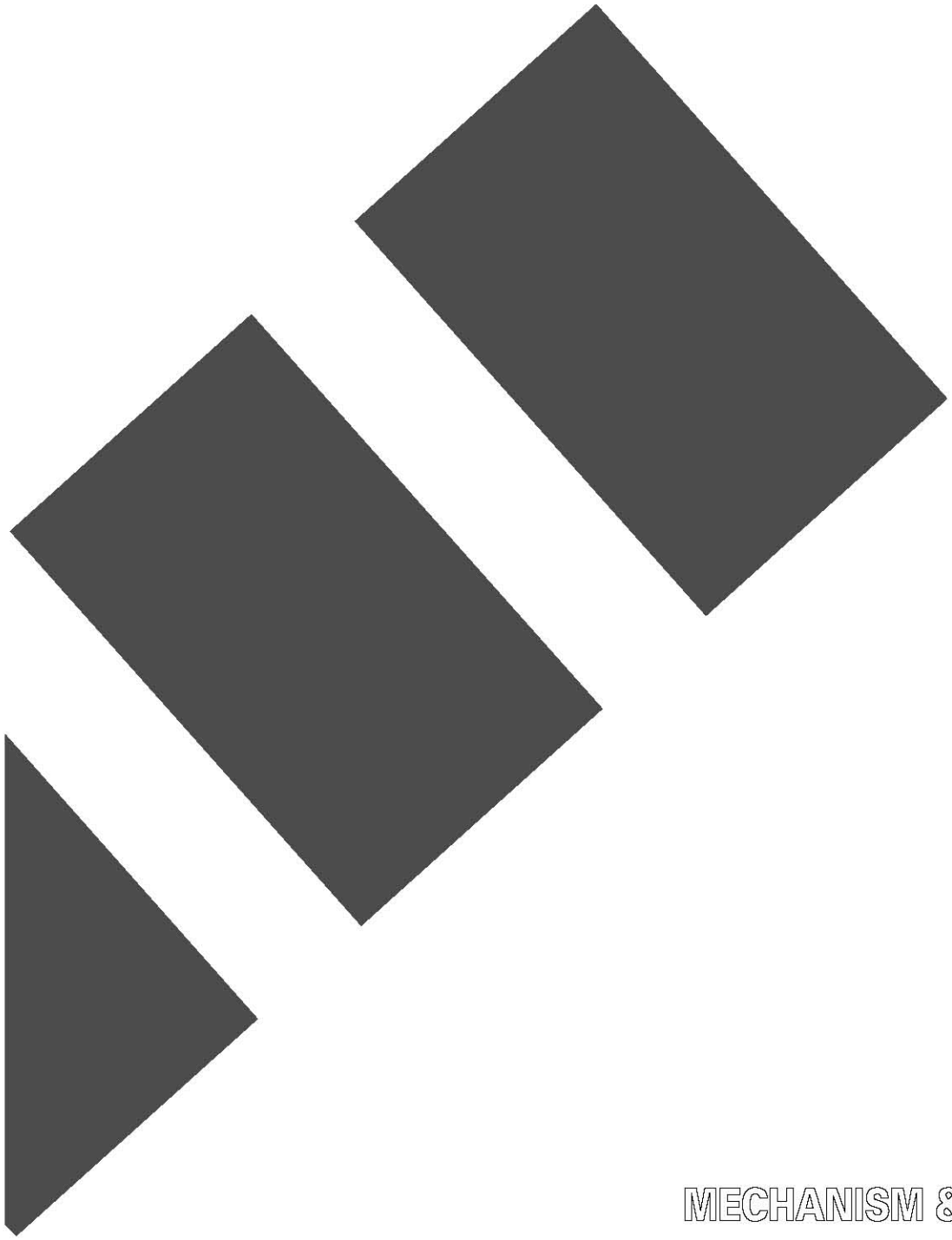
brother

COLOR INKJET PRINTER
SERVICE MANUAL
MODEL:MP-21C/21CDX



MECHANISM & ELECTRONICS

SERVICE MANUAL

MODEL: MP-21C / 21CDX

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FEATURES AND SPECIFICATIONS

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CHAPTER I FEATURES AND SPECIFICATIONS

1. SYSTEM REQUIREMENTS

Minimum operation environment

- IBM PC or compatible with i486DX 66 Mhz or higher
- Parallel interface port
- PCMCIA card slot supporting PCMCIA 2.1 / JEIDA 4.2 or higher
- 8 MB or more memory on PC
- 40 MB free space available on your hard disk
- Microsoft Windows 3.1x/ 95/98/NT4.0

2. FEATURES

This printer has the following features:

Small and Light InkJet Printer

This printer weights about 1kg (2.2 lbs.) and the footprint is very small.
You can take the printer with you anywhere, any time you want.

Lowest Power Consumption in the World

Power consumption is so small that it is possible to take power from a notebook PC through the Printer Interface Card. Even if you use the AC adapter (MP-21CDX or optional PA-21MP users only), it's also easy to carry around.

Quietest InkJet Printer in the World

The printer is so quiet (less than 40dB A during printing), that the printer never disturbs you while you are working.

No need for an AC adapter or Printer Cable

The printer can take power from the notebook PC through the Printer Interface Card. Therefore you do not have to carry an AC adapter and a printer cable with you all the time.

Brilliant 4 Color Output at 720dpi

You can get wonderful output at 720 by 720dpi resolution. When you print on Brother special coated paper and glossy paper, you can get excellent high resolution output.

Two Color Print Mode

When you select this mode through the printer driver, you can print the color output in two colors. You can select from Black/Cyan, Black/Magenta or Black/Yellow.

Low Running Cost

You don't have to throw the print head of your printer away every time you have emptied an ink cartridge. When you run out of ink, you have to change only the ink cartridges.

Straight Paper Path

The printer can print on various types of paper - plain paper, coated paper, glossy paper, transparencies and envelopes with fewer paper jams.

Auto Cut Sheet Feeder (MP-21CDX or SF-21MP users only)

When using the Feeder, you can easily load up to 30 sheets of paper.
When carried with the printer it fits on the top of the printer and the total size including the printer is about A4 size.

AC Adapter and Parallel Interface Connector (MP-21CDX or PA-21MP users only)

When you want to print faster, use the AC Adapter. It will take half the printing time compared to when you are using the Printer Interface Card.

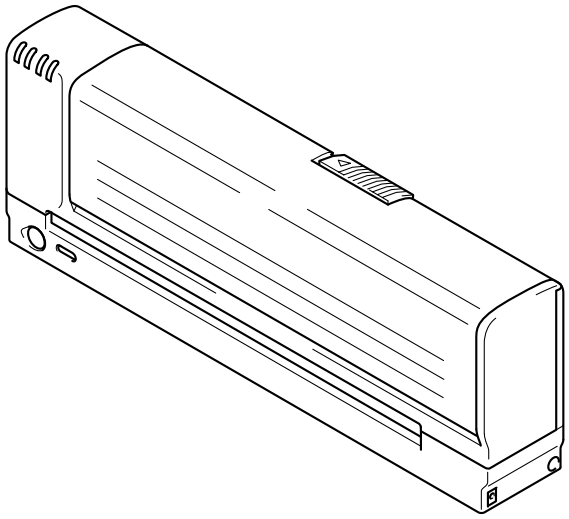
When you cannot print using the PC card slot, use the Parallel Interface Connector instead. You need to use the AC Adapter to print using the Parallel Interface Connector.

3. CONFIGURATION

3.1 Mechanics

< Overview >

MP-21C



MP-21CDX

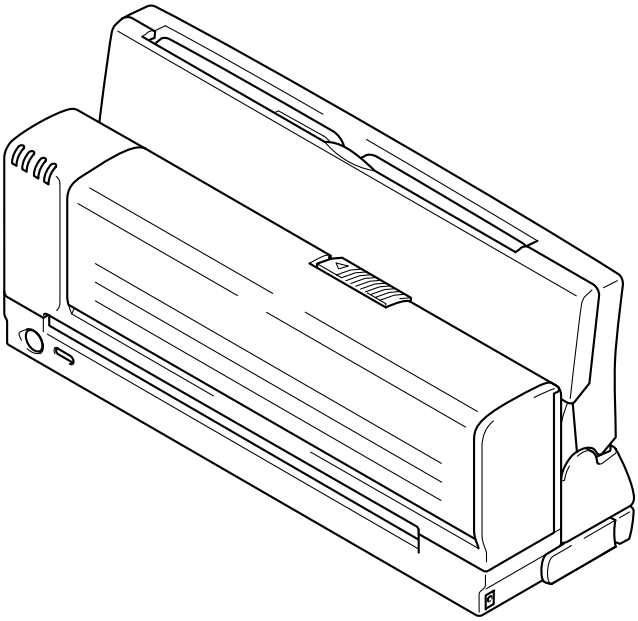


Fig. 1.1

3.2 Electronics

The configuration diagram is as shown below.

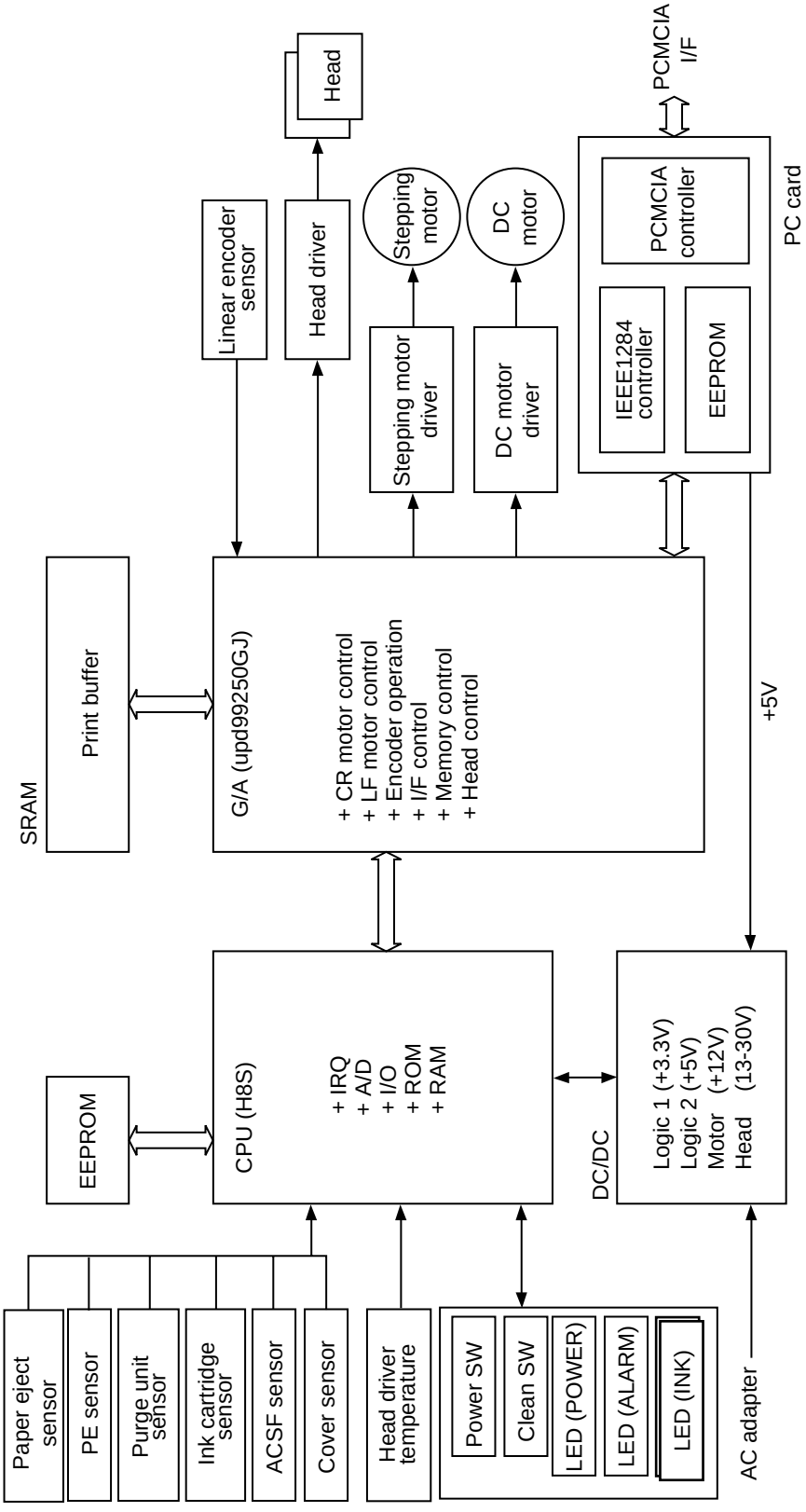


Fig. 1.2

4. SPECIFICATIONS

4.1 Printing

Print Method	Piezotronic dot matrix ink jet
Head Nozzle	32 x 4 nozzles
Print Quality	Super Fine / Normal / Draft
Resolution (V x H)	720 x 720 dots/inch (Super Fine) 360 x 360 dots/inch (Normal) 180 x 360 dots/inch (Draft)
Print Speed	With Printer Interface Card: Up to 107 cps at 10 cpi in normal or super fine print mode Up to 1.3 PPM in normal or super fine print mode Up to 1.7 PPM in draft print mode Up to 2.1 PPM in Blue-Black draft print mode (A4) Up to 2.2 PPM in Blue-Black draft print mode (Ltr) With AC Adapter: Up to 180 cps at 10 cpi Up to 1.3 PPM in normal print mode Up to 2.0 PPM in draft print mode Up to 2.4 PPM in Blue-Black draft print mode (A4) Up to 2.5 PPM in Blue-Black draft print mode (Ltr)
Print Width	203.2 mm (8 inches)
Print Media	Liquid ink in cartridges
Life Expectancy of Printer	5 years or 10,000 pages
Ink	Twin cartridge system: separate from the print head
Life Expectancy of Ink	Black/Cyan (LC03BC): 250 pages/cartridge Magenta/Yellow (LC03MY): 150 pages/cartridge (When printing A4 or letter size at 5% coverage.)

4.2 Functions

Printer Driver	Windows 3.1x/ 95/98/NT4.0
Emulation	Windows GDI
Interface	PCMCIA interface card Parallel interface (IEEE1284 compliant)
Control Panel	2 buttons and 4 LEDs
Diagnostics	Self-diagnostics program at power on

4.3 Electrical and Mechanical

AC Adapter Power Source	100V model:	AC 100 to 120 V, 60 Hz		
	200V model:	AC 220 to 240 V, 50 Hz		
Power Consumption	Printer interface card	Stand-by (Max.)	1.0 W	
		Printing (Max.)	4.2 W	
		Printing (Ave.)	2.5 W	
		Power save mode	0.6W	
	AC adapter	Stand-by (Max.)	1.1 W	
		Printing (Max.)	4.5 W	
		Printing (Ave.)	3.2 W	
		Power save mode	0.7W	
Noise	Stand-by:	35 dB A or less		
	Printing:	40 dB A or less		

4.4 Environment

Temperature	Operating:	10 to 35°C (50 to 95°F)	
	Storage:	-20 to 60°C (-4 to 140°F)	
Humidity	Operating:	20 to 80%	(without condensation)
	Storage:	5 to 95%	(without condensation)

4.5 Dimensions and Weight

Dimensions (WxDxH)	MP-21C:	50.8 x 300 x 106 mm	(Without ACSF)
	MP-21CDX:	90 x 305 x 140 mm	(With ACSF)
Weight	MP-21C:	Approx. 1,000g (2.2 lbs)	
	MP-21CDX:	Approx. 1,460g (3.21 lbs)	

4.6 Recommended Paper

• Plain paper	USA:	Xerox 4200
	Europe:	Xerox Premier 80g/m² or equivalent
• Special paper	Brother Quality Coated Paper for 360dpi printing BP36CL (Letter), BP36CA (A4)	
	Brother High Quality Coated Paper for 720dpi printing BP72CL (Letter), BP72CA (A4)	
	Brother Color Inkjet Glossy Paper BPGLL (Letter), BPGLA (A4)	
Transparencies	Brother Transparencies BPTRL (Letter)	
	3M CG3410 3M CG3460 (For super fine mode)	

4.7 Paper Specification

The printer can handle plain paper, transparencies and envelopes that meet the following specifications.

Feeder		Paper Size	Capacity
Manual feed	Straight paper path slot	Plain paper: A4, Letter, A5, Legal, Executive, Envelope: DL, C5, B5, COM-10, Monarch, User defined Coated paper: A4, Letter Transparencies: A4, Letter Organizer: K, L (95.25 ~ 216 x 100 ~ 356 mm, 3.94 ~ 8.5 x 3.94 ~ 14.02 inches, 60 ~ 157 g/m^2, 16 ~ 42 lbs)	Sheet by sheet
	Paper feeding guide	Plain paper: A4, Letter, A5, Legal, Executive Transparencies: A4, Letter Organizer: K, L (95.25 ~ 216 x 100 ~ 356 mm, 3.94 ~ 8.5 x 3.94 ~ 14.02 inches, 60 ~ 105 g/m^2, 16 ~ 28 lbs)	Sheet by sheet
ACSF (MP-21CDX only)		Plain paper: A4, Letter, A5, Custom size (100 ~ 216 x 100 ~ 356 mm, 3.94 ~ 8.5 x 3.94 ~14.02 inches, 60 ~ 105g/m^2, 16 ~ 28 lbs) * It is recommended to feed transparencies from the straight paper path slot or the paper feeding guide.	• Approx. 20 sheets of 75 g/m^2 ~ 105g/m^2 (20 lbs ~ 28 lbs) plain paper (A4/Letter) • Approx. 30 sheets of 60 ~ 75 g/m^2 (16 ~ 20 lbs) plain paper (A4/Letter) • Approx. 20 sheets of Brother coated paper (A4/Letter)

	Cut Sheet	Envelope
Caliper	± 0.03~± 0.08 in. (0.09 ~ 0.2mm)	0.0033 to 0.0058 in. (0.084 to 0.14mm) single thickness
Moisture	4% to 6% by weight	4% to 6% by weight
Smoothness	100 to 250 (Sheffield)	100 to 250 (Sheffield)

Remarks: Avoid feeding labels. If the label jammed, glue may stick on the rollers positioned on the way of the paper transportation pass and it may cause further problems.

DO NOT use ordinary transparencies designed for photocopiers or laser printers. Use the recommended transparencies for the MP-21C/CDX printers to obtain optimum print quality

If the paper will not feed from the ACSF, try the manual feed.

4.8 Printable Area

The table below shows the effective printable areas.

Plain paper

(Unit = mm)

SIZE	A	B	C	D	E	F	G	H
A4	210.0 (8.2")	297.0 (11.5")	203.2 (8.0")	282.5 (11.1")	3.4 (0.13")	3 (0.11")	3.4 (0.13")	11.5 (0.45")
Letter	215.9 (8.5")	279.4 (11.0")	203.2 (8.0")	264.9 (10.4")	6.35 (0.25")	3 (0.11")	6.35 (0.25")	11.5 (0.45")
Legal	215.9 (8.5")	355.6 (14.0")	203.2 (8.0")	341.1 (13.4")	6.35 (0.25")	3 (0.11")	6.35 (0.25")	11.5 (0.45")
Executive	184.2 (7.25")	266.7 (10.5")	177.4 (7.2")	252.2 (9.9")	3.4 (0.13")	3 (0.11")	3.4 (0.13")	11.5 (0.45")
A5	148.5 (5.8")	210.0 (8.2")	141.7 (5.5")	195.5 (7.6")	3.4 (0.13")	3 (0.11")	3.4 (0.13")	11.5 (0.45")

Special paper

* : Envelope, (Unit = mm)

SIZE	A	B	C	D	E	F	G	H
Organizer K	95.25 (3.75")	171.45 (6.75")	88.45 (3.4“)	156.95 (6.1“)	3.4 (0.13”)	3 (0.11”)	3.4 (0.13”)	11.5 (0.45”)
Organizer L	139.7 (5.5")	215.9 (8.5")	132.9 (5.2“)	201.4 (7.9“)	3.4 (0.13”)	3 (0.11”)	3.4 (0.13”)	11.5 (0.45”)
B5*	176 (6.9“)	250 (9.8“)	169.2 (6.6“)	210 (9.2“)	3.4 (0.13”)	20 (0.78”)	3.4 (0.13”)	20 (0.78”)
C5*	162 (6.3“)	229 (9.0“)	155.2 (6.1“)	180 (8.4“)	3.4 (0.13”)	20 (0.78”)	3.4 (0.13”)	20 (0.78”)
MONARCH*	98.43 (3.8")	190.5 (7.5")	91.63 (3.6“)	150.5 (6.9“)	3.4 (0.13”)	20 (0.78”)	3.4 (0.13”)	20 (0.78”)
COM-10*	104.78 (4.1")	241.3 (9.5")	84.65 (3.3“)	201.3 (8.6“)	3.4 (0.39”)	20 (0.78”)	10.0 (0.39”)	20 (0.78”)
DL*	110 (4.3“)	220 (8.6“)	103.2 (4.0“)	180 (7.0“)	3.4 (0.13”)	20 (0.78”)	3.4 (0.13”)	20 (0.78”)
USER DEFINED*	215.9 (8.5“) (Max.)	355.6 (14.0“) (Max.)	203.2 (8.0“)	341.1 (13.4“)	3.4 (0.13”)	3 (0.12”)	3.4 (0.13”)	11.5 (0.45”)

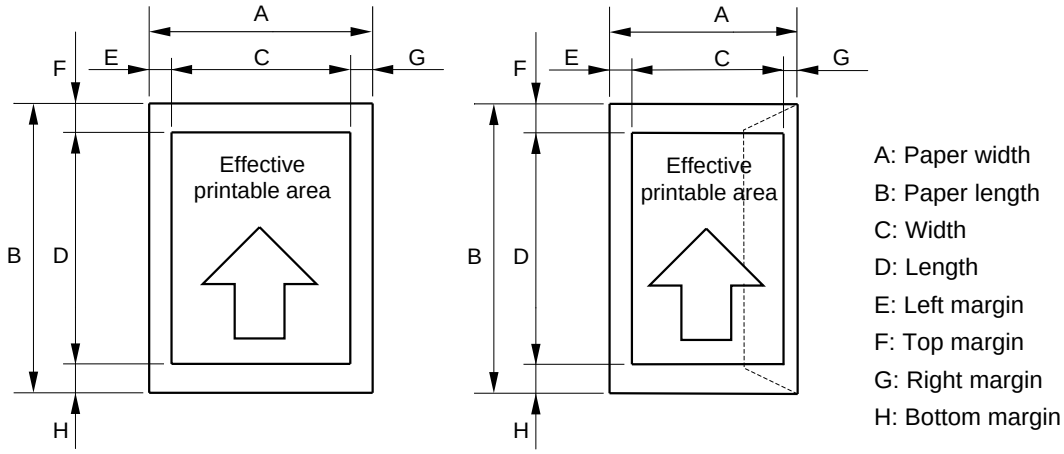


Fig. 1.3

The table below shows the recommended printable areas.

Plain paper

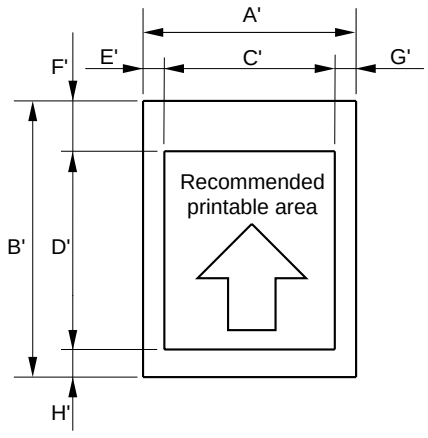
(Unit = mm)

SIZE	A'	B'	C'	D'	E'	F'	G'	H'
A4	210.0 (8.2")	297.0 (11.5")	203.2 (8.0")	265.5 (10.4")	3.4 (0.13")	20 (0.78")	3.4 (0.13")	11.5 (0.45")
Letter	215.9 (8.5")	279.4 (11.0")	203.2 (8.0")	247.9 (9.7")	6.35 (0.25")	20 (0.78")	6.35 (0.25")	11.5 (0.45")
Legal	215.9 (8.5")	341.1 (14.0")	203.2 (8.0")	324.1 (12.7")	6.35 (0.25")	20 (0.78")	6.35 (0.25")	11.5 (0.45")
Executive	184.2 (7.25")	266.7 (10.5")	177.4 (7.2")	235.2 (9.2")	3.4 (0.13")	20 (0.78")	3.4 (0.13")	11.5 (0.45")
A5	148.5 (5.8")	210.0 (8.2")	141.7 (5.5")	178.5 (7.0")	3.4 (0.13")	20 (0.78")	3.4 (0.13")	11.5 (0.45")

Special paper

* : Envelope, (Unit = mm)

SIZE	A	B	C	D	E	F	G	H
Organizer K	95.25 (3.75")	171.45 (6.75")	88.45 (3.4")	139.95 (5.4")	3.4 (0.13")	20 (0.78")	3.4 (0.13")	11.5 (0.45")
Organizer L	139.7 (5.5")	215.9 (8.5")	132.9 (5.2")	184.4 (7.2")	3.4 (0.13")	20 (0.78")	3.4 (0.13")	11.5 (0.45")
B5*	176 (6.9")	250 (9.8")	169.2 (6.6")	210 (8.2")	3.4 (0.13")	20 (0.78")	3.4 (0.13")	20 (0.78")
C5*	162 (6.3")	229 (9.0")	155.2 (6.1")	180 (7.08")	3.4 (0.13")	20 (0.78")	3.4 (0.13")	20 (0.78")
MONARCH*	98.43 (3.8")	190.5 (7.5")	91.63 (3.6")	150.5 (5.9")	3.4 (0.13")	20 (0.78")	3.4 (0.13")	20 (0.78")
COM-10*	104.78 (4.1")	241.3 (9.5")	84.65 (3.3")	201.3 (7.9")	3.4 (0.39")	20 (0.78")	3.4 (0.39")	20 (0.78")
DL*	110 (4.3")	220 (8.6")	103.2 (4.0")	180 (7.08")	3.4 (0.13")	20 (0.78")	3.4 (0.13")	20 (0.78")
USER DEFINED*	215.9 (8.5") (Max.)	355.6 (14.0") (Max.)	203.2 (8.0")	324.1 (12.7")	3.4 (0.13")	20 (0.78")	3.4 (0.13")	11.5 (0.45")



A': Paper width
B': Paper length
C': Width
D': Length
E': Left margin
F': Top margin
G': Right margin
H': Bottom margin

Fig. 1.4

4.9 Control Panel (LEDs and Buttons)

This printer is equipped with a minimal control panel. Settings and status indication are available on the printer driver status monitor.

The control panel includes the following LEDs and buttons.

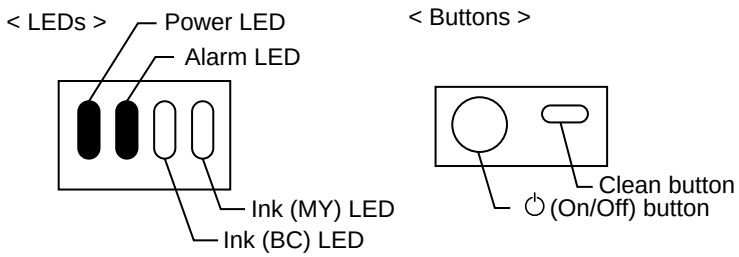


Fig. 1.5

4.9.1 Power LED

The Power LED indicates the current power status of the printer.

LED	Printer status
On ●	The printer is turned on and ready to print.
Off ❍	The printer is turned off.
Blinking ❍↔●	The printer is receiving data.
Fast Blinking ❍↔●	The printer is ready to feed paper. (Only for manual paper feed)

4.9.2 Alarm LED

The Alarm LED indicates a printer error status.

LED	Printer status
On ●	Paper empty, paper jam or mis-feeding. If a paper jam occurs.
Blinking ❍↔●	The Top cover of the printer is open and should be closed so that the printer can print.

When the Alarm LED is on or blinking and the printer has detected an error condition, refer to Section 3.3 Error codes in Chapter 4 and clear the problem to make the printer ready to print.

When Power LED + Alarm LED and Ink LEDs (BC LED+MY LED) Blink in Turn

The printer is making itself ready to print.

The printer is cleaning the print head.

When All the LEDs Blink at the Same Time

Service call occurred. Refer to Section 3.3.2 Service Calls in Chapter 4.

4.9.3 Ink LEDs (BC LED and MY LED)

Each Ink LED indicates when the ink is low or empty with the Alarm LED on.

LED	Printer status
Blinking ❍↔●	The color ink cartridge is running out of ink. You should prepare a new ink cartridge for that color.
On ●	The color ink cartridge is empty. You should replace it with a new one immediately for optimum print quality. See Section 4.11 Replacing the ink cartridge in Chapter 1. This may also indicate that one or more ink cartridges may not be installed correctly.

4.9.4 ⏻ (On/Off) / Retry Button

When you press this button and when the Power LED is on, the printer becomes ready to operate.

When the Alarm LED is on with Power LED blinking, pressing this button will resume printing. A paper jam or mis-feed will be cleared.

Make sure that the Power LED is on after you press this button.

4.9.5 Clean Button

When you want to clean the print head, press this button.

Note: *Even if you turn the ⏻ (On/Off) button off, power is not completely shut off. In case of emergency, you must remove the Printer Interface Card from the computer and remove the AC Adapter from the mains if connected (MP-21CDX or PA-21MP users only) in order to shut off power completely.*

4.9.6 Printer Status

The table below shows the details of the various printer status conditions.

Status	Description
Not energized	Power is not supplied.
Power off	Power is turned off (low power consumption mode).
Online	Ready to receive data.
Operator call	An operator call has occurred. It can be recovered by users
Cleaning	The print head is cleaning.
Service call	A service call has occurred.

The printer is energized up when you:

① Insert the Printer Interface card in the PCMCIA slot with the PC powered on.

② Turn on the PC with the Printer Interface card inserted in the PCMCIA slot.

③ Plug in the AC adapter jack to the printer.

All the four LEDs flash once and they turned OFF, however the power is supplied to the printer.

Any status indication that occurs when the printer is powered up with the power button pressed is a hidden status.

The printer operates in the following 3 modes.

Mode		Description
Normal mode		After initialization and error detection are carried out, the printer goes into normal print mode.
Hidden function mode	Inspection mode	Initialization is not carried out on the mechanical parts; mechanical operation is controlled using commands and switches. ** For factory use only **
	PCB check mode	Mechanical operation is not performed; hardware operation is checked. ** For factory use only **

4.9.7 Control Panel

The control panel monitors the switches and sensors, as well as indicating the status on the LEDs.

Switch status is detected after noise cancellation and switch debouncing. Data read for two successive times detects the switch status (noise cancellation), then the current status is defined after a further confirmation of three more switch reads.

LEDs turn off, light, or blink to indicate the printer status. Blinking includes 3 patterns: ① 4 LEDs blink at the same time, ② 4 LEDs blink alternately, ③ 3 LEDs blink successively.

4.9.8 LEDs

The table below shows the LED indications.

Status		(Power)	(Alarm)	(Ink BC)	(Ink MY)
Not energized		○	○	○	○
Energized/Power OFF		●	●	●	●
Being initialized/Device being busy		△	◇	☆	▯
Online	No alarm	●	○	○	○
	Ink near empty	●	○	◇	◇
	Ink empty	●	○	●/○	○/●
Receiving data/Printing	No alarm	△	○	○	○
	Ink near empty	△	○	◇	◇
	Ink empty	△	○	●/○	○/●
Operator call	Ink near empty	○	●	◇	◇
	Ink empty	○	●	●	●
Cover open	No alarm	●	△	○	○
	Ink near empty	●	△	◇	◇
	Ink empty	●	△	●	●
Purging		△	◇	☆	▯
Service call		△	△	△	△

● : Indicates an LED is ON
○ : Indicates an LED is OFF
▯, △, ◇, ☆: Indicate an LED is blinking
(LEDs with the same symbol means that they blink at the same speed)

When a service call has occurred, its error type and error code are indicated using 4 bits (LED1 to LED4).

Refer to service codes for details. LED1 does not turn off during mechanical operation.

4.9.9 Printer Status

(1) Not energized

This status means that power is not supplied to the printer.
The table below shows the printer operation when power is supplied.

Condition	Printer operation	Status
Power applied	① All the LEDs light, then turn off. ② Initializing for energizing ③ Status	Normal mode Ready for power to be applied.
Clean button pressed then power applied	① All the LEDs light, then turn off. ② Initializing for energizing ③ Initializing for turning on power ④ Status	Preparing for printing test Ready for power to be applied
⏻ (On/Off) button and Clean button pressed simultaneously, then power applied	① All the LEDs light, then turn off. ② Initializing for energizing ③ Initializing for turning on power ④ Status	Preparing for EEPROM reset Ready for power to be applied
⏻ (On/Off) button and Clean button pressed simultaneously with the cover open, then power applied	① All the LEDs light, then turn off. ② Initializing for energizing ③ Initializing for turning on power ④ Status	Process support mode

(2) Power off

This status is the power consumption save mode where only the control panel operates.

<Buttons>

Power/Online button

Pressing this button allows the printer to become online and offline. When in manual feed mode and there is no paper, the printer becomes offline and does not print. If this happens when using the manual feed slot, load a sheet of paper, the printer will detect the paper and start printing. If this happens when using the ACSF, press this button after loading paper. The printer will then start printing.

4.10 How to Clean the Print Head - Purge

When you get white lines in text or graphics on your printed document, clean the print head.

You can clean the 2 print heads by pressing the Clean button on the control panel.

1. Make sure the printer is Online with the Top cover closed.
2. Push the Clean button.
3. The printer starts cleaning the print head automatically. When the cleaning is finished, the printer becomes online automatically.

Note: *You can clean the print head from the printer driver. Select [Control/Maintenance] tab from the MP-21C/MP-21CDX Windows printer driver and click the [Maintenance] button.*

4.11 Replacing the Ink Cartridges

When the LED(s) shows an ink empty or an ink near empty status, replace the indicated ink cartridge(s) with a new one. We strongly recommend you use Brother original ink cartridges for the best print quality. Using other ink may void the warranty for this printer.

Black and Cyan	No. LC03BC
Magenta and Yellow	No. LC03MY

<How to replace the cartridges>

1. Make sure the Power LED is on.
2. Open the Top cover. Make sure the carriage is resting in the home position at the right hand side of the printer.
3. Pull out the empty ink cartridge in the direction of the arrow.

Note: *Make sure that the Power LED is* ***ON,*** *otherwise the ink used counter will not be cleared.*

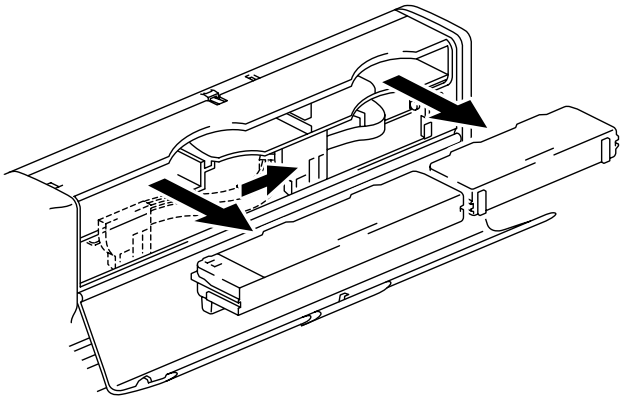


Fig. 1.6

Caution: *DO NOT remove ink cartridges when you do not need to replace them. Insert a new ink cartridge within a few seconds of taking out the empty ink cartridge.*

Once you have removed a cartridge, DO NOT attempt to re-use it.

4. Open the new ink cartridge box and take the cartridge out of the bag.
5. Insert the new cartridge, making sure to put it the correct position and push it until it stops.

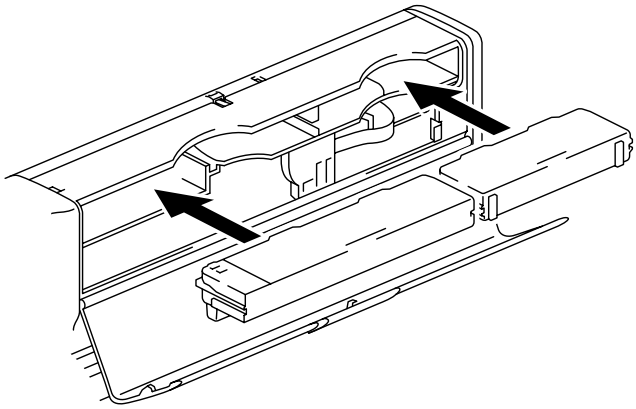


Fig. 1.7

6. Close the Top cover. The printer will automatically start initial purge. When the initial purge is done, the Power LED comes on.

Warning: *If ink stains your body or clothing, wash with soap or detergent immediately.*

If ink gets in your eyes, irrigate them with water immediately and consult a doctor if you are concerned.

Caution: *Once you have installed the cartridge, DO NOT take it out until the ink empty status is indicated as this may reduce the print quality.*

Once you have opened an ink cartridge, use it up within 6 months.

Note: *If an ink empty status still remain after you have installed the ink cartridges, check that the ink cartridges are installed correctly.*

Both the ink cartridge BC and the ink cartridge YM should be installed. A printer with only one ink cartridge installed cannot perform printing operations.

4.12 Recovery Function - Purge

The purge operation is carried out just before the first print job when more than a certain number of days have passed(see below) since the last purge was carried out. The printer memorizes the time when the last purge was conducted in the EEPROM. When the printer has been left with power off, the time and date is sent from the PC just before printing by the printer driver. The printer conducts the designated purge by comparing this date with the date of the last purge. To operate the automatic recovery function correctly, the date of the PC needs be correct.

4.12.1 Definition of Terms

Purge type	Abbrieviation	Description
Single purge	SP	This is a normal purge. All colors are purged.
Initial purge	IP	Single purge x 7 times
Double purge	WP	Single purge x 2 times
Triple purge	TP	Single purge x 3 times
Cartridge purge	CP	Single purge x 5 times
Power purge	PP	Single purge x 5 times
Manual purge	MP	The single purge begins by pressing the Clean button on the control pane. The single or power purge can be executed from the printer driver.

4.12.2 Automatic Purge

Date condition	Condition type	Purge type	Time condition
First ink cartridges are installed into a brand-new printer.	1	IP	Just after the ink cartridges installation. The IP is carried out only one time in the whole printer life.
First automatic purge after a new cartridge installed and the specified time has passed with no print operations.	2-1 2-2 2-3	SP WP TP	3 days 6 days 9 days
Date defined purge	3-1 3-2 3-3	SP WP TP	5 days 7 days 9 days
Only after the empty cartridges are replaced with new ones.	4	CP	

4.12.3 Manual Purge

Pressing the Clean button on the printer control panel or clicking the [Clean button on the [Maintenance] of the Windows driver executes the purge.

How to execute	Purge type	Remark
Pressing the Clean button on the printer	SP	Only SP is available.
Clicking the [Clean] button in the Windows printer driver	SP PP	You can select SP or PP.

4.12.4 Automatic Purge Frequency

In case the manual purge was carried out 3 times by pressing the Clean button on the control panel, the PP begins automatically and continuously after the 3rd single purge finishes. The 3rd purge operation performs the single purge 6 times in total.

The special purge sequence starts when the two conditions below are achieved.

- The printer is powered ON, in the Ready status and is connected to a PC.
- Pressing the Clean button on the control panel 3 times within 1 hour.

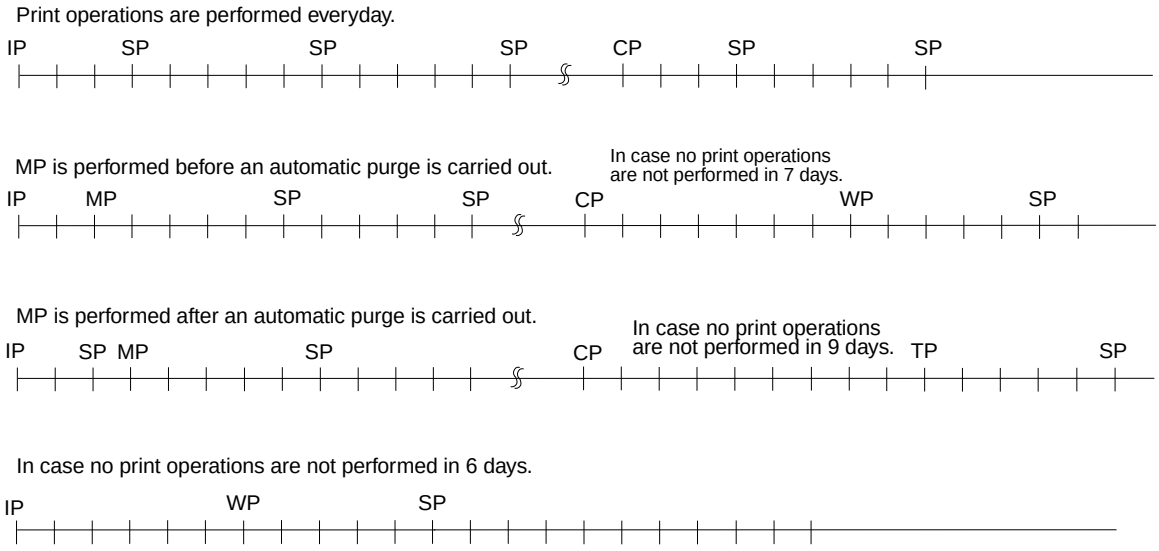
Note: *As the Windows printer driver sends a command to execute the PP, the printer must be connected to a PC.*

The number of manual purges executed by the Windows printer driver is not counted.

The number of automatic purges such as the date defined and cartridge purge are ignored.

When the printer is in the following condition, the printer cannot detect that the Clean button is pressed.
- *The power is OFF.*
- *The printer is in a printing operation.*
- *The printer is performing a purge operation.*

4.12.5 Purge Sequence



5. SAFETY INFORMATION

5.1 Ink Safety

Potential Health Effects

EYE CONTACT:	May cause slight irritation.
SKIN CONTACT:	Prolonged exposure may cause skin irritation.
INGESTION:	Small amounts swallowed during normal handling operations are not likely to cause injury; swallowing larger amounts may cause injury.
INHALATION:	Excessive vapor concentrations may cause irritation of respiratory tract.

First Aid Measures

EYE CONTACT:	Flash immediately with running water for at least 15 min. If necessary, get medical attention.
SKIN CONTACT:	Wash with water and soap or detergent.
INGESTION:	Dilute with water and if necessary get medical attention. (Never give anything by mouth to an unconscious person)
INHALATION:	Remove to fresh air area. Help with breathing and if necessary get medical attention.

6. CONSUMABLES AND ACCESSORIES

6.1 Brother Special Paper

- Quality Coated Paper for 360 dpi printing
  - Letter size No. BP36CL
  - A4 size No. BP36CA
- High Quality Coated Paper for 720 dpi printing
  - Letter size No. BP72CL
  - A4 size No. BP72CA
- Color Inkjet Glossy Paper for 720 dpi fine mode
  - Letter size No. BPGLL
  - A4 size No. BPGLA

6.2 Ink Cartridge

Black & Cyan ink cartridge	No. LC03BC
Magenta & Yellow ink cartridge	No. LC03MY

6.3 AC Adapter, ACSF and Parallel I/F Cable

AC Adapter and Parallel I/F cable	No. PA21MP
ASCF only	No. SF21MP

Chapter II
THEORY OF OPERATION

CONTENTS

CHAPTER II THEORY OF OPERATION

1. GENERAL

1.1 Normal Interlace Processing (360dpi)

Fig. 2.1 below shows the relationship between the printing area and the line feed amount for each print head pass.

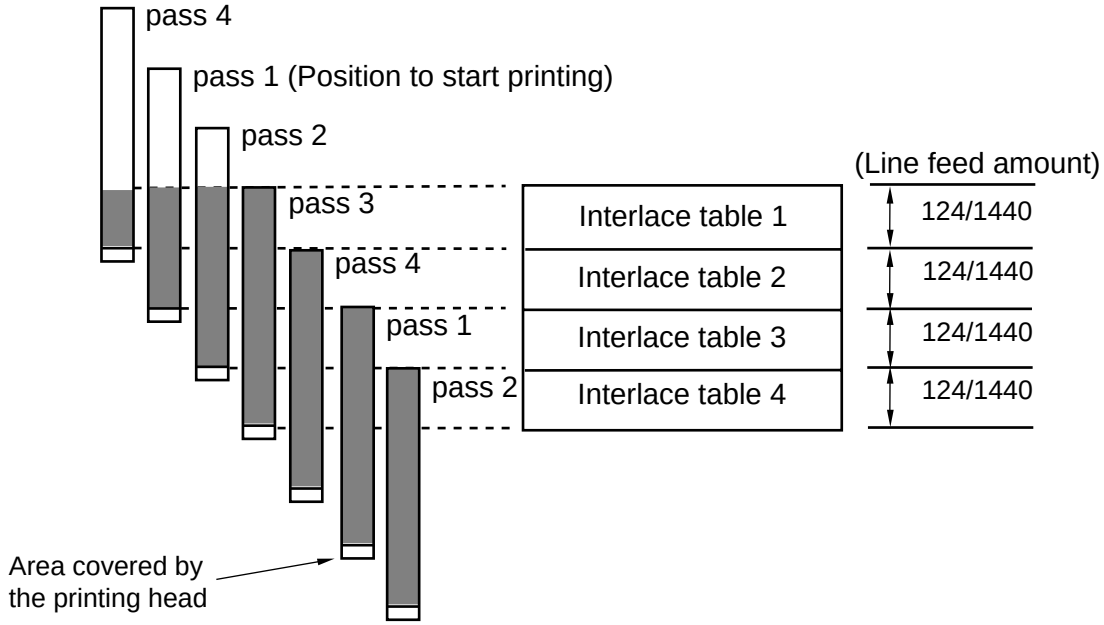


Fig. 2.1

The printing operation is performed by repeating the following sequence:-

(120/1440 line feeding + 32 nozzle printing + 124/1440 line feeding + 32 nozzle printing + 124/1440 line feeding + 32 nozzle printing + 124/1440 line feeding + 62 nozzle printing +).

A buffer stores the data for each pass and interlace tables indicating how to allocate the raster data for each pass are used for the printing operation.

To which pass (storing buffer) the binary raster data is loaded sequentially is allocated and is initially determined according to the interlace table.

4 rasters of color print data and 1 raster of monochrome print data are converted to raster graphics transfer commands (G/Z) and stored in the buffer. After the above conversion, TIFF compression or mirroring is performed if necessary.

The number of rasters handled by each interlace table corresponds to the line feed amount. Rasters are handled sequentially and the buffer store for sending commands for 1 pass is generated when the last raster of each table (the 1st raster of the next table in normal and draft modes) is reached. Therefore, once data in the buffer is sent to the printer with the line feed command (F), the buffer is initialized so that it will be ready for use for later passes and processing of the next raster starts in the same manner.

1.2 Super Fine Interlace Processing (720dpi)

This is a method to perform printing using nozzles moved at 4/360 inch pitch using nozzles spaced at 2/360 inch pitch. Fig. 2.2 below shows the relationship between the printing area and the line feed amount for each head print pass.

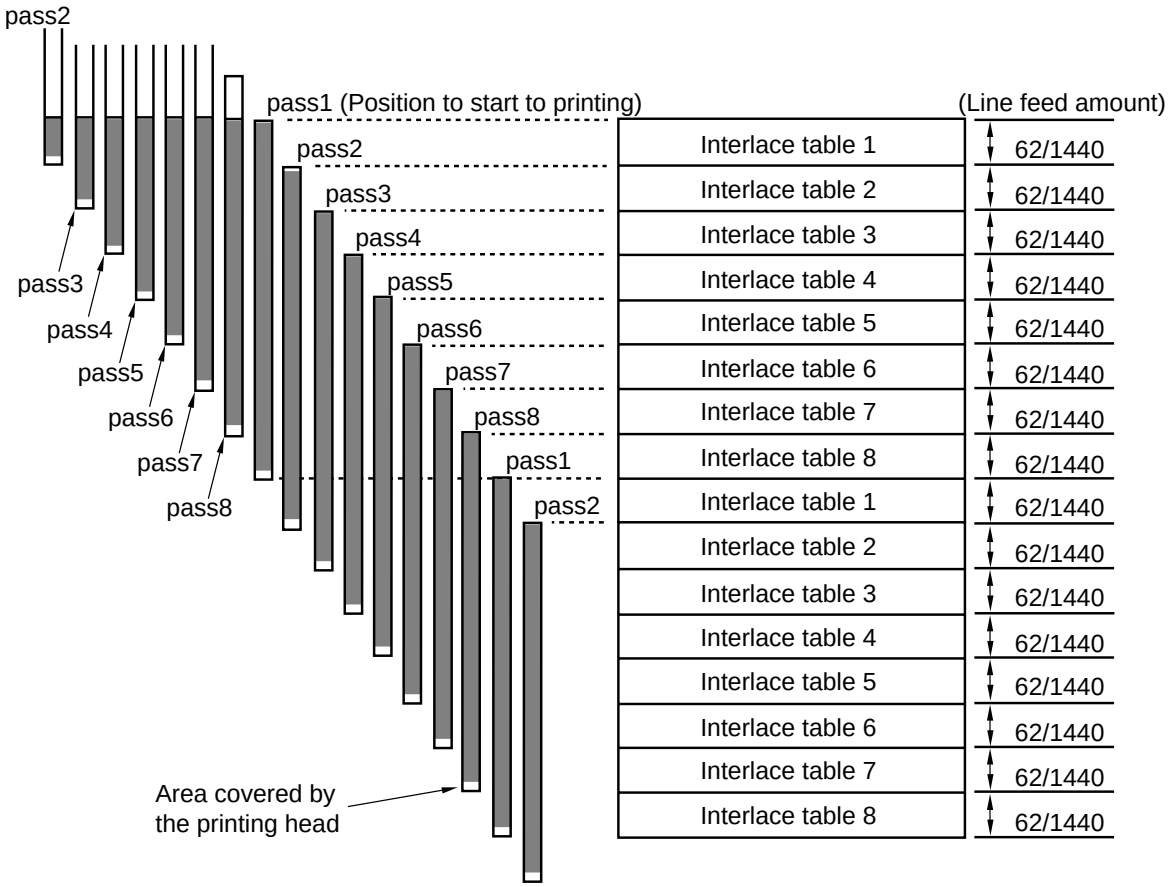


Fig. 2.2

The printing operation is performed by repeating the following sequence:-

(30/720 line feeding + 30 nozzle printing + 30/720 line feeding + 30 nozzle printing + 30/720 line feeding + 30 nozzle printing + 33/720 line feeding + 30 nozzle printing + 30/720 line feeding + 30 nozzle printing + 30/720 line feeding + 30 nozzle printing + 30/720 line feeding + 30 nozzle printing + 27/720 line feeding + 30 nozzle printing +).

Detailed operations in the fine interlace processing are the same as those in the normal interlace processing.

2. ELECTRONICS

2.1 General Block Diagram (MP-21C/MP-21CDX)

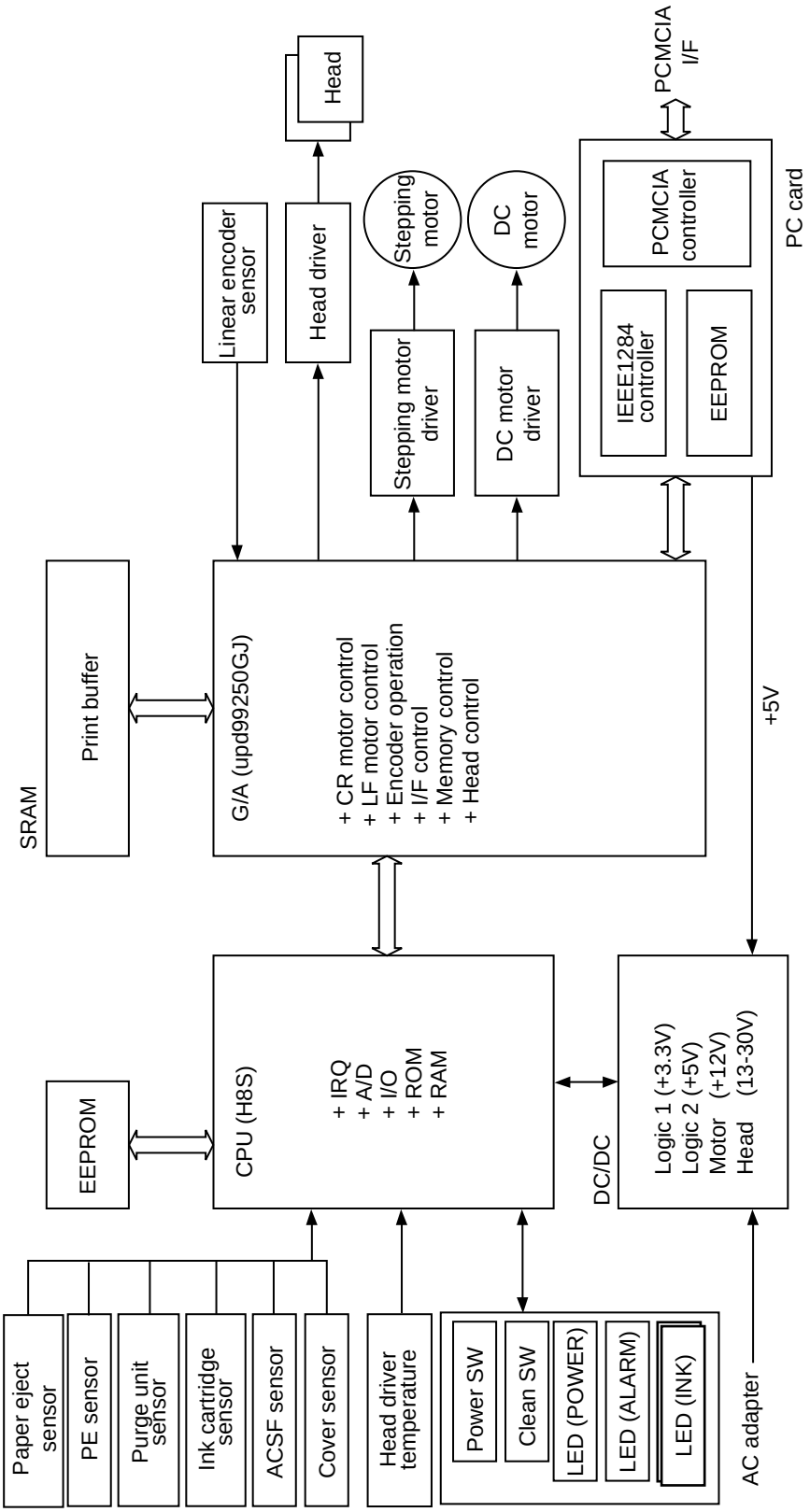


Fig. 2.3

2.2 Electrical Configuration

(1) Main PCB

- The Main PCB controls the following functions :

  Data reception, Control panel control, Paper feed and carriage motor control, Paper sensing, Cartridge detection, Head voltage control, Data transmission to the head driver
- A one chip type CPU with a program of 128 KB is used.
- 2 buttons (the ⏻ (On/Off) button and the Clean button) are on the Main PCB.

(2) Head PCB

- The Head PCB has the following components

  4 LEDs, 1 cover sensor

  The head drive IC is on the Head PCB and is connected via 4 FPC cables from the head unit.

  The Head PCB is connected to the Head FFC cable.

(3) Carriage PCB

- The Carriage PCB has 1 linear encoder sensor.
- The Carriage PCB has a head temperature detect sensor.

(4) DC/DC unit

- The power supply unit has the following functions :

  3.3V or 5V power supply for the logic, 12V for the motor, 13 - 30V for the print head.

(5) Cartridge sensor PCB

- The Cartridge sensor PCB has 2 cartridge sensors.
- This PCB is connected to the Head PCB via a harness.

2.3 Main PCB

2.3.1 Data Reception

IEEE1284 bi-directional nibble mode is supported. The data reception operation is performed by the gate array. The CINT-N signal from the gate array indicates the reception of data to the CPU and control data is processed by the CPU. The printing data is transmitted directly to the memory without being transmitted to the CPU.

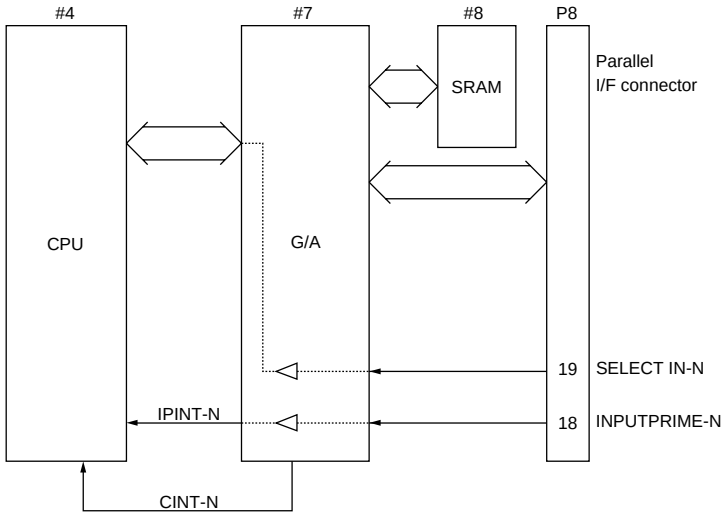


Fig. 2.4

2.3.2 Control Panel

The control panel controls two switch signal inputs and four LEDs. Two out of four LEDs correspond to each of the ink cartridges. The cover switch is contained in the switch panel. When this switch is OFF, the cover is open and printing is disabled. However, operations associated with cartridge replacement with the cover open are allowed.

SW 1 on the Main PCB functions as the ⏻ (On/Off) button and stops all the operations and turns off the LEDs, but does not turn the power off.

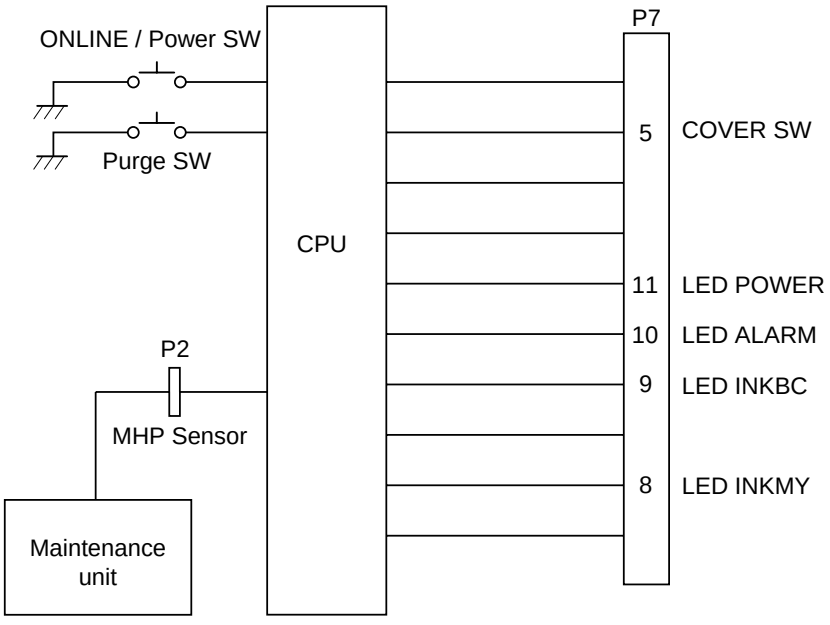


Fig. 2.5

2.3.3 Paper Feed and Carriage Motor Drive Circuit

A PM-type stepper motor is used to feed paper and is driven at a constant voltage. A DC motor is used for the carriage. It uses the feedback signal (EINT-P) from the linear encoder and its speed is controlled via the gate array by the CPU using the PWM control method. The paper feed driving circuit is turned on and off by the M5VCNT signal from the CPU.

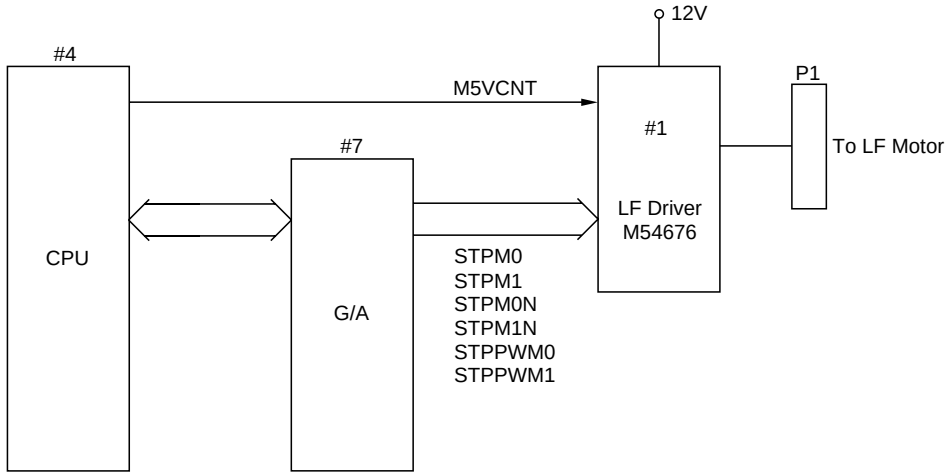


Fig. 2.6

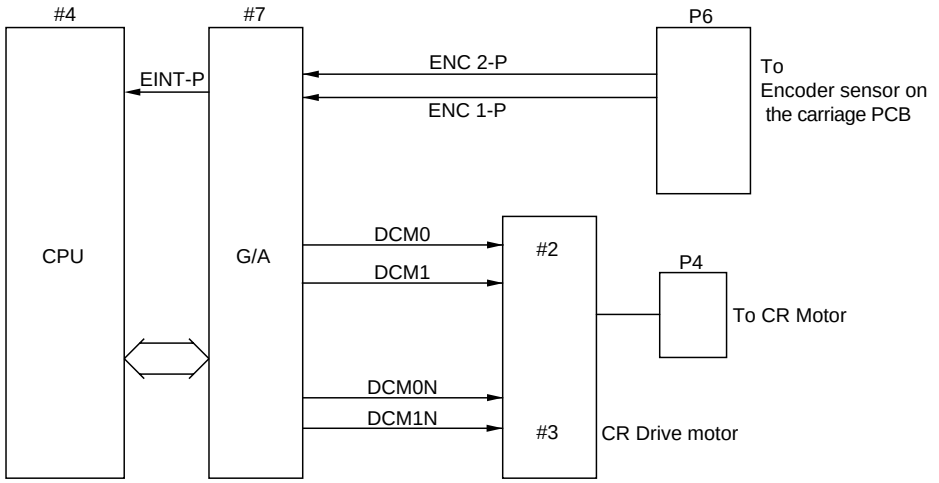


Fig. 2.7

2.3.4 Paper Sensor

The photo type sensor is contained on the Main PCB. The movable part of the mechanism detects if there is paper or not and turns the sensor on and off. When light is transmitted, there is no paper.

The CH1 level of the sensor output is less than 2.5V without paper and 2.5V or more with paper present.

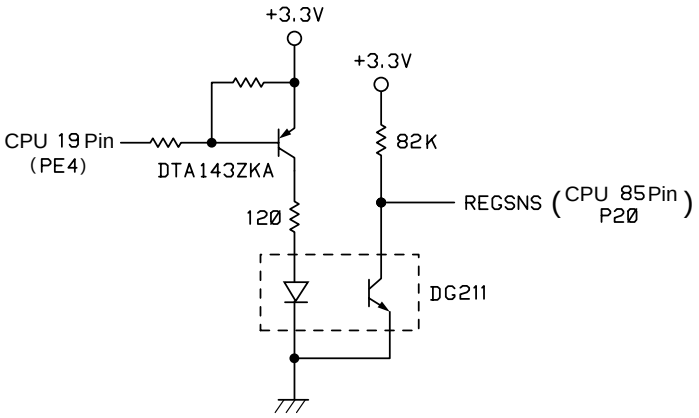


Fig. 2.8

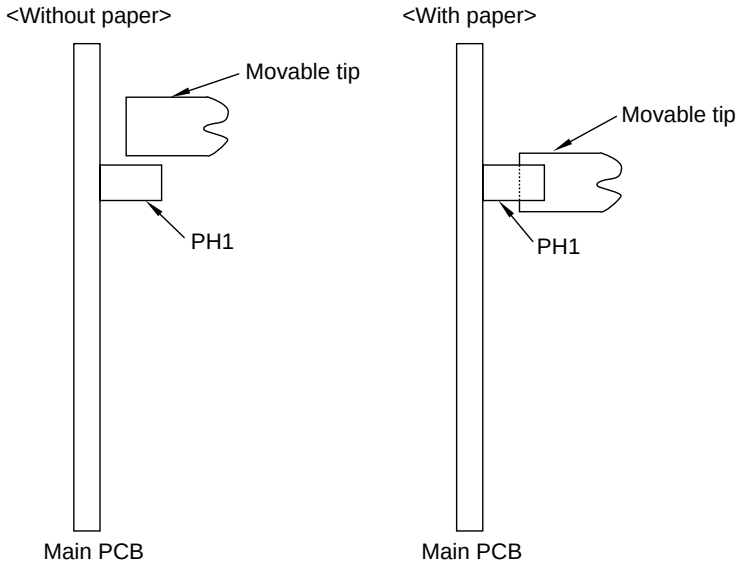


Fig. 2.9

2.3.5 Cartridge Detection

The detection switch is on the Cartridge PCB and detects the placement of each cartridge separately. The detection signal is at a low level when a cartridge is fitted.

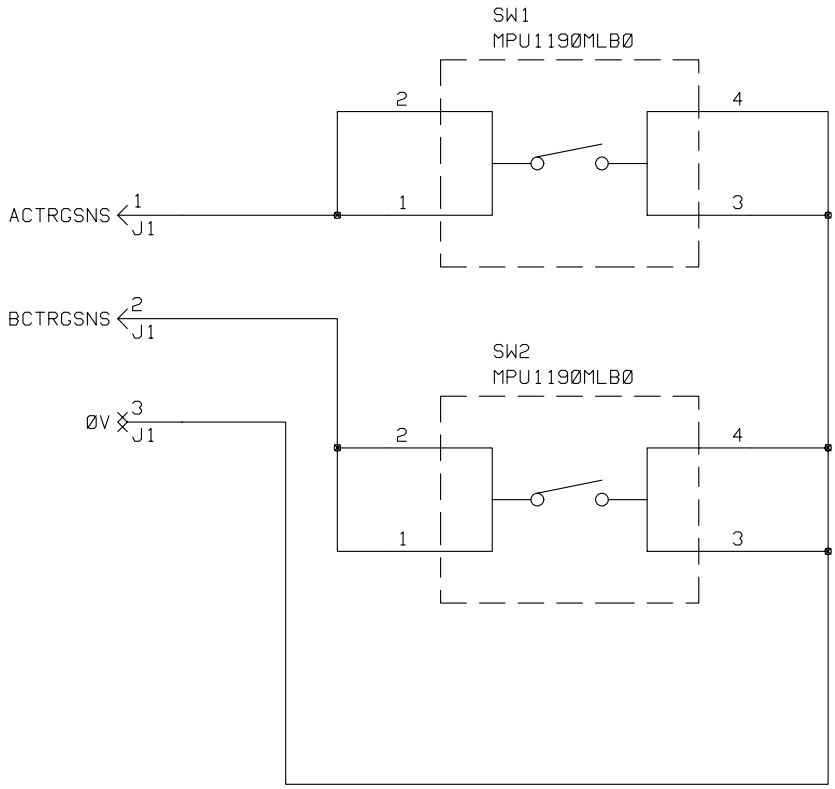


Fig. 2.10

- ACTRG and BCTRG are signals indicating the cartridges are fitted.
- SIN0-P, SIN1-P, SIN2-P, and SIN3-P are drive data (serial data) signals to the head driver.
- HCLK-P and HSTB-P are the clock and shift signals of the drive data signals.
- HVDD is a head driving power supply voltage and is variable according to the output of the thermistor (HDTHM-P signal) on the Head PCB.
- FIRE0-N, FIRE1-N, FIRE2-N, and FIRE3-N are signals setting the timing to apply the head driving voltage to the head actuator. VDD1 is a signal indicating 5V to the head driver and its state is controlled by the CPU according to the H5VCNT signal.

2.3.6 Head Voltage Control

The head voltage varies with temperature and head ranks. The VSEL signal from the CPU generates the HVDSEL signal indicating the analogue value which is transmitted back to the power supply unit. The power supply unit outputs the head voltage (HVDD) corresponding to the voltage of the HVDSEL signal.

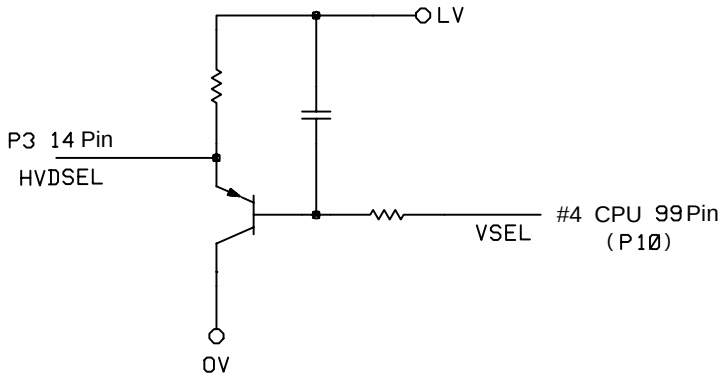


Fig. 2.11

2.3.7 Home Position Detection of the Maintenance Mechanism

MHPSENSOR is the position detection sensor of the maintenance mechanism. The Home position of the mechanism is used during the purge sequence and is detected when the power is turned on. (Refer to Fig. 2.5)

2.3.8 Memory Circuit

Location #7 is the LSI which is the gate array to control printing.

Location #8 is the static RAM of 1Mb.

Location #5 is the EEPROM.

Location #6 is the reset IC.

Location #5 and #6 are connected to the CPU.

2.4 Head PCB

4 LEDs, a cover switch, the head drive IC, 4 head FPC connectors and 2 cartridge sensor connectors are contained on the Head PCB.

The connector CNI is connected to the Main PCB by an FFC cable.

Refer to the Head PCB circuit diagram.

2.5 Carriage PCB

The HEDR-8100 is the linear encoder sensor.

The PCB is connected to the Main PCB by an FPC cable.

Refer to the Carriage PCB circuit diagram.

2.6 Carriage sensor PCB

The connector is connected to the Head PCB.

2.7 Power Supply

The power supply uses the switching regulation system to generate the regulated DC power (+3.3V, +5V, +12V and HVDD), which are converted from the DC input.

(When HVDSEL is open)

Connector pin #1: NC
Connector pin #2 - #4: PCM5V
Connector pin #5 - #7: PCM5V RET
Connector pin #8: +5V
Connector pin #9: +3.3V
Connector pin #10, #11: SGND
Connector pin #12: HVDCUTOUT
Connector pin #13: ADPT
Connector pin #14: HVDSEL
Connector pin #15 - #16: P-RET
Connector pin #17: +12V
Connector pin #18: +24V

3. MECHANICS

3.1 Overview of Printing Mechanism

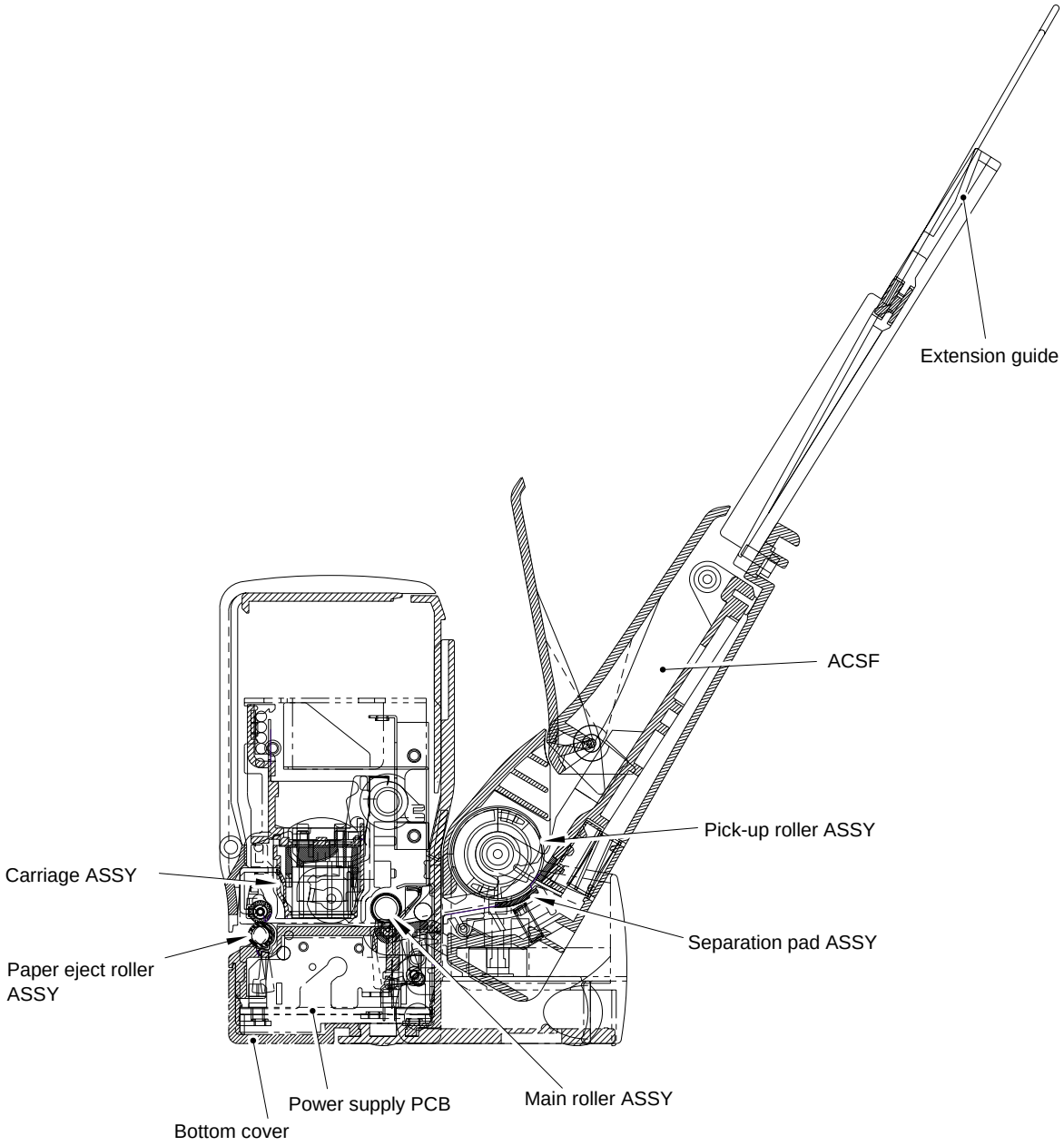


Fig. 2.12

3.2 Print Head

This is an on-demand ink jet printer and ejects ink by the firing of a piezoelectric ceramic actuator. Refer to Fig. 2.13 for the print head structure. A narrow channel filled with ink is sandwiched between two actuators. When a voltage is applied to an electrode formed on the surface of the actuator, ink is pulled into the channel from the manifold with the actuator deformed as shown in the Fig. 2.13. When the voltage becomes 0, the actuator returns to the previous position and pressure is generated in the ink in the channel. Thus, the nozzle ejects ink drops. Ink drops are propelled forwards by this action and are fired onto the paper held by the platen and form dots of the respective color. This printer incorporates thirty-two ink firing mechanisms per color as explained above, 2 colors per head with 2 print heads, 126 in total.

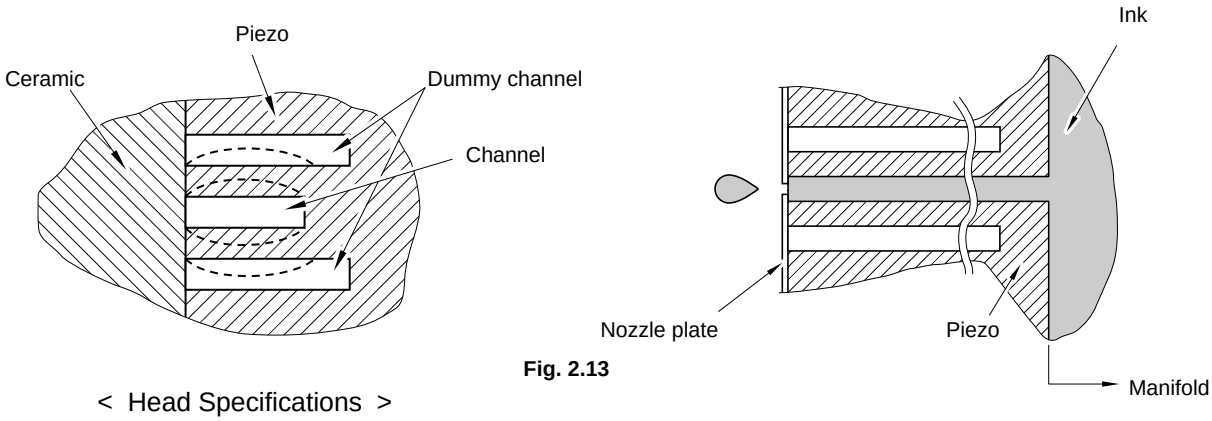


Fig. 2.13

< Head Specifications >

(1)	Method	PZT(Xaar) method with the dummy channel
(2)	Driving frequency	3.85 KHz, 6.5 KHz, 7.7 Khz
(3)	Injection droplet amount	Normal mode :40 ± 5pl
		Super fine mode :25 ± 2.5pl
(4)	Composition	Separate color type
(5)	Number of ink	4 colors (Y/M/C/K)
(6)	Number of nozzles	128 nozzles (32 nozzles x 4 colors)

(7) Nozzle layout

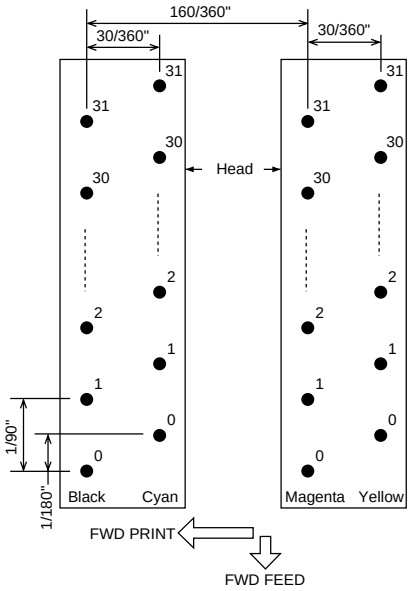
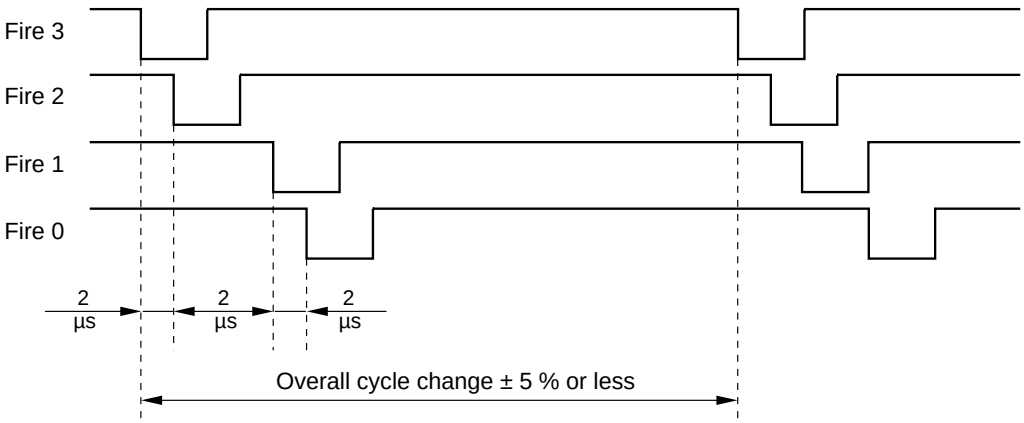


Fig. 2.14

(8) Driving voltage — 13 V - 30 V
(The driving voltage is controlled according to the head temperature see 2.3.6 Head Voltage Control.)

(9) Driving pulse — SP, SPT or SPIT
(No droplet gradation control)



<When printing in the REV direction.>
(When printing is in the FWD is direction, the order of the Fire 3 to Fire 0 signals is reversed.)

Fig. 2.15

3.3 Ink Cartridge

Ink Cartridge BC

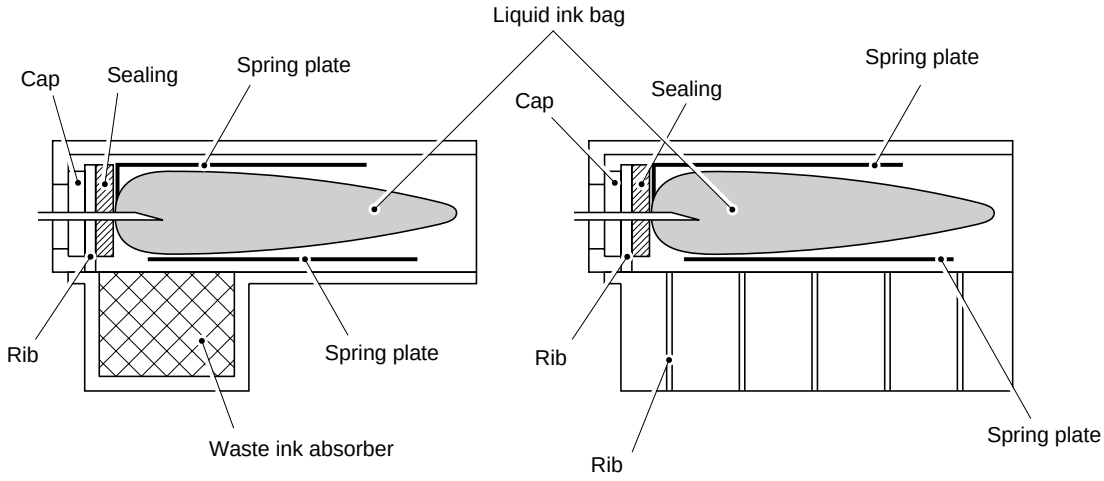
A liquid ink bag is placed inside the ink cartridge. By inserting the ink cartridge into the printer, an ink needle punctures the seal and is inserted into the ink bag. Ink is supplied to the print head through the ink needle and the ink tube. 3 needles in total stick into the Ink cartridge BC. 2 of them are for the ink supply of Black and Cyan and the other one is for the waste ink.

The spring plate which is placed over and under the ink bag applies pressure to the ink bag in order to keep the most suitable internal pressure for printing.

When operating the purge system, the waste ink of all 4 colors is delivered from the Purge unit ASSY to the waste ink absorber through the waste ink tube and needle.

Ink Cartridge MY

The basic structure of the Ink cartridge MY is the same as the Ink cartridge BC but there is no waste ink absorber. The Magenta and Yellow waste ink is delivered to the waste ink absorber inside the Ink cartridge BC, the ink cartridge MY does not have a waste ink absorber. Therefore, only 2 needles stick into this cartridge.



Ink cartridge BC **Ink cartridge MY**

Fig. 2.16

3.4 Head Maintenance Mechanism

3.4.1 Components and Functions

(1) Suction Mechanism

Components :	Suction cap, Pump, Maintenance cam
Functions :	Guides ink to the head channel.
	Removes dry ink from around the nozzle.
	Removes air and waste in the head channel.
	Ejects sucked ink towards the ink absorber.

(2) Storage Mechanism

Components :	Storage cap
Functions :	Prevents the nozzle tip from drying out when it is not printing.

(3) Wiper Mechanism

Components :	Wiper, Maintenance cam
Functions :	Removes ink deposited on the nozzle surface after the ink has been purged by the suction mechanism.

(4) Carriage Lock Mechanism

Components :	Carriage locker, Maintenance cam
Functions :	Aligns the suction cap and the head for the cleaning of each color.
	Prevents carriage movement so that the head will not move away from the storage cap when the power is off.

(5) Sensor

Components :	Photo detector
Functions :	Detects the Maintenance cam position.

3.4.2 Mechanisms

- The Maintenance cam connects the drive from the Paper feed motor to the Purge unit ASSY and rotates it.
- The up-and-down movements of the suction cap, the cap, the wiper and the carriage locker and suction and ejection operations of the pump are performed by one rotation of the Maintenance cam.

(1) Suction Mechanism :

The suction cap is pressed on the nozzle plate by rotating the Maintenance cam. After the cap is pressed onto the nozzle face, the piston in the pump is activated to generate negative pressure in the pump. The negative pressure is sent to the suction cap and ink is sucked from the head nozzle. The pump ejects the sucked ink and feeds it into the waste ink foam of the Ink cartridge BC.

(2) Wiping Mechanism :

The wiper goes up after the suction mechanism has ejected the ink. When it reaches the upper limit, the Maintenance cam stops rotating and the carriage moves one head width and the wiper wipes the nozzle surface. After the wiping operation, the carriage moves another head width distance and the wiper goes down.

(3) Storage mechanism :

The suction cap and the cap are pressed onto the nozzle plate by rotating the Maintenance cam.

(4) Carriage Lock Mechanism :

The Maintenance cam rotates and the carriage lock pin goes up before the suction operation to lock the carriage and goes down again before the wiping operation.

(5) Sensor :

The sensor is on during stand-by. It goes off when it detects the home position to start the suction operation after the Maintenance cam rotates. The sensor goes on after the suction, ejection and wiping operations.

3.5 Sensors

3.5.1 Top Cover Sensor

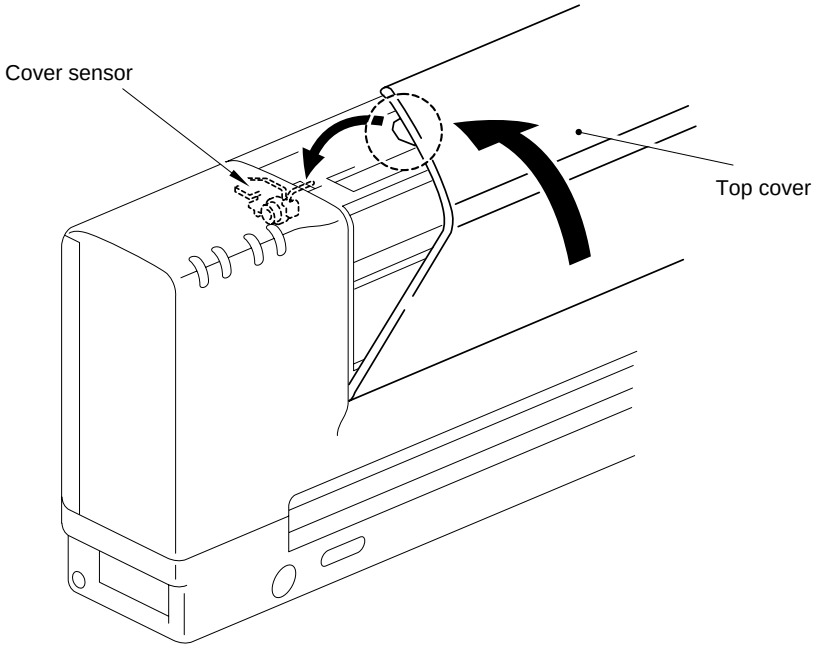


Fig. 2.17

3.5.2 Paper Feed Sensor, Paper Eject sensor

The Paper feed/eject sensor actuator and a photo sensor detect whether there is paper or not. The Paper feed/eject sensor actuator has a paper a sensing arm and the photo sensor operating arm. When paper hits the paper sensing part as paper is ejected the photo actuator arm goes up and detects the paper.

When the paper has ejected out of the printer, the Paper eject sensor actuator returns to the former status and detects that there is no paper.

The Paper feed sensor detects;

- If a paper is inserted into the Straight paper path slot or the Paper feeding guide.
- The top edge of the paper which is fed from the ACSF
- The bottom edge of the paper

The Paper eject sensor detects;

- The top edge of the paper which is fed from the Straight paper path slot or the Paper feeding guide
- The bottom edge of the paper

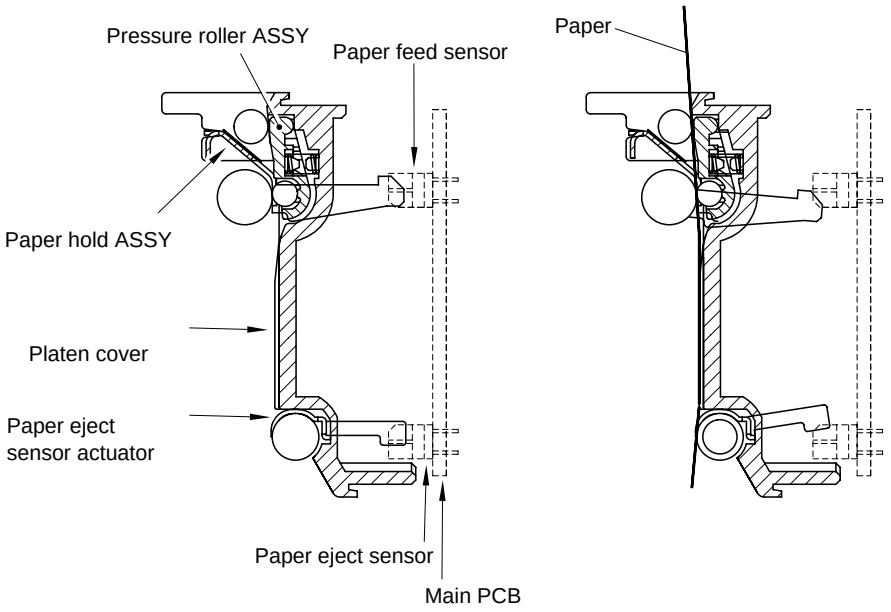


Fig. 2.18

Paper feeding can be from the Straight paper path slot or the Paper feeding guide. (Manual feeding)

Paper feeding starts when the Paper feed sensor turns into ON. In a manual feeding, the paper is fed until it hits the sensing point of the Paper eject sensor. If the Paper eject sensor turns ON, the paper is continuously fed further to the print starting position. If not, a paper mis-pick error will be detected.

Paper feeding from the ACSF

After the ACSF starts to pick-up the paper and the Paper feed sensor turns ON, the printer starts the feeding operation. If the Paper eject sensor does not turn ON, the ACSF repeats the paper pick-up operation twice more. If the Paper eject sensor stays in the OFF status after theses additional retries, a paper miss-pick error will be detected.

During printing

If the Paper feed sensor OFF states is detected (In case that a paper of different size from the one selected on the printer driver is fed.), the printer stops printing and ejects the paper. The remaining print data will be printed out on the next sheet.

Ejecting the paper

Upon finishing the print, the printer keeps the paper eject operation running until both the Paper feed sensor and the Paper eject sensor go into the OFF status. During the paper eject operation, if the Paper eject sensor does not turn OFF after the specified amount of paper feeding performed after the Paper feed sensor returns to the OFF status, the printer feeds the paper intermittently. If the Paper eject sensor still does not returns to OFF, a paper jam will be detected. When both the Paper feed sensor and the Paper eject sensor do not returns the OFF condition in 30 sec. of the paper feeding operation, the printer detects a paper jam has occurred.

3.5.3 Maintenance Sensor (Purge Unit)

The Maintenance sensor uses a photo sensor to detect the home position of the Maintenance cam.

The sensor is on during stand-by (home position) and goes off when the Maintenance cam rotates and detects the Maintenance cam's position to start the suction operation. The sensor goes on after the purge, ejection, wiping and capping operations are completed.

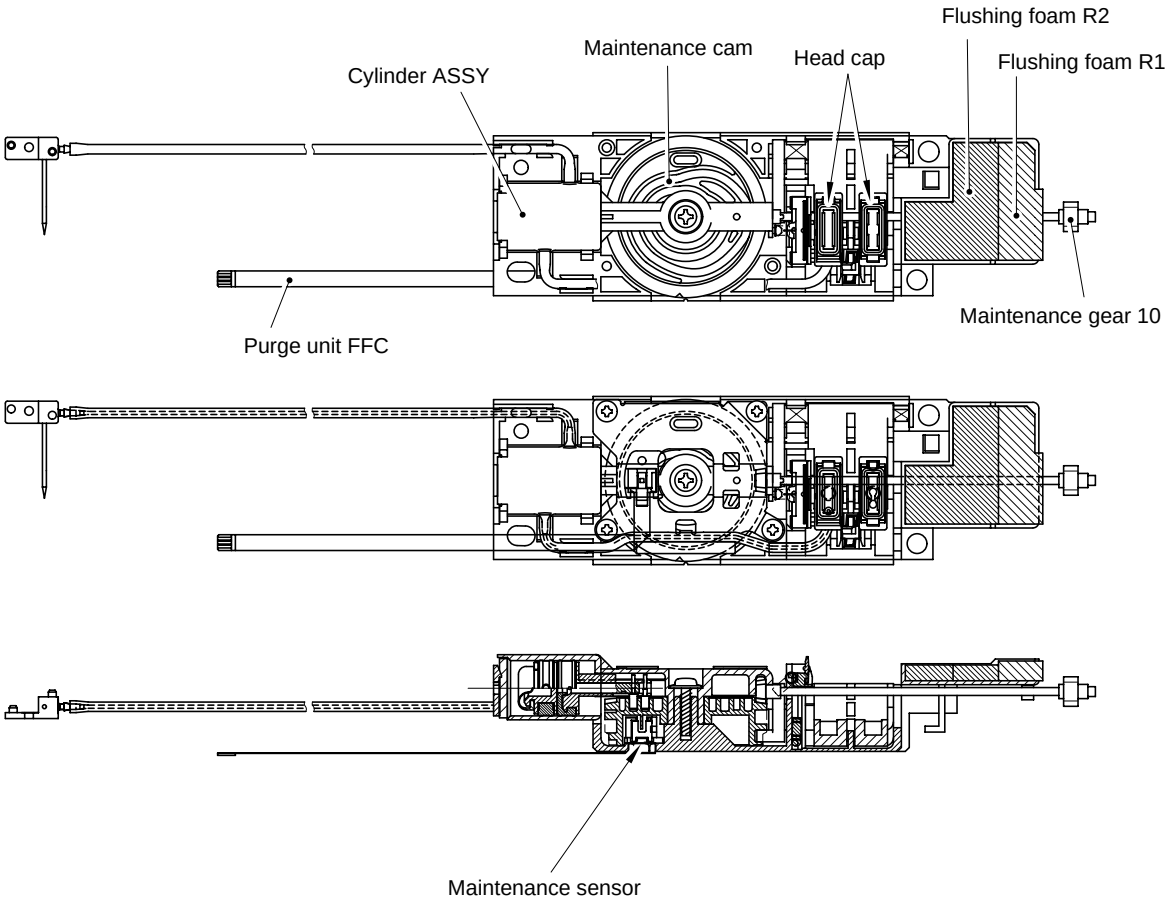


Fig. 2.19

3.6 Carriage Drive Mechanism

The carriage motor controls horizontal movement of the carriage unit.

The motor rotation is transmitted to the timing belt via the motor pulley.

The guide shaft supports the carriage.

The carriage holds the timing belt.

The direction of the carriage motor rotation corresponds to the direction of the carriage movement.

The position of the carriage is controlled by the encoder strip.

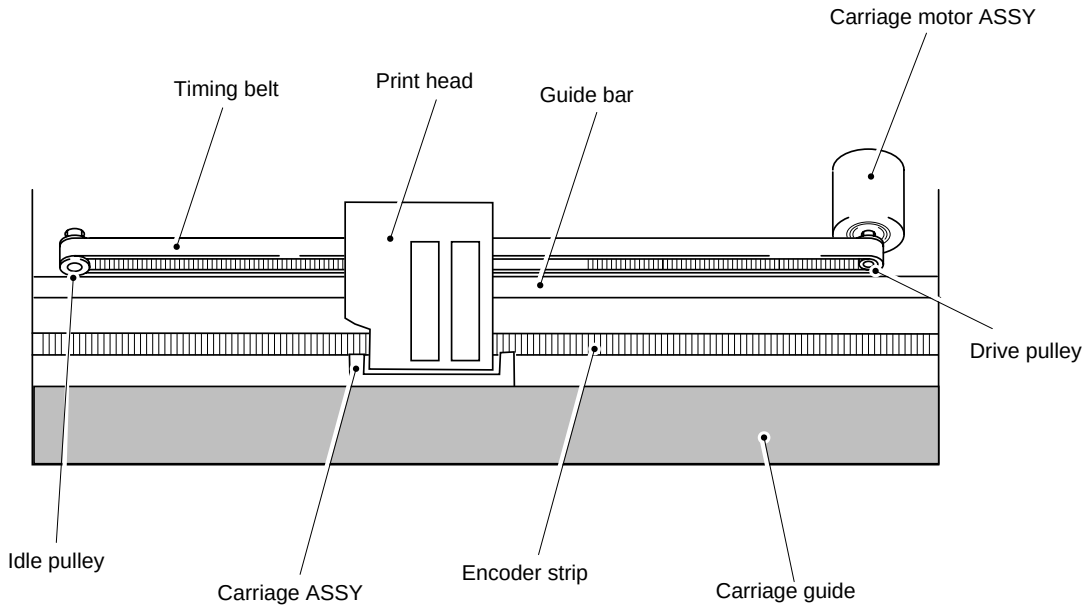


Fig. 2.20

3.7 Paper Feed Mechanism

ACSF (MP-21C option)

When the line feed motor is driven in the reverse direction (reverse rotation) to the normal paper feeding direction, the change-over 1 frame moves to engage the separation roller gear via the idler gear. The separation roller rotates in the paper separation direction (normal rotation) and separates a sheet of paper. The separation roller rotates with the paper feeding operation and returns to the initial position and is registered by the paper feed pressure spring behind the separation roller gear.

Separated paper is fed to the contact point of the Main roller and the Pressure roller by the Pick-up roller where the top of the paper is registered.

After the paper is registered, the Paper feed motor is driven in the paper feeding direction (normal rotation) and paper is fed by the Main roller and the Pressure roller.

After printing, paper is ejected by the Paper eject roller and the Star wheels.

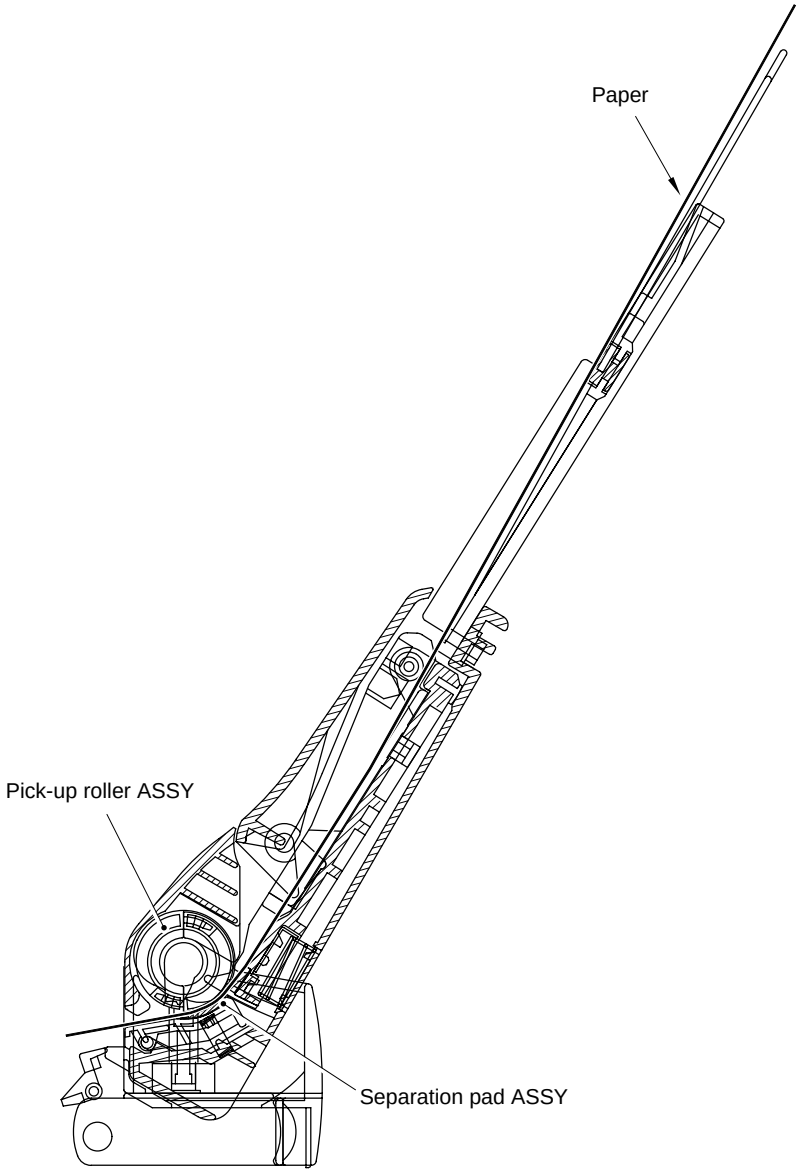


Fig. 2.21

Chapter III
DISASSEMBLY AND REASSEMBLY

CONTENTS

CHAPTER III DISASSEMBLY AND REASSEMBLY

1. PRECAUTIONS

1.1 Safety Precautions

(1) Always turn off the ⏻ (On/Off and Online) button and unplug the power cord before accessing any parts inside the printer.

Note: Even if you turn the ⏻ (On/Off) button off, the power is not completely shut off.

(2) The ink contains no harmful substances.

a. If the ink stains your body or clothes, wash with soap or detergent immediately.

b. If the ink gets in your eyes, irrigate them with water immediately and consult a doctor if you are concerned.

c. If you swallow the ink by accident, drink plenty of water and consult a doctor if you are concerned.

(3) Do not put your hands into the printer while it is printing in order to avoid getting hurt.

1.2 Attention

(1) Be careful not to lose screws, washers or other parts removed during the following operations.

(2) Be sure to apply grease to the gears and applicable positions specified in this chapter.

(3) When using soldering irons or other heat-generating tools, take care not to damage parts such as cables, PCBs and covers.

(4) Before handling the PCBs, touch a metal portion of the equipment to discharge any static electric charge in your body, or the electronic parts or components may be damaged.

(5) When transporting PCBs, be sure to wrap them in the correct protective packaging.

(6) Be sure to replace self-tapping screws correctly, if removed. Unless otherwise specified, tighten screws to the torque values listed in Section 2 below.

(7) When connecting or disconnecting cable connectors, hold the connector body, not the cables. If the connector has a lock, release the connector lock first to unlock it.

(8) After a repair, check not only the repaired portion but also that the connectors and other related portions are functioning properly before an operational check.

(9) Make sure the printer has the ink cartridge filter cover fitted before shipping.

(10) Make sure the print head has the filter cover and the nozzle protector fitted when shipping the print head separately

(11) Special precautions are necessary when handling the print head.

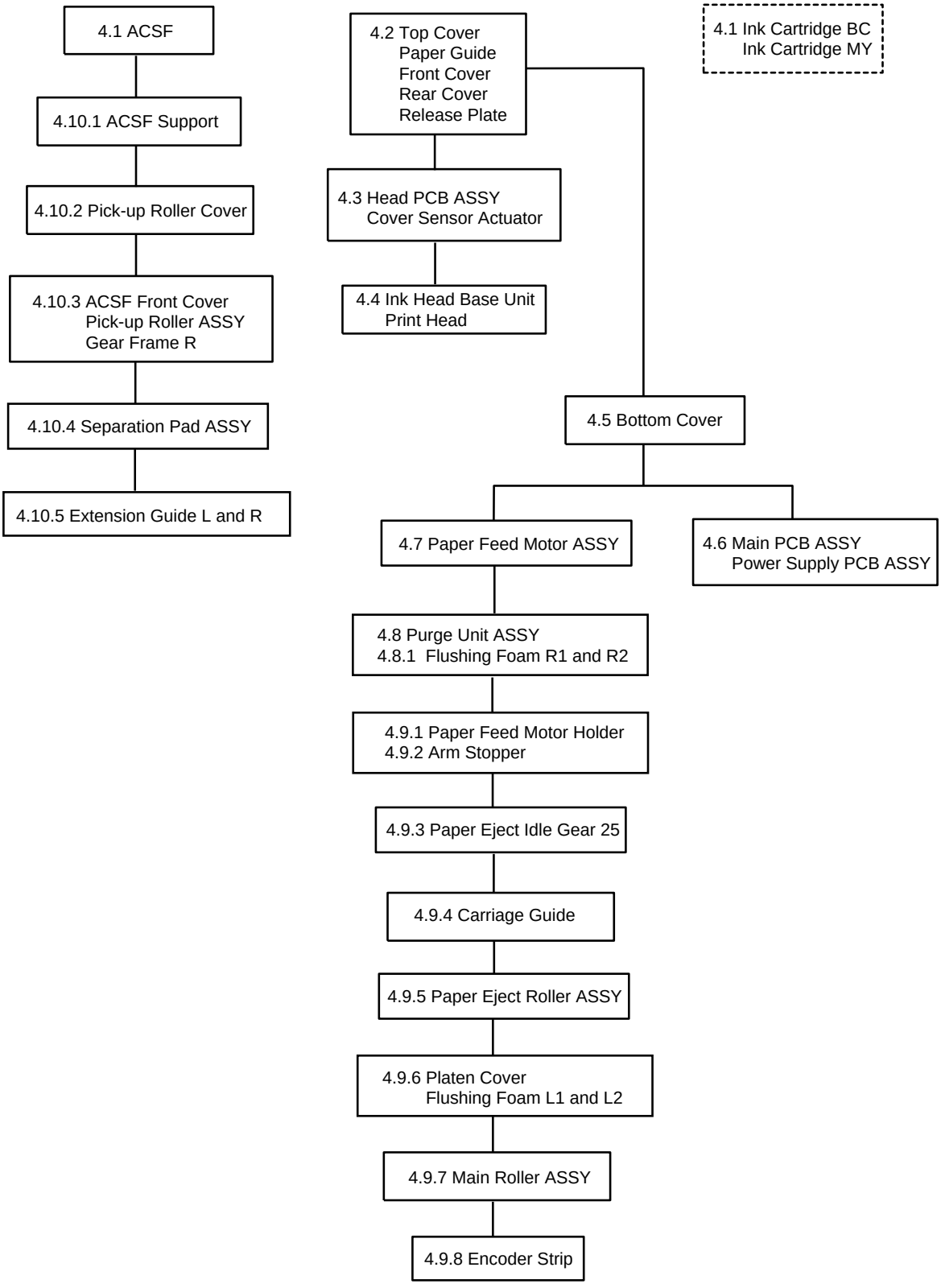
a. Do not touch the nozzle plate, the manifold and the dimple contact of the Head PCB ASSY.

b. Do not leave the print head with the nozzle plate and the manifold uncovered.

2. TIGHTENING TORQUE LIST

Location	Screw type	Q'ty	Tightening torque (kgf•cm)	Loosing torque (kgf•cm)
Front cover	Screw, bind M2.6x4 (Black)	1	4.5 ± 1	Min. 2.5
Rear cover	Screw, bind M2.6x4 (Black)	1	4.5 ± 1	Min. 2.5
Bottom cover	Screw, bind M2.6x4 (Black)	4	4.5 ± 1	Min. 2.5
I/F connector	Precision screw, M16x4	2	0.7 ± 0.1	Min. 0.5
Waste ink needle	Screw, bind B M2x6	1	1.5 ± 0.5	Min. 0.5
Ink head base unit	Taptite, bind M26x4	2	4.5 ± 1	Min. 2.5
Print head	Screw, bind B M2x8	2	2 ± 1	Min. 1
Paper feed motor ASSY	Taptite, bind M26x4	2	4.5 ± 1	Min. 2
Purge unit ASSY	Taptite, bind B M3x6	4	4 ± 1	Min. 1.5
Paper feed motor holder	Taptite, bind M26x4	1	4.5 ± 1	Min. 2
Gear shaft 4 calking ASSY	Taptite, bind M26x4	1	4.5 ± 1	Min. 2
Gear frame R (ACSF)	Taptite, bind B M3x8	2	4 ± 1	Min. 1.5
Extension guide L (ACSF)	Taptite, bind B M3x8	2	4 ± 1	Min. 1.5
Extension guide R (ACSF)	Taptite, bind B M3x8	2	4 ± 1	Min. 1.5

3. DISASSEMBLY ORDER FLOW



4. DISASSEMBLY AND REASSEMBLY PROCEDURE

Note: ***Reassembly is the reverse of Disassembly unless otherwise stated. Please refer to the Notes relating to Reassembly information.***

4.1 Ink Cartridge, ACSF (For MP-21CDX Only)

<Disassembly>

(1) For MP-21CDX, remove the ACSF.

(2) Connect the power cord to the printer, then turn the power on. Release the Carriage ASSY from the sealing cap using the Service software tool.

(3) Remove the Ink cartridges BC and MY from the printer.

Note: *After removing the Ink cartridges, DO NOT apply any vibration to the printer in order to prevent ink from leaking out of the Print head.*

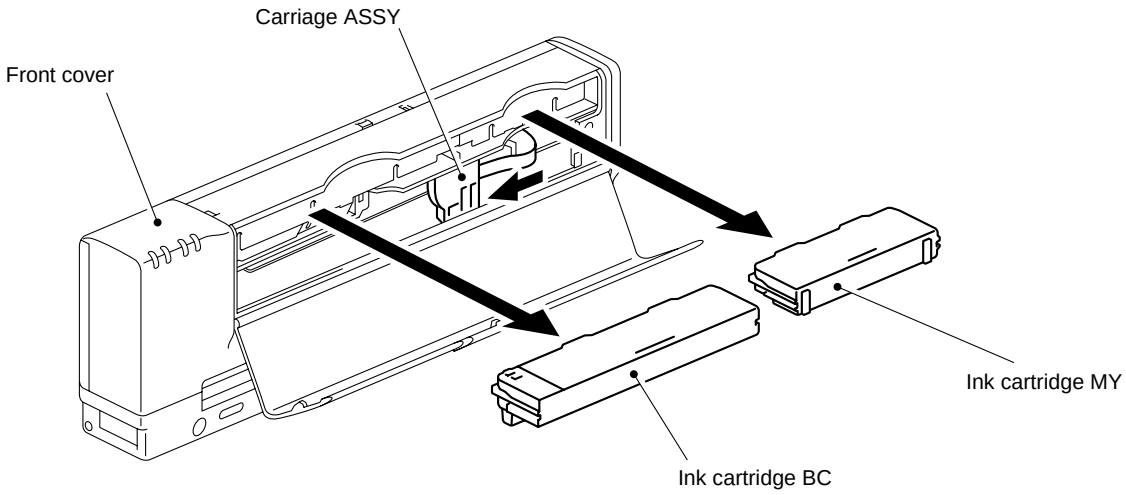


Fig. 3.1

4.2 Top Cover, Paper Guide, Front Cover, Release Plate, Rear Cover

4.2.1 Top Cover

<Disassembly>

(1) Remove the Top cover from the Front cover.

Note: *This is only necessary if the Top cover requires replacement, otherwise it should be removed with the Front cover as described in section 4.2.3.*

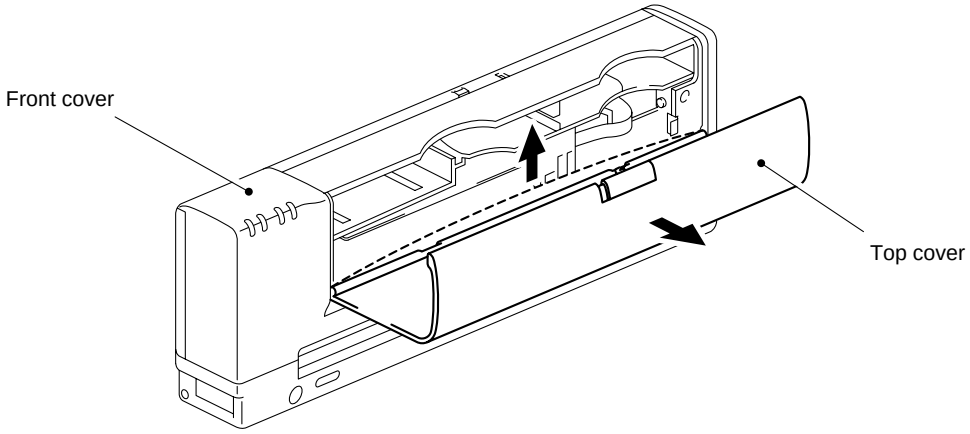


Fig. 3.2

4.2.2 Paper Guide

<Disassembly>

(1) Remove the Paper guide from the Platen cover.

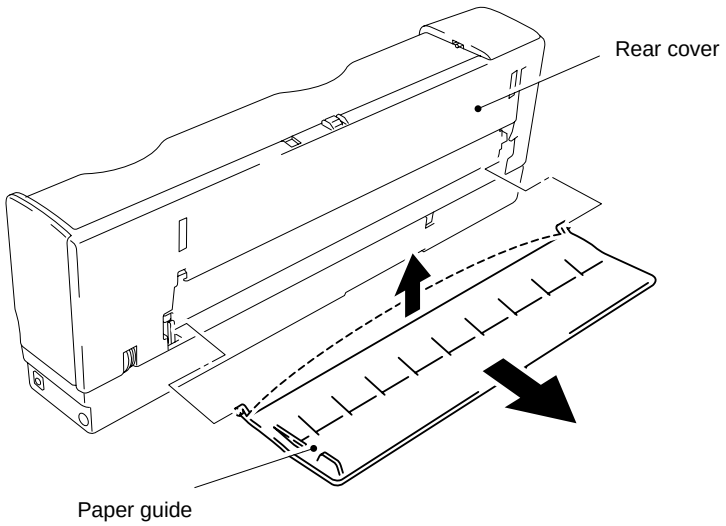


Fig. 3.3

4.2.3 Front Cover

<Disassembly>

(1) Remove the screw securing the Front cover.

(2) Press the Front cover hook to release the lock, then remove the Front cover.

Note: *Check that the Top cover sensor lever is attached to the Front cover.*

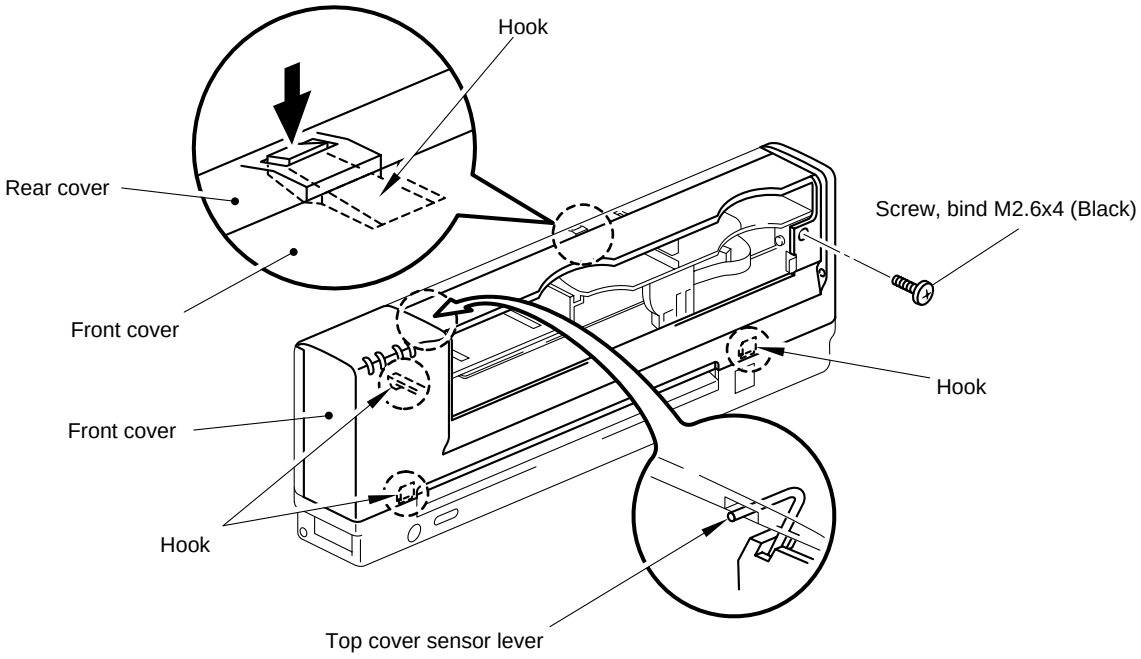


Fig. 3.4

4.2.4 Release Plate

<Disassembly>

(1) Lower the Release plate, then remove it by pulling it to the right.

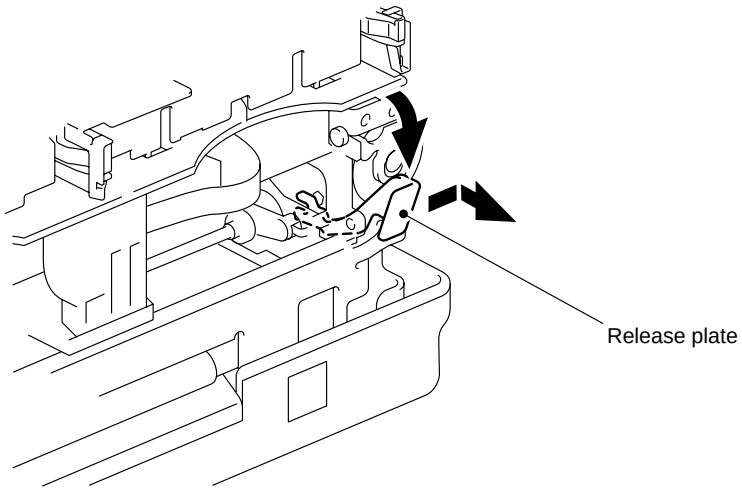


Fig. 3.5

4.2.5 Rear Cover

<Disassembly>

(1) Remove the screw.

(2) Remove the Rear cover by releasing the two hooks by which the Rear cover is assembled onto the Bottom cover and then release the hook at the top of the Rear cover.

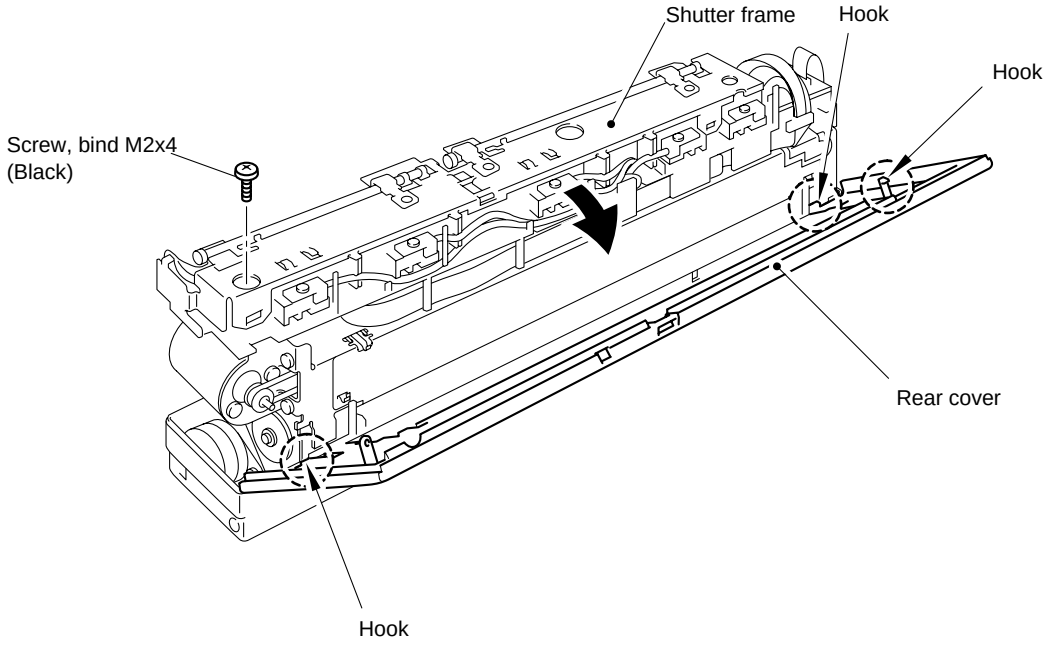


Fig. 3.6

4.3 Head PCB ASSY

<Disassembly>

(1) Unlock and remove the Head FFC cable (the other end is connected to the Main PCB ASSY) from the connector on the Head PCB ASSY.

(2) Unlock and remove the four Head FPC cables from the connectors one at a time.

(3) Remove the Cartridge sensor connector 3P from the connector on the Head PCB ASSY.

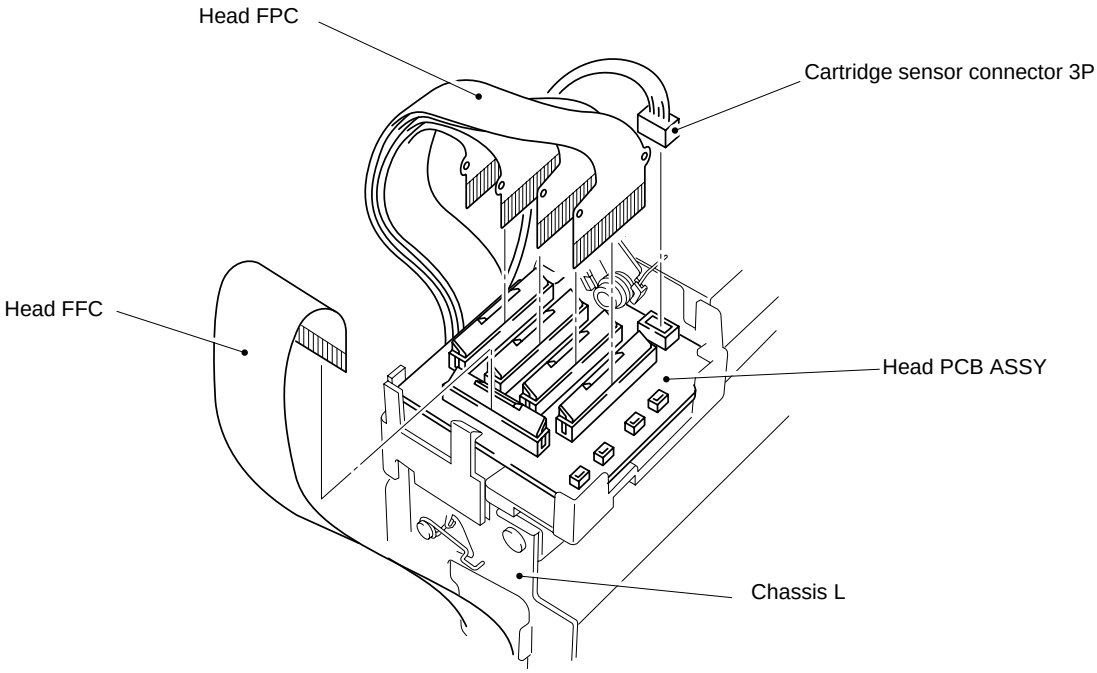


Fig. 3.7

(4) Lifting the outer edge of the PCB, remove the Head PCB ASSY while pulling the hook securing the Head PCB ASSY outwards.

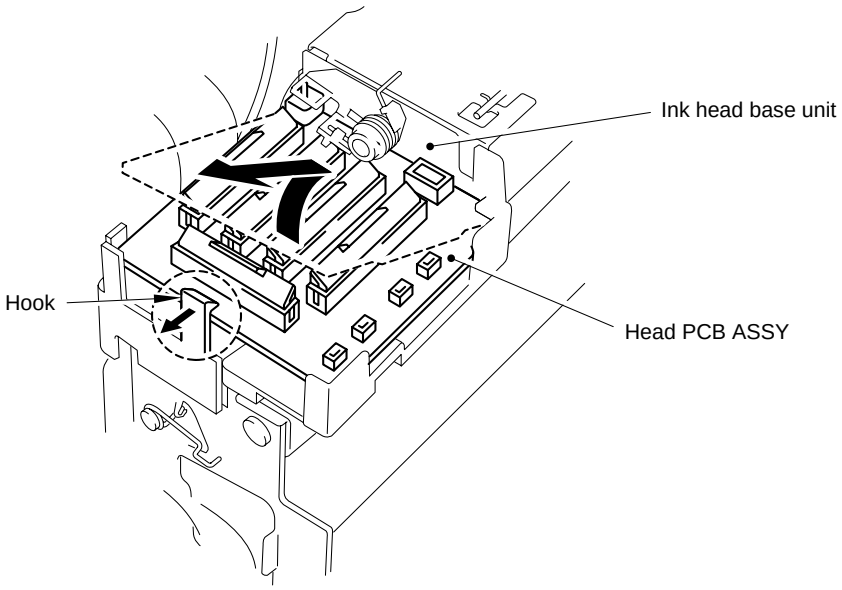


Fig. 3.8

(5) Remove the Cover sensor actuator from the Ink head base unit.

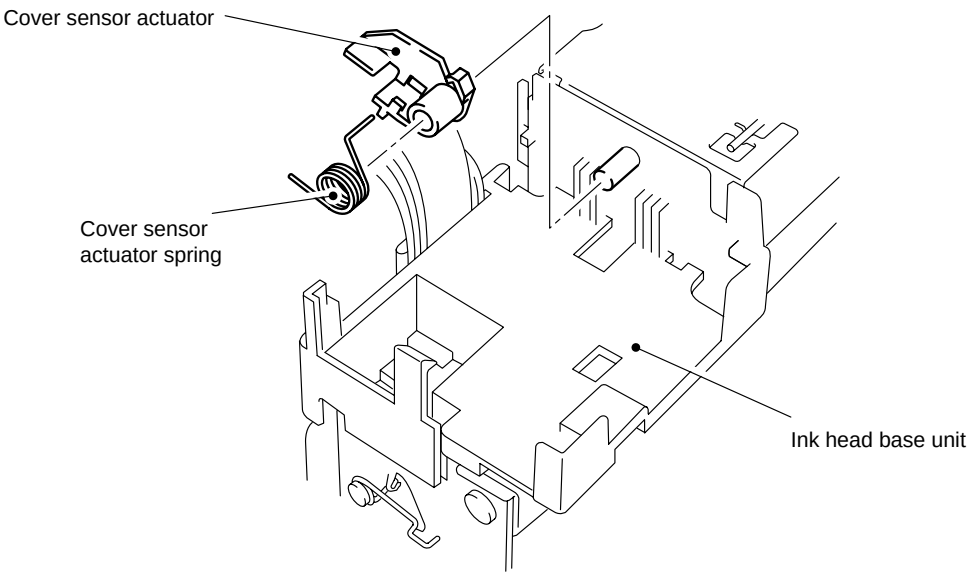


Fig. 3.9

4.4 Ink Head Base unit, Print Head

Note: ***After replacing Print head, adjustment is need by using the Service software tool.***

<Disassembly>

(1) Remove the screw securing the Waste ink needle. (It is fitted nearest to the removed Head PCB ASSY position.) Release the Waste ink tube from the three hooks.

Note: *Use caution when handling the Waste ink needle; it may cause you injury.*

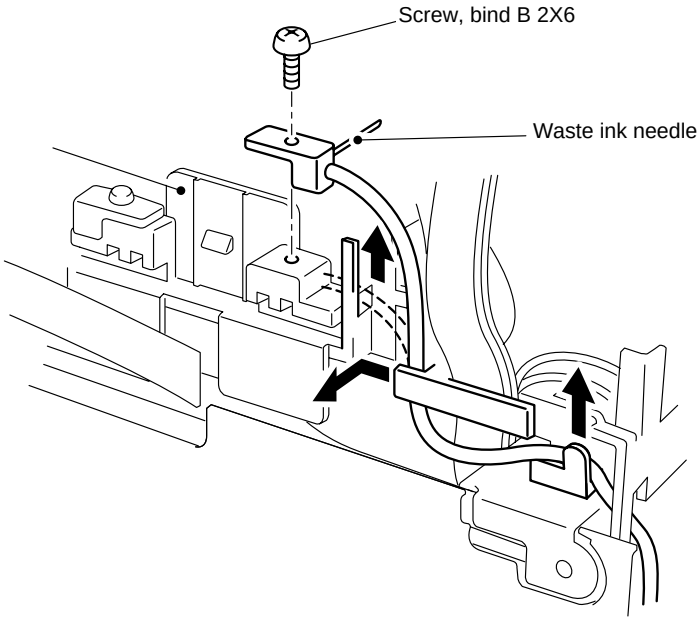


Fig. 3.10

(2) Remove the two screws securing the Ink head base unit. Remove the Ink head base unit from the Chassis center ASSY by lifting the left hand end of the Ink head base unit then moving it to the left to release the hooks at the right hand end.

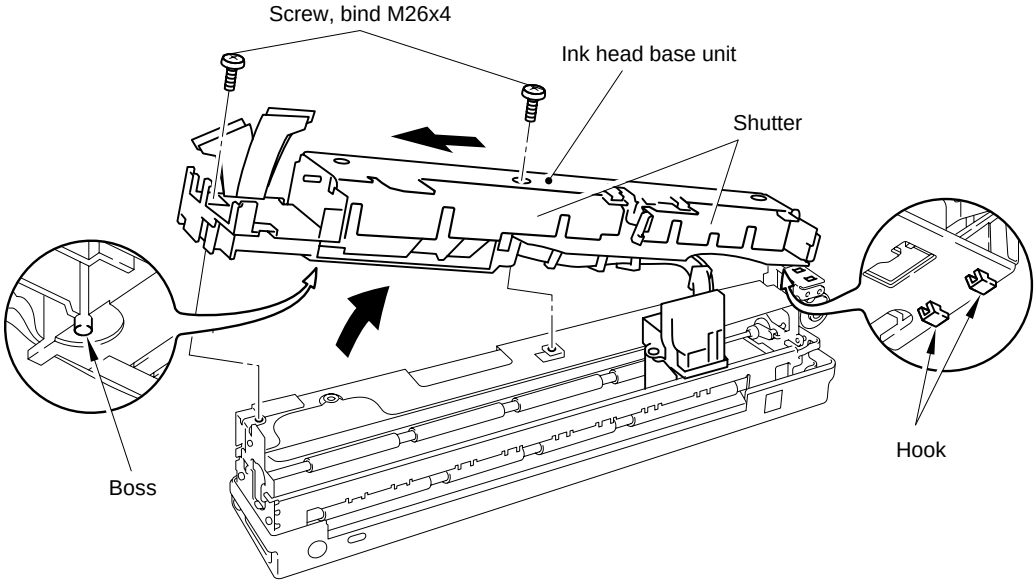


Fig. 3.11

<Reassembly>

Note: *When replacing the Ink head base unit, be sure to remove the four protective parts fitted on the Ink needles, which are positioned behind the shutters.*

(3) Supporting the Ink head base unit, move the Carriage ASSY to the position indicated in the illustration below. Remove the two screws, then remove the Print head and the Ink head base unit together from the Carriage ASSY.

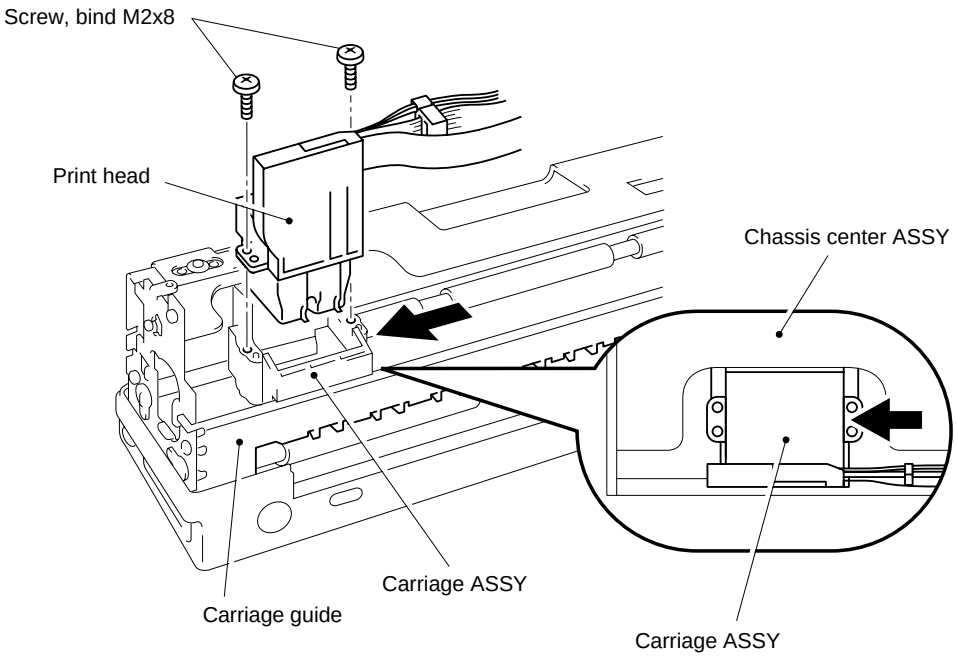
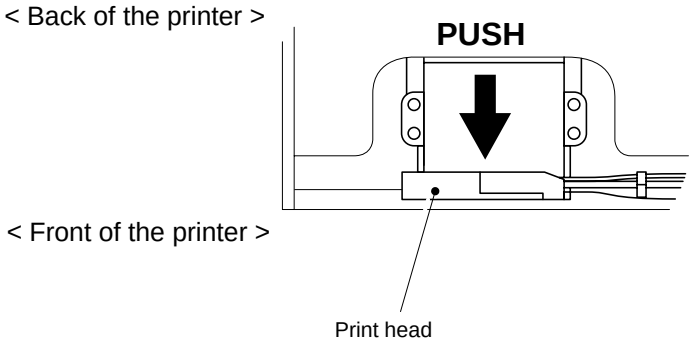


Fig. 3.12

<Reassembly>

Note: *Be sure to slightly push the Print head towards the front of the printer, when securing the Print head with the screws.*



(4) Insert the Print head into the Nozzle protector.

Note: *Check that the Print head is fitted correctly in the Nozzle protector.*

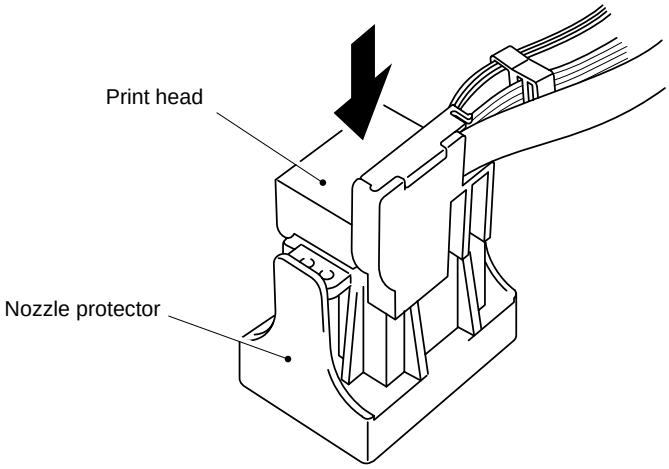


Fig. 3.13

<Reassembly>

Note: *Check that the Carriage guide is fitted in the groove of the Carriage ASSY. Refer to Fig. 3.12.*

4.5 Bottom Cover

<Disassembly>

(1) Remove the two screws from the Interface connector using a precision screwdriver.

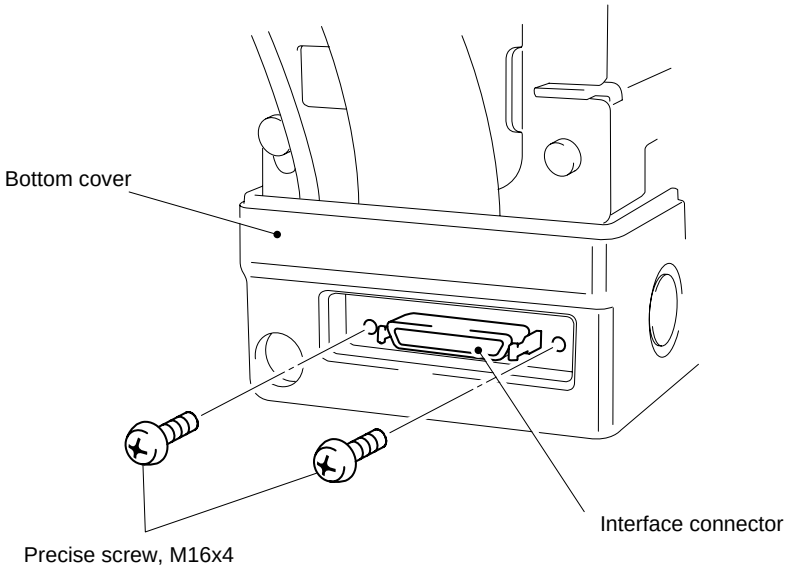


Fig. 3.14

(2) Turn the printer upside down. Remove the four screws.

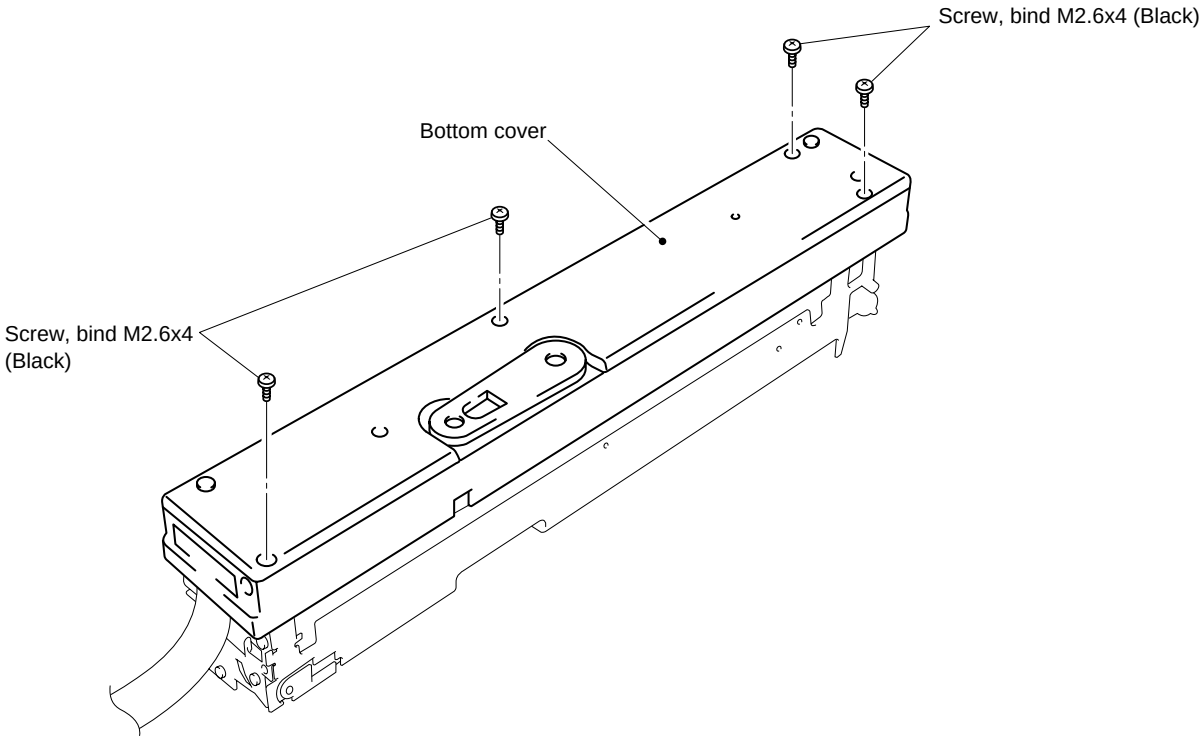


Fig. 3.15

(3) Lift up the Bottom cover. Turn it over, then place it down next to the Paper feed frame ASSY

Note: *DO NOT apply any stress to the harnesses connected to the Main PCB ASSY.*

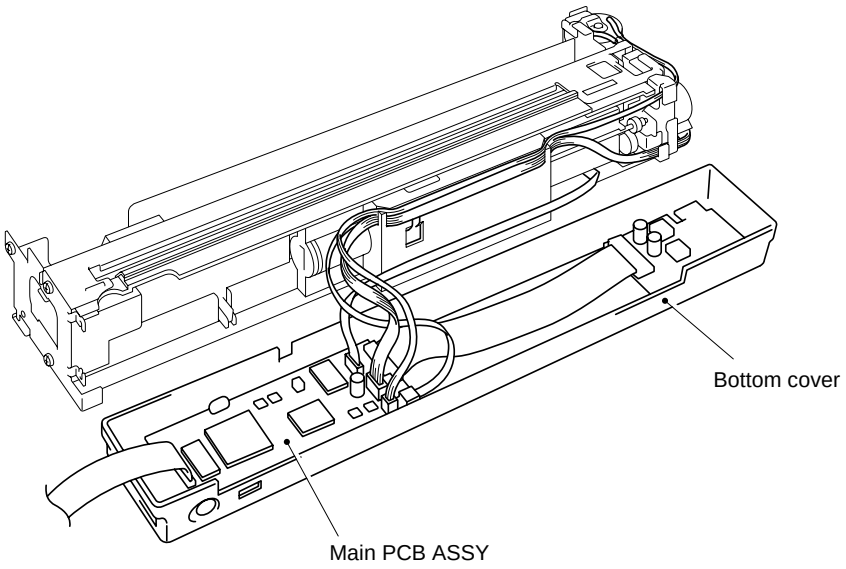


Fig. 3.16

(4) Remove the Carriage motor harness 2P, Paper feed motor harness 4P, Maintenance sensor FFC 3P, and Encoder FFC 5P from the Main PCB ASSY.

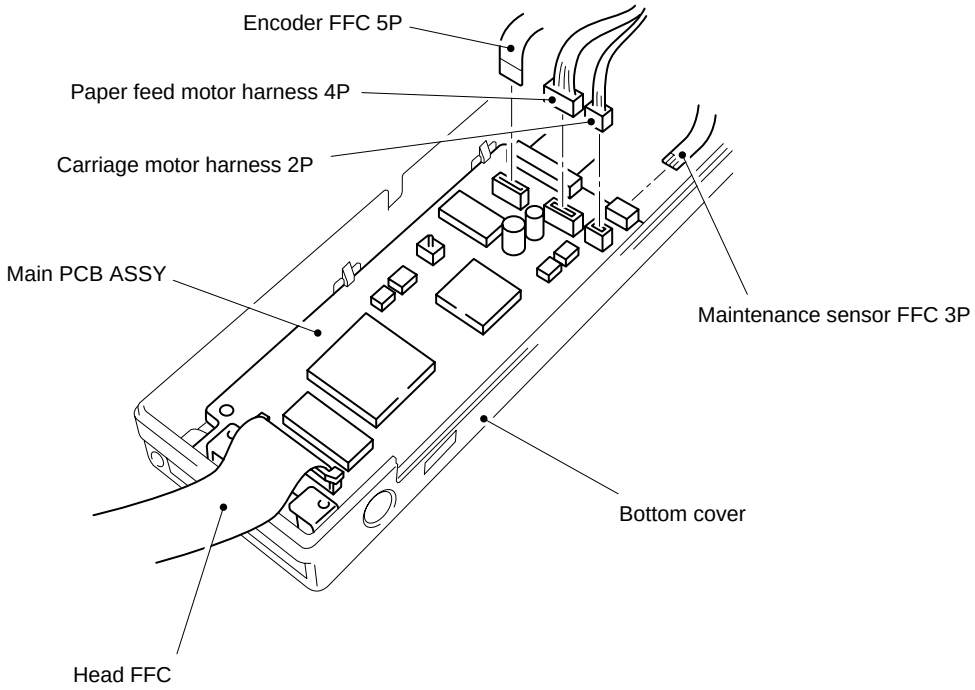


Fig. 3.17

<Reassembly>

Note*:* *When attaching the Bottom cover to the printer, check that the Carriage motor harness 2P is not caught between the Chassis R and the Bottom cover.*

4.6 Main PCB ASSY, Power Supply PCB ASSY

Note: After replacing Main PCB ASSY, adjustment is need by using the Service software tool.

<Disassembly>

(1) Remove the Power supply FFC cable (which is connecting the Main PCB ASSY and Power supply PCB ASSY) from the connector on the Main PCB ASSY.

(2) Remove the Main PCB ASSY from the Bottom cover by releasing the four hooks.

(3) Release the lock of the Head FFC cable connector (which is connecting the Main PCB ASSY and Head PCB ASSY), then remove it from the connector on the Main PCB ASSY.

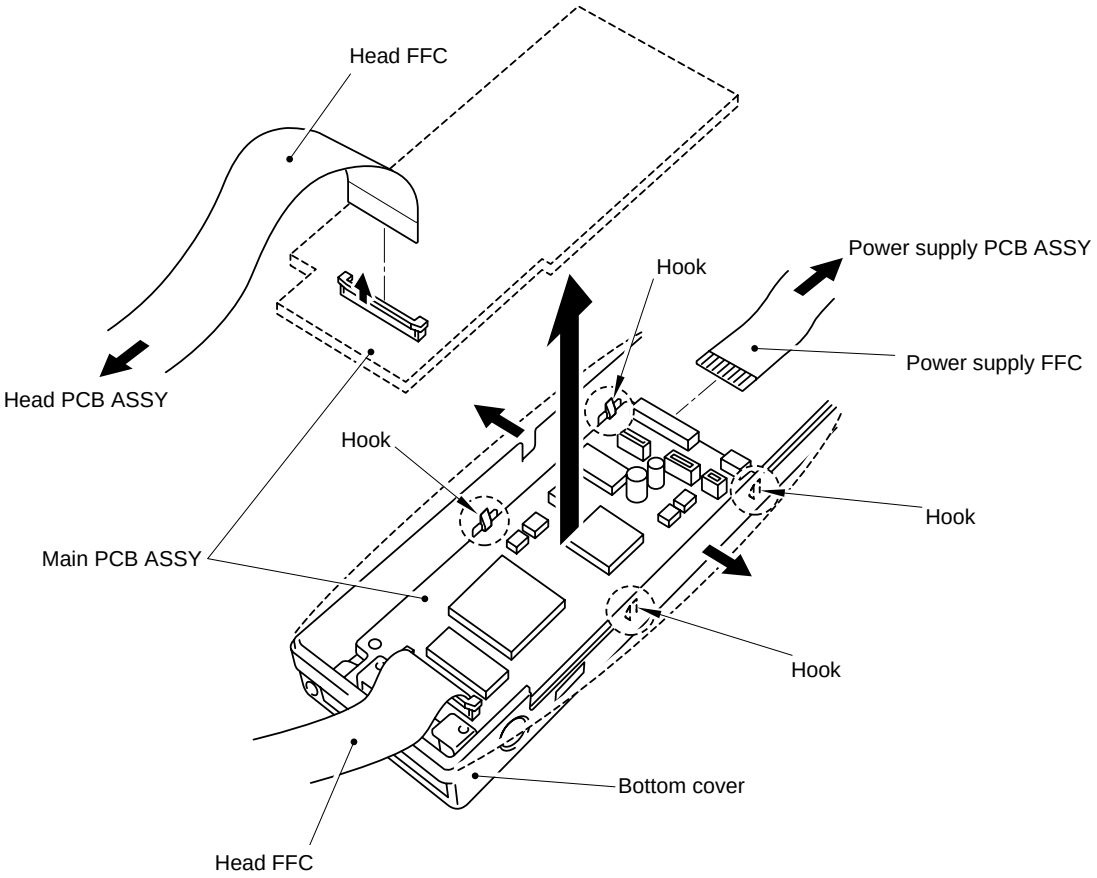


Fig. 3.18

(4) Remove the Power supply PCB ASSY from the Bottom cover by releasing the four hooks.

(5) Unlock and remove the Power supply FFC from the connector on the Power supply PCB ASSY.

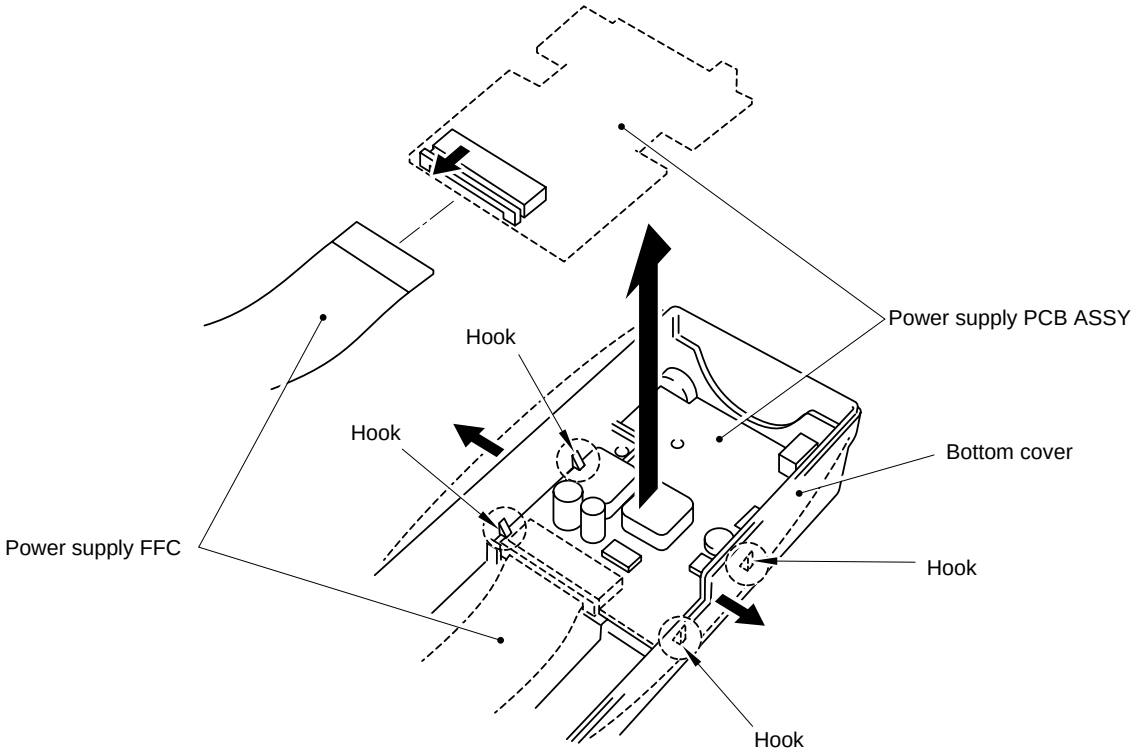


Fig. 3.19

<Reassembly>

Note: *Insert the Power supply FFC into the connector on the Main PCB ASSY, with the terminals facing upwards.*
After inserting the Head FFC into the connector on the Main PCB ASSY, lock the connector.

4.7 Paper Feed Motor ASSY

<Disassembly>

(1) Remove the Carriage motor harness 2P and Paper feed motor harness 4P from the two hooks of the Purge unit ASSY, then carefully unstick the harnesses from the double-sided adhesive tape.

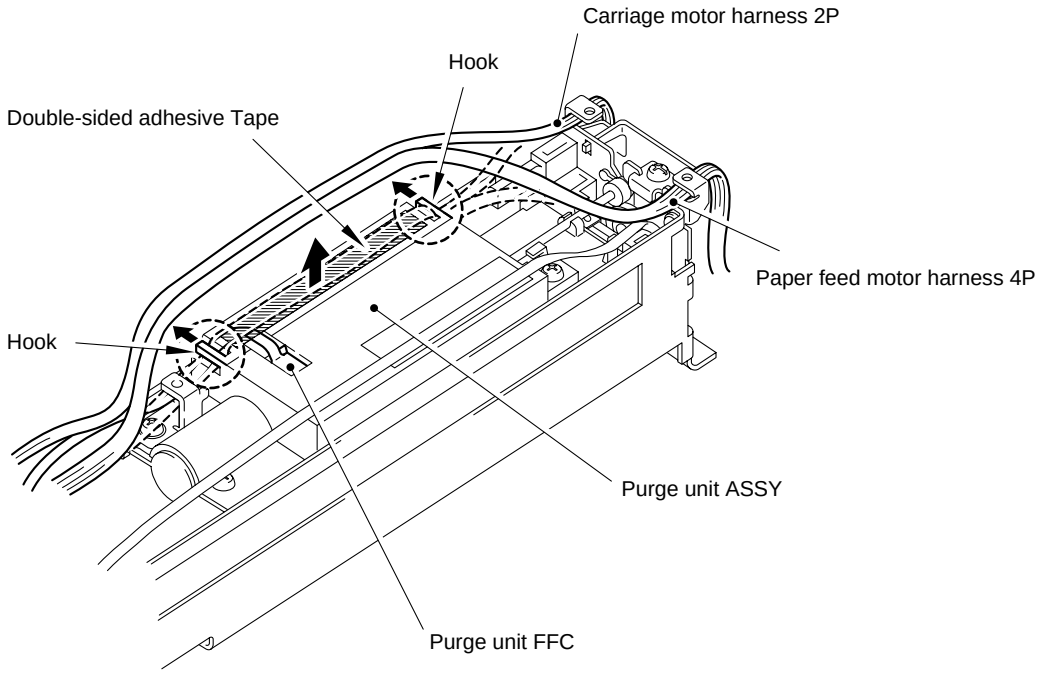


Fig. 3.20

<Reassembly>

Note: *After attaching the Carriage motor harness 2P and Paper feed motor harness 4P to the double-sided adhesive tape, secure the Purge unit FFC cable with the hook .*

Attach the Carriage motor harness 2P and Paper feed motor harness 4P to the double-sided adhesive tape so that they DO NOT overlap each other. DO NOT fold the Purge unit FFC cable.

When attaching the Bottom cover to the printer, check that the Carriage motor harness 2P is not caught between the Chassis R and the Bottom cover.

(2) Remove the two screws, then remove the Paper feed motor ASSY from the Paper feed motor holder.

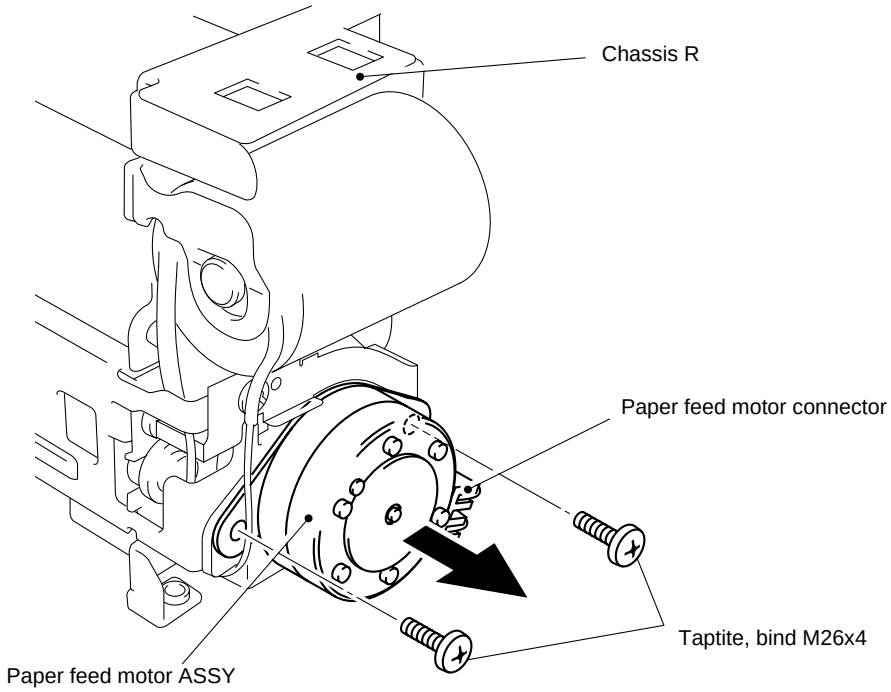


Fig. 3.21

<Reassembly>

Note: *Mount the Paper feed motor ASSY on the Paper feed motor holder, with the Paper feed motor connector to the right.*

(3) Remove the Paper feed motor ASSY from the Paper feed motor holder.

4.8 Purge Unit ASSY, Flushing Form R1 and R2

<Disassembly>

(1) Unstick the Encoder FFC cable 5P from the double-sided adhesive tape attached to the Purge unit ASSY.

(2) Remove the four screws and the Support plate from the Purge unit ASSY.

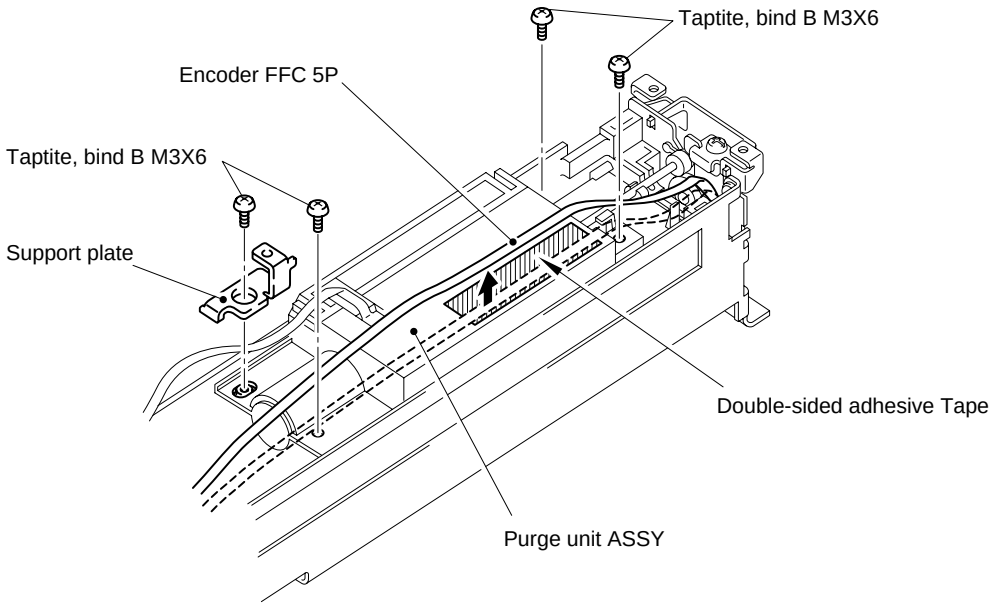


Fig. 3.22

(3) Remove the Waste ink tube from the two hooks.

Caution: *Use caution when handling the Waste ink tube; the Waste ink needle at the end of the Waste ink tube may cause you injury.*

(4) While lifting the Purge unit ASSY, remove the Maintenance gear 10 from the Bearing in the Chassis R.

Note: *Place the removed Purge unit ASSY with the Waste ink absorber face up. Use caution when handling the Purge unit ASSY to prevent ink leakage.*

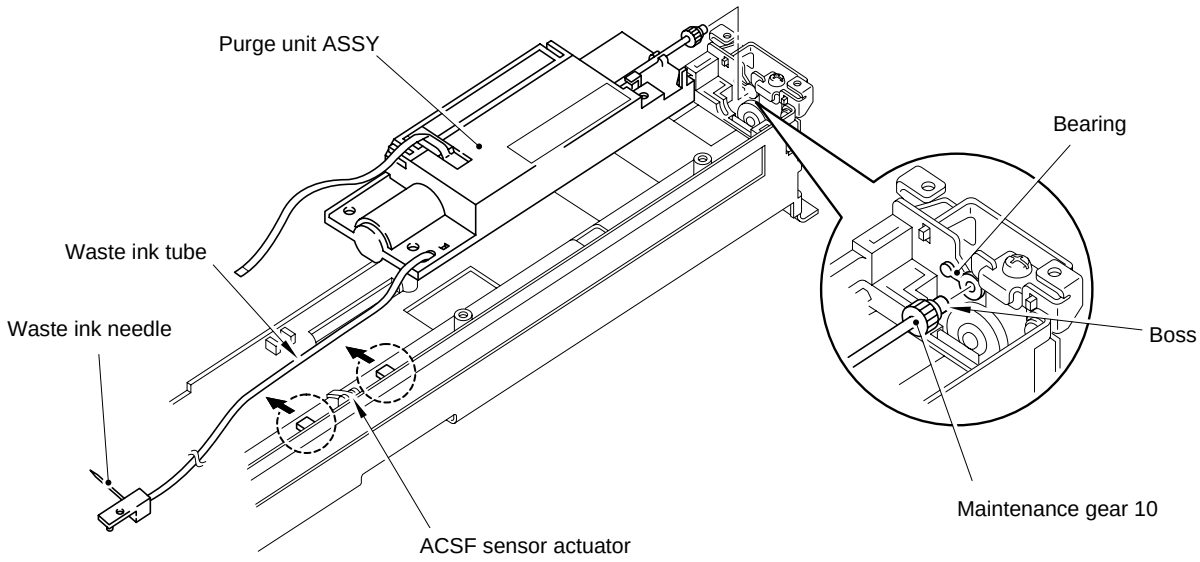


Fig. 3.23

<Reassembly>

Important: *Check that the Waste ink tube is fitted correctly in the guides and goes into the hole on the Purge unit ASSY*

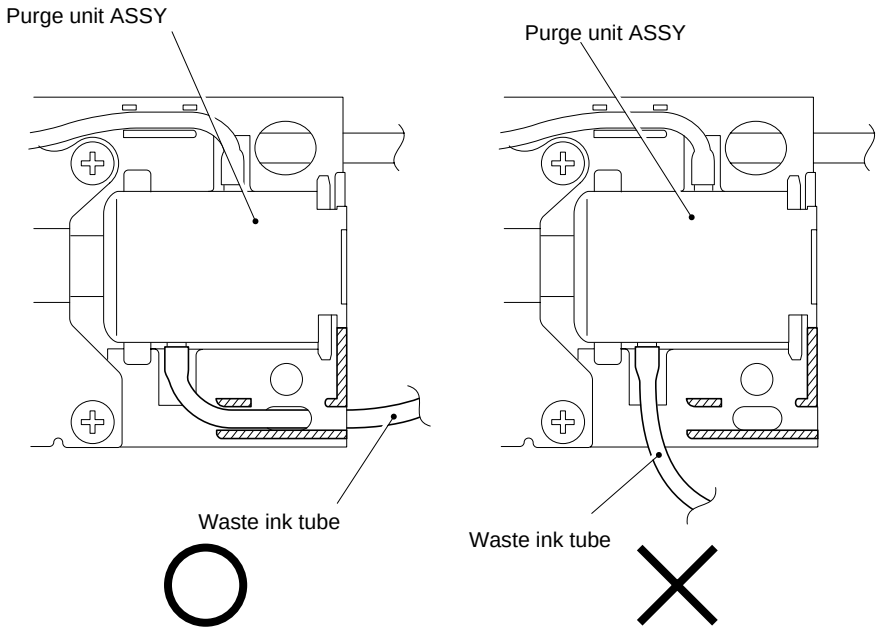
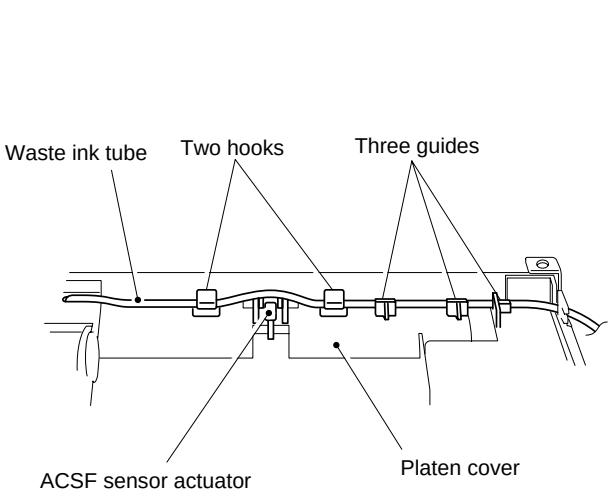
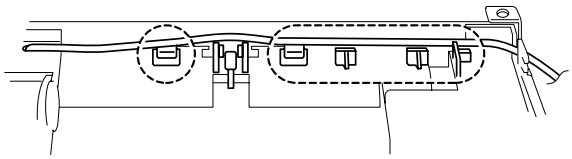


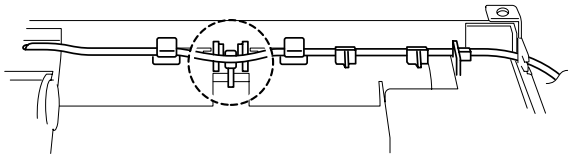
Fig. 3.25

Important: *Check that the Waste ink tube is fitted correctly into the three guides and two hooks on the Platen cover.*

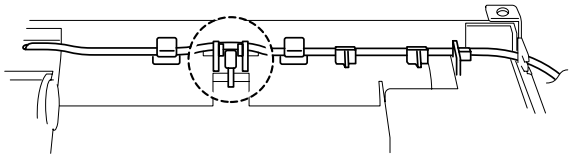




The Waste ink tube is not fitted in any of the guides and hooks.



The Waste ink tube is across the ACSF sensor actuator.



The Waste ink tube is caught between the Platen cover and Chassis center ASSY.

Fig. 3.26

Important: *Before reassembling the Purge unit ASSY to the Platen cover, be sure to;*
- *Align the notches of the Purge cam and Purge unit frame.*
- *Fit the protrusion of the Maintenance gear 10 in the notch of the Maintenance idle gear 20.*
- *Insert the boss of the Maintenance gear 10 into the bearing of the Chassis R. (Refer to Fig. 3.23.)*

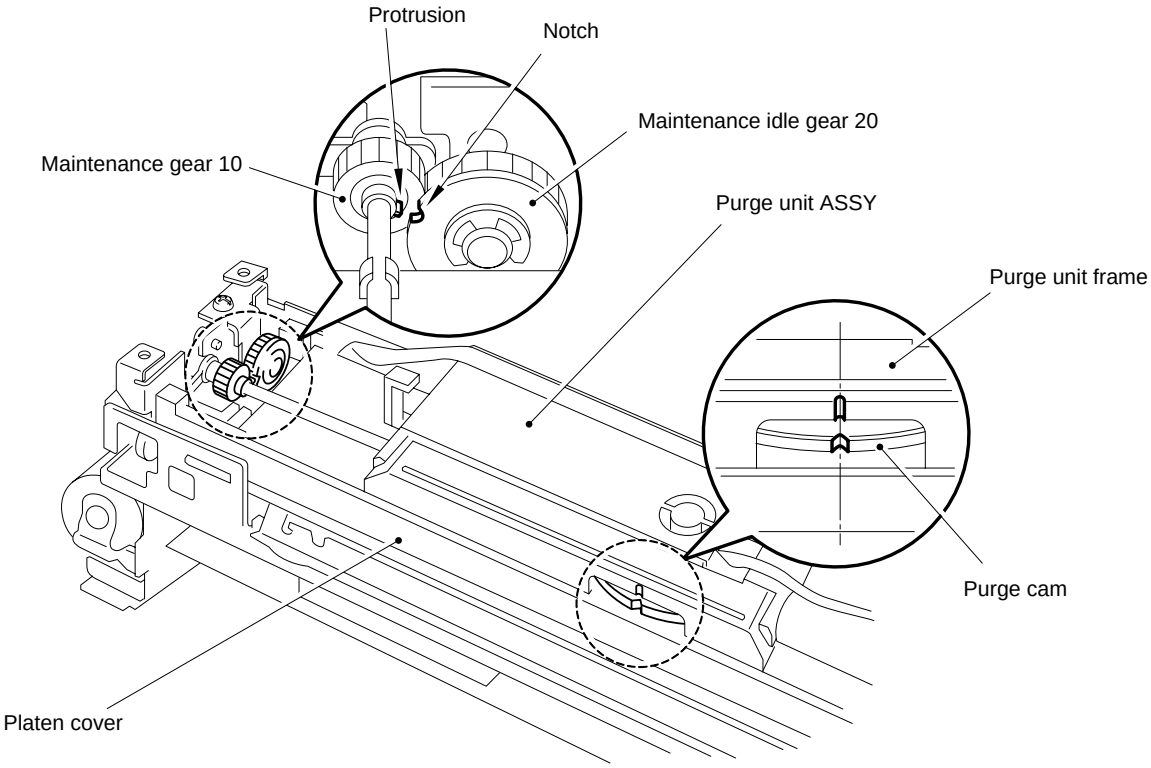


Fig. 3.27

4.8.1 Flushing Foam R1 and R2

<Disassembly>

(1) Remove the Flushing foam R1 and R2 from the Purge unit ASSY.

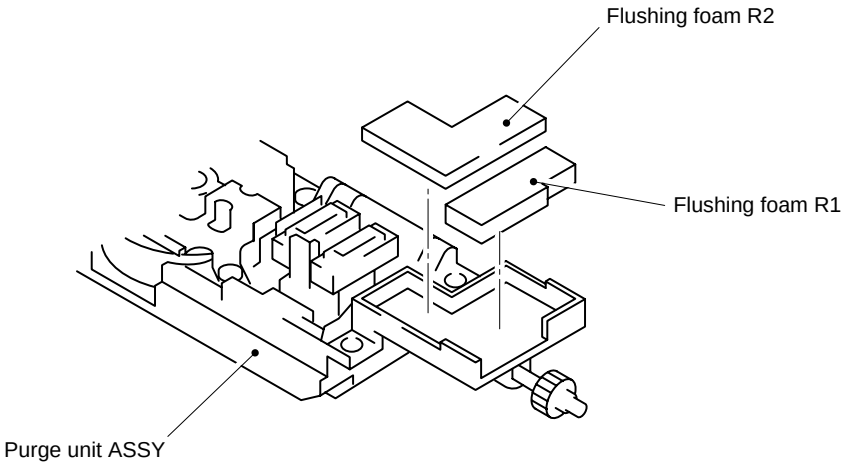


Fig. 3.24

<Reassembly>

Note: *When you replace the Flushing foam R1 and R2, the Flushing foam L1 and L2 must be replaced too. After replacing, the ink counter for these forms must be reset by using the Service software tool.*

4.9 Paper Feed Frame ASSY

Note: ***The carriage speed adjustment must be done when the Paper feed frame ASSY is replaced. See 3.2.5 Carriage Control Parameter Adjustment Mode in Chapter 4.***

4.9.1 Paper Feed Motor Holder

<Disassembly>

(1) Remove the screw, then the Earth plate and Paper feed motor holder from the Chassis R.

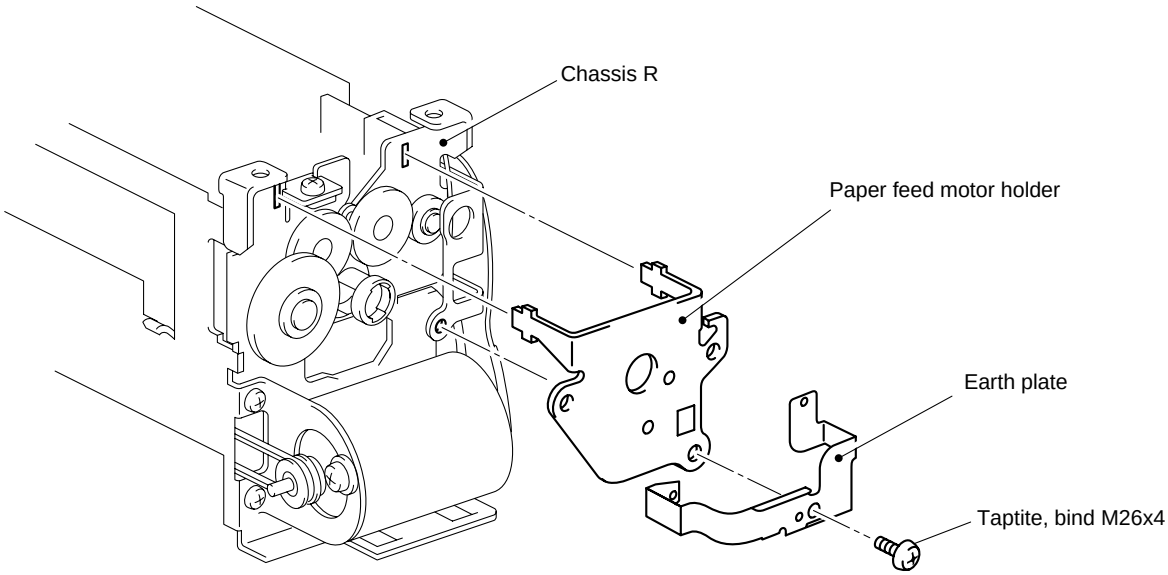


Fig. 3.28

Note: *The Release plate, Gear 10/30, and Gear 10/20 are assembled on the Paper feed motor holder. Handle the Paper feed motor holder assembly carefully so as not to lose these three parts.*

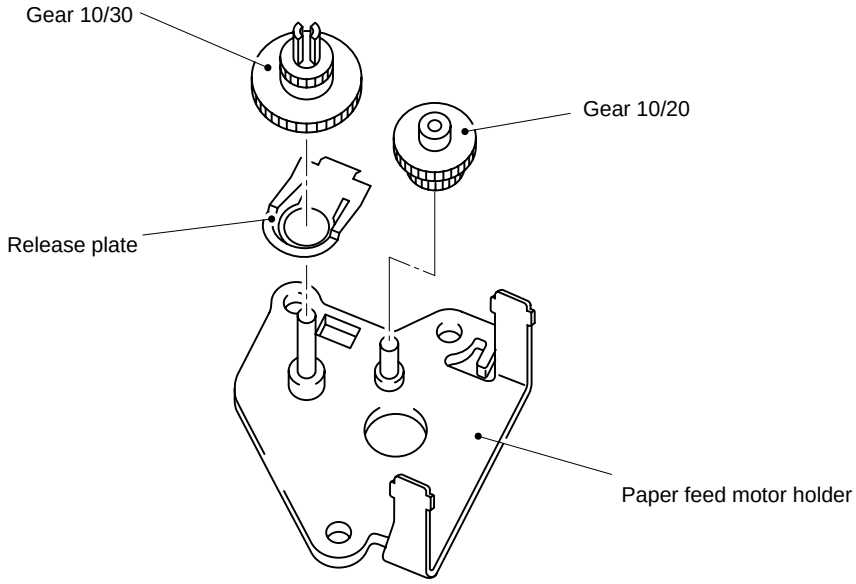


Fig. 3.29

4.9.2 Arm Stopper

<Disassembly>

(1) Remove the Arm stopper from the Connection switching arms.

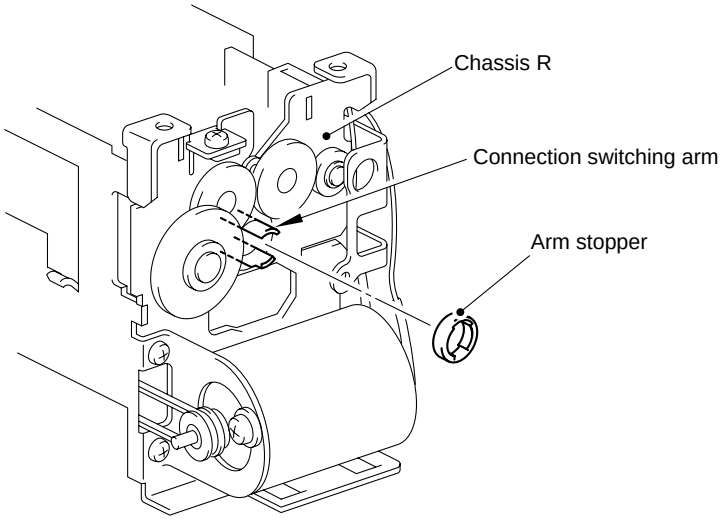


Fig. 3.30

<Reassembly>

Note: *Fit the Arm stopper over the Connection switching arms, with its wider opening to the left.*

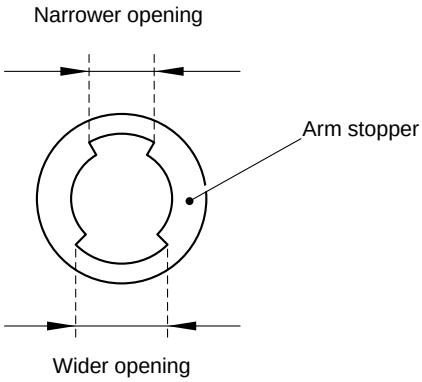


Fig. 3.31

4.9.3 Paper Eject Idle Gear 25

<Disassembly>

(1) Remove the Paper eject idle gear 25 from the shaft on the Chassis R.

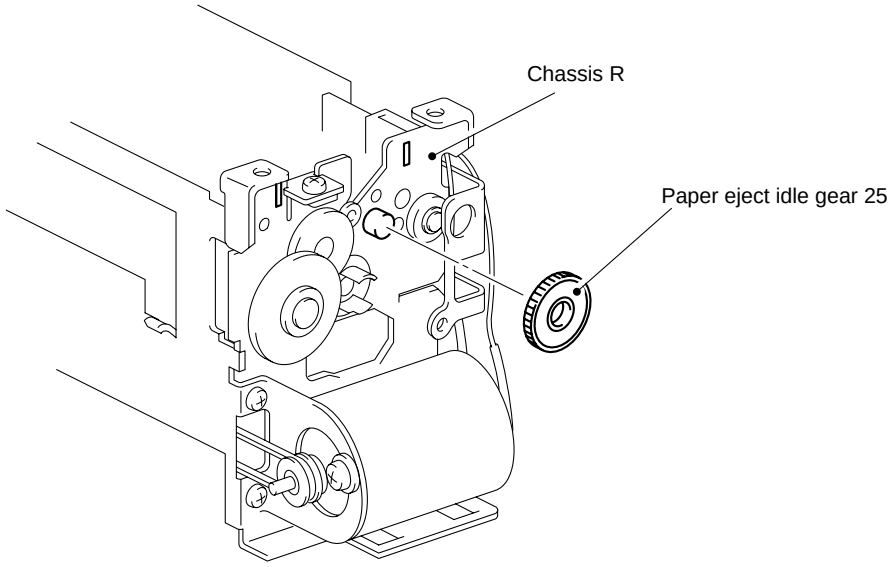


Fig. 3.32

4.9.4 Carriage Guide

Note: The carriage speed auto-adjustment must be done when the Carriage guide is replaced. See 3.2.5 Carriage Control Parameter Adjustment Mode in Chapter 4.

<Disassembly>

(1) Remove the screws from Chassis L and Chassis R.

(2) Remove the Carriage guide.

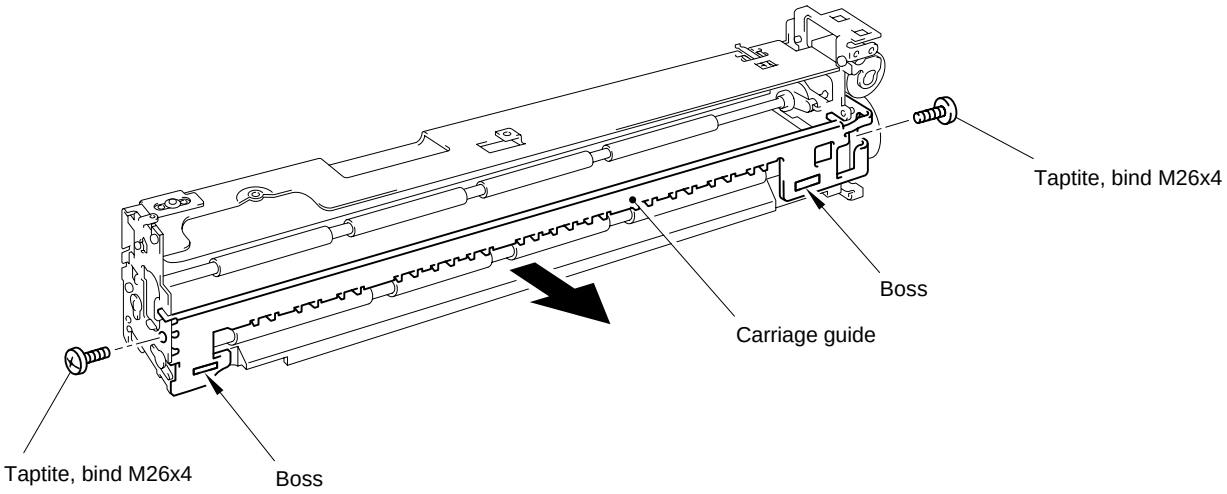


Fig. 3.33

<Reassembly>

Note: *Fit the square holes of the Carriage guide onto the Platen cover, then secure it using the two screws.*

(3) Release the two hooks securing the Star wheel roller ASSY to the Carriage guide, by rotating the Star wheel roller ASSY through 45 degrees.

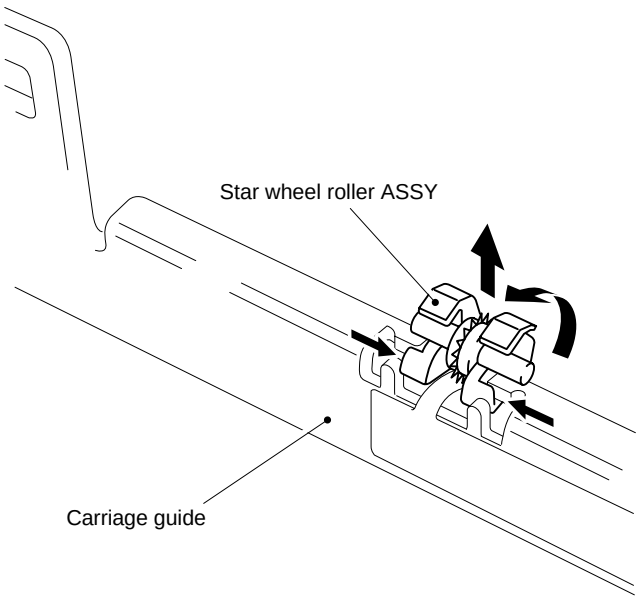


Fig. 3.34

4.9.5 Paper Eject Roller ASSY

Note: ***After replacing Paper eject roller ASSY, adjustment is need by using the Service software tool.***

<Disassembly>

(1) Pull the Bearing L forward to 225 degrees in order to remove the Paper eject roller ASSY from the Chassis L.

(2) Pull the Bearing R to 225 degrees and remove the Paper eject roller ASSY from the Chassis R and the Chassis L.

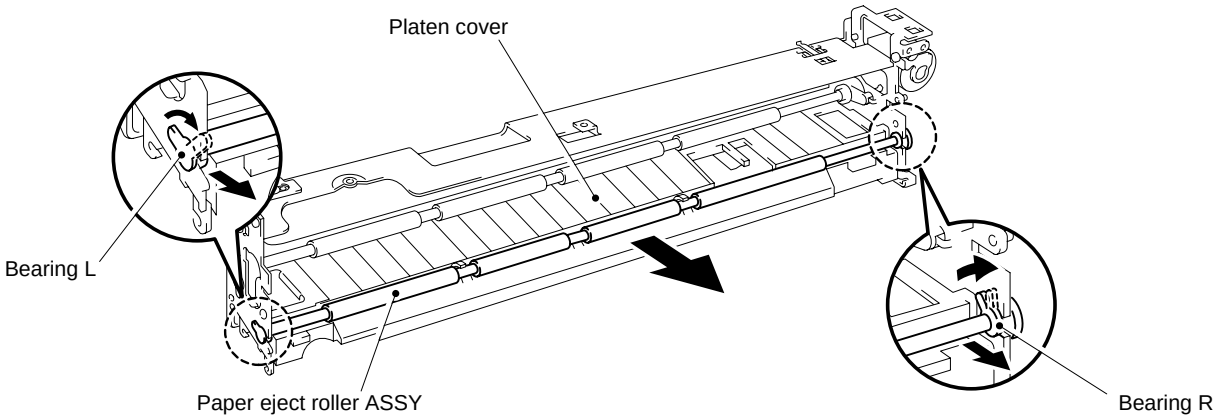


Fig. 3.35

<Reassembly>

(1) Fit the Bearing L in the Chassis L.

(2) Insert the left end of the Paper eject roller ASSY into the Bearing L. Fit the Bearing R to the right end of the Paper eject roller ASSY. Insert the right end of the Bearing R into the Chassis R.

(3) Turn the Bearings L and R until the Paper eject roller ASSY is secured.

4.9.6 Platen Cover, Flushing Foam L1 and L2

<Disassembly>

(1) Remove the Paper eject sensor actuator from the Platen cover, taking care not to damage the two hooks holding the actuator.

Caution: *Use caution when handling the thin, metal actuator; its sharp edges may hurt you.*

Note: *DO NOT bend the Paper eject sensor actuator; it is thin and care is needed to avoid damaging this part*

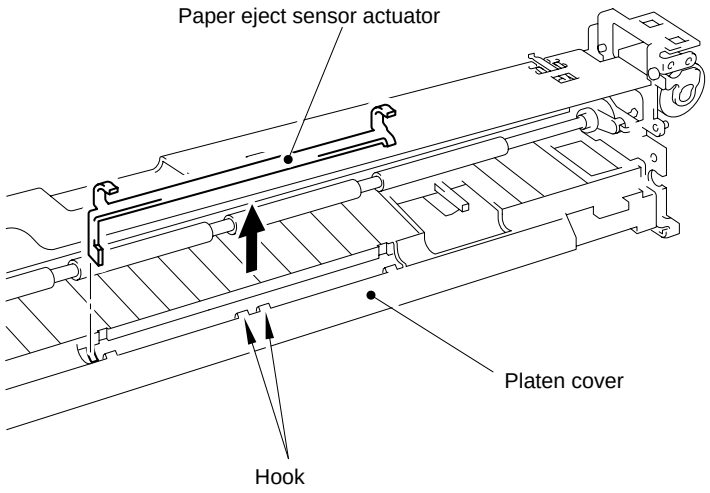


Fig. 3.36

<Reassembly>

Note: *Attach the Paper eject sensor actuator to the Platen cover so that the protrusion at the end of the Paper eject sensor actuator fits in the notch of the Platen cover.*

(2) Turn the Platen cover upside down. While releasing the catches at the right end of the Chassis center ASSY using your fingers, move the Platen cover to the left then remove it.

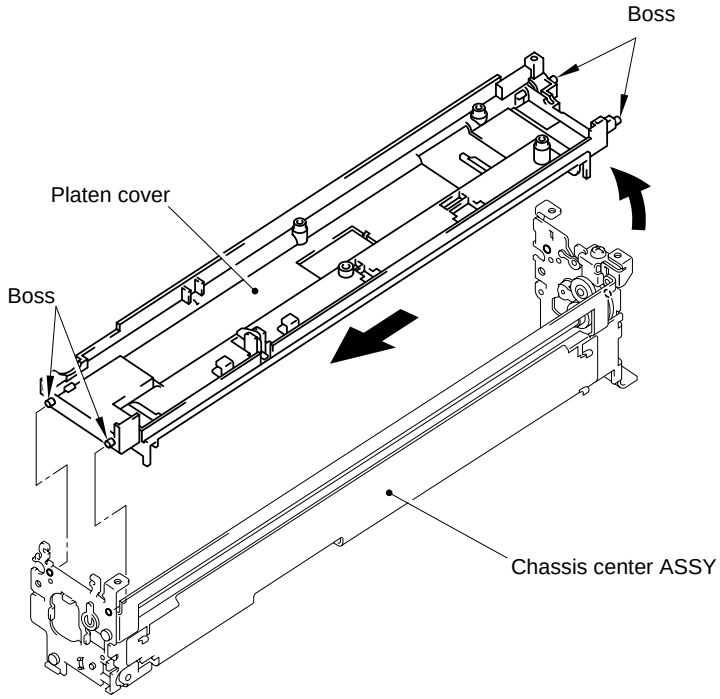


Fig. 3.37

(3) Remove the PE sensor actuator from the Platen cover.

Note: *DO NOT bend the PE sensor actuator; it is thin and care is needed to avoid damaging this part.*

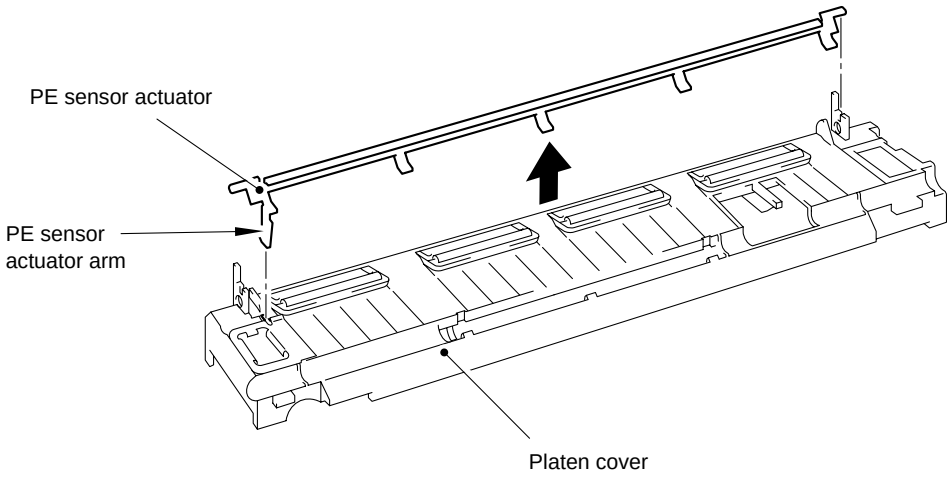


Fig. 3.38

(4) Remove the Flushing foam L case from the bottom of the Platen cover by releasing the hook .

(5) Turn the Flushing foam L case upside down, remove the Flushing foam L1 and L2 from the Flushing foam L case.

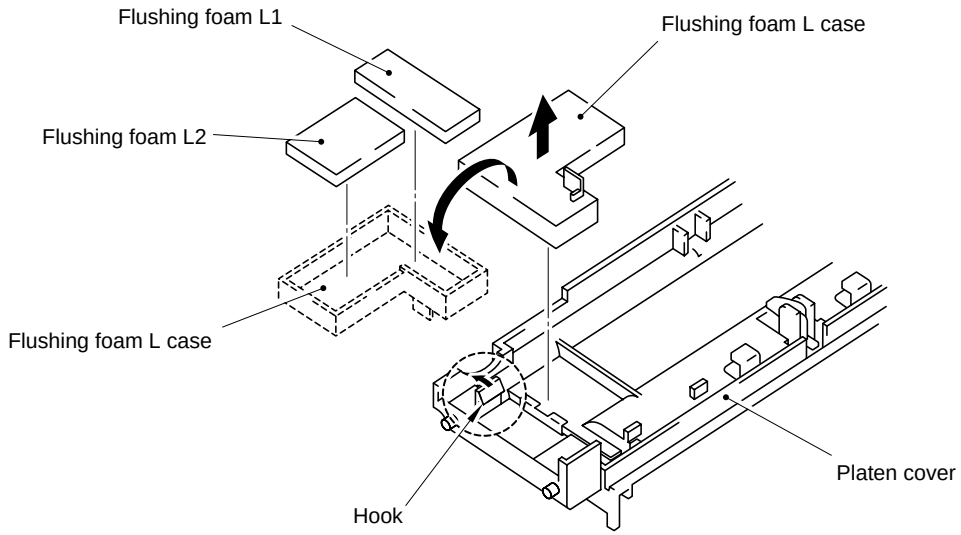


Fig. 3.39

<Reassembly>

Note: *When you replace the Flushing form L1 and L2, the Flushing form R1 and R2 must be replaced too. After replacing, the ink counter for these forms must be reset by using the Service software tool.*

Insert the PE sensor actuator arm into the hole of the Platen cover. Care not to bend the PE sensor actuator arm when attaching the Platen cover to the Chassis ASSY.

Check that the Main roller gear teeth are engaged with the gear teeth of the gear in the Gear shaft 4 calking ASSY otherwise the Platen cover will not fit correctly.

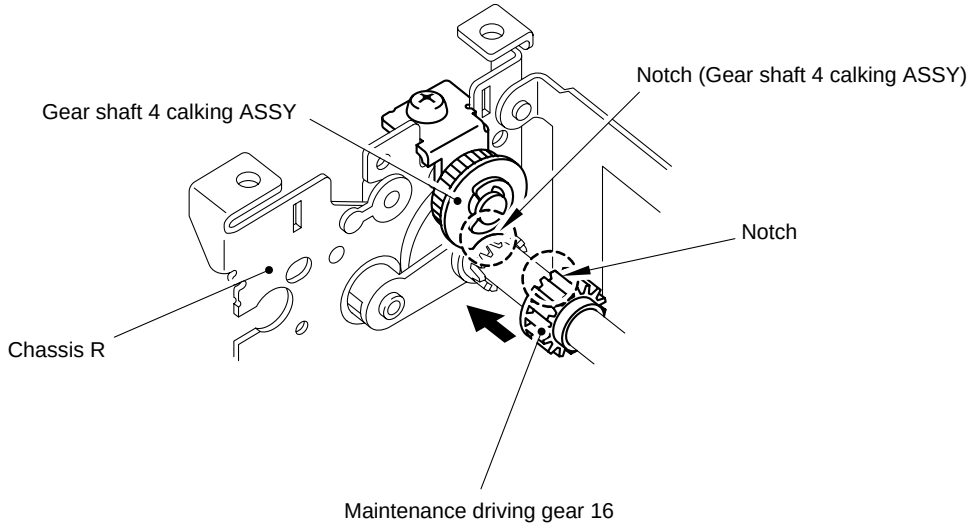


Fig. 3.40

(5) Remove the ACSF sensor actuator by spreading the hooks.

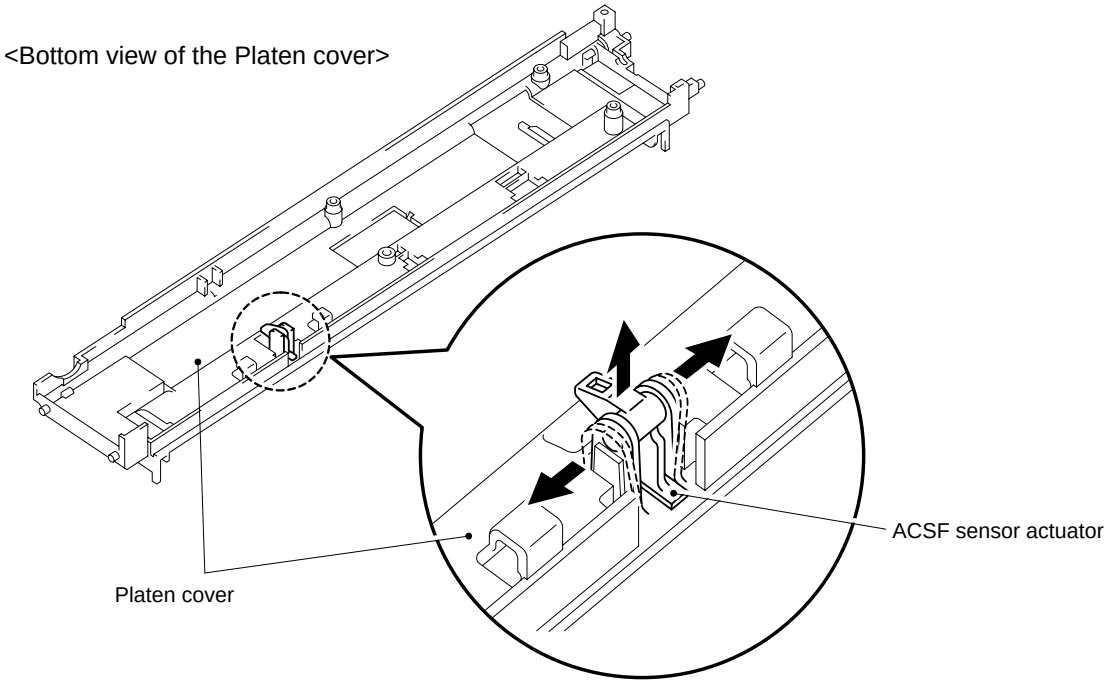


Fig. 3.41

4.9.7 Main Roller ASSY

Note: After replacing Main roller ASSY and Main roller gear 40, adjustment is need by using the Service software tool.

<Disassembly>

(1) Remove the screw, then Gear shaft 4 calking ASSY from the Chassis R.

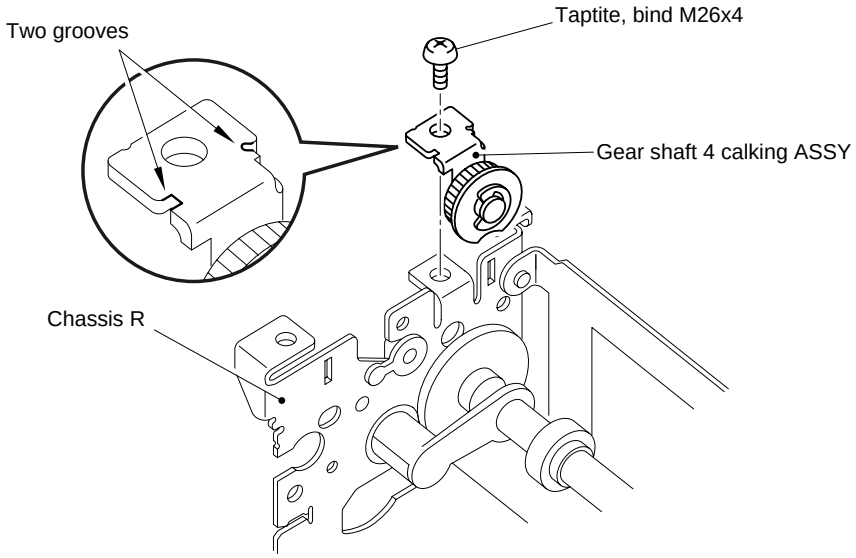


Fig. 3.42

<Reassembly>

Note: *Attach the Gear shaft 4 calking ASSY to the Chassis R, with the two grooves of the Gear shaft 4 calking ASSY fitting over the Chassis R. Secure it using the screw.*

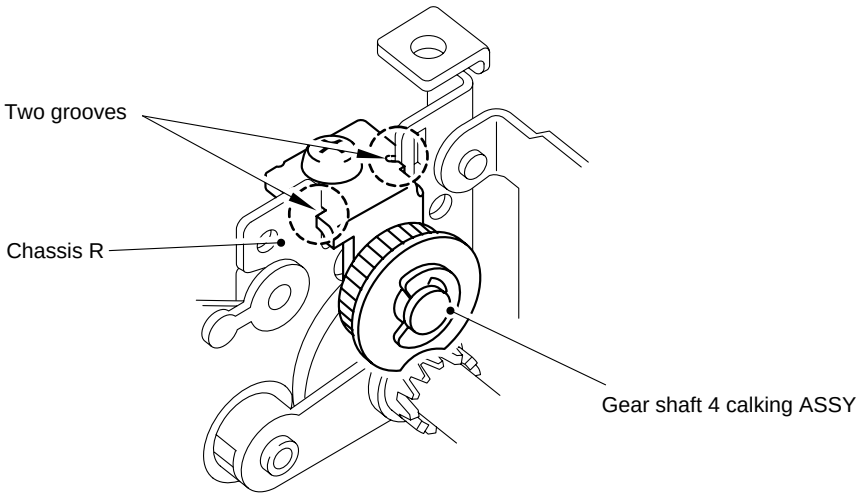


Fig. 3.43

(2) Separate the Connection switching arm from the Chassis R by pressing the end of the Connection switching arm from the other side of the Chassis R.

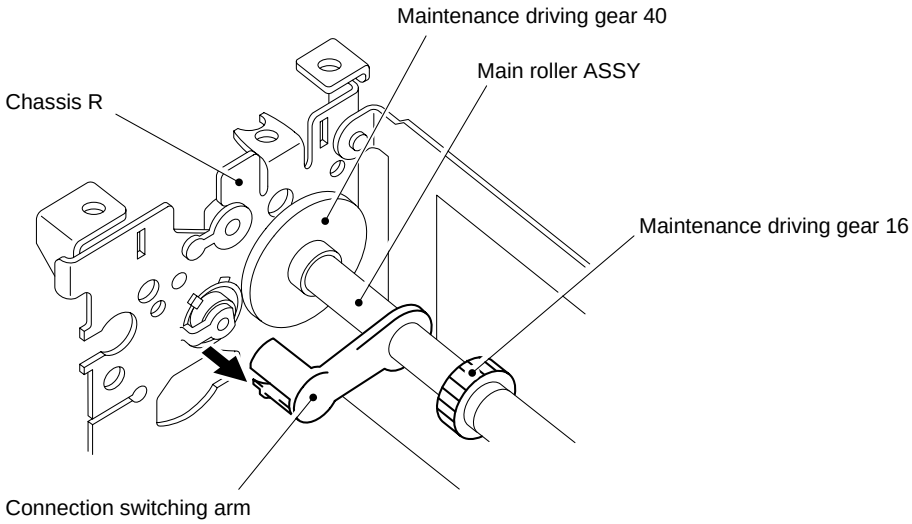


Fig. 3.44

(3) Remove the Retaining ring from the Main roller ASSY using a slotted screwdriver.
(4) Remove the Main roller gear 40 and Spring pin.
(5) Remove the Paper eject idle gear 25 from the Chassis R.

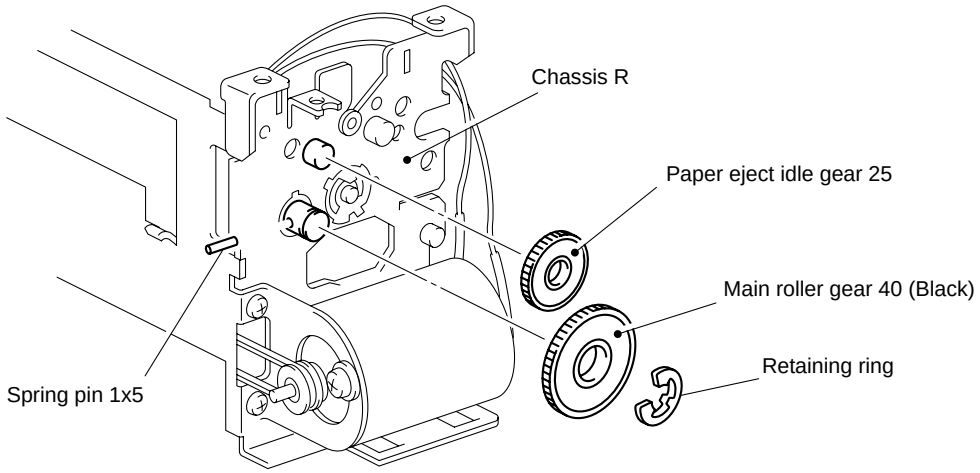


Fig. 3.45

<Reassembly>

Note: *Refit the Retaining ring to the Main roller ASSY using a slotted screwdriver, while holding the shaft end of the Main roller ASSY.*

(6) Turn the Bearing L main clockwise until its catch fits in the detented portion of the Chassis L, then remove the Bearing L main.

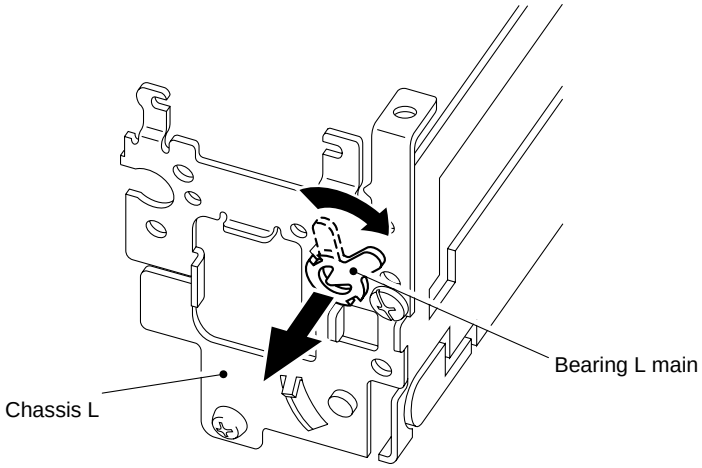


Fig. 3.46

(7) Remove the Main roller ASSY from the Chassis R, with the Bearing R main attached.

Note: *DO NOT touch the rubber portion of the Main roller ASSY.*

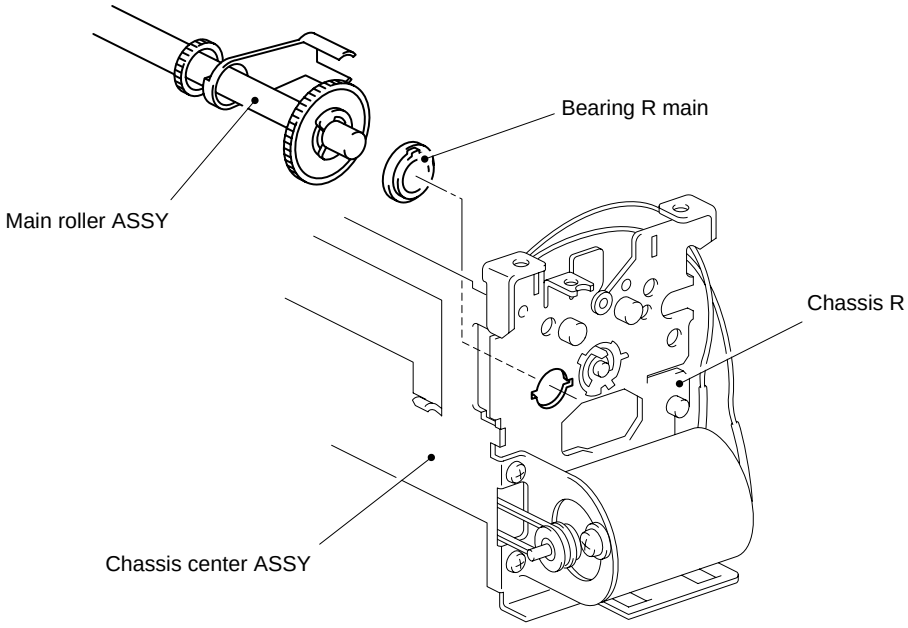


Fig. 3.47

(8) Turn the Release cam counterclockwise until its catch fits in the detented portion of the Chassis R, then remove the Release cam.

Note: *Gear 10 is assembled on the Release cam. Be careful not to lose the Gear 10.*

(9) Remove Gear 10 from the Release cam.

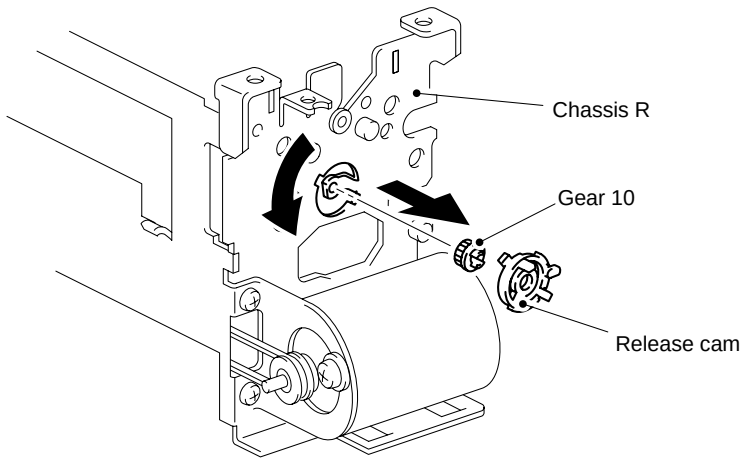


Fig. 3.48

<Reassembly>

Note: *Fit the catch of the Bearing R main in the detented portion of the Chassis R, then turn the Bearing R main.*

4.9.8 Encoder Strip

Note: ***The carriage speed adjustment must be done when Encoder strip is replaced. See 3.2.5 Carriage Control Parameter Adjustment Mode in Chapter 4.***

<Disassembly>

(1) Push the Encoder hook using a precision screwdriver to unhook the Encoder strip.

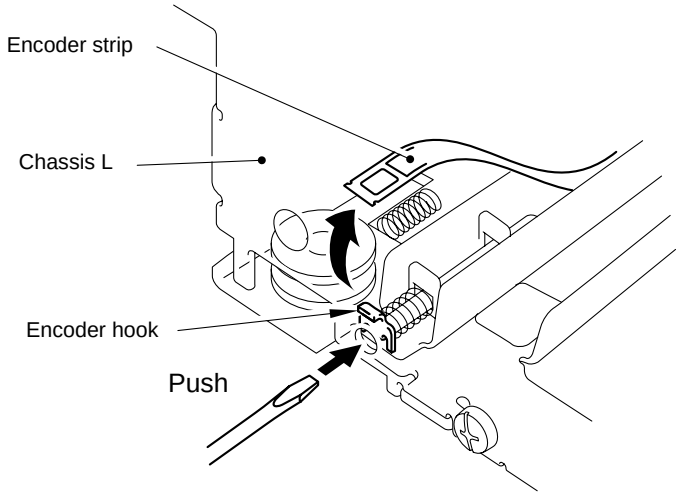


Fig. 3.49

(2) Lift up the right end of the Encoder strip using a pair of tweezers and pull it toward the right hand side to remove the Encoder strip.

Caution: *Use caution when removing the Encoder strip; its sharp edges may hurt you.*

Note: *DO NOT fold the Encoder strip.*
DO NOT touch the Encoder strip surface; if you touch the Encoder strip surface by accident, replace it.
Ensure the Encoder strip is clean prior to reassembly.

<Reassembly>

(1) Hook the right end of the Encoder strip on the Encoder hook.

(2) Run the encoder strip under the Carriage ASSY and hook the left end of the Encoder strip on the Encoder hook.

Note: *Make sure that the Encoder strip runs over the Encoder FFC cable presser foot. If it runs under the presser foot, there will be a carriage error (Service 1).*

4.10 ACSF

4.10.1 ACSF Support

<Disassembly>

(1) Remove the ACSF support from the ACSF while pulling both ends of the ACSF support outwards.

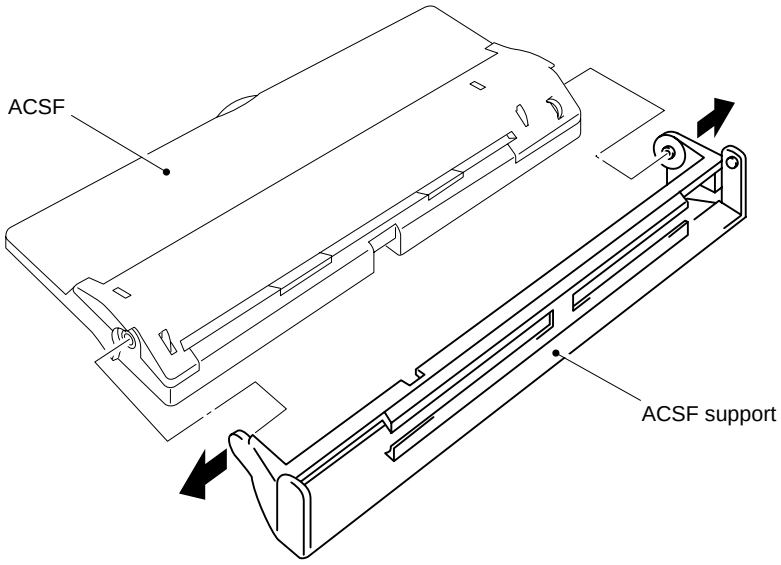


Fig. 3.50

4.10.2 Pick-Up Roller Cover

<Disassembly>

(1) Remove the Pick-up roller cover from the ACSF by releasing the two hooks.

Note: *Use a slotted screwdriver to release the two hooks.*

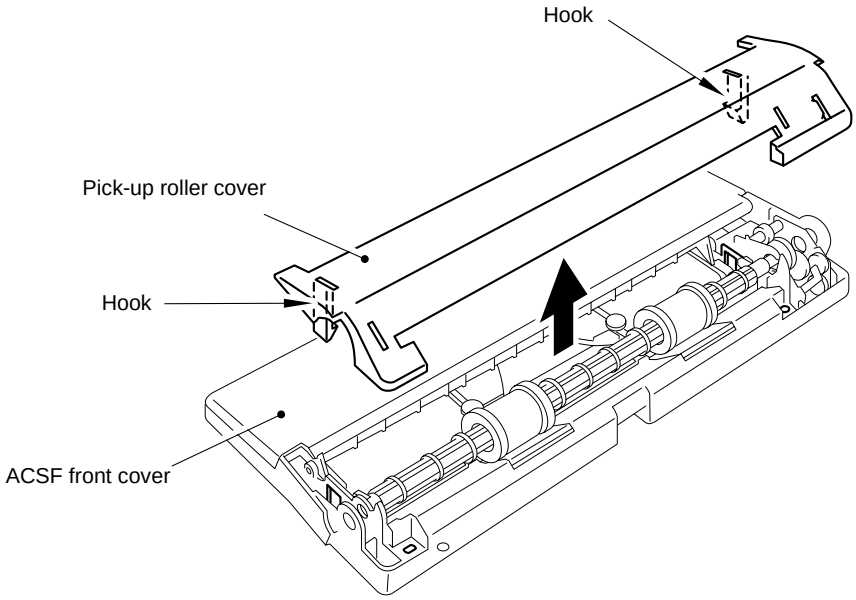


Fig. 3.50

4.10.3 ACSF Front Cover, Pick-Up Roller ASSY, Gear Frame R

<Disassembly>

(1) Remove the ACSF front cover from the ACSF.

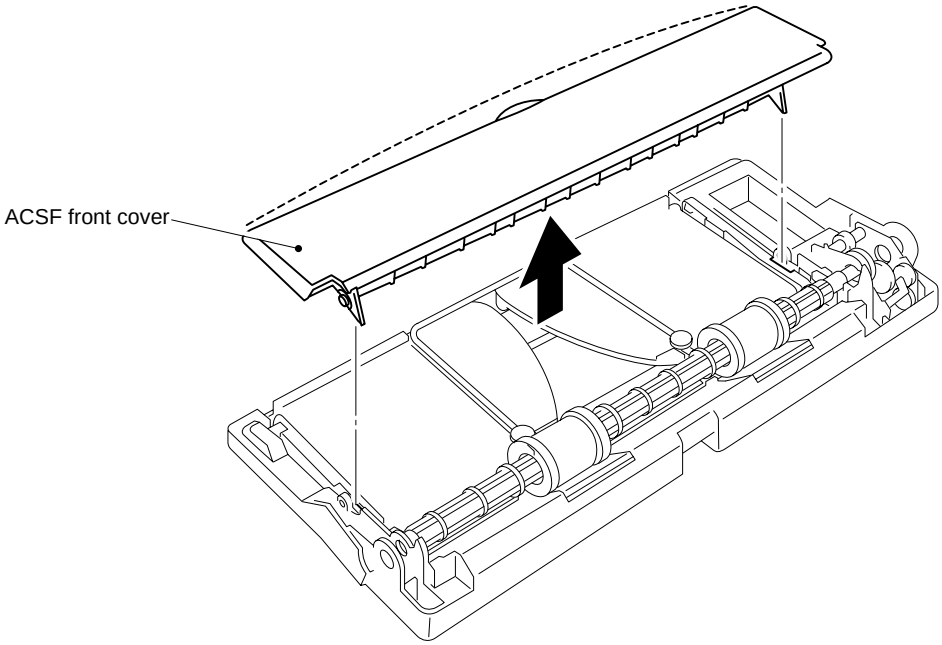


Fig. 3.52

(2) Remove the two screws, then the Gear frame R and Pick-up roller ASSY together.

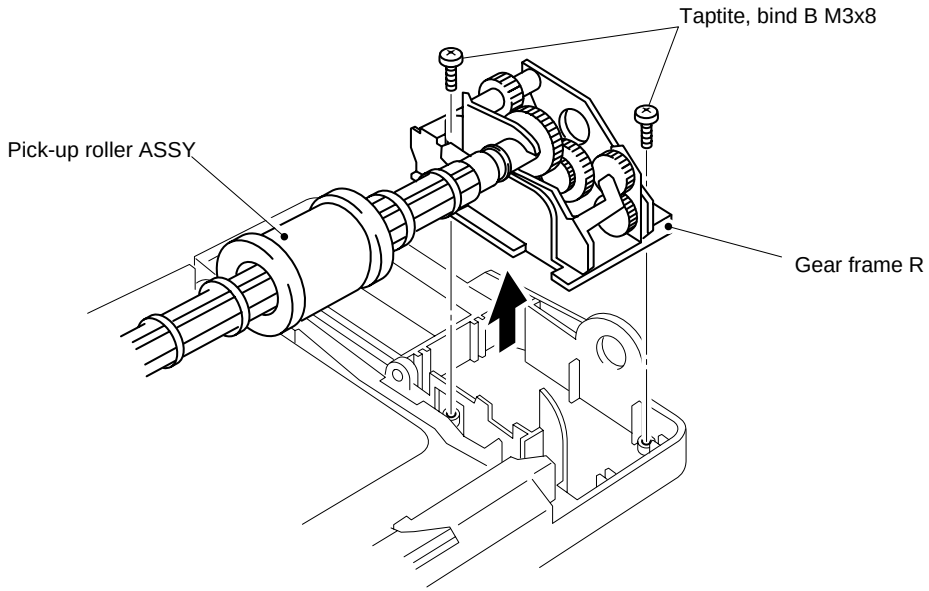


Fig. 3.53

(3) Remove the left hand end of the Pick-up roller ASSY from the Bearing by moving it to the right.

(4) Remove the Gear frame R from the Pick-up roller ASSY.

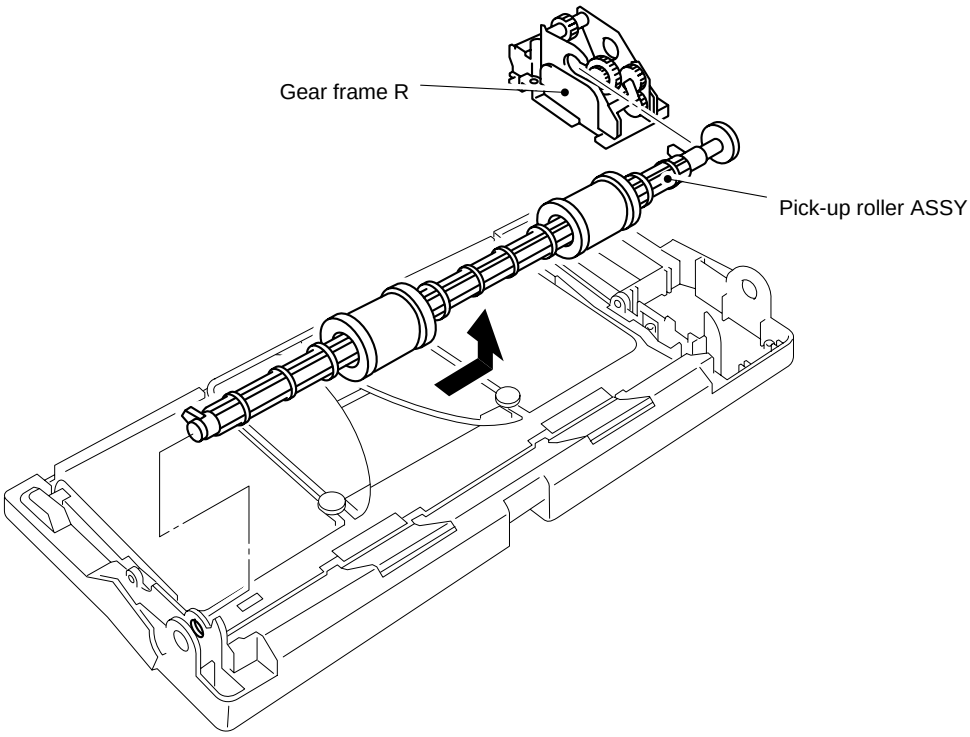


Fig. 3.54

4.10.4 Separation Pad ASSY

<Disassembly>

(1) Remove the Separation pad ASSY from the ACSF.

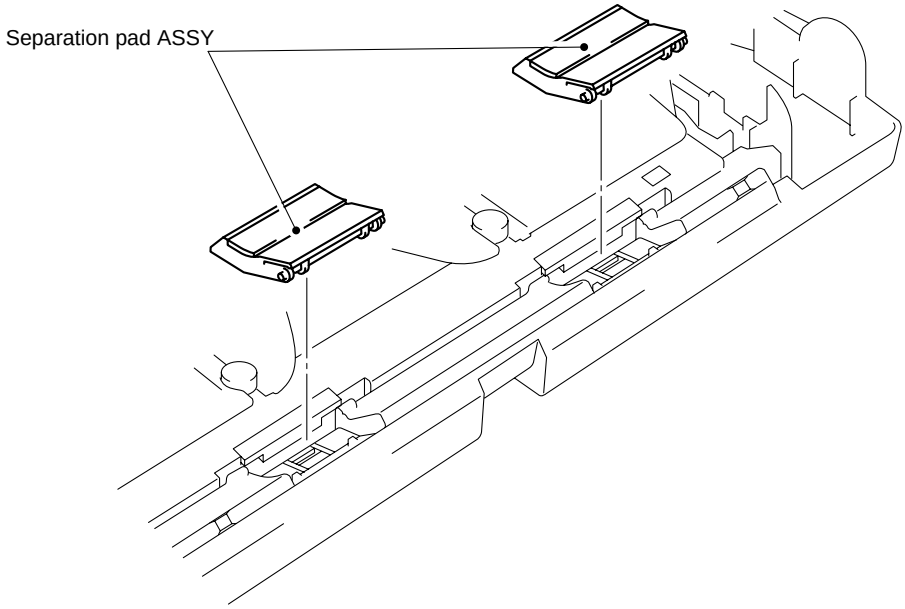


Fig. 3.55

4.10.5 Extension Guide L and R

<Disassembly>

(1) Remove the two screws, then Extension guide R and L from the ACSF .

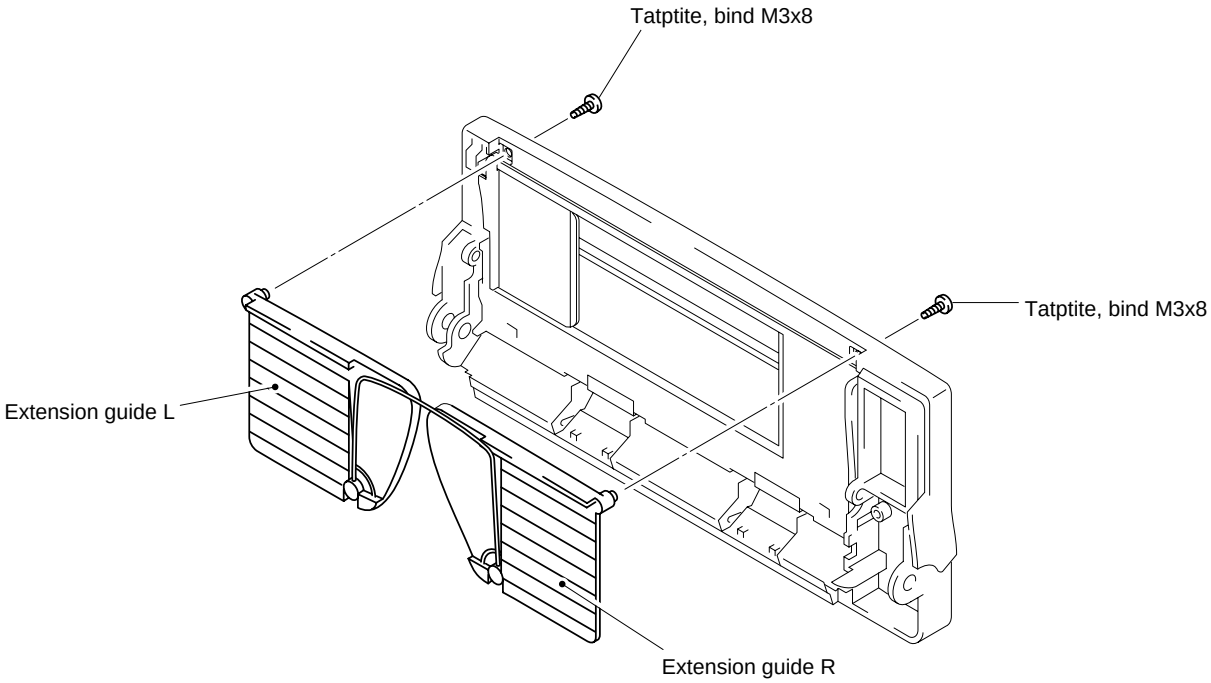


Fig. 3.56

5. LUBRICATION

Apply the following lubricants to the lubrication points as illustrated below.

	Lubricant amount	
Lubricant type (Manufacturer)	Sesame-sized pinch of grease (0.5 - 1 mm^3)	Rice-sized pinch of grease (6 mm^3)
Molykote EM-30L (Dow Corming)	EM1	EM2
Floil 946P (Kanto Kasei)	----------	P1
Floil GE676 (Kanto Kasei)	GE1	----------
G501 (Shinetsu Silicone)	----------	G1

[1] Paper feed related gears

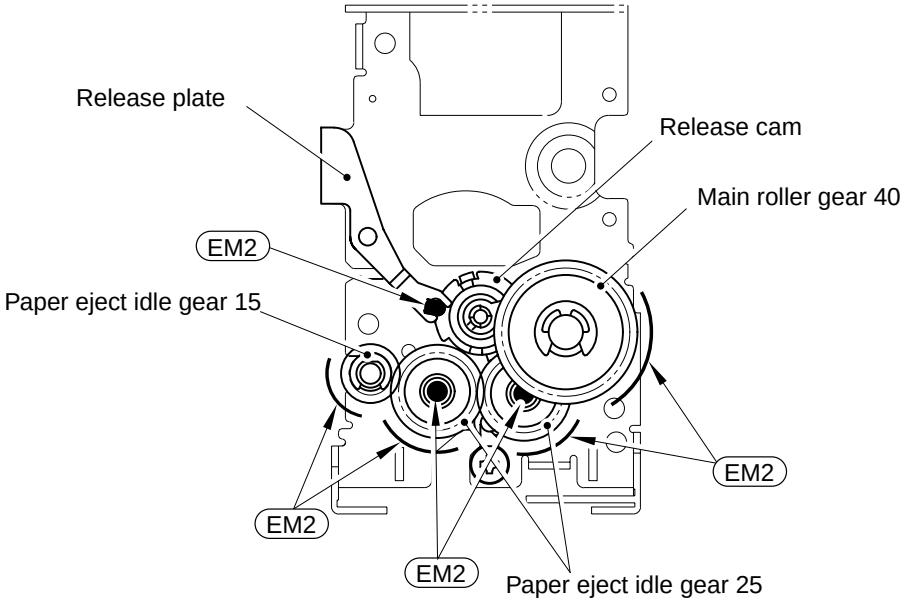


Fig. 3.57

[2] Gears attached to the Paper feed motor holder

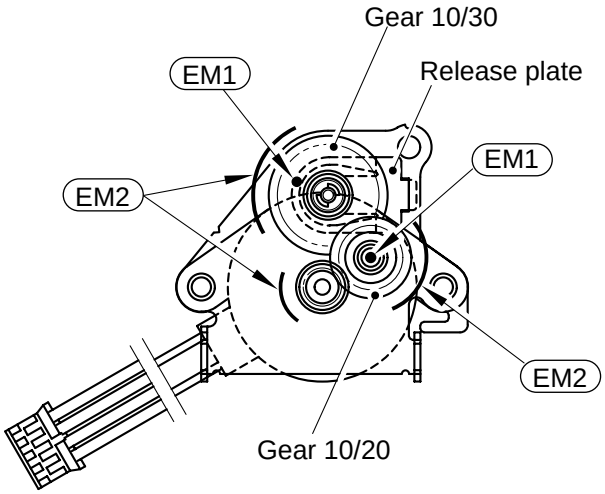


Fig. 3.58

[3] Purge unit ASSY

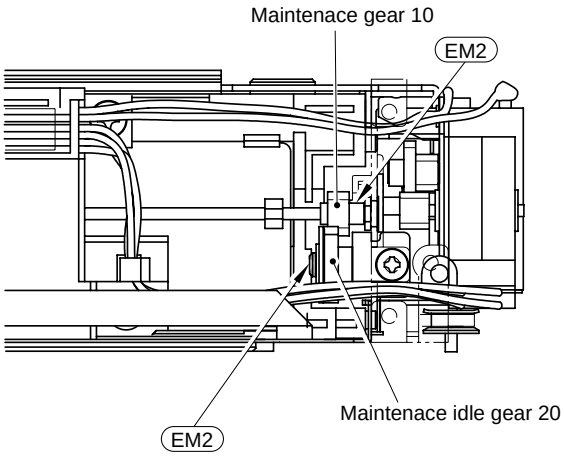


Fig. 3.59

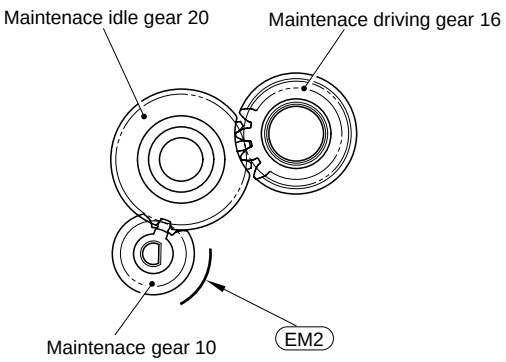


Fig. 3.60

[4] Main roller ASSY, Paper eject roller ASSY

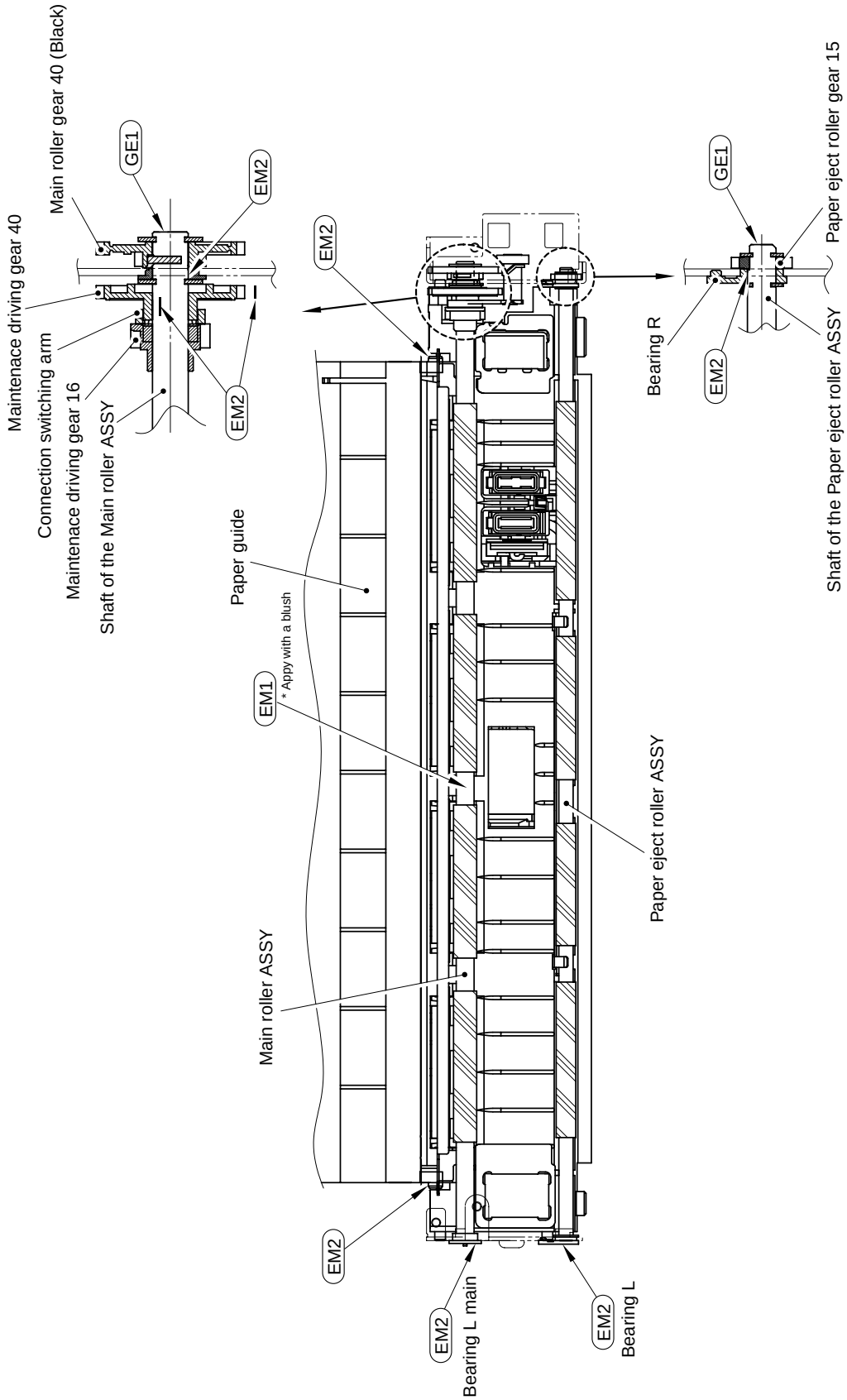


Fig. 3.61

[5] Carriage guide

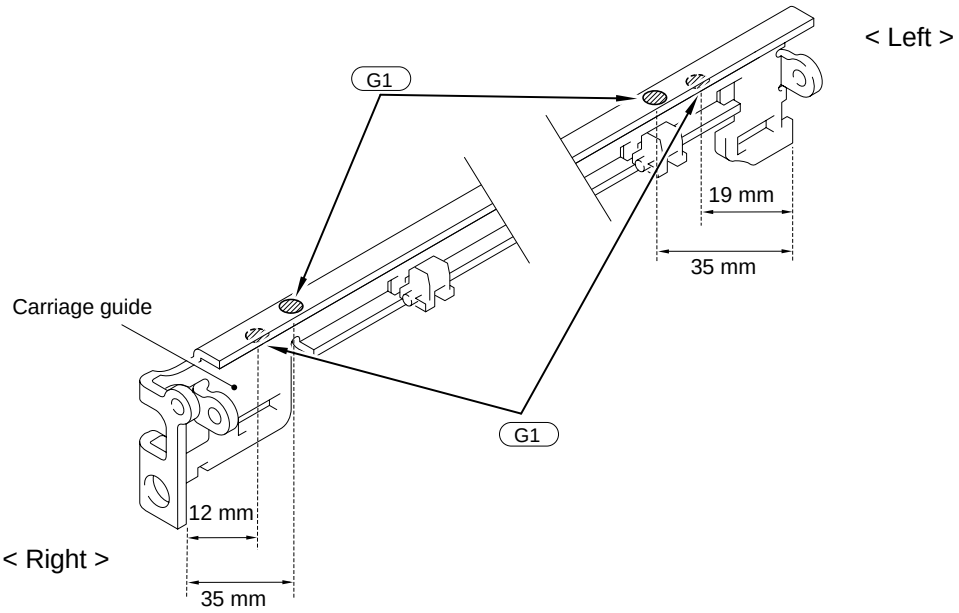


Fig. 3.62

[6] ACSF

Gear frame R

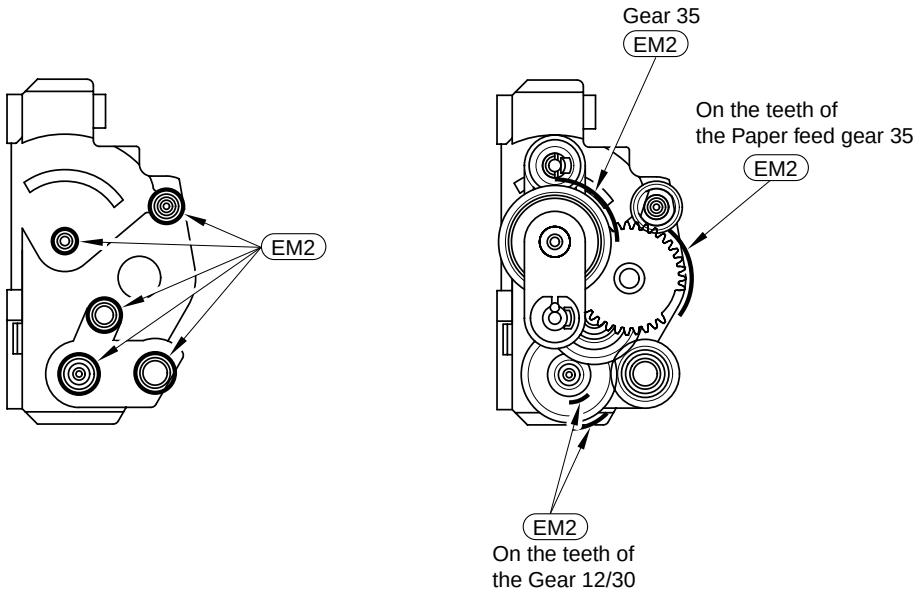


Fig. 3.63

Pick-up roller ASSY

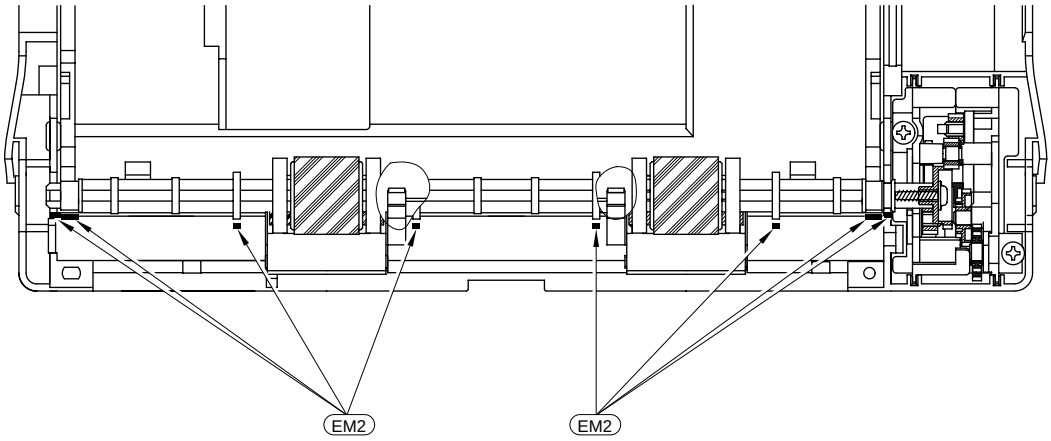


Fig. 3.64

6. CLEANING THE PRINTER

Note: Before cleaning the printer or printer platen, be sure to turn off the printer and remove the PC Card Cable from your computer and remove the AC Adapter (MP-21CDX or PA21MP users only) if connected and make sure that all the LEDs are off.

6.1 Cleaning the Platen cover

(1) Open the top cover.

(2) Wipe the Platen cover with a cotton swab.

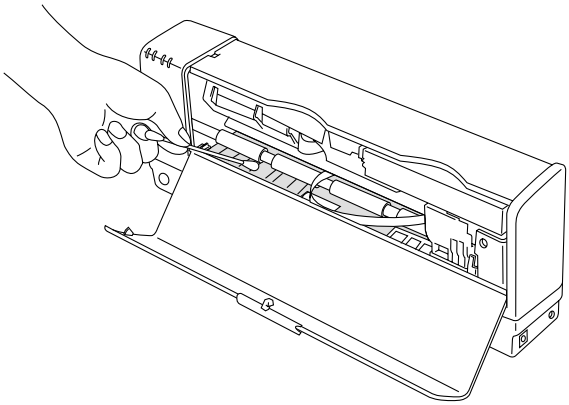


Fig. 3.65

6.2 Cleaning the edge of the Head cap

(1) Open the Top cover , then insert a small clip into the hole for the cover sensor. Plug the power cord to the printer, then turn the power on.

(2) Unplug the power cord when the print head has moved from the capping position.

(3) Clean the edge of the Head cap with the Head cleaner stick ASSY (ZA0310001).

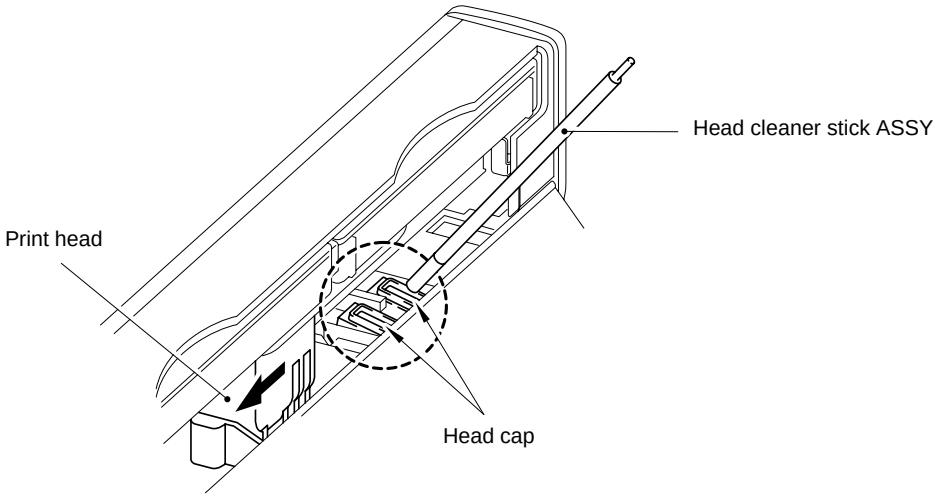


Fig. 3.66

6.3 Cleaning the Pick-up roller on the ACSF

(1) Remove the Pick-up roller cover.

(2) Clean the Pick-up rollers with a cloth dampen with alcohol.

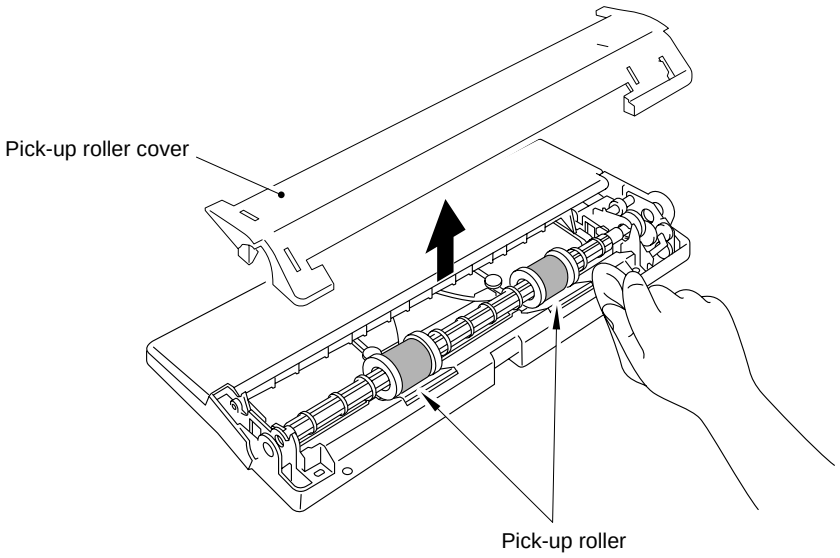


Fig. 3.67

7. PACKING

- MP-21C

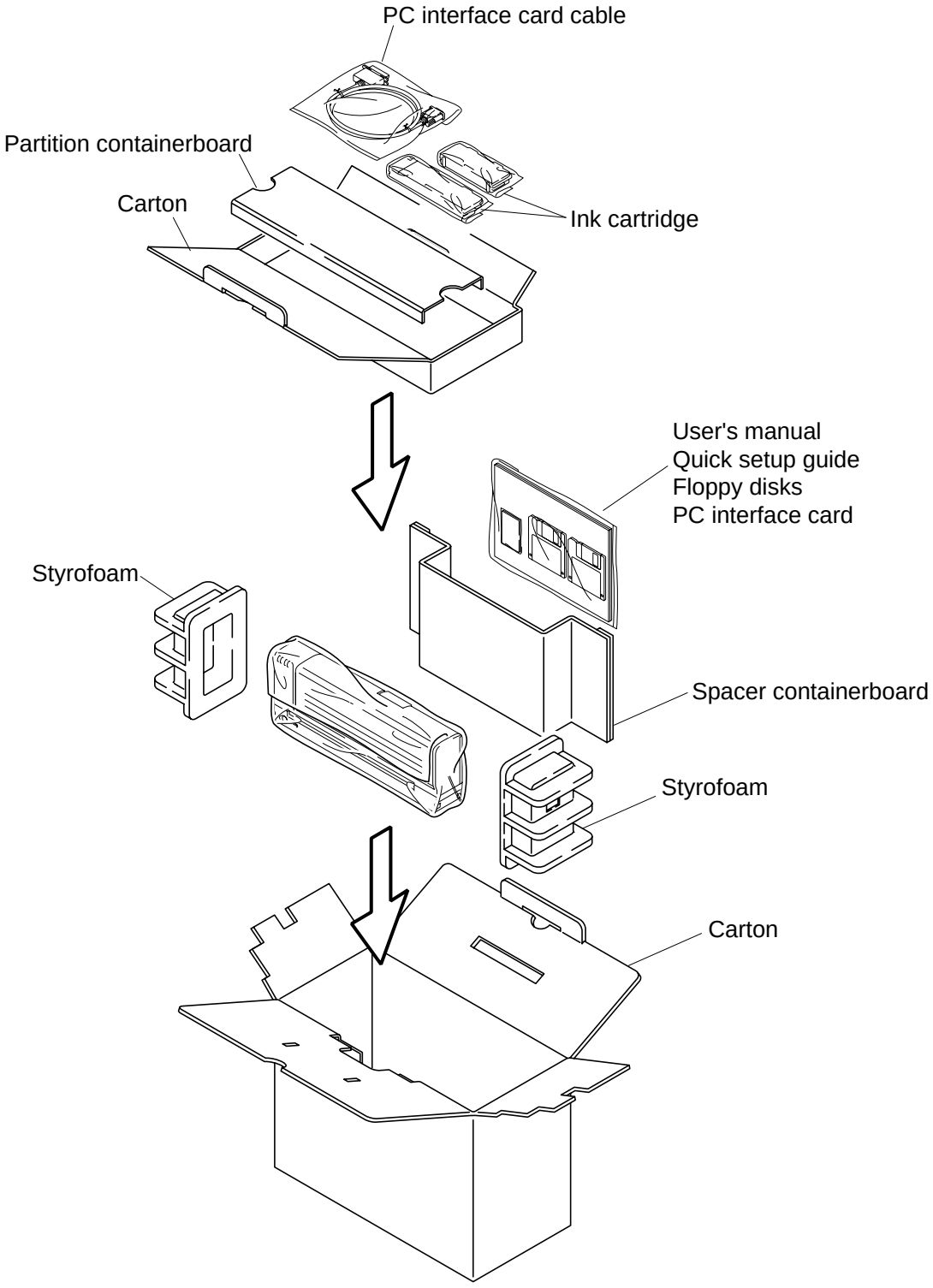


Fig. 3.68

- MP-21CDX

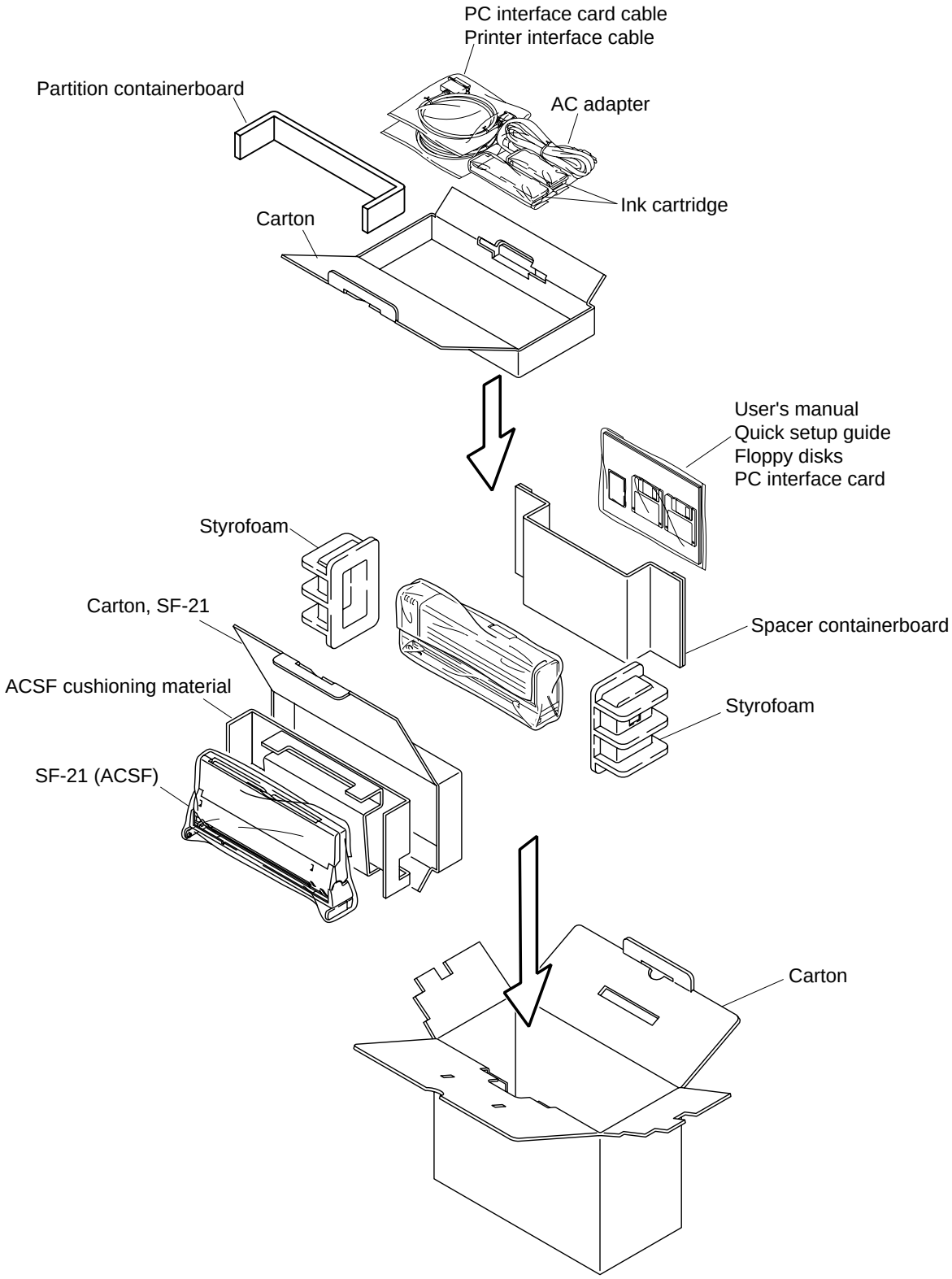


Fig. 3.69

Chapter IV
TROUBLESHOOTING

CONTENTS

CHAPTER IV TROUBLE SHOOTING

1. INTRODUCTION

1.1 Initial Check

If a malfunction or incorrect print appears, make an initial check, then follow the basic procedure below:

(1) Operating environment

Check if:

1) The source voltage stays within ±10% from the rating voltage shown on the rating plate.

2) The printer is installed on a solid, level surface.

3) The room temperature is maintained between 10^{O}C and 35^{O}C (50^{O}F and 95^{O}F). The relative humidity is maintained between 20% and 80%.

4) The printer is not exposed to ammonia fumes or other harmful gases.

5) The printer is not located in a hot or humid area (such as near water or a humidifier).

6) The printer is not exposed to direct sunlight.

7) The room is well-ventilated.

(2) Paper

Check if:

1) A recommended type of print paper is used. (If the paper is too thin, or tends to curl, paper jams or paper feed problems may occur, or prints may be blurred.)

2) The print paper is damp.
[If so, use fresh paper and check whether the print quality improves or not.]

(3) Ink cartridge

Check if:

1) Both of the ink cartridges are loaded correctly.

2) If there is ink remaining, the LED which indicates ink empty is not on.
(If the LED is on, install the indicated color ink.)

(4) Print head

Check if:

1) The print head is installed on the carriage correctly.

2) Repeat the head purging operation several times.

1.2 Basic Procedure

(1) Check the error lamps according to the procedures in the inspection mode as described later in this section.

(2) If any incorrect image is found, refer to the image defect description in this section.

2. TROUBLESHOOTING

2.1 Troubleshooting procedure

2.1.1 Malfunctions

When carrying out the countermeasures for malfunctions described in this section, check connectors for contact failure before measuring the voltage at specified connector pins.

(1) No DC power supplied from PCMCIA
No AC power supplied from the AC adapter

Possible cause	Step	Check	Result	Remedy
Supply voltage	1	Is the correct voltage present at the outlet?	NO	Inform the user that the correct voltage is not supplied at the outlet.
		Is the PC card cable connected securely?	NO	Connect the cable securely.
Power plug	2	Is the AC adapter power cord securely plugged into the outlet?	NO	Plug the power cord securely into the outlet.
		Is the Printer interface card securely inserted into the PCMCA card slot on the PC.	NO	Install the Printer interface card securely.
Wiring	3	Unplug the power supply plug. Is there a broken wire between the AC input connector of the power supply and the power plug?	YES	Replace the AC adapter.

(2) No DC power generated

<table>
<tr><th>Possible cause</th><th>Step</th><th>Check</th><th>Result</th><th>Remedy</th></tr>
<tr><td>AC power supply</td><td>1</td><td>Is DC power supplied between the DC jack (+ / -)when the power plug is plugged into the outlet?</td><td>NO</td><td>Follow the same check procedure of 1) “No DC power supplied from PCMCIA” and “No AC power supplied from the AC adapter”.</td></tr>
<tr><td>Power supply FFC</td><td>2</td><td>Is the Power supply FFC cable connected to the Main PCB ASSY and the Power supply PCB ASSY?</td><td>NO</td><td>Connect it to the both PCBs securely.</td></tr>
<tr><td>Power supply unit</td><td>3</td><td>Measure the voltage between the terminals. Do the measured voltages satisfy the value in the table below?
<table>
<tr><th>PCB</th><th>+ lead</th><th>- lead</th><th>Voltage</th></tr>
<tr><td>Driver PCB</td><td>P3-9
P3-8
P3-17
P3-18*</td><td>P3-10
P3-10
P3-15
P3-15</td><td>+3.3V
+5V
+12V
+13 - 30V</td></tr>
</table>
* The voltage for P3-18 depends on the operating temperature.</td><td>NO</td><td>Replace the power supply unit.</td></tr>
</table>

(3) The carriage motor does not rotate.

Possible cause	Step	Check	Result	Remedy
Connection failure of the Carriage motor harness P4	1	Is the Carriage motor harness P4 securely connected on the Main PCB?	NO	Connect it securely.
Carriage motor	2	Disconnect the Carriage motor harness P4 from the Main PCB. Measure the resistance between the connector pins of the carriage motor with a circuit tester. Does the measured resistance satisfy the value in the table below? P4-1 and P4-2 | Approx.12 Ω	NO	Replace the Carriage motor ASSY.
Driver circuit			YES	Replace the Main PCB.

(4) CR error

Possible cause	Step	Check	Result	Remedy
Connection failure of the Encoder FPC P6 harness P4	2	Is the Encoder FPC cable P6 securely connected to the Main PCB?	NO	Connect it securely.
Encoder strip	1	Encoder strip is contaminated with dust.	YES	Blow the dust out with an air brush.
		Encoder strip is contaminated with oil or ink.	YES	Clean it with alcohol, then reassemble it. If the problem still remains, replace it with a new one.
Carriage motor	2	Check the Carriage motor operation referring to (3) if the carriage motor does not rotate.		

(5) No paper supplied from ACSF

Possible cause	Step	Check	Result	Remedy
ACSF attached incorrectly	1	Is the ACSF attached correctly?	NO	Attach it correctly.
Pick-up roller ASSY	2	Rotate the gears with your finger. Does the Pick-up roller ASSY rotate?	NO	Replace the Pick-up roller ASSY.
Separation pad	3	Is there any damage on the Separation pad?	Yes	Replace the Separation pad ASSY.

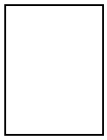
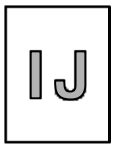
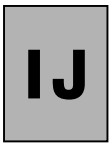
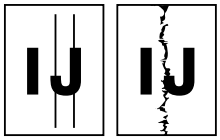
(6) No paper supplied from the paper feeding slot or the straight paper path slot

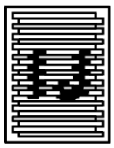
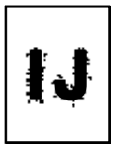
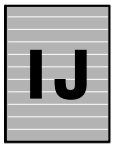
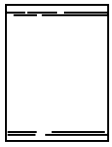
Possible cause	Step	Check	Result	Remedy
Foreign materials on the paper path.	1	Are there any foreign materials in the paper feed path?	YES	Remove it.
Film rib	2	Is the Film rib correctly stuck to the Rear cover? Is the Film rib damaged?	Yes	Unstick the Film rib and re-stick correctly. Replace it with a new one.

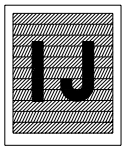
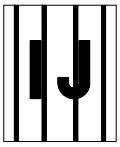
(7) Print paper jam

Possible cause		Step	Check	Result	Remedy
Printer	Feeding paper	1	Is the Paper feeding slot guide correctly attached?	NO	Attach it correctly.
		2	Are all gears related to feeding paper in place?	NO	Replace all gears correctly.
		3	Is the Main PCB broken?	YES	Replace the Main PCB.
		4	Is the paper guide film incorrectly stuck to the paper holder ASSY? Is the paper guide film bent? Is the Paper holder ASSY bent?	YES	Replace the Paper holder ASSY.
	Ejecting paper	1	Is the Paper eject sensor actuator fitted correctly?	NO	Refit it correctly.
		2	Is the Paper eject sensor actuator bent?	YES	Replace it.
		3	Is the Paper eject sensor working?	NO	Replace the Main PCB.
ACSF	Feeding paper	1	Is the ACSF attached correctly?	NO	Attach it securely.
		2	Are the rubber rollers on the Pick-up roller ASSY covered with paper dust?	YES	Wipe the paper dust off with a cloth dampened with IPA.
		3	Is the ACSF sensor actuator working correctly?	NO	Check the routing of the Waste ink tube. Refer to Fig. 3.26 in Chapter 3.
		4	Is the ACSF set in the correct position to feed paper? (If it is in a straight position, the printer cannot detect the ACSF attached.)	NO	Fit it in the correct position.

2.1.2 Print-image Related

Trouble	Action to be taken
Completely blank 	Check the following: - If any cartridge have run out of ink. - The connection of the Head FFC cable between the Head PCB and Main PCB. - If there is any damage on the Head FFC CABLE. - The connection of the four Head FPC cables on the Head PCB. - If the Waste ink tube is routed correctly.
Random color 	Check the following components: - Ink cartridge - Head FFC CABLE - Main PCB - Head PCB
Light 	Check the following: - If any cartridge is running out of ink. - Try purging several times. - The correct media setting is selected on the printer driver for the paper to be printed. - If the Waste ink tube is routed correctly. - If the Purge unit is assembled correctly. Check the following components: - Ink cartridge - Main PCB - Head PCB - Power supply PCB
Dark 	Check the following: - Monitor calibration has been carried out. - Try purging several times. - Check the paper feed related rollers. - If the Purge unit is assembled correctly. (If not, colors are mixed and a dark color is generated.) Check the following components: - Main PCB - Power supply PCB - Purge unit
Black or blurred vertical stripes 	Check the following: - The printer is installed on a flat surface. - Fresh paper is used. - If paper is catching any other components during paper eject. - If ink has dropped down onto the Platen cover. (If yes, clean the Platen cover.) Check the following components: - Purge unit (Wipe the Maintenance cap with the Head cleaner stick ASSY (tool # ZA0310001) dampened with IPA.

Print edges not aligned 	Check the following: - The alignment of vertical print lines. (Use the Service software tool software to check this.) Check the following components: - Encoder strip * If the Encoder strip is not hooked onto the mounting clips properly, correct it. - Print head * If the Print head is not installed securely, correct it.
Ink splash  	- Perform purging several times to remove dust or air bubbles from the nozzles. - If any cartridges have run out of ink. - Replace the Print head. - Replace the Main PCB. - Replace the Power supply PCB. - Replace the Head PCB.
Random missing dots 	- Perform the head cleaning operation several times to remove dust or air bubbles from the nozzles. - If any cartridges have run out of ink. - Replace the carriage PCB. - Check the connection of the Head FFC CABLE and the Head FPC cable. - Replace the Main PCB. - Check if the Purge unit is attached properly. - Check the routing of the Waste ink tube.
White horizontal streaks 	- Perform the head cleaning operation several times to remove dust or air bubbles from the nozzles. - Replace the Print head. - Check the paper feed-related rollers. - Check the connection of the Head FPC cable. - Adjust the amount of line feeding with the Service software tool software. Check the following components: - Head PCB
Stained leading edge of print paper 	- Check if paper is catching any other components during paper eject. - Clean the nozzle ends of the Print head with a cotton stick, being carefully not to touch the print head surface.

Banding 	- Adjust the horizontal alignment from the printer driver. - Check the correct media setting is selected in the printer driver for the paper to be printed. - Adjust the amount of line feeding with the Service software tool software. - Replace the Print head. - Replace the carriage ASSY. Check the following components: - Head PCB - Power supply PCB
Vertical lines exist 	- Check the correct media setting is selected in the printer driver.

2.1.3 PC-driven printing

Trouble	Check
PC-driven printing is impossible.	Check the following: - Connection of the Parallel interface cable to the printer and the host PC. - Connection of the AC adapter. - If the Printer interface card is inserted securely. - If the PC card cable connecting the Printer interface card (CI-100) and the printer is connected securely. - If the Waste ink tube is routed correctly. - If a suitable port setting is selected on the printer driver. Set LPT1 when the Parallel Interface cable is used. Set LPT2 when the Printer interface card is used.

3. INSPECTION MODE

3.1 Extended Functions

The following two extended functions will be available by holding down the specified button(s) until the all LEDs turn off while plugging in the AC adapter.

3.1.1 EEPROM User Area Reset Mode (Not necessary for service)

The printer performs a reset of the user area by holding down the **Power and Clean button** for 3 seconds or more with the Top cover closed. Immediately after entering this mode, the all LEDs blink. By pressing **the Power button**, EEPROM user area reset will be executed. Although it will return to the ready status after reset, it is necessary to press the **Power button**.

The following information is stored in the user area.

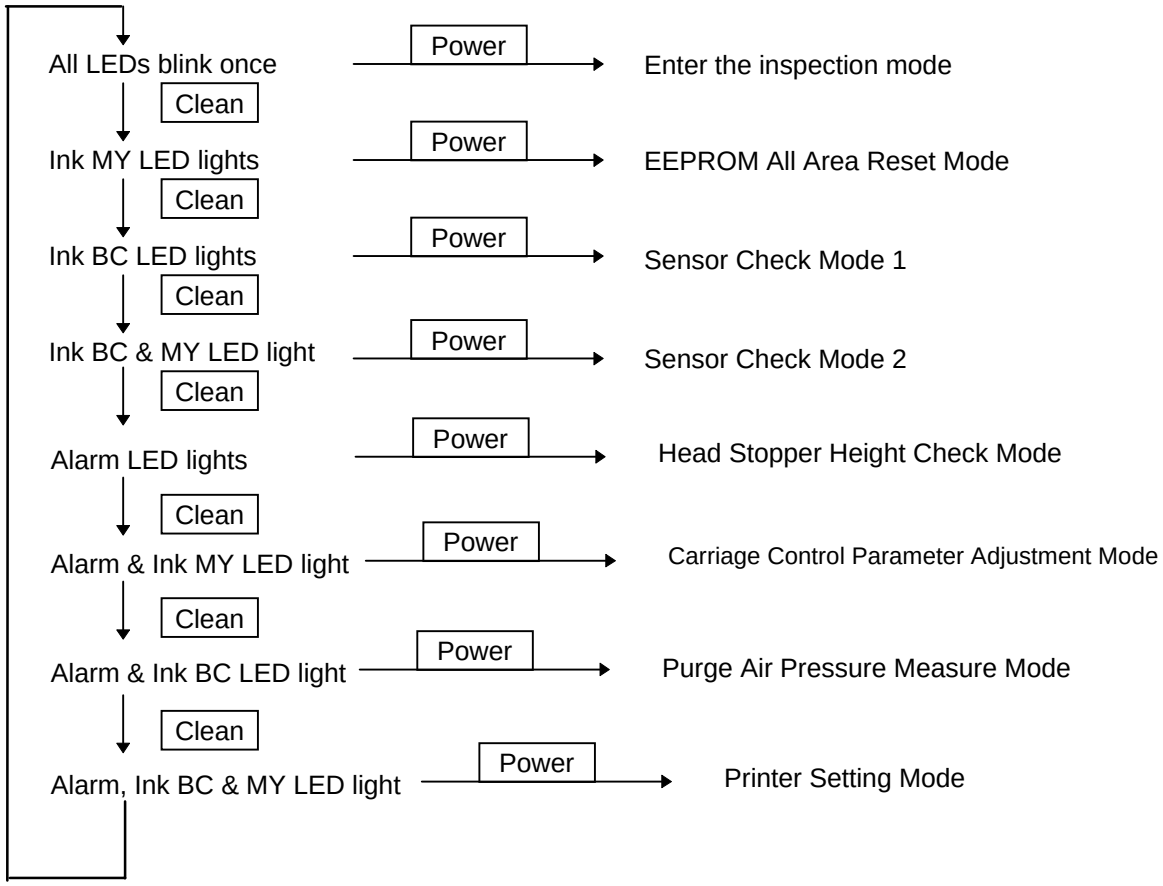
The carriage speed settings
The counter for the amount of the ink consumed and the waste ink.
The time when the latest purge was carried out.
The amount of the paper feeding
The amount of the line feed
The vertical alignment settings

Note: The EEPROM user area reset does not clear the page counter.

3.2 Hidden Functions (Inspection Mode)

The printer goes into the inspection mode by plug in while holding down **the Power** and **Clean button** for 3 seconds or more with the Top cover open. Immediately after entering this mode, the all LEDs blink. By pressing **the Power button**, the below 7 inspection sub modes will be available. By pressing **the Clean button**, you can select the inspection sub mode.

- EEPROM All Area Reset Mode
- Sensor Check Mode 1
- Sensor Check Mode 2
- Head Stopper Height Check Mode
- Carriage Control Parameter Adjustment Mode
- Purge Air Pressure Measure Mode
- Printer Setting Mode



3.2.1 EEPROM All Area Reset Mode [DO NOT USE!]

Initializes the all area of the EEPROM. If all areas are cleared, the printer will not work.

3.2.2 Sensor Check Mode 1

After entering this mode, the functioning of the following sensors can be checked.
The respective LED indicates the status of the following sensors.

Sensor	LED	
ACSF sensor	⏻	This LED will be on when the ACSF is attached.
Cover sensor	⚠	This LED will be on when the Top cover is closed.
Ink cartridge BC sensor	BC	This LED will be on when the Ink cartridge BC is installed.
Ink cartridge MY sensor	MY	This LED will be on when the Ink cartridge MY is installed

3.2.3 Sensor Check Mode 2

After entering this mode, the functioning of the following sensors can be checked.
The respective LED indicates the status of the following sensors.

Sensor	LED	
Paper eject sensor	BC	The LED will be on when there is no paper.
Paper feed sensor	MY	The LED will be on when there is no paper.

3.2.4 Head Stopper Height Check Mode (Not necessary for service, Factory use only)

This mode is used to measure and check the height of the head stopper, which is attached to the head cap on the Purge unit ASSY.

3.2.5 Carriage Control Parameter Adjustment Mode

Immediately after entering this mode, the carriage speed auto-adjustment will be executed and correct parameters will be set automatically. If any abnormal (too slow or too fast)speed is detected, there will be a carriage speed auto-adjustment error indicated by LED indication. Refer to section 3.3.2 Service Calls.

This adjustment must be carried out when the parts related to the carriage portion (listed below) are replaced.

Ink head base unit, Print head, Carriage guide, Encoder strip

3.2.6 Purge Air Pressure Measure Mode (Not necessary for service, Factory use only)

The air pressure for rhe purge operation is measured in this mode.
This mode is used at the factory only and will not be necessary for the service.

3.2.7 Printer Setting Mode

The printer in this mode does not carry out the printer initialization and ignores any errors occurring on the printer in order to keep the I/F communication alive.

The printer must enter this mode when you use the Service software tool utility. Before you run the utility, make sure to put the printer in this mode.

3.3 Error Codes

There are 2 kinds of error code.
Operator calls: Alarm LED and specific LED(s) blink alternately.
Service calls: All the LEDs and specific LED(s) go ON alternately.

The specific combination of ON or blinking indicates the type of the error.

3.3.1 Operator Calls

○ : ON ✸ : Blink × : OFF

Operator calls	LED				Action
• Cause	⏻	⚠	BC	MY	
Paper jam	×	○	×	×	Remove the jammed paper.
Paper empty	×	○	×	×	Load paper in the printer.
Paper feeding error • No paper in ACSF.	×	○	×	×	Load paper on the ACSF and press the Power button to make the printer online.
Ink cartridge BC unloaded error	×	○	○	×	
• Ink cartridge BC is not installed.					Install the Ink cartridge BC.
• Ink cartridge sensor failure.					Replace the Ink head base unit.
Ink cartridge MY unloaded error	×	○	×	○	
• Ink cartridge MY is not installed.					Install the Ink cartridge MY.
• Ink cartridge sensor failure.					Replace the Ink head base unit.
Ink cartridge BC near empty	×	×	✸	×	
Ink cartridge MY near empty	×	×	×	✸	
Ink cartridge BC empty • The Ink cartridge BC is empty.	×	×	○	×	Replace the empty ink cartridge with a new one.
Ink cartridge MY empty • The Ink cartridge MY is empty.	×	×	×	○	Replace the empty ink cartridge with a new one.
Cover Open	○	✸	×	×	The Top cover is open.

3.3.2 Service Calls

You may need the Service software tool, which is a software utility that allows you to read out the service call information written on the EEPROM in order to find out the details of the service error.

○ : ON ✕ : OFF

Service calls						
Code	Error • Cause	LED				Action
		⏻	⚠	BC	MY	
01 01	Carriage time out error • The carriage moves slowly and it takes a long time to move.	✕	✕	✕	○	• Check if there is any foreign material inside -the printer. • Adjust the mechanical portion related to the carriage ASSY. • Clean or replace the Encoder strip. • Replace the Main PCB.
01 02	Incorrect carriage movement command • A command to move the carriage was issued when the carriage is moving.	✕	✕	✕	○	• Replace the Main PCB.
01 03	Incorrect carriage interrupt command • Carriage interrupt command was issued when the Carriage ASSY is in a stop position.	✕	✕	✕	○	Replace the Main PCB.
01 04	Carriage movement error • The carriage moves only less than 1/2 inch.	✕	✕	✕	○	Adjust the mechanical portion related to the Carriage ASSY. Replace the Main PCB
01 05	Low carriage speed error • The speed is not stable due to foreign material inside the printer. • The Carriage ASSY cannot move smoothly. • The Encoder strip is contaminated by dust.	✕	✕	✕	○	Adjust the mechanical portion related to the Carriage ASSY. Replace the Encoder strip.
01 06	Fast carriage speed error • The speed is not stable due to foreign material inside the printer. • The Carriage ASSY cannot move smoothly. • The Encoder strip is contaminated by dust.	✕	✕	✕	○	Adjust the mechanical portion related to the Carriage ASSY. Replace the Encoder strip.

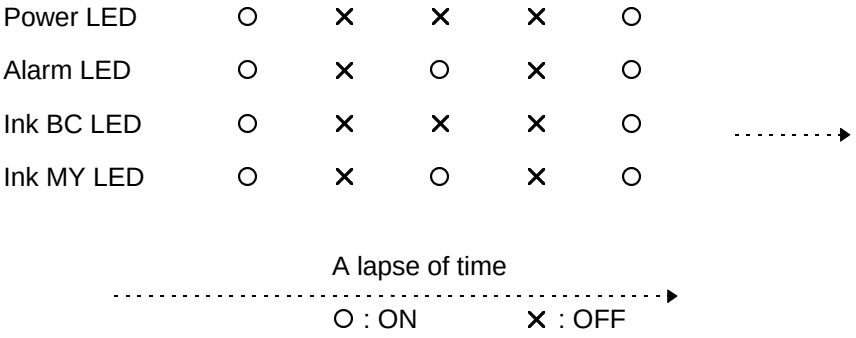
01 07	Carriage stop position error • There is foreign material inside the printer. • The Carriage ASSY cannot move smoothly. • The Encoder strip is contaminated by dust.	×	×	×	○	Adjust the mechanical portion related to the Carriage ASSY. Replace the Encoder strip.
01 08	Incorrect chassis width error • There is foreign material inside the printer. • The Carriage ASSY cannot move smoothly. • The Encoder strip is contaminated by dust.	×	×	×	○	Adjust the mechanical portion related to the Carriage ASSY. Replace the Encoder strip.
01 09	Carriage rebound error • Carriage rebounded due to foreign material inside the printer. • The Carriage ASSY cannot move smoothly. • Counter brake too strong.	×	×	×	○	Adjust the mechanical portion related to the Carriage ASSY. Replace the Encoder strip.
01 0A	Carriage speed error • The carriage ASSY cannot gain enough speed due to foreign material. • The Carriage ASSY cannot move smoothly.	×	×	×	○	Adjust the mechanical portion related to the Carriage ASSY. Replace the Encoder strip.
01 0B	Carriage auto-adjustment error • When the carriage auto-adjustment is carried out. • The Carriage ASSY cannot move smoothly.	×	×	×	○	Adjust the mechanical portion related to the Carriage ASSY. Replace the Encoder strip.
01 0C	Encoder strip error • The Encoder strip is contaminated by oil or dust. • The Encoder strip is damaged.	×	×	×	○	Clean the Encoder strip Replace the Encoder strip.

02 01	Maintenance sensor ON error • The gears related to paper feeding are out of step with the Maintenance sensor OFF position. • Maintenance LED is not ON. • The Maintenance gear 10 is not assembled correctly.	×	×	○	×	Check the Maintenance gear 10 is assembled correctly. Refer to Fig. 3.27 in Chapter 3. Replace the Purge unit ASSY.
02 02	Maintenance sensor OFF error • The gears related to paper feeding are out of step with the Maintenance sensor ON position. • Maintenance LED does not go OFF. • The Maintenance gear 10 is not assembled correctly.	×	×	○	×	Check the Maintenance gear 10 is assembled correctly. Refer to Fig. 3.27 in Chapter 3. Replace the Purge unit ASSY.
02 05	Maintenance protrusion • The Maintenance gear 10 is not assembled correctly. • The Print head is not installed correctly to the Carriage ASSY.	×	×	○	×	Check the Maintenance gear 10 is assembled correctly. Refer to Fig. 3.27. Adjust the mechanical portion related to the chassis.
03 01	Head power supply error (At power on or in sleep mode) • Head voltage is detected when the Print head should not be energized.	×	×	○	○	Replace the Head PCB or the Main PCB. Replace the Power supply PCB.
03 02	Head power supply error (When replacing the Print head) • Head voltage is detected when replacing the Print head.	×	×	○	○	Replace the Head PCB or the Main PCB. Replace the Power supply PCB.
03 03	Head power supply ON error • Head voltage is not detected when the power is supplied.	×	×	○	○	Replace the Head PCB or the Main PCB. Replace the Power supply PCB.

03 04 03 05	Head thermistor open/short error • Hardware failure related to the head thermistor.	×	×	○	○	Replace the Print head, Head PCB or the Main PCB.
04 01	Flushing form L ink full error • The ink counter detects the ink full status.	×	○	×	×	Replace the Flushing form L1 & L2 and the Flushing form R1 & R2. After replacing, reset the ink counter for them by using the Service software tool.
04 02	Flushing form R ink full error • The ink counter detects the ink full status.	×	○	×	×	Replace the Flushing form L1 & L2 and the Flushing form R 1 & R 2. After replacing, reset the ink counter for them by using the Service software tool.
05 01	External RAM error • There is a RAM Read/Write error at power on.	×	○	×	○	Replace the Main PCB.
05 02	Internal ROM error • There is a ROM Check sum error.	×	○	×	○	Replace the Main PCB.
05 03	EEPROM error • There is a Read/Write error.	×	○	×	○	Replace the Main PCB.
05 04	Internal RAM error • There is a RAM Read/Write error at power on.	×	○	×	○	Replace the Main PCB.
05 05	Abnormal head temperature error • The head thermistor value is out of the specified range.	×	×	○	×	Check the operating temperature. Replace the Print head.

LED INDICATING THE ERROR

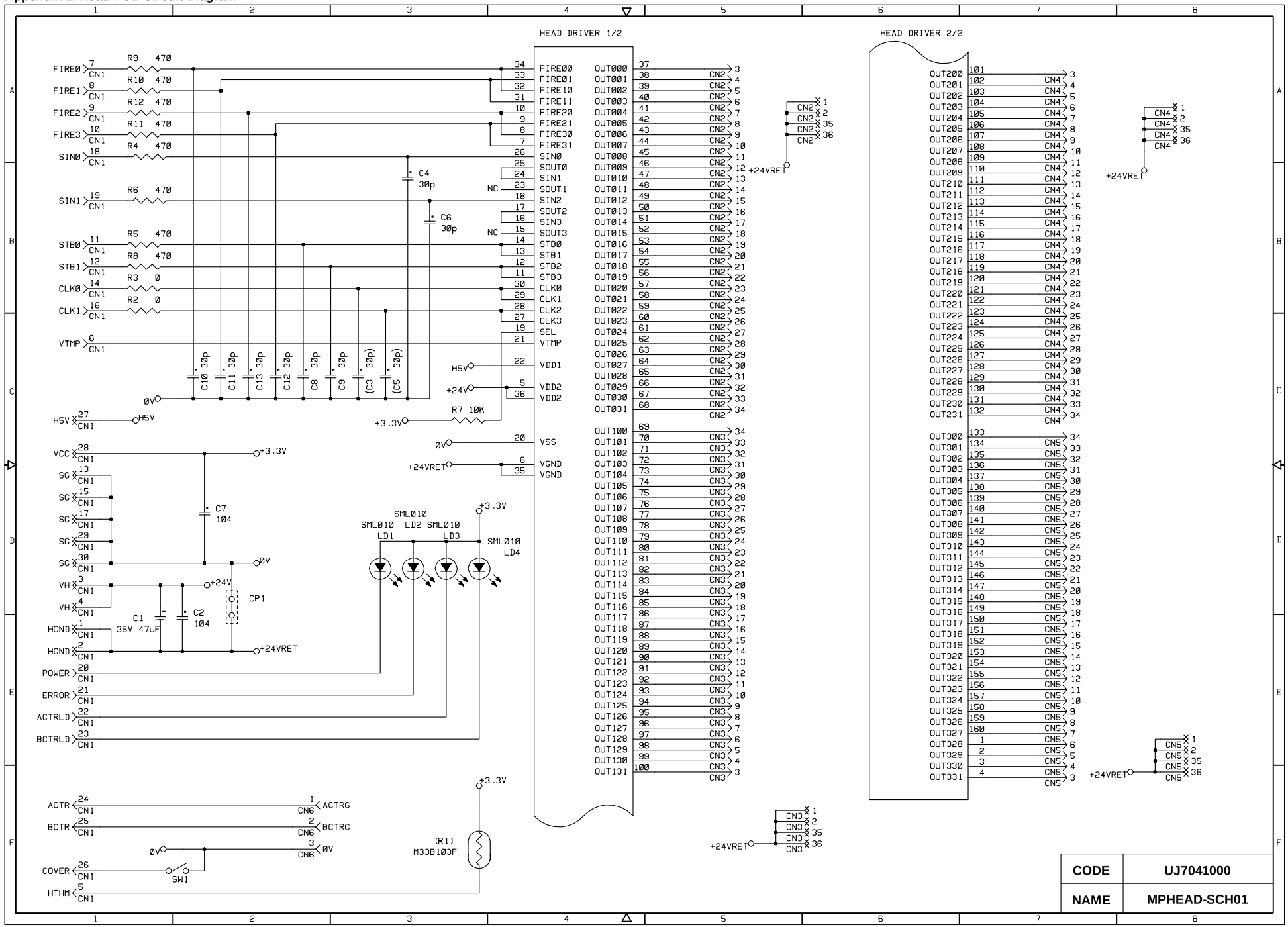
Example: ROM error

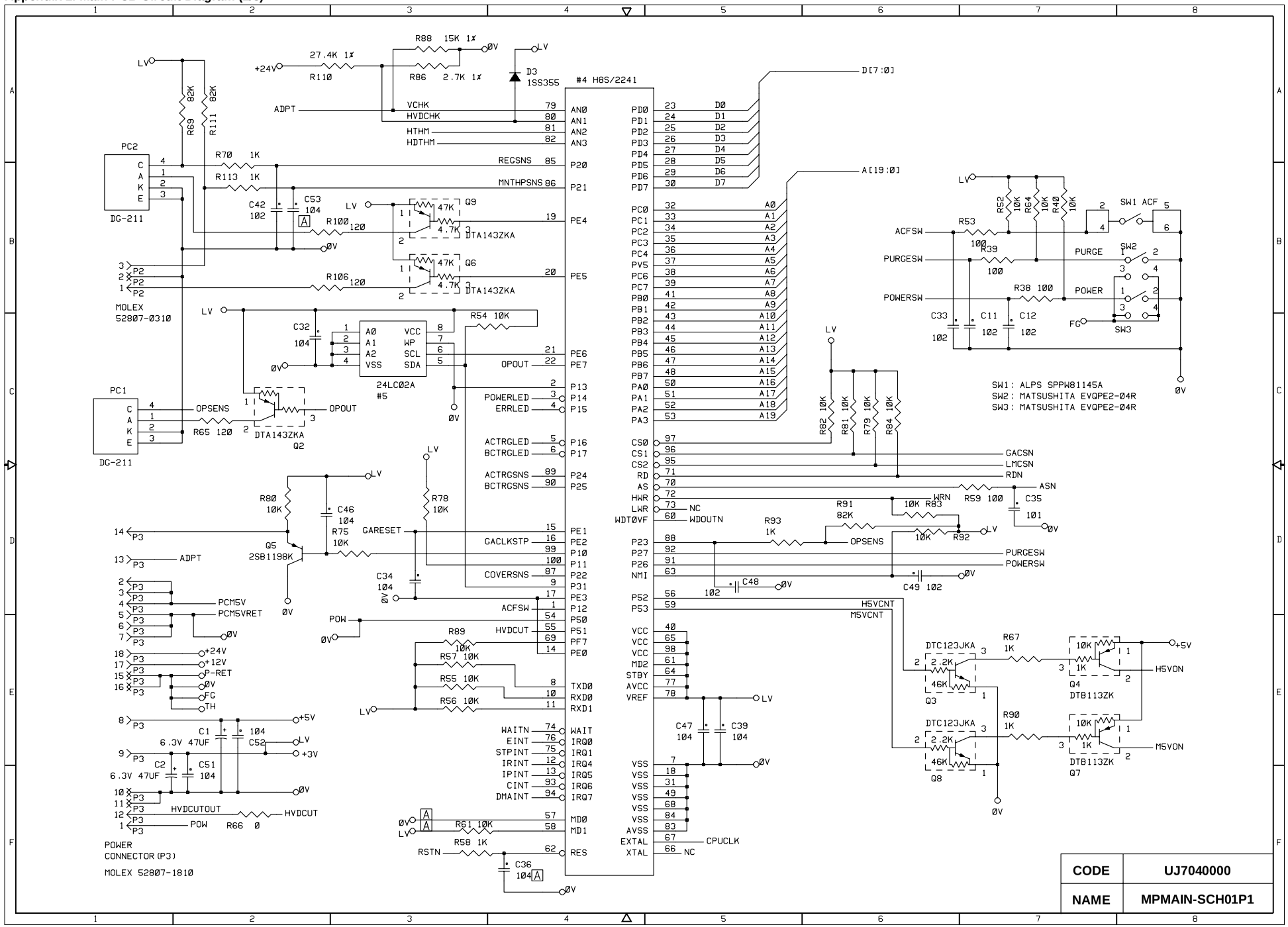


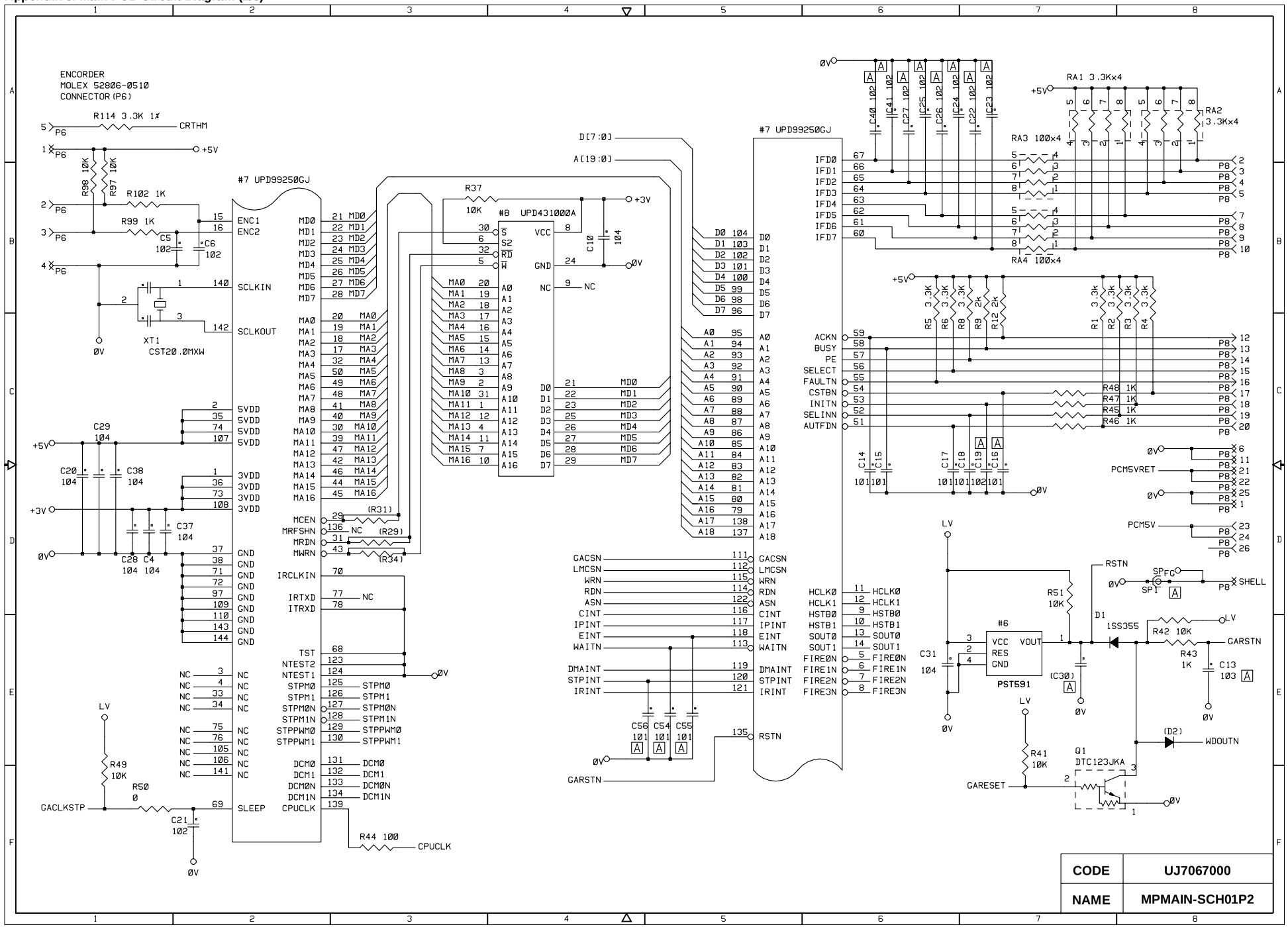
Appendix

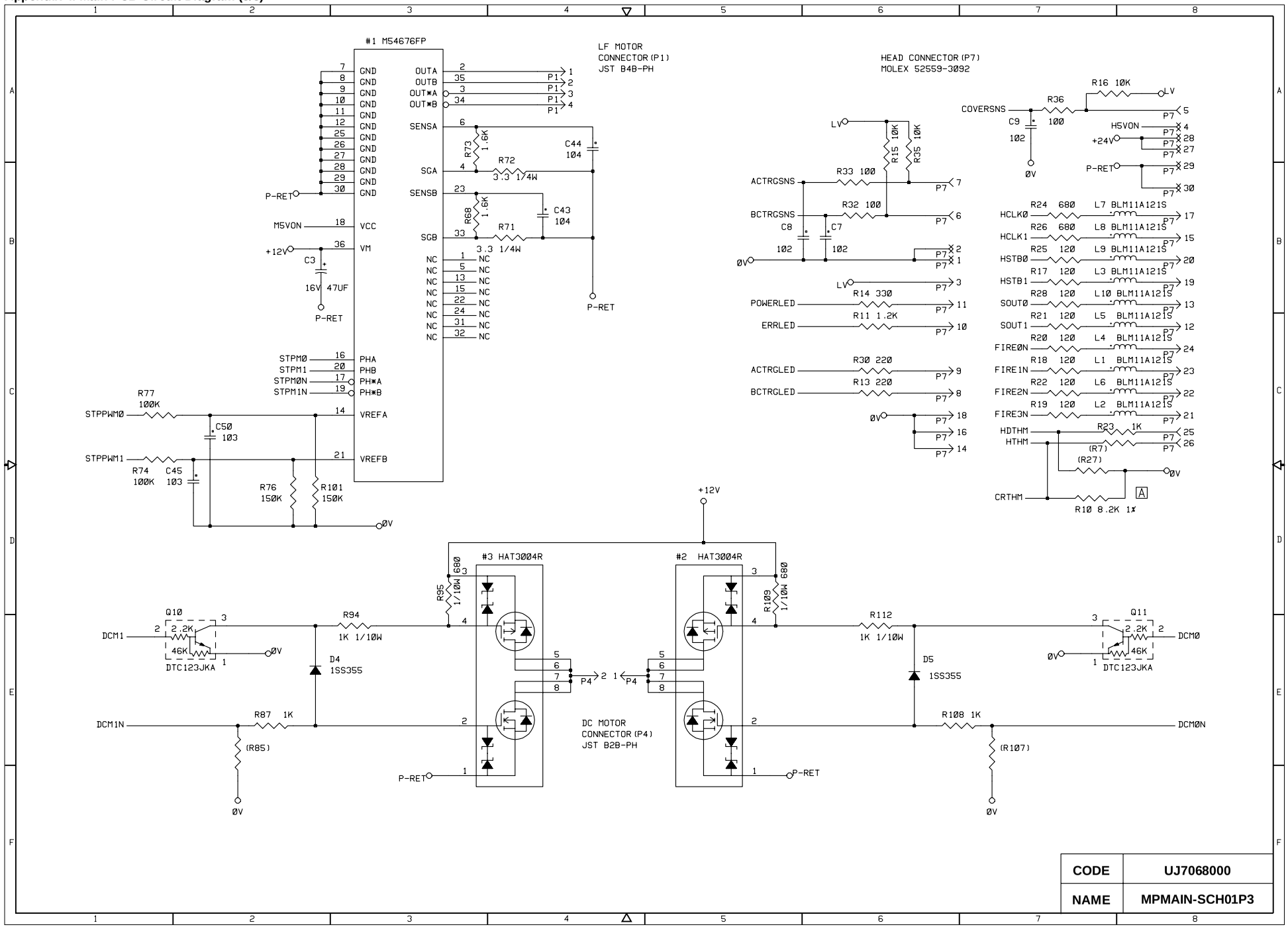
CONTENTS

Appendix 1. Head PCB Circuit Diagram

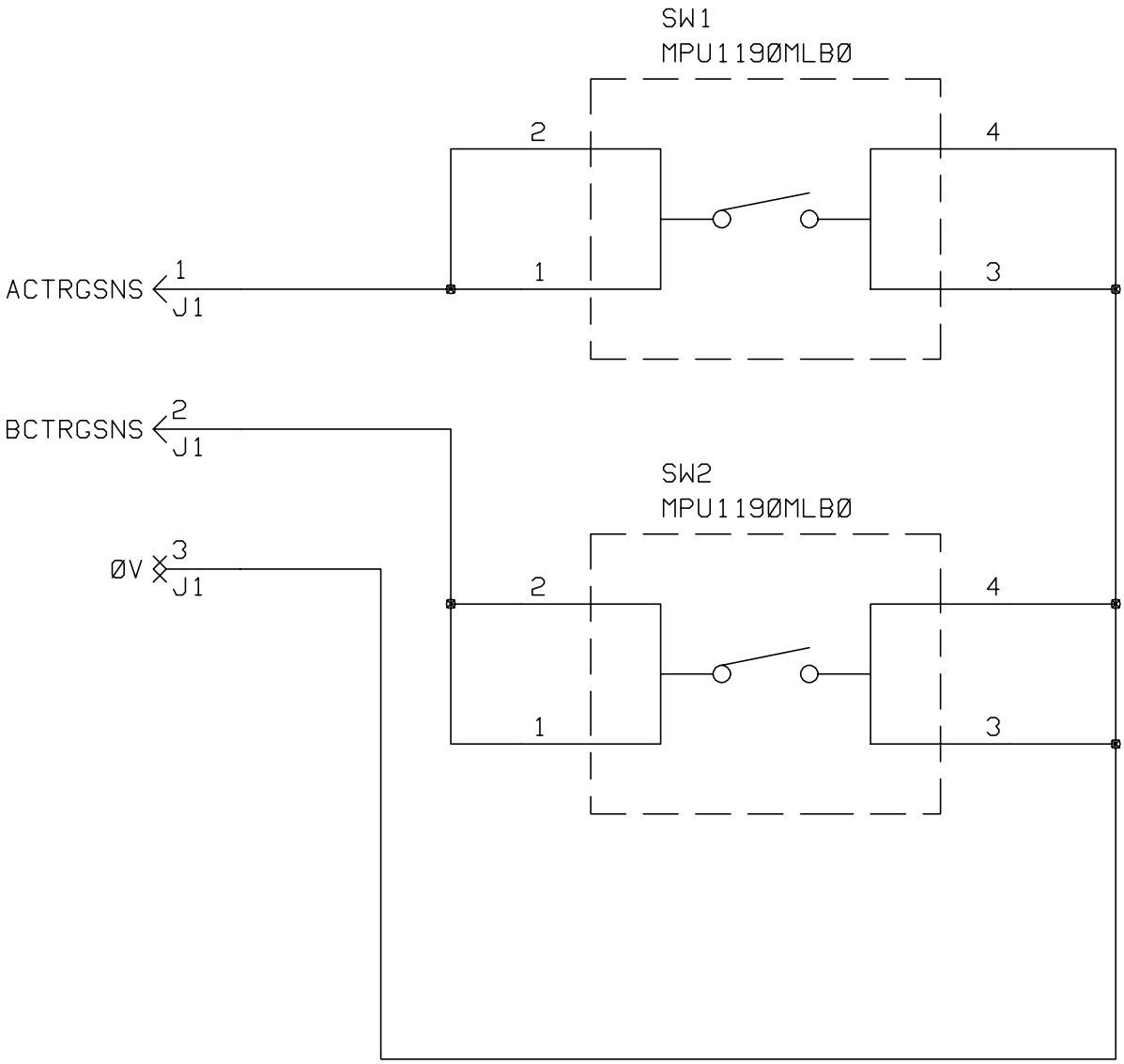



#4 H8S/2241
24LC02A
#5
DG-211
DG-211
MOLEX
52807-0310
POWER
CONNECTOR (P3)
MOLEX 52807-1810
DTA143ZKA
DTC123JKA
DTB113ZK
SW1: ALPS SPPW81145A
SW2: MATSUSHITA EVQPE2-04R
SW3: MATSUSHITA EVQPE2-04R
CODE
UJ7040000
NAME
MPMAIN-SCH01P1


ENCORDER
MOLEX 52806-0510
CONNECTOR (P6)
#7 UPD99250GJ
#8 UPD431000A
#7 UPD99250GJ
#6
PST591
RA1 3.3Kx4
RA2 3.3Kx4
RA3 100x4
RA4 100x4
XT1
CST20.0MXW
CODE
UJ7067000
NAME
MPMAIN-SCH01P2


#1 M54676FP
LF MOTOR CONNECTOR (P1) JST B4B-PH
HEAD CONNECTOR (P7) MOLEX 52559-3092
#3 HAT3004R
#2 HAT3004R
DC MOTOR CONNECTOR (P4) JST B2B-PH
DTC123JKA
1SS355
P-RET
ØV
+12V
+24V
LV
DCM1
DCM1N
DCM0
DCM0N
CODE
UJ7068000
NAME
MPMAIN-SCH01P3

Appendix 5. Cartridge Sensor Circuit Diagram



CODE	UJ7061000
NAME	MPCTRG-SCH01

Appendix B . Head Cleaning

The procedure of the Head cleaning might change later.

Note: ***When refurbishing the MP-21C/CDX, please note that the print head should be cleaned in accordance with the following procedure.***
The preparation for this refurbishing procedure needs another 1 unit of the MP printer.
This procedure needs 2 sets of each the IL cartridges BC and MY.
The printer having this refurbishing needs to be connected to a PC running MOBILEPAD.

Preparation

(1) Make sure that the power is off on the printer for preparation.
(2) Remove the Ink cartridges BC and MY from the printer.

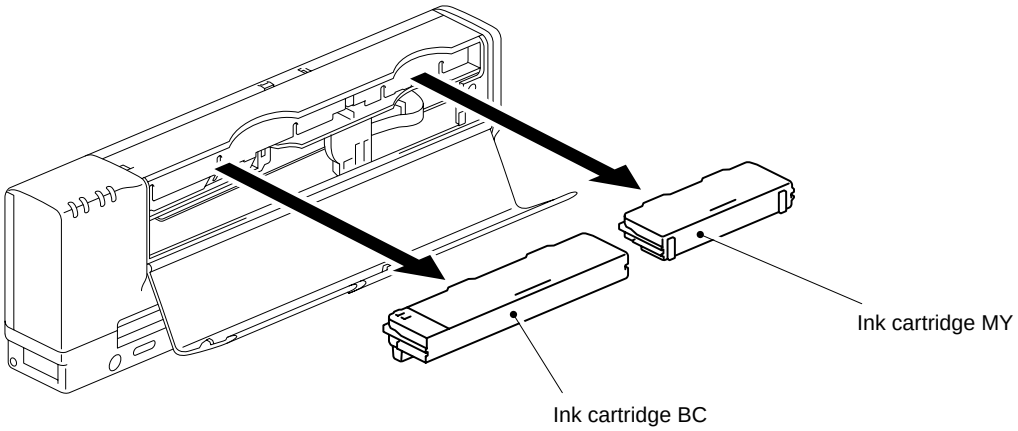


Fig. B.1

(3) Install the cleaning cartridges IL cartridge BC and MY. Connect the power cord and the parallel I/F cable to the printer. Then insert a small clip into the hole for the cover sensor and turn the power on.

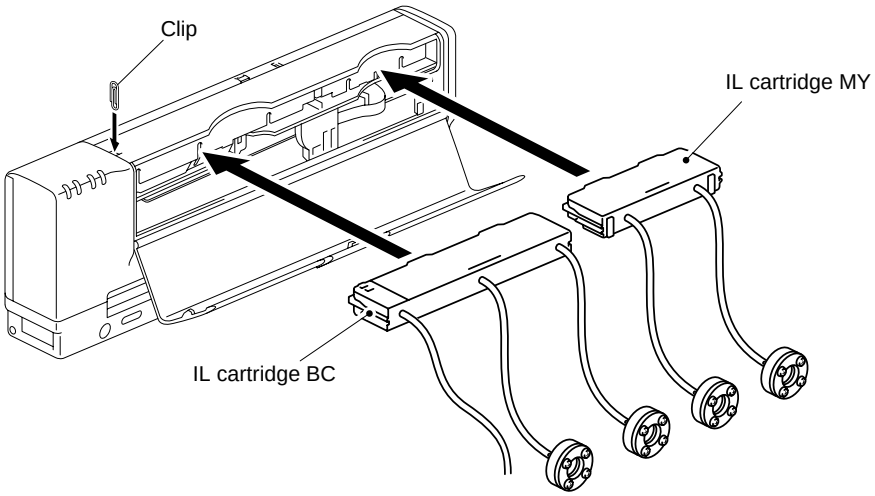


Fig. B.2

(4) Put the IL tubes into the bottle containing the Initial liquid. Put the Waste ink tube into the Waste ink bottle.

(5) Run the MOBILEPAD on the PC. Click [Tool] > [Control]. Tick the check box for each 4 color and click [P-Purge] button in order to bring the Initial liquid up to the Seal rubber.

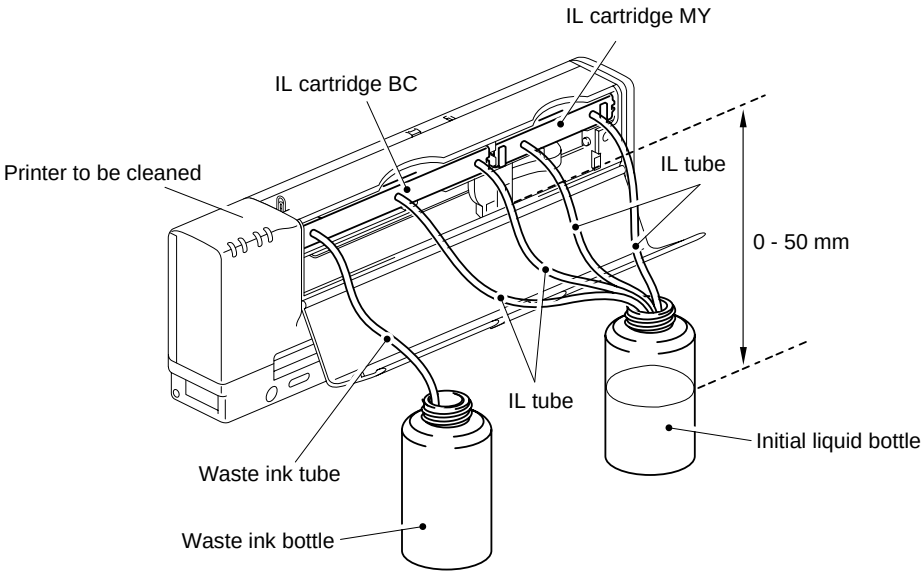


Fig. B.3

Note: The difference in height between the Print head nozzles and the surface of the Initial liquid must be in the range 0 - 50 mm.
It may needs an additional [N-Purge] several times more after carrying out the [P-Purge].

Cleaning the Print Head

(6) Make sure that the power is off on the printer to be cleaned.
(7) Remove the IL cartridges from the printer for the preparation.

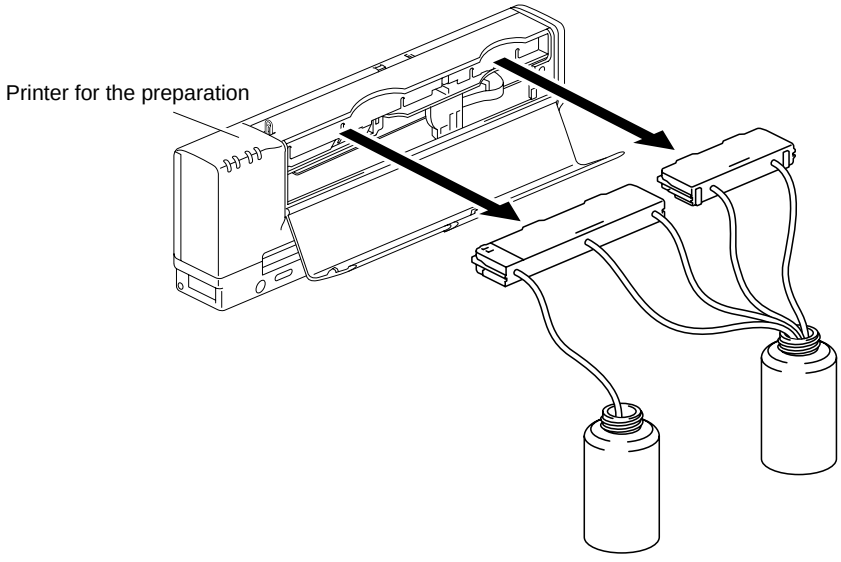


Fig. B.4

(8) Reinstall them into the printer to be cleaned. Connect the power cord and the parallel I/F cable to the printer.

(9) Turn the power on while holding down the Power and Clean button for 3 seconds or more to go into the Printer setting mode.

Note: See 3.2 Hidden Functions (Inspection Mode) for details of the Printer setting mode.

(10) Run the MOBILEPAD on the PC. Click [Tool] > [Control] > [Initial Liquid] button in order to take all remaining ink out of the printer and circulate the Initial liquid for the print head cleaning.

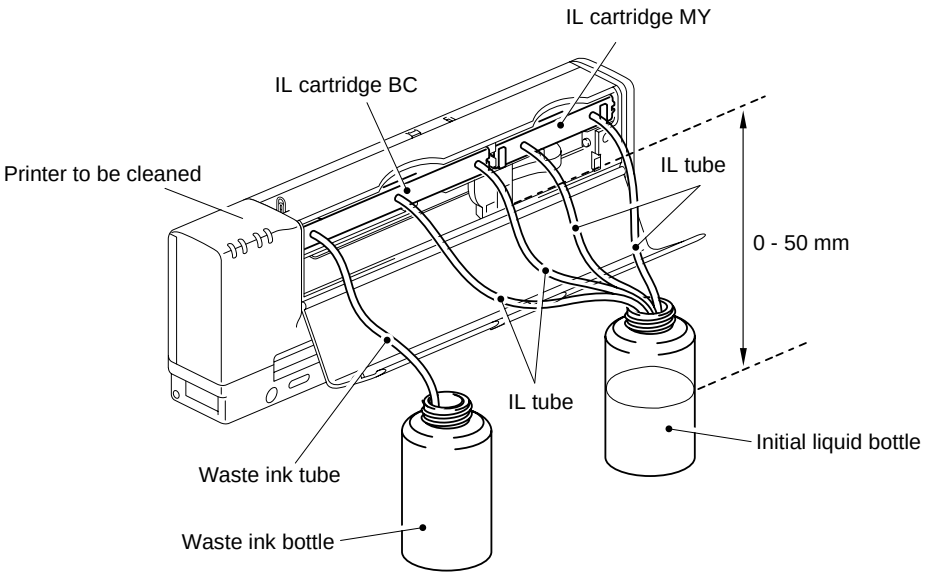


Fig. B.5

Note: The difference in height between the Print head nozzles and the surface of the Initial liquid must be in the range 0 - 50 mm.

(11) MOBLEPAD instructs you to replace the IL cartridges BC and MY with the Ink ejection cartridges BC and MY. Then click the OK button on the MOBLEPAD in order to drain the Initial liquid out of the printer.

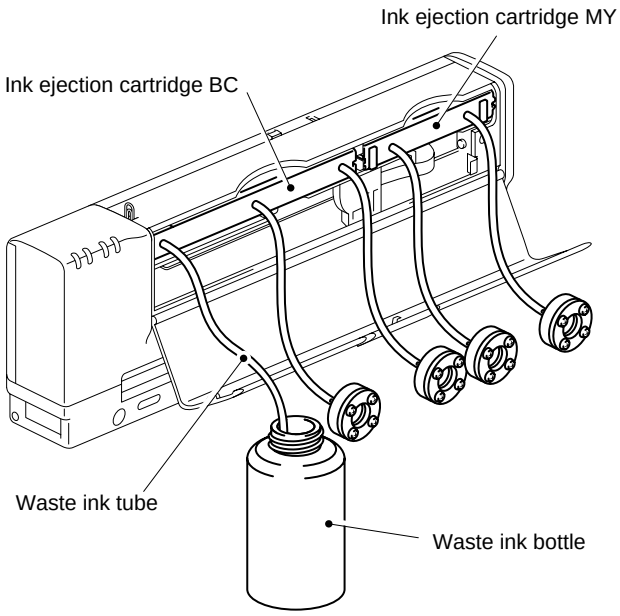


Fig. B.6

(12) Upon finishing above operation, the Print head moves fully to the right hand side of the printer automatically. Check if the Encoder strip is contaminated with ink, oil or dust. If the Encoder strip is contaminated, clean it with the Head cleaner stick.

(13)Place a Clean wiper head next to the ink suction cap as shown below.

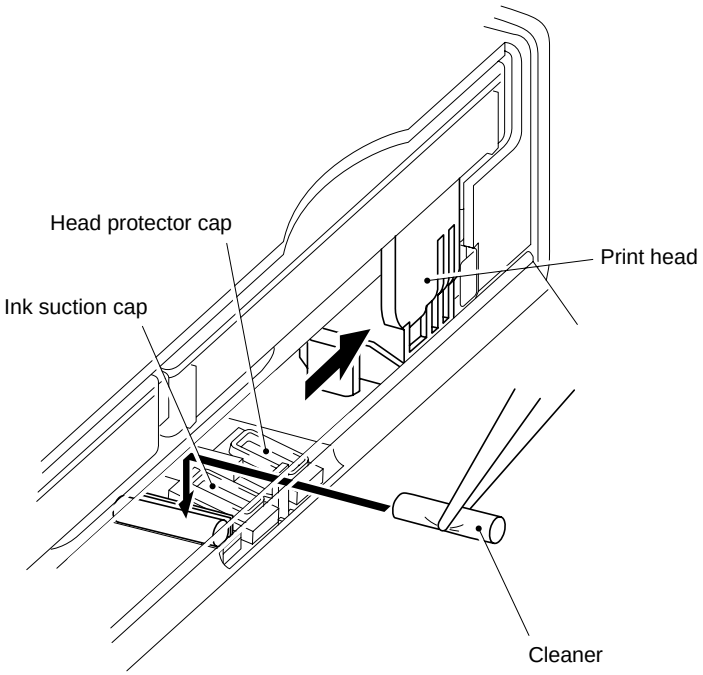


Fig. B.7

(14) Move the Print head by hand towards the left hand side.

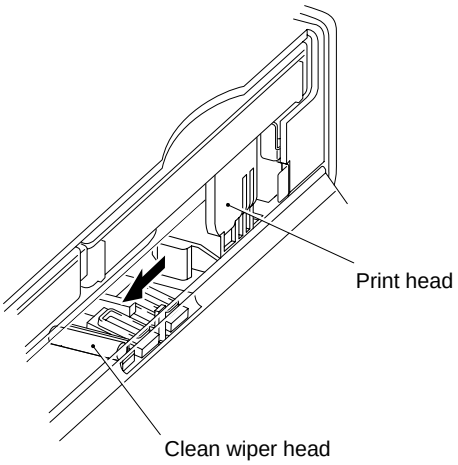


Fig. B.8

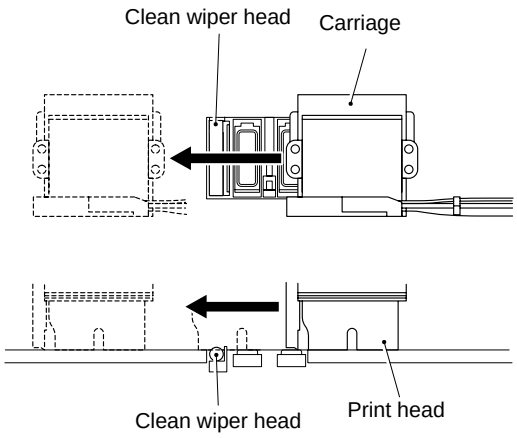


Fig. B.9

Note: When the carriage runs over the Clean wiper head, it is likely to push the Clean wiper head out of its position. Please move the carriage while holding the Clean wiper head in position with tweezers.

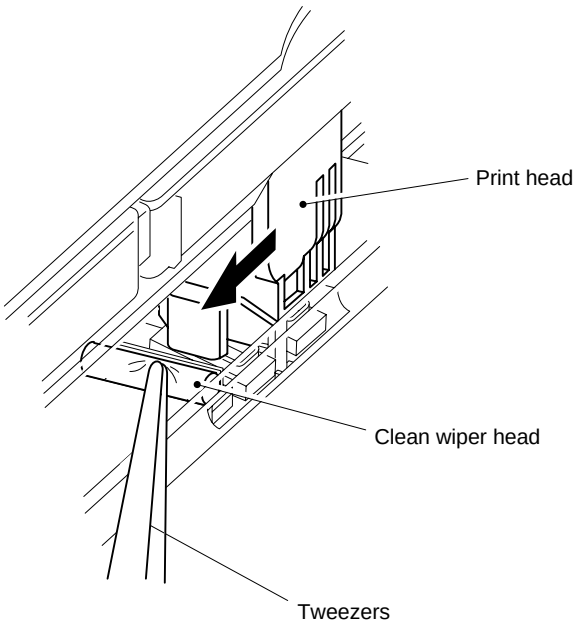


Fig. B.10

(15) Remove the Clean wiper head from the printer. Wipe the ink around the ribs on the Platen cover and the rib which is placed between the Ink suction cap and the Head protector cap with a Head cleaner stick.

Note: Slightly damp the Head cleaner, which is a white sponge portion of the Head cleaner stick with ***water.*** *(Do not use alcohol.)*

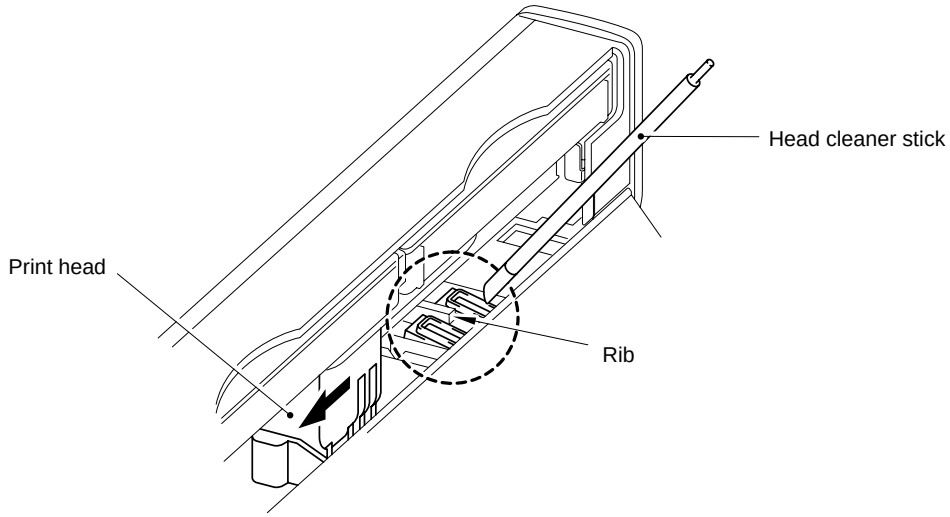


Fig. B.11

(16) MOBILEPAD asks you if the cleaning finished. Click the OK button on the MOBILEPAD. Then automatically the Print head returns to the capping position. Remove the clip from the Cover sensor and close the Top cover.

Note: The Seal rubber fitted in the adapter at the end of the IL tube should be replaced with new one after it has been used 3 times. The Seal rubber is supplied as a spare part with the number ZA0726001.

[Procedure for replacing the Seal rubber]

(1) Remove the IL cartridge BC and MY from the printer. Open the cover and take the adapters out.
(2) Pull the Seal rubber out of the adapter using a needle or similar sharp instrument.

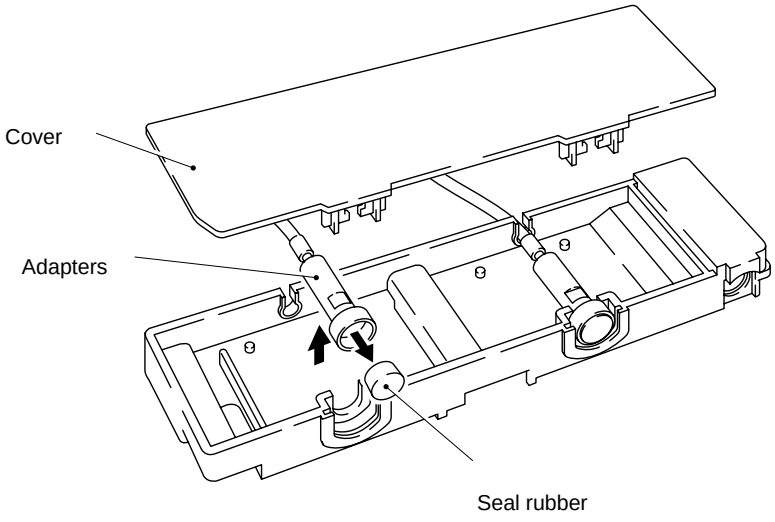


Fig. B.12

Note: Do not touch the Seal rubbers.
Use rubber globes when you handle them.

(3) Insert a new Seal rubber into the adapter and refit the adapter into position in the IL cartridge.

Note: To avoid unnecessary air bubble, replacement should be done below the level of the Initial liquid so that initial liquid comes up to the position of the Seal rubber.

(4) Close the cover.

Mar. ’99
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brother

Mobile Full Color Inkjet Printer MP-21C/CDX

Quick Setup Guide

Read this guidebook first to set up your printer and prepare your computer for the printer.
Be sure to save all packing materials and the outer carton.

The steps required for setting up the printer varies by model. Follow the order of setting up as shown in the chart below.

	MP-21C	MP-21CDX			Page
		Printer Interface Card	Parallel Cable	Optional PA-21MP	
A: Printer Interface Card	1	1			4
B: PC Card Cable	2	2			7
C: Parallel Cable			1	1	8
D: Ink	3	3	2	2	10
E: Printer Driver	4	4	3	3	13

UJ5394001Ⓐ
Printed in Japan

SETTING UP THE PRINTER

UNPACKING YOUR PRINTER

Setting Up

> **Note**
> After you have unpacked your printer, save the carton box and packing materials in case you want to move or ship the printer.

1. After unpacking the printer, remove the protective parts.

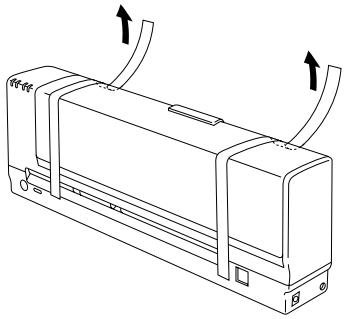

Fig. 1 Removing the Protective Parts

2. Check and see that you have all the items shown below.

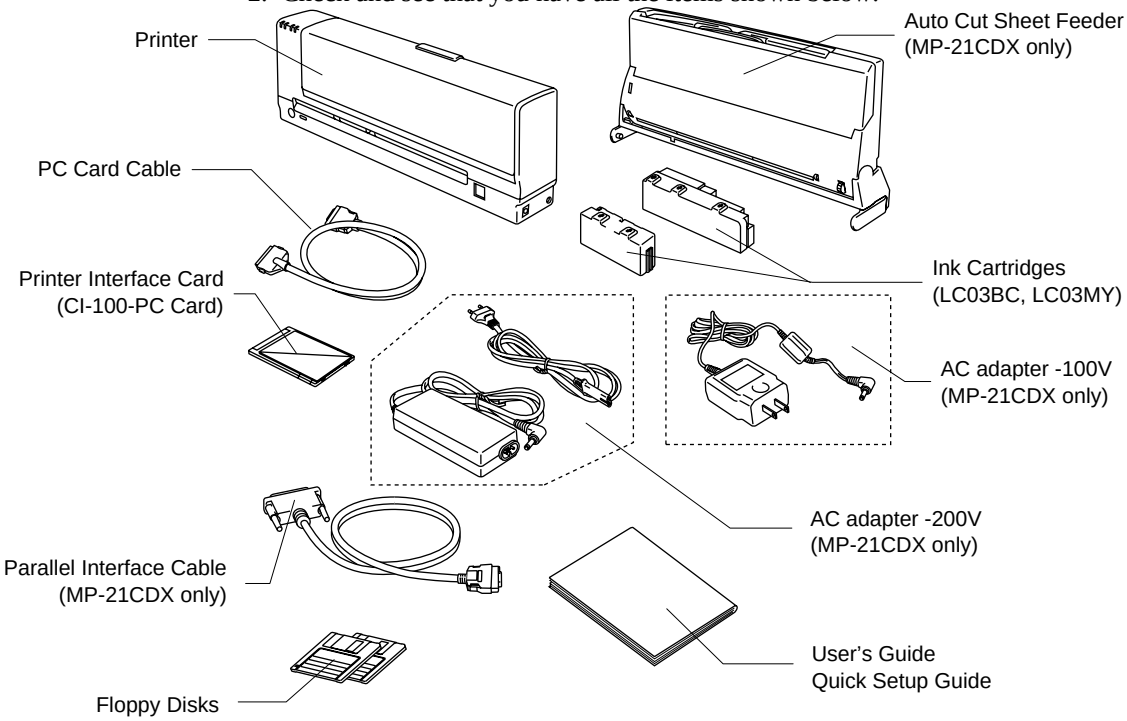

Fig. 2 Components in the Printer Carton Box

> **Note**
> You may have some additional parts not listed above depending on which country you live in.

Parts supplied with your printer

Model	MP-21 C	MP-21CDX
Printer	✓	✓
Ink Cartridges	✓	✓
Printer Interface Card	✓	✓
PC Card Cable	✓	✓
Auto Cut Sheet Feeder	× (Option)	✓
AC Adapter	× (Option)	✓
Parallel Interface Cable	× (Option)	✓

> **Caution**
> Be sure to follow the steps below in the correct order to ensure correct printer operation.

The steps required for setting up the printer varies by model. Follow the order of setting up as shown in the chart below.

	MP-21C	MP-21CDX		Optional PA-21MP	Page
		Printer Interface Card	Parallel Cable		
A: Printer Interface Card	1	1			4
B: PC Card Cable	2	2			7
C: Parallel Cable			1	1	8
D: Ink	3	3	2	2	10
E: Printer Driver	4	4	3	3	13

Computer Requirements

The following are the minimum computer requirements to setup and operate the printer.

CPU:	i486DX4 66MHz or higher
RAM:	8MB or more (16MB recommended)
Hard Disk Drive:	40Mbyte free space available
OS:	Windows® 3.1x/95/98

ABOUT YOUR PRINTER

Printer Overview

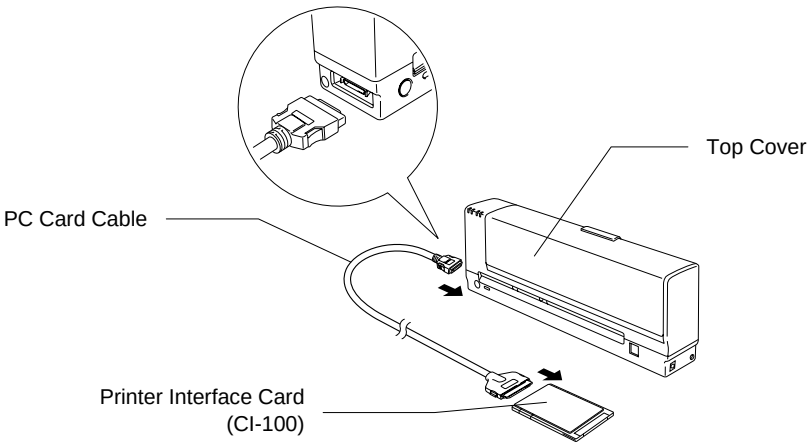

Fig. 3 Front View

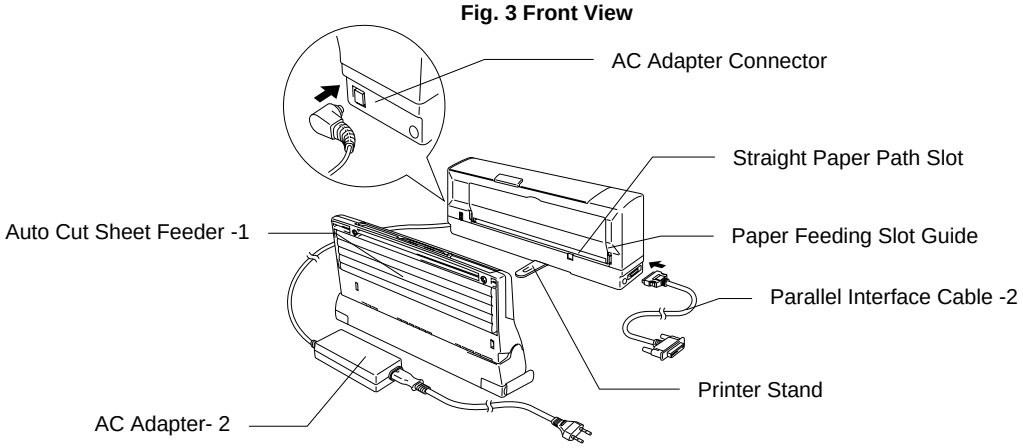

Fig. 4 Rear View

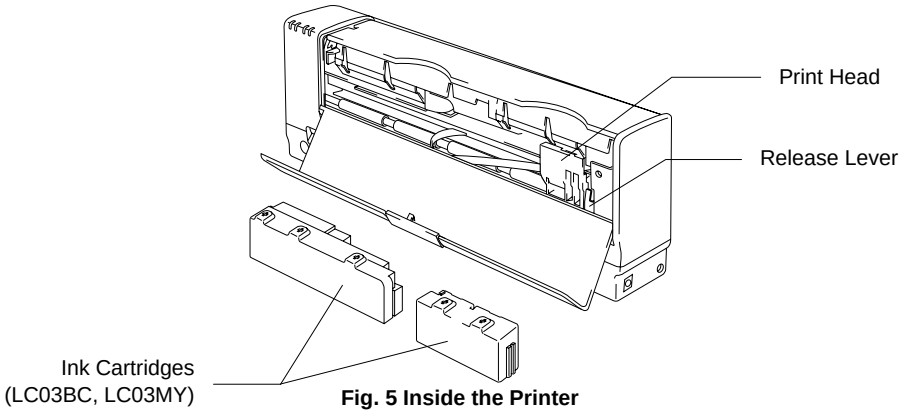

Fig. 5 Inside the Printer

1) MP-21CDX or optional SF-21MP users only
2) MP-21CDX or optional PA-21MP users only

A: INSTALLING THE PRINTER INTERFACE CARD

If you are not going to use the printer through the Printer Interface Card, skip sections ‘A’and ‘B’ and go straight to section ‘C’.
However, we recommend that you install the Printer Interface Card Driver at this point whether or not you intend to use the printer through the Printer Interface Card.

Caution

DO NOT remove the Printer Interface Card and the PC Card Cable when LEDs are on or blinking. Before you remove them, press the **(On/Off)** button and wait until all the LEDs are off.

Note

- Before installing the Printer Interface Card Driver, check that your computer is connected to a live power source or your computer has enough battery power left.
- If you remove the printer cable or turn the printer off while you are inserting the Printer Interface Card into the PC Card slot, and the printer does not work correctly after that, remove the Printer Interface Card from the slot and insert the card again and re-start the Printer Interface Card Driver installation.
- Before you install the PC Card Driver, be sure to set the Power Save mode of your computer off. For details, see your computer's manual.

Installing the Printer Interface Card Driver in Windows® 3.1

1. Make sure that the computer is turned off.
2. Connect the PC Card Cable to the Printer Interface Card. Insert the Printer Interface Card into the PC Card slot of your computer with the label side face up. Be sure to insert the card fully into the slot.

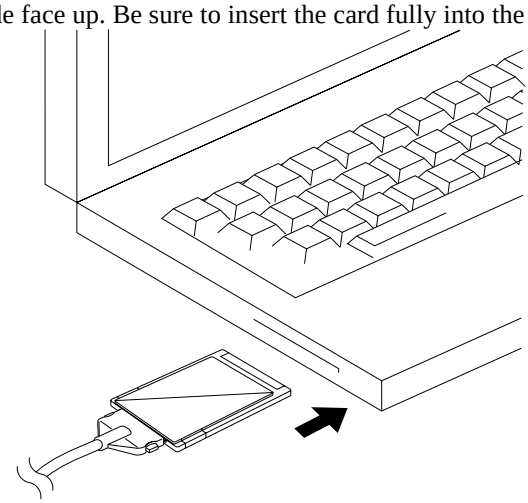

Fig. 6 Inserting the Printer Interface Card

3. Turn your computer on and start Windows 3.1.

4. Insert the supplied disk (Printer/PC Card Driver disk1) into your floppy disk drive A (or drive B).
5. Choose Run from the File menu in the Program Manager.
6. Type A:\CARDINST (or B:\CARDINST for drive B) in the Command Line box.
7. Choose the OK button or press the Enter key.
8. Follow the installation instructions that appear on the display monitor.
9. When the installation is complete, remove the disk from your floppy disk drive.
10. Restart your computer.
11. Turn off your computer.

Note
The 'Config.sys' file and 'Autoexec.bat' file in your system have been changed. The originals are saved as 'Config.up1' and 'Autoexec.up1'.

Installing the Printer Interface Card Driver in Windows® 95 / 98

1. Make sure that the computer is turned off.
2. Connect the PC Card Cable to the Printer Interface Card. Insert the Printer Interface Card into your computer's PC Card slot with the label side face up. Be sure to insert the card fully into the slot.
3. Turn your computer on.
4. When the 'New Hardware Found' screen appears, select the second option "Driver from disk provided by hardware manufacture" and press 'OK'.
5. Insert the supplied disk (Printer/PC Card Driver disk1) into your floppy disk drive: (drive A in most cases) and press 'OK'.

Note
If the following screen appears, type "A:" (Or your floppy disk drive name) and press the 'OK' button.

6. Follow the instructions that appear on the screen.
7. Restart your computer.

Note
If you have only one PC card slot in your PC, you will need to copy the contents of the Printer Interface Card Driver onto your hard disk.

Note
If the Printer Interface Card is not detected by the PC, open "Device Manager" in the "System" folder in "Control Panel". Find "Unknown Device" and delete it.

Note
If you are using a type of computer that allows you to connect a Floppy Disk Drive to the printer port, remove the Floppy Disk Drive before you restart your computer.

B: CONNECTING THE CABLES - PC Card Cable

Connect Your Printer To Your Computer

You can connect the printer through the Printer Interface Card or through the Parallel Interface cable (MP-21CDX or PA-21MP users only).

How to connect the PC card cable to your computer and printer

1. Connect the PC Card Cable to the printer.

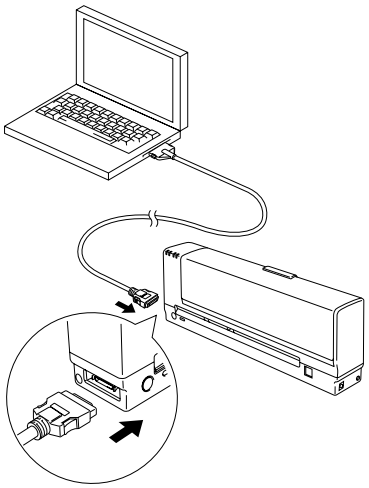

Fig. 7 Connecting the PC Card Cable

C: CONNECTING THE CABLES - Parallel Interface Cable

How to connect the AC Adapter and Parallel Interface Cable to your computer and printer (MP-21CDX or optional PA-21MP users only)

> **Note**
> Only the MP-21CDX model is shipped with an AC Adapter and Parallel Interface Cable. If you would like to purchase them as an option, the order number is PA-21MP.

1. Connect the AC Adapter to your printer and plug it into the mains.

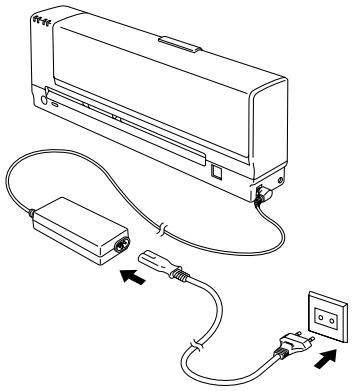

Fig. 8 Connecting the AC Adapter

2. Connect the Parallel Interface Cable to the printer.

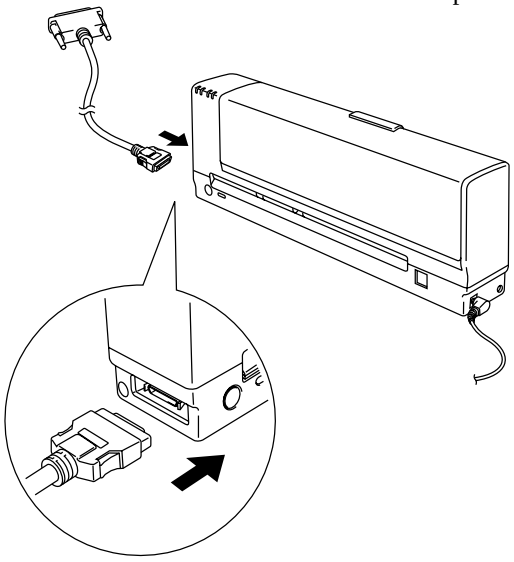

Fig. 9 Connecting the Parallel Interface Cable

3. Connect the Parallel Interface Cable to your computer.

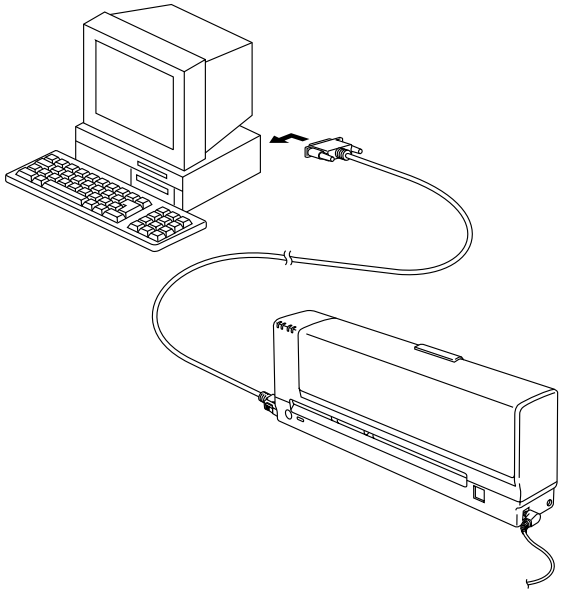

Fig. 10 Connecting the Parallel Interface Cable

Note
You need to use the AC adapter when you connect using the parallel interface cable.

Note
This printer does not support ECP mode.
If the printer port is set as an ECP port, change it to be a bi-directional port. See your PC's manual for how to change the printer port.

1. Click 'Start' and select 'Printer' from the 'Setting' tab.
2. Click the right mouse button on the 'MP-21C' icon and click 'Properties'.
3. Click the 'Details' tab and select 'LPT1' from the 'Print to the following port' drop down list.

D: INSTALLING THE INK CARTRIDGES

Installation

How to install the ink cartridges

Caution

When you connect the printer through the Printer Interface Card, make sure that the PC Card Cable is connected securely and your PC is on.

1. Turn the Printer Stand at the bottom of the printer outwards so that the printer will be stable.

2. Make sure that the LEDs are on. If the LEDs are off, press the **(On/Off)** button to turn the printer on. Open the top cover.

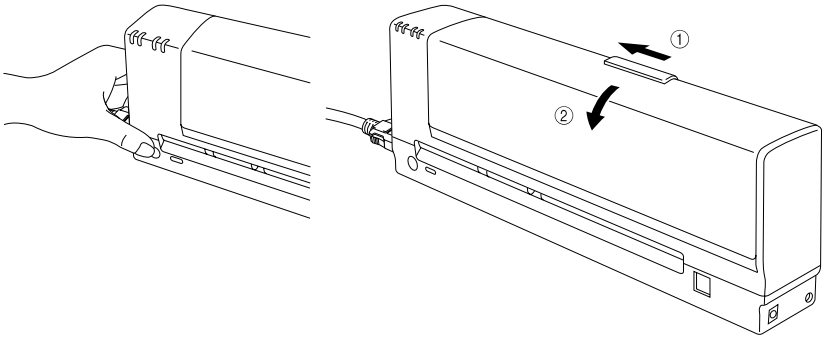

Fig. 11 Open the Top Cover

Warning

DO NOT push the shutter with your fingers.
Sharp pins are in the Ink Cartridge Slot. If you touch them, it might cause injury.

Note

If the LEDs do not come on, even after you pressed the **(On/Off)** button, go back to 'A' and 'B' and repeat these operations again.

3. Open an ink cartridge bag and take the cartridge out of the bag.

4. Insert the new LC03BC ink cartridge, making sure it is inserted in the correct position referring to the indications on the label. Push it fully into the slot using both hands. Make sure that the **(BC)**LED turns off.

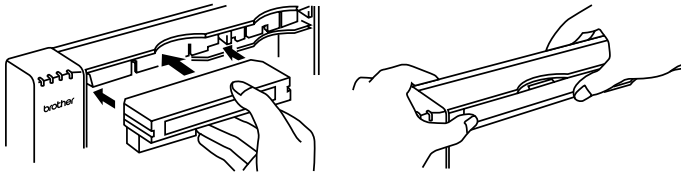

Fig. 12 Install BC Ink Cartridge

> **Caution**
> - Be sure to insert the ink cartridge securely.
> - Do not push down on the printer when you install the ink cartridges.

5. Repeat actions 3 to 4 and install the LC03MY ink cartridge into your printer and make sure that the **(MY)**LED goes off.

Fig. 13 Install MY Ink Cartridge

6. Close the top cover. Your printer will automatically carry out head cleaning and become ready to print. When the printer is carrying out head cleaning, all the LEDs blink alternately. It takes about 8 minutes to finish the head cleaning, wait until the LEDs stop blinking.

Caution

- Once you have installed a cartridge, DO NOT take it out until you need to replace it with a new one, otherwise the print quality may be reduced.
- If the Ink LEDs (**(BC)**LED and **(MY)**LED) and the **(Alarm)** LED are on after you have installed the ink cartridges, check that the ink cartridges are installed correctly.
- If you take an ink cartridge out, do not re-use it.
- The print head may be damaged if you install ink cartridges other than Brother original or if you use refilled ink cartridges. You might void your warranty.
- Do not insert or remove ink cartridges while the printer is doing the following;
  *printing
  *cleaning the print head (when all the LEDs are blinking in turn.)
  *feeding or ejecting paper
- When you insert ink cartridges, place the printer on a flat surface and take care not to insert the ink cartridges upside down.
- Use the ink cartridge up within 6 months after you installed it into the printer.
- It takes several minutes for the printer to clean its print head. DO NOT turn off the printer when all the LEDs are blinking in turn.
- After carried out head cleaning, sometimes ink stains the first print page. We recommend you print a test page right after you have carried out head cleaning.

E: INSTALLING THE PRINTER DRIVER

Installing the Windows ® 95/98 Printer Driver

You need to configure Windows® 95/98 for the printer by installing the printer driver from the supplied disks into Windows® 95/98.

1. Make sure that your computer is on.
2. Make sure that your printer is on.

> **Note**
> If the "New Hardware Found" screen appears, press the 'Cancel' button.

3. Click the Start button and choose Run.
4. Insert the supplied disk for Windows® 95/98 (Printer/PC Card Driver disk 1) into your floppy disk drive: (drive A in most cases).

5. Type A:\SETUP and choose the OK button or press the Enter key.

> **Note**
> If you use a drive other than drive A, type the drive name in the "Copy manufacturers files from" box on the screen.

6. Follow the instructions that appear on the screen.

7. When installation is complete, remove the disk from the drive.

8. Restart your computer.

Installing the Windows® 3.1 Printer Driver

You need to set up this printer by installing the printer driver into Windows® 3.1. Since the supplied printer driver is compressed on the disks, be sure to use the supplied Setup program to install them as follows :

1. Start Windows® 3.1.
2. Insert the supplied disk (Printer/PC Card Driver disk 1) into your floppy disk drive A (or drive B).
3. Choose Run from the File menu in the Program Manager.
4. Type A:\SETUP (drive A in most cases) in the Command Line box.

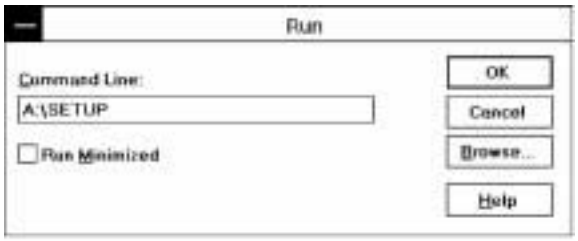

Fig. 14 Windows® 3.1 screen

5. Choose the OK button or press the Enter key.
6. Follow the instructions that appear on the display monitor.
7. When the installation is complete, remove the disk from your floppy disk drive.
8. Restart your computer.

After Installing the Printer Drivers

Monitor Calibration procedure

The printer driver needs to know the color settings of your monitor in order to be able to correctly reproduce colors that you see on your monitor screen.

1. Run the Monitor Calibration program.
2. Select the Advanced button.
3. Carry out the adjustment for the color level and balance for all three colors following the instructions on the screen.
4. Click OK to save the settings.

After you have installed the printer drivers, try the ‘Test Print’ from the printer driver as follows.

> **Note**
> When the color level and balance does not match exactly, select the ones that are the closest.

Test Print

1. Select ‘Maintenance’ from the MP-21C series group in Windows®.
2. Click ‘Test Print’.

> **Note**
> - When you do the Test Print, insert A4 or Letter size plain paper into the printer.
> - After you have printed out a test page and if you find white lines in the printout, press the **Clean** button to clean the print head or do so from the maintenance tool of the printer driver.

Adjusting Vertical Lines

If the vertical lines are not straight, carry out the Vertical Alignment adjustment from the printer driver.

When you do this, load A4 or Letter size plain paper. For how to load paper, see Chapter 2 in the User's Guide.

1. Select 'Maintenance' from the MP-21C series group in Windows®.

2. Click 'Vertical Alignment.'.

If you are using the printer through the Printer Interface Card, the printer will carry out adjustment for slow speed mode.
If you are using the printer with the AC adapter, the printer will carry out adjustment for fast speed mode.

See Fig. 15 and Fig. 16 below. From the adjustment pattern page which the machine has just printed out, select the pattern number which looks most like Fig. 15 for both slow speed mode and fast speed mode.

Fig. 15 Good Sample

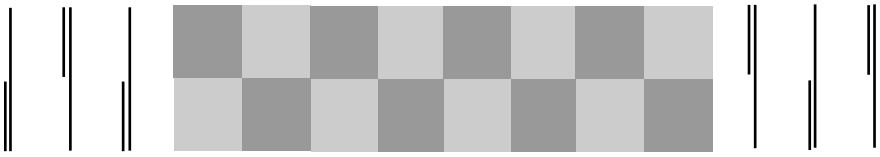

Fig.16 Bad Sample

Note

- If you are not sure which number pattern is the right one, select the one where the short and long vertical lines on the adjustment pattern are matched or the closest.
- If you can find more than one pattern in which the short and long vertical lines are matched, compare the gray shaded part and select the number pattern in which all the check patterns look the same.
- When the AC Adapter is not connected, the printer carries out only slow speed mode vertical lines adjustment. When you use the AC Adapter, connect the AC Adapter and try adjusting the vertical lines again from the driver.
- If you cannot correct the vertical alignment at the first setting, you can repeat the alignment procedure through the printer driver.

Brother Mobile Full Color Inkjet Printer

MP-21C/CDX

User's Guide

Please read this manual thoroughly before using the printer.
Keep this manual in a convenient place for quick and easy reference at all times.

Shipment of the Printer

If for any reason you must ship your Printer, carefully package the Printer to avoid any damage during transit. It is recommended that you save and use the original packaging. The Printer should also be adequately insured with the carrier.

Warning

When shipping the Printer, **DO NOT** remove the **INK CARTRIDGES** from the Printer. **Failure to fit the ink cartridges into the Printer during shipping will cause severe damage to the Printer and will VOID THE WARRANTY.**

1 DO NOT remove the ink cartridges. Push the ⏻ **(On/Off)** button to turn the printer off.

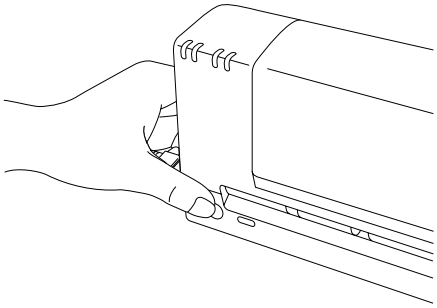

Fig. 0-1 Turning the Printer off

2 Turn your computer off and remove the Printer Interface Card from the computer. Remove the PC Card cable from the printer and from the Printer Interface Card. Remove the AC Adapter and Parallel Interface Cable if connected (MP-21CDX or PA-21MP user only).

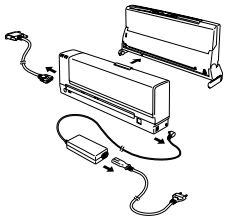

Fig. 0-2 Remove the Cable

3 Pack the printer in the original carton box and tape it securely closed.

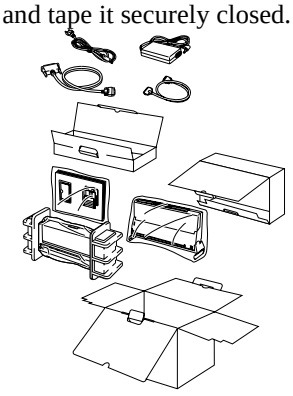

Fig. 0-3 Repacking

Caution

- Make sure the printer has the ink cartridges fitted when shipping.
- DO NOT turn the printer upside down while shipping.
- If the print quality reduces after you have shipped the printer, clean the print head. (See 'Cleaning the Print Head' in Chapter 4)

(For USA & CANADA Only)

For technical and operational assistance, please call:

In USA	1-877-284-3238	(outside California)
	949-859-9700 Ext. 329	(within California)
In Canada	1-800-853-6660	
	514-685-6464	(within Montreal)

If you have comments or suggestions, please write us at:

In USA	Printer Customer Support Brother International Corporation 15 Musick Irvine, CA 92618
In Canada	Brother International Corporation, Ltd. 1, Rue Hôtel De Ville Dollard-des-Ormeaux P.Q. Canada H9B3H6

BBS
For downloading drivers from our Bulletin Board Service, call:

In USA	1-888-298-3616
In Canada	1-514-685-2040

Please log on to our BBS with your first name, last name and a four digit number for your password. Our BBS supports modem speeds up to 14,400, 8 bits no parity, 1 stop bit.

Fax-Back System
Brother Customer Service has installed an easy to use Fax-Back System so you can get instant answers to common technical questions and product information for all Brother products. This is available 24 hours a day, 7 days a week. You can use the system to send the information to any fax machine, not just the one you are calling from.
Please call 1-800-521-2846 (USA) or 1-800-681-9838 (Canada) and follow the voice prompts to receive faxed instructions on how to use the system and your index of Fax-Back subjects.

DEALERS/SERVICE CENTERS (USA only)
For the name of an authorized dealer or service center, call 1-800-284-4357.

SERVICE CENTERS (Canada only)
For service center address in Canada, call 1-800-853-6660

INTERNET ADDRESS
For technical questions and downloading drivers:**http://www.brother.com**

UJ5351001
Printed in Japan

brother

Mobile Full Color Inkjet Printer

MP-21C/CDX

USER'S GUIDE

(For USA & CANADA Only)

For technical and operational assistance, please call:

In USA	1-877-284-32387746	(outside California)
	949-859-9700 Ext. 329	(within California)
In CANADA	1-800-853-6660	
	514-685-6464	(within Montreal)

If you have comments or suggestions, please write us at:

In USA	Printer Customer Support Brother International Corporation 15 Musick Irvine, CA 92718
In CANADA	Brother International Corporation (Canada), Ltd. - Marketing Dept. 1, rue Hôtel de Ville Dollard-des-Ormeaux, PQ, Canada H9B 3H6

BBS
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Please log on to our BBS with your first name, last name and a four digit number for your password. Our BBS supports modem speeds up to 14,400, 8 bits no parity, 1 stop bit.

Fax-Back System
Brother Customer Service has installed an easy to use Fax-Back System so you can get instant answers to common technical questions and product information for all Brother products. This is available 24 hours a day, 7 days a week. You can use the system to send the information to any fax machine, not just the one you are calling from.
Please call 1-800-521-2846 (USA) or 1-800-681-9838 (Canada) and follow the voice prompts to receive faxed instructions on how to use the system and your index of Fax-Back subjects.

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SERVICE CENTERS (Canada only)
For service center addresses in Canada, call 1-800-853-6660

INTERNET ADDRESS
For technical questions and downloading drivers: **http://www.brother.com**

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Under the supervision of Brother Industries Ltd., this manual has been compiled and published, covering the latest product's descriptions and specifications.

The contents of this manual and the specifications of this product are subject to change without notice.

Brother reserves the right to make changes without notice in the specifications and materials contained herein and shall not be responsible for any damages (including consequential) caused by reliance on the materials presented, including but not limited to typographical and other errors relating to the publication.

Definitions of Warnings, Cautions, and Notes

The following conventions are used in this User's Guide:

Warning
Indicates warnings that must be observed to prevent possible personal injury.

Caution
Indicates cautions that must be observed to use the printer properly or prevent damage to the printer.

Note
Indicates notes and useful tips to remember when using the printer.

To Use the Printer Safely

Warning
DO NOT put your hands into the printer while it is printing to avoid causing injury.

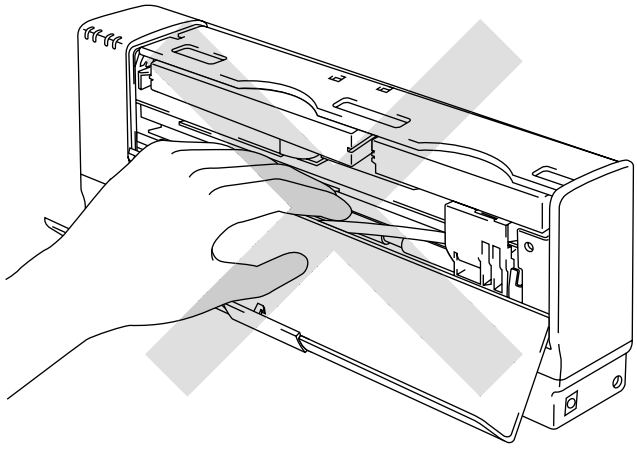

Fig. 0-1 Inside the Printer

Warning
Keep the ink cartridges away from children. If ink is swallowed, drink plenty of water. The ink contains no harmful substances, but if you are concerned you should consult a doctor.

⚠ Warning

Before cleaning the printer platen, be sure to turn off the ⏻(On/Off) button and make sure that all the LEDs are off. Remove the Printer Interface Card Cable and AC Adapter if connected (MP-21CDX or optional PA-21MP users only) from the printer.

⚠ Warning

DO NOT put your hands into the printer or move the carriage by hand. The printer may move the carriage by itself and cause injury.

⚠ Warning

DO NOT push the shutters in the ink cartridge slot with your fingers. There are sharp pins inside the Ink Cartridge Slot. If you touch them, it might cause injury.

Printer Do's and Don't for Optimum Print Quality

❗ Caution

DO NOT touch the nozzles and the print head. DO NOT move the print head by hand or remove the print head from the printer.

❗ Caution

During thunderstorms, push the ⏻**(On/Off)** button to turn off the printer and make sure that all the LEDs are off. Remove the Printer Interface Card Cable and AC Adapter if connected (MP-21CDX or optional PA-21MP users only).

Caution

DO NOT touch the flat cable and Ink Tube.

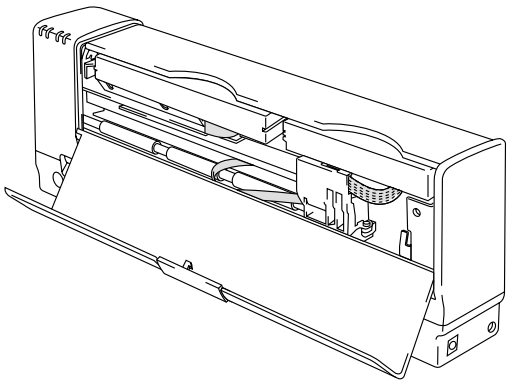

Fig. 0-2 The Flat Cable and Ink Tube

Caution

Keep the printer on a flat surface.

Caution

DO NOT move or shake the printer while it is printing.

Caution

Do not disassemble the printer.

Caution

DO NOT remove the Printer Interface Card, PC card cable or AC Adapter if connected (MP-21CDX or optional PA-21MP users only) while the printer LEDs are on or blinking.

Caution

When you carry the printer in your car, put the printer in a protective bag or wrap the printer in a cloth.

Caution

When you carry the printer , put the printer in a plastic bag .

Caution

If the printer get wet, wait until it dries out completely before attempting to print.

Caution

If you drop the printer, check that there are no broken parts. If you find some parts broken, consult your dealer or our authorized service representative.

Note

We recommend you select the status monitor ON when you use the printer.

Printer Do's and Don't When Traveling

Caution
DO NOT leave the printer inside your car.

Caution
DO NOT shake or damage the printer.

Caution
When you carry the printer keep it upright.

Caution
When you travel by air, do not put the printer in your suitcase. Carry the printer onto the aircraft as hand baggage.

Caution
When you carry the printer, keep the ink cartridges installed.

Note
If you take the printer and AC adapter abroad, make sure that the power plug and the voltage requirements of the printer are correctly matched.

Note
It is recommended that you carry spare Brother Ink Cartridges when you travel with your printer.

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CHAPTER 5 TROUBLE SHOOTING

APPENDIX

IMPORTANT INFORMATION: REGULATIONS

Federal Communications Commission (FCC) Declaration of Conformity (For U.S.A. only)

Responsible Party: Brother International Corporation
100 Somerset Corporate Boulvard
Bridgewater, NJ 08807-0911, USA
TEL : (908) 704-1700

declares, that the products

Product Name: Brother Mobile Inkjet Printer MP-21C/CDX,
Printer Interface Card CI-100
AC Adapter AD-100MP, AD-200MP (for MP-21CDX or optional PA-21MP user)

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

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Important

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

Industry Canada Compliance Statement (For Canada only)

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Radio Interference (220-240 V model only)

This printer complies with EN55022(CISPR Publication 22)/Class B.

Before this product is used, ensure that you use a double-shielded interface cable with twisted-pair conductors and that is marked "IEEE1284 compliant". The cable must not exceed 1.8 metres in length.

IMPORTANT - For Your Safety

When you use an AC Adapter with this printer, be sure to use only the Brother option part number AD-100MP(100V), or AD-200MP(200V) .

Geräuschemission / Acoustic Noise Emission (For Germany Only)

Lpa < 70 dB(A) DIN 45635-19-01-KL2

IMPORTANT - Wiring Information (For U.K. only)

If the power cord supplied with the AC Adapter (for MP-21CDX or option) is not suitable for your electrical outlet, remove the plug from the mains cord and fit an appropriate three pin plug. If the replacement plug is intended to take a fuse then fit the same fuse as the original.

If a moulded plug is severed from the power cord then it should be destroyed because a plug with cut wires is dangerous if plugged into a live socket outlet. Do not leave it where a child might find it.

In the event of replacing the plug fuse, fit a fuse approved by ASTA to BS1362 with the same rating as the original fuse.

Always replace the fuse cover. Never use a plug with the cover omitted.

WARNING - DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER 'E', BY THE EARTH SYMBOL ⏚OR COLOURED GREEN OR YELLOW.

The wires in the mains cord are coloured in accordance with the following code:

Blue:	Neutral
Brown:	Live

The colours of the wiring in the power lead of this AC Adapter may not correspond with the markings which identify the terminals in your plug. If you need to fit a different plug, proceed as follows.

Remove a length of the cord outer sheath, taking care not to damage the coloured insulation of the wires inside.

Cut each of the wires to the appropriate length.

Remove a short section of the coloured insulation to expose the wires.

The wire which is coloured blue must be connected to the terminal which is marked with the letter "N" or coloured black or blue.

The wire which is coloured brown must be connected to the terminal which is marked with the letter "L" or coloured red or brown.

The outer sheath of the cord must be secured inside the plug. The coloured wires should not hang out of the plug.

DECLARATION OF CONFORMITY (EUROPE)

We, Brother International Europe Ltd.,
Brother House 1 Tame Street, Guide Bridge,
Audenshaw, Manchester M34 5JE, UK.

declare that this product is in conformity with the following normative documents:

EMC: EN 55022 Class B, EN 50082-1

following the provisions of the Electromagnetic Compatibility Directive 89/336/EEC (as amended by 91/263/EEC and 92/31/EEC) and that the AC Adapter, as supplied with this system, conforms with EN 60950. This system also follows the provisions of the Low Voltage Directive 73/23/EEC.

Issued by:

Brother International Europe Ltd.
European Technical Services Division

CE

CHAPTER 1
INTRODUCTION

ABOUT THE GUIDEBOOKS

You have two guidebooks for this printer. Read each guidebook in the following order:

1. Read the Quick Setup Guide to set up your printer and connect it to your computer. It also contains information about setting up your computer for your printer by installing the printer driver.

2. Read the Users Guide to obtain information about the following.

   CHAPTER 1 - Introduction

   CHAPTER 2 - Paper Handling

   CHAPTER 3 - Control Panel

   CHAPTER 4 - Maintenance

   CHAPTER 5 - Troubleshooting

   APPENDIX

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ABOUT YOUR PRINTER

Printer Overview

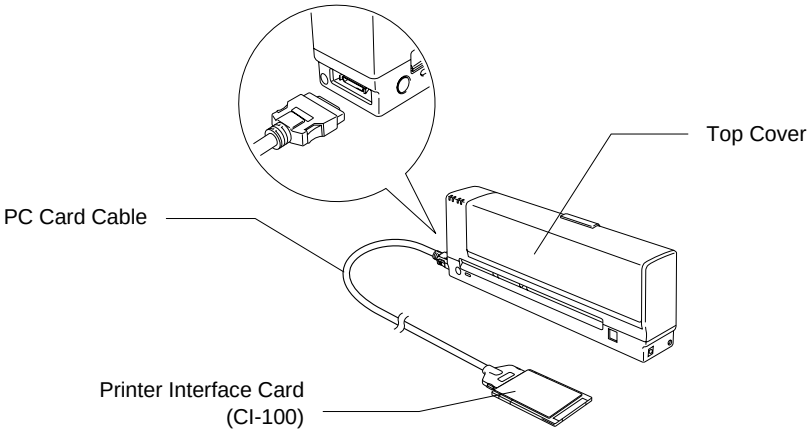


Fig. 1-1 Front View

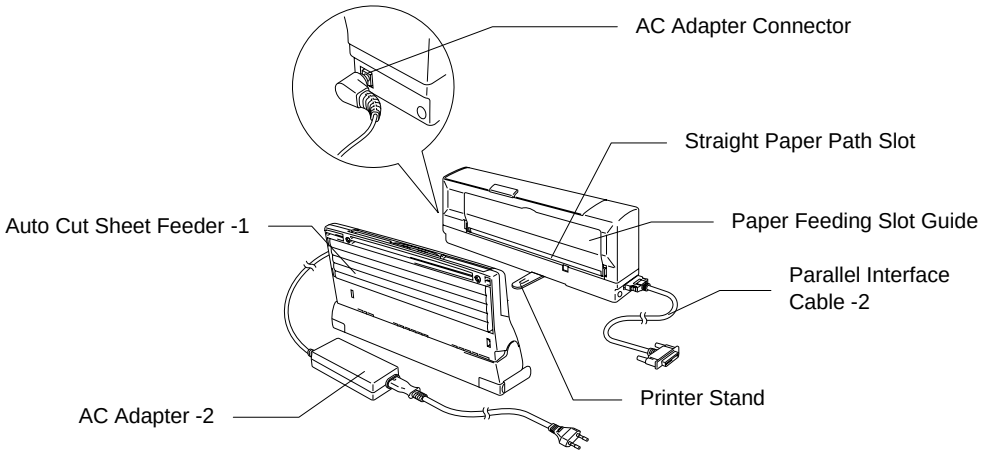


Fig. 1-2 Rear View

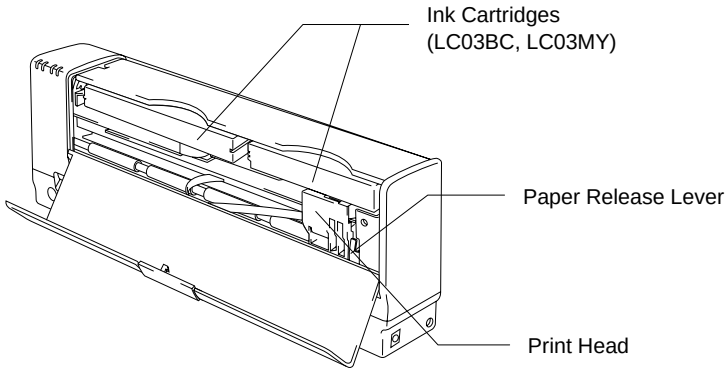


Fig. 1-3 Inside the Printer

1-(MP-21CDX or optional SF-21MP users only)
2-(MP-21CDX or optional PA-21MP users only)

Features

This printer has the following features:

- **Small and Light InkJet Printer**
  This printer weighs about 1kg (2.2 lbs.) and the footprint is very small. You can take the printer with you anywhere, any time you want.
- **Lowest Power Consumption in the World**
  Power consumption is so small (2.5-3.0 W: printing, 0.5 W: waiting) that it is possible to take power from a Notebook PC through the Printer Interface Card. Even if you use the AC adapter (MP-21CDX or optional PA-21MP users only), it's also easy to carry around.
- **Quietest InkJet Printer in the World**
  The printer is so quiet (less than 40dBA), that the printer never disturbs you while you are working.
- **No need for an AC Adapter or Printer Cable**
  The printer can take power from the Notebook PC through the Printer Interface Card. Therefore you do not have to carry an AC adapter and a printer cable with you all the time.
- **Brilliant 4 Color Output at 720 dpi**
  You can get wonderful output at 720 by 720 dpi resolution. When you print on Brother special coated paper and glossy paper, you can get excellent high resolution output.
- **Two color print mode**
  When you select this mode through the printer driver, you can print the color output in two colors. You can select Black/Cyan, Black/Magenta or Black/Yellow.
- **Low Running Cost**
  You don't have to throw the print head of your printer away every time you have emptied an ink cartridge. When you run out of ink, you have to change only ink cartridges.
- **Straight Paper Path**
  The printer can print on various types of paper - plain paper, coated paper, glossy paper, transparencies, envelopes and organizers - with fewer paper jams.
- **Auto Cut Sheet Feeder (MP-21CDX or SF-21MP users only)**
  The Feeder is detachable.When using the Feeder, you can easily load up to 30 sheets of paper. When carried with the printer it fits on the bottom of the printer and the total size including the printer is about A4 size.
- **AC Adapter and Parallel Interface Connector (MP-21CDX or PA-21MP users only)**
  When you want to print faster, use the AC Adapter.
  When you cannot print using the PC Card slot, use the Parallel Interface Cable and AC adapter instead.

Operating and Storage Environment

Please take note of the following before using the printer.

Power Supply

Use the printer within the specified power range.

AC power: ±10% of the rated power voltage
Frequency: 50/60 Hz (100-120V or 220-240 V)

The power cord, including extensions, should not exceed 5 meters (16.5 feet).

Do not share the same power circuit with other high-power appliances, particularly an air conditioner, copier, shredder, etc. If it is unavoidable that you must use the printer with these appliances, we recommend you use a voltage transformer or a high-frequency noise filter.

Use a voltage regulator if the power source is not stable.

Environment

Use the printer only within the following ranges of temperature and humidity.

Ambient temperature: 10°C to 35°C (50°F to 95°F)
Ambient humidity: 20% to 80% (without condensation)

Use the printer in a ventilated room.

Place the printer on a flat, horizontal surface.

Keep the printer clean. Do not place the printer in a dusty place.

Do not place the printer where it is exposed to direct sunlight. Use a blind or a heavy curtain to protect the printer from direct sunlight when the printer is unavoidably set up near a window.

Do not place the printer near devices that contain magnets or generate magnetic fields.

Do not subject the printer to strong physical shocks or vibrations.

Do not expose the printer to open flames or salty or corrosive gasses.

Do not place objects on top of the printer.

Do not place the printer near an air conditioner.

Keep the printer horizontal when carrying it.

If you have kept the printer in temperatures over 35°C or under 10°C for some time, place the printer in an environment where the temperature is between 10°C and 35°C for 30 minutes before using the printer.

CHAPTER 2
PAPER HANDLING

PAPER SPECIFICATIONS

The output quality of Inkjet printers depends on the paper type being used. Before you print, be sure to check the information below.

> **Note**
> It is recommended that you test paper, especially special sizes and types of paper, on this printer before purchasing large quantities.

The printer can handle paper that has the following specifications. With this printer, you can print on plain paper, coated paper, transparencies, glossy paper and envelopes.

Paper Type	Paper Size	Feeder Capacity (MP-21CDX or SF-21MP users only)
Cut sheet, Coated Paper for 360 dpi printing	A4, Letter, Executive, Legal (*1), B5	30 sheets of 75 g/m^2
Coated Paper for 720 dpi printing	A4, Letter, Executive, Legal (*1), B5	20
Transparencies	A4, Letter (*3)	×
Glossy paper	A4, Letter	×
Envelopes	DL, COM-10, Monarch, B5, C5 (*2)	×
Organizer	K, L	×

Paper Weight Range

From Paper Support:	60 to 105 g/m^2 (16 to 28 lb.)
From Straight Paper Path:	60 to 157 g/m^2 (16 to 42 lb.)
Auto Cut Sheet Feeder:	60 to 105 g/m^2 (16 to 28 lb.)

Paper Size

User Defined:	100-216 x 100-356 mm (3.94-8.5 x 3.94-14 inches)

*1 - Legal size paper can only be used in the Paper Feeding Slot and the Straight Paper Path Slot, it cannot be used in the Auto Cut Sheet Feeder.
*2 - Envelopes can only be used in the Straight Paper Path Slot.
*3 - After finishing printing a page, remove each sheet of paper.

Note
To get the best output quality and to avoid any damage, use Brother special coated paper and glossy paper.
Quality Coated Paper for 360 dpi Color InkJet printing
BP36CL (Letter), BP36CA (A4)
High Quality Coated Paper for 720 dpi Color InkJet printing
BP72CL (Letter), BP72CA (A4)
Color InkJet Glossy Paper (Super Fine mode)
BPGLL (Letter), BPGLA (A4)

Recommended paper

Cut sheet:	Xerox 4200 (in USA)
	Xerox Premier 80g/m^2 (in Europe) or equivalent
Transparencies:	3M CG3460, 3M CG3410-BPTRL (in USA)
	3M CG3460, 3M CG3410 (in Europe)

Caution
When you print on transparencies, it is possible to stain your hands or clothes if you touch the surface of the transparency immediately after it is printed out.
We recommend you load transparencies from the paper feeding slot.

Remarks

Use a recommended type of paper, especially plain paper, for optimum printing. For more information on paper specifications, consult your nearest authorized sales representative or the place you purchased the printer.

You cannot use transparencies designed for laser-based copier use.

You can use recycled paper in this printer.

Caution
Before using any paper, make sure that it is not curled. If it is, you should straighten the paper as much as possible by rolling it in the opposite direction of the curl. Feeding curled or damaged paper may cause paper jams and mis-feeds.

Printable area

The Printable area depends on the settings in your application. The figure below shows the physically printable area and non guaranteed print area of various paper types with this printer.

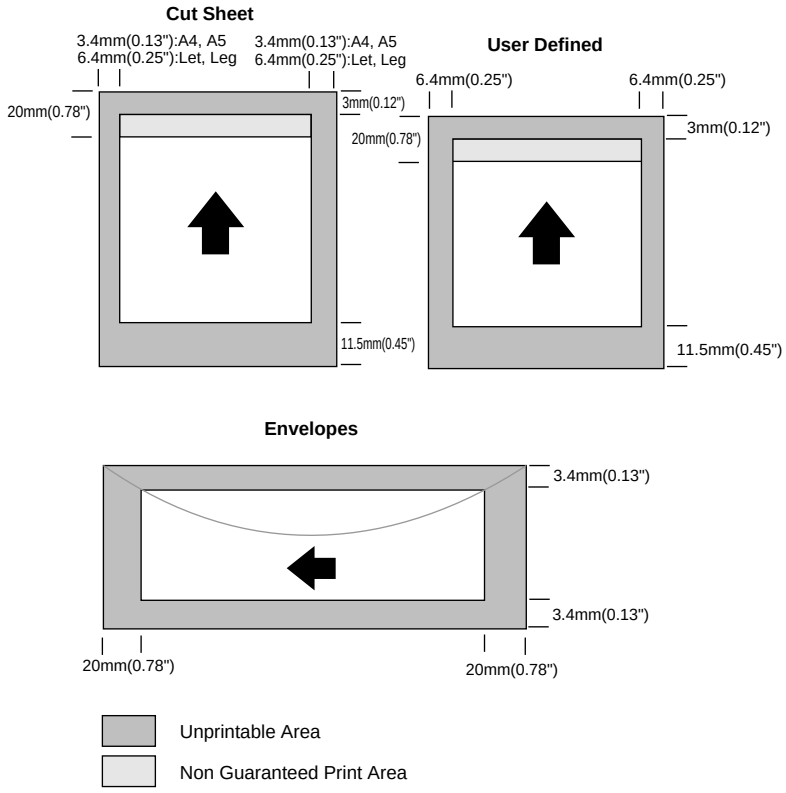


Fig. 2-1 Printable Area

The following types of paper and envelopes are not recommended for use.

- Damaged, curled, wrinkled, or irregularly shaped paper and envelopes
- Extremely shiny or highly textured paper and envelopes
- Envelopes with clasps
- Envelopes of baggy construction
- Envelopes not sharply creased
- Embossed envelopes
- Paper and envelopes already printed with a laser printer
- Envelopes pre-printed on the inside
- Paper and envelopes that cannot be arranged uniformly when placed in a pile

ABOUT BROTHER SPECIAL PAPER

> **Caution**
> When you print on coated paper, transparencies and glossy paper, be sure to select the correct media in the 'Quality/Color' tab in the printer driver.

About Brother Special Coated Paper

We recommend you use Brother special coated paper, depending on the resolution you are using, for you to get the brilliant color output you expect.

For Fine quality:
Quality Coated Paper for 360 dpi Color InkJet printing

NO.	BP36CL	(letter)
	BP36CA	(A4)

For Super Fine quality:
High Quality Coated Paper for 720 dpi Color InkJet printing

NO.	BP72CL	(letter)
	BP72CA	(A4)

These papers are manufactured specifically for this printer to provide optimum print quality. When using these papers please follow the notes below:

- There is a surfaced side and non-surfaced side to the paper, and it is specially coated only on the surfaced side. Therefore, when loading paper in the printer, make sure that the whiter side (the coated surface) is facing up.
- DO NOT touch the coated side of the paper, as it will absorb water and perspiration easily and might cause decreased output quality.
- Be sure to use the most suitable coated paper, according to the resolution you are using. If you do not use the most suitable paper you may not get good print output quality.
- When storing paper, keep it in the original bag and seal the bag. Make sure you keep the paper flat. Keep paper away from moisture and out of the direct rays of the sun.
- Printing resolution (Set from the printer driver):
  Select Normal mode for 360 dpi printing
  Select Super Fine mode for 720 dpi printing

About Brother Special Glossy Paper

When you print on glossy paper, you can get a very clear and crisp output.
We recommend you use Brother special glossy paper for you to get the best output, as the paper is especially designed to be used for Brother Inkjet printing.

For 720 dpi:
Color InkJet Glossy Paper

NO	BPGLL	(letter)
	BPGLA	(A4)

- DO NOT touch the surface of the glossy paper, as water or perspiration will stain the surface. DO NOT touch the printing side of the paper.
- You should use the glossy paper in normal office environmental conditions:
  Temperature: 15~25°C (59~77°F) Humidity: 40 ~60%
- After finishing printing a page, remove each sheet of paper immediately and place it face up on a flat surface until it is completely dry. DO NOT place anything on the printed side of the paper.
- When storing a stack of printed glossy paper, place a sheet of paper between each sheet of printed glossy paper.
- Printing resolution (Set from the printer driver): Super Fine mode

LOADING PAPER

How to Load Paper in the Paper Feeding Slot

1. Open the Paper Feeding Slot Guide.

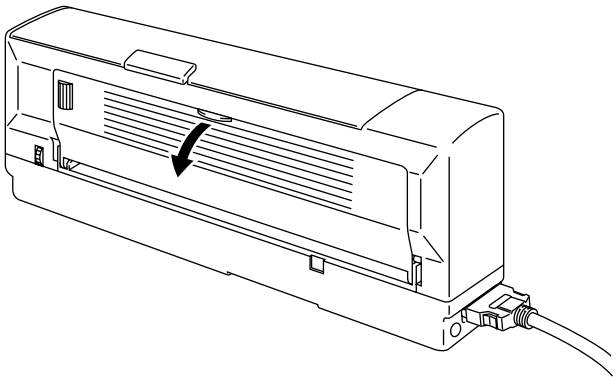


Fig. 2-2 Open the Paper Feeding Slot Guide

2. Make sure that the ⏻**(On/Off)** LED is on. Take a sheet of paper and insert it into the Paper Feeding Slot. Be sure to insert the paper to the right hand side of the Paper Feeding Slot Guide looking at the printer from the front.

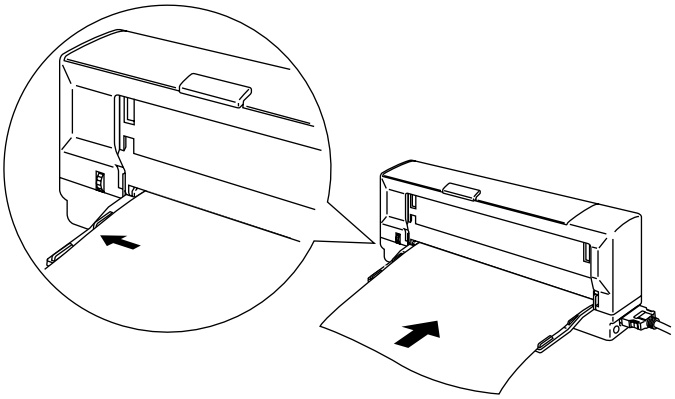


Fig. 2-3 Loading Paper

Note

- About 2 seconds after you insert the paper, the printer feeds the paper and then reverse feeds the paper a little, the printer is now ready to print.
- Hold the paper until the printer picks up the paper correctly.
- If the paper does not load straight, open the top cover and pull the release lever. Pull the paper out, close the top cover and try again .
- When you print on transparencies, remove each sheet immediately after it is printed out.

How to Load Paper in the Straight Paper Path Slot

1. Make sure that the ⏻**(On/Off)** LED is on. Take a sheet of paper and insert it into the Straight Paper Path Slot. Be sure to insert the paper to the right hand side of the Paper Feeding Slot Guide looking at the printer from the front. Be sure to adjust the paper to the mark below.

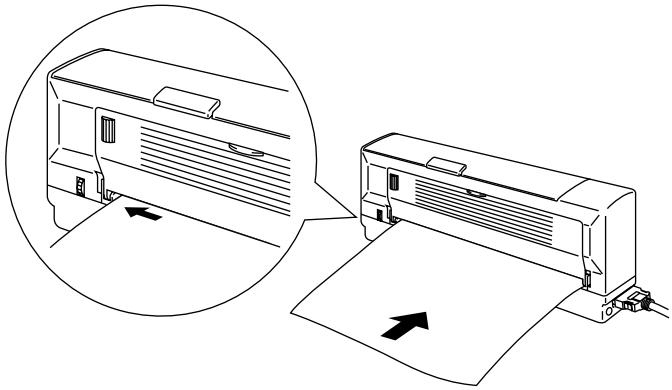


Fig. 2-4 Loading Paper in the Straight Paper Path Slot

Caution

- Make sure you insert paper into the Paper Feeding Slot straight so that the paper does not skew.
- Be sure to adjust the paper setting in the printer driver.
- Load thick paper and envelopes from the straight paper path slot.
- When the printer is in Auto-Power off mode, the paper will be ejected automatically. Turn the printer on and load the paper again.

How to Load Envelopes in the Straight Paper Path Slot

1. Take an envelope and insert it into the Straight Paper Path slot. Be sure to adjust the paper to the mark below.

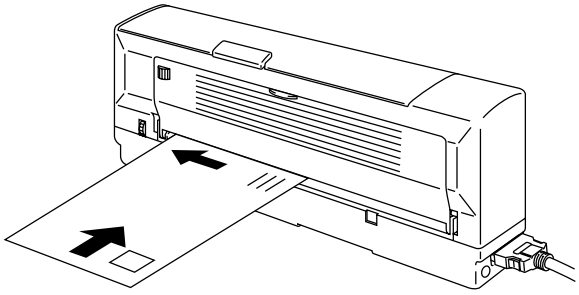


Fig. 2-5 Loading Envelopes

Note

- When you load envelopes, insert the envelope carefully so that it won't skew.
- Do not print on the rear of envelopes. If you do, it might damage the printer.
- When loading envelopes, load them with the print side face up.
- When you print on envelopes, be sure to load them with the short edge downwards with the flap to the left hand side when you view the printer from the front.
- When an envelope is curled, straighten it before printing.

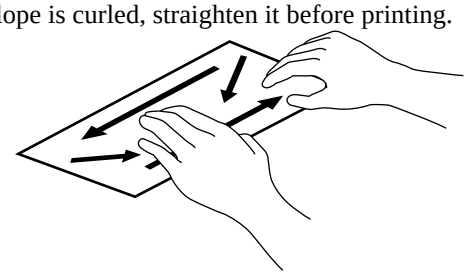


Fig. 2-6 Straighten the Envelopes

- Fold the flap securely with a pen or with your finger before loading envelopes.

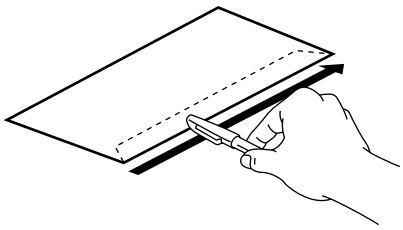


Fig. 2-7 Fold the flap

- Make sure that the amount of curl of the envelope is less than 5 mm when you load envelopes. Curl at the edge of envelopes must be less than 1 mm. If you print on these envelopes, it might damage the printer.

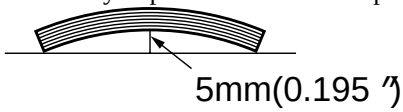


Fig. 2-8 curl height

Curl at the edge

How to Load Paper in the Auto Cut Sheet Feeder (MP-21CDX or optional SF-21MP users only)

1. Make sure that the Latches on both sides of the Auto Cut Sheet Feeder are closed.

2. Fit the Auto Cut Sheet Feeder onto the printer. Push the latches securely until you hear them click into the lock position.

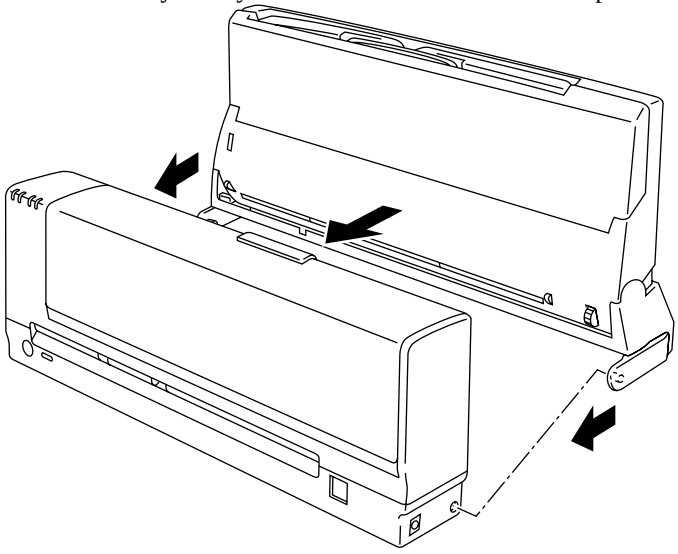


Fig. 2-9 Fit the Auto Cut Sheet Feeder onto the Printer

3. Tilt the Auto Cut Sheet Feeder fully (1). Press the center of the Feeder cover a little and open the Feeder Cover(2).

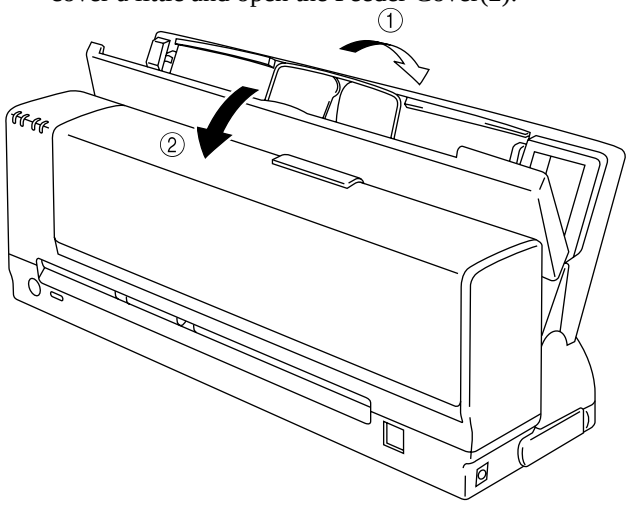


Fig. 2-10 Tilt the Feeder and Open the Cover

4. Pull the wire up.

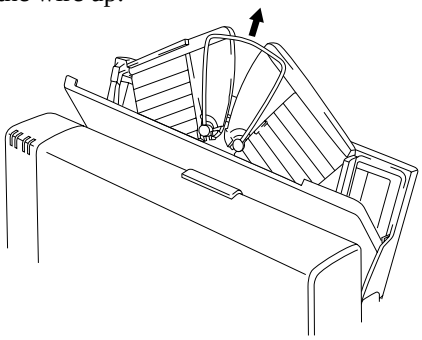


Fig. 2-11 Pull the Wire up

5. Fan the stack of paper before loading.

6. Load the paper stack with the printing (coated) side upwards. Align the right side of the paper against the right hand side of the Auto Cut Sheet Feeder. Make sure that the paper is stacked below the ◆ mark. You can load up to approx. 30 sheets of plain paper (75g / m^2).

7. Adjust the Paper Guide to the left hand side of the paper and close the Feeder Cover.

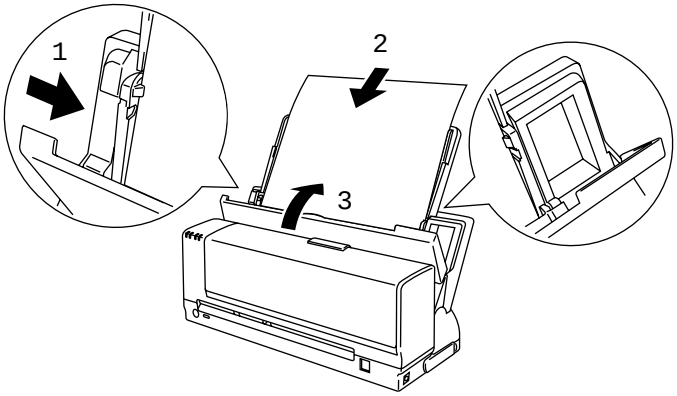


Fig. 2-12 Loading Paper

Caution

- You can load glossy paper only from the Paper Feeding Slot or from the Straight Paper Path Slot.
- When you load glossy paper, load only one sheet at a time.
- Make sure the paper loaded in the Feeder is all the same type.
- When adding paper, first remove any remaining paper from the Feeder and stack it with the new paper, then insert the new paper stack into the Feeder.
- Be sure to adjust the paper setting in the printer driver.
- Do not tilt the printer forwards.
- When you carry the printer, move the printer and Feeder carefully as shown below.
  Do not hold only the Feeder when carrying the printer.
  Do not turn the printer upside down.
  Be sure to set the Printer Stand in the original position before removing the Feeder.

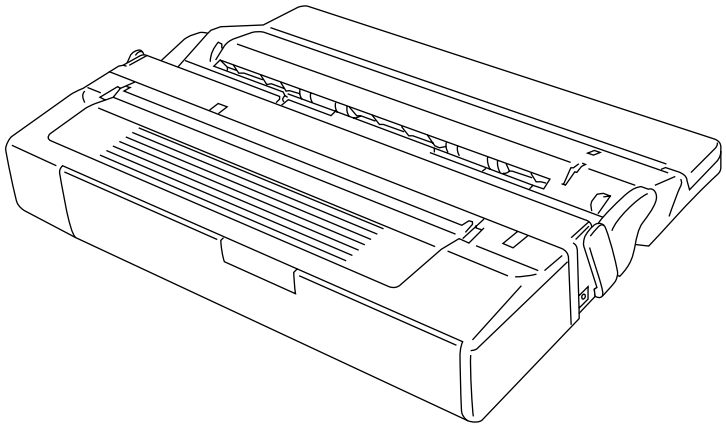


Fig. 2-13 The Printer and the Auto Cut Sheet Feeder

Note

If the paper will not load from the Feeder, use the Paper Feeding Slot and try again. Ensure that the latches are connected securely and tilt the Feeder fully.

How to Remove the Auto Cut Sheet Feeder from the Printer

1. Open the Feeder Cover and remove the paper.

2. Move the Paper Guide to the left.

3. Fold the wire back in the Auto Cut Sheet Feeder, and close the Feeder Cover and then tilt the Feeder forwards.

> **Caution**
> Ensure you move the Paper Guide to the left, otherwise it will cause damage to the Auto Cut Sheet Feeder.

4. Open the Latches(①) on the rear of the Cut Sheet Feeder by them forwards and push the Latches(②) on both sides inwards into the sheet feeder. Remove the Auto Cut Sheet Feeder from the Printer.

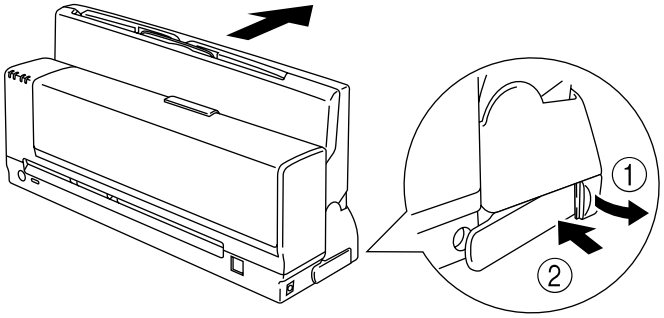


Fig. 2-14 Latches

5. Set the Latches on both sides of the Cut Sheet Feeder to the normal position.

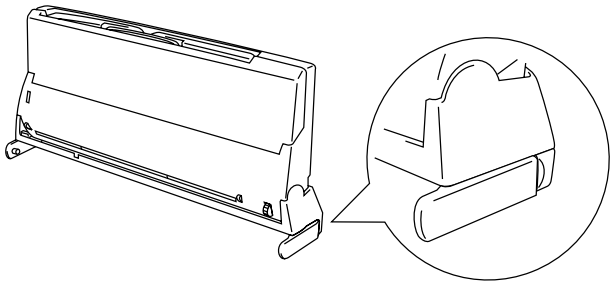


Fig. 2-15 Latches

> **Caution**
> Treat the Latches carefully so that they do not break.

CHAPTER 3
CONTROL PANEL

LED AND BUTTONS

This section refers to the following LEDs and buttons on the printer control panel.

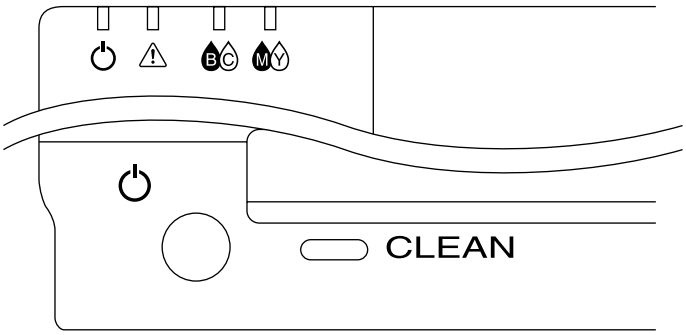


Fig. 3-1 Control Panel

LEDs

The ⏻(On/Off) LED

The⏻ **(On/Off)** LED indicates the current power status of the printer.

LED	Printer status
On ●	The printer is turned on and ready to print.
Off ❍	The printer is turned off. Error status with the ⚠ **(Alarm)** LED on.
Blinking ❍↔●	The printer is receiving data.

Ink LEDs (BC)(BC) LED and (MY)(MY) LED)

Each Cartridge LED indicates when the ink is low or empty.

LED	Printer status
Blinking ❍↔●	The color ink cartridge is running out of ink. You should prepare a new ink cartridge for that color.
On ●	The color ink cartridge is empty. You should replace it with a new one immediately for optimum print quality. See 'Replacing the Ink Cartridges' section in Chapter 4. This may also indicate that one or more ink cartridges may not be installed correctly or there is no cartridge installed if the ⚠**(Alarm)** LED is on.

⚠ (Alarm) LED

The ⚠ **(Alarm)** LED indicates a printer error status.

LED	Printer status
On ●	Paper empty, paper jam or mis-feeding. If a paper jam occurs, refer to 'Paper Jams' in Chapter 5. There is no ink cartridge installed or the ink cartridge(s) is not installed correctly when an ink LED(s) is also on.
Blinking ❍↔●	The top cover of the printer is open and should be closed so that the printer can print.

When the ⚠ **(Alarm)** LED is on or blinking and the printer has detected an error condition, refer to the 'Alarm Indications at a Glance' section in Chapter 5 and clear the problem to make the printer ready to print.

When ⏻(On/Off) LED+⚠ (Alarm) LED and Ink LEDs (BC) (BC) LED+(MY)(MY) LED) Blink in Turn

- The printer is making itself ready to print.
- The printer is cleaning the print head.

When All the LEDs Blink at the Same Time

System error occurred. Refer to the 'Service Calls' section in Chapter 5.

Buttons

The ⏻ (On/Off) Button (Retry)

When you press this button and the ⏻ **(On/Off)** LED comes on, the printer becomes ready to operate.
When you press this button and the ⏻ **(On/Off)** LED goes off, the printer is turned off.

When the ⚠ **(Alarm)** LED is on and the ⏻ **(On/Off)** LED is off, pressing this button will resume printing and the mis-feed will be cleared. Make sure that the ⏻ **(On/Off)** LED comes on after you press this button.

Clean Button

When you want to clean the print head, press this button.

> **⚠ Warning**
> **Even if you turn the ⏻ (On/Off) button off, power is not completely shut off. In case of emergencies, you must remove the Printer Interface Card from the computer and remove the AC Adapter from the mains if connected (MP-21CDX or PA-21MP users only) in order to shut off power completely.**

CHAPTER 4
MAINTENANCE

CLEANING THE PRINT HEAD

Clean the print head if you get white lines in text or graphics on your printed document.

You can clean the 4 color (black, cyan, yellow, magenta) print heads by control panel button operation.

> **Note**
> When the printer is performing print head cleaning, all the LEDs blink alternately.

How to clean the print head

Press the **Clean** button and the printer cleans the print head automatically. Wait until all the LEDs stop blinking.

> **Caution**
> Do not remove cables when the printer is cleaning its print head.

> **Note**
> You can also clean the print head from the printer driver. Select 'Maintenance' from the 'MP-21C series' group in Windows.

REPLACING THE INK CARTRIDGES

When the Ink LED(s) (**(BC)** LED and/or **(MY)** LED) blink or come on, replace the indicated color ink cartridge with a new one.
We strongly recommend you only use Brother original ink cartridges for the printer as these will provide the best print quality. Using other ink may void the warranty for this printer.

Black & Cyan	LC03BC
Magenta & Yellow	LC03MY

> **Caution**
> - Make sure that the **(On/Off)** LED is on when you replace the ink cartridges.
> - When the ink has run out, the Ink LED(s) (**(BC)** LED and/or **(MY)** LED) turn on. When you find this, replace the ink cartridges immediately.
> - DO NOT replace the Ink Cartridges while the printer is working.
> - Use the ink cartridge up within 6 months of installation.

How to replace the ink cartridges

1. Make sure that the **(On/Off)** LED is on. Open the top cover.

2. Remove the ink cartridge you need to replace.

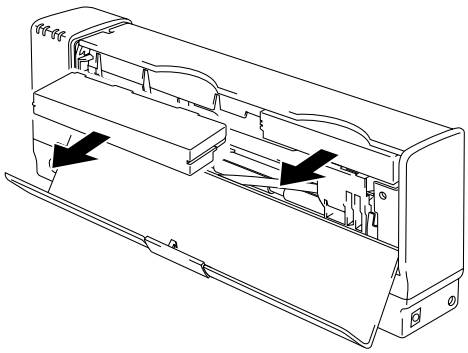


Fig. 4-1 Removing the Cartridge

⚠ Warning

DO NOT push the shutters in the ink cartridge slot. There are sharp pins inside the Ink Cartridge Slot. If you touch them, it might cause injury.

Caution

DO NOT remove ink cartridges if you do not need to replace them. Once you remove a cartridge, you cannot re-use it.

Caution

Throw away the removed ink cartridges immediately so that you do not re-install the old one by mistake.

3. Open the new ink cartridge box and take the cartridge out of the bag.

Note

You can recognize whether the cartridge is used or new by the white gum on the rear of the cartridge. If it is stained with ink, it is a used ink cartridge.

4. Insert the new cartridge, making sure to insert it into the correct position. Push it in until you hear a click as it locks into position. Make sure that the Ink LED(s) (**(BC)** LED and/or **(MY)** LED) turn off.

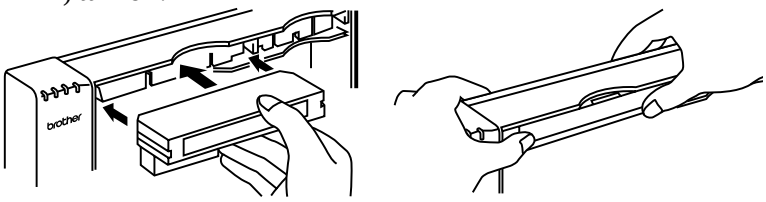


Fig. 4-2 Install a New Ink Cartridge

5. Close the top cover. The printer will automatically start cleaning the print head. Wait until all the LEDs stop blinking.

⚠ Warning

If ink stains your body or clothing, wash with soap or detergent immediately.
If ink gets in your eyes, irrigate them with water immediately and consult a doctor if you are concerned.

Caution

Once you have installed the cartridge, DO NOT take it out until the Ink LED(**(BC)** LED and/or **(MY)** LED) blinks or comes on or until the ink runs out. Once you have removed an ink cartridge, DO NOT re-install it.

Caution

Once you install an ink cartridge, use it up within 6 months. Use ink cartridges within 2 years of the production date.

Caution

DO NOT remove the Ink Cartridges when the printer is off. If you have replaced ink cartridges while the printer is turned off, reset the ink counter from the maintenance tool in the printer driver. If you do not reset the counter the inside of the printer or the printouts may get stained with ink.

Caution

Be sure to replace ink cartridges when the printer indicates ink empty or nearly empty.

Caution

DO NOT shake the ink cartridges.

Caution

DO NOT leave the printer with empty ink cartridges or with the ink cartridges removed.

Caution

DO NOT re-use ink cartridges you have removed from the printer.

Note

If either of the Ink LEDs (**(BC)** LED and/or **(MY)** LED) and the **(Alarm)** LED is on after you have installed the ink cartridges, check that the ink cartridges are installed correctly.

Note

Every 5 days, the printer will clean its print head automatically when you send the first print job.

CLEANING THE PRINTER

Cleaning the Printer

1. Before cleaning the printer or printer platen, be sure to turn off the printer and remove the PC Card Cable from your computer and remove the AC Adapter (MP-21CDX or PA-21MP users only) if connected and make sure that all the LEDs are off.

2. Open the top cover.

3. Wipe the printer platen with a cotton swab.

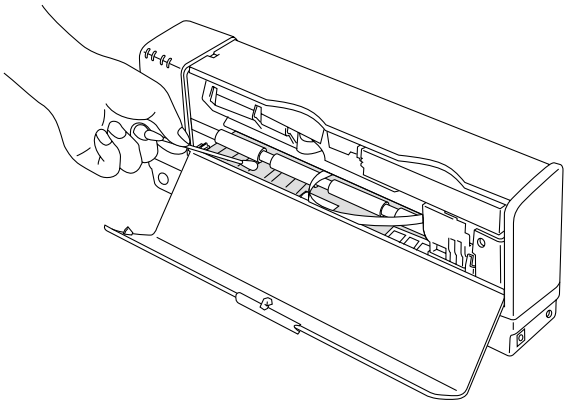


Fig. 4-3 Cleaning the Printer Platen

Caution

DO NOT touch the Flat Cable, Rollers, Print Head and the Encoder Strip when cleaning.

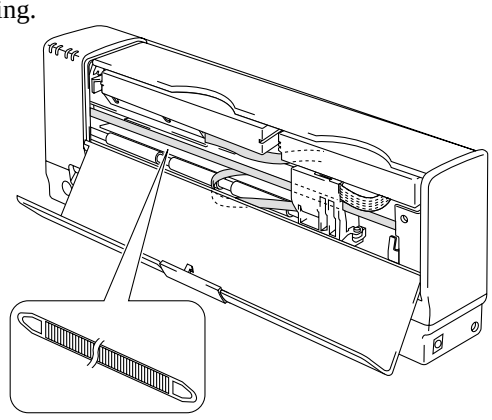


Fig.4-4 The Flat Cable and the Encoder Strip

REPACKING THE PRINTER

Caution

Whenever you transport the printer, use the packing materials which are provided with your printer. Also, follow the steps below to repack the printer, or the printer may be damaged. This will void the printer's warranty.

1. Turn off the **(On/Off)** button and turn the printer off. Make sure that the **(On/Off)** LED is off.

2. Remove the Printer Interface Card from your computer. Remove the PC Card Cable from the printer and Printer Interface Card. Remove the AC Adapter, Parallel Interface Cable and Auto Cut Sheet Feeder if connected.(MP-21CDX, PA-21MP and SF-21MP users only)

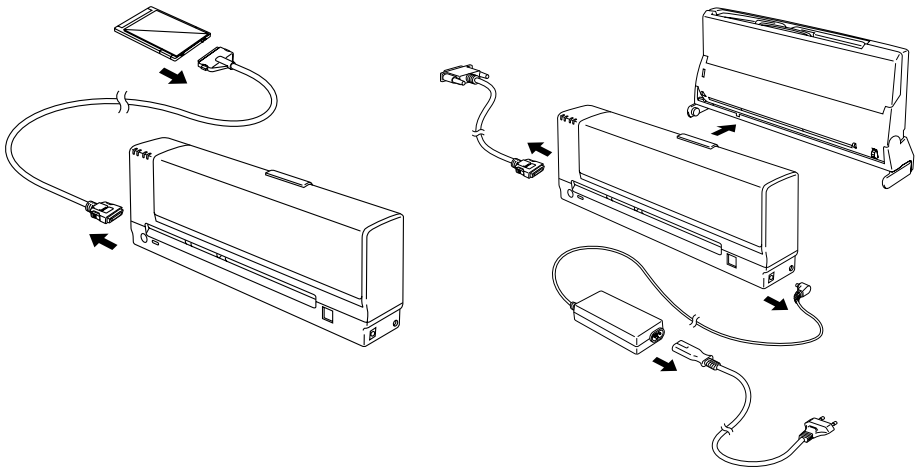


Fig. 4-5 Remove the Cable

3. Wrap the printer in the plastic bag and place it in the original carton box with the original packing material.

4. Place any documents (manual and any documentation describing the reason for returning the printer) in the carton box as shown below.

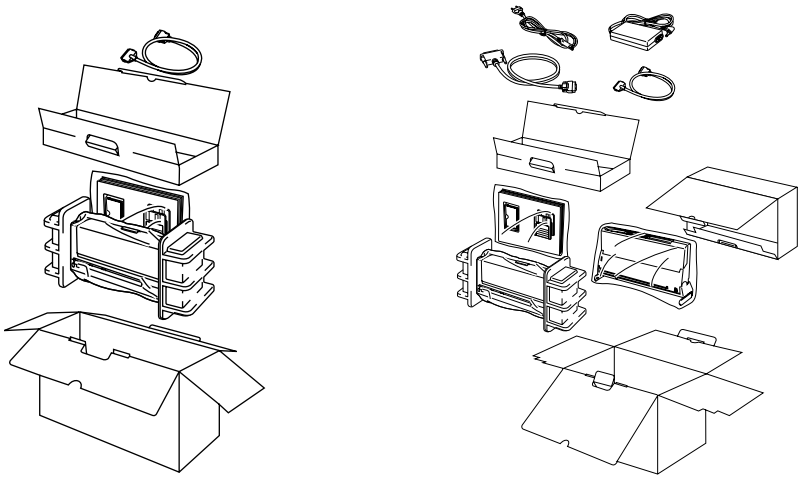


Fig. 4-6 Repacking the printer

5. Close the carton box and tape it securely.

Caution

- Make sure that the printer has the ink cartridges fitted to it when shipping.
- Do not turn the printer upside down while shipping.

CHAPTER 5
TROUBLE SHOOTING

ALARM INDICATIONS AT A GLANCE

Operator Calls

If a recoverable error occurs, the printer indicates an 'operator call' by blinking or turning on the ⚠ **(Alarm)** LED.

Find the error and take the appropriate action to correct it. The printer automatically recovers from most errors, but you may need to reset the printer with the button as described below.

LEDs	Error	Action
⚠ **(Alarm)** ● ⏻**(On/Off)** ❍	Paper jam	Clear the paper jam by referring to the next section "PAPER JAMS".
	Paper empty	Load paper in the printer by referring to Chapter 2.
	Mis-feed	Reinstall the paper. When using the Auto Cut Sheet Feeder (MP-21CDX or SF-21MP users only), press the ⏻ **(On/Off)** button after reinstalling the paper stack into the Feeder.
⚠ **(Alarm)** ❍↔● ⏻**(On/Off)** ●	Cover Open	The Top Cover of the printer is open. Close it to resume printing.
⚠ **(Alarm)** ● **Ink** ● (BC **(BC) and/or** MY **(MY))**	No Cartridge	One or more ink cartridges are not installed correctly or are missing.
Ink ● (BC **(BC) and/or** MY **(MY))**	Ink Empty	Replace the ink cartridge with a new one.
Ink ❍↔● (BC **(BC) and/or** MY **(MY))**	Ink Nearly Empty	Indicates that the indicated ink cartridge will run out soon. You should purchase a new ink cartridge ready for when Ink Empty is indicated.
All ❍↔●	Service call	See the Service Calls section on the next page.

> **Note**
> If the printer does not operate as you expect it to, it is recommended that you unplug the printer, then plug it in and try printing again. If you still have problems, consult your dealer or our authorized service representative before returning this product.

Service Calls

If an unrecoverable error occurs, the printer indicates the need for a service call by lighting **all the LEDs** and then the following combination of lamps alternately:

Service Call	Service 1	Service 2	Service 3	Service 4
(On/Off)	❍	❍	❍	❍
(Alarm)	❍	❍	❍	●
(BC)	❍	●	●	❍
(MY)	●	❍	●	❍

Service Call	Service 5	Service 6	Service 7	Service 8
(On/Off)	❍	❍	❍	●
(Alarm)	●	●	●	❍
(BC)	❍	●	●	❍
(MY)	●	❍	●	❍

Service Call	Service 9	Service 10	Service 11	Service 12
(On/Off)	●	●	●	●
(Alarm)	❍	❍	❍	●
(BC)	❍	●	●	❍
(MY)	●	❍	●	❍

Service Call	Service 13	Service 14
(On/Off)	●	●
(Alarm)	●	●
(BC)	❍	●
(MY)	●	❍

● ON
❍ OFF

If you see any of these service call indications, turn the **(On/Off)** button off and on and then try to print again.

If you cannot clear the error and see the same service call indication after turning on the printer, make sure that the status monitor of the printer is on and consult your dealer or our authorized service representative. Report the error status and situation referring to the table above.

PAPER JAMS

How to clear paper jams

1. Open the Top Cover and pull the Release Lever.

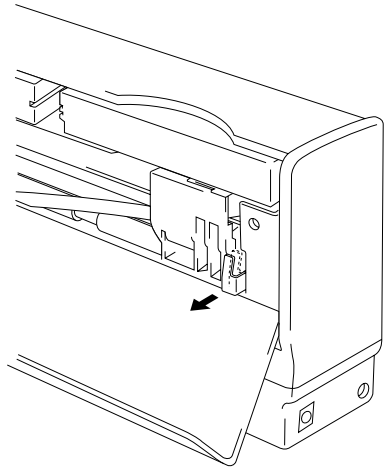


Fig. 5-1 Pulling the Release Lever

2. Pull out the jammed paper carefully with the top cover open.

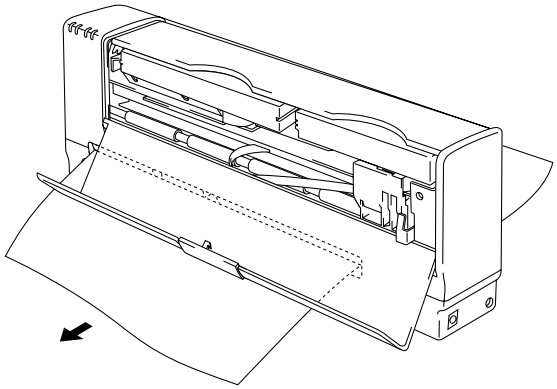


Fig. 5-2 Pulling the Jammed Paper Out

3. Push back the Release Lever and close the Top Cover.

Note

- When the printer platen gets stained, clean the platen referring to the 'Cleaning the Printer' section in Chapter 4.
- Ensure you leave the top cover open when you are removing jammed paper.

How to clear a paper jam when using the Auto Cut Sheet Feeder (MP-21CDX or SF-21MP users only)

If a paper jam occurs when you are using the Feeder, try to remove the jammed paper as shown in 'How to clear paper jams' section of this chapter.
If you cannot remove it, even after following the instructions, do the following.

1. Open the top cover and pull the Release Lever.

2. Tilt the Auto Cut Sheet Feeder forwards.

3. Pull the jammed paper from the Feeder side.

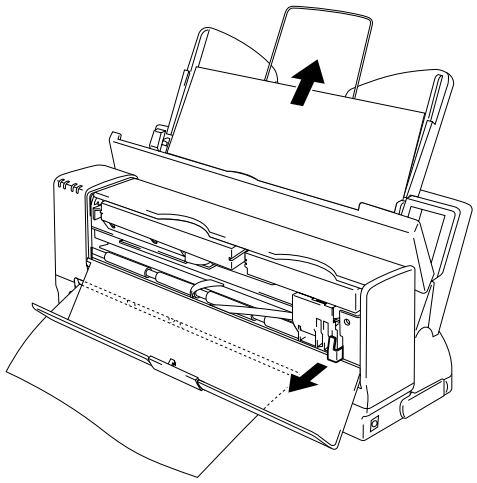


Fig. 5-3 Pulling the Jammed Paper Out

4. Tilt the Feeder back.

5. Push back the Release Lever and close the top cover.

Q & A

This section contains commonly asked questions and the answers concerning your printer. If you have encountered a problem, try to find the question relating to your problem and take the steps recommended to correct the problem.

Setting Up the Printer Hardware

Question	Recommendation
The printer does not work. All LEDs are off.	The printer may not be turned on. Check to see if the AC adapter (MP-21CDX or PA-21MP users only) is plugged into a live power source or the Printer Interface Card is connected to the computer and the ⏻**(On/Off)** button is on. Check that both ends of the PC Card Cable are connected securely to the printer and your PC/ Printer interface Card.
The printer does not print.	Check the following: • The printer is turned on. • The ⏻**(On/Off)** LED is on. • All of the protective parts have been removed. • The top cover of the printer is closed. • The ink cartridges are installed properly. • The Ink LEDs (BC**(BC)** LED and/or MY**(MY)** LED) are not on. If one or more are on, replace the ink cartridge(s). • The Printer Interface Card and the cable is securely connected between the printer and computer or the printer is connected to the AC Adapter and parallel Interface Cable. • The ⚠**(Alarm)** LED is off. If the ⚠**(Alarm)** LED is blinking or on, refer to the Operator Call section of this manual. • In Windows, the MP-21C/CDX printer is selected in the printer settings in your application. • The host is configured correctly: check printer port, print manager etc. (clear stored job or 'use print manager' is selected off) • Printer port you select is the correct one for using the Printer Interface Card or Parallel Interface Connector. Try cleaning the print head.

Setting Up the Printer for Windows

Question	Recommendation
I cannot print from my application software.	Make sure the supplied Windows® printer driver is installed correctly and selected in your application software.
I cannot print the entire page.	Check to see if the size of paper in the feeder is the same as the one that you have selected in your application or the printer driver
Computer indicates a device time-out.	• If the ⚠**(Alarm)** LED is blinking, clear it referring to the 'Alarm Indications at a Glance' section in this chapter and try to print again. • If the ⚠**(Alarm)** LED is off, wait a short while and then click on the Retry button on the PC screen dialog box. • If the ⏻**(On/Off)** LED is blinking, press the cancel button on your PC and retry printing. • If all the LEDs are blinking alternately, the printer is cleaning its print head. Wait until they stop blinking. Check to see if the ⏻**(On/Off)** LED is on.
Computer indicates Paper Empty.	Paper is empty. Load paper and press the ⏻**(On/Off)** button if the ⚠**(Alarm)** LED is on with the ⏻**(On/Off)** LED blinking to recover from the error status..
Computer indicates Off Line.	Press the ⏻**(On/Off)** button to make the printer ready. Check the ⏻**(On/Off)** LED is on.
Computer indicates Power Off.	Check if the printer is securely plugged into the AC outlet or the Printer Interface Card is connected to the computer and the ⏻**(On/Off)** LED is on.
Computer indicates an error message other than above.	Check the following; • The printer is connected directly to the computer. • The computer is set to work in bi-directional mode. • The printer port is correct. • Selection of the printer is correct. • Recommended interface cable is being used. • If the printer port is set as an ECP port, change it to be a bi-directional port. See your PC's manual for how to change the printer port.

Paper Handling

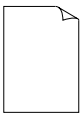
Question	Recommendation
The printer does not load paper.	• When you feed paper from the Paper Feeding Slot, make sure to push the paper fully down into the slot with the paper straight. **(For MP-21CDX and optional SF-21MP users only)** • Check to see if the ⚠**(Alarm)** LED is on. If so, the Auto Cut Sheet Feeder may be out of paper or not properly installed. If it is empty, load a new stack of paper into the feeder. • Check to see if the paper loaded meets the specification of the paper described in Chapter 2. • If there is paper in the Auto Cut Sheet Feeder, make sure that it is straight. If the paper is curled, you should straighten it before printing. Sometimes it is helpful to remove the paper, turn the stack over and replace it in the paper tray. • Reduce the stack of paper in the Auto Cut Sheet Feeder, then try again.
How can I load envelopes?	You can load envelopes from the Straight Paper Path Slot. Your application software also must be set up correctly to print on the envelope size you are using. This is usually done in the page setup or document setup menu of your software. Refer to your applications manual for further information. See Chapter 2 for details.
What paper can I use?	You can use plain paper, coated paper, glossy paper, envelopes and transparencies. For information on loading paper, see "Paper Handling" in Chapter 2.
How can I clear paper jams?	See the "PAPER JAMS"section in this chapter.
The printer loads more than one sheet at a time when using the Auto Cut Sheet Feeder (MP-21CDX or optional SF-21MP users only).	Check to see if: • The paper loaded is all the same type. • Paper that meets the specifications is loaded. • Papers were fanned before loading. • The stack of paper is not too high. • The side guide is not set too tight.
The printer doesn't eject paper.	Turn the printer off and on.
Paper loads skewed when using the Auto Cut Sheet Feeder (MP-21CDX or optional SF-21MP users only).	Check the following; • The side guide is adjusted correctly. • The amount of paper you have loaded is correct. Refer to 'Paper Handling' section in Chapter 2.
Mis-picking up paper when using the Feeder.	Check to see if : • The Feeder is installed correctly. • The Feeder has been tilted backwards. For details, see Chapter 2.

Printing

Question	Recommendation
The printer prints unexpectedly or it prints incorrect images.	• Cancel the print job from your computer. Then, turn the printer off and on. • Make sure your application software is correctly set up to use this printer and check the printer driver settings or printer settings in your application software. • If the printer port is set as an ECP port, change it to be a bi-directional port. See your PC's manual for how to change the printer port.
The computer hangs up when the printer starts printing, or an application error occurs.	Check to see if the system resources are enough (PC memory, etc). When you have many applications open, the system resources of your PC will not be enough and your PC will hang up. Close applications you are not using and try again.
My headers or footers appear when I view my document on screen but do not show up when I print them.	Most Inkjet printers have a restricted area that cannot be printed on. Adjust the top and bottom margins in your document to allow for this. Check by using the preview screen in the application.
Printing takes too long.	• When you print color graphic images, there is a large amount of data and the printer will take a relatively long time to complete printing. • When all the LEDs are blinking alternately, the printer is making itself ready to print. Wait till the ⏻**(On/Off)** LED comes on. Printing speed depends on the memory size and performance of your PC. • Super Fine mode takes a long time to complete printing, set the mode to Normal mode or Draft mode.
The printer doesn't print in color.	• The printer may be set in monochrome mode. Check the setting of the printer driver. • Check that the ink has not run out.
The printer will not turn on again or is unable to print after the PC goes into sleep mode (Suspend or Hibernation) when using Windows 3.1x.	• Make sure that the PC is on. Remove the Printer Interface Card and re-insert it into the PC. • Contact the vendor of the PC you are using and get the latest PC card service software from them. • Restart your computer.

Print Quality

> **Note**
> You can clear a print quality problem by replacing an ink cartridge with a new one if the **Ink** LED (**(BC)** LED or **(MY)** LED) is on or blinking.

Question	Recommendation
Printed pages contain white horizontal lines or the image is faint.  **Fig. 5-4 White Horizontal Lines or Faint Images**	• You may clear the problem by cleaning the print head several times. (See "Cleaning the print head" in Chapter 4). • If the same problem occurs after cleaning, print the test print to identify the cartridge that is causing the problem and replace the ink cartridge. (See "Replacing the ink cartridges" section in Chapter 4). If the same problem still occurs, contact your dealer or our authorized service representative.
Nothing is printed on the page.  **Fig. 5-5 White Page**	• Clean the print head several times. (See "Cleaning the print head" section in Chapter 4). • Make sure that the ink cartridges are not empty. If they are, replace the ink cartridges. (See "Replacing the ink cartridges" section in Chapter 4). • If the same problem occurs, contact your dealer or our authorized service representative.
The colors of your print output are not what you expected.	• Carry out print head cleaning. • Try test printing from the maintenance program in the printer driver. • Check to see if the ink cartridges are installed correctly and are not empty. • You can adjust the color by using the custom setting in the driver. Colors which printers can express and colors you see on monitors are somewhat different. The printer may not be able to express exactly some colors on your monitor. Check if the printer driver settings are correct.
Vertical lines are not aligned or the outline of characters is faint.	In Bi-Directional Printing, the printer prints from right to left and left to right. Therefore, sometimes vertical lines may not be aligned. Adjust the alignment through the printer driver after carrying out a test print or select uni-directional printing in the printer driver.
Envelopes are stained with ink.	When the printer platen gets stained, clean the printer platen referring to 'Cleaning the Printer' section in Chapter 4.
The printout is not clear or the color is not vivid.	• Use Brother special papers or very white papers. • Check to see that you are not printing on the reverse side of special paper. • Check if the ink cartridges are installed correctly.

Question	Recommendation
Colors are light.	You may have printed in Draft mode. Set to Normal mode or Super Fine mode in the printer driver.
Some colors are missing.	• Clean the print head several times. • Ink may have run out. Check to see if you have run out of certain ink colors. Check if the printer driver settings are correct.
Printed paper is damaged by excessive ink.	Select the correct resolution for the media you are using.
Printout is fuzzy.	• Clean the print head. • Use Brother genuine ink and cartridges.
The space between lines of text is narrower than you have set. Black lines appears.	Check to see if there is an obstacle in the paper path. Open the top cover and check.
Banding appears.	• Check to see if the media setting is correct in the printer driver. • You can carry out horizontal line alignment from the printer driver. For details, see Help.

If the same problem still occurs, contact your dealer or our authorized service representative.

Caution

Operation of the printer outside the specifications shall be deemed abuse and all repairs thereafter shall be the sole liability of the end user /purchaser.

(For USA & CANADA Only)

For technical and operational assistance, please call:

In USA	1-877-284-3238	(outside California)
	949-859-9700 Ext. 329	(within California)
In CANADA	1-800-853-6660	
	514-685-6464	(within Montreal)

If you have comments or suggestions, please write us at:

In USA	Printer Customer Support Brother International Corporation 15 Musick Irvine, CA 92718
In CANADA	Brother International Corporation (Canada), Ltd. - Marketing Dept. 1, rue Hôtel de Ville Dollard-des-Ormeaux, PQ, Canada H9B 3H6

BBS
For downloading drivers from our Bulletin Board Service, call:

In USA	1-888-298-3616
In CANADA	1-514-685-2040

Please log on to our BBS with your first name, last name and a four digit number for your password. Our BBS supports modem speeds up to 14,400, 8 bits no parity, 1 stop bit.

Fax-Back System
Brother Customer Service has installed an easy to use Fax-Back System so you can get instant answers to common technical questions and product information for all Brother products. This is available 24 hours a day, 7 days a week. You can use the system to send the information to any fax machine, not just the one you are calling from.
Please call 1-800-521-2846 (USA) or 1-800-681-9838 (Canada) and follow the voice prompts to receive faxed instructions on how to use the system and your index of Fax-Back subjects.

DEALERS/SERVICE CENTERS (USA only)
For the name of an authorized dealer or service center, call 1-800-284-4357.

SERVICE CENTERS (Canada only)
For service center addresses in Canada, call 1-800-853-6660

INTERNET ADDRESS
For technical questions and downloading drivers: **http://www.brother.com**

APPENDIX

PRINTER SPECIFICATIONS

Printing

Print Method	Piezo with 32 X 4 nozzles
Resolution	720 X 720 dots per inch (DPI) - Super Fine 360 X 360 dots per inch (DPI) - Normal 180 X 360 dots per inch (DPI) - Draft
Print Speed	(with Printer Interface Card) 107 cps at 10 cpi Up to 1.7 PPM in full color (Brother Standard Test Sheet) (with AC Adapter) 180 cps at 10 cpi Up to 2.5(Letter)/2.4(A4) PPM in Blue/Black mode with AC Adapter (Brother Standard Test Sheet) Up to 2 PPM in full color (Brother Standard Test Sheet)
Print Width	203.2 mm (8 inches)

Controller

Interface	PCMCIA interface Parallel interface
Control panel	2 buttons and 4 LEDs
Diagnostics	Self-diagnostic program

Electrical and Mechanical

Power Source	<Printer Interface Card mode> Power Save Mode: 0.6 W Stand-by: 1.0 W Printing-average: 2.5 W or less <AC Adapter mode> Power Save Mode: 0.7 W Stand-by: 1.1 W Printing-average: 3.2 W or less
Noise	Printing: 40 dB A or less
Temperature	Operating: 10 to 35°C (50 to 95°F) Storage: -20 to 60°C (-4 to 140°F)
Humidity	Operating: 20 to 80% (without condensation) Storage: 5 to 95% (without condensation)
Dimensions (D X W X H)	50.8 X 300 X 106 mm (2.0 X 11.8 X 4.2 inches)
Weight	Approx. 1,000 g. (2.2 lb)

Print Media

Paper input

Manual loading from the Paper Feeding Slot or Automatic loading from the Optional Feeder

- Paper Type
  Plain paper, coated paper, glossy paper, transparencies, envelopes and organizer sheets
- Paper size: A4,Letter Executive, B5,A5, Legal
  Envelopes: commercial No.10 DL, B5, C5, Monarch
  Organizer: K, L

Width	100-215.9 mm (3.94-8.5")
Length	100-355.6 mm (3.94-14")
Weight	60-157 g/m^2. (16-42 lb)

- Maximum optional feeder capacity: Approx. 30 sheets of 75 g/m^2 plain paper.

Paper Output	1 sheet, face up It is recommended that printed sheets are taken from the paper output slot immediately after printing.
Ink	Twin cartridge system: separate from the print head
Service Life of Ink Cartridge	Approx. 250 page / LC03BC at 5% coverage Approx. 150 page / LC03MY at 5% coverage

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—T—

—W—

brother

COLOR INKJET PRINTER
PARTS REFERENCE LIST

MODEL:MP-21C/21CDX

MECHANISMS & ELECTRONICS

NOTE FOR USING THIS PARTS REFERENCE LIST

1. In the case of ordering parts, it needs mentioning the following items:

   (1) Code

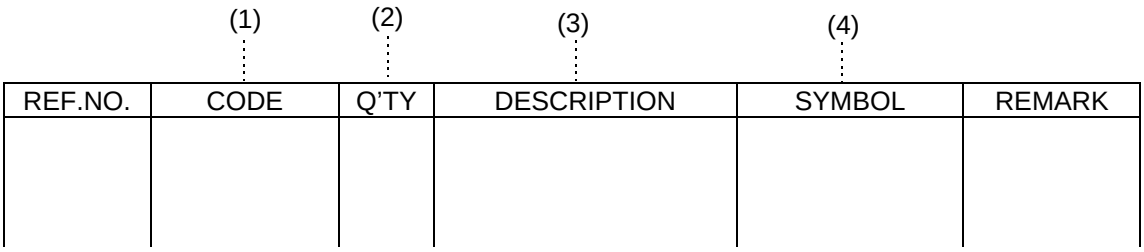
   (2) Q'ty

   (3) Description

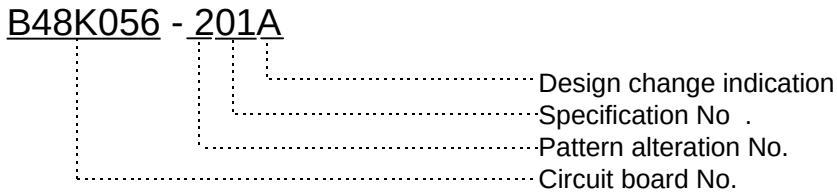
   (4) Symbol (PCB No., Revision , and Parts location mounted on the PCB.)

   Note : No orders without Parts Code or Tool No. can be accepted.

< Example >



Revision No.: marked on the printed circuit board.



2. Design-changed parts :

   If the parts are changed, any one of the following symbols is indicated in the REMARKS column.

   #A : compatible between old and new

   #B : replaceable from old to new

   #D : incompatible

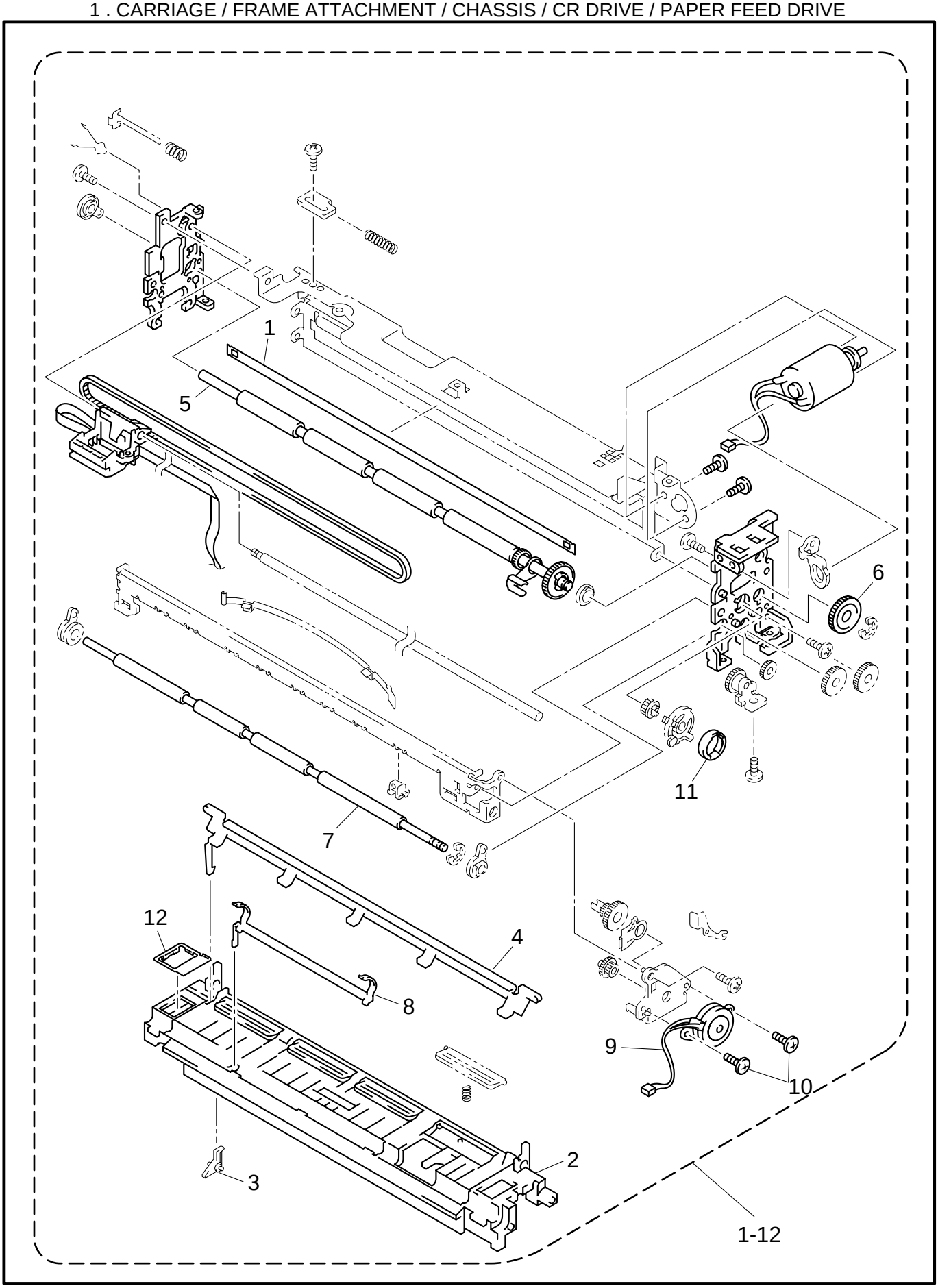
   # : newly established

3. The original of this list was made based on the information available in November, 1997.

4. Parts are subject to change in design without prior notice.

CONTENTS

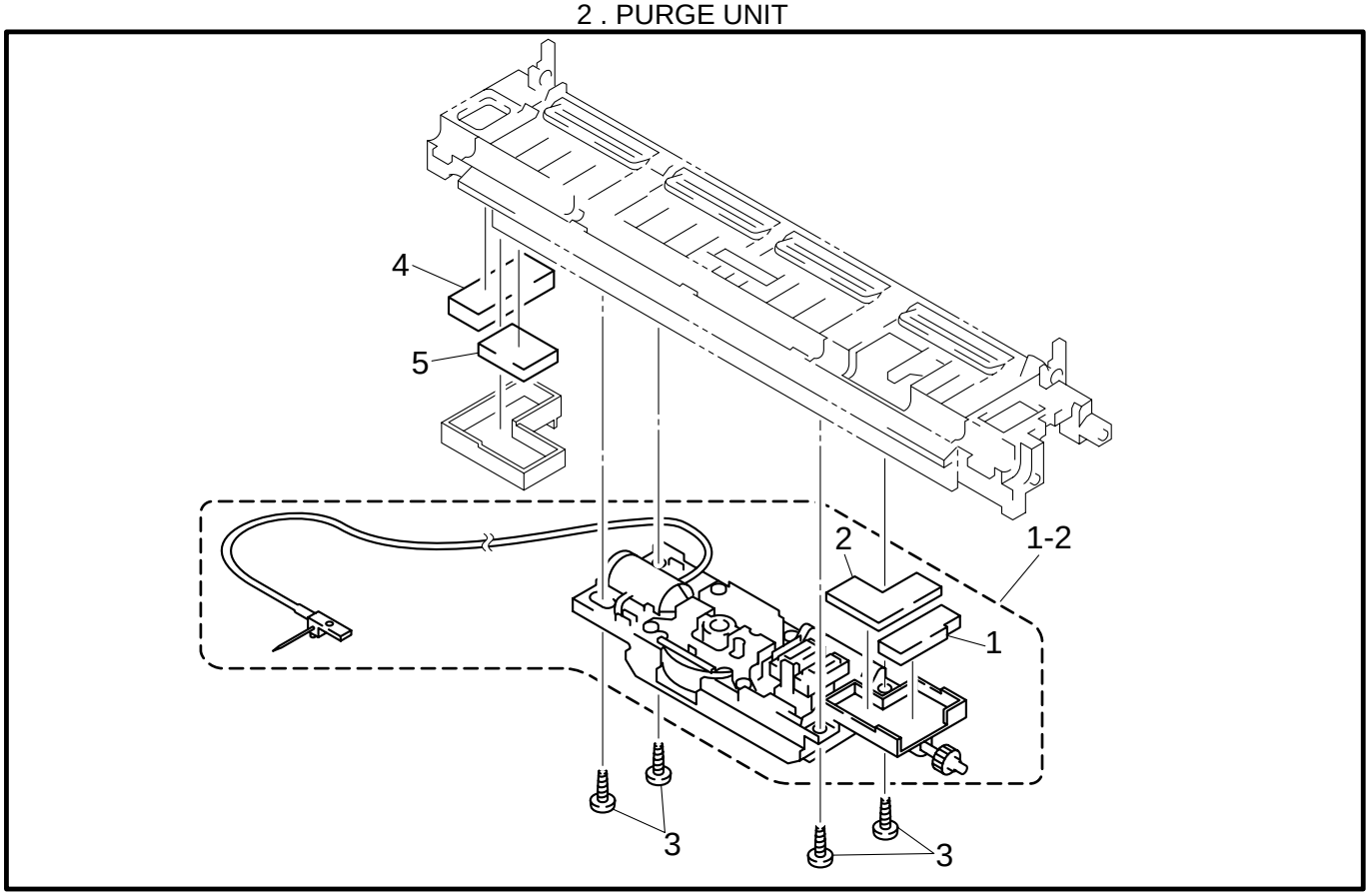
1 . CARRIAGE / FRAME ATTACHMENT / CHASSIS / CR DRIVE / PAPER FEED DRIVE



MODEL MP-21C/CDX 5H1-001/002/004/011/020

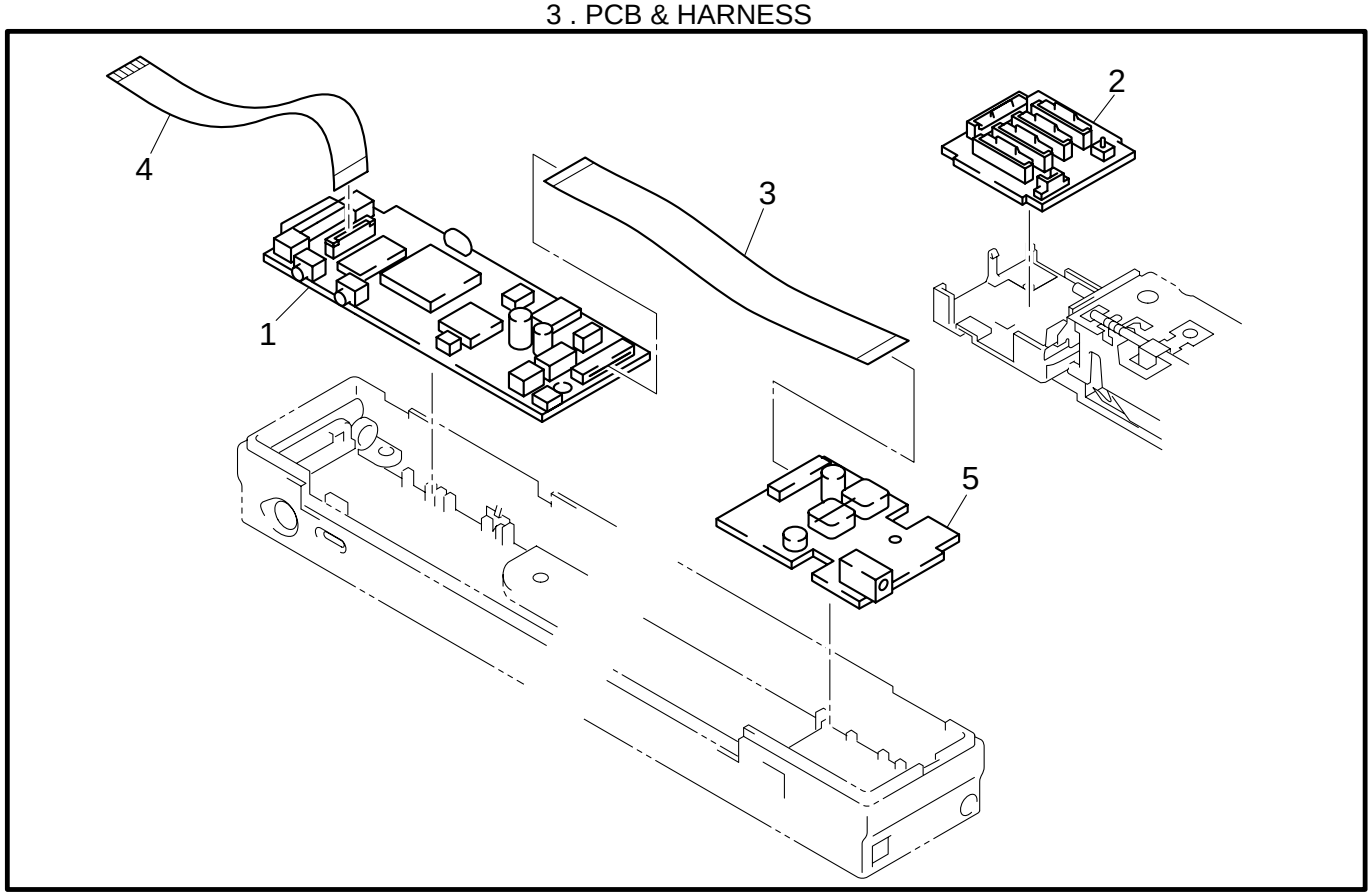
REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1-12	UJ5551001	1	PAPER FEED FRAME ASSY (SP)	
1	LK2008001	1	ENCODER STRIP (SP)	CHNG PACKAGING
2	UJ5100001	1	PLATEN COVER	
3	UJ5101001	1	ACSF SENSOR ACTUATOR	
4	UJ5149001	1	PAPER HOLDER ASSY	
5	LK2011001	1	MAIN ROLLER ASSY (SP)	CHNG PACKAGING
6	UJ5114001	1	MAIN ROLLER GEAR 40	
7	UJ5122001	1	PAPER EJECT ROLLER ASSY	
8	UJ5124001	1	PAPER EJECT SENSOR ACTUATOR	
9	UJ5141001	1	PAPER FEED MOTOR ASSY	
10	060260416	1	SCREW, BIND M26X4	
11	UJ5145000	1	ARM STOPPER	
12	UJ5150000	1	PAPER BOTTOM SUPPORT	

2 . PURGE UNIT



MODEL MP-21C/CDX 5H1-001/002-025

3 . PCB & HARNESS



MODEL MP-21C/CDX 5H1-001/002-450

2. PURGE UNIT

PR99060

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1-2	UJ5562001	1	PURGE UNIT ASSY (SP)	CHNG PACKAGING
1	UJ5187001	1	FLUSHING FOAM R1	
2	UJ5188001	1	FLUSHING FOAM R2	
3	085310616	1	TAPTITE, BIND B M3X6	
4	UJ5190001	1	FLUSHING FOAM L1	
5	UJ5191001	1	FLUSHING FOAM L2	

T/I No. PR99060

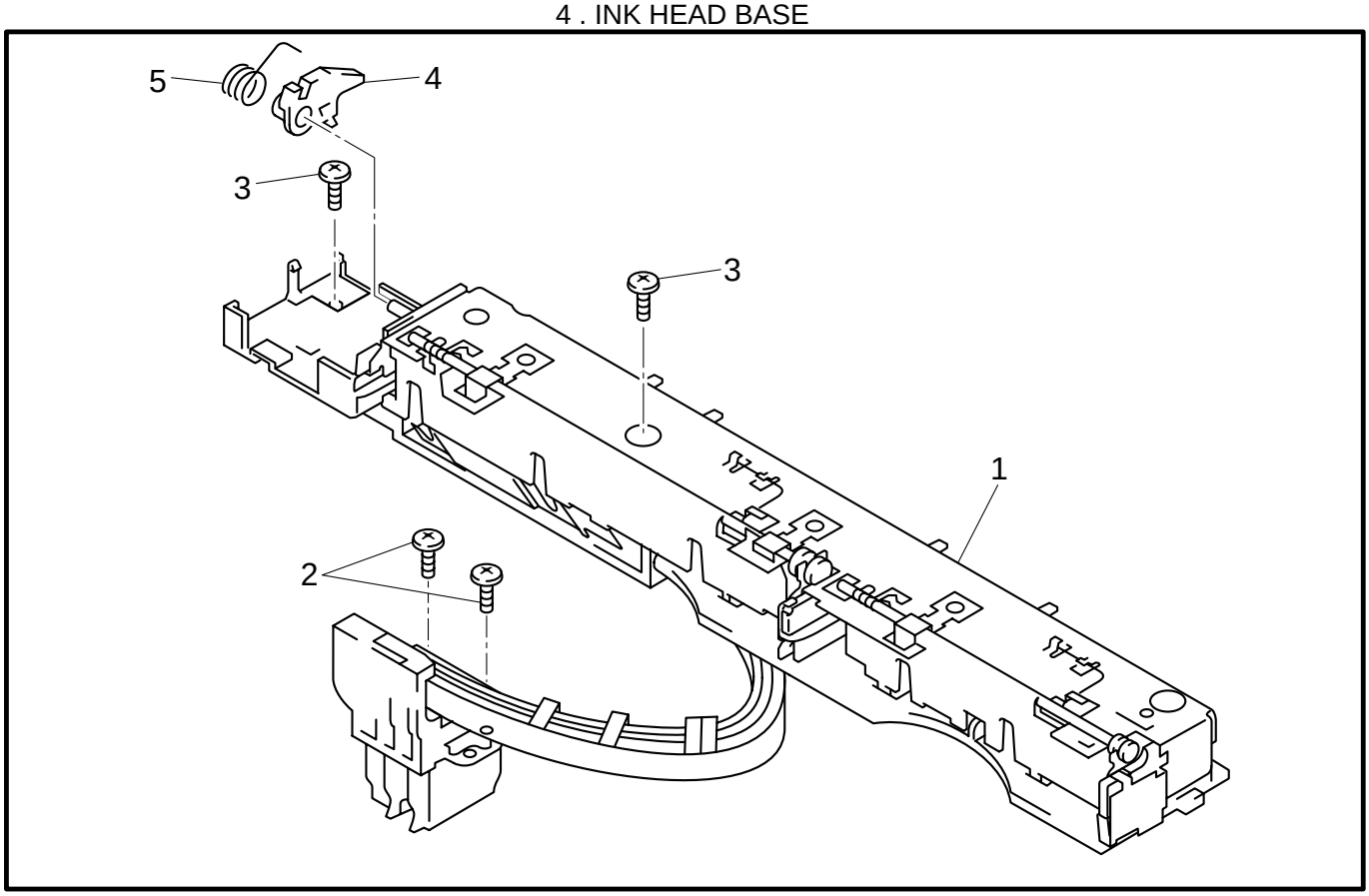
MODEL MP-21C/CDX 5H1-001/002-025

3. PCB & HARNESS

REF.NO.	CODE	Q'TY	DESCRIPTION	SYMBOL	REMARK
1	UJ7002001	1	MAIN PCB ASSY	B55L035	
2	UJ7016001	1	HEAD PCB ASSY	B55L032	
3	UJ7551000	1	POWER SUPPLY FFC		
4	UJ7552001	1	HEAD FFC		
5	UJ7024001	1	POWER SUPPLY PCB ASSY		

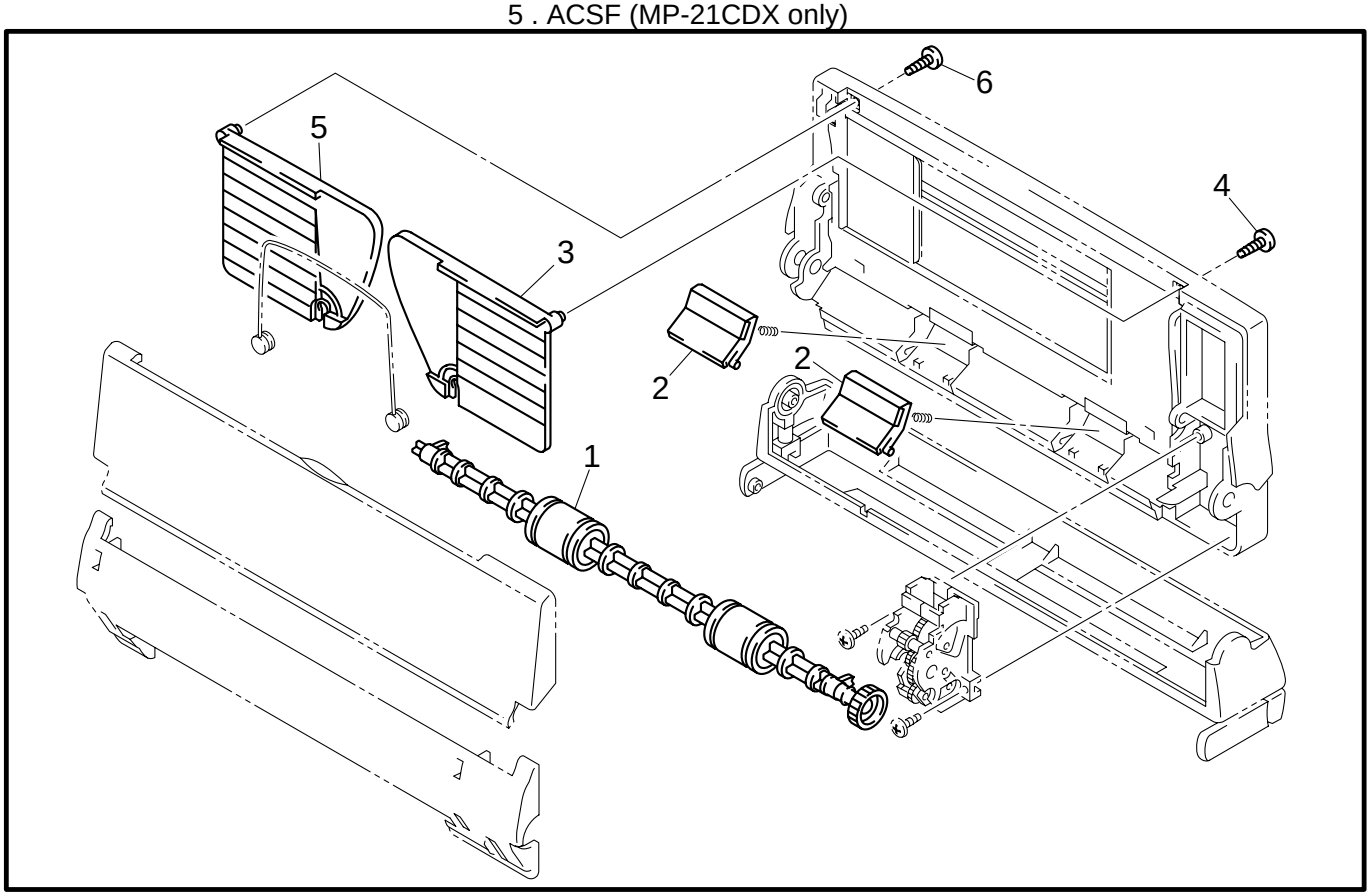
MODEL MP-21C/CDX 5H1-001/002-450

4 . INK HEAD BASE



MODEL MP-21C/CDX 5H1-001/002-520

5 . ACSF (MP-21CDX only)



MODEL MP-21CDX 5H1-002-5911

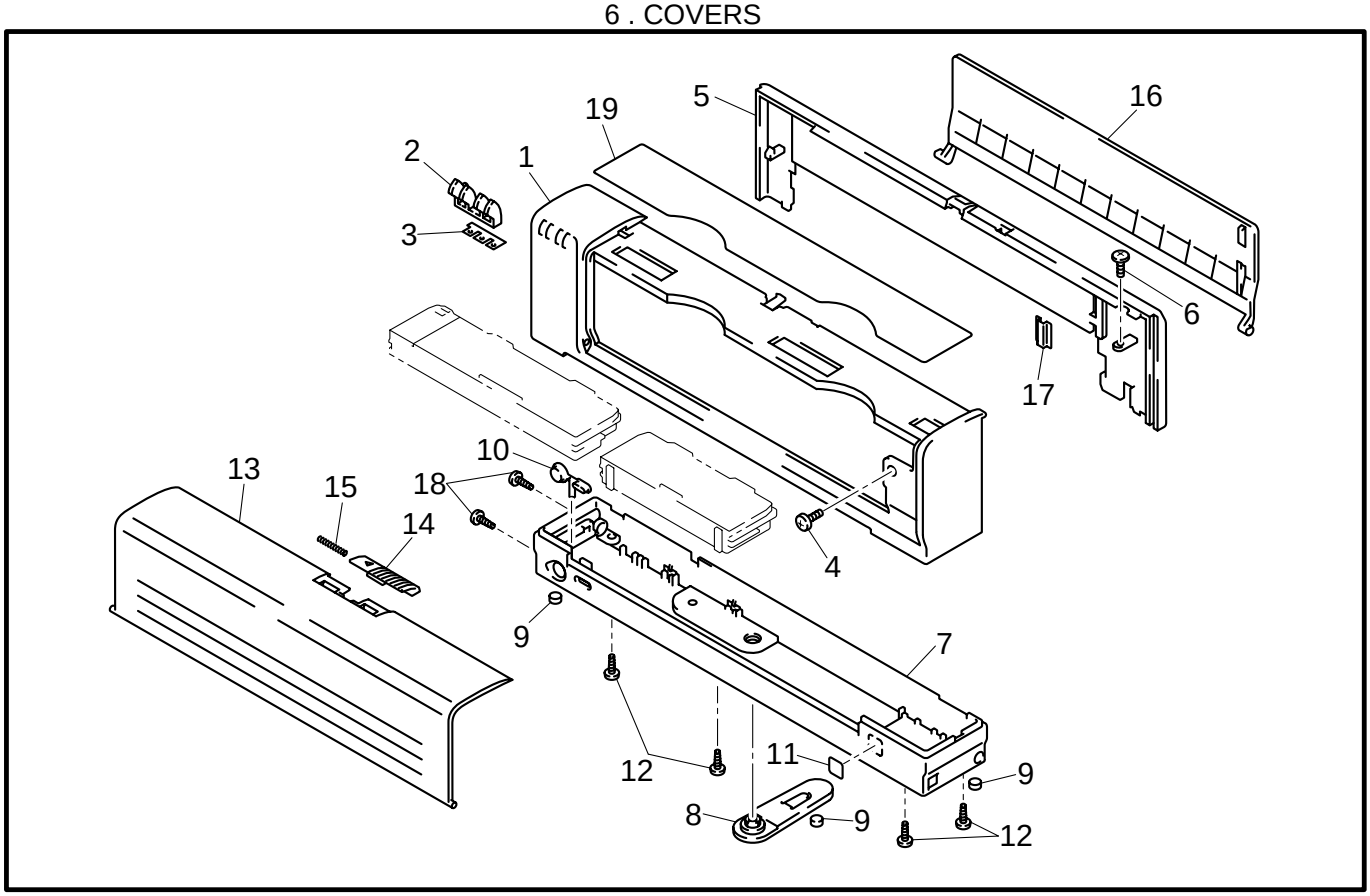
4. INK HEAD BASE PR99060

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	UJ5550001	1	INK HEAD BASE UNIT (SP)	
2	085210816	2	SCREW, BIND M2X8	
3	060260416	2	SCREW, BIND M26X4	
4	UJ5303001	1	COVER SENSOR ACTUATOR	
5	UJ5304001	1	COVER SENSOR SPRING	

5. ACSF (MP-21CDX only)

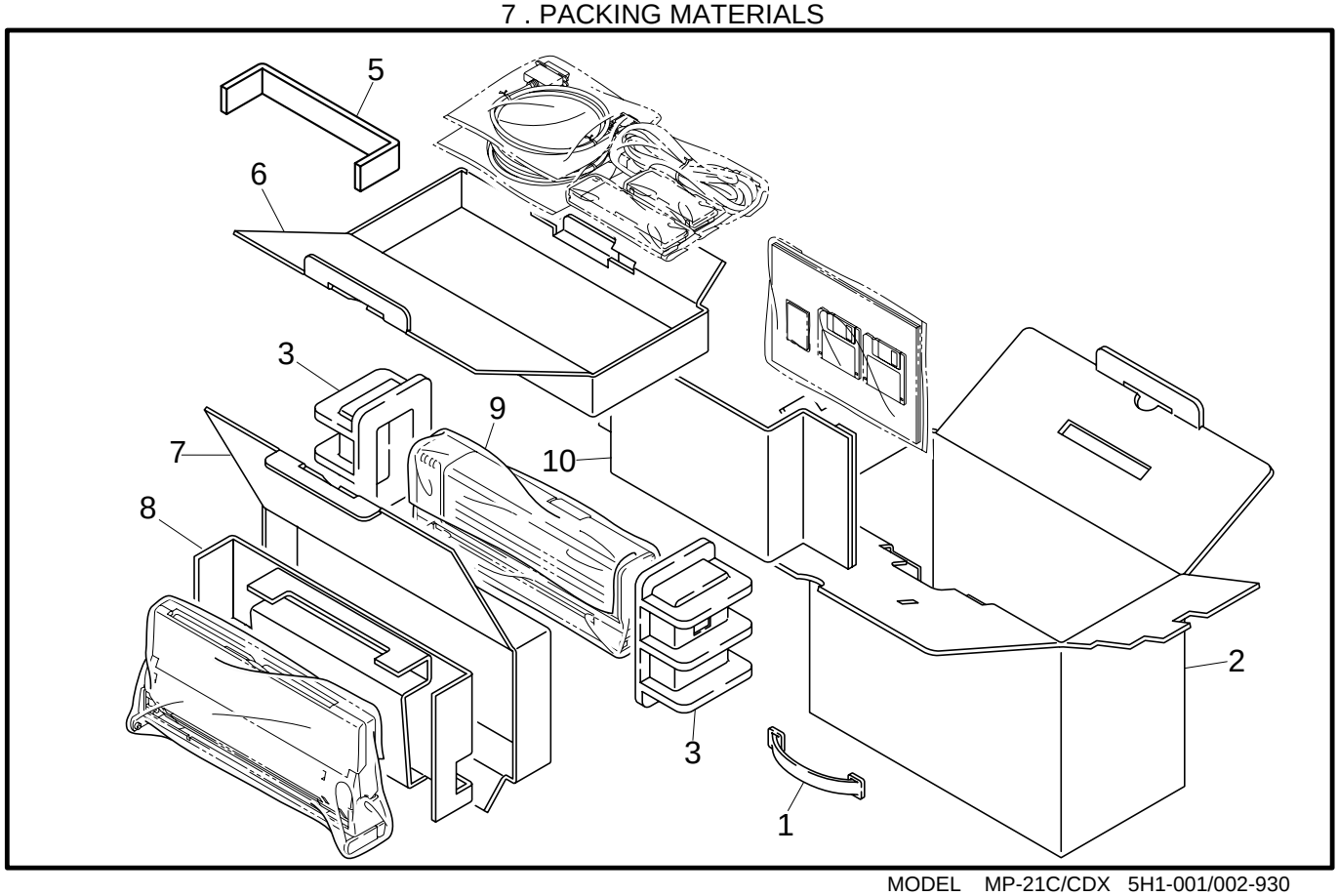
REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	UJ5511001	1	PICK-UP ROLLER ASSY	
2	UJ5517001	1	SEPARATION PAD ASSY	
3	UJ5528001	1	EXTENSION GUIDE R	
4	085310817	1	TAPTITE, BIND B M3X8	
5	UJ5529001	1	EXTENSION GUIDE L	
6	085310817	1	TAPTITE, BIND B M3X8	

6 . COVERS



MODEL MP-21C/CDX 5H1-001/002-025

7 . PACKING MATERIALS



MODEL MP-21C/CDX 5H1-001/002-930

6. COVERS

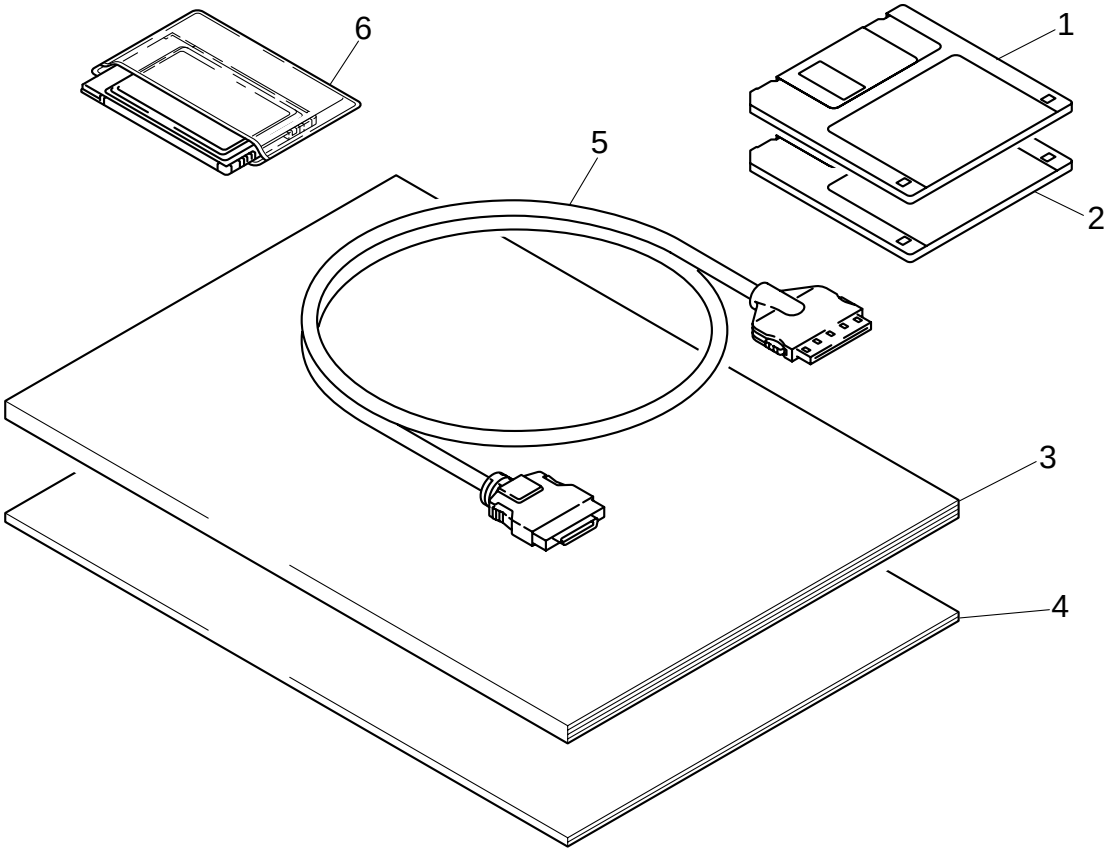
REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	UJ5301001	1	FRONT COVER	
2	UJ5302000	1	LED GUIDE	
3	UJ5326001	1	LED BLIND SHEET	
4	060260417	1	SCREW, BIND M2.6X4	
5	UJ5306001	1	REAR COVER	
6	060260417	1	SCREW, BIND M2.6X4	
7	UJ5310001	1	BOTTOM COVER	
8	UJ5311001	1	SUPPORT PLATE	
9	UJ5312001	3	RUBBER FOOT	
10	UJ5313001	1	SWITCH KEY	
11	UJ5319001	1	COLOR LOGO MARK	
12	060260417	4	SCREW, BIND M2.6X4	
13	UJ5314001	1	TOP COVER	
14	UJ5307001	1	SLIDE LEVER	
15	UJ5308001	1	LEVER SPRING	
16	UJ5315001	1	PAPER GUIDE	
17	UJ5335001	1	FILM RIB	
18	UJ5317001	2	PRECISE SCREW, M16X4	
19	UJ5321001	1	PANEL CARTRIDGE INSTRUCT	

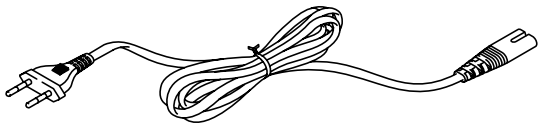
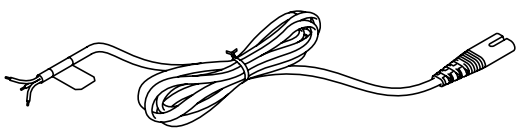
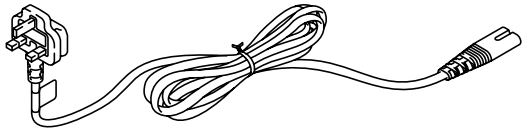
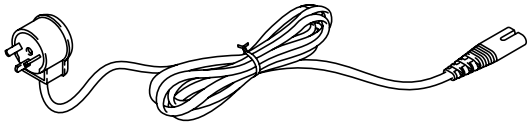
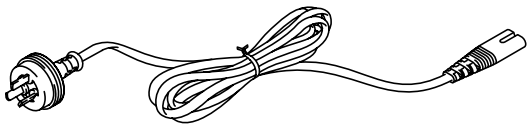
MODEL MP-21C/CDX 5H1-001/002-680

7. PACKING MATERIALS

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	UJ5475001	1	CARRYING HANDLE	
2	UJ5426001	1	CARTON, MP-21C US	
2	UJ5446001	1	CARTON, MP-21CDX US	
2	UJ5427001	1	CARTON, MP-21C EU	
2	UJ5447001	1	CARTON, MP-21CDX EU	
2	UJ5492001	1	CARTON, MP-21C CANADA	
2	UJ5491001	1	CARTON, MP-21CDX CANADA	
3	UJ5430000	2	STYROFOAM, MP-21	
4	UJ5432001	1	CARTON, C (MP-21C only)	
5	UJ5433001	1	PARTITION CONTAINERBOARD (MP-21C only)	
5	UJ5486001	1	PARTITION CONTAINERBOARD (MP-21CDX only)	
6	UJ5476001	1	CARTON, CDX (MP-21CDX only)	
7	UJ5478001	1	CARTON, SF-21 (MP-21CDX only)	
8	UJ5480001	1	ACSF CUSHIONING MATERIAL (MP-21CDX only)	
9	UJ5434001	2	PE. BAG, 400X185	
10	UJ5444001	1	SPACER CONTAINERBOARD	

MODEL MP-21C/CDX 5H1-001/002-930



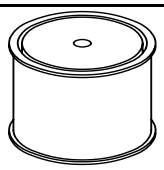
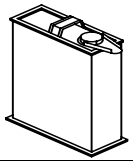
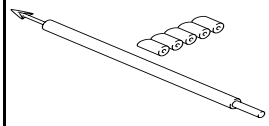
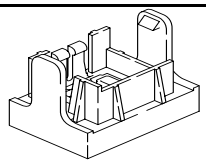
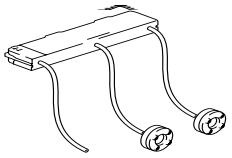
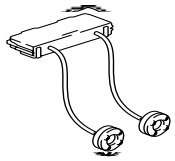
7A		7D	
7B		7E	
7C			

MODEL MP-21C/CDX 5H1-001/002-910

8. ATTACHMENT

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	UJ5356001	1	PRINTER DRIVER DISK WIN95	
2	UJ5358001	1	PRINTER DRIVER DISK WIN31	
3	UJ5351001	1	USER'S GUIDE, ENG	
3	UJ5361001	1	USER'S GUIDE, FRE	
3	UJ5366001	1	USER'S GUIDE, GER	
3	UJ5372001	1	USER'S GUIDE, NOR	
3	UJ5374001	1	USER'S GUIDE, DUT	
3	UJ5379001	1	USER'S GUIDE, DAN	
3	UJ5381001	1	USER'S GUIDE, SPA	
3	UJ5383001	1	USER'S GUIDE, ITA	
3	UJ5385001	1	USER'S GUIDE, SWE	
4	UJ5394001	1	SETUP GUIDE, ENG	
4	UJ5395001	1	SETUP GUIDE, FRE	
4	UJ5396001	1	SETUP GUIDE, GER	
4	UJ5397001	1	SETUP GUIDE, NOR	
4	UJ5398001	1	SETUP GUIDE, DUT	
4	UJ5399001	1	SETUP GUIDE, DAN	
4	UJ5400001	1	SETUP GUIDE, SPA	
4	UJ5401001	1	SETUP GUIDE, ITA	
4	UJ5402001	1	SETUP GUIDE, SWE	
5	UJ7042001	1	IF CABLE, MP-21 PCMCIA	
6	UJ7045001	1	PCMCIA CARD, MBH2PR01	
7A	UJ7048001	1	POWER CORD, VDE	
7B	UJ7049001	1	POWER CORD, BS	
7C	UJ7050001	1	POWER CORD, SAA	
7D	UJ7053001	1	POWER CORD, ZAF	
7E	UJ7054001	1	POWER CORD, ISRAEL	

TOOL NO.	TOOL NAME
PRT-001a	LUBRICATING GREASE Molykote EM-30L 1kg
PRT-001c	LUBRICATING GREASE G501
PRT-002b	LUBRICATING OIL Floil 946P
ZA0310001	HEAD CLEANER STICK ASSY
ZA0543001	NOZZLE PROTECTOR ASSY (4 PCS)
ZA0546001	INITIAL LIQUID ASSY (100ML)
ZA0726001	SEAL RUBBER ASSY (20 PCS)
ZA0728001	IL CARTRIDGE BC ASSY
ZA0737001	IL CARTRIDGE MY ASSY
LK2024001	CLEAN WIPER HEAD (500 PCS/1 BAG)

			
PRT-001a,c	PRT-002b	ZA0310001	ZA0543001
			
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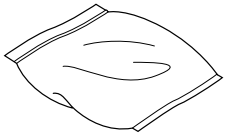
			
LK2024001			

Mar. '99
54H1002BE0

6. Close the Top cover. The printer will automatically start initial purge. When the initial purge is done, the Power LED comes on.

Warning: *If ink stains your body or clothing, wash with soap or detergent immediately.*

If ink gets in your eyes, irrigate them with water immediately and consult a doctor if you are concerned.

Caution: *Once you have installed the cartridge, DO NOT take it out until the ink empty status is indicated as this may reduce the print quality.*

Once you have opened an ink cartridge, use it up within 6 months.

Note: *If an ink empty status still remain after you have installed the ink cartridges, check that the ink cartridges are installed correctly.*

Both the ink cartridge BC and the ink cartridge YM should be installed. A printer with only one ink cartridge installed cannot perform printing operations.

4.12 Recovery Function - Purge

The purge operation is carried out just before the first print job when more than a certain number of days have passed(see below) since the last purge was carried out. The printer memorizes the time when the last purge was conducted in the EEPROM. When the printer has been left with power off, the time and date is sent from the PC just before printing by the printer driver. The printer conducts the designated purge by comparing this date with the date of the last purge. To operate the automatic recovery function correctly, the date of the PC needs be correct.

4.12.1 Definition of Terms

Purge type	Abbrieviation	Description
Single purge	SP	This is a normal purge. All colors are purged.
Initial purge	IP	Single purge x 8 times
Double purge	WP	Single purge x 2 times
Triple purge	TP	Single purge x 3 times
Cartridge purge	CP	Single purge x 5 times
Power purge	PP	Single purge x 5 times
Manual purge	MP	The single purge begins by pressing the Clean button on the control pane. The single or power purge can be executed from the printer driver.

4.8 Purge Unit ASSY, Flushing Foam R1 and R2

<Disassembly>

(1) Unstick the Encoder FFC cable 5P from the double-sided adhesive tape attached to the Purge unit ASSY.

(2) Remove the four screws in the instructed order and the Support plate from the Purge unit ASSY.

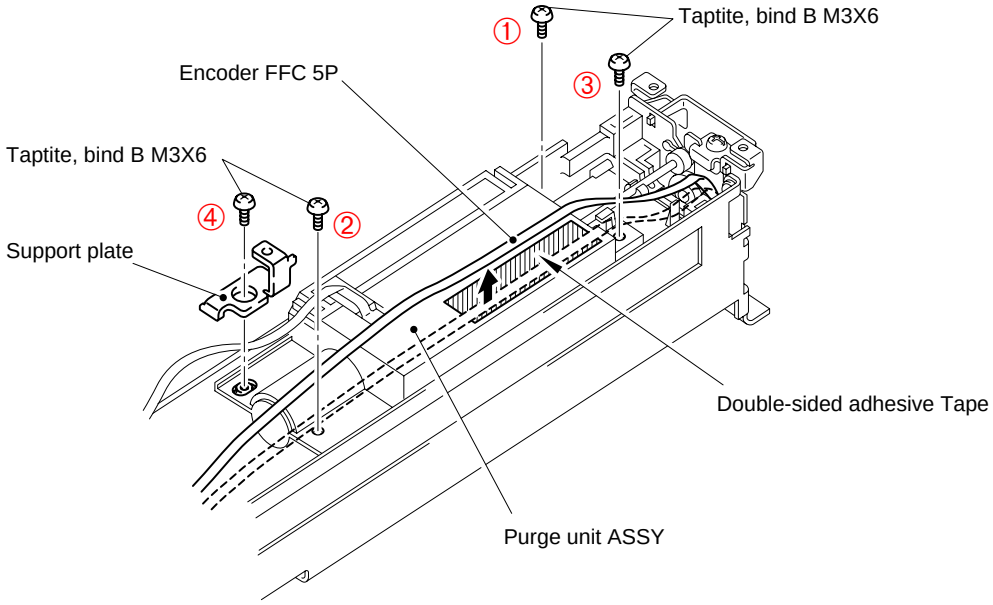


Fig. 3.22

(3) Remove the Waste ink tube from the two hooks.

Caution: *Use caution when handling the Waste ink tube; the Waste ink needle at the end of the Waste ink tube may cause you injury.*

(4) While lifting the Purge unit ASSY, remove the Maintenance gear 10 from the Bearing in the Chassis R.

Note: *Place the removed Purge unit ASSY with the Waste ink absorber face up. Use caution when handling the Purge unit ASSY to prevent ink leakage.*

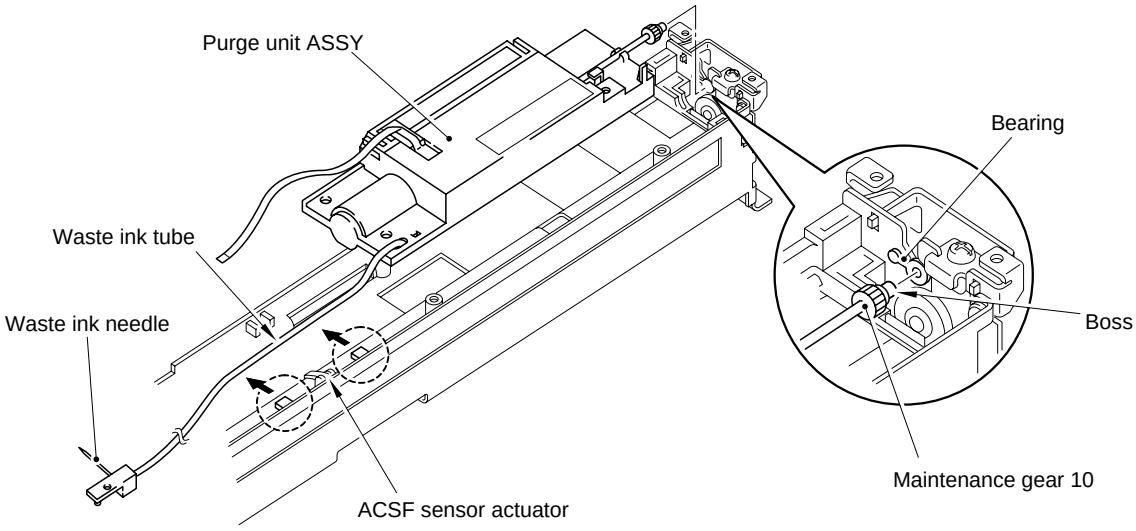


Fig. 3.23

<Reassembly>

Note: *Secure the four screws in the reverse order to attach the Purge unit ASSY and the Support plate.*

Important: *Check that the Waste ink tube is fitted correctly in the guides and goes into the hole on the Purge unit ASSY*

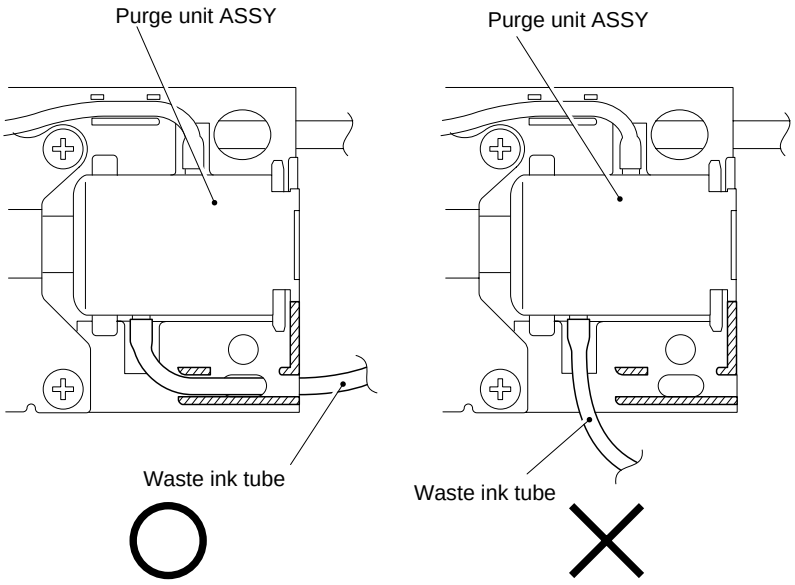


Fig. 3.25

Important: *Check that the Waste ink tube is fitted correctly into the three guides and two hooks on the Platen cover.*

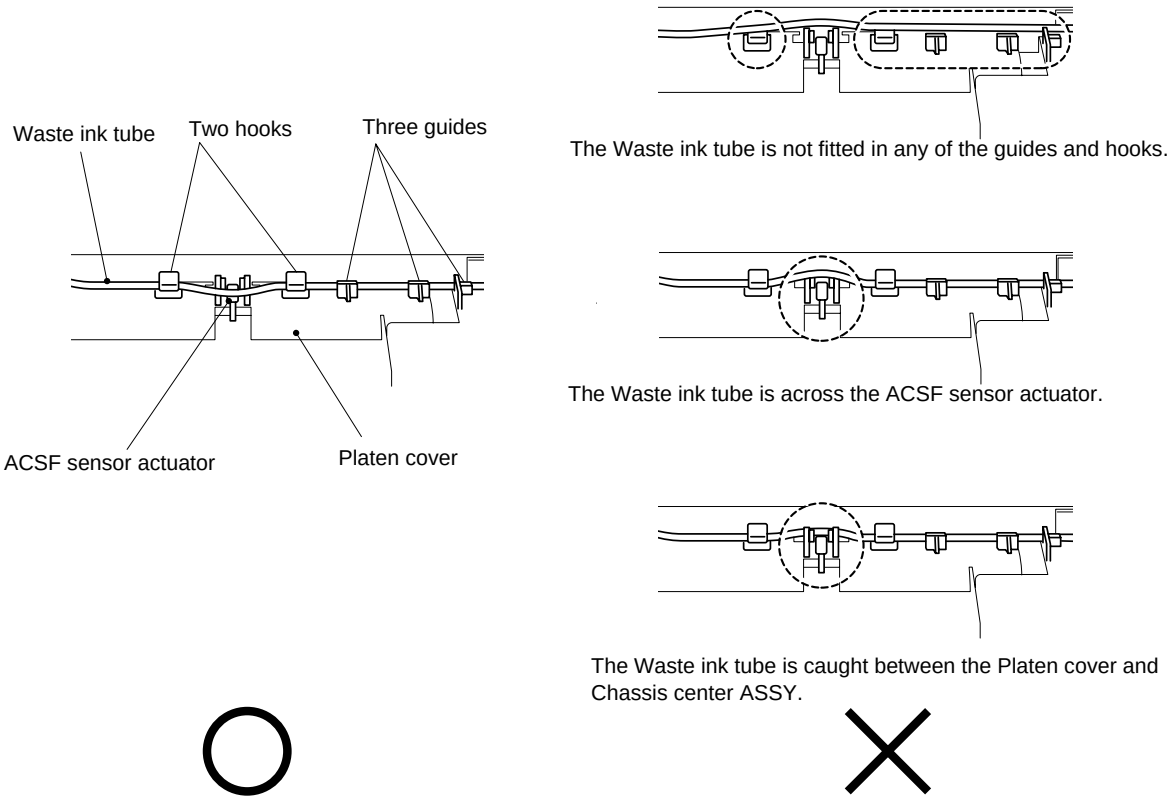
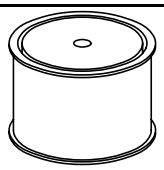
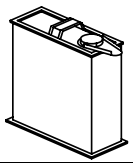
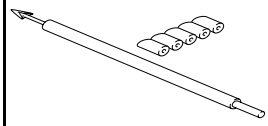
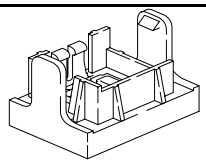


Fig. 3.26

TOOL NO.	TOOL NAME
PRT-001a	LUBRICATING GREASE Molykote EM-30L 1kg
PRT-001c	LUBRICATING GREASE G501
PRT-001d	LUBRICATING OIL Floil GE676
PRT-002b	LUBRICATING OIL Floil 946P
ZA0310001	HEAD CLEANER STICK ASSY
ZA0543001	NOZZLE PROTECTOR ASSY (4 PCS)
ZA0546001	INITIAL LIQUID ASSY (100ML)
ZA0726001	SEAL RUBBER ASSY (20 PCS)
ZA0728001	IL CARTRIDGE BC ASSY
ZA0737001	IL CARTRIDGE MY ASSY
LK2024001	CLEAN WIPER HEAD (500 PCS/1 BAG)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		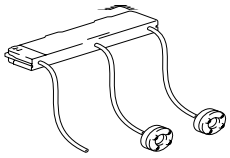	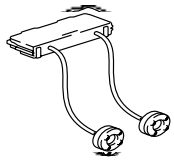
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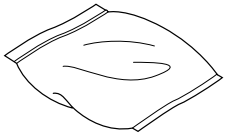
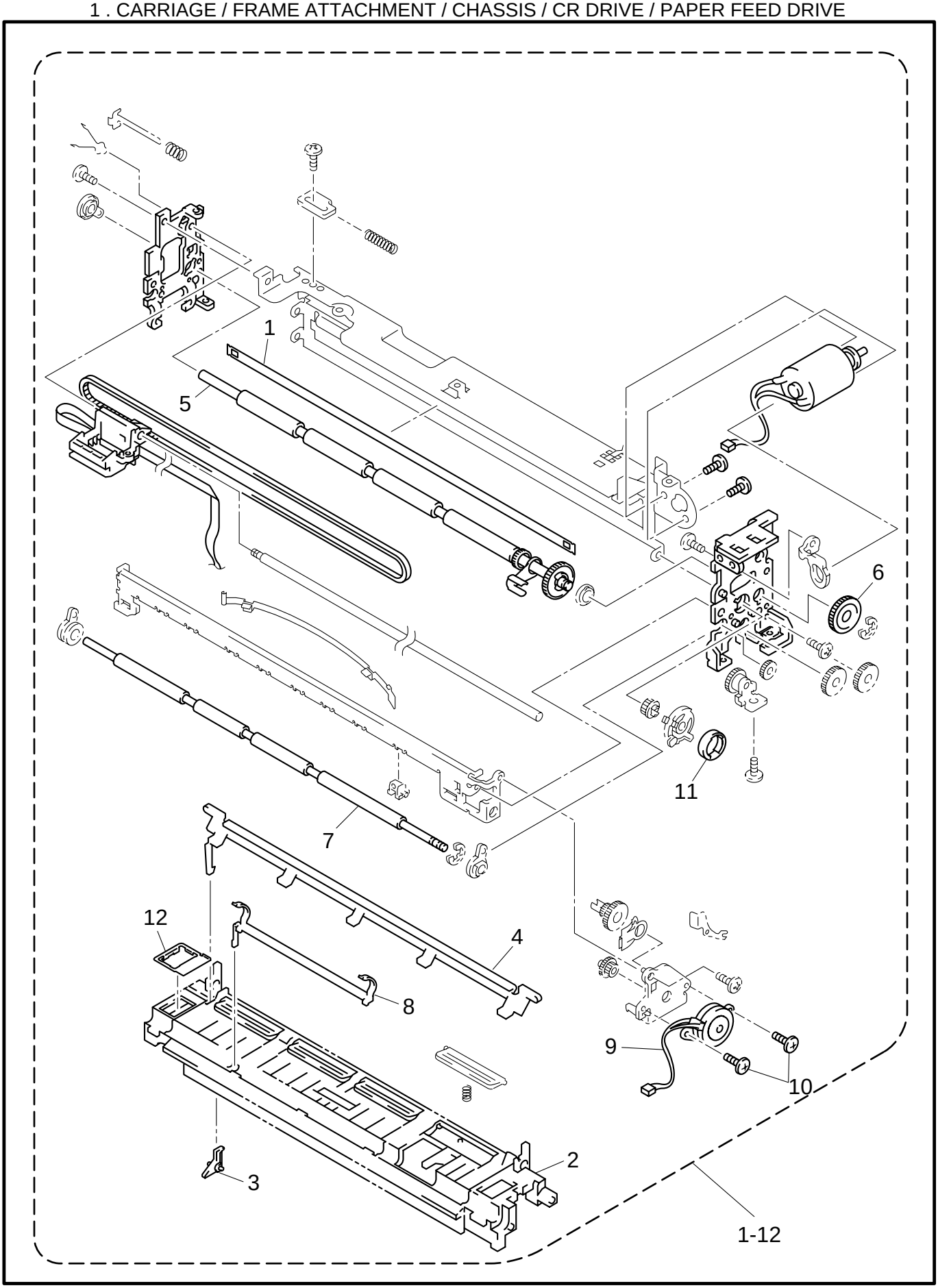
			
LK2024001			

1 . CARRIAGE / FRAME ATTACHMENT / CHASSIS / CR DRIVE / PAPER FEED DRIVE



T/I NO. PR99082

MODEL MP-21C/CDX 5H1-001/002/004/011/020

6. COVERS

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	UJ5301001	1	FRONT COVER	
2	UJ5302000	1	LED GUIDE	
3	UJ5326001	1	LED BLIND SHEET	
4	060260417	1	SCREW, BIND M2.6X4	
5	UJ5306001	1	REAR COVER	
6	060260417	1	SCREW, BIND M2.6X4	
7	UJ5310001	1	BOTTOM COVER	
8	UJ5311001	1	SUPPORT PLATE	
9	UJ5312001	3	RUBBER FOOT	
10	UJ5313001	1	SWITCH KEY	
11	UJ5319001	1	COLOR LOGO MARK	
12	060260417	4	SCREW, BIND M2.6X4	
13	UJ5314001	1	TOP COVER	
14	UJ5307001	1	SLIDE LEVER	
15	UJ5308001	1	LEVER SPRING	
16	UJ5315001	1	PAPER GUIDE	
17	UJ5335001	1	FILM RIB	
18	UJ5317001	2	PRECISE SCREW, M16X4	
19	UJ5321001	1	PANEL CARTRIDGE INSTRUCT	

7. PACKING MATERIALS

PR99084

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARK
1	UJ5475001	1	CARRYING HANDLE	
2	UJ5426001	1	CARTON, MP-21C US	REV. CHNG
2	UJ5446001	1	CARTON, MP-21CDX US	REV. CHNG
2	UJ5427001	1	CARTON, MP-21C EU	
2	UJ5447001	1	CARTON, MP-21CDX EU	REV. CHNG
2	UJ5492001	1	CARTON, MP-21C CANADA	REV. CHNG
2	UJ5491001	1	CARTON, MP-21CDX CANADA	REV. CHNG
3	UJ5430000	2	STYROFOAM, MP-21	
4	UJ5432001	1	CARTON, C (MP-21C only)	
5	UJ5433001	1	PARTITION CONTAINERBOARD (MP-21C only)	
5	UJ5486001	1	PARTITION CONTAINERBOARD (MP-21CDX only)	
6	UJ5476001	1	CARTON, CDX (MP-21CDX only)	
7	UJ5478001	1	CARTON, SF-21 (MP-21CDX only)	
8	UJ5480001	1	ACSF CUSHIONING MATERIAL (MP-21CDX only)	
9	UJ5434001	2	PE. BAG, 400X185	
10	UJ5444001	1	SPACER CONTAINERBOARD	

No. PR99084