

MultiPASS C755

SERVICE MANUAL

Canon

I. MEANING OF MARKS

The marks used in this manual have the following meanings.

Mark	Meaning
	States a precaution to be taken to prevent danger to personnel, damage to the product, or damage to electronic components by discharge of static electricity. for example.
	States a precaution to be taken to prevent damage to electronic components by electrostatic discharge.
	Informs you of fire-related cautions.
	Informs you that the plug must be removed from the power outlet before starting an operation.
 NOTE	Gives useful information to understand descriptions.
 REFERENCE	Indicates sections to be read to obtain more detailed information.

II. ABOUT THIS MANUAL

This manual is divided into five parts, and contains information required for servicing the product.

Each of the above parts is further divided into the following four chapters:

Chapter 1: General Description

This part explains product specifications and the how to service the unit safely. It is very important, so please read it.

Chapter 2: Assembly and Disassembly

This part explains the assembly and disassembly of the product.

Chapter 3: Maintenance and Service

This part explains how to maintain the products for adjustment and troubleshooting and service operations and service switches.

Chapter 4: Appendix

This part explains the informations of the optional products and user data flow.



REFERENCE

-
- For more details of user operations and user reports, see the separate volume of *USER'S GUIDE*.
 - Greasing points is not given in this manual. See the illustrations in the separate volume of *PARTS CATALOG*.
 - Detailed description of each SSSW/parameter is not given in this manual except the new SSSWs/parameters added to this model.
See *G3 Facsimile Service Data Handbook (supplied separately)* for details them.
 - See the *G3 Facsimile Error Code List (Rev.1, supplied separately)* for details of the error codes not shown in this manual.
-

III. REVISION HISTORY

<i>REVISION</i>	<i>CONTENT</i>
0	Original

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1. FEATURES

1.1 Overview

This product is a G3 transreceiving facsimile based on the ITU-T recommendations. It can be used in telephone networks.

*: This mark indicates a new function.

Picture Quality Color Printer

High quality printing can be accomplished with the Canon Bubble Jet (BJ) method using the maximum 1440dpi × 720dpi resolution. Various kinds of media can be printed with the high speed of a maximum 8.7 pages per minute. The printing paper tray can hold up to 100 sheets of plain paper, 50 sheets of OHP film, or 10 back print films or envelopes.

***Plain paper fax which can transmit/receive in color**

Conforming to ITU-T recommendations, this fax is able to transmit/receive in color. Due to containing extremely high-speed 33.6kbps modems, transmission time can be shortened. Pictures and photographs can both be send and received clearly by UHQ(Ultra High quality), Canon's vivid image processing technology. Up to 20 letter- or A4- size sheets, or up to 10 legal-size sheets, can be set in the ADF. 12 one-touch dial entries and 100 speed dial entries can be registered, and group dial and broadcasting transmission can also be done. When paper and ink run out, the data is saved to memory, so there is no worry. When a external-phone is attached, fax communication and normal telephone reception are possible due to DRPD service and FAX/TEL switching.

BJ Cartridge

Printing quality superior to photos is produced by use of BC-30 and BC-33/BC-34 photo BJ cartridges.

***Out-of-Ink Function**

This machine has a function which detects when ink has run out. It also detects when the cartridges of machines equipped with color communications are out of ink. The presence/absence of ink in the ink chamber is detected by reflecting ink sensor.

Copy Function

This machine can be used as a 360dpi × 360 dpi high resolution full color copier. With a monochrome document (including half-tone), up to 99 pages can be copied at one time at the speed of a maximum of 3 pages/minute.

Full Color & 256 Gradation Grayscale Scanner

Using graphics or OCR software which conforms to the TWAIN standard, full color and 256-gradation grayscale images with a quality of 30dpi ~ 600 dpi can be read into a computer. Reading in can be done at a resolution of 300dpi, and can be enhanced to 600dpi using the included MultiPASS Suite.

PC Fax

By connecting this machine to a computer, a fax can be transmitted from the included MultiPASS Suite or from a Windows application, and a received image can be saved to the computer as-is without printing it out.

2. SPECIFICATIONS

2.1 General Specification

Type	Desktop
Body colour	Art gray
Power source	98 ~ 132V AC, 48 ~ 62 Hz
Power consumption	Standby 6.0 W Max. 44.9 W (when 100% black copy)
Usage environment.	50.0°F ~ 90.5°F (10°C ~ 32.5°C), 20%~85% RH, 570 ~ 760 mmHg (760 ~ 1013 hPa) Horizontal ±3° or less
Operating noise	Measured in accordance with ISO standards Operating :47 dB(A) or less
Dimensions (W × D × H)	17.20" × 16.85" × 8.15" (437 mm × 428 × 207 mm) (Not including Trays)
Weight	14.55 lbs (6.6 kg) Including trays

2.2 Communication Specification

Applicable lines	PSTN (Public Switched Telephone Network)
Applicable Services	DRPD (Distinctive Ring Pattern Detection)
Handset	None
Transmission method	Half-duplex
Transmission control protocol	ITU-T T30 binary protocol/ECM protocol/ ITU-T V.8 protocol/V.34 protocol/ECM protocol
Modulation method	
G3 image signals	ITU-T V.27ter (2.4k, 4.8k bps) ITU-T V.29 (7.2k, 9.6k bps) ITU-T V.17 (TC7.2k, TC9.6k, 12k, 14.4k bps) ITU-T V.34 (2.4k, 4.8k, 7.2k, 9.6k, 12k, 14.4k, 16.8k, 19.2k, 21.6k, 24k, 26.4k, 28.8k, 31.2k, 33.6k bps)
G3 procedure signals	ITU-T V.21 (No.2) (300bps) ITU-T V.8 300bps ITU-T V.34 600 bps, 1200 bps (With automatic fallback function)
Coding	Black/white ITU-T T.4 Coding method (MH, MR) ITU-T T.6 Coding method (MMR) ITU-T T.82/T.85 Coding method (JBIG) Color ITU-T T.81 Coding method (JPEG)
Error correction	ITU-T T30 (ECM)
Canon express protocol (CEP)	None

Time required for transmission protocol

Protocol Mode	Pre-message Protocol *1	Post-message Protocol *2 (between pages)	Post-message *3 (after pages)
G3 standard	approx.18 sec.	approx.4 sec.	approx.4 sec.
V.8/V.34	approx.8 sec.	approx.2 sec.	approx.2 sec.

*1 Time from when other facsimile is connected to the line until image transmission begins.

*2 Post-message (between pages): Time from after one document has been sent until transmission of the next document starts if several pages are transmitted.

*3 Post-message (after last pages): Time from after image transmission is completed until line is switched from facsimile to telephone.

Minimum transmission time	10 msec (G3), 0 msec (G3, ECM)
Transmission output level	From 0 to -15 dBm
Receive input level	From -3 to -43 dBm
Modem IC	FM336

2.3 Color Communication Specification

ITU-T recommendation	ITU-T T.30 ANNEX E (JPEG Color Fax) T.4 ANNEX E (JPEG Header) T.42 (Color space for Color Fax) T.81 (JPEG)
Scanning Document size	A4
Printing paper size	A4
Resolution	200×200 dpi
Picture element	8 bit
Coding	JPEG
Color space	CIELAB
Illuminant Data	CIE Standard Illuminant D50
Sub sample	4:1:1 (=Lab)

2.4 Scanner Specification

Type		Sheets		
ADF capacity		Max. 20 sheets (A4/Letter)		
		Max. 10 sheets (Legal)		
Effective scanning width		Letter/Legal	8.42" (214 mm)	
		A4	8.19" (208 mm)	
Scanning method		Contact sensor scanning method		
Scanning resolution		600 × 600 dpi		
Scanning line density & Scanning speed				
Operation	Mode	Line density	Motor step interval	Scanning speed
FAX	Standard	8 dot/mm × 3.85 line/mm (203.2 dpi × 97.79 dpi)	150 dpi/step	5 msec/line (Direct TX) 3.3 msec/line (Memory TX)
	Fine	8 dot/mm × 7.7 line/mm (203.2 dpi × 195.58 dpi)	300 dpi/step	3.3 msec/line
Scanner	Text (Binary)	150 dpi or less	150 dpi/step	5 msec/line
		151~300 dpi	300 dpi/step	3.3 msec/line
		301~600 dpi	600 dpi/step	3.3 msec/line
	Gray scale	150 dpi or less	150 dpi/step	5 msec/line
		151~300 dpi	300 dpi/step	3.3 msec/line
		301~600 dpi	600 dpi/step	3.3 msec/line
	Full color	150 dpi or less	150 dpi/step	9 msec/line
		151~300 dpi	300 dpi/step	9 msec/line
		301~600 dpi	600 dpi/step	9 msec/line
Copy	B&W	360 dpi	600 dpi/step	3.3 msec/line
	Full color	360 dpi	600 dpi/step	9 msec/line
Scanner gradations		Grayscale;	8 bit, 256 gradations	
		Color;	R,G,B (8 bits each) full color capability	
TWAIN		Yes		
Scanning density adjustment		3 density level		
Image modes		Halftone (PHOTO mode)		
Halftone (fax and copy)		64-gradation error diffusion system (UHQ)		
Prescan		Yes		

Scanning range

Sheet dimensions (W × L)

Maximum 8.50" × 39.3" (216 mm × 1000 mm)

Minimum 3.5" × 1.75" (88.9 mm × 44.5 mm)

Thickness

multiple pages: 0.003" ~ 0.005" (0.08 mm ~ 0.13 mm)

75~90 g/m²

single page: 0.003" ~ 0.017" (0.08 mm ~ 0.43 mm)

75~340 g/m²

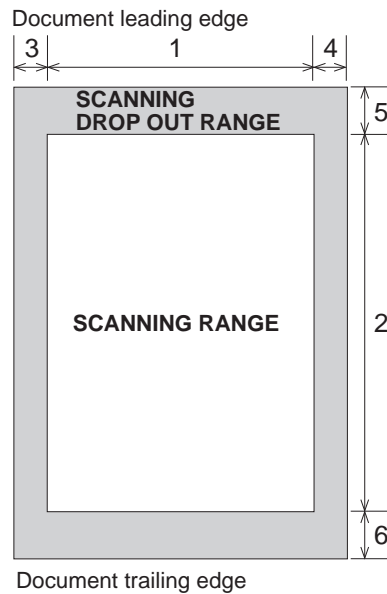


Figure 1-1 Scanning Range

Item	A4	Letter	Legal
1 Effective scanning width	8.09"~8.23" (205.5~209 mm)	8.31"~8.46" (211.0~215 mm)	8.31"~8.46" (211.0~215 mm)
2 Effective scanning length	11.54" (289~297 mm)	10.84" (271.4~279.4 mm)	13.84" (347.6~355.6 mm)
3 Left margin	0.04" ±0.14" (1.0 mm ±3.5 mm)	0.04" ±0.14" (1.0 mm ±3.5 mm)	0.04" ±0.14" (1.0 mm ±3.5 mm)
4 Right margin	0.04" ±0.14" (1.0 mm ±3.5 mm)	0.04" ±0.14" (1.0 mm ±3.5 mm)	0.04" ±0.14" (1.0 mm ±3.5 mm)
5 Top margin	0.08" ±0.08" (2.0 mm ±2.0 mm)	0.08" ±0.08" (2.0 mm ±2.0 mm)	0.08" ±0.08" (2.0 mm ±2.0 mm)
6 Bottom margin	0.08" ±0.08" (2.0 mm ±2.0 mm)	0.08" ±0.08" (2.0 mm ±2.0 mm)	0.08" ±0.08" (2.0 mm ±2.0 mm)

Units are inches with mm shown in parentheses.



NOTE

Document scanning width "A4/LTR" is set in service data #1 SSSW SW06, bit4.

2.5 Printer Specification

Printing method		Bubble-jet ink on-demand	
BJ Cartridge			
	Black BJ Cartridge BC-30	Color BJ Cartridge BC-33	Photo BJ Cartridge BC-34Photo
Product code	F45-1471	F45-1491	F45-1511
Structure	Separate type ink tank	Separate type ink tank	Separate type ink tank
Head	160 nozzles (in a vertical line)	192 nozzles (in a vertical line)	192 nozzles (in a vertical line)
	Bk (160 nozzles × 1)	Bk, C, M, Y (48 nozzles × 4)	Bk, C, M, Y (48 nozzles × 4)
Ink colors	Pigment Bk	Pigment Bk, C, M, Y	Dye PBk, PC, PM, Y
Ink tanks	BCI-3BK	BCI-3BK, BCI-3C, BCI-3M, BCI-3Y	BCI-3BK Photo BCI-3PC Photo BCI-3PM Photo, BCI-3Y
Weight	60g (without ink tank)	72g (without ink tanks)	75g (without ink tanks)
Ink Cartridge			
Products name	BCI-3BK/BCI-3C/BCI-3M/BCI-3Y/BCI-3BK Photo/BCI-3PC Photo/ BCI-3PM Photo		
Product code	F47-2171/F47-2181/F47-2191/F47-2201/F47-2231/F47-2211/ F47-2221		
Ink contains	23g (BCI-3BK)/11g (others)		
Ink detection	Optical LOW-Ink sense		
Printing speed	Black	Approx. 8.7 pages/minute (in case of character print)	
	Color	Approx. 4.6 page/minute	
Printing resolution	360 dpi × 360 dpi (Normal print), 1440 dpi × 720 dpi (Printer mode) 180 dpi × 180 dpi (Economy print*)		
*Printing in a checkered pattern without printing vertical and horizontal adjacent dots.			
Paper output tray stacking	Approx. 50 sheets (when using the recommended paper)		
Paper tray			
Paper supply method	ASF (Auto Sheet Feeder)		
Number of paper tray	1tray : Legal/Letter/A4 (Universal)		
Paper capacity	Max. 0.40" (10 mm) thickness plain paper (Approx. 100 sheets)		
Recommended paper			
Canon Copier LTR/LGL Premium Paper			
Weight	75 g/m²		
Paper size	Letter, Legal		
Manufactured by	BOISE CASCADE		
PLOVER BOND			
Weight	75 g/m², 90 g/m²		
Paper size	Letter		
Manufactured by	FOX RIVER		
XEROX 4024			
Weight	75 g/m², 90 g/m²		
Paper size	Letter, Legal		
Manufactured by	XEROX		

Printing range (Black & White FAX)

Paper dimensions (W × L)

Letter	8.50" × 10.98" (216 mm × 279 mm)
Legal	8.50" × 14.02" (216 mm × 356 mm)
A4	8.27" × 11.69" (210 mm × 297 mm)

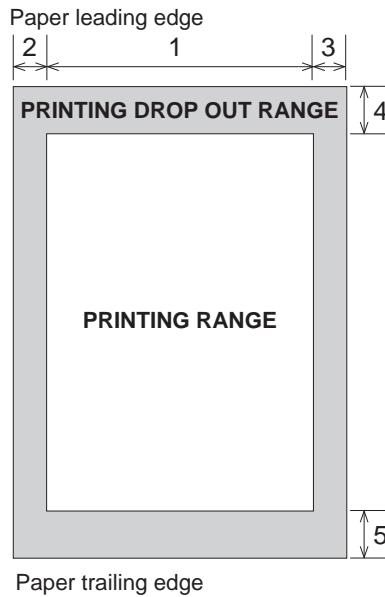


Figure 1-2 Printing Range

Item	A4	Letter	Legal
1 Effective printing width	8.00" (203.2 mm)	8.00" (203.2 mm)	8.00" (203.2 mm)
2 Left margin	0.13"±0.06" (3.4±1.5 mm)	0.25"±0.06" (6.4±1.5 mm)	0.25"±0.06" (6.4±1.5 mm)
3 Right margin	0.13"±0.06" (3.4±1.5 mm)	0.25"±0.06" (6.4±1.5 mm)	0.25"±0.06" (6.4±1.5 mm)
4 Top margin	0.12"±0.06" (3.0±1.5 mm)	0.12"±0.06" (3.0±1.5 mm)	0.12"±0.06" (3.0±1.5 mm)
5 Bottom margin	0.20"±0.12" (5.0±3.0 mm)	0.20"±0.12" (5.0±3.0 mm)	0.20"±0.12" (5.0±3.0 mm)

Units are inches with mm shown in parentheses.



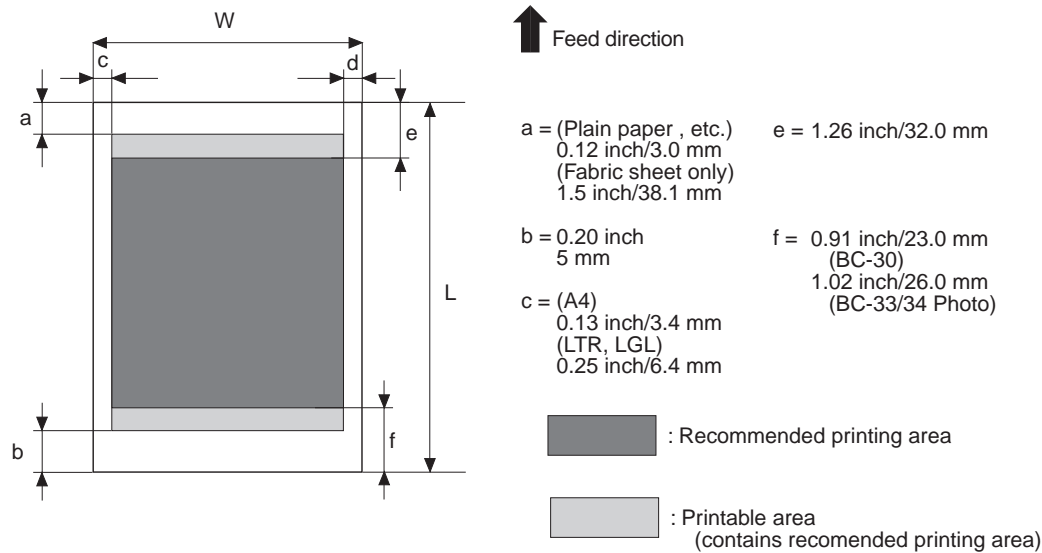
NOTE

- The header and footer are printed in the printing range.
- The shaded area is included in the left and right margin errors of the paper trailing edge.
- The printing range is set in user data **"PRINTER SETTINGS"**, **"PAPER SIZE"**.

Printing range (Color FAX & Printer mode)

Plain paper and Special media (Color FAX & Printer mode)

W × L = Min. 7.17 × 1012 inch(182 × 257 mm)
Max. 8.5 × 14.0 inch(216 × 356 mm)



Envelopes

W × L = (COM #10)
9.48 × 4.17 inch(241 × 106 mm)
(DL)
8.66 × 4.33 inch(220 × 110 mm)

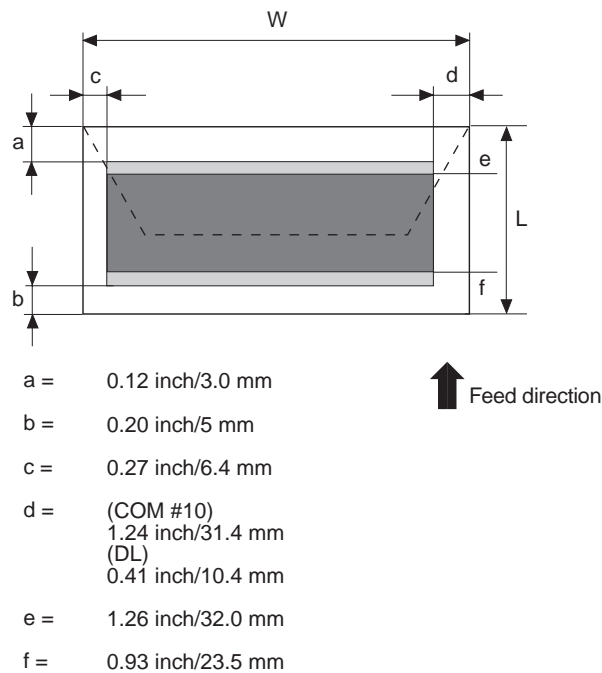
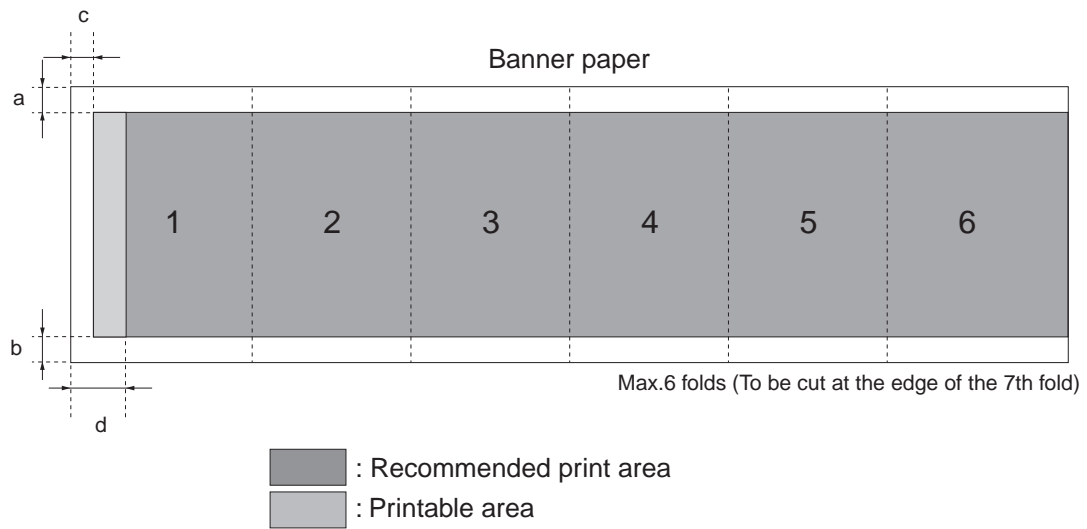


Figure 1-3 Printing Range (1)



a=0.13inch / 3.4mm
b=0.13inch / 3.4mm
c=0.12inch / 3.0mm
d=1.26inch / 32mm

Figure 1-4 Printing Range (2)

2.6 Copy Specification

Color copy	Yes		
Multiple copy	99 copies (Black & white mode only)		
Copy mode	Black & white	TEXT, PHOTO	
	Color	PLAIN PAPER, HI RES PAPER, COLOR DRAFT, COLOR SNAPSHOT	
Copy resolution	Scanning	Black & white	360 dpi × 360 dpi (direct copy) 8 dot/mm × 7.7 line/mm (memory copy)
		Color	360 dpi × 360 dpi (PLAIN PAPER, HI RES PAPER, COLOR SNAPSHOT) 180 dpi × 180 dpi (COLOR DRAFT)
	Printing	360 dpi × 360 dpi	
Copy magnification ratio	100%, 90%, 80%, 70% 150%, 200% (COLOR SNAPSHOT)		

2.7 Function

Dialling

Manual dialling	Numeric button
Auto dialing	Max. 120 digits
	One-touch:12, Coded speed:100, Numeric button:1
Group dial	Max.111 locations
Redial	Numeric button redial function (Max. 120 digits)

Transmission

Broadcast transmission	Max. 113 locations (One-touch:12, Coded speed:100, Numeric button:1)
Delayed transmission	Yes (PC Assisted) Max. 30 reservation
Confidential Tx/Rx	None
Relay broadcasting originating	None
Relay broadcasting	None

Reception

Dual Access	Yes
FAX/TEL switching	Yes
Method	CNG, detection
Message	None
Pseudo CI	None
Pseudo ring	Yes
Pseudo ringback tone	Yes
Reduction settings for reception	Yes
Automatic reduction of reception images	Yes (100% ~ 70%)
Built-in Answering machine	None
Answering machine connection	Yes (Telephone answering priority type)
Remote reception	Yes (Remote ID method)
Memory lock reception	None
Reception printing in reverse order	None

Polling

Polling transmission	None
Polling reception	None

Others	
Closed network	None
Direct mail prevention	None
Reception printing in reverse order	None
Memory box	None
Memory backup	
Backup contents	Dial registration data, User data, Service data, Time
Backup IC	273 kbit SRAM for control
Backup device	Lithium battery 3.0V DC/220 mAh
Battery life	Approx. 5 years
Image data backup	None
Image Memory	Approx. 6.67 MB
Activity management	Yes
a) User report	
Activity management report (Every 20 transactions : always transmission and reception together)	
Activity report (sending/receiving)	
One-touch speed dialling list	
Coded speed dialling list	
Group dialling list	
Memory clear list	
User's data list	
Document memory list	
Multi activity report	
b) Service report	
System data list	
System dump list	
Error list	
Transmitting terminal identification	Yes
Time	
Management data	Year/month/date/day/hour/minute (24 hour display)
Precision	±90 sec per month
Display	1 row × 16 digits
Completion stamp	None
Program button	None
Hook button	Yes
Telephone exchange function	None
Speaker phone	None
Demo print function	None
HELP function	None

3. OVERVIEW

3.1 External View

Front View

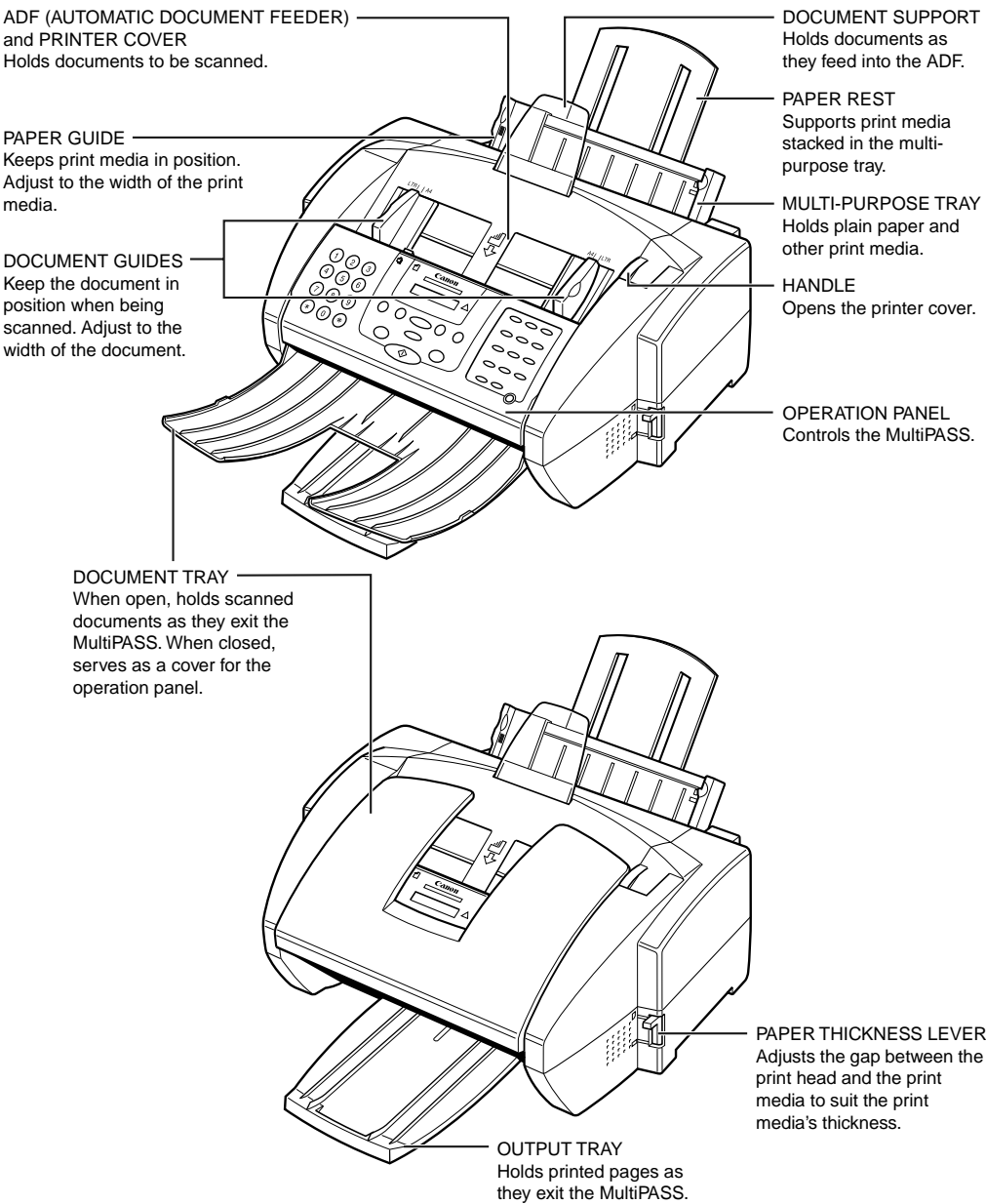
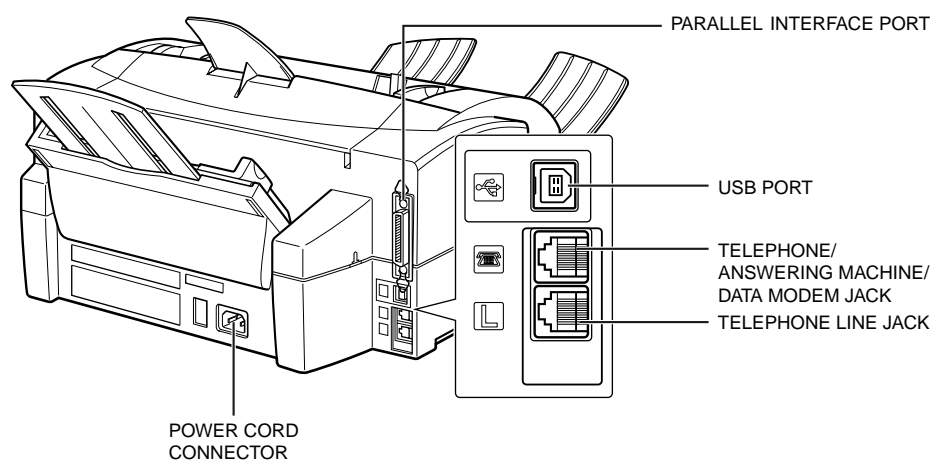


Figure 1-5 External View (1)

Back View



Inside View

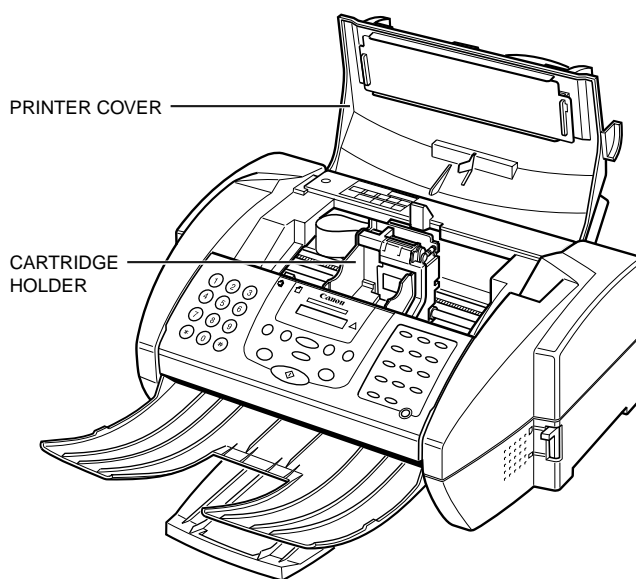


Figure 1-6 External View (2)

3.2 Operation Panel

Operation Panel

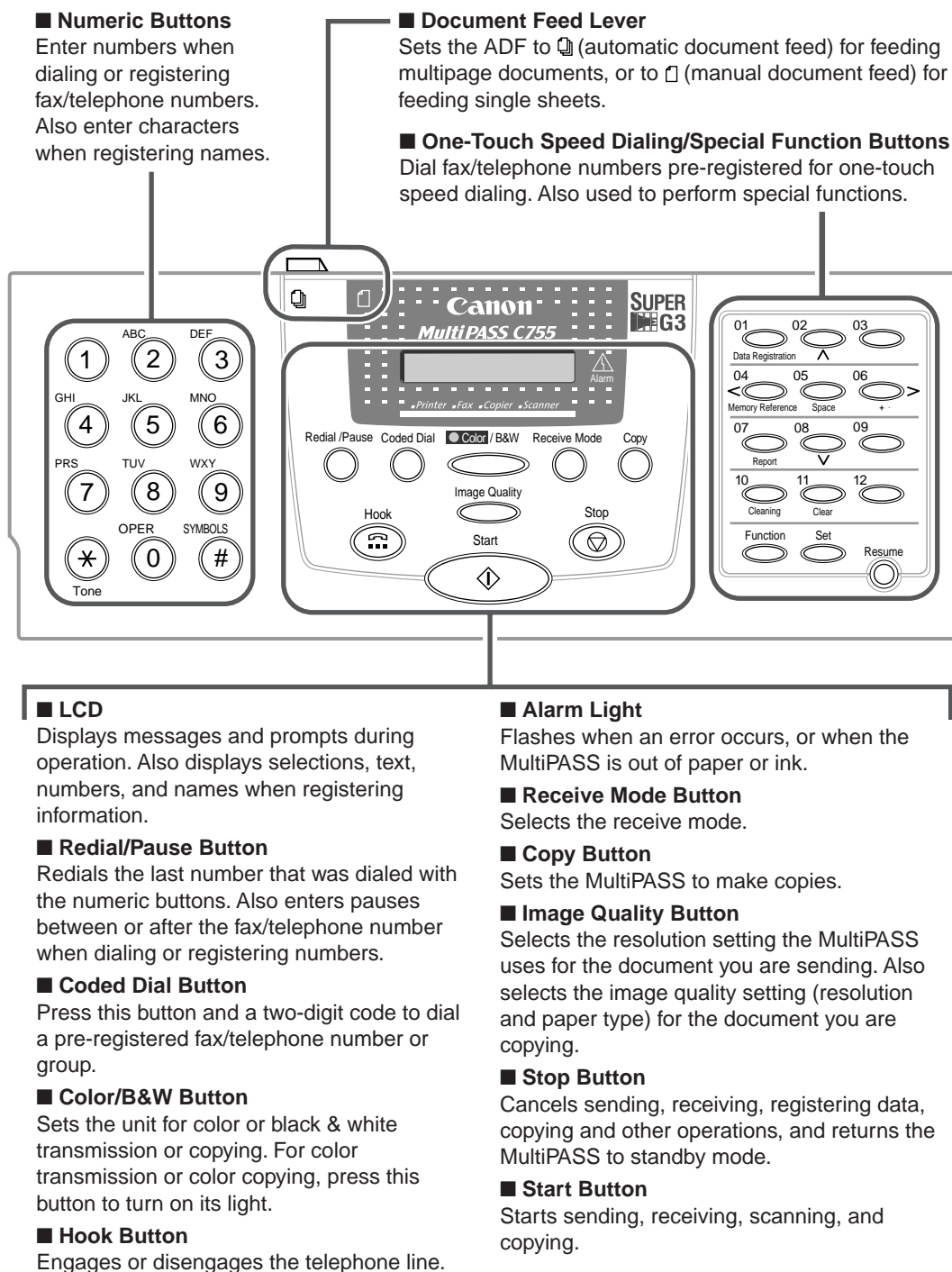


Figure 1-7 Operation Panel (1)

One-Touch Speed Dialing/Special Function Buttons

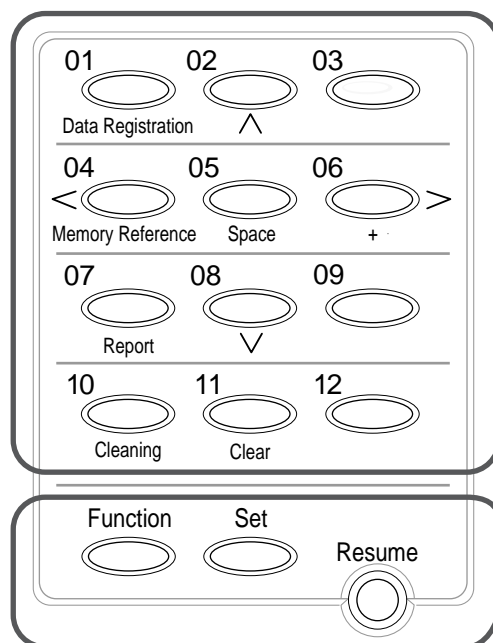
The buttons on the right of the operation panel have the following two functions:

- **One-Touch Speed Dialing Buttons**

The buttons marked 01 to 12 can be used to dial fax/telephone numbers pre-registered under these buttons. To use the one-touch speed dialing buttons, the **Function** button's light must be off.

- **Special Function Buttons**

The special function buttons (marked under or to the sides of the buttons) are described below. To access the special functions, press **Function** to turn on its light and then press the button you wish to access.



- **Function Button/Light**

Switches between the special function buttons and the one-touch speed dialing buttons. To use the special function buttons, press this button to turn on its light. To use the one-touch speed dialing buttons, press to turn off its light.

- **Set Button**

Selects and registers settings or information during data registration.

- **Resume Button**

Form-feeds paper when printing, and resumes printing after an error is corrected.

- **Data Registration Button**

Accesses the different menus for customizing your MultiPASS.

- **^, v Buttons**

Scroll through the settings so you can see other selections in the menus during data registration.

- **Memory Reference Button**

Performs operations with documents stored in memory. Also prints documents in memory you no longer want to upload to your PC.

- **<, > Buttons**

Move the cursor left or right when registering data.

- **Space Button**

Enters a space between letters and numbers when registering information.

- **+ Button**

Enters a plus sign (+) when registering your unit fax/telephone number.

- **Report Button**

Prints reports containing registered information and information on transactions.

- **Cleaning Button**

Prints the nozzle check pattern, performs cleaning operations, and aligns the BJ cartridge print head position.

- **Clear Button**

Clears an entire entry when registering information.

Figure 1-8 Operation Panel (2)

Guidelines for Entering Numbers, Letters, and Symbols

When you come to a step that requires you to enter a name or number, refer to the table below to determine which numeric button to press for the character you want.

Button	Letters (:A)	Numbers (:1)
1		1
<small>ABC</small> 2	ABCabc	2
<small>DEF</small> 3	DEFdef	3
<small>GHI</small> 4	GHIghi	4
<small>JKL</small> 5	JKLjkl	5
<small>MNO</small> 6	MNOmno	6
<small>PRS</small> 7	PQRSpqr s	7
<small>TUV</small> 8	TUVtuv	8
<small>WXYZ</small> 9	WXYZwxyz	9
<small>OPER</small> 0		0
<small>SYMBOLS</small> #	-.*#!",;:^`_ = /!'?\$@% &+()[] { } < >	
<small>Tone</small> *	Letter input (:A) ↔ Number input (:1)	


 If you pause for more than 60 seconds between entering characters, the unit will automatically return to standby mode.

Figure 1-9 Operation Panel (3)

3.3 Consumables

3.3.1 BJ cartridge and ink cartridge

BJ Cartridges and BJ Tanks

A BJ cartridge is made up of a “holder” that contains the print head unit, and different color BJ ink tanks that are placed inside the “holder.” You can replace individual BJ tanks as they run out.

Canon offers several BJ cartridges for use with the MultiPASS.

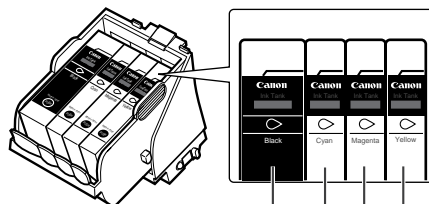
■ Color BJ Cartridge (Either one included with your MultiPASS)

Prints in color and monochrome. It contains four BJ tanks: Black, cyan, magenta, and yellow.

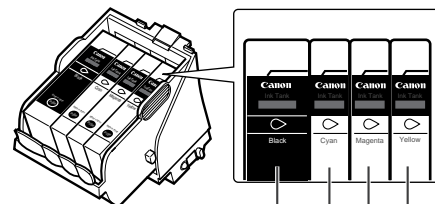
BC-33 Color BJ Cartridge*

-or-

BC-33e Color BJ Cartridge**



BLACK BJ TANK
(BCI-3BK or BCI-3eBK)
CYAN BJ TANK
(BCI-3C or BCI-3eC)
MAGENTA BJ TANK
(BCI-3M or BCI-3eM)
YELLOW BJ TANK
(BCI-3Y or BCI-3eY)



BLACK BJ TANK
(BCI-3eBK)
CYAN BJ TANK
(BCI-3eC)
MAGENTA BJ TANK
(BCI-3eM)
YELLOW BJ TANK
(BCI-3eY)

■ Photo BJ Cartridge (Sold separately)

Prints photo-realistic images in color. It contains four BJ tanks: Photo black, photo cyan, photo magenta, and yellow.

BC-34 Photo BJ Cartridge*

-or-

BC-34e Photo BJ Cartridge**

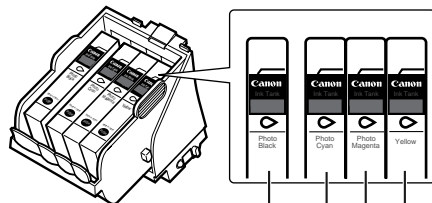


PHOTO BLACK BJ TANK
(BCI-3PBK Photo or BCI-3ePBK Photo)
PHOTO CYAN BJ TANK
(BCI-3PC Photo or BCI-3ePC Photo)
PHOTO MAGENTA BJ TANK
(BCI-3PM Photo or BCI-3ePM Photo)
YELLOW BJ TANK
(BCI-3Y or BCI-3eY)

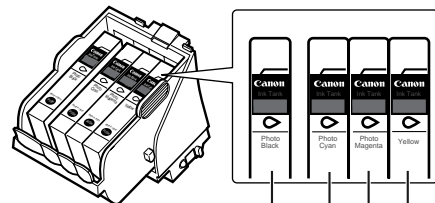


PHOTO BLACK BJ TANK
(BCI-3ePBK Photo)
PHOTO CYAN BJ TANK
(BCI-3ePC Photo)
PHOTO MAGENTA BJ TANK
(BCI-3ePM Photo)
YELLOW BJ TANK
(BCI-3eY)

* You can use both BCI-3 and BCI-3e BJ tanks in this BJ cartridge. However, we recommend you use the same model for all four BJ tanks.

** Use only BCI-3e BJ tanks in this BJ cartridge.

Figure 1-10 Consumables (1)

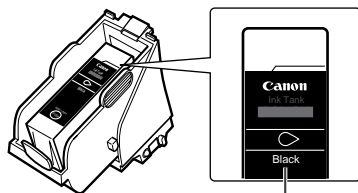
■ **Black BJ Cartridge (Sold separately)**

Prints in monochrome. It contains one black BJ tank.

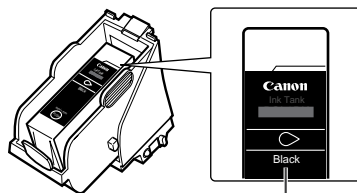
BC-30 Black BJ Cartridge*

-or-

BC-30e Black BJ Cartridge**



BLACK BJ TANK
(BCI-3BK or BCI-3eBK)



BLACK BJ TANK
(BCI-3eBK)



Note

- To help ensure the maximum life of your BJ cartridges, always follow the guidelines for cartridge maintenance.
- For optimum printing results and to avoid printing problems, Canon recommends that you only use the Canon BJ cartridges and tanks mentioned in this guide.

Figure 1-11 Consumables (2)

3.3.2 Print media

■ Plain Paper

The MultiPASS supports letter-, legal-, and A4-size paper in portrait orientation. You can use regular copier paper, cotton bond paper, and typical letterhead. Your unit does not require special ink jet paper, and produces letter quality print on most plain paper. Always use paper without curls, folds, staples, or damaged edges. Copier paper has a preferred side for printing. Look at the label on the package to see which side to print on.

■ Envelopes

The MultiPASS can print on U.S. Commercial No. 10 envelopes and European DL envelopes.

The following envelopes are not recommended because they may cause jams or smears, resulting in damage to your unit:

- Envelopes with windows, holes, perforations, cutouts, and double flaps.
- Envelopes made with special coated paper or deeply embossed paper.
- Envelopes with peel-off sealing strips.
- Envelopes with letters enclosed.

You may be able to stack envelopes of other sizes in the multi-purpose tray. However, Canon cannot guarantee consistent performance on envelope sizes other than U.S. Commercial No. 10 and European DL.

■ Glossy Photo Paper GP-301

Canon Glossy Photo Paper GP-301 is a high gloss, thick paper that produces the look and feel of a photograph. Use this paper with the Photo BJ cartridge to print photo-realistic images.

■ Banner Paper

Canon Banner Paper is specifically designed for printing one continuous sheet in a banner format. The connected sheets are divided by perforations and you can print from two to six sheets at a time. Canon Banner Paper is specially designed for use with Bubble Jet printers and produces bright and vivid color images.

■ High Resolution Paper HR-101S/HR-101N*

Canon High Resolution Paper HR-101S/HR-101N is designed to produce near-photographic quality print output with sharp and vivid graphics. For best results, use this paper with the Photo BJ cartridge.

*The Canon High Resolution Paper HR-101N will be released in the near future.

Figure 1-12 Print Media (1)

■ Bubble Jet Paper LC-301

Canon Bubble Jet Paper LC-301 has been developed for high quality printing with minimal or no smearing or running when in contact with water or damp surfaces. This specially coated paper produces bright and vivid colors and stands up to normal office highlighters, unlike images printed on other paper.

■ Back Print Film BF-102

Canon Back Print Film BF-102 has been specially developed for Bubble Jet printers. This unique mylar-based translucent sheet is designed to deliver sharp, brilliant, high-intensity color images suitable for business presentations, design work, or professional reports. Back print film is printed on the back (non-glossy) side of the film in mirror image and then viewed from the front (glossy) side using a backlit device, such as a light box.

■ High Gloss Photo Film HG-201

Canon High Gloss Photo Film HG-201 features a bright white finish that lends striking visual power to charts, graphs, and photographic images. It creates a sharper and more vivid color output than is possible with coated paper. Use of this film gives your presentation materials and graphics a professional look. This film provides the best color print quality for the Color BJ cartridge.

■ Transparencies CF-102

Canon Transparencies CF-102 produce excellent contrast, sharpness, and color, creating crisp and professional overhead presentations.

Do not use normal transparencies in the MultiPASS as they do not absorb ink and may cause ink to run.

■ Glossy Photo Cards FM-101

Canon Glossy Photo Cards FM-101, made from the same stock as Glossy Photo Paper, allow you to print images over the entire area of the card. Print the image so that it extends beyond the perforations and then trim off the unwanted white margins.

Figure 1-13 Print Media (2)

1. ATTENTION TO BE PAID DURING ASSEMBLY/ DISASSEMBLY

1.1 Safety Cautions

Electrical shock

In order to prevent any risk of electrical shock, always be sure to check that the power cord and modular jack have been removed. Also, remove all cables connecting to the computer. When conducting service that requires the main unit to be powered on, be sure to wear some kind of earthing, such as a wrist strap, etc. Otherwise, there is a danger of conduction and electrical shock.

Parts which are generally likely to cause electrical shock are as follows.

- Power supply unit primary (supplied with AC voltage)
- Telephone line primary
- LBP engine high voltage contacts (for high voltage during developing and transfer)

High temperature

In order to prevent burns during disassembly, allow at least ten minutes, after the power has been switched off, for the high temperature components to cool down.

General high temperature components are as follows.

- Motors
- Power supply unit
- Elements on driver ICs, etc., on PCBs (in particular, ICs with heatsinks)
- BJ cartridge aluminium plate (for BJ cartridge engine models)
- Fixing unit and peripheral covers (for LBP engines)

Fire

It is dangerous to throw lithium batteries and parts and components containing flammable substances, such as cartridges, etc., into fire. Such parts and components must be disposed of in accordance with local laws and regulations.

Ignition

When using solvents such as alcohol, etc., while conducting service, there is a danger of fire igniting from heat from internal circuitry and from sparks. Before using any such solvents, be sure to switch off the power and allow time for high temperature parts to cool down. Make sure that there is sufficient ventilation when working with solvents.

Movable parts

In order to prevent accidents with movable parts, be sure to remove the power cable when conducting service that requires disassembly. Also, take care that personal accessories and hair, etc., are not caught in any moving parts.

1.2 General Cautions

Damage due to electrostatic discharge

This machine contains contact sensors and printed circuit boards that use ROMs, RAMs, custom chips and other electronic components that are vulnerable to damage by electrostatic discharge.

Be careful to avoid any damage from electrostatic discharge when conducting service that requires disassembly.



Static electricity warning

Electrostatic discharge can destroy electronic components and alter electrical characteristics. Plastic tools and even your hands, if they are not earthed, contain sufficient static electricity to damage electronic components.

The following materials may be used as countermeasures against electrostatic discharge:

- an earthed, conductive mat,
- an earthed wrist-strap,
- crocodile clips for the purpose of grounding metallic parts of the main unit.

For service conducted on the user's premises, etc., where such countermeasure materials are not available, the following countermeasures may be employed.

- Use anti-static bags for the storage and carrying of PCBs and electrical elements.
- Avoid silk and polyester clothing and leather soled shoes, favouring instead cotton clothes and rubber soled shoes.
- Avoid working in a carpeted area.
- Before beginning the work, touch the grounded earth terminals of the main unit in order to discharge any static electricity.
- Use a wrist-strap and earth the metal parts of the main unit.
- PCBs and electrical elements must be lifted around the edges and their terminals must not be touched.



Caution against electrical shock while working with power on

In cases where service must be carried out with power on, via a connected power cable, be sure to wear an anti-static wrist-strap or other earth, in order to prevent an electrical path being created through your body.

Application of grease

Grease must not be applied to any parts that are not so designated. If grease comes into contact with the rubber cap of the purge unit or wire, the BJ cartridge nozzle may become blocked and the cartridge rendered unusable. Also, never use any other than the specified type of grease. Otherwise, plastic parts and rubber parts may melt or be otherwise deformed.

Attaching and removing cables

Attaching and removing cables with the power still on may cause breakdowns and should be avoided. In particular, flat cables are likely to cause short circuits. When attaching or removing cables, always be sure to turn the power off.

1.3 Product-Inherent Cautions

Prevention of ink-soiling

Be careful when handling the BJ ink cartridge nozzle, the ink pad, head cap, head wiper and waste ink pad. Residual ink may soil the main unit, working surfaces, your hands and clothes, etc. The ink is water-soluble, but because it contains pigments, it will not wash out of clothes.

The ink does not contain any substances that are harmful to humans, but does contain organic solvents (isopropyl alcohol 67-63-0, diethylene glycol 111-46-6, glycerin 56-81-5 and ethylene glycol 107-21-1). If the ink should accidentally get into someone's eyes, rinse the affected eye with plenty of clean water and seek medical attention. If a large quantity of ink is accidentally swallowed, seek medical advice immediately. In such a case, let the doctor know exactly what is written on the BJ cartridge label.

Conductivity of the ink

The ink used in the BJ cartridge is conductive. This means that, if the ink leaks, mechanical parts should be wiped with a dampened paper towel or similar and electrical circuits wiped with tissue paper so that all ink is removed from below the IC chips.

If power is switched on while ink is leaking on the electrical circuits, the circuitry may short out and be damaged. If ink is leaking, the power must be switched off.

1.4 Action in the Event of Abnormality (All Clear)

In the event of extreme noise or shock, etc., in very rare cases, the display may go out, and all the keys become inoperable. In that case, perform an All Clear. This operation returns all values and settings to their default settings. However, as all settings, such as received images and user data, service data, etc., will be re-initialised, be sure to note down any settings that you will need to re-enter later.

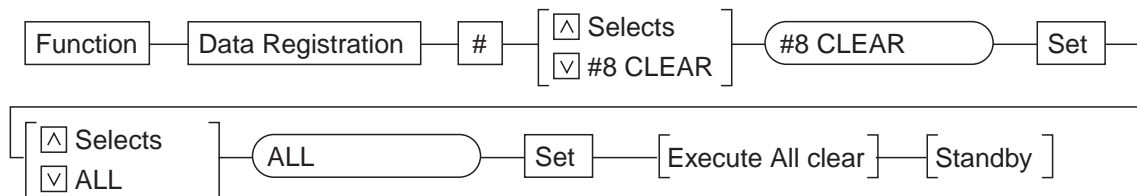


Figure 2-1 All Clear Operation



While waiting to return to the ready state after executing “All clear”, please do not press the Stop button. Doing so may cause a malfunction afterwards.

2. DISASSEMBLY/ASSEMBLY

2.1 Parts Layout

The parts layout of this machine consists of the scanning assembly, printing assembly and printer.

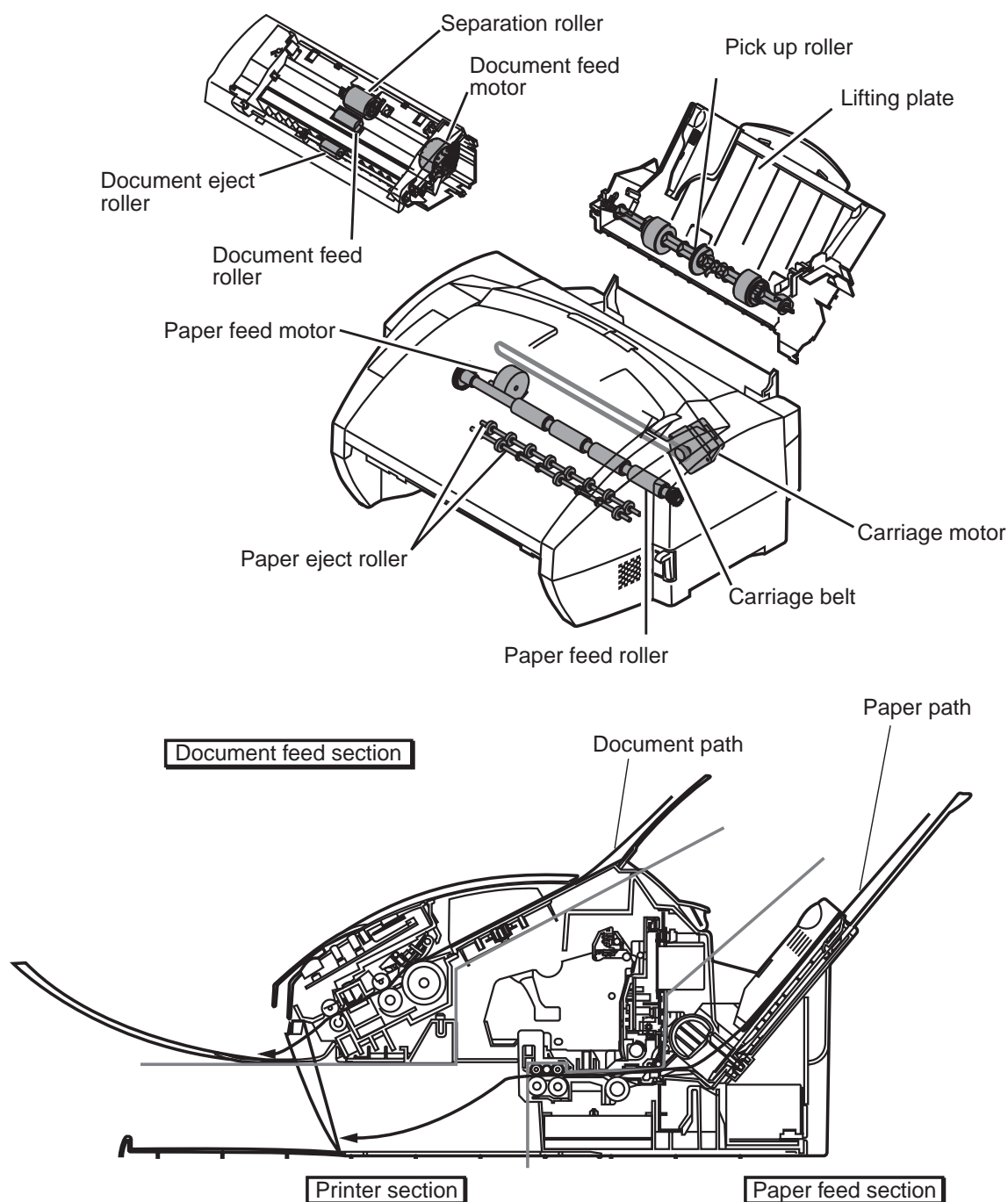


Figure 2-2 Mechanical Layout

The electrical parts are laid out as follows.

- SCNT board system control
- PCNT board printer control
- NCU board interface with telephone line
- Power supply unit supplies power to the units and assemblies
- OPCNT board detects keyboard operation and displays machine information
- 7 sensors detect unit and assembly statuses

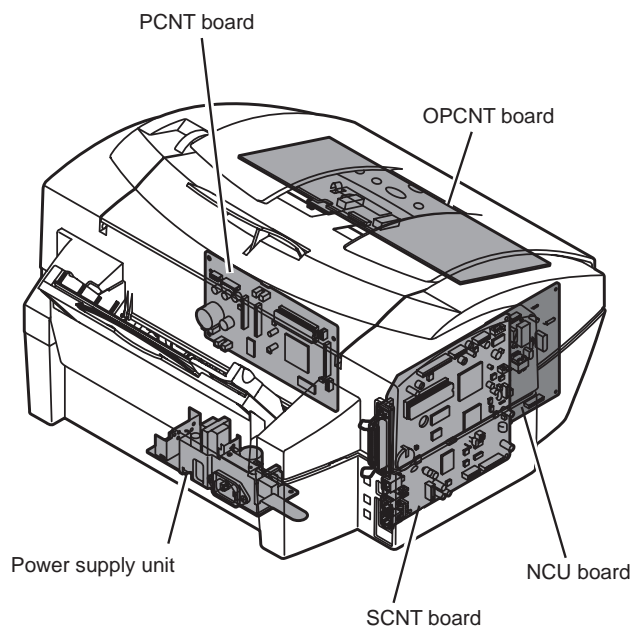
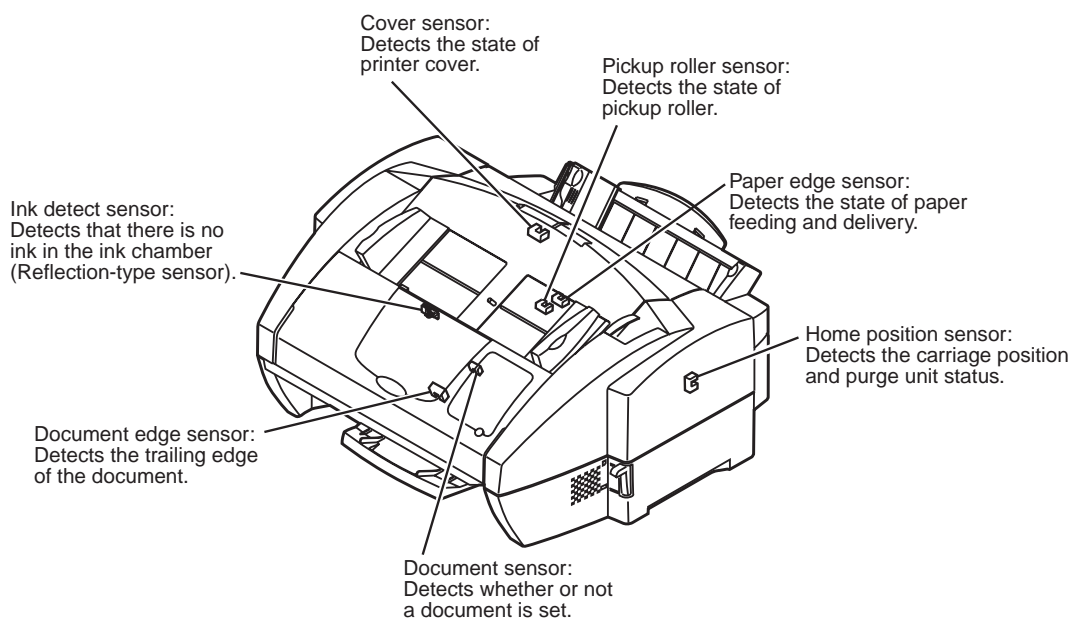


Figure 2-3 Electrical Layout

2.2 Disassembly Work-Flow

The work-flow for the disassembly of the main units is as follows. In order to replace parts, you need to confirm which parts have to be removed. Numbers in parenthese indicate the disassembly number.

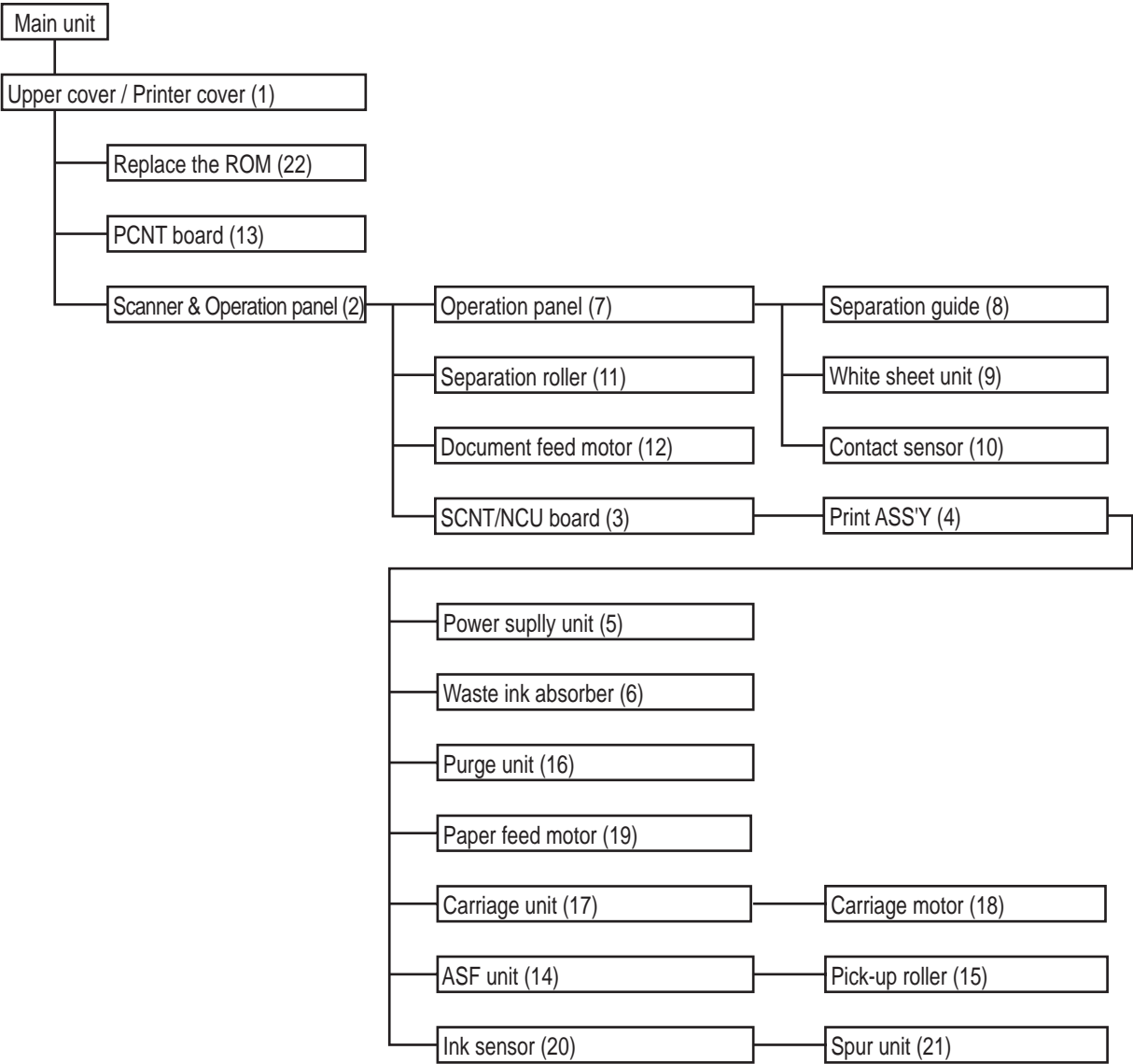


Figure 2-4 Disassembly Work-Flow

2.3 Disassembly Procedure

Disassembly 1. Upper covers/printer covers

- (1) Remove the three screws (a).
- (2) Remove the two tabs (b), then remove the upper cover (c), and the printer cover (d).

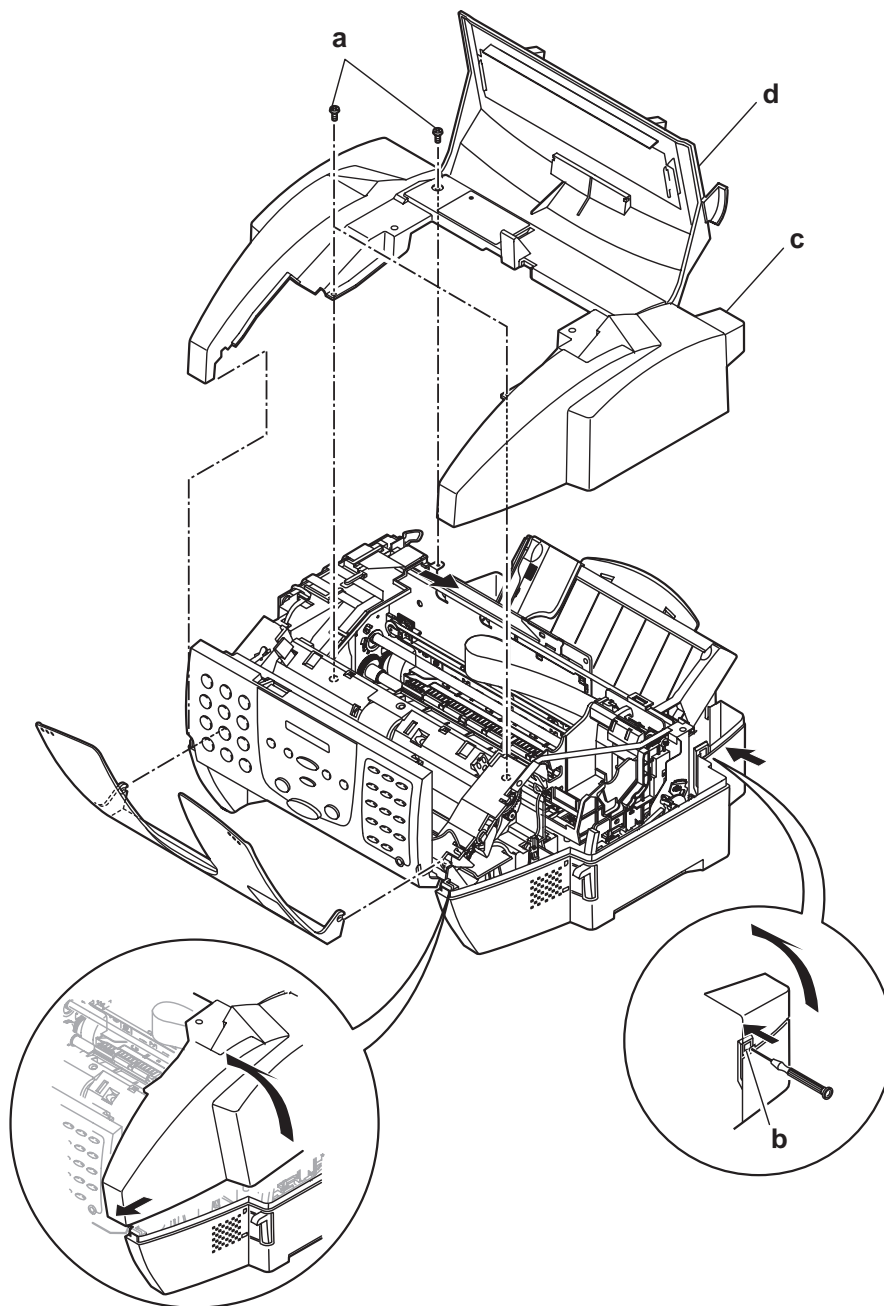
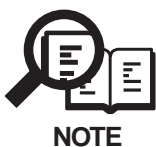


Figure 2-5 Disassembly 1



NOTE

To remove the upper cover, insert the tool into the two holes shown in the diagram and prise loose the tabs. The front part of the cover is fastened with tabs, so it needs to be pulled forward and then lifted up. When attaching the cover, fit the tabs in first.

Disassembly 2. Scanning assembly

- (1) Perform disassembly 1.
- (2) Remove the three cables (e), connected to the SCNT board at the left side of the main unit. Also, remove the cables (f), connecting the SCNT board and the PCNT board. Then, remove the two cables (j), from the carriage motor and the ink sensor, and remove the cable guide (c). When you remove the cable guide, prise loose the tabs (d).
- (3) Remove the two screws (g).
- (4) Remove the two screws (a), and then take off the ground plate (b).
- (5) Remove the stopper (h), and then remove the control panel and ADF upper assembly.
- (6) Remove the two screws (i), and remove the ADF lower assembly.

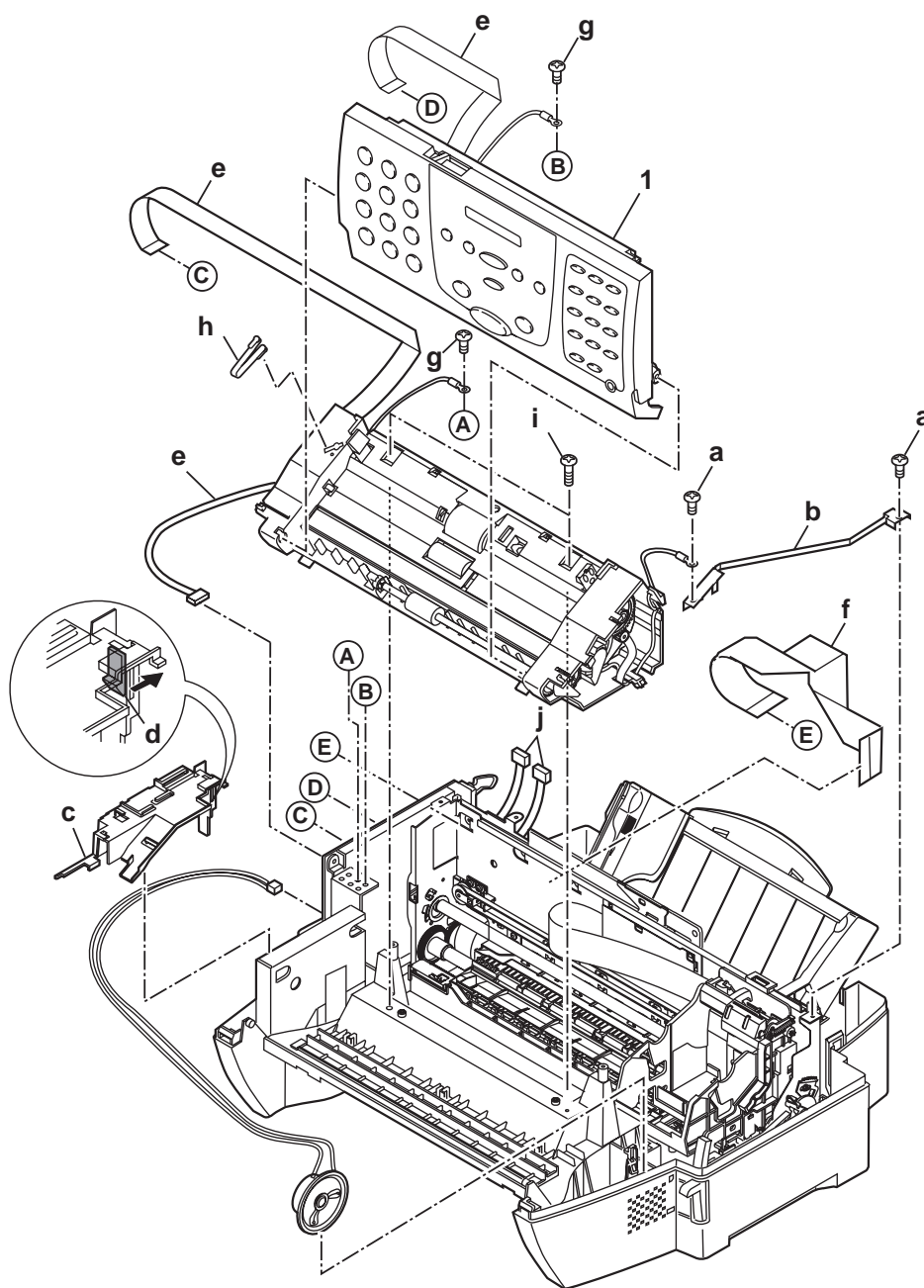


Figure 2-6 Disassembly 2

Disassembly 3. SCNT board/NCU board



NOTE

The SCNT board and NCU board can be replaced without removing the scanning assembly.

SCNT board

- (1) Perform Disassembly 1 and Disassembly 2 (3).
- (2) Remove the two screws (a), and then take off the whole plate assembly.
- (3) Remove the three cables connected to the SCNT board.
- (4) Remove the four screws (b), and remove the SCNT board (c).



REFERENCE

For details on ROM replacement, see *page 2-23, Disassembly 22. ROM replacement.*

NCU board

- (1) Perform Disassembly 1 and Disassembly 2 (3).
- (2) Remove the two screws (a), and then take off the whole plate assembly.
- (3) Remove the three cables connected to the NCU board.
- (4) Remove the three screws (d), and remove the NCU board (e).

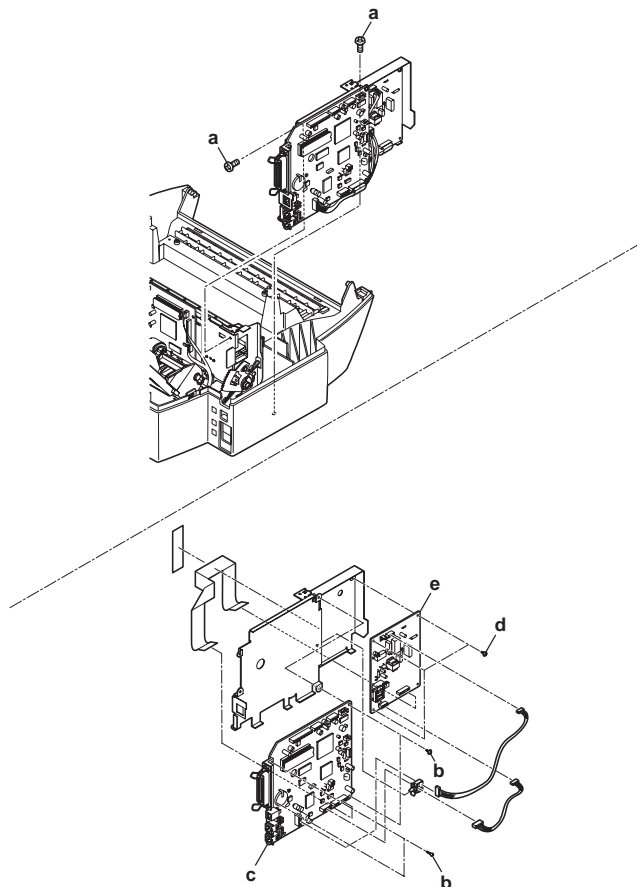


Figure 2-7 Disassembly 3



NOTE

Caution when replacing SCNT board.

Follow the procedure given below when replacing the SCNT board.

a) Caution before replacing

After replacing the SCNT board, you will need to perform an All Clear operation. Be sure to print out any data, etc., that you may need, before you do the All Clear.

a-1) Image data stored in image memory

Caution

Image data stored in the image memory will be wiped clean when the power is cut. Before turning off the power, be sure to output all images from the memory.

a-2) User reports

After pressing the **Function** button, press the **Report** button and then use the \wedge buttons to select the reports to be output.

a-3) Service reports

After selecting service data mode, press the **Report** button and then use the \wedge buttons to select the reports to be output.

b) SCNT replacement procedure

- (1) Remove the old board.
 - (2) Take out the new SCNT board from its bag.
 - (3) The jumper plug (JP6) on the new SCNT board is not shorted, in order to prevent unnecessary battery consumption while the parts are in the warehouse. Before using the SCNT board, remember to short the jumper plug.
 - (4) After installing the new board, re-assemble the machine.
 - (5) Turn on the power and perform an All Clear. For details on how to perform an All Clear operation, refer to *page 2-3, 1.4 Action in the Event of Abnormality*.
 - (6) After performing All Clear, where necessary, enter the data that you printed out earlier.
-

Disassembly 4. Print ass'y

- (1) Perform Disassembly 1., and Disassembly 2. from (2) till (4). Then perform Disassembly 3 (2).
- (2) Remove the two screws (a).
- (3) Use a screwdriver or similar to prise loose the two tabs (e).
- (4) Take hold of the handles shown in the diagram, and take out the printer (c).

Disassembly 5. Power supply unit

- (1) Perform Disassembly 4. and then remove the printer assembly.
- (2) Remove the two screws (b).
- (2) Remove the power supply unit (d).

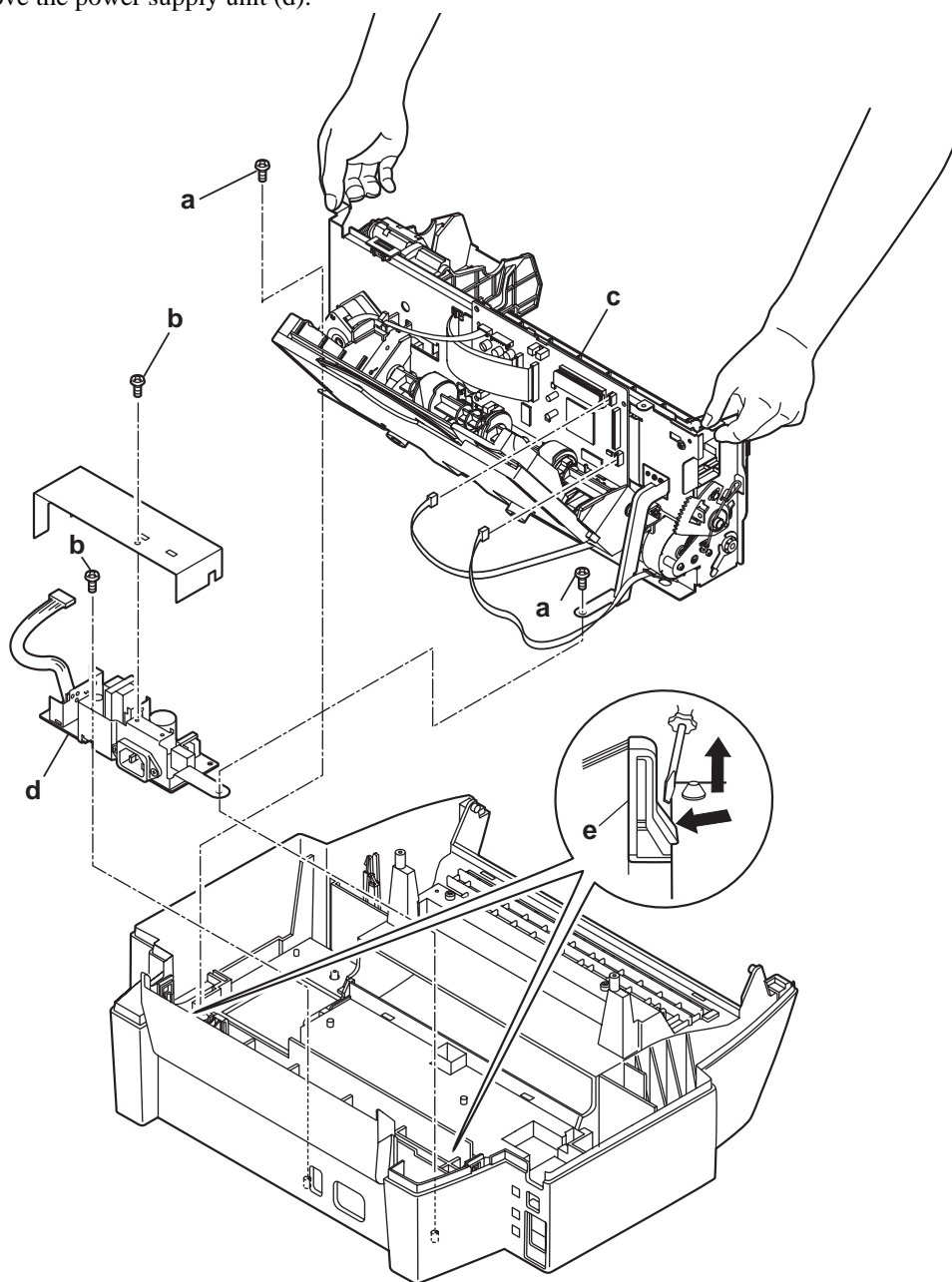


Figure 2-8 Disassembly 4 and Disassembly 5

Disassembly 6. Waste ink absorber

- (1) Perform Disassembly 4. and then remove the printer assembly.
- (2) Remove the two waste ink absorber (a, b), one of which is on top of the other.

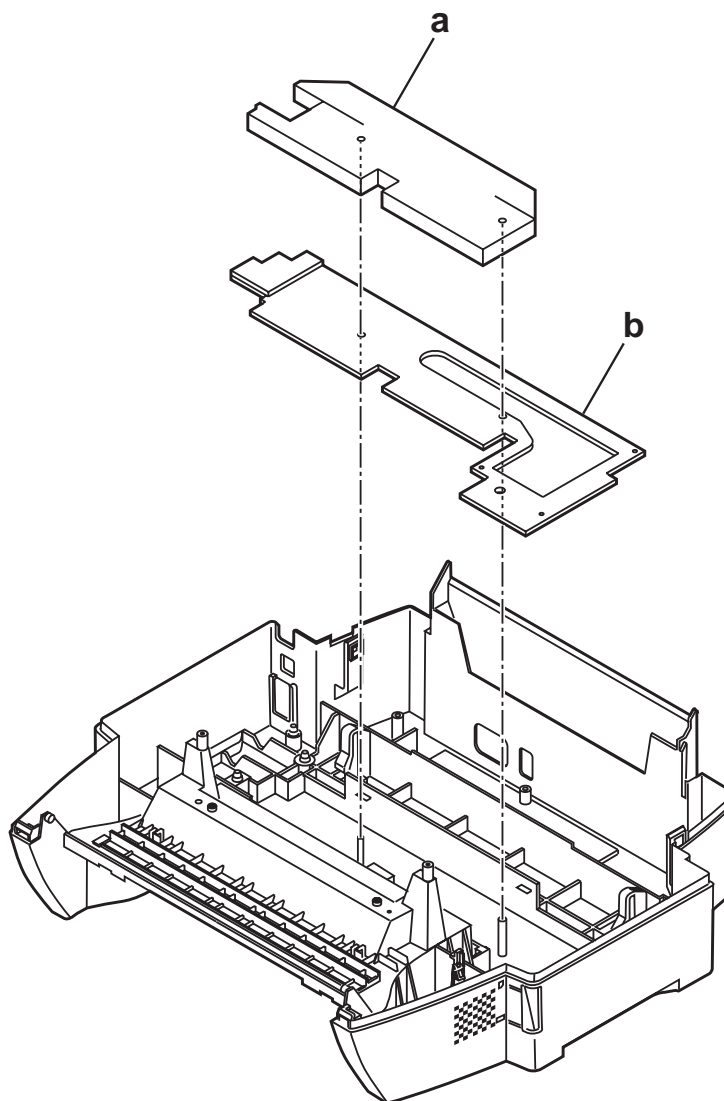


Figure 2-9 Disassembly 6



NOTE

Replacement of waste ink pads

The waste ink pads are designed to sop up any excess ink ejected during the cleaning operation or during ink squirting for maintenance, in order to maintain the good printing quality of the BJ cartridge. The volume of ink absorbed is counted and these data stored in the EEPROM on the PCNT board. Once the volume is judged to have reached 100%, the message **“CHECK PRINTER”** (error code ##342) will be displayed, and printing will stop, in order to ensure that the volume of ink absorbed does not exceed the allowed limit. To clear this error, you need to replace the waste ink absorption pad and reset the waste ink volume counter. Refer to *page 3-28, Action for ##342*, for details on how to reset the waste ink volume counter.

Disassembly 7. Operation panel

- (1) Perform Disassembly 1., and Disassembly 2 (5).
- (2) Remove the two screws (a).
- (3) Remove the operation panel (b).

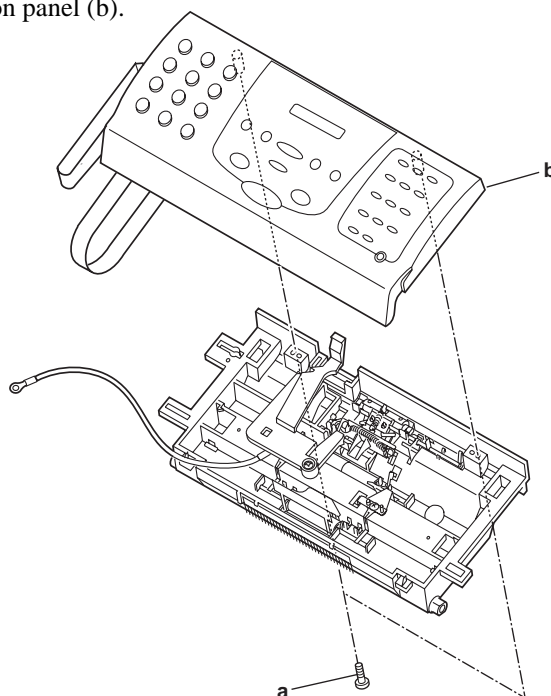


Figure 2-10 Disassembly 7



NOTE

Attachment of operation panel sheet

The service part unit configuration of the operation panel assembly assumes that it will be used with the operation panel sheet attached. Therefore, when replacing the operation panel assembly, you need to purchase the operation panel unit and operation panel sheet and then attach the operation panel sheet onto the operation panel unit. Align the upper edge of the sheet against the top of the operation panel, adjust the position and then stick it down carefully.

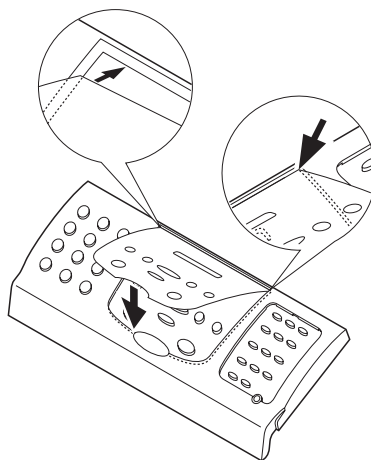


Figure 2-11 Operation Panel Sheet Attachment

Disassembly 8. Separation guide

- (1) Perform Disassembly 7. and remove the operation panel.
- (2) Remove the spring (a).
- (3) Remove the separation guide (b).



Application of grease

The separation pad shaft is coated with grease, so be careful not to get it on your hands or clothes. If grease has been removed, apply a suitable amount.

Disassembly 9. White sheet unit

- (1) Perform Disassembly 7. and remove the operation panel.
- (2) Remove the white sheet unit (c). Unhook the catch (d), as shown in the diagram. Be careful here not to lose the spring (e).

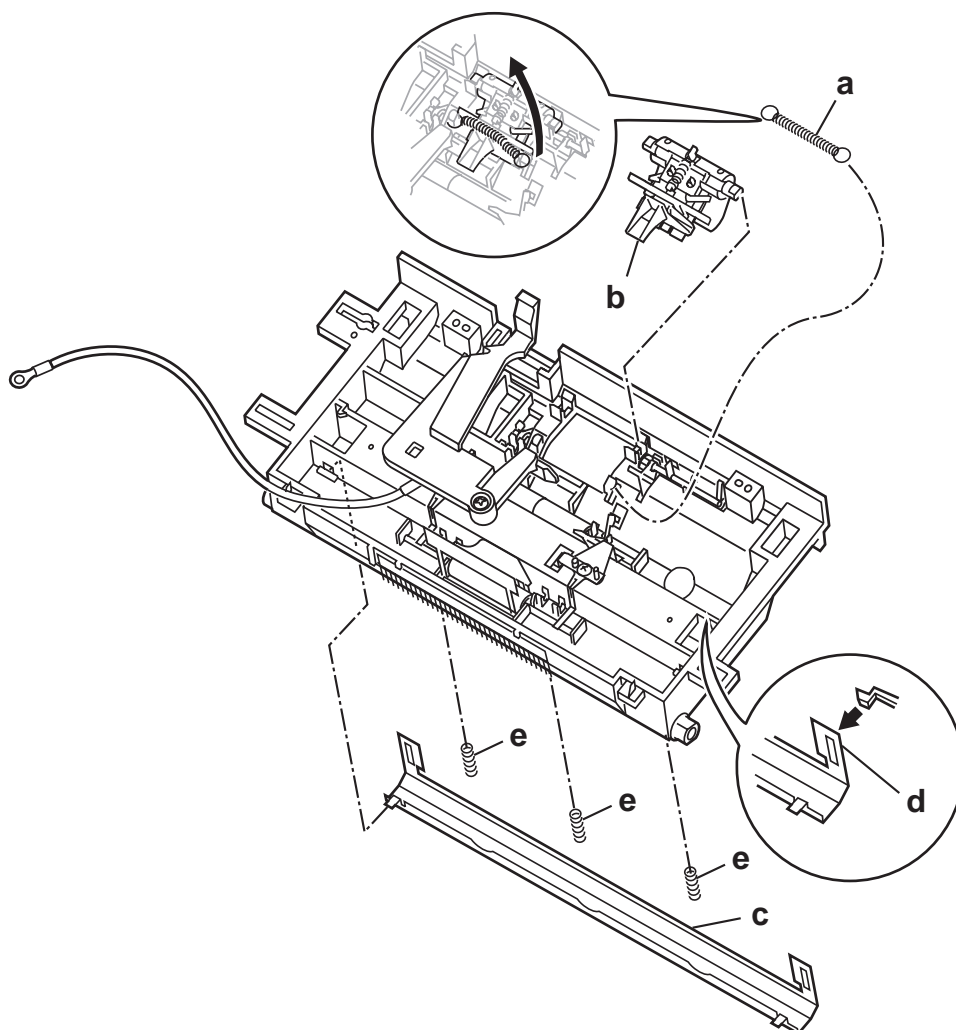


Figure 2-12 Disassembly 8 and Disassembly 9

Disassembly 10. Contact sensor

- (1) Perform Disassembly 1. and Disassembly 2, up to step (5).
- (2) Remove the cover, a, and the three tabs (b).
- (3) Remove the two screws (c).
- (4) Remove the contact sensor (d).



Handling the contact sensor.

Be careful not to scratch or soil the glass surface of the contact sensor. Any such scratches or dirty marks may lead to image defects, such as vertical streaks, etc., on the scanned image.

Caution when replacing the contact sensor

When replacing the contact sensor, the CS LED light-on duration needs to be adjusted. Refer to *page 3-6, 3.1 CS LED Lights-on Duration Adjustment*, for details.

Disassembly 11. Document separation roller

- (1) Perform Disassembly 1. and Disassembly 2, up to step (5).
- (2) Remove the cover (a), and the three tabs (b).
- (3) Bend the bushing with your finger and remove the separation roller and shaft together.
- (4) Take out the separation roller (e), from the shaft.



NOTE

ADF assembly

- There is grease at both ends of the separation roller. If it gets wiped off, add an appropriate amount.
- Take care not to scratch or soil (with grease) the ADF roller. If the roller gets scratched or soiled, it may adversely affect document feeding and cause document jams and feeding failure.

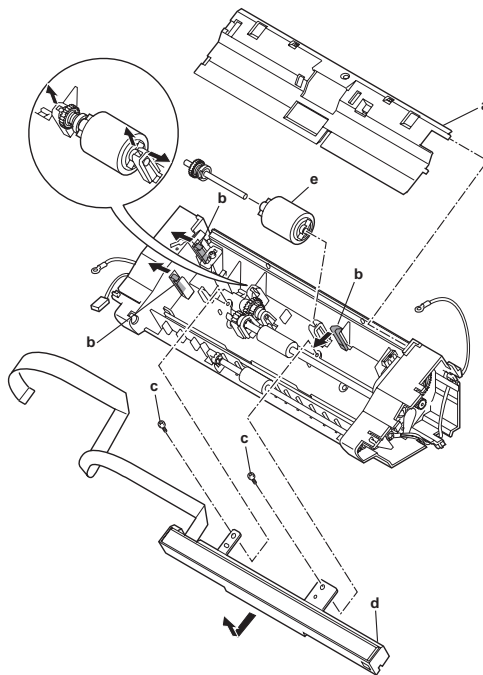


Figure 2-13 Disassembly 10 and Disassembly 11

Disassembly 12. Document feed motor

- (1) Carry out Disassembly 1. and Disassembly 2., then take out the ADF assembly.
- (2) Remove the screw (a), and the earth plate (b). The plate has grease on it, so be careful not to get it on your hands or clothing.
- (3) Remove the two gears (c). Be careful of the grease.
- (4) Remove the document feeding motor cable and earth wire from the cable guide.
- (5) Remove the two screws (d), and then remove the motor and metal plate.
- (6) Remove the two screws (e), and take out the document feed motor (f).

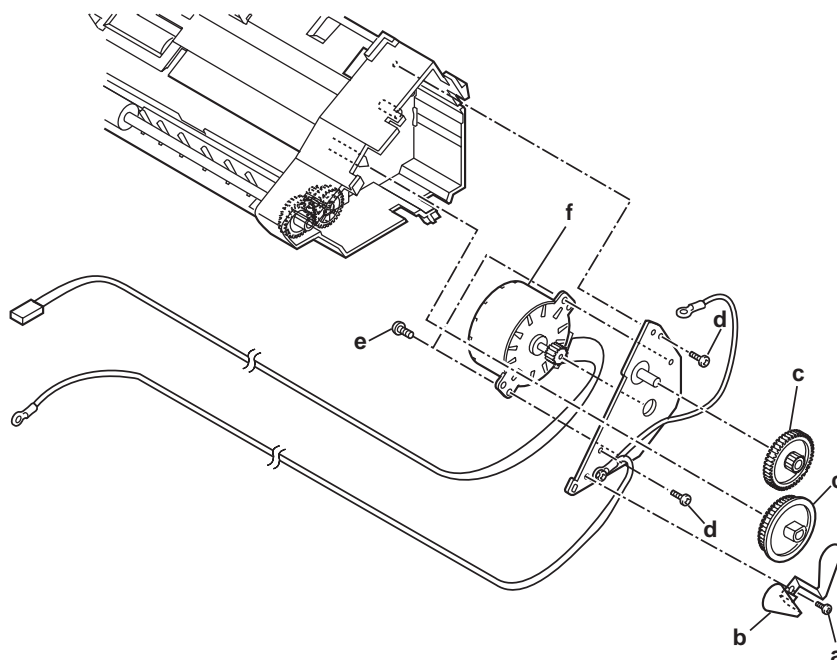


Figure 2-14 Disassembly 12

Disassembly 13. PCNT board (See Figure 2-15)

- (1) Carry out Disassembly 1.
- (2) Remove all the cables attached to the PCNT board.
- (3) Remove the two screws (a).
- (4) Remove the PCNT board (b).



NOTE

Removal of screws

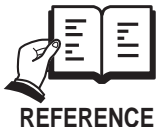
When removing screws, you should use a short-handled screwdriver that will not interfere with the ASF unit. If you use a long-handled screwdriver, you may not be able to get at the screws easily, and may end up damaging the heads of the screws.

PCNT board replacement

The PCNT board EEPROM is for storing data on the volume of waste ink absorbed and vertical line displacement correction data. When replacing the PCNT, you should confirm the waste ink volume from the system dump list and make a note of it. Then, after you have replaced the board, enter this value and perform vertical line displacement correction.

Disassembly 14. ASF unit.

- (1) Carry out Disassembly 4.
- (2) Remove the two red screws (c).
- (3) Bend the tabs (d), with your hand and remove the ASF unit.



For details on how to adjust the ASF unit, refer to *page 3-9, 3.4 When the ASF Gear Initial Position Adjustment is required.*

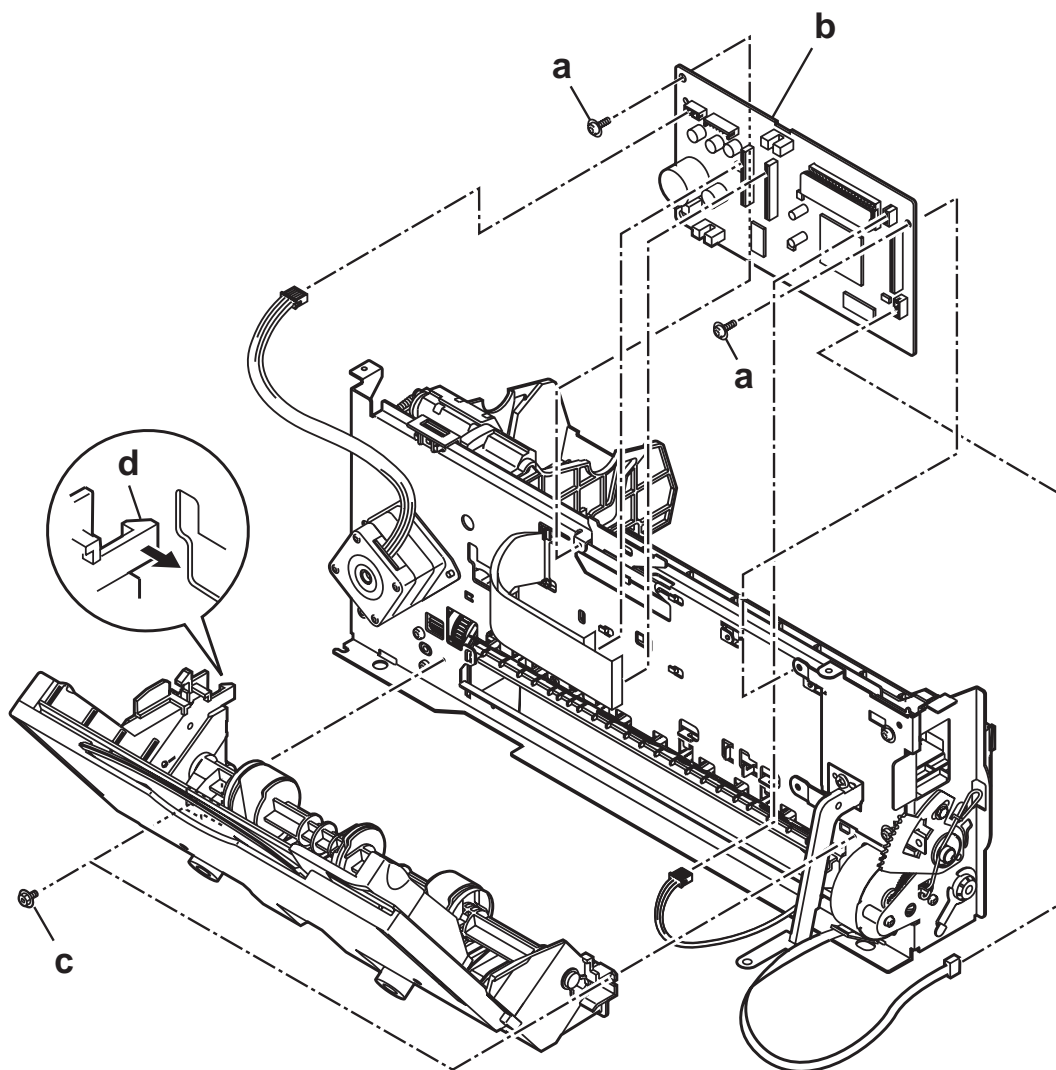


Figure 2-15 Disassembly 13 and Disassembly 14

Disassembly 15. Pickup roller

- (1) Perform Disassembly 14.
- (2) Rotate the pickup roller to position (a), and then loosen the tabs (b), and slide out the pickup roller (c), to the left and remove it.

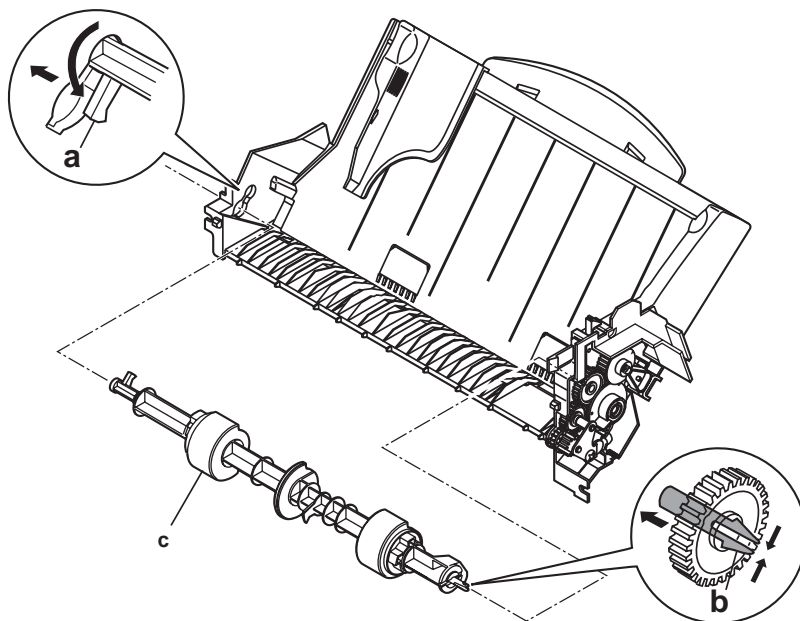


Figure 2-16 Disassembly 15

Disassembly 16. Purge unit

- (1) Perform Disassembly 4. and remove the print ass'y.
- (2) Remove the three screws (a).
- (3) Remove the purge unit (b).

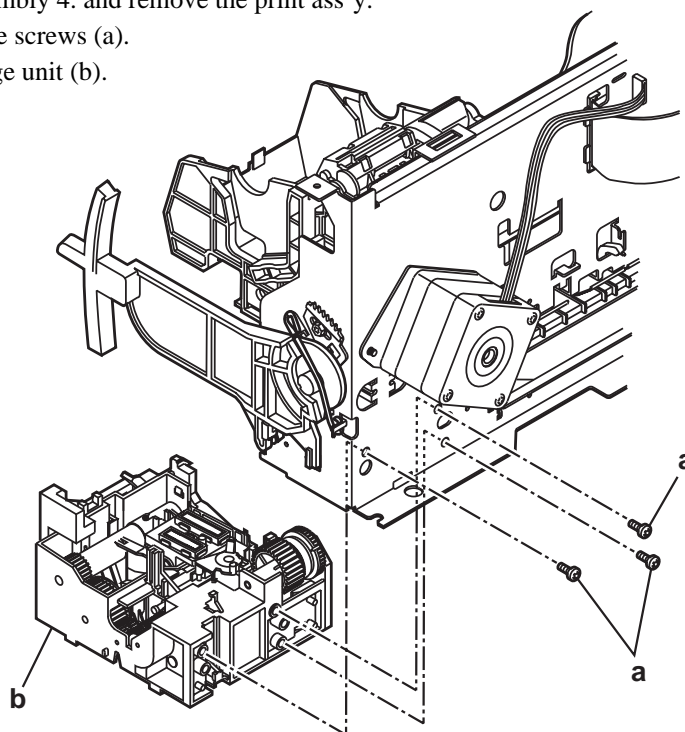


Figure 2-17 Disassembly 16



NOTE

Carriage lock release

With a cartridge and carriage mounted, when the printer is powered off, it is usually locked in the carriage capping position. When the printer is able to be powered on, the carriage lock is released. However, if the printer is not working normally, you may need to release the carriage lock manually. As illustrated in the diagram below, the carriage lock can be released by removing the cartridge and pushing down on the purge unit lever and sliding the carriage to the left.

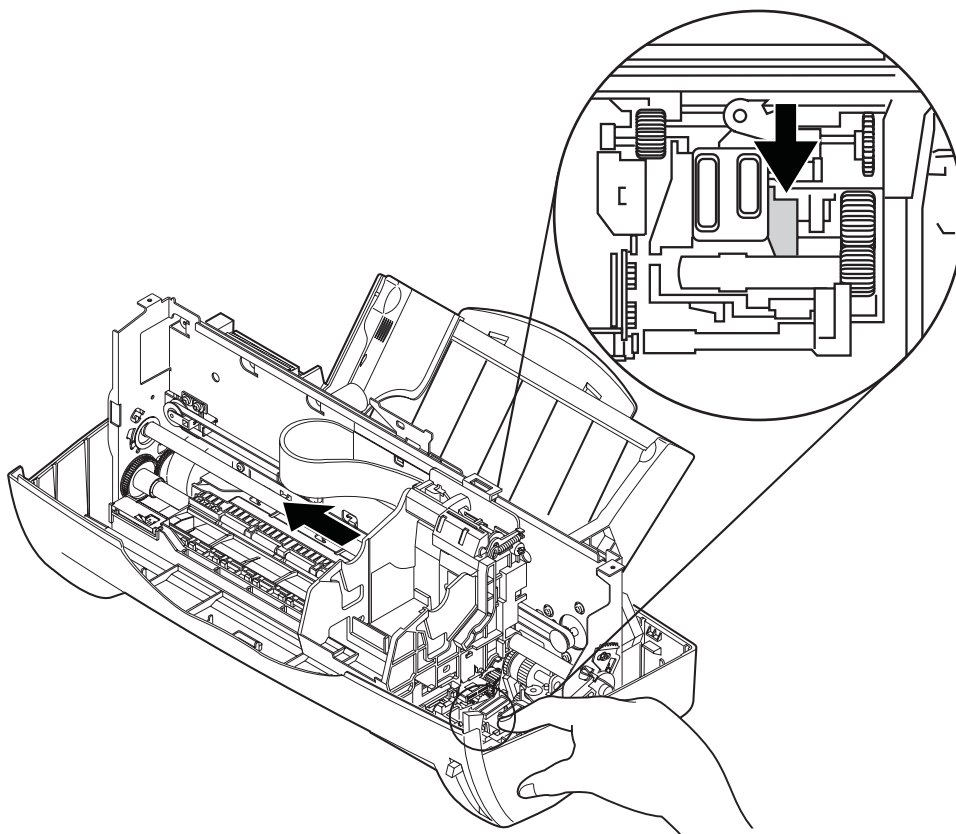


Figure 2-18 Carriage Lock Release

Disassembly 17. Carriage unit

- (1) Carry out Disassembly 4. and remove the printer.
- (2) Loosen the two screws (a), and remove the carriage belt.
- (3) Remove the two pins (b).
- (4) Remove the spring (c).
- (5) Remove the paper selector lever (d).
- (6) Remove the carriage shaft (e).
- (7) Remove the two flat cables connecting the PCNT board to the carriage.
- (8) Remove the cable guide (f).
- (9) Remove the carriage unit (g).

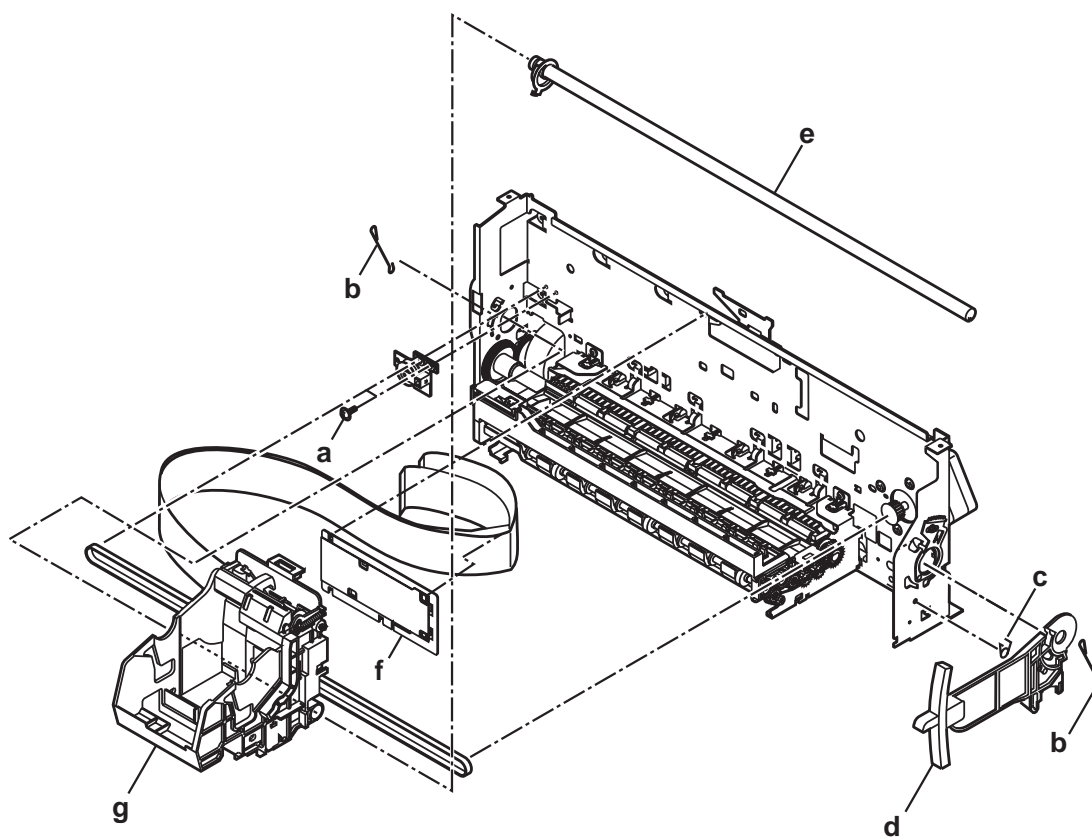


Figure 2-19 Disassembly 17

Disassembly 18. Paper feed motor

- (1) Perform disassembly up to Disassembly 17 (2) and take off the carriage belt.
- (2) Remove the two screws (a).
- (3) Remove the paper feed motor (b).

Disassembly 19. Carriage motor

- (1) Carry out Disassembly 4. and remove the printer assembly.
- (2) Remove the two screws (c).
- (3) Remove the carriage motor (d).

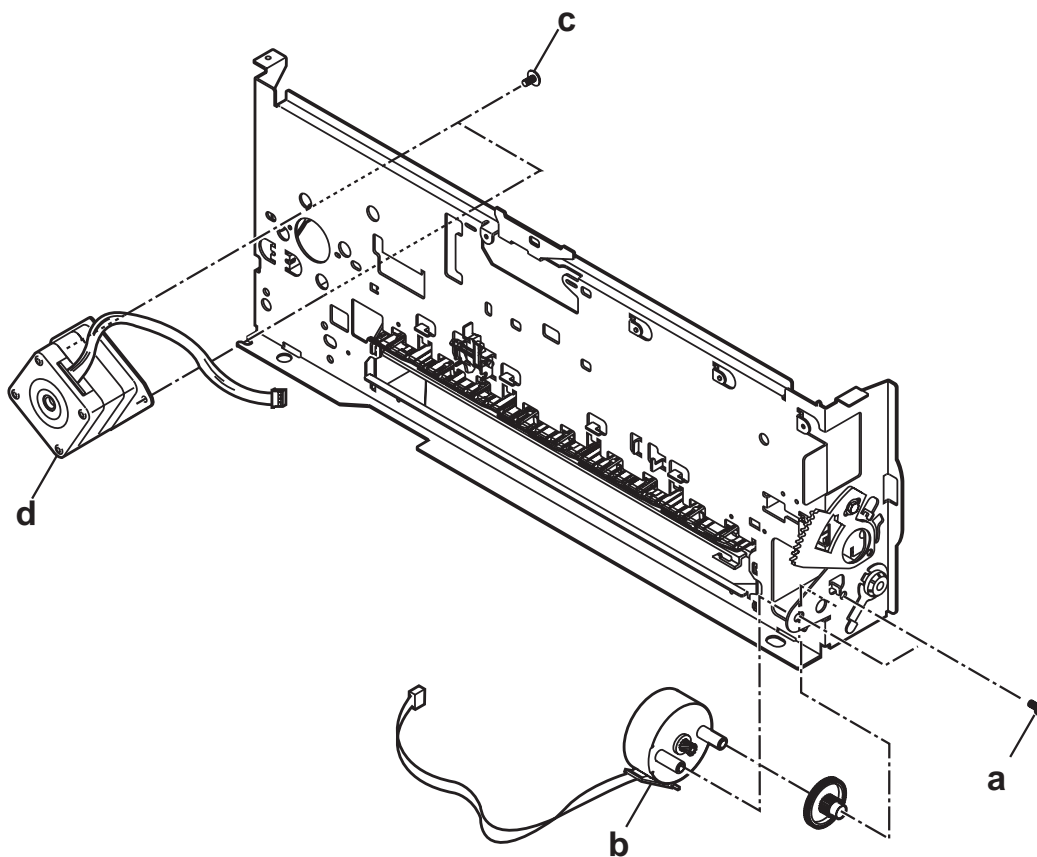


Figure 2-20 Disassembly 18 and Disassembly 19

Disassembly 20. Ink sensor

- (1) Carry out Disassembly 4., and remove the printer assembly.
- (2) Take off the sensor cover (a).
- (3) Disengage the ink sensor (b), from the connector cables.

Disassembly 21. Spur unit

- (1) Carry out Disassembly 20.
- (2) Disengage the tab (c).
- (3) Remove the Spur unit (d).

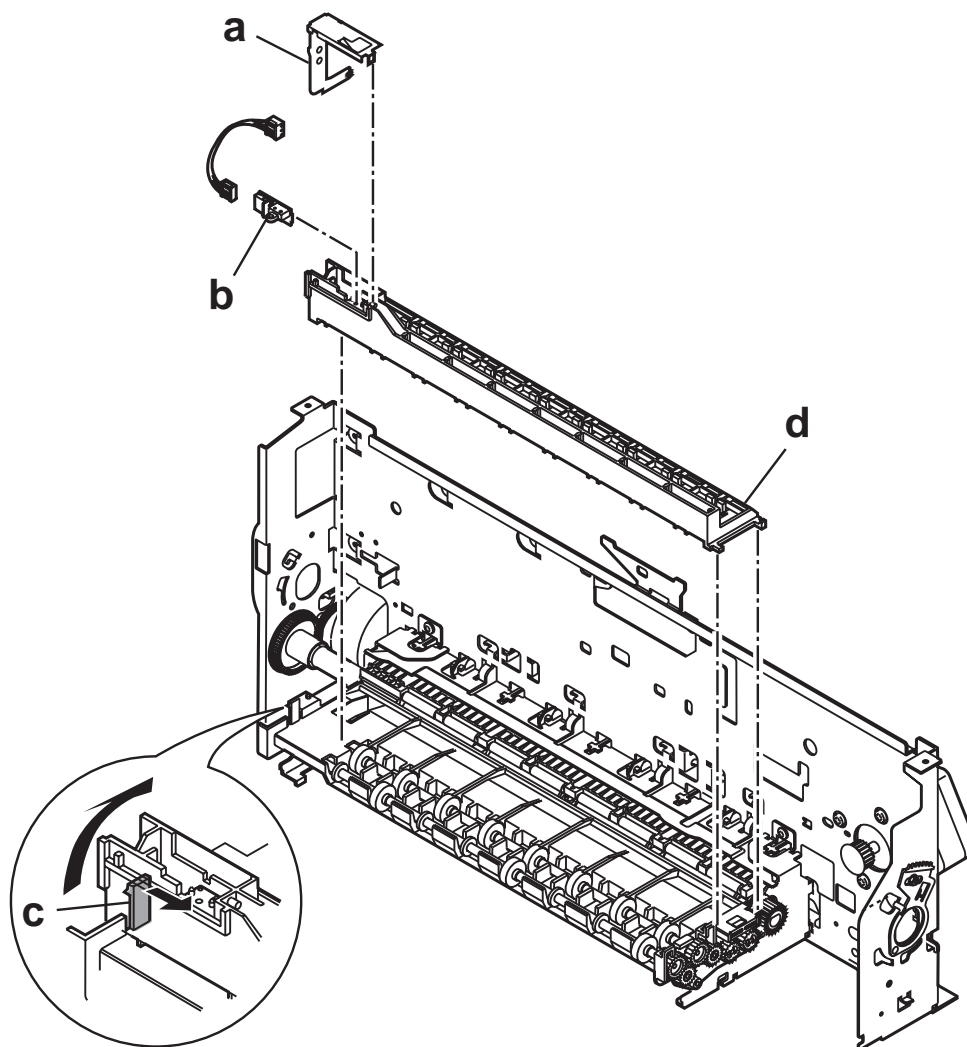


Figure 2-21 Disassembly 20 and Disassembly 21

Disassembly 22. ROM replacement

With this unit, there should be no need to replace ROMs, but in the event that ROM replacement becomes necessary, follow the procedure described below.

a) Caution

After replacing the ROM, you will need to perform an All Clear, so be sure to make a note of any necessary data beforehand.

a-1) Image data stored in the image memory



Image data stored in the image memory will be wiped clean as soon as the power is cut. Output all images from the memory before turning off the power.

a-2) User reports

After pressing the **Function** button, press the **Report** button and then use the $\wedge \vee$ buttons to select the reports to be output.

a-3) Service reports

After selecting service data mode, press the **Report** button and then use the $\wedge \vee$ buttons to select the reports to be output.

b) ROM replacement procedure

- (1) Remove power cord.
- (2) Put on a wrist-strap and take any other available anti-static precautions.
- (3) Perform Disassembly 1.
- (4) Use the ROM removal tool to remove the ROM from the SCNT board and PCNT board. Be sure to check which ROM goes back to which board.
- (5) Match up the new ROM and the notch in the IC socket, and insert the new ROM. Make sure that you are putting the right ROM into the right board.
- (6) Replace all covers.

c) Cautions after replacement

- (1) If replacing a ROM because of defective ROM elements, finish assembling the machine and then turn the power on.
- (2) If replacing a ROM for the purposes of upgrading because of changes to soft switches, such as service data or user data, etc., you must perform an All Clear operation. This is because the memory backed up by the battery still contains the previous settings. Before performing All Clear, print out the data backed up by the battery, in case you need to re-programme them.



REFERENCE

Refer to *page 3-6, 3.1 CS LED Light-on Duration Adjustment*, for details.

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1. MAINTENANCE LIST

1.1 Consumables

Level	Consumable	When
User	BJ cartridge (BC-30/BC-33 /BC-34 Photo)	When normal images are not output even after inserting ink into the ink tank and performing repeated HEAD cleaning.
	INK tank (BCI-3BK/BCI-3C /BCI-3M/BCI-3Y /BCI-3BK Photo /BCI-3C Photo /BCI-3M Photo)	When ink in the ink tank being used has run out.

Service Technician None

1.2 Cleaning

For the cleaning procedure, see *2. HOW TO CLEAN PARTS on page 3-4.*

Level	Location	When
User	Main unit outer covers	When dirty.
	Printer platen	When ink adheres to the platen.
	Separation roller	When document separation performance deteriorates.
	Document feed/eject roller	When document feed/eject performance deteriorates.
	Separation guide	When document separation performance deteriorates.
	Scanning glass (contact sensor)	When black vertical stripes appear in copied or transmitted images.
	White sheet	When the color or brightness of the copied or transmitted image is not normal.

Service Technician None

1.3 Periodic Inspection

None

1.4 Periodic Replacement Parts

None

1.5 Adjustment Items

The following adjustments must be made on this fax.
For the adjustment procedure, see 3. ADJUSTMENT on page 3-6.

Item	When
CS LED lights-on duration adjustment	When the SCNT board, or the lithium battery, or the contact sensor are replaced. Also, when the color or brightness of the copy image or transmission image is not normal.
Vertical Alignment adjustment	When the vertical lines shift during Bi-directional printing.
Carriage belt tension adjustment	When reinstalling the idler pulley.
ASF gear initial position adjustment	When reinstalling the ASF unit.
Head gap adjustment	When loosening the screws fixing the head-to paper distance.



NOTE

Automatic adjustment of CS LED lights-on duration

The CS LED lights-on duration, which can be adjusted via button operation, is also adjusted automatically in the following cases:

- **When power is turned ON then SRAM data is corrupted**
When this product is shipped, after factory adjustment of the CS LED light-on duration, the exposure control data is stored in SRAM. Because this data is preserved by the Lithium battery even if the power supply is shut off, further adjustment is unnecessary in almost all cases. When the machine’s power switch is turned on, the data stored in SRAM is checked for correctness by Checksum, and if any data in SRAM has been lost, adjustment of CS-LED lights-on duration is automatically performed at that time. At first, a check is done for the presence/absence of a document, and if there is no document, exposure control is performed automatically. Exposure control data measured after this is stored in SRAM. When a document is present, scanning is done in an error condition, an abnormal image is output, and the contact sensor is aware that there is an abnormality.

1.6 General Tools

Tool	Use
Phillips screwdriver	Removing/inserting screws
Flat bladed screwdriver	Removing/inserting screws
Precision Phillips screwdriver	Removing/inserting screws
Precision flat bladed screwdriver	Removing plastic tabs
Tweezers	Removing coil spring
Isopropyl alcohol (IPA)	Cleaning the cleaning location
Pliers, needle nose	Driving retaining ring

1.7 Special Tools

Tool	Use	Part No.
Grease (FLOIL G311S)	Apply to specified parts	TKC-0953
Grease (IF-20)	Apply to specified parts	CK-8006
Grease (PG-641)	Apply to specified parts	CK-0562
Grease (PERMALUB G No.2)	Apply to specified parts	CK-0551
Gap gauge 2.3mm	For adjusting the head gap	QY9-0054
Tension spring	For adjusting the carriage belt tension	QY9-0043
Cover opener	For opening the upper cover	HY9-0021



NOTE

Cover opener

The Cover opener (round-tip screwdriver) has been set as a special tool, but any precision screwdriver with a tip diameter of 1.5 mm or less would do instead. If using a substitute, be careful not to scratch any surfaces.

2. HOW TO CLEAN PARTS

2.1 Main Unit Outer Covers

Wipe with a dry, soft cloth.

2.2 Separation Roller

Open the operation panel, and wipe with a dry, soft cloth.

2.3 Document Feed/Eject Roller

Open the operation panel, and wipe with a dry, soft cloth.

2.4 Separation Guide

Open the operation panel, and wipe with a dry, soft cloth.

2.5 Scanning Glass (Contact Sensor)

Open the operation panel, and wipe with a dry soft cloth.

2.6 White Sheet

Open the operation panel, and wipe with a dry soft cloth.

2.7 Printer Platen

Open the Printer cover, and wipe with a cloth moistened with a little water.



NOTE

If the parts above are very dirty, wipe with a cloth moistened with IPA (isopropyl alcohol).



Do not use tissue paper. Dust from the tissue paper causes static electricity.

Precautions when Using IPA

When cleaning with IPA, take care to prevent the IPA from splashing high-temperature parts. If IPA splashes high-temperature parts, leave for at least three minutes to allow the IPA to evaporate.

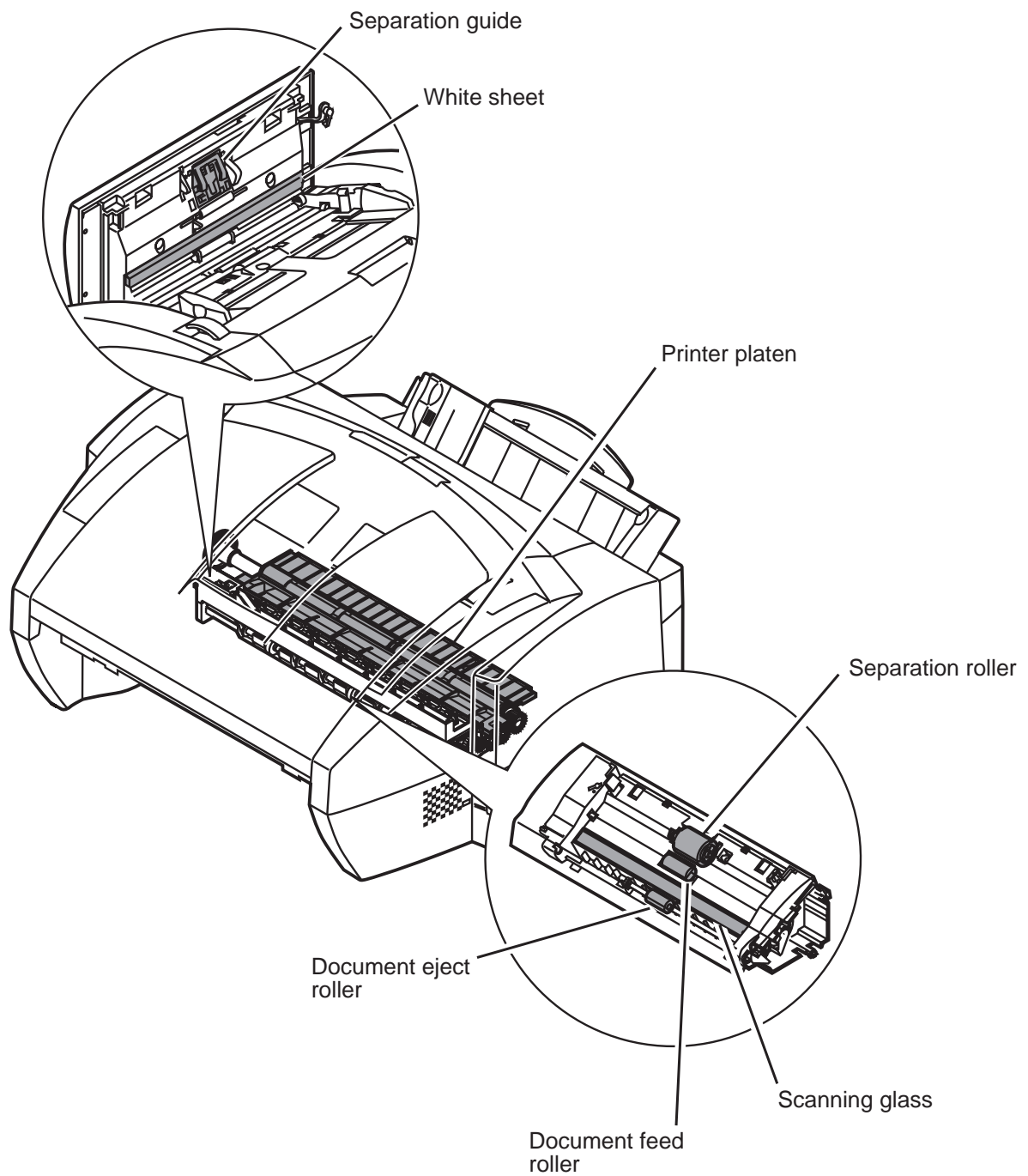


Figure 3-1 Cleaning Location

3. ADJUSTMENT

3.1 CS LED Lights-on Duration Adjustment

a) Overview

This adjustment is used to eliminate uneven scanning which can result from variations in light intensity between individual LED's. Performing the adjustment will therefore have an effect on scanned and copied images.

The adjustment value is registered in an SRAM IC which has lithium battery back-up and will not be lost even if power is turned off. However, the SRAM data can become damaged, for example by battery depletion. In this case, the machine checks the data's validity the next time power is turned ON. If the data is invalid, the adjustment is made automatically. Because the user is automatically prompted, it is almost never necessary to perform this adjustment during normal use. However, if the SCNT board, Contact sensory ass'y, or lithium battery is replaced, be sure to perform this adjustment. Also, if the color or brightness of scanned or copied images is faulty, performing this adjustment may correct the problem.

b) Procedure

- (1) Check that the operation panel is closed correctly, then perform the adjustment by following the steps described below.

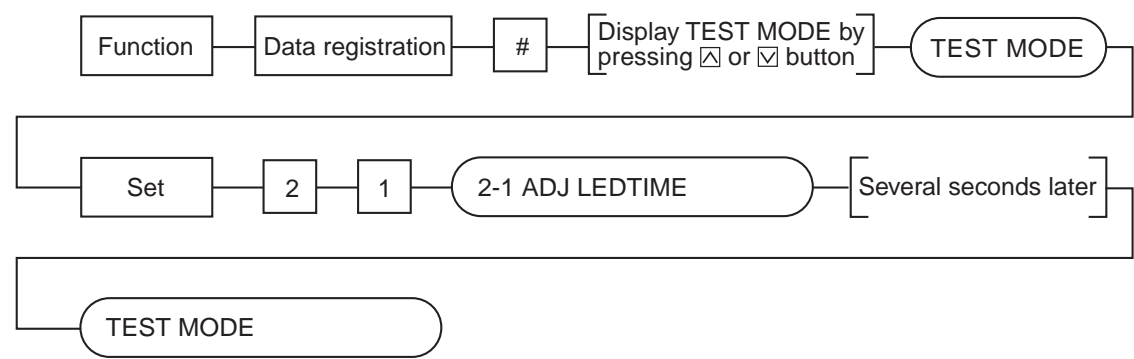


Figure 3-2 CS LED Lights-on Duration Adjustment Operation

- (2) The adjustment procedure is finished when the display reads **TEST MODE**.

3.2 When Adjustment of the Print Head Position is Required

a) Overview

When replacing the print heads, the point of ink ejection may be off, preventing clean characters, depending on the state in which BJ cartridge is installed. In order to eliminate this drift, it is necessary to adjust the head position after attaching the BJ cartridge. Set 2 or more sheets of normal paper sized A4 or LTR on the Auto Sheet Feeder, and perform head position adjustment following the steps in Fig. 3-4.

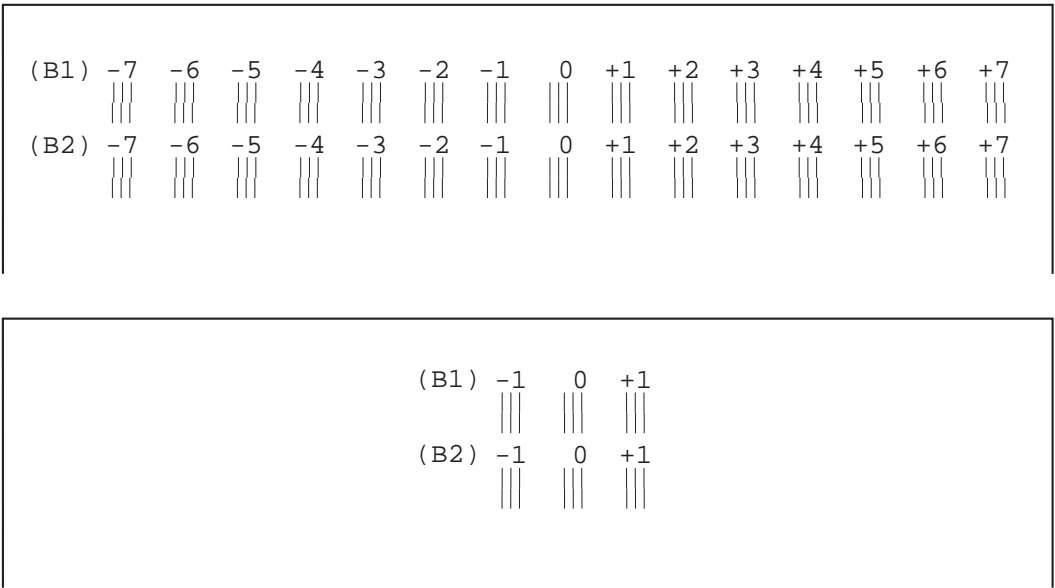


Figure 3-3 Print Position Adjustment Patterns



Be sure to set A4 or LTR-sized paper in the ASF before printing the head position adjustment pattern. Using printing paper smaller than the printing area of the data when performing the head position adjustment print will contaminate the platen with ink.

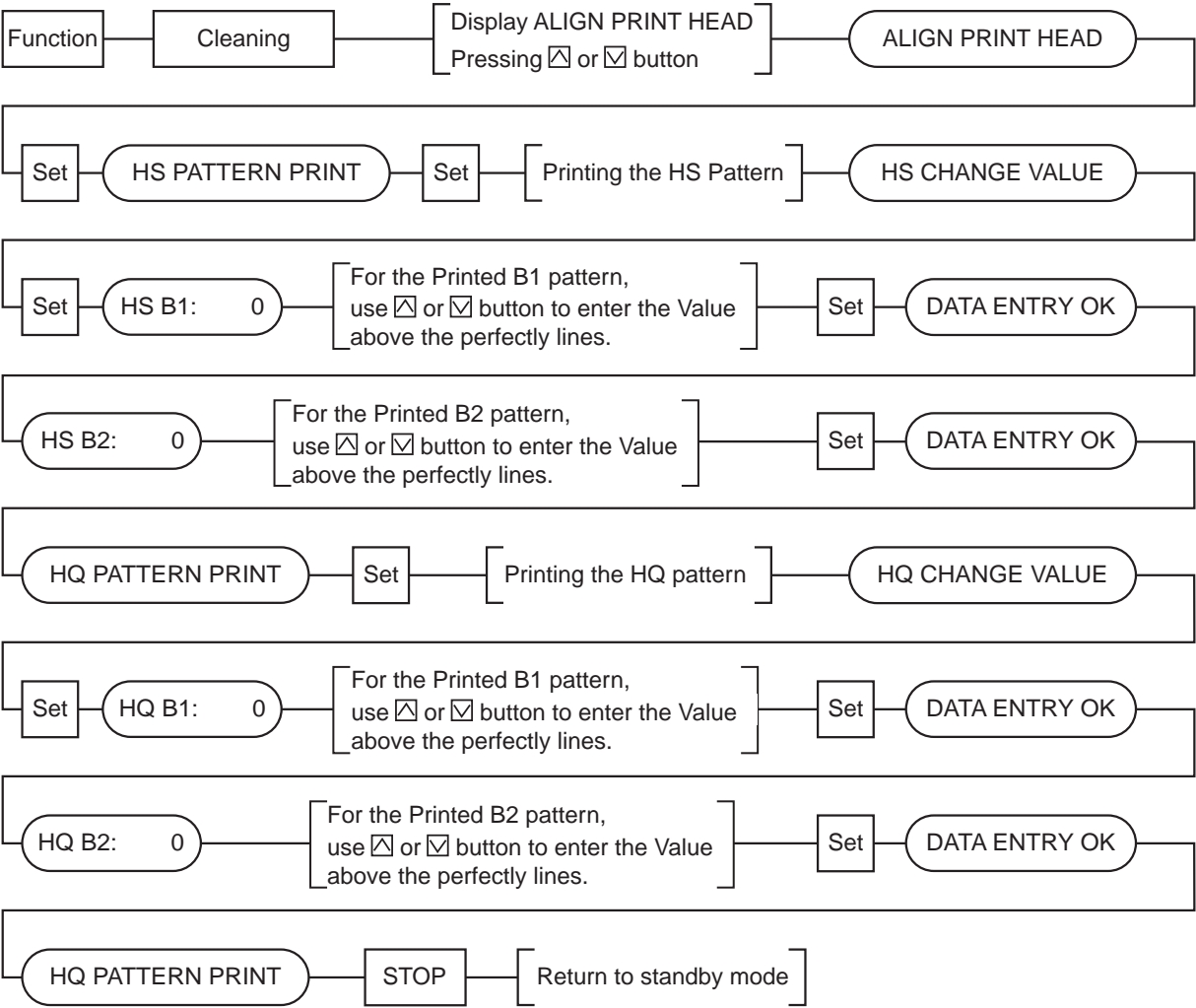


Figure 3-4 Vertical Line Misalignment Correction Procedure

3.3 When the Carriage Belt Tension Needs Adjustment

When tension on the carriage belt has been loosened, for example, to remove the carriage, the carriage belt tension needs to be adjusted.

Use the tension spring tool (QY9-0043) when fixing the pulley assembly before tightening the screws. Remove the tension spring after the screws are fixed.

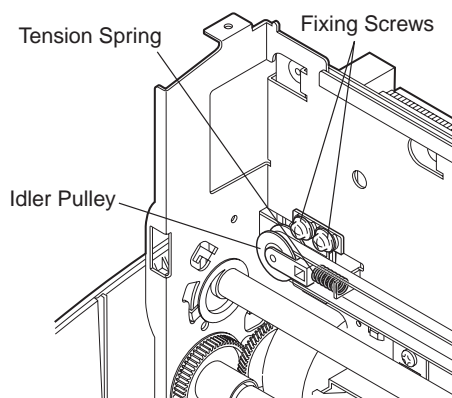


Figure 3-5 Carriage Belt Tension Adjustment

3.4 When the ASF Gear Initial Position Adjustment is Required

When installing the ASF, the ASF gear initial position adjustment must be executed to match phase with the purge unit's ASF drive gear, which is the transmission source of the ASF drive, and the ASF gear.

Preparing for the Adjustment:

Make sure that the purge unit's ASF drive gear is in the initial position when assembling. If it is in the initial position, assemble the printer with the ASF unit removed, and Procedures 1) through 3) are not necessary. If it is not in the initial position, follow the adjustment procedures described below.

- 1) Manually rotate the ASF drive gear slowly in the direction of the arrow to move it to the initial position.
- 2) Stop rotating the gear until a click can be felt (where the rotation stops).
(To confirm the position, gently move the ASF drive gear vertically with your fingers. Make sure that the gear is at the position where click can be felt.)
- 3) If the gear has passed the click position, rotate the gear in the arrow's direction to return to the correct position.

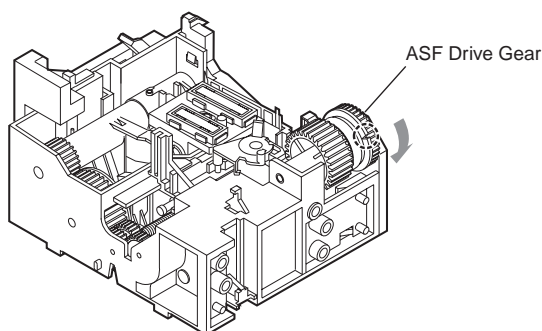


Figure 3-6 ASF Drive Gear Initial Position

Adjustment Procedures

- 1) Rotate the pick-up roller to place the ASF unit's cam and the mark in the position shown in *Figure 3-7*.
- 2) Hold the gear still with your fingers and fix the ASF unit to the printer chassis by screw. Align the projection of the ASF gear with the indentation of the ASF drive gear. Placing the hooks on the upper side of the ASF and slowly swinging the ASF down will ease the installation.
- 3) Fix the ASF unit to the printer chassis with screws to keep the adjusted gear position.

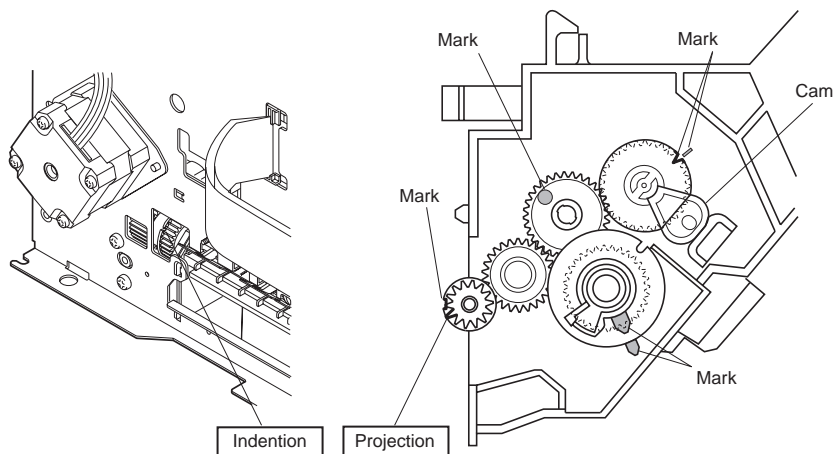


Figure 3-7 ASF Gear Initial Position Adjustment

3.5 When the Head Gap Needs Adjustment

If the screws fixing the head gap adjustment plate attached to the printer frame become loose, it will be necessary to adjust the head gap.

Preparing for adjustment

- 1) Remove the printer unit from the main unit.
- 2) Remove the paper selector lever spring and left/right shaft clips, and attach to the main unit.
- 3) Rotate the red screws for fixing both sides of the printer chassis by half a turn to loosen them from their fixed position.
- 4) Move the paper selector lever to the thick paper position (lower position).



Make sure that the gap gauge is not deformed and no foreign matter is attached to the gap gauge or the platen before performing the adjustment.

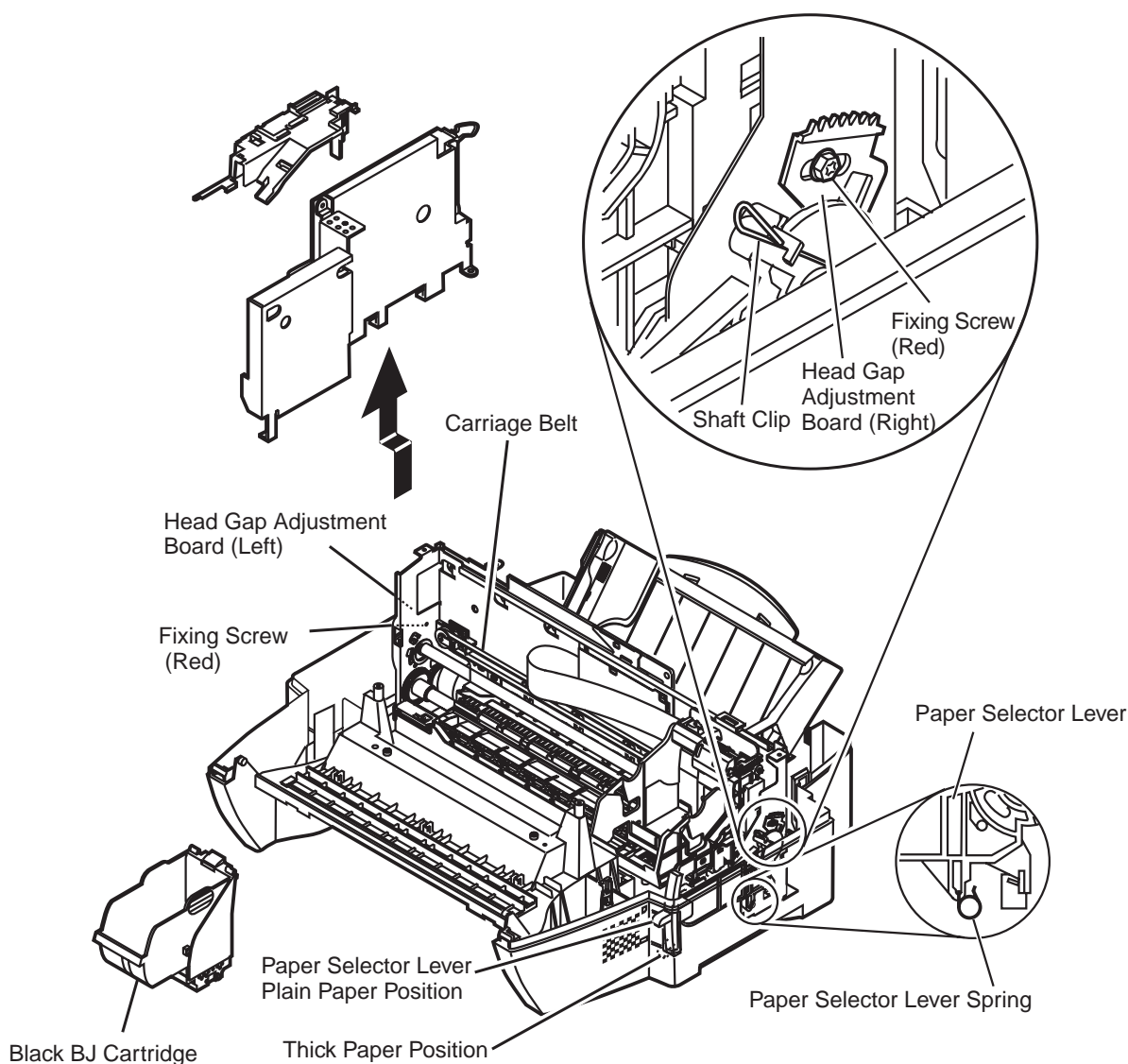


Figure 3-8 Head Gap Adjustment 1

Adjustment Procedures

- 1) Place the gap gauge (QY9-0054) in Position A1.
- 2) Move the carriage belt manually to bring the carriage to Position A2. Align the right edge of the carriage with the bottom case's rib.
- 3) Install a black BJ cartridge with no ink tank in the carriage.
- 4) Move the paper selector lever up and down 2 or 3 times, and then, with the lever raised in the plain paper position, tighten the right fixing screw.
- 5) Remove the black BJ cartridge.
- 6) Set the gap gauge in Position B1.
- 7) Lower the paper selector lever to the thick paper position. (down)
- 8) Move the carriage belt manually and bring the carriage to Position B2. Align the left edge of the carriage with the edge of the ink sensor's cover.
- 9) Install a black BJ cartridge with no ink tank in the carriage.
- 10) Move the paper selector lever up and down 2 or 3 times, and then, with the lever raised in the plain paper position, tighten the left fixing screw.
- 11) Remove the black BJ cartridge.
- 12) Loosen the right fixing screw by a half-turn, and execute procedures 1 through 5 again to complete the adjustment.

Remove the bottom case again to attach the paper separator lever spring and the shaft clips on both sides.

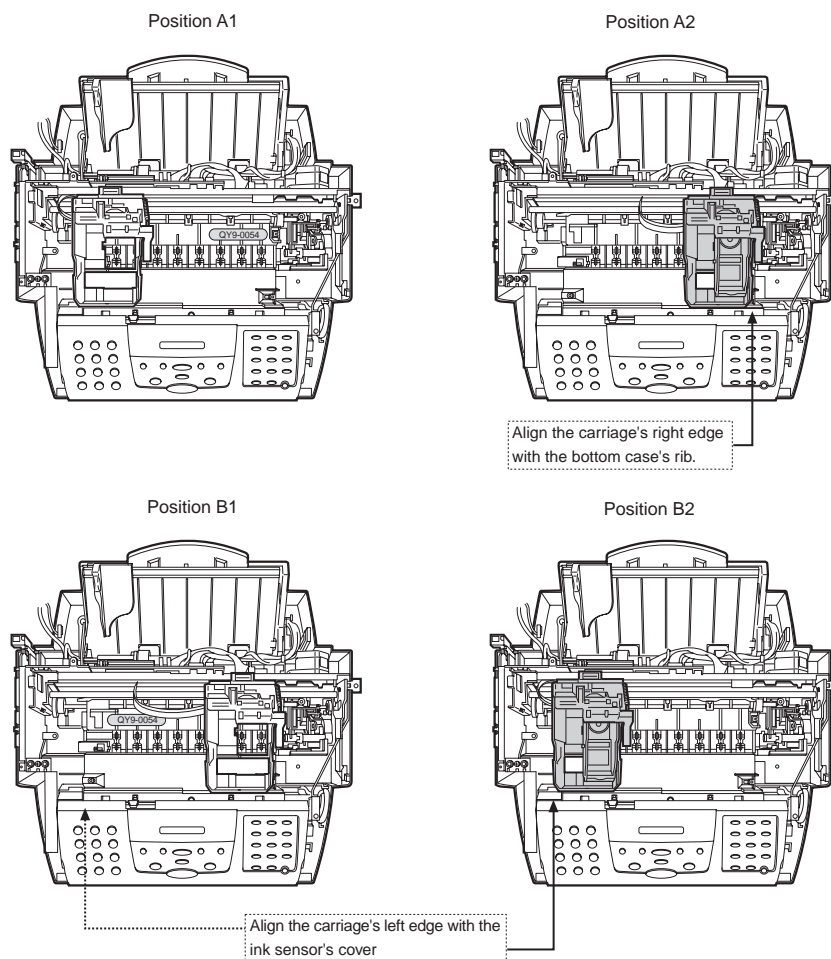


Figure 3-9 Head Gap Adjustment 2

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4. TROUBLESHOOTING

4.1 Troubleshooting Index

For troubleshooting, use the troubleshooting index below to investigate the cause of the problem and refer to the specified page for countermeasures.

Problem

- **Errors shown on the display (Evaluation criteria: Look at the unit in question.)**

- The error message can be checked. *Page 3-16.*
- The error code can be checked. *Page 3-22.*

- **General errors** *Page 3-30.*

- The unit does not power on.
- The display looks abnormal.
- The buttons do not work.
- No sound from the speaker

- **Printing problem (Evaluation criteria: Test printing is no good.)**

- The paper is not fed properly. *Page 3-31.*

The paper feed motor does not run.

The paper is not picked up from the auto sheet feeder.

- The printing operation is abnormal. *Page 3-31.*

Nothing is printed.

The carriage motor does not run.

- Printing quality error *Page 3-32.*

(Evaluation criteria: Look at the printing result.)

The printer does not at all.

Printing stop midway.

Certain colors are not printed.

Blotches appear.

Blank ink appear.

- **Scanning problem (Evaluation criteria: Test printing is good, but the copied image is no good.)**

- The document is not fed. *Page 3-33.*

- The document feed motor does not run.

- The document slips against the rollers.

- The document does not separate.

- Faulty scanner unit's sensors

- The scanning image is abnormal. *Page 3-34.*

- Nothing is printed.

- The image has vertical stripes.

- The image has thick vertical stripes.

- The half-tone image contains black dots.

- The color or brightness of the scanned image is not normal.

- **Processing communication problems.** *Page 3-35.*

- Initial identification of problems.

- Procedures for processing communication problems.

4.2 Errors Shown on the Display

4.2.1 User error message

Look for the applicable error message and execute the appropriate countermeasures.

"BUSY/NO SIGNAL " (#005/#018)

- | | |
|------------------|--|
| Cause: | The receiving fax did not answer within 35 seconds. (T1 timer over) |
| Solution: | Contact the other party and have them check their fax. You can try to send the document manually. For an overseas call, add pauses to the registered number. |
| Cause: | The touch tone/rotary pulse setting on your fax is incorrect. |
| Solution: | Set your fax to the setting that matches your telephone line. |
| Cause: | The other party is not using a G3 machine. |
| Solution: | Contact the other party and have them send or receive the document using a G3 machine. |
| Cause: | The other party's fax is not working. |
| Solution: | Contact the other party and have them check their fax. |
| Cause: | The telephone number you dialed is busy. |
| Solution: | Try sending the document at a later time. |

"C INK EMPTY"

- | | |
|------------------|---|
| Cause: | The Cyan BJ tank in the Color or Photo BJ cartridge is empty. |
| Solution: | Replace the Cyan BJ tank. |

"CARTRIDGE JAMMED"

Printing position correction failed

Cause: Carriage movement prevented by one of the following.

Damaged shaft.

Parts deformed. (Carriage or guide frame)

Insufficient grease.

Countermeasure: Replace the shaft.

Replace the deformed parts.

Apply more grease.

Cause: Bi-directional print displacement correction failed because the carriage motor is out of step, or some similar reason.

Countermeasure: Replace the carriage motor.

Home position error

Cause: Foreign body in carriage section.

Countermeasure: Open printer cover, and remove foreign body.

Cause: Loose carriage belt.

Countermeasure: Replace carriage belt.

Cause: Guide frame home position detection tabs is damaged or bent parts.

Countermeasure: Replace the damaged or bent parts.

Cause: Carriage motor does not work.

Countermeasure: (1) Switch power OFF/ON.

(2) Replace carriage motor.

Cause: Carriage position cannot be detected. (Home position sensor breakdown, or BJ controller malfunction)

Countermeasure: (1) Switch power OFF/ON.

(2) Replace carriage cable with one that has a home position sensor attached.

(3) Replace the PCNT board.



NOTE

This error message means the same as service error codes ##338 and ##340. When this error occurs in this model, it is not treated as a service error, but as a user error, and the error message is displayed.

"CHANGE CARTRIDGE"

- Cause:** The printer cover is open and the cartridge holder is moving to the center of the unit.
- Solution:** Wait until the cartridge holder stops, then replace the BJ cartridge or tanks.

"CHECK DOCUMENT" (#001)

- Cause :** Document jam. This is displayed when the document sensor detects paper, but the document edge sensor cannot detect the leading edge of the document with 15 seconds from the start of the feed operation.
- Solution:** Clear the document jam.

"CHECK PAPER SIZE"

- Cause:** The size of the paper loaded in the paper cassette is different from the paper size set by user data.
- Solution:** Set the correct paper size in the PRINTER SETTING > PAPER SIZE.

"CHECK PRINTER" (##332~##337, ##345, ##346 and ##348)

- Cause:** The printer's internal unit has malfunctioned.
- Solution:**
- (1) Remove the jammed paper. (Check the paper end sensor is OFF.)
 - (2) Press **Resume** button.
 - (3) Reinstall the Cartridge.
 - (4) Turn the power off and on.
 - (5) Set the service data #1 SSSW SW01 bit 0 to "1" and check the service code.
Refer to the countermeasures for that error code.

"CLEAR PAPER JAM" (#009)

- Cause:** Paper jam.
- Solution:** Clear the paper jam and press the **Resume** button.

"CONVERT CLR>B&W?"

- Cause:** The unit is confirming that it is all right to convert a color document to black & white and print it with the Black BJ cartridge.
- Solution:** Press * to convert the color document to black & white and print, or press #to cancel.

"DATA ERROR"

- Cause:** The registration data in the SRAM was destroyed and a checksum error occurred due to a dead lithium battery or SRAM failure.
- Solutions:**
- (1) Press the **Set** button, and turn the power off and on again.
 - (2) Replace the lithium battery.
 - (3) Replace the SPCNT board.

"DOC. TOO LONG" (#003)

- | | |
|------------------|--|
| Cause: | The document is longer than 39.4"(1m). |
| Solution: | Use a copy machine to make a reduced copy of the document. Then send again. |
| Cause: | It took more than 32 minutes to send or copy a document. It took more than 32 minutes to receive a document. |
| Solution: | Divide the document and send or copy each part separately. Contact the other party. Have them divide the document and send each part separately. |

"HANG UP PHONE"

- | | |
|------------------|--|
| Cause: | The handset or the extension telephone is off the hook. |
| Solution: | Put the handset or the extension telephone back on the hook. |

"INSTALL BC-33"

- | | |
|------------------|--|
| cause: | You tried to make color copies with the installed Black BJ cartridge. |
| Solution: | Remove the Black BJ cartridge and install the color BJ cartridge. |
| Cause: | You tried to print a received color fax with the installed Black BJ cartridge. |
| Solution: | Remove the Black BJ cartridge and install the Color BJ cartridge. If you do not have this BJ cartridge available, you can convert received color fax in memory to black & white and print the fax with the Black BJ cartridge. |
| Cause: | You disabled the PHOTO INK PRINT setting and tried to print a received color fax with the installed Photo BJ cartridge. |
| Solution: | Remove the Photo BJ cartridge and install the Color BJ cartridge. Alternatively, enable the PHOTO INK PRINT setting. |
| Cause: | You tried to make a color copy in PLAIN PAPER or COLOR DRAFT mode with the installed Black BJ cartridge. |
| Solution: | Remove the Black BJ cartridge and install the Color BJ cartridge. |

"INSTALL BC33/30"

- | | |
|------------------|---|
| Cause: | You disabled the PHOTO INK PRINT setting and tried to make a black & white copy, print a received black & white fax, print a report, or print a black & white document in memory with the installed Photo BJ cartridge. |
| Solution: | Remove the Photo BJ cartridge and install the Color or Black BJ cartridge. Alternatively, enable the PHOTO INK PRINT setting. |

"INSTALL BC33/34"

- | | |
|------------------|---|
| Cause: | You tried to make a color copy in HI RES. PAPER or COLOR SNAPSHOT mode with the installed Black BJ cartridge. |
| Solution: | Remove the Black BJ cartridge and install the Color or Photo BJ cartridge. |

"K INK EMPTY"

- | | |
|------------------|---|
| Cause: | The Black BJ tank in the Color, Photo or Black BJ cartridge is empty. |
| Solution: | Replace the Black BJ tank. |

"LOAD PAPER" (#009)

- | | |
|------------------|---|
| Cause: | The fax is out of paper. |
| Solution: | Add more paper to the paper cassette. Make sure the stack is below the limit mark and press the Start or Resume button. |

"M INK EMPTY"

Cause:	The Mazenta BJ tank in the Color or Photo BJ cartridge is empty.
Solution:	Replace the Mazenta BJ tank.

"MEMORY FULL" (#037)

Cause:	The fax's memory is full because it has received too many documents.
Solution:	(1) Print out any documents which are stored in memory. Then start the operation again. (2) If the memory contains any facsimiles you don't need, delete them. (3) You cannot receive a fax was scanned with fine graphic images.
Cause:	The fax's memory is full because you tried to send too many pages at once.
Solution:	Divide the document and send each part separately.

"NO ANSWER" (#005)

Cause:	The receiving fax machine does not answer.
Solution:	Make sure you dialed the correct number. Try again later.

"NO RX PAPER" (#012)

Cause:	The receiving fax machine declares no paper in DIS, or its memory is full.
Solution:	Contact the other party, and ask them to put paper in their machine, or to clear their fax machine's memory.

"NO TEL #" (#022)

Cause:	The button you pressed has no number registered for One-Touch Speed Dialing, Coded Speed Dialing, or Group Dialing.
Solution:	Print a list of registered numbers and make any corrections needed, then try again.

"NOT AVAILABLE"

Cause:	One-touch or coded speed dial already registered.
Solution:	Check the contents of the one-touch or coded speed dialling registration, then try again.

"PRINT W/ BC-34?"

Cause:	You disabled the PHOTO INK PRINT setting and the unit is confirming that it is all right to print a color document in memory with the installed Photo BJ cartridge.
Solution:	Press * to print the color document with the Photo BJ cartridge, or press # to cancel printing. Alternatively, enable the PHOTO INK PRINT setting.

"PUT IN CARTRIDGE"

Cause:	The BJ cartridge is not set.
Solution:	Set the BJ cartridge.
Cause:	The BJ cartridge is set incorrectly.
Solution:	Set the BJ cartridge correctly.

"START AGAIN"

Cause:	An error occurred on the phone line or in the system.
Solution:	Start the procedure again from the beginning.

"TRY AGAIN IN B/W" (#085)

Cause:	You tried faxing a color document to a machine that does not support color faxing.
Solution:	(1) Try sending again in black & white. (2) Check the received fax machine's setting for color faxing is available.

"WAIT COOLING"

Cause:	The BJ cartridge is hot.
Solution:	Wait until the message disappears.

"Y INK EMPTY"

Cause:	The Yellow BJ tank in the Color or Photo BJ cartridge is empty.
Solution:	Replace the Yellow BJ tank.

4.2.2 Error codes

a) Service error code output

When service data #1 SSSW SW01 bit 0 is set to “1”, then service error codes are printed on the activity management reports, reception result reports and error transmission reports, when communication ends in an error. Also, the following is displayed, when an error occurs.

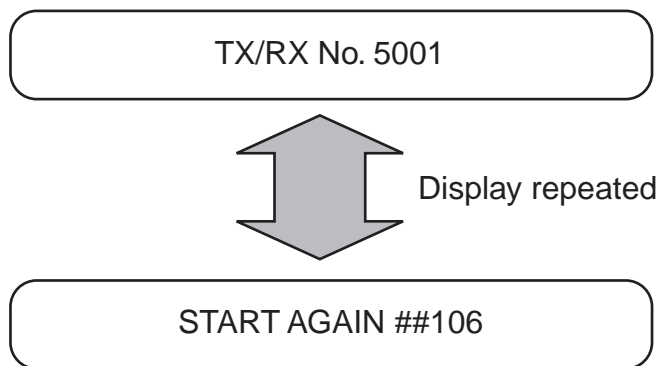


Figure 3-10 Service Error Code Display

b) Error code countermeasures

From item c), all the error codes which the unit can display are listed. The separate *G3 Facsimile Error Code List (Rev. 1)* does not specify the countermeasures for resolvable error codes. Also refer to this list when an error code appears.

The *G3 Facsimile Error Code List (Rev. 1)* does not specify countermeasures for all error codes. The countermeasures that are specified in the *G3 Facsimile Error Code List (Rev. 1)* are included here as specific countermeasures for your reference.

- **Increase the transmission level**

Set service data #2 MENU Parameter No.07 to 0 (dBm).

- **Decrease the transmission level**

Set service data #2 MENU Parameter No.07 to -15 (dBm).

- **Echo measures**

Change the following bit switches of service data #1 SSSW SW03.

Bit 4:1 Ignore the first DIS signal sent by the other fax machine.

0 Do not ignore the first DIS signal sent by the other fax machine.

Bit 5:1 Transmit a tonal signal (1850 or 1650 Hz) when the other fax machine sends a DIS signal.

0 Do not transmit a tonal signal when the other fax machine sends a DIS signal.

Bit 6:1 Transmit a 1850-Hz tonal signal when bit 5 is 1.

0 Transmit a 1650-Hz tonal signal when bit 5 is 1.

Bit 7:1 Transmit a tonal signal before sending a CED signal.

0 Do not transmit a tonal signal before sending a CED signal.

- **EPT (Echo Protect Tone)**

Change service data #1 SSSW SW03 bit 1.

Bit 1:1 Transmit an echo protect tone.

0 Not transmit an echo protect tone.

- **Adjust NL equalizer.**

Set service data #2 MENU Parameter No.05 to "ON".

- **Reduce the transmission start speed.**

Reduce the transmission speed by changing user data "SYSTEM SETTINGS" "TX START SPEED".

- **Loosen the TCF judgment standard.**

Not available for this fax.

- **Loosen the RTN transmission conditions.**

Change service data #3 NUMERIC Param. Parameter No.02 to 04.

No.02 Percentage of errors in all lines : Set close to 99%.

No.03 Number of lines of burst condition : Set close to 99 lines.

No.04 Lines below the burst condition : Set close to 99 times.

- **Increase the no-sound time after CFR reception.**

Change service data #1 SSSW SW04 bit 4 to "1".

Bit 4:1 Time when the low-speed signal is ignored after sending a CFR signal: 1500 ms

0 Time when the low-speed signal is ignored after sending a CFR signal: 700 ms

c) ERROR CORD LIST for MultiPASS C755

New error codes indicate "new" in this list.

C-1) User error code

No.	Tx or Rx	Definition
#001	[TX]	Paper jam
#003	[TX/RX]	Copy page, communication time over
#005	[TX/RX]	Initial ID (T1) time over
#009	[RX]	Recording paper jam or out of paper
#011	[RX]	Polling error
#012	[TX]	Other party out of paper
#018	[TX/RX]	Automatic dialing error
#021	[RX]	DCN during polling Rx
#022	[TX]	Call failure
#037	[RX]	Image memory full
#039	[TX]	Closed network Tx failure
#052	[RX]	Image memory full by no ink error
new #085	[TX]	Other party does not support ITU-T Color Faxing
#995	[TX/RX]	Memory Communication reservation cancellation

c-2) Service error code

• G3 mode error codes

No.	Tx or Rx	Definition
##100	[TX]	Excessive repeat protocol during Rx
##101	[TX/RX]	Modem speed different from other party
##102	[TX]	Fall back failure during Tx
##103	[RX]	Fail to detect EOL for 5 seconds (15 seconds for CBT) during Rx
##104	[TX]	RTN or PIN received during Tx
##106	[RX]	Fail to receive protocol for 6 seconds when waiting for protocol during Rx
##107	[RX]	Fall back failure on Tx side during Rx
##109	[TX]	Receive Signals other than DIS, DTC, FTT, CFR or CRP after DCS Tx and exceed the number of protocol re-transmissions during Tx
##111	[TX/RX]	Memory error
##114	[RX]	RTN Transmission during reception
##200	[RX]	Fail to detect picture Rx carrier for 5 seconds during Rx
##201	[TX/RX]	DCN received other than normal binary protocol
##204	[TX]	Receive DTC without Tx data
##220	[TX/RX]	System error (main program runaway)
##224	[TX/RX]	Abnormal protocol during G3 communication
##229	[RX]	Recording unit locked for 1 minute
##232	[TX]	ENCODE control unit malfunction
##237	[RX]	DECODE control unit malfunction
##238	[RX]	PRINT control unit malfunction
##261	[TX/RX]	System error between MODEM and SCNT
##280	[TX]	Excessive repeat protocol command during Tx
##281	[TX]	Excessive repeat protocol command during Tx
##282	[TX]	Excessive repeat protocol during Tx

No.	Tx or Rx	Definition
##283	[TX]	Excessive repeat protocol during Tx
##284	[TX]	DCN reception after TCF transmission
##285	[TX]	DCN reception after EOP transmission
##286	[TX]	DCN reception after EOM transmission
##287	[TX]	DCN reception after MPS transmission
##288	[TX]	Receive signals other than PIN, PIP, MCF, RTP or RTN after EOP transmission
##289	[TX]	Receive signals other than PIN, PIP, MCF, RTP or RTN after EOM transmission
##290	[TX]	Receive signals other than PIN, PIP, MCF, RTP or RTN after MPS transmission

• Printer error codes

No.	Tx or Rx	Definition
##332	[TX/RX]	Printer control DRAM check error
##333	[TX/RX]	Printer control ROM check error
##334	[TX/RX]	Printer control EEPROM check error
##335	[TX/RX]	Data transmission error between the system control section and printer control section
##336	[TX/RX]	BJ head abnormal temperature error
##337	[RX]	BJ head temperature sensor error
<i>new</i> ##342	[TX/RX]	Cleaning absorption waste ink capacity full
##345	[TX/RX]	BJ cartridge head cleaning error
##346	[TX/RX]	Inside temperature error
##348	[TX/RX]	Ink detection sensor error

• V.8/V.34 protocol error codes

No.	Tx or Rx	Definition
<i>new</i> ##670	[TX]	At V.8 late start, the called party declares the V.8 protocol in DIS signal and this unit transmits a CI signal, but the protocol does not progress and a T1 time-out occurs.
<i>new</i> ##671	[RX]	At V.8 termination, the protocol did not advance to phase 2 and a T1 time-out occurs after the caller CM signal was detected.
<i>new</i> ##672	[TX]	The protocol did not move from phase 2 to phase 3 and a T1 time-out occurred during V.34 transmission.
<i>new</i> ##673	[RX]	The protocol did not move from phase 2 to phase 3 and a T1 time-out occurred during V.34 reception.
<i>new</i> ##674	[TX]	The protocol did not move from phase 3 to phase 4 and a T1 time-out occurred during V.34 transmission.
<i>new</i> ##675	[RX]	The protocol did not move from phase 3 to phase 4 and a T1 time-out occurred during V.34 reception.

• ECM mode error codes

No.	Tx or Rx	Definition
##750	[TX]	Exceed repeat protocol due to failure to receive significant signals after transmitting PPS-NULL during ECM Tx
##752	[TX]	Receive DCN after PPS-NULL transmission during ECM Tx
##753	[TX]	Exceed protocol retransmission limit or T5 time (60 seconds) after PPS-NULL transmission during ECM Tx
##754	[TX]	Exceed retransmit protocol after PPS-NULL transmission during ECM Tx
##755	[TX]	Exceed protocol retransmission limit due to failure to receive significant signals after PPS-MPS transmission during ECM Tx during ECM Tx
##757	[TX]	Receive DCN after PPS-MPS Transmission during ECM Tx
##758	[TX]	Exceed Protocol Retransmission Limit or T5 Time (60 seconds) after PPS-MPS Transmission during ECM Tx
##759	[TX]	Exceed Retransmit Protocol after PPS-MPS Transmission during ECM Tx
##760	[TX]	Exceed Protocol Retransmission Limit Due to Failure to Receive Significant Signals after PPS-EOM Transmission during ECM Tx
##762	[TX]	Receive DCN after PPS-EOM Transmission during ECM Tx
##763	[TX]	Exceed Protocol Retransmission Limit or T5 Time (60 seconds) after PPS-MPS Transmission during ECM Tx
##764	[TX]	Exceed Retransmit Protocol after PPS-EOP Transmission during ECM Tx
##765	[TX]	Exceed protocol retransmission limit due to failure to receive significant signals after PPS-EOP transmission during ECM Tx
##767	[TX]	Receive DCN after PPS-EOP transmission during ECM Tx
##768	[TX]	Exceed protocol retransmission limit or T5 time (60 seconds) after PPS-EOP transmission during ECM Tx
##769	[TX]	Exceed retransmit protocol after PPS-EOP transmission during ECM Tx
##770	[TX]	Exceed repeat protocol limit due to failure to receive significant signals after transmitting EOR-NULL during ECM Tx
##772	[TX]	Receive DCN after EOR-NULL transmission during ECM Tx
##773	[TX]	Exceed protocol retransmission limit or T5 time (60 seconds) after EOR-NULL transmission during ECM Tx
##774	[TX]	Receive ERR after EOR-NULL transmission during ECM Tx
##775	[TX]	Exceed protocol retransmission limit due to failure to receive significant signals after EOR-MPS transmission during ECM Tx
##777	[TX]	Receive DCN after EOR-MPS transmission during ECM Tx
##778	[TX]	Exceed protocol retransmission limit or T5 time (60 seconds) after EOR-MPS transmission during ECM Tx
##779	[TX]	Receive ERR after EOR-MPS transmission during ECM Tx
##780	[TX]	Exceed protocol retransmission limit due to failure to receive significant signals after EOR-EOM transmission during ECM Tx.
##782	[TX]	Receive DCN after EOR-EOM transmission during ECM Tx

No.	Tx or Rx	Definition
##783	[TX]	Exceed protocol retransmission limit or T5 time (60 seconds) after EOR-EOM transmission during ECM Tx
##784	[TX]	Receive ERR after EOR-EOM transmission during ECM Tx
##785	[TX]	Exceed protocol retransmission limit due to failure to receive significant signals after EOR-EOP transmission during ECM Tx.
##787	[TX]	Receive DCN after EOR-EOP transmission during ECM Tx
##788	[TX]	Exceed protocol retransmission limit or T5 time (60 seconds) after EOR-EOP transmission during ECM Tx
##789	[TX]	Receive ERR after EOR-EOP transmission during ECM Tx
##790	[RX]	Transmit ERR after EOR-Q reception during ECM Rx
##791	[TX/RX]	Receive non-significant signals during ECM mode procedures
##792	[RX]	Fail to detect PPS-NULL between partial pages during ECM Rx
##793	[RX]	Time over due to failure to receive valid frame during high speed signal Rx upon ECM Rx
##794	[TX]	Receive all 0 PPR during ECM Tx
##795	[TX/RX]	Trouble in the decoding processing during communication
##799	[TX]	System error

d) Recovery methods for codes indicated as “New”

Note, however, the following supplementary information, as the machine requires different actions than the existing models to correct:

##085 Other party does not support ITU-T Color Faxing

- Solution:**
- (1) Try sending again in black & white.
 - (2) Check the received fax machine's setting for color faxing is available.

##342 Cleaning absorption waste ink capacity full

- Solution:** Unlike errors that trigger the “**CHECK PRINTER**” message, This error is programmed so that it cannot be cleared using the **Resume** button. Replace the waste ink absorber as follows in the error occurs:
- (1) Select 3. INK ABS CAPA under #7 PRINTER in service mode, and the counter to 0.
 - (2) Check to make sure that no image exist in memory; then, turn off the power, remove the appropriate parts, and replace the waste ink absorber.

• V.8/V.34 protocol error codes

##670 [TX] At V.8 late start, the called party declares the V.8 protocol in DIS signal and this unit transmits a CI signal, but the protocol does not progress and a T1 time-out occurs.

- Cause:** The other party disconnected the line while the CI signal was being transmitted, or ANSam/DIS from the called party was not able to be detected.
- Solution:** Increase #2 MENU No.07 transmission level within a range of -8~-15 (dBm) or set #1 SSSW SW-28 bit 0 to "1" to inhibit the V.8/V.34 protocol on calling.

##671 [RX] At V.8 termination, the protocol did not advance to phase 2 and a T1 time-out occurs after the caller CM signal was detected.

- Cause:** The caller disconnected the line or the signal from the caller was not able to be detected.
- Solution:** Increase #2 MENU No.07 transmission level within a range of -8~-15 (dBm) or set #1 SSSW SW-28 bit 1 to "1" to inhibit the V.8/V.34 protocol for the called party.

##672 [TX] The protocol did not move from phase 2 to phase 3 and a T1 time-out occurred during V.34 transmission.

- Cause:** The called party disconnected the line during phase 2 or the signal from the called party was not able to be detected.
- Solution:** Increase #2 MENU No.07 transmission level within a range of -8~-15 (dBm) or set #1 SSSW SW-28 bit 0 to "1" to inhibit the V.8/V.34 protocol on calling.

##673 [RX] The protocol did not move from phase 2 to phase 3 and a T1 time-out occurred during V.34 reception.

- Cause:** The transmitter disconnected the line during phase 2 or the signal from the transmitter was not able to be detected.
- Solution:** Increase #2 MENU No.07 transmission level within a range of -8~-15 (dBm) or set #1 SSSW SW-28 bit 1 to "1" to inhibit the V.8/V.34 protocol on termination.

##674 [TX] The protocol did not move from phase 3 to phase 4 and a T1 time-out occurred during V.34 transmission.

-
- Cause:** The called party disconnected the line during phase 3 or the signal from the called party was not able to be detected.
- Solution:** Increase #2 MENU No.07 transmission level within a range of -8~-15 (dBm) or set #1 SSSW SW-28 bit 0 to "1" to inhibit the V.8/V.34 protocol on calling.

##675 [RX] The protocol did not move from phase 3 to phase 4 and a T1 time-out occurred during V.34 reception.

-
- Cause:** The transmitter disconnected the line during phase 3 or the signal from the transmitter was not able to be detected.
- Solution:** Increase #2 MENU No.07 transmission level within a range of -8~-15 (dBm) or set #1 SSSW SW-28 bit 1 to "1" to inhibit the V.8/V.34 protocol on termination.

4.3 Errors not Shown on the Display

4.3.1 General errors

- **The unit does not power on.**

- (1) Check the power cord connection.
- (2) Check the connection between the PCNT board (J204) and power supply unit.
- (3) Check the power supply unit's fuse (F1).
- (4) Replace the power supply unit.

- **The display looks abnormal.**

- Nothing is displayed.**

- (1) Check the connection between the Operation panel unit and SCNT board (JPANEL1).
- (2) Replace the Operation panel unit.
- (3) Replace the SCNT board.

- Part of the LCD panel does not display anything.**

- (1) Check the connection between the Operation panel unit and SCNT board (JPANEL1).
- (2) Replace the Operation panel unit.
- (3) Replace the SCNT board.

- **The buttons do not work.**

- (1) If the test mode can be used, check for faulty buttons.
- (2) Check the connection between the Operation panel unit and SCNT board (JPANEL1).
- (3) Replace the Operation panel unit.
- (4) Replace the SCNT board.

- **No sound from the speaker**

- (1) Check the connection of the speaker and SCNT board (JSPK1).
- (2) Replace the speaker.
- (3) Replace the SCNT board.

4.3.2 Printing problems

- **Faulty printing (Evaluation criteria: Test print is no good.)**
- **The paper is not fed properly. (Evaluation criteria: Look at the actual unit.)**

The Paper feed motor does not run.

- (1) Check the connection from the paper feed motor to the PCNT board (J202).
- (2) Check the paper feed motor's resistance. $2.4\ \Omega$ /1 phase is normal. (Fig. 3-11)
- (3) Replace the paper feed motor.
- (4) Replace the PCNT board.

The paper is not picked up from the auto sheet feeder.

- (1) Check parts in the paper feed motor drive switching mechanism for abnormalities.
- (2) Make sure that the ASF gear is attached correctly.
- (3) Replace pickup roller ass'y.
- (4) Replace PCNT board (Faulty PRS or PES).

- **The printing operation is abnormal.**

Nothing is printed.

- (1) Remove the BJ-cartridge and re-install it.
- (2) Execute cleaning five times, and try printing again.
- (3) Replace the BJ cartridge.

The carriage motor does not run.

- (1) Check the connection from the carriage motor to the PCNT board (J203).
- (2) Check the carriage motor's resistance. $3.3\ \Omega$ /1 phase is normal. (Fig. 3-11)
- (3) Replace the carriage motor.
- (4) Replace the PCNT board.

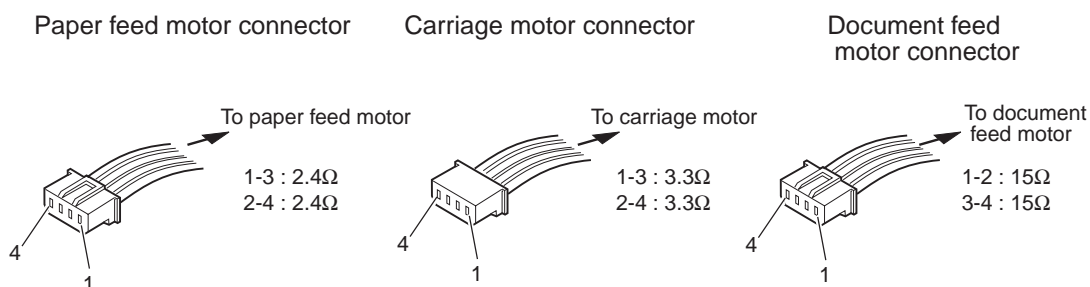


Figure 3-11 Paper Feed Motor/Carriage Motor/Document Feed Motor Connector

- **Printing quality error**

- **The printer does not at all.**

- **Printing stops midway.**

- **Certain colors are not printed.**

- (1) Check that the orange cap or tape is not on the BJ cartridge.
- (2) Carry out nozzle cleaning on the BJ cartridge five times with the cleaning operation, then visually check the test print for non-discharge of ink from nozzle. (*Fig. 3-12*)
- (3) Remove and reinstall the BJ cartridge.
- (4) Replace the appropriate ink tank.
- (5) Replace the BJ cartridge.
- (6) Replace the purge unit.

- **Blotches appear**

- **Blank ink appear**

- (1) Carry out nozzle cleaning on the BJ cartridge five times with the cleaning operation, then visually check the test print for non-discharge of ink from nozzle. (*Fig. 3-12*)
- (2) Remove and reinstall the BJ cartridge.
- (3) Replace the appropriate ink tank.
- (4) Replace the BJ cartridge.
- (5) Check the connection of the carriage ribbon cable and the PCNT board. (J501/502)
- (6) Check the connection of the carriage ribbon cable and the carriage board. (CN1/CN2)
- (7) Replace the carriage ribbon cable.
- (8) Replace the carriage board.
- (9) Replace the PCNT board.
- (10) Replace the purge unit.

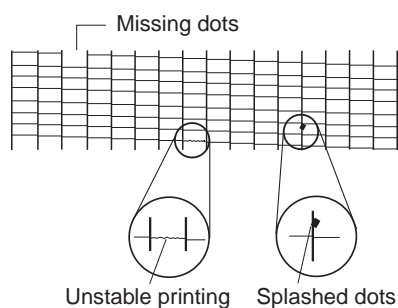


Figure 3-12 Defective Pattern (Sample)

4.3.3 Scanning problems

- **Faulty scanning (Evaluation criteria: Test print is good, but the copied image is no good.)**

- **The document is not fed.**

The document feed motor does not run. (Evaluation criteria: Check it visually.)

- (1) Check the connection from the document feed motor to the SCNT board (JMOTOR1).
- (2) Check the document feed motor's resistance. 15 Ω /1 phase is normal. (*Fig. 3-11*)
- (3) Replace the document feed motor.
- (4) Replace the SCNT board.

The document slips against the rollers. (Evaluation criteria: Check it visually. Stretched copy image.)

- (1) See *page 3-4* and clean the document reading section.
- (2) Replace the reading section's rollers.

The document does not separate. (Evaluation criteria: Check it visually.)

- (1) Check whether the reading motor is driving all the rollers. (Check for any damaged gears or foreign matter stuck inside.)
- (2) See *page 3-4* and clean the separation roller and separation guide.
- (3) Replace the separation roller and separation guide.

Faulty scanner unit's sensors (Evaluation criteria: The placed document or transported document is not detected.)

- (1) Check for any faulty sensors while executing the copying operation and test mode.
- (2) Check the connection from operation panel unit to the SCNT board (JPANEL1).
- (3) Replace operation panel unit.
- (4) Replace the SCNT board.

• **The scanning image is abnormal. (Evaluation criteria: Check the copy image's faults.)**

Nothing is printed.

- (1) Check the connection between the contact sensor and SCNT board (JCS1).
- (2) Clean the white sheet.
- (2) Replace the contact sensor assembly.
- (3) Replace the SCNT board.

The image has vertical stripes.

- (1) Clean the contact sensor's reading glass.
- (2) Clean the white sheet.
- (3) Check the connection between the contact sensor and SCNT board (JCS1).
- (4) Replace the contact sensor assembly.

The image has thick vertical stripes.

- (1) Clean the contact sensor's reading glass.
- (2) Clean the white sheet.
- (3) Make sure the document is not slanted.
- (4) Check the connection between the contact sensor and SCNT board (JCS1).
- (5) Replace the contact sensor assembly.

The halftone image contains black dots.

- (1) Clean the contact sensor's reading glass.
- (2) Clean the white sheet.
- (3) Check the connection between the contact sensor and SCNT board (JCS1).
- (4) Adjust the CS LED lights-on duration. See *Page 3-6*.
- (5) Replace the contact sensor assembly.
- (6) Replace the SCNT board.

The color or brightness of the image is not normal.

- (1) Clean the contact sensor's scanning glass.
- (2) Clean the white sheet.
- (3) Adjust the CS LED lights-on duration. See *Page 3-6*.
- (4) Replace the contact sensor assembly.
- (5) Replace the SCNT board.

4.4 Processing Communication Problems

4.4.1 Initial identification of problems

Since the facsimile must transmit picture information, a transmitter, a receiver and telephone lines are required for this purpose. Transmissions may cause problems if one or more of the three is poor.

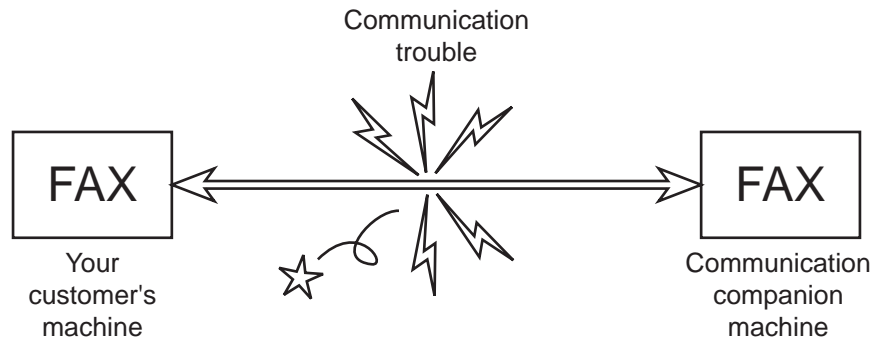


Figure 3-13 Communication Trouble

To process communication problems, first of all, it is necessary to narrow down the cause of the problem. Thus, the procedures appearing below must be checked accordingly.

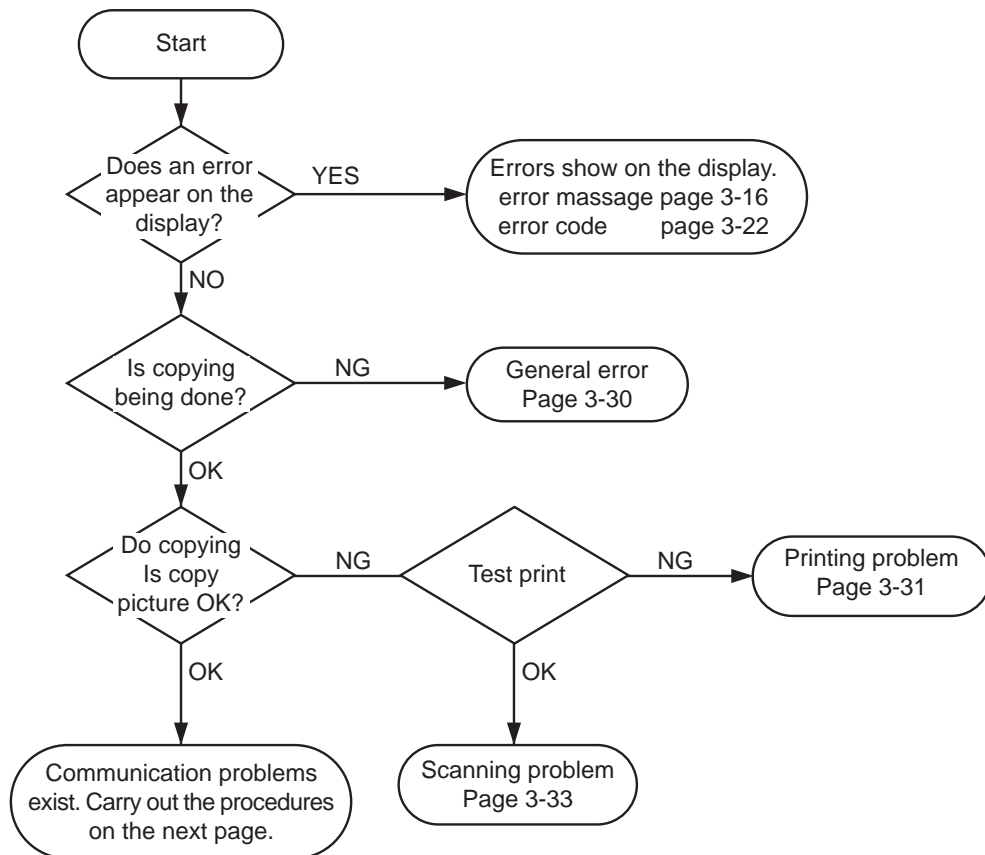


Figure 3-14 Procedures for Initial Identification of Trouble

4.4.2 Procedures for processing communication problems

If the problem proves to be communication trouble, deal with it according to the following procedures.

(1) Study the conditions at the time of trouble as closely as possible.

Record or keep the items listed below.

a) Operations at the time of trouble

┌ Document number, transmission mode, error occurrence timing call set-up method
└ (auto dialing etc.)

b) Sample of defective picture (When receiving)

c) LCD display at the time of trouble

d) Communication management report at the time of trouble

e) User's name, telephone number (to contact), Fax number, model name

f) User's name of the other party, telephone number (to contact), Fax number, model name, name of servicemen in charge

g) Frequency of trouble and error code (## 100 etc)

h) Condition of the other party's facsimile:

┌ Transmitted/received page number? Automatic or manual?
└ Error occurred? The receive condition? etc.



NOTE

When visiting a user with a trouble report, a) can be known by outputting the error protocol data (or error dump), and g) can be known by outputting the total transaction report (or the system error data list).

(2) Test communication according to flowchart procedures appearing on the next page.

- Carry out the tests with the actual lines on each item several times, verify the symptoms and record it.
- In the case of trouble with another manufacturer's facsimile, refer to the flowchart for troubles with other manufacture's.

(3) Finally, process over by judging systematically all the data.



NOTE

If the other party's facsimile is that of another manufacturer and there is nothing wrong with your customer's machine, it is recommended that you ask your customer to contact the facsimile user of the other party, so that the other party's facsimile is checked by the dealer.

"Call the service station" in the flowchart (*Fig. 3-16*) means that problems may occur with regard to the communication compatibility of facsimile, consult the matter with the staff in charge at the service station. To quicken the resolving of the problem, report the information listed in (1) above.

- Procedures for processing communication problems with the Canon facsimile
The process for carrying out communications at three points as shown in the figure.

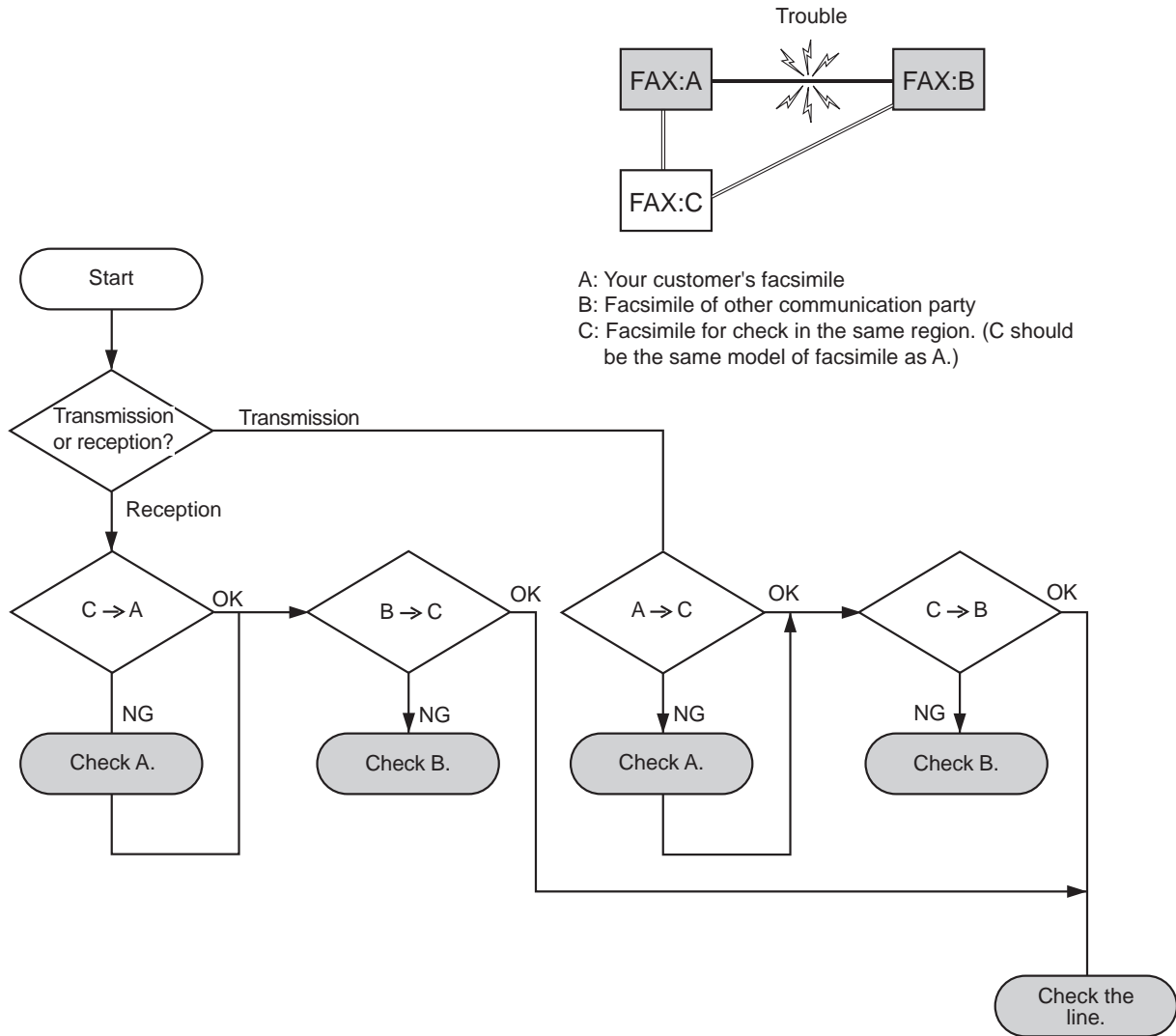


Figure 3-15 Flowchart for Processing Communication Troubles with Canon Facsimile

- Procedures for processing communication problems with other manufacturer’s facsimiles
- When problems occur with other manufacturer’s facsimiles, make the user of the other party’s facsimile call the serviceman in charge. Perform communication at the four points listed in the figure.

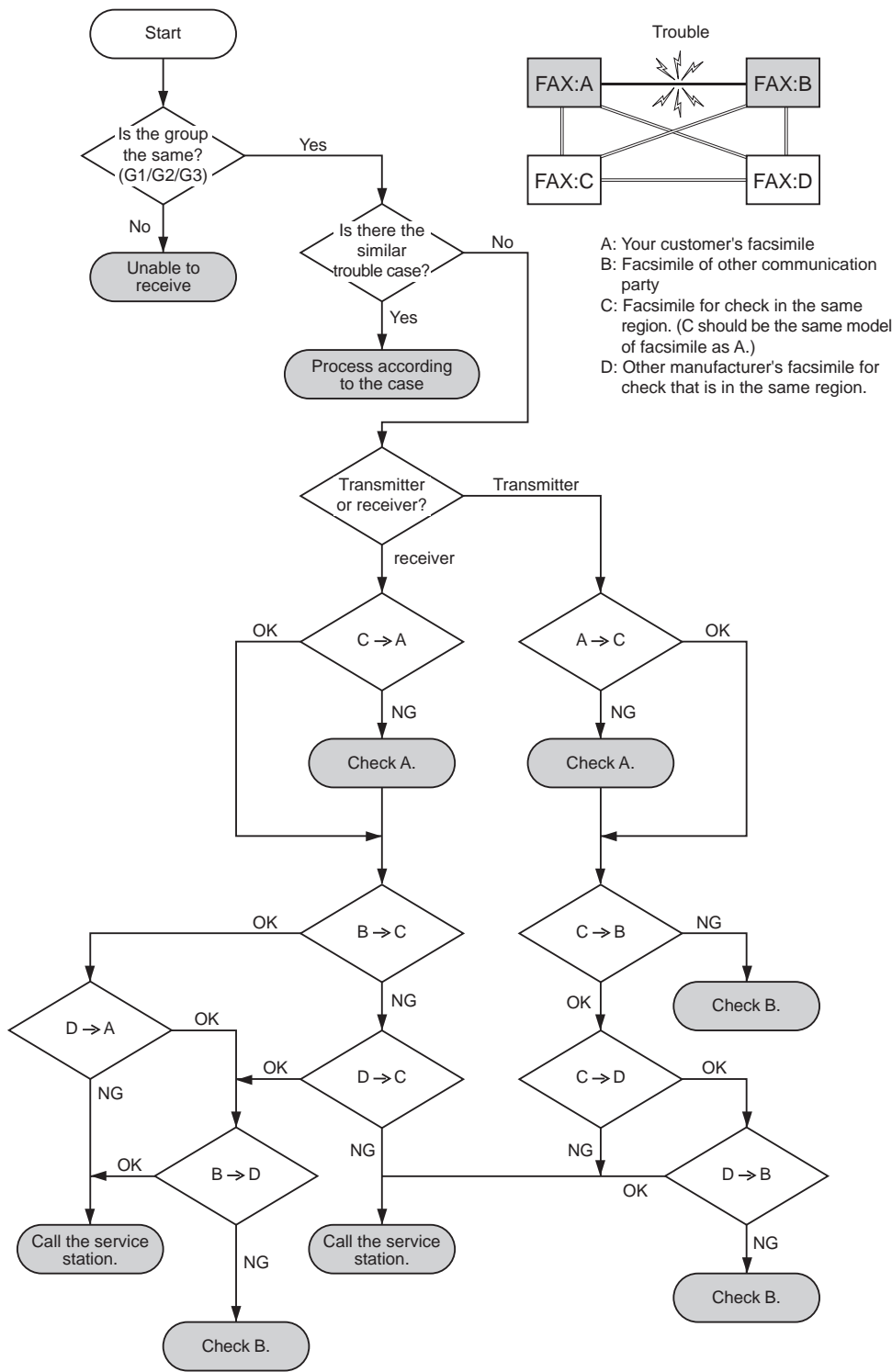


Figure 3-16 Flowchart for Processing Communication Troubles with other manufacturer’s facsimiles

5. COMMUNICATION SYSTEM OPERATIONS

5.1 FAX/TEL Switching

This fax is set to automatically switch between fax and telephone, on the same telephone line. If the other party is a fax, the fax is received automatically, and if the other party is a telephone, the alarm in the main unit is rung to alert the user.

5.1.1 Settings

- (1) Press the **Receive Mode** button to select the Fax/Tel mode.
- (2) Set the **"FAX/TEL AUTO SW"** in **RX SETTINGS** menu.

5.1.2 Parameters

Item	Default setting	Setting switch	Selection range
RING START TIME (Pseudo Ring start time)	8 sec.	User data	0 to 30 sec.
F/T RING TIME (Pseudo Ring time)	15 sec.	User data	10 to 45 sec.
DEFAULT ACTION (Operation after FAX/TEL switching)	RECEIVE	User data	RECEIVE/ DISCONNECT
Pseudo RBT frequency	400 Hz	None	None (fixed)
Pseudo RBT transmission from CML on time until start (CNG detection time)	4 sec.	Service data #3 16	0 to 9 sec.
Pseudo RBT pattern on time	1000 ms	Service data #3 17	0 to 9990 ms
Pseudo RBT pattern off time (short)	0 ms	Service data #3 18	0 to 9990 ms
Pseudo RBT pattern off time (long)	2000 ms	Service data #3 19	0 to 9990 ms
Pseudo RBT transmission level	-23 dBm	Service data #3 24	-23 to -8 dBm
Pseudo ring frequency	25Hz	Service data #2 10	17Hz/25Hz/50Hz
Pseudo ring pattern on time	1000 ms	Service data #3 20	0 to 9990 ms
Pseudo ring pattern off time (short)	0 ms	Service data #3 21	0 to 9990 ms
Pseudo ring pattern off time (long)	2000 ms	Service data #3 22	0 to 9990 ms
CNG detection level	-47 dBm	Service data #3 23	-50 to -29 dBm

5.2 Answering Machine Connection

This connection is for effective use of an answering machine connected to the extension phone jack. If the other party is a telephone, the answering telephone records the message, and if the other party is a fax, the fax receives automatically.

5.2.1 Settings

- (1) Connect the answering machine to the extension telephone jack, and set the answering machine to **“Answer”**.
- (2) Press the fax’s **Receive Mode** button and select the Ans. Machine mode.

5.2.2 Parameters

Item	Default Setting	Setting Switch	Selection Range
CNG Signal detection time	60 sec.	Service data #3 25	0 to 999 sec.

5.3 Manual/Auto Reception Switching

Determines if the fax switches to document receive mode, after the fax rings for a specified time when the fax is in the manual receive mode.

5.3.1 Settings

- (1) Set the **“MAN/AUTO SWITCH”** in the user data **“RX SETTINGS”** to **“ON”**.
- (2) Set the number of seconds that the fax will wait after detecting ringing signal from the telephone line before going into reception, using user data **“F/T RING TIME”** in **“MAN/AUTO SWITCH”**.

5.3.2 Parameters

Item	Default Setting	Setting Switch	Selection Range
MAN/AUTO SWITCH	OFF	User data	ON/OFF
F/T RING TIME	15 sec.	User data	1 to 99 sec.

5.4 Operations Where Other Machine Does not Have Color Communications Ability

When sending a color FAX where the other machine does not have color communications ability, this machine informs the user by displaying **"TRY AGAIN IN B/W"** (#085).

In other words, it judges whether or not the other machine can receive in color according to the DIS from the receiving machine. It does not automatically switch to BW and re-send. The following measures are necessary for the user to deal with this situation depending on the other machine.

1. When the other machine is a BW FAX

The other machine can only receive BW images, so re-send as a normal BW Fax.

2. When the other machine is an ITU-T color communications-compatible FAX

The other machine is set to disallow color reception, or it is possible that color reception temporarily cannot be done for some reason, so re-send after having the other party check the settings and set them to allow color communication.

5.5 Conditions Necessary for Color Reception

User data, types of installed cartridges, etc. Determine whether or not this machine can receive in color as a transmitting machine. A necessary condition is that **COLOR RX** be set to **ON**.

Condition 1 : With **COLOR RX ON** and **MEMORY RX OFF**

Receives in color when printing can be done with a BC-33 cartridge installed. Color reception cannot be done if a cartridge other than a BC-33 is installed, or if a no color ink error has been detected, etc.

Condition 2: With **COLOR RX ON**, **MEMORY RX ON**

If memory reception is possible, memory reception can be done in color regardless of the type of cartridge installed.



NOTE

When the settings in MultiPASS suite are set to forward received data to a PC, memory reception can be done even if **MEMORY RX** is **OFF**.



NOTE

Forced printing using a cartridge other than a BC-33 BJ cartridge

Images received by color transmission cannot be automatically printed with a BJ cartridge other than the BC-33. If a cartridge other than the BC-33 is installed, **"CHANGE BC-33"** will be displayed, and memory reception will be done. With this machine, color images received by memory reception may be output according to the user operation. Output of images is done by choosing the desired TX/RX No. from the Memory reference function's **PRINT DOCUMENT** menu.

5.6 Specifications for Color Communications

The operations for color communications shown below are specifications, so please take care when fielding questions from users.

Transmission Specifications

- Even if the **Color/B&W** button is pressed and the display changed between pages during transmission, pages of BW images and pages of Color images cannot be mixed.
- Image transmission of JPEG grayscale is not possible.
- Even when **ECM TX** settings are **OFF**, this setting is ignored for color transmission, and transmission is done automatically by ECM.
- The TTI header attached to the head of the color image is an image compression specification added when scanning, so the time is the scanning time, not the time that transmission actually begins. This differs from BW transmission.
- Two types of transmission mode for color transmission can be chosen: STANDARD and FINE. These are changed by the compression ratio, depending on the quantization parameter. This varies according to the image, but transmission in STANDARD takes approximately half the time compared to FINE mode.
- When **COLOR DIRECT TX** is set to on, direct transmission will be done. However, memory transmission will be done when multiple addressees are indicated.

Reception Specifications

- In the **TX REPORT** settings, even when **PRINT WITH IMAGE** is set to **ON**, the color-transmission image is not attached. Instead a "The color fax image is not printed on this report" message is printed.
- Grayscale JPEG images sent from machines of other companies can be received.
- When an error indicating no color ink appears, a BW FAX is not automatically output even if there is black ink available.
- When the **ECM RX** setting is **OFF**, color reception is not performed.

When using a BJ Cartridge BC-34 Photo

- When **PHOTO INK PRINT** is set to off, automatic output will not occur whether the text is BW or color.

Other Specifications

- With framed tables, text, monochrome illustrations, etc. And sharp contrast artificial images, a small amount of noise may occur in the image border.
- Color transmission are not supported in V3.20 of MultiPASS suite.
- Because **RX REDUCTION** becomes **ON** when the default setting **BOTTOM MARGIN** is set to **NORMAL**, the scanning width is reduced.

6. SERVICE SWITCHES

6.1 Hardware Switches

There is no service hardware switch on the Circuit board.

6.2 Service Data Setting

Service data can be checked and changed with items on display menus. The default values of the SSSW/parameters available in this fax machine are shown in *this Chapter, 6.2.3 Service data setting* in this manual. The SSSW/parameters given in the previous product-specific manual are explained in the *G3 Facsimile Service Data Handbook*. The new switches for this model are described in *this Chapter, 6.2.3 Service data setting*.

6.2.1 Service data overview

The service data menu items are divided into the following nine blocks.

#1 SSSW (Service soft switch settings)

These setting items are for basic fax service functions such as error management, echo countermeasures, and communication trouble countermeasures.

#2 MENU (MENU switch settings)

These setting items are for functions required during installation, such as NL equalizer and transmission levels.

#3 NUMERIC Param. (NUMERIC parameter settings)

These setting items are for inputting numeric parameters such as the various conditions for the FAX/TEL switching function.

#4 NCU (NCU settings)

These setting items are for telephone network control functions such as the selection signal transmission conditions and the detection conditions, for the control signals sent from the exchange.

#5 TYPE (TYPE setting)

The type setting makes the service data conform to a specific country communications standards. There is only one setting item in this block.

#6 GENESIS (UHQ function setting)

These setting items are for scanned image processing such as edge enhancement and error diffusion processing.

#7 PRINTER (PRINTER function settings)

These setting items are for basic printer service functions such as the reception picture reduction conditions. Also there is an item for resetting the printer section without switching the power off-on.

#8 CLEAR (Data initialization mode)

Various data are initialized by selecting one of these setting items. There is a setting item for checking/ inputting the total number of pages printed and total number of pages scanned by this fax.

#9 ROM (ROM management)

ROM data such as the version number and checksum are displayed.

6.2.2 Service data registration/setting method

Service data can be registered/set by the following operations:

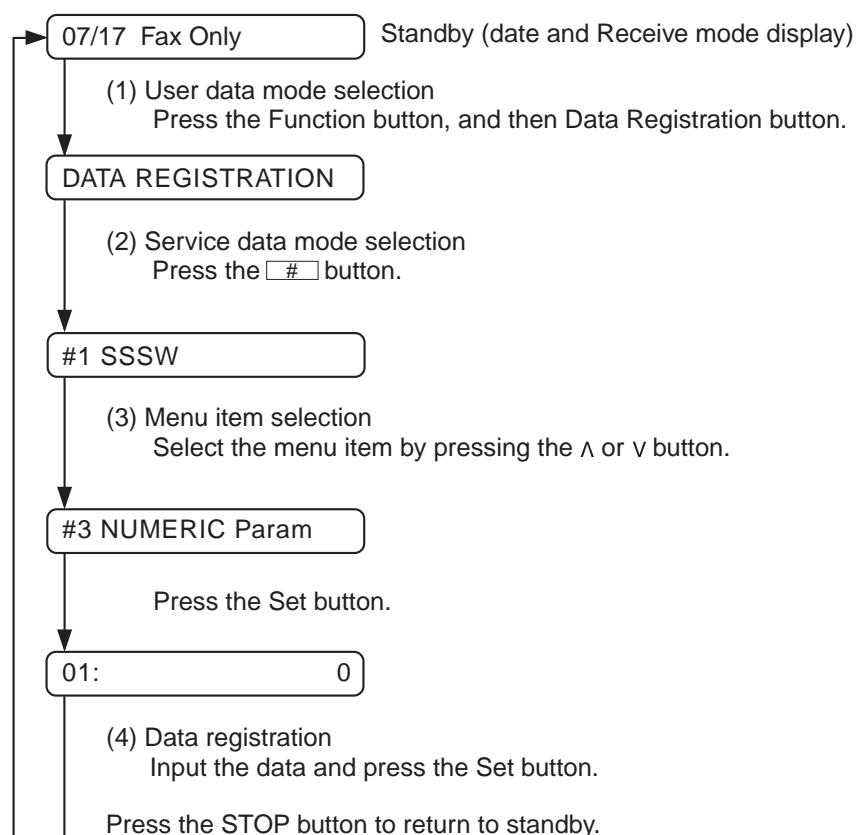


Figure 3-17 Service Data Setting Method



Precautions when registering/setting service data

Detach the telephone line before registering service data. We cannot guarantee the integrity of any reception of transmission operations during the registration process.

6.2.3 Service data setting

Service data

Service data

< 04 ↔ 06 >

#1 SSSW
(Service soft switch setting)

02
↑
↓
08
↓

Bit	7	6	5	4	3	2	1	0	
SW01	0	—	—	0	0	—	0	0	Error management
SW02	—	—	—	—	—	—	—	—	Not used
SW03	0	0	0	0	—	—	0	—	Echo solution setting
SW04	1	0	—	0	0	0	—	—	Communication trouble solution settings
SW05	—	—	—	0	0	—	—	—	Standard function (DIS signal) setting
SW06	—	—	—	1	—	0	—	—	Scan condition settings
SW07	—	—	—	—	—	—	—	—	Not used
SW08	—	—	—	—	—	—	—	—	Not used
SW09	—	—	—	—	—	0	0	0	Communications result display function settings
SW10	—	—	—	—	—	—	—	—	Not used
SW11	—	—	—	—	—	—	—	—	Not used
SW12	0	—	0	0	0	0	1	0	Page timer settings
SW13	—	—	—	—	—	—	—	—	Not used
SW14	—	—	—	—	—	—	—	—	Not used
SW15	—	—	—	—	—	—	—	—	Not used
SW16	—	—	—	—	—	—	—	—	Not used
SW17	—	—	—	—	—	—	—	—	Not used
SW18	—	—	—	—	—	—	—	—	Not used
SW19	—	—	—	—	—	—	—	—	Not used
SW20	—	—	—	—	—	—	—	—	Not used
SW21	—	—	—	—	—	—	—	—	Not used
SW22	—	—	—	—	—	—	—	—	Not used
SW23	—	—	—	—	—	—	—	—	Not used
SW24	—	—	—	—	—	—	—	—	Not used
SW25	—	—	—	—	—	—	0	0	Report display function settings
SW26	0	0	—	—	0	—	—	0	Transmission function settings
SW27	—	—	—	—	—	—	—	—	Not used
SW28	—	—	0	0	0	0	0	0	V.8/V.34 protocol settings
SW29	—	—	—	—	—	—	—	—	Not used
SW30	—	—	—	—	—	—	—	—	Not used

Figure 3-18 Service Data (page 1)



The switches marked “—” are not used. Do not change their settings.

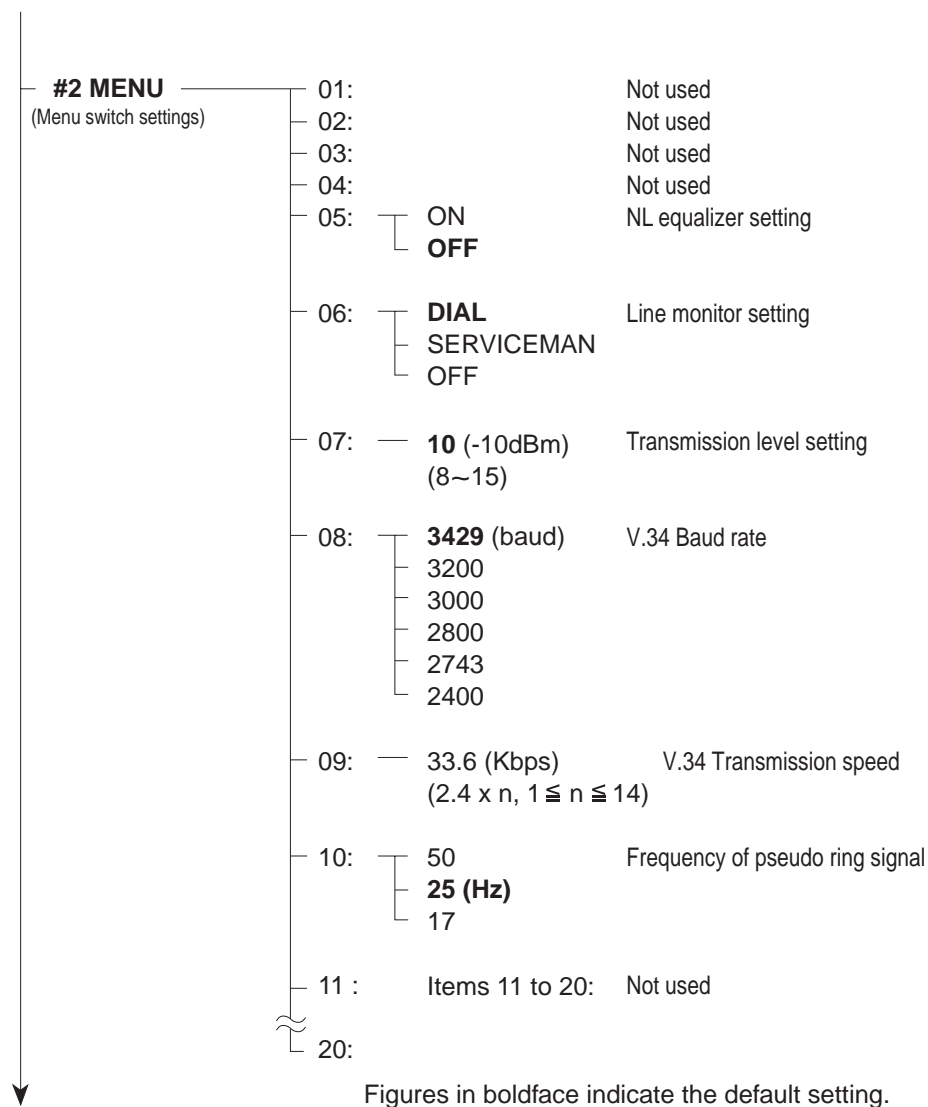


Figure 3-19 Service Data (page 2)



No. 01 to 04, 11 to 20 are not used. Do not change their settings.

#3 NUMERIC Param.

(Numeric parameter settings)

	Default	Range	
01:	0		Not used
02:—	10 (10%)	(1~99)	RTN signal transmission condition (1)
03:—	15 (15 lines)	(2~99)	RTN signal transmission condition (2)
04:—	12 (12 times)	(1~99)	RTN signal transmission condition (3)
05:	4		Not used
06:	4		Not used
07:	0		Not used
08:	0		Not used
09:—	6 (6 digits)	(1~20)	The number of digits in telephone number compared against TSI signal to be matched for restricted receiving function
10:—	5500 (55 seconds)	(0~9999)	Line connection detection time (T0 timer)
11:	3500 (35 seconds)	(0~9999)	T1 Timer (Rx)
12:	0		Not used
13:	1320 (13 seconds)	(0~9999)	Maximum time to receive oneline of image data
14:	0		Not used
15:—	120 (1200 ms)	(0~999)	Hooking detection time
16:—	4 (4 seconds)	(0~9)	Pseudo RBT transmission from CML on time until start
17:—	100 (1000 ms)	(0~999)	Pseudo RBT signal pattern: On time
18:—	0 (0 ms)	(0~999)	Pseudo RBT signal pattern: Off time (short)
19:—	200 (2000 ms)	(0~999)	Pseudo RBT signal pattern: Off time (long)
20:—	100 (1000 ms)	(0~999)	Pseudo ring pattern: On time setting
21:—	0 (0ms)	(0~999)	Pseudo ring pattern: Off time (short)
22:—	200 (2000 ms)	(0~999)	Pseudo ring pattern: Off time (long)
23:—	44	(Do not change)	FAX/TEL switching function signal detection level
24:—	20	(0~20)	Pseudo-RBT signal transmission level
25:—	60 (600 ms)	(0~999)	Answering machine connection function signal detection time
26:—	4 4	(Do not change)	Answering machine connection function no sound detection level
27:	0		Not used
28:	0		Not used
29:	0		Not used
30:	0		Not used

Figure 3-20 Service Data (page 3)

No. 01, 05 to 08, 12, 14, and 27 to 30 are not used. Do not change their settings.



NOTE

#3 NUMERIC PARAM. (Numeric parameter settings)

The relationship between the settings and the detection levels is as follows:

Parameter 24

0: Not used	1: Not used	2: Not used	3: Not used	4: Not used
5: -8 dBm	6: -9 dBm	7: -10 dBm	8: -11 dBm	9: -12 dBm
10: -13 dBm	11: -14 dBm	12: -15 dBm	13: -16 dBm	14: -17 dBm
15: -18 dBm	16: -19 dBm	17: -20 dBm	18: -21 dBm	19: -22 dBm
20: -23 dBm				

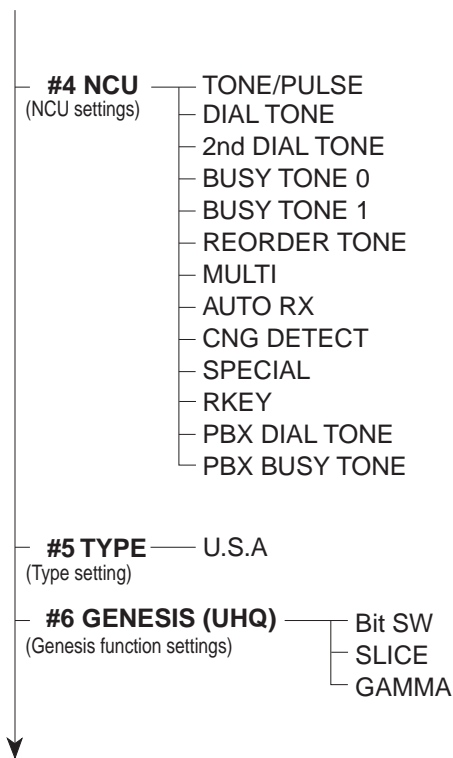


Figure 3-21 Service Data (page 4)



#4 NCU (NCU settings)

The values of these items are all set to match a specific nation's communications standards by the #5 TYPE setting. Do not change these setting.

#6 GENESIS (UHQ function settings)

Tampering with this setting may cause the scanned image quality to deteriorate. Do not change these settings.

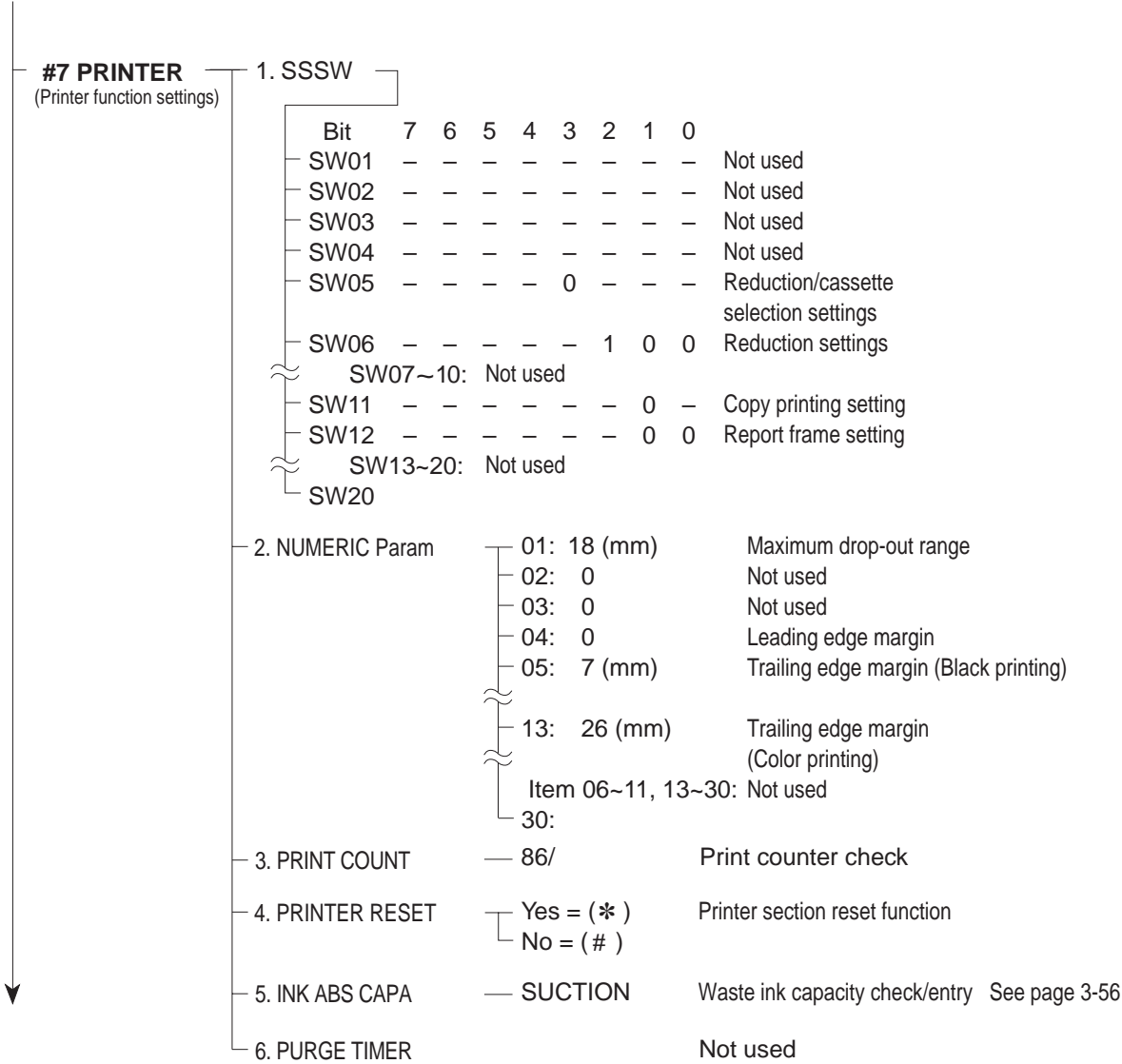


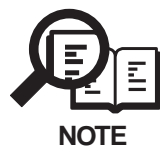
Figure 3-22 Service Data (page 5)



#7 PRINTER 6. PURGE TIMER is not used. Do not change this setting.

#8 CLEAR (Data initialization mode settings)	TEL	Dialling data initialization
	USER SW	User data and service data #1 to #3 initialization
	SERVICE SW	User data and service data #1 to #3 and #6 to #7 initialization
	NCU	#4 NCU setting data initialization
	SERVICE DATA	Data on system dump list initialization
	REPORT	Data on activity report initialization
	COUNTER	Total number of pages printed/scanned
#9 ROM (ROM management)	ALL	All user data, service data, activity management data, and image data initialization (except COUNTER)
	USA-03-01 000612 6131 FFFF	Version No. and Checksum display
TEST MODE	(See page 3-58)	

Figure 3-23 Service Data (page 6)



NOTE

If USER SW is selected from #8 CLEAR, the memory management of the user data is not cleared. If TEL or SERVICE SW is selected, the memory management of the user data is cleared.



REFERENCE

For details on test mode, see 7.2 *Service Test Functions on page 3-58*.

6.2.4 Explanation of service data

a) SSSW (Service Soft Switch settings)

The items registered and set by each of these switches comprise 8-bit switches. The figure below shows which numbers are assigned to which bits. Each bit has a value of either 0 or 1.

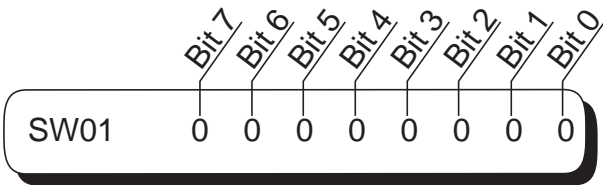


Figure 3-24 Bit Switch Display

See the chart in the service data shown in *this Chapter, 6.2.3 Service data setting* to see effective bits and their default values. The meanings (functions) of the bits are not described in this manual except the new switches added to this model. See *the G3 Facsimile Service Data Handbook (supplied separately)* for details of the switches. Below are examples showing how to read bit switch tables.

Bit	Function	Indicates that the setting is "1".		Indicates that the setting is "0".	
		1		0	
0	Service error code	Output		Not Output	
1	Error dump list	Output		Not Output	
2	Not used				
3	Copy function	No		Yes	
4	##300 series service error code	Output		Not Output	
5	Not used				
6	Not used				
7	User setting restriction	Setting possible		Setting restricted	

Figure 3-25 How to Read Bit Switch Tables

6.2.5 New SSSWs/parameters added to this model

#1 SSSW (service soft switch setting)

SW01 (service soft switch 01: error management)

Bit	Function	1	0
0	Service error code	Output	Not output
1	Error dump list	Output	Not output
2	Not used		
3	Copy function	No	Yes
4 (New)	##300 series service error code	Output	Not output
5	Not used		
6	Not used		
7	User setting restriction	Setting possible	Setting restricted

[Bit 4]

Even when Bit0 is set to "Not output", you can select whether or not to output ##300 series Service Error Codes, caused by hardware malfunction.

When "Output" is selected, ##300 series Service Error Codes are displayed and in reports.

When "Not Output" is selected, no Service Error Codes are displayed.

SW28 (service soft switch 28: V.8/V.34 protocol settings)

Bit	Function	1	0
0 (New)	Caller V.8 protocol	NO	YES
1 (New)	Called party V.8 protocol	NO	YES
2 (New)	Caller V.8 protocol late start	NO	YES
3 (New)	Called party V.8 protocol late start	NO	YES
4 (New)	V.34 reception fallback	Prohibited	Not prohibited
5	Not used		
6	Not used		
7	Not used		

[Bit 0]

Select whether to use the V.8 protocol when calling. If NO is selected, the V.8 protocol is inhibited at calling and the V.21 protocol is used.

[Bit 1]

Select whether to use the V.8 protocol when called. If NO is selected, the V.8 protocol is inhibited when called and the V.21 protocol is used.

[Bit 2]

If ANSam signal is not received during transmission (mainly manual transmission), select whether to use the V.8 protocol when the other fax machine declares the V.8 protocol in DIS signal. If NO is selected, the CI signal is not transmitted and the V.8 protocol is not used even if the DIS that specifies the V.8 protocol is received.

[Bit 3]

Select whether to declare the V.8 protocol in DIS signal for reception (mainly caller manual transmission). If NO is selected, the V.8 protocol cannot be used because it is not declared in DIS signal.

[Bit 4]

Select whether the receiver falls back during V.34 reception. If OFF is selected, the receiver does not fall back.

#2 MENU

No.	Function	Selection range	Default setting
08	V.34 max. baud rate	2400~3429	3429 (3429 baud)
09	V.34 max. transmission speed	2400~33600	33600 (33600 bps)

[No. 08]

Select the maximum baud rate for V.34 transmission: 3429, 3200, 3000, 2800, 2743, and 2400.



This model cannot use 2743 baud due to its modem specification. If it is set to 2743 baud, the maximum baud rate is 2400 baud.

NOTE

[No.09]

Select the maximum transmission speed for V.34 transmission: 2400 to 33600 bps ($2400 \times n$: $1 \leq n \leq 14$).

#3 NUMERIC PARAM (numeric parameter settings)

No.	Function	Selecting range	Default setting
10	T0 Timer	0~9999	5500 (55 second)
11	T1 Timer (Rx)	0~9999	3500 (35 second)
13	Maximum time to receive one line of image data	500~3000	1300 (13 second)

[Parameter 10]

The "wait time after transmission of a dialing signal ends until a significant signal is detected in transmission" was set as T1 timer with parameter 10.

However, ITU-T recommends that it should be set as T0 timer, so parameter 10 has been renamed to T0 timer and the default time-out time has been changed from 35 to 55 seconds.



The T1 timer for the transmitter (wait time after a CED, V21 flag, or ANSam significant signal is detected until the next significant signal is detected) is fixed at 35 seconds.

NOTE**[Parameter 11]**

Set the T1 timer for the receiver (wait time after DIS transmission starts until a significant signal is received).

If frequent errors occur during reception (2 instances) because of line connection conditions, raise the value of this parameter.

[Parameter 13]

Set the maximum time to receive one line of image data when image data is received.

If the other party is a computer fax and the time to receive one line of image data is long, raise the value of this parameter to increase the maximum reception (2 instances) time.

#7 PRINTER (printer function settings)**1. SSSW****SW12 (Switch 12: Report frame setting)**

Bit	Function	1	0
0	Report frame lines	OFF	ON
1	Report frame line types	Dashed line	Solid line
2	Not used		
3	Not used		
4	Not used		
5	Not used		
6	Not used		
7	Not used		

[Bit 0]

Select whether to draw a frame for printing a report or list.

[Bit 1]

If a frame is drawn for printing a report or list, either a solid line or a dashed line can be selected.

#7 PRINTER (printer function settings)

2. NUMERIC PARAM.

No.	Function	Selecting range	Default setting
05	Trailing edge margin for black&white copy & FAX	0 ~ 9999	7 (7 mm)
13	Trailing edge margin for color copy & color FAX	0 ~ 9999	26 (26 mm)

[Parameter 07]

Sets the bottom margin for B/W printing (Copy & Fax). This parameter also sets the margins when PRINT MARGIN in user data is set to SMALLER for color printing.

[Parameter 13]

Sets the bottom margin for color printing. The margin used when PRINT MARGIN in user data is set to NORMAL can be changed by this parameter when color printing. However, when the trailing edge of the recording paper passes through the pinch roller when the margins have been narrowed, there are cases where a small amount of color shift occurs at the bottom edge of the image.

5. INK ABS CAPA

This switch allows the waste ink capacity stored in the PCNT board to be checked or entered.

[SUCTION]

This allows the waste ink capacity for the ink absorbed during cleaning to be checked or entered. When entering the waste ink capacity, use the numeric buttons to enter a value 0 to 100 (%).



NOTE

The ink absorber's absorption capacity for the waste ink discharged by the BJ cartridge is set to a certain amount. The waste ink capacity settings are stored in the PCNT board's EEPROM. When replacing the PCNT board, check the waste ink capacity and enter the waste ink capacity into the new PCNT board.

The various waste ink capacity can be checked with the SYSTEM DUMP LIST.

7. TEST FUNCTIONS

7.1 User Test Print Functions

User enabled Test print functions are as follow.

7.1.1 Nozzle check

Execute cleaning if this test printing shows each nozzle condition such as no ejection, unclear or unstable etc. If the printing does not improve even after the cartridge is cleaned five times, replace the BJ cartridge or the ink cartridge. Press the **Function** button then press the **Cleaning** button, and select **"NOZZLE CHECK"** by the **Set** button.

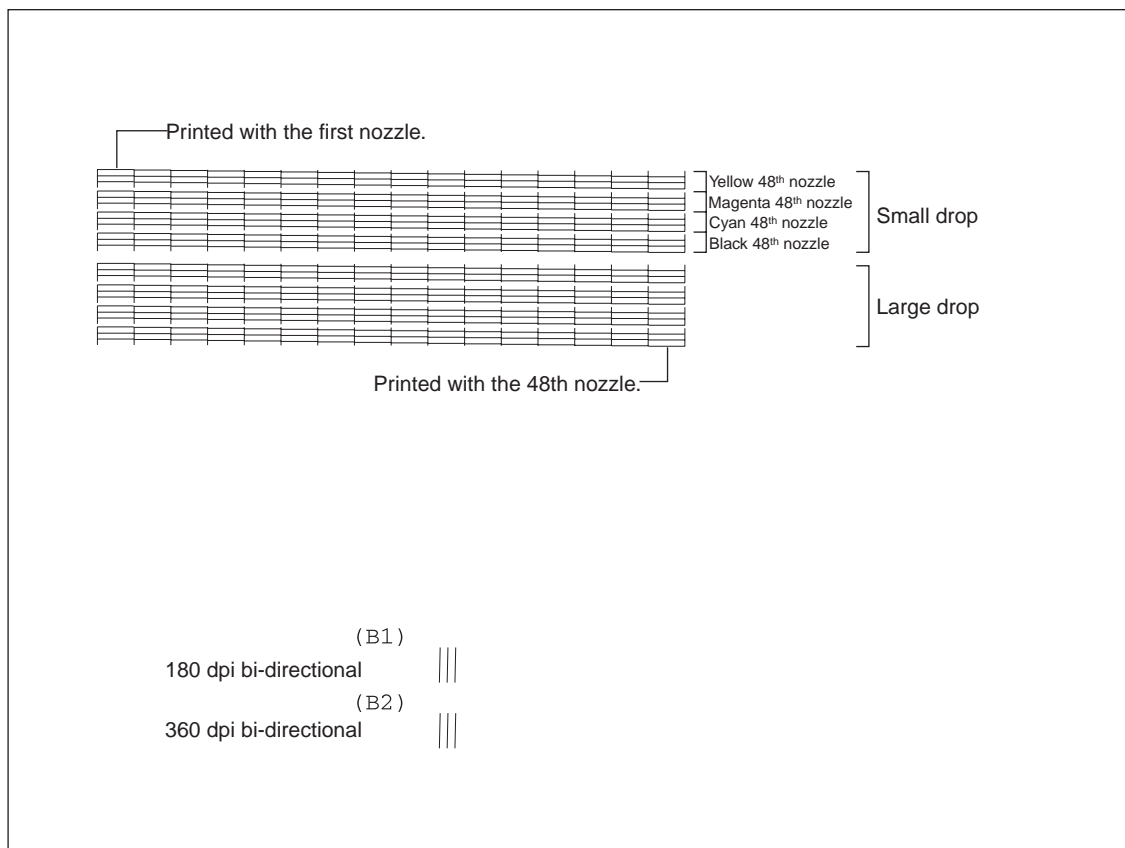


Figure 3-26 Nozzle Check Pattern Print

7.2 Service Test Functions

The fax functions for testing individual operations, such as below.

See *Page 3-44* for details of entering the test mode. To leave the test mode, press the **Function** button, and then **Clear** button.

7.2.1 Test mode overview

Test mode can be executed by following the menu items from the display.

a) DRAM tests

Writes data to DRAM image storage areas and reads that data to check operations.

b) CS test

CS test is used to enter the contact sensor's shading data.

c) Print test

Prints nine different patterns within the print area.

d) Modem, NCU tests

The frequency test and the G3 signal transmission and CNG signal and DTMF signals reception tests.

e) Faculty tests

Test the operation of operation panel and sensor functions.

f) Printer test

Test the operation of the printer functions.

7.2.2 Test mode flowchart

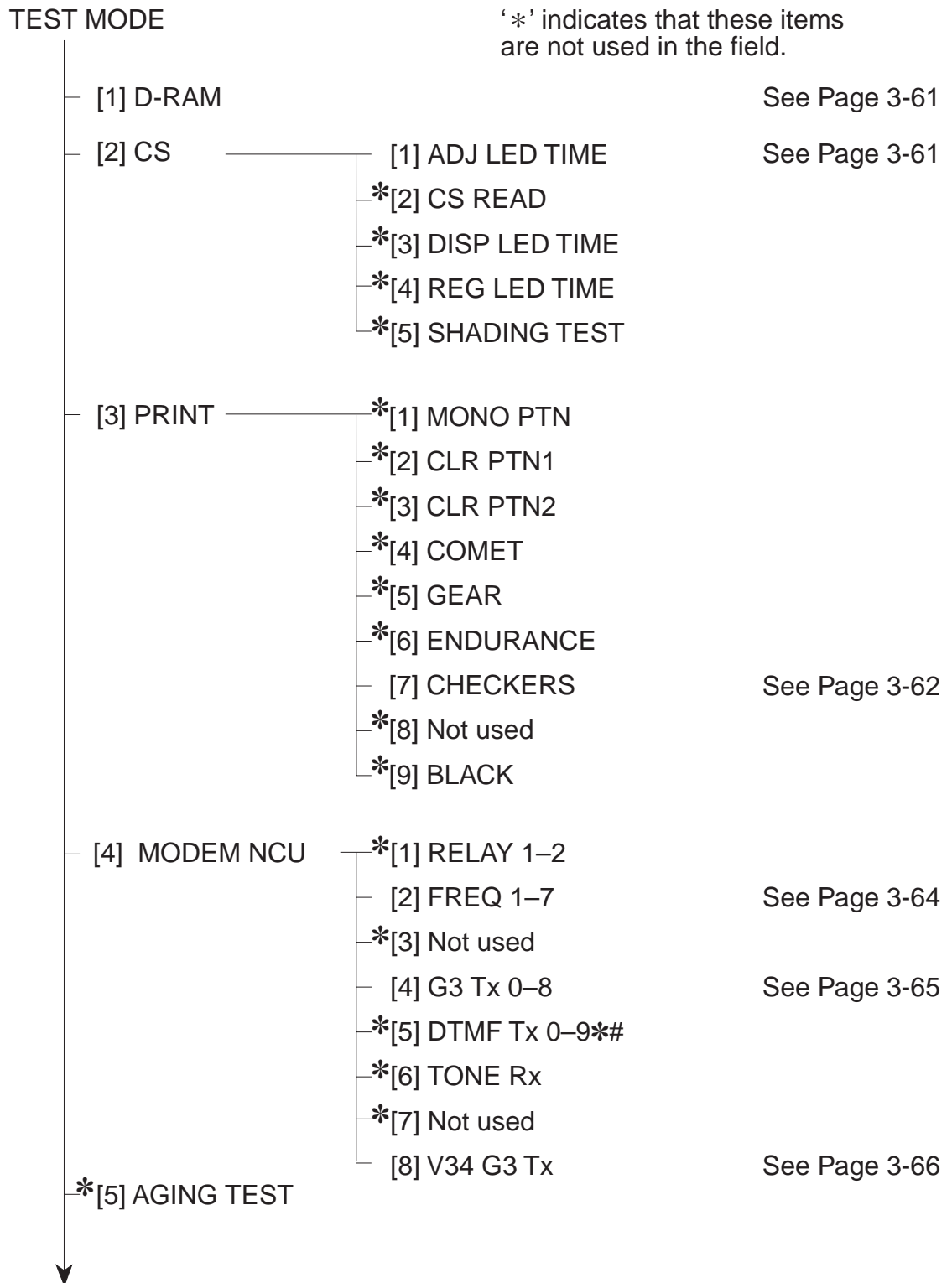


Figure 3-27 Test Mode

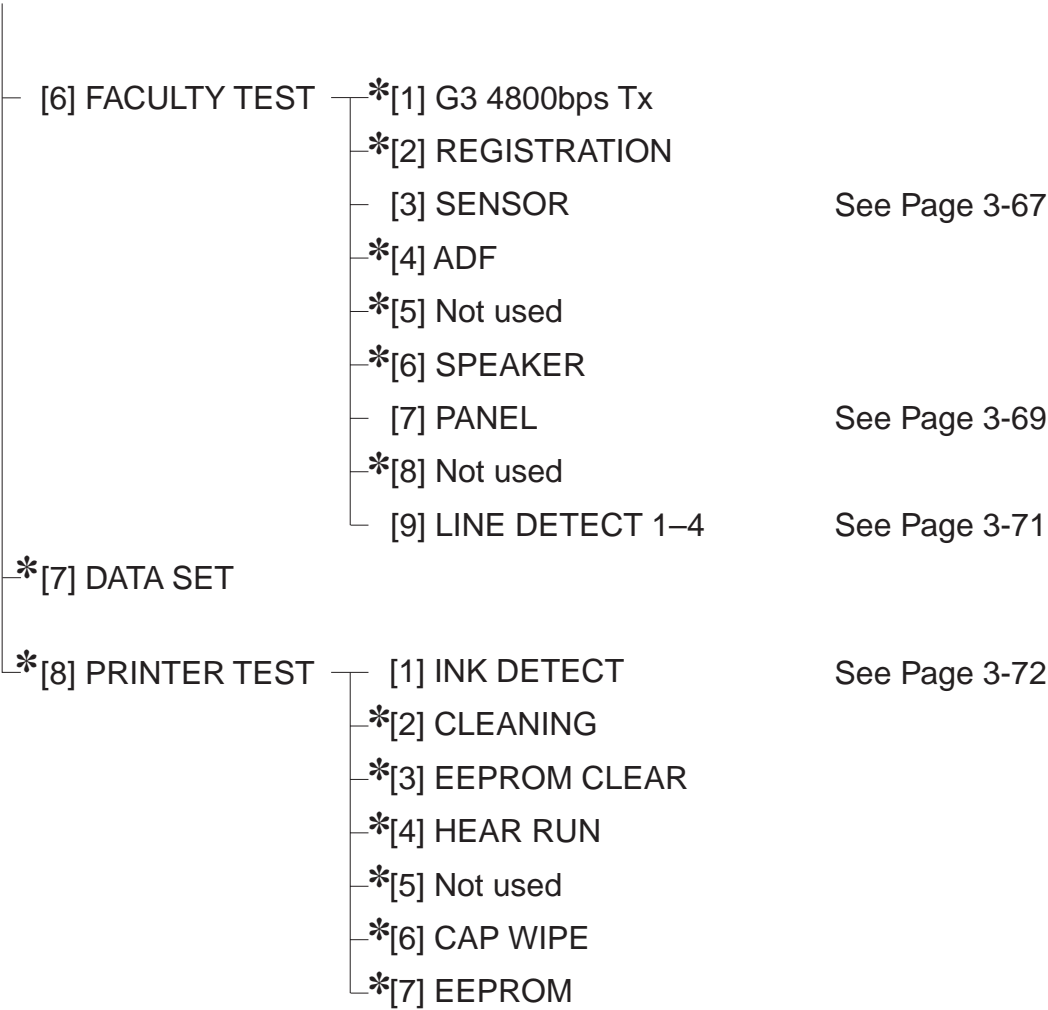
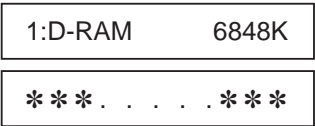


Figure 3-28 Test Mode

7.2.3 D-RAM tests

Pressing the 1 button from the test mode menu selects the D-RAM tests. D-RAM Test 1 writes data to the entire D-RAM region and reads it out to check that operations are correct. D-RAM Test 2 just reads data at high speed.
Replace the SCNT board if an error occur.

Operating



6848K: D-RAM total memory capacity (bytes)
* : Indicates an address for which write testing is complete.
. : Indicates an address for which read testing is complete.

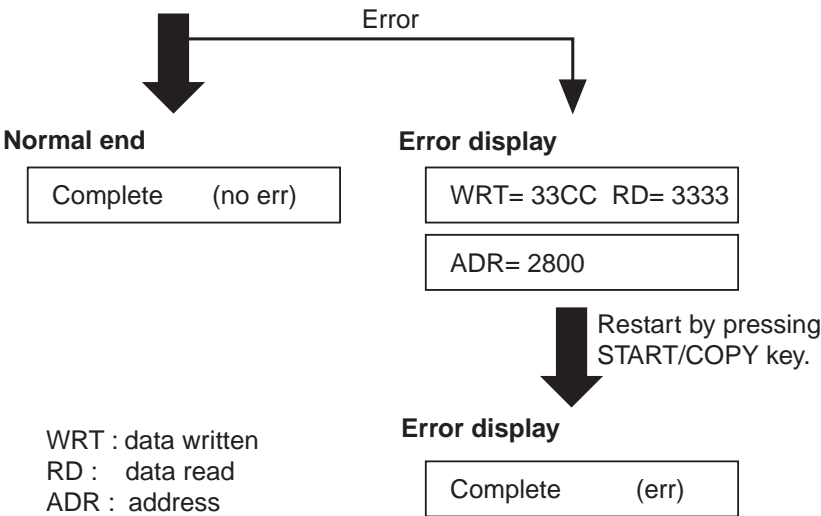


Figure 3-29 D-RAM Test

7.2.4 CS tests

Pressing the 2 button from the test mode menu selects the CS tests. **ADJ LED TIME** is used to adjust the CS LED lights-on duration and enter the contact sensor's shading data (pre-scan operation).



REFERENCE

Details on CS LED lights-on duration adjustment, see *3.1 CS LED Lights-on Duration Adjustment on page 3-6*.
Tests [2], [3], [4] and Tests [5] are not used in the field.

7.2.5 PRINT test

Pressing the **3** button from the test mode menu selects the print test. This test prints various patterns. For servicing, use the 3-7: CHECKERS pattern (press the **7** button from the print test menu). The other patterns are not to be used since they are for development and factory personnel. End this test by pressing the **Stop** button. Refer to page 3-32 if blank ink appear, etc occur.

Check the pattern for the following:

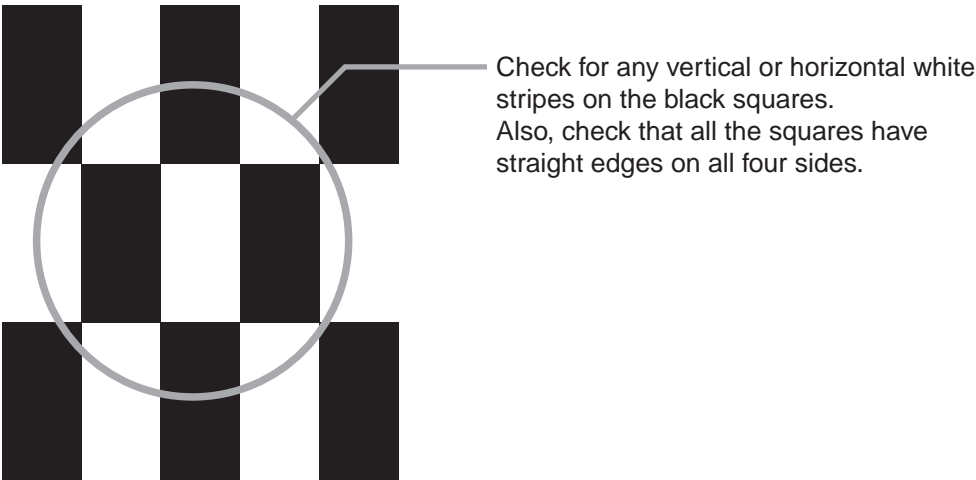


Figure 3-30 Print Test Pattern Check



NOTE

If the print test is normal, make a copy of a document. If the copy is faulty, the reading section is faulty.



Please do not select the following menus:

3-1: MONO PTN. 3-2: CLR PTN. 3-3: CLR PTN2

If a mistake is made and these menus are selected, the value of **#7 PRINTER 5. INK ABS CAPA** will be reset to 0%, so it will be necessary to re-register. Check the value of LostInkCount. printed on the top of each test pattern, and register this value in **#7 PRINTER 5. INK ABS CAPA**. If the absorption amount has been forgotten, replace the waste ink absorber and set to 0%

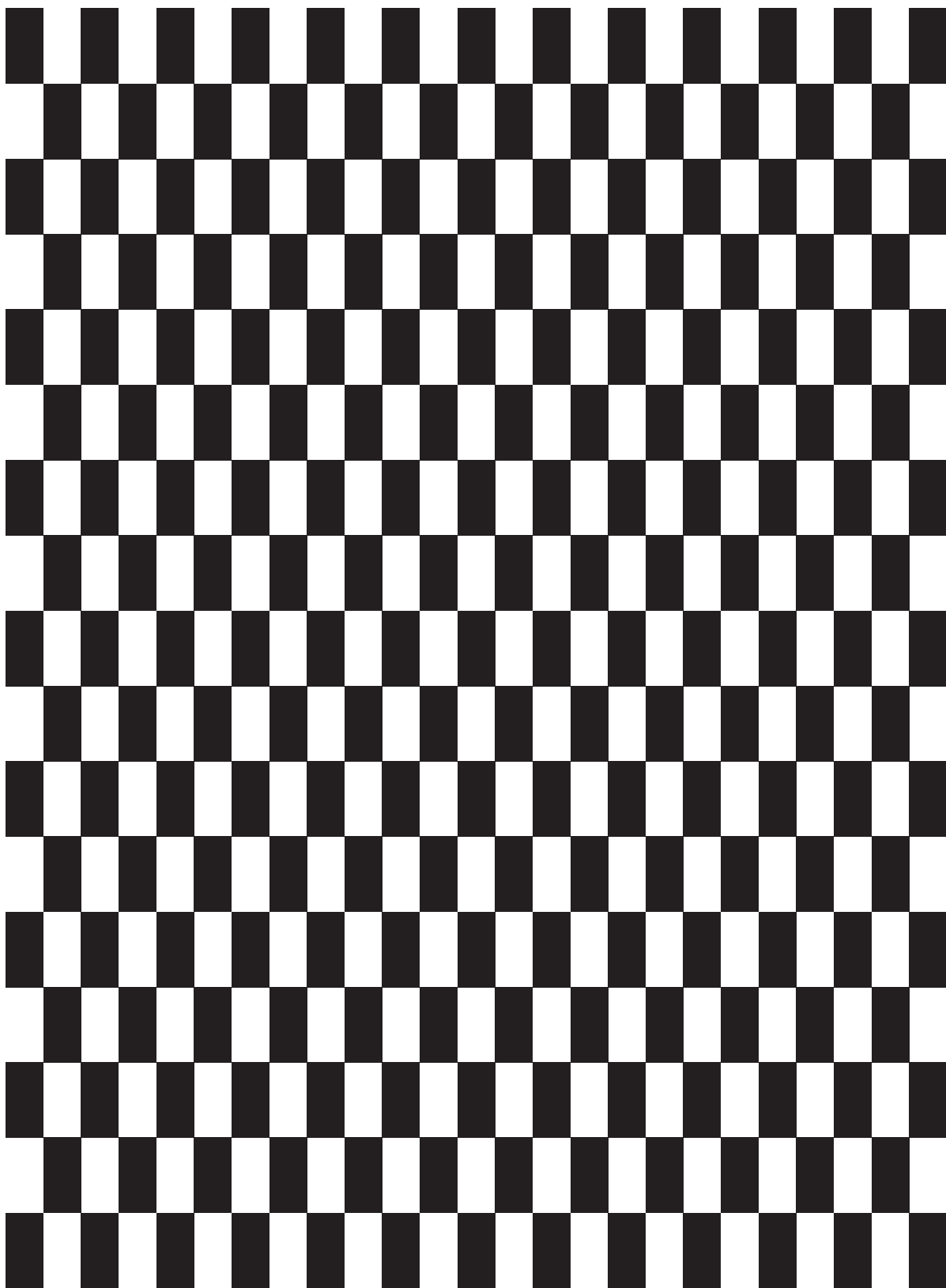


Figure 3-31 Print Pattern Sample

7.2.6 Modem and NCU tests

These tests test modem and NCU transmission and reception. The modem tests check whether signals are sent correctly from the modem by comparing the sound of the signals from the speaker with the sounds from a normal modem. Also, you check on the display whether or not the modem correctly detected received tone signals and DTMF signals.

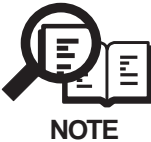
End this test by pressing the **STOP** button.

Modem test type	Overview
Frequency test	The modem sends tone signals from the modular jack and the speaker.
G3 signal transmission test	The modem sends G3 signals from the modular jack and the speaker.
V34 signal transmission test	The V.34 modem sends G3 signals from the modular jack and the speaker

a) Frequency test

The frequency test menu is selected by pressing the **2** button from the MODEM NCU test menu. Signals of the frequencies below are sent from the modem using the modular jack and the speaker. The frequency can be changed with the numeric buttons.

Numeric button	Frequency
1	462 Hz
2	1100 Hz
3	1300 Hz
4	1500 Hz
5	1650 Hz
6	1850 Hz
7	2100 Hz



The transmission levels for each frequency follow the service data transmission level settings.

b) G3 signal transmission test

The G3 signal transmission test menu is selected by pressing the **4** button from the MODEM NCU test menu. The G3 signals below are sent from the modem using the modular jack and the speaker. The frequency can be changed with the numeric buttons.

Numeric button	Frequency
0	300 bps
1	2400 bps
2	4800 bps
3	7200 bps
4	9600 bps
5	TC7200 bps
6	TC9600 bps
7	12000 bps
8	14400 bps

**NOTE**

The transmission level for each frequency follows the service data.

c) V.34 G3 signal transmission test

The V.34 G3 signal transmission test menu is selected by pressing the 8 key from the MODEM NCU test menu. The V.34 G3 signals below are sent from the modem using the modular jack and the speaker by pressing the start key.

The Baud rate can be changed with the numeric keys, and the Speed can be changed with the search keys.

Numeric key	Baud rate
0	3429 baud
1	3200 baud
2	3000 baud
3	2800 baud
4	2743 baud (Not used)
5	2400 baud

Search key	Speed
Λ	2400 bps–2.4 kbps
	4800 bps–4.8 kbps
	7200 bps–7.2 kbps
	9600 bps–9.6 kbps
	12000 bps–12.0 kbps
	14400 bps–14.4 kbps
	16800 bps–16.8 kbps
	19200 bps–19.2 kbps
V	21600 bps–21.6 kbps
	24000 bps–24.0 kbps
	26400 bps–26.4 kbps
	28800 bps–28.8 kbps
	31200 bps–31.2 kbps
	33600 bps–33.6 kbps



NOTE

The transmission level for each frequency follows the service data.

7.2.7 Faculty tests

The faculty tests are selected by pressing the **6** button from the test mode menu. These tests test the following faculties of this fax.

Test type	Overview
Sensor tests	Test whether the sensors are operating correctly.
Operation panel test	Tests whether the button switches on the control panel are operating correctly.
Line signal reception test	Tests whether the NCU board signal sensor and frequency counter are operating correctly.

a) Sensor tests

The sensor test is selected by pressing the **3** button from the faculty test menu. In this test, you can check the status of each sensor of this fax in item 1 on the display.

You can also check if sensors that use actuators and microswitches are operating correctly by moving the actuator or microswitch. (See page 3-33 Faulty scanner unit's sensors.)



NOTE

The sensor tests cannot be used to test all of the sensors. The following sensors cannot be tested with the sensor tests:

Home position sensor, pickup roller sensor, cover sensor, and ink detection sensor.

If any of these sensor are faulty, an error message or service error code will appear to indicate the faulty sensor.

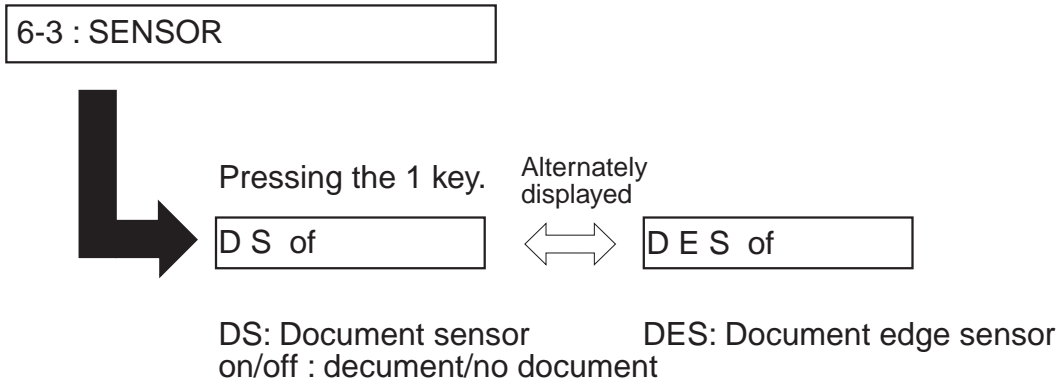


Figure 3-32 Sensor Tests

b) Operation panel tests

The operation panel test is selected by pressing the **7** button from the faculty test menu. In this test, check that the display, LED lamps, and buttons on the control panel are operating correctly.

b-1) Display test

Pressing the **Start** button from the control panel menu, "**H**" is displayed 16 characters by 1 line on the display. The next time the **Start** button is pressed, all the LCD dots on the display are displayed. Check for any LCD dots in the display that are not displayed.

b-2) LED lamp test

The LED lamp test is selected by pressing the **Start** button after the display test.

When the **Start** button is pressed, all the lamps on the control panel light. Check for any LED that does not light during the test.

b-3) Operation button test

The Operation button test is selected by pressing the **Start** button after the LED lamp test.

In this test, you press the button corresponding to the displayed character to put it out. The table giving the correspondence between the characters and the buttons is below.

Character	Operation button
1-#	Numeric buttons
R	Redial/Pause button
D	Coded dial button
L	Color/B&W button
\$	Resolution button
&	Receive Mode button
C	Copy button
O	Hook button
F	Function button
E	Set button
M	Resume button

When all the characters displayed have gone out, the system next starts the one-touch speed dialing button test. The letters a-l are displayed on the display, corresponding to one-touch speed dialing buttons 01-12. Each letter displayed on the display goes out when its corresponding one-touch speed dialing button is pressed.

In this test, check for operation buttons whose corresponding character or letter does not go out when the button is pressed. (See page 3-30 The buttons do not work.)

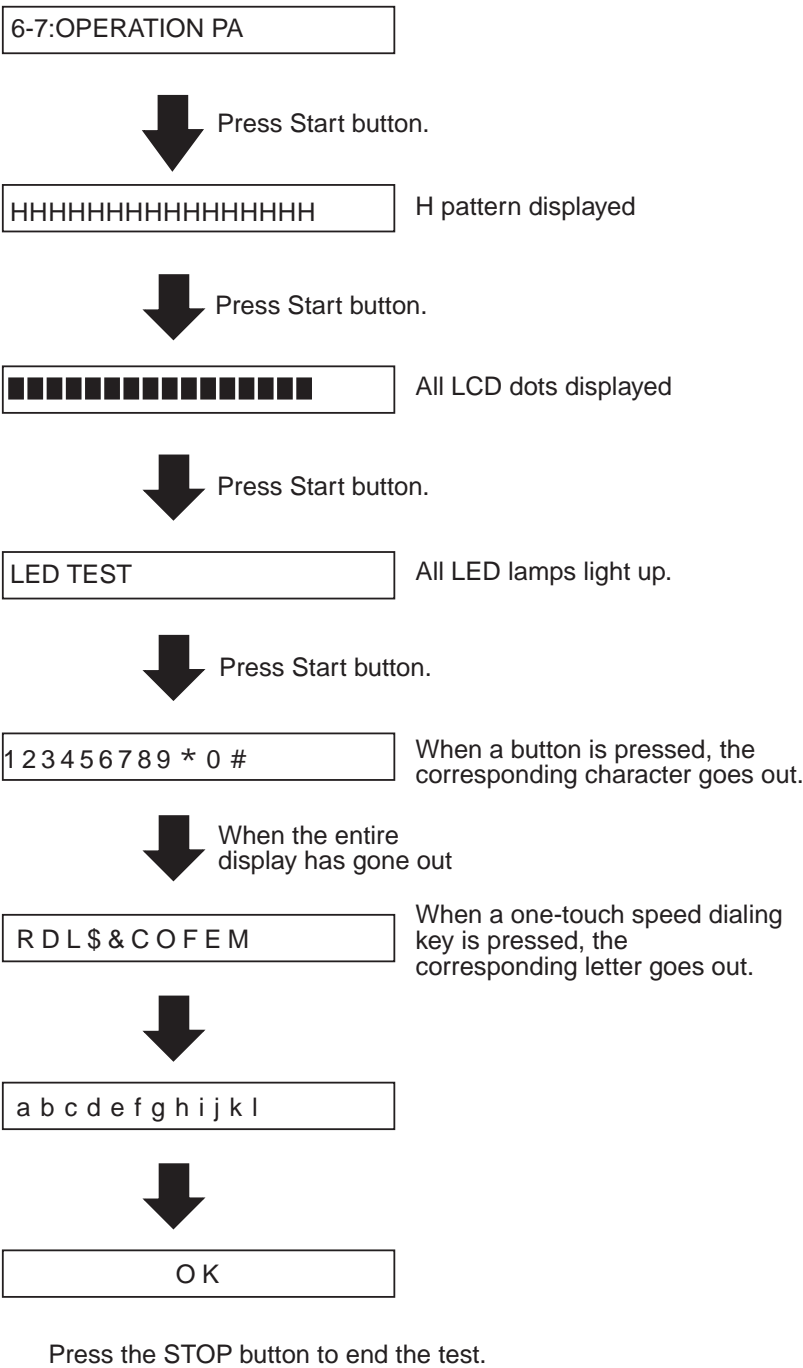


Figure 3-33 Operation Panel

c) Line signal reception test

The line detect test menu is selected by pressing the **9** button from the faculty test menu. This test checks the operation of the NCU signal sensor and frequency counter. In Menu 1, the CI, status can be detected and in Menu 2 the frequency can be detected at changing detection levels. In this way, you can check if the NCU board is correctly detecting signals.

c-1) Test Menu 1

Test Menu 1 is selected by pressing the **1** button from the Line Detect menu. When CI, and CNG are detected from the modular jack, the display changes from OFF to ON and the received frequency is displayed.

c-2) Test Menu 2

Test Menu 2 is selected by pressing the **2** button from the Line Detect menu. When a tonal frequency is detected from the modular jack, the display changes from OFF to ON and the received frequency is displayed. The frequency detection level can be set with the numeric buttons.

Numeric button	Detection level (dBm)
0	-26
1	-30
2	-32
3	-35
4	-38
5	-41
6	-43
7	-45
8	-47
9	-51

c-3) Test Menu 3

Test Menu 3 is selected by pressing the **3** button from the Line Detect menu. When CNG is detected from the modular jack, the display changes from OFF to ON.

c-4) Test Menu 4

This item is not used. Do not select it.

7.2.8 Printer test

Press key “8” on the keypad in the test mode menu, and select Printer test.
After that, select “1.”
When this function is selected, the printer scans the carriage and detects the presence/absence of ink. It then prints the results.
The normal use of the ink sensor can be checked by using this function.
(1) Equip the the BJ cartridge with an empty ink cartridge.
(2) Print out using this function.
(3) Check that the value for “**ExisInk**” is “0,” the proper value for empty ink.

If the value displayed for the empty ink under “**ExisInk**” is “1,” perform the following troubleshooting procedures.
(1) Check the connection between the ink sensor and the PCNT board.
(2) Replace the ink sensor.
(3) Replace the PCNT board.

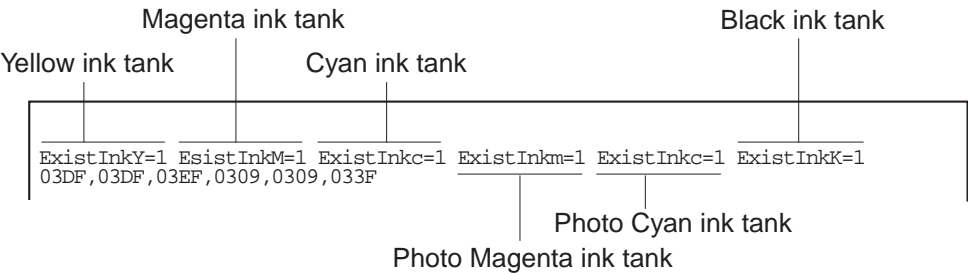


Figure 3-34 Ink Check



NOTE

Tests 2-5 are not used in the PRINTER test in the field.

8. SERVICE REPORT

8.1 Report Output Function

8.1.1 User report output functions

The fax can output user reports manually by user operation, or automatically, according to user data settings.

a) Manual output of reports by user operation

Report type	Operations
SPEED DIAL LIST	
One-touch dial list	Press Function button, press Report button, then select the report type, and press Set button.
Document memory list	
Activity Report	

b) Reports output automatically by user data settings

Each report written below can be automatically output by specifying “**REPORT SETTINGS**” in user data.

Transmission (TX) reports
 Error TX report
 TX report
 TX report with first page
 Reception (RX) reports
 Error RX report
 RX report
 Multi-Transaction (TX/RX) report
 Activity report



NOTE

ROM Version display

The ROM version is printed on the top left hand side of the User's data list. Please refer to this when troubleshooting.

example:

USA XX-XX / X.XX

Printer ROM version

MAIN-ROM-version

c) Reports output automatically

Memory clear report

The fax automatically outputs a memory clear report when the power is turned on after a power cut.

06/17/1999 13:13 FAX 1234567890

Canon Inc.

001

*** MEMORY CLEAR REPORT ***

MEMORY FILES DELETED

TX/RX NO	MODE	CONNECTION TEL/ID	PGS.	SET TIME
0008	B'CAST	[01]Canon UK [02]Canon France [03]Canon USA	1	06/17 13:08
0009	TRANSMIT	[03]Canon USA	2	06/17 13:09
5002	AUTO RX COL	0123456789	1	06/17 13:11

Figure 3-35 Memory Clear List

- TX/RX NO

MODE

CONNECTION TEL

PAGES

SET TIME
- : Indicates four digits of the transaction number

: Indicates, TRANSMIT, or AUTO RX or B'CAST (Broadcast) and COL (Color)

: Number sent from the other party or number dialled

: Number of pages are stored in memory

: Time when data is stored in memory

8.1.2 Service report output functions

The fax outputs service data setting status, past communications history reports.

a) List of service reports

The fax outputs the service reports shown below.

Report type	Operations
1. System data list	In the service mode, press the Report button then select the report type, and press the Set button.
2. System dump list	
3. System data list & System dump list	
Service activity report (with service error code and dump list)	If you set bits 0 and 1 of #1 SSSW SW01 in the service mode, the service error code and dump list are indicated on the activity report (sending/receiving).

a-1) System data list

This list shows service data #1~#5, #7, #9 setting statuses.
The following is a sample list.

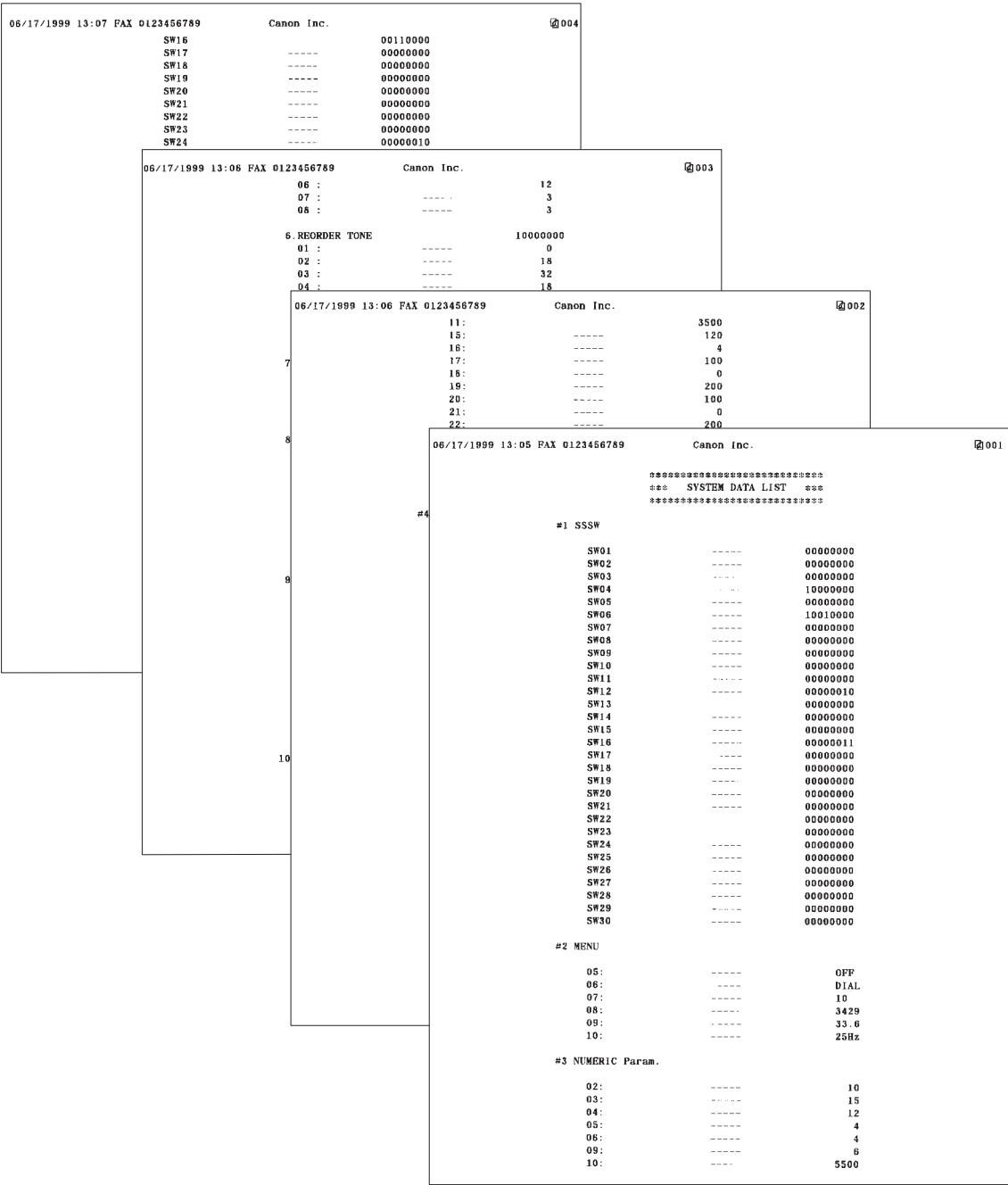


Figure 3-36 System Data List (page 1 ~ page 4)

06/17/1999 13:07 FAX 0123456789			Canon Inc.	005
46 :	----	0		
47 :	----	10		
48 :	----	50		
49 :	----	0		
50 :	----	0		

06/17/1999 13:08 FAX 0123456789			Canon Inc.	006
06 :	----	49		
07 :	----	45		
08 :	----	90		
09 :	----	50		
10 :	----	3		
11 :	----	0		
12 :	----	0		
13 :	----	21		
14 :	----	30		
15 :	----	30		
16 :	----	30		
17 :	----	0		
18 :	----	0		
19 :	----	0		
20 :	----	0		
21 :	----	0		
22 :	----	0		
23 :	----	0		
24 :	----	1		
25 :	----	1		
26 :	----	30		
27 :	----	0		
28 :	----	0		
29 :	----	0		
30 :	----	0		
#9 ROM		USA-06-05		
VERSION				
START DATE				
DATE		----	05/20/1999	

Figure 3-37 System Data List (page 5 ~ page 6)



NOTE

“START DATE” records the date when the fax performs its first transmission, after shipment from the factory.

a-2) System dump list

This list shows the past communications statuses and error communications history.
The following is a sample list.

06/17/1999 13:15 FAX 0123456789				Canon Inc.				001	
CLEAR DATE		06/03/1999							
TX	=	1							
A4	=	1	B4	=	0	A3	=	0	
RX	=	7							
A4	=	8	B4	=	0	A3	=	0	LTR = 0 LGL = 0
33600	=	0	31200	=	0	28800	=	0	26400 = 0 24000 = 0
21600	=	0	19200	=	0	16800	=	0	14400 = 0 12000 = 0
9600	=	0	7200	=	0	4800	=	0	2400 = 0
14400	=	7	12000	=	1	TC9600	=	0	TC7200= 0
14400	=	0	12000	=	0				
9600	=	0	7200	=	0	4800	=	0	2400 = 1
STD	=	4	FINE	=	5	SUPER	=	0	ULTRA = 0
MH	=	0	MR	=	0	MMR	=	0	JBIG = 6 JPEG = 3
G3	=	0	ECM	=	9				
PRINT	=	83 / 83				READ	=	44 / 44	
INK ABSORBER CAPACITY									
SUCTION		=	0%						
#000		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0					

Figure 3-38 System Dump List (1/2)

CLEAR DATE : Date on which data was initialized with service data #8 CLEAR, ALL

RX/TX : Total number of receptions/transmissions

A4/B4/A3/LTR/LGL : Total number of pages transmitted and received for each document size

33600 bps~2400 bps : Total number of pages transmitted and received for each modem speed

STD/FINE/SUPER/ULTRA : Total number of pages transmitted and received for each mode

MH/MR/MMR/JBIG/JPEG : Total number of pages transmitted and received for each coding method

G3/ECM : Total number of pages transmitted and received in each mode

PRINT/READ : Total number of pages printed/scanned

[Display example]

PRINT = 30*/100** READ = 30*/100**

* Indicates the value input with Service Data #8 CLEAR, COUNTER.

** Indicates the value counted since shipment from the factory.

INK ABSORBER CAPACITY : Waste ink absorber's ink absorption amount

[Display example]

Suction = 10%

These indicate the following:

The suction waste ink absorber's ink absorption amount is 10%.

#000~##750

[Display example] : Total number of occurrences for each error code

##280	1	7	3	0	0
	##280	##281	##282		
	errors	errors	errors		

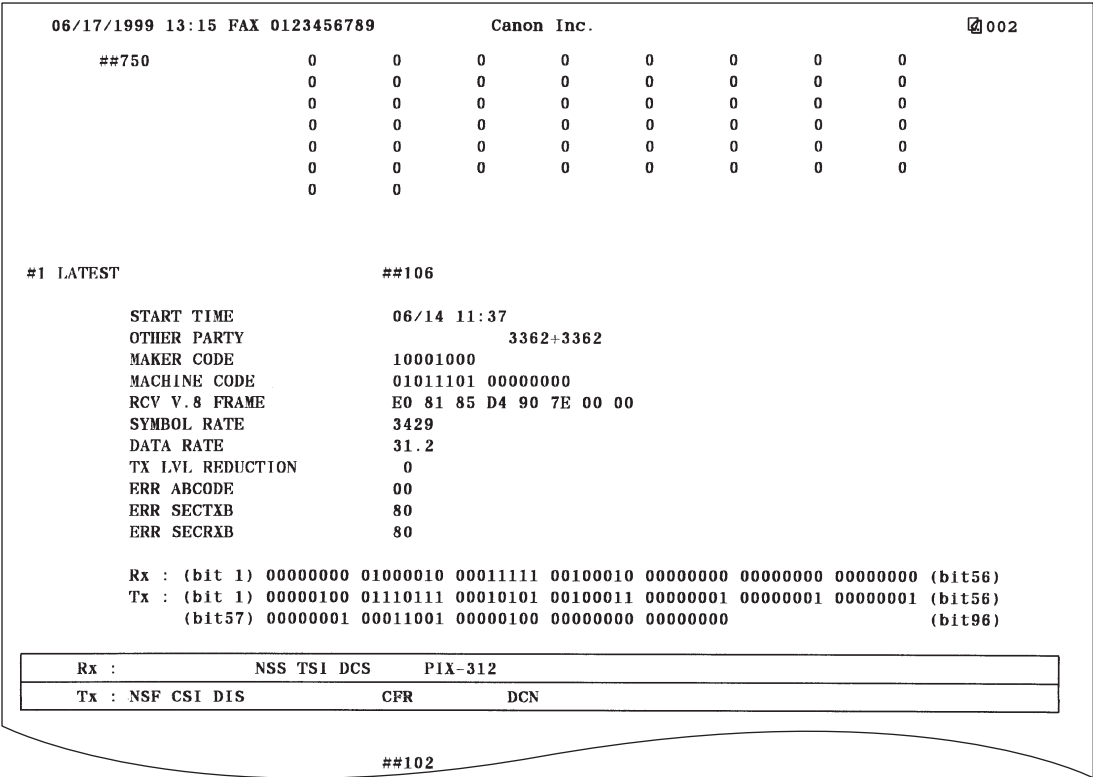


Figure 3-39 System Dump List (2/2)

- ##nnn : Service error code
- START TIME : Communication start date and time (on 24 hour clock)
- OTHER PARTY : Telephone number sent from other party
- MAKER CODE : Maker code
- [1000 1000] Indicates a Canon fax
- lower nibble
- upper nibble
- RCV V.8 FRAME : Received V.8 protocol signal
- SYMBOL RATE : Symbol rate used for the primary channel
- TX LVL REDUCTION : 0 (Fixed)
- ERR ABCODE : Code output by the modem when an error occurred (Not used in the field)
- ERR SECTXB : Transmit status of the modem when an error occurred (Not used in the field)
- ERR SECRXB : Received status of the modem when an error occurred (Not used in the field)
- RX/TX : Received/transmitted protocol signal
- bit 1 to bit 96 of received/transmitted DIS, DCS, or DTS



NOTE

If no service errors have occurred in the past, the above report will not be output.

a-3) Service activity report (sending/receiving)

06/17/1999 12:54 FAX +3364 3364 001

 *** ERROR TX REPORT ***

TX FUNCTION WAS NOT COMPLETED

TX/RX NO	0035	
CONNECTION TEL		3361
CONNECTION ID	AA	
ST. TIME	06/17 12:54	
USAGE T	00'22	
PGS. SENT	0	
RESULT	NG	##755

START TIME	06/17 12:54	
OTHER PARTY		3361
MAKER CODE	10001000	
MACHINE CODE	10101010 00000000	
RCV V.8 FRAME	E0 81 85 D4 90 7E 00 00	
SYMBOL RATE	3429	
DATA RATE	28.8	

Figure 3-40 Service Error Tx Report

Header	: OK, NG messages
TX/RX NO	: Indicates four digits of the transaction number
CONNECTION TEL (OTHER PARTY)	: Number sent from the other party or number dialled (lower 20 digits)
SUBADDRESS	: Subaddress number sent from the other party
CONNECTION ID	: ID sent from the other party, if the other party is a Canon fax
START TIME	: Communication start date and time (on 24-hour display)
USAGE TIME	: Communication time (in minutes and seconds)
PAGES	: Number of pages for which transmission was complete (For details, see <i>User's manual</i>)
RESULT	: "NG" display with number of pages for which transmission was fault, and service error code
MAKER CODE	: Maker code <div style="margin-left: 40px;"> <div style="display: inline-block; text-align: center; vertical-align: middle;"> <div style="border-top: 1px solid black; width: 40px; margin: 0 auto;"></div> <div style="border-top: 1px solid black; width: 40px; margin: 0 auto;"></div> </div> <div style="display: inline-block; vertical-align: middle; margin-left: 10px;"> [1000 1000] Indicates a Canon fax lower nibble upper nibble </div> </div>
RCV V.8 FRAME	: Received V.8 protocol signal
SYMBOL RATE	: Symbol rate used for the primary channel
TX LVL REDUCTION	: 0 (Fixed)
ERR ABCODE	: Code output by the modem when an error occurred (Not used in the field)
ERR SECTXB	: Transmit status of the modem when an error occurred (Not used in the field)
ERR SECRXB	: Received status of the modem when an error occurred (Not used in the field)
RX/TX	: Received/transmitted protocol signal bit 1 to bit 96 of received/transmitted DIS, DCS, or DTS



NOTE

The V.8/V.34-related items (RCV V.8 FRAME to ERR SECRXB) are not printed on the Notmal G3 Service Activity Report.

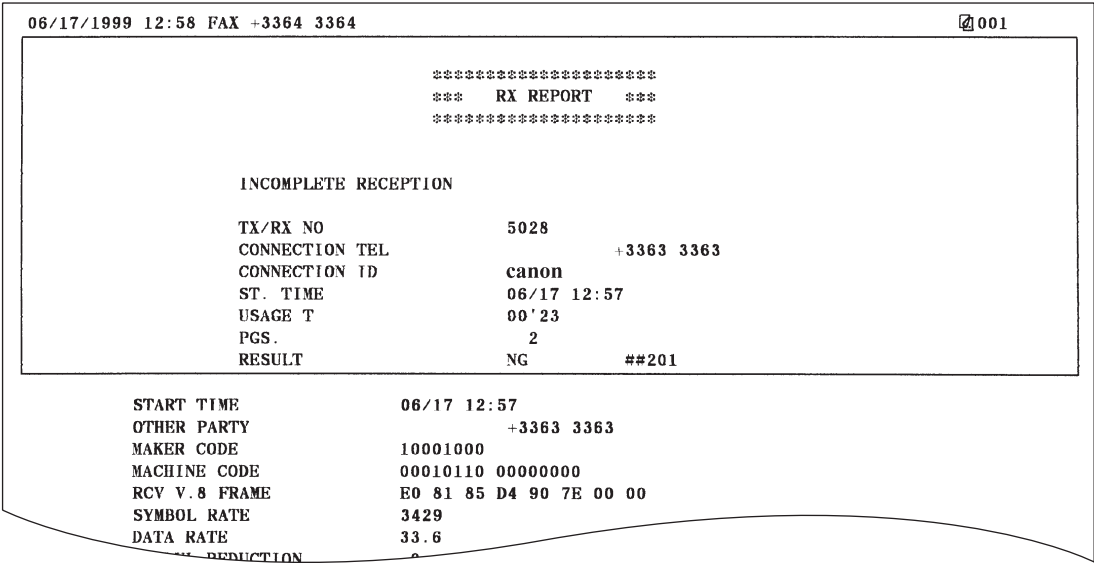


Figure 3-41 Service Error Activity Report (receiving)

- Header : OK, NG messages
- TX/RX NO : Indicates four digits of the transaction number
- CONNECTION TEL : Number sent from the other party or number dialed
(OTHER PARTY) (lower 20 digits)
- SUBADDRESS : Subaddress number sent from the other party
- CONNECTION ID : ID sent from the other party, if the other party is a Canon fax
- START TIME : Communication start date time (on 24-hour display)
- USAGE TIME : Communication time (in minutes and seconds)
- PAGES : Number of pages for which transmission was complete
(For details, see *User's manual*)
- RESULT : “NG” display with number of pages for which
transmission was fault, and service error code
- MAKER CODE : Maker code
[1000 1000] Indicates a Canon fax
 lower nibble
 upper nibble
- RCV V.8 FRAME : Received V.8 protocol signal
- SYMBOL RATE : Symbol rate used for the primary channel
- DATA RATE : Transmission speed used for the primary channel
- TX LVL REDUCTION : 0 (Fixed)
- ERR ABCODE : Code output by the modem when an error occurred (Not used in the field)
- ERR SECTXB : Transmit status of the modem when an error occurred
(Not used in the field)
- ERR SECRXB : Receive status of the modem when an error occurred
(Not used in the field)
- RX/TX : Received/transmitted protocol signal
bit 1 to bit 96 of received/transmitted DIS, DCS, or DTS



The V.8/V.34-related items (RCV V.8 FRAME to ERR SECRXB) are not printed on the Normal G3 Service Activity Report.

NOTE

9. WIRING DIAGRAM

9.1 Wiring Diagram

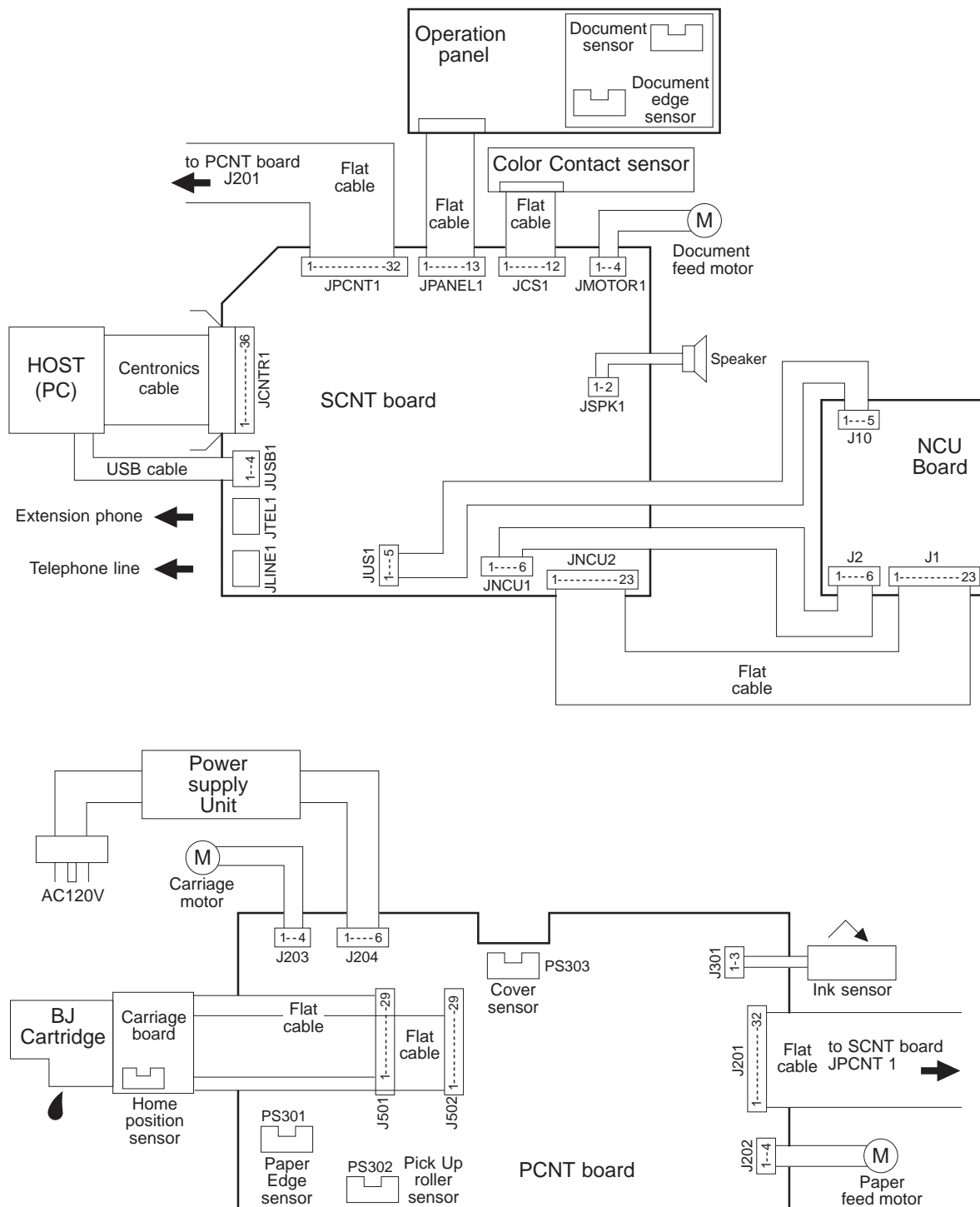


Figure 3-42 Wiring Diagram

10. BLOCK DIAGRAM

10.1 Block Diagram

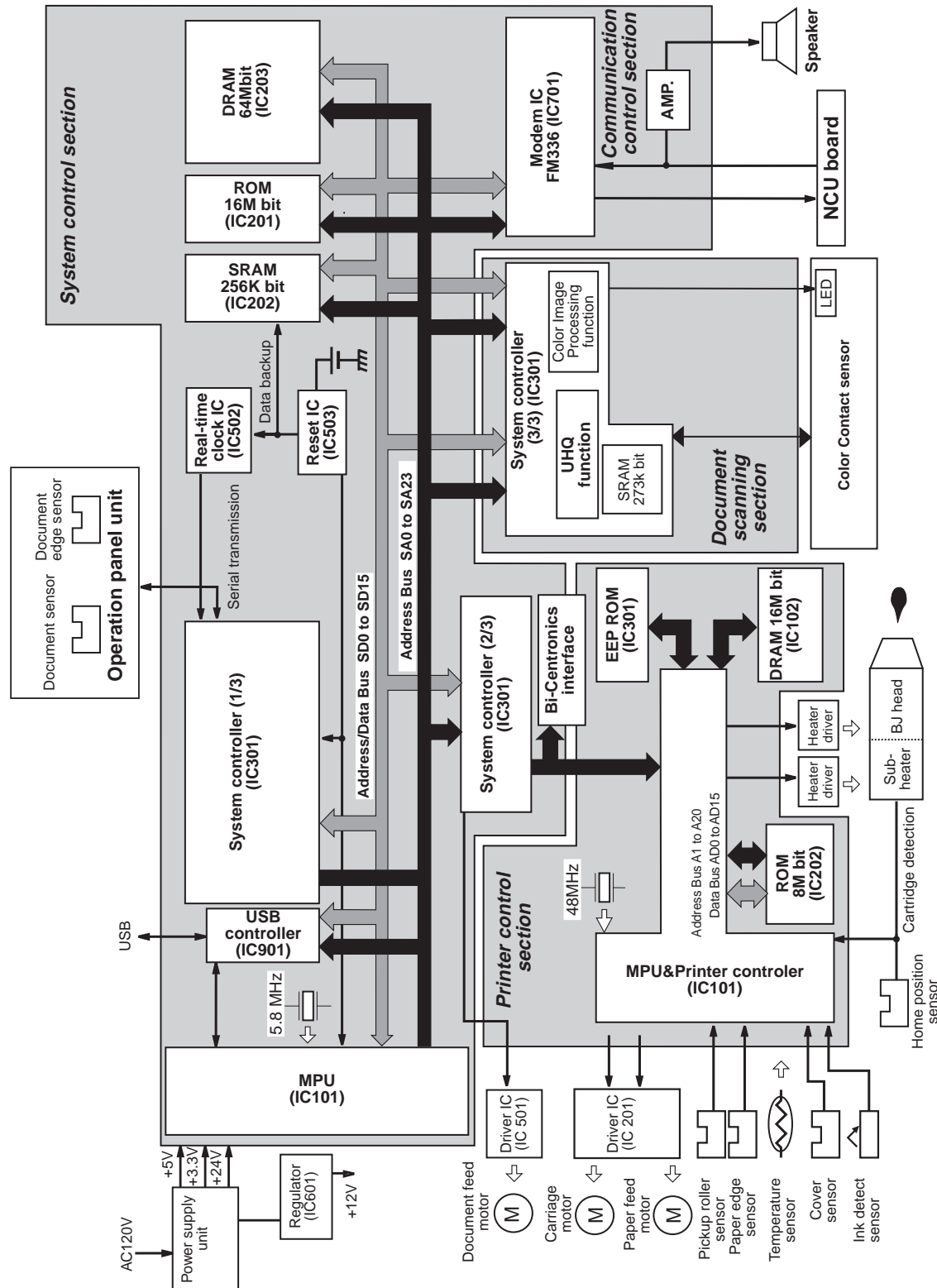


Figure 3-43 Block Diagram

10.2 Circuit Board Components

a) System control section

The system controller is made up of the following components, and controls the entire fax system. This section drive +3.3V voltage from power supply unit.

a-1) MPU (Micro Processor Unit) (IC 101)

The main functions of the NEC μ PD703102GJ-A33-022-8EU(V850) MPU are as follows.

- 32 bit CPU
- 24 bit address bus
- 16 bit data bus
- DMA control
- A/D converter
- Serial interface
- Software CODEC (MH, MR, MMR, JBIG)
- Color FAX function (Lab color conversion, JPEG encode/decode)
- Interrupt control unit
- Built-in 4K Byte RAM for working area
- Built-in 128K Byte Mask-ROM for programable area

a-2) System controller (IC 301)

The system controller is a gate array for controlling MPU peripheral devices. This IC drive +5V and +3.3V voltage. The main functions of the system controller are as follows:

- Printer resolution conversion (Ultra-smoothing)
This IC converts facsimile data of horizontal resolution of 8 dots/mm and vertical resolution of 3.85 or 7.7 lines/mm to print data of 360 dpi and 360 dpi, respectively.
- BJ printer interface (IEEE 1284)
8 bit parallel print data sent to the Printer controller.
- OPCNT serial interface (Contains document sensor and document edge sensor signals)
- DRAM/SRAM controller
Controls DRAM/SRAM read/write and renewal.
- Serial-to-parallel conversion
- Horizontal scaling
- Detection of document edge sensor and ink detection sensor

a-3) RTC (Real Time Clock) IC (IC 502)

S-3510ANFJA is used as the RTC. The RTC IC is backed up by lithium battery, and counts the date and time.

a-4) Main ROM (IC201)

This 8 Mbit ROM contains the control programs (e.g. operation panel, scanner and communications section etc.) for this fax.

a-5) SRAM (IC 202)

This 256 Kbit SRAM is backed up by lithium battery. SRAM holds data registered for system control and communications management information. Also, SRAM stores contact sensor LED light-on time data.

a-6) DRAM (IC 203)

This 64Mbit DRAM is used as memory for storing image data, and as an MPU work area.

a-7) USB Controller (IC 901)

USB interface control function.

b) Communication control section (on Modem board)

b-1) Modem IC (IC 701)

A Conexant FM336 (PLCC type) is used as the modem IC. The MODEM IC carries out G3 modulation conforming to ITU-T standards V.34, V.29, V.27ter, V.21, V.17 and V.8 on transmitted data received from the MPU during transmission. During reception, the MODEM IC carries out G3 modulation on received signals from the telephone line, according to the same standards.

c) Document scanning section

c-1) System controller IC (IC 301)

The system controller IC include image processing function (UHQ) are as follows:

- A/D conversion
Input signals from the contact sensor are A/D converted.
- Generation of shading data (RGB color & Black and white)
- ABC (Auto Background Control)
Sets the slice level for each scan line.
- Edge enhancement processing
- Binaryzation processing
- Halftone processing
- Contact sensor LED control
- Document feed motor control

Also, the system controller IC include color image processing function are as follows:

- Color image processing
The RGB data is converted into CMYK print data.

d) Printer control section

d-1) MPU&Printer controller (IC 101)

The main functions of the printer controller are as follows:

- Bi-centronics interface
- EEP-ROM control
- DRAM control
- Buffer control
- Print head control

Also, the printer controller include MPU function are as follows:

- 16 bit CPU
- 21 bit address bus
- 16 bit data bus
- Carriage motor/Paper feed motor control

The stepping motor controller outputs the carriage motor's single- and two-phase exciter drive signal, and paper feed motor's two-phase drive signal.

The stepping motor controller switches the carriage motor with the 5-step peak current value for optimum driving. The stepping motor controller outputs the switching control signal to the carriage motor driver.

- Detection of BJ head temperature
- Detection of printer's internal temperature.
- Detection of Home position sensor, Paper edge sensor and Pickup roller sensor.
- Cartridge detection.

d-2) ROM (IC 202)

The 8 Mbit control/CG ROM contains the program and bitmap font data for printer control.

d-3) DRAM (IC 102)

16 Mbit DRAM is used as the print buffer, and working area.

d-4) EEPROM (IC 301)

Controlled by the printer controller, the 2 Kbit EEPROM (Electrically Erasable and Programmable ROM) stores various printer emulation settings, and the waste ink amount discharged to the waste ink absorber.

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1. USER DATA FLOW

1.1 User Data Flow (by Operation Panel)

Press the **Function** button, then press the **Data Registration** button.

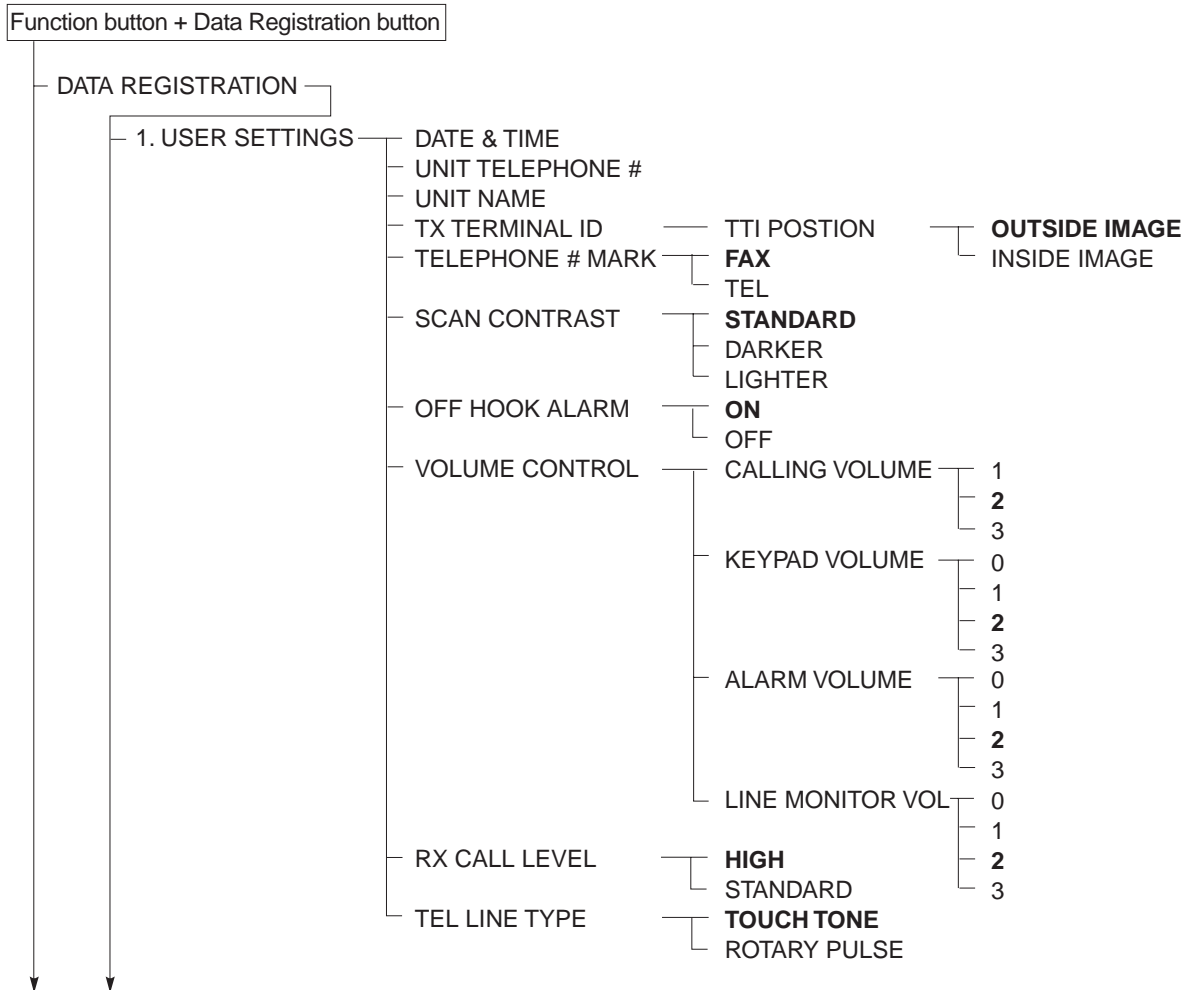


Figure 4-1 User Menu Settings (1/4)

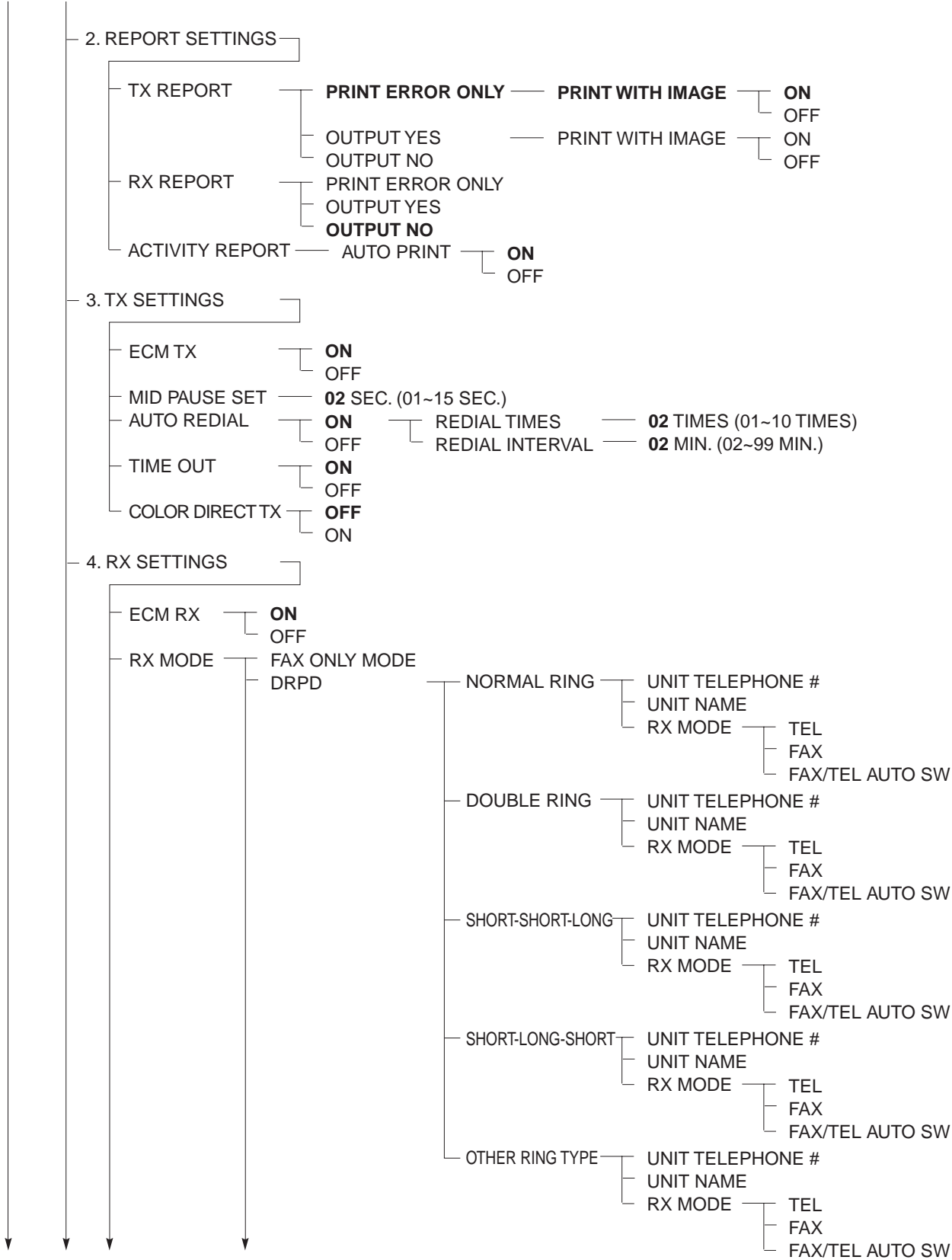


Figure 4-2 User Menu Settings (2/4)

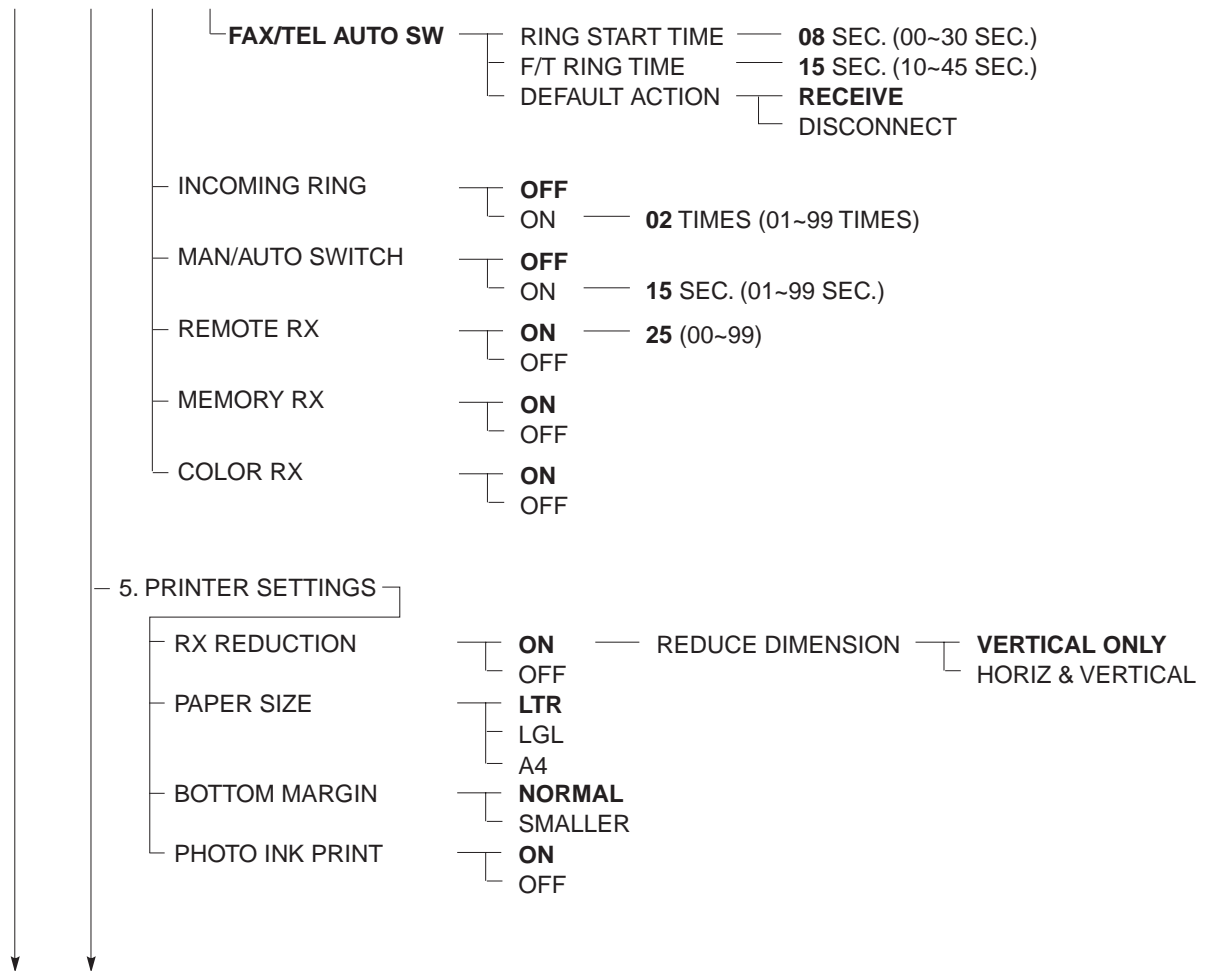


Figure 4-3 User Menu Settings (3/4)

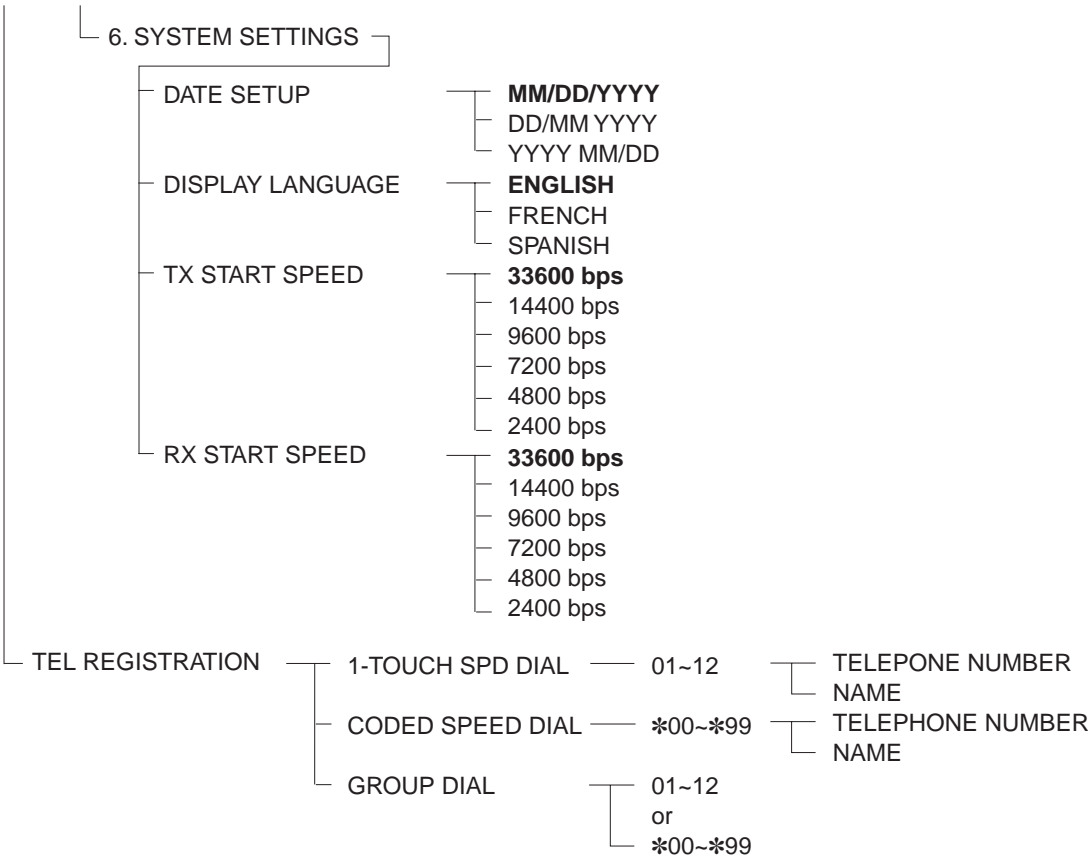


Figure 4-4 User Menu Settings (4/4)

1.2 User Data Flow (by MultiPASS Suite)

Please see *the MultiPASS Suite User's Guide*.