

# NP6045

# SERVICE MANUAL

REVISION 1

**Canon**

MAR. 1997

**FY8-13EL-010**

## **IMPORTANT**

THIS DOCUMENTATION IS PUBLISHED BY CANON INC., JAPAN, TO SERVE AS A SOURCE OF REFERENCE FOR WORK IN THE FIELD.

SPECIFICATIONS AND OTHER INFORMATION CONTAINED HEREIN MAY VARY SLIGHTLY FROM ACTUAL MACHINE VALUES OR THOSE FOUND IN ADVERTISING AND OTHER PRINTED MATTER.

ANY QUESTIONS REGARDING INFORMATION CONTAINED HEREIN SHOULD BE DIRECTED TO THE COPIER SERVICE DEPARTMENT OF THE SALES COMPANY.

THIS DOCUMENTATION IS INTENDED FOR ALL SALES AREAS, AND MAY CONTAIN INFORMATION NOT APPLICABLE TO CERTAIN AREAS.

***COPYRIGHT © 1997 CANON INC.***

***Printed in Japan  
Imprimé au Japon***

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

Prepared by

OFFICE IMAGING PRODUCTS TECHNICAL SUPPORT DEPT. 1  
OFFICE IMAGING PRODUCTS TECHNICAL SUPPORT DIV.

**CANON INC.**

30-2, Shimomaruko 3-chome, Ohta-ku, Tokyo 146 Japan

# INTRODUCTION

This Service Manual provides basic facts and figures needed to service the plain paper copier NP6045 in the field. The NP6045 is designed to enable automated copying work and may be configured with the following system components:

1. Stapler Sorter-E2, Stapler Sorter-G1, Sorter-E1, Sorter-G1
2. RDF-H1

For descriptions on the system components, see their respective service manuals.

This Service Manual covers the copier only, and consists of the following chapters:



- Chapter 1 *General Description* introduces the copier's features and specifications, shows how to operate the copier, and explains how copies are made.
- Chapter 2 *Basic Operation* provides outlines of the copier's various operational workings.
- Chapter 3 *Exposure System* discusses the principles of operation used for the copier's lens drive unit and scanner drive unit. It also explains the timing at which these drive units are operated, and shows how they may be disassembled/assembled and adjusted.
- Chapter 4 *Image Formation System* discusses the principles of how images are formed. It also explains the timing at which the various units involved in image formation are operated, and shows how they may be disassembled/assembled and adjusted.
- Chapter 5 *Pick-Up/Feeding System* explains the principles used from when copy paper is picked up to when a copy is delivered in view of the functions of electrical and mechanical units and in relation to their timing of operation. It also shows how these units may be disassembled/assembled and adjusted.
- Chapter 6 *Fixing System* explains the principles used to fuse toner images to transfer media in view of the functions of electrical and mechanical units and in relation to their timing of operation. It also shows how these units may be disassembled/assembled and adjusted.
- Chapter 7 *Externals/Auxiliary Mechanisms* shows the copier's external parts, and explains the principles used for the copier's various control mechanisms in view of the functions of electrical and mechanical units and in relation to their timing of operation. It also shows how these units may be disassembled/assembled and adjusted.
- Chapter 8 *Installation* introduces requirements for the site of installation, and shows how the copier may be installed using step-by-step instructions.
- Chapter 9 *Maintenance and Servicing* provides tables of periodically replaced parts and consumables/durables and scheduled servicing charts.
- Chapter 10 *Troubleshooting* provides tables of maintenance/inspection, standards/adjustments, and problem identification (image fault/malfunction).

Appendix contains a general timing chart and general circuit diagrams.

---

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.

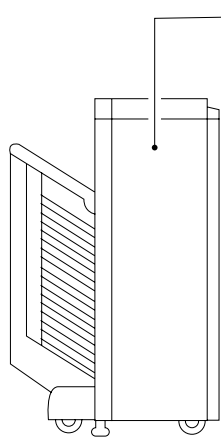
2. In the digital circuits, '1' is used to indicate that the voltage level of a given signal is "High," while '0' is used to indicate "Low." (The voltage value, however, differs from circuit to circuit.)

In 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.

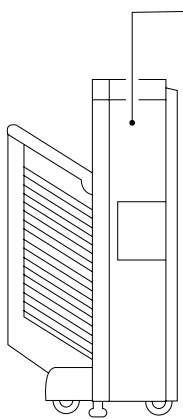
The descriptions in this Service Manual are subject to change without notice for product improvement or other reasons, and major changes will be communicated in the form of *Service Information* bulletins.

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.

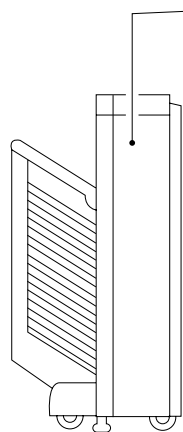
## System Configuration



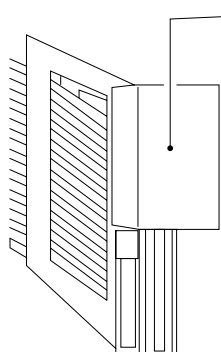
**Stapler Sorter-E2**  
 In addition to the functions of a 20-bin sorter, automatically staples sorted copies. Further, it swings out copies to the front for removal, and is equipped with a multiple stacking function, in which two or more sets of copies may be delivered to a single bin.



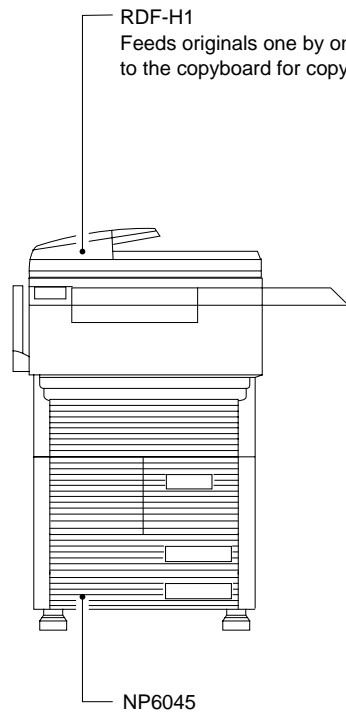
**Stapler Sorter-G1**  
 In addition to the functions of a 20-bin sorter, automatically staples sorted copies.



**Sorter-G1**  
 Is a 20-bin sorter capable of automatic sorting and grouping.



**Sorter-E1**  
 Is a 20-bin sorter capable of automatic sorting and grouping.



**RDF-H1**  
 Feeds originals one by one from a stack to the copyboard for copying.

NP6045

blank page

# CONTENTS

---

## CHAPTER 1 GENERAL DESCRIPTION

---

I. FEATURES.....	1-1		
II. SPECIFICATIONS.....	1-2		
1. Type.....	1-2		
2. System.....	1-2		
3. Performance.....	1-3		
4. Others.....	1-6		
III. NAMES OF PARTS.....	1-9		
A. External View.....	1-9		
B. Cross Section.....	1-11		
		1. Cross Section of the Body.....	1-11
		IV. OPERATIONS.....	1-12
		A. Control Panel.....	1-12
		B. Special Features Mode.....	1-13
		C. User Mode.....	1-14
		1. Types of User Modes.....	1-14
		V. ROUTINE WORK BY THE USER.....	1-18
		VI. IMAGE FORMATION.....	1-19
		A. Outline.....	1-19

---

## CHAPTER 2 BASIC OPERATION

---

I. BASIC OPERATIONS.....	2-1		
A. Functional Construction.....	2-1		
B. Outline of the Electric Circuitry.....	2-2		
C. Basic Sequence of Operations.....	2-4		
1. Basic Sequence of Operations at Power-On (1/2).....	2-4		
2. Basic Sequence of Operations at Power-On (2/2).....	2-5		
3. Basic Sequence of Operations during Copying.....	2-7		
		4. Basic Sequence of Operations for Page Separation.....	2-9
		D. Main Motor (M1) Control Circuit.....	2-11
		1. Outline.....	2-11
		2. Operations.....	2-11
		3. Detecting an Error.....	2-12
		E. Inputs to the DC Controller.....	2-13
		F. Outputs from the DC Controller.....	2-21
		G. Inputs to and Outputs from the Options.....	2-33

---

## CHAPTER 3 EXPOSURE SYSTEM

---

I. BASIC OPERATIONS.....	3-1		
A. Varying the Reproduction Ratio.....	3-1		
II. LENS DRIVE MECHANISM.....	3-2		
A. Moving the Lens.....	3-2		
1. Outline.....	3-2		
2. Moving the Lens.....	3-3		
3. Controlling the Lens Motors.....	3-3		
4. Moving the Lens.....	3-4		
III. SCANNER DRIVE MECHANISM.....	3-6		
A. Driving the Scanner.....	3-6		
1. Outline.....	3-6		
2. Relationship between Scanner Sensor and Signals.....	3-7		
3. Basic Sequence of Operations for Scanner Movement.....	3-8		
4. Sequence of Operations for Scanner Movement (page separation).....	3-9		
		5. Scanner Motor (M3) Control Circuit.....	3-11
		IV. OTHERS.....	3-13
		A. Detecting the Size of Originals.....	3-13
		1. Outline.....	3-13
		2. Operation.....	3-14
		3. Sizes of Originals.....	3-15
		V. DISASSEMBLY AND ASSEMBLY.....	3-17
		A. Scanner Drive System.....	3-17
		1. Removing the Scanner Drive Assembly Motor.....	3-17
		2. Outline of the Scanner Drive Cable.....	3-19
		3. Removing the Scanner Drive Cable.....	3-20
		4. Adjusting the Tension of the Scanner Drive System.....	3-22
		5. Positioning the Mirror.....	3-23

6. Adjusting the Position of the Scanner .....	3-24	4. Removing the Lens X Direction Drive Motor .....	3-29
B. Lens Drive Assembly .....	3-25	5. Attaching the Lens X Direction Drive Belt .....	3-30
1. Removing the Lens Y Direction Drive Motor .....	3-25	6. Attaching the Light-Blocking Belt .....	3-30
2. Removing the Lens Stage Temporarily .....	3-27	7. When Replacing the Light-Blocking Belt .....	3-31
3. Installing the Light-Blocking Belt .....	3-28		

## CHAPTER 4 IMAGE FORMATION SYSTEM

I. PROCESSES .....	4-1	6. Controlling the Activation in Book Frame Erasing Mode .....	4-18
A. Controlling the Surface Potential of the Drum .....	4-1	7. Controlling the Activation in Hole Image Erasing Mode .....	4-19
1. Outline .....	4-1	8. Controlling the Activation of AE Mode .....	4-19
2. Control Method .....	4-2	F. Drum Heater Circuit .....	4-20
3. Potential Measurement Circuit .....	4-5	1. Outline .....	4-20
B. Controlling the Scanning Lamp Intensity .....	4-6	2. Idle Rotation of the Photosensitive Drum and the Developing Cylinder .....	4-22
1. Outline .....	4-6	G. Cleaning the Primary Charging Wire .....	4-23
2. Operations .....	4-6	1. Outline .....	4-23
3. Automatic Exposure Control (AE) .....	4-7	2. Operation of the Primary Charging Wire Cleaning Wire .....	4-23
4. Check Points .....	4-9	H. Cleaning the Pre-Transfer, Transfer, and Separation Charging Wires Automatically .....	4-24
C. Controlling the Primary/Transfer Corona Current .....	4-10	II. DEVELOPING ASSEMBLY AND CLEANING ASSEMBLY .....	4-26
1. Outline .....	4-10	A. Outline .....	4-26
2. Controlling the Primary Corona Current .....	4-10	B. Detecting the Toner Level and Controlling the Supply Operation .....	4-27
3. Controlling the Transfer Corona Current .....	4-11	C. Controlling the Developing Bias/Roller Electrode .....	4-29
D. Controlling the Separation/Pre-Transfer Corona Current .....	4-13	1. Outline .....	4-29
1. Outline .....	4-13	2. Control Timing .....	4-29
2. Turning ON and OFF the Separation/ Pre-Transfer Corona Current .....	4-15	3. Developing Bias Control Circuit .....	4-32
3. Separation Corona Current (DC component) .....	4-15	4. Roller Electrode Bias Control Circuit .....	4-33
4. Pre-Transfer Corona Current (DC component) .....	4-15	D. Detecting the Locking of the Waste Toner Feeding Screw .....	4-35
5. Controlling the DC Component Overcurrent of the Separation/ Pre-Transfer Corona Current .....	4-16	III. DISASSEMBLY AND ASSEMBLY .....	4-36
E. Controlling the Blank Exposure Lamp (LEDs) .....	4-17	A. Scanning Lamp .....	4-36
1. Outline .....	4-17	1. Removing the Scanning Lamp .....	4-36
2. Controlling the Activation in Reduce Mode .....	4-17	2. Removing the Thermal Fuse .....	4-37
3. Controlling the Activation in Direct Mode .....	4-17	B. Standard White Plate Assembly .....	4-38
4. Controlling the Activation in Sheet Frame Erasing Mode .....	4-17	C. Pre-Exposure Lamp Unit .....	4-40
5. Controlling the Activation in Original Frame Erasing Mode .....	4-18	1. Removing the Pre-Exposure Lamp Unit .....	4-40



1. Removing the Blank Exposure Lamp Assembly.....	4-41	5. Adjusting the Height of the Charging Wire .....	4-53
E. Photosensitive Drum .....	4-42	6. Cleaning the Primary Charging Assembly Anti-Stray Toner Sheet .....	4-54
1. Removing the Drum Unit.....	4-42	K. Developing Assembly .....	4-55
2. Replacing the Drum Heater.....	4-44	1. Removing from the Developing Assembly .....	4-55
3. Installing the Photosensitive Drum.....	4-44	2. Removing the Blade Unit .....	4-56
F. Potential Sensor Assembly .....	4-44	3. Installing the Blade .....	4-56
1. Removing the Potential Sensor Assembly .....	4-44	4. Removing the Developing Cylinder and the Magnetic Seal .....	4-57
G. Primary Charging Assembly.....	4-45	5. Cleaning the Developing Assembly Anti-Stray Toner Sheet .....	4-59
1. Removing the Primary Charging Assembly .....	4-45	L. Hopper Assembly .....	4-60
H. Pre-Transfer Charging Assembly ..	4-45	1. Removing the Hopper Assembly .....	4-60
1. Removing the Pre-Transfer Charging Assembly .....	4-45	M. Drum Cleaner .....	4-61
I. Transfer/Separation Charging Assembly .....	4-46	1. Construction .....	4-61
1. Removing the Transfer/Separation Charging Assembly .....	4-46	2. Removing the Cleaning Blade..	4-61
2. Installing the Transfer/Separation Charging Assembly .....	4-47	3. Installing the Cleaning Blade....	4-62
J. Charging Wire .....	4-49	4. Installing the Side Seal.....	4-63
1. Outline .....	4-49	5. Cleaning the Cleaning Side Scraper .....	4-63
2. Removing the Primary Charging Assembly Wire Cleaner .....	4-49	N. Separation Claw/Separation Claw Drive Assembly .....	4-65
3. Installing the Charging Wire .....	4-49	1. Removing the Separation Claw/Separation Drive Assembly from the Drum Unit ..	4-65
4. Routing the Grid for the Primary Charging Assembly.....	4-51	O. Waste Toner Feeding Assembly....	4-66

---

## CHAPTER 5 PICK-UP/FEEDING SYSTEM

---

I. PICK-UP/FEEDING SYSTEM .....	5-1	2. Sequence of Pick-Up Operations .....	5-12
A. Outline .....	5-1	B. Lifter Operations.....	5-13
II. PICK-UP FROM THE CASSETTE .....	5-3	1. Operations .....	5-13
A. Pick-Up Operation .....	5-3	2. Deck Limit Detection .....	5-14
1. Outline .....	5-4	C. Detecting Paper for the Deck.....	5-15
2. Sequence of Pick-Up Operations .....	5-4	1. Detecting the Presence/Absence of Paper.....	5-15
B. Cassette Lifter Operations.....	5-5	2. Detecting the Deck Size.....	5-15
C. Detecting the Size of Copy Paper in the Cassette.....	5-7	D. High-Speed Pick-Up.....	5-15
1. Outline .....	5-7	IV. PICK-UP FROM THE MULTIFEEDER.....	5-16
2. Detecting the Size of Paper .....	5-7	A. Pick-Up Operation .....	5-16
3. Markings on the Width Guide Rail .....	5-8	B. Detecting the Size of Paper in the Multifeeder.....	5-17
4. Paper Sizes .....	5-9	C. Sequence of Operations (multifeeder) .....	5-18
5. Registering Paper Width Basic Value.....	5-10	V. CONTROLLING THE REGISTRATION CLUTCH .....	5-19
III. PICK-UP FROM THE PAPER DECK....	5-11	VI. MAKING TWO-SIDED/OVERLAY COPIES (1st SIDE) .....	5-20
A. Outline .....	5-11		
1. Pick-Up Operations .....	5-12		

A. Two-Sided/Overlay Copy Operation.....	5-20	12. Internal Delivery Paper Stationary Jam .....	5-48
1. Sequence of Operations for Making Two-Sided/Overlay Copies (1st side) .....	5-21	13. Holding Tray Inlet Delay Jam ...	5-49
B. Making Two-Sided Copies (2nd side) .....	5-22	14. Holding Tray Inlet Stationary Jam.....	5-49
1. Sequence of Operations for Making Two-Sided Copies (2nd side) .....	5-23	15. Holding Tray Re-Pick Up Delay Jam.....	5-50
C. Making Overlay Copies (2nd side) .....	5-24	16. Holding Tray Registration Delay Jam .....	5-50
1. Outline .....	5-24	17. Holding Tray Registration Stationary Jam .....	5-51
2. Outline of Operations .....	5-25	18. Holding Tray Feeding 1/2 Delay Jam .....	5-51
3. Sequence of Operations for Overlay Copies (2nd side).....	5-27	19. Holding Tray Feeding 1/2 Stationary Jam .....	5-52
D. Reversal Delivery .....	5-28	20. Fixing Assembly Separation Claw Stationary Jam .....	5-52
1. Sequence of Reversal Delivery Operations.....	5-29	VIII. DISASSEMBLY AND ASSEMBLY.....	5-53
E. Switching Paper Sizes for Two-Sided/Overlay/Reversal Delivery Copies .....	5-30	A. Multifeeder Assembly .....	5-53
1. Movement of the Paper Size Guide.....	5-30	1. Removing the Multifeeder Assembly .....	5-53
2. Movement of the Paper Jogging Plate and the Rear Guide Plate.....	5-31	2. Removing the Pick-Up Roller ...	5-54
3. Detecting Copy Paper .....	5-32	3. Installing the Pick-Up Roller .....	5-54
F. Re-Pick Up from the Holding Tray.....	5-33	4. Removing the Separation Roller .....	5-55
G. Skipping.....	5-34	5. Removing the Feeding Roller...5-57	
1. Outline .....	5-34	6. Removing the Multifeeder Paper Sensor .....	5-58
2. Operation.....	5-34	7. Attaching the Side Guide Timing Belt for the Multifeeder Assembly .....	5-60
3. Skip Mode (copying an even number of originals) .....	5-35	8. Installing the Feeding Roller of the Multifeeder.....	5-60
4. Skip Mode (copying an odd number of originals) .....	5-37	9. Adjusting the Pick-Up/Feeding Roller Pressure (multifeeder) ...	5-61
5. Reverse Delivery .....	5-39	10. Positioning the Pick-Up Roller Releasing Solenoid (multifeeder) .....	5-61
VII. DETECTING JAMS .....	5-40	B. Paper Deck Assembly .....	5-62
A. Outline .....	5-40	1. Removing the Paper Deck Assembly from the Copier.....	5-62
1. Registration Roller Delay Jam..	5-43	2. Removing the Lifter Cable.....	5-63
2. Registration Roller Stationary Jam.....	5-43	3. Changing the Deck Paper Size .....	5-68
3. Pick-Up Vertical Path Feeding 0/1 Delay Jam .....	5-44	4. Adjusting the Registration for the Deck .....	5-70
4. Pick-Up Vertical Path Feeding 0/1 Stationary Jam .....	5-44	C. Cassette/Paper Deck Pick-Up Assembly .....	5-71
5. Pick-Up Vertical Path Feeding 2-4 Delay Jam .....	5-45	1. Removing the Pick-Up Assembly from the Copier.....	5-71
6. Pick-Up Vertical Path Feeding 2-4 Stationary Jam .....	5-45	2. Removing the Pick-Up Roller ...	5-71
7. Fixing Assembly Outlet Delay Jam.....	5-46	3. Removing the Feeding Roller...5-73	
8. Fixing Assembly Outlet Stationary Jam .....	5-46	4. Removing the Separation Roller .....	5-73
9. External Delivery Delay Jam ....	5-47	5. Adjusting the Separation Roller Pressure.....	5-75
10. External Delivery Stationary Jam.....	5-47	6. Orientation of the Separation Roller .....	5-76
11. Internal Delivery Delay Jam .....	5-48		

7. Orientation of the Feeding Roller of the Cassette/Deck Pick-Up Assembly .....	5-76	8. Removing the Y Motor Home Position Sensor .....	5-92
8. Position of the Pick-Up Roller Releasing Solenoid of the Deck .....	5-77	9. Removing the Holding Tray Inlet Assembly .....	5-92
9. Position of the Pick-Up Roller Releasing Solenoid for the Cassette .....	5-77	10. Removing the Feeding Roller/Separation Belt Assembly .....	5-94
10. Adjusting Registration for the Cassette .....	5-77	11. Removing the Feeding Roller .....	5-95
D. Pick-Up Vertical Path Roller Assembly .....	5-78	12. Removing the Separation Belt Assembly .....	5-96
1. Removing the Pick-Up Vertical Path Roller Assembly .....	5-78	13. Adjusting the Pressure of the Separation Roller of the Holding Tray .....	5-96
E. Registration Feeding Assembly .....	5-79	14. Position of the Holding Tray Paper Deflecting Plate Drive Solenoid .....	5-97
1. Construction .....	5-79	15. Removing the Side Guide Plate .....	5-97
2. Removing the Registration Feeding Assembly .....	5-79	16. Removing the Holding Tray X Motor .....	5-98
3. Removing the Registration Roller (upper rubber) .....	5-80	17. Removing the Holding Tray Re-Circulating Motor .....	5-98
F. Feeding Assembly .....	5-82	18. Removing the Holding Tray Paper Jogging Solenoid .....	5-99
1. Construction .....	5-82	19. Installing the Holding Tray Paper Jogging Guide Plate Assembly .....	5-101
2. Removing the Fixing/Feeding Unit .....	5-82	20. Installing the Holding Tray Assembly Side Guide Plate Assembly .....	5-101
3. Removing the Feeding Belt .....	5-83	21. Attaching the Timing Belt for the Holding Tray Assembly Paper Jogging Guide Plate .....	5-102
G. Holding Tray Assembly .....	5-86	22. Position of the Holding Tray Paper Jogging Solenoid .....	5-102
1. Construction .....	5-86	H. Holding Tray Feeding Assembly .....	5-103
2. Removing the Holding Tray Assembly from the Copier .....	5-87	1. Removing the Holding Tray Feeding Assembly from the Copier .....	5-103
3. Removing the Holding Tray Re-Pick Up Assembly .....	5-87	2. Removing the Sensor from the Holding Tray .....	5-104
4. Removing the Holding Tray Registration Paper Sensor .....	5-88		
5. Removing the Re-Pick Up Roller .....	5-89		
6. Removing the Holding Tray Driver PCB .....	5-89		
7. Removing the Holding Tray Y Motor .....	5-90		

## CHAPTER 6 FIXING SYSTEM

I. BASIC OPERATIONS .....	6-1	1. Outline .....	6-13
A. Outline .....	6-1	2. Scanning Lamp Error Activation Detection Circuit .....	6-14
B. Fixing Drive Assembly .....	6-2	3. Fixing Heater Error Activation Detection Circuit .....	6-15
C. Controlling the Fixing Temperature .....	6-3	II. DISASSEMBLY AND ASSEMBLY .....	6-16
D. Reciprocating Mechanism for the Main Thermistor (TH1) .....	6-8	A. Fixing Assembly .....	6-16
E. Reciprocating Mechanism for the Upper Separation Claw .....	6-9	1. Construction .....	6-16
F. Fixing Heater SSR Error Detection Circuit .....	6-10	2. Locking Mechanism .....	6-16
G. Locking the Fixing/Feeding Unit .....	6-12	3. Removing the Fixing Cleaning Belt .....	6-17
H. Error Detection Circuit .....	6-13	4. Installing the Fixing Cleaning Belt .....	6-19

5. Removing the Upper Fixing Unit.....6-20	17. Removing the Sub Thermistor (TH2) Unit.....6-32
6. Removing the Fixing Heater.....6-22	B. Delivery Assembly.....6-33
7. Installing the Fixing Heater.....6-24	1. Construction.....6-33
8. Removing the Upper Fixing Roller.....6-24	2. Removing the Delivery Upper Guide (fixing delivery assembly).....6-33
9. Installing the Upper Fixing Roller.....6-26	3. Removing the Fixing/Feeding Locking Assembly.....6-34
10. Removing the Thermal Switch.....6-27	4. Removing the External Delivery Roller.....6-34
11. Removing the Main Thermistor (TH1).....6-27	5. Removing the External Delivery Sensor and the Internal Delivery Sensor.....6-36
12. Removing the Lower Separation Claw Assembly.....6-28	6. Removing the Fixing Assembly Outlet Paper Sensor Assembly.....6-36
13. Removing the Lower Roller.....6-29	7. Removing the Internal Delivery Roller.....6-37
14. Removing the Upper Separation Claw.....6-30	
15. Adjusting the Nip (tightening the pressure adjusting nut).....6-30	
16. Adjusting the Fixing Clutch.....6-31	

## CHAPTER 7 EXTERNALS/AUXILIARY MECHANISMS

I. CONTROL PANEL.....7-1	1. Removing the Front Door Switch Assembly.....7-26
A. Outline.....7-1	2. Removing the Multifeeding Door Switch Assembly.....7-27
B. Operation.....7-1	3. Installing the Drum Heater Switch.....7-27
1. Data Communication.....7-1	D. Fan Unit.....7-28
2. LCD Processing.....7-2	1. Removing the Scanner Cooling Fan.....7-28
3. LCD Contrast Automatic Adjustment.....7-3	2. Removing the Air Exhaust Fan.....7-28
4. Touch Switch Input.....7-4	3. Removing the Fixing Air Exhaust Fan.....7-29
II. FANS.....7-5	4. Removing the Developing Fan.....7-29
III. POWER SUPPLY.....7-8	5. Removing the Cleaner Fan.....7-30
A. Outline of Power Supply.....7-8	6. Removing the Feeding Fan.....7-31
B. Power Supply Circuit.....7-9	E. Removing the Counter Assembly.....7-31
C. Power Supply for Date/Time Display.....7-11	F. Main Motor Assembly.....7-32
IV. DISASSEMBLY AND ASSEMBLY.....7-12	1. Removing the Main Motor.....7-32
A. External Covers.....7-12	G. Fixing/Waste Toner Drive Assembly.....7-32
1. Removing the Front Door.....7-13	1. Construction.....7-32
2. Removing the Inside Upper Cover.....7-15	2. Removing the Waste Toner Bottle.....7-33
3. Removing the Fixing/Feeding Unit Front Cover.....7-15	3. Removing the Fixing/Waste Toner Drive Assembly.....7-33
4. Removing the Rear Cover.....7-16	H. Drive Assembly (drum/developing assembly).....7-35
5. Sliding Out the Hopper Assembly.....7-16	1. Construction.....7-35
6. Removing the Process Unit.....7-17	2. Removing the Drive Assembly.....7-35
7. Installing the Process Unit.....7-19	I. Vertical Path Drive Assembly.....7-36
B. Control Panel.....7-20	1. Construction.....7-36
1. Removing the Control Panel from the Copier.....7-20	2. Removing the Vertical Path Drive Assembly.....7-37
2. Removing the Control Panel PCB.....7-24	
3. Removing the Touch Panel.....7-24	
4. Removing the Control Panel CPU PCB.....7-25	
C. Door Switch Assembly.....7-26	

J. Pick-Up Drive Assembly.....7-39	N. Attaching the Drive Belt.....7-45
1. Construction .....7-39	O. DC Controller PCB .....7-46
2. Removing the Pick-Up Drive Assembly .....7-39	1. Removing the DC Controller PCB .....7-46
K. Duplexing Unit Drive 1 Assembly..7-40	2. Points to Note When Replacing the DC Controller PCB .....7-46
1. Construction .....7-40	P. DC Power Supply Assembly .....7-47
2. Removing the Duplexing Unit Drive 1 Assembly .....7-40	1. Removing the DC Power Supply Assembly .....7-47
L. Lifter Drive Assembly .....7-41	Q. High-Voltage Transformer Assembly .....7-48
1. Construction .....7-41	1. Remove the High-Voltage Transformer Assembly .....7-48
2. Removing the Lifter Assembly .7-42	R. Power Supply Input Assembly .....7-49
M. Cassette Pick-Up Drive Assembly .....7-43	
1. Construction .....7-43	
2. Removing the Cassette Pick-Up Drive Assembly.....7-43	

---

## CHAPTER 8 INSTALLATION

---

I. SELECTING THE SITE .....8-1	F. Checking the Developing Assembly .....8-17
II. UNPACKING AND INSTALLATION....8-3	G. Installing the Pick-Up Assembly ....8-19
A. Unpacking.....8-4	H. Supplying Toner.....8-20
B. Installing the Scanner.....8-6	I. Setting Images/Functions and User Mode .....8-24
C. Installing the Fixing Assembly.....8-7	III. RELOCATING THE MACHINE.....8-28
D. Installing the AP Kit and the Charging Assembly .....8-9	IV. INSTALLING THE CONTROL CARD V .....8-29
E. Installing the Copy Tray.....8-15	
1. Replacing the Delivery Gear ....8-15	
2. Replacing the Leaf Springs of the Delivery Roller .....8-16	

---

## CHAPTER 9 MAINTENANCE AND SERVICING

---

I. PERIODICALLY REPLACED PARTS ...9-1	III. SCHEDULED SERVICING .....9-4
II. CONSUMABLES AND DURABLES ...9-2	IV. SCHEDULED SERVICING CHART ...9-6
A. Copier .....9-2	A. Copier .....9-6
B. RDF-H1 .....9-3	B. RDF-H1 .....9-8

---













## CHAPTER 10 TROUBLESHOOTING

---

I. MAINTENANCE AND INSPECTION ..10-3	2. Adjusting the Leading Edge Non-Image Width (registration) .....10-5
A. Image Adjustment Basic Procedure .....10-3	3. Adjusting the Left/Right Registration (paper deck and cassette position) .....10-5
B. Points to Note for Scheduled Servicing.....10-4	4. Adjusting the Left/Right Registration (holding tray position; 2nd side of a two- sided/overlay copy) .....10-7
II. STANDARDS AND ADJUSTMENTS .....10-5	
A. Image Adjustment .....10-5	
1. Adjusting the Leading Edge Margin .....10-5	

5. Adjusting the Left/Right Margin .....	10-8	11. Adjusting the Pick-Up Roller Releasing Solenoid (multifeeder) .....	10-27
6. AE Auto Adjustment .....	10-8	12. Routing the Timing Belt for the Multifeeder Assembly Side Guide .....	10-27
7. Adjusting the AE Slope .....	10-9	13. Adjusting the Position of the Delivery Paper Deflecting Drive Solenoid .....	10-28
B. Exposure System .....	10-10	14. Adjusting the Position of the Holding Tray Paper Deflecting Plate Drive Solenoid .....	10-28
1. Adjusting the Scanner Home Position .....	10-10	15. Installing the Holding Tray Assembly Side Guide Assembly .....	10-29
2. Routing the Scanner Drive Cable .....	10-11	16. Installing the Holding Tray Paper Jogging Guide Assembly .....	10-29
3. Adjusting the Tension of the Scanner Cable .....	10-12	17. Installing the Timing Belt for the Holding Tray Assembly Paper Jogging Guide Plate .....	10-30
4. Adjusting the Mirror Position ..	10-12	18. Adjusting the Position of the Holding Tray Paper Jogging Solenoid .....	10-30
5. Cleaning the Mirror (No. 5 mirror) .....	10-13	19. Installing the Drive Belt .....	10-31
6. Installing the Light-Blocking Belts .....	10-13	E. Fixing System .....	10-32
7. Installing the Lens X Direction Drive Belt .....	10-14	1. Points to Note When Handling the Fixing Heater .....	10-32
C. Image Formation System .....	10-15	2. Position of the Fixing Assembly Paper Guide .....	10-32
1. Routing the Grid for the Primary Charging Assembly ..	10-15	3. Adjusting the Pressure of the Lower Roller (nip) .....	10-33
2. Adjusting the Height of the Charging Wire .....	10-17	4. Adjusting the Fixing Clutch .....	10-34
3. Adjusting the Blank Exposure Lamp .....	10-18	F. Electrical System .....	10-35
4. Position of the Roller Electrode .....	10-19	1. When Replacing the DC Controller PCB .....	10-35
5. Position of the Side Seal in the Cleaning Assembly .....	10-19	2. Checking the Surface Potential Control System .....	10-35
6. Cleaning the Cleaner Side Scraper .....	10-19	3. Checking the Potential Control System .....	10-39
D. Pick-Up/Feeding System .....	10-21	4. Potential Control System Conversion Table .....	10-41
1. Orientation of the Pick-Up Roller (cassette/deck) .....	10-21	5. Checking the Environment Sensor .....	10-46
2. Orientation of the Separation Roller (cassette/deck) .....	10-22	6. Checking the Photointerrupters .....	10-46
3. Orientation of the Feeding Roller (cassette/deck) .....	10-22	7. Registering the Cassette/Multifeeder Paper Width Basic Value (*4*) .....	10-53
4. Orientation of the Pick-Up Roller (multifeeder) .....	10-23	III. TROUBLESHOOTING IMAGE FAULTS .....	10-54
5. Orientation of the Feeding Roller (multifeeder) .....	10-24	A. Making Initial Checks .....	10-54
6. Adjusting the Pressure of the Separation Roller (cassette/deck) .....	10-24	1. Site of Installation .....	10-54
7. Adjusting the Pressure of the Separation Roller (holding tray) .....	10-25	2. Checking the Originals .....	10-54
8. Adjusting the Pressure of the Pick-Up/Feeding Roller (multifeeder) .....	10-25	3. Copyboard Cover, Copyboard Glass, and Standard White Plate .....	10-54
9. Positioning the Pick-Up Roller Releasing Solenoid (cassette) .....	10-26	4. Charging Assemblies .....	10-54
10. Adjusting the Position of the Pick-Up Roller Releasing Solenoid (deck) .....	10-26		

5. Checking the Developing Assembly.....	10-55	12.E030 (The total copy counter fails to operate.) .....	10-82
6. Checking the Paper.....	10-55	13.E031 (The option counter has an open circuit.).....	10-82
7. Checking the Periodically Replaced Parts.....	10-55	14.E050 .....	10-83
8. Others.....	10-55	15.E051 .....	10-83
B. Image Fault Samples .....	10-58	16.E202 (Locks the keys but does not indicate a code.).....	10-83
C. Troubleshooting Image Faults.....	10-59	17.E203 .....	10-84
1. The copy is too light. (halftone area only) .....	10-59	18.E204 (Locks the keys but does not indicate a code.).....	10-84
2. The copy is too light. (solid black also) .....	10-60	19.E210 (The lens X direction drive system has an error.) ....	10-84
3. The copy is too light. (overall, considerably) .....	10-60	20.E212 (The lens Y direction drive system has an error.) ....	10-84
4. The copy has uneven density. (darker at front) .....	10-62	21.E240 .....	10-85
5. The copy has uneven density. (lighter at front).....	10-62	22.E243 .....	10-85
6. The copy is foggy. (overall) ....	10-63	23.E710/E711 .....	10-85
7. The copy has vertical fogging.....	10-64	24.E712 .....	10-85
8. The copy has black lines. (vertical, fuzzy, thick).....	10-64	25.E713 .....	10-86
9. The copy has black lines. (vertical, thin).....	10-65	26.E800 .....	10-86
10.The copy has white spots. (vertical).....	10-66	27 E802 .....	10-87
11.The copy has white lines. (vertical).....	10-66	28.AC power is absent. ....	10-88
12.The copy has white spots. (horizontal) .....	10-68	29.DC power is absent.....	10-89
13.The back of the copy is soiled. ....	10-69	30.Pick-up fails.....	10-90
14.The copy has fixing faults. ....	10-70	31.The deck lifter fails to move up. ....	10-91
15., 16., 17. The copy has leading edge displacement. ....	10-71	32.Pick-up fails. (cassette pick-up).....	10-92
18.The copy has a blurred or fuzzy image. ....	10-72	33.The lifter fails to move up. (cassette pick-up).....	10-94
19.The copy has horizontal fogging.....	10-73	34.Pick-up fails. (multifeeder).....	10-95
20.The copy has poor sharpness.....	10-73	35.The vertical path roller fails to rotate. ....	10-96
21.The copy is blank. ....	10-74	36.The registration roller fails to rotate. ....	10-96
22.The copy is completely black...	10-74	37.The scanner fails to rotate forward. ....	10-97
IV. TROUBLESHOOTING		38.The scanner fails to move in reverse. ....	10-97
MALFUNCTIONS .....	10-75	39.The blank exposure lamp fails to turn ON.....	10-98
A. Troubleshooting Malfunctions .....	10-75	40.The pre-exposure lamp fails to turn ON.....	10-98
1. E000 .....	10-75	41.The pre-exposure lamp fails to turn ON.....	10-99
2. E001 .....	10-76	42.The hopper motor (M10) fails to operate. ....	10-100
3. E002 .....	10-77	43.The hopper motor (M11) fails to operate. ....	10-101
4. E003 .....	10-77	44.The drum heater fails to operate .....	10-101
5. E004 .....	10-77	45.The lens fails to move. ....	10-102
6. E005 .....	10-78	46.The Add Toner indicator fails to turn ON.....	10-103
7. E006 .....	10-78	47.The Add Toner message fails to turn OFF. ....	10-103
8. E010 .....	10-78	48.The Control Card Set indicator fails to turn ON. ....	10-104
9. E013 .....	10-79		
10.E015 .....	10-80		
11.E020 .....	10-81		

49. The Control Card Set indicator fails to turn OFF.....	10-104	D. Clutches .....	10-124
50. Paper jams at the fixing assembly inlet. ....	10-104	E. Lamps, Heaters, and Photosensors .....	10-126
51. The Add Paper indicator fails to turn OFF. ....	10-104	F. PCBs .....	10-128
52. The fixing heater fails to turn ON.....	10-105	G. Variable Resistors, Light-Emitting Diodes, and Check Pins by PCB .....	10-130
V. TROUBLESHOOTING FEEDING PROBLEMS.....	10-106	1. DC Controls PCB .....	10-130
A. Copy Paper Jams.....	10-106	2. AC Driver PCB .....	10-133
1. Pick-up assembly .....	10-107	3. DC Power Supply PCB .....	10-133
2. Separation/feeding assembly .....	10-108	4. Control CPU PCB.....	10-134
3. Fixing/delivery assembly .....	10-109	5. Holding Tray Driver PCB.....	10-135
4. Fixing/delivery assembly (reversal delivery).....	10-109	6. Potential Measurement PCB..	10-136
5. Cleaning assembly .....	10-110	7. HVT1 PCB.....	10-137
6. Holding tray assembly (copying on 1st side of two-sided/overlay copy) .....	10-110	8. HVT2 PCB.....	10-138
7. Holding tray assembly (re-pick up) .....	10-111	9. Inverter PCB.....	10-138
8. Holding tray assembly (overlay re-pick up) .....	10-111	10. Lamp Regulator PCB .....	10-139
9. Holding tray feeding assembly .....	10-112	11. Counter PCB .....	10-139
B. Feeding Failure .....	10-113	VII. SERVICE MODE .....	10-140
1. Double feeding .....	10-113	A. Outline .....	10-140
2. Wrinkling.....	10-113	B. Using Service Mode .....	10-140
VI. ARRANGEMENT/FUNCTIONS OF THE ELECTRICAL PARTS .....	10-114	C. Using Adjustment Mode and Option Setting Mode .....	10-141
A. Sensors .....	10-114	D. Control Display Mode (  1  ) ....	10-142
B. Switches and Solenoids .....	10-118	E. I/O Display Mode (  2  ) .....	10-157
C. Motors and Fans .....	10-122	F. Adjustment Mode (  3  ) .....	10-193
		G. Function Mode (  4  ) .....	10-211
		H. Options Mode (  5  ) .....	10-222
		I. Counter Mode (  6  ) .....	10-231
		VIII. SELF DIAGNOSIS .....	10-237
		A. Copier .....	10-237
		B. RDF Self Diagnosis .....	10-242
		C. Sorter Self Diagnosis .....	10-243

## APPENDIX

A. GENERAL TIMING CHART .....	A-1	D. RDF-H1 GENERAL CIRCUIT DIAGRAM.....	A-7
B. SIGNALS AND ABBREVIATIONS ...	A-2	E. SPECIAL TOOLS LIST .....	A-9
1. Signals.....	A-2	F. SOLVENTS AND OILS.....	A-10
2. Abbreviations.....	A-3		
C. GENERAL CIRCUIT DIAGRAM....	A-5		