, press the power button to turn the scanner ON.
2	Replace the Control PCA and see if the error is resolved.	Refer to Section 6.7 for replacement.

5.3.20 “Ed: SPC alarm”

Table 5.3.20

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning OFF and ON the scanner?	Press power button of the scanner for more than 2 seconds to turn it OFF, and after more than 2 seconds elapse, press the power button to turn the scanner ON.
2	Replace the Control PCA and see if the error is resolved.	Refer to Section 6.7 for replacement.

5.3.21 “F: ROM sum check alarm”

Table 5.3.21

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning OFF and ON the scanner?	Press power button of the scanner for more than 2 seconds to turn it OFF, and after more than 2 seconds elapse, press the power button to turn the scanner ON.
2	Replace the Control PCA and see if the error is resolved.	Refer to Section 6.7 for replacement.

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5.3.22 Driver error

Table 5.3.22

Item No.	Check items	How/where to check
1	Does the same symptom occur after turning OFF and ON the scanner?	Press power button of the scanner for more than 2 seconds to turn it OFF, and after more than 2 seconds elapse, press the power button to turn the scanner ON.
2	Is the connector between the scanner and the PC correctly connected?	Refer to Section 2.2.2.
3	Replace the Control PCA and see if the error is resolved.	Refer to Section 6.7 for replacement.

5.3.23 Paper is not ejected to the stacker smoothly

Table 5.3.23

Item No.	Check items	How/where to check
1	Do the documents satisfy paper specification?	Refer to the operator guide for paper specification in Section 1.2.
2	Replace the HK ring.	Refer to Section 2.2.2.

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Chapter 6 Maintenance Procedure

This chapter describes how to clean, replace maintenance parts to ensure normal operations, setting and test modes for maintenance. When re-assembling the maintenance parts, conduct necessary cleaning when instructed in this manual.

6.1 For Safety Operation

Please read this page carefully before disassembling or assembling.



Warning

Electric shock

Before disassembling or assembling, turn the power switch off, and unplug the AC power source from the outlet. If you do not this, an electric shock may occur.



CAUTION

Injury

Be careful not to get your fingers, hair, clothes or accessories caught in a moving part. It may cause injury.

Machine damage

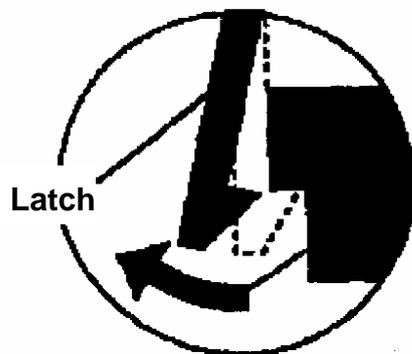
Static Electricity may cause damage to the scanner. When repairing the scanner, wear a wrist strap to avoid ESD.

Notes when cleaning

When cleaning the scanner, be careful not to allow foreign matter, such as dried ink and toner, to fall inside the scanner.

How to unlock plastic hooks

Many parts of the scanner are held in place with plastic latches. When removing parts that are held in place with latches, be very careful not to break latches. Push the upper place of the Latch when you remove these parts.



Do not use excessive force when removing parts held in place with latches.

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6.2 Preventive Maintenance

For the users who have signed on for the Periodic maintenance, perform the Preventive maintenance on the scanner at the following intervals.

Item	Maintenance cycle
ADF (Section 3.2)	Every 12 months
Optical unit (Section 6.3.1 or 6.3.2)	Every 12 months

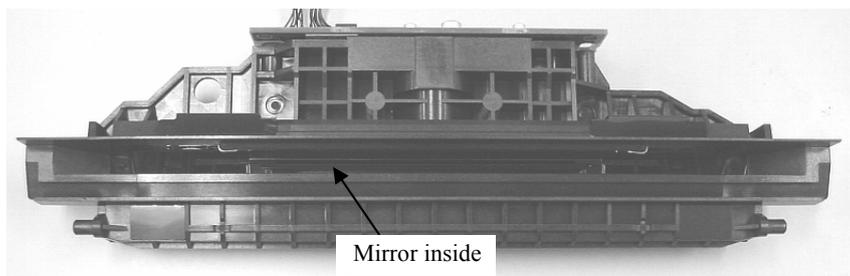
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6.3 Cleaning

Clean each part by following the procedures below.

6.3.1 Cleaning the Optical Unit (For front side scanning)

- 1) Remove the Optical unit by referring to Section 6.10.2 (Removing/Installing Optical unit for front side scanning).
- 2) Wipe the mirrors inside of the Optical unit with a blow brush or dry lint-free cloth. Be sure that no fabric from the cloth remains on the mirrors.



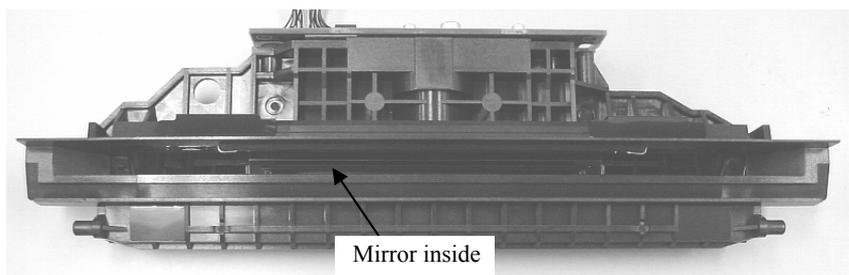
- 3) Assemble the Optical unit by following the procedure in reverse.

NOTICE

1. Be sure to use a blow brush or dry lint-free cloth. Wiping the mirrors with alcohol may leave residue.
2. Reflective surface of the mirror (aluminum evaporated surface) is inside of the Optical unit.
3. Cleaning should be done in a clean dust free environment.

6.3.2 Cleaning the Optical Unit (for backside scanning)

- 1) Remove the Optical unit by referring to Section 6.11.4 (Removing/Installing Optical unit for backside scanning).
- 2) Wipe the mirrors inside of the Optical unit with blow brush or dry lint-free cloth. Be sure that no fabric from the cloth remains on the mirrors.



- 3) Assemble the Optical unit by following the procedure in reverse.

NOTICE

1. Be sure to use a blow brush or dry lint-free cloth. Wiping the mirrors with alcohol may leave residue.
2. Reflective surface of the mirror (aluminum evaporated surface) is inside of the Optical unit.
3. Cleaning should be done in a clean dust free environment.

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6.4 Maintenance Tool

Special tools to maintain this scanner are shown in table 6.4.

Table 6.4

No.	Tools	When to use	Remarks
1	Philips screwdriver		For M3 screws
2	Alcohol	Cleaning	Ethyl alcohol or isopropyl alcohol 07
3	Blow brush	Cleaning mirror	
4	Small flat-blade screwdriver	Removing sensors and connector	
5	Flat-blade screwdriver	Removing the upper unit	
6	Test sheet (W)	Used to adjust or confirm the white level in Section 7.1.5.	Part number: PA03277-Y123 Please purchase this sheet prior to maintenance. Refer to Note 1, 2

Note 1: Replace with new one if used more than approximately 200 times, or adjustment errors frequently occur because of smear.

Note 2: Avoid direct sunlight when storing.

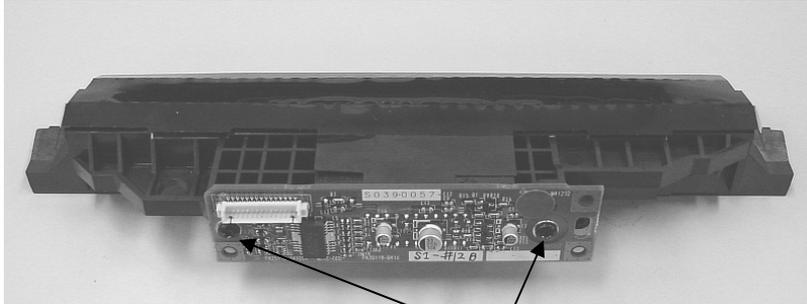
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6.5 Parts that should not be Disassembled

CAUTION

The following screws are adjusted and secured at the factory. Do not attempt to disassemble or loosen them to avoid critical damage in the image.

(1) Optical unit ADF



Screw for securing CCD board

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6.6 Removing / Installing the Chute ASSY and Stacker ASSY

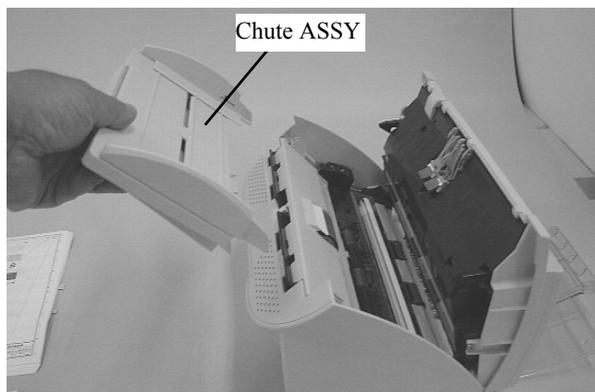
6.6.1 How to remove/install the Chute ASSY

NOTICE

Refer to section 8.5 for the specification of the replacement part.

<Removing>

Pull out the Chute ASSY obliquely upward.



<Installing>

Follow the above procedure in reverse.

6.6.2 How to remove/install the Stacker ASSY

NOTICE

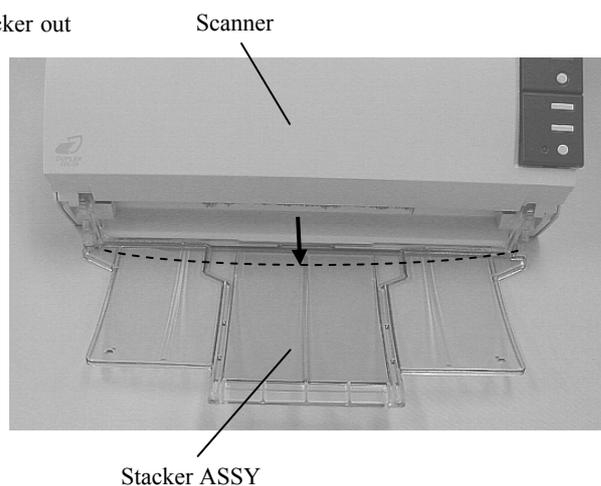
Refer to section 8.8 for the specification of the replacement part.

<Removing>

Bowing down the center of the Stacker ASSY, pull the stacker out of the fulcrum hole.

<Installing>

Follow the above procedure in reverse.



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6.7 Removing / Installing the Control PCA and Analog PCA

NOTICE

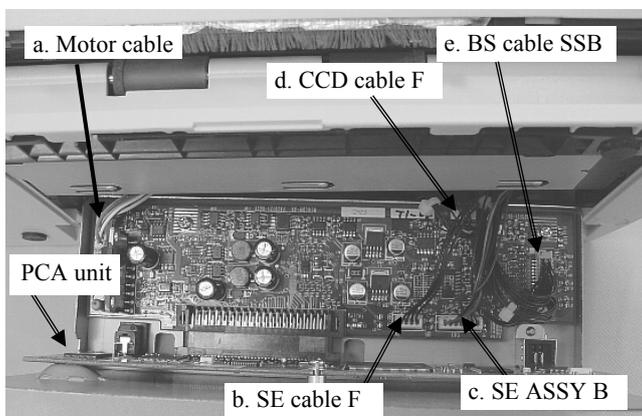
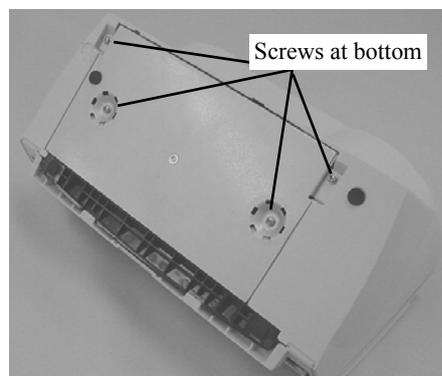
Refer to the following sections for the specifications of the replacement parts.

Control PCA: Section 8.10

Analog PCA: Section 8.11

<Removing>

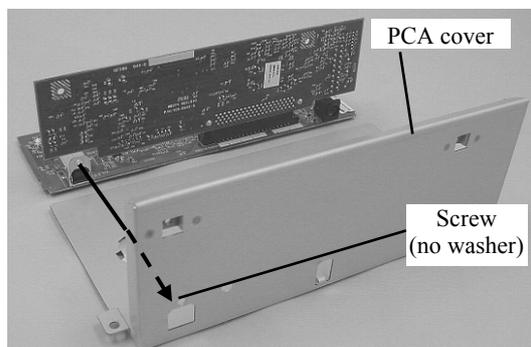
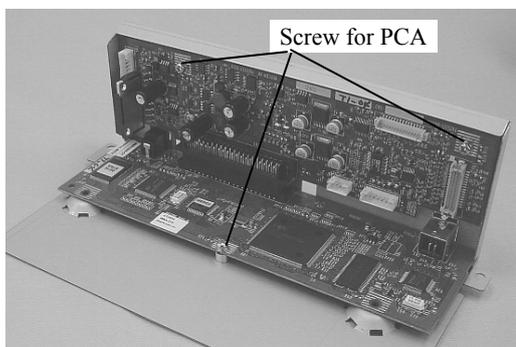
- (1) Remove 4 screws at the bottom of the scanner (photo on the right).
- (2) Being careful not to pull the inner cables, draw out the PCA unit at the bottom and disconnect 5 connectors. Then remove the PCA unit. (photo below)



NOTICE

When removing the connectors b and c, hold the upper bodies of them (near cable) and pull them.

- (3) Remove 3 screws for PCA and 1 screw for the connector, then remove 2 PCAs from the PCA cover.



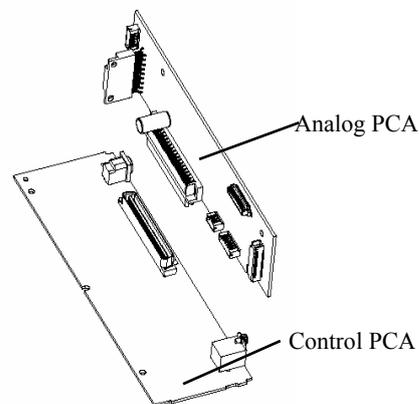
- (4) Disconnect the connector that joints 2 PCAs and divide the Control PCA and the Analog PCA.

<Installing>

Follow the above procedure in reverse.

NOTICE

Confirm that the connectors are connected firmly.



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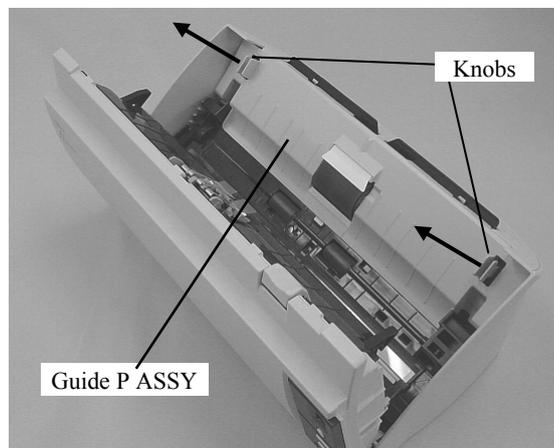
6.8 Removing / Installing the Guide P ASSY

NOTICE

Refer to section 8.7 for the specification of replacement part.

<Removing>

Open the ADF. Holding the right and left knobs on the Guide P ASSY, remove the Guide P ASSY upward.



<Installing>

Follow the above procedure in reverse.

Confirm that the claws of the knobs are securely latched.

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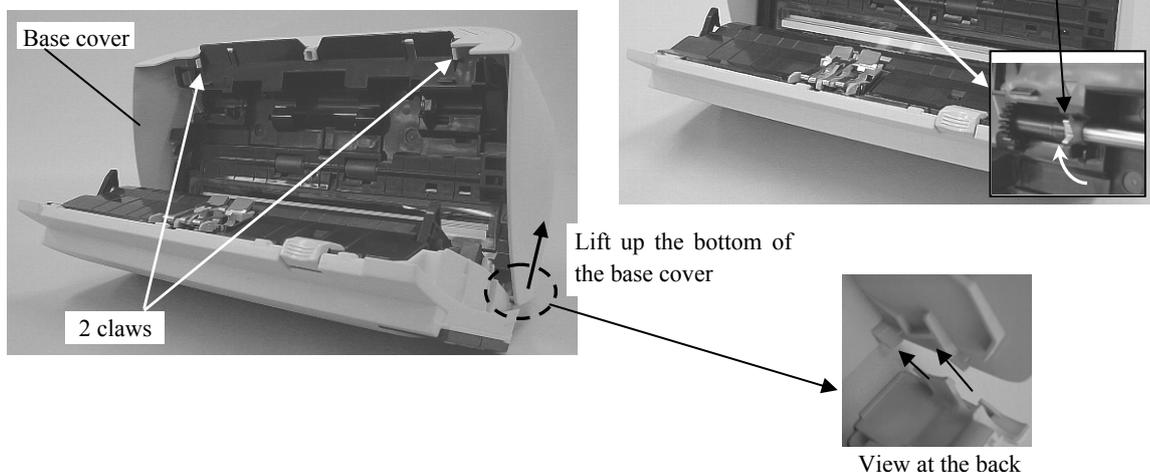
6.9 Removing / Installing the Guide A ASSY, Fixed unit and Upper unit

NOTICE

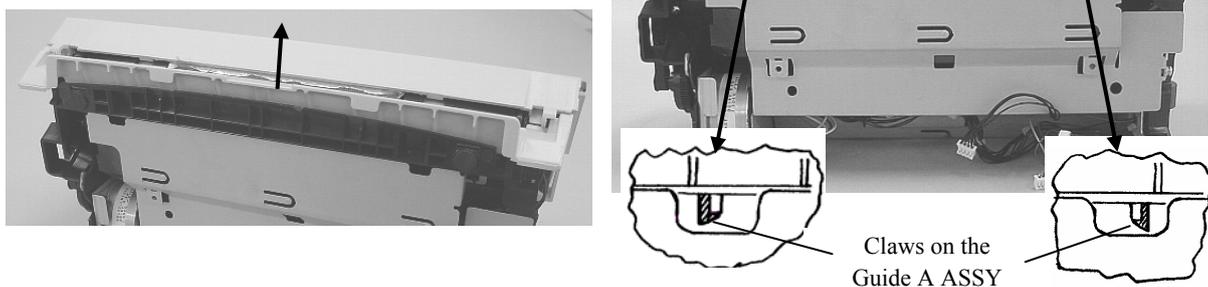
- Refer to the following sections for the specifications of replacement parts.
 Guide A ASSY: Section 8.6
 Fixed unit: Section 8.2
 Upper unit: Section 8.1

<Removing>

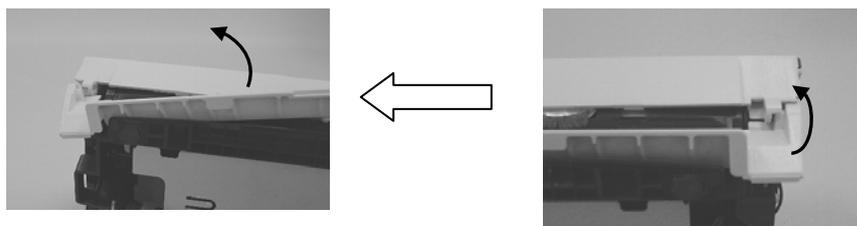
- (1) Remove the Chute ASSY (See Section 6.6.1), then the Guide P ASSY (See Section 6.8).
- (2) Remove the PCA unit by referring to the steps (1) and (2) of Section 6.7.
- (3) Place the scanner as shown below. Raise the claws on the Pick roller bearing and remove the Pick roller shaft. Then unlatch 2 claws on the Base cover, lift up the bottom of the Base cover and remove the Base cover.



- (4) Place the scanner as shown in the photo on the right. Unlatch 2 claws on the Guide A ASSY inside of the hole at the bottom of the scanner and lift up the Guide A ASSY a bit. (photo below)

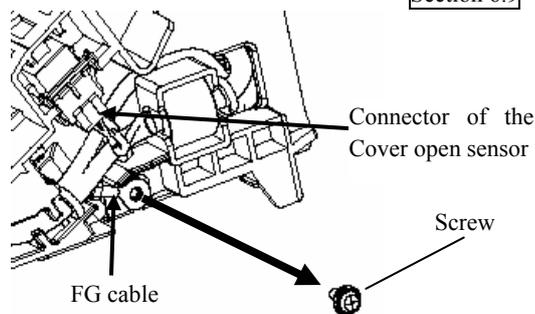


- (5) Lift up the Guide A ASSY at your right side. Then remove the left side from the scanner and remove the Guide A ASSY.



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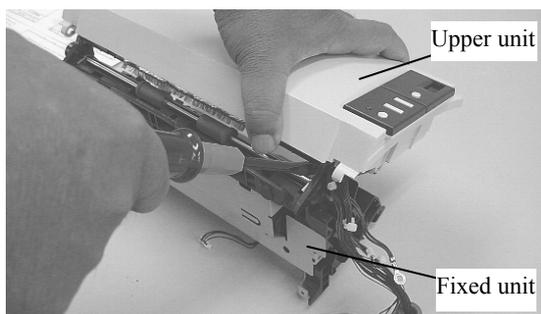
- (6) Remove a FG cable screw from the side of the Fixed unit.
- (7) Disconnect the connector of the Cover open sensor and remove all the cables from the Fixed unit.



NOTICE

Do not pull the cable of this connector as it may easily come off the connector.

- (8) Place the scanner as its fulcrum faces up. Insert a flat-blade screwdriver at the fulcrum between the Upper unit and the Fixed unit (photo below), and remove a supporting pin from a hole. Remove another pin at the other side, then separate the Upper unit and the Fixed unit.



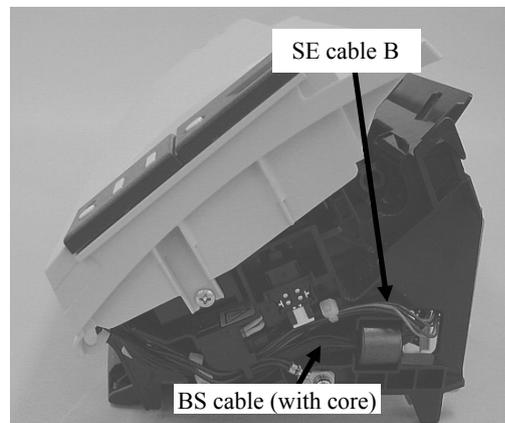
- (9) To replace the Upper unit, remove the Panel PCA by referring to steps (1) and (2) in Section 6.11.1 and install it to the new Upper unit.

<Installing Fixed unit and Upper unit>

Follow the above procedure in reverse by being careful of the following notices.

NOTICE

- 1) Arrange the cable routes as shown on the right.
- 2) If the Upper unit or the Fixed unit is replaced, perform the following adjustments.
 - Magnification adjustment (Section 7.1.3)
 - Offset adjustment (Section 7.1.4)
 - White level adjustment (Section 7.1.5)
- 3) The Fixed unit includes the Pick roller. If the Fixed unit is replaced, reset the Pick roller counter by referring to Section 3.3.4. The Upper unit includes the Pad ASSY. If the Upper unit is replaced, reset the Pad counter by referring to Section 3.3.3.



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6.10 Removing / Installing the Parts in the Fixed unit

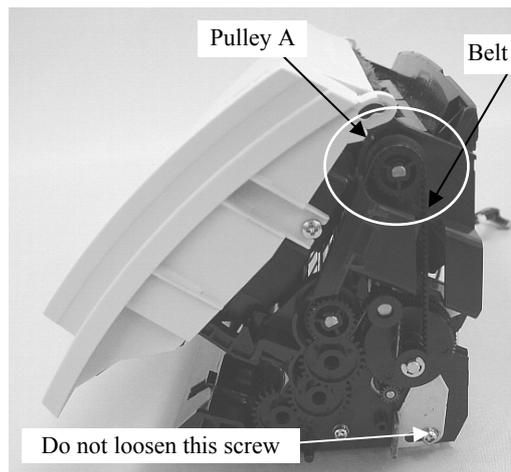
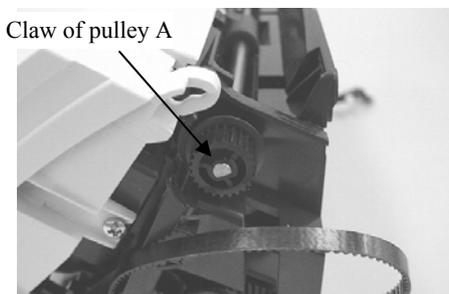
6.10.1 How to remove/install the HK rings

NOTICE

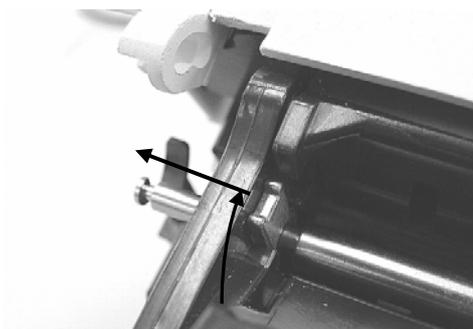
Refer to Section 8.15 for the specification of replacement parts. 2 parts are required for one scanner.

<Removing>

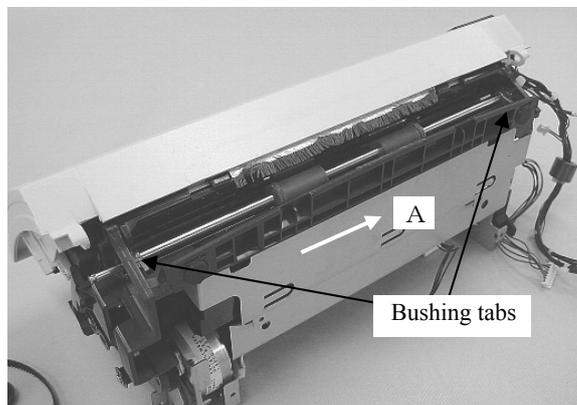
- (1) Remove the Chute ASSY (see Section 6.6.1), the PCA unit (see steps (1) and (2) on Section 6.7), the Guide P ASSY (see Section 6.8), and remove the Base cover and the Guide A ASSY (see steps (1) to (5) on Section 6.9).
- (2) Pull the belt on the pulley A outward (photo on the right), then remove the belt from the pulley A.
- (3) Unlatch a claw of the pulley A (photo below), and remove the pulley from the shaft.



- (4) Raise the bushing tabs at both sides of the Feed roller and move them outward. (photo below) Then slide the roller in direction A to remove the Feed roller. (photo on the right)

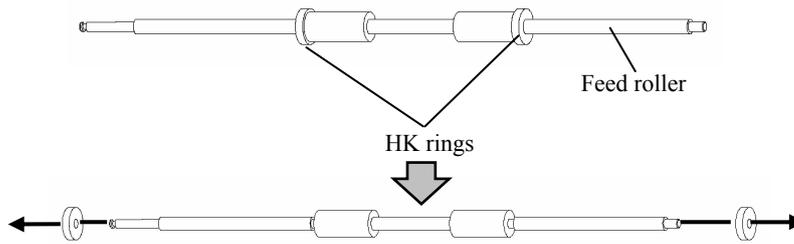


Same on the other side



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- (5) Remove the bushing at the both sides and pull out the HK rings inserted in the Feed roller.

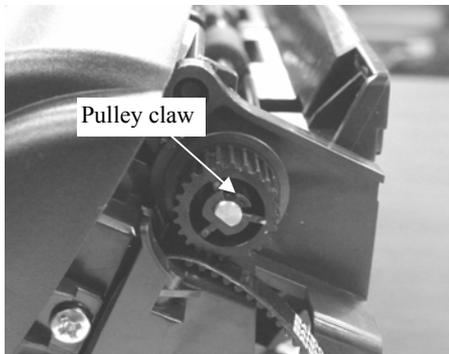


<Installing>

Follow the above procedure in reverse.

NOTICE

- After replacement, perform the offset adjustment by referring to Section 7.1.4.
- Make sure that the pulley claw is securely latched.



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6.10.2 How to remove/install the Optical unit (for front side scanning)

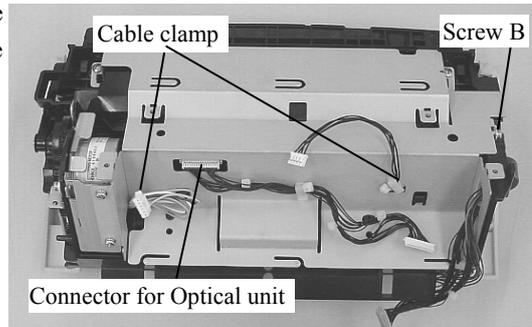
NOTICE

Refer to section 8.3 for the specification of the replacement part.

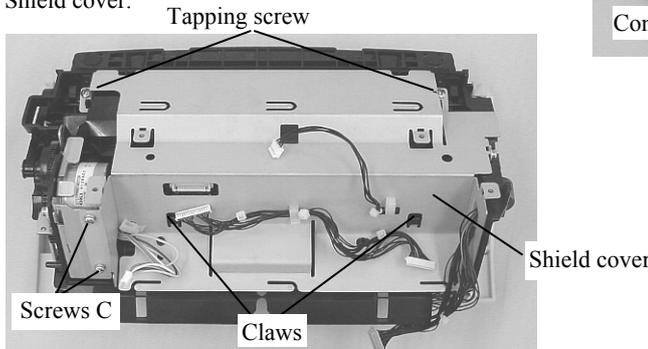
<Removing>

(1) Remove the Chute ASSY (see Section 6.6.1), the PCA unit (see steps (1) and (2) on Section 6.7), the Guide P ASSY (see Section 6.8), and remove the Base cover (see steps (1) to (3) on Section 6.9).

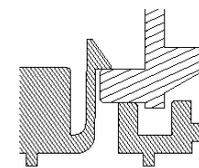
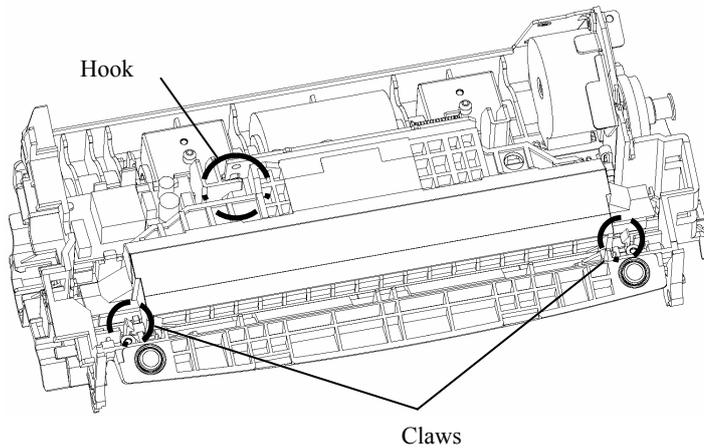
(2) Disconnect a connector for the Optical unit and remove the cable from the cable clamps (2 locations, photo on the right) on the Shield cover. Then remove the screw B.



(3) Remove 2 tapping screws and two Screws C (photo below), unlatch 2 claws (photo below), pull the cables out of the holes on the Shield cover, then remove the Shield cover.



(4) Unlatch the Optical unit claws outward, and remove the Optical unit while avoiding the hook.



Cross-section of the claw

<Installing>

Follow the above procedure in reverse.

NOTICE

After replacement, perform the following adjustments.

- Magnification adjustment (Section 7.1.3)
- Offset adjustment (Section 7.1.4)
- White level adjustment (Section 7.1.5)

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6.10.3 How to remove/install the Motor

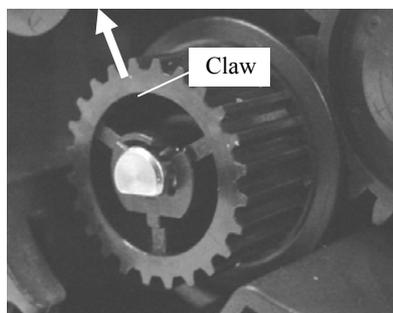
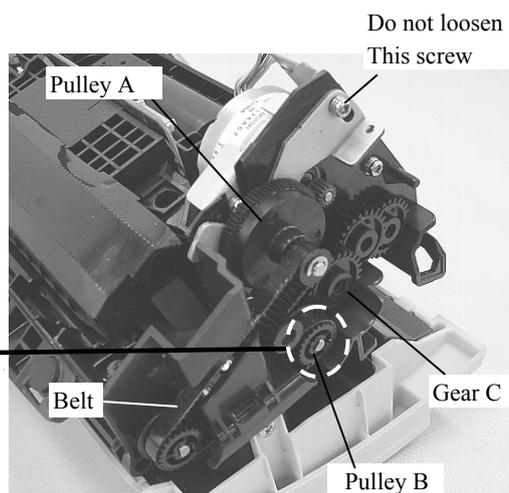
NOTICE

Refer to sections 8.17 for the specification of the replacement part.

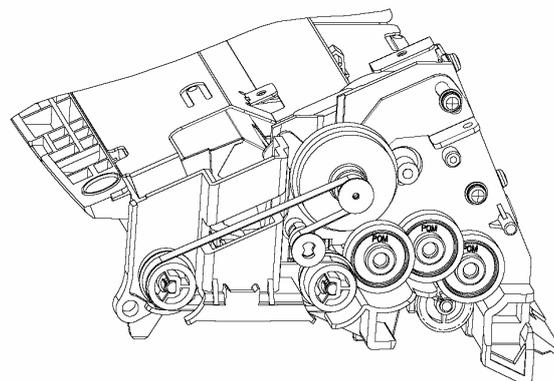
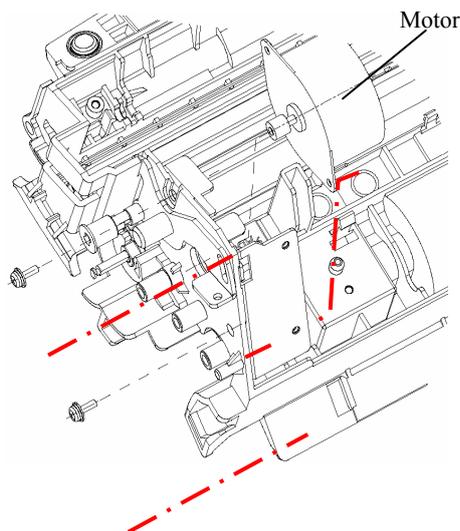
<Removing>

- (1) Remove the Chute ASSY (see Section 6.6.1), the PCA unit (see steps (1) and (2) on Section 6.7), the Guide P ASSY (see Section 6.8), and remove the Base cover (see steps (1) to (3) on Section 6.9).
- (2) Remove the Shield cover by referring to steps (2) and (3) on Section 6.10.2.
- (3) Pull the belt on the Pulley B outward. Then remove the belt from the pulley B and A (photo on the right).

- (4) Pushing the claw of the pulley B (photo below) in the direction of the arrow with a small flat-blade screwdriver, then pull the pulley B out of the shaft toward you (photo below). Then remove the gear C. Remove an E-ring from the shaft of the Pulley A and remove the Pulley A.



- (5) Remove 2 screws for motor (picture below), disconnect the connector from the Motor, and remove the Motor.



<Installing>

Follow the above procedure in reverse.

NOTICE

After replacement, perform the offset adjustment by referring to Section 7.1.4.

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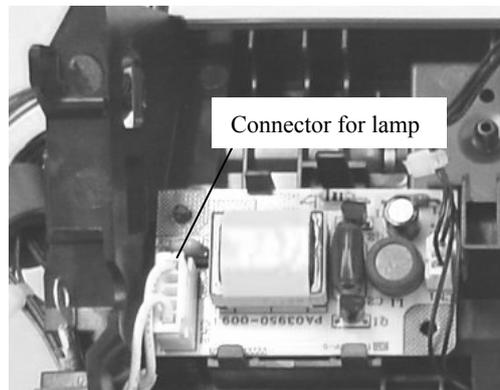
6.10.4 How to remove/install the Lamps (for front side scanning)

NOTICE

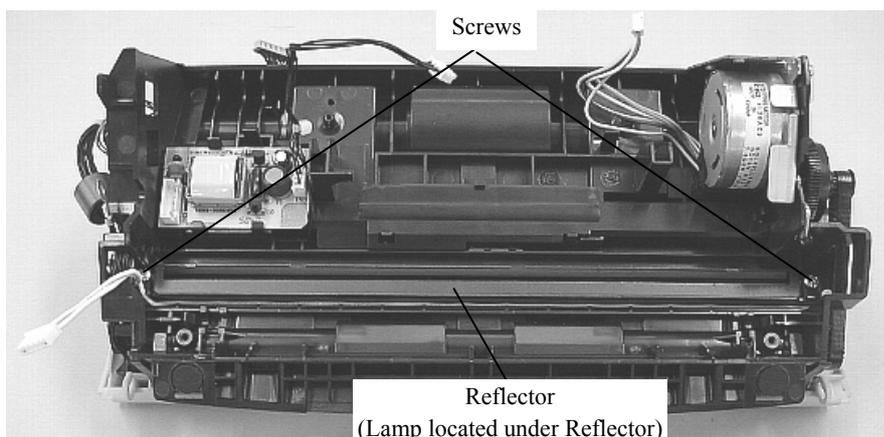
Refer to section 8.14 for the specification of the replacement parts.

<Removing>

- (1) Remove the Chute ASSY (see Section 6.6.1), the PCA unit (see steps (1) and (2) on Section 6.7), the Guide P ASSY (see Section 6.8), and remove the Base cover (see steps (1) to (3) on Section 6.9).
- (2) By referring to steps (2) to (4) on Section 6.10.2, remove the Shield cover and the Optical unit.
- (3) Disconnect the connector for the lamp from the Inverter.



- (4) Remove 2 screws for the reflector and remove the reflector. Then remove the lamp from the groove on the Fixed unit frame and take it out (photo below).



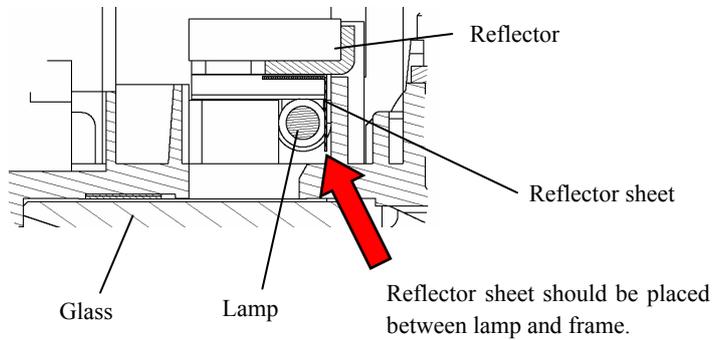
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<Installing>

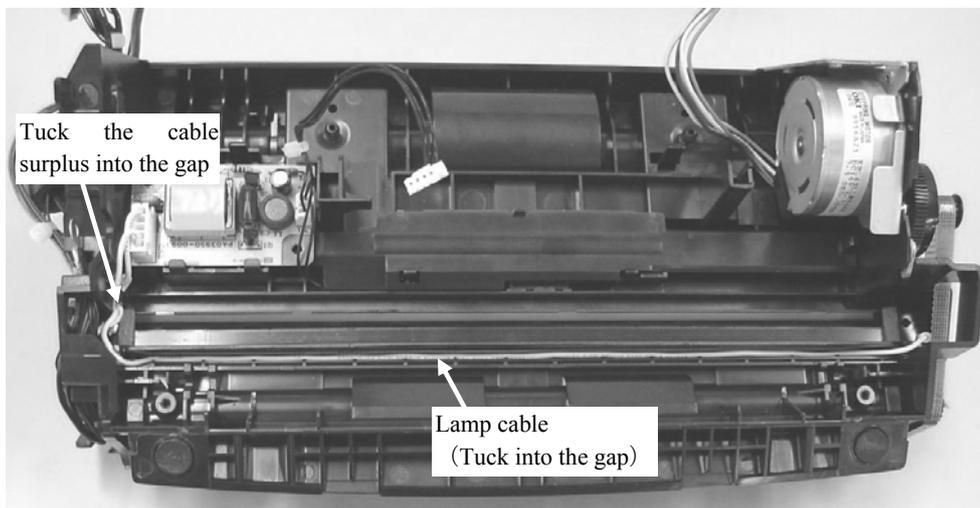
Being careful of the notices below, follow the above procedure in reverse.

NOTICE

- 1) Confirm that the reflector sheet is placed between the lamp and the frame.



- 2) Locate the lamp cable as shown in the photo below.



- 3) After replacement, perform the following adjustments.
 - Magnification adjustment (Section 7.1.3)
 - Offset adjustment (Section 7.1.4)
 - White level adjustment (Section 7.1.5)

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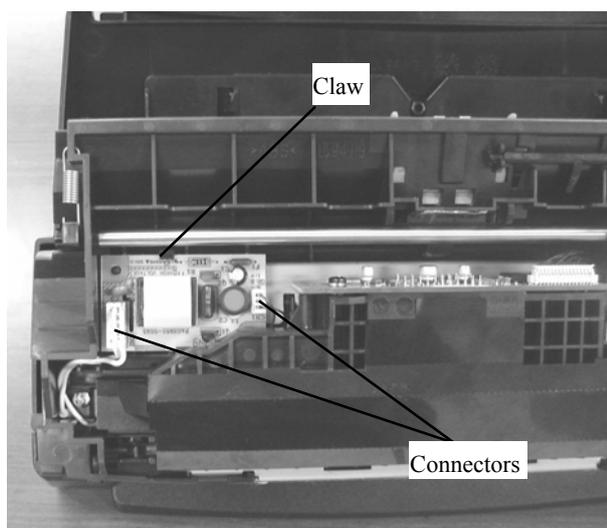
6.10.5 How to remove/install the Inverter (for front side scanning)

NOTICE

Refer to section 8.16 for the specification of the replacement part.

<Removing>

- (1) Remove the Chute ASSY (see Section 6.6.1), the PCA unit (see steps (1) and (2) on Section 6.7), the Guide P ASSY (see Section 6.8), and remove the Base cover ASSY (see steps (1) to (3) on Section 6.9).
- (2) By referring to steps (2) to (3) on Section 6.10.2, remove the Shield cover.
- (3) Unlatch a claw that holds the Inverter, and disconnect 2 connectors from the Inverter.



<Installing>

Follow the above procedure in reverse.

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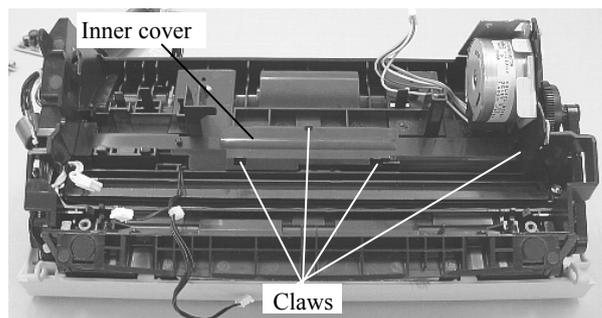
6.10.6 How to remove/install the Sensor LED

NOTICE

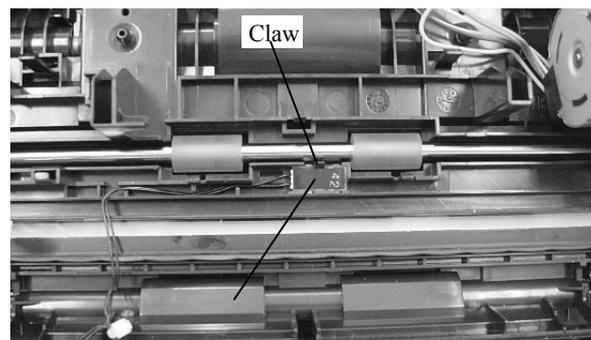
Refer to section 8.20 for the specification of the replacement part.

<Removing>

- (1) Remove the Chute ASSY (see Section 6.6.1), the PCA unit (see steps (1) and (2) on Section 6.7), the Guide P ASSY (see Section 6.8), and remove the Base cover (see steps (1) to (3) on Section 6.9).
- (2) Referring to steps (2) to (3) on Section 6.10.2, remove the Shield cover.
- (3) Referring to step (3) on Section 6.10.5, remove the Inverter.
- (4) Unlatch 4 claws and remove the inner cover.



- (5) Unlatch the claw and remove the Sensor LED. Disconnect the connector from the Sensor LED.



<Installing>

Follow the above procedure in reverse.

NOTICE

After the replacement, perform the sensor test by referring to Section 7.1.2.

07

6.10.7 How to remove/install the Pick Shaft ASSY

NOTICE

Refer to section 8.23 for the specification of the replacement part.

<Removing>

Referring to steps (1) to (7) in Section 3.3.3, remove the Pick Roller from the shaft (Pick Shaft ASSY).

<Installing>

Referring to steps (8) to (13) in Section 3.3.3, draw the new shaft (Pick Shaft ASSY) through the Pick Roller, and then install the Pick Roller into the scanner.

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6.11 Removing / Installing the Revolve unit

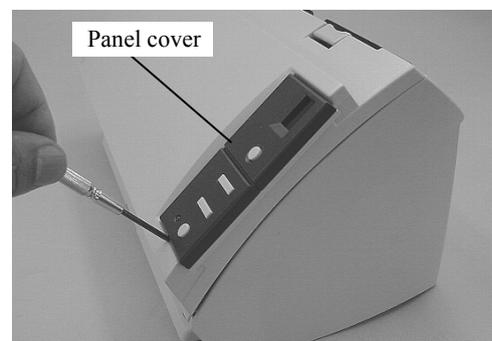
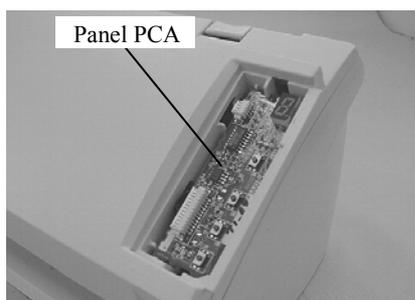
6.11.1 How to remove/install the Top cover ASSY

NOTICE

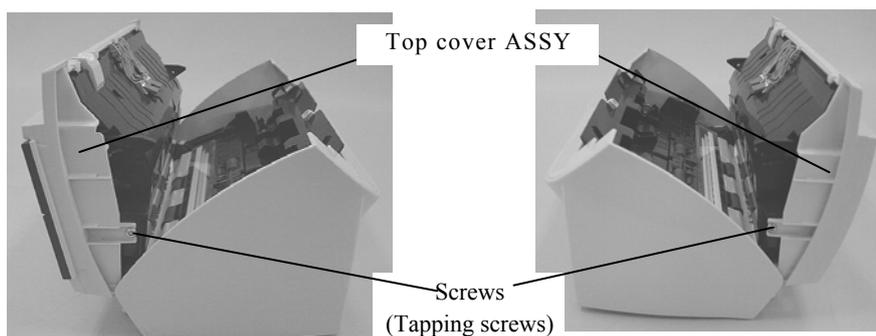
Refer to section 8.4 for the specification of the replacement parts.

<Removing>

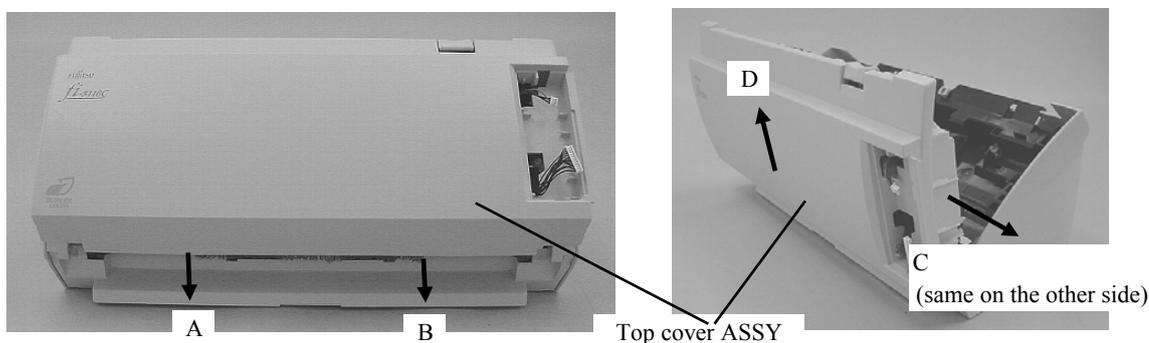
- (1) Insert a small flat-blade screwdriver in the gap at the bottom of the Panel cover and remove the Panel cover.
- (2) Take out the Panel PCA, disconnect 2 connectors and remove the Panel PCA.



- (3) Open the ADF and remove 2 screws at left and right of the Top cover ASSY.



- (4) Pull the lower side (arrows A and B in the photo left below) of the Top cover ASSY outward, and unlatch the inner claw. Open the ADF, pull both sides of the Top cover ASSY (arrow C in the photo right below) and unlatch the inner claw. Lift up the Top cover ASSY upward (direction D) and remove the Top cover ASSY.



<Installing>

Follow the above procedure in reverse.

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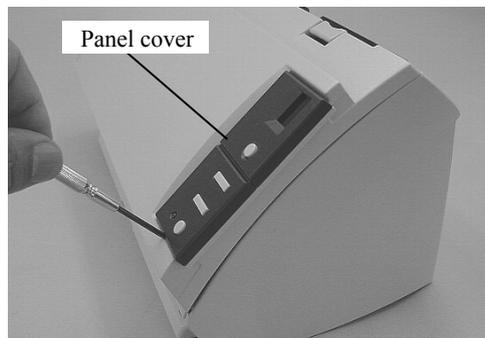
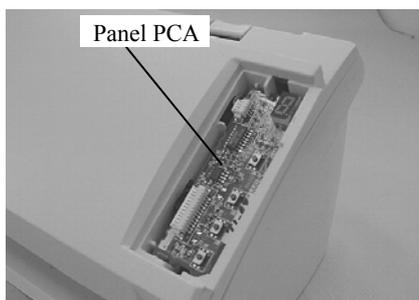
6.11.2 How to remove/install the Panel PCA

NOTICE

Refer to section 8.12 for the specification of the replacement parts.

<Removing>

- (1) Save the EEPROM data by referring to Section 7.2.
- (2) Insert a small flat-blade screwdriver in the gap at the bottom of the Panel cover and remove the Panel cover
- (3) Take out the Panel PCA, disconnect 2 connectors and remove the Panel PCA.



<Installing>

Follow the above procedure in reverse.

NOTICE

After replacement, restore the EEPROM data by referring to Section 7.1.8, and perform the following adjustments.

- Magnification adjustment (Section 7.1.3)
- Offset adjustment (Section 7.1.4)

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6.11.3 How to remove/install the EMPTY sensor

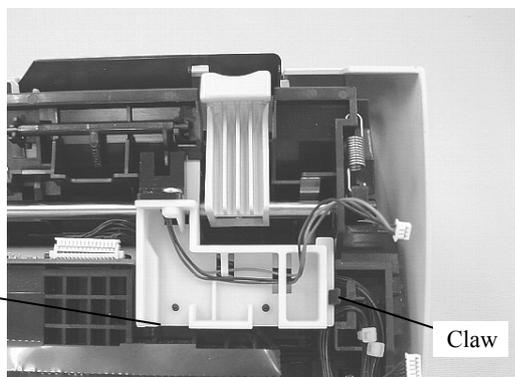
NOTICE

Refer to section 8.18 for the specification of the replacement part.

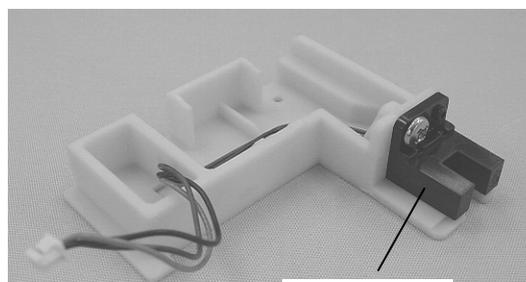
<Removing>

- (1) Referring to Section 6.11.1, remove the Panel PCA and the Top cover ASSY.
- (2) Unlatch a claw and remove the EMPTY sensor mounting part.

EMPTY sensor mounting part



- (3) Remove a screw and remove the EMPTY sensor.



<Installing>

Follow the above procedure in reverse.

NOTICE

After the replacement, perform the sensor test by referring to Section 7.1.2.

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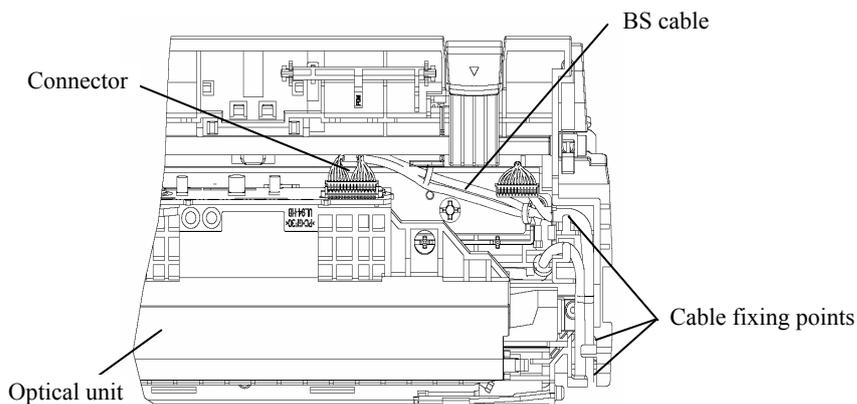
6.11.4 How to remove/install the Optical unit (for backside scanning)

NOTICE

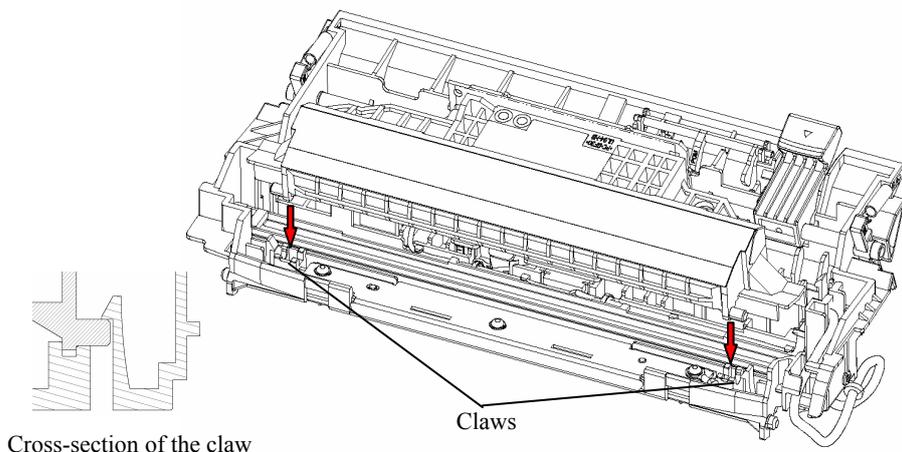
Refer to section 8.3 for the specification of the replacement part.

<Removing>

- (4) Referring to Section 6.11.1, remove the Top cover ASSY.
- (5) Pull out a connector from the Optical unit.



- (6) Unlatch the Optical unit claws outward, and remove the Optical unit.



<Installing>

Follow the above procedure in reverse.

NOTICE

After replacement, perform the following adjustments.

- Magnification adjustment (Section 7.1.3)
- Offset adjustment (Section 7.1.4)
- White level adjustment (Section 7.1.5)

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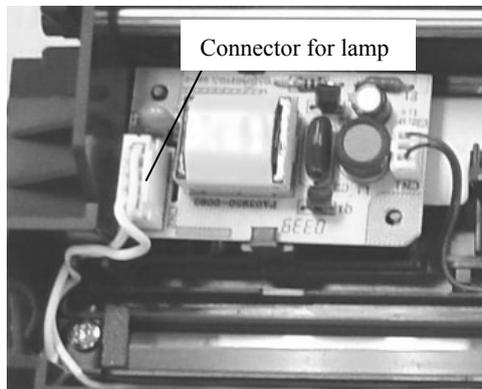
6.11.5 How to remove/install the Lamps (for backside scanning)

NOTICE

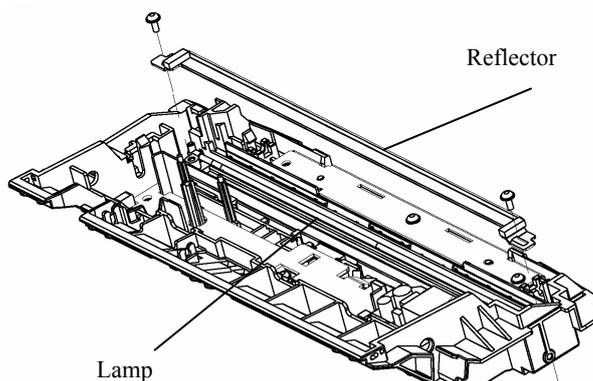
Refer to section 8.14 for the specification of the replacement parts.

<Removing>

- (1) Referring to Section 6.11.1, remove the Panel PCA and Top cover ASSY.
- (2) Referring to steps (2) and (3) on Section 6.11.4, remove the Optical unit.
- (3) Disconnect the connector for the lamp from the Inverter.



- (4) Remove 2 screws for the reflector and remove the reflector. Then remove the lamp from the groove on the frame, and take it out (Picture on the right).



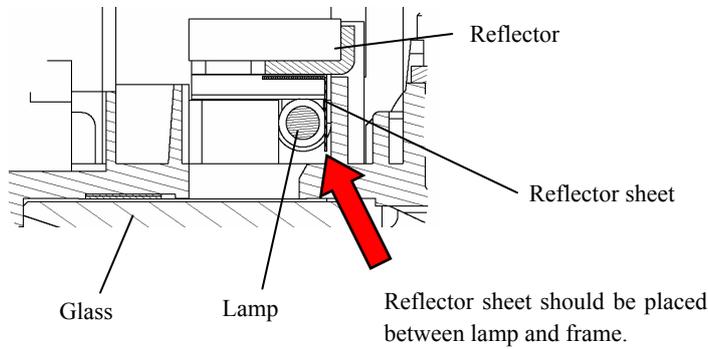
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<Installing>

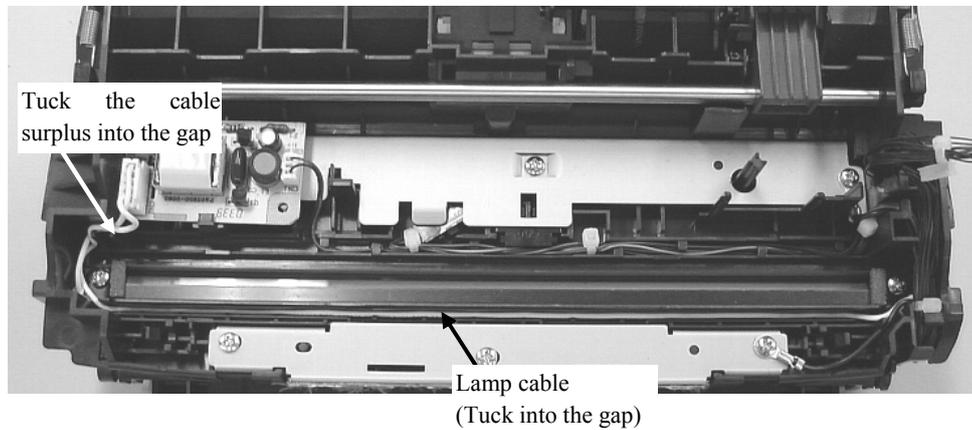
Being careful of the notices below, follow the above procedure in reverse.

NOTICE

1) Confirm that the reflector sheet is placed between the lamp and the frame.



2) Locate the lamp cable as shown in the photo below.



3) After the replacement, perform the following adjustments by referring to Section 7.6.

- Magnification adjustment (Section 7.1.3)
- Offset adjustment (Section 7.1.4)
- White level adjustment (Section 7.1.5)

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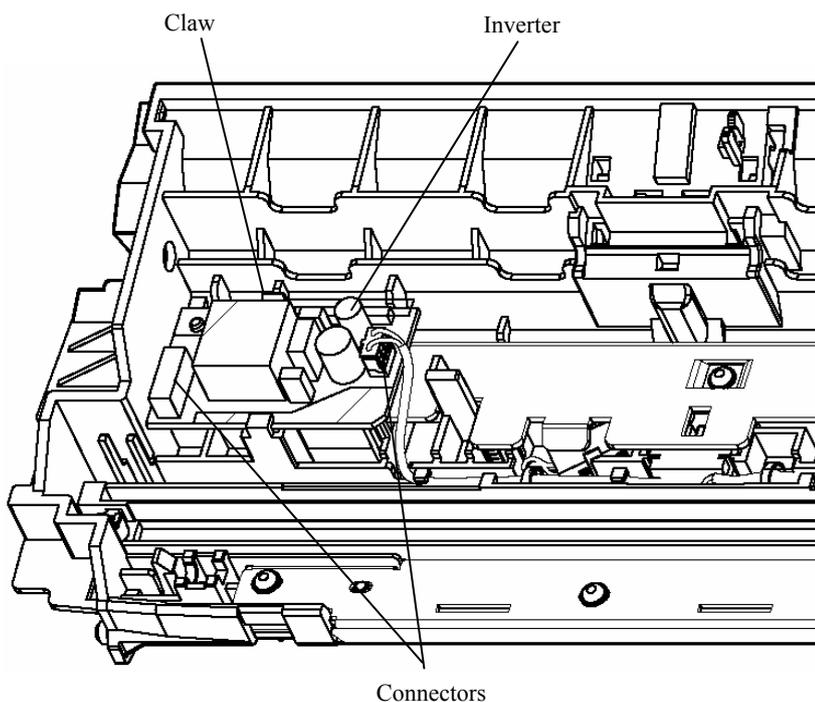
6.11.6 How to remove/install the Inverter (for backside scanning)

NOTICE

Refer to section 8.16 for the specification of the replacement part.

<Removing>

- (1) Referring to Section 6.11.1, remove the Panel PCA and the Top cover ASSY.
- (2) Unlatch a claw that holds the Inverter and disconnect 2 connectors from the Inverter.



<Installing>

Follow the above procedure in reverse.

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6.11.7 How to remove/install the Sensor ASSY B and Sensor PTR

NOTICE

Refer to the following sections for the specifications of the replacement parts.

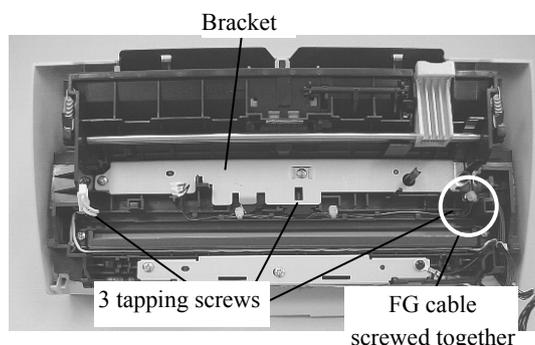
Sensor ASSY B: Section 8.9

Sensor PTR: Section 8.19

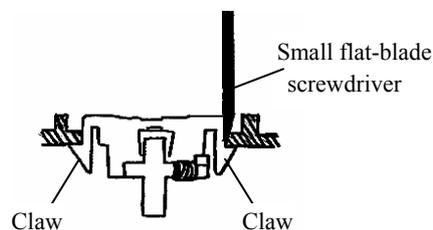
<Removing>

- (1) Referring to Section 6.11.1, remove the Panel PCA and the Top cover ASSY.
- (2) Referring to steps (1) to (3) on Section 6.9, remove the Base cover.
- (3) Referring to steps (2) and (3) on Section 6.11.4, remove the Optical unit.
- (4) Referring to step (2) on Section 6.11.6, remove the Inverter.

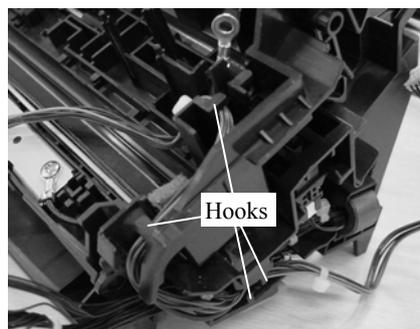
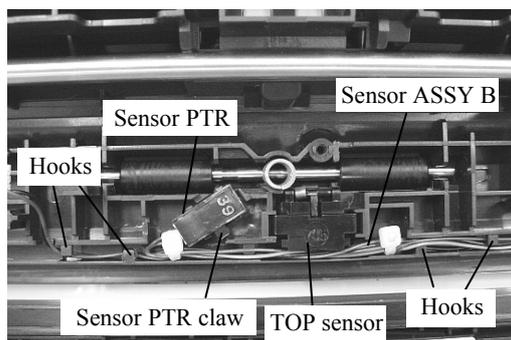
- (5) Remove 3 screws and remove the bracket.
The FG board, the FG cable and the spring washer are attached with screw A



- (6) Unlatch the Sensor PTR claw with a small flat-blade screwdriver and remove the Sensor PTR. In case of replacing the Sensor PTR, its removal procedure has been completed here.



- (7) Unlatch the claw with a small flat-blade screwdriver (picture on the right), and remove the TOP sensor. Unlatch the Sensor ASSY B (assembly of the TOP sensor and cable) from all the hooks on the frame (photos below) and remove it.



<Installing>

Follow the above procedure in reverse.

NOTICE

After replacement, perform the sensor test by referring to Section 7.1.2.

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Chapter 7 Adjustment/Settings

7.1 Maintenance mode

The scanner supports built-in Maintenance mode that allows users to check scanner's performance and settings. This section gives the description of Maintenance mode.

7.1.1 Activating the Maintenance mode

(1) How to activate the Maintenance mode

Open the ADF cover and press the power button once while holding down the **SCAN** button. Keep holding the **SCAN** button down until Screen T04 is displayed. This will put the scanner into Maintenance mode. While in Maintenance mode, the scanner interface is off-line.

The following display appears during power up processing in Maintenance mode.

Screen T01

Function No.	Power LED	Scanner status
8	ON	Initial processing in Maintenance mode

When Maintenance mode is activated normally after the initial processing, the following display appears.

Screen T04

Function No.	Power LED	Scanner status
8	ON	Maintenance mode #1 selected

(2) Test/adjustment items of the Maintenance mode

The following lists test/adjustment items #1 ~ #7 that are supported by the scanner.

- Mode 1: Paper transportation test and Sensor test
- Mode 2: Main scanning/Sub-scanning magnification adjustment
- Mode 3: Offset adjustment
- Mode 4: White level adjustment
- Mode 5: Consumables counter display and reset
- Mode 6: Miscellaneous information display
- Mode 7: EEPROM data restore

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(3) Changing Maintenance mode

To change Maintenance modes (#1 ~ #7), press the **Function** button on the activation screen for Maintenance mode. The display changes as follows. Mode #1 is the default mode.

Maintenance mode No.	Display			Maintenance mode	Related section
	Function No. Display	Power LED	Status transition		
#1		ON		Paper transportation test and Sensor test	5-1-2
#2		ON		Main-scanning/ Sub-scanning magnification adjustment	5-1-3
#3		ON		Offset adjustment	5-1-4
#4		ON		White level adjustment	5-1-5
#5		ON		Consumables counter display and reset	5-1-6
#6		ON		Miscellaneous information display	5-1-7
#7		ON		EEPROM data restore	5-1-7
#8		ON		(Reserved) Press Function key to return to #1.	

(4) Starting the Maintenance mode

Select one Maintenance mode and press **Scan**. The scanner activates the selected Maintenance mode.

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7.1.2 Maintenance mode #1: Paper feeding test and Sensor test

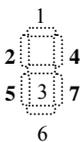
This mode tests the ADF continuous paper feeding operation at the specified speed and also checks sensor status (ON/OFF) for each of the ADF sensors.

[How to start]

- (1) From screen T04, press the **Function** button to select  (Maintenance mode #1) and press the **Scan** button. The selection screen for scanning speed/sensor test appears. A number is shown on the Function No. Display indicating the selected scanning speed or test mode as follows. If you want to perform the sensor test, go to step (4).

Function No. Display	Scanning speed/test mode	Remarks
0	Color 150 dpi	Default
1	Color 200 dpi	
2	Color 300 dpi	
3	Color 400 dpi	
4	Color 600 dpi	
5	Monochrome 400 dpi	
6	Monochrome 600 dpi	
7	Sensor test	

- (2) The scanning speed/test mode is changed by pressing **Function** button. To test the continuous feeding operation, select the desired scanning speed (this varies depending on the scanning resolution) from 0 ~ 6.
- (3) When pressing **Scan** button, the ADF operation is started if any paper is on the ADF paper chute (Empty sensor ON).
- (4) Press the **Function** button to indicate “7” on the Function No. display, then press the **Scan** button. The scanner enters Sensor test mode. The following table shows how the sensor status is displayed while the sensor test is in progress.

Function No. Display	Description	Display
	1: Reserved	
	2: indicates Empty sensor status	Illuminates when the sensor is ON (Paper is loaded on the ADF chute)
	4: indicates TOP sensor status	Illuminates when the sensor is ON (Paper is detected)
	5: indicates Cover open sensor status	Illuminates when the sensor is OFF (Cover is open) *1
	6: Reserved	
	7: indicates DF sensor (Sensor PTR and Sensor LED) status	Illuminates when the sensor is ON (Paper is detected)
		*2

*1: This sensor test should be conducted by opening/closing the ADF cover. When the Cover open sensor is pressed by anything other than ADF cover, the Multi feed sensor turns ON, causing position “7” to light.

*2 Refer to Section 4.1 “ADF unit” for the positions of the sensors.

During the sensor test, you can check the sensor status (ON/OFF) when the document passes through the ADF by the following procedures:

1. Press the **Function** button. The ADF motor starts to rotate.
2. Set the document into the ADF paper chute.

[How to end]

Press **Send to** button. The test stops and the Maintenance mode selection screen (T04) appears. The ADF continuous feeding operation is also terminated when no more paper on the Chute unit.

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7.1.3 Maintenance mode #2: Main scanning / Sub-scanning magnification adjustment

In this mode, the magnification correction values for main/sub scanning are automatically calculated to satisfy the following adjustment value.

Adjustment value

Main scanning: Within $\pm 1.0\%$

Sub scanning: Within $\pm 1.0\%$ (Without stop and start during scanning)

: Within $\pm 2.0\%$ (With stop and start during scanning)

NOTICE

Before this adjustment, please prepare the Test sheet described in Figure 7.1.3.

If Main-scanning magnification (ADF front or back) is adjusted, then run Offset adjustment (ADF front or back) described in Section 7.1.4.

[How to start]

- (1) From screen T04, Press the **Function** button to select  (Maintenance mode #2) and press the **Scan** button. A number is shown on the Function No. Display indicating the magnification to be adjusted as follows:

Function No. Display	Magnification to be adjusted	Remarks
0	ADF sub- scanning magnification adjustment	Default Prepare the test sheet described in Figure 7.1.3.
1	ADF main scanning magnification adjustment (front)	Prepare the test sheet described in Figure 7.1.3.
2	ADF main scanning magnification adjustment (back)	

- (2) Select the magnification you want to change by pressing **Function** button.

- (3) Set the adjustment test sheet on the Chute unit, and adjust the side guide to the width of the test sheet. Set the test sheet facing down on the Chute unit for the ADF front adjustment, and facing up for the ADF back adjustment.

Press **Scan** button to start the adjustment.

[How to end]

Press **Send to** button during operation. The operation stops and the Maintenance mode selection screen (T04) appears.

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[Display after adjustment]

After the magnification adjustment, the following display appears depending on its terminated status.

(1) When the magnification adjustment is terminated normally

Screen T21

Function Display	No.	Scanner status
		Displays "o" without blinking.

<Available buttons at screen T21>

Function button: Displays screen T22 to write the correction value into EEPROM.

Send to button: Terminates this mode and returns to screen T04.

Screen T22

Function Display	No.	Scanner status
		"o" (down half) blinks.

<Available buttons at screen T22>

Scan + **Function** button: Starts writing the magnification correction value into EEPROM. During writing operation, screen T23 displayed, and when it finishes, screen T24 appears.

Send to button: Terminates this mode and returns to screen T04.

Screen T23

Function Display	No.	Scanner status
		"L" lights without blinking.

Note: While screen T23 is displayed, no button can function.

Screen T24

Function Display	No.	Scanner status
		"o" (upper half) lights without blinking.

<Available buttons at screen T24>

Send to button: Terminates this mode and returns to screen T04.

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(2) When the magnification adjustment is terminated abnormally

Screen T25

Function No. Display	Scanner status
	Displays "c" without blinking.

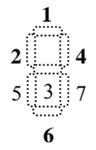
Note: The major reason of abnormal termination is incorrect setting of the test sheet. Set the test sheet correctly on the ADF paper chute and try the magnification adjustment again.

<Available buttons at screen T25>

Function button: Displays error information (screen T26)

Send to button: Terminates this mode and returns to screen T04.

Screen T26

Function No. Display	Description	Adjustment mode (*1)		Countermeasure when abnormal termination frequently occurs
		0	1,2	
	1: cannot detect the leading edge of the document	√		Conduct necessary operation by referring to step (2) and later in Section 5.3.7.
	2: cannot detect the left edge of the document		√	
	4: cannot detect the right edge of the document		√	
	5: Excessive skew A		√	
	6: cannot detect the trailing edge of the document	√		
	7: Excessive skew B		√	

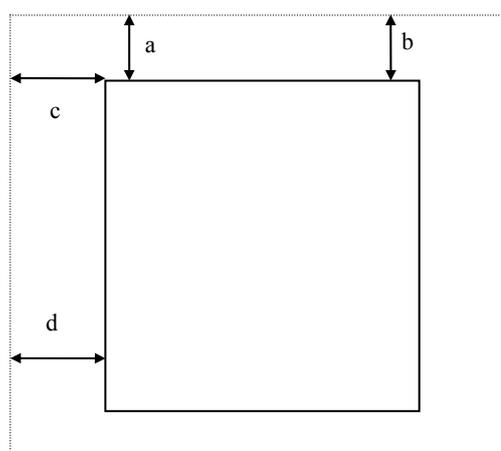
(*1) 0 : ADF sub scanning magnification adjustment

1,2: ADF front/back main scanning magnification adjustment

Skew A and B are calculated as follows:

$$\text{Skew A} = a - b$$

$$\text{Skew B} = c - d$$



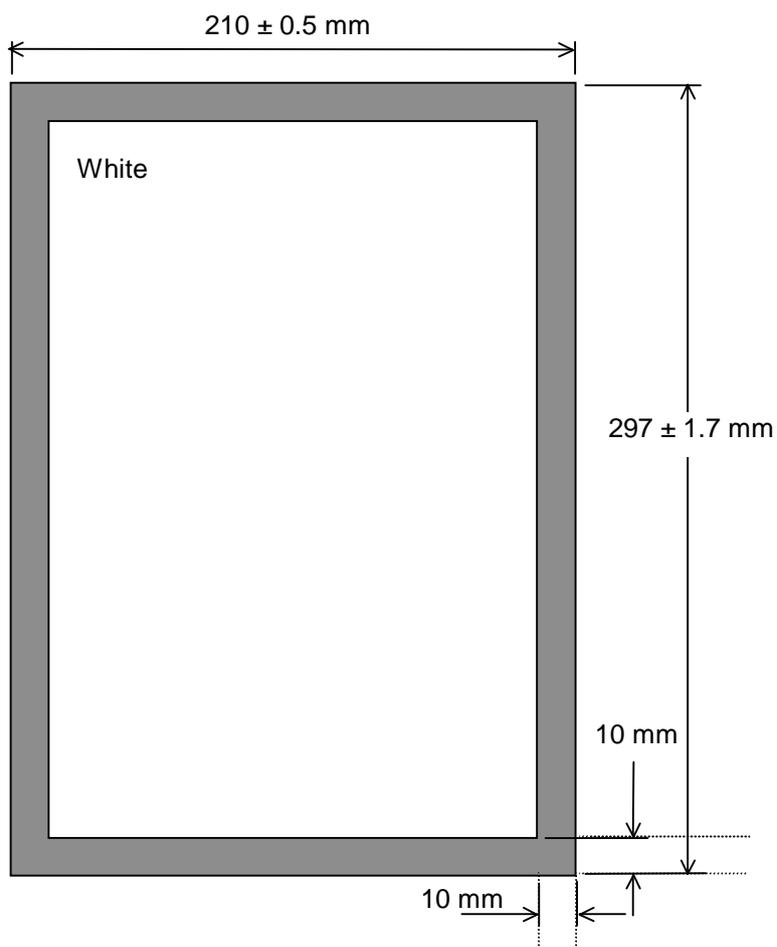
<Available button at screen T26>

Send to button: Terminates this mode and returns to screen T04.

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[Test sheet]

Use the test sheet for the magnification/offset adjustment that meets the following specification.



Fill the 10mm margin of all sides of A4 size document with black color both on front and backside. (This avoids failing adjustment due to the bleed through)

Figure 7.1.3 Test sheet for the magnification/offset adjustment

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7.1.4 Maintenance mode #3: Offset adjustment

In this mode, the offset correction values for main/sub scanning are automatically calculated to satisfy the following offset values:

Offset value

Main scanning: The largest offset of A6 or larger size of document shall be: ± 24 dot

Sub-scanning: The largest offset of A6 or larger size of document shall be: ± 33 dot

NOTICE

Before this adjustment, please prepare the Test sheet described in Figure 7.1.3.

Also, before adjusting offset (ADF front or back), run Main-scanning magnification adjustment (ADF front or back) by referring to Section 7.1.3.

[How to start]

- (1) From screen t04, Press the **Function** button to select  (Maintenance mode #3) and press the **Scan** button. A number is shown on the Function No. Display indicating the location of the offset to be adjusted.

Function No. Display	Offset to be adjusted	Remarks
0	ADF front	Default
1	ADF back	

- (2) Change the selection by pressing **Function** button.

- (3) Set the test sheet (see Figure 7.1.3) on the Chute unit, and adjust the side guide to the width of the test sheet.

Press **Scan** button to start the adjustment operation.

[How to end]

Press **Send to** button during operation. The operation stops and the Maintenance mode selection screen (T04) appears.

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[Display after adjustment]

After the offset adjustment, the following display appears depending on its terminated status.

(1) When the offset adjustment is terminated normally

Screen T31

Function Display	No.	Scanner status
		Displays "o" (lower half) without blinking. The adjustment has terminated normally.

<Available buttons at screen T31>

Function button: Displays screen T32 to write the correction value into EEPROM

Send to button: Terminates this mode and return to screen T04.

Screen T32

Function Display	No.	Scanner status
		"o" (lower half) blinks. Confirming whether the correction value shall be written in EEPROM or not.

<Available buttons at screen T32>

Scan + **Function** button: Start writing the offset correction value into EEPROM. During writing operation, screen T33 displayed, and when it finishes, screen T34 appears.

Send to button: Terminates this mode and returns to screen T04.

Screen T33

Function Display	No.	Scanner status
		"L" lights without blinking. Correction value is being written in EEPROM.

Note: While screen T33 is displayed, no button can function.

Screen T34

Function Display	No.	Scanner status
		"o" (upper half) lights without blinking. The value has been written normally.

<Available buttons at screen T34>

Send to button: Terminates this mode and returns to screen T04

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(2) When the offset adjustment is terminated abnormally

Screen T35

Function No. Display	Scanner status
	Displays "c" without blinking. The adjustment has terminated abnormally.

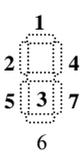
Note: The major reason of abnormal termination is incorrect setting of the test sheet. Set the test sheet correctly on the ADF paper chute and try the magnification adjustment again.

<Available buttons at screen T35>

Function button: Displays error information (screen T36)

Send to button: Terminates this mode and returns to screen T04.

Screen T36

Function No. Display	Description	Adjustment mode (*1)		Countermeasure when abnormal termination frequently occurs
		0	1,2	
	1: cannot detect the leading edge of the document (black detection failed)	√	√	Conduct necessary operation by referring to step (2) and later in Section 5.3.6.
	2: cannot detect the left edge of the document (black detection failed)	√	√	
	3: cannot detect the leading edge of the document (white detection failed)	√	√	
	4: Excessive skew A	√	√	
	5: cannot detect the left edge of the document (white detection failed)	√	√	
	6: Excessive skew B	√	√	
	7: Excessive skew B	√	√	

(*1) 0 : ADF front
1,2: ADF back

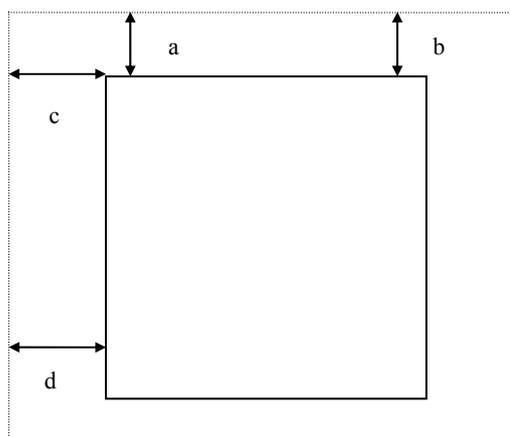
<Available buttons at screen T36>

Send to button: Terminates this mode and returns to screen T04.

Skew A and B are calculated by the following expression.

$$\text{Skew A} = a - b$$

$$\text{Skew B} = c - d$$



[Test sheet]

Use the same sheet as used for the magnification adjustment. See Section 7.1.3.

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7.1.5 Maintenance mode #4: White level adjustment

In this mode, the white level correction values for main/sub scanning are automatically adjusted.

NOTICE

Before this adjustment, please prepare the Test sheet (W) described in Section 6.4.

[How to start]

- (1) From screen T04, press the **Function** button to select  (Maintenance mode #4) and press the **Scan** button. A number is shown on the Function No. Display indicating the location of the white level to be adjusted.

Function Display	No.	White level to be adjusted	Remarks
0		ADF front	Default
1		ADF back	

- (2) Change the selection by pressing **Function** button.

- (3) Set the adjustment test sheet on the Chute unit and adjust the side guide to the width of the test sheet. Either side of the adjustment test sheet can be used. Press **Scan** button to start the adjustment operation.

Note: The adjustment starts approx. 10 seconds after pressing **Scan** button to make the light intensity becomes stable.

[How to end]

Press **Send to** button during operation. The operation stops and the Maintenance mode selection screen (T04) appears.

Note: After reading the white level adjustment sheet, it takes approx. 10 seconds for the scanner to calculate the level adjustment and close adjustment.

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[Display after adjustment]

After the white level adjustment, the following display appears depending on its terminated status.

(1) When the white level adjustment is terminated normally

Screen T41

Function No. Display	Scanner status
	Displays "o" without blinking. The adjustment has terminated normally.

<Available buttons at screen T41>

Function button: Displays screen T42 to write the correction value into EEPROM.

Send to button: Terminates this mode and returns to screen T04.

Screen T42

Function No. Display	Scanner status
	"o" (down half) blinks. Confirming whether the correction value shall be written in EEPROM or not.

<Available buttons at screen T42>

Scan + **Function** button: Start writing the white level correction value into EEPROM. During writing operation, screen T43 displayed, and when it finishes, screen T44 appears

Send to button : Terminates this mode and returns to screen T04.

Screen T43

Function No. Display	Scanner status
	"L" lights without blinking. Correction value is being written in EEPROM.

Note: While screen T43 is displayed, no button can function.

Screen T44

Function No. Display	Scanner status
	"o" (upper half) lights without blinking. The value has written normally.

<Available buttons at screen T44>

Send to button: Terminates this mode and returns to screen T04.

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(2) When the white level adjustment is terminated abnormally

Screen T45

Function No. Display	Scanner status
	Displays "c". The adjustment has terminated abnormally.

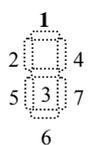
Note: The major reason of abnormal termination is incorrect setting of the test sheet. Set the test sheet correctly on the ADF paper chute and try the magnification adjustment again.

<Available buttons at screen T45>

Function button: Displays error information (screen T46)

Send to button: Terminates this mode and returns to screen T04.

Screen T46

Function No. Display	Description	Countermeasure when abnormal termination frequently occurs
	1: media error The tested sheet may not be a specified one. Please confirm the test sheet is good.	It seems Lamp or Optical unit is faulty. Replace defective parts.

<Available buttons at screen T46>

Send to button: Terminates this mode and return to screen T04.

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7.1.6 Maintenance mode #5: Consumable counter display and reset

In this mode, the following consumable counter is displayed and reset:

- Pick counter (Abrasion counter for Pick roller)
- Pad counter (Abrasion counter for Pad ASSY)

[How to operate]

- (1) From screen T04, press the **Function** button to select  (Maintenance mode #5) and press the **Scan** button. A number is shown on the Function No. Display indicating the counters as follows.

Function Display	No.	White level to be adjusted	Remarks
0		Pick counter (Abrasion counter for Pick roller)	Default
1		Pad counter (Abrasion counter for Pad ASSY)	
2		(Reserved)	

- (2) Change the selection by pressing **Function** button.

- (3) The counter is displayed as follows when pressing **Scan** button.

Counter	Display
Pick counter (Abrasion counter for Pick roller)	The counter displays 8 digits in total, 1 number at a time, from left digit to right digit. (If the counter has not reached 8 digits yet, 0 is added to blank digits.) The symbol “-“ is displayed before the first number, indicating the counter display starts. The counter displays “0” until it reaches 500, and increases in 10 increments after 500. eg. When the counter is “16,245”, “-00016245” is displayed in the following order: “-” → “0” → “0” → “0” → “1” → “6” → “2” → “4” → “0”
Pad counter (Abrasion counter for Pad ASSY)	See above

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(4) The following buttons are available during counter display.

Function button: Displays screen T51 to reset the counter.

Send to button: Terminates this mode and returns to screen T04.

Screen T51

Function No. Display	Scanner status
	<p>“o” (down half) blinks.</p> <p>Confirming whether the counter shall be reset or not.</p>

<Available buttons at screen T51>

Scan + **Function** button: Start resetting the displayed counter value to 0. During writing operation, screen T52 displayed, and when it finishes, screen T53 appears.

Note: After reset, the counter value below 500 remains without being reset and that value will be the initial value of the internal counter, but this is not an error.

eg.) When “52,168” is reset, 168 remains and the internal counter will start counting from 168, while Function No. Display shows 0.

Send to button: Terminates this mode and returns to screen T04.

Screen T52

Function No. Display	Scanner status
	<p>“L” lights without blinking.</p> <p>The counter is being reset.</p>

Note: While screen T52 is displayed, no button can function.

Screen T53

Function No. Display	Scanner status
	<p>“o” (upper half) lights without blinking.</p> <p>Counter reset has done.</p>

<Available buttons at screen T53>

Send to button: Terminates this mode and returns to screen T04.

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7.1.7 Maintenance mode #6: Miscellaneous information display

In this mode, the following information counter is displayed:

- Firmware version number
- Starting date of the scanner *1
- The accumulated number of paper that have been scanned by ADF

*1: This indicates the date when the scanner is activated by the driver first. This information is only available if the driver supports this function.

[How to start]

(1) Selects Maintenance mode #6 in screen T04 and press **Scan** button. A number appears on the Function No. Display indicating the information.

Function No. Display	Display	Remarks
0	Firmware version	Default
1	Starting date of the scanner	
2	The accumulated number of paper scanned by ADF	

(2) Change the selection by pressing **Function** button.

(3) The information is displayed as follows when pressing **Scan** button.

Information	Display
Firmware version number	The firmware version number is displayed in 4 digits from left digits to right digits, following the symbol “-“. eg. When the scanner version is “A00” (*1), “A” is converted to “01” (*2), so the scanner displays “-0100” in the following order: “-” → “0” → “1” → “0” → “0” “A” is converted to “01” (*2)
Starting date	Starting date of the scanner is displayed in 6 digits, 2 digits for “Year (Christian calendar)”, 2 digits for “Month”, and 2 digits for “Date”, following the symbol “-“. You cannot reset the date. eg. When the starting date is January 31st, 2002, “020131” is displayed in the following order: “-” → “0” → “2” → “0” → “1” → “3” → “1”
The accumulated number of paper scanned by ADF	The accumulated number of paper scanned by ADF is displayed in 8 digits from left digits to right digits, following the symbol “-“. (If the counter does not reach 8 digits, 0 is added to blank digits.) The counter displays “0” until it reaches 500, and increases in 10 increments after 500. You cannot reset this counter. eg. When the accumulated number is “16,245”, “00016240” is displayed in the following order: “-” → “0” → “0” → “0” → “0” → “1” → “6” → “2” → “4” → “0”

*1: The firmware version is normally expressed by an alphabet, such as A, B or C. However, if the firmware is a beta version, two digits are added after alphabet character, such as A01, A02 or A03. So the firmware version like A00, B00 or C00 means this is an official version.

*2: As 8 segment display cannot display alphabet, alphabet is expressed by two digits as follows:

A	B	C	-----	J	K	L
01	02	03	-----	10	11	12

[How to end]

Press **Send to** button. The display returns to screen T04.

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7.1.8 Maintenance mode #7: EEPROM data restore

When replacing the Panel PCA, the EEPROM data on the Panel PCA shall be moved to the flash memory of the Control PCA. In this mode, the data is restored from the Control PCA to the Panel PCA.

[How to start]

(1) Selects Maintenance mode #7 in screen T04 and press **Scan** button. The following display appears.

Screen T71

Function No.	Scanner status
Display 	“o” (lower half) blinks. Confirming whether the data shall be restored or not.

<Available buttons at screen T71>

Scan + **Function** button: Returns the data from the Control PCA to the EEPROM on the Panel PCA. During restoring operation, screen T72 is displayed.

Send to button: Terminates this mode and returns to screen T04.

Screen T72

Function No.	Scanner status
Display 	“L” lights without blinking. The data is being restored.

Note: While screen T72 is displayed, no button can function.

[Display of the result]

(1) When the data restore terminated normally, the following display appears.

Screen T73

Function No.	Scanner status
Display 	Displays “o” (upper half) without blinking. The data has restored normally.

<Available buttons at screen T73>

Send to button: Terminates this mode and returns to screen T04.

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(2) When no data exists in the Control PCA, the following display appears.

Screen T74

Function Display	No.	Scanner status
		Displays "c" without blinking. No data exists in the Control PCA.

<Available buttons at screen T74>

Send to button: Terminates this mode and returns to screen T04.

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7.2 Saving EEPROM data

The EEPROM data on the Panel PCA can be saved on the flash memory of the Control PCA. This operation is needed before replacing the Panel PCA. Since this operation is taken when the Panel PCA is malfunctioning, save data by following the procedure below without using the operator panel.

NOTICE

- Do not conduct this procedure unless the Panel PCA is malfunctioning.
- The Panel PCA from which the data was saved to the Control PCA cannot be used again.
- Make sure to prepare a new Panel PCA before saving the EEPROM data.

[How to save EEPROM data on the Control PCA]

1. Open the ADF. While pressing the TOP sensor lever and lifting up the Empty sensor lever, power on the scanner. "P" → "H" are displayed.
If there is data saved in the Control PCA already, perform step 5.
2. Leave your fingers from TOP sensor and Empty sensor lever. Then press TOP sensor lever two times, so that the time interval between pressing and removing is more than 1 second.
3. Close the ADF. "L" is displayed when the Function No. Display is working normally.
4. After more than 5 seconds elapse, open the ADF.
5. When the EEPROM data is successfully saved, the lamp of ADF front blinks 3 times and "o" (upper half) is displayed on the Function No. Display.
In case that the EEPROM data is not successfully saved, the lamp does not blink and "c" is displayed on the Function No. Display.

NOTICE

If EEPROM data is saved successfully, scanner writes some information on the Panel PCA which disables the usage of the Panel PCA. So this Panel PCA cannot be used. The replacement of the Panel PCA is required. If the Panel PCA is not replaced, "E6" always appear on the panel at power on.

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Chapter 8 Maintenance Parts

POS	Description	Part Number	Quantity	Reference / Remarks
1	UPPER UNIT	PA03360-D811 PA03360-D816 ⁰²	1	8.1 For Europe and North America
		PA03360-D861 PA03360-D866 ⁰²	1	8.1 For China
2	FIXED UNIT	PA03360-D821 PA03360-D826 ⁰²	1	8.2
3	OPTICAL UNIT	PA03360-E908 PA03360-E905 ⁰²	2	8.3
4	TOP COVER ASSY	PA03360-E811	1	8.4
5	CHUTE ASSY	PA03360-E821	1	8.5
6	GUIDE A ASSY	PA03360-E841	1	8.6
7	GUIDE P ASSY	PA03360-E851	1	8.7
8	STACKER ASSY	PA03360-E891	1	8.8
9	SENSOR ASY B	PA03360-F911 PA03360-F916 ⁰²	1	8.9
10	CONTROL PCA	PA03360-K801 PA03360-K806 ⁰²	1	8.10
11	ANALOG PCA	PA03360-K811 PA03360-K816 ⁰²	1	8.11
12	PANEL PCA	PA03360-K821 PA03360-K826 ⁰²	1	8.12
13	AC ADAPTER	PA03360-K921 PA03360-K926 ⁰² PA03360-K937 ⁰⁸	1	8.13
14	LAMP	PA03360-K940 PA03360-K946 ⁰²	2	8.14
15	HK RING	PA03360-K941	≧ 1 ⁰⁴	8.15
16	INVERTER	PA03950-0093 PA03950-0223 ⁰² PA03950-0454 ⁰⁵	2	8.16
17	MOTOR	PA03950-0095	1	8.17
18	EMPTY SENSOR	PA03950-0096	1	8.18
19	SENSOR PTR	PA03951-0305	1	8.19
20	SENSOR LED	PA03951-0306	1	8.20
21	USB CABLE	PA61001-0142 PA61001-0171 ⁰⁵	1	8.21
22	AC CABLE E	PA63067-2001 PA63112-2001 ⁰⁵	1	8.22 for Europe
23	AC CABLE U	PA63068-2001 PA63113-2001 ⁰⁵	1	8.22 for North America
24	AC CABLE C	PA63077-1831 ⁰⁶ PA63115-1831 ⁰⁵	1	8.22 for China
25	AC CABLE UK	PA63103-2001 PA63118-2001 ⁰⁵	1	8.22 for Europe
26	Pick Shaft ASSY	PA03360-E060	1	8.23

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8.1 Upper Unit

Description	Parts No.	Remarks	Outline drawing	Destination
UPPER UNIT	PA03360-D811	Revolve unit includes Pad ASSY, Inverter, Lamp, Optical unit, Sensor ASSY B and Top cover ASSY.	Photo 8.1	for Europe and North America
	PA03360-D816 02			
	PA03360-D861			
	PA03360-D866 02			For China

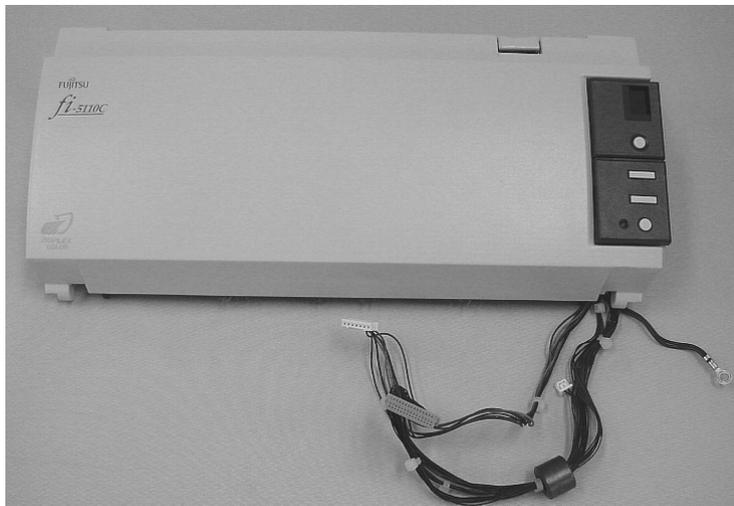


Photo 8.1

8.2 Fixed Unit

Description	Parts No.	Remarks	Outline drawing
FIXED UNIT	PA03360-D821 PA03360-D826 02	Fixed unit includes Pick roller, Inverter, Lamp, Optical unit, Motor and HK Ring.	Photo 8.2

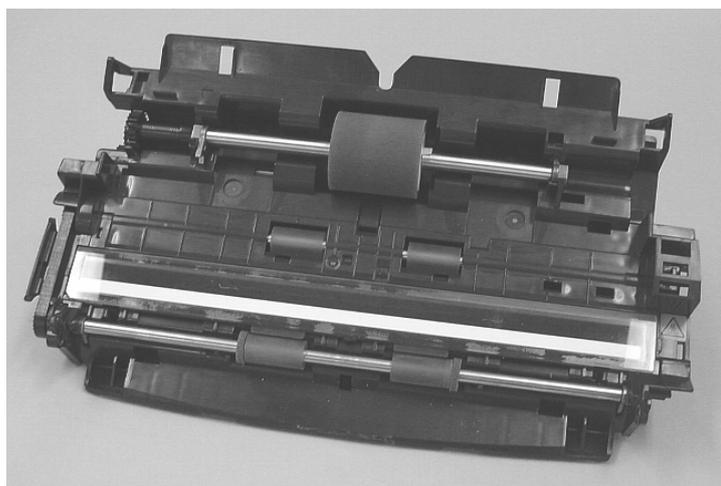


Photo 8.2

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8.3 Optical Unit

Description	Parts No.	Remarks	Outline drawing
OPTICAL UNIT	PA03360-E908 PA03360-E905 02		Photo 8.3

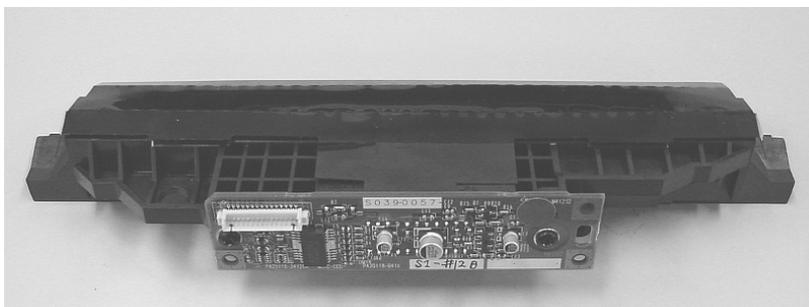


Photo 8.3

8.4 Top Cover ASSY

Description	Parts No.	Remarks	Outline drawing
TOP COVER ASSY	PA03360-E811		Photo 8.4

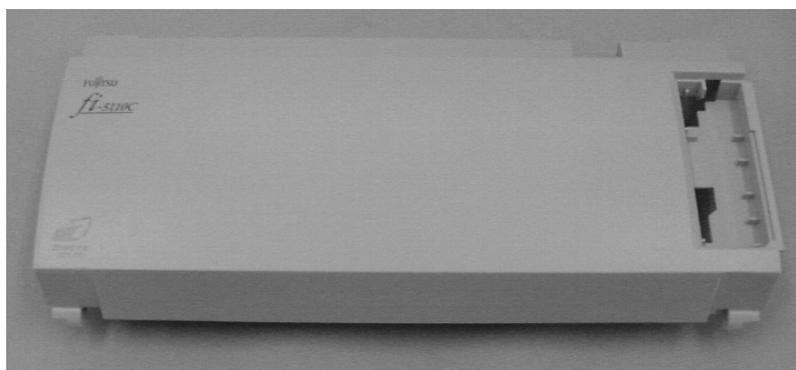


Photo 8.4

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8.5 Chute ASSY

Description	Parts No.	Remarks	Outline drawing
CHUTE ASSY	PA03360-E821		Photo 8.5

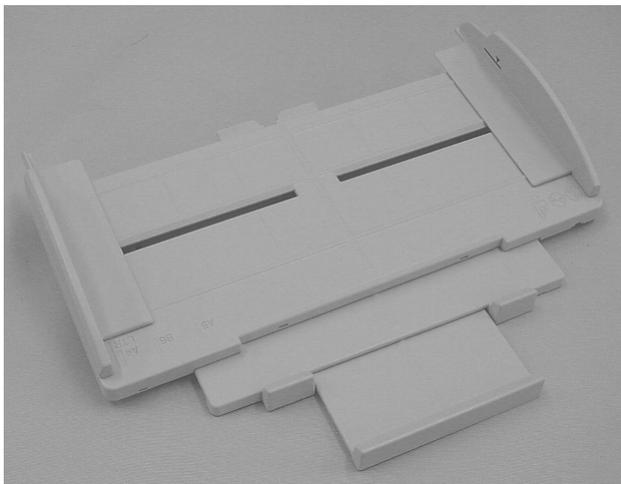


Photo 8.5

8.6 Guide A ASSY

Description	Parts No.	Remarks	Outline drawing
GUIDE A ASSY	PA03360-E841		Photo 8.6

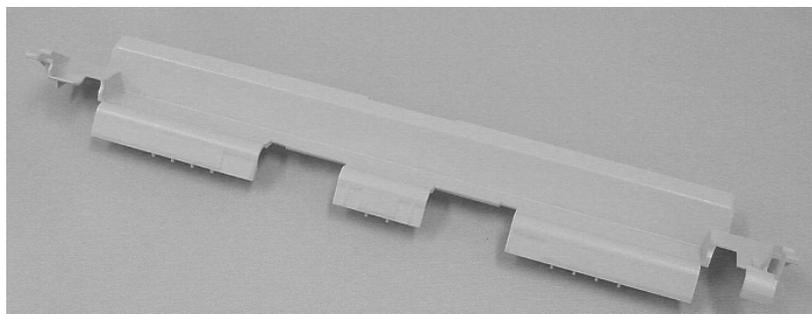


Photo 8.6

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8.7 Guide P ASSY

Description	Parts No.	Remarks	Outline drawing
GUIDE P ASSY	PA03360-E851		Photo 8.7

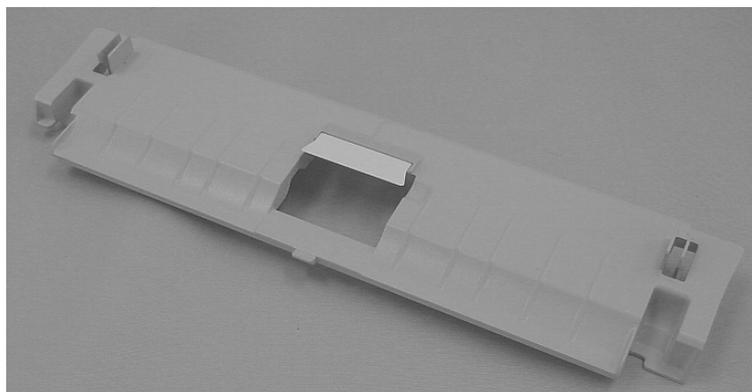


Photo 8.7

8.8 Stacker ASSY

Description	Parts No.	Remarks	Outline drawing
STACKER ASSY	PA03360-E891		Photo 8.8

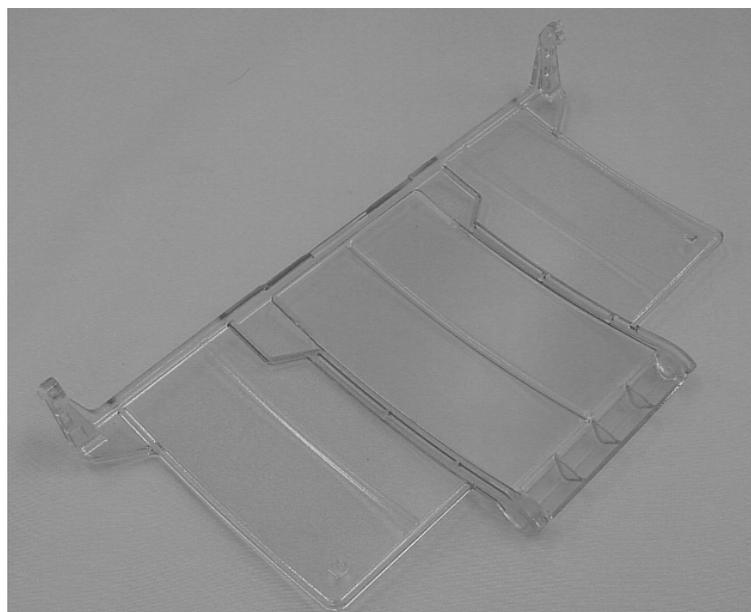


Photo 8.8

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8.9 Sensor ASSY B

Description	Parts No.	Remarks	Outline drawing
SENSOR ASY B	PA03360-F914 PA03360-F916 02		Photo 8.9

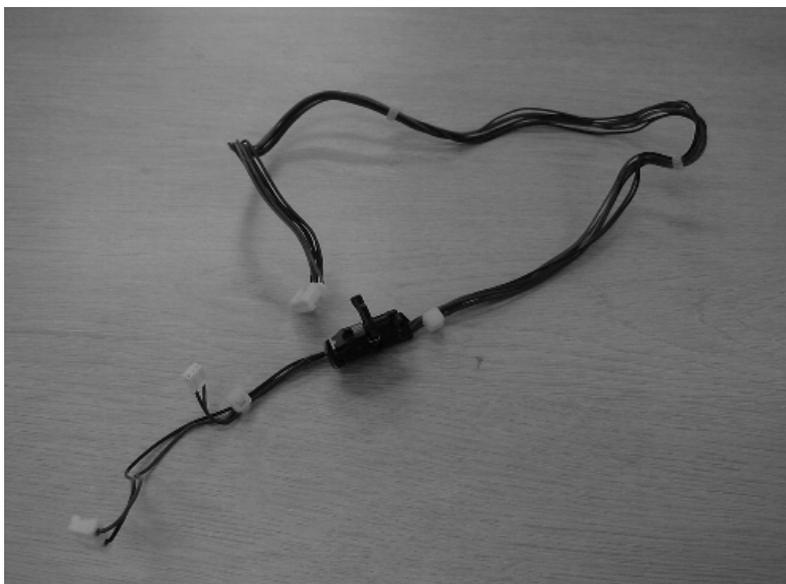


Photo 8.9

8.10 Control PCA

Description	Parts No.	Remarks	Outline drawing
CONTROL PCA	PA03360-K801 PA03360-K806 02		Photo 8.10

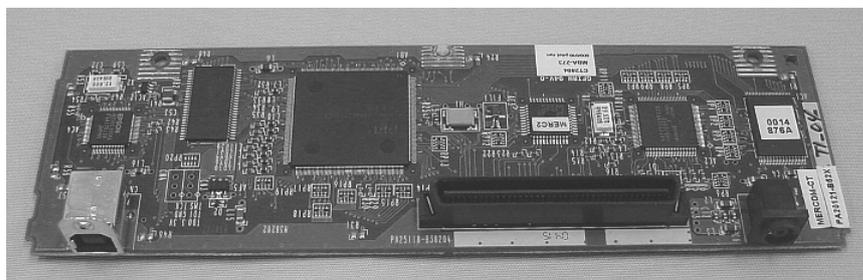


Photo 8.10

Rev	DATE	DESIG.	CHECK	APPR.	DESCRIPTION	TITLE	DRAW. No.		CUST.
08	July 16, 2009	Y.Yamahara	M.Higashi	M.Murosaki	Refer to Revision Record on page 2.	fi-5110C IMAGE SCANNER MAINTENANCE MANUAL	P1PA03360-B05X/6		101/107
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8.11 Analog PCA

Description	Parts No.	Remarks	Outline drawing
ANALOG PCA	PA03360-K811 PA03360-K816 02		Photo 8.11

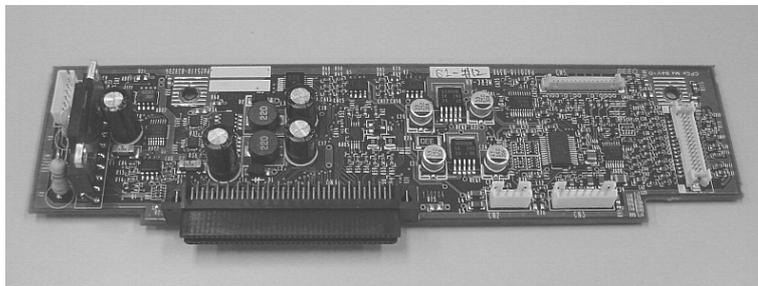


Photo 8.11

8.12 Panel PCA

Description	Parts No.	Remarks	Outline drawing
PANEL PCA	PA03360-K821 PA03360-K826 02		Photo 8.12

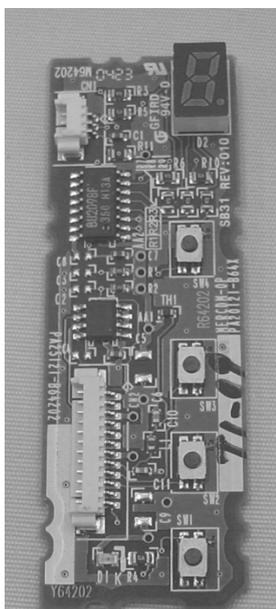


Photo 8.12

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8.13 AC Adapter

Description	Parts No.	Remarks	Outline drawing
AC ADAPTER	PA03360-K931 PA03360-K936 02 PA03360-K937 08		Photo 8.13

08

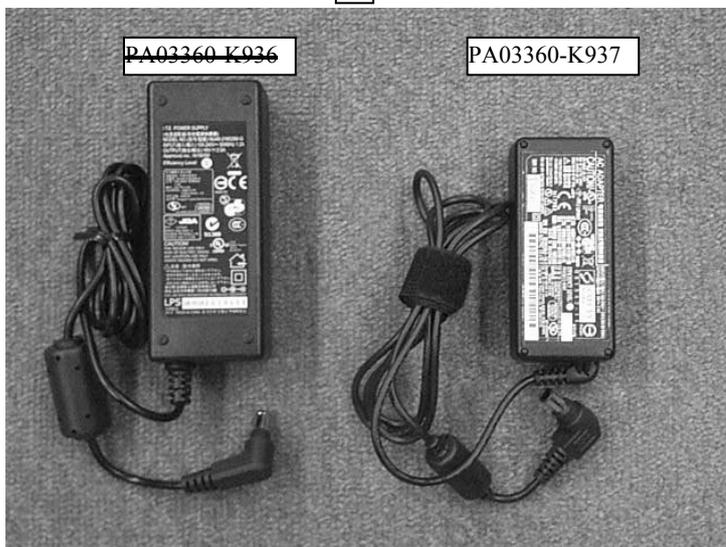


Photo 8.13

8.14 Lamp

Description	Parts No.	Remarks	Outline drawing
LAMP	PA03360-K940 PA03360-K946 02		Photo 8.14

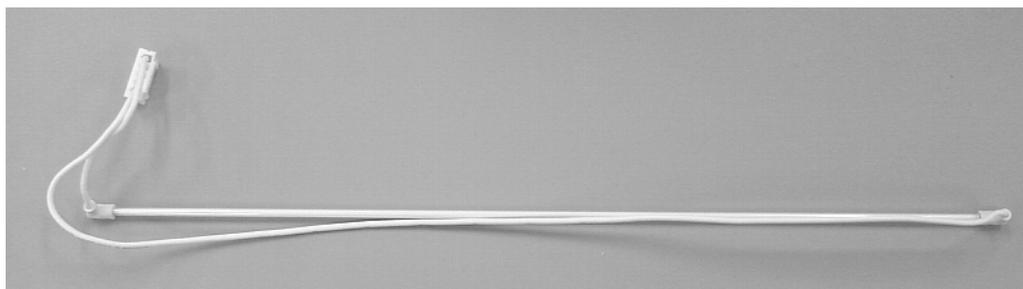


Photo 8.14

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8.15 HK Ring

Description	Parts No.	Remarks	Outline drawing
HK RING	PA03360-K941	Two rings are included. 04	Photo 8.15

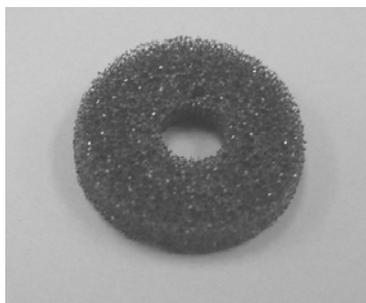


Photo 8.15

8.16 Inverter

Description	Parts No.	Remarks	Outline drawing
INVERTER	PA03950-0093 PA03950-0223 02 PA03950-0454 05		Photo 8.16

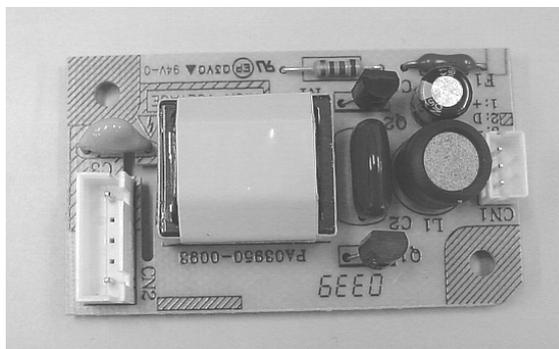


Photo 8.16

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DESIG	Sept9,2004	T. Anzai	CHECK	T.Anzai	APPR. H.Hasegawa			

8.17 Motor

Description	Parts No.	Remarks	Outline drawing
MOTOR	PA03950-0095		Photo 8.17



Photo 8.17

8.18 Empty Sensor

Description	Parts No.	Remarks	Outline drawing
EMPTY SENSOR	PA03950-0096		Photo 8.18

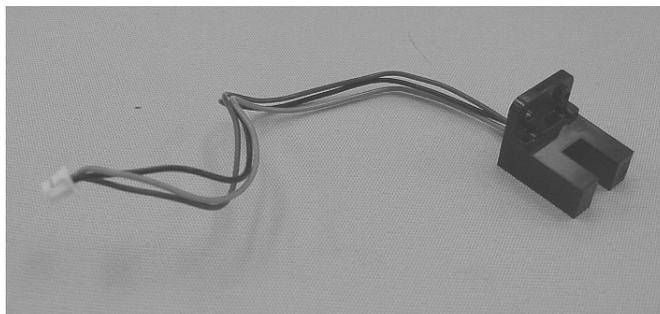


Photo 8.18

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8.19 Sensor PTR

Description	Parts No.	Remarks	Outline drawing
SENSOR PTR	PA03951-0305		Photo 8.19

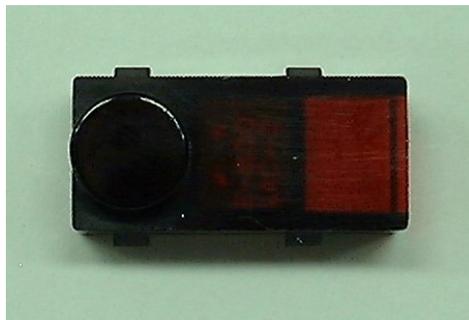


Photo 8.19

8.20 Sensor LED

Description	Parts No.	Remarks	Outline drawing
SENSOR LED	PA03951-0306		Photo 8.20

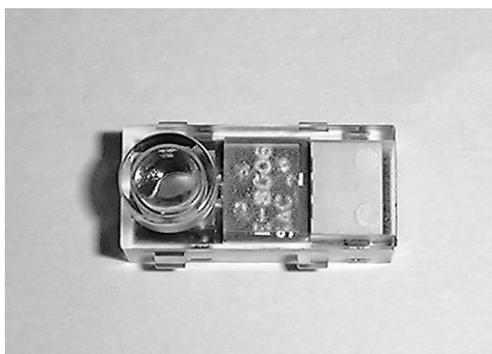


Photo 8.20

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8.21 USB Cable

Description	Parts No.	Remarks	Outline drawing
USB CABLE	PA61001-0142 PA61001-0171 05		Photo 8.21



Photo 8.21

8.22 AC Cable E / AC Cable U / AC Cable C / AC Cable UK

Description	Parts No.	Remarks	Outline drawing
AC CABLE E	PA63067-2001 PA63112-2001 05	For Europe	Photo 8.22
AC CABLE U	PA63068-2001 PA63113-2001 05	For North America	
AC CABLE C	PA63077-1831 06 PA63115-1831 05	For China	
AC CABLE UK	PA63103-2001 PA63118-2001 05	For Europe	

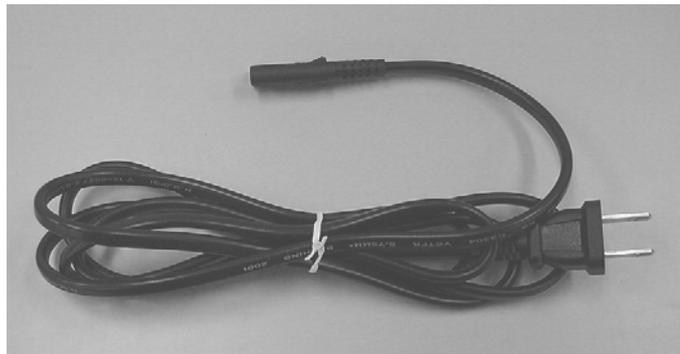


Photo 8.22

07

8.23 Pick Shaft ASSY

Description	Parts No.	Remarks	Outline drawing
PICK SHAFT ASSY	PA03360-E060		Photo 8.23

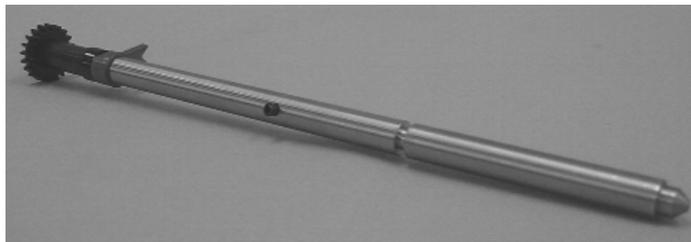


Photo 8.23

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