# Canon

# imageRUNNER 2202/2002 Series

# Service Manual Rev0

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

## 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.

## Explanation of Symbols

The following symbols are used throughout this Service Manual.

| Symbols | Explanation | | Symbols | Explanation |
|---------|-------------|---|---------|-------------|
| | Check. | | | Remove the claw. |
| | Check visually. | | | Insert the claw. |
| | Check the noise. | | | Use the bundled part. |
| | Disconnect the connector. | | | Push the part. |
| | Connect the connector. | | | Plug the power cable. |
| | Remove the cable/wire from the cable guide or wire saddle. | | | Turn on the power. |
| | Set the cable/wire to the cable guide or wire saddle. | | | |
| | Remove the screw. | | | |
| | Tighten the screw. | | | |

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

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- Laser Safety
- Handling of Laser System
- Turn power switch ON
- Power Supply
- Safety of Toner
- Notes When Handling the Lithium and Ni-MH Batteries
- Notes Before it Works Serving

# CDRH Act

The Center for Devices and Radiological Health of the US Food and Drug Administration put into force regulations concerning laser products on August 2, 1976. These regulations apply to laser products manufactured on and after August 1, 1976, and the sale of laser products not certified under the regulations is banned within the Untied States. The label shown here indicates compliance with the CDRH regulations, and its attachment is required on all laser products that are soled in the United States.

CANON INC.
30-2,SHIMOMARUKO,3-CHOME,OHTA-KU,TOKYO,JAPAN


MANUFACTURED:

THIS PRODUCT CONHORMS WITH DHHS RADIATION
PERFORMANCE STANDARD 21CFR CHAPTER 1
SUBCHAPTER J.

F-0-1

⚠️

A different description may be used for a different product.

# Laser Safety

Laser beam radiation may pose a danger to the human body. A laser scanner mounted on the machine is sealed with the protection housing and external cover to prevent the laser beam from leaking to the outside. The laser beam never leaks out of the scanner as far as users operate the machine normally.
The following warnings are given to comply with Safety Standard (EN60950-1).

**Sicherheit des Lasers**
Laserstrahlen können für den menschlichen Körper gefährlich sein. Aus diesem Grund ist das optische Lasersystem mit einem Schutzgehäuse und einer Außenabdeckung
dicht verschlossen und hat eine Struktur, die keine Laserstrahlen nach außen dringen lässt.
Unter der Voraussetzung, dass der Benutzer dieses Gerät normal
bedient, ist ein Austritt von Laserstrahlen daher ausgeschlossen.

## Handling of Laser System

When servicing the area around the laser assembly, be sure to turn off the main power.

If you must servicr while the power is turned on, be sure to keep the followings:

- Do not use a screwdriver or tools that have a high level of reflectance in the laser path.

- Remove watches and rings before starting the work. (They can reflect the laser beam, possibly hitting the eye.)

The machine's covers that can reflect laser light are identified by means of a warning label (Figure). If you must detach a cover showing the label, be sure to take

extra caution during the work.

The following warnings are given to comply with Safety Standard (EN60950-1).

**Handhabung des Laserteils**

Bei Servicearbeiten am oder in der Nähe des Laserteils zuerst das Hauptgerät abschalten.

Bei Servicearbeiten, die unbedingt bei eingeschaltetem Gerät durchgeführt werden müssen, auf jeden Fall die folgenden Vorsichtsmaßnahmen beachten.

• Keine stark reflektierenden Schraubenzieher oder ähnliche Werkzeuge direkt in den Lichtpfad des Laserstrahls bringen.

• Vor Beginn der Arbeit Uhren, Ringe und ähnliche Gegenstände abnehmen. (Reflektierte Laserstrahlen könnten sonst in die Augen geraten.）

Abdeckungen, die möglicherweise Laserstrahlen reflektieren, haben in der auf dem Bild gezeigten Position einen Aufkleber. Bei Servicearbeiten auf der Innenseite von Abdeckungen mit Aufkleber ist besondere Vorsicht erforderlich.

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F-0-3

This product is certificated as a Class 1 laser product under IEC60825-1:2007.

## Turn power switch ON

The machine is equipped with 2 power switches: main power switch and energy saver key. The machine goes on when the main power switch is turned on (i.e., other than in low power mode, sleep mode).



Energy Saver Key

→ ON

Main Power Switch

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## Power Supply

⚠️

1. As a general rule, do not use extension cords. Using an extension cord may result in a fire or electrical shock. If an extension cord must be used, however, use one for local rated voltage and over, untie the cord binding, and insert the power plug completely into the extension cord outlet to ensure a firm connection between the power cord and the extension cord.

2. The socket-outlet shall be installed near the equipment and shall be easily accessible.



F-0-5

## Safety of Toner

### About Toner

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

⚠️

Do not throw toner into fire. It may cause explosion.

### Toner on Clothing or Skin

- If your clothing or skin has come into contact with toner, wipe it off with tissue; then, wash it off with water.
- Do not use warm water, which will cause the toner to jell and fuse permanently with the fibers of the cloth.
- Tonner is easy to react with plastic material, avoid contact with plastic.

## Notes When Handling the Lithium and Ni-MH Batteries

⚠️

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.

DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

The following warnings are given to comply with Safety Principles (EN60950).

⚠️

Wenn mit dem falschen Typ ausgewechselt, besteht Explosionsgefahr.

Gebrauchte Batterien gemäß der Anleitung beseitigen.

⚠️ 警告
如果更換不正確之電池型式會有爆炸的風險
請依製造商説明書處理用過之電池

## Notes Before it Works Serving

⚠️

At servicing, be sure to turn OFF the power source according to the specified steps and disconnect the power plug.

## Notes On Assembly/Disassembly

Follow the items below to assemble/disassemble the device.

1. Disconnect the power plug to avoid any potential dangers during assembling/disassembling works.

2. If not specially instructed, reverse the order of disassembly to reinstall.

3. Ensure to use the right screw type (length, diameter, etc.) at the right position when assembling.

4. To keep electric conduction, binding screws with washers are used to attach the grounding wire and the varistor. Ensure to use the right screw type when assembling.

5. Unless it is specially needed, do not operate the device with some parts removed.

6. Never remove the paint-locked screws when disassembling.

CAUTION

DOUBLE POLE/NEUTRAL FUSING

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ACHTUNG

Zweipolige bzw. Neutralleiter-Sicherung

F-0-7

# 1 Product Overview

- Product Lineup
- Feature
- Specifications
- Name of Parts

# Product Lineup

## Host machine



F-1-1

| | | iR2202 | | iR2002 | |
|---|---|---|---|---|---|
| | | Network model | Local print model | Network model | Local print model |
| Print Speed | | 22ppm | | 20ppm | |
| Positioning | | Target machine: iR2422/2420 Series | | | |
| LAN Port | | Yes | - | Yes | - |
| USB Port | | Yes | Yes | Yes | Yes |
| Option Conversion | ADF | Yes | - | Yes | - |
| | Duplex Unit | Yes | - | Yes | - |
| | Cassette Feeding Module | Yes | - | Yes | - |
| | Cassette Heater | Yes | Yes | Yes | Yes |

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## ● Option



Platen Cover Type T

DADF-AM1

Heater Kit-M1

Cassette Heater Unit-40

Duplex Unit-C1

FL Cassette-AU1

Cassette Feeding
Module-AB1

F-1-2

| Product name | Required options, conditions, etc. |
|---|---|
| DADF-AM1 | Opiton for network model<br>Paper weight:<br><Single feed> 37 to 128 g/m$^2$<br><Continuous feed> 52 to 105 g/m$^2$<br>Stacking capacity:<br>50 sheets (80 g/m$^2$, A4 or LTR) |
| Platen Cover Type T | Standard or option |
| Cassette Feeding Module-AB1 | Opiton for network model<br>Standard or option<br>Pickup capacity: 250 sheets (80 g/m$^2$) |
| FL Cassette-AU1 | Option for 1st cassette of the main body |
| Duplex Unit-C1 | Opiton for network model<br>Standard or option |
| Heater Kit-M1 | Heater Kit-M1 is required when installing the optional heater. |
| Cassette Heater Unit-40 | Option for cassette of main body and Cassette Feeding Module-AB1.<br>Use it to suppress the moisture absorption of the paper in the cassette.<br>Heater Kit-M1 is required. |

T-1-2

# Feature

## Product feature

Reader unit
- The mold frame was adopted.

Small-size/weight-saving

Drum unit
- Installed at the time of factory shipment.

Improved installability

Toner
- The toner of the low melting was adopted.

Paper loading improvement (High-temperature and high-humidity environment )

Controller PCB
- The DC controller and the main controller were unified.

Main body frame
- The mold frame was adopted.

Space-saving

Small-size/weight-saving

F-1-3

# Specifications

## Product Specifications

| | |
|---|---|
| Copyboard | Stream reading, original fixed reading |
| Body | Desktop |
| Light source type | LED (RGB) |
| Photosensitive medium | OPC drum (30 mm dia) |
| Image reading method | CIS |
| Reproduction method | Indirect electrostatic method |
| Exposure method | Laser exposure system |
| Charging method | Roller charge |
| Development method | Dry single component projection developing |
| Transfer method | By transfer roller |
| Separation method | Curvature and static eliminator |
| Pickup method | 1st cassette: Pad separation method<br>2nd cassette: Retard separation method<br>Multi-purpose pickup tray: Pad separation method |
| Fixing method | On demand |
| Delivery method | Face down delivery (in-body delivery) |
| Reproduction ratio | 25 to 400% |
| Drum cleaning method | By cleaning blade |
| Toner type | Single component magnetic negative charge toner |
| Toner replenish method | Toner cartridge |
| Toner level detection function | Yes |
| Top image margin | 3.0 ± 1.5 mm |
| Left image margin | 3.0 ± 2.0 mm |
| Warm-up time | At power ON: 13 sec or less |
| Number of gradations | 256 gradations |
| Reading resolution | 600 x 600 dpi |
| Writing resolution | 600 x 600 dpi |
| First print time | 7.9 sec or less |
| Paper type (Cassette) | Plain paper (64 to 90 g/m$^2$), recycled paper (64 to 80 g/m$^2$), color paper (64 to 80 g/m$^2$), pre-punched paper |
| Paper type (Multi-purpose pickup tray) | Plain paper (64 to 90 g/m$^2$), recycled paper (64 to 80 g/m$^2$), color paper (64 to 80 g/m$^2$), pre-punched paper, bond paper(75 to 90 g/m$^2$), heavy paper 1 (91 to 105 g/m$^2$), heavy paper 2 (106 to 128 g/m$^2$), OHP, labels, Envelopes (No.10(COM10), Monarch, ISO-C5, DL) |
| Paper size (Cassette 1) | A4, A4R, A3, A5R, B4, B5, B5R, LTR, LTRR, LGL, 11" x 17" (279 mm X 432 mm), STMTR, 8K, 16K, 16KR |
| Paper size (Cassette 2) | A4, A4R, A3, A5, B4, B5, B5R, LTR, LTRR, LGL, 11" x 17" (279 mm X 432 mm), STMT, 8K, 16K, 16KR |

| Paper size (Multi-purpose pickup tray) | A4, A4R, A3, A5, A5R, B4, B5, B5R, LTR, LTRR, LGL, 11" x 17" (279 mm X 432 mm), STMT, STMTR, EXEC, 8K, 16K, 16KR, Custom paper size (95 x 148 mm  to  297 x 431.8 mm), Envelopes (No.10(COM10), Monarch, ISO-C5, DL) |
|---|---|
| Pickup capacity | Cassette1/2: 250 sheets (80 g/m$^2$)<br>Multi-purpose pickup tray: 80 sheets (80 g/m$^2$) |
| Duplex method | Through path duplex |
| Noise | imageRUNNER 2202:<br>At the time of printing: 66.7 dB or less / At the time of standby: 48 dB or less<br>imageRUNNER 2002:<br>At the time of printing: 66 dB or less / At the time of standby: 48 dB or less |
| Ozone | 1.5 mg/h or smaller |
| Power supply rating | Network model<br>120 - 127 V AC, 60Hz, 4.6 A<br>220 - 240 V AC, 50Hz/60Hz, 2.7 A<br>Local print model<br>220 - 240 V AC, 50Hz/60Hz, 2.4 A |
| Power consumption | Maximum power consumption | 1.5 kW or less |
| | At the time of printing | Network model<br>imageRUNNER 2202 :  Approx. 470 Wh (Reference)<br>imageRUNNER 2002 :  Approx. 433 Wh (Reference)<br>Local print model<br>imageRUNNER 2202 :  Approx. 416 Wh (Reference)<br>imageRUNNER 2002 :  Approx. 398 Wh (Reference) |
| | At the time of sleep (Deep Sleep) | 2.0 W or less |
| Dimensions (W x D x H) | 622 mm x 589 mm x 502 mm (with the platen cover and single cassette)<br>622 mm x 589 mm x 567 mm (with the platen cover and double cassette)<br>622 mm x 589 mm x 692 mm (with the feeder and double cassette) |
| Weight | Min (With the platen cover and single cassette: 29.7 kg (included with the drum unit and toner cartridge)<br>Max (with the feeder and double cassette): 41.3 kg (included with the drum unit and toner cartridge) |

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## Productivity (Print speed)

| Fixing  mode | Size | 1-sided | | 2-sided | |
|---|---|---|---|---|---|
| | | Cassette pickup | Multi-purpose pickup | Cassette pickup | Multi-purpose pickup |
| Plain paper mode (color paper, recycled paper, plain paper (64 to 90 g/m$^2$), pre-punched paper) | A3, 11" x 17" (279 mm X 432 mm) | iR2202: 11<br>iR2002: 10 | 10 | iR2202: 6.9<br>iR2002: 6.7 | iR2202: 6.9<br>iR2002: 6.7 |
| | A4, LTR, 16K | iR2202: 22<br>iR2002: 20 | 20 | iR2202: 14.7<br>iR2002: 14.2 | iR2202: 14.7<br>iR2002: 14.2 |
| | B4, LGL, 8K | 10 | 10 | 6.7 | 6.7 |
| | B5, EXEC | 20 | 20 | 14 .2 | 14 .2 |
| | A4R, LTRR | 11 | 11 | 7.8 | 7.8 |
| | A5, STMT | 23 | 23 | - | - |
| | A5R, B5R, STMTR, 16KR | 13 | 13 | 9.1 | 9.1 |
| | Custom paper size | 5 | 5 | - | - |
| Heavy paper L mode (heavy paper 1 (91 to 105 g/m$^2$), label) | A3, 11" x 17" (279 mm X 432 mm) | - | 8 | - | - |
| | A4, LTR, 16K | - | 12 | - | - |
| | B4, LGL, 8K | - | 8 | - | - |
| | B5, EXEC | - | 12 | - | - |
| | A4R, LTRR | - | 10 | - | - |
| | A5, STMT | - | 13 | - | - |
| | A5R, B5R, STMTR, 16KR | - | 10 | - | - |
| | Custom paper size | - | 5 | - | - |
| Heavy paper mode (Heavy paper 2 (106 to 128 g/m$^2$)) | A3, 11" x 17" (279 mm X 432 mm) | - | 7 | - | - |
| | A4, LTR, 16K | - | 10 | - | - |
| | B4, LGL, 8K | - | 6 | - | - |
| | B5, EXEC | - | 10 | - | - |
| | A4R, LTRR | - | 8 | - | - |
| | A5, STMT | - | 11 | - | - |
| | A5R, B5R, STMTR, 16KR | - | 7 | - | - |
| | Custom paper size | - | 5 | - | - |

| Fixing mode | Size | 1-sided | | 2-sided | |
|---|---|---|---|---|---|
| | | Cassette pickup | Multi-purpose pickup | Cassette pickup | Multi-purpose pickup |
| Super heavy paper mode (Bond paper (75 to 90 g/m$^2$)) | A3, 11" x 17" (279 mm X 432 mm) | - | 5 | - | - |
| | A4, LTR, 16K | - | 7 | - | - |
| | B4, LGL, 8K | - | 5 | - | - |
| | B5, EXEC | - | 6 | - | - |
| | A4R, LTRR | - | 4 | - | - |
| | A5, STMT | - | 5 | - | - |
| | A5R, B5R, STMTR, 16KR | - | 4 | - | - |
| | Custom paper size | - | 3 | - | - |
| Envelope | Monarch | - | 4 | - | - |
| | COM10 | - | 4 | - | - |
| | ISO-C5 | - | 4 | - | - |
| | DL | - | 4 | - | - |
| OHP | A4R | - | 11 | - | - |
| | LTRR | - | 11 | - | - |

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## Paper Type

Following shows the types of usable papers.

See the table below for the custom paper size.

| Type | Feeding direction (mm) | Width direction (mm) |
|---|---|---|
| Custom paper size | 148 to 431.8 | 95 to 297 |

T-1-5

### ■ Pickup

Usable paper types are shown.

| Paper type | Size | Multi-purpose pickup tray | Cassette 1 | Cassette 2 |
|---|---|---|---|---|
| Color paper, recycled paper, plain paper (64 to 90 g/m$^2$) | A3 | Yes | Yes | Yes |
| | B4 | Yes | Yes | Yes |
| | A4R | Yes | Yes | Yes |
| | A4 | Yes | Yes | Yes |
| | B5R | Yes | Yes | Yes |
| | B5 | Yes | Yes | Yes |
| | A5 | Yes | No | Yes |
| | A5R | Yes | Yes | No |
| | 11" x 17" (279 mm X 432 mm) | Yes | Yes | Yes |
| | LGL | Yes | Yes | Yes |
| | LTR | Yes | Yes | Yes |
| | LTRR | Yes | Yes | Yes |
| | STMTR | Yes | Yes | No |
| | STMT | Yes | No | Yes |
| | EXEC | Yes | No | No |
| | K8 | Yes | Yes | Yes |
| | K16 | Yes | Yes | Yes |
| | K16R | Yes | Yes | Yes |
| | Custom paper size | Yes | No | No |

| Paper type | Size | Multi-purpose pickup tray | Cassette 1 | Cassette 2 |
|---|---|---|---|---|
| Heavy paper 1 (91 to 105 g/m$^2$), heavy paper 2 (106 to 128 g/m$^2$), bond paper (75 to 90 g/m$^2$) | A3 | Yes | No | No |
| | B4 | Yes | No | No |
| | A4R | Yes | No | No |
| | A4 | Yes | No | No |
| | B5R | Yes | No | No |
| | B5 | Yes | No | No |
| | A5 | Yes | No | No |
| | A5R | Yes | No | No |
| | 11" x 17" (279 mm X 432 mm) | Yes | No | No |
| | LGL | Yes | No | No |
| | LTR | Yes | No | No |
| | LTRR | Yes | No | No |
| | STMTR | Yes | No | No |
| | STMT | Yes | No | No |
| | EXEC | Yes | No | No |
| | K8 | Yes | No | No |
| | K16 | Yes | No | No |
| | K16R | Yes | No | No |
| | Custom paper size | Yes | No | No |
| Label | A4R | Yes | No | No |
| | A4 | Yes | No | No |
| | LTR | Yes | No | No |
| Pre-punched paper | A4R | Yes | Yes | Yes |
| | A4 | Yes | Yes | Yes |
| | LTR | Yes | Yes | Yes |
| | LTRR | Yes | Yes | Yes |
| OHP | A4 | Yes | No | No |
| | LTR | Yes | No | No |
| Envelope | No.10 (COM10) | Yes | No | No |
| | Monarch | Yes | No | No |
| | ISO-C5 | Yes | No | No |
| | DL | Yes | No | No |

T-1-6

# Name of Parts

## ● External View

### ■ Network model



F-1-4



F-1-5

[1] Reader front cover
[2] Left front cover
[3] Front cover
[4] Cassette 1
[5] Cassette 2
[6] Control panel assembly
[7] Delivery tray cover
[8] Reader upper unit
[9] Platen glass
[10] Left cover unit
[11] Multi-purpose pickup tray
[12] Reader rear cover
[13] Rear rover
[14] Right cover
[15] USB Port
[16] LAN Port

## ■ Local print model



F-1-6

[1] Reader front cover
[2] Left front cover
[3] Front cover
[4] Cassette 1
[5] Control panel assembly
[6] Delivery tray cover
[7] Reader upper unit
[8] Platen glass
[9] Left cover unit
[10] Multi-purpose pickup tray
[11] Reader rear cover
[12] Rear rover
[13] Right cover
[14] USB Port



F-1-7

## Cross Sectional View



F-1-8

| [1] | CIS unit | |
| --- | --- | --- |
| [2] | Laser scanner unit | |
| [3] | Toner cartridge | |
| [4] | Developing assembly | |
| [5] | Cassette 2 pickup roller | If equipped with the 1-cassette module. |
| [6] | Cassette 2 separation roller | If equipped with the 1-cassette module. |
| [7] | Cassette 2 feed roller | If equipped with the 1-cassette module. |
| [8] | Cassette 1 separation pad | |
| [9] | Cassette 1 pickup roller | |
| [10] | Multi-purpose tray separation pad | |
| [11] | Multi-purpose tray pickup roller | |
| [12] | Registration roller | |
| [13] | Transfer roller | |
| [14] | Drum unit | |
| [15] | Fixing assembly | |
| [16] | Duplex unit | If equipped with the duplex unit. |
| [17] | Delivery roller | |

## ● Control Panel

### ■ Power Switch

#### ● Types of power switch



→ ON

Heater Switch

→ ON

Energy Saver Key

Main Power Switch

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This machine has the Main Power Switch, the Heater Switch and the Energy Saver Key.

[1] Main Power Switch
  This switch is used to turn OFF / ON the power of host machine.
[2] Heater Switch (option)
  This switch is used to turn OFF / ON the power of the cassette heater.
[3] Energy Saver Key
  This switch is used to shift the machine to power-save mode or to restore it to normal
  mode.

#### ● Points to Note on Turning ON/OFF the Power Switch

• To turn off the power, turn off the Main power Switch. (Conventional shutdown sequence
  operation is not required.)
•  After power-off (After the Main power Switch is turned off), do not reactivate the Main
  power Switch until a screen disappears.
• Do not turn off the power while download is processing.

## ■ Description of Control Panel

### ● Control Panel

Network model



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Local print model



F-1-11

| No. | Name | Function |
|---|---|---|
| [1] | Display | During normal operation, displays messages and prompts. When adjusting the settings, displays your selections, text, and numbers. |
| [2] | [COPY/SCAN] key | Press to switch the mode to copy or scan. |
| [3] | [Reset] key | Press to reset the settings. |
| [4] | [▲] key | Press to scroll up or to increase the value. |
| | [▼] key | Press to scroll down or to decrease the value. |
| | [◄] key | Press to return to the previous screen, or move the cursor to the left. |
| | [►] key | Press to proceed to the next screen, or move the cursor to the right. |
| | [OK] key | Press to confirm an action or setting. |
| [5] | [Status Monitor] Key | Press to view the status of jobs or cancel jobs. Also check the status of the network or the machine. |
| [6]*1 | Numeric keys ([0]-[9]) | Press to enter characters and numbers. |
| | [*] Key | Press to switch the character entry mode. |
| | [#] Key | Press to enter symbols. |
| | [C] Key | Press to delete entered characters and numbers. |
| [7] | [Counter Check] Key | Press this to display the total number of copies or prints (performed by the machine) on the display. |
| [8] | [Energy Saver] Key | Press to manually set or cancel the Sleep mode. The Energy Saver indicator lights green while in the Sleep mode. |
| [9] | [Settings/Registration] Key | Press to specify or register various settings. |
| [10] | [Stop] Key | Press to cancel jobs. |
| [11] | [Start] Key | Press to start a job. |
| [12] | [Error] Indicator | Flashes when an error occurs. |
| [13] | [Processing/Data] Indicator | Flashes when the device is in operation, is on when there is a job waiting to be processed. |
| [14]*1 | [Log In/Out] | Press to log in/out when Department ID Management has been set. |
| [15] | [Select Paper/Settings] Key | Press to select a paper source, such as a drawer or multi-purpose tray, and register paper size and type. |
| [16] | [Back] Key | Press to return to the previous screen. |
| [17] | [ID Card Copy/Favorite Settings] Key | Press to use the ID Card Copy and Favorite Settings. |
| [18]*1 | [2-Sided] Key | Press to set 2-sided copies. |

*1: Network model only

T-1-7

# 2

# Technology

- ■ Basic Configuration
- ■ Original Exposure System
- ■ Controller System
- ■ Laser Exposure System
- ■ Image Formation System
- ■ Fixing System
- ■ Pickup Feed System

# Basic Configuration

## Functional Configuration

The host machine is constructed by following functional system blocks; Document Exposure System, Controller System, Laser Exposure System, Image Formation System, Fixing System and Pickup/Feed System.

Original exposure system

CIS unit

Controller system

Controller system
· Engine control
· System control

Delivery

Fixing system

Duplexing feed

Fixing

Laser exposure system

Transfer

Laser scanner unit

Image formation system

Pickup

Cassette 1

Pickup/feed system

Cassette 2

→ Paper flow
→ Signal flow
→ Laser beam

F-2-1

## Basic sequence

### ■ Basic Operation Sequence

Basic Operation Sequence is controlled by engine controller. Each sequence, from main power switch ON until the main motor stops, is described as below. See timing chart for detail in the Appendix chapter.

| Zone | Purpose | Remarks |
|---|---|---|
| WAIT (wait) | From main power switch ON until the main motor stops initial rotating. | Eliminates charging on the surface of the photosensitive drum and cleans the transfer roller and keeps heater temperature const. | Detects the toner cartridge while it keeps heater temperature constant. |
| STBY (standby) | From WAIT end or LSTR end until print indication command is entered from the controller PCB (PCB1). | Keeps the host machine standby. | |
| INTR (initial rotation) | From print indication command is entered from the controller PCB (PCB1) until the Pickup solenoid turns ON. | Keeps photosensitive drum stable sensitivity for print advance preparations and cleans the transfer roller. | |
| PRINT (print) | From INTR end until top edge of the paper detect sensor detects end edge of the paper. | Forms image on the photosensitive drum, based on Video signal (/VDO1,/VDO2,VDO1,VDO2) from the controller PCB (PCB1). It transfers toner image onto the paper. | |
| LSTR (last rotation) | From PRINT end until the main motor stops. | Eliminates the paper on the final job completely. | Directly starts INTR after LSTR ends when print indication command is entered from the controller PCB (PCB1). |

T-2-1

# Original Exposure System

## ● Construction

### ■ Specifications/controls/functions

The main specifications, controls and functions of the original exposure and feed system are described below.

| Item | | Specification/Function |
|---|---|---|
| Original exposure | | LED |
| Original scan | In book mode | mobile CIS scanning |
| | In ADF mode | fixed CIS scanning |
| Read resolution | | B/W: 600 dpi (main scanning) x 600 dpi (sub scanning)<br>Color SEND: 300 dpi (main scanning) x 600 dpi (sub scanning) |
| Gradation | | 256 gradation |
| Carriage position detection | | Contact Sensor HP Sensor(SR402) |
| Magnification | | 25% to 400% |
| | Main scanning direction | Image is processed on the controller PCB |
| | Sub scanning direction | In book mode: Image is procesed by carriage speed and controller PCB *1<br>In ADF mode: Image is processed by paper delivery speed and controller PCB *1 |
| Lens | | Rod lens array |
| CMOS sensor | | Number of lines:1 |
| | | Number of pixels: Total 7344 (incl. 7276 effective pixels) |
| | | Maximum original scan width: 308mm |
| CIS drive control | | Reader Motor(M301) |
| Original size detection | In book mode | No |
| | In ADF mode | Main scanning direction: photo interrupter |
| | | Sub scanning direction:  photo interrupter |

*1 Controls differ depending on magnifications. Refer to Magnification Change for detail.  T-2-2

### ■ Major Components

Major components of the original exposure system is shows below.



Contact sensor HP sensor (SR402)

Reader motor (M301)

CIS unit

F-2-2

| Item | Code | Specification/Function |
|---|---|---|
| Reader Motor | M301 | Pulse Motor: carriage drive control |
| Contact Sensor HP Sensor | SR402 | Photo interrupter: CIS home position detection |
| CIS unit | - | LED Indirect exposure |

T-2-3

# Basic Sequence

## ■ Basic Sequence at Power-On

Main power switch
ON

| | SREADY | STBY |
|---|---|---|
| Reader motor (M301) | | |
| LED | | |
| Contact Sensor HP Sensor(SR402) | | |

Shading position    Shading position

▢ : Forward movement
▢ : Backward movement

F-2-3

Contact Sensor HP Sensor
(SR402)

HP          Shading position          Leading edge

CIS position check

F-2-4

## ■ Basic Sequence at Start Key ON (book mode/1 original)

Black shading/White shading

Start key
ON

| | STBY | SCFW | SCRW | STBY |
|---|---|---|---|---|
| Reader motor (M301) | | | | |
| LED | | | | |
| Contact Sensor HP Sensor(SR402) | | | | |

Shading position    Leading edge    Trailing edge    Shading position

▢ : Forward movement
▢ : Backward movement

F-2-5

Contact sensor HP sensor

Original glass reading start position    HP    Shading position    Leading edge    Trailing edge

1. It moves to the start position after black shading/white shading.

2. Original scan

3. Moves to the standby position

F-2-6

## ■ Basic Sequence at Start Key ON (ADF mode/1 original)

Black shading/White shading

Start key
ON

| | STBY | SCFW | SCRW | STBY |
|---|---|---|---|---|
| Reader motor (M301) | | | | |
| LED | | | | |
| Contact Sensor HP Sensor(SR402) | | | | |

Shading position   Leading edge   Trailing edge   Shading position

■ : Forward movement
□ : Backward movement

F-2-7

Contact sensor HP sensor

DADF stream read start position    Original glass reading start position    HP    Shading position

Black shading
White shading
Original scan

F-2-8

## ● Controls

### ■ Controlling the Scanning Drive System

#### ● Overview

The scanner drive system parts are described below.



F-2-9

- Reader motor (M301) drive signal

    Controls the reader motor rotation, stop, rotational direction and speed.

- Contact sensor hp sensor (SR402)

    Detects that the Contact sensor hp sensor is positioned at the home position.

#### ● Reader Motor Control (M301)

Reader motor (M301) controls rotation, stop, rotational direction and speed by signal from controller PCB (PCB1)



F-2-10

CAUTION:
The scanning speed for each mode is as follows.
Copy (100%) : 123 mm/sec
Color scan : 61.5 mm/sec

1) CIS forward movement during image scan

CIS unit is controlled by following motor sequence during image scan.



F-2-11

[1] Acceleration area: The motor accelerates to the speed specified for each mode.
[2] Runup area: A margin to stabilize the speed.
[3] Image read area: The image is read at a constant speed.
[4] Deceleration area: Upon detection of the trailing edge, the motor decelerates rapidly and stops.

2) CIS backward movement after image scan

After image scan, CIS backward movement keeps 123mm/sec until CIS shading position.

## ■ CIS (contact image sensor) Outline

CIS functions original exposure and reading. Image is read on line-by-line basis.



F-2-12

| Item | Function |
|---|---|
| LED | The light what it illuminates original. |
| Light guide | LED light illuminates the entire image line. |
| Rod lens array | Collects the light reflected from the original. |

T-2-4

● Analog Control Performed by CIS

CIS functions analog image processing as follows.

   a. The light reflected by the original is formed by rod lens array.
   b. The light is received by CMOS sensor array.
   c. CMOS sensor array converts the received light to electric signal and outputs it.

CMOS sensor array consists of 6 channels (units). Each channel is provided with output correction table. The array outputs the gained image from the brightness signal.



CMOS sensor channel x 6

7344 pixels

F-2-13

■ Magnification Change

● Magnification Change in Main Scanning Direction

• In book mode or ADF mode
   In main scanning direction, image is read at 100% size. Magnification is changed by processing data on the controller PCB (PCB1).

● Magnification Change in Sub Main Scanning Direction

Magnification change in sub scanning direction is functioned by magnification rate as follows.

a. From 25 to 199% reduction and enlargement
   Reading and sending data speed keep 123mm/sec in book mode and ADF mode.
b. From 200 to 400% enlargement
   Reading and sending data speed keep 61.5mm/sec in book mode and ADF mode.

■ Dust Detection

Dust detection changes the original read position or corrects the read image by dust on the stream reading glass or the ADF platen roller, thus preventing dust image from the output. This control is performed only when the ADF is equipped and closed.

[Control Timing]
   • At the job end
   • Immediately before scanning (one sheet at a time)



Main power switch ON    Start key ON

WMUPR    STBY    1st SCAN    2nd SCAN

Dust detection control    Dust detection control    Dust detection control

F-2-14

[Description of Control]
- At job end (Dust detection)

    CIS detects dust by reflected light from the surface of the ADF platen roller at the read position. After job completion, dust detection is performed at A, B and C whether dust is detected or not.

    1) Dust detection is performed once at A.

    2) CIS moves to B and dust detection is performed once at B.

    3) CIS moves to C and dust detection is performed once at C.

    4-a) CIS moves to alphabetical order of A, B and C and dust detection is performed at any one of clean part and reads original.

    4-b) CIS moves to A and reads original when it detects dust at all position: A, B and C.



F-2-15

- Immediately before scanning (one sheet at a time)

    CIS does not move to detect dust. The original is read at the position controlled by job end or start. Read image is corrected when dust is detected.

| Point | Description |
|---|---|
| A | Read reference position |
| B | 0.5 mm to the inside of the roller from the reference position |
| C | 1.0 mm to the inside of the roller from the reference position |

T-2-5

## ■ Image Processing

Major specifications and functions of the image processing system are as follows.
- 1) CMOS sensor
    - Number of lines: 1
    - Number of pixels: Total 7344 (incl. 7276 effective pixels)
- 2) Shading correction
    - Shading correction: performed for each job.
    - Shading adjustment: performed on the Service mode.



F-2-16

Functions of the image processing system are summarized below.
  1) Controller PCB (PCB1)
    • CMOS sensor drive, analog image processing, A/D conversion, and shading correction

The controller PCB (PCB1) is used to process images on a line-by-line basis. The major functions are as follows.
  1) Analog image processing
    • CMOS sensor drive
    • CMOS sensor output gain correction and offset correction
    • CMOS sensor output A/D conversion
  2) Digital image processing
    • Shading correction



F-2-17

## ● CMOS Sensor Drive

The CMOS sensor consists of 7344 photocells with 1-line linear image sensor on the host machine. Photoelectric conversion signal outputs to the controller PCB (PCB1) in parallel for each channel (total 6 channels) of the CMOS sensor array.



F-2-18

## ● CMOS Sensor Output Gain Correction and Offset Correction

The analog video signal output gain from the CMOS sensor is maintained constant (gain correction). Also, the output voltage is maintained constant (offset correction) in case that incident light is not entered.

## ● CMOS Sensor Output A/D Conversion

The analog video signal after the correction is converted to digital signals corresponding to individual pixel voltage levels by A/D converter.

## ● Shading Correction Overview

The CMOS sensor output is not necessarily for uniform as following reasons even when the density of the original is uniform.
  1) Variation in sensitivity among CMOS sensor pixels
  2) Variation in light intensity of rod lens array

Shading correction is performed to even the CMOS sensor output on the service mode or each job.

## ● Shading Adjustment

Shading Adjustmen measures the density of the standard white plate, and stores the measured density data. The stored data is processed to target value for shading correction.

## ● Shading Correction

Shading correction is performed each scan. Shading correction value is set by the differences between the measured density of the standard white plate and the targeted value stored on the shading correction circuit. The shading value corrects the variation among CMOS sensor pixels for scan, thus the image density level is equalized.



F-2-19

## ◉ Service Tasks

### ■ Periodically Replaced Parts

None

### ■ Consumable Parts

None

### ■ Periodical Servicing

None

### ■ Action to take when replacing parts

| Part name | Action | Reference |
|---|---|---|
| CIS | Auto gain offset adjustment for CIS unit<br>White level adjustment for reading | "Removing the CIS Unit"(page 4-21). |
| Upper reader unit | White board level adjustment<br>White level adjustment for reading | "Removing the Reader Upper Unit"(page 4-23). |

T-2-6

# Controller System

## Overview

### Functional Configuration

Adoption of the new controller has realized the engine control and system control in one board.

| Item | | Details |
|---|---|---|
| Controller PCB | | Engine control / System control / memory control / printer unit output image processing control / reader unit input image processing |
| | ROM | 16MB<br>Settings data / Boot loaderROM / Main Program / Download Program / RUI |
| | RAM | 128 MB |
| | SRAM | Stores user data / Log data<br>128KB |
| | USB port | USB2.0 device I/F |
| | Ethernet port | Ethernet I/F |
| Lithium battery | | For SRAM backup<br>Life: approx. 10 years |

T-2-7

● Main controller PCB



F-2-20

| No. | Function | No. | Function |
|---|---|---|---|
| J1 | LAN | J701 | Environment Sensor |
| J2 | SOFT-ID | J703 | Power Supply PCB |
| J3 | ADF sensor | J704 | Cassette 1 Pickup Solenoid / Cassette Feed Clutch / Registration Clutch |
| J4 | | J705 | Left Cover Unit |
| J6 | Control Panel | J706 | Fixing Pressure Release Sensor / Waste Toner Full Sensor |
| J7 | HP Sensor | J707 | Pre-registration Sensor |
| J8 | Counter PCB | J708 | Cassette 1 Paper Sensor / Large Sensor |
| J9 | ADF | J709 | Fixing Assembly |
| J11 | Reader mo | J710 | Fixing Motor / Main Motor |
| J13 | Power Supply PCB | J711 | Polygon Motor |
| J15 | USB device I/F | J712 | Option Cassette |
| J16 | Cover open/close sensor | J713 | Option Duplex Unit |
| J18 | CIS Unit | J714 | HVT PCB |
| | | J715 | Laser scanner Unit |
| | | J716 | Delivery Sensor |

T-2-8

## ● Controls

### ■ Boot Sequence

| | |
|---|---|
| **Turn ON the Main Power Switch**<br><br>↓<br><br>[progress bar display]<br><br>↓<br><br>**Stanby Display** | ・ Starting Bootloader<br><br>・ Starting Main Program |

F-2-21

Note:
After the startup of the main program, the screen of the progress bar is displayed.

T-2-10

### ■ Soft Counter

Count-up timing differs depending on the following conditions:

Print mode (1-sided/ 2nd side of 2-sided/ 1st side of 2-sided)

| Delivery position | Print Mode | |
|---|---|---|
| | 1-sided/ 2nd side of 2-sided | 1st side of 2-sided |
| | Count-up timing | |
| Host Machine | Fixing Delivery Sensor(SR201) | Duplex Feed Sensor(SR503) |

T-2-9

| Target | Display code of each counter (in service mode)/Item | | | | | Country code |
|---|---|---|---|---|---|---|
| | Counter 1 | Counter 2 | Counter 3 | Counter 4 | Counter 5/6 | |
| Taiwan | Total1 | Total(Large) | Copy Total1 | Copy(Large) | *1 | TAIWAN |
| | 101 | 103 | 201 | 203 | 000 | |
| LTN(120V) areal (Saudi Arabia) type1 | Total1 | Total(Large) | Copy Total1 | Copy(Large) | *1 | USA |
| | 101 | 103 | 201 | 203 | 000 | |
| LTN(120V area) (Saudi Arabia) type2 | Total2 | Copy Total2 | *1 | *1 | *1 | |
| | 102 | 202 | 000 | 000 | 000 | |
| Asia LTN(230V area) Korea China | Total1 | Total(Large) | Copy Total1 | Copy(Large) | *1 | SINGAPORE KOREA CHINA |
| | 101 | 103 | 201 | 203 | 000 | |
| UK type1 | Total (Black/Large) | Total (Black/Small) | Scan (Total 1) | Print (Total1) | *1 | EUROPE 1 |
| | 112 | 113 | 501 | 301 | 000 | |
| UK type2 | Total1 | *1 | *1 | *1 | *1 | |
| | 101 | 000 | 000 | 000 | 000 | |
| Australia Newzealand | Total1 | Total(Large) | Copy Total1 | Copy(Large) | *1 | AUSTRALIA |
| | 101 | 103 | 201 | 203 | 000 | |

*1: by default, not indicated; may be changed in service mode.

T-2-10

## ■ Fan

### ● Fan layout



FM1

F-2-22

| No. | Name | Function | Error code |
|-----|------|----------|------------|
| FM1 | Fixing cooling fan | Cools the fixing assembly. | E805-0000 |

T-2-11

### ● Fan control

Control sequence

When the detection temperature of the environmental sensor is lower than 27 deg C

| | WUP | STBY | INI | PTINT | LSTR | JAM/ERR | Deep Sleep | Sleep 1 |
|---|-----|------|-----|-------|------|---------|------------|---------|
| Fixing cooling fan (FM1) | | | | | | | | |

□ Full-speed *1

F-2-23

*1: The control sequence is different by the detection temperature of the environmental sensor.

The fan is driven for maximum 180 seconds after a fixing motor stopped.

When the left cover was opened, the fan stops.

## ■ Power Supply Control

### ● Energy Saving Function



□ Power-on
□ Power-saving
□ Power-off

[1] Press [Power-saving] key.
[3] Print Job
[2] Time to shift to a sleep mode passed.
[4] An automatic shut down timer

F-2-24

| Condition | Description |
|-----------|-------------|
| Stand by | It is a mode from which operation can be started immediately and in which all the power is supplied. |
| Sleep 1 | Although the power is supplied to the controller, no power is supplied to the engine, reader and Control Panel. |
| Sleep 2 | The CPU of the controller is in the power-saving status, and no power is supplied to the engine, reader and Control Panel. |
| Service error | State in which error code is displayed. Power status does not shift to another one until the service error is canceled. |

T-2-12

● Internal Power Supply



+3.3V
+24V
ADF driver PCB

+3.3V
+5V
Control panel assembly

+3.3V
+24V
CIS unit

+3.3V
+24V
Laser scanner unit

+5V
Sensor

Main switch (SW1)

Controller PCB

+5V generation circuit

+3.3V
+24V

+3.3 generation circuit
+24V generation circuit

Power supply PCB

Heater control circuit

Heater switch (SW100)

Fixing heater

+24V

Heater PCB

Cassette heater (for cassette 1)

Cassette heater (for cassette 2)

Left cover switch (SW2)

Option or standard

+3.3V
+5V
+24V
Duplex PCB

+24V
1-Cassette controller PCB

+3.3V
+24V
+5V
HVT PCB

+24V
Motor
Solenoid
Clutch
Fan

F-2-25

Service Operations

■ Periodically Replaced Parts

None

■ Consumable Parts

None.

■ Periodical Servicing

None

■ Action to take when replacing parts

| Part name | Action | Reference |
|---|---|---|
| Controller PCB | Print the set/loaded data.<br>Set/load data again.<br>Automatic gain offset adjustment for the CIS unit<br>White level adjustment for reading | "Removing the Controller PCB"(page 4-27). |

T-2-13

# Laser Exposure System

## ⬤ Construction

### ■ Specifications/Controls/Functions

#### ⬤ Laser light

| The number of laser light | 2 |
|---|---|
| Output | 5mW |
| Wave length | 785nm - 800nm (Infrared laser) |

T-2-14

#### ⬤ Scanner motor

| Motor type | DC brushless motor |
|---|---|
| The number of rotation | 18923.767rpm |
| Type of bearing | Oil |

T-2-15

#### ⬤ Polygon mirror

| The number of face | 4 |
|---|---|

T-2-16

#### ⬤ Controls

| Laser lighting timing control | Laser control signal |
|---|---|
| Synchronous control | BD signal |
| Laser intensity control | APC (Automatic Photocurrent Control) |
| Polygon motor control | Polygon motor control signal |
| Laser shutter control | Laser shutter control signal |

T-2-17

### ■ Main Configuration Parts



F-2-26

| Name | Function |
|---|---|
| Photoconductive drum | Receives laser beam to form latent image. |
| Polygon mirror | Scans laser beam on the photoconductive drum in main scan direction. |
| Laser unit | Emits laser beam and detects BD signal. |
| Anamorphic lens | Reflects laser beam into the BD detector. |

T-2-18

## ■ Control System Configuration

The laser exposure system is controlled by controller PCB and Laser unit.

- Laser control signal
- BD signal
- Polygon motor control signal
- Automatic photocurrent control (APC)

Controller PCB

IC702

J715    J711

Laser control signal
BD signal

Polygon motor control

Automatic photocurrent control
(APC)

F-2-27

| Laser control signal | | Function |
|---|---|---|
| Laser control signal | CONT0 | A/B Laser control signal |
| | CONT1 | A/B Laser control signal |
| | CONT2 | A/B Laser control signal |
| BD signal | BDI | BD signal |
| Polygon motor control signal | FG | FG output signal |
| | /P ACC | Motor acceleration signal |
| | /P DEC | Motor deceleration signal |

T-2-19

## Various Control

### Laser control signal

Laser ON/OFF is controlled by combination of laser control signal (CNT0/1/2). Controller PCB sends video signal (VDO1, /VDO1, VDO2, /VDO2) and laser control signal (CONT0/1/2) to the laser unit. Combination of the laser control signal (CNT0/1/2) is shown as follows.

| Laser control signal | | | Laser status | | |
|---|---|---|---|---|---|
| CNT2 | CNT1 | CNT0 | A laser | B laser | Description |
| 0 | 0 | 0 | OFF | OFF | Laser control OFF |
| 0 | 1 | 0 | ON | OFF | APC_A control |
| 0 | 0 | 1 | OFF | ON | APC_B control |
| 0 | 1 | 1 | OFF | OFF | Forcible output OFF |
| 1 | 0 | 0 | ON | ON | Laser AB Forcible output |
| 1 | 0 | 1 | OFF | ON | Laser B Forcible output |
| 1 | 1 | 0 | ON | OFF | Laser A Forcible output |
| 1 | 1 | 1 | Allowed Video signal entry | | Laser emitting is possible following the video signal. |

T-2-20

### BD signal

BD signal are horizontal synchronous which the controller PCB outputs image signal each scan and vertical synchronous which the controller PCB recognizes the top edge of the paper. A printer starts sending BD signal when delivery paper reaches to specific point. The controller PCB recognizes the beginning of continuous BD signal as top edge of the paper, recognizes the end of continuous BD signal as end edge of the paper.

### Controlling the Intensity of Laser Light

#### APC
APC monitors the laser light that emits the built-in photo diode of the laser diode and adjusts it appropriate intensity.

### Controlling the Polygon Motor

#### Polygon Motor Control Signal
Polygon motor control signal controls the rotation speed by referring to the polygon motor rotation speed signal (FG signal) between the polygon motor reaches target rotation number from start-up and image formation. It controls the polygon motor rotation speed based on BD signal during image formation. Polygon motor rotation speed is controlled by speed-up signal (ACC signal) and speed-down signal (DEC signal).



F-2-28

## ■ Controlling the Laser Shutter

### ● Laser Shutter Control

When the drum unit is drawn, laser shutter which is linked to the drum unit, lift down and the laser light is blocked. Also, when the front door or right door open is detected, polygon motor and the laser emission are turned OFF.



F-2-29

[1] Laser shutter
[2] Polygonal mirror
[3] Laser beam

T-2-21

## ● Service Tasks

### ■ Periodically Replaced Parts

None

### ■ Consumable Parts

None

### ■ Periodical Servicing

None

### ■ Action to take when replacing parts

None

# Image Formation System

## Basic Configuration

### ■ Specifications of Image Formation System

| Item | | Specifications/Mechanism/Method |
|---|---|---|
| Photosensitive drum | Material | OPC drum |
| | Drum diameter | φ30 |
| | Cleaning method | Cleaning blade |
| | Process speed | 106.81mm/sec |
| Primary charging | Charging method | Primary charging roller (AC+DC) |
| | Roller diameter | φ14 |
| Transfer | Transfer method | Transfer roller |
| | Roller diameter | φ16 |
| Developing | Developing method | Dry one-component jumping development (AC+DC) |
| | Developing cylinder diameter | φ20 |
| | Toner | Magnetic negative toner |
| | Toner level detection | Toner detection sensor (inside developing unit) |
| Separation | Separation method | Static separation (Static eliminator) + Curvature separation |
| | Toner waste container | Collection into the drum unit. |

T-2-22

### ■ Major Components of Image Formation System

Major component parts in image formation system are shown below.



F-2-30

| | Name | Function |
|---|---|---|
| [1] | Photosensitive Drum | Forms image on the surface of the Photosensitive Drum. |
| [2] | Cleaning Blade | Removes residual toner on the surface of the Photosensitive Drum. |
| [3] | Primary Charging Roller | Charges negatively on the surface of the Photosensitive Drum while it rotates following the Photosensitive Drum rotation. |
| [4] | Drum Unit | Consists of a Photosensitive Drum, a Primary Charging Roller, etc. |
| [5] | Developing Blade | Controls the amount of toner to uniform it on the Developing Cylinder. |
| [6] | Developing Assembly | Consists of a Developing Cylinder, a Developing Blade, etc. |
| [7] | Toner Container | A toner container for supply |
| [8] | Developing Cylinder | Transfers toner from the Developing Assembly to the Photosensitive Drum. |
| [9] | Transfer Roller | Positively charges the back side of the paper to transfer toner from the Photosensitive Drum to the paper. |
| [10] | Static Eliminator | Negatively charges the back side of the paper to separate the paper from the Photosensitive Drum. |

T-2-23

# ■ Image Formation Process

The image formation system consists of 6 blocks such as primary charging, laser exposure, developing, transfer, separation and cleaning.

[6] Drum cleaning block

Primary Charging Roller

Cleaning blade

Photosensitive Drum

[1] Primary charging block

Paper

[5] Separation block

Static Eliminator

[2] Laser exposure block

[3] Developing block

Transfer Roller

[4] Transfer block

Developing Cylinder

F-2-31

| | Image Formation Process | Description |
|---|---|---|
| [1] | Primary charging block | Negative potential is formed on the surface of the photosensitive drum. |
| [2] | Laser exposure block | Latent image formation is formed on the photosensitive drum as charge neutralization is proceeded by laser beam sweep. |
| [3] | Developing block | Visible image is formed as the negatively-charged toner on the developing cylinder. It adheres to latent image formation on the surface of the photosensitive drum. |
| [4] | Transfer block | A toner on the photosensitive drum is transferred to the paper as positive charge is applied to the back of it. |
| [5] | Separation block | A paper is separated from the photosensitive drum with its elastic force while negative charge is applied to the back of the paper. It facilitates paper separation. |
| [6] | Drum cleaning block | A cleaning blade scrapes a residual toner on the surface of the photosensitive drum and it feeds the waste toner to the drum unit. |

T-2-24

## Basic Sequence

Basic sequence for printing is as follows.
- 2 Prints, Continuous, Cassette 1

| | | WAIT | STBY | INTR | PRINT | LSTR |
|---|---|---|---|---|---|---|
| 1 | Main Motor(M202) | | | | | |
| 2 | Polygon Motor(M203) | | | | | |
| 3 | Laser | | | | | |
| 4 | Pre-registration Sensor(SR207) | | | | | |
| 5 | Delivery Sensor(SR203) | | | | | |
| 6 | Registration Clutch(CL203) | | | | | |
| 7 | Primary Charging AC Bias | | | | | |
| 8 | Primary Charging DC Bias | | | | | |
| 9 | Developing AC Bias | | | | | |
| 10 | Developing DC Bias | | | | | |
| 11 | Transfer Bias | | | | | |
| 12 | Separation Static Eliminator Bias | | | | | |

Main power switch ON      Print command received

*1: Cleaning Bias

F-2-32

# Controls

## ■ Drum Unit

A Drum Unit mainly consists of a Photosensitive Drum, a Primary Charging Roller, a Cleaning Blade. It is driven by Main Motor (M202). The Cleaning Blade is in contact with the surface of the Photosensitive Drum to remove residual toner which is leftover of the transfer from the surface of the Photosensitive Drum to the paper.

Primary charging roller

Cleaning blade

Photosensitive drum

FRONT

M202

[1]

Controller PCB

F-2-33

[1]     Main motor drive signal

## ● Primary Charging Bias Control

Primary charging system is direct charging by charging roller. AC bias is applied to the primary charging roller to provide constant charging apart from DC bias.

Photosensitive drum

Primary charging roller

HVT PCB

Environment sensor

[1]     [2]

Primary DC bias control circuit

Primary AC bias control circuit

Controller PCB

F-2-34

[1]     Primary charging bias control signal
[2]     Environment sensor detection signal

## ● AC bias switch control

AC bias changes output value according to the environment detected on the environment sensor (HU1).

## ■ Developing Assembly

Developing Assembly mainly consists of a Developing Cylinder, a Developing Blade, and a Toner Stirring Plate. It is driven by main motor (M202) and registration clutch (CL203). Toner level in the developing assembly is detected by antenna sensor.



F-2-35

[1]     Developing cylinder clutch drive signal
[2]     Main motor drive signal

## ● Developing Bias Control

DC bias and AC bias are applied to the Developing Cylinder.



F-2-36

[1]     Developing bias control signal
[2]     Environment sensor detection signal

## ● DC bias switch control

DC bias changes output value of DC bias according to the environment and density setting detected on the Environment Sensor (HU1).

● Toner Level Detection

Toner level detection performs at warm up rotation and at print for AC bias application. It detects toner level by difference between reference signal (TNRCHKD) from the developing bias detection circuit and toner level detection signal (TNRCHKT)

Antenna sensor

Toner cartridge

Developing assembly

F-2-37

| Toner level | Status | Message | Operation |
|---|---|---|---|
| 100 to 9% | F-2-38 | None | When the residual toner level is between 100 and 9%, message is not displayed on the bottom of the operation panel. |
| 8 to 1% | F-2-39 | Replace the toner cartridge. (Continuous printing is enabled.) | When the residual toner level is between 8 and 1%, message is displayed on the bottom of the operation panel. Print remains and toner replacement is possible during printing. |
| 0% | F-2-40 | Replace the toner cartridge. (Print job is suspended) | When the residual toner level is 0%, message is displayed on the bottom of the operation panel. Print job is suspended. |

T-2-25

■ Toner Cartridge

The toner cartridge is charged with single component magnetic negative charge toner. The toner is delivered from the toner supply port to the developing assembly as stirring rod in the toner bottle is rotated by the main motor.

Stirring rod

Toner supply port

FRONT

Toner Cartridge lever

F-2-41

## ■ Transfer Unit

A transfer unit consists of a Transfer Roller and a Static Eliminator. A transfer roller rotates following the photosensitive drum rotation.



F-2-42

## ● Transfer Roller Bias Control

Negative bias, sheet-to-sheet bias, or positive bias is applied to the transfer charging roller according to the type of sequence.



F-2-43

[1]    Separation static eliminator bias control signal
[2]    Transfer bias control signal
[3]    Environment sensor detection signal

## ● Cleaning Bias Control

Cleaning bias applies negatively-charged voltage at the last rotation. Attached toner on the transfer roller is returned to the photosensitive drum.

## ● Separation static eliminator bias control

Two types of negatively-charged voltages, weak and strong biases, are applied to the static eliminator according to the print mode and sequence. The paper is easily separated from the photosensitive drum by reducing electrostatic absorption force.

## ●Service Tasks

### ■ Periodically Replaced Parts

None

### ■ Consumable Parts

| No | Items | Parts Number | Q'ty | Life | Remarks |
|----|-------|--------------|------|------|---------|
| 1 | Transfer Roller | FE3-2866 | 1 | 150,000 sheets | "Removing the Transfer Roller"(page 4-39). |
| 2 | Developing Assembly | (EU):FM1-B029 (Latin America):FM1-F146 (Asia)FM1-F147 | 1 | 150,000 sheets | "Removing the Developing Assembly"(page 4-36). |

T-2-26

### ■ Periodical Servicing

None

### ■ Action to take when replacing parts

None

# Fixing System

## ⬤ Overview

### ■ Features

This machine introduces the on-demand fixing method.



Fixing film unit

Pressure roller

Fixing inlet guide

F-2-44

## ■ Specifications

| Item | Function/method |
|------|-----------------|
| Fixing method | On-demand fixing |
| Fixing heater | Ceramic heater |
| Control temperature | 185 deg C (A4/plain paper) *1 |
| Temperature detection | By the main thermistor and the sub thermistor |
| Edge heat rising prevention control | Down sequence control |
| Fixing loop control | Arch sensor (SR211) |
| Protective Function | Main thermistor and Sub thermistor<br>Thermo switch (operating temperature: 250 +/- 7 deg C) |

T-2-27

*1. Target temperature is specified depending on the paper size, the fixing mode, the number of prints, the fixing temperature at the start of warm-up control.

## ■ Major parts configuration



Fixing film unit

Pressure roller

Thermo switch (TP1)

Fixing delivery sensor (SR201)

Fixing heater (H1/H2)

Main thermistor (TH1)

Sub thermistor (TH2)

F-2-45

| Part name | | Function / method |
|---|---|---|
| --- | Fixing film unit | Applying heat and pressure makes the toner image on paper fixed (fused). |
| --- | Pressure roller | |
| H1/H2 | Fixing heater | Ceramic heater |
| TH1 | Main thermistor | To be in contact with the heater <br> Temperature control, detection of abnormal temperature rise |
| TH2 | Sub thermistor (rear) | To be in contact with the heater (non-feeding area) <br> Temperature control, detection of abnormal temperature rise, temperature detection/cooling control on the edges |
| TP1 | Thermo switch | Non-contact type with the heater <br> To block AC electric power supply when a failure is detected. |
| SR201 | Fixing delivery sensor | Jam detection |

T-2-28

## ● Controls

### ■ Fixing temperature control

Fixing temperature



STBY | INTR | PRNT

Startup (Initial rotation) control temperature

During-print control temperature

Sheet-to-sheet control temperature

Command for print start

Time

F-2-46

### ● Print temperature control

To increase temperature to meet the fixing target temperature and keep the target temperature during printing
- Startup (warm-up rotation) temperature control
- Print temperature control
- Sheet-to-sheet temperature control

### ● Down sequence control

To prevent fixing failure due to rising temperature at the edge or fall in temperature. This control causes reduced the productivity (through-put).
- Down sequence when printing continuously
- Down sequence when overheating inside the machine
- Down sequence when switching paper size

C.Sheet-to-sheet distance temperature control

To prevent the excessive temperature rise and to save the power consumption, the target temperature is set low from the printing temperature.

| Fixing mode | Size | Target temperature (deg C) |
|---|---|---|
| Plain paper, heavy paper L, OHP | 16K | Target temperature – 15 |
| | Except for 16K | Target temperature – 5 |
| Heavy paper, super heavy paper | - | Target temperature – 15 |
| Envelope | - | Same as target temperature |

T-2-30

Related Service Mode
- Set fixing control temperature table: Plain paper mode

  COPIER > OPTION > BODY > TEMPCON2
  <Details> To change the fixing control temperature in the plain paper mode (plain paper, color paper, recycled paper, pre-punched paper).
  <Set range> -6 to 6 (-30 deg C to 30 deg C)  [Default value: 0]
  <Unit> 5 deg C

- Set fixing control temperature table: Heavy paper mode

  COPIER > OPTION > BODY > TEMP-CON
  <Details> To change the fixing control temperature in the heavy paper mode (heavy paper 1, heavy paper 2, bond, transparency, envelope).
  <Set range> -6 to 6 (-30 deg C to 30 deg C)  [Default value: 0]
  <Unit> 5 deg C

- 2-sided curl correction mode
  COPIER > OPTION > BODY > TMP-TB15
  <Details>To change the fixing temperature to correct the curl in 2-sided print (high temperature / high humidity environment, palin paper or special mode P)
  <Set range> 0: OFF, 1 to 6: ON [Default value: 0]

## ■ Down sequence control

### ● Down sequence when printing continuously

Purpose:

To prevent temperature rise of non-feeding area in the case of continuous print, fixing offset or deterioration of fixing film.

Starting conditions:

The down sequence is performed step by step. When the detected temperature of sub thermistor reaches the following temperature or higher for 400 msec continuously, the productivity decreases every one step.

| Size | Down sequence shift temp |
|---|---|
| A3, A4, LTR, LDR | 285 deg C |
| Except  for A3, A4, LTR, LDR | 255 deg C |

T-2-31

| Step | Normal | 1st step | 2nd step | 3rd step |
|---|---|---|---|---|
| Shift temp (deg C) | 235 | 245 | 255 | 275 |

T-2-32

Operation:

Temperature is reduced by making wider sheet-to-sheet distance with the maximum 5 steps to control the temperature at lower than the target temperature for normal print.

| Fixing mode | Step | A3 LDR | A4 LTR 16K | B4 LGL 8K | B5 EXEC | A4R LTRR | A5 STMT | A5R B5R STMTR 16KR | Free size |
|---|---|---|---|---|---|---|---|---|---|
| Plain paper | 1 | 5 | 11 | 8 | 19 | 10 | 21 | 10 | 4 |
| | 2 | 2 | 4 | 6 | 18 | 9 | 19 | 8 | 3 |
| | 3 | 2 | 2 | 4 | 17 | 8 | 18 | 7 | 3 |
| | 4 | 2 | 2 | 4 | 12 | 4 | 12 | 4 | 3 |
| | 5 | 2 | 2 | 4 | 7 | 4 | 7 | 4 | 3 |
| Heavy paper | 1 | 4 | 5 | 5 | 8 | 8 | 8 | 6 | 3 |
| | 2 | 2 | 2 | 4 | 6 | 6 | 6 | 5 | 2 |
| | 3 | 2 | 2 | 3 | 4 | 4 | 4 | 4 | 2 |
| | 4 | 2 | 2 | 3 | 4 | 4 | 4 | 3 | 2 |
| | 5 | 2 | 2 | 3 | 4 | 4 | 4 | 3 | 2 |

| Fixing mode | Step | A3 LDR | A4 LTR 16K | B4 LGL 8K | B5 EXEC | A4R LTRR | A5 STMT | A5R B5R STMTR 16KR | Free size |
|---|---|---|---|---|---|---|---|---|---|
| OHP | 1 | 5 | 11 | 8 | 19 | 10 | 21 | 10 | 4 |
| | 2 | 2 | 4 | 6 | 18 | 9 | 19 | 8 | 3 |
| | 3 | 2 | 2 | 4 | 17 | 8 | 18 | 7 | 3 |
| | 4 | 2 | 2 | 4 | 12 | 4 | 12 | 4 | 3 |
| | 5 | 2 | 2 | 4 | 7 | 4 | 7 | 4 | 3 |
| Super heavy paper | 1 | 3 | 4 | 4 | 5 | 4 | 5 | 4 | 3 |
| | 2 | 2 | 2 | 2 | 4 | 3 | 4 | 3 | 2 |
| | 3 | 2 | 2 | 2 | 3 | 2 | 3 | 2 | 2 |
| | 4 | 2 | 2 | 2 | 3 | 2 | 3 | 2 | 2 |
| | 5 | 2 | 2 | 2 | 3 | 2 | 3 | 2 | 2 |
| Heavy paper L | 1 | 4 | 7 | 6 | 10 | 8 | 10 | 8 | 4 |
| | 2 | 2 | 2 | 5 | 8 | 6 | 8 | 6 | 3 |
| | 3 | 2 | 2 | 3 | 4 | 4 | 6 | 4 | 3 |
| | 4 | 2 | 2 | 3 | 4 | 4 | 4 | 4 | 3 |
| | 5 | 2 | 2 | 3 | 4 | 4 | 4 | 4 | 3 |
| Envelope | 1 | - | - | - | - | - | - | - | 4 |
| | 2 | - | - | - | - | - | - | - | 3 |
| | 3 | - | - | - | - | - | - | - | 3 |
| | 4 | - | - | - | - | - | - | - | 3 |
| | 5 | - | - | - | - | - | - | - | 3 |

T-2-33

Completion conditions:

When the fixing temperature reaches 175 deg C and lower for 400 msec continuously, the productivity returns to the normal step.



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Related Service Mode
- Change of detection temperature for the fixing edge temperature

  COPIER > OPTION > BODY > FIX-OFST
  <Details> Lower the detection temperature of the fixing sub thermistor to shift the machine control to the slow down sequence for small size papers (less than B5 of length in width direction)
  <Set range> 0: OFF, 1: ON  [Default value: 0]

## ● Down sequence when overheating inside the machine

Purpose:

The temperature in the drum unit is controlled by less than 53 deg C referring to the detection temperature of the environmental sensor.

Starting conditions:
- When the detection temperature of the environmental sensor is more than specified temperature at the print start.
- When the alarm of the environmental sensor occurred. (Operation in down sequence [B] of the following table)

Operation:

|  | Down sequence [A] | Down sequence [B] |
|---|---|---|
| Environmental sensor | Detection temperature: 35 deg C | Detection temperature: 37 deg C |
| Print image number | More than 250 *1 | More than 100 |
| Sheet-to-sheet target temperature | 120 deg C | |
| Print speed (1-sided/2-sided) | 12/12 | 8/10 |
| Last rotation time | 60 sec | |

T-2-34

*1: When the number of the images after the print end does not reach 250, the printing image count is stored. Then the count value is continued on the next print.

## ● Down sequence when switching paper size

Purpose:

This down sequence prevents temperature rise of non-feeding area: there can be possible fixing offset or wrinkle of the succeeding paper due to increased temperature of non-feeding area of the preceding paper when continuously making prints or feeding wider length of paper than the preceding paper.



F-2-49

Starting conditions:
1. If the detected temperature of the sub thermistor reaches more than 125 deg C when switching to the paper which has longer width than the preceding paper.
2. If the detected temperature of the sub thermistor reaches more than 125 deg C and the target temperature reaches more than 140 deg C.

Operation:

Pickup of the succeeding paper and power distribution to the heater are stopped as well to decrease the fixing temperature.

Completion conditions:

When the detected temperature of the sub thermistor reaches 125 deg C and less.

## ■ User mode related to fixing grade

The fixing grade is affected by some special modes in user mode which change the control temperature or productivity. The related modes are as follows.

| Special Mode N | |
|---|---|
| Outline | Thin paper curl correction mode |
| Use case | When paper jams occur in 2-sided printing using the curled paper and moist paper. |
| Details | Paper jams may frequently occur when performing 2-sided printing, depending on the paper type (especially with curled paper and damp paper). In this case, change this setting to Mode 1 (N1 mode) or Mode 2 (N3 mode).<br>N1 mode: Lower the fixing target temperature for all paper type.<br>N3 mode: Plain paper and special mode P are effective only in ON. Lower the fixing target temperature. The productivity decreases for initial rotation extension. |
| Set range | Off: Mode1: N1 mode, Mode2: N3 mode |
| Default value | Off |
| Special Mode S | |
| Outline | Shortening of wait time after the paper size change |
| Use case | Shortening of wait time after the paper size change |
| Details | When the paper size is changed, the machine stops operation until it is ready to feed different size paper. Shorten this waiting time to prioritize print speed. |
| Set range | Off: wait time 120 seconds, Mode1: wait time 0 seconds, Mode2: wait time 10 seconds |
| Default value | Off |
| Special Mode P | |
| Outline | The fixing control temperature mode of the curl prevention |
| Use case | When the paper curl occurs |
| Details | Lower the fixing control temperature in the plain paper mode. |
| Set range | Off, On |
| Default value | Off |

T-2-35

## ■ Paper loop amount control before fixing

Purpose:
To get a proper image by avoiding a shock when the trailing edge of paper comes out of the registration roles, an appropriate paper loop is formed between transfer roller and fixing roller.



Pressure roller  Fixing film  Sensor: OFF  Drum  Arch sensor (SR211)  Sensor: ON  Transfer roller  Registration roller

F-2-50

Starting conditions:
This control is performed at every paper feeding.

Operation:
The fixing motor drive speed is controlled as follows by detecting the paper loop between transfer roller and fixing roller with the arch sensor.

1) The fixing motor drive speed is reduced when the reading edge of paper is fed 35mm from the transfer roller. The reduced speed is kept until the arch sensor is turned on by the formed paper loop.

2) After detecting the ON condition of the arch sensor for 50 msec continuously, the fixing motor drive speed is increased compared with the process speed. The increased speed is kept until the arch sensor is turned off by the deleted paper loop.

3) After detecting the OFF condition of the arch sensor for 50 msec continuously, the

fixing motor drive speed is reduced compared with the process speed. The reduced speed is kept until the arch sensor is turned on by the formed paper loop.

4) Repeat steps 2) and 3). The fixing motor drive speed is increased compared with the process speed when the trailing edge of paper is fed 10 from the transfer roller.

5) When continuously making prints, return to step 1). When making a single print, shift to the last rotation.

## ■ Protection features

| Code | Description | | Error Clear |
|------|------|------|------|
| E000 | Fixing assembly temperature insufficient rise at the startup temperature control | | Yes |
| | 0000 | The fixing assembly does not rise to the constant temperature within specified time at the startup temperature control. | |
| E001 | Fixing assembly temperature abnormal rise | | Yes |
| | 0000 | The reading of the main thermistor is 240 deg C or more. | |
| | 0001 | The reading of the sub thermistor is 295 deg C or more. | |
| E002 | Fixing assembly temperature insufficient rise at the print temperature control | | Yes |
| | 0000 | The fixing assembly does not rise to the constant temperature within specified time at the print temperature control. | |
| E003 | Low fixing temperature detection after standby | | Yes |
| | 0000 | The reading of the main thermistor is less than specified temperature. | |
| | 0001 | The reading of the sub thermistor is less than specified temperature. | |
| E004 | Thermistor disconnection detection error | | No |
| | 0000 | When thermistor disconnection is detected without specified time. | |
| E014 | The fixing pressure or release is not possible by the fixing motor (M201). | | No |
| | 0001 | Driving the fixing motor, the fixing release is not detected by the fixing pressure release sensor (SR202). | |
| | 0001 | Driving the fixing motor, the fixing pressure is not detected by the fixing pressure release sensor (SR202). | |
| E261 | Error in zero cross | | No |
| | 0000 | Zero cross error is detected. | |

T-2-36

Related Service Mode
• Error code clear
  COPIER > FUNCTION > CLEAR > ERR

## ⬤ Work of Service

### ■ Periodically Replaced Parts

None

### ■ Consumable Parts

| No | Items | Parts Number | | Q'ty | Life | Remarks |
|----|-------|--------------|--|------|------|---------|
| | | Network model | Local print model | | | |
| 1 | Fixing assembly (120V) | LTN: FM1-F164 TWN: FM1-F165 | None | 1 | 150,000 sheets | "Removing the Fixing Assembly"(page 4-40). |
| | Fixing assembly (230V) | EUR: FM1-F162 Asia/General: FM1-F163 | EUR: FM1-F160 Asia/General: FM1-F161 | | | |

T-2-37

### ■ Periodical Servicing

None

### ■ Action to take when replacing parts

None

# Pickup Feed System

## Overview

### ■ Specification

| Item | | Description |
|---|---|---|
| Paper storage method | | Front loading method |
| Pickup method | Cassette 1 | Pad separation method |
| | Cassette 2 | Retard separation method |
| | Multi-purpose pickup tray | Pad separation method |
| Paper stack capacity | Cassette 1 | 250 sheets (80 g/m$^2$), 300 sheets (64 g/m$^2$) |
| | Cassette 2 | 250 sheets (80 g/m$^2$), 300 sheets (64 g/m$^2$) |
| | Multi-purpose pickup tray | 80 sheets (80 g/m$^2$), 100 sheets (64 g/m$^2$) |
| Paper feed reference | | Center reference |
| Paper size | Cassette 1 | A4, A4R, A3, A5R, B4, B5, B5R, LTR, LTRR, LGL, 11" x 17" (279 mm X 432 mm), STMTR, 8K, 16K, 16KR |
| | Cassette 2 | A4, A4R, A3, A5, B4, B5, B5R, LTR, LTRR, LGL, 11" x 17" (279 mm X 432 mm), STMT, 8K, 16K, 16KR |
| | Multi-purpose pickup tray | A4, A4R, A3, A5, A5R, B4, B5, B5R, LTR, LTRR, LGL, 11" x 17" (279 mm X 432 mm), STMT, STMTR, EXEC, 8K, 16K, 16KR, Custom paper size (95 x 148 mm to 297 x 431.8 mm), Envelopes (No.10(COM10), Monarch, ISO-C5, DL) |
| Paper grammage | Cassette | 64 g/m$^2$ to 90 g/m$^2$ |
| | Multi-purpose pickup tray | 64 g/m$^2$ to 128 g/m$^2$ |
| Paper size switch | Cassette | By the user |
| | Multi-purpose pickup tray | By the user |
| Duplexing method | | Through path |
| Option | | Cassette Feeding Module-AB1 (standard model presence) Duplex Unit-C1 (standard model presence) Cassette Heater Unit-40 |

T-2-38

### ■ Parts Configuration

#### ● Arrangement of Rollers



F-2-51

| [1] | Cassette 2 pickup roller | If equipped with the 1-cassette module. |
|---|---|---|
| [2] | Cassette 2 separation roller | If equipped with the 1-cassette module. |
| [3] | Cassette 2 feed roller | If equipped with the 1-cassette module. |
| [4] | Vertical path roller | If equipped with the 1-cassette module. |
| [5] | Cassette 1 separation pad | |
| [6] | Cassette 1 pickup roller | |
| [7] | Multi purpose tray separation pad | |
| [8] | Multi purpose tray pickup roller | |
| [9] | Feed roller | |
| [10] | Registration roller | |
| [11] | Duplex roller 2 | If equipped with the duplex unit. |
| [12] | Drum | |
| [13] | Duplex roller 1 | If equipped with the duplex unit. |
| [14] | Fixing film | |
| [15] | Delivery roller | |

● Arrangement of Sensors



F-2-52

| SR201 | Fixing delivery sensor | |
|-------|------------------------|--|
| SR203 | Delivery sensor | Network model only |
| SR207 | Pre-registration sensor | |
| SR211 | Arch sensor | |
| SR502 | Cassette 2 pickup sensor | If equipped with the 1-cassette module. |
| SR503 | Duplex feed sensor | If equipped with the duplex unit. |

● Route of Drive

It is different whether the drive motor of the delivery roller attaches the duplex unit.



*1: Only if equipped with the duplex unit.

F-2-53

| M201 | Fixing motor | |
|------|--------------|--|
| M202 | Main motor | |
| M501 | Duplex motor | If equipped with the duplex unit. |
| M502 | Reverse motor | If equipped with the duplex unit. |
| CL201 | Multi-purpose tray feed clutch | |
| CL202 | Cassette feed clutch | |
| CL203 | Registration clutch | |
| CL501 | Cassette 2 drive clutch | If equipped with the 1-cassette module. |
| SL201 | Multi-purpose tray pickup solenoid | |
| SL202 | Cassette 1 pickup solenoid | |
| SL501 | Cassette 2 pickup solenoid | |

## ■ Diagram of Paper Paths

### ● If not equipped with the Duplex Unit

Delivery to tray

Pickup from
multi purpose tray

Pickup from cassette 1

Pickup from cassette 2

F-2-54

### ● If equipped with the Duplex Unit

Duplex re-pickup

Delivery to tray

Pickup from
multi purpose tray

Pickup from cassette 1

Pickup from cassette 2

F-2-55

## Controls

### ■ Overview



Duplex feed control

Fixing/registration assembly

Multi-purpose pickup assembly

Cassette pickup assembly

F-2-56

| Area | Detection, Control |
|---|---|
| Cassette pickup assembly | Outline |
| | Paper size detection |
| | Paper presence detection |
| | Cassette heater control |
| Multi-purpose pickup assembly | Outline |
| | Paper presence detection |
| | Paper size detection |
| | Post-pickup control after multi-purpose tray pickup |
| Fixing/registration assembly | Registration control |
| Duplex/delivery assembly | Outline |
| | Drive change |
| | Circulation number of sheets in the duplex printing |
| JAM detection | JAM detection |

T-2-39

## ■ Cassette Pickup Assembly

### ● Overview

The paper inside the cassette 1 is held up by the lifter plate.

When pickup takes place, the cassette 1 pickup solenoid (SL202) is turned on, and the pickup roller is moved down. When the pickup roller comes into contact with the surface of paper, the sheet is picked up by rotation of the roller.

Only a single sheet of paper picked up is moved to the feed path by the pickup roller and the separation pad, and moved as far as the registration roller by the feed roller.

The feed roller and the pickup roller are driven by the main motor (M202).

Refer to the service manual of Cassette Feeding Module-AB1 for the pickup control of cassette 2.



F-2-57

[1]     Lifter plate
[2]     Separation pad
[3]     Pickup roller
[4]     Feed roller

● Paper Size Detection

When the size group detected by the cassette large size sensor (SR206) accorded with the
paper size set on the operation pannel, the paper size of cassette 1 is decided.
The size group of the cassette large size sensor (SR206) is detected by adjusting the position
of the rear edge guide plate. When the size group which the cassette large size sensor
detected did not accord with paper size set on the operation panel, the alarm is displayed.
This machine does not have the cassette presence detection function.



F-2-58

| Size group | No. | Length direction [mm] | Paper size |
|---|---|---|---|
| Small size (Cassette large size sensor OFF) | 1 | 139.7 | STMT |
| | 2 | 148.0 | A5 |
| | 3 | 182.0 | B5 |
| | | 185.0 | EXEC |
| | | 195.0 | 16K |
| | 4 | 210.0 | A4/A5R |
| | | 215.9 | LTR/STMTR |
| Large size (Cassette large size sensor ON) | 5 | 257.0 | B5R |
| | 6 | 270.0 | 16KR |
| | 7 | 279.4 | LTRR |
| | 8 | 297.0 | A4R |
| | 9 | 355.6 | LGL |
| | 10 | 364.0 | B4 |
| | 11 | 390.0 | 8K |
| | 12 | 420.0 | A3 |
| | 13 | 431.8 | 11"X17" |

T-2-40

● Paper Presence Detection

Paper presence is detected by the cassette 1 paper sensor (SR205).

This machine does not have the paper level function in the cassette.



SR205

F-2-59

| Cassette 1 paper sensor | Paper level | Display on the control panel |
|---|---|---|
| OFF | Paper presence | 🗀 |
| ON | Paper absence | 🗀 |

T-2-41

● Cassette Heater Control

This machine can install the optional cassette heater to suppress the moisture absorption of the paper in the cassette.

The heater kit is required installing the cassette heater.



Heater PCB

Cassette heater (Cassette 1)

Cassette heater (Cassette 2)

&lt;Heater operating condition&gt;

| | | Cassette heater |
|---|---|---|
| Turning on the heater switch | Standby mode | OFF |
| | Printing | OFF |
| | Turning off the main power switch | ON |
| | Sleep mode 1 | ON |
| | Sleep mode 2 | ON |

T-2-42

## ■ Multi-Purpose Pickup Assembly

### ● Overview

The paper in the tray of the multi-purpose pickup assembly is forced against the multi-purpose tray pickup roller by the work of the lifter plate, and only a single sheet of paper is separated and moved into the machine by the work of the multi-purpose tray pickup roller and the separation pad.



Multi-purpose tray pickup roller

M202

CL201

SL201

Multi-purpose pickup tray

Lifter plate

Multi-purpose tray separation pad

F-2-60

### ● Paper Presence Detection

The paper presence is detected by the multi-purpose tray paper sensor (SR210).
When the paper absence is detected, if there is the same size & same type paper exists in other cassette, auto cassette change is executed.

### ● Paper Size Detection

This machine does not have the paper size detection function. The user must set the size of the paper in the multi-purpose tray using the operation panel, or the user must register a fixed size in the user mode.

### ● Post-pickup Control after Multi-purpose Tray Pickup

Paper pickup operation ends when paper is pressed against the registration roller. After this, the registration roller starts rotating and the multi-purpose tray feed clutch (CL201) turns on. This clutch turns off after feeding the paper by the distance equivalent to the paper size - 119.2 mm (*1) -5 mm (*2).

*1 Distance that paper is fed from the multi-purpose tray pickup roller to the registration sensor.

*2 Paper is post-fed to the point which is 5 mm to the training edge.

When the paper size is not specified, paper is post-fed by the distance equivalent to the multi paper feed enabled size (139.8 mm in longitudinal direction).
Minimum post-feed distance: 139.8 mm - 119.2 mm -5 mm = 15.6 mm

## ■ Fixing / Registration Assembly

### ● Registration Control

The registration roller is driven by the main motor (M202).
In between the registration roller and the main motor is the registration clutch (CL203), servicing to turn on and off the registration roller so that the paper will be matched in relation to the image on the drum at correct registration.



M202

CL203

Registration roller

F-2-61

# ■ Duplex / Delivery Assembly

## ● Outline

After the fixing delivery sensor (SR201) is turned off, the paper is fed to the reverse point.
Then the reverse motor (M502) turns in reverse direction, and the paper is led to the duplex unit .
The paper led to the duplex unit is fed by two duplex rollers to the registration roller.
The duplex roller 1/2 is driven by the duplex motor (M501).
The paper feed path is provided with two photo interrupters, duplex feed sensor (SR503) and delivery sensor (SR203).

Duplex unit
M501
M502
Delivery roller
S203
SR201
Reverse point
Duplex roller 1
SR503
Duplex roller 2

F-2-62

## ● Drive Change

If equpped with the duplex unit , the drive of the delivery roller transmitted by the fixtig motor (M201) is changed by the movement of the swing gear.
The drive of the delivery roller is transmitted by the reversal motor (M502) and the delivery roller rotates.

Duplex unit
Delivery roller
Swing gear

**REAR VIEW**

F-2-63

## ● Circulation Number of Sheets in the Duplex Printing

Following is the circulation number of sheets by size.

| Paper size | Circulation number of sheets |
|---|---|
| A4, A5R, B5, LTR, EXEC, STMTR, 16K | 2 |
| Besides the above | 1 |

T-2-43

## ■ Detecting Jams



F-2-64

| ACC ID | Jam Code | Type | Sensor ID | Sensor Name |
|---|---|---|---|---|
| 03 | 0104 | Delay jam | SR207 SR502 | Pre-registration sensor Cassette 2 pickup sensor |
| 03 | 0208 | Stationary jam | SR207 | Pre-registration sensor |
| 03 | 010C | Delay jam | SR201 SR203* | Fixing delivery sensor Delivery sensor |
| 03 | 0210 | Stationary jam | SR201 SR203* | Fixing delivery sensor Delivery sensor |
| 03 | 1014 | Power-on jam | SR201 SR203* SR207 SR211 SR502 SR503 | Fixing delivery sensor Delivery sensor Pre-registration sensor Arch sensor Cassette 2 pickup sensor Duplex feed sensor |
| 03 | 1118 | Cover open jam | - | - |
| 03 | 0221 | Stationary jam | SR203* SR503 | Delivery sensor Duplex feed sensor |
| 03 | 0124 | Delay jam | SR503 | Duplex feed sensor |

*: Network model only

T-2-44

## ● Work of Service

### ■ Periodically Replaced Parts

None

### ■ Consumable Parts

| No | Item | Parts No. | Q'ty | Life | Remarks |
|---|---|---|---|---|---|
| 1 | Multi-purpose tray pickup roller | FL2-3202 | 1 | 150,000 sheets | "Removing the Multi-purpose Tray Pickup Roller"(page 4-46). |
| 2 | Multi-purpose tray separation pad | FL2-3201 | 1 | 150,000 sheets | "Removing the Multi-purpose Tray Separation Pad"(page 4-47). |
| 3 | Cassette 1 pickup roller | FL3-1352 | 1 | 150,000 sheets | "Removing the Cassette 1 Pickup Roller"(page 4-49). |
| 4 | Cassette 1 separation pad | FL3-1447 | 1 | 150,000 sheets | "Removing the Cassette 1 Separation Pad"(page 4-48). |
| 5 | Cassette 2 pickup roller | (CHN): FC8-0170 (Except for CHN): FF6-1621 | 1 | 100,000 sheets | |
| 6 | Cassette 2 separation roller | FF6-1621 | 1 | 100,000 sheets | |

T-2-45

### ■ Periodical Servicing

None

### ■ Action to take when replacing parts

None

# 3

# Periodical Service

■ Consumable and Cleaning Parts

# Consumable and Cleaning Parts

●: Replacement (consumable parts)

| No. | System | Items | Parts No. | | Q'ty | Life | Interval | | Remarks | Reference |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Network model | Local print Model | | | 100,000 sheets | 150,000 sheets | | |
| 1 | Image formation system | Transfer roller | FE3-2866 | | 1 | 150,000 sheets | | ● | | "Removing the Transfer Roller"(page 4-39). |
| 2 | | Developing assembly | (EU) FM1-B029 (Latin America) FM1-F146 (Asia) FM1-F147 | | 1 | 150,000 sheets | | ● | | "Removing the Developing Assembly"(page 4-36). |
| 3 | Fixing system | Fixing unit (120V) | (Latin America) FM1-F164 (Taiwan) FM1-F165 | None | 1 | 150,000 sheets | | ● | | "Removing the Fixing Assembly"(page 4-40). |
| 4 | | Fixing unit (230V) | (EU) FM1-F162 (Asia)FM1-F163 | (EU) FM1-F160 (Asia)FM1-F161 | 1 | 150,000 sheets | | ● | | "Removing the Fixing Assembly"(page 4-40). |
| 5 | Pickup system | Multi-purpose tray pickup roller | FL2-3202 | | 1 | 150,000 sheets | | ● | | "Removing the Multi-purpose Tray Pickup Roller"(page 4-46). |
| 6 | | Multi-purpose tray separation pad | FL2-3201 | | 1 | 150,000 sheets | | ● | | "Removing the Multi-purpose Tray Separation Pad"(page 4-47). |
| 7 | | Cassette1 pickup roller | FL3-1352 | | 1 | 150,000 sheets | | ● | | "Removing the Cassette 1 Pickup Roller"(page 4-49). |
| 8 | | Cassette 1 separation pad | FL3-1447 | | 1 | 150,000 sheets | | ● | | "Removing the Cassette 1 Separation Pad"(page 4-48). |
| 9 | | Cassette 2 feed roller | (China only) FC8-0170 (Other than China) FF6-1621 | | 1 | 100,000 sheets | ● | | Equipping the cassette unit | - |
| 10 | | Cassette 2 separation roller | FF6-1621 | | 1 | 100,000 sheets | ● | | Equipping the cassette unit | - |

T-3-1

# 4

# Parts Replacement and Cleaning

- List of Parts
- External Covers
- Original Exposure System
- Controller System
- Laser Exposure System
- Image Formation System
- Fixing System
- Pickup Feed System

# List of Parts

## External View

### Front Side



F-4-1

| No. | Name | Reference |
|---|---|---|
| [1] | Reader Upper Unit | (Refer to page 4-23) |
| [2] | Delivery Tray Cover | (Refer to page 4-18) |
| [3] | Control Panel Unit | (Refer to page 4-17) |
| [4] | Right Front Cover | (Refer to page 4-18) |
| [5] | Cassette | (Refer to page 4-16) |
| [6] | Front Cover | (Refer to page 4-12) |
| [7] | Left Front Cover | (Refer to page 4-19) |
| [8] | Reader Front Cover | (Refer to page 4-16) |
| [9] | Left Cover Unit | (Refer to page 4-13) |
| [10] | Reader Lower Unit | (Refer to page 4-25) |

T-4-1

### Rear Side



F-4-2

| No. | Name | Reference |
|---|---|---|
| [11] | Reader Rear Cover | (Refer to page 4-14) |
| [12] | Rear Cover | (Refer to page 4-13) |
| [13] | Right Cover | (Refer to page 4-15) |

T-4-2

## ■ Internal View



[14]

F-4-3

| No. | Name | Reference |
|-----|------|-----------|
| [14] | Front Inner Cover | (Refer to page 4-20) |

T-4-3

## List of Main Unit

### List of Main Unit(1/2)

[2]

[3]

[5]

[7]

[1]

[4]

[6]

F-4-4

| No. | Name | Reference |
|-----|------|-----------|
| [1] | Reader Upper Unit | (Refer to page 4-23) |
| [2] | Reader Lower Unit | (Refer to page 4-25) |
| [3] | Reader Unit | (Refer to page 4-26) |
| [4] | Control Panel Unit | (Refer to page 4-17) |
| [5] | Fixing Drive Unit | - |
| [6] | Laser Scanner Unit | (Refer to page 4-34) |
| [7] | Main Drive Unit | (Refer to page 4-52) |

T-4-4

■ List of Main Unit(2/2)



F-4-5

| No. | Name | Reference |
|------|------------------------|----------------------|
| [8] | Left Cover Unit | (Refer to page 4-13) |
| [9] | Transfer Unit | - |
| [10] | Multi-purpose Tray Unit | - |
| [11] | Fixing Assembly | (Refer to page 4-40) |

T-4-5

**4** Parts Replacement and Cleaning > List of Parts > List of periodically replacement parts, consumable parts and locations for cleaning

4-6

## List of periodically replacement parts, consumable parts and locations for cleaning



F-4-6

| No. | Name | Constitution Unit | Reference | Remarks |
|-----|------|-------------------|-----------|---------|
| [1] | Transfer Roller | Transfer Unit | (Refer to page 4-39) | |
| [2] | Developing Assembly | - | (Refer to page 4-36) | |
| [3] | Fixing Assembly | - | (Refer to page 4-40) | |
| [4] | Multi-purpose Tray Pickup Roller | Multi-purpose Tray Unit | (Refer to page 4-46) | |
| [5] | Multi-purpose Tray Separation Pad | Multi-purpose Tray Unit | (Refer to page 4-47) | |
| [6] | Cassette 1 Pickup Roller | Main Unit | (Refer to page 4-49) | |
| [7] | Cassette 1 Separation Pad | Cassette 1 | (Refer to page 4-48) | |
| [8] | Cassette 2 Feed Roller | Cassette Unit | - | Cassette Unit is installed at the time |
| [9] | Cassette 2 Separation Roller | Cassette Unit | - | Cassette Unit is installed at the time |

T-4-6

4-6

**4** Parts Replacement and Cleaning > List of Parts > List of periodically replacement parts, consumable parts and locations for cleaning

## PCB



F-4-7

| No. | Name | Constitution Unit | Reference | Remarks |
|-----|------|-------------------|-----------|---------|
| PCB1 | Controller PCB | Main Unit | (Refer to page 4-27) | |
| PCB2 | Power Supply PCB | Main Unit | (Refer to page 4-29) | |
| PCB3 | HVT PCB | Main Unit | (Refer to page 4-30) | |
| PCB4 | Heater PCB | Main Unit | - | Heater PCB is installed at the time |
| PCB5 | Duplex PCB | Duplex Unit | - | Duplex Unit is installed at the time |
| PCB6 | 1-Cassette Controller PCB | Cassette Unit | - | Cassette Unit is installed at the time |
| PCB7 | Control Panel PCB | Control Panel Unit | (Refer to page 4-17) | |

T-4-7

## Solenoid



F-4-8

| No. | Name | Constitution Unit | Reference | Remarks |
|-----|------|-------------------|-----------|---------|
| SL201 | Multi-purpose Tray Pickup Solenoid | Multi-purpose Tray Unit | - | |
| SL202 | Cassette 1 Pickup Solenoid | Main Unit | - | |
| SL501 | Cassette 2 Pickup Solenoid | Cassette Unit | - | Cassette Unit is installed at the time |

T-4-8

## Sensor



F-4-9

| No. | Name | Constitution Unit | Reference | Remarks |
|---|---|---|---|---|
| SR201 | Fixing Delivery Sensor | Fixing Assembly | - | |
| SR202 | Fixing Pressure Release Sensor | Main Unit | - | |
| SR203 | Delivery Sensor | Main Unit | - | Only as for the network model |
| SR204 | Waste Toner Full Sensor | Main Unit | - | |
| SR205 | Cassette 1 Paper Sensor | Main Unit | - | |
| SR206 | Large Sensor | Main Unit | - | |
| SR207 | Pre-registration Sensor | Main Unit | - | |
| SR210 | Multi-purpose Tray Paper Sensor | Multi-purpose Tray Unit | - | |
| SR211 | Arch Sensor | Transfer Unit | - | |
| SR401 | Copyboard Cover open/closed Sensor | Reader Unit | - | ADF is installed at the time |
| SR402 | Contact Sensor HP Sensor | Reader Unit | - | |
| SR501 | Cassette 2 Paper Sensor | Cassette Unit | - | Cassette Unit is installed at the time |
| SR502 | Cassette 2 Pickup Sensor | Cassette Unit | - | Cassette Unit is installed at the time |
| SR503 | Duplex Feed Sensor | Duplex Unit | - | Duplex Unit is installed at the time |
| HU1 | Environment Sensor | Main Unit | - | |

T-4-9

## Motor



F-4-10

| No. | Name | Constitution Unit | Reference | Remarks |
|---|---|---|---|---|
| M201 | Fixing Motor | Fixing Drive Unit | - | |
| M202 | Main Motor | Main Drive Unit | - | |
| M203 | Polygon Motor | Laser Scanner Unit | - | |
| M501 | Duplex Motor | Duplex Unit | - | Duplex Unit is installed at the time |
| M502 | Reverse Motor | Duplex Unit | - | Duplex Unit is installed at the time |
| M301 | Reader Motor | Reader Unit | - | |

T-4-10

## FAN



F-4-11

| No. | Name | Constitution Unit | Reference | Remarks |
|---|---|---|---|---|
| FM1 | Fixing Cooling Fan | Left Cover Unit | - | |

T-4-11

## Switch



F-4-12

| No. | Name | Constitution Unit | Reference | Remarks |
|---|---|---|---|---|
| SW1 | Power Switch | Main Unit | - | |
| SW2 | Left Cover Switch | Main Unit | - | |
| SW501 | Cassette 2 Size Detection Switch | Cassette Unit | - | Cassette Unit is installed at the time |
| SW100 | Cassette Heater Switch | Main Unit | - | Cassette Heater is installed at the time |

T-4-12

## Clutch



F-4-13

| No. | Name | Constitution Unit | Reference | Remarks |
|---|---|---|---|---|
| CL201 | Multi-purpose Tray Feed Clutch | Multi-purpose Tray Unit | - | |
| CL202 | Cassette Feed Clutch | Main Drive Unit | - | |
| CL203 | Registration Clutch | Main Drive Unit | - | |
| CL501 | Cassette Drive Clutch | Cassette Unit | - | Cassette Unit is installed at the time |

T-4-13

## Others



F-4-14

| No. | Name | Constitution Unit | Reference | Remarks |
|-----|------|-------------------|-----------|---------|
| [1] | Fixing Film Unit | Fixing Assembly | (Refer to page 4-42) | |
| [2] | Pressure Roller | Fixing Assembly | (Refer to page 4-44) | |
| [3] | Developing Cylinder | Developing Assembly | (Refer to page 4-37) | |
| H1/H2 | Fixing Heater/Fixing Sub Heater | Fixing Assembly | - | |
| H6 | Cassette 1 Heater | Main Unit | - | Cassette Heater is installed at the time |

| No. | Name | Constitution Unit | Reference | Remarks |
|-----|------|-------------------|-----------|---------|
| H7 | Cassette 2 Heater | Cassette Unit | - | Cassette Unit is installed at the time Cassette Heater is installed at the time |
| TP1 | Thermo Switch | Fixing Assembly | - | |
| TH1 | Fixing Main Thermistor | Fixing Assembly | - | |
| TH2 | Fixing Sub Thermistor | Fixing Assembly | - | |

T-4-14

# External Covers

## Removing the Front Cover

&lt;Procedure&gt;

1) Draw out the cassette.
2) Open the Front Cover.



F-4-15

3) Remove the Front Cover.

• 2 Bosses

> NOTE:
> When removing the Front Cover use a flat-blade screwdriver.



Boss

F-4-16

## Removing the Rear Cover

&lt;Procedure&gt;
1)Remove the Rear Cover.
- 4 Screws
- 3 Bosses
- 2 Hooks



x4

Hook

Boss

F-4-17

## Removing the Left Cover Unit

&lt;Preparation&gt;
1)Removing the Rear Cover.("Removing the Rear Cover"(page 4-13).)

&lt;Procedure&gt;
1)Remove the harness of the Left Cover Unit.

- 1 Wire Saddle
- 2 Reuse band
- 2 Connectors



x3

x2

F-4-18

NOTE:

If the Duplex Unit is not equipped with.

• 1 Reuse band
• 1 Connector

x1

x1

F-4-19

2) Open the Left Cover Unit.

3) Remove the Left Cover Unit.

• 1 Pin

**2**

**1**

F-4-20

CAUTION:

Remove the 1 pin with holding the Left Cover Unit.

## Removing the Reader Rear Cover

<Preparation>

1) Remove the Rear Cover.("Removing the Rear Cover"(page 4-13).)

<Procedure>

1) Open the ADF or Platen Cover.

2) Remove the Reder Rear Cover.

• 2 Claws

x2

Claw

F-4-21

NOTE:
1. When removing the Reder Rear Cover use a flat-blade screwdriver.

2. If the ADF is installed, loosen the ADF connection line bundle.
•   1 Edge Saddle
•   1 Harness Guide

x2

F-4-22

## Removing the Right Cover

<Preparation>
1)Remove the Rear Cover.("Removing the Rear Cover"(page 4-13).)
2)Remove the Reader Rear Cover.("Removing the Reader Rear Cover"(page 4-14).)

<Procedure>
1) Remove the Right Cover.
•  1 Screw
•  5 Bosses
•  2 Hooks

x1



Hook

Boss

Boss

F-4-23

## Removing the Reader Front Cover

<Procedure>
1) Open the Left Cover Unit.
2) Remove the Reader Front Cover.
- 2 Screws
- 2 Claws

x2

x2

Claw

F-4-24

## Removing the Cassette 1

<Procedure>
1) Remove the cassette 1.

F-4-25

NOTE:
When removing the Reader Front Cover use a flat-blade screwdriver.

## Removing the Control Panel Unit

<Preparation>
1) Remove the Rear Cover.("Removing the Rear Cover"(page 4-13).)
2) Remove the Reader Rear Cover.("Removing the Reader Rear Cover"(page 4-14).)
3) Remove the Right Cover.("Removing the Right Cover"(page 4-15).)
4) Remove the Reader Front Cover.("Removing the Reader Front Cover"(page 4-16).)

<Procedure>
1) Open the Front Cover.
2) Remove the Control Panel Unit.
 • 1 Screw
 • 7 Claws

x1

x7



Claw

F-4-26

NOTE:
When removing the Control Panel Unit use a flat-blade screwdriver.

3) Turn the Control Panel Unit and remove the Flexible Cable.

x1



F-4-27

## Removing the Right Front Cover

<Preparation>
1) Remove the Rear Cover.("Removing the Rear Cover"(page 4-13).)
2) Remove the Reader Rear Cover.("Removing the Reader Rear Cover"(page 4-14).)
3) Remove the Right Cover.("Removing the Right Cover"(page 4-15).)
4) Remove the Reader Front Cover.("Removing the Reader Front Cover"(page 4-16).)
5) Remove the Front Cover.("Removing the Front Cover"(page 4-12).)
6) Remove the Control Panel Unit.("Removing the Control Panel Unit"(page 4-17).)

<Procedure>
1) Remove the Right Front Cover.
• 4 Bosses



Boss

F-4-28

## Removing the Delivery Tray Cover

<Preparation>
1) Remove the Rear Cover.("Removing the Rear Cover"(page 4-13).)
2) Remove the Reader Rear Cover.("Removing the Reader Rear Cover"(page 4-14).)
3) Remove the Right Cover.("Removing the Right Cover"(page 4-15).)
4) Remove the Reader Front Cover.("Removing the Reader Front Cover"(page 4-16).)
5) Remove the Control Panel Unit.("Removing the Control Panel Unit"(page 4-17).)

<Procedure>
1) Put away the Flexible Cable in the Delivery Tray Cover.



F-4-29

2) Remove the Delivery Tray Cover.
- 1 Screw
- 2 Bosses

x1

Boss

F-4-30

> **CAUTION:**
>
> Put the Flexible Cable and the Delivery Hold Plate aside during installation of the Delivery Tray Cover.

## Removing the Left Front Cover

<Preparation>
1) Remove the Rear Cover.("Removing the Rear Cover"(page 4-13).)
2) Remove the Reader Rear Cover.("Removing the Reader Rear Cover"(page 4-14).)
3) Remove the Right Cover.("Removing the Right Cover"(page 4-15).)
4) Remove the Reader Front Cover.("Removing the Reader Front Cover"(page 4-16).)
5) Remove the cassette 1.("Removing the Cassette 1"(page 4-16).)
6) Remove the Front Cover.("Removing the Front Cover"(page 4-12).)
7) Remove the Control Panel Unit.("Removing the Control Panel Unit"(page 4-17).)

<Procedure>
1) Remove the Left Front Cover.
- 2 Screws
- 4 Claws
- 2 Bosses

x2

x4

Boss

Claw

F-4-31

## Removing the Front Inner Cover

<Preparation>
1) Remove the Drum Unit.("Removing the Drum Unit"(page 4-35).)

<Procedure>
1) Remove the Developing Assembly pressure release lever.
• 1 Screw

x1

F-4-32

2) Remove the Front Inner Cover.
• 3 Claws

x3

Claw

F-4-33

# Original Exposure System

## ● Removing the CIS Unit

<Preparation>
1) Remove the Rear Cover.("Removing the Rear Cover"(page 4-13).)
2) Remove the Reader Rear Cover.("Removing the Reader Rear Cover"(page 4-14).)
3) Remove the Reader Upper Unit.("Removing the Reader Upper Unit"(page 4-23).)

<Procedure>
1) Remove the CIS Unit.
 • 2 Claws
 • 1 Flexible Cable



Claw

x2

x1

F-4-34

CAUTION:

When installing, the flexible portion of the Flexible Cable is on the left side of the CIS.



F-4-35

< Adjustment for the replacement >
Proceed the following adjustment at the CIS unit replacement.

### ● Automatic gain offset adjustment for the CIS unit
1) Enter the service mode.
   • COPIER > FUNCTION > CCD > CCD-ADJ
2) Click "OK". Contact sensor output is adjusted and parameter is set automatically.
3) "Executing" is clear when it is completed.

● Adjusting the White Level

CAUTION:

Proceed the adjustment when ADF is equipped.

NOTE:
1) This is a item of adjustment in which the white level of images made in stream reading mode are matched with the white level of images made in copyboard cover mode. If you omit this adjustment, the following will likely occur:
• Inappropriate reproduction of background density in images made in stream reading mode.
• Wrong speck detection in stream reading mode.

2) "DF-WLVL1" and "DF-WLVL2" are used for the monochrome, and "DF-WLVL3" and "DF-WLVL4" are used for the color.

1) Place the white copy paper which the user usually uses on the copyboard glass and then close the DADF.
2) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL1
3) Press "OK"
   "Executing" is clear when the auto adjustment is completed.
4) Remove the paper from the copyboard glass and place it onto the DADF.
5) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL2
6) Press "OK"
   "Executing" is clear when the auto adjustment is completed.
7) Exit the service mode and perform a test copy.
   In case that the faulty image appears, re-execute above steps from 1) to 6).
8) Place the white copy paper which the user usually uses on the copyboard glass and then close the DADF.
9) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL3
10) Press "OK"
   "Executing" is clear when the auto adjustment is completed.
11) Remove the paper from the copyboard glass and place it onto the DADF.
12) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL4
13) Press "OK"

"Executing" is clear when the auto adjustment is completed.
14) Exit the service mode and perform a test copy.
   In case that the faulty image appears, re-execute above steps from 8) to 13).

## Removing the Reader Upper Unit

CAUTION:

When removing the Reader Upper Unit, take care not to touch the glass surface.

Attached soiling may cause white line/black line in the images.

If soiling is attached, clean it with lint free paper.

F-4-36

<Preparation>

1) Remove the Rear Cover.("Removing the Rear Cover"(page 4-13).)

2) Remove the Reader Rear Cover.("Removing the Reader Rear Cover"(page 4-14).)

<Procedure>

1) Remove the ADF or Platen Cover.

2) Remove the Reader Upper Unit.

• 2 Screws

• 1 Claw

Claw

x2

x1

F-4-37

**4**  Parts Replacement and Cleaning > Original Exposure System > Removing the CIS Unit > Adjustment for the Reader Upper Unit Replacement

4-24

## ■ Adjustment for the Reader Upper Unit Replacement

Proceed the following adjustment at the reader upper unit

CAUTION:

Be sure to make the white plate data adjustment before ADF white level adjustment.

NOTE:
Remove the reader rear cover to read the XYZ bar code label.

W-PLT-X
W-PLT-Y
W-PLT-Z

F-4-38

1. Enter the value on the service mode, which is printed on the reader upper unit.
   • COPIER > ADJUST > CCD> W-PLT-X/Y/Z (white plate data)

2. Proceed the following service mode.

CAUTION:

Proceed the adjustment when ADF is equipped.

NOTE:
1) This is a item of adjustment in which the white level of images made in stream reading mode are matched with the white level of images made in copyboard cover mode. If you omit this adjustment, the following will likely occur:
   • Inappropriate reproduction of background density in images made in stream reading mode.
   • Wrong speck detection in stream reading mode.

2) "DF-WLVL1" and "DF-WLVL2" are used for the monochrome, and "DF-WLVL3" and "DF-WLVL4" are used for the color.

1) Place the white copy paper which the user usually uses on the copyboard glass and then close the DADF.
2) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL1
3) Press "OK"
   "Executing" is clear when the auto adjustment is completed.
4) Remove the paper from the copyboard glass and place it onto the DADF.
5) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL2
6) Press "OK"
   "Executing" is clear when the auto adjustment is completed.
7) Exit the service mode and perform a test copy.
   In case that the faulty image appears, re-execute above steps from 1) to 6).
8) Place the white copy paper which the user usually uses on the copyboard glass and then close the DADF.
9) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL3
10) Press "OK"
   "Executing" is clear when the auto adjustment is completed.
11) Remove the paper from the copyboard glass and place it onto the DADF.
12) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL4
13) Press "OK"

4-24

**4**  Parts Replacement and Cleaning > Original Exposure System > Removing the CIS Unit > Adjustment for the Reader Upper Unit Replacement

4  Parts Replacement and Cleaning > Original Exposure System > Removing the CIS Unit > Adjustment for the Reader Upper Unit Replacement

4-25

"Executing" is clear when the auto adjustment is completed.

14) Exit the service mode and perform a test copy.

In case that the faulty image appears, re-execute above steps from 8) to 13).

## Removing the Reader Lower Unit

<Preparation>

1) Remove the Rear Cover.("Removing the Rear Cover"(page 4-13).)

2) Remove the Reader Rear Cover.("Removing the Reader Rear Cover"(page 4-14).)

3) Remove the Reader Upper Unit.("Removing the Reader Upper Unit"(page 4-23).)

4) Remove the Reader Front Cover.("Removing the Reader Front Cover"(page 4-16).)

<Procedure>

1) Remove the Reader Lower Unit.

- 3 Screws
- 1 Flexible Cable
- 2 Connectors
- 1 Edge Saddle



F-4-39

4-25

4  Parts Replacement and Cleaning > Original Exposure System > Removing the CIS Unit > Adjustment for the Reader Upper Unit Replacement

## Removing the Reader Unit

<Preparation>

1) Remove the Rear Cover.("Removing the Rear Cover"(page 4-13).)

2) Remove the Reader Rear Cover.("Removing the Reader Rear Cover"(page 4-14).)

3) Remove the Reader Front Cover.("Removing the Reader Front Cover"(page 4-16).)

<Procedure>

1) Remove the ADF or Platen Cover.

2) Remove the Reader Unit.

• 3 Screws

• 1 Flexible Cable

• 2 Connectors

• 1 Edge Saddle
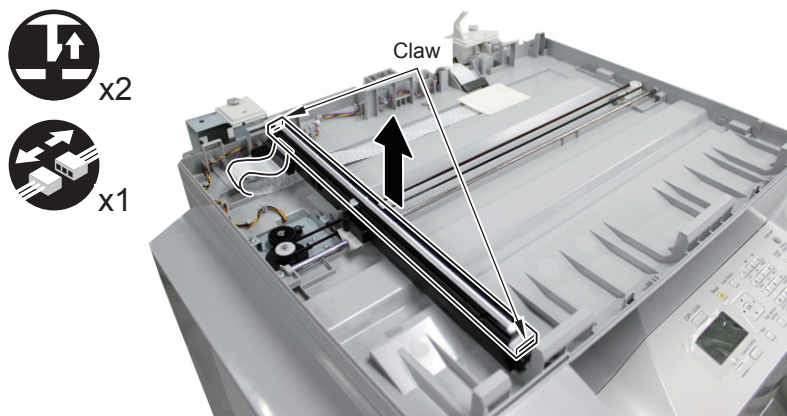


x3

x3

x1

F-4-40

# Controller System

## Removing the Controller PCB

<Preparation>

1) Remove the Rear Cover.("Removing the Rear Cover"(page 4-13).)

2) Remove the Reader Rear Cover.("Removing the Reader Rear Cover"(page 4-14).)

3) Remove the Right Cover.("Removing the Right Cover"(page 4-15).)

<Procedure>

1) Remove the Controller PCB all Flexible Cable and Connectors.

2) Remove the Controller PCB.

• 9 Screws

• 1 Boss



F-4-41

**4**
Parts Replacement and Cleaning > Controller System > Removing the Controller PCB > Adjustment for the Controller PCB replacement

4-28

## ■ Adjustment for the Controller PCB replacement

Proceed the following adjustment when the controller PCB is replaced.

### ● Input of the service label

1) Enter the value for all printed on the service label, which is labeled on the rear cover.



F-4-42

2) Turn OFF/ON the main power.

### ● Automatic gain offset adjustment for the CIS unit

1) Enter the service mode.
   • COPIER > FUNCTION > CCD > CCD-ADJ
2) Click "OK". Contact sensor output is adjusted and parameter is set automatically.
3) "Executing" is clear when it is completed.

### ● White level adjustment for reading

CAUTION:

Proceed the adjustment when ADF is equipped.

NOTE:
1) This is a item of adjustment in which the white level of images made in stream reading mode are matched with the white level of images made in copyboard cover mode. If you omit this adjustment, the following will likely occur:
   • Inappropriate reproduction of background density in images made in stream reading mode.
   • Wrong speck detection in stream reading mode.

2) "DF-WLVL1" and "DF-WLVL2" are used for the monochrome, and "DF-WLVL3" and "DF-WLVL4" are used for the color.

1) Place the white copy paper which the user usually uses on the copyboard glass and then close the DADF.
2) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL1
3) Press "OK"
   "Executing" is clear when the auto adjustment is completed.
4) Remove the paper from the copyboard glass and place it onto the DADF.
5) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL2
6) Press "OK"
   "Executing" is clear when the auto adjustment is completed.
7) Exit the service mode and perform a test copy.
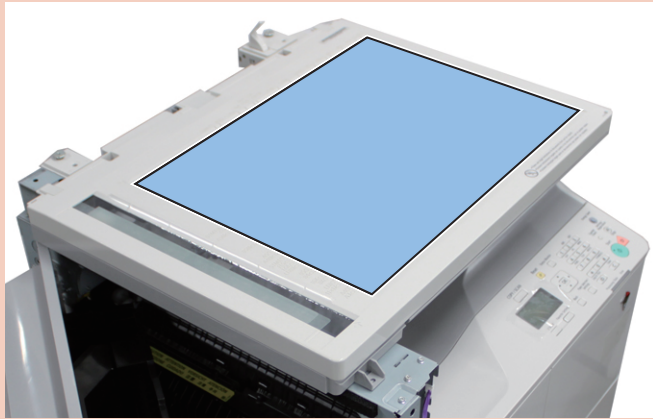   In case that the faulty image appears, re-execute above steps from 1) to 6).
8) Place the white copy paper which the user usually uses on the copyboard glass and then close the DADF.
9) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL3
10) Press "OK"
    "Executing" is clear when the auto adjustment is completed.
11) Remove the paper from the copyboard glass and place it onto the DADF.
12) Enter the service mode.
    COPIER > FUNCTION > CCD > DF-WLVL4
13) Press "OK"

**4** Parts Replacement and Cleaning > Controller System > Removing the Controller PCB > Adjustment for the Controller PCB replacement

4-29

"Executing" is clear when the auto adjustment is completed.

14) Exit the service mode and perform a test copy.

In case that the faulty image appears, re-execute above steps from 8) to 13).

## Removing the Power Supply PCB

&lt;Preparation&gt;

1)Remove the Rear Cover.("Removing the Rear Cover"(page 4-13).)

2)Remove the Reader Rear Cover.("Removing the Reader Rear Cover"(page 4-14).)

3)Remove the Right Cover.("Removing the Right Cover"(page 4-15).)

&lt;Procedure&gt;

1) Remove the Power Supply PCB.

• 4 Connectors

• 7 Screws



F-4-43

4-29

**4** Parts Replacement and Cleaning > Controller System > Removing the Controller PCB > Adjustment for the Controller PCB replacement

## Removing the HVT PCB

<Preparation>
1) Remove the Rear Cover.("Removing the Rear Cover"(page 4-13).)
2) Remove the Reader Rear Cover.("Removing the Reader Rear Cover"(page 4-14).)
3) Remove the Right Cover.("Removing the Right Cover"(page 4-15).)

<Procedure>
1) Remove the HVT PCB.
• 1 Flexible Cable
• 3 Screws

x1

x3



F-4-44

## Removing the Fixing Cooling Fan

<Procedure>

● If the Duplex Unit is not equipped with.

1) Open the Left Cover Unit.
2) Remove the Delivery Guide.
• 4 Screws

x4



F-4-45

3) Remove the Fan Harness Cover.
• 3 Claws

x3



Claw

F-4-46

4) Remove the Connector.



x1

F-4-47

5) Remove the Duct.

• 2 Claws



x2

Claw

F-4-48

6) Remove the Fan.

• 2 Claws



x2

Claw

F-4-49

CAUTION:

Arrows on the fan and the connector must be pointed as shown in the figure for replacement.



Check

Connector

F-4-50

## ● If the Duplex Unit is equipped with.

<Preparation>

1) Remove the Left Cover Unit.("Removing the Left Cover Unit"(page 4-13).)

<Procedure>

1) Remove the Harness.

- 1 Wire Saddle
- 1 Harness Guide

x2

Wire Saddle

Harness Guide

F-4-51

2) Remove the Duplex Unit.

- 4 Screws

x4

F-4-52

3) Remove the Fan Harness Cover.

- 3 Claws

x3

Claw

F-4-53

4) Remove the Connector.



Connector

F-4-54

5) Remove the Duct.

• 2 Claws

x2

Claw



F-4-55

6) Remove the Fan.

• 2 Claws

x2

Claw



F-4-56

CAUTION:

Arrows on the fan and the connector must be pointed as shown in the figure for replacement.

Check



Connector

F-4-57

# Laser Exposure System
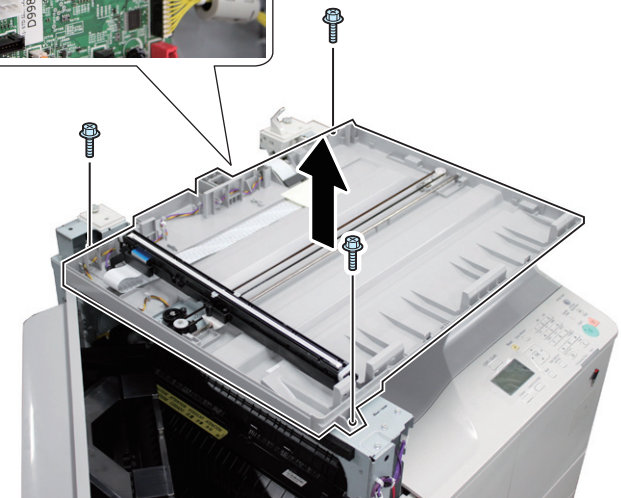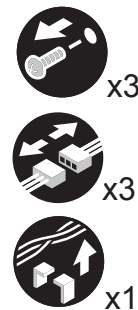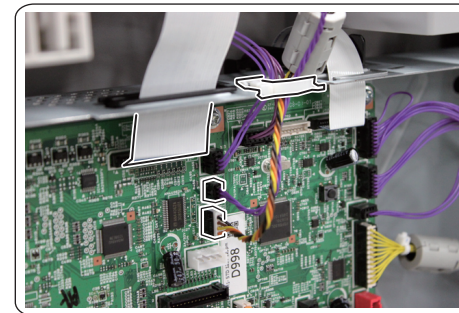
## Removing the Laser Scanner Unit

<Preparation>
1) Remove the Rear Cover.("Removing the Rear Cover"(page 4-13).)
2) Remove the Reader Rear Cover.("Removing the Reader Rear Cover"(page 4-14).)
3) Remove the Right Cover.("Removing the Right Cover"(page 4-15).)
4) Remove the Reader Front  Cover.("Removing the Reader Front Cover"(page 4-16).)
5) Remove the Control Panel Unit.("Removing the Control Panel Unit"(page 4-17).)
6) Remove the Delivery Tray Cover.("Removing the Delivery Tray Cover"(page 4-18).)


<Procedure>

CAUTION:
Be sure not to disassemble the Laser Scanner Unit because it requires adjustment.

1) Remove the Laser Scanner Unit.
• 1 Sponge
• 1 Connector
• 1 Flexible Cable
• 4 Screws



x2

x4

F-4-58

# Image Formation System

## Removing the Toner Cartridge

<Procedure>
1) Open the Front Cover.
2) Press and hold the knob of the Toner Cartridge and remove by turning in the direction of the arrow.

F-4-59

## Removing the Drum Unit

<Procedure>
1) Open the Front Cover.
2) Open the Left Cover Unit.
3) Loosen the thumb screw.
4) Release the lock and remove the Drum unit.

x1

F-4-60

<After Replacing the Drum unit>
When installing a new Drum Unit, be sure to perform the following steps.

1) Turn on the main power switch.
2) Press the counter key on the operation panel to check the total count.
3) Write the date and counter value in the Counter Label.

| 日付　date | カウンター　counter | 備考　notes |
|---|---|---|
| date　Datum | compteur　Zähler | note　Notiz |

F-4-61

4) Affix the Counter Label to the Drum Unit.



F-4-62

## Removing the Developing Assembly

<Preparation>
1) Remove the Toner Cartridge.("Removing the Toner Cartridge"(page 4-35).)
2) Remove the Front Inner Cover.("Removing the Front Inner Cover"(page 4-20).)

<Procedure>
1) Remove the Developing Assembly.



F-4-63

## Removing the Developing Cylinder

<Preparation>

1) Remove the Developing Assembly.

<Procedure>

CAUTION:

Do not touch nor give a shock to the Developing Cylinder when disassembling/assembling.

F-4-64

1) Remove the Holder.

• 3 Screws

x3

F-4-65

2) Remove the Electrode Plate and Gear.

F-4-66

3) Remove the Positioning guide.

• 1 Screw



F-4-67

4) Remove the two Bearing.

• 4 Screws



F-4-68

5) Remove the two Rollers and Developing Cylinder.



F-4-69

## Removing the Transfer Roller

<Procedure>

CAUTION:

Be sure not to touch the surface of the Transfer Roller when disassembling/assembling.

F-4-70

1) Open the Left Cover Unit.

2) Lift the Transfer Roller and remove the bearing.

F-4-71

3) Remove the Transfer Roller.

F-4-72

## Fixing System

### Removing the Fixing Assembly

> **CAUTION:**
>
> The Fixing Assembly may cause burn injury. Be sure to perform the operation after the unit is surely cooled.

<Preparation>

1) Removing the Rear Cover.("Removing the Rear Cover"(page 4-13).)

2) Remove the Reader Front Cover.("Removing the Reader Front Cover"(page 4-16).)

<Procedure>

1) Remove the Heater Harness Cover and pull out Connector.

• 1 Boss

• 1 Connector



x1

Boss

F-4-73

2) Remove the Screw[A].

• 1 Screw

3) Remove the Fixing Positioning Guide.

• 3 Screws

4) Remove the Fixing Assembly.

• 4 Wire Saddles

• 3 Connectors

• 2 Screws



F-4-74



F-4-75

## Removing the Fixing Film Unit

<Preparation>
1) Removing the Rear Cover.("Removing the Rear Cover"(page 4-13).)
2) Remove the Reader Front Cover.("Removing the Reader Front Cover"(page 4-16).)
3) Remove the Fixing Assembly.("Removing the Fixing Assembly"(page 4-40).)

<Procedure>

CAUTION:

Be sure not to touch the surface of the Fixing Film Unit when disassembling/assembling.

F-4-76

1) Remove the Guide Cover.
•  2 Wire Saddles
•  3 Claws

x2

x3

Claw

F-4-77

2) Remove the Guide.
•  1 Screw
•  2 Claws

x1

x2

Claw

F-4-78

3) Remove the Fixing Waste Paper Guide.

• 1 Claw



Claw

F-4-79

4) Open the Plate.

• 4 Screws



F-4-80

5) Remove the Harness.



F-4-81

6) Remove the Fixing Film Unit.



F-4-82

## Removing the Pressure Roller

<Preparation>
1) Remove the Rear Cover.("Removing the Rear Cover"(page 4-13).)
2) Remove the Reader Front Cover.("Removing the Reader Front Cover"(page 4-16).)
3) Remove the Fixing Assembly.("Removing the Fixing Assembly"(page 4-40).)
4) Remove the Fixing Film Unit.("Removing the Fixing Film Unit"(page 4-42).)

<Procedure>

CAUTION:

Be sure not to touch the surface of the Pressure Roller when disassembling/ assembling.

F-4-83

1) Remove the Pressure Roller.

F-4-84

2) Remove the Gear and Bearing.

- 1 E-ring
- 2 Bearings



F-4-85

# Pickup Feed System

## Removing the Multi-purpose Tray Pickup Roller

<Procedure>

CAUTION:

Be sure not to touch the surface of the Roller when disassembling/assembling.



F-4-86

1) Open the Left Cover Unit.
2) Remove the Feed Guide.
 • 2 Screws



F-4-87

3) Remove the Bearing.
 • 2 Claws



F-4-88

4) Lower the Multi-purpose Tray Separation Pad, and remove the Multi-purpose Tray Pickup Roller.



F-4-89

NOTE:
Mounting direction.
- Left Shaft  Long
- Right Shaft  Short

F-4-90

## Removing the Multi-purpose Tray Separation Pad

<Preparation>
1) Remove the Multi-purpose Tray Pickup Roller.

<Procedure>

CAUTION:

Be sure not to touch the surface of the Pad when disassembling/assembling.

F-4-91

1) Remove the Multi-purpose Tray Separation Pad.

• 2 Claws

> NOTE:
> When removing the Multi-purpose Tray Separation Pad use a flat-blade screwdriver.

F-4-92

## Removing the Cassette 1 Separation Pad

<Preparation>

1) Remove the Cassette 1.("Removing the Cassette 1"(page 4-16).)

<Procedure>

> CAUTION:
>
> Be sure not to touch the surface of the Pad when disassembling/assembling.

F-4-93

1) Remove the Cassette 1 Separation Pad.

• 2 Claws

NOTE:
When removing the Cassette 1 Separation Pad use a flat-blade screwdriver.

x2

F-4-94

## Removing the Cassette 1 Pickup Roller

<Preparation>
1) Remove the Cassette 1.("Removing the Cassette 1"(page 4-16).)

<Procedure>

CAUTION:

Be sure not to touch the surface of the Roller when disassembling/assembling.

F-4-95

1) Open the Left Cover Unit.

2) Open the Cassette 1 Left Cover.


F-4-96

3) Remove the Bearing.

• 1 Claw


F-4-97

4) Remove the Cassette 1 Pickup Roller.


F-4-98

NOTE:
Make sure that the claw of the Cassette 1 Pickup Roller is located on the right side of the Cassette 1 Pickup Roller.



Claw

F-4-99

## ⬤ Removing the Cassette 1 Feed Roller

<Procedure>

CAUTION:

Be sure not to touch the surface of the Roller when disassembling/assembling.

F-4-100

1) Open the Left Cover Unit.

2) Open the Cassette 1 Left Cover.



F-4-101

3) Remove the Bearing.

• 1 Claw



x1

F-4-102

NOTE:
When removing the Cassette 1 Feed Roller use a flat-blade screwdriver.

4) Remove the Cassette 1 Feed Roller.



F-4-103

NOTE:
Mounting direction.
- Left Shaft  Long
- Right Shaft  Short



F-4-104

## Removing the Main Drive Unit

<Preparation>
1) Removing the Rear Cover.("Removing the Rear Cover"(page 4-13).)
2) Remove the Drum Unit.("Removing the Drum Unit"(page 4-35).

<Procedure>
1) Remove the Spring.
2) Remove the MP Drive Unit.



F-4-105

CAUTION:

Make sure that the MP Drive Unit Gear is engaged with the Main Drive Unit Gear.

3) Remove the  5 Connectors.



x5

F-4-106

NOTE:
If the Duplex Unit not is equipped with.
•  4 Connectors



x4

F-4-107

4) Loosen the Harness Guide.

•  1 Boss



Boss

F-4-108

5) Remove the Main Drive Unit.

•  5 Screws



x5

F-4-109

## Removing the Registration Roller

<Preparation>
 1) Remove the Main Drive Unit.("Removing the Main Drive Unit"(page 4-52).)

<Procedure>

CAUTION:

Be sure not to touch the surface of the Roller when disassembling/assembling.



F-4-110

1) Remove the 2 E-ring.



F-4-111

2) Slide the shaft backward, and remove the coupling.



F-4-112

3) Remove the Registration Roller.



F-4-113

4) Remove the Bearing.



F-4-114

# 5

# Adjustment

■Outline

■Adjustment When Replacing Parts

■Image Position Adjustment

# Outline

## Adjustment When Replacing Parts

Adjustment required in the field service works when parts are replaced is described as below.

The parts are classified by 3 function blocks.

| Category | Replacing parts | Reference |
|---|---|---|
| Original Exposure System | CIS Unit | "Adjustment for the CIS Unit Replament"(page 5-3). |
| | Reader upper unit | "Adjustment for the Reader Upper Unit Replacement"(page 5-4). |
| Main Controller | Controller PCB | "Adjustment for the Controller PCB replacement"(page 5-5). |

T-5-1

## Image Position Adjustment

Procedures for adjusting image position is described as below.

| Category | Item | Reference |
|---|---|---|
| Leading Edge Margin | L1:<br>Single-sided copy: 3.0 ± 1.5 (mm)<br>Double-sided copy: 3.0 ± 1.5 (mm)<br><br>L1<br><br>Feeding direction of paper<br><br>image | "Leading Edge Margin Adjustment"(page 5-6). |
| Left Edge Margin | L1:<br>Single-sided copy: 3.0 ± 2.0 (mm)<br>Double-sided copy: 3.0 ± 2.0 (mm)<br><br>Feeding direction of paper<br><br>image<br><br>L1 | "Left Edge Margin Adjustment (Front Side)"(page 5-6).<br>"Left Edge Margin Adjustment (Reverse Side)"(page 5-7). |

T-5-2

# Adjustment When Replacing Parts

## Scanning System

### ■ Adjustment for the CIS Unit Replament

Proceed the following adjustment at the CIS unit replacement.

### ● Automatic gain offset adjustment for the CIS unit

1) Enter the service mode.
   - COPIER > FUNCTION > CCD > CCD-ADJ
2) Click "OK". Contact sensor output is adjusted and parameter is set automatically.
3) "Executing" is clear when it is completed.

### ● Adjusting the White Level

CAUTION:

ADF must be equipped to proceed the adjustment.

NOTE:
1) This is a item of adjustment in which the white level of images made in stream reading mode are matched with the white level of images made in copyboard cover mode. If you omit this adjustment, the following will likely occur:
- Inappropriate reproduction of background density in images made in stream reading mode.
- Wrong speck detection in stream reading mode.

2) "DF-WLVL1" and "DF-WLVL2" are used for the monochrome, and "DF-WLVL3" and "DF-WLVL4" are used for the color.

1) Place the white copy paper which the user usually uses on the copyboard glass and then close the DADF.
2) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL1
3) Press "OK"
   "Executing" is clear when the auto adjustment is completed.
4) Remove the paper from the copyboard glass and place it onto the DADF.
5) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL2

6) Press "OK"
   "Executing" is clear when the auto adjustment is completed.
7) Exit the service mode and perform a test copy.
   In case that the faulty image appears, re-execute above steps from 1) to 6).
8) Place the white copy paper which the user usually uses on the copyboard glass and then close the DADF.
9) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL3
10) Press "OK"
   "Executing" is clear when the auto adjustment is completed.
11) Remove the paper from the copyboard glass and place it onto the DADF.
12) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL4
13) Press "OK"
   "Executing" is clear when the auto adjustment is completed.
14) Exit the service mode and perform a test copy.
   In case that the faulty image appears, re-execute above steps from 8) to 13).

## Adjustment for the Reader Upper Unit Replacement

Proceed the following adjustment at the reader upper unit

CAUTION:

Be sure to adjust the white plate data before ADF white level adjustment.

NOTE:
Remove the reader rear cover to read the XYZ bar code label.



* 820086670349 *

W-PLT-X
W-PLT-Y
W-PLT-Z

F-5-1

1. Enter the value on the service mode, which is printed on the reader upper unit.
   • COPIER > ADJUST > CCD> W-PLT-X/Y/Z (white plate data)
2. Proceed the following service mode.

CAUTION:

ADF must be equipped to proceed the adjustment.

NOTE:
1) This is a item of adjustment in which the white level of images made in stream reading mode are matched with the white level of images made in copyboard cover mode. If you omit this adjustment, the following will likely occur:
   • Inappropriate reproduction of background density in images made in stream reading mode.
   • Wrong speck detection in stream reading mode.

2) "DF-WLVL1" and "DF-WLVL2" are used for the monochrome, and "DF-WLVL3" and "DF-WLVL4" are used for the color.

1) Place the white copy paper which the user usually uses on the copyboard glass and then close the DADF.
2) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL1
3) Press "OK"
   "Executing" is clear when the auto adjustment is completed.
4) Remove the paper from the copyboard glass and place it onto the DADF.
5) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL2
6) Press "OK"
   "Executing" is clear when the auto adjustment is completed.
7) Exit the service mode and perform a test copy.
   In case that the faulty image appears, re-execute above steps from 1) to 6).
8) Place the white copy paper which the user usually uses on the copyboard glass and then close the DADF.
9) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL3
10) Press "OK"
   "Executing" is clear when the auto adjustment is completed.
11) Remove the paper from the copyboard glass and place it onto the DADF.
12) Enter the service mode.
   COPIER > FUNCTION > CCD > DF-WLVL4
13) Press "OK"
   "Executing" is clear when the auto adjustment is completed.
14) Exit the service mode and perform a test copy.
   In case that the faulty image appears, re-execute above steps from 8) to 13).

# Controller System
## ■ Adjustment for the Controller PCB replacement

Proceed the following adjustment when the controller PCB is replaced.

### ● Input of the service label

1) Write the value for all printed on the service label, which is labeled on the rear cover.



F-5-2

2) Turn OFF/ON the main power.

### ● Automatic gain offset adjustment for the CIS unit

1) Enter the service mode.
- COPIER > FUNCTION > CCD > CCD-ADJ

2) Click "OK". Contact sensor output is adjusted and parameter is set automatically.

3) "Executing" is clear when it is completed.

# Image Position Adjustment

Copy 10 sheets from each pickup position to check that the image margin area is within the standard.

- Cassette 1/2
- Multi-purpose tray

Adjust it following instruction when it is out of standard.

> CAUTION:
>
> Write the setting value on the service label when it is changed on the service mode.

## Leading Edge Margin Adjustment

> NOTE:
> The adjustment of the leading edge margin for the image which is fed from the cassette 1 also leads same adjustment to the image from the cassette 2 and multi-purpose tray.

Print out from the cassette 1 and check that L1 (leading edge margin) is within 3.0 ± 1.5mm.

Adjust it following instruction when it is out of standard.



F-5-3

1) Adjust the image position on the service mode.
- COPIER > ADJUST > LASER > PVE-OFST

> NOTE:
> < Adjusting Range >
> -28 to +32 (0.1mm per 1unit)
> As the value is incremented by 1, the L1 (leading edge margin) increases 0.1 mm.

2) Write the setting value on the service label when the image position is adjusted on the procedure 1.
3) Exit the service mode.
4) Print out from the cassette 1 and check that L1 (leading edge margin) is within 3.0 ± 1.5mm.

## Left Edge Margin Adjustment (Front Side)

Print out from the cassette 1/2 and the multi-purpose tray and check that L1 (left edge margin (front side)) is within 3.0 ± 2.0mm. Adjust it following instruction when it is out of standard.



F-5-4

1) Adjust the image position on the service mode.
- Cassette 1: COPIER > ADJUST > FEED-ADJ > ADJ-C1
- Cassette 2: COPIER > ADJUST > FEED-ADJ > ADJ-C2
- Multi-purpose tray: COPIER > ADJUST > FEED-ADJ > ADJ-MF

> NOTE:
> < Adjusting Range >
> -12 to +12 (0.5mm per 1unit)
> As the value is incremented by 1, the L1 (left edge margin) increases 0.5 mm.

2) Write the setting value on the service label when the image position is adjusted on the procedure 1.
3) Exit the service mode.
4) Print out from the cassette 1/2 and the multi-purpose tray. Check that L1 (left edge margin (front side)) is within 3.0 ± 2.0mm.

## Left Edge Margin Adjustment (Reverse Side)

NOTE:
The adjustment of the left edge margin (reverse side) for the image which is fed from the cassette 2 also leads same adjustment to the image from the cassette 1 and multi-purpose tray.

Print out the double-sided from the cassette 1 and check that L1 (left edge margin (reverse side)) is within 3.0 ± 2.0mm. Adjust it following instruction when it is out of standard.

Feeding direction
of paper

L1

image

F-5-5

1) Adjust the image position on the service mode.

- COPIER > ADJUST > FEED-ADJ > ADJ-REFE

NOTE:
< Adjusting Range >
-12 to +12 (0.5mm per 1unit)
As the value is incremented by 1, the L1 (left edge margin (reverse side)) increases 0.5 mm.

2) Write the setting value on the service label when the image position is adjusted on the procedure 1.

3) Exit the service mode.

4) Print out the double-sided from the cassette 1 and check that L1 (left edge margin (reverse side)) is within 3.0 ± 2.0mm.

# 6 Troubleshooting

■Initial Check

■Test Print

■Troubleshooting items

■Upgrading Targets and Procedure

■Log Collector

# Initial Check

## Initial check items list

| Item | No. | Detail | Check |
|---|---|---|---|
| Site Environment | 1 | The voltage of the power supply is as rated (+/-10%). | |
| | 2 | The site is not a high temperature / humidity environment (near a water faucet, water boiler, humidifier), and it is not in a cold place. The machine is not near a source of fire or dust. | |
| | 3 | The site is not subject to ammonium gas. | |
| | 4 | The site is not exposed to direct rays of the sun. (Otherwise, provide curtains.) | |
| | 5 | The site is well ventilated, and the floor keeps the machine level. | |
| | 6 | The machine's power plug remains connected to the power outlet. | |
| Checking the Paper | 1 | The paper is of a recommended type. | |
| | 2 | The paper is not moist. Try paper fresh out of package. | |
| Checking the Placement of Paper | 1 | Check the cassette and the manual feed tray to see if the paper is not in excess of a specific level. | |
| | 2 | If a transparency is used, check to make sure that it is placed in the correct orientation in the manual feed tray. | |
| Checking the Durables | 1 | Check the table of durables to see if any has reached the end of its life. | |
| Checking the Periodically Replaced Parts | 2 | Check the scheduled servicing table and the periodically replaced parts table, and replace any part that has reached the time of replacement. | |

T-6-1

Checking Each Unit/Each Function System

| Item | No. | Detail | Check |
|---|---|---|---|
| Reader | 1 | Check that there is no cut, dirt or any foreign particle on the scanner system parts. | |
| | 2 | Check that the CIS unit moves smoothly and there is no dirt on the rail. | |
| | 3 | Check that the lump light does not blink. | |
| | 4 | Check that there is no dew condensation found on the scanning system parts. | |
| Image formation system | 1 | Check that the drum unit and developing assembly are properly installed. | |
| | 2 | Check that there is no cut and dirt on the photosensitive drum. | |
| | 3 | Check that the transfer roller is not worn and deformed and has no cut/dirt. | |
| Fixing system | 1 | Check that the fixing film and pressure roller is not worn and deformed and has no cut/dirt. | |
| | 2 | Check that the fixing thermistor wire is not cut. | |
| | 3 | Check that there is electrical conductivity among thermoswitch. | |

| Item | No. | Detail | Check |
|---|---|---|---|
| Pickup feed system | 1 | Check that there is no foreign particle such as paper dust etc. | |
| | 2 | Check that the pickup/feed/separation roller does not accumulate the paper dust. Check that these rollers are not worn and deformed and have no cut/dirt. | |
| | 3 | Check that the registration roller/paper path roller is not worn and deformed and has no cut/dirt. | |
| | 4 | Check that the feed guide is not worn and deformed and has no cut/dirt. | |
| | 5 | Check that there is no edge fold/curl/wave/moisture absorption occurred on the paper. | |
| | 6 | Check if using Canon recommended paper/transparency makes it better or not. | |
| Drive system | 1 | Check that the drive system does not get heavy load. | |
| | 2 | Check that the gear is not worn and not get chipped. | |
| Cassette | 1 | Check that the cassette is installed properly and the paper size is configured properly. Check if the symptom appears or not after replacing the cassette with the cassette that works normally. | |
| | 2 | Check that the cassette middle plate moves smoothly and is not deformed. | |
| | 3 | Check that the cassette side guide plate/ trailing edge guide plate is properly set. | |
| | 4 | Check that the cassette heater switch is ON (When the cassette heater is installed.). | |
| General | 1 | Check that the sensor/clutch/motor/solenoid works properly (Make sure to check the power source and signal transmission route with the general circuit diagram.). | |
| | 2 | Check that there is no wire wedged/screw loosened. | |
| | 3 | Check that all the external covers are installed. | |
| | 4 | Check that the main power switch/control panel power switch is ON. | |
| | 5 | Check that the wiring of power cable/signal cable to each option is properly installed. | |
| | 6 | Check that the fuse on each PCB does not burn out. | |
| | 7 | Check that there is no error in customer's usage method. | |
| Others | 1 | If moving the machine from the cold place such as storage etc to a warm place abruptly, dew condensation is generated inside machine and it may cause various troubles.<br>• E100 occurs due to dew condensation on BD sensor.<br>• Low image density in the vertical scanning direction due to dew condensation on the dust-proof glass.<br>• Low image density due to dew condensation on the reader CIS and copyboard glass.<br>• Paper feed failure due to dew condensation on the pickup, feed guide. | |
| | 2 | If the symptom appears described above, wipe the pickup/feed unit with dry cloth. Moreover, if storing the toner container/developing assembly/drum unit in the cold place and unpacking them abruptly in warm place, dew condensation may be generated.<br>To prevent dew condensation, place them in warm place sufficiently (for 1 to 2 hours) before unpacking. | |

T-6-2

# Test Print

## Overview

This machine have the following test print TYPE and you can judge the image failure that is checked as "Yes" in the following image check items with each test print.

If the image failure occurred on normal output does not reappear on the test print, it may be caused by the PDL input or reader side.

## Select the test print TYPE

| NO. | TYPE Pattern | Items | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Gradation | Fogging | Transfer Fault | Black line | White line | Uneven Pitch | Uneven Density | Right Angle | Straight Lines |
| SELECT NO.00 | 0: Grid Bk | | | | | | | | Yes | Yes |
| SELECT NO.01 | 1: Halftone | | | Yes | Yes | Yes | Yes | Yes | | |
| SELECT NO.02 | 2: Solid black | | | Yes | | Yes | Yes | Yes | | |
| SELECT NO.03 | 3: Solid white | | | | Yes | | | | | |
| SELECT NO.04 | 4: Solid black / Solid white | | | Yes | Yes | Yes | Yes | Yes | | |
| SELECT NO.05 | 5: 2 dot 2 space (Length) | | | | | | Yes | | | |
| SELECT NO.06 | 6: 2 dot 2 space (Side) | | | | Yes | Yes | | Yes | | |
| SELECT NO.07 | 7: Confirmation at ghost image | | Yes | | | | | | | |
| SELECT NO.08 | 8: For R&D | | | | | | | | | |

T-6-3

[Procedure]

1) Enter the service mode.

2) Select PG-TYPE/COUNT/PHASE/DENS/FEED and press start.

## Troubleshooting items

### Troubleshooting items list

| Category | | Item | Reference |
|---|---|---|---|
| Image failure | Dirt | Scattered image at center | 6-4 |
| | | Paper reverse side stained with toner | 6-5 |
| | | Stained leading/trailing edge of paper | 6-5 |
| | Blur/Void | Image transfer wrong/text void | 6-6 |
| | Dot/Irregular Pitch | White dot at reverse trailing edge of HT | 6-6 |
| | | Irregular transfer roller pitch (50mm) | 6-7 |
| Operation failure | Paper jam | Too large curl | 6-7 |
| | | Paper jam due to solid image printed on the paper with small leading-edge margin (1-4 mm) | 6-8 |
| | Indication | "Set the drum" indication | 6-8 |

T-6-4

### Image Failure

#### ■ Scattered image at center



F-6-1

[Occurrence area]
Pre-registration guide (Static eliminator)

[Cause]
The image is scattered by the paper dust on the static eliminator of the pre-registration guide.

[Occurrence condition]
Paper dust is stuck on the static eliminator of the pre-registration guide.

[Remedy]
Cleaning of the static eliminator on the pre-registration transfer guide
1) Remove the right cover.
2) Pat the contaminated part on the static eliminator to remove the paper dust.

## ■ Paper Reverse Side Stained with Toner

F-6-2

[Occurrence area]

Fixing assembly (circumference: 75mm)

Transfer roller (circumference: 50mm)

[Cause]

Fixing assembly:

Removed toner from the paper is adhered onto the pressure roller and then it is adhered onto the reverse side of the paper.

Transfer roller:

Toner is remained on the drum when a jam occurs and the drum is suspended. The toner is adhered onto the transfer roller during the recovery operation.

[Occurrence condition]

Fixing assembly:

- In case that fixing ability is poor due to low temperature
- In case that mass halftone images are printed
- Time for replacement of the fixing assembly is in the near term.

Transfer roller:

- In case that paper jam occurs
- Time for replacement of the transfer unit is in the near term.

[Remedy]

Fixing assembly: Settings/Registration> Adjustment/ Maintenance> Clean Fixing Unit

Transfer Roller: Settings/Registration> Adjustment/ Maintenance> Clean Transfer Roller

## ■ Stained Leading/Trailing Edge of Paper

F-6-3

[Occurrence area]

Transfer front guide

Fixing inlet guide

[Cause]

Transfer front guide:

The leading or trailing edge of the paper touches toner which is adhered onto the transfer front upper guide.

Fixing inlet guide:

The leading or trailing edge of the paper touches toner which is adhered onto the fixing inlet guide.

[Occurrence condition]

When halftone or solid-black images are printed in succession

[Remedy]

Use lens-cleaning papers or similar papers, clean the toner on the guide.

## ■ Image Transfer Wrong/Text Void



F-6-4

[Occurrence area]
Transfer roller (circumference: 50mm)

[Cause]
Resistance of paper increases due to reduction in paper water content, resulting in insufficient transfer output.
Resistance of paper decreases due to increase in paper water content, resulting in excessive transfer output.

[Occurrence condition]
Papers are left in the low-humidity environment
Papers are left in the high-humidity environment

[Remedy]
Settings/Registration> Adjustment/ Maintenance> Special Processing> Special Mode M> Low (MODE1/MODE2) or High (MODE4/MODE5)

## ■ White Dot at Reverse Trailing Edge of HT



F-6-5

[Occurrence area]
Fixing inlet guide

[Cause]
Separation discharge occurs at the time of separation between the paper and the fixing inlet guide.

[Occurrence condition]
Installation environment is different from the environment sensor detection.

[Remedy]
Settings/Registration> Adjustment/ Maintenance> Special Processing> Special Mode M> High (MODE4/MODE5)

## ■ Irregular Transfer Roller Pitch (50mm)



F-6-6

[Occurrence area]
Transfer Roller (50mm)

[Cause]
Transfer current is reduced as paper dust is adhered on the transfer roller by continuous print especially high resistance paper.

[Occurrence condition]
- Paper dust is adhered on the transfer roller
- Time to replacement of the transfer roller is in the near term.

[Remedy]
Settings/Registration> Adjustment/ Maintenance> > Special Processing> Special Mode M> High (MODE4/MODE5)

## ● Operation failure

### ■ Too Large Curl

[Occurrence area]
Fixing assembly

[Cause]
Paper is curled when water amount of the paper on surface and back are varied from the high fixing temperature

[Occurrence condition]
Papers are left in the high-humidity environment.

[Remedy]
- Settings/Registration> Adjustment/ Maintenance>  Special Processing> Special Mode N> N1 mode (MODE1) or N3 mode (MODE2)
- "N3 mode" reduces productivity.
- Install the optional cassette heater.

## ■ Paper Jam due to Solid Image Printed on the Paper with Small Leading-Edge Margin (1-4 mm)

[Occurrence area]
Fixing assembly

[Cause]
When a solid image is printed on the paper with a small leading-edge margin (1-4 mm), paper is not available to cannot be easily separated from the fixing film, causing a paper jam.

[Occurrence condition]
Papers are left in a high-humidity environment or when a solid image is printed on the paper with a small leading-edge margin.

[Remedy]
• Settings/Registration> Adjustment/ Maintenance> Special Processing> Special Mode O> On(MODE1/MODE2)
• Settings/Registration> Adjustment/ Maintenance> Special Processing> Special Mode N> N3 mode (MODE2)
• *"Special Mode N>N3 mode (MODE2)" reduces the curl, however it results low productivity.

## ■ "Set the drum" Indication

[Occurrence area]
• Drum unit
• Developing assembly

[Cause]
Drum unit or developing assembly is not equipped. The host machine does not have function to detect the developing assembly.

[Occurrence condition]
Drum unit or developing assembly is not equipped.

[Remedy]
• Check that the drum unit is equipped.
• Check the connection of the developing assembly.

## Special mode (User mode)

The special modes in user mode are as follows.

Settings/Registration > Adjustment/Maintenance > Special Processing

| Special Mode O | |
|---|---|
| Outline | Separation priority mode |
| Use case | When paper jam by the poor separation occurs |
| Details | Paper jams may frequently occur when using the multi-purpose tray to print on the reverse side of paper that has already been printed on, depending on the paper type (especially with thin paper and curled paper).<br>In this case, change this setting to <Mode 1> or <Mode 2>.<br>Because strong separation bias is impressed on the leading edge of the sheet, separation performance is improved.<br>If you change this setting to <On> when printing on paper other than thin paper, white patches may appear in printed images. |
| Set range | Off, Mode1/Mode2: On |
| Default value | Off |

| Special Mode M | |
|---|---|
| Outline | Transfer poor prevention mode |
| Use case | When the transfer poor image occurs |
| Details | Marks from toner scattering may appear around text and patterns, depending on the paper type (especially with heavy paper).<br>When the transfer output increases, the image is improved. |
| Set range | Mode1: transfer output down (strong) Mode2: transfer output down Mode3: off Mode4: transfer output up Mode5: transfer output up (strong) |
| Default value | Mode3 |

| Special Mode N | |
|---|---|
| Outline | Paper curl correction mode |
| Use case | When paper jams occur in 2-sided printing using the curled paper and moist paper. |
| Details | Paper jams may frequently occur when performing 2-sided printing, depending on the paper type (especially with curled paper and damp paper). In this case, change this setting to Mode 1 (N1 mode) or Mode 2 (N3 mode).<br>N1 mode: N1 mode lowers the fixing target temperature for all paper type.<br>N3 mode: N3 mode becomes effective only for the plain paper or special mode P. Lower the fixing target temperature. The productivity decreases for initial rotation extension.<br>When the Mode 1/2 is set, image failure by the lack of transfer may occur so that the transfer electric current flows into the separation. |
| Set range | Off: Mode1: N1 mode, Mode2: N3 mode |
| Default value | Off |

| Special Mode S | |
|---|---|
| Outline | Shortening of wait time after the paper size change |
| Use case | Shortening of wait time after the paper size change |
| Details | When the paper size is changed, the machine stops operation until it is ready to feed different size paper. Shorten this waiting time to prioritize print speed.<br>When the Mode 1/2 is set, printed paper may curl by the paper type and the use environment. |
| Set range | Off: wait time 120 seconds, Mode1: wait time 0 seconds, Mode2: wait time 10 seconds |
| Default value | Off |

| Special Mode P | |
|---|---|
| Outline | The fixing control temperature mode of the curl prevention |
| Use case | When the paper curl occurs |
| Details | Lower the fixing control temperature in the plain paper mode. |
| Set range | Off, On |
| Default value | Off |

| Special Mode F | |
|---|---|
| Outline | Image smear prevention mode |
| Use case | When image smear occurs |
| Details | Correct the toner that stuck to the transfer roller on the drum by extending last rotation movement every more than five prints of totals. And clean the drum. |
| Set range | Off, Mode1: 5 seconds extension, Mode2: 10 seconds extension, Mode3: 30 seconds extension |
| Default value | Off |

T-6-5

# Upgrading Targets and Procedure

## Outline

Upgrading system software for host machine: Use the PC (UST).



F-6-7

### Host machine

| Target PCB | Category | Target system software | File type | Remarks |
|---|---|---|---|---|
| Controller PCB | iR2002/2202 | Boot ROM | HEF_XXXX_BOOT | |
| | | Main Controller Language | HEF_XXXX_APP_LANG | |
| | | DCON | USTUPDATE_iR2202_2002_DCON_vXXXX | |

T-6-6

## Preparation

### ■ System Requirements

- OS (one of the following)
    - Microsoft Windows 2000 Server/Professional
    - Microsoft Windows XP Professional/Home Edition
    - Microsoft Windows Server 2003
    - Microsoft Windows Vista*
        - *: Only as for the 32 bit processor version
    - Microsoft Windows Server 2008
    - Microsoft Windows 7
    - Microsoft Windows 8
- PC
    - Compatible to the selected OS
    - Memory (RAM): 32MB or more free space
    - Hard Disk: 100MB or more free space
    - Display: 640x480 pixels or more in resolution, 256 tones or more
    - With USB ports
- UST file for this product*
    - *: Download the corresponding file from the system CD or the service site (ask the service technician in charge for details)
- USB cable (USB1.1/2.0) or LAN cable

### ■ Preparation

1) Start the PC.
2) Connect the device to the PC with the USB cable or LAN cable.
3) Turn on the device on standby.
4) Press [Menu] key to upgrade firmware in User mode. *
   System Management Settings > [ID / PIN] > Update Firmware > Yes
5) Press OK to automatically restart the device. "***DOWNLOAD MODE***" is shown on the display.
6) Wait for the motor of the host machine to stop.

*Note:
- Press STOP key to cancel Download mode and return to the normal operation.
- The system administrator ID and the password are changed back to the default values.
  <Manager ID: 7654321 / PIN: 7654321>
- Either is possible to Service Mode or User Mode.
  ServiceMode > COPIER > FUNCTION > SYSTEM > DOWNLOAD

## Downloading System Software

1) Open UST.

XXXXXXXX
XXXX.exe

F-6-8

2) Take a note of the firmware version to upgrade and click [Next] button.

F-6-9

3) Click [Next] button.

F-6-10

4) Select [USB Device] and click [Next] button.

F-6-11

5) Click [Start] button.

F-6-12

6) Click [Yes] button for the warning message to start download.

F-6-13

7) Click [OK] button when download is completed.

F-6-14

8) Turn off and on the power to restart the device.

9) Output the spec report from Service mode to confirm if the firmware version is the same as that on the note taken in Step 2).

COPIER > FUNCTION > MISC-P > OUTPUT > SPEC

# Log Collector

## OutLine

A method to collect the operational status log of the host machine will be provided as a means to analyze failuresoccurred in the field. When a request was made to the head quarters of the sales company by the CINC division incharge of field follow-up, collect the log by the tool.

### ■ Scope of Application

• The tool is supported by Windows XP, Windows Vista and Windows 7.
• Host machine and the PC which operates the tool are connected directly by an USB Cable. Multiple host machines cannot be connected to a PC.

### ■ What to Prepare

• Host machine
• USB Cable (Connector shape: A-B)
• PC with a usable USB port (OS: Windows XP, Vista, Windows 7)
• Tool (CanonLogCollector_Ver1.0.0.4.zip)*

  *Obtain a tool according to instructions of sale company HQ.

### ■ Operation Procedure

1. Connecting the USBCable

  Connect the USB Cable while both the host machine and the PC are in operation.
2. Decompressing CanonLogCollector_Ver1.0.0.4.zip

  Create any folder with a write permission on the PC.  When CanonLogCollector_Ver1.0.0.4.zip isdecompressed, "CanonLogCollector.exe" is extracted.



F-6-15

3. Starting the tool

  Double-click to start CanonLogCollector.exe. The CanonLogCollector screen opens.



F-6-16

4. Collecting the log

  Press the [Start] button on the CanonLogCollector screen. When "Receiving log is successfully finished." isdisplayed, press the [Exit Program] button to close the tool.



F-6-17

The log file is generated in the folder where "CanonLogCollector.exe" exists is located. Bring back and send the log to the head quarters of the sales company. The log file is "usb_2011901_132658.log" in the figure below.The capacity of the log file is 128 KB or less. The time needed to collect the log is approx.10 seconds.

> **Note:**
> While the machine is in operation, log information is always added. However, the storage area is limited to 128KB, so the information is overwritten in the order from the old log information.Since log information may be overwritten if a long time passes after error occurrence, be sure to collect log as soon as possible.



Naming rule for log file:                                    F-6-18

  It is recorded with usb_yyyymmdd_hhmmss.log.yyyymmdd_hhmmss indicates year, month, date, and time (hour, minute, second) when the log is collected.

### ■ Troubleshooting

The log data is not properly sent from the host machine to the PC when "Receiving log is finished. (Receivetimeout.)" was displayed after the [Start] button was pressed on the CanonLogCollector screen. The size of the log file becomes approx. 1 KB. Collect the log again after setting the USB connection properly.  The capacity of the log properly collected becomes 128 KB or less.   Turn OFF and then ON the main power of the host machine when the log cannot be collected even after the USBconnection has been properly set on the PC.



F-6-19

# 7

# Error Code

■Overview
■Error Code
■Jam Code
■Alarm Code

# Overview

## Outline

This chapter describes various codes which are displayed when a failure occurs on the product. These are classified into 3 codes as follows.

| Code type | Explanation | Reference |
|---|---|---|
| Error code | This code is displayed when an error occurs on the machine. *1<br>It is also possible to confirm only an occurring error in LUI.<br>Display of max. 50 items | Refer to page 7-3 |
| Jam code | This code is displayed when a jam occurs inside the machine. *1<br>Display of max. 50 items | Refer to page 7-6 |
| Alarm code | This code is displayed when a function of the machine is malfunctioned. *1<br>Display of max. 50 items | Refer to page 7-8 |

T-7-1

*1: It is possible to confirm it by outputting the report in COPIER> FUNCTION> MISC-P> ERR-LOG.

It is not displayed in LUI.

### Report output example

```
21/08 2013 13:47            imageRUNNER 2202N              P.0001

                   ***********************************
                   ***    JAM/ERR HISTORY REPORT    ***
                   ***********************************

    JAM
          [001] 0821 10:36 10:37 3 0 1118 1 A4
          [002] 0821 10:37 10:37 4 1 0045 0 A4
          [003] 0821 13:09 13:10 3 0 1118 7 A3
          [004] 0821 13:12 13:12 3 0 010C 1 A4
          [005] 0821 13:15 13:15 3 0 1118 7 A4
          [006] 0821 13:19 13:19 3 0 1118 7 A3
          [007] 0821 13:21 13:22 3 0 0210 7 A3
          [008] 0821 13:25 13:25 3 0 0210 7 A3


    ERROR
          [001] 0821 11:06 3 110 0000
          [002] 0821 11:09 3 004 0000
          [003] 0821 11:42 3 010 0000


    ALARM
          [001] 0807 15:46 3 000 3 85-0001
          [002] 0807 15:46 3 000 3 85-0003
```

F-7-1

### ● Location code

Jam code include the location information and the occurrence division information.
Location information and occurrence division information are displayed as 1-digit number as follows.

| Device | Location code | Occurrence division code |
|---|---|---|
| Host machine | 3 | 0 |
| ADF | 4 | 1 |

T-7-2

### ● Pickup position code

When jam occurs, pickup location is indicated with the following pickup position code.

| Pickup position | Pickup position code |
|---|---|
| ADF (DADF-AM1) | - |
| Multi-purpose Tray | 0 |
| Cassette 1 | 1 |
| Cassette 2 (Cassette Feeding Module-AB1) | 2 |
| When paper pickup mouth position is uncertain | 5 |
| Duplex (Duplex Unit-C1) | 7 |

T-7-3

# Error Code

## Error Code Details

| Ecode | Detail Code | Item | Description |
|---|---|---|---|
| E000 | 0000 | Title | Fixing assembly temperature insufficient rise at the startup temperature control |
| | | Description | The fixing assembly does not rise to the constant temperature within specified time at the startup temperature control. |
| | | Remedy | 1. Go through the following to clear the error: COPIER> FUNCTION> CLEAR> ERR; and then turn OFF and then ON the power.<br>2. Check the connector between the fixing assembly and the controller PCB (PCB1).<br>3. Replace the fixing assembly.<br>4. Replace the controller PCB (PCB1). |
| E001 | 0000 | Title | Fixing assembly temperature abnormal rise (main thermistor) |
| | | Description | The reading of the main thermistor is 240 deg C or more. |
| | | Remedy | 1. Go through the following to clear the error: COPIER> FUNCTION> CLEAR> ERR; and then turn OFF and then ON the power.<br>2. Check the connector between the fixing assembly and the controller PCB (PCB1).<br>3. Replace the fixing assembly.<br>4. Replace the controller PCB (PCB1). |
| E001 | 0001 | Title | Fixing assembly temperature abnormal rise (sub thermistor) |
| | | Description | The reading of the sub thermistor is 295 deg C or more. |
| | | Remedy | 1. Go through the following to clear the error: COPIER> FUNCTION> CLEAR> ERR; and then turn OFF and then ON the power.<br>2. Check the connector between the fixing assembly and the controller PCB (PCB1).<br>3. Replace the fixing assembly.<br>4. Replace the controller PCB (PCB1). |
| E002 | 0000 | Title | Fixing assembly temperature insufficient rise at the print temperature control |
| | | Description | The fixing assembly does not rise to the constant temperature within specified time at the print temperature control. |
| | | Remedy | 1. Go through the following to clear the error: COPIER> FUNCTION> CLEAR> ERR; and then turn OFF and then ON the power.<br>2. Check the connector between the fixing assembly and the controller PCB (PCB1).<br>3. Replace the fixing assembly.<br>4. Replace the controller PCB (PCB1). |

| Ecode | Detail Code | Item | Description |
|---|---|---|---|
| E003 | 0000 | Title | Low fixing temperature detection after standby (main thermistor) |
| | | Description | The reading of the main thermistor is less than specified temperature. |
| | | Remedy | 1. Go through the following to clear the error: COPIER> FUNCTION> CLEAR> ERR; and then turn OFF and then ON the power.<br>2. Check the connector between the fixing assembly and the controller PCB (PCB1).<br>3. Replace the fixing assembly.<br>4. Replace the controller PCB (PCB1). |
| E003 | 0001 | Title | Low fixing temperature detection after standby (sub thermistor) |
| | | Description | The reading of the sub thermistor is less than specified temperature. |
| | | Remedy | 1. Go through the following to clear the error: COPIER> FUNCTION> CLEAR> ERR; and then turn OFF and then ON the power.<br>2. Check the connector between the fixing assembly and the controller PCB (PCB1).<br>3. Replace the fixing assembly.<br>4. Replace the controller PCB (PCB1). |
| E004 | 0000 | Title | Thermistor disconnection detection error |
| | | Description | When thermistor disconnection is detected without specified time. |
| | | Remedy | 1. Check the connector between the fixing assembly and the controller PCB (PCB1).<br>2. Replace the fixing assembly.<br>3. Replace the controller PCB (PCB1). |
| E010 | 0000 | Title | Unstable rotation of the main motor (M202) |
| | | Description | Failure of the main motor (M202) |
| | | Remedy | 1. Check connection of the main motor connector.<br>2. Replace the main motor (M202).<br>3. Replace the controller PCB (PCB1). |
| E014 | 0000 | Title | The fixing release is not possible by the fixing motor (M201). |
| | | Description | Driving the fixing motor, the fixing release is not detected by the fixing pressure release sensor (SR202). |
| | | Remedy | 1. Check connection of the fixing motor connector.<br>2. Replace the fixing motor (M201).<br>3. Check connection of the fixing pressure release sensor connector.<br>4. Replace the fixing pressure release sensor (SR202).<br>5. Replace the controller PCB (PCB1). |

| Ecode | Detail Code | Item | Description |
|---|---|---|---|
| E014 | 0001 | Title | The fixing pressure is not possible by the fixing motor (M201). |
| | | Description | Driving the fixing motor, the fixing pressure is not detected by the fixing pressure release sensor (SR202). |
| | | Remedy | 1. Check connection of the fixing motor connector.<br>2. Replace the fixing motor (M201).<br>3. Check connection of the fixing pressure release sensor connector.<br>4. Replace the fixing pressure release sensor (SR202).<br>5. Replace the controller PCB (PCB1). |
| E019 | 0001 | Title | Waste toner full detection |
| | | Description | When the paper was printed more than 100 sheets in the state that waste toner full alarm was detected, |
| | | Remedy | Replace the drum unit. |
| E019 | 0002 | Title | Failure of the waste toner full sensor (SR204) |
| | | Description | Failure of the waste toner full sensor (SR204) |
| | | Remedy | 1. Check connection of the waster toner full sensor connector.<br>2. Replace the waste toner full sensor (SR204).<br>3. Replace the controller PCB (PCB1). |
| E052 | 0000 | Title | Duplex unit detection error |
| | | Description | The connection of the duplex unit is abnormal. |
| | | Remedy | 1. Check the connectors of the duplex unit and controller PCB.<br>2. Replace the duplex controller PCB.<br>3. Replace the controller PCB (PCB1). |
| E110 | 0000 | Title | Failure of the polygon motor (M203) |
| | | Description | The polygon motor (M203) does not indicate a ready state a specific period of time after the polygon motor (M203) has been started. |
| | | Remedy | 1. Check connection of the polygon motor connector.<br>2. Replace the laser scanner unit.<br>3. Replace the controller PCB (PCB1). |
| E196 | 2000 | Title | Controller PCB reading/writing error |
| | | Description | Error in reading/writing of setting values storage area in the Controller PCB |
| | | Remedy | 1. Install the set of the controller firmware.<br>2. Replace the controller PCB (PCB1). |
| E202 | 0001 | Title | CIS unit HP error (outward) |
| | | Description | CIS unit did not move to HP even it moved backward. |
| | | Remedy | 1. Replace the contact sensor HP sensor (SR402).<br>2. Replace the reader motor (M301).<br>3. Replace the CIS unit. |
| E202 | 0002 | Title | CIS Unit HP error (homeward) |
| | | Description | CIS unit did not move to HP even it moved forward. |
| | | Remedy | 1. Replace the contact sensor HP sensor (SR402).<br>2. Replace the reader motor (M301).<br>3. Replace the CIS unit. |

| Ecode | Detail Code | Item | Description |
|---|---|---|---|
| E225 | 0001 | Title | The light intensity of the CIS unit is faulty. |
| | | Description | The light intensity of the CIS during shading is under the specified level. |
| | | Remedy | 1.Disconnect and then connect the flexible cable.<br>2.Replace the flexible cable.<br>3.Replace the CIS unit.<br>4.Replace the controller PCB (PCB1). |
| E246 | 0000 | Title | System error |
| | | Description | System error. |
| | | Remedy | Contact to the sales companies. |
| E247 | 0000 | Title | System error |
| | | Description | System error. |
| | | Remedy | Contact to the sales companies. |
| E248 | 0001 | Title | Error in access to backup data for reader/ADF (reading error at power-on) |
| | | Description | The reader/ADF-related adjustment values could not be read. |
| | | Remedy | 1. Clear the backup RAM of RCON.<br>Execute COPIER>FUNCTION>CLEAR>RCON.<br>2. Enter all the values written on the service label in service mode again.<br>3. Turn OFF and then ON the main power. |
| E261 | 0000 | Title | Error in zero cross |
| | | Description | Error in zero cross |
| | | Remedy | 1. Check the connectors.<br>2. Replace the controller PCB (PCB1).<br>3. Replace the power supply PCB (PCB2). |
| E350 | 0000 | Title | System error |
| | | Description | System error. |
| | | Remedy | Contact to the sales companies. |
| E354 | 0000 | Title | System error |
| | | Description | System error. |
| | | Remedy | Contact to the sales companies. |
| E355 | 0000 | Title | System error |
| | | Description | System error. |
| | | Remedy | Contact to the sales companies. |
| E355 | 0004 | Title | System error |
| | | Description | System error. |
| | | Remedy | Contact to the sales companies. |
| E355 | 0005 | Title | System error |
| | | Description | .System error |
| | | Remedy | Contact to the sales companies. |

| Ecode | Detail Code | Item | Description |
|-------|-------------|------|-------------|
| E716 | 0000 | Title | Optional cassette connection eeror |
|  |  | Description | The connection of the optional cassette is abnormal. |
|  |  | Remedy | 1. Check the connectors of the optional cassette and controller PCB.<br>2. Replace the option cassette controller PCB (PCB6).<br>3. Replace the power supply PCB (PCB2). |
| E732 | 0000 | Title | Scanner communication error |
|  |  | Description | Scanner communication error |
|  |  | Remedy | 1. Install the set of the controller firmware.<br>2. Replace the controller PCB (PCB1). |
| E733 | 0000 | Title | Controller communication error |
|  |  | Description | The pickup assembly and delivery assembly without the connection were appointed by the controller. |
|  |  | Remedy | 1. Check the connectors of the controller PCB (PCB1).<br>2. Replace the controller PCB (PCB1).<br>3. Replace the power supply PCB (PCB2). |
| E744 | 0002 | Title | Language file size error |
|  |  | Description | The size of the language file exceeded the upper limit. |
|  |  | Remedy | Install the set of the controller firmware. |
| E744 | 4000 | Title | Engine ID error |
|  |  | Description | Invalid engine connection was detected. |
|  |  | Remedy | 1. Turn OFF and then ON the main power.<br>2. Check the controller PCB (PCB1).<br>3. Install the set of the controller firmware.<br>4. Check the model code. (When the model code and the engine code are mismatched, E744-4000 occurs.) |
| E746 | 0000 | Title | Controller PCB error |
|  |  | Description | Controller communication error occurred (other than scan). |
|  |  | Remedy | 1. Install the set of the controller firmware.<br>2. Replace the controller PCB (PCB1). |
| E805 | 0000 | Title | Failure of the fixing cooling fan (FM1) |
|  |  | Description | The fixing cooling fan (FM1) was locked for a specified consecutive period of time. |
|  |  | Remedy | 1. Check the connection of the fixing cooling fan (FM1).<br>2. Replace the fixing cooling fan (FM1). |

T-7-4

## Jam Code

### Main Unit (Included with the Cassette Feeding Module-AB1 and the Duplex Unit-C1)

F-7-2

| ACC ID | Jam Code | Type | Sensor ID | Sensor Name |
|--------|----------|------|-----------|-------------|
| 03 | 0104 | Delay jam | SR207<br>SR502 | Pre-registration sensor<br>Cassette 2 pickup sensor |
| 03 | 0208 | Stationary jam | SR207 | Pre-registration sensor |
| 03 | 010C | Delay jam | SR201<br>SR203* | Fixing delivery sensor<br>Delivery sensor |
| 03 | 0210 | Stationary jam | SR201<br>SR203* | Fixing delivery sensor<br>Delivery sensor |
| 03 | 1014 | Power-on jam | SR201<br>SR203*<br>SR207<br>SR211<br>SR502<br><br>SR503 | Fixing delivery sensor<br>Delivery sensor<br>Pre-registration sensor<br>Arch sensor<br>Cassette 2 pickup sensor<br>Duplex feed sensor |
| 03 | 1118 | Cover open jam | - | - |
| 03 | 0221 | Stationary jam | SR203*<br>SR503 | Delivery sensor<br>Duplex feed sensor |
| 03 | 0124 | Delay jam | SR503 | Duplex feed sensor |

*: Network model only

T-7-5

## DADF-AM1



F-7-3

| ACC ID | Jam Code | Type | Sensor ID | Sensor Name |
|--------|----------|------|-----------|-------------|
| 04 | 0003 | Delay | SR8 | Registration paper sensor |
| 04 | 0004 | Stationary | SR8 | Registration paper sensor |
| 04 | 0005 | Delay | SR7 | Read sensor |
| 04 | 0006 | Stationary | SR7 | Read sensor |
| 04 | 0007 | Delay | SR6 | Delivery reversal sensor |
| 04 | 0008 | Stationary | SR6 | Delivery reversal sensor |
| 04 | 0044 | Stationary(first original) | SR8 | Registration paper sensor |
| 04 | 0045 | Delay(first original) | SR7 | Read sensor |
| 04 | 0046 | Stationary(first original) | SR7 | Read sensor |
| 04 | 0047 | Delay(first original) | SR6 | Delivery reversal sensor |
| 04 | 0048 | Stationary(first original) | SR6 | Delivery reversal sensor |
| 04 | 0071 | Timing error | - | - |
| 04 | 0090 | ADF open | SR401 | ADF open/close Sensor |
| 04 | 0091 | User ADF open | SR401 | ADF open/close Sensor |
| 04 | 0092 | ADF cover open | SR10 | Cover open/close sensor |
| 04 | 0093 | User cover open | SR10 | Cover open/close sensor |
| 04 | 0094 | Initial stationary | SR6,SR7,SR8 | Delivery reversal sensor or Read sensor or Registration paper sensor |
| 04 | 0095 | Pickup NG | SR11 | Document set sensor |

T-7-6

# Alarm Code

## Alarm Code Details

| Alarm Code | | | Title | A. Movement /B. Cause /C. Measures |
|---|---|---|---|---|
| 31 | - | 0005 | Environment sensor reading alarm | Movement: Temperature and the humidity are fixed. Then the change of the high voltage output is not performed. Cause: Connection of the environment sensor cannot be detected or the environment sensor is failure. Measures: 1) Check the connection of the environment sensor (HU1). 2) Replace the environment sensor (HU1). |
| 85 | - | 0001 | System error clear | - |
| 85 | - | 0002 | Auto-restore caused by service replacement | - |
| 85 | - | 0003 | Auto-restore caused by service replacement | - |
| 85 | - | 0004 | Auto-restore caused by service replacement | - |
| 85 | - | 0005 | Auto-restore caused by service replacement | - |

T-7-7

# 8

# Service Mode

- ■ Outline
- ■ COPIER
- ■ FEEDER
- ■ TEST MODE

# Outline

## Outline of Service Mode



F-8-1

## Backing up Service Mode

Each device is tuned at the time of shipment and the tuned values are written on the service label.

However, when replacing the controller PCB or clearing RAM, tuned ADJUST and OPTION values are reset to defaults. Each service technician should adjust these values in field and ensure to write values after changes in the service label. If the corresponding item is not found on the service label, enter the value in the blank space.

### Service Label

The service label is affixed inside the rear cover.



F-8-2

## Screen flow of Service Mode

User screen

1)Up-arrow / down-arrow key
2)OK key

Initial screen

1)Up-arrow / down-arrow key
2)OK key

Return key

Category ←Up-arrow / down-arrow key→ Category

1)Up-arrow / down-arrow key
2)OK key

Return key

Sub category ←Up-arrow / down-arrow key→ Sub category

1)Up-arrow / down-arrow key
2)OK key

Return key

Item ←→ Item

1)Up-arrow / down-arrow key
2)OK key

OK / Return key

Setting screen

F-8-3

## Screen flow of Service mode

• Initial / Category / Sub category screen

| | |
|---|---|
| Select the item | : ▼/▲ key |
| Go to Sub category screen | : OK key |
| Go to Initial screen | : Return key |

```
SERVICE MODE
COPIER
FEEDER
TESTMODE
```
F-8-4

• Item selection screen

| | |
|---|---|
| Select the item | : ▼/▲ key |
| Go to Setting screen | : OK key |
| Go to Sub category screen | : Return key |

```
ADJ-X          :0
ADJ-Y          :0
ADJ-Y-DF       :0
ADJ-X-MG       :0
STRD-POS       :0
```
F-8-5

• Input value screen

| | |
|---|---|
| Enter the setting value | : Numeric key |
| Increment the setting value one by one | : ▲ |
| Decrease the setting value one by one | : ▼ |
| Nullify the setting value | : Clear key |
| Change the setting | : OK key |
| Maintain the setting | : Return key |

```
ADJ-X
          ▲
       [ 0 ]
          ▼
     (-30 - 30)
```
F-8-6

# COPIER

## ⬤ DISPLAY

### ■ VERSION

| COPIER > DISPLAY > VERSION | |
|---|---|
| MAIN | Display of MAIN (main program) version |
| Details | To display the firmware version of controller PCB. |
| Use case | When upgrading the firmware |
| Adj/set/operate method | N/A (Display only) |
| Display/adj/set range | 00.00 to 99.99 |
| Default value | 0 |
| LANG | Language pack version |
| Details | To display the version of language pack. |
| Use case | When upgrading the firmware |
| Adj/set/operate method | N/A (Display only) |
| Display/adj/set range | 00.00 to 99.99 |
| Default value | 0 |
| ECONT | Engine ROM version |
| Details | To display the version of engine ROM. |
| Use case | When upgrading the firmware |
| Adj/set/operate method | N/A (Display only) |
| Display/adj/set range | 00.00 to 99.99 |
| Default value | 0 |
| OPT-DUP | Duplex Unit version |
| Details | To display the version of duplex Unit. |
| Use case | When upgrading the firmware |
| Adj/set/operate method | N/A (Display only) |
| Display/adj/set range | 00.00 to 99.99 |
| Default value | 0 |

T-8-1

### ■ CCD

| COPIER > DISPLAY > CCD | |
|---|---|
| TARGET-B | Shading target value (Blue color of the copyboard) |
| Details | To display the shading target value of Blue color using the copyboard. Continuous display of 1 (minimum) or 511 (maximum) is considered a failure of the CIS Unit. |
| Use case | At scanned image failure<br>When replacing the controller PCB/CIS unit |
| Adj/set/operate method | N/A (Display only) |
| Display/adj/set range | 1 to 511 |
| Default value | 287 |
| Related service mode | COPIER>ADJUST>CCD>W-PLT-X/Y/Z |

| COPIER > DISPLAY > CCD | |
|---|---|
| TARGET-G | Shading target value (Green color of the copyboard) |
| Details | To display the shading target value of Green color using the copyboard.<br>Continuous display of 1 (minimum) or 511 (maximum) is considered a failure of the CIS Unit. |
| Use case | At scanned image failure<br>When replacing the controller PCB/CIS unit |
| Adj/set/operate method | N/A (Display only) |
| Display/adj/set range | 1 to 511 |
| Default value | 286 |
| Related service mode | COPIER>ADJUST>CCD>W-PLT-X/Y/Z |
| TARGET-R | Shading target value (Red color of the copyboard) |
| Details | To display the shading target value of Red color using the copyboard.<br>Continuous display of 1 (minimum) or 511 (maximum) is considered a failure of the CIS Unit. |
| Use case | At scanned image failure<br>When replacing the controller PCB/CIS unit |
| Adj/set/operate method | N/A (Display only) |
| Display/adj/set range | 1 to 511 |
| Default value | 284 |
| Related service mode | COPIER>ADJUST>CCD>W-PLT-X/Y/Z |
| TARGETBW | Shading target value (B&W color of the copyboard) |
| Details | To display the shading target value at B&W color using the copyboard.<br>Continuous display of 1 (minimum) or 511 (maximum) is considered a failure of the controller PCB. |
| Use case | At scanned image failure<br>When replacing the controller PCB/CIS unit |
| Adj/set/operate method | N/A (Display only) |
| Display/adj/set range | 1 to 511 |
| Default value | 285 |
| Related service mode | COPIER>ADJUST>CCD>W-PLT-X/Y/Z |
| DFTAR-R | Shading target value (Red color of the DADF) |
| Details | To display the shading target value of Red color using the DADF.<br>Continuous display of 1 (minimum) or 511 (maximum) is considered a failure of the CIS Unit. |
| Use case | At scanned image failure<br>When replacing the controller PCB/CIS unit |
| Adj/set/operate method | N/A (Display only) |
| Display/adj/set range | 1 to 511 |
| Default value | 284 |
| Related service mode | COPIER>FUNCTION>CCD>DF-WLVL3/DF-WLVL4 |

| COPIER > DISPLAY > CCD | |
|---|---|
| DFTAR-G | Shading target value (Green color of the DADF) |
| Details | To display the shading target value of Green color using the DADF. Continuous display of 1 (minimum) or 511 (maximum) is considered a failure of the CIS Unit. |
| Use case | At scanned image failure<br>When replacing the controller PCB/CIS unit |
| Adj/set/operate method | N/A (Display only) |
| Display/adj/set range | 1 to 511 |
| Default value | 286 |
| Related service mode | COPIER>FUNCTION>CCD>DF-WLVL3/DF-WLVL4 |
| DFTAR-B | Shading target value (Blue color of the DADF) |
| Details | To display the shading target value of Blue color using the DADF. Continuous display of 1 (minimum) or 511 (maximum) is considered a failure of the CIS Unit. |
| Use case | At scanned image failure<br>When replacing the controller PCB/CIS unit |
| Adj/set/operate method | N/A (Display only) |
| Display/adj/set range | 1 to 511 |
| Default value | 287 |
| Related service mode | COPIER>FUNCTION>CCD>DF-WLVL3/DF-WLVL4 |
| DFTAR-BW | Shading target value (B&W color of the DADF) |
| Details | To display the shading target value of B&W color using the DADF. Continuous display of 1 (minimum) or 511 (maximum) is considered a failure of the CIS Unit. |
| Use case | At scanned image failure<br>When replacing the controller PCB/CIS unit |
| Adj/set/operate method | N/A (Display only) |
| Display/adj/set range | 1 to 511 |
| Default value | 285 |
| Related service mode | COPIER>FUNCTION>CCD>DF-WLVL1/DF-WLVL2 |
| OFST-BW0 | CIS offset level adjustment value: BW 0 |
| Details | To display the offset level adjustment value (BW 0) of CIS. |
| Use case | When judging whether this adjustment value is appropriate in the case that an image failure due to CIS occurs. |
| Display/adj/set range | 0 to 255 |
| Default value | 128 |
| OFST-BW1 | CIS offset level adjustment value: BW 1 |
| Details | To display the offset level adjustment value (BW 1) of CIS. |
| Use case | When judging whether this adjustment value is appropriate in the case that an image failure due to CIS occurs. |
| Display/adj/set range | 0 to 255 |
| Default value | 128 |

| COPIER > DISPLAY > CCD | |
|---|---|
| OFST-BW2 | CIS offset level adjustment value: BW 2 |
| Details | To display the offset level adjustment value (BW 2) of CIS. |
| Use case | When judging whether this adjustment value is appropriate in the case that an image failure due to CIS occurs. |
| Display/adj/set range | 0 to 255 |
| Default value | 128 |
| OFST-BW3 | CIS offset level adjustment value: BW 3 |
| Details | To display the offset level adjustment value (BW 3) of CIS. |
| Use case | When judging whether this adjustment value is appropriate in the case that an image failure due to CIS occurs. |
| Display/adj/set range | 0 to 255 |
| Default value | 128 |
| OFST-BW4 | CIS offset level adjustment value: BW 4 |
| Details | To display the offset level adjustment value (BW 4) of CIS. |
| Use case | When judging whether this adjustment value is appropriate in the case that an image failure due to CIS occurs. |
| Display/adj/set range | 0 to 255 |
| Default value | 128 |
| OFST-BW5 | CIS offset level adjustment value: BW 5 |
| Details | To display the offset level adjustment value (BW 5) of CIS. |
| Use case | When judging whether this adjustment value is appropriate in the case that an image failure due to CIS occurs. |
| Display/adj/set range | 0 to 255 |
| Default value | 128 |
| OFST-CL0 | CIS offset level adjustment value: CL 0 |
| Details | To display the offset level adjustment value (CL 0) of CIS. |
| Use case | When judging whether this adjustment value is appropriate in the case that an image failure due to CIS occurs |
| Display/adj/set range | 0 to 255 |
| Default value | 128 |
| OFST-CL1 | CIS offset level adjustment value: CL 1 |
| Details | To display the offset level adjustment value (CL 1) of CIS. |
| Use case | When judging whether this adjustment value is appropriate in the case that an image failure due to CIS occurs |
| Display/adj/set range | 0 to 255 |
| Default value | 128 |
| OFST-CL2 | CIS offset level adjustment value: CL 2 |
| Details | To display the offset level adjustment value (CL 2) of CIS. |
| Use case | When judging whether this adjustment value is appropriate in the case that an image failure due to CIS occurs |
| Display/adj/set range | 0 to 255 |
| Default value | 128 |

| COPIER > DISPLAY > CCD | |
|---|---|
| OFST-CL3 | CIS offset level adjustment value: CL 3 |
| Details | To display the offset level adjustment value (CL 3) of CIS. |
| Use case | When judging whether this adjustment value is appropriate in the case that an image failure due to CIS occurs |
| Display/adj/set range | 0 to 255 |
| Default value | 128 |
| OFST-CL4 | CIS offset level adjustment value: CL 4 |
| Details | To display the offset level adjustment value (CL 4) of CIS. |
| Use case | When judging whether this adjustment value is appropriate in the case that an image failure due to CIS occurs |
| Display/adj/set range | 0 to 255 |
| Default value | 128 |
| OFST-CL5 | CIS offset level adjustment value: CL 5 |
| Details | To display the offset level adjustment value (CL 5) of CIS. |
| Use case | When judging whether this adjustment value is appropriate in the case that an image failure due to CIS occurs |
| Display/adj/set range | 0 to 255 |
| Default value | 128 |
| GAIN-BW0 | CIS gain level adjustment value: BW 0 |
| Details | To display the B&W gain level adjustment value (BW 0) of the CIS. |
| Use case | When image failure occurs at reading in BW mode |
| Display/adj/set range | 0 to 255 |
| Default value | 0 |
| GAIN-BW1 | CIS gain level adjustment value: BW 1 |
| Details | To display the B&W gain level adjustment value (BW 1) of the CIS. |
| Use case | When image failure occurs at reading in BW mode |
| Display/adj/set range | 0 to 255 |
| Default value | 0 |
| GAIN-BW2 | CIS gain level adjustment value: BW 2 |
| Details | To display the B&W gain level adjustment value (BW 2) of the CIS. |
| Use case | When image failure occurs at reading in BW mode |
| Display/adj/set range | 0 to 255 |
| Default value | 0 |
| GAIN-BW3 | CIS gain level adjustment value: BW 3 |
| Details | To display the B&W gain level adjustment value (BW 3) of the CIS. |
| Use case | When image failure occurs at reading in BW mode |
| Display/adj/set range | 0 to 255 |
| Default value | 0 |
| GAIN-BW4 | CIS gain level adjustment value: BW 4 |
| Details | To display the B&W gain level adjustment value (BW 4) of the CIS. |
| Use case | When image failure occurs at reading in BW mode |
| Display/adj/set range | 0 to 255 |
| Default value | 0 |

| COPIER > DISPLAY > CCD | |
|---|---|
| GAIN-BW5 | CIS gain level adjustment value: BW 5 |
| Details | To display the B&W gain level adjustment value (BW 5) of the CIS. |
| Use case | When image failure occurs at reading in BW mode |
| Display/adj/set range | 0 to 255 |
| Default value | 0 |
| GAIN-CL0 | CIS gain level adjustment value: CL 0 |
| Details | To display the Color gain level adjustment value (CL 0) of the CIS. |
| Use case | When image failure occurs at reading in color mode |
| Display/adj/set range | 0 to 255 |
| Default value | 0 |
| GAIN-CL1 | CIS gain level adjustment value: CL 1 |
| Details | To display the Color gain level adjustment value (CL 1) of the CIS. |
| Use case | When image failure occurs at reading in color mode |
| Display/adj/set range | 0 to 255 |
| Default value | 0 |
| GAIN-CL2 | CIS gain level adjustment value: CL 2 |
| Details | To display the Color gain level adjustment value (CL 2) of the CIS. |
| Use case | When image failure occurs at reading in color mode |
| Display/adj/set range | 0 to 255 |
| Default value | 0 |
| GAIN-CL3 | CIS gain level adjustment value: CL 3 |
| Details | To display the Color gain level adjustment value (CL 3) of the CIS. |
| Use case | When image failure occurs at reading in color mode |
| Display/adj/set range | 0 to 255 |
| Default value | 0 |
| GAIN-CL4 | CIS gain level adjustment value: CL 4 |
| Details | To display the Color gain level adjustment value (CL 4) of the CIS. |
| Use case | When image failure occurs at reading in color mode |
| Display/adj/set range | 0 to 255 |
| Default value | 0 |
| GAIN-CL5 | CIS gain level adjustment value: CL 5 |
| Details | To display the Color gain level adjustment value (CL 5) of the CIS. |
| Use case | When image failure occurs at reading in color mode |
| Display/adj/set range | 0 to 255 |
| Default value | 0 |

T-8-2

## ■ SPDTYPE

| COPIER> DISPLAY> SPDTYPE | |
|---|---|
| SPDTYPE | Display of engine speed type |
| Details | To display the engine speed type of this machine. |
| Use case | When checking the engine speed type |
| Adj/set/operate method | N/A (Display only) |
| Display/adj/set range | 20cpm / 22cpm |

T-8-3

## I/O

### ■ R-CON

| COPIER> IO> R-CON | | | |
|---|---|---|---|
| Address | BIT | Name | Remarks |
| P001 | 0 | Copyboard cover open/closed sensor (SR401) | 0: Open |
| | 1 | Contact sensor HP sensor (SR402) | 1: HP |
| | 2 - 7 | Not used. '0' is displayed. | - |
| P002 | - | Not used. '0' is displayed. | - |

T-8-4

### ■ FEEDER

| COPIER> IO> FEEDER | | | |
|---|---|---|---|
| Address | BIT | Name | Remarks |
| P001 | 0 | Document width sensor 1(SR1) | A4:1 LTR:1 A5R:0 |
| | 1 | Document width sensor 2(SR2) | A4:1 LTR:0 A5R:1 |
| | 2 - 3 | Not used. '0' is displayed. | - |
| | 4 | Delivery reversal sensor (SR6) | 1: paper presence |
| | 5 | Read sensor (SR7) | 1: paper presence |
| | 6 | Not used. '0' is displayed. | - |
| | 7 | Registration paper sensor (SR8) | 1: paper presence |
| | 8 | Document length sensor 2(SR5) | 1: paper presence |
| | 9 | Document length sensor 1(SR4) | 1: paper presence |
| | 10 | Not used. '0' is displayed. | - |
| | 11 | Cover open/close sensor (SR10) | 1: close |
| | 12 | Last document detection sensor (SR3) | 1: paper presence |
| | 13 | Document set sensor (SR11) | 1: paper presence |

T-8-5

## ADJUST

### ■ ADJ-XY

| COPIER > ADJUST > ADJ-XY | |
|---|---|
| ADJ-X | Adjustment of image position in book mode: horz scan |
| Details | To adjust the image reading start position (image leading edge position) in the horizontal scanning direction at copyboard reading. When replacing the controller PCB, enter the value of service label. When the non-image width is larger than the standard value, set the smaller value. When out of original area is copied, set the larger value. As the value is incremented by 1, the image position moves to the trailing edge side by 0.1mm. |
| Use case | - When replacing the CIS unit<br>- When replacing the controller PCB |
| Adj/set/operate method | Enter the setting value and press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | 1 to 211 |
| Unit | 0.1 mm |
| Default value | 20 |
| ADJ-Y | Adjustment of image position in book mode: vert scan |
| Details | To adjust the image reading start position in the vertical scanning direction at copyboard reading. When replacing the controller PCB, enter the value of service label. When the non-image width is larger than the standard value, set the smaller value. When out of original area is copied, set the larger value. As the value is incremented by 1, the image position moves to the rear side by 0.1mm. |
| Use case | - When replacing the CIS unit<br>- When replacing the controller PCB |
| Adj/set/operate method | Enter the setting value and press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | -25 to 25 |
| Unit | 0.1 mm |
| Default value | 0 |

| COPIER > ADJUST > ADJ-XY | |
|---|---|
| ADJ-S | Adjusting the home position of the CIS unit |
| Details | To change the position to measure data for shading correction with standard white plate (horizontal scanning direction) by adjusting the home position of the CIS unit. As the value is incremented by 1, CIS unit moves to the horizontal scanning direction by 0.1mm. |
| Use case | When replacing the CIS unit/clearing RAM data |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | 35 to 200 |
| Unit | 0.1 mm |
| Default value | 42 |
| ADJ-Y-DF | Adjustment of image position in ADF mode: vertical scanning |
| Details | To adjust the image reading start position in the vertical scanning direction at ADF reading. When replacing the controller PCB/clearing the RAM data, enter the value of service label. As the value is incremented by 1, the image position moves to the front side by 0.1mm. |
| Use case | - When replacing the DADF/reader upper unit<br>- When replacing the CIS Unit<br>- When replacing the controller PCB |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | -50 to 35 |
| Unit | 0.1 mm |
| Default value | 0 |

| COPIER > ADJUST > ADJ-XY | |
|---|---|
| ADJ-X-MG | Fine adjustment of image magnification ratio in book mode (horizontal scanning direction) |
| Details | To make a fine adjustment of image magnification ratio in the horizontal scanning direction at copyboard reading by changing the reading cycle of CIS. When replacing the reader upper unit/ADF/CIS unit, enter the value of service label. As the value is incremented by 1, the image magnification changes by 0.1%.<br>  +: Reduce<br>  -: Enlarge |
| Use case | - When replacing the DADF/reader upper unit<br>- When replacing the CIS Unit |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | -10 to 10 |
| Unit | 0.1% |
| Default value | 0 |
| STRD-POS | Adjustment of reading position at ADF stream reading |
| Details | To adjust the reading position at ADF stream reading. When replacing the controller PCB/clearing the RAM data, enter the value of service label. As the value is incremented by 1, the reading position of the CIS unit moves to the right side by 0.1mm. Execute continuously  COPIER > FUNCTION >CCD >DF-WLVL1/DF-WLVL2/DF-WLVL3/DF-WLVL4 after this item setting. |
| Use case | When replacing the CIS Unit |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. When COPIER > FUNCTION >CCD >DF-WLVL1/DF-WLVL2/DF-WLVL3/DF-WLVL4 is not continuously executed after this item setting, a normal image may not be output. |
| Display/adj/set range | 1 to 130 |
| Unit | 0.1 mm |
| Default value | 65 |
| Related service mode | COPIER> FUNCTION> INSTALL> STRD-POS<br>COPIER > FUNCTION >CCD >DF-WLVL1/DF-WLVL2/DF-WLVL3/DF-WLVL4 |

T-8-6

## ■ CCD

| COPIER > ADJUST > CCD | |
|---|---|
| W-PLT-X | White level data(X) entry of white plate |
| Details | To enter the white level data (X) for the Standard White Plate. When replacing the ADF/reader upper unit/controller PCB, enter the value of barcode label which is affixed on the reader upper cover. |
| Use case | - When replacing the ADF/ reader upper unit<br>- When replacing the controller PCB<br>- When replacing the CIS unit |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | 1 to 9999 |
| Default value | 8411 |
| Related service mode | COPIER> ADJUST> CCD> W-PLT-Y, W-PLT-Z |
| W-PLT-Y | White level data(Y) entry of white plate |
| Details | To enter the white level data (Y) for the Standard White Plate. When replacing the ADF/reader upper unit/controller PCB, enter the value of barcode label which is affixed on the reader upper cover. |
| Use case | - When replacing the ADF/ reader upper unit<br>- When replacing the controller PCB<br>- When replacing the CIS unit |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | 1 to 9999 |
| Default value | 8887 |
| Related service mode | COPIER> ADJUST> CCD> W-PLT-X, W-PLT-Z |
| W-PLT-Z | White level data(Z) entry of white plate |
| Details | To enter the white level data (Z) for the Standard White Plate. When replacing the ADF/reader upper unit/controller PCB, enter the value of barcode label which is affixed on the reader upper cover. |
| Use case | - When replacing the ADF/ reader upper unit<br>- When replacing the controller PCB<br>- When replacing the CIS unit |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | 1 to 9999 |
| Default value | 9419 |
| Related service mode | COPIER> ADJUST> CCD> W-PLT-X, W-PLT-Y |

T-8-7

## ■ FEED-ADJ

| COPIER > ADJUST > FEED-ADJ | |
|---|---|
| ADJ-C1 | Cassette1 write start position in Vertical Scanning Direction |
| Details | To adjust the image write start position in the Vertical scanning direction when picking up paper from the Cassette 1 (standard Pickup Cassette).<br>As the value is incremented by 1, the margin on the left edge of paper is increased by 0.5 mm.<br>  +: Left margin becomes larger (An image moves to the right.)<br>  -: Left margin becomes smaller (An image moves to the left.)<br>When replacing the controller PCB, enter the value of service label. |
| Use case | When replacing the controller PCB |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | -12 to 12 |
| Unit | Approx. 0.5 mm |
| Default value | 0 |
| ADJ-C2 | Cassette2 write start position in Vertical Scanning Direction |
| Details | To adjust the image write start position in the vertical scanning direction when picking up paper from the Cassette 2 (option Pickup Cassette).<br>As the value is incremented by 1, the margin on the left edge of paper is increased by 0.5 mm.<br>  +: Left margin becomes larger (An image moves to the right.)<br>  -: Left margin becomes smaller (An image moves to the left.)<br>When replacing the controller PCB, enter the value of service label. |
| Use case | When replacing the controller PCB |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | -12 to 12 |
| Unit | Approx. 0.5 mm |
| Default value | 0 |

| COPIER > ADJUST > FEED-ADJ | |
|---|---|
| ADJ-MF | Write start position in the vertical scanning direction at pickup from the multi-purpose Tray |
| Details | To adjust the image write start position in the vertical scanning direction when picking up paper from the Multi-purpose Tray. As the value is incremented by 1, the margin on the left edge of paper is increased by 0.5 mm. +: Left margin becomes larger. (An image moves to the right.) -: Left margin becomes smaller. (An image moves to the left.) When replacing the controller PCB, enter the value of service label. |
| Use case | When replacing the controller PCB |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | -12 to 12 |
| Unit | Approx. 0.5 mm |
| Default value | 0 |
| ADJ-REFE | Write start position in the vertical scanning direction at 2-sided pickup |
| Details | To adjust the image write start position in the vertical scanning direction at 2-sided pickup. As the value is incremented by 1, the margin on the left edge of paper is increased by 0.5 mm. +: Left margin becomes larger. (An image moves to the right.) -: Left margin becomes smaller. (An image moves to the left.) When replacing the controller PCB, enter the value of service label. |
| Use case | When replacing the controller PCB |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | -12 to 12 |
| Unit | Approx. 0.5 mm |
| Default value | 0 |
| LOOP-CST | Registration loop amount adjustment: cassette feeding |
| Details | To adjust the registration loop amount in the cassette feeding. The paper feeding distance is increased/decreased by changing the value. +: The loop amount increases. -: The loop amount decreases. |
| Use case | - When replacing the controller PCB - When the casette feeding paper is skewed |
| Display/adj/set range | -2 to 2 |
| Unit | 1.0 mm |
| Default value | 0 |

| COPIER > ADJUST > FEED-ADJ | |
|---|---|
| LOOP-MF | Registration loop amount adjustment: MP-feeding |
| Details | To adjust the registration loop amount in the MP feeding. The paper feeding distance is increased/decreased by changing the value. +: The loop amount increases. -: The loop amount decreases. |
| Use case | - When replacing the controller PCB - When the multi-purpose feeding paper is skewed |
| Display/adj/set range | -2 to 2 |
| Unit | 1.0 mm |
| Default value | 0 |
| LOOPREFE | Registration loop amount adjustment: 2-sided feeding |
| Details | To adjust the registration loop amount in the 2-sided feeding. The paper feeding distance is increased/decreased by changing the value. +: The loop amount increases. -: The loop amount decreases. |
| Use case | - When replacing the controller PCB - When the 2-sided feeding paper is skewed |
| Display/adj/set range | -2 to 2 |
| Unit | 1.0 mm |
| Default value | 0 |

T-8-8

## ■ FIXING

| COPIER > ADJUST > FIXING | |
|---|---|
| FX-FL-SP | Adjustment of fixing film speed (Prevention of the stained trailing edge of paper) |
| Details | To adjust the fixing film speed at the normal speed after the trailing edge of paper passes the transfer nip. As the value is incremented, the speed of the fixing motor becomes fast. |
| Use case | When preventing the stained trailing edge of paper |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Display/adj/set range | -15 to 15 |
| Unit | Approx. 0.3 % |
| Default value | 0 |

T-8-9

## ■ LASER

| COPIER > ADJUST > LASER | |
|---|---|
| PVE-OFST | Adjustment of write start position of laser |
| Details | To adjust the image position by changing the laser emitting position. As the value is incremented by 1, the image moves by 0.1 mm.<br> +: Toward the trailing edge<br> -: Toward the leading edge |
| Use case | - When adjusting image position.<br>- When replacing the controller PCB. |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | -28 to 32 |
| Unit | 0.1mm |
| Default value | 0 |

T-8-10

## ● FUNCTION

## ■ CCD

| COPIER > FUNCTION > CCD | |
|---|---|
| CCD-ADJ | Adjustment of CIS gain/offset |
| Details | To adjust the gain/offset of the CIS automatically. |
| Use case | - When replacing the reader upper unit<br>- When replacing the CIS unit<br>- When replacing the controller PCB |
| Adj/set/operate method | 1) Select the item, and then press OK key.<br>2) The adjusted value reflect COPIER >DISPLAY > CCD> OFST(BW0 to BW5 and CL0 to CL5) and COPIER >DISPLAY<br>> CCD> GAIN(BW0 to BW5, CL0 to CL5). |
| Required time | 3 sec. |
| Related service mode | COPIER> DISPLAY> CCD> OFST (BW0 to BW5 and CL0 to CL5)<br>COPIER> DISPLAY> CCD> GAIN (BW0 to BW5, CL0 to CL5) |
| DF-WLVL1 | White level adjustment in book mode: (B&W) |
| Details | To adjust the white level for copyboard scanning automatically by setting the white paper which is usually used by the user on the Copyboard Glass. |
| Use case | - When replacing the reader upper unit<br>- When replacing the CIS Unit<br>- When replacing the ADF |
| Adj/set/operate method | 1) Set paper on the Copyboard Glass.<br>2) Select the item, and then press OK key. |
| Caution | Be sure to execute DF-WLVL2 in a row. |
| Related service mode | COPIER> DISPLAY> CCD> DFTAR-BW<br>COPIER> FUNCTION> CCD> DF-WLVL2 |
| DF-WLVL2 | White level adjustment in ADF mode: (B&W) |
| Details | To adjust the white level for ADF scanning automatically by setting the white paper which is usually used by the user on the ADF. |
| Use case | - When replacing the reader upper unit<br>- When replacing the CIS Unit<br>- When replacing the ADF |
| Adj/set/operate method | 1) Set paper on the ADF.<br>2) Select the item, and then press OK key. |
| Caution | Be sure to execute this item after DF-WLVL1. |
| Related service mode | COPIER> DISPLAY> CCD> DFTAR-BW<br>COPIER> FUNCTION> CCD> DF-WLVL1 |
| Supplement/memo | When this adjustment is finished normally, the result is reflected for COPIER> DISPLAY> CCD> DFTAR-BW. |

| COPIER > FUNCTION > CCD | |
|---|---|
| DF-WLVL3 | White level adj in book mode: color |
|    Details | To adjust the white level for copyboard scanning automatically by setting the white paper which is usually used by the user on the Copyboard Glass. |
|    Use case | - When replacing the reader upper unit<br>- When replacing the CIS Unit<br>- When replacing the ADF |
|    Adj/set/operate method | 1) Set paper on the Copyboard Glass.<br>2) Select the item, and then press OK key. |
|    Caution | Be sure to execute DF-WLVL4 in a row. |
|    Related service mode | COPIER> DISPLAY> CCD> DFTAR-R / DFTAR-G / DFTAR-B<br>COPIER> FUNCTION> CCD> DF-WLVL4 |
| DF-WLVL4 | White level adj in ADF mode: color |
|    Details | To adjust the white level for ADF scanning automatically by setting the white paper which is usually used by the user on the DADF. |
|    Use case | - When replacing the reader upper unit<br>- When replacing the CIS Unit<br>- When replacing the ADF |
|    Adj/set/operate method | 1) Set paper on the ADF.<br>2) Select the item, and then press OK key. |
|    Caution | Be sure to execute this item after DF-WLVL3. |
|    Related service mode | COPIER> DISPLAY> CCD> DFTAR-R / DFTAR-G / DFTAR-B<br>COPIER> FUNCTION> CCD> DF-WLVL3 |
|    Supplement/memo | When this adjustment is finished normally, the result is reflected for COPIER> DISPLAY> CCD> DFTAR-R / DFTAR-G / DFTAR-B. |

T-8-11

## ■ CLEAR

| COPIER > FUNCTION > CLEAR | |
|---|---|
| ERR | Clear of error code |
|    Details | To clear error codes (E000, E001, E002, E003) |
|    Use case | At error occurrence |
|    Adj/set/operate method | 1) Enter the setting value, and then press OK key.<br>2) Turn OFF/ON the main power switch. |
| R-CON | Initialization of Reader/ADF adjustment values |
|    Details | To initialize the factory adjustment values of the Reader/ADF. |
|    Use case | When replacing the controller PCB<br>At E248-0001 error occurrence |
|    Adj/set/operate method | Select the item, and then press OK key. |
| COUNTER | Clearing service counter |
|    Details | To clear the counter by maintenance/part/mode. |
|    Use case | When clearing service counter |
|    Adj/set/operate method | 1) Select the item, and then press OK key.<br>2) Turn OFF/ON the main power switch. |
| HIST | Clear of logs |
|    Details | To clear the communication management/print/jam/error alarm log. |
|    Use case | When clearing logs |
|    Adj/set/operate method | 1) Select the item, and then press OK key.<br>2) Turn OFF/ON the main power switch. |
| ALL | Clearing setting information |
|    Details | The following items are cleared/initialized according to setting of COPIER> OPTION> BODY> LOCALE, SIZE-LC.<br>- User mode setting values<br>- Service mode setting values (excluding the service counter)<br>- ID and password of the system administrator<br>- Communication management/print/jam/error alarm log.<br>The following items are not cleared/initialized.<br>- Service counter<br>- Factory adjustment values of the Reader/ADF |
|    Use case | When replacing the controller PCB |
|    Adj/set/operate method | 1) Select the item, and then press OK key.<br>2) Turn OFF/ON the main power switch. |
|    Related service mode | COPIER> OPTION> BODY> LOCALE, SIZE-LC |

T-8-12

## ■ MISC-R

| COPIER > FUNCTION > MISC-R | |
|---|---|
| SCANLAMP | Light-up check of CIS Unit LED |
| Details | To light up CIS Unit LED for 5 seconds.<br>Light up in the following order: R->G->B->W. |
| Use case | When replacing the CIS Unit |
| Adj/set/operate method | Select the item, and then press OK key. |
| Required time | Approx. 5 seconds |
| Supplement/memo | When you cannot confirm light for low light quantity, remove the reader upper unit. |

T-8-13

## ■ MISC-P

| COPIER > FUNCTION > MISC-P | |
|---|---|
| CNTR | Output of counter report |
| Details | To output the counter report.<br>The usage of functions (reading, recording, communication and copy) is output. |
| Use case | When the counter report is output |
| Adj/set/operate method | Select the item, and then press OK key. |
| ERR-LOG | Output of error log report |
| Details | To output the error log report. |
| Use case | When the error log report is output |
| Adj/set/operate method | Select the item, and then press OK key. |
| SPEC | Output of spec report |
| Details | To output the spec report.<br>The current device specifications such as the location, model information, and ROM version are output. |
| Use case | When the spec report is output |
| Adj/set/operate method | Select the item, and then press OK key. |

T-8-14

## ■ SYSTEM

| COPIER > FUNCTION > SYSTEM | |
|---|---|
| DOWNLOAD | Shift to download mode |
| Details | To switch to the download mode. |
| Use case | At upgrade |
| Adj/set/operate method | 1) Select the item, and then press OK key.<br>2) Perform downloading by UST. |
| Related user mode | Settings/Registration> System Management Settings> Update Firmware |

T-8-15

## ■ SPLMAN

| COPIER > FUNCTION > SPLMAN | |
|---|---|
| SPL93822 | Setting of department ID count all clear |
| Details | To set whether to disable clearing of all department ID counts. |
| Use case | When preventing the count value from being cleared carelessly |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | Be sure to perform this mode after consulting with the system administrator at user's site. |
| Display/adj/set range | 0 to 1<br>0: Enabled (Display), 1: Disabled (Hide) |
| Default value | 0 |
| Related service mode | COPIER> FUNCTION> SPLMAN> SPL78788 |
| SPL78788 | Setting of department ID count clear |
| Details | To set whether to disable clearing of department ID count. |
| Use case | When preventing the count value from being cleared carelessly |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | Be sure to perform this mode after consulting with the system administrator at user's site. |
| Display/adj/set range | 0 to 1<br>0: Enabled (Display), 1: Disabled (Hide) |
| Default value | 0 |
| Related service mode | COPIER> FUNCTION> SPLMAN> SPL93822 |
| SPL00171 | Change of the maximum value of auto sleep shift time |
| Details | To change the maximum value of auto sleep shift time in Settings/Registration> Timer Settings> Auto Sleep Time. |
| Use case | When changing the setting time to shift to auto sleep mode |
| Adj/set/operate method | 1) Enter the setting value, and then press OK key.<br>2) Turn OFF/ON the main power switch. |
| Display/adj/set range | 0 to 1<br>0: 0 to 60, 1: 0 to 240 |
| Default value | 0 (For Europe), 1 (For locations other than Europe) |

T-8-16

## ■ INSTALL

| COPIER > FUNCTION > INSTALL | |
| --- | --- |
| STRD-POS | Scan position auto adjustment in ADF mode |
| Details | To adjust the ADF scanning position automatically.<br>Carry it out in the state that ADF was closed.<br>The adjustment result is stored in COPIER> ADJUST> ADJ-XY><br>STRD-POS.<br>When this adjustment failed, the default value is stored.<br>Execute continuously  COPIER > FUNCTION >CCD >DF-WLVL1/DF-<br>WLVL2/DF-WLVL3/DF-WLVL4 after this item setting. |
| Use case | At ADF installation/uninstallation |
| Adj/set/operate method | 1) Select the item, and then press OK key.<br>The operation automatically stops after the adjustment.<br>2) Write the value displayed by COPIER>ADJUST>ADJ-XY>STRD-<br>POS in the service label.<br>3) Execute continuously  COPIER > FUNCTION >CCD >DF-WLVL1/<br>DF-WLVL2/DF-WLVL3/DF-WLVL4. |
| Caution | Write the adjusted value in the service label.<br>When COPIER > FUNCTION >CCD >DF-WLVL1/DF-WLVL2/DF-<br>WLVL3/DF-WLVL4 is not continuously executed after this item setting,<br>a normal image may not be output. |
| Related service mode | COPIER> ADJUST> ADJ-XY> STRD-POS<br>COPIER > FUNCTION >CCD >DF-WLVL1/DF-WLVL2/DF-WLVL3/<br>DF-WLVL4 |

T-8-17

## ■ PART-CHK

| COPIER > FUNCTION > PART-CHK | |
| --- | --- |
| MTR-ON | Roller cleaning mode |
| Details | To clean the rollers by driving the main motor.<br>The delivery roller and the multi-purpose tray pickup roller are driven.<br>The motor operates for approximately 25 seconds and automatically<br>stops. |
| Adj/set/operate method | Select the item, and then press OK key. |

T-8-18

## ● OPTION

## ■ BODY

| COPIER > OPTION > BODY | |
| --- | --- |
| DFDST-L1 | ADF mode dust correction level adjustment: paper interval |
| Details | To adjust black line correction level with very small dust correction<br>control that is executed at paper interval in ADF mode by brightness.<br>As the value is smaller, the dust is less detected.<br>Increase the value in the case of black lines.<br>As the value is larger, the dust that the color is light is more likely<br>detected. |
| Use case | - When black line occurs due to dust<br>- Upon user's request |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | When reducing the value too much, black lines may appear on the<br>image. |
| Display/adj/set range | 0 to 255 |
| Default value | 130 |
| DFDST-L2 | ADF mode dust detection level adjustment: after job |
| Details | To adjust dust detection level with dust detection control<br>that is executed after the job is completed in DADF mode by<br>brightness.<br>Reduce the value in the case of frequent display of cleaning instruction<br>at the time of dust detection. As the value is smaller, the dust is less<br>detected.<br>Increase the value in the case of black lines.<br>As the value is larger, the dust that the color is light is more likely<br>detected. |
| Use case | - When black line occurs due to dust<br>- Upon user's request |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | When increasing the value too much, the cleaning instruction screen<br>may appear too often since even small dust that will not be appeared<br>on the image can be detected.<br>When releasing the cleaning screen after the setting value was<br>smaller, the glass cleaning or ADF open/close must be perfomed. |
| Display/adj/set range | 0 to 255 |
| Default value | 100 |

| COPIER > OPTION > BODY | |
|---|---|
| LOCALE | Setting of location |
| Details | To set the location.<br>At installation in areas other than Japan, perform the following procedure to match the setting information with that of the location. |
| Use case | - At installation<br>- When replacing the controller PCB<br>- When changing the location information |
| Adj/set/operate method | 1) Enter the setting value under LOCALE, and then press OK key.<br>2) Set the paper size configuration under SIZE-LC.<br>3) Execute COPIER> FUNCTION> CLEAR> ALL.<br>4) Turn OFF/ON the main power switch. |
| Caution | Since COPIER> FUNCTION> CLEAR> ALL is executed when changing the location, the setting information of user mode, service mode, etc. is initialized.<br>The setting information of this item is not initialized. |
| Display/adj/set range | 1 to 8<br>1: Japan, 2: North America, 3: Korea, 4: China, 5: Taiwan, 6: Europe, 7: Asia, 8: Oceania |
| Default value | 1 |
| Related service mode | COPIER> FUNCTION> CLEAR> ALL<br>COPIER> OPTION> BODY> SIZE-LC |
| SIZE-LC | Setting of paper size configuration |
| Details | To set the paper size configuration.<br>At installation in areas other than Japan, perform the following procedure to match the setting information with that of the location. |
| Use case | - At installation<br>- When replacing the controller PCB<br>- Upon user's request |
| Adj/set/operate method | 1) Set the location under LOCALE.<br>2) Enter the setting value under SIZE-LC, and then press OK key.<br>3) Execute COPIER> FUNCTION> CLEAR> ALL.<br>4) Turn OFF/ON the main power switch. |
| Caution | Since COPIER> FUNCTION> CLEAR> ALL is executed when changing the location, the setting information of user mode, service mode, etc. is initialized.<br>The setting information of this item is not initialized. |
| Display/adj/set range | 1 to 3<br>1: AB configuration, 2: Inch configuration, 3: A configuration |
| Related service mode | COPIER> FUNCTION> CLEAR> ALL<br>COPIER> OPTION> BODY> LOCALE |

| COPIER > OPTION > BODY | |
|---|---|
| MIBCOUNT | Setting of MIB collection charge counter |
| Details | To set the range of charge counter information that can obtain MIB (Management Information Base). |
| Use case | When preventing the Charge Counter MIB from being used by a third party |
| Adj/set/operate method | 1) Enter the setting value, and then press OK key.<br>2) Turn OFF/ON the main power switch. |
| Display/adj/set range | 0 to 2<br>0: All charge counters are obtained, 1: Only the displayed counter* is obtained, 2: All charge counters are not obtained<br>* : Counter specified by the following: COPIER > OPTION > USER > COUNTER 1 to 6 |
| Default value | 0 |
| Related service mode | COPIER> OPTION> USER> COUNTER1 to 6 |
| SDTM-DSP | Automatic shutdown setting |
| Details | To set whether to display "Auto Shutdown Time" in the menu. |
| Use case | For customization |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | Automatic shutdown function is enabled only when there is no fax connection and the controller which supports the function is connected. |
| Display/adj/set range | 0 to 1<br>0: Hide, 1: Display |
| Default value | Europe (model without fax): 1, Others: 0 |
| Related user mode | Menu > Timer Settings > Auto Shutdown Time |
| TR-BS-SW | Setting of transfer bias highland environment mode |
| Details | To control the transfer bias in printing so that it does not exceed a specified level |
| Use case | When the black spots appear on the image (caused by leak occurs at high latitude) |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | When the installation site is changed from a highland to a lowland, set this mode OFF. |
| Display/adj/set range | 0 to 2<br>0: OFF, 1/2: ON |
| Default value | 0 |
| SC-PR-SW | Setting of scanner last rotation time |
| Details | To stop the polygon motor immediately after the last rotation so that a noise of the polygon motor is reduced |
| Use case | When receiving a complaint about the scanner motor drive noise after a job is finished. |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Display/adj/set range | 0 to 1<br>0: OFF, 1: ON |
| Default value | 0 |

| COPIER > OPTION > BODY | |
|---|---|
| FLK-RD | Flicker reduction mode |
| Details | To change the fixing temperature control to cancel fluorescent flicking during printing |
| Use case | When the fluorescent flicking occurs during printing |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Display/adj/set range | 0 to 1<br>0: OFF, 1: ON |
| Default value | 0 |
| FIX-OFST | Change of detection temperature for the fixing edge temperature |
| Details | Lower the detection temperature of the fixing sub thermistor to shift the machine control to the slow down sequence for small size papers (less than B5 of length in width direction) |
| Use case | When an abnormal sound occurs in the fixing film unit |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Display/adj/set range | 0 to 1<br>0: OFF, 1: ON |
| Default value | 0 |
| TEMPCON2 | Set fixing control temperature table: Plain paper mode |
| Details | To change the fixing control temperature in the plain paper mode (plain paper, color paper, recycled paper, pre-punched paper). |
| Use case | When the poor fixing, paper slip or paper curl occurs in the plain paper mode. |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Display/adj/set range | -6 to 6 (-30 deg C to 30 deg C) |
| Unit | 5 deg C |
| Default value | 0 |
| TEMP-CON | Set fixing control temperature table: Heavy paper mode |
| Details | To change the fixing control temperature in the heavy paper mode (heavy paper 1, heavy paper 2, bond, transparency, envelope). |
| Use case | When the poor fixing, paper slip or paper curl occurs in theheavy paper mode. |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Display/adj/set range | -6 to 6 (-30 deg C to 30 deg C) |
| Unit | 5 deg C |
| Default value | 0 |
| FX-CN-SW | Setting of fixing pressure roller cleaning sequence |
| Details | To set the fixing pressure roller cleaning sequence |
| Use case | Upon user's request (When the fixing motor sound which is generated in the fixing pressure roller cleaning sequence is claimed from user) |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Display/adj/set range | 0 to 1<br>0: ON, 1: OFF |
| Default value | 0 |

| COPIER > OPTION > BODY | |
|---|---|
| TMP-TB15 | 2-sided curl correction mode |
| Details | To change the fixing temperature to correct the curl in 2-sided print (high temperature / high humidity environment, palin paper or special mode P) |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Display/adj/set range | 0 to 6<br>0: OFF , 1 to 6: ON |
| Default value | 0 |
| SP-SW | Setting of the separation bias |
| Details | To improve the separation performance by changing separation bias. |
| Use case | When using the thin paper of the out of specification |
| Adj/set/operate method | 1) Enter the setting value, and then press OK key.<br>2) Turn OFF/ON the main power switch. |
| Caution | When using the plain paper, turn off the setting. |
| Display/adj/set range | 0 to 2<br>0: OFF, 1: Separation bias down, 2: Separation bias up |
| Default value | 0 |
| CLN-SW | Black band mode |
| Details | To prevent the image smear in the high humidity, the cleaning ability of the drum surface is raised by this mode and the deteriorated toner is removed. When the value is increased, the effect becomes big. |
| Use case | When the image smear occurs. |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | The toner consumption is increased and it influences the dirt of the transfer roller. |
| Display/adj/set range | 0 to 3 |
| Appropriate target value | 0 to 3<br>0: default (no black band)<br>1: The making of the black band at the last rotation for 75 jobs once<br>2: The making of the black band at the last rotation for 50 jobs once<br>3: The making of the black band at the last rotation for 25 jobs once |
| Default value | 0 |
| SCANSLCT | Selection of reference at reading of originals |
| Details | To select the size reference at reading of originals. |
| Use case | When changing the reference for reading |
| Adj/set/operate method | 1) Enter the setting value, and then press OK key.<br>2) Turn OFF/ON the main power switch. |
| Caution | - There is no automatic rotation when the setting value is 1.<br>- When a mode is specified that requires specification of the original size (such as enlarged layout, reduced layout), scanning is performed with reference to the original size. |
| Display/adj/set range | 0 to 1<br>0: Scan with reference to original size, 1: Scan with reference to recording paper size |
| Default value | 0 |

| COPIER > OPTION > BODY | |
|---|---|
| WT-LT-SW | Selection of display when the waste toner is full |
| Details | To select the message display when the waste toner in the drum unit becomes full. |
| Use case | When changing the waste toner full message |
| Adj/set/operate method | 1) Enter the setting value, and then press OK key.<br>2) Turn OFF/ON the main power switch. |
| Display/adj/set range | 0 to 1<br>0: Error display (E019 display), 1: Display of a message to prompt drum replacement |
| Default value | EUR: 1, Others: 0 |

T-8-19

## ■ USER

| COPIER > OPTION > USER | |
|---|---|
| COUNTER1 | Display of counter 1 type |
| Details | To display counter type for counter 1 on the counter check screen. |
| Use case | Upon user/dealer's request |
| Adj/set/operate method | N/A (Display only) |
| Caution | No change is available. |
| Display/adj/set range | 0 to 999<br>0: No registration |
| Default value | The value differs according to the location. |
| COUNTER2 | Display of counter 2 type |
| Details | To display counter type for counter 2 on the counter check screen. |
| Use case | Upon user/dealer's request |
| Adj/set/operate method | 1) Enter the setting value, and then press OK key.<br>2) Turn OFF/ON the main power switch. |
| Display/adj/set range | 0 to 999<br>0: No registration |
| Default value | The value differs according to the location. |
| COUNTER3 | Display of counter 3 type |
| Details | To display counter type for counter 3 on the counter check screen. |
| Use case | Upon user/dealer's request |
| Adj/set/operate method | 1) Enter the setting value, and then press OK key.<br>2) Turn OFF/ON the main power switch. |
| Display/adj/set range | 0 to 999<br>0: No registration |
| Default value | The value differs according to the location. |
| COUNTER4 | Display of counter 4 type |
| Details | To display counter type for counter 4 on the counter check screen. |
| Use case | Upon user/dealer's request |
| Adj/set/operate method | 1) Enter the setting value, and then press OK key.<br>2) Turn OFF/ON the main power switch. |
| Display/adj/set range | 0 to 999<br>0: No registration |
| Default value | 0 |
| COUNTER5 | Display of counter 5 type |
| Details | To display counter type for counter 5 on the counter check screen. |
| Use case | Upon user/dealer's request |
| Adj/set/operate method | 1) Enter the setting value, and then press OK key.<br>2) Turn OFF/ON the main power switch. |
| Display/adj/set range | 0 to 999<br>0: No registration |
| Default value | 0 |

| COPIER > OPTION > USER | |
|---|---|
| COUNTER6 | Display of counter 6 type |
| Details | To display counter type for counter 6 on the Counter Check screen. |
| Use case | Upon user/dealer's request |
| Adj/set/operate method | 1) Enter the setting value, and then press OK key.<br>2) Turn OFF/ON the main power switch. |
| Display/adj/set range | 0 to 999<br>0: No registration |
| Default value | 0 |
| CNT-SW | Setting of charge counter display method |
| Details | To set display method of the charge counter on the Counter Check screen.<br>Set 1 to 3 to select a new method. |
| Use case | Upon user's request |
| Adj/set/operate method | 1) Enter the setting value, and then press OK key.<br>2) Turn OFF/ON the main power switch. |
| Display/adj/set range | 0 to 3<br>0: type1, 1: type2, 2: type3, 3: type4 |
| Default value | 0 |
| B4-L-CNT | Count setting of B4 size |
| Details | To set B4 count with software counter 1 to 6 as to whether B4 is counted as large size or small size.<br>Selecting 1 counts B4 or larger size paper as large size while paper smaller than B4 size as small size. |
| Use case | Upon user's request |
| Adj/set/operate method | 1) Enter the setting value, and then press OK key.<br>2) Turn OFF/ON the main power switch. |
| Display/adj/set range | 0 to 1<br>0: Small size, 1: Large size |
| Default value | 0 |
| CTCHKDSP | ON/OFF of charge counter print |
| Details | To set whether to display or hide [Copy/Print Charge Log Report] in [Menu]>[Output Reports]>[Print List]. |
| Use case | Upon user's request |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Display/adj/set range | 0 to 1<br>0: Hide, 1: Display |
| Default value | 1 |
| Related user mode | Menu > Output Reports > Print List > Copy/Print Charge Log Report |

T-8-20

# COUNTER

## ■ TOTAL

| COPIER > COUNTER > TOTAL | |
|---|---|
| SERVICE1 | Service-purposed total counter 1 |
| Details | To count up when the paper is delivered outside the machine.<br>The counter is advanced regardless of the original size.<br>The counter is not advanced by delivery in service mode. |
| Display/adj/set range | 0 to 99999999 |
| Unit | Number of sheets |
| Default value | 0 |
| SERVICE2 | Service-purposed total counter 2 |
| Details | To count up when the paper is delivered outside the machine.<br>Large size: 2, small size: 1<br>The counter is not advanced by delivery in service mode. |
| Display/adj/set range | 0 to 99999999 |
| Unit | Number of sheets |
| Default value | 0 |
| TTL | Total counter |
| Details | To display the total of counters of copy, PDL print, report print.<br>(Total of COPY, PDL-PRT, RPT-PRT in service mode described below) |
| Display/adj/set range | 0 to 99999999 |
| Unit | Number of sheets |
| Default value | 0 |
| Related service mode | COPIER> COUNTER> TOTAL> COPY, PDL-PRT, RPT-PRT |
| COPY | Total copy counter |
| Details | To count up when the copy is delivered outside the machine.<br>The counter is advanced regardless of the original size.<br>The counter is not advanced by delivery in service mode. |
| Display/adj/set range | 0 to 99999999 |
| Unit | Number of sheets |
| Default value | 0 |
| Related service mode | COPIER> COUNTER> TOTAL> TTL |
| PDL-PRT | PDL print counter |
| Details | To count up when the PDL print is delivered outside the machine/2-sided printout is stacked.<br>The counter is advanced regardless of the original size.<br>The counter is not advanced by blank paper or delivery in service mode. |
| Display/adj/set range | 0 to 99999999 |
| Unit | Number of sheets |
| Default value | 0 |
| Related service mode | COPIER> COUNTER> TOTAL> TTL |

| COPIER > COUNTER > TOTAL | |
|---|---|
| RPT-PRT | Report print counter |
|   Details | To count up when the report print is delivered outside the machine/2-sided printout is stacked.<br>The counter is advanced regardless of the original size.<br>The counter is not advanced by blank paper or delivery in service mode. |
|   Display/adj/set range | 0 to 99999999 |
|   Unit | Number of sheets |
|   Related service mode | COPIER> COUNTER> TOTAL> TTL |
| 2-SIDE | 2-sided copy/print counter |
|   Details | To count up the number of 2-sided copies/prints when the copy/printout is delivered outside the machine/2-sided copy/printout is stacked.<br>The counter is advanced regardless of the original size.<br>The counter is not advanced by blank paper or delivery in service mode. |
|   Display/adj/set range | 0 to 99999999 |
|   Unit | Number of times |
|   Default value | 0 |
| SCAN | Scan counter |
|   Details | To count up the number of scan operations when the scanning operation is complete.<br>The counter is advanced regardless of the original size.<br>The counter is not advanced by delivery in service mode. |
|   Display/adj/set range | 0 to 99999999 |
|   Unit | Number of times |
|   Default value | 0 |

T-8-21

## ■ PICK-UP

| COPIER > COUNTER > PICK-UP | |
|---|---|
| C1 | Cassette 1 pickup total counter |
|   Details | To count up the number of sheets picked up from the cassette 1.<br>The counter is advanced regardless of the original size.<br>The counter is advanced by printout in service mode. |
|   Display/adj/set range | 0 to 99999999 |
|   Unit | Number of sheets |
|   Default value | 0 |
| C2 | Cassette 2 pickup total counter |
|   Details | To count up the number of sheets picked up from the cassette 2.<br>The counter is advanced regardless of the original size.<br>The counter is advanced by printout in service mode. |
|   Display/adj/set range | 0 to 99999999 |
|   Unit | Number of sheets |
|   Default value | 0 |

| COPIER > COUNTER > PICK-UP | |
|---|---|
| MF | Multi-purpose tray pickup total counter |
|   Details | To count up the number of sheets picked up from the Multi-purpose tray pickup unit.<br>The counter is advanced regardless of the original size.<br>The counter is advanced by printout in service mode. |
|   Display/adj/set range | 0 to 99999999 |
|   Unit | Number of sheets |
|   Default value | 0 |
| 2-SIDE | 2-sided pickup total counter |
|   Details | To count up the number of sheets picked up in duplex mode.<br>The counter is advanced regardless of the original size.<br>The counter is advanced by printout in service mode. |
|   Display/adj/set range | 0 to 99999999 |
|   Unit | Number of sheets |
|   Default value | 0 |

T-8-22

## ■ FEEDER

| COPIER > COUNTER > FEEDER | |
|---|---|
| FEED | ADF original pickup total counter |
|   Details | To count up the number of originals picked up from the ADF.<br>The counter is advanced regardless of the original size. |
|   Use case | When checking the total counter of original pickup by ADF |
|   Display/adj/set range | 0 to 99999999 |
|   Unit | Number of sheets |
|   Default value | 0 |

T-8-23

## ■ JAM

| COPIER > COUNTER > JAM | |
|---|---|
| TOTAL | Printer total jam counter |
|   Details | To count up the number of total jam occurrences. |
|   Use case | When checking the total jam counter of printer |
|   Display/adj/set range | 0 to 99999999 |
|   Unit | Number of times |
|   Default value | 0 |
| FEEDER | ADF total jam counter |
|   Details | When checking the total jam counter of ADF |
|   Display/adj/set range | 0 to 99999999 |
|   Unit | Number of times |
|   Default value | 0 |

| COPIER > COUNTER > JAM | |
|---|---|
| 2-SIDE | Duplex unit jam counter |
|     Details | To count up the number of jam occurrences in the Duplex Unit. |
|     Use case | When checking the jam counter of Duplex Unit |
|     Display/adj/set range | 0 to 99999999 |
|     Unit | Number of times |
|     Default value | 0 |
| MF | Multi-purpose pickup tray jam counter |
|     Details | To count up the number of jam occurrences in the multi-purpose tray Pickup Unit.<br>The counter is advanced by paper size mismatch or misprint. |
|     Use case | When checking the jam counter of Multi-purpose Pickup Tray |
|     Display/adj/set range | 0 to 99999999 |
|     Unit | Number of times |
|     Default value | 0 |
| C1 | Cassette 1 pickup jam counter |
|     Details | To count up the number of jam occurrences in the cassette 1.<br>The counter is advanced by paper size mismatch or misprint. |
|     Display/adj/set range | 0 to 99999999 |
|     Unit | Number of times |
|     Default value | 0 |
| C2 | Cassette 2 pickup jam counter |
|     Details | To count up the number of jam occurrences in the cassette 2.<br>The counter is advanced by paper size mismatch or misprint. |
|     Display/adj/set range | 0 to 99999999 |
|     Unit | Number of times |
|     Default value | 0 |

T-8-24

# FEEDER

## ADJUST

| FEEDER > ADJUST | |
|---|---|
| DOCST | Adjustment of ADF image leading edge margin [front side] |
| Details | To adjust the margin at the leading edge of the image for ADF scanning the front side of original with ADF.<br>Execute when the output image after ADF installation is dislocated. When replacing the controller PCB, enter the value of service label. As the value is incremented by 1, the margin at the leading edge of the image is decreased by 0.1mm. (The image moves in the direction of the leading edge of the sheet.) |
| Use case | - When installing ADF<br>- When replacing the controller PCB/ clearing RAM data |
| Adj/set/operate method | Enter the setting value and press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | -50 to 50 |
| Unit | 0.1 mm |
| Default value | 0 |
| LA-SPD | Fine adjustment of magnification ratio in horizontal scanning direction at ADF stream reading [front side] |
| Details | To make a fine adjustment of the image magnification ratio in horizontal scanning direction when stream reading the front side of original with ADF.<br>As the value is incremented by 1, the image is reduced by 0.1% in horizontal scanning direction. (The feeding speed increases, and the image is reduced.) |
| Use case | - When installing ADF<br>- When replacing the controller PCB/ clearing RAM data |
| Adj/set/operate method | Enter the value, and then press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | -30 to 30 |
| Unit | 0.1% |
| Default value | 0 |

| FEEDER > ADJUST | |
|---|---|
| DOCST2 | Adjustment of ADF image leading edge margin [back side] |
| Details | To adjust the margin at the leading edge of the image when stream reading the back side of original with ADF.<br>Execute when the output image after ADF installation is dislocated. When replacing the controller PCB, enter the value of service label. As the value is incremented by 1, the margin at the leading edge of the image is decreased by 0.1mm. (The image moves in the direction of the leading edge of the sheet.) |
| Use case | - When installing ADF<br>- When replacing the controller PCB/ clearing RAM data |
| Adj/set/operate method | Enter the setting value and press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | -50 to 50 |
| Unit | 0.1 mm |
| Default value | 0 |
| DOCST-R | Fine adjustment of trailing edge at ADF reading |
| Details | To make a fine adjustment of trailing edge when reading original with ADF.<br>Execute when the output image after ADF installation is displaced. When replacing the controller PCB, enter the value of service label. As the value is incremented by 1, the margin at the trailing edge of the image is decreased by 0.1mm. (The image do not move and only the margin at the trailing edge of the image changes.) |
| Use case | - When installing ADF<br>- When replacing the controller PCB/ clearing RAM data |
| Adj/set/operate method | Enter the setting value and press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | -30 to 30 |
| Unit | 0.1 mm |
| Default value | 0 |

| FEEDER > ADJUST | |
|---|---|
| LA-SPD2 | Fine adjustment of magnification ratio at ADF stream reading [back side] |
| Details | To make a fine adjustment of the image magnification ratio in horizontal scanning direction when stream reading the back side of original with ADF. As the value is incremented by 1, the image is reduced by 0.1% in horizontal scanning direction. (The feeding speed increases, and the image is reduced.) |
| Use case | - When installing ADF - When replacing the controller PCB/ clearing RAM data |
| Adj/set/operate method | Enter the value, and then press OK key. |
| Caution | After the setting value is changed, write the changed value in the service label. |
| Display/adj/set range | -30 to 30 |
| Unit | 0.1% |
| Default value | 0 |

T-8-25

## ⬤ FUNCTION

| FEEDER > FUNCTION | |
|---|---|
| MTR-CHK | Specifying ADF operation motor |
| Details | To specify the ADF Motor to operate. The motor is activated by MTR-ON. |
| Use case | At operation check When replacing the motor |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Display/adj/set range | 0 to 1 0: ADF pickup motor (M2) 1: ADF feed motor (M1) |
| Default value | 0 |
| Related service mode | FEEDER> FUNCTION> MTR-ON |
| MTR-ON | Operation check of ADF motor |
| Details | To start operation check for the motor specified by MTR-CHK. The unit operates for approximately 5 seconds and automatically stops. |
| Use case | At operation check When replacing the motor |
| Adj/set/operate method | Select the item, and then press OK key. |
| Required time | Approx. 5 seconds |
| Related service mode | FEEDER> FUNCTION> MTR-CHK |

| FEEDER > FUNCTION | |
|---|---|
| FEED-ON | Operation check of ADF individual feed |
| Details | To start operation check of the ADF individual feed in the mode specified by FEED-CHK. |
| Use case | At operation check |
| Adj/set/operate method | Select the item, and then press OK key. |
| Related service mode | FEEDER> FUNCTION> FEED-CHK |
| FEED-CHK | Setting of ADF individual feed mode |
| Details | To set the ADF feed mode. Feed operation is activated in the specified feed mode by executing FEED-ON. |
| Use case | At operation check |
| Adj/set/operate method | Enter the value, and then press OK key. |
| Display/adj/set range | 0 to 1 0: 1-sided, 1: 2-sided |
| Default value | 0 |
| Related service mode | FEEDER> FUNCTION> FEED-ON |
| SL-CHK | Operation check of ADF solenoid |
| Details | To set the ADF solenoid. Solenoid is activated by executing SL-ON. |
| Use case | At operation check When replacing the solenoid |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Display/adj/set range | 0 to 1 0/1: Roller release solenoid (SL1) |
| Default value | 0 |
| Related service mode | FEEDER> FUNCTION> SL-ON |
| SL-ON | Operation check of ADF solenoid |
| Details | To start operation check for the solenoid specified by SL-CHK. The unit operates for 1 time and automatically stops. |
| Use case | At operation check When replacing the solenoid |
| Adj/set/operate method | Select the item, and then press OK key. |
| Related service mode | FEEDER> FUNCTION> SL-CHK |
| ROLL-CLN | Rotation of ADF rollers |
| Details | To rotate for cleaning the ADF Rollers. Clean the roller by putting the lint-free paper moistened with alcohol while it is rotating. The operation automatically stops after approximately 5 seconds. |
| Use case | At roller cleaning |
| Adj/set/operate method | 1) Select the item, and then press OK key. 2) Clean the rotating rollers with lint-free paper moistened with alcohol. |

T-8-26

# TEST MODE

## ⬤ PRINT

| TESTMODE > PRINT | |
|---|---|
| PG-TYPE | Setting of PG number |
| Details | To set the PG number of the test print. |
| Use case | At trouble analysis |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Display/adj/set range | 0 ～ 8<br>0: Grid Bk<br>1: Halftone<br>2: Solid black<br>3: Solid white,<br>4: Solid black / Solid white<br>5: 2 dot 2 space (Length)<br>6: 2 dot 2 space (Side)<br>7: confirmation at ghost image<br>8: For R&D |
| Default value | 0 |
| COUNT | Setting of PG output quantity |
| Details | To set the number of sheets for PG output. |
| Use case | At trouble analysis |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Display/adj/set range | 1 to 99 |
| Unit | 1 sheet |
| Default value | 1 |
| PHASE | Setting of PG 2-sided mode |
| Details | To set 1-sided/2-sided print for PG output.<br>Even if 2-sided print is set for a machine that only supports 1-sided print, the setting is disabled. |
| Use case | At trouble analysis |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Display/adj/set range | 0 to 1<br>0: 1-sided, 1: 2-sided |
| Default value | 0 |

| TESTMODE > PRINT | |
|---|---|
| DENS | Adjustment of test print engine F value |
| Details | To adjust the engine F value for the test print.<br>As the value is larger, the image gets darker. |
| Use case | At trouble analysis |
| Adj/set/operate method | Enter the setting value and press OK key. |
| Display/adj/set range | -4 to 4 |
| Default value | 0 |
| Supplement/memo | F value: The value used as an index for indicating lens brightness |
| FEED | Setting of paper source at test print |
| Details | To set the paper sources at the time of test print output.<br>If this mode is set when there is no Cassette 2 (option Pickup Cassette), output is from Cassette 1 (standard Pickup Cassette).<br>If color paper is loaded in the specified paper source, there is no output because the setting is disabled. |
| Use case | When outputting a test print |
| Adj/set/operate method | Enter the setting value, and then press OK key. |
| Caution | When performing printing with the Multi-purpose Tray, be sure to set the user mode before executing the service mode. |
| Display/adj/set range | 0 to 2<br>0: Multi-purpose tray, 1: Cassette 1, 2: Cassette 2 |
| Default value | 1 |
| START | Output of test print |
| Details | To output a test print with the PG pattern set in PG-TYPE, etc. |
| Use case | At trouble analysis |
| Adj/set/operate method | Press OK key. |

T-8-27

# 9

# Installation

- ■ How to check this Installation Procedure
- ■ Making Pre-Checks
- ■ Points to Make Before Installation
- ■ Checking the Contents
- ■ Unpacking and Installation Procedure
- ■ Platen Cover Type-T Installation Procedure
- ■ Heater Kit-M1 Installation Procedure
- ■ Cassette Heater Unit-40 Installation Procedure

# How to check this Installation Procedure

## When Using the parts included in the package

A symbol is described on the illustration in the case of using the parts included in the package of this product.

Packaged Item

F-9-1

## Symbols in the Illustration

The frequently-performed operations are described with symbols in this procedure.

Screw

Tighten    Remove

Connector

Connect    Disconnect

Harness

Secure    Free

Claw

Insert    Remove    Push    Plug in    Turn on

Checking instruction

Check    Visual Check    Sound Check

F-9-2

# Making Pre-Checks

## Selecting the Site of Installation

The followings are the condition for installation environment.
It is better to see the planned location of installation before carrying the host machine in the user site.

1) The host machine can singly connect to the outlet of rated +/-10V, 15A or more.
2) The installation site must be in the following environment. Especially, avoid installing the machine near the faucet, water boiler, humidifier, or refrigerator.
   • Operating environment:Temperature: 10.0 to 30.0 deg C Humidity: 20 to 80%
3) Avoid installing the machine near fire, in an area subject to dust or ammonia gas. When installing the machine in a place exposed to direct rays of the sun, it is recommended that curtains be hung over the windows.
4) The amount of ozone generated during use of the machine is below the harmful level. However, if the machine is used for a long time in a poor-ventilated room, ozone may smell. To keep the work environment comfortable, the room must be well-ventilated properly.
5) None of the machine feet should float. The machine must be held level constantly.
6) The machine must be installed at least 10 cm away from the surrounding walls and there must be an adequate space for operating the machine.

100mm or more

1285mm

553mm

1022.9mm

F-9-3

7) Install the machine in a well-ventilated place. Do not install the machine close to the ventilation duct of the room.

## ⬤ Type of Model

Network Model



Cursor key

Numeric key

Local Print Model



Cursor key

F-9-4

# Points to Make Before Installation

Be sure to go through the following before starting the work.

1) Imaging faults can result due to dew condensation that occurs when the machine is moved from a cold place to a warm place. Leave the unpacked machine as it is for at least two hours before installing it.

(Dew condensation: When a metallic object is brought from a low-temperature place to a high-temperature place, water vapor around it is cooled abruptly and consequently water drops stick to the surface of the metallic object.)

2) The maximum weight of the machine is approx. 42.0kg (double-cassette model supplied with a DADF). Accordingly, two or more persons are required to lift the machine. Be sure to keep the machine in a horizontal position when lifting it.

3) This product was designed considering the potential connection to the Norwegian IT power distribution system.

## Checking the Contents

NOTE:
- Hand the supplied USB cable to a user, and then explain the usage of the USB to refer to user's guide.
- Hand the supplied LAN cable to a user, and then explain the usage of the LAN to refer to user's guide.
- When the length of the LAN cable is not enough, explain that purchase the cable (the shield type more than Category 5) of the Off-the-Shelf Items and use it to the user.

| | | |
|---|---|---|
| [1] Toner Cartridge x 1 (for Korea/Taiwan and for Local Print Model of Europe) | [2] USB Cable x 1 (for Network Model) | [3] LAN Cable x 1 (for Network Model of Asia/Korea/Taiwan) |
| [4] Power Cord x 1 (for Europe/Asia/Korea/ Latin America (230V)) | (for Taiwan/Latin America (120V)) | (for India) |

F-9-5

<Documentations and CD>
- Quick Guide
- UFR II LT User Software CD-ROM
- Notice for Latest Software
- Instraction regarding the unpacking of this machine
- Notice for the included LAN cable (for Network Model of Asia/Korea/Taiwan)
- Blue Angel notice (for Europe)
- Consumable Parts Guid Sheet (for Europe)
- Main unit warranty (for Korea)
- ID Card Copy Sheet (exept Kotea/Taiwan)

# Unpacking and Installation Procedure

## Unpacking the Machine and Removing the Packaging Materials

NOTE:
When installing a cassette Feeding Module, be sure to place the machine on the cassette Feeding ModuleI.
(For the procedure for installing the cassette Feeding Module, refer to the Cassette Feeding Module Installation Procedure.)

☐
1) Unpack the machine and remove the vinyl cover.

☐
2) Take out the supplied power cord and toner, and then remove the two cushioning materials.

NOTE:
The toner cartridge may not be supplied depending on the models.

F-9-6

☐
3) Remove the two cushioning material, and then pull down the plastic bag.

F-9-7

☐
4) Remove the Cassette.

NOTE:
In case of the 2 cassettes model, remove the upper cassette.

F-9-8

☐

5) While holdling the four handles shown in the following figure to lift the machine, carry it to installation site.



FRONT VIEW

BACK VIEW

F-9-9

☐

6) Remove all the plastic bags and all the fixed tapes on each part.

## Installing the Toner Cartridge

☐

1) Open the front side cover of the main body.



F-9-10

☐

2) Shake the toner cartridge 5-6 times.



F-9-11

☐
3) Insert the toner cartridge.

F-9-12

☐
4) While holding the toner cartridge, pull the seal to remove it.

seal

F-9-13

☐
5) Turn the toner cartridge in the direction of the arrow until it stops.

F-9-14

☐
6) Close the front  side cover.

## Setting the Cassettes

1) Push down the metal plate to lock it.



F-9-15

2) While nipping the Side Guide Lever, slide the Side Guide Plate to the prescribed paper size.
3) While nipping the Rear Edge Guide Lever, slide the Rear Edge Guide Plate to the prescribed paper size.



Side Guide Plate

Rear Edge Guide Plate

Rear Edge Guide Lever

Side Guide Lever

F-9-16

4) Set the papers on the cassette.



Paper

F-9-17

5) Return the cassette to the host machine.



F-9-18

**9** Installation > Unpacking and Installation Procedure > Turning ON the Main Power / Stirring Toner / Initial setting

9-9

## ● Connecting the cord

NOTE:
Install the optionally platen cover or the DADF on the machine except for the model which is installed platen cover initially.
Refer to the DADF or Platen Cover Installation Procedure for installing it.

☐
1) Insert the connector of the power cord into the AC inlet.

F-9-19

## ● Turning ON the Main Power / Stirring Toner / Initial setting

☐

1) Connect the power plug of the host machine to the power outlet.
2) Turn ON the main power switch.
   Toner supply/and stirring operation starts automatically.(For approx. 1 to 2 minutes)
3) Select the appropriate Language with the cursor keys (▲/▼).
4) Press the OK key, and set the language.
5) Display "Register business card of service rep. for consumables? ", select "Yes" and press the OK key.
6) Open the Platen Cover/DADF.
7) According to the indication of the display, set the business card to the platen glass, and close the Platen Cover/DADF.
8) Press the start key.
9) Display "Scanning complete. Print purchase info. for consumables ? ", select "Yes" and press the OK key.
   Display " Allowed Paper : size: A4 , A3, B4, LTR, LGL, LDR " and press the OK key.
   Confirm that printed expendable supplies purchase information is accurate.

NOTE:
When it is registered later, press the "Settings/Registration" and enter in order of the following.

• "Settings/Registration" key ⇒ "Output Reports" ⇒ "Purchase Information for Consumables" ⇒ "Register/Edit Purchase Information"

9-9

**9** Installation > Unpacking and Installation Procedure > Turning ON the Main Power / Stirring Toner / Initial setting

## Setting the Date and Time

> NOTE:
> The following procedure is the method to input a value with the cursor keys (▲/▼). In case of the Local Print model, follow this method. In case of the Network Print model, it is also possible to input a value with the numeric keys ([0] to [9]) instead of the cursor keys.

☐
1) Press the "Settings/Registration" ⊗ to call up the user mode screen.
2) Select " Timer Settings > Date/Timer Settings > Current Date/Time Settings " with the
   cursor keys (▲/▼), and press the OK key.
3) Select the location to input with the cursor keys (▲/▼), and input the date and time with
   the cursor keys (▲/▼). After input completion, press the OK key.
4) Press the reset key to return to the initial screen.

## Checking the Operation and the Print Image

☐
1) Place a document on the document glass, and then copy it by feeding paper from the
   cassette and manual-feed tray to check the operation and the resultant print image.
   • Check that abnormal  sound is not generated.
   • Check the image quality at respective magnifications.
   • Check that the document is copied normally on the specified number of sheets.
   • When image adjustment is necessary, refer to the chapter of the adjustment.

## About the USB Cable (for Network Model )

☐
Hand the supplied USB cable to the user, and then explain the usage of the USB cable to
refer to user's guide.

## About the LAN Cable (for Network Model of Asia, Korea and Taiwan)

☐

1) Hand the supplied LAN cable to a user, and then explain the usage of the LAN cable to
   refer to user's guide.

2) When the length of the LAN cable is not enough, explain that purchase the cable (the
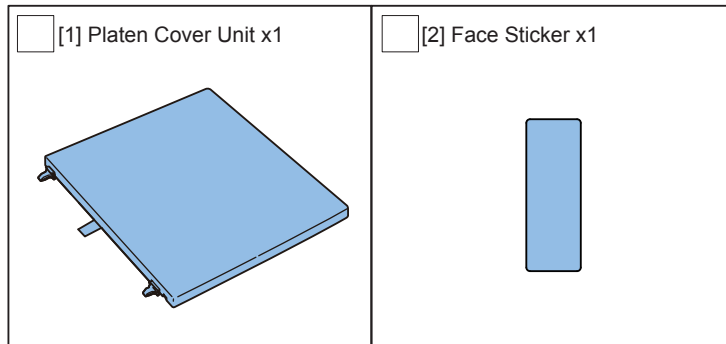   shield type more than Category 5) of the Off-the-Shelf Items and use it to the user.

## Checking the Connection to the Network  (for Network Model )

☐

In communication with the system administrator at the installation site, and ask for the

network setting.

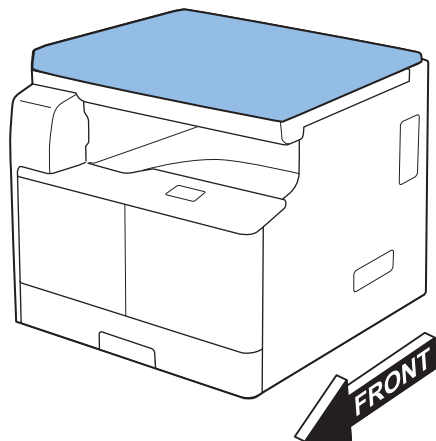# Platen Cover Type-T Installation Procedure

## Check the Contents

| [1] Platen Cover Unit x1 | [2] Face Sticker x1 |
|---|---|

F-9-20

## Main Power Switch OFF

Check that the main power switch is OFF.

1) Turn OFF the main power switch of the host machine.

2) Be sure that the control panel display and the main power Lamp are both turned OFF, and then disconnect the power plug.
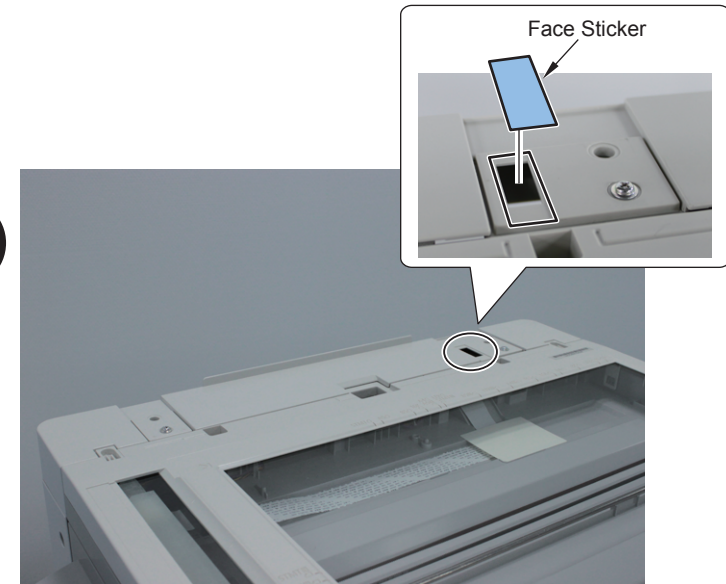
## Installation Outline Drawing

FRONT

F-9-21

## Installation Procedure

1) Affix the Face Sticker only when the machine is changed from the DADF model to the platen cover model. For removing the DADF, see the DADF service manual.

Face Sticker

F-9-22

2) Install the Platen Cover unit.

F-9-23

☐
3) Close the Platen Cover Unit.



F-9-24

☐
4) Connect the power plug of the host machine to the power outlet.

5) Turn ON the main power switch.

## Heater Kit-M1 Installation Procedure

### Checking the Contents

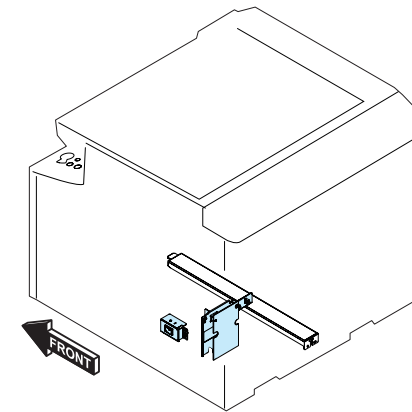| [1] Heater PCB Unit X 1 | [2] Heater Switch Unit X 1 | [3] Cassette Heater Cable X 1 |
|---|---|---|
| [4] Relay Cable X 1 | [5] Wire Saddle X 1 | [6] Screw (TP; M3x6) X 3 |

F-9-25

<Documentations>

☐
[1] FCC/ IC-B Document

☐
[2] China RoHS Document

### Main Power Switch OFF

Check that the main power switch is OFF.
1) Turn OFF the main power switch of the host machine.
2) Be sure that the control panel display and the main power lamp are both turned OFF, and
   then disconnect the power plug.

### Installation Outline Drawing



F-9-26

### Product Name

Safety regulations require the product's name to be registered. In some regions where this product is sold, the following names may be registered instead.
F680260

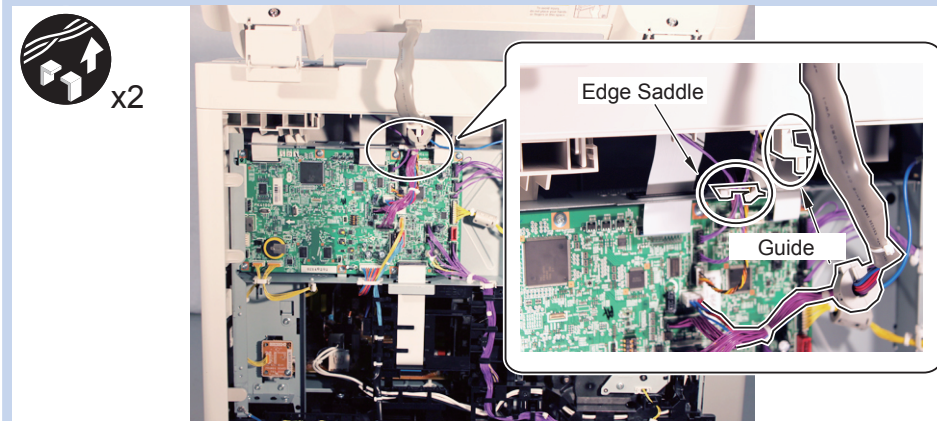## Preparation of the Host Machine
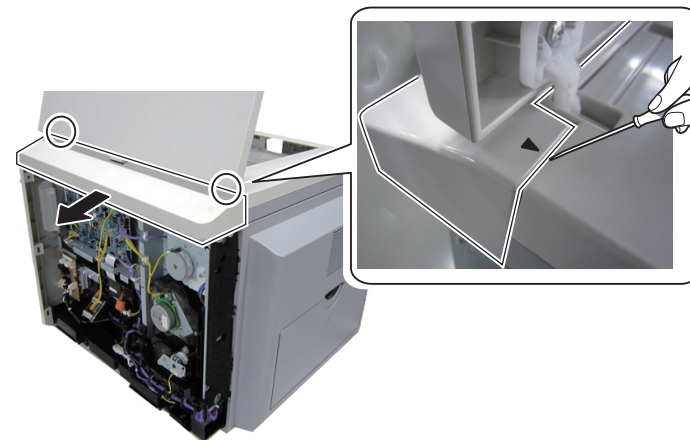
☐
1) Remove the Rear Cover.

• 4 Screws

x4

F-9-27

☐
2) Open the DADF or Platen Cover and remove the Reader Rear Cover.

• 2 Claws

NOTE:
Loosen the DADF cables when DADF is installed.
• 1 Edge Saddle
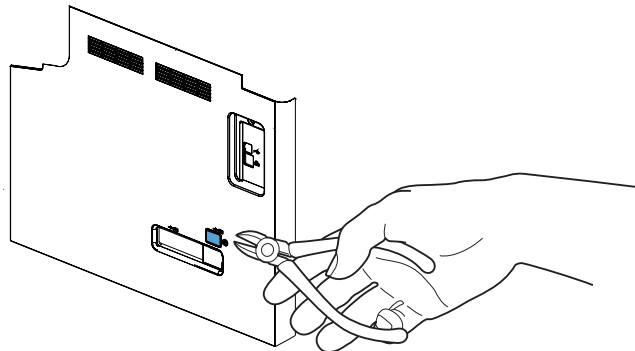• 1 Harness Guide

x2

Edge Saddle

Guide

F-9-28

x2

F-9-29

☐
3) Remove the Right Cover.

• 1 Screw

x1

F-9-30

☐
4) Cut the Blindfold Cover with nippers at the Environment Heater Switch on the Right Cover.
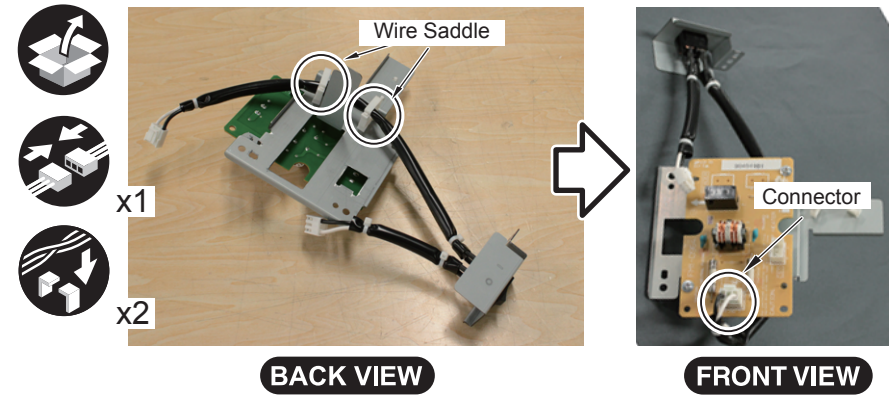
NOTE:
Burrs must be removed.

F-9-31

## Connecting Heater Kit-M1 with the Host Machine

☐
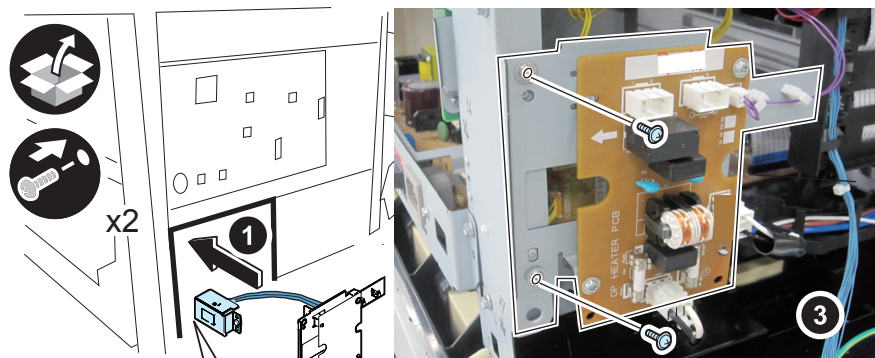1) Connect the Heater PCB Unit and Heater Switch Unit.

• 2 Wire Saddles
• 1 Connector

x1

x2

Wire Saddle

Connector

**BACK VIEW**    **FRONT VIEW**
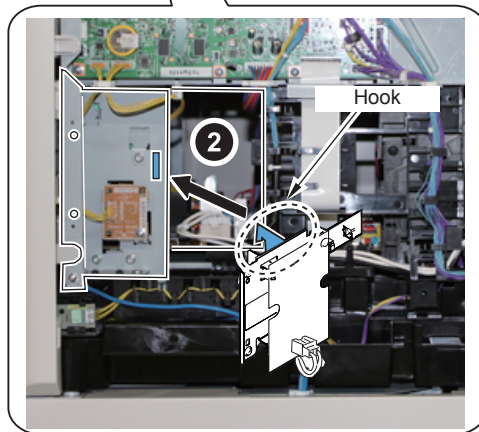
F-9-32

☐
2) Insert the Heater Switch Unit to the host machine, and then install the Heater PCB Unit.
• 1 Hook
• 2 Screws (TP; M3x6)

x2

**BACK VIEW**

Hook

F-9-33

☐
3) Connect the Cable of Heater Switch Unit.
• 1 Connector

x1

**RIGHT VIEW**

Connector

F-9-34

☐
4) Fix the Heater Switch Unit to the rear frame.
• 1 Screw (TP; M3x6)

x1

**RIGHT VIEW**

F-9-35

☐
5) Fix the Relay Cable.
- 2 Connectors
- 6 Wire Saddles
- 1 Guide

x2    x7

Wire Saddle

Wire Saddle

Connector    Guide

Connector

F-9-36

☐
6) Fix the Wire Saddle.

Wire Saddle

REAR VIEW

F-9-37

☐
7) Fix the Cassette Heater Cable.
- 1 Connector
- 1 Guide

x1

x1

Connector

Guide

F-9-38

## After Installing the Heater Kit

NOTE:
- Install Cassette Heater Unit-40 after installation of Heater Kit-M1.
- Attach the removed covers after the installation of Cassette Heater Unit-40.

# Cassette Heater Unit-40  Installation Procedure

## Checking the Contents

| [1] Cassette Heater Unit x 1 | [2] Screw(Tapping; M4x10) x 1 |
|---|---|
| | |

F-9-39

<Documentation>

☐
[1] China RoHS Document  (only for 230V type)

## Main Power Switch OFF

Check that the main power switch is OFF.
1) Turn OFF the main power switch of the host machine.
2) Be sure that the control panel display and the main power lamp are both turned OFF, and
   then disconnect the power plug.

## Installation Outline Drawing

F-9-40

## Points to Note Before Installation

Install the Heater Kit-M1 unit before installing the Cassette Heater Unit-40.

9    Installation > Cassette Heater Unit-40  Installation Procedure > Connecting Cassette Heater Unit-40 with the Host Machine

9-19

## Connecting Cassette Heater Unit-40 with the Host Machine

☐

1) Set the Cassette Heater Unit-40 to the host machine and then fix it.

• 1 Screw (Tapping; M4x10)

x1

**REAR VIEW**

F-9-41

☐

2) Connect the Cassette Heater Unit-40 Cable [A]  and the Cassette Heater Cable [C] .

• 1 Wire Saddle

• 1 Connector

> NOTE:
> The Cassette Heater Unit-40 Cable [B] is used to connect the cassette heater of the Cassette Feeding Module AB1 (option cassette).

x1

x1

[C]

[A]

Wire Saddle

[B]

F-9-42

9-19

9    Installation > Cassette Heater Unit-40  Installation Procedure > Connecting Cassette Heater Unit-40 with the Host Machine

9  Installation > Cassette Heater Unit-40  Installation Procedure > Connect Cassette Heater Unit-40 with Cassette Feeding Module AB1(Option Cass

9-20

## Connect Cassette Heater Unit-40 with Cassette Feeding Module AB1(Option Cassette)

> NOTE:
> After installing the cassette heater unit to the host machine following the previous steps, install the cassette heater unit to the Cassette Feeding Module.

☐
1) Remove the Cassette Rear Cover.
• 2 Screws

x2



F-9-43

☐
2) Install the Cassette Heater Unit-40 to Cassette Feeding Module.
• 1 Screw (Tapping; M4x10)

x1



F-9-44

☐
3) Remove the End Terminal from Cassette Heater Unit-40 Cable [B] of the host machine.
  (The removed End Terminal will not be used.)
• 1 Connector

x1



End Terminal of Cassette Heater Unit-40 Cable [B]

F-9-45

9-20

9  Installation > Cassette Heater Unit-40  Installation Procedure > Connect Cassette Heater Unit-40 with Cassette Feeding Module AB1(Option Cass

☐
4) Connect the Cassette Heater Unit-40 Cables [B] (host machine) and [D] (cassette feeding module).
• 1 Connector
• 1 Guide

x1 [B]

x1

[D]

[B]

[D]

Guide

F-9-46

## After Installing the Heater

☐
1) Attach the removed covers.
• Cassette Rear Cover; 2 Screws (Tapping; M4x10)
• Right Cover; 1 Screw (RS ; M3x8)
• Reader Rear Cover; 2 Hooks
• Close DADF or Platen Cover.
• Rear Cover; 4 Screws (RS ; M3x8)

☐
2) Connect the power plug of the host machine to the power outlet.
3) Turn ON the heater switch and the main power switch of the host machine.
4) Check the operation of the  the cassette heater.

# Appendix

- Service Tools
- General Circuit Diagram
- General Timing Chart
- Backup Data
- Soft Counter Specifications

# Service Tools

## ■ Special Tools

| Tool name | Tool No. | Rank (*) | Shape | Uses |
|---|---|---|---|---|
| Digital multimeter | FY9-2002 | A | | For making electrical checks. |
| Tester extension pin | FY9-3038 | A | | As an addition when making an electrical check. |
| Tester extension pin (L-shipped) | FY9-3039 | A | | As an addition when making an electrical check. |
| NA-3 Test Chart | FY9-9196 | A | | For checking and adjusting images. |

T-10-1

*

A: each service engineer is expected to carry one.

B: each group of 5 service engineers is expected to carry one.

C: each workshop is expected to carry one.

## ■ Oils and Solvents

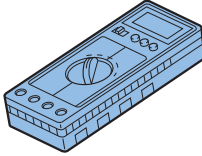| Name | Uses | Composition | Remarks |
|---|---|---|---|
| Alcohol | Cleaning; e.g., glass, plastic, rubber; external covers. | Fluoride-family hydrocarbon Alcohol Surface activating agent Water | • Do not bring near fire. • Procure locally. • Substitute: IPA (isopropyl alcohol) |
| Alcohol | Cleaning; e.g., metal; oil or toner stain. | Fluoride-family hydrocarbon Chlorine-family hydrocarbon Alcohol | • Do not bring near fire. • Procure locally • Substitute: MEK |
| Lubricating oil (EM-50L) | Lubrication; e.g., gears or the shaft of the CIS unit. | Special oil Special solid lubricating agent Lithium soap | • Tool No.: HY9-0007 (20g) |
| Lubricating oil (HP-300) | Bushings (L/R) of the pressure roller | Composition oil | • Tool No.: CK-8012 (100g) |
| Conducting grease | Contact plate spring, Developing sleeve electrode | Mineral oil | • FLOIL GE-676 • Tool No.: FY9-6023 (20g) |

T-10-2

## General Circuit Diagram

### General Circuit Diagram (1/5)



P.1

F-10-1

P.2

F-10-2

■ General Circuit Diagram (3/5)

To ADF Driver PCB CN1   To ADF Driver PCB CN10

SR401
Copyboard Cover Open/closed Sensor (ADF option)

SR402
Contact Sensor

HP Sensor

PCB7
Control Panel PCB

CIS

PCB1
Controller PCB (3/3)

For Standard Model

Soft-ID PCB

Counter ROM PCB

LAN

USB

M301
Reader Motor

For Standard Model

To ADF Driver PCB CN2

NETWORK

USB DEVICE

P.3

F-10-3

PCB4
Heater PCB (Option)

J1903
J1905
J1902
J1901
J1904

+24V
GND

SW100
Cassette Heater
Switch
(Option)

SOLD40
SOLD41

SOLD22
SOLD21

J924
J927

H6
Cassette 1
Heater
(Option)

H7
Cassette 2
Heater
(Option)

J907
To Power Supply PCB

J903
To Power Supply PCB

P.4

F-10-4

P.5

F-10-5

## 2 Prints, Continuous, Cassette 1

Main power switch ON    Print command received

| Sequence | WAIT | STBY | INTR | PRINT | LSTR |
|---|---|---|---|---|---|
| 1 Main Motor (M202) | ▨ | | ▨ | ▨▨▨ | |
| 2 Fixing Motor (M201) | ▨ | | ▨▨▨▨ | | |
| 3 Polygon Motor (M203) | | | ▨▨▨▨ | | |
| 4 Cassette 1 Pickup Solenoid (SL202) | | | ▪ | ▪ | |
| 5 Cassette Feed Clutch (CL202) | | | ▨▨▨ | | |
| 6 Laser | | | ▨▨▨▨ | | |
| 7 Pre-registration Sensor (SR207) | | | | ▨▨ ▨▨ | |
| 8 Delivery Sensor (SR203) | | | | ▨▨ ▨▨ | |
| 9 Registration Clutch (CL203) | | | | ▨▨ ▨▨ | |
| 10 Primary Charging AC Bias | ▨ | | ▨▨ | | |
| 11 Primary Charging DC Bias | ▨ | | ▨▨▨▨ | | |
| 12 Developing AC Bias | ▪ | | | ▨▨ ▨▨ | |
| 13 Developing DC Bias | ▨ | | ▨▨ ▨▨ | | |
| 14 Transfer Bias | ▪ | | ▨▨▨ | ▪ | |
| 15 Separation Static Eliminator Bias | *1 | | ▨▨ ▨▨ | *1 | |

*1: Cleaning Bias

F-10-6

# Backup Data

| Data | | Replacement | CLEAR | | | | | | | | | | | | Backup |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | User function > Initialize Menu | | | | | | | | | Service function | | | |
| | | | Initialize Settings / Registration | | | | | | | | Other | | | | |
| | | Controller PCB *1 | Preferences | Timer Settings | Common Settings | Copy Settings | Printer Settings | Adjustment / Maintenance | Output Reports | Initialize All | Initializing the System Management Settings | R-CON | HIST *2 | ALL | Yes/No |
| Menu | Preferences | Clear | Clear | - | - | - | - | - | - | Clear | - | - | - | Clear | No |
| | Timer Settings | Clear | - | Clear | - | - | - | - | - | Clear | - | - | - | Clear | No |
| | Common Settings | Clear | - | - | Clear | - | - | - | - | Clear | - | - | - | Clear | No |
| | Copy Settings | Clear | - | - | - | Clear | - | - | - | Clear | - | - | - | Clear | No |
| | Printer Settings | Clear | - | - | - | - | Clear | - | - | Clear | - | - | - | Clear | No |
| | Adjustment / Maintenance | Clear | - | - | - | - | - | Clear | - | Clear | - | - | - | Clear | No |
| | Output Reports | - | - | - | - | - | - | - | - | - | - | - | - | - | No |
| | System Management Settings | Clear | - | - | - | - | - | - | - | - | Clear | - | - | Clear *3 | No |
| | Initialize Settings / Registration | Clear | - | - | - | - | - | - | - | Clear | - | - | - | Clear | No |
| Logs | | Clear | - | - | - | - | - | - | - | - | - | - | Clear | Clear | No |
| Reader / ADF Adjustment Settings | | Clear | - | - | - | - | - | - | - | - | - | Clear | - | - | No |
| Service Mode Settings | | Clear | - | - | - | - | - | - | - | - | - | - | - | Clear | No |

T-10-3

*1. Log data such as Mac address, USB serial number, printer-related setting values, scanner-related setting values, user data, and logs are initialized.

*2. The logs (print, jam, error, and alarm) are cleared.

*3. The system administrator ID and the password are changed back to the default values.  <Manager ID: 7654321 / PIN: 7654321>

# Soft Counter Specifications

## Soft counter specifications

The numbers entered for software counters are classified as follows:

| No. | Counter Details |
|---|---|
| 000 to 099 | Remote copy |
| 100 to 199 | Total |
| 200 to 299 | Copy |
| 300 to 399 | Print |
| 400 to 499 | Copy and print |
| 500 to 599 | Scan |
| 600 to 699 | Box |
| 700 to 799 | Reception print |
| 800 to 899 | Report print |
| 900 to 999 | Transmission |

T-10-4

Meanings of symbols in tables

- L: Large size (larger than B4 size)
- S: Small size (smaller than B4 size)

  It can be changed by the service mode (COPIER > OPTION > USER > B4_L_CNT) so that the paper larger than B4 size can be counted as large size paper.
- Copy: Local copy + remote copy *
- Copy A: Local copy + remote copy + box print *
- Print: PDL print + report print + box print *
- Print A: PDL print + report print
- Scan: Black and white scan + color scan

* This product does not have functions of "remote copy" and "box print".

| No. | Counter Details |
|---|---|
| 101 | Total 1 |
| 102 | Total 2 |
| 103 | Total(large) |
| 104 | Total (small) |
| 108 | Total (black and white 1) |
| 109 | Total (black and white 2) |
| 112 | Total (black and white /large) |
| 113 | Total (black and white /small) |
| 114 | Total 1(double sided) |
| 115 | Total 2(double sided) |
| 116 | Large (double sided) |
| 117 | Small (double sided) |
| 126 | Total A1 |
| 127 | Total A2 |
| 128 | Total A (large) |
| 129 | Total A (small) |
| 132 | Total A (black and white 1) |
| 133 | Total A (black and white 2) |
| 136 | Total A (black and white /large) |
| 137 | Total A (black and white /small) |
| 138 | Total A 1(double sided) |
| 139 | Total A 2(double sided) |
| 140 | Large A (double sided) |
| 141 | Small A (double sided) |
| 150 | Total B1 |
| 151 | Total B2 |
| 152 | Total B (large) |
| 153 | Total B (small) |
| 156 | Total B (black and white 1) |
| 157 | Total B (black and white 2) |
| 160 | Total B (black and white /large) |
| 161 | Total B (black and white /small) |
| 162 | Total B1 (double sided) |
| 163 | Total B2 (double sided) |
| 164 | Large B (double sided) |
| 165 | Small B (double sided) |
| 201 | Copy (Total 1) |
| 202 | Copy (Total 2) |
| 203 | Copy (large) |
| 204 | Copy (small) |
| 205 | Copy A  (Total 1) |
| 206 | Copy A  (Total 2) |
| 207 | Copy A  (large) |
| 208 | Copy A (small) |
| 209 | Local copy (Total 1) |

| No. | Counter Details |
|---|---|
| 210 | Local copy (Total 2) |
| 211 | Local copy (large) |
| 212 | Local copy (small) |
| 221 | Copy (black and white 1) |
| 222 | Copy (black and white 2) |
| 227 | Copy (black and white /large) |
| 228 | Copy (black and white /small) |
| 237 | Copy (black and white /large/double sided ) |
| 238 | Copy (black and white /small/double sided ) |
| 249 | Copy A (black and white 1) |
| 250 | Copy A (black and white 2) |
| 255 | Copy A (black and white /large) |
| 256 | Copy A (black and white /small) |
| 265 | Copy A (black and white /large/double sided ) |
| 266 | Copy A (black and white /small/double sided ) |
| 277 | Local copy (black and white 1) |
| 278 | Local copy (black and white 2) |
| 283 | Local copy (black and white /large) |
| 284 | Local copy (black and white /small) |
| 293 | Local copy (black and white /large/double sided ) |
| 294 | Local copy (black and white /small/double sided ) |
| 301 | Print (Total 1) |
| 302 | Print (Total 2) |
| 303 | Print (large ) |
| 304 | Print (small) |
| 305 | Print A(Total 1) |
| 306 | Print A(Total 2) |
| 307 | Print A(large ) |
| 308 | Print A(small) |
| 313 | Print (black and white 1) |
| 314 | Print (black and white 2) |
| 319 | Print (black and white /large ) |
| 320 | Print (black and white /small) |
| 329 | Print (black and white /large /double sided) |
| 330 | Print (black and white /small/double sided) |
| 331 | PDLPrint (Total 1) |
| 332 | PDLPrint (Total 2) |
| 333 | PDLPrint (large ) |
| 334 | PDLPrint (small) |
| 339 | PDLPrint (black and white 1) |
| 340 | PDLPrint (black and white 2) |
| 345 | PDLPrint (black and white /large ) |
| 346 | PDLPrint (black and white /small) |
| 355 | PDLPrint (black and white /large /double sided) |
| 356 | PDLPrint (black and white /small/double sided) |

| No. | Counter Details |
|---|---|
| 403 | Copy+print (black and white/large) |
| 404 | Copy+print (black and white/small) |
| 405 | Copy + print (black and white2) |
| 406 | Copy + print (black and white1) |
| 411 | Copy + print (large) |
| 412 | Copy + print (small) |
| 413 | Copy + print (2) |
| 414 | Copy + print (1) |
| 421 | Copy + print (black and white/large/double sided) |
| 422 | Copy + print (black and white/small/double sided |
| 501 | Scan (Total 1) |
| 505 | Black and white Scan (Total 1) |
| 506 | Black and white Scan (Total 2) |
| 507 | Black and white Scan (large) |
| 508 | Black and white Scan (small ) |
| 509 | Color scan  (Total 1) |
| 510 | Color scan  (Total 2) |
| 511 | Color scan  (large) |
| 512 | Color scan  (small ) |
| 801 | Report print (Total 1) |
| 802 | Report print (Total 2) |
| 803 | Report print (large ) |
| 804 | Report print (small ) |
| 809 | Report print (black and white 1) |
| 810 | Report print (black and white 2) |
| 815 | Report print (black and white /large ) |
| 816 | Report print (black and white /small ) |
| 939 | Remote scan (color ) |
| 940 | Remote scan (black and white) |

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