

iR1600/iR2000/ iR1610/iR2010 SERIES SERVICE MANUAL

REVISION 0

Canon

MAR. 2002

FY8-13HS-000

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Printed in Japan

Imprimé au Japon








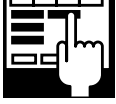


Caution

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

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1 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.
	Refers to the Copier Basics Series for a better understanding of the contents.

2 Outline of the Manual

This Service Manual provides basic facts and figures needed to service the iR1600/iR2000. Of the machine's accessories, this manual covers the cassette unit and inner 2-way tray; for other accessories including the ADF, see its own Service Manual.

In this manual, the 1-Cassette Unit-F1, 2-Cassette Unit-G1 and 3-Cassette Unit-H1 are collectively called "cassette unit," and the Inner 2-Way Tray-B1 is referred to as the inner 2-way tray.

This Service Manual consists of the following chapters:



Chapter 1 Introduction:	features, specifications, operation, system construction, routine maintenance by the user, safety, reproduction processes
Chapter 2 Basic Operation:	basic operation, outline of electrical circuitry, basic sequence
Chapter 3 Image Reading/ Processing System:	principles of operation of the exposure system, principles of operation of the image processing system, timing of operation; disassembly/assembly and adjustment
Chapter 4 Laser Exposure System:	principles of operation of the image formation system, timing of operation; disassembly/assembly
Chapter 5 Image formation system:	standards, adjustments, troubleshooting tables
Chapter 6 Pickup/Feeding System:	principles of operation of the pickup/feeding system, timing of operation; disassembly/assembly and adjustment
Chapter 7 Fixing System:	principles of operation of the fixing system, timing of operation; disassembly/assembly and adjustment
Chapter 8 Externals and Auxiliary Control System:	principles of operation of the externals/auxiliary control system, timing of operation; disassembly/assembly and adjustment
Chapter 9 Cassette Unit:	principles of operation of the pickup system; disassembly/assembly and adjustments
Chapter 10 Inner 2-Way Tray:	principles of operation; disassembly/assembly and adjustment
Chapter 11 Installation:	site requirements and installation procedure
Chapter 12 Maintenance and Inspection:	table of periodically replaced parts, table of durables, scheduled servicing chart
Chapter 13 Troubleshooting:	maintenance and inspection, standards/adjustment, troubleshooting image faults/malfunctions; service mode, self diagnosis
Chapter 14 Version up:	version up
Appendix:	general timing chart, general circuit diagram

The descriptions are subject to change for product improvement, and major changes will be communicated in the form of Service Information bulletins.

All service persons are expected to go through the contents of this Service Manual and Service Information bulletins and have a good understanding of the machine, readying themselves to promptly respond to the needs of the field (i.e., identifying and correcting faults).

The descriptions in this Service Manual are based on the following rules:

1. In each chapter, the uses of the function in question and its relationship to electrical and mechanical systems are discussed and the timing of operation of its associated parts is explained by means of outlines and diagrams.

In the diagrams, the symbol  represents a mechanical path, while the symbol  with a name next to it indicates the flow of an electric signal.

The expression ‘turn on the power’ means turning on the power switch, closing the front door, and closing the delivery door so that the machine will be supplied with power.

2. In circuit diagrams (digital), a signal whose level is High is expressed as being ‘1’, while a signal whose level is Low is expressed as being ‘0’; the level of voltage, however, varies from circuit to circuit.

The machine uses CPUs, whose internal mechanisms cannot be checked in the field, and, therefore, are not explained. In addition, the machine’s PCBs are not intended for repairs at the user’s and, therefore, are explained by means of block diagrams: two types are used, i.e., between sensors and inputs of PCBs equipped with a control or drive function and between outputs equipped with a control or drive function and loads; in addition, functional block diagrams are used at times.

Changes made to the machine for product improvement are communicated in the form of a Service Information bulletin as needed. All service persons are expected to go through all service documentation including the bulletins and be equipped to respond to the needs of the field (as by being able to identify possible causes of problems).

This service manual covers the models shown in the following table. Be sure to have a good understanding of the difference from model to model before referring to this manual.

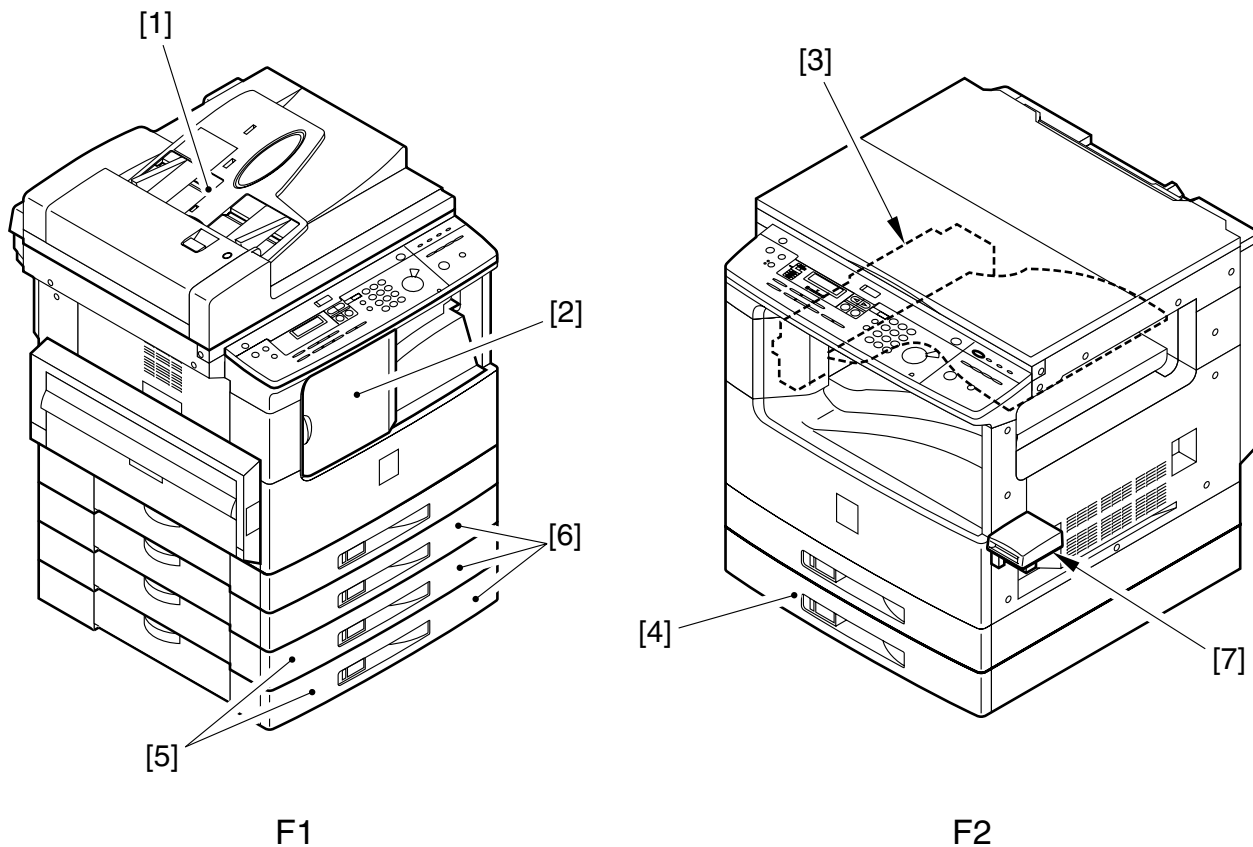
Model	ADF function	Fax function	Printer function	Cassette Type	Copying speed (cpm) at Direct
iR1600		*1		1-cassette	16cpm/LTR
iR2000		*1		2-cassette	20cpm/LTR
iR1610F	√	√		1-cassette	16cpm/LTR
iR2010F	√	√		2-cassette	20cpm/LTR

The notation “√” indicates that the item in question is available.

*1 : Fax function not supported.

System Configuration

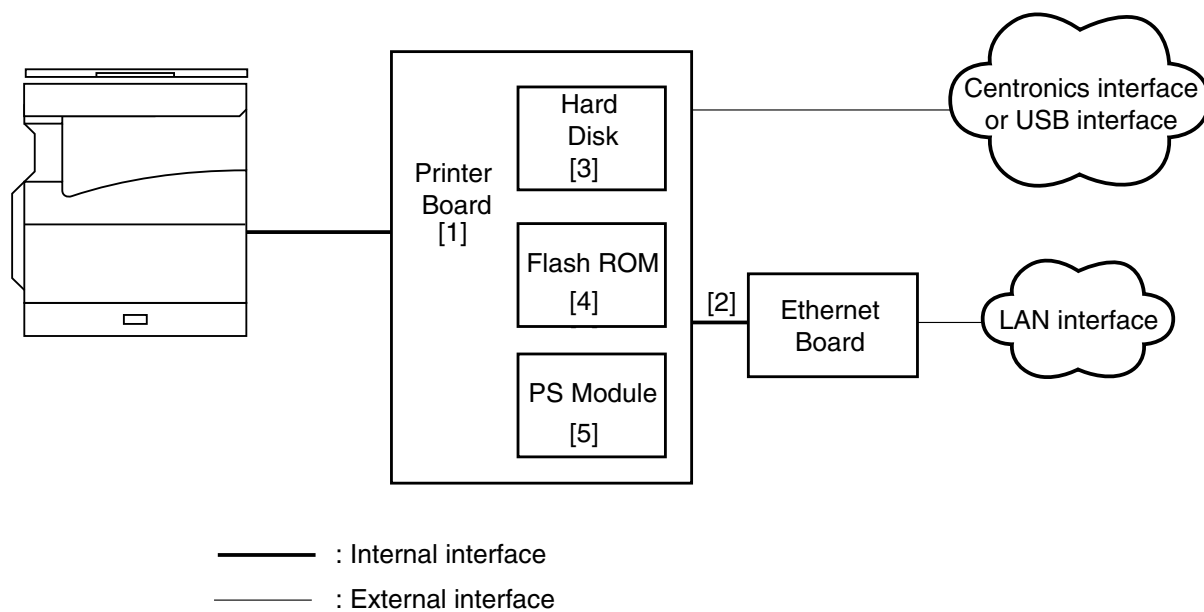
1. The machine may be configured as follows with its accessories (except the printer/fax device):



- [1] ADF-J1 (iR1600/iR2000 only)
- [2] Finisher-L1 (if PDL output, requires hard disk.)
- [3] Inner 2-Way Tray-B1
- [4] 1-Cassette Unit-F1 (16cpm model only)
- [5] 2-Cassette Unit-G1 (20cpm model only)
- [6] 3-Cassette Unit-H1 (16cpm model only)
- [7] Card Reader-E1

2. The machine may be configured with the following accessory boards:

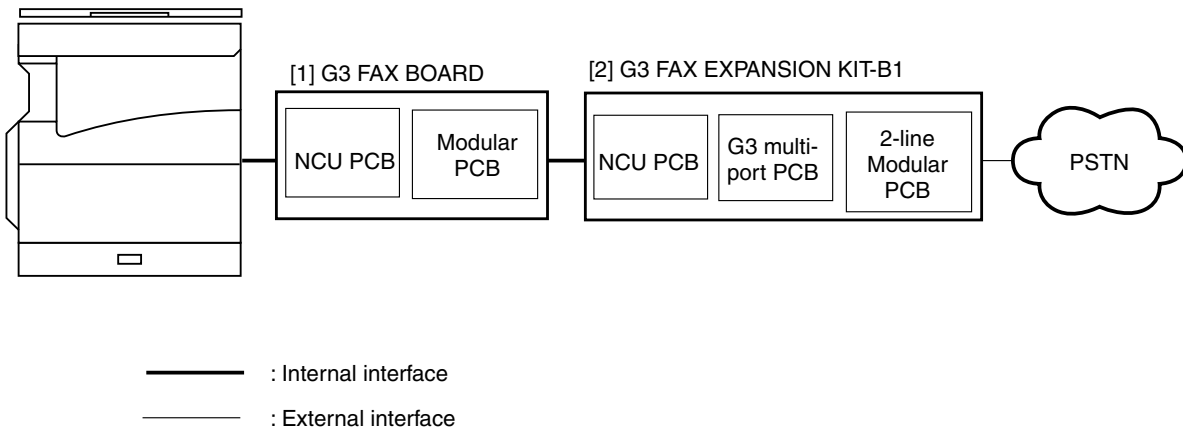
- Printer accessories



F3

- [1] Printer Board-N1
- [2] Ethernet Network Interface Adapter iN-E5
- [3] Hard Disk HD-65
- [4] Flash ROM Module FR-65
- [5] PS Module-B1

- Fax accessories (iR1610F/iR2010F only)



F4

[1] G3 FAX BOARD*¹

[2] G3 FAX EXPANSION KIT-B1*²

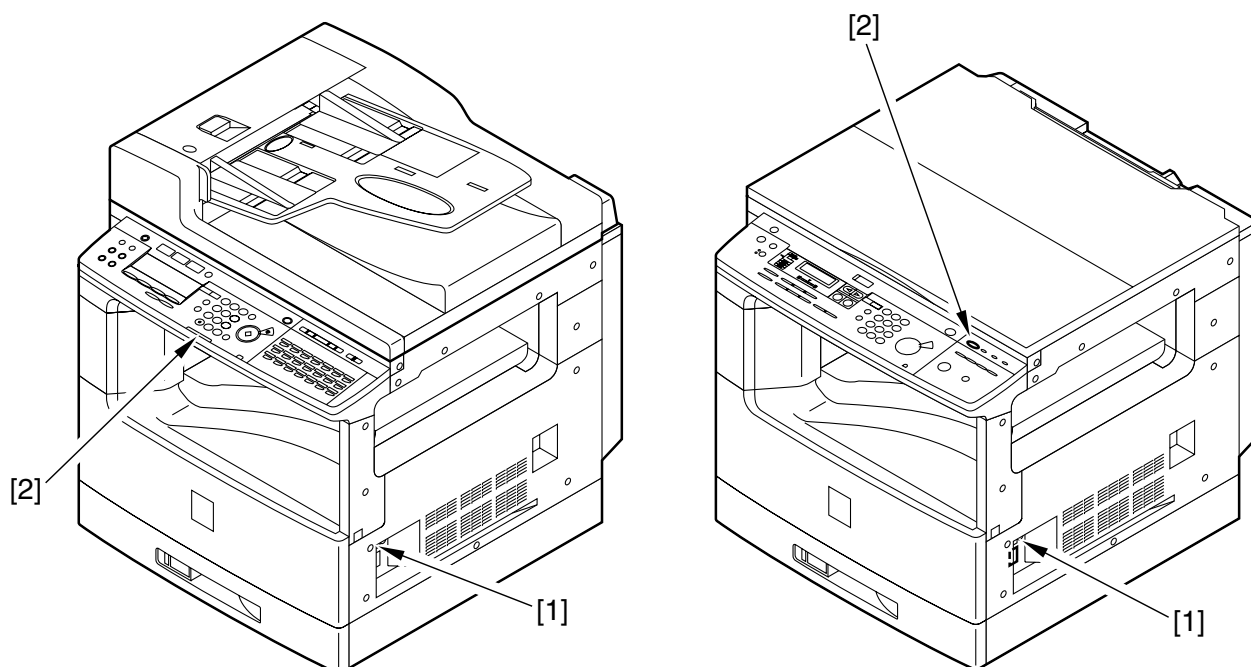
*1 : Standard (iR1610F/iR2010F)

*2 : iR1610F/iR2010F 120V only

<Points to Note When Turning Off the Power Switch>

Be sure to turn off the power switch and disconnect the power plug before starting dis-assembly/assembly work; further, keep the following in mind:

1. If you turn off the main power switch while a printer function is in use, the data being processed can be lost. Check to be sure that the online indicator in the control panel is OFF before operating the power switch.
2. Do not turn off the power switch while downloading is taking place; otherwise, the machine may fail to operate.
3. Remember that not all power will be removed in response to the opening of the front cover as long as the power switch remains ON.
4. Be sure to use SHUT DOWN MENU to shut down the printer if the Hard Disk HD-65 (accessory) has been installed.



F5

- [1] Power switch
- [2] Online indicator

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CHAPTER 1

INTRODUCTION

1 Features

1.1 Features

1. High-Speed, High Image Quality

Copying speed	16 copies/min (iR1600/iR1610F ; 1-to-N, from cassette)
	20 copies/min (iR2000/iR2010F ; 1-to-No: from cassette)
Reading resolution	: 600 dpi x 600 dpi
Printing resolution	
	Copying : 1,200 (equivalent) x 600 dpi
	PDL output : 2,400 (equivalent) x 600 dpi

2. Large Paper Source

With the addition of accessories, as many as 1,100 sheets (80 g/m²) may be accommodated.

Multifeeder : 100 sheets (A4R, A4, B5, B5R, A5, A5R; 80 g/m²)

- 16cpm model Cassette

Cassette 1 : 250 sheets

1-cassette unit (accessory) : 250 sheets

3-cassette unit (accessory) : 250 sheets x 3

- 20cpm model Cassette

Cassette 1 : 250 sheets

Cassette 2 : 250 sheets

2-cassette unit (accessory) : 250 sheets x 2

3. Mixed Paper Sizes (of same configuration)

Installation of an ADF will enable mixing of different paper sizes (of the same configuration).

4. Networking

Mounting of a printer board and network interface board will enable the use of the machine as a network printer in an Ethernet environment.

5. Hard Disk

Installation of a hard disk (accessory) will enable storage of image data on the hard disk. Since the images will be read from the hard disk, multiple sets of copies may be obtained faster (RIP-once function).

6. Selection of a Delivery Tray

Installation of an inner 2-way tray (accessory) will enable the selection of trays separately for copier and printer output (in user mode).

7. Auto Start/Interrupt Copying

The existing models retains no more than one job. The machine, however, keeps jobs on queue, thus enabling auto-start/interrupt copying.

2 Specifications

2.1 Copier

2.1.1 Type

Item	Description
Body	Desktop
Copyboard	Fixed
Light source	LED
Lens	Rod lens array
Photosensitive medium	OPC (30-mm dia.)

T01-201-01

2.1.2 System

Item	Description
Copying	Indirect photoelectric reproduction
Charging	Roller charging
Exposure	Semiconductor laser
Copy density adjustment	Auto or manual
Development	Dry, 1-component toner projection
Pickup	Auto Cassette
	Manual Manual feed tray
Transfer	Roller charging
Separation	Curvature + static (static eliminator)
Cleaning	Rubber blade
Fixing	Heat roller (800 W for 120/230V)

T01-201-02

2.1.3 Functions

Item	Description
Original type	Sheet, book, 3-D (2 kg max.)
Maximum original size	A3/279.4 x 431.8mm (11" x 17")
Reproduction ratio	Direct (1:1)
4R4E	Reduce I (1:0.500), Reduce II (1:0.707) Reduce III (1:0.816), Reduce IV (1:0.865) Enlarge I (1:1.154), Enlarge II (1:1.224), Enlarge III (1:1.414) Enlarge IV (1:2.000)
4R3E	Reduce I (1:0.500), Reduce II (1:0.647), Reduce III (1:0.733) Reduce IV (1:0.786) Enlarge I (1:1.214), Enlarge II (1:1.294), Enlarge III (1:2.000)
4R2E	Reduce I (1:0.500), Reduce II (1:0.707) Enlarge I (1:1.414), Enlarge II (1:2.000) Zoom (1:0.500 to 2.00; 50% to 200%; 1%-increment)
Wait time	30 sec or less from power-on (at 20°C room temperature)
First copy time	Less than 8.2 sec (from copier cassette; Direct, A4/LTR, non-AE)
Continuous copying	99 copies max.
Copy size	
Cassette	AB : A3 max. A5 min. Inch : 11x17 (279.4 x 431.8 mm) max. STMT min.
Multifeeder pickup	AB : A3 max. Postcard min. Inch : 11x17 (279.4 x 431.8 mm) max. STMT min.

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