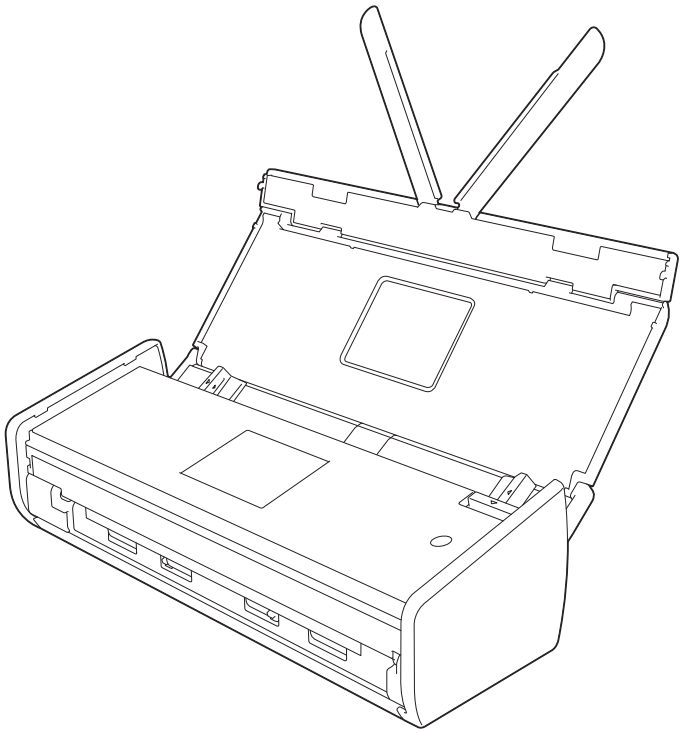
brother

# Brother Advanced Document Scanner

# SERVICE MANUAL

## MODEL:
## ADS-1500W/1600W



Read this manual thoroughly before maintenance work.
Keep this manual in a convenient place for quick and easy reference at all times.

Jul., 2013
SM-PT062
(2)

# TRADEMARKS

The Brother logo is a registered trademark of Brother Industries, Ltd.

Brother is a registered trademark of Brother Industries, Ltd.

Multi-Function Link is a registered trademark of Brother International Corporation.

Windows Vista is either a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries.

Microsoft, Windows, Windows Server and Internet Explorer are registered trademarks of Microsoft Corporation in the United States and/or other countries.

Apple and Macintosh are trademarks of Apple Inc., registered in the United States and other countries.

Adobe, Flash, Illustrator, PageMaker and Photoshop are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

Nuance, the Nuance logo, PaperPort and ScanSoft are trademarks or registered trademarks of Nuance Communications, Inc. or its affiliates in the United States and/or other countries.

PowerPC is a trademark of International Business Machines Corporation.

Memory Stick, Memory Stick PRO, Memory Stick PRO Duo, Memory Stick Duo, MagicGate Memory Stick, Memory Stick Micro and M2 are trademarks of Sony Corporation.

AOSS is a trademark of Buffalo Inc.

Wi-Fi, WPA, WPA2, Wi-Fi Protected Access and Wi-Fi Protected Setup are either trademarks or registered trademarks of Wi-Fi Alliance in the United States and/or other countries.

Intel and Pentium are trademarks of Intel Corporation in the U.S. and other countries.

AMD is a trademark of Advanced Micro Devices, Inc.

FaceFilter Studio is a trademark of Reallusion, Inc.

BRAdmin Professional is a trademark of Brother Industries, Ltd.

UNIX is a registered trademark of The Open Group.

Linux is the registered trademark of Linus Torvalds in the U.S. and other countries.

CorelDraw, Corel Paint Shop Pro and Corel WordPerfect are trademarks or registered trademarks of Corel Corporation and/or its subsidiaries in Canada, the United States and/or other countries.

Each company whose software title is mentioned in this manual has a Software License Agreement specific to its proprietary programs.

Any trade names and product names of companies appearing on Brother products, related documents and any other materials are all trademarks or registered trademarks of those respective companies.

# CONTENTS

## CHAPTER 3 DISASSEMBLY/REASSEMBLY

## CHAPTER 4 ADJUSTING AND UPDATING SETTINGS AS REQUIRED AFTER PARTS REPLACEMENT

## CHAPTER 5 SERVICE FUNCTIONS



## CHAPTER 6 WIRING DIAGRAM



## CHAPTER 7 PERIODICAL MAINTENANCE



## APPENDIX 1 SERIAL NUMBERING SYSTEM

## APPENDIX 2 DELETING USER SETTING INFORMATION

## APPENDIX 3 INSTALLING THE MAINTENANCE PRINTER DRIVER

# PRODUCT WARRANTY & LIABILITY

Nothing in this guide shall affect any existing product warranty or be construed as granting any additional product warranty. Failure to follow the safety instructions in this guide may invalidate your product's warranty.

| ⚠ WARNING |
| --- |
| Use only the power cord supplied with this machine. |
| This product must be installed near an electrical socket that is easily accessible. In case of an emergency, you must unplug the power cord from the electrical socket to shut off the power completely. |

## ■ Wiring information (U.K. only)

If you need to replace the fuse in the plug, fit a fuse that is approved by ASTA to BS1362 with the same rating as the original fuse. Always replace the fuse cover. Never use a plug that does not have a cover. If in any doubt, call a qualified electrician.

The wires in the mains lead are coloured in line with the following code:

- Blue: Neutral
- Brown: Live

## ■ Declaration of Conformity (Europe only)

We, Brother Industries Ltd.
15-1 Naeshiro-cho, Mizuho-ku, Nagoya 467-8561 Japan
declare that this product is in conformity with the essential requirements of all relevant directives and regulations applied within the European Community.

The Declaration of Conformity (DoC) can be downloaded from Brother Solutions Center. Visit http://solutions.brother.com/ and:

→ select "Europe"

→ select your country

→ select your model

→ select "Manuals" and your language, then click "Search"

→ select Declaration of Conformity

→ click "Download".

Your Declaration will be downloaded as a PDF file.

## ■ Declaration of Conformity for R&TTE (Radio and Telecommunications) Directive 1999/5/EC (Europe only)

We, Brother Industries Ltd.
15-1 Naeshiro-cho, Mizuho-ku, Nagoya 467-8561 Japan
declare that this product is in conformity with the provisions of the R&TTE Directive 1999/5/EC. A copy of the Declaration of Conformity can be downloaded by following the instructions in the Declaration of Conformity (Europe only) section.

## ■ Wireless LAN

This product supports Wireless LAN.

## ■ Radio interference

This product complies with EN55022 (CISPR Publication 22)/Class B. When connecting the machine to a computer, ensure that you use a USB cable which does not exceed 2 m in length.

## ■ Recycling information in accordance with the WEEE and Battery Directives

Product mark

Battery mark

**European Union only**

The product/battery is marked with one of the above recycling symbols. It indicates that at the end of the life of the product/battery, you should dispose of it separately at an appropriate collection point and not place it in the normal domestic waste stream.

# REGULATION

**⚠ WARNING**

This product must be installed near an AC power outlet that is easily accessible. In case of an emergency, you must unplug the power cord from the AC power outlet to shut off the power completely.

**IMPORTANT**

- Brother cannot accept any financial or other responsibilities that may be the result of your use of this information, including direct, special or consequential damages. There are no warranties extended or granted by this document.
- This machine has been certified to comply with FCC standards, which are applied to the USA only.

## ■ Federal Communications Commission (FCC) Declaration of Conformity (USA only)

Responsible Party: Brother International Corporation
200 Crossing Boulevard
Bridgewater, NJ 08807 USA
TEL: (908) 704-1700

declares, that the product

Product Name: ADS-1500W

complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
- This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

**IMPORTANT**

- Changes or modifications not expressly approved by Brother Industries, Ltd. could void the user's authority to operate the equipment.
- A specific shielded interface cable should be used to ensure compliance with the limits for a Class B digital device.

**Wireless connection (Mexico only)**

The operation of this equipment is subject to the following two conditions:
(1) it is possible that this equipment or device may not cause harmful interference, and (2) this equipment or device must accept any interference, including interference that may cause undesired operation.

## ■ Industry Canada Compliance Statement (Canada only)

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le present appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisee aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioelectrique subi, meme si le brouillage est susceptible d'en compromettre le fonctionnement.

## ■ For use in the USA or Canada only

These machines are made for use in the USA and Canada only. We cannot recommend using them overseas because the power requirements of your machine may not be compatible with the power available in foreign countries. Using USA or Canada models overseas is at your own risk and may void your warranty.

# SAFETY INFORMATION

## WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injuries.

## CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injuries.

## IMPORTANT

IMPORTANT indicates a potentially hazardous situation which, if not avoided, may result in damage to property or loss of product functionality.

## NOTE

Notes tell you how you should respond to a situation that may arise or give tips about how the operation works with other features.

Prohibition icons indicate actions that must not be performed.

This icon indicates that flammable sprays may not be used.

This icon indicates that organic solvents such as alcohol and liquids may not be used.

Electrical Hazard icons alert you to possible electrical shock.

Fire Hazard icons alert you to the possibility of fire.

Unplug icons indicate that you should unplug the machine.

**Bold** Bold typeface identifies specific keys on the machine's control panel or on the computer screen.

*Italics* Italicized typeface emphasizes an important point or refers you to a related topic.

(ADS-1500W only)
Courier New Text in Courier New font identifies messages on the LCD of the machine.

Follow all warnings and instructions marked on the machine.

| NOTE |
| --- |
| The illustrations in this guide show the ADS-1500W. |

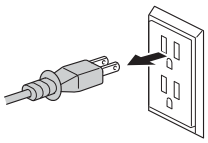
## ■ To use the Machine Safely

Please keep these instructions for later reference and read them before attempting any maintenance. If you do not follow these safety instructions, there is a possibility of a fire, electrical shock, burn or suffocation.

### ⚠ WARNING

**ELECTRICAL HAZARDS**
*Failure to follow the warnings in this section may create the risk of an electrical shock. In addition, you could create an electrical short, which may create the risk of a fire.*

There are high-voltage electrodes inside the unit. Before you access the inside of the machine, including for routine maintenance such as cleaning, make sure you have unplugged the power cord from the AC power outlet.
DO NOT push objects of any kind into the unit through slots or openings in the cabinet, as they may touch dangerous voltage points or short out parts.



DO NOT continue using the unit if it has been dropped or the cabinet has been damaged. Instead, unplug the unit from the power outlet and contact Brother Authorized Service Personnel.

The unit should be connected to an AC power source within the range indicated on the rating label. DO NOT connect it to a DC power source or inverter. Doing this might cause an electrical shock or a risk of fire. If you are not sure what kind of power source you have, contact a qualified electrician.

If water, other liquids, or metal objects get inside the unit, immediately unplug the unit from the AC power outlet and contact Brother Authorized Service Personnel.

Power Cord Safety:

- Use only the power cord supplied with this product.
- DO NOT allow anything to rest on the power cord.
- DO NOT place the unit where people can walk on the cord.
- DO NOT place the unit in a position where the cord is stretched or strain is otherwise put on the cord, as it may become worn or frayed.
- DO NOT use the unit or handle the cord if the cord has become worn or frayed. If unplugging the unit, DO NOT touch the damaged/frayed part.
- Brother strongly recommends that you DO NOT use any type of extension cord.

**AC Adapter Safety**

Only use the supplied AC adapter with the unit. Only plug the AC adapter into a power outlet with voltage that is within the range indicated on the AC adapter rating label located on the AC adapter block. Failure to do so may result in injury to yourself or others, or damage to the machine or other property. Brother does not assume any responsibility for any damage resulting from using an AC adapter other than the one specified.

DO NOT use a damaged AC adapter.

DO NOT place heavy objects on, damage, or modify the AC adapter.

DO NOT forcibly bend the cord of the AC adapter.

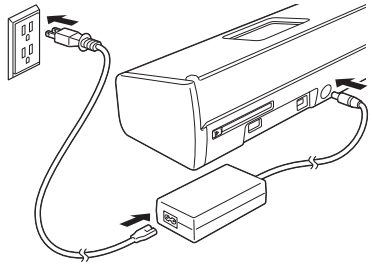
DO NOT forcibly pull the cord of the AC adapter.

DO NOT drop, hit, or otherwise damage the AC adapter.

DO NOT touch the unit during a thunderstorm when the AC adapter is plugged in. There may be a remote risk of electric shock from lightning when the machine is used during a thunderstorm.

When disconnecting the AC adapter from the machine or from the power outlet, always hold the connector, not the cable, and pull firmly. Failure to do so may result in exposed or broken power cord wires and/or create a risk of fire, or electric shock.

Make sure that one end of the power cord is firmly plugged into a standard power outlet and the other end is firmly plugged into the adapter block. Do not use an outlet that is loose. If the power cord is not completely plugged into the power outlet and adapter block, the adapter may become hot and/or catch fire.



DO NOT exceed the rated input or output of the AC adapter.

DO NOT connect the supplied AC adapter to other products.

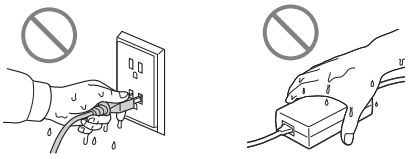
This product was packaged in a plastic bag. To avoid suffocation, keep this plastic bag away from babies and children. Do not use the bag in cribs, beds, carriages or play pens. The bag is not a toy.

**FIRE HAZARDS**

*Failure to follow the warnings in this section may create the risk of a fire.*

DO NOT use flammable substances, any type of spray or an organic solvent/liquid that contains alcohol or ammonia to clean the inside or outside of the unit. Doing this may cause a risk of fire or electrical shock.

DO NOT touch the AC adapter or handle the plug with wet hands.

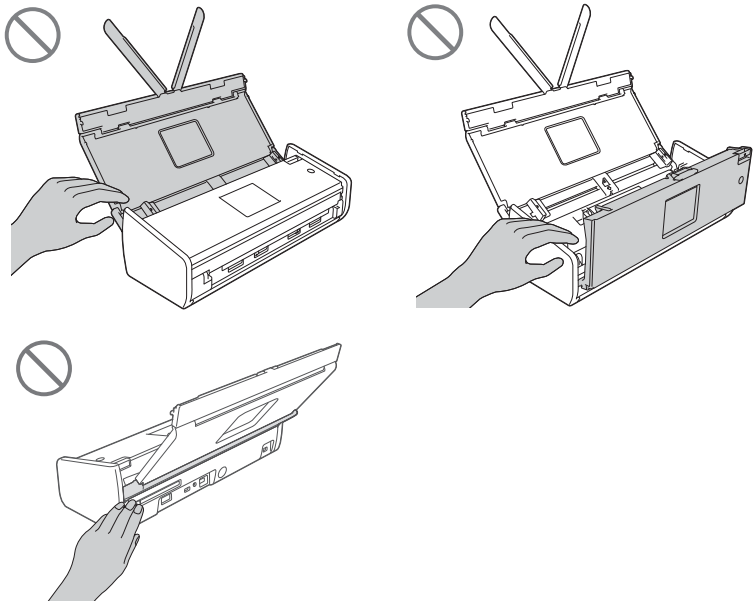


## ⚠ CAUTION

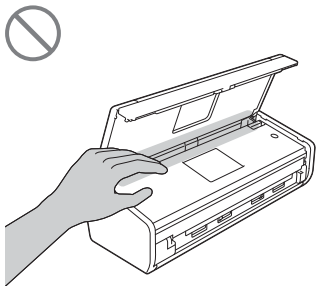
DO NOT sit or stand on the unit or use it for any purpose beyond its intended purpose.

Wait until pages have exited the machine before picking them out. Otherwise, you could cause injury to your fingers by trapping them in a roller.

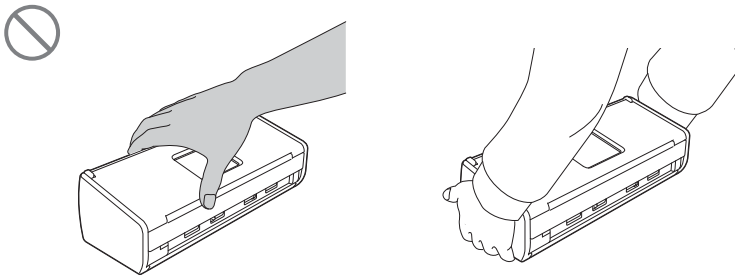
DO NOT put your hands on the edge of the machine. Doing this may cause injury to your fingers by pinching them.



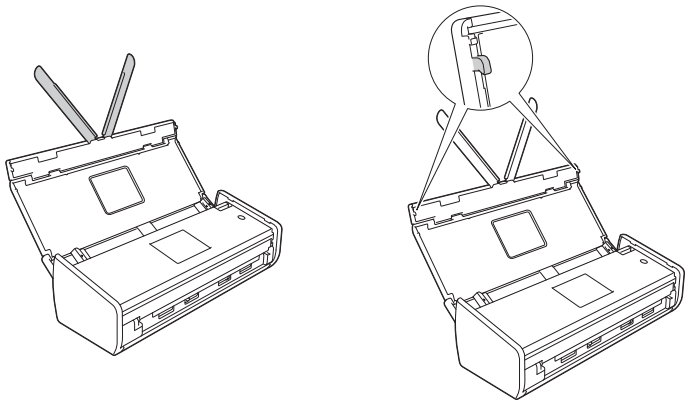
DO NOT touch the shaded area shown below when the top cover is open. Doing this may cause injury to your fingers by pinching them.



DO NOT carry the machine by holding the top cover. Doing this may cause the machine to slip out of your hands. Only carry the machine by placing your hands under the entire machine.



Be careful of the projections on the machine. Otherwise, injury could result.



If you do not intend to use the unit for an extended period of time, disconnect the AC adapter from the power outlet.

DO NOT swing the AC adapter around or play with it. Doing so may result in injury to yourself or others.

Use caution when operating the machine to prevent clothing (particularly sleeves, neckties, etc.), hair, or accessories from being drawn into the machine, otherwise injury may result. In the event that an object is drawn into the machine, immediately disconnect the unit from the power source.

## ■ Legal limitations for copying

Observe all copyright laws when using this product.

Color reproductions of certain documents are illegal and may result in either criminal or civil liability. This memorandum is intended to be a guide rather than a complete listing of every possible prohibition. In case of doubt, we suggest that you check with counsel as to any particular questionable documents.

The following documents issued by the United States/Canadian Government or any of its Agencies may not be copied:

- Money
- Bonds or other certificates of indebtedness
- Certificates of Deposit
- Internal Revenue Stamps (canceled or uncanceled)
- Selective Service or draft papers
- Passports
- United States/Canadian Postage Stamps (canceled or uncanceled)
- Food Stamps
- Immigration Papers
- Checks or drafts drawn by Governmental agencies
- Identifying badges or insignias

Copyrighted works cannot be copied. Sections of a copyrighted work can be copied for ‘fair use’. Multiple copies would indicate improper use.

Works of art should be considered the equivalent of copyrighted works.

## ■ Troubleshooting/Disassembling/Assembling Notes

- Be sure to unplug the AC power cord before removing any covers or PCBs, adjusting the machine, or conducting continuity tests using a tester.
- Be sure to always observe all warnings.
- Be careful not to lose screws, washers, or other parts removed.
- Be sure to apply grease to applicable positions specified in this chapter.
- When using soldering irons or other heat-generating tools, take care not to accidentally damage parts such as wires, PCBs and covers.
- Static electricity charged in your body may damage electronic parts. When transporting PCBs, be sure to wrap them in conductive sheets.
- When replacing the PCB and all the other related parts, put on a grounding wrist band and perform the job on a static mat. Also take care not to touch the conductor sections on the flat cables or on the wire harnesses.
- After disconnecting flat cables, check that each cable is not damaged at its end or short-circuited.
- When connecting flat cables, do not insert them at an angle. After insertion, check that the cables are not at an angle.
- When connecting or disconnecting harnesses, hold the connector body, not the cables. If the connector is locked, release it first.
- After a repair, check not only the repaired portion but also harness treatment. Also check that other related portions are functioning properly.
- After assembly, it is recommended to conduct dielectric strength test and continuity test.

# CHAPTER 1 SPECIFICATIONS

## 1. SPECIFICATIONS LIST

### 1.1 General

| Model | | | ADS-1500W/1600W |
|---|---|---|---|
| Scanning Method | | | Dual CIS |
| Resolution From ADF (Optical) | | | 600 x 600 dpi |
| Resolution (Interpolated) | | | Max 1200 x 1200 dpi |
| Scanning Speed | One-sided Monochrome | | 18 ppm@300 dpi |
| | One-sided Color | | 18 ppm@300 dpi |
| | Two-sided Monochrome | | 18 ppm@300 dpi |
| | Two-sided Color | | 18 ppm@300 dpi |
| CPU | | | ARM946 288 MHz 32 k / 32 k |
| Memory | | | 256 MB |
| Interface | | | USB Hi-Speed 2.0 / USB Host / WiFi |
| Power Consumption | Scanning | | Approximately 14 W |
| | Ready | | Approximately 4.0 W |
| | Sleep | | Approximately 1.5 W |
| | Power Off | | Approximately 0.25 W |
| Power Source | | | AC: 100 to 240 V, 50/60 Hz<br>DC: 24 V, 1 A |
| Noise Level | Sound Pressure | Scanning | 47 dB |
| | Sound Power | Scanning | 59 dB |
| Environment | Temperature | | Operating: 5 to 35°C<br>Storage: 0 to 40°C |
| | Humidity | | Operating: 20 to 80%<br>Storage: 10 to 90% (without condensation) |
| Dimensions (WxDxH) | Carton Size | | W 380 x D 170 x H 207 mm (14.7" x 6.7" x 8.1") |
| | Machine Size | | W 285 x D 103 x H 84 mm (11.2" x 4.1" x 3.3") |
| Weights | without Carton | | 1.6 kg (3.5 lb) |
| | with Carton | | 2.6 kg (5.7 lb) |
| LCD Size | | | 2.7" / 67.5 mm TFT |

Specifications are subject to change without notice.

**<Computer requirements>**

| Computer Platform & Operating System Version | | Processor Minimum Speed | Minimum RAM | Recommended RAM | Hard Disk Space to Install | | Supported PC Interface |
|---|---|---|---|---|---|---|---|
| | | | | | For Drivers | For Applications | |
| Windows® Operating System | Windows® XP *1 (32 bit) | Intel® Pentium® II or equivalent | 128 MB | 256 MB | 150 MB | 1 GB | USB/ 802.11 b/g/n (Wireless) |
| | Windows Vista® *1 | Intel® Pentium® 4 or equivalent 64-bit (Intel® 64 or AMD 64) supported CPU | 512 MB | 1 GB | 500 MB | 1.5 GB | |
| | Windows® 7 *1 | | 1 GB (32 bit) 2 GB (64 bit) | 1 GB (32 bit) 2 GB (64 bit) | 650 MB | 1 GB | |
| | Windows® 8 *1 | | | | | | |
| Macintosh Operating System | OS X v10.6.8 | Intel® Processor | 1 GB | 2 GB | 80 MB | 1 GB | |
| | OS X v10.7.x | | 2 GB | | | | |
| | OS X v10.8.x | | | | | | |

*1 Paper port™ 12SE supports Windows® XP Home (SP3 or greater), XP Professional (SP3 or greater), Windows Vista® (SP2 or greater) and Windows® 7.

Specifications are subject to change without notice.

## 1.2 Network Connectivity

| Model | | ADS-1500W/1600W |
|---|---|---|
| Wired network | Network node type | N/A |
| | Network type | N/A |
| | Network security | N/A |
| Wireless network | Network node type | NC-03w |
| | Network type | IEEE 802.11 b/g/n |
| | Network security | SSID (32 characters), WEP 64/128 bit, WPA-PSK (TKIP/AES), WPA2-PSK (AES) |

Specifications are subject to change without notice.

## 1.3 Service Information

| Part | Approximate Life (pages) |
|---|---|
| Machine life | 100,000 sheets (A4/LTR) or 5 years |
| MTBF | 4,000 hours |
| MTTR | 0.5 hours |
| Maximum monthly volume | 10,000 sheets (A4/LTR) |

Specifications are subject to change without notice.

## 1.4 Consumable Parts

| Part | ADS-1500W/1600W |
|---|---|
| Separation pad ASSY | 10,000 sheets (A4/LTR) or 1 year (User replacement parts) |
| Pick-up roller | 50,000 sheets (A4/LTR) or 1 year (User replacement parts) |

Specifications are subject to change without notice.

## 1.5 Paper

### 1.5.1 Paper handling

| Model | ADS-1500W/1600W |
|---|---|
| ADF Input | 20 sheets |
| ADF Output | N/A |
| Duplex (Scan) | Yes |

Specifications are subject to change without notice.

### 1.5.2 Media specifications

| Model | | ADS-1500W/1600W |
|---|---|---|
| Media Type | ADF | Plain Paper, Thin Paper, Thick Paper, Thicker Paper, Recycled Paper, Business Card, Plastic Card |
| Media Weight | ADF (multiple paper) | 52 to 110 g/m$^2$ (14 lb to 29 lb) |
| | ADF (single paper) | Plain paper: 52 to 110 g/m$^2$ (14 lb to 29 lb),<br>Thick paper: 110 to 200 g/m$^2$ (29 lb to 53 lb),<br>Long paper: 52 to 110 g/m$^2$ (14 lb to 29 lb) |
| Media Size | ADF (multiple paper) | Width: 51 to 215.9 mm (2.0" to 8.5"),<br>Length: 70 to 297 mm (2.76" to 11.7") |
| | ADF (single paper) | Width: 51 to 215.9 mm (2.0" to 8.5"),<br>Length: 70 to 863.0 mm (2.76" to 34") |
| Plastic Card Size | Card Slot | Length Min: 70 mm (2.76") Max: 95 mm (3.74"),<br>Width Min: 51 mm (2.0") Max: 55 mm (2.17") |
| Plastic Card Thickness | | Min: 0.4 mm (16 mil) Max: 0.76 mm (30 mil) |

Specifications are subject to change without notice.

## 1.6 Scanner

| | | |
|---|---|---|
| Color/Black | | Yes/Yes |
| TWAIN Compliant | Windows® | Windows® XP *1 / Windows Vista® / Windows® 7 / Windows® 8 |
| | Macintosh | OS X v10.6.8, 10.7.x, 10.8.x *2 |
| WIA Compliant | Windows® | Windows® XP *1 / Windows Vista® / Windows® 7 / Windows® 8 |
| ICA Compliant | Macintosh | OS X v10.6.8, 10.7.x, 10.8.x *2 |
| ISIS™ Compliant | Windows® | Windows® XP *1 / Windows Vista® / Windows® 7 / Windows® 8 |
| Color Depth | Input | 30 bit color processing |
| | Output | 24 bit color processing |
| Resolution | Interpolated | Up to 1200 x 1200 dpi |
| | Optical | Up to 600 x 600 dpi |
| Scanning Width | | Up to 8.34 inch (212 mm) |
| Gray Scale | | 256 levels |

*1 Windows® XP in this Service Manual includes Windows® XP Home Edition and Windows® XP Professional.

*2 For the latest driver updates for the Mac OS X you are using, visit us at http://solutions.brother.com/.

Specifications are subject to change without notice.

# CHAPTER 2 ERROR INDICATIONS & TROUBLESHOOTING

## 1. CHECKS BEFORE COMMENCING TROUBLESHOOTING

Check the following items before commencing repairs on the machine.

### ■ Operating environment

(1) The machine is placed on a flat, stable surface.

(2) The machine is used in a clean environment where the temperature is between 5°C (41°F) and 35°C (95°F) and the relative humidity is maintained between 20% and 80%.

(3) The machine is not exposed to direct sunlight, excessive heat, moisture, or dust.

(4) Hold the machine level while moving it.

### ■ Power supply

(1) Power described on the rating label attached on the machine is supplied. Power fluctuation should be within ±10% of the rated voltage.

(2) The AC input power supply is within the regulated value.

(3) The cables and harnesses are connected correctly.

(4) The fuses are not blown.

(5) AC adapter and AC code included in the package are used.

### ■ Document

(1) The recommended paper is used for the document. (Refer to "1.5.2 Media specifications" in Chapter 1.)

(2) The document is not damp.

(3) Acid paper is not used.

(4) The document is not bent, torn, or wrinkled.

### ■ Others

(1) Condensation
When the machine is moved to a warm room from a cold location, condensation may occur inside the machine, causing various problems as listed below.

- Condensation on the surface of optical devices such as the CIS glass and CIS unit may result in poor quality of scanned images.
- Condensation on the pick-up roller or separation pad ASSY may cause document feed problems.
  If condensation has formed in the machine, leave the machine for about two hours until it reaches room temperature.

(2) Low temperature
The motor may not operate normally under a low temperature environment because too much load is applied to each drive. In this case, increase the room temperature.

### ■ Cleaning

Use a soft lint-free cloth.

**⚠ WARNING**

**DO NOT** use any flammable spray or flammable solvent such as alcohol, benzine, or thinner to clean the machine. **DO NOT** use these articles near the machine.

# 2. OVERVIEW

## 2.1 Cross-section Drawing

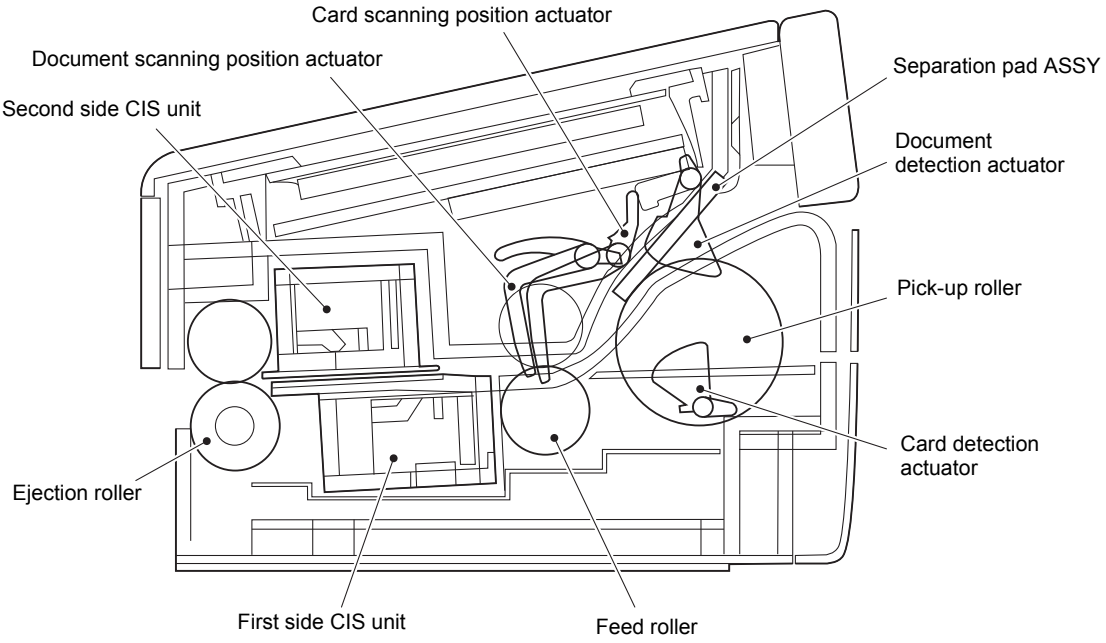



**Fig.2-1**

## 2.2 Paper Feeding

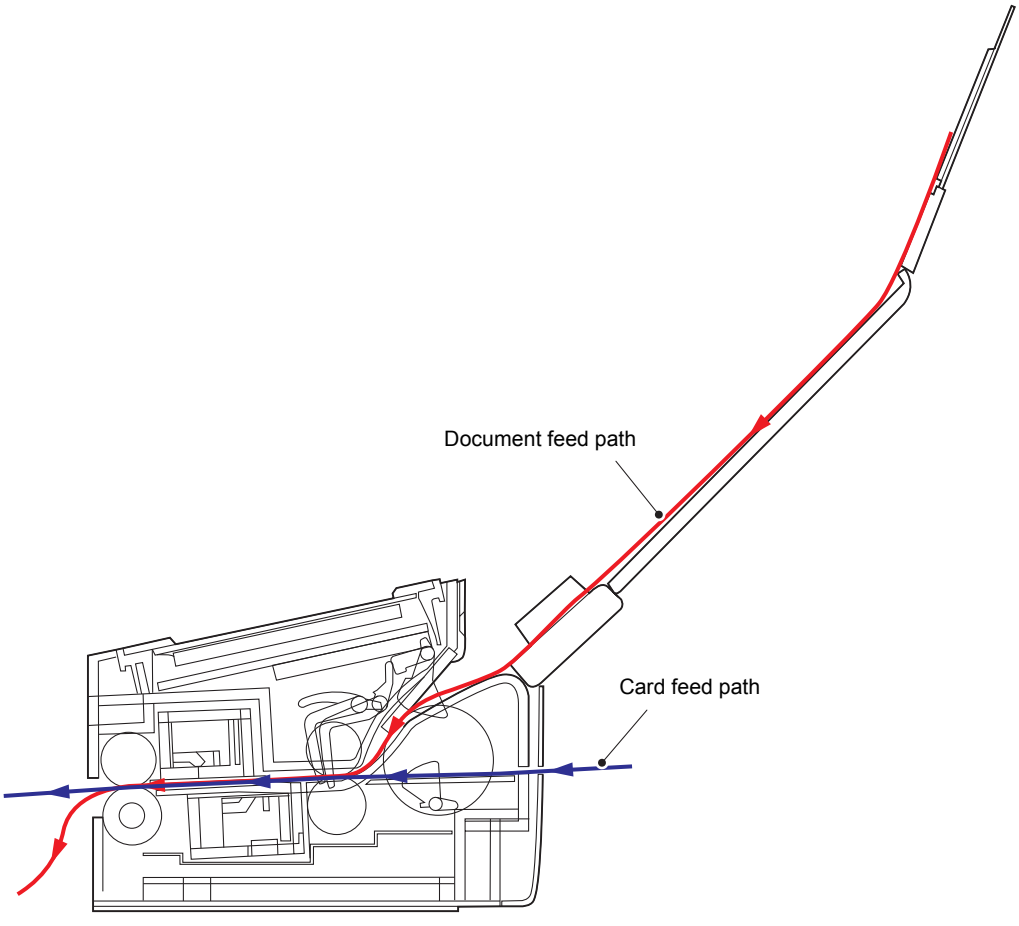



**Fig.2-2**

## 2.3 Operation of Each Part

| Part name | Operation |
|---|---|
| Pick-up roller / Separation pad ASSY | Separates documents set in the document tray into single sheets, and feeds them into the machine. |
| Feed roller | Feeds documents and cards. |
| Ejection roller | Ejects documents and cards. |
| Document detection sensor | Detects the document set in the document tray. Detects document jams. |
| Document scanning position sensor | Detects the document scanning start position. Detects document jams. |
| Front cover sensor | Detects whether the front cover is open or closed. |
| Top cover sensor | Detects whether the top cover is open or closed. |
| Card detection sensor | Detects cards set in the card slot. |
| Card scanning position sensor | Detects card scanning start position. |

## 2.4 Block Diagram

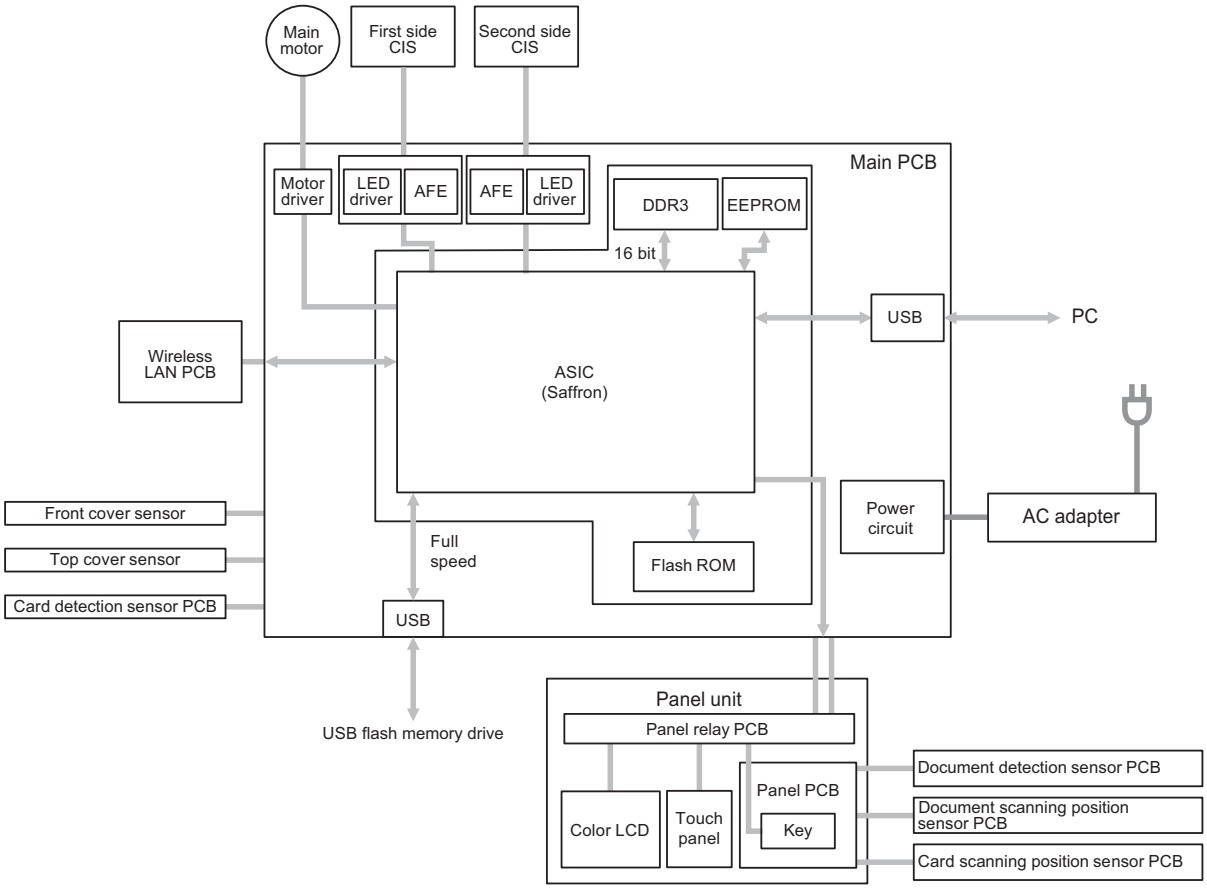



**Fig.2-3**

## 2.5 Main Components

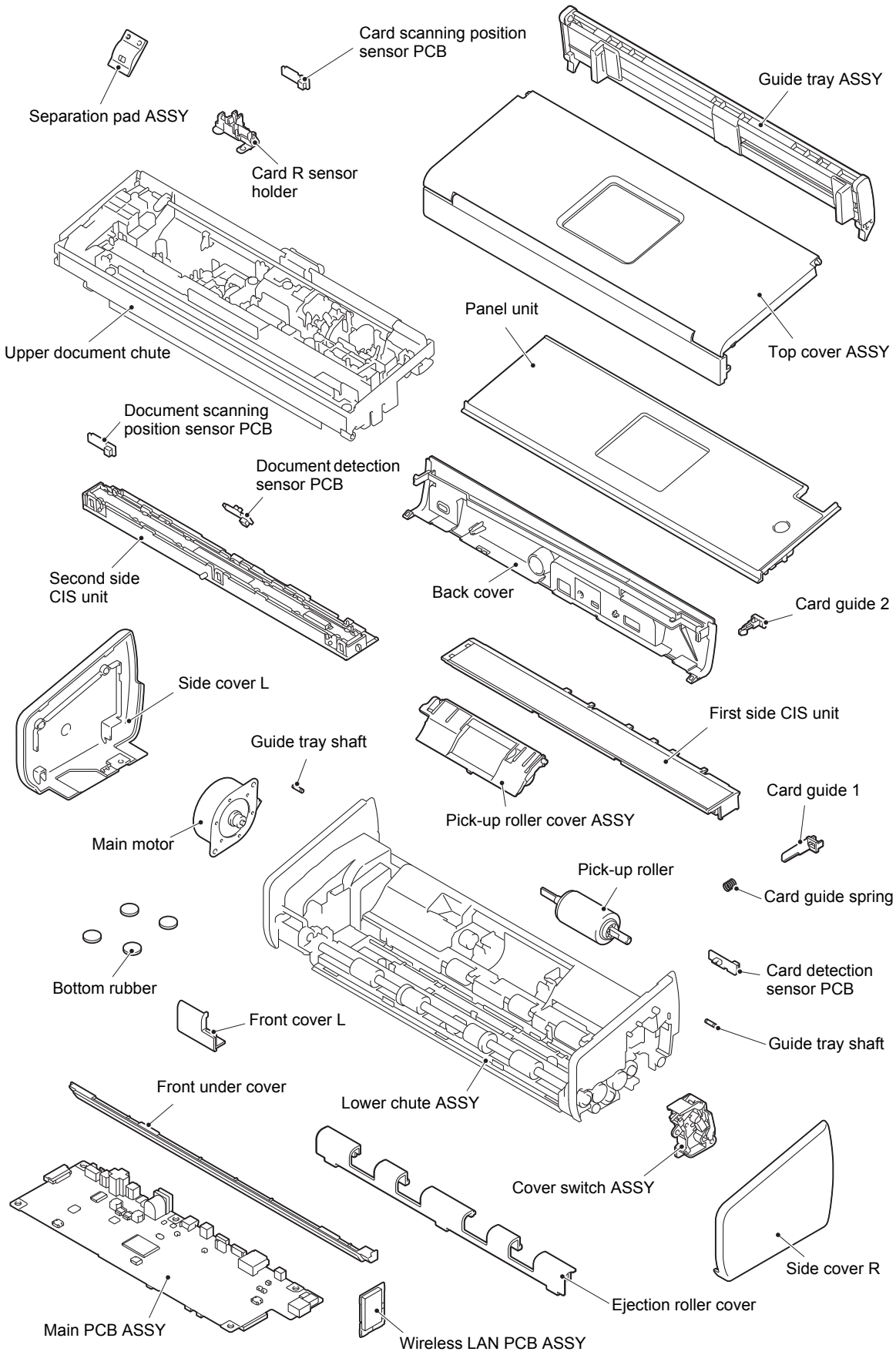



**Fig.2-4**

# 3. ERROR INDICATIONS

The machine is equipped with self-diagnostic function. If the machine does not work normally, it judges that an error has occurred. Then indicates the corresponding error message on the LCD to help service men to quickly find out the problem.

## 3.1 Error Codes

| Error codes | Problem | Refer to: |
|---|---|---|
| A2 | The document scanning position sensor detected that the document length was over 90 cm (or 40 cm) during document scanning. | 2-8 |
| A3 | The document scanning position sensor has not detected the document even after the document has been fed for the specified time. | 2-8 |
| A4 | The front cover sensor detected an open front cover during document scanning. | 2-9 |
| A7 | Color parameter in the ROM does not match the CIS unit. | 2-9 |
| A8 | An error was detected in the color parameter in the ROM during image processing. | 2-9 |
| BD | A black level not within the standard was scanned. | 2-10 |
| E3 | Wireless LAN MAC address has not been registered. | 2-10 |
| E6 | Write error in the EEPROM of the main PCB. | 2-10 |
| EC | LCD connection error | 2-10 |
| ED | Touch panel initialization was failed. | 2-11 |
| FE | ROM data acquisition error | 2-11 |

## 3.2 Error Messages

The error messages displayed on the LCD of the machine and their description are shown in the table below.

| Error Message | Description | Error codes | Refer to: |
|---|---|---|---|
| Cover is Open | The front cover sensor detected an open front cover. | A4 | 2-9 |
| Document Jam | The document scanning position sensor detected document jam or card jam. | A2<br>A3 | 2-8<br>2-8 |
| Other Error | The USB device connected to the machine may be broken.<br>The USB device connected to the machine is not supported.<br>An USB hub is connected.<br>Overcurrent has been detected in the USB terminal. | — | 2-22 |
| Out of Memory | There is insufficient memory. | — | 2-22 |
| Replace Pad | Use of the separation pad ASSY has reached the upper limit. | — | 2-22 |
| Replace Parts | Use of the separation pad ASSY and pick-up roller has reached the upper limit. | — | 2-22 |
| Replace Roller | Use of the pick-up roller has reached the upper limit. | — | 2-22 |
| Unable to Initialize | An error occurred when the machine is turned on. | E3<br>E6<br>EC<br>ED<br>FE | 2-10<br>2-10<br>2-10<br>2-11<br>2-11 |
| Unable to Scan | An error occurred during scanning. | A7<br>A8 | 2-9<br>2-9 |
| USB Access Error | USB flash memory drive was disconnected during accessing it.<br>USB flash memory drive capacity has reached the limit during writing. | — | 2-22 |
| USB Write-protected | The USB flash memory drive connected to the machine is blocked from writing. | — | 2-22 |

# 4. TROUBLESHOOTING

## 4.1 Error Cause and Remedy

### ■ Error code A2

| **Document jam** |
|---|

The document scanning position sensor detected that the document length was over 90 cm (or 40 cm) during document scanning (long document: 90 cm, others: 40 cm).

**<User Check>**

- Set the document length within the standard.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Document scanning position actuator caught in a section of the machine | Reattach the document scanning position actuator. |
| 2 | Document scanning position sensor failure | Replace the document scanning position sensor PCB ASSY. |
| 3 | Main PCB failure | Replace the main PCB ASSY. |

### ■ Error code A3

| **Document jam** |
|---|

The document scanning position sensor has not detected the document even after the document has been fed for the specified time.

**<User Check>**

- Set the document in the document tray correctly.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Document scanning position actuator caught in a section of the machine | Reattach the document scanning position actuator. |
| 2 | Connection failure of the document scanning position sensor harness | Reconnect the document scanning position sensor harness. |
| 3 | Document scanning position sensor failure | Replace the document scanning position sensor PCB ASSY. |
| 4 | Main PCB failure | Replace the main PCB ASSY. |

## ■ Error code A4

**Cover is open**

The front cover sensor detected an open front cover during document scanning.

**<User Check>**

- Close the front cover correctly.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Connection failure of the front cover sensor harness | Reconnect the front cover sensor harness. |
| 2 | Front cover actuator attachment failure | Reattach the front cover actuator. |
| 3 | Tab to push the front cover sensor is broken | Replace the front cover. |
| 4 | Front cover sensor failure | Replace the cover switch ASSY. |
| 5 | Main PCB failure | Replace the main PCB ASSY. |

## ■ Error code A7

**Unable scan A7**

Color parameter in the ROM does not match the CIS unit.

| Step | Cause | Remedy |
|---|---|---|
| 1 | CIS type not set | Execute the CIS type setting. (Refer to "function code: 59".) |
| 2 | The firmware is outdated | Install the latest version firmware. (Refer to "1.4" in Chapter 4.) |
| 3 | First side or second side CIS unit failure | Replace the first side or second side CIS unit. |
| 4 | Main PCB failure | Replace the main PCB ASSY. |

## ■ Error code A8

**Unable scan A8**

An error was detected in the color parameter in the ROM during image processing.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Program malfunction | Reinstall the latest firmware. |
| 2 | Main PCB failure | Replace the main PCB ASSY. |

## ■ Error code BD

| |
|---|
| **---** |

A black level not within the standard was scanned.

| Step | Cause | Remedy |
|---|---|---|
| 1 | First side or second side CIS unit failure | Replace the first side or second side CIS unit. |
| 2 | Main PCB failure | Replace the main PCB ASSY. |

## ■ Error code E3

| |
|---|
| **MACHINE ERROR E3** |

Wireless LAN MAC address has not been registered.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Wireless LAN PCB failure | Replace the wireless LAN PCB ASSY. |
| 2 | Main PCB failure | Replace the main PCB ASSY. |

## ■ Error code E6

| |
|---|
| **Unable init. E6** |

Write error in the EEPROM of the main PCB ASSY.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Main PCB failure | Replace the main PCB ASSY. |

## ■ Error code EC

| |
|---|
| **Unable init. EC** |

LCD connection error

| Step | Cause | Remedy |
|---|---|---|
| 1 | Firmware install error | Reinstall the latest firmware. |
| 2 | LCD failure | Replace the panel unit. |
| 3 | Main PCB failure | Replace the main PCB ASSY. |

## ■ Error code ED

| **Unable to init. ED** |
|---|

Touch panel initialization was failed.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Connection failure of the touch panel harness | Check the connection of the touch panel harness, and reconnect it if necessary. |
| 2 | Touch panel PCB failure | Replace the panel unit. |
| 3 | Main PCB failure | Replace the main PCB ASSY. |

## ■ Error code FE

These errors do not usually occur during normal use. The possible causes are noise around the installation site, fluctuation of the power supply voltage, and failures in the software.

| **Unable init. FE** |
|---|

ROM data acquisition error

| Step | Cause | Remedy |
|---|---|---|
| 1 | Program malfunction | Reinstall the latest firmware. |
| 2 | Main PCB failure | Replace the main PCB ASSY. |

## 4.2 Troubleshooting for Image Defects

### 4.2.1 Defect examples

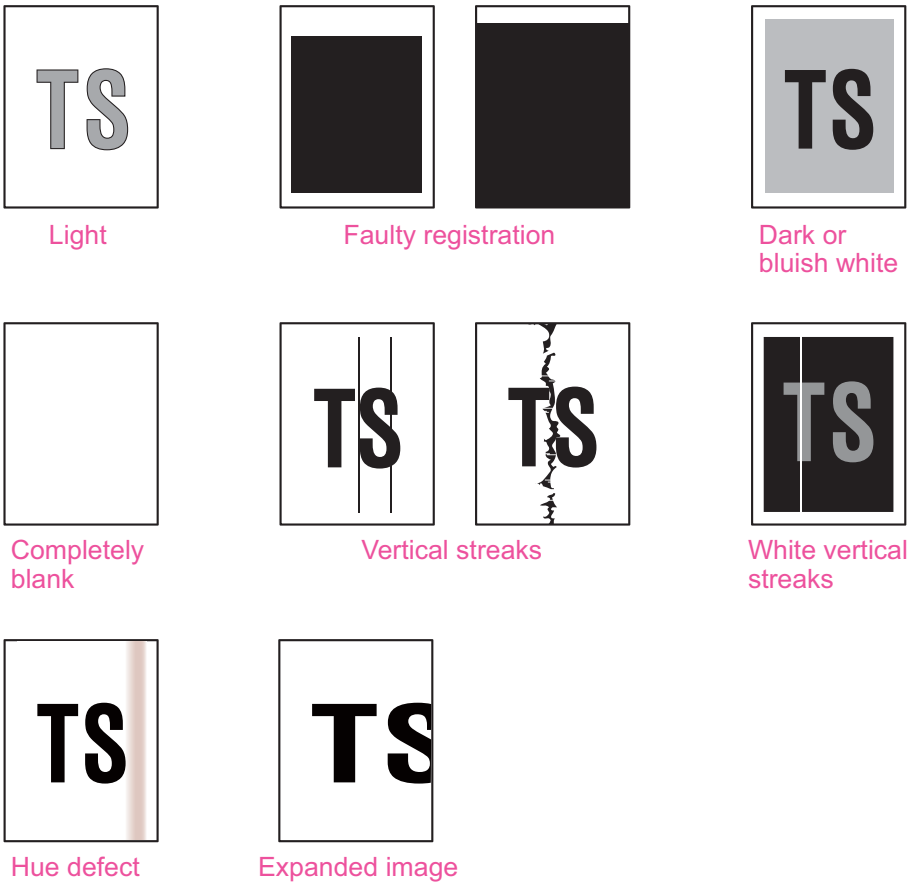
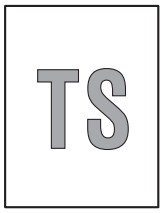



**Fig.2-5**

### 4.2.2 Troubleshooting according to image defect

■ **Light**

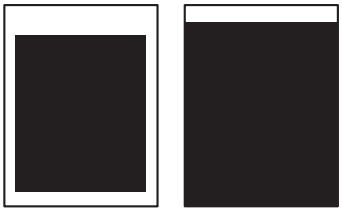


**<User Check>**

- Check that the contrast setting is not too light.
- Clean the CIS glass.

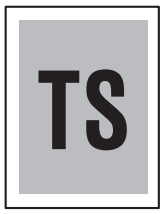
| Step | Cause | Remedy |
|---|---|---|
| 1 | First side or second side CIS unit failure | Replace the first side or second side CIS unit. |
| 2 | Main PCB failure | Replace the main PCB ASSY. |

## ■ Faulty registration



| Step | Cause | Remedy |
|---|---|---|
| 1 | Document scanning position actuator or card scanning position actuator caught in sections of the machine | Reattach the document scanning position actuator or card scanning position actuator. |

## ■ Dark or bluish white

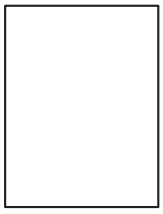



**<User Check>**

- Check that the contrast setting is not too dark.

| Step | Cause | Remedy |
|---|---|---|
| 1 | First side or second side CIS unit failure | Replace the first side or second side CIS unit. |
| 2 | Main PCB failure | Replace the main PCB ASSY. |

## ■ Completely blank

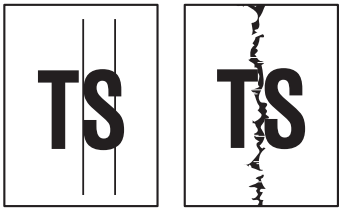


**<User Check>**

- Check that the document is not reversed.
- Check that the document is set in the document tray correctly.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Connection failure of the CIS flat cable | Reconnect the first side or second side CIS flat cable. |
| 2 | First side or second side CIS unit failure | Replace the first side or second side CIS unit. |
| 3 | Main PCB failure | Replace the main PCB ASSY. |

## ■ Vertical streaks

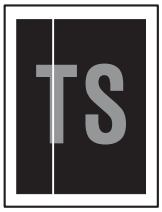


**<User Check>**

- Clean the CIS glass.
- Clean the document pressure bar.

| Step | Cause | Remedy |
|---|---|---|
| 1 | First side or second side CIS unit failure | Replace the first side or second side CIS unit. |

## ■ White vertical streaks

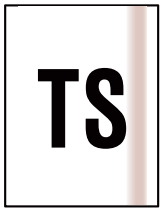


**<User Check>**

- Clean the CIS glass.
- Clean the document pressure bar.

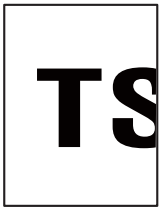
| Step | Cause | Remedy |
|---|---|---|
| 1 | First side or second side CIS unit failure | Replace the first side or second side CIS unit. |

## ■ Hue defect



| Step | Cause | Remedy |
|---|---|---|
| 1 | First side or second side CIS unit failure | Replace the first side or second side CIS unit. |
| 2 | Main PCB failure | Replace the main PCB ASSY. |

■ **Expanded image**




| Step | Cause | Remedy |
|---|---|---|
| 1 | CIS type not set | Execute the CIS type setting. (Refer to "function code: 59".) |
| 2 | The firmware is outdated. | Install the latest version firmware. (Refer to "1.4" in Chapter 4.) |
| 3 | First side or second side CIS unit failure | Replace the first side or second side CIS unit. |
| 4 | Main PCB failure | Replace the main PCB ASSY. |

## 4.3 Troubleshooting for Document / Card Feeding Problems

### 4.3.1 Multiple documents are fed

**<User Check>**

- Check that paper used for the document is not thinner than the standard.
- Check that the document is not damp.
- Check that the machine is not scanning a glossy paper used in magazines and others.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Separation arm coming off | Reattach the separation arm. |
| 2 | Separation spring coming off | Reattach the separation spring. |
| 3 | Abrasion of the separation pad | Replace the separation pad ASSY. |
| 4 | Abrasion of the pick-up roller | Replace the pick-up roller ASSY. |

### 4.3.2 Document becomes wrinkled

**<User Check>**

- Check that the document guide is adjusted to suit the document size.
- Check that the document is not curled.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Abrasion of the pick-up roller | Replace the pick-up roller ASSY. |

### 4.3.3 Document becomes jammed

**<User Check>**

- Check that the document size is within the standard.
- Check that the document is not wrinkled.
- Check that the document is not torn.
- Check that the front cover is closed correctly.
- Check that the document is not damp.
- Check that paper used for the document is not thinner than the standard.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Document scanning position actuator caught in a section of the machine | Reattach the document scanning position actuator. |
| 2 | First side or second side CIS unit attachment failure | Reattach the first side or second side CIS unit. |
| 3 | Attachment failure of the gears in the feeding system | Reattach the gears in the feeding system. |
| 4 | Separation pad failure | Replace the separation pad ASSY. |
| 5 | Misalignment or bending of the pick-up roller support film | Replace the pick-up roller cover ASSY. |
| 6 | Document scanning position sensor failure | Replace the document scanning position sensor PCB. |
| 7 | Main motor failure | Replace the main motor. |

### 4.3.4 Card becomes jammed

**<User Check>**

- Check that the card guide is aligned with card size.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Card scanning position actuator caught in sections of the machine | Reattach the card scanning position actuator. |
| 2 | Connection failure of the card scanning position sensor harness | Reconnect the card scanning position sensor harness. |
| 3 | First side or second side CIS unit attachment failure | Reattach the first side or second side CIS unit. |
| 4 | Attachment failure of the gears in the feeding system | Reattach the gears in the feeding system. |
| 5 | Front cover sensor failure | Replace the cover switch ASSY. |
| 6 | Card scanning position sensor failure | Replace the card scanning position sensor PCB. |
| 7 | Main motor failure | Replace the main motor. |
| 8 | Main PCB failure | Replace the main PCB ASSY. |

### 4.3.5 Document is not picked up and fed

**<User Check>**

- Check that paper used for the document is not thinner than the standard.
- Check that the front cover is closed correctly.
- Check that the document guide is adjusted well and the document is seated properly.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Document detection actuator coming off | Reattach the document detection actuator. |
| 2 | Connection failure of the document detection sensor harness | Reconnect the document detection sensor harness. |
| 3 | Connection failure of the top cover sensor harness | Reconnect the top cover sensor harness. |
| 4 | Connection failure of the main motor harness ASSY. | Reconnect the main motor harness ASSY. |
| 5 | Attachment failure of the gears in the feeding system | Reattach the gears in the feeding system. |
| 6 | Top cover sensor or front cover sensor failure | Replace the cover switch ASSY. |
| 7 | Document detection sensor failure | Replace the document detection sensor PCB. |
| 8 | Main motor failure | Replace the main motor. |
| 9 | Main PCB failure | Replace the main PCB ASSY. |

### 4.3.6 Card is not picked up and fed

**<User Check>**

- Check that the card is set correctly.
- Check that the card guide is adjusted well and the card is not stuck.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Card detection actuator caught in sections of the machine | Reattach the card detection actuator. |
| 2 | Connection failure of the card detection sensor harness | Reconnect the card detection sensor harness. |
| 3 | Connection failure of the main motor harness ASSY. | Reconnect the main motor harness ASSY. |
| 4 | Attachment failure of the gears in the feeding system | Reattach the gears in the feeding system. |
| 5 | Front cover sensor or top cover sensor failure | Replace the cover switch ASSY. |
| 6 | Card detection sensor failure | Replace the card detection sensor PCB. |
| 7 | Main motor failure | Replace the main motor. |
| 8 | Main PCB failure | Replace the main PCB ASSY. |

## 4.4 Troubleshooting for Software Problems

End users can solve problems related to software, for instance, scanning is not possible from a computer although scanning can be performed from the machine, as long as they follow the User Check items. If the problem still cannot be solved, follow each procedure according to the step number in the tables below.

### 4.4.1 Does not respond to operation from a computer

**<User Check>**

- Check that the USB cable is not damaged.
- When using an interface switch, check that the correct machine is selected.
- Check the relevant section in the User's Guide.
- Check the driver settings.
- Reset the machine to the default settings (Refer to the User's Guide).
- Check that the AC adapter is connected correctly.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Program malfunction | Reinstall the latest firmware. |
| 2 | Connection failure of the front cover sensor harness | Reconnect the front cover sensor harness. |
| 3 | Front cover sensor or top cover sensor failure | Replace the cover switch ASSY. |
| 4 | Main PCB failure | Replace the main PCB ASSY. |

### 4.4.2 Cannot read data

**<User Check>**

- Check the relevant section in the User's Guide.
- Check that the AC adapter is connected correctly.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Connection failure of the front cover sensor harness | Reconnect the front cover sensor harness. |
| 2 | Front cover sensor or top cover sensor failure | Replace the cover switch ASSY. |
| 3 | First side or second side CIS unit failure | Replace the first side or second side CIS unit. |
| 4 | Main PCB failure | Replace the main PCB ASSY. |

## 4.5 Troubleshooting for Control Panel Problems

### 4.5.1 Nothing is displayed on the LCD

**<User Check>**

• Check that the AC adapter is connected correctly.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Connection failure of the panel PCB flat cable | Reconnect the panel PCB flat cable. |
| 2 | Connection failure of the panel relay PCB flat cable | Reconnect the panel relay PCB flat cable. |
| 3 | Connection failure of the LCD flat cable | Reconnect the LCD flat cable. |
| 4 | AC adapter failure | Replace the AC adapter. |
| 5 | Panel PCB failure | Replace the panel unit. |
| 6 | Main PCB failure | Replace the main PCB ASSY. |

### 4.5.2 Power key is inoperable

| Step | Cause | Remedy |
|---|---|---|
| 1 | Connection failure of the panel PCB flat cable | Reconnect the panel PCB flat cable. |
| 2 | Panel PCB failure | Replace the panel unit. |
| 3 | Main PCB failure | Replace the main PCB ASSY. |

### 4.5.3 Touch panel is inoperable

| Step | Cause | Remedy |
|---|---|---|
| 1 | Connection failure of the panel relay PCB flat cable | Reconnect the panel relay PCB flat cable. |
| 2 | Connection failure of the touch panel sensor FPC | Reconnect the touch panel sensor FPC. |
| 3 | Panel PCB failure | Replace the panel unit. |
| 4 | Main PCB failure | Replace the main PCB ASSY. |

## 4.6 Troubleshooting for Network Problems

### 4.6.1 Cannot scan via network connection

**<User Check>**

- Check the relevant section in the Network Setting Guide.
- Check the network connection.
- Reset the network (Refer to the User's Guide).

| Step | Cause | Remedy |
|---|---|---|
| 1 | Connection failure of the wireless LAN PCB connector | Reconnect the wireless LAN PCB ASSY. |
| 2 | Wireless LAN PCB failure | Replace the wireless LAN PCB ASSY. |
| 3 | Main PCB failure | Replace the main PCB ASSY. |

## 4.7 Troubleshooting for Other Problems

### 4.7.1 Machine is not turned ON

**<User Check>**

- Connect the AC power cord correctly.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Connection failure of the panel relay PCB flat cable | Reconnect the panel relay PCB flat cable. |
| 2 | AC adapter failure | Replace the AC adapter. |
| 3 | Panel relay PCB failure | Replace the panel unit. |
| 4 | Main PCB failure | Replace the main PCB ASSY. |

### 4.7.2 Unusual noise is coming from the machine

**<User Check>**

- Check that the front cover is closed correctly.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Possible cause differs depending on the location. Identify the location with the problem. | When the location with the problem is identified, check if there is a foreign object around that location. |
| 2 | Insufficient grease on parts | Re-grease the parts. |
| 3 | Bent or defective part | Replace the part. |

### 4.7.3 Cannot save data in USB flash memory drive

**<User Check>**

- Check that the USB flash memory drive is inserted into the USB host correctly.
- Replace the USB flash memory drive and try saving data again.
- Check that the USB flash memory drive is not write-protected.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Panel relay PCB failure | Replace the panel unit. |
| 2 | Main PCB failure | Replace the main PCB ASSY. |

### 4.7.4 Cannot reset counters for periodic replacement parts

| Step | Cause | Remedy |
|---|---|---|
| 1 | Counter reset failure | Reset counter again. |
| 2 | Main PCB failure | Replace the main PCB ASSY. |

### 4.7.5 A non-supported USB device is connected to the USB terminal

**<User Check>**

- Remove the USB device that is not within the specifications.

| Step | Cause | Remedy |
|---|---|---|
| 1 | Main PCB failure | Replace the main PCB ASSY. |

# CHAPTER 3 DISASSEMBLY/REASSEMBLY

## 1. PACKING

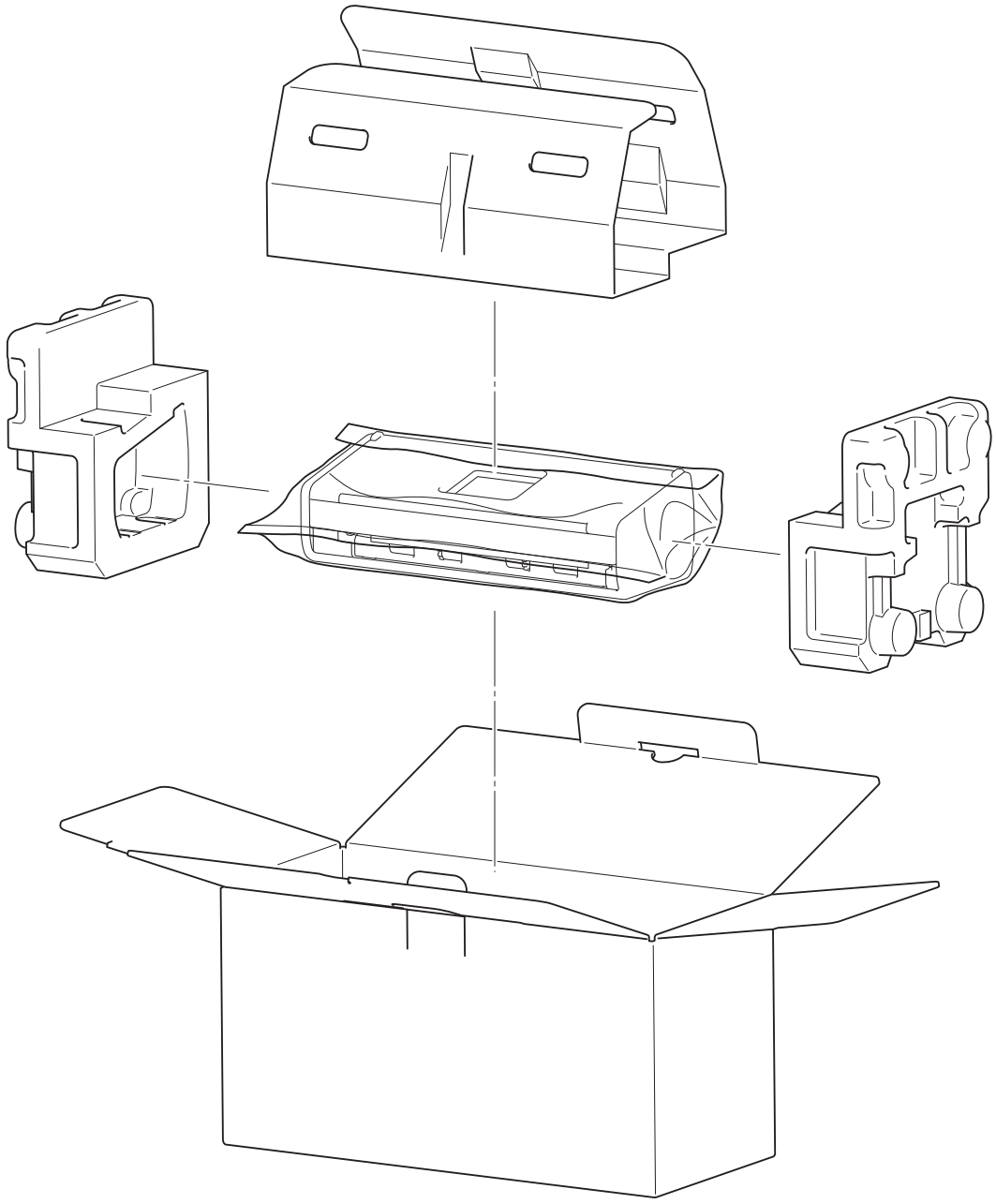
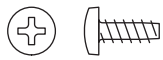


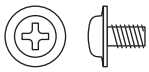
**Fig.3-1**

# 2. SCREW CATALOGUE

### Taptite bind B

| | |
|---|---|
| Taptite bind B<br>M3x8 |  |

### Taptite cup S

| | |
|---|---|
| Taptite cup S<br>M3x5 |  |

### Screw pan (S/P washer)

| | |
|---|---|
| Screw pan (S/P washer)<br>M3x6 DA |  |

# 3. SCREW TORQUE LIST

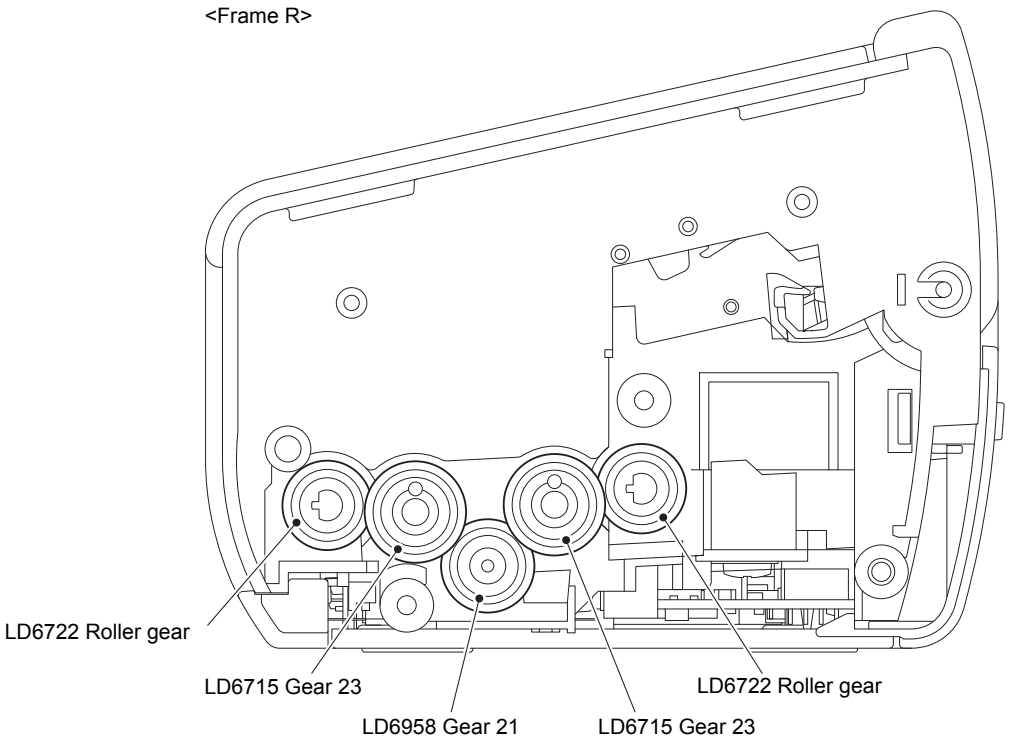
**Note:**
• For verifying the shape of each screw, refer to "2. SCREW CATALOGUE" in this chapter.

| Location of screw | Screw type | Q'ty | Tightening torque N·m (kgf·cm) |
|---|---|---|---|
| Bottom plate | Taptite cup S M3x5 | 2 | 0.70±0.10 (7±1) |
| Side cover L | Taptite bind B M3x8 | 1 | 0.50±0.10 (5±1) |
| Side cover R | Taptite bind B M3x8 | 1 | 0.50±0.10 (5±1) |
| Main PCB ASSY | Taptite cup S M3x5 | 3 | 0.70±0.10 (7±1) |
| | Taptite bind B M3x8 | 1 | 0.50±0.10 (5±1) |
| Panel FG harness | | 1 | |
| Second side CIS FG harness | Taptite cup S M3x5 | 1 | 0.70±0.10 (7±1) |
| Panel unit | Taptite bind B M3x8 | 2 | 0.50±0.10 (5±1) |
| Pinch roller support plate | Taptite bind B M3x8 | 2 | 0.50±0.10 (5±1) |
| | Taptite cup S M3x5 | 2 | 0.70±0.10 (7±1) |
| Main motor | Screw pan (S/P washer) M3x6 DA | 1 | 0.50±0.10 (5±1) |
| | Taptite bind B M3x8 | 1 | 0.50±0.10 (5±1) |
| Gear hold plate | Taptite bind B M3x8 | 2 | 0.50±0.10 (5±1) |
| Cover switch ASSY | Taptite bind B M3x8 | 1 | 0.50±0.10 (5±1) |
| Main motor earth plate | Taptite bind B M3x8 | 1 | 0.50±0.10 (5±1) |
| Main PCB holder | Taptite bind B M3x8 | 1 | 0.50±0.10 (5±1) |

# 4. LUBRICATION

■ **There are no applicable parts for lubrication.**

# 5. OVERVIEW OF GEARS

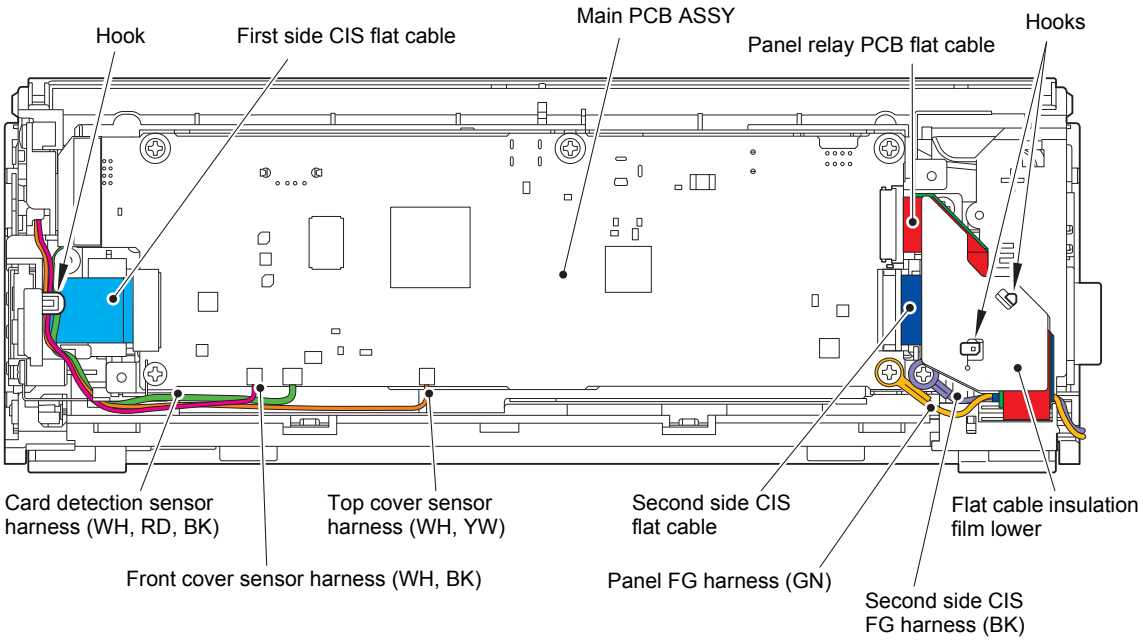



* These parts are subject to change without notice.

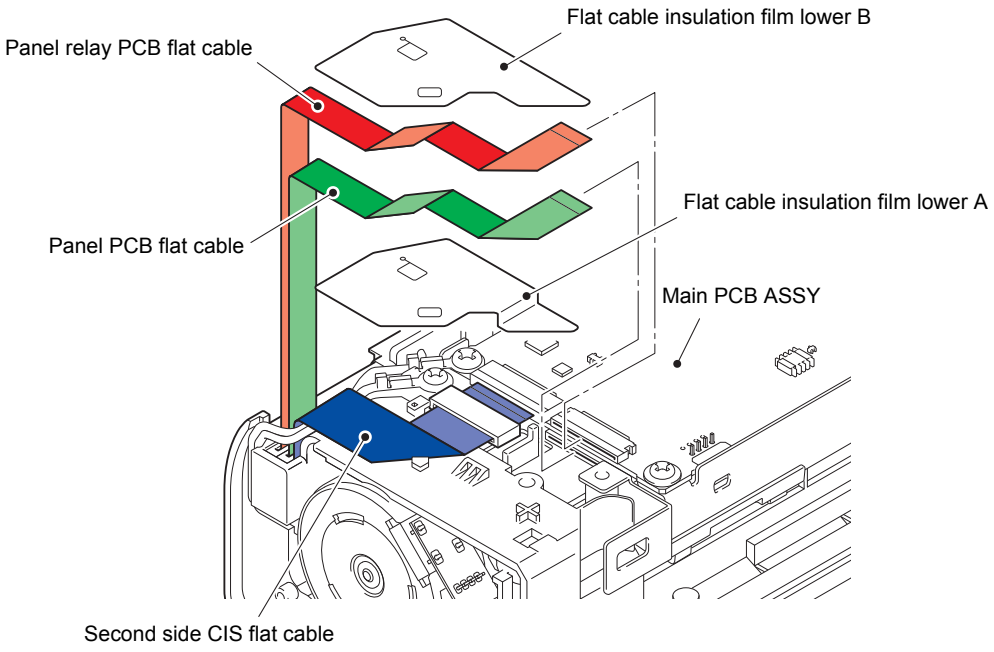
**Fig.3-2**

# 6. HARNESS ROUTING

## 1 Main PCB ASSY

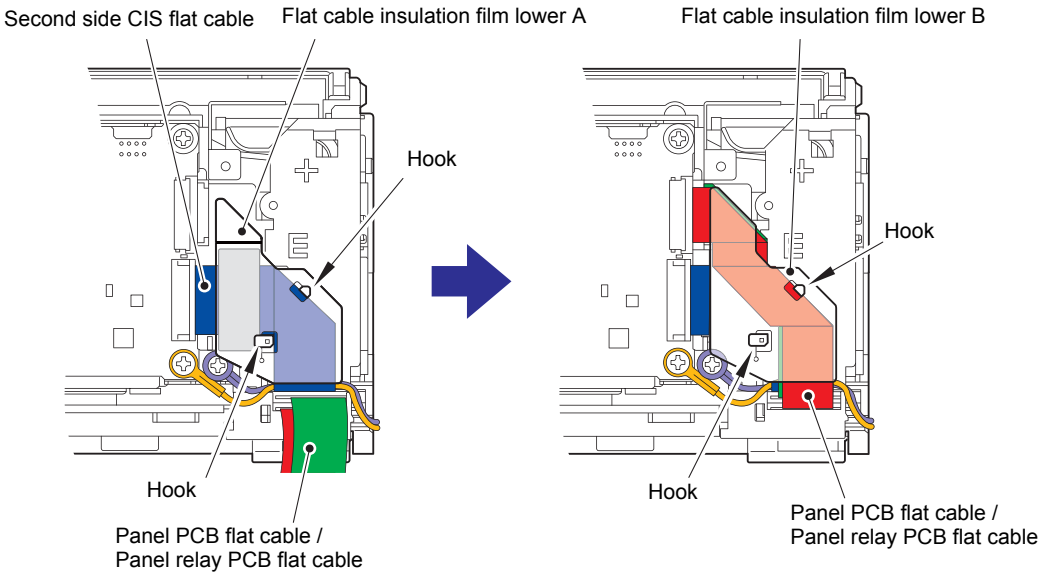



## 2 Main PCB ASSY right side flat cable overlap

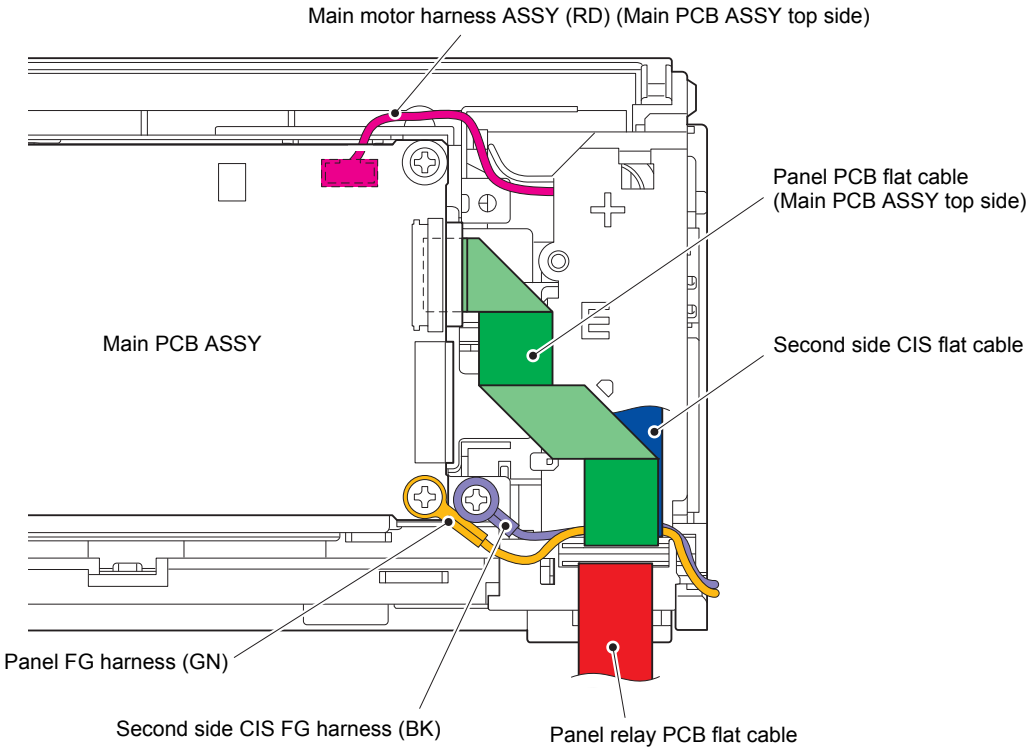



Harness colors are subject to change for some reason.

## 3 Flat cable insulation film lower attachment

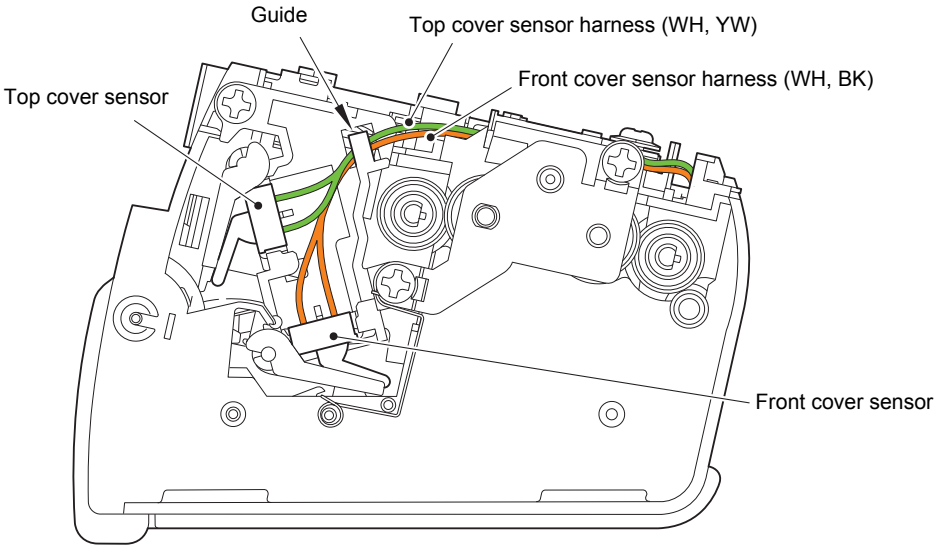



## 4 Main PCB ASSY top side

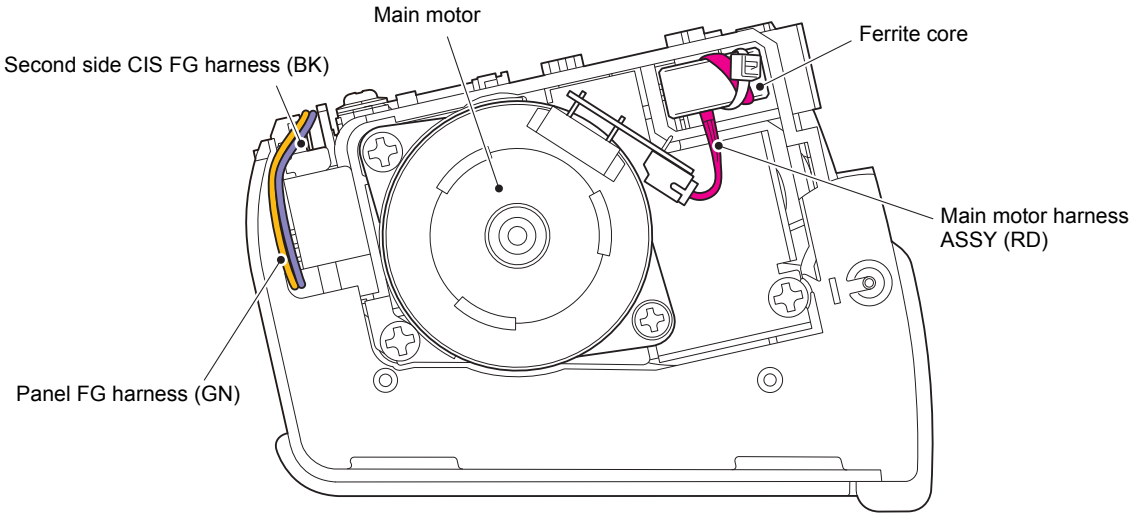



Harness colors are subject to change for some reason.

## 5 Frame R

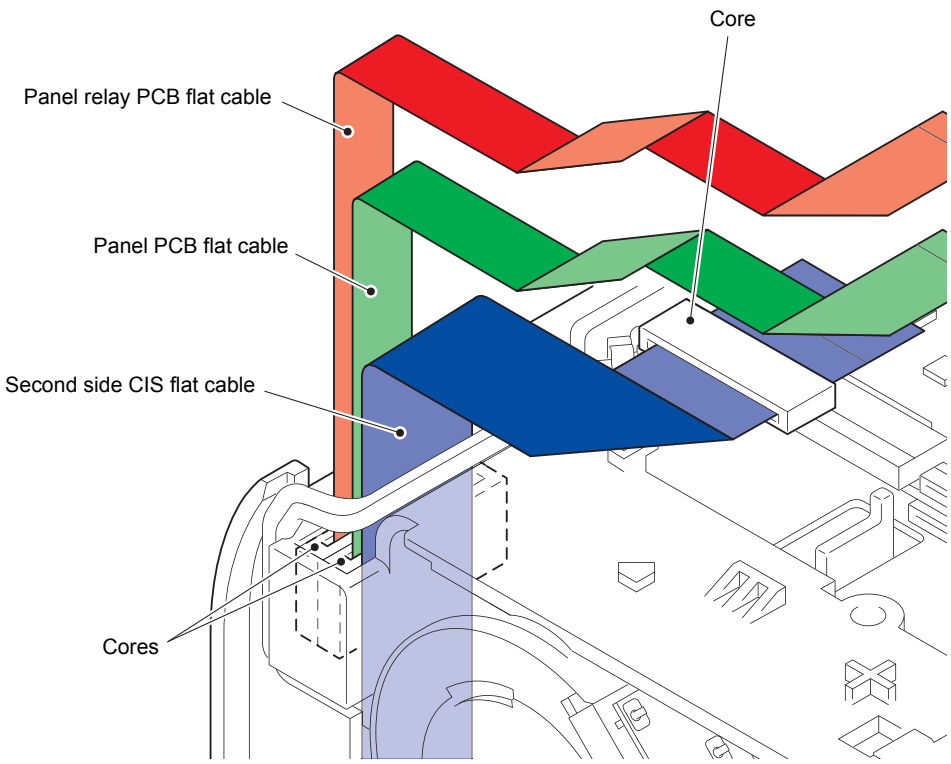



## 6 Frame L

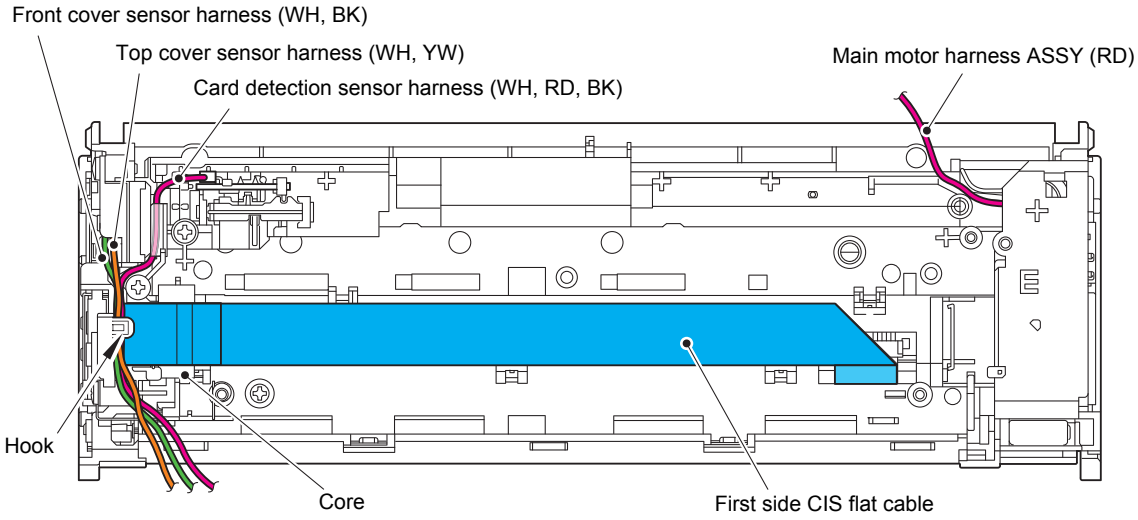



Harness colors are subject to change for some reason.

## 7 Flat cable on the left side at the bottom

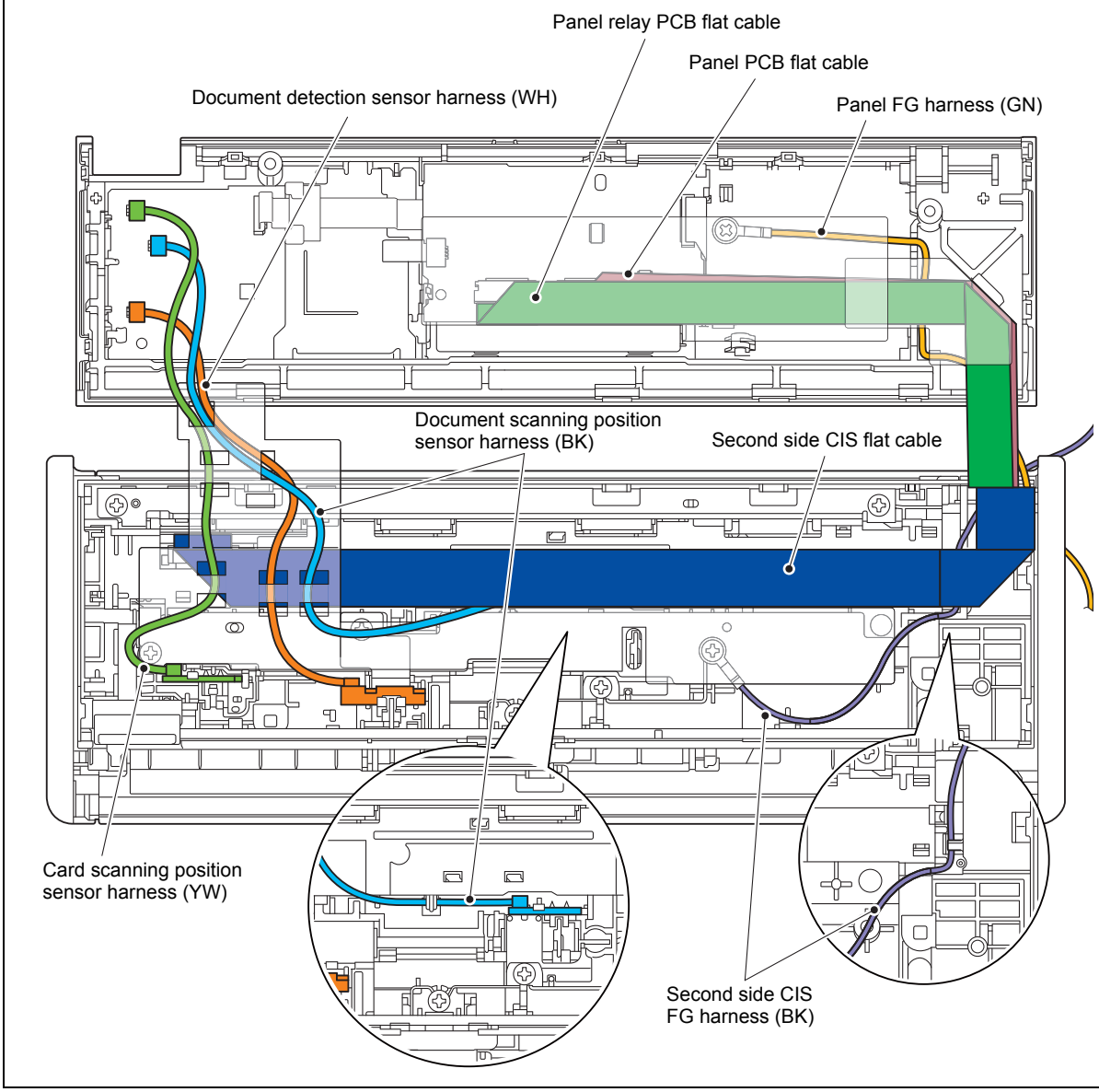



## 8 Lower chute




Harness colors are subject to change for some reason.

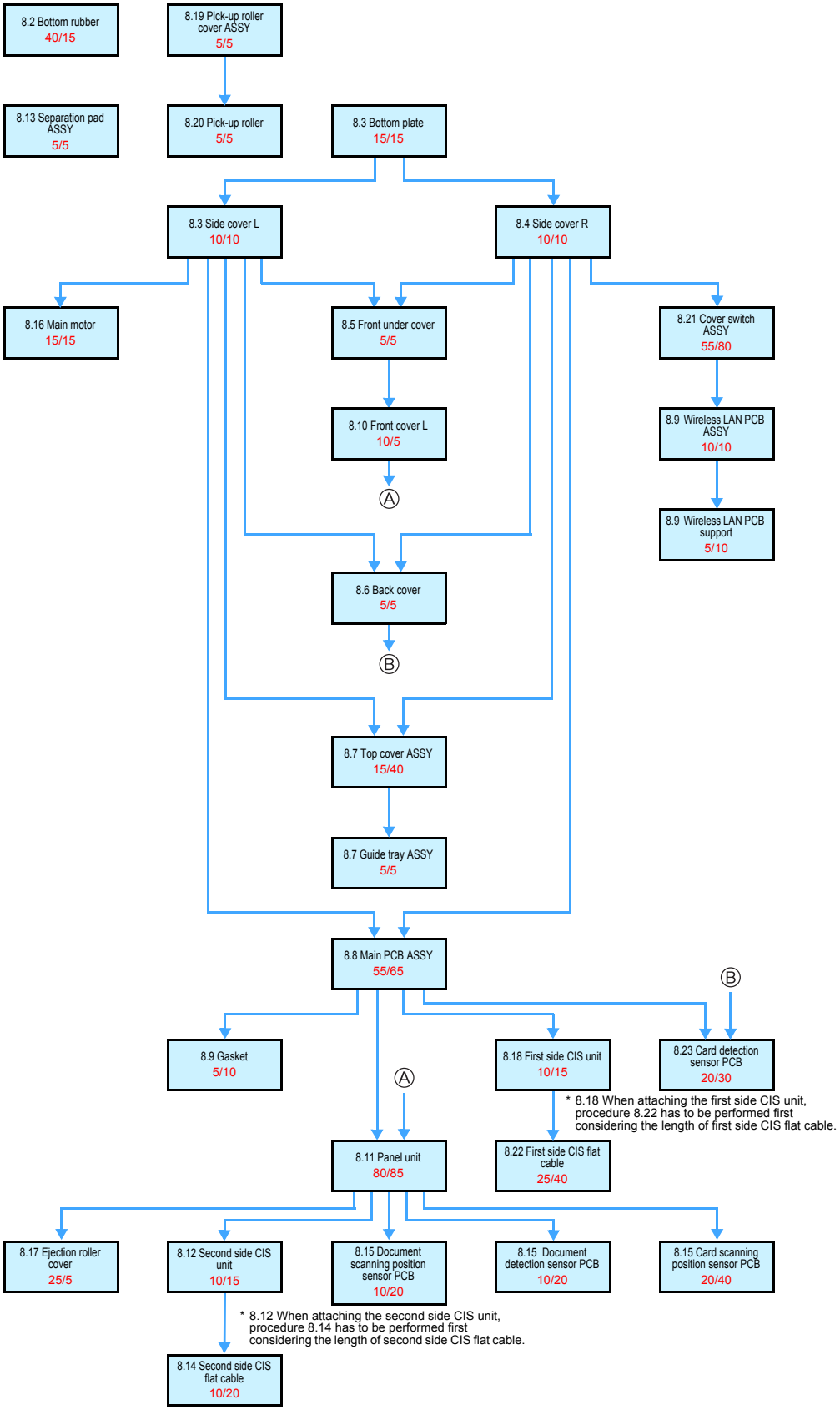
## 9 Upper chute ASSY




Harness colors are subject to change for some reason.

# 7. DISASSEMBLY FLOW CHART

Disassembly / Reassembly (second)



# 8. DISASSEMBLY PROCEDURE

## 8.1 Preparation

### 8.1.1 Backup of the machine information and head correction data (When replacing the main PCB ASSY)

Service men must backup the machine information below into an USB flash memory drive prior to the service.

#### ■ Operating Procedure

(1) Create "BROTHER" folder in an USB flash memory drive to save backup on PC.

(2) Connect the USB flash memory drive used in (1) to the machine at the initial state of maintenance mode. "USBMem Active" is displayed on the LCD.

**Note:**
- When you backup data into the USB flash memory drive which already has backup data of the same machine, the old data will be replaced with new one.

(3) Press the [4], and [6] key in this order. "Export to USBMem" is displayed on the LCD.

(4) Press the [Mono Start] key. File name "********.msd" is displayed on the LCD. "********" depends on the model.

(5) Press the [Mono Start] key. "Export to USBMem" is displayed on the LCD again.

(6) Press the [Mono Start] key. "Please wait" is displayed on the LCD.

**Note:**
- Do not disconnect the USB flash memory drive during this operation.

(7) Once the machine returned to the initial state of maintenance mode, disconnect the USB flash memory drive and keep it in a safe place.

### 8.1.2 Disconnecting cables

Prior to proceeding with the disassembly procedure,

(1) Disconnect the following:

- AC adapter (If connected)
- USB cable (if connected)
- USB flash memory drive (If connected)

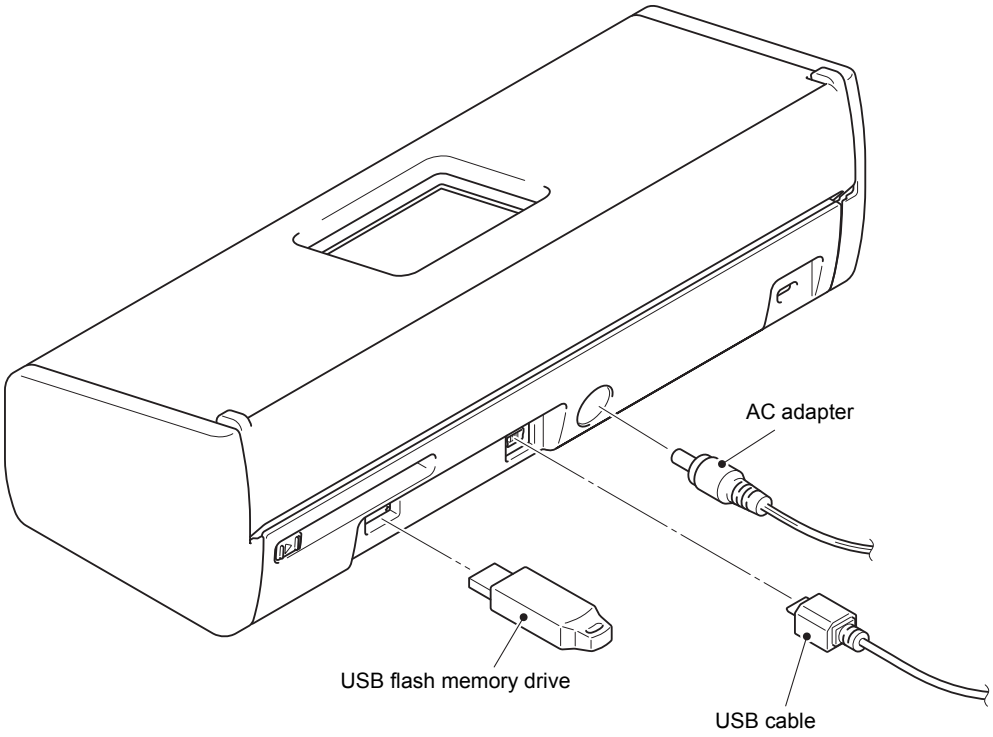



**Fig.3-3**

## 8.2 Bottom rubber

(1) Turn the machine upside down.

(2) Remove the two bottom rubbers from the side cover L.

(3) Remove the two bottom rubbers from the side cover R.

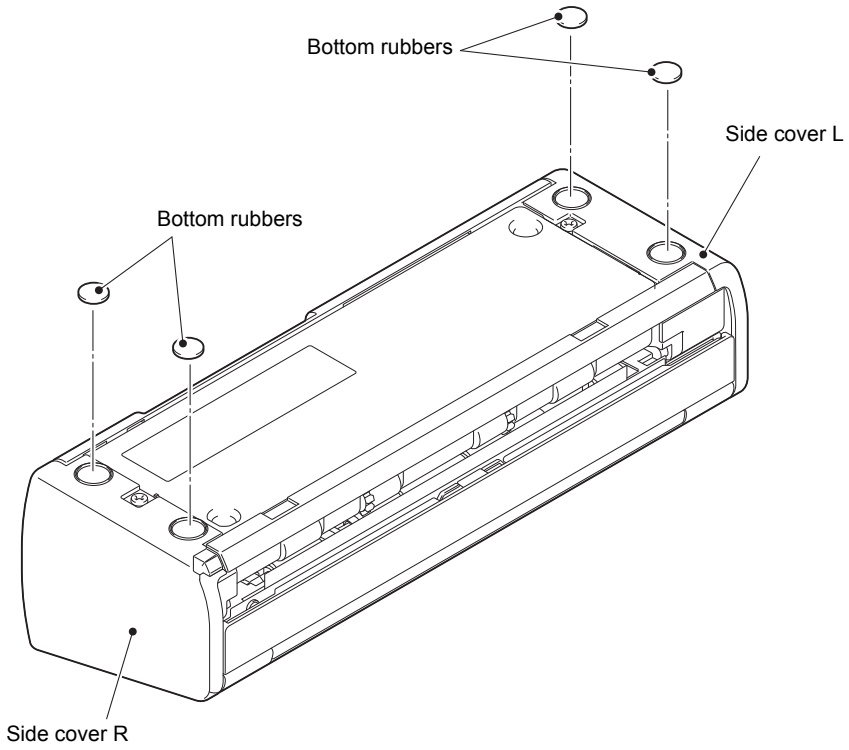



**Fig.3-4**

## 8.3 Side cover L

(1) Remove the two taptite cup S M3x5 screws to remove the bottom plate from the machine.

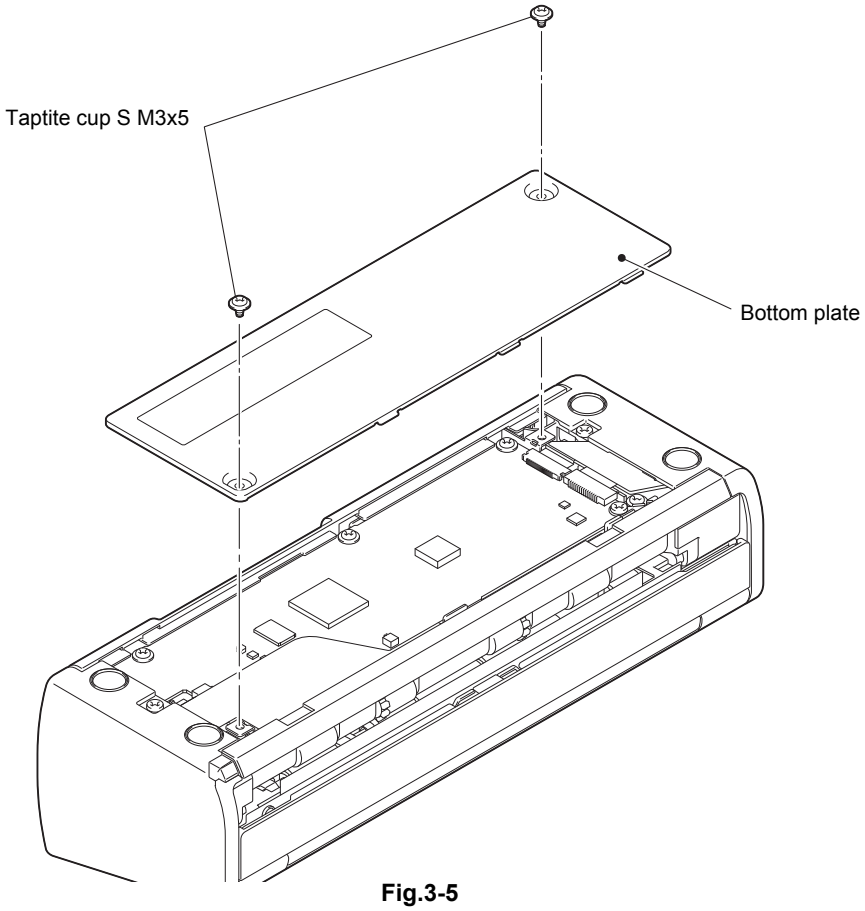



**Fig.3-5**

(2) Remove the taptite bind B M3x8 screw. Release the rib from the hook of the machine while lifting it, and remove the side cover L from the machine.

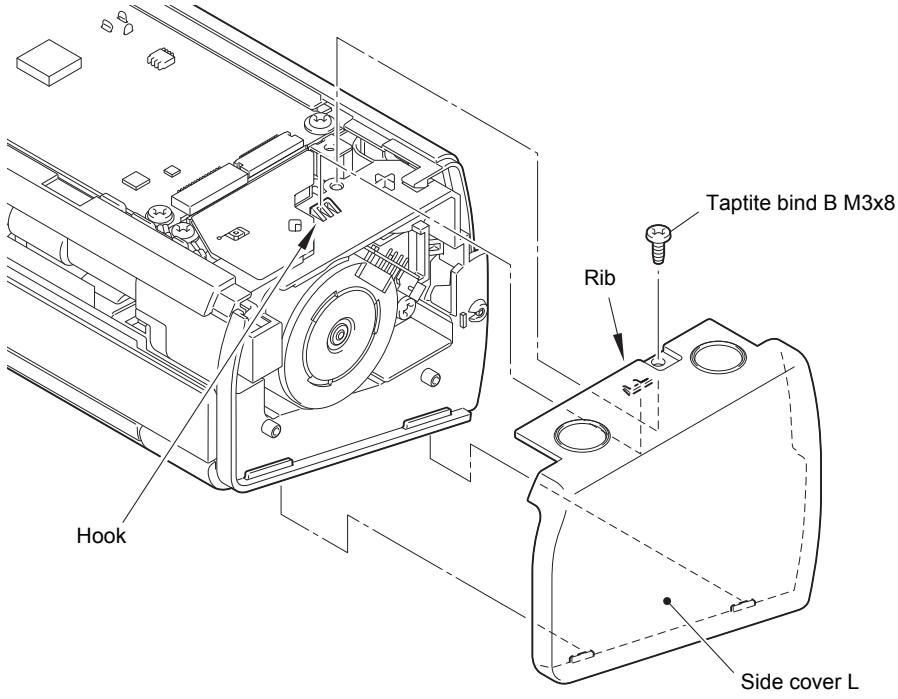



**Fig.3-6**

## 8.4 Side cover R

(1) Remove the taptite bind B M3x8 screw. Release the rib from the hook of the machine while lifting it, and remove the side cover R from the machine.

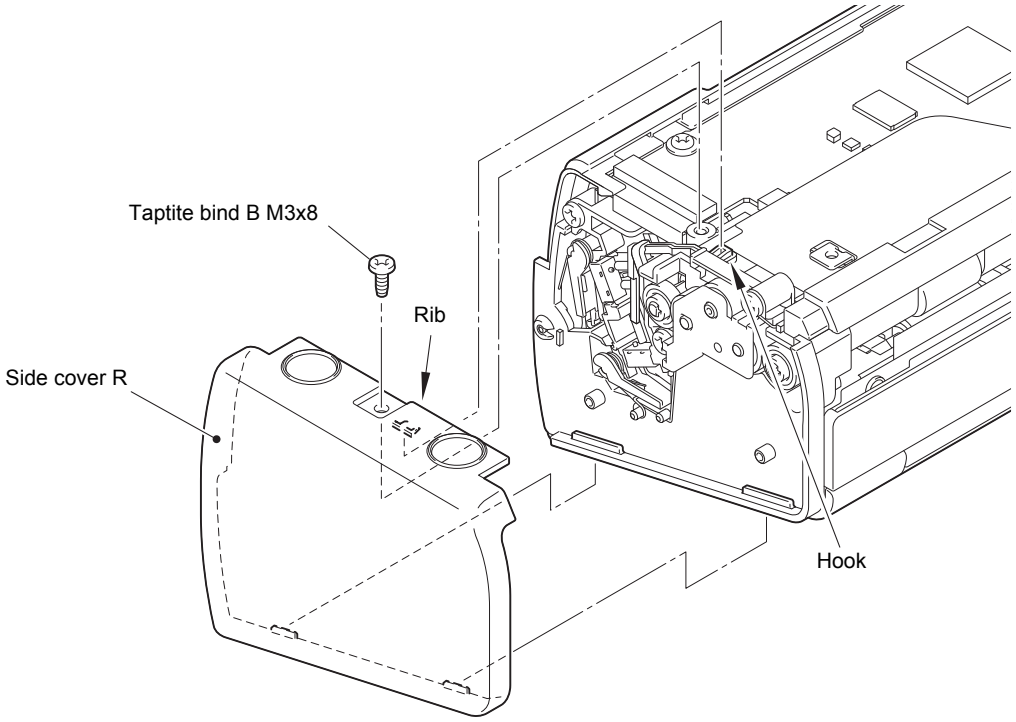



**Fig.3-7**

## 8.5 Front under cover

(1) Remove the front under cover from the machine.

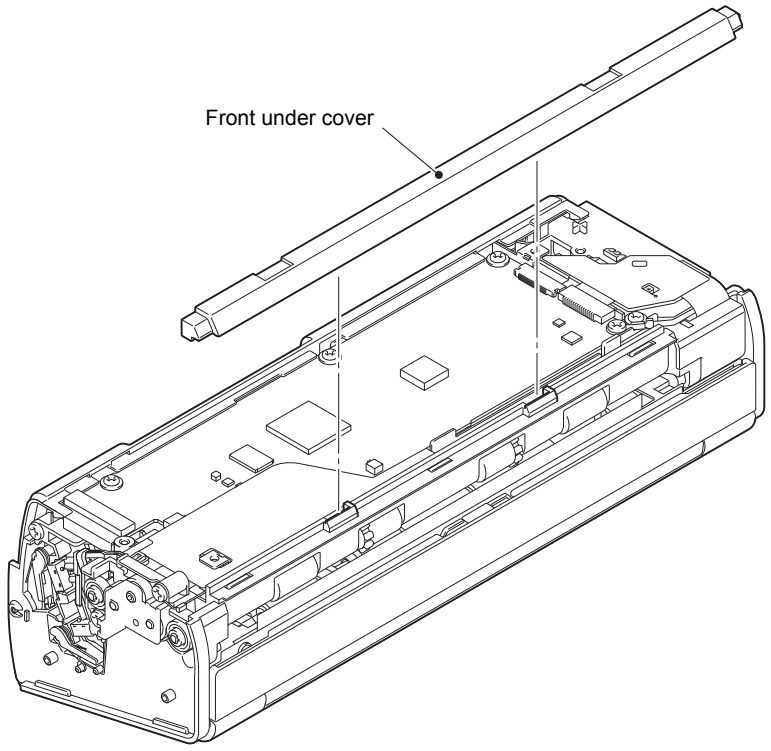



**Fig.3-8**

## 8.6 Back cover

(1) Release the three hooks to remove the back cover from the machine.

(2) Remove the card guide spring from the card guide 2. Remove the card guide 1 and 2 from the back cover.

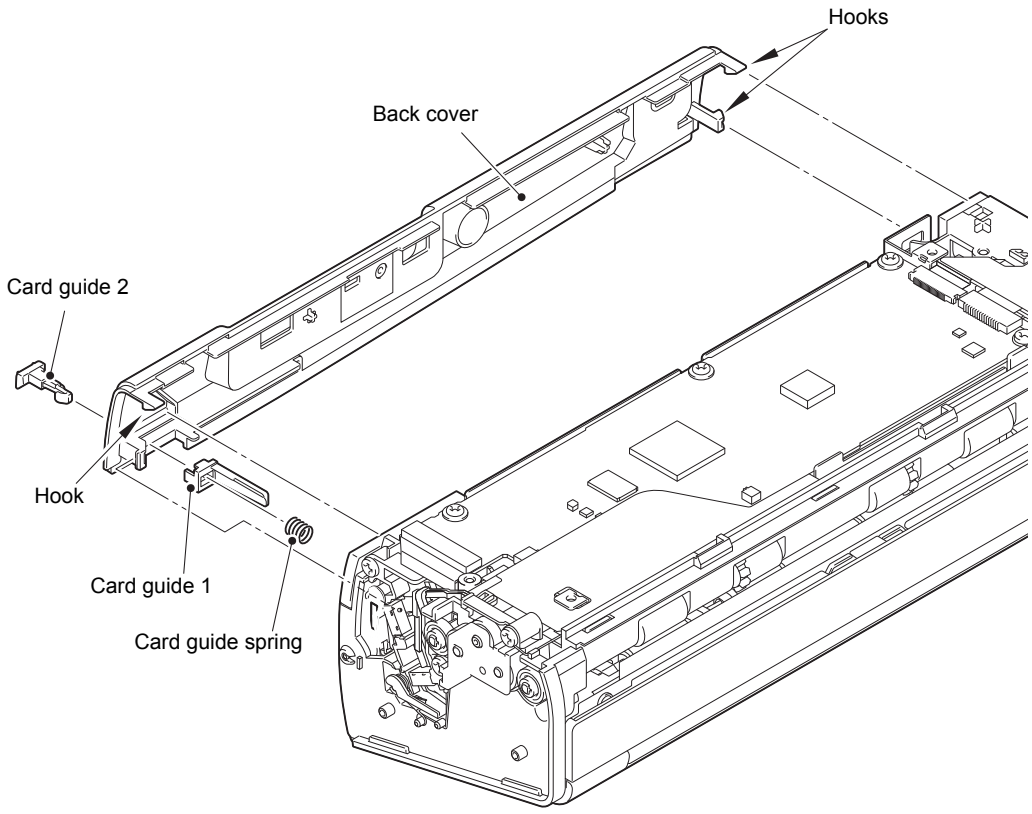



**Fig.3-9**

## 8.7 Top cover ASSY / Guide tray ASSY

(1) Turn the machine upside down. Open the top cover ASSY and guide tray ASSY.

(2) Remove the two guide tray shafts using a tweezer or equivalent tool, and remove the top cover ASSY and guide tray ASSY from the machine.

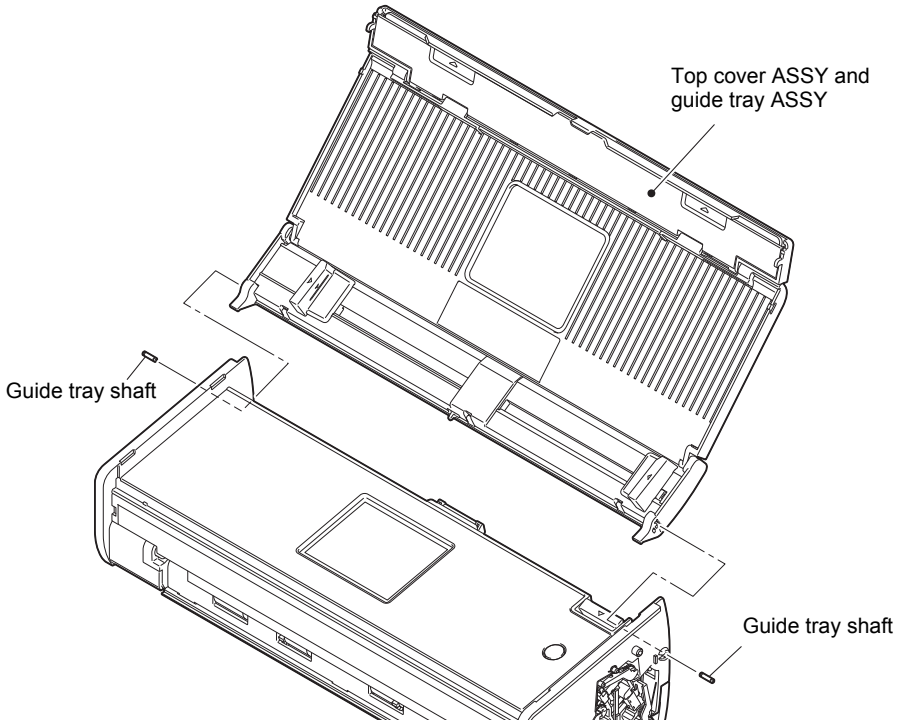



**Fig.3-10**

(3) Release the guide tray ASSY from the two bosses of the top cover ASSY by bending it inward.

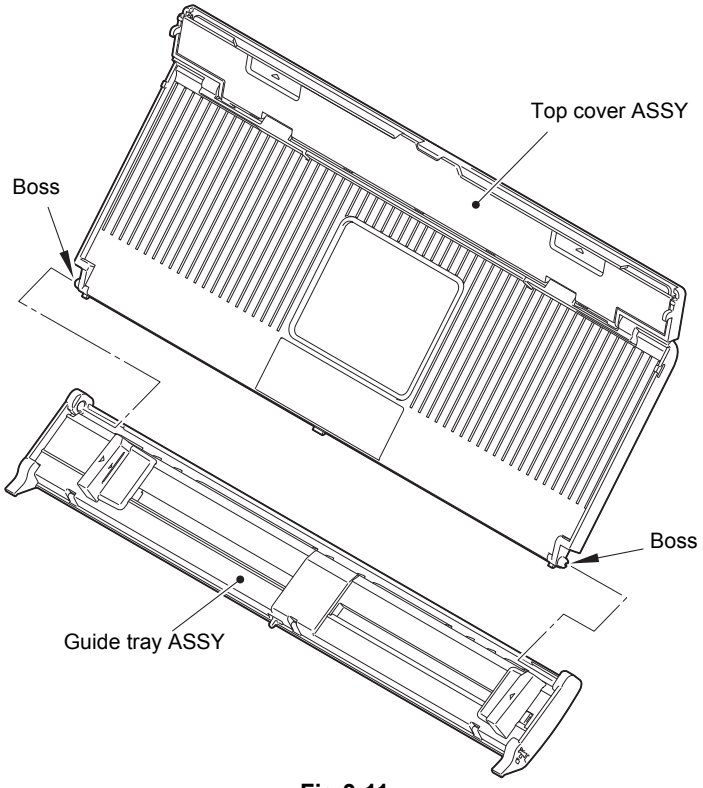



**Fig.3-11**

## 8.8 Main PCB ASSY

(1) Turn the machine upside down.

(2) Remove the harness protect film and two flat cable insulation film lowers from the machine.

(3) Release the three locks of the connector to disconnect the panel relay PCB flat cable, second side CIS flat cable, and first side CIS flat cable from the main PCB ASSY. Disconnect the top cover sensor harness, card detection sensor harness, and front cover sensor harness from the main PCB ASSY.

**Note:**

- Make sure that the main PCB ASSY is secured by screws when connecting/ disconnecting harnesses and flat cables.
- After disconnecting flat cables, check that each cable is not damaged at its end or short-circuited. When connecting flat cables, do not insert them at an angle. After insertion, check that the cables are not at an angle.

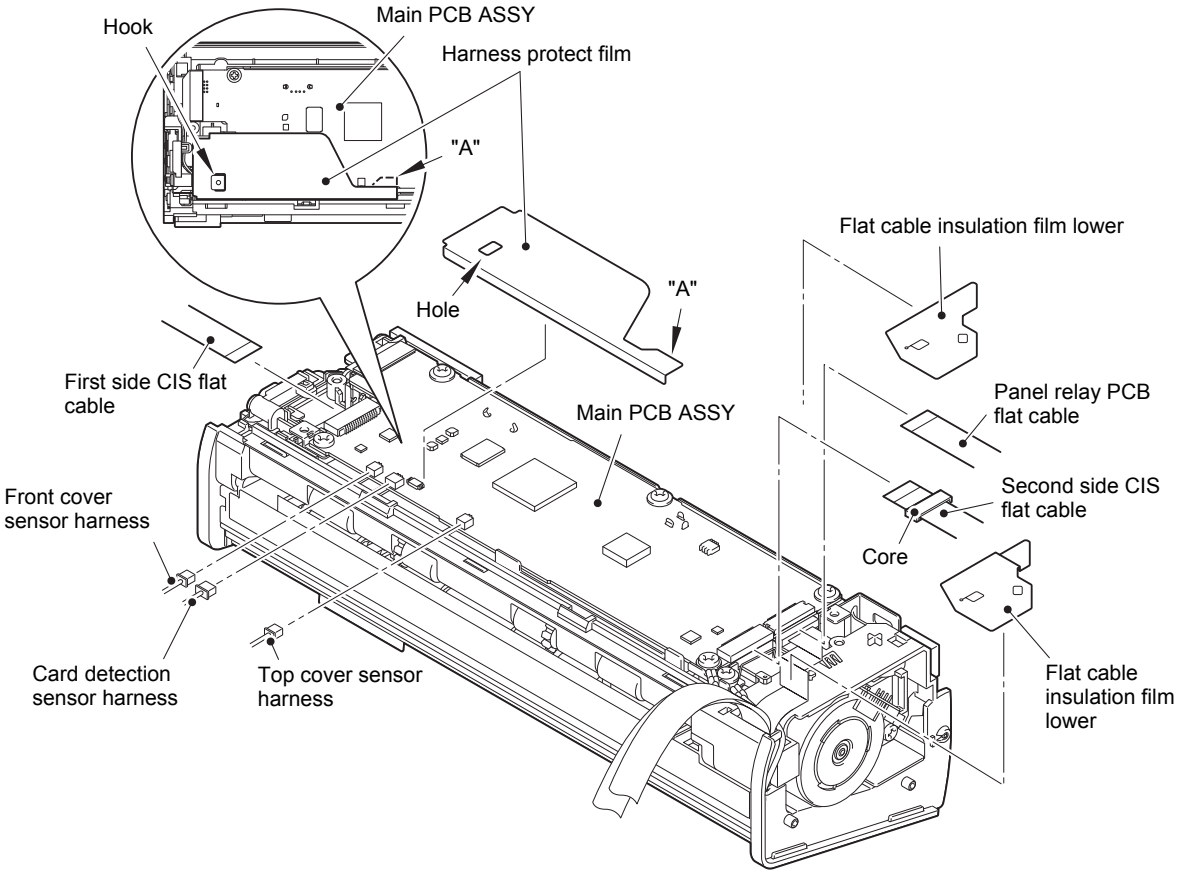



**Fig.3-12**

HARNESS ROUTING: Refer to “1. Main PCB ASSY”, “2. Main PCB ASSY right side flat cable overlap” and “3. Flat cable insulation film lower attachment”.

**Assembling Note:**

- Engage the hole on the left side of the harness protect film with the hook, and put the section A under the main PCB ASSY as described in the illustration above.
- Check that the core is attached to the second side CIS flat cable.

(4) Remove the taptite bind B M3x8 screw to remove the panel FG harness from the main PCB ASSY.

(5) Remove the three taptite cup S M3x5 screws and taptite bind B M3x8 screw from the main PCB ASSY.

(6) Push the gear hold plate earth wire aside and lift the main PCB ASSY. Disconnect the panel PCB flat cable from the main PCB ASSY by releasing the connector lock. Disconnect the main motor harness ASSY from the back side of the main PCB ASSY to remove it from the machine.

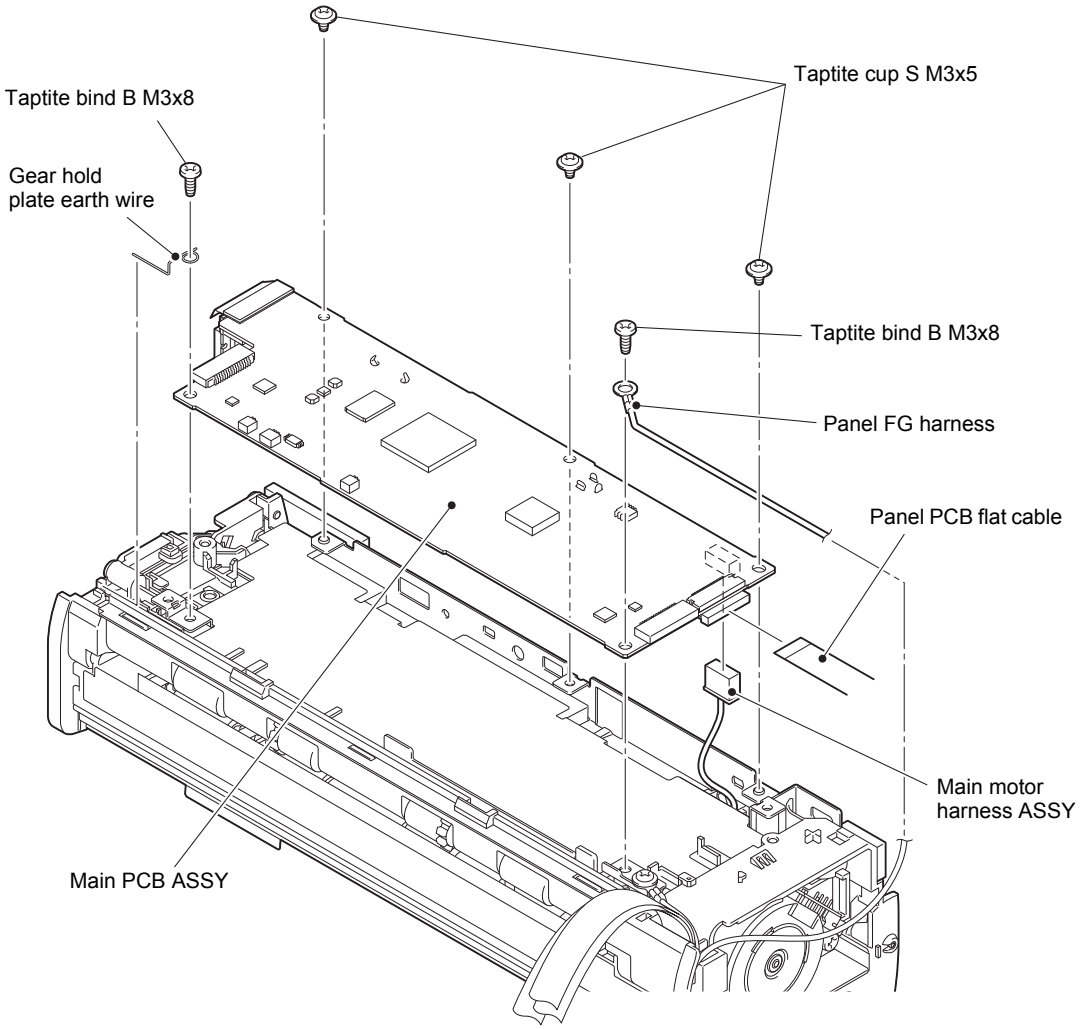



**Fig.3-13**

HARNESS ROUTING: Refer to “4. Main PCB ASSY top side”.

## 8.9 Wireless LAN PCB ASSY / Gasket / Wireless LAN PCB support

(1) Remove the wireless LAN PCB protect film / wireless LAN PCB protect pad from the main PCB ASSY.

(2) Disconnect the wireless LAN PCB ASSY from the main PCB ASSY.

(3) Remove the gasket from the main PCB ASSY.

**Assembling Note:**

- Check that the gasket is attached to the main PCB ASSY.

(4) Remove the wireless LAN PCB support from the wireless LAN PCB ASSY.

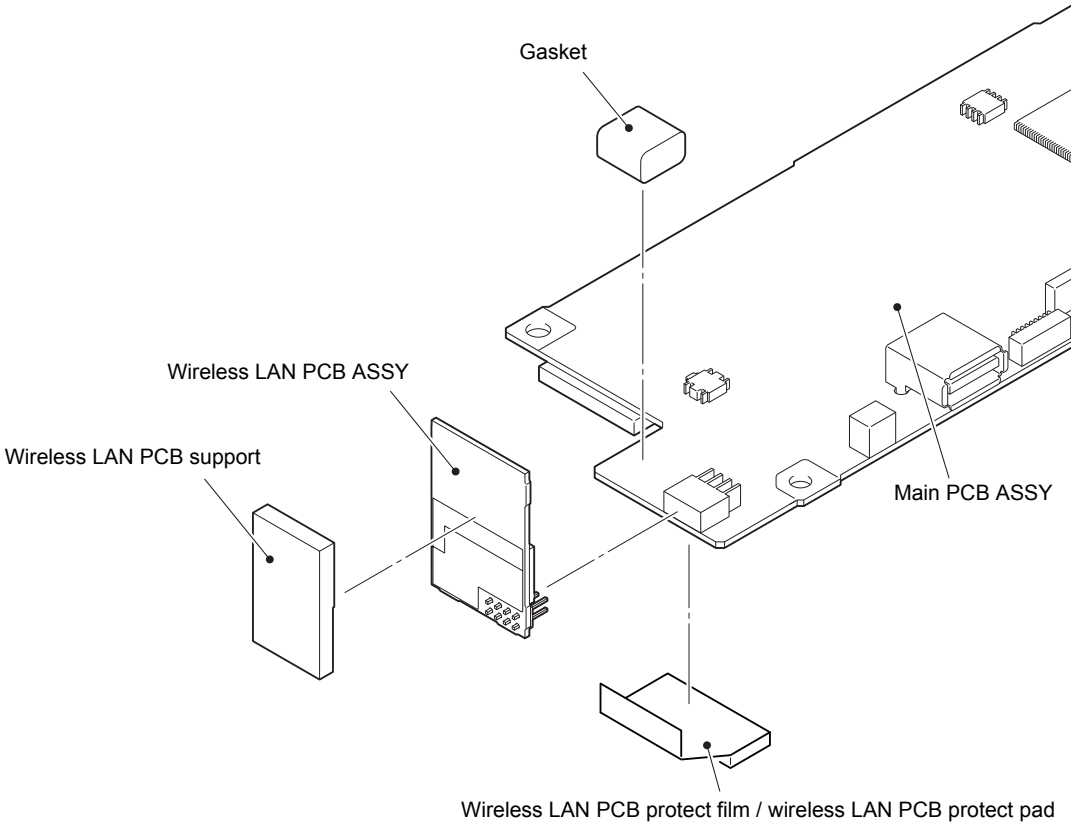



**Fig.3-14**

**Assembling Note:**

- Attach the wireless LAN PCB support as shown in the illustration below.

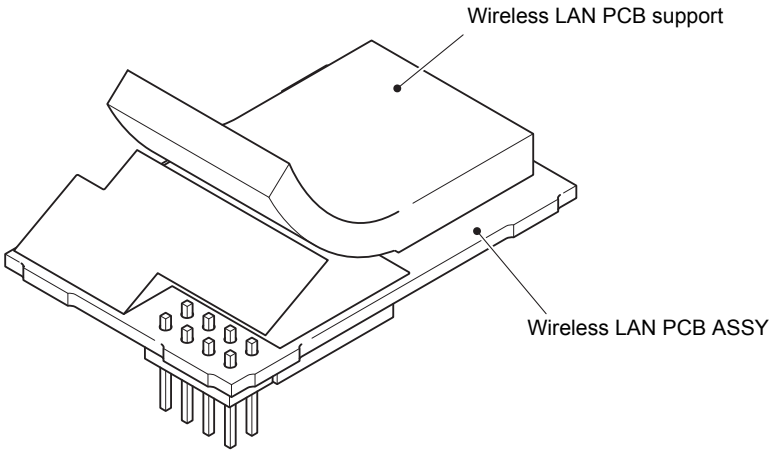



**Fig.3-15**

**Assembling Note:**

- Attach the wireless LAN PCB protect film / wireless LAN PCB protect pad after attaching the wireless LAN PCB ASSY to the main PCB ASSY.
- Attach the wireless LAN PCB protect film / wireless LAN PCB protect pad along the edge of the main PCB ASSY and the side of the connector foots for the wireless LAN PCB ASSY as shown in the figure below.

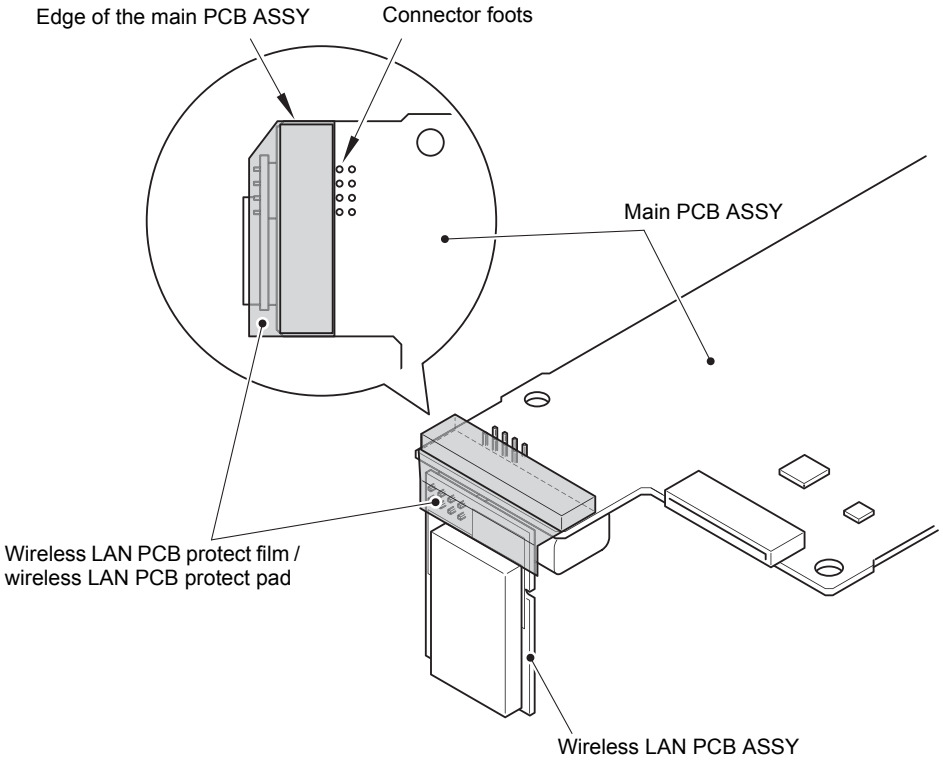



**Fig.3-16**

## 8.10 Front cover L

(1) Lift the front cover L in the direction of arrow a to release it from the hook, and open it in the direction of arrow b to remove it from the machine.

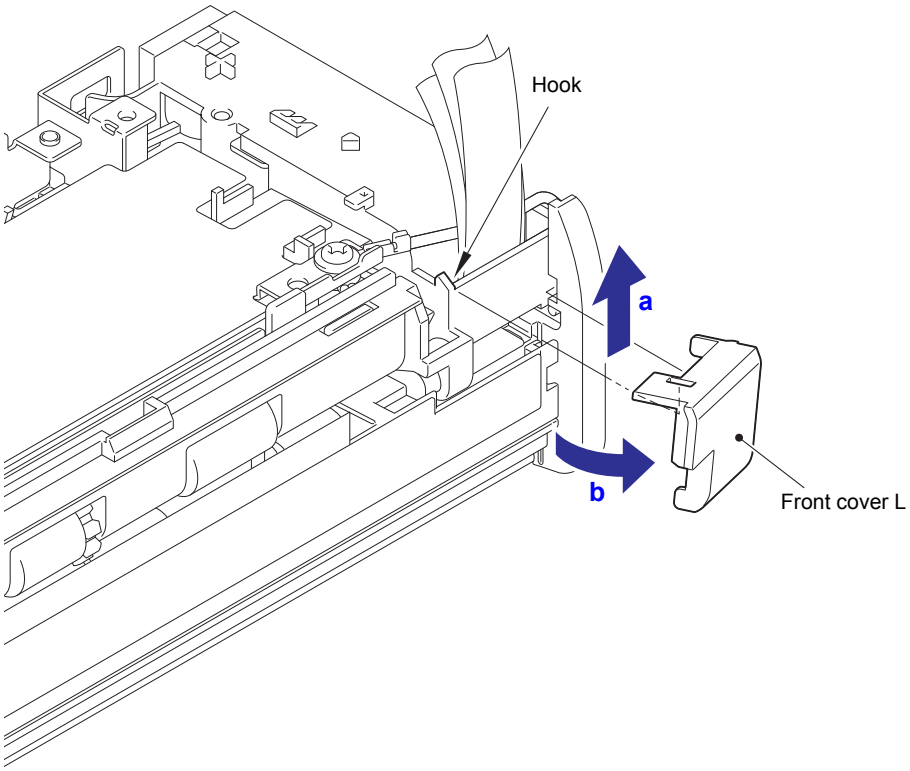



**Fig.3-17**

## 8.11 Panel unit

(1) Remove the taptite cup S M3x5 screw to disconnect the second side CIS FG harness from the machine.

(2) Press the lock lever R, open the panel unit and upper document chute. Bend the machine inward to remove the two bosses on the upper document chute, and remove the panel unit and upper document chute from the machine. Release the two FG harnesses and three flat cables from the securing fixtures.

(3) Remove the two taptite bind B M3x8 screws from the upper document chute.

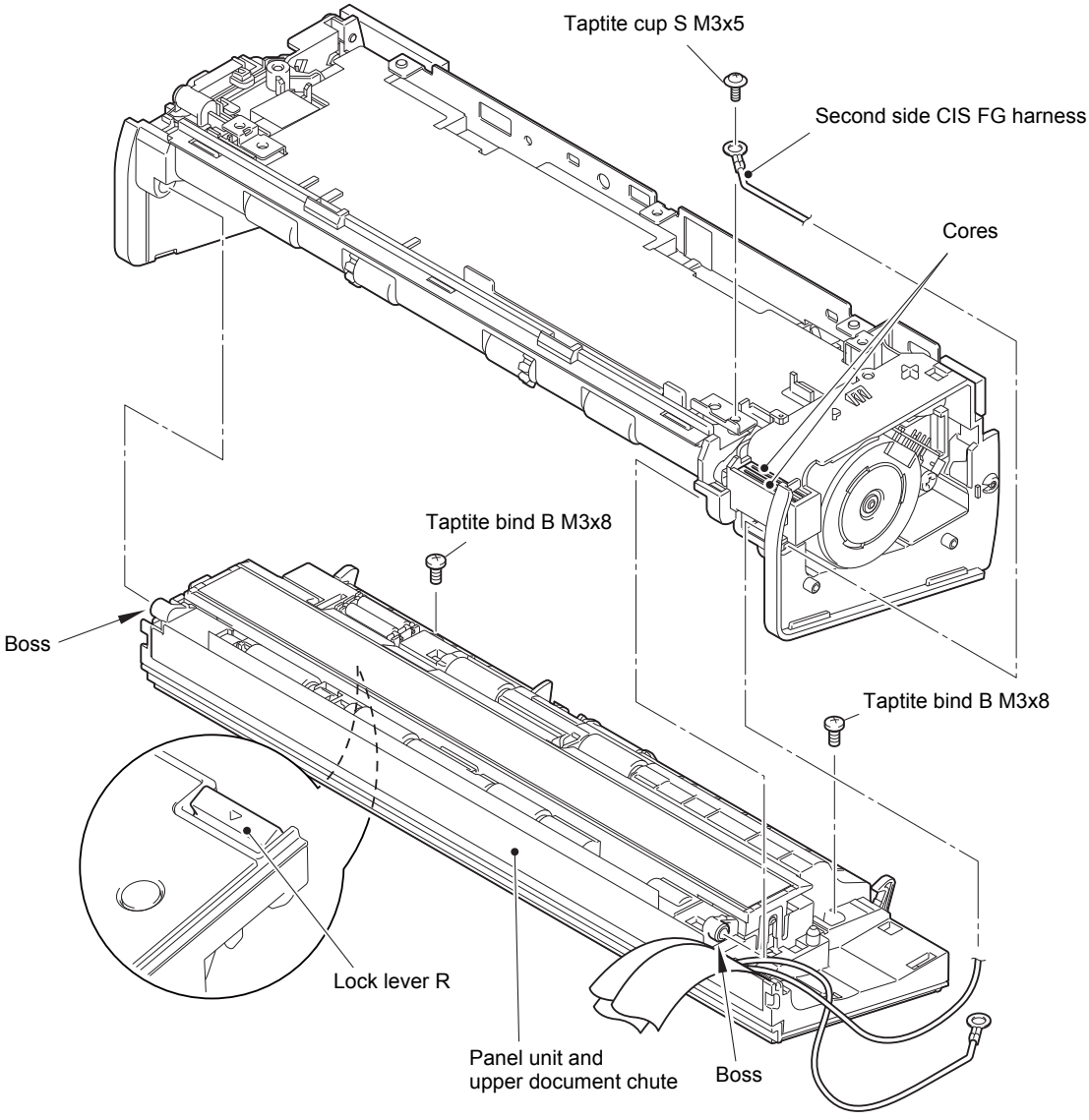



**Fig.3-18**

HARNESS ROUTING: Refer to "4. Main PCB ASSY top side", "6. Frame L" and "7. Flat cable on the left side at the bottom".

**Note:**

- Be careful not to lose the two cores.

(4) Release the three hooks A from the holes of the upper document chute. Release the four hooks on the left and right, slide the panel unit to diagonally backward to release the four hooks on the front, and remove the panel unit from the upper document chute.

(5) Disconnect the document detection sensor harness, document scanning position sensor harness, and card scanning position sensor harness from the panel PCB. Release the panel FG harness, panel PCB flat cable, and panel relay PCB flat cable from the securing fixtures to remove the upper document chute from the panel unit.

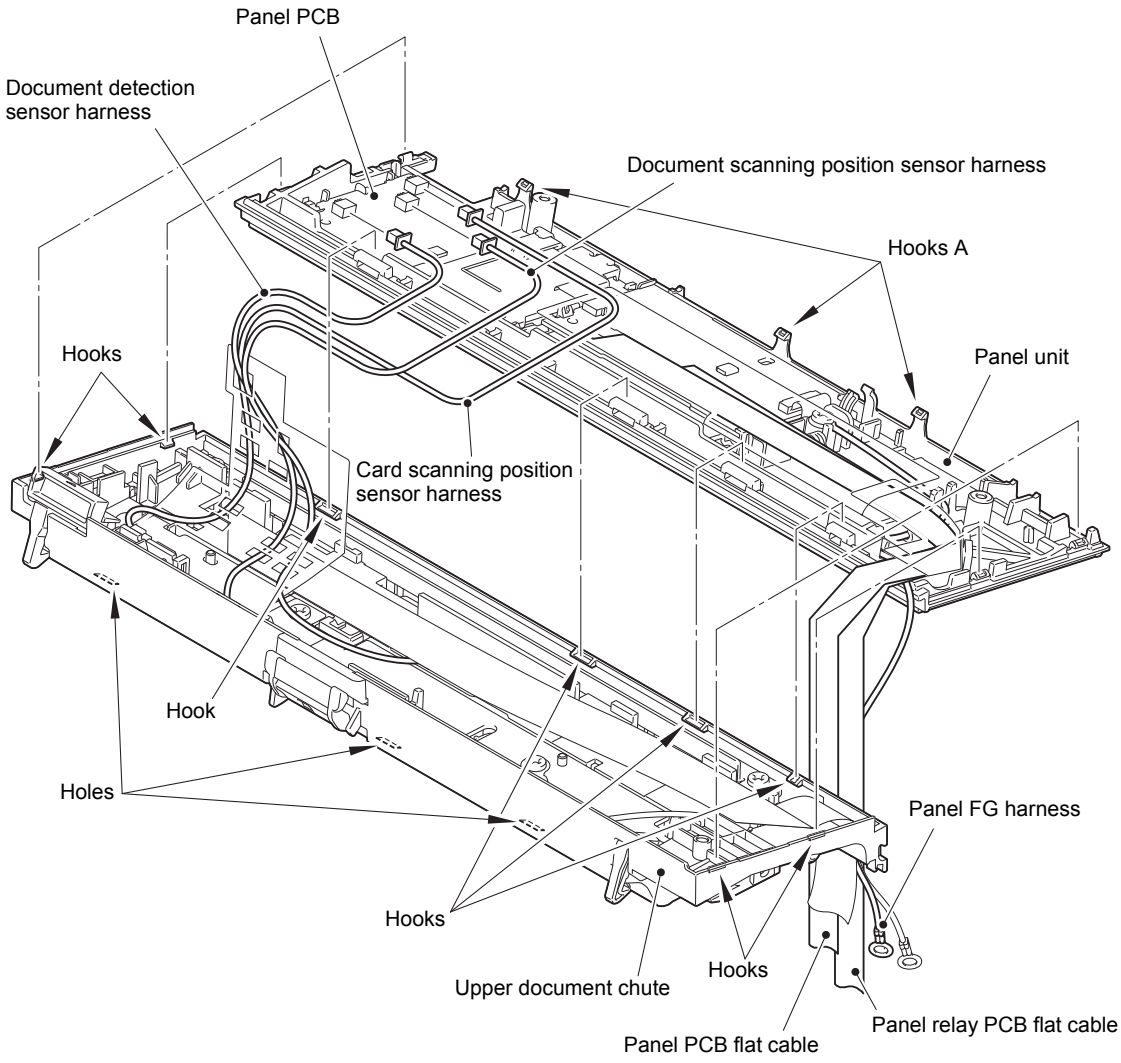



**Fig.3-19**

HARNESS ROUTING: Refer to "9. Upper chute ASSY".

## 8.12 Second side CIS unit

(1) Turn over the upper document chute.

(2) Release the two hooks and lift the second side CIS unit slightly.

(3) Disconnect the second side CIS flat cable from the second side CIS unit, and remove the second side CIS unit from the upper document chute.

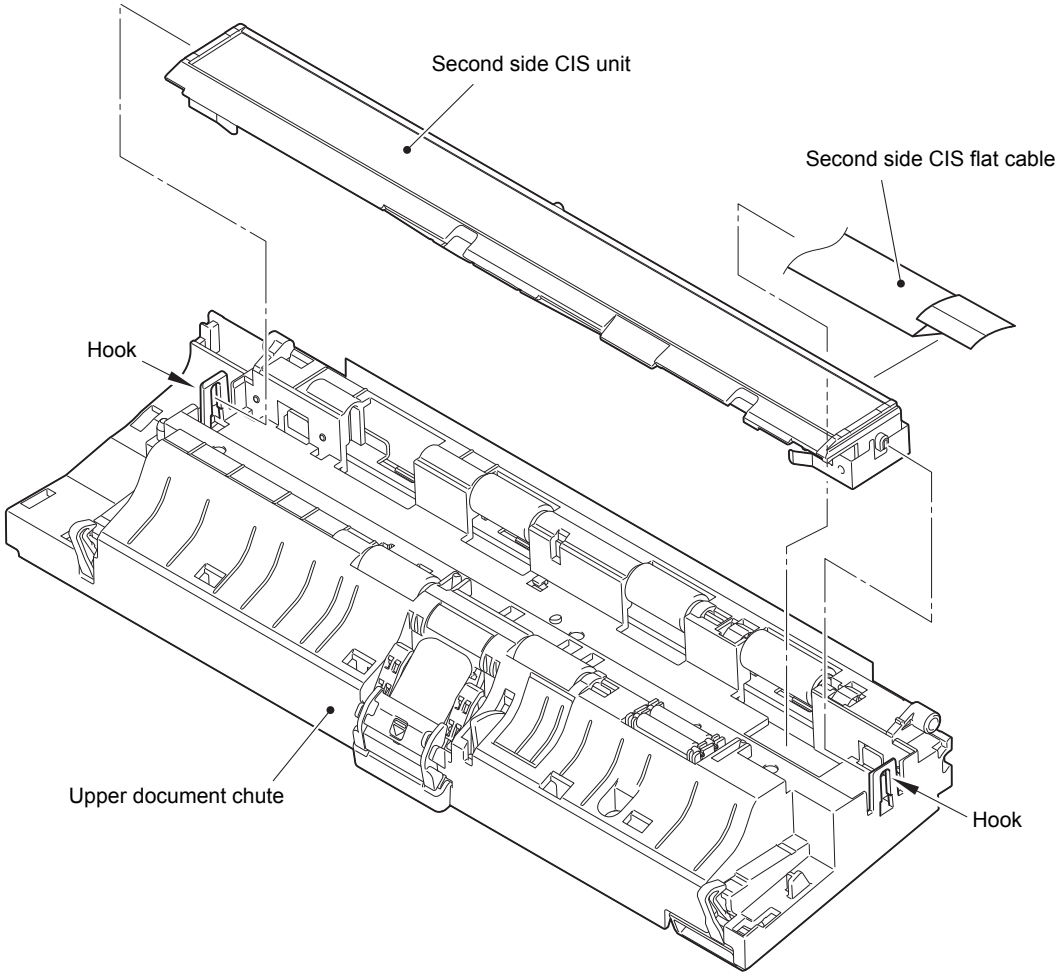



**Fig.3-20**

HARNESS ROUTING: Refer to “9. Upper chute ASSY”.

## 8.13 Separation pad ASSY

(1) Slide the separation arm in the direction of the arrow.

(2) Remove the separation pad ASSY from the upper document chute.

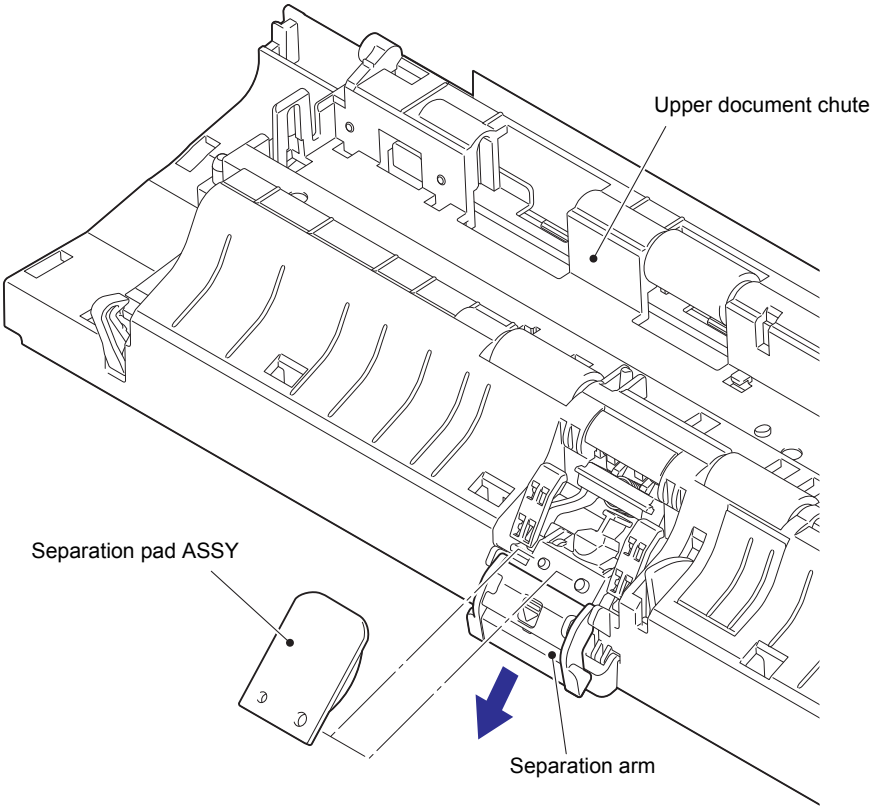



**Fig.3-21**

**Note:**

- When the separation pad ASSY has been replaced, refer to the operation manual and reset the separation pad counter.

## 8.14 Second side CIS flat cable

(1) Turn over the upper document chute.

(2) Remove the second side CIS flat cable from the upper document chute.

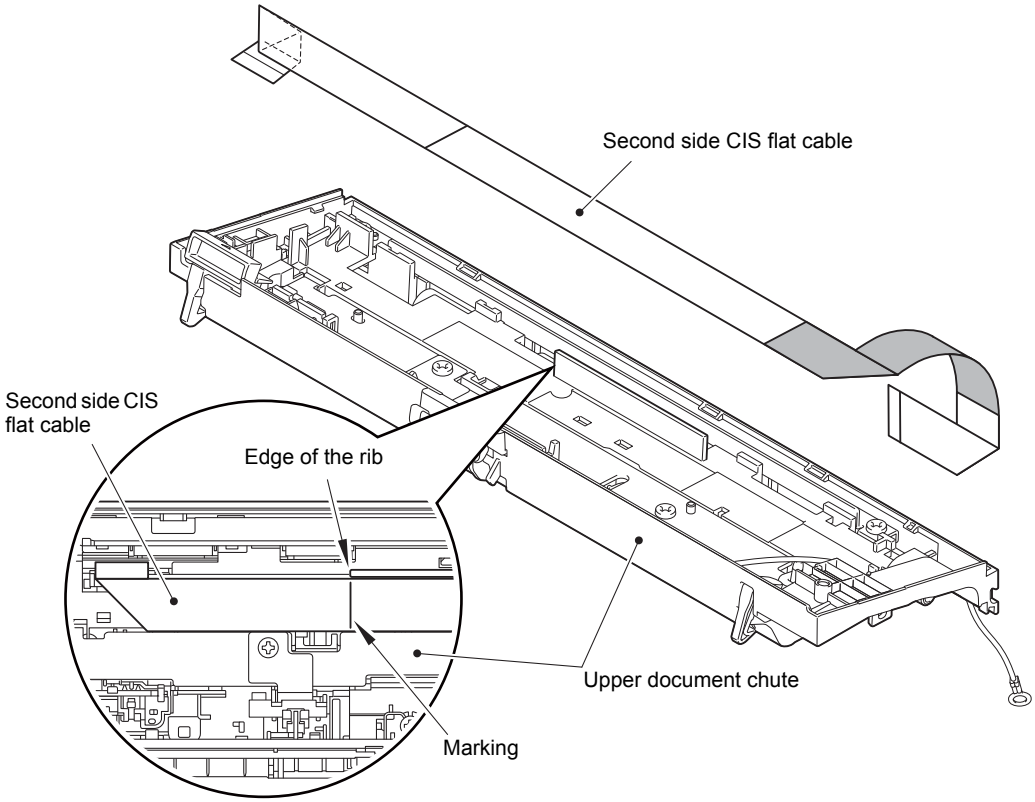



**Fig.3-22**

HARNESS ROUTING: Refer to "9. Upper chute ASSY".

**Assembling Note:**

- Attach the second side CIS flat cable to the upper document chute by engaging the marking on the second side CIS flat cable with the edge of the rib on the upper document chute as shown in the figure above.
- Fold the second side CIS flat cable as shown in the illustration below.

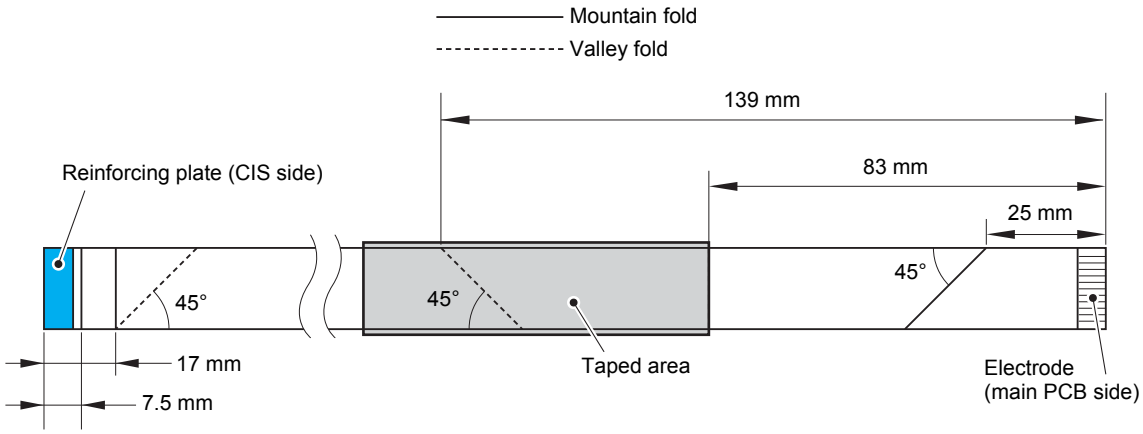



**Fig.3-23**

## 8.15 Document scanning position sensor PCB / Document detection sensor PCB / Card scanning position sensor PCB

(1) Release the hook to remove the card scanning position sensor PCB from the card R sensor holder. Disconnect the card scanning position sensor harness from the card scanning position sensor PCB.

(2) Remove the taptite cup S M3x5 screw while peeling the upper chute harness film. Remove the document detection actuator earth plate from the upper document chute.

(3) Remove the document detection sensor PCB from the upper document chute while pushing the rib in the direction of the arrow. Disconnect the document detection sensor harness from the document detection sensor PCB.

(4) Remove the taptite cup S M3x5 screw while peeling the upper chute harness film. Remove the second CIS FG harness from the pinch roller support plate. Remove the two taptite bind B M3x8 screws while peeling the upper chute harness film. Bend the separate earth wire inward to remove the pinch roller support plate from the upper document chute.

(5) Release the hook to remove the document scanning position sensor PCB from the upper document chute. Disconnect the document scanning position sensor harness from the document scanning position sensor PCB.

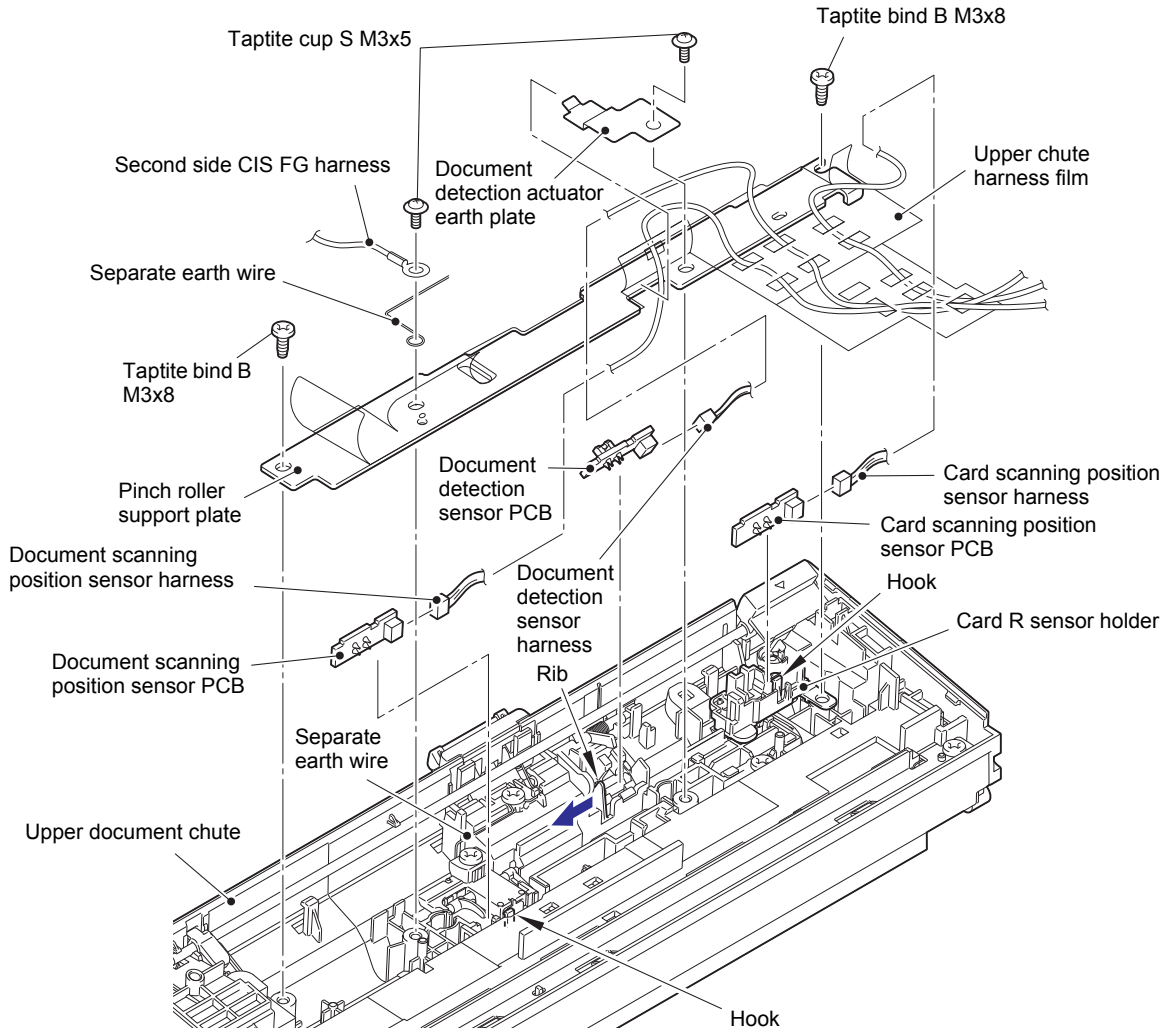



**Fig.3-24**

HARNESS ROUTING: Refer to "9. Upper chute ASSY".

**Assembling Note:**

- Secure the document scanning position sensor harness, the document detection sensor harness, and the card scanning position sensor harness in the securing fixtures as shown in the illustration below.
- Attach the document detection actuator earth plate as shown in the illustration below.

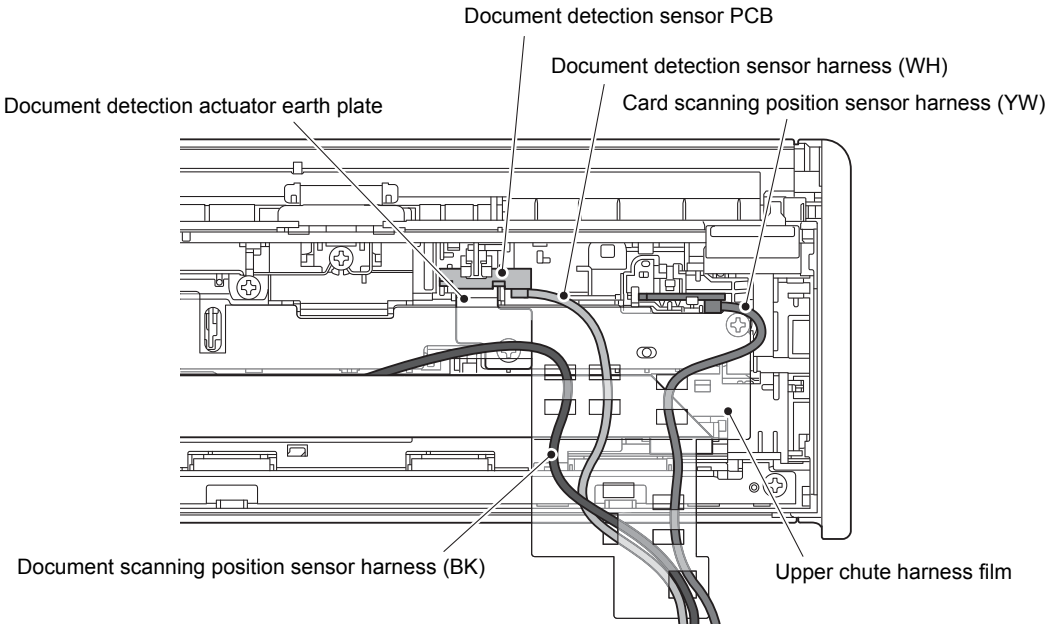



**Fig.3-25**

## 8.16 Main motor

(1) Disconnect the connector of main motor harness ASSY from the main motor.

(2) Remove the screw pan (S/P washer) M3x6 DA and the taptite bind B M3x8 screw to remove the main motor from the machine.

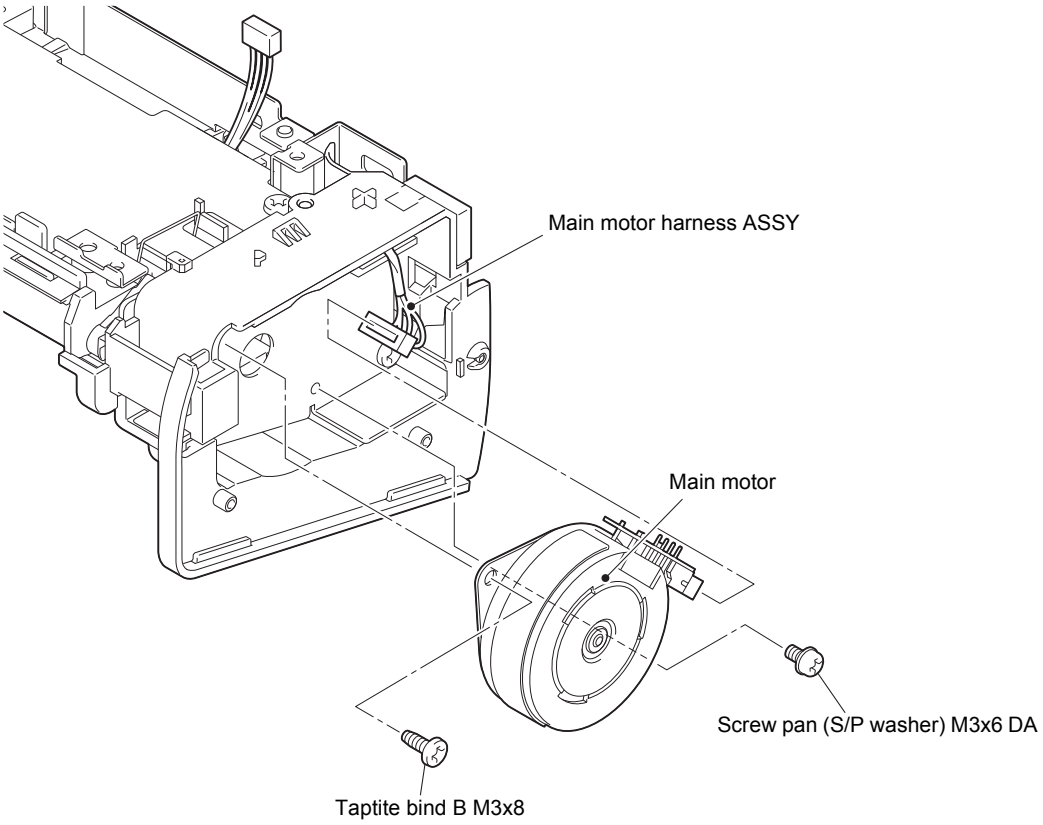



**Fig.3-26**

HARNESS ROUTING: Refer to “6. Frame L”.

## 8.17 Ejection roller cover

(1) Turn the machine upside down.

(2) Release the three hooks on the ejection roller cover from the machine.

(3) Remove the five tabs "A" on the ejection roller cover while lifting it with a screw driver or equivalent tools, and remove it from the machine.

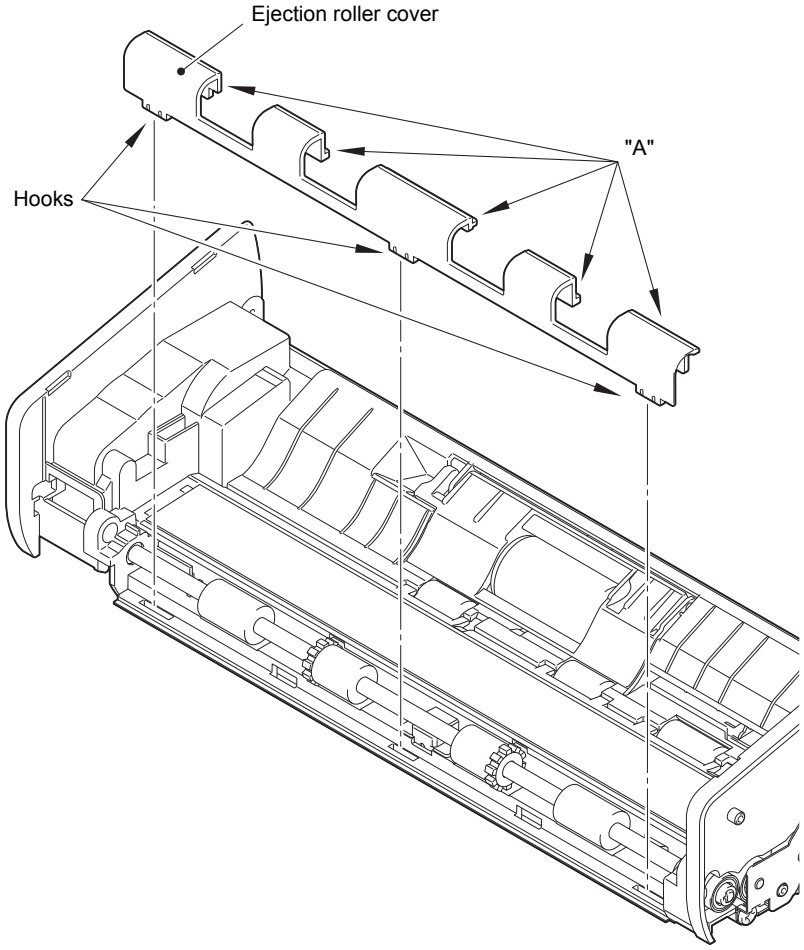



**Fig.3-27**

## 8.18 First side CIS unit

(1) Lift the first side CIS unit slightly, disconnect the first side CIS flat cable from the first side CIS unit, and remove the first side CIS unit from the machine.

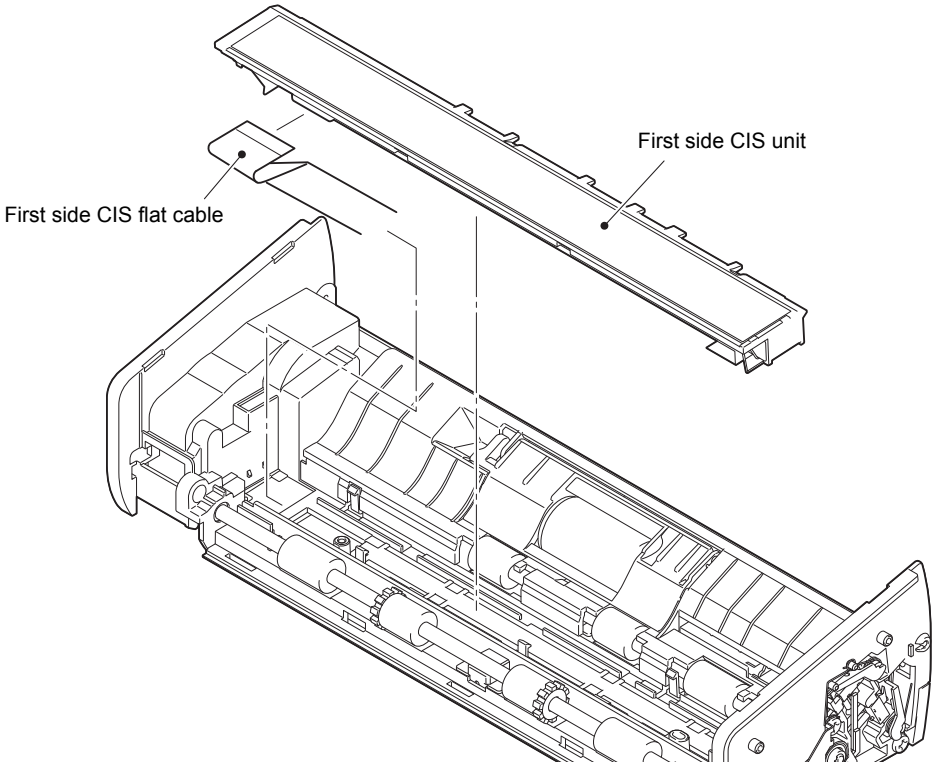



**Fig.3-28**

## 8.19 Pick-up roller cover ASSY

(1) Open the pick-up roller cover ASSY.

(2) Slide the pick-up roller cover ASSY in the direction of arrow a to remove the boss, and in the direction of arrow b to remove it from the machine.

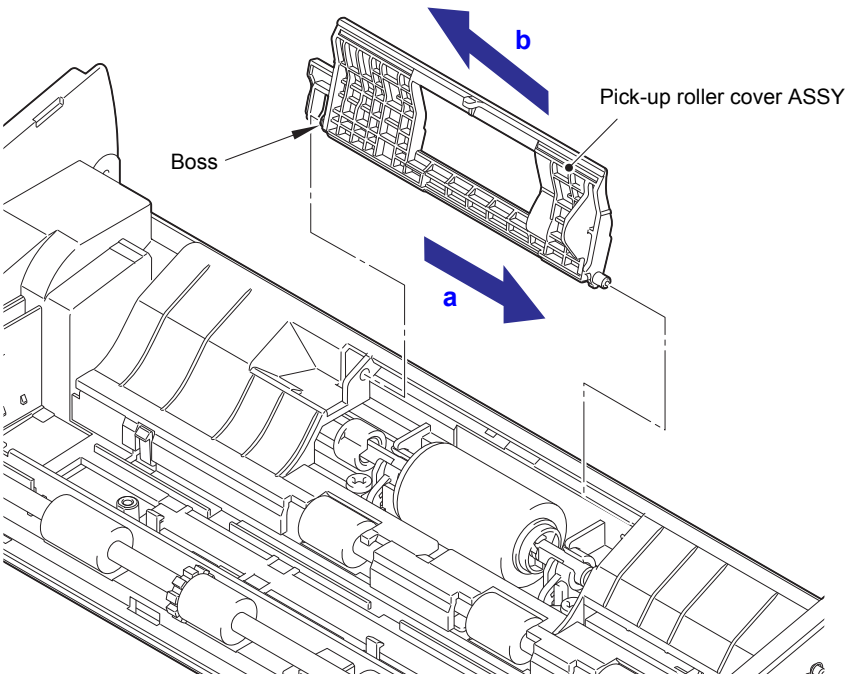



**Fig.3-29**

## 8.20 Pick-up roller

(1) Slide the pick-up roller in the direction of arrow a to align the cut surface of the roller shaft with the bushing, and in the direction of arrow b to remove it from the machine.

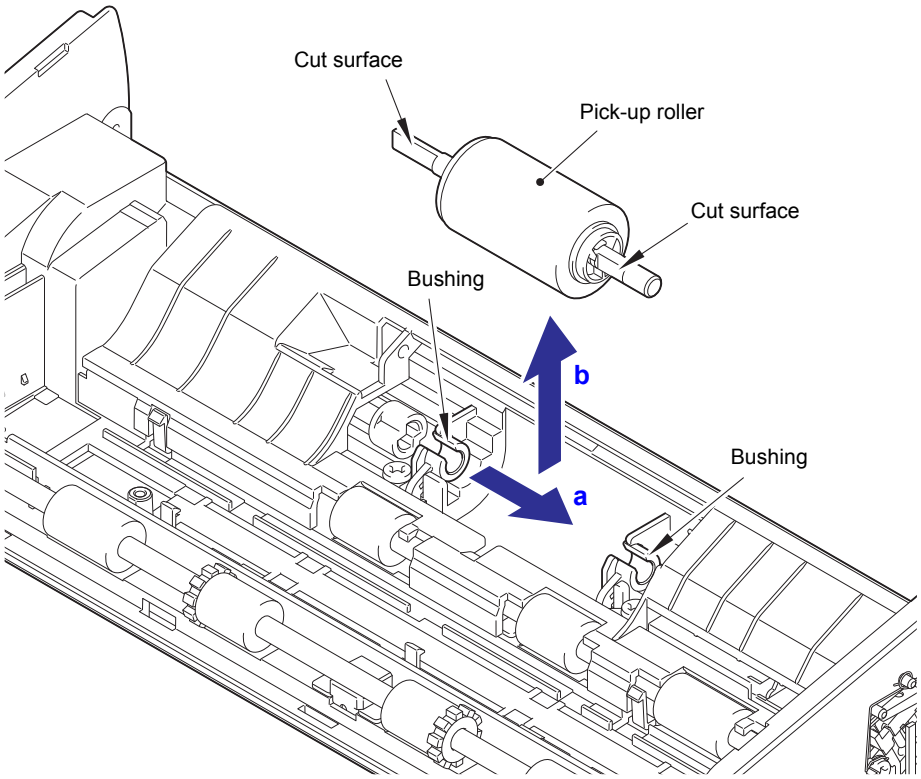



**Fig.3-30**

**Note:**

- When the pick-up roller had been replaced, refer to the operation manual and reset the pick-up roller counter.

## 8.21 Cover switch ASSY

(1) Remove the two taptite bind B M3x8 screws to remove the front cover sensor earth wire, gear hold plate earth wire, and gear hold plate from the machine.

**Note:**
- Be careful not to lose gears.

(2) Release the top cover sensor harness and front cover sensor harness from the securing fixtures.

(3) Remove the taptite bind B M3x8 screw to remove the cover switch ASSY from the machine.

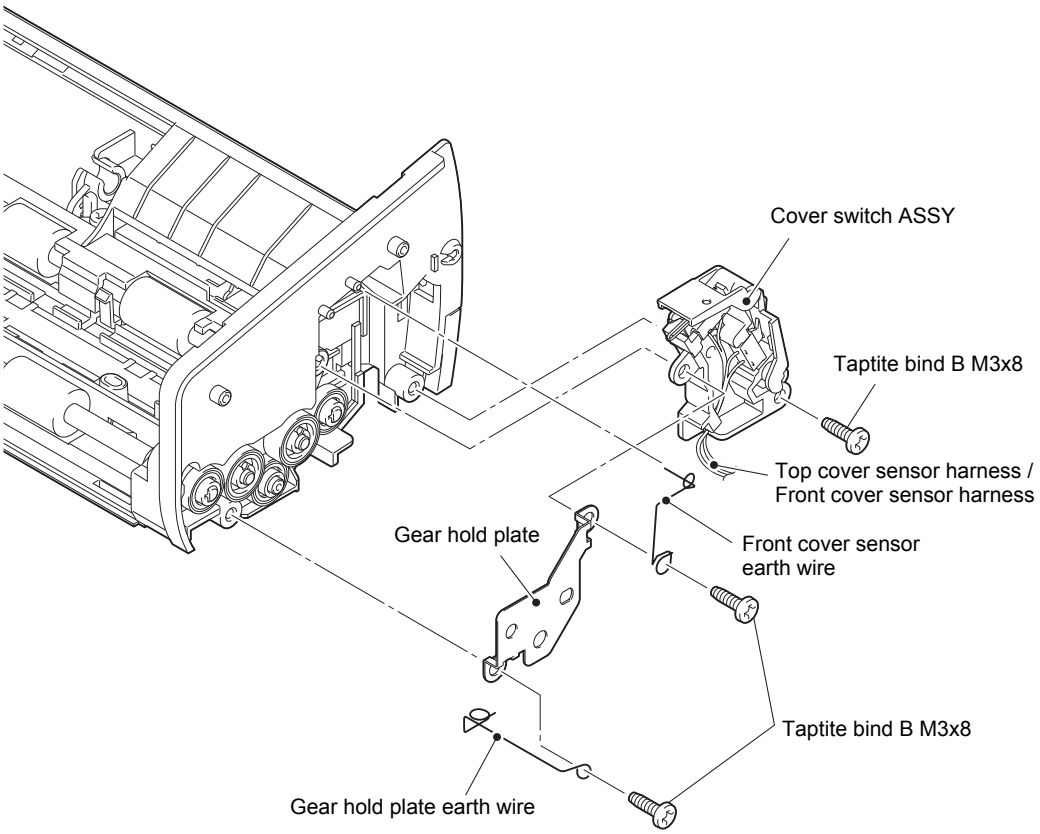



**Fig.3-31**

HARNESS ROUTING: Refer to “5. Frame R” and “8. Lower chute”.

## 8.22 First side CIS flat cable

(1) Turn the machine upside down.

(2) Remove the taptite bind B M3x8 screw while peeling the PCB upper insulation film F, and remove the main motor earth plate from the machine.

(3) Remove the taptite bind B M3x8 screw while peeling the PCB upper insulation film F, and remove the main PCB holder from the machine. Release the main motor harness ASSY from the guide of the harness protect cover.

(4) Disconnect the first side CIS flat cable from the machine.

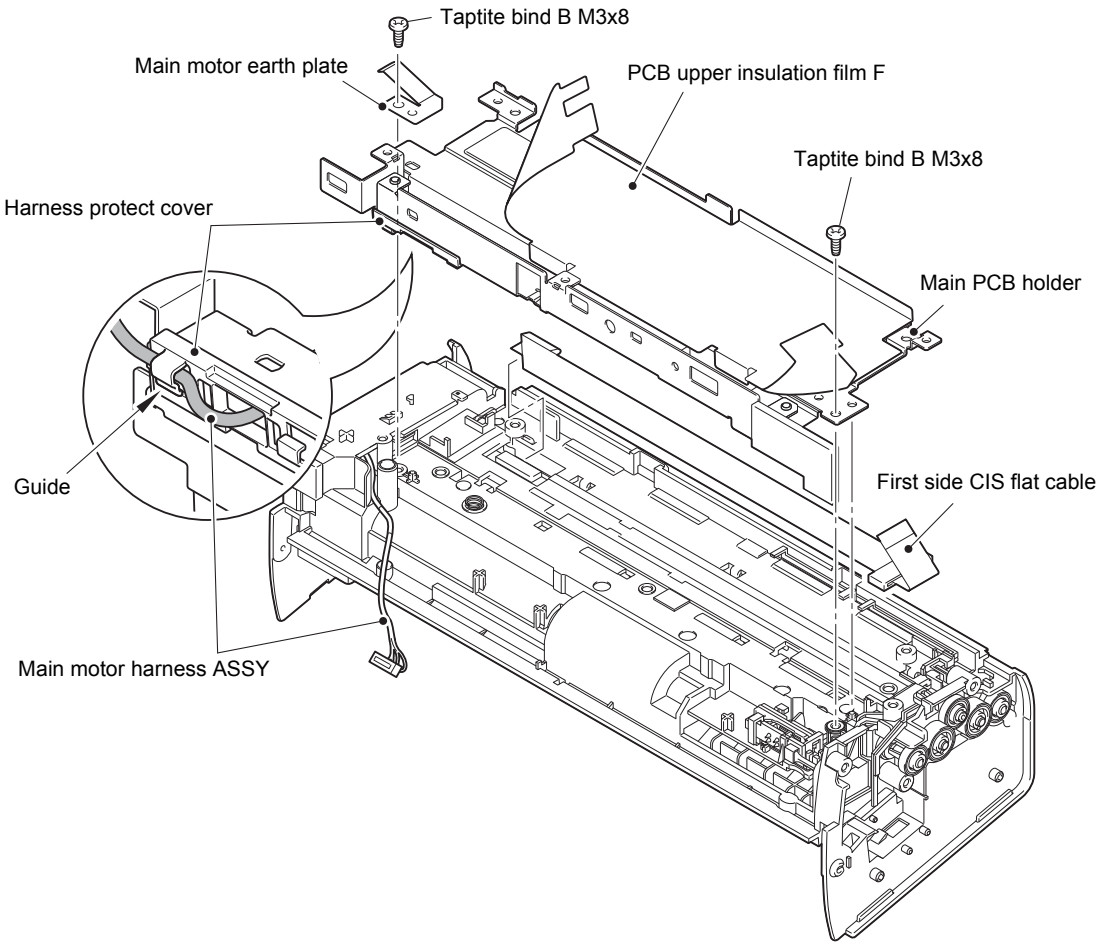



**Fig.3-32**

HARNESS ROUTING: Refer to “6. Frame L” and “8. Lower chute”.

**Assembling Note:**

- Fold the first side CIS flat cable as shown in the illustration below.
- Fold the first side CIS flat cable on the main PCB side at the position shown in the figure below.

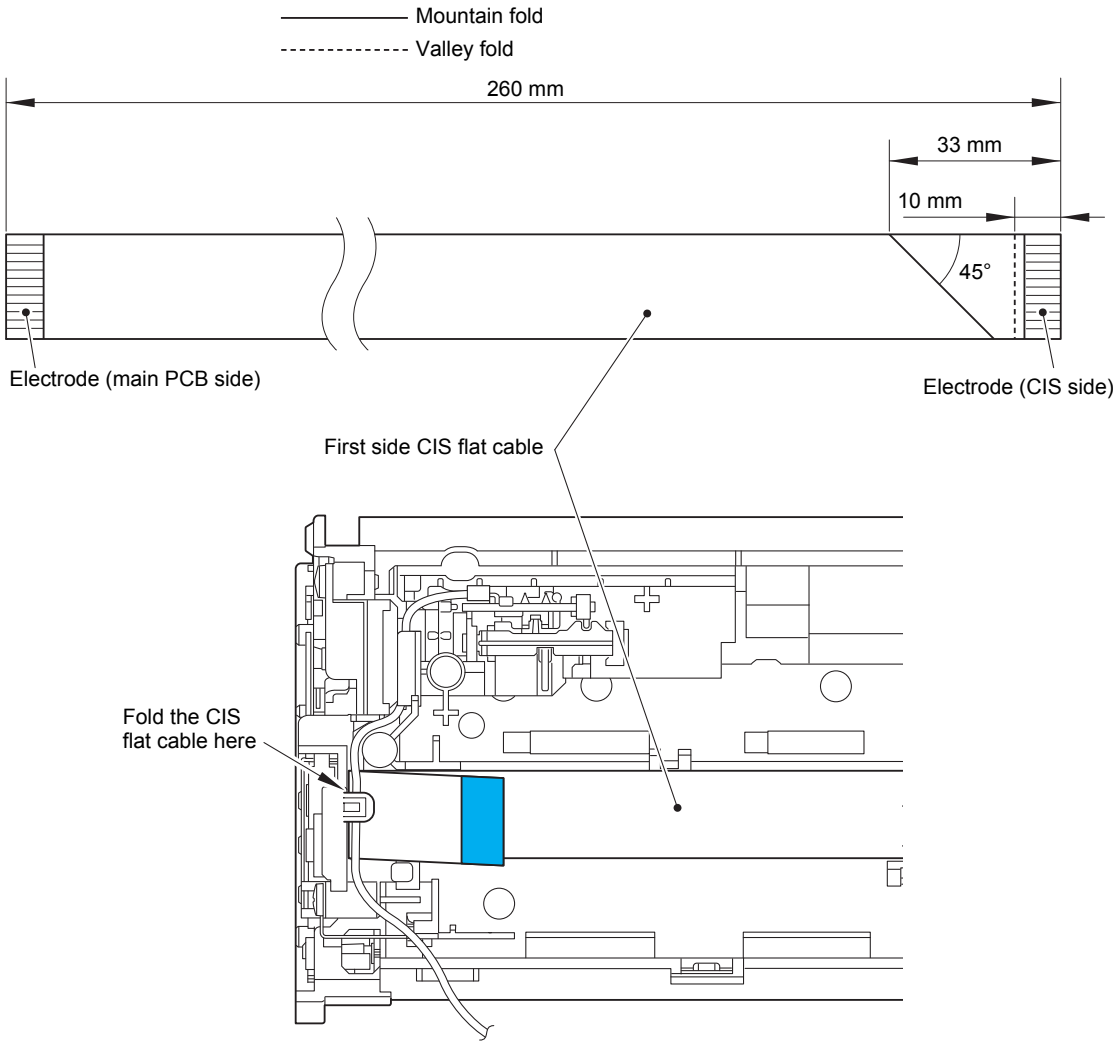



**Fig.3-33**

## 8.23 Card detection sensor PCB

(1) Release the hook to remove the card detection sensor PCB from the machine. Disconnect the card detection sensor harness from the card detection sensor PCB.

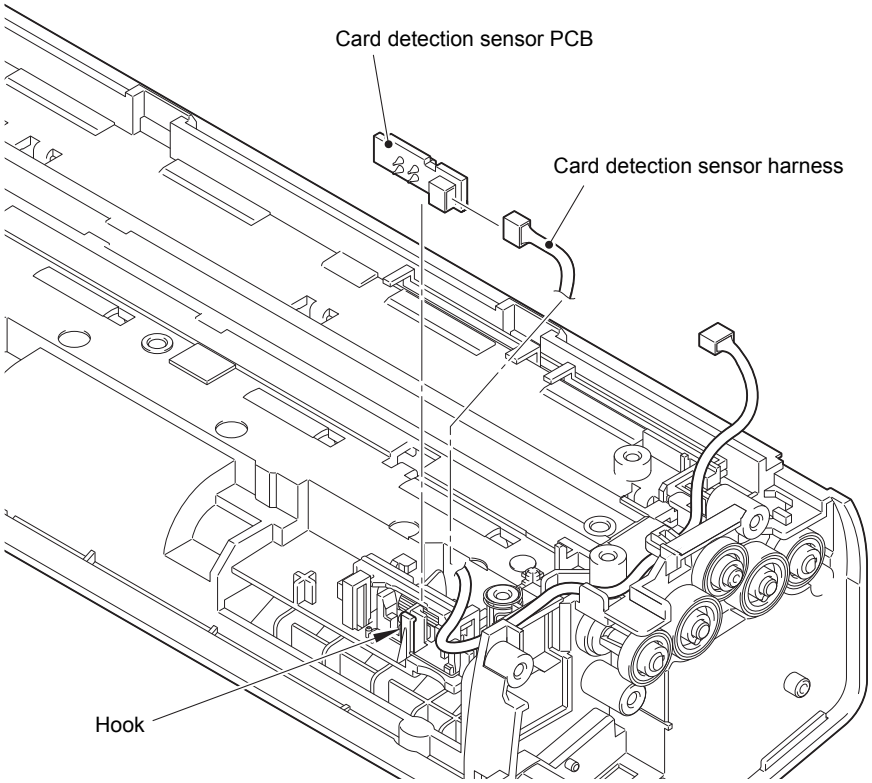



**Fig.3-34**

HARNESS ROUTING: Refer to “8. Lower chute”.

**Assembling Note:**

- Secure the card detection sensor harness in the securing fixtures as shown in the illustration below.

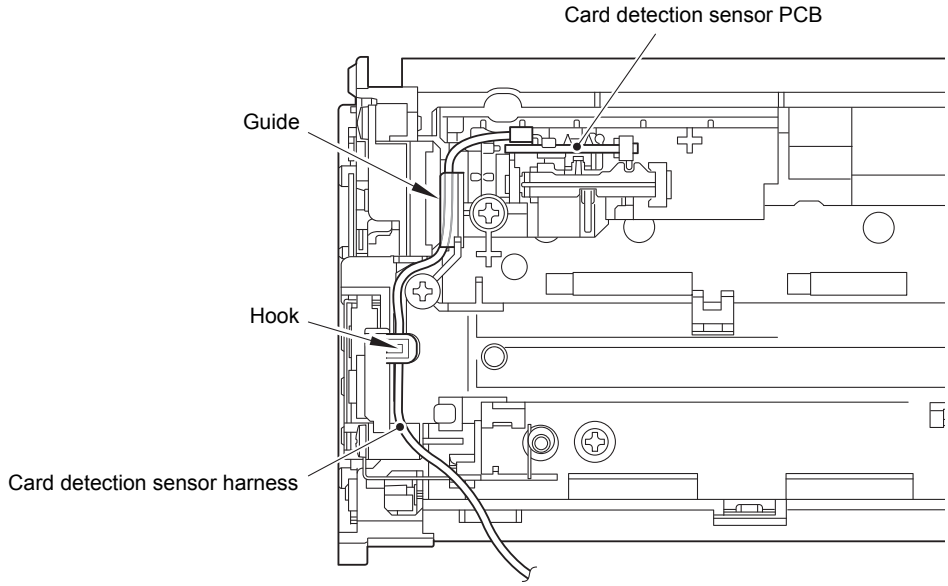



**Fig.3-35**

# CHAPTER 4 ADJUSTING AND UPDATING SETTINGS AS REQUIRED AFTER PARTS REPLACEMENT

## 1. IF YOU REPLACE THE MAIN PCB ASSY

Be sure to backup the machine information to an USB flash memory drive prior to the service.
Refer to "1.3.9 Backup machine information (function code: 46)" in Chapter 5.

**<What to do after replacement>**

- Checking firmware version
- Setting by country
- CIS type setting
- Installing firmware
- Initializing the EEPROM of the main PCB ASSY
- Restoring machine information
- Setting serial number
- Acquiring white level data
- Adjusting touch panel
- Checking operation after repair

### ■ What you need to prepare

(1) One USB cable

(2) Create a temporary folder on the C drive of the computer (Windows® XP or higher).

(3) Service setting tool (brusbsn.zip)
Copy this file into the temporary folder created on the C drive.

(4) Download utility (Filedg32.exe)
Copy this file into the temporary folder created on the C drive.

(5) Maintenance driver (MaintenanceDriver.zip)
When the maintenance printer driver is not installed on the computer to be used, copy this file into the temporary folder created on the C drive, and extract the copied file. Refer to "APPENDIX 3 INSTALLING THE MAINTENANCE PRINTER DRIVER" for the installation procedure.

(6) Firmware

| | |
|---|---|
| Main firmware:<br>(E.g.) LZXXXX_$.pjl | LZXXXX : First six digits of the part number of the firmware<br>$ : Alphabetic character representing the revision version of the firmware |

(7) USB flash memory drive

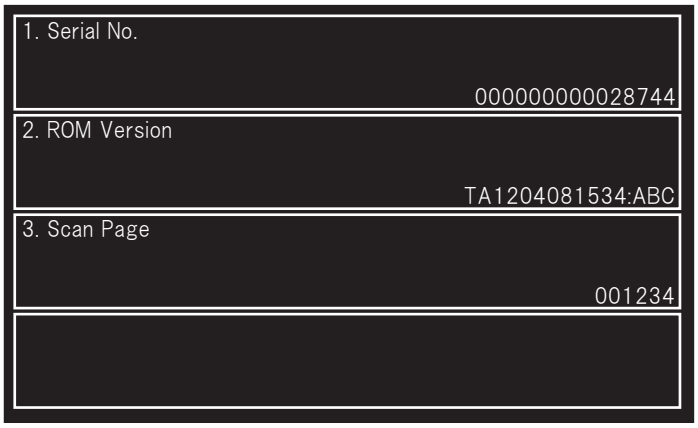
(8) Test chart (Test chart TC-027, Color test chart CTC-001, Contrast chart TC-023)

## 1.1 Checking Firmware Version

Check whether the firmware installed on the main PCB is the C version or later. If it is the C version or later, there is no need to install the firmware. If it is not, be sure to install the firmware to the main PCB as described in "1.4 Installing Firmware" in this chapter.

**<How to check firmware version>**

(1) Press and hold the key. The following screen appears on the LCD.




The main firmware version is displayed in the second box.

(2) Click the second box. The following screen appears on the LCD.


The firmware version is displayed in the second box.

## 1.2 Setting by Country

(1) Press the [7], and then the [4] key in the maintenance mode. The country code is displayed on the LCD.

(2) Check the current country code and enter it.

(3) Press the [Mono Start] key. The country code is set, and the machine returns to the initial state of maintenance mode.

## 1.3 CIS Type Setting (function code: 59)

(1) Press the [5], and then the [9] key in the initial state of maintenance mode. "CIS1:FS 2:BS" is displayed on the LCD.

(2) Press the [1] key.
(Press the [1] key to set the first and second side CIS.)
"1:MO 2:CO 3:CHG?" is displayed on the LCD.

(3) Press the [3] key.
"1:AUTO 2:MANUAL" is displayed on the LCD. If the firmware is outdated, "CIS TYPE 0→" is displayed on the LCD and the CIS type setting cannot be set. Install the latest firmware and then set the CIS type again.

(4) Press the [1] key.
The CIS type is set automatically, and the machine returns to the initial state of maintenance mode.

## 1.4 Installing Firmware

**Note:**
- After the CIS type setting as described in "1.3 CIS Type Setting" in this chapter, if "PLS UPDATE PROG" is displayed on the LCD, perform the steps below to install the firmware. If the message is not displayed, there is no need to perform the steps.

### ■ Firmware installation using USB flash memory drive (function code: 28)

Refer to "1.3.7 Install firmware using USB flash memory drive (function code: 28)" in Chapter 5 for the firmware installation procedure.

### ■ Firmware installation using PC

(1) Turn ON the power switch of the machine. Enter the maintenance mode.

(2) Connect the machine to your computer using the USB cable.

(3) Double-click the "Filedg32.exe" on the computer screen to start it.

(4) Drag and drop the main firmware file (ex: lz00001_a.pjl) onto the Brother Maintenance USB Printer in the Filedg32 window.

**Note:**
- Extract the firmware file before using it. Files with extension ".exe" are extracted automatically by double-click. Installing takes 2 to 3 minutes. Once the installing completed, the machine restarts and returns to the ready state automatically.

(5) Check if the firmware was installed correctly by displaying the installed firmware version on the LCD (Refer to "1.1 Checking Firmware Version" in this chapter).

**Note:**
- If the installing was failed, turn OFF the machine and turn it back on. The machine sets off buzzer and enters the firmware installing mode automatically. Perform the installing procedures above again using firmware with extension ".pjl".

## 1.5 Initializing the EEPROM of the Main PCB ASSY (function code: 01)

(1) Press the [0], and then the [1] key in the initial state of maintenance mode. "PARAMETER INIT" is displayed on the LCD, and the EEPROM is initialized. The machine returns to the initial state of maintenance mode.

## 1.6 Restoring Machine Information (function code: 46)

This function restores backup information including machine information and user setting stored in USB flash memory drive before disassembly.

If you succeeded in restoring, procedure 1.5 to 1.7 are not required.

(1) Enter the maintenance mode.

(2) Connect the USB flash memory drive with backup data to the machine.
"USBMem Active" is displayed on the LCD.

**Note:**
- Serial number of the backed up data stored in the USB flash memory drive must be matched to restore data.

(3) Press the [4], and then the [6] key. "Export to USBMem" is displayed on the LCD.

(4) Press the [▲] or [▼] key until one of the following options appears.
Import from Card: Restores only user setting information.
Import all: Restores all backup information.

(5) Press the [Mono Start] key. File name "********.msd" is displayed on the LCD.
"********" depends on the model.

(6) Press the [Mono Start] key. "Import from USBMem" or "Import all" is displayed on the LCD again.

(7) Press the [Mono Start] key. "Please wait" is displayed on the LCD.

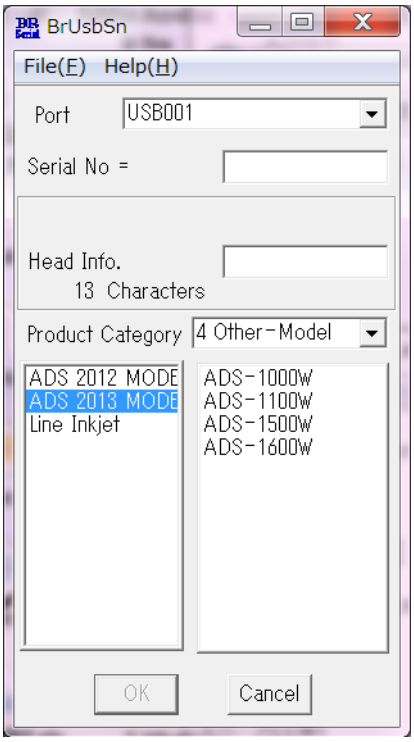
**Note:**
- Do not disconnect the USB flash memory drive during this operation.

(8) Wait until the machine returns to the initial state of maintenance mode, and then disconnect the USB flash memory drive.

## 1.7 Setting Serial Numbers

(1) Connect the machine to your computer using the USB cable in the initial state of maintenance mode.

(2) Double-click "brusbsn.exe" file that was copied into the temporary folder to start it.




(3) In the [Product Category] field, select the [4 Other-Model].

(4) Choose "ADS 2013 MODEL" in the left box of the BrUsbSn window.

(5) In the [Port] field, select the port number assigned to the Brother Maintenance USB Printer. If the port number is unknown, follow the steps below to check it.

1) Click [Start], [Settings], and [Printers and Faxes]. The Printers and Faxes window appears.

2) Right-click the "Brother Maintenance USB Printer" icon.

3) Click [Properties]. The Brother Maintenance USB Printer Properties window appears.

4) Click the [Ports] tab. The Brother Maintenance USB Printer port number is displayed.

(6) Enter the serial number (15 digits) of the machine in the [Serial No] field, and click the [OK] button.

(7) Check that the CHECK window appeared on the screen, and click the [Yes] button. The serial number is written to the machine.

(8) Disconnect the USB cable.

## 1.8 Acquiring White Level Data (function code: 55)

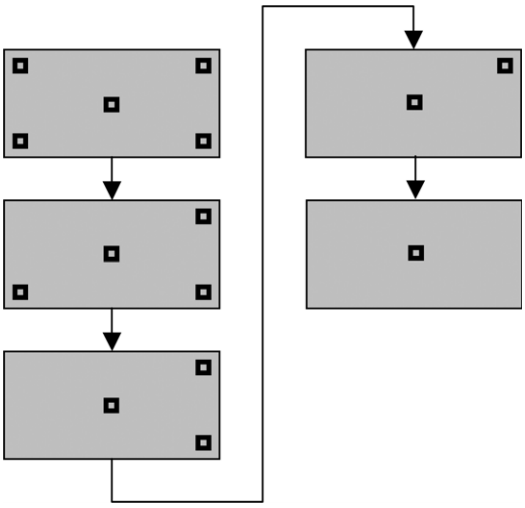
(1) Press the [5] key twice in the initial state of maintenance mode.

(2) "SCANNER AREA SET" is displayed on the LCD, and white level data is acquired. The machine returns to the initial state of maintenance mode.

## 1.9 Adjusting Touch Panel (function code: 78)

(1) Press the [7], and then the [8] key in the initial state of maintenance mode. The following adjustment screen appears on the LCD.

(2) Use the touch panel stylus and touch the mark in the upper left corner of the screen. When the touched mark has disappeared, touch the next mark. Touching sequence: upper left, lower left, lower right, upper right and center.
When the center (5th mark) is touched, "OK" is displayed if the specified area was adjusted correctly. The machine returns to the initial state of maintenance mode in 3 seconds.



## 1.10 Checking Operation after Repair

Perform the steps below to check the machine's condition after repair or adjustment.

(1) Prepare some test chart sheets (Test chart TC-027, Color test chart CTC-001, Contrast chart TC-023), and set them in the document tray.

(2) Insert the USB flash memory drive into the USB host.

(3) Click the [▷] key to display the [Scan to USB] key on the screen.

(4) Press the [Scan to USB] key.

(5) Press the [Start] key to begin scanning.
Check that sheets are picked up and fed one sheet at a time.
When an error occurs, refer to the troubleshooting procedure to repair the machine.

(6) When scanning is completed, remove the USB flash memory drive and connect it to the computer. Check the scanned data on the computer. If the image is distorted, refer to the troubleshooting procedure to repair the machine.

# 2. IF YOU REPLACE THE CIS UNIT

**<What to do after replacement>**

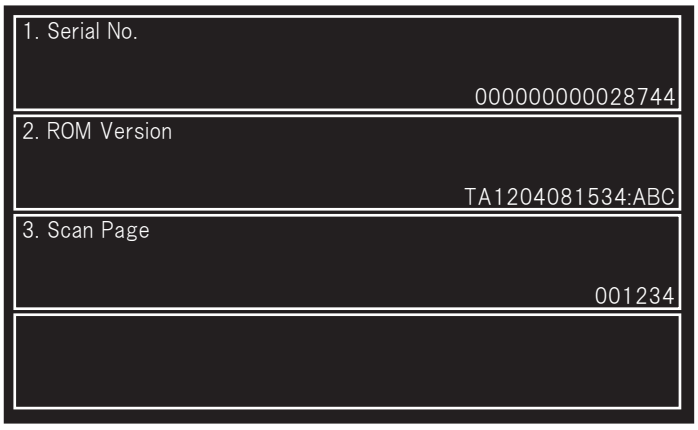
- Checking firmware version
- CIS type setting
- Installing firmware
- Acquiring white level data (function code: 55)
- Checking operation after repair

## 2.1 Checking Firmware Version

Check whether the firmware installed on the main PCB is the C version or later. If it is the C version or later, there is no need to install the firmware. If it is not, be sure to install the firmware to the main PCB as described in "2.3 Installing Firmware" in this chapter.

**<How to check firmware version>**

(1) Press and hold the key. The following screen appears on the LCD.




The main firmware version is displayed in the second box.

(2) Click the second box. The following screen appears on the LCD.


The firmware version is displayed in the second box.

## 2.2 CIS Type Setting (function code: 59)

(1) Press the [5], and then the [9] key in the initial state of maintenance mode. "CIS1:FS 2:BS" is displayed on the LCD.

(2) Press the [1] key.
(Press the [1] key to set the first and second side CIS.)
"1:MO 2:CO 3:CHG?" is displayed on the LCD.

(3) Press the [3] key.
"1:AUTO 2:MANUAL" is displayed on the LCD. If the firmware is outdated, "CIS TYPE 0→" is displayed on the LCD and the CIS type setting cannot be set. Install the latest firmware and then set the CIS type again.

(4) Press the [1] key.
The CIS type is set automatically, and the machine returns to the initial state of maintenance mode.

## 2.3 Installing Firmware

**Note:**
- After the CIS type setting as described in "1.3 CIS Type Setting" in this chapter, if "PLS UPDATE PROG" is displayed on the LCD, perform the steps below to install the firmware. If the message is not displayed, there is no need to perform the steps.

### ■ Firmware installation using USB flash memory drive (function code: 28)

Refer to "1.3.7 Install firmware using USB flash memory drive (function code: 28)" in Chapter 5 for the firmware installation procedure.

### ■ Firmware installation using PC

(1) Turn ON the power switch of the machine. Enter the maintenance mode.

(2) Connect the machine to your computer using the USB cable.

(3) Double-click the "Filedg32.exe" on the computer screen to start it.

(4) Drag and drop the main firmware file (ex: lz00001_a.pjl) onto the Brother Maintenance USB Printer in the Filedg32 window.

**Note:**
- Extract the firmware file before using it. Files with extension ".exe" are extracted automatically by double-click. Installing takes 2 to 3 minutes. Once the installing completed, the machine restarts and returns to the ready state automatically.

(5) Check if the firmware was installed correctly by displaying the installed firmware version on the LCD (Refer to "2.1 Checking Firmware Version" in this chapter).

**Note:**
- If the installing was failed, turn OFF the machine and turn it back on. The machine sets off buzzer and enters the firmware installing mode automatically. Perform the installing procedures above again using firmware with extension ".pjl".

## 2.4 Acquiring White Level Data (function code: 55)

(1) Press the [5] key twice in the initial state of maintenance mode.

(2) "SCANNER AREA SET" is displayed on the LCD, and white level data is acquired. The machine returns to the initial state of maintenance mode.

## 2.5 Checking Operation after Repair

Perform the steps below to check the machine's condition after repair or adjustment.

(1) Prepare some test chart sheets (Test chart TC-027, Color test chart CTC-001, Contrast chart TC-023), and set them in the document tray.

(2) Insert the USB flash memory drive into the USB host.

(3) Click the [▷] key to display the [Scan to USB] key on the screen.

(4) Press the [Scan to USB] key.

(5) Press the [Start] key to begin scanning.
Check that sheets are picked up and fed one sheet at a time.
When an error occurs, refer to the troubleshooting procedure to repair the machine.

(6) When scanning is completed, remove the USB flash memory drive and connect it to the computer. Check the scanned data on the computer. If the image is distorted, refer to the troubleshooting procedure to repair the machine.

# 3. IF YOU REPLACE THE PANEL UNIT

**<What to do after replacement>**

- Adjusting touch panel (function code: 78)
- Checking LCD operation (function code: 12)
- Checking control panel operation (function code: 13)

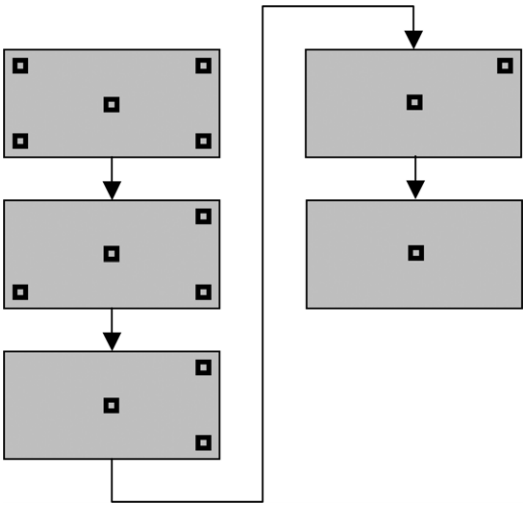
### ■ What you need to prepare

(1) Touch panel stylus

## 3.1 Adjusting Touch Panel (function code: 78)

(1) Press the [7], and then the [8] key in the initial state of maintenance mode. The following adjustment screen appears on the LCD.

(2) Use the touch panel stylus and touch the mark in the upper left corner of the screen. When the touched mark has disappeared, touch the next mark. Touching sequence: upper left, lower left, lower right, upper right and center.
When the center (5th mark) is touched, "OK" is displayed if the specified area was adjusted correctly. The machine returns to the initial state of maintenance mode in 3 seconds.



## 3.2 Checking LCD Operation (function code: 12)

(1) Press the [1], and then the [2] key in the initial state of maintenance mode. The LCD check display appears on the LCD. Refer to "1.3.4 Check LCD operation (function code: 12)" in Chapter 5.

(2) The LCD display changes each time the key is pressed.
Check that there is no problem (eg. dead pixel or nonuniformity) on the LCD display.

(3) Press the key, and the machine returns to the initial state of maintenance mode.

## 3.3 Checking Control Panel Operation (function code: 13)

(1) Press the [1], and then the [3] key in the initial state of maintenance mode. "00" is displayed on the LCD.

(2) Press the keys on the control panel according to the numbers provided on the figure in "1.3.5 Check control panel key operation (function code: 13)" in Chapter 5.

(3) When the key operation is normal, the machine returns to the initial state of maintenance mode when the last button is pressed.

(4) Press the [9] key twice to return the machine to the ready state.

# 4. IF YOU REPLACE THE PICK-UP ROLLER / SEPARATION PAD ASSY

**<What to do after replacement>**

- Resetting pick-up roller / separation pad counters

## 4.1 Resetting Pick-up Roller / Separation Pad Counters

(1) Press the  key.

(2) Press the [▲] or [▼] key to display "Machine Info.".

(3) Press the "Machine Info.".

(4) Press the "Usage Counters".

(5) Do one of the following:

- ■ To reset the counter for the Separation Pad, press "Separation Pad Count".
- ■ To reset the counter for the Pick-up Roller, press "Pick-up Roller Count".

(6) The LCD shows the confirmation message. Press "Yes" to reset the parts counter selected by (5).

# CHAPTER 5 SERVICE FUNCTIONS

## 1. MAINTENANCE MODE

Maintenance mode is exclusively designed for checking, setting, and adjusting the machine using the keys on the control panel.

These maintenance mode allow you to execute sensor operation check, test printing, log information and error code display, or worker switch (WSW) setting.

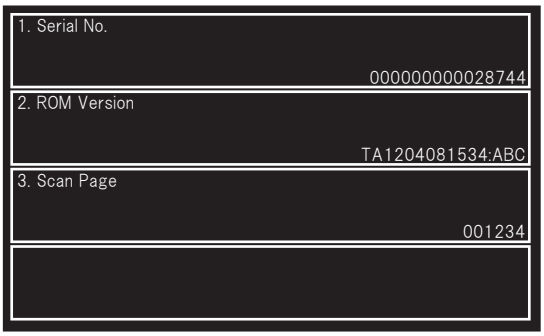
### 1.1 How to Enter Maintenance Mode

#### 1.1.1 Method of entering end-user accessible maintenance mode

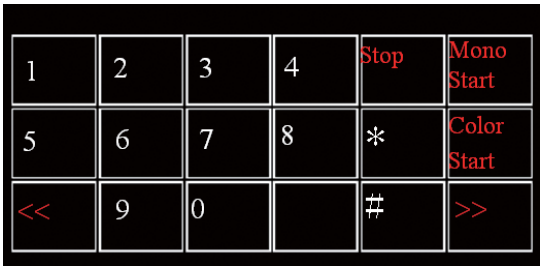
Basically, the maintenance mode functions should only be accessed by service personnel. However, end users are allowed to use some of these functions under the guidance of service personnel over the phone. End users can only use the functions shaded in the table on the "5-3". (function code: 10, 12, 18, 28, 46, 54, 77, 78, 80, 82, 91)

**<Operating Procedure>**

(1) While the machine is in the ready state, press and hold the key. The following display appears on the LCD.




(2) Press and hold the fourth box with no display. The following display appears on the LCD.



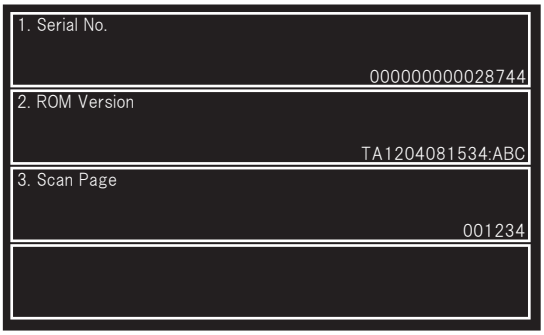

(3) Press the [*], [0], and [#] keys on the LCD in this order. The machine enters into ready state to accept function code entry, so press the function code you want to execute.

(4) Each time the selected maintenance mode function is completed, the machine returns to the ready state automatically.

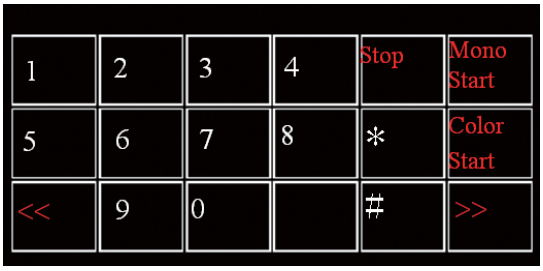
### 1.1.2 Method of entering maintenance mode for service personnel

**<Operating Procedure>**

(1) While the machine is in the ready state, press and hold the key. The following display appears on the LCD.




(2) Press and hold the fourth box with no display. The following display appears on the LCD.




(3) Press the [*], [2], [8], [6], and [4] keys on the LCD in this order. The following display appears on the LCD, and the machine enters into maintenance mode.


(4) To select any of the maintenance mode functions shown in the list on the next page, use the keypad to enter the maintenance mode function code to be executed.

## 1.2 List of Maintenance Mode Functions

| Function code | Function | Refer to: |
|---|---|---|
| 01 | Initialize EEPROM parameters | 5-4 |
| 05 | Register white level/black level data for document scanning compensation | — |
| 08 | ADF performance test | 5-5 |
| 10 | Set worker switches (WSW) | 5-6 |
| 12 | Check LCD operation | 5-7 |
| 13 | Check control panel operation | 5-8 |
| 18 | Save Net Config Print as text | 5-8 |
| 28 | Install firmware from USB flash memory drive | 5-9 |
| 32 | Check sensor operation | 5-10 |
| 46 | Backup machine information | 5-11 |
| 54 | Fine-tune scanning position | 5-13 |
| 55 | Acquire white level data and set CIS scan range | 5-14 |
| 59 | Set CIS type | 5-14 |
| 74 | Setting by country | 5-15 |
| 77 | Register maintenance information | 5-17 |
| 78 | Adjust touch panel | 5-20 |
| 80 | Display machine log information | 5-21 |
| 82 | Display machine error code | 5-22 |
| 91 | Initialize EEPROM parameters | 5-4 |
| 99 | Quit maintenance mode | — |

The maintenance mode functions shaded in the table can be used by end users.
* End-user accessible maintenance mode functions only.

## 1.3 Details of Maintenance Mode Functions

### 1.3.1 Initialize EEPROM parameters (function code: 01, 91)

**<Function>**

This function is used to initialize the setting values for operation parameters, user switches, and worker switches (WSW) registered in the EEPROM. Entering function code 01 initializes most EEPROM areas. Entering function code 91 initializes only the specified areas as shown in the table below.

| Function code / Data item | 01 | 91 |
|---|---|---|
| Counter information | Areas not to be initialized | Areas not to be initialized |
| Error history | | |
| MAC address | | |
| Memory security password | Area to be initialized | Area not to be initialized |
| Worker switches | Areas to be initialized | Areas to be initialized |
| User switches (items initialized when "Factory Reset" is executed) | | |
| Function settings except user switches (settings not subject to "Factory Reset") | | |
| LAN setting | | |
| Current error | | |

**<Operating Procedure>**

(1) Press the [0] and [1] keys in this order in the initial state of maintenance mode to display "Maintenance 01" (or press the [9] and [1] keys as appropriate to display "Maintenance 91") on the LCD.

(2) Press the [SET] key. "PARAMETER INIT" is displayed on the LCD.

(3) When initializing parameters is completed, the machine returns to the initial state of maintenance mode.

### 1.3.2 ADF performance test (function code: 08)

#### <Function>

This function is used to test the performance of the automatic document feeder (ADF). The scanned pages of the documents fed by the ADF are counted and the result is displayed on the LCD.

#### <Operating Procedure>

(1) Set the documents in the ADF unit.

(2) Press the [0], and then the [8] key in the initial state of maintenance mode.
"ADF CHECK P.**" is displayed on the LCD, and the documents are ejected while the scanned pages are counted. (** indicates the current count of the scanned pages.)

(3) When the  key is pressed, the machine returns to the initial state of maintenance mode.

**Note:**

- If the front cover is open, "ADF COVER OPEN" is displayed on the LCD. Close the front cover, and perform this function again.
- If no document is set in ADF, "NO DOCUMENT" is displayed on the LCD and the machine returns to the initial state of maintenance mode.

### 1.3.3 Set worker switches (WSW) (function code: 10)

#### <Function>

Worker switches shown in the table below can be used to set the function to satisfy various requirements. The switch settings can be changed using the keys on the control panel.

Worker switches are factory set to conform with the laws and regulations of the country the machine is shipped to. Do not change these settings unless necessary.

#### List of worker switches

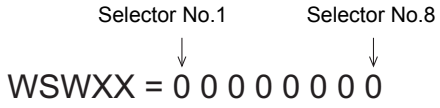
| WSW No. | Function |
|---|---|
| WSW17 | Clock setting 1 |
| WSW32 | Resolution/contrast home position |
| WSW43 | Remote maintenance auto start setting |
| WSW44 | Available correction time before scanning |
| WSW46 | Dust removal/waiting time before starting scanning |
| WSW47 | Switching between high- and full-speed USB |
| WSW60 | Setting touch panel repeat start time and its interval |

* Refer to the separate manual for details of worker switches.
* Worker switches not on the list can be typed but nothing happens even if the value is changed.

#### <Operating Procedure>

(1) Press the [1], and then the [0] key in the initial state of maintenance mode. "WSW00" is displayed on the LCD.

(2) Enter the worker switch number that you want to change the setting.
The display shown below appears on the LCD and "Selector No.1" flashes.




(3) Press the [◀] or [▶] key to flash the desired selector, and change the setting by pressing the [1] or [0] key.

(4) When the setting is changed successfully, press the [SET] key. The new selector setting value is stored in the EEPROM, and the LCD returns to the ready state for worker switch number entry ("WSW00").

(5) When all switch setting is completed, press the ✕ key to return the machine to the initial state of maintenance mode.

**Note:**
- To cancel operation and return to the initial state of maintenance mode, press the ✕ key.
- If there is no entry for one minute or longer on 2-digits firmware switch number selection, the machine returns to the initial state of maintenance mode automatically.

### 1.3.4 Check LCD operation (function code: 12)

**<Function>**

This function is used to check that the LCD on the control panel is operating normally.

**<Operating Procedure>**

(1) Press the [1], and then the [2] key in the initial state of maintenance mode. Displays shown in the table below appear on the LCD.

(2) Pressing key switches displays as shown below. The LCD display changes each time the key is pressed.

Pressing the key at Display 1 returns the display to Display 12.

(3) When the key is pressed, the machine returns to the initial state of maintenance mode, regardless of the display status.

| | | | |
|---|---|---|---|
| <Display 1> Complete white | | <Display 7> Gradation red | |
| <Display 2> Complete black | | <Display 8> Gradation green | |
| <Display 3> Complete red | | <Display 9> Gradation blue | |
| <Display 4> Complete green | | <Display 10> Gradation white | |
| <Display 5> Complete blue | | <Display 11> Image data screen | |
| <Display 6> Complete gray | | <Display 12> Stroke detection screen | |

### 1.3.5 Check control panel key operation (function code: 13)

**<Function>**

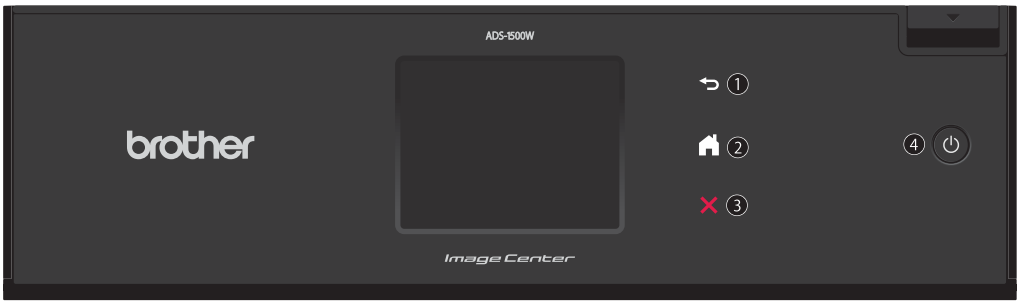
This function is used to check that the keys on the control panel operate normally.

**<Operating Procedure>**

(1) Press the [1], and then the [3] key in the initial state of maintenance mode. "00" is displayed on the LCD.

(2) Press the keys on the control panel according to the numbers provided in the figure below. Each time the key is pressed, the corresponding number is displayed on the LCD. Check that the number displayed on the LCD matches the number assigned to the key that has been pressed. If the keys are pressed in the incorrect order, "INVALID OPERATE" is displayed on the LCD. Press the ✕ key, and then press the correct key.

(3) When the key operation is normal, the machine beeps for a second after pressing the [4] key and completes the check. When the ✕ key is pressed, the machine returns to the initial state of maintenance mode.




### 1.3.6 Save Net Config Print as text (function code: 18)

**<Function>**

This function is used to save NetConfig data to the USB flash memory drive.

**<Operating Procedure>**

(1) Press the [1], and then the [8] key in the initial state of maintenance mode. "NETCONFIG" is displayed on the LCD.

(2) Insert the USB flash memory drive into the USB host.

(3) Press the [SET] key. "SAVE TO USB" is displayed on the LCD.

(4) Press the [SET] key. "USB SAVING" is displayed on the LCD, and NetConfig data is saved to the USB flash memory drive.

(5) When NetConfig data is saved, "USB Men. Active" is display on the LCD. After several seconds, the machine returns to the initial state of maintenance mode.

Create a folder named "NetConfig" in the USB flash memory drive and save the file as txt file.

### 1.3.7 Install firmware using USB flash memory drive (function code: 28)

#### <Function>

This function installs firmware stored in the flash ROM mounted on the main PCB using USB flash memory drive. This allows the machine to install firmware without PC connection.

#### <Operating Procedure>

(1) Turn on the computer and connect USB flash memory drive to the computer.

(2) Create "BROTHER" (one-byte alphanumeric) folder at the top hierarchy in the USB flash memory drive and copy firmware files with extension ".pjl" into it.

**Note:**
- Check if the file names with extension ".pjl" are for the machine to be installed. Files with extension ".pjl" in "BROTHER" folder must be less than 100 files.

**Remark:**
- If the firmware file for other model is used, no error will be displayed. It will be appeared to be working normally until the procedure (5), but the firmware will not be installed.

(3) Disconnect the USB flash memory drive from PC, and connect it to the machine at initial state of maintenance mode.

(4) Press the [2], and then the [8] key in the initial state of maintenance mode.
File name "********.PJL" is displayed on the LCD.

(5) Press the [▲] or [▼] key to select the appropriate firmware file.

(6) Press the [Mono Start] key.
"Receiving Data" will be displayed on LCD and the message turns to "Program Updating" after a while.

**Note:**
- Do not disconnect the USB flash memory drive during this operation.

(7) Installing takes several minutes. Once it is completed, the machine restarts and returns to the ready state automatically.
Disconnect the USB flash memory drive from the machine, and keep it in a safe place.

**Note1:**
- If the following errors appear, return to the initial state of maintenance mode by pressing the [Stop] or  key.

| Error | Cause |
|---|---|
| Card is used | USB flash memory drive is being used for other operation. |
| Insert Card | USB flash memory drive is not connected. |
| No file | Invalid file name or "BROTHER" folder cannot be found. |
| Card Error | USB flash memory drive error |

**Note2:**
- When firmware is installed, "mfu-send.log" file (a file with operation log) will be created under "BROTHER" folder.

### 1.3.8 Check sensor operation (function code: 32)

**<Function>**

This function is used to check that sensors are operating normally.

**<Operating Procedure>**

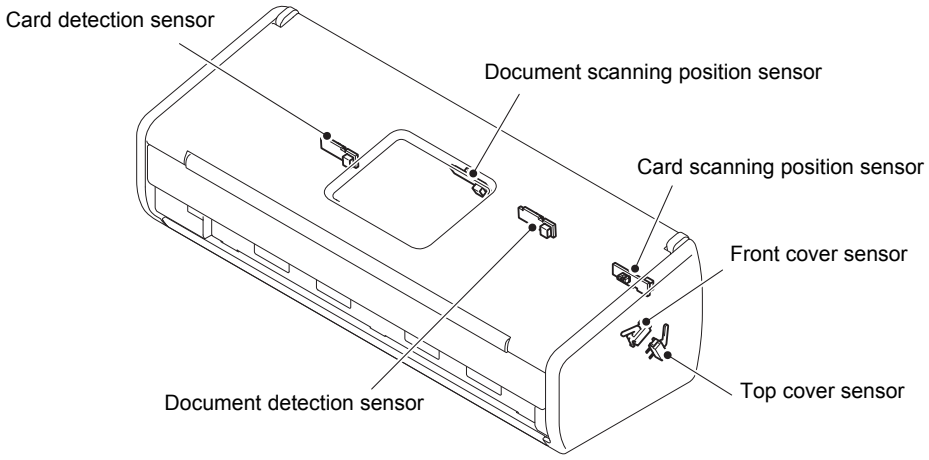
(1) Press the [3], and then the [2] key in the initial state of maintenance mode. The sensor operating conditions defined in the table below are applied, and "DFDRCFCRACTC" is displayed on the LCD.

The table below summarizes the LCD displays, sensor names and detection status.

| LCD | Sensor name | Detection status (displayed / not displayed) |
|---|---|---|
| DF | Document detection sensor | Document set / No document |
| DR | Document scanning position sensor | Document set / No document |
| CF | Card detection sensor | Card set / No card |
| CR | Card scanning position sensor | Card set / No card |
| AC | Front cover sensor | Front cover closed / Front cover open |
| TC | Top cover sensor | Top cover closed / Top cover open |

(2) Change the conditions subject to sensor detection and check that the display on the LCD changes depending on the sensor status. For example, feed the paper through the document detection sensor, or open the top/front cover.

(3) When the ✕ key is pressed, this operation is finished, and the machine returns to the initial state of maintenance mode.



### 1.3.9 Backup machine information (function code: 46)

#### <Function>

This function stores backups including machine information and user setting to USB flash memory drive and restores those backups later if necessary.

- Machine information (adjusted values, counts, error log, or Machine specification)
- User setting information

The following information is not included in this backup.

- Serial number of the machine
- MAC address

**Note:**

- End-user can perform backup and restoration procedure by function code, however, all they can perform on restoration procedure is "Import from USBMem", and "Import all" is inoperable.
- Backup requires an USB flash memory drive which has bigger free space than the RAM mounted on the machine.
- When performing this procedure on other machine using same USB flash memory drive, delete the previous data from USB flash memory drive beforehand.

#### <Operating Procedure>

##### ■ Backup

(1) Create "BROTHER" folder in an USB flash memory drive to save backup on PC.

(2) Connect the USB flash memory drive used in (1) to the machine at the initial state of maintenance mode.
"USBMem. Active" is displayed on the LCD.

**Note:**

- When backup is saved to the USB flash memory drive which already has previous backup data of the model, the old data will be replaced to the new data.

(3) Press the [4], and then the [6] key.
"Export to USBMem." is displayed on the LCD.

(4) Press the [Mono Start] key.
File name "********.msd" is displayed on the LCD. "********" depends on the model.

(5) Press the [Mono Start] key.
"Export to USBMem." is displayed on the LCD again.

(6) Press the [Mono Start] key.
"Please wait" is displayed on the LCD.

**Note:**

- Do not disconnect the USB flash memory drive during this operation.
- When this procedure has been performed by End-user accessible function code, "Please wait" is displayed on the LCD and the machine returns to the ready state.

(7) Once the machine returned to the initial state of maintenance mode, disconnect the USB flash memory drive and keep it in a safe place.

**Note:**
- If the following errors appear, return to the initial state of maintenance mode by pressing the [Stop] or ✕ key.

| Error | Cause |
|---|---|
| Card is used | The USB flash memory drive is being used for other operation. |
| Insert Card | The USB flash memory drive is not connected. |
| No file | Invalid file name. "BROTHER" folder cannot be found. |
| Card Error | USB flash memory drive error. |
| Machine ID Error | Serial numbers differs between the machine and backup data (detectable only on restoration). |
| Write Error | There is insufficient memory in the USB flash memory drive. |

## ■ Restoration

(1) Connect the USB flash memory drive with backup data to the machine at the initial state of maintenance mode. "USBMem. Active" is displayed on the LCD.

**Note:**
- Serial number of the backup data stored in the USB flash memory drive must be matched with the serial number of the machine to restore data.

(2) Press the [4], and then the [6] key. "Export to USBMem." is displayed on the LCD.

(3) Press the [▲] or [▼] key until one of the following options appears.
Import from USBMem: Restores only user setting information.
Import all: Restores all backup information.

(4) Press the [Mono Start] key. File name "********.msd" is displayed on the LCD.
"********" depends on the model.

(5) Press the [Mono Start] key.
"Import from USBMem." or "Import all" is displayed on the LCD again.

(6) Press the [Mono Start] key.
"Please wait" is displayed on the LCD.

**Note:**
- Do not disconnect the USB flash memory drive during this operation.

(7) Once the machine returned to the initial state of maintenance mode, disconnect the USB flash memory drive and keep it in a safe place.

(8) Quit the maintenance mode by pressing the [9] key twice, and return the machine to the ready state.

**Note:**
- The machine may operate according to the old data unless it quits the maintenance mode by pressing the [9] key twice and restart the machine.
- If errors described in the table above appears, return to the initial state of maintenance mode by pressing the [Stop] or ✕ key.

### 1.3.10 Fine-tune scanning position (function code: 54)

#### <Function>

This function is used to adjust the scanning start/end positions.

#### <Operating Procedure>

(1) Press the [5], and then the [4] key in the initial state of maintenance mode. "0:FRONT 1:BACK" is displayed on the LCD.

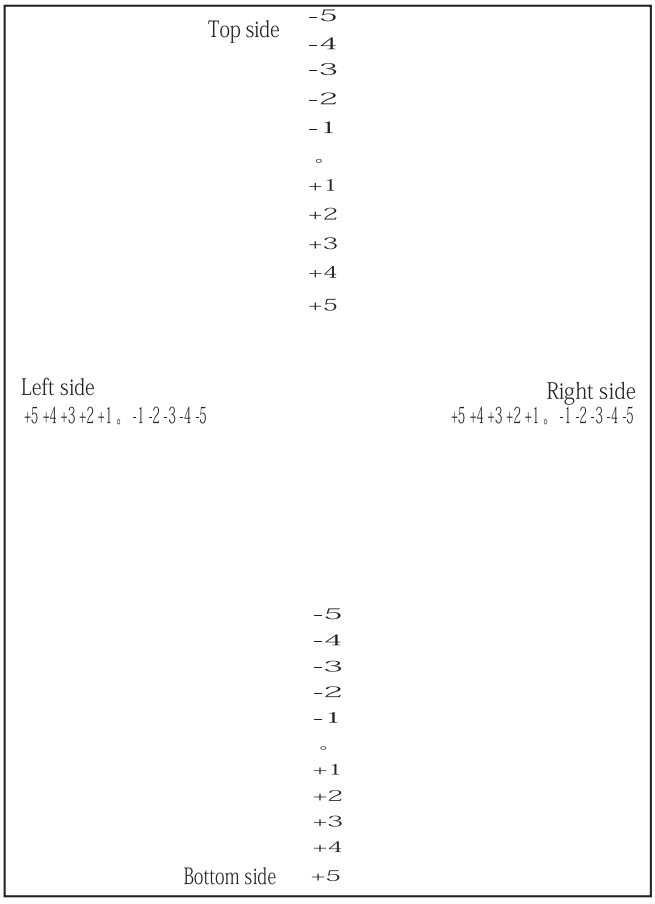
(2) Press the [0] key to adjust left and right margin. "RL EGDE **" is displayed on the LCD.
Press the [1] key to adjust top margin. "TOP EGDE **" is displayed on the LCD.
Press the [2] key to adjust bottom margin. "BOTM EGDE **" is displayed on the LCD.

(3) Enter the measured value (in a unit of 0.1 mm) x 10.
To increase the adjusted value by 10 (+10 = 1.0 mm) , press the [▲] key, and to decrease, press the [▼] key.
To increase the adjusted value by 1 (+1 = 0.1 mm) , press the [▶] key, and to decrease, press the [◀] key.

**Note:**

- Entered value returns to "0" when the [CLR] key is pressed.
- The machine returns to the initial state of maintenance mode without correcting the adjusted value when the [Stop] or ✕ key is pressed.

(4) When the position is adjusted, press the [SET] key. "Accepted" is displayed on the LCD, and the machine returns to the initial state of maintenance mode.



### 1.3.11 Acquire white level data and set CIS scan area (function code: 55)

#### <Function>

This function is used to obtain the white/black level of the CIS unit, and store this data and the scan area in the EEPROM of the main PCB.

#### <Operating Procedure>

(1) Press the [5] key twice in the initial state of maintenance mode.
If any error found in the machine, "ME STATE STOP" is displayed on the LCD.
Press the [1], [9], [3], and [7] keys in this order.
If no error found in the machine, it starts next procedure automatically.

(2) "SCANNER AREA SET" is displayed on the LCD, and white level data is acquired.

(3) After several seconds, white level data/scan width compensation is saved in EEPROM, and the machine returns to the initial state of maintenance mode.
If any error detected during this operation, error message is displayed on the LCD.
In this case, press the ✕ key to return the machine to the initial state of the maintenance mode, and start again from (1) after recovery.

### 1.3.12 Set CIS type (function code: 59)

#### <Function>

This function sets CIS type as a EEPROM parameter of the main PCB. When the main PCB ASSY has been replaced, it is required to set CIS type as follows.

#### <Operating Procedure>

■ **CIS type setting**

(1) Press the [5], and then the [9] key in the initial state of maintenance mode. "CIS1:FS 2:BS" is displayed on the LCD.

(2) Press the [1] key.
(Press the [1] key to set the first and second side CIS.)
"1:MO 2:CO 3:CHG?" is displayed on the LCD.

(3) Press the [3] key.
"1:AUTO 2:MANUAL" is displayed on the LCD. If the firmware is outdated, "CIS TYPE 0→" is displayed on the LCD and the CIS type setting cannot be set. Install the latest firmware and then set the CIS type again.

(4) Press the [1] key.
The CIS type is set automatically, and the machine returns to the initial state of maintenance mode.

### 1.3.13 Setting by country (function code: 74)

#### <Function>

This function is used to customize the machine according to language, function settings, and worker switch settings.

#### <Operating Procedure>

(1) Press the [7], and then the [4] key in the initial state of maintenance mode. "SELECT 74?" is displayed on the LCD.

(2) Press the [Mono Start] key. The country code currently set is displayed on the LCD.

(3) Enter the country code you want to set.

(4) Press the [Mono Start] key. The new setting is saved, and the machine returns to the initial state of maintenance mode.

When the ✕ key is pressed during setting, the machine returns to the initial state of maintenance mode without saving any changes that have been made.

**Note:**

- If there is no entry for one minute or longer, the machine returns to the initial state of maintenance mode automatically, regardless of the display status.

#### ■ Setting by country code list

| Country | ADS-1500W | ADS-1600W |
|---|---|---|
| USA | 0001 | — |
| Canada | 0001 | — |
| Germany | — | 0103 |
| UK | — | 0104 |
| France | — | 0103 |
| Australia | — | 0106 |
| Norway | — | 0103 |
| Belgium | — | 0103 |
| Netherlands | — | 0103 |
| Switzerland | — | 0103 |
| Denmark | — | 0103 |
| Austria | — | 0103 |
| Spain | — | 0103 |
| Italy | — | 0103 |
| Israel | — | 0103 |
| Portugal | — | 0103 |
| China | — | 0120 |
| Vietnam | — | 0140 |
| Turkey | — | 0103 |

The above information is as of July 2013. Please confirm the latest firmware information which is available from your local Brother Customer Service.

| Country | ADS-1500W | ADS-1600W |
|---|---|---|
| Sweden | — | 0103 |
| New Zealand | — | 0106 |
| Hong Kong | — | 0140 |
| Thailand | — | 0140 |
| Argentina | 0042 | — |
| Saudi Arabia | — | 0140 |
| South Africa | — | 0140 |
| Chile | 0042 | — |
| Czech Republic | — | 0103 |
| Hungary | — | 0103 |
| Poland | — | 0103 |
| Singapore | — | 0140 |
| UAE | — | 0140 |
| Brazil | 0042 | — |
| Indonesia | | 0140 |
| Korea | | 0140 |
| India | | 0140 |
| Mexico | 0001 | — |
| Russia | — | 0148 |
| Bulgaria | — | 0103 |
| Romania | — | 0103 |
| Slovakia | — | 0103 |
| Slovenia | — | 0103 |
| Greece | — | 0103 |
| Luxembourg | — | 0103 |
| Peru | 0042 | — |
| Estonia | — | 0103 |
| Finland | — | 0103 |
| Iceland | — | 0103 |
| Lithuania | — | 0103 |
| Malaysia | — | 0140 |
| Ireland | — | 0104 |
| Philippines | — | 0140 |
| Latvia | — | 0103 |

The above information is as of July 2013. Please confirm the latest firmware information which is available from your local Brother Customer Service.

### 1.3.14 Register maintenance information (function code: 77)

#### <Function>

This function saves log information of the machine to an USB flash memory drive.

#### <Operating Procedure>

(1) Connect an USB flash memory drive to the machine at the initial state of maintenance mode.
"USBMem Active" is displayed on the LCD.

(2) Press the [7] key twice in the initial state of maintenance mode.
"ADS-1500W *********" is displayed on the LCD and the machine saves the log information to the USB flash memory drive as CSV file.
("*******" is model name + last 9 digits of the machine's serial number)

(3) Once the saving is completed, the machine quits the maintenance mode and returns to the ready state.

Log information to be saved in the USB flash memory drive is listed in the next page.

CSV file format

| | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| 1 | RTC | | | 2013/07/03 19:03 | OK | | | |
| 2 | | | | 00:00 01:44 OK | | | | |
| 3 | MODEL | | | 8WD-402-001 | | | | |
| 4 | COUNTRY | | | 0001 | | | | |
| 5 | SWITCH | | | 71 | | | | |
| 6 | MAIN FIRM | | | 0A 0309291700:5D16 4E05 | | | | |
| 7 | BOOT LOADER | | | 0307311644:34CD | | | | |
| 8 | S/N | | | U63595123456789 | | | | |
| 9 | CISF | | | 00 | | | | |
| 10 | CISA | | | 00 | | | | |
| 11 | ENGINE | | | 00 | | | | |
| 12 | LCD | | | 00 | | | | |
| 13 | TOTAL SF COUNT | | | 0000000060 | | | | |
| 14 | ADF PAGE | | | 0000000002 | | | | |
| 15 | ADFDX PAGE | | | 0000000001 | | | | |
| 16 | FB PAGE | | | 0000000000 | | | | |
| 17 | ADF JAM | | | 0000000001 | | | | |
| 18 | SCANNER COUNT | | | 00384 | | | | |
| 19 | SEPARATION PAD COUNT | | | 00050 | | | | |
| 20 | PICKUP ROLLER COUNT | | | 00040 | | | | |
| 21 | HP ERR | | | 00 | | | | |
| 22 | ERR LOG | | | 00 | 00 | 00 | 00 | 00 |
| 23 | POWER ON TIME(HOUR) | | | 0000000006 | | | | |
| 24 | POWER ON COUNT | | | 00000001 | | | | |
| 25 | MAC ERR(1st-3th) | | | | | | | |
| | | 1st | | A1 | 0310071324 | 25 | | |
| | | 2nd | | A2 | 0310011730 | 23 | | |
| | | 3rd | | A3 | 0310011730 | 22 | | |
| | MAC ERR(4st-6th) | | | | | | | |
| | | 4th | | A3 | 0310010910 | 21 | | |
| | | 5th | | 30 | 0309302233 | 00 | | |
| | | 6th | | 00 | 0000000000 | 00 | | |
| | MAC ERR(7th-9th) | | | | | | | |
| | | 7th | | 00 | 0000000000 | 00 | | |
| | | 8th | | 00 | 0000000000 | 00 | | |
| | | 9th | | 00 | 0000000000 | 00 | | |
| 26 | COM ERROR 1/2/3 | | | | | | | |
| | | 1 | | 11070000 | 0310032231 | | | |
| | | 2 | | BF010000 | 0309130805 | | | |
| | | 3 | | BF010000 | 0308130805 | | | |
| 27 | BACKUP DATA VERSION | | | A | | | | |
| 28 | SENSOR STATUS | | | | | | | |
| | | DF | | 0 | | | | |
| | | DR | | 0 | | | | |
| | | CF | | 0 | | | | |
| | | CR | | 0 | | | | |
| | | AC | | 1 | | | | |
| | | TC | | 1 | | | | |
| 29 | EXECUTED MAINTEN | | | 60 00 00 00 00 00 00 00 00 00 00 00 00 | | | | |
| 30 | EXECUTED SP_MAINTEN | | | 00 00 00 00 00 00 00 00 00 00 00 00 00 | | | | |
| | | checksum | | 0060 | | | | |
| 31 | CLCDDRV ERR | | | T:00 E:0000000000000000000 R:0000000000000000000 | | | | |
| 32 | RESET HISTORY | | | | | | | |
| | | COUNTER | | 000 | | | | |
| | | POWER ON TIME(HOUR) | | 0000000000 | | | | |

## ■ Description

1: Result of RTC check result YYYY/MM/DD HH:MM result
2: RTC backup check result
3: Model code
4: Country code
5: WSW, PSW, USW, FSW checksum
6: Main firmware: version, ROM creation time, checksum, ROM1 checksum
7: Boot section: ROM creation time, checksum
8: Serial number *1
9: First side CIS type
10: Second side CIS type
11: Engine type
12: Color LCD type
13: Total number of documents fed
14: Number of scanning on ADF *2
15: Number of double-side scanning on ADF *2
16: Not in use
17: Number of jams on ADF scanning *2
18: Scanner count *2
*Number of pages scanned is total of card scanning and document scanning.
19: Number of separation pad used
20: Number of pick-up roller used
21: Home Position detection error (not in use)
22: ERR LOG: white tape data for 16 byte (not in use)
23: Total power distribution time
24: The number of times that the power is turned ON
Number of times that the power is turned ON due to events including adapter reset and software reset (ex: setting reset, program update).
25: last 9 machine errors, error time, and temperature (°C) at the time of error. *3
26: Connection error and the time of the error. The latest one is displayed as "1". The value is given in hexadecimal.
27: format version of backup data
28: Sensor operation check *4
Displays sensor operation at the start of the function code 77 as follows:
- 0 ・・・sensor OFF
- 1 ・・・sensor ON

29: Executed function codes
30: Executed advanced function codes
31: LCD error
Logs time and loss at the time of LCD error.
T: Time (0: No error, 1: Error at start, 2: Error during normal operation)
E: Data scanning expected value (ST6789: 32bit/ILI9335: 16bit)
R: Data scanning loss value (ST6789: 32bit/ILI9335: 16bit)
32: Reset history
Number of reset times/Power on time at the latest reset

*1 Displays the serial code of the machine

*2 Maximum values for each counter in scanning system are as follows:

| Counter name | Max. value |
|---|---|
| ADF | 16777215 (0xFFFFFF) |
| ADF JAM / ADF DX / SCANNER | 65535 (0xFFFF) |

*3 The latest machine error is displayed as "1st". When the same error occurs many times continuously, they are counted as once.

*4 Refer to "function code: 32" for sensor names on display.

### 1.3.15 Adjust touch panel (function code: 78)

#### <Function>

This function is used to adjust the detection area on the touch panel.

**Note:**

- This adjustment requires a touch panel stylus with a thin tip. A commercially available stylus designed for electronic dictionaries or personal digital assistance (PDA) can be used. If one is not available at hand, order a "STYLUS" from Brother's parts list.

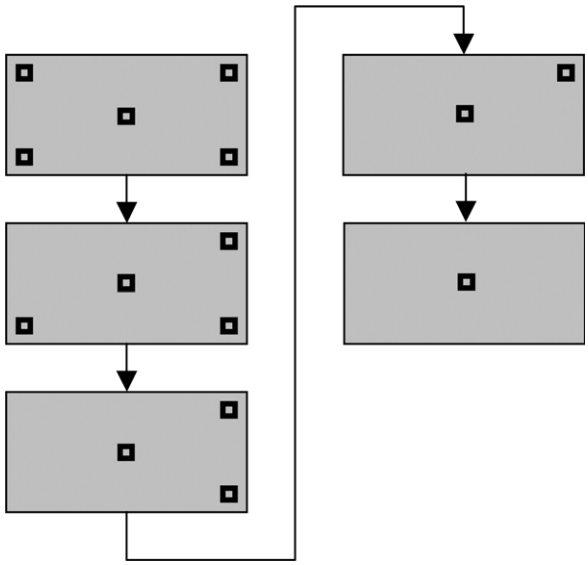
#### <Operating Procedure>

(1) Press the [7], and then the [8] key in the initial state of maintenance mode. The adjustment screen shown below appears on the LCD.

(2) Use the touch panel stylus and touch the mark in the upper left corner of the screen. When the touched mark has disappeared, touch the next mark. Touching sequence: upper left, lower left, lower right, upper right and center.
When the center (5th mark) is touched, "OK" is displayed on the LCD if the specified area was adjusted correctly. The machine returns to initial state of maintenance mode.

**Note:**

- Do not use any tools other than a touch panel stylus. In particular, never use a pointed tool (e.g. screwdriver). Using such a tool will damage the touch panel.
- Do not touch the touch panel with your fingers. The contact area of a finger is too large to adjust the touch panel precisely.
- If no operation is performed for one minute or the ✕ key is pressed, the machine returns to the initial state of maintenance mode.
- If "NG" is still displayed even after this operation is repeated two to three times, replace the panel unit.



### 1.3.16 Display machine log information (function code: 80)

#### <Function>

This function is used to display the log information on the LCD.

#### <Operating Procedure>

(1) Press the [8], and then the [0] key in the initial state of maintenance mode.
"00:00 22:36 OK" is displayed on the LCD.

(2) Pressing the [▼] key displays the next item.
Pressing the [▲] key returns to the previous item.

(3) When the ✕ key is pressed, the machine returns to the initial state of maintenance mode.

Display information

| LCD display | Description |
|---|---|
| 00:00 22:36 OK | RTC backup check.<br>Backed up normally: OK  Data not saved: NG *2 |
| 8WD-401 | Model code |
| COUNTRY:0001 | Country code |
| SWITCH:82 | WSW, PSW, USW, FSW checksum *2 |
| MAIN:0A307211213 | Main firmware version and ROM creation time |
| 3415 5314 | Main firmware checksum/ROM1 checksum |
| B1306101054:34CD | Boot section ROM creation time and checksum *2 |
| S/N: | Serial number *1 |
| CISF:00 CISA:00 | CIS type |
| POWER:0000000353 | Total power distribution time |
| PWCNT:0000000353 | The number of times that the power is turned ON |
| MACHINE ERR_1:50 | Machine error log (last 9 errors) *3 |
| ADTL_PG:0000000010 | Total pages scanned |
| ADF_JAM:00000 | Number of document jams on ADF scanning |
| ADF:0000000006 | Number of scanned pages in ADF *4 |
| ADF_PAD_CNT:00010 | Number of separation pads used |
| ADF_ROL_CNT:00010 | Number of pick-up rollers used |

*1 The serial number can be changed according to the steps below.

1) While the serial number is displayed, press the [9], [4], [7], and [5] keys in this order. The cursor appears on the first digit of the serial number and edit mode is entered.

2) Use the keypad to enter the first digit of the serial number. The cursor moves to the second digit. Enter the second digit to the 15th digit similarly.

<Entry method of alphanumeric characters>

See the table below and press the corresponding key until the desired character is displayed.

| Keypad | Assigned characters |
|---|---|
| 2 | 2 → A → B → C |
| 3 | 3 → D → E → F |
| 4 | 4 → G → H → I |
| 5 | 5 → J → K → L |
| 6 | 6 → M → N → O |
| 7 | 7 → P → Q → R → S |
| 8 | 8 → T → U → V |
| 9 | 9 → W → X → Y → Z |

3) Press the [Start] key, and the new serial number is saved. The machine returns to the initial state of maintenance mode.

Pressing the [OK] key while "S/N:" is displayed shows serial number.

*2 Not required for maintenance work.

*3 LCD shows the previous error when the [SET] key is pressed during the error display. In case of machine error, the time view and temperature view can be switched by pressing the [▶] key.

*4 The document scanning view and card scanning view can be switched by pressing the [SET] key.

### 1.3.17 Display machine error code (function code: 82)

#### <Function>

This function is used to display the latest error code on the LCD.

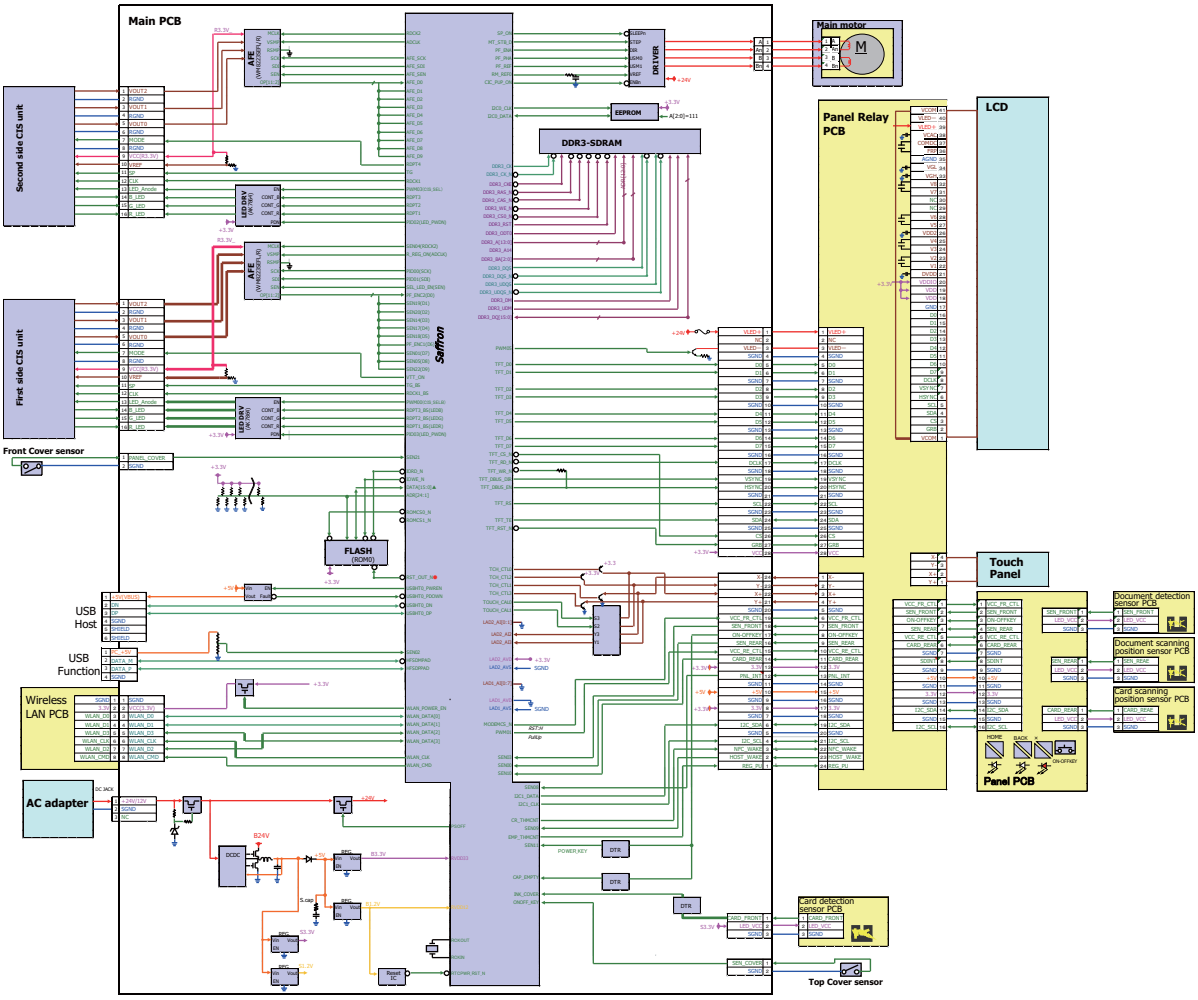
#### <Operating Procedure>

(1) Press the [8], and then the [2] key in the initial state of maintenance mode. "MACHINE ERR XX" is displayed on the LCD.

(2) When the [✕] key is pressed, the machine returns to the initial state of maintenance mode.

# CHAPTER 6 WIRING DIAGRAM

## 1. WIRING DIAGRAM



# CHAPTER 7 PERIODICAL MAINTENANCE

## 1. PERIODICAL MAINTENANCE PARTS

There are no parts that must be replaced periodically.

# APPENDIX 1 SERIAL NUMBERING SYSTEM

## ■ Serial number label (1 location)

<How to Read>

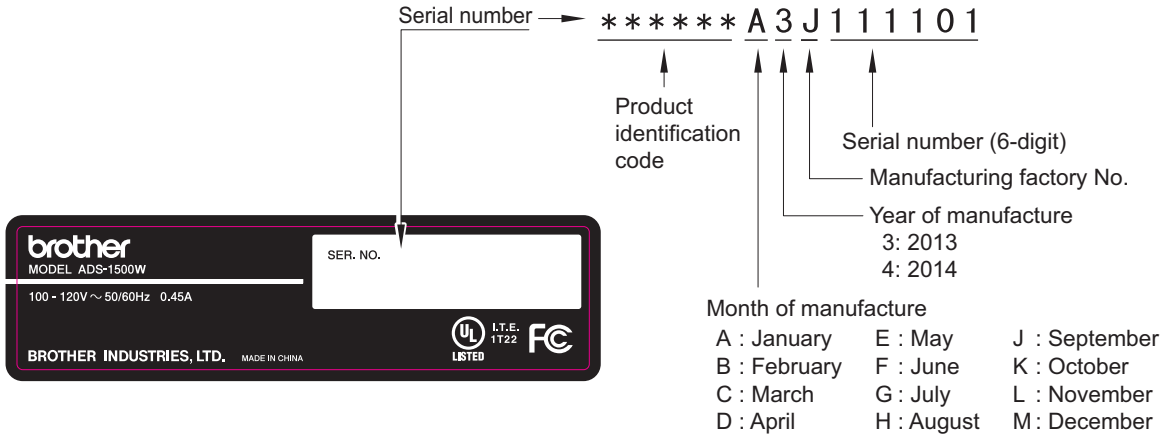



**Fig. App.1-1**

<Location>

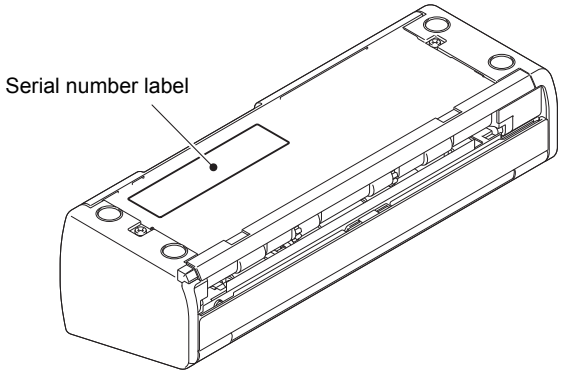



**Fig. App.1-2**

# APPENDIX 2 DELETING USER SETTING INFORMATION

Initializes setting values registered in EEPROM including operation parameter and user switch.

**<Operation Procedure>**

(1) Press the  key.

(2) Press the [▲] or [▼] key to display "Initial Setup" on the LCD, and press the [Initial Setup] box.

(3) Press the [Reset] box.

(4) Press the [All Settings] box.

(5) Press the [Yes] key.

(6) Press and hold the [Yes] key again.
The EEPROM is initialized, and the machine returns to the ready state.

# APPENDIX 3 INSTALLING THE MAINTENANCE PRINTER DRIVER

To identify machines connected via USB direct interface, the PC requires the corresponding driver for the virtual USB device. If you connect any number of machines to your PC, the same number of virtual USB devices will be automatically configured on your PC. To prevent many virtual USB devices from being configured, use the unique driver installation procedure described below that enables your PC to identify terminals via one single virtual USB device.

**NOTES:**

- Once this installation procedure is carried out for a PC, no more driver/software installation will be required for that PC to identify machines. If the Brother Maintenance USB Printer driver has been already installed to your PC according to this procedure, skip this section.
- Before proceeding to the procedure given below, make sure that the Brother Maintenance USB Printer driver is stored in your PC.

**Windows 2000/Windows XP**

(1) Check that the power switch of the machine is turned off. Disconnect the USB cable that connects the machine with your PC.

(2) Turn on your PC.

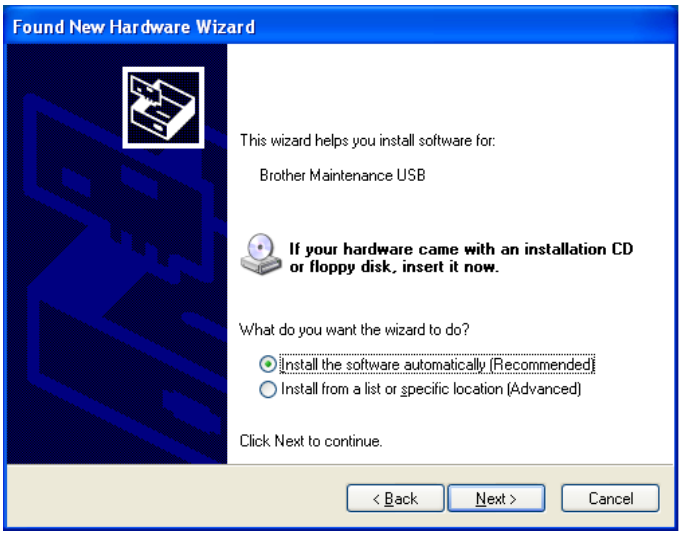
(3) Turn on the power switch of the machine.

(4) Switch the machine to the maintenance mode. (Refer to Chapter 5.)

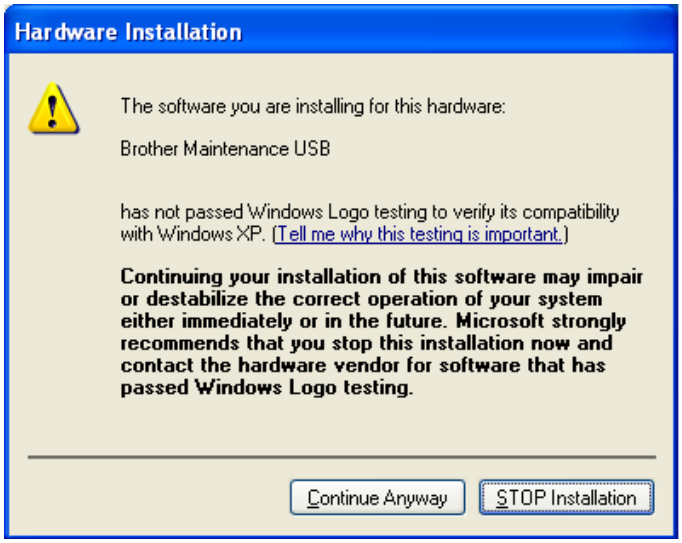
(5) Connect the machine to your PC using a USB cable.
The following window appears.

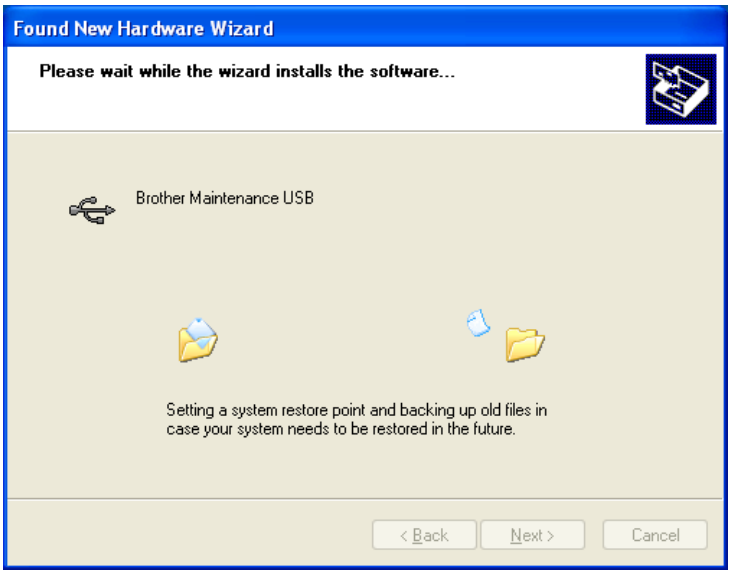

(6) The following screen appears, indicating the detection of new hardware device by the system. Select "No, not this time." And click [Next].

(7) Select "Install the software automatically (Recommended)" and click [Next].




(8) Alert warning message of WHQL appears. Click [Continue Anyway] to proceed.

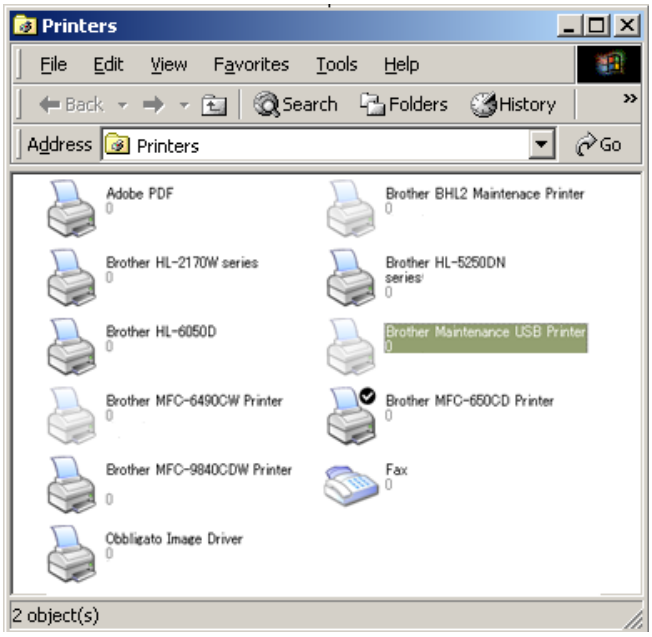





(9) Repeat steps (6) to (8) three times. Installation is completed.

(10) If the Brother Maintenance USB Printer driver is successfully installed, the following message screen appears. Click [Finish] to return.

**NOTE:** In order to check whether the printer driver is successfully installed, click [Start], [Settings], [Printers] to select the Printers window. Then, check that the Brother Maintenance USB Printer icon is shown.

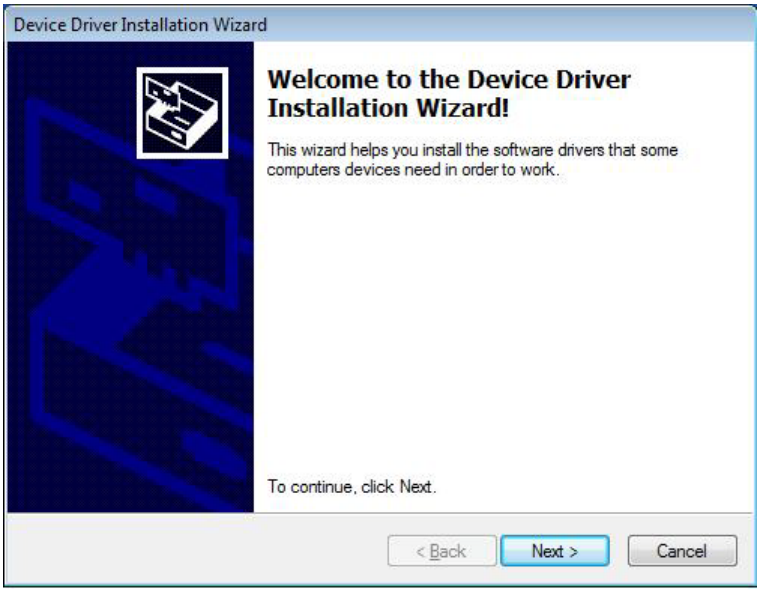


**Windows Vista/Windows 7/Windows 8**

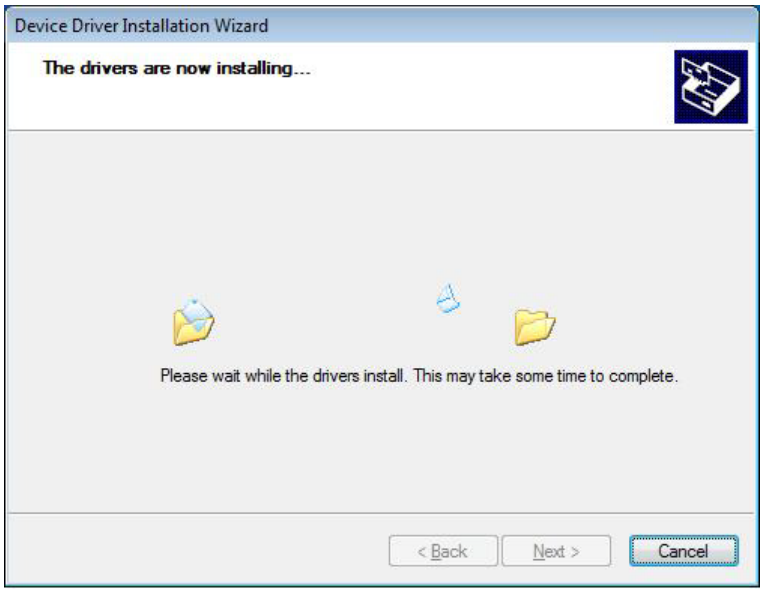
(1) Check that the power cord of the machine is unplugged from the electrical outlet. Disconnect the USB cable that connects the machine with your PC.

(2) Turn on your PC.

(3) Click Setup.exe inside the Brother Maintenance USB Printer folder that was saved in a temporary folder. The following screen appears. Click the [Next] button.




The following screen is displayed during installation.



(4) Wait for the following screen to appear and click [Finish].


(5) Plug the power cord of the machine into an electrical outlet.

(6) Switch the machine to the maintenance mode. (Refer to Chapter 5.)

(7) Connect the machine to your PC using a USB cable.

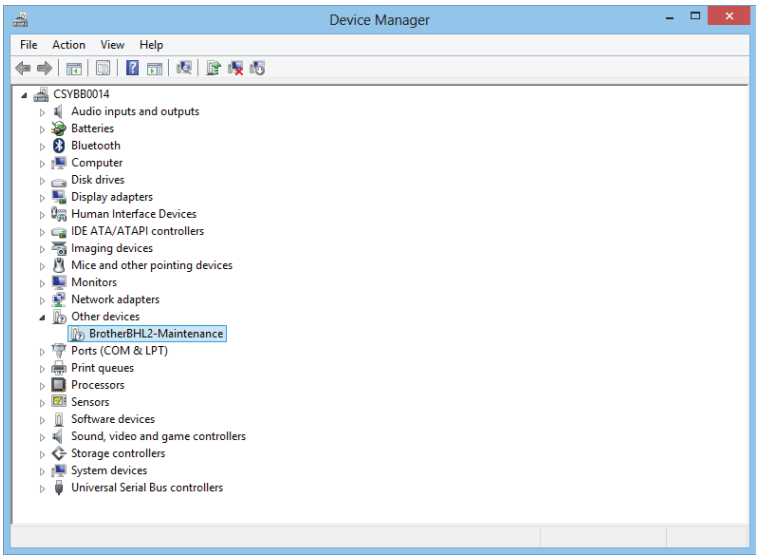
**Windows Vista/Windows 7**

The following window is displayed during installation.


If the following window appears, the installation is completed.

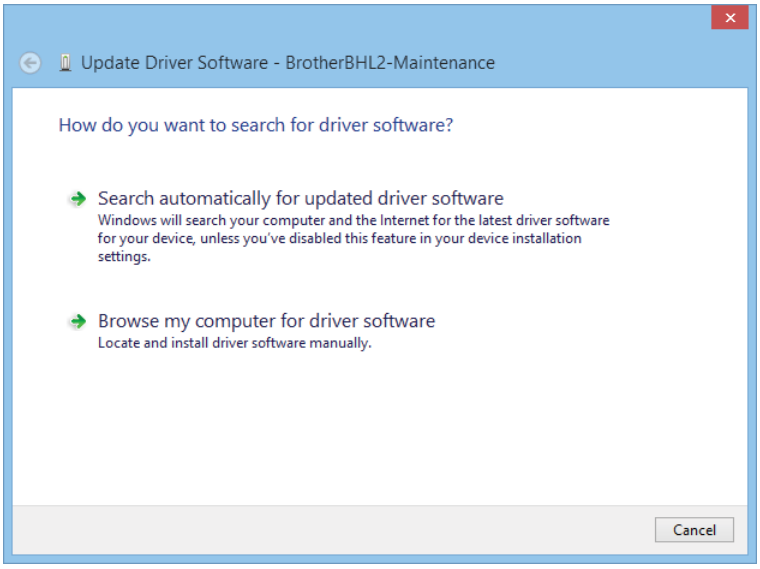
## Windows 8

Open "Device Manager" from [Settings] → [Control Panel].




Select "Update Driver Software" from the pull-down menu of "Brother BHL2-Maintenance" in "Other devices".

When the following screen appears, click "Search automatically for updated driver software".




Select "Brother Maintenance USB Printer" and click [Next].

When the following screen appears, click [Close] to close the screen.