Service Manual

LaserBase MF5600 Series
LaserBase MF5650

Canon

Jun 17 2004

Application

This manual has been issued by Canon Inc. for qualified persons to learn technical theory, installation, maintenance, and repair of products. This manual covers all localities where the products are sold. For this reason, there may be information in this manual that does not apply to your locality.

Corrections

This manual may contain technical inaccuracies or typographical errors due to improvements or changes in products. When changes occur in applicable products or in the contents of this manual, Canon will release technical information as the need arises. In the event of major changes in the contents of this manual over a long or short period, Canon will issue a new edition of this manual.

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Caution

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

Symbols Used

This documentation uses the following symbols to indicate special information:

Symbol	Description
	Indicates an item of a non-specific nature, possibly classified as Note, Caution, or Warning.
	Indicates an item requiring care to avoid electric shocks.
	Indicates an item requiring care to avoid combustion (fire).
	Indicates an item prohibiting disassembly to avoid electric shocks or problems.
	Indicates an item requiring disconnection of the power plug from the electric outlet.
 Memo	Indicates an item intended to provide notes assisting the understanding of the topic in question.
 REF.	Indicates an item of reference assisting the understanding of the topic in question.
	Provides a description of a service mode.
	Provides a description of the nature of an error indication.

The following rules apply throughout this Service Manual:

1. Each chapter contains sections explaining the purpose of specific functions and the relationship between electrical and mechanical systems with reference to the timing of operation.

   In the diagrams, ▮▮▮▮ represents the path of mechanical drive; where a signal name accompanies the symbol , the arrow ⟶ indicates the direction of the electric signal.

   The expression "turn on the power" means flipping on the power switch, closing the front door, and closing the delivery unit door, which results in supplying the machine with power.

2. In the digital circuits, '1'is used to indicate that the voltage level of a given signal is "High", while '0' is used to indicate "Low".(The voltage value, however, differs from circuit to circuit.) In addition, the asterisk (*) as in "DRMD*" indicates that the DRMD signal goes on when '0'.

   In practically all cases, the internal mechanisms of a microprocessor cannot be checked in the field. Therefore, the operations of the microprocessors used in the machines are not discussed: they are explained in terms of from sensors to the input of the DC controller PCB and from the output of the DC controller PCB to the loads.

The descriptions in this Service Manual are subject to change without notice for product improvement or other purposes, and major changes will be communicated in the form of Service Information bulletins.

All service persons are expected to have a good understanding of the contents of this Service Manual and all relevant Service Information bulletins and be able to identify and isolate faults in the machine."

Contents

Chapter 1 PRODUCT DESCRIPTION

1.1 Product Specifications 1- 1
1.1.1Product Specifications 1- 1
1.2 Detailed Specifications 1- 5
1.2.1Printing Speed 1- 5
1.2.2Stack Upon Delivery 1- 5
1.2.3Scanning Range (Transmission) 1- 6
1.2.4Printing Range (Reception) 1- 7
1.2.5Printing Range (Printer) 1- 8
1.2.6System Requirements for Printer Driver 1- 9
1.3 Names of Parts 1- 11
1.3.1External View 1- 11
1.3.2Operation panel 1- 13
1.4 Safety 1- 14
1.4.1Safety of Laser Light 1- 14
1.4.2Handling the Laser Unit 1- 14
1.4.3Safety of Toner 1- 14

Chapter 2 TECHNICAL REFERENCE

2.1 Document Feed and Exposure System 2- 1
2.1.1 Overview/Configuration 2- 1
2.2 Laser Exposure 2- 3
2.2.1 Overview/Configuration 2- 3
2.3 Image Formation 2- 5
2.3.1 Overview/Configuration 2- 5
2.4 Pickup and Feed System 2- 7
2.4.1 Overview/Configuration 2- 7
2.4.2 Detection Jams 2- 8
2.5 Fixing Unit 2- 11
2.5.1 Overview/Configuration 2- 11
2.5.2 Protective Function 2- 12
2.6 External and Controls 2- 14
2.6.1 Power Supply 2- 14

Chapter 3 DISASSEMBLY AND ASSEMBLY

3.1 EXTERNAL AND CONTROLS SYSTEM 3- 1
3.1.1 Front Cover 3- 1
3.1.2 Rear Cover 3- 2
3.1.3 Top Cover 3- 4
3.1.4 Right Cover 3- 7
3.1.5 Left Cover 3- 8

3.1.6 Right Front Cover....3- 9
3.1.7 Left Front Cover....3- 11
3.1.8 Operation Panel Cover....3- 13
3.1.9 Operation Panel Unit....3- 13
3.1.10 SCNT Board....3- 14
3.1.11 DCNT Board....3- 17
3.1.12 NCU Board....3- 20
3.1.13 Modular Board....3- 21
3.1.14 Power Supply Board....3- 22
3.1.15 High-voitage Power Supply board....3- 25
3.1.16 Top Sensor....3- 29
3.1.17 Paper Delivery Sensor....3- 33
3.1.18 Paper Full Sensor....3- 37
3.1.19 Toner Sensor....3- 41
3.1.20 Speaker....3- 43
3.2 Document Feed/Exposure System....3- 48
3.2.1 Scanner Unit....3- 48
3.2.2 ADF Unit....3- 50
3.2.3 Scanner Cover Unit....3- 53
3.2.4 CCD Unit....3- 58
3.2.5 Flatbed Motor Unit....3- 62
3.3 LASER EXPOSURE SYSTEM....3- 67
3.3.1 Laser/Scanner Unit....3- 67
3.4 IMAGE FORMATION SYSTEM....3- 71
3.4.1 Transfer Charging Roller....3- 71
3.5 PICKUP AND FEEDING SYSTEM....3- 72
3.5.1 Cassette Pickup Roller....3- 72
3.5.2 Cassette Pickup Solenoid....3- 74
3.5.3 Cassette Separation Pad....3- 78
3.5.4 Paper Feed Roller....3- 79
3.5.5 Manual Pickup Solenoid....3- 85
3.5.6 Main Motor....3- 90
3.5.7 Gear Unit....3- 93
3.6 FIXING SYSTEM....3- 97
3.6.1 Fixing Film Unit....3- 97
3.6.2 Fixing Pressure Roller....3- 102

Chapter 4 MAINTENANCE AND INSPECTION

4.1 Periodically Replaced Parts....4- 1
4.1.1Parts Requiring Periodical Replacement....4- 1
4.2 Consumables....4- 2
4.2.1Consumable....4- 2
4.3 Periodical Service....4- 3
4.3.1Items Requiring Scheduled Servicing....4- 3
4.4 Cleaning....4- 4
4.4.1Items Requiring Cleaning....4- 4
4.4.2Cleaning Method (external covers)....4- 5
4.4.3Cleaning Method (scanning unit)....4- 6

4.4.4Cleaning Method (printer unit) 4- 7
4.5 Lubrications 4- 9
4.5.1Areas Requiring Application of Grease 4- 9
4.5.2Delivery Idler Gear 4- 11
4.5.3Fixing Drive Transmission Gear 4- 12
4.5.4Large Gear Bushing R 4- 12
4.5.5Large Gear 4- 13
4.5.6Feed Gear 4- 13
4.5.7Internal Gear 4- 14
4.5.8Large Gear Deceleration Gear/Plate R 4- 14
4.5.9Main Motor 4- 15
4.5.10Drive Releasing Arm 4- 16
4.5.11FU Delivery Roller 4- 16
4.5.12Pickup Idler Gear 4- 17
4.5.13Feed Deceleration Gear 4- 17
4.5.14Fixing Deceleration Gear 4- 18
4.5.15FD Delivery Roller 4- 19
4.5.16Large Gear Bushing F 4- 19
4.5.17Pressure roller 4- 20
4.5.18Cassette Pickup Roller 4- 20
4.5.19U-turn Roller Gear 4- 21
4.5.20Roller Shaft End Face (front) 4- 21
4.5.21Roller Shaft End Face (rear) 4- 21
4.5.22Separation Guide Bushing 4- 22
4.5.23Grounding Plate 4- 22
4.5.24CCD Shaft 4- 23
4.5.25Wheel Shaft 4- 23

Chapter 5 TROUBLESHOOTING

5.1 Phenomenon Table 5- 1
5.1.1Symptoms 5- 1
5.2 Countermeasure 5- 2
5.2.1 Image Faults 5- 2
5.2.2 Malfunction 5- 2
5.2.3 Printing/Scanning 5- 3
5.2.4 Transmission/Fax-Related 5- 3
5.2.5 Jam (Main Unit) 5- 4
5.3 Measurement and Adjustment 5- 5
5.3.1 Basic Adjustments 5- 5
5.4 Service Tools 5- 6
5.4.1Special Tools 5- 6
5.5 Error Code 5- 7
5.5.1 Outline 5- 7
5.5.2 User Error Code 5- 7
5.5.3 Service Error Code 5- 11
5.6 Service Mode 5- 13
5.6.1 Outline 5- 13
5.6.2 Default Settings 5- 19

5.6.3 Service Soft Switch Settings (SSSW) 5- 41
5.6.4 Numeric Parameter Settings (NUMERIC Param.) 5- 42
5.6.5 ROM Management (ROM) 5- 43
5.6.6 Test Mode (TEST) 5- 44

Chapter 6 APPENDIX

6.1 Outline of Electrical Components 6- 1
6.1.1 Sensor 6- 1
6.1.2 PCBs 6- 2

Chapter 1 PRODUCT DESCRIPTION

Contents

1.1 Product Specifications 1-1
1.1.1 Product Specifications 1-1
1.2 Detailed Specifications 1-5
1.2.1 Printing Speed 1-5
1.2.2 Stack Upon Delivery 1-5
1.2.3 Scanning Range (Transmission) 1-6
1.2.4 Printing Range (Reception) 1-7
1.2.5 Printing Range (Printer) 1-8
1.2.6 System Requirements for Printer Driver 1-9
1.3 Names of Parts 1-11
1.3.1 External View 1-11
1.3.2 Operation panel 1-13
1.4 Safety 1-14
1.4.1 Safety of Laser Light 1-14
1.4.2 Handling the Laser Unit 1-14
1.4.3 Safety of Toner 1-14

1.1 Product Specifications

1.1.1 Product Specifications

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Body installation method	Desktop
Exposure Method	Semi-conductor laser
Development Method	Toner projection
Transfer Method	Roller transfer
Fixing method	On-demand fixing
Delivery method	Facedown /Faceup
Toner level detection function	Yes
Toner supply type	Toner cartridge replacement / Cartridge EP-27
Document type	Sheet, 3D object (up to 2kg)
Maximum document size	ADF: 216 x 1 m (Multipul pages: 216 x 356 mm), Platen glass: 216 x 297 mm
Minimum document size	ADF: 148 mm x 105 mm
ADF capacity	30 sheets or paper stack within 8 mm thickness including curled sheets (guaranteed)./ 50 sheets (80 g/ m2) or paper stack within 8 mm thickness including curled sheets (temperture 15 deg C to 27 deg C, humidity: 20% to 80%) (reference).
Effective scanning width	208 mm (A4), 214 mm (LTR/LGL)
Scanning method	CCD scanning method
Reproduction ratio	1:1+/-1.0 %, 1:2.000, 1:1.294, 1:0.786, 1:0.647, 1:0.500 / Zoom: 0.500 to 2.000 (unit: 1 %)
Reduction for reception	Fixed reduction: 75%,90%,95%,97%, Auto reduction: 75 to 100 %

Print area	Print: 5 mm and more inner from paper egdes/ Copy: 3 mm (leading edge), 2 mm (right/left edge), 3 mm (trailing edge:no specification for ADF reading) and more inner from paper egdes/ Reception output: 3 mm (leading edge), 3 mm (left edge), 2 mm (right edge), 5 mm (trailing edge) and more inner from paper egdes
Reading resolution	ADF: 300 x 300 dpi, Platen glass: 1200 x 2400 dpi
Copying resolution	ADF: 600 x 400 dpi, Platen glass: 600 x 600 dpi
Printing resolution	600 x 600 dpi
Print speed (A4)	approx. 18 sheets/min
Print speed(LTR)	approx. 19 sheets/min
Warm-up Time	Approx. 260 sec. (temperature: 20 deg C, humidty: 65%; from when the machine is plugged in untill the standby display appears) : Warm-up time may differ depending on the condition and environment of the machine.
First Print Time	Platen glass: approx. 13.8 sec., ADF: approx. 15.8 sec.
Cassette paper size	A4, B5, A5, Letter, Executive, Envelope (DL, ISO-C5, COM10, MONARCH)
Multi-purpose paper size	A4, B5, Letter, Legal, Executive, Envelope (DL, ISO-C5, COM10, MONARCH), User-definable paper (width 76 to 216 mm, length 127 to 356 mm)
Cassette paper type	Plain paper, Transparency, Plain paper L, Heavy paper, Heavy paper H
Multi-purpose paper type	Plain paper, Transparency, Plain paper L, Heavy paper, Heavy paper H
Cassette capacity	Plain paper (64, 75, 80 g/m2): approx. 250 sheets, Heavy paper (90, 105 g/m2): approx. 200 sheets, Heavy paper H (128 g/m2): approx. 100 sheets, Transparency: approx. 100 sheets, Label: approx. 100 sheets, Envelope: approx. 20 sheets
Multi-purpose capacity	1 sheet
Continuous reproduction	99 sheets
Energy save mode	Yes
Operating environment (Temperature range)	15 to 32.5 deg C
Operating environment (Humidity range)	20 to 80 %RH

Power supply rating	AC200-240V, 50-60Hz
Power consumption (Maximum)	approx. 650 W
Dimensions	486 mm x 477 mm x 442.4 mm
Weight	approx. 14.7 kg (including cartridge)
Option	None
Applicable lines	Analog line (one line), -PSTN (public Switched Telephone Network)
Handset	None
Transmission method	Half-duplex
Transmission control protocol	ITU-T V.8 protocol/ V.34 protocol, ITU-T T.30 binary protocol
Modulation method	G3 image signals: ITU-T V.27ter (4.8k, 2.4k bps), ITU-T V.29 (9.6k, 7.2k bps), ITU-T V.17 (14.4k, 12.0k, TC9.6k, TC7.2k bps), ITU-T V.34 (33.6k, 31.2k, 28.8k, 26.4k, 24.0k, 21.6k, 19.2k, 16.8k, 14.4k, 12.0k, 9.6k, 7.2k, 4.8k, 2.4k bps) / G3 procedure signals: ITU-T V.21 (No.2) 300 bps, ITU-T V.8 300 bps, ITU-T V.34 1200 bps, 600 bps
Transmission speed	33.6k, 31.2k, 28.8k, 26.4k, 24k, 21.6k, 19.2k, 16.8k, 14.4k, 12k, TC9.6k, TC7.2k, 9.6k, 7.2k, 4.8k, 2.4k bps, With automatic fallback fuction
Coding method	JBIG, MMR, MR, MH
Error correction method	ITU-T ECM
Transmission output level	approx. -11 dBm
Reception input level	V.34: -9 to -43 dBm / V.17, V.27ter, V.29: -6 to -43 dBm
Modem	CONEXANT FM336Plus
Half tone	256-gradation error diffusion system
Dialing	Manual dial: Numeric buttons, Auto dial (One-touch: 11, Coded dial: 100, Numeric: 1), Group dial: max.110
Broadcast transmission	Max. 100 destinations
Delayed transmission	None

Subaddress transmission	None
Confidential transmission	None
Relay broadcast originating transmission	None
Relay broadcast transmission	None
Polling transmission	None
Dual access	Maximum reservations: 100
FAX/TEL switching	None
Answering machine connection	Yes
Remote reception	Yes / Method: ID call# (tone)
Confidential reception	None
Polling reception	Yes (Manual only)
Closed network communication	None
Memory reception	approx. 256 sheets (Canon FAX Standard Chart No.1)
System data backup	Flash ROM: dial registration data, user data, service data, activity management reoprt / Lithium battery: Clock
Image data backup	Backup contents: memory reception, memory transmission, broadcast transmission image data / Backup IC: 64 Mbyte SDRAM / Backup battery: Rechargeable capacitor / Backup time: approx. 3 minutes
Activity management	User report: Activity management report (every 20 communications), One-touch dial list, Coded dial list, Group dial list, User data list, Transmission report, Reception report / Service report: Sysytem data list, Sysytem dump list
Others	Summer time function: Yes, Directory function: Yes, Forced memory reception: None, 2 on 1: None, LCD display: 2 rows x 20 digits, Stamp: None

1.2 Detailed Specifications

1.2.1 Printing Speed

0005-8301

T-1-1

	Fixing mode						
Paper size	**Plain paper**	**Plain paper L**	**Heavy paper**	**Heavy paper H**	**Transparency**	**Envelope**	**COM10**
A4 (64 to 90 g/m2)	18	18	18	12	18	-	-
B5 (64 to 90 g/m2)	8	8	4	4	8	-	-
A5 (64 to 90 g/m2)	8	8	4	4	8	-	-
A4 (105 to 128 g/m2)	-	-	18	12	-	-	-
B5 (105 to 128 g/m2)	-	-	4	4	-	-	-
LTR (75 to 90 g/m2)	19	19	19	12	19	-	-
LGL (75 to 90 g/m2)	15	-	-	-	-	-	-
LTR (Bond 75 to 90 g/m2, 105 g/m2)	-	-	19	12	-	-	-
Envelope	-	-	-	-	-	4	4

(unit: sheets/min)

1.2.2 Stack Upon Delivery

0005-8302

T-1-2

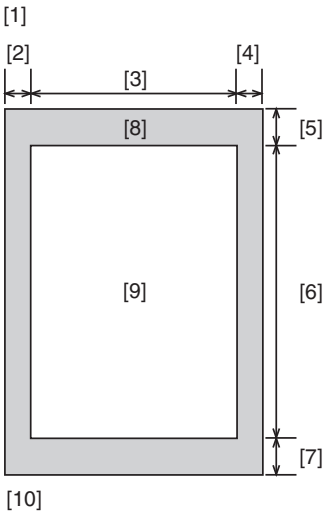
Paper type	Face-down	Face-up
Plain paper (64 to 75 g/m2)	Approx. 60 sheets	1 sheet
Heavy paper (91 to 128 g/m2)	Approx. 30 sheets	1 sheet
Transparency	Approx. 10 sheets	1 sheet
Label	-	1 sheet
Envelope	Approx. 10 sheets	1 sheet

⚠

The values herein are estimates only and are subject to change for product improvement.

1.2.3 Scanning Range (Transmission)

0007-2708



F-1-1

T-1-3

[1] Document leading edge
[2] Left margin
[3] Effective scanning width
[4] Right margin
[5] Top margin
[6] Effective scanning length
[7] Bottom margin
[8] Scanning drop out range
[9] Scanning range
[10] Document trailing edge

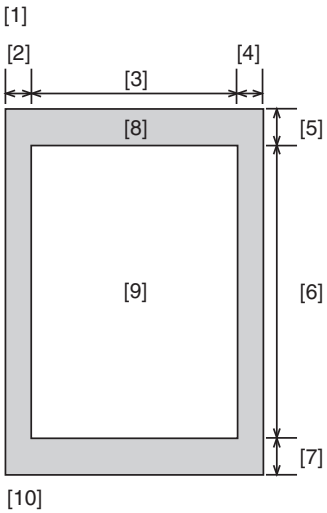
T-1-4

Item	A4	Letter	Legal
Effective scanning width	208 +3.1/-3.1 mm	214 +3.2/-3.2 mm	214 +3.2/-3.2 mm
Effective scanning length (Book)	291 +6.0/-6.0 mm	273.4 +6.0/-6.0 mm	-

Item	A4	Letter	Legal
Effective scanning length (ADF)	291 +6.0/-6.0 mm	273.4 +6.0/-6.0 mm	349 +6.0/-6.0 mm
Left margin	1.0 +2.0/-2.0 mm	1.0 +2.1/-2.1 mm	1.0 +2.1/-2.1 mm
Left margin (ADF)	1.0 +3.5/-3.5 mm	1.0 +3.6/-3.6 mm	1.0 +3.6/-3.6 mm
Right margin	1.0 mm	1.0 mm	1.0 mm
Top margin (Book)	3.0 +3.0/-3.0 mm	3.0 +3.0/-3.0 mm	-
Top margin (ADF)	3.0 +3.0/-3.0 mm	3.0 +3.0/-3.0 mm	3.0 +3.0/-3.0 mm
Bottom margin (Book)	3.0 +3.0/-3.0 mm	3.0 +3.0/-3.0 mm	-
Bottom margin (ADF)	3.0 +3.0/-3.0 mm	3.0 +3.0/-3.0 mm	3.0 +3.0/-3.0 mm

1.2.4 Printing Range (Reception)

0007-2739



F-1-2

T-1-5

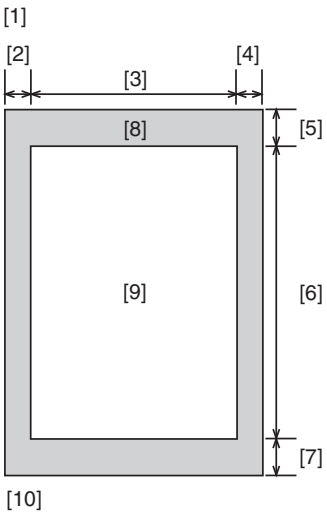
[1] Paper leading edge
[2] Left margin
[3] Effective printing width
[4] Right margin
[5] Top margin
[6] Effective printing length
[7] Bottom margin
[8] Printing drop out range
[9] Printing range
[10] Paper trailing edge

T-1-6

Item	A4	Letter	Legal
Effective printing width	206 +2.0/-2.0 mm	212 +2.0/-2.0 mm	212 +2.0/-2.0 mm
Effective printing length	290 +3.0/-3.0 mm	272.4 +3.0/-3.0 mm	348.6 +3.0/-3.0 mm
Left margin	3.0 +3.0/-3.0 mm	3.0 +3.0/-3.0 mm	3.0 +3.0/-3.0 mm
Right margin	2.0 +3.0/-2.0 mm	2.0 +3.0/-2.0 mm	2.0 +3.0/-2.0 mm
Top margin	3.0 +3.0/-3.0 mm	3.0 +3.0/-3.0 mm	3.0 +3.0/-3.0 mm
Bottom margin	5.0 +7.0/-4.0 mm	5.0 +7.0/-4.0 mm	5.0 +7.0/-4.0 mm

1.2.5 Printing Range (Printer)

0007-2750



F-1-3

T-1-7

[1] Paper leading edge
[2] Left margin
[3] Effective printing width
[4] Right margin
[5] Top margin
[6] Effective printing length
[7] Bottom margin
[8] Printing drop out range
[9] Printing range
[10] Paper trailing edge

T-1-8

Item	A4	Letter	Legal
Effective printing width	206 mm	212 mm	212 mm
Effective printing length	290 mm	272.4 mm	348.6 mm
Left margin	5.0 mm	5.0 mm	5.0 mm
Right margin	5.0 mm	5.0 mm	5.0 mm
Top margin	5.0 mm	5.0 mm	5.0 mm
Bottom margin	5.0 mm	5.0 mm	5.0 mm

1.2.6 System Requirements for Printer Driver

0007-2758

Operating System

Windows 98, Windows Me, Windows 2000 Professional, Windows XP

Computer

Any computer on whitch Windows 98, Windows Me, Windows 2000, or Windows XP runs properly.

Hardware Environment

-IBM or IBM-compatible PC
-CD-ROM drive or network environment with the access to CD-ROM
-PC equipped with a USB port and the USB class driver installed

T-1-9

OS	CPU	RAM	Available Free Disk Space
Windows 98	Intel Pentium 90 MHz or greater	32 MB of RAM, 64 MB or greater is recommended	At least 115 MB, 200MB or greater is recommended
Windows Me	Intel Pentium 150 MHz or greater	32 MB of RAM, 64 MB or greater is recommended	At least 115 MB, 200MB or greater is recommended
Windows 2000* Professional	Intel Pentium 133 MHz or greater, or compatible micro processors (up to 2 processors are supported)	64 MB of RAM, 128 MB or greater is recommended	At least 115 MB, 200MB or greater is recommended

OS	CPU	RAM	Available Free Disk Space
Windows XP*	Pentium Family 300 MHz or greater	64 MB of RAM, 128 MB or greater is recommended	At least 115 MB, 200MB or greater is recommended

*Log on as a user with adoministrator privileges is recommended.

Memo:

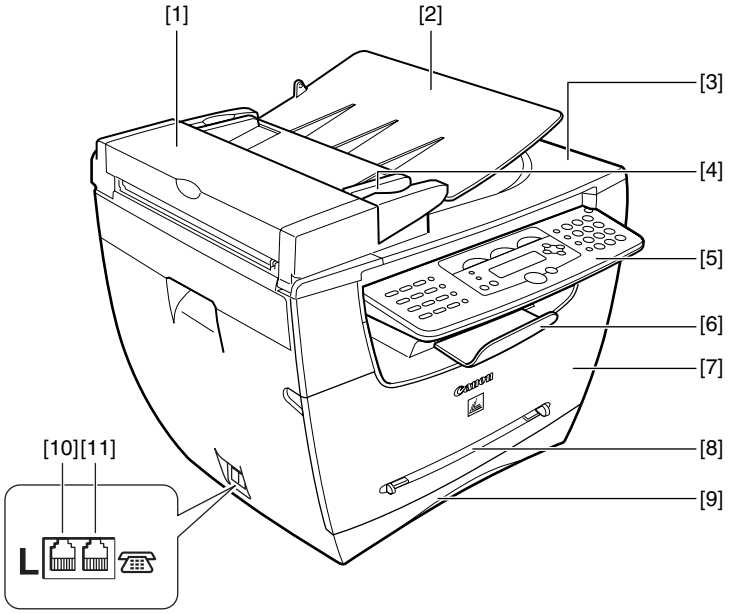
The USB 2.0 connection requires a PC equipped with a CPU faster than 300 MHz and more than 64 MB of RAM and with Windows XP SP1 installed, or with a CPU faster than 133 MHz and more than 64 MB of RAM and with Windows 2000 SP4 installed. If your PC meets all of these requirements and is preinstalled with USB 2.0 Host Controller, the USB 2.0 connection will be guaranteed.

1.3 Names of Parts

1.3.1 External View

0005-8031

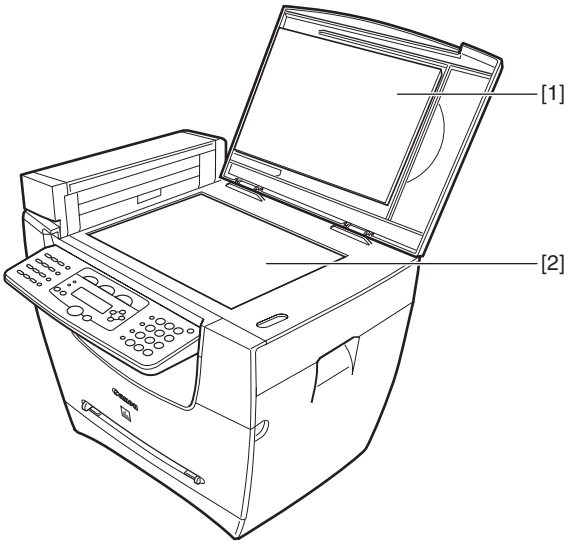
<Front View>



F-1-4

T-1-10

[1] ADF (Automatic Document Feeder)	[7] Front cover
[2] Document feeder tray	[8] Multi-purpose feeder
[3] Document output tray	[9] Cassette
[4] Document guides	[10] Telephone line jack
[5] Operation panel	[11] External device jack
[6] Output tray	



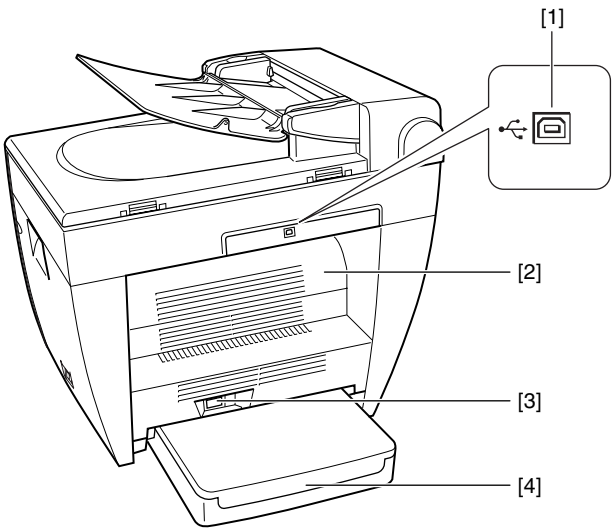
F-1-5

T-1-11

[1] Platen glass cover

[2] Platen glass

<Rear View>



F-1-6

T-1-12

[1] USB port

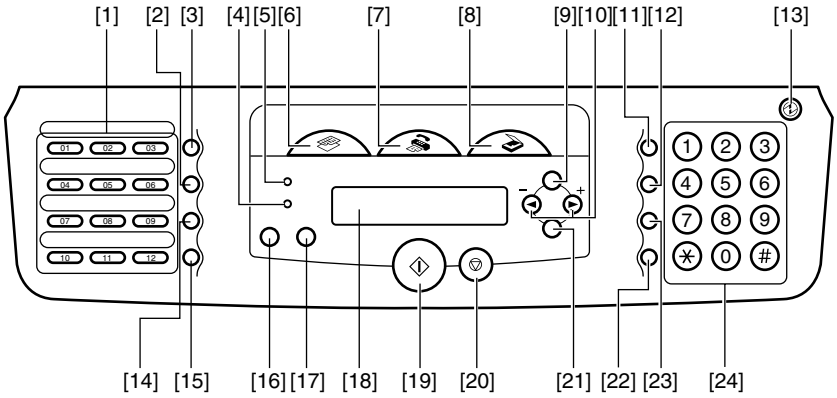
[2] Face up cover

[3] Power socket

[4] Extension cover

1.3.2 Operation panel

0005-8054



F-1-7

T-1-13

[1] One-touch dial keys	[13] Energy Saver key
[2] Coded Dial key	[14] Directory key
[3] Redial/Pause key	[15] Hook key
[4] In Use/Memory indicator	[16] Status Monitor key
[5] Alarm indicator	[17] Clear key
[6] COPY key	[18] LCD
[7] FAX key	[19] Start key
[8] SCAN key	[20] Stop/Reset key
[9] Menu key	[21] OK key
[10] Cursor key	[22] Collate/2on1 key
[11] Enlarge/Reduce key	[23] Image Quality key
[12] Exposure key	[24] Numeric keys

1.4 Safety

1.4.1 Safety of Laser Light

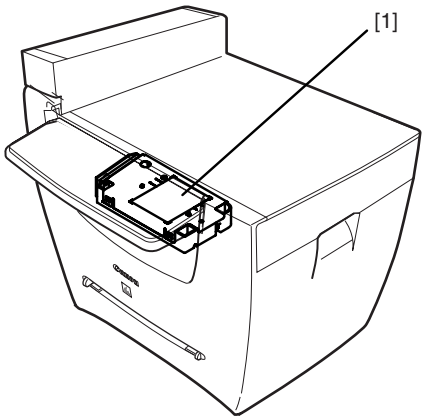
0002-8615

Laser radiation could be hazardous to the human body. For this reason, laser radiation emitted inside this machine is hermetically sealed within the protective housing and external cover. No radiation can leaak from the machine in the normal operation of the product by the user.

1.4.2 Handling the Laser Unit

0002-8618

The laser scanner unit emits invisible laser light inside it. If exposed to laser light, the human eye can irreparably be damaged. Never attempt to disassemble the laser scanner unit. (It is not designed for servicing in the field).
The covers around the laser scanner unit are identified by the following label [1].



F-1-8

1.4.3 Safety of Toner

0002-8619

The machine's toner is a non-toxic material composed of plastic, iron, and small amounts of dye.

⚠

Do not put the toner into fire. It may explode.

Toner on the Skin or Clothes

1. If your skin or clothes came into contact with toner, wash with water at once.
2. Do not use warm or hot water, which will cause the toner to jell, permanently fusing it with the fibers of the clothes.
3. Do not bring toner into contact with vinyl material. They are likely to react with each other.

Chapter 2 TECHNICAL REFERENCE

Contents

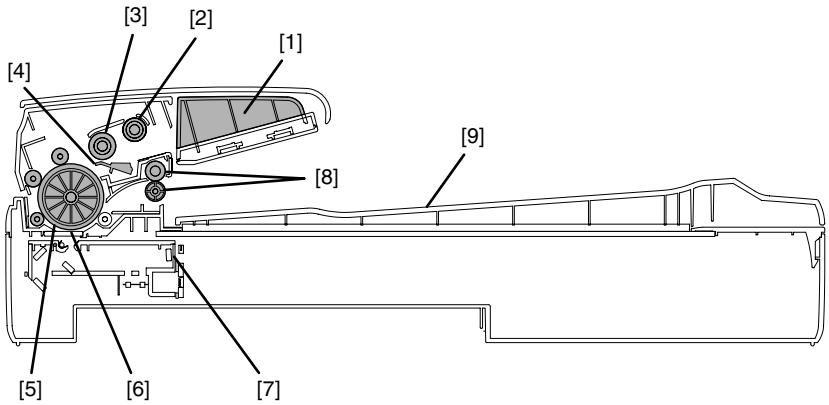
2.1 Document Feed and Exposure System 2-1
2.1.1 Overview/Configuration 2-1
2.1.1.1 Overview 2-1
2.2 Laser Exposure 2-3
2.2.1 Overview/Configuration 2-3
2.2.1.1 Overview 2-3
2.3 Image Formation 2-5
2.3.1 Overview/Configuration 2-5
2.3.1.1 Overview 2-5
2.4 Pickup and Feed System 2-7
2.4.1 Overview/Configuration 2-7
2.4.1.1 Overview 2-7
2.4.2 Detection Jams 2-8
2.4.2.1 Jam Detection Outline 2-8
2.4.2.1.1 Type so Jams 2-8
2.4.2.2 Delay Jams 2-9
2.4.2.2.1 Pickup Delay Jam 2-9
2.4.2.2.2 Delivery Delay Jam 2-9
2.4.2.3 Stationary Jams 2-9
2.4.2.3.1 Pickup Stationary Jam 2-9
2.4.2.3.2 Delivery Stationary Jam 2-9
2.4.2.4 Other Jams 2-9
2.4.2.4.1 Wrap Jam 2-9
2.4.2.4.2 Initial Jam 2-10
2.4.2.4.3 Cover Open Jam 2-10
2.5 Fixing Unit 2-11
2.5.1 Overview/Configuration 2-11
2.5.1.1 Overview 2-11
2.5.2 Protective Function 2-12
2.5.2.1 Protective Mechanisms 2-12
2.5.2.2 Detecting a Fault in the Fixing Assembly 2-13
2.6 External and Controls 2-14
2.6.1 Power Supply 2-14
2.6.1.1 Backup Battery 2-14
2.6.1.1.1 Battery-backed up Data 2-14
2.6.1.1.2 Backed up by Capacitor 2-14
2.6.1.2 Energy-Saving Function 2-14
2.6.1.2.1 Overview 2-14

2.1 Document Feed and Exposure System

2.1.1 Overview/Configuration

2.1.1.1 Overview

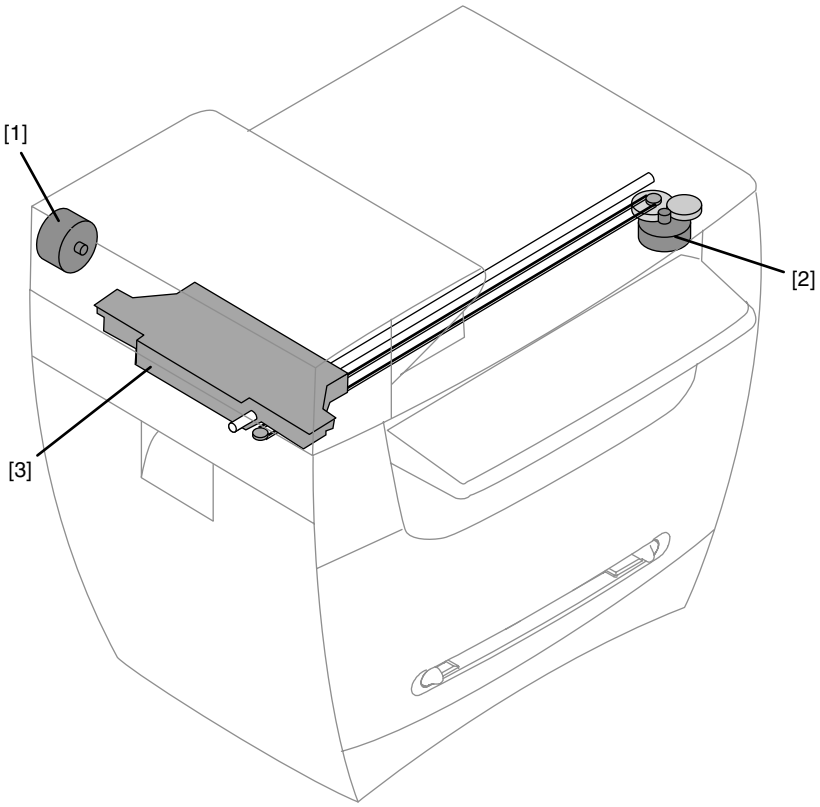
0003-1353



F-2-1

T-2-1

[1] Slide guide	[6] Reading glass
[2] Document pick-up roller	[7] CCD unit
[3] Document separation roller	[8] Document delivery roller
[4] Separation guide	[9] Document output tray
[5] Document feed roller	



F-2-2

T-2-2

[1] Document feed motor	[3] CCD unit
[2] Flatbed motor	

Reading from the ADF

To avoid skew feeding, documents loaded on the document tray are retained in the horizontal direction by the slide guide. Then, the documents are fed to the separation roller by the pickup roller, and separated one sheet each using differences in the coefficient of friction among the separation roller, documents, and separation guide.

After that, the feeder roller feeds the document onto the reading glass, and the CCD unit reads out image data of the document; then, the delivery roller delivers it to the output tray.

The document feed motor drives the various rollers of the ADF.

Reading from the platen glass

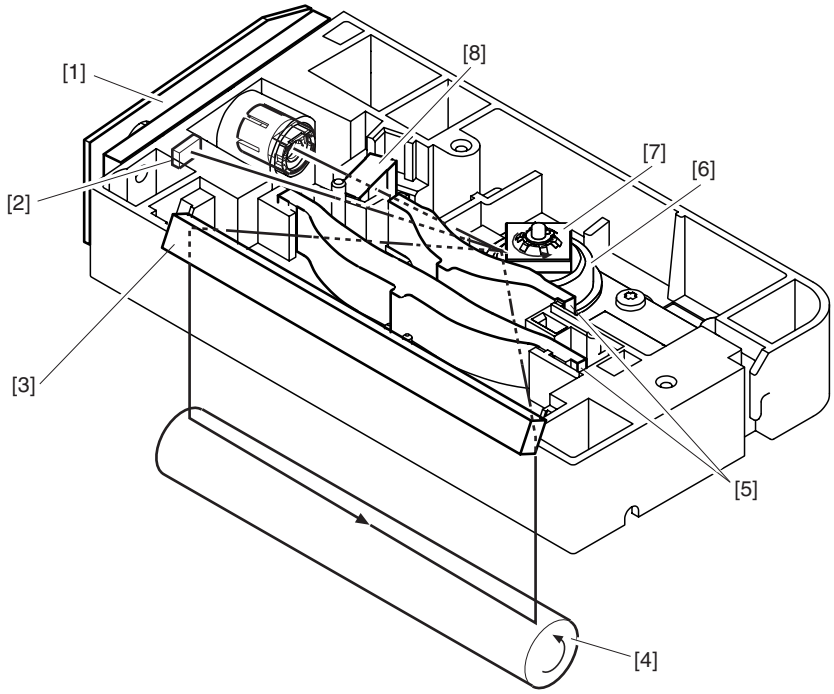
The CCD unit driven by the flatbed motor reads out image data of a document on the platen glass.

2.2 Laser Exposure

2.2.1 Overview/Configuration

2.2.1.1 Overview

0002-8624



F-2-3

T-2-3

[1] Laser driver PCB	[5] Imaging lends
[2] BD sensor	[6] Scanner motor
[3] Reflecting mirror	[7] 4-facet mirror
[4] Photosensitive drum	[8] Cylindrical lens

The machine's laser scanner assembly consists of the laser driver and the scanner motor, which are driven by signals coming from the engine controller.
The laser driver serves to turn on the laser diode according to the laser control signal and video signals from the engine controller.
The laser beam moves thorough the collimator less and the cylindrical lens to reach the 4-facet mirror rotating at a specific speed.
The leaser beam reflected by the 4-facet mirror moves through the imaging lens arranged in front of the 4-facet mirror

and the reflecting mirror to reach and focus on the photosensitive drum.
When the 4-facet mirror rotates at a specific speed, the laser beam scans the photosensitive drum in keeping with the mirror rotation, thus drawing static images on the photosensitive drum.

Memo:

BD Fault
The machine identifies a BD fault if it does not detect the /BDI signal within 0.1 sec after the scanner motor is forced to accelerate. It also detects a BD fault if it does not detect a specific interval of /BDI signals for 2 sec continuously after the scanner motor has reached a specific revolution (number of rotations).

Scanner Fault
If the machine does not detect the /BDI signal 1.4 sc after it has stopped forcing the scanner motor to accelerate, it extends the period of detection by 120 sec; if it still does not detect a specific interval of /BDI signals, it identifies a scanner fault.

BD Error
The machine identifies a BD error if it does not detect the /BDI signal at a specific interval while the /BDI signal is being generated. It, however, does not identify a BD error under the following condition:
-the door is identified as being open within 0.2 sec after detection of a BD error.
-a BD fault or a scanner fault is detected after a BD error has been identified.

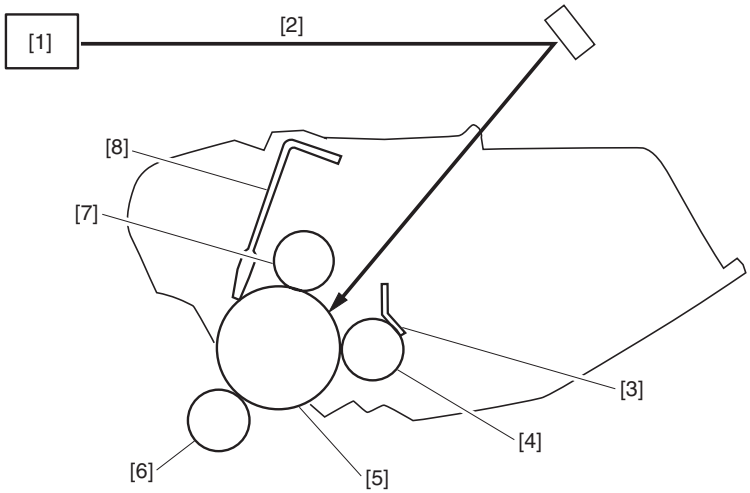
The laser/scanner unit contains parts that cannot be adjusted in the field. Do not attempt to disassemble the laser/scanner unit.

2.3 Image Formation

2.3.1 Overview/Configuration

2.3.1.1 Overview

0002-8626



F-2-4

T-2-4

[1] Laser/scanner assembly	[5] Photosensitive drum
[2] Laser beam	[6] Transfer charging roller
[3] Blade	[7] Primary charging roller
[4] Developing cylinder	[8] Cleaning blade

In response to a print command, the engine controller turns on the main motor to drive the photosensitive drum, developing cylinder, primary charging roller, and transfer charging roller.
Thereafter, the machine uses the primary charging roller to charge the surface of the photosensitive drum to an even, negative potential and, at the same time, directs the laser beam across the surface of the photosensitive drum. (The laser beam is modulated to according to the incoming video signals.)
The image thus formed on the photosensitive drum is a static, latent image; it is turned into a visible image by means of the toner from the developing cylinder. The resulting toner image is then transferred to paper by the work of the transfer charging roller, and the paper is sent to the fixing assembly. The surface of the photosensitive drum is cleaned by the cleaning blade so that it is free of residual toner; after cleaning, the primary charging roller once again charges the surface to an even, negative potential to prepare for the formation of a new static, latent image.

⚠

Drum Cover Shutter

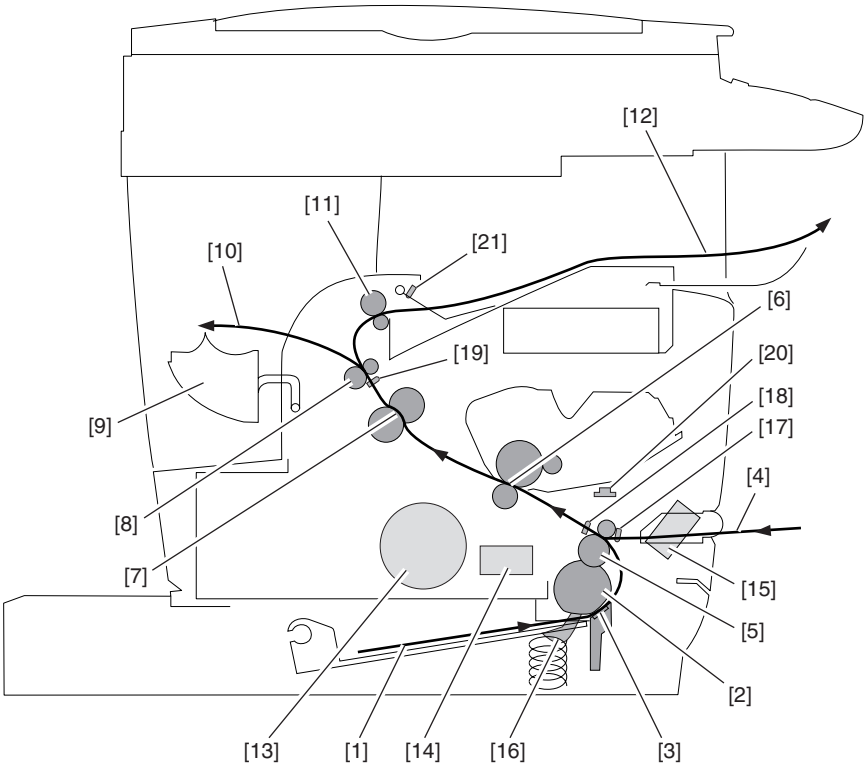
If the surface of the photosensitive drum is exposed to strong light, it develops what is know as "photo memory," which can cause white spots or black lines in images. To protect the drum against light, the machine is equipped with a drum cover shutter. The drum cover shutter must never be opened unless doing so proves to be absolutely necessary.

2.4 Pickup and Feed System

2.4.1 Overview/Configuration

2.4.1.1 Overview

0003-0652



F-2-5

T-2-5

[1] Cassette feed	[12] Face-down delivery
[2] Cassette pickup roller	[13] Main motor
[3] Separation pad	[14] Cassette pickup solenoid
[4] Manual feed	[15] Manual feed pickup solenoid
[5] Feed roller	[16] Cassette paper sensor
[6] Transfer assembly (photosensitive drum, transfer charging roller)	[17] Manual feed paper sensor
[7] Fixing assembly (fixing film, fixing pressure roller)	[18] Top sensor

[8] Delivery roller
[9] Face-up cover
[10] Face-up delivery
[11] Face-down delivery roller
[19] Delivery sensor
[20] Toner sensor (MF5550 only)
[21] Paper full sensor

Pickup and Feed Operation (from the cassette)

If the cassette paper sensor detects the presence of paper while the absence of paper is identified in the manual feed pickup assembly, the machine picks up paper from the cassette.

When the main motor operates and the cassette pickup solenoid goes on, the cassette pickup roller makes a single rotation to pick up paper. The paper is then moved from the transfer assembly to the fixing assembly by the feed roller; it is ultimately delivered outside the machine by the work of the delivery roller.

When the face-up cover is open, the paper is delivered face-up at the rear of the machine. If the face-up cover is closed, on the other hand, the paper is moved along the feed guide of the cover, and is delivered face-down at the top of the machine by the work of the face-down delivery roller.

Pickup and Feed Operation (from the manual feed section)

When paper is inserted into the pickup assembly, the manual feed paper sensor detects the presence of paper, and the machine uses the feed roller to pick and hold the leading edge of the paper. When printing starts, the machine turns on the manual feed pickup solenoid to stop the rotation of the feed roller so that the paper will not move forward until the laser/scanner and the fixing unit become ready for operation. When the laser/scanner and the fixing unit become ready for operation, the machine turns off the manual feed pickup solenoid to rotate the feed roller, thus moving the paper forward; the operation thereafter is identical to the operation used for pickup from the cassette.

2.4.2 Detection Jams

2.4.2.1 Jam Detection Outline

2.4.2.1.1 Type so Jams

0003-0655

The machine identifies the following types of jams:

Pickup Delay Jam

The top sensor does not go on within a specific period of time after pickup starts.

Pickup Stationary Jam

The top sensor goes on, but does not go off within a specific period of time.

Delivery Delay Jam

The top sensor goes on, but the delivery sensor does not go on within a specific period of time.

Wrap Jam

The delivery sensor goes on, but it goes off before a specific period of time passes.

Delivery Stationary Jam

The delivery sensor goes on, but it does not go off within a specific period of time.

Initial Jam

The top sensor or the delivery sensor goes on while the main motor is starting to rotate.

Cover Open Jam

The machine identifies a condition in which the front cover is opened while it is moving paper.

2.4.2.2 Delay Jams

2.4.2.2.1 Pickup Delay Jam 0003-0657

If the top sensor does not detect the leading edge of paper within 1.2 sec after the start of pickup operation, the machine initiates pickup operation once gain. The machine identifies a pickup delay jam if the top sensor does not detect the leading edge of paper within 1.2 sec after the 2nd pickup operation.

2.4.2.2.2 Delivery Delay Jam 0003-0659

The machine identifies a delay jam if the delivery sensor does not detect the leading edge of paper within 1.615 sec after the top sensor has detected the leading edge of paper.

2.4.2.3 Stationary Jams

2.4.2.3.1 Pickup Stationary Jam 0003-0660

The machine identifies a pickup stationary jam if the top sensor does not detect the absence of paper within 3.575 sec after the top sensor has detected the leading edge of paper.

2.4.2.3.2 Delivery Stationary Jam 0003-0662

The machine moves to a delivery stationary jam sequence if it does not detect a wrap jam.
The machine identifies a delivery stationary jam if the delivery sensor does not detect the trailing edge of paper for 1.715 sec after the top sensor has detected the trailing edge of paper.

2.4.2.4 Other Jams

2.4.2.4.1 Wrap Jam 0003-0665

The machine starts a wrap jam detection sequence in 0.1 sec if it does not detect a delivery delay jam.
It identifies a wrap jam if the delivery sensor detects the trailing edge of paper within 1.06 sec after the top sensor has detected the trailing edge of paper.
The term "wrap jam" refers to paper that wraps around the fixing pressure roller; its leading edge passes through the delivery sensor, but it jams thereafter. The machine is designed to identify such a jam so as to prevent wrapping paper from fully moving into the fixing assembly.

2.4.2.4.2 Initial Jam 0003-0666

The machine identifies an initial jam if the top sensor or the delivery sensor detects the presence of paper when the main motor starts to rotate.

2.4.2.4.3 Cover Open Jam 0003-0663

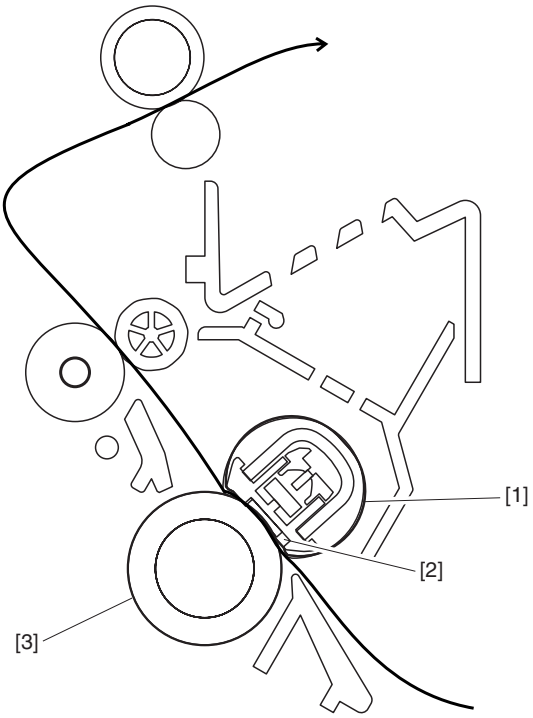
The machine identifies a cover open jam if it detects that the front cover is open with the top sensor or the delivery sensor detecting the presence of paper (while paper is being moved or the machine is not running a jam check).

2.5 Fixing Unit

2.5.1 Overview/Configuration

2.5.1.1 Overview

0002-8627



F-2-6

T-2-6

[1] Fixing film unit

[2] Fixing heater

[3] Pressure roller

The machine's fixing system is an on-demand type, and its fixing assembly consists of the fixing film unit and the pressure roller: the fixing film has a built-in fixing heater, thermistor, and thermal fuse.
The toner transferred to paper is heated by the fixing heater, which provides heat through the fixing film; the toner is forced under the pressure roller so that it is fused into the fibers of the paper under both heat and pressure.

2.5.2 Protective Function

2.5.2.1 Protective Mechanisms 0002-8628

The machine is equipped with the following 3 types of protective mechanisms used to prevent its fixing heater from going awry.

1. protective mechanism by the CPU
2. protective mechanism by the fixing heater safety circuit
3. protective mechanism by the thermal fuse

1. Protective Mechanism by the CPU

The machine's CPU monitors the voltage of the fixing heater temperature detection signal from the main thermistor and the sub thermistor at all times, and it cuts the power to the fixing heater if it finds that the fixing temperature appreciably exceeds a specific level.

When the fixing temperature abnormally increases and the voltage of the fixing heater temperature detection signal from the main thermistor drops to about 0.775 V (equivalent of 235 deg C) or less, the CPU causes the fixing heater drive signal to go Low and turns off the photo triac coupler, thus cutting power to the fixing heater.

If the temperature of the fixing heater abnormally increases and the voltage of the fixing heater temperature detection signal from the sub thermistor reaches about 2.779 V (equivalent of 320 deg C) or more, the CPU causes the fixing heater drive signal to go Low and turns off the photo triac couple, thus cutting off the power to the fixing heater.

2. Protective Mechanism by the Fixing Heater Safety Circuit

The fixing heater safety circuit monitors the voltage of the fixing heater temperature detection signal from the main thermistor and the sub thermistor at all times.

If the fixing temperature appreciably exceeds a specific level, the machine cuts off the power to the fixing heater regardless of the instructions from the CPU.

When the temperature of the fixing heater increases abnormally and the voltage of the fixing heater temperature detection signal of the main thermistor reaches about 0.775 V (equivalent of 235 deg C) or less, the output of the comparator turns Low to turn off the relay, thus cutting off the power to the fixing heater.

Likewise, if the temperature of the fixing heater increases abnormally and the voltage of the fixing heater temperature detection signal of the sub thermistor reaches about 2.779 V (equivalent of 320 deg C) or more, the output of the comparator turns Low to turn off the transistor, thus turning off the relay and cutting off the power to the fixing heater regardless of the relay drive signal from the CPU.

3. Protective Mechanism by the Thermal Fuse

If the temperature of the fixing heater increases abnormally and the temperature of the thermal fuse exceeds about 228 deg C, the thermal fuse starts to melt to cut off the power to the fixing heater.

2.5.2.2 Detecting a Fault in the Fixing Assembly 0002-8630

The CPU identifies a fault in the fixing assembly for the following conditions (a. thorough g.) and operates as described:

1. the CPU causes the fixing heater drive signal to go Low to cut off the power to the fixing heater.
2. the CPU causes the relay drive signal to go Low to turn off the relay.
3. the CPU, if it detects a fault while printing is under way, discharges the paper being picked up or moved at the time, and immediately turns off the main motor, scanner motor, and high-voltage system and puts the printer unit in an error state.

a) the reading of the main thermistor does not exceed 50 deg C within 2.34 sec after the start-up temperature control mechanism is started.

b) the CPU detects that the reading of the main thermistor remains 235 deg C or more for 1 sec continuously while fixing temperature control is under way.

c) the CPU detects that the reading of the main thermistor remains 100 deg C or less for 1.2 sec continuously while paper passage temperature control is under way; or the CPU detects that the reading of the main thermistor remains 50 deg C or less for 0.3 sec continuously while between-sheets temperature control is under way.

d) the CPU detects that the reading of the main thermistor remains less than 20 deg C for 0.3 sec continuously while fixing heater temperature control is under way.

e) the temperature of the main thermistor does not exceed 100 deg C within 20 sec after the start of start-up temperature control.

f) the CPU detects that the reading of the sub thermistor remains less than 35 deg C for 0.15 sec continuously while fixing heater temperature control is under way.

g) the CPU detects that the reading of the sub thermistor remains 320 deg C for 0.15 sec continuously while fixing heater temperature control is under way.

2.6 External and Controls

2.6.1 Power Supply

2.6.1.1 Backup Battery

2.6.1.1.1 Battery-backed up Data

0006-5544

The SCNT board is provided with a function for backing up data in control / clock IC and image storage memory (DRAM) by lithium battery (BAT951), and capacitor (C958), even if a power interruption occurs, or the power cord is disconnected by accident.

⚠

Image data backed up by the capacitor (C958) remains for approx. 3 minutes. In other words, the image data will be deleted if the backup time ends. Be sure to print image data in advance when you turn off the power for a long time.

2.6.1.1.2 Backed up by Capacitor

0006-5556

Image data stored in the DRAM, on the SCNT board, are backed up for approx. 3 minutes by the capacitor (C958).

Data backed up by capacitor
Image data stored in the DRAM:

T-2-7

Image	Mode
Transmission images	Memory transmission
	Broadcast transmission
Reception iamges	Memory reception

2.6.1.2 Energy-Saving Function

2.6.1.2.1 Overview

0006-5613

This machine has the Energy Saver mode. When Energy Saver in the User Menu is set to ON, and no operation is made for approx. 5 minutes or more in the stand-by mode, the machine enters the Energy Saver mode. When the Energy Saver key on the control panel is pressed, it also enters the Energy Saver mode.
In the Energy Saver mode, the machine turns off all the LED except Energy Saver key and LCD indications, and turn

down the document scanning lamp of the CCD unit. Meanwhile, the printer function will not enter the Sleep mode.

Recovery from the Energy Saver Mode

In the Energy Saver mode, the machine always monitors the following activities which are the triggers to resume the operations. When the machine detects any of them, it returns to the stand-by mode.

-The Energy Saver button on the operation panel is pressed
-A handset of the external telephone is taken off the hook
-Receive a CI incoming call
-A print job is accepted

Memo

In any of the following states, the machine will not enter the Energy Saver mode.
-During the print, scanning, or fax operation
-Data is stored in the image memory
-Out of paper, jam, out of toner, or a service error
-Energy Saver in the User Menu is turned off.
-Paper is set to the Multi-purpose feeder.

Energy Saver Setting

To make the Energy Saver mode function, it is necessary to set 3.ENERGY SAVER of TIMER SETTINGS in the User Menu to ON. In this setting, you can set the period of time from the end of the machine operation to entering the Energy Saver mode (3-30 min).

Chapter 3 DISASSEMBLY AND ASSEMBLY

Contents

3.1 EXTERNAL AND CONTROLS SYSTEM 3-1
3.1.1 Front Cover 3-1
3.1.1.1 Removing the Cassette 3-1
3.1.1.2 Removing the Reader Right Front Cover 3-1
3.1.1.3 Removing the Right Cover 3-1
3.1.1.4 Removing the Reader Left Front Cover 3-1
3.1.1.5 Removing the Left Cover 3-1
3.1.1.6 Removing the Front Cover 3-2
3.1.2 Rear Cover 3-2
3.1.2.1 Removing the Cassette 3-2
3.1.2.2 Removing the Reader Right Front Cover 3-2
3.1.2.3 Removing the Right Cover 3-2
3.1.2.4 Removing the Reader Left Front Cover 3-3
3.1.2.5 Removing the Left Cover 3-3
3.1.2.6 Removing the Rear Cover 3-4
3.1.3 Top Cover 3-4
3.1.3.1 Removing the Cassette 3-4
3.1.3.2 Removing the Reader Right Front Cover 3-4
3.1.3.3 Removing the Right Cover 3-4
3.1.3.4 Removing the Reader Left Front Cover 3-5
3.1.3.5 Removing the Left Cover 3-5
3.1.3.6 Removing the Front Cover 3-5
3.1.3.7 Removing the Rear Cover 3-6
3.1.3.8 Removing the NCU Board 3-6
3.1.3.9 Removing the NCU Case 3-6
3.1.3.10 Removing the Scanner Unit 3-7
3.1.3.11 Removing the Top Cover 3-7
3.1.4 Right Cover 3-7
3.1.4.1 Removing the Cassette 3-7
3.1.4.2 Removing the Reader Right Front Cover 3-7
3.1.4.3 Removing the Right Cover 3-8
3.1.5 Left Cover 3-8
3.1.5.1 Removing the Cassette 3-8
3.1.5.2 Removing the Reader Left Front Cover 3-8
3.1.5.3 Removing the Left Cover 3-8
3.1.6 Right Front Cover 3-9
3.1.6.1 Removing the Cassette 3-9
3.1.6.2 Removing the Reader Right Front Cover 3-9
3.1.6.3 Removing the Right Cover 3-9
3.1.6.4 Removing the Reader Left Front Cover 3-10
3.1.6.5 Removing the Left Cover 3-10
3.1.6.6 Removing the Front Cover 3-10
3.1.6.7 Removing the Right Front Cover 3-11
3.1.7 Left Front Cover 3-11

3.1.7.1 Removing the Cassette....3-11
3.1.7.2 Removing the Reader Right Front Cover....3-11
3.1.7.3 Removing the Right Cover....3-11
3.1.7.4 Removing the Reader Left Front Cover....3-12
3.1.7.5 Removing the Left Cover....3-12
3.1.7.6 Removing the Front Cover....3-12
3.1.7.7 Removing the Left Front Cover....3-13
3.1.8 Operation Panel Cover....3-13
3.1.8.1 Removing the LCD Cover....3-13
3.1.8.2 Removing the Operation panel Cover....3-13
3.1.9 Operation Panel Unit....3-13
3.1.9.1 Removing the LCD Cover....3-13
3.1.9.2 Removing the Reader Left Front Cover....3-14
3.1.9.3 Removing the Operation Panel Unit....3-14
3.1.10 SCNT Board....3-14
3.1.10.1 Removing the Cassette....3-14
3.1.10.2 Removing the Reader Right Front Cover....3-14
3.1.10.3 Removing the Right Cover....3-14
3.1.10.4 Removing the Reader Left Front Cover....3-15
3.1.10.5 Removing the Left Cover....3-15
3.1.10.6 Removing the NCU Board....3-16
3.1.10.7 Removing the NCU Case....3-16
3.1.10.8 Removing the Scanner Unit....3-16
3.1.10.9 Removing the Board Unit....3-17
3.1.10.10 Removing the SCNT Board (for Units with the Fax Function)....3-17
3.1.11 DCNT Board....3-17
3.1.11.1 Removing the Cassette....3-17
3.1.11.2 Removing the Reader Right Front Cover....3-17
3.1.11.3 Removing the Right Cover....3-18
3.1.11.4 Removing the Reader Left Front Cover....3-18
3.1.11.5 Removing the Left Cover....3-18
3.1.11.6 Removing the NCU Board....3-19
3.1.11.7 Removing the NCU Case....3-19
3.1.11.8 Removing the Front Cover....3-19
3.1.11.9 Removing the Left Front Cover....3-20
3.1.11.10 Removing the DCNT Board....3-20
3.1.12 NCU Board....3-20
3.1.12.1 Removing the Cassette....3-20
3.1.12.2 Removing the Reader Left Front Cover....3-20
3.1.12.3 Removing the Left Cover....3-21
3.1.12.4 Removing the NCU Board....3-21
3.1.13 Modular Board....3-21
3.1.13.1 Removing the Cassette....3-21
3.1.13.2 Removing the Reader Left Front Cover....3-21
3.1.13.3 Removing the Left Cover....3-22
3.1.13.4 Removing the Modular Board....3-22
3.1.14 Power Supply Board....3-22
3.1.14.1 Removing the Cassette....3-22
3.1.14.2 Removing the Reader Right Front Cover....3-22

3.1.14.3 Removing the Right Cover 3-22
3.1.14.4 Removing the Reader Left Front Cover 3-23
3.1.14.5 Removing the Left Cover 3-23
3.1.14.6 Removing the NCU Board and Modular Board 3-24
3.1.14.7 Removing the NCU Case 3-24
3.1.14.8 Removing the Rear Cover 3-24
3.1.14.9 Removing the Power Supply Shield Plate 3-24
3.1.14.10 Removing the Power Supply Assembly 3-25
3.1.14.11 Removing the Power Supply Board 3-25
3.1.15 High-voitage Power Supply board 3-25
3.1.15.1 Removing the Cassette 3-25
3.1.15.2 Removing the Reader Right Front Cover 3-26
3.1.15.3 Removing the Right Cover 3-26
3.1.15.4 Removing the Reader Left Front Cover 3-26
3.1.15.5 Removing the Left Cover 3-26
3.1.15.6 Removing the NCU Board and Modular Board 3-27
3.1.15.7 Removing the NCU Case 3-27
3.1.15.8 Removing the Rear Cover 3-27
3.1.15.9 Removing the Power Supply Shield plate 3-28
3.1.15.10 Removing the Power Supply Assembly 3-28
3.1.15.11 Removing the High-Voltage Power Supply Board 3-29
3.1.16 Top Sensor 3-29
3.1.16.1 Removing the Cassette 3-29
3.1.16.2 Removing the Reader Right Front Cover 3-29
3.1.16.3 Removing the Right Cover 3-29
3.1.16.4 Removing the Reader Left Front Cover 3-30
3.1.16.5 Removing the Left Cover 3-30
3.1.16.6 Removing the Front Cover 3-30
3.1.16.7 Removing the Rear Cover 3-31
3.1.16.8 Removing the NCU Board and Modular Board 3-31
3.1.16.9 Removing the NCU Case 3-31
3.1.16.10 Removing the Scanner Unit 3-32
3.1.16.11 Removing the Plate 3-32
3.1.16.12 Removing the Power Supply Shield Plate 3-32
3.1.16.13 Removing the Power Supply Assembly 3-33
3.1.16.14 Removing the Top Sensor 3-33
3.1.17 Paper Delivery Sensor 3-33
3.1.17.1 Removing the Cassette 3-33
3.1.17.2 Removing the Reader Right Front Cover 3-33
3.1.17.3 Removing the Right Cover 3-34
3.1.17.4 Removing the Reader Left Front Cover 3-34
3.1.17.5 Removing the Left Cover 3-34
3.1.17.6 Removing the Front Cover 3-35
3.1.17.7 Removing the Rear Cover 3-35
3.1.17.8 Removing the NCU Board and Modular Board 3-35
3.1.17.9 Removing the NCU Case 3-35
3.1.17.10 Removing the Scanner Unit 3-36
3.1.17.11 Removing the Plate 3-36
3.1.17.12 Removing the Power Supply Shield Plate 3-37

3.1.17.13 Removing the Paper Delivery Sensor 3-37
3.1.18 Paper Full Sensor 3-37
3.1.18.1 Removing the Cassette 3-37
3.1.18.2 Removing the Reader Right Front Cover 3-37
3.1.18.3 Removing the Right Cover 3-37
3.1.18.4 Removing the Reader Left Front Cover 3-38
3.1.18.5 Removing the Left Cover 3-38
3.1.18.6 Removing the Front Cover 3-38
3.1.18.7 Removing the Rear Cover 3-39
3.1.18.8 Removing the NCU Board 3-39
3.1.18.9 Removing the NCU Case 3-39
3.1.18.10 Removing the Scanner Unit 3-40
3.1.18.11 Removing the Top Cover 3-40
3.1.18.12 Removing the Paper Full Sensor 3-40
3.1.19 Toner Sensor 3-41
3.1.19.1 Removing the Cassette 3-41
3.1.19.2 Removing the Reader Right Front Cover 3-41
3.1.19.3 Removing the Right Cover 3-41
3.1.19.4 Removing the Reader Left Front Cover 3-41
3.1.19.5 Removing the Left Cover 3-42
3.1.19.6 Removing the Front Cover 3-42
3.1.19.7 Removing the Left Front Cover 3-42
3.1.19.8 Removing the Toner Sensor 3-42
3.1.20 Speaker 3-43
3.1.20.1 Removing the Cassette 3-43
3.1.20.2 Removing the Reader Right Front Cover 3-43
3.1.20.3 Removing the Right Cover 3-43
3.1.20.4 Removing the Reader Left Front Cover 3-43
3.1.20.5 Removing the Left Cover 3-44
3.1.20.6 Removing the NCU Board 3-44
3.1.20.7 Removing the NCU Case 3-44
3.1.20.8 Removing the Scanner Unit 3-45
3.1.20.9 Removing the Board Unit 3-45
3.1.20.10 Removing the ADF Unit 3-46
3.1.20.11 Removing the LCD Cover 3-46
3.1.20.12 Removing the Operation Panel Unit 3-46
3.1.20.13 Removing the Scanner Cover Unit 3-46
3.1.20.14 Removing the Speaker 3-47
3.2 Document Feed/Exposure System 3-48
3.2.1 Scanner Unit 3-48
3.2.1.1 Removing the Cassette 3-48
3.2.1.2 Removing the Reader Right Front Cover 3-48
3.2.1.3 Removing the Right Cover 3-48
3.2.1.4 Removing the Reader Left Front Cover 3-48
3.2.1.5 Removing the Left Cover 3-48
3.2.1.6 Removing the NCU Board 3-49
3.2.1.7 Removing the NCU Case 3-49
3.2.1.8 Removing the Scanner Unit 3-49
3.2.2 ADF Unit 3-50

3.2.2.1 Removing the Cassette 3-50
3.2.2.2 Removing the Reader Right Front Cover 3-50
3.2.2.3 Removing the Right Cover 3-50
3.2.2.4 Removing the Reader Left Front Cover 3-51
3.2.2.5 Removing the Left Cover 3-51
3.2.2.6 Removing the NCU Board 3-51
3.2.2.7 Removing the NCU Case 3-52
3.2.2.8 Removing the Scanner Unit 3-52
3.2.2.9 Removing the Board Unit 3-52
3.2.2.10 Removing the ADF Unit 3-53
3.2.3 Scanner Cover Unit 3-53
3.2.3.1 Removing the Cassette 3-53
3.2.3.2 Removing the Reader Right Front Cover 3-53
3.2.3.3 Removing the Right Cover 3-54
3.2.3.4 Removing the Reader Left Front Cover 3-54
3.2.3.5 Removing the Left Cover 3-54
3.2.3.6 Removing the NCU Board 3-55
3.2.3.7 Removing the NCU Case 3-55
3.2.3.8 Removing the Scanner Unit 3-55
3.2.3.9 Removing the Board Unit 3-56
3.2.3.10 Removing the ADF Unit 3-56
3.2.3.11 Removing the LCD Cover 3-57
3.2.3.12 Removing the Operation Panel Unit 3-57
3.2.3.13 Removing the Scanner Cover Unit 3-57
3.2.4 CCD Unit 3-58
3.2.4.1 Removing the Cassette 3-58
3.2.4.2 Removing the Reader Right Front Cover 3-58
3.2.4.3 Removing the Right Cover 3-58
3.2.4.4 Removing the Reader Left Front Cover 3-58
3.2.4.5 Removing the Left Cover 3-59
3.2.4.6 Removing the NCU Board 3-59
3.2.4.7 Removing the NCU Case 3-59
3.2.4.8 Removing the Scanner Unit 3-60
3.2.4.9 Removing the Board Unit 3-60
3.2.4.10 Removing the ADF Unit 3-61
3.2.4.11 Removing the LCD Cover 3-61
3.2.4.12 Removing the Operation Panel Unit 3-61
3.2.4.13 Removing the Scanner Cover Unit 3-61
3.2.4.14 Removing the Flatbed Motor Unit 3-62
3.2.4.15 Removing the CCD Unit 3-62
3.2.5 Flatbed Motor Unit 3-62
3.2.5.1 Removing the Cassette 3-62
3.2.5.2 Removing the Reader Right Front Cover 3-62
3.2.5.3 Removing the Right Cover 3-62
3.2.5.4 Removing the Reader Left Front Cover 3-63
3.2.5.5 Removing the Left Cover 3-63
3.2.5.6 Removing the NCU Board 3-64
3.2.5.7 Removing the NCU Case 3-64
3.2.5.8 Removing the Scanner Unit 3-64

3.2.5.9 Removing the Board Unit 3-65
3.2.5.10 Removing the ADF Unit 3-65
3.2.5.11 Removing the LCD Cover 3-65
3.2.5.12 Removing the Operation Panel Unit 3-66
3.2.5.13 Removing the Scanner Cover Unit 3-66
3.2.5.14 Removing the Flatbed Motor Unit 3-66
3.3 LASER EXPOSURE SYSTEM 3-67
3.3.1 Laser/Scanner Unit 3-67
3.3.1.1 Removing the Cassette 3-67
3.3.1.2 Removing the Reader Right Front Cover 3-67
3.3.1.3 Removing the Right Cover 3-67
3.3.1.4 Removing the Reader Left Front Cover 3-67
3.3.1.5 Removing the Left Cover 3-67
3.3.1.6 Removing the Front Cover 3-68
3.3.1.7 Removing the Rear Cover 3-68
3.3.1.8 Removing the NCU Board 3-69
3.3.1.9 Removing the NCU Case 3-69
3.3.1.10 Removing the Scanner Unit 3-69
3.3.1.11 Removing the Top Cover and Left Front Cover 3-70
3.3.1.12 Removing the Laser/Scanner Unit 3-70
3.4 IMAGE FORMATION SYSTEM 3-71
3.4.1 Transfer Charging Roller 3-71
3.4.1.1 Removing the Transfer Charging Roller 3-71
3.5 PICKUP AND FEEDING SYSTEM 3-72
3.5.1 Cassette Pickup Roller 3-72
3.5.1.1 Removing the Cassette 3-72
3.5.1.2 Removing the Reader Right Front Cover 3-72
3.5.1.3 Removing the Right Cover 3-72
3.5.1.4 Removing the Reader Left Front Cover 3-72
3.5.1.5 Removing the Left Cover 3-72
3.5.1.6 Removing the Front Cover 3-73
3.5.1.7 Removing the Right Front Cover 3-73
3.5.1.8 Removing the Gear Unit 3-73
3.5.1.9 Removing the Tooth-Missing Gear 3-74
3.5.1.10 Removing the Cassette Pickup Roller 3-74
3.5.2 Cassette Pickup Solenoid 3-74
3.5.2.1 Removing the Cassette 3-74
3.5.2.2 Removing the Reader Right Front Cover 3-74
3.5.2.3 Removing the Right Cover 3-74
3.5.2.4 Removing the Reader Left Front Cover 3-75
3.5.2.5 Removing the Left Cover 3-75
3.5.2.6 Removing the Front Cover 3-76
3.5.2.7 Removing the Rear Cover 3-76
3.5.2.8 Removing the NCU Board and Modular Board 3-76
3.5.2.9 Removing the NCU Case 3-76
3.5.2.10 Removing the Scanner Unit 3-77
3.5.2.11 Removing the Plate 3-77
3.5.2.12 Removing the Power Supply Shield Plate 3-78
3.5.2.13 Removing the Power Supply Assembly 3-78

3.5.2.14 Removing the Cassette Pickup Solenoid 3-78
3.5.3 Cassette Separation Pad 3-78
3.5.3.1 Removing the Cassette 3-78
3.5.3.2 Removing the Rear of the Cassette 3-78
3.5.3.3 Removing the Cassette Separation Pad 3-79
3.5.4 Paper Feed Roller 3-79
3.5.4.1 Removing the Cassette 3-79
3.5.4.2 Removing the Reader Right Front Cover 3-79
3.5.4.3 Removing the Right Cover 3-79
3.5.4.4 Removing the Reader Left Front Cover 3-80
3.5.4.5 Removing the Left Cover 3-80
3.5.4.6 Removing the Front Cover 3-81
3.5.4.7 Removing the Rear Cover 3-81
3.5.4.8 Removing the NCU Board 3-81
3.5.4.9 Removing the NCU Case 3-81
3.5.4.10 Removing the Scanner Unit 3-82
3.5.4.11 Removing the Top Cover 3-82
3.5.4.12 Removing the Stay 3-83
3.5.4.13 Removing the Right Frame 3-83
3.5.4.14 Removing the Right Front Cover 3-83
3.5.4.15 Removing the Plate 3-83
3.5.4.16 Removing the Left Frame 3-83
3.5.4.17 Removing the Left Front Cover 3-84
3.5.4.18 Removing the Gear Unit 3-84
3.5.4.19 Removing the Tooth-Missing Gear 3-84
3.5.4.20 Removing the DCNT Board 3-84
3.5.4.21 Removing the Manual Stay 3-85
3.5.4.22 Removing the Paper Feed Guide 3-85
3.5.4.23 Removing the Paper Feed Roller 3-85
3.5.5 Manual Pickup Solenoid 3-85
3.5.5.1 Removing the Cassette 3-85
3.5.5.2 Removing the Reader Right Front Cover 3-85
3.5.5.3 Removing the Right Cover 3-86
3.5.5.4 Removing the Reader Left Front Cover 3-86
3.5.5.5 Removing the Left Cover 3-86
3.5.5.6 Removing the Front Cover 3-87
3.5.5.7 Removing the Rear Cover 3-87
3.5.5.8 Removing the NCU Board and Modular Board 3-88
3.5.5.9 Removing the NCU Case 3-88
3.5.5.10 Removing the Right Front Cover 3-88
3.5.5.11 Removing the Gear Unit 3-88
3.5.5.12 Removing the Tooth-Missing Gear 3-89
3.5.5.13 Removing the Power Supply Shield Plate 3-89
3.5.5.14 Removing the Power Supply Assembly 3-89
3.5.5.15 Removing the Manual Paper Feed Solenoid 3-90
3.5.6 Main Motor 3-90
3.5.6.1 Removing the Cassette 3-90
3.5.6.2 Removing the Reader Right Front Cover 3-90
3.5.6.3 Removing the Right Cover 3-90

3.5.6.4 Removing the Reader Left Front Cover 3-91
3.5.6.5 Removing the Left Cover 3-91
3.5.6.6 Removing the NCU Board and Modular Board 3-91
3.5.6.7 Removing the NCU Case 3-92
3.5.6.8 Removing the Rear Cover 3-92
3.5.6.9 Removing the Power Supply Shield Plate 3-92
3.5.6.10 Removing the Power Supply Assembly 3-93
3.5.6.11 Removing the Main Motor 3-93
3.5.7 Gear Unit 3-93
3.5.7.1 Removing the Cassette 3-93
3.5.7.2 Removing the Reader Right Front Cover 3-93
3.5.7.3 Removing the Right Cover 3-94
3.5.7.4 Removing the Reader Left Front Cover 3-94
3.5.7.5 Removing the Left Cover 3-94
3.5.7.6 Removing the Front Cover 3-95
3.5.7.7 Removing the Right Front Cover 3-95
3.5.7.8 Removing the Gear Unit 3-95
3.6 FIXING SYSTEM 3-97
3.6.1 Fixing Film Unit 3-97
3.6.1.1 Removing the Cassette 3-97
3.6.1.2 Removing the Reader Right Front Cover 3-97
3.6.1.3 Removing the Right Cover 3-97
3.6.1.4 Removing the Reader Left Front Cover 3-97
3.6.1.5 Removing the Left Cover 3-97
3.6.1.6 Removing the Front Cover 3-98
3.6.1.7 Removing the Rear Cover 3-98
3.6.1.8 Removing the NCU Board 3-99
3.6.1.9 Removing the NCU Case 3-99
3.6.1.10 Removing the Scanner Unit 3-99
3.6.1.11 Removing the Top Cover 3-100
3.6.1.12 Removing the Stay 3-100
3.6.1.13 Removing the Right Frame 3-100
3.6.1.14 Removing the Plate 3-100
3.6.1.15 Removing the Left Frame 3-101
3.6.1.16 Removing the Power Supply Shield Plate 3-101
3.6.1.17 Removing the Fixing Film Unit 3-101
3.6.2 Fixing Pressure Roller 3-102
3.6.2.1 Removing the Cassette 3-102
3.6.2.2 Removing the Reader Right Front Cover 3-102
3.6.2.3 Removing the Right Cover 3-102
3.6.2.4 Removing the Reader Left Front Cover 3-103
3.6.2.5 Removing the Left Cover 3-103
3.6.2.6 Removing the Front Cover 3-103
3.6.2.7 Removing the Rear Cover 3-104
3.6.2.8 Removing the NCU Board 3-104
3.6.2.9 Removing the NCU Case 3-104
3.6.2.10 Removing the Scanner Unit 3-105
3.6.2.11 Removing the Top Cover 3-105
3.6.2.12 Removing the Stay 3-105

3.6.2.13 Removing the Right Frame 3-106
3.6.2.14 Removing the Plate..... 3-106
3.6.2.15 Removing the Left Frame..... 3-106
3.6.2.16 Removing the Power Supply Shield Plate..... 3-106
3.6.2.17 Removing the Fixing Film Unit 3-107
3.6.2.18 Removing the Fixing Pressure Roller..... 3-107

3.1 EXTERNAL AND CONTROLS SYSTEM

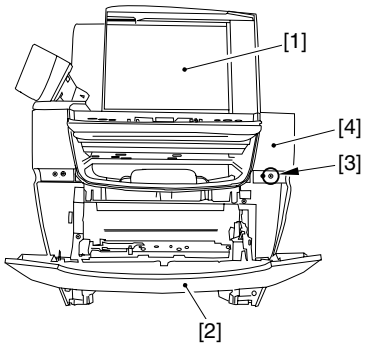
3.1.1 Front Cover

3.1.1.1 Removing the Cassette 0002-6889

1) Remove the cassette by holding the cassette handle.

3.1.1.2 Removing the Reader Right Front Cover 0002-6893

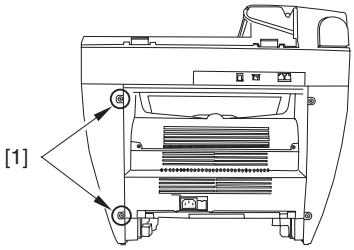
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-1

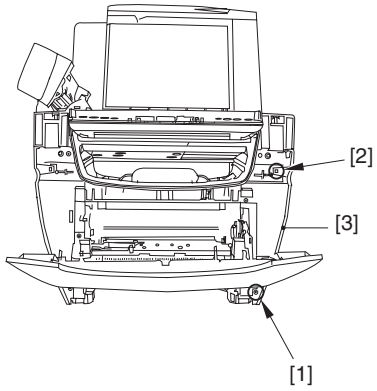
3.1.1.3 Removing the Right Cover 0002-6894

1) Remove the two screws [1] on the back side.



F-3-2

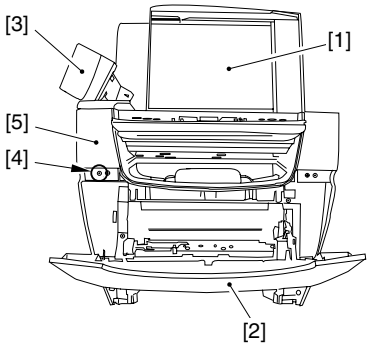
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-3

3.1.1.4 Removing the Reader Left Front Cover 0002-6898

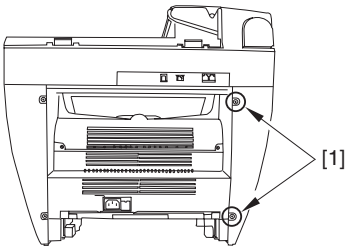
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-4

3.1.1.5 Removing the Left Cover 0002-6899

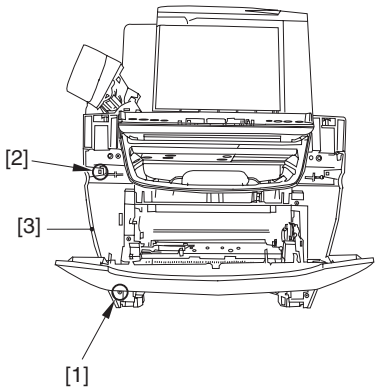
1) Remove the two screws [1] on the back side.



F-3-5

2) Remove the front screw [1] and then remove the claw [2].

3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].

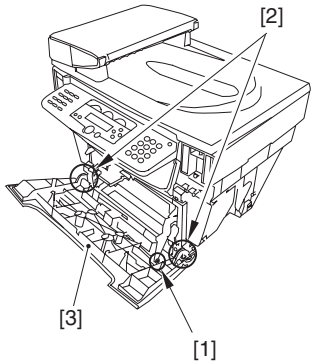


F-3-6

3.1.1.6 Removing the Front Cover 0002-6903

1) Remove the arm claws [1] to disengage the connection.

2) Remove the shafts on both sides [2] and remove the front cover [3].



F-3-7

3.1.2 Rear Cover

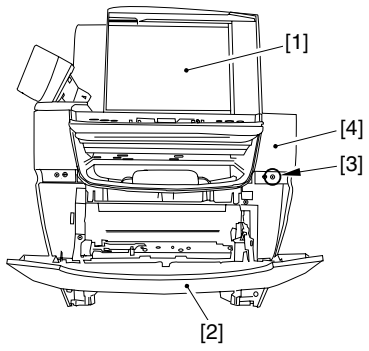
3.1.2.1 Removing the Cassette 0002-6890

1) Remove the cassette by holding the cassette handle.

3.1.2.2 Removing the Reader Right Front Cover 0002-6896

1) Open the platen glass cover [1].

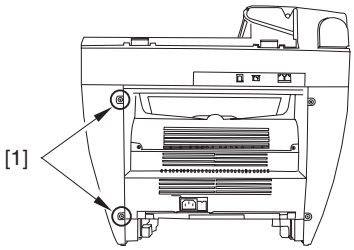
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-8

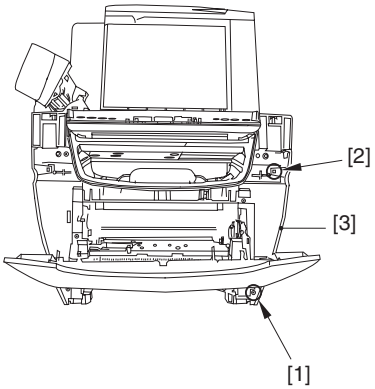
3.1.2.3 Removing the Right Cover 0002-6897

1) Remove the two screws [1] on the back side.



F-3-9

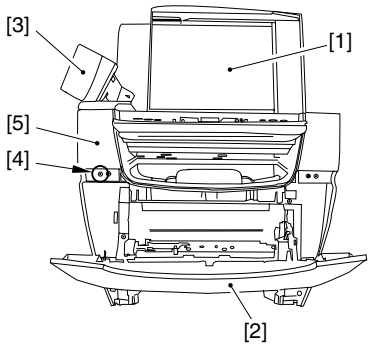
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-10

3.1.2.4 Removing the Reader Left Front Cover 0002-6900

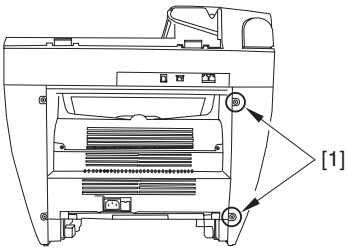
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-11

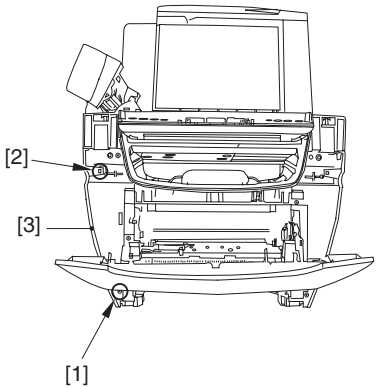
3.1.2.5 Removing the Left Cover 0002-6902

1) Remove the two screws [1] on the back side.



F-3-12

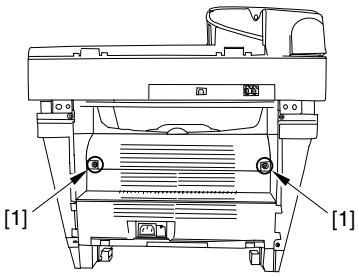
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-13

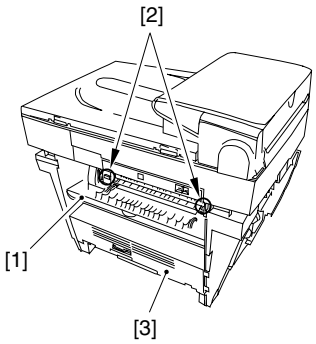
3.1.2.6 Removing the Rear Cover 0002-6905

1) Remove two screws [1].



F-3-14

2) Opening the face-up cover [1], and then lower the fixing pressure release levers [2] on both sides and release the pressure.
3) Remove the rear cover [3] as you slide it toward the rear.



F-3-15

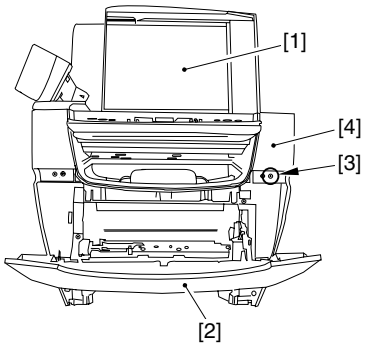
3.1.3 Top Cover

3.1.3.1 Removing the Cassette 0002-6891

1) Remove the cassette by holding the cassette handle.

3.1.3.2 Removing the Reader Right Front Cover 0002-6909

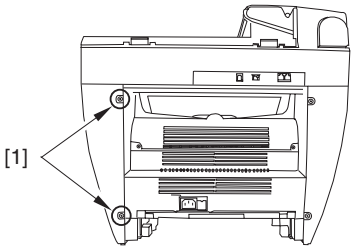
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-16

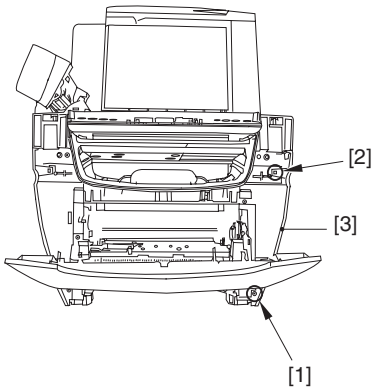
3.1.3.3 Removing the Right Cover 0002-6910

1) Remove the two screws [1] on the back side.



F-3-17

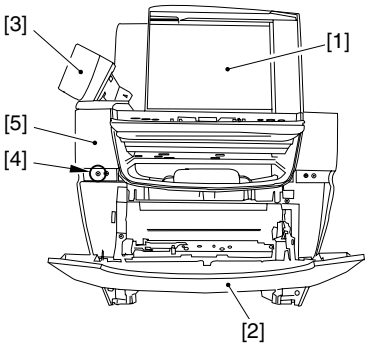
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-18

3.1.3.4 Removing the Reader Left Front Cover 0002-6911

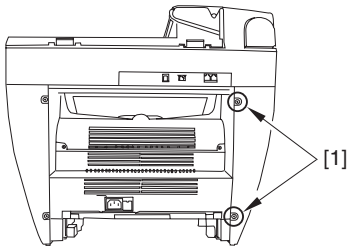
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-19

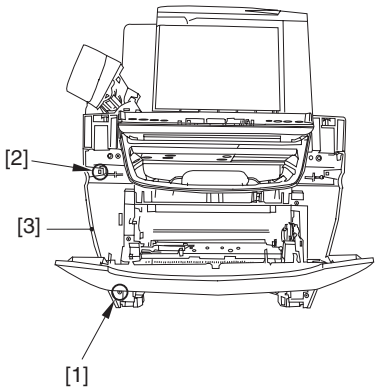
3.1.3.5 Removing the Left Cover 0002-6913

1) Remove the two screws [1] on the back side.



F-3-20

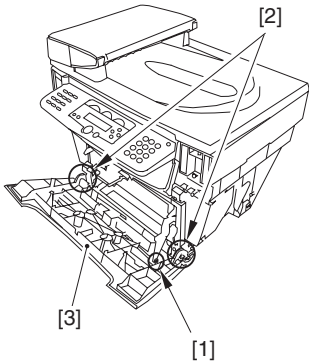
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-21

3.1.3.6 Removing the Front Cover 0002-6914

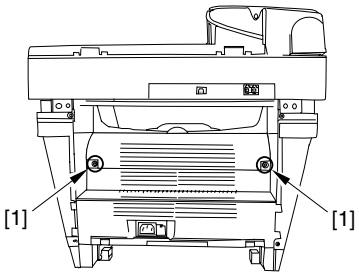
1) Remove the arm claws [1] to disengage the connection.
2) Remove the shafts on both sides [2] and remove the front cover [3].



F-3-22

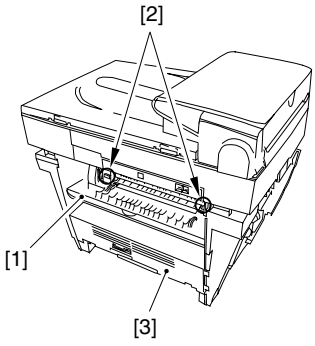
3.1.3.7 Removing the Rear Cover 0002-6915

1) Remove two screws [1].



F-3-23

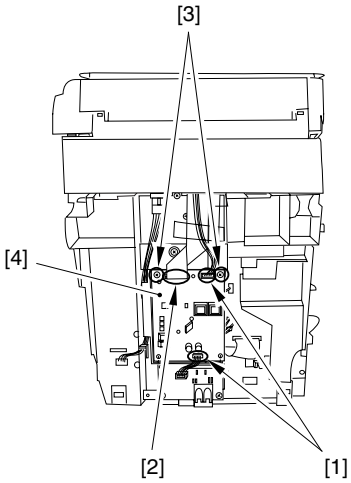
2) Opening the face-up cover [1], and then lower the fixing pressure release levers [2] on both sides and release the pressure.
3) Remove the rear cover [3] as you slide it toward the rear.



F-3-24

3.1.3.8 Removing the NCU Board 0005-9809

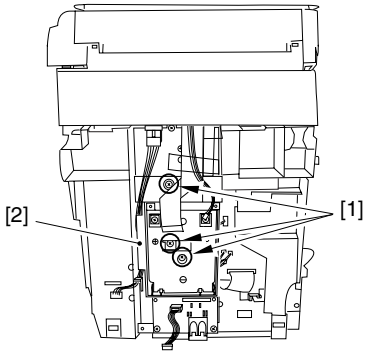
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the two screws [3] and remove the NCU board [4].



F-3-25

3.1.3.9 Removing the NCU Case 0005-9810

1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.

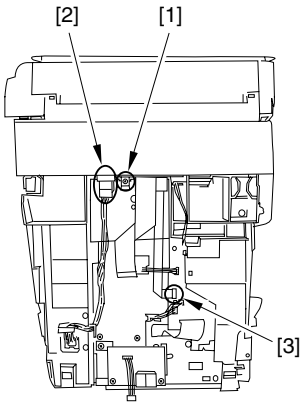


F-3-26

3.1.3.10 Removing the Scanner Unit 0005-9811

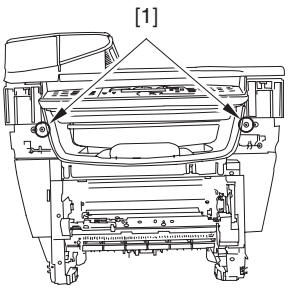
1) Remove the screw [1] and remove the connector [2] as well as the flat cable [3] on the DCNT board. Remove the tape holding the cable in advance.

Prepare a new tape (Part No: AZ7-0008) of a suitable length before you attach the cable again.



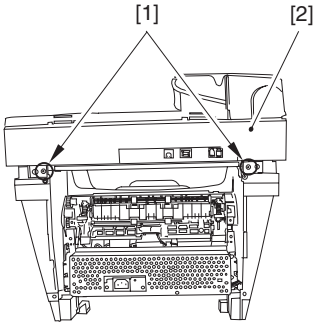
F-3-27

2) Remove the two front screws [1].



F-3-28

3) Remove the two screws on the back [1]. Slide the scanner unit [2] to the back; then, remove it by lifting it.



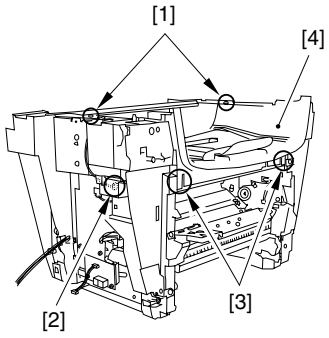
F-3-29

3.1.3.11 Removing the Top Cover 0005-9814

1) Remove the two screws [1].

2) Remove the connector [2] of the DCNT board.

3) Remove the two claws [3] and remove the top cover [4].



F-3-30

3.1.4 Right Cover

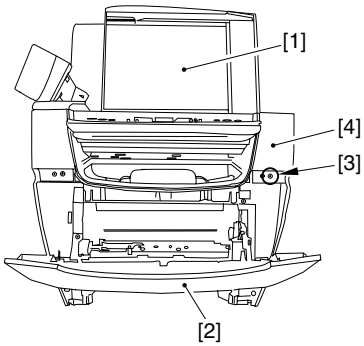
3.1.4.1 Removing the Cassette 0002-6871

1) Remove the cassette by holding the cassette handle.

3.1.4.2 Removing the Reader Right Front Cover 0002-6872

1) Open the platen glass cover [1].

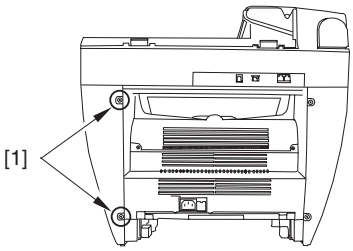
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-31

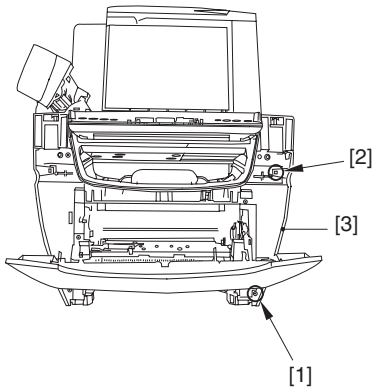
3.1.4.3 Removing the Right Cover 0002-6873

1) Remove the two screws [1] on the back side.



F-3-32

2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-33

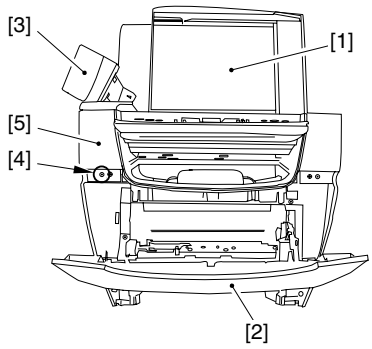
3.1.5 Left Cover

3.1.5.1 Removing the Cassette 0002-6874

1) Remove the cassette by holding the cassette handle.

3.1.5.2 Removing the Reader Left Front Cover 0002-6877

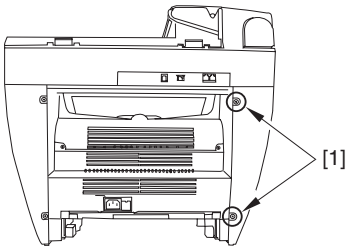
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-34

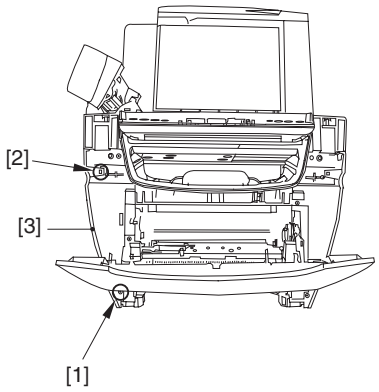
3.1.5.3 Removing the Left Cover 0002-6879

1) Remove the two screws [1] on the back side.



F-3-35

2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-36

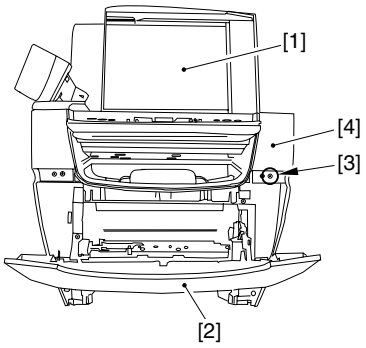
3.1.6 Right Front Cover

3.1.6.1 Removing the Cassette 0002-6875

1) Remove the cassette by holding the cassette handle.

3.1.6.2 Removing the Reader Right Front Cover 0002-6882

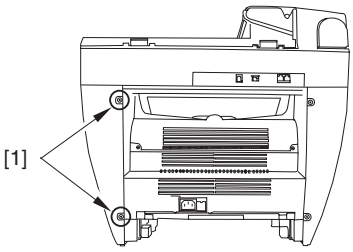
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-37

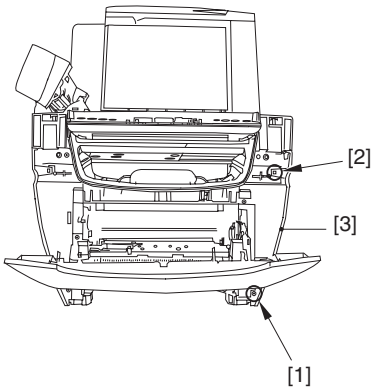
3.1.6.3 Removing the Right Cover 0002-6883

1) Remove the two screws [1] on the back side.



F-3-38

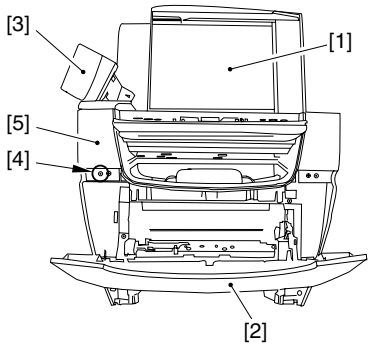
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-39

3.1.6.4 Removing the Reader Left Front Cover 0002-6885

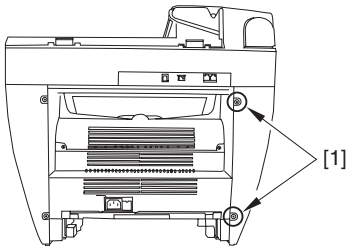
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-40

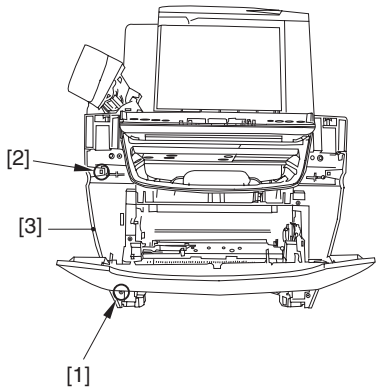
3.1.6.5 Removing the Left Cover 0002-6886

1) Remove the two screws [1] on the back side.



F-3-41

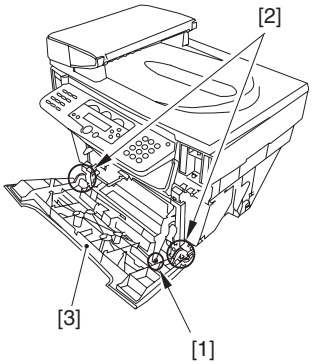
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-42

3.1.6.6 Removing the Front Cover 0002-6922

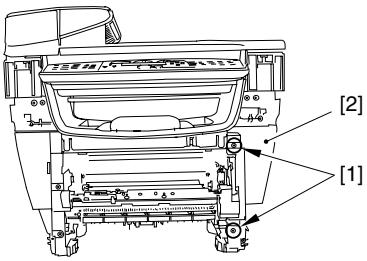
1) Remove the arm claws [1] to disengage the connection.
2) Remove the shafts on both sides [2] and remove the front cover [3].



F-3-43

3.1.6.7 Removing the Right Front Cover 0002-6935

1) Remove the two screws [1] and then removes the right front cover [2].



F-3-44

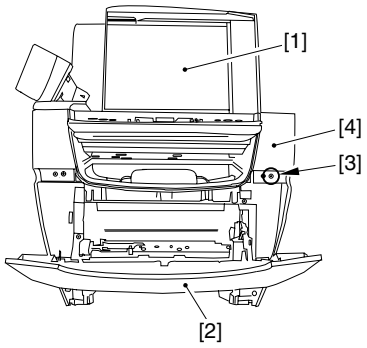
3.1.7 Left Front Cover

3.1.7.1 Removing the Cassette 0002-6876

1) Remove the cassette by holding the cassette handle.

3.1.7.2 Removing the Reader Right Front Cover 0002-6937

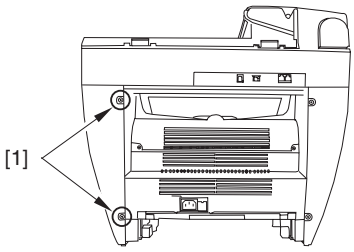
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-45

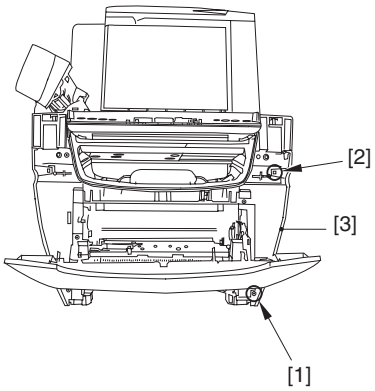
3.1.7.3 Removing the Right Cover 0002-6939

1) Remove the two screws [1] on the back side.



F-3-46

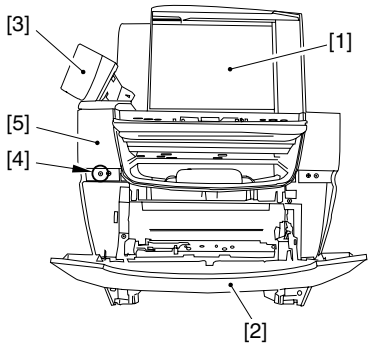
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-47

3.1.7.4 Removing the Reader Left Front Cover 0002-6940

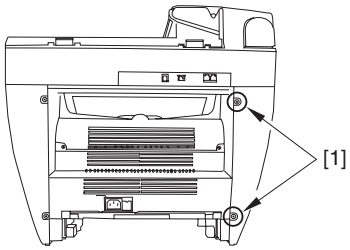
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-48

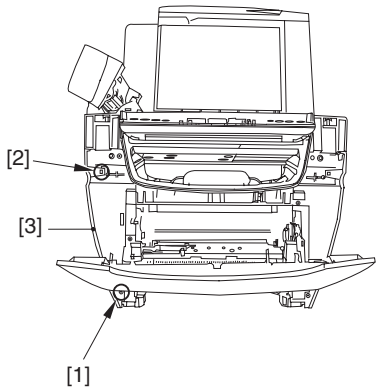
3.1.7.5 Removing the Left Cover 0002-6941

1) Remove the two screws [1] on the back side.



F-3-49

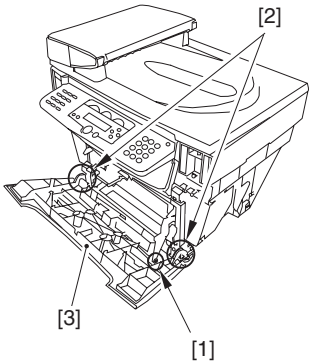
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-50

3.1.7.6 Removing the Front Cover 0002-6942

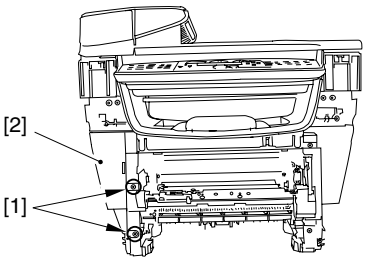
1) Remove the arm claws [1] to disengage the connection.
2) Remove the shafts on both sides [2] and remove the front cover [3].



F-3-51

3.1.7.7 Removing the Left Front Cover 0002-7050

1) Remove the two screws [1] and then removes the left front cover [2].

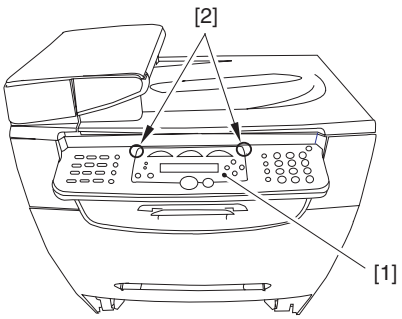


F-3-52

3.1.8 Operation Panel Cover

3.1.8.1 Removing the LCD Cover 0002-7708

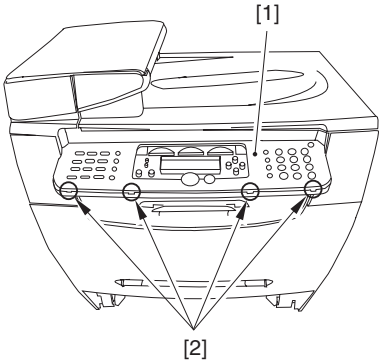
1) Insert a precision flattop screwdriver, etc. onto the claws [2] in the rear (both sides) of the LCD cover [1] to disengage the claws to remove the LCD cover.



F-3-53

3.1.8.2 Removing the Operation panel Cover 0002-7710

1) Disengage the four claws [2] of the operation panel cover [1] and remove the operation panel cover.

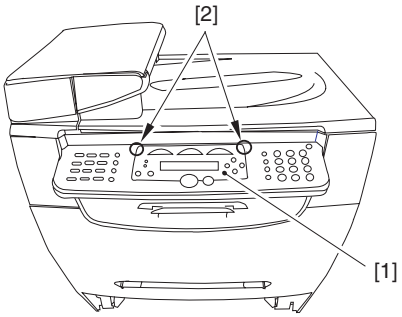


F-3-54

3.1.9 Operation Panel Unit

3.1.9.1 Removing the LCD Cover 0002-7712

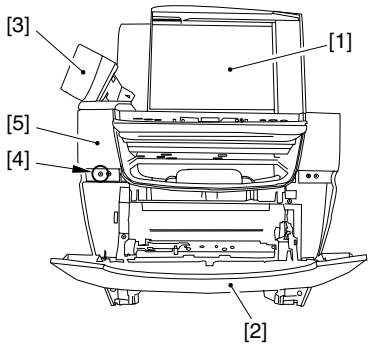
1) Insert a precision flattop screwdriver, etc. onto the claws [2] in the rear (both sides) of the LCD cover [1] to disengage the claws to remove the LCD cover.



F-3-55

3.1.9.2 Removing the Reader Left Front Cover 0002-7713

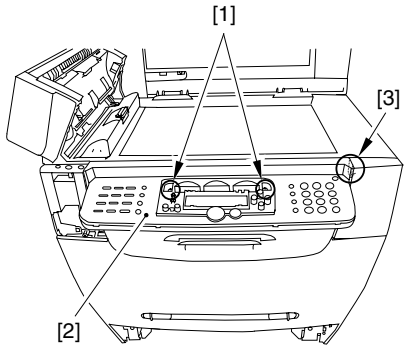
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-56

3.1.9.3 Removing the Operation Panel Unit 0002-7714

1) Remove the two screws [1].
2) Disengage the claw [3] on the rear right side of the operation panel unit [2] and lift it up. After removing the two flat cables, remove the operation panel unit.



F-3-57

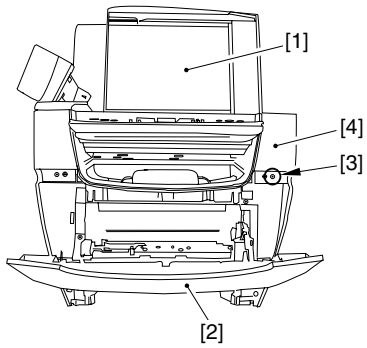
3.1.10 SCNT Board

3.1.10.1 Removing the Cassette 0006-2984

1) Remove the cassette by holding the cassette handle.

3.1.10.2 Removing the Reader Right Front Cover 0006-2985

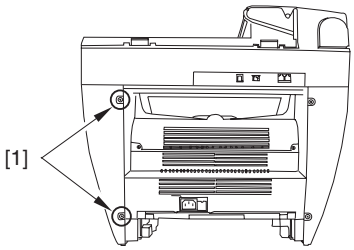
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-58

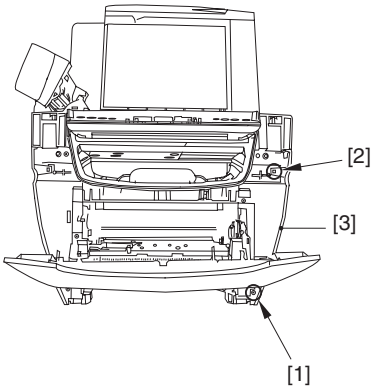
3.1.10.3 Removing the Right Cover 0006-2986

1) Remove the two screws [1] on the back side.



F-3-59

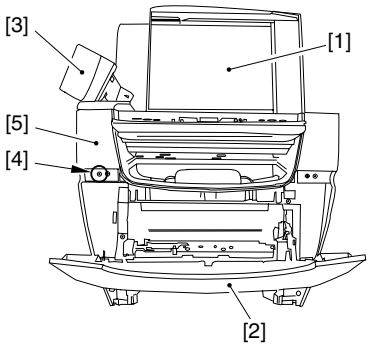
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-60

3.1.10.4 Removing the Reader Left Front Cover 0006-2987

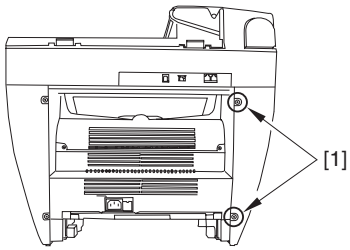
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-61

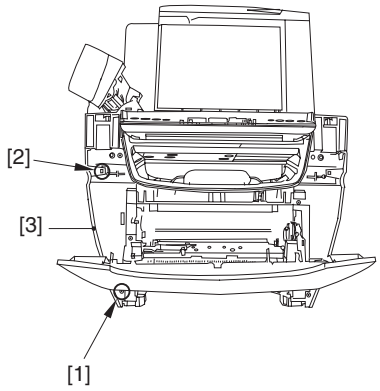
3.1.10.5 Removing the Left Cover 0006-2988

1) Remove the two screws [1] on the back side.



F-3-62

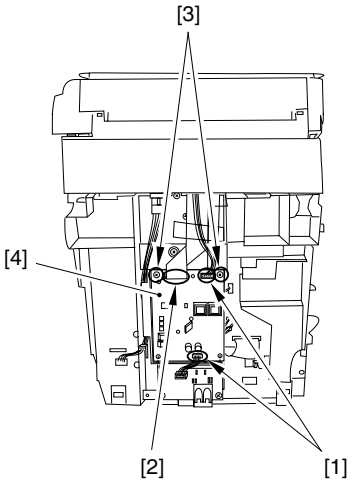
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-63

3.1.10.6 Removing the NCU Board 0005-9963

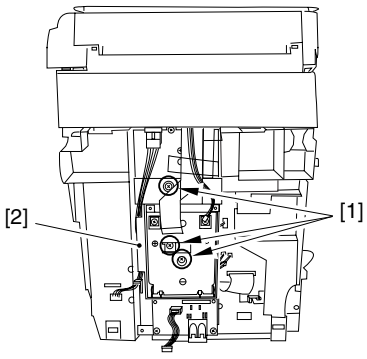
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the two screws [3] and remove the NCU board [4].



F-3-64

3.1.10.7 Removing the NCU Case 0005-9964

1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.

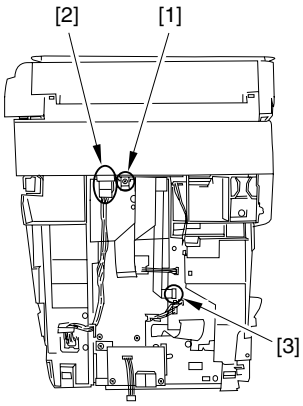


F-3-65

3.1.10.8 Removing the Scanner Unit 0005-9966

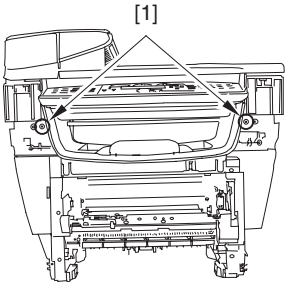
1) Remove the screw [1] and remove the connector [2] as well as the flat cable [3] on the DCNT board. Remove the tape holding the cable in advance.

Prepare a new tape (Part No: AZ7-0008) of a suitable length before you attach the cable again.



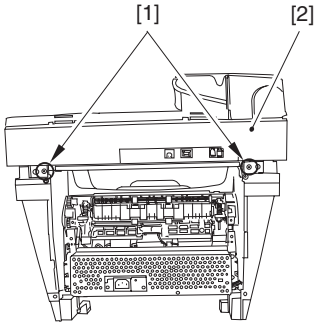
F-3-66

2) Remove the two front screws [1].



F-3-67

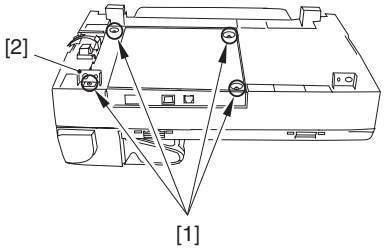
3) Remove the two screws on the back [1]. Slide the scanner unit [2] to the back; then, remove it by lifting it.



F-3-68

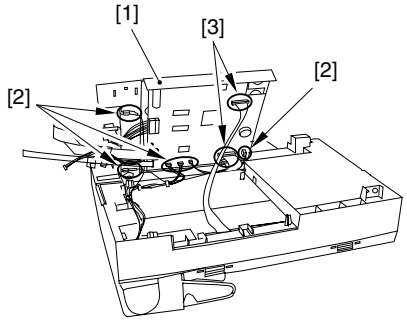
3.1.10.9 Removing the Board Unit 0005-9967

1) Remove the four screws [1] on the back side of the scanner unit. Ensure that the mounting plate [2] does not get lost.



F-3-69

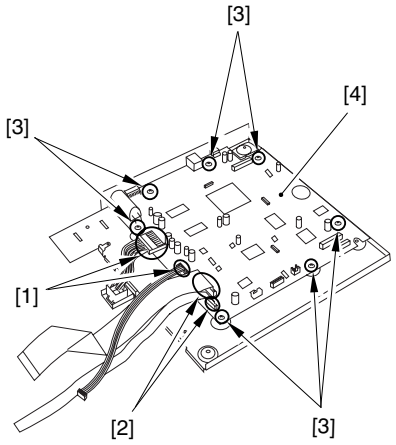
2) Open up the board unit [1] and take off the connector at six spots (five if the unit is not equipped with the fax function) [2] and three flat cables [3].



F-3-70

3.1.10.10 Removing the SCNT Board (for Units with the Fax Function) 0005-9970

1) Remove the two connectors [1] and the two flat cables [2].
2) Remove the seven screws [3] and remove the SCNT board [4].



F-3-71

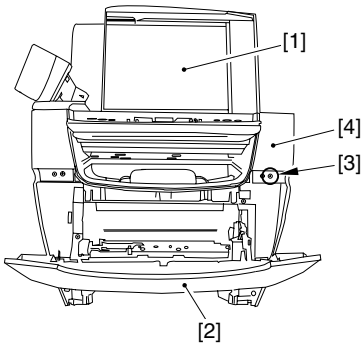
3.1.11 DCNT Board

3.1.11.1 Removing the Cassette 0005-9890

1) Remove the cassette by holding the cassette handle.

3.1.11.2 Removing the Reader Right Front Cover 0005-9948

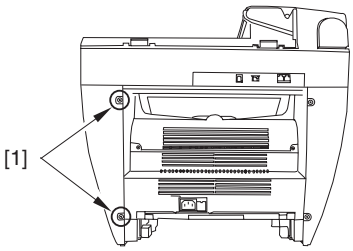
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-72

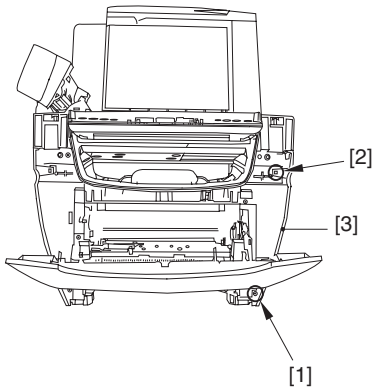
3.1.11.3 Removing the Right Cover 0005-9949

1) Remove the two screws [1] on the back side.



F-3-73

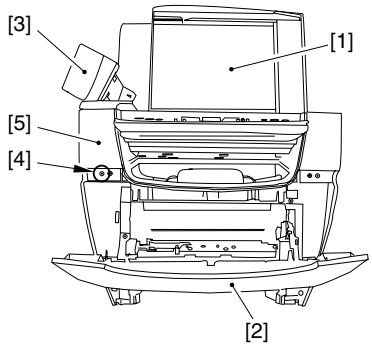
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-74

3.1.11.4 Removing the Reader Left Front Cover 0005-9951

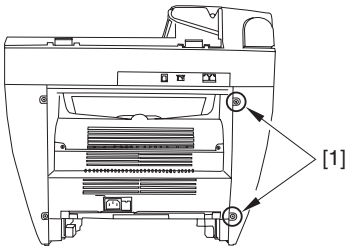
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-75

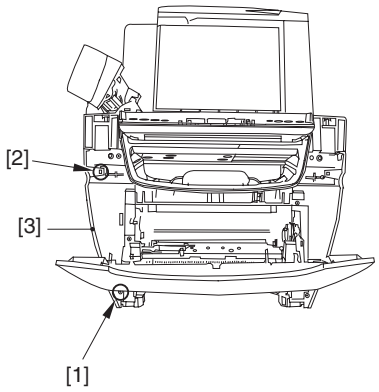
3.1.11.5 Removing the Left Cover 0005-9952

1) Remove the two screws [1] on the back side.



F-3-76

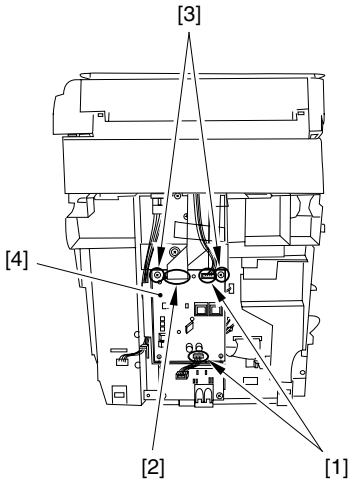
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-77

3.1.11.6 Removing the NCU Board 0005-9953

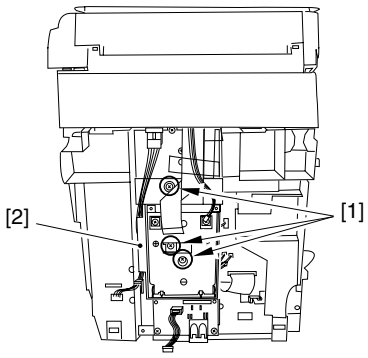
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the two screws [3] and remove the NCU board [4].



F-3-78

3.1.11.7 Removing the NCU Case 0005-9955

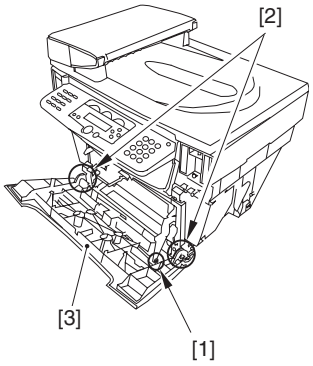
1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.



F-3-79

3.1.11.8 Removing the Front Cover 0005-9950

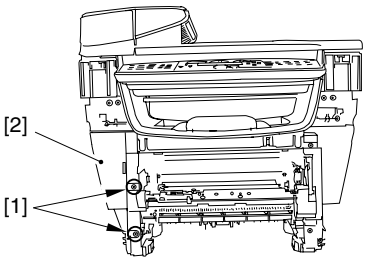
1) Remove the arm claws [1] to disengage the connection.
2) Remove the shafts on both sides [2] and remove the front cover [3].



F-3-80

3.1.11.9 Removing the Left Front Cover 0005-9957

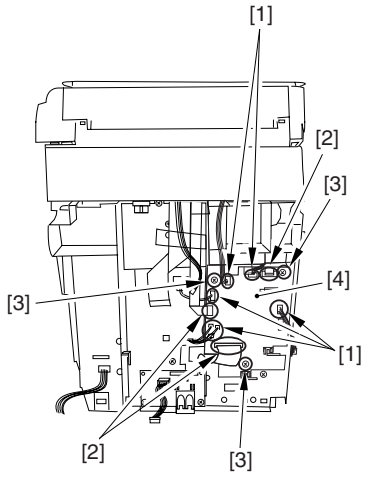
1) Remove the two screws [1] and then removes the left front cover [2].



F-3-81

3.1.11.10 Removing the DCNT Board 0005-9958

1) Take off the connectors at seven spots (six if the unit is not equipped with the fax function) [1] as well as the flat cable at three spots [2].
2) Remove the three screws [3] and, while carefully watching the sensor flag, removes the DCNT board [4].



F-3-82

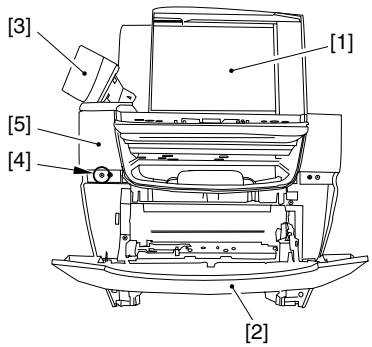
3.1.12 NCU Board

3.1.12.1 Removing the Cassette 0006-2969

1) Remove the cassette by holding the cassette handle.

3.1.12.2 Removing the Reader Left Front Cover 0006-2971

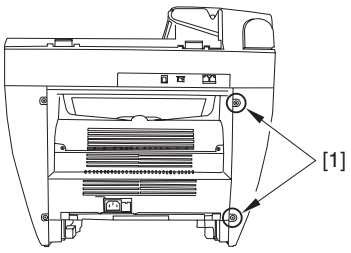
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-83

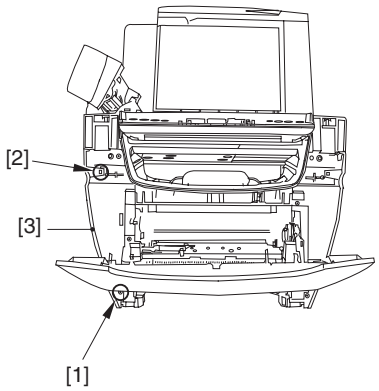
3.1.12.3 Removing the Left Cover 0006-2972

1) Remove the two screws [1] on the back side.



F-3-84

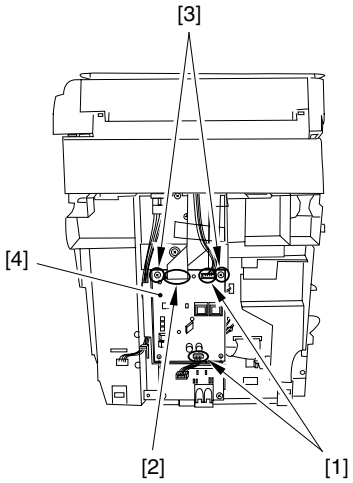
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-85

3.1.12.4 Removing the NCU Board 0005-9796

1) Remove the two connectors [1] and the flat cable [2].
2) Remove the two screws [3] and remove the NCU board [4].



F-3-86

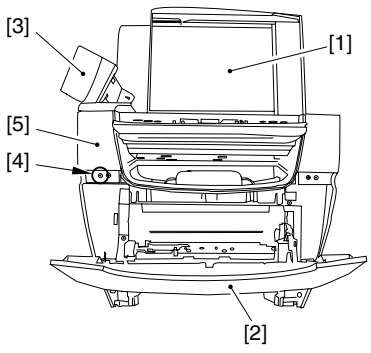
3.1.13 Modular Board

3.1.13.1 Removing the Cassette 0006-2973

1) Remove the cassette by holding the cassette handle.

3.1.13.2 Removing the Reader Left Front Cover 0006-2974

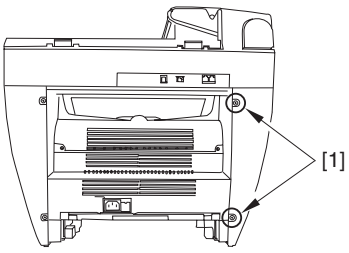
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-87

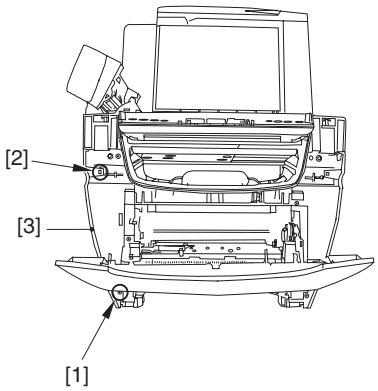
3.1.13.3 Removing the Left Cover 0006-2976

1) Remove the two screws [1] on the back side.



F-3-88

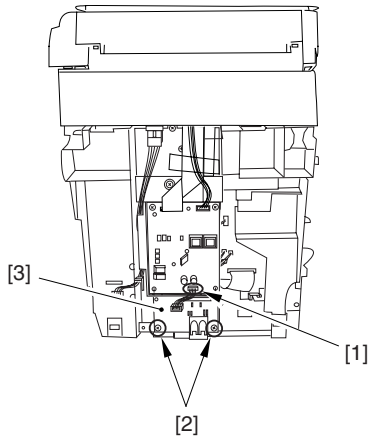
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-89

3.1.13.4 Removing the Modular Board 0005-9797

1) Remove the connector [1] of the NCU board.
2) Remove the two screws [2] and remove the Modular board [3].



F-3-90

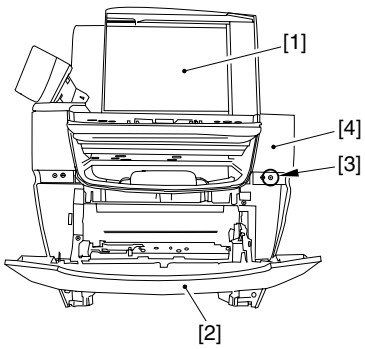
3.1.14 Power Supply Board

3.1.14.1 Removing the Cassette 0002-7493

1) Remove the cassette by holding the cassette handle.

3.1.14.2 Removing the Reader Right Front Cover 0002-7495

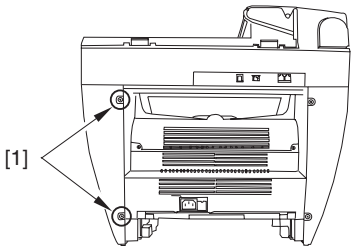
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-91

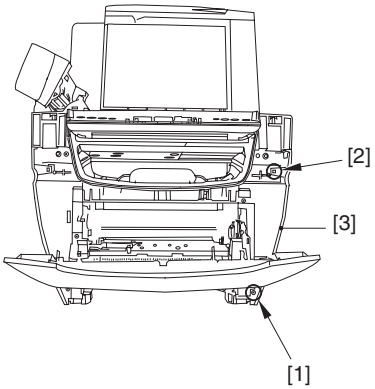
3.1.14.3 Removing the Right Cover 0002-7497

1) Remove the two screws [1] on the back side.



F-3-92

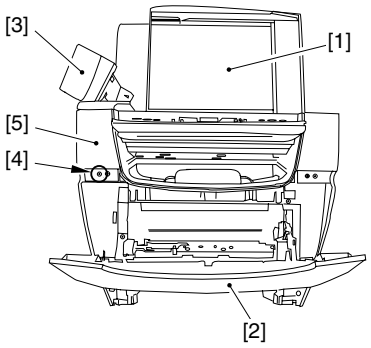
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-93

3.1.14.4 Removing the Reader Left Front Cover 0002-7500

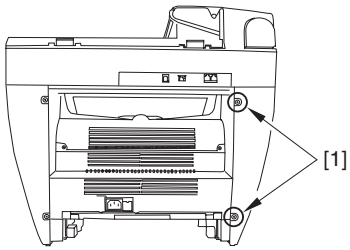
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-94

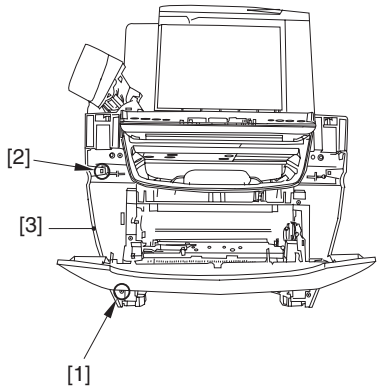
3.1.14.5 Removing the Left Cover 0002-7501

1) Remove the two screws [1] on the back side.



F-3-95

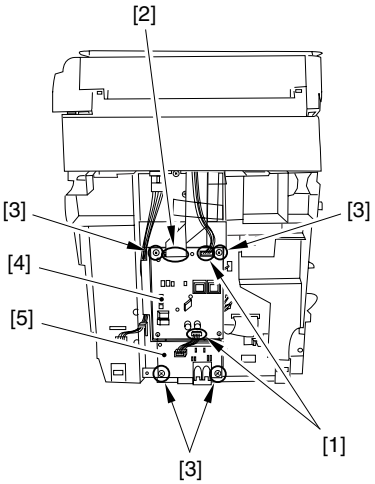
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-96

3.1.14.6 Removing the NCU Board and Modular Board 0005-9913

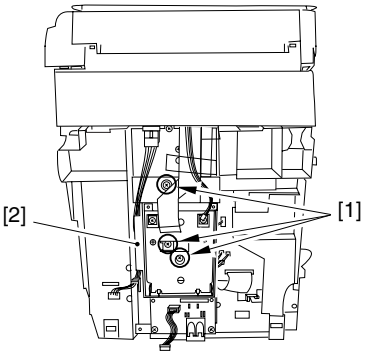
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the four screws [3] and remove the NCU board [4] and modular board [5].



F-3-97

3.1.14.7 Removing the NCU Case 0005-9914

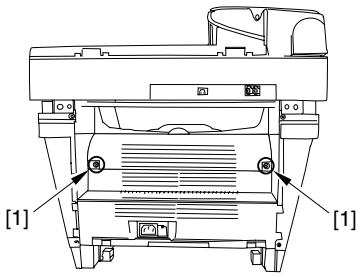
1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.



F-3-98

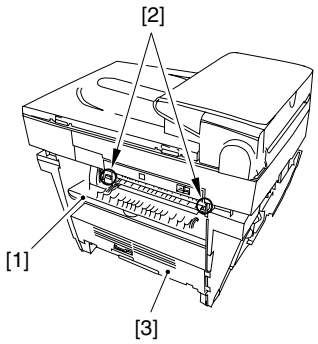
3.1.14.8 Removing the Rear Cover 0002-7507

1) Remove two screws [1].



F-3-99

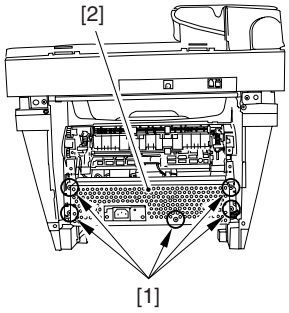
2) Opening the face-up cover [1], and then lower the fixing pressure release levers [2] on both sides and release the pressure.
3) Remove the rear cover [3] as you slide it toward the rear.



F-3-100

3.1.14.9 Removing the Power Supply Shield Plate 0002-7523

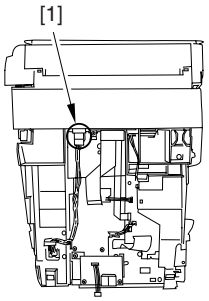
1) Remove the five screws [1] to remove the power supply shield plate [2].



F-3-101

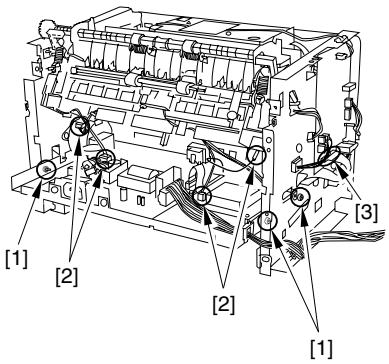
3.1.14.10 Removing the Power Supply Assembly 0005-9911

1) Remove the connector [1] and remove the cable from the cable guide.



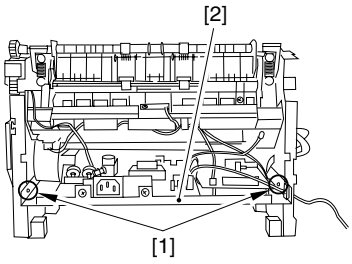
F-3-102

2) Remove the three screws [1]. (The external cover is omitted from the illustration below to show the instructions clearly.)
3) Remove the four connectors [2] as well as the flat cable [3] on the DCNT board.



F-3-103

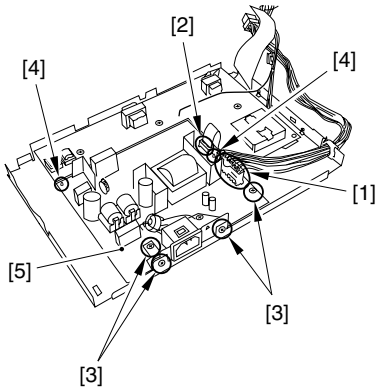
4) As you remove the bosses on both sides [1], lower the front part of the power supply assembly [2]. Then pull it to remove the power supply assembly.



F-3-104

3.1.14.11 Removing the Power Supply Board 0005-9912

1) Remove the connector [1] and the flat cable [2].
2) Remove the four screws [3]. As you disengage the two spacers [4], remove the power supply board [5].



F-3-105

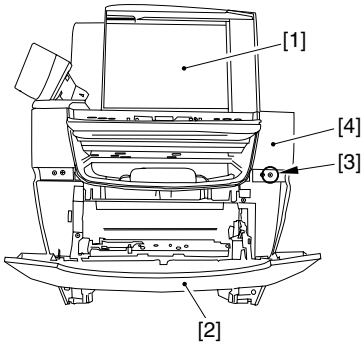
3.1.15 High-voitage Power Supply board

3.1.15.1 Removing the Cassette 0002-7494

1) Remove the cassette by holding the cassette handle.

3.1.15.2 Removing the Reader Right Front Cover 0002-7496

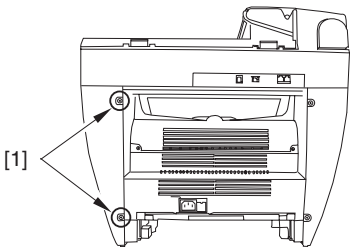
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-106

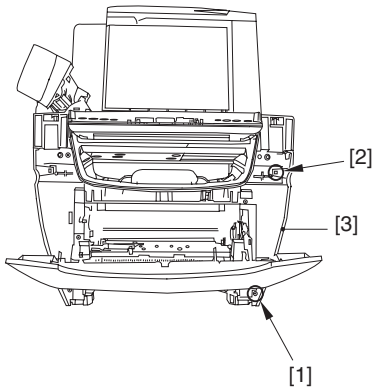
3.1.15.3 Removing the Right Cover 0002-7499

1) Remove the two screws [1] on the back side.



F-3-107

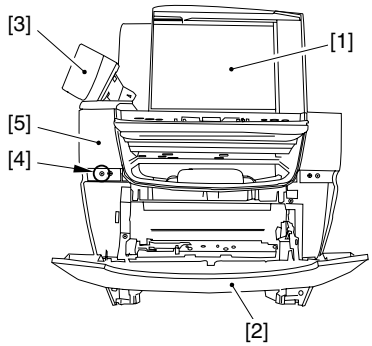
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-108

3.1.15.4 Removing the Reader Left Front Cover 0002-7503

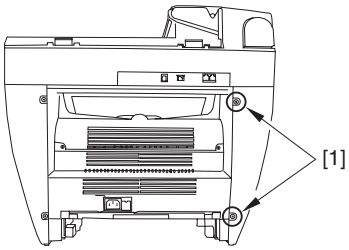
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-109

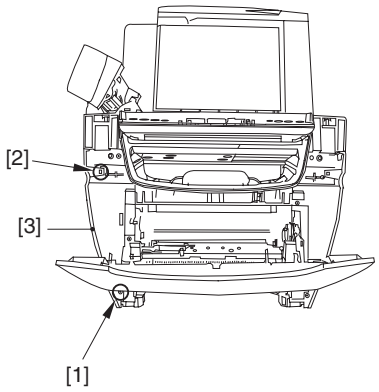
3.1.15.5 Removing the Left Cover 0002-7502

1) Remove the two screws [1] on the back side.



F-3-110

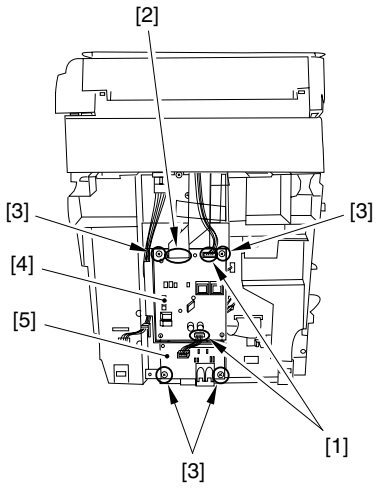
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-111

3.1.15.6 Removing the NCU Board and Modular Board 0005-9924

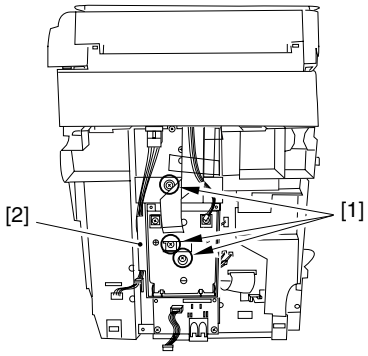
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the four screws [3] and remove the NCU board [4] and modular board [5].



F-3-112

3.1.15.7 Removing the NCU Case 0005-9925

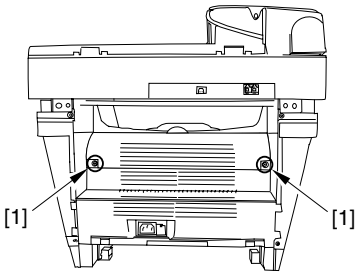
1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.



F-3-113

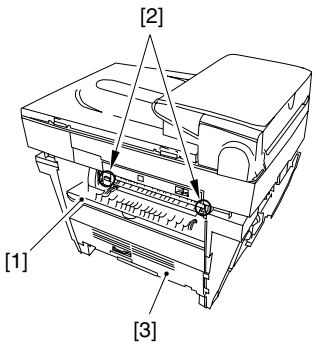
3.1.15.8 Removing the Rear Cover 0002-7506

1) Remove two screws [1].



F-3-114

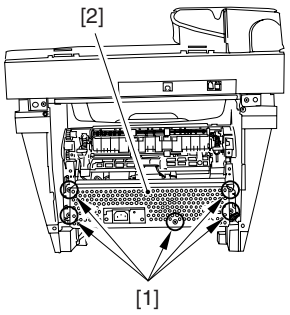
2) Opening the face-up cover [1], and then lower the fixing pressure release levers [2] on both sides and release the pressure.
3) Remove the rear cover [3] as you slide it toward the rear.



F-3-115

3.1.15.9 Removing the Power Supply Shield plate 0002-7526

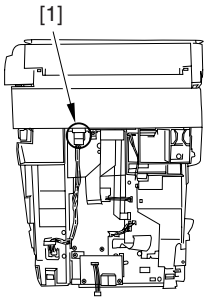
1) Remove the five screws [1] to remove the power supply shield plate [2].



F-3-116

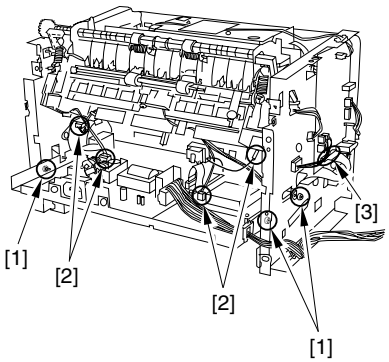
3.1.15.10 Removing the Power Supply Assembly 0005-9926

1) Remove the connector [1] and remove the cable from the cable guide.



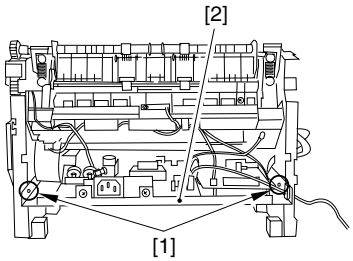
F-3-117

2) Remove the three screws [1]. (The external cover is omitted from the illustration below to show the instructions clearly.)
3) Remove the four connectors [2] as well as the flat cable [3] on the DCNT board.



F-3-118

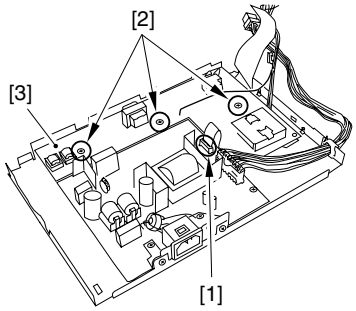
4) As you remove the bosses on both sides [1], lower the front part of the power supply assembly [2]. Then pull it to remove the power supply assembly.



F-3-119

3.1.15.11 Removing the High-Voltage Power Supply Board 0005-9927

1) Remove the flat cable [1].
2) Remove the three screws [2] and the high-voltage power supply board [3].



F-3-120

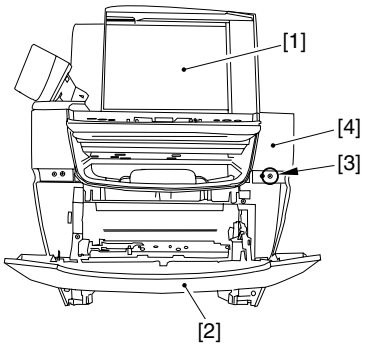
3.1.16 Top Sensor

3.1.16.1 Removing the Cassette 0002-7635

1) Remove the cassette by holding the cassette handle.

3.1.16.2 Removing the Reader Right Front Cover 0002-7612

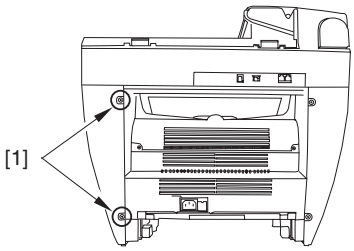
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-121

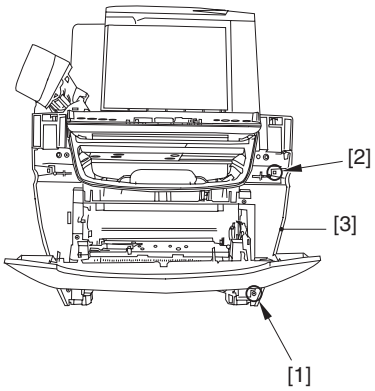
3.1.16.3 Removing the Right Cover 0002-7613

1) Remove the two screws [1] on the back side.



F-3-122

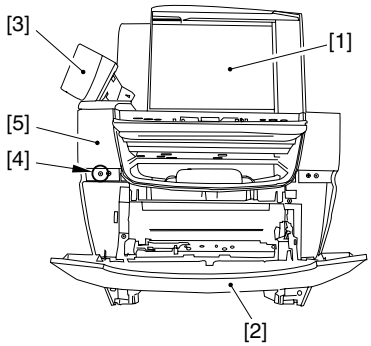
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-123

3.1.16.4 Removing the Reader Left Front Cover 0002-7616

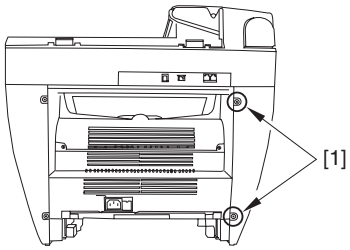
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-124

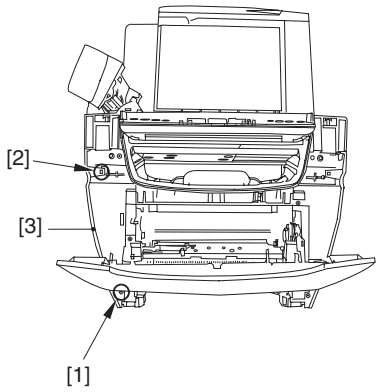
3.1.16.5 Removing the Left Cover 0002-7620

1) Remove the two screws [1] on the back side.



F-3-125

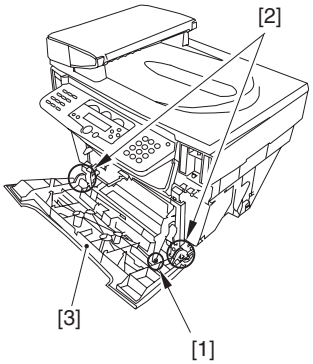
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-126

3.1.16.6 Removing the Front Cover 0002-7622

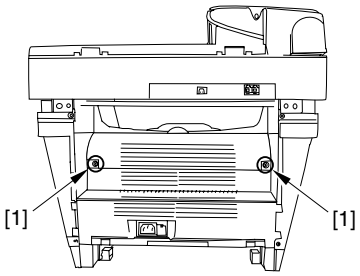
1) Remove the arm claws [1] to disengage the connection.
2) Remove the shafts on both sides [2] and remove the front cover [3].



F-3-127

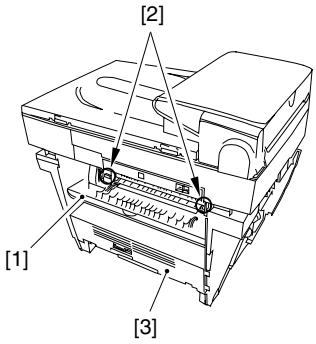
3.1.16.7 Removing the Rear Cover 0002-7624

1) Remove two screws [1].



F-3-128

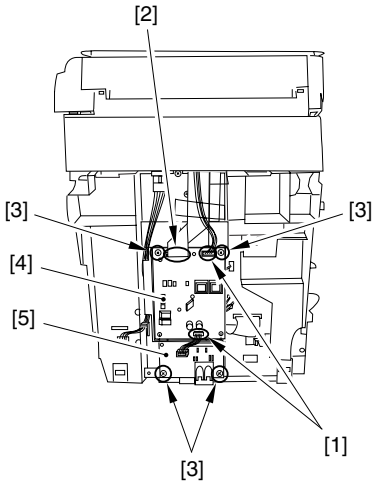
2) Opening the face-up cover [1], and then lower the fixing pressure release levers [2] on both sides and release the pressure.
3) Remove the rear cover [3] as you slide it toward the rear.



F-3-129

3.1.16.8 Removing the NCU Board and Modular Board 0006-3042

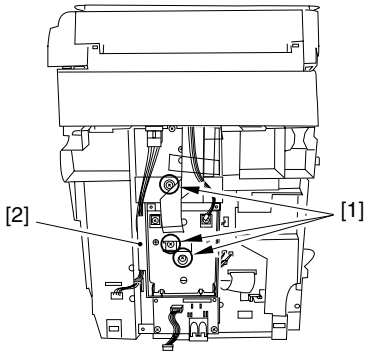
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the four screws [3] and remove the NCU board [4] and modular board [5].



F-3-130

3.1.16.9 Removing the NCU Case 0006-3031

1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.

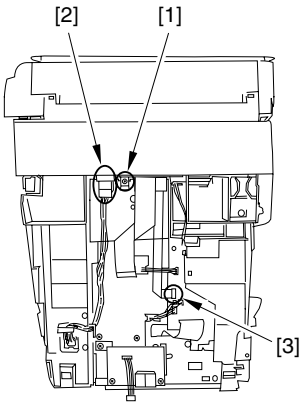


F-3-131

3.1.16.10 Removing the Scanner Unit 0006-3030

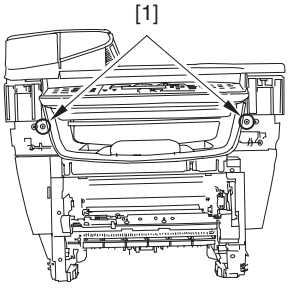
1) Remove the screw [1] and remove the connector [2] as well as the flat cable [3] on the DCNT board. Remove the tape holding the cable in advance.

Prepare a new tape (Part No: AZ7-0008) of a suitable length before you attach the cable again.



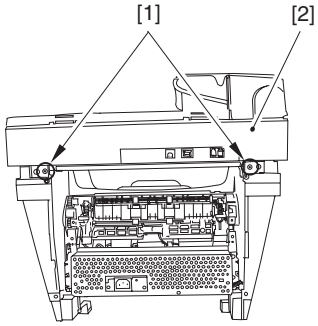
F-3-132

2) Remove the two front screws [1].



F-3-133

3) Remove the two screws on the back [1]. Slide the scanner unit [2] to the back; then, remove it by lifting it.

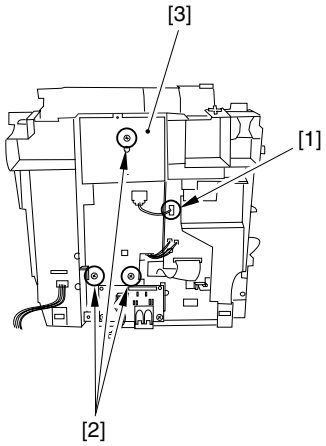


F-3-134

3.1.16.11 Removing the Plate 0006-3035

1) Remove the connector [1] of the DCNT board.

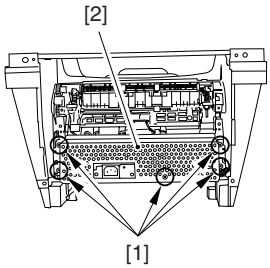
2) Remove the three screws [2] and then removes the plate [3].



F-3-135

3.1.16.12 Removing the Power Supply Shield Plate 0003-7521

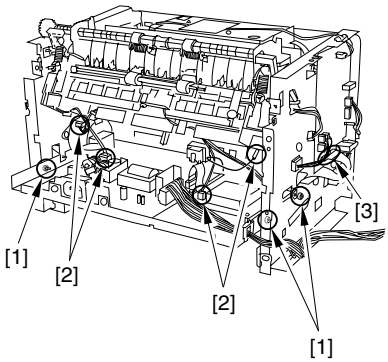
1) Remove the five screws [1] to remove the power supply shield plate [2].



F-3-136

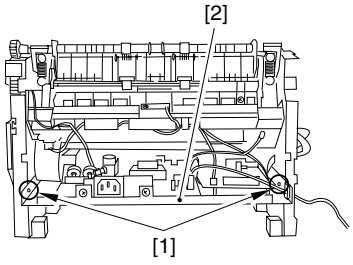
3.1.16.13 Removing the Power Supply Assembly 0006-3037

1) Remove the three screws [1]. (The external cover is omitted from the illustration below to show the instructions clearly.)
2) Remove the four connectors [2] as well as the flat cable [3] on the DCNT board.



F-3-137

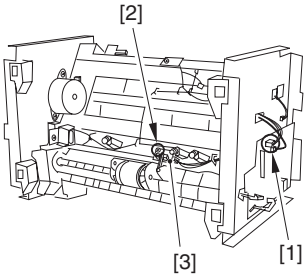
3) As you remove the bosses on both sides [1], lower the front part of the power supply assembly [2]. Then pull it to remove the power supply assembly.



F-3-138

3.1.16.14 Removing the Top Sensor 0006-3038

1) Place the main unit down on its front face (so that the interior of the main unit is easily visible).
2) Remove the connector [1] on the DCNT board and take the cable off the cable guide.
3) Remove the screw [2] and remove the top sensor [3].



F-3-139

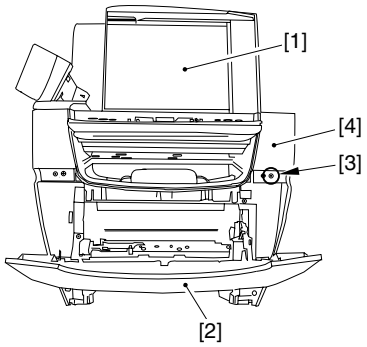
3.1.17 Paper Delivery Sensor

3.1.17.1 Removing the Cassette 0002-7634

1) Remove the cassette by holding the cassette handle.

3.1.17.2 Removing the Reader Right Front Cover 0002-7614

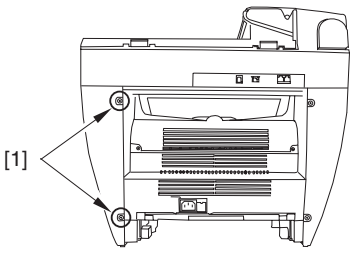
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-140

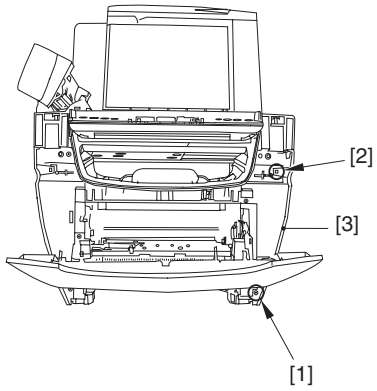
3.1.17.3 Removing the Right Cover 0002-7615

1) Remove the two screws [1] on the back side.



F-3-141

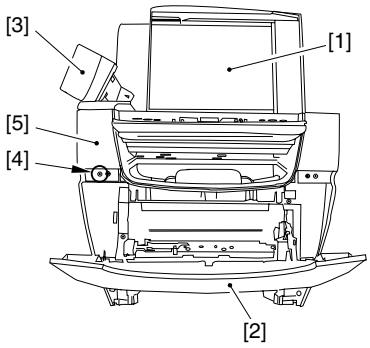
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-142

3.1.17.4 Removing the Reader Left Front Cover 0002-7618

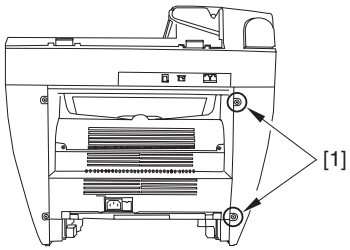
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-143

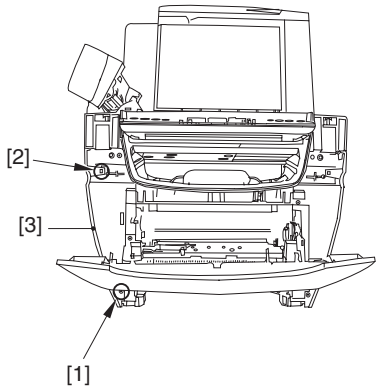
3.1.17.5 Removing the Left Cover 0002-7619

1) Remove the two screws [1] on the back side.



F-3-144

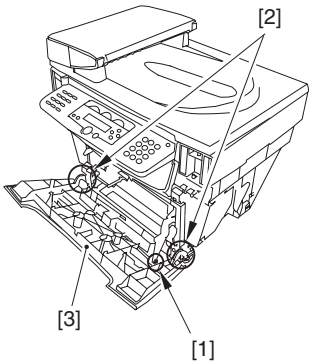
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-145

3.1.17.6 Removing the Front Cover 0002-7621

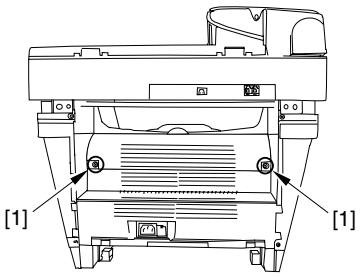
1) Remove the arm claws [1] to disengage the connection.
2) Remove the shafts on both sides [2] and remove the front cover [3].



F-3-146

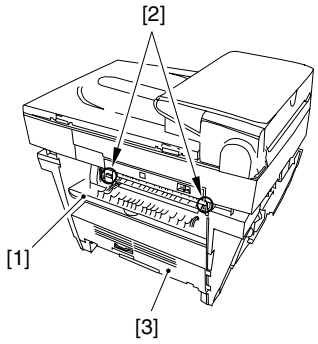
3.1.17.7 Removing the Rear Cover 0002-7623

1) Remove two screws [1].



F-3-147

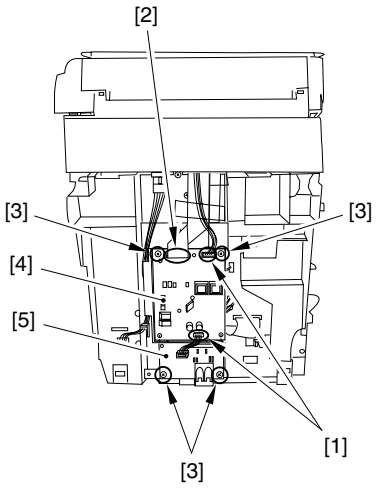
2) Opening the face-up cover [1], and then lower the fixing pressure release levers [2] on both sides and release the pressure.
3) Remove the rear cover [3] as you slide it toward the rear.



F-3-148

3.1.17.8 Removing the NCU Board and Modular Board 0006-3043

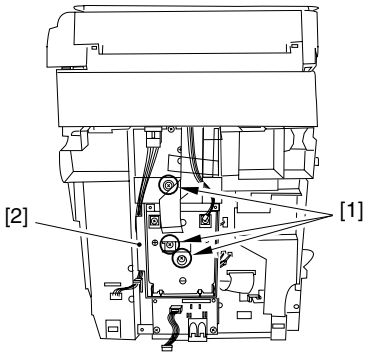
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the four screws [3] and remove the NCU board [4] and modular board [5].



F-3-149

3.1.17.9 Removing the NCU Case 0006-3045

1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.

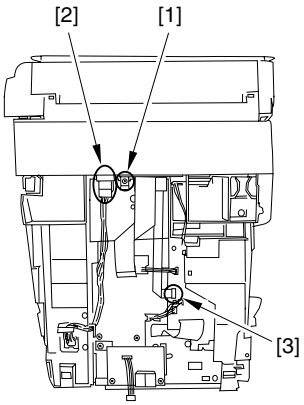


F-3-150

3.1.17.10 Removing the Scanner Unit 0006-3046

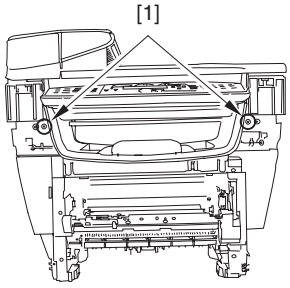
1) Remove the screw [1] and remove the connector [2] as well as the flat cable [3] on the DCNT board. Remove the tape holding the cable in advance.

Prepare a new tape (Part No: AZ7-0008) of a suitable length before you attach the cable again.



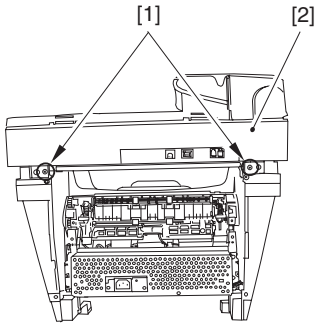
F-3-151

2) Remove the two front screws [1].



F-3-152

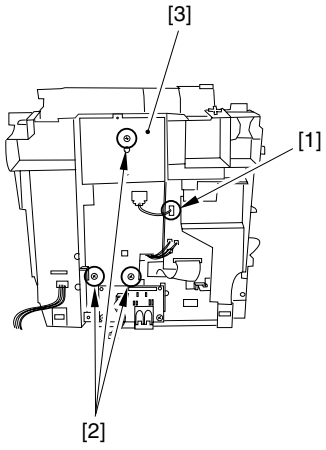
3) Remove the two screws on the back [1]. Slide the scanner unit [2] to the back; then, remove it by lifting it.



F-3-153

3.1.17.11 Removing the Plate 0006-3047

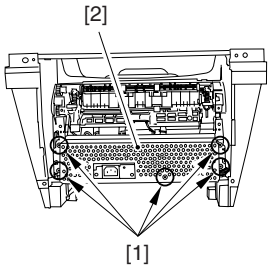
1) Remove the connector [1] of the DCNT board.
2) Remove the three screws [2] and then removes the plate [3].



F-3-154

3.1.17.12 Removing the Power Supply Shield Plate 0003-7541

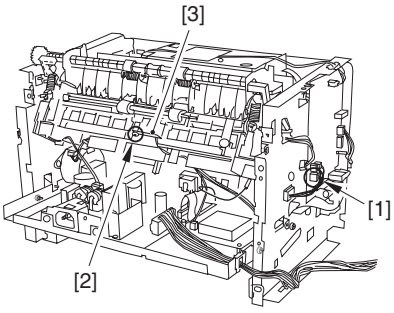
1) Remove the five screws [1] to remove the power supply shield plate [2].



F-3-155

3.1.17.13 Removing the Paper Delivery Sensor 0006-3050

1) Remove the connector [1] on the DCNT board and take the cable off the cable guide.
2) Remove the screw [2] and remove the paper delivery sensor [3].



F-3-156

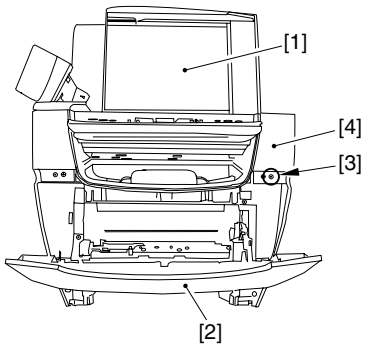
3.1.18 Paper Full Sensor

3.1.18.1 Removing the Cassette 0002-7674

1) Remove the cassette by holding the cassette handle.

3.1.18.2 Removing the Reader Right Front Cover 0002-7677

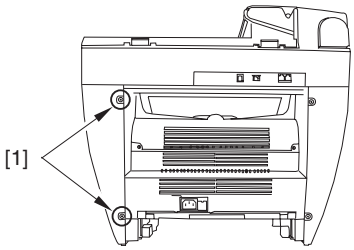
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-157

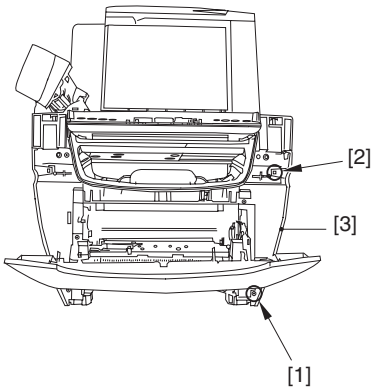
3.1.18.3 Removing the Right Cover 0002-7679

1) Remove the two screws [1] on the back side.



F-3-158

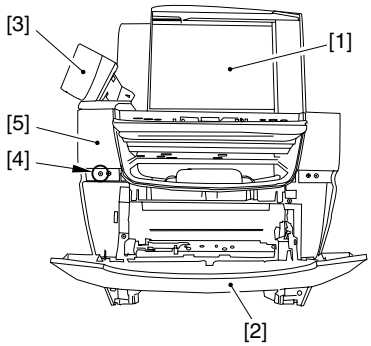
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-159

3.1.18.4 Removing the Reader Left Front Cover 0002-7682

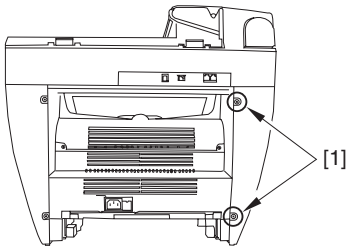
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-160

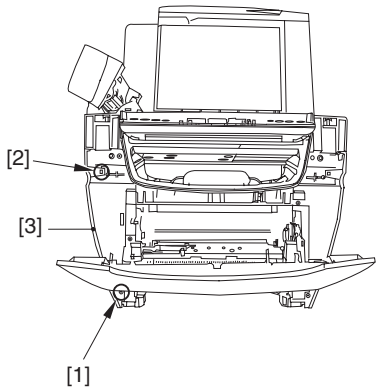
3.1.18.5 Removing the Left Cover 0002-7684

1) Remove the two screws [1] on the back side.



F-3-161

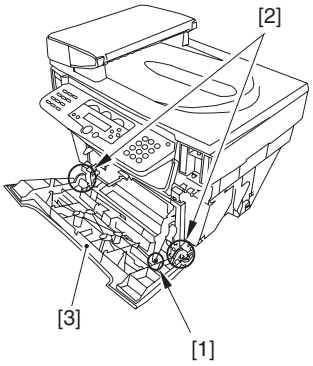
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-162

3.1.18.6 Removing the Front Cover 0002-7687

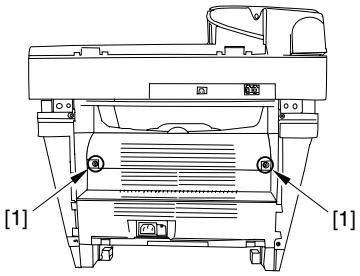
1) Remove the arm claws [1] to disengage the connection.
2) Remove the shafts on both sides [2] and remove the front cover [3].



F-3-163

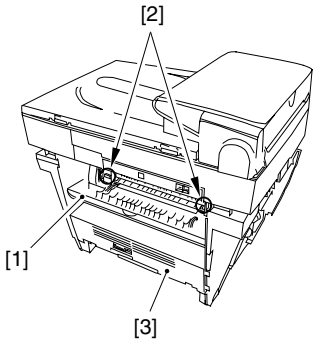
3.1.18.7 Removing the Rear Cover 0002-7689

1) Remove two screws [1].



F-3-164

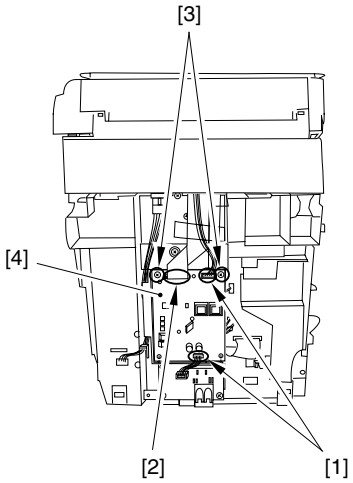
2) Opening the face-up cover [1], and then lower the fixing pressure release levers [2] on both sides and release the pressure.
3) Remove the rear cover [3] as you slide it toward the rear.



F-3-165

3.1.18.8 Removing the NCU Board 0006-3051

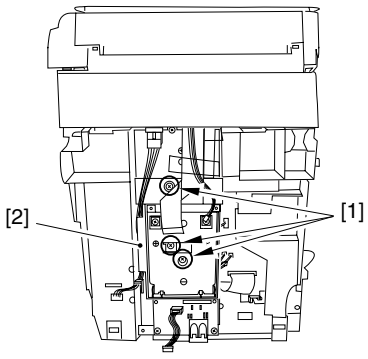
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the two screws [3] and remove the NCU board [4].



F-3-166

3.1.18.9 Removing the NCU Case 0006-3052

1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.

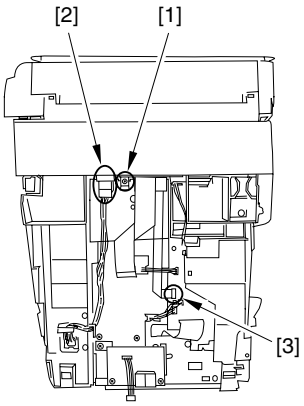


F-3-167

3.1.18.10 Removing the Scanner Unit 0006-3054

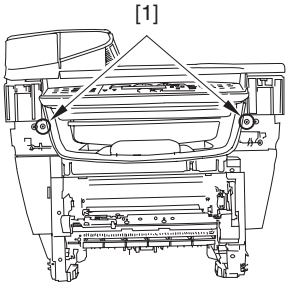
1) Remove the screw [1] and remove the connector [2] as well as the flat cable [3] on the DCNT board. Remove the tape holding the cable in advance.

Prepare a new tape (Part No: AZ7-0008) of a suitable length before you attach the cable again.



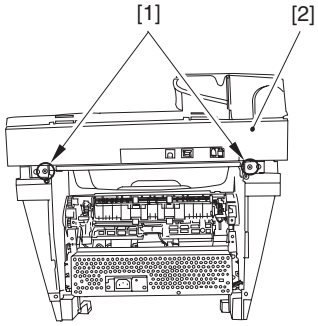
F-3-168

2) Remove the two front screws [1].



F-3-169

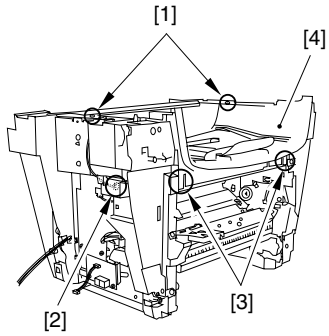
3) Remove the two screws on the back [1]. Slide the scanner unit [2] to the back; then, remove it by lifting it.



F-3-170

3.1.18.11 Removing the Top Cover 0006-3055

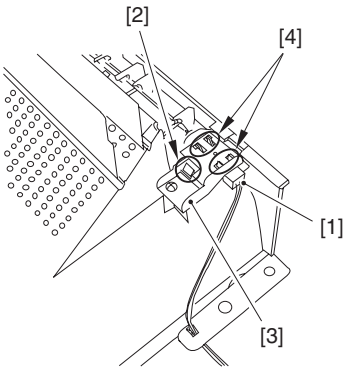
1) Remove the two screws [1].
2) Remove the connector [2] of the DCNT board.
3) Remove the two claws [3] and remove the top cover [4].



F-3-171

3.1.18.12 Removing the Paper Full Sensor 0006-3056

1) Turn the removed top cover upside down, and disconnect the connector [1].
2) As you disengage the claw [2], remove the sensor together with the sensor holder [3].
3) Disengage the claw [4] and remove the sensor from the sensor holder.



F-3-172

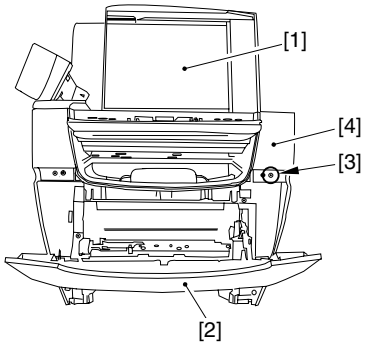
3.1.19 Toner Sensor

3.1.19.1 Removing the Cassette 0002-7675

1) Remove the cassette by holding the cassette handle.

3.1.19.2 Removing the Reader Right Front Cover 0002-7678

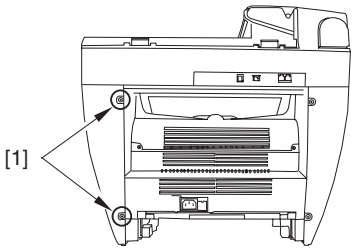
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-173

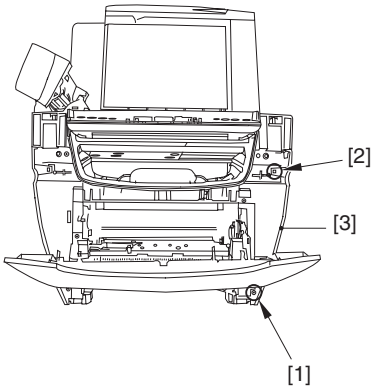
3.1.19.3 Removing the Right Cover 0002-7680

1) Remove the two screws [1] on the back side.



F-3-174

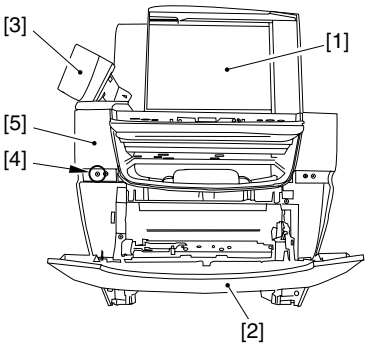
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-175

3.1.19.4 Removing the Reader Left Front Cover 0002-7683

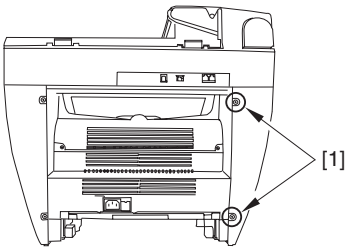
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-176

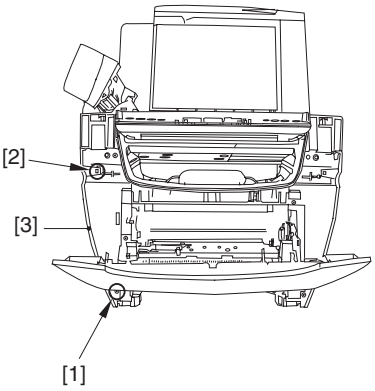
3.1.19.5 Removing the Left Cover 0002-7685

1) Remove the two screws [1] on the back side.



F-3-177

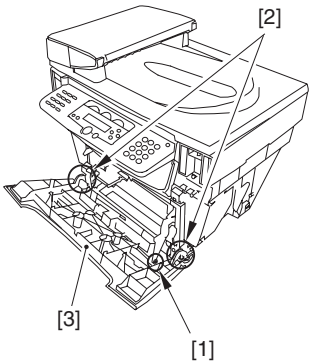
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-178

3.1.19.6 Removing the Front Cover 0002-7688

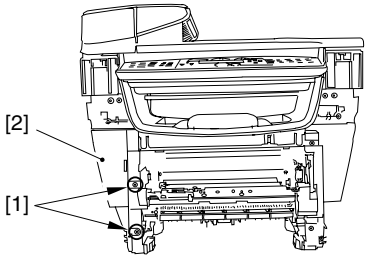
1) Remove the arm claws [1] to disengage the connection.
2) Remove the shafts on both sides [2] and remove the front cover [3].



F-3-179

3.1.19.7 Removing the Left Front Cover 0002-7704

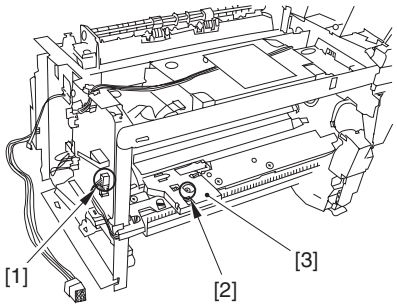
1) Remove the two screws [1] and then removes the left front cover [2].



F-3-180

3.1.19.8 Removing the Toner Sensor 0006-3057

1) Remove the connector [1] on the DCNT board. (The external cover is omitted from the illustration below to show the instructions clearly.)
2) Remove the screw [2] and remove the toner sensor [3].



F-3-181

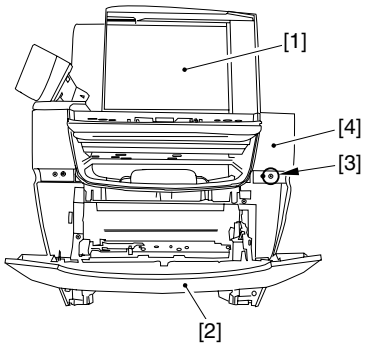
3.1.20 Speaker

3.1.20.1 Removing the Cassette 0006-3757

1) Remove the cassette by holding the cassette handle.

3.1.20.2 Removing the Reader Right Front Cover 0006-3758

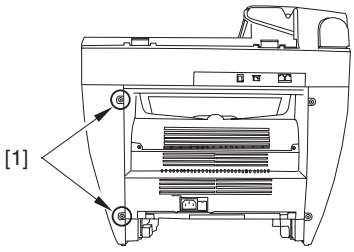
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-182

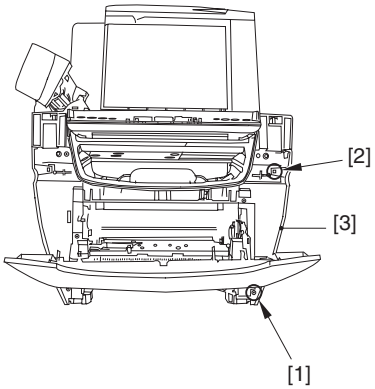
3.1.20.3 Removing the Right Cover 0006-3759

1) Remove the two screws [1] on the back side.



F-3-183

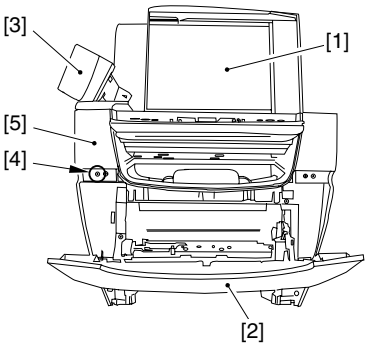
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-184

3.1.20.4 Removing the Reader Left Front Cover 0006-3761

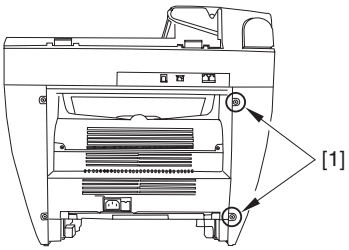
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-185

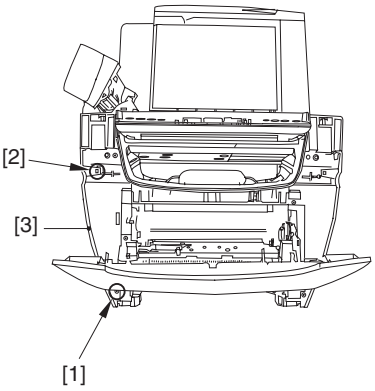
3.1.20.5 Removing the Left Cover 0006-3760

1) Remove the two screws [1] on the back side.



F-3-186

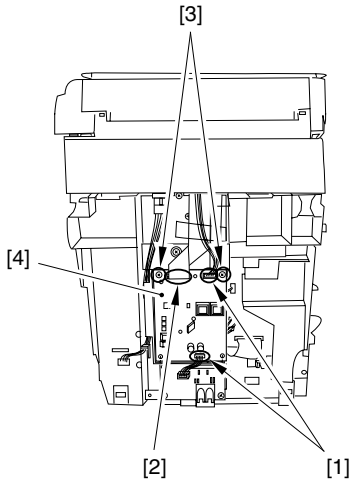
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-187

3.1.20.6 Removing the NCU Board 0006-3764

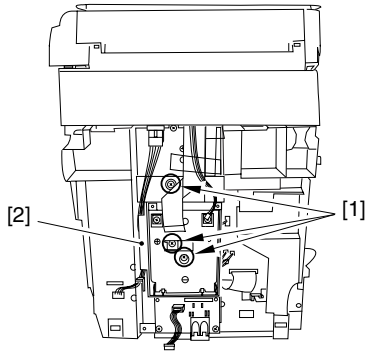
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the two screws [3] and remove the NCU board [4].



F-3-188

3.1.20.7 Removing the NCU Case 0006-3762

1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.



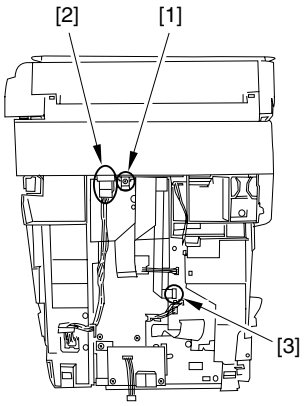
F-3-189

3.1.20.8 Removing the Scanner Unit

0006-3763

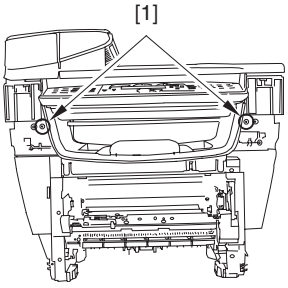
1) Remove the screw [1] and remove the connector [2] as well as the flat cable [3] on the DCNT board. Remove the tape holding the cable in advance.

Prepare a new tape (Part No: AZ7-0008) of a suitable length before you attach the cable again.



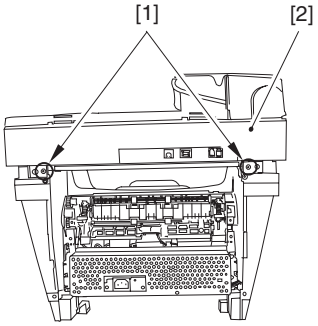
F-3-190

2) Remove the two front screws [1].



F-3-191

3) Remove the two screws on the back [1]. Slide the scanner unit [2] to the back; then, remove it by lifting it.

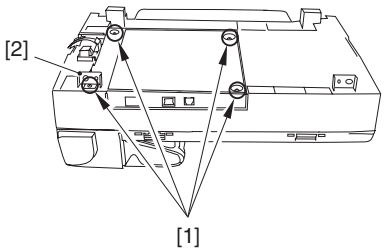


F-3-192

3.1.20.9 Removing the Board Unit

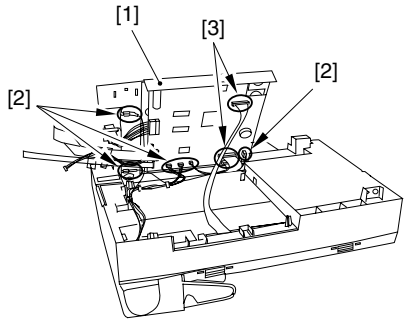
0006-3765

1) Remove the four screws [1] on the back side of the scanner unit. Ensure that the mounting plate [2] does not get lost.



F-3-193

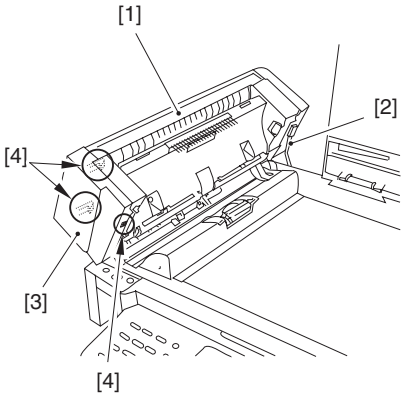
2) Open up the board unit [1] and take off the connector at six spots (five if the unit is not equipped with the fax function) [2] and three flat cables [3].



F-3-194

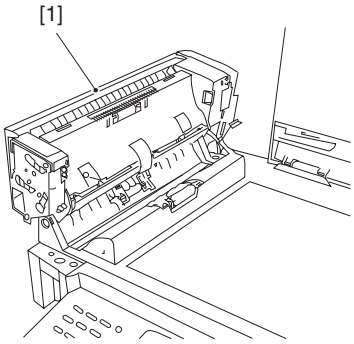
3.1.20.10 Removing the ADF Unit 0006-3768

1) First, take the cable on the back side of he scanner unit off the cable guide.
2) Open up the ADF unit [1] and move the stopper [2].
3) Disengage the 3 claws [4] on the ADF front cover [3] to remove the ADF front cover.



F-3-195

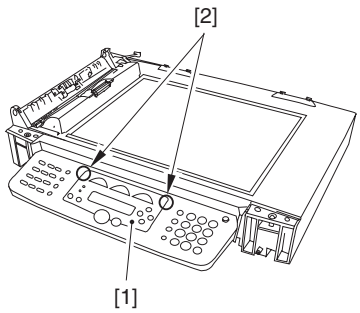
4) Open up the ADF unit [1] vertically. Then lift its rear side to remove it from the bushing.
5) As you slide the ADF unit to the rear, remove it from the front bushing. Then lift the ADF unit up to remove it.



F-3-196

3.1.20.11 Removing the LCD Cover 0006-3769

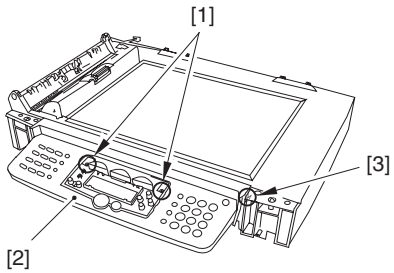
1) Insert a precision flattop screwdriver, etc. onto the claws [2] in the rear (both sides) of the LCD cover [1] to disengage the claws to remove the LCD cover.



F-3-197

3.1.20.12 Removing the Operation Panel Unit 0006-3770

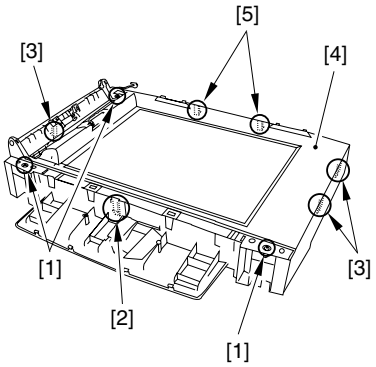
1) Remove the two screws [1].
2) Disengage the claw [3] on the rear right side of the operation panel unit [2] and lift it up. After removing the two flat cables, remove the operation panel unit.



F-3-198

3.1.20.13 Removing the Scanner Cover Unit 0006-3771

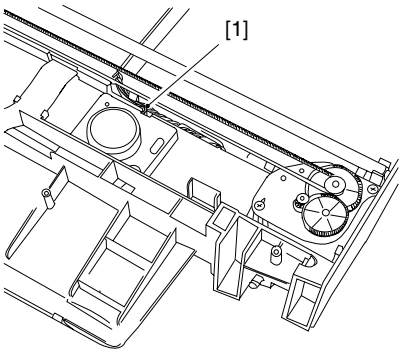
1) Remove the platen glass cover.
2) Remove the three screws [1].
3) Disengage the front claw [2] and the three claws on the sides [3]. Lift up the scanner cover unit [4] a little to disengage the other two claws [5]. Then remove the scanner cover unit.



F-3-199

3.1.20.14 Removing the Speaker 0006-3767

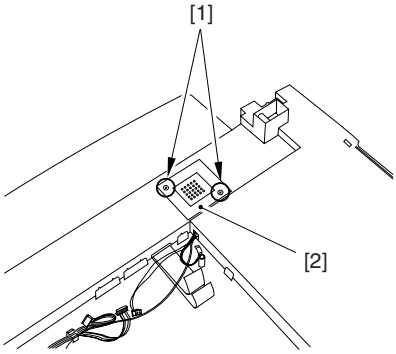
1) Disengage the speaker cable [1] from the cable guide.



F-3-200

2) Remove the two screws [1] of the speaker cover [2] from the lower side of the scanner unit.

Although the scanner unit is turned over in the illustration, you should not turn over it when you perform this operation because the CCD unit might fall down.



F-3-201

3) Remove the speaker cover and the speaker from the lower side of the scanner unit.

3.2 Document Feed/ Exposure System

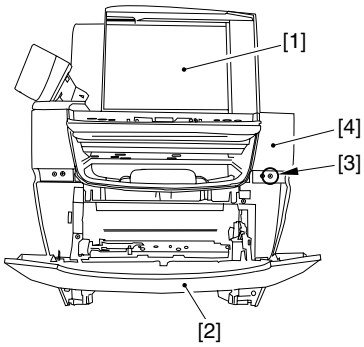
3.2.1 Scanner Unit

3.2.1.1 Removing the Cassette 0002-7555

1) Remove the cassette by holding the cassette handle.

3.2.1.2 Removing the Reader Right Front Cover 0002-7556

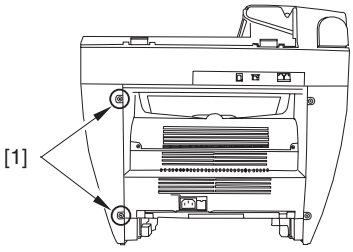
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-202

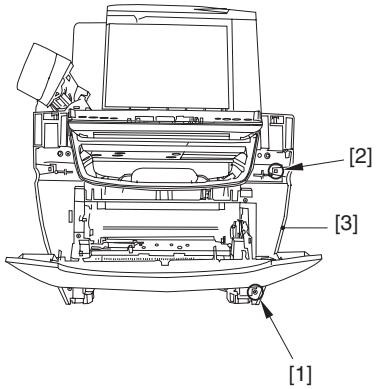
3.2.1.3 Removing the Right Cover 0002-7557

1) Remove the two screws [1] on the back side.



F-3-203

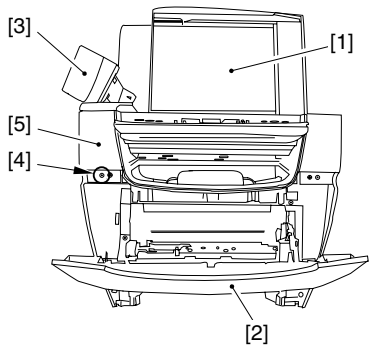
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-204

3.2.1.4 Removing the Reader Left Front Cover 0002-7558

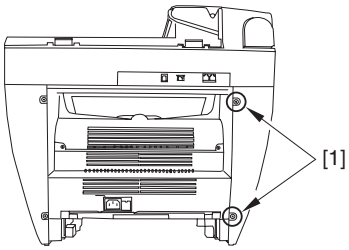
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-205

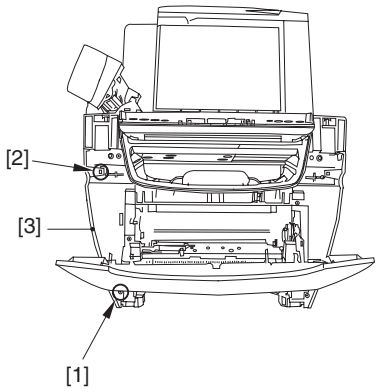
3.2.1.5 Removing the Left Cover 0002-7560

1) Remove the two screws [1] on the back side.



F-3-206

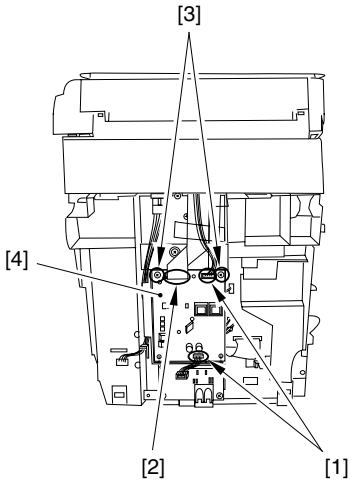
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-207

3.2.1.6 Removing the NCU Board 0005-9802

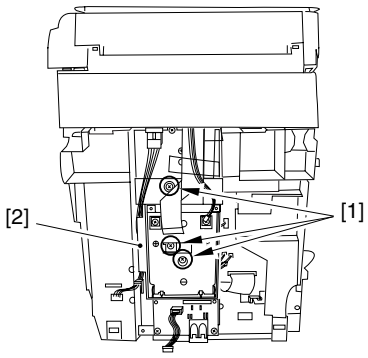
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the two screws [3] and remove the NCU board [4].



F-3-208

3.2.1.7 Removing the NCU Case 0005-9804

1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.

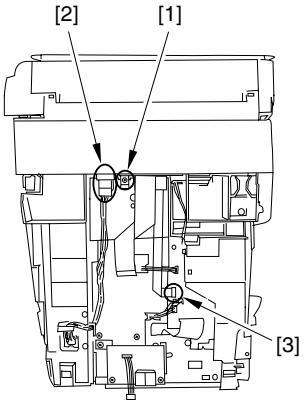


F-3-209

3.2.1.8 Removing the Scanner Unit 0005-9808

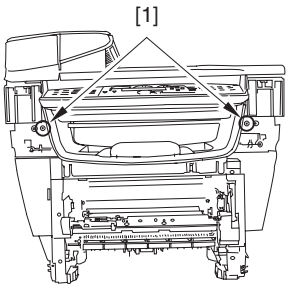
1) Remove the screw [1] and remove the connector [2] as well as the flat cable [3] on the DCNT board. Remove the tape holding the cable in advance.

Prepare a new tape (Part No: AZ7-0008) of a suitable length before you attach the cable again.



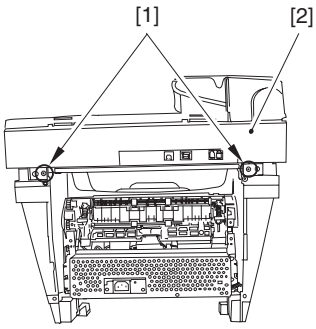
F-3-210

2) Remove the two front screws [1].



F-3-211

3) Remove the two screws on the back [1]. Slide the scanner unit [2] to the back; then, remove it by lifting it.



F-3-212

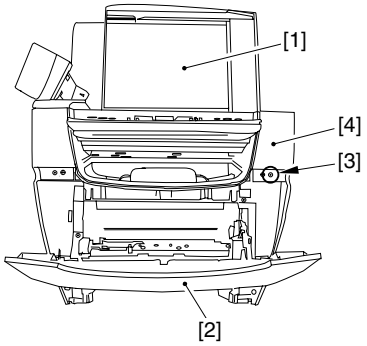
3.2.2 ADF Unit

3.2.2.1 Removing the Cassette 0002-7745

1) Remove the cassette by holding the cassette handle.

3.2.2.2 Removing the Reader Right Front Cover 0002-7749

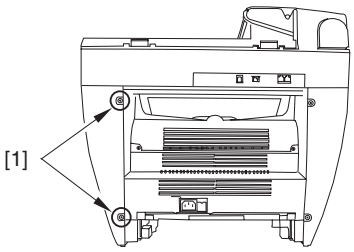
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-213

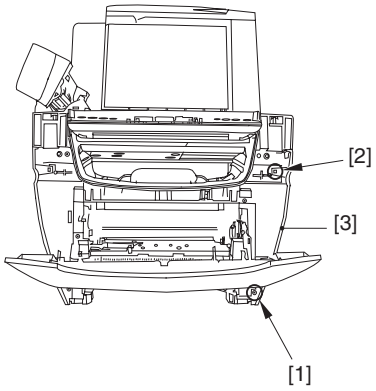
3.2.2.3 Removing the Right Cover 0002-7753

1) Remove the two screws [1] on the back side.



F-3-214

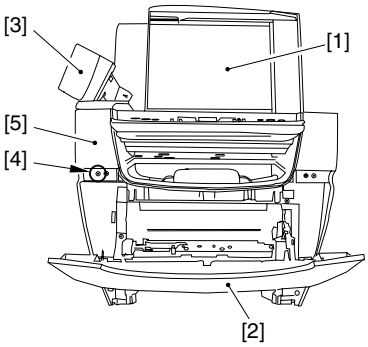
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-215

3.2.2.4 Removing the Reader Left Front Cover 0002-7760

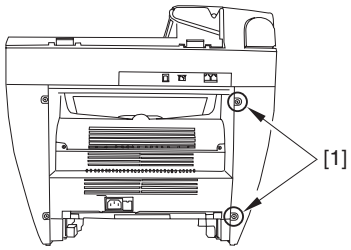
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-216

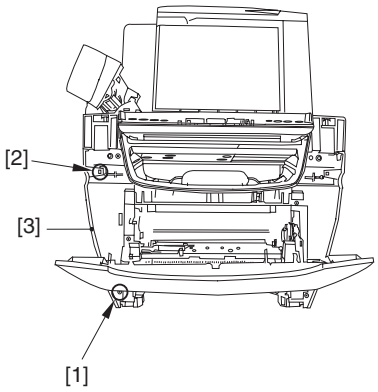
3.2.2.5 Removing the Left Cover 0002-7764

1) Remove the two screws [1] on the back side.



F-3-217

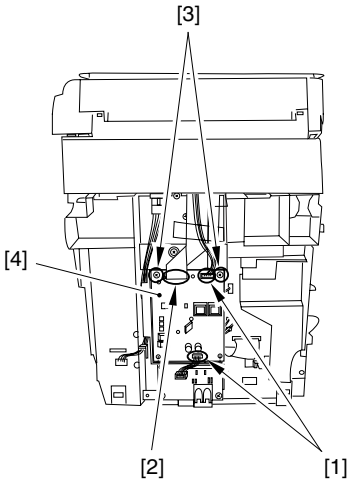
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-218

3.2.2.6 Removing the NCU Board 0006-3648

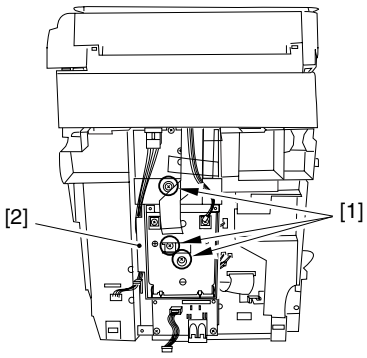
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the two screws [3] and remove the NCU board [4].



F-3-219

3.2.2.7 Removing the NCU Case 0006-3640

1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.

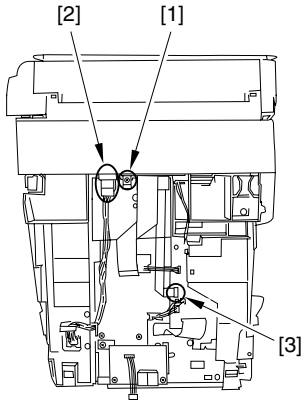


F-3-220

3.2.2.8 Removing the Scanner Unit 0006-3642

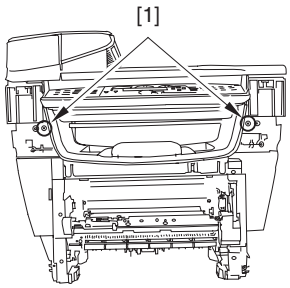
1) Remove the screw [1] and remove the connector [2] as well as the flat cable [3] on the DCNT board. Remove the tape holding the cable in advance.

Prepare a new tape (Part No: AZ7-0008) of a suitable length before you attach the cable again.



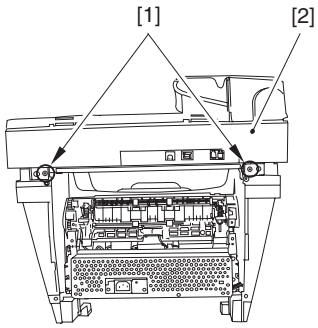
F-3-221

2) Remove the two front screws [1].



F-3-222

3) Remove the two screws on the back [1]. Slide the scanner unit [2] to the back; then, remove it by lifting it.

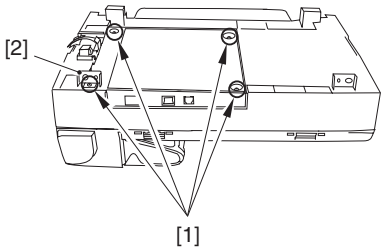


F-3-223

3.2.2.9 Removing the Board Unit 0006-3649

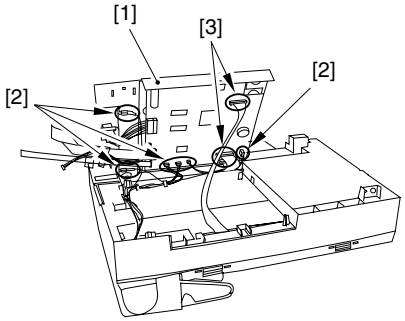
1) Remove the four screws [1] on the back side of the

scanner unit. Ensure that the mounting plate [2] does not get lost.



F-3-224

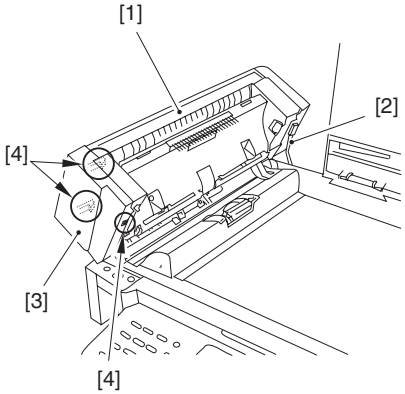
2) Open up the board unit [1] and take off the connector at six spots (five if the unit is not equipped with the fax function) [2] and three flat cables [3].



F-3-225

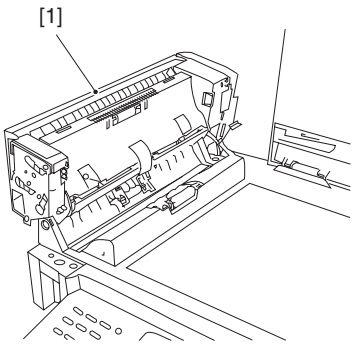
3.2.2.10 Removing the ADF Unit 0002-7778

1) First, take the cable on the back side of he scanner unit off the cable guide.
2) Open up the ADF unit [1] and move the stopper [2].
3) Disengage the 3 claws [4] on the ADF front cover [3] to remove the ADF front cover.



F-3-226

4) Open up the ADF unit [1] vertically. Then lift its rear side to remove it from the bushing.
5) As you slide the ADF unit to the rear, remove it from the front bushing. Then lift the ADF unit up to remove it.



F-3-227

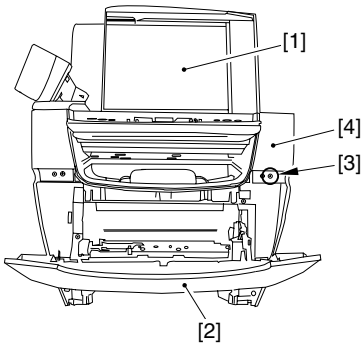
3.2.3 Scanner Cover Unit

3.2.3.1 Removing the Cassette 0002-7746

1) Remove the cassette by holding the cassette handle.

3.2.3.2 Removing the Reader Right Front Cover 0002-7750

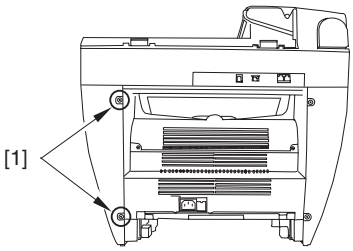
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-228

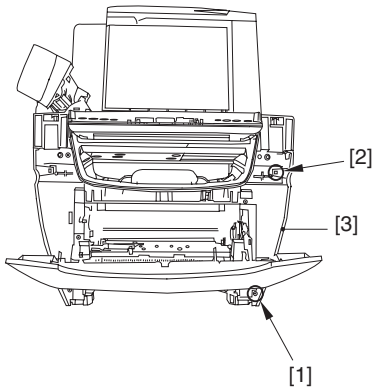
3.2.3.3 Removing the Right Cover 0002-7754

1) Remove the two screws [1] on the back side.



F-3-229

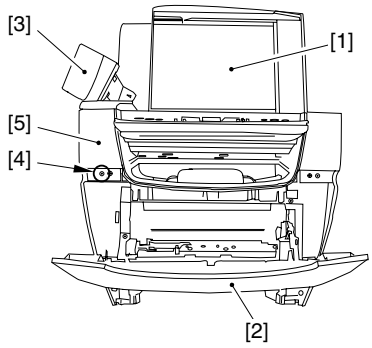
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-230

3.2.3.4 Removing the Reader Left Front Cover 0002-7759

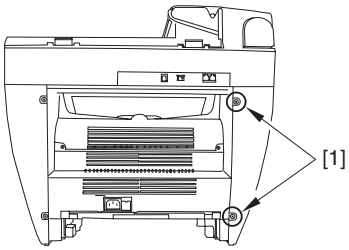
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-231

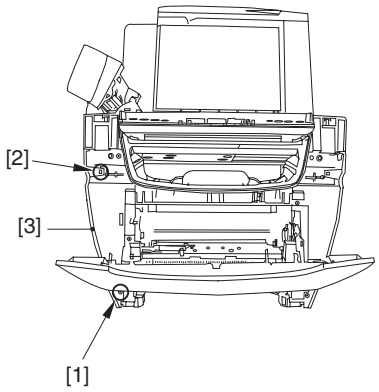
3.2.3.5 Removing the Left Cover 0002-7763

1) Remove the two screws [1] on the back side.



F-3-232

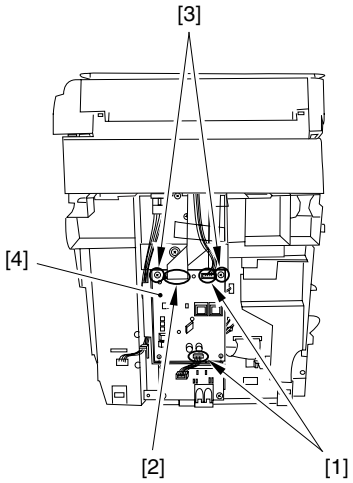
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-233

3.2.3.6 Removing the NCU Board 0006-3647

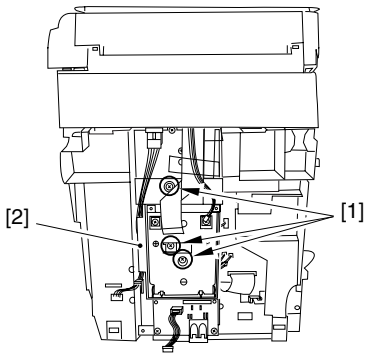
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the two screws [3] and remove the NCU board [4].



F-3-234

3.2.3.7 Removing the NCU Case 0006-3641

1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.

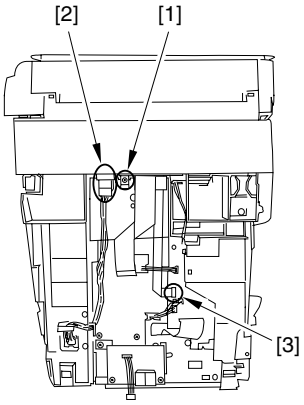


F-3-235

3.2.3.8 Removing the Scanner Unit 0006-3643

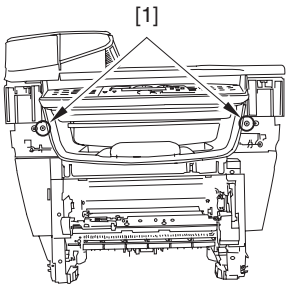
1) Remove the screw [1] and remove the connector [2] as well as the flat cable [3] on the DCNT board. Remove the tape holding the cable in advance.

Prepare a new tape (Part No: AZ7-0008) of a suitable length before you attach the cable again.



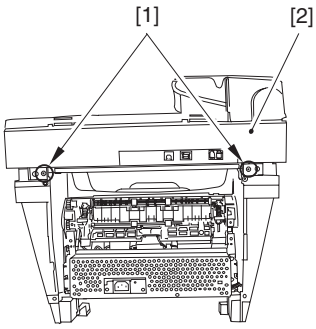
F-3-236

2) Remove the two front screws [1].



F-3-237

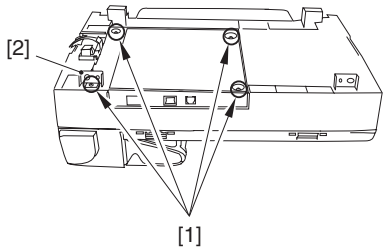
3) Remove the two screws on the back [1]. Slide the scanner unit [2] to the back; then, remove it by lifting it.



F-3-238

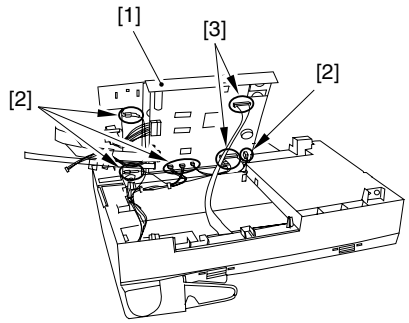
3.2.3.9 Removing the Board Unit 0006-3654

1) Remove the four screws [1] on the back side of the scanner unit. Ensure that the mounting plate [2] does not get lost.



F-3-239

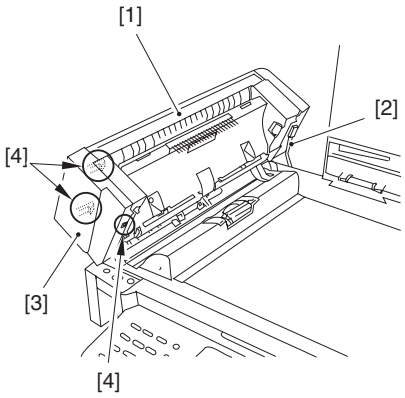
2) Open up the board unit [1] and take off the connector at six spots (five if the unit is not equipped with the fax function) [2] and three flat cables [3].



F-3-240

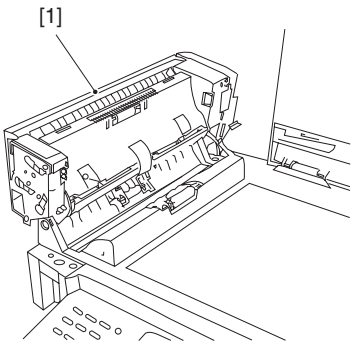
3.2.3.10 Removing the ADF Unit 0002-7780

1) First, take the cable on the back side of he scanner unit off the cable guide.
2) Open up the ADF unit [1] and move the stopper [2].
3) Disengage the 3 claws [4] on the ADF front cover [3] to remove the ADF front cover.



F-3-241

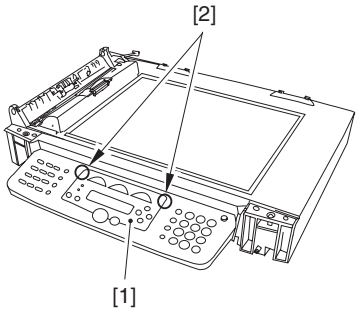
4) Open up the ADF unit [1] vertically. Then lift its rear side to remove it from the bushing.
5) As you slide the ADF unit to the rear, remove it from the front bushing. Then lift the ADF unit up to remove it.



F-3-242

3.2.3.11 Removing the LCD Cover 0002-7783

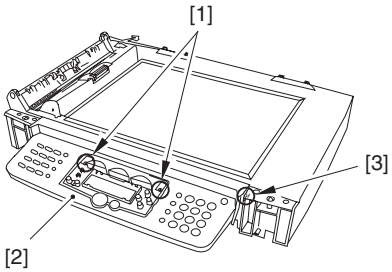
1) Insert a precision flattop screwdriver, etc. onto the claws [2] in the rear (both sides) of the LCD cover [1] to disengage the claws to remove the LCD cover.



F-3-243

3.2.3.12 Removing the Operation Panel Unit 0002-7784

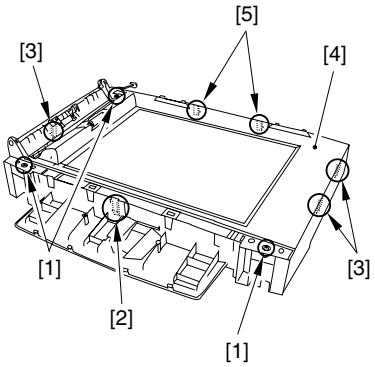
1) Remove the two screws [1].
2) Disengage the claw [3] on the rear right side of the operation panel unit [2] and lift it up. After removing the two flat cables, remove the operation panel unit.



F-3-244

3.2.3.13 Removing the Scanner Cover Unit 0002-7785

1) Remove the platen glass cover.
2) Remove the three screws [1].
3) Disengage the front claw [2] and the three claws on the sides [3]. Lift up the scanner cover unit [4] a little to disengage the other two claws [5]. Then remove the scanner cover unit.



F-3-245

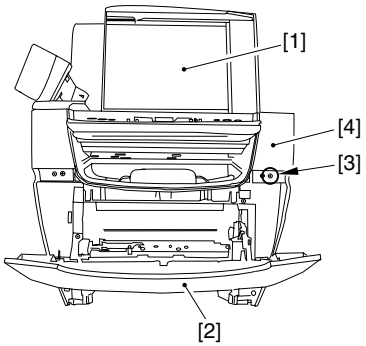
3.2.4 CCD Unit

3.2.4.1 Removing the Cassette 0002-7747

1) Remove the cassette by holding the cassette handle.

3.2.4.2 Removing the Reader Right Front Cover 0002-7751

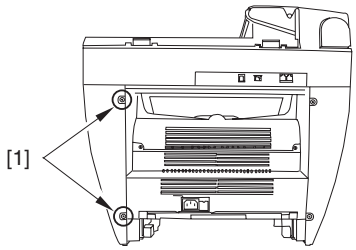
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-246

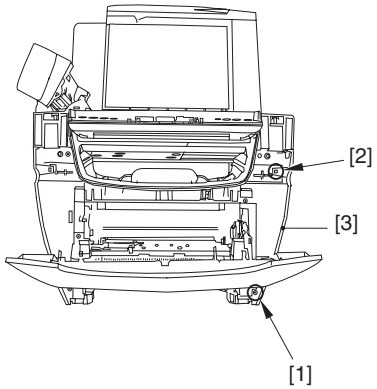
3.2.4.3 Removing the Right Cover 0002-7755

1) Remove the two screws [1] on the back side.



F-3-247

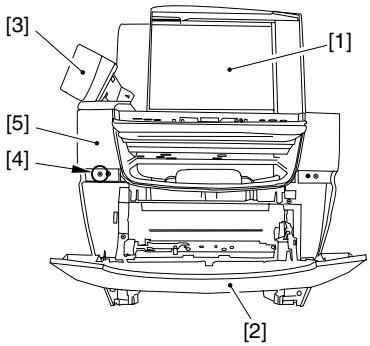
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-248

3.2.4.4 Removing the Reader Left Front Cover 0002-7758

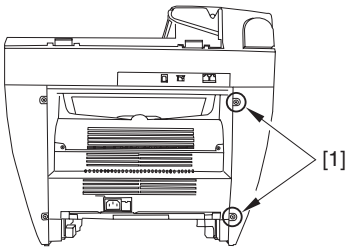
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-249

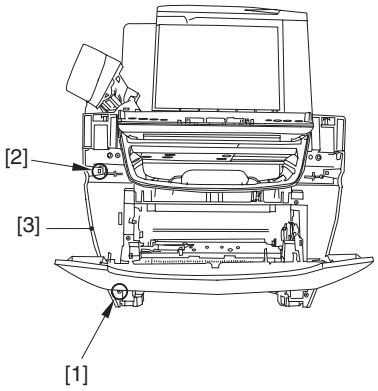
3.2.4.5 Removing the Left Cover 0002-7762

1) Remove the two screws [1] on the back side.



F-3-250

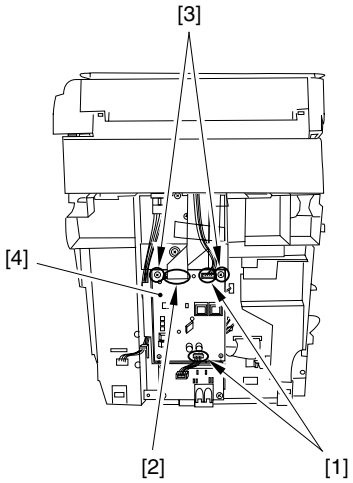
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-251

3.2.4.6 Removing the NCU Board 0006-3646

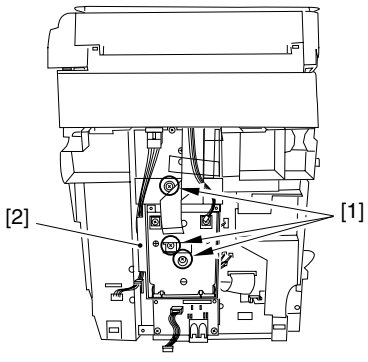
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the two screws [3] and remove the NCU board [4].



F-3-252

3.2.4.7 Removing the NCU Case 0006-3645

1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.

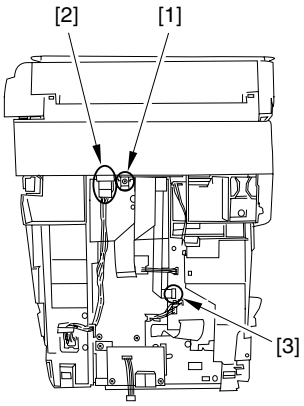


F-3-253

3.2.4.8 Removing the Scanner Unit 0006-3644

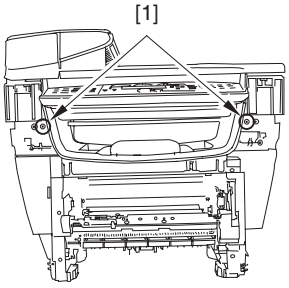
1) Remove the screw [1] and remove the connector [2] as well as the flat cable [3] on the DCNT board. Remove the tape holding the cable in advance.

Prepare a new tape (Part No: AZ7-0008) of a suitable length before you attach the cable again.



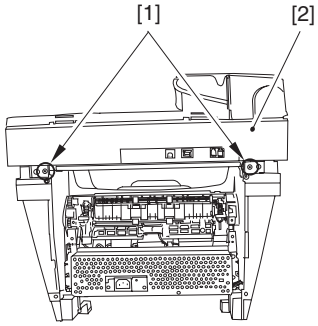
F-3-254

2) Remove the two front screws [1].



F-3-255

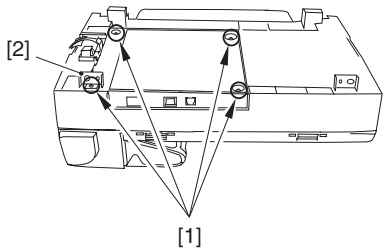
3) Remove the two screws on the back [1]. Slide the scanner unit [2] to the back; then, remove it by lifting it.



F-3-256

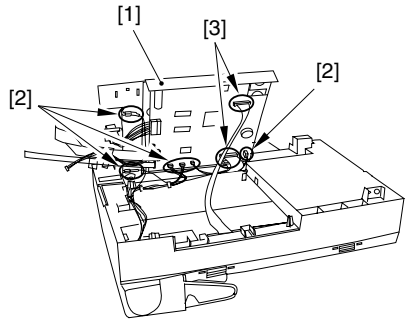
3.2.4.9 Removing the Board Unit 0006-3656

1) Remove the four screws [1] on the back side of the scanner unit. Ensure that the mounting plate [2] does not get lost.



F-3-257

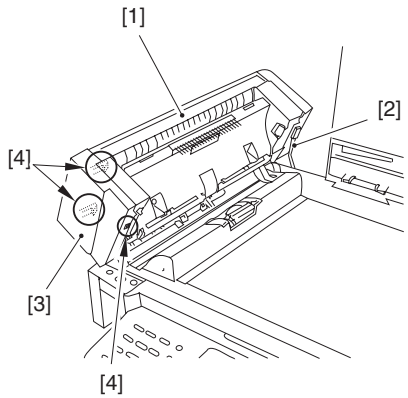
2) Open up the board unit [1] and take off the connector at six spots (five if the unit is not equipped with the fax function) [2] and three flat cables [3].



F-3-258

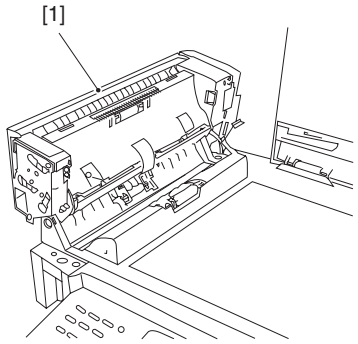
3.2.4.10 Removing the ADF Unit 0002-7781

1) First, take the cable on the back side of he scanner unit off the cable guide.
2) Open up the ADF unit [1] and move the stopper [2].
3) Disengage the 3 claws [4] on the ADF front cover [3] to remove the ADF front cover.



F-3-259

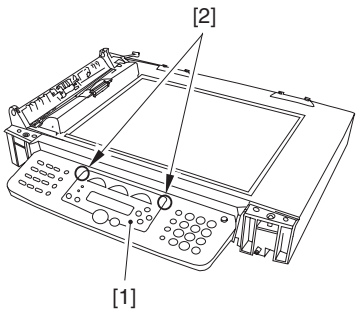
4) Open up the ADF unit [1] vertically. Then lift its rear side to remove it from the bushing.
5) As you slide the ADF unit to the rear, remove it from the front bushing. Then lift the ADF unit up to remove it.



F-3-260

3.2.4.11 Removing the LCD Cover 0002-7786

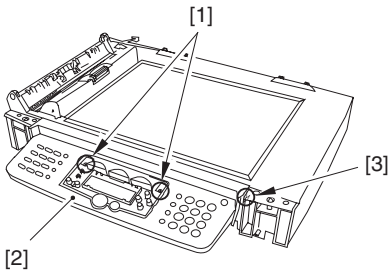
1) Insert a precision flattop screwdriver, etc. onto the claws [2] in the rear (both sides) of the LCD cover [1] to disengage the claws to remove the LCD cover.



F-3-261

3.2.4.12 Removing the Operation Panel Unit 0002-7788

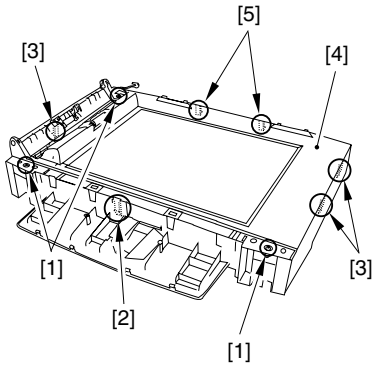
1) Remove the two screws [1].
2) Disengage the claw [3] on the rear right side of the operation panel unit [2] and lift it up. After removing the two flat cables, remove the operation panel unit.



F-3-262

3.2.4.13 Removing the Scanner Cover Unit 0002-7790

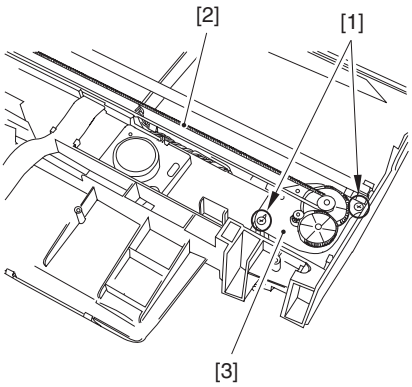
1) Remove the platen glass cover.
2) Remove the three screws [1].
3) Disengage the front claw [2] and the three claws on the sides [3]. Lift up the scanner cover unit [4] a little to disengage the other two claws [5]. Then remove the scanner cover unit.



F-3-263

3.2.4.14 Removing the Flatbed Motor Unit 0002-7793

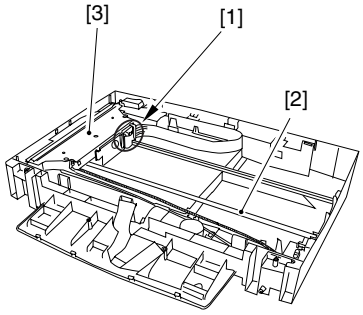
1) Remove the two screws [1].
2) While watching the CCD unit drive belt [2] carefully, remove the flatbed motor unit [3].



F-3-264

3.2.4.15 Removing the CCD Unit 0006-5176

1) Remove the flat cable [1].
2) Lift the right side of the shaft [2] to release the stop. Then slide it to release the stop on the left side also.
3) Remove the CCD unit [3] by pulling it out of the shaft.



F-3-265

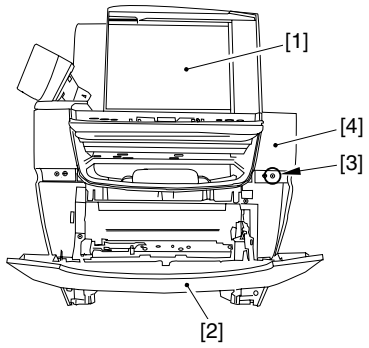
3.2.5 Flatbed Motor Unit

3.2.5.1 Removing the Cassette 0002-7748

1) Remove the cassette by holding the cassette handle.

3.2.5.2 Removing the Reader Right Front Cover 0002-7752

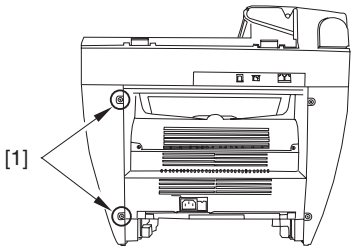
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-266

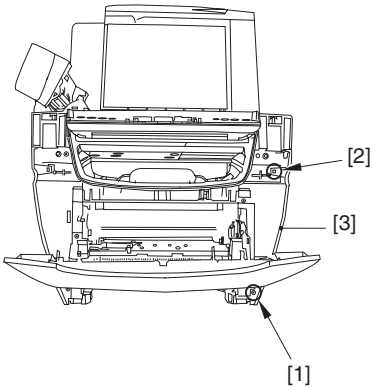
3.2.5.3 Removing the Right Cover 0002-7756

1) Remove the two screws [1] on the back side.



F-3-267

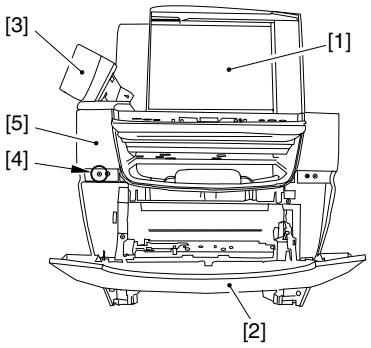
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-268

3.2.5.4 Removing the Reader Left Front Cover 0002-7757

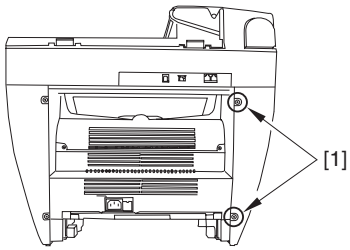
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-269

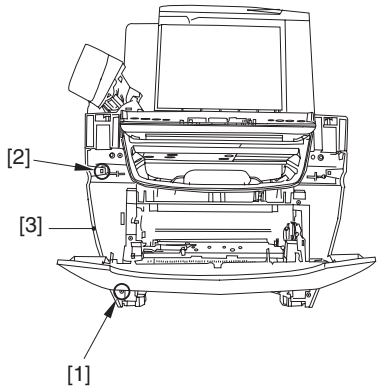
3.2.5.5 Removing the Left Cover 0002-7761

1) Remove the two screws [1] on the back side.



F-3-270

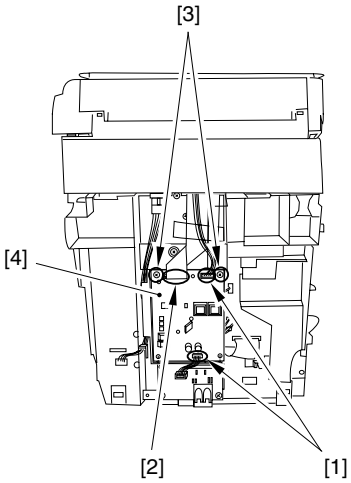
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-271

3.2.5.6 Removing the NCU Board 0006-3660

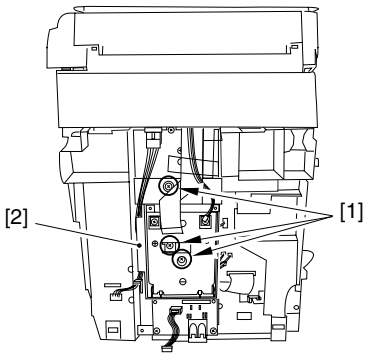
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the two screws [3] and remove the NCU board [4].



F-3-272

3.2.5.7 Removing the NCU Case 0006-3659

1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.

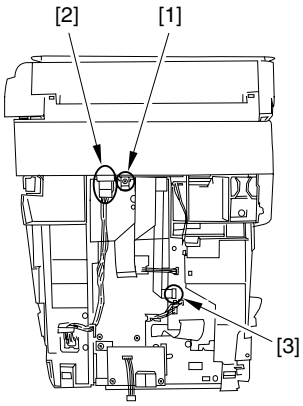


F-3-273

3.2.5.8 Removing the Scanner Unit 0006-3658

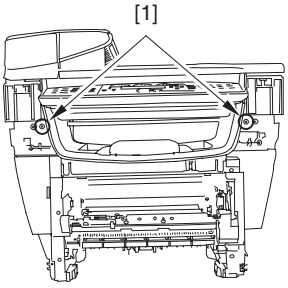
1) Remove the screw [1] and remove the connector [2] as well as the flat cable [3] on the DCNT board. Remove the tape holding the cable in advance.

Prepare a new tape (Part No: AZ7-0008) of a suitable length before you attach the cable again.



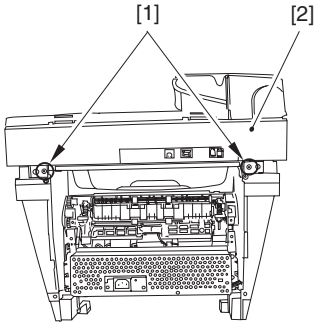
F-3-274

2) Remove the two front screws [1].



F-3-275

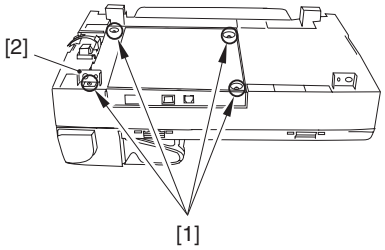
3) Remove the two screws on the back [1]. Slide the scanner unit [2] to the back; then, remove it by lifting it.



F-3-276

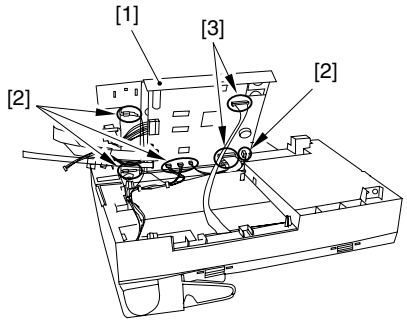
3.2.5.9 Removing the Board Unit 0006-3657

1) Remove the four screws [1] on the back side of the scanner unit. Ensure that the mounting plate [2] does not get lost.



F-3-277

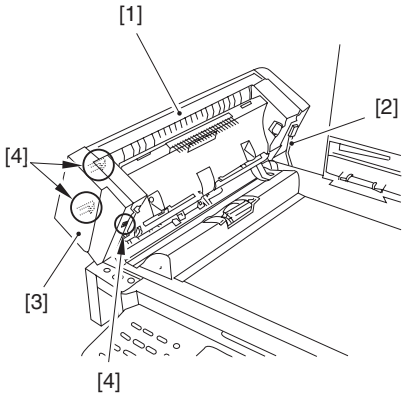
2) Open up the board unit [1] and take off the connector at six spots (five if the unit is not equipped with the fax function) [2] and three flat cables [3].



F-3-278

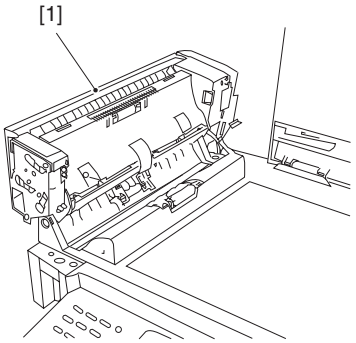
3.2.5.10 Removing the ADF Unit 0002-7782

1) First, take the cable on the back side of he scanner unit off the cable guide.
2) Open up the ADF unit [1] and move the stopper [2].
3) Disengage the 3 claws [4] on the ADF front cover [3] to remove the ADF front cover.



F-3-279

4) Open up the ADF unit [1] vertically. Then lift its rear side to remove it from the bushing.
5) As you slide the ADF unit to the rear, remove it from the front bushing. Then lift the ADF unit up to remove it.

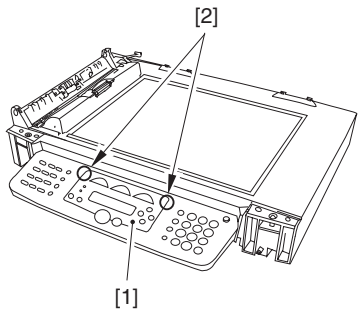


F-3-280

3.2.5.11 Removing the LCD Cover 0002-7787

1) Insert a precision flattop screwdriver, etc. onto the claws [2] in the rear (both sides) of the LCD cover

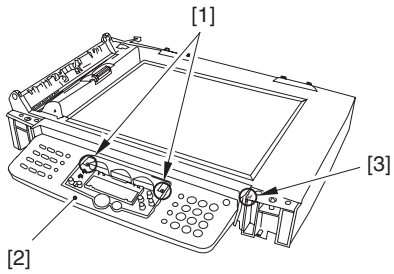
[1] to disengage the claws to remove the LCD cover.



F-3-281

3.2.5.12 Removing the Operation Panel Unit 0002-7789

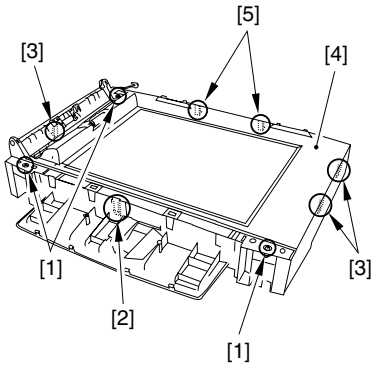
1) Remove the two screws [1].
2) Disengage the claw [3] on the rear right side of the operation panel unit [2] and lift it up. After removing the two flat cables, remove the operation panel unit.



F-3-282

3.2.5.13 Removing the Scanner Cover Unit 0002-7791

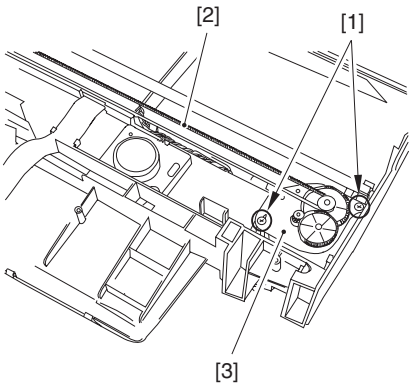
1) Remove the platen glass cover.
2) Remove the three screws [1].
3) Disengage the front claw [2] and the three claws on the sides [3]. Lift up the scanner cover unit [4] a little to disengage the other two claws [5]. Then remove the scanner cover unit.



F-3-283

3.2.5.14 Removing the Flatbed Motor Unit 0002-7792

1) Remove the two screws [1].
2) While watching the CCD unit drive belt [2] carefully, remove the flatbed motor unit [3].



F-3-284

3.3 LASER EXPOSURE SYSTEM

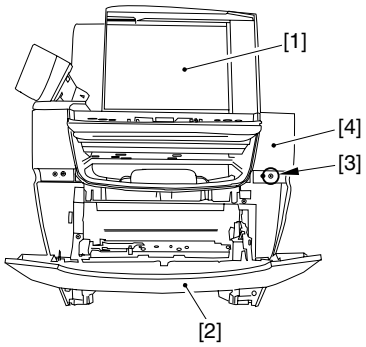
3.3.1 Laser/Scanner Unit

3.3.1.1 Removing the Cassette 0002-7542

1) Remove the cassette by holding the cassette handle.

3.3.1.2 Removing the Reader Right Front Cover 0002-7543

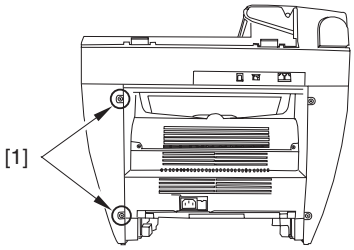
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-285

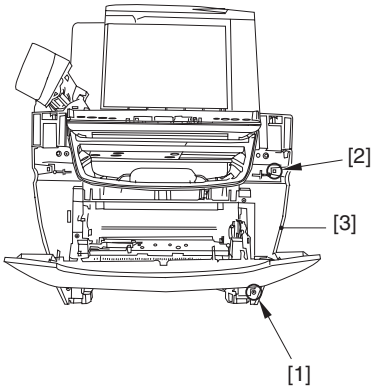
3.3.1.3 Removing the Right Cover 0002-7544

1) Remove the two screws [1] on the back side.



F-3-286

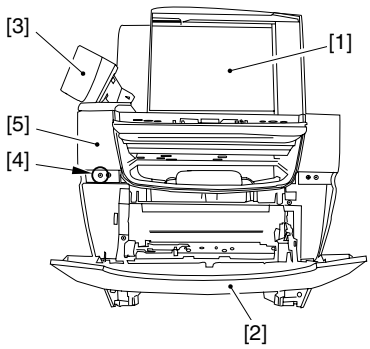
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-287

3.3.1.4 Removing the Reader Left Front Cover 0002-7545

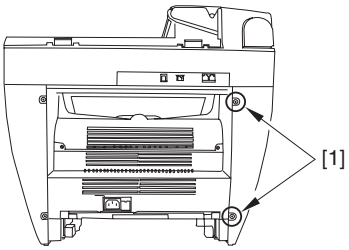
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-288

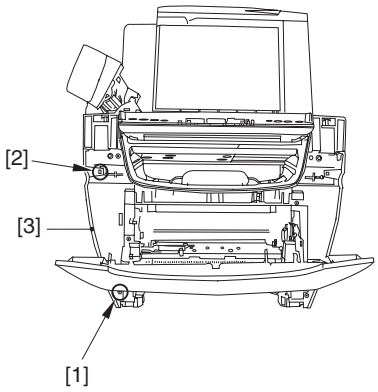
3.3.1.5 Removing the Left Cover 0002-7546

1) Remove the two screws [1] on the back side.



F-3-289

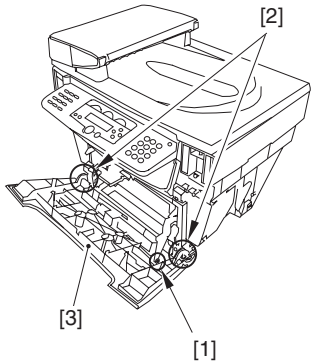
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-290

3.3.1.6 Removing the Front Cover 0002-7548

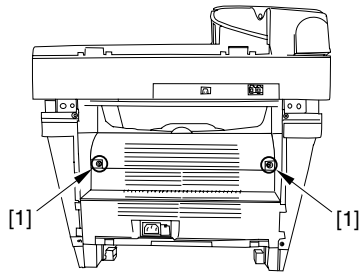
1) Remove the arm claws [1] to disengage the connection.
2) Remove the shafts on both sides [2] and remove the front cover [3].



F-3-291

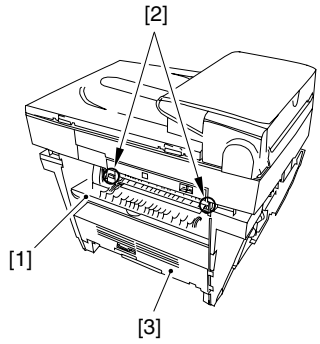
3.3.1.7 Removing the Rear Cover 0002-7547

1) Remove two screws [1].



F-3-292

2) Opening the face-up cover [1], and then lower the fixing pressure release levers [2] on both sides and release the pressure.
3) Remove the rear cover [3] as you slide it toward the rear.

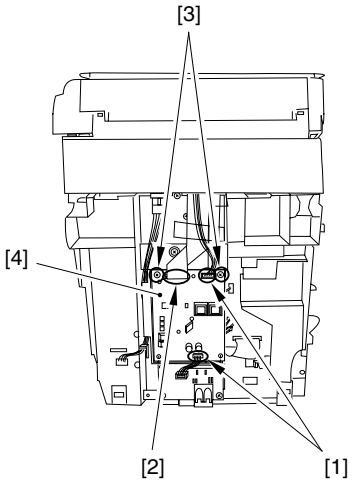


F-3-293

3.3.1.8 Removing the NCU Board

0006-3027

1) Remove the two connectors [1] and the flat cable [2].
2) Remove the two screws [3] and remove the NCU board [4].

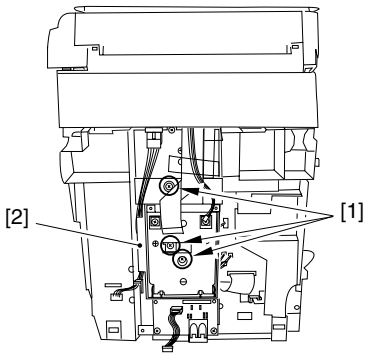


F-3-294

3.3.1.9 Removing the NCU Case

0006-3025

1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.



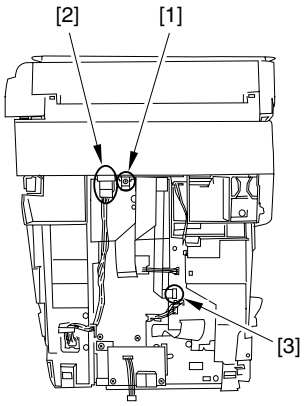
F-3-295

3.3.1.10 Removing the Scanner Unit

0006-3026

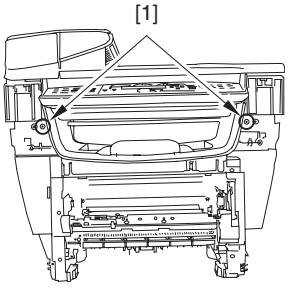
1) Remove the screw [1] and remove the connector [2] as well as the flat cable [3] on the DCNT board. Remove the tape holding the cable in advance.

Prepare a new tape (Part No: AZ7-0008) of a suitable length before you attach the cable again.



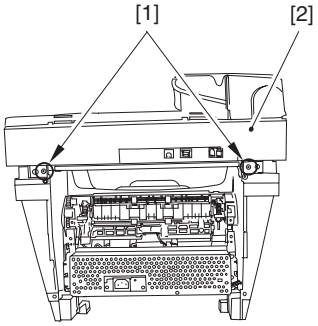
F-3-296

2) Remove the two front screws [1].



F-3-297

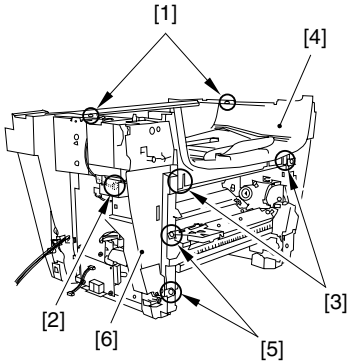
3) Remove the two screws on the back [1]. Slide the scanner unit [2] to the back; then, remove it by lifting it.



F-3-298

3.3.1.11 Removing the Top Cover and Left Front Cover 0006-3028

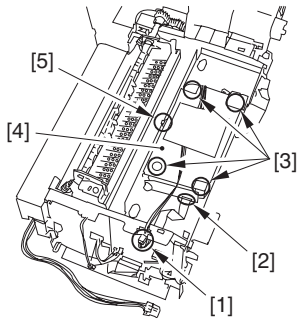
1) Remove the two screws [1].
2) Remove the connector [2] of the DCNT board.
3) Remove the two claws [3] and remove the top cover [4].
4) Remove the two screws [5] and then removes the left front cover [6].



F-3-299

3.3.1.12 Removing the Laser/ Scanner Unit 0006-3029

1) Remove the connector [1] of the DCNT board. Take the cable off the cable clamp. (The external cover is omitted from the illustration below to show the instructions clearly.)
2) Take the flat cable [2] off the board of the laser/ scanner unit.
3) Remove the four screws [3] to remove the laser/ scanner unit [4]. Ensure that the grounding plate [5] does not get lost.



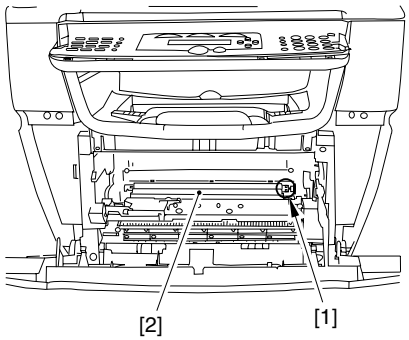
F-3-300

3.4 IMAGE FORMATION SYSTEM

3.4.1 Transfer Charging Roller

3.4.1.1 Removing the Transfer Charging Roller 0002-7159

1) Open the front cover.
2) Hold the two claws [1] on the right side of the roller, lifting them up.
3) Slide the transfer charging roller [2] by sliding it to the right.



F-3-301

3.5 PICKUP AND FEEDING SYSTEM

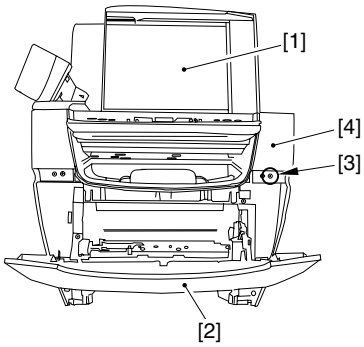
3.5.1 Cassette Pickup Roller

3.5.1.1 Removing the Cassette 0002-7053

1) Remove the cassette by holding the cassette handle.

3.5.1.2 Removing the Reader Right Front Cover 0002-7077

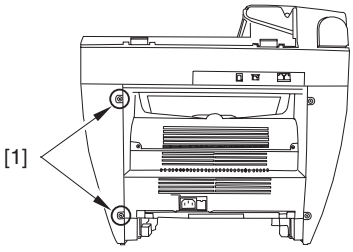
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-302

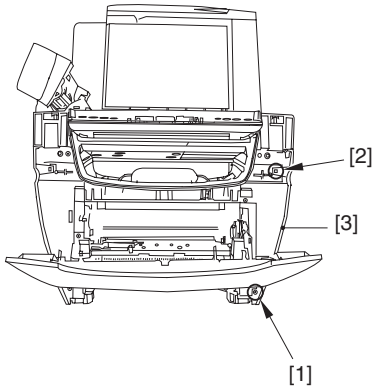
3.5.1.3 Removing the Right Cover 0002-7078

1) Remove the two screws [1] on the back side.



F-3-303

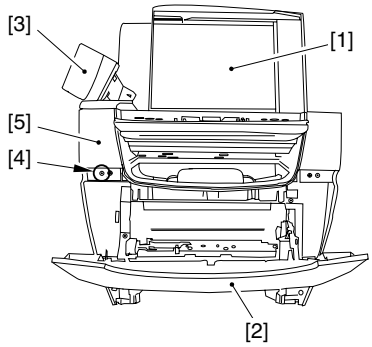
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-304

3.5.1.4 Removing the Reader Left Front Cover 0002-7081

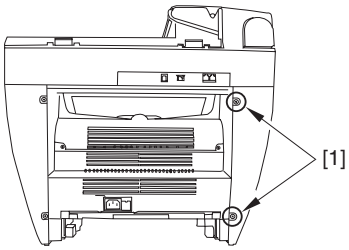
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-305

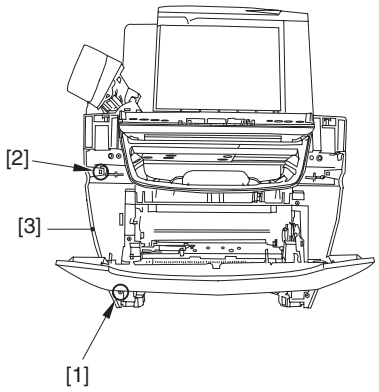
3.5.1.5 Removing the Left Cover 0002-7082

1) Remove the two screws [1] on the back side.



F-3-306

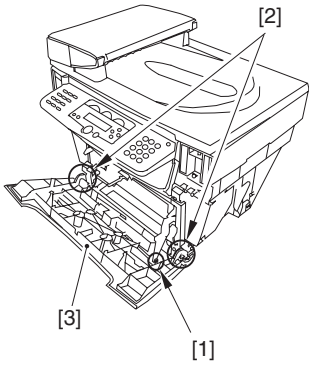
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-307

3.5.1.6 Removing the Front Cover 0002-7088

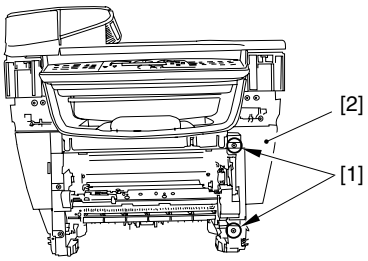
1) Remove the arm claws [1] to disengage the connection.
2) Remove the shafts on both sides [2] and remove the front cover [3].



F-3-308

3.5.1.7 Removing the Right Front Cover 0002-7092

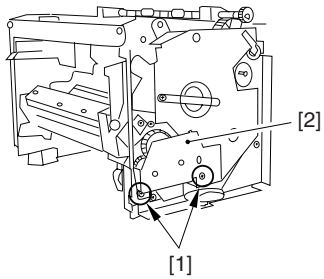
1) Remove the two screws [1] and then removes the right front cover [2].



F-3-309

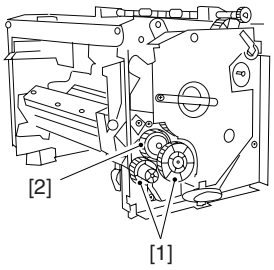
3.5.1.8 Removing the Gear Unit 0002-7095

1) Remove the 2 screws [1], and detach the drive plate (small) [2].



F-3-310

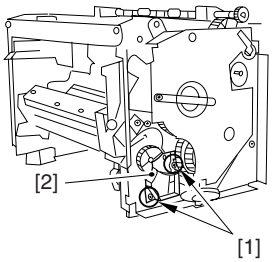
2) Remove the 2 gears [1].
3) While freeing the claw, detach the gear unit [2].



F-3-311

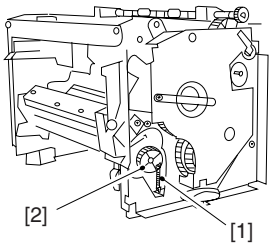
3.5.1.9 Removing the Tooth-Missing Gear 0002-7096

1) Remove the 2 screws [1], and detach the gear support [2].



F-3-312

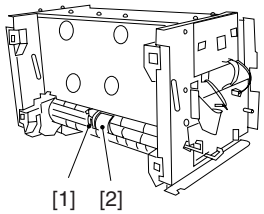
2) Remove the spring [1].
3) While freeing the claw, detach the tooth-missing gear [2].



F-3-313

3.5.1.10 Removing the Cassette Pickup Roller 0002-7097

1) Shift down the main unit so that its front faces down (i.e., the inside of the main unit is in view).
2) Remove the boss of the bushing [1], and turn it to the front; then, slide it to detach the bushing.
3) Slide the pickup roller [2] to remove it.



F-3-314

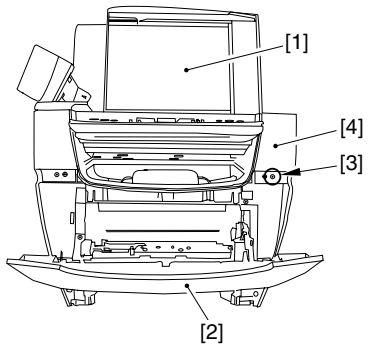
3.5.2 Cassette Pickup Solenoid

3.5.2.1 Removing the Cassette 0002-7055

1) Remove the cassette by holding the cassette handle.

3.5.2.2 Removing the Reader Right Front Cover 0002-7107

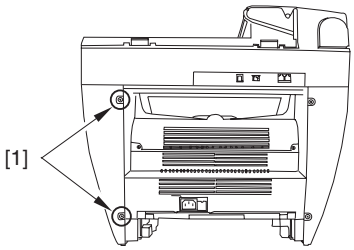
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-315

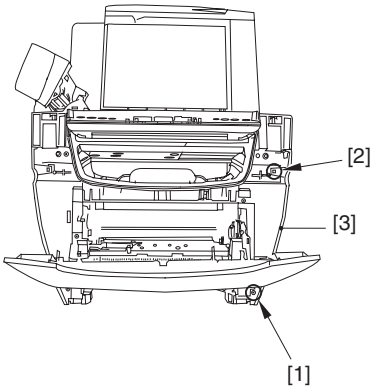
3.5.2.3 Removing the Right Cover 0002-7110

1) Remove the two screws [1] on the back side.



F-3-316

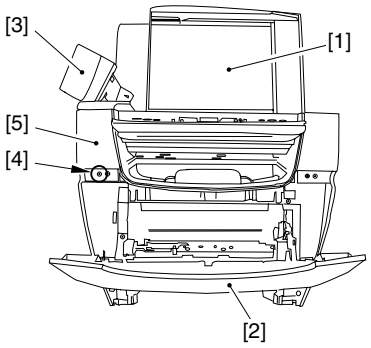
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-317

3.5.2.4 Removing the Reader Left Front Cover 0002-7113

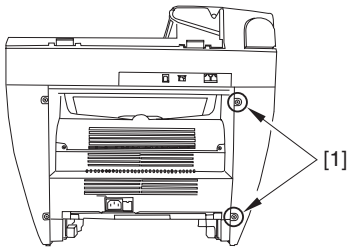
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-318

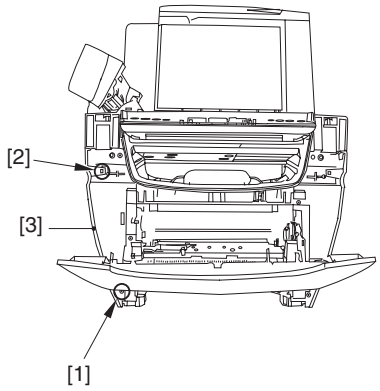
3.5.2.5 Removing the Left Cover 0002-7116

1) Remove the two screws [1] on the back side.



F-3-319

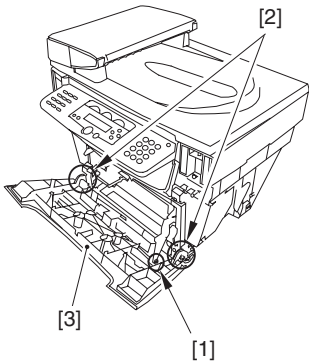
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-320

3.5.2.6 Removing the Front Cover 0002-7119

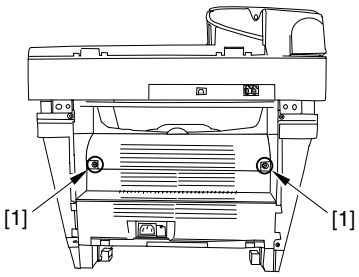
1) Remove the arm claws [1] to disengage the connection.
2) Remove the shafts on both sides [2] and remove the front cover [3].



F-3-321

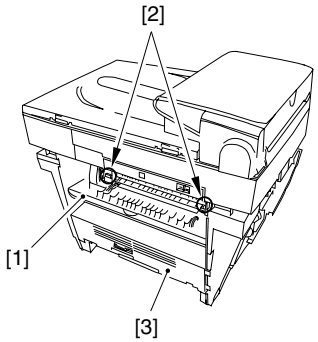
3.5.2.7 Removing the Rear Cover 0002-7122

1) Remove two screws [1].



F-3-322

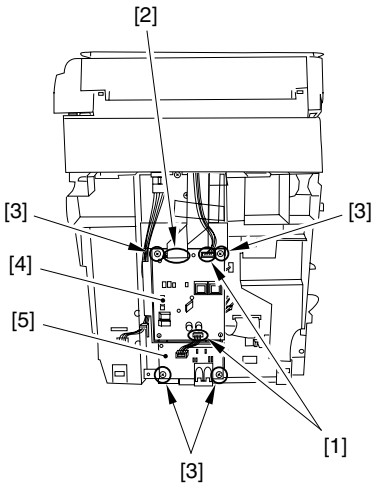
2) Opening the face-up cover [1], and then lower the fixing pressure release levers [2] on both sides and release the pressure.
3) Remove the rear cover [3] as you slide it toward the rear.



F-3-323

3.5.2.8 Removing the NCU Board and Modular Board 0006-3668

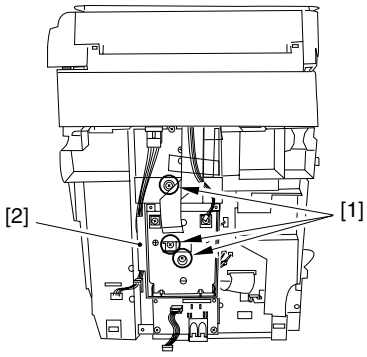
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the four screws [3] and remove the NCU board [4] and modular board [5].



F-3-324

3.5.2.9 Removing the NCU Case 0006-3669

1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.

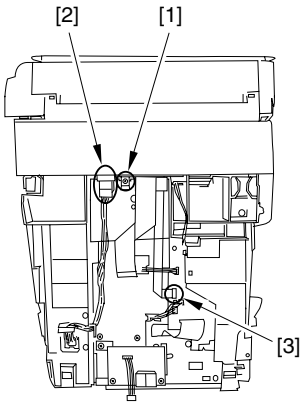


F-3-325

3.5.2.10 Removing the Scanner Unit 0006-3670

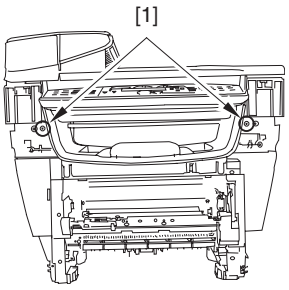
1) Remove the screw [1] and remove the connector [2] as well as the flat cable [3] on the DCNT board. Remove the tape holding the cable in advance.

Prepare a new tape (Part No: AZ7-0008) of a suitable length before you attach the cable again.



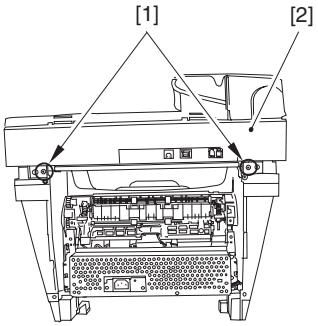
F-3-326

2) Remove the two front screws [1].



F-3-327

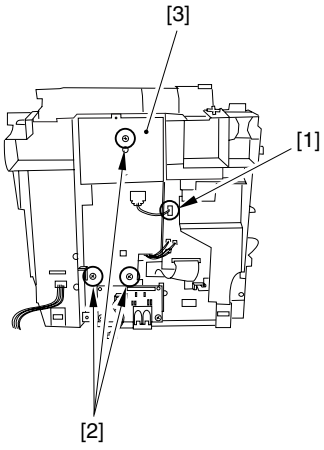
3) Remove the two screws on the back [1]. Slide the scanner unit [2] to the back; then, remove it by lifting it.



F-3-328

3.5.2.11 Removing the Plate 0006-3671

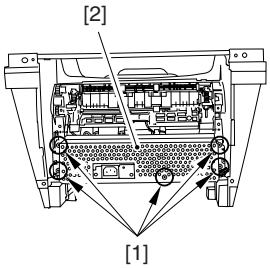
1) Remove the connector [1] of the DCNT board.
2) Remove the three screws [2] and then removes the plate [3].



F-3-329

3.5.2.12 Removing the Power Supply Shield Plate 0003-7586

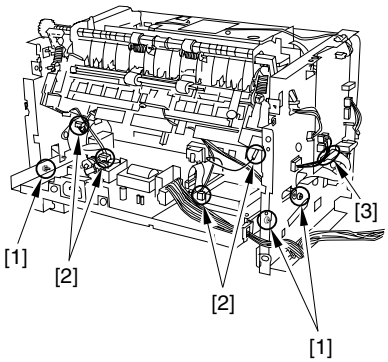
1) Remove the five screws [1] to remove the power supply shield plate [2].



F-3-330

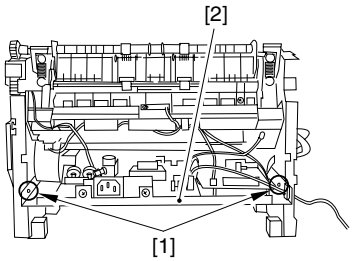
3.5.2.13 Removing the Power Supply Assembly 0006-3672

1) Remove the three screws [1]. (The external cover is omitted from the illustration below to show the instructions clearly.)
2) Remove the four connectors [2] as well as the flat cable [3] on the DCNT board.



F-3-331

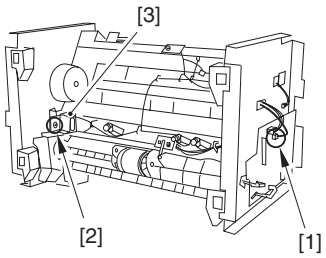
3) As you remove the bosses on both sides [1], lower the front part of the power supply assembly [2]. Then pull it to remove the power supply assembly.



F-3-332

3.5.2.14 Removing the Cassette Pickup Solenoid 0006-3673

1) Place the main unit down on its front face (so that the interior of the main unit is easily visible).
2) Remove the connector [1] on the DCNT board and take out the cable from the cable guide.
3) Remove the screw [2] to remove the cassette pickup solenoid [3], which is located behind the main motor.



F-3-333

3.5.3 Cassette Separation Pad

3.5.3.1 Removing the Cassette 0002-4296

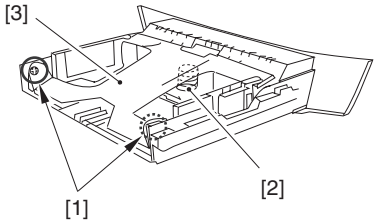
1) Remove the cassette by holding the cassette handle.

3.5.3.2 Removing the Rear of the Cassette 0002-3783

1) Lift the rear of the cassette, and separate the rear from the front.

3.5.3.3 Removing the Cassette Separation Pad 0002-3784

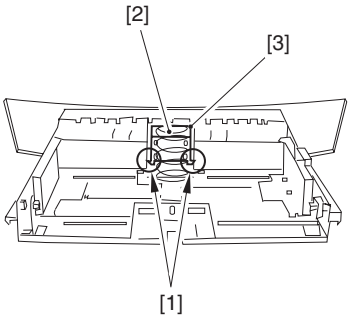
1) Remove the shafts [1] on both sides of the lifting plate. Remove the lifting plate [3] while watching the lifting plate spring [2] carefully.



F-3-334

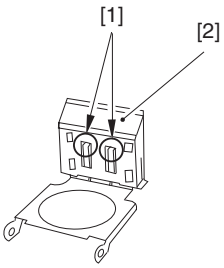
2) Remove the two claws [1] on both sides of the cassette separation pad and lift it up while watching the lifting plate spring [2] carefully. Ensure that the separation pad spring does not get lost.

3) Remove both the plate and the cassette separation pad [3] by sliding them to the left.



F-3-335

4) Remove the two claws [1] and remove the cassette separation pad [2] by sliding it up.



F-3-336

3.5.4 Paper Feed Roller

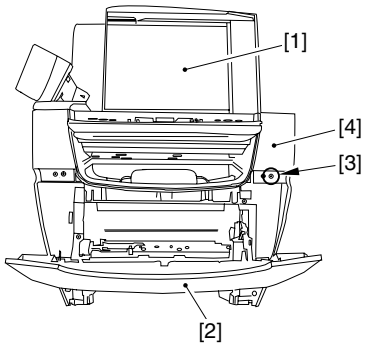
3.5.4.1 Removing the Cassette 0002-7105

1) Remove the cassette by holding the cassette handle.

3.5.4.2 Removing the Reader Right Front Cover 0002-7108

1) Open the platen glass cover [1].

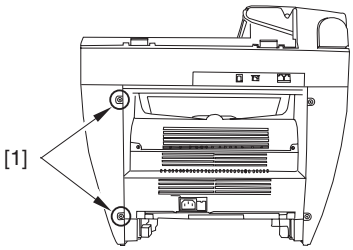
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-337

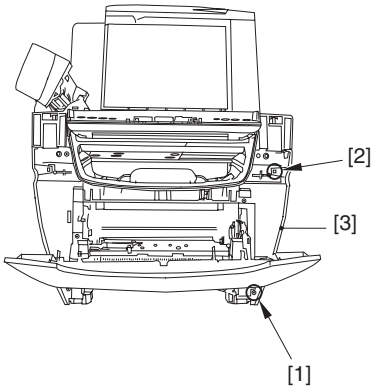
3.5.4.3 Removing the Right Cover 0002-7111

1) Remove the two screws [1] on the back side.



F-3-338

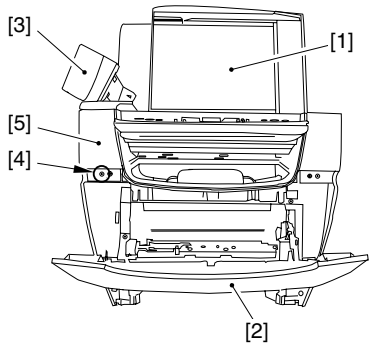
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-339

3.5.4.4 Removing the Reader Left Front Cover 0002-7114

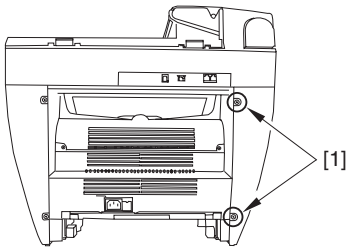
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-340

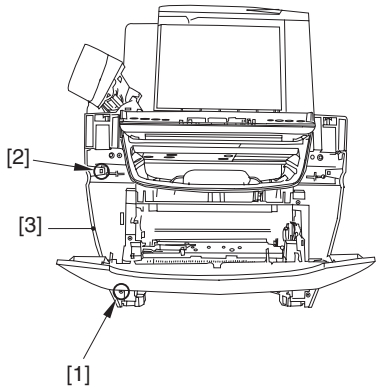
3.5.4.5 Removing the Left Cover 0002-7117

1) Remove the two screws [1] on the back side.



F-3-341

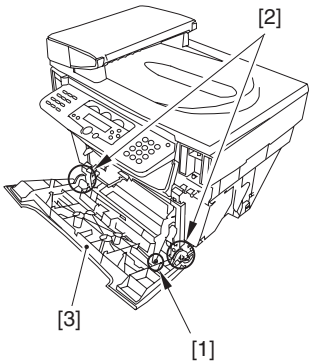
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-342

3.5.4.6 Removing the Front Cover 0002-7120

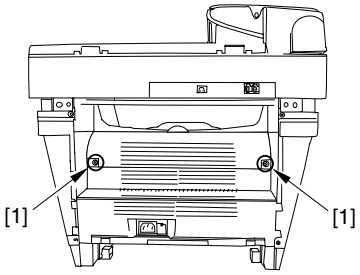
1) Remove the arm claws [1] to disengage the connection.
2) Remove the shafts on both sides [2] and remove the front cover [3].



F-3-343

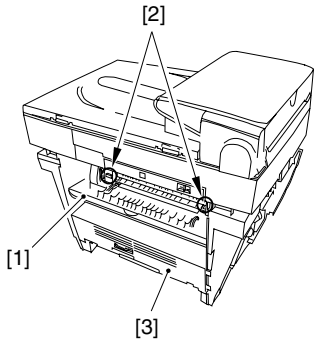
3.5.4.7 Removing the Rear Cover 0002-7123

1) Remove two screws [1].



F-3-344

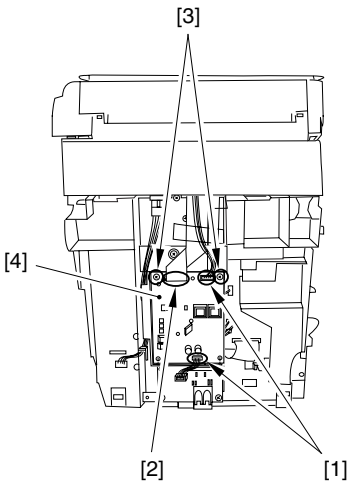
2) Opening the face-up cover [1], and then lower the fixing pressure release levers [2] on both sides and release the pressure.
3) Remove the rear cover [3] as you slide it toward the rear.



F-3-345

3.5.4.8 Removing the NCU Board 0006-3679

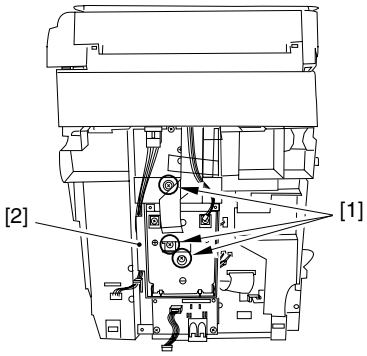
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the two screws [3] and remove the NCU board [4].



F-3-346

3.5.4.9 Removing the NCU Case 0006-3676

1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.

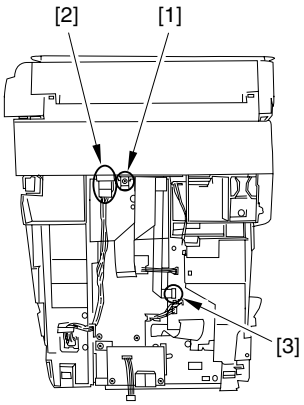


F-3-347

3.5.4.10 Removing the Scanner Unit 0006-3678

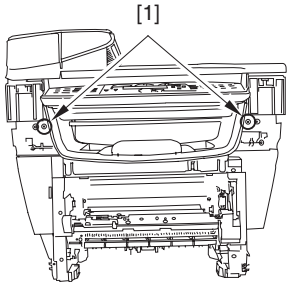
1) Remove the screw [1] and remove the connector [2] as well as the flat cable [3] on the DCNT board. Remove the tape holding the cable in advance.

Prepare a new tape (Part No: AZ7-0008) of a suitable length before you attach the cable again.



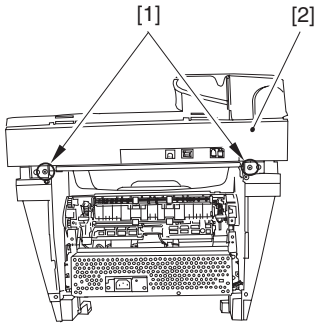
F-3-348

2) Remove the two front screws [1].



F-3-349

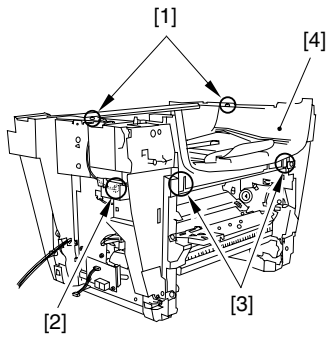
3) Remove the two screws on the back [1]. Slide the scanner unit [2] to the back; then, remove it by lifting it.



F-3-350

3.5.4.11 Removing the Top Cover 0006-3680

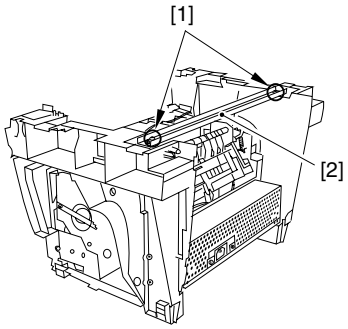
1) Remove the two screws [1].
2) Remove the connector [2] of the DCNT board.
3) Remove the two claws [3] and remove the top cover [4].



F-3-351

3.5.4.12 Removing the Stay 0003-7795

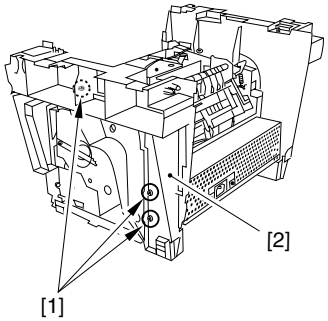
1) Remove the two screws [1] and then removes the stay [2].



F-3-352

3.5.4.13 Removing the Right Frame 0003-7796

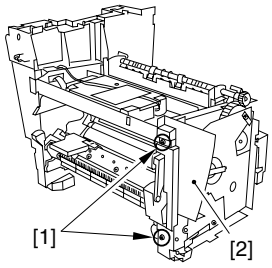
1) Remove the three screws [1] and then removes the right frame [2].



F-3-353

3.5.4.14 Removing the Right Front Cover 0003-7729

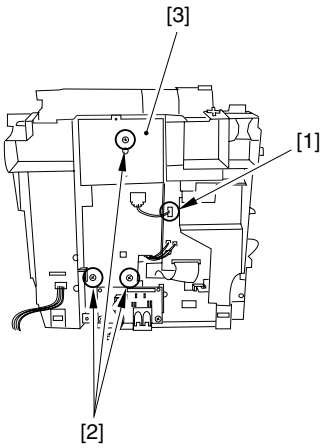
1) Remove the two screws [1] and then removes the right front cover [2].



F-3-354

3.5.4.15 Removing the Plate 0006-3033

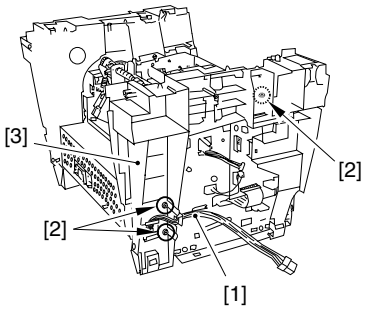
1) Remove the connector [1] of the DCNT board.
2) Remove the three screws [2] and then removes the plate [3].



F-3-355

3.5.4.16 Removing the Left Frame 0003-7798

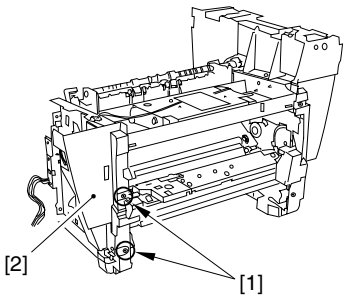
1) Remove the cable [1] out of the cable guide.
2) Remove the three screws [2] and then removes the left frame [3].



F-3-356

3.5.4.17 Removing the Left Front Cover 0003-7730

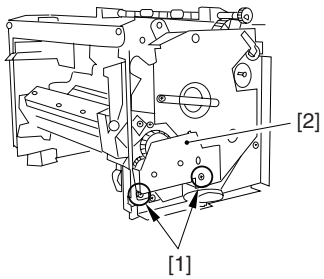
1) Remove the two screws [1] and then removes the left front cover [2].



F-3-357

3.5.4.18 Removing the Gear Unit 0002-7100

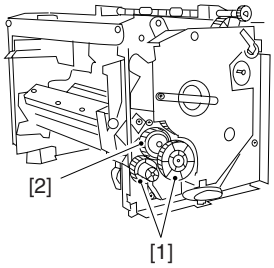
1) Remove the 2 screws [1], and detach the drive plate (small) [2].



F-3-358

2) Remove the 2 gears [1].

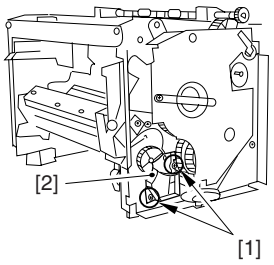
3) While freeing the claw, detach the gear unit [2].



F-3-359

3.5.4.19 Removing the Tooth-Missing Gear 0002-7101

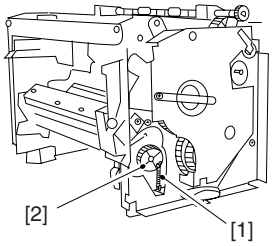
1) Remove the 2 screws [1], and detach the gear support [2].



F-3-360

2) Remove the spring [1].

3) While freeing the claw, detach the tooth-missing gear [2].



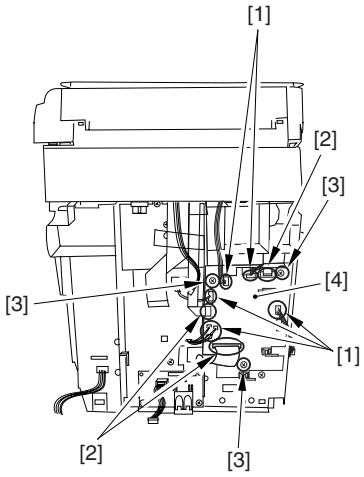
F-3-361

3.5.4.20 Removing the DCNT Board 0006-3684

1) Take off the connectors at seven spots (six if the

unit is not equipped with the fax function) [1] as well as the flat cable at three spots [2].

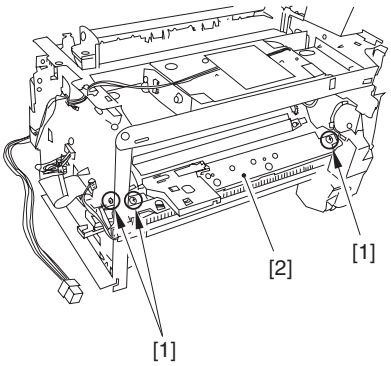
2) Remove the three screws [3] and, while carefully watching the sensor flag, removes the DCNT board [4].



F-3-362

3.5.4.21 Removing the Manual Stay 0002-7150

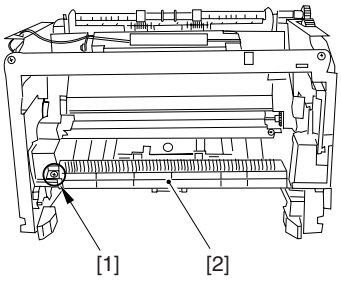
1) Remove the three screws [1]. While watching the sensor flag carefully, remove the manual stay [2].



F-3-363

3.5.4.22 Removing the Paper Feed Guide 0002-7102

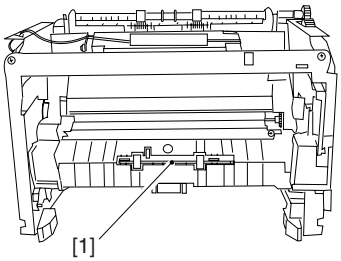
1) Remove the screw [1], and detach the paper feed guide [2].



F-3-364

3.5.4.23 Removing the Paper Feed Roller 0002-7104

1) Lift the left side of the paper feed roller [1], and slide it to detach.



F-3-365

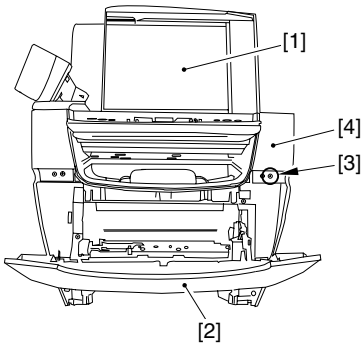
3.5.5 Manual Pickup Solenoid

3.5.5.1 Removing the Cassette 0002-7106

1) Remove the cassette by holding the cassette handle.

3.5.5.2 Removing the Reader Right Front Cover 0002-7109

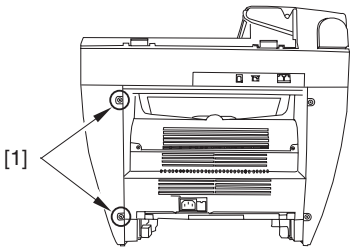
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-366

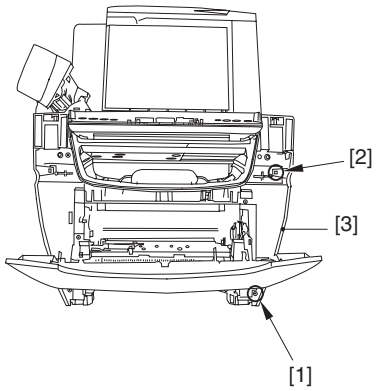
3.5.5.3 Removing the Right Cover 0002-7112

1) Remove the two screws [1] on the back side.



F-3-367

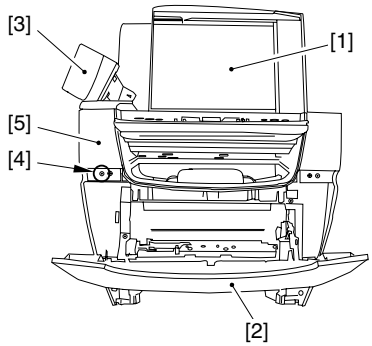
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-368

3.5.5.4 Removing the Reader Left Front Cover 0002-7115

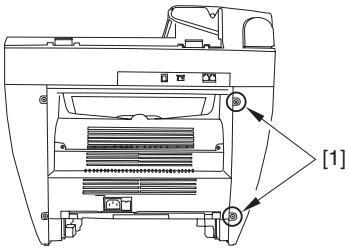
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-369

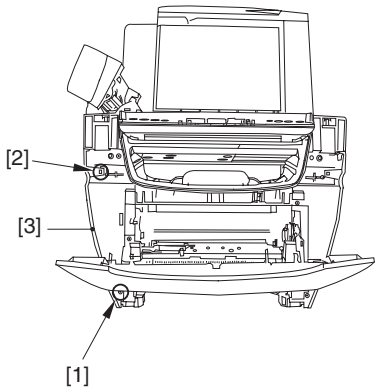
3.5.5.5 Removing the Left Cover 0002-7118

1) Remove the two screws [1] on the back side.



F-3-370

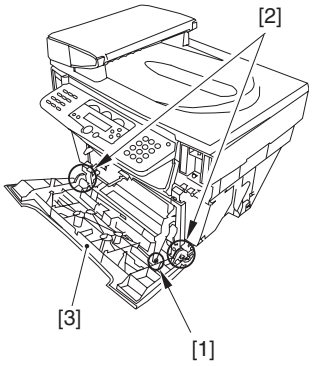
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-371

3.5.5.6 Removing the Front Cover 0002-7121

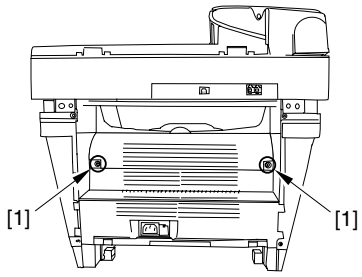
1) Remove the arm claws [1] to disengage the connection.
2) Remove the shafts on both sides [2] and remove the front cover [3].



F-3-372

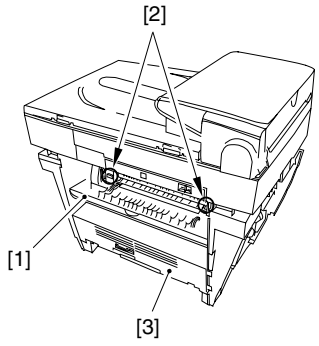
3.5.5.7 Removing the Rear Cover 0002-7124

1) Remove two screws [1].



F-3-373

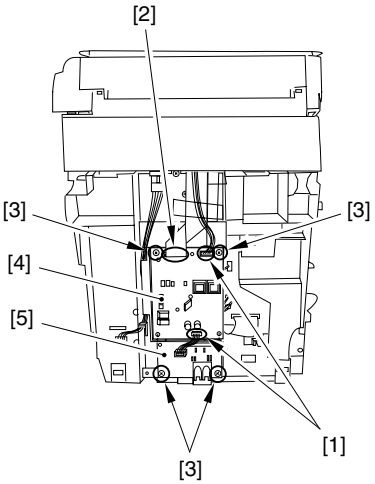
2) Opening the face-up cover [1], and then lower the fixing pressure release levers [2] on both sides and release the pressure.
3) Remove the rear cover [3] as you slide it toward the rear.



F-3-374

3.5.5.8 Removing the NCU Board and Modular Board 0006-3686

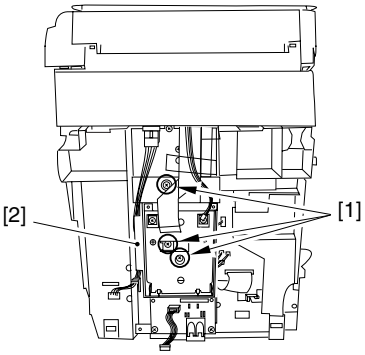
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the four screws [3] and remove the NCU board [4] and modular board [5].



F-3-375

3.5.5.9 Removing the NCU Case 0006-3692

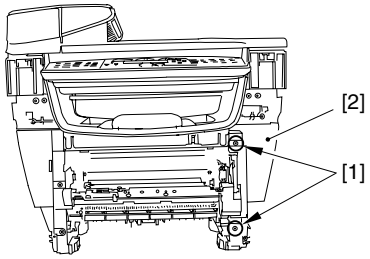
1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.



F-3-376

3.5.5.10 Removing the Right Front Cover 0002-7136

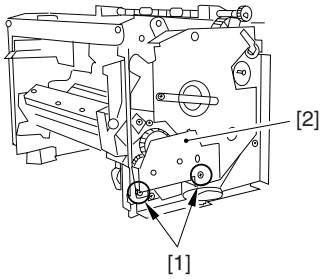
1) Remove the two screws [1] and then removes the right front cover [2].



F-3-377

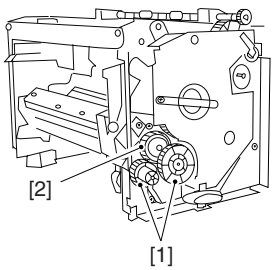
3.5.5.11 Removing the Gear Unit 0005-4218

1) Remove the 2 screws [1], and detach the drive plate (small) [2].



F-3-378

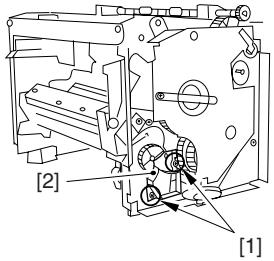
2) Remove the 2 gears [1].
3) While freeing the claw, detach the gear unit [2].



F-3-379

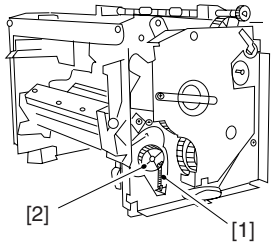
3.5.5.12 Removing the Tooth-Missing Gear 0005-4219

1) Remove the 2 screws [1], and detach the gear support [2].



F-3-380

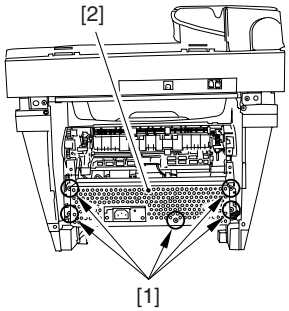
2) Remove the spring [1].
3) While freeing the claw, detach the tooth-missing gear [2].



F-3-381

3.5.5.13 Removing the Power Supply Shield Plate 0002-7816

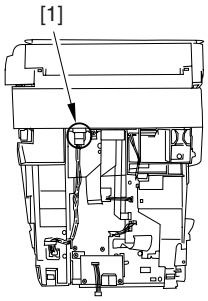
1) Remove the five screws [1] to remove the power supply shield plate [2].



F-3-382

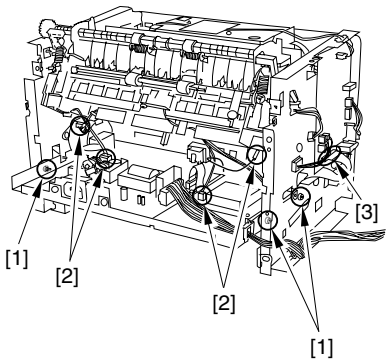
3.5.5.14 Removing the Power Supply Assembly 0006-3694

1) Remove the connector [1] and remove the cable from the cable guide.



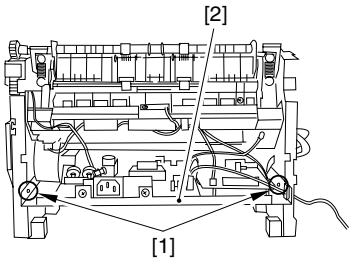
F-3-383

2) Remove the three screws [1]. (The external cover is omitted from the illustration below to show the instructions clearly.)
3) Remove the four connectors [2] as well as the flat cable [3] on the DCNT board.



F-3-384

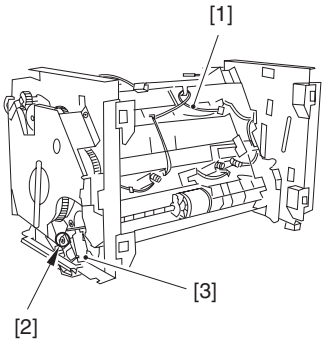
4) As you remove the bosses on both sides [1], lower the front part of the power supply assembly [2]. Then pull it to remove the power supply assembly.



F-3-385

3.5.5.15 Removing the Manual Paper Feed Solenoid 0002-7152

1) Place the main unit down on its front face (so that the interior of the main unit is easily visible).
2) Remove the cable [1] from the cable guide.
3) Remove the screw [2] to remove the manual pickup solenoid [3].



F-3-386

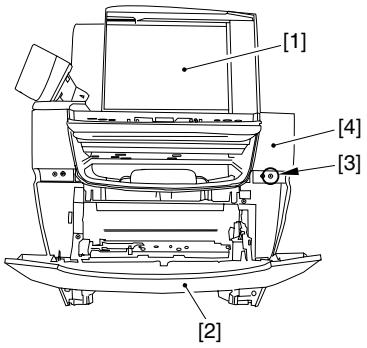
3.5.6 Main Motor

3.5.6.1 Removing the Cassette 0002-7570

1) Remove the cassette by holding the cassette handle.

3.5.6.2 Removing the Reader Right Front Cover 0002-7572

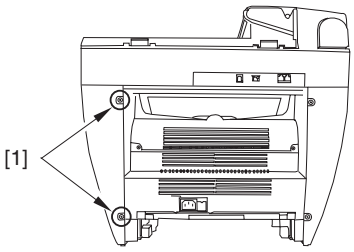
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-387

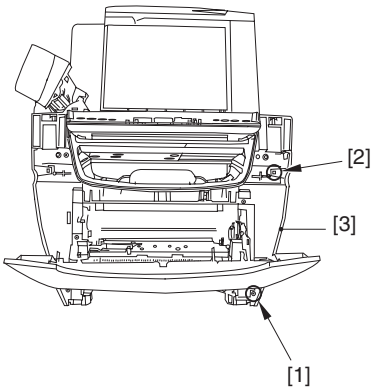
3.5.6.3 Removing the Right Cover 0002-7575

1) Remove the two screws [1] on the back side.



F-3-388

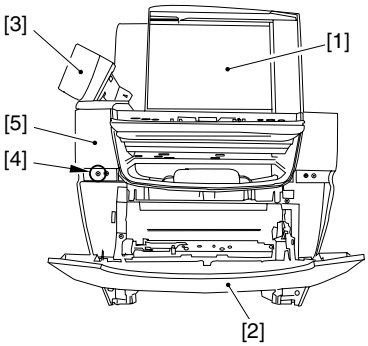
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-389

3.5.6.4 Removing the Reader Left Front Cover 0002-7576

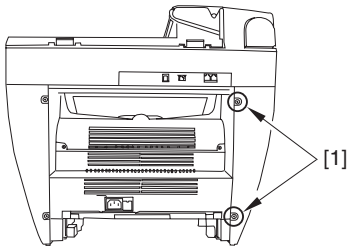
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-390

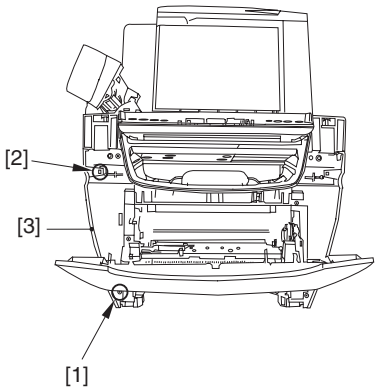
3.5.6.5 Removing the Left Cover 0002-7579

1) Remove the two screws [1] on the back side.



F-3-391

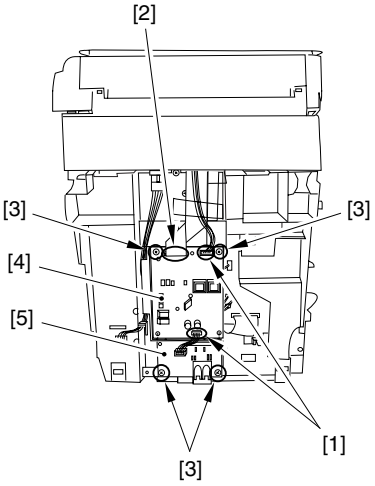
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-392

3.5.6.6 Removing the NCU Board and Modular Board 0006-3701

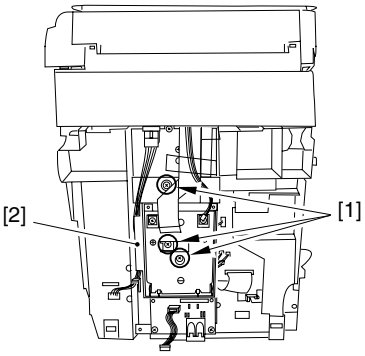
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the four screws [3] and remove the NCU board [4] and modular board [5].



F-3-393

3.5.6.7 Removing the NCU Case 0006-3703

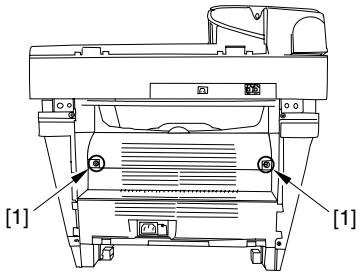
1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.



F-3-394

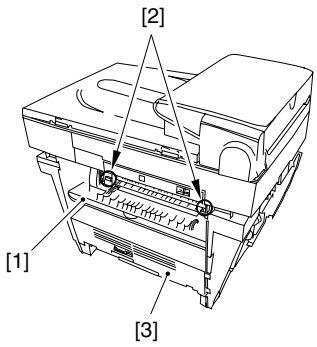
3.5.6.8 Removing the Rear Cover 0002-7582

1) Remove two screws [1].



F-3-395

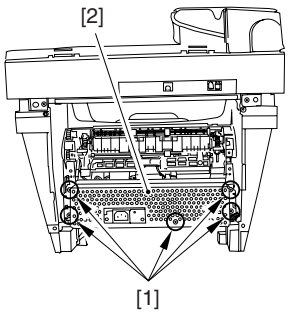
2) Opening the face-up cover [1], and then lower the fixing pressure release levers [2] on both sides and release the pressure.
3) Remove the rear cover [3] as you slide it toward the rear.



F-3-396

3.5.6.9 Removing the Power Supply Shield Plate 0002-7603

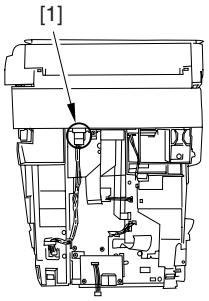
1) Remove the five screws [1] to remove the power supply shield plate [2].



F-3-397

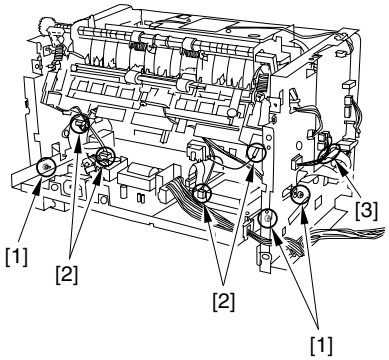
3.5.6.10 Removing the Power Supply Assembly 0006-3704

1) Remove the connector [1] and remove the cable from the cable guide.



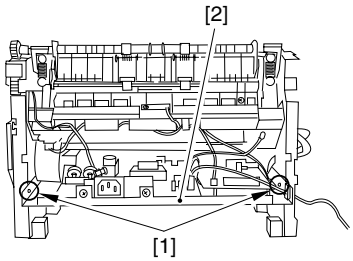
F-3-398

2) Remove the three screws [1]. (The external cover is omitted from the illustration below to show the instructions clearly.)
3) Remove the four connectors [2] as well as the flat cable [3] on the DCNT board.



F-3-399

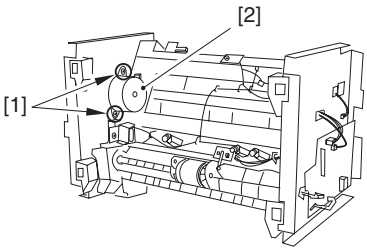
4) As you remove the bosses on both sides [1], lower the front part of the power supply assembly [2]. Then pull it to remove the power supply assembly.



F-3-400

3.5.6.11 Removing the Main Motor 0002-7607

1) Place the main unit down on its front face (so that the interior of the main unit is easily visible).
2) Remove the two screws [1] to remove the main motor [2].



F-3-401

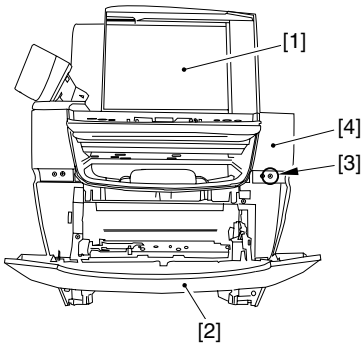
3.5.7 Gear Unit

3.5.7.1 Removing the Cassette 0002-7571

1) Remove the cassette by holding the cassette handle.

3.5.7.2 Removing the Reader Right Front Cover 0002-7573

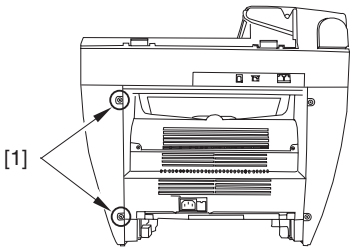
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-402

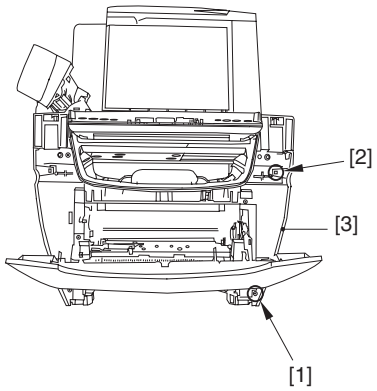
3.5.7.3 Removing the Right Cover 0002-7574

1) Remove the two screws [1] on the back side.



F-3-403

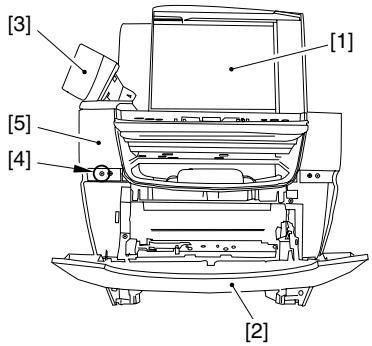
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-404

3.5.7.4 Removing the Reader Left Front Cover 0002-7577

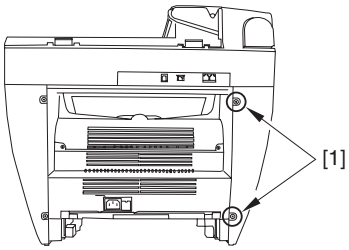
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-405

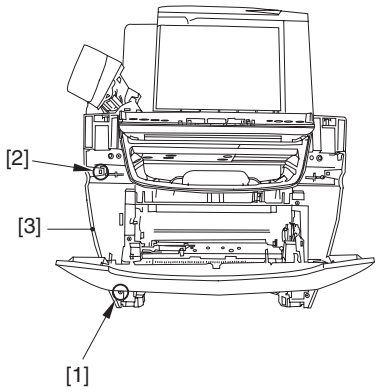
3.5.7.5 Removing the Left Cover 0002-7578

1) Remove the two screws [1] on the back side.



F-3-406

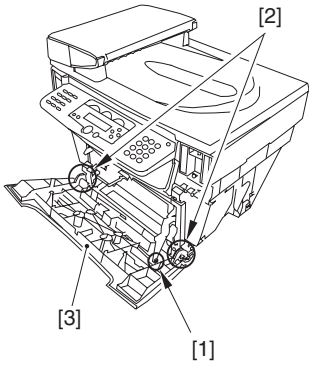
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-407

3.5.7.6 Removing the Front Cover 0002-7581

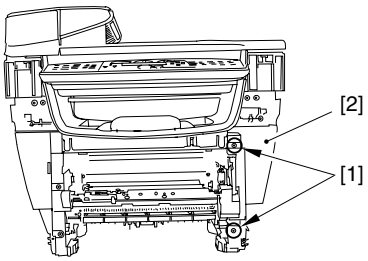
1) Remove the arm claws [1] to disengage the connection.
2) Remove the shafts on both sides [2] and remove the front cover [3].



F-3-408

3.5.7.7 Removing the Right Front Cover 0002-7594

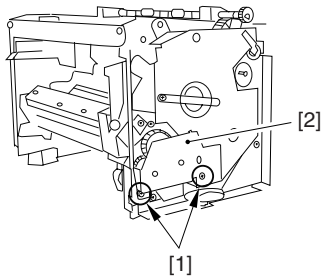
1) Remove the two screws [1] and then removes the right front cover [2].



F-3-409

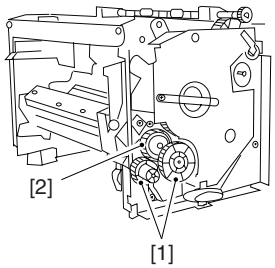
3.5.7.8 Removing the Gear Unit 0002-7601

1) Remove the 2 screws [1], and detach the drive plate (small) [2].



F-3-410

2) Remove the 2 gears [1].
3) While freeing the claw, detach the gear unit [2].



F-3-411

3.6 FIXING SYSTEM

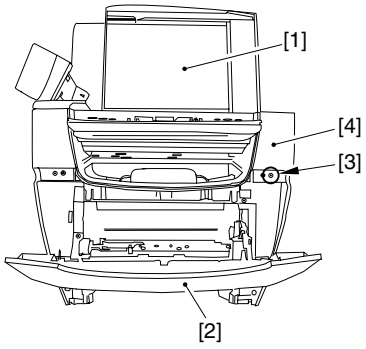
3.6.1 Fixing Film Unit

3.6.1.1 Removing the Cassette 0002-7190

1) Remove the cassette by holding the cassette handle.

3.6.1.2 Removing the Reader Right Front Cover 0002-7193

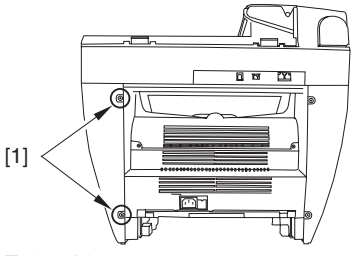
1) Open the platen glass cover [1].
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-412

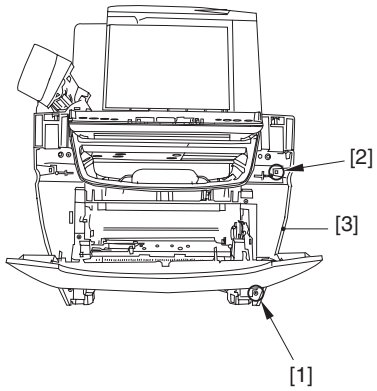
3.6.1.3 Removing the Right Cover 0002-7195

1) Remove the two screws [1] on the back side.



F-3-413

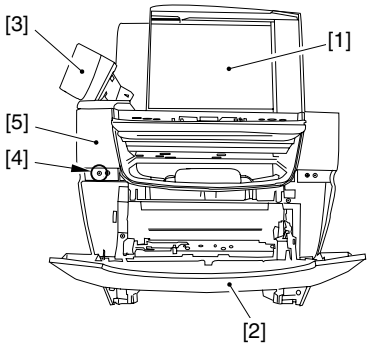
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-414

3.6.1.4 Removing the Reader Left Front Cover 0002-7198

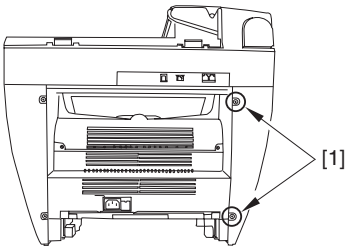
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-415

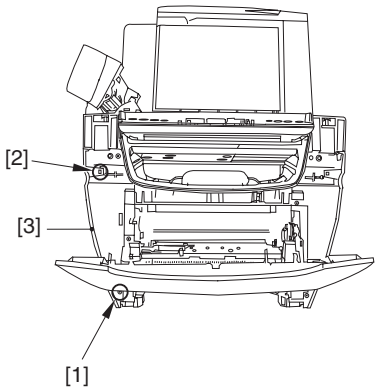
3.6.1.5 Removing the Left Cover 0002-7200

1) Remove the two screws [1] on the back side.



F-3-416

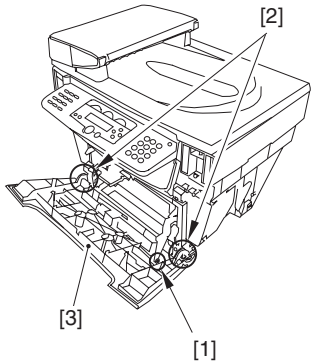
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-417

3.6.1.6 Removing the Front Cover 0002-7202

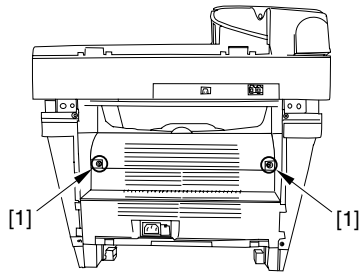
1) Remove the arm claws [1] to disengage the connection.
2) Remove the shafts on both sides [2] and remove the front cover [3].



F-3-418

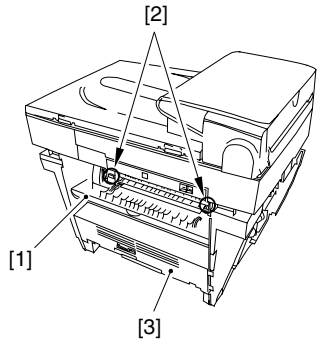
3.6.1.7 Removing the Rear Cover 0002-7204

1) Remove two screws [1].



F-3-419

2) Opening the face-up cover [1], and then lower the fixing pressure release levers [2] on both sides and release the pressure.
3) Remove the rear cover [3] as you slide it toward the rear.

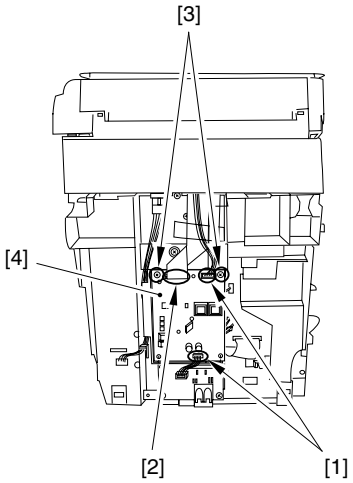


F-3-420

3.6.1.8 Removing the NCU Board

0006-3738

1) Remove the two connectors [1] and the flat cable [2].
2) Remove the two screws [3] and remove the NCU board [4].

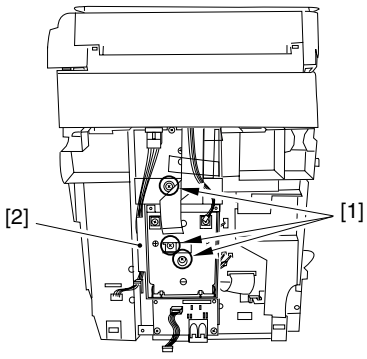


F-3-421

3.6.1.9 Removing the NCU Case

0006-3731

1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.



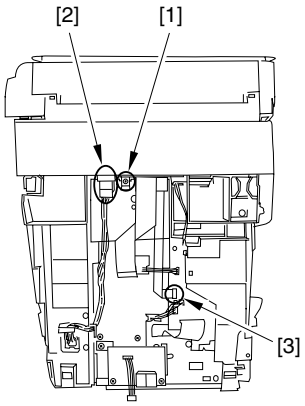
F-3-422

3.6.1.10 Removing the Scanner Unit

0006-3733

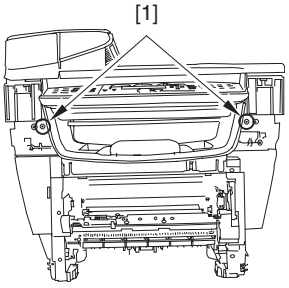
1) Remove the screw [1] and remove the connector [2] as well as the flat cable [3] on the DCNT board. Remove the tape holding the cable in advance.

Prepare a new tape (Part No: AZ7-0008) of a suitable length before you attach the cable again.



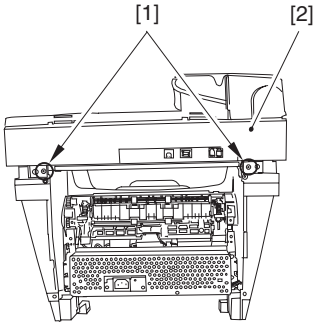
F-3-423

2) Remove the two front screws [1].



F-3-424

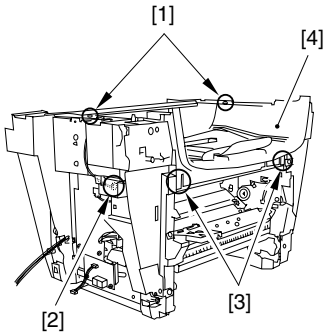
3) Remove the two screws on the back [1]. Slide the scanner unit [2] to the back; then, remove it by lifting it.



F-3-425

3.6.1.11 Removing the Top Cover 0006-3735

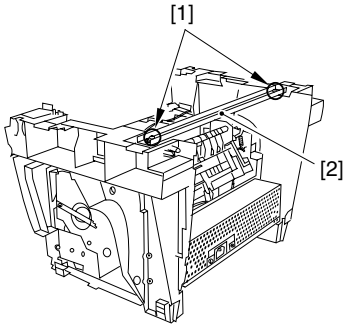
1) Remove the two screws [1].
2) Remove the connector [2] of the DCNT board.
3) Remove the two claws [3] and remove the top cover [4].



F-3-426

3.6.1.12 Removing the Stay 0002-7468

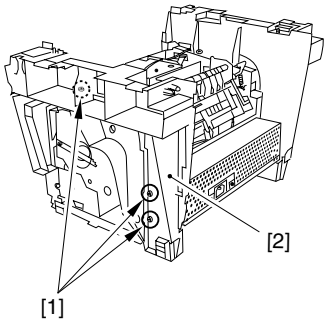
1) Remove the two screws [1] and then removes the stay [2].



F-3-427

3.6.1.13 Removing the Right Frame 0002-7469

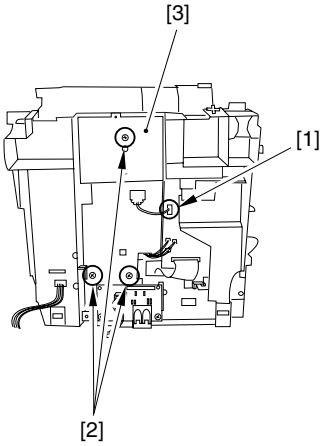
1) Remove the three screws [1] and then removes the right frame [2].



F-3-428

3.6.1.14 Removing the Plate 0006-3729

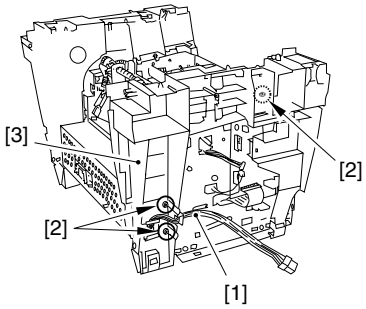
1) Remove the connector [1] of the DCNT board.
2) Remove the three screws [2] and then removes the plate [3].



F-3-429

3.6.1.15 Removing the Left Frame 0002-7479

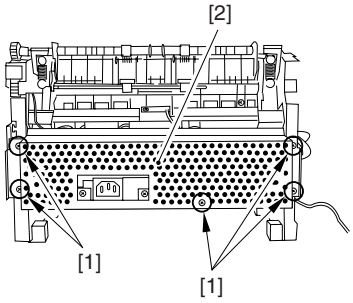
1) Remove the cable [1] out of the cable guide.
2) Remove the three screws [2] and then removes the left frame [3].



F-3-430

3.6.1.16 Removing the Power Supply Shield Plate 0003-7594

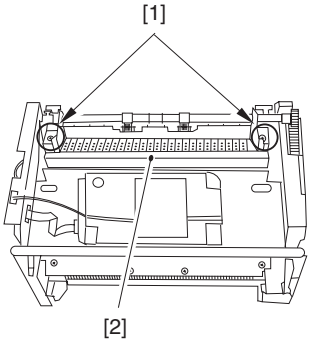
1) Remove the five screws [1] to remove the power supply shield plate [2].



F-3-431

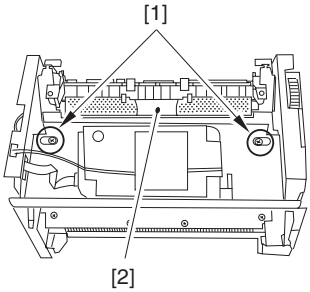
3.6.1.17 Removing the Fixing Film Unit 0006-3727

1) Remove the two screws [1] and take off the Fixing cover [2].



F-3-432

2) Remove the two screws [1]. Remove the Fixing entrance guide [2] by sliding it sideways back and forth.



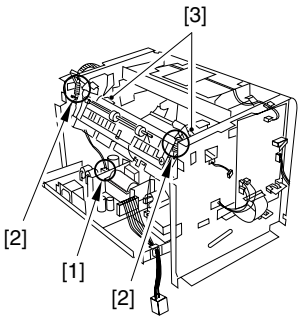
F-3-433

3) Disengage the connector [1] of the power supply

board.

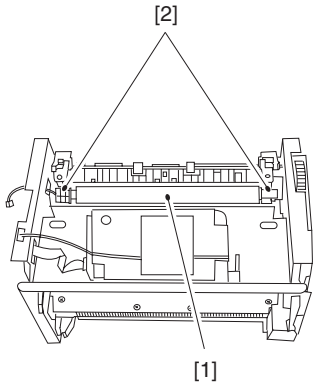
4) Remove the grounding springs and the pressure springs [2] on both sides.

5) Remove the pressure plates [3] on both sides.



F-3-434

6) While holding the left and right frames [2] of the Fixing film unit [1], lift it up at an angle and remove it.



F-3-435

3.6.2 Fixing Pressure Roller

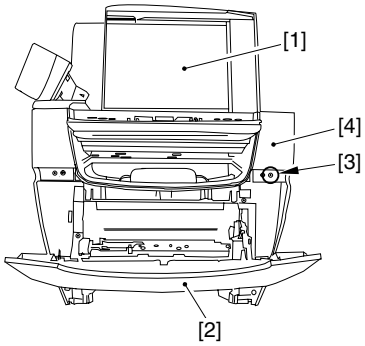
3.6.2.1 Removing the Cassette 0002-7191

1) Remove the cassette by holding the cassette handle.

3.6.2.2 Removing the Reader Right Front Cover 0002-7194

1) Open the platen glass cover [1].

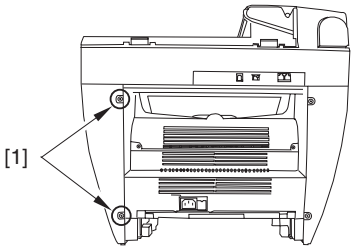
2) Open the front cover [2], remove one screw [3], and remove the reader right front cover [4].



F-3-436

3.6.2.3 Removing the Right Cover 0002-7196

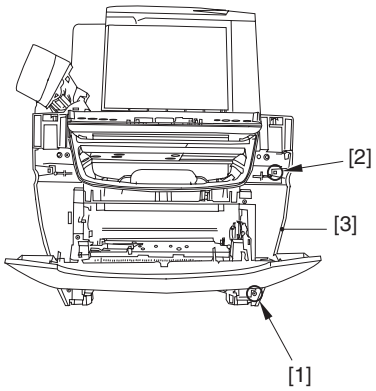
1) Remove the two screws [1] on the back side.



F-3-437

2) Remove the front screw [1] and then remove the claw [2].

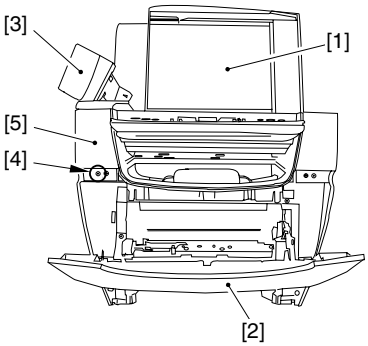
3) Slightly lift up the right side of the unit and remove the cover as if you were opening the bottom side of the right cover [3].



F-3-438

3.6.2.4 Removing the Reader Left Front Cover 0002-7199

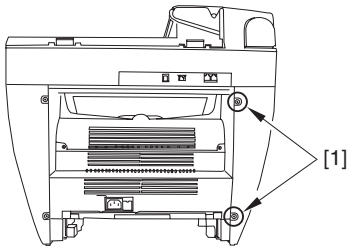
1) Open the platen glass cover [1].
2) Open the front cover [2] and the ADF part [3], remove one screw [4], and remove the reader left front cover [5].



F-3-439

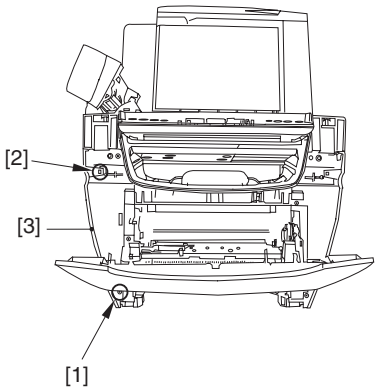
3.6.2.5 Removing the Left Cover 0002-7201

1) Remove the two screws [1] on the back side.



F-3-440

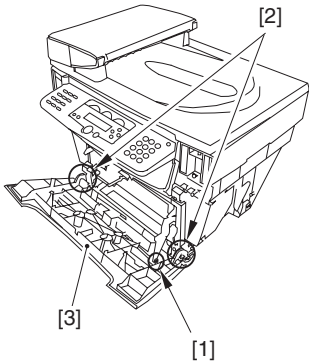
2) Remove the front screw [1] and then remove the claw [2].
3) Slightly lift up the left side of the unit and remove the cover as if you were opening the bottom side of the left cover [3].



F-3-441

3.6.2.6 Removing the Front Cover 0002-7203

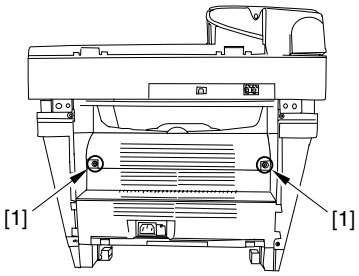
1) Remove the arm claws [1] to disengage the connection.
2) Remove the shafts on both sides [2] and remove the front cover [3].



F-3-442

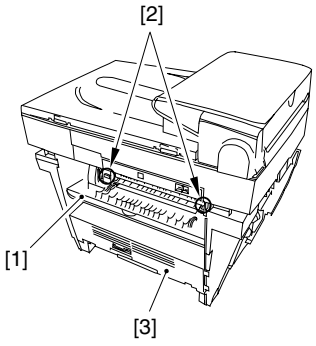
3.6.2.7 Removing the Rear Cover 0002-7205

1) Remove two screws [1].



F-3-443

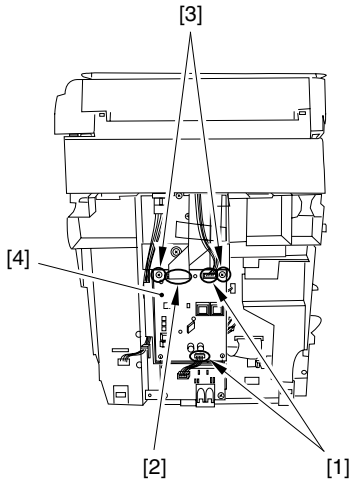
2) Opening the face-up cover [1], and then lower the fixing pressure release levers [2] on both sides and release the pressure.
3) Remove the rear cover [3] as you slide it toward the rear.



F-3-444

3.6.2.8 Removing the NCU Board 0006-3739

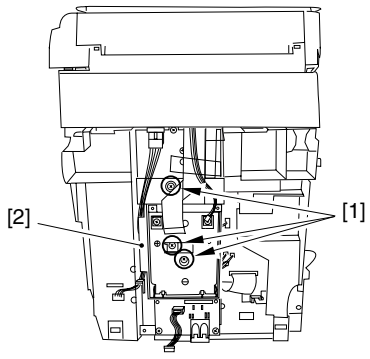
1) Remove the two connectors [1] and the flat cable [2].
2) Remove the two screws [3] and remove the NCU board [4].



F-3-445

3.6.2.9 Removing the NCU Case 0006-3732

1) Remove the three screws [1]; then, pull the upper portion of the NCU case [2] toward you, and lifting it upward, remove the NUC case.

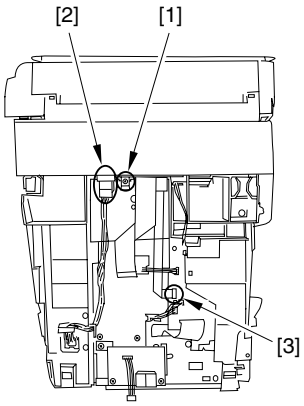


F-3-446

3.6.2.10 Removing the Scanner Unit 0006-3734

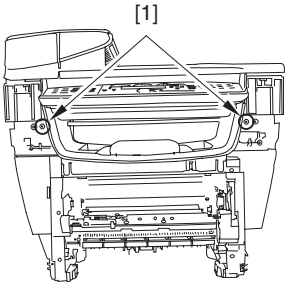
1) Remove the screw [1] and remove the connector [2] as well as the flat cable [3] on the DCNT board. Remove the tape holding the cable in advance.

Prepare a new tape (Part No: AZ7-0008) of a suitable length before you attach the cable again.



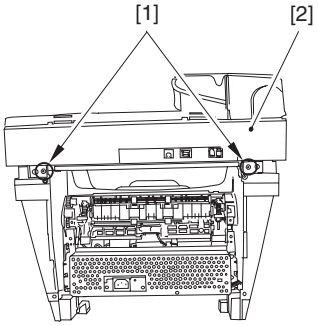
F-3-447

2) Remove the two front screws [1].



F-3-448

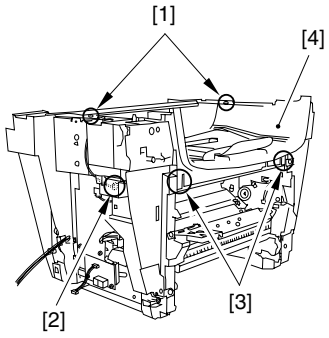
3) Remove the two screws on the back [1]. Slide the scanner unit [2] to the back; then, remove it by lifting it.



F-3-449

3.6.2.11 Removing the Top Cover 0006-3736

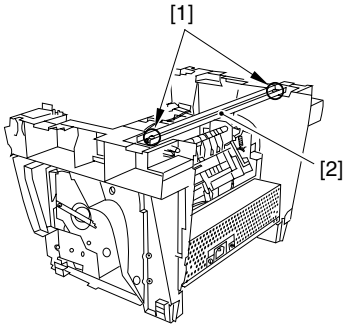
1) Remove the two screws [1].
2) Remove the connector [2] of the DCNT board.
3) Remove the two claws [3] and remove the top cover [4].



F-3-450

3.6.2.12 Removing the Stay 0002-7473

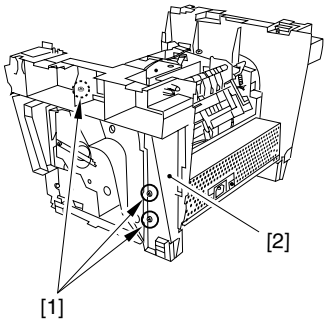
1) Remove the two screws [1] and then removes the stay [2].



F-3-451

3.6.2.13 Removing the Right Frame 0002-7474

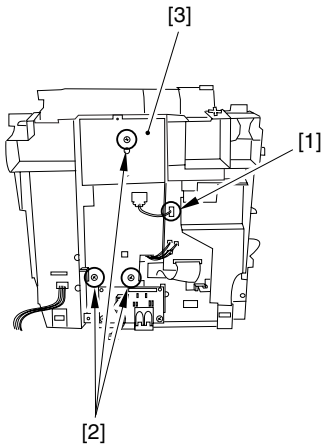
1) Remove the three screws [1] and then removes the right frame [2].



F-3-452

3.6.2.14 Removing the Plate 0006-3730

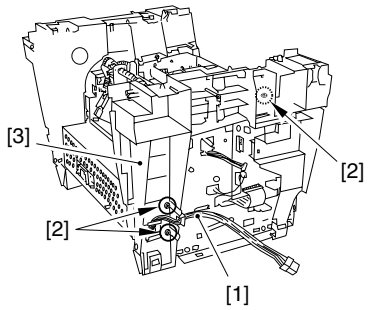
1) Remove the connector [1] of the DCNT board.
2) Remove the three screws [2] and then removes the plate [3].



F-3-453

3.6.2.15 Removing the Left Frame 0002-7477

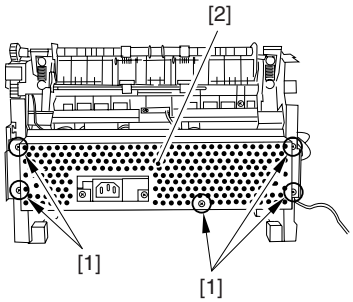
1) Remove the cable [1] out of the cable guide.
2) Remove the three screws [2] and then removes the left frame [3].



F-3-454

3.6.2.16 Removing the Power Supply Shield Plate 0003-7595

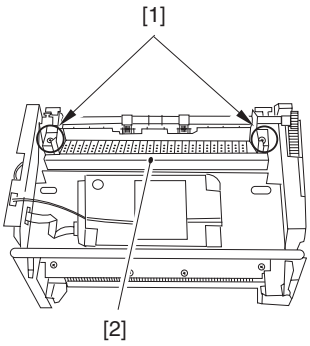
1) Remove the five screws [1] to remove the power supply shield plate [2].



F-3-455

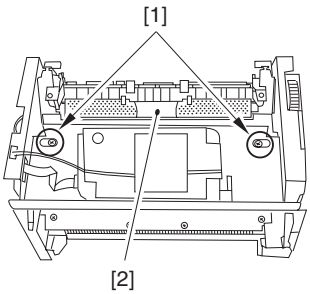
3.6.2.17 Removing the Fixing Film Unit 0006-3728

1) Remove the two screws [1] and take off the Fixing cover [2].



F-3-456

2) Remove the two screws [1]. Remove the Fixing entrance guide [2] by sliding it sideways back and forth.

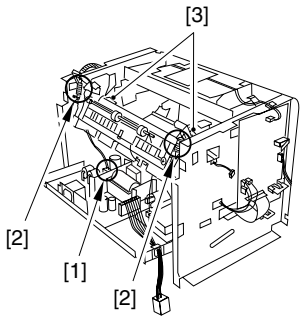


F-3-457

3) Disengage the connector [1] of the power supply board.

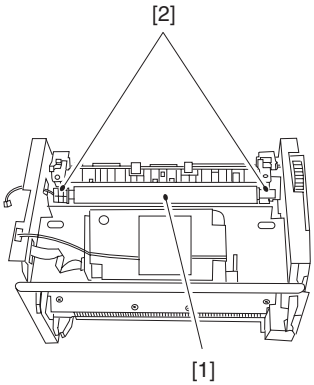
4) Remove the grounding springs and the pressure springs [2] on both sides.

5) Remove the pressure plates [3] on both sides.



F-3-458

6) While holding the left and right frames [2] of the Fixing film unit [1], lift it up at an angle and remove it.

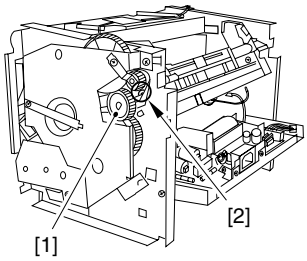


F-3-459

3.6.2.18 Removing the Fixing Pressure Roller 0006-3726

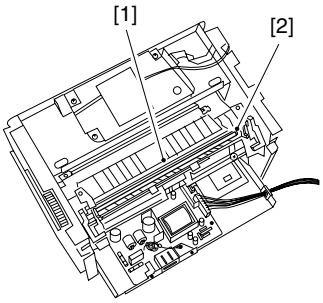
1) Remove the gear [1] by disengaging the claw.

2) Take out the boss of the bushing [2], turn it, and remove the bushing.



F-3-460

3) Hold the shorter shaft [2] of the Fixing pressure roller [1] and lift it up at an angle to remove it from the bushing. Remove the Fixing pressure roller by sliding it.



F-3-461

Chapter 4 MAINTENANCE AND INSPECTION

Contents

4.1 Periodically Replaced Parts 4-1
4.1.1 Parts Requiring Periodical Replacement 4-1
4.2 Consumables 4-2
4.2.1 Consumable 4-2
4.3 Periodical Service 4-3
4.3.1 Items Requiring Scheduled Servicing 4-3
4.4 Cleaning 4-4
4.4.1 Items Requiring Cleaning 4-4
4.4.2 Cleaning Method (external covers) 4-5
4.4.3 Cleaning Method (scanning unit) 4-6
4.4.4 Cleaning Method (printer unit) 4-7
4.5 Lubrications 4-9
4.5.1 Areas Requiring Application of Grease 4-9
4.5.2 Delivery Idler Gear 4-11
4.5.3 Fixing Drive Transmission Gear 4-12
4.5.4 Large Gear Bushing R 4-12
4.5.5 Large Gear 4-13
4.5.6 Feed Gear 4-13
4.5.7 Internal Gear 4-14
4.5.8 Large Gear Deceleration Gear/Plate R 4-14
4.5.9 Main Motor 4-15
4.5.10 Drive Releasing Arm 4-16
4.5.11 FU Delivery Roller 4-16
4.5.12 Pickup Idler Gear 4-17
4.5.13 Feed Deceleration Gear 4-17
4.5.14 Fixing Deceleration Gear 4-18
4.5.15 FD Delivery Roller 4-19
4.5.16 Large Gear Bushing F 4-19
4.5.17 Pressure roller 4-20
4.5.18 Cassette Pickup Roller 4-20
4.5.19 U-turn Roller Gear 4-21
4.5.20 Roller Shaft End Face (front) 4-21
4.5.21 Roller Shaft End Face (rear) 4-21
4.5.22 Separation Guide Bushing 4-22
4.5.23 Grounding Plate 4-22
4.5.24 CCD Shaft 4-23
4.5.25 Wheel Shaft 4-23

4.1 Periodically Replaced Parts

4.1.1 Parts Requiring Periodical Replacement

0003-0867

The machine does not have parts that require periodical replacement.

4.2 Consumables

4.2.1 Consumable

0007-3320

T-4-1

Work by	Item	Interval (guide)
User	Cartridge EP-27	When toner in the toner cartridge being used has run out.
Service Techician	None	

4.3 Periodical Service

4.3.1 Items Requiring Scheduled Servicing

0003-0865

The machine does not have items that require scheduled servicing.

4.4 Cleaning

4.4.1 Items Requiring Cleaning

0003-2118

T-4-2

Work by	Item	Intervals
User	External covers	As needed (when soiled)
	Platen glass	When smears appear on image scanned from the platen galss
	Rear surface of the platen glass cover	When smears appear on image scanned from the platen galss
	ADF scanning area	When black lines appear in the vertical direction on image scanned from the ADF
Service technician	Document pickup roller	When document pickup performance has lowered
	Document separation roller	When document separation and/or feed performance has lowered
	Separation guide	When document separation performance has lowered
	Document feed roller	When document feed performance has lowered
	Document delivery roller	When document feed performance has lowered
	White sheet	When image scanned from the ADF becomes lighter
	Cassette pickup roller	When paper pickup performance has lowered
	Cassette separation pad	When paper separation performance has lowered
	Feed roller	When paper feed performance has lowered

Work by	Item	Intervals
	Transfer charging roller	When the back of paper tends to become soiled; or, when a white spot appears in the images at intervals of about 46 mm
	Static eliminator	When dots appear in images
	Paper feed guide	When the back of paper tends to become soiled
	Fixing entrance guide	When paper tends to become soiled; when a black line appears vertically at irregular intervals; when paper jams; when paper wrinkles
	Fixing film	When images tend to become soiled at intervals of about 57 mm
	Fixing pressure roller	When the back of paper shows traces at intervals of about 64 mm; when fixing faults occur; when paper jams; when paper wrinkles

⚠

Before starting cleaning work, be sure to turn off the power and disconnect the power plug to avoid fires and electric shocks.

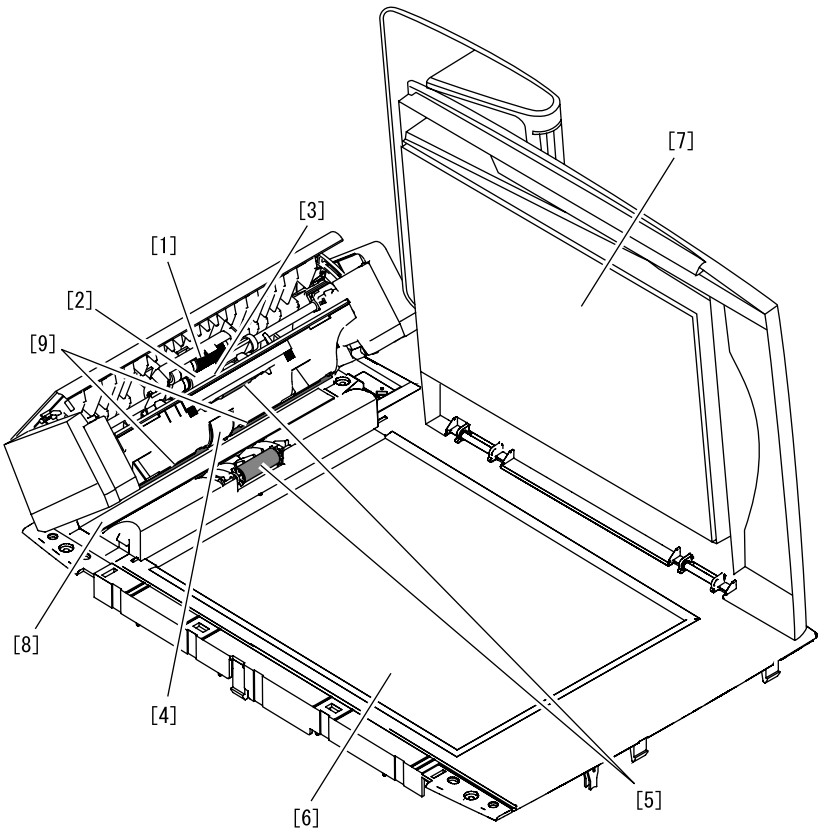
4.4.2 Cleaning Method (external covers)

0003-2119

Moisten a soft cloth with water or solution of mild detergent, making sure it is well wrung; then, wipe the soiling.
If you have used detergent, be sure to remove its residue using a soft, moist cloth.
After removing all soiling, dry wipe the area with a soft, dry cloth.

4.4.3 Cleaning Method (scanning unit)

0003-2232



F-4-1

[1] Document pickup roller

Open the ADF and wipe any dirt off with a soft, dry cloth.

[2] Document separation roller

Open the ADF and wipe any dirt off with a soft, dry cloth.

[3] Separation guide

Open the ADF and wipe any dirt off with a soft, dry cloth.

[4] Document feed roller

Open the ADF and wipe any dirt off with a soft, dry cloth.

[5] Document delivery roller

Open the ADF and wipe any dirt off with a soft, dry cloth.

[6] Platen glass

Open the platen glass cover and wipe any dirt off with a soft, dry cloth.

[7] Rear surface of the platen glass cover

Open the platen glass cover and wipe any dirt off with a soft, dry cloth.

[8] ADF scanning area

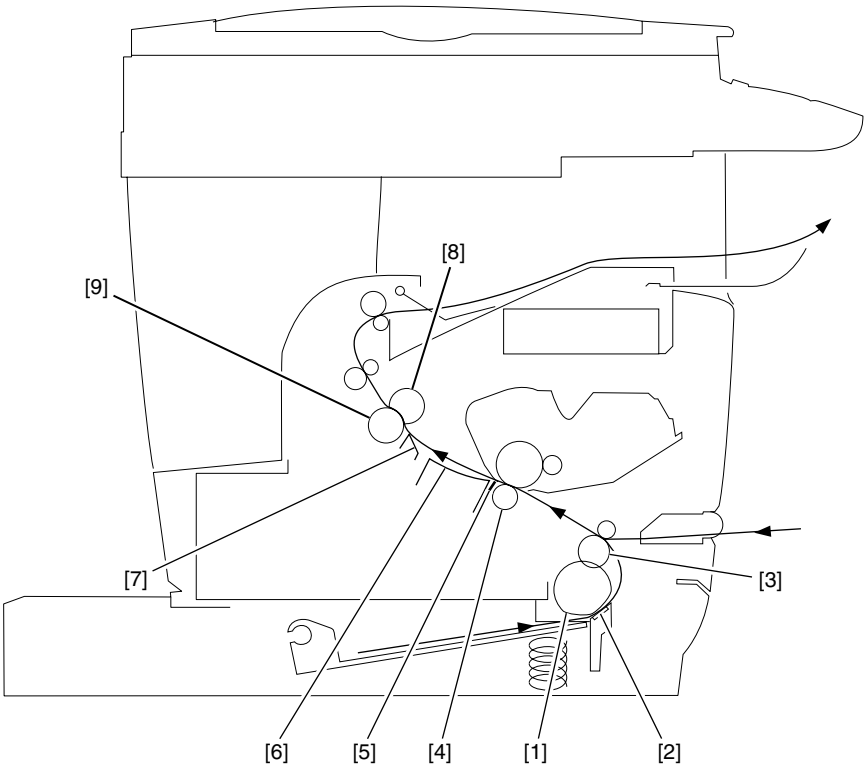
Open the ADF and wipe any dirt off with a soft, dry cloth.

[9] White sheet

Open the ADF and wipe any dirt off with a soft, dry cloth.

4.4.4 Cleaning Method (printer unit)

0003-2121



F-4-2

[1] Cassette Pickup Roller

Use lint-free paper to remove soling.

[2] Cassette Separation Pad

Use lint-free paper to remove soling.

[3] Feed Roller

Use lint-free paper to remove soling.

[4] Transfer Charging Roller

Use lint-free paper to remove toner and paper lint.

⚠

- Do not touch the sponge area of the transfer charging roller to avoid soiling the back of paper or white spots in the images.
- Never use solvent.
- If the soiling cannot be removed using lint-free paper or the roller is deformed, replace the roller.

---

[5] Static Eliminator

Remove dust and paper lint using a brush.

[6] Paper Feed Guide

Use lint-free paper to remove soiling.

[7] Fixing Inlet Guide

Use lint-free paper moistened with isopropyl alcohol to remove the soiling.

[8] Fixing Film

Use lint-free paper to remove soiling.

[9] Fixing Pressure Roller

Use lint-free paper to remove soiling.

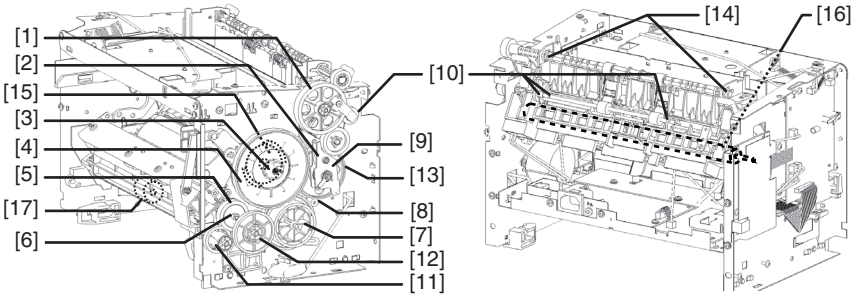
4.5 Lubrications

4.5.1 Areas Requiring Application of Grease

0002-7921

The machine has areas that require grease to permit smooth movement of parts or ensure good electrical conductivity. If you have replaced a part in these areas or if you have removed the grease, be sure to apply grease.

Printer unit

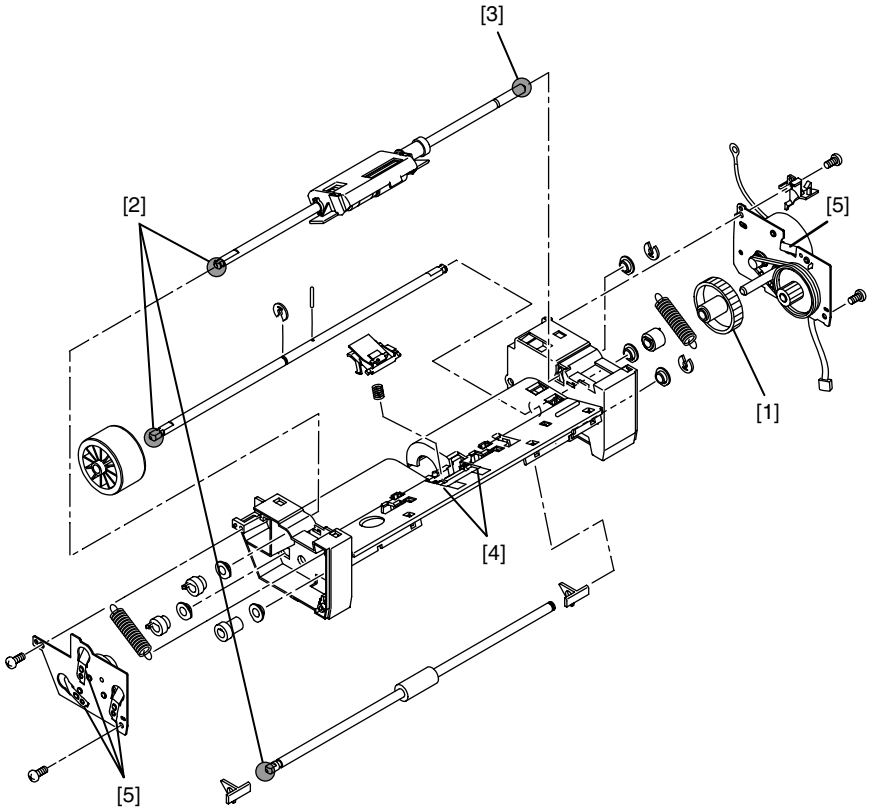


F-4-3

T-4-3

[1] Delivery idler gear	[10] FU delivery roller
[2] Fixing drive transmission gear	[11] Pickup idler gear
[3] Large gear bushing R	[12] Feed deceleration gear
[4] Large gear	[13] Fixing deceleration gear
[5] Feed gear	[14] FD delivery gear
[6] Internal gear	[15] Large gear bushing F
[7] Large gear deceleration gear/Plate R	[16] Pressure roller
[8] Main motor	[17] Cassette pickup roller
[9] Drive releasing arm	

ADF unit

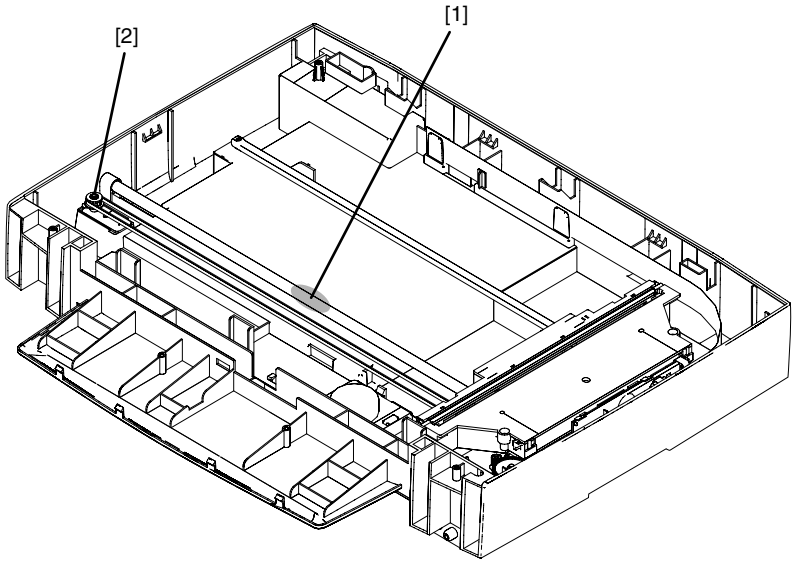


F-4-4

T-4-4

[1] U-turn roller gear	[4] Separation guide bushing
[2] Roller shaft end face (front)	[5] Grounding plate
[3] Roller shaft end face (rear)	

Scanner unit



F-4-5

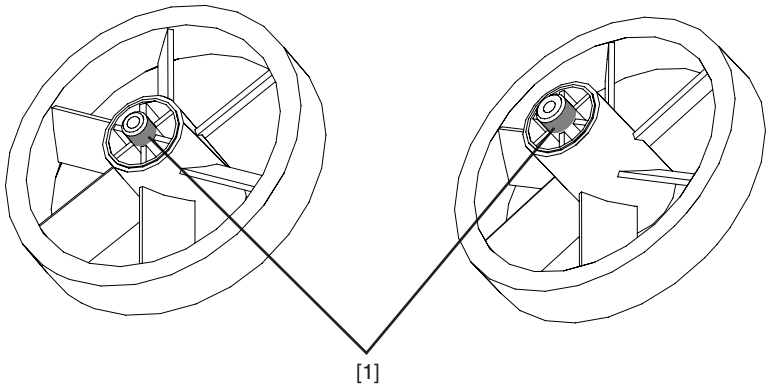
T-4-5

[1] CCD shaft [2] Wheel shaft

4.5.2 Delivery Idler Gear

0002-7926

Area of application: [1]
Grease: MOLYKOTE EM-50L
Amount: 40 +/-10 mg
Location of application:
- 2 locations on gear support shaft in opposition
- spread in axial direction

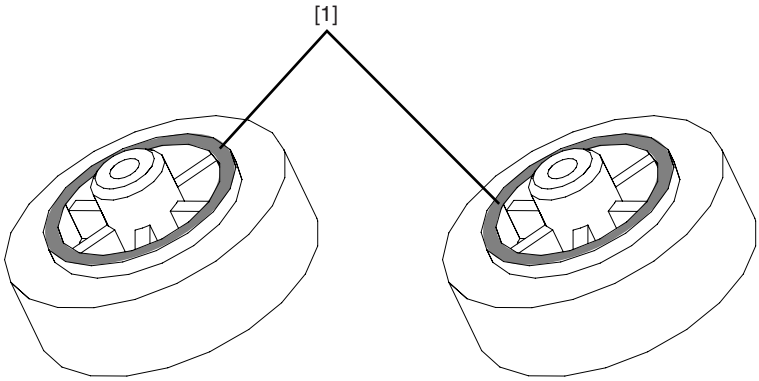


F-4-6

4.5.3 Fixing Drive Transmission Gear

0002-7929

Area of application: [1]
Grease: MOLYKOTE EM-50L
Amount: 10 +/-5 mg
Location of application:
- 2 locations on gear butting ribs in opposition
- spread in circumferential direction over a length of 1/4 or more

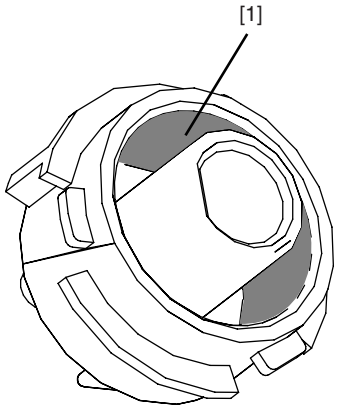


F-4-7

4.5.4 Large Gear Bushing R

0002-7930

Area of application: [1]
Grease: MOLYKOTE EM-50L
Amount: 10 +/-5 mg
location of application:
- wall surface on inner circumferential side of bushing
- spread in circumferential direction over a length of 1/2 or more

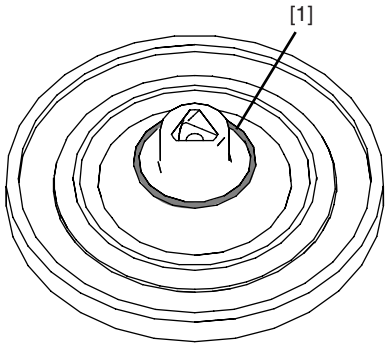


F-4-8

4.5.5 Large Gear

0002-7933

Area of application: [1]
Grease: MOLYKOTE EM-50L
Amount: 20 +/-10 mg
Location of application:
- rib against which gear is butted
- spread in circumferential direction over a length of 1/2 or more

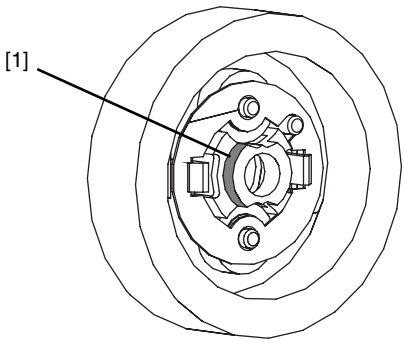


F-4-9

4.5.6 Feed Gear

0002-7935

Area of application: [1]
Grease: MOLYKOTE EM-50L
Amount: 10 +/-5 mg
Location of application:
- 1 location on boss engaging with internal gear
- spread in axial direction

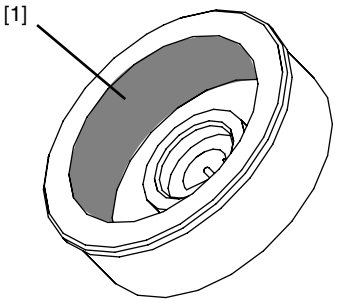


F-4-10

4.5.7 Internal Gear

0002-7937

Area of application: [1]
Grease: MOLYKOTE EM-50L
Amount: 40 +/-10 mg
Location of application:
- 5 teeth or more of internal gear in opposition
- 2 locations in circumferential direction



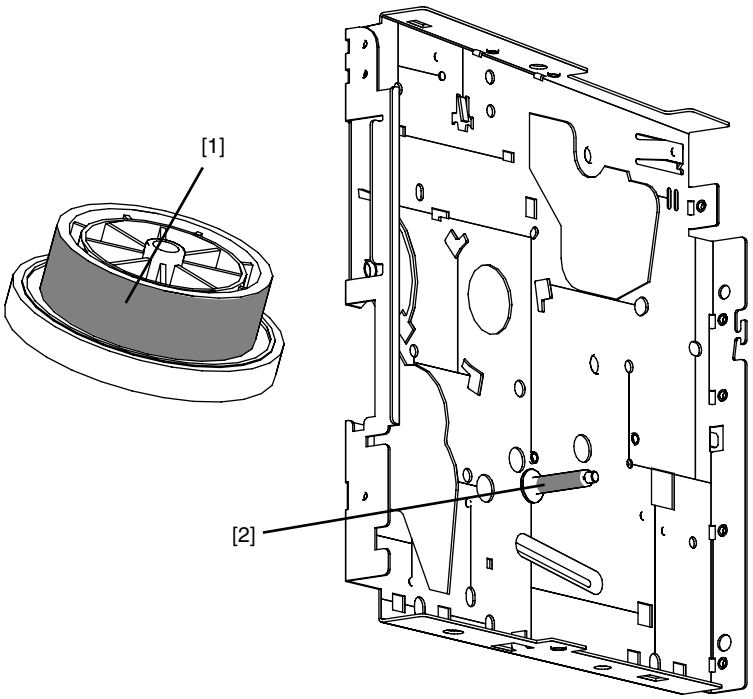
F-4-11

4.5.8 Large Gear Deceleration Gear/Plate R

0002-7938

Area of application: [1]
Grease: MOLYKOTE EM-50L
Amount: 40 +/-10 mg
Location of application:
- 5 teeth or more (covering entire small-dia tooth area)

Are of application: [2]
Grease: MOLYKOTE EM-50L
Amount: 10 +/-5 mg
Location of application
- support shaft of plate R (sliding surface against large gear deceleration gear)
- spread in axial direction

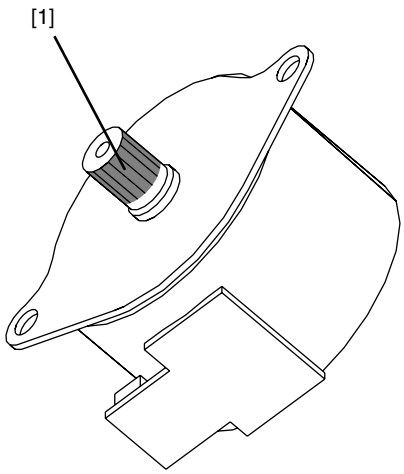


F-4-12

4.5.9 Main Motor

0002-7939

Area of application: [1]
Grease: MOLYKOTE EM-50L
Amount: 40 +/-10 mg
Location of application:
- 5 teeth or more (covering entire gear width)

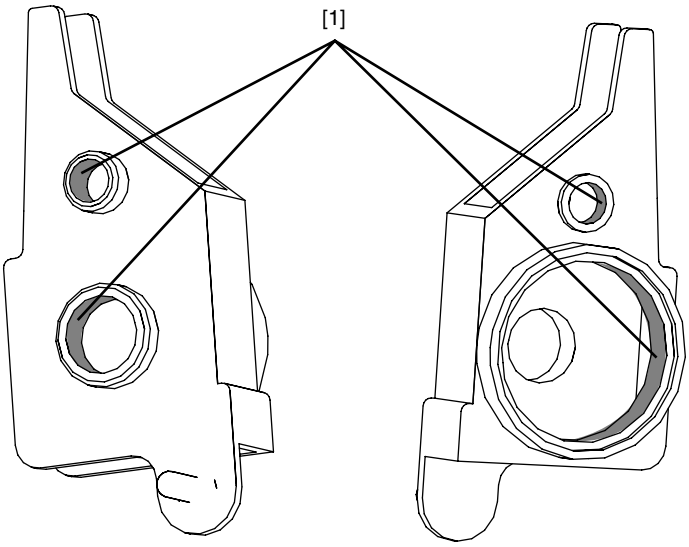


F-4-13

4.5.10 Drive Releasing Arm

0002-7940

Area of application: [1]
Grease: MOLYKOTE EM-50L
Amount: 10 +/-5 mg
Location of application:
- 4 locations on sliding surface against gear support shaft of drive releasing arm



F-4-14

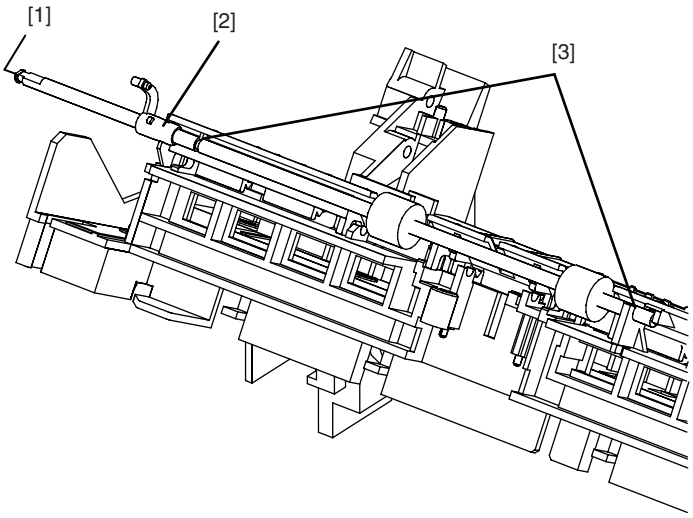
4.5.11 FU Delivery Roller

0002-7942

Area of application: [1]
Grease: MOLYKOTE 41
Amount: 10 +/-5 mg
Location of application:
- edge of FU delivery roller shaft (sliding surface against FU grounding spring)

Area of application: [2]
Grease: MOLYKOTE EM-50L
Amount: 10 +/-5 mg
Location of application:
- sliding surface between FU delivery roller shaft and FU delivery roller bushing

Area of application: [3]
Grease: MOLYKOTE EM-50L
Amount: 10 +/-5 mg
Location of application:
- sliding surface between FU delivery roller shaft and delivery guide (FU delivery roller shaft stop rib)

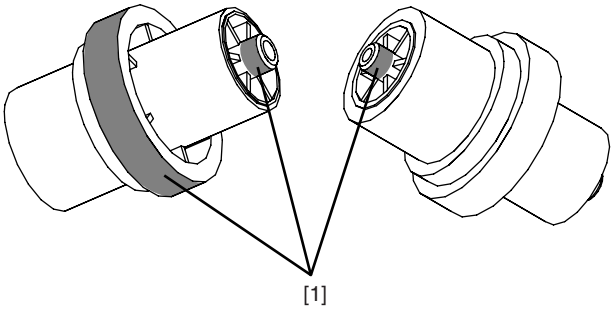


F-4-15

4.5.12 Pickup Idler Gear

0002-7944

Are of application: [1]
Grease: MOLYKOTE EM-50L
Amount: 10 +/-5 mg
Location of application:
- 2 locations on pickup idler gear support shaft
- 5 teeth or more (covering entire large-diameter tooth surface of pickup idler gear)



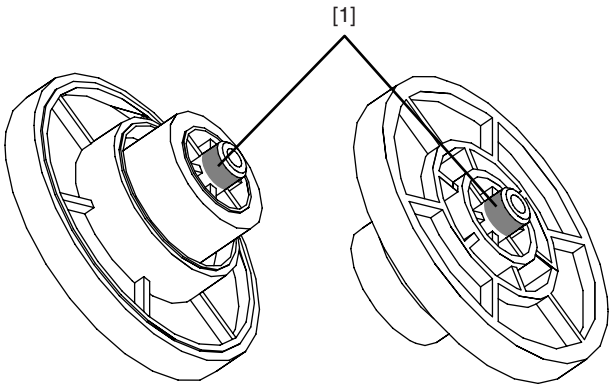
F-4-16

4.5.13 Feed Deceleration Gear

0002-7946

Area of application: [1]
Grease: MOLYKOTE EM-50L
Amount: 10 +/-5 mg
Location of application:
- 2 locations on feed deceleration gear support shaft

- spread in axial direction



F-4-17

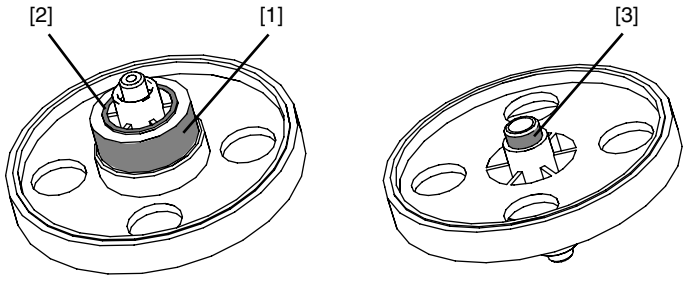
4.5.14 Fixing Deceleration Gear

0002-7954

Area of application: [1]
Grease: MOLYKOTE EM-50L
Amount: 40 +/-10 mg
Location of application
- 5 teeth or more (covering entire surface of fixing deceleration gear; small-diameter teeth)

Area of application: [2]
Grease: MOLYKOTE EM-50L
Amount: 10 +/-5 mg
Location application:
- tip of feed deceleration gear butting rib in circumferential direction over a length of 1/2 or more

Area of location: [3]
Grease: MOLYKOTE EM-50L
Amount: 10 +/-5 mg
Location of application:
- sliding surface against plate R of fixing deceleration gear in circumstantial direction over a length of 1/2 or more

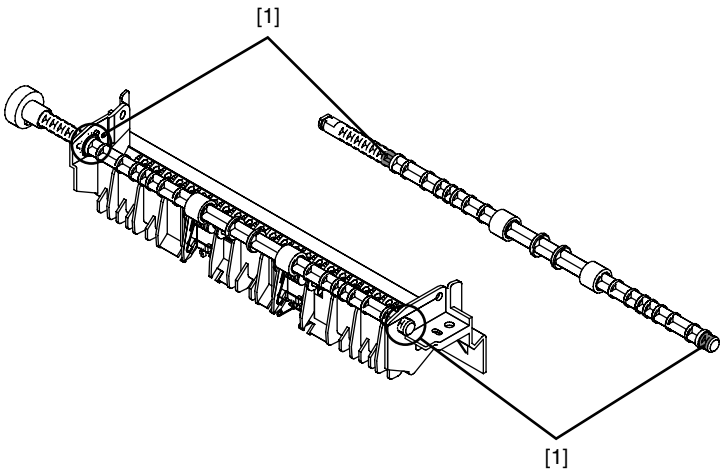


F-4-18

4.5.15 FD Delivery Roller

0002-7948

Area of application: [1]
Grease: MOLYKOTE EM-50L
Amount: 30 +/-5 mg
Location of application
- entire sliding surface against FD delivery bushing

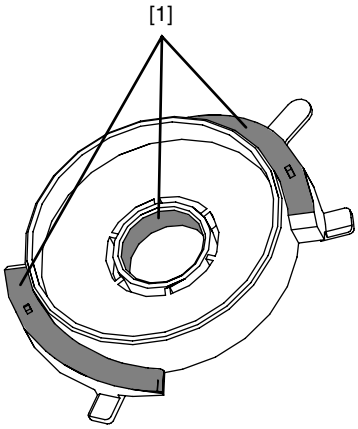


F-4-19

4.5.16 Large Gear Bushing F

0002-7950

Area of application: [1]
Grease: MOLYKOTE EM-50L
Amount: 10 +/-5 mg
Location of application:
- entire sliding surface against large gear support shaft

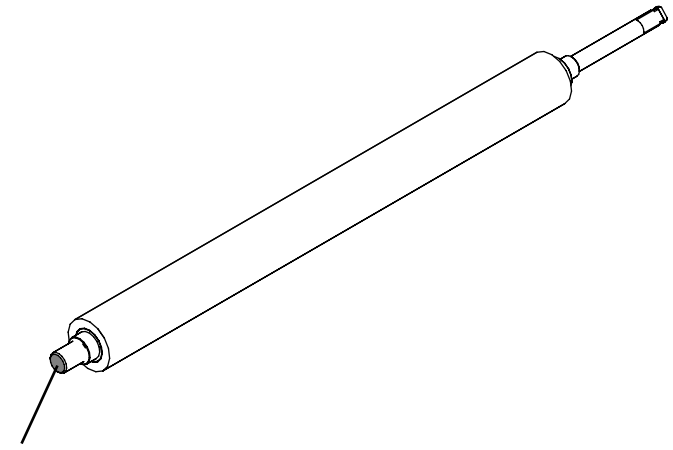


F-4-20

4.5.17 Pressure roller

0002-7953

Area of application: [1]
Grease: MOLYKOTE 41
Amount: 10 +/-10 mg
Location of application:
- edge of pressure roller shaft (sliding surface against contact spring F)

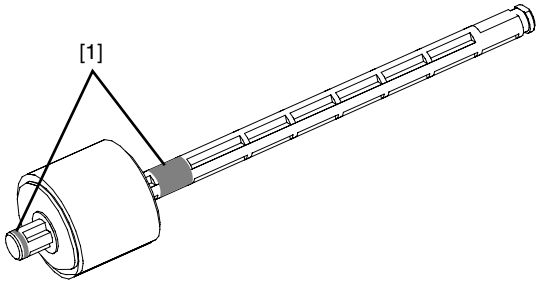


F-4-21

4.5.18 Cassette Pickup Roller

0003-6451

Area of application: [1]
Grease: MOLYKOTE EM-50L
Amount: approx. 10 mg
Location of application:
- cassette pickup roller shaft, main unit frame (around the bushing), and the area where contacts the cassette pickup bushing

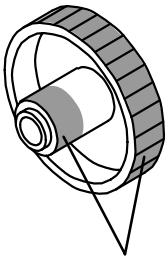


F-4-22

4.5.19 U-turn Roller Gear

0002-8018

Area of application: [1]
Grease: MOLYKOTE EM-50L
Amount: approx. 12 mg
Location of application:
- all the surface of the teeth
- support shaft

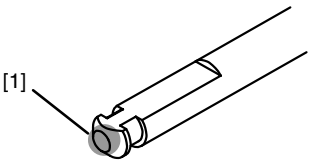


F-4-23

4.5.20 Roller Shaft End Face (front)

0002-8027

Area of application: [1]
Grease: IF-20
Amount: approx. 12 mg
Location of application:
- the front end face of each roller shaft (i.e., the area where contacts the grounding plate).

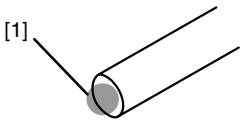


F-4-24

4.5.21 Roller Shaft End Face (rear)

0002-8033

Area of application: [1]
Grease: IF-20
Amount: approx. 12 mg
Location of application:
- the rear end face of the U-turn roller shaft (i.e., the area where contacts the grounding plate).

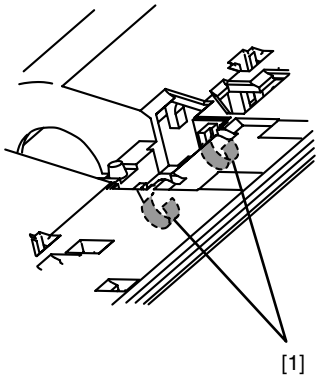


F-4-25

4.5.22 Separation Guide Bushing

0002-8042

Area of application: [1]
Grease: MOLYKOTE EMD-110
Amount: approx. 6 mg
Location of application:
- separation guide bushing

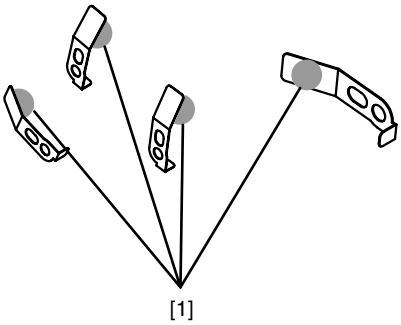


F-4-26

4.5.23 Grounding Plate

0002-8038

Area of application: [1]
Grease: IF-20
Amount: approx. 12 mg
Location of application:
- all the contact areas of the grounding plate (i.e., areas where contact the roller shafts)

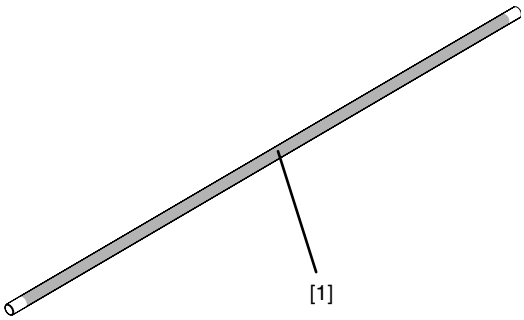


F-4-27

4.5.24 CCD Shaft

0003-2409

Area of application: [1]
Grease: MOLYKOTE EM-50L
Amount: suitable amount
Location of application:
- part of CCD shaft where contacts the CCD unit (all the faces in the shaft direction)

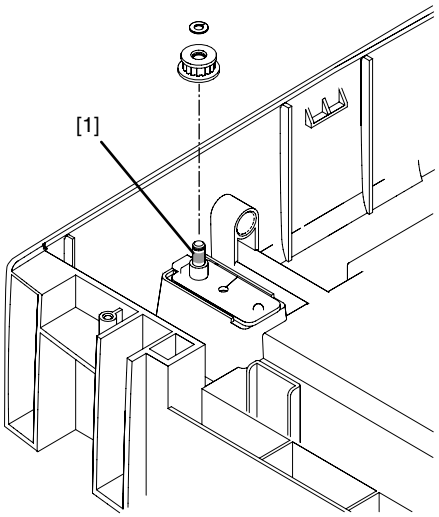


F-4-28

4.5.25 Wheel Shaft

0003-8207

Area of application: [1]
Grease: MOLYKOTE EM-50L
Amount: suitable amount
Location of application:
- part of wheel shaft where contacts the wheel unit



F-4-29

Chapter 5 TROUBLESHOOTING

Contents

5.1 Phenomenon Table 5-1
5.1.1 Symptoms 5-1
5.2 Countermeasure 5-2
5.2.1 Image Faults 5-2
5.2.1.1 Partially Blank/Streaked 5-2
5.2.1.1.1 There are vertical black lines or a vertical white line in a solid black image 5-2
5.2.2 Malfunction 5-2
5.2.2.1 Control Panel-Related 5-2
5.2.2.1.1 When manual paper size is set to envelope, the LCD in standby mode shows ENV. regardless of envelope type. 5-2
5.2.2.2 Malfunction/Faulty Detection 5-2
5.2.2.2.1 When paper size is set to A5, paper size error does not occur even if printing is made with other-size paper. 5-2
5.2.2.2.2 There are cases where the latest 20 transactions are not properly output at the time of manual output of a Activity report. 5-2
5.2.3 Printing/Scanning 5-3
5.2.3.1 Faulty Printing/Scanning Result 5-3
5.2.3.1.1 When legal paper is used to copy multiple documents, image at the top of the 2nd document is printed on the bottom of the 1st legal sheet. 5-3
5.2.4 Transmission/Fax-Related 5-3
5.2.4.1 Transmission Problem 5-3
5.2.4.1.1 Phone number dialed with the numeric keys does not remain as a redial history at the time of manual dialing. 5-3
5.2.4.1.2 Transmission fails to be reserved while the handset is in use. 5-3
5.2.5 Jam (Main Unit) 5-4
5.2.5.1 Jam when feeding paper from a cassette 5-4
5.2.5.2 The machine identifies a jam when its power is turned off and then on with paper in its manual feed section 5-4
5.3 Measurement and Adjustment 5-5
5.3.1 Basic Adjustments 5-5
5.3.1.1 Items of Adjustment 5-5
5.4 Service Tools 5-6
5.4.1 Special Tools 5-6
5.5 Error Code 5-7
5.5.1 Outline 5-7
5.5.1.1 Error Code Outline 5-7
5.5.2 User Error Code 5-7
5.5.2.1 Unique Remedies User Error Codes 5-7
5.5.2.2 #001 [TX] Document has jammed 5-8
5.5.2.3 #003 [TX/RX] Document is too long, or page time-over 5-8
5.5.2.4 #005 [TX/RX] Initial identification (T0/T1) time-over 5-9
5.5.2.5 #009 [RX] Recording paper has jammed or the recording paper has run out 5-10
5.5.3 Service Error Code 5-11
5.5.3.1 Unique Remedies Service Error Codes 5-11
5.5.3.2 E000 Fixing Unit Failure 5-11

5.5.3.3 E100 Laser/Scanner Unit Failure 5-12
5.6 Service Mode 5-13
5.6.1 Outline 5-13
5.6.1.1 Hardware Switches 5-13
5.6.1.2 Service Data Setting 5-13
5.6.1.3 Service Data Entry Method 5-14
5.6.1.4 Service Data Flowchart 5-15
5.6.2 Default Settings 5-19
5.6.2.1 SSSW Default Settings 5-19
5.6.3 Service Soft Switch Settings (SSSW) 5-41
5.6.3.1 Outline 5-41
5.6.3.1.1 Explanation of #SSSW 5-41
5.6.3.2 SSSW-SW18 5-41
5.6.3.2.1 List of Functions 5-41
5.6.3.2.2 Details of Bit 0 5-42
5.6.3.2.3 Details of Bit 1 5-42
5.6.4 Numeric Parameter Settings (NUMERIC Param.) 5-42
5.6.4.1 #NUMERIC Param. 5-42
5.6.5 ROM Management (ROM) 5-43
5.6.5.1 ROM 5-43
5.6.6 Test Mode (TEST) 5-44
5.6.6.1 Overview 5-44
5.6.6.1.1 Test Mode Overview 5-44
5.6.6.1.2 Test Mode Flowchart 5-44
5.6.6.2 DRAM Test 5-45
5.6.6.2.1 D-RAM Test 5-45
5.6.6.3 Print Test 5-46
5.6.6.3.1 PRINT Test 5-46
5.6.6.4 Modem Test 5-47
5.6.6.4.1 Modem Tests 5-47
5.6.6.4.2 Frequency Test 5-48
5.6.6.4.3 G3 Signal Transmission Test 5-48
5.6.6.4.4 V.34 G3 Signal Transmission Test 5-49
5.6.6.5 Faculty Test 5-50
5.6.6.5.1 FACULTY Tests 5-50
5.6.6.5.2 Sensor Tests 5-50
5.6.6.5.3 Operation panel tests 5-51
5.6.6.5.4 Line signal reception test 5-53

5.1 Phenomenon Table

5.1.1 Symptoms

0006-6841

T-5-1

Level 1	Symptom
Image Faults	There are vertical black lines or a vertical white line in a solid black image.
Malfunction	When manual paper size is set to envelope, the LCD in standby mode shows ENV. regardless of envelope type.
	When paper size is set to A5, paper size error does not occur even if printing is made with other-size paper.
	There are cases where the latest 20 transactions are not properly output at the time of manual output of a Activity report.
Printing/Scanning	When legal paper is used to copy multiple documents, image at the top of the 2nd document is printed on the bottom of the 1st legal sheet.
Transmission/Fax-Related	Phone number dialed with the numeric keys does not remain as a redial history at the time of manual dialing.
	Transmission fails to be reserved while the handset is in use.
Jam (Main Unit)	Jam when feeding paper from a cassette
	The machine identifies a jam when its power is turned off and then on with paper in its manual feed section.

For details, see the instructions given as remedial action.

5.2 Countermeasure

5.2.1 Image Faults

5.2.1.1 Partially Blank/Streaked

5.2.1.1.1 There are vertical black lines or a vertical white line in a solid black image. 0006-6861

<Cause>

The vertical black lines are likely to have been caused by the ribs of the heater holder. The vertical white line is likely to have been caused by the thermal fuse (if it corresponds to the location of the fuse).

<Field Remedy>

Select heavy paper mode.

5.2.2 Malfunction

5.2.2.1 Control Panel-Related

5.2.2.1.1 When manual paper size is set to envelope, the LCD in standby mode shows ENV. regardless of envelope type. 0006-6864

<Cause>

The LCD in standby mode does not support envelop type indications.

<Field Remedy>

Display the User data registration screen or output a User data list to check envelope type.

5.2.2.2 Malfunction/Faulty Detection

5.2.2.2.1 When paper size is set to A5, paper size error does not occur even if printing is made with other-size paper. 0006-6866

<Cause>

The printer engine does not support A5 size.

<Field Remedy>

Since image printed on a sheet is A5 size, paper size error does not occur.
Therefore, field remedy is not taken.

5.2.2.2.2 There are cases where the latest 20 transactions are not properly output at the time of manual output of a Activity report. 0006-6872

<Cause>

Although up to 25 transactions can be saved as communication results, only 20 transactions are output at a time. If there are 21 or more transactions of communication results that are yet to be output, 20 transactions in order of old

are output. Therefore, the latest communication results are not output.

<Field Remedy>

Continue to output a Activity report so that priority will be given to data that is yet to be output and the remaining latest data will be output.

5.2.3 Printing/Scanning

5.2.3.1 Faulty Printing/Scanning Result

5.2.3.1.1 When legal paper is used to copy multiple documents, image at the top of the 2nd document is printed on the bottom of the 1st legal sheet. 0006-6874

<Cause>

If legal paper is used to copy 2 or more documents but paper type is set to other than legal, image data of the 2nd document is sent following the 1st document. Therefore, image at the top of the 2nd document is printed on the bottom of the 1st legal sheet.

<Field Remedy>

Set correct paper type and size.

5.2.4 Transmission/Fax-Related

5.2.4.1 Transmission Problem

5.2.4.1.1 Phone number dialed with the numeric keys does not remain as a redial history at the time of manual dialing. 0006-6879

<Cause>

Phone number does not remain as redial information even if pressing the on hook key and then pressing the numeric keys to dial. (However, it remains with the OK key after pressing the numeric keys.)

<Field Remedy>

Not the redial key but use the numeric keys to dial.

5.2.4.1.2 Transmission fails to be reserved while the handset is in use. 0006-6896

<Cause>

Reservation for transmission while the handset is in use is not supported. Mode is switched to manual transmission if the start key is pressed.

<Field Remedy>

Perform transmission when the handset is not used.

5.2.5 Jam (Main Unit)

5.2.5.1 Jam when feeding paper from a cassette 0006-6899

<Cause>

There are cases where the cassette paper sensor detects paper and feeds it even though the cassette is not in place.

<Field Remedy>

Set the cassette in the designated place.

5.2.5.2 The machine identifies a jam when its power is turned off and then on with paper in its manual feed section 0006-6910

<Cause>

The machine is designed to identify a jam if the manual feed paper sensor is on when it is tuned on, as it is not sure whether the paper is set correctly or incorrectly.

<Field Remedy>

Remove the paper, open and close the front cover, and place the paper back in the manual feed section.

5.3 Measurement and Adjustment

5.3.1 Basic Adjustments

5.3.1.1 Items of Adjustment 0003-3366

The machine does not have items that are cited for adjustment.

5.4 Service Tools

5.4.1 Special Tools

0006-3975

T-5-2

Tool	Description	Parts No.
Grease (MOLYKOTE EM-50L)	Apply to specified areas.	HY9-0007
Grease (MOLYKOTE EMD-110)	Apply to specified areas.	HY9-0023
Grease (IF-20)	Apply to specified areas.	CK-8006
Grease (MOLYKOTE 41)	Apply to specified areas.	CK-8007
Adhesive tape (19mm x 50m)	To secure cables.	AZ7-0008

5.5 Error Code

5.5.1 Outline

5.5.1.1 Error Code Outline 0006-6127

An error code is used to indicate a fault in a machine, and is indicated in the machine's LCD or reports, showing the nature (symptoms) of the fault. Using the error code, the user or the service man can readily find out how to correct the fault by simply referring to the User's Manual or service manual.
An error code may be either of the following two types:

User Error Codes

A fault indicated as a user error code is one that can easily be corrected by the user, as by operating the machine. It takes the form of "#+number."

Service Error Codes

If a fault calls for a service man for correction, it is indicated as a service man error code in the form of "##+number" or "SYSTEM ERROR E+number."

Memo

A service error code expressed in the form of "##+number" will not appear on the LCD, Error Tx Report, or Activity Report while the machine remains in factory default state. To check a service error code, shift bit 0 of service soft switch #1 SSSW SW01 to '1'.

Memo

Display only the error codes which are newly incorporated in this machine as well as which require remedies unique to the product. For the causes and countermeasures of other error codes, refer to the separate G3/G4 Facsimile Error Code List (Rev. 2).

5.5.2 User Error Code

5.5.2.1 Unique Remedies User Error Codes 0007-2925

T-5-3

No.	Tx or Rx	Definition
#001	[TX]	Document has jamed
#003	[TX/RX]	Document is too long, or page time-over

No.	Tx or Rx	Definition
#005	[TX/RX]	Initial identification (T0/T1) time-over
#009	[RX]	Recording paper has jammed or the recording paper has run out

5.5.2.2 #001 [TX] Document has jammed 0007-2927

Cause

The document is trapped in the feeder.

Remedy

Remove the document, and try again.

Cause

The document is not of a standard size or thickness.

Remedy

Using a copying machine, make an A4/LTR copy of the document to transmit.

Cause

An internal mechanism is faulty.

Remedy

1) Check if the document sensor (DS) and document edge sensor (DES) are operating correctly using the Sensor tests under the Faculty Tests in the Test mode.
2) Check the actuator of the document sensor (DS) and the one of the document edge sensor (DES) are properly attached.
3) Check the document sensor (DS), document edge sensor (DES) and SCNT board (J806) connections.
4) Make a copy,and make sure that the document read motor is operating corrctly.
5) Check the document read motor and SCNT board (J805) connections.
6) Replace the document sensor (DS).
7) Replace the document edge sensor (DES).
8) Replace the document read motor.
9) Replace the SCNT board.

5.5.2.3 #003 [TX/RX] Document is too long, or page time-over 0007-2930

Cause

The length of a single page is too long.

Remedy

1) Using a copying machine, make copies of the document, and transmit the copies separately.
2) For making copies, use a copy machine.

Cause

The data of a single page is too large, exceeding the time allowed for transmission.

Remedy

1) Decrease the reading resolution when transmitting.
2) If the document is too long and the data is too large, make copies using a copying machine, and transmit the copies separately.

Cause

The data of a single page is too large, exceeding the time allowed for reception.

Remedy

1) Ask the operator of the other party to decrease the reading resolution and transmit.
2) Ask the operator of the other party to divide the document and transmit.
3) Increase the setting of the page timer with Service Data #1 SSSW SW12.
4) Ask the operator of the other party to find out the cause.

Cause

An internal mechanism is faulty.

Remedy

1) Check if the document sensor (DS) and document edge sensor (DES) are operating correctly using the Sensor tests under the Faculty Tests in the Test mode.
2) Check the actuator of the document sensor (DS) and the one of the document edge sensor (DES) are properly attached.
3) Check the document sensor (DS), document edge sensor (DES) and SCNT board (J806) connections.
4) Replace the document sensor (DS).
5) Replace the document edge sensor (DES).
6) Replace the SCNT board.

5.5.2.4 #005 [TX/RX] Initial identification (T0/T1) time-over 0007-2937

Cause

The tone/pulse setting is wrong.

Remedy

Make the correct tone/pulse setting.

Cause

The time it takes to connect to the other party's line is too long.

Remedy

1) When registering an auto-dial number, put a relatively long pause after the telephone number to delay the T0 timer start mechanism.
2) To prevent a time-over condition, increase the T0 timer setting of No.10 of Servise Data #3 NUMERIC Param. (for transmission)
3) To prevent a time-over condition, increase the T1 timer setting of No.11 of Servise Data #3 NUMERIC Param. (for reception)

Cause

The other party does not respond.

Remedy

Contact the operator of the other party, and find out the cause.

Cause

The other party's communication mode (G2, G3, etc.) does not match.

Remedy

The communication mode depends on each specific model, and no remedy can be offered.

Cause

During transmission, the other party malfunctioned because of an echo.

Remedy

1) Using a manual call, press the Start button after hearing the 1st DIS from the other party.
2) To prevent response to the 1st DIS from the other party, put a relatively long pause to the telephone number when registering an auto-dial number.
3) Ask the operator of the other party to provide echo remedy 2.
4) Ask the operator of the other party to decrease the transmission level.

Cause

During reception, the machine malfunctioned because of an echo.

Remedy

Provide echo remedy 2.

Memo

Echo Remedy 2 (by the receiving machine; adds a 1080-Hz total signal before transmission of CED)

Set SW03 bit 7 of service soft switch #1 SSSW to '1' so that a 1080-Hz total signal is transmitted before transmission of CED.

5.5.2.5 #009 [RX] Recording paper has jammed or the recording paper has run out 0007-2941

Cause

The recording paper is trapped.

Remedy

Remove the trapped recording paper.

Cause

The recording paper has run out.

Remedy

Set new recording paper.

Cause

An internal mechanism is faulty.

Remedy

1) Check the top sensor, the paper delivery sensor, the cassette paper sensor, and the manual paper sensor for breakage or deformation.
2) Check the paper delivery sensor and the DCNT board (J508) connections.
3) Check the top sensor and the DCNT board (J507) connections.
4) Check the main motor and the High-voltage power supply board (J401) connections.
5) Check the cassette pickup solenoid and the DCNT board (J506) connections.
6) Check the manual pickup solenoid and the High-voltage power supply board (J402) connections.
7) Replace the top senor.
8) Replace the paper delivery senor.
9) Replace the cassette pickup solenoid.
10) Replace the manual pickup solenoid.
11) Replace the main motor.
12) Replace the DCNT board.
13) Replace the High-voltage power suppy board.
14) Replace the SCNT board.

5.5.3 Service Error Code

5.5.3.1 Unique Remedies Service Error Codes 0007-2942

T-5-4

No.	Tx or Rx	Definition
E000	[Rx]	Fixing unit failure
E100	[Rx]	Laser/Scanner unit failure

5.5.3.2 E000 Fixing Unit Failure 0007-2944

Cause:

Fixing unit failure.

Remedy:

1) Turn the power off and on.
2) Make sure that the fixing unit and DCNT board (J505) are properly connected.
3) Make sure that the fixing unit and power supply board (CN2) are properly connected.
4) Make sure connections of the boards (power supply board (CN101), DCNT board (J501), and SCNT board

(J804)).

5) Replace the fixing unit.

5.5.3.3 E100 Laser/Scanner Unit Failure 0007-2946

Cause:

Laser/Scanner unit failure.

Remedy:

1) Turn the power off and on.

2) Make sure that the Laser/Scanner unit (J801) and DCNT board (J503) are properly connected.

3) Make sure that the Laser/Scanner unit and DCNT board (J504) are properly connected.

4) Make sure connections of the boards (power supply board (CN101), DCNT board (J501), and SCNT board (J804)).

5) Replace the Laser/Scanner unit.

5.6 Service Mode

5.6.1 Outline

5.6.1.1 Hardware Switches 0006-5713

This fax has the following hardware switches. Be sure not to use those switches not discussed herein; they are for use at the factory.

SCNT Board

Jumper switch (J971)

The clock IC is backed up with a lithium battery by short-circuiting with a jumper plug.

5.6.1.2 Service Data Setting 0006-5716

Service mode has the following service data items. These items can be checked/changed according to the menu on the display.

#SSSW (Service Soft Switch settings)

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

#NUMERIC PARAMETER (NUMERIC parameter settings)

These setting items are for inputting numeric parameters such as the various conditions for the RTN signal transmission.

#SPECIAL

These setting items are for telephone network control functions.

#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.

#FAX

Do not use.

#SCAN

Do not use.

#PRINT

Do not use.

#NETWORK
Do not use.

#CODEC
Do not use.

#SYSTEM
Do not use.

#REPORT (Report output)
Use it to output reports on various service data.

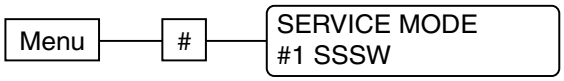
#DOWNLOAD
Do not use.

#CLEAR (data initialization mode)
Various data are initialized by selecting one of these setting items.

The effective SSSWs/parameters and their default values in this machine are shown in Service Data Flowchart. However, detailed descriptions of only service data newly added to this machine are provided. For descriptions of other service data, which have been used with existing machines, please see the G3 Facsimile SERVICE DATA HANDBOOK (Rev. 0), which is supplied separately.

5.6.1.3 Service Data Entry Method 0006-5730

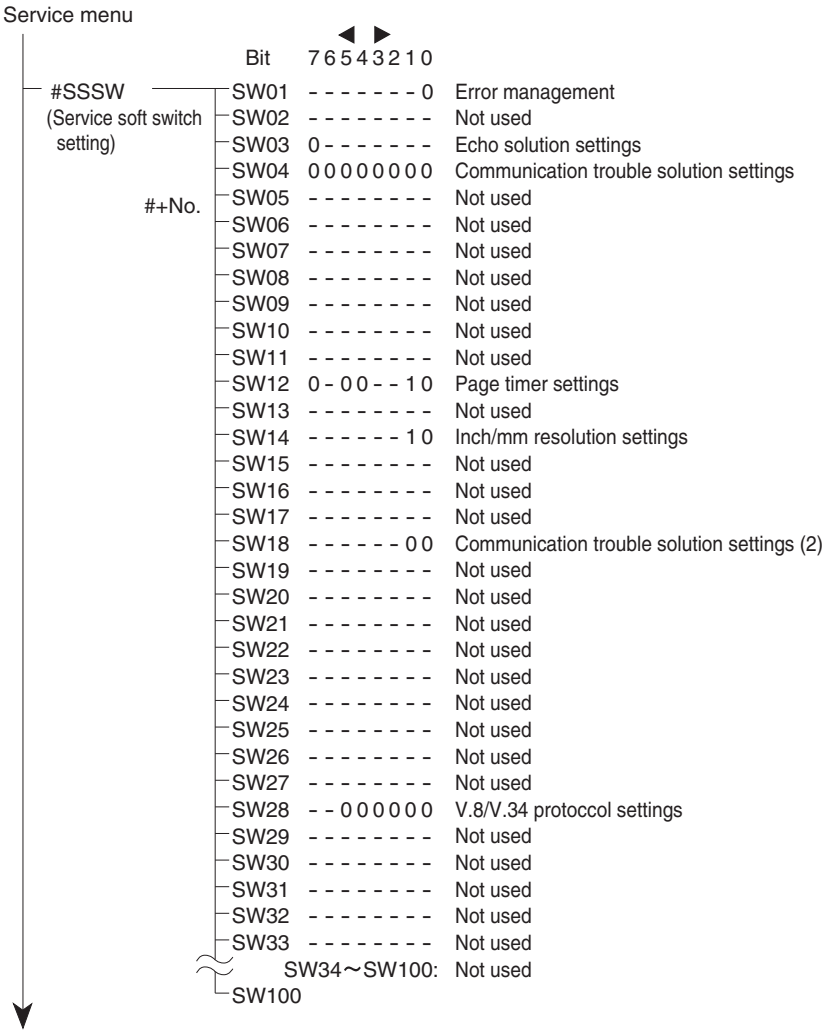
You can enter the Service Mode with the following operation.



F-5-1

5.6.1.4 Service Data Flowchart

0006-5736

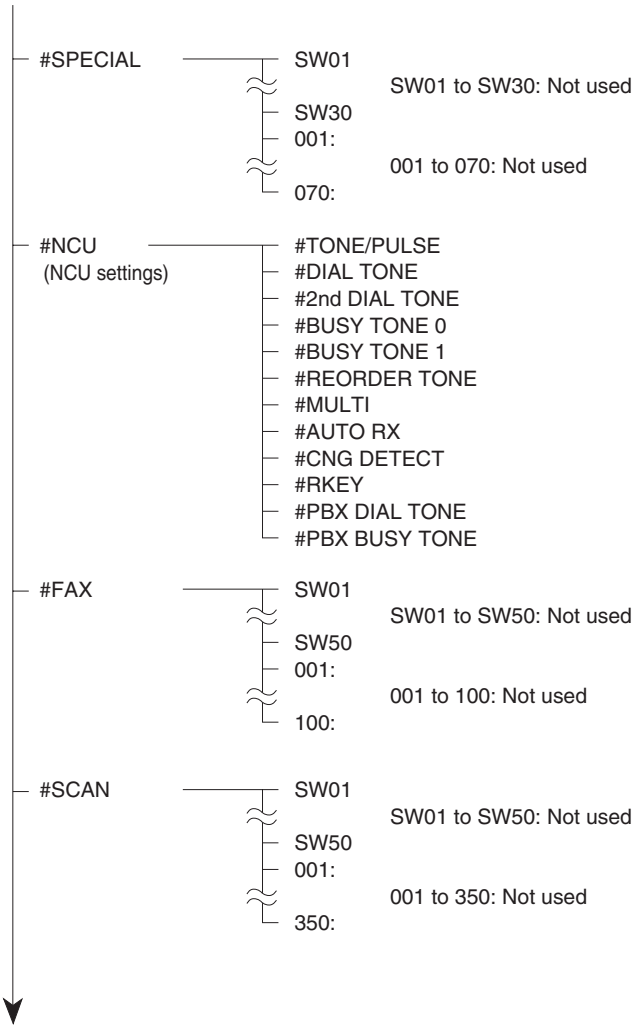


F-5-2

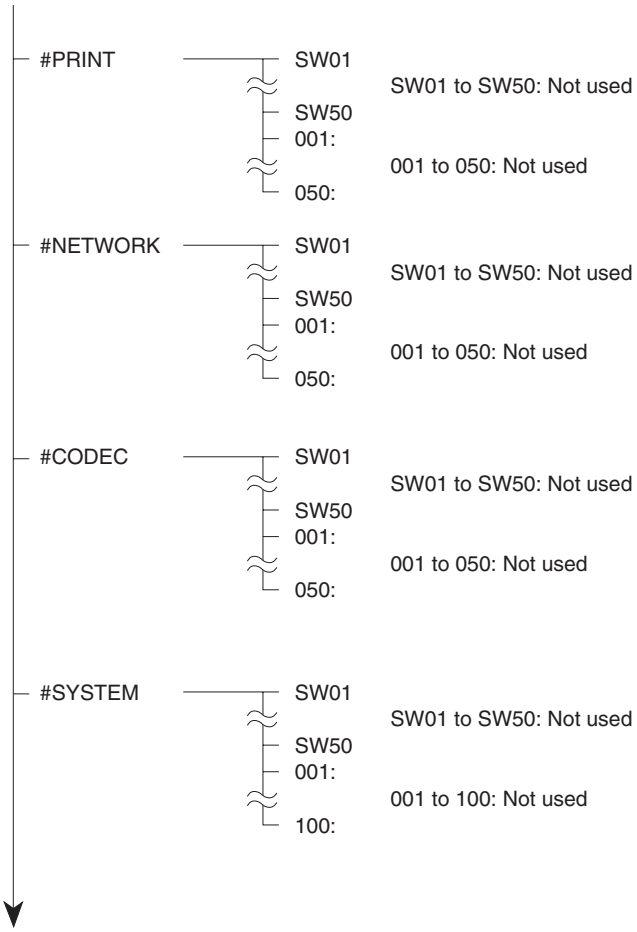
#NUMERIC Param.
(Numeric parameter settings)

	Default	Range	
001:	0		Not used
002:	10 (10 %)	(1-99)	RTN signal transmission condition (1)
003:	15 (15 times)	(2-99)	RTN signal transmission condition (2)
004:	12 (12 lines)	(1-99)	RTN signal transmission condition (3)
005:	4 (4 sec)	(0-60)	Pause time for NCC (before the ID code)
006:	4 (4 sec)	(0-60)	Pause time for NCC (after the ID code)
007:	0		Not used
008:	0		Not used
009:	6		Not used
010:	5500 (55 sec)	(0-9999)	T0 timer
011:	3500 (35 sec)	(0-9999)	T1 timer (Rx)
012:	0		Not used
013:	1300 (13 sec)	(500-3000)	Maximum time allowed to receive one line of image data
014:	0		Not used
015:	120 (1200 ms)	(0-999)	Hooking detection time
016:	4 (4 sec)		Not used
017:	100 (1000 ms)		Not used
018:	0 (0 ms)		Not used
019:	200 (2000 ms)		Not used
020:	100 (1000 ms)		Not used
021:	0 (0 ms)		Not used
022:	400 (4000 ms)		Not used
023:	0		Not used
024:	20		Not used
025:	60 (60 ms)	(0-999)	Answering machine connection function signal detection time
026:	3		Not used
027:	0		Not used
028:	3		Not used
	Item 029 to 100:		Not used
100:			

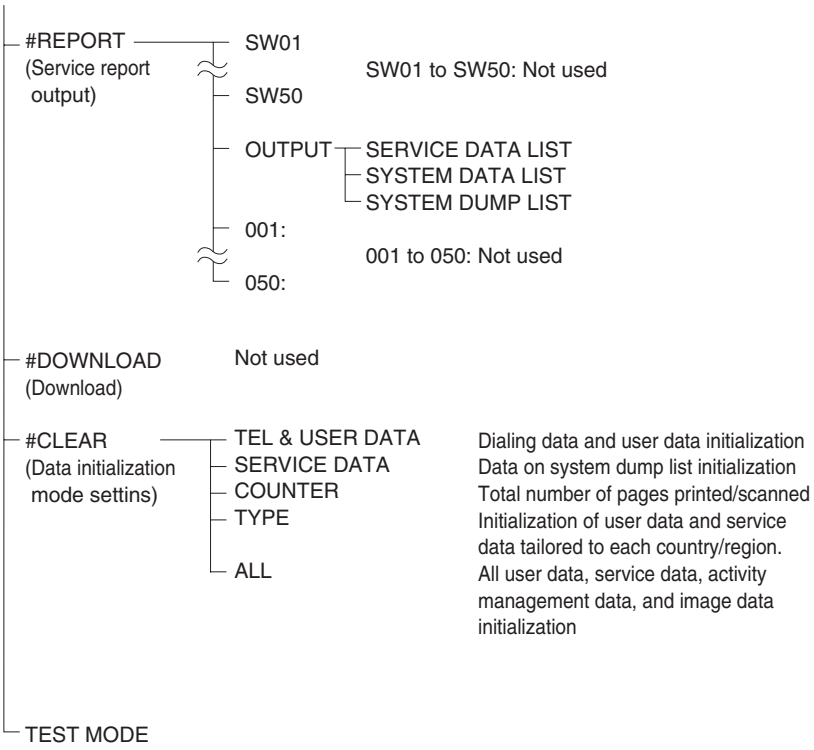
F-5-3


#SPECIAL
SW01
SW01 to SW30: Not used
SW30
001:
001 to 070: Not used
070:
#NCU
(NCU settings)
#TONE/PULSE
#DIAL TONE
#2nd DIAL TONE
#BUSY TONE 0
#BUSY TONE 1
#REORDER TONE
#MULTI
#AUTO RX
#CNG DETECT
#RKEY
#PBX DIAL TONE
#PBX BUSY TONE
#FAX
SW01
SW01 to SW50: Not used
SW50
001:
001 to 100: Not used
100:
#SCAN
SW01
SW01 to SW50: Not used
SW50
001:
001 to 350: Not used
350:

F-5-4


#PRINT
SW01
SW01 to SW50: Not used
SW50
001:
001 to 050: Not used
050:
#NETWORK
SW01
SW01 to SW50: Not used
SW50
001:
001 to 050: Not used
050:
#CODEC
SW01
SW01 to SW50: Not used
SW50
001:
001 to 050: Not used
050:
#SYSTEM
SW01
SW01 to SW50: Not used
SW50
001:
001 to 100: Not used
100:

F-5-5



F-5-6

5.6.2 Default Settings

5.6.2.1 SSSW Default Settings

0006-5763

T-5-5

TYPE	EUROPE	U.K.	SWEDEN	SWISS	AUSTRIA	DENMARK
#SSSW						
SW01	00010000	00010000	00010000	00010000	00010000	00010000
SW02	00000000	00000000	00000000	00000000	00000000	00000000
SW03	00000000	00000000	00000000	00000000	00000000	00000000
SW04	00000000	00000000	00000000	00000010	00000010	00000000
SW05	00000000	00000000	00000000	00000000	00000000	00000000
SW06	10001000	10001000	10001000	10001000	10001000	10001000
SW07	00000000	00000000	00000000	00000000	00000000	00000000
SW08	00000000	00000000	00000000	00000000	00000000	00000000
SW09	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	EUROPE	U.K.	SWEDEN	SWISS	AUSTRIA	DENMARK
SW10	00000000	00000000	00000000	00000000	00000000	00000000
SW11	00000000	00000000	00000000	00000000	00000000	00000000
SW12	00000010	00000010	00000010	00000010	00000010	00000010
SW13	00000000	00000000	00000000	00000000	00000000	00000000
SW14	00000010	00000010	00000010	00000010	00000010	00000010
SW15	00000000	00000000	00000000	00000000	00000000	00000000
SW16	00000011	00000011	00000011	00000011	00000011	00000011
SW17	00000000	00000000	00000000	00000000	00000000	00000000
SW18	00000000	00000000	00000000	00000000	00000000	00000000
SW19	00000000	00000000	00000000	00000000	00000000	00000000
SW20	00000000	00000000	00000000	00000000	00000000	00000000
SW21	00000000	00000000	00000000	00000000	00000000	00000000
SW22	00000000	00000000	00000000	00000000	00000000	00000000
SW23	00000000	00000000	00000000	00000000	00000000	00000000
SW24	00000000	00000000	00000000	00000000	00000000	00000000
SW25	00000000	00000000	00000000	00000000	00000000	00000000
SW26	00000000	00000000	00000000	00000000	00000000	00000000
SW27	00000000	00000000	00000000	00000000	00000000	00000000
SW28	00000000	00000000	00000000	00000000	00000000	00000000
SW29	00000000	00000000	00000000	00000000	00000000	00000000
SW30	00000000	00000000	00000000	00000000	00000000	00000000
SW31	00000000	00000000	00000000	00000000	00000000	00000000
SW32	00100000	00100000	00100000	00100000	00100000	00100000
SW33	00000000	00000000	00000000	00000000	00000000	00000000
SW34	00000000	00000000	00000000	00000000	00000000	00000000
SW35	00000000	00000000	00000000	00000000	00000000	00000000
SW36	00000000	00000000	00000000	00000000	00000000	00000000
SW37	00000000	00000000	00000000	00000000	00000000	00000000
SW38	00000000	00000000	00000000	00000000	00000000	00000000
SW39	00000000	00000000	00000000	00000000	00000000	00000000
SW40	00000000	00000000	00000000	00000000	00000000	00000000
SW41	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	EUROPE	U.K.	SWEDEN	SWISS	AUSTRIA	DENMARK
SW42	00000000	00000000	00000000	00000000	00000000	00000000
SW43	00000000	00000000	00000000	00000000	00000000	00000000
SW44	00000000	00000000	00000000	00000000	00000000	00000000
SW45	00000000	00000000	00000000	00000000	00000000	00000000
SW46	00000000	00000000	00000000	00000000	00000000	00000000
SW47	00000000	00000000	00000000	00000000	00000000	00000000
SW48	00000000	00000000	00000000	00000000	00000000	00000000
SW49	00000000	00000000	00000000	00000000	00000000	00000000
SW50	00000000	00000000	00000000	00000000	00000000	00000000
SW51	00000000	00000000	00000000	00000000	00000000	00000000
SW52	00000000	00000000	00000000	00000000	00000000	00000000
SW53	00000000	00000000	00000000	00000000	00000000	00000000
SW54	00000000	00000000	00000000	00000000	00000000	00000000
SW55	00000000	00000000	00000000	00000000	00000000	00000000
SW56	00000000	00000000	00000000	00000000	00000000	00000000
SW57	00000000	00000000	00000000	00000000	00000000	00000000
SW58	00000000	00000000	00000000	00000000	00000000	00000000
SW59	00000000	00000000	00000000	00000000	00000000	00000000
SW60	00000000	00000000	00000000	00000000	00000000	00000000
SW61	00000000	00000000	00000000	00000000	00000000	00000000
SW62	00000000	00000000	00000000	00000000	00000000	00000000
SW63	00000000	00000000	00000000	00000000	00000000	00000000
SW64	00000000	00000000	00000000	00000000	00000000	00000000
SW65	00000000	00000000	00000000	00000000	00000000	00000000
SW66	00000000	00000000	00000000	00000000	00000000	00000000
SW67	00000000	00000000	00000000	00000000	00000000	00000000
SW68	00000000	00000000	00000000	00000000	00000000	00000000
SW69	00000000	00000000	00000000	00000000	00000000	00000000
SW70	00000000	00000000	00000000	00000000	00000000	00000000
SW71	00000000	00000000	00000000	00000000	00000000	00000000
SW72	00000000	00000000	00000000	00000000	00000000	00000000
SW73	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	EUROPE	U.K.	SWEDEN	SWISS	AUSTRIA	DENMARK
SW74	00000000	00000000	00000000	00000000	00000000	00000000
SW75	00000000	00000000	00000000	00000000	00000000	00000000
SW76	00000000	00000000	00000000	00000000	00000000	00000000
SW77	00000000	00000000	00000000	00000000	00000000	00000000
SW78	00000000	00000000	00000000	00000000	00000000	00000000
SW79	00000000	00000000	00000000	00000000	00000000	00000000
SW80	00000000	00000000	00000000	00000000	00000000	00000000
SW81	00000000	00000000	00000000	00000000	00000000	00000000
SW82	00000000	00000000	00000000	00000000	00000000	00000000
SW83	00000000	00000000	00000000	00000000	00000000	00000000
SW84	00000000	00000000	00000000	00000000	00000000	00000000
SW85	00000000	00000000	00000000	00000000	00000000	00000000
SW86	00000000	00000000	00000000	00000000	00000000	00000000
SW87	00000000	00000000	00000000	00000000	00000000	00000000
SW88	00000000	00000000	00000000	00000000	00000000	00000000
SW89	00000000	00000000	00000000	00000000	00000000	00000000
SW90	00000000	00000000	00000000	00000000	00000000	00000000
SW91	00000000	00000000	00000000	00000000	00000000	00000000
SW92	00000000	00000000	00000000	00000000	00000000	00000000
SW93	00000000	00000000	00000000	00000000	00000000	00000000
SW94	00000000	00000000	00000000	00000000	00000000	00000000
SW95	00000000	00000000	00000000	00000000	00000000	00000000
SW96	00000000	00000000	00000000	00000000	00000000	00000000
SW97	00000000	00000000	00000000	00000000	00000000	00000000
SW98	00000000	00000000	00000000	00000000	00000000	00000000
SW99	00000000	00000000	00000000	00000000	00000000	00000000
SW100	00000000	00000000	00000000	00000000	00000000	00000000
#NUMERIC Param.						
02:	10	10	10	10	10	10
03:	15	15	15	15	15	15
04:	12	12	12	12	12	12

TYPE	EUROPE	U.K.	SWEDEN	SWISS	AUSTRIA	DENMARK
10:	5500	5500	5500	5500	5500	5500
11:	3500	3500	3500	3500	3500	3500
13:	1300	1300	1300	1300	1300	1300
15:	120	120	120	120	120	120
25:	60	60	60	60	60	60

T-5-6

TYPE	NORWAY	HOLLAND	BELGIUM	AUSTRALIA	FINLAND	N.Z.
#SSSW						
SW01	00010000	00010000	00010000	00010000	00010000	00010000
SW02	00000000	00000000	00000000	00000000	00000000	00000000
SW03	00000000	00000000	00000000	00000000	00000000	00000000
SW04	00000010	00000010	00000000	00000000	00000000	00000000
SW05	00000000	00000000	00000000	00000000	00000000	00000000
SW06	10001000	10001000	10001000	10001000	10001000	10001000
SW07	00000000	00000000	00000000	00000000	00000000	00000000
SW08	00000000	00000000	00000000	00000000	00000000	00000000
SW09	00000000	00000000	00000000	00000000	00000000	00000000
SW10	00000000	00000000	00000000	00000000	00000000	00000000
SW11	00000000	00000000	00000000	00000000	00000000	00000000
SW12	00000010	00000010	00000010	00000010	00000010	00000010
SW13	00000000	00000000	00000000	00000000	00000000	00000000
SW14	00000010	00000010	00000010	00000000	00000010	00000000
SW15	00000000	00000000	00000000	00000000	00000000	00000000
SW16	00000011	00000011	00000011	00000011	00000011	00000011
SW17	00000000	00000000	00000000	00000000	00000000	00000000
SW18	00000000	00000000	00000000	00000000	00000000	00000000
SW19	00000000	00000000	00000000	00000000	00000000	00000000
SW20	00000000	00000000	00000000	00000000	00000000	00000000
SW21	00000000	00000000	00000000	00000000	00000000	00000000
SW22	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	NORWAY	HOLLAND	BELGIUM	AUSTRALIA	FINLAND	N.Z.
SW23	00000000	00000000	00000000	00000000	00000000	00000000
SW24	00000000	00000000	00000000	00000000	00000000	00000000
SW25	00000000	00000000	00000000	00000000	00000000	00000000
SW26	00000000	00000000	00000000	00000000	00000000	00000000
SW27	00000000	00000000	00000000	00000000	00000000	00000000
SW28	00000000	00000000	00000000	00000000	00000000	00000000
SW29	00000000	00000000	00000000	00000000	00000000	00000000
SW30	00000000	00000000	00000000	00000000	00000000	00000000
SW31	00000000	00000000	00000000	00000000	00000000	00000000
SW32	00100000	00100000	00100000	00100000	00100000	00100000
SW33	00000000	00000000	00000000	00000000	00000000	00000000
SW34	00000000	00000000	00000000	00000000	00000000	00000000
SW35	00000000	00000000	00000000	00000000	00000000	00000000
SW36	00000000	00000000	00000000	00000000	00000000	00000000
SW37	00000000	00000000	00000000	00000000	00000000	00000000
SW38	00000000	00000000	00000000	00000000	00000000	00000000
SW39	00000000	00000000	00000000	00000000	00000000	00000000
SW40	00000000	00000000	00000000	00000000	00000000	00000000
SW41	00000000	00000000	00000000	00000000	00000000	00000000
SW42	00000000	00000000	00000000	00000000	00000000	00000000
SW43	00000000	00000000	00000000	00000000	00000000	00000000
SW44	00000000	00000000	00000000	00000000	00000000	00000000
SW45	00000000	00000000	00000000	00000000	00000000	00000000
SW46	00000000	00000000	00000000	00000000	00000000	00000000
SW47	00000000	00000000	00000000	00000000	00000000	00000000
SW48	00000000	00000000	00000000	00000000	00000000	00000000
SW49	00000000	00000000	00000000	00000000	00000000	00000000
SW50	00000000	00000000	00000000	00000000	00000000	00000000
SW51	00000000	00000000	00000000	00000000	00000000	00000000
SW52	00000000	00000000	00000000	00000000	00000000	00000000
SW53	00000000	00000000	00000000	00000000	00000000	00000000
SW54	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	NORWAY	HOLLAND	BELGIUM	AUSTRALIA	FINLAND	N.Z.
SW55	00000000	00000000	00000000	00000000	00000000	00000000
SW56	00000000	00000000	00000000	00000000	00000000	00000000
SW57	00000000	00000000	00000000	00000000	00000000	00000000
SW58	00000000	00000000	00000000	00000000	00000000	00000000
SW59	00000000	00000000	00000000	00000000	00000000	00000000
SW60	00000000	00000000	00000000	00000000	00000000	00000000
SW61	00000000	00000000	00000000	00000000	00000000	00000000
SW62	00000000	00000000	00000000	00000000	00000000	00000000
SW63	00000000	00000000	00000000	00000000	00000000	00000000
SW64	00000000	00000000	00000000	00000000	00000000	00000000
SW65	00000000	00000000	00000000	00000000	00000000	00000000
SW66	00000000	00000000	00000000	00000000	00000000	00000000
SW67	00000000	00000000	00000000	00000000	00000000	00000000
SW68	00000000	00000000	00000000	00000000	00000000	00000000
SW69	00000000	00000000	00000000	00000000	00000000	00000000
SW70	00000000	00000000	00000000	00000000	00000000	00000000
SW71	00000000	00000000	00000000	00000000	00000000	00000000
SW72	00000000	00000000	00000000	00000000	00000000	00000000
SW73	00000000	00000000	00000000	00000000	00000000	00000000
SW74	00000000	00000000	00000000	00000000	00000000	00000000
SW75	00000000	00000000	00000000	00000000	00000000	00000000
SW76	00000000	00000000	00000000	00000000	00000000	00000000
SW77	00000000	00000000	00000000	00000000	00000000	00000000
SW78	00000000	00000000	00000000	00000000	00000000	00000000
SW79	00000000	00000000	00000000	00000000	00000000	00000000
SW80	00000000	00000000	00000000	00000000	00000000	00000000
SW81	00000000	00000000	00000000	00000000	00000000	00000000
SW82	00000000	00000000	00000000	00000000	00000000	00000000
SW83	00000000	00000000	00000000	00000000	00000000	00000000
SW84	00000000	00000000	00000000	00000000	00000000	00000000
SW85	00000000	00000000	00000000	00000000	00000000	00000000
SW86	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	NORWAY	HOLLAND	BELGIUM	AUSTRALIA	FINLAND	N.Z.
SW87	00000000	00000000	00000000	00000000	00000000	00000000
SW88	00000000	00000000	00000000	00000000	00000000	00000000
SW89	00000000	00000000	00000000	00000000	00000000	00000000
SW90	00000000	00000000	00000000	00000000	00000000	00000000
SW91	00000000	00000000	00000000	00000000	00000000	00000000
SW92	00000000	00000000	00000000	00000000	00000000	00000000
SW93	00000000	00000000	00000000	00000000	00000000	00000000
SW94	00000000	00000000	00000000	00000000	00000000	00000000
SW95	00000000	00000000	00000000	00000000	00000000	00000000
SW96	00000000	00000000	00000000	00000000	00000000	00000000
SW97	00000000	00000000	00000000	00000000	00000000	00000000
SW98	00000000	00000000	00000000	00000000	00000000	00000000
SW99	00000000	00000000	00000000	00000000	00000000	00000000
SW100	00000000	00000000	00000000	00000000	00000000	00000000
#NUMERIC Param.						
02:	10	10	10	10	10	10
03:	15	15	15	15	15	15
04:	12	12	12	12	12	12
10:	5500	5500	5500	5500	5500	5500
11:	3500	3500	3500	3500	3500	3500
13:	1300	1300	1300	1300	1300	1300
15:	120	120	120	120	120	120
25:	60	60	60	60	60	60

T-5-7

TYPE	ITALY	SPAIN	PORTUGAL	IRELAND	HONG KONG	MALAYSIA
#SSSW						
SW01	00010000	00010000	00010000	00010000	00010000	00010000
SW02	00000000	00000000	00000000	00000000	00000000	00000000
SW03	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	ITALY	SPAIN	PORTUGAL	IRELAND	HONG KONG	MALAYSIA
SW04	00000010	00000010	00000000	00000000	00000000	00000000
SW05	00000000	00000000	00000000	00000000	00000000	00000000
SW06	10001000	10001000	10001000	10001000	10001000	10001000
SW07	00000000	00000000	00000000	00000000	00000000	00000000
SW08	00000000	00000000	00000000	00000000	00000000	00000000
SW09	00000000	00000000	00000000	00000000	00000000	00000000
SW10	00000000	00000000	00000000	00000000	00000000	00000000
SW11	00000000	00000000	00000000	00000000	00000000	00000000
SW12	00000010	00000010	00000010	00000010	00000010	00000010
SW13	00000000	00000000	00000000	00000000	00000000	00000000
SW14	00000010	00000010	00000010	00000010	00000000	00000000
SW15	00000000	00000000	00000000	00000000	00000000	00000000
SW16	00000011	00000011	00000011	00000011	00000011	00000011
SW17	00000000	00000000	00000000	00000000	00000000	00000000
SW18	00000000	00000000	00000000	00000000	00000000	00000000
SW19	00000000	00000000	00000000	00000000	00000000	00000000
SW20	00000000	00000000	00000000	00000000	00000000	00000000
SW21	00000000	00000000	00000000	00000000	00000000	00000000
SW22	00000000	00000000	00000000	00000000	00000000	00000000
SW23	00000000	00000000	00000000	00000000	00000000	00000000
SW24	00000000	00000000	00000000	00000000	00000000	00000000
SW25	00000000	00000000	00000000	00000000	00000000	00000000
SW26	00000000	00000000	00000000	00000000	00000000	00000000
SW27	00000000	00000000	00000000	00000000	00000000	00000000
SW28	00000000	00000000	00000000	00000000	00000000	00000000
SW29	00000000	00000000	00000000	00000000	00000000	00000000
SW30	00000000	00000000	00000000	00000000	00000000	00000000
SW31	00000000	00000000	00000000	00000000	00000000	00000000
SW32	00100000	00100000	00100000	00100000	00100000	00100000
SW33	00000000	00000000	00000000	00000000	00000000	00000000
SW34	00000000	00000000	00000000	00000000	00000000	00000000
SW35	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	ITALY	SPAIN	PORTUGAL	IRELAND	HONG KONG	MALAYSIA
SW36	00000000	00000000	00000000	00000000	00000000	00000000
SW37	00000000	00000000	00000000	00000000	00000000	00000000
SW38	00000000	00000000	00000000	00000000	00000000	00000000
SW39	00000000	00000000	00000000	00000000	00000000	00000000
SW40	00000000	00000000	00000000	00000000	00000000	00000000
SW41	00000000	00000000	00000000	00000000	00000000	00000000
SW42	00000000	00000000	00000000	00000000	00000000	00000000
SW43	00000000	00000000	00000000	00000000	00000000	00000000
SW44	00000000	00000000	00000000	00000000	00000000	00000000
SW45	00000000	00000000	00000000	00000000	00000000	00000000
SW46	00000000	00000000	00000000	00000000	00000000	00000000
SW47	00000000	00000000	00000000	00000000	00000000	00000000
SW48	00000000	00000000	00000000	00000000	00000000	00000000
SW49	00000000	00000000	00000000	00000000	00000000	00000000
SW50	00000000	00000000	00000000	00000000	00000000	00000000
SW51	00000000	00000000	00000000	00000000	00000000	00000000
SW52	00000000	00000000	00000000	00000000	00000000	00000000
SW53	00000000	00000000	00000000	00000000	00000000	00000000
SW54	00000000	00000000	00000000	00000000	00000000	00000000
SW55	00000000	00000000	00000000	00000000	00000000	00000000
SW56	00000000	00000000	00000000	00000000	00000000	00000000
SW57	00000000	00000000	00000000	00000000	00000000	00000000
SW58	00000000	00000000	00000000	00000000	00000000	00000000
SW59	00000000	00000000	00000000	00000000	00000000	00000000
SW60	00000000	00000000	00000000	00000000	00000000	00000000
SW61	00000000	00000000	00000000	00000000	00000000	00000000
SW62	00000000	00000000	00000000	00000000	00000000	00000000
SW63	00000000	00000000	00000000	00000000	00000000	00000000
SW64	00000000	00000000	00000000	00000000	00000000	00000000
SW65	00000000	00000000	00000000	00000000	00000000	00000000
SW66	00000000	00000000	00000000	00000000	00000000	00000000
SW67	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	ITALY	SPAIN	PORTUGAL	IRELAND	HONG KONG	MALAYSIA
SW68	00000000	00000000	00000000	00000000	00000000	00000000
SW69	00000000	00000000	00000000	00000000	00000000	00000000
SW70	00000000	00000000	00000000	00000000	00000000	00000000
SW71	00000000	00000000	00000000	00000000	00000000	00000000
SW72	00000000	00000000	00000000	00000000	00000000	00000000
SW73	00000000	00000000	00000000	00000000	00000000	00000000
SW74	00000000	00000000	00000000	00000000	00000000	00000000
SW75	00000000	00000000	00000000	00000000	00000000	00000000
SW76	00000000	00000000	00000000	00000000	00000000	00000000
SW77	00000000	00000000	00000000	00000000	00000000	00000000
SW78	00000000	00000000	00000000	00000000	00000000	00000000
SW79	00000000	00000000	00000000	00000000	00000000	00000000
SW80	00000000	00000000	00000000	00000000	00000000	00000000
SW81	00000000	00000000	00000000	00000000	00000000	00000000
SW82	00000000	00000000	00000000	00000000	00000000	00000000
SW83	00000000	00000000	00000000	00000000	00000000	00000000
SW84	00000000	00000000	00000000	00000000	00000000	00000000
SW85	00000000	00000000	00000000	00000000	00000000	00000000
SW86	00000000	00000000	00000000	00000000	00000000	00000000
SW87	00000000	00000000	00000000	00000000	00000000	00000000
SW88	00000000	00000000	00000000	00000000	00000000	00000000
SW89	00000000	00000000	00000000	00000000	00000000	00000000
SW90	00000000	00000000	00000000	00000000	00000000	00000000
SW91	00000000	00000000	00000000	00000000	00000000	00000000
SW92	00000000	00000000	00000000	00000000	00000000	00000000
SW93	00000000	00000000	00000000	00000000	00000000	00000000
SW94	00000000	00000000	00000000	00000000	00000000	00000000
SW95	00000000	00000000	00000000	00000000	00000000	00000000
SW96	00000000	00000000	00000000	00000000	00000000	00000000
SW97	00000000	00000000	00000000	00000000	00000000	00000000
SW98	00000000	00000000	00000000	00000000	00000000	00000000
SW99	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	ITALY	SPAIN	PORTUGAL	IRELAND	HONG KONG	MALAYSIA
SW100	00000000	00000000	00000000	00000000	00000000	00000000
#NUMERIC Param.						
02:	10	10	10	10	10	10
03:	15	15	15	15	15	15
04:	12	12	12	12	12	12
10:	5500	5500	5500	5500	5500	5500
11:	3500	3500	3500	3500	3500	3500
13:	1300	1300	1300	1300	1300	1300
15:	120	120	120	120	120	120
25:	60	60	60	60	60	60

T-5-8

TYPE	HUNGARY	SAF	KOREA	CHINA	GERMAN	FRANCE
#SSSW						
SW01	00010000	00010000	00010000	00010000	00010000	00010000
SW02	00000000	00000000	00000000	00000000	00000000	00000000
SW03	00000000	00000000	00000000	00000000	00000000	00000000
SW04	00000000	00000000	00000000	00000000	00000010	00000000
SW05	00000000	00000000	00000000	00000000	00000000	00000000
SW06	10001000	10001000	10001000	10001000	10001000	10001000
SW07	00000000	00000000	00000000	00000000	00000000	00000000
SW08	00000000	00000000	00000000	00000000	00000000	00000000
SW09	00000000	00000000	00000000	00000000	00000000	00000000
SW10	00000000	00000000	00000000	00000000	00000000	00000000
SW11	00000000	00000000	00000000	00000000	00000000	00000000
SW12	00000010	00000010	00000010	00000010	00000010	00000010
SW13	00000000	00000000	00000000	00000000	00000000	00000000
SW14	00000010	00000010	00000000	00000010	00000010	00000010
SW15	00000000	00000000	00000000	00000000	00000000	00000000
SW16	00000011	00000011	00000011	00000011	00000011	00000011

TYPE	HUNGARY	SAF	KOREA	CHINA	GERMAN	FRANCE
SW17	00000000	00000000	00000000	00000000	00000000	00000000
SW18	00000000	00000000	00000000	00000000	00000000	00000000
SW19	00000000	00000000	00000000	00000000	00000000	00000000
SW20	00000000	00000000	00000000	00000000	00000000	00000000
SW21	00000000	00000000	00000000	00000000	00000000	00000000
SW22	00000000	00000000	00000000	00000000	00001000	00000000
SW23	00000000	00000000	00000000	00000000	00000000	00000000
SW24	00000000	00000000	00000000	00000000	00000000	00000000
SW25	00000001	00000000	00000000	00000000	00000101	00000000
SW26	00000000	00000000	00000000	00000000	00000000	00000000
SW27	00000000	00000000	00000000	00000000	00000000	00000000
SW28	00000000	00000000	00000000	00000000	00000000	00000000
SW29	00000000	00000000	00000000	00000000	00000000	00000000
SW30	00000000	00000000	00000000	00000000	00000000	00000000
SW31	00000000	00000000	00000000	00000000	00000000	00000000
SW32	00100000	00100000	00100000	00100000	00100000	00100000
SW33	00000000	00000000	00000000	00000000	00000000	00000000
SW34	00000000	00000000	00000000	00000000	00000000	00000000
SW35	00000000	00000000	00000000	00000000	00000000	00000000
SW36	00000000	00000000	00000000	00000000	00000000	00000000
SW37	00000000	00000000	00000000	00000000	00000000	00000000
SW38	00000000	00000000	00000000	00000000	00000000	00000000
SW39	00000000	00000000	00000000	00000000	00000000	00000000
SW40	00000000	00000000	00000000	00000000	00000000	00000000
SW41	00000000	00000000	00000000	00000000	00000000	00000000
SW42	00000000	00000000	00000000	00000000	00000000	00000000
SW43	00000000	00000000	00000000	00000000	00000000	00000000
SW44	00000000	00000000	00000000	00000000	00000000	00000000
SW45	00000000	00000000	00000000	00000000	00000000	00000000
SW46	00000000	00000000	00000000	00000000	00000000	00000000
SW47	00000000	00000000	00000000	00000000	00000000	00000000
SW48	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	HUNGARY	SAF	KOREA	CHINA	GERMAN	FRANCE
SW49	00000000	00000000	00000000	00000000	00000000	00000000
SW50	00000000	00000000	00000000	00000000	00000000	00000000
SW51	00000000	00000000	00000000	00000000	00000000	00000000
SW52	00000000	00000000	00000000	00000000	00000000	00000000
SW53	00000000	00000000	00000000	00000000	00000000	00000000
SW54	00000000	00000000	00000000	00000000	00000000	00000000
SW55	00000000	00000000	00000000	00000000	00000000	00000000
SW56	00000000	00000000	00000000	00000000	00000000	00000000
SW57	00000000	00000000	00000000	00000000	00000000	00000000
SW58	00000000	00000000	00000000	00000000	00000000	00000000
SW59	00000000	00000000	00000000	00000000	00000000	00000000
SW60	00000000	00000000	00000000	00000000	00000000	00000000
SW61	00000000	00000000	00000000	00000000	00000000	00000000
SW62	00000000	00000000	00000000	00000000	00000000	00000000
SW63	00000000	00000000	00000000	00000000	00000000	00000000
SW64	00000000	00000000	00000000	00000000	00000000	00000000
SW65	00000000	00000000	00000000	00000000	00000000	00000000
SW66	00000000	00000000	00000000	00000000	00000000	00000000
SW67	00000000	00000000	00000000	00000000	00000000	00000000
SW68	00000000	00000000	00000000	00000000	00000000	00000000
SW69	00000000	00000000	00000000	00000000	00000000	00000000
SW70	00000000	00000000	00000000	00000000	00000000	00000000
SW71	00000000	00000000	00000000	00000000	00000000	00000000
SW72	00000000	00000000	00000000	00000000	00000000	00000000
SW73	00000000	00000000	00000000	00000000	00000000	00000000
SW74	00000000	00000000	00000000	00000000	00000000	00000000
SW75	00000000	00000000	00000000	00000000	00000000	00000000
SW76	00000000	00000000	00000000	00000000	00000000	00000000
SW77	00000000	00000000	00000000	00000000	00000000	00000000
SW78	00000000	00000000	00000000	00000000	00000000	00000000
SW79	00000000	00000000	00000000	00000000	00000000	00000000
SW80	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	HUNGARY	SAF	KOREA	CHINA	GERMAN	FRANCE
SW81	00000000	00000000	00000000	00000000	00000000	00000000
SW82	00000000	00000000	00000000	00000000	00000000	00000000
SW83	00000000	00000000	00000000	00000000	00000000	00000000
SW84	00000000	00000000	00000000	00000000	00000000	00000000
SW85	00000000	00000000	00000000	00000000	00000000	00000000
SW86	00000000	00000000	00000000	00000000	00000000	00000000
SW87	00000000	00000000	00000000	00000000	00000000	00000000
SW88	00000000	00000000	00000000	00000000	00000000	00000000
SW89	00000000	00000000	00000000	00000000	00000000	00000000
SW90	00000000	00000000	00000000	00000000	00000000	00000000
SW91	00000000	00000000	00000000	00000000	00000000	00000000
SW92	00000000	00000000	00000000	00000000	00000000	00000000
SW93	00000000	00000000	00000000	00000000	00000000	00000000
SW94	00000000	00000000	00000000	00000000	00000000	00000000
SW95	00000000	00000000	00000000	00000000	00000000	00000000
SW96	00000000	00000000	00000000	00000000	00000000	00000000
SW97	00000000	00000000	00000000	00000000	00000000	00000000
SW98	00000000	00000000	00000000	00000000	00000000	00000000
SW99	00000000	00000000	00000000	00000000	00000000	00000000
SW100	00000000	00000000	00000000	00000000	00000000	00000000
#NUMERIC Param.						
02:	10	10	10	10	8	8
03:	15	15	15	15	15	15
04:	12	12	12	12	6	12
10:	5500	5500	5500	4500	9000	5500
11:	3500	3500	3500	3500	3500	3500
13:	1300	1300	1300	1300	1300	1300
15:	120	120	120	120	120	120
25:	60	60	60	60	60	60

T-5-9

TYPE	SINGAPORE	CZECH	SLOVENIA	ASIA	POLAND	EUROPE2
#SSSW						
SW01	00010000	00010000	00010000	00010000	00010000	00010000
SW02	00000000	00000000	00000000	00000000	00000000	00000000
SW03	00000000	00000000	00000000	00000000	00000000	00000000
SW04	00000000	00000000	00000000	00000000	00000000	00000000
SW05	00000000	00000000	00000000	00000000	00000000	00000000
SW06	10001000	10001000	10001000	10001000	10001000	10001000
SW07	00000000	00000000	00000000	00000000	00000000	00000000
SW08	00000000	00000000	00000000	00000000	00000000	00000000
SW09	00000000	00000000	00000000	00000000	00000000	00000000
SW10	00000000	00000000	00000000	00000000	00000000	00000000
SW11	00000000	00000000	00000000	00000000	00000000	00000000
SW12	00000010	00000010	00000010	00000010	00000010	00000010
SW13	00000000	00000000	00000000	00000000	00000000	00000000
SW14	00000000	00000010	00000010	00000000	00000010	00000010
SW15	00000000	00000000	00000000	00000000	00000000	00000000
SW16	00000011	00000011	00000011	00000011	00000011	00000011
SW17	00000000	00000000	00000000	00000000	00000000	00000000
SW18	00000000	00000000	00000000	00000000	00000000	00000000
SW19	00000000	00000000	00000000	00000000	00000000	00000000
SW20	00000000	00000000	00000000	00000000	00000000	00000000
SW21	00000000	00000000	00000000	00000000	00000000	00000000
SW22	00000000	00000000	00000000	00000000	00000000	00000000
SW23	00000000	00000000	00000000	00000000	00000000	00000000
SW24	00000000	00000000	00000000	00000000	00000000	00000000
SW25	00000000	00000000	00000000	00000000	00000000	00000000
SW26	00000000	00000000	00000000	00000000	00000000	00000000
SW27	00000000	00000000	00000000	00000000	00000000	00000000
SW28	00000000	00000000	00000000	00000000	00000000	00000000
SW29	00000000	00000000	00000000	00000000	00000000	00000000
SW30	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	SINGAPORE	CZECH	SLOVENIA	ASIA	POLAND	EUROPE2
SW31	00000000	00000000	00000000	00000000	00000000	00000000
SW32	00100000	00100000	00100000	00100000	00100000	00100000
SW33	00000000	00000000	00000000	00000000	00000000	00000000
SW34	00000000	00000000	00000000	00000000	00000000	00000000
SW35	00000000	00000000	00000000	00000000	00000000	00000000
SW36	00000000	00000000	00000000	00000000	00000000	00000000
SW37	00000000	00000000	00000000	00000000	00000000	00000000
SW38	00000000	00000000	00000000	00000000	00000000	00000000
SW39	00000000	00000000	00000000	00000000	00000000	00000000
SW40	00000000	00000000	00000000	00000000	00000000	00000000
SW41	00000000	00000000	00000000	00000000	00000000	00000000
SW42	00000000	00000000	00000000	00000000	00000000	00000000
SW43	00000000	00000000	00000000	00000000	00000000	00000000
SW44	00000000	00000000	00000000	00000000	00000000	00000000
SW45	00000000	00000000	00000000	00000000	00000000	00000000
SW46	00000000	00000000	00000000	00000000	00000000	00000000
SW47	00000000	00000000	00000000	00000000	00000000	00000000
SW48	00000000	00000000	00000000	00000000	00000000	00000000
SW49	00000000	00000000	00000000	00000000	00000000	00000000
SW50	00000000	00000000	00000000	00000000	00000000	00000000
SW51	00000000	00000000	00000000	00000000	00000000	00000000
SW52	00000000	00000000	00000000	00000000	00000000	00000000
SW53	00000000	00000000	00000000	00000000	00000000	00000000
SW54	00000000	00000000	00000000	00000000	00000000	00000000
SW55	00000000	00000000	00000000	00000000	00000000	00000000
SW56	00000000	00000000	00000000	00000000	00000000	00000000
SW57	00000000	00000000	00000000	00000000	00000000	00000000
SW58	00000000	00000000	00000000	00000000	00000000	00000000
SW59	00000000	00000000	00000000	00000000	00000000	00000000
SW60	00000000	00000000	00000000	00000000	00000000	00000000
SW61	00000000	00000000	00000000	00000000	00000000	00000000
SW62	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	SINGAPORE	CZECH	SLOVENIA	ASIA	POLAND	EUROPE2
SW63	00000000	00000000	00000000	00000000	00000000	00000000
SW64	00000000	00000000	00000000	00000000	00000000	00000000
SW65	00000000	00000000	00000000	00000000	00000000	00000000
SW66	00000000	00000000	00000000	00000000	00000000	00000000
SW67	00000000	00000000	00000000	00000000	00000000	00000000
SW68	00000000	00000000	00000000	00000000	00000000	00000000
SW69	00000000	00000000	00000000	00000000	00000000	00000000
SW70	00000000	00000000	00000000	00000000	00000000	00000000
SW71	00000000	00000000	00000000	00000000	00000000	00000000
SW72	00000000	00000000	00000000	00000000	00000000	00000000
SW73	00000000	00000000	00000000	00000000	00000000	00000000
SW74	00000000	00000000	00000000	00000000	00000000	00000000
SW75	00000000	00000000	00000000	00000000	00000000	00000000
SW76	00000000	00000000	00000000	00000000	00000000	00000000
SW77	00000000	00000000	00000000	00000000	00000000	00000000
SW78	00000000	00000000	00000000	00000000	00000000	00000000
SW79	00000000	00000000	00000000	00000000	00000000	00000000
SW80	00000000	00000000	00000000	00000000	00000000	00000000
SW81	00000000	00000000	00000000	00000000	00000000	00000000
SW82	00000000	00000000	00000000	00000000	00000000	00000000
SW83	00000000	00000000	00000000	00000000	00000000	00000000
SW84	00000000	00000000	00000000	00000000	00000000	00000000
SW85	00000000	00000000	00000000	00000000	00000000	00000000
SW86	00000000	00000000	00000000	00000000	00000000	00000000
SW87	00000000	00000000	00000000	00000000	00000000	00000000
SW88	00000000	00000000	00000000	00000000	00000000	00000000
SW89	00000000	00000000	00000000	00000000	00000000	00000000
SW90	00000000	00000000	00000000	00000000	00000000	00000000
SW91	00000000	00000000	00000000	00000000	00000000	00000000
SW92	00000000	00000000	00000000	00000000	00000000	00000000
SW93	00000000	00000000	00000000	00000000	00000000	00000000
SW94	00000000	00000000	00000000	00000000	00000000	00000000

TYPE	SINGAPORE	CZECH	SLOVENIA	ASIA	POLAND	EUROPE2
SW95	00000000	00000000	00000000	00000000	00000000	00000000
SW96	00000000	00000000	00000000	00000000	00000000	00000000
SW97	00000000	00000000	00000000	00000000	00000000	00000000
SW98	00000000	00000000	00000000	00000000	00000000	00000000
SW99	00000000	00000000	00000000	00000000	00000000	00000000
SW100	00000000	00000000	00000000	00000000	00000000	00000000
#NUMERIC Param.						
02:	10	10	10	10	10	10
03:	15	15	15	15	15	15
04:	12	12	12	12	12	12
10:	5500	5500	5500	5500	5500	5500
11:	3500	3500	3500	3500	3500	3500
13:	1300	1300	1300	1300	1300	1300
15:	120	120	120	120	120	120
25:	60	60	60	60	60	60

T-5-10

TYPE	TAIWAN
#SSSW	
SW01	00000000
SW02	00000000
SW03	00000000
SW04	00000000
SW05	00000000
SW06	10001000
SW07	00000000
SW08	00000000
SW09	00000000
SW10	00000000
SW11	00000000

TYPE	TAIWAN
SW12	00000010
SW13	00000000
SW14	00000000
SW15	00000000
SW16	00000011
SW17	00000000
SW18	00000000
SW19	00000000
SW20	00000000
SW21	00000000
SW22	00000000
SW23	00000000
SW24	00000000
SW25	00000000
SW26	00000000
SW27	00000000
SW28	00000000
SW29	00000000
SW30	00000000
SW31	00000000
SW32	00100000
SW33	00000000
SW34	00000000
SW35	00000000
SW36	00000000
SW37	00000000
SW38	00000000
SW39	00000000
SW40	00000000
SW41	00000000
SW42	00000000
SW43	00000000
SW44	00000000

TYPE	TAIWAN
SW45	00000000
SW46	00000000
SW47	00000000
SW48	00000000
SW49	00000000
SW50	00000000
SW51	00000000
SW52	00000000
SW53	00000000
SW54	00000000
SW55	00000000
SW56	00000000
SW57	00000000
SW58	00000000
SW59	00000000
SW60	00000000
SW61	00000000
SW62	00000000
SW63	00000000
SW64	00000000
SW65	00000000
SW66	00000000
SW67	00000000
SW68	00000000
SW69	00000000
SW70	00000000
SW71	00000000
SW72	00000000
SW73	00000000
SW74	00000000
SW75	00000000
SW76	00000000
SW77	00000000

TYPE	TAIWAN
SW78	00000000
SW79	00000000
SW80	00000000
SW81	00000000
SW82	00000000
SW83	00000000
SW84	00000000
SW85	00000000
SW86	00000000
SW87	00000000
SW88	00000000
SW89	00000000
SW90	00000000
SW91	00000000
SW92	00000000
SW93	00000000
SW94	00000000
SW95	00000000
SW96	00000000
SW97	00000000
SW98	00000000
SW99	00000000
SW100	00000000

#NUMERIC Param.

02:	10
03:	15
04:	12
10:	5500
11:	3500
13:	1300
15:	120
25:	60

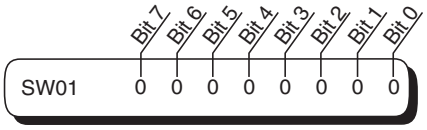
5.6.3 Service Soft Switch Settings (SSSW)

5.6.3.1 Outline

5.6.3.1.1 Explanation of #SSSW

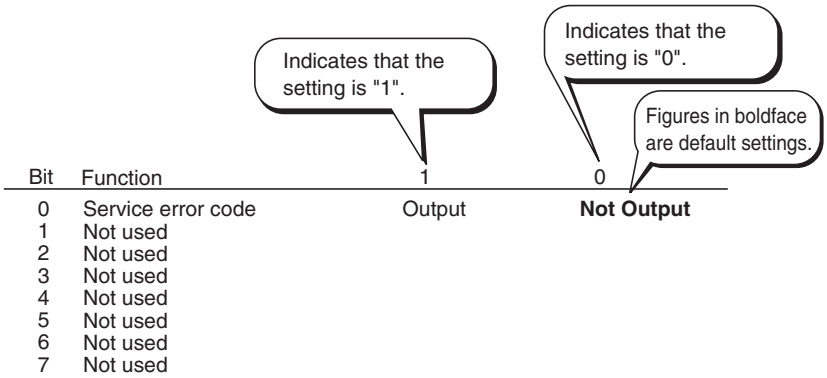
0006-5820

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.



F-5-7

Below are examples showing how to read bit switch tables.



F-5-8

5.6.3.2 SSSW-SW18

5.6.3.2.1 List of Functions

0006-5830

T-5-11

Bit	Function	1	0
0	Detection of carrier disconnection between the DCS signal and the TCF signal	Yes	No*
1	Waiting time for carrier disconnection between the DCS signal and the TCF signal	600 msec	300 msec*
2	Not used	-	-
3	Not used	-	-

Bit	Function	1	0
4	Not used	-	-
5	Not used	-	-
6	Not used	-	-
7	Not used	-	-

5.6.3.2.2 Details of Bit 0 0006-5831

It is possible to select whether or not to detect carrieir disconnection between the DCS signal and the TCF signal during reception.
If the receiving machine returns an FTT signal while the other machine (PC-FAX) is transmitting a TCF siganl and a reception error occurs, set this bit to "1".
If thw error still occurs, set bit 1 of #1 SSSW SW18 to "1".

5.6.3.2.3 Details of Bit 1 0006-5832

It is possible to select the detection time for caarrier disconnection between the DCS signal and TCF signal during reception.
This bit is available for use when #1 SSSW SW18 Bit0 is set to "1".
If the symptom is not resolved by setting SW18 Bit 0 to "1," set this bit to "1."

5.6.4 Numeric Parameter Settings (NUMERIC Param.)

5.6.4.1 #NUMERIC Param. 0006-5833

T-5-12

No.	Function	Selecting range	Default setting
010	Line connection identification time length	0 to 9999 (10ms)	5500
011	T.30 T1 timer (for reception)	0 to 9999 (10ms)	3500
013	Maximum time to receive one line of image data	500 to 3000 (10ms)	1300

No.010

Use it to set the length of time for line connection identification.
If an error occurs often because of the line condition at time of a communication, increase the parameter.

Memo

The line connection recognition time means the period from transmission of dial signal to detection of significant signal for the transmission end, and the period from transmission of DIS signal to detection of significant signal for the receiving end.

No.011

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 because of line connection conditions, increase the value of this parameter.

No.013

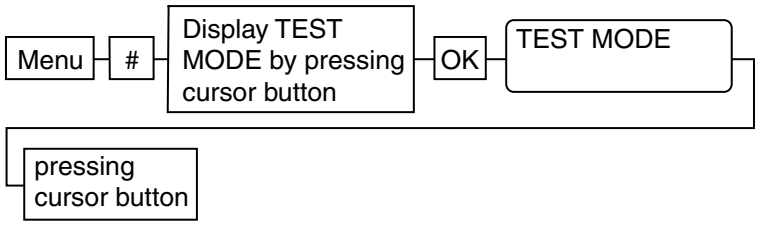
Set the maximum receivable time per line of image data when receiving image data. If the other party is a computer fax and the like, and the image data reception time per line is longer, increase the value of this parameter to lengthen the maximum receivable time.

5.6.5 ROM Management (ROM)

5.6.5.1 ROM

0006-5838

Information such as ROM (program software) version number is displayed on the display.
This mode is for confirmation only, and any entry cannot be made.



F-5-9

⚠

If the machine is returned to standby mode with the Menu key after a ROM version check, it fails to be reset, leading to malfunction during communication.
Therefore, be sure to turn OFF and back ON the power after checking ROM version.

5.6.6 Test Mode (TEST)

5.6.6.1 Overview

5.6.6.1.1 Test Mode Overview

0006-5849

The following test modes are available from the menu on the display.

D-RAM tests

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

Print test

Printing a test pattern in the printing area.

Modem, NCU tests

The frequency test, G3 signal transmission test, and V.34 G3 signal transmission test.

FACULTY test

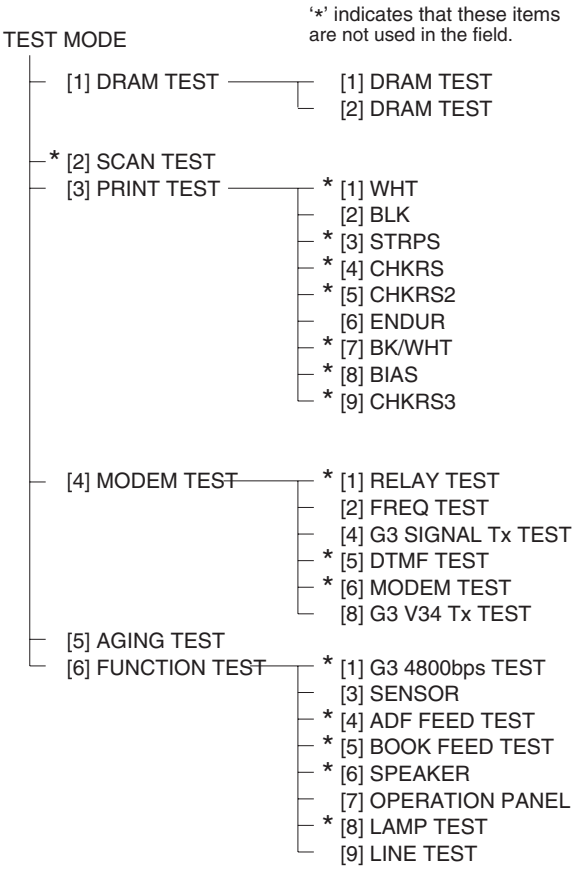
Testing the sensors and functions of the operation panel.

5.6.6.1.2 Test Mode Flowchart

0006-5853

To operate the test mode, after pressing the Menu key, press the # key and select "SERVICE MODE". After this, select "TEST MODE" with the cursor keys, and press the OK key.

Turn OFF and back ON the power to end the Test Mode.



F-5-10

⚠

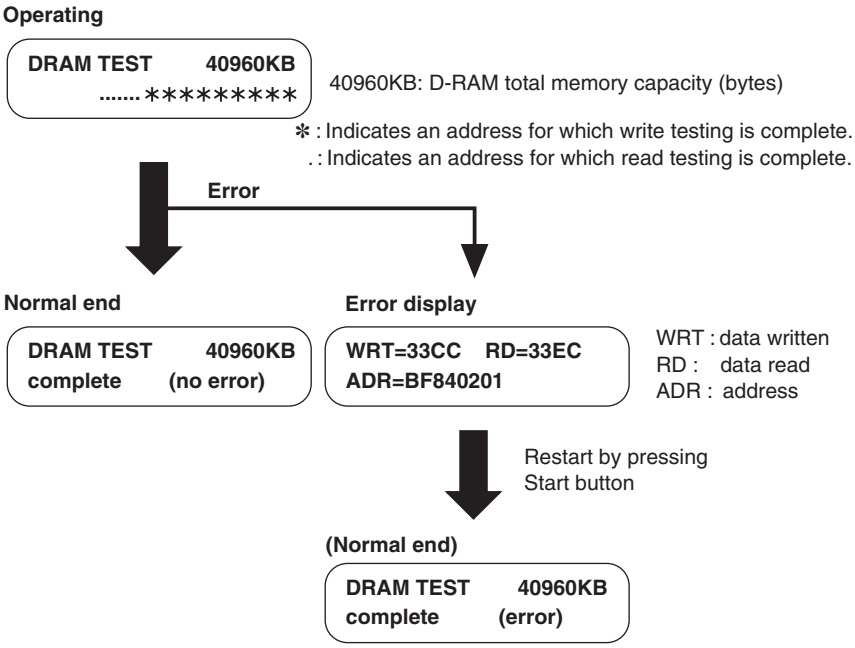
If the machine is returned to standby mode with the Menu key after the Test Mode is ended, it fails to be reset, leading to malfunction during communication.
Therefore, be sure to turn OFF and back ON the power after the Test Mode is ended.

5.6.6.2 DRAM Test

5.6.6.2.1 D-RAM Test

0006-5855

D-RAM test menu is selected by pressing the numeric key 1 from the test mode menu. 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.



F-5-11

⚠

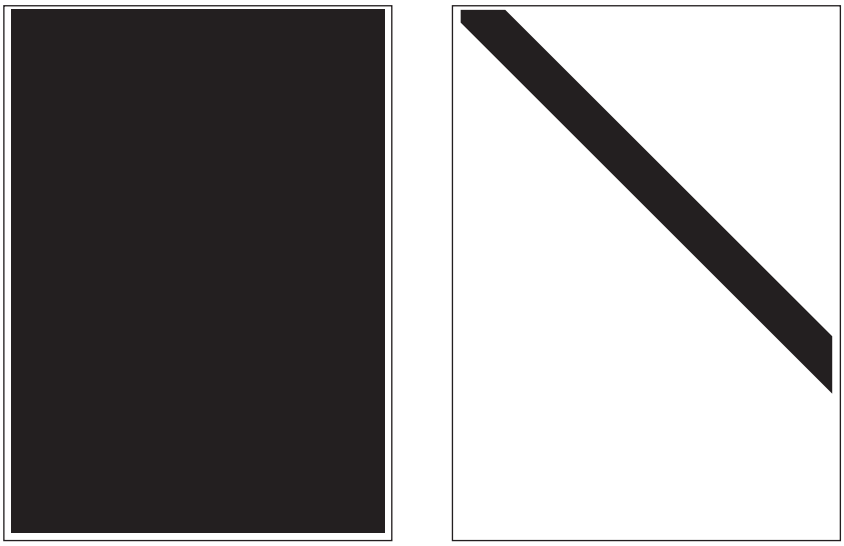
Before D-RAM test, output all image data in image memory. When D-RAM test is performed, all image data are cleared.

5.6.6.3 Print Test

5.6.6.3.1 PRINT Test

0006-5856

The Print Test menu is selected by pressing the numeric button 3 from the test mode menu.
In this test, various print patterns are output from the printer. As service print patterns, press the numeric button 2 from the Print Test menu to select "3-2: BLACK" or press the numeric button 6 to select "3-6: ENDURANCE". Do not use the other patterns. They are for development and factory use.
Check for white stripes and unevenness on the Black pattern, and check for image shrinkig, stretching, soiling, and black strips on the Endurance pattern.



F-5-12

Memo

After completion of the print test, if the printing was normal, copy a document. If there is any defect in the copied image, there is a defect in the scan section.

5.6.6.4 Modem Test

5.6.6.4.1 Modem Tests

0006-5857

The Modem Test menu is selected by pressing the numeric button 4 from the test mode menu.
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.
End this test by pressing the Stop button.

T-5-13

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

5.6.6.4.2 Frequency Test

0006-5858

The frequency test menu is selected by pressing the numeric button 2 from the MODEM 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.

T-5-14

Numeric button	Frequency
0	462 Hz
1	1100 Hz
2	1300 Hz
3	1500 Hz
4	1650 Hz
5	1850 Hz
6	2100 Hz

5.6.6.4.3 G3 Signal Transmission Test

0006-5859

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

T-5-15

Numeric button	Speed
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

Memo

The transmission level for each frequency follows the service data.

5.6.6.4.4 V.34 G3 Signal Transmission Test

0006-5860

The V.34 G3 signal transmission test menu is selected by pressing the numeric button 8 from the MODEM test menu. The V.34 G3 signals below are sent from the modem using the modular jack and the speaker by pressing the Start button. The Baud rate can be changed with the numeric buttons, and the Speed can be changed with the cursor buttons.

T-5-16

Numeric button	Baud rate
0	3429 baud
1	3200 baud
2	3000 baud
3	2800 baud
4	2743 baud
5	2400 baud

T-5-17

Cursor button	Speed
	33.6 kbps
	31.2 kbps
	28.8 kbps
< >	26.4 kbps
	24.0 kbps
	21.6 kbps
	19.2 kbps
	16.8 kbps
	14.4 kbps

Cursor button	Speed
	12.0 kbps
	9.6 kbps
	7.2 kbps
	4.8 kbps
	2.4 kbps

Memo

The transmission level for each baud rate and speed follows the service data.

5.6.6.5 Faculty Test

5.6.6.5.1 FACULTY Tests

0007-2835

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

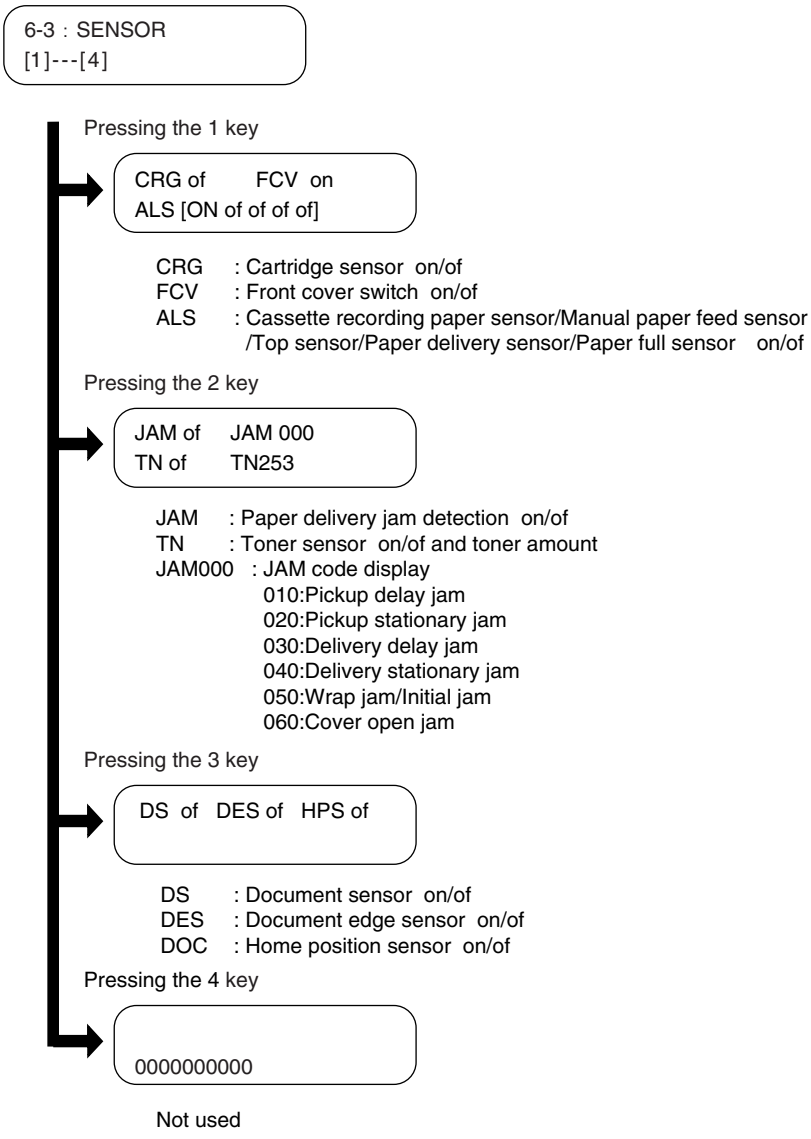
T-5-18

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.

5.6.6.5.2 Sensor Tests

0007-2838

The sensor test is selected by pressing the numeric key 3 from the faculty test menu. In this test, you can check the status of each sensor of this fax in items 1 to 4 on the display.
You can also check if sensors that use actuators and microswitches are operating correctly by moving the actuator or microswitch.



F-5-13

5.6.6.5.3 Operation panel tests

0007-2889

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

Display test

Pressing the Start key from the operation panel menu, "H" is displayed 20 characters by 2 lines. The next time the Start key is pressed, all the LCD dots are displayed. Check for any LCD dots in the display that are not displayed.

LED lamp test

All the lamps on the operation panel light by pressing the Start key after the display test. Check for any LED that does not blink during the test. (However, the Energy Saver key does not go on at this time.)

Operation Key Test

The operation key test is selected with the Start key after the LED lamp test is done. In this test, a character disappears when its operation key is pressed. The list of characters and their operation keys is as follows. Check to make sure at this time that all characters properly disappear when their operation keys are pressed.

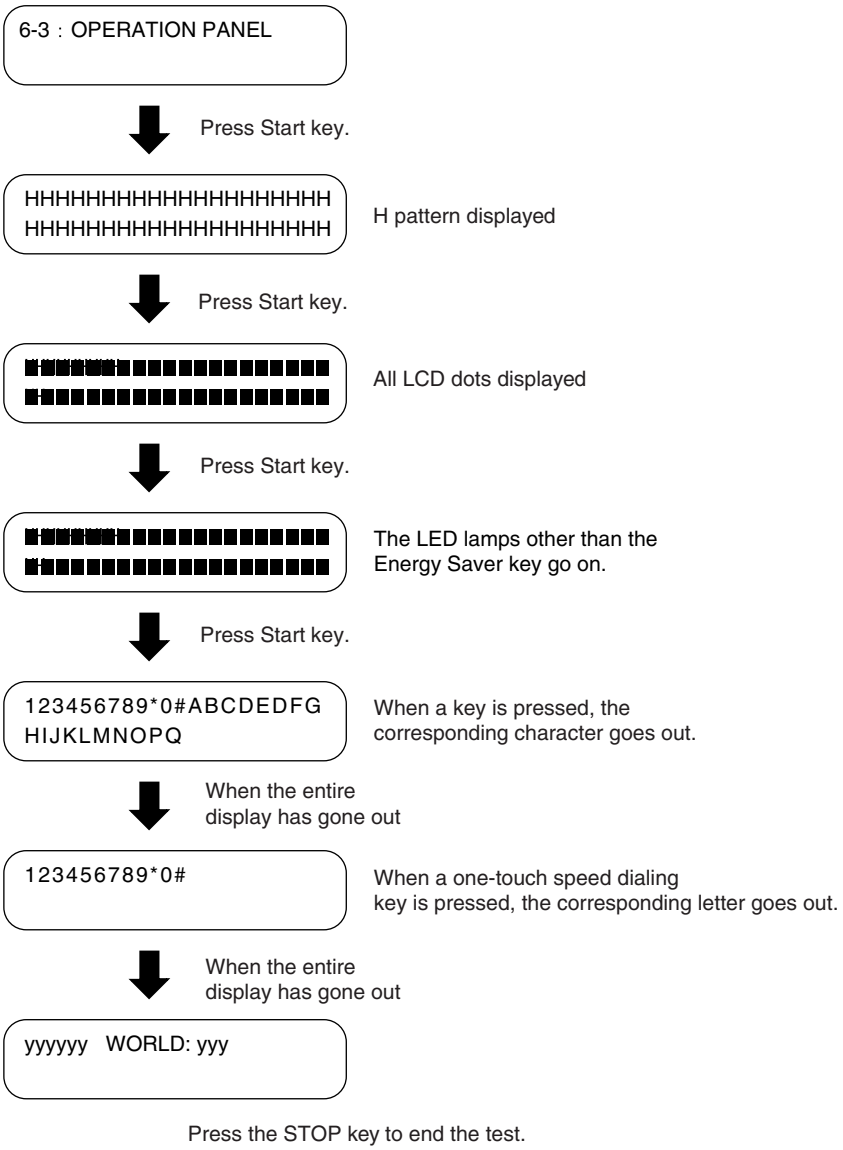
T-5-19

Character	Operation key	Character	Operation key
0-9,*,#	Numeric key	I	COPY key
A	Cursor key (+)	J	SCAN key
B	Cursor key (-)	K	Hook key (MF5650 only)
C	OK key	L	Redial/Pause key (MF5650 only)
D	Menu key	M	FAX key (MF5650 only)
E	Status Monitor key	N	Directory key (MF5650 only)
D	Collate/2 on 1 key	O	Clear key
F	Image Quality key	P	Coded Dial key (MF5650 only)
G	Enlarge/Reduce key	Q	Energy Saver key
H	Exposure key		

One-Touch Dial Key Test (MF5650 only)

The one-touch dial key test starts once all characters disappear in the operation key test.

The characters 0 to # corresponding to 01 to 12 are displayed, and a character disappears when its one-touch key is pressed. Check to make sure at this time that all characters properly disappear when their one-touch keys are pressed.



F-5-14

5.6.6.5.4 Line signal reception test

0007-2923

The line signal reception test menu is selected by pressing the 9 key 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 3 the frequency can be detectet.

Test Menu 1

Test Menu 1 is selected by pressing the 1 key from the Line Detect menu. When CI is detected from the modular jack, the display changes from OFF to ON and the received frequency is displayed. The on-hook/ off-hook state of the handset and the external telephone is also displayed.

Test Menu 2

Test Menu 2 is selected by pressing the 2 key from the Line Detect menu. When CNG is detected from the

modular jack, the display changes from OFF to ON.

Test Menu 3

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

Chapter 6 APPENDIX

Contents

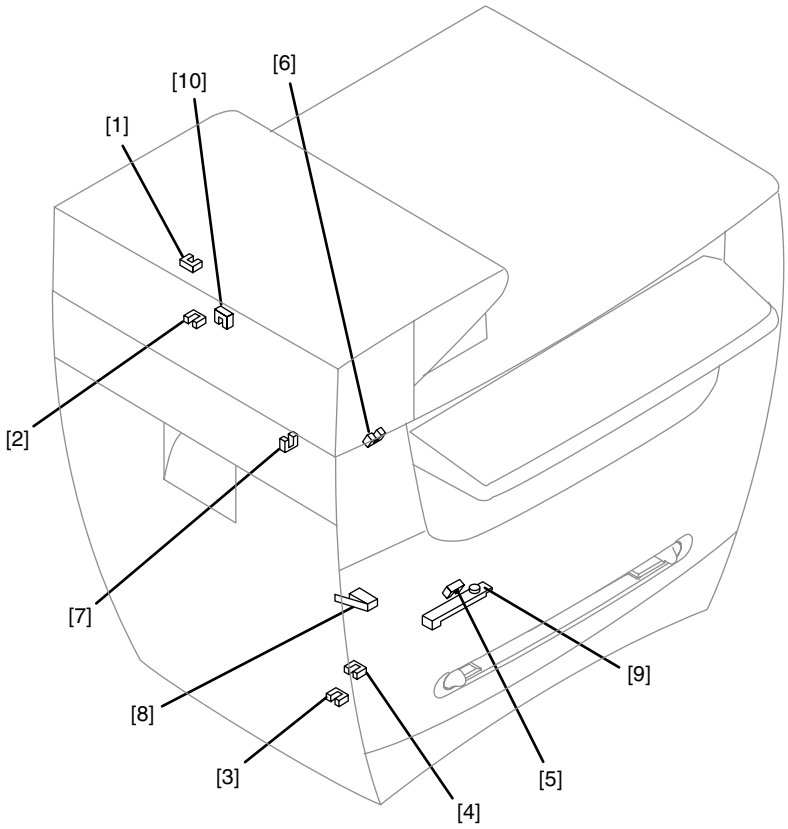
6.1 Outline of Electrical Components 6-1
6.1.1 Sensor 6-1
6.1.1.1 Arrangement of Sensors and Switches 6-1
6.1.2 PCBs 6-2
6.1.2.1 Arrangement of PCBs 6-2

6.1 Outline of Electrical Components

6.1.1 Sensor

6.1.1.1 Arrangement of Sensors and Switches

0006-8933



F-6-1

[1] Document Sensor

Used to detect the presence/absence of a document.

[2] Document Edge Sensor

Used to detect the lead and rear edges of a document.

[3] Cassette Paper Sensor

Used to detect the presence/absence of paper in the cassette.

[4] Manual Feed Paper Sensor

Used to detect the presence/absence of paper in the manual feed section.

[5] Paper Leading Edge Sensor (top sensor)

Used to detect the leading/trailing edge of paper being moved.

[6] Paper Delivery Sensor

Used to monitor the delivery of paper.

[7] Paper Full Sensor

Used to detect the full loading of the paper.

[8] Front Cover Switch

Used to detect the state (open/closed) of the front cover.

[9] Toner Sensor (MF5650 only)

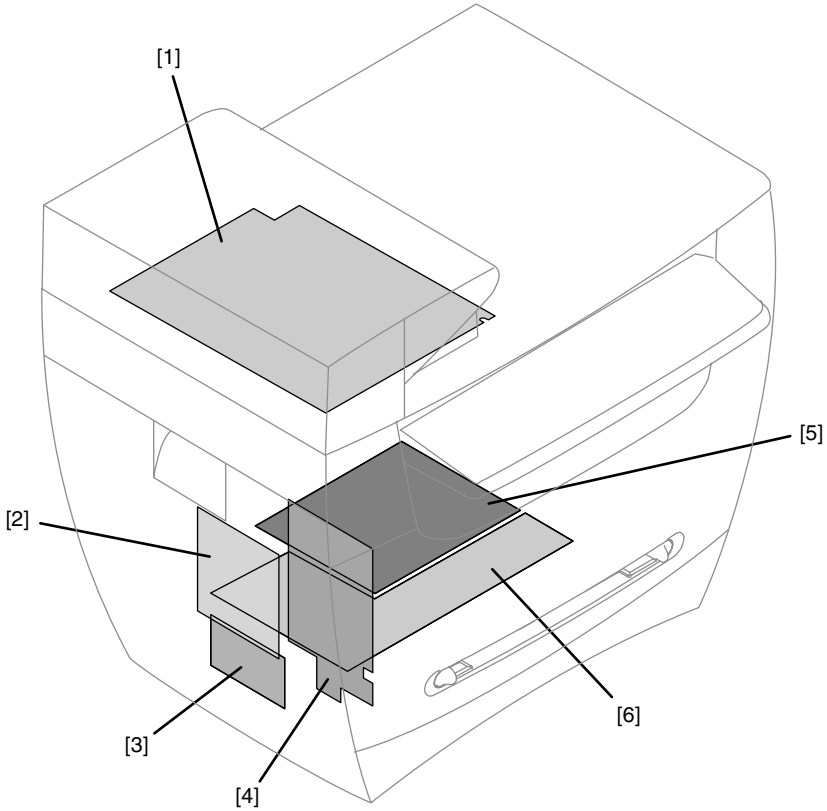
Used to detect the presence/absence of toner in the toner cartridge.

[10] CCD Home Position Sensor

Used to detect the home position of the CCD unit.

6.1.2 PCBs

6.1.2.1 Arrangement of PCBs 0006-8934



F-6-2

[1] SCNT Board

Used to control the whole of the system.

[2] NCU Board (MF5650 only)

Used to control the communication.

[3] Modular Board (MF5650 only)

Used to interface to the telephone line.

[4] DCNT Board

Used to control the operation of the printer unit.

[5] Power Supply Board

Used to control the supply of power to various components.

[6] High-Voltage Power Supply Board

Used to supply high-voltage power to the printer unit.

Jun 17 2004

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