MINOLTA

Service Manual

The essentials of imaging

CF2002/CF3102 Printer

This Service Manual contains information on the model CF3102/2002 printer as it is converted from the CF3102/2002 copier. Please therefore also use the Service Manual for the CF3102/2002 copier.

1. SAFETY PRECAUTIONS FOR INSPECTION AND SERVICE

- When performing inspection and service procedures, observe the following precautions to prevent accidents and ensure utmost safety.

✻ Depending on the model, some of the precautions given in the following do not apply.

- Different markings are used to denote specific meanings as detailed below.

⚠ WARNING

- Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

⚠ CAUTION

- The following graphic symbols are used to give instructions that need to be observed.

Used to call the service technician attention to what is graphically represented inside the marking (including a warning).

Used to prohibit the service technician from doing what is graphically represented inside the marking.

Used to instruct the service technician to do what is graphically represented inside the marking.

1-1. Warning

⚠ WARNING

1. Always observe precautions.

- Parts requiring special attention in this product will include a label containing the mark shown on the left plus precautionary notes. Be sure to observe the precautions.
- Be sure to observe the “Safety Information” given in the Operator’s Manual.

2. Before starting the procedures, be sure to unplug the power cord.

- This product contains a high-voltage unit and a circuit with a large current capacity that may cause an electric shock or burn.
- The product also contains parts that can jerk suddenly and cause injury.
- If this product uses a laser, laser beam leakage may cause eye damage or blindness.

⚠ WARNING

3. Do not throw toner or the toner bottle into a fire.

- Do not throw toner or the Toner Bottle (Imaging Cartridge, Toner Cartridge) into a fire. Toner expelled from the fire may cause burns.

4. Use the specified parts.

- For replacement parts, always use the genuine parts specified in the manufacturer's parts manual. Installing a wrong or unauthorized part could cause dielectric breakdown, overload, or undermine safety devices resulting in possible electric shock or fire.
- Replace a blown electrical fuse or thermal fuse with its corresponding genuine part specified in the manufacturer's parts manual. Installing a fuse of a different make or rating could lead to a possible fire. If a thermal fuse blows frequently, the temperature control system may have a problem and action must be taken to eliminate the cause of the problem.

5. Handle the power cord with care and never use a multiple outlet.

- Do not break, crush or otherwise damage the power cord. Placing a heavy object on the power cord, or pulling or bending it may damage it, resulting in a possible fire or electric shock.
- Do not use a multiple outlet to which any other appliance or machine is connected.
- Be sure the power outlet meets or exceeds the specified capacity.
- Use only the power cord supplied in the package. If a power cord is not supplied, only use the power cord and plug that is specified in POWER CORD INSTRUCTION. Failure to use this cord could result in a fire or electrical shock.
- Use the power cord supplied in the package only for this machine and NEVER use it for any other product. Failure to observe this precaution could result in a fire or electrical shock.

6. Be careful with the high-voltage parts.

- A part marked with the symbol shown on the left carries a high voltage. Touching it could result in an electric shock or burn. Be sure to unplug the power cord before servicing this part or the parts near it.

7. Do not work with wet hands.

- Do not unplug or plug in the power cord, or perform any kind of service or inspection with wet hands. Doing so could result in an electric shock.

8. Do not touch a high-temperature part.

- A part marked with the symbol shown on the left and other parts such as the exposure lamp and fusing roller can be very hot while the machine is energized. Touching them may result in a burn.
- Wait until these parts have cooled down before replacing them or any surrounding parts.

⚠ WARNING

9. Maintain a grounded connection at all times.

- Connect the power cord to an electrical outlet that is equipped with a grounding terminal.

10. Do not remodel the product.

- Modifying this product in a manner not authorized by the manufacturer may result in a fire or electric shock. If this product uses a laser, laser beam leakage may cause eye damage or blindness.

11. Restore all parts and harnesses to their original positions.

- To promote safety and prevent product damage, make sure the harnesses are returned to their original positions and properly secured in their clamps and saddles in order to avoid hot parts, high-voltage parts, sharp edges, or being crushed.
- To promote safety, make sure that all tubing and other insulating materials are returned to their original positions. Make sure that floating components mounted on the circuit boards are at their correct distance and position off the boards.

1-2. Caution

⚠ CAUTION

1. Precautions for Service Jobs.

- A star washer and spring washer, if used originally, must be reinstalled. Omitting them may result in contact failure which could cause an electric shock or fire.
- When reassembling parts, make sure that the correct screws (size, type) are used in the correct places. Using the wrong screw could lead to stripped threads, poorly secured parts, poor insulating or grounding, and result in a malfunction, electric shock or injury.
- Take great care to avoid personal injury from possible burrs and sharp edges on the parts, frames and chassis of the product.
- When moving the product or removing an option, use care not to injure your back or allow your hands to be caught in mechanisms.

⚠ CAUTION

2. Precautions for Servicing with Covers and Parts Removed.

- Wherever feasible, keep all parts and covers mounted when energizing the product.
- If energizing the product with a cover removed is absolutely unavoidable, do not touch any exposed live parts and use care not to allow your clothing to be caught in the moving parts. Never leave a product in this condition unattended.
- Never place disassembled parts or a container of liquid on the product. Parts falling into, or the liquid spilling inside, the mechanism could result in an electric shock or fire.
- Never use a flammable spray near the product. This could result in a fire.
- Make sure the power cord is unplugged before removing or installing circuit boards or plugging in or unplugging connectors.
- Always use the interlock switch actuating jig to actuate an interlock switch when a cover is opened or removed. The use of folded paper or some other object may damage the interlock switch mechanism, possibly resulting in an electric shock, injury or blindness.

3. Precautions for the Working Environment.

- The product must be placed on a flat, level surface that is stable and secure.
- Never place this product or its parts on an unsteady or tilting workbench when servicing.
- Provide good ventilation at regular intervals if a service job must be done in a confined space for a long period of time.
- Avoid dusty locations and places exposed to oil or steam.
- Avoid working positions that may block the ventilation ports of the product.

4. Precautions for Handling Batteries. (Lithium, Nickel-Cadmium, etc.)

- Replace a rundown battery with the same type as specified in the manufacturer's parts manual.
- Before installing a new battery, make sure of the correct polarity of the installation or the battery could burst.
- Dispose of used batteries according to the local regulations. Never dispose of them at the user's premises or attempt to try to discharge one.

5. Precautions for the Laser Beam. (Only for Products Employing a Laser)

- Removing the cover marked with the caution label could lead to possible exposure to the laser beam, resulting in eye damage or blindness. Be sure to unplug the power cord before removing this cover.
- If removing this cover while the power is ON is unavoidable, be sure to wear protective laser goggles that meet specifications.
- Make sure that no one enters the room when the machine is in this condition.
- When handling the laser unit, observe the "Precautions for Handling Laser Equipment."

6. Precautions for storing the toner or imaging cartridge.

- Be sure to keep the toner or imaging cartridge out of the reach of children. Licking the imaging cartridge or ingesting its contents is harmful to your health.

1-3. Used Batteries Precautions

ALL Areas

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

Germany

VORSICHT!

Explosionsgefahr bei unsachgemäßem Austausch der Batterie.
Ersatz nur durch denselben oder einen vom Hersteller empfohlenen gleichwertigen Typ.
Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

France

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.
Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.
Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

Denmark

ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

Finland, Sweden

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

Norway

ADVARSEL

Eksplosjonsfare ved feilaktig skifte av batteri.
Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten.
Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

1-4. Other Precautions

- When handling circuit boards, observe the “HANDLING of PWBs”.
- The PC Drum is a very delicate component. Observe the precautions given in “HANDLING OF THE PC DRUM” because mishandling may result in serious image problems.
- Note that replacement of a circuit board may call for readjustments or resetting of particular items, or software installation.

1-5. Precautions for Service

- When performing inspection and service procedures, observe the following precautions to prevent mishandling of the machine and its parts.

✻ Depending on the model, some of the precautions given in the following do not apply.

1. Precautions Before Service

- When the user is using a word processor or personal computer from a wall outlet of the same line, take necessary steps to prevent the circuit breaker from opening due to overloads.
- Never disturb the LAN by breaking or making a network connection, altering termination, installing or removing networking hardware or software, or shutting down networked devices without the knowledge and express permission of the network administrator or the shop supervisor.

2. How to Use this Book

DIS/REASSEMBLY, ADJUSTMENT

- To reassemble the product, reverse the order of disassembly unless otherwise specified.

TROUBLESHOOTING

- If a component on a PWB or any other functional unit including a motor is defective, the text only instructs you to replace the whole PWB or functional unit and does not give troubleshooting procedures applicable within the defective unit.
- All troubleshooting procedures contained herein assume that there are no breaks in the harnesses and cords and all connectors are plugged into the right positions.
- The procedures preclude possible malfunctions due to noise and other external causes.

3. Precautions for Service

- Keep all disassembled parts in good order and keep tools under control so that none will be lost or damaged.
- After completing a service job, perform a safety check. Make sure that all parts, wiring and screws are returned to their original positions.
- Do not pull out the toner hopper while the toner bottle is turning. This could result in a damaged motor or locking mechanism.
- If the product is to be run with the front door open, make sure that the toner hopper is in the locked position.
- Do not use an air gun or vacuum cleaner for cleaning the ATDC Sensor and other sensors, as they can cause electrostatic destruction. Use a blower brush and cloth. If a unit containing these sensors is to be cleaned, first remove the sensors from the unit.

4. Precautions for Dis/Reassembly

- Be sure to unplug the copier from the outlet before attempting to service the copier.
- The basic rule is not to operate the copier anytime during disassembly. If it is absolutely necessary to run the copier with its covers removed, use care not to allow your clothing to be caught in revolving parts such as the timing belt and gears.
- Before attempting to replace parts and unplug connectors, make sure that the power cord of the copier has been unplugged from the wall outlet.
- Be sure to use the Interlock Switch Actuating Jig whenever it is necessary to actuate the Interlock Switch with the covers left open or removed.
- While the product is energized, do not unplug or plug connectors into the circuit boards or harnesses.
- Never use flammable sprays near the copier.
- A used battery should be disposed of according to the local regulations and never be discarded casually or left unattended at the user's premises.
- When reassembling parts, make sure that the correct screws (size, type) and toothed washer are used in the correct places.

5. Precautions for Circuit Inspection

- Never create a closed circuit across connector pins except those specified in the text and on the printed circuit.
- When creating a closed circuit and measuring a voltage across connector pins specified in the text, be sure to use the GND wire.

6. Handling of PWBs

During Transportation/Storage

- During transportation or when in storage, new P.W. Boards must not be indiscriminately removed from their protective conductive bags.
- Do not store or place P.W. Boards in a location exposed to direct sunlight and high temperature.
- When it becomes absolutely necessary to remove a Board from its conductive bag or case, always place it on its conductive mat in an area as free as possible from static electricity.
- Do not touch the pins of the ICs with your bare hands.
- Protect the PWBs from any external force so that they are not bent or damaged.

During Inspection/Replacement

- Avoid checking the IC directly with a multimeter; use connectors on the Board.
- Never create a closed circuit across IC pins with a metal tool.
- Before unplugging connectors from the P.W. Boards, make sure that the power cord has been unplugged from the outlet.
- When removing a Board from its conductive bag or conductive case, do not touch the pins of the ICs or the printed pattern. Place it in position by holding only the edges of the Board.
- When touching the PWB, wear a wrist strap and connect its cord to a securely grounded place whenever possible. If you cannot wear a wrist strap, touch a metal part to discharge static electricity before touching the PWB.
- Note that replacement of a PWB may call for readjustments or resetting of particular items.

7. Handling of Other Parts

- The magnet roller generates a strong magnetic field. Do not bring it near a watch, floppy disk, magnetic card, or CRT tube.

8. Handling of the PC Drum

✻ Only for Products Not Employing an Imaging Cartridge.

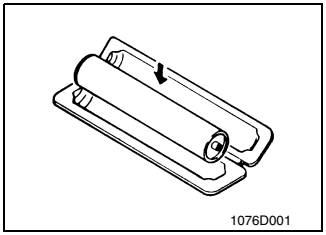
During Transportation/Storage

- Use the specified carton whenever moving or storing the PC Drum.
- The storage temperature is in the range between –20°C and +40°C.
- In summer, avoid leaving the PC Drum in a car for a long time.

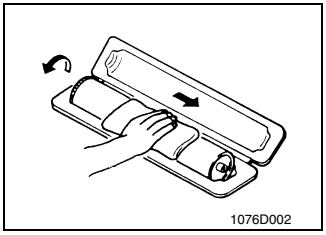
Handling

- Ensure that the correct PC Drum is used.
- Whenever the PC Drum has been removed from the copier, store it in its carton or protect it with a Drum Cloth.
- The PC Drum exhibits greatest light fatigue after being exposed to strong light over an extended period of time. Never, therefore, expose it to direct sunlight.
- Use care not to contaminate the surface of the PC Drum with oil-base solvent, fingerprints, and other foreign matter.
- Do not scratch the surface of the PC Drum.
- Do not apply chemicals to the surface of the PC Drum.
- Do not attempt to wipe clean the surface of the PC Drum.

If, however, the surface is contaminated with fingerprints, clean it using the following procedure.



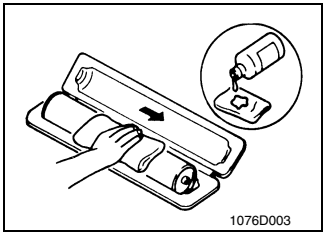
A. Place the PC Drum into one half of its carton.



B. Gently wipe the residual toner off the surface of the PC Drum with a dry, Dust-Free Cotton Pad.

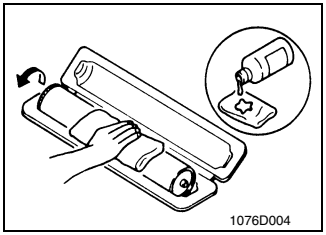
- Turn the PC Drum so that the area of its surface on which the line of toner left by the Cleaning Blade is present is facing straight up. Wipe the surface in one continuous movement from the rear edge of the PC Drum to the front edge and off the surface of the PC Drum.
- Turn the PC Drum slightly and wipe the newly exposed surface area with a CLEAN face of the Dust-Free Cotton Pad. Repeat this procedure until the entire surface of the PC Drum has been thoroughly cleaned.

✻ At this time, always use a CLEAN face of the dry Dust-Free Cotton Pad until no toner is evident on the face of the Pad after wiping.



C. Soak a small amount of either ethyl alcohol or isopropyl alcohol into a clean, unused Dust-Free Cotton Pad which has been folded over into quarters. Now, wipe the surface of the PC Drum in one continuous movement from its rear edge to its front edge and off its surface one to two times.

✻ Never move the Pad back and forth.



D. Using the SAME face of the Pad, repeat the procedure explained in the latter half of step 3 until the entire surface of the PC Drum has been wiped. Always OVERLAP the areas when wiping. Two complete turns of the PC Drum would be appropriate for cleaning.

NOTES

- *Even when the PC Drum is only locally dirtied, wipe the entire surface.*
- *Do not expose the PC Drum to direct sunlight. Clean it as quickly as possible even under interior illumination.*
- *If dirt remains after cleaning, repeat the entire procedure from the beginning one more time.*

9. Handling of the Imaging Cartridge and Print Unit

✻ Only for Products Employing an Imaging Cartridge and Print Unit.

During Transportation/Storage

- The storage temperature is in the range between –20 °C and +40 °C.
- In summer, avoid leaving the Imaging Cartridge and Print Unit in a car for a long time.

Handling

- Store the Imaging Cartridge and Print Unit in a place that is not exposed to direct sunlight.

Precautionary Information on the PC Drum Inside the Imaging Cartridge and Print Unit

- Use care not to contaminate the surface of the PC Drum with oil-base solvent, fingerprints, and other foreign matter.
- Do not scratch the surface of the PC Drum.
- Do not attempt to wipe clean the surface of the PC Drum.

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GENERAL

1. SPECIFICATION

Type	:	Freestanding printer
		OPC (organic photoconductor)
PC Drum Type	:	Electrostatic dry-powdered image transfer to plain
Copying System	:	paper
		Equivalent to 600 dpi in main scanning direction x
Print Density	:	1800 dpi in sub-scanning direction
		Three-Way system
Paper Feeding System	:	Manual Bypass Table...Single
(Standard)		1st Drawer.....250 sheets
		2nd Drawer.....500 sheets
		Tandem-type indirect electrostatic recording sysytem
Printing Process	:	LED Unit exposure for each of Y, M, C, and Bk
Exposure System	:	MTHG System
Developing System	:	DC comb electrode Scorotron System
Charging System	:	Ozone Filter
Ozone Removal System	:	Intermediate Transfer Belt System
Image Transfer System	:	Selecting either nonwoven fabric bias or ground +
Paper Separating System	:	Separation Finger
		Blade Cleaning + Brush + Toner Patch
Transfer Belt Cleaning System	:	Belt Fusing
Fusing System	:	Charge Neutralizing Brush
Paper Charge Neutralizing	:	

Print Paper Type

Paper Source		1st Drawer	2nd Drawer	Manual Bypass Table
Copy paper type	Plain paper (64 to 90 g/m²)	❍	❍	❍
	Translucent paper	–	–	–
	OHP transparencies (dedicated)	❍	–	❍
	Thick paper (91 to 150 g/m²) (24-1/4 to 39-3/4 lb.)	❍ 20 sheets or less	–	❍
	Thick paper (151 to 209 g/m²) (49 to 55-1/2 lb.)		–	❍
	Thick paper (210 to 256 g/m²) (55-3/4 to 68 lb.)		–	❍
	Postcards		–	❍
	Envelope		–	❍
	Label Sheet		–	❍
Copy paper dimensions	Max. (width × length)	311 × 457 mm 12-1/4 × 18	297 × 432 mm 11-3/4 × 17	311 × 457 mm 12-1/4 × 18
	Min. (width × length)	86 × 140 mm 3-1/2 × 5-1/2	182 × 182 mm 7-1/4 × 7-1/4	86 × 140 mm 3-1/2 × 5-1/2

❍: Reliably fed –: Feeding prohibited

Warming-up Time : 5 min. or less (at ambient temperature of 20 °C, 68 ° F and rated source voltage)

First Print Time

	31-ppm Printer	20-ppm Printer
Full Color	9.9 sec.	14.1 sec.
Mono Color	7.9 sec.	7.9 sec.

(1st Drawer, full size, LetterC, Manual Exposure)

Printing Speed for Multi-Print Cycle (prints/min.)

Size	31-ppm Printer	20-ppm Printer	Size	31-ppm Printer	20-ppm Printer
A3, 11 × 17	15/15	10/15	B4L	18/18	12/18
A4L, 8-1/2 × 11L	21/21	14/21	B5L	21/21	14/21
A4C, 8-1/2 × 11C	31/31	20/31	B5C	31/31	20/31

(Full Color / Mono Color fed from 2nd Drawer)

Environmental Conditions

Temperature	10 to 30 °C, 50 to 86 ° F (with a fluctuation of 10 °C, 50 ° F or less per hour)
Humidity	25 to 85 % (with a fluctuation of 20 % or less)
Ambient Illumination	3,000 lux or less
Levelness	1° (1.75/100 or less)

Max. Power Consumption (printer only) : 1.5 kw

Power Requirements : 110 V, 120 V, 127 V, 220 to 240 V ; 50/60 Hz

Dimensions : Engine + 2nd Drawer
Width.....596 mm, 23-1/2
Depth.....780 mm, 30-3/4
Height.....571 mm, 22-1/2

Weight : Engine+ 2nd Drawer.....85 kg, 187-1/2 lb

2. PRECAUTIONS FOR INSTALLATION

2-1. Installation Site

To ensure safety and utmost performance of the printer, the printer should NOT be used in a place:

- Where it will be subjected to extremely high or low temperature or humidity.
- Where it will be subjected to sudden fluctuations in either temperature or humidity.
- Which is exposed to direct sunlight.
- Which is in the direct air stream of an air conditioner, heater, or ventilator.
- Which has poor ventilation or is dusty.
- Which does not have a stable, level floor or where it will receive undue vibration.
- Which is near any kind of heating device.
- Which is near volatile flammables (thinner, gasoline, etc.).
- Where it may be splashed with water.
- Which puts the operator in the direct stream of exhaust from the printer.
- Where ammonia gas might be generated.

2-2. Power Source

- If any other electrical equipment is sourced from the same power outlet, make sure that the capacity of the outlet is not exceeded.
- Use a power source with little voltage fluctuation.
- Never connect by means of a multiple socket any other appliances or machines to the outlet being used for the printer.
- Ensure that the printer does not ride on the power cord or communication cable of other electrical equipment, and that it does not become wedged into or underneath the mechanism.
- Make the following checks at frequent intervals:

✻ Is the power plug abnormally hot?
✻ Are there any cracks or scrapes in the cord?
✻ Has the power plug been inserted fully into the outlet?
✻ Does something, including the printer itself, ride on the power cord?

Use an outlet with a capacity of 110/120/127 V, 15 A or more. 220/240 V, 10 A or more.

2-3. Grounding

- Always ground the printer to prevent receiving electrical shocks in the case of electrical leakage.
- Connect the ground wire to the ground terminal of the outlet or a grounding contact which complies with the local electrical standards.
- Never connect the ground wire to a gas pipe, the ground wire for a telephone, lightning arrester, or a water pipe for fear of fire and electrical shock.

3. PRECAUTIONS FOR USE

3-1. To ensure that the printer is used in an optimum condition

- Never place a heavy object on the printer or subject the printer to shocks.
- Insert the power plug all the way into the outlet.
- Do not attempt to remove any panel or cover which is secured while the printer is making copies.
- Do not turn OFF the printer while it is making prints.
- Provide good ventilation when making a large number of copies continuously.
- Never use flammable sprays near the printer.
- If the printer becomes inordinately hot or produces abnormal noise, turn it OFF and unplug it.
- Do not turn ON the power switch at the same time when you plug the power cord into the outlet.
- When unplugging the power cord, do not pull on the cord; hold the plug and pull it out.
- Do not bring any magnetized object near the printer.
- Do not place a vase or vessel containing water on the printer.
- Be sure to turn OFF the power switch at the end of the workday or upon power failure.
- Use care not to drop paper clips, staples, or other small pieces of metal into the printer.

3-2. Operating Environment

The operating environmental requirements of the printer are as follows.

- Temperature: 10 to 30 °C, 50 to 86 ° F
- Humidity: 25 to 85 % RH
- Rate of temperature change: 10 °C/h, 50 ° F/h
- Rate of humidity change: 20 % RH/h

3-3. Power Requirements

The power source voltage requirements are as follows.

- Voltage fluctuation: AC110, 120, 220, 240 V
  ±10 % (printing performance assured)
  (127 V areas only; between -10 % and +6 %)
  +10 %
  -15 % (paper feeding performance assured)
- Frequency fluctuation: 50/60 Hz ±0.3 %

4. HANDLING OF CONSUMABLES

Before using any consumables, always read the label on its container carefully.

- Paper can be easily damaged by dampness. To prevent absorption of moisture, store paper, which has been removed from its wrapper but not loaded in the drawer, in a sealed plastic bag in a cool, dark place.
- Keep consumables out of the reach of children.
- Do not touch the PC Drum with bare hands.
- The same sized paper is of two kinds, short grain and long grain. Short grain paper should only be fed through the printer crosswise, long grain paper should only be fed lengthwise.
- If your hands become soiled with toner, wash them with soap and water.
- Do not throw away any used consumables (PC Drum, starter, toner, etc.). They are to be collected.
- Do not burn, bury in the ground, or throw into the water any consumables (PC Drum, starter, toner, etc.).
- Do not store consumables in a place which:

✻ Is hot and humid.
✻ Is subject to direct sunlight.
✻ Has an open flame nearby.

5. OTHER PRECAUTIONS

CAUTION

Double pole / neutral fusing

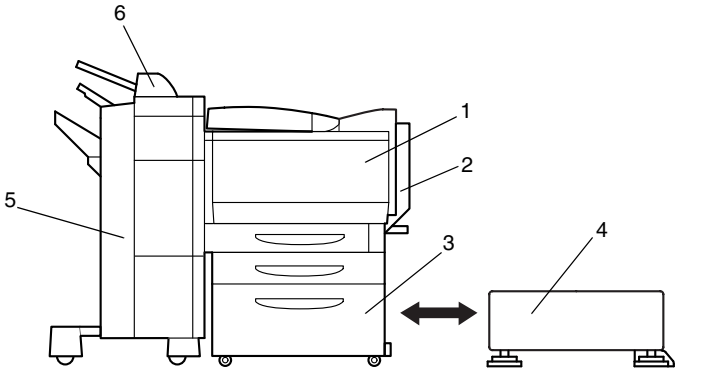
ATTENTION

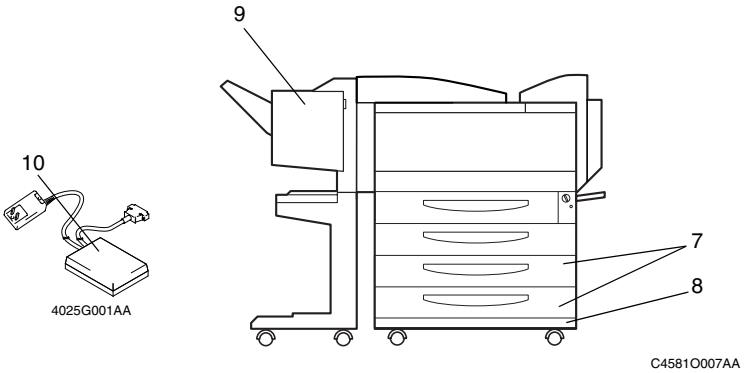
Double pôle / fusible sur le neutre.

6. LED RADIATION SAFETY

- This product is a printer which operates by means of a LED (light emitting diodes) exposure system. There is no possibility of danger from the LED optical radiation, because the LED optical radiation level does not exceed the accessible radiation limit of class 1 under all conditions of operation, maintenance, service and failure.

7. SYSTEM OPTIONS





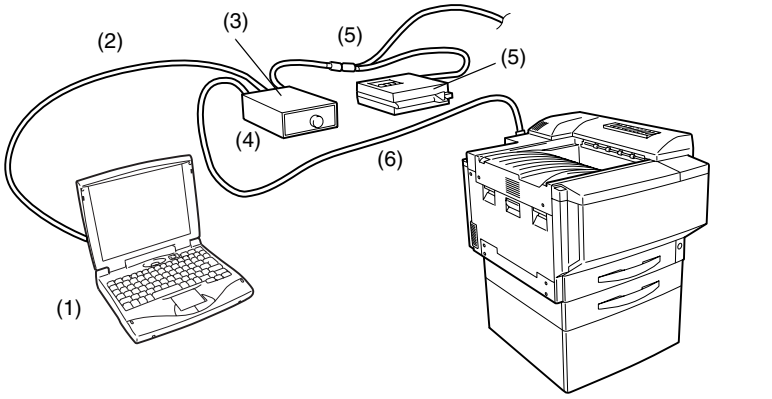
1. CF3102/CF2002 Printer
2. Duplex Unit AD-14
3. Large Capacity Cabinet PF-121
4. Copy Desk CD-2M
5. Finisher FN-116
6. Option Tray JS-100
7. Paper Feed Unit PF-118
8. Copy Table CT-2
9. Finisher FN-8
10. Data Terminal DT-105
    (U.S.A. and Canada only)
11. Memory M256-2*
12. Hard Disk Drive HDD-5*
13. Punch Kit PK-4*
14. Mechanical Counter*

*:The internal options are not shown.

DIS/REASSEMBLY, ADJUSTMENT

1. Service Jig

1-1. Construction of the Service Jig



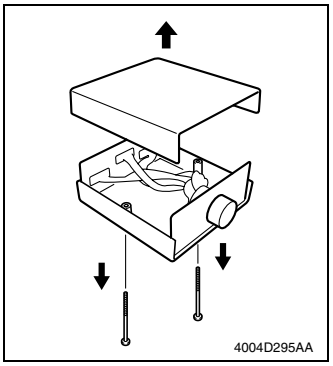
No.	Name	Description	Remark
1	External panel Controller *1	Allows settings, adjustments, and checks to be made for the printer using a PC.	Supplied from Minolta
	Notebook PC	Starts the External Panel Controller for adjustment.	Commercially available product
2	Straight cable	Connects between the Notebook PC and the connector C of the selector.	Commercially available product
3	Aluminum tape	Removes noise that would otherwise occur when the Selector is operated.	Commercially available product
4	Selector	Switches between the Notebook PC and the X-Rite, printer.	Commercially available product
5	X-Rite/Cross-cable	• Color Tone Tester. • Connects the Selector to X-Rite (DTP32).	Commercially available product
6	Cross-cable	Connects port A of the Selector to the printer.	Commercially available product

*1: The recommended OS of the operating environment for the External Panel Control is Windows 98, Windows 2000, or Windows XP. No other OSs are guaranteed for correct operation. Another requirement is that the PC is capable of serial communications at 19,200 bps.

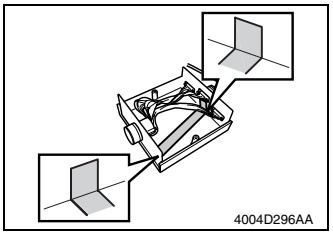
1-2. Setting up the Service Jig

NOTE

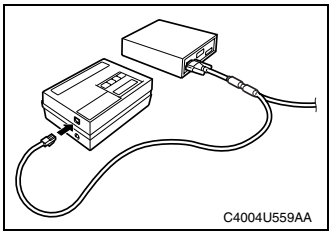
- *Before attempting to set, adjust, or check the printer, set up the Service Jig by following the procedure given below.*
- *Do not turn on any equipment until you are instructed to do so.*



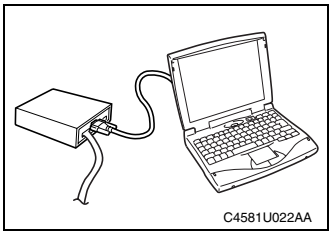
1. Remove the two screws from the selector, and then remove the upper cover.



2. Affix the aluminum tape to the Selector as illustrated and replace the cover removed in step 1.



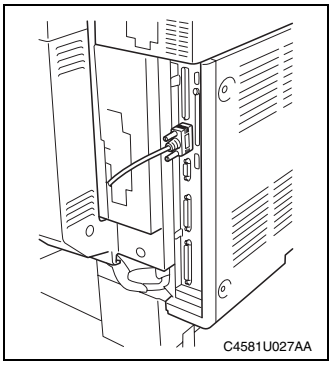
3. Using a DTP32 cross-cable, connect the I/O port of the X-Rite to port B of the selector.



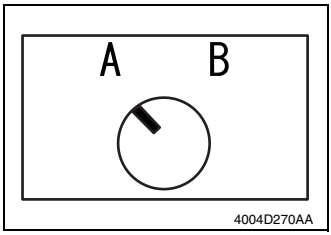
4. Using the RS232 straight cable (2), connect the COM 1 port of the computer to port C on the selector.

NOTE

- *When connecting to the COM2 port, set the External Panel Controller port setting to COM2.*

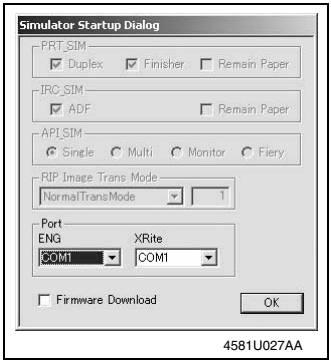


5. Using a cross-cable, connect port A of the selector to the printer.



6. Make sure that the selector knob is set to “A.”

7. Turn on your PC and click the External Panel Controller icon.



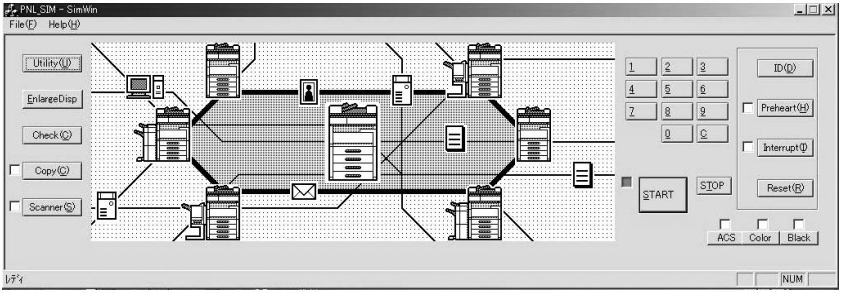
8. Make sure that the Startup dialog box has appeared.
9. Check that “COM1” is selected for “Port.” Then, click the “OK” key.

10. Check that the initial startup screen of the External Panel Controller has appeared on the PC.

NOTE

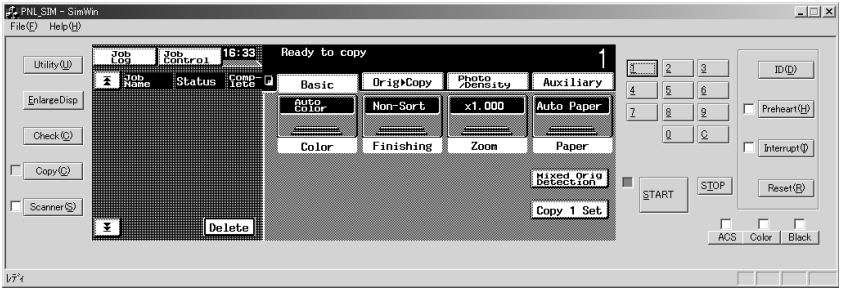
- *If the basic screen does not appear in the External Panel Controller, turn the printer off. Restart the External Panel Controller, and then turn the printer on again.*

Initial Startup Screen



4581D010AA

11. Turn ON the Power Switch of the printer.
12. Check that the initial startup screen has changed to a panel screen.



C4581P003CA

2. ELECTRICAL/IMAGE ADJUSTMENT

NOTE

- *Given in the following are only those adjustments that are made using the External Panel Controller.*

2-1. Calling the Tech. Rep. Mode to Screen

1. Set up the Service Jig.

☞ See "Setting up the Service Jig." (D-2)

2. Press the Utility key.
3. Touch [Meter Count].
4. Press the following keys in this order:
   Stop → 0 → 0 → Stop → 0 → 1

NOTE

- *Ensure appropriate security for Tech. Rep. mode setting procedures. They should never be known to any unauthorized person not involved with service jobs.*

2-2. List of Functions

Function	Description
Top Margin	To make the adjustments, use the External Panel Controller and work on the PC screen. For the specific adjustment procedures, see the Service Manual for the CF3102/2002 copier.
Left Margin	
Dup. Left Margin	
Zoom for FD	
Color Shift Correction	
LPH Chip Adjust	
PRT Max Density	
PRT Highlight	
Background Voltage Margin	
ATDC Level Setting	
2nd Transfer Adjust	
Fuser Temp.	
Fuser Speed	
X-Rite Calibration (Gradation Adjust)	☞ See X-Rite Calibration. (D-6)

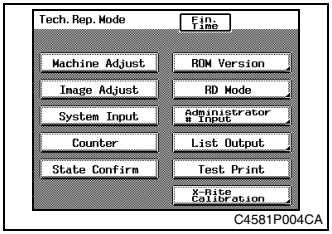
(1) X-Rite Calibration (Gradation Adjust)

1. Set up the Service Jig.

☞ See “Setting up the Service Jig.” (D-2)

2. Call the Tech. Rep. mode to the screen.

☞ See “Calling the Tech. Rep. Mode to Screen.” (D-5)



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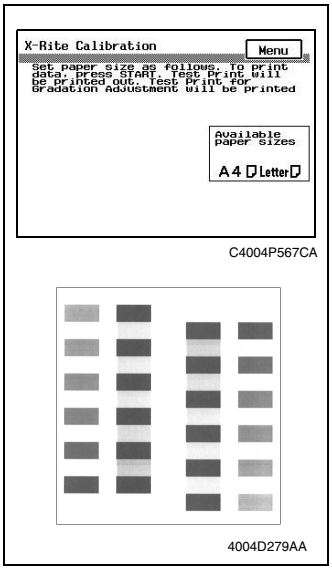
3. Click the X-Rite Calibration key in the Tech. Rep. Mode screen.



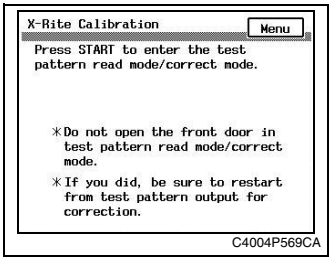
C4004P567CA

4004D279AA

4. Check the message that appears, and then click the Start key in the External Panel Controller. Test patterns are printed for the four colors. (Cyan, Magenta, Yellow, Black)

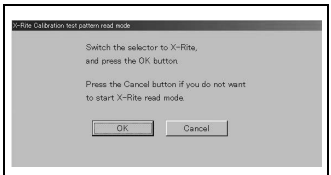
NOTE

- *It will take approximately 2 minutes for the test patterns to be printed.*
- *During printing, do not open the front door. If the front door is opened, restart the procedure from step 1.*

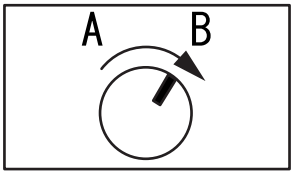


C4004P569CA

5. After the test patterns are printed, check that the message appears, and then click the Start key in the External Panel Controller.



C4004P570CA

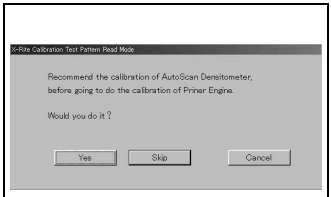


4004D271AA

6. Check that the dialog box appears, and then click the OK key in the dialog box.

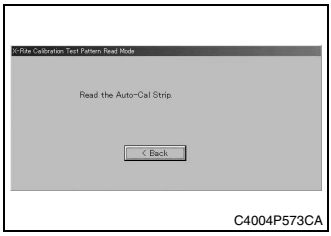
NOTE

- *If the selector is being used, set the selector knob to "B."*



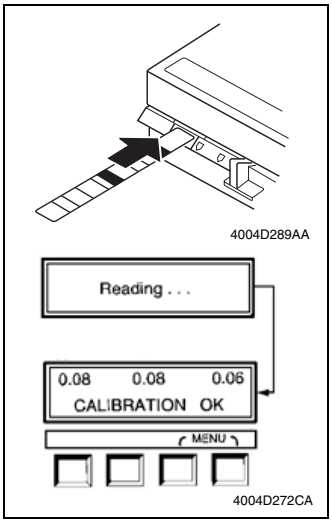
C4004P572CA

7. Check that the dialog box appears, and then click the Yes key in the dialog box.



C4004P573CA

8. When the dialog box appears, the auto-cal strip can be read.
   Prepare the auto-cal strip.



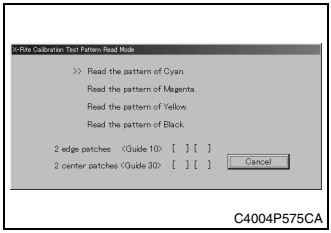
4004D289AA

4004D272CA

9. Insert the auto-cal strip into the X-Rite.

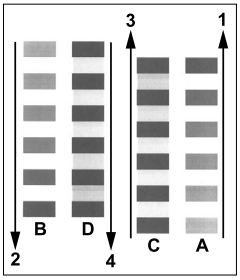
NOTE

- *Insert the auto-cal strip after "INSERT CAL STRIP" appears on the X-Rite display.*

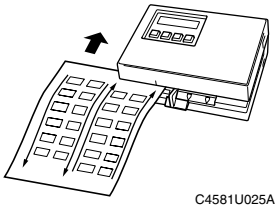


C4004P575CA

10. If the reading was completed correctly, the dialog box shown at the left appears.
    Prepare the cyan test pattern.



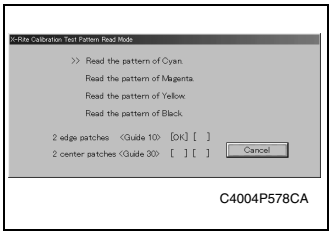
4004D269AA


C4581U025AA

11. Set the X-Rite guide to "10."
12. Feed the cyan test pattern in direction "1" to read the row represented by "A."

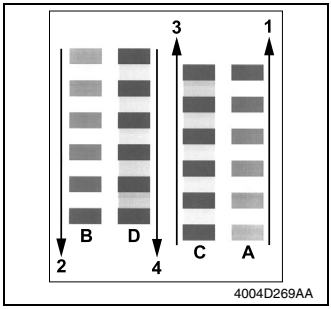
NOTE

- *Align the test pattern with the guide, and insert the pattern into the X-Rite.*
- *The arrows indicate the direction that the pattern should be fed into the X-Rite.*
- *The arrows shown in the illustration are not printed on the actual test pattern.*



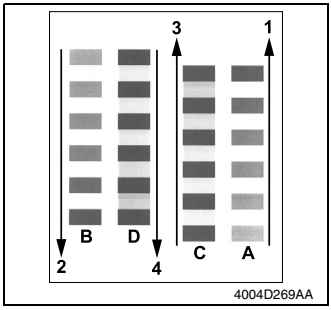
C4004P578CA

13. If the reading was completed correctly, “OK” is indicated.



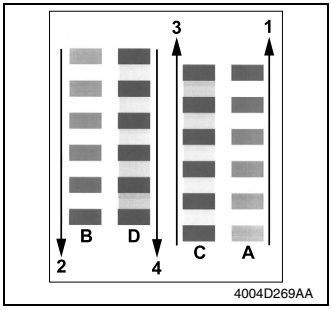
4004D269AA

14. Turn the test pattern around, and then feed it to read the row indicated by “B” in direction “2.”
15. If the reading was completed correctly, a second “OK” is indicated.



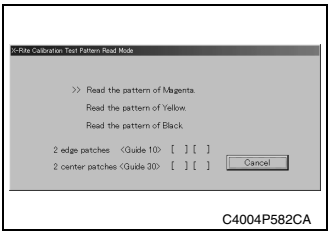
4004D269AA

16. Set the X-Rite guide to “30.”
17. Turn the test pattern to its original orientation, and then feed7 the test pattern in direction “3” to read the row represented by “C.”
18. If the reading was completed correctly, a third “OK” is indicated.



4004D269AA

19. Turn the test pattern around, and then feed it to read the row indicated by “D” in direction “4.”
20. If the reading was completed correctly, a fourth “OK” is indicated.

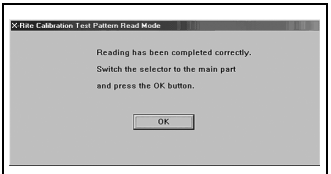


C4004P582CA

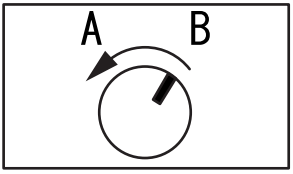
21. Check that ">>" appears beside "Read the Pattern of Magenta."

NOTE

- *From here on, read the test patterns of magenta, yellow, and black, in that order.*
- *If ">>" appears beside "Read the Pattern of Cyan", perform the procedure for reading the cyan test pattern again.*



C4004P595CA



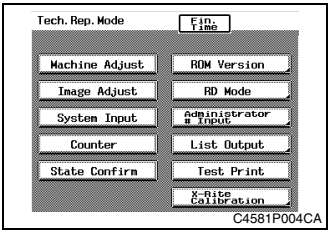
4004D267AA

22. Check that the dialog box appears, set the selector knob on the selector from "B" to "A", and then click the OK key in the dialog box.

NOTE

- *Be sure to click the OK key only after the selector knob has been set.*

23. Quit X-Rite Calibration.



C4581P004CA

24. Make sure that the Tech. Rep. Mode screen reappears on the screen.
25. Click the Fin. Time key.

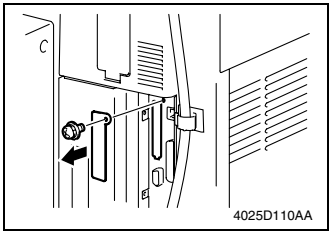
2-3. Downloading Firmware

- Firmware is upgraded by means of the memory card (IC card).

NOTE

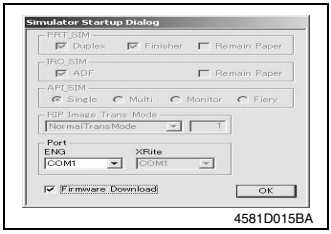
- *The External Panel Controller is used on the PC to upgrade firmware.*
- *NEVER remove or insert the memory card with the printer power turned ON.*

1. With the Power Switch in the OFF position, unplug the power cord from the power outlet.

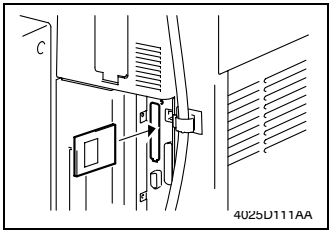


2. Remove one screw and the metal bracket.

3. Using the Cross-cable, connect the serial port of the printer to the serial port of the PC.



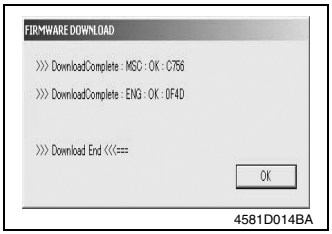
4. Start the External Panel Controller on the PC.
5. Select “Firmware Download” and click “OK.” Then, the initial startup screen will appear.



6. Insert the memory card into the slot.

7. Plug the power cord into the power outlet and turn ON the Power Switch.

✻ The “Firmware Download” dialog box will appear on the External Panel Controller screen. In about 30 sec., downloading will automatically start.



8. When downloading is started, a checksum and results are displayed on the dialog box.

9. Confirm the contents of the display. Then, click “OK” on the “Firmware Download” dialog box and quit the External Panel Controller.
10. Unplug the power cord from the power outlet.

NOTE

- *Do not turn OFF the Power Switch.*

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11. Remove the memory card from the slot
12. Turn OFF the Power Switch.
13. Plug the power cord into the power outlet and turn ON the Power Switch.
14. Start the External Panel Controller and call the Tech. Rep. Mode to the screen.
15. Select ROM Version.
16. Check that the ROM version matches the version marked on the memory card.

✻ Action When Data Transfer Fails

If “NG” appears on the PC screen, indicating that rewriting has been unsuccessful (in which case the Start key lights up red), take the following steps.

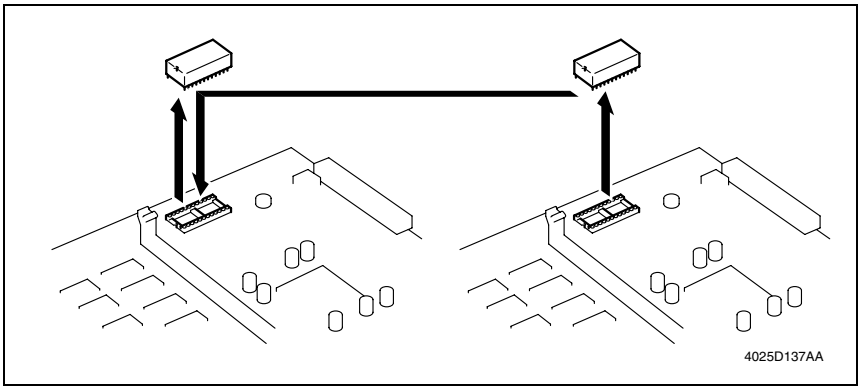
1. Perform the data rewriting procedure again.
2. If the procedure is abnormally terminated, change the memory card for a new one and try another rewriting sequence.
3. If the procedure is still abnormally terminated, change the board that has caused “NG” and carry out data rewriting procedure.

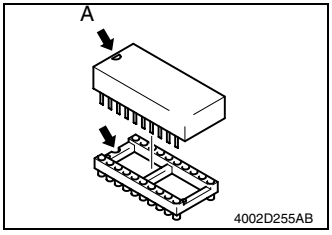
2-4. REMOUNTING RAM IC (IC202)

1. Remove the Image Control Board (PWB-F) from the printer.
2. Demount RAM IC (IC202) from the old Image Control Board (PWB-F).
3. Demount RAM IC (IC202) from the new Image Control Board (PWB-F) and then remount the old RAM IC (IC202) on the new Image Control Board (PWB-F).

NOTE

- *If the Image Control Board (PWB-F) has been replaced and RAM IC (IC202) is not to be remounted, be sure to record all data of Utility mode and Tech. Rep. mode functions and make the entries again of these numeric values.*





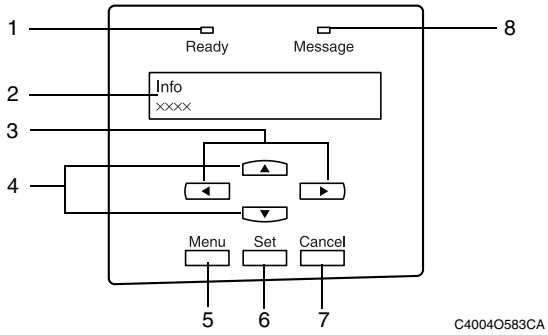
NOTE

- *Align the portion marked with A of RAM IC (IC202) with the mating portion as illustrated.*

SWITCHES ON PWBs, TECH. REP. SETTINGS

1. Printer Panel 1

1-1. Identification and Functions of Keys on Printer Panel 1



No.	Part Name	Description
1	Ready light	• Off when the printer controller is off or starting up. • Lights up in green to indicate that the printer is ready. • Flashes green when the printer controller is proceeding to RIP, printing a job, or communicating with a network utility.
2	Message window	Displays information about the current status.
3	Right/left keys	• Up key: Returns to the previous option or setting if pressed when a menu is displayed; displays the previous character if pressed when entering text. • Down key: Advances to the next option or setting if pressed when a menu is displayed; displays the next character if pressed when entering text.
4	Up/down keys	• Right arrow: Advances the cursor to the next entry position on the right. • Left arrow: Deletes the character to the left if pressed when entering text.
5	Menu key	Displays the Functions menu; returns to the menu if pressed after an option has been selected.
6	Set key	• Activates the currently selected option and, if applicable, proceeds to the next menu. • If “Cancel Job” appears in the display window, press the [Set] key to cancel the job.
7	Cancel key	Exits the setup and returns to Info.
8	Message light	• Lights up in red to indicate a communication error lasting more than 30 seconds between the printer controller and the printer. • Flashes red if there is a warning or an error that prevents printing.

1-2. Functions menu

(1) Functions Menu Setting Procedures

1. Check that “Info XXXX” appears in the display, and then press the Menu key in the printer panel 1.

NOTE

- “XXXX” indicates the name specified when the controller was set up. (For more details, refer to the manual of the printer controller.)

2. Press ▲ or ▼ until the desired function is selected.
3. Press the Set key.

(2) Functions Menu List

Functions menu	Submenu
Print Pages	PS Test Page Configuration Job Log Control Panel Map Color Charts PS Font List PCL Font List E-mail Log*1 Total Counter Unit Check
Suspend Printing	
Resume Printing	
Shut Down	Restart Server Shut Down System Reboot System
Run Setup	This command is used to run the diagnostic function. ☞ For details, refer to the printer controller manual.
Run Diagnostics	This command is used to run the diagnostic function. ☞ For details, refer to the printer controller manual.
Calibration	This command is used to run the diagnostic function. ☞ For details, refer to the printer controller manual.
Engine Setup	Tray1 Setup Special Paper Output Tray Crisscross Low-Power Mode Sleep mode Life Counter Clear Screen Pattern Unit Change*2 Serial Number*2 List Output*2 Life Counter Clear*2 Paper Confirm*2 HDD Set*2

*1: Appear if e-mail services are enabled in “Service Setup.”
2: To displace the functions marked with “,” it is necessary to log onto the Admin. Mode. A unique password is necessary to log onto the Admin. Mode.
☞ For details, refer to the Admin. Mode. (S-14)

(3) Details of Engine Setup Settings

Item	Purpose	Setting/Precautions
Tray1 Setup	To set the size of the paper loaded in Tray 1.	The default setting is Auto. **Auto** Inch Metric
Special Paper	To set the paper type for the 2nd through 4th Drawers.	The default setting is Plain paper. **Plain** Not for 2-sided Exclusive Plain Recycled
Output Tray	To set the exit tray for PC print outputs. ✻ When the FN-116 is mounted	The default setting is 1 (Non-Sort Tray). 1 (Non-Sort Tray) 2 (Elevator Tray) 3 (Option Tray)
Crisscross	To select whether to enable or disable the crisscross sorting function that stacks sorted copy sets in a crisscross manner, i.e., one set stacked lengthwise on top of another set stacked crosswise.	The default setting is Auto Change. **Auto Change** No Change
Low-Power Mode	To select whether to enter the Low-Power mode after the last key has been operated with a print cycle completed, and to set the time it takes the printer to enter the Low-Power mode.	• Use the ▲ or ▼ key to enter the time before Low-Power mode, which can range from 10 to 240 min. • The default setting is “On” and “15 min.” **On** Off **15 min** (10 to 240)
Sleep mode	To select whether to enter the Sleep mode after the last key has been operated with a print cycle completed, and to set the time it takes the printer to enter the Sleep mode. In the Sleep mode, only the 5-V line remains ON.	• Use the ▲ or ▼ key to enter the time before Sleep mode, which can range from 15 to 240 min. • The default setting is “On” and “30 min.” **On** Off **30 min** (15 to 240)
Life Counter Clear	To clear the life counters for the Transfer Roller Unit or Ozone Filter.	The default setting is Transfer Roller Unit. **Transfer roller unit** Ozone filter
Screen Pattern	To set the screen pattern in the PC print mode.	The default setting is Gradation. **Gradation** Resolution

Item	Purpose	Setting/Precautions
Unit Change	• To select who is to replace a unit. • When the unit life arrives, the warning display is intended for the specific person who is going to replace the unit. • When “User” is selected: Copying is inhibited. • When “Service” is selected: Life warning.	The following are the default settings: Toner cartridge :User Waste toner Bottle :Service Fusing unit :Service Transfer roller unit :Service Imaging unit :Service Ozone filter :Service Punch dust box :Service
Serial Number	To register the serial numbers of the printer and options. The numbers will be printed on the list output.	Use the ▲ and ▼ key to enter alphabets, symbols, and numerals.
List Output	To produce an output of a list of setting values, Counter values, and others.	The default setting is Image Processing. **Image Processing** Counter <Image Processing> To produce an output of a list of setting values, adjustment values, Total Counter values, and others. <Counter> To produce an output of a list of counts of various counters.
Life Counter Clear	To reset the Life Counter for parts replacement to the initial value (0).	The default setting is All. All Tray1 Tray2 Tray3 Tray4 LCC1 LCC2 Transfer roller unit Finisher Staple Punch Fold Ozone filter ADF feed ADF reverse

Item	Purpose	Setting/Precautions
Paper Confirm	• To check for paper passage performance of the engine only without involving a print action on paper. • The counters do not count up. ✻ When a paper misfeed or other fault occurs in the paper transport system.	• Use ▲ or ▼ key to select the paper source for paper passage check and press the Set key. • When “Cancel Job” appears on the message window, press the Set key. Or, when paper runs out, Paper Confirm stops with the menu reappearing. ✻ When the Manual Bypass Table is selected, be sure to select the paper size and paper type.
HDD Set	To set whether the Hard Disk is mounted or not.	The default setting is ON. **On** Off

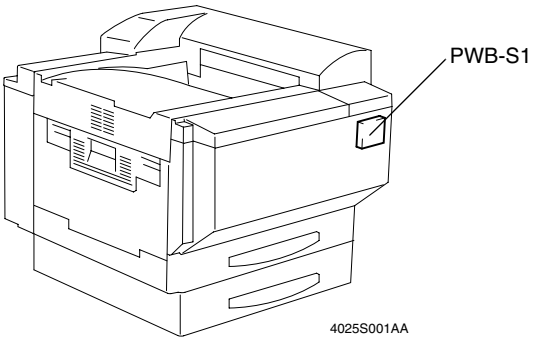
2. FUNCTION OF SWITCHES AND OTHER PARTS ON PWBs

NOTE

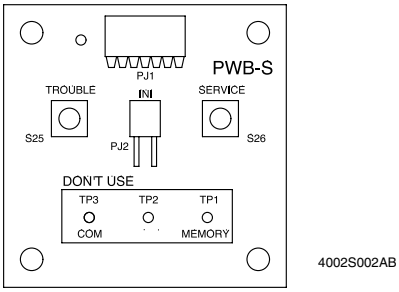
- *Before attempting to perform these procedures, set up the Service Jig.*

☞ See “Setting up the Service Jig.” (D-2)

2-1. PWB Location



2-2. PWB-S1 (Tech. Rep. Setting Switches Board)



Symbol	Name	Description
INI	Initialize Point	Resets a paper misfeed, malfunction, and erratic display.
MEMORY	Memory Clear Test Point	Clears data of various kinds stored in memory.
COM	COM Test Point	Ground used for memory clear.
TROUBLE	Trouble Reset Switch	Resets the following malfunction displays: Fusing system (C05XX), ROM contents failure detected upon start (C3FF)
SERVICE	Not used	

(1) Initialize Procedure

1. Turn OFF the Power Switch.
2. With the circuit across pins of PJ2 closed, turn ON the Power Switch.
3. In about 5 sec., open the PJ2 circuit.
4. Check that the message “Initialize Completed” is displayed on the PC screen and then click “END.”

(2) Memory Clear Procedure

1. Turn OFF the Power Switch.
2. With the circuit across TP1 and TP3 closed, turn ON the Power Switch.
3. In about 5 sec., open the circuit across TP1 and TP3.
4. Check that the message “Memory Clear Completed” is displayed on the PC screen and then click “END.”
5. The following types of data are cleared.

- Utility mode: Input, User's Choice 1/2
- Tech. Rep. mode: System Input, Administrator # Input
- Security mode: Counter Setting

NOTES

- *If the printer exhibits an erratic display or operation, unplug and plug in the power cord, turn OFF and ON the Power Switch, and then perform the following procedures in this order: Initialize → Memory Clear.*
- *Do not perform Memory Clear casually, as it clears the types of data mentioned above. If Memory Clear has been performed, be sure to make settings for the functions that have been cleared once again.*

---

(3) Data/Conditions Cleared by Reset Switches/Pins

Data Cleared \ Clearing Method		Front Door Open/ Close	Trouble Reset Switch	Initialize	Memory Clear
Misfeed display		❍	—	❍	❍
Malfunction display	Fusing C3FFF	—	❍	❍	❍
	Others	❍	❍	❍	❍
Erratic operation/display		—	❍	❍	❍
Utility Mode (Input, User's Choice:1,2)		—	—	—	❍
Tech. Rep. Mode (System Input, Administrator # Input)		—	—	—	❍
Security Mode (Counter Setting)		—	—	—	❍

❍: Cleared —: Not cleared

3. UTILITY MODE

3-1. Utility Mode Function Setting Procedure

<Procedure>
1. Set up the Service Jig.

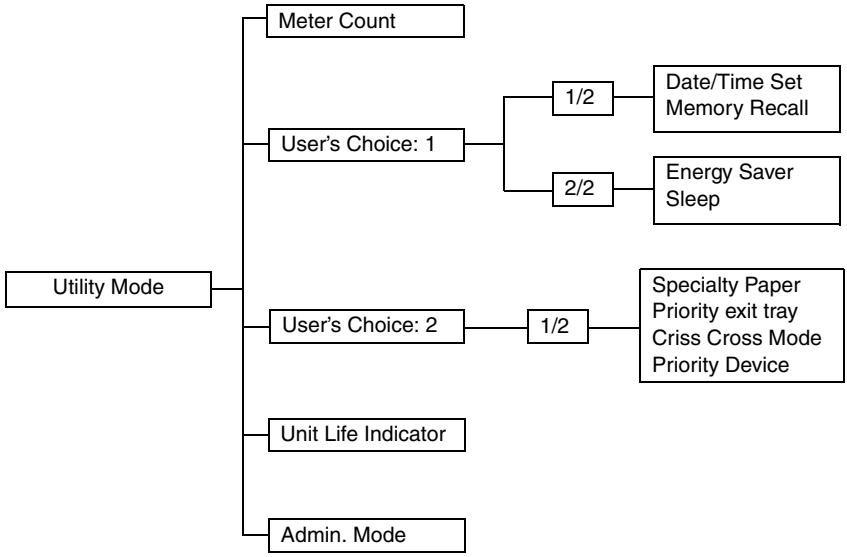
☞ See “Setting up the Service Jig.” (D-2)

2. Click the Utility key.
3. The Utility mode screen will appear.

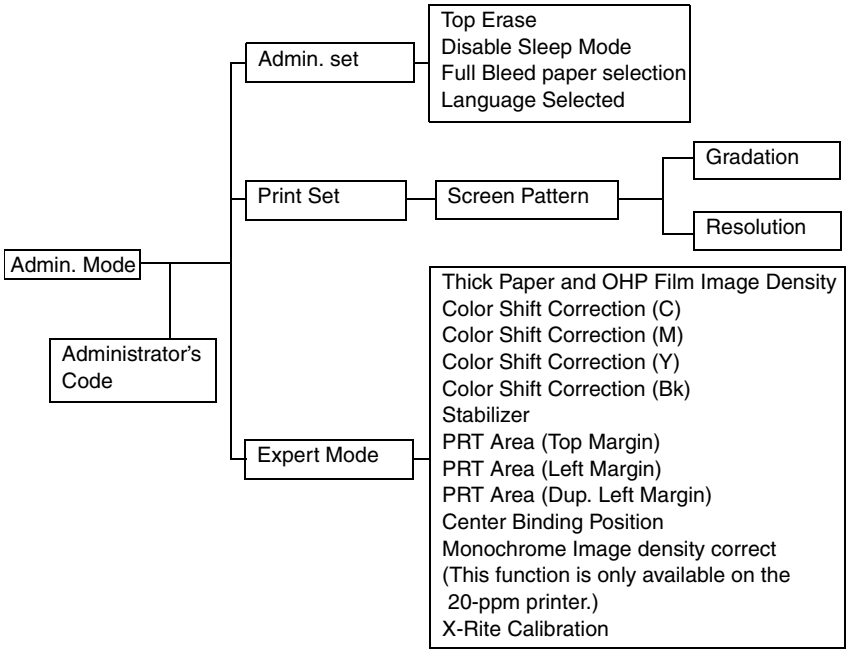
<Exiting>
- Click the Fin. Time key.

<Changing the Setting Value in Utility Mode Functions>
- Use the ID key to change the + sign to - sign, or vice versa.
- Use the Up/Down key to enter or change the setting value.
- Use the 10-Key Pad to enter the setting value. (To change the setting value, first click the Clear key before making an entry.)

3-2. Utility Mode Function Tree



(1) Administrator Mode Function Tree



3-3. Setting in the Utility Mode

Meter Count

Purpose	Setting/Precautions
To check the count of each counter or print a list of counters.	• To print the list, load the 1st Drawer with A4 lengthwise or Letter lengthwise paper. • The printer rejects the print cycle if the drawer is loaded with paper of any other size.

User's Choice: 1

<1/2>

Item	Purpose	Setting/Precautions
Date/Time Set	To set the time-of-day, date, and time zone and start the clock.	• The default setting is 00:00, January 1, 2000. • For the time zone, set the time difference from the Greenwich Mean Time.
Memory Recall	To select whether to permit recalling and copying of image data which has previously been subjected to a copy cycle.	The default setting is Yes. **Yes** No

<2/2>

Item	Purpose	Setting/Precautions
Energy Saver	To set the time it takes the printer to enter the Energy Saver mode after a print cycle has been completed or the last key operated.	• Use the 10-Key Pad to enter the time (10 to 240 min.). • The default setting is 15 min. **15 min** (10 to 240)
Sleep	To set the time it takes the printer to enter the Sleep mode after a print cycle has been completed or the last key operated. In the Sleep mode, only the 5-V line remains ON.	• Use the 10-Key Pad to enter the time (15 to 240 min.). • The default setting is 30 min. **30 min** (15 to 240) • The option of "No" becomes available only if "Yes" is selected for "Disable Sleep Mode" of the "Admin. Mode."

User's Choice: 2
<1/2>

Item	Purpose	Setting/Precautions
Specialty Paper	To set the paper type for the 2nd through 4th Drawers.	The default setting is Standard (plain paper). (Standard, High Quality Paper, Single Sided Only, Specialty)
Priority exit tray	Set the priority exit tray for each of the printer print, PC print, and the Internet Fax print. ✻ When the FN-116 is mounted	The default settings are as follows (as set with the corresponding number shown on the display). Internet: **3** (Option Tray) Print (PC print): **2** (Elevator Tray) Copy: **2** (Elevator Tray)
Criss Cross Mode	To select whether to enable or disable the crisscross sorting function that stacks sorted copy sets in a crisscross manner, i.e., one set stacked lengthwise on top of another set stacked cross-wise.	The default setting is Yes. **Yes** No
Priority Device	To set the print timing for the PC print jobs received.	The default setting is printer. **Printer**: After the reception of all data Printer: After the reception of data for each page

<2/2>
The corresponding Tab does exist, but no keys are displayed.

Unit Life Indicator

Purpose	Setting/Precautions
To check each unit for life.	• The life indicator of each unit is displayed. • Allows a list of counter counts to be printed.

Admin. Mode

- Entering the 4-digit administrator number set in the Tech. Rep. mode will allow you to enter the Admin. Mode (default value: 0000).

Admin. set

Item	Purpose	Setting/Precautions
Top Erase	To set the leading edge erase amount of the paper.	• The default setting is 5 mm. **5 mm** 7 mm
Disable Sleep Mode	To display the option of "No" for the Sleep setting screen available from User's Choice 1.	• The default setting is No. Yes **No**
Full Bleed paper selection	To establish the full bleed paper size.	• The default setting is 305 x 457 mm or 12 x 18. Metric areas: 311 x 457 mm **305 x 457 mm** Inch areas: 12-1/4 x 18 **12 x 18**
Language Selected	To select the language of the LCD display messages. The counter outputs will be produced in the language selected.	The language options depend on the marketing area selected in "Marketing Area" available from "System Input" under Tech. Rep. Mode.

Print Set

Item	Purpose	Setting/Precautions
Screen Pattern	To set the screen pattern for the PC print.	• The default setting is Gradation. **Gradation** Resolution

Expert Mode

Item	Purpose	Setting/Precautions
Thick Paper and OHP Film Image Density	To fine-adjust density of printed images of each color for thick paper and OHP transparencies.	The fine-adjustment can be made over a range of a total of five steps, two darker levels and two lighter levels around the standard central level. (This setting is not affected by image stabilizer control.)

Item	Purpose	Setting/Precautions
Color Shift Correction (C) Color Shift Correction (M) Color Shift Correction (Y) Color Shift Correction (Bk)	To make an automatic or manual correction of color shift.	(Automatic correction) • Pressing the Start key will let the printer produce a test pattern according to the current color shift condition. (Manual correction) • Check the test pattern for color shift amount in each of the X, Y, and θ directions, and fine-adjust using the Up/Down key. • Fine-adjust in X and Y directions for color shift of cyan, magenta, and yellow. • For color shift of black, adjust tilt in the black line on the leading edge in θ direction. ✻ Since the test pattern is produced on A3L or 11 × 17, or A4C or 8-1/2 × 11, the press of the Start key will not be accepted unless the paper source is loaded with any of these paper sizes (the Start key lighting up red).
Stabilizer	(Stabilizer Mode) The image stabilization sequence is carried without clearing the historical data of image stabilization control. ✻ When PRT Max Density, PRT Highlight, and Background Voltage Margin of Tech. Rep. mode are changed.	When the Start key is pressed, the image stabilization sequence is carried out with reference to the historical data.
	(Reset and Stabilizer Mode) The image stabilization control historical data is cleared and an image stabilization sequence is carried out. ✻ An abnormal value is recorded in the historical data due to a sudden extraneous light or other cause. ✻ If any unusual symptom is noted in gradation and density even after an image stabilization sequence.	When the Start key is pressed, the historical data is cleared and image stabilization sequence is carried out based on the initial values.

Item	Purpose	Setting/Precautions
PRT Area (Top Margin)	To vary the print start position in the FD direction for each of different paper types in the 1st Drawer.	• Select the appropriate position on the paper type setting dial according to the type of paper loaded in the 1st Drawer and press the Start key. • Check the test pattern and adjust so that the distance between the leading edge of the paper and the edge of the pattern falls within the range of 5 mm ± 0.5 mm. ✻ The adjustment range is -3.0 mm to +3.0 mm (in 0.2-mm increments).
PRT Area (Left Margin)	To vary the print start position in the CD direction for each paper source.	• Select the paper source and press the Start key. • Check the test pattern and adjust so that the void amount on the left edge of the paper falls within the range of 3 ± 0.5 mm. ✻ The adjustment range is -3.0 mm to +3.0 mm (in 0.2-mm increments).
PRT Area (Dup. Left Margin)	To vary the print start position in the CD direction for each paper source in the 2-Sided mode.	• Select the paper source and press the Start key. • Check the test pattern and adjust so that the void amount on the left edge of the paper falls within the range of 3 ± 0.5 mm. • Take measurements of the pattern on the backside of the paper. ✻ The adjustment range is -3.0 mm to +3.0 mm (in 0.2-mm increments).
Center Binding Position	To adjust the positions of center staple and folding for the Finisher.	Adjust each of the center staple position and folding position independently of each other. ✻ The adjustment range is -7.0 mm to +7.0 mm (in 1-mm increments).
Monochrome Image density correct (This function is only available on the 20-ppm printer.)	To fine-adjust the image density for black prints.	The fine-adjustment can be made over a range of a total of five steps, two darker levels and two lighter levels around the standard central level. (This setting is not affected by image stabilizer control.)

Item	Purpose	Setting/Precautions
X-Rite Calibration	To correct gradation after the setup procedure has been completed or when color reproduction performance is poor.	• Click the Start key to produce an output of a test pattern. • Let X-Rite read the test pattern and, comparing the output value against the input value, correct gradation. ☞ For details, see “DIS/REASSEMBLY, ADJUSTMENT.” (D-6)

4. TECH. REP. MODE

4-1. Calling the Tech. Rep. Mode to Screen

NOTE

- *Ensure appropriate security for Tech. Rep. mode function setting procedures. They should never be known to any unauthorized person not involved with service jobs.*

<Procedure>

1. Set up the Service Jig.

☞ See “Setting up the Service Jig.” (D-2)

2. Click the Utility key.
3. Click the Meter Count key.
4. Click the following keys in this order.
   Stop → 0 → 0 → Stop → 0 → 1
5. The Tech. Rep. Mode menu will appear.

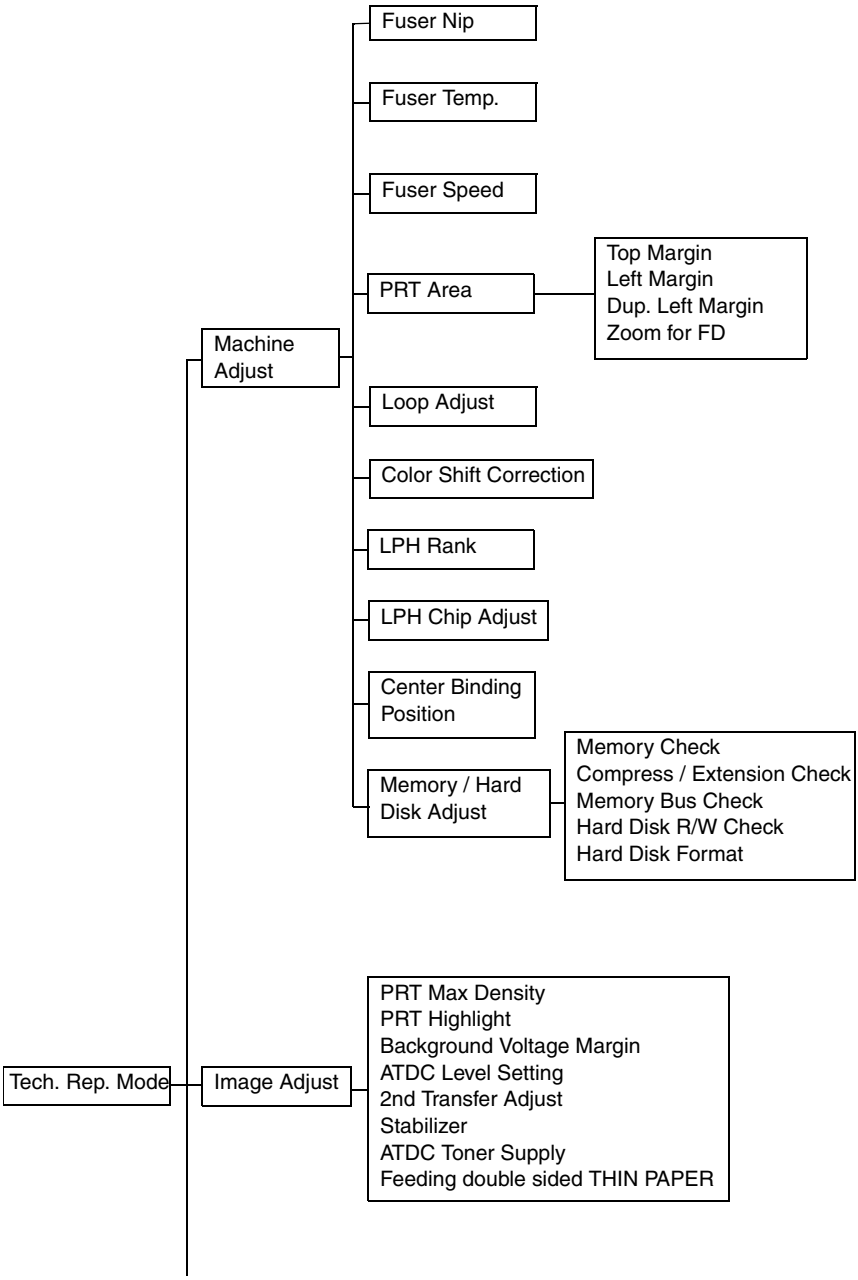
<Exiting>

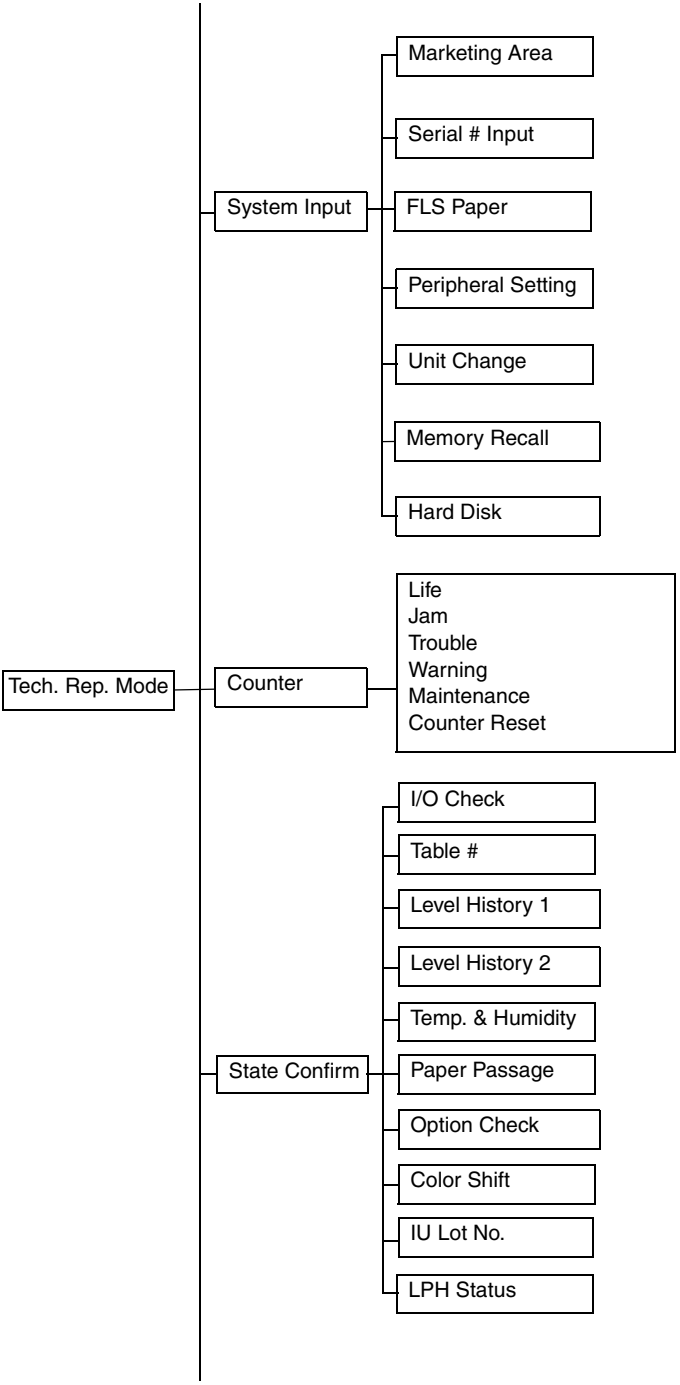
- Click the Fin. Time key.

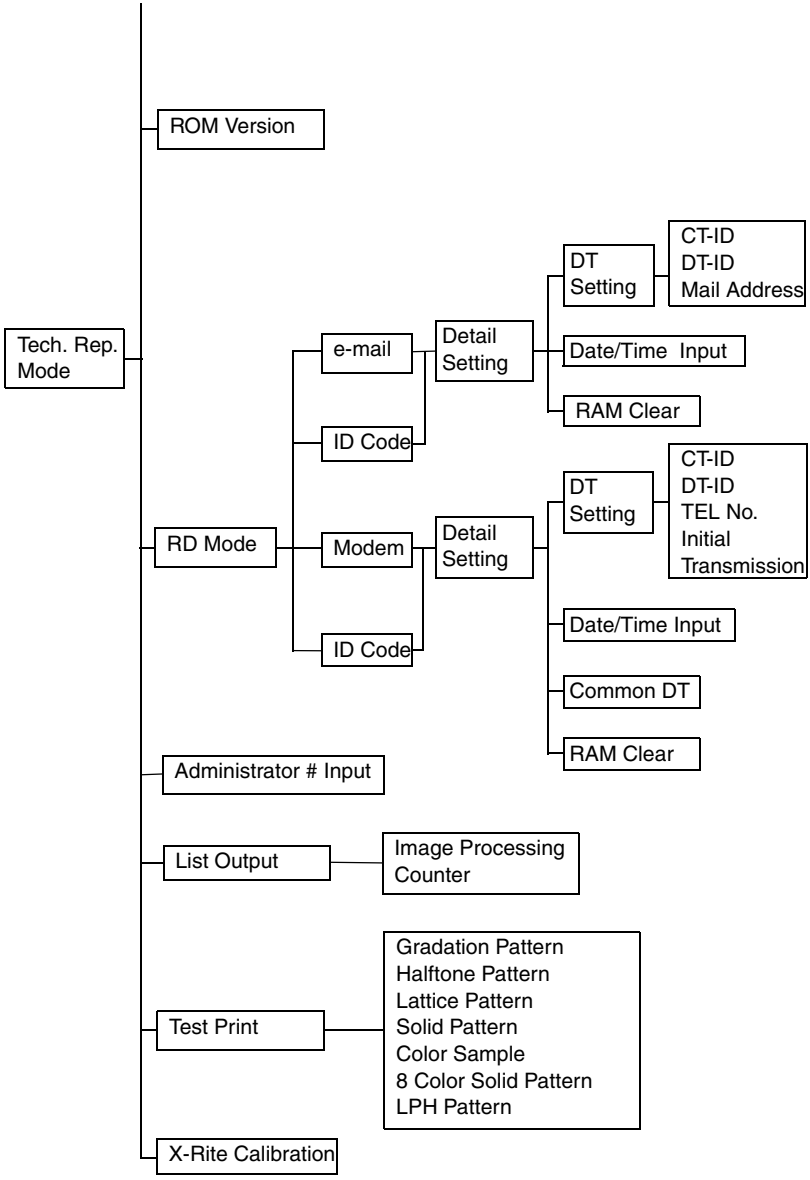
<Changing the Setting Value in Tech. Rep. Mode Functions>

- Use the ID key to change the + sign to - sign, or vice versa.
- Use the Up/Down key to enter or change the setting value.
- Use the 10-Key Pad to enter the setting value. (To change the setting value, first click the Clear key before making an entry.)

4-2. Tech. Rep. Mode Function Tree




Tech. Rep. Mode
System Input
Marketing Area
Serial # Input
FLS Paper
Peripheral Setting
Unit Change
Memory Recall
Hard Disk
Counter
Life
Jam
Trouble
Warning
Maintenance
Counter Reset
State Confirm
I/O Check
Table #
Level History 1
Level History 2
Temp. & Humidity
Paper Passage
Option Check
Color Shift
IU Lot No.
LPH Status


Tech. Rep. Mode
ROM Version
RD Mode
e-mail
ID Code
Modem
ID Code
Detail Setting
Detail Setting
DT Setting
Date/Time Input
RAM Clear
DT Setting
Date/Time Input
Common DT
RAM Clear
CT-ID
DT-ID
Mail Address
CT-ID
DT-ID
TEL No.
Initial Transmission
Administrator # Input
List Output
Image Processing Counter
Test Print
Gradation Pattern
Halftone Pattern
Lattice Pattern
Solid Pattern
Color Sample
8 Color Solid Pattern
LPH Pattern
X-Rite Calibration

4-3. Setting in the Tech. Rep. Mode

Machine Adjust

Item	Purpose	Setting/Precautions
Fuser Nip	To check the Fusing Roller nip width. ✻ When a fusing failure occurs. ✻ When a blurred image or brush effect occurs.	• Press the Start key, which produces a test print. • Check that the fusing roller nip width measures 9 ± 0.5 mm.
Fuser Temp.	To adjust individually the temperature of the Heating Roller and the Fusing Pressure Roller for each type of paper, thereby coping with varying fusing performance under changing environmental conditions. ✻ When a fusing failure occurs. ✻ When an offset occurs.	• Adjust for each paper type. • Increase the set temperature for a fusing failure and decrease the set temperature for an offset.
Fuser Speed	• To adjust the speed of the Fusing Drive Motor so as to match the fusing speed with transport speed. • Make the adjustment for each paper type. ✻ Brush effect ✻ Blurred image	• A brush effect will occur at the trailing edge if the fusing speed is faster than the transport speed. • A blurred image will occur on both edges at around the center if the fusing speed is slower than the transport speed. • 135 mm/s: plain paper • 90 mm/s: plain paper (This function is only available on the 20-ppm printer.) • 60 mm/s: OHP transparencies, thick paper 1, thick paper 2, thick paper 3, envelope • Variable range: -2 % to +2 % (in 0.1 % increments)

Item		Purpose	Setting/Precautions
PRT Area	Top Margin	To vary the print start position in the FD direction for each of different paper types in the 1st Drawer. ✻ When the LPH Unit is replaced with a new one. ✻ When the paper type is changed. ✻ When the image on the print deviates in the FD direction.	• Select the appropriate position on the paper type setting dial according to the type of paper loaded in the 1st Drawer and press the Start key. • Check the test pattern and adjust so that the distance between the leading edge of the paper and the edge of the pattern falls within the range of 5 or 7 ± 1.0 mm. • Follow the same procedure to adjust for thick paper and OHP transparencies. ✻ The adjustment range is -3.0 mm to +3.0 mm (in 0.2-mm increments).
	Left Margin	To vary the print start position in the CD direction for each paper source. ✻ When the image on the print deviates in the CD direction. ✻ When an add-on cassette is mounted or the LPH Unit is replaced with a new one.	• Select the paper source and press the Start key. • Check the test pattern and adjust so that the void amount on the left edge of the paper falls within the range of 3 ± 0.5 mm. ✻ The adjustment range is -3.0 mm to +3.0 mm (in 0.2-mm increments).
	Dup. Left Margin	To vary the print start position in the CD direction for each paper source in the 2-Sided mode. ✻ When the Duplex Unit is set up. ✻ When the image on the backside of a 2-sided print deviates in the CD direction.	• Select the paper source and press the Start key. • Check the test pattern and adjust so that the void amount on the left edge of the paper falls within the range of 3 ± 1.0 mm. • Take measurements of the pattern on the backside of the paper. ✻ The adjustment range is -3.0 mm to +3.0 mm (in 0.2-mm increments).
	Zoom for FD	To synchronize the paper transport speed with the image writing speed. ✻ When the image on the print is stretched in the FD direction.	• Select the appropriate position on the paper type setting dial according to the type of paper loaded in the 1st Drawer and press the Start key. • Check the test pattern and adjust so that the pattern width falls within the range of 8.13 ± 0.2 mm. • Follow the same procedure to adjust for thick paper and OHP transparencies. ✻ The adjustment range is -10 to +10 (in 0.2-mm increments).

Item	Purpose	Setting/Precautions
Loop Adjust	To adjust the length of the loop formed in paper before the Synchronizing Rollers. ✻ When a paper skew occurs. ✻ When a paper misfeed occurs.	• Adjust for each of the drawers, Manual Bypass Table, and Duplex Unit. • Adjust also for each of different transport speeds. ✻ 135 mm/s: -6 to +6 ✻ 90 mm/s: -10 to +10 (CF2002 printer only) ✻ 60 mm/s: -15 to +15 • Use “Paper Passage” for paper passage check.
Color Shift Correction	To automatically or manually correct color shift, if any occurs. ✻ When color shift occurs. ✻ When leading edge skew occurs. ✻ When the LPH Assembly (Bk) is replaced.	(Automatic correction) Press the Start key, which lets the printer produce a test pattern that represents the current color shift condition. (Manual correction) • Check the test pattern for color shift amount in each of the X, Y, and θ directions, and fine-adjust using the Up/Down key. • Fine-adjust in X and Y directions for color shift of cyan, magenta, and yellow. • For color shift of black, adjust only in θ direction. ✻ Since the test pattern is produced on A3L or 11 × 17, or A4C or 8-1/2 × 11, the press of the Start key will not be accepted unless the paper source is loaded with any of these paper sizes (the Start key lighting up red).
LPH Rank	Factory adjustment	
LPH Chip Adjust	To correct intensity between LPH chips. ✻ When a white line or black line occurs in the FD direction. ✻ When the LPH Unit is replaced. ✻ When the LPH Assemblyy is replaced.	• Let the printer produce “LPH Pattern” of “Test Print” and correct intensity between chips, in which the FD white line or black line occurs. • Standard: 4 • FD white line: Increase the setting value. • FD black line: Decrease the setting value.
Center Binding Position	To adjust the positions of center staple and folding for the Finisher. ✻ When the center staple position deviates from the folding position in Booklet Creation + Bound Booklet.	Adjust each of the center staple position and folding position independently of each other. ✻ The adjustment range is -7.0 mm to +7.0 mm (in 1-mm increments).

Item		Purpose	Setting/Precautions
Memory / Hard-Disk Adjust	Memory Check	To check correspondence of data written to and that read from memory through write/read check. ✻ If the print image is faulty.	• Clicking the Start key will automatically start a memory check sequence. As soon as the sequence is completed, the result of the check will be displayed. • If the check result is NG, check the memory for proper connection or change it. <Rough Check> A check is made to see if the image data reading and writing are correctly made in the very limited area. <Detail Check> A check is made to see if the image data reading and writing are correctly made at the addresses and buses in all area. The progress of the check sequence is displayed in percentage.
	Compress / Extension Check	To check whether compression and decompression are carried out properly. ✻ If the print image is faulty.	• Clicking the Start key will automatically start to complete a compression/decompression check sequence. • The check result will be displayed “OK” or “NG.”
	Memory Bus Check	To check to see if image data is correctly transferred from IR to memory, and from memory to printer. ✻ If the print image is faulty.	• Select either “IR → Memory,” “Memory → PRT,” or both. • Clicking the Start key will start the memory bus check and be terminated automatically. • The check result will be displayed “OK” or “NG.”
	Hard Disk R/W Check	To check to see if the hard disk is connected properly, and if read/write operation of the hard disk is correctly performed. ✻ When the hard disk is mounted.	• Clicking the Start key will start the hard disk R/W check sequence and be terminated automatically. • The check result will be displayed “OK” or “NG.”
	Hard Disk Format	To format the hard disk. ✻ When the hard disk is mounted. ✻ When the hard disk is to be initialized.	• Clicking the Start key will start the hard disk formatting sequence and be terminated automatically. • The operation sequences from physical format to logical format. • All data in the hard disk will be erased. • The check result will be displayed “OK” or “NG.”

Image Adjust

Item	Purpose	Setting/Precautions
PRT Max Density	To adjust gradation, color, and image density to target reproduction levels by varying the maximum amount of toner sticking to paper through auxiliary manual fine-adjustment of γ of each color after X-Rite Calibration. ✻ If X-Rite Calibration does not allow the target reproduction level to be achieved.	If the setting value has been changed, be sure to run an image stabilization sequence to make valid the new value. ✻ The adjustment range is -10 to +10 (in 0.03 mg/cm^2 increments).
PRT Highlight	To adjust the highlight portion (fog level) to the target reproduction level by making an auxiliary manual fine-adjustment of γ of each color after X-Rite Calibration. ✻ If X-Rite Calibration does not allow the target reproduction level to be achieved.	If the setting value has been changed, be sure to run an image stabilization sequence to make valid the new value. ✻ The adjustment range is -10 to +10 (in 1-gradation-level increments).
Background Voltage Margin	To make an auxiliary adjustment of the background voltage margin setting value after X-Rite Calibration. ✻ When a foggy background occurs.	If the setting value has been changed, be sure to run an image stabilization sequence to make valid the new value. ✻ The adjustment range is -5 to +5.
ATDC Level Setting	To adjust the T/C control level when an abnormal image density occurs as a result of a change in the amount of charge of toner and carrier due to an environmental change. ✻ Use appropriately according to the operating environment of the user.	The central value of 0 corresponds to 5% of T/C (in 0.5% increments). ✻ The adjustment range is -3 to +3.
2nd Transfer Adjust	To fine-adjust the second transfer output (ATVC) for the first side and the second side, respectively. ✻ When an image transfer failure occurs at the trailing edge (of plain paper).	• Variable range: -5 to +5 (-500 V to +500 V) • Less foggy setting: Increase the setting value. • Foggier setting: Decrease the setting value.

Item	Purpose	Setting/Precautions
Stabilizer	• Stabilizer To run an image stabilization sequence without clearing the historical data of image stabilization control. ✻ When PRT Max Density, PRT Highlight, or Background Voltage Margin has been changed.	Clicking the Start key will let the printer run an image stabilization sequence with reference to the historical data. (This is the same as that which is run when the Power Switch is turned ON except that no color shift adjustment is made.)
	• Reset + Stabilizer To run an image stabilization sequence by initializing the historical data of image stabilization control. ✻ If gradation and max. density are faulty even after a Stabilizer has been run.	Clicking the Start key will let the printer clear the historical data of the image stabilization control and run an image stabilization sequence based on the default settings.
ATDC Toner Supply	To adjust the set T/C level by replenishing an auxiliary supply of toner when a low ID occurs due to a lowered T/C after large numbers of prints have been made of originals having a high image density. ✻ When there is a drop in T/C.	• Clicking the Start key will let the printer detect the current toner density and; if the density is lower than a reference value, a toner replenishing sequence and then a developer agitation sequence are run. • These sequences are repeated up to a maximum of four times until the toner density reaches the reference value. If the toner density is found to be higher than the reference value, only a developer agitation sequence is carried out.
Feeding double sided THIN PAPER	Turn this function ON when thin paper (64 g/m2) is used in an ambience of high temperature and high humidity in the 2-sided mode. It decreases the transfer output value so as to prevent a paper misfeed from occurring.	The default setting is OFF. ON **OFF**

System Input

Item	Purpose	Setting/Precautions
Marketing Area	To make the various settings (language, paper size, fixed zoom ratios, etc.) according to the applicable marketing area. ✻ Upon setup	Select the applicable marketing area and touch "END" to set the marketing area. MSJ **MC** ME
Serial # Input	To register the serial numbers of the printer and options. The numbers will be printed on the list output. ✻ Upon setup.	• The data is loaded at the timing when the Power Switch is turned OFF and ON after the serial number has been entered by 10-key pad and "OK" has been clicked on the "Serial # Input" screen.
FLS Paper	To set the size for FLS paper. ✻ Upon setup. ✻ When the FLS paper size is changed.	Select the size from among the following four. F: 330.2 mm **F: 330 mm** F: 330.2 mm F: 330 mm C: 203.2 mm **C: 210 mm** C: 215.9 mm C: 220 mm
Peripheral Setting	To set the type of the controller. ✻ When setting up the controller	See the Setup Instructions for the Controller.
Unit Change	• To select who is to replace a unit. • When the unit life arrives, the warning display is intended for the specific person who is going to replace the unit. • When "User" is selected: Copying is inhibited. • When "Service" is selected: Life warning. ✻ Upon setup	The following are the default settings: Toner Cartridge : User Waste Toner Bottle : Service Fusing Unit : Service Imaging Unit : Service Transfer Roller Unit : Service Paper Powder Filter/Ozone Filter : Service Punch Scraps Box : Service

Item	Purpose	Setting/Precautions
Memory Recall	To select whether to display the option of “Memory Recall” for “User's Choice 1” of “Utility.”	The default setting is Enable. **Enable** Disable
Hard Disk	To configure the printer as necessary when a hard disk is mounted.	The default setting is Unset. Set **Unset**

Counter

- To clear the counts of two or more counters within a group or across different groups at once, touch “Counter Reset,” select the specific counters to be cleared, and touch “END.” Two or more counters can be selected.

Item	Purpose	Setting/Precautions
Life	To check the number of hours or times each of the different maintenance parts has been used or to clear the count of each counter. ✻ When each of the maintenance parts is replaced.	• To clear the count of a counter, select the specific part and click the Clear key. • If a counter is cleared mistakenly, click the Interrupt key, which will undo the clearing operation. • It is not possible to clear the count of the counters for the Fusing Unit and IU, which are provided with a new unit detection function. <1> • Fusing Unit: Number of times a sheet of paper is fed through • Transfer Roller Unit: Number of times a sheet of paper is fed through • Transfer Belt Unit: Number of times a sheet of paper is fed through ✻ The number of prints made (A) is compared with the number of hours through which the unit has been energized translated to the equivalent number of prints made (B) and (A) or (B), whichever reaches the life value, is detected. • Paper Powder Filter/Ozone Filter: Number of times a sheet of paper is fed through • 1st.: Number of sheets of paper fed from the 1st Drawer • 2nd.: Number of sheets of paper fed from the 2nd Drawer • 3rd.: Number of sheets of paper fed from the 3rd Drawer • 4th.: Number of sheets of paper fed from the 4th Drawer

Item	Purpose	Setting/Precautions
Life	To check the number of hours or times each of the different maintenance parts has been used or to clear the count of each counter. ✻ When each of the maintenance parts is replaced.	<2> • Cyan IU: Period of time over which the Cyan Developing Unit has been used. • Magenta IU: Period of time over which the Magenta Developing Unit has been used. • Yellow IU: Period of time over which the Yellow Developing Unit has been used. • Black IU: Period of time over which the Black Developing Unit has been used. ✻ The period of time over which the PC Drum has been turned (A) is compared with the period of time over which the Developing Roller has been rotated translated to the period of time over which the PC Drum has been turned (B) and (A) or (B), whichever reaches the life value, is detected. • LCC Parts 1: Number of sheets of paper fed from the LCC • LCC Parts 2: Number of sheets of paper fed from the LCC • ADF Feed: Number of sheets of paper fed through the take-up section of the ADF • ADF Rev.: Number of sheets of paper fed through the turnover unit of the ADF • Sorter/Finisher: Number of sheets of paper fed out of the Sorter/Finisher • Staple: Number of stapling sequences performed • Punch: Number of hole-punch sequences performed • Paper Fold: Number of folding sequences performed
Jam	To check the number of misfeeds that have occurred at different locations in the printer or to clear the count of each counter.	• To clear the count of a counter, select the specific part and click the Clear key. • If a counter is cleared mistakenly, click the Interrupt key, which will undo the clearing operation.
Trouble	To check the number of malfunctions that have occurred at different locations in the printer or to clear the count of each counter.	• To clear the count of a counter, select the specific part and click the Clear key. • If a counter is cleared mistakenly, click the Interrupt key, which will undo the clearing operation.

Item	Purpose	Setting/Precautions
Warning	To check the number of warning conditions detected according to the warning type or to clear the count of each counter.	• To clear the count of a counter, select the specific part and click the Clear key. • If a counter is cleared mistakenly, click the Interrupt key, which will undo the clearing operation. • When a warning condition occurs, an oil mark appears at the lower left corner of the Basic screen. • Touching the oil mark will display the warning code screen.
Maintenance	To set a count value for maintenance of any given part. ✻ When any given part is replaced.	<Maint.-Set> • Enter the maintenance counter value from the 10-Key Pad. <Maint.-Count> • Counts up when a sheet of paper is fed through the printer. Clicking the Clear key will clear the count. • If the count is cleared mistakenly, click the Interrupt key, which will undo the clearing operation.
Counter Reset	To reset the counts of all counters at once.	To reset the counters, click the “Counter Reset” key and then “OK.”

State Confirm

Item	Purpose	Setting/Precautions
I/O Check	To display the states of the input ports of sensors and switches when the printer remains stationary. ✻ Used for troubleshooting when a malfunction or a misfeed occurs.	• The operation of each of the switches and sensors can be checked on a real-time basis. • It can be checked as long as the 5-V power line remains intact even when a cover is open.
Table #	To display the Vg/Vb output values calculated for the image density of the test pattern (amount of toner sticking) produced on the Transfer Belt during an AIDC detection sequence. ✻ Used for troubleshooting of image problems.	• Reference values C, M, Y, Bk ... Vb: around 400 V Vg: around 550 V ✻ The higher the humidity, the lower these values, and the lower the humidity, the higher these values.
Level History 1	To display ATDC (T/C ratio), AIDC/Regist Sensor output values, and fusing temperature. ✻ Used for troubleshooting of image problems.	• AIDC: Shows the AIDC bare surface output reading taken last. • ATDC, fusing temperature: Shows the latest ATDC and fusing temperature data. • When a test print is produced by clicking the Start key while Level History 1 is being displayed.
Level History 2	To display the intensity adjustment value of the AIDC Sensor (Transfer Belt bare surface level) as adjusted through the image stabilization sequence and ATVC value. ✻ Used for troubleshooting of image problems.	• AIDC Sensor: Shows the intensity adjustment value (0 to 255) of the AIDC Sensor. • ATVC (C, M, Y, Bk): Shows the first image transfer ATVC adjustment value (400 V to 3000 V). • ATVC (2nd): Shows the second image transfer ATVC adjustment value (300 V to 5000 V).
Temp. & Humidity	To display the temperature and humidity of a specific location (AIDC Sensor portion) inside the printer and fusing temperature. ✻ Used as reference information when a malfunction occurs.	• Printer interior temperature: 0 to 100 °C in 1 °C increments • Temperature on Fusing Belt side: 0 to 255 °C in 1 °C increments • Temperature on fusing pressure side: 0 to 255 °C in 1 °C increments • Printer interior humidity: 0 to 100% in 1% increments • Absolute humidity: 0 to 100 g/cm^3 in 1-g/cm^3 increments

Item	Purpose	Setting/Precautions
Paper Passage	• To check for paper passage performance of the engine only without involving a print action on paper. • The counters do not count up. ✻ When a paper misfeed or other fault occurs in the paper transport system.	• Select the paper source and click the Start key. • The sequence is halted when the Stop key is clicked or paper runs out.
Option Check	To check the capacity of the add-on memory and mounting of a hard disk. ✻ Used when the 2-sided printing function cannot be selected after an add-on memory has been set up.	When an add-on memory is mounted, the printer automatically recognizes it and displays its capacity.
Color Shift	• To check each of C, M, Y, and Bk for color shift amount. • The data is updated after a color shift correction has been made or color shift adjustment has been completed.	• For each of C, M, Y, and Bk, the color shift amount (in X and Y directions) at two locations (one at the front and the other in the rear) and the difference in color shift amount between the front and rear (X and Y directions) are displayed. • Display unit: dots • The shift amount is displayed with reference to Bk for C, M, and Y, and that for Bk is displayed with reference to an ideal position.
IU Lot No.	• To display the 10-digit lot number for each of C, M, Y, and Bk IUs. • The lot number data is stored in EEPROM of each IU.	The IU lot number is displayed even with the Front Door opened; however, the display is blank, since the printer is unable to read the lot number when the Power Switch is turned ON with the Front Door open. Nonetheless, the lot number will be displayed when the Front Door is closed. (The engine obtains the IU lot number information when the Front Door is closed.)

Item	Purpose	Setting/Precautions
LPH Status	To check various information on each of the C, M, Y, and Bk LPHs.	• LPH Lot No.: LPH lot number (10 digits) • Average Exposure: Average light intensity • X: Print width accuracy • Y: Linearity accuracy • Z: Focus accuracy • FFT Rank: Print width rank • LPH Rank: 0 to 5 ✻ If any one change is made from the default value as a result of LPH chip-to-chip corrections, an asterisk "✻" is displayed beside the color identification (C, M, Y, and Bk) on the screen.

ROM Version

Purpose	Setting/Precautions	
To check the ROM version. ✻ When the firmware is upgraded or PWB is replaced.	<1>	
	MSC/PANEL	PWB-F
	MSC Subset	PWB-F
	Message	PWB-F
	Mecha/PIC	PWB-PIC
	IR	PWB-C
	I.P	PWB-PIC
	ADF	PWB-A
	Sorter/Finisher	PWB-A
	<2>	
	Controller	Controller Board
	Controller Subset	Controller Board
	Font	PWB-F

RD Mode

- Make the settings necessary when a Data Terminal is mounted. (For details, see Service Manual for Data Terminal.)

Item	Purpose	Setting/Precautions
e-mail / Modem	To select the type of the RD system.	Select either “e-mail” or “Modem.”
ID Code	To register the Tech. Rep. ID code and perform a maintenance start transmission.	Enter a 7-digit code from the 10-Key Pad (0000001 to 9999999). <Registration> When the ID code is entered, it is registered. <Maint. Start> Touch the ID Code Key.
DT Setting	To make the DT setting and perform the initial transmission.	<DT Setting> Set “Password,” “DT-ID,” and “TEL No.” ✻ When “e-mail” is selected for the ID Setting, TEL No. is the e-mail address. <Initial Transmission> Click the Initial Transmission key to execute the initial transmission to the Center and the printer equipped with the Data Terminal is registered with the Center (only if “Modem” is selected for “System Selection”).
Date/Time Input	To set the date and time-of-day.	Enter the date (month, day, and year) and time-of-day from the 10-Key Pad. Clicking the Set key will start the clock.
Common DT	To set tone or pulse and automatic reception.	The default settings are tone and disable automatic reception.
RAM Clear	To clear the data for the Center.	• The following types of data are cleared: ID Code, DT Setting, Date/Time Input, and Common DT.

Administrator # Input

Purpose	Setting/Precautions
To register the administrator number for entering the Admin. Mode of Utility. ✻ Upon setup	Enter a 4-digit number from the 10-Key Pad.

List Output

Item	Purpose	Setting/Precautions
Image Processing	To produce an output of a list of setting values, adjustment values, Total Counter values, and others. ✻ At the end of setup or when a malfunction occurs.	• Click the Start key, which will let the printer produce the list. • The paper used is letter-R plain paper and the paper source is the 1st Drawer. • Data printed is in English (alphanumeric characters). • The time-of-day and date will also be printed.
Counter	To produce an output of a list of counts of various counters. ✻ At the end of setup or when a malfunction occurs.	

Test Print

- To check for image on the printer side by letting the printer produce various types of test pattern.
- The printer searches through the paper sources in the order of the 2nd Drawer, 3rd Drawer, 4th Drawer, and 1st Drawer for paper of the maximum size for printing.

Item	Purpose	Setting/Precautions
Gradation Pattern	To produce a gradation pattern. ✻ Used for checking gradation reproducibility.	• Select **SINGLE** (single print) or MULTI (multi print). • Select FEET or **HYPER**. • Select **Gradation** or Resolution. • Select the color mode. ✻ Black (4PC): Uses four colors. ✻ Black (1PC): Uses one color of black.
Halftone Pattern	To produce a solid halftone pattern. ✻ Used for checking uneven density and pitch noise.	• Select **SINGLE** (single print) or MULTI (multi print). • Select FEET or **HYPER**. • Select **Gradation** or Resolution. • Select the color mode. ✻ Black (4PC): Uses four colors. ✻ Black (1PC): Uses one color of black. • Type the density level (0 to 255).
Lattice Pattern	To produce a lattice pattern. ✻ Used for checking fine line reproducibility and uneven density. A reverse pattern is also used to check for fine line reproducibility of white letters on a solid background.	• Select **SINGLE** (single print) or MULTI (multi print). • Select **FEET** or HYPER. • Select the color mode. ✻ Black (4PC): Uses four colors. ✻ Black (1PC): Uses one color of black. • Enter CD width and FD width (0 to 191 dots). • Type the density level (0 to **255**). • Select **Normal** or Reverse.
Solid Pattern	To produce each of the C, M, Y, and Bk solid patterns. ✻ Used for checking reproducibility of image density.	• Select **SINGLE** (single print) or MULTI (multi print). • Select FEET or **HYPER**. • Select **Gradation** or Resolution. • Type the density level (0 to **255**).
Color Sample	To produce a color sample. ✻ Used for checking reproducibility of each of the different colors.	Select **SINGLE** (single print) or MULTI (multi print). ✻ A color sample is produced that contains patches of C, M, Y, K, R, G, and B in 12 gradation levels and patches of the 12 reference colors of the color wheel with the saturation and lightness levels varied.

Item	Purpose	Setting/Precautions
8 Color Solid Pattern	To produce an 8-color solid pattern. ✻ Used for checking color reproducibility and uneven density of each color.	• Select **SINGLE** (single print) or MULTI (multi print). • Select FEET or **HYPER**. • Select **Gradation** or Resolution. • Type the density level (0 to **255**).
LPH Pattern	To produce an LPH pattern. ✻ Used for LPH chip-to-chip correction	• Select **SINGLE** (single print) or MULTI (multi print). • Select FEET or **HYPER**. • Select **Gradation** or Resolution. • Select to turn ON or **OFF** the Border Line.

X-Rite Calibration

Purpose	Setting/Precautions
• To correct gradation after the setup procedure has been completed or when color reproduction performance is poor. • When the IU has been replaced. • When the Transfer Belt Unit has been replaced.	• Click the Start key to produce an output of a test pattern. • Let X-Rite read the test pattern and, comparing the output value against the input value, correct gradation. ☞ For details, see “DIS/REASSEMBLY, ADJUSTMENT.” (D-6)

5. SECURITY MODE

5-1. Security Mode Function Setting Procedure

<Procedure>
1. Set up the Service Jig.

☞ See “Setting up the Service Jig.” (D-2)

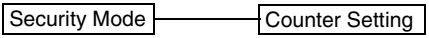
2. Call the Tech. Rep. Mode to screen.

☞ See “Calling the Tech. Rep. Mode to Screen.” (S-18)

3. Click the following keys in this order.
   Stop → 9
4. Security Mode menu will appear.

<Exiting>
- Click the “Fin. Time” key.

5-2. Security Mode Function Tree



5-3. Settings in the Security Mode

Counter Setting

<table>
<tr><th>Purpose</th><th>Setting/Precautions</th></tr>
<tr><td>To set the counting method for the Total Counter and Size Counter.</td><td><Total Counter>
Mode 1: 1 print per 1 print cycle (Default: U.S.A. and Canada)
Mode 2: Double count-up according to paper size and printing mode (Default: Europe)

<Size Counter>
• Not counted (Default: U.S.A. and Canada)
• A3 and 11 × 17
• A3, B4, 11 × 17, and Legal
• A3, B4, FLS, 11 × 17, 11 × 14, and Legal (Default: Europe)

✻ Count-up Table
<table>
<tr><td>Copying</td><td colspan="4">1-Sided</td><td colspan="4">2-Sided</td></tr>
<tr><td>Size</td><td colspan="2">Sizes other than those specified</td><td colspan="2">Specified sizes</td><td colspan="2">Sizes other than those specified</td><td colspan="2">Specified sizes</td></tr>
<tr><td rowspan="2">Total</td><td colspan="2">Mode</td><td colspan="2">Mode</td><td colspan="2">Mode</td><td colspan="2">Mode</td></tr>
<tr><td>1</td><td>2</td><td>1</td><td>2</td><td>1</td><td>2</td><td>1</td><td>2</td></tr>
<tr><td>Total</td><td>1</td><td>1</td><td>1</td><td>2</td><td>2</td><td>2</td><td>2</td><td>4</td></tr>
<tr><td>Size</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>2</td><td>2</td></tr>
<tr><td>2-sided Total</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
</table>
0: No count; 1: 1 count; 2: 2 counts; 3: 3 counts; 4: 4 counts</td></tr>
</table>

TROUBLESHOOTING

NOTE

- *For the malfunction codes and paper misfeeds, see TROUBLESHOOTING of Service Manual for CF3102/2002 copier.*

1. INTRODUCTION

1-1. Checking the electrical components

<Procedure>

1. Check cables for proper connection (to see if any is disconnected or left loose).
2. Using the External Panel Controller, run Test Print of the Tech. Rep. mode.
3. If an image quality problem occurs, the fault is on the printer (engine) side.
4. If there is no image quality problems occurring, the fault is on the controller side.

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

MINOLTA Co.,Ltd.

7661-4025-51 03010500