ScanFront 300/300P

SERVICE MANUAL

FIRST EDITION

Canon

JUNE 2010 MY8-13AN-000

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Use of this manual should be strictly supervised to avoid disclosure of confidential information.

PREFACE

This Service Manual describes necessary basic information for field service and maintenance for maintaining the product quality and functions of this machine.

Contents

Chapter 1: General description
Product specifications, name of parts, operation method

Chapter 2: Functions and operation
Description of operation of machine system and electrical system by function

Chapter 3: Disassembly and reassembly
Disassembly method, reassembly method

Chapter 4: Installation and maintenance
Installation method, maintenance method

Chapter 5: Troubleshooting
Error display and troubleshooting

Appendix: General diagram etc.

Information in this manual is subject to change. Notification of such changes will be given in Service Information Bulletins.

Thoroughly read the information contained in this Service Manual and the Service Information Bulletins to gain a correct and deeper understanding of the machine. This is one way of fostering response for ensuring prolonged quality and function, and for investigating the cause of trouble during troubleshooting.

“ScanFront 300” is abbreviated to SF-300 and “ScanFront 300P” is to SF-300P in this manual.

Quality Assurance Center
Canon Electronics Inc.

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CHAPTER 1

GENERAL DESCRIPTION

I. PRODUCT OUTLINE.....1-1
II. NAME OF PARTS.....1-6
III. USER OPERATION.....1-7

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I. PRODUCT OUTLINE

1. Features

1) Succeeding model of the SF-220/220P

2) To meet various users' needs
   - Standard model: SF-300
   - Professional model: SF-300P with higher scanning speed, Finger print authentication, and Ultrasonic double feed detection

3) Improvement for the scanning speed (Shown in the list below at A4, 200 dpi)

Image processing	Mode	SF-300	SF-300P	SF-220/220P
OFF	Black and White	30 ppm/60 ipm	30 ppm/60 ipm	26 ppm/25 ipm
	Grayscale	30 ppm/56 ipm	30 ppm/60 ipm	23 ppm/23 ipm
	Color	25 ppm/25 ipm	25 ppm/40 ipm	9 ppm/9 ipm
Deskew + Auto-size	Black and White	30 ppm/40 ipm	30 ppm/59 ipm	
	Grayscale	30 ppm/37 ipm	30 ppm/53 ipm	
	Color	18 ppm/18 ipm	25 ppm/28 ipm	

4) Addition for the image processing
   Folio mode, Long document mode, and Auto Color Detection are added.

5) Addition for the network function
   Scan To Fax and Scan To Printer are added.
   ScanFront Extended Service using the PC/Server is added.
   Index file creation together with image file is added.

6) Improvement for the user operation
   Bigger and higher definition screen (8.4 inch, SVGA, 800 x 600 dots screen)
   4 USB ports (Added 2 ports)

"Windows" is a trademark of Microsoft Corporation in the U.S. and other countries.
Other company names and product names mentioned in this document are registered trademarks or trademarks of the respective companies.

2. Main Specifications

No.	Item	Specifications
Appearance/Installation		
1	Type	Desktop type sheet-fed network scanner
2	Dimensions * Details are described later.	Tray closed: 310 (W) x 220 (D) x 161 (H) mm Tray opened: 310 (W) x 571 (D) x 298 (H) mm
3	Weight	3.6 kg (Main body only)
4	Power supply rating	Main body input: 24 VDC, 1.2 A
5	AC adapter	Input: 100 V-240 VAC, 50/60 Hz, 1.2 A (100 V)-0.7 A (240 V) Output: 24 VDC, 2.2 A
6	Power consumption	1) Operating: 30 W or less 2) Sleep mode: 1 W or less 3) Power switch OFF: 0.4 W or less
7	External interface	USB 2.0 (Hi-speed) x 4 LAN (10BaseT/100BaseTX)
8	Expected product life (In-house information only)	One of the following two items, whichever comes first. 1) 5 years 2) 750,000 sheets (A4) *Replace parts if necessary.
9	Installation	By user.
10	Consumable parts (Commercial goods)	1) Feed roller, Retard roller and Document holding guide *Replaced by user. Expected life is 100,000 sheets.
Controller/Network		
11	OS	Windows CE 6.0 R3
12	CPU	Intel Atom, SF-300: 1.1 GHz, SF-300P: 1.6 GHz
13	Memory	1) Image processing/ Image data stored DIMM: 512 MB 2) OS/Setting data FLASH: 1 GB
14	Operation/Display	1) 8.4 inch TFT SVGA LSD (800x600 dots) 2) Touch panel
15	Finger print sensor	SF-300P only.
16	Sending function	1) Scan To Mail 2) Scan To Folder 3) Scan To FTP 4) Scan To USB Memory 5) Scan To FAX 6) Scan To Printer
17	Bundle software	1) ScanFront Service 2) ScanFront Administration Tool

Table 1-101a

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<table>
<tr><th>No.</th><th>Item</th><th colspan="4">Specifications</th></tr>
<tr><td colspan="6">Document reading/Out putting</td></tr>
<tr><td>18</td><td>Sensor type, Density</td><td colspan="4">1 line/3 parallel-CMOS contact image sensor, 600 dpi</td></tr>
<tr><td>19</td><td>Effective elements</td><td colspan="4">5107 pixels/line, 216 mm</td></tr>
<tr><td>20</td><td>Light source</td><td colspan="4">3-color (RGB) LED, Single-side illumination</td></tr>
<tr><td>21</td><td>Operation mode</td><td colspan="4">600 dpi/300 dpi</td></tr>
<tr><td>22</td><td>Background color</td><td colspan="4">White</td></tr>
<tr><td>23</td><td>Image data memory</td><td colspan="4">SDRAM 16 MB
*Used for the working memory together.</td></tr>
<tr><td>24</td><td>Output mode</td><td colspan="4">1) Binary: Black & White, Error diffusion, ATE-II (TIFF-G4)
*ATE=Advanced Text Enhancement
2) Grayscale: 8 bit (JPEG)
3) Color: 24 bit (JPEG)</td></tr>
<tr><td>25</td><td>Output resolution</td><td colspan="4">100 x 100 dpi, 150 x 150 dpi, 200 x 200 dpi, 300 x 300 dpi, 400 x 400 dpi, 600 x 600 dpi
* Above values are after the processing of the resolution conversion.</td></tr>
<tr><td rowspan="10">26</td><td rowspan="10">Scanning speed-1
(A4, Image processing OFF)</td><td colspan="4">File style: PDF (Standard without OCR)</td></tr>
<tr><td>Mode</td><td>Resolution</td><td>SF-300</td><td>SF-300P</td></tr>
<tr><td rowspan="3">B & W</td><td>200 dpi</td><td>30 ppm/60 ipm</td><td>30 ppm/60 ipm</td></tr>
<tr><td>300 dpi</td><td>30 ppm/50 ipm</td><td>30 ppm/60 ipm</td></tr>
<tr><td>600 dpi</td><td>13 ppm/18 ipm</td><td>16 ppm/28 ipm</td></tr>
<tr><td rowspan="3">Grayscale</td><td>200 dpi</td><td>30 ppm/56 ipm</td><td>30 ppm/60 ipm</td></tr>
<tr><td>300 dpi</td><td>30 ppm/38 ipm</td><td>30 ppm/54 ipm</td></tr>
<tr><td>600 dpi</td><td>9 ppm/12 ipm</td><td>14 ppm/22 ipm</td></tr>
<tr><td rowspan="3">Color</td><td>200 dpi</td><td>25 ppm/25 ipm</td><td>25 ppm/40 ipm</td></tr>
<tr><td>300 dpi</td><td>15 ppm/15 ipm</td><td>18 ppm/24 ipm</td></tr>
<tr><td>600 dpi</td><td>3 ppm/3 ipm</td><td>4 ppm/5 ipm</td></tr>
<tr><td rowspan="11">27</td><td rowspan="11">Scanning speed-2
(A4, Image processing/OCR)</td><td colspan="4">1) File style: PDF (Standard without OCR)
Deskew and Auto-size: ON</td></tr>
<tr><td>Mode</td><td>Resolution</td><td>SF-300</td><td>SF-300P</td></tr>
<tr><td>B & W</td><td rowspan="3">200 dpi</td><td>30 ppm/40 ipm</td><td>30 ppm/59 ipm</td></tr>
<tr><td>Grayscale</td><td>30 ppm/38 ipm</td><td>30 ppm/53 ipm</td></tr>
<tr><td>Color</td><td>18 ppm/18 ipm</td><td>25 ppm/28 ipm</td></tr>
<tr><td colspan="4">2) File style: PDF (Standard with OCR)</td></tr>
<tr><td>Mode</td><td>Resolution</td><td>SF-300</td><td>SF-300P</td></tr>
<tr><td>B & W</td><td rowspan="3">200 dpi</td><td>30 ppm/36 ipm</td><td>30 ppm/56 ipm</td></tr>
<tr><td>Grayscale</td><td>30 ppm/31 ipm</td><td>30 ppm/46 ipm</td></tr>
<tr><td>Color</td><td>18 ppm/19 ipm</td><td>25 ppm/28 ipm</td></tr>
</table>

Table 1-101b

No.	Item	Specifications
Document feeding		
28	Document feed path	Straight pass
29	Document size	1) Width: 50.8 to 216 mm 2) Length: 53.9 to 355.6 mm
30	Document weight (Thickness)	1) Separation: 52 to 209 g/m^2 (0.06 to 0.25 mm) 2) Non-separation: 40 to 209 g/m^2 (0.05 to 0.25 mm)
31	Special document	Card, Business card, Folio, and Long document are available *There are some conditions required.
32	Document storage	1) Pickup: 50 normal copy sheets max. and 5 mm height max. 2) Eject: 50 normal copy sheets max. and 5 mm height max. *Height above is including any curls.
33	Double feed detection	1) Length detection by registration sensor 2) Double feed detection by ultrasonic sensor (SF-300P only)

Table 1-101c

◆ External dimensions

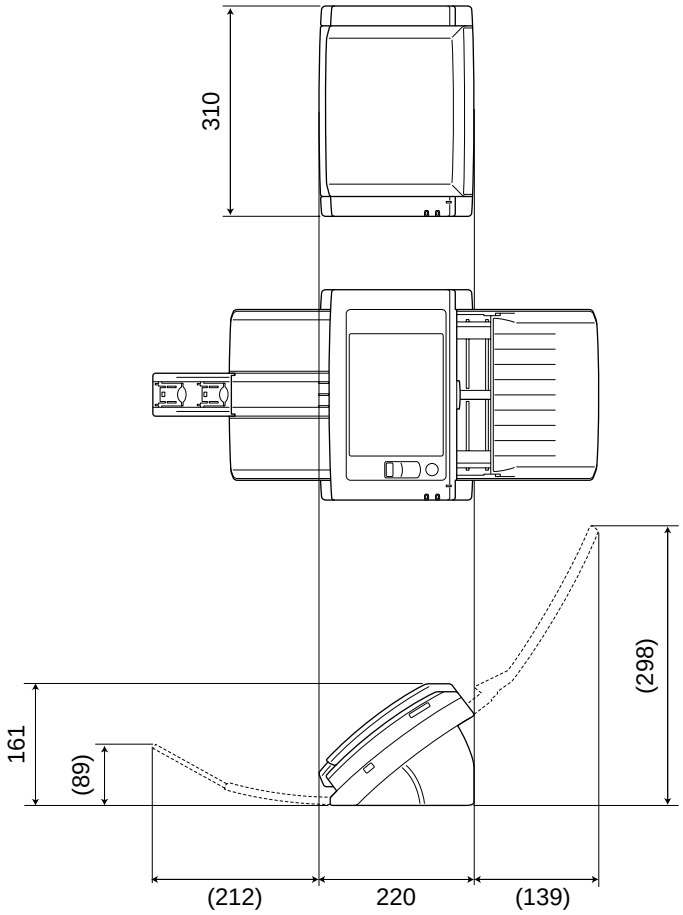

Figure 1-101

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3. Precautions

This section describes items that require particular care, for example, regarding human safety.

These precautions must be observed. The user should be explained the items that relate to user safety and instructed to take appropriate actions.

1) Power OFF in emergency

If such abnormal conditions as extraordinary noise, smoke, heat and odor occur, immediately unplug the power.

Be careful not to get clothing (ties, long hair, etc.) caught in this machine as it may cause injury. Should this occur, immediately unplug the power cord.

Do not insert fingers in the feed section while moving the rollers.

2) Power OFF on disassembling

When disassembling and assembling are performed, unplug the power cord.

3) Prohibition of modify

This machine must not arbitrarily be modified or remade. If it is, use may be forcibly suspended.

To change the specifications or disassemble and reassemble this machine, follow the instructions described in this manual and the service information.

4) Electromagnetic wave interference

This machine complies with some standards regarding electromagnetic wave interference, such as VCCI and FCC. However, the user may have to take countermeasures if the machine causes electromagnetic wave interference.

5) "User Manual"

Read each "User Manual" thoroughly prior to use of this machine.

6) Disposal

Follow local regulations when disposing of the product and parts. This product is subject to the WEEE Directive in Europe.

A lithium battery is installed on the motherboard inside the machine.

Before disposing, make sure that the user has initialized (deleted) the user data saved in the machine's memory.

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II. NAME OF PARTS

1. Front/Side View

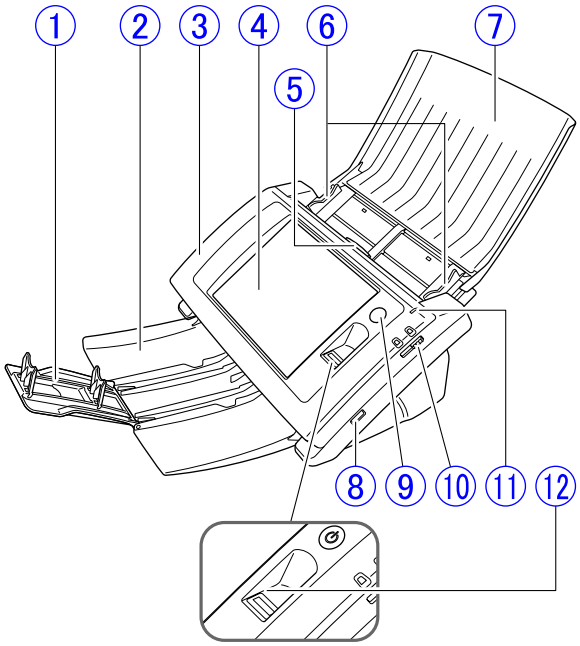

Figure 1-201

① Document eject tray extension
② Document eject tray
③ Panel unit (Note)
④ Touch panel
⑤ Lock lever
⑥ Document guides
⑦ Document feed tray (Note)
⑧ USB port (Side face)
⑨ Power switch
⑩ Feed selection lever (Note)
⑪ Power indicator
⑫ Fingerprint sensor (SF-300P only)

Note: The “panel unit” is referred to as the “upper unit”, the “feed tray” is referred to as the “pickup tray”, and the “feed selection lever” is referred to as the “separation selection lever” in Chapter 2 and later chapters of this document.

2. Rear View

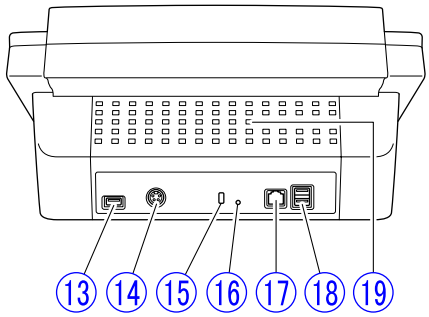

Figure 1-202

⑬ USB port (Rear face, left)
⑭ Power connector (24 VDC)
⑮ Kensington slot
⑯ Service switch (Boot SW)
⑰ LAN port (RJ-45)
⑱ USB ports (Rear face, right)
⑲ Ventilation holes

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III. USER OPERATION

For details, refer to the “User Manual” of this machine.

For installation and maintenance, refer to “CHAPTER 4 INSTALLATION & MAINTENANCE”.

1. Preparation

◆ Tray

Make preparations of the trays to suit the document and, as necessary, of the eject tray extension.

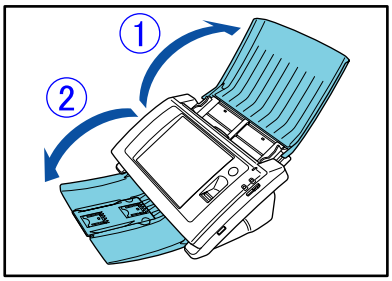

Figure 1-301

◆ Feed selection lever

Switch the feed selection lever depending on the feeding method.

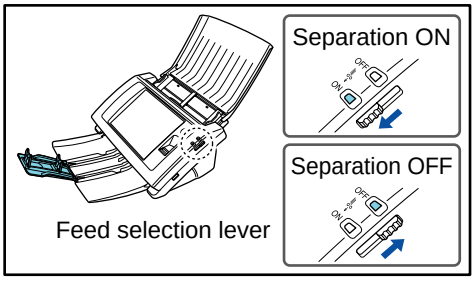

Figure 1-302

◆ USB ports

A USB memory can be connected. Refer to the “restrictions” below.

Also, a USB keyboard or mouse can be connected here.

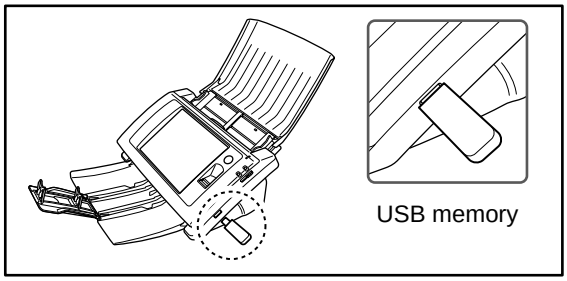

Figure 1-303

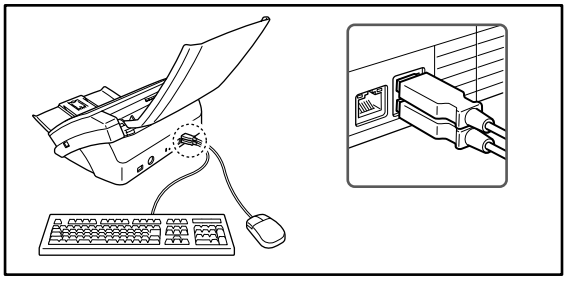

Figure 1-304

Note: Restrictions on USB memories

1) Connect a USB memory after the power is turned ON (after activation completed).
2) The format must be FAT16 or FAT32.
3) Special USB memories with a security function, a data encryption function or a password function cannot be used. CD-ROM-type USB memories cannot be used either.

◆ Document

Flip through document and move the upper part of the top page so that it becomes lowest. Then, load it face down and upside down.

Adjust the document guides to fit the document width.

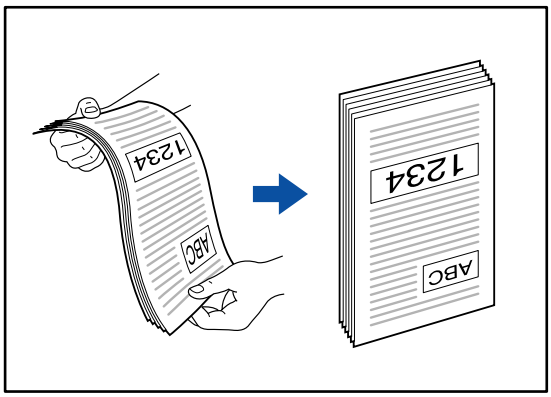

Figure 1-305

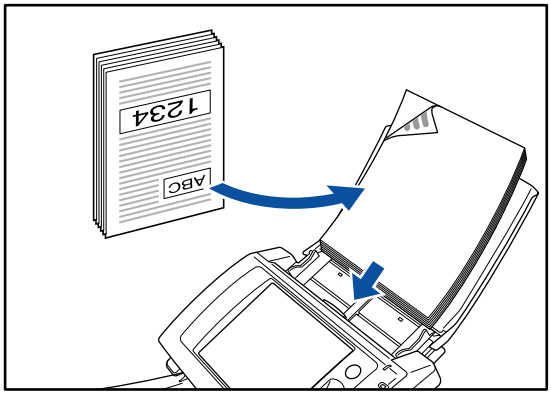

Figure 1-306

◆ Turning on the machine

Press the power switch to turn on the machine. The power indicator will be lit and the [Home] screen or the login screen will be displayed.

Each setting can be configured from this screen.

Note: For “Web menu”, refer to the corresponding section.

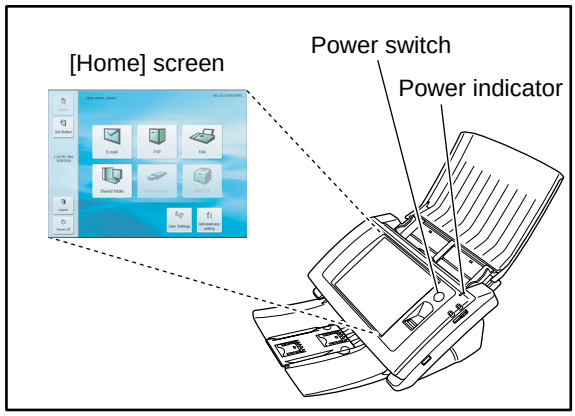

Figure 1-307

◆ Turning off the machine

Press [Power off] displayed at the lower left of the screen to turn off the machine.

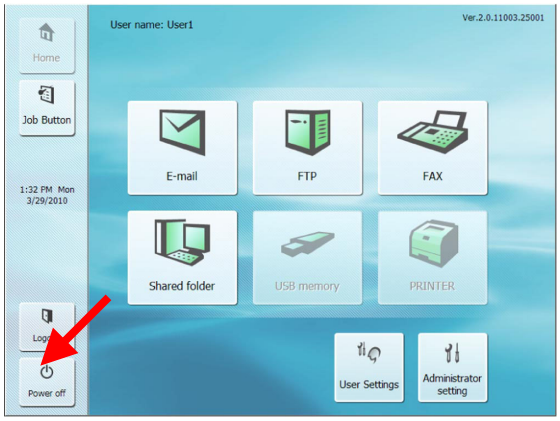

Figure 1-308

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2. Flow of Scanner Operations

The procedure and screen transitions for the process from turning the machine ON to sending an image file are as follows.

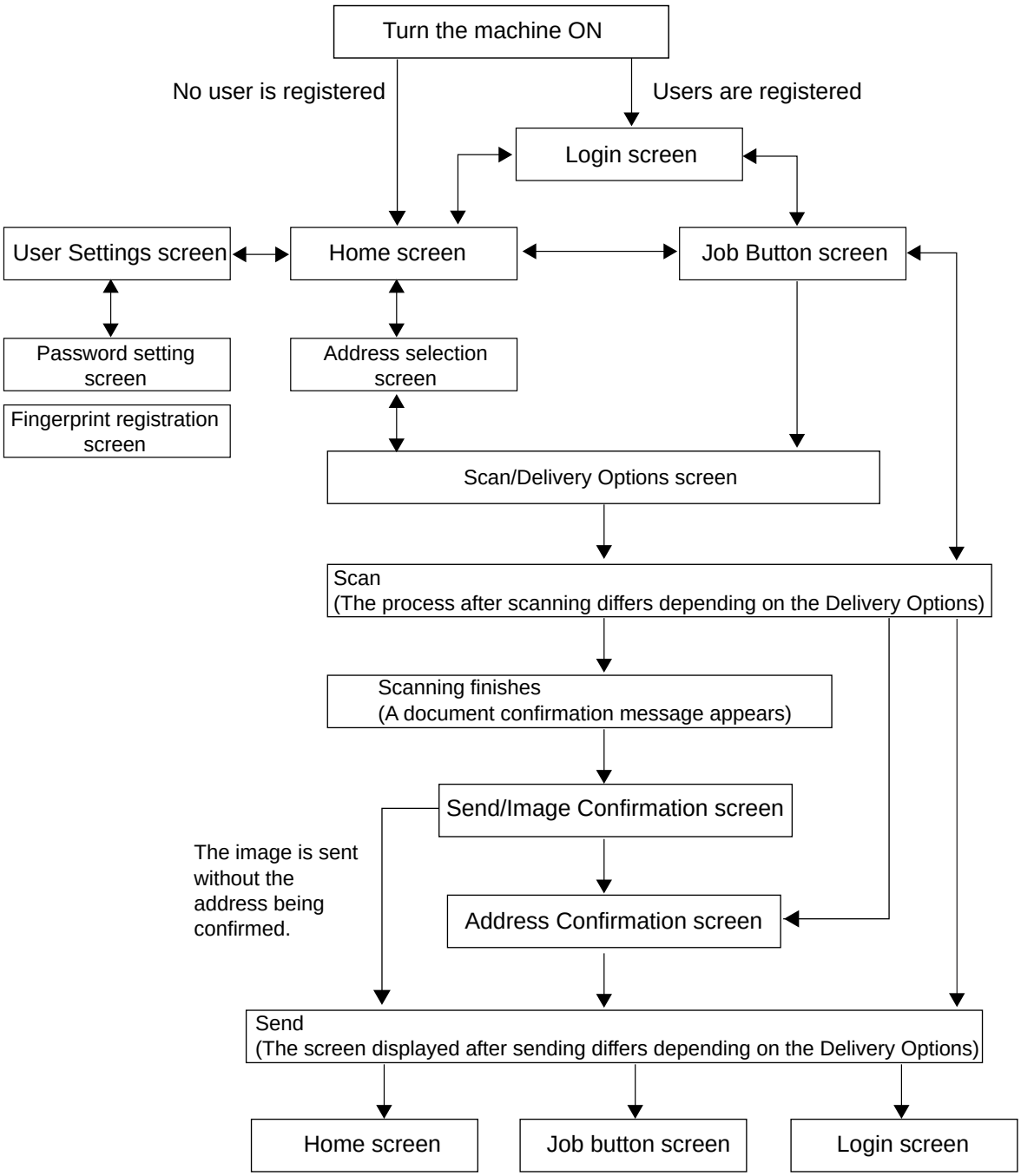

Figure 1-309

3. Web Menu

The Web menu function enables you to access and configure the machine from the Web browser of a remote computer.

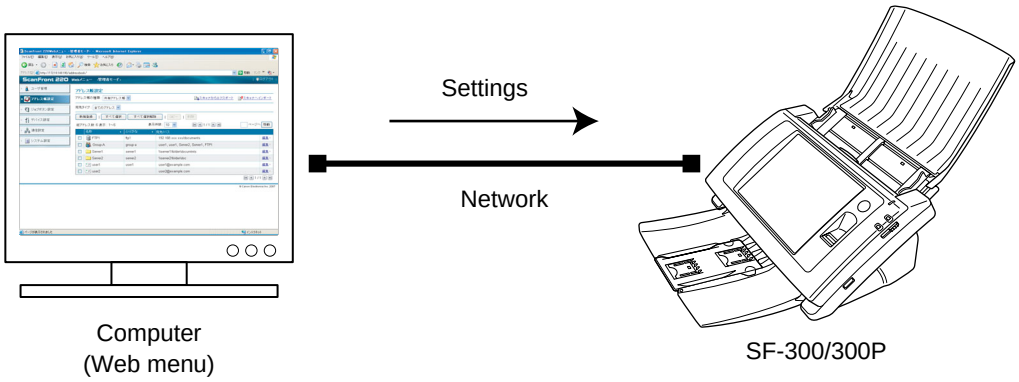

Figure 1-310

◆ Login screen

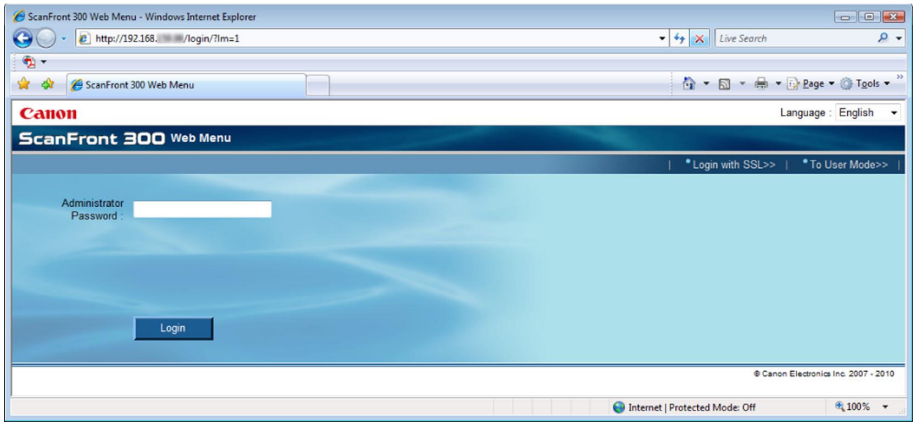

Figure 1-311

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◆ Administrator mode screen

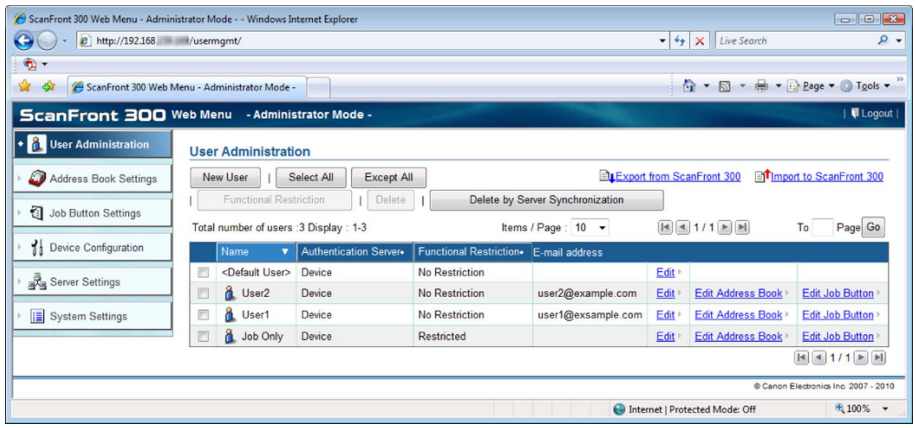

Figure 1-312

◆ User mode screen

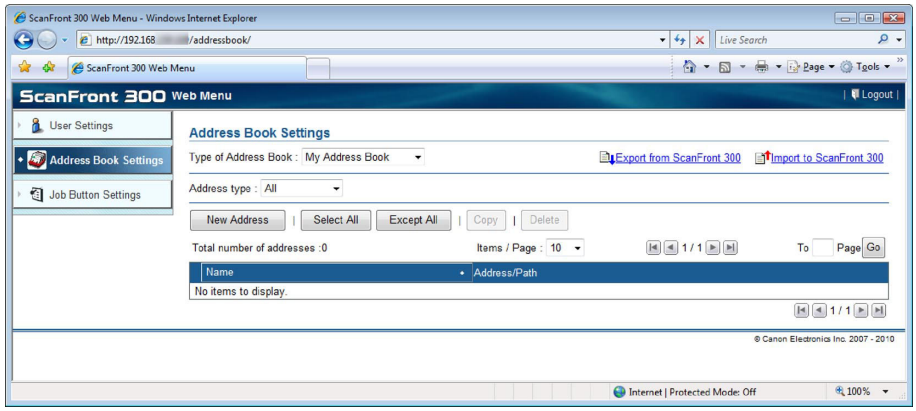

Figure 1-313

CHAPTER 2

FUNCTIONS & OPERATION

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I. OUTLINE

1. System Configuration

This machine is a network scanner. This machine makes it possible to transfer scanned image data to a shared folder on file server computers or client computers, or an FTP server on the network, to send them to the printer to print, or to distribute them via e-mail or internet FAX service. Also it is possible to save image data on a USB memory connected to this machine.

The system configuration of this machine is shown below.

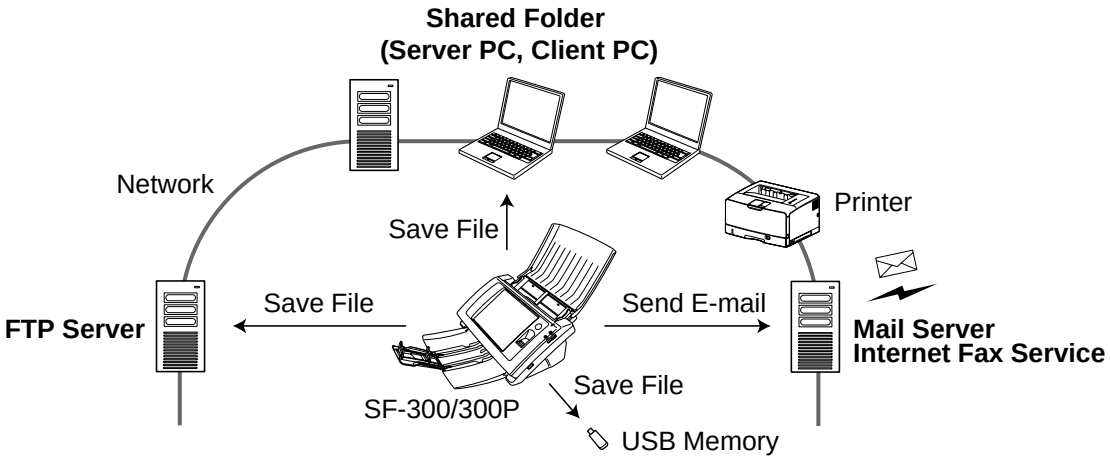

Figure 2-101

◆ **Major Network Environment for the Machine**

	Item	Description
1	Main system	Microsoft Windows Network
2	Protocol	TCP/IP
3	IP address	Auto (DHCP) or Fixed
4	Interface	10Base-T/100Base-TX

Table 2-101

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2. Main Configuration

Figure 2-102 shows the main configuration of this machine.

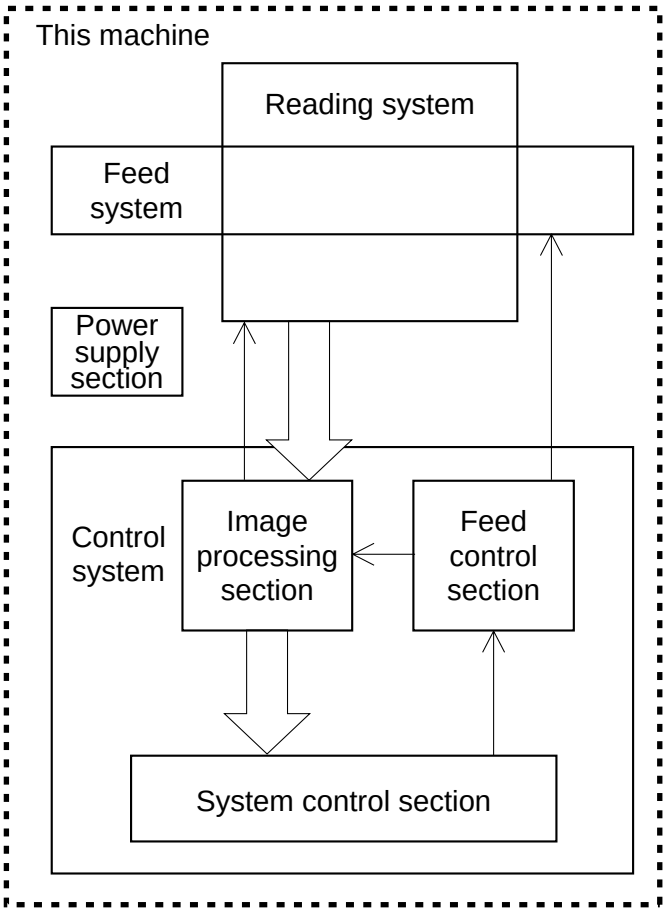

Figure 2-102

1) Reading system
This system reads image data from image sensors.

2) Feed system
This system performs from document pickup to document ejection.

3) Control system
This system is comprised of an image processing section, a feed control section, and a system control section.
The image processing section controls the reading system, and processes the read image data.
The feed control section controls the feed system.
The system control section controls the machine's internal system and communicates with the network.

4) Power supply section
This section supplies DC power, converted from AC power with the packaged AC adaptor, to the machine motherboard.

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3. Motor Drive

This machine has the separation motor (M1) for separating documents and the feed motor (M2) for feeding.

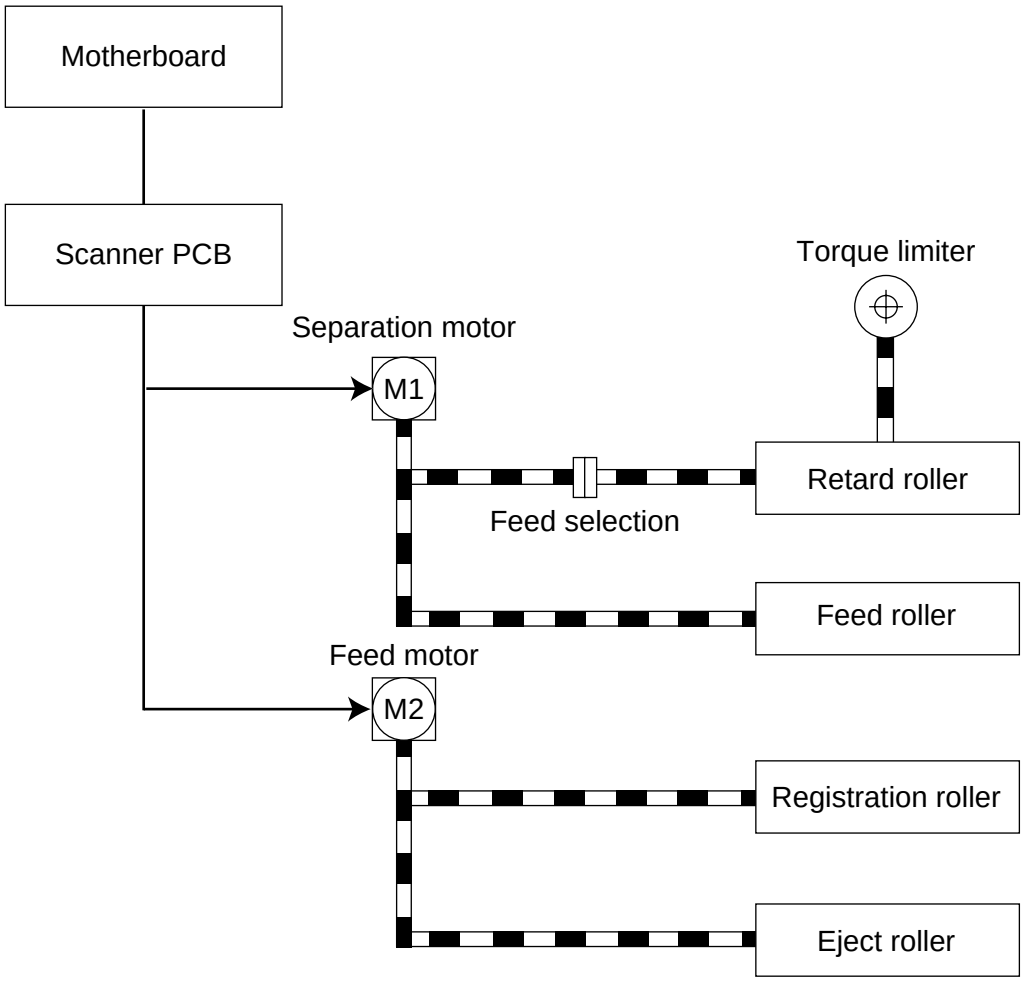

Figure 2-103

4. Electrical Circuits

An overview of the electrical circuits block diagram of this machine is shown below.

The overall system is controlled by the motherboard and the scanning system is by the scanner PCB.

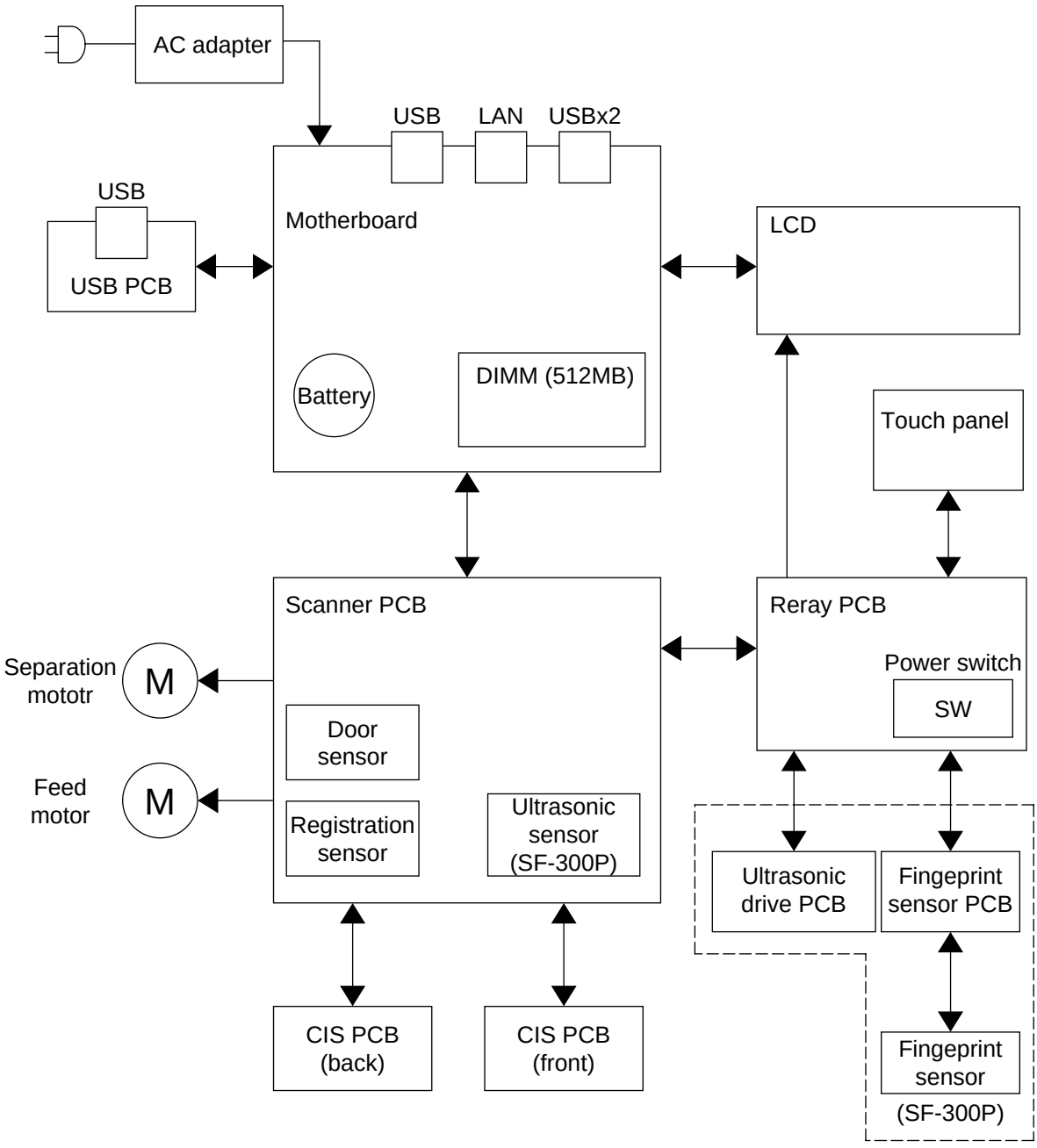

Figure 2-104

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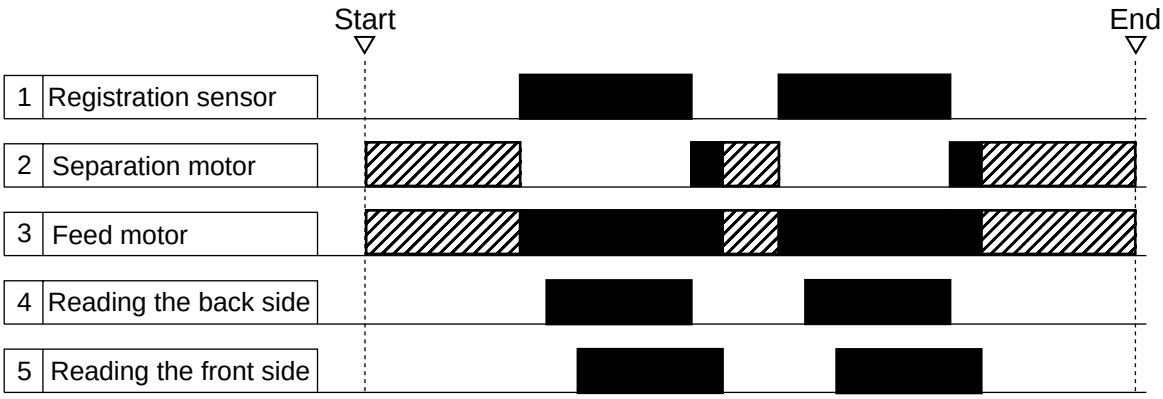
5. Timing Chart

The timing chart when you separately pickup 2 sheets of document without temporarily suspending the machine is shown below.

Once the machine starts scanning, it activates the separation motor and the feed motor to feed the document.



Note: indicates the feeding state at the maximum speed.

Figure 2-105

6. Basic Knowledge

This machine transmits scanned image data over a network as well as saving it on a USB memory connected to the machine. Since the network itself belongs to the user, you don't know its configuration. Before checking operations of the machine, obtain necessary information from the user or the network administrator. The personal information such as a password must be input by the user or the network administrator.

However, since service technicians should have knowledge of networks to do their work, they should learn it or use training courses provided by each sales company. Refer to the basic information and glossary which are provided in the SF-220/220P service manual.

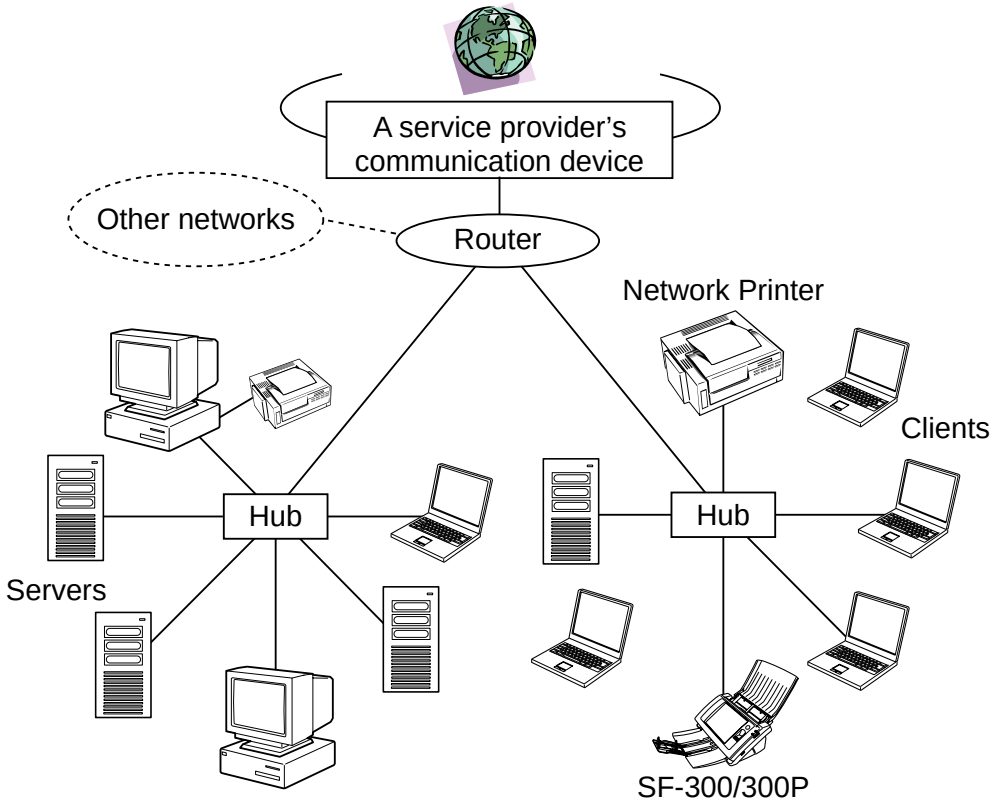


Figure 2-106

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II. READING SYSTEM

1. Reading Unit

The configuration of the reading system is shown below.

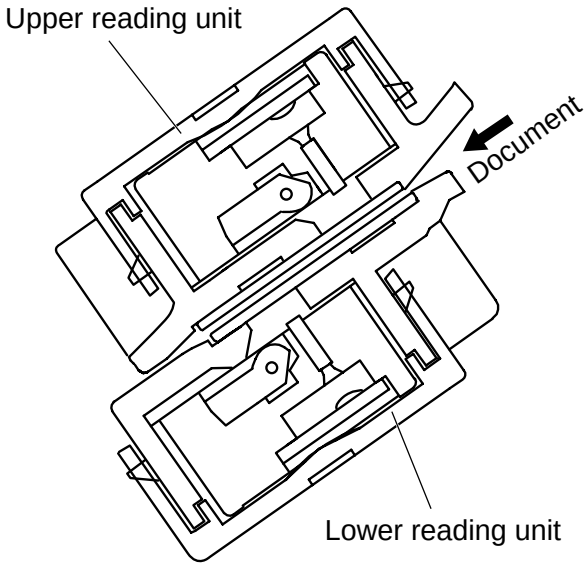

Figure 2-201

The upper reading unit reads the back side of the documents and the lower reading unit reads the front side of the documents. This configuration enables the machine to read both front and back sides of a document using a single scan.

The read image data are sent to the image processing section of the scanner PCB.

To prevent slowdown of the reading speed, the image data is divided by three and output in parallel.

The sectional view of the lower reading unit is shown below. The upper and lower reading units have the same configuration but the different holder shapes.

The scanning unit consists of CIS unit, holder, and cover.

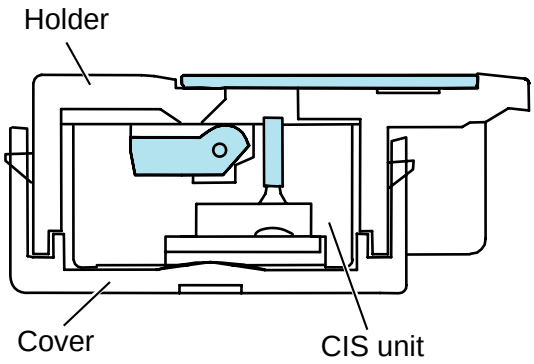

Figure 2-202

The CIS unit consists of CIS PCB, lens array, LED (R/G/B), light guide, and case.

The reading glass and white reference sheet are mounted on the holder.

Photosensitive pixels are mounted on the CIS PCB with a density of 600 dpi in a line. The effective reading width is 216 mm, and the number of effective picture elements is 5107.

A set of three basic color LEDs, red, green, and blue (RGB), is mounted only on the one side.

In the binary or grayscale modes, image data are read with composite light generated by lighting the RGB LEDs simultaneously. In the color mode, the LED is successively lit, and reads image data with each color. As documents are being fed at regular speed while image data are read, the reading positions of RGB are shifted slightly.

In the color dropout mode, only the LED of a designated color lights. In the color emphasis mode, the LED of a color other than a designated color lights.

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2. Shading

This section explains the reading mechanism of the white reference sheet for determination of the shading correction value.

The sectional view of the reading unit is shown below.

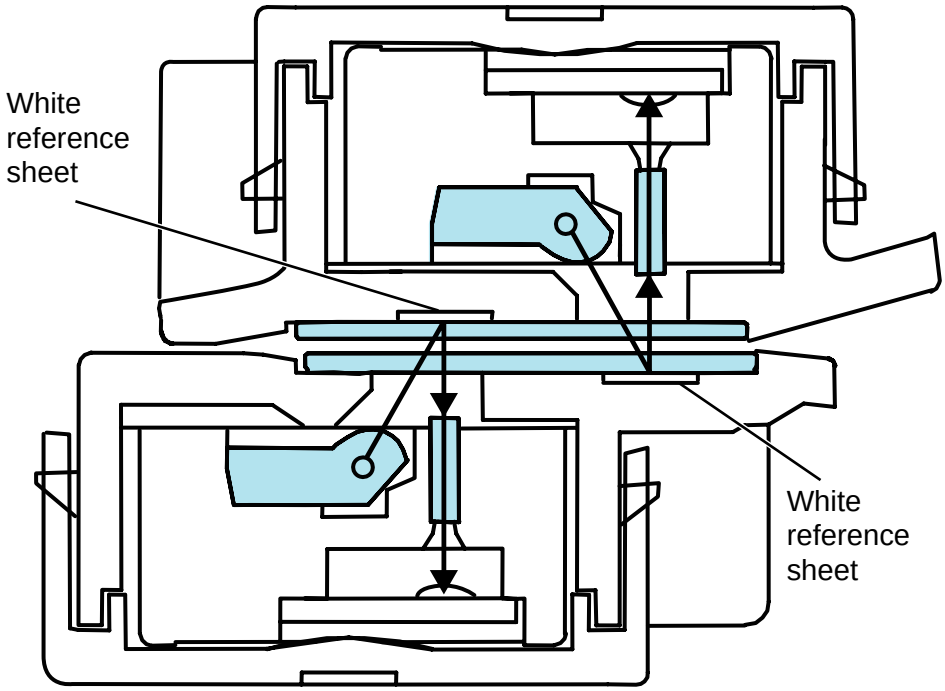

Figure 2-203

This machine can read the white reference data at the document reading position, unlike other scanners having the black background color, since its background color is white. Therefore, there is neither need to feed the shading sheet nor to move the internal shading sheet or the reading units.

For example, when the lower reading unit reads the white reference data, the LED emitted from the lower unit is reflected from the white reference sheet on the upper unit to be input to the sensor on the CIS PCB.

Since the white reference sheet is placed under the reading glass, feeding document does not cause dirt on it.

When this machine is turned on or starts scanning, it reads the white reference data to determine the shading correction value.

However, the slightly different optical paths to the light receiving element are used for the actual document and the white reference sheet. Therefore this machine needs fine adjustment of the shading correction value using the service mode. This fine adjustment is necessary after replacing the reading unit or after replacing the motherboard recording the shading correction value.

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III. FEED SYSTEM

1. Feeding Mechanism

The sectional view of the feed system is shown below.

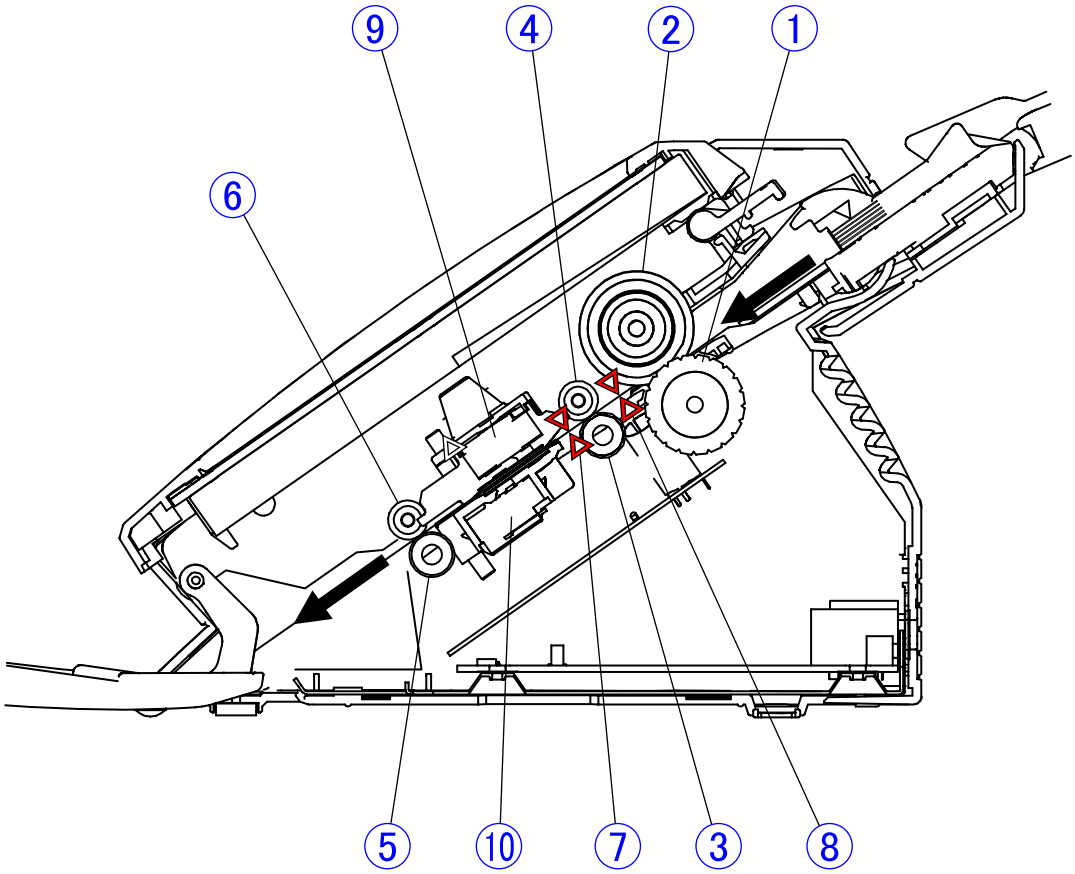

Figure 2-301

① Feed roller
② Retard roller
③ Registration roller (drive)
④ Registration roller (follower)
⑤ Eject roller (drive)
⑥ Eject roller (follower)
⑦ Detection point of Registration sensor
⑧ Detection point of Ultrasonic sensor
⑨ Upper reading unit
⑩ Lower reading unit

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1) Feed path

The feed path of this machine is a tilting straight path. The pickup roller is not mounted

The leading edge of the loaded document touches the feed roller and the retard roller.

Once the machine starts scanning, it activates the rollers to feed the document. The document is ejected to the eject tray passing through the registration roller, the reading units, and the eject roller.

Once the document pushed out by the eject roller touches the eject tray, it is bent along the eject tray surface.

Cards can be fed in both portrait and landscape orientations. However, landscape orientation is recommended.

2) Drive

The separation motor drives the feed roller and the retard roller, and the feed motor drives the registration roller and the feed roller. The scanning condition determines each drive speed.

To provide space between the leading edge of a document and the trailing edge of the next document, the drive speed of the feed roller is slightly lower than the drive speed of the registration roller and eject roller. If it is left as it is, the document is braked when it touches the feed roller and the registration roller, and therefore, a one-way clutch is built into the gear used in the feed roller drive system to follow the drive speed of the registration roller.

3) Separation

Separation of the documents is performed by the retard roller. In this machine, the document holding guide is added to the retard roller section as an auxiliary mechanism.

Since the torque limiter is built in the retard roller, when the outside pressure on the roller exceeds the specified value into the feed direction, the roller begins to rotate in the same direction.

As shown in Figure 2-302-a, when overlapped documents enter into the clearance between the feed roller and the retard roller, the document in contact with the feed roller is fed in the feed direction, and the retard roller rotates in the opposite direction so that the document in contact with the retard roller is not pushed in.

As shown in Figure 2-302-b, once a single document remains, the feed roller and the document add torque on the retard roller. When this torque exceeds the retard roller torque, the retard roller rotates in the direction to feed the document due to the torque limiter.

If the feed selection lever is switched to OFF position, the retard roller rotation becomes free and the separation function becomes invalid.

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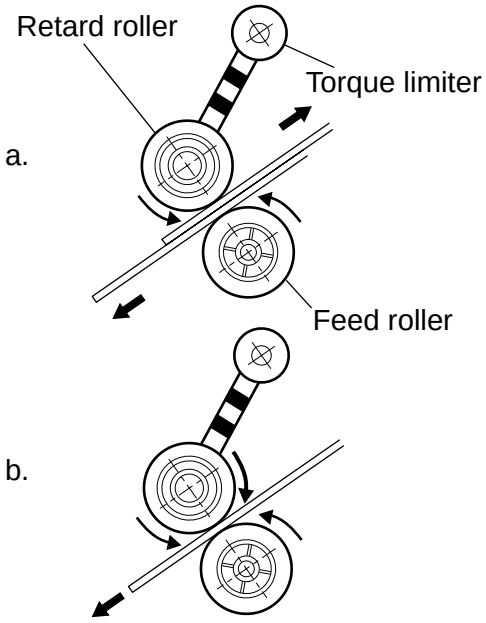

Figure 2-302

4) Sensor

The registration sensor for document detection is mounted immediately after the registration roller. In the SF-300P, the ultrasonic sensor for double feed detection is mounted immediately before the registration roller.

2. Feed Error Detection

1) Paper Jam Detection

Paper jams are detected by the registration sensor. The types of the document jams are described as follows.

a) Pickup Delay Jam (Pickup Error)

The leading edge of the document was not detected by the registration sensor within the specified time after the machine starts scanning.

Note: Since this machine does not have a document sensor, this status is not detected as an error. “No documents” is detected as Pickup Delay Jam.

b) Early Reach Jam

The leading edge of the following document was detected after the trailing edge of the document was detected by the registration sensor before the document has been fed for a specified length.

c) Residual Jam

The trailing edge of the document was not detected even though the document has been fed for the maximum specified length after the leading edge of the document was detected by the registration sensor.

d) Fast Feed Jam

The trailing edge of the document was detected after the leading edge of the document was detected by the registration sensor before the document has been fed for the minimum specified length.

e) Non-removal Jam

The machine starts scanning while the document is detected by the registration sensor and still remains inside this

machine.

2) Double Feed Detection

There are 2 double feed detection methods : the document length detection by the registration sensor and the document overlapping detection by the ultrasonic sensor.

However the ultrasonic sensor is available only for SF-300P.

The registration sensor uses the first document length of the scanned batch as a reference to detect the document length. The 35 mm or more difference from the standard is interpreted as a double feed.

The ultrasonic drive sensor transmits the ultrasonic and the ultrasonic receive sensor receives the ultrasonic signal to gain a specific signal level. When overlapping documents are fed, the signal level is different from when properly feeding a single document. This machine interprets this difference as a double feed.

Note: The double feed detection by ultrasonic may not work if the document overlapping width is 50 mm or less. Further, the machine does not execute the double feed detection for the area of 10 mm from the leading and trailing edges of the document.

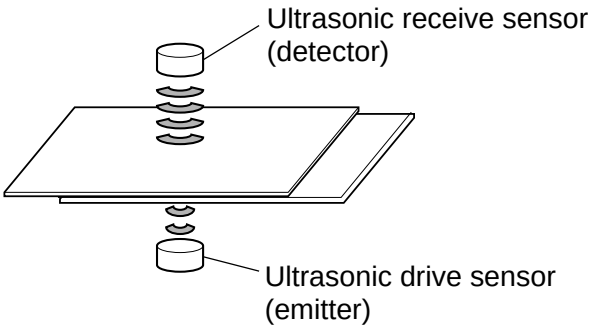

Figure 2-303

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IV. CONTROL SYSTEM

1. Motherboard

The overall system of the machine including scanning and networking systems is controlled by the motherboard. The OS and application software are installed on the NAND Flash Disk (IC4). The operation speed of the CPU differs between SF-300 and SF-300P.

The block diagram and the function list of major ICs are shown below.

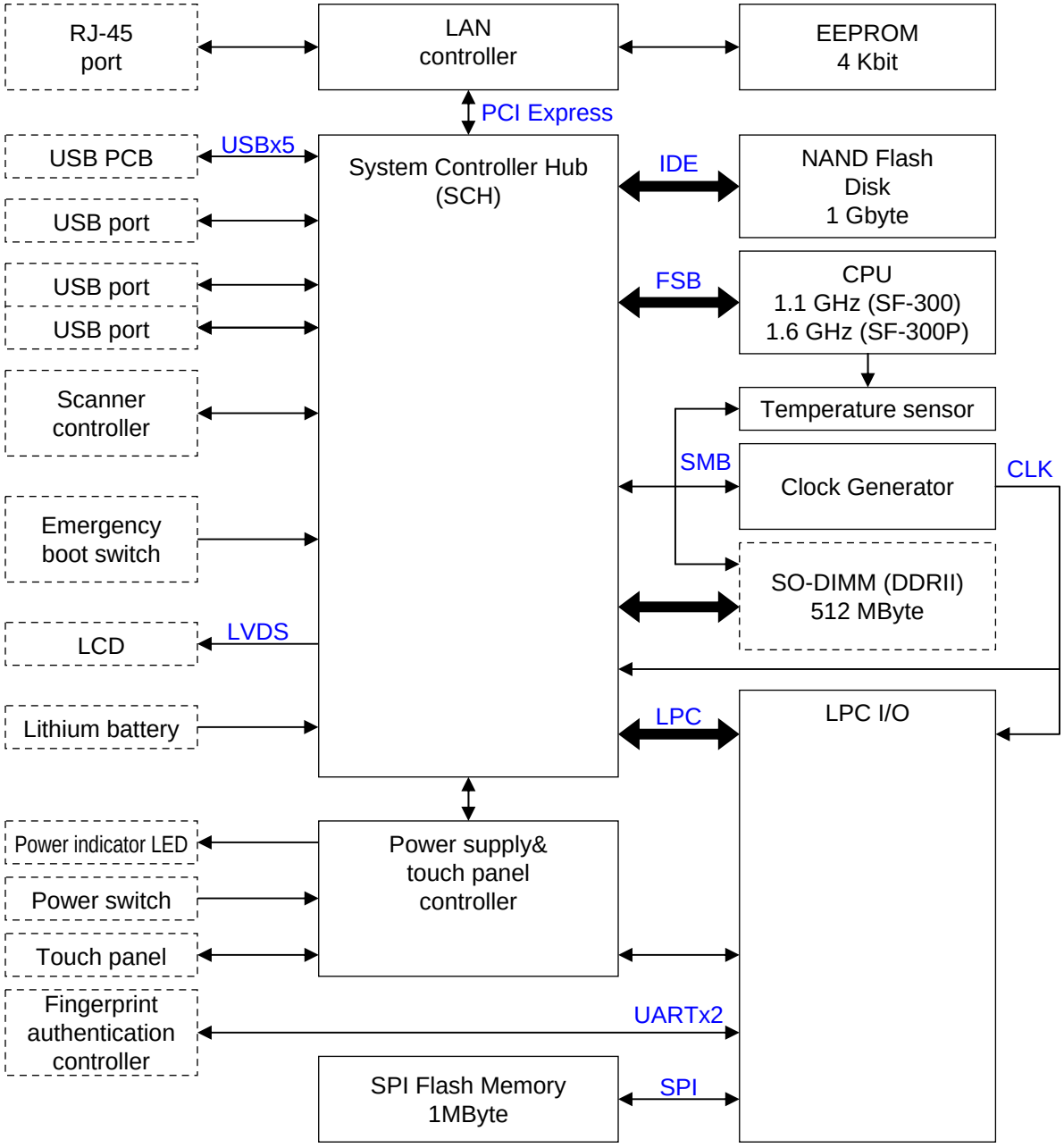

Figure 2-401

◆ Function list of major ICs

IC No.	Name	Function
IC8	CPU	Controls the overall system (x86 CPU)
IC6	System Controller Hub	Controls interfaces (North Bridge & South Bridge)
IC18	LPC I/O	CPU extended input-output
IC11	SPI Flash Memory	Stores BIOS (firm)
IC10	Clock Generator	Clock generator
IC5	Power supply & touch panel controller	Controls power supply and touch panel
IC4	NAND Flash Disk	Stores OS, application data, and user data
IC1802	LAN controller	Controls LAN
IC1801	EEPROM	Stores LAN settings such as MAC address
SR1	Temperature sensor	Monitors the temperature of the CPU

Table 2-401

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2. Scanner PCB

This PCB controls scanning system, which is equivalent to the control PCB on the DR scanner. SF-300P mounts the ultrasonic sensor controller and detector circuit. The block diagram and the function list of major ICs are shown below.

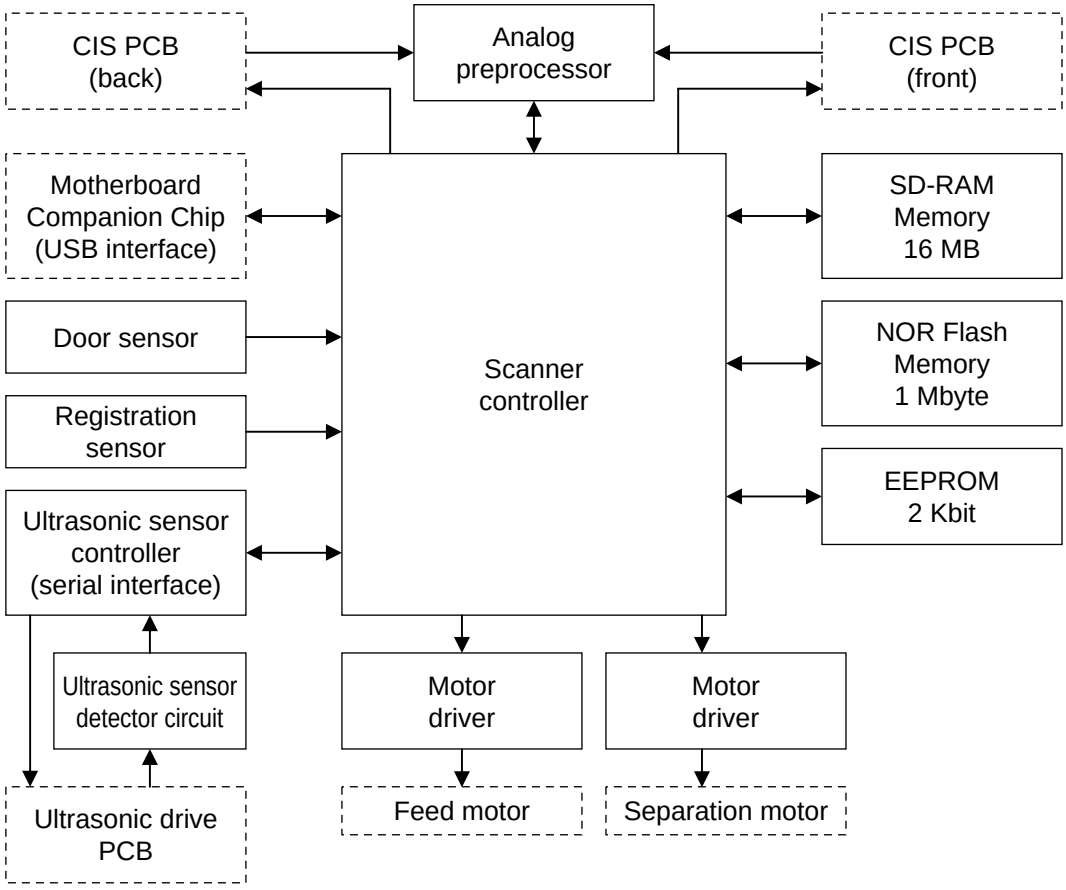

Figure 2-402

◆ Function list of major ICs

IC No.	Name	Function
IC201	Scanner Controller	Controls scanning system
IC611	Analog preprocessor	Performs analog gain/offset adjustment, and A/D conversion
IC114	EEPROM Memory	Stores each setting
IC115	SD-RAM Memory	Stores image data temporarily, and serves as a work memory for the Scanner Controller
IC117	NOR Flash Memory	Stores firmware
IC402	Motor driver	Drives the separation motor
IC403	Motor driver	Drives the feed motor
IC11	Ultrasonic sensor controller	Controls ultrasonic sensor

Table 2-402

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3. Image Processing Control

The block diagram of the image processing in the main body is shown below.

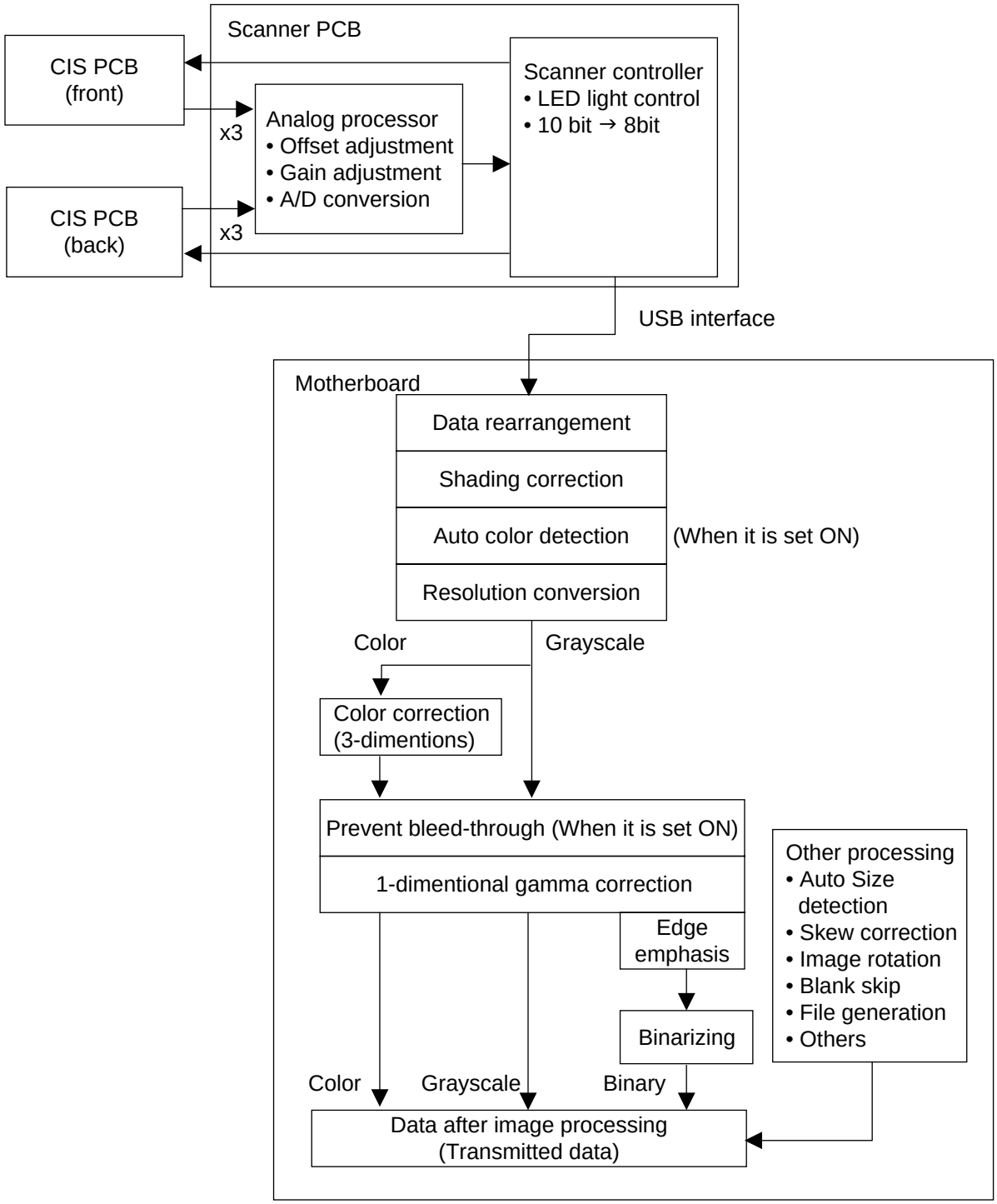

Figure 2-403

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Analog signals proportionate to the density of each picture element are divided by three and output in parallel to the analog processor on the scanner PCB from the CIS PCB. The resolution of the output data is either 300 dpi or 600 dpi according to the user settings.

The analog processor carries out offset adjustment, gain adjustment, and A/D conversion. Analog signals are converted into 10 bit digital signals in the analog processor. Then the image data is transferred to the scanner controller and the resolution is converted from 10 bits to 8 bits.

After that, the image data is output to the motherboard through USB interface.

The motherboard performs the shading correction and the image processing according to the user settings.

Since this machine has a white background, black frame removal and punch hole removal are not necessary.

Then, this image data is sent to the outside.

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V. POWER SUPPLY

1. Outline

This machine runs on the AC adapter, whose rated input voltage is 100-240 VAC 50/60Hz and whose output is 24 VDC. Use the AC adapter bundled with this machine.

Plugging the AC adapter to the machine activates the monitoring system on the power switch. When the power switch is ON, the CPU is powered on and supplies the power to each PCB.

The motherboard and scanner PCB generate various DC low voltages. The relay PCB has an inverter circuit to generate AC high voltage and supply it to the LCD backlight. For this reason, it is indicated with the "HIGH VOLTAGE" label on the relay PCB. The motherboard has a lithium battery for the real-time clock.

In case of excess voltage or current applied to the AC adapter output, the safety system cuts the power. In this case, unplug the AC plug. After about 10 minutes, the machine recovers automatically. After removing the cause, plug it back.

For power saving, the display off mode can be configured by the user from the Web menu.

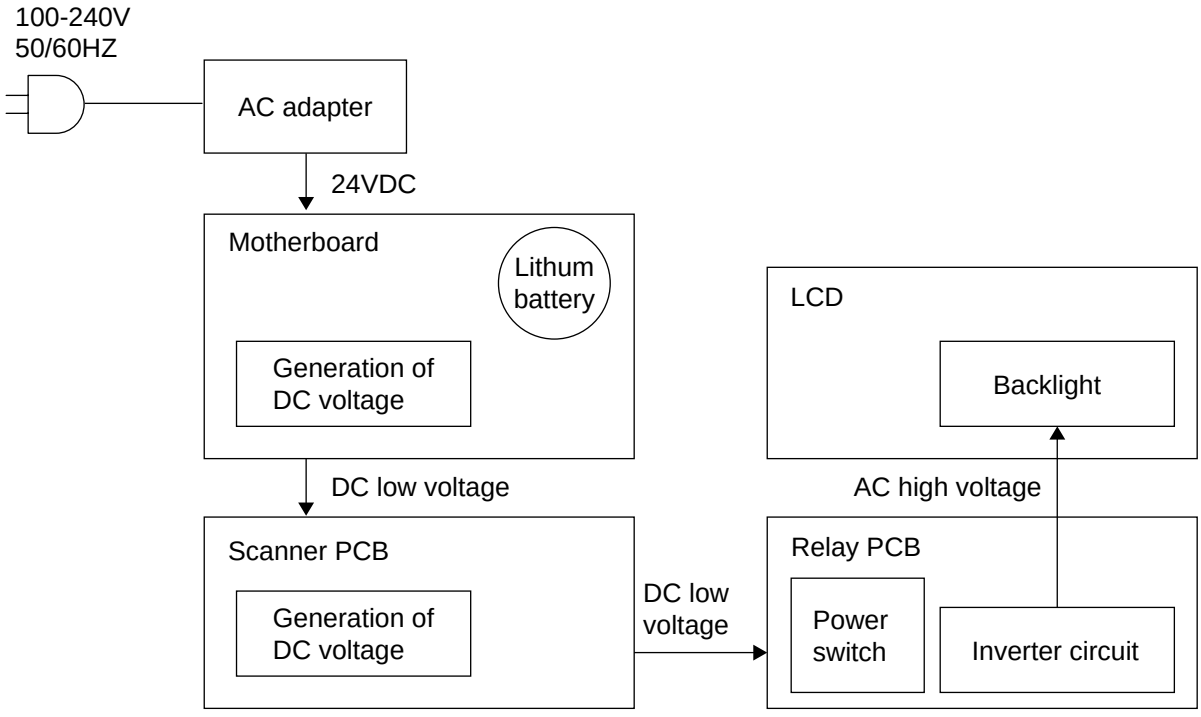

Figure 2-501

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2. Lithium Battery

The motherboard of the machine mounts a lithium battery for the real-time clock. The battery specification is as follows:

Manufacturer: FDK Co., Ltd.
Model: CR2032
Supply voltage: 3V
Capacity: 240mAh

However, the power supply of this machine is turned ON, this function is maintained by the power supplied from the AC adapter not from the lithium battery.

When the battery has run out, the clock setting is disabled. The reconfiguration is necessary after replacing the battery. The clock needs to be reconfigured from the Web menu. The reconfigurations are also necessary when the battery is removed temporarily.

For replacing the battery, refer to the “CHAPTER 3 DISASSEMBLY & REASSEMBLY”. The battery is not assigned as a service part. Purchase the same or equivalent battery as described above.

◆ **Notes on lithium battery**

Improper installation may cause an explosion. Make sure that the direction of the battery is correct when installing. Use the same or equivalent battery as described above. Do not attempt to recharge or disassemble it. Do not throw it in the fire. Store it out of the reach of children.

Follow battery manufacturer’s instructions or local regulations when disposing a used battery or a PCB mounting a battery.

◆ **For California, USA Only**

Included battery contains Perchlorate Material - special handling may apply.
See
http://www.dtsc.ca.gov/hazardouswaste/perchlorate/
for detail.

VI. ELECTRICAL PARTS LAYOUT

1. Base Unit

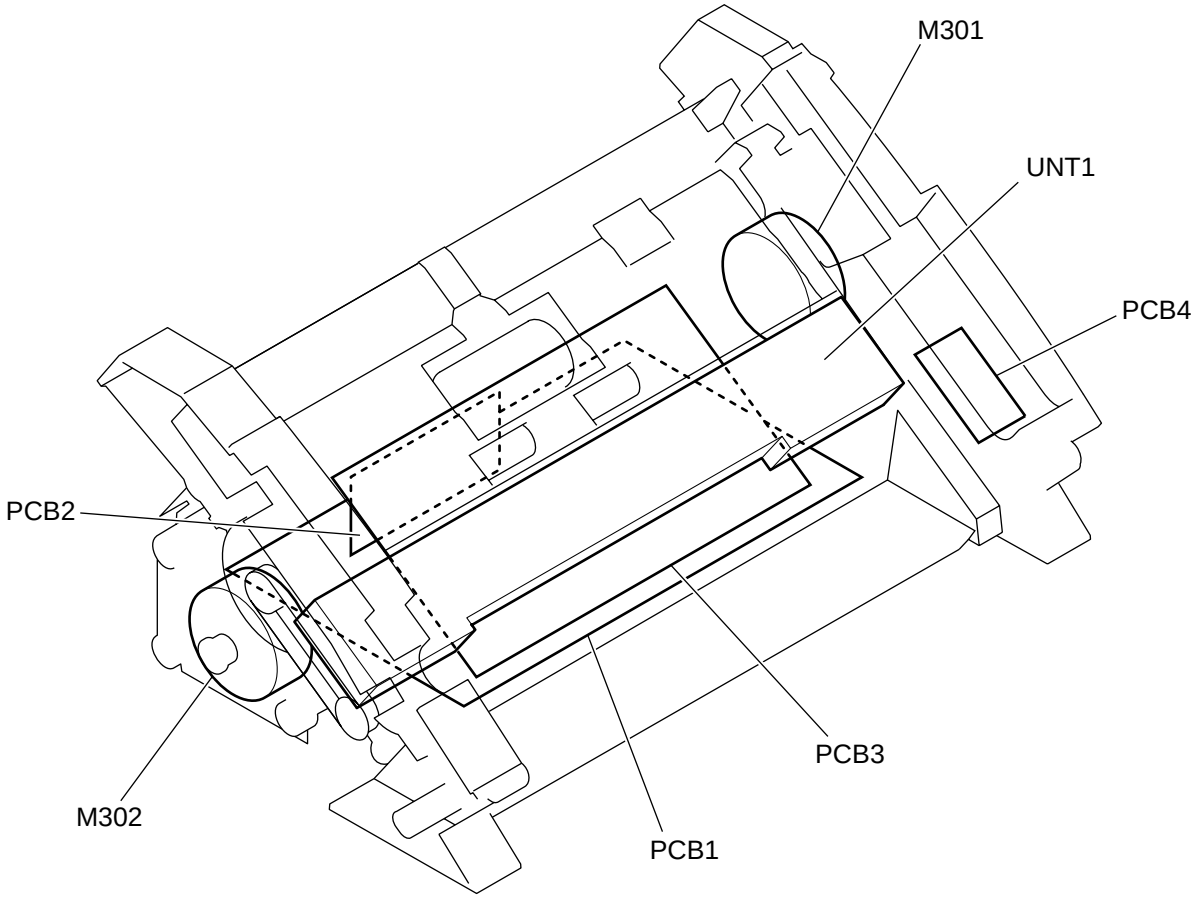

Figure 2-601

Category	Name	Symbol
Motor	Separation motor	M301
	Feed motor	M302
PCB	Motherboard	PCB1
	SO-DIMM (memory)	PCB2
	Scanner PCB	PCB3
	USB PCB	PCB4
Unit	Lower reading unit	UNT1

Note: For the parts on the PCBs, refer to “VII. PARTS LAYOUT ON EACH PCB”.

Table 2-601

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2. Panel Unit

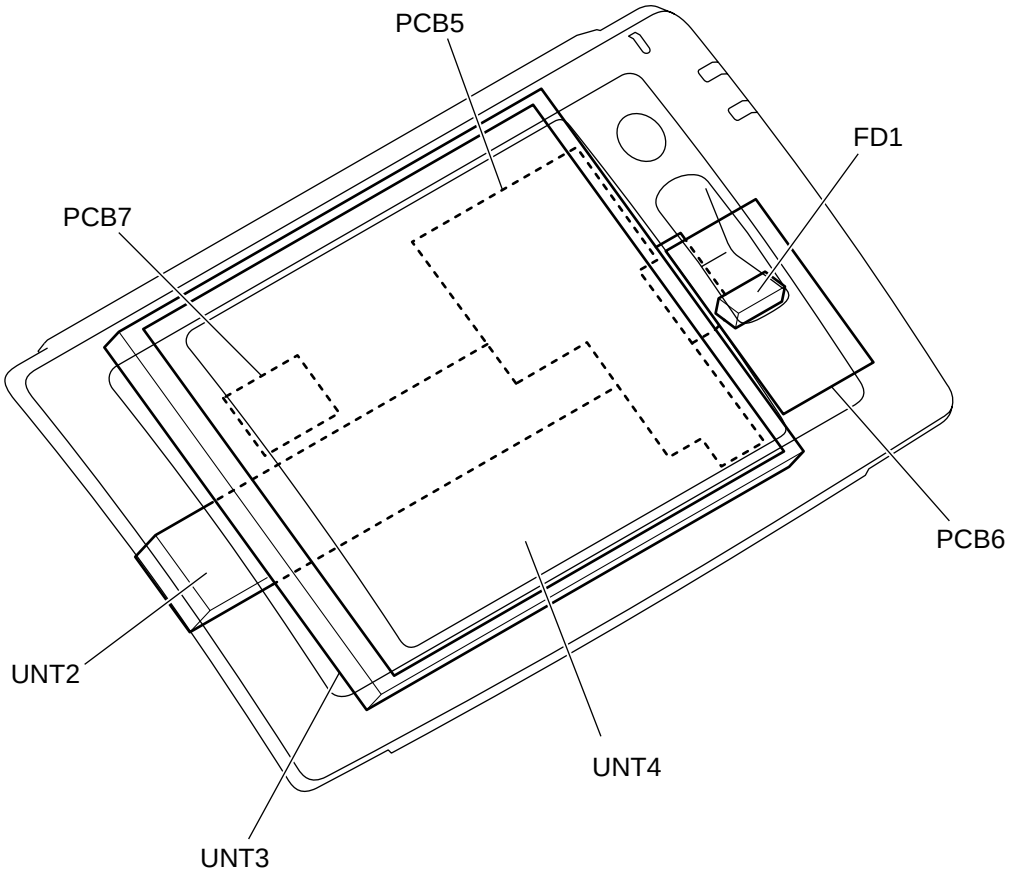

Figure 2-602

Category	Name	Symbol
Sensor	Fingerprint sensor	FD1
PCB	Relay PCB	PCB5
	Fingerprint sensor PCB	PCB6
	Ultrasonic drive PCB	PCB7
Unit	Upper reading unit	UNT2
	LCD	UNT3
	Touch panel	UNT4

Note: For the parts on the PCBs, refer to “VII. PARTS LAYOUT ON EACH PCB”.

Table 2-602

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VII. PARTS LAYOUT ON EACH PCB

1. Motherboard

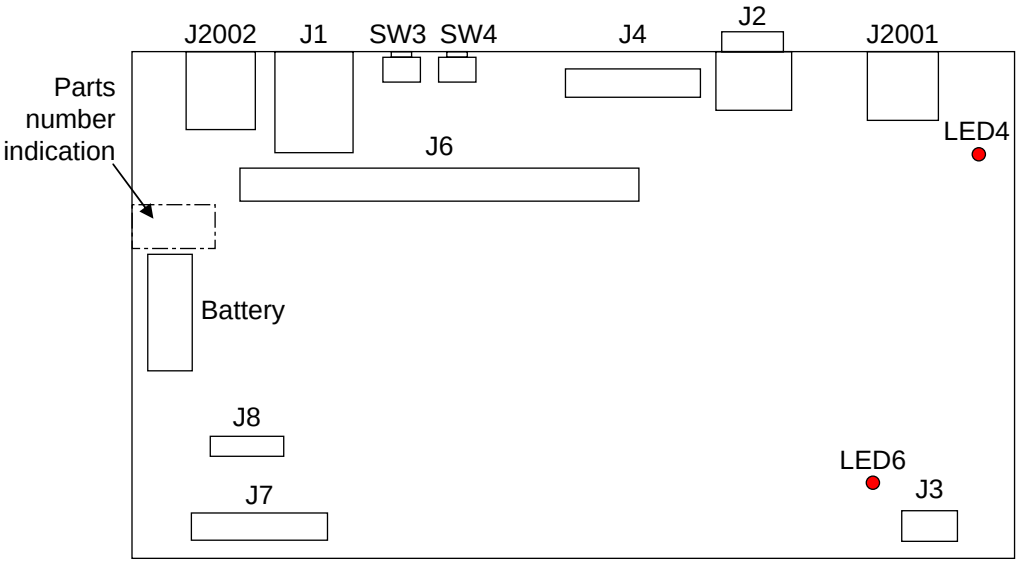

Figure 2-701

Connector		Description
J1	--	LAN
J2	--	AC adaptor
J3	5P	USB PCB
J4	12P	Scanner PCB
J6	--	SO-DIMM
J7	20P	Scanner PCB
J8	20P	Scanner PCB
J2001	--	USB (1 port)
J2002	--	USB (2 port)

Table 2-701

Symbol	Description
SW3	Crisis switch (BIOS)
SW4	Emergency boot switch (OS)
LED4	Lit: 24 VDC good condition
LED6	Flashing: Power ON, CPU good condition

Table 2-702

Note1: Part number indication

Identifies the SF-300 and SF-300P. The SF-300 is different from the SF-300P in CPU and so on, but their appearances are almost the same. The SF-300P is indicated by “MG1-4370” and the SF-300 is indicated by “MG1-4371”.

Note2: SO-DIMM

Memory SO-DIMM is inserted into the connector J6, but this is not included with the service part motherboard. SO-DIMM is a different service part.

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2. Scanner PCB

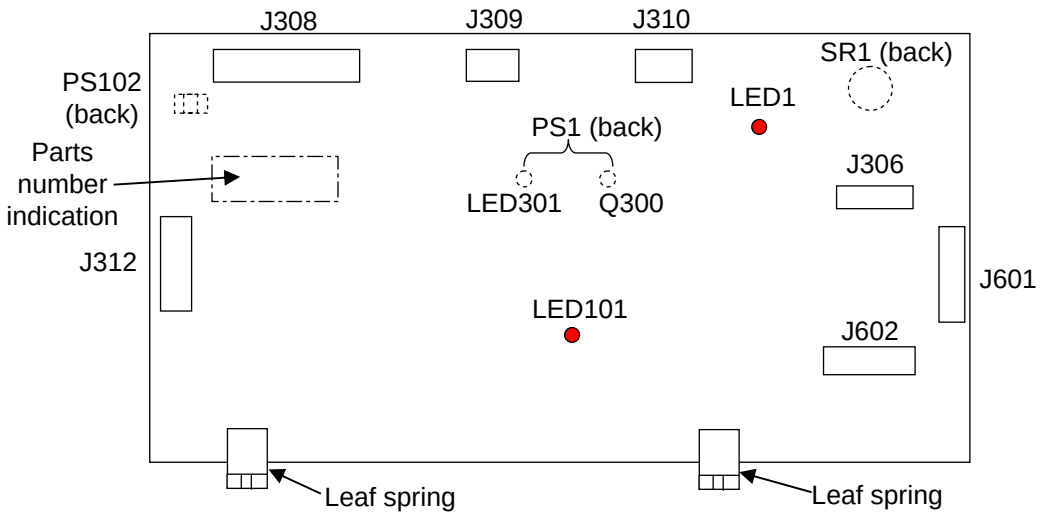

Figure 2-702

Connector		Description
J601	15P	CIS PCB (front)
J602	15P	CIS PCB (back)
J306	22P	Mother board
J308	12P	Mother board
J309	4P	Separation motor
J310	4P	Feed motor
J310	15P	Relay PCB

Table 2-703

Symbol	Description
PS1	Registration sensor
PS102	Door sensor
SR1	Ultrasonic sensor (detector) However, only SF-300P.
LED1	Flashing: Ultrasonic sensor CPU good condition However, only in scanning.
LED101	Flashing: Scanner CPU good condition However, only in scanning.

Table 2-704

Note1: Part number indication

Identifies the SF-300 and SF-300P. An ultrasonic sensor is installed on the back of the SF-300P, but their appearances are almost the same. The SF-300P is indicated by “P MG1-4372” and the SF-300 is indicated by “S MG1-4373”.

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3. Relay PCB

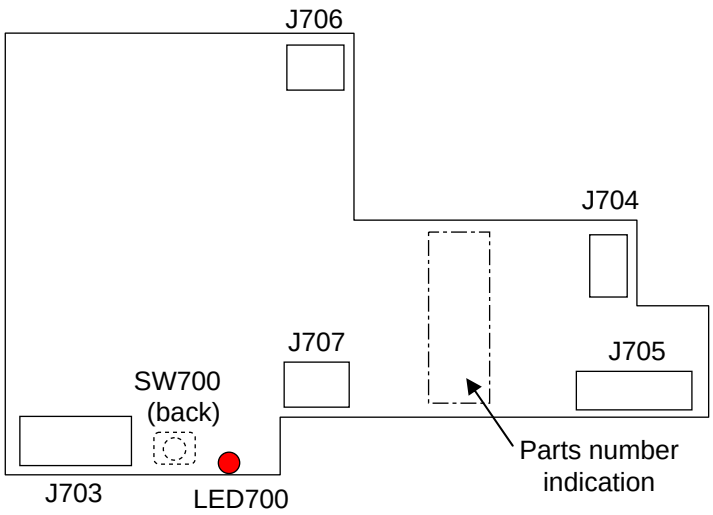

Figure 2-703

Connector		Description
J703	3P	LCD (High voltage)
J704	4P	Touch panel
J705	15P	Scanner PCB
J706	4P	Ultrasonic drive PCB However, only SF-300P.
J707	4P	Fingerprint sensor PCB However, only SF-300P.

Table 2-705

Symbol	Description
SW700	Power switch
LED700	Power indicator

Table 2-706

Note1: Part number indication

Identifies the SF-300 and SF-300P. Many connectors are installed on the SF-300P, but their other appearances are almost the same. The SF-300P is indicated by “P MG1-4374” and the SF-300 is indicated by “S MG1-4375”.

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CHAPTER 3

DISASSEMBLY & REASSEMBLY

Note: The machine shown in the photographs of the figures in this chapter may be different from some mass-produced machines. The model SF-300P is used.

I. EXTERNAL COVERS 3-1
II. UPPER UNIT.....3-6
III. LOWER UNIT.....3-11

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I. EXTERNAL COVERS

1. Eject Tray

1) Upright the main body, bend the arms ① on the left and right sides to unhook the fitting parts, then remove the eject tray ②.

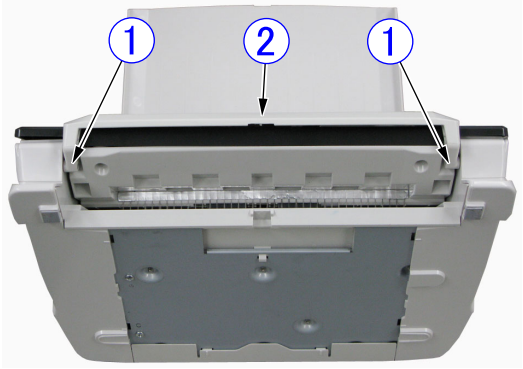


Figure 3-101

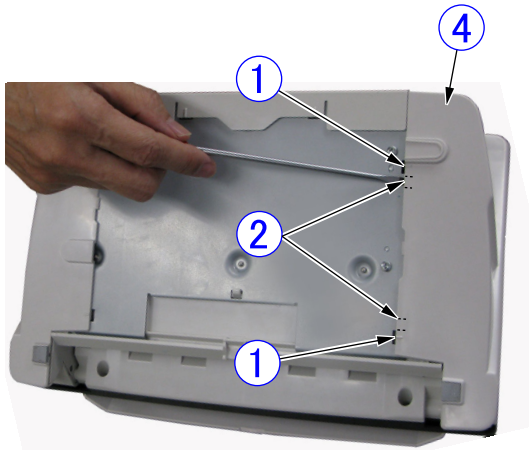
Note: Removing the eject tray first makes it easier to disassemble this machine. You may remove the eject tray even if the procedures do not indicate it.

Note: Since when the panel unit is opened, the weight is put on the open side, take sufficient care when carrying out disassembling and reassembling while opening the panel unit.

2. Left Cover

1) Insert a tool into the openings ② (2 places) near the fitting parts ① (2 places) on the bottom, then unhook the fitting parts. Insert a tool into the fitting parts ③ (2 places) on the inside of top, and then unhook the fitting parts to remove the left cover ④.

Note: There are also other fitting parts inside at the top front part.



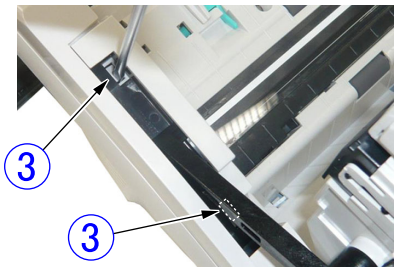


Figure 3-102

◆ **Notes on assembling**

Install the cables (FFC and LCD cables) and grounding sheet on the cover slightly, and then push in the whole cover so that the cables and grounding sheet were not caught in parts.

3. Right Cover

1) Insert a tool into the openings ② (2 places) near the fitting parts ① (2 places) on the bottom, then unhook the fitting parts. Then insert the tool into the fitting parts ③ (2 places) on the top, and then unhook the fitting parts to remove the right cover ④. The separation selection lever ⑤ also becomes detached.

Note: There are also other fitting parts inside at the top front part.

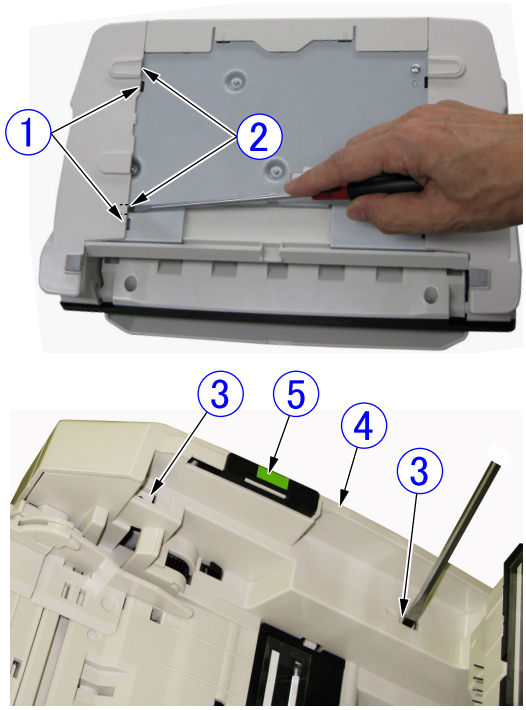


Figure 3-103

◆ **Notes on assembling**

First install the separation selection lever ① on the lever ② on the main body.

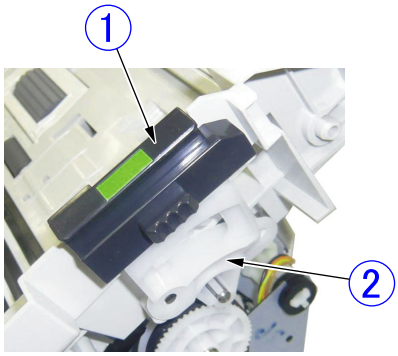


Figure 3-104

Install the cables and grounding sheet on the cover slightly, and then push in the whole cover so that the cables and grounding sheet were not caught in parts. (The grounding sheet is used for the SF-300P only.)

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4. Pickup Tray

1) Remove the right and left covers.
(Page 3-2), (Page 3-1)
2) Remove the spring ①. Rotate the pickup tray ② slightly and align the shaft ③ with the shape of the opening ④ to remove the pickup tray.

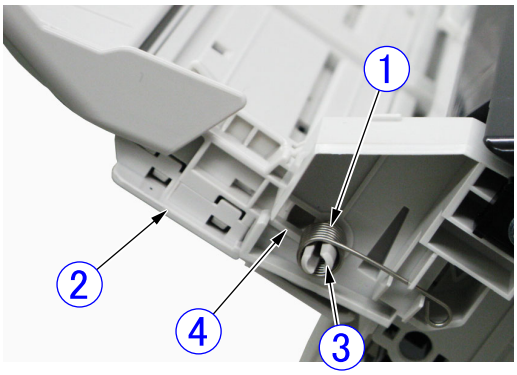

Figure 3-105

Note: Removing the pickup tray first makes it easier to disassemble this machine. You may remove the pickup tray even if the procedures do not indicate it.

◆ **Notes on assembling**

Align the positions of the two document guides ① on the pickup tray side and the two document guides ② on the main body side, insert the two guides ③ on both sides into the main body side.

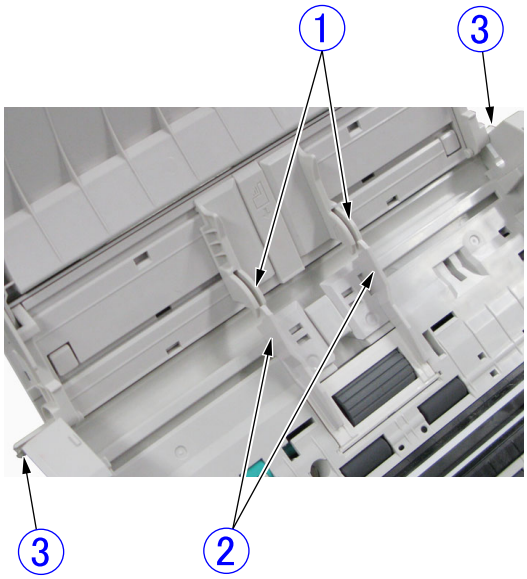

Figure 3-106

Insert the spring① into the shaft of the pickup tray as shown in the figure below, then push the arm ② into the hook of the main body.

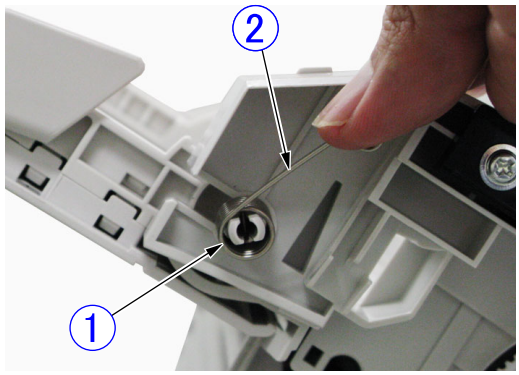

Figure 3-107

5. Rear Cover

1) Remove the right and left covers.
(Page 3-2), (Page 3-1)
2) Place your fingers on the end of the rear cover ① on the bottom and unhook 2 pairs of fitting parts ②. Then unhook 2 pairs of fitting parts ③ on both sides and remove the rear cover.

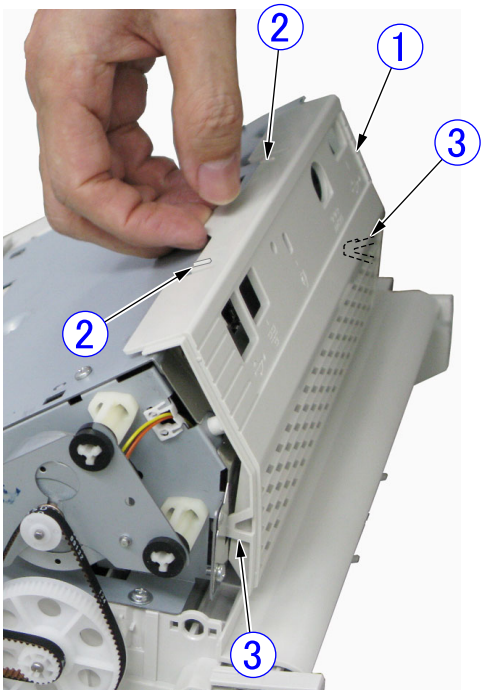

Figure 3-108

◆ **Notes on assembling**

Give top priority to the alignment of the round hole on the main body side with the rear cover shaft ①, and align the other fitting parts and push them in.

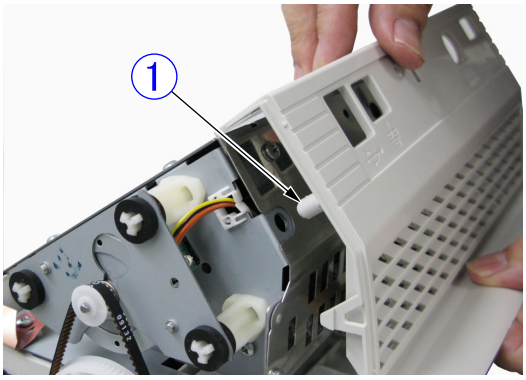

Figure 3-109

Place the rear cover inside the end of the pickup tray as shown below.

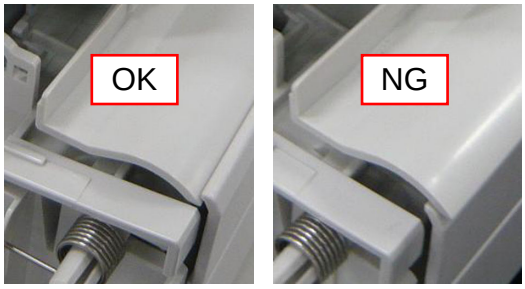

Figure 3-110

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6. Back Plate

1) Remove the right and left covers.
(Page 3-2), (Page 3-1)
2) Remove the rear cover.
(Page 3-4)
3) Remove 5 screws ① (M3x4) and remove the back plate ②.

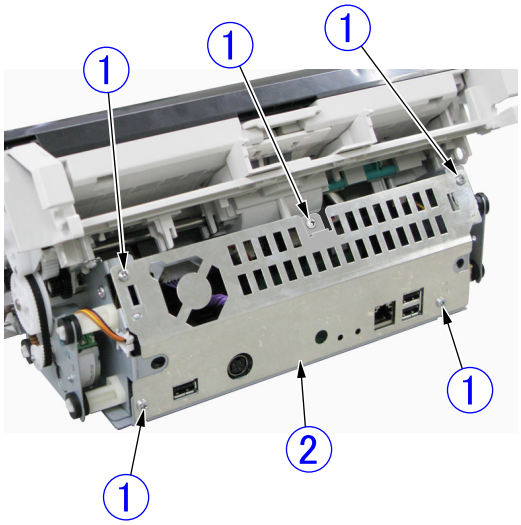

Figure 3-111

II. UPPER UNIT

1. Front Panel Assembly

1) Remove 2 screws ① (M3x4) from the bottom.

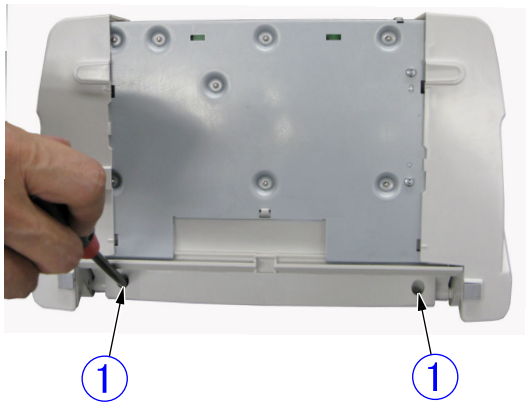

Figure 3-201

2) While holding the front panel assembly ① with a hand, insert a tool into 4 pairs of fitting parts ②, and unhook them to remove the front panel from the main body.

Note: If the front panel assembly is not held with a hand, it hits the table when it is removed. Do not pull it because cables and grounding sheet are connected to it.

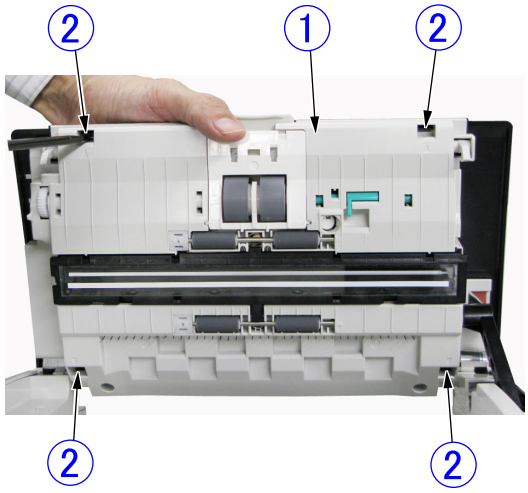

Figure 3-202

3) Remove 2 cables ①.

Note: Be careful when handling the connector on the side marked with ∗ because the connector is thin.

For SF-300P, the grounding sheet must be removed to remove the front panel assembly completely from the main body. For its procedure, refer to “2. Fingerprint Sensor Unit”.

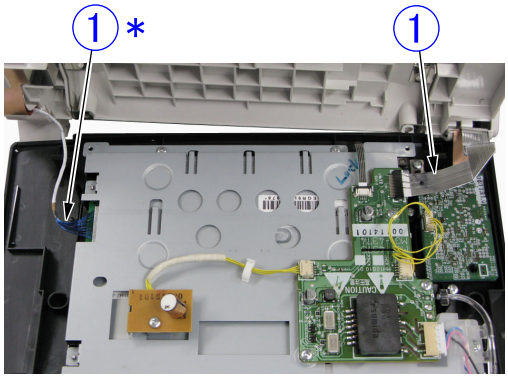

Figure 3-203

◆ **Notes on assembling**

Do not get the right and left cables and grounding sheet caught in parts.

Insert the LCD cable ① on the left side into three cable guides ② on the base.

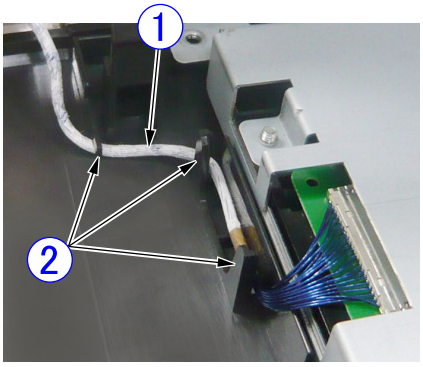

Figure 3-204

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2. Fingerprint Sensor Unit

Note: SF-300P only

1) Remove the front panel assembly.
(Page 3-6)
2) Remove the cable ① and remove 3 screws ② (M3, self-tapping) to remove the fingerprint sensor unit ③.

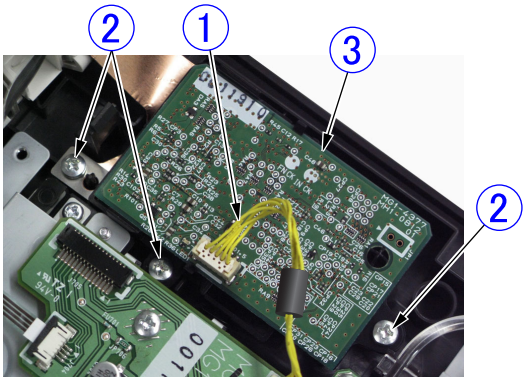

Figure 3-205

◆ **Notes on assembling**

If only the PCB is removed, connect the fingerprint sensor cable to the PCB and then fit it into the case.

Before assembling the fingerprint sensor unit into the main body, align the grounding sheet position.

Hook the cable at the cable holder of the fingerprint sensor so that the ferrite core does not lift.

3. LCD

1) Remove the front panel assembly.
(Page 3-6)
2) Unlock the connector ① and remove the cable ② (FPC, touch panel). Remove the screw ③ (M3, self-tapping, TP head) and remove the light guide④. Then remove 4 screws ⑤ (M3, self-tapping) and remove the LCD assembly ⑥.

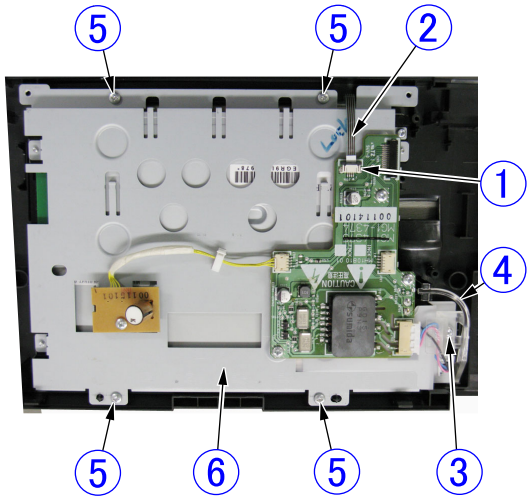

Figure 3-206

3) Remove the connector at the back side of the cable①. Remove 4 screws ② (M2.5, TP head) and remove the LCD ③.

Note: For SF-300P, the ultrasonic sensor PCB is installed on the back of the mounting plate. Be careful not to damage or deform the PCB.

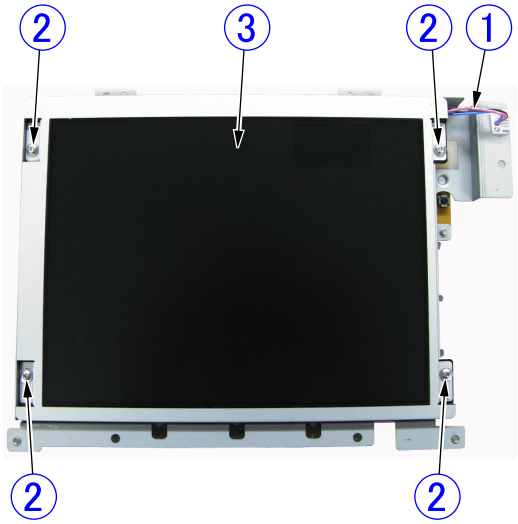

Figure 3-207

◆ **Notes on assembling**

If the surface of the display panel is stained with fingerprints, etc., clean it before assembling. This also applies to the inner surface of the touch panel.

4. Touch Panel

1) Remove the LCD assembly.
(Page 3-7)

Note: The connector to which the touch panel cable is connected has a lock.

2) Remove the touch panel ①.

Note: Rubber sheets may be attached to the touch panel.

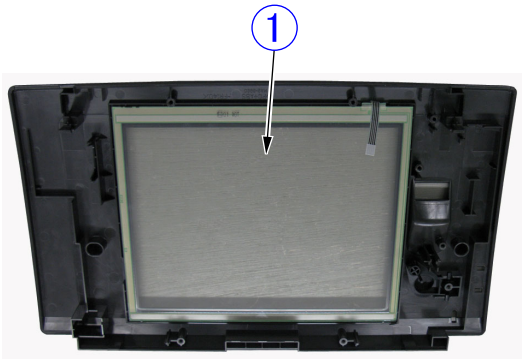

Figure 3-208

◆ **Notes on assembling**

There are 3 rubber sheets ① (2 kinds) between the touch panel and the front panel. Place the sheets at the positions shown below and then assemble the touch panel. If the inner surface of the touch panel is stained with fingerprints, etc., clean it.

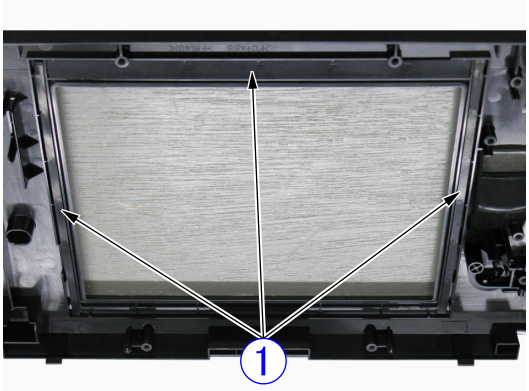

Figure 3-209

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5. Follower Roller

1) Remove the front panel assembly.
(Page 3-6)
2) While holding the roller with a hand to prevent it from falling out, unhook 2 pairs of fitting parts ① on the back side, then remove the stopper ②, the roller ③, and the roller shaft ④.

Note: The spring is mounted under the roller shaft. The parts will fall out if the roller is not held with a hand.

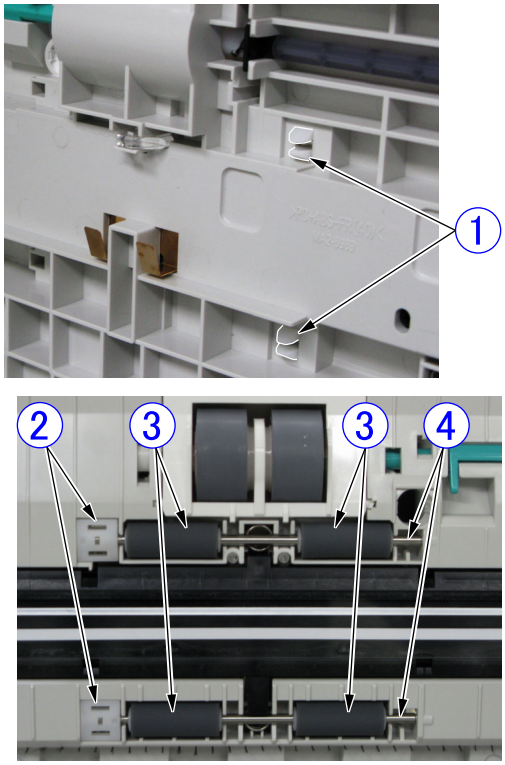

Figure 3-210

◆ **Notes on assembling**

Assemble the coil spring first.

Set the roller position to its housing on the main body to assemble it. Insert the plain-cut end ① of the roller shaft into the stopper. Insert the other end (circular-shaped) of the roller shaft into the hole on the main body.

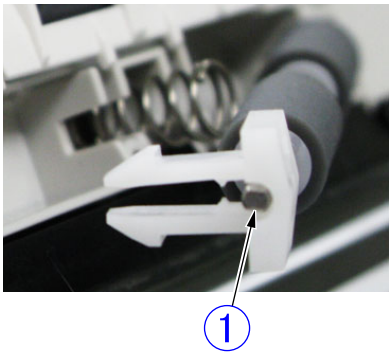

Figure 3-211

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6. Upper Reading Unit

1) Open the upper unit, spread the right and left hooks ①, unhook the fitting parts and pull out the reading unit ②.

Note: Do not pull it excessively because the cable is connected to it. Be careful not to damage the hooks.

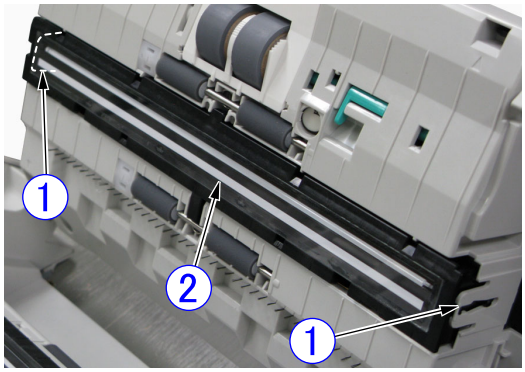

Figure 3-212

2) Remove the cable ①.

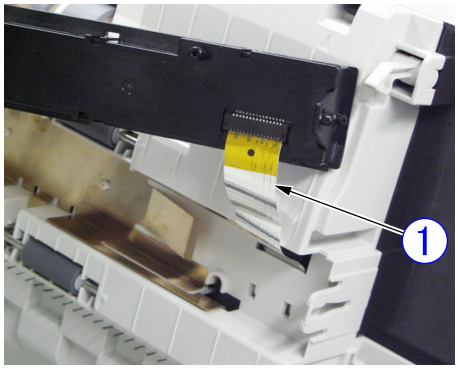

Figure 3-213

◆ **Notes on assembling**

While pushing the cable in, install the reading unit. Do not get the cable caught.

7. Upper Reading Holder

1) Remove the upper reading unit. (Page 3-10)

2) Unhook 8 pairs of fitting parts ① (4x2) and remove the reading holder ② using a tool with a thin and flat tip.

Note: Be careful not to damage the hooks when unhooking the fitting parts. When the reading holder is removed, the CIS unit is also removed.

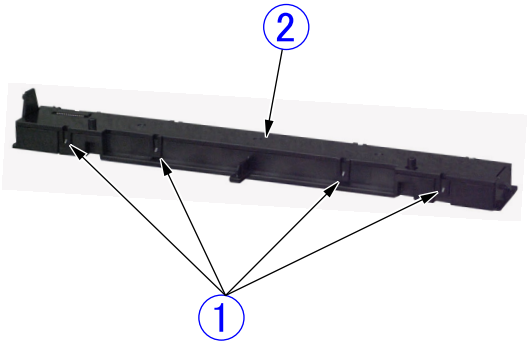

Figure 3-214

◆ **Notes on assembling**

The CIS unit and the reading glass must be free from dust and dirt.

The CIS unit of the reading unit (upper) is the same part as the CIS unit of the reading unit (lower).

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III. LOWER UNIT

1. Motherboard

1) Remove the right and left covers.
(Page 3-2), (Page 3-1)
2) Remove the rear cover and the back plate.
(Page 3-4), (Page 3-5)
3) Turn the main body over and disconnect the cable ① and remove 4 screws ② (M3, toothed washer). For the SF-300P, remove screw ③ (M3x4) and remove the grounding sheet.
Unhook the fitting parts ④, open the motherboard (with a mounting plate) ⑤ slowly and remove the cable ⑥.

Note: Do not pull it excessively because the cable is connected to it.

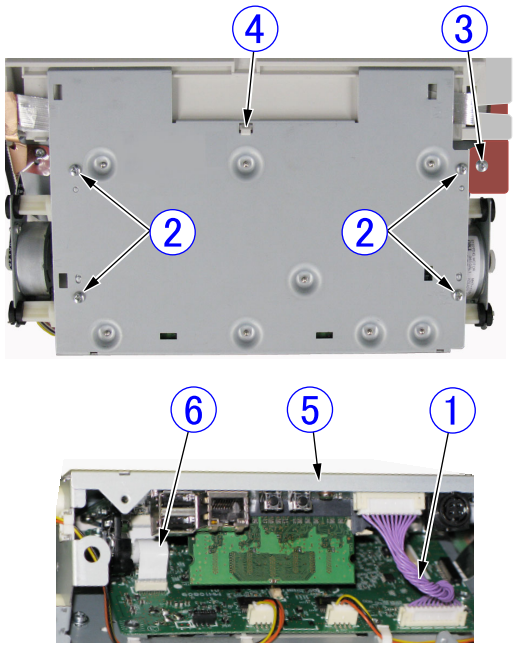

Figure 3-301

4) Open it further, remove the cables ① and ②, and remove the motherboard (with a mounting plate) ③.

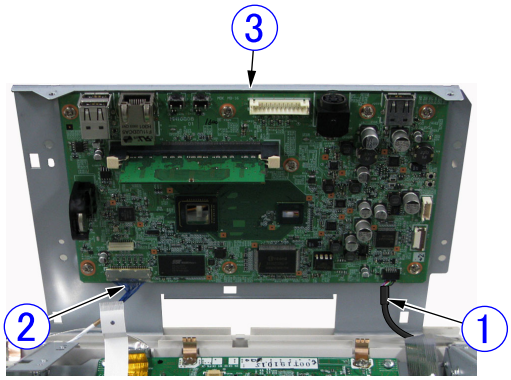

Figure 3-302

5) Remove 8 screws ① (M3, round tip) and remove the motherboard ②.

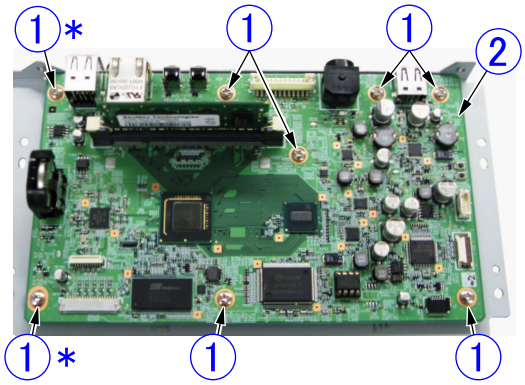

Figure 3-303

6) Since memory is not included in the service parts of the motherboard, remove the memory as required. Refer to the “3. Memory” for the details.

◆ **Notes on assembling**

Since the part marked with ✳ in the above figure is a reference position and there is a guide at the thread part of the mounting plate, place it in the hole on the mother-board.

When installing the motherboard (with a mounting plate) on the main body, align the positioning hole with the convex part so that it does not lift.

2. Lithium Battery

Note: The lithium battery is not assigned as a service part. Use a commercially available one.

Type: CR2032 Voltage: 3 V

For details, refer to “Chapter 2. V. POWER SUPPLY 2. Lithium Battery.”

1) Remove the motherboard (with a mounting plate).
(Page 3-11)
2) Push the lithium battery ① down, pull it forward and remove it from the housing.

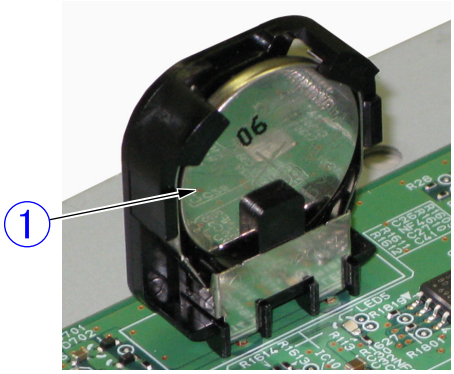

Figure 3-304

◆ **Notes on assembling**

Make sure that the positive electrode (+) of the lithium battery facing outward when installing it. The polarity is marked on the battery. Be careful not to short out the battery.

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3. Memory

1) Remove the motherboard (with a mounting plate).
(Page 3-11)
2) Press the lever ① (2 places) down, release the memory ② slightly from the connector and pull the memory out.

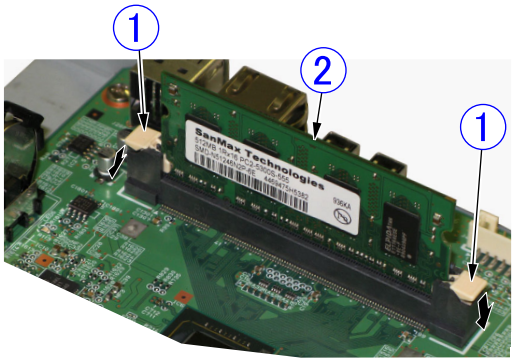

Figure 3-305

◆ **Notes on assembling**

Align the memory with the groove in the connector and push it in. Be careful not to damage the memory.

4. Scanner PCB

1) Remove the motherboard (with a mounting plate).
(Page 3-11)
2) Remove the cable connected to the scanner PCB ①. Remove 6 screws ② (M3x4) and remove the scanner PCB.

Note: However, since it is difficult to remove the cable ③, remove the scanner PCB, then remove the cable.

Be careful to handle the PCB because an ultrasonic sensor is mounted on its back.

Do not bend the grounding plate spring.

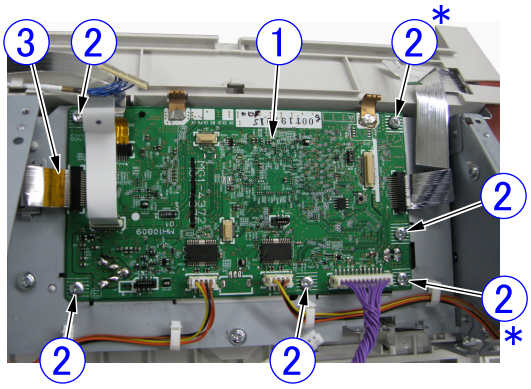

Figure 3-306

◆ **Notes on assembling**

Since the part marked with ✳ in the above figure is a reference position and there is a guide at the thread part of the mounting plate, place it in the hole on the scanner PCB.

5. Feed Motor Unit

1) Remove the rear cover and the back plate. (Page 3-4), (Page 3-5)
2) Remove 2 timing belts ① from the pulley. The spacer ② becomes detached at this time. Remove the cable ③ from the connector and cable holder. Then pull out the feed motor unit ⑤ from each of 3 mounting shafts ④.

Note: Pull it out to prevent deformation of the motor mounting plate and injury of fingers.

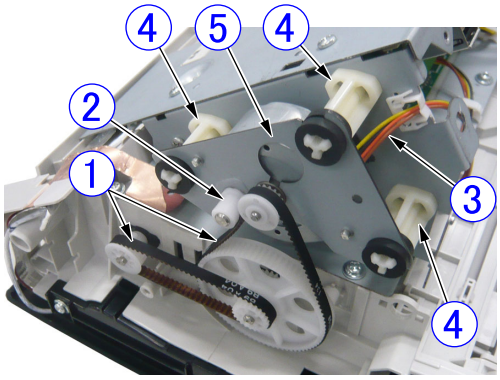

Figure 3-307

6. Separation Motor Unit

1) Remove the rear cover and the back plate. (Page 3-4), (Page 3-5)
2) Remove 1 timing belt ① from the pulley and remove the cable ② from the connector and the cable holder. Then pull out the separation motor unit ④ from each of 3 mounting shafts ③.

Note: Pull it out to prevent deformation of the motor mounting plate and injury of fingers.

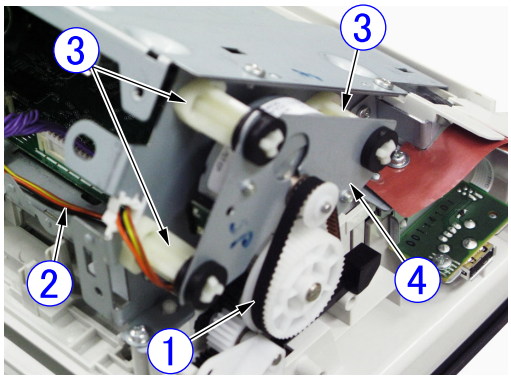

Figure 3-308

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7. Registration Roller

1) Remove the motherboard (with a mounting plate).
(Page 3-11)
2) Remove 2 timing belts ① from the pulley. The spacer ② becomes detached at this time. Remove the cable ③ from the connector and the cable holder. Then remove 2 screws ④ (M3, self-tapping, TP head) and 3 screws ⑤ (M3x4) and remove the left side plate assembly ⑥.

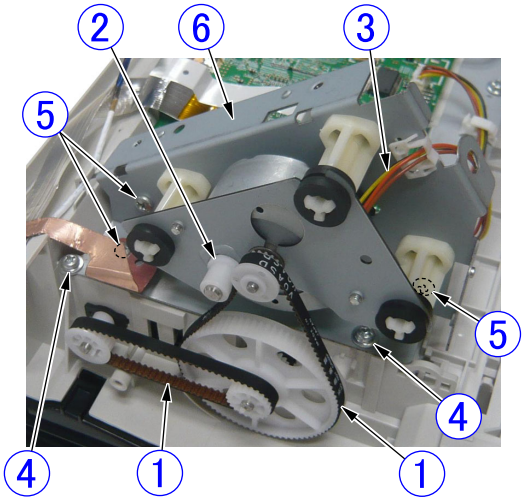
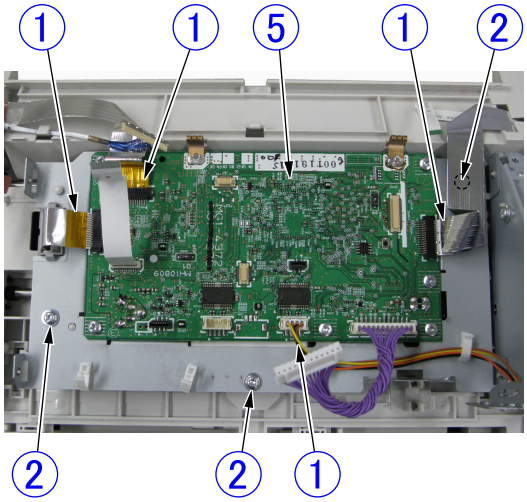


Figure 3-309

3) Remove 4 cables ①. Then remove 3 screws ② (M3, self-tapping, TP head), screw ③ (M3x4) and screw ④ (M3, toothed washer) and remove the PCB plate assembly ⑤.

Note: One of 3 screws ② is hidden under the cable. Be careful to handle the PCB because an ultrasonic sensor is mounted on its back.



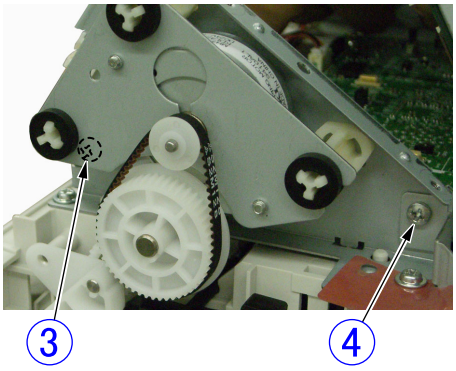


Figure 3-310

4) Remove the light guide ①. Unhook the hook at the end of the pulley ② and remove it from the shaft. Unhook fitting parts of the bearings ③ and ④ using a tool with a thin tip and remove it from the base. Then, remove the registration roller ⑤.

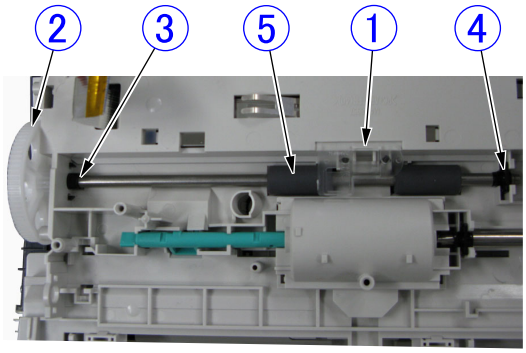


Figure 3-311

◆ **Notes on assembling**

Push the roller bearing in completely.

Do not mix the registration roller up with the eject roller because they are similar in shape. If the wrong roller is used, the bearing cannot be installed. The difference of the end of the roller shaft is shown below.

The registration roller has a longer thin part.

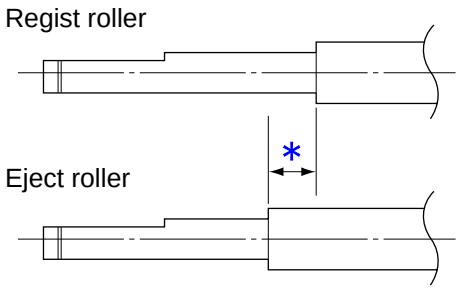


Figure 3-312

8. Eject Roller

1) Refer to the previous section “7. Registration Roller” and remove the left side plate assembly and the PCB mounting plate.
2) Unhook the hook at the end of the pulley ① and remove it from the shaft. Unhook the fitting parts of the bearings ② and ③ using a tool with a thin tip and remove them from the base. Then, remove the eject roller ④.

Note: Unhook one of 2 pairs of fitting parts of the bearing ②from the space near the reading unit on the back. Or, unhook one fitting part and then unhook another fitting part by tilting the bearing.

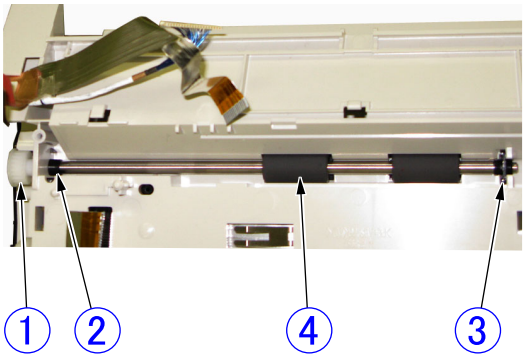


Figure 3-313

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◆ **Notes on assembling**

Push the roller bearing in completely.

Do not mix the registration roller up with the eject roller because they are similar in shape. If the wrong roller is used, the bearing cannot be installed. The difference of the end of the roller shaft is shown below.

The registration roller has a longer thin part.

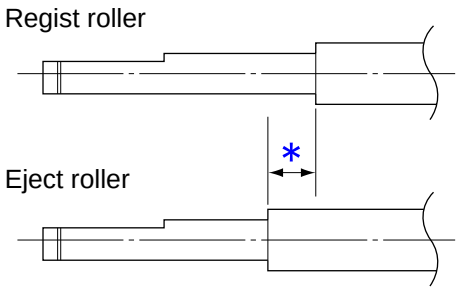

Figure 3-314

9. Lower Reading Unit

1) Spread the hook ① on the side shown in the figure using a tool with a thin and 3mm-wide tip and unhook fitting parts completely. Then press part Ⓐ on the opposite side. The reading unit ② will lift slightly. Remove the tool, hold and remove the reading unit.

Note: Be careful not to damage the reading glass. Press part Ⓐ. Do not press it excessively. Unhook the fitting parts completely.

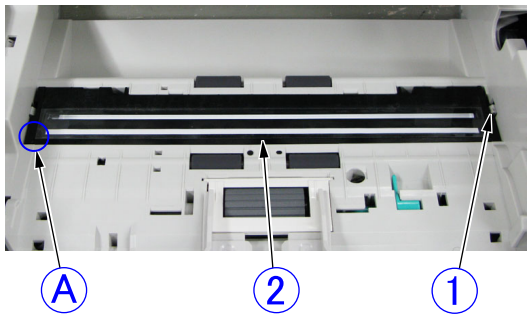

Figure 3-315

2) Remove the cable ①.

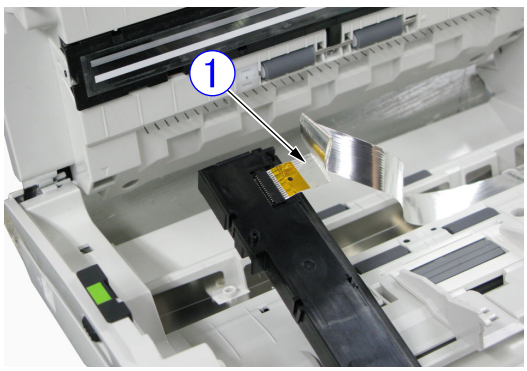

Figure 3-316

◆ **Notes on assembling**

While pushing the cable in, install the reading unit. Do not get the cable caught.

10. Lower Reading Holder

1) Remove the lower reading unit.
(Page 3-17)
2) Unhook 8 pairs of fitting parts ① (4x2) using a tool with a thin and flat tip and remove the reading holder ②.

Note: Be careful not to damage the hooks when unhooking the fitting parts. When the reading holder is removed, the CIS unit is also removed.

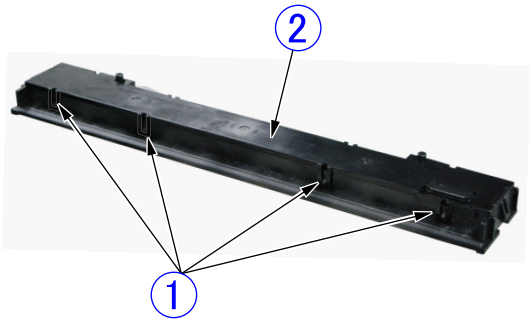

Figure 3-317

◆ **Notes on assembling**

The CIS unit and the reading glass must be free from dust and dirt.

The CIS unit of the reading unit (upper) is the same part as the CIS unit of the reading unit (lower).

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CHAPTER 4

INSTALLATION & MAINTENANCE

I. INSTALLATION 4-1
II. PARTS REPLACEMENT.....4-3
III. MAINTENANCE 4-5

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I. INSTALLATION

This machine is installed by the user. The user should be advised to install the scanner by reading the “Setup Guide” thoroughly.

This machine includes 2 printed manuals; the “Setup Guide” and the “Operation Guide.” In addition, the CD-ROM contains the “Instructions” electronic manual data with these manuals.

This section presents an outline of the procedures and important matters.

1. Unpacking

Open the package, and take out the machine and its accessories. The accessories are contained in the accessory box placed under the machine.

Check if any of the machine and accessories are not missing or damaged.

1) Main body
2) Feed roller
3) AC adaptor
4) Power cord
5) Setup guide
6) Operation guide
7) CD-ROM (Instructions, applications)
8) Warranty etc. (depending on the region)

Note: Make sure to use the AC adapter and power cord supplied with the machine.

2. Attaching the Feed Roller

Peel off the securing tape and remove the protective sheets. Then, attach the feed roller.

1) Remove the orange tape and the protective sheet.

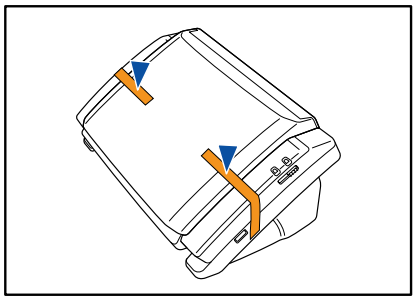

Figure 4-101

2) Open the panel unit and peel off the tapes inside.

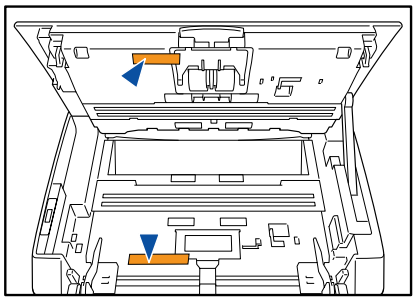

Figure 4-102

3) Attach the feed roller.

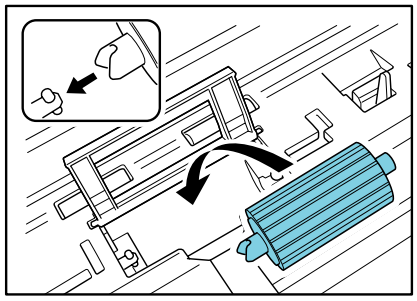

Figure 4-103

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3. Connecting and Setup

Connect the AC adapter and network cable (LAN cable).

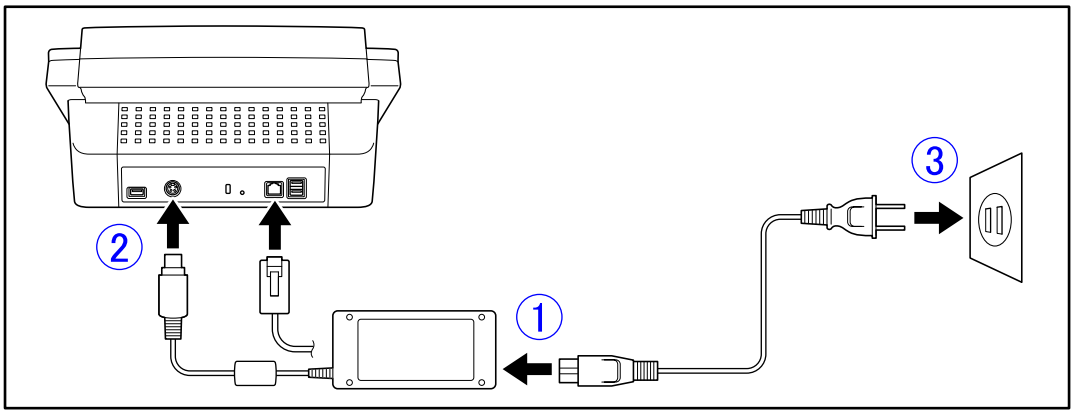

Figure 4-104

To set up this machine, you must configure the [Network setting] items under [Administrator setting] on the machine, and configure setting on the Web menu (Administrator Mode).

The list of setting items in the user manual is shown below.

For details of setting procedure, refer to the user manual.

Setting Item	Description	Administrator setting	Web menu (Administrator Mode)
Network setting	Set the Device Name and IP Address.	Yes	Yes
Administrator password	Set the password required to log in to [Administrator setting] and the Web menu.	Yes	Yes
Login type	Select the log in screen that appears when users log in.	Yes	Yes
Register user	Register users who will use the machine.	No	Yes
Register Shared Address Book	Register entries in the Shared Address Book available to all users.	No	Yes
Register Shared Job Button	Register the Shared Job Button available to all users.	No	Yes
Device Configuration	Set the basic operations of the machine (including network settings).	No	Yes
E-mail server settings	Set the SMTP server to be used for sending e-mail.	No	Yes
Authentication server settings	Set a domain server that can search users with Active Directory.	No	Yes
Address book server settings	Set an LDAP server that can search e-mail address books.	No	Yes

Table 4-101

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II. PARTS REPLACEMENT

1. Periodically Replaced Parts

This machine does not have any periodically replaced parts.

2. Consumable Parts

1) Replaced by users

No.	Parts name	Parts number	Expected life	Remarks
1	Feed roller	MA2-7996-020	100,000 sheets	Because of the worn rollers, it is necessary to replace when the paper jams or the double feed detection are occurred after cleaning.
2	Retard roller	MF1-4200-030		
3	Document holding guide	MF1-4481-020		

Note: The items above are assigned as service parts and an exchange roller kit is assigned as commercially available products for a set.

Table 4-201

2) Replaced by service technicians

No.	Parts name	Parts number	Expected life	Remarks
1	Lithium battery	Not assigned (Note1)	Total OFF time: 4 years	An error message is displayed on the BIOS screen. (Note2)

Note1: Refer to “Chapter 2, V. POWER SUPPLY, 2. Lithium Battery.”

Note2: Refer to “Chapter 5, VI. OTHER OPERATIONS, 1. Reinstallation.”

Table 4-202

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3. Major Parts List

The list below shows the major service parts, except for user replaceable parts. Refer to the “Parts Catalog” for the details.

No.	Parts name	Parts number	Q’ty		Remarks
			SF-300P	SF-300	
1	Motherboard PRO	MG1-4370-000	1		
2	Motherboard	MG1-4371-000		1	
3	Scanner PCB PRO	MG1-4372-000	1		
4	Scanner PCB	MG1-4373-000		1	
5	Reading unit (Upper)	MG1-8296-000	1	1	
6	Reading unit (Lower)	MG1-8297-000	1	1	
7	Fingerprint sensor unit	MG1-4487-000	1		
8	Relay PCB PRO	MG1-4374-000	1		
9	Relay PCB	MG1-4375-000		1	
10	Relay PCB cable 300P	MH2-5391-000	1		
11	Relay PCB cable 300	MH2-5390-000		1	
12	Ultrasonic drive PCB	MG1-4378-000	1		
13	Feed motor unit	MG1-4494-000	1	1	
14	Separation motor unit	MG1-4496-000	1	1	
15	Registration roller (drive)	MA2-8533-020	1	1	
16	Eject roller (drive)	MA2-8490-020	1	1	
17	Follower roller	MA2-8534-000	4	4	
18	LCD	FK2-8475-000	1	1	
19	Touch panel	FK2-8477-000	1	1	
20	AC adapter	MG1-4314-000	1	1	

Table 4-203

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III. MAINTENANCE

1. User Maintenance

Refer to the user manual for details.

1) List

[▲: Cleaning, ●: Replace]

No.	Location/Parts	Intervals		Details
		As necessary	100,000 sheets	
1	Main body	▲		Use a cloth slightly dampened with water and well wrung out to remove any dirt, and then use a clean, dry cloth to wipe the main body.
2	Touch panel	▲		Use a soft, dry cloth to wipe off any dirt.
3	Fingerprint sensor (SF-300P)	▲		
4	Scanning glass	▲		Use a clean, dry cloth to wipe off any dirt.
5	Document holding guide	▲	●	Use a cloth slightly dampened with water and well wrung out to remove any dirt, and then use a clean, dry cloth to wipe the main body.
6	Retard roller	▲	●	
7	Feed roller	▲	●	
8	Other rollers	▲		
9	Feed path	▲		Use such as commercially available air blowers to remove any dust and paper particles that have accumulated on the feed.

Table 4-301

2) Locations to be cleaned

- Main body

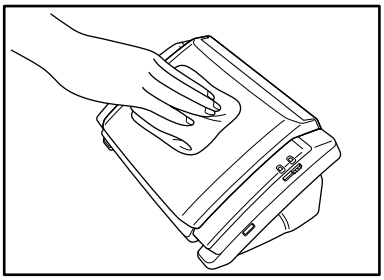

Figure 4-301

- Touch panel

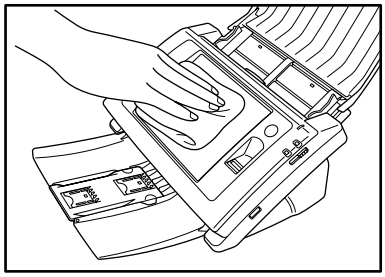

Figure 4-302

- Fingerprint sensor

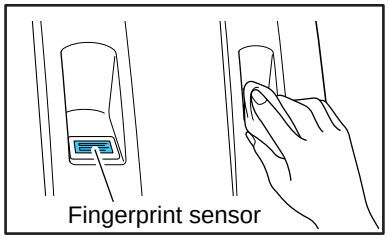

Figure 4-303

- Scanning glass

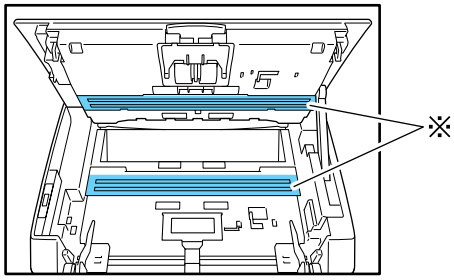

Figure 4-304

- Document holding guide

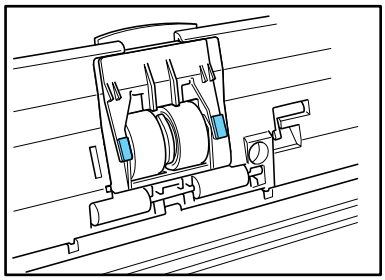

Figure 4-305

- Retard/Feed rollers

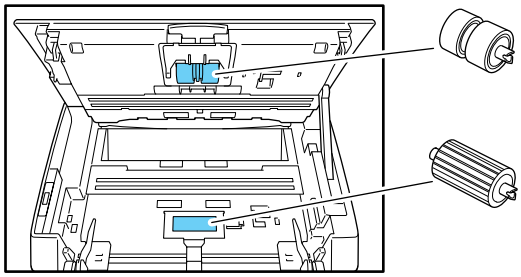

Figure 4-306

- Other rollers

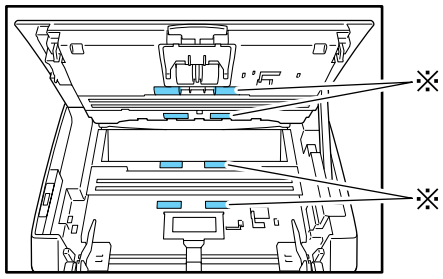

Figure 4-307

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3) Roller counter

Check the page count on the [Roller Counter Reset] screen of the [Administrator setting] screen on the machine.

Also, instruct users to reset the counter whenever rollers are replaced.

- Press [Roller counter reset] to display the [Roller counter reset] screen.

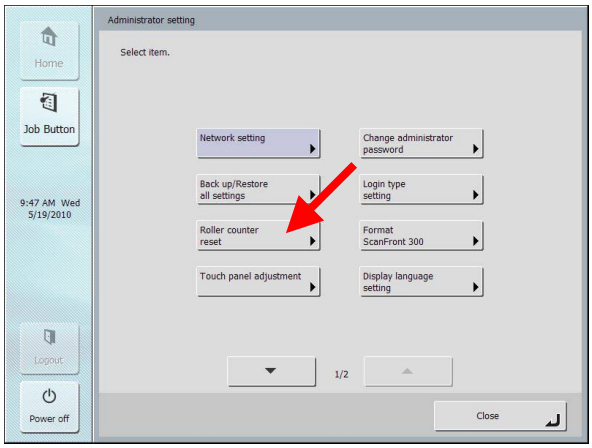

Figure 4-308

- [Roller counter reset] screen is displayed, so press [Reset] to reset the counter.

2. Service Maintenance

For this machine, no periodical maintenance item by the service technicians is specified.

However, when visiting a user, check whether the scanning glasses and the rollers are dirty. If they are very dirty, instruct the user to follow the “user maintenance” procedures. Recommend the user to replace consumable parts if necessary.

CHAPTER 5

TROUBLESHOOTING

I. OUTLINE.....5-1
II. USER INFORMATION PROTECTION.....5-2
III. ERROR DISPLAY 5-5
IV. SERVICE MODE.....5-9
V. NETWORK FUNCTION CHECK.....5-29
VI. OTHER OPERATIONS 5-39
VII. AFTER REPLACING PARTS 5-44

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I. OUTLINE

1. Outline and Categories

This machine is network scanner that has both scanner function and network function unlike DR scanners. Therefore, it is important to determine which function, scanner or network, causes the trouble. The troubleshooting for scanner issues is basically the same as those for conventional DR scanners.

Also, the troubleshooting for network issues is roughly categorized into machine's network function issues, user's network setting issues, and user's network system issues. Therefore, to determine whether the machine's network function itself works properly, the method to connect this machine to the computer for servicing directly with LAN cable is described in the following section.

When handling the machine, including when troubleshooting, make sure to protect user information such as user password, network information, and mail address. Make absolutely sure neither to delete nor to leak user information. The details will be discussed in the next section.

The categories of troubleshooting issues are described below. Understand these basics to troubleshoot.

◆ Categories of the root causes of the troubles

1) Scanner issues
   → Basically same as DR scanners
2) Network issues
   → Machine's network function
   → User's network setting
   → User's network system

◆ Categories of troubles

1) Power trouble (Cannot turn on the machine)
2) Feeding trouble
3) Image trouble
4) Sending trouble
5) Operation trouble (machine freeze)
6) Software bugs

◆ Categories of solutions

1) User manual
2) Error display
3) Cleaning
4) Cable connection check
5) Parts assembly check
6) Parts replacement
7) Service mode
   → Operation check on parts
   → Reading unit adjustment
   → Test scan
   → Software change
8) Operation check with direct connect
9) Reinstallation by emergency boot up
10) BIOS reconfiguration

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II. USER INFORMATION PROTECTION

1. Outline

Recently, the demands on “personal information protection” increase. This machine stores user information such as user password and address. These are considered to be subjects of personal information protection. The deletion or leak of such user information will be a big problem. Service technicians must as well be careful with this during their work including troubleshooting.

Never obtain user information without the user’s permission. When performing maintenance in user’s presence, ask the user to input user information. Also, if you need to bring the machine back, ask the user administrator to backup and initialize user data.

If you need to bring back the machine which is not operable, tell the user that the user information may be deleted. When the machine becomes able to display user information after you have brought it back, inform the user of that and ask the user what to do with user information.

The motherboard is an FRU (Refurbishing and Repair Unit). In the factory, the motherboard is initialized forcibly and returned.

The procedure below describes how to backup, initialize and restore. For details, refer to the user manual.

2. Backup/Restore

Perform backup and restoration from the machine’s screen or the Web menu. Here is described how to perform them on the machine’s screen.

1) On the [Home] screen, press [Administrator setting].

Note: If you have logged in as the user, press [Logout] before performing this procedure.

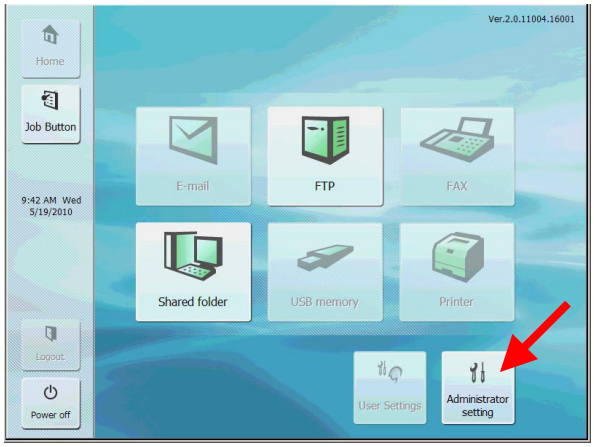

Figure 5-201

2) After inputting password, press [OK].

Note: No password is set by default.

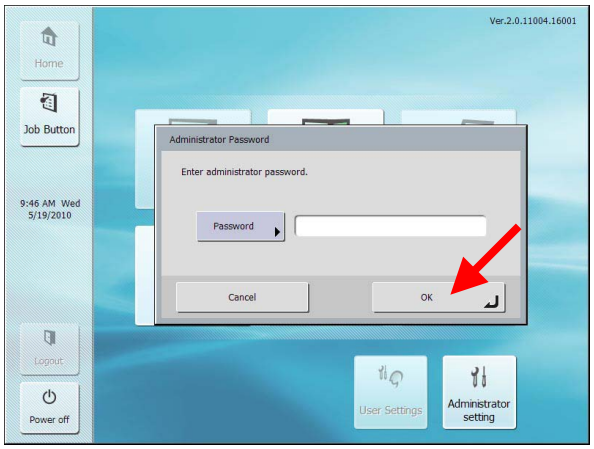

Figure 5-202

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3) Press [Back up/Restore].

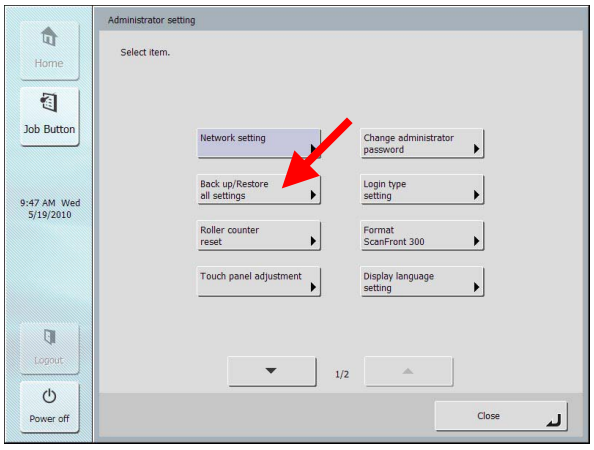

Figure 5-203

4) Press [Back up] or [Restore].

Note: The color of a selected button changes. The following screen shows when [Back up] is selected.

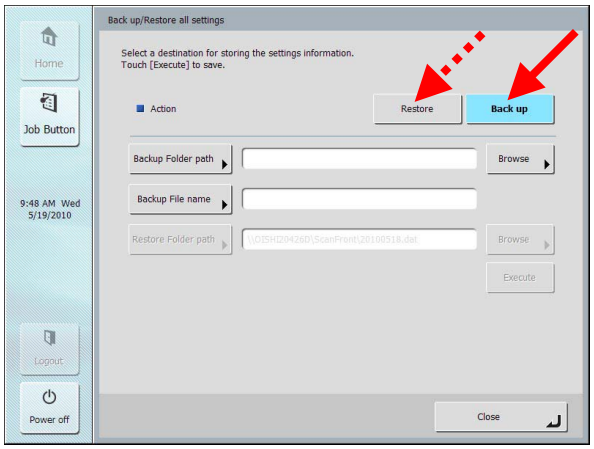

Figure 5-204

5) If you select [Back up], input the backup folder path and the backup file name, then press [Execute].
If you select [Restore], input the restore folder path, then press [Execute].

Note: You cannot press [Execute] unless each data is input.

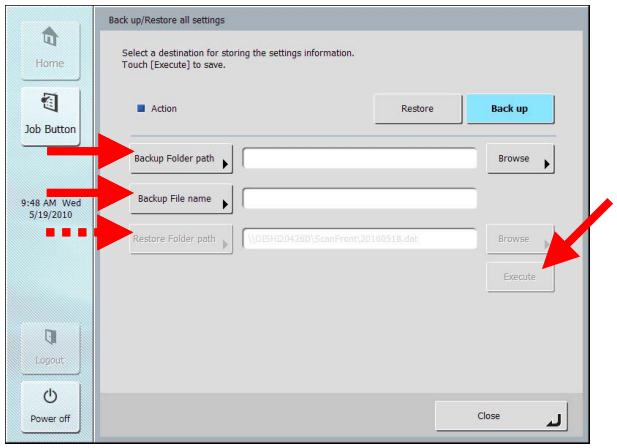

Figure 5-205

5) When backup or restoration is finished, the following screen is displayed.

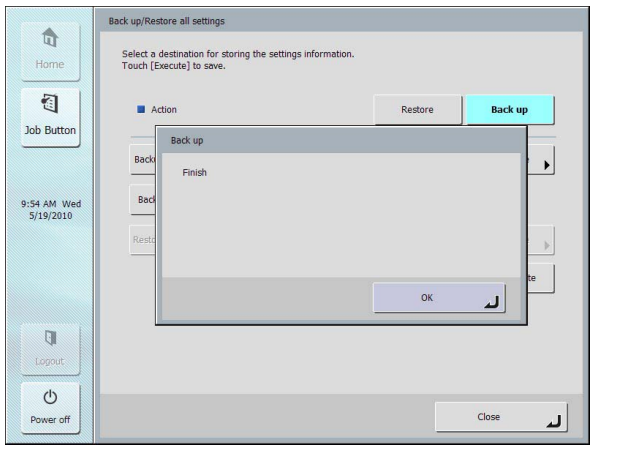

Figure 5-206

Note: The following data is not backed up.
IP address
Device name
Touch panel adjustment values

3. Initialize

Perform initialization from the machine's screen. This cannot be performed from the Web menu.

1) On the [Home] screen, press [Administrator setting].

Note: If you have logged in as the user, press [Logout] before performing this procedure.

2) After inputting password, press [OK].

Note: No password is set by default.

3) Press [Format].

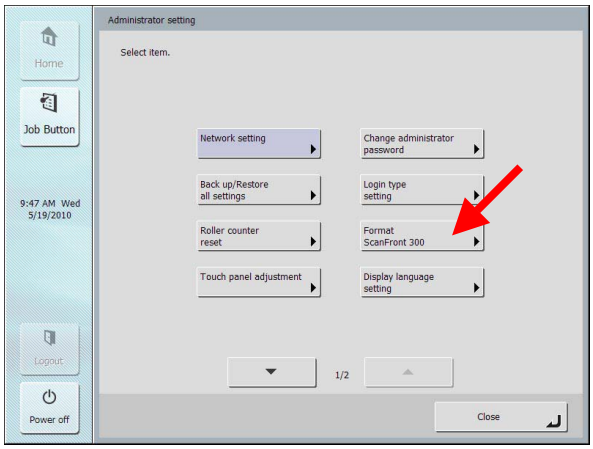

Figure 5-207

4) Confirm the message on the [Caution] screen, then press [Yes].

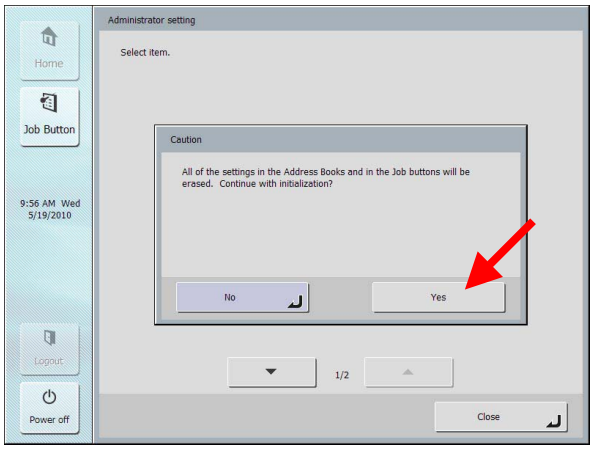

Figure 5-208

5) After that, the [Caution] screen will appear twice. Confirm each message on those screens, then press [Yes] on each.

6) When initialize is finished, a black screen is displayed and the machine is restarted.

Note: Initialization erases all user data, including IP address and fingerprint data.

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III. ERROR DISPLAY

Error messages will be displayed on the machine or the Web menu. Basically, these errors are caused by improper use or document jams. Users take action according to error message contents.

The lists described on the user manual are the following. However, not all errors are shown.

1. Machine's Screen

Failed to connect FTP server.	Cause	The settings of the registered FTP server are incorrect.
	Solution	Check the settings of the FTP server.
Failed to connect FTP server.	Cause	The computer that is being used as the FTP server is not running.
	Solution	Check the computer that is being used as the FTP server.
Please set SMTP server address.	Cause	The mail server settings have not been registered, or have been deleted.
	Solution	Contact the administrator of the ScanFront, and check the settings of "Mail Server" in the Web menu.
This is restricted item.	Cause	The administrator has set send restrictions for the selected e-mail address.
	Solution	Contact the administrator of the ScanFront.
Paper JAM occurred. Remove the paper.	Cause	The rollers are dirty or worn out.
	Solution	Clean the rollers. If the problem is not resolved by cleaning the rollers, replace the rollers.
A double paper-feed has occurred.	Cause	The pages of the document are sticking together because of, for example, static electricity, too many documents were loaded, the rollers are dirty, etc.
	Solution	Fan the documents before you load them, and reduce the number of pages that you load at times when double feeding occurs repeatedly.
You cannot paste the copied address to the different address type.	Cause	The copy source and the paste address are of a different type.
	Solution	Make sure the copied address and paste address are of the same type.
Restricted address is included.	Cause	The job button settings include an address that has been restricted by the administrator.
	Solution	Contact the administrator of the ScanFront.
Confirm Password doesn't match. (New password and confirmation password do not match.)	Cause	The new password and confirmation password do not match.
	Solution	Enter the same password for the new password and the confirmation password.

(Continued)

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Password is incorrect.	Cause	The password that was entered is incorrect.
	Solution	Enter the uppercase and lowercase letters for the password correctly.
There is no file name specified. Enter a file name or enable the 'Auto file name' setting.	Cause	A file name was not entered and "Auto file name" is set to [None].
	Solution	Enter a file name or set "Auto file name" to other than [None].
Log in failed. Settings may currently be in the process of being edited via the Web.	Cause	User settings are being edited via the Web menu.
	Solution	Contact the administrator of the ScanFront.
Log in failed. A version upgrade may currently be in the process of being executed.	Cause	The version of the ScanFront is being updated via the Web menu.
	Solution	Contact the administrator of the ScanFront.
Cannot write logfile. Sending files will be aborted.	Cause	Write permission has not been granted for the shared folder specified as the save destination of the log file.
	Solution	Check the settings and access permissions of the shared folder.
You can't use following character for File name.	Cause	Invalid characters have been used to set the customer file name.
	Solution	Make sure the custom file name does not contain any of the following characters: / : ? * " < > |
The character string includes invalid character.	Cause	Invalid characters have been used to set the index file.
	Solution	Make sure none of the following characters are used in strings contained in the index file: & " ' < >
Not enough memory to execute current scanner settings. Please see "Troubleshooting" section at "INSTRUCTIONS" or "Operating Guide".	Cause	There was not enough memory available for the set scanning conditions.
	Solution	Reset the scanning conditions. Refer to "Not enough memory to execute scanner settings" below.
Log in failed. A version Password may be changed.	Cause	User password was changed on the authentication server while server authentication and fingerprint authentication are both used to log in.
	Solution	Without using fingerprint authentication, enter your user name and changed password to log in, and then re-register your fingerprints.
Log in failed. Authentication server is not found.	Cause	The user specified when logging in does not exist in the authentication server.
	Solution	Make sure you correctly enter your user name and password. Contact the administrator of the ScanFront if this problem persists.

Table 5-301

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2. Web Menu

Same Username exists. Please change Username, and try again.	Cause	A user that has the same name as the user name to be registered is already registered.
	Solution	Check the user name prior to registration.
Blank field exists.	Cause	An operation such as address book/job button importing, restoring, or version updating was executed without specifying the setting file to be loaded on the ScanFront.
	Solution	Specify the setting file and then execute the operation.
The scanner is busy. Please try again.	Cause	The ScanFront is being used.
	Solution	End use of the ScanFront and then try again.
Settings cannot be changed or stored. A user may be logged in to the device. Check the status of the device.	Cause	Modifying settings and registration are not possible because a user is logged in.
	Solution	Try again after the user logs off.
Settings cannot be changed. The device may currently be displaying an administrator settings page. Check the status of the device.	Cause	The ScanFront is being used.
	Solution	End use of the ScanFront and then try again.
Maximum address has been registered. You can't register any more.	Cause	The limit for the number of addresses has been exceeded.
	Solution	Delete addresses that are no longer used and then try again.
Maximum Job Buttons has been registered. You can't register any more.	Cause	The limit for the number of job button registrations has been exceeded.
	Solution	Delete job button registrations that are no longer used and then try again.
Maximum users has been registered. You can't register any more.	Cause	The limit for the number of user registrations has been exceeded.
	Solution	Delete user registrations that are no longer used and then try again.
Password is not registered. OK to proceed?	Cause	A password has not been set for the user to be registered.
	Solution	Check the password prior to registration.
You can't choose TIFF when Gray or Color or Auto color detection is selected.	Cause	The scanner cannot be used with the selected mode and file format combination.
	Solution	Check which mode and file format combinations can be used.

(Continued)

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You can't choose JPEG when Binary Mode is selected.	Cause	The scanner cannot be used with the selected mode and file format combination.
	Solution	Check which mode and file format combinations can be used.
You can't choose Text enhance when Bleed-through reduction is selected.	Cause	The scanner cannot be used with the selected mode and setting combination.
	Solution	Check which mode and setting combinations can be used.
ScanFront Service is not running.	Cause	A ScanFront Service Server does not exist on the network. (A ScanFront Service Server has not been configured or is not running.)
	Solution	Check the ScanFront Service Server settings. In addition, you must start the ScanFront Service Server before turning ON the ScanFront.
User is now operating the device. Please try again after the user completes operations.	Cause	The ScanFront is being used.
	Solution	Try again after the ScanFront has finished being used.
A user has logged in. Operation is invalid.	Cause	Modifying settings is not possible because a user is logged in.
	Solution	Make the user log off and then try again.
Please select user.	Cause	User data is trying to be exported from the scanner without a user being selected at the user settings screen.
	Solution	Select a user name to export.
The character string includes invalid character.	Cause	Invalid characters have been used to set the custom file name or index file.
	Solution	Make sure none of the following characters are used: Custom file name: / : ? * " < > | Index file strings: & " ' < >

Table 5-302

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IV. SERVICE MODE

A. Introduction

1. Outline

The service mode of this machine is executed by starting up the service mode software installed in this machine. Most of the displayed messages are in English.

The list of the service modes is shown below.

Level-1	Level-2	Description
Adjust	Regist Adjustment	Performs the registration adjustment.
	Light Adjustment	Performs the light adjustments.
	All	Performs registration adjustment and light adjustment.
	Touch Panel Adj.	Adjusts the touch panel position.
	About	Displays the software version.
	Dcon Check	Checks operations of the sensor, the motor, etc.
	Check Device	Displays the main body version.
		Displays the double-feed detection version.
		Displays the fingerprint detection version
	Counter	Displays and sets the total scanning count, the number of paper jam, etc.
Test scan	Scan condition	Selects a scan mode, a scan resolution, etc.
	Image display	Selects a display face, moves a displayed area, enlargement/reduction.
Version up		Changes the software.

Table 5-401

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2. Starting Up Service Mode

1) Power the machine ON to display the [Home] screen. If other screen is already displayed, return to the [Home] screen.
2) Press [Power off].
3) On the [Caution] screen, press the left side of the screen TWICE, press the right side ONCE, then press the left side ONCE.

Note: If the next screen is not displayed, press [No], then perform this procedure again.

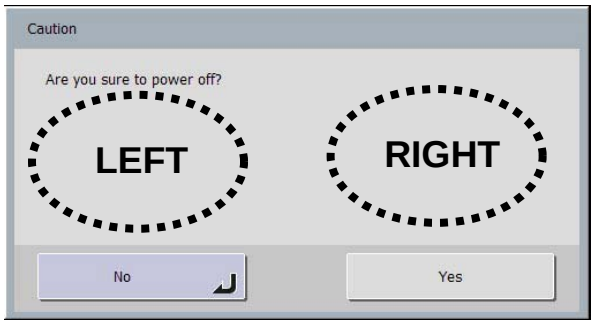

Figure 5-401

4) On the [Service Password] screen, press [Password].

Figure 5-402

5) On the [Password] screen displaying the keyboard, input the 6 letters “market”, then press [OK].

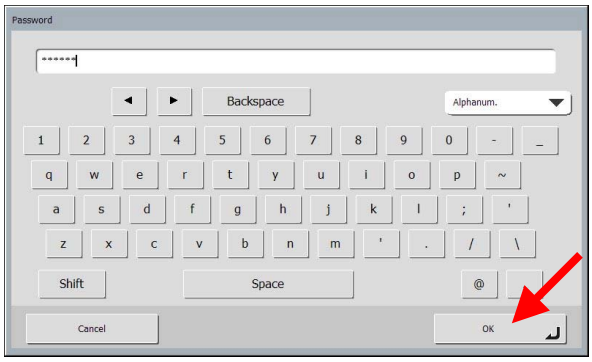

Figure 5-403

6) On the [Service Password] screen, press [OK].

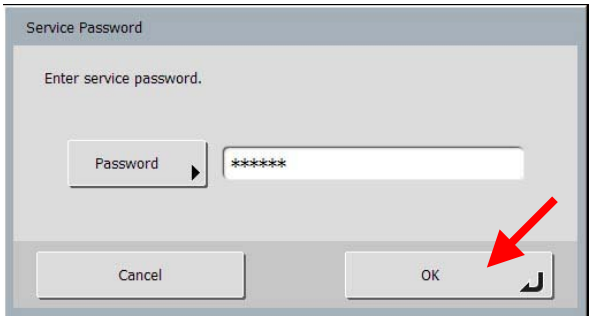

Figure 5-404

7) Confirm that the [Service mode’s Home] screen is displayed.

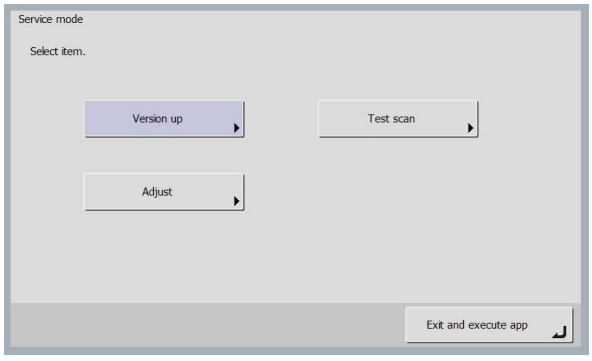

Figure 5-405

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3. Exiting Service Mode

In normal cases, follow the below procedure to return to the user's [Home] screen from the service mode. For special modes, follow the procedure described on each section.

1) On the displayed screen, press [Close].

Note: Pressing [Close] allows you to return to the previous screen. You may press [Close] again depending on which screen is displayed. Here is an example:

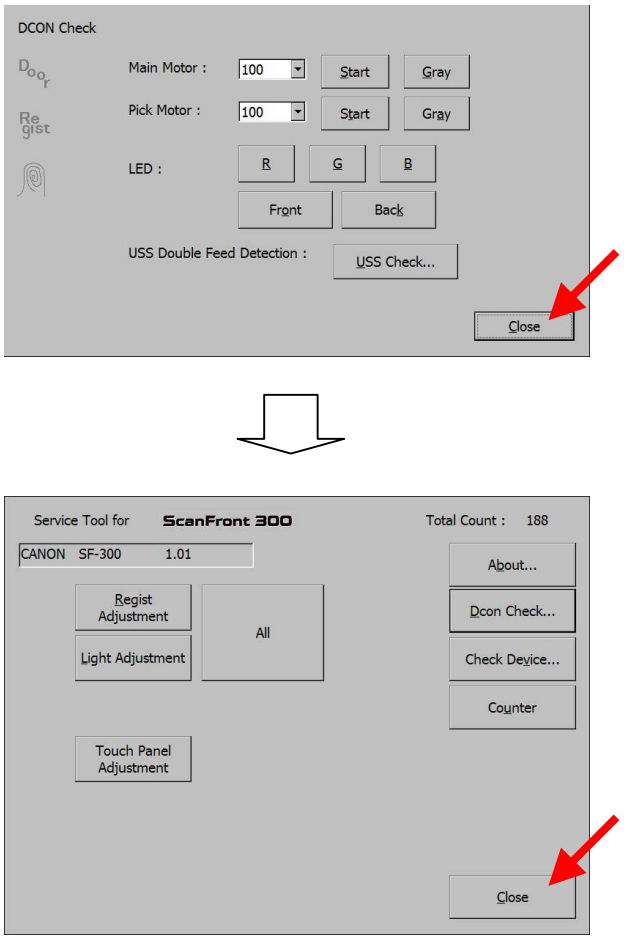

Figure 5-406

2) On the confirmation screen, press [Yes].

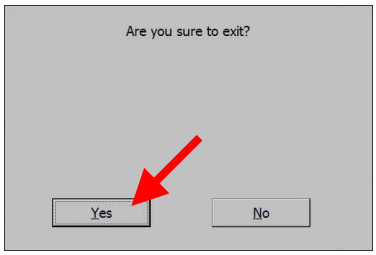

Figure 5-407

3) Return to the [Service mode's Home] screen, then press [Exit and execute app].

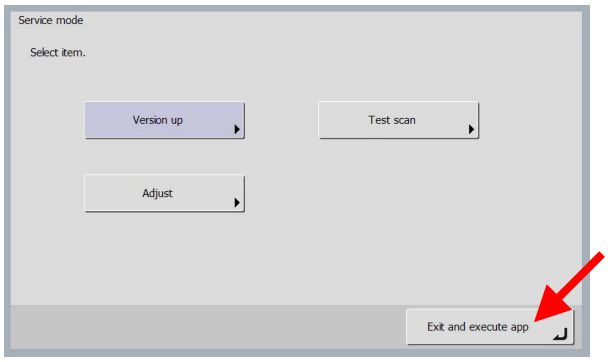

Figure 5-408

4) The product name screen is displayed, then the user's [Home] screen is displayed.

B. Scanner Adjustment

1. Selection Screen

The scanner adjustment modes are contained under [Adjust]. The basic selection screen is shown below.

1) On the [Service mode's Home] screen, press [Adjust].

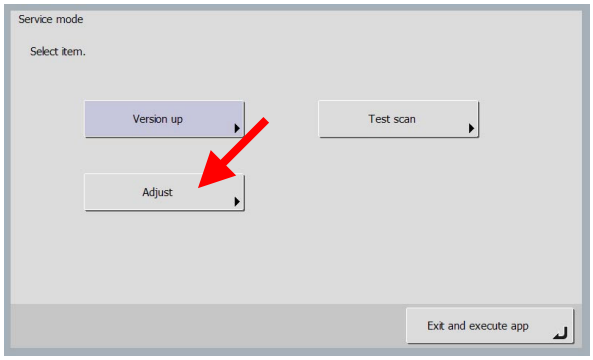

Figure 5-409

2) Confirm that the adjustment home screen is displayed. Select a menu to execute on this screen.

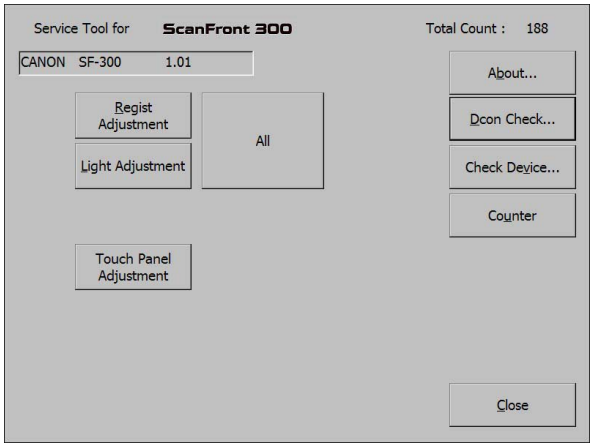

Figure 5-410

This adjustment home screen displays the main body firmware version on the left-upper and the total scanning count on the right-upper as well as menu item buttons.

2. Regist Adjustment

This mode performs adjustments on a reading-start position and reading-end position for feeding.

If the leading- and trailing-edge positions of a scanned image are improper, perform this adjustment.

Also perform this adjustment after replacing or reassembling a registration-related part such as the reading unit or the registration sensor lever or after replacing the scanner PCB recording the adjustment data.

This mode and the [Light Adjustment] mentioned on the next section can be performed at the same time. For details, refer to "All" (Adjustment).

◆ Registration sheet

The special sheet is required to execute this mode. However, you can create the sheet by drawing a black line on general copier paper, so it is not specified as a service tool. Prepare it for yourself. The sheet is required:

1) The material may be normal white copy paper, recycled paper or shading sheet (TKM-0326/0332) that is used in the next section.

Note: If the shading sheet is used, it can be shared with "Light Adjustment".

2) To have the black leading edge and the white trailing edge, whose width is 2 mm or more.

3) Paper size is basically half A4 size, half LTR size, and the above-mentioned shading sheet, and must have the following range: Width: 200 to 220 mm; Length:130 to 297 mm.

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4) To cause neither jams nor skews.

Example: Cut a piece of A4- or Letter-sized paper in half, then blacken its leading edge with a black pen.
Use the sheet after the ink has dried.
Do not use a pencil.
The shading sheet may be used. Not only one side, but also both sides may be painted in black.

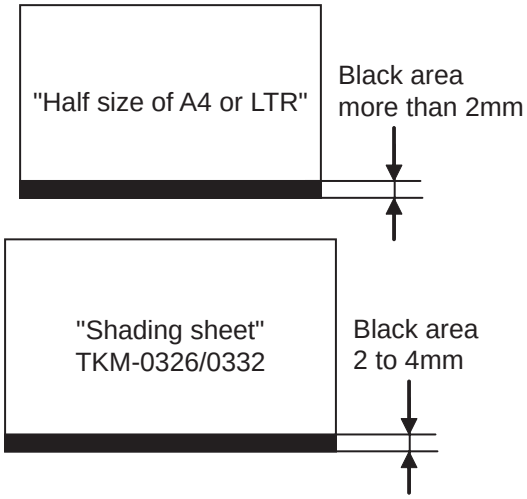

Figure 5-411

◆ **Operation Procedure**

1) Clean the feed path, the rollers, and the scanning glasses.
2) Load a piece of the registration sheet you prepared. Make sure to set the document guides to fit the sheet to prevent skews.

Note: The black edge needs to be detected as the leading edge of the sheet with the front side sensor. Load the sheet with the black-lined side facing down, considering this black edge of the sheet is the top of feed.

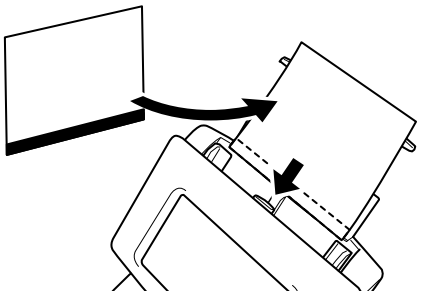

Figure 5-412

3) On the adjustment home screen, press [Regist Adjustment].

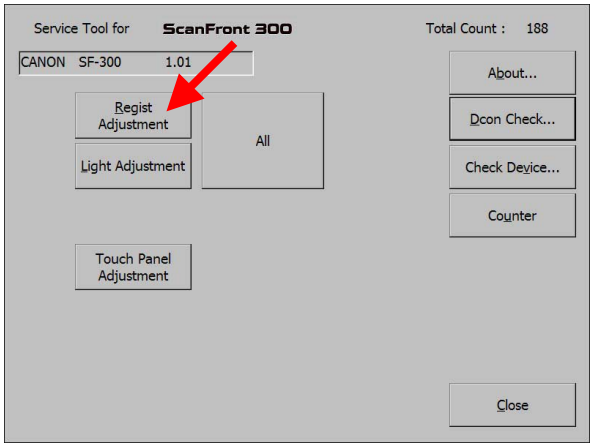

Figure 5-413

4) The adjustment starts automatically. Progress screens are displayed.

5) The sheet is fed. After the adjustment is complete, the progress screen disappears and the screen returns to the adjustment home screen. When the data is acquired, the green circle mark will appear next to the button. It takes approx. 30 seconds from start to the end.

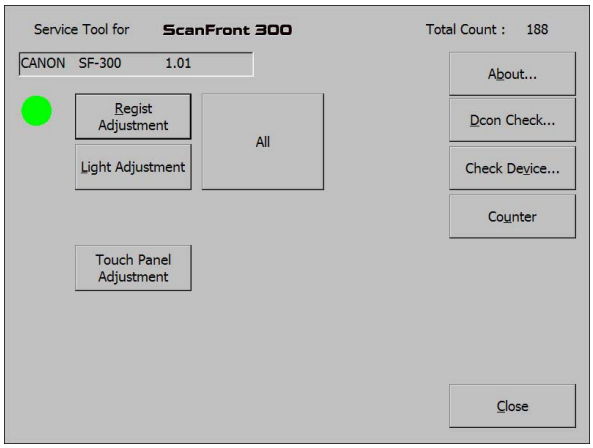

Figure 5-414

6) Confirm the image referring to “Test scan”. For detailed instructions, refer to “Test scan”.

3. Light Adjustment

This mode performs fine adjustments on the shading correction values since the reading point differs between the shading sheet inside of the reading unit and the actual document.

If the scanned image quality is degraded, perform this adjustment.

Also perform this adjustment after replacing the reading unit or after replacing the motherboard recording the adjustment data.

This mode and the [Regist Adjustment] mentioned on the previous section can be performed at the same time. For details, refer to “All” (Adjustment).

◆ Adjustment sheet

The special shading sheet is required to execute this mode. Use TKM-0326 or TKM-0332 which is the same shading sheet as the one used for the DR-2010C/2510C or others.

Do not use a sheet with any dirt or creases.

Note: Shading sheet with a black line for “Regist Adjustment” can also be used.

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◆ Operation Procedure

1) Clean the feed path, the rollers, and the scanning glasses.
2) Open the document guides fully extended, then load a shading sheet you prepared to fit the width between the document guides.

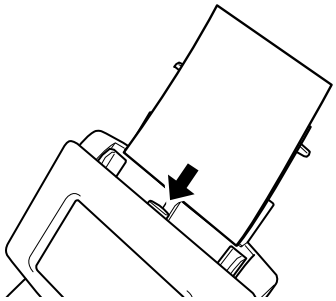

Figure 5-415

3) On the adjustment home screen, press [Light Adjustment].

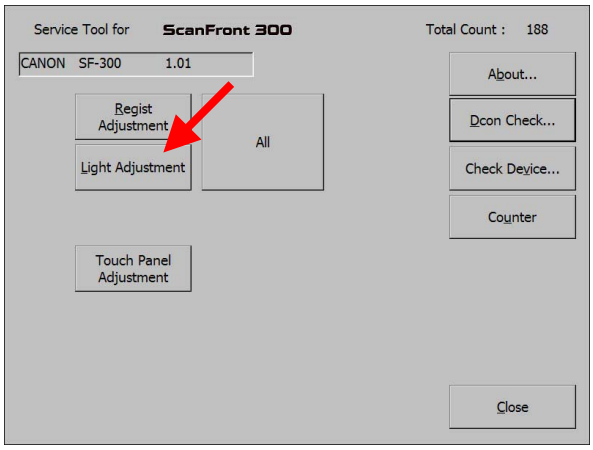

Figure 5-416

4) The adjustment starts automatically. The progress screen is displayed.

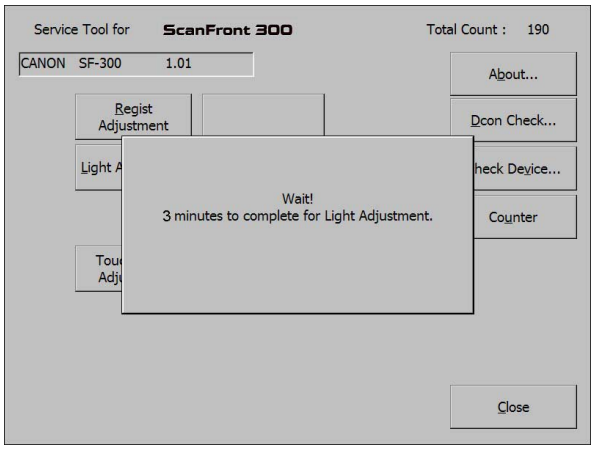

Figure 5-417

5) The sheet is fed. Even after the sheet has been ejected, the machine may be processing the data.
6) After the adjustment is complete, the progress screen disappears and the screen returns to the adjustment home screen. The adjustment takes about 3 minutes. When the data is acquired, the green circle mark will appear next to the button.

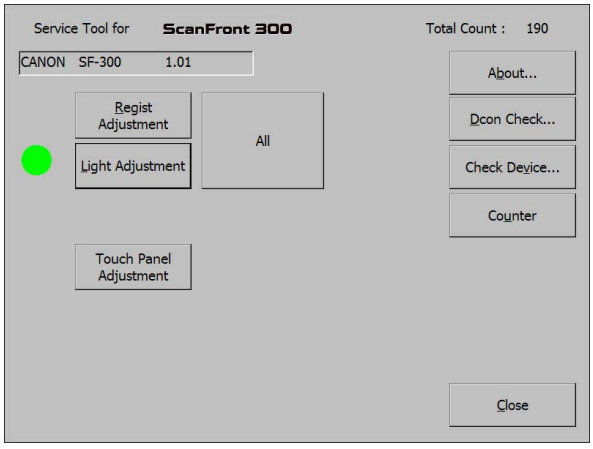

Figure 5-418

7) Confirm the image referring to “Test scan”. For detailed instructions, refer to “Test scan”.

4. All Adjustment

Perform this adjustment, the regist adjustment, and the light adjustment continuously. The purpose and timing to perform each adjustment are discussed in the corresponding section below.

◆ Adjustment sheet

As the shading sheet and the regist adjustment sheet, use sheets described in the previous section. Make sure that the width of the registration sheet is the same 219 mm as that of the shading sheet to prevent skews.

Note: Two shading sheets with a black line may be used.

◆ Operation procedure

1) Clean feed path, roller, and scanning glass.
2) Open the document guides fully extended, then load a prepared regist adjustment sheet as the first sheet and a prepared shading sheet as the second. Load them correctly to prevent skews.

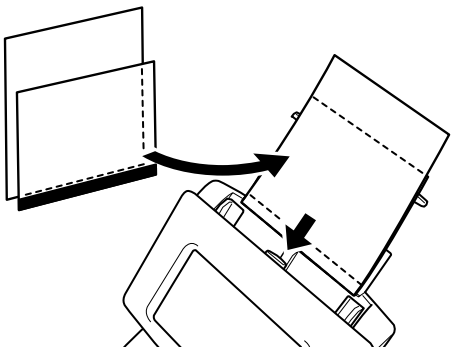

Figure 5-419

3) On the adjustment home screen, press [All].

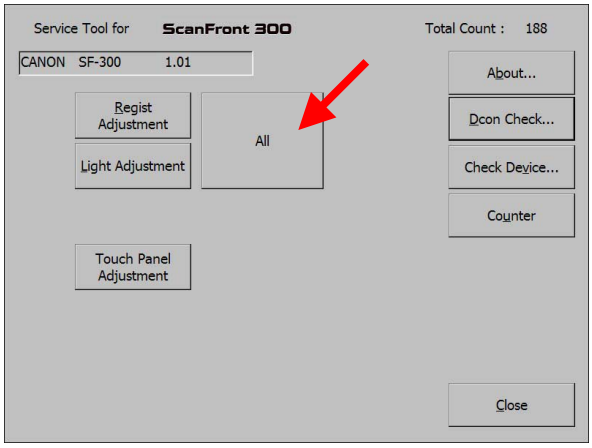

Figure 5-420

4) The adjustment starts automatically. The progress screens for the regist adjustment and the light adjustment are displayed.
5) Even after the shading sheet has been ejected, the machine may be processing the data.
6) After the adjustment is complete, the progress screen disappears and the screen returns to the adjustment home screen. The adjustment takes about 4 minutes. When the data is acquired, the green circle marks will appear next to the [Regist Adjustment] and [Light Adjustment] buttons.

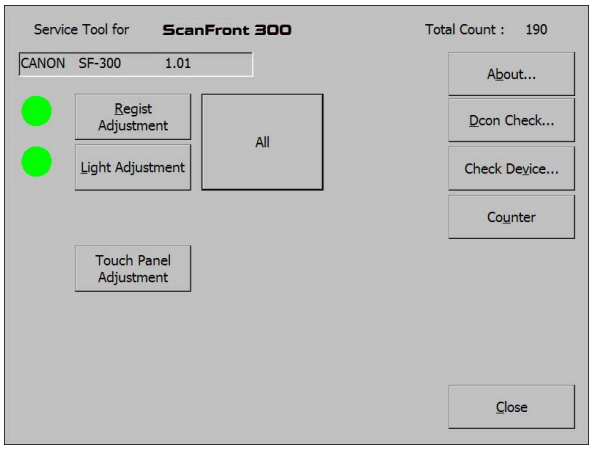

Figure 5-421

7) Confirm the image referring to “Test scan”. For detailed instructions, refer to “Test scan”.

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5. Dcon Check

This mode checks operations of each hardware inside of the machine.

◆ Basic screen

1) On the adjustment home screen, press [Dcon Check].

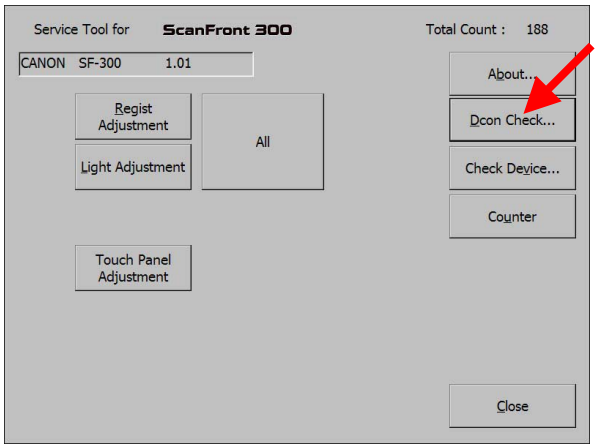

Figure 5-422

2) Confirm the [DCON Check] screen is displayed.
Select a menu to execute on this screen.

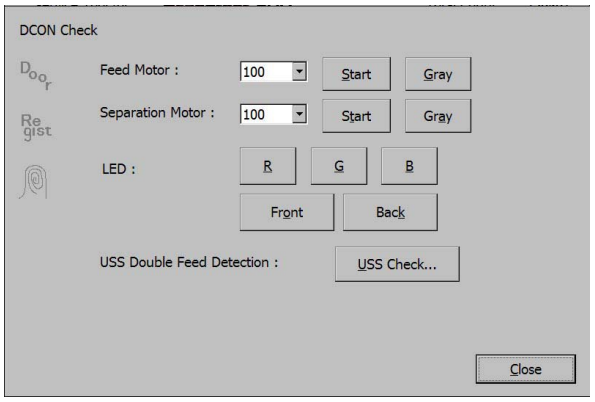

Figure 5-423

a. Sensors

When the sensor detects its target, the corresponding mark lights. The contents of marks are shown below. The “Door sensor” mark shown below is in the detection state.

Mark	Sensor name	Lighting state
Door	Door sensor	The upper unit is open.
Regist	Registration sensor	The registration sensor detects a document.
	Fingerprint sensor	The fingerprint sensor detects a finger. (only SF-300P)

Table 5-402

b. Motor

Select a resolution and a reading mode, then press [Start] to make the motor turn at the speed that meets the condition. Press [Stop] to stop the motor.

- [Main Motor]: Feed motor
- [Separation Motor]: Separation motor

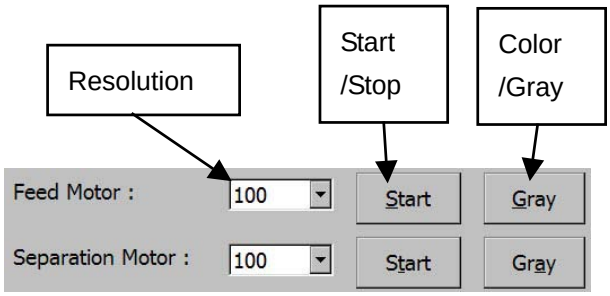

Figure 5-424

c. CIS unit LED

When the corresponding LED button is pressed, the LED lights. Make sure to open the upper unit fully before pressing the button. Press the button again to turn off the LED.

- [Front]
  LED for front-side scanning (located on the lower unit)
- [Back]
  LED for back-side scanning (located on the upper unit)

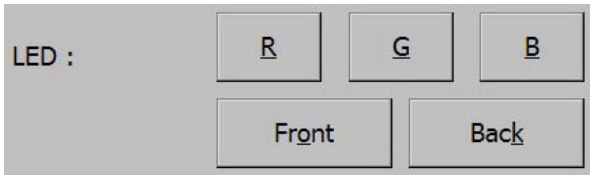

Figure 5-425

d. Ultrasonic sensor

On the [DCON Check] screen, press [USS Check] to display the [USS] screen.

However, in case of the SF-300, no data is displayed.

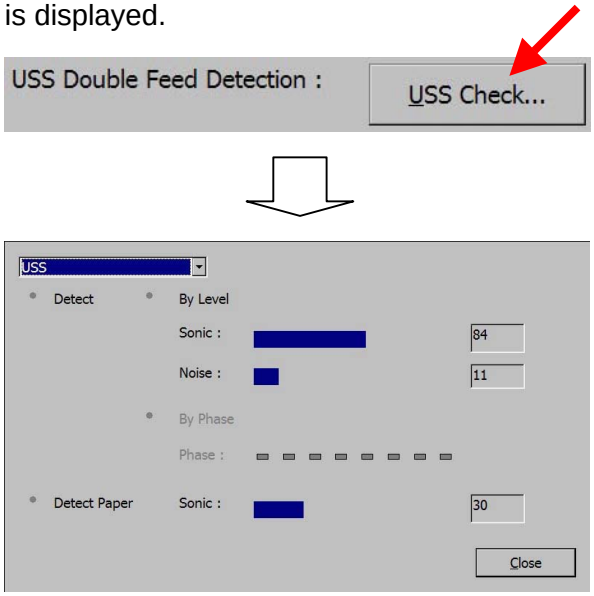

Figure 5-426

Placing a single sheet of paper on the ultrasonic sensor turns on the document detection lamp in red. Placing overlapping paper on the sensor turns on the double-feed detection lamp in red. The screen when double-feeding is detected is shown below.

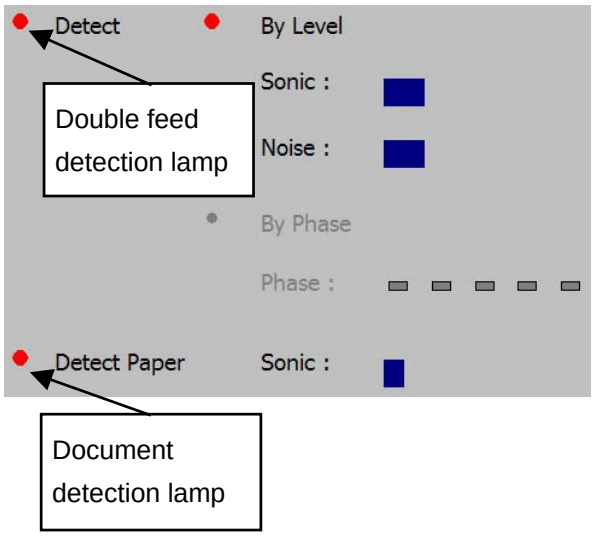

Figure 5-427

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6. Check Device

This mode displays versions of the main body firmware and the internal devices of this machine.

On the adjustment home screen, press [Check Device] to display the [Check Devices] screen.

- [MAIN]
  Scanner main body firmware
- [DFD SUB]
  Ultrasonic sensor
- [Finger Print]
  Fingerprint sensor
- [Touch Panel]
  Touch panel
- [OSVersion]
  Windows CE
- [ApplicationVersion]
  Execute files except for the above
- [BIOSVersion]
  BIOS
- [CPU Type]
  Type name of CPU
  SF-300: Z510, SF-300P: Z530

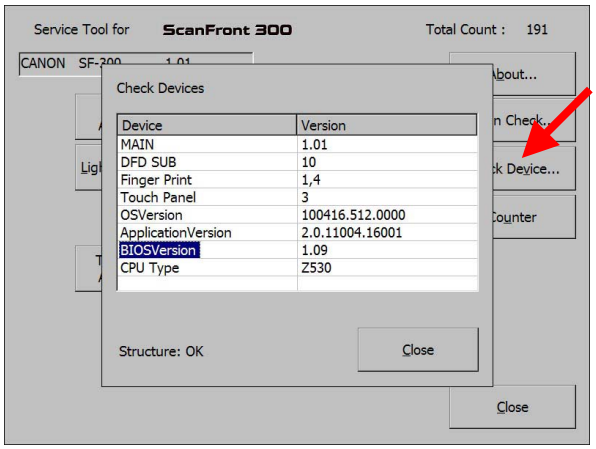

Figure 5-428

"Structure" at the lower left of the screen displays the adaptability of CPU and fingerprint sensor that concretely means composition of SF-300 and SF-300P.

Note: "ApplicationVersion" is displayed at the upper right of the machine's home screen.

7. Counter

This mode is used to display/change the scanning count and the number of paper jams.

a. Display

On the adjustment home screen, press [Counter] to display the [Counters] screen.

- [ADF Count]
  The total scanning count
- [P01 Jam Count]
  The number of pickup delay jams (pickup error)
- [P02 Jam Count]
  The number of jams other than P01
- [Replacement1 Count]
  The scanning count at time of last roller replacement (counter resetting)

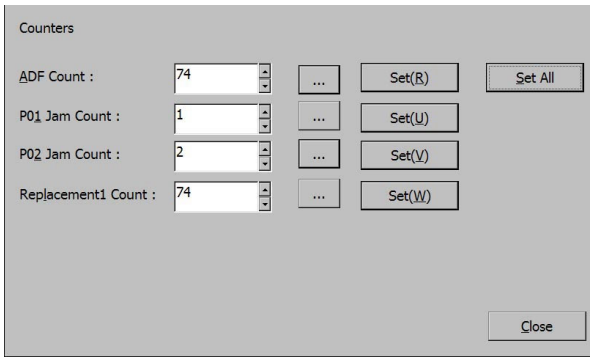

Figure 5-429

b. Change

These values are changed when the scanner PCB is replaced. After the replacing the scanner PCB, input the same values as before the replacement. If you don't know the values before the replacement, input the estimated values.

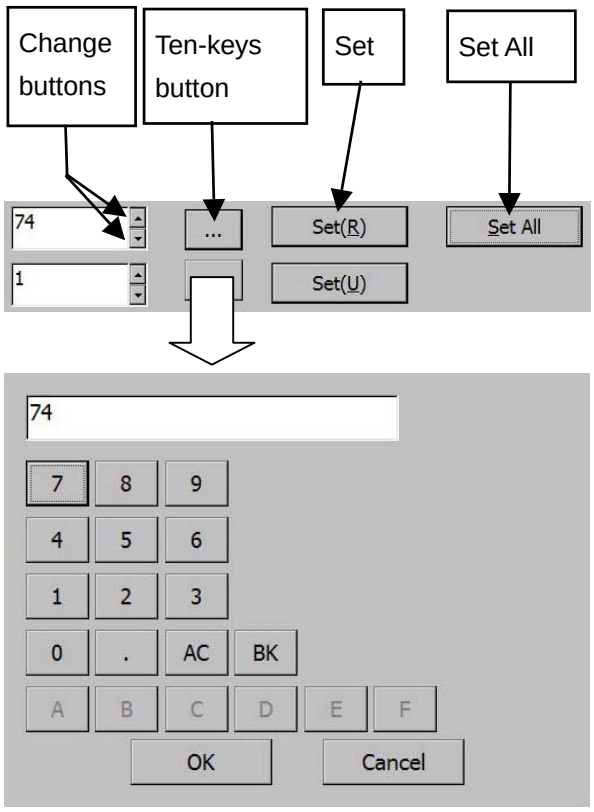

Figure 5-430

Press the corresponding change button or the ten-keys button to change the value. Pressing the ten-keys button displays the ten-keys keypad screen.

After changing the value, press [Set] or [Set All] to finalize it. Pressing [Set] finalizes a value for each item, and pressing [Set All] finalizes values for all items.

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8. About

This mode displays a detailed version of the scanner adjustment software.

On the adjustment home screen, press [About] to display the version screen.

Press [OK] to close the version screen.

Figure 5-431

9. Touch Panel Adjustment

This mode adjusts the touch panel position. This can also be performed from the user's [Administrator setting] screen. This adjustment is usually be performed by users as needed.

When the initialization of user information or the software reinstallation is performed, the touch panel position adjustment data is restored to default. Perform this adjustment, when these are performed. Even when performing other service works, if you suspect a gap between the actual position and the adjustment data is produced, also perform this adjustment.

◆ Touch panel pen

To adjust the position precisely, a commercially available touch panel pen (stylus pen) or the equivalent is needed to perform this adjustment. Since the precise adjustment cannot be performed by touching with a finger, you may have to input endlessly if you use a finger instead of a touch panel pen. If an object with a sharp and hard tip is used, the touch panel may be damaged.

◆ Operation procedure

1) Press [Touch Panel Adjustment] on the adjustment home screen.

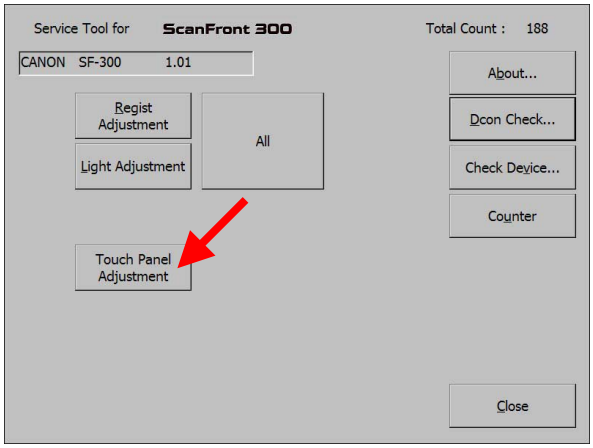

Figure 5-432

2) Confirm the adjustment screen of the touch panel is displayed.

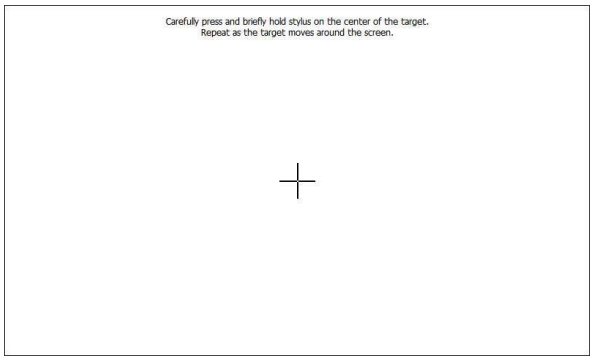

Figure 5-433

3) Press the center of the displayed targets (+) with the touch-panel pen in the order of ① to ⑤.

Note: Touch the center of each target. Otherwise, you will have to repeat the operation.

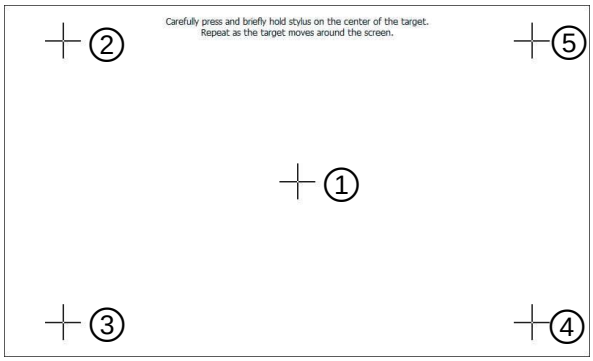

Figure 5-434

4) After you finish adjustment, tap the touch panel to exit the touch panel adjustment.

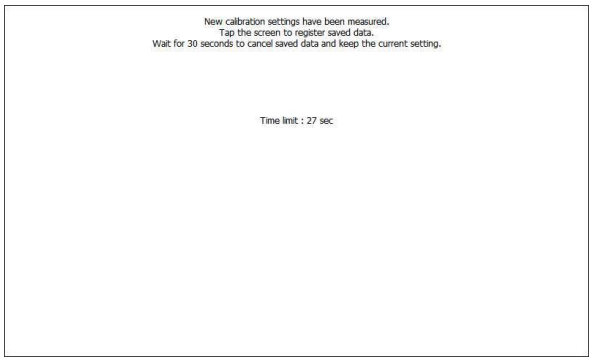

Figure 5-435

5) After the adjustment is complete, the screen returns to adjustment home screen. When the data is acquired, the green circle marks will appear next to the [Touch Panel Adjustment].

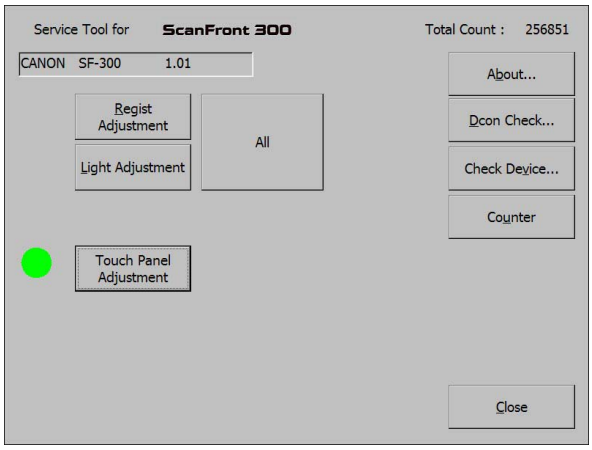

Figure 5-436

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C. Test Scan

1. Outline

This mode is used to check the scanning functions.

You can start up this mode from the service mode, not from the user's normal screen, so that checking scanning operations and scanned images is possible without user's help.

Also, the network is not involved in these tests. So you can determine whether the malfunction of the machine scanning function causes the trouble or whether the settings or network functions configured by users cause it.

◆ Basic screen

1) On the [Service mode's Home] screen, press [Test scan].

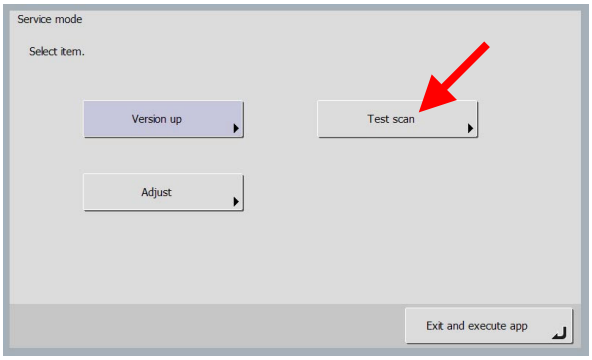

Figure 5-437

2) Confirm that the [Test scan] screen is displayed.
Select a menu to execute on this screen.

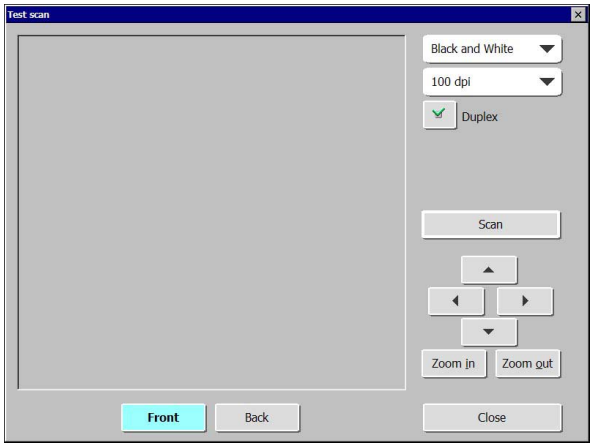

Figure 5-438

◆ Image display

A scanned image is displayed here. Press [Front] or [Back] to switch a front-side image or a back-side image to display. The selected button turns blue.

Note: When Simplex is selected, only [Front] is available.

Figure 5-439

◆ Operation buttons

These buttons are used to select scan conditions and to check scanned images. The function of each button is shown below.

Note: The image can be scrolled by dragging the image display with a finger.

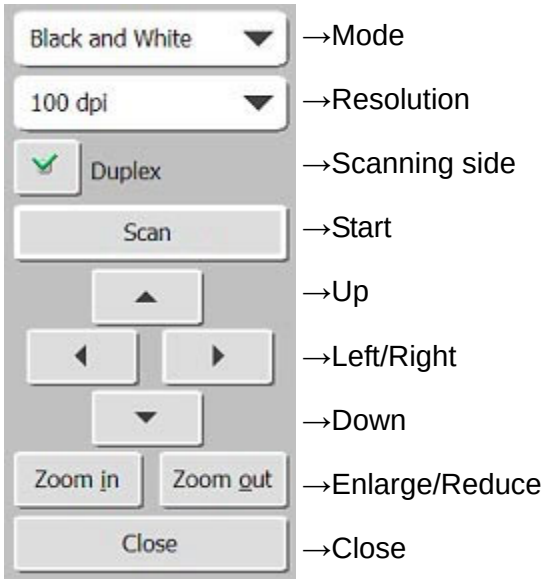

Figure 5-440

- Mode

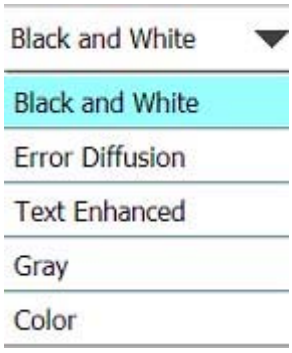

Figure 5-441

- Resolution

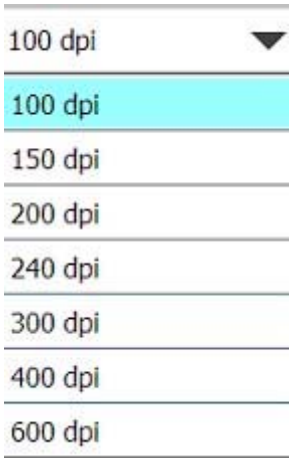

Figure 5-442

- Scanning side

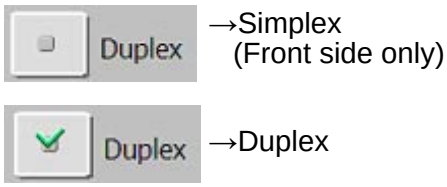

Figure 5-443

Note: The scanning size is set to maximum, and the brightness and the contrast is set to standard.

For SF-300P, setting to “[Color] / [600 dpi] / [Duplex]” causes insufficient memory since the scanning size is set to maximum.

If the operation cannot be performed, hold down the power switch until the screen disappears (approx. 4 seconds) to turn the power OFF forcibly.

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2. Operation Procedure

Load a document, then press [Scan] to start scanning. The scanned image is displayed.

a. Scan documents

1) Load one or more sheets of document.
2) Select scan conditions.
3) Press [Scan].

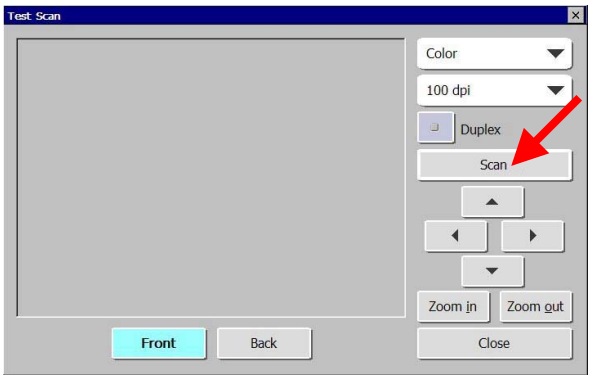


Figure 5-444

4) Confirm that the scanned image is displayed.

Note: When several documents are loaded, the last scanned document is displayed.

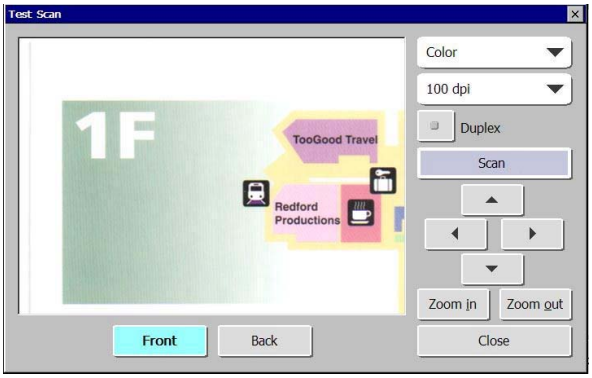


Figure 5-445

b. Check scanned image

Drag the image display with a finger or use the arrow buttons to move a displayed area. For example, pressing [arrow button: ►] changes the displayed image as shown below.

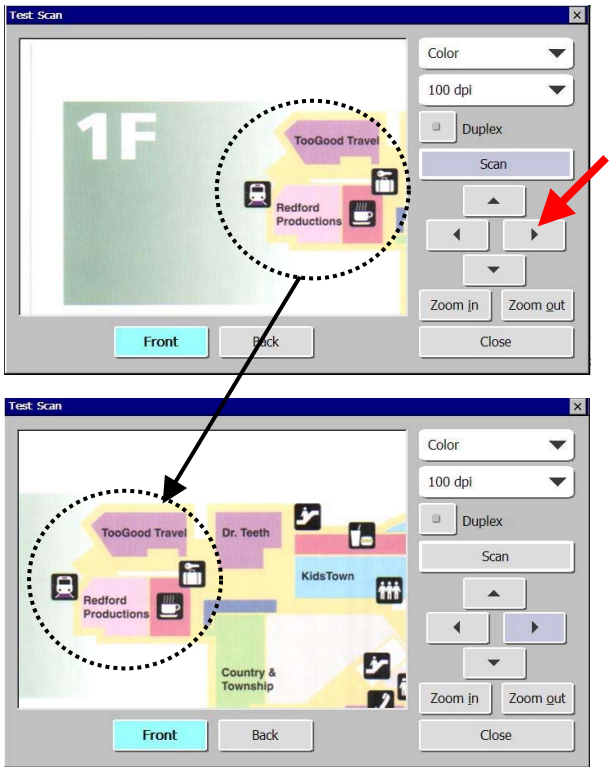


Figure 5-446

Press [Zoom in] to enlarge an image and press [Zoom out] to reduce an image.

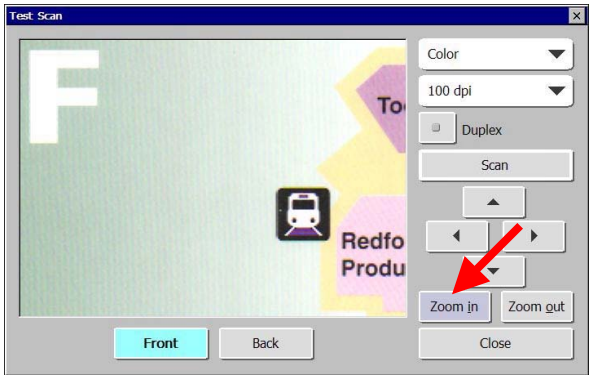


Figure 5-447

D. Update

1. Outline

This mode is used to update the software of the machine to the latest version. The user updates the software on the Web menu.

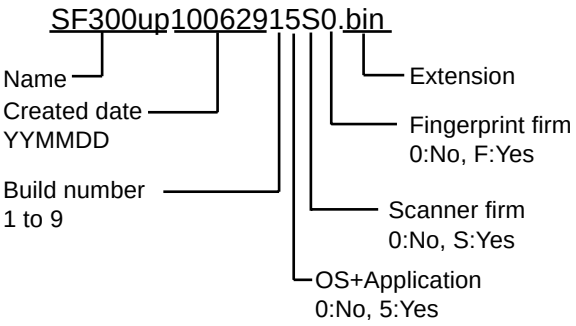
Save new software files to a USB memory, then connect it to the machine to overwrite the old software in the machine.

Software cannot revert back to older versions with this mode. To do that, perform “reinstallation” using the boot switch explained in another section.

◆ Saving to USB memory

Save an update file to the root directory (top level directory) of the USB memory. If it is saved to sub directories or folders, it may not be detected by the machine.

The file name should be like this:



Note: The name is “SF300up” and is different from “SFSetup” of the conventional machine SF-220/220P. The software for the SF-300 is the same as that for the SF-300P except fingerprint firmware.

Note: The software displayed with “0” is not written because it is not necessary to change it. The maximum file size is approx. 50 MB.

Here is an example of USB memory directories. If more than one update files exist under the root directory, the newer one will be detected.

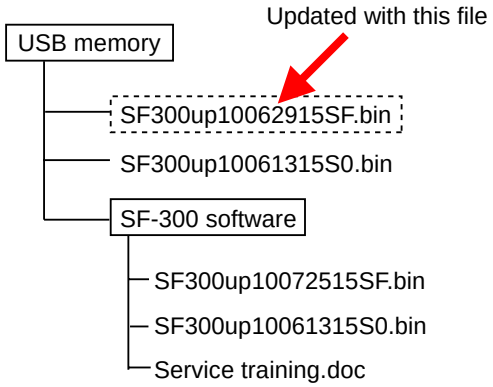


Figure 5-448

Note: Update proceeds automatically. This automatic update procedure includes backup and restoration of the user data.

Note: For a user, a series of numbers called the Product key is needed to download update files. The Product key is printed on the rating label located on the bottom of the main body.

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2. Operation Procedure

1) Prepare a USB memory containing the necessary file.

Note: Use a USB memory that is in the FAT16 or FAT32 format and that has no special functions such as security function. For details on restrictions on USB memories, refer to the user manual or section “1. Preparation, III. USER OPERATION, CHAPTER 1”.
For saving update file on the USB memory, refer to the previous section.

2) Start the service mode.
3) Press [Check Device] on [Adjust] to confirm the current version number.
4) Connect the prepared USB memory to the machine’s USB port.
5) Press [Version up] on the [Service mode’s Home] screen.

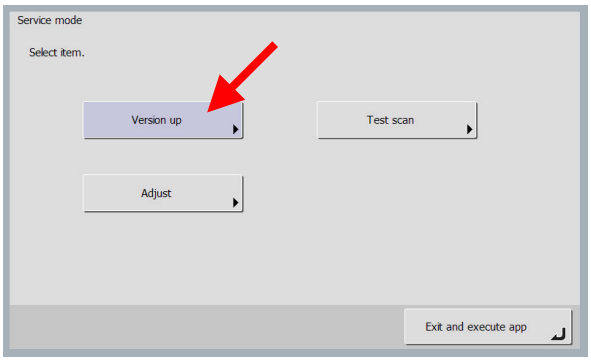

Figure 5-449

6) The update proceeds automatically while the progress screens are displayed. Some of them are shown below. The required time is different according to the amount of user data. If the amount of data is the maximum, it may take approx. 1 hour.

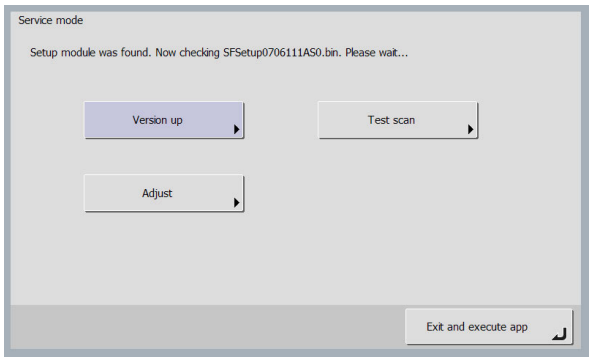

Figure 5-450

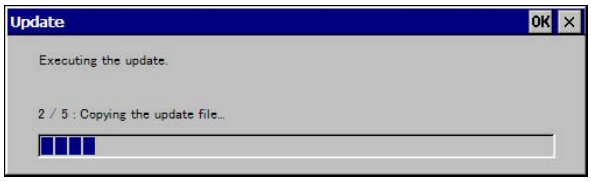

Figure 5-451

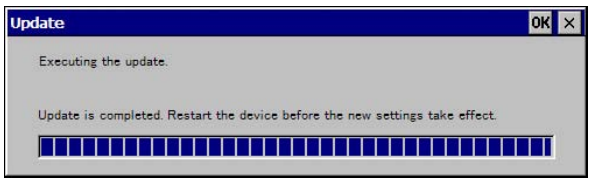

Figure 5-452

7) When update is complete, the machine is restarted automatically. Remove the USB memory at this time.

Note: If a USB memory is connected when the machine is restarted, the activation may stop. If the activation stops, remove the USB memory and reset the power. If the machine restarts without removing the USB memory, the operation can be continued.

8) After the machine has been restarted, the user's initial screen is displayed.
9) On [Check Device] in the service mode, confirm the updated version number.

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V. NETWORK FUNCTION CHECK

1. Outline

To check the machine's network function without using the user's network system, connect this machine and a computer for service works with LAN cable, and then send image data to a shared folder on the computer.

◆ Outline steps

1) Preparation
2) Network setting for the machine
3) Network setting for computer
4) Creating a user
5) Creating a shared folder
6) Sending image data
7) Initialization

Note: The user data is highly confidential. You have to ask the user to backup the user data and execute an initialize before this operation. And before you will return the machine to the user, you have to execute the initialize. For details, refer to "USER INFORMATION PROTECTION" in this chapter or the user manual.

Note: Since the operations and screens differ depending on the operation system, take steps appropriate to the operating system to perform this procedure. In here, Windows 2000 is used.

2. Preparation

1) Necessaries

- Computer:
  Microsoft Windows Network available
  TCP/IP protocol available
- LAN cable:
  Signal straight connection or cross connection may be used for this machine.

2) Confirmation

Confirm the user that the user data has been backup and initialized.

3) Connection

Connect the machine and the computer with LAN cable.

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3. Network Setting for the Machine

◆ Purpose

Set the network settings for the machine. Set the same network address part in the IP address on the machine and the computer.

1) Turn on the machine to display the [Home] screen. And press [Administrator settings].
2) The [Administrator Password] screen is displayed. Press [OK] without inputting a password.

Note: When the user has initialized, you don't need to input any password.

3) On the next screen, press [Network setting].

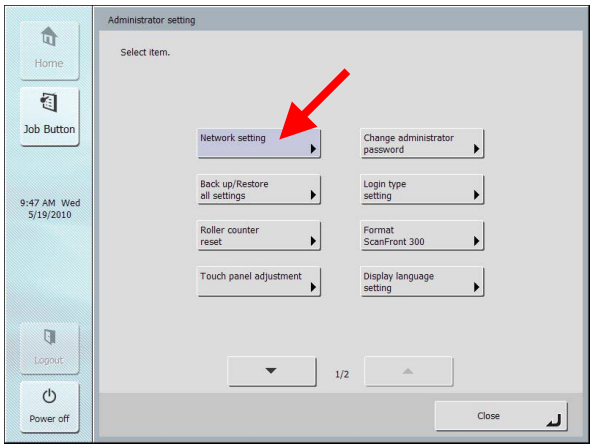

Figure 5-501

Note: Connect the computer with the machine using a LAN cable. If the following procedure is performed without connection, the setting values are valid, but the display returns to the initial values, causing misunderstanding.

4) On the next screen, disable the DHCP server, and then input a suitable address. For the IP address for the machine and the computer, the network address should be the same but the host address should be different.
After that, press [OK].
The example, assuming the computer's IP address is [1.1.1.1], is shown below.

- IP address: 1.1.1.2
- Subnet mask: 255.255.255.0
- Default gateway: 1.1.1.1
- DNS (primary): 1.1.1.1
- WINS (primary): 1.1.1.1

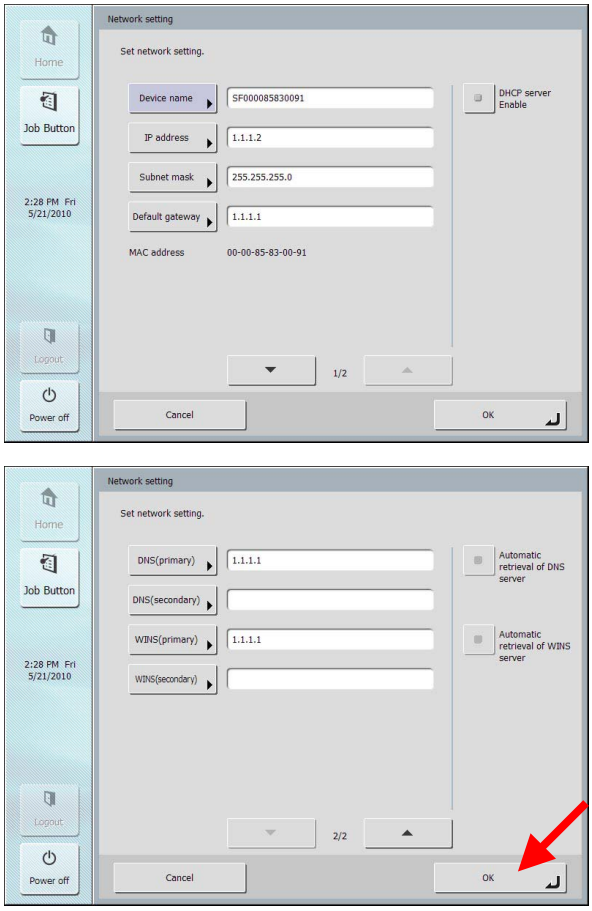

Figure 5-502

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4. Setting for Computer

The operation method and screens are different according to the computer being used. Understand the purpose and perform operations to be consistent with the computer being used. In this example, Windows 2000 is used as an operating system.

◆ Purpose

Set the network setting for the computer to be consistent with the machine.

1) Click [Network and Dial-up Connections] in Control Panel.

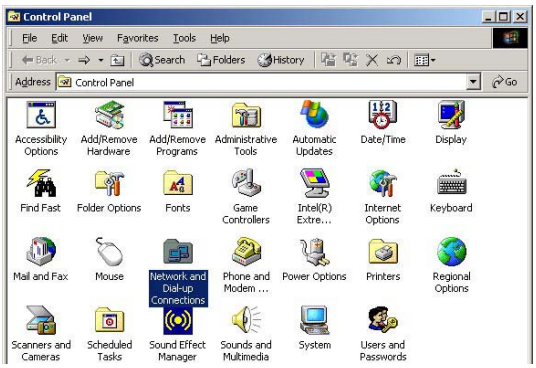

Figure 5-503

2) On the next screen, right-click [Local Area Connection], then click [Properties].

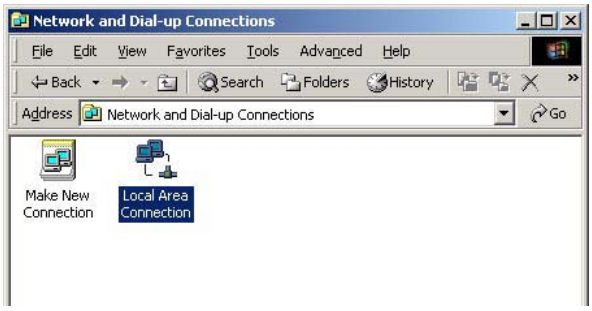

Figure 5-504

3) On the next screen, select [Internet Protocol (TCP/IP)], then click [Properties].

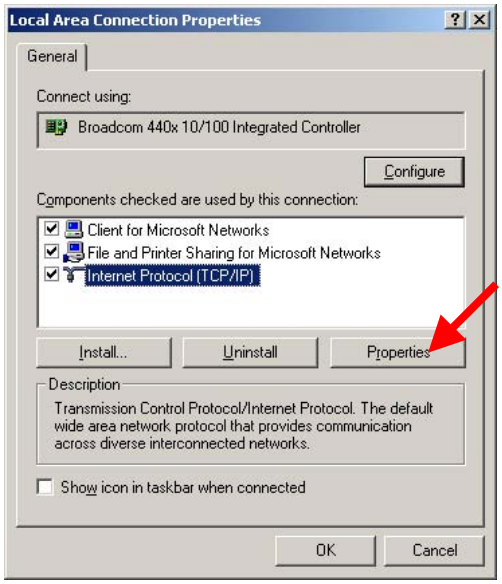

Figure 5-505

4) On the next screen, input each address. They should be consistent with the addresses input at the previous section for the machine.
After that, click [OK].
The input data in this example is as follows.

- IP address: 1.1.1.1
- Subnet mask: 255.255.255.0
- Default gateway: 1.1.1.1
- Preferred DNS server: 1.1.1.1

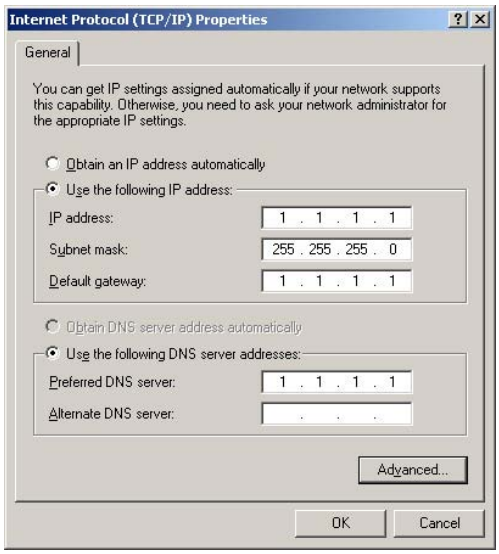

Figure 5-506

5. Creating a User

◆ Purpose

Create a user account with administrative rights to access a shared holder. You can use any existing user account if you know its password; otherwise you need to create a new user.

1) Click [Users and Passwords] in Control Panel.

Figure 5-507

2) On the next screen, click the [Advanced] tab.

Figure 5-508

3) On the next screen, click [Advanced].

Figure 5-509

4) On the next screen, right-click [Users].

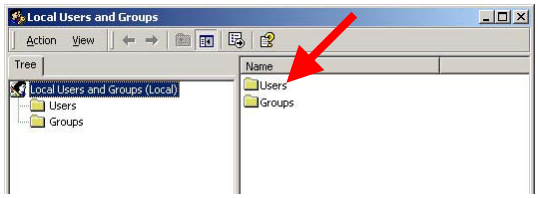

Figure 5-510

5) On the displayed menu, click [New User].

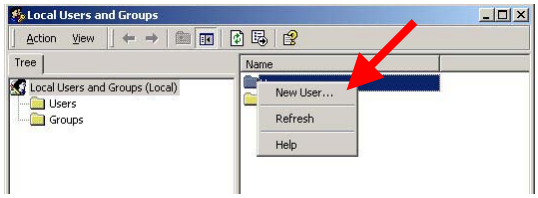

Figure 5-511

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6) On the next screen, input any text in [User name] and [Password]. In here, the following is input.
- User name: sf
- Password: sf

And click to clear the [User must change password at next logon] check box.
After that, click [Create].

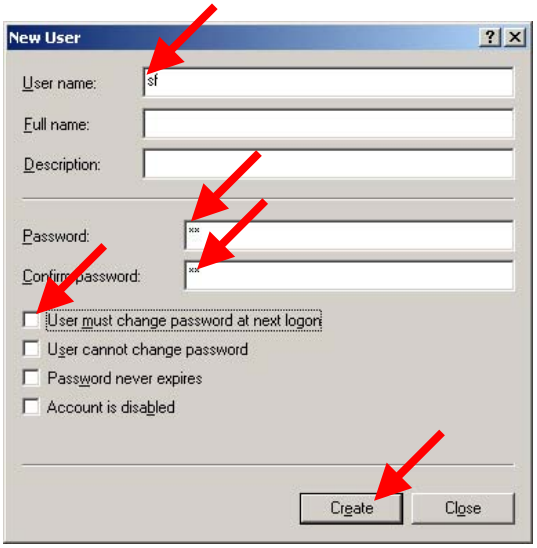

Figure 5-512

7) When it is completed, the input data is cleared. And then click [Close].

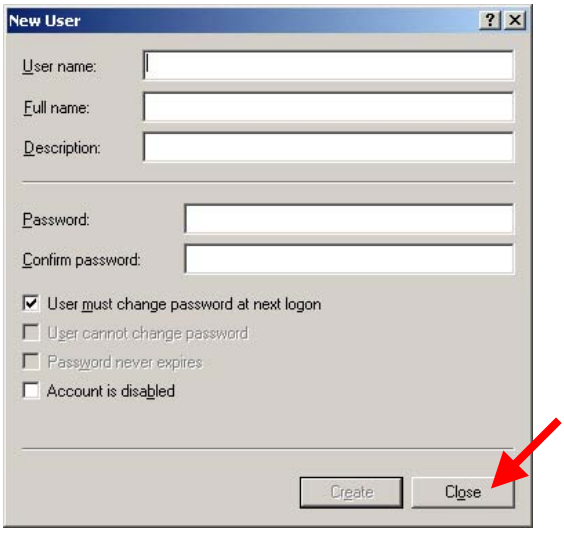

Figure 5-513

8) The previous screen is displayed. And then double-click [Users] to open it.

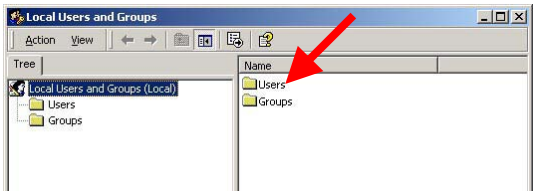

Figure 5-514

9) On the next screen, right-click [sf] which has been created at the previous section.

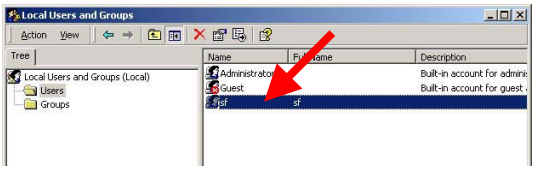

Figure 5-515

10) On the displayed menu, click [Properties].

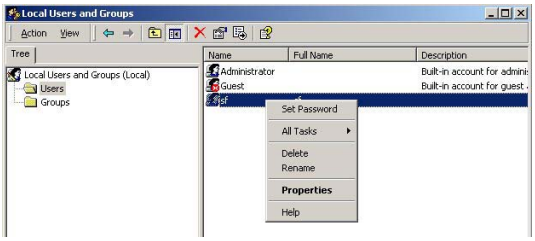

Figure 5-516

11) On the next screen, click the [Member Of] tab.

Figure 5-517

12) On the next screen, click [Add].

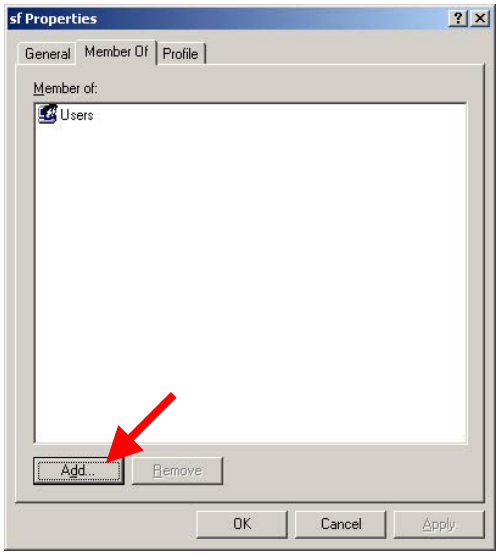

Figure 5-518

13) On the next screen, select [Administrators], then click [Add].

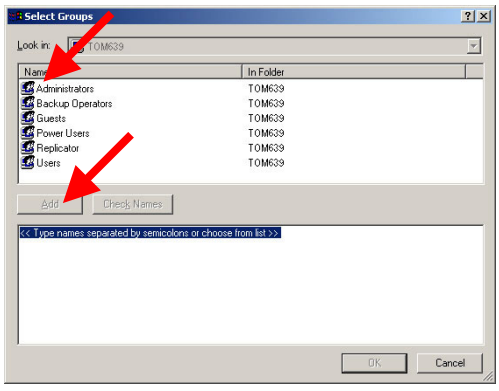

Figure 5-519

14) After [Administrators] has been added, click [OK].

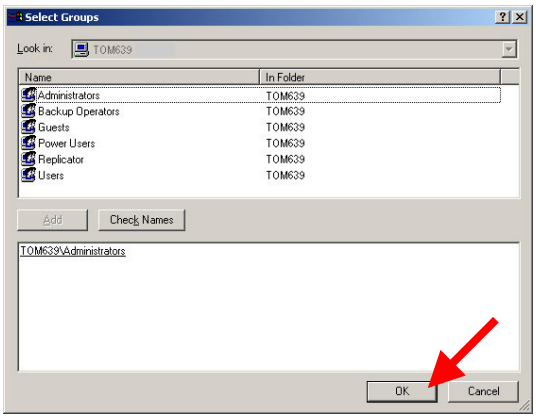

Figure 5-520

15) On the next screen, confirm [Administrators] is displayed, then click [OK].

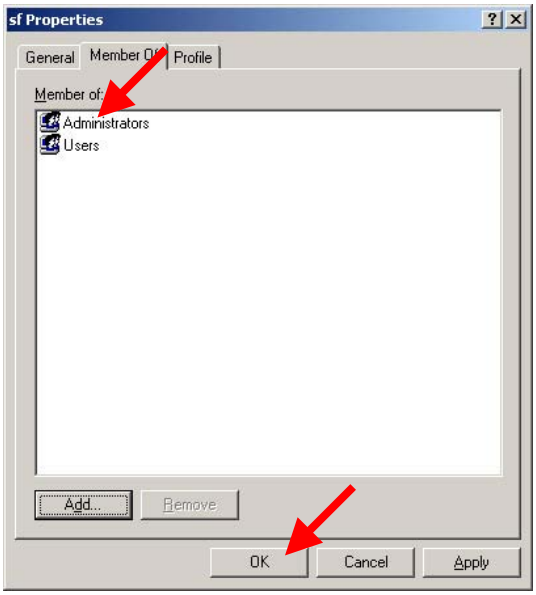

Figure 5-521

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6. Creating a Shared Folder

◆ Purpose

To send image data, create a shared folder. And then add the permission to access the folder to the user account created at the previous section.

1) Create a new folder in any directory.
In here, a folder named [sf] is created on Desktop.

Note: Make sure that no other shared folder has the same name.

2) Open [Properties] of the folder, then click the [Sharing] tab.

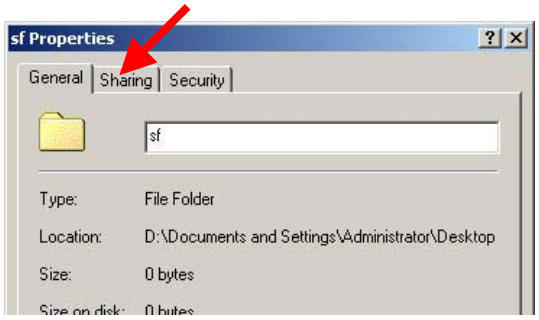

Figure 5-522

3) On the next screen, select [Share this folder], and then click [Permissions].

Figure 5-523

4) On the next screen, click [Add].

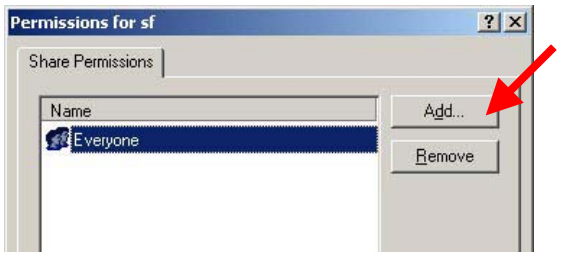

Figure 5-524

5) On the next screen, select the user name created at the previous section: [sf] in here, then click [Add]. After that, click [OK].

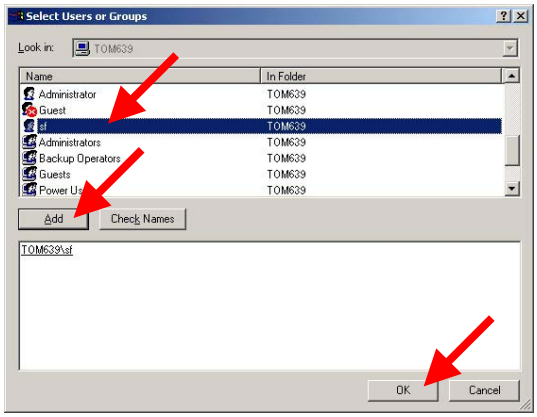

Figure 5-525

6) On the next screen, select the user name: [sf] in here, then select the [Allow] check box for [Full Control]. After that, click [OK].

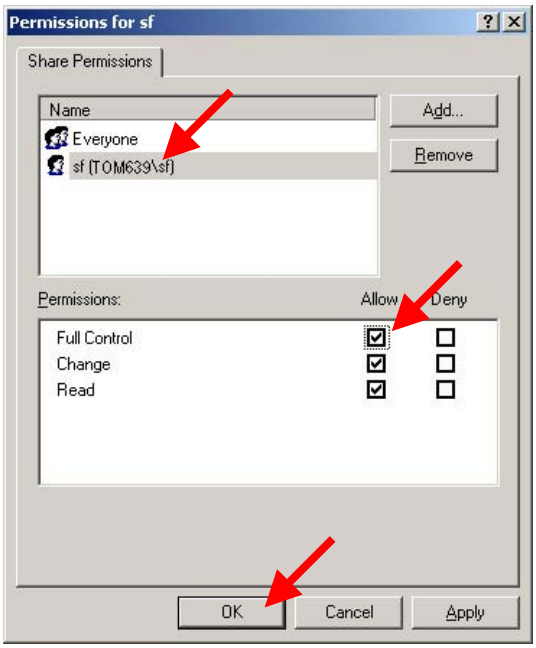

Figure 5-526

7. Sending Image Data

Refer to the user manual for details.

Note: On the [Shared folder] screen, you need to input [User name] and [Password] of the shared folder, then click [Browse].

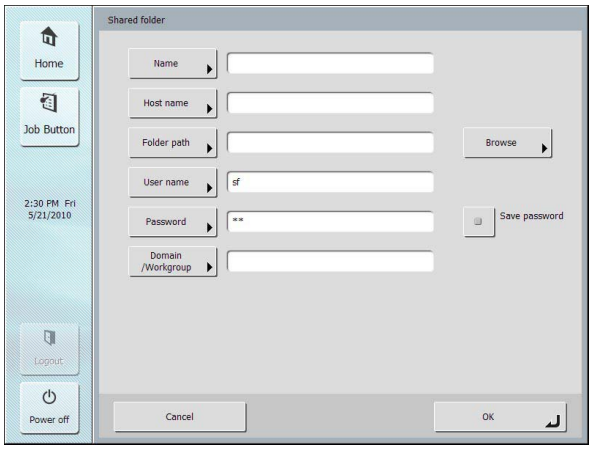

Figure 5-527

8. Initialization

Initialize the machine before returning it to the user.

And restore the TCP/IP setting of the computer.

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9. Web Menu Check

In the previous section, the method to check the network function by sending image data to a shared folder with LAN cable is described. Here is described how to check the Web menu function using some steps of this method.

◆ Outline steps

1) Preparation
2) Network settings for the machine
3) Network settings for computer
4) Internet settings for computer
5) Checking the Web menu function
6) Initialize

This section describes only "4) Internet settings for computer". For step 1 to 3 and 6, refer to the previous section. For step 5, refer to the user manual.

◆ Internet settings for computer

Purpose: Disable the use of proxy server.

1) Click [Internet Options] in Control Panel.
2) On the next screen, click the [Connections] tab.

Figure 5-528

3) On the next screen, click [LAN Settings].

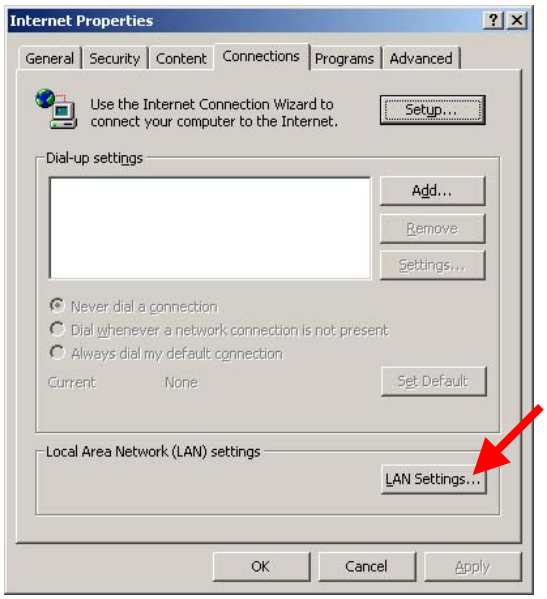

Figure 5-529

4) On the next screen, clear the [Use a proxy server] check box.

Note: However, if you don't want to delete the current [Address] and [Port] settings of proxy server, there is another way. Perform the next step instead of this.

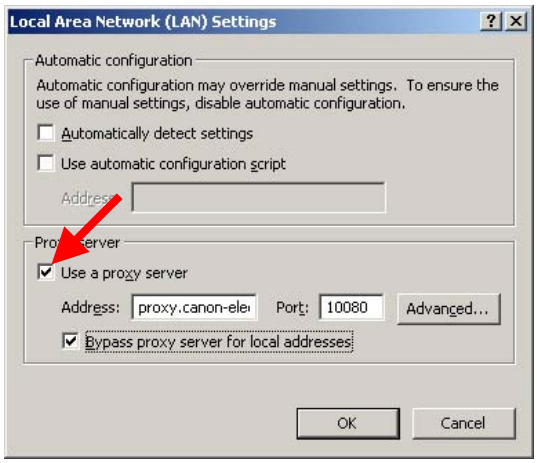

Figure 5-530

4') On the next screen, click [Advanced].

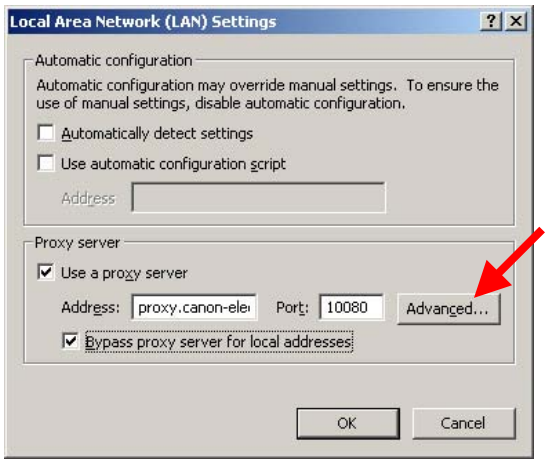

Figure 5-531

5') On the next screen, input the machine's IP address in [Exceptions]. Here, "1.1.1.2" is input as configured at the previous section.

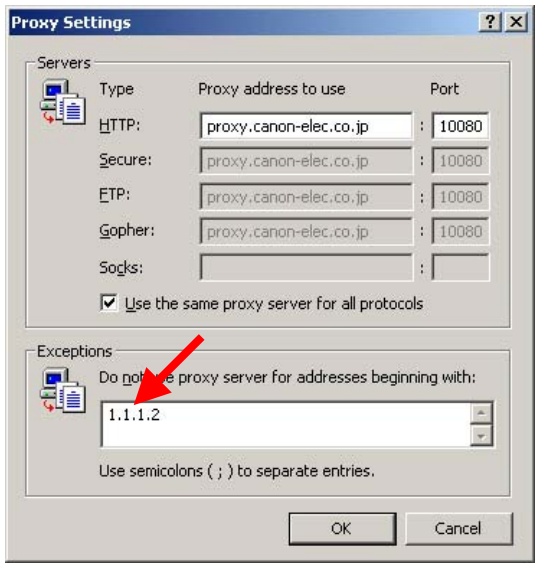

Figure 5-532

After the above setting is complete, start up "Microsoft Internet Explorer" on the computer. Then, input the machine's IP address to open the Web menu.

Note: Internet Explorer version must be 6.0 or later.

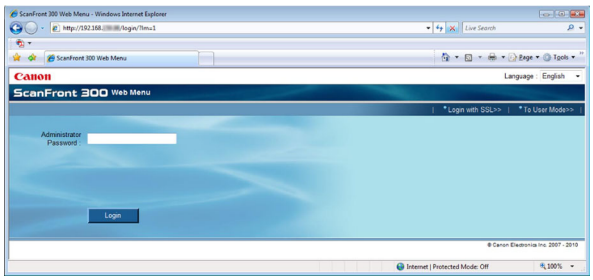

Figure 5-533

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VI. OTHER OPERATIONS

1. Reinstallation

This operation is used to reinstall the software in case that the machine becomes inoperable due to such as OS failure.

You can write files saved on the USB memory to the machine. The same USB memory and update files as used in “D. Update” are used in this operation.

However, all user data, including IP address and fingerprint data, is initialized (deleted) unlike a usual update.

◆ Operation procedure

1) Prepare a USB memory containing the necessary file.
2) The boot switch is located behind the small hole on the rear side of the main body. While pressing the boot switch with a thin tool inserting into this hole, press the power switch.

Note: Although you cannot see the boot switch from outside, make sure to feel a click of the switch. Keep pressing the boot switch even after releasing the power switch.

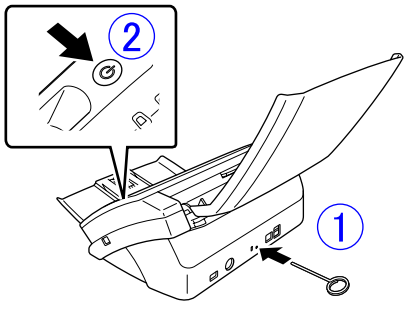

Figure 5-601

3) Confirm that, after the product name screen and the black screen are displayed, the following text screen is displayed, then release the boot switch.
“Please connect the USB memory to the device. If it is not recognized, please connect it again.”

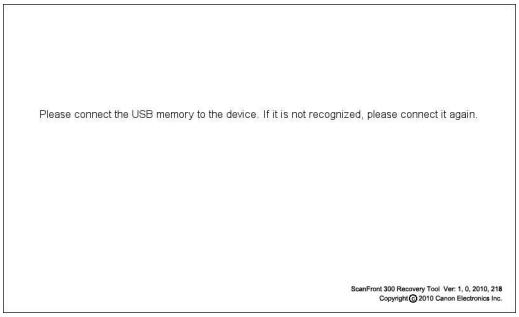

Figure 5-602

4) Plug the prepared USB memory to the machine’s USB port.
5) When the USB memory is detected, the operation proceeds automatically while some progress screens are displayed. One of them is shown below.

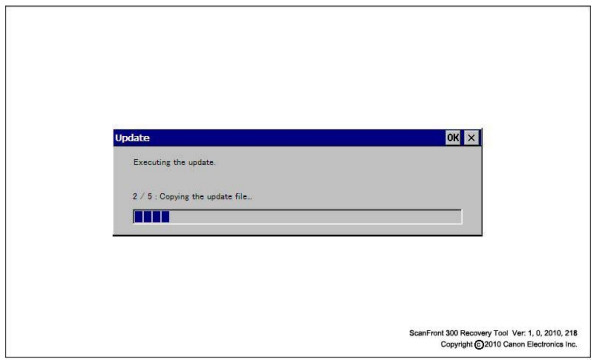

Figure 5-603

6) Since user information is not restored, an error screen is displayed, but leave it as it is. Then the error display disappears and the operation continues. It takes approx. 5 minutes to finish.

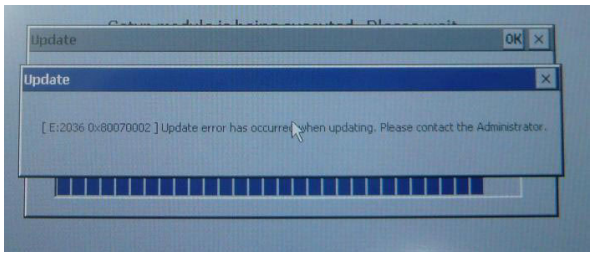

Figure 5-604

7) After reinstallation is complete, the machine is restarted automatically. Remove the USB memory at this time.

Note: If a USB memory is connected when the machine is restarted, the activation may stop. If the activation stops, remove the USB memory and reset the power. If the machine restarts without removing the USB memory, the operation can be continued.

8) Since the start screen for the touch panel position adjustment is displayed, perform adjustment.

9) The home screen is displayed.

Note: When this operation is performed as service training etc., perform “backup of the setting information” beforehand as necessary.

◆ If the power is OFF for a long time

If the power is OFF for 3 years or longer, reinstallation is required.

OS, applications and user data are stored on the NAND Flash disk (memory) on the motherboard. The warranty period of data storage of this memory is 3 years after the last power OFF. If the warranty period expires, all or part of data may be erased. Therefore, time after the power OFF is counted, and if it becomes 3 years or longer, the BIOS screen is displayed at the next power ON and an error message “You must reinstall OS image file!” is displayed. The BIOS screen and the error message are shown below.

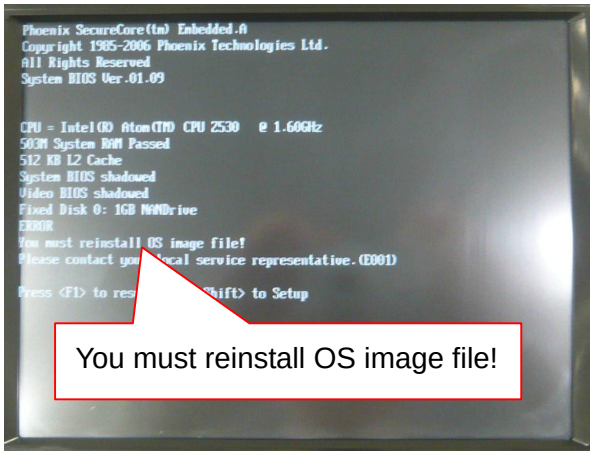

Figure 5-605

If the motherboard is replaced with a service part that is at stock for 3 years or longer, the same message is displayed and reinstallation is required.

When this screen is displayed, hold down the power switch of the main unit until the power turns OFF. Then reinstall the software. Refer to the previous section for details on the operation method.

If a keyboard is connected and the [F1] key is pressed on this screen, the opera-

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tion continues, and if the [Shift+F3] keys are pressed, the setting screen is displayed.

Note: Since time is counted with a battery, however, the same message is displayed if an error occurs in the count. As for the warranty period of battery life, the total OFF time after installation is 4 years or longer.
Therefore, if it is clear that the power is turned ON within 3 years, such as if the battery is removed temporarily, reinstallation is not required.
If the battery life expires, replace the battery and set time. Time is set on the BIOS screen or the Web menu. For the setting method on the BIOS screen, refer to the next section "BIOS Settings".

2. BIOS Settings

In case that the machine stops at start-up due to BIOS failure, use this procedure to reconfigure the BIOS settings.

It may not be reset according to the contents of errors. In this case, replace the motherboard.

◆ Necessaries
Keyboard (USB type)

◆ Stop screen
On which screen the operation stops is unknown according to error status. For example, it may stop on a black screen, on the product name screen, or on the BIOS screen (error) after the power is turned ON.

Note: Do not make a mistake since a black screen is also displayed due to an LCD error. For example, a black screen is displayed if the power supply cable from the motherboard to the scanner PCB is not connected correctly.

◆ Operation Procedure

1) Hold down the power switch for about 4 seconds to turn the machine off.
2) Connect the prepared keyboard to the machine.
3) Turn the machine on.
4) As soon as the product name screen is displayed, press and release the [F3] key repeatedly while holding down the [Shift] key on the keyboard. If the timing is correct, the BIOS setting screen shown in the following procedure is displayed.
If the BIOS error screen is displayed, press the [Shift+F3] keys.

5) The BIOS setting screen is shown below. Press the [F9] key to reset the initial value.

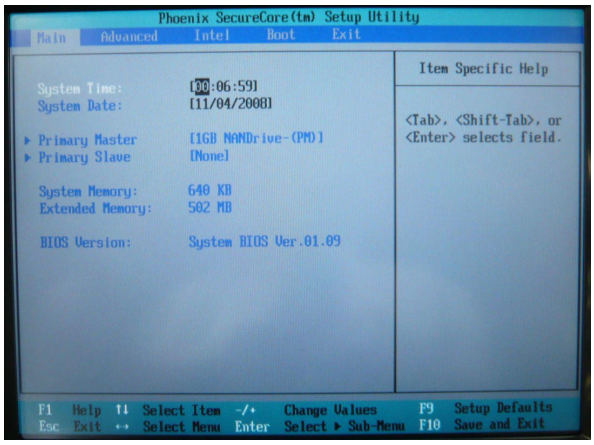

Figure 5-606

6) Since the initialization setting confirmation screen is displayed, confirm that [Yes] is selected and press the [Enter] key.

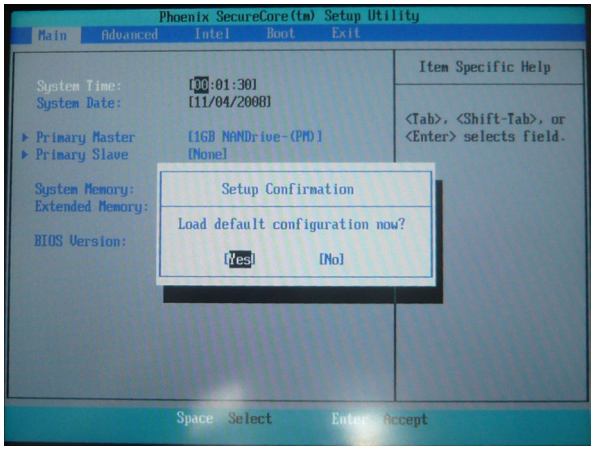

Figure 5-607

7) The original screen is displayed. Press the [F10] key to save and end the setting in this condition.

8) Since the end confirmation screen is displayed, confirm that [Yes] is selected and press the [Enter] key.

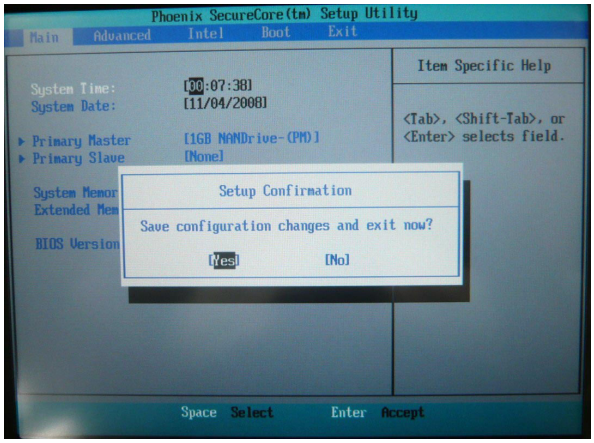

Figure 5-608

9) The screen makes progress and the normal user's initial screen will be displayed.

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◆ Time setting

How to set time on the BIOS setting screen is shown below.

1) The setting values of time and date (year/month/day) are shown at the upper left corner of the displayed BIOS setting screen (main tab screen). First press the [↑↓] arrow keys and the [Enter] key to move the cursor to the item to be changed. Then change the value using [-/+] keys. The keys to be used are shown at the lower part.

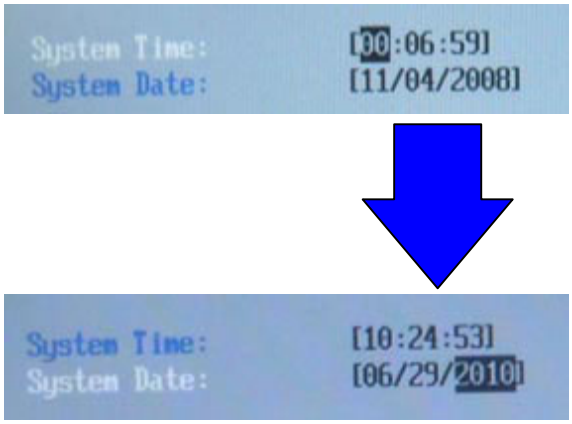

Figure 5-609

2) Since the end confirmation screen is displayed, confirm that [Yes] is selected and press the [Enter] key. The screen makes progress and the normal user's initial screen will be displayed.

VII. AFTER REPLACING PARTS

Some of the parts used in this machine require adjustments and settings after being replaced or disassembled/reassembled. The list is the following.

Parts	Light Adjust.	Regist Adjust.	Software Update	Data Restore	Time setting	Counter setting
Motherboard	Execute		Execute*1	Execute*2	Execute	
Scanner PCB		Execute	Execute*1			Execute
Reading unit	Execute	Execute				
Regist related		Execute				
Fingerprint sensor PCB			Execute*1	Execute*2		
Lithium battery					Execute	
Consumable parts replaced by users						Execute*3

Table 5-701

*1: Software update
Confirm the version after replacement, then execute if necessary.
*2: Data restoration
Ask the user to restore or reconfigure data.
*3: Counter resetting
When the user replaces an exchange roller kit, the user resets the counter.
When the service technician replaces it, ask the user to reset the counter.

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APPENDIX

I. GENERAL DIAGRAM ..... A-1 | II. LIST OF SPECIAL TOOLS..... A-2

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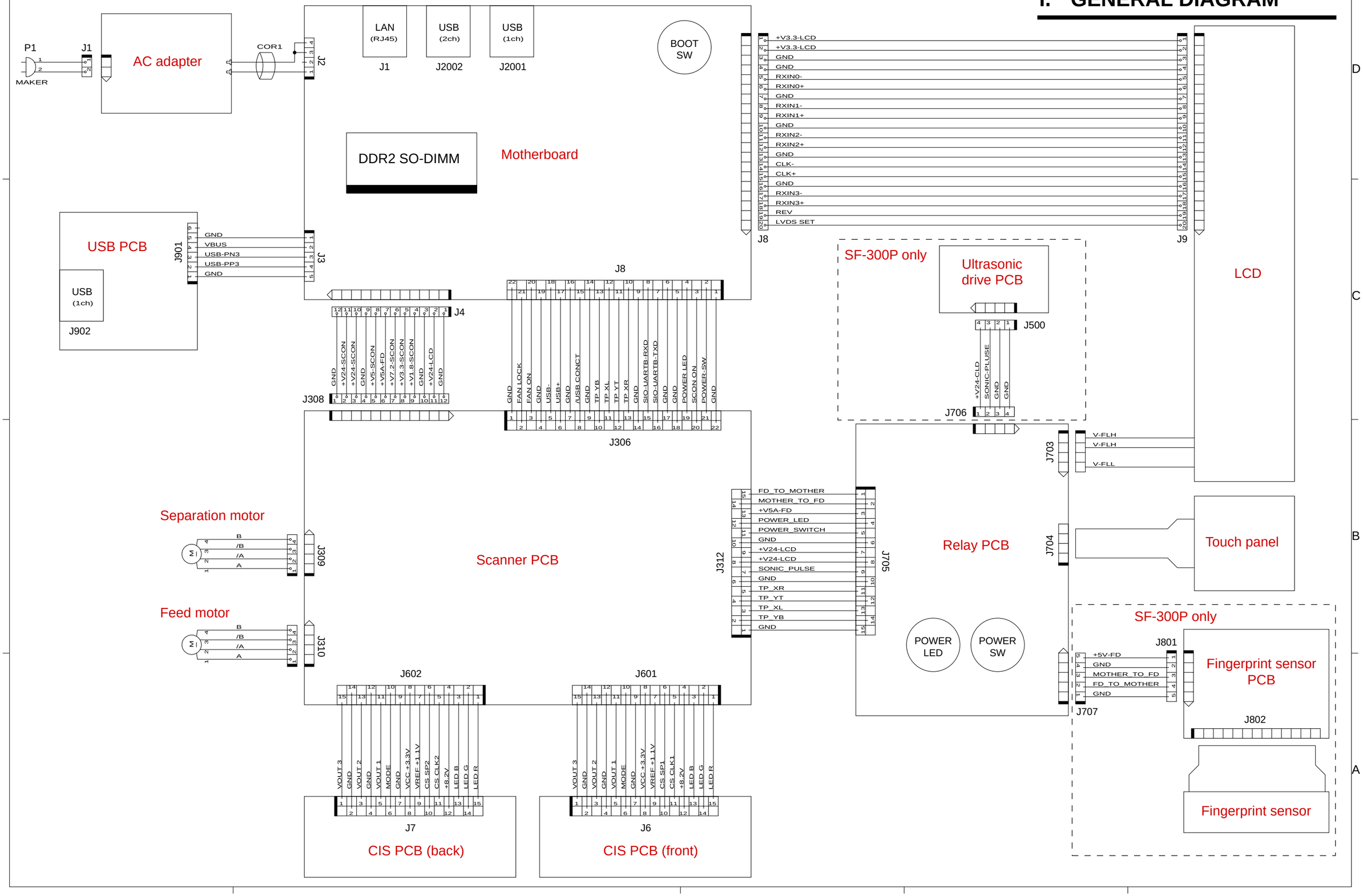
I. GENERAL DIAGRAM



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II. LIST OF SPECIAL TOOLS

The list of special tools needed for service works of this machine is the following.

However, these are the same as used for other machines or commercially available.

No.	Tool name	Tool number	Rank	Usage/Remarks
1	Shading sheet	TKM-0326 TKM-0332	B	For the light adjustment Same as used for DR-2510C etc.
2	Regist adjustment sheet		B	For the regist adjustment Created of copier paper or shading sheet by service technicians.
3	Computer	Commercial	B	For checking each setting Windows, network compatible
4	LAN cable	Commercial	B	For checking each setting LAN cable with cross or straight connections
5	USB memory	Commercial	B	For software update The FAT16 or FAT32 format with no security function
6	Keyboard	Commercial	B	For BIOS settings USB interface

Figure A-201

Note: Rank symbol
A: Each service technician must have one.
B: A group of five technicians must have one.
C: A workshop must have one.

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