

MODEL:

**COLOR LASER COPIER**  
**1100/1120/1130/1140/1150/1160/1180**

NO. : F-04-E00007

DATE : FEB.2002

- Major quality issues       Quality upgrade/production efficiency  
 Field quality problems     Miscellaneous

*J. Sakai*

## LOCATION SUBJECT

### Revision of Service Manual

The captioned technical documentation has been revised to reflect the following:

#### Reasons

to update the descriptions in the previous documentation covering modification of functions and correction of typographical mistakes.

The present revision is a full revision. Kindly make arrangements so that the old document may be replaced with the one being released. Further, please make sure the old document is properly disposed of.

# FY8-13G3-03Y

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# COLOR LASER COPIER

**1100/1120/1130/1140/1150/  
1160/1180**

# SERVICE MANUAL

REVISION **3**

**Canon**

**FEB. 2002**

**FY8-13G3-030**

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## IMPORTANT

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# INTRODUCTION

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This Service Manual contains basic data and figures on the plain paper CLC1100/1120/1130/1140/1150/1160/1180 needed to service the machine in the field. The copier is designed to enable fully automated copying work, and may be configured with the following options:

1. RDF-E2/E3
2. Stapler Sorter-F1
3. Film Projector-D1
4. CLC Paper Deck-E1

For the RDF-E2/E3, Stapler Sorter-F1, and Film Projector-D1, see their respective Service Manuals for details. This Service Manual covers the copier itself, and consists of the following chapters:

This manual omits descriptions on technologies used in common with existing machines. Refer to the Copier Basic Series as necessary for additional information.

- Chapter 1 *General Description* introduces the copier's features and specifications, shows how to operate the printer unit, and explains how copies are made.
- Chapter 2 *Basic Operation* provides outlines of the steps used to generate copies.
- Chapter 3 *Exposure System* discusses the principles of operation used for the mechanical/electrical operations of the copier's exposure system. It also explains the timing at which the various units involved are operated, and shows how they may be disassembled/assembled and adjusted.
- Chapter 4 *Image Processing System* discusses the principles of operation used for the mechanical/electrical operations of the copier's image processing system. It also explains the timing at which the various units involved are operated, and shows how they may be disassembled/assembled and adjusted.
- Chapter 5 *Laser Exposure System* discusses the principles of operation used for the mechanical/electrical operations of the copier's laser exposure system. It also explains the timing at which the various units involved are operated, and shows how they may be disassembled/assembled and adjusted.
- Chapter 6 *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 7 *Pick-Up/Feeding System* discusses the principles of how the printer unit picks up and moves paper inside it. It also explains the timing at which the various units involved are operated, and shows how they may be disassembled/assembled and adjusted.
- Chapter 8 *Fixing System* discusses the principles of how the printer unit fuses toner images to paper. It also explains the timing at which the various units involved are operated, and shows how they may be disassembled/assembled and adjusted.

Chapter 9 *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 10 *Paper Deck* discusses the principles of operation used for the series of operations between pickup and delivery performed by the paper deck. It also explains the timing at which the various units involved are operated, and shows how they may be disassembled/assembled and adjusted.

Chapter 11 *Installation* introduces requirements for the site of installation, and shows how the printer unit may be installed using step-by-step instructions.

Chapter 12 *Maintenance and Servicing* provides tables of periodically replaced parts and consumables/durables and scheduled servicing charts.

Chapter 13 *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  $\longrightarrow$ , the arrow indicates the direction of the electric signal.

The expression "turn on the power" means flipping on the power switch, closing the front **cover**, and closing the delivery unit **cover**, 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.

This manual is compiled in such a way so that a fuller understanding of the machine may be acquired by using it side by side with the Copier Basic Series. By way of providing a reference to the document, this manual uses the following convention:

**EX:  Part 2>Chapter 3>2.1 “Shading Correction”**

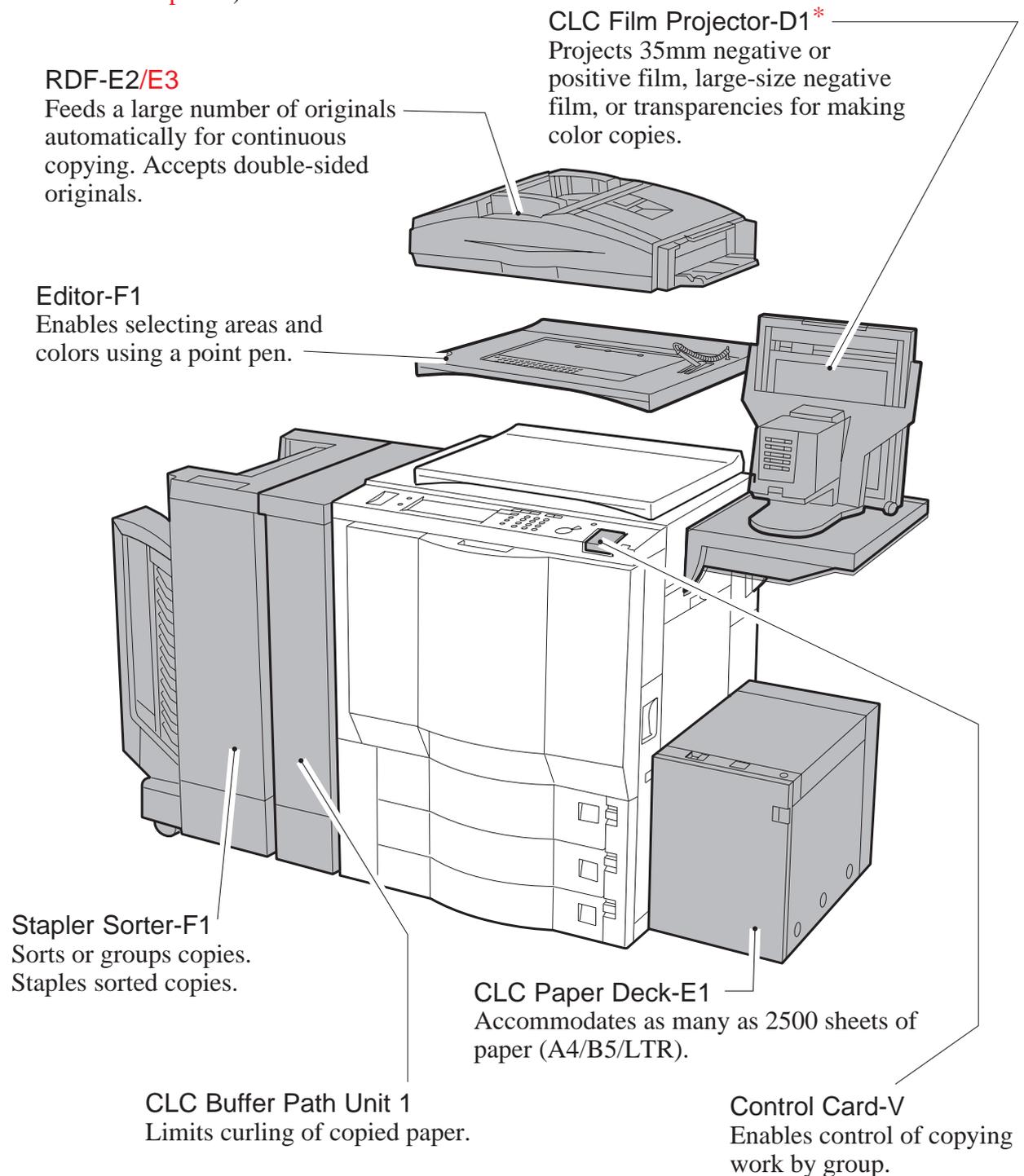
The Copier Basic Series represents an accumulation of Canon’s copier technologies used in common in existing machines, and descriptions in the document are intended to supplement the contents of Service Manuals. The Copier Basic Series consists of the following four parts:

- Part 1: Basics
- Part 2: Copiers
- Part 3: Accessories
- Part 4: Controllers



## System Configuration

The CLC1100/1120/1130/1150 may be configured as follows to make up a system (the shaded areas indicate options):



The figures above represents the CLC1150; however, the CLC1100/1120/1130 may be configure in the same way.

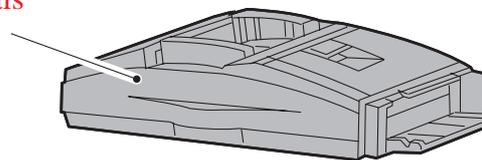
\* : CLC Film Projector D1 is not available for CLC1100.

CLC1100/1120 :2-cassette model  
 CLC1130 :3-cassette model  
 CLC1150 :2-cassette model with a duplexing unit.

The CLC1140/1160/1180 may be configured as follows to make up a system (the shaded areas indicate options):

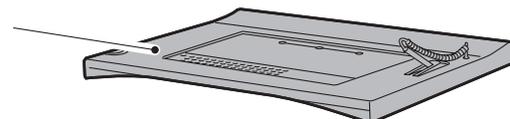
**RDF-E2/E3**

Feeds a large number of originals automatically for continuous copying. Accepts double-sided originals.



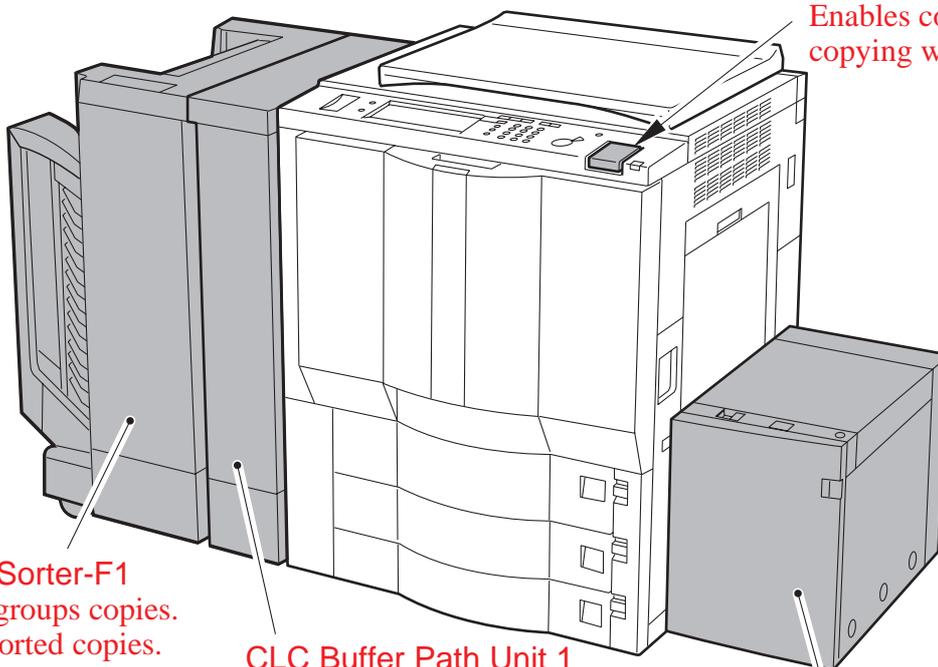
**Editor-F1**

Enables selecting areas and colors using a point pen.



**Control Card-V**

Enables control of copying work by group.



**Stapler Sorter-F1**  
Sorts or groups copies.  
Staples sorted copies.

**CLC Buffer Path Unit 1**  
Limits curling of copied paper.

**CLC Paper Deck-E1**  
Accommodates as many as 2500 sheets of paper (A4/B5/LTR).

- CLC1140 :2-cassette model
- CLC1160 :3-cassette model
- CLC1180 :2-cassette model with a duplexing unit.

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# CHAPTER 1

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## GENERAL DESCRIPTION

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This chapter shows the copiers specifications, and provides an outline of how to operate the copier and how copies are generated.

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## I. FEATURES

### 1. High Image Quality

The copier uses micro-diameter toner and a limited amount of silicone oil, ensuring a thin layer of toner on transparencies. It allows changing the hues of magenta toner and, together with the use of a direct mapping method, enables a wider range of color reproduction.

### 2. High Productivity

The copier turns out as many as 11 copies per minute in full color, or 42 mono-color copies. It takes as little as 18.1 sec (Except for CLC1100) or 21.0 sec (CLC1100) to generate the first full-color copy\* and 9.6 sec to generate the first mono-color copy\*.

\*No pre-scanning.

### 3. High Stability

The copier uses a new method to control the concentration of toner, promising stable production of high-quality copies.

The newly adopted gradation correction control mechanism ensures stability of operation (CLC1140/1160/1180 only).

### 4. Varied Transfer Materials

The copier allows the use of paper from as thin as 64 g/m<sup>2</sup> to as thick as 209 g/m<sup>2</sup>.

### 5. Large Source of Paper

The addition of options will equip the copier with a paper source ready to provide as many as 4400 sheets.

3 Cassettes (standard): 550 sheets x 3 cassettes (CLC1130/1160 only; for CLC1100/1120/1140/1150/1180, 550 sheets x 2 cassettes)

Multifeeder: 250 sheets

CLC Paper Deck-E1\*: 2500 sheets

\*Option

## II. SPECIFICATIONS

### A. Type

Item	Specifications
Body	Console (reader and printer constructed as one)
Copyboard	Fixed
Light source	Halogen lamp
Lens	Arranged in an array
Image reader	Photocell (BRG line CCD; fixed, mirror scanning)
Photosensitive medium	OPC drum (180-mm dia.)

**Table 1-201**

### B. System

Item	Specifications
Copying	Laser beam indirect photostatic transfer
Charging	Corona
Exposure	Slit, laser beam
Contrast adjustment	Automatic
Development	Dry toner projection
Toner supply	Manual (345 g/bottle)
Pickup	Cassette x 2 (CLC1100/1120/1140/1150/1180), cassette x 3 (CLC1130/1160), multifeeder tray, duplexing unit (CLC1150/1180)
Attraction	Pre-transfer static attraction
Transfer	Blade transfer
Separation	Separation claw, separation pushup roll (separation charging assembly as auxiliary mechanism)
Cleaning	Cleaning blade
Fixing	Heat roller Upper: 540 W (100/120 V), 700 W (230 V) Lower: 500 W (common for all models)

Note: The CLC1120/1140 is available only as a non-Japanese model.

**Table 1-202**

## C. Functions

Item	Specifications
Resolution	Reader: 400 x 400 dpi Printer: 800-equivalent x 400 dpi
Gradation	256 gradations
Original type	Sheet, book, 3-D object (2 kg max.)
Maximum original size	A3 (297 x 420 mm) / 279.4 x 431.8 mm (11 x 17)
Copy size	AB: 6R5E (Japanese) Inch/A: 5R4E (North or Central America) AB/Inch: 6R5E (Asia, Oceania, South America)
Zoom	25% to 400% (in 1% increments)
Wait time	8 min 30 sec or less (at 20°C) ; 120V 8 min or less (at 20°C) ; 230V
First copy time (w/o pre-scanning)	<b>CLC1100: Less than 21.0 sec (full color ; no pre-scanning)</b> <b>Except for CLC1100: Less than 18.1 sec (full color ; no pre-scanning)</b> Less than 9.6 sec (mono color ; no pre-scanning)
Continuous copying	1 to 100 sheets
Copying speed	See Table 1-206.
Copy size	Cassette: B5 (257 x 182 mm)/LTR to A3 (297 x 420 mm)/279.4 x 431.8 mm (11 x 17) Multifeeder: B5 (257 x 182 mm) to A3 (297 x 420 mm)/279.4 x 431.8 mm (11 x 17) + extra length size (12 x 18)
Paper type	Cassette: Plain paper (64 to 105 g/m <sup>2</sup> ), transparency (A4/LTR) Multifeeder: Plain paper (64 to 209 g/m <sup>2</sup> ), transparency (A4/LTR) Auto double-sided: Plain paper only (90 to 105 g/m <sup>2</sup> ) Multifeeder double-sided: Plain paper only (90 to 209 g/m <sup>2</sup> )
Cassette	No claw, front loading, 60 mm deep (about 550 sheets of 81.4 g/m <sup>2</sup> )
Multifeeder	250 sheets (81.4 g/m <sup>2</sup> )
Duplexing unit	50 sheets (105 g/m <sup>2</sup> )
Copy tray	100 sheets 981.4 g/m <sup>2</sup> )
Image margin	Leading edge: 8.0 ± 1.5 mm (8.0 ± 2.0 mm) Trailing edge: 2.5 ± 1.5 mm (4.5 ± 2.0 mm) Left/right: 2.0 ± 1.5 mm (2.0 ± 1.5 mm) Parentheses represent double-sided copying.
Auto clear	Yes, 2-min standard (may be changed between 0 and 9 min)
Auto power-off	Yes, 1-hr standard (may be changed between 0 and 24hr)
Power Save mode	Yes, (Saving level may be either -10%, -25%, -50%, or non-recovery)

**Table 1-203**

Item	Specifications
Options	RDF-E2 (only CLC1120/1130/1150), RDF-E3, RDF-E2 CLC1100 Series Power Supply Kit Stapler Sorter-F1/F2 CLC Buffer Pass Unit 1 CLC Paper Deck-E1 Document Tray-C1 (CLC1100/1120/1130/1150) Document Tray-H1 (CLC1140/1160/1180) CLC Film Projector-D1 (only CLC1120/1130/1150) Editor-F1, CLC Editor-F1 Separating kit CLC IP-ED Board-B1 (hereafter, IP-ED Board) CLC Interface Board-D1 (hereafter, IP-IF Board) Cassette Heater Kit-15, Cassette Heater Kit-16 Control Card-V Copy Data Controller-A1 NE Controller-A1 Remote Diagnostic Device II

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## D. Others

Item	Specifications
Operating environment	Temperature: 15° to 30°C / 59 to 86 °F Humidity: 5% to 80% Atmospheric pressure: 810 to 1013 hPa (0.8 to 1.0 atm)
Power supply	100V / 50, 60Hz 120V / 60Hz, 230V / 50Hz
Serial No.	CLC1100: MAP ***** MHR ***** QST***** MPU ***** QSU ***** QER ***** RER ***** SDQ ***** TEC ***** USD ***** CLC1120: NNE ***** NND ***** PNJ ***** RNC ***** MPY ***** CLC1130: LNC ***** PNM ***** QND ***** QEE***** RNE ***** SNC ***** SDH ***** TNC ***** TDR ***** UNC ***** UHF ***** PNR ***** PSK ***** CLC1150: LNB ***** NNC ***** PNB ***** QNB ***** QDF ***** RNB ***** SNB ***** SDE ***** TNB ***** TDQ ***** UNB ***** UHE ***** PNH ***** PSJ***** MPX ***** CLC1140: MQW ***** RSY ***** MRM ***** CLC1160: MJT ***** RSW ***** QFJ ***** RFN ***** SEF ***** TEQ ***** UJQ ***** CLC1180: MJU ***** RSX ***** MQX ***** RSZ ***** QFK ***** RFM ***** SEG ***** TER ***** UJR ***** MRL *****
Maximum power consumption	1.5 kW or less Copying: 719 Wh or less (reference only) Standby: 338 Wh or less (reference only)
Noise	Copying: 73 dB (sound power level) Standby: 59 dB (sound power level)
Ozone	0.02 ppm or less (average; 0.05 ppm max.)
Dimensions	Width: 768 mm / 30.2 in Depth: 773 mm / 30.5 in (CLC1100/1120/1130/1150) 774 mm / 30.5 in (CLC1140/1160/1180) Height: 1000 mm / 39.4 in
Weight	291.5 kg / 642.5 lb (approx.; CLC1150) 277.5 kg / 611.6 lb (approx.; CLC1130) 272.5 kg / 600.6 lb (approx.; CLC1100/1120) 291.6 kg / 642.7 lb (CLC1180) 277.6 kg / 611.8 lb (CLC1160) 272.6 kg / 600.8 lb (CLC1140)
Consumables	Paper: Keep wrapped, and protect against moisture. Toner: Protect against direct sunlight, and keep under 40°C, 85%.

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