Imprinter 50F/50B

SERVICE MANUAL

FIRST EDITION

Canon

SEPT. 2005 MY8-13A7-000

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

PREFACE

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

Contents

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

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

Chapter 3: Disassembly and reassembly
Disassembly method, reassembly method

Chapter 4: Installation and maintenance
Installation method, maintenance method

Chapter 5: Troubleshooting
Service modes and troubleshooting

Appendix: General circuit diagrams, etc.

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

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

Quality Assurance Center
Canon Electronics Inc.

CONTENTS

CHAPTER 1 GENERAL DESCRIPTION

CHAPTER 2 FUNCTIONS & OPERATION

CHAPTER 3 DISASSEMBLY & REASSEMBLY

CHAPTER 4 INSTALLATION & MAINTENANCE

CHAPTER 5 TROUBLESHOOTING

APPENDIX

CHAPTER 1

GENERAL DESCRIPTION

I. FEATURES

1. Imprinter for DR-5010C

It can be attached on the rear of DR-5010C to use.
However, the DR-5010C at the initial stage of mass production cannot be used. The products that are compatible with the imprinter must be used.

2. Two Types: for Front Side Printing and Back side Printing

For front side printing: Imprinter 50F, for back side printing: Imprinter 50B

3. Adoption of Bubble-jet Method Print Head

Head nozzle pitch: 0.0425 mm (600 dpi), number of effective nozzles: 608, maximum printing width: 25.8 mm

4. Three Ink Colors

Black, red and purple ink tanks are provided.
The ink tanks are attached and replaced by the user.

5. Installation and Maintenance by Service Technicians

Installation on the DR-5010C and print head replacement are performed by service technician.

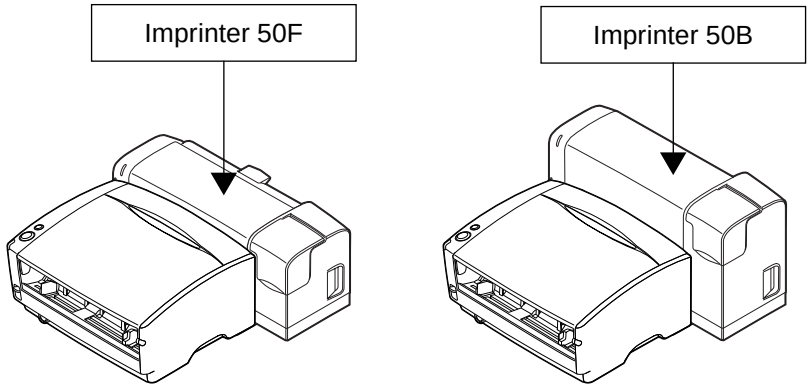


Figure 1-101

II. SPECIFICATIONS

<table>
<tr><th>No.</th><th>Item</th><th>Specifications</th></tr>
<tr><td>1</td><td>Type</td><td>Ink jet printer for desktop type scanner</td></tr>
<tr><td>2</td><td>Printing side</td><td>1) Imprinter 50F: Front side
2) Imprinter 50B: Back side</td></tr>
<tr><td>3</td><td>Print head</td><td>1) Number of nozzles: 616
(Number of effective nozzles: 608)
2) Nozzle pitch: 0.0425 mm (600 dpi)
3) Maximum print width:25.8 mm
* Replaced by service technician.</td></tr>
<tr><td>4</td><td>Ink ejection method</td><td>Bubble-jet method</td></tr>
<tr><td>5</td><td>Feedable document size/thickness</td><td>As per DR-5010C
* Straight path</td></tr>
<tr><td>6</td><td>Printable document thickness</td><td>0.3 mm or less
* However, except document types not suitable for printing</td></tr>
<tr><td>7</td><td>Fixing method</td><td>Natural drying</td></tr>
<tr><td>8</td><td>Residual ink processing</td><td>Residual ink receiver
* Replaced by service technician.</td></tr>
<tr><td>9</td><td>Reading speed including printing</td><td>
<table>
<tr><td colspan="2">Document size: A4</td><td colspan="2">Imprinter 50F</td><td colspan="2">Imprinter 50B</td></tr>
<tr><td>Mode</td><td>Resolution</td><td>Simplex</td><td>Duplex</td><td>Simplex</td><td>Duplex</td></tr>
<tr><td rowspan="3">Black &White /Grayscale</td><td>200dpi</td><td>45 ppm</td><td>90 ipm</td><td>35 ppm</td><td>70 ipm</td></tr>
<tr><td>300dpi</td><td>36 ppm</td><td>72 ipm</td><td>28 ppm</td><td>56 ipm</td></tr>
<tr><td>600dpi</td><td>18 ppm</td><td>18 ipm</td><td>14 ppm</td><td>18 ipm</td></tr>
<tr><td rowspan="3">Color</td><td>200dpi</td><td>45 ppm</td><td>90 ipm</td><td>35 ppm</td><td>70 ipm</td></tr>
<tr><td>300dpi</td><td>36 ppm</td><td>65 ipm</td><td>28 ppm</td><td>56 ipm</td></tr>
<tr><td>600dpi</td><td>6 ppm</td><td>16 ipm</td><td>6 ppm</td><td>16 ipm</td></tr>
</table>
* Twenty-nine characters and bitmap images should be printable, the read settings should be set to the initial values and the grayscale/color, to JPEG. The other detailed conditions are omitted. The conditions may change depending on the computer, the function settings and other elements.</td></tr>
<tr><td>10</td><td>Maximum printing area</td><td>25.8 (W) × 229.5 (D) mm</td></tr>
<tr><td>11</td><td>Printable area</td><td>Shown on the next page.</td></tr>
<tr><td>12</td><td>Printable characters</td><td>Numerical and alphabetical characters, spaces, symbols and special characters.
* Other than the characters, bitmap images are printable.</td></tr>
<tr><td>13</td><td>Number of printable characters</td><td>Up to 92 characters
* It defers depending on the font size.</td></tr>
<tr><td>14</td><td>Power supply</td><td>24 VDC
* Supplied from the DR-5010C.</td></tr>
</table>

No.	Item	Specifications
15	Environment	As per DR-5010C
16	Operation noise	Operation noise of DR-5010C + 3 dB or less
17	External dimensions (Except attachment plate)	1) Imprinter 50F: 488 (W) × 185 (D) × 212 (H) mm 2) Imprinter 50F: 488 (W) × 185 (D) × 283 (H) mm * The attachment dimension diagram is shown on the next page.
18	Weight	1) Imprinter 50F: 8.0 kg 2) Imprinter 50B: 8.4 kg
19	Expected product life (in-house information)	One of the following two items, whichever comes first. 1) 5 years 2) Sheets fed: 4,000,000 sheets (A4 size)
20	Installation	Service technician
21	Consumable parts	Ink tank 50 (black/red/purple) * Not bundled with the imprinter.

Table 1-201

The specifications above are subject to change for improvement of the product.

* Printable area

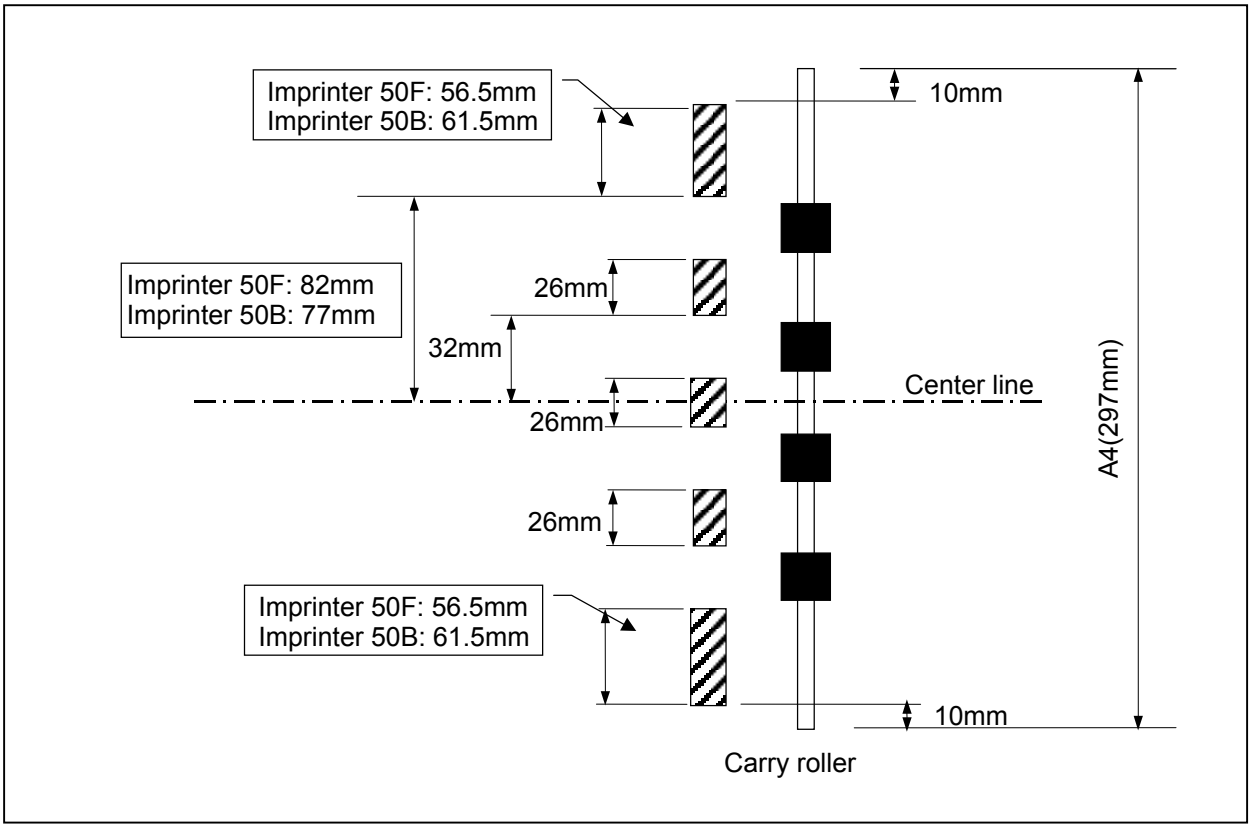
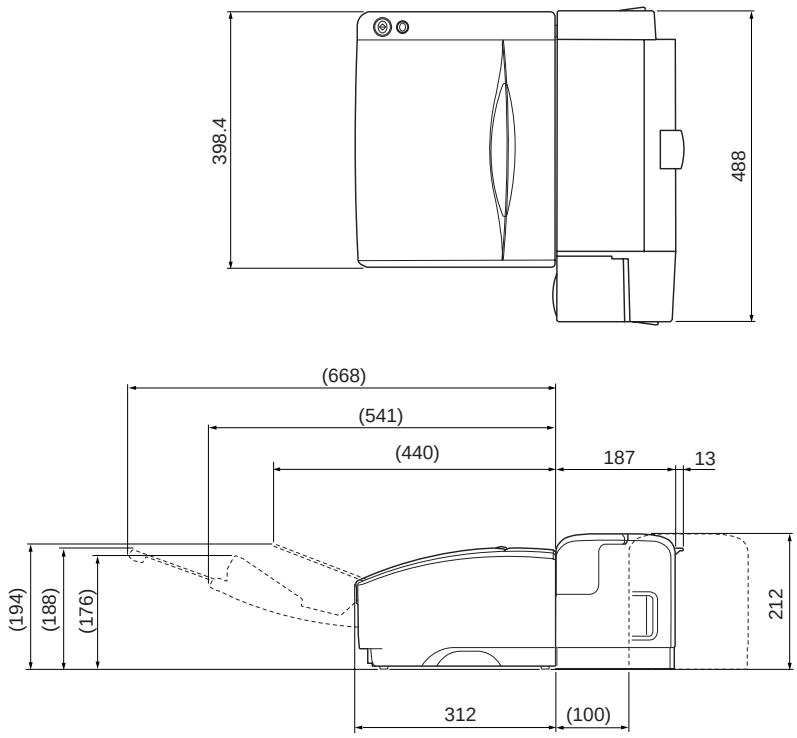


Figure 1-201

* Attachement dimension diagram (unit: mm)

Imprinter 50F



Imprinter 50B

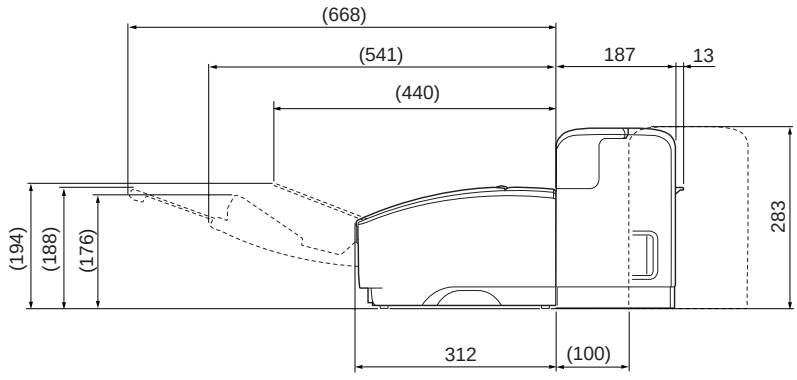


Figure 1-202

III. PRECAUTIONS

This section describes items that require particular care, for example, regarding human safety. These precautions must be observed. Explain to the user items that relate to user safety, and instruct the user to take appropriate actions.

1. Power OFF in Emergency

When such abnormalities as abnormal noise, smoke, heat and odor occur, turn the scanner power switch OFF or unplug the power cord immediately.

As it may cause injury, be careful not to get clothing (ties, long hair, etc.) caught in this machine and scanner. If this happens, turn the scanner power switch OFF or unplug the power cord immediately. Also, do not insert your fingers in the feed section while feeding documents.

2. Prohibition of Modify

Do not change nor modify this machine. If this has been carried out, its use may be forcibly discontinued on site.

If this machine's specifications shall be changed, or the machine shall be disassembled and reassembled, follow the instructions described in this manual or in service information.

3. Electromagnetic Wave Interference Countermeasures

This machine complies with the electromagnetic wave interference standards (VCCI, FCC, etc.). However, the user might have to carry out countermeasures if the machine causes electromagnetic wave interference.

4. Ink

Do not push ink tanks strongly or drop them. Otherwise, ink may leak and stain your clothing or the periphery.

If ink splashes in your eyes, thoroughly wash them with large quantities of water and if they are irritating, consult a doctor.

If ink touches your skin, wash it with soap and water and if it is irritating, consult a doctor.

5. User Manual

Read the user manual thoroughly before using this machine.

6. Disposal

Follow local regulations when disposing of the product and parts.

If used Canon ink cartridges/ink tanks are collected in your area, the collection system may be used for the ink tanks for this machine.

IV. NAMES OF PARTS

1. Imprinter 50F

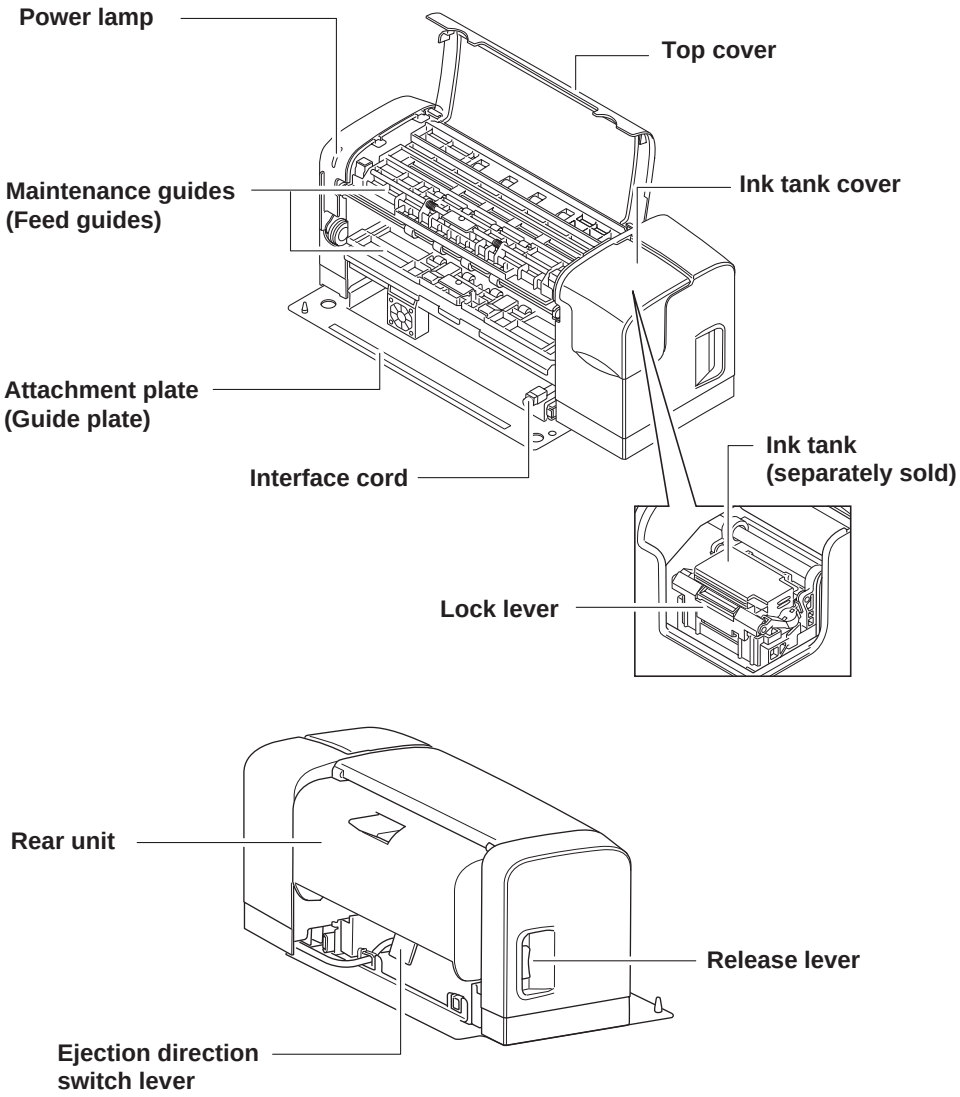


Figure 1-401

Note: Names enclosed in parentheses are used in CHAPTER 2 and subsequent sections of this manual. They are shown for reference.

2. Imprinter 50B

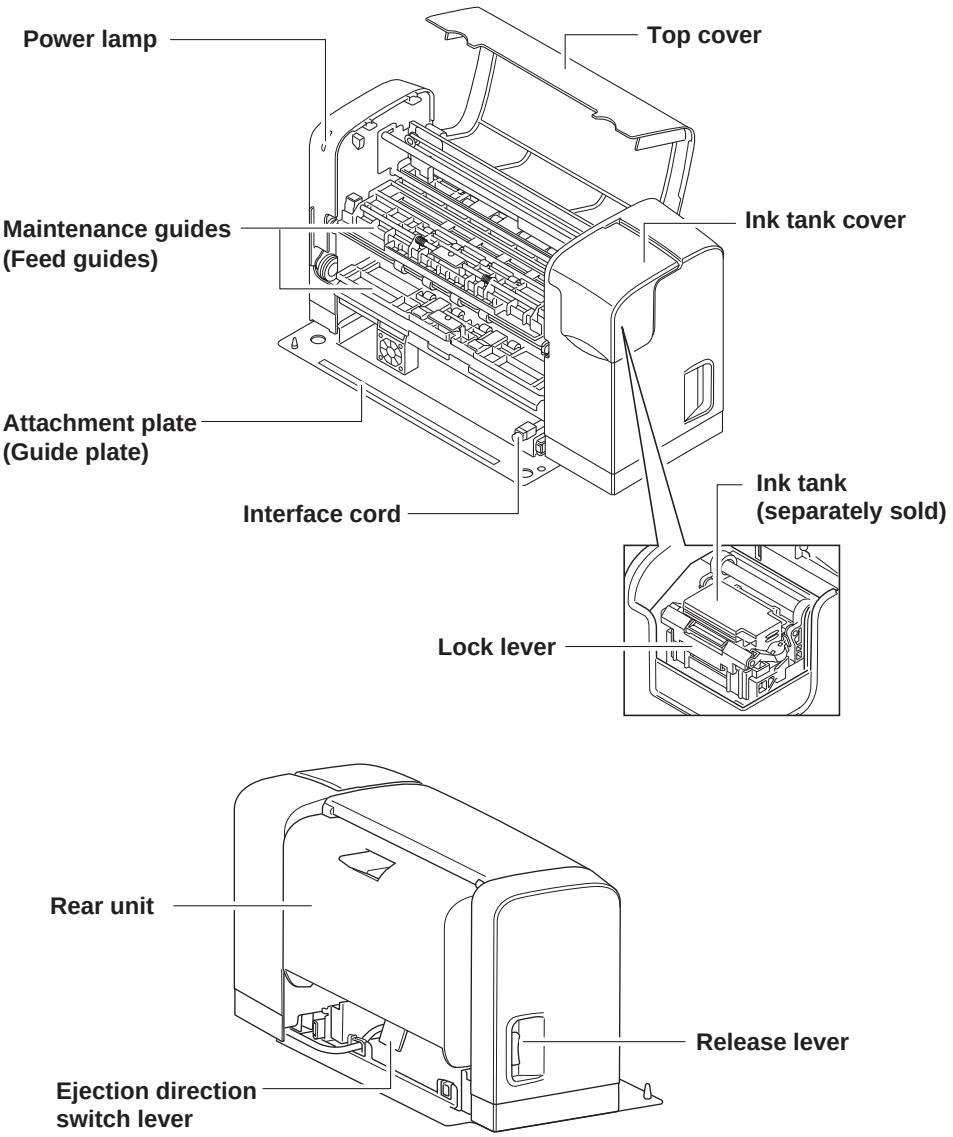


Figure 1-402

Note: Names enclosed in parentheses are used in CHAPTER 2 and subsequent sections of this manual. They are shown for reference.

V. USER OPERATION

Refer to the user manual for this machine and scanner (DR-5010C) for details.

1. Installation

This machine is installed on the scanner by the service technician. Refer to “CHAPTER 4 INSTALLATION & MAINTENANCE”, of this manual for details.

The work for removing this machine from the scanner and restoring when using the scanner alone after installation is also performed by the service technician. However, the user can remove the machine from the scanner and attach it on the scanner during cleaning.

2. Operation Screen

Select “Imprinter” on the scanner driver screen “Imprinter/Addon Dialog” and make necessary settings.

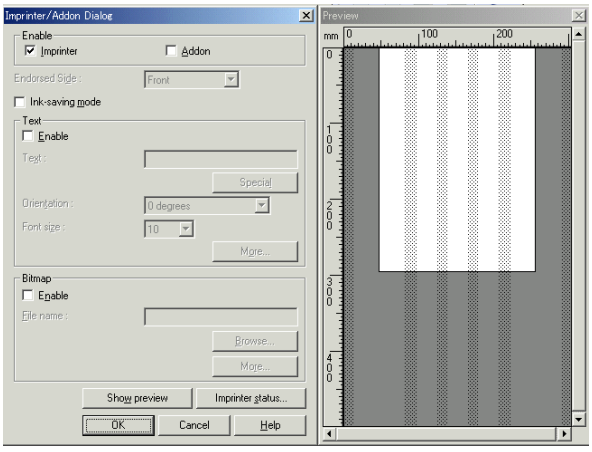


Figure 1-501

3. Ink Tank Setting

The ink tank is set by the user. If it is set by the service technician, refer to the user manual. The procedure is outlined below.

There are three types of ink tanks (black, red, purple) as options. No ink tanks are supplied with this machine.

Note: Set the ink tank when the power is ON because a recovery operation is required after setting.

Ink tank setting is detected when the ink tank cover is opened and closed. Do not open and close the ink tank cover with the power ON unless it is necessary.

1) Verify that the power lamp on this machine is lit.
2) Open the ink tank cover.

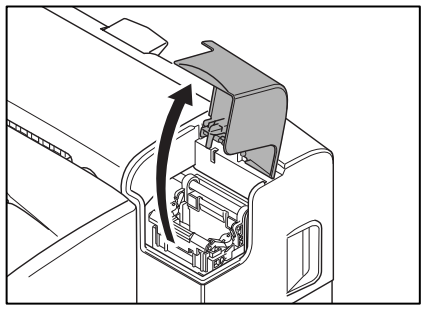


Figure 1-502

3) Push the end of the lock lever and open it.

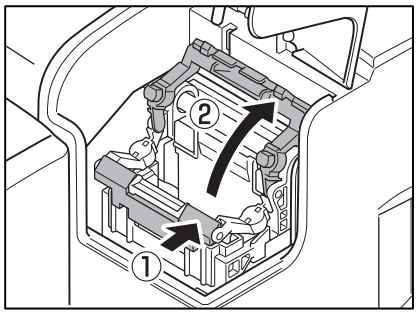


Figure 1-503

4) Remove the ink tank from the ink tank pack.

Note: When removing the ink tank, the tape sealing the ink is detached. If the tape is attached to the ink tank, remove it.

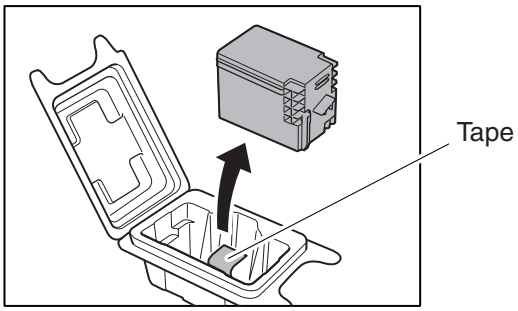


Figure 1-504

Note: Do not touch the ink supply hole after removing the tape.

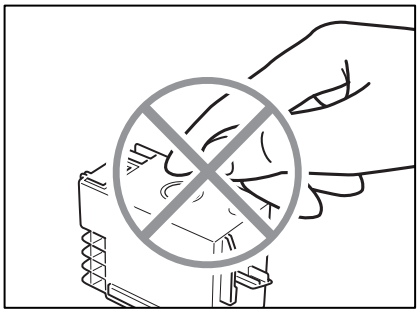


Figure 1-505

5) Insert the ink tank into the carriage.

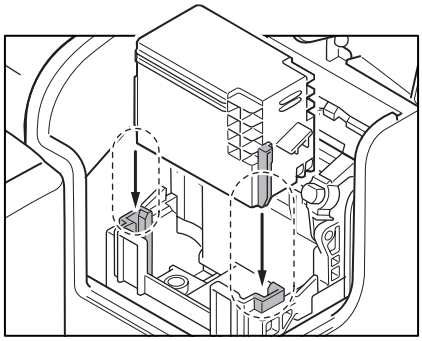
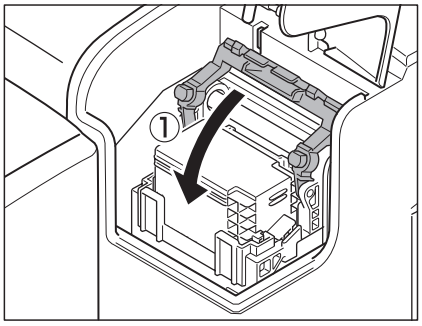


Figure 1-506

6) Lower the lock lever, push the center and lock the ink tank.



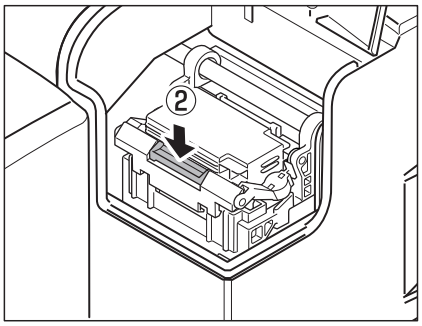


Figure 1-507

7) Close the ink tank cover.

4. Jam Clearance

1) Remove the document from the scanner and close the eject guide.

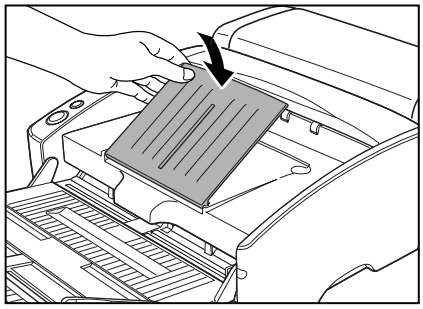


Figure 1-508

2) Hold the edge of the upper unit of the scanner and open it slowly.

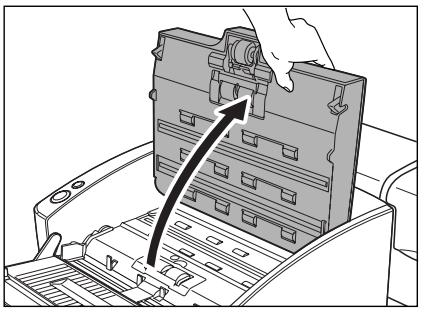


Figure 1-509

Note: Do not hold the center pickup roller.

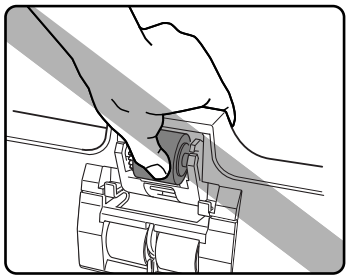


Figure 1-510

3) Push the upper part of the release lever on the left of the imprinter, release the lock, push the both sides and slide the imprinter until it stops.

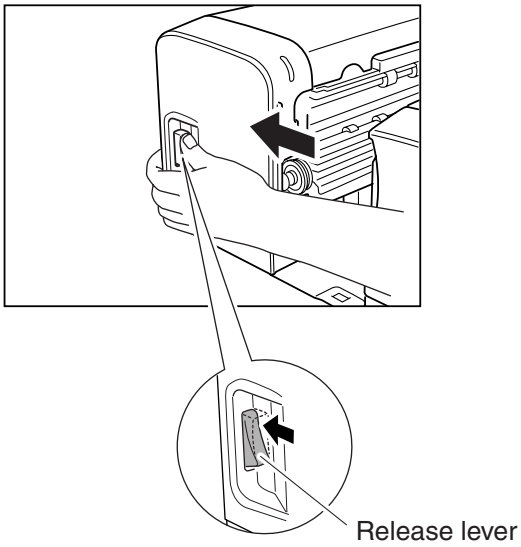


Figure 1-511

4) Lift the lever and open the rear unit.

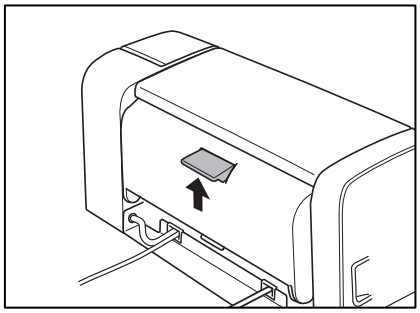


Figure 1-512

5) Open the top cover, lift the lever, open the upper and lower maintenance guides (feeder guide unit) and remove the document.

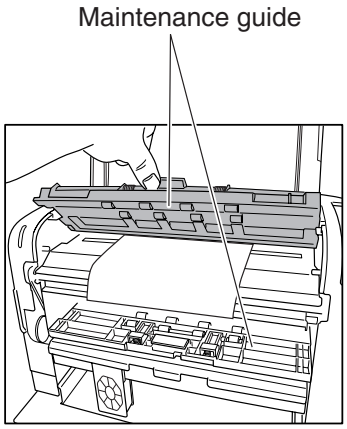


Figure 1-513

6) Replace each part.

VI. USER MAINTENANCE

Refer to the user manual for this machine and the scanner (DR-5010C) for details.

1. Feed Path Cleaning

If ink attaches to the feed path, it may stain documents. Ink attaches to the area around and the rear of the ink ejection section. Therefore, the cleaning location of the imprinter 50B is different from that of the imprinter 50F.

Use a piece of soft cloth moistened with water and squeezed tightly.

Note: To clean the inner part of the maintenance guide, the imprinter main body must be removed from the scanner. The procedures for removal from the scanner and attachment to the scanner are omitted here.

- Imprinter 50F

1) Lift the lever and open the rear unit.

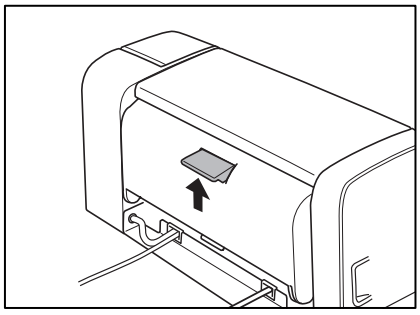


Figure 1-601

2) Wipe off dirt from the inside of the rear unit.

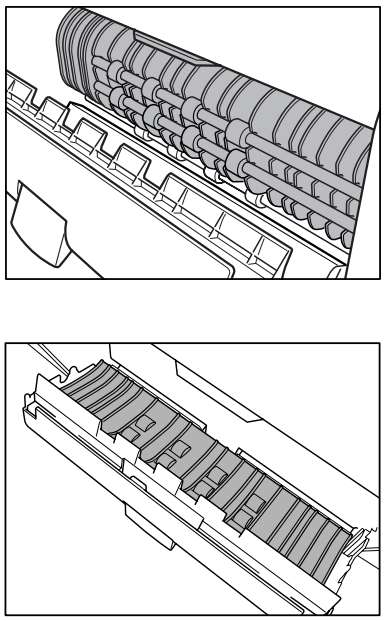


Figure 1-602

3) Push the upper part of the release lever on the left of the imprinter, release the lock, push the both sides and slide the imprinter until it stops.

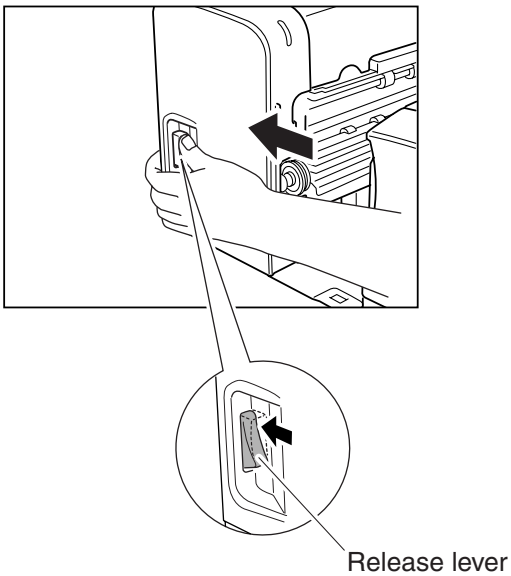


Figure 1-603

4) Open the lower maintenance guide (feeder guide unit). Wipe off dirt from the entire feed path (feeder guide unit inside and platen unit surface).

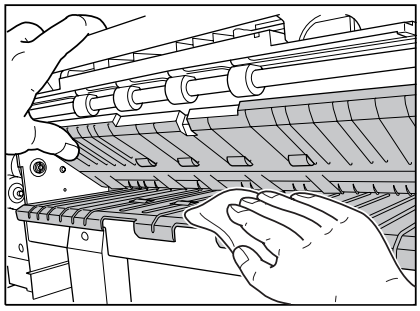


Figure 1-604

5) Replace each part.

- Imprinter 50B

1) Push the upper part of the release lever on the left of the imprinter, release the lock, push the both sides and slide the imprinter until it stops.

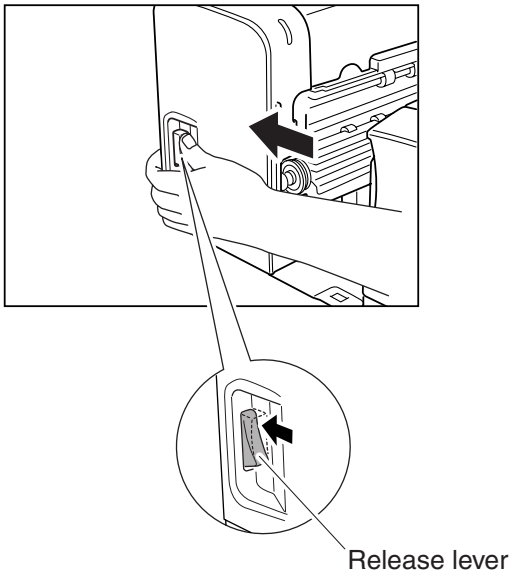


Figure 1-605

2) Open the top cover, lift the lever, open the upper maintenance guide (feeder guide unit) and remove the document.

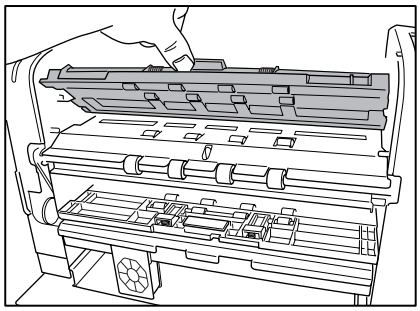


Figure 1-606

3) Wipe off dirt from the entire feed path (feeder guide unit inside and platen unit surface).

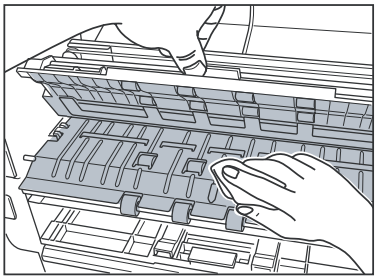


Figure 1-607

4) Replace each part.

2. Head Cleaning

The print head is cleaned automatically according to the operating conditions of this machine. Besides it, the user can clean the print head manually.

For details on the head cleaning, refer to "CHAPTER 2 FUNCTION/OPERATION IV. RECOVERY SYSTEM" of this manual.

Note: When head cleaning is performed, ink is consumed. Perform head cleaning only when it is required, because prints are blurred.

1) Select "Imprinter status" on the scanner driver screen "Imprinter/Addon Dialog".

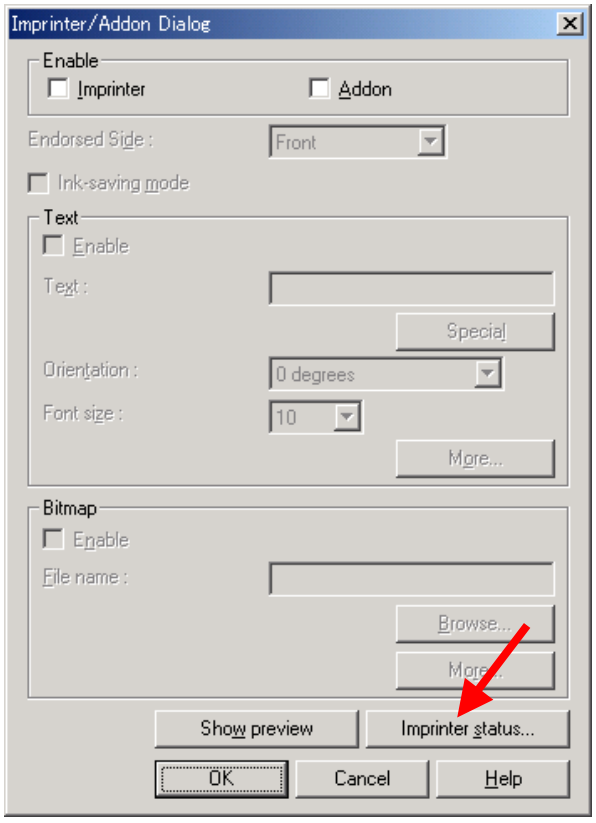


Figure 1-606

2) The "Imprinter Status" screen is displayed. Select the appropriate button.
When the button is selected, a "confirmation screen" is displayed. Select "YES" or "NO".

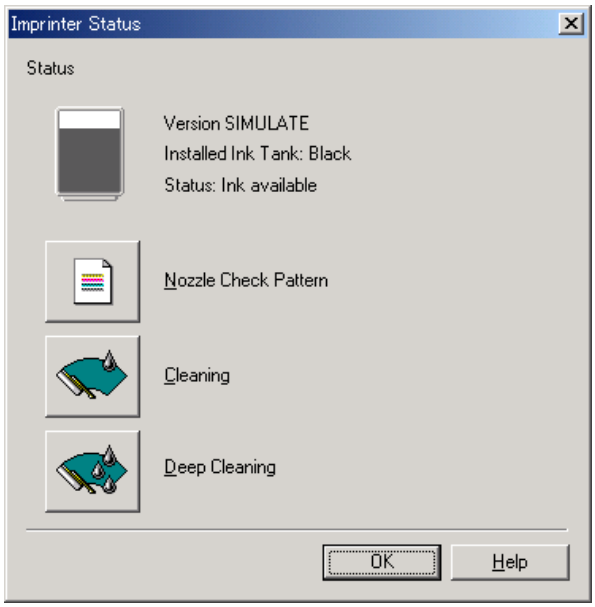


Figure 1-607

- "Nozzle Check Pattern"
  Use this to check print quality. Set a document and press this button to print a nozzle check pattern.

- "Cleaning"
  Use this if prints are blurred or dots are missing. When this button is pressed, "Wipe recovery" is executed.

- "Deep Cleaning"
  Use this if the problem is not improved when "Cleaning" is performed. When this button is pressed, "Absorption recovery" is executed.

3. Ink Tank Replacement

When the ink tank has no ink, a message is displayed. Replace it with a new one. The ink tank has expiry periods: 30 months after manufacturing, 6 months after installation. Even if the ink tank is past these periods, a message is displayed.

The messages associated with ink tank replacement are listed in Table 1-601.

For the replacement method, refer to the user manual or this chapter “V. USER OPERATION 3. Ink Tank Setting.

No.	Message
1	The ink tank is past its installation expiry date. Exchange the ink tank for a new one.
2	The ink tank is past its use expiry date. Exchange the ink tank for a new one.
3	The ink tank is getting low on ink. Exchange the ink tank for a new one.
4	Cannot print because the ink tank is empty. Exchange the ink tank for a new one.

Table 1-601

CHAPTER 2

FUNCTIONS & OPERATION

I. OUTLINE

1. Basic Configuration

The basic configuration of this machine is shown in Figure 2-101 and the internal arrangement is shown in Figure 2-102.

The machine consists of a feed system, a printing system, a recovery system and a control system. The printing system, recovery system and control system may be called an engine system.

The imprinter 50F for the front side printing and the imprinter 50B for back side printing have the same basic configuration, but the relative positional relationship of the feed system and engine system is different.

The scanner provides DC power, control signals and a feed drive force.

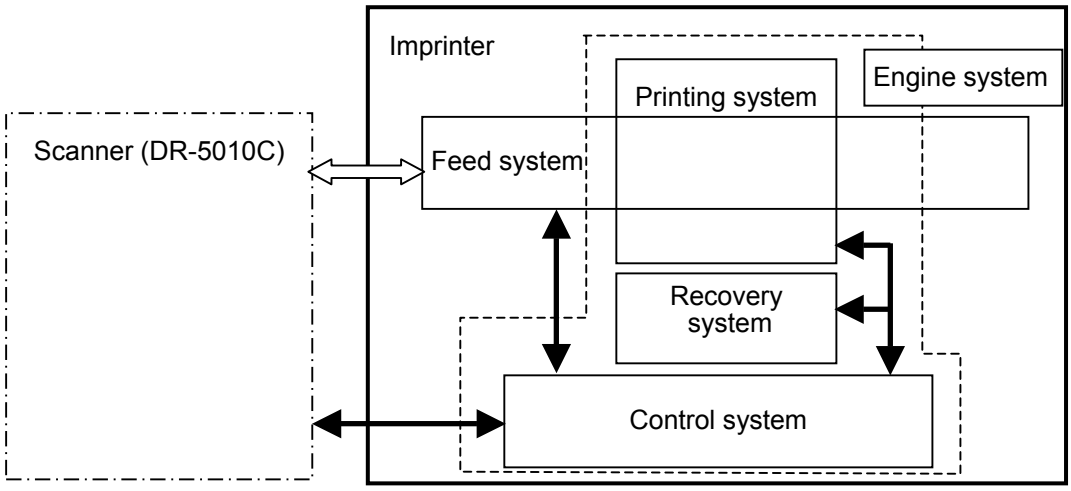
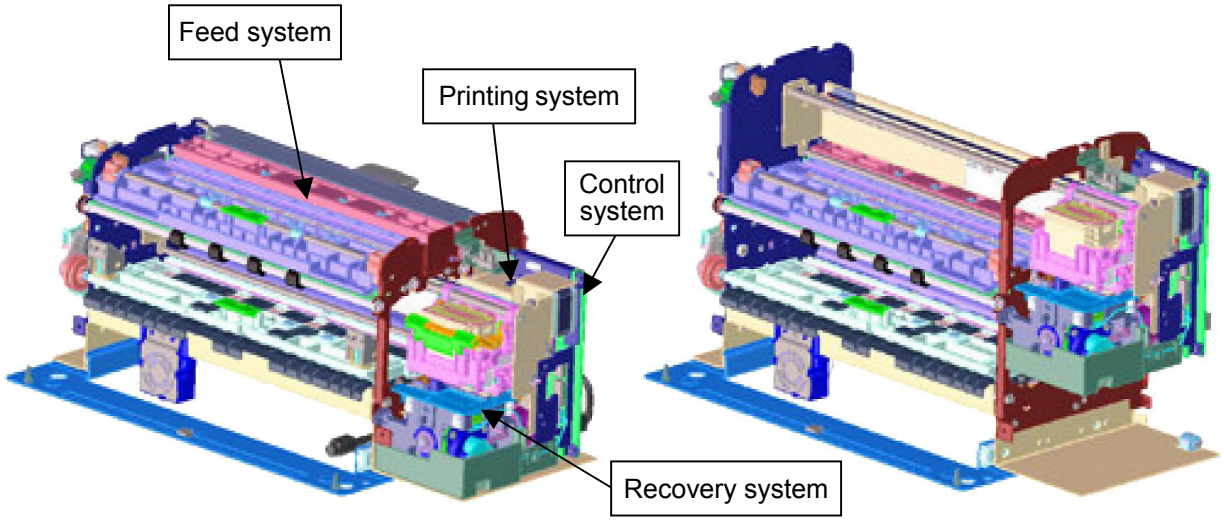


Figure 2-101



* Imprinter 50F (Front side)

* Imprinter 50B (Back side)

Figure 2-102

2. Electrical Circuits

Figure 2-103 shows an overview of the electrical circuits block diagram of this machine. They are the same for both the imprinters 50F and 50B.

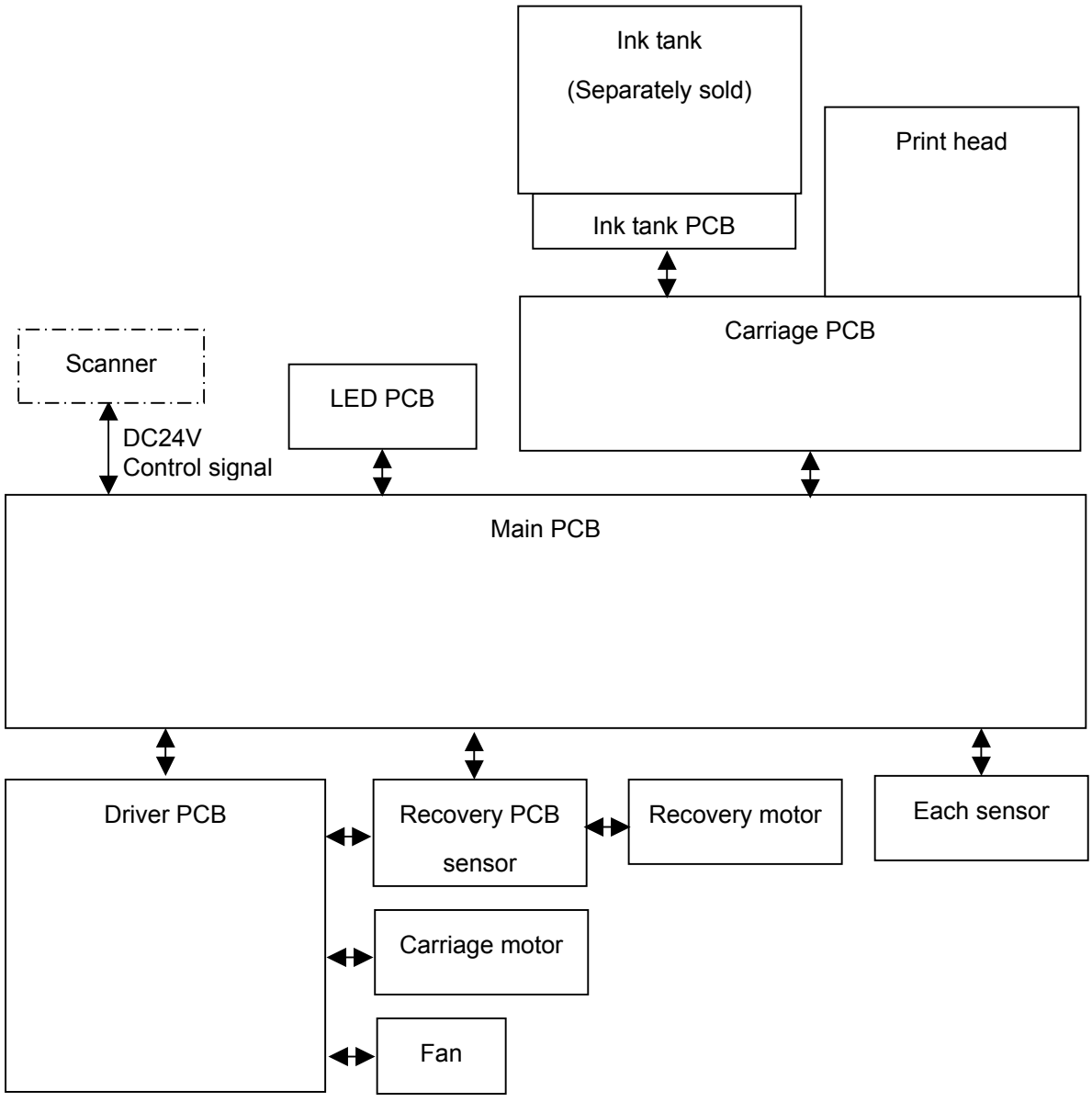


Figure 2-103

II. FEED SYSTEM

1. Outline

Figure 2-201 is a sectional diagram of the feed system.

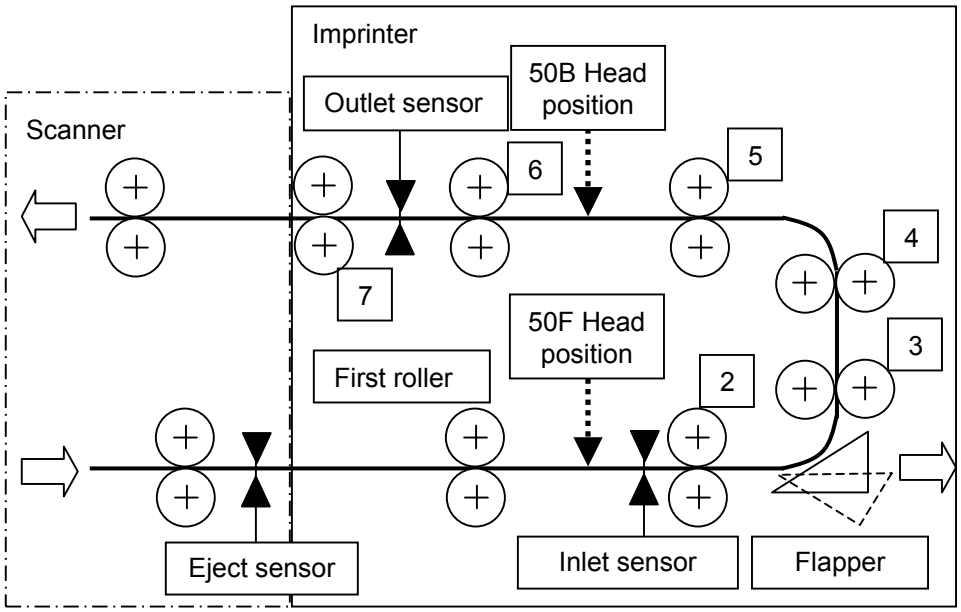


Figure 2-201

The document enters the inlet of the imprinter from the straight pass outlet of the scanner. A total of seven carry rollers are built-in on the feed path. The document is fed by these rollers and delivered to the front of the eject section of the scanner from the outlet of the imprinter. The imprinter does not provide the drive force of the carry rollers, and it is transmitted through the connecting gear from the scanner.

An inlet sensor and an outlet sensor are provided on the feed path to detect document jams. The document can be delivered straightly with the flapper. However, if it is delivered straightly, it cannot be printed on the back side.

The document is printed while it is being fed. The imprinter 50F prints it on the front side of the document on the lower feed path, and the imprinter 50B prints it on the back side of the document on the upper feed path.

However, the imprinter cannot perform the next document printing settings until it starts printing the current document. The next document is paused in the registration roller section until then. Therefore, the reading speed when printing the document is slower than that when not printing it.

The documents that can be fed by the scanner can also be fed by the imprinter, but some may not be printed due to the document types and the thickness.

2. Unit Configuration

Figure 2-202 is a unit configuration of the feed system. The imprinters 50F and 50B have the same unit configuration, but the side plate and others are different because the 50B has the printing system at the upper part.

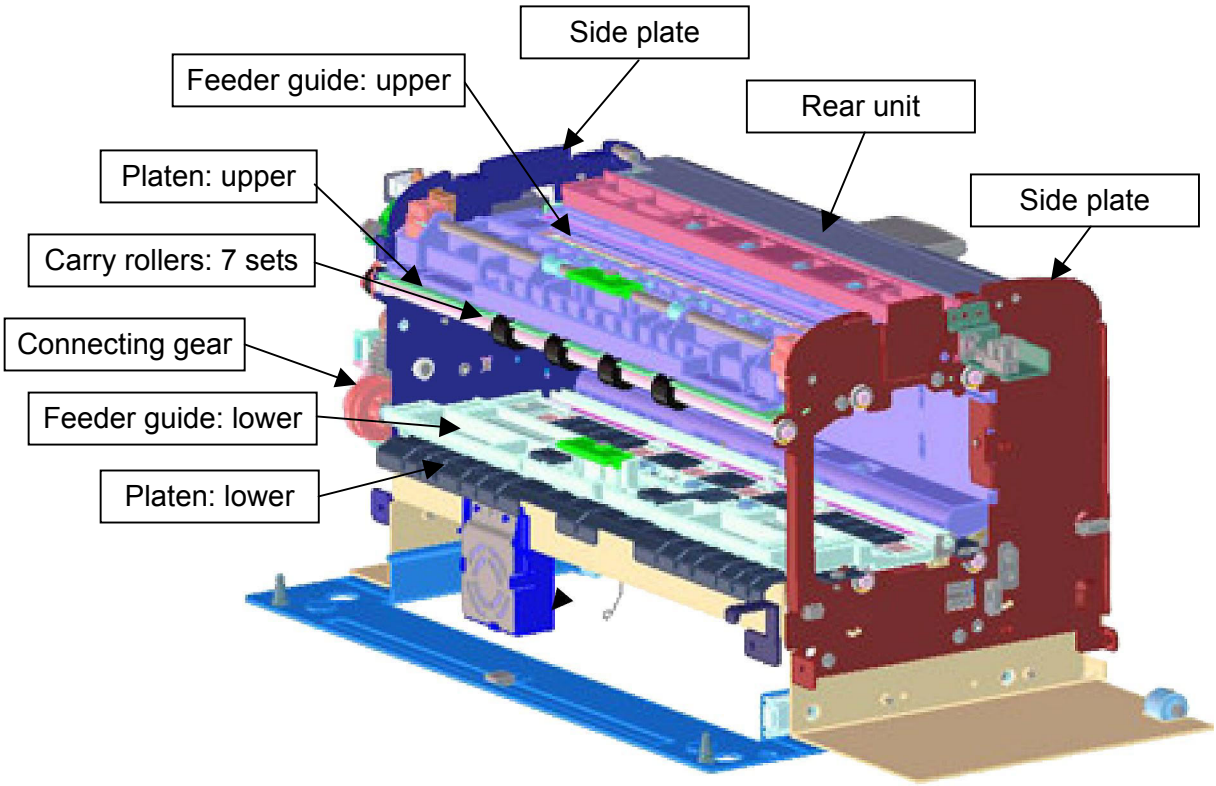


Figure 2-202

III. PRINTING SYSTEM

1. Outline

Figure 2-301 is a unit configuration of the printing system. The printing system consists of a carriage unit, including a print head and an ink tank, a carriage movement unit, including two guide shafts and a timing belt, and a carriage motor.

The carriage unit is moved by the carriage motor according to the print position. Ink is supplied from the ink tank to the print head and ejected from the nozzle to the document according to the signal from the control system.

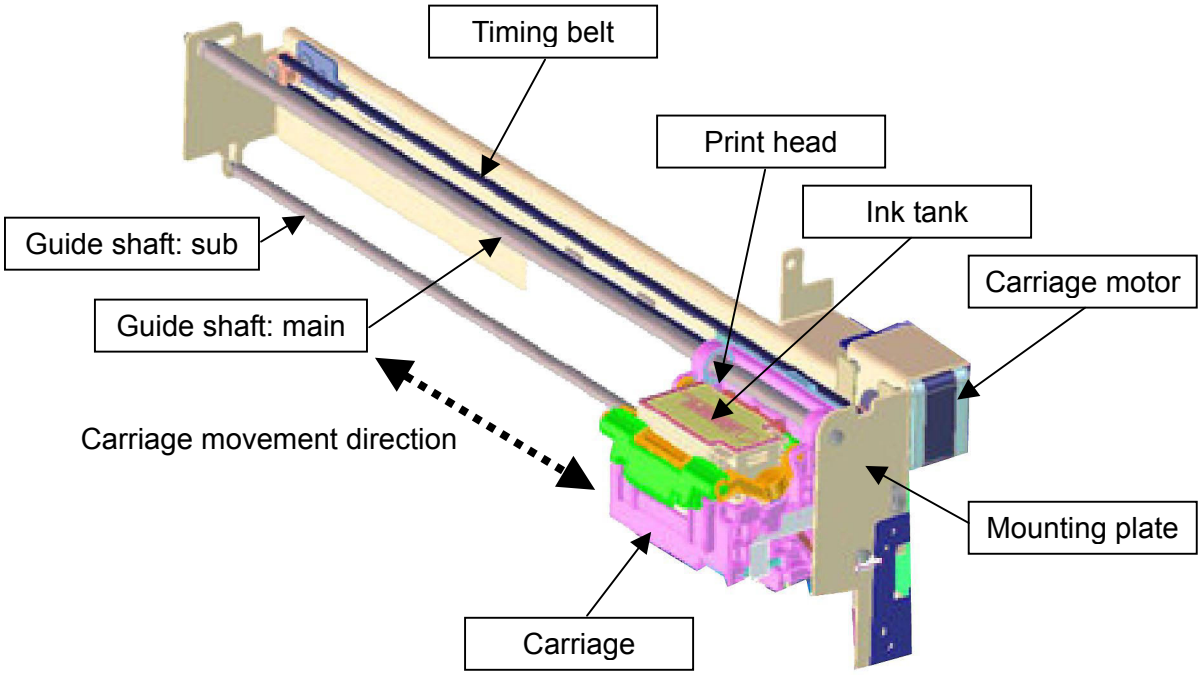


Figure 2-301

2. Ink Tank

Figure 2-302 is an appearance of the ink tank. There are three colors: red, black and purple. They are assigned as commercially available products.

Ink is absorbed in sponge in each ink tank. The gross ink capacity (including sponge) is 35g and the available quantity is 26.5g.

The ink tank has expiry periods: 30 months after manufacturing, 6 months after installation. If the ink tank is past these periods, a message is displayed on the computer screen.

When the ink tank is removed from the carriage, ink does not come out. However, if the ink supply hole is pressed or the ink tank is shaken, ink may come out. Therefore, if the ink tank is removed, place it with the ink supply port facing sideways or upwards or put it in a bag.

An IC chip is attached in the ink tank to detect ink color and the remaining quantity of ink. This IC chip is connected to the main PCB through the ink tank relay PCB and the carriage PCB.

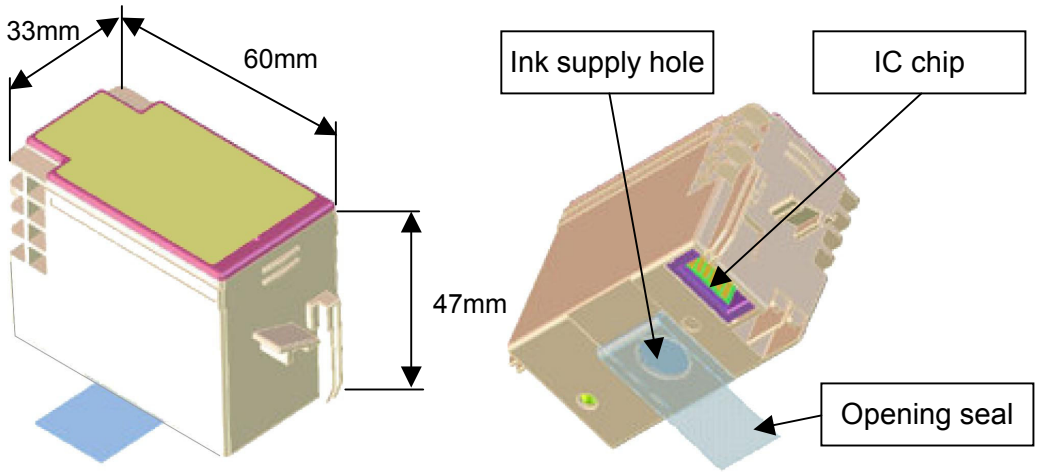


Figure 2-302

3. Print head

Figure 2-303 shows the appearance of the print head, Table 2-301 lists the functions of each part and Table 2-302 lists basic specifications. This print head uses a bubble-jet method.

Do not touch the face plate front side, head PCB contact part, tank joint, and tank cap or printing performance may deteriorate. Be careful as the base plate is very hot immediately after printing.

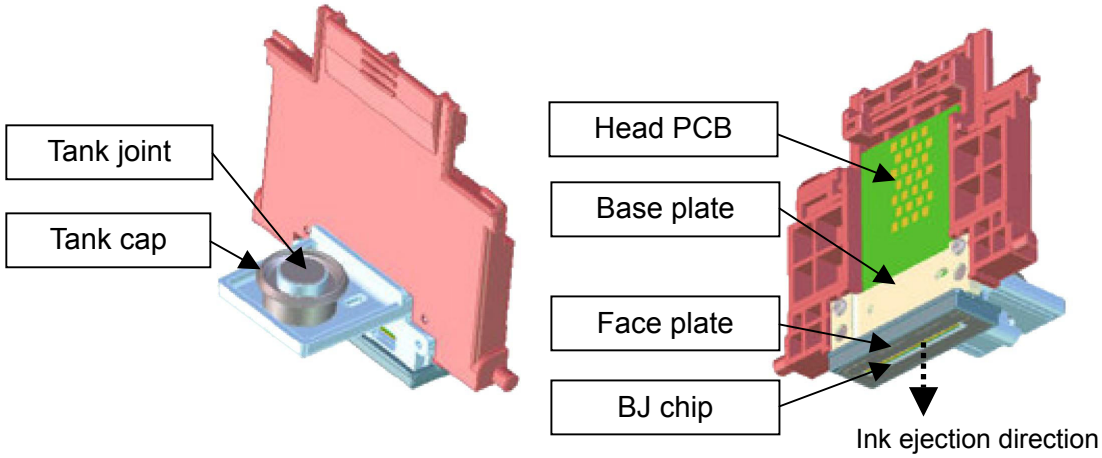


Figure 2-303

No.	Name	Function
1	Tank joint	Connect the ink tank and print head and supply ink to the print head.
2	Tank cap	Prevent ink evaporation by sealing the ink tank.
3	Head PCB	Make electrical connection with the carriage PCB.
4	BJ chip	Eject ink.
5	Base plate	Position and radiate the BJ chip.
6	Face plate	Seal the ink ejection section and recovery unit receiving side.

Table 2-301

No.	Item	Specifications
1	Printing method	Bubble-jet method
2	Drive frequency	Max. 5.5 KHz
3	Ejection quantity	19ng (19×10^{-9}g)
4	Nozzle layout	616 nozzles, 600 dpi pitch (Number of effective nozzles: 608)
5	Printing direction	Both directions (The front side printing direction is the opposite to the back side printing direction.)
6	Connection method	Pin contact method
7	External dimensions	Approximately 65 (W) $\times$ 35 (D) $\times$ 65 (H) mm
8	Weight	Approximately 30 g
9	Installation	Service technician

Table 2-302

4. Printing area

Figure 2-304 shows the printing area and Figure 2-305 shows the non-printing area. The maximum printing width is 25.8 mm and the maximum length is 229.5 mm. The print position is determined by user setting.

However, if the printed part touches the carry roller before printing dries, a print error occur, so there is a restriction on the printing area in the direction of the document width.

In addition to character strings, bitmap images can be printed.

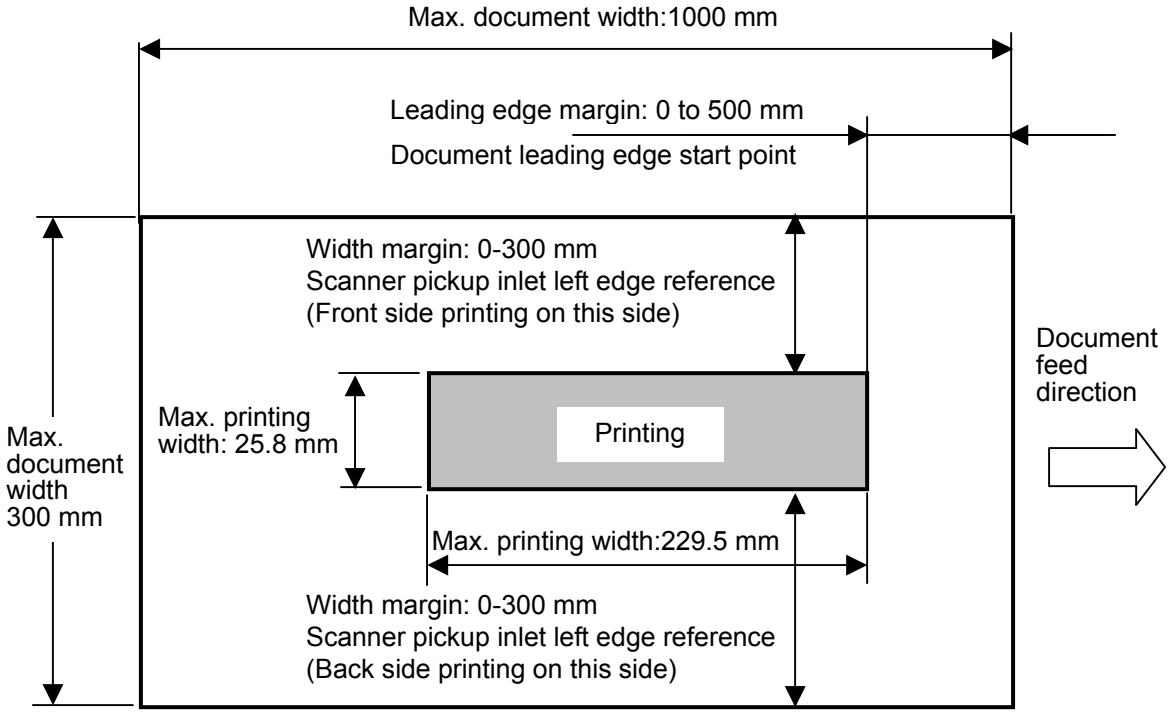


Figure 2-304

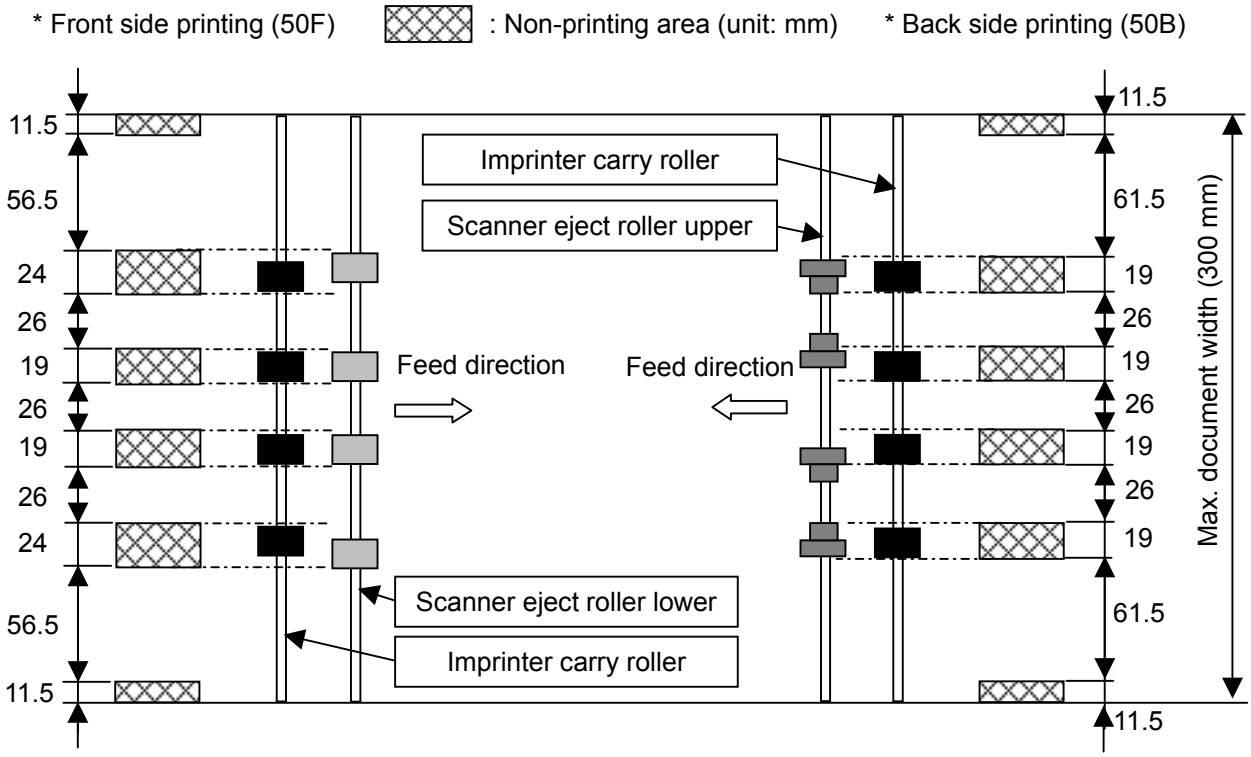


Figure 2-305

The control signals associated with the print position are input to the imprinter from the scanner. The imprinter moves the carriage, starts and ends printing according to the signals. The imprinter does not detect the leading edge position or width dimension of the document.

The print position is set by the user, but if the setting exceeds the non-printing area and the leading edge or trailing edge of the document, the scanner modifies the setting automatically.

5. Printing Resolution

The printing resolution is determined by the scan resolution and ink saving mode selection. The printing resolutions are shown in Table 2-303.

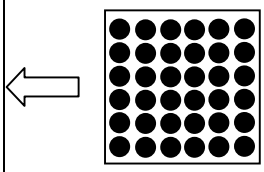
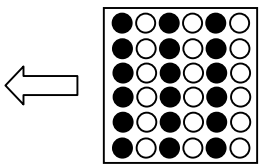
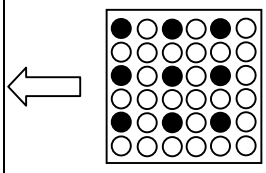
Ink saving mode	Scan resolution	Printing resolution
Invalid	600dpi	600 x 600dpi 
	400dpi or less	600 x 300dpi 
Valid	All	300 x 300dpi 

Table 2-303

If ink saving mode is selected, the resolution is low and characters are printed lightly, but ink consumption is reduced. Figure 2-306 shows differences in print results. However, they are slightly different from actual print results.

Figure 2-306

IV. RECOVERY SYSTEM

1. Outline

Figure 2-401 is a unit configuration of the recovery system and Table 2-401 lists the functions of each part. The recovery system cleans the print head. This prevents increase of ink viscosity, no ejection of ink due to air bubbles or dust and ensures stability of ejection.

Cleaning is performed automatically according to the operating conditions of the imprinter. Cleaning can be performed manually on the scanner's operation screen.

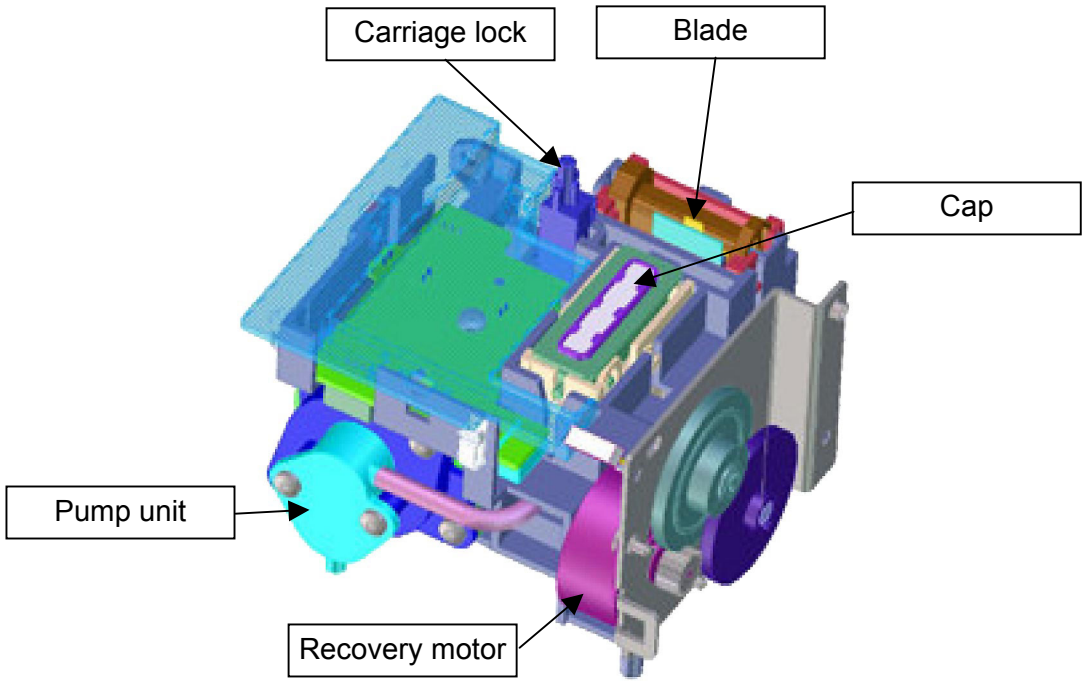


Figure 2-401

No.	Name	Function
1	Cap	Retain moisture of the print head.
2	Blade	Clean the print head face side.
3	Carriage lock	Lock the carriage when the cap is set on the print head.
4	Pump unit	Absorb and recover the print head and supply ink.
5	Recovery motor	Recovery system drive motor

Table 2-401

2. Recovery Operation

A list of recovery operations are shown in Tables 2-402 and 403. Various recovery operations are performed according to operating conditions to perform cleaning efficiently.

There are three recovery operations: “absorption”, “wipe” and “pre-ejection”. An operation that performs several absorption recoveries is called “major recovery”. "Wipe” is performed after “absorption” and “pre-ejection” is performed after “wipe” continuously.

No.	Name	Purpose	Operating part	Ink consumption
1	Absorption recovery	Entire cleaning	Pump unit	0.3g/time
2	Wipe recovery	Elimination of ink and dust on the nozzle and face side	Blade	None
3	Pre-ejection recovery	Elimination of thick ink, air bubbles and dust on nozzles	Print head (ejection)	19ng/drop 300 shots =608 nozzles ×19 ng × 300 ≒0.0035g

Table 2-402

No.	Operation	Condition	Absorption recovery	Wipe recovery	Pre-ejection recovery
1	Power ON	72 hours or longer elapse after the previous major recovery or the carriage is not at HP.	1 time	6 times	300 shots
2	Before printing	72 hours or longer elapse after the previous absorption recovery	×1	×6	×300
		1 hour or longer elapses after the previous printing	---	---	×300
		Within 1 hour elapses after the previous printing	---	---	×100
3	During printing	Performed between sheets of document. 3 shots 5 seconds after the previous pre-ejection 10 shots 10 seconds after that.	---	---	×3, ×10
4	Printing end	45,600,000 dot elapses after the previous wipe recovery	---	×1	×300
5	Jam clearance	After clearing document jam	---	×1	×100
6	Tank replacement	After replacement of the ink tank with the same color. Or when the ink tank cover is opened and closed	×3	×6	×300
		After replacement of the ink tank with a different color	×5	×6	×3000
7	Head replacement	After print head replacement	×3	×6	×3000
8	Manual	When “Cleaning” is specified on the operation screen	---	×1	×300
		When “Deep Cleaning” is specified on the operation screen	×1	×6	×300

Table 2-403

Figure 2-402 is a basic configuration at the home position and Figure 2-403 is a basic configuration at the print position.

The absorption recovery is performed when the carriage is at its home position. Absorption can be performed by turning the cam with the recovery motor and make the inside pressure of the pump unit negative.

The wipe recovery wipes the face side by moving the carriage when the blade is moved to the upper limit by moving the cam with the recovery motor.

The pre-ejection cleans the inside of nozzles and ejection outlets by ejecting ink at the home position or print position. When ink is ejected, it is supplied by the capillary action in the print head.

The ink used for recovery operations is collected in the recovery unit residual ink tank or platen residual ink tank.

Note: When the ink tank cover is opened and closed, this machine judges that the ink tank has been replaced and performs major recovery. When resuming from standby mode (sleep mode), it also performs a recovery operation because it judges that the power is turned ON.

* Home position

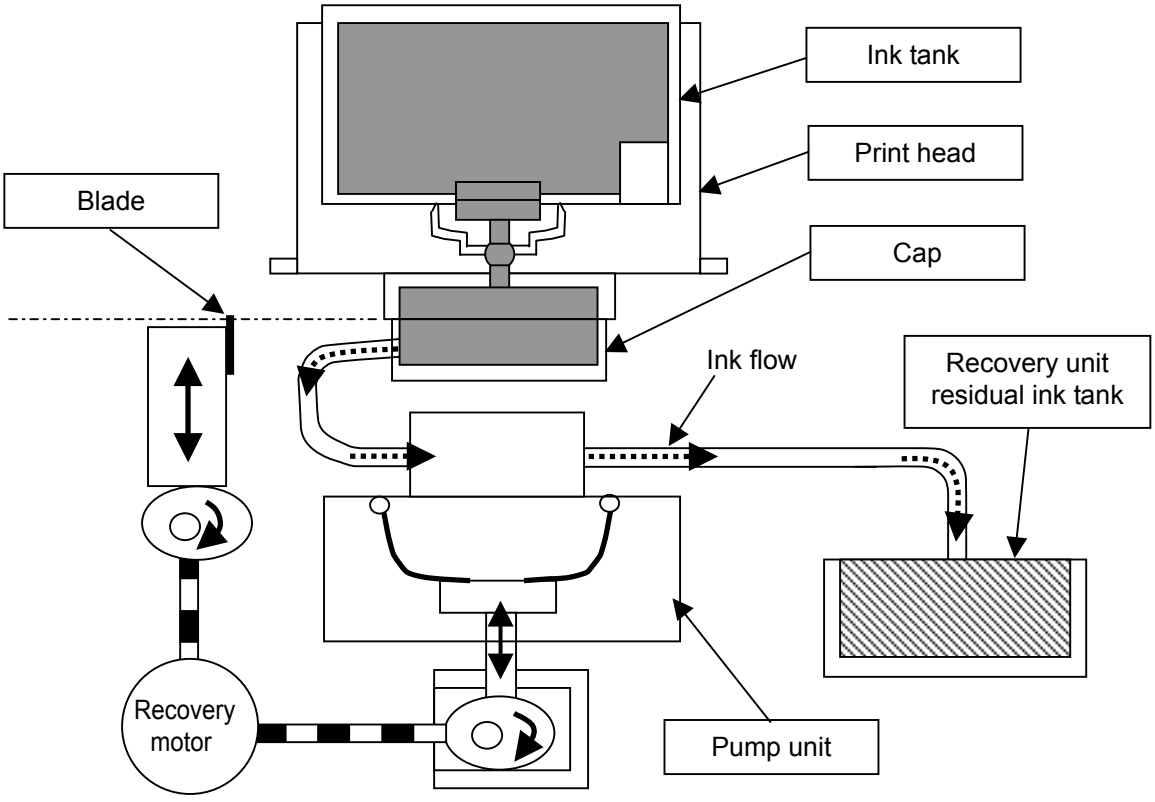


Figure 2-402

* Print position

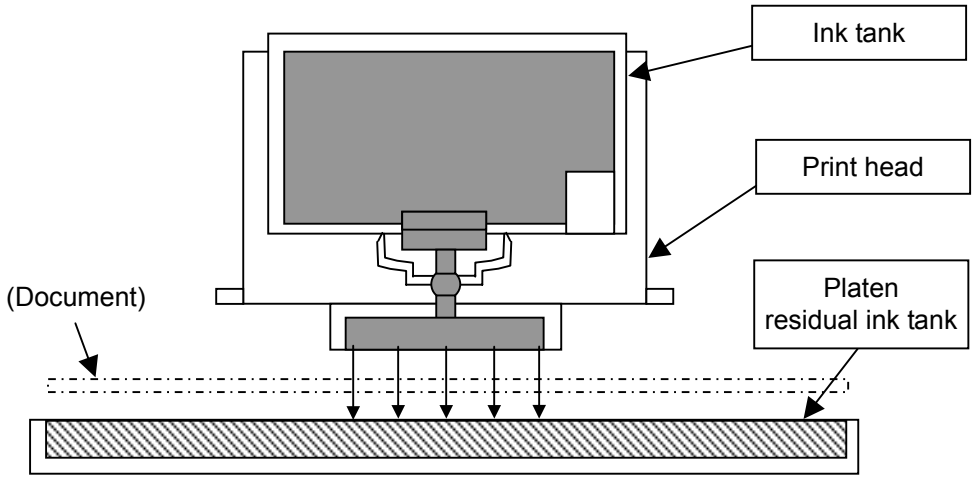


Figure 2-403

V. CONTROL SYSTEM

1. Outline

Figure 2-501 shows the block diagram of the control system. The printing system and recovery system are controlled by the main PCB.

The feed system is basically controlled by the scanner main body, and the imprinter only controls the sensor signal for document detection on the feed path. Serial I/F is used for communication between the scanner and the imprinter.

24 VDC supplied from the scanner is used for the power supply. 5 VDC required for control is generated from 24 VDC and used.

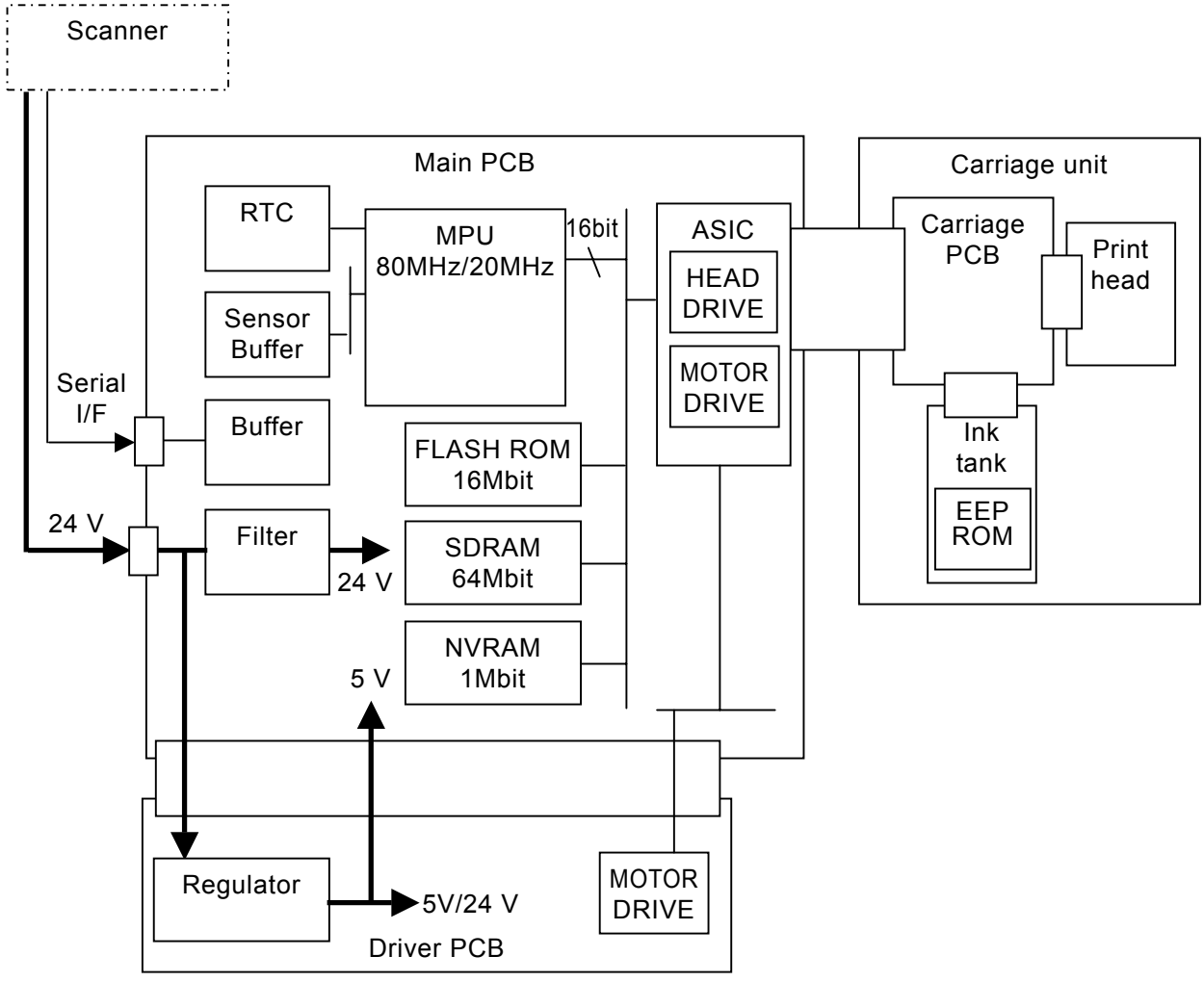


Figure 2-501

And the following lithium battery is equipped in the main PCB as memory backup for data of ink.

Manufacturer: Sony Energy Devices Corp.
Model: CR2450
Voltage: +3VDC
Capacity: 600mAh

CAUTION:

It is danger of explosion, if the battery is incorrectly replaced. Replace only with the same or equivalent battery recommended by manufacturer. On this machine, replace the whole main PCB included the battery. Do not recharge, disassemble or dispose of in fire. Keep the battery out of reach of children. When disposing of a used battery or a PCB assembly equipped with a battery, the instructions of the manufacture and the regulations of the region should be followed.

VI. ELECTRICAL PARTS LAYOUT

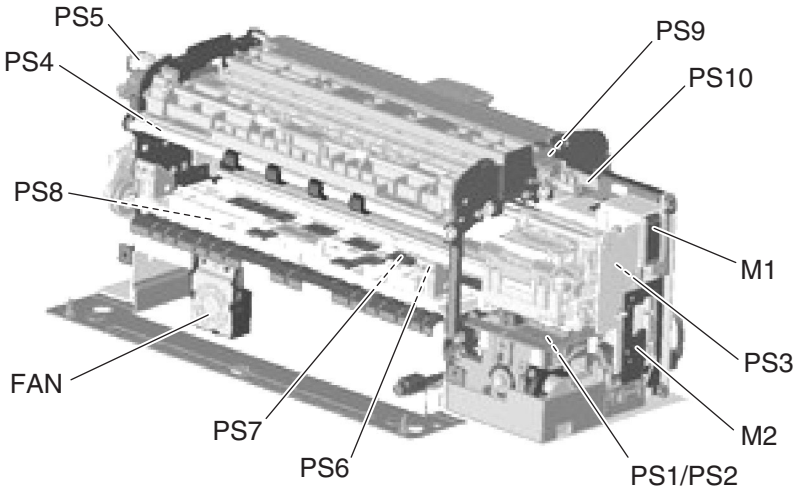


Figure 2-601

Category	Name	Symbol
Motor	Carriage motor	M1
	Recovery motor	M2
	Fan motor	FAN
Sensor	Cap sensor	PS1
	Pump sensor	PS2
	Carriage sensor	PS3
	Outlet sensor	PS4
	Upper door sensor	PS5
	Flapper sensor	PS6
	Inlet sensor	PS7
	Joint sensor	PS8
	Rear door sensor	PS9
	Tank door sensor	PS10

Table 2-601

VII. PARTS LAYOUT OF EACH PCB

1. Main PCB

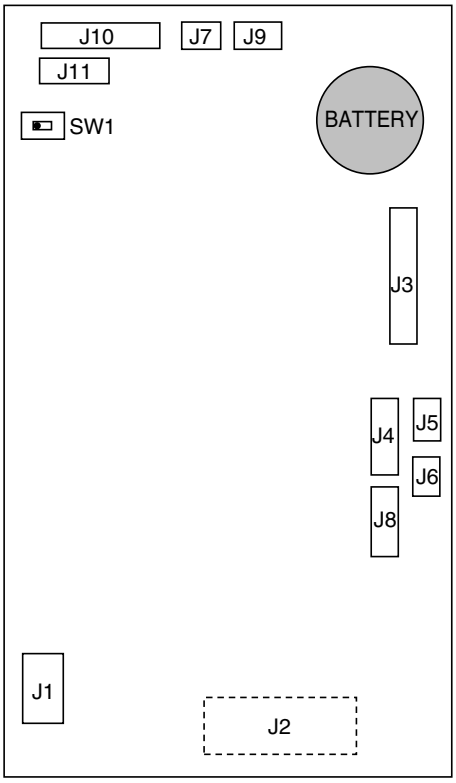


Figure 2-601

Connector		Description
J1	12P	Scanner (I/F,24 VDC)
J2	30P	Driver PCB
J3	40P	Carriage PCB
J4	9P	Sensor (PS6/7/8)
J5	4P	Recovery PCB (PS1/2)
J6	3P	Carriage HP sensor (PS3)
J7	3P	Tank door sensor (PS10)
J8	8P	LED PCB, sensor (PS4/5)
J9	3P	Rear door sensor (PS9)
J10	18P	For design (not used in the field)
J11	9P	For design (not used in the field)

Table 2-601

Switch	Description
SW1	50F/50B setting ON 1 ON: 50F OFF: 50B

Table 2-602

2. Drive PCB

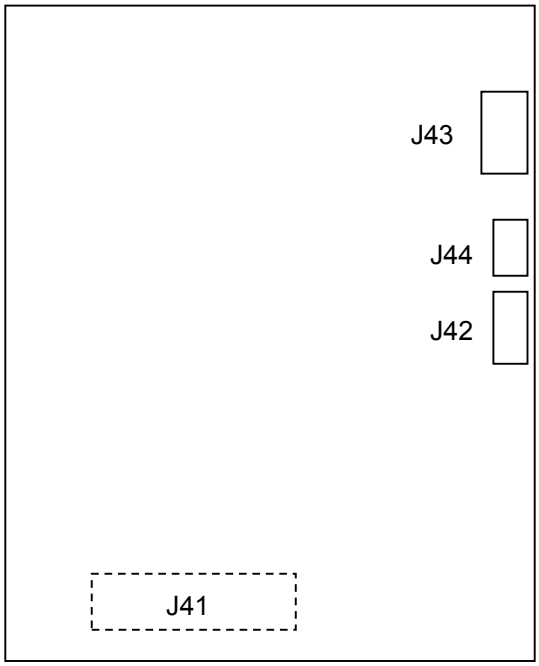


Figure 2-602

Connector		Description
J41	30P	Main PCB
J42	5P	Recovery PCB
J43	4P	Carriage motor
J44	3P	Fan

Table2-603

CHAPTER 3

DISASSEMBLY & REASSEMBLY

Note 1:

This section shows the imprinter 50F for front side printing as a basis. Unless otherwise specified, disassemble and reassemble the imprinter 50B for back side printing with the same procedure. However, the procedure for the imprinter 50B is added only if work cannot be performed by the procedure for the imprinter 50F.

Note 2:

Disassemble and reassemble the imprinter by removing it from the DR-5010C.

I. EXTERNAL COVERS

1. Top Cover

1) Open the top cover ①, unlock the 2 fitting parts ②, then remove the top cover.

Note: Remove it, being careful not to damage the fitting parts.

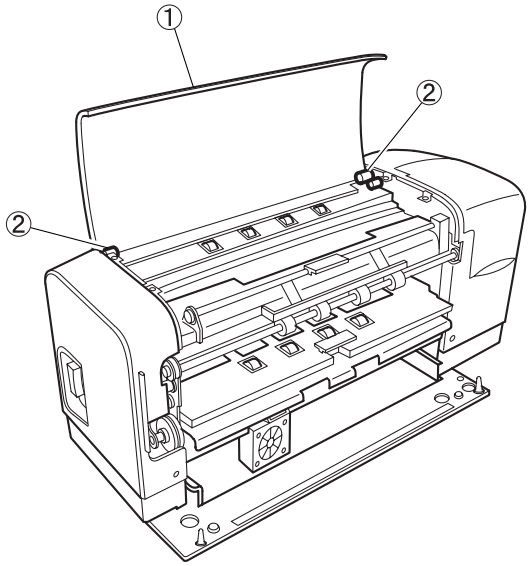


Figure 3-101

2. Right Cover

1) Open the ink tank cover.

Note: If it is disassembled without opening this cover, parts may be damaged.

2) Remove the 4 screws ① (2 top, 1 front and 1 rear) and slide and remove the right cover ②.

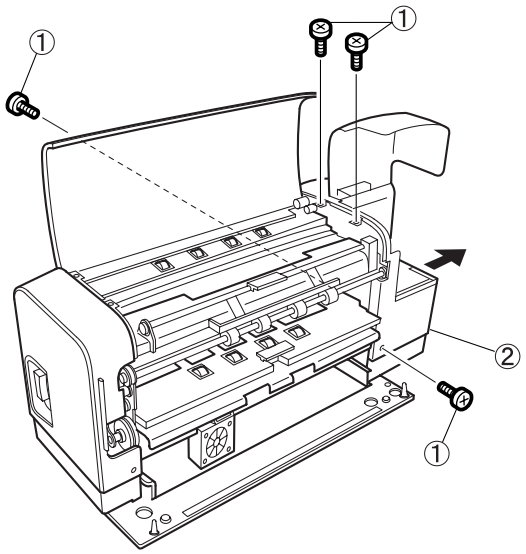


Figure 3-102

3. Ink Tank Cover

1) Remove the right cover.
2) Push the fitting part ① downward and slide the shaft ②. Then remove the shaft by aligning the shaft with the hole position, and remove the ink tank cover ③ from the right cover.

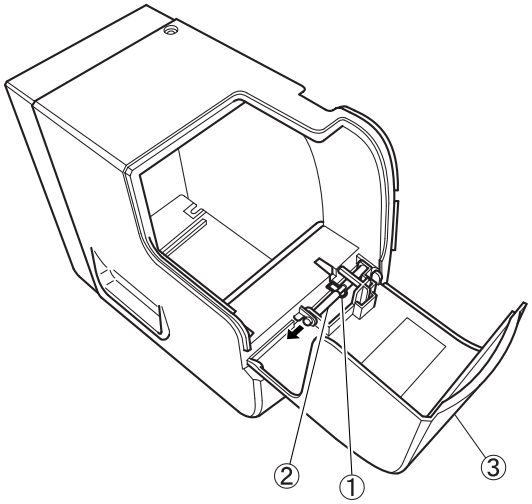


Figure 3-103

4. Left Cover

1) Remove the 4 screws ① (2 top, 1 front and 1 rear) and slide and remove the left cover ②.

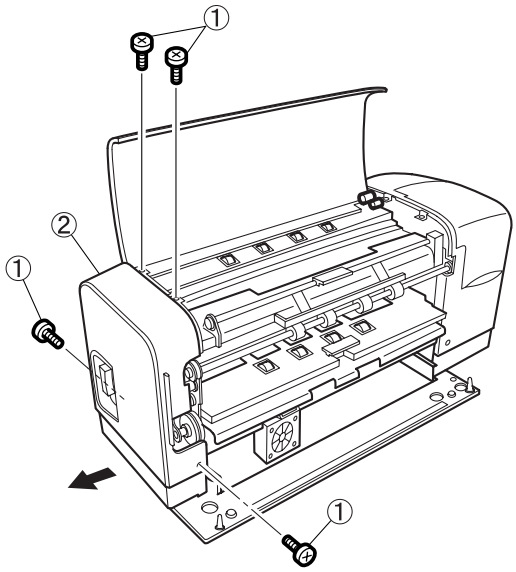


Figure 3-104

2) Push the LED window ① strongly from the rear side and remove it from the left cover.

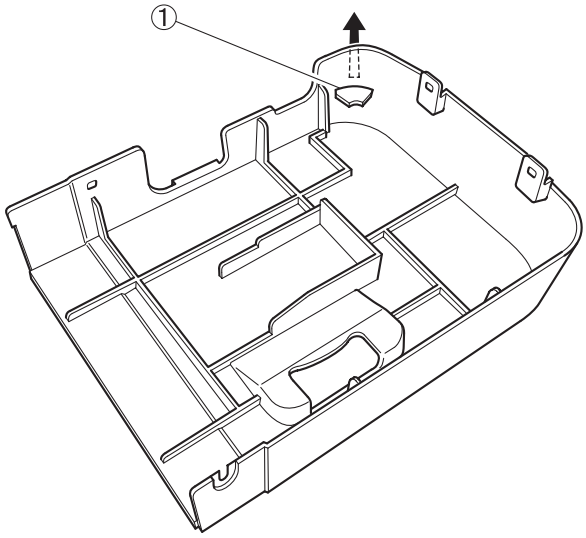


Figure 3-105

Note: Do not lose the LED window.

II. ENGINE

1. Engine Unit: 50F

1) Remove the right and left covers.
2) Disconnect the 6 connectors ① connected to the engine unit. Remove cable ties as required. The connector indicated by an asterisk (*) has a locking mechanism.

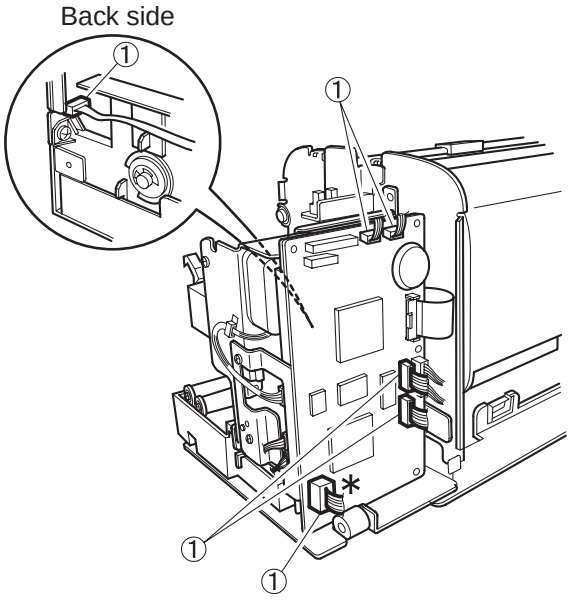


Figure 3-201

3) Remove the 5 screws ①, slide and remove the engine unit ②.

Note: There is another screw near the screw (marked with *) that is hidden inside. Do not remove it by mistake.

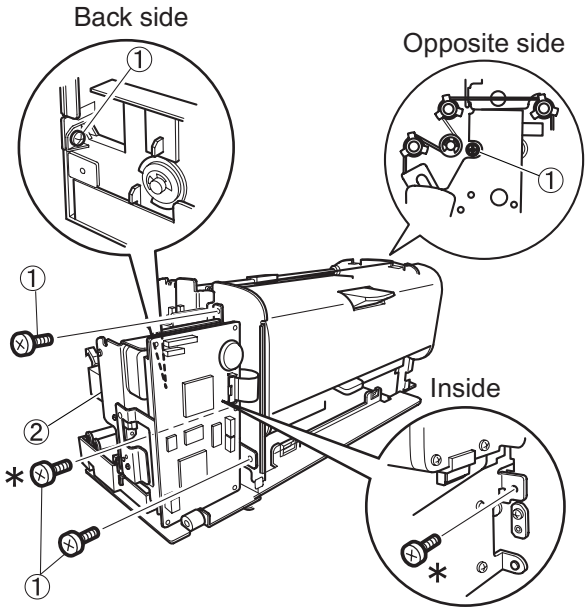


Figure 3-202

* **Notes on assembling**

When assembling the engine unit, align the engine unit guide ① with the main body guide ② and push the engine unit horizontally. Take extreme care so that the cable is not hooked or caught.

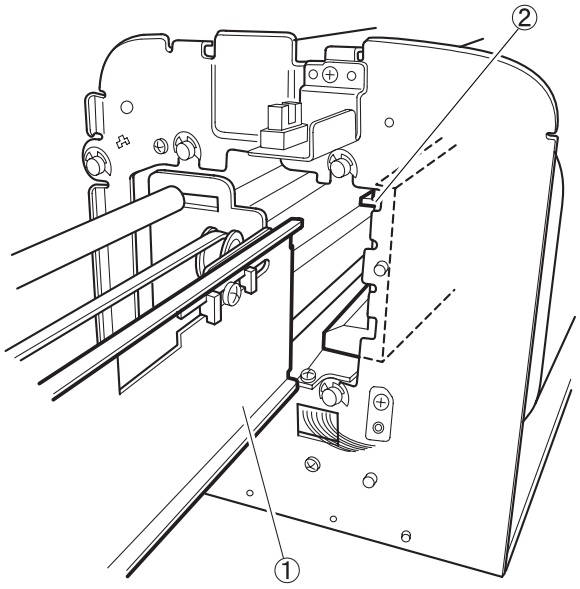


Figure 3-203

Adjust the engine unit position slightly so that the four projections ① for positioning match the corresponding holes, set it so that there is no clearance between the side plate of the engine unit and the side plate of the main body, and tighten the screws. There are projections for positioning at two places at the end of the shaft and at two places of the main body side plate. In addition, align the projection for positioning on the recovery unit with the oval hole ② and set them.

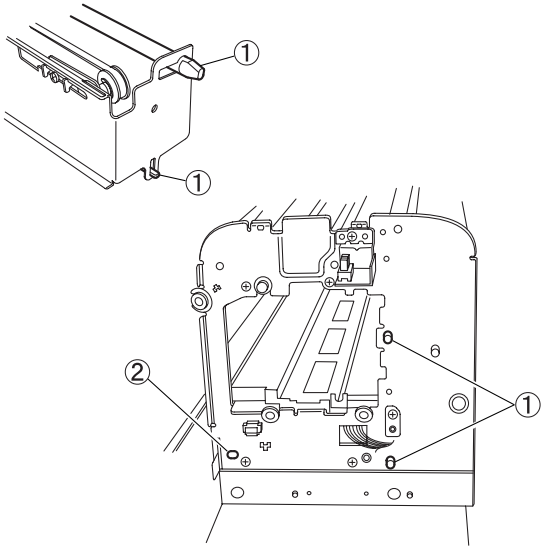


Figure 3-204

2. Engine Unit: 50B

1) Removing the right and left covers, open the top cover.
2) Disconnect the 6 connectors ① connected to the engine unit. Remove cable ties as required. The connector indicated by an asterisk (*) has a locking mechanism.

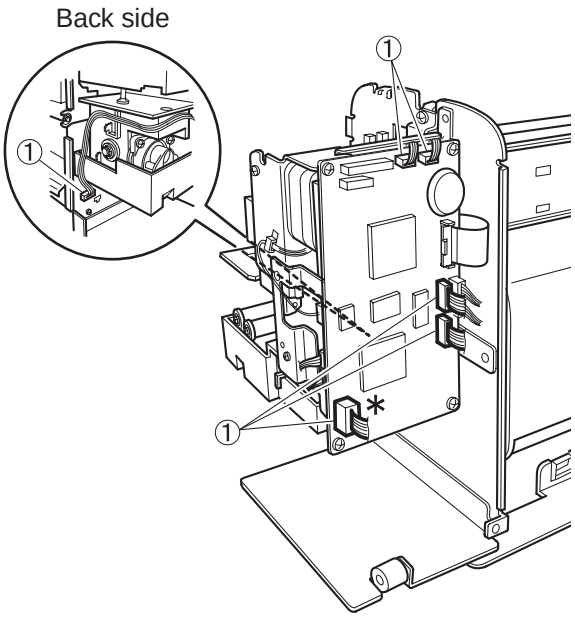


Figure 3-205

3) Remove the 5 screws ①, slide and remove the engine unit ②.

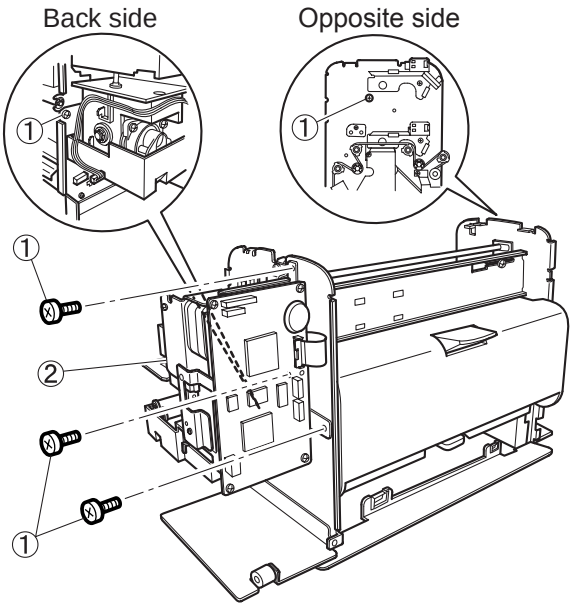


Figure 3-206

*** Notes on assembling**

To mount the engine unit, insert it into the main body, keeping it horizontal. Take care so that it is not hit against the feed section and the cable is not hooked or caught.

Adjust the engine unit position slightly so that the four projections ① for positioning match the corresponding holes, set it so that there is no clearance between the side plate of the engine unit and the side plate of the main body, and tighten the screws. There are projections for positioning at two places at the end of the shaft and at two places of the main body side plate. In addition, align the projection for positioning on the recovery unit with the oval hole ② and set them.

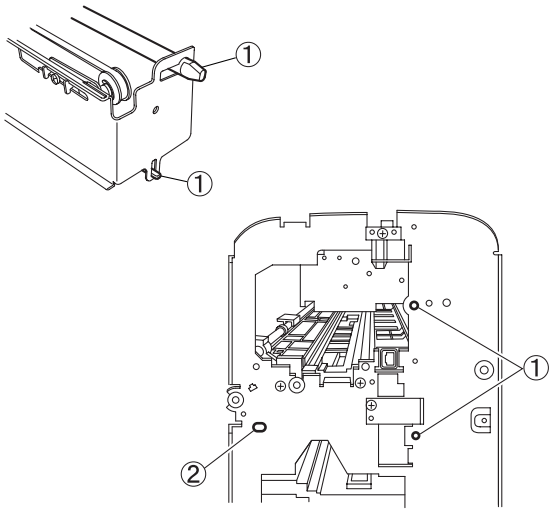


Figure 3-207

3. Main PCB

1) Remove the engine unit.
2) Disconnect the 4 connectors ①, remove the 5 screws ② and remove the main PCB ③.

Note: The carriage connector (marked with *) has a lock. Open and remove the lock plate. Do not damage the lock plate.

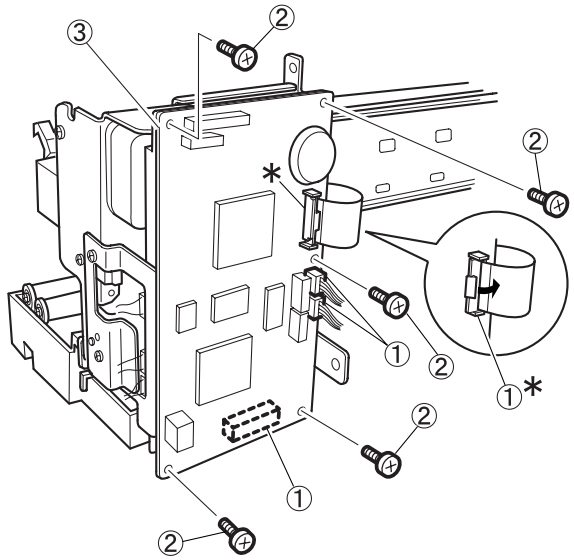


Figure 3-208

4. PCB Unit

1) Remove the engine unit.
2) Disconnect the 6 connectors ① connected to the PCB unit. Remove cable ties as required.

Note: The carriage connector (marked with *) has a lock. Open and remove the lock plate. Do not damage the lock plate.

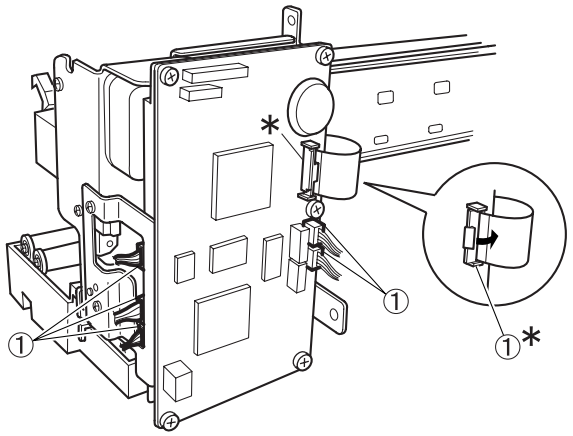


Figure 3-209

3) Remove the 3 screws ① and remove the PCB unit ②.

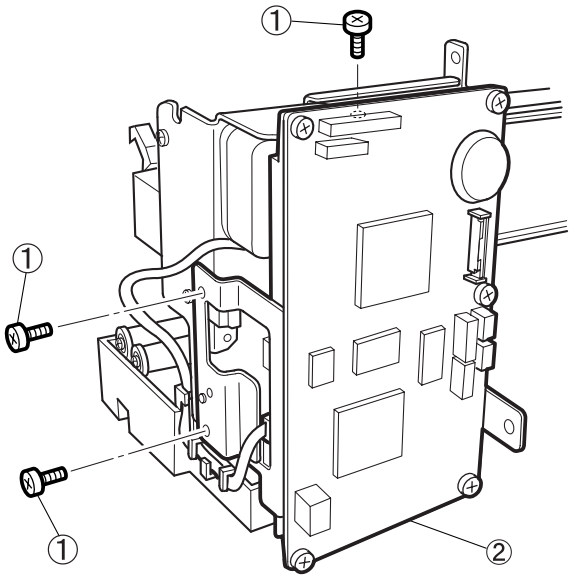


Figure 3-210

5. Drive PCB

1) Remove the engine unit.
2) Remove the PCB unit.
3) Remove the 3 screws ① and remove the drive PCB ②.

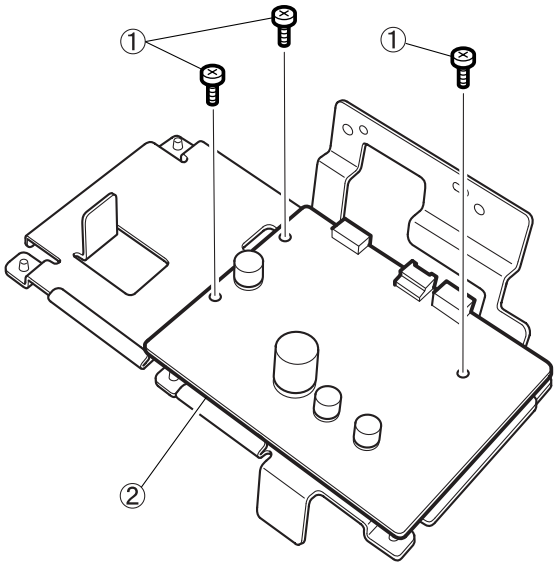


Figure 3-211

6. Residual Ink Receiver (pump unit)

Note: Prepare for a sheet of paper, etc. for wiping ink.

1) Remove the engine unit.
2) Remove the cable ① and unhook the 2 fitting parts ②, then remove the pump unit residual ink receiver ③.

Note: Do not stain your fingers and the periphery with ink. Ink may drip from the pump outlet.

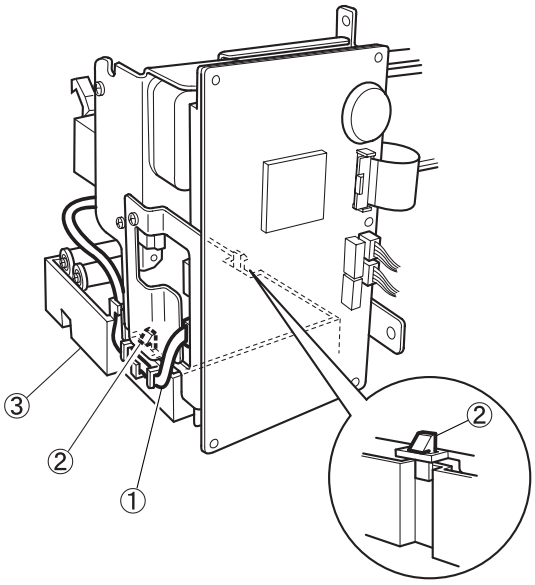


Figure 3-212

7. Carriage Unit/recovery Unit

1) Remove the engine unit.
2) Remove the PCB unit.
3) Turn the gear ① counterclockwise manually, and lower the lock pin ②, cap ③ and blade ④. Then slide the carriage ⑤.

Note: Do not slide the carriage before lowering these parts.

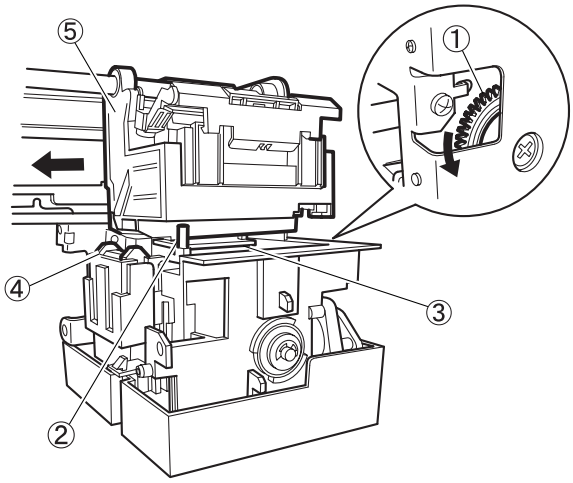


Figure 3-213

4) Remove the 2 screws ① and separate the carriage unit ② and the recovery unit ③.

Note: Do not touch the cap and blade.

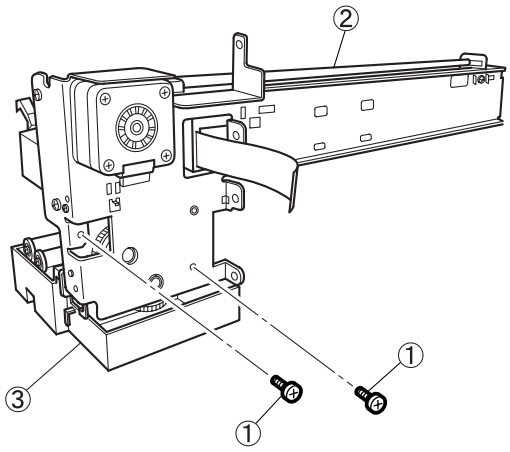


Figure 3-214

*** Notes on assembling**

When assembling the carriage unit and recovery unit, align the 2 positioning parts ① and then tighten screws.

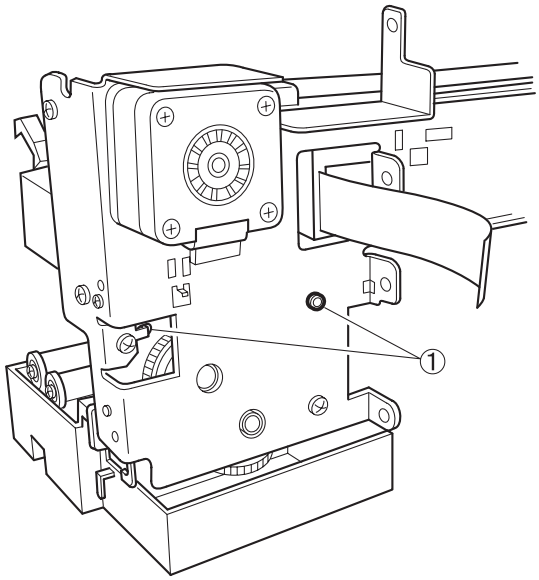


Figure 3-215

*** Notes on the recovery unit**

Do not disassemble the recovery unit components, pump, blade or cap. Only the parts (the recovery PCB, recovery motor) for which the procedure is described here can be disassembled.

8. Recovery PCB

1) Remove the engine unit.
2) Remove the PCB unit.
3) Remove the recovery unit.
4) Unhook the 3 fitting parts ① and remove the cover ②.

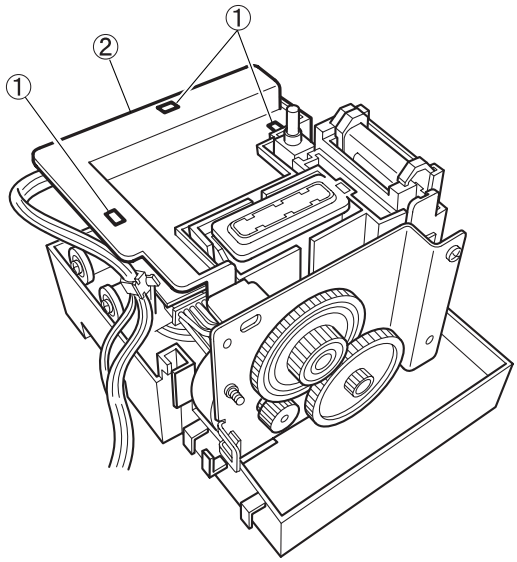


Figure 3-216

5) Remove the screw ① (self tapping) disconnect the 3 connectors ②, and remove the recovery PCB ③.

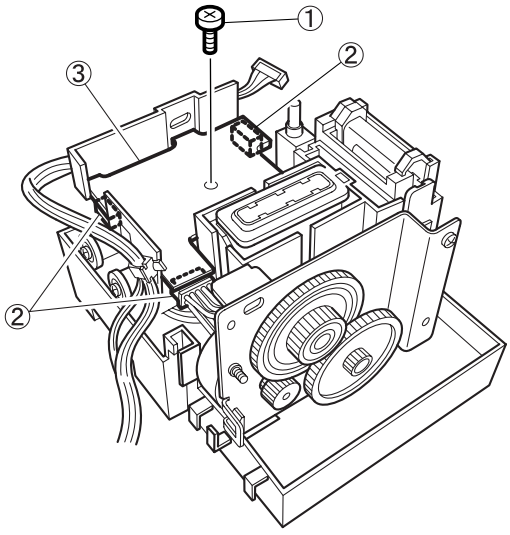


Figure 3-217

9. Recovery Motor

1) Remove the engine unit.
2) Remove the PCB unit.
3) Remove the recovery unit.
4) Remove the residual ink receiver.
5) Unhook the fitting part ① and remove the 2 gears ②.

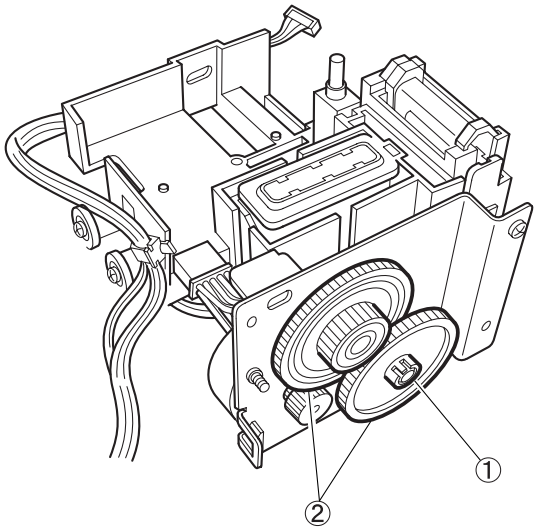


Figure 3-218

6) Remove the 2 screws ① (self tapping) disconnect the connector ②, and remove the recovery motor ③.

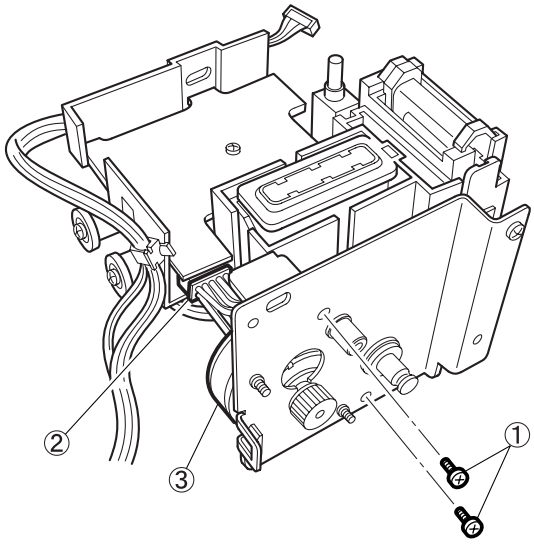


Figure 3-219

* **Notes on assembling**

If the gear shaft (cam shaft) is detached when the gear is assembled, return the gear shaft to its original position and assemble the gear.

10. Carriage Motor

1) Remove the engine unit.
2) Remove the PCB unit.
3) Remove the carriage unit.
4) Remove the 2 screws ① and remove the guide shaft assistant ② and cover ③.

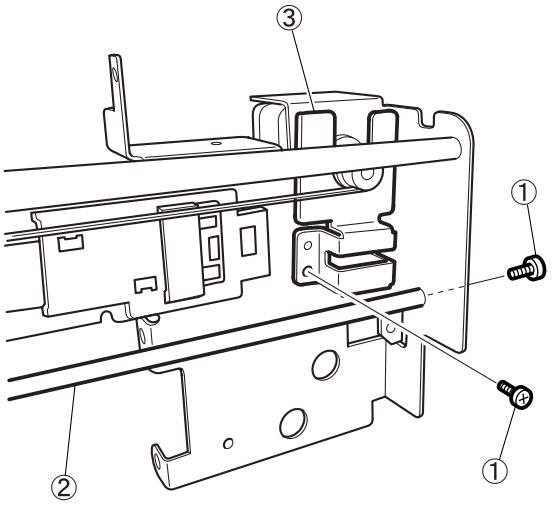


Figure 3-220

5) Remove the 4 nuts ① and remove the carriage motor ②.

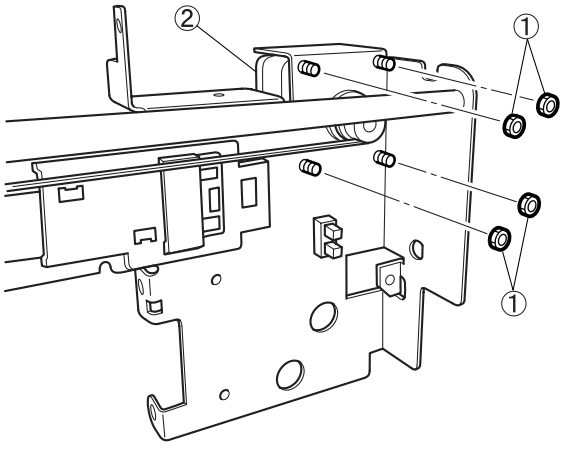


Figure 3-221

*** Notes on assembling**

When assembling the guide shaft assistant ①, insert it into the guide of the carriage main body. Insert the D-cut section ② at the end of the shaft on the carriage motor side into the hole in the side plate and tighten the screws.

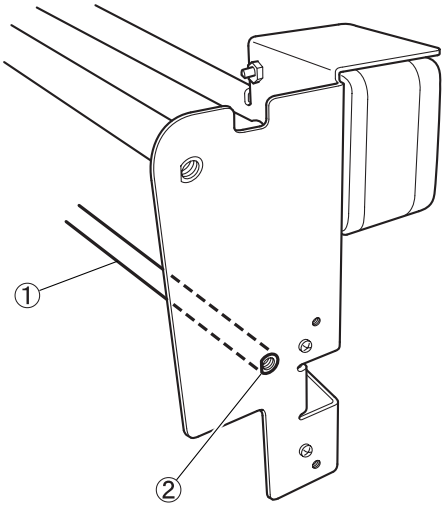


Figure 3-222

*** Belt tension adjustment**

Adjust belt tension when attaching the carriage motor. The standard tension is 1500g. No teeth must be skipped and the carriage must be moved smoothly.

1) Loosen the screw ① and set the belt ②.
2) Apply a 1500g tension to the tension plate shaft ③ and secure the screw.

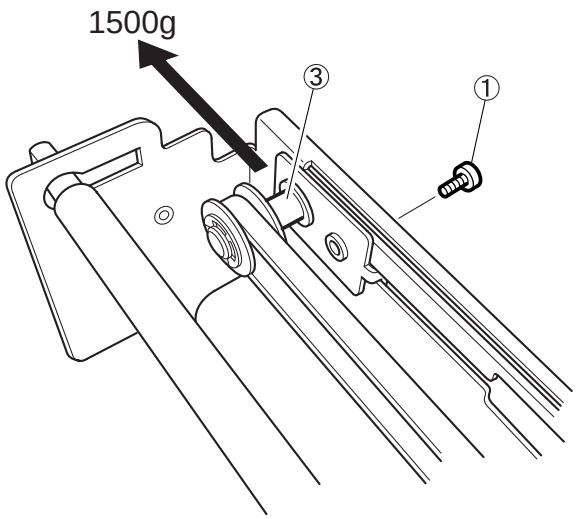


Figure 3-223

11. Carriage

1) Remove the engine unit.
2) Remove the PCB unit.
3) Remove the carriage unit.
4) Remove the carriage motor.
5) Remove the screw ① and remove the guide shaft ② and carriage main body ③.

Note: Do not touch the print head surface attached on the carriage main body.

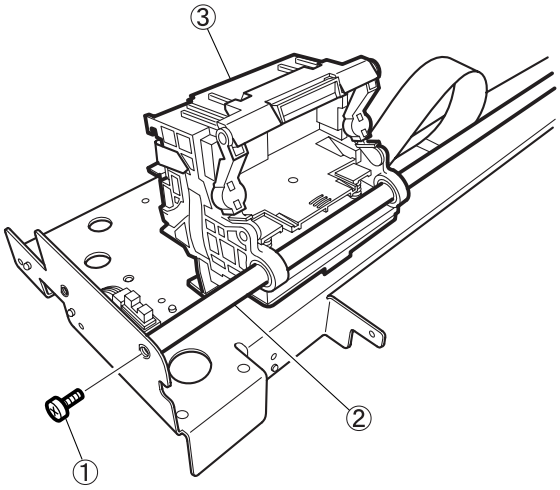


Figure 3-224

6) Remove the 2 cable ties ① by flexing. Lift and unhook the fitting part ③ of the cable tie ②.

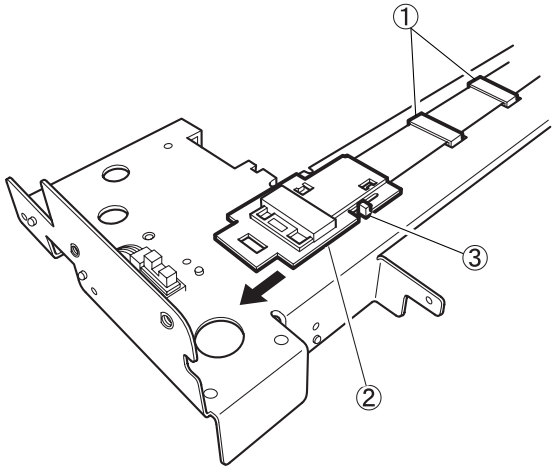


Figure 3-225

*** Notes on assembling**

When securing the guide shaft ① and guide shaft assistant ②, insert the D-cut section ③ at the end of the shaft on the carriage motor side into the hole in the side plate and tighten the screws.

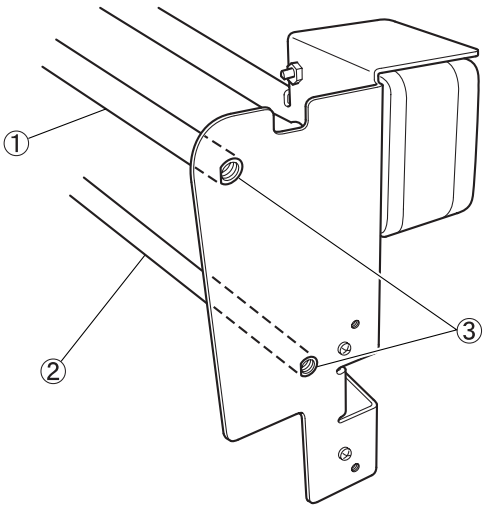


Figure 3-226

12. Carriage PCB

1) Remove the engine unit.
2) Remove the PCB unit.
3) Remove the carriage unit.
4) Remove the carriage motor.
5) Remove the carriage.
6) Remove the screw ① (self tapping) and remove the cable tie ②. Then remove the 3 screws ③ (self tapping) and remove the cover ④.

Note: Do not remove the cable from the inner PCB when removing the cover. The connector has a lock.

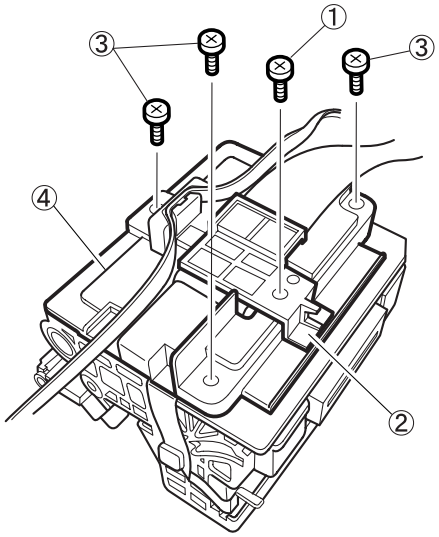


Figure 3-227

7) Disconnect the 2 connectors ①, remove the screw ② (self tapping) and remove the carriage PCB ③.

Note: The connector marked with * has a lock. Open and remove the lock plate.

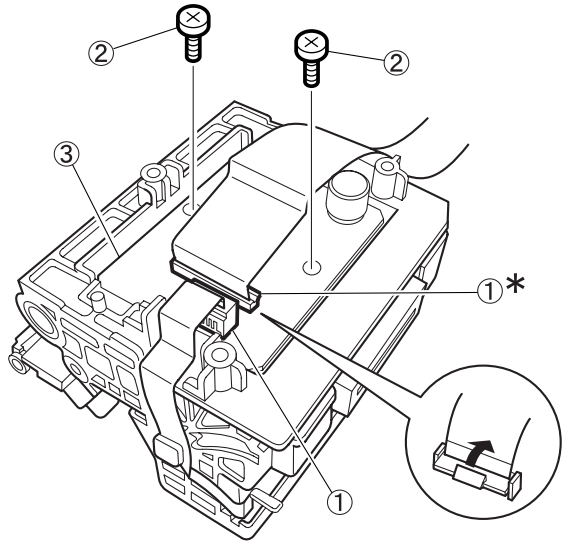


Figure 3-228

Note: Do not touch the carriage PCB and print head contact part.

*** Notes on assembling**

Do not tighten the screw excessively when securing the carriage PCB. Otherwise, the screw groove may be damaged.

III. MAIN BODY

1. Feeder Guide Unit (upper)

1) Remove the right and left covers.

Note: For 50B, remove the engine unit.

2) Open the feeder guide unit (upper) ① to 90 degrees. Keeping this state, unhook the fitting parts ② by lifting the left side. Then unhooking the fitting part ③, remove the feed guide unit (upper).

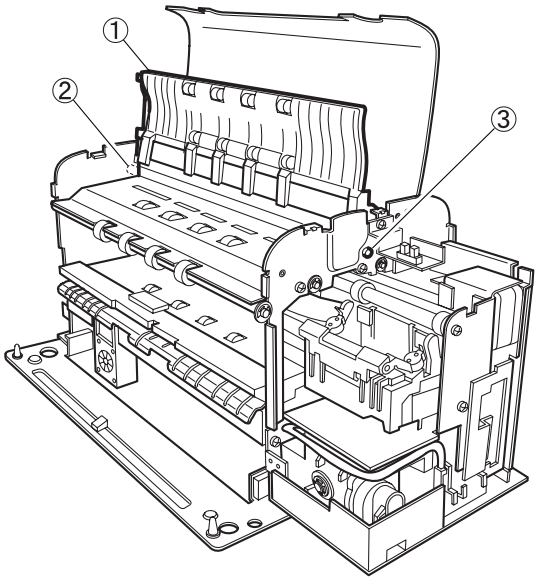


Figure 3-301

2. Upper Roller Holder

1) Remove the right and left covers.

Note: For 50B, remove the engine unit.

2) Open the rear unit.

3) Remove the screw ① and remove the stopper ②. Then turn the upper roller holder ③ backward, unhook the fitting part ④ and remove it.

Note: A cable is connected to the fitting part side. To remove the stopper, it is advisable to press down the upper roller holder.

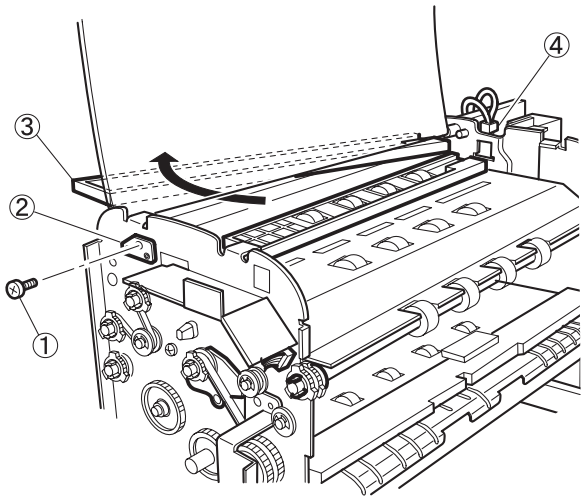


Figure 3-302

3. Release Lever/lock Plate

1) Remove the left cover.
2) Remove the spring end ①. Unhook the fitting part ② and remove the release lever ③ and spring ④. Remove the E ring ⑤ and remove the lock plate ⑥.

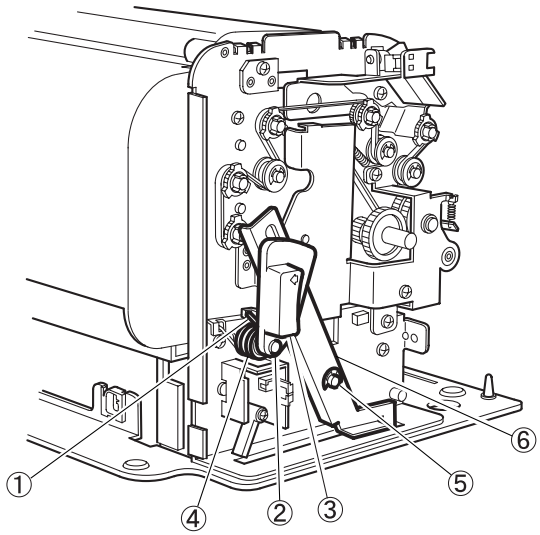


Figure 3-303

* **Notes on assembling**

Be careful to prevent injuries or damage to parts when assembling the spring and release lever because the spring force is strong.

4. Connecting Gear Unit

1) Remove the left cover.
2) Remove the release lever and lock plate.
3) Remove the 2 screws ① and remove the gear cover ②.

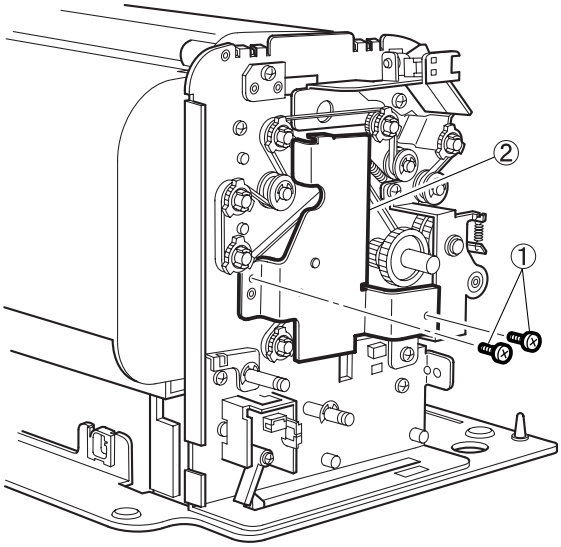


Figure 3-304

4) Remove the screw ① and release the tension plate ②. Then remove the 2 screws ③ and remove the guide plate ④ slowly.

Note: When the guide plate is removed, the spring ⑤, spacer ⑥, connecting gear unit ⑦, 2 bearings ⑧ and drive gear unit ⑨ are detached. Take special care not to make the drive gear unit parts fall apart.

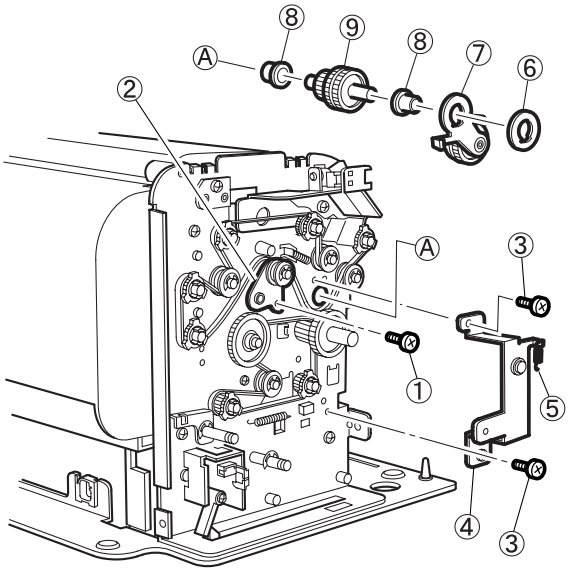


Figure 3-305

* **Notes on assembling**

Do not mistake the direction of the bearings. Place the belt on the drive gear unit and attache the guide plate.

5. Upper Platen Unit

1) Remove the right and left covers.

Note: For 50B, remove the engine unit.

2) Remove the feeder guide unit (upper).
3) Remove the upper roller holder.
4) Remove the release lever and lock plate.
5) Remove the gear cover.
6) Remove the screw ① and release the tension plate ②. Then unhook the fitting part ③ of the gear and remove the gear, bearing ④ and washer ⑤. Then remove the carry roller shaft L ⑥. Disconnect the connector ⑦.

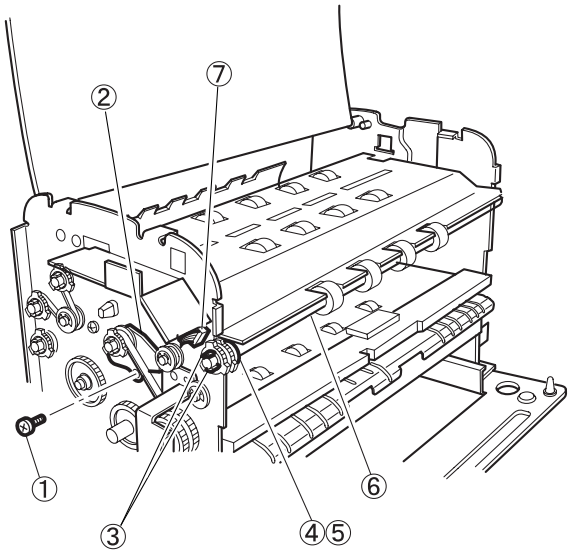


Figure 3-306

7) Remove the 3 screws ①, unhook the 2 fitting parts ② and remove the upper platen unit ③.

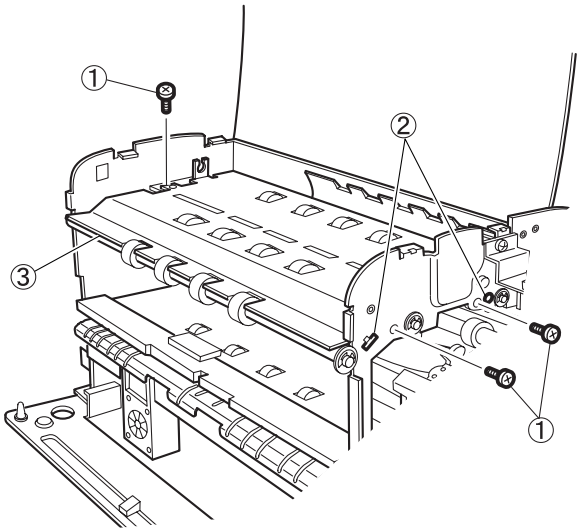


Figure 3-307

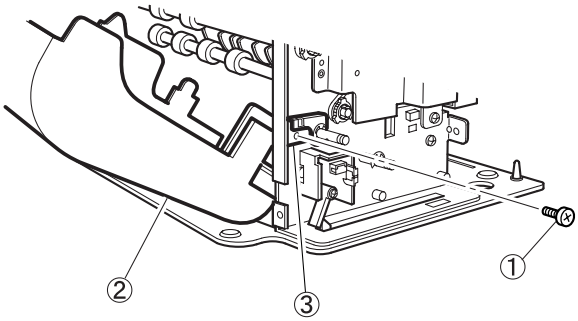
* **Notes on assembling**

When assembling the platen unit, assemble it by avoiding the projections on the right and left side plates. Do not forget to connect the connector.

When assembling the gear on the roller, adjust the hole to the shape of the shaft. (It is a D shape.)

6. Rear unit

1) Remove the right and left covers.
2) Remove the engine unit.
3) Remove the release lever.
4) Remove the 2 screws ① on the right and left side plates, retain the rear unit ②, remove the right and left guides ③ and remove the rear unit.



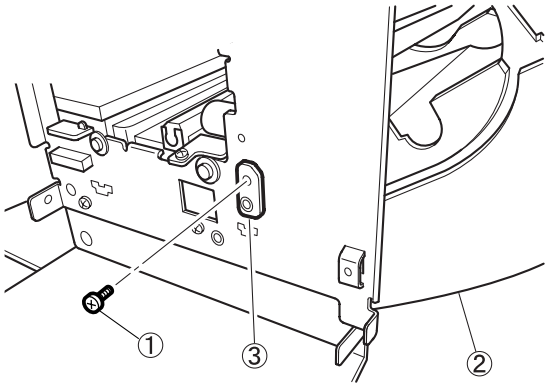


Figure 3-308

7. Rear Roller Holder

1) Remove the right and left covers.
2) Remove the engine unit.
3) Remove the rear unit.
4) Unhook the 3 fitting parts ① and remove the rear roller holder ②.

Note: When the rear roller holder is removed, there are four springs inside.

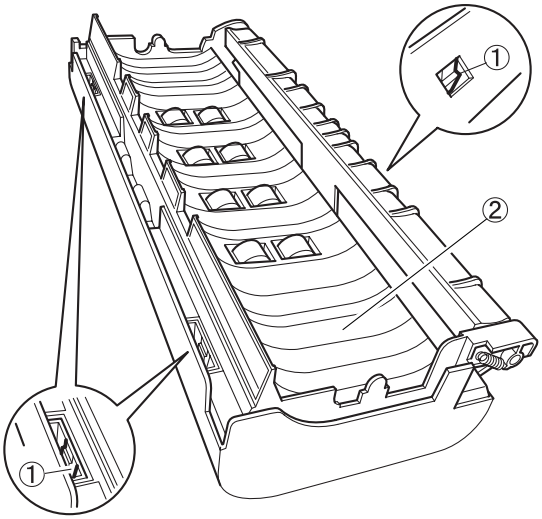


Figure 3-309

8. U-turn Guide

1) Remove the right and left covers.
2) Remove the engine unit.
3) Remove the rear unit.
4) Remove the 2 screws ① and remove the gear cover ②.

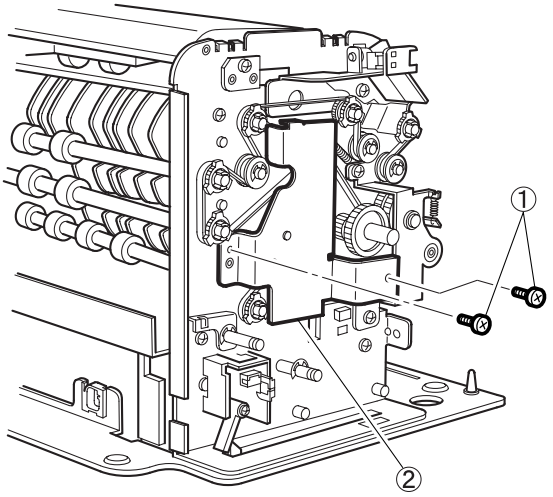


Figure 3-310

5) Remove the screw ① and release the tension plate ②. Then unhook the fitting parts of the 2 gear ③ and remove the gear, bearing ④ and washer ⑤. Then remove the 2 carry roller shafts S ⑥.

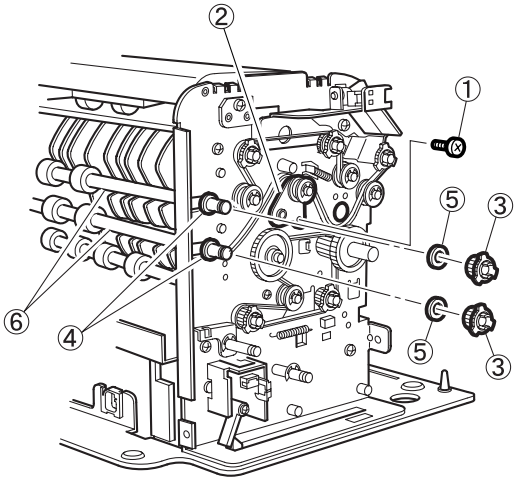


Figure 3-311

6) Remove the screw ①, unhook the 2 fitting parts ② and remove the U-turn guide ③.

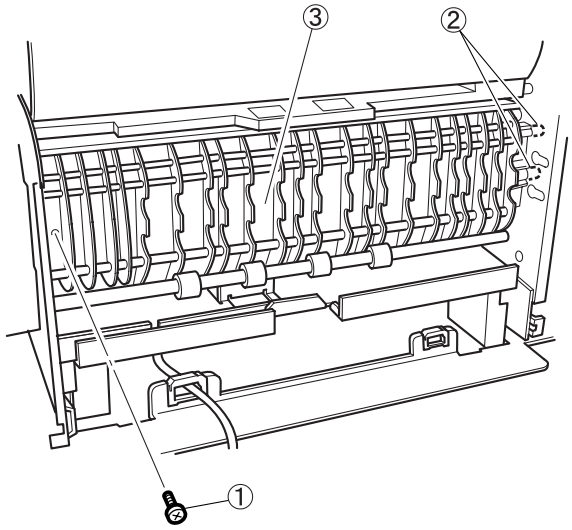


Figure 3-312

9. Feeder Guide Unit (lower)

1) Remove the right and left covers.
2) Remove the engine unit.
3) Remove the feeder guide unit (upper).
4) Remove the rear unit.
5) Remove the U-turn guide.
6) Remove the 3 screws ① and remove the feeder guide unit (lower) ② from the rear opening.

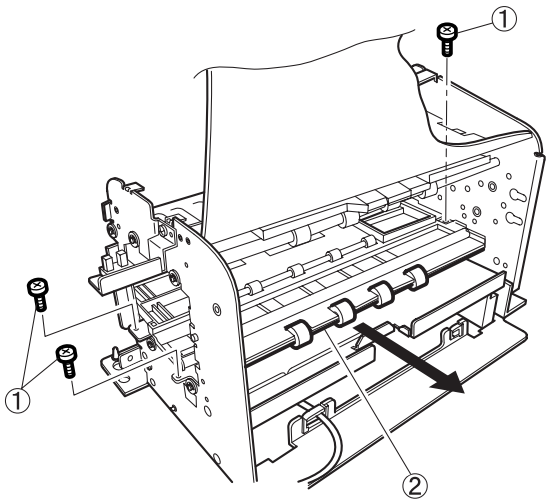


Figure 3-313

7) Open the feeder guide unit (lower) ① to 90 degrees, lift it up, unhook the 2 fitting parts ② and separate the feeder guide unit (lower) and lower platen ③.

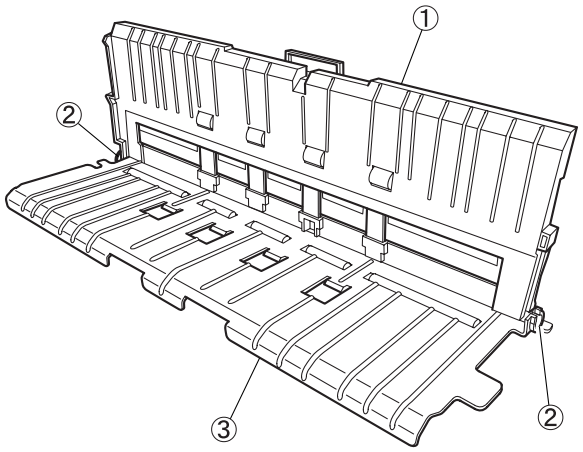


Figure 3-314

*** Notes on assembling**

Do not assemble the feeder guide unit (upper) on the lower platen.

10. Residual Ink Receiver: 50F (platen unit)

Note: Prepare for a sheet of paper, etc. for wiping ink.

1) Remove the right and left covers.
2) Remove the engine unit.
3) Remove the rear unit.
4) Remove the U-turn guide.
5) Remove the feeder guide unit (lower).
6) Lift and remove the residual ink receiver ①.

Note: Remove it together with the case. Do not stain your fingers and the periphery with ink.

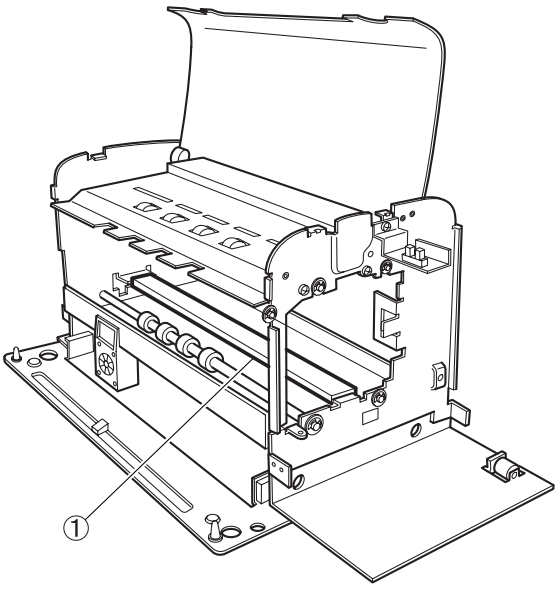


Figure 3-315

11. Residual Ink Receiver: 50B (platen unit)

Note: Prepare for a sheet of paper, etc. for wiping ink.

1) Remove the right and left covers.
2) Remove the engine unit.
3) Remove the feed guide unit (upper).
4) Remove the platen unit (upper).
5) Lift and remove the residual ink receiver ①.

Note: Remove it together with the case. Do not stain your fingers and the periphery with ink.

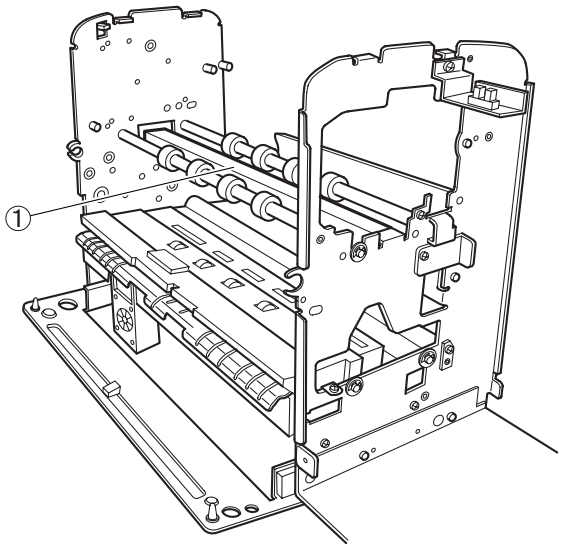


Figure 3-316

12. Guide Plate Unit

1) Remove the right and left covers.
2) Remove the engine unit.
3) Remove the screw ① and remove the fan cover ② and the fan unit ③.
   Remove the 2 screws ④.

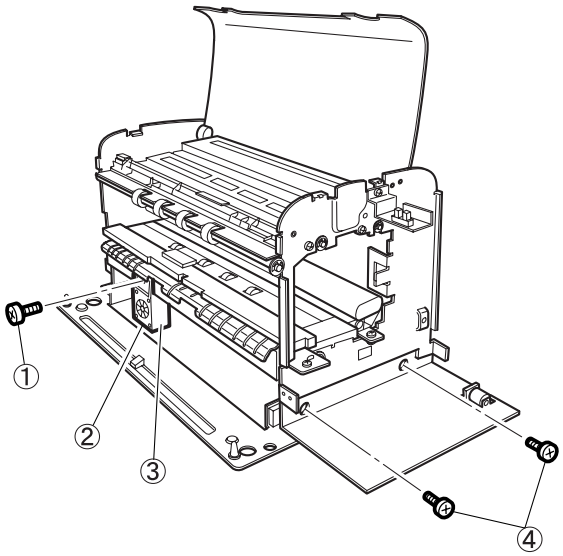


Figure 3-317

4) Release the lock with the release lever ① and slide the main body slowly. Slide the slide guide ② to the main body side.
   Remove the interface cable ③ from the cable clamp.

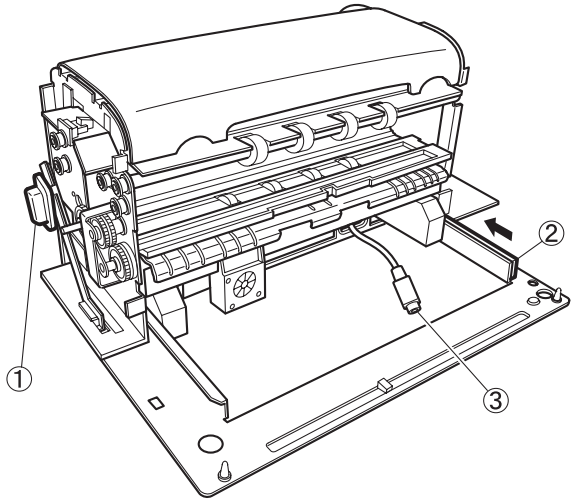


Figure 3-318

5) Keeping the main body ① slant, unhook the projections for positioning ② and remove the 2 guide rollers ③, then detach the guide plate unit ④ from the main body

Note: Do not damage the fan unit.

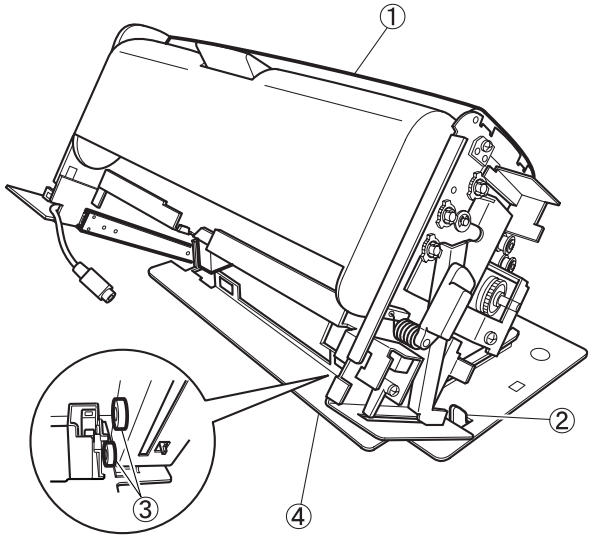


Figure 3-319

* **Notes on assembling**

When tightening the screws ④ described in procedure 3), lift the main body slightly and align the screw with the screw hole.

Do not turn it by inserting your fingers into the right and left lock arms in the guide plate unit. Otherwise, your fingers may be caught.

CHAPTER 4

INSTALLATION & MAINTENANCE

I. INSTALLATION

Note 1: The imprinter 50F/50B (both are called the imprinter below) cannot be used with the DR-5010C at the initial stage of mass production. Verify that the DR-5010C corresponds to the imprinter first. Refer to Figures 4-101 and 4-102. The points that are judged by the appearance of the applicable DR-5010C are shown below.

- The interval of eject rollers is wide.
- The feeder tray has a document guide.

- Applicable

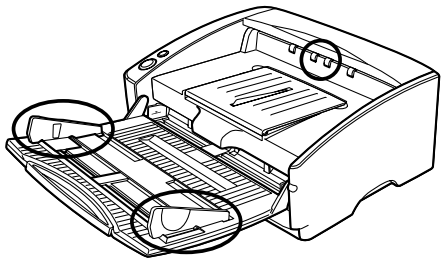


Figure 4-101

- Not applicable

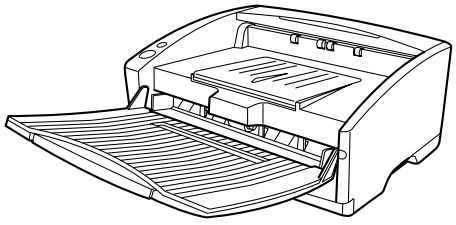
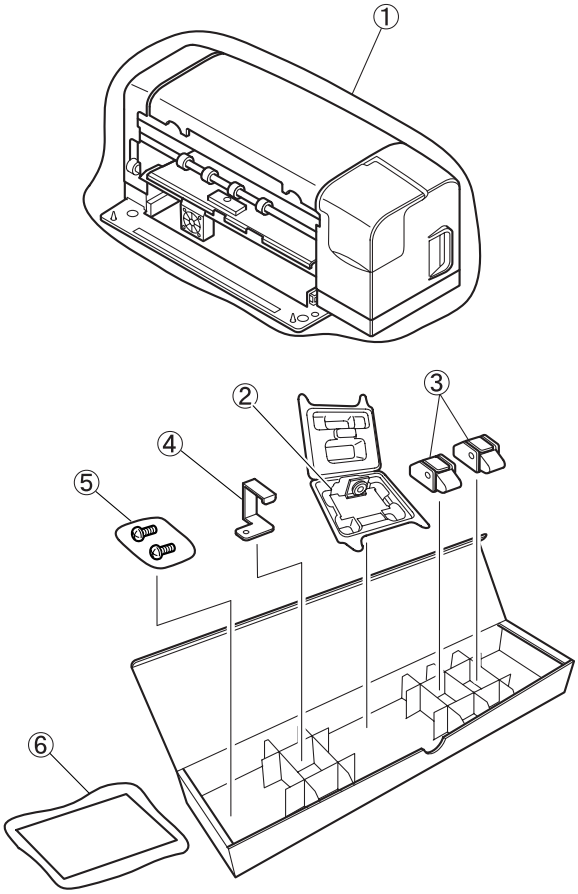


Figure 4-102

Note 2: This section shows the imprinter 50F for front surface printing as a basis. Unless otherwise specified, disassemble and reassemble the imprinter 50B for rear surface printing with the same procedure. However, the procedure for the imprinter 50B is added only if work cannot be performed by the procedure for the imprinter 50F.

1. Preparation for the Imprinter

1) Open the outer packaging box and remove the contents.



① Main body
② Print head
③ Cover lock units (2)
④ Pushing plate
⑤ Screws (2)
⑥ User manual

Figure 4-103

Note: Do not hold the parts that can be deformed easily, such as the platen and the front side of the guide plate, when carrying the imprinter main body. Transport it by holding it by the right and left sides or the bottom of the feeder with both hands.

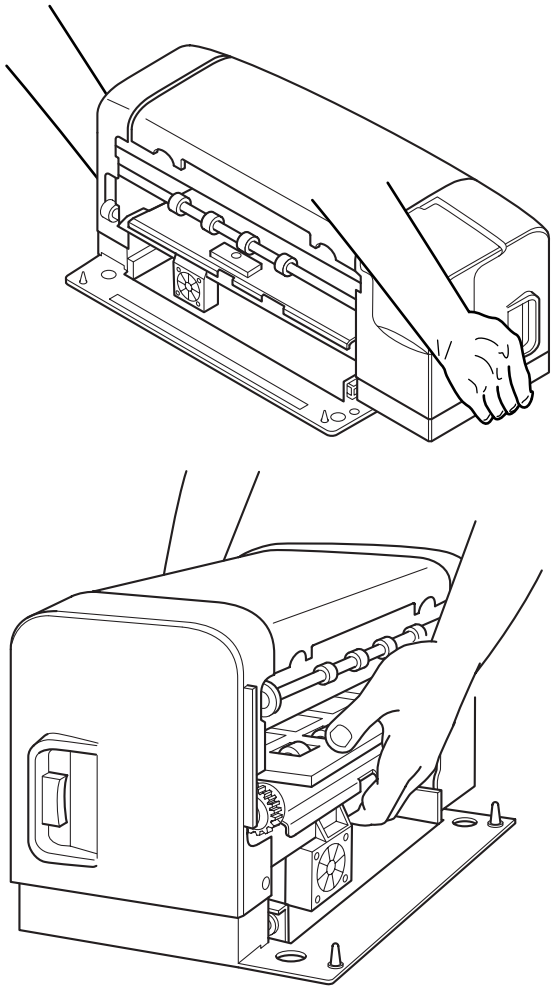


Figure 4-104

2) Remove all tape and protection materials holding parts.

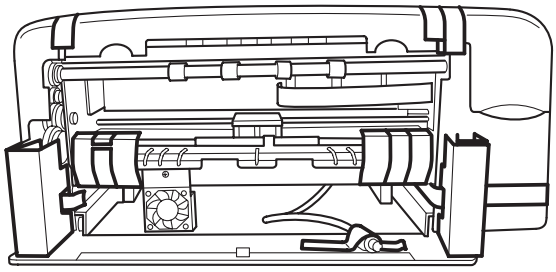


Figure 4-105

3) Remove the supplied print head ① from the case.

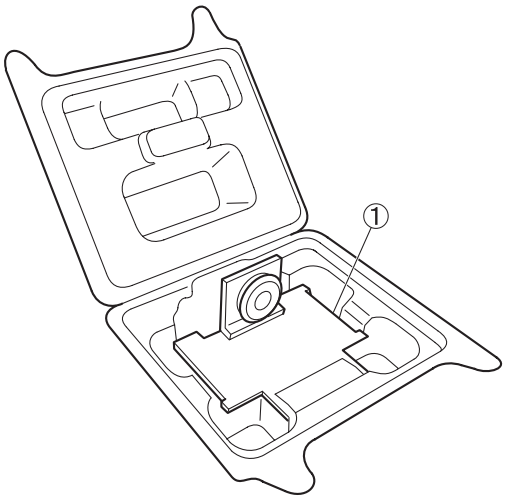


Figure 4-106

4) Unstick the protecting tape ①
Do not touch the print head face ② and contact part ③.

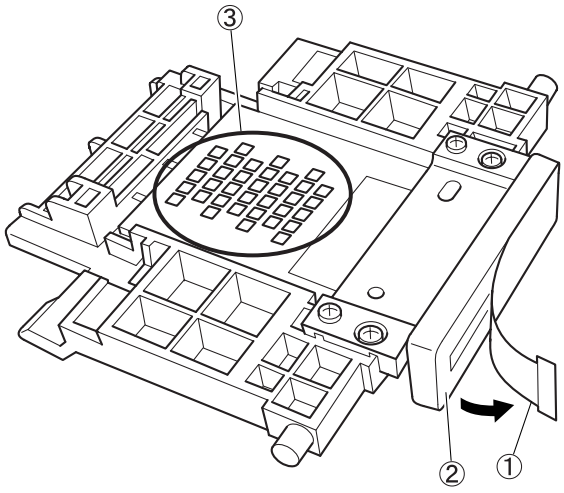


Figure 4-107

5) Open the ink tank cover ①. Open the lock lever ②. Align the print head with the carriage groove ③ and drop it down.

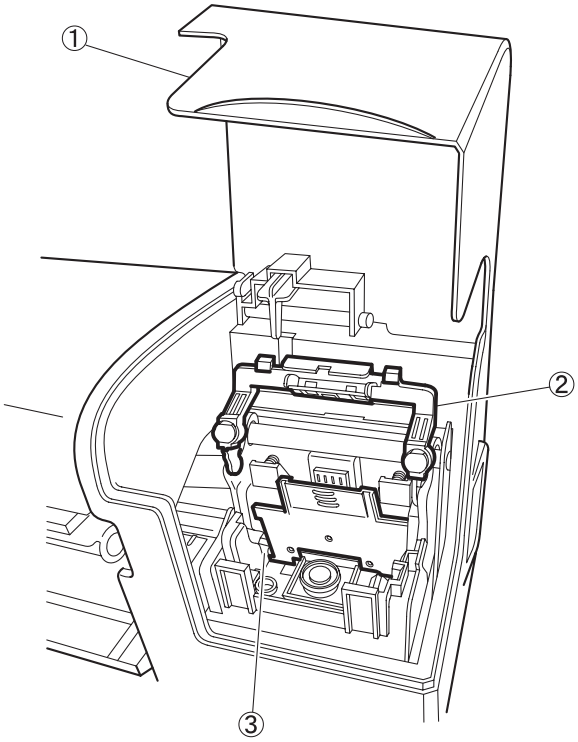


Figure 4-108

6) Verify that the print head is at the position that matches the lock plate ① and push the pushing part ② of the print head strongly.

Note: It must be locked to the right and left lock plates.

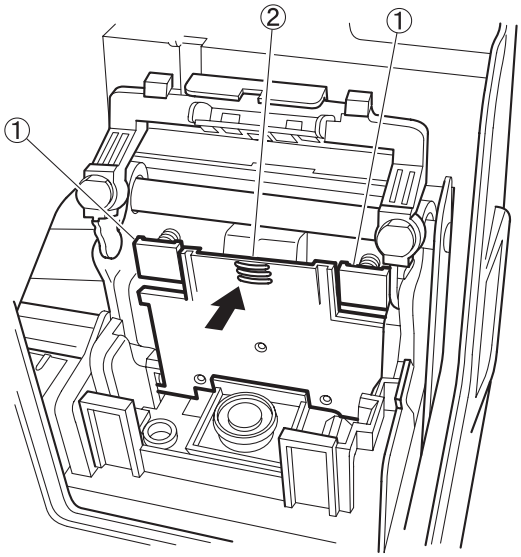


Figure 4-109

7) The print head is set.

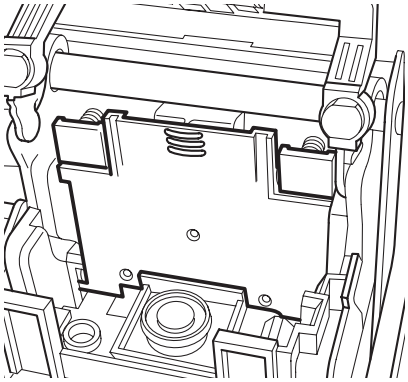


Figure 4-110

Note: Push in the right and left lock plates when removing the print head.

8) Close the lock lever and the ink tank.

2. Preparation for DR-5010C

1) Refer to the DR-5010C user manual or service manual and unpack, remove fixing tape and protection materials.
2) Open the eject tray ①. Then remove the two screws ② and lift the top cover ④ so that the eject cover ③ can be removed.

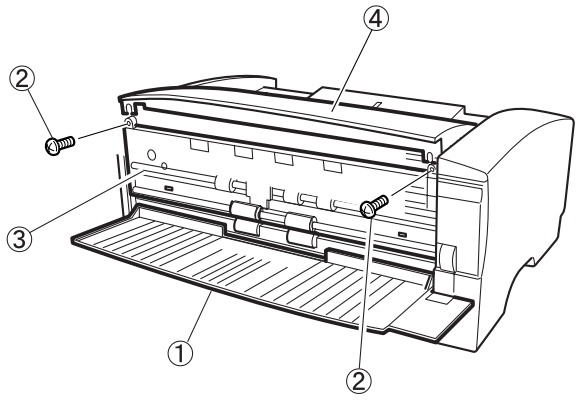


Figure 4-111

3) Push the two fitting parts ①, bend the two fitting parts ②, release each of the fitting parts and remove the eject cover ③ and eject tray ④. Then, remove the gear cover ⑤.

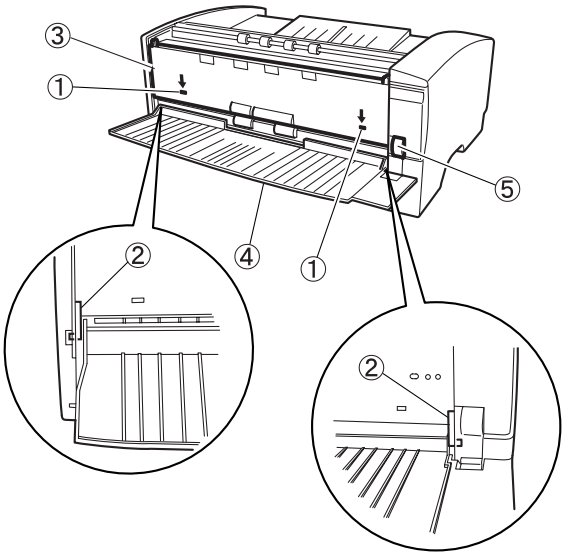


Figure 4-112

4) Install the eject cover and the top cover in their original positions and secure them with the screws removed in step 2.

Note: Since the eject cover has a thin rib ①, push it straight to prevent damage to the rib during assembly.

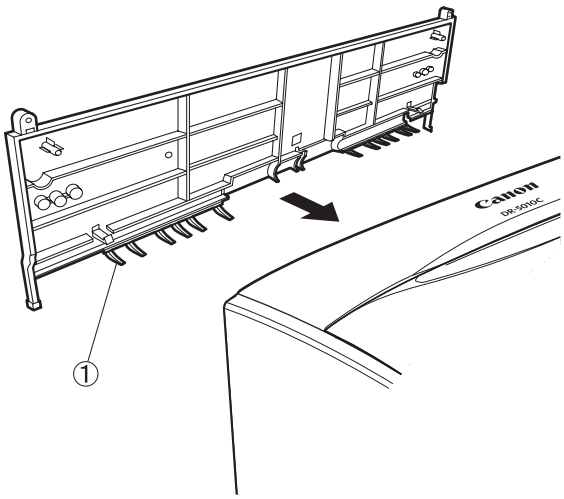


Figure 4-113

Note: The removed eject tray and gear cover are required when the imprinter is removed and the DR-5010C is used alone in future. Report it to the users and advise them to retain them.

5) Prepare for the pushing plate ①, two cover lock units ②, and two screws ③ (self tapping) supplied with the imprinter.

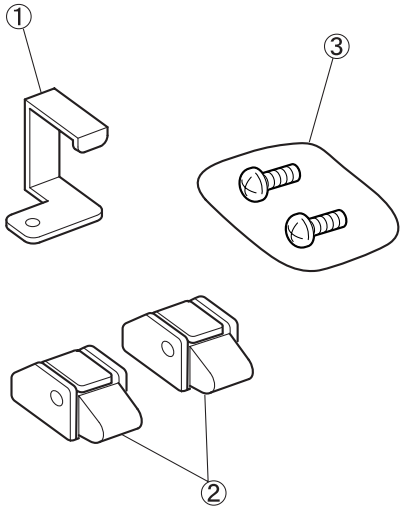


Figure 4-114

6) Remove the screw ① on the DR-5010C. Push in the sensor lever ②, attach the pushing plate ③ and secure it with the removed screw.

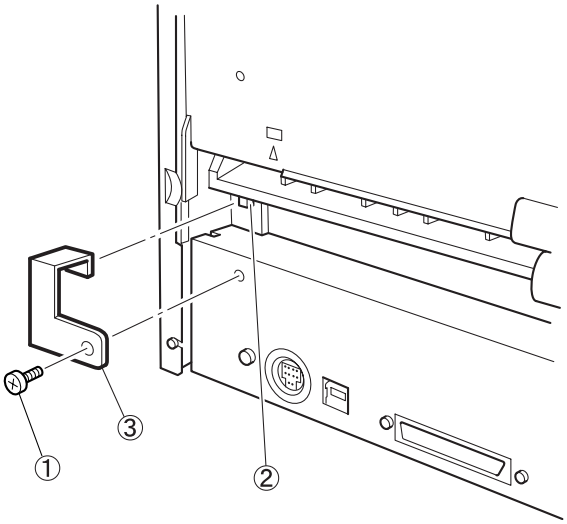


Figure 4-115

7) Attach the two cover lock units ② on the eject cover ① with the two supplied screws ③.

Note: Position them correctly so that they do not lift.

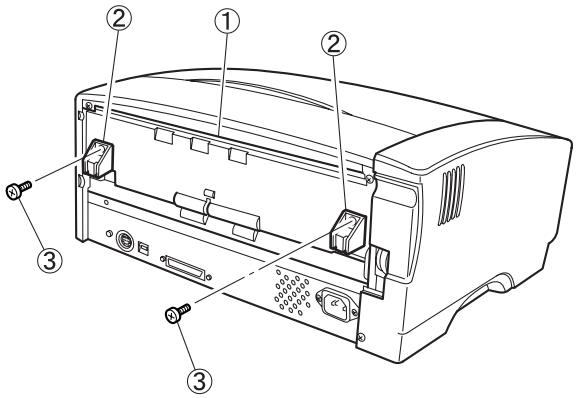


Figure 4-116

3. Attachment

1) Move the ready DR-5010C and imprinter to the site and install them face to face at a certain clearance.

Note: Install both the scanner and the imprinter on the same level. There must be no level difference and slant between them.

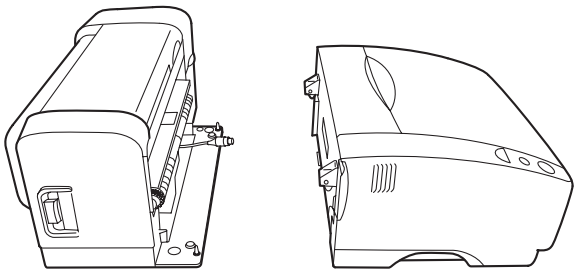


Figure 4-117

2) If connection of a grounding wire ① is required, connect it.

Note: The grounding wire cannot be connected after attaching the main body because there is no space.

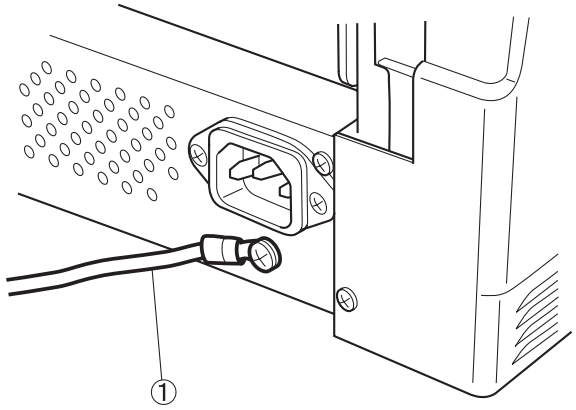


Figure 4-118

3) Lift the scanner by holding both sides, then align the positioning holes on the bottom of the DR-5010C ② with the 2 positioning pins ① of the imprinter and set them.

Note: Do not hit the cover lock unit against the imprinter feed section. Do not have the cable caught.

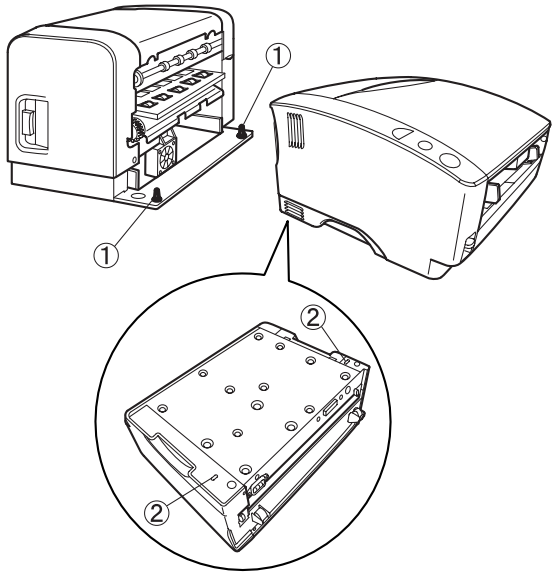


Figure 4-119

4) Open the 2 cable clamps ①. Then release the release lever ② of the imprinter and slide it to the imprinter lock position.

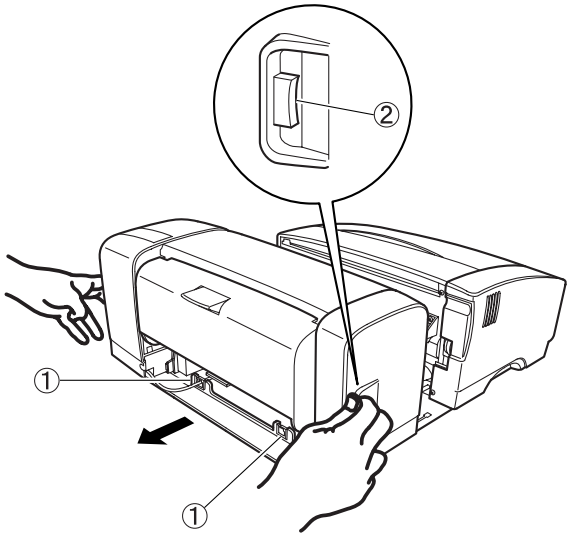


Figure 4-120

5) In the cable clamp, set the USB cable ① (or SCSI cable), the power cable ② and the grounding wire ③, if connected.

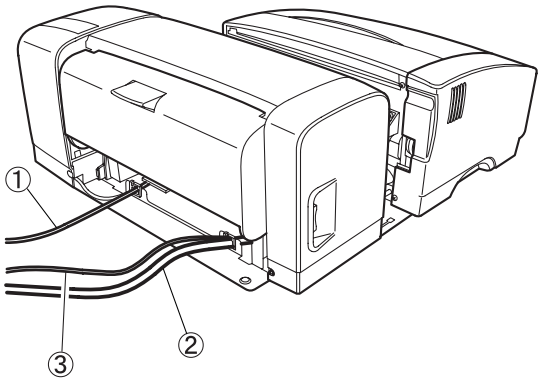


Figure 4-121

6) Connect each cable to the DR-5010C. Also connect the interface cord ①.

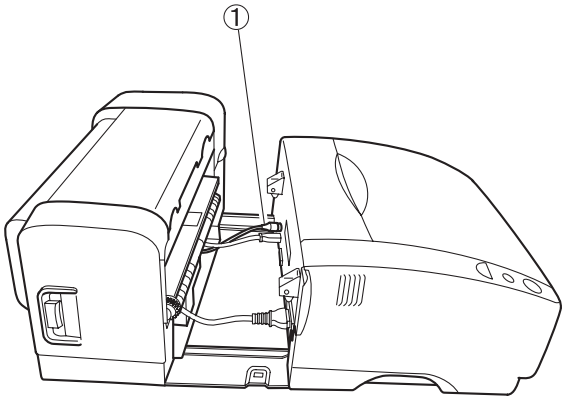


Figure 4-122

7) Release the release lever of the imprinter and slide it to the imprinter lock position.

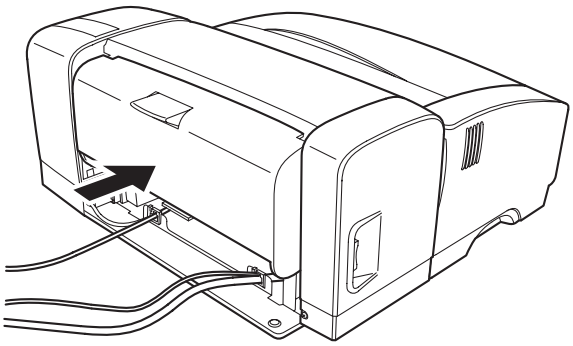


Figure 4-123

8) Prevent it from going into the sleep mode using the user mode or the service mode. Refer to “CHAPTER 5 II.-10 Sleep” for the details.
9) Check operations by referring to the user manual for the DR-5010C and imprinter.

II. MAINTENANCE

1. Periodically Replaced Parts

This machine has no periodically replaced parts, but it has consumable parts.

Reference: Differences periodically replaced parts and consumable parts

1. Periodically replaced parts shall be replaced when becoming at appointed time, and which are usually replaced by service technicians and assigned as service parts. However, if the storage period is limited, parts are assigned as commercially available products.
2. Consumable parts shall be replaced when becoming no good by users or service technicians, and which are assigned as service parts and/or commercially available products.

2. Consumable Parts

1) Consumable parts replaced by service technician

No.	Part name	Part number	Expected life	Remarks
1	Print head	4G3-1453-000	21,000,000 characters (300 × 300 dpi mode, duty 16.5%)	To replace if the printing failure is occurred after cleaning.
2	Residual ink receiver for the pump	4G3-1403-000	3,000,000 sheets (7 characters/sheet, 7,500 sheets/day)	To replace if the receiver is filled of ink. Caution dialog will be displayed.

Table 4-201

The parts above are assigned as service parts.

The residual ink receiver for the platen should be replaced when the main body life is 4,000,000 sheets or more.

The messages of the caution dialog associated with the residual ink receiver for the pump are listed in Table 4-202.

No.	Message
1	Residual ink receiver for the pump is near full. Ask your dealer to exchange residual ink receiver for the pump.
2	Residual ink receiver for the pump full error has occurred. Please ask your dealer to exchange residual ink receiver for the pump.

Table 4-202

2) Parts replaced by user

No.	Part name	Product code	Expected life	Remarks
1	Ink tank 50 Black	0836B001AA	1,750,000 characters (7 characters/sheet, 7,500 sheets/day)	To replace if it runs out of ink, and passes the expiration period after installation or manufacturing. Caution dialog will be displayed.
	Ink tank 50 Red	0836B002AA		
	Ink tank 50 Purple	0836B003AA		

Table 4-203

The parts above are assigned as commercially available products.

For details on caution dialog messages associated with ink tank replacement, refer to “CHAPTER 1 IV. USER MAINTENANCE” of this manual.

3. Periodic Maintenance

This machine has no items for the periodic maintenance by service technicians. When service technicians visit users, they should check and clean the machine with the scanner (DR-5010C). If it is very dirty, advise “USER MAINTENANCE”.

Please refer to the previous section for a replacement of the consumable parts.

CHAPTER 5

TROUBLESHOOTING

I. ERROR DISPLAY

1. Power Indicator

This machine has no error display, but its state can be verified with the power indicator.

If the machine is ready to print, the power indicator is ON. When the power indicator is flashing, the machine is operating, and the scanner power must not be turned OFF. However, the user can turn the power OFF only when they cannot solve abnormalities.

If scans or prints cannot be performed due to electrical failures of this machine, the scanner power indicator flashes.

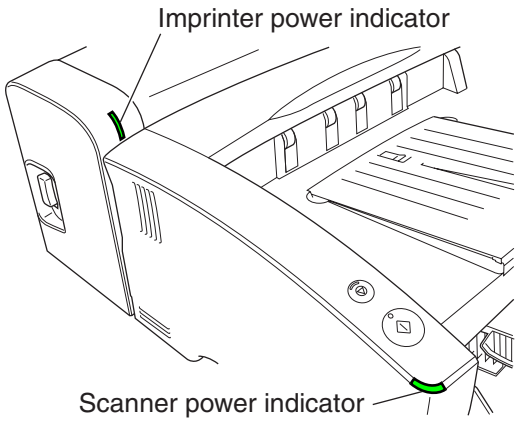


Figure 5-101

Imprinter power indicator	Imprinter state
ON	Printable
Slow flashing	Operating (Print, recovery operation, etc.) * Do not turn the power OFF.
Quick flashing	Ink tank cover opens. * Do not turn the power OFF. However, operation errors are included.
OFF	Power OFF. However, standby mode (sleep mode) is included.

Table 5-101

2. Error Messages

Error messages on the imprinter are displayed on the display connected to the computer as well as the scanner.

Most messages are associated with user operation mistakes and replacement of ink tanks. The user should take appropriate measures according to messages. In case of messages related to electrical failures, service technicians must take measures.

Figure 5-102 shows the display screen examples associated with the imprinter when using “CapturePerfect 3.0”, and Table 5-102 lists messages. The same messages as used for the scanner may be used.

If the computer is terminated in an abnormal state, it may be required to reset the power or restart the computer.

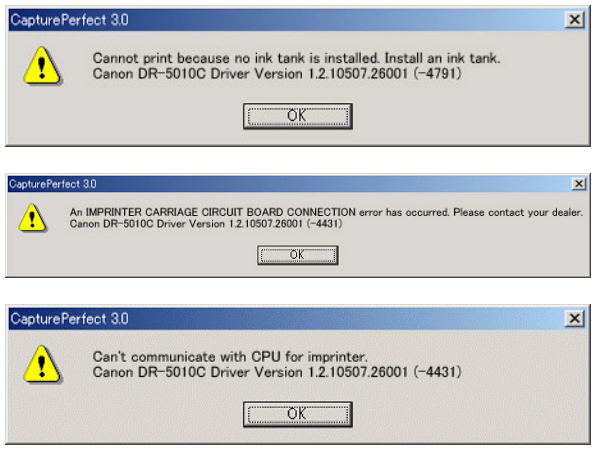


Figure 5-102

Category	Message	Cause/measure
Door sensor	Scanner cover is open.	The upper door/joint/rear door/tank door sensor detects that the door is open. Close the corresponding door. If the problem is not solved, check the sensor.
Sensor	An IMPRINTER CARRIAGE POSITION error has occurred. Please make sure the ink tank lock lever is closed properly. If the problem persists, please contact your dealer.	The carriage HP sensor detects a carriage operation error. Check the sensor or carriage. This message may be displayed if the lock lever is not set.
	An IMPRINTER CAP POSITION error has occurred. Please contact your dealer.	The cap sensor detects a cap operation error. Check the sensor or recovery motor.
	An IMPRINTER PUMP POSITION error has occurred. Please contact your dealer.	The pump sensor detects a pump operation error. Check the sensor or recovery motor.
Lock lever	An INK TANK LOCK LEVER OPEN error has occurred. Please make sure the ink tank lock lever is closed properly.	The lock lever touches the side plate. Set the lock lever correctly.
Carriage motor	Scanner hardware problem.	A carriage motor operation error is detected. Check the carriage motor. This message may be displayed if other operation errors occur.
Fan	An IMPRINTER FAN MOTOR error has occurred. Please contact your dealer.	A fan operation error is detected. Check the fan.
I/F connection	Can't communicate with CPU for imprinter.	The imprinter cannot communicate with the scanner. Check the I/F cord.
Print head	Cannot print because no printhead is installed. Ask your dealer to install the printhead.	Set the head.
	Cannot print due to a printhead subheater error. Ask your dealer to install the printhead.	The head does not reach a prescribed temperature. Set the head again. If the problem is not solved, replace the head.
	Cannot print due to a printhead temperature error. Ask your dealer to exchange the printhead.	The head exceeds a prescribed temperature. Set the head again. If the problem is not solved, replace the head.
	Cannot print due to a printhead EEPROM write error. Ask your dealer to exchange the printhead.	The internal memory of the head is not correct. Replace the head.
	Cannot print due to a printhead EEPROM SUM error. Ask your dealer to exchange the printhead.	
	Cannot print due to a printhead ID error. Ask your dealer to exchange the printhead.	

Category	Message	Cause/measure
Ink tank	Cannot print because no ink tank is installed. Install an ink tank.	Set the ink tank.
	Cannot print due to an ink tank EEPROM write error. Exchange the ink tank for a new one.	The internal memory of the ink tank is not correct. Replace the ink tank.
	Cannot print due to an ink tank EEPROM SUM error. Exchange the ink tank for a new one.	
	Cannot print due to an ink tank ID error. Exchange the ink tank for a new one.	
Main PCB	An IMPRINTER DOWNLOAD PROGRAM error has occurred. Please contact your dealer.	There is a problem in data download in service mode. Reset the power and try again. If the problem is not solved, replace the main PCB.
	An IMPRINTER FLASH WRITE error has occurred. Please contact your dealer.	
Main PCB	An IMPRINTER RTC error has occurred. Please contact your dealer.	The battery life has expired. Replace the main PCB.
	An IMPRINTER ASIC error has occurred. Please contact your dealer.	The ASIC does not operate correctly. Replace the main PCB.
Carriage PCB	An IMPRINTER CARRIAGE CIRCUIT BOARD CONNECTION error has occurred. Please contact your dealer.	The carriage PCB is not connected to the main PCB correctly. Check the connection. If the problem is not solved, replace the FFC cable or the PCB.

Table 5-102

Other than the above, the imprinter offers the following messages concerning parts replacement:

No.	Message
1	The ink tank is past its installation expiry date. Exchange the ink tank for a new one.
2	The ink tank is past its use expiry date. Exchange the ink tank for a new one.
3	The ink tank is getting low on ink. Exchange the ink tank for a new one.
4	Cannot print because the ink tank is empty. Exchange the ink tank for a new one.

Table 5-103

No.	Message
1	Residual ink receiver for the pump is near full. Ask your dealer to exchange residual ink receiver for the pump.
2	Residual ink receiver full error has occurred. Please ask your dealer to exchange residual ink receiver.

Table 5-104

II. SERVICE MODE

1. Outline

The software for service mode for the DR-5010C (referred to as the service tool below) is used for the service mode for this machine. The service tool for the imprinter is saved on the setup disk bundled for the DR-5010C for the imprinter.

The install method and start/end method are the same as for the service tool before the support of the imprinter. Refer to the service manual for the DR-5010C for details. This section describes some added functions for the imprinter.

The service screen is shown below.

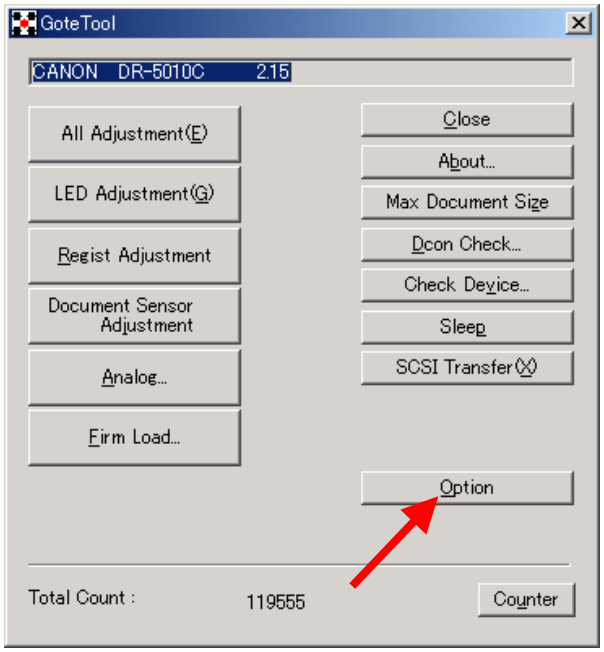


Figure 5-201

An “Option” button has been added to the service screen.

All the previous functions, such as image reading adjustment “All Adjustment”, can be used when the imprinter is set.

2. Option Screen

When “Option” on the service screen is selected, the option screen associated with the imprinter is displayed. The option screen is shown below.

Operations associated with the imprinter are confirmed and data is displayed, read and written on this screen.

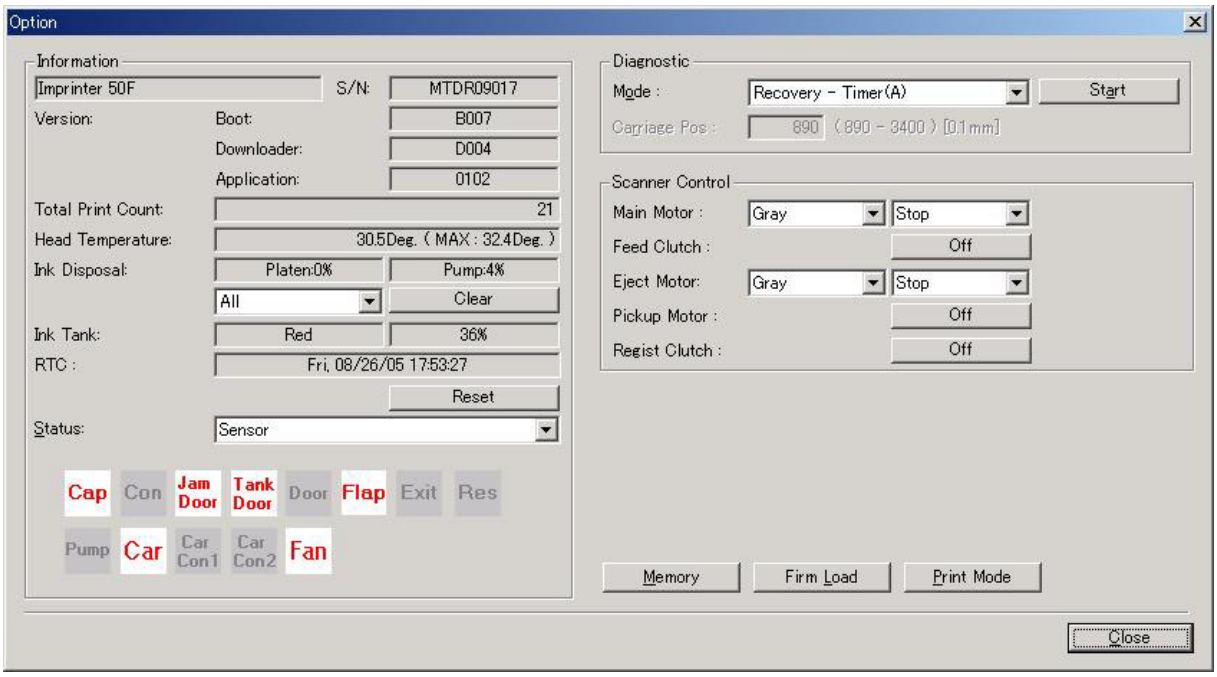


Figure 5-202

3. Information Display

Information on the imprinter is displayed on the option screen. The display section and its contents are shown below.

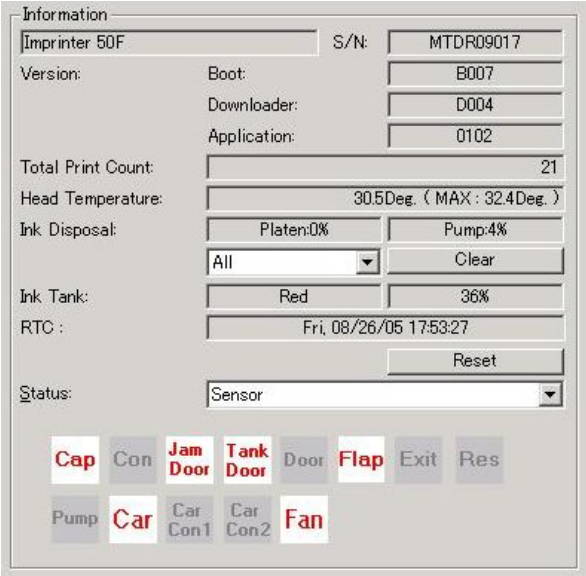


Figure 5-203

Item name	Description
Product Name	Identification whether the imprinter is 50F or 50B
S/N	Imprinter serial number
Version -Boot -Downloader -Application	Three versions of software stored in the ROM on the main PCB. “Application” indicates the firmware. The firmware version is also displayed in “Check Device” on the service screen. See 1) on the next section.
Total Print Count	Cumulative number of sheets printed
Head Temperature	Temperature of the print head at the time when “Option” is selected. (MAX) shows the maximum value of temperature so far recorded.
Ink Disposal -Platen -Pump	Amount of ink stored in the residual ink receivers. Both receivers for the platen and the pump are indicated. The data can be cleared after replacement. See 2) on the next section.
Ink Tank	Color and remaining amount of ink in the ink tank.
RTC	Internal date and time of the imprinter. Selecting “Reset” makes the date and time data to be reset to that in the computer. See 3) on the next section.
Status	Status of each command. Refer to “4. Status Display” for details.

Table 5-201

1) Imprinter version

The detailed software version of the imprinter is checked on the option screen. In addition to this screen, the firmware version can also be checked in “Check Device” on the service screen. When “Check Device” is selected, the following screen is displayed. The number beside OPTION indicates the imprinter version.

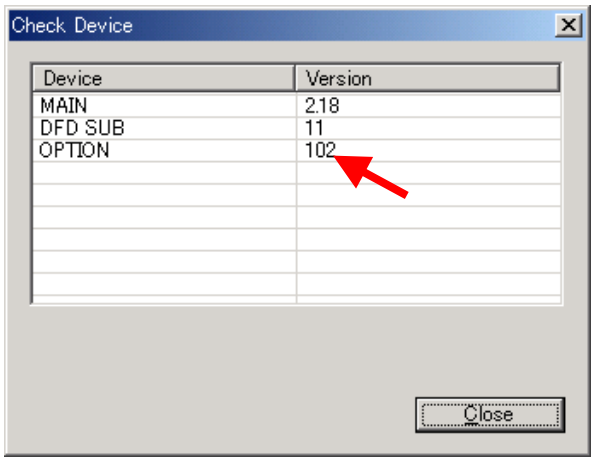


Figure 5-204

2) Residual ink receiver

When replacing the residual ink receiver, execute this function and set data to “zero”.

It is executed when the residual ink receiver is selected on the pulldown box and then “Clear” is selected.

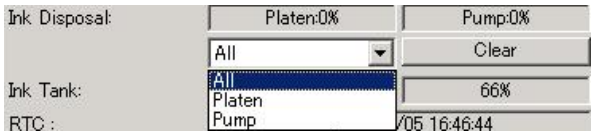


Figure 5-205

The details of the pulldown box are given below.

No.	Display	Description
1	All	Both pump and platen unit residual ink receiver
2	Platen	Platen unit residual ink receiver
3	Pump	Pump unit residual ink receiver

Table 5-202

Note: When it is executed, data is not restored. Do not operate by mistake. Selecting “Clear” is followed by the execution confirmation screen. Choose “OK” only when resetting the count.

Figure 5-206

3) Date/time setting

The imprinter’s internal date/time data is set in the factory based on the Japan Standard Time Zone. The imprinter uses this data for ink tank management. Note, however, that the date/time data in the computer connected to the imprinter is used for printing, therefore it is not required in normal cases to change the imprinter’s internal date/time data in the field.

Select “Reset” if the date/time data becomes erroneous due to such failures as a battery supply error. This causes the data set in the connected computer to be read.

Note: Do not select “Reset” by mistake. Selecting it is followed by the execution confirmation screen. Choose “OK” only when resetting the date/time data.

Figure 5-207

4. Status Display

The ON/OFF state of the mounted sensor and imprinter status are displayed. If it is ON or effective, the mark turns ON.

Figure 5-208

When each mode is selected on the pulldown box, the status of the item corresponding to it is displayed. Each mode and its items are shown below.

1) Sensor

The ON/OFF state of the sensor mounted on the imprinter is displayed. However, No. 11 and No 12 in the table below indicate the carriage PCB connection status and No. 13 displays the fan operation status.

The item name indicated by each mark is shown below.

No.	Mark	Item name
1	Cap	Cap sensor (PS1) ON: Cap closed.
2	Con	Joint sensor (PS8) ON: Not locked.
3	Jam Door	Rear door sensor (PS9) ON: Rear unit closed.
4	Tank Door	Tank door sensor (PS10) ON: Tank cover closed.
5	Door	Upper door sensor (PS5) ON: Top cover open.
6	Flap	Flapper sensor (PS6) ON: U-turn pass position.
7	Exit	Outlet sensor (PS4) ON: Document detection.
8	Res	Inlet sensor (PS7) ON: Document detection.
9	Pump	Pimp sensor (PS2) ON: Pump sensor set on.
10	Car	Carriage HP sensor (PS3) ON: Home position.
11	Car Con1	Pin #1 of Connector J31 on Carriage PCB ON: Not connected.
12	Car Con2	Pin #40 of Connector J31 on Carriage PCB ON: Not connected.
13	Fan	Fan operation status ON: Not in operation.

Table 5-203

2) Main

The imprinter status is shown. Details of each status can be represented in each command screen.

The item name indicated by each mark is shown below.

No.	Mark	Item name
1	Print	ON: Under ink ejection.
2	Busy	ON: Busy (recovery operation, carriage travel, etc.).
3	Fatal Error	ON: Fatal error has occurred.
4	Error	ON: Error has occurred.
5	Caut.	ON: Warning has been generated.
6	Req.	ON: Requesting to scanner.
7	Excng	ON: Under replacement of ink tank (same as tank cover open).
8	Com. Error	ON: Communication error has occurred.

Table 5-204

3) Caution

The mark for which the warning has been generated goes on.

The item name indicated by each mark is shown below.

No.	Mark	Item name
1	Print	Non-printable area specified.
2	Over Mnt	Past the installation expiry date of ink tank.
3	Over Use	Past the use expiry date of ink tank.
4	Disp PLTN	Residual ink receiver for the platen unit is getting full.
5	Disp Pump	Residual ink receiver for the pump unit is getting full.
6	Ink	Ink tank is getting low on ink.

Table 5-205

4) Error

The mark in the error status goes on.

The item name indicated by each mark is shown below.

No.	Mark	Item name
1	Lock Open	Ink tank locking lever open.
2	Load Data	Downloaded program data error.
3	Head Heat	Head subheater error.
4	Head Temp	Head temperature error.
5	Head EEP	Head EEPROM writing error.
6	Head SUM	Head EEPROM SUM error.
7	Head ID	Head ID error.
8	Head	No head detected.
9	Tank EEP	Ink tank EEPROM writing error.
10	Tank SUM	Ink tank EEPROM SUM error.
11	Tank ID	Ink tank ID error.
12	Tank	No ink tank detected.
13	Ink	No ink detected.

Table 5-206

5) Fatal Error

The mark in the fatal error goes on.

The item name indicated by each mark is shown below.

No.	Mark	Item name
1	Fan	Fan error.
2	RTC	RTC error.
3	Disp PLTN	Residual ink receiver for the platen unit is full.
4	Disp Pump	Residual ink receiver for the pump unit is full.
5	RAM	RAM error. (May not go on in some cases.)
6	Flash Write	FLASH writing error.
7	Car Con	Carriage PCB connection error.
8	ASIC	ASIC error.
9	Car Pos	Carriage position error.
10	Cap Pos	Cap position error.
11	Pump Pos	Pump position error.

Table 5-207

6) Busy

The mark in the busy status goes on.

The item name indicated by each mark is shown below.

No.	Mark	Item name
1	IMG Ext.	Transferring the test print data.
2	Prog Save	Saving the program.
3	Font Save	Saving the font/BMP data.
4	Move	Under operation (carriage travel, pump operation, etc.).
5	Rec.	Under recovery operation.
6	Shut Down	Under shutdown.
7	INIT	Under initialization.

Table 5-208

5. Self Diagnosis

The operations of the imprinter can be confirmed. When an operation mode is selected on the pulldown box and then “Start” is selected, the imprinter operates.

Sensor status display change according to operations can be confirmed.

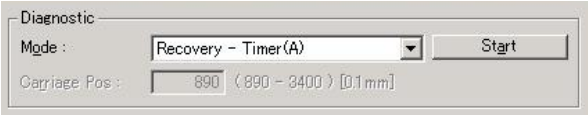


Figure 5-209

No. 1 to No. 8 in the table below indicate recovery operations. These are helpful in case where the user cannot recover the imprinter from an error status. Note, however, that these recovery operations should be carried out only if required because they consume ink.

The details of each operation mode are given below.

No.	Display	Description
1	Recovery -Timer (A)	Recovery operation when the power is turned ON.
2	Recovery -Change (B1)	Recovery operation when tank is mounted/removed. Currently, it is same as “Recovery operation when tank is replaced (same color tank)”.
3	Recovery -Tank Change (B2)	Recovery operation when tank is replaced (same color tank).
4	Recovery -Tank Change (B3)	Recovery operation when tank is replaced (different color tank).
5	Recovery -Head Change (C)	Recovery operation when head is replaced.
6	Recovery -Jam (D)	Recovery operation when jam is cleared.
7	Recovery -Shut Down (E)	Recovery operation when the power is turned OFF. Currently, it is same as “Recovery operation when jam is cleared”.
8	Recovery -Pump (F)	Absorption recovery is executed after cap is open.
9	Head Cap Open	Open the recovery unit cap.
10	Head Cap Close	Close the recovery unit cap.
11	Carriage Cap Pos	Move the carriage to the cap position.
12	Carriage Edge Pos	Move the carriage to the edge position.
13	Carriage Wipe End Pos	Move the carriage to the blade recovery operation edge position.
14	Carriage Print Pos	Move the carriage to the print position. Enter the position in the “Carriage Pos” box. **Note:** The unit is 0.1 mm.
15	Pump Move	Drive the pump unit.
16	FAN On	Drive the fan. See “Note”.
17	FAN Off	Stop the fan.
18	Mechanical Init	Initialize the machine. See “Note”.

Table 5-209

Note: After executing “FAN On”, execute “FAN Off” and stop the fan.
When executing any mode, be sure to execute “Mechanical Init” finally to return it to the initial position.

6. Scanner Operation Confirmation

This is a function of the conventional service tool, but the basic operations of the scanner can be confirmed from the option screen of the imprinter.

When the scanner is set in manual feed mode and the document is set, and then each item is turned ON, the document feed, including the feed section of the imprinter, can be confirmed.

Figure 5-210

7. Memory Data

This is the mode to read the data stored in the imprinter's internal memory. Note, however, that the data is only used for analysis in the factory or at the design section, thus cannot be used in the field. If required, a data file should be created and submitted to the section concerned.

In addition, the data may be used for data transfer when the main PCB is replaced.

a. Basic operation procedure

1) When "Memory" on the option screen is selected, the operation screen appears.

Figure 5-211

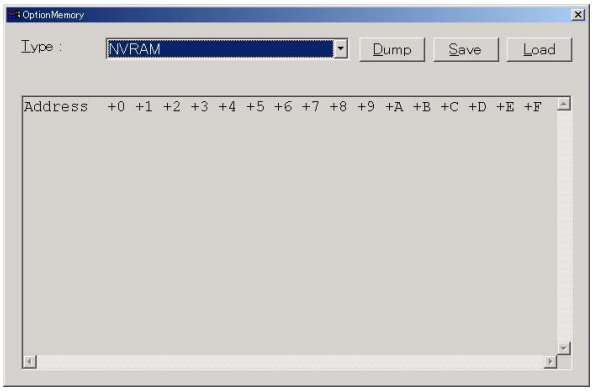


Figure 5-212

2) Select a necessary memory type on the pulldown box on the operation screen. The following three memory types are offered: "NVRAM", "Head EEPROM" and "Tank EEPROM".

3) Select an operation type.

Figure 5-213

No.	Display	Description
1	Dump	Indicates the data.
2	Save	Reads the data and create a data file on the computer.
3	Load	Writes the content of the data file created on the computer to the memory.

Table 5-210

Note: "Load" is available only after selecting "NVRAM". After the main PCB is replaced, "Load" is used to write data there. Refer to "d. Main PCB replacement" on the next section for details.

b. Dump operation procedure

1) Select a memory type.
2) When "Dump" is selected, the data in the selected memory appears on the screen.

Note: This data is not explained here because no troubleshooting is performed from it in the field.

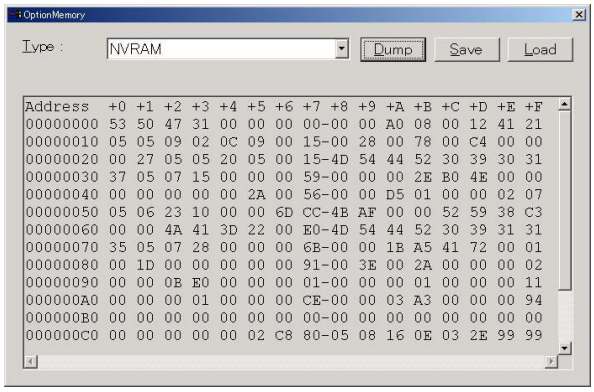


Figure 5-214

c. Save operation procedure

1) Select a memory type.
2) When "Save" is selected, the save screen appears. Save the file in an arbitrary field.

Note: The file name may be changed.

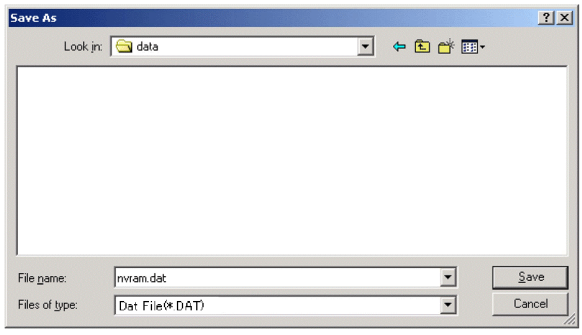


Figure 5-215

d. Main PCB replacement

When replacing the main PCB, data stored so far such as the ink amount in the residual ink receiver need to be transferred to the new PCB.

However, there may be a case where the data cannot be read due to failure in the currently used PCB. In this case, the history information including the ink amount in the residual ink receiver, the number of printed sheets and number of ink tank replacements cannot be written to the new PCB. Regardless of this case, the imprinter can operate with the new PCB.

- Data transfer procedure

1) Go into the service mode with the currently used main PCB still mounted.
2) Select “Memory” on the option screen.
3) Select “NVRAM” for the memory type.
4) Select “Save” and save the file in an arbitrary field.

Note: The file name may be changed.

5) Close the service mode and turn the power OFF.
6) Replace the currently used main PCB with the new one.

Note: Set SW1 on the PCB according to the imprinter type. Switch it ON for 50F and OFF for 50B. Refer to “CHAPTER 2 VII. PARTS LAYOUT OF EACH PCB” for details.

7) Attach the imprinter to the scanner and go into the service mode.
8) When “Load” is selected, the file selection screen appears. Then, select and open the file that was saved in the above step 4).

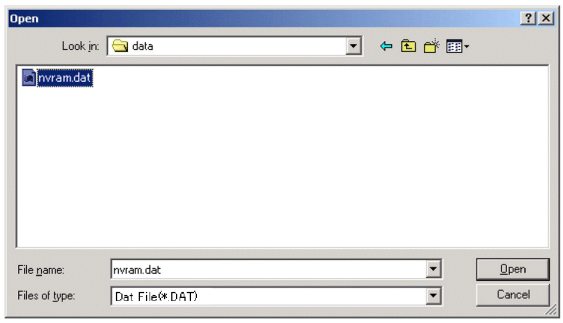


Figure 5-216

9) After completion of data writing, the display automatically returns to the operation screen for “Memory”. Data writing completes instantaneously.

8. Firm Load

This mode is used to change the firmware of the DR-5010C. For details, refer to the service information issued during firmware changes. Be careful not to execute this mode by mistake.

- Operating procedure

1) Select “Firm Load” in the option screen.

Figure 5-217

2) As the file selection screen appears, select and open the firmware file.

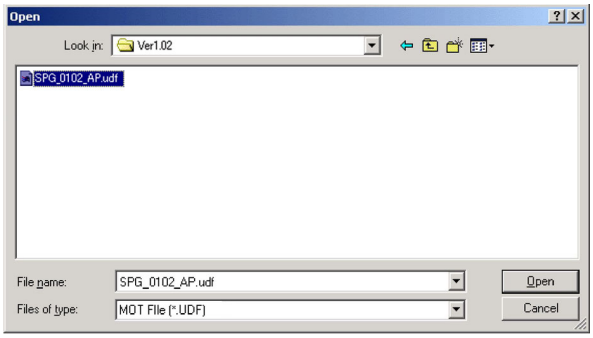


Figure 5-218

3) Writing operation starts and the status is indicated.

Figure 5-219

4) After completion, the caution screen for restart is indicated, so select “OK”.

Figure 5-220

5) Close the service mode and turn the power OFF.
6) Turn the power ON for restart.
7) Ensure that the imprinter operates correctly.

9. Print Mode

Whether to print using the imprinter is selected in this mode when in the scanner mechanical feed mode.

- Operation procedure

1) When “Print Mode” in the option screen is selected, the setting screen appears.

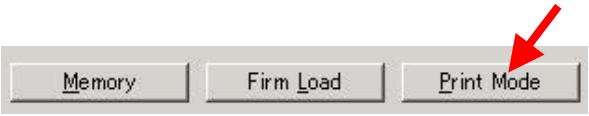


Figure 5-221

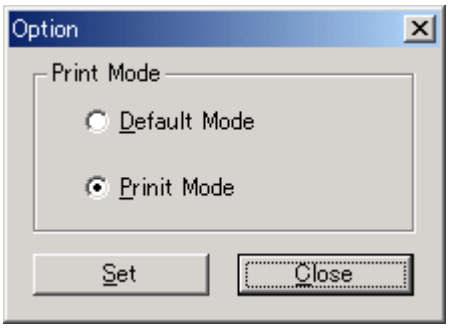


Figure 5-222

2) Select a mode to be set and then select “Set”.

Default Mode: Do not print.
Factory setting.
Print Mode: Print.

When “Print Mode” is set, the following characters are printed on the fed sheet in the mechanical feed mode. The number increases corresponding to the number of fed sheets. The print position is on the center line of the feed pass.

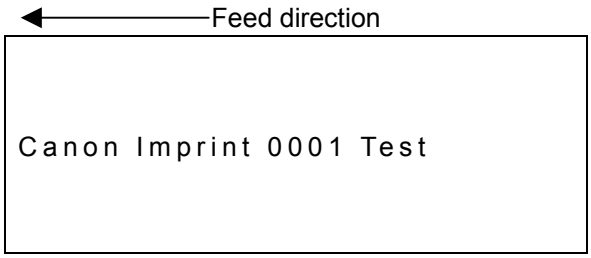


Figure 5-223

10. Sleep

This mode has been provided for the scanner, but it needs to be changed for the support of the imprinter and described here.

The setting screen for the new sleep mode is shown below.

Figure 5-224

Note: Because the sleep mode is called the "standby mode" in the materials for users, "Standby Mode" is displayed in the new sleep mode setting screen.

If the imprinter is installed, set it not to go into the sleep mode as described in "CHAPTER 4 INSTALLATION & MAINTENANCE I. INSTALLATION". This is to prevent loss of consumption of ink due to recovery operation and loss of time due to initial operation when the normal operation mode returns from the sleep mode.

However, even if the imprinter is installed, a setting for a long setting time for the sleep mode has added for the user who wish to save energy in a possible range, and the setting can be changed by the user.

- Operation procedure

1) When "Sleep" is selected on the service screen, the setting screen appears.
2) Select a setting item on the pulldown box, then select "OK".

Figure 5-225

The details of the pulldown box are given below.

No.	Display	Description
1	Never	Never goes into the sleep mode. Fundamental when installing the imprinter.
2	After 10 secs.	Goes into the sleep mode 10 seconds later. Fundamental when using the scanner only.
3	After 10 mins	Goes into the sleep mode 10 minutes later. Arbitrarily set by user.
4	After 1 hour	Goes into the sleep mode 1 hour later. Arbitrarily set by user.

Table 5-211

The setting screen by the user is shown below for reference. Select “Scanner and camera” from the Windows Control Panel.

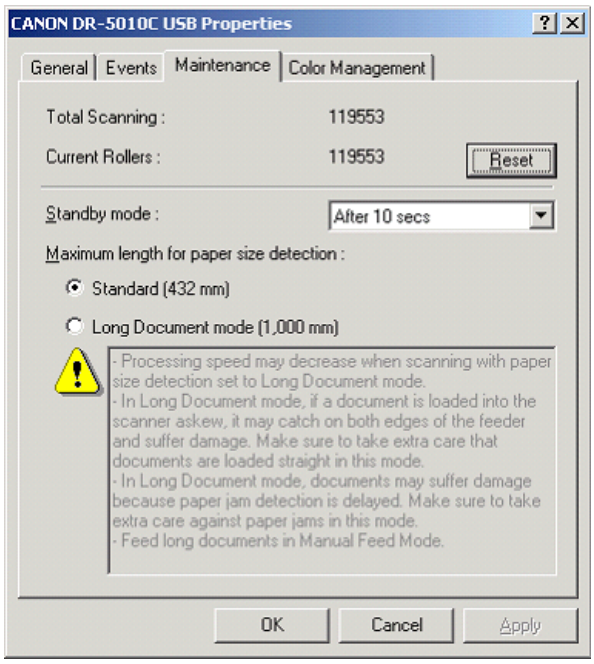


Figure 5-226

III. MEASURES WHEN REPLACING PARTS

Some parts used for this machine require special measures, such as adjustment and settings during replacement.

1. Main PCB

Necessary data must be read from the PCB before replacement and written onto the PCB after replacement. Then, the imprinter 50F or 50B must be selected with SW1 on the PCB.

Refer to “II. SERVICE MODE, 7-d. Main PCB replacement” for details.

2. Residual Ink Receiver

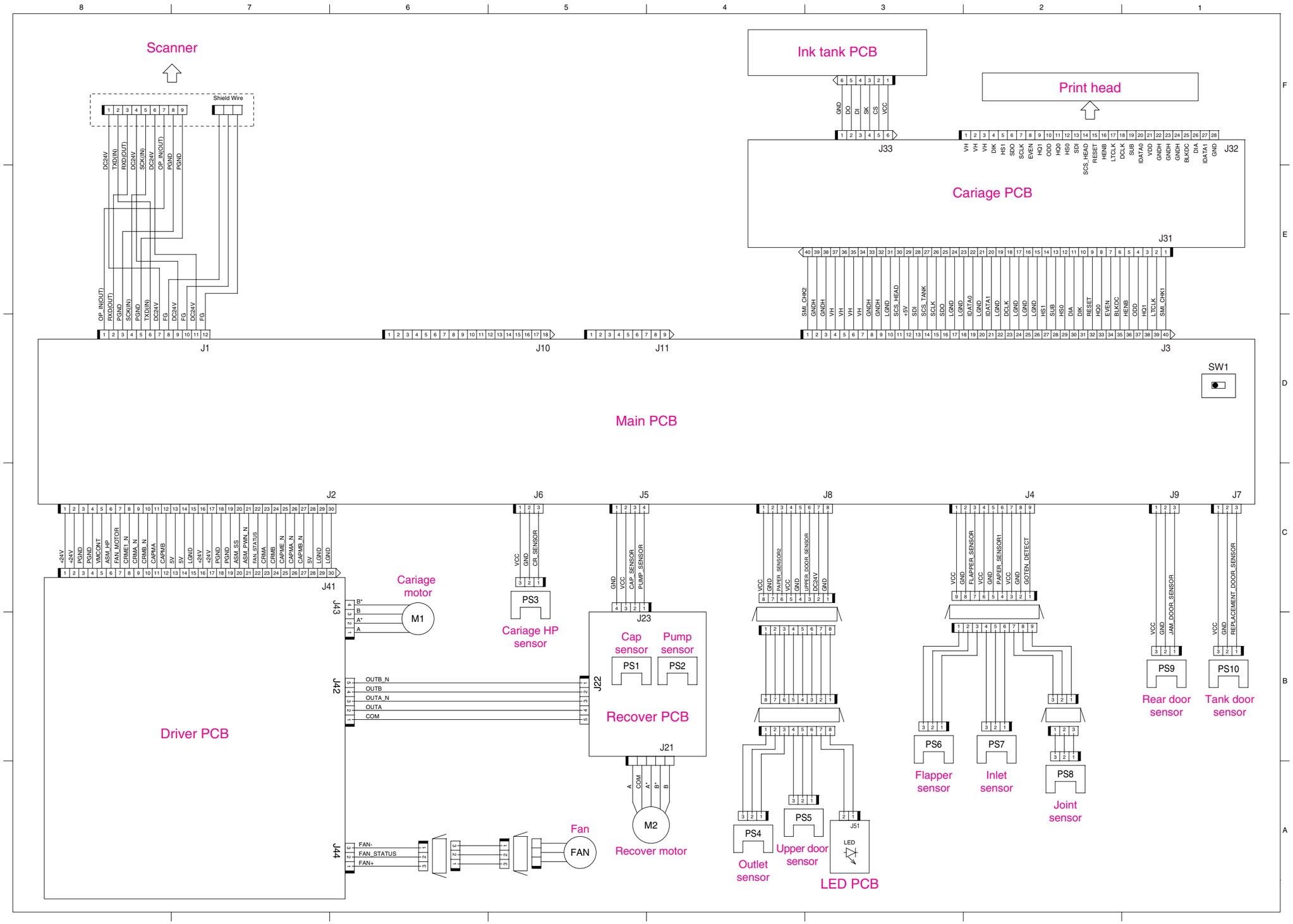
The data on the residual ink receiver must be reset during replacement.

Refer to “II. SERVICE MODE, 3-2) Residual ink receiver” for details.

APPENDIX

 CANON IMPRINTER 50F/50B FIRST EDITION SEPT. 2005

I. GENERAL DIAGRAM



Prepared by

Quality Assurance Center
Canon Electronics Inc.

3-17-7 Shibaura, Minato-ku
Tokyo 108-0023, Japan

FIRST EDITION: SEPT. 2005 (63999)

Canon

0905TG