Service Manual

CD 1025 1035

Service Manual

DC 2025 2035

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.

CAUTION

Double-pole/neutral fusing.

Safety precautions

This booklet provides safety warnings and precautions for our service personnel to ensure the safety of their customers, their machines as well as themselves during maintenance activities. Service personnel are advised to read this booklet carefully to familiarize themselves with the warnings and precautions described here before engaging in maintenance activities.

Safety warnings and precautions

Various symbols are used to protect our service personnel and customers from physical danger and to prevent damage to their property. These symbols are described below:

⚠**DANGER**: High risk of serious bodily injury or death may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

⚠**WARNING**:Serious bodily injury or death may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

⚠**CAUTION**: Bodily injury or damage to property may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

Symbols

The triangle (△) symbol indicates a warning including danger and caution. The specific point of attention is shown inside the symbol.

 General warning.

 Warning of risk of electric shock.

 Warning of high temperature.

⃠ indicates a prohibited action. The specific prohibition is shown inside the symbol.

 General prohibited action.

 Disassembly prohibited.

● indicates that action is required. The specific action required is shown inside the symbol.

 General action required.

 Remove the power plug from the wall outlet.

 Always ground the copier.

1. Installation Precautions

⚠ WARNING

- Do not use a power supply with a voltage other than that specified. Avoid multiple connections to one outlet: they may cause fire or electric shock. When using an extension cable, always check that it is adequate for the rated current. .....

- Connect the ground wire to a suitable grounding point. Not grounding the copier may cause fire or electric shock. Connecting the earth wire to an object not approved for the purpose may cause explosion or electric shock. Never connect the ground cable to any of the following: gas pipes, lightning rods, ground cables for telephone lines and water pipes or faucets not approved by the proper authorities. .....

⚠ CAUTION:

- Do not place the copier on an infirm or angled surface: the copier may tip over, causing injury. .....

- Do not install the copier in a humid or dusty place. This may cause fire or electric shock. .....

- Do not install the copier near a radiator, heater, other heat source or near flammable material. This may cause fire. .....

- Allow sufficient space around the copier to allow the ventilation grills to keep the machine as cool as possible. Insufficient ventilation may cause heat buildup and poor copying performance. .....

- Always handle the machine by the correct locations when moving it. .....

- Always use anti-toppling and locking devices on copiers so equipped. Failure to do this may cause the copier to move unexpectedly or topple, leading to injury. .....

- Avoid inhaling toner or developer excessively. Protect the eyes. If toner or developer is accidentally ingested, drink a lot of water to dilute it in the stomach and obtain medical attention immediately. If it gets into the eyes, rinse immediately with copious amounts of water and obtain medical attention. .....

- Advice customers that they must always follow the safety warnings and precautions in the copier's instruction handbook. .....

2. Precautions for Maintenance

⚠WARNING

- Always remove the power plug from the wall outlet before starting machine disassembly. .....

- Always follow the procedures for maintenance described in the service manual and other related brochures. .....

- Under no circumstances attempt to bypass or disable safety features including safety mechanisms and protective circuits. .....

- Always use parts having the correct specifications. .....

- Always use the thermostat or thermal fuse specified in the service manual or other related brochure when replacing them. Using a piece of wire, for example, could lead to fire or other serious accident. .....

- When the service manual or other serious brochure specifies a distance or gap for installation of a part, always use the correct scale and measure carefully. .....

- Always check that the copier is correctly connected to an outlet with a ground connection. .....

- Check that the power cable covering is free of damage. Check that the power plug is dust-free. If it is dirty, clean it to remove the risk of fire or electric shock. .....

- Never attempt to disassemble the optical unit in machines using lasers. Leaking laser light may damage eyesight. .....

- Handle the charger sections with care. They are charged to high potentials and may cause electric shock if handled improperly. .....

⚠CAUTION

- Wear safe clothing. If wearing loose clothing or accessories such as ties, make sure they are safely secured so they will not be caught in rotating sections. .....

- Use utmost caution when working on a powered machine. Keep away from chains and belts. .....

- Handle the fixing section with care to avoid burns as it can be extremely hot. .....

- Check that the fixing unit thermistor, heat and press rollers are clean. Dirt on them can cause abnormally high temperatures. .....

- Do not remove the ozone filter, if any, from the copier except for routine replacement. .....

• Do not pull on the AC power cord or connector wires on high-voltage components when removing them; always hold the plug itself. .....

• Do not route the power cable where it may be stood on or trapped. If necessary, protect it with a cable cover or other appropriate item. .....

• Treat the ends of the wire carefully when installing a new charger wire to avoid electric leaks. .....

• Remove toner completely from electronic components. .....

• Run wire harnesses carefully so that wires will not be trapped or damaged. .....

• After maintenance, always check that all the parts, screws, connectors and wires that were removed, have been refitted correctly. Special attention should be paid to any forgotten connector, trapped wire and missing screws. .....

• Check that all the caution labels that should be present on the machine according to the instruction handbook are clean and not peeling. Replace with new ones if necessary. .....

• Handle greases and solvents with care by following the instructions below: .....
  · Use only a small amount of solvent at a time, being careful not to spill. Wipe spills off completely.
  · Ventilate the room well while using grease or solvents.
  · Allow applied solvents to evaporate completely before refitting the covers or turning the main switch on.
  · Always wash hands afterwards.

• Never dispose of toner or toner bottles in fire. Toner may cause sparks when exposed directly to fire in a furnace, etc. .....

• Should smoke be seen coming from the copier, remove the power plug from the wall outlet immediately. .....

3. Miscellaneous

⚠WARNING

• Never attempt to heat the drum or expose it to any organic solvents such as alcohol, other than the specified refiner; it may generate toxic gas. .....

CONTENTS

1-1-1 Specifications

Type	Desktop
Copying system	Indirect electrostatic system
Originals	Sheets and books Maximum size: A3/11" × 17"
Original feed system	Fixed
Copy paper	Drawer: Plain paper (64 – 80 g/m^2) Bypass table: Plain paper (60 – 160 g/m^2) Special paper: Transparencies, tracing paper, colored paper, letterhead and envelopes (when using the printer function only) Note: Use the bypass table for special paper.
Copying sizes	Maximum: A3/11" × 17" Minimum: A6R/5$^1/_2$" × 8$^1/_2$" (When the bypass table is used)
Magnification ratios	Manual mode: 25 – 400%, 1% increments Auto copy mode: fixed ratios Metric 1:1 ± 1.0%, 1:4.00/1:2.00/1:1.41/1:1.15/1:0.81/1:0.70/1:0.50/1:0.25 Inch 1:1 ± 1.0%, 1:4.00/1:2.00/1:1.29/1:1.21/1:0.78/1:0.64/1:0.50/1:0.25
Copy speed	At 100% magnification in copy mode: 25 cpm copier A3/11" × 17": 15 copies/min. B4/8$^1/_2$" × 14": 18 copies/min. A4/11" × 8$^1/_2$": 25 copies/min. A4R/8$^1/_2$" × 11": 20 copies/min. 35 cpm copier A3/11" × 17": 19 copies/min. B4/8$^1/_2$" × 14": 23 copies/min. A4/11" × 8$^1/_2$": 35 copies/min. A4R/8$^1/_2$" × 11": 27 copies/min.
First copy time	From 3.9 s (A4/11" × 8$^1/_2$")
Warm-up time	60 s or less (room temperature 20°C/68°F, 65% RH) In preheat/energy saver mode: 30 s or less (room temperature 20°C/68°F, 65% RH) [priorty to power save] In preheat/energy saver mode: 10 s or less (room temperature 20°C/68°F, 65% RH) [priorty to recovery]
Paper feed system	Automatic feed Capacity: Drawers: 500 sheets Manual feed Capacity: Bypass: 200 sheets
Continuous copying	1 - 250 sheets
Photoconductor	a-Si (drum diameter 40 mm)
Charging system	Single positive corona charging
Exposure light source	Semiconductor laser
Exposure scanning system	Polygon mirror
Developing system	Dry, reverse developing (magnetic brush) Developer: 1-component, magnetism toner Toner replenishing: automatic from a toner container
Transfer system	Transfer roller
Separation system	Separation electrode
Fixing system	Heat roller Heat source: halogen heaters (120 V specifications:main 600 W, sub 400W/ 220-240 V specifications:main 630 W, sub 420 W) Control temperature: 165°C/329°F (at normal ambient temperature) Abnormally high temperature protection device: 170°C/338°F thermostat Fixing pressure: 107.8 N
Charge erasing system	Exposure by cleaning lamp
Cleaning system	Cleaning blade
Scanning system	Flat bed scanning by CCD image sensor

Bit map memory	9 MB (standard)
Image storage memory	23 MB (standard)
Resolution	600 × 600 dpi
Light source	Inert gas lamp
Dimensions	585 (W) × 646 (D) × 745 (H) mm 23" (W) × 25 2/5" (D) × 29 1/3" (H)
Weight	Approx. 79 kg/165 lbs
Floor requirements	1356 (W) × 646 (D) mm 53 3/8" (W) × 25 2/5" (D)
Functions	Self-diagnostics, preheat, automatic copy density control, original size detection, auto paper size selection function, auto magnification selection mode, zoom copy mode, standard copy mode, size zoom mode, photo mode, margin mode, page separation copy mode, border erase mode, layout copy, sort mode, copy management function, language selection function
Power source	120 V AC, 60 Hz, 11 A
	220 – 240 V AC, 50/60 Hz, 5.7 A
Power consumption	1320 W (120V) 1368W (220 – 240V)
Options	STDF*, SRDF, paper feed desk, large paper deck, duplex unit, job separator, finisher, booklet stitcher, built-in finisher, key counter, fax board, printer board, network printer board, network scanner board *Optional for 25 cpm copier only.

1-1-2 Parts names and their functions

(1) Copier

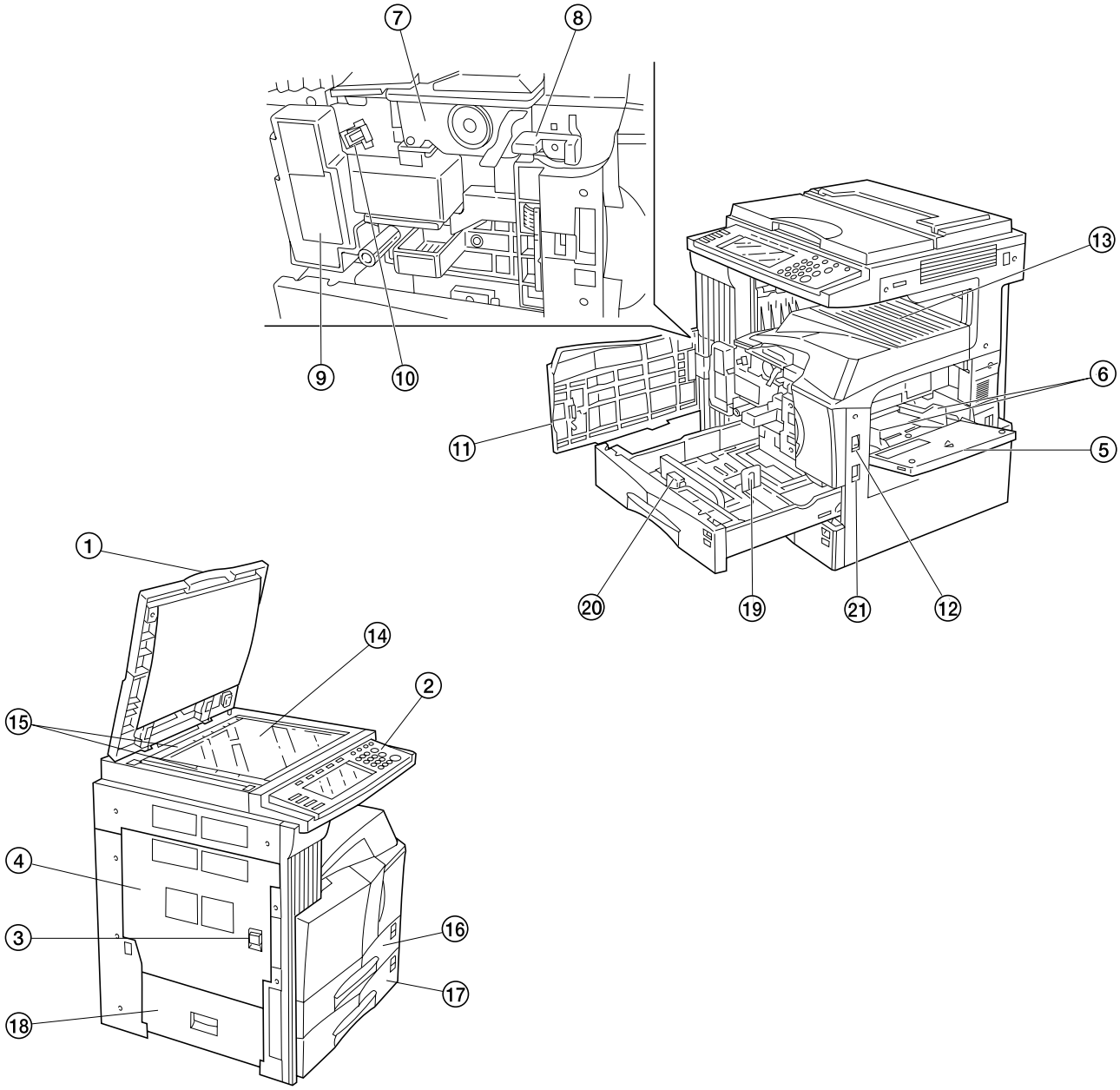


Figure 1-1-1

① Original cover
② Operation panel
③ Conveying cover handle
④ Conveying cover
⑤ Bypass tray
⑥ Insert guides
⑦ Toner container
⑧ Toner container release lever
⑨ Toner disposal tank
⑩ Cleaning shaft
⑪ Front cover
⑫ Main switch
⑬ Copy store section
⑭ Platen
⑮ Original size scales
⑯ Upper drawer
⑰ Lower drawer
⑱ Side cover
⑲ Length adjustment plate
⑳ Width adjustament lever
㉑ Handles for transport

(2) Operation panel

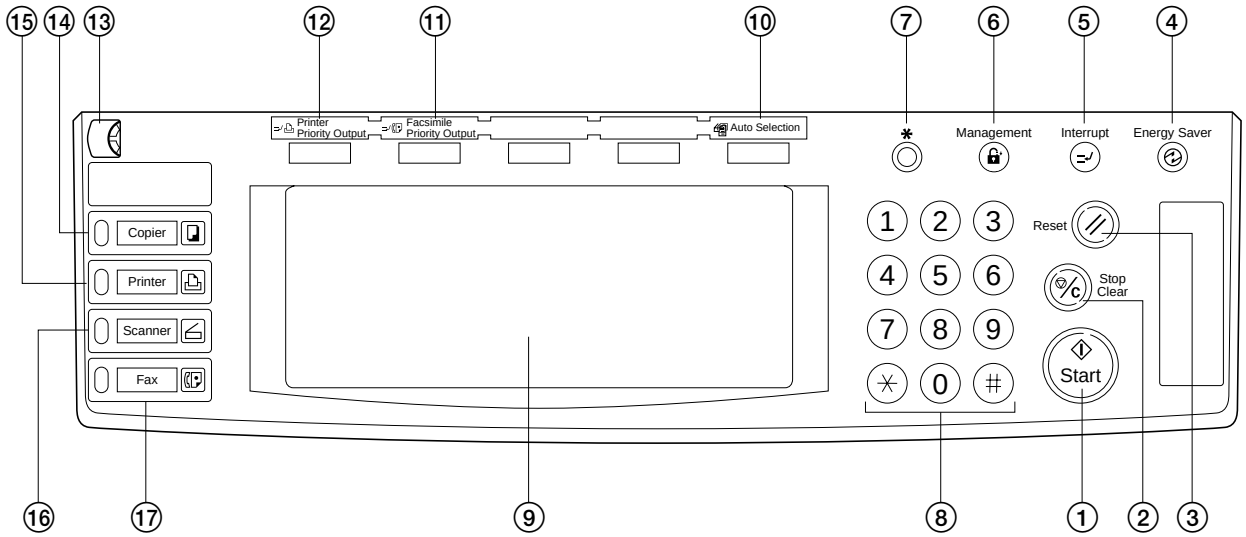


Figure 1-1-2

① Start key (Indicator)
② Stop/clear key
③ Reset key
④ Energy Saver (preheat) key
⑤ Interrupt key (Indicator)
⑥ Management key
⑦ * (Default) key
⑧ Numeric key
⑨ Touch panel
⑩ Auto selection key (Indicator)
⑪ Facsimile priority output key (Indicator)
⑫ Printer priority output key (Indicator)
⑬ Brightness adjustment control dial
⑭ Copier key (Indicator)
⑮ Printer key (Indicator)
⑯ Scanner key (Indicator)
⑰ Fax key (Indicator)

1-1-3 Machine cross section

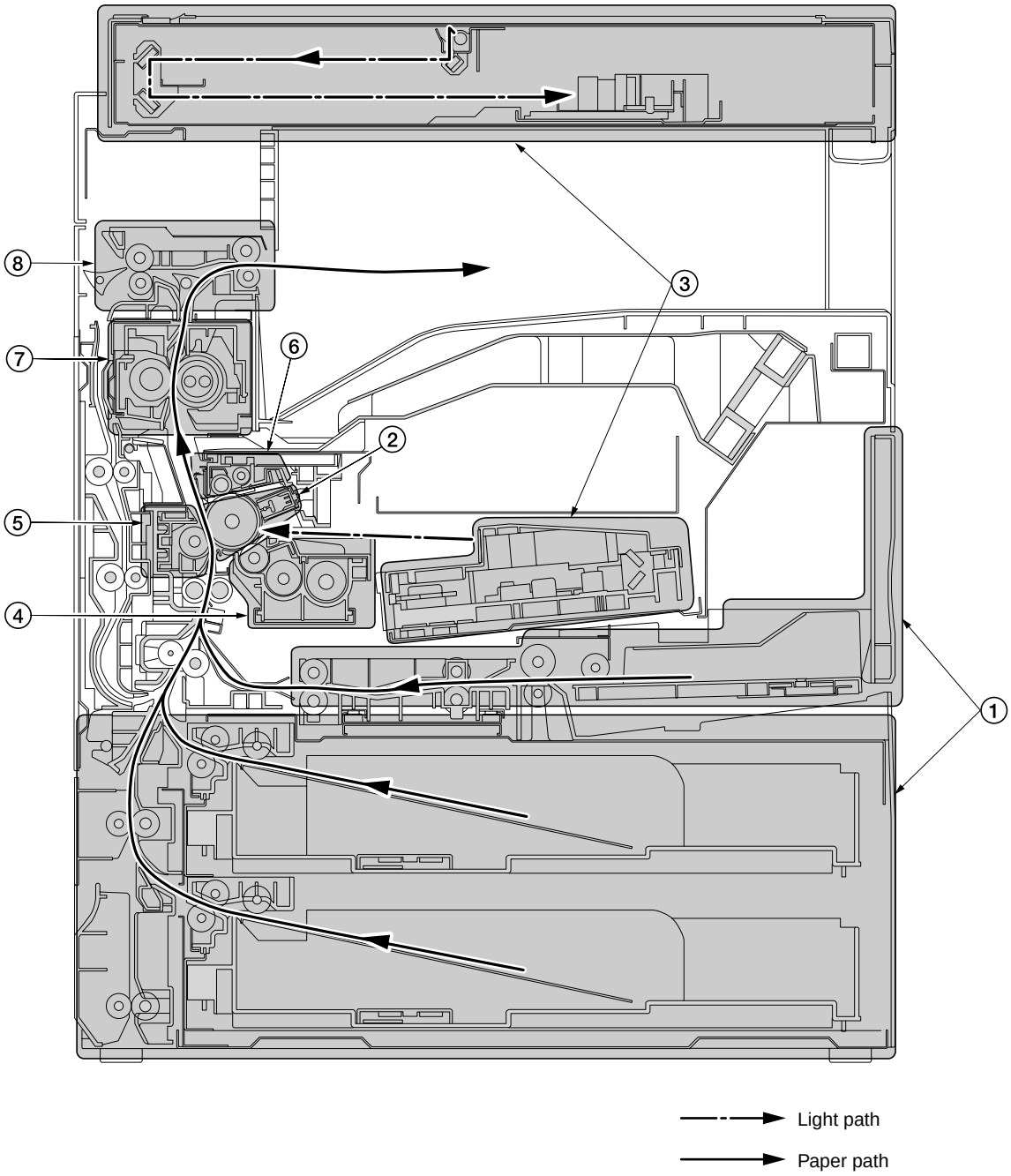


Figure 1-1-4 Machine cross section

① Paper feed section
② Main charging section
③ Optical section
④ Developing section
⑤ Transfer and separation section
⑥ Cleaning and charge erasing section section
⑦ Fixing section
⑧ Eject and switchback section

1-1-4 Drive system

(1) Drive system 1 (drive motor and eject motor drive trains)

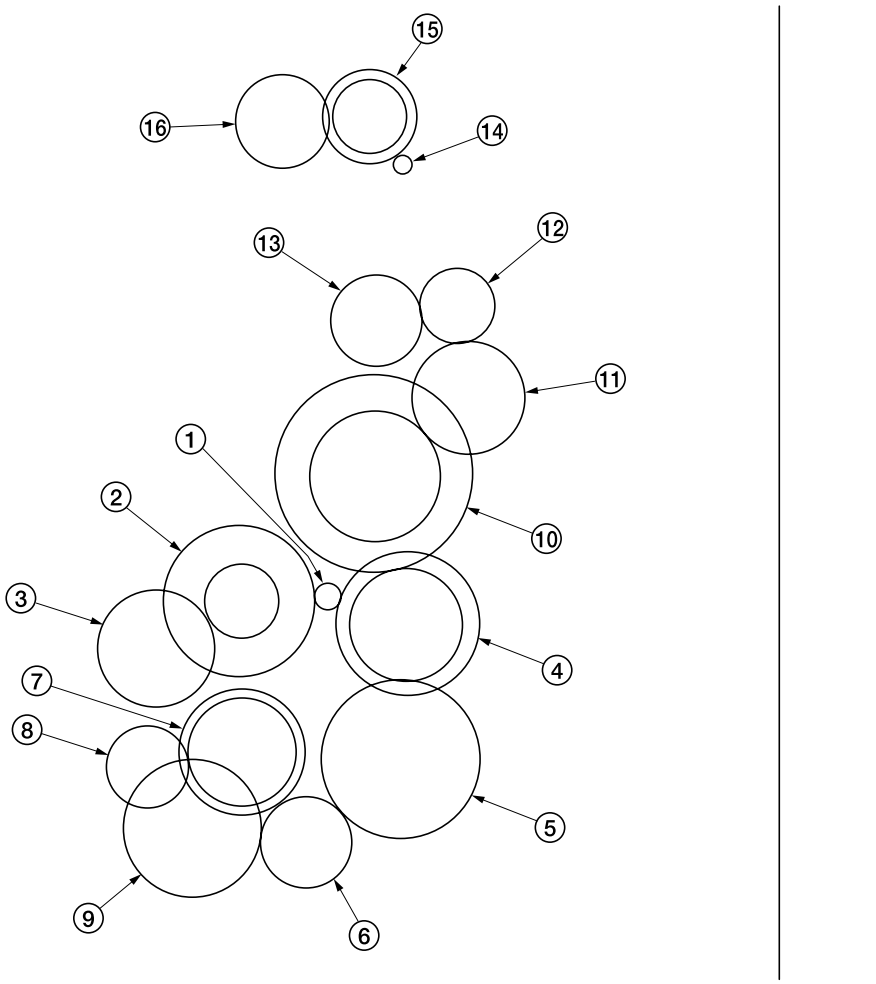
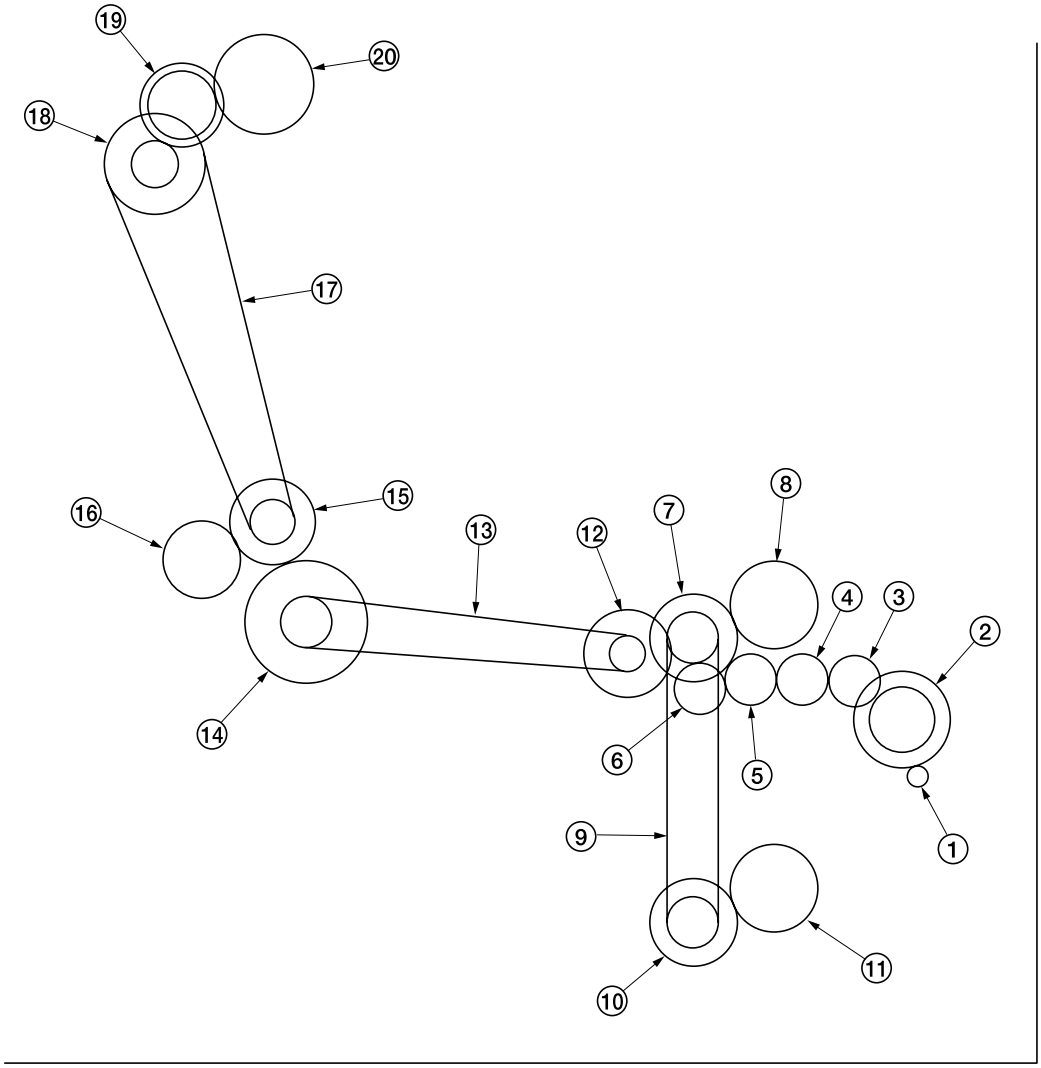


Figure 1-1-4

① Drive motor gear	⑨ Registration clutch gear
② Drum gear Z76H/Z30H	⑩ Gear Z63H/Z45S
③ Drum gear Z70H	⑪ Gear Z37S
④ Gear Z76H/Z35H	⑫ Gear Z24S
⑤ Gear Z50H	⑬ Joint gear Z32S
⑥ Gear Z36S/Z31H	⑭ Eject motor gear
⑦ Gear Z37H/28H	⑮ Gear Z47S/Z28S
⑧ Gear Z34H	⑯ Eject gear Z30S

(2) Drive system 2 (paper feed motor drive train)



As viewed from machine rear

Figure 1-1-5

① Paper feed motor gear
② Gear Z76H/Z35S
③ Feed gear Z25
④ Feed gear Z25
⑤ Feed gear Z25
⑥ Feed gear Z25
⑦ Gear Z41S/Z24S/P30
⑧ Upper paper feed clutch gear
⑨ Paper feed drive belt
⑩ Gear Z41S/Z24S
⑪ Lower paper feed clutch gear
⑫ Gear Z41S/P15
⑬ Bypass drive belt
⑭ Gear Z60S/P20
⑮ Gear Z41S/P18
⑯ Gear Z40S/Z32S
⑰ Container drive belt
⑱ Gear Z24S/P40
⑲ Gear Z40S/Z25S
⑳ Container gear

1-2-1 Drum

Note the following when handling or storing the drum.

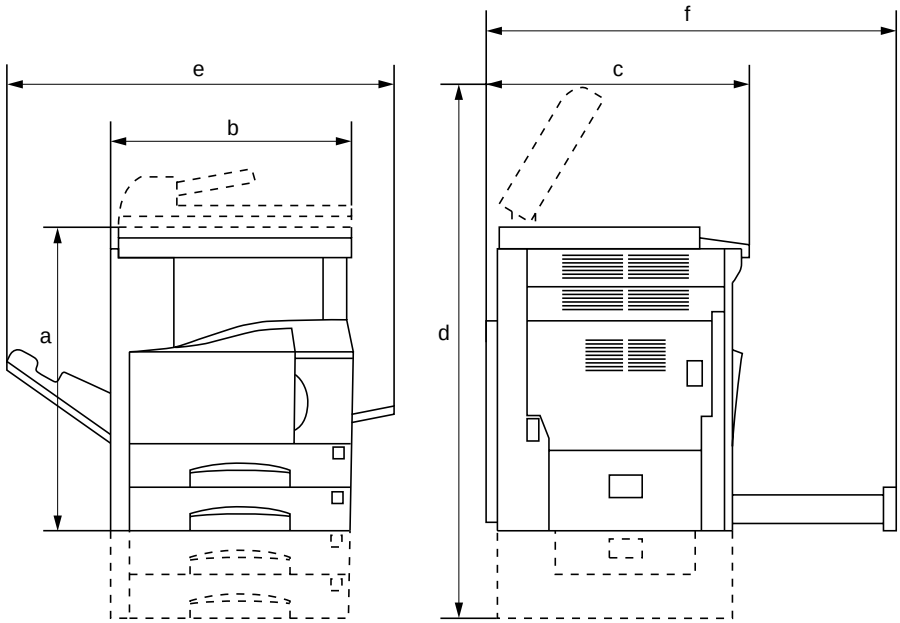
- When removing the drum unit, never expose the drum surface to strong direct light.
- Keep the drum at an ambient temperature between 0°C/32°F and 35°C/95°F and at a relative humidity not higher than 85% RH. Avoid abrupt changes in temperature and humidity.
- Avoid exposure to any substance which is harmful to or may affect the quality of the drum.
- Do not touch the drum surface with any object. Should it be touched by hands or stained with oil, clean it.

1-2-2 Developer and toner

Store the developer and toner in a cool, dark place. Avoid direct light and high humidity.

1-2-3 Installation environment

1. Temperature: 10 - 35°C/50 - 95°F
2. Humidity: 15 - 85%RH
3. Power supply: 120 V AC, 11 A
   220 - 240 V AC, 5.7 A
4. Power source frequency: 50 Hz ±0.3%/60 Hz ±0.3%
5. Installation location
   - Avoid direct sunlight or bright lighting. Ensure that the photoconductor will not be exposed to direct sunlight or other strong light when removing paper jams.
   - Avoid extremes of temperature and humidity, abrupt ambient temperature changes, and hot or cold air directed onto the machine.
   - Avoid dust and vibration.
   - Choose a surface capable of supporting the weight of the machine.
   - Place the machine on a level surface (maximum allowance inclination: 1°).
   - Avoid air-borne substances that may adversely affect the machine or degrade the photoconductor, such as mercury, acidic of alkaline vapors, inorganic gasses, NOx, SOx gases and chlorine-based organic solvents.
   - Select a room with good ventilation.
6. Allow sufficient access for proper operation and maintenance of the machine.
   Machine front: 1000 mm/39 3/8" Machine rear: 300 mm/11 13/16"
   Machine right: 300 mm/11 13/16" Machine left: 300 mm/11 13/16"

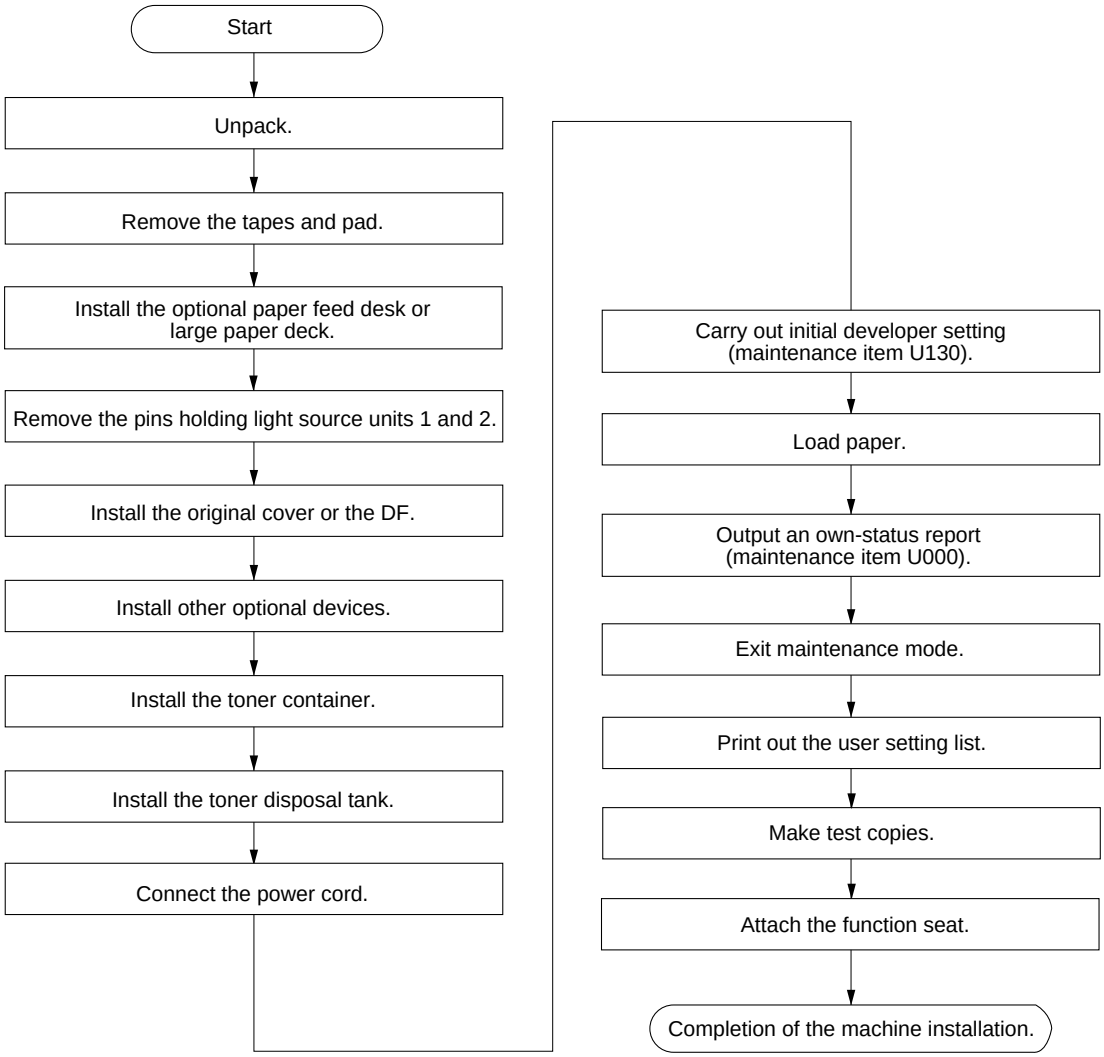


a: 745 mm/29 5/16"
b: 585 mm/23"
c: 646 mm/25 3/8"
d: 1510 mm/59 7/16"
e: 1032 mm/40 5/8"
f: 961 mm/37 13/16"

Figure 1-2-1 Installation dimensions

1-3-1 Unpacking and installation

(1) Installation procedure



Moving the machine

When moving the machine, pull out the four handles for transport on the right and left sides and hold them.

* For the left front handle for transport, open the door and push it into the machine before pulling out the handle.

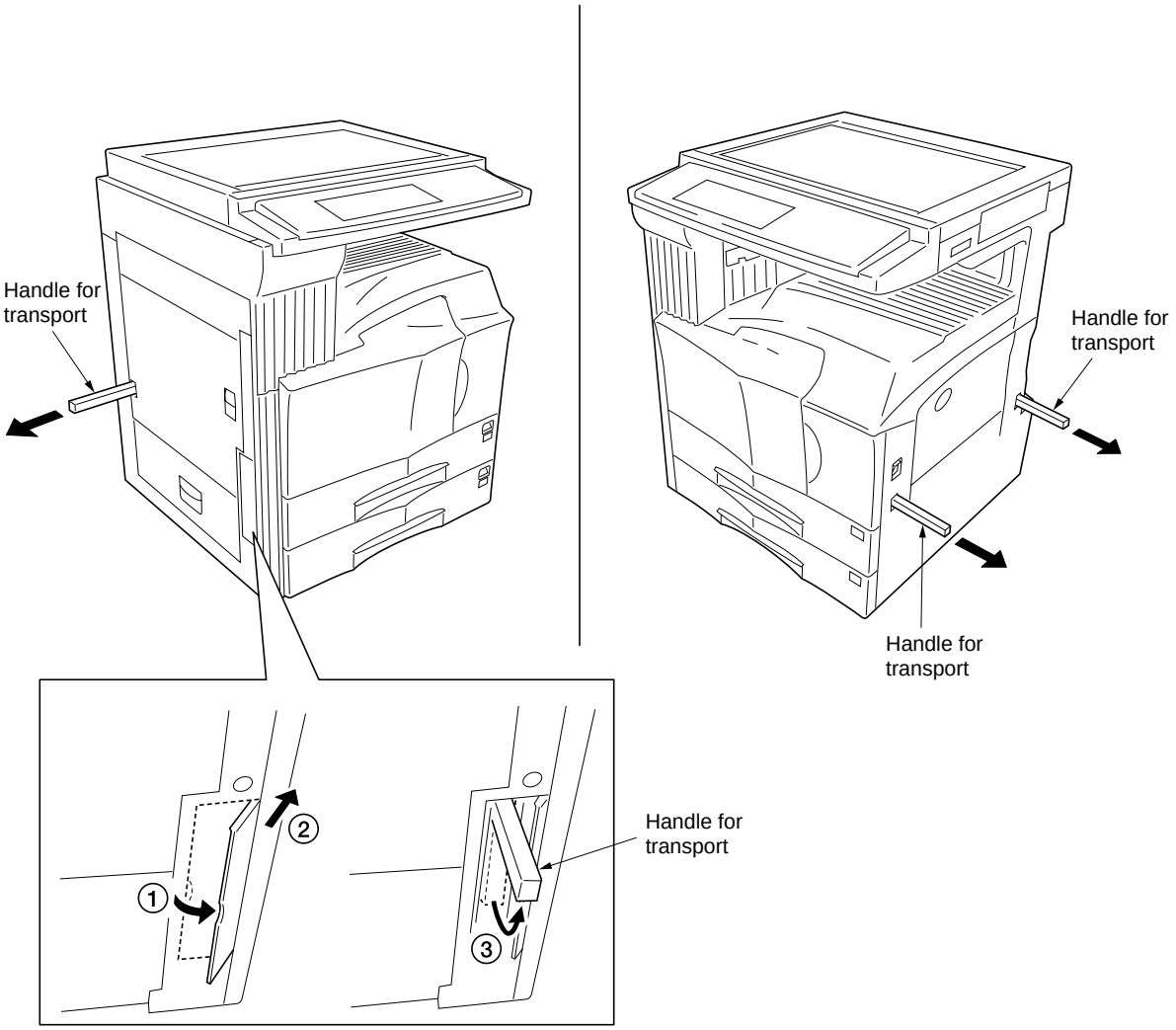


Figure 1-3-1

Unpack.

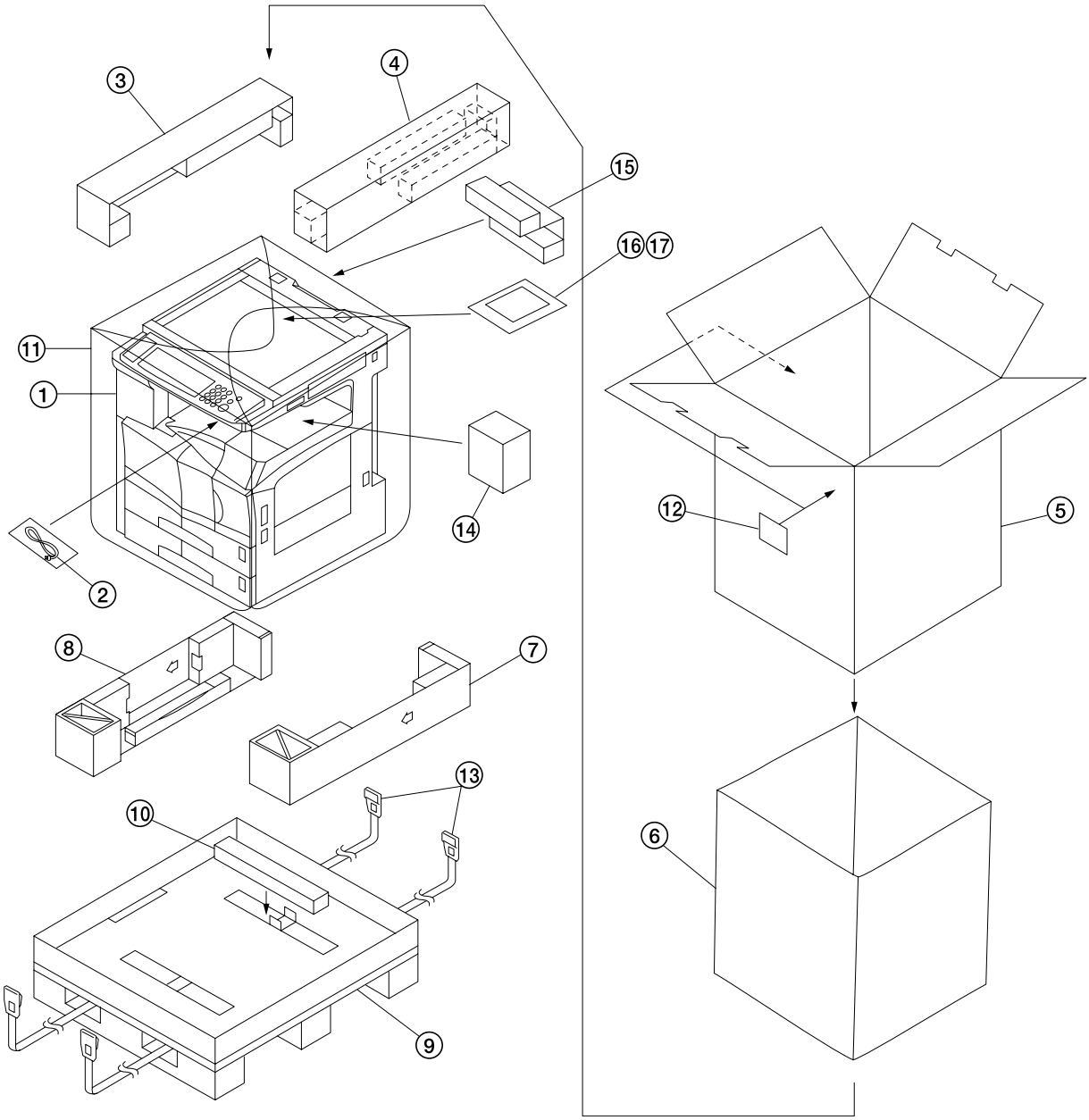


Figure 1-3-2 Unpacking

① Copier
② Power cord
③ Upper left pad
④ Upper right pad
⑤ Outer case
⑥ Inner frame
⑦ Lower right pad
⑧ Lower left pad
⑨ Skid
⑩ Bottom pad
⑪ Machine cover
⑫ Bar code labels
⑬ Belt
⑭ Eject spacer
⑮ Spacer*
⑯ Plastic bag
⑰ Operation guide

*220-230 V specifications only.

Remove the tapes and pad.

1. Remove the tapes holding the front cover, bypass tray, drawers and original detection switch.
2. Remove the pad at the eject section.

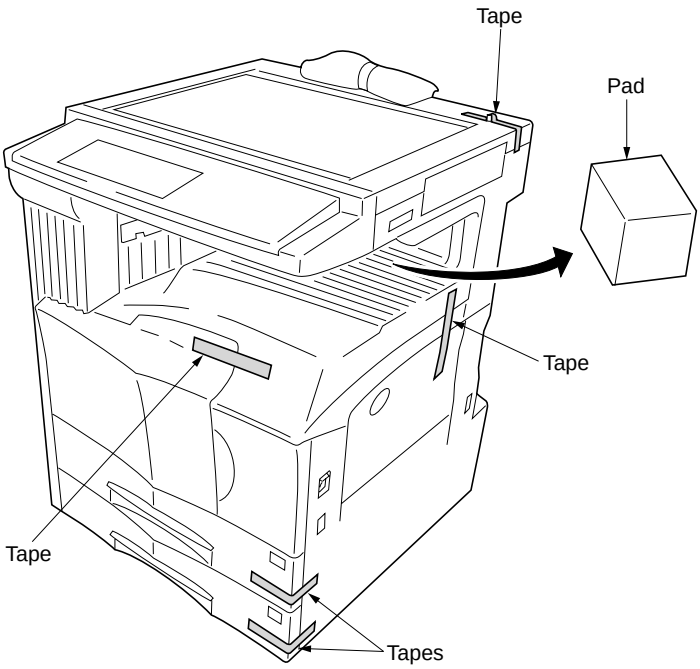


Figure 1-3-3

3. Remove the three tapes holding the pins for light source units 1 and 2.
4. Remove the tape holding the conveying cover.
5. Remove the two tapes holding the power cord.*
   *120 V specifications only.

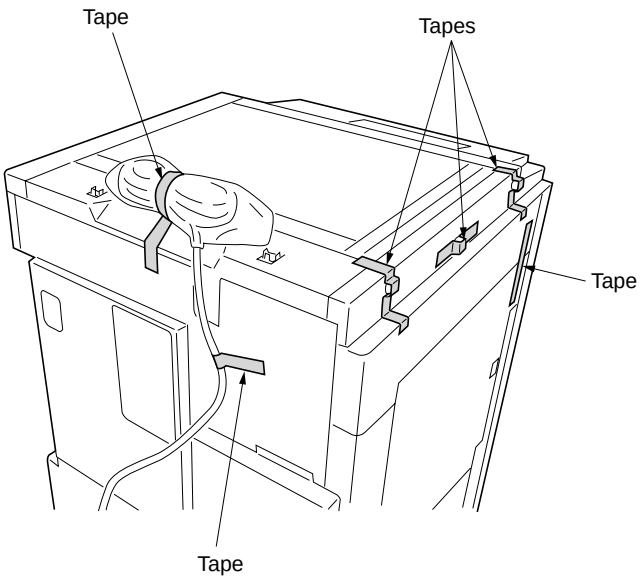


Figure 1-3-4

6. Pull upper and lower drawers out and remove the tape holding each of the drawer lift.

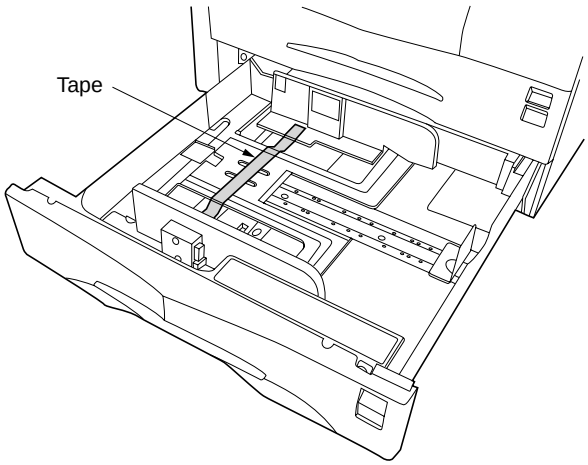


Figure 1-3-5

Install the optional paper feed desk or large paper deck.

1. Install the optional paper feed desk or large paper deck as necessary (see page 1-3-18 to 1-3-24).

Remove the pins holding light source units 1 and 2.

1. Remove the two pins for light source unit 1 and the pin for light source unit 2.

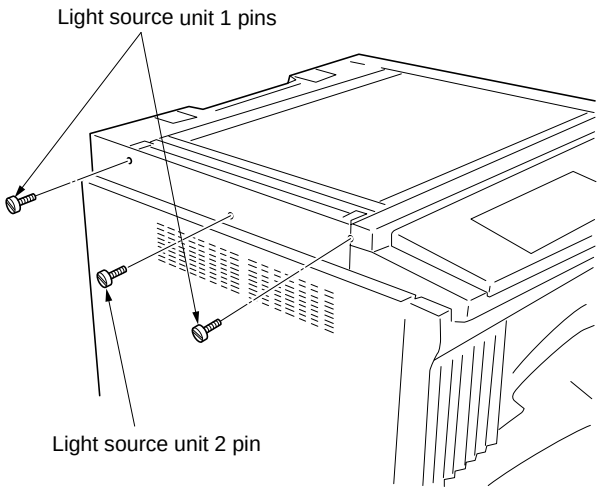


Figure 1-3-6

Install the original cover or the DF.

1. Install the original cover or DF (see page 1-3-34 when installing the DF).

Install other optional devices.

1. Install the optional devices (job separator, duplex unit, finisher, fax board, and/or printer board etc.) as necessary (see pages 1-3-35 to 1-3-56).

Install the toner container.

1. Open the front cover.
2. Turn the toner container release lever to the direction of arrow.

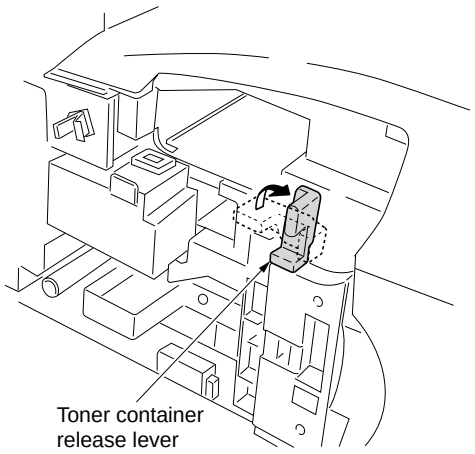


Figure 1-3-7

3. Tap the top of the toner container five to six times. Then, shake it horizontally eight to ten times to agitate the toner.

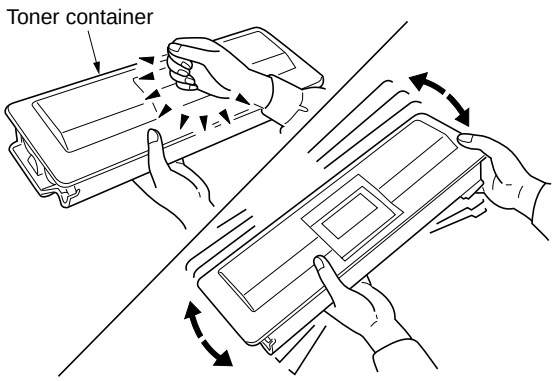


Figure 1-3-8

4. Insert the toner container into the copier.
5. Secure the toner container by returning the toner container release lever.

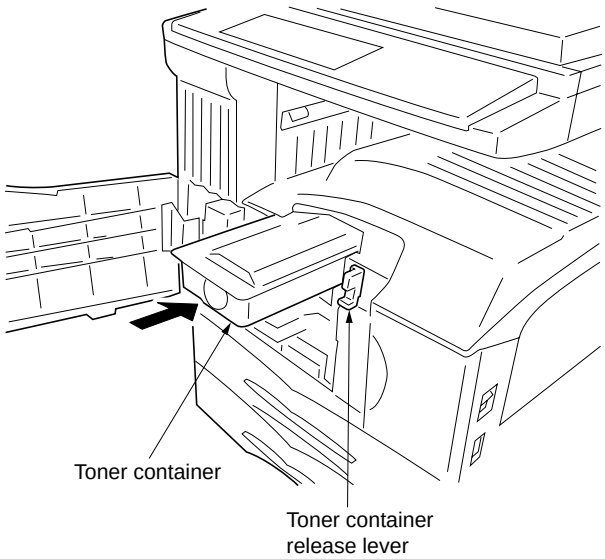


Figure 1-3-9

Install the toner disposal tank.

1. Install the toner disposal tank in the copier.
2. Close the front cover.

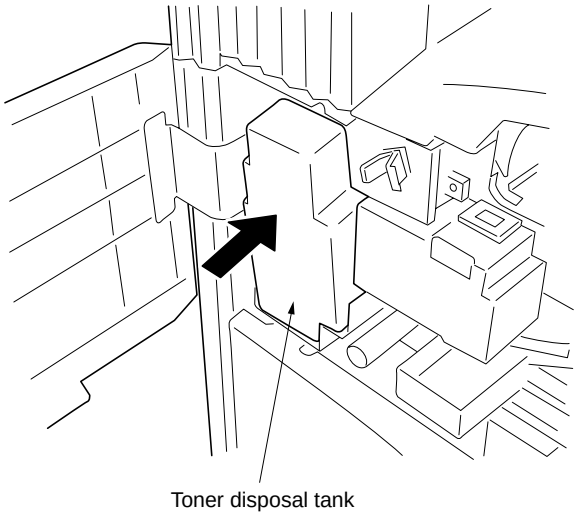


Figure 1-3-10

Connect the power cord.

1. Connect the power cord to the connector on the copier.*
   *200-240 V specifications only.
2. Insert the power plug into the wall outlet.

Carry out initial developer setting (maintenance item U130).

1. Turn the main switch on and enter the maintenance mode by entering “10871087” using the numeric keys.
2. Enter “130” using the numeric keys and press the start key.
3. Press the start key to execute the maintenance item.
   The drive stops within approximately 5 minutes.
4. Press the stop/clear key.

Load paper.

1. Load paper in the drawer.

Output an own-status report (maintenance item U000).

1. Enter “000” using the numeric keys and press the start key.
2. Select “MAINTENANCE” and press the start key to output a list of the current settings of the maintenance items.
3. Press the stop/clear key.

Exit maintenance mode.

1. Enter "001" using the numeric keys and press the start key.
   The machine exits the maintenance mode.

Print out the user setting list.

1. Press the * key to enter default setting and press the [Print form] key. The counter report will be output.

Make test copies.

1. Place an original and make test copies.

Attach the function seat.

1. Remove the PET film from the operation panel.
2. Fit the relevant function sheet.
   If the DF has been installed, select a function sheet among No. 1 to 4 based on installation of the fax board and the printer board.
   If the DF has not been installed, select a function sheet among No. 5 to 8 based on installation of the fax board and the printer board.
3. Refit the PET film to its original position.

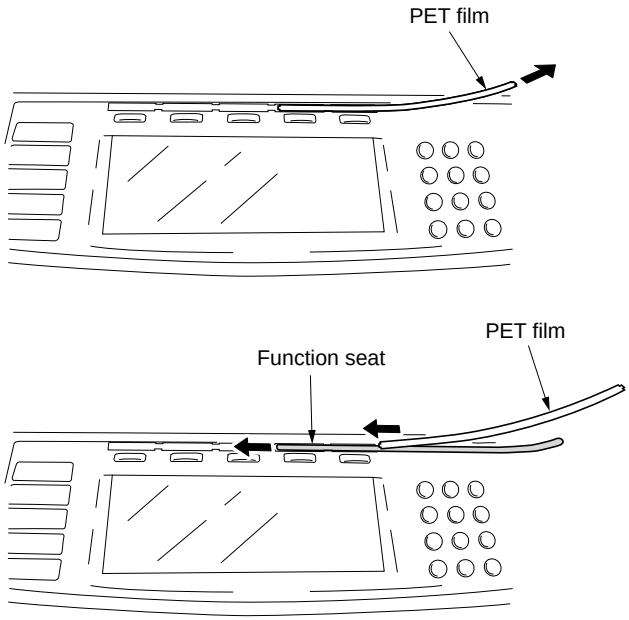


Figure 1-3-11

Completion of machine installation.

1-3-2 Setting initial copy modes

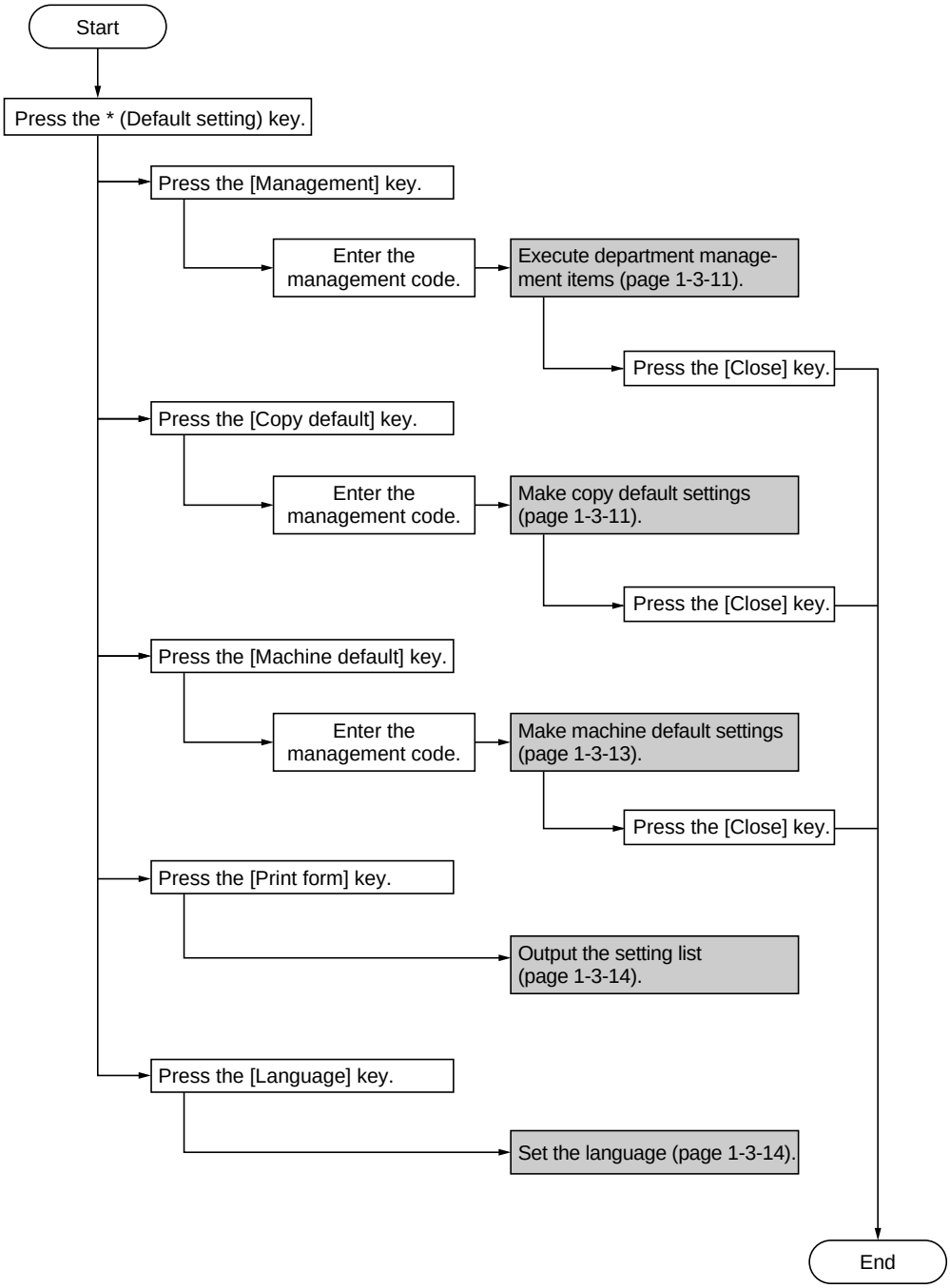
Factory settings are as follows:

Maintenance item No.	Contents	Factory setting
U253	Switching between double and single counts	Double count
U254	Turning auto start function on/off	ON
U255	Setting auto clear time	90s
U256	Turning auto preheat/energy saver function on/off	ON
U258	Switching copy operation at toner empty detection	SINGLE MODE, 0
U260	Changing the copy count timing	After ejection
U342	Setting the ejection restriction	ON
U343	Switching between duplex/simplex copy mode	OFF
U344	Setting preheat/energy saver mode	E2000

1-3-3 Copier management

In addition to a maintenance function for service, the copier is equipped with a management function which can be operated by users (mainly by the copier administrator). In this copier management mode, settings such as default settings can be changed.

(1) Using the copier management mode



(2) Setting department management items

Registering a new department code

Sets a department code and the limit of the number of copies for that department.

1. Press the [ID-code Reg./Del.] key.
2. Press the [Register] key and press the [# keys].
3. Enter a department code (8-digit) using the numeric keys and press the [# keys].
4. Enter the number of copies limit using the numeric keys. Setting range is 1000 pieces of units to 1000-999000 pieces. Entering “0” enables unlimited copying.
5. Press the [Close] key.
6. Press the [Close] key.
7. Press the [On] key.
8. Press the [Close] key.

Deleting a department code

1. Press the [ID-code Reg./Del.] key.
2. Select the department code to be deleted and press the [Delete] key.
3. Select “Yes” or “No”.
4. Press the [Close] key.
5. Press the [On] key.
6. Press the [Close] key.

Altering the copy limit

1. Press the [# of copy correct] key.
2. Select the department code to be altered and press the [Correction] key.
3. Enter the number of copies limit using the numeric keys. Setting range is 1000 pieces of units to 1000-999000 pieces. Entering “0” enables unlimited copying.
4. Press the [Close] key.
5. Press the [Close] key.
6. Press the [On] key.
7. Press the [Close] key.

Clearing copy counts

1. Press the [Counter clear] key.
2. Select “Yes” or “No”.
3. Press the [Close] key.

Viewing copy counts

1. Press the [Counter by ID-code] key.
2. View copy counts using the cursor up/down keys.
3. Press the [Close] key.
4. Press the [Close] key.

Print management list

1. Press the [Print the list] key.
   If A4/11" × 81/2" paper is present, the list is automatically printed out. Otherwise, select the paper source and press the start key.

(3) Copy default

Exposure mode

Selects the exposure mode at power-on.

1. Select “Exposure mode” and press the [Change #] key.
2. Select “Manual” or “Auto”.

Exposure steps

Sets the number of exposure steps for the manual exposure mode.

1. Select “Exposure steps” and press the [Change #] key.
2. Select “1 step” or “0.5 step”.

Original type

Selects the copy quantity mode at power-on.

1. Select “Original type” and press the [Change #] key.
2. Select “Text+Photo”, “Photo” or “Text”.

Eco print

Selects the toner economy mode to be automatically on or off at power-on.

1. Select “ECO print” and press the [Change #] key.
2. Select “On” or “Off”.

Paper selection

Sets whether the same sized paper as the original to be copied is automatically selected.

1. Select “Paper selection” and press the [Change #] key.
2. Select “APS” or “Default cassette”.

Default drawer

Sets the drawer to be selected in cases such as after the reset key is pressed.

1. Selct “Default cassette” and press the [Change #] key.
2. Select priority drawer.

Default magnification

Selects whether auto magnification selection or 100% magnification is to be given priority when the sizes of the original and copy paper are different.

1. Select “Default magnification” and press the [Change #] key.
2. Select “Manual” or “AMS”.

Auto exposure adjustment

Adjusts the exposure for the auto exposure mode.

1. Select “Auto exposure adjustment” and press the [Change #] key.
2. Press the [Lighter] or [Darker] key to adjust default setting of copy exposure.
   Setting range: -3 to +3

Manual exposure adjustment (Mixed)

Adjusts the exposure to be used when text and photo original is selected for the image mode.

1. Select “Manual exp. adj. (Mixed)” and press the [Change #] key.
2. Press the [Lighter] or [Darker] key to adjust default setting of copy exposure.
   Setting range: -3 to +3

Manual exposure adjustment (Text)

Adjusts the exposure to be used when text original is selected for the image mode.

1. Select “Manual exp. adj. (Text)” and press the [Change #] key.
2. Press the [Lighter] or [Darker] key to adjust default setting of copy exposure.
   Setting range: -3 to +3

Manual exposure adjustment (Photo)

Adjusts the exposure to be used when photo original is selected for the image mode.

1. Select “Manual exp. adj. (Photo)” and press the [Change #] key.
2. Press the [Lighter] or [Darker] key to adjust default setting of copy exposure.
   Setting range: -3 to +3

Margin width

Sets the default setting of the margin width for the margin copying.

1. Select “Default margin width” and press the [Change #] key.
2. Press the +/- keys to adjust default margin width.
   Setting range: 0 to 3/4" (inch specifications)
   0 to 18 mm (metric specifications)

Border erase width

Sets the default setting of the border erase width for the border erase mode.

1. Select “Default erase width” and press the [Change #] key.
2. Press the +/- keys to adjust default erase width.
   Setting range: 0 to 3/4" (inch specifications)
   0 to 18 mm (metric specifications)

Copy limit

Sets the number of copies limit for multiple copying.

1. Select “Preset limit” and press the [Change #] key.
2. Press the +/- keys to set copy preset in one job.
   Setting range: 1 to 999 copies

Display register key

Sets whether or not to display the Register key in the copy operation screen.

1. Select “Display register key” and press the [Change #] key.
2. Select “On” or “Off”.

Customize the base screen (main function)

Changes the layout of the main functions of the base screen.

1. Select “Customize (Main function)” and press the [Change #] key.
2. Change the layout to press [Move ahead] or [Move to behind].

Customize the copy operating screen (add function)

Changes the layout of the functions except the main functions of the copy operating screens.

1. Select “Customize (Add function)” and press the [Change #] key.
2. Change the layout to press [←].

(4) Machine default

Auto drawer switching

Sets whether the auto drawer switching function is available.
1. Select “Auto cassette switching” and press the [Change #] key.
2. Select “On” or “Off”.

Special paper

Sets the drawer for such special paper as colored paper or recycled paper.
1. Select “Special paper” and press the [Change #] key.
2. Select “1st paper” or “2nd paper”.

APS for special paper

Sets whether to use the paper source with the special paper for auto paper selection and auto drawer switching.
1. Selct “APS for special paper” and press the [Change #] key.
2. Select “On” or “Off”.

Paper size (upper drawer)

Sets the paper size for upper drawer.
1. Select “Paper size (1st cassette)” and press the [Change #] key.
2. Select the paper size.

Paper size (lower drawer)

Sets the paper size for lower drawer.
1. Select “Paper size (2nd cassette)” and press the [Change #] key.
2. Select the paper size.

Paper type (upper drawer)

Sets the paper type (standard or special) for upper drawer.
1. Select “Paper type (1st cassette)” and press the [Change #] key.
2. Select the paper type.

Paper type (lower drawer)

Sets the paper type (standard or special) for lower drawer.
1. Select “Paper type (2nd cassette)” and press the [Change #] key.
2. Select the paper type.

Check bypass sizing

Sets whether or not to display the paper size key of the basic screen when copying with the bypass tray.
1. Select “Check bypass express” and press the [Change #] key.
2. Selct “On” or “Off”.

Auto shutoff time

Sets the auto shutoff time.
1. Select “Auto shut-off time” and press the [Change #] key.
2. Press the +/- keys to set the auto shutoff time.
   Setting range: 15 to 240 minutes

Auto preheat time

Sets the auto preheat time.
1. Select “Auto preheat time” and press the [Change #] key.
2. Press the +/- keys to set the auto preheat time.
   Setting range: 1 to 45 minutes
   Note: Set the auto preheat time to be shorter than the auto shutoff time.

Copy eject location setting

Selects whether to eject copies to copier, finisher or job separator.
1. Select “Select Copy output mode” and press the [Change #] key.
2. Select the eject location.

Key sound

Sets if a beep sounds when a key on the key press panel is pressed.
1. Select “Key sound ON/OFF” and press the [Change #] key.
2. Select “On” or “Off”.

Silent mode

Selects whether or not to enter silent mode after copying.
1. Select “Silent Mode” and press the [Change #] key.
2. Select “On” or “Off”.

Management code change

Changes the management code.
1. Select “Management code change” and press the [Change #] key.
2. Enter the 4-digit management code using the numeric keys and press the enter key.

Auto shutoff

Sets whether the auto shutoff function is available.
1. Select “Auto shut-off” and press the [Change #] key.
2. Select “On” or “Off”.

(5) Report

Outputs the setting reports.

1. Press the [Print form] key.
2. Select the report.
   Copy report/Option report/Counter report/
   Machine report

(6) Language

Switches the language to be displayed on the press panel.

1. Press the [Language] key.
2. Select the display language.

1-3-4 Installing the key counter (option)

Key counter installation requires the following parts:
Key counter set (P/N 2A369703)
Contents of the set:
- Key counter cover (P/N 2A360010)
- Key counter retainer (P/N 66060030)
- Key counter cover retainer (P/N 66060022)
- Key counter mount (P/N 66060040)
- Key counter socket assembly (P/N 41529210)
- Four (4) M4 × 6 bronze TP-A screws (P/N B4304060)
- Two (2) M4 × 10 bronze TP-A screws (P/N B4304100)
- One (1) M4 × 20 bronze TP-A screw (P/N B4304200)
- One (1) M4 × 6 chrome TP-A screw (P/N B4104060)
- One (1) M3 × 8 bronze binding screw (P/N B1303080)
- One (1) M4 × 30 bronze binding screw (P/N B1304300)
- Two (2) M3 × 6 bronze flat-head screws (P/N B2303060)
- One (1) M3 bronze nut (P/N C2303000)

Procedure

1. Fit the key counter socket assembly to the key counter retainer using the two screws and nut.
2. Fit the key counter mount to the key counter cover using the two screws, and attach the key counter retainer to the mount using the two screws.

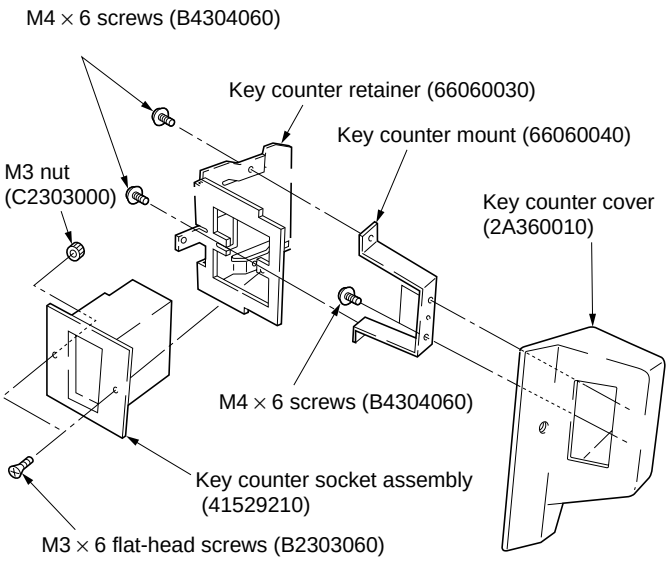


Figure 1-3-12

3. Remove the three screws holding the middle right cover and then the cover.
4. Cut out the aperture plate on the middle right cover using nippers.
5. Pass the connect inside the copier through the aperture and refit the middle right cover.

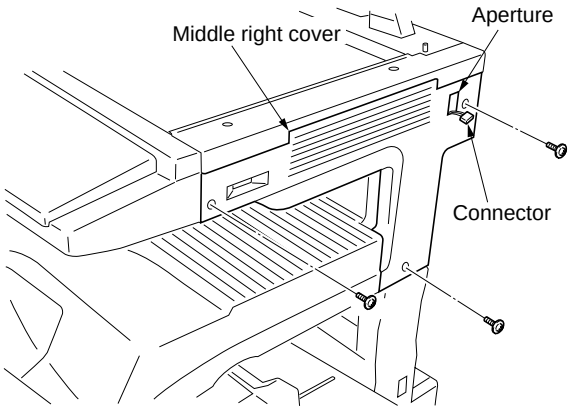


Figure 1-3-13

6. Pass the connector of the key counter through the aperture in the key counter retainer, and insert into the connector of the copier.
7. Seat the projection of the key counter cover retainer in the aperture in the middle right cover.
8. Fit the key counter cover with the key counter socket assembly inserted to the key counter cover retainer on the copier using the screw.
9. Insert the key counter into the key counter socket assembly.

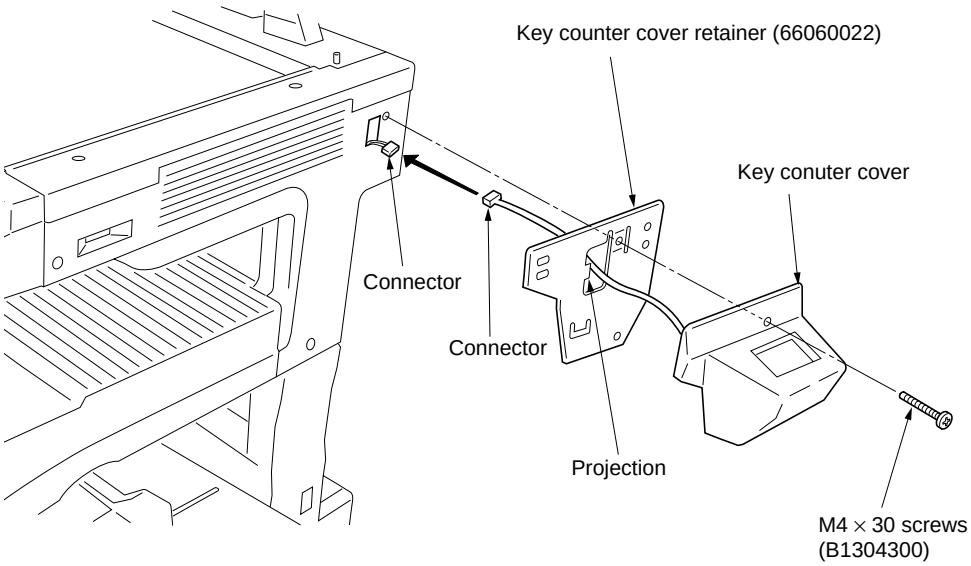


Figure 1-3-14

10. Turn the main switch on and enter the maintenance mode.
11. Run maintenance item U204 and select “KEY-COUNTER.”
12. Exit the maintenance mode.
13. Check that the message requesting the key counter to be inserted is displayed on the touch panel when the key counter is pulled out.
14. Check that the counter counts up as copies are made.

1-3-5 Installing the drawer heater (option)

Drawer heater installation requires the following parts:
- Drawer heater (P/N 34860030): for 120 V specifications
- Drawer heater (P/N 33960020): for 220 - 240 V specifications
- Band (P/N M2107120)

Procedure

1. Pull the upper and lower drawers out.
2. Fit the drawer heater to the bottom of the machine and bind the wire of the drawer heater with the band.
3. Put the wire of the drawer heater out of the machine through the aperture of the rear frame.

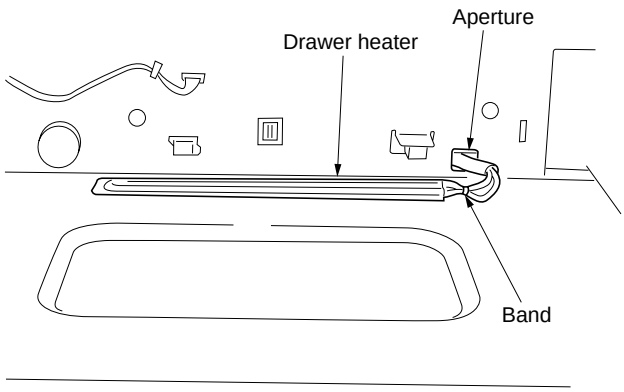


Figure 1-3-15

4. Remove the four screws and the two connectors and then remove the power source unit from the rear side of the machine.

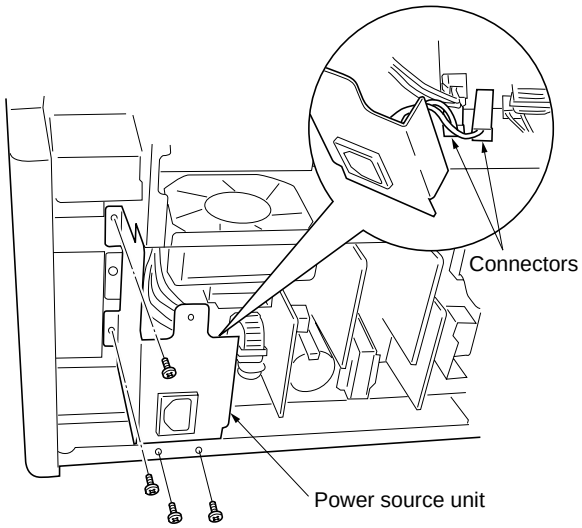


Figure 1-3-16

5. Remove the two screws and pull out the wire of the drawer heater that has been put out of the rear frame while raising the power source PCB unit.
6. Insert the connector of the drawer heater into the connector of the machine.
7. Refit all the removed parts.

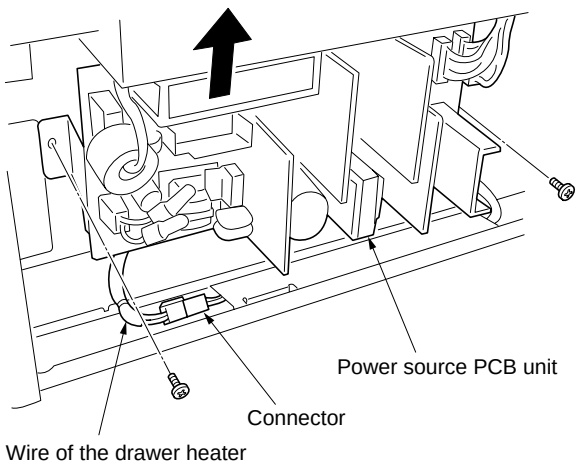


Figure 1-3-17

1-3-6 Installing the paper feed desk (option)

Preparation

1. Remove the lower drawer from the copier.

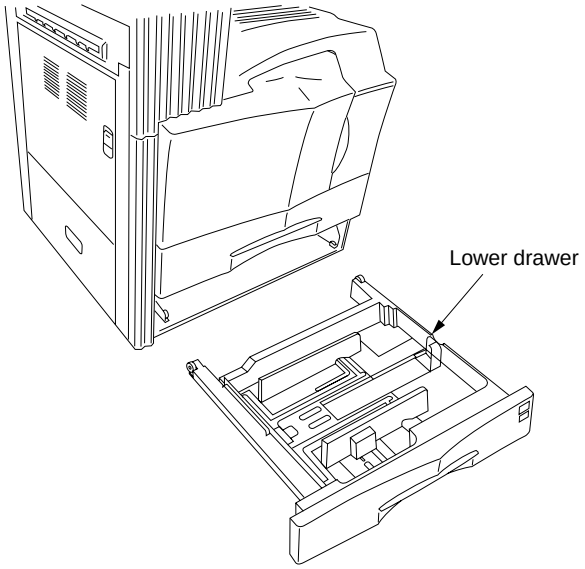


Figure 1-3-18

2. Place the copier on top of the paper feed desk with the positioning pins at the front left and right of the paper feed desk aligned with the holes in the base of the copier.

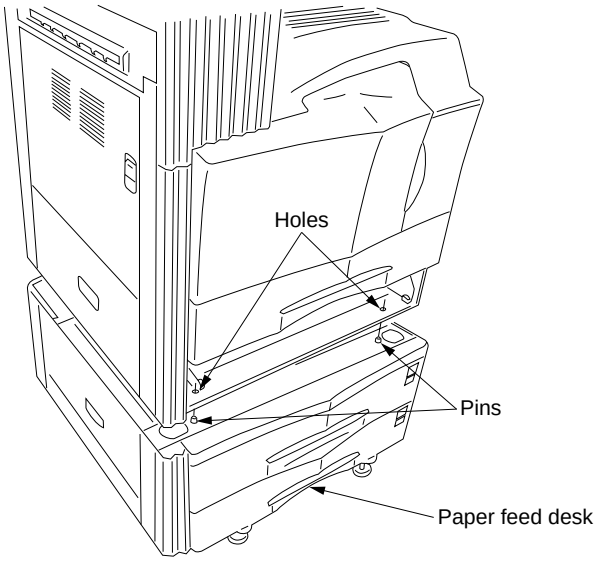


Figure 1-3-19

3. Secure the copier to the paper feed desk using the two pins.
4. Refit the lower drawer to the copier.

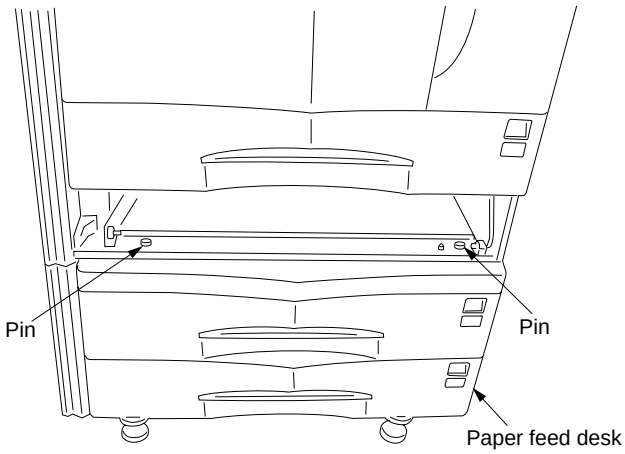


Figure 1-3-20

5. Remove the screw and then the cover from the rear of the paper feed desk.
6. Remove the screw from the copier.

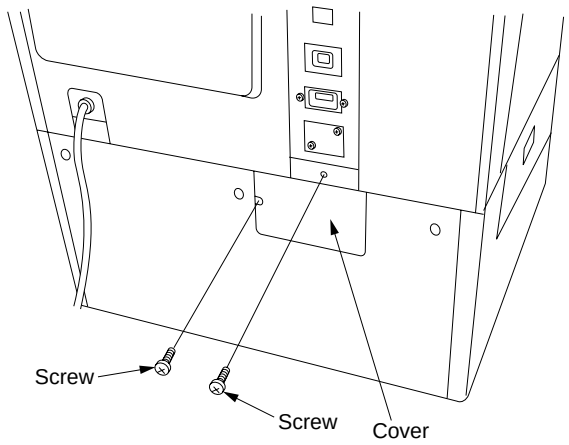


Figure 1-3-21

7. Insert the 12-P connector of the paper feed desk into the connector on the copier.

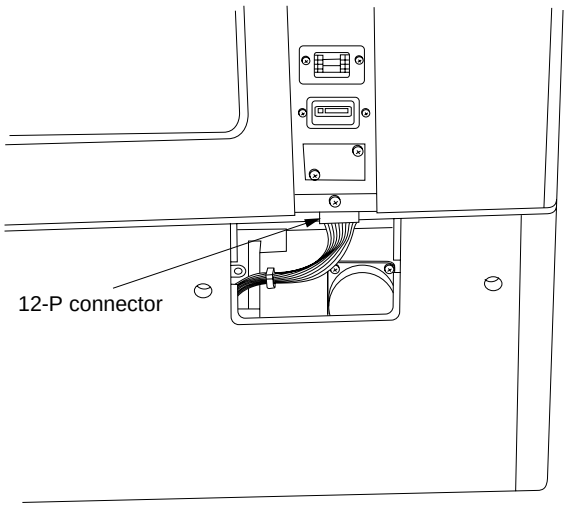


Figure 1-3-22

8. Route the harness through the clamp on the retainer.
9. Fit the retainer using the screw removed in step 6 and the two CVM4 × 06 cross-head chromate binding screws.
10. Refit the cover.

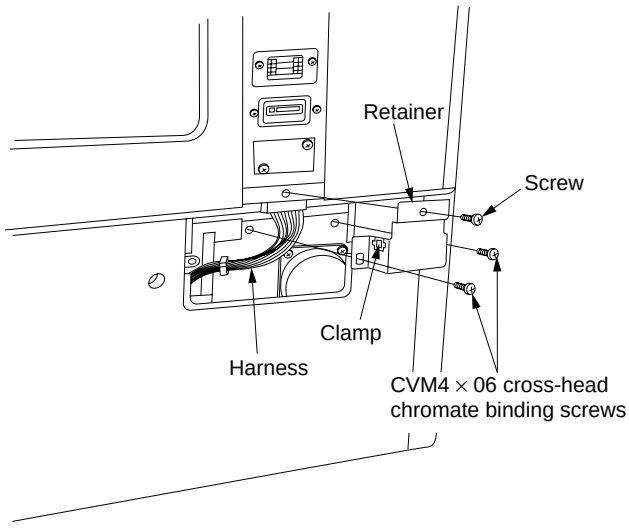


Figure 1-3-23

11. Turn the four leveling bolts until they reach the floor and adjust them to level the machine.

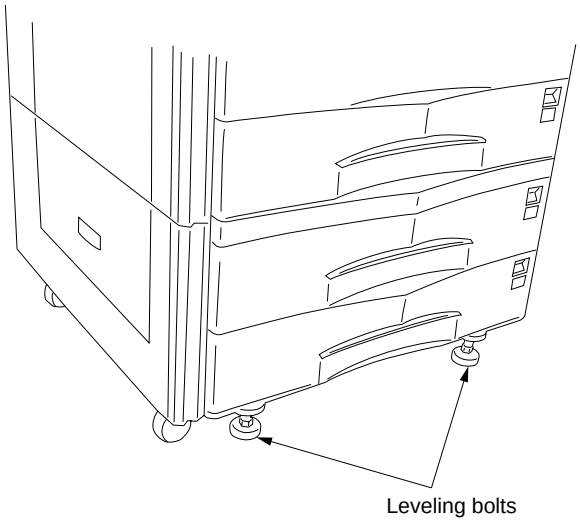


Figure 1-3-24

12. Fit the two stays to the left of the paper feed desk (one toward the front and the other the rear) using the two M4 × 10 chrome TP screws such that they make contact with the floor.
    Note: Do not fit the stays if the finisher is to be installed.
13. Connect the copier power plug to the wall outlet and turn the copier main switch on.
14. Load paper into the drawer and make a test copy to check the operation.

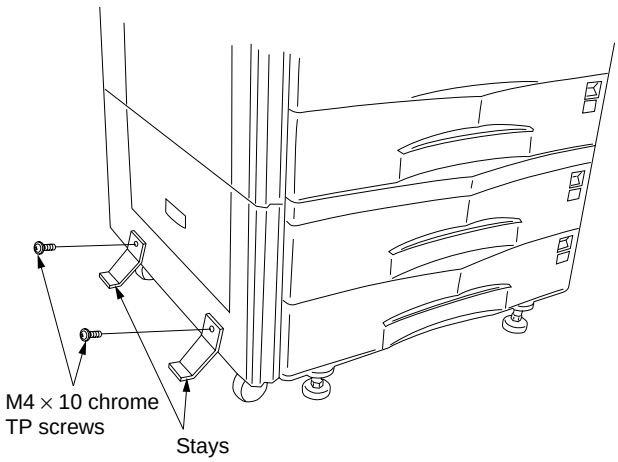


Figure 1-3-25

1-3-7 Installing the large paper deck (option)

Preparation

1. Remove the lower drawer from the copier.

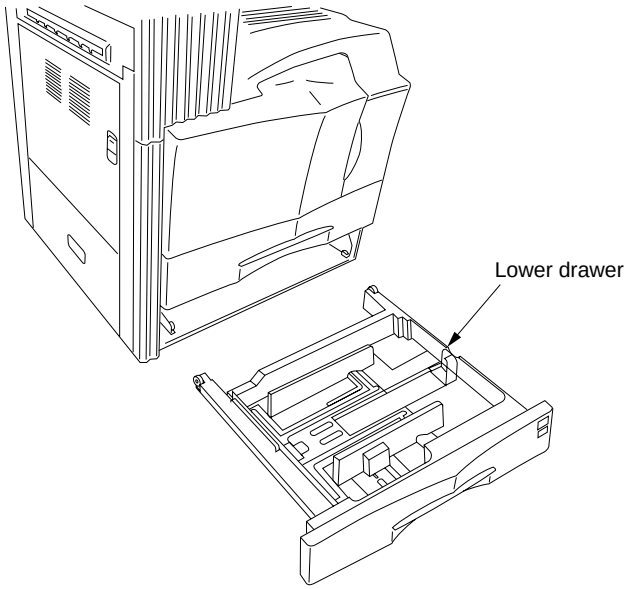


Figure 1-3-26

2. Place the copier on top of the large paper deck with the positioning pins at the front left and right of the large paper deck aligned with the holes in the base of the copier.

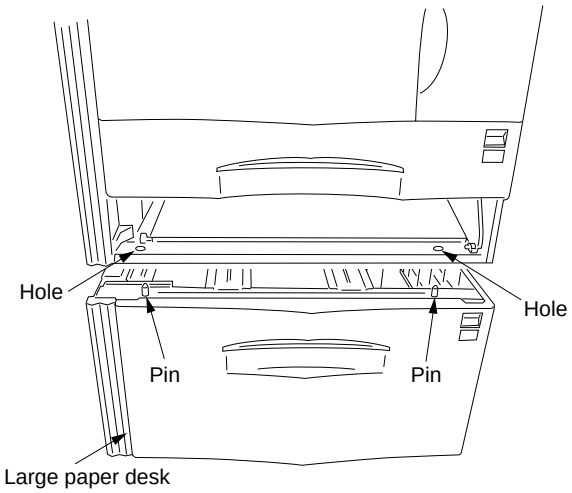


Figure 1-3-27

3. Secure the copier to the large paper deck using the two pins.
4. Refit the lower drawer to the copier.

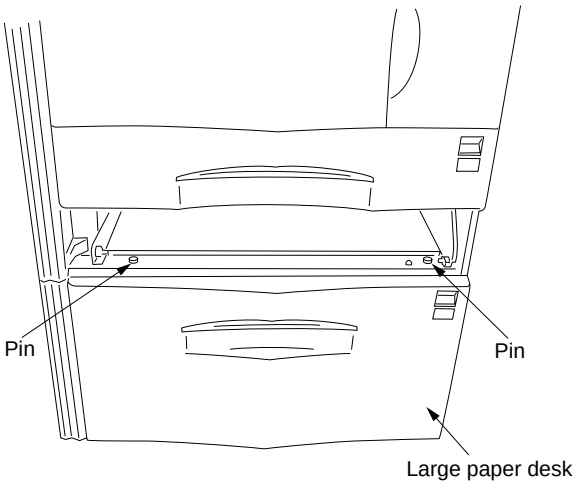


Figure 1-3-28

5. Remove the screw and then the cover from the rear of the large paper deck.
6. Remove the screw from the rear of the copier.

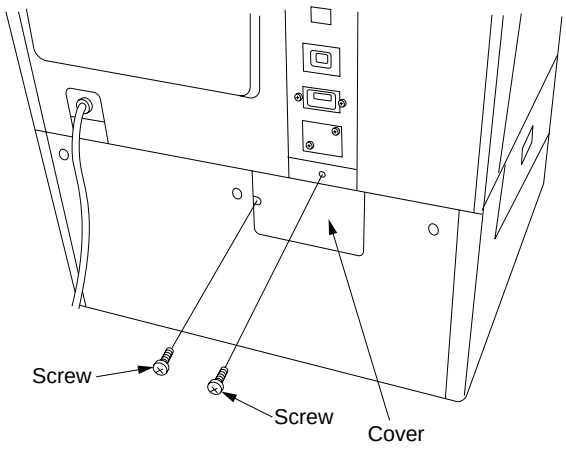


Figure 1-3-29

7. Insert the 12-pin connector of the large paper deck into the connector on the copier.

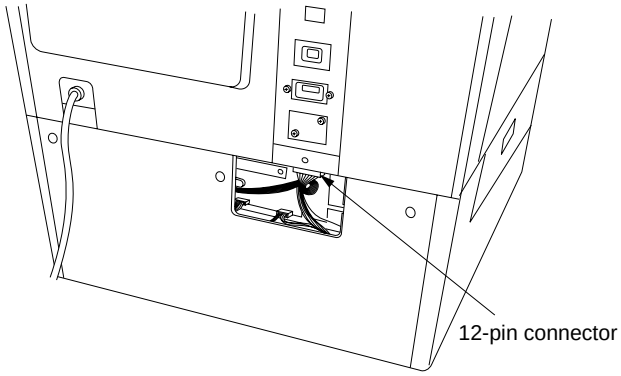


Figure 1-3-30

8. Fit the retainer using the screw removed in step 6 and the two CVM4 × 06 cross-head chromate binding screws.
9. Refit the cover using the screw (see step 5).

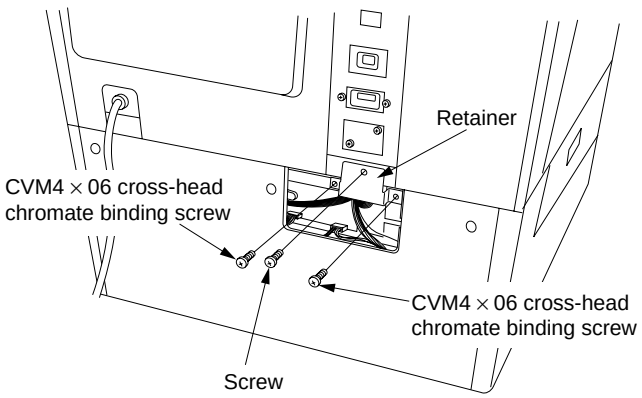


Figure 1-3-31

10. Turn the four leveling bolts until they reach the floor and adjust them to level the machine.

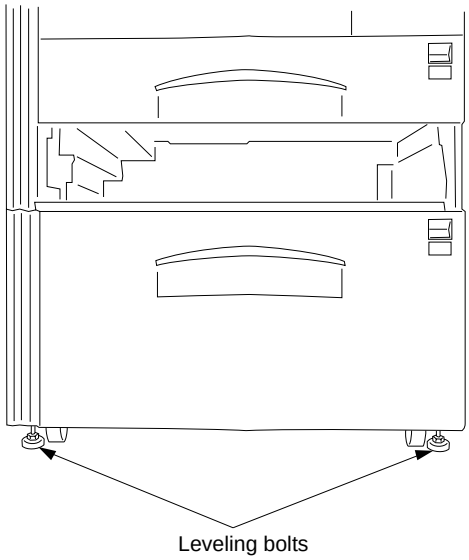


Figure 1-3-32

11. Fit the stay to the lower left of the large paper deck toward the rear using the two M4 × 16 chrome TP screws such that it makes contact with the floor.
    Note: Do not fit the stay if the finisher is to be installed.

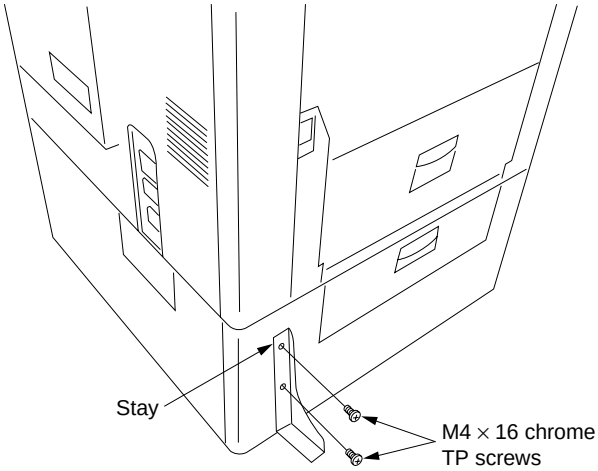


Figure 1-3-33

Setting the paper size

1. Open the large paper deck.
2. Move the sliders at the machine front and rear inward (two at each point).
3. Remove the screw from each of the front and rear lateral size adjusters.

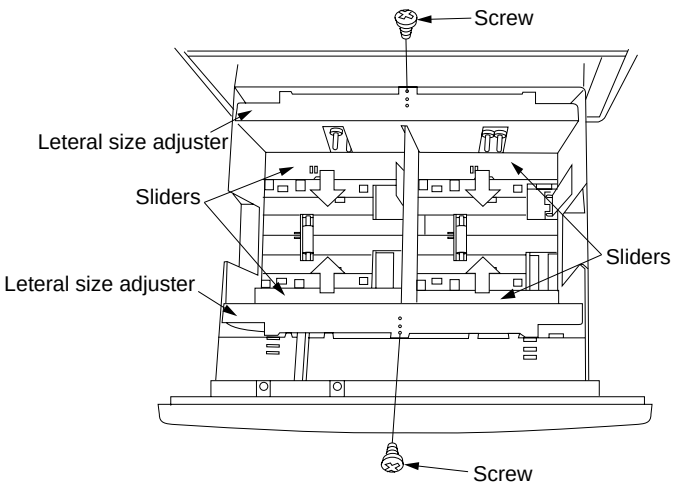


Figure 1-3-34

4. Insert the upper tabs and lower tabs of the front and rear lateral size adjusters into the upper slots and lower slots respectively such that the size indicators point to the size of paper to be used. Secure the lateral size adjusters using the screw for each.
5. Move the front and rear sliders (two at each point) outward until they make contact with the lateral size adjusters.

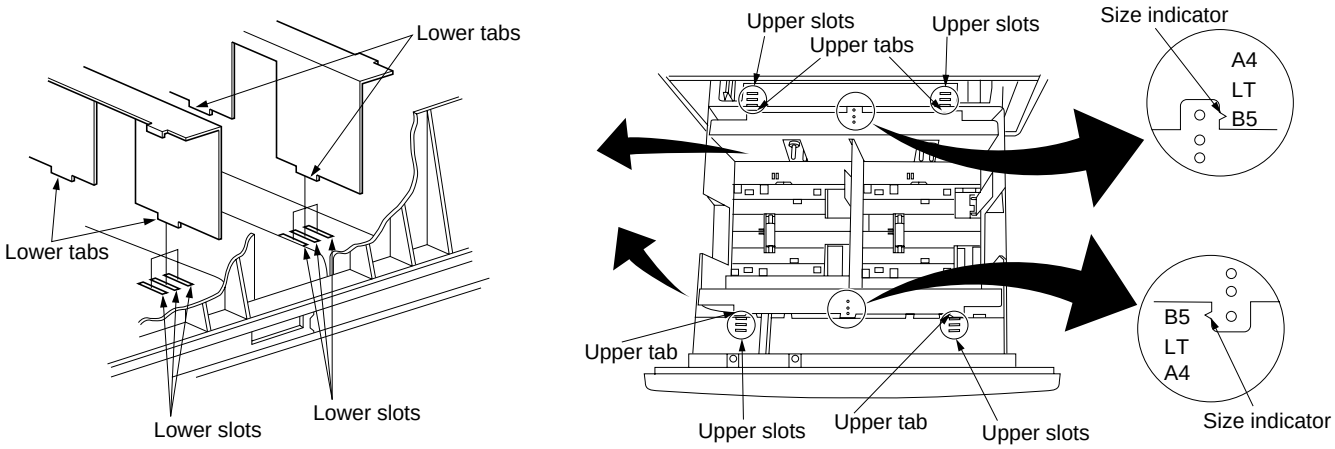


Figure 1-3-35

Steps 6 to 9 are for metric specifications only.

6. Remove the screw from each of the left and right longitudinal size adjusters.
7. Align the pin holes in the left and right longitudinal size adjusters with the A4 pins or B5 pins according to the size of paper to be used. Secure the adjusters using the screw for each.
8. Connect the copier power plug to the wall outlet and turn the copier main switch on.
9. Run maintenance item 208 and set the paper size for the large paper deck (B5/A4).
10. Load paper into the drawer and make a test copy to check the operation.

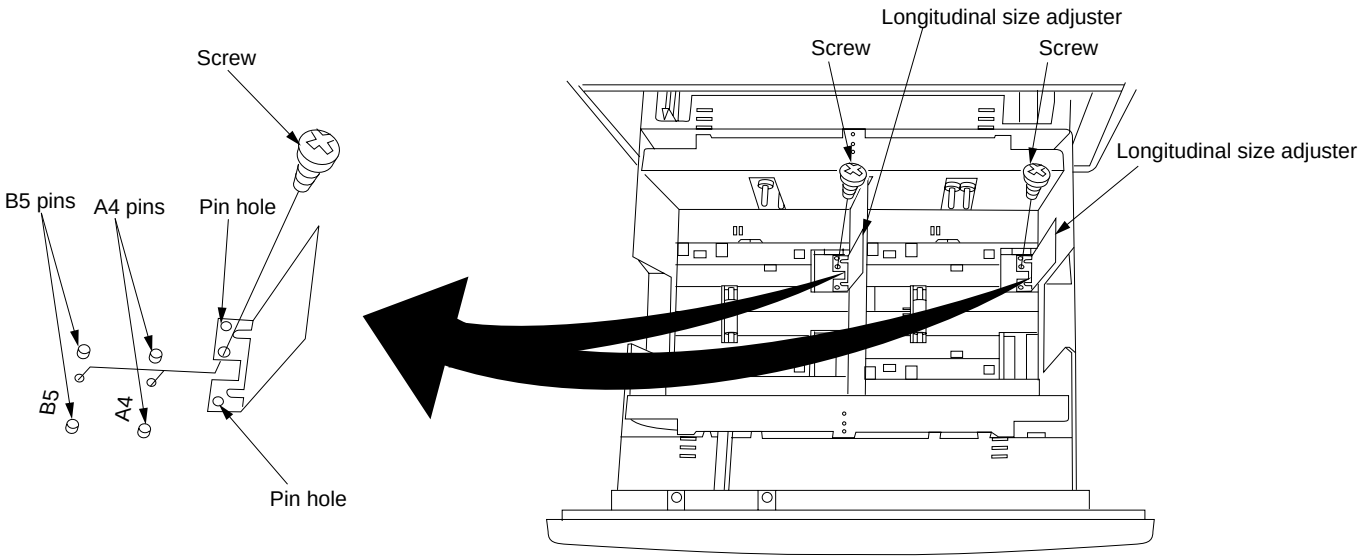


Figure 1-3-36

1-3-8 Installing the saddle finisher/switchback unit (option)

Preparation

1. Open the conveying cover of the copier.
2. Remove the two screws securing the feedshift guide assembly and then the assembly.

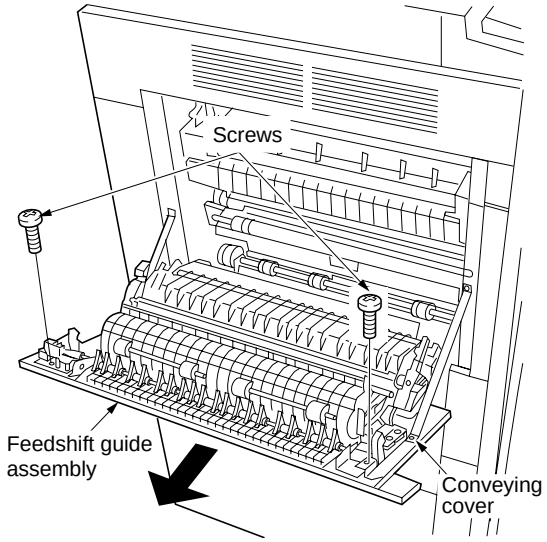


Figure 1-3-37

3. Fit the curl eliminator to the conveying cover such that the projections on the cover fit into the two ends of the curl eliminator.
4. Secure the curl eliminator using the two screws removed in step 2.

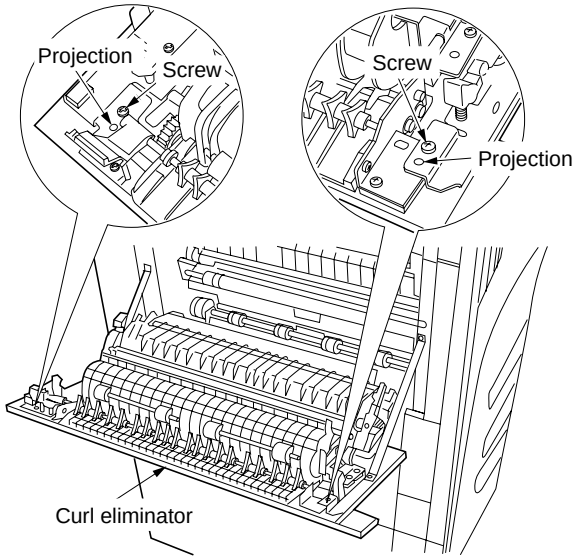


Figure 1-3-38

5. Close the conveying cover.
6. Fit the latch catch to the conveying cover using two M4 × 10 binding screws.

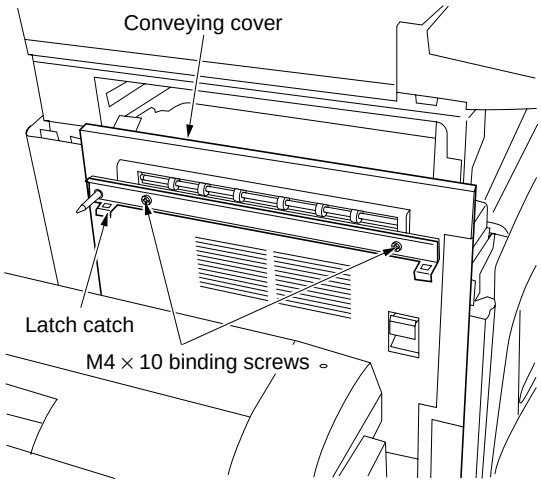


Figure 1-3-39

7. Remove the two screws securing the shield cover and then the cover.

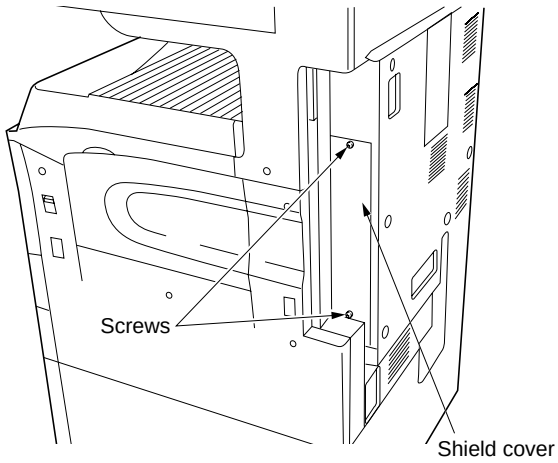


Figure 1-3-40

8. Detach the 10-pin connector (four wires) from CN4 on the main PCB and connect it to J2 on the IPC PCB.

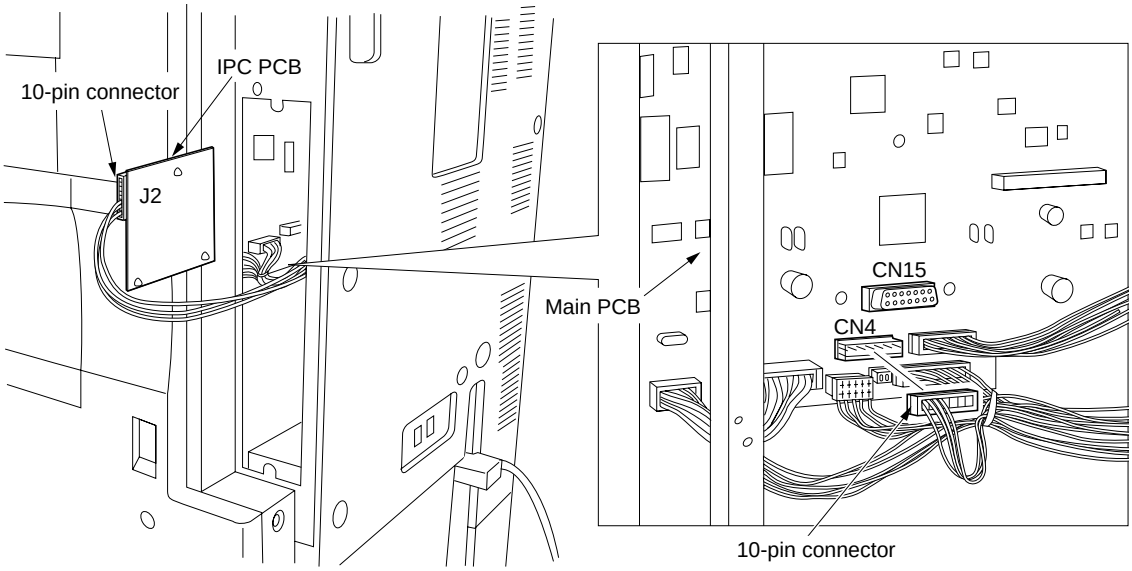


Figure 1-3-41

9. Connect J1 on the IPC PCB to CN15 on the main PCB.
10. Insert the three board supports of the IPC PCB into the main PCB to secure them.
11. Refit the shield cover.

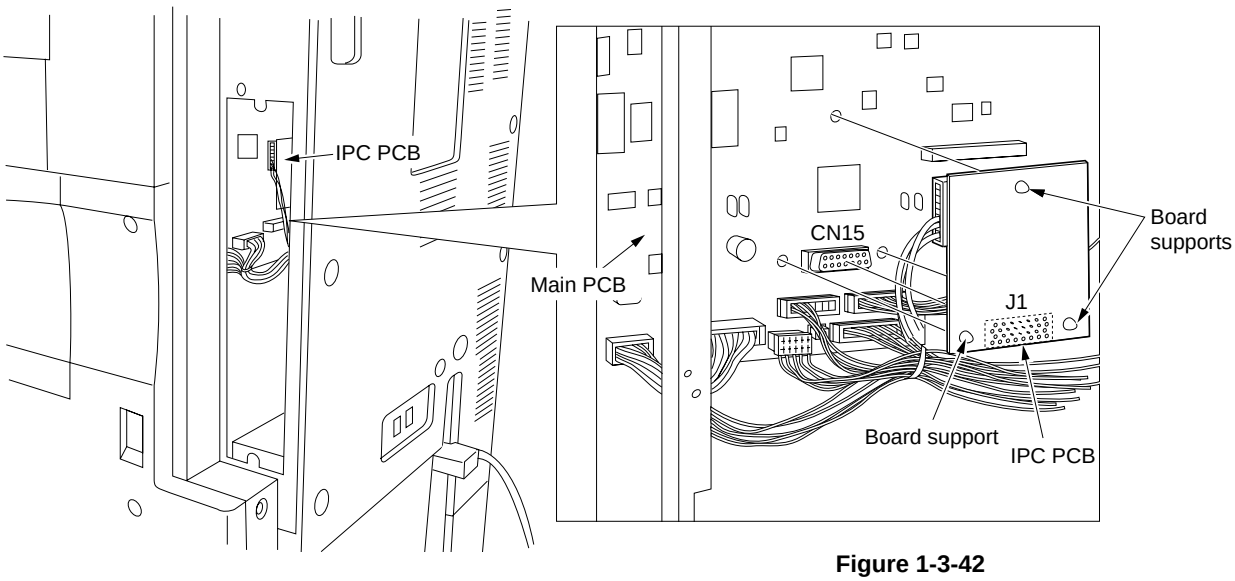


Figure 1-3-42

12. Align the rail retainer with the groove of the guide rail and attach the rail retainer to the guide rail. Make sure that the plate spring of the rail retainer fits into the groove and the edge of the guide rail fits between the pulleys on the reverse side of the rail retainer.

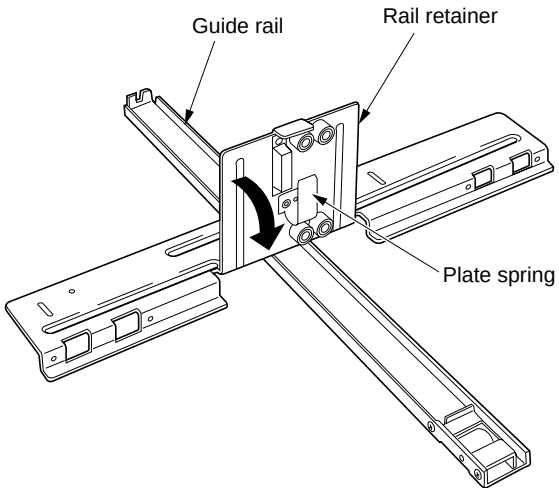


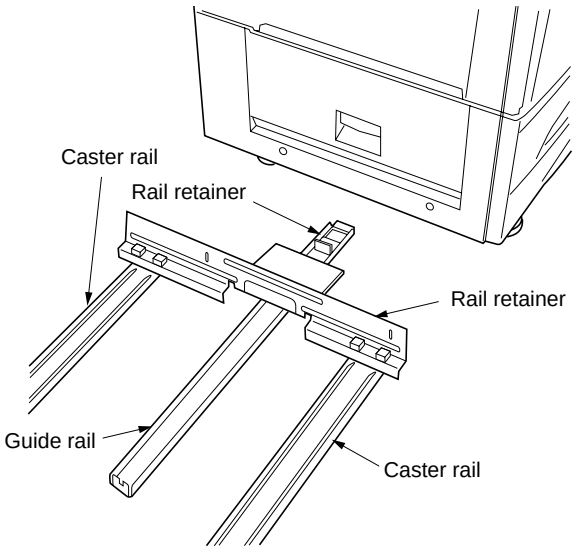
Figure 1-3-43

When the switchback unit is not to be installed

13. Orient the guide rail such that its pulley is positioned toward the copier, and then fit a caster rail to each side of the rail retainer.

When the switchback unit is to be installed

14. Attach a spacer to each end of the rail retainer using two M4 × 6 binding screws for each.
15. Orient the guide rail such that its pulley is positioned toward the copier, and then fit the caster rails to the spacer.



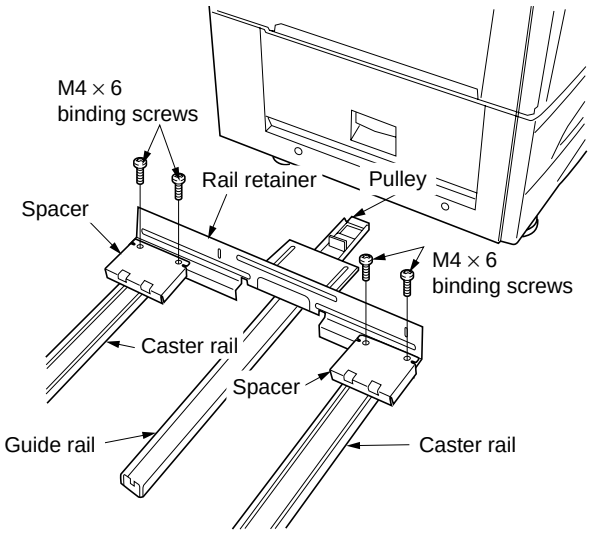
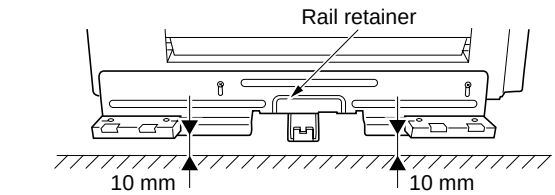


Figure 1-3-44

16. Secure the rail retainer to the copier using two M4 × 10 binding screws such that the front and rear gaps between the floor and rail retainer are approximately 10 mm.



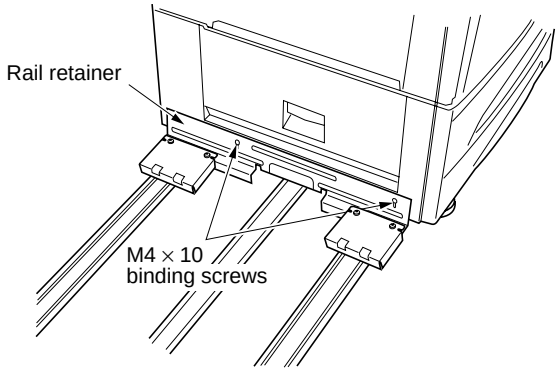


Figure 1-3-45

17. Slightly lift the bottom of the finisher and insert the rail fixing plate into the finisher, and then join them by inserting two M4 × 6 binding screws loosely.

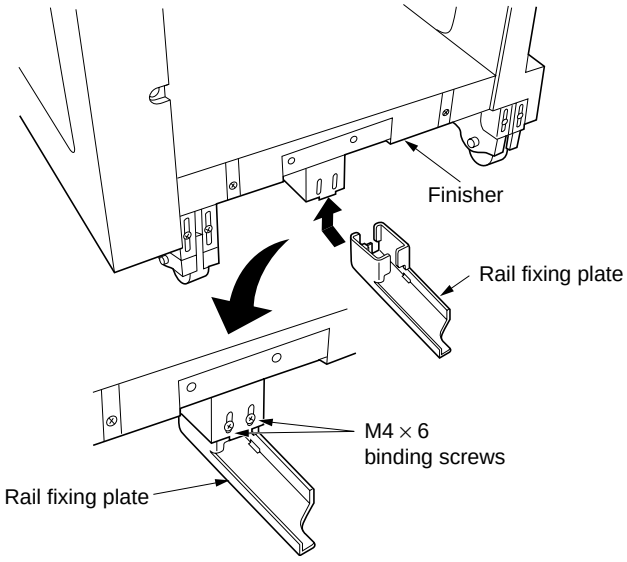


Figure 1-3-46

18. Insert the guide rail into the rail fixing plate and secure it using an M4 × 6 binding screw at the position where the screw hole in it and that in the rail fixing plate meet.
Note: When installing the switchback unit, use screw hole ⓐ in the guide rail; when not installing the switchback unit, use screw hole ⓑ in the guide rail.

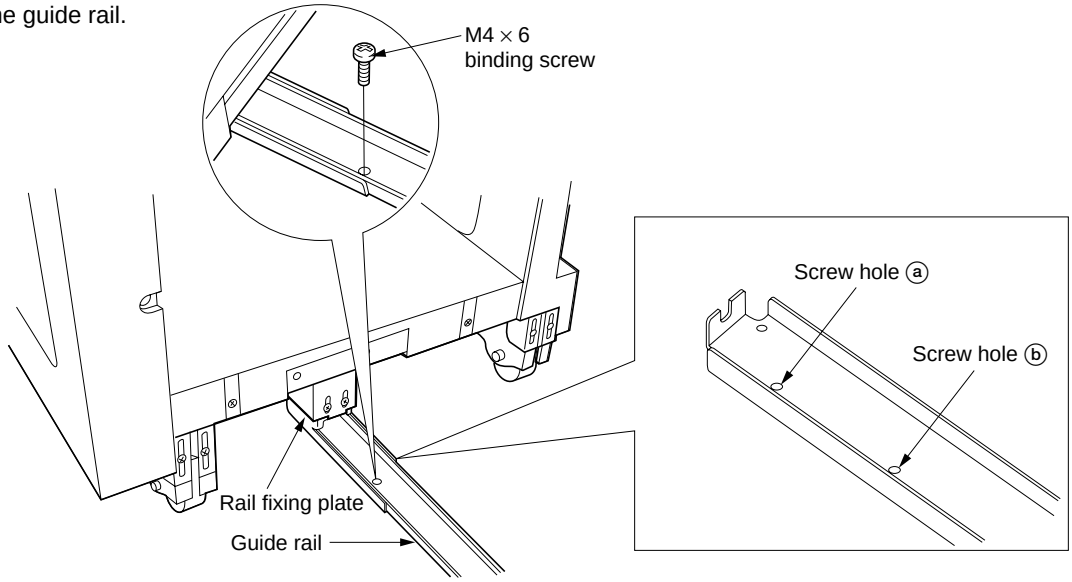


Figure 1-3-47

19. Adjust the position of the rail fixing plate so that the gap between the plate and the floor is approximately 8.0 mm, and then tighten the two loosely fitted M4 × 6 binding screws.

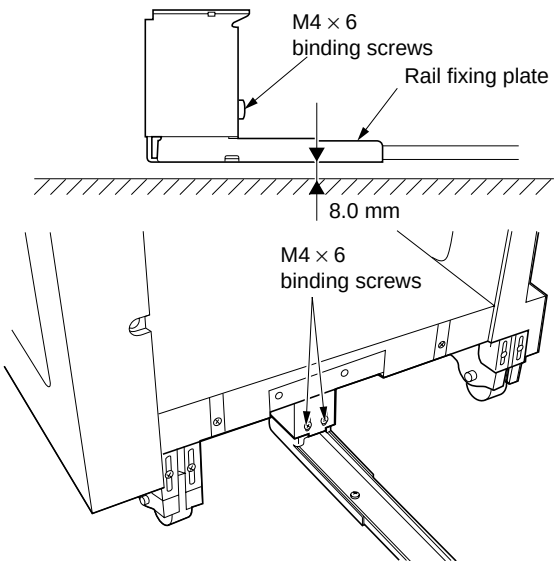


Figure 1-3-48

20. Fit the eject tray to the finisher by hooking the two claws and secure it using two M4 × 6 binding screws.

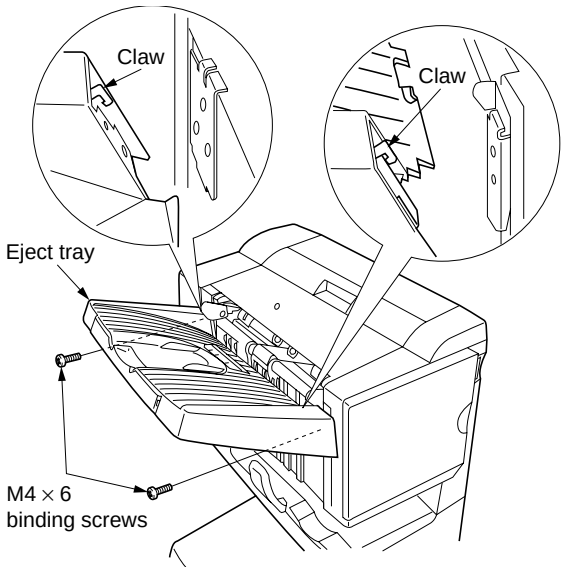


Figure 1-3-49

21. Open the front panel and insert the stapler unit into the finisher.
22. Close the front panel.

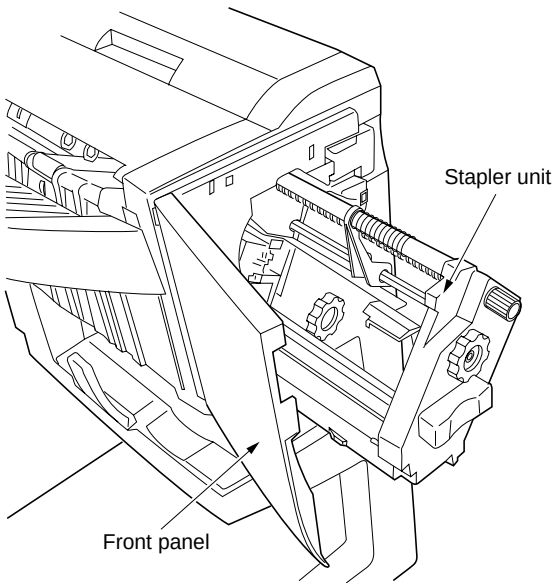


Figure 1-3-50

Installing the switchback unit

1. Remove the two support rubbers on the right of the finisher and loosely fit the two M3 × 8 binding screws in their places.
2. Remove the two screws.

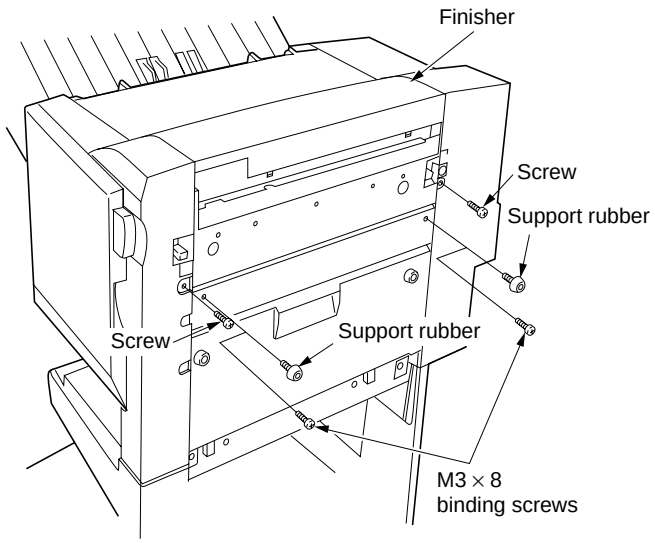


Figure 1-3-51

3. Release the hook of the switchback unit by lifting the release lever.

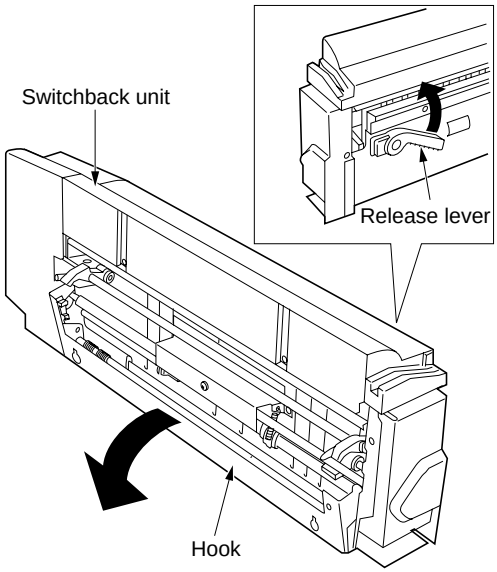


Figure 1-3-52

4. Fit the switchback unit to the finisher by hanging the hook of the switchback unit on the loosely fitted M3 × 8 binding screws.
5. Tighten the loosely fitted M3 × 8 binding screws.
6. Secure the switchback unit using two M4 × 12 TP screws.
7. Close the switchback unit.

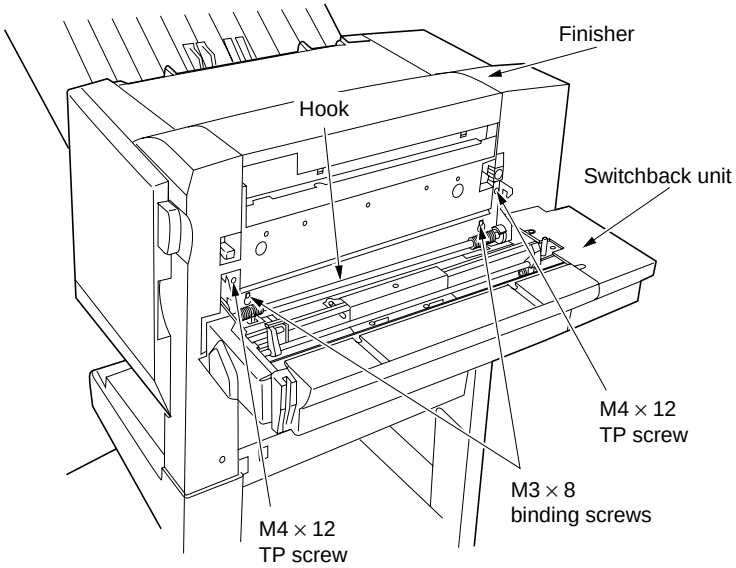


Figure 1-3-53

8. Remove the two screws from the cover of the finisher.

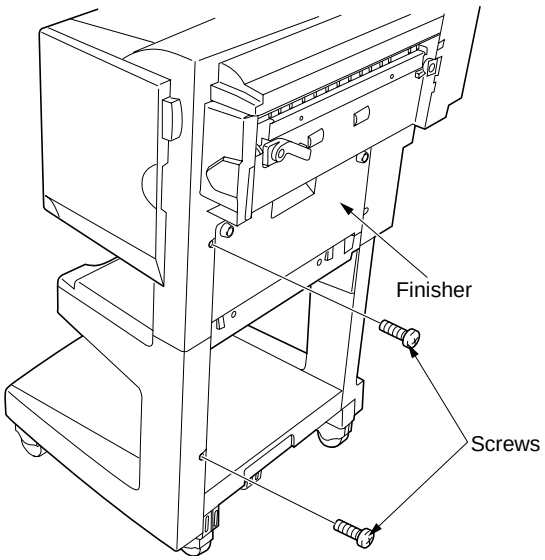


Figure 1-3-54

9. Insert the rib of the front cover into the groove in the top cover of the switchback unit, and then fit the front cover to the finisher.
10. Secure the front cover by fitting an M4 × 12 TP screw and M4 × 16 TP screw into the holes where screws were inserted (see step 8).

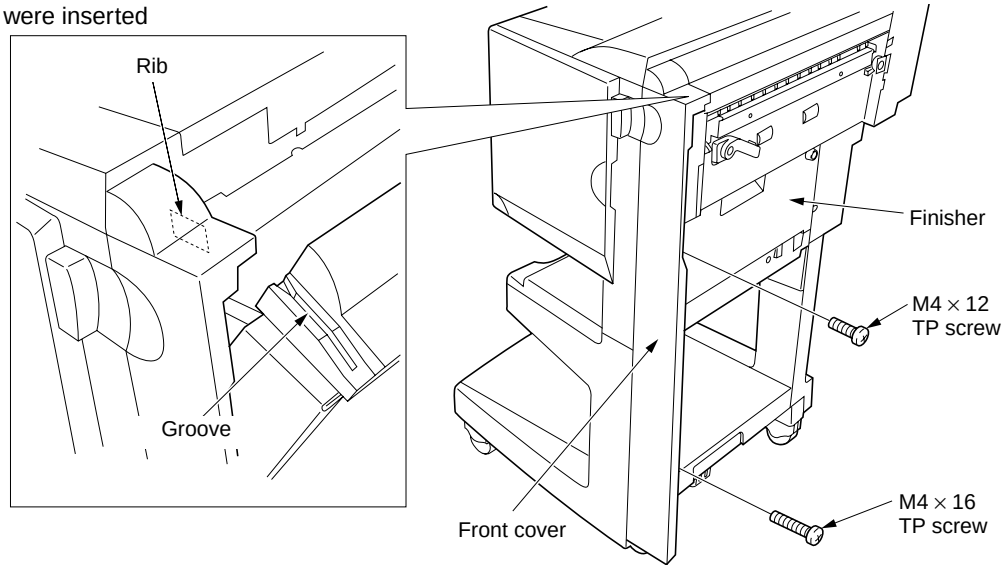


Figure 1-3-55

11. Fit the two support rubbers removed in step 1 to the switchback unit.
12. If the finisher and the copier do not engage securely, perform the following finisher height adjustment.

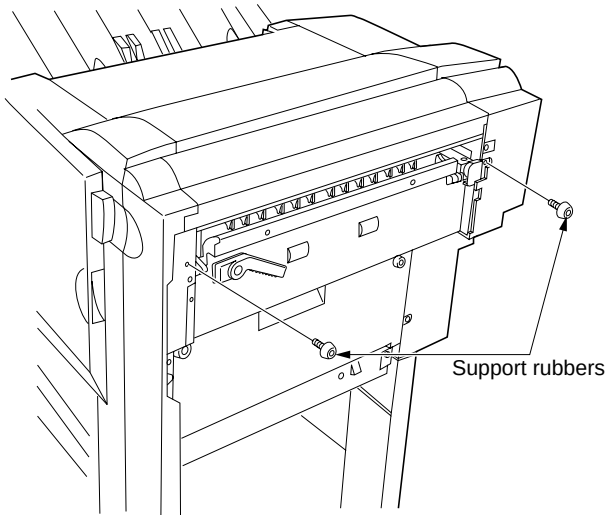


Figure 1-3-56

Adjusting the height of the finisher

1. Remove the two covers from the lower left part of the finisher by removing one screw each.
2. Remove the four caps from above the four casters of the finisher.

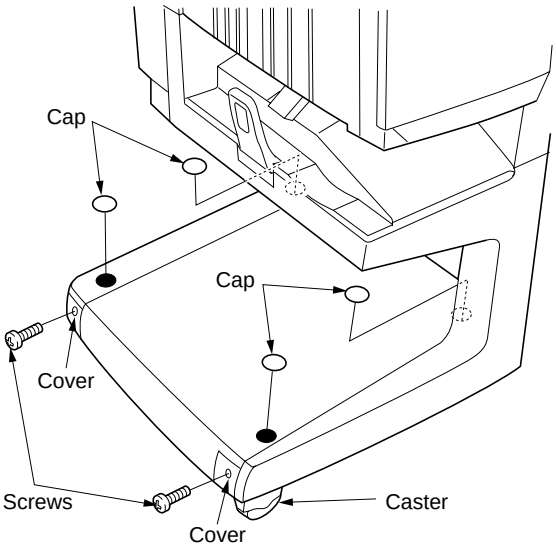


Figure 1-3-57

3. Loosen the two screws on each of the four casters.
4. Adjust the height of the rear right caster by turning its adjustment bolt using a cross-headed screwdriver so that the axis of the pin of the latch catch is aligned with the middle of the three markings on the right of the slot of the finisher or switchback unit when the finisher is joined to the copier (viewed from the machine front).
   Note: Turning the adjustment bolts clockwise lowers the finisher, while turning them counterclockwise lifts the finisher.

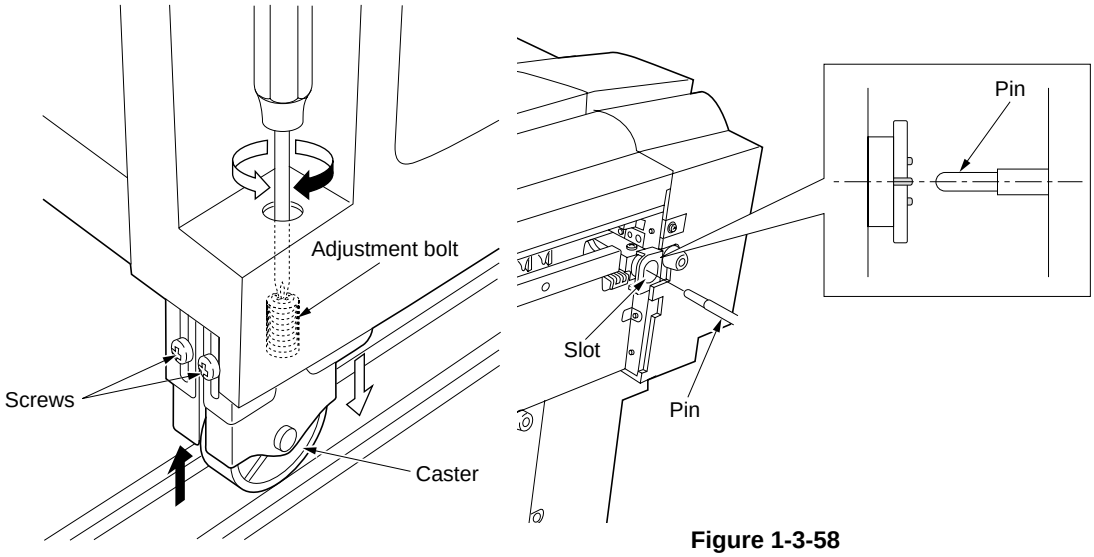


Figure 1-3-58

5. Adjust the height of the front right caster in the same manner as in step 4 so that the axis of the pin of the latch catch is aligned with the marking above the slot and the center of the two hooks on the finisher align with the center of the holes on the latch catch when the finisher is joined to the copier (viewed from above).

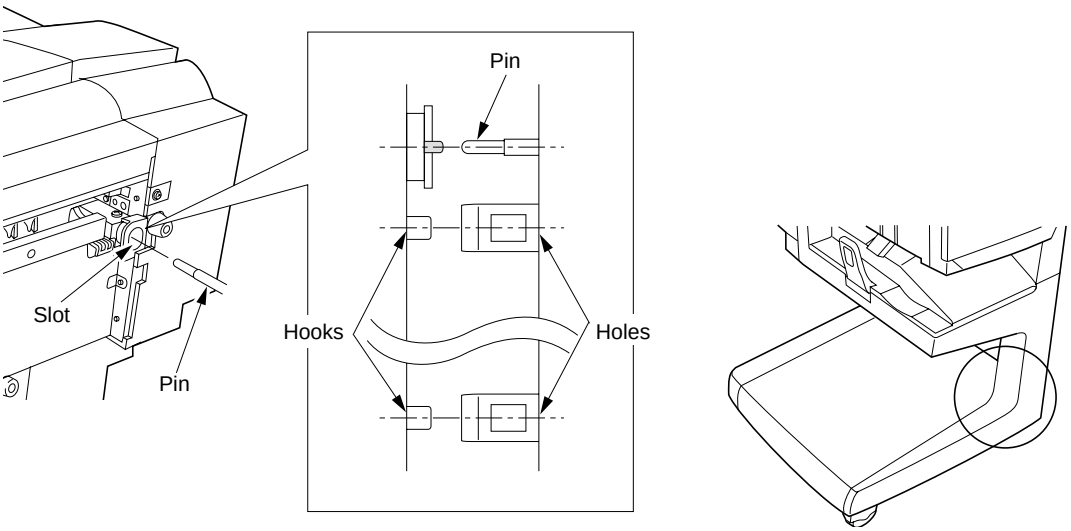


Figure 1-3-59

6. Adjust the height of the left two casters in the same manner as in step 4 so that the top and bottom gaps (A) between the finisher and the copier are the same when the finisher is detached from the copier.
7. Retighten the two screws on each of the four casters.
8. Refit the two covers and four caps.

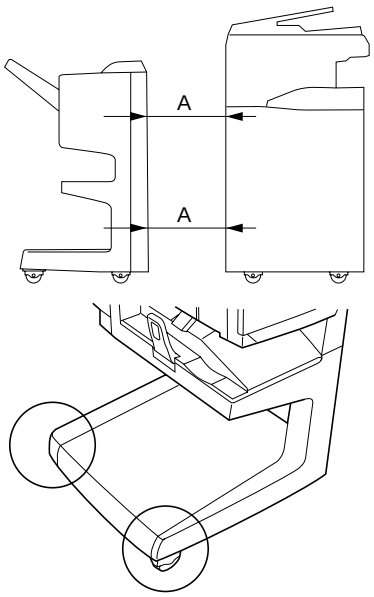


Figure 1-3-60

Connecting the signal cable

1. Connect the signal cable of the finisher to the copier. If the switchback unit has been installed, connect the signal cable of the switchback unit, as well.
2. Insert the copier power plug to the wall outlet and turn the main switch on.
3. Make test copeies and check that the finisher and the switchback unit operate correctly.

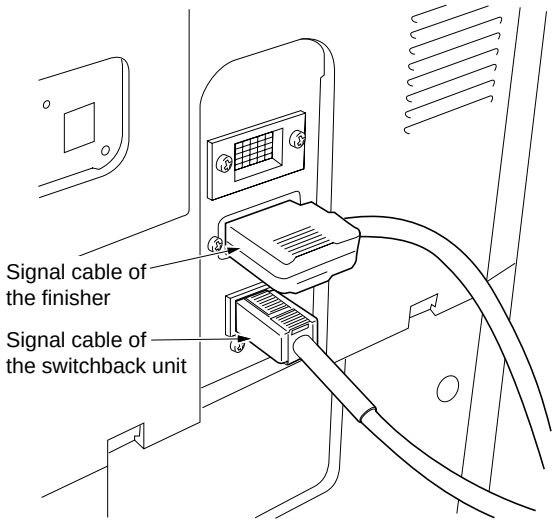


Figure 1-3-61

1-3-9 Installing the sheet-through document holder (option)

Preparation

1. Insert the DF into the copier.

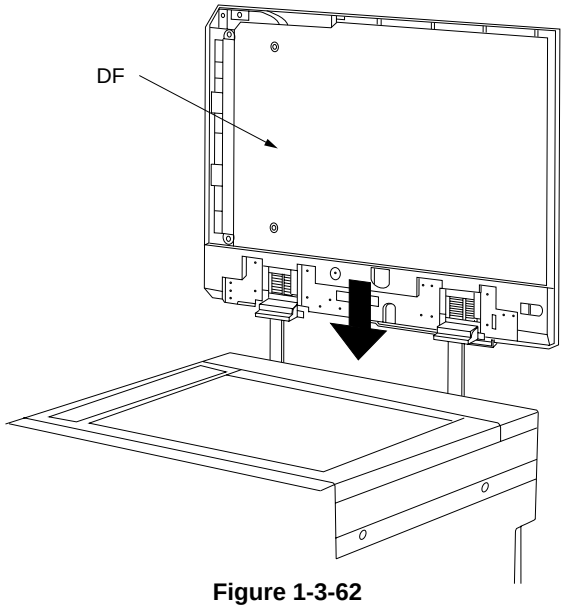


Figure 1-3-62

2. Connect the connector of the DF to the copier.
3. Insert the copier power plug to the wall outlet and turn the main switch on.

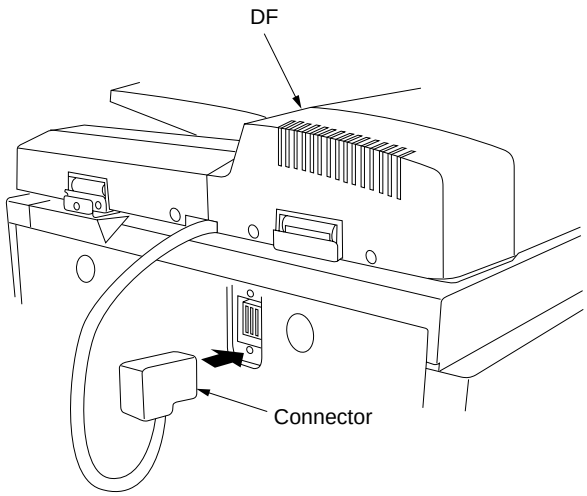


Figure 1-3-63

4. Run maintenance item U211 to set “SADF” (25 cpm copier only).
5. Place the original on the DF and make a test copy. Check the operation and the copy image.
6. If the copy image is different from the original, run the following adjustment.
   - Maintenance item U70 (sub-scan line adjustment)(see page 1-4-15)
   - Maintenance item U71 (leading edge timing adjustment)(see page 1-4-16)
   - Maintenance item U72 (center line adjustment)(see page 1-4-17)

1-3-10 Installing the Facsimile System (option)

Procedure

1. Fit the battery pack into the NCU retainer as shown in the illustration.
2. Fit the speaker onto the two catches on the NCU retainer, and fasten it into place with one M3 × 06 chrome binding screw.
3. Fasten the NCU board to the NCU retainer with four M3 × 06 chrome binding screws.
4. Connect the NCU cable to connector CN1 on the NCU board.

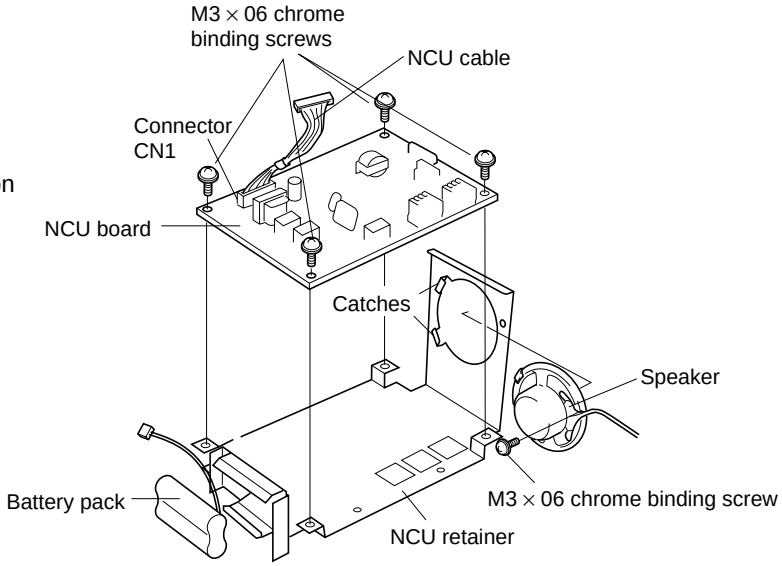


Figure 1-3-64

5. Adhere the lower-sheet to the auxiliary power source retainer.
6. Fasten the auxiliary power source PCB, together with the upper-sheet, to the auxiliary power source retainer, using three M3 × 06 chrome binding screws.
7. Pass the FAX-PCB-Power cable through the cutout in the upper-sheet, and connect it to connector CN1 on the auxiliary power source PCB.

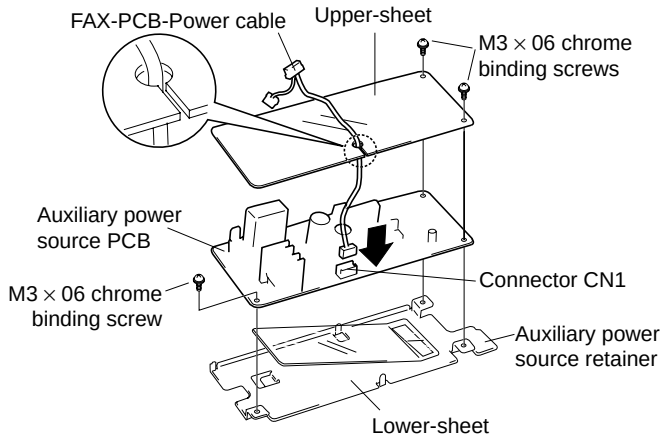


Figure 1-3-65

8. Remove 13 screws and take off the rear cover.

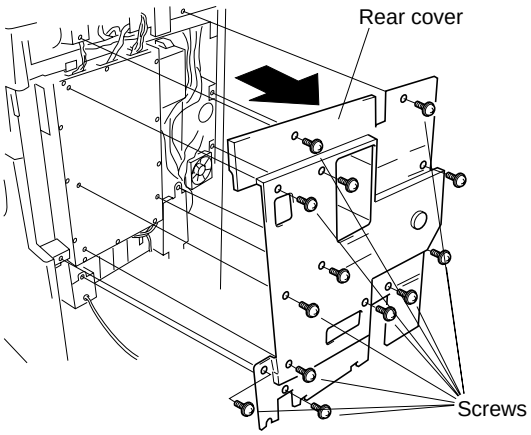


Figure 1-3-66

- If the printing system is installed

9. Remove the 2 screws holding the printer system in place, and pull the printing system out of the shield cover.

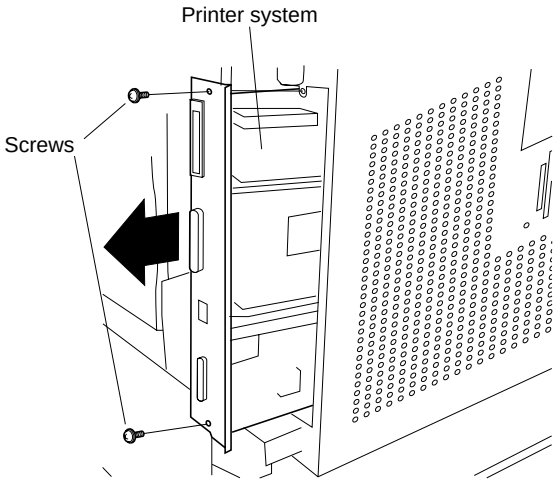


Figure 1-3-67

10. Remove 13 screws and take off the shield cover.

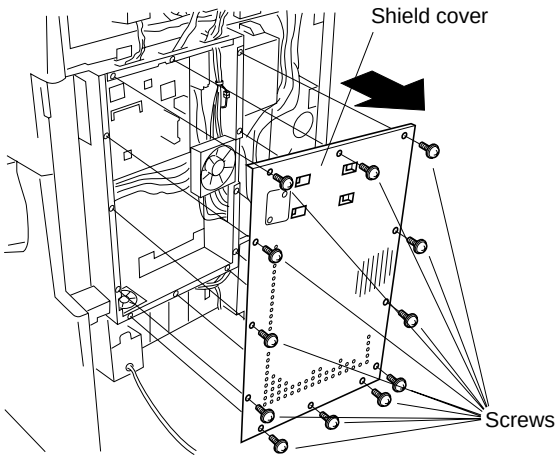


Figure 1-3-68

11. Move the film out of the way to the left, and fasten the fax board into place using six M3 × 06 chrome binding screws.

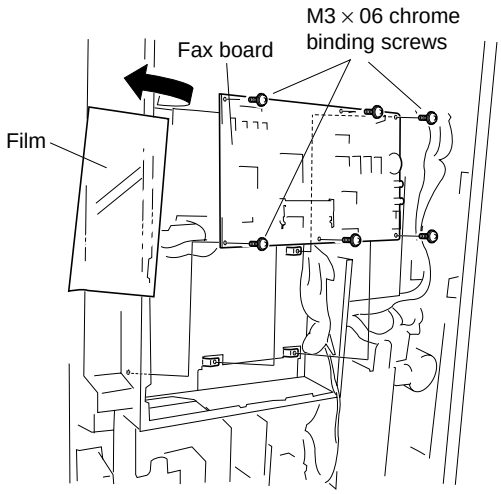


Figure 1-3-69

12. Fasten the NCU unit into place from the bottom with two M3 × 06 chrome binding screws.
13. Connect the three connectors from the NCU board to the corresponding connectors on the fax board, as follows:
    • Speaker 2-pin connector → CN7
    • NCU board connector → CN3
    • Battery connector → CN6

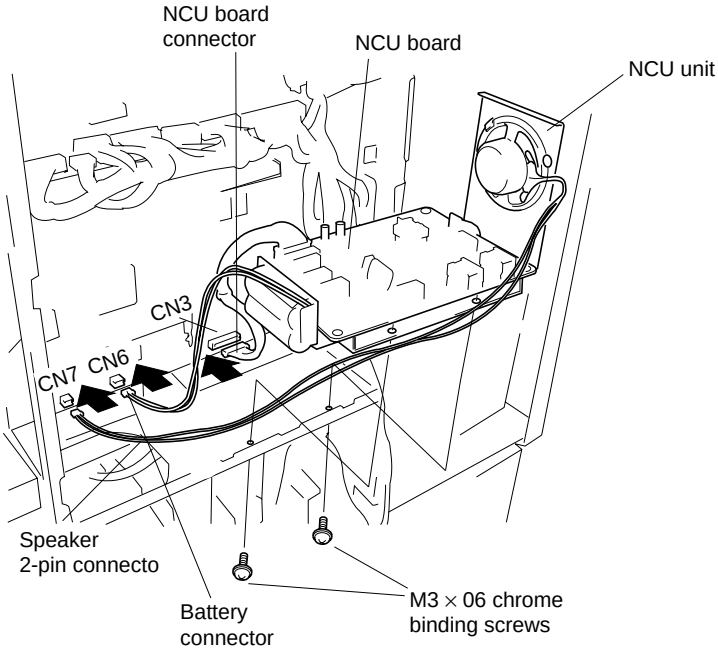


Figure 1-3-70

14. Connect the three positive connectors on the power board to the corresponding connectors on the auxiliary power source PCB, as follows.
    • White positive connector → TB1 (white)
    • Green positive connector → TB2 (green)
    • White positive connector → TB3
15. Connect the FAX-PCB-Power cable to connector on the auxiliary power source PCB.

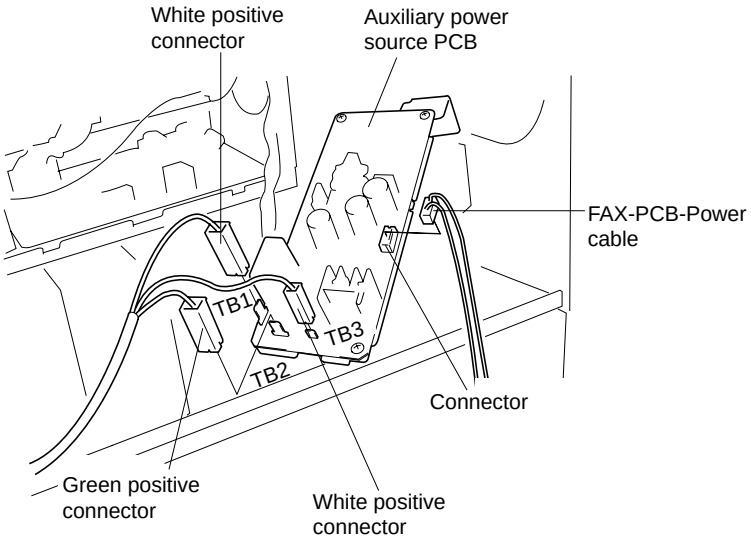


Figure 1-3-71

16. Fit the catch on the auxiliary power unit into the mount hole in the copier, and fasten the auxiliary power unit into place with one M3 × 06 chrome binding screw.

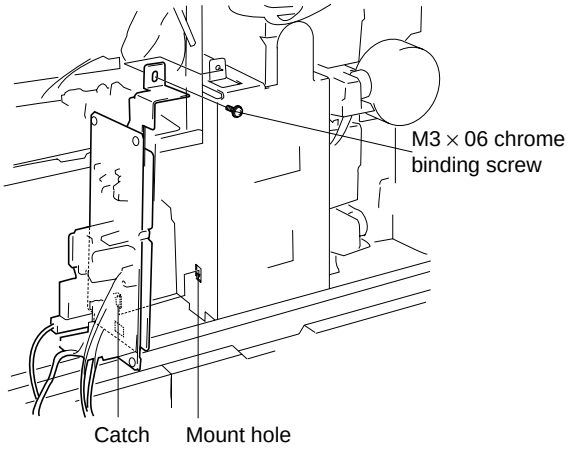


Figure 1-3-72

17. Through the opening of controller-box above the speaker, connect the FAX-PCB-Power cable on the auxiliary power source PCB to connector CN8 on the fax board.
18. Connect the 2-pin connector to the 2-pin connector with green cable.

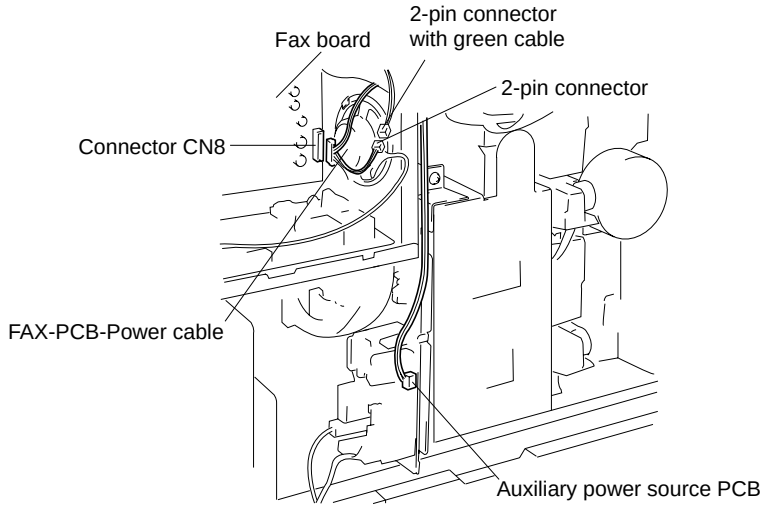


Figure 1-3-73

19. Unlock CN1 on the fax board by pulling its connector housing.
20. Hold the fax cable with its conductive side facing up, insert it into connector CN1, then push the housing back in to lock the connector.
21. Hold the other end of the fax cable with its conductive side facing down, and connect it to connector CN44 on the main PCB. (Pull the CN44 housing out to release the connector lock, then insert the cable, and then push the housing back in.)
    Important: Be sure to push the fax cable all the way in, and be sure that the connection is straight. A poor connection may result in a variety of problems.

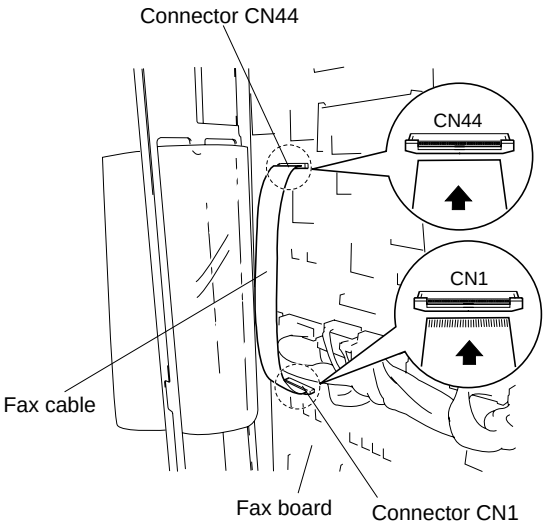


Figure 1-3-74

Important: The Memory module DIMM (8MB) must be installed onto the fax board. Please be sure that you do not install it onto the main PCB.
22. Insert the Memory module DIMM (8MB) at an angle into the memory slot on the fax board.
23. Push the free end of the module down toward the board.

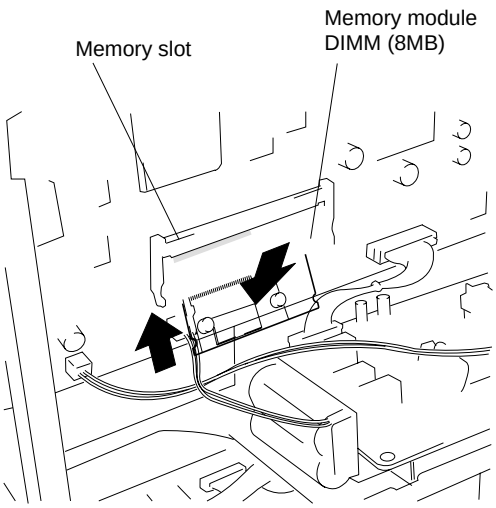


Figure 1-3-75

24. Fasten the shield cover into place with 13 screws.

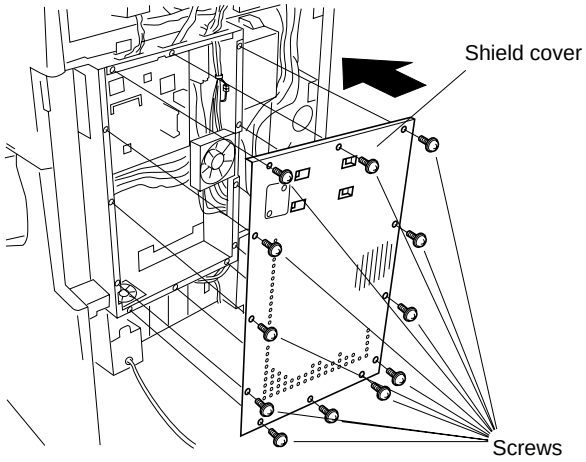


Figure 1-3-76

25. Remove 1 screw and take off the modular cover.

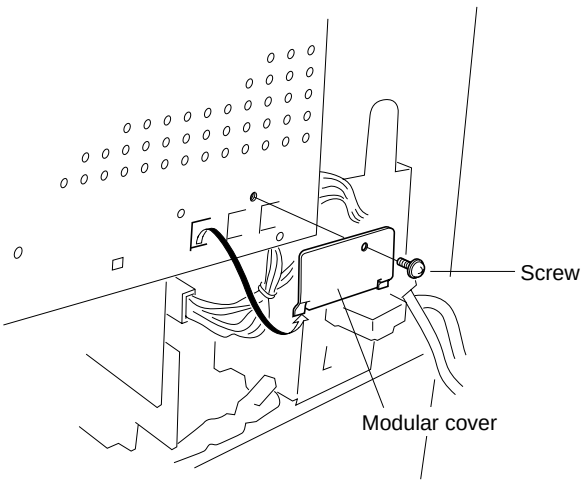


Figure 1-3-77

26. Hang the modular cover onto the holes on the shield cover, and fasten it into place with 1 screw.

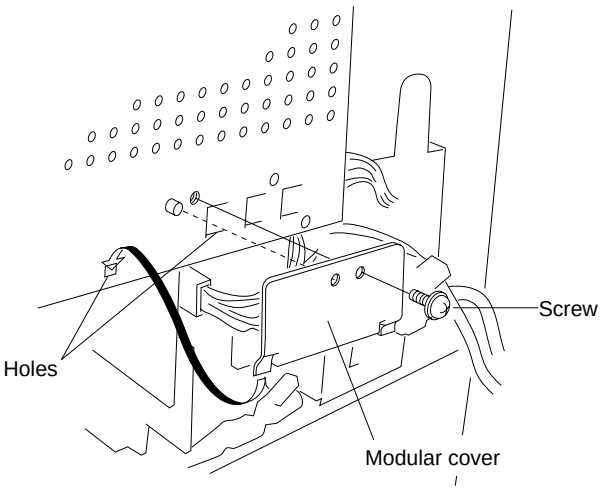


Figure 1-3-78

- If the printing system was installed

27. Reinstall the printing system into the shield cover, fastening it into place with 2 screws.

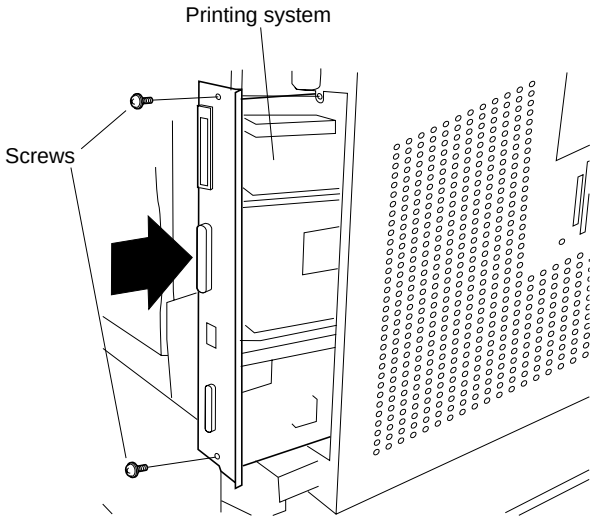


Figure 1-3-79

28. Reattach the rear cover with 13 screws.

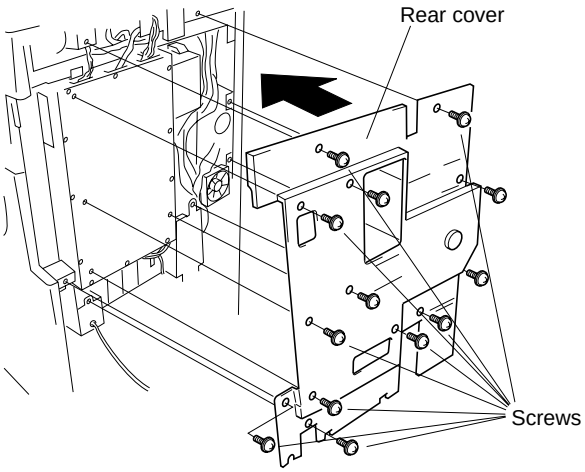


Figure 1-3-80

29. Adhere the certification labels to the rear cover at the locations indicated in the illustration (only 120 V Spac.).

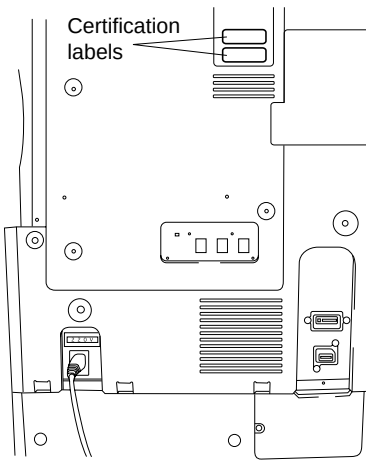


Figure 1-3-81

30. Take the power label from the fax-kit label sheet, and adhere it to the copier directly under the main switch.

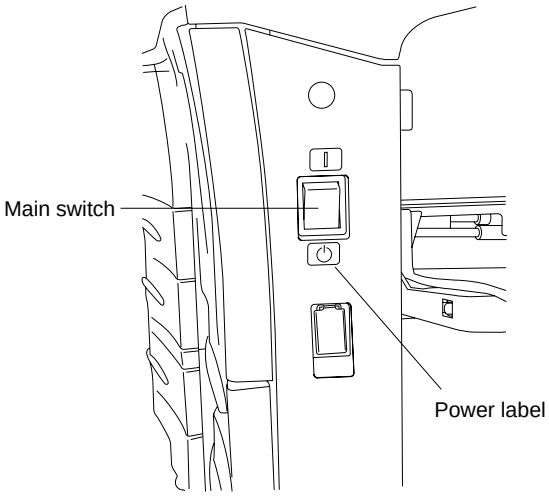


Figure 1-3-82

31. Take the alphabet labels from the fax-lit label sheet, and adhere them above the corresponding numeric keys on the operation panel.
    - In Asia, use the “PQRS TUV WXYZ” label, and do not use the “PRS TUV WXZ” and “OPER” labels.

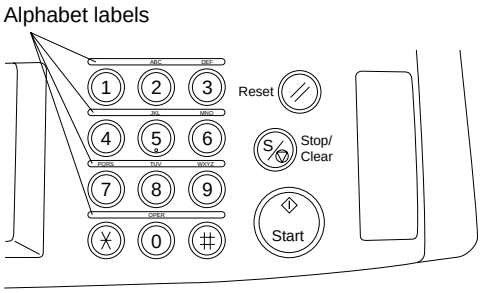


Figure 1-3-83

32. Connect the L terminal to the phone circuit using a modular connector cable.
    Important: On 120 V systems, use the included modular connector cable to make the connection.

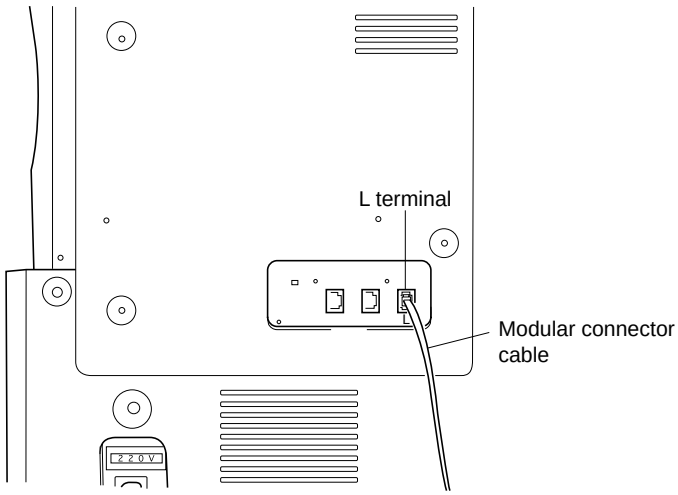


Figure 1-3-84

Initialization procedure after installation of facsimile system

1. Insert the copier power plug to the wall outlet and turn the main switch on.
2. Run maintenance item U601.
3. Enter a destination code using the numeric keys (refer to the destination code list) and then press the start key.
   * Enter a destination code with three digits.

Code	Destination	Code	Destination	Code	Destination
000	Japan	159	South Africa	253	Sweden
009	Australia	169	Thailand		France
080	Hong Kong	181	U.S.A.		Austria
084	Indonesia	242	South America		Switzerland
088	Israel	243	Saudi Arabia		Belgium
108	Malaysia	253	CTR21 (European nations)		Denmark
126	New Zealand		Italy		Finland
136	Peru		Germany		Portugal
137	Philippines		Spain		Ireland
152	Middle East		U.K.		Norway
156	Singapore		Netherlands	254	Taiwan

4. Enter the OEM code (000) and then press the start key.
5. Confirm that the display is changed as shown in the illustration.
   * At the position of @, the version number of the software is displayed.

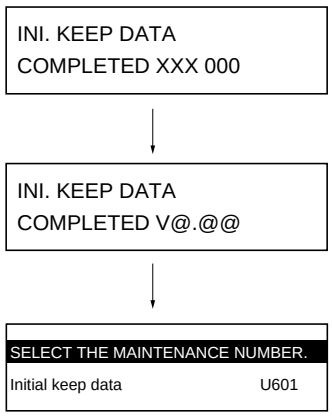


Figure 1-3-85

6. Press the cursor key to change the display to maintenance item U602.
7. Press the start key and confirm that the display is changed as shown in the illustration.
   * At the position of @, the version number of the software is displayed.
8. After completing the installation, run a communications test to confirm that the fax system is working correctly.

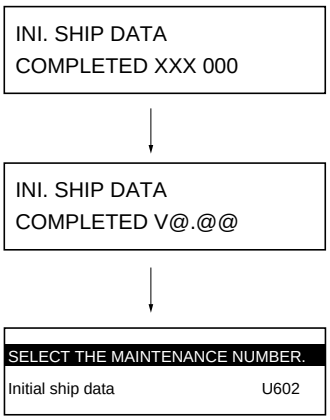


Figure 1-3-86

1-3-11 Installing the Printing System (option)

Procedure

1. Remove 2 screws and take off the cover.

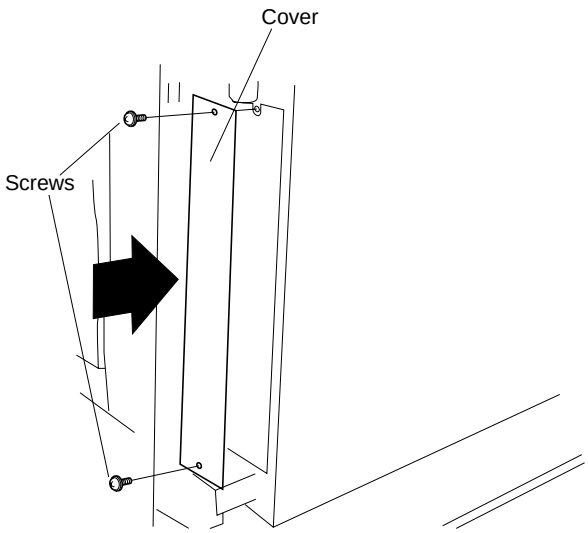


Figure 1-3-87

2. Push the printing system all the way in along the rails, and fasten it with 2 screws.

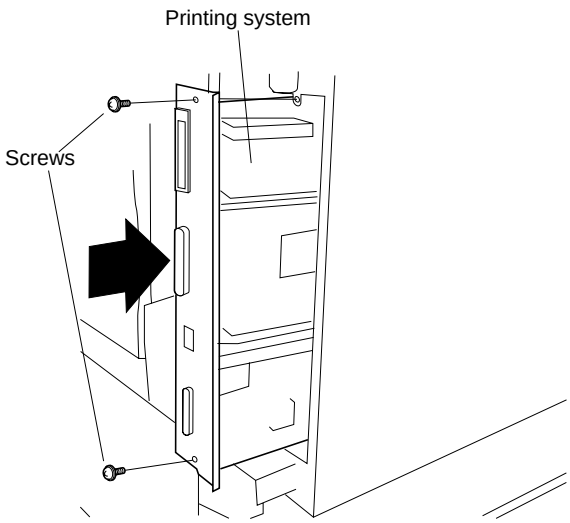


Figure 1-3-88

Install the (optional) network printer board.

3. Remove 2 screws and take off the cover.
4. Push the network printer board all the way in along the rails, and fasten it with 2 screws.

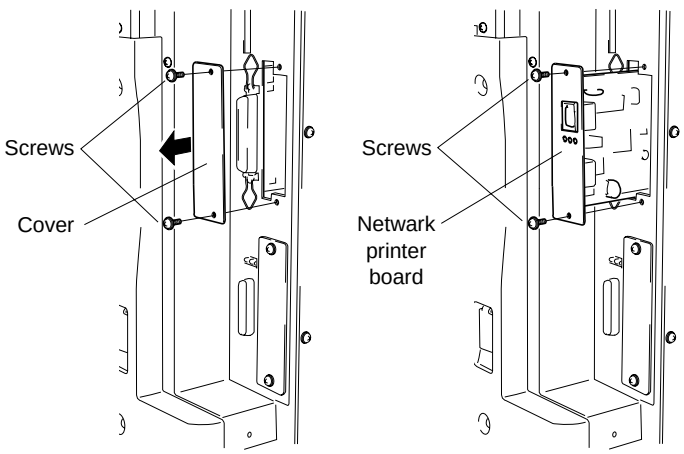


Figure 1-3-89

Install the (optional) hard disk.

5. Remove 2 screws and take off the cover.
6. Push the hard disk all the way in along the rails, and fasten it with 2 screws.

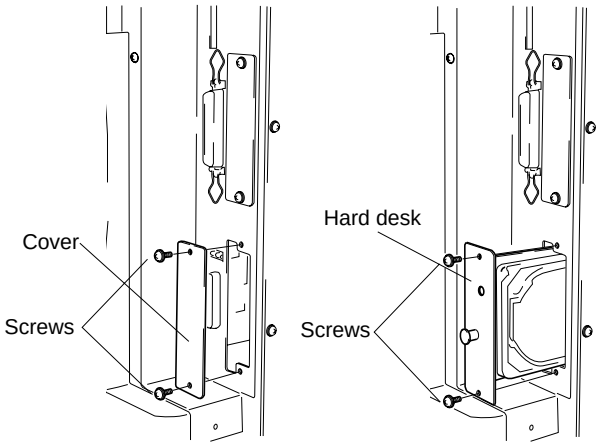


Figure 1-3-90

Installing the Optional Bar-Code Reader

7. Fasten the serial connector in place with 2 screws.
8. Tie the excess cord with the two bands, so that the free cord length comes to about 1 meter.
9. Peel off the backing from one of the clamps, adhere the clamp to the copier at the position shown in the illustration, and pass the wire though the clamp.
   - If a wing tray is installed, attach the other clamp to the wing tray and pass the wire through both clamps.

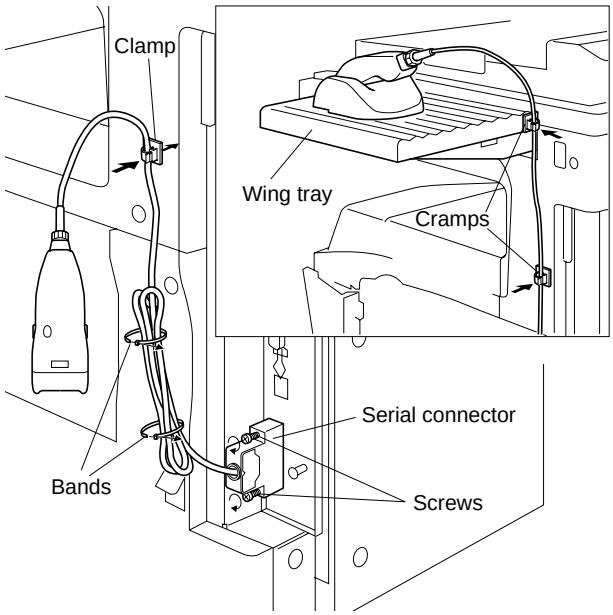


Figure 1-3-91

Installing the Optional Memory DIMM

10. Remove the printing system, and insert the optional memory DIMM firmly into either of the memory slots. Push the DIMM firmly into the slot so that the two hooks (one hook at each end of the slot) snap closed.
    - The board provides two DIMM slots, and can accept up to two optional DIMMs. If installing a single DIMM, you can use either slot.

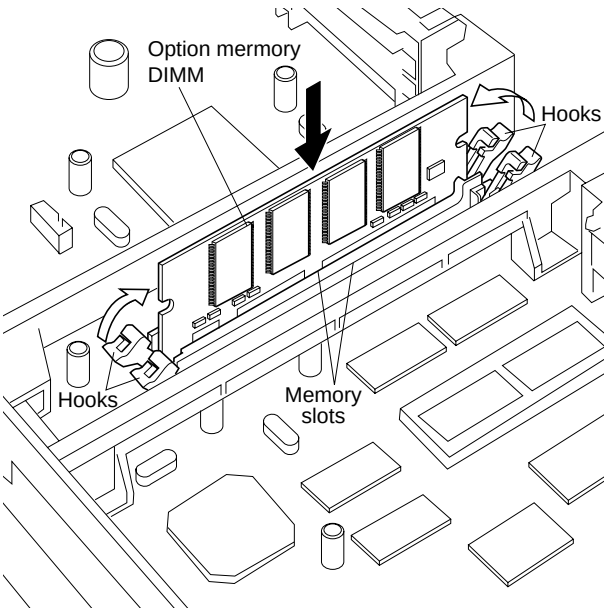


Figure 1-3-92

1-3-12 Installing the Scanning System (option)

Procedure

1. Remove 13 screws and take off the rear cover.

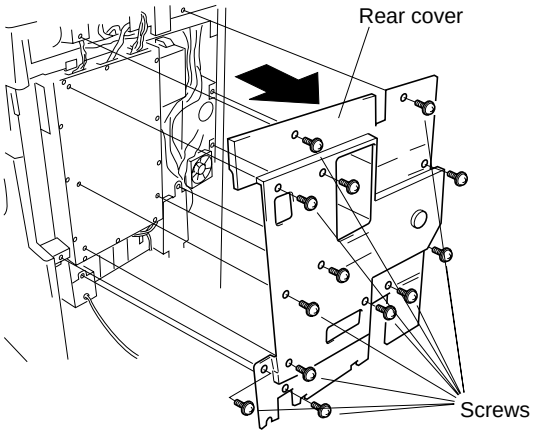


Figure 1-3-93

- If the printing system is installed

2. Remove the 2 screws holding the printer system in place, and pull the printing system out of the shield cover.

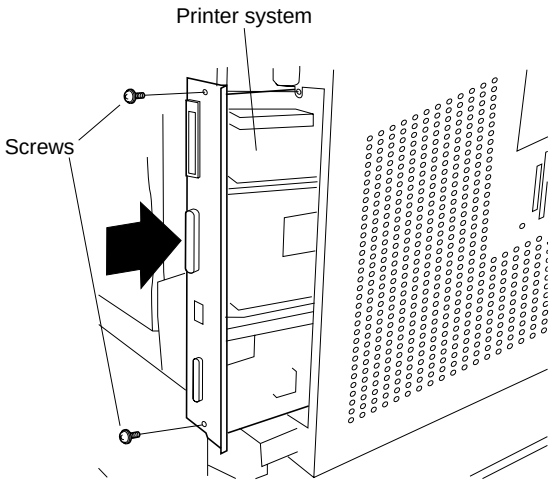


Figure 1-3-94

3. Remove 13 screws and take off the shield cover.

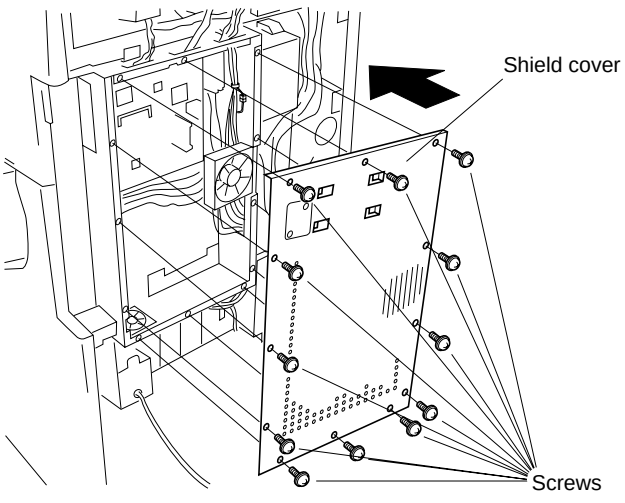


Figure 1-3-95

4. Insert the RTC board at an angle into the RTC board slot on the main PCB.
5. Push the free end of the RTC board down toward the fax board.

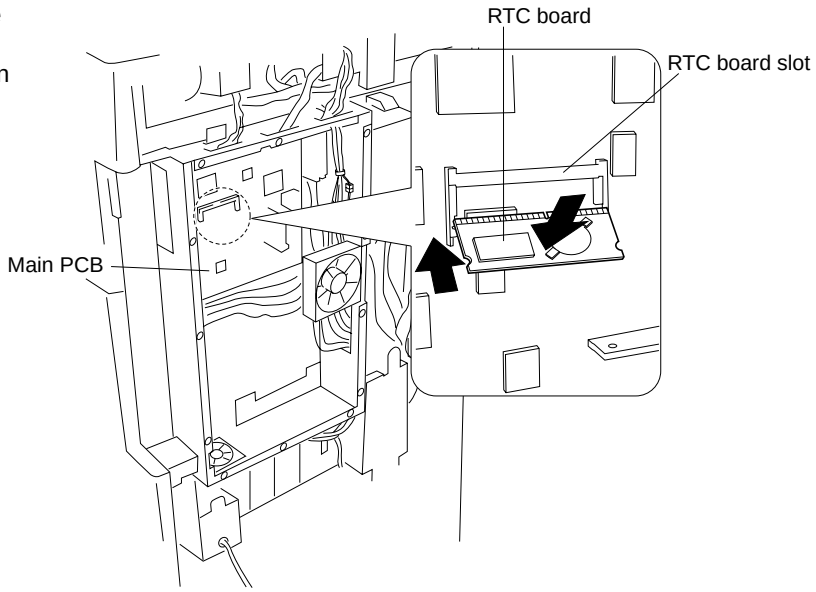


Figure 1-3-96

6. Remove 2 screws, and take off the cover.

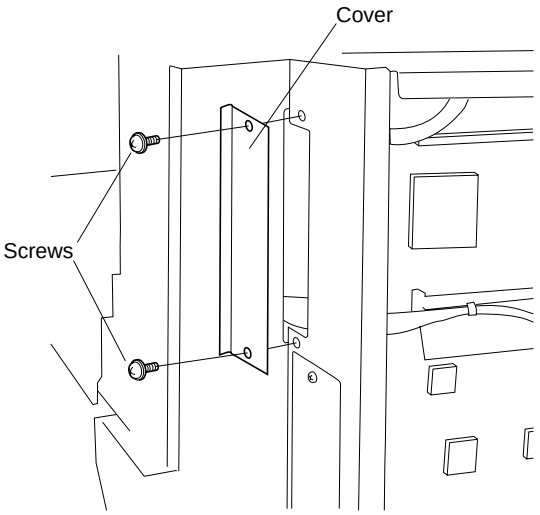


Figure 1-3-97

7. Firmly push connector CN1 on the scanner board all the way into connector CN50 on the main PCB.
8. Fasten the scanner board with 2 screws.

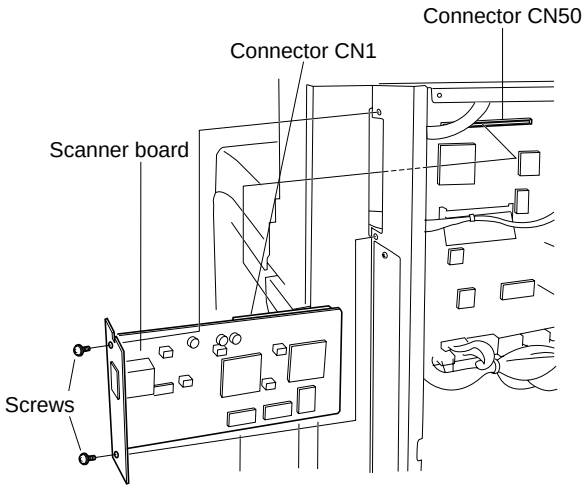


Figure 1-3-98

9. Fasten the shield cover into place with 13 screws.

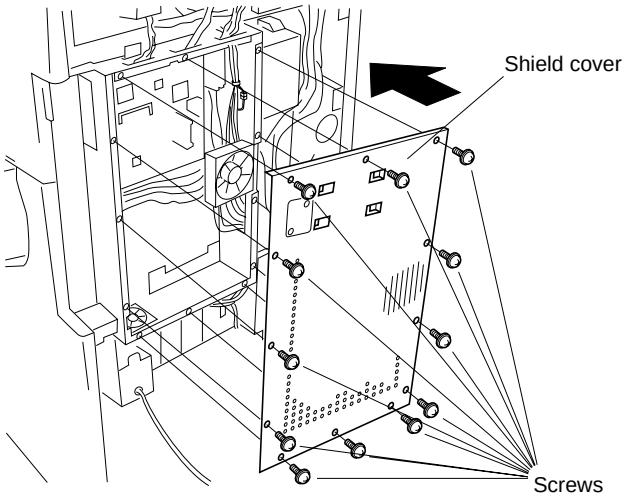


Figure 1-3-99

- If the printing system was installed

10. Reinstall the printing system into the shield cover, fastening it into place with 2 screws.

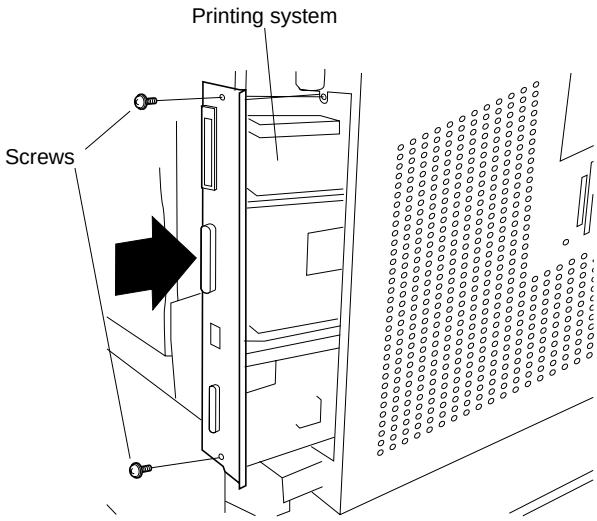


Figure 1-3-100

11. Reattach the rear cover with 13 screws.

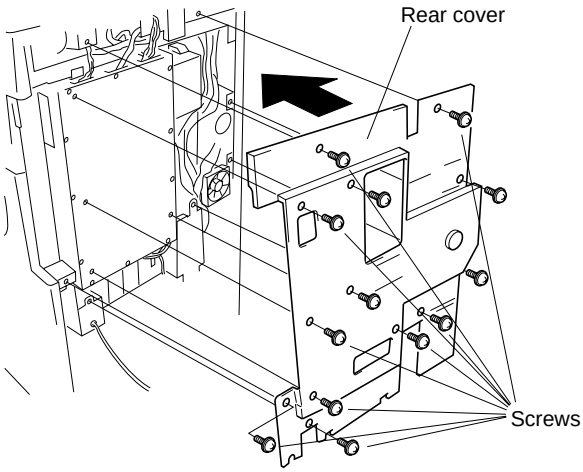


Figure 1-3-101

1-3-13 Installing the duplex unit (option)

Preparation

1. Open the conveying cover.
2. Remove the screw from the front and rear struts respectively to remove the struts and remove the conveying cover in the horizontal direction.

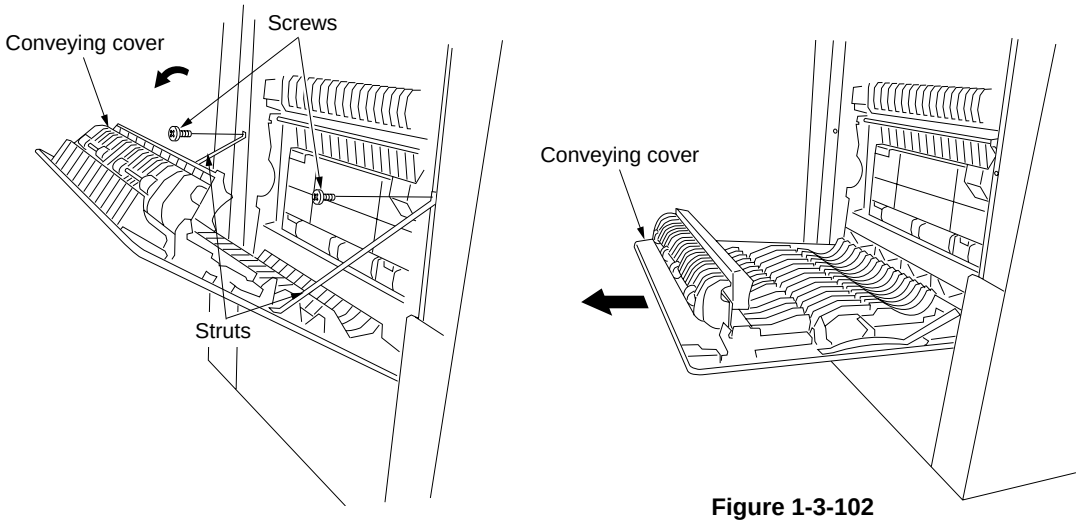


Figure 1-3-102

3. Insert the nut plates into the paper conveying bases.

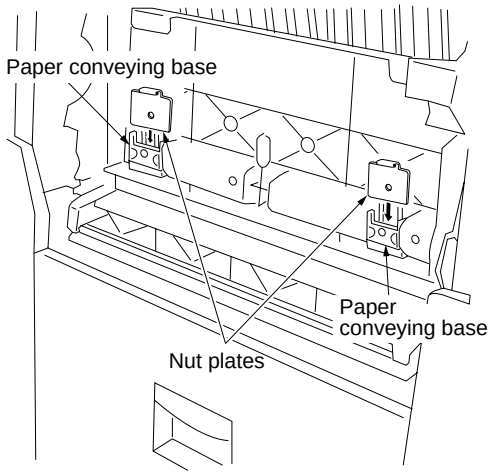


Figure 1-3-103

4. Raise the release lever of the conveying unit, open the conveying unit a little, and hang the hook sections in the front and rear of the duplex unit on the shaft of the conveying unit.
5. Secure the duplex unit using the four M3 × 10 bronze binding screws.

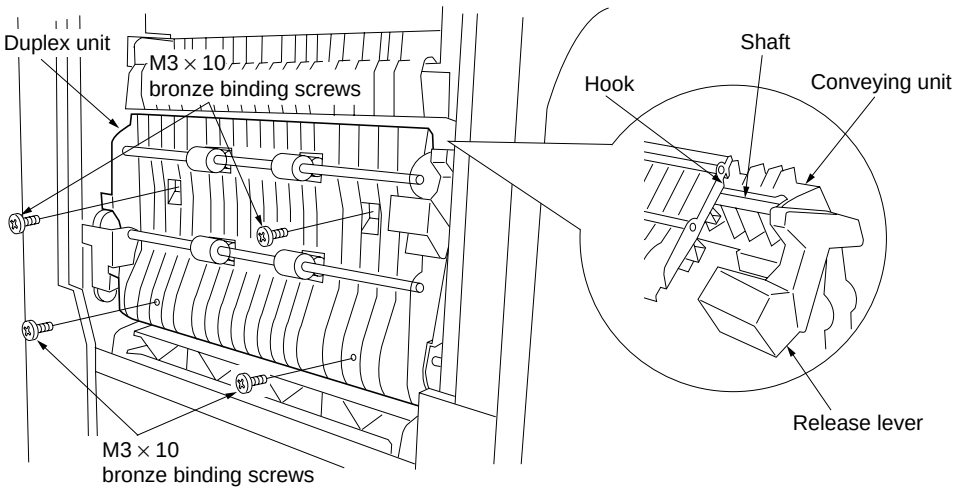


Figure 1-3-104

6. Insert the 8-pin connector of the duplex unit into the groove of the housing and pull out the harness.
7. Connect the 8-pin connector of the duplex unit to the connector of the copier and arrange wiring so that the harness is placed down.

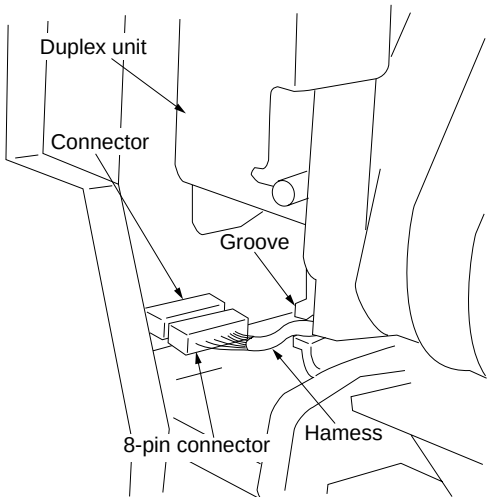


Figure 1-3-105

8. Insert the removed conveying cover in the horizontal direction and reattach the front and rear struts using the screw respectively.
9. Close the conveying cover.

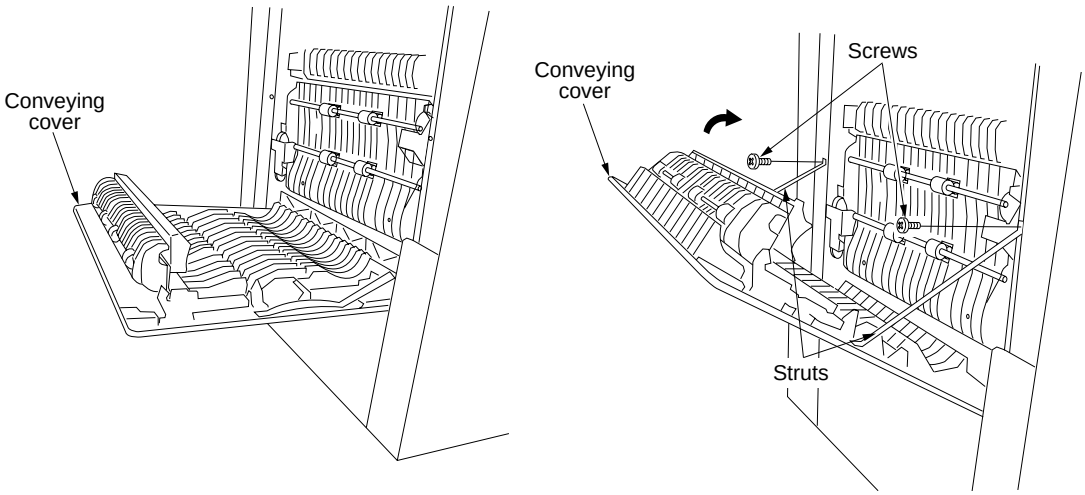


Figure 1-3-106

10. Connect the copier power plug to the wall outlet and turn the copier main switch on.
11. Run maintenance item U034 to adjust the center line for duplex copying (see page 1-6-12).

1-3-14 Installing the built-in finisher (option)

Preparation

1. Remove the two screws and then remove the upper left cover.

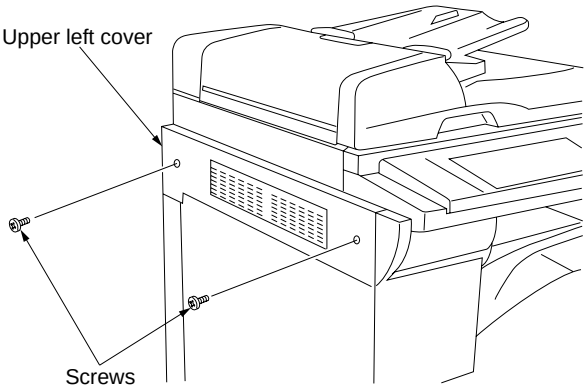


Figure 1-3-107

2. Open the conveying cover and the front cover.
3. Loosen the two screws on the left side and the screw on the front side, open the hook on the right side, and remove the left front cover.
4. Close the conveying cover and the front cover.

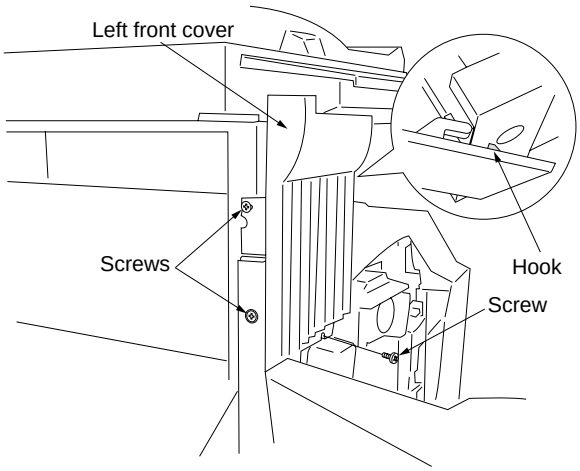


Figure 1-3-108

5. Remove the two screws and then remove the ejection cover with the mounting plate.

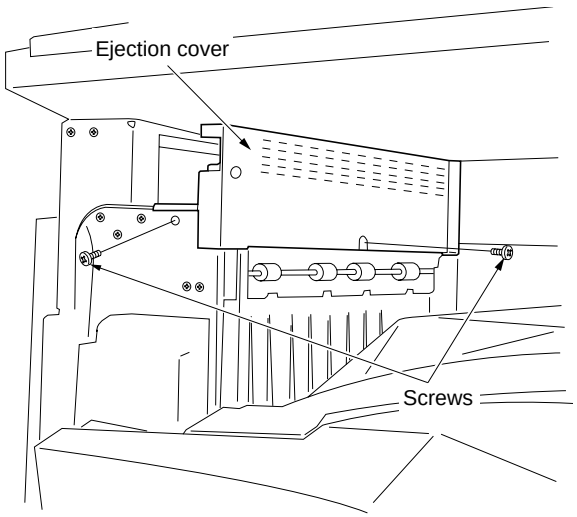


Figure 1-3-109

6. Remove the two screws and then remove the inner ejection cover.

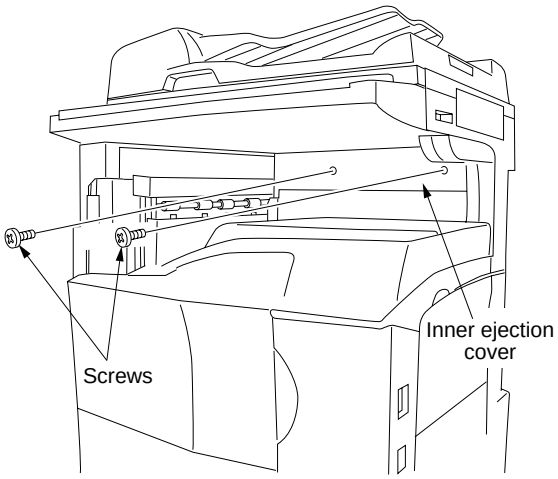


Figure 1-3-110

7. Insert the transfer unit into the copier from the front side and slide it to the left.
   Secure the unit using two +TP-A bronze screws M3 × 05 and the pin that has been fitted to the transfer unit.

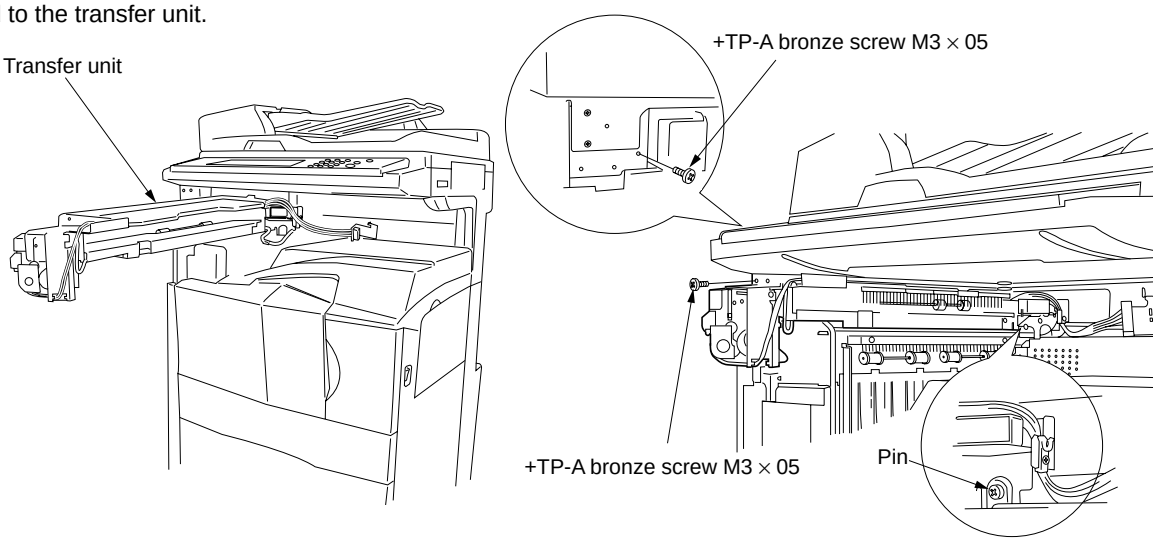


Figure 1-3-111

8. Insert the metal hook of the transfer unit into the oblong hole of the frame of the copier and secure it using a +TP-A bronze screw M3 × 05.
   * Insert the projection of the frame into the hole of the metal hook to position the hook.
   * Arrange the cable to position it under the metal fittings.

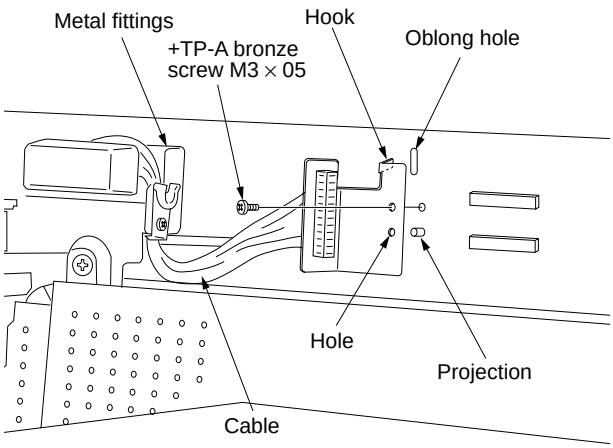


Figure 1-3-112

9. Remove a screw, turn the metal fittings upward, and fit the screw again to the lower hole.

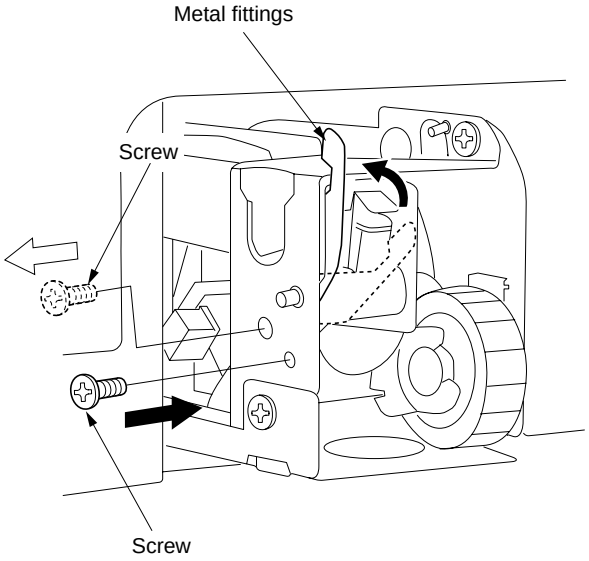


Figure 1-3-113

10. Insert the intermediate tray and connect the connector (white) of the intermediate tray to the transfer unit. Connect the connectors (gray) to the connectors of the copier as shown in the illustration.
Connect the gray connector with more pins to the upper connector and the gray connector with less pins to the lower connector.

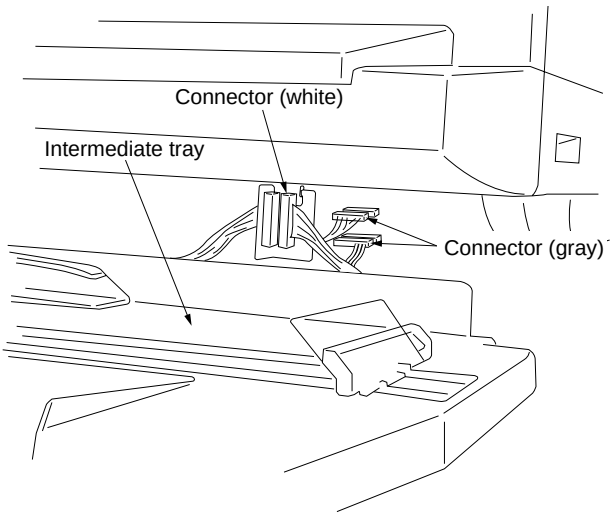


Figure 1-3-114

11. Attach the intermediate tray to the copier as shown in the illustration so that the right and left pins of the intermediate tray are positioned to the recessed portions of the copier and the transfer unit.

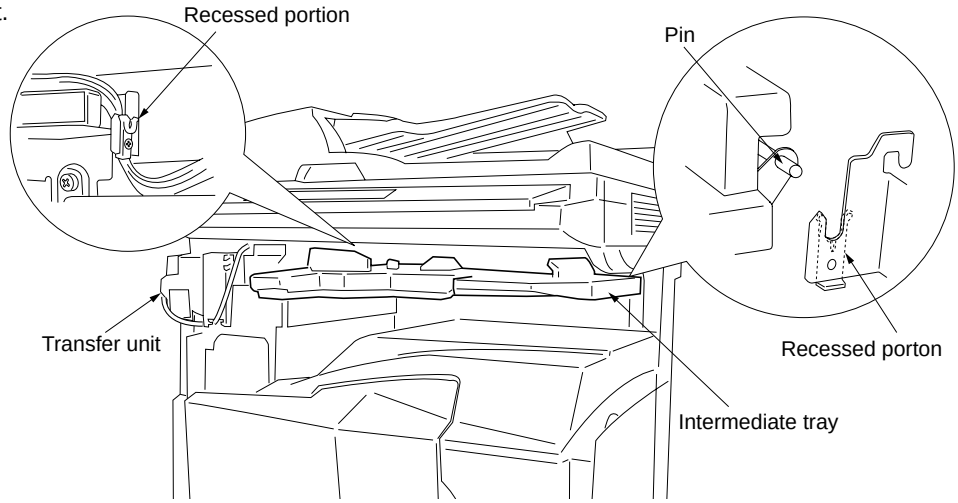


Figure 1-3-115

12. Attach the large ejection cover using the two screws that have secured the upper left cover.

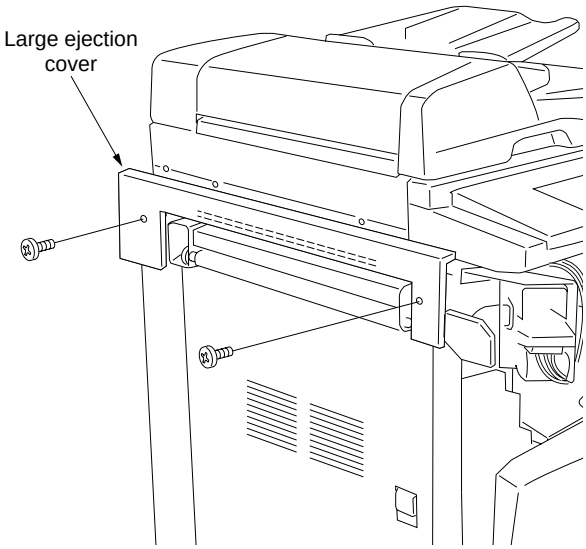


Figure 1-3-116

13. Open the front cover and the conveying cover.
14. Attach the staple cover.
    * Tighten the two screws on the left side to secure the cover with the copier, secure the front side using the screw that has been removed in step 3, and secure the right side using a +TP-A chrome screw M3 × 05.

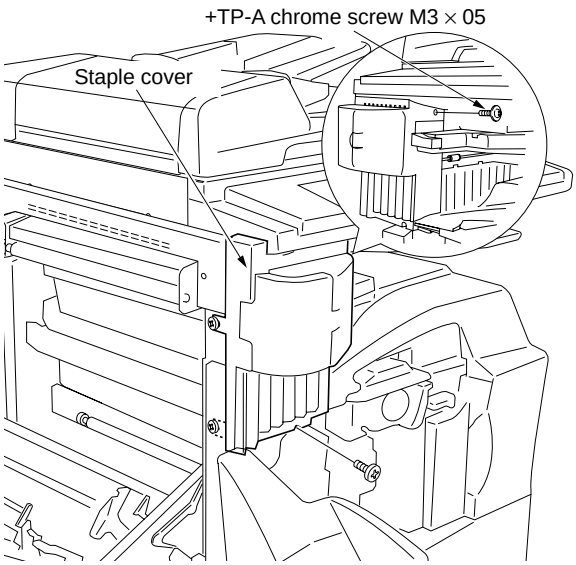


Figure 1-3-117

15. Attach the front ejection cover and the rear ejection cover using a +TP-A chrome screw M3 × 05 each.

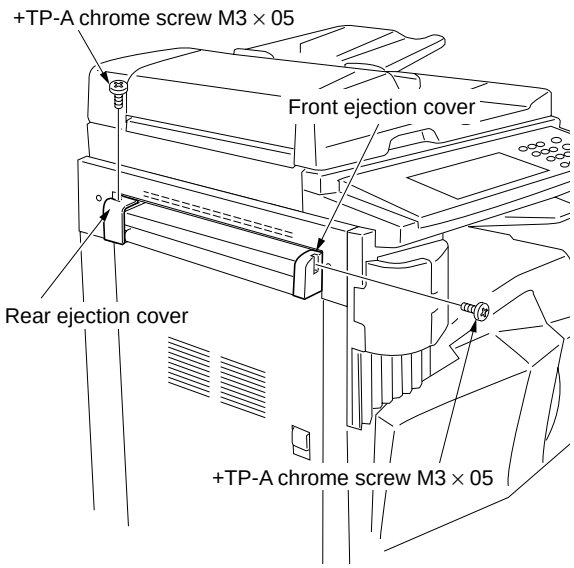


Figure 1-3-118

16. Attach the copy tray.

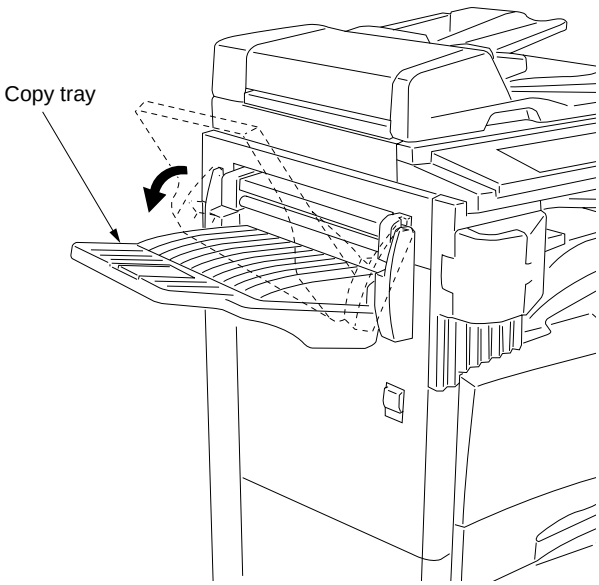


Figure 1-3-119

17. Insert the staple cartridge into the stapler.
18. Insert the power plug of the copier into an outlet and turn the main switch on.
19. Select the staple mode and make a stapled copy to check that stapling is performed properly.

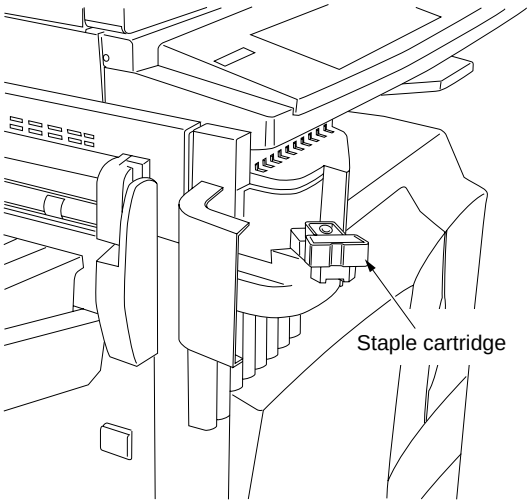


Figure 1-3-120

1-3-15 Installing the job separator (option)

Preparation

1. Open the conveying cover and the front cover.
2. Loosen the two left screws on the left side, remove the screw on the front side, open the hook on the right side, and remove the left front cover.
3. Close the conveying cover and the front cover.

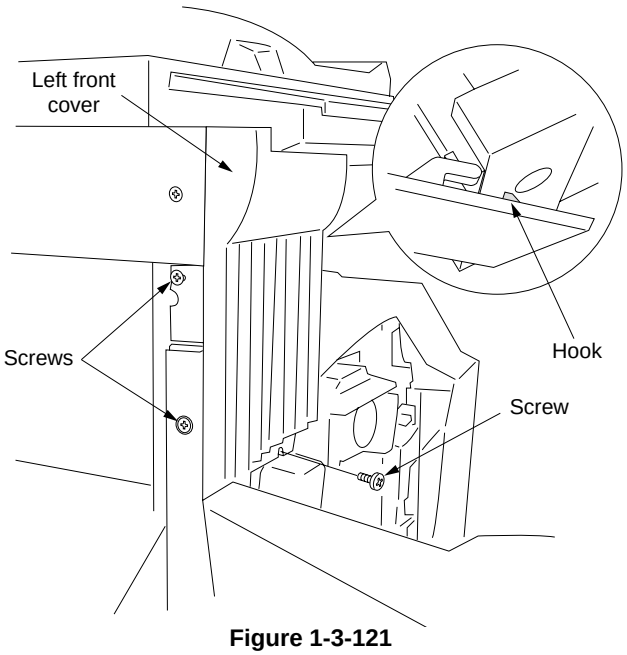


Figure 1-3-121

4. Remove the two screws and remove the ejection cover with the mounting plate.

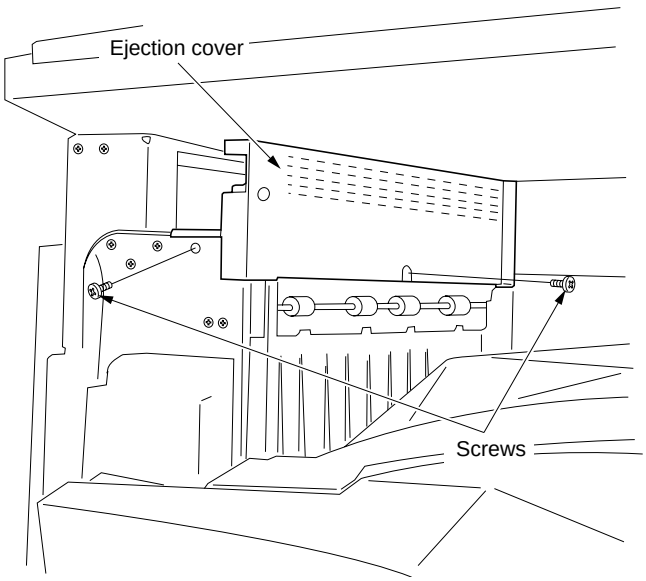


Figure 1-3-122

5. Remove the two screws and then remove the inner ejection cover.

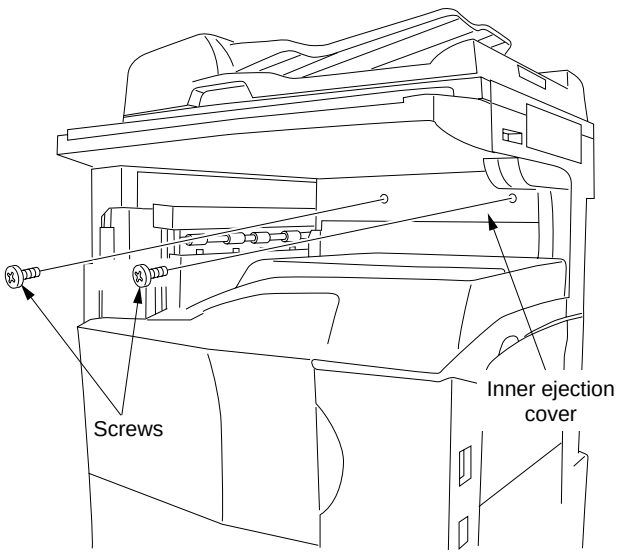


Figure 1-3-123

6. Insert the job separator into the copier from the front side and slide it to the left. Secure the front side using a +TP-A bronze screw M3 × 05 and the rear side using a pin.
   * Check to see if the branch pressure lever on the rear side of the job separator has lowered.

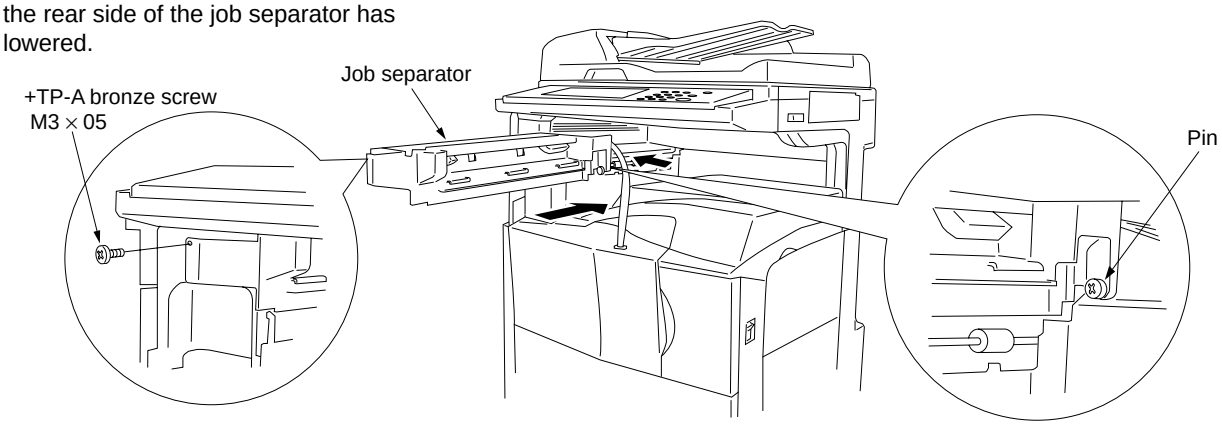


Figure 1-3-124

7. Connect the connector of the job separator to the lower connector of the copier.

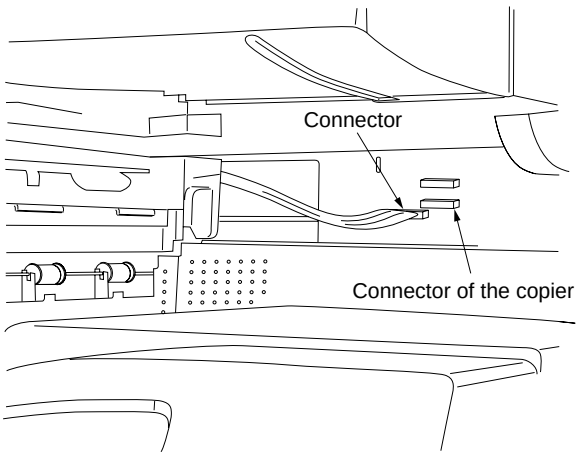


Figure 1-3-125

8. Attach the job separator tray to the rail of the job separator by sliding it from the front side.
   * Insert the fitting section on the right side of the job separator tray into the recessed portion of the copier.
   * Put the hook on the right side onto the pin.
9. Reattach the left front cover in its original position.

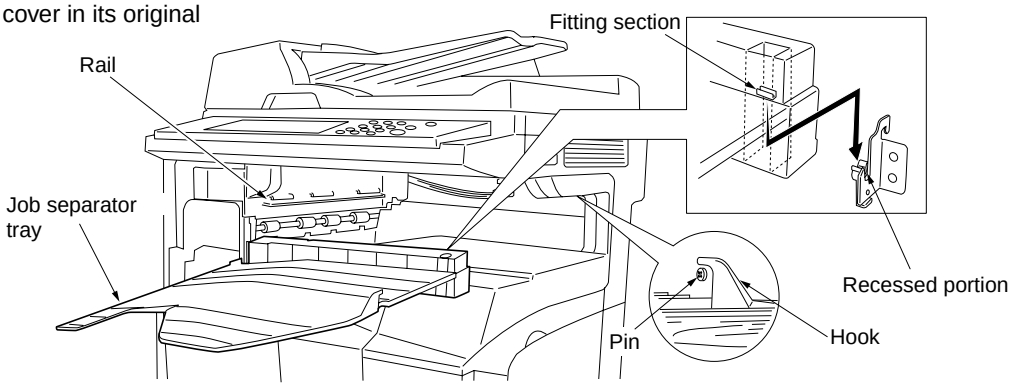


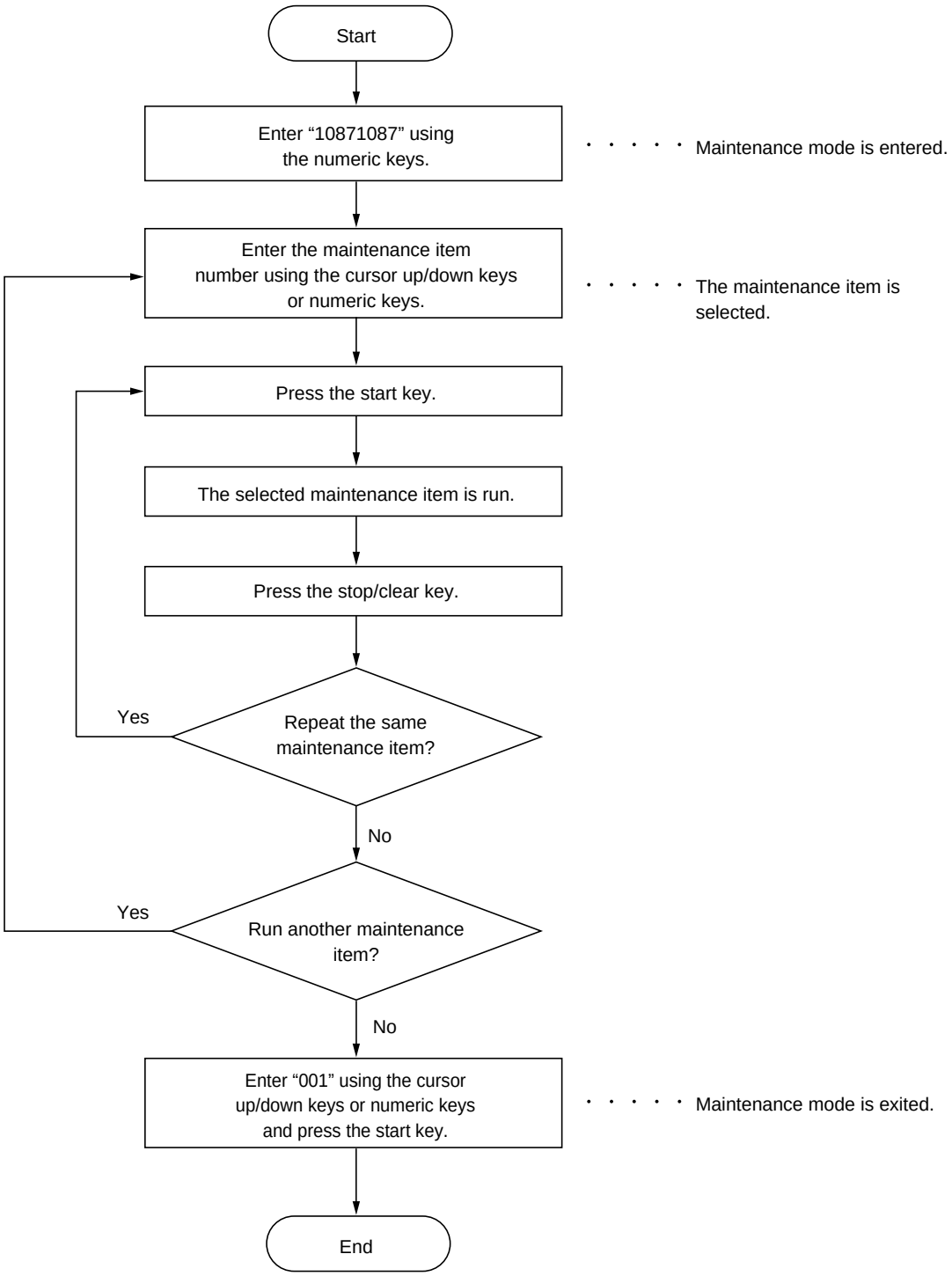
Figure 1-3-126

10. Insert the power plug of the copier into an outlet and turn the main switch on.
11. Set the “copy ejection location” of the machine default settings to job separator.
12. Make a test copy to check that a copy is ejected to the job separator tray.

1-4-1 Maintenance mode

The copier is equipped with a maintenance function which can be used to maintain and service the machine.

(1) Executing a maintenance item



(2) Maintenance mode item list

Section	Item No.	Maintenance item contents	Initial setting*
General	U000	Outputting an own-status report	—
	U001	Exiting the maintenance mode	—
	U003	Setting the service telephone number	**********
	U004	Setting the machine number	000000
	U005	Copying without paper	—
	U019	Displaying the ROM version	—
Initialization	U020	Initializing all data	—
	U021	Initializing counters and mode settings	—
	U022	Initializing data for optical system	—
Drive, paper feed, paper conveying and cooling system	U030	Checking motor operation	—
	U031	Checking switches for paper conveying	—
	U032	Checking clutch operation	—
	U033	Checking solenoid operation	—
	U034	Adjusting the print start timing • Adjusting the leading edge registration • Adjusting the center line	 0 0
	U035	Setting folio size • Length • Width	 330 210
	U038	Checking the copier cover switch	—
	U051	Adjusting the amount of slack in the paper • Regist data • Feed data	 0 0
Optical	U053	Performing fine adjustment of the motor speed • Drive motor • Eject motor • Polygon motor	 7 7 0
High voltage	U060	Adjusting the scanner input properties	12
	U061	Turning the exposure lamp on	—
	U063	Adjusting the shading position	0
	U065	Adjusting the scanner magnification • Main scanning direction/auxiliary scanning direction	 0
	U066	Adjusting the leading edge registration for scanning an original on the contact glass	0
	U067	Adjusting the center line for scanning an original on the contact glass	0
	U068	Adjusting the scanning position for originals from the DF	0
	U070	Adjusting the DF magnification	0
	U071	Adjusting the DF scanning timing • DF leading edge registration/DF trailing edge registration	 0
	U072	Adjusting the DF center line	0
	U073	Checking scanner operation	—
	U074	Adjusting the DF input light luminosity	1
	U087	Turning the DF scanning position adjust mode on/off	On
	U088	Setting the input filter (moiré reduction mode)	Off
	U089	Outputting a MIP-PG pattern	—
	U091	Checking shading	—
	U092	Adjusting the scanner automatically	—
	U093	Setting the exposure density gradient • Text and photo/text/photo mode	 0
	U099	Checking and setting the original size detection sensor	—

* Initial setting for executing maintenance item U020

Section	Item No.	Maintenance item contents	Initial setting*
Developing	U100	Checking the operation of main high voltage	184
	U101	Setting high voltages • Developing bias AC component frequency at image formation • Developing bias AC component duty at image formation • Transfer control voltage	 33 50 132
	U110	Checking/clearing the drum count	—
	U112	Setting toner refresh operation • Time of toner refreshment • Developing bias on time	 120 700
Fixing and	U113	Operating the drum refreshment	—
cleaning	U130	Initial setting for the developer	—
	U144	Setting toner loading operation	MODE2
	U150	Checking sensors and switches for toner	—
	U157	Checking/clearing the developing drive time	—
	U158	Checking/clearing the developing count	—
Operation panel and support equipmen	U161	Setting the fixing control temperature • Control temperature during copying • Primary stabilization fixing temperature • Secondary stabilization fixing temperature	 155 120 155
	U162	Stabilizing fixing forcibly	—
	U163	Resetting the fixing problem data	—
	U165	Checking/clearing fixing counts	—
	U196	Turning the fixing heater on	—
	U199	Checking the fixing temperature	—
Mode setting	U200	Turning all LEDs on	—
	U201	Initializing the touch panel	—
	U202	Setting the KMAS host monitoring system	—
	U203	Operating DF separately	—
	U204	Setting the presence or absence of a key card or key counter	—
	U206	Setting the presence or absence of the coin vender	—
	U207	Checking the operation panel keys	—
	U208	Setting the paper size for the large paper deck	A4
	U211	Setting DF type	—
	U217	Setting $8^1/_2$" $\times$ 13" paper	—
	U237	Setting finisher stack quantity	—
	U243	Checking the operation of the DF motors, solenoids and clutch	—
	U244	Checking the DF switches	—
	U245	Checking messages	—
	U246	Setting the finisher • Amount of slack in the paper • Booklet stapling position adjustment	 0 0
	U247	Checking the operation of large paper deck and paper feed desk	—
	U249	Checking the paper ejection to optional devices	—
Mode setting	U250	Setting the maintenance cycle	500000 (35 cpm) 400000 (25 cpm)
	U251	Checking/clearing the maintenance count	—
	U252	Setting the destination	Japan
	U253	Switching between double and single counts	Double count
	U254	Turning auto start function on/off	On
	U255	Setting auto clear time	90
	U256	Turning auto preheat/energy saver function on/off	On

* Initial setting for executing maintenance item U020

Section	Item No.	Maintenance item contents	Initial setting*
	U258	Switching copy operation at toner empty detection	Single mode, 0
	U260	Changing the copy count timing	After ejection
	U265	Setting OEM purchaser code	—
Image processing	U330	Setting the number of sheets to enter stacking mode during sort operation	—
	U332	Setting the size conversion factor	—
	U341	Specific paper feed location setting for printing function	—
	U342	Setting the ejection restriction	On
Others	U343	Switching between duplex/simplex copy mode	Off
	U344	Setting preheat/energy saver mode	E 2000
	U345	Setting the value for maintenance due indication	—
	U402	Adjusting margins of image printing	—
	U403	Adjusting margins for scanning an original on the contact glass	—
	U404	Adjusting margins for scanning an original from the DF	—
	U407	Adjusting the leading edge registration for memory image printing	—
	U901	Checking/clearing copy counts by paper feed locations	—
	U902	Checking/clearing finisher punch count	75000
	U903	Checking/clearing the paper jam counts	—
	U904	Checking/clearing the service call counts	—
	U905	Checking/clearing counts by optional devices	—
	U906	Resetting partial operation control	—
	U908	Changing the total counter value	—
	U910	Clearing the black ratio data	—
	U911	Checking/clearing copy counts by paper sizes	—
	U990	Checking/clearing the time for the exposure lamp to light	—
	U991	Checking/clearing the scanner count	—
	U992	Checking or clearing the printer/fax count	—
	U993	Outputting a VTC-PG pattern	—

* Initial setting for executing maintenance item U020

(3) Contents of maintenance mode items

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U000</td><td>
Outputting an own-status report
Description
Outputs lists of the current settings of the maintenance items, and paper jam and service call occurrences.
Purpose
To check the current setting of the maintenance items, or paper jam or service call occurrences.
Before initializing or replacing the backup RAM, output a list of the current settings of the maintenance items to reenter the settings after initialization or replacement.
Method
1. Press the start key. The screen for selecting an item is displayed.
2. Select the item to be output. The selected item is displayed in reverse.
<table>
<tr><th>Display</th><th>Output list</th></tr>
<tr><td>MAINTENANCE
JAM
SERVICE CALL</td><td>List of the current settings of the maintenance modes
List of the paper jam occurrences
List of the service call occurrences</td></tr>
</table>
3. Press the start key. The interrupt copy mode is entered and a list is output.
When A4/11" × 8 1/2" paper is available, a report of this size is output. If not, specify the paper feed location.
When output is complete, the screen for selecting an item is displayed.
Completion
Press the stop/clear key at the screen for selecting an item. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U001</td><td>
Exiting the maintenance mode
Description
Exits the maintenance mode and returns to the normal copy mode.
Purpose
To exit the maintenance mode.
Method
Press the start key. The normal copy mode is entered.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U003</td><td>
Setting the service telephone number
Description
Sets the telephone number to be displayed when a service call code is detected.
Purpose
To set the telephone number to call service when installing the machine.
Method
Press the start key. The currently set telephone number is displayed.
Setting
1. Enter a telephone number (up to 15 digits) using the numeric keys.
• To enter symbols such as hyphens and parentheses, select as required from the symbols displayed on the touch panel as shown below. To move the cursor, press LEFT or RIGHT in the bottom row.
<table>
<tr><td>*</td><td>#</td></tr>
<tr><td>(</td><td>)</td></tr>
<tr><td>-</td><td>(Space)</td></tr>
<tr><td>LEFT</td><td>RIGHT</td></tr>
</table>
2. Press the start key. The phone number is set, and the screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U004</td><td>
Setting the machine number
Description
Displays and changes the machine number.
Purpose
To check or set the machine number.
Method
Press the start key. The currently set machine number is displayed.
Setting
1. Enter the last six digits of the machine number using the numeric key.
Do not enter the first two digits, 3 and 7.
2. Press the start key. The machine number is set, and the screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U005</td><td>
Copying without paper
Description
Simulates the copy operation without paper feed.
Purpose
To check the overall operation of the machine.
Method
1. Press the start key. The screen for selecting an item is displayed.
2. Select the item to be operated. The selected item is displayed in reverse.
<table>
<tr><th>Display</th><th>Operation</th></tr>
<tr><td>PPC
PPC + DF</td><td>Only the copier operates.
Both the copier and DF operate (continuous operation).</td></tr>
</table>
3. Press the interrupt key. The copy mode screen is displayed.
4. Set the operation conditions required on the copy mode screen. Changes in the following settings can be made.
• Paper feed locations
• Magnifications
• Simplex or duplex copy mode
• Number of copies: in simplex copy mode, continuous copying is performed when set to 999; in duplex copy mode, continuous copying is performed regardless of the setting.
• Copy density
• Keys on the operation panel other than the energy saver (preheat) key
5. To control the paper feed pulley, remove all the paper in the drawers, or the drawers. With the paper present, the paper feed pulley does not operate.
6. Press the start key. The operation starts.
Copy operation is simulated without paper under the set conditions. When operation is complete, the screen for selecting an item is displayed.
7. To stop continuous operation, press the stop/clear key.
Completion
Press the stop/clear key at the screen for selecting an item. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U019</td><td>
Displaying the ROM version
Description
Displays the part number of the ROM fitted to each PCB.
Purpose
To check the part number or to decide if the ROM version is new from the last digit of the number.
Method
Press the start key. The last eight digits of the part number indicating the ROM version are displayed.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>MAIN
MMI
LANGUAGE(Stand.)
LANGUAGE(Option)
MAIN BOOT
MMI BOOT
NETWORK SCANNER</td><td>Main ROM IC
Operation ROM IC
Standard language ROM IC
Optional language ROM IC
Boot of main ROM IC
Boot of operation ROM IC
Network scanner ROM IC</td></tr>
</table>
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U020	**Initializing all data** **Description** Initializes all the backup RAM on the main PCB to return to the original settings. **Purpose** Used when replacing the backup RAM on the main PCB. **Method** 1. Press the start key. The screen for executing is displayed. 2. Press EXECUTE on the touch panel. It is displayed in reverse. 3. Press the start key. All data in the backup RAM is initialized, and the original settings for Japan specifications are set. When initialization is complete, the machine automatically returns to the same status as when the main switch is turned on and the display language to the initial setting of English. **Completion** To exit this maintenance item without executing initialization, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
U021	**Initializing counters and mode settings** **Description** Initializes the setting data other than that for adjustments due to variations between respective machines, i.e., settings for counters, service call history and mode settings. As a result, initializes the backup RAM according to the specifications depending on the destination selected in U252. **Purpose** Used to return the machine settings to the factory settings. **Method** 1. Press the start key. The screen for executing is displayed. 2. Press EXECUTE on the touch panel. It is displayed in reverse. 3. Press the start key. All data other than that for adjustments due to variations between machines is initialized based on the destination setting. **Completion** Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
U022	**Initializing data for optical system** **Description** Initializes only the data set for the optical section. **Purpose** To be executed after replacing the scanner unit. **Method** 1. Press the start key. The screen for executing is displayed. 2. Press SCANNER on the touch panel. 3. Press EXECUTE on the touch panel. It is displayed in reverse. 4. Press the start key. The data for the optical section (U060 to 067, U088 to 099, U403, U990 and U991) is initialized. **Completion** Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U030</td><td>
Checking motor operation
Description
Drives each motor.
Purpose
To check the operation of each motor.
Method
1. Press the start key. The screen for selecting an item is displayed.
2. Select the motor to be operated. The selected item is displayed in reverse and the operation starts.
<table>
<tr><th>Display</th><th>Operation</th></tr>
<tr><td>FEED
MAIN
EJECT(FW)
EJECT(REV)</td><td>Paper feed motor operates
Drive motor operates
Eject motor rotates forward
Eject motor rotates in reverse</td></tr>
</table>
3. To stop operation, press the stop/clear key.
Completion
Press the stop key after operation stops. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U031</td><td>
Checking switches for paper conveying
Description
Displays the on-off status of each paper detection switch on the paper path.
Purpose
To check if the switches for paper conveying operate correctly.
Method
1. Press the start key. A list of the switches, the on-off status of which can be checked, are displayed.
2. Turn each switch on and off manually to check the status.
When the on-status of a switch is detected, that switch is displayed in reverse.
<table>
<tr><th>Display</th><th>Switches</th></tr>
<tr><td>F1
F2
F3
BYP
RES
EJE
BRA
DUP
JOB</td><td>Feed switch 1 (FSW1)
Feed switch 2 (FSW2)
Feed switch 3 (FSW3)
Bypass feed switch (BYPFSW)
Registration switch (RSW)
Eject switch (ESW)
Feedshift switch (FSSW)
Duplex paper conveying switch (DUPPCSW)*
Job separator eject switch (JBESW)*</td></tr>
</table>
*Optional.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U032</td><td>
Checking clutch operation
Description
Turns each clutch on.
Purpose
To check the operation of each clutch.
Method
1. Press the start key. The screen for selecting an item is displayed.
2. Select the clutch to be operated. The selected item is displayed in reverse, and the clutch turns on for 1 s.
<table>
<tr><th>Display</th><th>Clutches</th></tr>
<tr><td>PF1</td><td>Upper paper feed clutch (PFCL-U)</td></tr>
<tr><td>PF2</td><td>Lower paper feed clutch (PFCL-U)</td></tr>
<tr><td>PFBYP</td><td>Bypass paper feed clutch (BYPPFCL)</td></tr>
<tr><td>FEED1</td><td>Feed clutch 1 (FCL1)</td></tr>
<tr><td>FEED2</td><td>Feed clutch 2 (FCL2)</td></tr>
<tr><td>FEED3</td><td>Feed clutch 3 (FCL3)</td></tr>
<tr><td>BYPF</td><td>Bypass feed clutch (BYPFCL)</td></tr>
<tr><td>RES</td><td>Registration clutch (RCL)</td></tr>
<tr><td>DUPF</td><td>Duplex feed clutch (DUPFCL)*</td></tr>
</table>
*Optinal.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U033</td><td>
Checking solenoid operation
Description
Turns each solenoid on.
Purpose
To check the operation of each solenoid.
Method
1. Press the start key. The screen for selecting an item is displayed.
2. Select the solenoid to be operated. The selected item is displayed in reverse, and the solenoid turns on for 1 s.
<table>
<tr><th>Display</th><th>Solenoids</th></tr>
<tr><td>TONER SOL</td><td>Toner feed solenoid (TNFSOL)</td></tr>
<tr><td>BRANCH1 SOL</td><td>Feedshift solenoid (FSSOL)</td></tr>
<tr><td>BRANCH2 SOL</td><td>Feedshift solenoid (FSSOL)*</td></tr>
<tr><td>MAIN SW SOL</td><td>Main switch turns on</td></tr>
</table>
*Optional.
Select MAIN SW SOL to check the operation of the main switch in auto shut off.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U034</td><td>
Adjusting the print start timing
Adjustment
See pages 1-6-10 and 12.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U035</td><td>
Setting folio size
Description
Changes the image area for copying onto folio size paper.
Purpose
To prevent the image at the trailing edge, or right or left side of the paper from not being copied by setting the actual size of the folio paper used.
Method
Press the start key. The screen for selecting an item is displayed.
Setting
1. Select the item to be set. The selected item is displayed in reverse.
2. Change the setting using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Setting</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>LENGTH DATA
WIDTH DATA</td><td>Length
Width</td><td>330 to 356 mm
200 to 220 mm</td><td>330
210</td></tr>
</table>
3. Press the start key. The value is set.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U038</td><td>
Checking the copier cover switch
Description
Displays the on-off status of each cover switch.
Purpose
To check if the switches of covers operate correctly.
Method
1. Press the start key. A list of the switches, the on-off status of which can be checked, are displayed.
2. Open and close each cover to check the status of each switch.
When the cover is closed, the switch shall be displayed in reverse. When the cover is open, the switch shall be displayed normally.
<table>
<tr><th>Display</th><th>Switches</th></tr>
<tr><td>INTER LOCK SW
FRONT COVER
LEFT1 COVER
LEFT2 COVER</td><td>Safty switch 1 and 2 (SSW1 and 2)
Front cover switch (FRCSW)
Conveying cover switch (CCSW)
Side cover switch (SCSW)</td></tr>
</table>
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U051</td><td>
Adjusting the amount of slack in the paper
Adjustment
See page 1-6-14.
</td></tr>
</table>

Maintenance item No.	Description
U053	**Performing fine adjustment of the motor speed** **Description** Performs fine adjustment of the speeds of the motors. **Purpose** Used to adjust the speed of the respective motors when the magnification is not correct. **Method** Press the start key. The screen for selecting an item is displayed. **Setting** 1. Select the item to be set. The selected item is displayed in reverse. 2. Change the setting using the cursor up/down keys.

Display	Description	Setting range	Initial setting
MAIN MOTOR	Drive motor speed adjustment	0 to +14	7
EJECT MOTOR	Eject motor speed adjustment	0 to +14	7
POLYGON MOTOR	Polygon motor speed adjustment	-20 to +20	0

MAIN MOTOR /EJECT MOTOR
Increasing the setting makes the image longer in the auxiliary scanning direction, and decreasing it makes the image shorter in the auxiliary scanning direction.
POLYGON MOTOR
Increasing the setting makes the image longer in the main scanning direction and shorter in the auxiliary scanning direction; decreasing the setting makes the image shorter in the main scanning direction and longer in the auxiliary scanning direction.
EJECT MOTOR
Normally no change is necessary but this can be used as countermeasures against wrinkles (waving) of paper.

3. Press the start key. The value is set.

Interrupt copy mode
While this maintenance item is being performed, a VTC pattern shown below is output in interrupt copy mode. Correct values for an A3/11" × 17" output are:
A = 300 ± 1.5 mm
B = 260 ± 1.0 mm

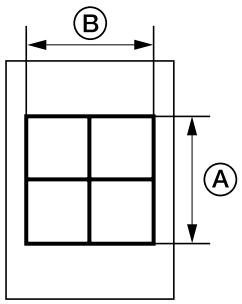


Figure 1-4-1

Adjustment
1. Output an A3/11" × 17" VTC pattern in interrupt mode.
2. Measure A and B on the VTC pattern (Figure 1-4-1), and perform the following adjustments if they are different from the correct sizes:
   A: Drive motor speed adjustment
   B: Polygon motor speed adjustment

Completion
Press the stop/clear key at the screen for selecting an item. The screen for selecting a maintenance item No. is displayed.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U060</td><td>
Adjusting the scanner input properties
Description
Adjusts the image scanning density in text, text and photo, or photo mode.
Purpose
Used when the entire image appears too dark or light.
Method
Press the start key. The screen for executing is displayed.
Setting
1. Change the setting using the cursor up/down keys.
<table>
<tr><th>Descrition</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>Image scannnig density</td><td>0 to +24</td><td>12</td></tr>
</table>
Increasing the setting makes the density lower, and decreasing it makes the density higher.
2. Press the start key. The value is set.
Interrupt copy mode
While this maintenance item is being performed, copying from an original can be made in interrupt copy mode.
Completion
Press the stop/clear key at the screen for selecting an item. The screen for selecting a maintenance item No. is displayed.
Caution
The following settings are also reset to the initial values by performing this maintenance item:
• Exposure density gradient set in maintenance mode (U093)
• Exposure set in the copy default item of the copier management mode
</td></tr>
<tr><td>U061</td><td>
Turning the exposure lamp on
Description
Turns the exposure lamp on.
Purpose
To check the exposure lamp.
Method
1. Press the start key. The screen for executing is displayed.
2. Press the start key. The exposure lamp lights.
3. To turn the exposure lamp off, press the stop/clear key.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U063</td><td>
Adjusting the shading position
Description
Changes the shading position.
Purpose
Used when white lines continue to appear longitudinally on the image after the shading plate is cleaned. This is due to flaws or stains inside the shading plate. To prevent this problem, the shading position should be changed so that shading is possible without being affected by the flaws or stains.
Method
1. Press the start key. The screen for adjustment is displayed.
2. Change the setting using the cursor up/down keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th><th>Change in value per step</th></tr>
<tr><td>Shading position</td><td>–5 to +5</td><td>0</td><td>0.17 mm</td></tr>
</table>
Increasing the setting moves the shading position toward the machine right, and decreasing it moves the position toward the machine left.
3. Press the start key. The value is set.
Interrupt copy mode
While this maintenance item is being performed, copying from an original can be made in interrupt copy mode.
Completion
Press the stop/clear key at the screen for adjustment. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U065</td><td>
Adjusting the scanner magnification
Adjustment
See pages 1-6-27 and 28.
</td></tr>
<tr><td>U066</td><td>
Adjusting the leading edge registration for scanning an original on the contact glass
Adjustment
See page 1-6-29.
</td></tr>
<tr><td>U067</td><td>
Adjusting the center line for scanning an original on the contact glass
Adjustment
See page 1-6-30.
</td></tr>
<tr><td>U068</td><td>
Adjusting the scanning position for originals from the DF
Description
Adjusts the position for scanning originals from the DF.
Purpose
Used when there is a regular error between the leading edges of the original and the copy image when the DF is used.
Method
Press the start key. The screen for executing is displayed.
Setting
1. Change the setting using the cursor up/down keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th><th>Change in value per step</th></tr>
<tr><td>Scanning position</td><td>–17 to +17</td><td>0</td><td>0.254 mm</td></tr>
</table>
Increasing the setting moves the image backward, and decreasing it moves the image forward.
2. Press the start key. The value is set.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U070	**Adjusting the DF magnification** **Description** Adjusts the DF original scanning speed. **Purpose** To be executed if the correct magnification is not obtained in the auxiliary scanning direction when the optional DF is used. **Caution** Before making this adjustment, ensure that the following adjustments have been made in maintenance mode. U053 ► U065 ► U070 **Method** Press the start key. The screen for executing is displayed. **Setting** 1. Change the setting using the cursor up/down keys. Increasing the setting makes the image longer, and decreasing it makes the image shorter. 2. Press the start key. The value is set. **Interrupt copy mode** While this maintenance item is being performed, copying from an original can be made in interrupt copy mode. **Completion** Press the stop/clear key at the screen for selecting an item. The screen for selecting a maintenance item No. is displayed.

Description	Setting range	Initial setting	Change in value per step
Original conveying motor speed	–25 to +25	0	0.1%

Maintenance item No.	Description
U071	**Adjusting the DF scanning timing** **Description** Adjusts the DF original scanning timing. **Purpose** To be executed if there is a regular error between the leading or trailing edges of the original and the copy image when the optional DF is used. **Caution** Before making this adjustment, ensure that the following adjustments have been made in maintenance mode. U034 → U066 → U071 **Method** Press the start key. The screen for selecting an item is displayed. **Setting** 1. Select the item to be set. The selected item is displayed in reverse. 2. Change the setting using the cursor up/down keys.

Display	Description	Setting range	Initial setting	Change in value per step
LEAD EDGE ADJ	DF leading edge registration	–32 to +32	0	0.17 mm
TRAIL EDGE ADJ	DF trailing edge registration	–32 to +32	0	0.17 mm

Increasing the setting moves the copy image backward, and decreasing it moves the copy image forward.

3. Press the start key. The value is set.

Interrupt copy mode
While this maintenance item is being performed, copying from an original can be made in interrupt copy mode.

Adjustment
1. In interrupt copy mode, make a copy using the DF.
2. Check the copy image and adjust the registration as follows.
   For copy example 1, increase the setting of LEAD EDGE ADJ.
   For copy example 2, decrease the setting of LEAD EDGE ADJ.

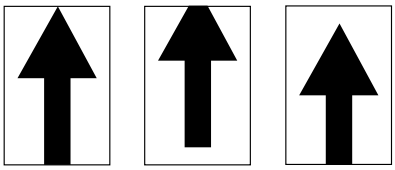


Figure 1-4-2

Completion
Press the stop/clear key at the screen for selecting an item. The screen for selecting a maintenance item No. is displayed.

Maintenance item No.	Description
U072	**Adjusting the DF center line** **Description** Adjusts the scanning start position for the DF original. **Purpose** To be executed if there is a regular error between the centers of the original and the copy image when the optional DF is used. **Caution** Before making this adjustment, ensure that the following adjustments have been made in maintenance mode. U034 → U067 → U072 **Method** Press the start key. The screen for executing is displayed. **Setting** 1. Change the setting using the cursor up/down keys.

Description	Setting range	Initial setting	Change in value per step
DF center line	–39 to +39	0	0.17 mm

Increasing the setting moves the image to the right, and decreasing it moves the image to the left.

2. Press the start key. The value is set.

Interrupt copy mode
While this maintenance item is being performed, copying from an original can be made in interrupt copy mode.

Adjustment
1. In interrupt copy mode, make a copy using the DF.
2. Check the copy image and adjust the center line as follows.
   For copy example 1, increase the setting.
   For copy example 2, decrease the setting.

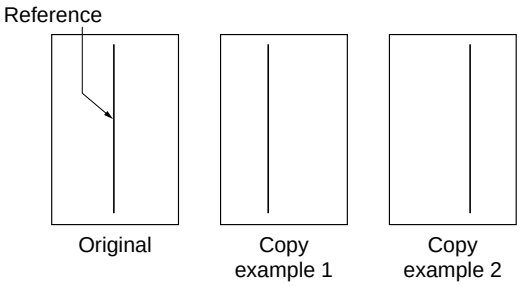


Figure 1-4-3

Completion
Press the stop/clear key at the screen for selecting an item. The screen for selecting a maintenance item No. is displayed.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U073</td><td>
Checking scanner operation
Description
Simulates the scanner operation under arbitrary conditions.
Purpose
To check scanner operation.
Method
1. Press the start key. The screen for selecting an item is displayed.
2. Select the item to be changed. The selected item is displayed in reverse.
3. Change the setting using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Operating conditions</th><th>Setting range</th></tr>
<tr><td>ZOOM</td><td>Magnification</td><td>100 to 400%</td></tr>
<tr><td>SIZE</td><td>Original size</td><td>See below.</td></tr>
<tr><td>LAMP</td><td>On and off of the exposure lamp</td><td>0 (off) or 1 (on)</td></tr>
</table>
Original sizes for each setting in SIZE
<table>
<tr><th>Setting</th><th>Paper size</th><th>Setting</th><th>Paper size</th></tr>
<tr><td>8</td><td>A4</td><td>42</td><td>A5R</td></tr>
<tr><td>9</td><td>B5</td><td>47</td><td>Folio</td></tr>
<tr><td>24</td><td>11" × 8$^1/_2$"</td><td>52</td><td>11" × 17"</td></tr>
<tr><td>36</td><td>A3</td><td>53</td><td>11" × 15"</td></tr>
<tr><td>39</td><td>B4</td><td>55</td><td>8$^1/_2$" × 14"</td></tr>
<tr><td>40</td><td>A4R</td><td>56</td><td>8$^1/_2$" × 11"</td></tr>
<tr><td>41</td><td>B5R</td><td>58</td><td>5$^1/_2$" × 8$^1/_2$"</td></tr>
</table>
4. Press the strat key. The setting is set.
5. Press the interrupt key. The copy mode screen is displayed.
6. Press the start key. Scanning starts under the selected conditions.
7. To stop operation, press the stop/clear key.
Completion
Press the stop/clear key when scanning stops. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U074</td><td>
Adjusting the DF input light luminosity
Description
Adjusts the luminosity of the exposure lamp for scanning originals from the optional DF.
Purpose
Used if the exposure amount differs significantly between when scanning an original on the contact glass and when scanning an original from the DF.
Method
Press the start key. The screen for executing is displayed.
Setting
1. Change the setting using the cursor up/down keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>DF input light luminosity</td><td>0 to 8</td><td>1</td></tr>
</table>
Increasing the setting makes the luminosity higher, and decreasing it makes the luminosity lower.
2. Press the start key. The value is set.
Interrupt copy mode
While this maintenance item is being performed, copying from an original can be made in interrupt copy mode.
Completion
Press the stop/clear key at the screen for selecting an item. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U087	**Turning the DF scanning position adjust mode on/off** **Description** Turns on or off the DF scanning position adjust mode, in which the DF original scanning position is adjusted automatically by determining the presence or absence of dust on the slit glass. Also changes the reference data for identifying dust. **Reference** In the DF original scanning position adjust mode, the presence or absence of dust is determined by comparing the scan data of the original trailing edge and that taken after the original is conveyed past the DF original scanning position. If dust is identified, the DF original scanning position is adjusted for the following originals. **Purpose** Used to prevent appearance of black lines due to dust adhering in the original scanning position on the slit glass when the DF is used. **Method** 1. Press the start key. The screen for selecting an item is displayed. 2. Select the item to be set and press the start key. **Display** / **Description** ON/OFF — Setting the mode on/off DATA — Setting the reference data for identifying dust **Setting the mode on/off** 1. Select ON or OFF. The selected item is displayed in reverse. **Display** / **Description** ON DF — scanning position adjust mode on OFF DF — scanning position adjust mode off Initial setting: ON 2. Press the start key. The setting is set. The screen for selecting an item is displayed. **Setting the reference data for identifying dust** Available only when the mode is turned on. 1.Change the setting using the cursor up/down keys. **Description** / **Setting range** / **Initial setting** Minimum density to be regarded as dust — 10 to 95 — 35 Example The figure indicates the density in 256 levels of gray (0: white, 255: black). When the setting is 35, data of the level of 35 or higher is regarded as dust and data of lower level is regarded as the background (scan data taken when there is no original). 2. Press the start key. The value is set. 3. To return to the screen for selecting an item, press the stop/clear key. **Completion** Press the stop/clear key at the screen for selecting an item. The screen for selecting a maintenance item No. is displayed.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U088</td><td>
Setting the input filter (moiré reduction mode)
Description
Turns moiré reduction mode on and off by switching the input filter on and off.
Purpose
Used to prevent regular density unevenness (moiré) on halftone image areas of the copy image in text mode and text and photo mode. Such moiré is more likely to appear when an enlargement or reduction copy is made in text mode from an original containing large halftone image areas.
Method
Press the start key. The screen for selecting an item is displayed.
Setting
1. Select ON or OFF. The selected item is displayed in reverse.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>ON
OFF</td><td>Moiré reduction mode
Normal copy mode</td></tr>
</table>
Initial setting: OFF
If moiré on the copy image is significant, change the setting to ON. Note that when the moiré reduction mode is turned on, the resolution may be slightly reduced.
2. Press the start key. The value is set. The screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U089</td><td>
Outputting a MIP-PG pattern
Description
Selects and outputs the MIP-PG pattern created in the copier.
Purpose
When performing respective image printing adjustments, used to check the machine status apart from that of the scanner with a non-scanned output MIP-PG pattern.
Method
1. Press the start key.
2. Select the MIP-PG pattern to be output.
<table>
<tr><th>Display</th><th>Description</th><th>Adjusting range</th></tr>
<tr><td>GRAYSCALE</td><td>Gray scale</td><td>–</td></tr>
<tr><td>MONO-LEVEL</td><td>Mono level</td><td>0 to 255</td></tr>
<tr><td>256-LEVEL</td><td>256 level</td><td>–</td></tr>
<tr><td>1dot-LINE</td><td>1 dot level</td><td>–</td></tr>
</table>
3. Press the printer key to set the pattern output mode.
4. Press the start key. A MIP-PG pattern is output.
Completion
Press the stop/reset key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U091	**Checking shading** **Description** Performs scanning under the same conditions as before and after shading is performed, displaying the original scanning values at nine points of the contact glass. **Purpose** To check the change in original scanning values before and after shading. The results may be used to decide the causes for fixing unevenness (uneven density) of the gray area of an image: either due to optical (shading or CCD) or other problems. Also to check the causes for a white or black line appearing longitudinally. **Method** 1. Press the start key. The screen for selecting an item is displayed. 2. Select the item to be operated. The selected item is displayed in reverse.

Display	Description
SHD BEFORE SHD AFTER	Performs scanning before shading and displays the result. Performs scanning after shading and displays the result.

3. Press the start key. Scanning is performed under the selected conditions and the result is displayed.
   When scanning is performed before shading, the scan value at the machine center should be slightly different from those at the machine front and rear. When scanning is performed after shading, there should be no difference between respective values. Any differences between the values at machine front and rear indicates that scanner problem causes the fixing unevenness.
   If the displayed results indicate no shading problems, the fixing unevenness (uneven copy density) is caused by factors other than in the scanner section (shading or CCD).
   If a black line appears, the cause may assumed to be based on the results of the scanning operation before shading: if a white line appears, they may be assumed based on the results of the scanning operation after shading. Note that depending on the thickness and location of the black or white line, it may not be possible to use this method to determine the cause. This is because the displayed values obtained from scanning at the limit of nine points are insufficient to provide significant information.

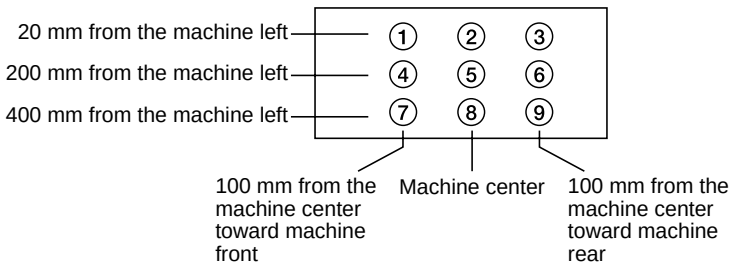


Figure 1-4-4

4. To return to the screen for selecting an item, press the stop/clear key.

Completion

Press the stop/clear key at the screen for selecting an item. The screen for entering a maintenance item is displayed.

Maintenance item No.	Description
U092	**Adjusting the scanner automatically** **Description** Makes auto scanner adjustments in the order below using the specified original. • Adjusting the scanner center line (U067) • Adjusting the scanner leading edge registration (U066) • Adjusting scanner magnification in the auxiliary direction (U065) When this maintenance item is performed, the settings in U065, U066 and U067 are also changed. **Purpose** Used to make respective auto adjustments for the scanner. **Method** 1. Place the specified original (P/N: 2A068020) on the contact glass. 2. Press the start key. The screen for executing is displayed. 3. Press the start key. Auto adjustment starts. When adjustment is complete, each adjusted value is displayed.

Display	Description
SCAN CENTER	Scanner center line
SCAN TIMING	Scanner leading edge registration
SUB SCAN	Scanner magnification in the auxiliary scanning direction

If a problem occurs during auto adjustment, DATA: XX (XX is replaced by an error code) is displayed and operation stops. Should this happen, determine the details of the problem and either repeat the procedure from the beginning, or adjust the remaining items manually by running the corresponding maintenance items.

Completion

Press the stop/clear key after auto adjustment is complete. The screen for selecting a maintenance item No. is displayed.

If the stop/clear key is pressed during auto adjustment, adjustment stops and no settings are changed.

Maintenance item No.	Description
U093	**Setting the exposure density gradient** **Description** Changes the exposure density gradient in manual density mode, depending on respective image modes (text, text and photo, photo). **Purpose** To set how the image density is altered by a change of one step in the manual density adjustment. Also used to make copy image darker or lighter. **Start** 1. Press the start key. The screen for selecting an item is displayed. 2. Select the image mode to be adjusted and press the start key. The screen for the selected item is displayed.

Display	Description
MIXED	Density in text and photo mode
TEXT	Density in text mode
PHOTO	Density in photo mode

Setting

1. Select the item to be adjusted. The selected item is displayed in reverse.
2. Adjust the setting using the cursor up/down keys.

Display	Description	Setting range	Initial setting
DARKER	Change in density when manual density is set dark	0 to 3	0
LIGHTER	Change in density when manual density is set light	0 to 3	0

Increasing the setting makes the change in density larger, and decreasing it makes the change smaller.

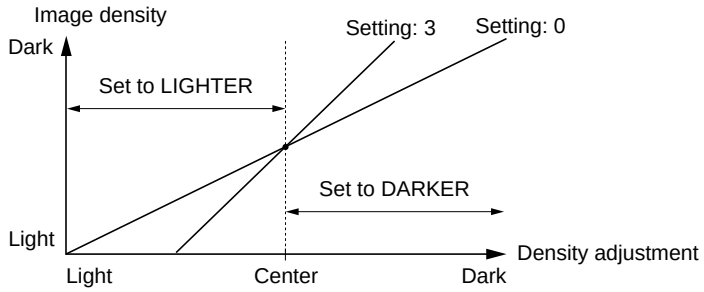


Figure 1-4-5 Exposure density gradient

3. Press the start key. The value is set.
4. To return to the screen for selecting an item, press the stop/clear key.

Interrupt copy mode

While this maintenance item is being performed, copying from an original can be made in interrupt copy mode.

Completion

Press the stop/clear key at the screen for selecting an item. The screen for selecting a maintenance item No. is displayed.

Maintenance item No.	Description
U099	**Checking and setting the original size detection sensor**

Description

Checks the operation of the original size detection sensor and sets the sensing threshold value.

Purpose

To adjust the sensitiveness of the sensor and size judgement time if the original size detection sensor malfunctions frequently due to incident light or the like.

Start

1. Press the start key. The screen for selecting an item is displayed.
2. Select an item and press the start key. The screen for executing each item is displayed.

Display	Description
DATA	Displaying detection sensor transmission data
B/W LEVEL	Setting detection sensor threshold value Setting original size judgment time

Method to display the data for the sensor

1. Press the start key. The detection sensor transmission data is displayed.

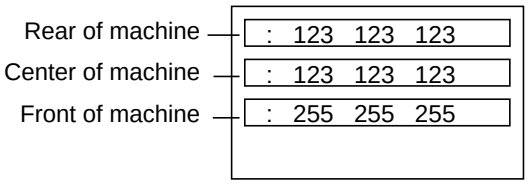


Figure 1-4-6

2. To return to the screen for selecting an item, press the stop/clear key.

Setting

1. Select an item to be set.

Display	Description	Setting range	Initial setting
LEVEL	Detection sensor threshold value	0 to 255	170
WAIT TIME	Original size judgment time*	0 to 100	50
ORIG. AREA	Original size detection position display (mm)	0 to 350	–
SIZE	Detected original size display	0 to 63	–

* Time from activation of the original detection switch (ODSW) to original size judgment

Method to set the detection threshold value

1. Adjust the preset value using the cursor up/down keys.
   * A larger value increases the sensor sensitivity, and a smaller value decreases it.
2. Press the start key. The value is set.
3. To return to the screen for selecting an item, press the stop/clear key.

Method to set the original size judgment time

1. Adjust the preset value using the cursor up/down keys.
   * A larger value increases the original size judgment time, and a smaller value decreases it.
2. Press the start key. The value is set.
3. To return to the screen for selecting an item, press the stop/clear key.

Completion

Press the stop/clear key at the screen for selecting an item. The screen for maintenance item No. is displayed.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U100</td><td>
Checking the operation of main high voltage
Description
Performs main charging.
Purpose
To check main charging.
Start
Press the start key. The screen for selecting an item is displayed.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>MC DATA
ON TIME(SEC)</td><td>Turning the main charger on
Turning the main charger on and the laser scanner unit on and off</td></tr>
</table>
Method
1. Select the item to be operated.
2. Press the start key. The selected operation starts.
3. To stop operation, press the stop/clear key.
Completion
Press the stop/clear key at the screen for selecting an item when main charger output stops. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U101</td><td>
Setting high voltages
Description
Changes the developing bias voltage and transfer voltage by changing the developing bias control voltage and transfer control voltage.
Purpose
To check or change the developing bias and transfer voltage.
Method
Press the start key. The screen for selecting an item is displayed.
Setting
1. Select the item to be set. The selected item is displayed in reverse.
2. Change the setting using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>DEV BIAS</td><td>Developing bias AC component frequency at image formation</td><td>0 to 255</td><td>33</td></tr>
<tr><td>DEV DUTY</td><td>Developing bias AC component duty at image formation</td><td>0 to 100</td><td>50</td></tr>
<tr><td>TC DATA</td><td>Transfer control voltage</td><td>0 to 255</td><td>132</td></tr>
</table>
Increasing the DEV BIAS setting makes the image darker; decreasing it makes the image lighter.
Increasing the DEV DUTY setting makes the image lighter; decreasing it makes the image darker.
Increasing the TC DATA setting makes the transfer voltage higher, and decreasing it makes the voltage lower.
3. Press the start key. The value is set.
Interrupt copy mode
While this maintenance item is being performed, copying from an original can be made in interrupt copy mode.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U110</td><td>
Checking/clearing the drum count
Description
Displays the drum counts for checking, clearing or changing the figure, which is used as a reference when correcting the main charger potential output.
Purpose
To check the drum status. Also used to clear the count after replacing the drum during regular maintenance. Since the count was cleared before shipping, do not clear it when installing.
Method
Press the start key. The drum counter count is displayed.
Clearing
1. Press the reset key.
2. Press the start key. The count is cleared, and the screen for selecting a maintenance item No. is displayed.
Setting
1. Enter a six-digit count using the numeric keys.
2. Press the start key. The count is set, and the screen for selecting a maintenance item No. is displayed.
Completion
To exit the maintenance mode without changing the count, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U112</td><td>
Setting toner refresh operation
Description
Sets the drum refresh operation time and the developing bias on time at power on and after copying.
Purpose
To change the drum refresh operation time and the developing bias on time at power on and after copying if image flow level is low.
Method
Press the start key. The screen for executing is displayed.
Setting
1. Select the item to be set. The selected item is displayed in reverse.
2. Change the setting using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>ON TIME(SEC)
BIAS TIME(MSEC)</td><td>toner refresh operation time
Developing bias on time</td><td>50 to 150(sec)
500 to 1000(msec)</td><td>120
700</td></tr>
</table>
3. Press the start key. The value is set.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U113</td><td>
Performing drum refresh operation
Description
Executes drum refresh operation.
Purpose
To operate when image flow occurs.
Method
1. Press the start key. The screen for executing is displayed.
2. Press the start key. Drum refresh operation starts. (approximately 3 minutes)
3. To stop the operation, press the stop/clear key.
Completion
Press the stop/clear key when the operation stops. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U130</td><td>
Initial setting for the developer
Description
Replenishes toner to the developer unit to a certain level from the toner container that has been installed.
Purpose
To operate when installing the machine or replacing the developing unit.
Method
1. Press the start key. The screen for executing is displayed.
2. Press the start key. The time that elapses until initialization is complete and whether or not toner remains in the developing unit (0: No, 1: Yes) are displayed.
Supplement
The following data is also renewed or cleared by performing this maintenance item:
• Clearing the developing drive time (U157)
• Clearing the developing count (U158)
• Resetting the toner feed start level and toner empty detection
Completion
Press the stop/clear key after initial setting is complete. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U144</td><td>
Setting toner loading operation
Description
Sets toner loading operation after completion of copying.
Purpose
To set whether or not toner is loaded on the drum after low density copying. Normally no change is necessary from the initial setting.
Method
1. Press the start key. The screen for selecting an item is displayed.
2. Select the item. The selected item is displayed im reverse.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>MODE0
MODE1
MODE2</td><td>Toner not loaded
Toner not loaded
Toner loaded</td></tr>
</table>
Initial setting: MODE2
3. Press the start key. The value is set.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U150</td><td>
Checking sensors and switches for toner
Description
Displays the on-off status of each sensor or switch related to toner.
Purpose
To check if the sensors and switches operate correctly.
Method
1. Press the start key. A list of the switches, the on-off status of which can be checked, are displayed.
2. Turn each switch on and off manually to check the status.
When the on-status of a switch is detected, that switch is displayed in reverse.
<table>
<tr><th>Display</th><th>Switches</th></tr>
<tr><td>DEVELOPER SENSOR
CONTAINER SET
CONTAINER SENSOR
DISPOSAL TANK SET
DISPOSAL TANK SENSOR</td><td>Toner sensor (TNS)
Toner container detection switch (TCDSW)
Toner container sensor (TCS)
Toner disposal tank detection switch (TDDSW)
Overflow sensor (OFS)</td></tr>
</table>
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U157</td><td>
Checking/clearing the developing drive time
Description
Displays the developing drive time for checking, clearing or changing a figure, which is used as a reference when correcting the toner control. It is automatically cleared when U130 is executed.
Purpose
To check the developing drive time after replacing the developing unit.
Method
Press the start key. The developing drive time is displayed in minutes.
Clearing
1. Press the reset key.
2. Press the start key. The time is cleared, and the screen for selecting a maintenance item No. is displayed.
Setting
1. Enter a five-digit drive time (in minutes) using the numeric keys.
2. Press the start key. The time is set, and the screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the time, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U158</td><td>
Checking/clearing the developing count
Description
Displays the developing count for checking, clearing or changing a figure, which is used as a reference when correcting the toner control. It is automatically cleared when U130 is executed.
Purpose
To check the developing count after replacing the developing unit.
Method
Press the start key. The developing count is displayed.
Clearing
1. Press the reset key.
2. Press the start key. The count is cleared, and the screen for selecting a maintenance item No. is displayed.
Setting
1. Enter a six-digit count using the numeric keys.
2. Press the start key. The count is cleared, and the screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the count, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U161</td><td>
Setting the fixing control temperature
Description
Changes the fixing control temperature.
Purpose
Normally no change is necessary. However, can be used to prevent curling or creasing of paper, or solve a fixing problem on thick paper.
Method
1. Press the start key. The screen for selecting an item is displayed.
2. Select the item to be set. The screen for executing each item is displayed.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>CONTROL TEMP
CORRECT TEMP</td><td>Sets the fixing control temperature.</td></tr>
</table>
Setting the fixing control temperature
1. Select the item to be set. The selecting item is displayed in reverse.
2. Change the setting using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>CONT TEMP
1ST TEMP
2ND TEMP</td><td>Control temperature during copying
Primary stabilization fixing temperature
Secondary stabilization fixing temperature</td><td>100 to 200 (°C)
100 to 200 (°C)
100 to 200 (°C)</td><td>155
120
155</td></tr>
</table>
The respective temperatures are to be set such that 2ND TEMP ≥ 1ST TEMP.
3. Press the start key. The value is set.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U161</td><td>
Setting
1. Select the item to be set. The selecting item is displayed in reverse.
2. Change the setting using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th><th>Setting range</th></tr>
<tr><td>COPY UP TEMP(L)</td><td>Fixing control temperature for large size copying</td><td>-30 to +30 (°C)</td></tr>
<tr><td>COPY UP TEMP(M)</td><td>Fixing control temperature for middle size copying</td><td>-30 to +30 (°C)</td></tr>
<tr><td>COPY UP TEMP(S)</td><td>Fixing control temperature for small size copying</td><td>-30 to +30 (°C)</td></tr>
<tr><td>L/L UP TEMP</td><td>Fixing temperature increase amount at low temperature and low humidity</td><td>0 to +20 (°C)</td></tr>
<tr><td>H/H DOWN TEMP</td><td>Fixing temperature decrease amount at high temperature and high humidity</td><td>0 to +20 (°C)</td></tr>
<tr><td>DUP DOWN TEMP</td><td>Fixing temperature decrease amount for duplex copying</td><td>0 to +20 (°C)</td></tr>
</table>
3. Press the start key. The value is set.
Interrrupt copy mode
While this maintenance item is being performed, copying from an original can be made in interrupt copy mode.
Completion
Press the stop/clear key at the screen for selecting an item. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U162</td><td>
Stabilizing fixing forcibly
Description
Stops the stabilization fixing drive forcibly, regardless of fixing temperature.
Purpose
To forcibly stabilize the machine before the fixing section reaches stabilization temperature.
Method
1. Press the start key. The screen for executing is displayed.
2. Press the start key. The forced stabilization mode is entered, and stabilization operation stops regardless of fixing temperature. The screen for selecting a maintenance item No. is displayed.
To exit the forced stabilization mode, turn the power off and on.
Completion
To exit this maintenance item without executing forced fixing stabilization, press the stop/clear key.The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U163</td><td>
Resetting the fixing problem data
Description
Resets the detection of a service call code indicating a problem in the fixing section.
Purpose
To prevent accidents due to an abnormally high fixing temperature.
Method
1. Press the start key. The screen for executing is displayed.
2. Press CANCEL on the touch panel.
3. Press the start key. The fixing problem data is initialized.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U165</td><td>
Checking/clearing fixing counts
Description
Displays or clears fixing counts.
Purpose
To check fixing counts after replacing the fixing unit.
Method
Press the start key. The fixing counts are displayed.
Clearing
1. Press the reset key.
2. Press the start key. The count is cleared, and the screen for selecting a maintenance item No. is displayed.
Setting
1. Enter a four-digit value using the numeric keys.
2. Press the start key. The value is set. The screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the current value, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U196</td><td>
Turning the fixing heater on
Description
Turns the fixing heater M or S on.
Purpose
To check fixing heaters turning on.
Method
1. Press the start key. The screen for selecting an item is displayed.
2. Select the heater to be turned on. The selected heater turns on for 3 s and then turns off.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>MAIN
SUB</td><td>Fixing heater M (FH-M)
Fixing heater S (FH-S)</td></tr>
</table>
Completion
Press the stop/clear key when fixing motors M and S are off. The screen for selecting the maintenance item No. is displayed.
</td></tr>
<tr><td>U199</td><td>
Checking the fixing temperature
Description
Displays the fixing temperature, the ambient temperature and the absolute humidity.
Purpose
To check the fixing temperature, the ambient temperature and the absolute humidity.
Method
Press the start key. The fixing temperature and ambient temperature are displayed in centigrade (°C) and the absolute humidity is displayed in percentage (%).
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>FIX TEMP
SURROUND TEMP
HUMIDITY</td><td>Fixing temperature (°C)
Ambient temperature (°C)
Absolute humidity (%)</td></tr>
</table>
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U200	**Turning all LEDs on** **Description** Turns all the LEDs on the operation panel on. **Purpose** To check if all the LEDs on the operation panel light. **Method** Press the start key. All the LEDs on the operation panel light. Press the stop/clear key or wait for 10 s. The LEDs turns off, and the screen for selecting a maintenance item No. is displayed.
U201	**Initializing the touch panel** **Description** Automatically correct the positions of the X- and Y-axes of the touch panel. **Purpose** To automatically correct the display positions on the touch panel after it is replaced. **Method** 1. Press the start key. The screen for executing is displayed, and the + key displayed at the upper left of the touch panel flashes. 2. Press on the center of the + key. The + key on lower right flashes. 3. Press the center of the flashing +. Initialization of the touch panel is complete, and the screen for selecting a maintenance item No. is displayed. **Completion** To exit this maintenance item without initializing, press the stop/clear key. The screen for selecting a maintenance mode No. is displayed.
U202	**Setting the KMAS host monitoring system** **Description** Initializes or operates the KMAS host monitoring system. This is an optional device which is currently supported only by Japanese specification machines, so no setting is necessary.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U203</td><td>
Operating DF separately
Description
Simulates the original conveying operation separately in the optional DF.
Purpose
To check the DF.
Method
1. Press the start key. The screen for selecting an item is displayed.
2. Place an original in the DF if running this simulation with paper.
3. Select the item to be operated. The selected item is displayed in reverse.
<table>
<tr><th>Display</th><th>Operation</th></tr>
<tr><td>ADF
RADF
ADF (NON-P)
RADF (NON-P)</td><td>With paper, single-sided original
With paper, double-sided original
Without paper, single-sided original (continuous operation)
Without paper, double-sided original (continuous operation)</td></tr>
</table>
4. Press the start key. The operation starts.
5. To stop continuous operation, press the stop/clear key.
Completion
Press the stop/clear key when the operation stops. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U204</td><td>
Setting the presence or absence of a key card or key counter
Description
Sets the presence or absence of the optional key card or key counter.
Purpose
To run this maintenance item if a key card or key counter is installed.
Method
Press the start key. The screen for selecting an item is displayed
Setting
1. Select the optional counter to be installed using the cursor up/down keys. The selected counter is displayed in reverse.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>KEY-CARD
KEY-COUNTER</td><td>The key card is installed
The key counter is installed</td></tr>
</table>
2. Press the start key. The setting is set and the screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U206</td><td>Setting the presence or absence of the coin vender
Description
Sets the presence or absence of the optional coin vender. Also sets the details for coin vender operation, such as mode and unit price.
This is an optional device which is currently supported only by Japanese specification machines, so no setting is necessary.</td></tr>
<tr><td>U207</td><td>Checking the operation panel keys
Description
Checks operation of the operation panel keys.
Purpose
To check operation of all the keys and LEDs on the operation panel.
Method
1. Press the start key. The screen for executing is displayed.
2. "COUNT1" is displayed and the leftmost LED on the operation panel lights.
3. As the keys lined up in the same line as the lit indicator are pressed in the order from the top to the bottom, the figure shown on the touch panel increases in increments of 1. When all the keys in that line are pressed and if there are any LEDs corresponding to the keys in the line on the immediate right, the top LED in that line will light.
4. When all the keys on the operation panel have been pressed, all the LEDs light for up to 10 seconds.
5. When the LEDs go off, press the start key. All the LEDs light for 10 seconds again.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</td></tr>
<tr><td>U208</td><td>Setting the paper size for the large paper deck
Description
Sets the size of paper used in the optional large paper deck. Note that the setting cannot be changed on inch-specification machines since the paper size for the large paper deck is fixed.
Purpose
To change the setting when the size of paper used in the large paper deck is changed.
Method
Press the start key. The screen for selecting an item is displayed.
Setting
1. Select the paper size (A4 or A5). The selected item is displayed in reverse.
Initial setting: A4
2. Press the start key. The setting is set.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</td></tr>
<tr><td>U211</td><td>Setting DF type
Descrioption
Sets the optional DF type (STDF or SRDF). (For 25 cpm copier only)
Purpose
To set DF type when installing.
Method
Press the start key. The screen for selecting an item is displayed.
Setting
1. Select DF type. The selected item is displayed in reverse.
<table><tr><th>Display</th><th>Description</th></tr><tr><td>SADF
SRADF</td><td>Single-sided (STDF)
Double-sided (SRDF)</td></tr></table>2. Press the start key. The type is set.
Completion
Press the stop/clear key. The screen for selectiong a maintenance item No. is displayed.</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U217</td><td>
Setting 8 1/2" × 13" paper
Description
Turn on the setting when using 8 1/2" × 13" paper.
Purpose
To change the setting as needed.
Method
Press the start key. The screen for selscting an item is displayed.
Setting
1. Select ON or OFF. The selected item is displayed in reverse.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>ON
OFF</td><td>8 1/2" × 13" paper is used.
8 1/2" × 13" paper is not used.</td></tr>
</table>
2. Press the start key. The value is set. The screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U237</td><td>
Setting finisher stack quantity
Description
Sets the number of sheets of each stack on the main tray and on the intermediate tray in the optional finisher.
Purpose
To change the setting when a stack malfunction has occurred.
Method
1. Press the start key. The screen for selecting an item is displayed.
2. Select the item to be set. The selected item is displayed in reverse.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>MAIN TRAY
MIDDLE TRAY</td><td>Number of sheets of stack on the main tray
Number of sheets of stack on the intermediate tray for sort copying or staple copying</td></tr>
</table>
Setting the number of sheets of stack on the main tray
1. Change the setting using the cursor up/down keys.
<table>
<tr><th>Setting</th><th>Description</th></tr>
<tr><td>0
1</td><td>3000-sheet finisher: 1500 sheets, built-in finisher: 250 sheets
3000-sheet finisher: 3000 sheets, built-in finisher: 500 sheets</td></tr>
</table>
Initial setting: 1
2. Press the start key. The setting is set.
Setting the number of sheets of stack on the intermediate tray for sort copying or staple copying
1. Change the setting using the cursor up/down keys.
<table>
<tr><th>Setting</th><th>Description</th></tr>
<tr><td>0
1</td><td>For sort copying: 30 sheets, for staple copying: 50 sheets
For sort copying: 30 sheets, for staple copying: 30 sheets</td></tr>
</table>
Initial setting: 1
2. Press the start key. The setting is set.
Completion
Press the stop/clear key. The screen for selectiong a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U243</td><td>
Checking the operation of the DF motors, solenoids and clutch
Description
Turns the motors, solenoids or clutch in the optional DF on.
Purpose
To check the operation of the DF motors, solenoids and clutch .
Method
1. Press the start key. The screen for selecting an item is displayed.
2. Select the item to be operated. The selected item is displayed in reverse and the operation starts.
<table>
<tr><th>Display</th><th>Motors, solenoids and clutch</th><th>Operation In operation</th></tr>
<tr><td>F MOT</td><td>Original feed motor (OFM)</td><td>In operation</td></tr>
<tr><td>C MOT</td><td>Original paper conveying motor (OCM)</td><td>On for 0.5 s</td></tr>
<tr><td>FD CL</td><td>Original feed clutch (OFCL)</td><td>On for 0.5 s</td></tr>
<tr><td>EJ SL</td><td>Eject feedshift solenoid (EFSSOL)</td><td>On for 0.5 s</td></tr>
<tr><td>RJ SL</td><td>Switchback feedshift solenoid (SBFSSOL)</td><td>On for 0.5 s</td></tr>
<tr><td>FD SL</td><td>Original feed solenoid (OFSOL)</td><td>On and off</td></tr>
<tr><td>RP SL</td><td>Switchback pressure solenoid (SBPSOL)</td><td>On and off</td></tr>
</table>
3. To turn each motor off, press the stop/clear key.
Completion
Press the stop/clear key when operation stops. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U244</td><td>
Checking the DF switches
Description
Displays the status of the respective switches in the optional DF.
Purpose
To check if respective switches in the optional DF operate correctly.
Start
1. Press the start key. The screen for selecting an item is displayed.
2. Select the type of switches (SW or VR) to be checked. The screen for executing each item is displayed.
<table>
<tr><th>Display</th><th>Type of switches</th></tr>
<tr><td>SW</td><td>On/off switches</td></tr>
<tr><td>VR</td><td>Volume switch</td></tr>
</table>
Method for the on/off switches
1. Turn the respective switches on and off manually to check the status.
If the on-status of a switch is detected, the corresponding switch is displayed in reverse.
<table>
<tr><th>Display</th><th>Switches</th></tr>
<tr><td>SET</td><td>Original set switch (OSSW)</td></tr>
<tr><td>FEED</td><td>Original feed switch (OFSW)</td></tr>
<tr><td>REV</td><td>Original switchback switch (OSBSW)</td></tr>
<tr><td>TMG</td><td>DF timing switch (DFTSW)</td></tr>
<tr><td>SZ A</td><td>Original size length switch (OSLSW)</td></tr>
</table>
2. To return to the screen for selecting an item, press the stop/clear key.
</td></tr>
</table>

Maintenance item No.	Description
U244	**Method for the volume switch** 1. Move the original insertion guides to check the detection status of the original size width switch. The detected original width is displayed as a numerical value with the decimals omitted.

Numerical value	Original width to be detected	
000		$5^1/_2" \times 8^1/_2"$
49.664	A5R	
50.176		
61.440		
61.952	B5R	
103.936		$8^1/_2" \times 14"$/ $8^1/_2" \times 11"$
104.448	Folio/A4R	
139.264		
139.776		
146.432	B4/B5	
146.994		
197.120		
197.632	CF (11" × 15")	11" × 17"/ 11" × 15"/ $11" \times 8^1/_2"$
197.720		
223.232	A3/A4	
256		

For example, if any value between 105 and 139 is displayed when the original insertion guides are adjusted for A4R paper, it indicates that the original width is detected correctly.

2. To return to the screen for selecting an item, press the stop/clear key.

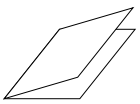
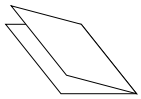
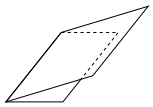
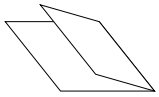
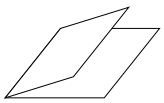
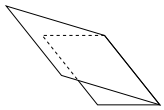
Completion

Press the stop/clear key at the screen for selecting an item. The screen for selecting a maintenance item No. is displayed.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U245</td><td>
Checking messages
Description
Displays a list of messages on the touch panel of the operation panel.
Purpose
To check the messages to be displayed.
Method
1. Press the start key.
2. Select the item to be displayed.
3. Change the screen using the cursor up/down keys to display each message one at a time.
When a message number is entered with the numeric keys and then the start key is pressed, the message corresponding the specified number is displayed.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U246</td><td>
Setting the finisher
Description
Adjusts the amount of slack in the paper for the optional finisher in punch mode when it is attached. Also adjusts the booklet stapling position for each paper size when the optional booklet stitcher is attached.
Purpose
• Adjustment of the amount of slack in the paper in punch mode
Adjusts the amount of slack in the paper while in the punch section if, in punch mode, paper jams or is Z-folded frequently due to too much slack in the paper, or, the position of punch holes varies due to too little slack in the paper.
• Booklet stapling position adjustment
Adjusts the booklet stapling position in the stitching mode if the position is not proper.
Start
1. Press the start key. The screen for selecting an item is displayed.
2. Select the item to be set and press the start key. The screen for executing each item is displayed.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>3000 FINISHER
SADDLE FINISHER</td><td>Adjustment of the amount of slack in the paper in punch mode
Booklet stapling position adjustment</td></tr>
</table>
Setting the amount of slack in the paper
1. Change the setting using the cursor up/down keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>Amount of slack in the paper</td><td>-15 to +15</td><td>0</td></tr>
</table>
If the position of punch holes varies, increase the setting to make the amount of slack larger.
If paper jams or is Z-folded frequently, decrease the setting to make the amount of slack smaller.
2. Press the start key. The value is set.
3. To return to the screen for selecting an item, press the stop/clear key.
Setting the booklet stapling position
1. Select the size to be set. The selected item is displayed in reverse.
2. Change the setting using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th><th>Setting range</th><th>Initial setting</th><th>Change in value per step</th></tr>
<tr><td>A4R</td><td>Adjustment of booklet stapling position for A4R size</td><td>–125 to +125</td><td>0</td><td>0.25 mm</td></tr>
<tr><td>B4R</td><td>Adjustment of booklet stapling position for B4R size</td><td>–125 to +125</td><td>0</td><td>0.25 mm</td></tr>
<tr><td>A3R/LDR</td><td>Adjustment of booklet stapling position for A3R/LDR size</td><td>–125 to +125</td><td>0</td><td>0.25 mm</td></tr>
</table>
</td></tr>
</table>

Maintenance item No.	Description

U246

Left stapling	Right stapling	Adjustment method
		Proper
 Upper side is longer.	 Lower side is longer.	Decrease the preset value.
 Lower side is longer.	 Upper side is longer.	Increase the preset value.

3. Press the start key. The value is set.
4. To return to the screen for selecting an item, press the stop/clear key.

Completion

Press the stop/clear key at the screen for selecting an item. The screen for selecting a maintenance item No. is displayed.

U247

Checking the operation of large paper deck and paper feed desk

Description

Turns on motors and clutches of optional large paper deck or paper feed desk.

Purpose

To check the operation of motors and clutches of paper feed device.

Start

1. Press the start key. The screen for selecting an item is displayed.
2. Select the device to be checked.

Display	Paper feed device
3000 DECK 500 × 2 DECK	Large paer deck Paper feed desk

Method

1. Select the item to be operated. The selected item is displayed in reverse and operation starts.

Large paper deck

Display	Motors and clutches	Operation
LCF MOT	Conveying motor (CM)	On for 5 s
B CL	Conveying clutch (CCL)	On for 1 s
PCL1	Paper feed clutch 1(PFCL1)	On for 1 s
PCL2	Paper feed clutch 2(PFCL2)	On for 1 s

Paper feed desk

Display	Motors and clutches	Operation
DESK MOT	Desk Drive motor (DDM)	On for 5 s
FEED CL	Desk feed clutch (DFCL)	On for 1 s
UPP CL	Desk upper paper feed clutch (DPFCL-U)	On for 1 s
LOW CL	Desk lower paper feed clutch (DPFCL-L)	On for 1 s

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U247</td><td>2. To return to the screen for selecting an item, press the stop/clear key.
Completion
Press the stop/clear key at the screen for selecting an item. The screen for selecting a maintenance item No. is displayed.</td></tr>
<tr><td>U249</td><td>Checking the paper ejection to optional devices
Description
Ejects paper to an optional mailbox or job separator, or to the ejection slot at the machine left.
Purpose
To check paper conveying operation to optional paper eject devices or the ejection slot at the machine left.
Method
1. Press the start key. The screen for selecting an item is displayed.
2. Select the paper eject location.
<table>
<tr><th>Display</th><th>Paper eject device</th></tr>
<tr><td>MAIL
JOB SEPARATOR
LEFT BIN OUTPUT</td><td>BOX Mailbox
Job separator
Ejection slot at the machine left (finisher not installed)</td></tr>
</table>
3. When selecting the mailbox, specify the mail tray number (1 to 7) to which paper is to be ejected by using the cursor up/down keys. If 0 is selected, paper is ejected to the mail trays in ascending order from mail tray 1 to mail tray 7 repeatedly.
Interrupt copy mode
While this maintenance item is being performed, copying from an original can be made in interrupt copy mode.
Completion
Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</td></tr>
<tr><td>U250</td><td>Setting the maintenance cycle
Description
Displays and changes the maintenance cycle.
Purpose
To check and change the maintenance cycle.
Method
Press the start key. The current setting is displayed as follows:
Setting
1. Change the setting using the numeric keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>Maintenance cycle</td><td>0 to 600000</td><td>500000 (35 cpm) 400000 (25 cpm)</td></tr>
</table>
2. Press the start key. The value is set, and the screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U251</td><td>
Checking/clearing the maintenance count
Description
Displays, clears and changes the maintenance count.
Purpose
To check the maintenance count. Also to clear the count during maintenance service.
Method
Press the start key. The maintenance count is displayed.
Clearing
1. Press the reset key.
2. Press the start key. The count is cleared, and the screen for selecting a maintenance item No. is displayed.
Setting
1. Enter a six-digit count using the numeric keys.
2. Press the start key. The count is set, and the screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the count, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U252</td><td>
Setting the destination
Description
Switches the operations and screens of the machine according to the destination.
Purpose
To be executed after replacing the backup RAM on the main PCB or initializing the backup RAM by running maintenance item U020, in order to return the setting to the value before replacement or initialization.
Method
Press the start key. The screen for selecting an item is displayed.
Setting
1. Select the destination. The selected item is displayed in reverse.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>JAPAN METRIC
INCH
EUROPE METRIC
ASIA PACIFIC</td><td>Metric (Japan) specifications
Inch (North America) specifications
Metric (Europe) specifications
Metric (Asia Pacific) specifications</td></tr>
</table>
2. Press the start key. The setting is set, and the machine automatically returns to the same status as when the power is turned on.
Completion
To exit this maintenance item without changing the current count, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
Supplement
The specified initial settings are provided according to the destinations in the maintenance items below. To change the initial settings in those items, be sure to run maintenance item U021 after changing the destination.
• Initial setting according to the destinations
<table>
<tr><th>Maintenance item No.</th><th>Title</th><th>Japan</th><th>Inch</th><th>Europe Metric, Asia Pacific</th></tr>
<tr><td>253
255</td><td>Switching between double and single counts
Setting auto clear time</td><td>Single
120 s</td><td>Double
90 s</td><td>Double
90 s</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U253</td><td>
Switching between double and single counts
Description
Switches the count system for the total counter and other counters.
Purpose
According to user (copy service provider) request, select if A3/11" × 17" paper is to be counted as one sheet (single count) or two sheets (double count).
Method
Press the start key. The screen for selecting an item is displayed.
Setting
1. Select double or single count. The selected item is displayed in reverse.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>DOUBLE COUNT
SINGLE COUNT</td><td>Double count for A3/11" × 17" paper only
Single count for all size paper</td></tr>
</table>
Initial setting: DOUBLE COUNT
2. Press the start key. The setting is set, and the screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U254</td><td>
Turning auto start function on/off
Description
Selects if the auto start function is turned on.
Purpose
Normally no change is necessary. If incorrect operation occurs, turn the function off: this may solve the problem.
Method
Press the start key. The screen for selecting an item is displayed.
Setting
1. Select either ON or OFF. The selected item is displayed in reverse.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>ON
OFF</td><td>Auto start function on
Auto start function off</td></tr>
</table>
Initial setting: ON
2. Press the start key. The setting is set, and the screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U255</td><td>
Setting auto clear time
Description
Sets the time to return to initial settings after copying is complete.
Purpose
To be set according to frequency of use. Set to a comparatively long time for continuous copying at the same settings, and a comparatively short time for frequent copying at various settings.
Method
Press the start key. The current setting is displayed.
Setting
1. Change the setting using the cursor up/down keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>Auto clear time</td><td>0 to 270</td><td>90</td></tr>
</table>
The setting can be changed by 30 s per step.
When set to 0, the auto clear function is cancelled.
2. Press the start key. The value is set, and the screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U256</td><td>
Turning auto preheat/energy saver function on/off
Description
Selects if the auto preheat/energy saver function is turned on. When set to ON, the time to enter preheat/energy saver mode can be changed in copy management mode.
Purpose
According to user request, to set the preheat time to save energy, or enable copying promptly without the recovery time from preheat mode.
Method
Press the start key. The screen for selecting an item is displayed.
Setting
1. Select ON or OFF. The selected item is displayed in reverse.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>ON
OFF</td><td>Auto preheat/energy saver function on
Auto preheat/energy saver function off</td></tr>
</table>
Initial setting: ON
2. Press the start key. The setting is set, and the screen for selecting a maintenance item No. is displayed.
When the setting is changed from OFF to ON, the auto preheat time is set to the initial setting of 15 minutes.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U258</td><td>
Switching copy operation at toner empty detection
Description
Selects if continuous copying is enabled after toner empty is detected, and sets the number of copies that can be made after the detection.
Method
Press the start key. The current setting is displayed.
Setting
1. Select single or continuous copying. The selected item is displayed in reverse.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>SINGLE
CONTINUE</td><td>Enables only single copying.
Enables single and continuous copying.</td></tr>
</table>
Initial setting: SINGLE
2. Set the number of copies that can be made using the cursor up/down keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>Number of copies after toner empty detection</td><td>0 to 200 (copies)</td><td>0</td></tr>
</table>
The setting can be changed by 5 copies per step.
When set to 0, the number of copies is not limited regardless of the setting for single or continuous copying.
3. Press the start key. The setting is set, and the screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U260</td><td>
Changing the copy count timing
Description
Changes the copy count timing for the total counter and other counters.
Purpose
To be set according to user (copy service provider) request.
If a paper jam occurs frequently in the finisher when the number of copies is counted at the time of paper ejection, copies are provided without copy counts. The copy service provider cannot charge for such copying. To prevent this, the copy timing should be made earlier.
If a paper jam occurs frequently in the paper conveying or fixing sections when the number of copies is counted before the paper reaches those sections, copying is charged without a copy being made. To prevent this, the copy timing should be made later.
Method
Press the start key. The screen for selecting an item is displayed.
Setting
1. Select the copy count timing . The selected item is displayed in reverse.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>FEED
EJECT</td><td>When secondary paper feed starts
When the paper is ejected</td></tr>
</table>
Initial setting: EJECT
2. Press the start key. The setting is set, and the screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U265	**Setting OEM purchaser code** **Description** Sets the OEM purchaser code. **Purpose** Sets the code when replacing the main PCB and the like. **Method** Press the start key. **Setting** 1. Use the numeric keys or cursor up/down keys to adjust the preset value. 2. Press the start key. The count is set , and the screen for selecting a maintenance item is displayed. **Completion** To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item is displayed.
U330	**Setting the number of sheets to enter stacking mode during sort operation** **Description** When sort copying is set to perform automatically in the output form setting of the user simulation, sets the number of sheets at which the eject location is switched to the optional finisher (only when the finisher is installed). **Purpose** To be set as required according to the number of copies the user makes. **Method** Press the start key. The current setting is displayed. **Setting** 1. Set the number of sheets (o to 250) using the numeric keys or cursor up/down keys. 2. Press the start key. The setting is set. The screen for selecting a maintenance item No. is displayed. **Completion** To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U332</td><td>
Setting the size conversion factor
Description
Sets the factor for converting each paper size into A4/11" × 8 1/2". The black ratio is converted for the A4/11" × 8 1/2" size using the factor set in this maintenance item. Values set are displayed in the user simulation.
Purpose
To set the factor to convert the black ratio of each paper size for A4/11" × 8 1/2" size.
Method
1. Press the start key. The screen for selecting an item is displayed.
2. Select the paper size.
3. Change the setting using the cursor up/down keys.
The size conversion factor can be set separately for the copier mode (COPY), the printer mode (PRI) and the fax mode (FAX) at the screen for setting the size conversion factor.
Metric models
<table>
<tr><th rowspan="2">Display</th><th rowspan="2">Description</th><th rowspan="2">Setting</th><th colspan="3">Initial setting</th></tr>
<tr><th>COPY</th><th>PRI</th><th>FAX</th></tr>
<tr><td>A3</td><td>Size conversion factor for A3</td><td>0.0 to 3.0</td><td>2.0</td><td>2.0</td><td>2.0</td></tr>
<tr><td>B4</td><td>Size conversion factor for B4</td><td>0.0 to 3.0</td><td>1.5</td><td>1.5</td><td>1.5</td></tr>
<tr><td>A4</td><td>Size conversion factor for A4</td><td>0.0 to 3.0</td><td>1.0</td><td>1.0</td><td>1.0</td></tr>
<tr><td>B5</td><td>Size conversion factor for B5</td><td>0.0 to 3.0</td><td>0.7</td><td>0.7</td><td>0.7</td></tr>
<tr><td>A5</td><td>Size conversion factor for A5</td><td>0.0 to 3.0</td><td>0.5</td><td>0.5</td><td>0.5</td></tr>
<tr><td>B6</td><td>Size conversion factor for B6</td><td>0.0 to 3.0</td><td>0.4</td><td>0.4</td><td>0.4</td></tr>
<tr><td>A6</td><td>Size conversion factor for A6</td><td>0.0 to 3.0</td><td>0.3</td><td>0.3</td><td>0.3</td></tr>
<tr><td>FOLIO</td><td>Size conversion factor for folio</td><td>0.0 to 3.0</td><td>0.3</td><td>0.3</td><td>0.3</td></tr>
<tr><td>OTHER</td><td>Size conversion factor for non-standard sizes</td><td>0.0 to 3.0</td><td>1.0</td><td>1.0</td><td>1.0</td></tr>
</table>
Inch models
<table>
<tr><th rowspan="2">Display</th><th rowspan="2">Description</th><th rowspan="2">Setting</th><th colspan="3">Initial setting</th></tr>
<tr><th>COPY</th><th>PRI</th><th>FAX</th></tr>
<tr><td>11 × 17</td><td>Size conversion factor for 11" × 17"</td><td>0.0 to 3.0</td><td>2.0</td><td>2.0</td><td>2.0</td></tr>
<tr><td>8.5 × 14</td><td>Size conversion factor for 8.5" × 14"</td><td>0.0 to 3.0</td><td>1.5</td><td>1.5</td><td>1.5</td></tr>
<tr><td>8.5 × 11</td><td>Size conversion factor for 8.5" × 11"</td><td>0.0 to 3.0</td><td>1.0</td><td>1.0</td><td>1.0</td></tr>
<tr><td>5.5 × 8.5</td><td>Size conversion factor for 5.5" × 8.5"</td><td>0.0 to 3.0</td><td>0.7</td><td>0.7</td><td>0.7</td></tr>
<tr><td>OTHER</td><td>Size conversion factor for non-standard sizes</td><td>0.0 to 3.0</td><td>0.5</td><td>0.5</td><td>0.5</td></tr>
</table>
4. Press the start key. The setting is set.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item is displayed.
</td></tr>
<tr><td>U341</td><td>
Specific paper feed location setting for printing function
Description
Sets a paper feed location specified for printer output (only if a printer kit is installed).
Purpose
To use a paper feed location only for printer output.
Method
1. Press the start key. The screen for selecting an item is displayed.
2. Select the paper feed location for the printer. The selected item is displayed in reverse.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>FIRST</td><td>Upper drawer</td></tr>
<tr><td>SECOND</td><td>Lower drawer</td></tr>
<tr><td>THIRD</td><td>Optional upper drawer</td></tr>
<tr><td>FOURTH</td><td>Optional lower drawer</td></tr>
<tr><td>LCF</td><td>Optional large paper deck</td></tr>
</table>
3. Press the start key. The setting is set.
Completion
Press the stop/clear key. The screen for selecting a maintenance item is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U342</td><td>
Setting the ejection restriction
Description
Sets or cancels the restriction on the number of sheets to be ejected continuously when the internal eject tray is selected as the eject location.
Purpose
According to user request, sets or cancels restriction on the number of sheets.
Method
1. Press the start key. The screen for selecting an item is displayed.
2. Select ON or OFF.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>ON
OFF</td><td>Sets restriction on the number of sheets
Cancels restriction on the number of sheets</td></tr>
</table>
Details of restriction (number of sheets to be ejected continuously after the start key is pressed)
<table>
<tr><th>Condition</th><th>Number of sheets</th></tr>
<tr><td>When no optional ejection device is installed
When the job separator or duplex unit is installed
When the finisher is installed</td><td>250
150
100</td></tr>
</table>
3. Press the start key. The setting is set.
Completion
Press the stop/clear key. The screen for selectiong a maintenance item No. is displayed.
</td></tr>
<tr><td>U343</td><td>
Switching between duplex/simplex copy mode
Description
Switches the initial setting between duplex and simplex copy.
Purpose
To be set according to frequency of use: set to the more frequently used mode.
Method
Press the start key. The screen for selecting an item is displayed.
Setting
1. Select ON or OFF. The selected item is displayed in reverse.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>ON
OFF</td><td>Duplex copy
Simplex copy</td></tr>
</table>
Initial setting: OFF
2. Press the start key. The setting is set, and the screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U344</td><td>
Setting preheat/energy saver mode
Description
Changes the control for preheat/energy saver mode.
Purpose
According to user request, selects which has priority, the recovery time from preheat or energy saver.
Method
Press the start key. The screen for selecting an item is displayed.
Setting
1. Select control mode. The selected item is displayed in reverse.
<table>
<tr><th>Display</th><th>Control in preheat mode</th></tr>
<tr><td>INSTANT READY</td><td>Without decreasing the fixing control temperature, the display on the operation panel is turned off.</td></tr>
<tr><td>ENERGY STAR</td><td>The fixing control temperature is set at 130°C.
The copier is forcibly stabilized 30 s after exiting preheat/energy saver mode.</td></tr>
<tr><td>E 2000</td><td>The fixing control temperature is decreased by 70°C.</td></tr>
</table>
Initial setting: E 2000
2. Press the start key. The setting is set, and the screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U345</td><td>
Setting the value for maintenance due indication
Description
Sets when to display a message notifying that the time for maintenance is about to be reached, by setting the number of copies that can be made before the current maintenance cycle ends.
When the difference between the number of copies of the maintenance cycle and that of the maintenance count reaches the set value, the message is displayed.
This maintenance mode is effective for only Japanese specification.
</td></tr>
<tr><td>U402</td><td>
Adjusting margins of image printing
Adjustment
See page 1-6-13.
</td></tr>
<tr><td>U403</td><td>
Adjusting margins for scanning an original on the contact glass
Adjustment
See page 1-6-31.
</td></tr>
</table>

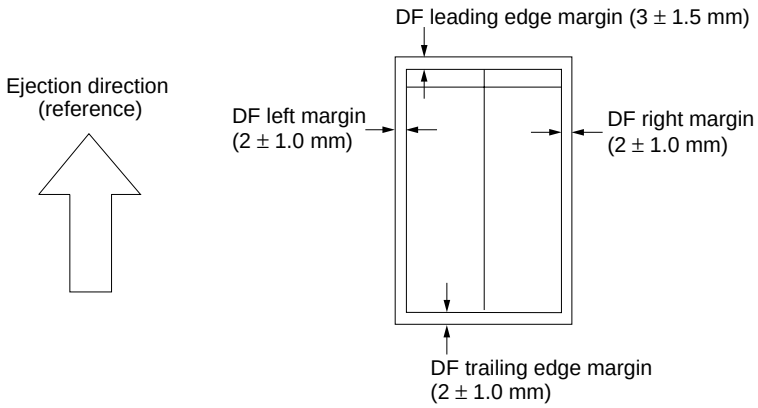
<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U404</td><td>
Adjusting margins for scanning an original from the DF
Description
Adjusts margins for scanning the original from the DF.
Purpose
Used if margins are not correct when the optional DF is used.
Caution
Before making this adjustment, ensure that the following adjustments have been made in maintenance mode.
U402 → U403 → U404
Method
Press the start key. The screen for selecting an item is displayed.
Setting
1. Select the item to be set. The selected item is displayed in reverse.
2. Change the setting using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th><th>Setting range</th><th>Initial setting</th><th>Change in value per step</th></tr>
<tr><td>A MARGIN</td><td>Left margin</td><td>0 to 10</td><td>2</td><td>0.5 mm</td></tr>
<tr><td>B MARGIN</td><td>Leading edge margin</td><td>0 to 10</td><td>3</td><td>0.5 mm</td></tr>
<tr><td>C MARGIN</td><td>Right margin</td><td>0 to 10</td><td>2</td><td>0.5 mm</td></tr>
<tr><td>D MARGIN</td><td>Trailing edge margin</td><td>0 to 10</td><td>2</td><td>0.5 mm</td></tr>
</table>
Increasing the setting makes the margin wider, and decreasing it makes the margin narrower.


Figure 1-4-7 Correct margin amount
3. Press the start key. The value is set.
Interrupt copy mode
While this maintenance item is being performed, copying from an original can be made in interrupt copy mode.
Completion
Press the stop/clear key at the screen for selecting an item. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U407</td><td>
Adjusting the leading edge registration for memory image printing
Adjustment
See page 1-6-11.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U901</td><td>
Checking/clearing copy counts by paper feed locations
Description
Displays or clears copy counts by paper feed locations.
Purpose
To check the time to replace consumable parts. Also to clear the counts after replacing the consumable parts.
Method
1. Press the start key. The counts by paper feed locations are displayed.
2. Change the screen using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Paper feed locations</th></tr>
<tr><td>BYPASS</td><td>Bypass tray</td></tr>
<tr><td>FIRST</td><td>Upper drawer</td></tr>
<tr><td>SECOND</td><td>Lower drawer</td></tr>
<tr><td>THIRD</td><td>Optional drawer 1</td></tr>
<tr><td>FORTH</td><td>Optional drawer 2</td></tr>
<tr><td>LCF</td><td>Optional large paper deck</td></tr>
<tr><td>DUPLEX</td><td>Optional duplex unit</td></tr>
</table>
When an optional paper feed device is not installed, the corresponding count is not displayed.
Clearing
1. Select the count to be cleared. The selected item is displayed in reverse.
To clear the counts for all paper feed locations, press ALL on the touch panel.
2. Press the start key. The count is cleared, and the screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U902</td><td>
Checking/clearing finisher punch count
Description
Sets the punch limit and displays and clears the punch-hole scrap count when the optional finisher is attached.
Purpose
Sets the punch limit to notify the user of the time to collect punch-hole scrap. Also, used to manually clear the punch-hole scrap count if a message requiring collection of punch-hole scrap is shown on the touch panel after collection. If punch-hole scrap is collected with the copier power turned off, the punch-hole scrap count is not cleared and consequently this problem occurs.
Start
1. Press the start key. The screen for selecting in item is displayed.
2. Select the item. The selecting an item is displayed in reverse.
<table>
<tr><th>Display</th><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>PUNCH LIMIT</td><td>Punch limit
(maximum number of punching times)</td><td>0 to 999000</td><td>75000</td></tr>
<tr><td>PUNCH COUNT</td><td>Punch-hole scrap count
(current number of punching times)</td><td>–</td><td>–</td></tr>
</table>
Setting the punch limit
1. Change the setting using the numeric keys.
2. Press the start key. The value is set.
Clearing
1. Press the reset key.
2. Press the start key. The count is cleared, and the screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U903	**Checking/clearing the paper jam counts** **Description** Displays or clears the jam counts by jam locations. **Purpose** To check the paper jam status. Also to clear the jam counts after replacing consumable parts. **Method** 1. Press the start key. The jam count is displayed by jam codes. 2. Change the screen using the * or # keys. **Clearing** 1. Press the reset key. Jam counts cannot be cleared individually. 2. Press the start key. The count is cleared, and the screen for selecting a maintenance item No. is displayed. **Completion** To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
U904	**Checking/clearing the service call counts** **Description** Displays or clears the service call code counts by types. **Purpose** To check the service call code status by types. Also to clear the service call code counts after replacing consumable parts. **Method** 1. Press the start key. The service call count is displayed by service call codes. 2. Change the screen using the * or # keys. **Clearing** 1. Select the count to be cleared. The selected item is displayed in reverse. To clear all counts, press the reset key. 2. Press the start key. The count is cleared. When all counts are cleared, the screen for selecting a maintenance item No. is displayed. **Completion** To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U905</td><td>
Checking/clearing counts by optional devices
Description
Displays or clears the counts of the optional DF or finisher.
Purpose
To check the use of the DF and finisher. Also to clear the counts after replacing consumable parts.
Method
1. Press the start key. The screen for selecting an item is displayed.
2. Select the device, the count of which is to be checked and press the start key. The count of the selected device is displayed.
• DF
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>CHANGE
ADF
RADF</td><td>Original replacement count
No. of single-sided originals that has passed through the DF in ADF mode
No. of double-sided originals that has passed through the DF in RADF mode</td></tr>
</table>
• Finisher (SORTER)
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>CP CNT
STAPLE
STACK</td><td>No. of copies that has passed
Frequency the stapler has been activated
Frequency the stacker has been activated</td></tr>
</table>
Clearing
1. Select the item to be cleared. The selected item is displayed in reverse.
2. Press the start key. The count is cleared.
3. To return to the screen for selecting an item, press the stop/clear key.
Completion
Press the stop/clear key at the screen for selecting an item. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U906</td><td>
Resetting partial operation control
Description
Resets the service call code for partial operation control.
Purpose
To be reset after partial operation is performed due to problems in the drawers or other sections, and the related parts are serviced.
Method
1. Press the start key.
2. Press EXECUTE on the touch panel.
3. Press the start key to reset partial operation control. The maintenance mode is exited, and the machine returns to the same status as when the main switch is turned on.
</td></tr>
</table>

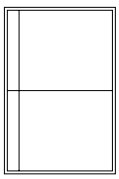
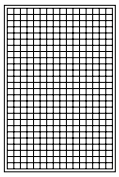
Maintenance item No.	Description
U908	**Changing the total counter value** **Description** Displays, clears and changes the total counter value. **Purpose** To check the total counter value. **Method** Press the start key. The total counter value is displayed. **Clearing** 1. Press the reset key. 2. Press the start key. The value is cleared. The screen for selecting a maintenance item No. is displayed. **Setting** 1. Enter a six-digit value using the numeric keys. 2. Press the start key. The value is set. The screen for selecting a maintenance item No. is displayed. **Completion** To exit this maintenance item without changing the current total counter value, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
U910	**Clearing the black ratio data** **Description** Clears the accumulated black ratio data for A4 sheets. **Purpose** To clear data as required at times such as during maintenance service. **Method** 1. Press the start key. 2. Press CANCEL on the touch panel. 3. Press the start key. The accumulated black ratio data is cleared, and the screen for selecting a maintenance item is displayed. **Completion** To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item is displayed.
U911	**Checking/clearing copy counts by paper sizes** **Description** Displays and clears the paper feed counts by paper sizes. **Purpose** To check or clear the counts after replacing consumable parts. **Method** Press the start key. The screen for the paper feed counts by paper size is displayed. **Clearing** 1. Select the paper size. The selected item is displayed in reverse. To clear all counts, press the reset key. 2. Press the start key. The count is cleared. When clearing all counts, the screen for selecting a maintenance item is displayed. **Completion** To exit this maintenance item without changing the count, press the stop/clear key. The screen for selecting a maintenance item is displayed.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U990</td><td>
Checking/clearing the time for the exposure lamp to light
Description
Displays, clears or changes the accumulated time for the exposure lamp to light.
Purpose
To check duration of use of the exposure lamp. Also to clear the accumulated time for the lamp after replacement.
Method
Press the start key. The accumulated time of illumination for the exposure lamp is displayed in minutes.
Clearing
1. Press the reset key.
2. Press the start key. The accumulated time is cleared, and the screen for selecting a maintenance item No. is displayed.
Setting
1. Enter a six-digit accumulated time using the numeric keys.
2. Press the start key. The time is set, and the screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the accumulated time, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U991</td><td>
Checking/clearing the scanner count
Description
Displays or clears the scanner operation count.
Purpose
To check the status of use of the scanner.
Method
Press the start key. The screen for selecting an item is displayed.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>TOTAL SCAN COUNT
NT SCAN COUNT</td><td>Counts of scanner operation
Counts of network scanner operation</td></tr>
</table>
Clearing
1. Select the item to be cleared.
2. Press the reset key.
3. Press the start key. The count is cleared. The screen for selecting a maintenance item No. is displayed.
Setting
1. Select the item to be changed.
2. Enter a six-digit count using the numeric key.
3. Press the start key. The value is set. The screen for selecting a maintenance item No. is displayed.
Completion
To exit this maintenance item without changing the current setting, press the stop/clear key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U992	**Checking or clearing the printer/fax count** **Description** Displays, clears or changes the print count of the printer or fax when the optional printer board or fax unit is installed. **Purpose** To check the frequency of use of the printer or fax. **Method** Press the start key. The screen for selecting an item is displayed. **Clearing** 1. Select the count to be cleared. 2. Press the reset key. 3. Press the start key. The count is cleared. The screen for selecting a maintenance item No. is displayed. **Setting** 1. Select the item to be changed. 2. Enter a six-digit count using the numeric keys. To clear the counts for both printer and fax, press the reset key. 3. Press the start key. The value is set. **Completion** Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.

Display	Description
PRINTER COUNT	Print count of the printer
FAX COUNT	Print count of the fax

Maintenance item No.	Description
U993	**Outputting a VTC-PG pattern** **Description** Selects and outputs a VTC-PG pattern created in the copier. **Purpose** When performing respective image printing adjustments, used to check the machine status apart from that of the scanner with a non-scanned output VTC-PG pattern. **Method** 1. Press the start key. The screen for selecting an item is displayed. 2. Select the VTC-PG pattern to be output.

Display	PG pattern to be output	Purpose
PG1		• Center line adjustment
PG2		• Lateral squareness adjustment • Magnification adjustment
PG3		———

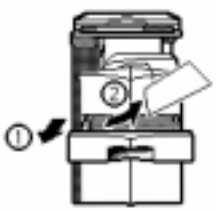
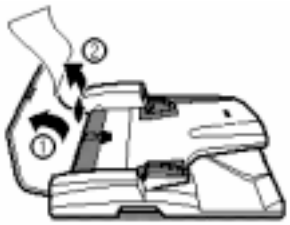
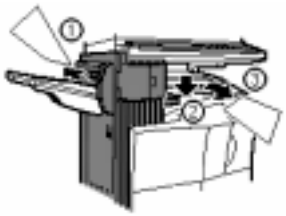
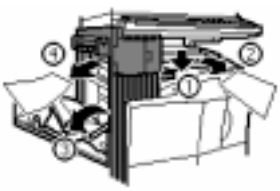
3. Press the interrupt key. The copy mode screen is displayed.
4. Press the start key. A VTC-PG pattern is output.

Completion
Press the stop/clear key at the screen for selecting an item. The screen for selecting a maintenance item No. is displayed.

1-5-1 Paper misfeed detection

(1) Paper misfeed indication

When a paper misfeed occurs, the copier immediately stops copying and displays the jam location on the operation panel.
Paper misfeed counts sorted by the detection condition can be checked in maintenance item U903.
To remove paper jammed in the copier, open the front cover, conveying cover, side cover or drawer.
Paper misfeed detection can be reset by opening and closing the respective covers to turn safety switch 1or 2 off and on.

<table>
<tr>
<td>• Misfeed in drawer
Jam code 10
Jam code 12
Jam code 13
Jam code 15
Jam code 16
Jam code 17
  </td>
<td>• Misfeed in bypass
Jam code 14
Jam code 20
Jam code 23
  </td>
</tr>
<tr>
<td>• Misfeed inside conveying cover
Jam code 18
Jam code 21
Jam code 22
  </td>
<td>• Misfeed in SRDF*
Jam code 70
Jam code 71
Jam code 72
Jam code 73
Jam code 74
Jam code 75
Jam code 76
  </td>
</tr>
<tr>
<td>• Misfeed in conveying cover
Jam code 30
Jam code 35
Jam code 40
Jam code 50
Jam code 51
Jam code 52
Jam code 60
Jam code 61
  </td>
<td>• Misfeed in STDF*
Jam code 70
Jam code 71
Jam code 72
Jam code 73
  </td>
</tr>
<tr>
<td>• Misfeed in side cover
Jam code 19
  </td>
<td>• Misfeed in built-in finisher*
Jam code 81
Jam code 82
Jam code 83
Jam code 84
 
  </td>
</tr>
</table>

Jam code	Contents	See pape
10	No paper feed from the upper drawer	P.1-5-4
11	No paper feed from the lower drawer	P.1-5-4
12	No paper feed from large paper deck*/paper feed desk* upper drawer	P.1-5-4
13	No paper feed from paper feed desk* lower drawer	P.1-5-4
14	No paper feed from bypass	P.1-5-5
15	Jam in large paper deck* horizontal paper conveying section	P.1-5-5
16	Jam in large paper deck* horizontal paper conveying section	P.1-5-5
17	Jam in large paper deck* horizontal paper conveying section	P.1-5-5
18	Misfeed in copier vertical paper conveying section	P.1-5-5
19	Misfeed in paper feed desk* vertical paper conveying section	P.1-5-6
20	Misfeed in bypass* vertical paper conveying section	P.1-5-6
21	Multiple sheets in copier paper feed section	P.1-5-6
22	Multiple sheets in copier vertical conveying section	P.1-5-8
23	Multiple sheets in bypass vertical conveying section	P.1-5-8
30	Misfeed in registration/transfer section	P.1-5-9
35	Secondary paper feed does not start	P.1-5-9
40	Misfeed in fixing section	P.1-5-9
50	Misfeed in eject section	P.1-5-10
51	Misfeed in job separator* eject section	P.1-5-10
52	Misfeed in feedshift section	P.1-5-11
53	Misfeed in switchback section (switchback unit*)	P.1-5-11
60	Duplex paper conveying section 1 (duplex unit*)	P.1-5-12
61	Duplex paper conveying section 2 (duplex unit*)	P.1-5-12
70	No original feed (SRDF*)	P.1-5-13
71	An original jam in the original feed/conveying section (SRDF*)	P.1-5-13
72	An original jam in the original feed section (SRDF*)	P.1-5-13
73	An original jam in the original conveying section (SRDF*)	P.1-5-14
74	An original jam remaining after retries (SRDF*)	P.1-5-14
75	An original jam in the switchback section 1 (SRDF*)	P.1-5-14
76	An original jam in the switchback section 2 (SRDF*)	P.1-5-15
81	Jam between the finisher and copier (built-in finisher*)	P.1-5-15
82	Intake jam (built-in finisher*)	P.1-5-15
83	Jam during paper conveying for batch ejection 1 (built-in finisher*)	P.1-5-15
84	Jam during paper conveying for batch ejection 2 (built-in finisher*)	P.1-5-15

*Optional.

(2) Paper misfeed detection conditions

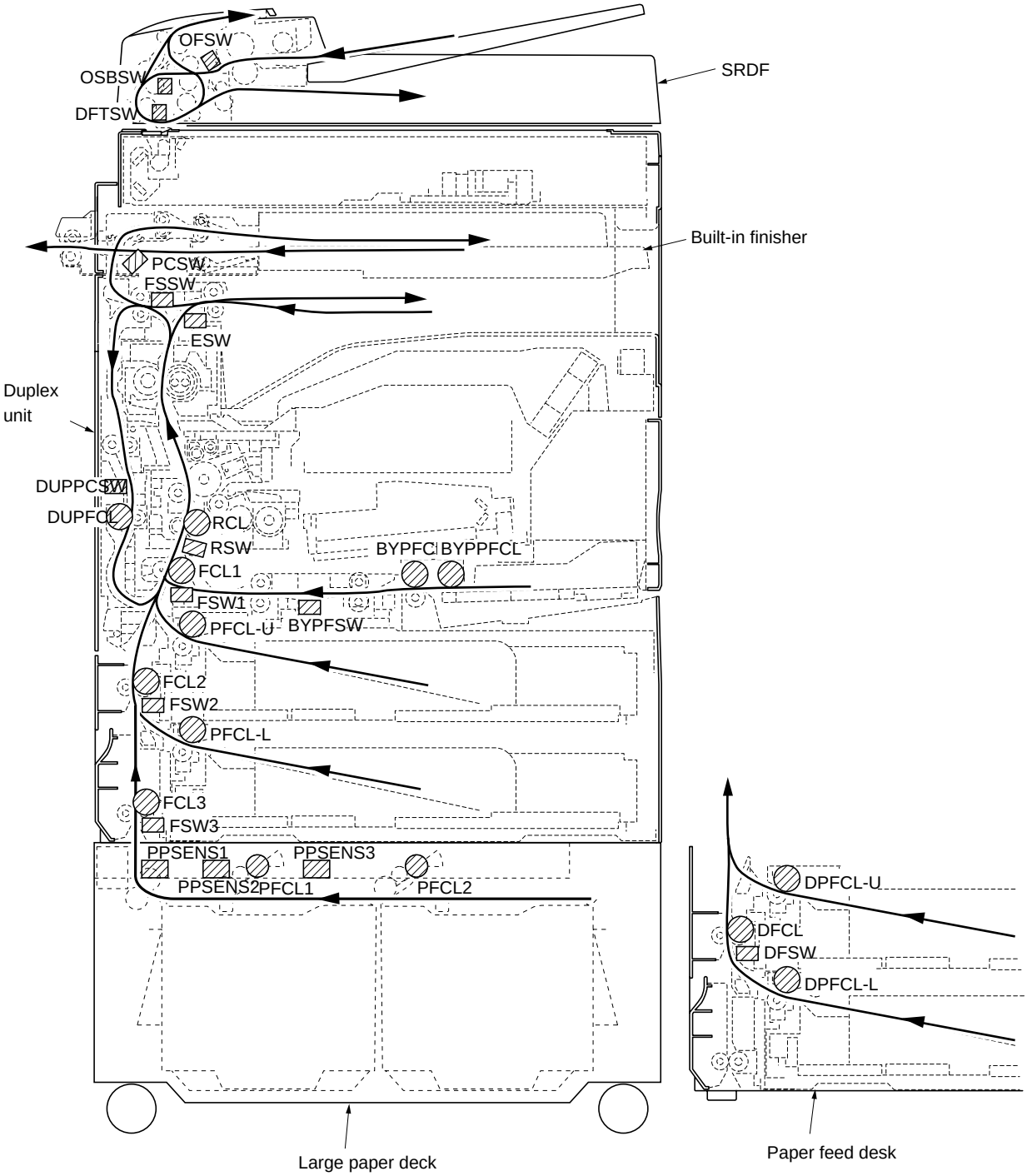
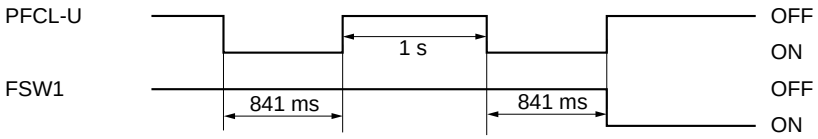


Figure 1-5-1

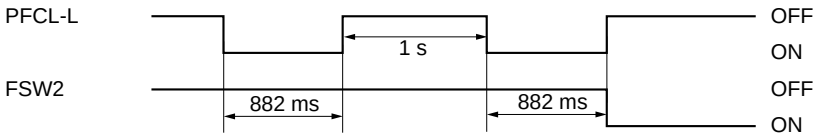
1. Paper feed section

• No paper feed from the upper drawer (jam code 10)
Feed switch 1 (FSW1) does not turn on within 841 ms of the upper paper feed clutch (PFCL-U) turning on; the clutch is then successively turned off for 1 s and turned back on, but the switch again fails to turn on within 841 ms.



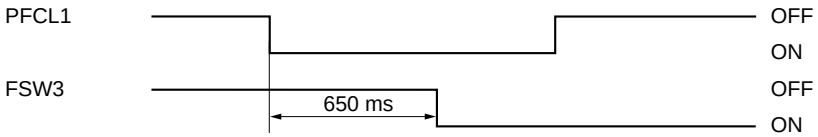
Timing chart 1-5-1

• No paper feed from the lower drawer (jam code 11)
Feed switch 2 (FSW2) does not turn on within 882 ms of the lower paper feed clutch (PFCL-L) turning on; the clutch is then successively turned off for 1 s and turned back on, but the switch again fails to turn on within 882 ms.



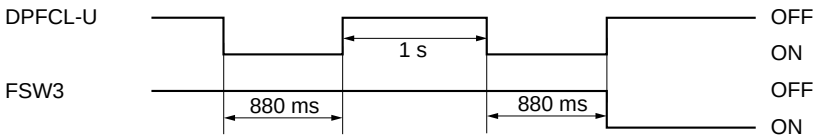
Timing chart 1-5-2

• No paper feed from large paper deck* (jam code 12)
Feed switch 3 (FSW3) does not turn on within 650 ms of paper feed clutch 1 (PFCL1) turning on.



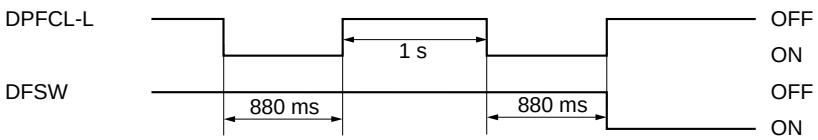
Timing chart 1-5-3

• No paper feed from paper feed desk* upper drawer (jam code 12)
Feed switch 3 (FSW3) does not turn on within 880 ms of the desk upper paper feed clutch (DPFCL-U) turning on; the clutch is then successively held off for 1 s and turned back on, but the switch again fails to turn on within 880 ms.



Timing chart 1-5-4

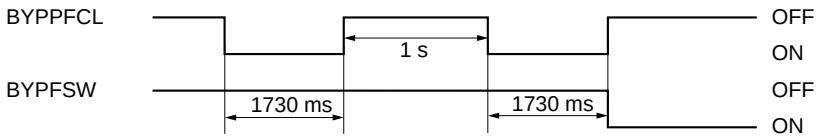
• No paper feed from paper feed desk* lower drawer (jam code 13)
Desk feed switch (DFSW) does not turn on within 880 ms of the desk lower paper feed clutch (DPFCL-L) turning on; the clutch is then successively held off for 1 s and turned back on, but the switch again fails to turn on within 880 ms.



Timing chart 1-5-5

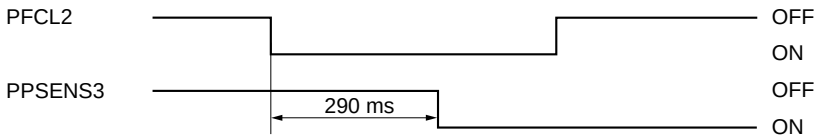
*Optional.

• No paper feed from bypass (jam code 14)
The bypass feed switch (BYPFSW) does not turn on within 1730 ms of the bypass paper feed clutch (BYPPFCL) turning on; the clutch is then successively held off for 1 s and turned back on, but the switch again fails to turn on within 1730 ms.



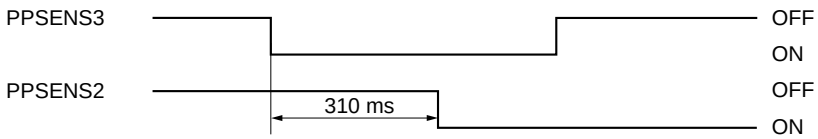
Timing chart 1-5-6

• Jam in large paper deck* horizontal paper conveying section (jam code 15)
Paper path sensor 3 (PPSENS3) does not turn on within 290 ms of the paper feed clutch 2 (PFCL2) turning on.



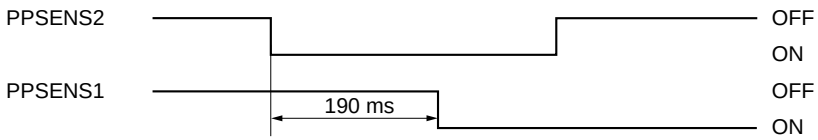
Timing chart 1-5-7

• Jam in large paper deck* horizontal paper conveying section (jam code 16)
Paper path sensor 2 (PPSENS2) does not turn on within 310 ms of the paper path sensor 3 (PPSENS3) turning on.



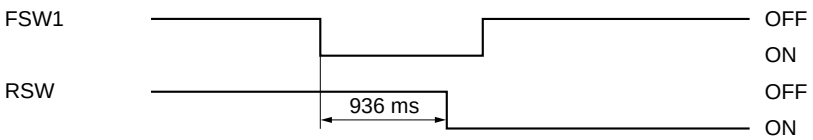
Timing chart 1-5-8

• Jam in large paper deck* horizontal paper conveying section (jam code 17)
Paper path sensor 1 (PPSENS1) does not turn on within 190 ms of the paper path sensor 2 (PPSENS2) turning on.



Timing chart 1-5-9

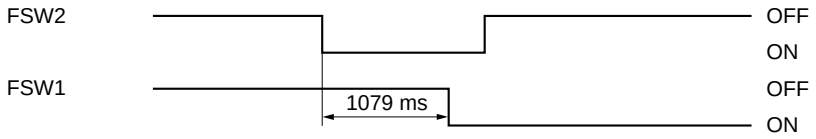
• Misfeed in copier vertical paper conveying section (jam code 18)
The registration switch (RSW) does not turn on within 936 ms of feed switch 1 (FSW1) turning on.



Timing chart 1-5-10

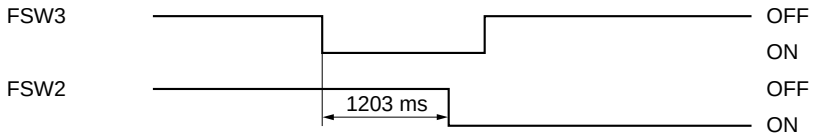
*Optional.

Feed switch 1 (FSW1) does not turn on within 1079 ms of feed switch 2 (FSW2) turning on.



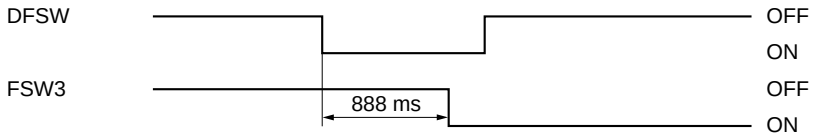
Timing chart 1-5-11

Feed switch 2 (FSW2) does not turn on within 1203 ms of feed switch 3 (FSW3) turning on.



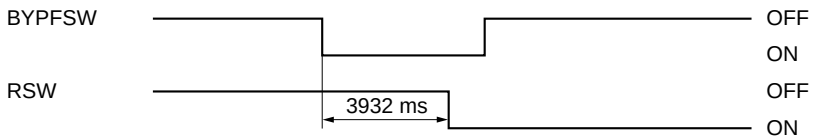
Timing chart 1-5-12

• Misfeed in paper feed desk* vertical paper conveying section (jam code 19)
Feed switch 3 (FSW3) does not turn on within 888 ms of the desk feed switch (DFSW) turning on.



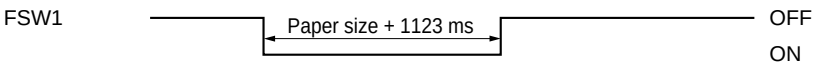
Timing chart 1-5-13

• Misfeed in bypass* vertical paper conveying section (jam code 20)
The registration switch (RSW) does not turn on within 3932 ms of the bypass feed switch (BYPFSW) turning on.



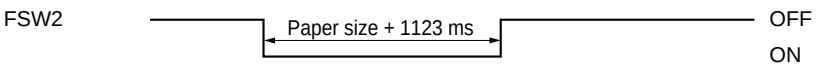
Timing chart 1-5-14

• Multiple sheets in copier paper feed section (jam code 21)
Feed switch 1 (FSW1) does not turn off within the time required to convey the length of the used paper size plus 1123 ms of turning on.



Timing chart 1-5-15

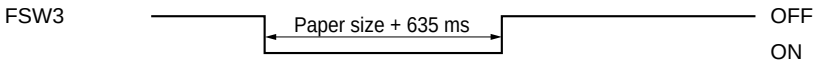
Feed switch 2 (FSW2) does not turn off within the time required to convey the length of the used paper size plus 1123 ms of turning on.



Timing chart 1-5-16

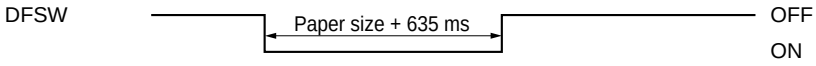
*Optional.

Feed switch 3 (FSW3) does not turn off within the time required to convey the length of the used paper size plus 635 ms of turning on.



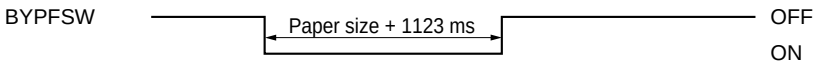
Timing chart 1-5-17

The desk feed switch (DFSW) does not turn off within the time required to convey the length of the used paper size plus 635 ms of turning on.



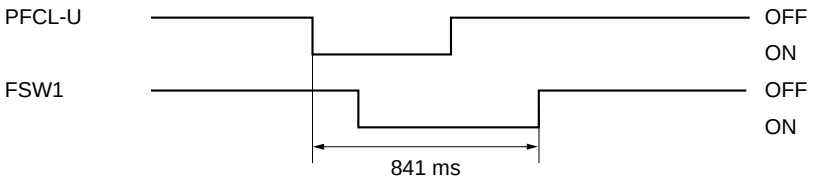
Timing chart 1-5-18

The bypass feed switch (BYPFSW) does not turn off within the time required to convey the length of the used paper size plus 1123 ms of turning on.



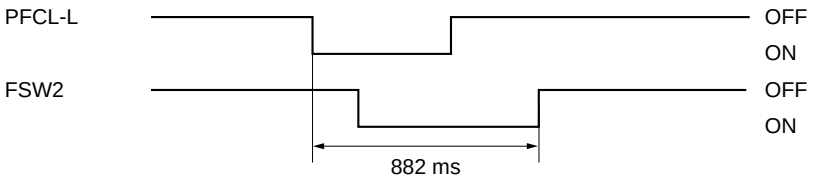
Timing chart 1-5-19

Feed switch 1 (FSW1) does not turn off within 841 ms of the upper paper feed clutch (PFCL-U) turning on.



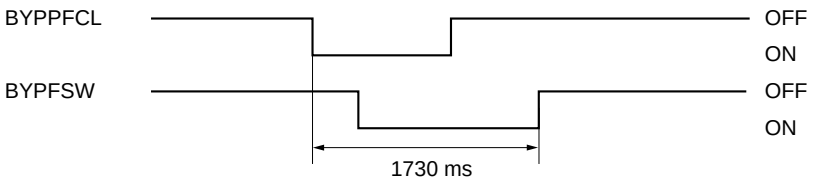
Timing chart 1-5-20

Feed switch 2 (FSW2) does not turn off within 882 ms of the lower paper feed clutch (PFCL-L) turning on.



Timing chart 1-5-21

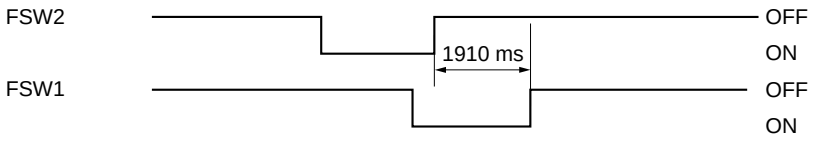
The bypass feed switch (BYPFSW) does not turn off within 1730 ms of the bypass paper feed clutch (BYPPFCL) turning on.



Timing chart 1-5-22

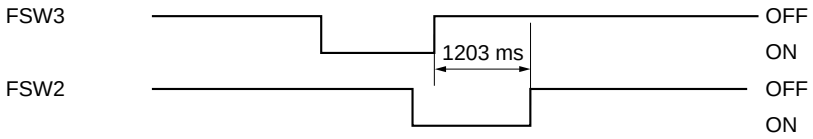
*Optional.

• Multiple sheets in copier vertical conveying section (jam code 22)
Feed switch 1 (FSW1) does not turn off within 1910 ms of feed switch 2 (FSW2) turning off.



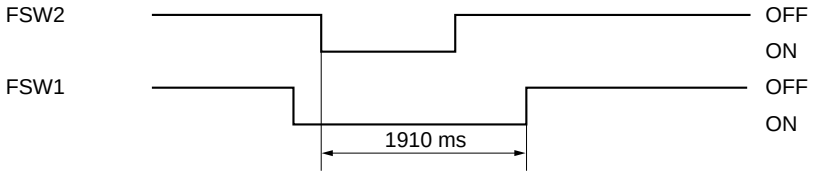
Timing chart 1-5-23

Feed switch 2 (FSW2) does not turn off within 1203 ms of feed switch 3 (FSW3) turning off.



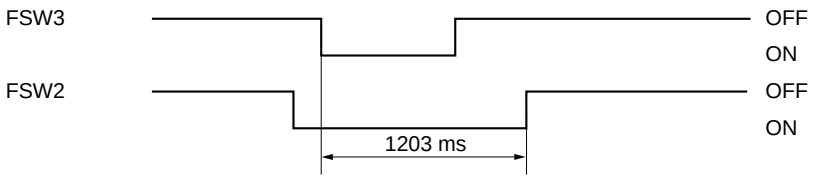
Timing chart 1-5-24

Feed switch 1 (FSW1) does not turn off within 1910 ms of feed switch 2 (FSW2) turning on.



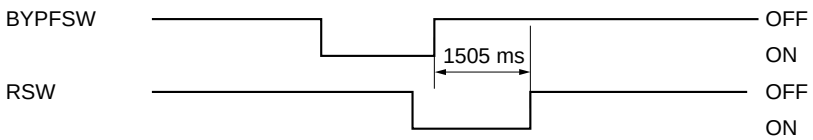
Timing chart 1-5-25

Feed switch 2 (FSW2) does not turn off within 1203 ms of feed switch 3 (FSW3) turning on.



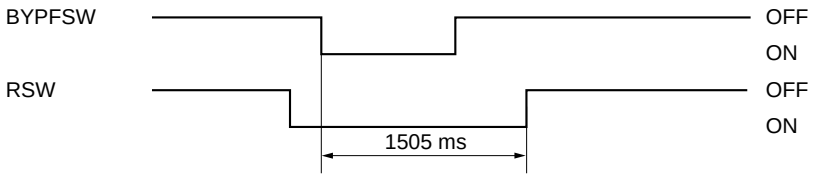
Timing chart 1-5-26

• Multiple sheets in bypass vertical conveying section (jam code 23)
The registration switch (RSW) does not turn off within 1510 ms of the bypass feed switch (BYPFSW) turning off.



Timing chart 1-5-27

The registration switch (RSW) does not turn off within 1505 ms of the bypass feed switch (BYPFSW) turning on.

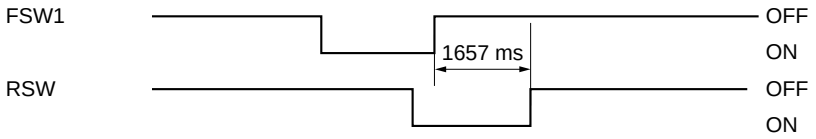


Timing chart 1-5-28

2. Paper conveying section

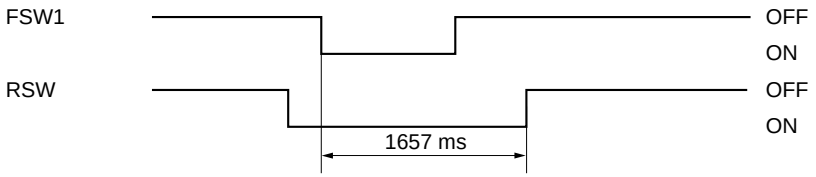
• Misfeed in registration/transfer section (jam code 30)

The registration switch (RSW) does not turn off within 1657 ms of feed switch 1 (FSW1) turning off.



Timing chart 1-5-29

The registration switch (RSW) does not turn off within 1657 ms of feed switch 1 (FSW1) turning on.



Timing chart 1-5-30

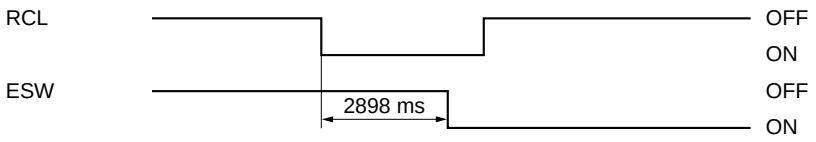
• Secondary paper feed does not start. (jam code 35)

Secondary paper feed does not start within 30 s of arrival of paper at the registration section.

3. Fixing section

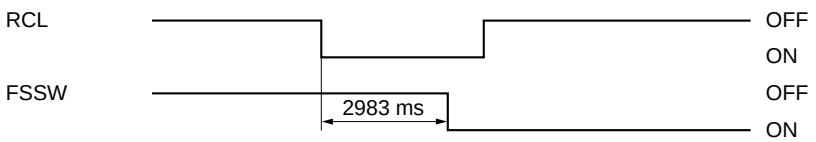
• Misfeed in fixing section (jam code 40)

The eject switch (ESW) does not turn on within 2898 ms of the registration clutch (RCL) turning on.



Timing chart 1-5-31

The feedshift switch (FSSW) does not turn on within 2983 ms of the registration clutch (RCL) turning on.

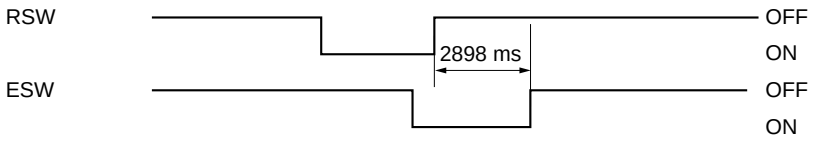


Timing chart 1-5-32

4. Eject section

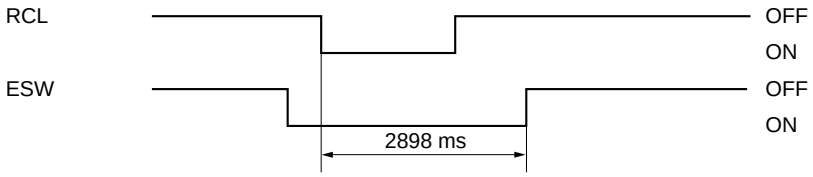
• Misfeed in eject section (jam code 50)

The eject switch (ESW) does not turn off within 2898 ms of the registration switch (RSW) turning off.



Timing chart 1-5-33

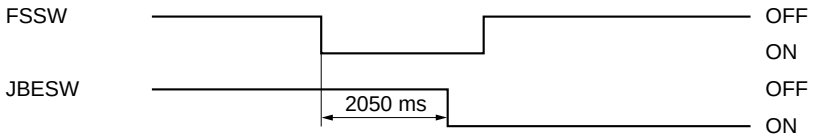
The eject switch (ESW) does not turn off within 2898 ms of the registration clutch (RCL) turning on.



Timing chart 1-5-34

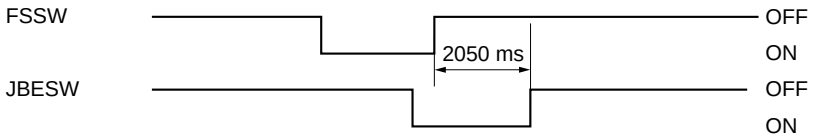
• Misfeed in job separator* eject section (jam code 51)

The job separator eject switch (JBESW) does not turn on within 2050 ms of the feedshift switch (FSSW) turning on.



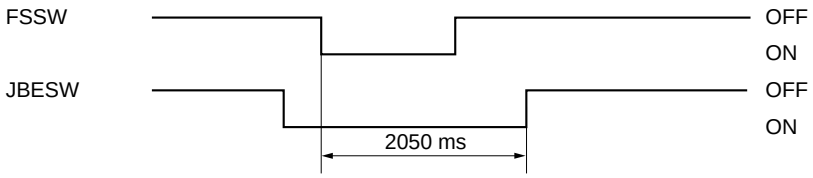
Timing chart 1-5-35

The job separator eject switch (JBESW) does not turn off within 2050 ms of the feedshift switch (FSSW) turning off.



Timing chart 1-5-36

The job separator eject switch (JBESW) does not turn off within 2050 ms of the feedshift switch (FSSW) turning on.



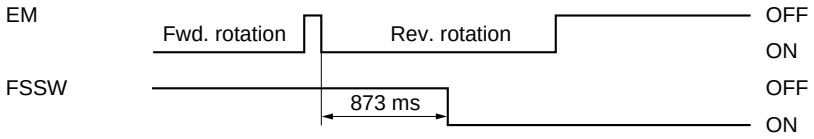
Timing chart 1-5-37

*Optional.

5. Feedshift section

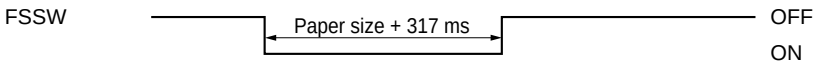
• Misfeed in feedshift section (jam code 52)

The feedshift switch (FSSW) does not turn on within 873 ms of the start of eject motor (EM) reverse rotation.



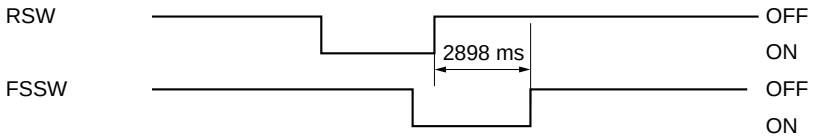
Timing chart 1-5-38

During paper switchback operation, the feedshift switch (FSSW) does not turn off within the time required to convey the length of the used paper size plus 317 ms of turning on.



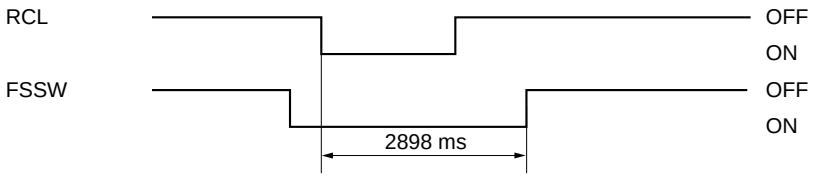
Timing chart 1-5-39

The feedshift switch (FSSW) does not turn off within 2898 ms of the registration switch (RSW) turning off.



Timing chart 1-5-40

The feedshift switch (FSSW) does not turn off within 2898 ms of the registration clutch (RCL) turning on.

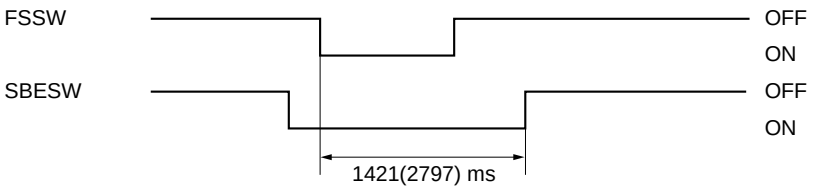


Timing chart 1-5-41

6. Switchback unit*

• Misfeed in switchback section (jam code 53)

The switchback eject switch (SBESW) does not turn off within 1421 ms (2797 ms) of the feedshift switch (FSSW) turning on.

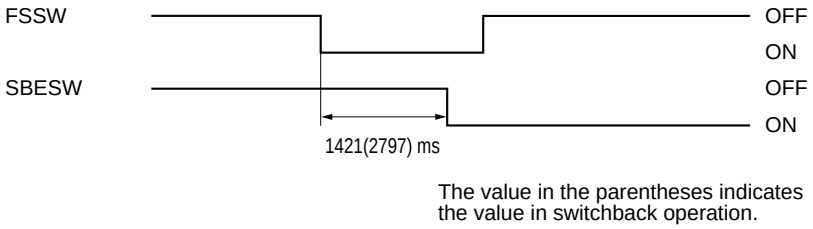


The value in the parentheses indicates the value in switchback operation.

Timing chart 1-5-42

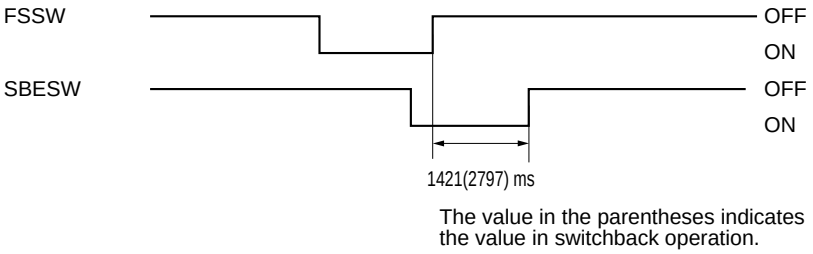
*Optional.

The switchback eject switch (SBESW) does not turn on within 1421 ms (2797 ms) of the feedshift switch (FSSW) turning on.



Timing chart 1-5-43

The switchback eject switch (SBESW) does not turn off within 1421 ms (2797 ms) of the feedshift switch (FSSW) turning off.

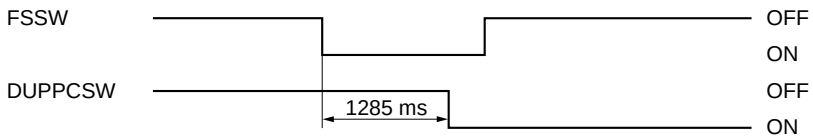


Timing chart 1-5-44

7. Duplex section*

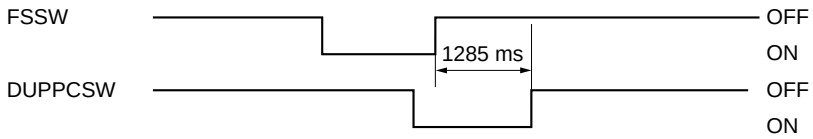
• Duplex paper conveying section 1 (jam code 60)

The duplex paper conveying switch (DUPPCSW) does not turn on within 1285 ms of the feedshift switch (FSSW) turning on.



Timing chart 1-5-45

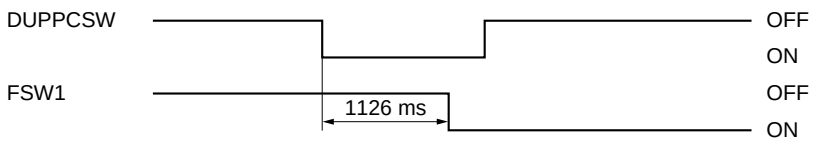
The duplex paper conveying switch (DUPPCSW) does not turn off within 1285 ms of the feedshift switch (FSSW) turning off.



Timing chart 1-5-46

• Duplex paper conveying section 2 (jam code 61)

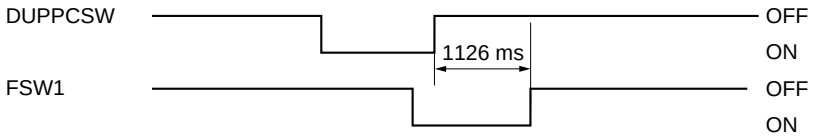
Feed switch 1 (FSW1) does not turn on within 1126 ms of the duplex paper conveying switch (DUPPCSW) turning on.



Timing chart 1-5-47

*Optional.

Feed switch 1 (FSW1) does not turn off within 1126 ms of the duplex paper conveying switch (DUPPCSW) turning off.



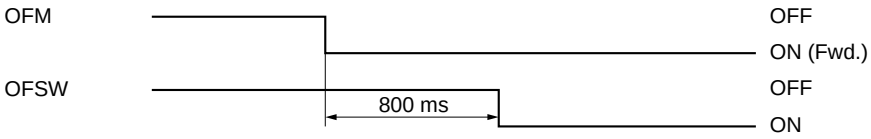
Timing chart 1-5-48

8. SRDF*

• No original feed (jam code 70)
When the DF START signal is received, switches other than the original set switch (OSSW) and original size length switch (OSLSW) on the contact glass are on.

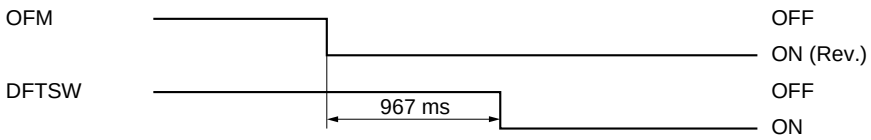
• No original feed (jam code 70)
During the primary feed of the first original in the single-sided or double-sided original mode, the original feed switch (OFSW) does not turn on within 800 ms of the original feed motor (OFM) turning on.

• No original feed (jam code 70)
During the primary feed of the second or later original in the single-sided or double-sided original mode, the original feed switch (OFSW) does not turn on within 800 ms of the start of forward rotation of the original feed motor (OFM).



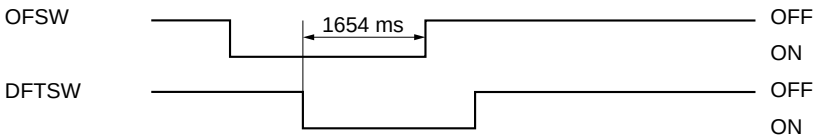
Timing chart 1-5-49

• An original jam in the original feed/conveying section (jam code 71)
During the secondary original feed in the single-sided original mode, the DF timing switch (DFTSW) does not turn on within 967 ms of the start of reverse rotation of the original feed motor (OFM). Alternatively, during continuous original feed in single-sided original mode, the DF timing switch (DFTSW) does not turn on for the second time under the above conditions.



Timing chart 1-5-50

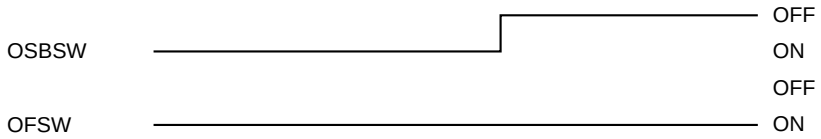
• An original jam in the original feed section (jam code 72)
During the secondary original feed in the single-sided original mode, the original feed switch (OFSW) does not turn off within 1654 ms of the DF timing switch (DFTSW) turning on.



Timing chart 1-5-51

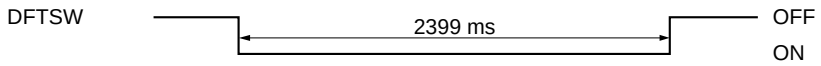
*Optional.

• An original jam in the original feed section (jam code 72)
During original switchback operation in the double-sided original mode, the original feed switch (OFSW) remains on when the original switchback switch (OSBSW) turns off.



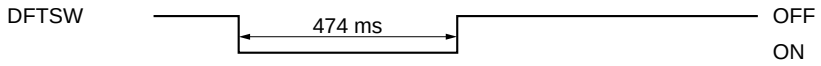
Timing chart 1-5-52

• An original jam in the original conveying section (jam code 73)
During the secondary original feed in the single-sided or double-sided original mode, the DF timing switch (DFTSW) does not turn off within 2399 ms of turning on.



Timing chart 1-5-53

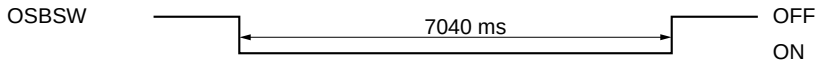
• An original jam in the original conveying section (jam code 73)
In the single-sided or double-sided original mode, the DF timing switch (DFTSW) turns off within 474 ms of turning on.



Timing chart 1-5-54

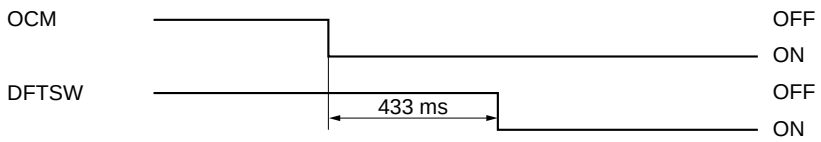
• An original jam remaining after retries (jam code 74)
In the single-sided or double-sided original mode, secondary original feed does not start after 5 retries.

• An original jam in the switchback section 1 (jam code 75)
During the switchback operation of an original in the double-sided original mode, the original switchback switch (OSBSW) does not turn off within 7040 ms of turning on.



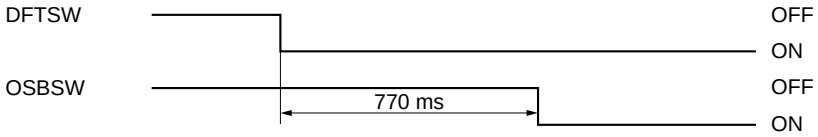
Timing chart 1-5-55

• An original jam in the switchback section 1 (jam code 75)
During the secondary original feed in the double-sided original mode, the DF timing switch (DFTSW) does not turn on within 433 ms of the original conveying motor (OCM) turning on.



Timing chart 1-5-56

• An original jam in the switchback section 2 (jam code 76)
While scanning the first face (reverse face) of the original in the double-sided original mode, the original switchback switch (OSBSW) does not turn on within 770 ms of the DF timing switch (DFTSW) turning on.



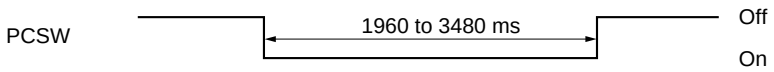
Timing chart 1-5-57

• An original jam in the original switchback section 2 (jam code 76)
During the switchback operation of the second or later original in the double-sided original mode, the original switchback switch (OSBSW) remains off when the trailing edge of the preceding original turns the DF timing switch (DFTSW) off.

9. Built-in finisher*

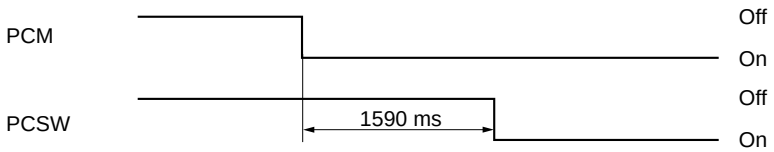
• Jam between the finisher and copier (jam code 81)
The paper conveying switch does not turn on within 1550 ms of the signal requesting paper ejection is output from the copier.

• Intake jam (jam code 82)
During paper intake from the copier, the paper conveying switch (PCSW) does not turn off within 1960 to 3480 ms (depending on paper size) of paper conveying switch (PCSW) turning on.



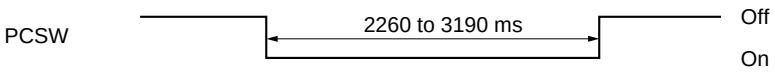
Timing chart 1-5-58

• Jam during paper conveying for batch ejection 1 (jam code 83)
When ejection a stack of paper, the paper conveying switch (PCSW) does not turn on within 1590 ms of the paper conveying motor (PCM) turning on.



Timing chart 1-5-59

• Jam during paper conveying for batch ejection 2 (jam code 84)
When ejection a stack of paper, the paper conveying switch (PCSW) does not turn off within 2260 to 3190 ms (varies depending on the paper size) of the paper conveying motor (PCM) turning on.



Timing chart 1-5-60

*Optional.

(3) Paper misfeeds

Problem	Causes/check procedures	Corrective measures
(1) A paper jam in the paper feed, conveying or eject section is indicated as soon as the main switch is turned on.	A piece of paper torn from copy paper is caught around feed switch 1/2/3, registration switch, eject switch or feedshift switch.	Check visually and remove it, if any.
	Defective feed switch 1.	Run maintenance item U031 and turn feed switch 1 on and off manually. Replace feed switch 1 if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective feed switch 2.	Run maintenance item U031 and turn feed switch 2 on and off manually. Replace feed switch 2 if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective feed switch 3.	Run maintenance item U031 and turn feed switch 3 on and off manually. Replace feed switch 3 if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective registration switch.	Run maintenance item U031 and turn the registration switch on and off manually. Replace the registration switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective eject switch.	Run maintenance item U031 and turn the eject switch on and off manually. Replace the eject switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective feedshift switch.	Run maintenance item U031 and turn the feedshift switch on and off manually. Replace the feedshift switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
(2) A paper jam in the paper feed section is indicated during copying (no paper feed from upper drawer). Jam code 10	Paper in the upper drawer is extremely curled.	Change the paper.
	Check if the upper paper feed pulley, separation pulley or forwarding pulley of the upper drawer are deformed.	Check visually and replace any deformed pulleys.
	Broken feed switch 1 actuator.	Check visually and replace feed switch 1 if its actuator is broken.
	Defective feed switch 1.	Run maintenance item U031 and turn feed switch 1 on and off manually. Replace feed switch 1 if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Check if the upper paper feed clutch malfunctions.	Run maintenance item U032 and select the upper paper feed clutch on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the upper paper feed clutch.	Check (see page 1-5-53).

Problem	Causes/check procedures	Corrective measures
(3) A paper jam in the paper feed section is indicated during copying (no paper feed from lower drawer). Jam code 11	Paper in the lower drawer is extremely curled.	Change the paper.
	Check if the lower paper feed pulley, separation pulley or forwarding pulley of the lower drawer are deformed.	Check visually and replace any deformed pulleys.
	Broken feed switch 2 actuator.	Check visually and replace feed switch 2 if its actuator is broken.
	Defective feed switch 2.	Run maintenance item U031 and turn feed switch 2 on and off manually. Replace feed switch 2 if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Check if the lower paper feed clutch malfunctions.	Run maintenance item U032 and select the lower paper feed clutch on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the lower paper feed clutch.	Check (see page 1-5-53).
(4) A paper jam in the paper feed section is indicated during copying (no paper feed from large paper deck*). Jam code 12	Paper in the large paper deck is extremely curled.	Change the paper.
	Broken feed switch 3 actuator.	Check visually and replace feed switch 3 if its actuator is broken.
	Defective feed switch 3.	Run maintenance item U031 and turn feed switch 3 on and off manually. Replace feed switch 3 if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Check if paper feed clutch 1 and 2 malfunctions.	Run maintenance item U247 and select paper feed clutch 1 or 2 on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with paper feed clutch 1 and 2.	Check.
	Check if the deck feed clutch malfunctions.	Run maintenance item U247 and select the deck feed clutch on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the deck feed clutch.	Check.
(5) A paper jam in the paper feed section is indicated during copying (no paper feed from paper feed desk* upper drawer). Jam code 12	Paper in the paper feed desk upper drawer is extremely curled.	Change the paper.
	Check if the paper feed pulley, separation pulley or forwarding pulley of the paper feed desk upper drawer are deformed.	Check visually and replace any deformed pulleys.
	Broken feed switch 3 actuator.	Check visually and replace feed switch 3 if its actuator is broken.
	Defective feed switch 3.	Run maintenance item U031 and turn feed switch 3 on and off manually. Replace feed switch 3 if indication of the corresponding switch on the operation panel is not displayed in reverse.

*Optional.

Problem	Causes/check procedures	Corrective measures
(5) A paper jam in the paper feed section is indicated during copying (no paper feed from paper feed desk* upper drawer). Jam code 12	Check if the desk upper paper feed clutch malfunctions.	Run maintenance item U247 and select the desk upper paper feed clutch on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the desk upper paper feed clutch.	Check.
(6) A paper jam in the paper feed section is indicated during copying (no paper feed from paper feed desk* lower drawer). Jam code 13	Paper in the paper feed desk lower drawer is extremely curled.	Change the paper.
	Check if the paper feed pulley, separation pulley or forwarding pulley of the paper feed desk lower drawer are deformed.	Check visually and replace any deformed pulleys.
	Broken desk feed switch actuator.	Check visually and replace desk feed switch if its actuator is broken.
	Defective desk feed switch.	With 5 V DC present at CN2-8 on the desk main PCB, check if CN2-7 on the desk main PCB remains low when the desk feed switch is turned on and off. If it does, replace the desk feed switch.
	Check if the desk lower paper feed clutch malfunctions.	Run maintenance item U247 and select the desk lower paper feed clutch on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the desk lower paper feed clutch.	Check.
(7) A paper jam in the paper feed section is indicated during copying (no paper feed from bypass). Jam code 14	Paper on the bypass table is extremely curled.	Change the paper.
	Check if the bypass paper feed pulley, separation pulley or forwarding pulley of the bypass are deformed.	Check visually and replace any deformed pulleys.
	Broken bypass feed switch actuator.	Check visually and replace bypass feed switch if its actuator is broken.
	Defective bypass feed switch.	Run maintenance item U031 and turn the bypass feed switch on and off manually. Replace the bypass feed switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Check if the bypass paper feed clutch malfunctions.	Run maintenance item U032 and select the bypass paper feed clutch on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the bypass paper feed clutch.	Check (see page 1-5-54).

*Optional.

Problem	Causes/check procedures	Corrective measures
(8) A paper jam in the paper feed section is indicated during copying (jam in large paper deck* horizontal paper conveying section). Jam code 15	Paper in the large paper deck is extremely curled.	Change the paper.
	Check if the paper side guides are deformed.	Check visually and replace.
	Defective paper path sensor 3.	With 5 V DC present at CN6-12 on the deck main PCB, check if CN6-11 on the deck main PCB remains low when paper path sensor 3 is turned on and off. If it does, replace paper path sensor 3.
	Check if paper feed clutch 2 malfunctions.	Run maintenance item U247 and select paper feed clutch 2 on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with paper feed clutch 2.	Check.
(9) A paper jam in the paper feed section is indicated during copying (jam in large paper deck* horizontal paper conveying section). Jam code 16	Paper in the large paper deck is extremely curled.	Change the paper.
	Check if the paper side guides are deformed.	Check visually and replace.
	Defective paper path sensor 2.	With 5 V DC present at CN6-9 on the deck main PCB, check if CN6-8 on the deck main PCB remains low when paper path sensor 2 is turned on and off. If it does, replace paper path sensor 2.
	Check if paper feed clutch 1 malfunctions.	Run maintenance item U247 and select paper feed clutch 1 on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with paper feed clutch 1.	Check.
(10) A paper jam in the paper feed section is indicated during copying (jam in large paper deck* horizontal paper conveying section). Jam code 17	Paper in the large paper deck is extremely curled.	Change the paper.
	Check if the paper side guides are deformed.	Check visually and replace.
	Defective paper path sensor 1.	With 5 V DC present at CN6-6 on the deck main PCB, check if CN6-5 on the deck main PCB remains low when paper path sensor 1 is turned on and off. If it does, replace paper path sensor 1.
	Check if the deck feed clutch malfunctions.	Run maintenance item U247 and select the deck feed clutch on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the deck feed clutch.	Check.
(11) A paper jam in the paper feed section is indicated during copying (jam in copier vertical paper conveying section). Jam code 18	Broken feed switch 1 actuator.	Check visually and replace feed switch 1 if its actuator is broken.
	Defective feed switch 1.	Run maintenance item U031 and turn feed switch 1 on and off manually. Replace feed switch 1 if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Broken feed switch 2 actuator.	Check visually and replace feed switch 2 if its actuator is broken.

*Optional.

Problem	Causes/check procedures	Corrective measures
(11) A paper jam in the paper feed section is indicated during copying (jam in copier vertical paper conveying section). Jam code 18	Defective feed switch 2.	Run maintenance item U031 and turn feed switch 2 on and off manually. Replace feed switch 2 if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Broken feed switch 3 actuator.	Check visually and replace feed switch 3 if its actuator is broken.
	Defective feed switch 3.	Run maintenance item U031 and turn feed switch 3 on and off manually. Replace feed switch 3 if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective registration switch.	Run maintenance item U031 and turn the registration switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Check if the feed pulleys and feed roller are deformed.	Check and repair if necessary.
(12) A paper jam in the paper feed section is indicated during copying (jam in paper feed desk* vertical conveying section). Jam code 19	Broken feed switch 3 actuator.	Check visually and replace feed switch 3 if its actuator is broken.
	Defective feed switch 3.	Run maintenance item U031 and turn feed switch 3 on and off manually. Replace feed switch 3 if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Broken desk feed switch actuator.	Check visually and replace desk feed switch if its actuator is broken.
	Defective desk feed switch.	With 5 V DC present at CN2-8 on the desk main PCB, check if CN2-7 on the desk main PCB remains low when the desk feed switch is turned on and off. If it does, replace the desk feed switch.
(13) A paper jam in the paper feed section is indicated during copying (jam in bypass conveying section). Jam code 20	Broken bypass feed switch actuator.	Check visually and replace the bypass feed switch if its actuator is broken.
	Defective bypass feed switch.	Run maintenance item U031 and turn the bypass feed switch on and off manually. Replace the bypass feed switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective registration switch.	Run maintenance item U031 and turn the registration switch on and off manually. Replace the registration switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
(14) A paper jam in the paper feed section is indicated during copying (multiple sheets in copier paper feed section). Jam code 21	Broken feed switch 1 actuator.	Check visually and replace feed switch 1 if its actuator is broken.
	Defective feed switch 1.	Run maintenance item U031 and turn feed switch 1 on and off manually. Replace feed switch 1 if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Broken feed switch 2 actuator.	Check visually and replace feed switch 2 if its actuator is broken.
	Defective feed switch 2.	Run maintenance item U031 and turn feed switch 2 on and off manually. Replace feed switch 2 if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Broken feed switch 3 actuator.	Check visually and replace feed switch 3 if its actuator is broken.

*Optional.

Problem	Causes/check procedures	Corrective measures
(14) A paper jam in the paper feed section is indicated during copying (multiple sheets in copier paper feed section). Jam code 21	Defective feed switch 3.	Run maintenance item U031 and turn feed switch 3 on and off manually. Replace feed switch 3 if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Broken desk feed switch* actuator.	Check visually and replace the desk feed switch if its actuator is broken.
	Defective desk feed switch*.	With 5 V DC present at CN2-8 on the desk main PCB, check if CN2-7 on the desk main PCB remains low when the desk feed switch is turned on and off. If it does, replace the desk feed switch.
	Broken bypass feed switch actuator.	Check visually and replace the bypass feed switch if its actuator is broken.
	Defective bypass feed switch.	Run maintenance item U031 and turn the bypass feed switch on and off manually. Replace the bypass feed switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Check if the upper paper feed clutch malfunctions.	Run maintenance item U032 and select the upper paper feed clutch on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the upper paper feed clutch.	Check (see page 1-5-53).
	Check if the lower paper feed clutch malfunctions.	Run maintenance item U032 and select the lower paper feed clutch on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the lower paper feed clutch.	Check (see page 1-5-53).
	Check if the bypass paper feed clutch malfunctions.	Run maintenance item U032 and select the bypass feed clutch on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the bypass paper feed clutch.	Check (see page 1-5-54).
	Check if the feed pulleys and feed roller are deformed.	Check and repair if necessary.
(15) A paper jam in the paper feed section is indicated during copying (multiple sheets in copier vertical conveying section). Jam code 22	Broken feed switch 1 actuator.	Check visually and replace feed switch 1 if its actuator is broken.
	Defective feed switch 1.	Run maintenance item U031 and turn feed switch 1 on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Broken feed switch 2 actuator.	Check visually and replace feed switch 2 if its actuator is broken.
	Defective feed switch 2.	Run maintenance item U031 and turn feed switch 2 on and off manually. Replace feed switch 2 if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Broken feed switch 3 actuator.	Check visually and replace feed switch 3 if its actuator is broken.

*Optional.

Problem	Causes/check procedures	Corrective measures
(15) A paper jam in the paper feed section is indicated during copying (multiple sheets in copier vertical conveying section). Jam code 22	Defective feed switch 3.	Run maintenance item U031 and turn feed switch 3 on and off manually. Replace feed switch 3 if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Check if the feed pulleys and feed roller are deformed.	Check and repair if necessary.
(16) A paper jam in the paper feed section is indicated during copying (multiple sheets in bypass conveying section). Jam code 23	Broken bypass feed switch actuator.	Check visually and replace the bypass feed switch if its actuator is broken.
	Defective bypass feed switch.	Run maintenance item U031 and turn the bypass feed switch on and off manually. Replace the bypass feed switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective registration switch.	Run maintenance item U031 and turn the registration switch on and off manually. Replace the registration switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
(17) A paper jam in the paper conveying section is indicated during copying (jam in registration/transfer section). Jam code 30	Broken feed switch 1 actuator.	Check visually and replace feed switch 1 if its actuator is broken.
	Defective feed switch 1.	Run maintenance item U031 and turn feed switch 1 on and off manually. Replace feed switch 1 if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective registration switch.	Run maintenance item U031 and turn the registration switch on and off manually. Replace the registration switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
(18) A paper jam in the paper conveying section is indicated during copying Jam code 35	Defective registration switch.	Run maintenance item U031 and turn the registration switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Check if the registration clutch malfunctions.	Run maintenance item U032 and select the registration clutch on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the registration clutch.	Check (see page 1-5-54).
(19) A paper jam in the fixing section is indicated during copying (jam in fixing section). Jam code 40	Broken eject switch actuator.	Check visually and replace the eject switch if its actuator is broken.
	Defective eject switch.	Run maintenance item U031 and turn the eject switch on and off manually. Replace the eject switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Broken feedshift switch actuator.	Check visually and replace the feedshift switch if its actuator is broken.
	Defective feedshift switch.	Run maintenance item U031 and turn the feedshift switch on and off manually. Replace the feedshift switch if indication of the corresponding switch on the operation panel is not displayed in reverse.

Problem	Causes/check procedures	Corrective measures
(19) A paper jam in the fixing section is indicated during copying (jam in fixing section). Jam code 40	Check if the registration clutch malfunctions.	Run maintenance item U032 and select the registration clutch on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the registration clutch.	Check (see page 1-5-54).
(20) A paper jam in the eject section is indicated during copying (jam in eject section). Jam code 50	Broken eject switch actuator.	Check visually and replace the eject switch if its actuator is broken.
	Defective eject switch.	Run maintenance item U031 and turn the eject switch on and off manually. Replace the eject switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
(21) A paper jam in the eject section is indicated during copying (jam in job separator* eject section). Jam code 51	Broken feedshift switch actuator.	Check visually and replace the feedshift switch if its actuator is broken.
	Defective feedshift switch.	Run maintenance item U031 and turn the feedshift switch on and off manually. Replace the feedshift switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Broken job separator eject switch actuator.	Check visually and replace the job separator eject switch if its actuator is broken.
	Defective job separator eject switch.	Run maintenance item U031 and turn the job separator eject switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
(22) A paper jam in the feedshift section is indicated during copying (jam in feedshift section). Jam code 52	Check if the feedshift solenoid malfunctions.	Run maintenance item U033 and select the feedshift solenoid on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the feedshift solenoid.	Check (see page 1-5-54).
	Broken feedshift switch actuator.	Check visually and replace the feedshift switch if its actuator is broken.
	Defective feedshift switch.	Run maintenance item U031 and turn the feedshift switch on and off manually. Replace the feedshift switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective registration switch.	Run maintenance item U031 and turn the registration switch on and off manually. Replace the registration switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Check if the registration clutch malfunctions.	Run maintenance item U032 and select the registration clutch on the operation panel to be turned on and off. Check the status and remedy if necessary.
	Electrical problem with the registration clutch.	Check (see page 1-5-54).

*Optional.

Problem	Causes/check procedures	Corrective measures
(23) A paper jam in the switchback section is indicated during copying (jam in switchback unit*). Jam code 53	Broken feedshift switch actuator.	Check visually and replace the feedshift switch if its actuator is broken.
	Defective feedshift switch.	Run maintenance item U031 and turn the feedshift switch on and off manually. Replace the feedshift switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Broken switchback eject switch actuator.	Check visually and replace the switchback eject switch if its actuator is broken.
	Defective switchback eject switch.	With 5 V DC present at CN5-2 on the switchback unit main PCB, check if CN5-4 on the switchback unit main PCB remains low when the switchback eject switch is turned on and off. If it does, replace the switchback eject switch.
(24) A paper jam in the duplex section is indicated during copying (jam in duplex paper conveying section 1*). Jam code 60	Broken feedshift switch actuator.	Check visually and replace the feedshift switch if its actuator is broken.
	Defective feedshift switch.	Run maintenance item U031 and turn the feedshift switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Broken duplex paper conveying switch actuator.	Check visually and replace the duplex paper conveying switch if its actuator is broken.
	Defective duplex paper conveying switch.	Run maintenance item U031 and turn the duplex paper conveying switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
(25) A paper jam in the duplex section is indicated during copying (jam in duplex paper conveying section 2*). Jam code 61	Broken duplex paper conveying switch actuator.	Check visually and replace the duplex paper conveying switch if its actuator is broken.
	Defective duplex conveying switch.	Run maintenance item U031 and turn the duplex paper conveying switch on and off manually. Replace the duplex paper conveying switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Broken feed switch 1 actuator.	Check visually and replace feed switch 1 if its actuator is broken.
	Defective feed switch 1.	Run maintenance item U031 and turn feed switch 1 on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
(26) An original jams in the SRDF* is indicated during copying (no original feed). Jam code 70	Defective original feed switch.	Run maintenance item U244 and turn the original feed switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Check if the original feed motor malfunctions.	Run maintenance item U243 and select the original feed motor on the operation panel to be turned on and off. Check the status and remedy if necessary.

*Optional.

Problem	Causes/check procedures	Corrective measures
(27) An original jams in the SRDF* is indicated during copying (a jam in the original feed/conveying section). Jam code 71	Defective DF timing switch.	Run maintenance item U244 and turn the DF timing switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Check if the original feed motor malfunctions.	Run maintenance item U243 and select the original feed motor on the operation panel to be turned on and off. Check the status and remedy if necessary.
(28) An original jams in the SRDF* is indicated during copying (a jam in the original feed section). Jam code 72	Defective DF timing switch.	Run maintenance item U244 and turn the DF timing switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective original feed switch.	Run maintenance item U244 and turn the original feed switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective original switchback switch.	Run maintenance item U244 and turn the original switchback switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
(29) An original jams in the SRDF* is indicated during copying (a jam in the original conveying section). Jam code 73	Defective DF timing switch.	Run maintenance item U244 and turn the DF timing switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
(30) An original jams in the SRDF* is indicated during copying (a jam in the original switchback section 1). Jam code 75	Defective original switchback switch.	Run maintenance item U244 and turn the original switchback switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective DF timing switch.	Run maintenance item U244 and turn the DF timing switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Check if the original conveying motor malfunctions.	Run maintenance item U243 and select the original conveying motor on the operation panel to be turned on and off. Check the status and remedy if necessary.
(31) An original jams in the SRDF* is indicated during copying (a jam in the original switchback section 2). Jam code 76	Defective original switchback switch.	Run maintenance item U244 and turn the original switchback switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.

*Optional.

Problem	Causes/check procedures	Corrective measures
(32) Paper jams in the built-in finisher* during copying (intake jam). Jam code 82	Defective paper conveying switch.	With 5 V DC present at CN4-9 on the finisher main PCB, check if CN4-10 on the finisher main PCB remains high or low when the paper conveying switch is turned on and off. If it does, replace the paper conveying switch.
	Check if the feedshift roller or feedshift pulley is deformed.	Check visually and replace the pulley or roller if deformed.
(33) Paper jams in the built-in finisher* during copying (jam during paper conveying for batch ejection 1). Jam code 83	Defective paper conveying switch.	With 5 V DC present at CN4-9 on the finisher main PCB, check if CN4-10 on the finisher main PCB remains high or low when the paper conveying switch is turned on and off. If it does, replace the paper conveying switch.
	Check if the feedshift roller or press roller is deformed.	Check visually and replace the pulley or roller if deformed.
(34) Paper jams in the built-in finisher* during copying (jam during paper conveying for batch ejection 2). Jam code 84	Defective paper conveying switch.	With 5 V DC present at CN4-9 on the finisher main PCB, check if CN4-10 on the finisher main PCB remains high or low when the paper conveying switch is turned on and off. If it does, replace the paper conveying switch.
	Check if the eject roller or eject pulley is deformed.	Check visually and replace the pulley or roller if deformed.

*Optional.

1-5-2 Self-diagnosis

(1) Self-diagnostic function

This unit is equipped with a self-diagnostic function. When a problem is detected, copying is disabled and the problem displayed as a code consisting of "C" followed by a number between 0030 and 8500, indicating the nature of the problem. A message is also displayed requesting the user to call for service.
After removing the problem, the self-diagnostic function can be reset by turning safety switches 1 or 2 off and back on.

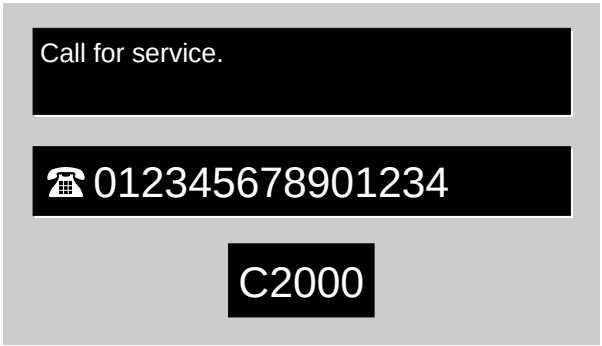


Figure 1-5-2 Service call code display

(2) Self diagnostic codes

Code	Contents	Remarks	
		Causes	**Check procedures/corrective measures**
C0030	**Fax board* problem** • Problems with data from fax board.	Defective fax board.	Replace the fax board and check for correct operation.
C0110	**Backup memory data problem** • Data in the specified area of the backup memory does not match the specified values.	Problem with the backup memory data.	Turn safety switch 1 off and back on and run maintenance item U020 to set the contents of the backup memory data again.
		Defective backup RAM.	If the C011 is displayed after re-setting the backup memory contents, replace the backup RAM.
C0210	**Operation unit PCB communication problem** • There is no reply after 20 retries at communication.	Poor contact in the connector terminals.	Check the connection of connectors CN36, CN42 on the main PCB and CN1, CN2 and CN3 on the operation unit PCB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective main PCB or operation unit PCB.	Replace the main PCB or operation unit PCB and check for correct operation.
C0240	**Printer board* communication problem** • There is no reply after 20 retries at communication.	Poor contact in the connector terminals.	Check the connection of connector CN43 on the main PCB and the connector on the printer board. Repair or replace if necessary.
		Defective main PCB or printer board.	Replace the main PCB or printer board and check for correct operation.
C0250	**Scanner network board* communication problem** • There is no reply after 20 retries at communication.	Poor contact in the connector terminals.	Check the connection of connector CN46 on the main PCB and the connector on the memory PCB. Repair or replace if necessary.
		Defective main PCB or scanner network board.	Replace the main PCB or scanner network board and check for correct operation.
C0280	**Fax board* communication problem** • There is no reply after 20 retries at communication.	Poor contact in the connector terminals.	Check the connection of connector CN44 on the main PCB and the connector on the memory PCB. Repair or replace if necessary.
		Defective main PCB or fax board.	Replace the main PCB or fax board and check for correct operation.
C0420	**Large paper deck*/paper feed desk* communication problem** • An error code from the side deck is detected eight times in succession. No communication: there is no reply after 3 retries. Abnormal communication: a communication error (parity or checksum error) is detected five times in succession.	Poor contact in the connector terminals.	Check the connection of connectors CN3 on the main PCB and the connector on the deck main PCB/desk main PCB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective main PCB.	Replace the main PCB and check for correct operation.
		Defective deck main PCB/desk main PCB.	Replace the deck main PCB/desk main PCB and check for correct operation.

*: Optional

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C0440	**Finisher* communication problem** • An error code from the side deck is detected eight times in succession. No communication: there is no reply after 3 retries. Abnormal communication: a communication error (parity or checksum error) is detected five times in succession.	Poor contact in the connector terminals.	Check the connection of connectors CN4, CN5 on the main PCB and CN2 on the finisher main PCB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective main PCB.	Replace the main PCB and check for correct operation.
		Defective finisher main PCB.	Replace the finisher main PCB and check for correct operation.
C0450	**Mailbox* communication problem** • An error code from the side deck is detected eight times in succession. No communication: there is no reply after 3 retries. Abnormal communication: a communication error (parity or checksum error) is detected five times in succession.	Poor contact in the connector terminals.	Check the connection of connectors CN3 on the main PCB and CN1 on the mailbox main PCB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective main PCB.	Replace the main PCB and check for correct operation.
		Defective mailbox main PCB.	Replace the mailbox main PCB and check for correct operation.
C0470	**Switchback unit* communication problem** • An error code from the side deck is detected eight times in succession. No communication: there is no reply after 3 retries. Abnormal communication: a communication error (parity or checksum error) is detected five times in succession.	Poor contact in the connector terminals.	Check the connection of connectors CN3 on the main PCB and the continuity across the connector terminals. Repair or replace if necessary.
		Defective main PCB.	Replace the main PCB and check for correct operation.
		Defective switchback unit main PCB.	Replace the switchback unit main PCB and check for correct operation.
C0600	**DIMM problem** The DIMM on the memory PCB does not operate correctly.	DIMM installed incorrectly.	Check if the DIMM is inserted into the socket on the main PCB correctly.
		Defective DIMM.	Replace the DIMM and check for correct operation.
C0610	**Bitmap problem** • There is a problem with the data or address bus of the bitmap DRAM.	Defective main PCB.	Replace the main PCB and check for correct operation.
C0620	**Memory input interface problem** Reading-in of an image does not complete within 10 s of the start of image transmission.	Defective main PCB.	Replace the main PCB and check for correct operation.
C0630	**DMA problem** • DMA transmission of compressed, decompressed, rotated, relocated or blanked-out image data does not complete within the specified period of time.	Defective main PCB.	Replace the main PCB and check for correct operation.

*: Optional

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C1010	**Upper lift motor problem** • When the upper drawer is inserted, the upper lift limit switch does not turn on within 6 s of the upper lift motor turning on and the upper lift limit switch does not turn on by turning off the upper lift motor for 200 ms and retrying twice. • During copying, the upper lift limit switch does not turn on within 200 ms of the upper lift motor turning on.	Broken gears or couplings of the upper lift motor.	Replace the upper lift motor.
		Defective upper lift motor.	Check for continuity across the coil. If none, replace the upper lift motor.
		Poor contact of the upper lift motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
		Defective upper lift limit switch.	Check if CN13-B9 on the main PCB goes low when the upper lift limit switch is turned off. If not, replace the upper lift limit switch.
		Poor contact of the upper lift limit switch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
C1020	**Lower lift motor problem** • When the lower drawer is inserted, the lower lift limit switch does not turn on within 6 s of the lower lift motor turning on and the lower lift limit switch does not turn on by turning off the lower lift motor for 200 ms and retrying twice. • During copying, the lower lift limit switch does not turn on within 200 ms of the lower lift motor turning on.	Broken gears or couplings of the lower lift motor.	Replace the lower lift motor.
		Defective lower lift motor.	Check for continuity across the coil. If none, replace the lower lift motor.
		Poor contact of the lower lift motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
		Defective lower lift limit switch.	Check if CN13-B15 on the desk main PCB goes low when the lower lift limit switch is turned off. If not, replace the lower lift limit switch.
		Poor contact of the lower lift limit switch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
C1030	**Desk upper lift motor problem** • When the upper drawer of the paper feed desk* is inserted, the desk upper lift limit switch does not turn on within 6 s of the desk upper lift motor turning on and the desk upper lift limit switch does not turn on by turning off the desk upper lift motor for 200 ms and retrying twice. • During copying, the desk upper lift limit switch does not turn on within 200 ms of the desk upper lift motor turning on.	Broken gears or couplings of the desk upper lift motor.	Replace the desk upper lift motor.
		Defective desk upper lift motor.	Check for continuity across the coil. If none, replace the desk upper lift motor.
		Poor contact of the desk upper lift motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
		Defective desk upper lift limit switch.	Check if CN1-5 on the desk main PCB goes low when the desk upper lift limit switch is turned off. If not, replace the desk upper lift limit switch.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C1030	**Desk upper lift motor problem** • When the upper drawer of the paper feed desk* is inserted, the desk upper lift limit switch does not turn on within 6 s of the desk upper lift motor turning on and the desk upper lift limit switch does not turn on by turning off the desk upper lift motor for 200 ms and retrying twice. • During copying, the desk upper lift limit switch does not turn on within 200 ms of the desk upper lift motor turning on.	Poor contact of the desk upper lift limit switch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
C1040	**Desk lower lift motor problem** • When the lower drawer of the paper feed desk* is inserted, the desk lower lift limit switch does not turn on within 6 s of the desk lower lift motor turning on and the desk lower lift limit switch does not turn on by turning off the desk lower lift motor for 200 ms and retrying twice. • During copying, the desk lower lift limit switch does not turn on within 200 ms of the desk lower lift motor turning on.	Broken gears of couplings of the desk lower lift motor.	Replace the desk lower lift motor.
		Defective desk lower lift motor.	Check for continuity across the coil. If none, replace the desk lower lift motor.
		Poor contact of the desk lower lift motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
		Defective desk lower lift limit switch.	Check if CN1-7 on the desk main PCB goes low when the desk lower lift limit switch is turned off. If not, replace the desk lower lift limit switch.
		Poor contact of the desk lower lift limit switch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
C1100	**Paper deck motor 1* problem** • A motor over-current signal is detected continuously for 1 s or longer.	Paper deck motor 1 does not rotate correctly (the motor is overloaded).	Check the gears and remedy if necessary.
		Paper deck motor 1 connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
C1110	**Paper deck motor 2* problem** • A motor over-current signal is detected continuously for 1 s or longer.	Paper deck motor 2 does not rotate correctly (the motor is overloaded).	Check the gears and remedy if necessary.
		Paper deck motor 2 connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.

*: Optional

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C1120	**Deck right lift* position problem** • Deck level switch 2 does not turn on within 30 s of paper deck motor 2 turning on.	Defective deck level switch 2.	Check if CN5-4 on the desk main PCB goes low when desk level switch 2 is turned off. If not, replace desk level switch 2.
		Poor contact of deck level switch 2 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
		Defective paper deck motor 2.	Check for continuity across the coil. If none, replace paper desk motor 2.
		Poor contact of paper deck motor 2 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
		The deck right lift does not rise properly.	Check the gears and belts, and remedy if necessary.
C1130	**Deck left lift* position problem** • Deck level switch 2 does not turn on within 30 s of paper deck motor 2 turning on.	Defective deck level switch 1.	Check if CN5-7 on the desk main PCB goes low when desk level switch 1 is turned off. If not, replace desk level switch 1.
		Poor contact of deck level switch 1 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
		Defective paper deck motor 1.	Check for continuity across the coil. If none, replace paper desk motor 1.
		Poor contact of paper deck motor 1 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
		The deck left lift does not rise properly.	Check the gears and belts, and remedy if necessary.
C1160	**Large paper deck*/paper feed desk* sequence problem**	Operation start request is sent from the copier to the large paper deck/paper feed desk while paper feed is disabled.	Turn the power off and back on (reset request is sent from the copier to the large paper deck/paper feed desk to cancel operation start request).
		Paper feed request is sent from the copier to the large paper deck/ paper feed desk before operation start request.	Turn the power off and back on (reset request is sent from the copier to the large paper deck/paper feed desk to cancel operation start request).

*: Optional

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C1170	**Large paper deck* (paper feed desk*) incorrect type problem**	Deck/desk for the printer is installed.	Replace the deck/desk fot the copier.
C2000	**Drive motor problem** • LOCK ALM signal remains high for 1 s, 1 s after the drive motor has turned on.	Poor contact in the drive motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective drive motor rotation control circuit.	Replace the drive motor.
		Defective drive transmission system.	Check if the rollers and gears rotate smoothly. If not, grease the bushings and gears. Check for broken gears and replace if any.
C2500	**Paper feed motor problem** • LOCK ALM signal remains high for 1 s, 1 s after the paper feed motor has turned on.	Poor contact in the paper feed motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective paper feed motor rotation control circuit.	Replace the paper feed motor.
		Defective drive transmission system.	Check if the rollers and gears rotate smoothly. If not, grease the bushings and gears. Check for broken gears and replace if any.
C2600	**Deck conveying motor*/desk drive motor* problem** • No pulse is input within 500 ms of the start-up. • No pulse is input within 100 ms of the previous pulse input.	Defective deck conveying motor PCB/desk drive motor PCB.	Replace the deck conveying motor PCB/ desk drive motor PCB and check for correct operation.
		Deck conveying motor /desk drive motor does not rotate correctly (the motor is overloaded).	Check the gears and remedy if necessary.
		Poor contact in the deck conveying motor/desk drive motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.

*: Optional

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C3100	**Scanner carriage problem** • The home position is not correct when the power is turned on or at the start of copying using the bypass table.	Poor contact in the connector terminals.	Check the connection of connector CN37 on the main PCB and the continuity across the connector terminals. Repair or replace if necessary.
		Defective scanner home position switch.	Replace the scanner home position switch.
		Defective main PCB or scanner drive PCB.	Replace the main PCB or scanner drive PCB and check for correct operation.
		Defective scanner motor.	Replace the scanner motor.
C3200	**Exposure lamp problem** • Check the CCD input value for the lighting status of the exposure lamp 100 ms after the exposure lamp is lit and the carriage is moved to the shading position. If the exposure lamp does not light, turn off the lamp. After 500 ms, light the lamp again and, a further 500 ms later, check the CCD input. The exposure lamp does not light after 5 retries.	Poor contact of the connector terminals.	Check the connection of connectors CN34 and CN37 on the main PCB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective exposure lamp.	Replace the exposure lamp or inverter PCB.
		Defective main PCB.	Replace the main PCB and check for correct operation.
		Incorrect shading position.	Adjust the position of the contact glass (shading plate). If the problem still occurs, replace the scanner home position switch.
C3300	**Optical system problem** • After AGC, correct input is not obtained at CCD.	Poor contact of the connector terminals.	Check the connection of connector CN34 on the main PCB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective main PCB.	Replace the main PCB and check for correct operation.
C4000	**Polygon motor synchronization problem** • The polygon motor does not reach the stable speed within 15 s of the polygon motor remote signal turning on.	Poor contact in the polygon motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective polygon motor.	Replace the LSU (see page 1-6-20).
		Defective power source PCB.	Check if 24 V DC is supplied to CN2-1 on the main PCB. If not, replace the power source PCB.
		Defective main PCB.	Check if 24 V DC is output from CN8-10 on the main PCB. If not, replace the main PCB.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C4010	**Polygon motor steady-state problem** • The polygon motor rotation is not stable for 600 ms after the polygon motor rotation has been stabilized.	Poor contact in the polygon motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective polygon motor.	Replace the LSU (see page 1-6-20).
		Defective power source PCB.	Check if 24 V DC is supplied to CN2-1 on the main PCB. If not, replace the power source PCB.
		Defective main PCB.	Check if 24 V DC is output from CN8-10 on the main PCB. If not, replace the main PCB.
C4200	**BD steady-state problem** • The VTC detects a BD error for 600 ms after the polygon motor rotation has been stabilized.	Defective laser diode.	Replace the LSU (see page 1-6-20).
		Defective polygon motor.	Replace the LSU (see page 1-6-20).
		Defective main PCB.	Replace the main PCB and check for correct operation.
C5300	**Broken cleaning lamp wire** While the cleaning lamp is on, the broken cleaning lamp wire detection signal is detected for 2 s continuously.	Defective cleaning lamp.	Replace the cleaning lamp.
		Defective main PCB.	Replace the main PCB and check for correct operation.
C6000	**Broken fixing heater wire** • The fixing temperature does not increase for 40 s after the fixing heaters have been turned on for warming up. • The fixing temperature remains below 50 °C/122 °F for 10 s continuously after the fixing heaters have been turned on during stabilization.	Poor contact in the fixing unit thermistor connector terminals.	Check the connection of connector CN10 on the main PCB and the continuity across the connector terminals. Repair or replace if necessary.
		Fixing unit thermistor installed incorrectly.	Check and reinstall if necessary.
		Fixing unit thermostat triggered.	Check for continuity. If none, replace the fixing unit thermostat.
		Fixing unit heater M or S installed incorrectly.	Check and reinstall if necessary.
		Broken fixing unit heater M or S wire.	Check for continuity. If none, replace the fixing unit heater M or S (see page 1-6-38).
C6020	**Abnormally high fixing unit thermistor temperature** • The fixing temperature exceeds 230 °C/446 °F for 10 s.	Shorted fixing unit thermistor.	Measure the resistance. If it is 0 Ω, replace the fixing unit thermistor.
		Broken fixing unit heater control circuit on the power source PCB.	Replace the power source PCB.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C6050	**Abnormally low fixing unit thermistor temperature** • The fixing temperature remains below 120 °C/248 °F for 10 s.	Poor contact in the fixing unit thermistor connector terminals.	Check the connection of connector CN10 on the main PCB and the continuity across the connector terminals. Repair or replace if necessary.
		Broken fixing unit thermistor wire.	Measure the resistance. If it is ∞ Ω, replace the fixing unit thermistor.
		Fixing unit thermistor installed incorrectly.	Check and reinstall if necessary.
		Fixing unit thermostat triggered.	Check for continuity. If none, replace the fixing unit thermostat.
		Fixing unit heater M or S installed incorrectly.	Check and reinstall if necessary.
		Broken fixing unit heater M or S wire.	Check for continuity. If none, replace the fixing unit heater M or S.
C6410	**Fixing unit connector insertion problem** • Absence of the fixing unit is detected continuously for 1500 ms while there is no error on the copier.	Fixing unit connector inserted incorrectly.	Reinsert the fixing unit connector if necessary.
		Defective fixing unit connector.	Replace the fixing unit.
C6420	**Broken fixing unit thermistor wire** • The fixing temperature remains at 0 °C/32 °F for 30 s continuously when the fixing heater is on.	Poor contact in the fixing unit thermistor connector terminals.	Check the connection of connector CN10 on the main PCB and the continuity across the connector terminals. Repair or replace if necessary.
		Broken fixing unit thermistor wire.	Measure the resistance. If it is ∞ Ω, replace the fixing unit thermistor.
C7300	**Toner sensor problem** • While the toner container sensor is on, the toner sensor in the developing unit does not turn on after the toner sensor turns off and toner is replenished from the toner container.	Defective toner sensor.	Replace the toner sensor.
		Poor contact in the toner sensor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective toner container sensor.	Replace the toner container sensor.
		Defective toner container.	Replace the toner container.
C7400	**Image formation unit connector insertion problem** • Absence of the image formation unit is detected continuously for 1500 ms while there is no error on the copier.	Image formation unit connector inserted incorrectly.	Reinsert the image formation unit connector if necessary.
		Defective image formation unit connector.	Replace the image formation unit.

*: Optional

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C7410	**Drum unit connector insertion problem** • Absence of the drum unit is detected continuously for 1500 ms while there is no error on the copier.	Drum unit connector inserted incorrectly.	Reinsert the drum unit connector if necessary.
		Defective drum unit connector.	Replace the drum unit.
C7800	**Broken external temperature thermistor wire** • The input voltage is above 4.5 V.	Poor contact in the humidity sensor PCB connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective external temperature thermistor.	Replace the humidity sensor PCB.
C7810	**Short-circuited external temperature thermistor** • The input voltage is below 0.5 V.	Poor contact in the humidity sensor PCB connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective external temperature thermistor.	Replace the humidity sensor PCB.
C8010	**Finisher* paper conveying motor problem** • The paper conveying motor lockup signal is detected for 0.5 s or longer.	Poor contact in the paper conveying motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		The paper conveying motor malfunctions.	Replace the paper conveying motor and check for correct operation.
		Defective finisher main PCB.	Replace the finisher main PCB and check for correct operation.
C8030	**Finisher* paper conveying belt problem** • An on-to-off or off-to-on state change of the paper conveying belt home position sensor is not detected within 2 s of the paper conveying belt clutch turning on.	The paper conveying belt is out of phase.	Adjust the paper conveying belt so that it is in phase and check for correct operation.
		The paper conveying belt clutch malfunctions.	Replace the paper conveying belt clutch and check for correct operation.
		The paper conveying belt home position sensor malfunctions.	Replace the paper conveying belt home position sensor and check for correct operation.
		The paper conveying belt home position sensor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		The internal tray is incorrectly inserted.	Check whether the internal tray unit or front cover catches are damaged.

*: Optional

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C8140	**Finisher* tray elevation motor problem** • The sort tray is not detected in the home position within 30 s of the start of the tray elevation motor rotation.	Poor contact in the tray elevation motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		The tray elevation motor malfunctions.	Replace the tray elevation motor and check for correct operation.
		Defective finisher main PCB.	Replace the finisher main PCB and check for correct operation.
C8170	**Finisher* front side registration motor problem** • If the front side registration home position sensor is on in initialization, the sensor does not turn off within 570 ms of starting initialization. • If the front side registration home position sensor is off in initialization, the sensor does not turn on within 3180 ms of starting initialization.	The front side registration motor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		The front side registration motor malfunctions.	Replace the front side registration motor and check for correct operation.
		The front side registration home position sensor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		The front side registration home position sensor malfunctions.	Replace the front side registration home position sensor and check for correct operation.
		Defective finisher main PCB.	Replace the finisher main PCB and check for correct operation.
C8180	**Finisher* rear side registration motor problem** • If the rear side registration home position sensor is on in initialization, the sensor does not turn off within 570 ms of starting initialization. • If the rear side registration home position sensor is off in initialization, the sensor does not turn on within 2880 ms of starting initialization.	The rear side registration motor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		The rear side registration motor malfunctions.	Replace the rear side registration motor and check for correct operation.
		The rear side registration home position sensor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		The rear side registration home position sensor malfunctions.	Replace the rear side registration home position sensor and check for correct operation.
		Defective finisher main PCB.	Replace the finisher main PCB and check for correct operation.

*: Optional

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C8190	**Finisher* trailing edge registration motor problem** • If the trailing edge registration home position sensor is on in initialization, the sensor does not turn off within 570 ms of starting initialization. • If the trailing edge registration home position sensor is off in initialization, the sensor does not turn on within 4550 ms of starting initialization.	The trailing edge registration motor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		The trailing edge registration motor malfunctions.	Replace the trailing edge registration motor and check for correct operation.
		The trailing edge registration home position sensor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		The trailing edge registration home position sensor malfunctions.	Replace the trailing edge registration home position sensor and check for correct operation.
		Defective finisher main PCB.	Replace the finisher main PCB and check for correct operation.
C8210	**Finisher* front stapler problem** • The front stapler home position sensor does not change state from non-detection to detection within 200 ms of the start of front stapler motor counterclockwise (forward) rotation. • During initialization, the front stapler home position sensor does not change state from non-detection to detection within 600 ms of the start of front stapler motor clockwise (reverse) rotation.	The front stapler connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		The front stapler malfunctions. a) The front stapler is blocked with a staple. b) The front stapler is broken.	a) Remove the front stapler cartridge, and check the cartridge and the stapling section of the stapler. b) Replace the front stapler and check for correct operation.
		Defective finisher main PCB.	Replace the finisher main PCB and check for correct operation.
C8220	**Finisher* rear stapler problem** • The rear stapler home position sensor does not change state from non-detection to detection within 200 ms of the start of rear stapler motor counterclockwise (forward) rotation. • During initialization, the rear stapler home position sensor does not change state from non-detection to detection within 600 ms of the start of rear stapler motor clockwise (reverse) rotation.	The rear stapler connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		The rear stapler malfunctions. a) The rear stapler is blocked with a staple. b) The rear stapler is broken.	a) Remove the front stapler cartridge, and check the cartridge and the stapling section of the stapler. b) Replace the front stapler and check for correct operation.
		Defective finisher main PCB.	Replace the finisher main PCB and check for correct operation.
C8300	**Booklet stitcher* paper ejection motor problem**	A problem is detected with the paper ejection motor.	See the booklet stitcher service manual.
C8310	**Booklet stitcher* elevation motor problem**	A problem is detected with the elevation motor.	See the booklet stitcher service manual.

*: Optional

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C8320	**Booklet stitcher* rear jog motor problem**	A problem is detected with the rear jog motor.	See the booklet stitcher service manual.
C8330	**Booklet stitcher* front jog motor problem**	A problem is detected with the front jog motor.	See the booklet stitcher service manual.
C8340	**Booklet stitcher* staple motor problem**	A problem is detected with the staple motor.	See the booklet stitcher service manual.
C8350	**Booklet stitcher* batch processing motor problem**	A problem is detected with the batch processing motor.	See the booklet stitcher service manual.
C8360	**Booklet stitcher* stapler shift motor problem**	A problem is detected with the stapler shift motor.	See the booklet stitcher service manual.
C8370	**Booklet stitcher* paddle motor problem**	A problem is detected with the paddle motor.	See the booklet stitcher service manual.
C8380	**Booklet stitcher* folding problem**	A problem is detected with the folding sensor.	See the booklet stitcher service manual.
C8390	**Booklet stitcher* backup RAM data problem**	A backup RAM data error is detected.	See the booklet stitcher service manual.
C8400	**Booklet stitcher* incorrect type problem**	An incorrect type error is detected.	See the booklet stitcher service manual.
C8410	**Booklet stitcher* punch motor problem**	A problem is detected with the punch motor.	See the booklet stitcher service manual.
C8420	**Booklet stitcher* shift motor problem**	A problem is detected with the shift motor.	See the booklet stitcher service manual.
C8430	**Booklet stitcher* punch communication problem**	A problem is detected with the punch communication.	See the booklet stitcher service manual.
C8440	**Booklet stitcher* punch sensor problem**	A problem is detected with the punch sensor.	See the booklet stitcher service manual.
C8450	**Booklet stitcher* side punch sensor problem**	A problem is detected with the side punch sensor.	See the booklet stitcher service manual.

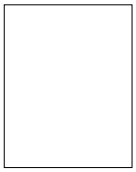
*: Optional

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C8460	**Booklet stitcher* punch backup RAM data problem**	A problem is detected with the punch backup RAM data.	See the booklet stitcher service manual.
C8470	**Booklet stitcher* punch dust sensor problem**	A problem is detected with the punch dust sensor.	See the booklet stitcher service manual.
C8480	**Booklet stitcher* broken punch power source wire problem**	A broken punch power source wire problem is detected.	See the booklet stitcher service manual.
C8500	**Mailbox* drive motor problem** • While the mailbox drive motor is driving, synchronization signals do not synchronize continually for 464 ms (motor lockup).	Defective mailbox drive motor or mailbox main PCB.	Run a simulation of the mailbox (communication test mode, see page 3-2-2 of the mailbox service manual). If there is any problem with the communication, replace the mailbox drive motor or the mailbox main PCB and check for correct operation.

*: Optional

1-5-3 Image formation problems

(1) No image appears (entirely white).

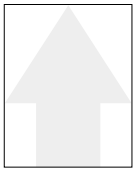


See page 1-5-43

(2) No image appears (entirely black).

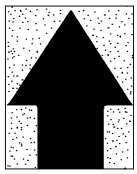
See page 1-5-44

(3) Image is too light.



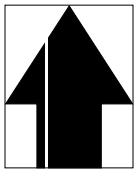
See page 1-5-45

(4) Background is visible.



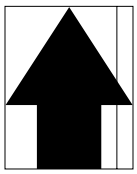
See page 1-5-45

(5) A white line appears longitudinally.



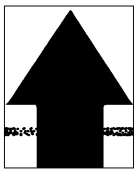
See page 1-5-45

(6) A black line appears longitudinally.



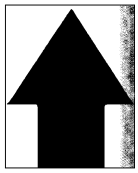
See page 1-5-46

(7) A black line appears laterally.



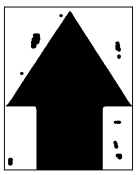
See page 1-5-46

(8) One side of the copy image is darker than the other.



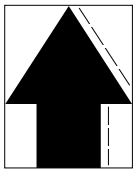
See page 1-5-46

(9) Black dots appear on the image.



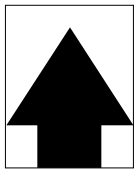
See page 1-5-47

(10) Image is blurred.



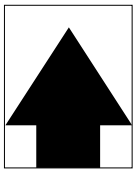
See page 1-5-47

(11) The leading edge of the image is consistently misaligned with the original.



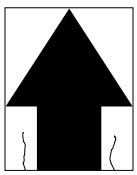
See page 1-5-47

(12) The leading edge of the image is sporadically misaligned with the original.



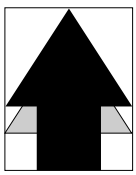
See page 1-5-48

(13) Paper creases.



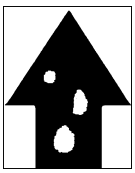
See page 1-5-48

(14) Offset occurs.



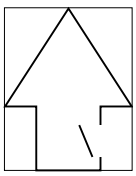
See page 1-5-48

(15) Image is partly missing.



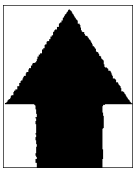
See page 1-5-49

(16) Fixing is poor.



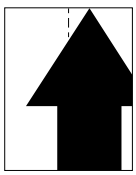
See page 1-5-49

(17) Image is out of focus.



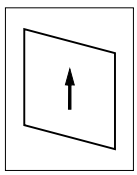
See page 1-5-49

(18) Image center does not align with the original center.



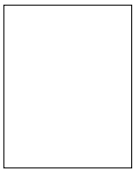
See page 1-5-50

(19) Image is not square.



See page 1-5-50

(1) No image appears (entirely white).



Causes
1. No transfer charging.
2. No LSU laser is output.
3. No developing bias is output.

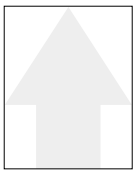
Causes	Check procedures/corrective measures
1. No transfer charging.	
A. The connector terminals of the high-voltage transformer PCB make poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
B. Defective main PCB.	Check if CN7-10 on the main PCB goes low when maintenance item U101 is run. If not, replace the main PCB.
C. Defective high-voltage transformer PCB.	Check if transfer charging takes place when CN1-10 on the high-voltage transformer PCB goes low while maintenance item U101 is run. If not, replace the high-voltage transformer PCB.
2. No LSU laser is output.	
A. Defective laser scanner unit.	Replace the laser scanner unit.
B. Defective main PCB.	Check if CN8-4 on the main PCB goes low when maintenance item U101 is run. If not, replace the main PCB.
3. No developing bias is output.	
A. Defective main PCB.	Check if CN7-1 on the main PCB goes low when maintenance item U101 is run. If not, replace the main PCB.
B. Defective high-voltage transformer PCB.	Check if developing bias voltage is output when the main PCB is normal while maintenance item U101 is run. If not, replace the high-voltage transformer PCB.

(2) No image appears (entirely black).

Causes
1. No main charging.
2. Exposure lamp fails to light.

Causes	Check procedures/corrective measures
1. No main charging.	
A. Broken main charger wire.	Replace the main charger unit.
B. Leaking main charger housing.	Clean the main charger wire, grid and shield.
C. The connector terminals of the high-voltage transformer PCB make poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
D. Defective main PCB.	Check if CN7-3 on the main PCB goes low when maintenance item U100 is run. If not, replace the main PCB.
E. Defective high-voltage transformer PCB.	Check if main charging takes place when CN1-3 on the high-voltage transformer PCB goes low while maintenance item U100 is run. If not, replace the high-voltage transformer PCB.
2. Exposure lamp fails to light.	
A. The connector terminals of the exposure lamp make poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
B. Defective inverter PCB.	Check if the exposure lamp lights when CN1-1 and 1-2 on the inverter PCB go low while maintenance item U061 is run. If not, replace the inverter PCB.
C. Defective scanner drive PCB.	Check if the exposure lamp lights when CN1-3 on the scanner drive PCB goes low while maintenance item U061 is run. If not, replace the scanner drive PCB.
D. Defective main PCB.	Check if CN37-3 on the main PCB goes low when maintenance item U061 is run. If not, replace the main PCB.

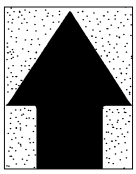
(3) Image is too light.



Causes
1. Insufficient toner.
2. Deteriorated developer.
3. The transfer voltage is not output properly.
4. Dirty main charger wire.

Causes	Check procedures/corrective measures
1. Insufficient toner.	If the display shows the message requesting toner replenishment, replace the cartridge.
2. Deteriorated developer.	Perform the drum refresh operation.
3. The transfer voltage is not output properly.	Clean or check the transfer roller.
4. Dirty main charger.	Clean the main charger or, if it is extremely dirty, replace it.

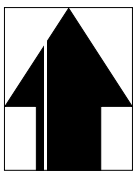
(4) Background is visible.



Causes
1. Deteriorated developer.
2. Dirty main charger.

Causes	Check procedures/corrective measures
1. Deteriorated developer.	Perform the drum refresh operation.
2. Dirty main charger wire.	Clean the wire or, if it is extremely dirty, replace it.

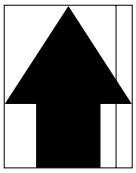
(5) A white line appears longitudinally.



Causes
1. Foreign matter in the developing unit.
2. Dirty shading plate.

Causes	Check procedures/corrective measures
1. Foreign matter in the developing unit.	Check if the magnetic brush is formed uniformly. Replace the developing unit if any foreign matter.
2. Dirty shading plate.	Clean the shading plate.

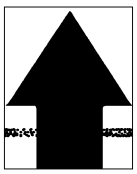
(6) A black line appears longitudinally.



Causes
1. Dirty contact glass.
2. Dirty or flawed drum.
3. Deformed or worn cleaning blade.
4. Dirty scanner mirror.
5. Dirty main charger wire.

Causes	Check procedures/corrective measures
1. Dirty contact glass.	Clean the contact glass.
2. Dirty or flawed drum.	Perform the drum refresh operation. If the drum is flawed, replace the drum unit.
3. Deformed or worn cleaning blade.	Replace the cleaning blade.
4. Dirty scanner mirror.	Clean the scanner mirror.
5. Dirty main charger wire.	Clean the main charger wire or, if it is extremely dirty, replace it.

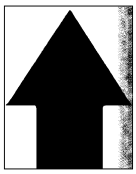
(7) A black line appears laterally.



Causes
1. Flawed drum.
2. Dirty developing section.
3. Leaking main charger housing.
4. Leaking separation electrode.

Causes	Check procedures/corrective measures
1. Flawed drum.	Replace the drum unit.
2. Dirty developing section.	Clean any part contaminated with toner or carrier in the developing section.
3. Leaking main charger housing.	Clean the main charger wire, grid and shield.
4. Leaking separation electrode.	Clean the separation electrode.

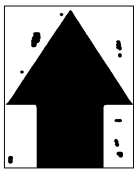
(8) One side of the copy image is darker than the other.



Causes
1. Dirty main charger wire.
2. Defective exposure lamp.

Causes	Check procedures/corrective measures
1. Dirty main charger wire.	Clean the wire or, if it is extremely dirty, replace it.
2. Defective exposure lamp.	Check if the exposure lamp light is distributed evenly. If not, replace the exposure lamp (see page 1-6-25).

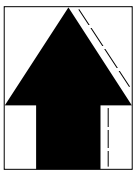
(9) Black dots appear on the image.



Causes
1. Dirty or flawed drum.
2. Dirty contact glass.
3. Deformed or worn cleaning blade.
4. Dirty drum separation claws.
5. Dirty heat roller separation claws.

Causes	Check procedures/corrective measures
1. Dirty or flawed drum.	Perform the drum refresh operation. If the drum is flawed, replace the drum unit.
2. Dirty contact glass.	Clean the contact glass.
3. Deformed or worn cleaning blade.	Replace the cleaning blade.
4. Dirty drum separation claws.	Clean the drum separation claws.
5. Dirty the heat roller separation claws.	Clean the heat roller separation claws.

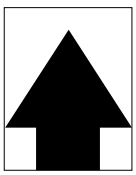
(10) Image is blurred.



Causes
1. Scanner moves erratically.
2. Deformed press roller.
3. Paper conveying section drive problem.

Causes	Check procedures/corrective measures
1. Scanner moves erratically.	Check if there is any foreign matter on the front and rear scanner rails. If any, remove it.
2. Deformed press roller.	Replace the press roller (see page 1-6-63).
3. Paper conveying section drive problem.	Check the gears and belts and, if necessary, grease them.

(11) The leading edge of the image is consistently misaligned with the original.

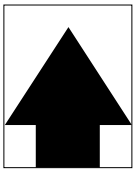


Causes
1. Misadjusted leading edge registration.
2. Misadjusted scanner leading edge registration.

Causes	Check procedures/corrective measures
1. Misadjusted leading edge registration.	Readjust the leading edge registration (see pages 1-6-17).
2. Misadjusted scanner leading edge registration.	Readjust the scanner leading edge registration (see page 1-6-17).

(12) The leading edge of the image is sporadically misaligned with the original.

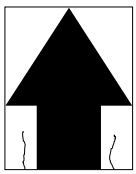
Causes
1. Feed clutch, paper feed clutch, bypass paper feed clutch or registration clutch installed or operating incorrectly.



Causes	Check procedures/corrective measures
1. Feed clutch, paper feed clutch, bypass paper feed clutch or registration clutch installed or operating incorrectly.	Check the installation position and operation of the Feed clutch, paper feed clutch, bypass paper feed clutch and registration clutch. If any of them operates incorrectly, replace it.

(13) Paper creases.

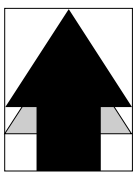
Causes
1. Paper curled.
2. Paper damp.
3. Defective pressure springs.
4. Defective separation.
5. Defective fans.



Causes	Check procedures/corrective measures
1. Paper curled.	Check the paper storage conditions.
2. Paper damp.	Check the paper storage conditions.
3. Defective pressure springs.	Replace the pressure springs.
4. Defective separation.	Check the drum separation claws and heat roller separation claws.
5. Defective fans.	Replace the fans.

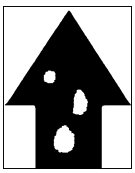
(14) Offset occurs.

Causes
1. Defective cleaning blade.
2. Defective fixing section.



Causes	Check procedures/corrective measures
1. Defective cleaning blade.	Replace the cleaning blade (see page 1-6-46).
2. Defective fixing section.	Replace the heat roller and press roller.

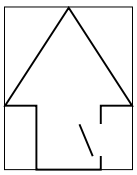
(15) Image is partly missing.



Causes
1. Paper damp.
2. Paper creased.
3. Drum condensation.
4. Flawed drum.

Causes	Check procedures/corrective measures
1. Paper damp.	Check the paper storage conditions.
2. Paper creased.	Replace the paper.
3. Drum condensation.	Perform the drum refresh operation.
4. Flawed drum.	Perform the drum refresh operation. If the drum is flawed, replace the drum unit.

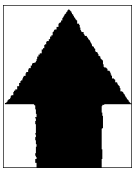
(16) Fixing is poor.



Causes
1. Wrong paper.
2. Defective pressure springs.
3. Flawed press roller.
4. Defective fixing heater S.

Causes	Check procedures/corrective measures
1. Wrong paper.	Check if the paper meets specifications.
2. Defective pressure springs.	Replace the pressure springs.
3. Flawed press roller.	Replace the press roller (see page 1-6-63).
4. Defective fixing heater S.	Replace the fixing heater S (see page 1-6-63).

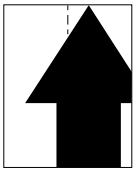
(17) Image is out of focus.



Causes
1. Defective image scanning unit.
2. Drum condensation.

Causes	Check procedures/corrective measures
1. Defective image scanning unit.	Replace the image scanning unit (see page 1-6-30).
2. Drum condensation.	Perform the drum refresh operation.

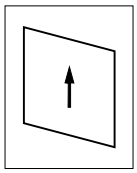
(18) Image center does not align with the original center.



Causes
1. Misadjusted center line of image printing.
2. Misadjusted scanner center line.
3. Original placed incorrectly.

Causes	Check procedures/corrective measures
1. Misadjusted center line of image printing.	Readjust the center line of image printing (see page 1-6-19).
2. Misadjusted scanner center line.	Readjust the scanner center line (see page 1-6-37).
3. Original placed incorrectly.	Place the original correctly.

(19) Image is not square.



Causes
1. Laser scanner unit positioned incorrectly.
2. Image scanning unit positioned incorrectly.

Causes	Check procedures/corrective measures
1. Laser scanner unit positioned incorrectly.	Adjust the installation position of the laser scanner unit (see page 1-6-30).
2. Image scanning unit positioned incorrectly.	Adjust the installation position of the image scanning unit (see page 1-6-30).

1-5-4 Electrical problems

Problem	Causes	Check procedures/corrective measures
(1) The machine does not operate when the main switch is turned on.	No electricity at the power outlet.	Measure the input voltage.
	The power cord is not plugged in properly.	Check the contact between the power plug and the outlet.
	The front cover, conveying cover and/or side cover are/is not closed completely.	Check the front cover, conveying cover and side cover.
	Broken power cord.	Check for continuity. If none, replace the cord.
	Defective main switch.	Check for continuity across the contacts. If none, replace the main switch.
	Blown fuse in the power source PCB.	Check for continuity. If none, remove the cause of blowing and replace the fuse.
	Defective safety switch 1 or 2.	Check for continuity across the contacts of each switch. If none, replace the switch.
	Defective power source PCB.	With AC present, check for 24 V DC at CN1-1 and 5 V DC at CN1-5 on the power source PCB. If none, replace the power source PCB.
(2) The drive motor does not operate (C2000).	Poor contact in the drive motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Broken drive motor gear.	Check visually and replace the drive motor if necessary.
	Defective drive motor.	Run maintenance item U030 and check if the drive motor operates when CN11-9 on the main PCB goes low. If not, replace the drive motor.
	Defective main PCB.	Run maintenance item U030 and check if CN11-9 on the main PCB goes low. If not, replace the main PCB.
(3) The paper feed motor does not operate (C2500).	Poor contact in the paper feed motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Broken paper feed motor gear.	Check visually and replace the paper feed motor if necessary.
	Defective paper feed motor.	Run maintenance item U030 and check if the paper feed motor operates when CN11-10 on the main PCB goes low. If not, replace the paper feed motor.
	Defective main PCB.	Run maintenance item U030 and check if CN11-10 on the main PCB goes low. If not, replace the main PCB.
(4) The eject motor does not operate.	Poor contact in the eject motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Broken eject motor gear.	Check visually and replace the eject motor if necessary.
	Defective eject motor.	Run maintenance item U030 and check if the paper feed motor operates when CN16-B11, CN16-B12, CN16-B13 and CN16-B14 on the main PCB go low. If not, replace the eject motor.
	Defective eject switch.	Run maintenance item U031 and turn the eject switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.

Problem	Causes	Check procedures/corrective measures
(4) The eject motor does not operate.	Defective main PCB.	Run maintenance item U030 and check if CN16-B11, CN16-B12, CN16-B13 and CN16-B14 on the main PCB go low. If not, replace the main PCB.
(5) The upper lift motor does not operate (C1010).	Broken upper lift motor coil.	Check for continuity across the coil. If none, replace the upper lift motor.
	Poor contact in the upper lift motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective main PCB.	Check if 24 V DC is output across CN13-A17 on the main PCB right after the upper drawer is installed. If not, replace the main PCB.
(6) The lower lift motor does not operate (C1020).	Broken lower lift motor coil.	Check for continuity across the coil. If none, replace the lower lift motor.
	Poor contact in the lower lift motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective main PCB.	Check if 24 V DC is output across CN13-B7 on the main PCB right after the lower drawer is installed. If not, replace the main PCB.
(7) The scanner motor does not operate.	Broken scanner motor coil.	Check for continuity across the coil. If none, replace the scanner motor.
	Poor contact in the scanner motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
(8) Cooling fan motor 1 does not operate.	Broken cooling fan motor 1 coil.	Check for continuity across the coil. If none, replace cooling fan motor 1.
	Poor contact in the cooling fan motor 1 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
(9) Cooling fan motor 2 does not operate.	Broken cooling fan motor 2 coil.	Check for continuity across the coil. If none, replace cooling fan motor 2.
	Poor contact in the cooling fan motor 2 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
(10) Cooling fan motor 3 does not operate.	Broken cooling fan motor 3 coil.	Check for continuity across the coil. If none, replace cooling fan motor 3.
	Poor contact in the cooling fan motor 3 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
(11) Cooling fan motor 4 does not operate.	Broken cooling fan motor 4 coil.	Check for continuity across the coil. If none, replace cooling fan motor 4.
	Poor contact in the cooling fan motor 4 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.

Problem	Causes	Check procedures/corrective measures
(12) Cooling fan motor 5 does not operate.	Broken cooling fan motor 5 coil.	Check for continuity across the coil. If none, replace cooling fan motor 5.
	Poor contact in the cooling fan motor 5 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
(13) Cooling fan motor 6 does not operate.	Broken cooling fan motor 6 coil.	Check for continuity across the coil. If none, replace cooling fan motor 6.
	Poor contact in the cooling fan motor 6 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
(14) Cooling fan motor 7 does not operate.	Broken cooling fan motor 7 coil.	Check for continuity across the coil. If none, replace cooling fan motor 7.
	Poor contact in the cooling fan motor 7 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
(15) Cooling fan motor 8 does not operate.	Broken cooling fan motor 8 coil.	Check for continuity across the coil. If none, replace cooling fan motor 8.
	Poor contact in the cooling fan motor 8 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
(16) Cooling fan motor 9 does not operate.	Broken cooling fan motor 9 coil.	Check for continuity across the coil. If none, replace cooling fan motor 9.
	Poor contact in the cooling fan motor 9 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, repair or replace the cable.
(17) The upper paper feed clutch does not operate.	Broken upper paper feed clutch coil.	Check for continuity across the coil. If none, replace the upper paper feed clutch.
	Poor contact in the upper paper feed clutch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective main PCB.	Run maintenance item U032 and check if CN16-B1 on the main PCB goes low. If not, replace the main PCB.
(18) The lower paper feed clutch does not operate.	Broken lower paper feed clutch coil.	Check for continuity across the coil. If none, replace the lower paper feed clutch.
	Poor contact in the lower paper feed clutch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective main PCB.	Run maintenance item U032 and check if CN16-B4 on the main PCB goes low. If not, replace the main PCB.
(19) Feed clutch 1 does not operate.	Broken feed clutch 1 coil.	Check for continuity across the coil. If none, replace feed clutch 1.
	Poor contact in feed clutch 1 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective main PCB.	Run maintenance item U032 and check if CN11-14 on the main PCB goes low. If not, replace the main PCB.

Problem	Causes	Check procedures/corrective measures
(20) Feed clutch 2 does not operate.	Broken feed clutch 2 coil.	Check for continuity across the coil. If none, replace feed clutch 2.
	Poor contact in feed clutch 2 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective main PCB.	Run maintenance item U032 and check if CN13-A12 on the main PCB goes low. If not, replace the main PCB.
(21) Feed clutch 3 does not operate.	Broken feed clutch 3 coil.	Check for continuity across the coil. If none, replace feed clutch 3.
	Poor contact in feed clutch 3 connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective main PCB.	Run maintenance item U032 and check if CN13-A5 on the main PCB goes low. If not, replace the main PCB.
(22) The bypass paper feed clutch does not operate.	Broken bypass paper feed clutch coil.	Check for continuity across the coil. If none, replace the bypass paper feed clutch.
	Poor contact in the bypass paper feed clutch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective main PCB.	Run maintenance item U032 and check if CN6-A9 on the main PCB goes low. If not, replace the main PCB.
(23) The bypass feed clutch does not operate.	Broken bypass feed clutch coil.	Check for continuity across the coil. If none, replace the bypass feed clutch.
	Poor contact in the bypass feed clutch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective main PCB.	Run maintenance item U032 and check if CN6-A11 on the main PCB goes low. If not, replace the main PCB.
(24) The registration clutch does not operate.	Broken registration clutch coil.	Check for continuity across the coil. If none, replace the registration clutch.
	Poor contact in the registration clutch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective main PCB.	Run maintenance item U032 and check if CN10-A2 on the main PCB goes low. If not, replace the main PCB.
(25) The feedshift solenoid does not operate.	Broken feedshift solenoid coil.	Check for continuity across the coil. If none, replace the feedshift solenoid.
	Poor contact in the feedshift solenoid connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective main PCB.	Run maintenance item U033 and check if CN16-A1 and CN16-A2 on the main PCB go low. If not, replace the main PCB.
(26) The toner feed solenoid does not operate.	Broken toner feed solenoid coil.	Check for continuity across the coil. If none, replace the toner feed solenoid.
	Poor contact in the toner feed solenoid connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective main PCB.	Run maintenance item U033 and check if CN9-B2 on the main PCB goes low. If not, replace the main PCB.

Problem	Causes	Check procedures/corrective measures
(27) The cleaning lamp does not turn on.	Poor contact in the cleaning lamp connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective cleaning lamp.	Check for continuity. If none, replace the cleaning lamp.
	Defective main PCB.	If the cleaning lamp turns on when CN9-B7 on the main PCB is held low, replace the main PCB.
(28) The exposure lamp does not turn on.	Poor contact in the exposure lamp connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective inverter PCB.	Run maintenance item U061 and check if the exposure lamp turns on with CN1-1 and CN1-2 on the inverter PCB go low. If not, replace the inverter PCB.
	Defective scanner drive PCB.	Run maintenance item U061 and check if the exposure lamp turns on with CN1-3 on the scanner drive PCB goes low. If not, replace the scanner drive PCB.
	Defective main PCB.	Run maintenance item U061 and check if CN37-3 on the main PCB goes low. If not, replace the main PCB.
(29) The exposure lamp does not turn off.	Defective inverter PCB.	If the exposure lamp does not turn off with CN1-1 and CN1-2 on the inverter PCB high, replace the inverter PCB.
	Defective scanner drive PCB.	If CN1-3 on the scanner drive PCB are always low, replace the scanner drive PCB.
(30) The fixing heater does not turn on (C6000).	Broken wire in fixing heater M or S.	Check for continuity across each heater. If none, replace the heater M or S.
	Fixing unit thermostat triggered.	Check for continuity across thermostat. If none, remove the cause and replace the thermostat.
(31) The fixing heater does not turn off.	Broken fixing unit thermistor wire.	Measure the resistance. If it is $\infty\ \Omega$, replace the fixing unit thermistor.
	Dirty sensor part of the fixing unit thermistor.	Check visually and clean the thermistor sensor parts.
(32) Main charging is not performed.	Broken main charger wire.	See page 1-5-44.
	Leaking main charger housing.	
	Poor contact in the high-voltage transformer PCB connector terminals.	
	Defective main PCB.	
	Defective high- voltage transformer PCB.	
(33) Transfer charging is not performed.	Poor contact in the high-voltage transformer PCB connector terminals.	See page 1-5-43.
	Defective main PCB.	
	Defective high-voltage transformer PCB.	

Problem	Causes	Check procedures/corrective measures
(34) No developing bias is output.	Defective main PCB.	See page 1-5-43.
	Defective high-voltage transformer PCB.	
(35) The original size is not detected.	Defective original detection switch.	If the level of CN5-2 on the scanner drive PCB does not change when the original detection switch is turned on and off, replace the original detection switch.
(36) The original size is not detected correctly.	Original is not placed correctly.	Check the original and correct if necessary.
	Poor contact in the original size detection sensor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective original size detection sensor.	Check if sensor operates correctly. If not, replace it.
(37) The touch panel keys do not work.	Poor contact in the touch panel connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective touch panel or operation unit PCB.	If any keys do not work after the touch panel has been initialized, replace the touch panel or operation unit PCB.
(38) The message requesting paper to be loaded is shown when paper is present in the upper drawer.	Poor contact in the upper paper switch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective upper paper switch.	Check if CN13-B12 on the main PCB goes low when the upper paper switch is turned on with 5 V DC present at CN13-B13 on the main PCB. If not, replace the upper paper switch.
(39) The message requesting paper to be loaded is shown when paper is present in the lower drawer.	Poor contact in the lower paper switch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective lower paper switch.	Check if CN13-B18 on the main PCB goes low when the upper paper switch is turned on with 5 V DC present at CN13-B19 on the main PCB. If not, replace the lower paper switch.
(40) The message requesting paper to be loaded is shown when paper is present on the bypass tray.	Poor contact in the bypass paper switch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective bypass paper switch.	Check if CN6-A6 on the main PCB goes low when the bypass paper switch is turned on with 5 V DC present at CN6-A5 on the main PCB. If not, replace the bypass paper switch.
(41) The size of paper in the upper drawer is not displayed correctly.	Poor contact in the upper paper length switch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective upper paper length switch.	Check if CN13-B2 on the main PCB goes low when the upper paper length switch is turned on. If not, replace the upper paper length switch.
	Poor contact in the upper paper width switch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective upper paper width switch.	Check if the levels of CN12-3, CN12-4 and CN12-5 on the main PCB change alternately when the width guide in the upper drawer is moved. If not, replace the upper paper width switch.

Problem	Causes	Check procedures/corrective measures
(42) The size of paper in the lower drawer is not displayed correctly.	Poor contact in the lower paper length switch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective lower paper length switch.	Check if CN13-A19 on the main PCB goes low when the lower paper length switch is turned on. If not, replace the lower paper length switch.
	Poor contact in the lower paper width switch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective lower paper width switch.	Check if the levels of CN12-9, CN12-10 and CN12-11 on the main PCB change alternately when the width guide in the lower drawer is moved. If not, replace the lower paper width switch.
(43) The printing width of the paper on the bypass tray is not detected correctly.	Poor contact in the bypass paper length switch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective bypass paper length switch.	Check if CN6-B11 on the main PCB goes low when the bypass paper length switch is turned on. If not, replace the bypass paper length switch.
	Poor contact in the bypass paper width switch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective bypass paper width switch.	Check if the levels of CN6-A1, CN6-A2 and CN6-A3 on the main PCB change alternately when the insert guide on the bypass table is moved. If not, replace the bypass paper width switch.
(44) A paper jam in the paper feed, paper conveying or fixing section is indicated when the main switch is turned on.	A piece of paper torn from copy paper is caught around feed switch 1/2/3, registration switch, feedshift switch or eject switch.	Check and remove if any.
	Defective feed switch 1.	Run maintenance item U031 and turn feed switch 1 on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective feed switch 2.	Run maintenance item U031 and turn feed switch 2 on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective feed switch 3.	Run maintenance item U031 and turn feed switch 3 on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective registration switch.	Run maintenance item U031 and turn the registration switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective eject switch.	Run maintenance item U031 and turn the eject switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.
	Defective feedshift switch.	Run maintenance item U031 and turn the feedshift switch on and off manually. Replace the switch if indication of the corresponding switch on the operation panel is not displayed in reverse.

Problem	Causes	Check procedures/corrective measures
(45) The message requesting covers to be closed is displayed when the front cover and conveying cover are closed.	Poor contact in the connector terminals of safety switch 1 or 2.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective safety switch 1 or 2.	Check for continuity across each switch. If there is no continuity when the switch is on, replace it.
(46) Others.	Wiring is broken, shorted or makes poor contact.	Check for continuity. If none, repair.
	Noise.	Locate the source of noise and remove.

1-5-5 Mechanical problems

Problem	Causes/check procedures	Corrective measures
(1) No primary paper feed.	Check if the surfaces of the following rollers or pulleys are dirty with paper powder: upper/lower forwarding pulleys, upper/lower paper feed pulleys, upper/lower separation pulleys, feed rollers, registration rollers, bypass forwarding pulleys, bypass paper feed pulleys and bypass separation pulleys.	Clean with isopropyl alcohol.
	Check if the upper/lower forwarding pulleys, upper/lower paper feed pulleys or upper/lower separation pulleys is deformed.	Check visually and replace any deformed pulleys (see page 1-6-3).
	Electrical problem with the following electromagnetic clutches: upper/lower paper feed clutches, feed clutches 1/2/3, bypass paper feed clutch and bypass feed clutch.	See pages 1-5-53 and 54.
(2) No secondary paper feed.	Check if the surfaces of the right and left registration rollers are dirty with paper powder.	Clean with isopropyl alcohol.
	Electrical problem with the registration clutch.	See page 1-5-54.
(3) Skewed paper feed.	Width guide in a drawer installed incorrectly.	Check the width guide visually and correct or replace if necessary.
	Deformed width guide in a drawer.	Repair or replace if necessary .
	Check if a pressure spring along the paper conveying path is deformed or out of place.	Repair or replace.
(4) The scanner does not travel.	Check if the scanner wire is loose.	Reinstall the scanner wire (see page 1-6-16).
	The scanner motor malfunctions.	See page 1-5-52.
(5) Multiple sheets of paper are fed at one time.	Check if the upper or lower separation pulley is worn.	Replace the upper or lower separation pulley if it is worn (see page 1-6-3).
	Check if the paper is curled.	Change the paper.
(6) Paper jams.	Check if the paper is excessively curled.	Change the paper.
	Deformed guides along the paper conveying path.	Repair or replace if necessary.
	Check if the contact between the right and left registration rollers is correct.	Check visually and remedy if necessary.
	Check if the contact between the feed roller and feed pulley is correct.	Check visually and remedy if necessary.
	Check if the press roller is extremely dirty or deformed.	Clean or replace the press roller.
	Check if the contact between the heat roller and its separation claws is correct.	Repair if any springs are off the separation claws.
	Check if the contact between the eject roller and pulley is correct.	Check visually and remedy if necessary.
	The feedshift solenoid malfunctions.	See page 1-5-54.

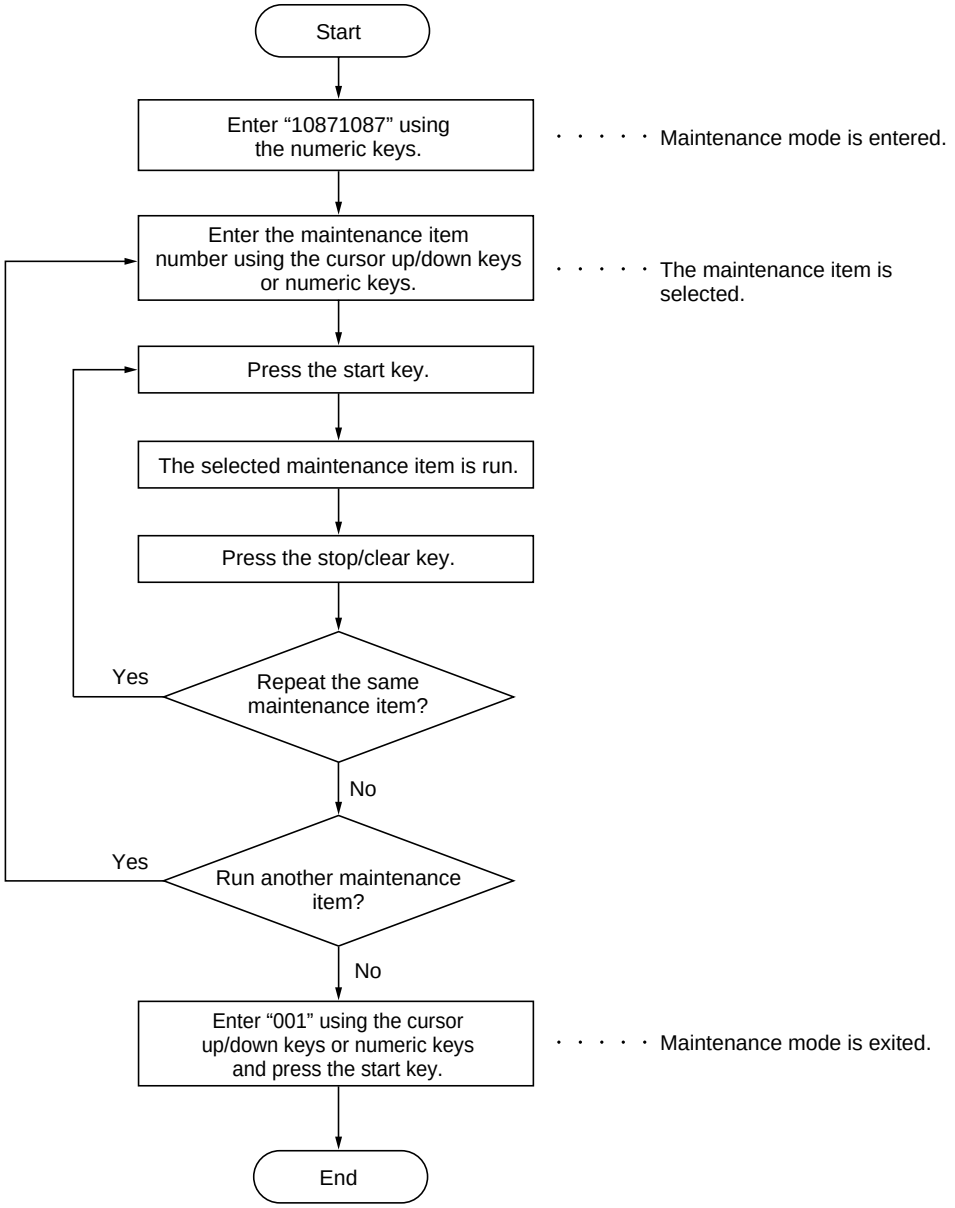
Problem	Causes/check procedures	Corrective measures
(7) Toner drops on the paper conveying path.	Check if the developing unit is extremely dirty.	Clean the developing unit.
(8) Abnormal noise is heard.	Check if the pulleys, rollers and gears operate smoothly.	Grease the bearings and gears.
	Check if the following electromagnetic clutches are installed correctly: upper/lower paper feed clutches, feed clutches 1/2/3, bypass paper feed clutch and bypass feed clutch.	Correct.

1-6-1 Precautions for assembly and disassembly

(1) Precautions

- Be sure to turn the main switch off and disconnect the power plug before starting disassembly.
- When handling PCBs, do not touch connectors with bare hands or damage the board.
- Do not touch any PCB containing ICs with bare hands or any object prone to static charge.
- Use only the specified parts to replace the fixing unit thermostat. Never substitute electric wires, as the copier may be seriously damaged.
- Use the following testers when measuring voltages:
  Hioki 3200
  Sanwa MD-180C
  Sanwa YX-360TR
  Beckman TECH300
  Beckman DM45
  Beckman 330*
  Beckman 3030*
  Beckman DM850*
  Fluke 8060A*
  Arlec DMM1050
  Arlec YF1030C
  * Capable of measuring RMS values.
- Prepare the following as test originals:
  1. NTC (new test chart)
  2. NPTC (newspaper test chart)

(2) Running a maintenance item



1-6-2 Paper feed section

(1) Detaching and refitting the forwarding, paper feed and separation pulleys
Follow the procedure below to replace the forwarding, paper feed and separation pulleys.

Procedure
• Removing the primary paper feed units
1. Open the front cover and pull out the upper and lower drawers.
2. Remove the one screw from each of the primary paper feed units and then the units.

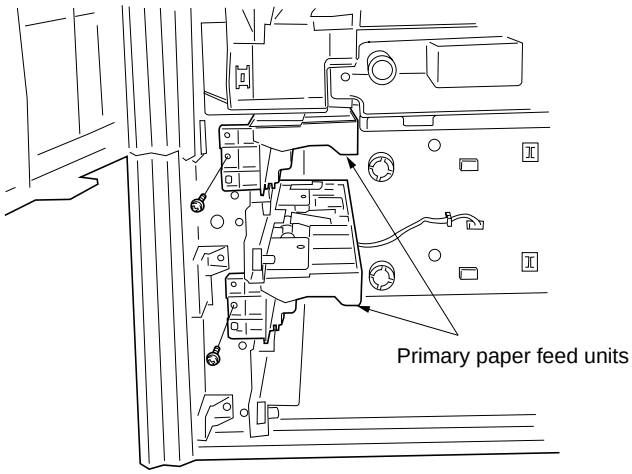


Figure 1-6-1

• Removing the forwarding pulley
3. Remove the stopper.
4. Raise the forwarding pulley retainer in the direction the arrow, and remove from the primary paper feed unit.

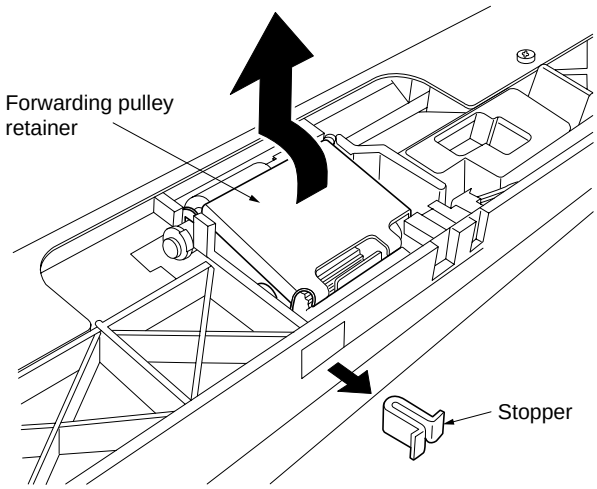


Figure 1-6-2

5. Remove the stop ring, pull the forwarding pulley shaft in the direction of the arrow, and remove the forwarding pulley.

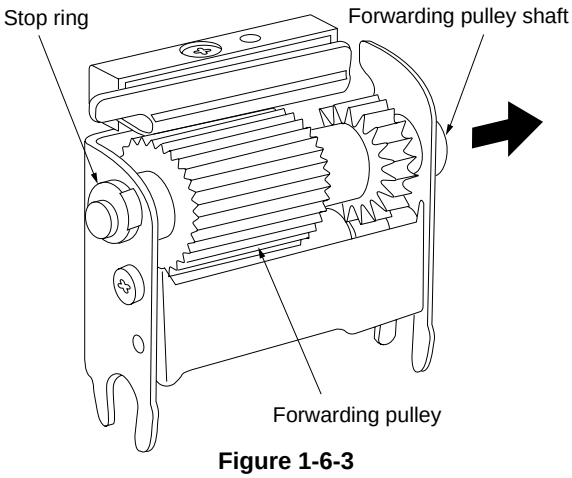


Figure 1-6-3

• Removing the paper feed pulley
6. Remove the two stop rings.
7. Pull the paper feed shaft toward the rear of the primary paper feed unit (in the direction of the arrow) and remove the paper feed pulley.

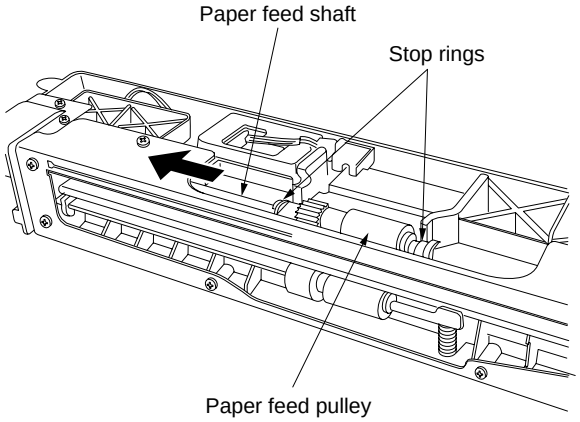


Figure 1-6-4

• Removing the separation pulley
8. Remove the stop ring on the rear of the primary paper feed unit.
9. Pull the separation shaft toward the machine rear (in the direction of the arrow) and remove the separation pulley.

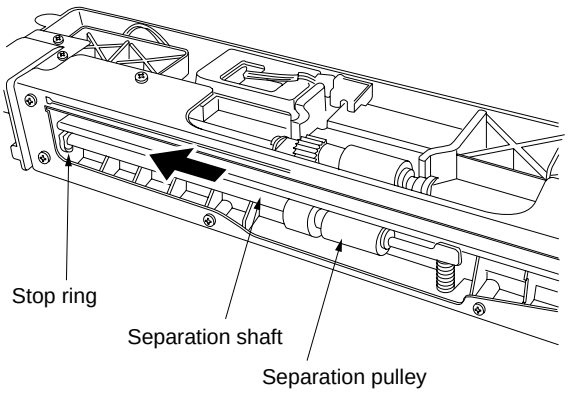


Figure 1-6-5

10. Replace the forwarding, paper feed and separation pulleys.

Caution:
• When fitting the forwarding pulley, orient it correctly as shown in Figure 1-6-6.
• When fitting the separation pulley, keep the blue end of the separation toward the machine rear.

11. Refit all removed parts.

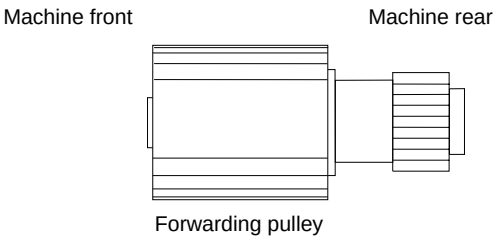


Figure 1-6-6

(2) Detaching and refitting the bypass separation, bypass paper feed and bypass forwarding pulleys

Follow the procedure below to replace the bypass separation, bypass paper feed and bypass forwarding pulleys.

Procedure

• Removing the bypass unit

1. Remove the four screws holding the lower right cover and then the cover.

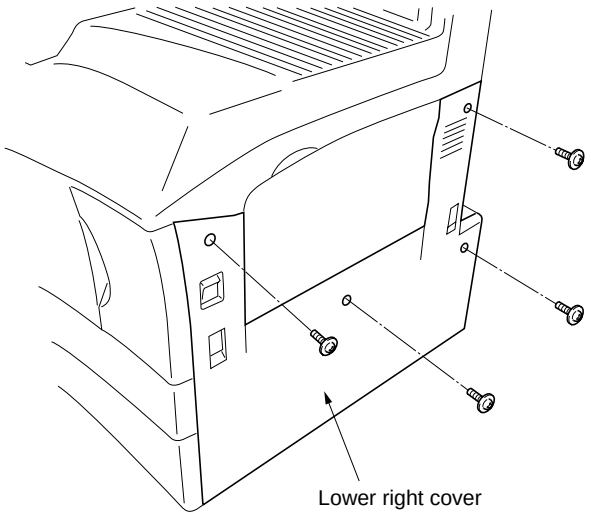


Figure 1-6-7

2. Remove the two screws holding the bypass unit and disconnect the two connectors, and then remove the unit.

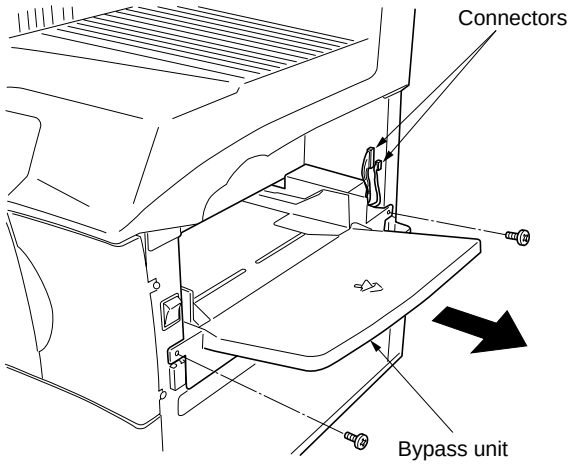


Figure 1-6-8

• Removing the bypass separation pulley

3. Reverse the bypass unit and remove the spring and stop ring from the bypass separation pulley and move the bushing inside.

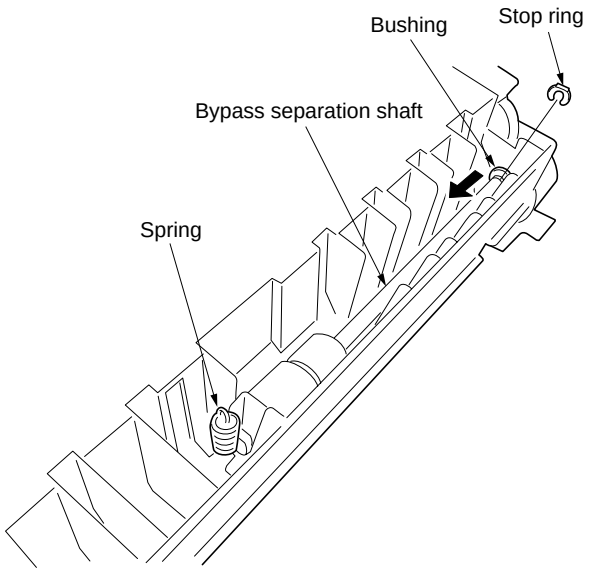


Figure 1-6-9

4. Raise the bypass separation shaft as shown in the diagram, remove the holder plate and the bushing, and then remove the bypass separation pulley.
   * Take care not to remove the spring pin of the gear at the rear of the bypass separation shaft. If it is removed, refit it to its original position.

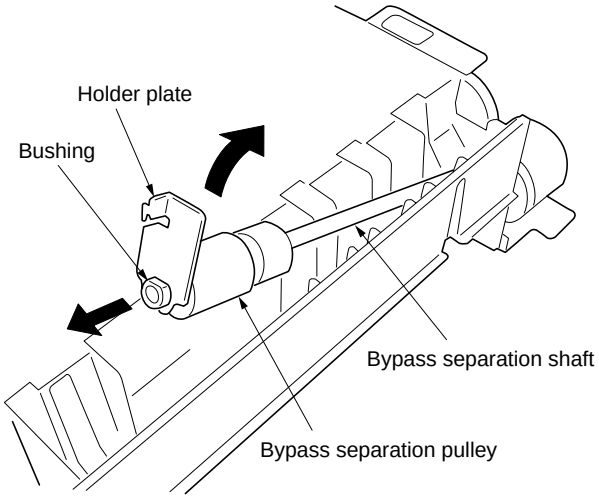


Figure 1-6-10

• Removing the bypass paper feed pulley

5. Detach the connector of the bypass paper switch and remove the wire from the three clamps.
6. Remove the screw holding the bypass unit cover and then the cover.

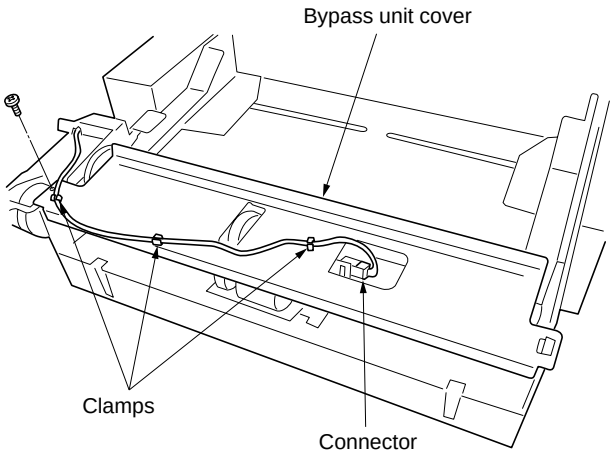


Figure 1-6-11

7. Remove the stop ring and bushing on the front of the bypass paper feed shaft.

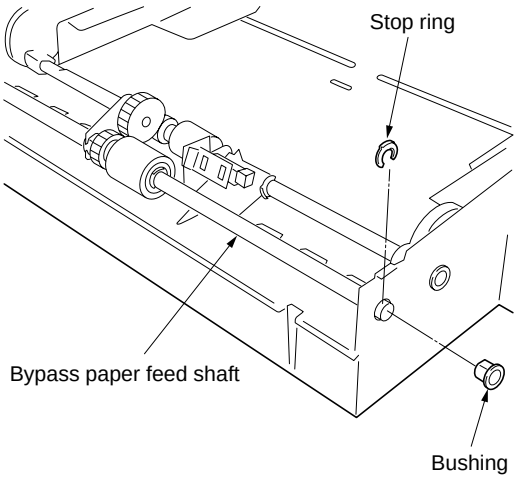


Figure 1-6-12

8. Raise the bypass paper feed shaft as shown in the illustration, remove the stop ring, and then remove the bypass paper feed pulley.

Caution:

- When fitting the bypass paper feed pulley, keep the blue end of the paper feed toward the machine rear.

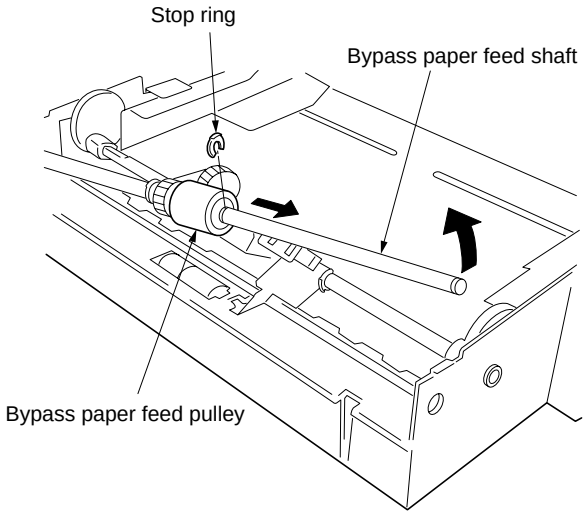


Figure 1-6-13

- Removing the bypass forwarding pulley

9. Remove the wire of the bypass paper feed clutch from the clamp.
10. Remove the stop ring and bypass paper feed clutch.
    - When refitting, insert the cutout in the bypass paper feed clutch over the stopper on the copier.

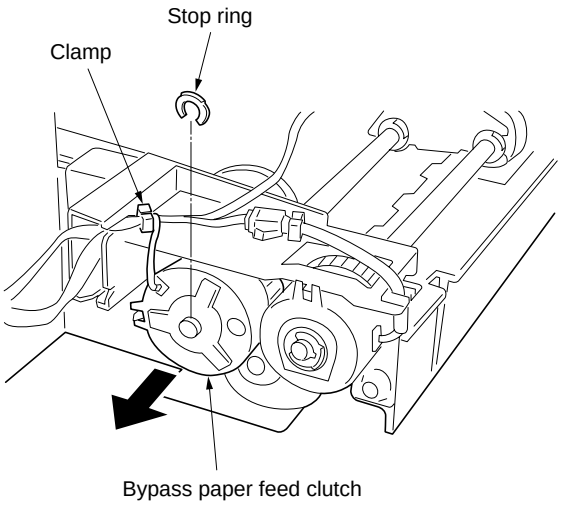


Figure 1-6-14

11. Remove the screw from the cam at the rear of the bypass forwarding pulley shaft and move the cam and the bushing toward the inner side.

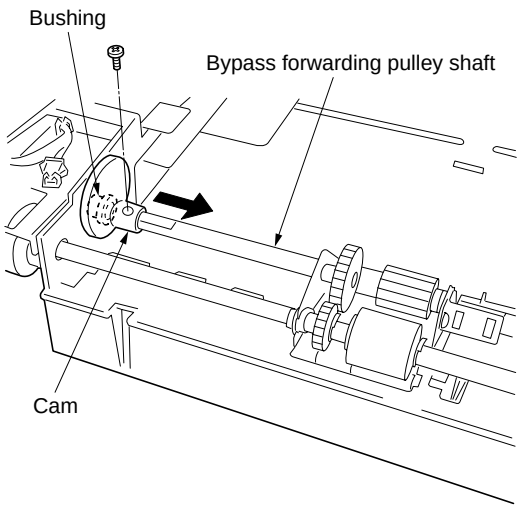


Figure 1-6-15

12. Remove the stop ring of the bypass paper feed shaft and slide the bushing in the direction of the arrow.

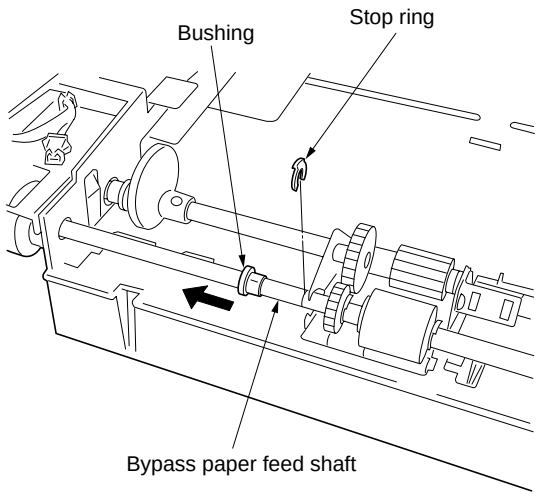


Figure 1-6-16

13. Slide the bypass forwarding pulley shaft temporarily toward the rear side and then raise it to remove from the bypass unit.
    * Remove the shaft while raising the actuator of the bypass paper switch.

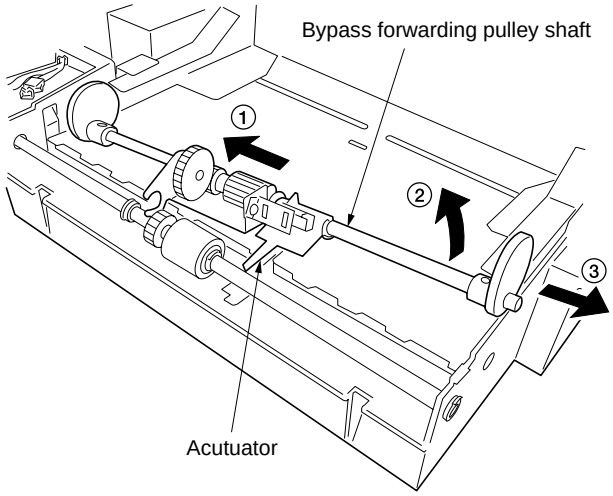


Figure 1-6-17

14. Remove the bushing an cam on the rear of the bypass forwarding pulley shaft.

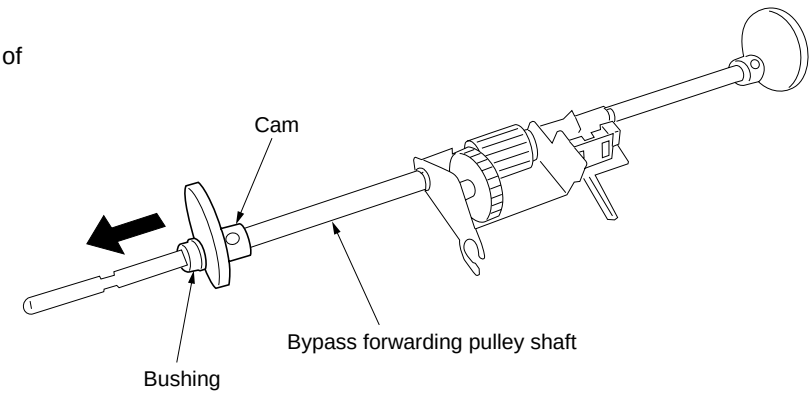


Figure 1-6-18

15. Remove the stop ring and slide the bypass forwarding pulley with the forwarding pulley retainer from the shaft to remove it.
16. Replace the bypass separation, bypass paper feed and bypass forwarding pulleys.

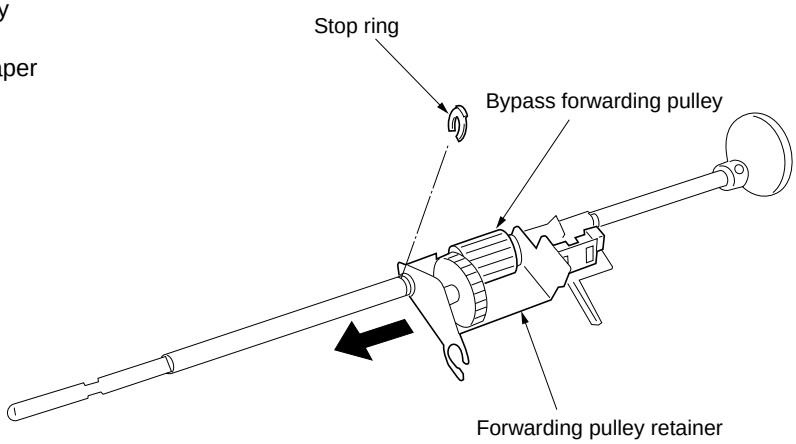


Figure 1-6-19

17. Refit all removed parts.
    * Fit the bypass unit cover so that the film on the cover is positioned under the bypass paper feed shaft.

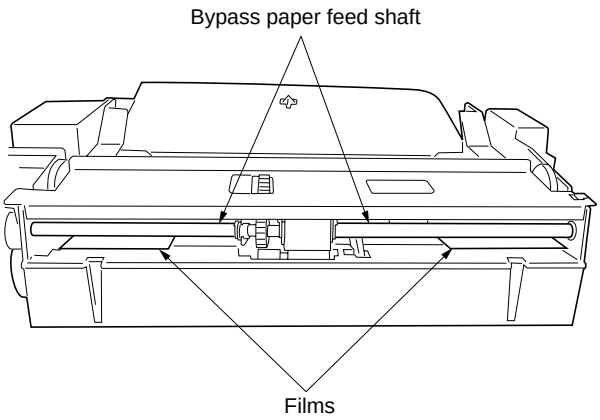


Figure 1-6-20

(3) Adjustment after roller and clutch replacement
Perform the following adjustment after refitting rollers and clutches.

(3-1) Adjusting the leading edge registration of image printing
Make the following adjustment if there is a regular error between the leading edges of the copy image and original.

U034 → U066 (P. 1-6-29) → U071 (P. 1-4-16)

Caution:
Check the copy image after the adjustment. If the image is still incorrect, perform the above adjustments in maintenance mode.

Procedure

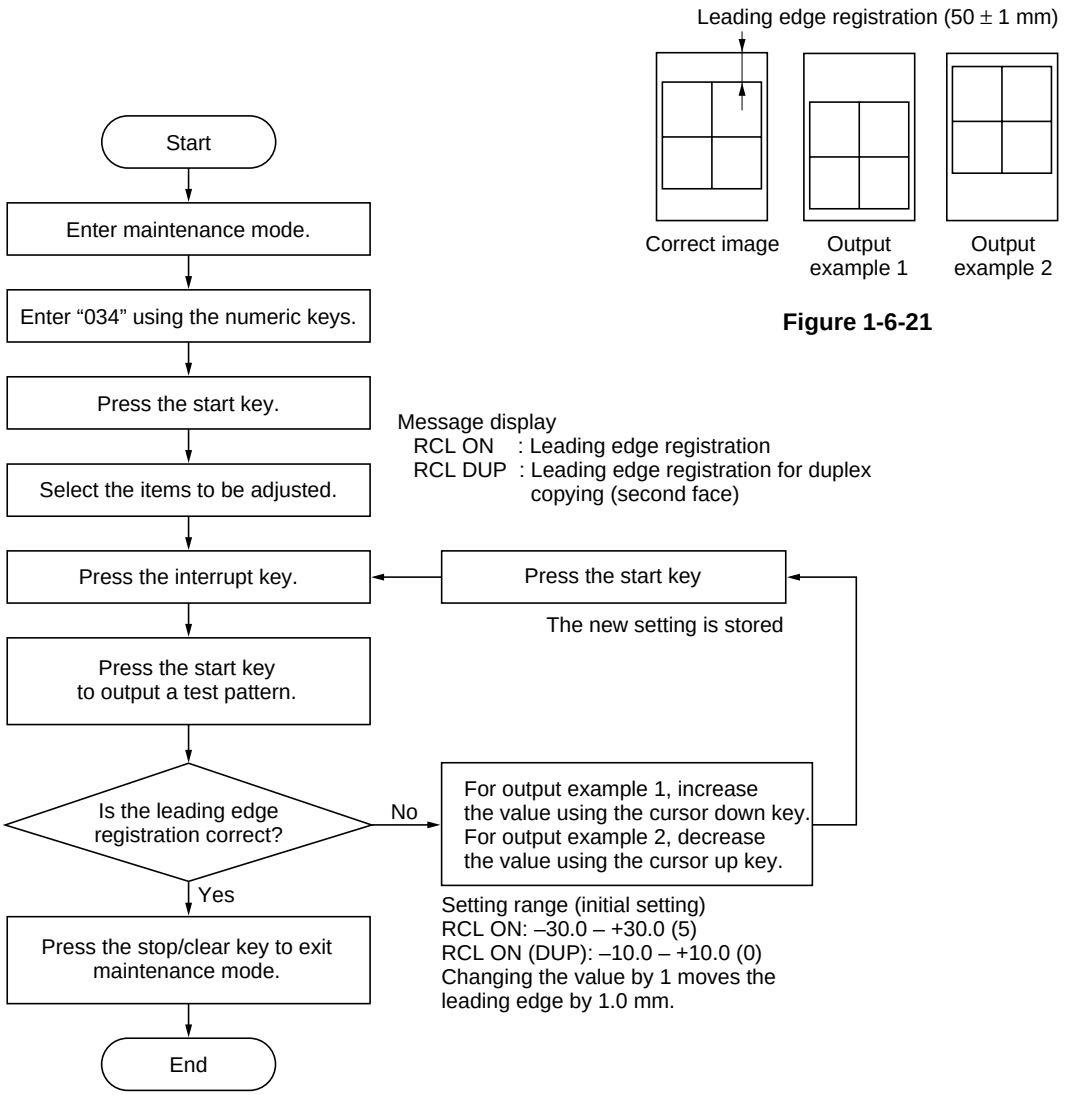
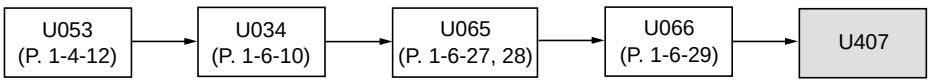


Figure 1-6-21

(3-2) Adjusting the leading edge registration for memory image printing

Make the following adjustment if there is a regular error between the leading edge of the copy image and the leading edge of the original during memory copying.



Caution:

Before making the following adjustment, ensure the above adjustments have been made in maintenance mode.

Procedure

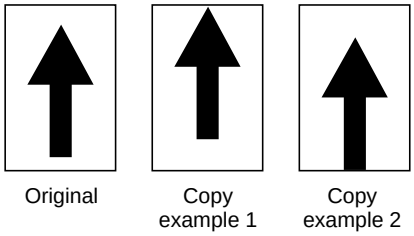
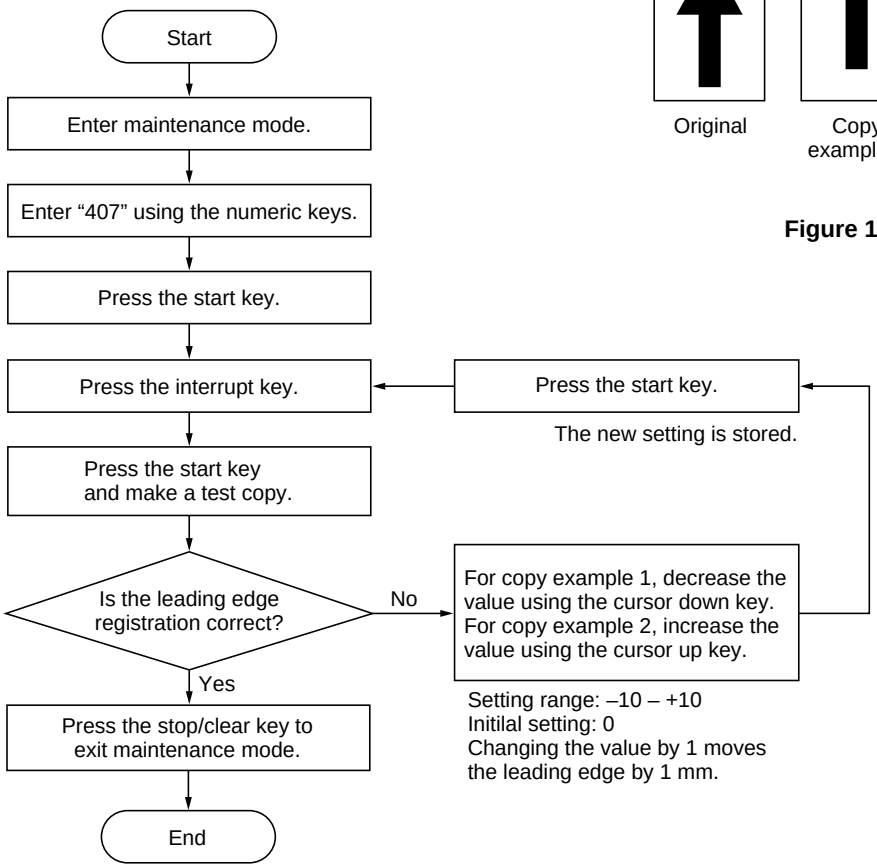
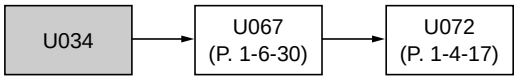


Figure 1-6-22



(3-3) Adjusting the center line of image printing

Make the following adjustment if there is a regular error between the center lines of the copy image and original when paper is fed from the drawer.



Caution:

Check the copy image after the adjustment. If the image is still incorrect, perform the above adjustments in maintenance mode.

Procedure

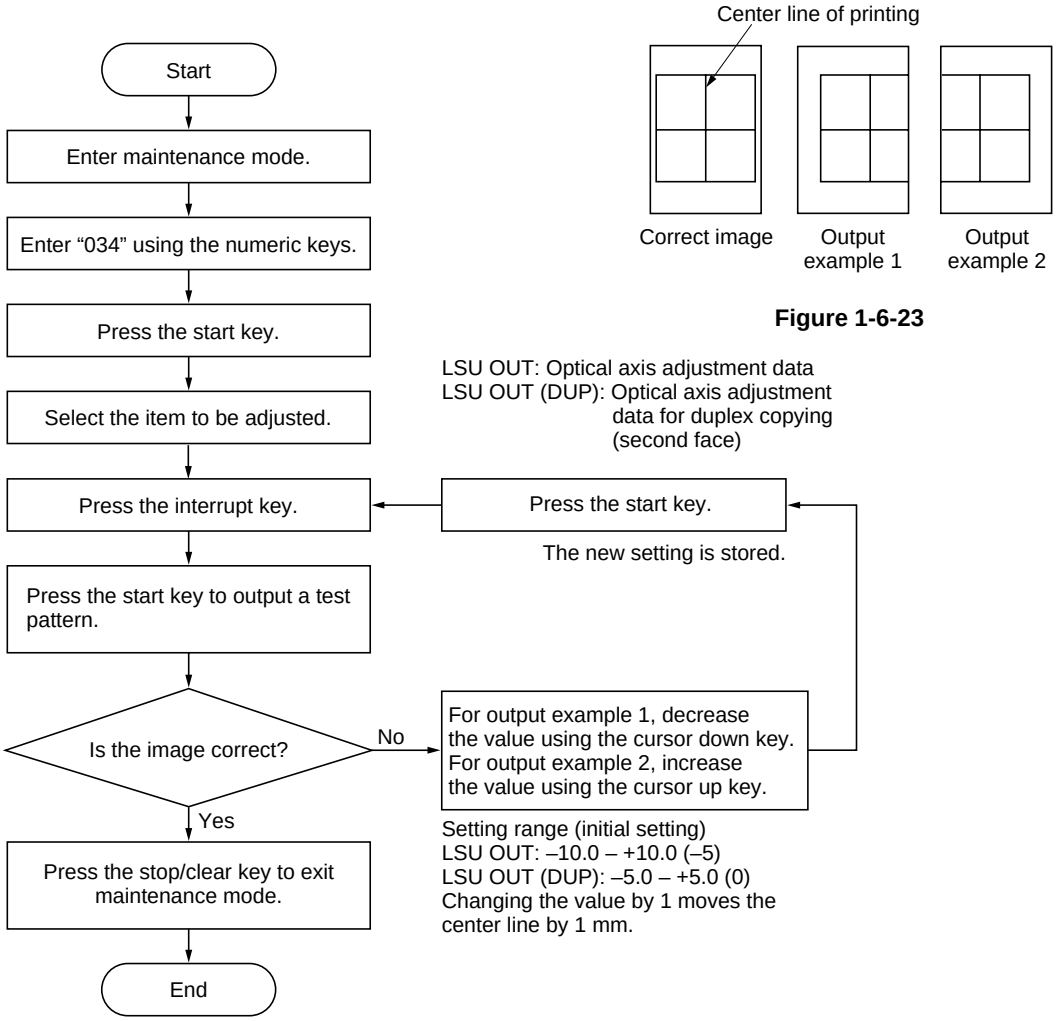
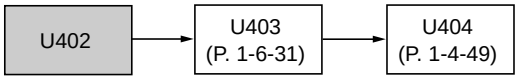


Figure 1-6-23

(3-4) Adjusting the margins for printing

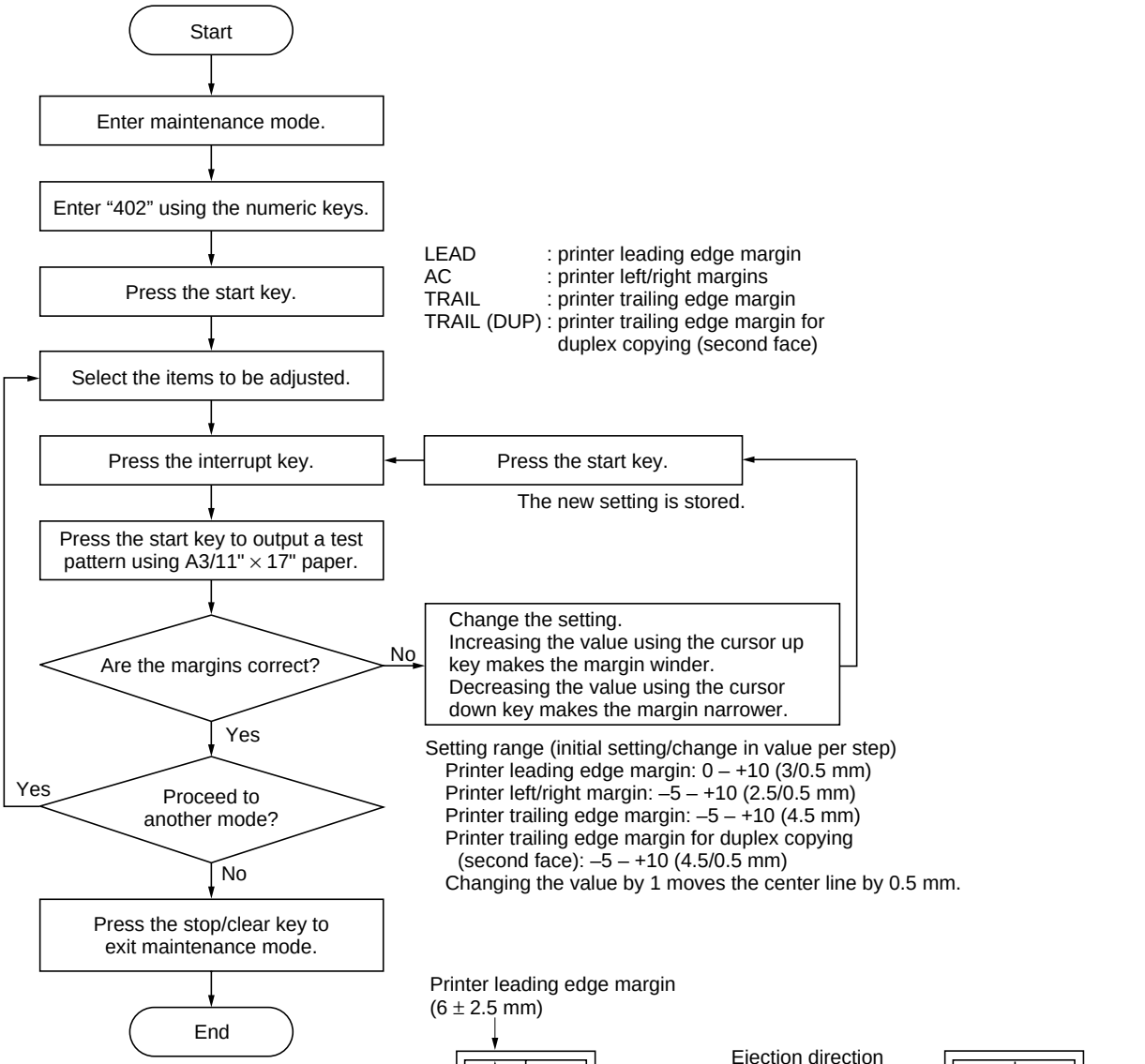
Make the following adjustment if the margins are not correct.



Caution:

Check the copy image after the adjustment. If the margins are still incorrect, perform the above adjustments in maintenance mode.

Procedure



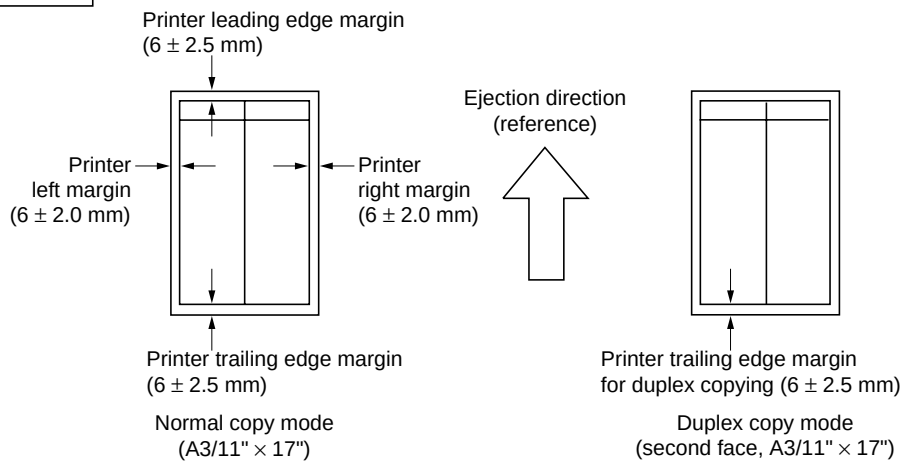


Figure 1-6-24

(3-5) Adjusting the amount of slack in the paper

Make the following adjustment if the leading edge of the copy image is missing or varies randomly, or if the copy paper is Z-folded.

Procedure

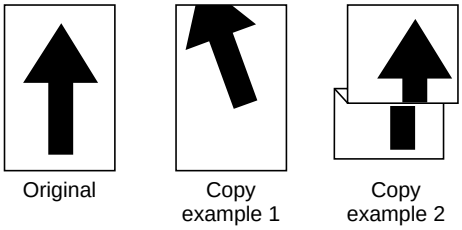
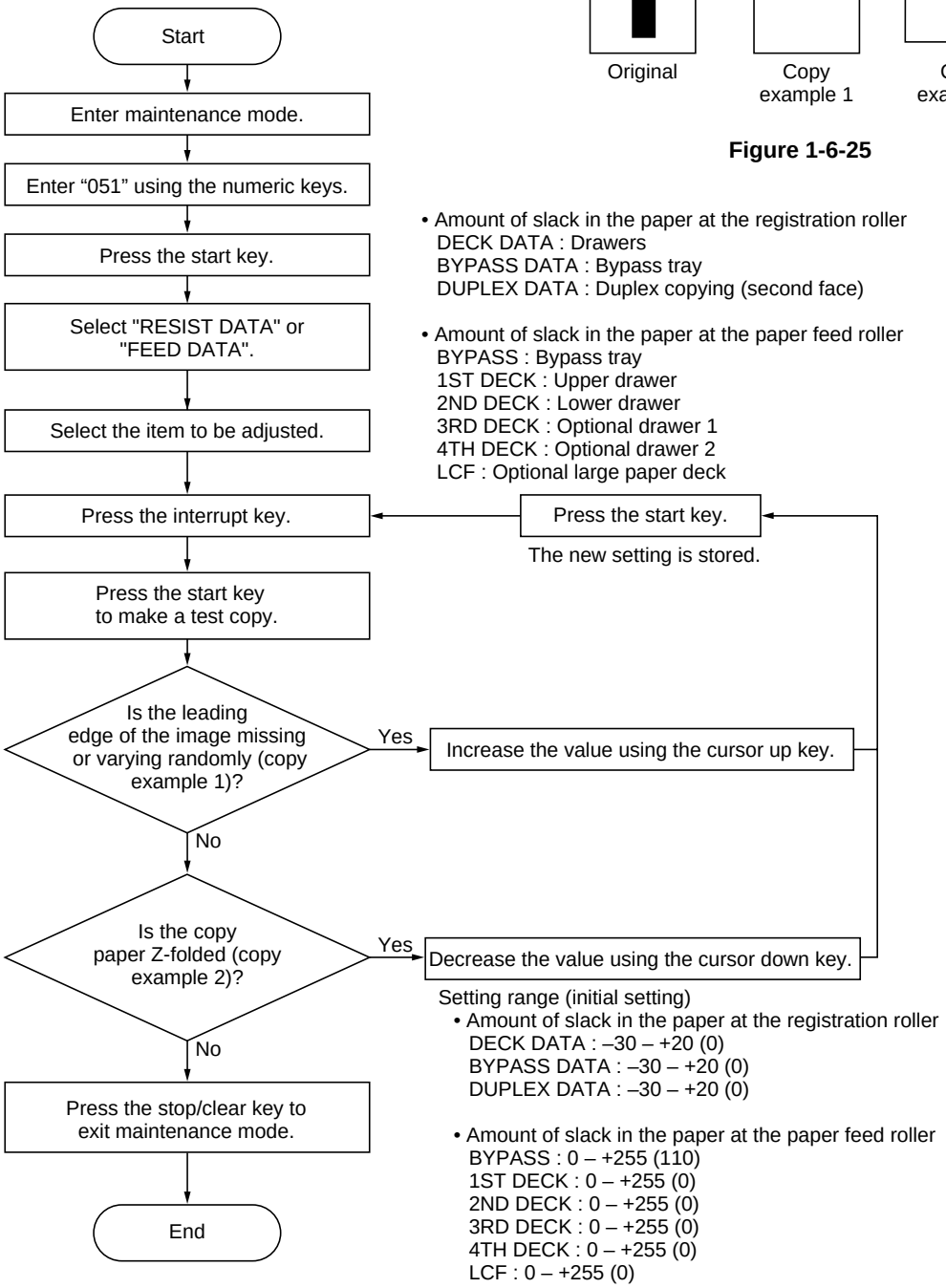


Figure 1-6-25



• Amount of slack in the paper at the registration roller
DECK DATA : Drawers
BYPASS DATA : Bypass tray
DUPLEX DATA : Duplex copying (second face)

• Amount of slack in the paper at the paper feed roller
BYPASS : Bypass tray
1ST DECK : Upper drawer
2ND DECK : Lower drawer
3RD DECK : Optional drawer 1
4TH DECK : Optional drawer 2
LCF : Optional large paper deck

The new setting is stored.

Setting range (initial setting)

• Amount of slack in the paper at the registration roller
DECK DATA : –30 – +20 (0)
BYPASS DATA : –30 – +20 (0)
DUPLEX DATA : –30 – +20 (0)

• Amount of slack in the paper at the paper feed roller
BYPASS : 0 – +255 (110)
1ST DECK : 0 – +255 (0)
2ND DECK : 0 – +255 (0)
3RD DECK : 0 – +255 (0)
4TH DECK : 0 – +255 (0)
LCF : 0 – +255 (0)

The greater the value,
the larger the amount of slack;
the smaller the value, the smaller
the amount of slack.

1-6-3 Optical section

(1) Detaching and refitting the exposure lamp
Replace the exposure lamp as follows.

Procedure
1. Remove the original cover or the DF.
2. Remove the upper right cover, upper front cover, upper rear cover and contact glass.

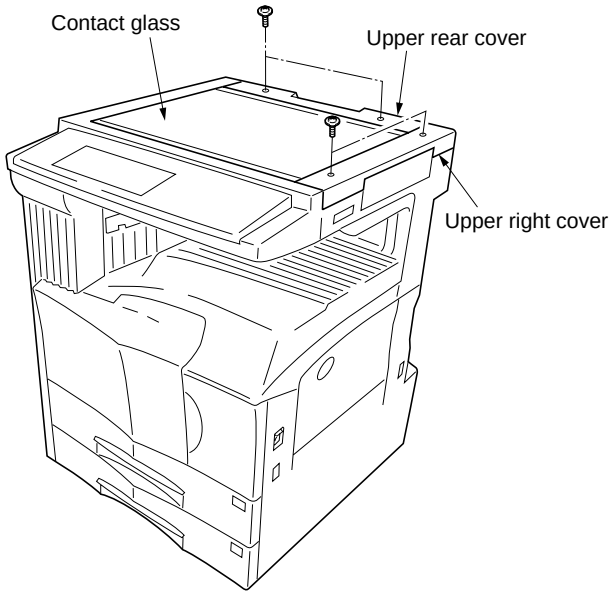


Figure 1-6-26

3. Move the mirror 1 frame to the cutouts of the machine.
   Caution: When moving the mirror 1 frame, do not touch the exposure lamp nor the inverter PCB.
4. Remove the two screws holding the metal plate on the rear of the machine and then the plate.

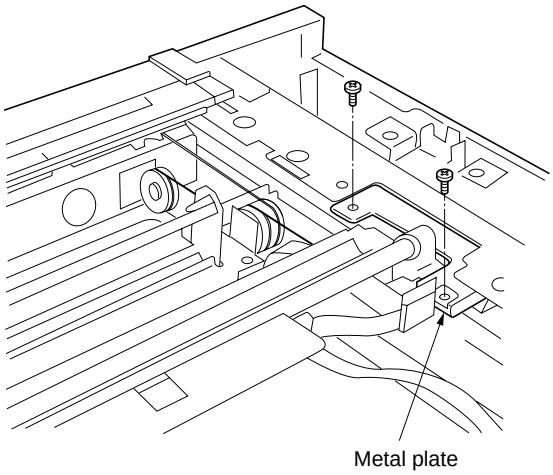


Figure 1-6-27

5. Detach the exposure lamp connector from the inverter PCB.
6. Remove the two screws holding the exposure lamp and then the lamp.
7. Replace the exposure lamp and refit all the removed parts.

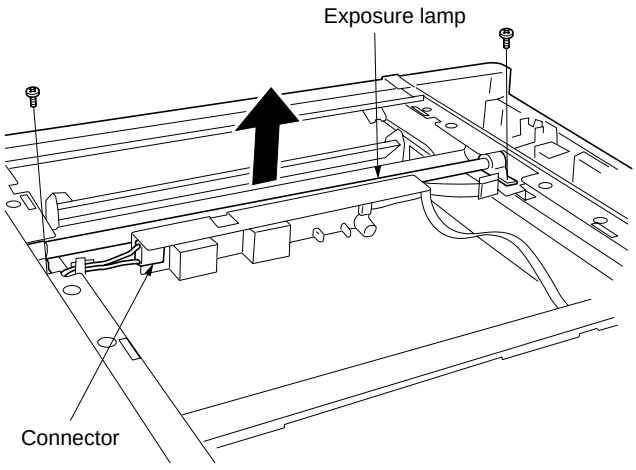


Figure 1-6-28

(2) Detaching and refitting the scanner wires
Take the following procedure when the scanner wires are broken or to be replaced.

Caution:
After replacing the scanner wire, make a test copy and check the copy image. If the image is incorrect, perform the adjustments (see pages 1-6-25 to 31).

(2-1) Detaching the scanner wires

Procedure
1. Remove the exposure lamp (see page 1-6-19).
2. Remove the upper left cover and scanner left cover.

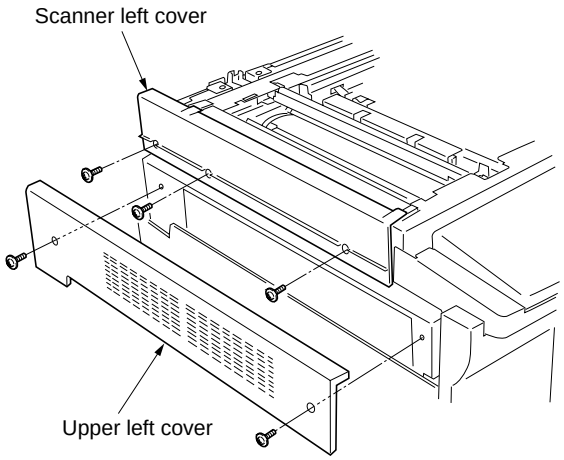


Figure 1-6-29

3. Remove the inverter wire guide plate and then the wire from the inverter PCB.

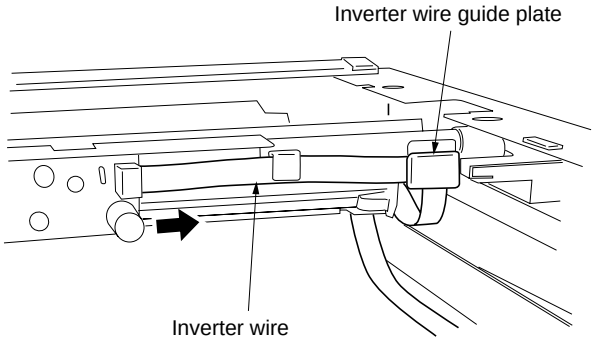


Figure 1-6-30

4. Remove the screw holding each of the front and rear wire retainers and then remove the mirror 1 frame from the scanner unit.

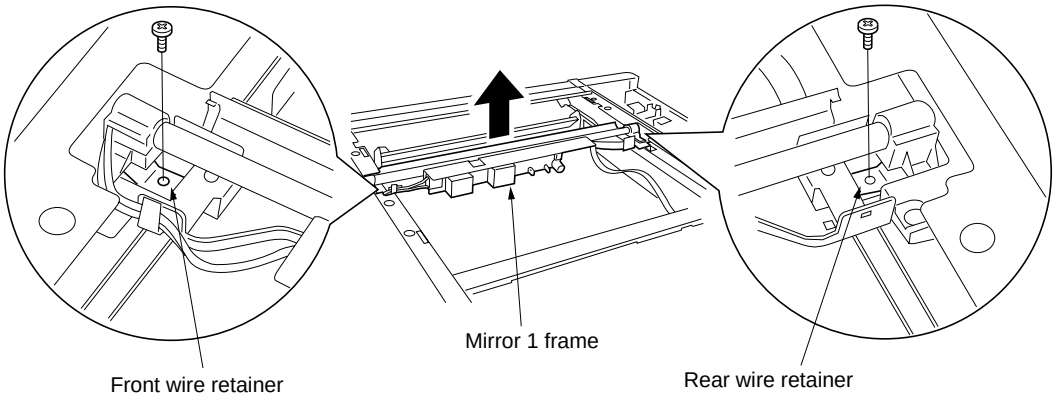


Figure 1-6-31

5. Unhook the round terminal of the scanner wire from the scanner tension spring on the left side of the scanner unit.
6. Remove the scanner wire.

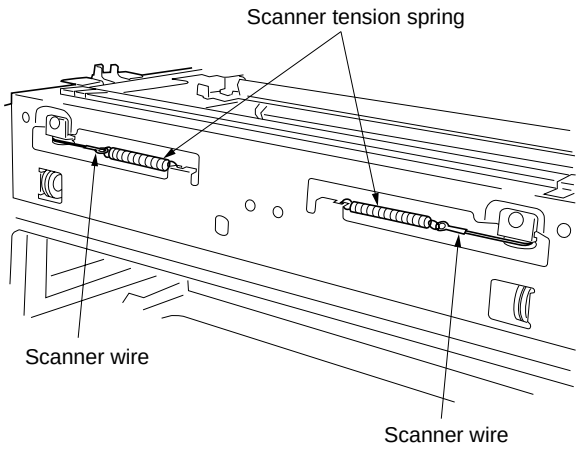


Figure 1-6-32

(2-2) Fitting the scanner wires

Caution:
When fitting the wires, be sure to use those specified below.
Machine front: P/N 2AV1219 (black)
Machine rear: P/N 2AV1220 (gray)

Fitting requires the following tools:
Two frame securing tools (P/N 2AV6808)
Two scanner wire stoppers (P/N 3596811)

Procedure

1. Insert the locating ball on each of the scanner wires into the hole in the respective scanner wire drum and wind the scanner wire three turns inward and four turns outward.
   • With the locating ball as the reference point, wind the shorter end of each of the wires inward.
2. Secure the scanner wires using the scanner wire stoppers.

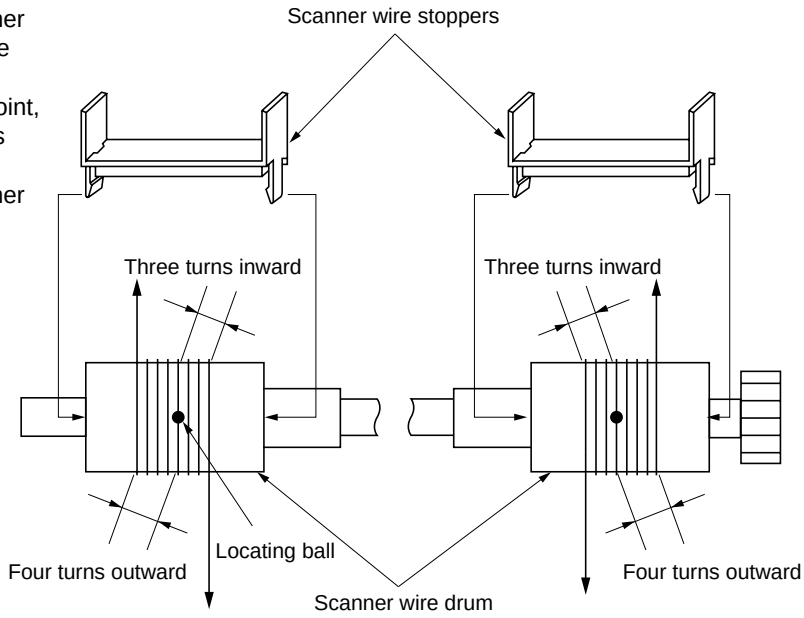


Figure 1-6-29

3. Insert the two frame securing tools into the positioning holes at the front and rear of the scanner unit to pin the mirror 2 frame in position.

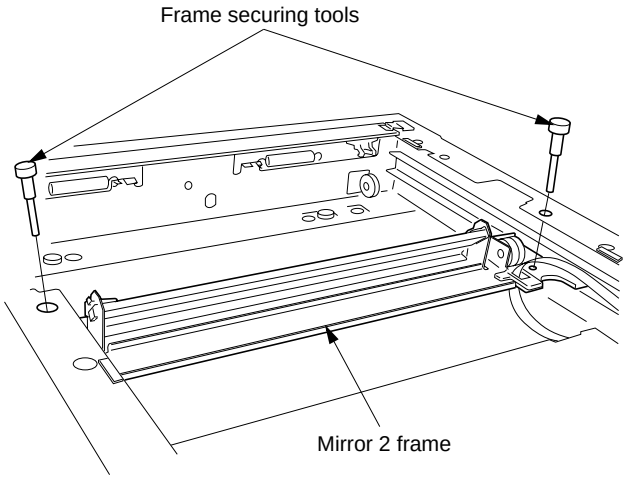


Figure 1-6-34

4. Loop the inner ends of the scanner wires around the grooves in the pulleys at the right of the scanner unit, winding from below to above. ..... ①
5. Loop the scanner wires around the inner grooves in the pulleys on the mirror 2 frame, winding from above to below. ..... ②
6. Hook the round terminals onto the catches inside the scanner unit. ..... ③

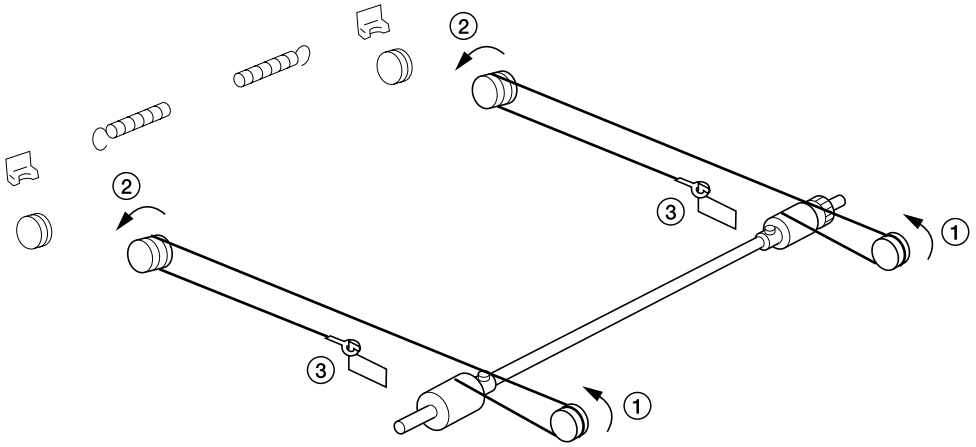


Figure 1-6-35

7. Loop the outer ends of the scanner wires around the grooves in the scanner wire pulleys at the left of the scanner unit, winding from below to above. ..... ④
8. Loop the scanner wires around the outer grooves in the pulleys on the mirror 2 frame, winding from below to above. ..... ⑤
9. Wind the scanner wires around the grooves in the scanner wire guides at the left of the scanner unit. ..... ⑥
10. Hook the round terminals onto the scanner tension springs. ..... ⑦

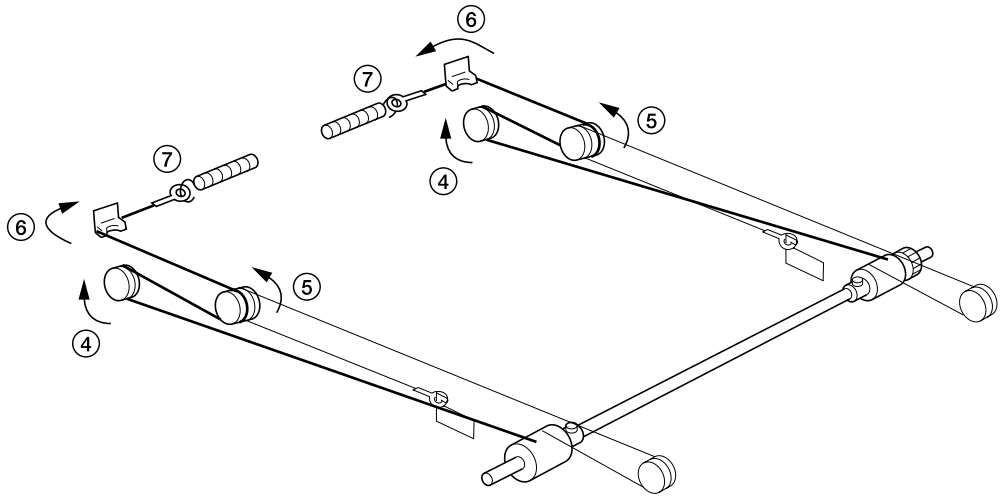


Figure 1-6-36

11. Remove the scanner wire stoppers and frame securing tools.
12. Gather the scanner wires toward the locating balls.
13. Move the mirror 2 frame from side to side to correctly locate the wires in position.
14. Put the mirror 1 frame on the scanner rail and move it toward the left side of the machine.
15. Insert the frame securing tools into the positioning holes (leftmost holes) at the front and the rear of the scanner unit and screw the mirror 1 frame while securing both the mirror 1 frame and the mirror 2 frame.
16. Remove the two frame securing tools
17. Refit all the removed parts.

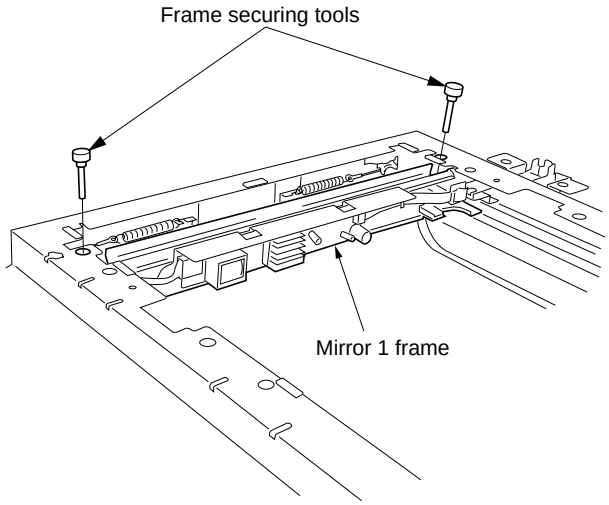


Figure 1-6-37

(3) Detaching and refitting the laser scanner unit

Take the following procedure when the laser scanner unit is to be checked or replaced.

Procedure

1. Remove the developing unit and drum unit (see pages 1-6-32 and 34).
2. Remove the four screws holding the lower right cover and then the cover.
   Remove the three screws holding the eject cover and then the cover.

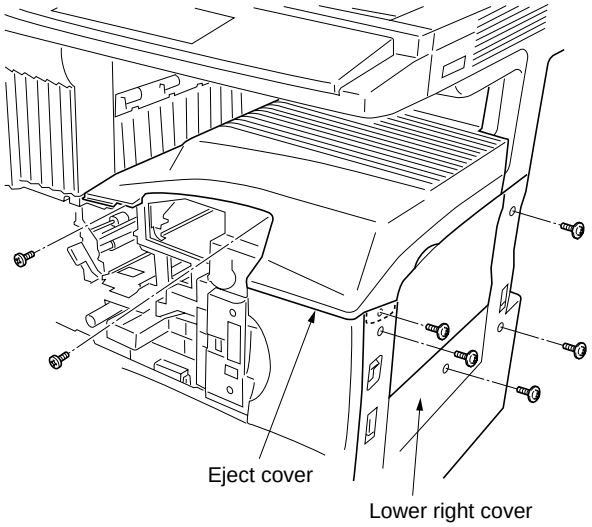


Figure 1-6-38

3. Remove the four screws holding the front right cover and then the cover.

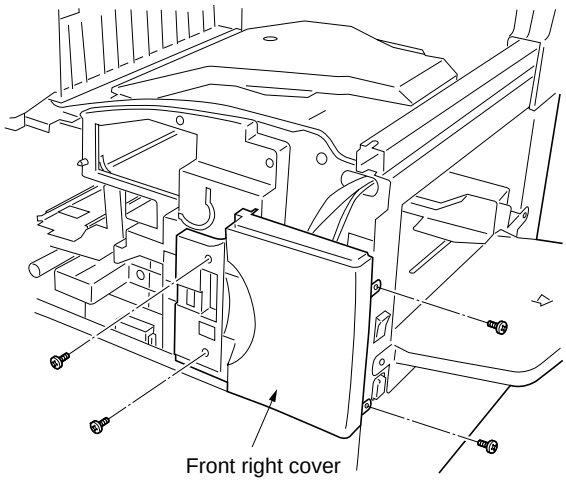


Figure 1-6-39

4. Remove the five screws holding the inner cover and then the cover.

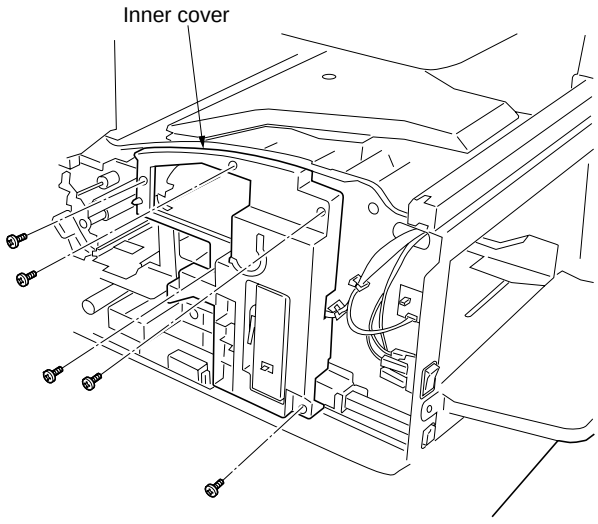


Figure 1-6-40

5. Remove the two screws and detach the connector and then remove the fan duct.

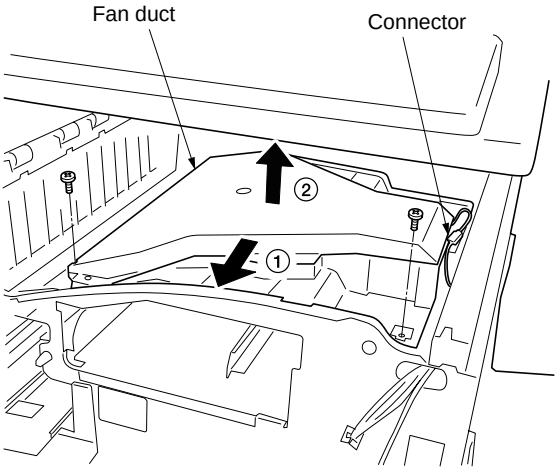


Figure 1-6-41

6. Remove the six screws holding the toner container retainer and then the retainer.

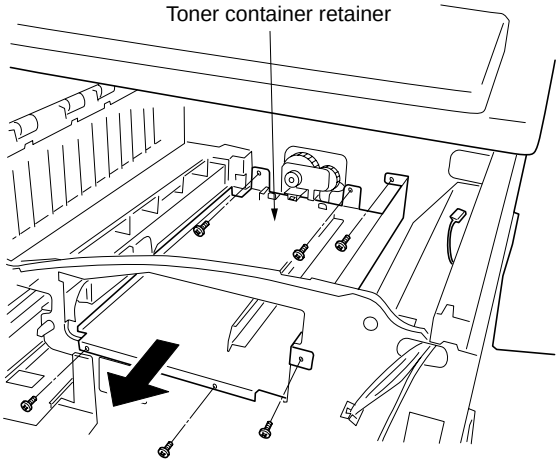


Figure 1-6-42

7. Remove the four screws and detach the connector and then remove the laser scanner unit.
8. Replace the laser scanner unit and refit all the removed parts.

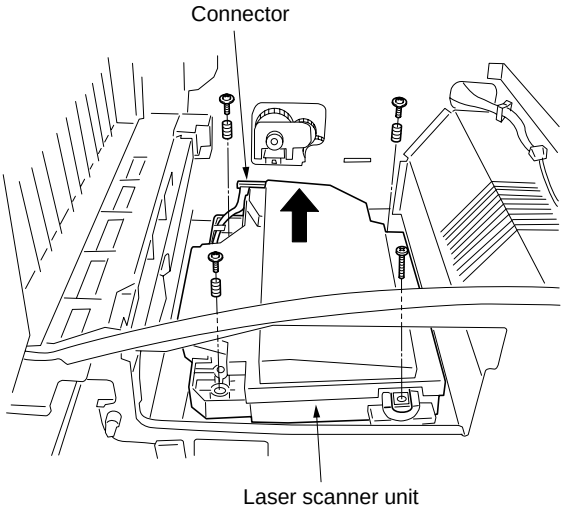


Figure 1-6-43

(4) Adjusting the skew of the laser scanner unit (reference)

Perform the following adjustment if the leading and trailing edges of the copy image are laterally skewed (lateral squareness not obtained).

Caution:

- After adjusting the skew of the laser scanner unit, make a test copy and check the copy image. If lateral squareness is still not obtained, perform "(6) Adjusting the position of the ISU" (see page 1-6-25).

Procedure

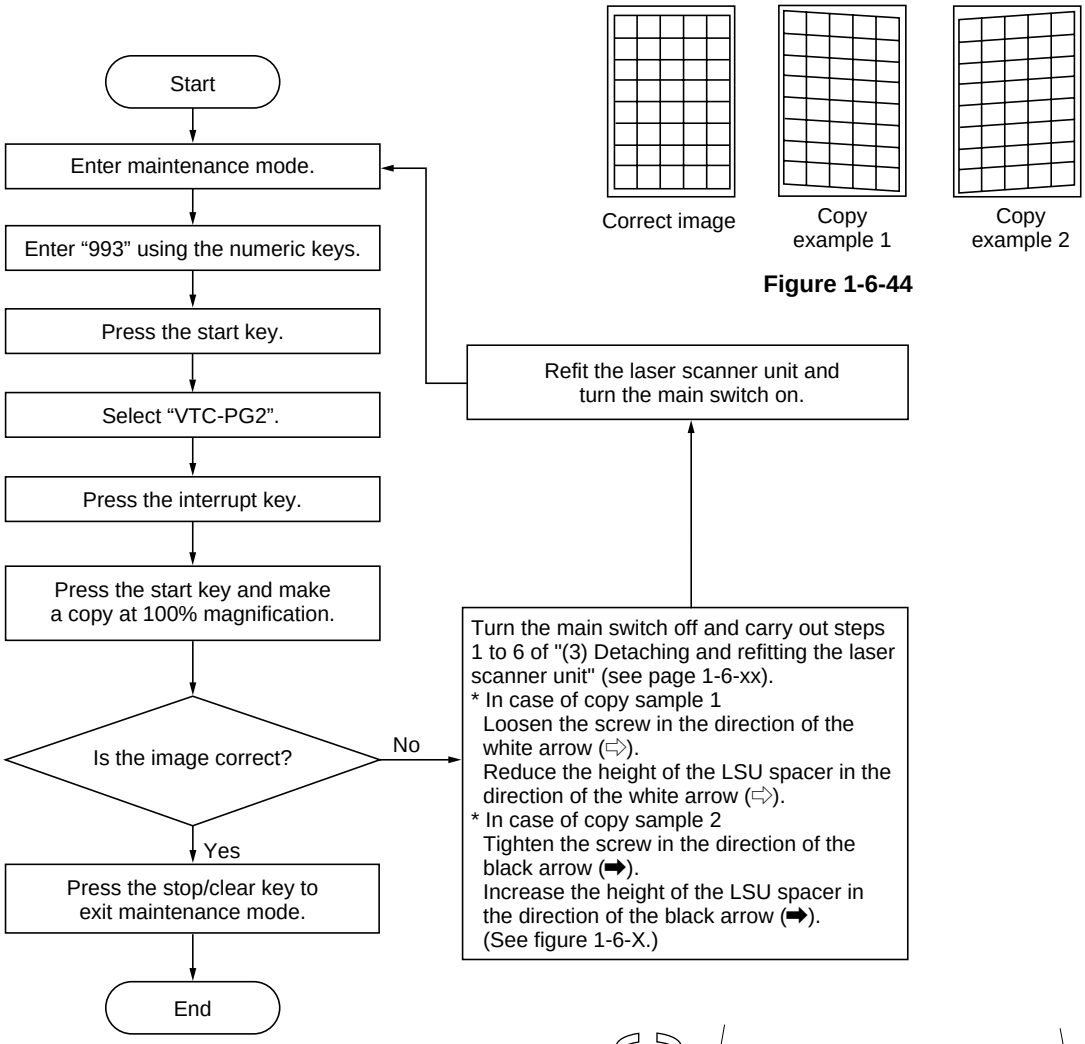


Figure 1-6-44

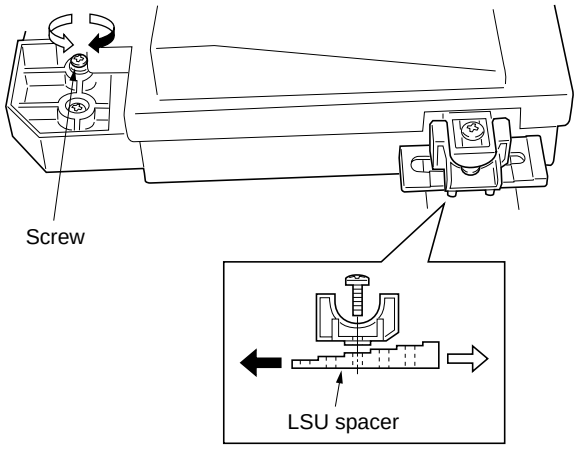


Figure 1-6-45

(5) Detaching and refitting the ISU (reference)
Take the following procedure when the ISU is to be checked or replaced.

Caution:
After replacing the ISU, make a test copy and check the copy image. If the image is incorrect, perform the adjustments (see pages 1-6-25 to 31).

ISU installation requires the following tools:
Two positioning pins (P/N 1856812)

Procedure
• Detaching the ISU
1. Remove the contact glass (see page 1-6-19).
2. Remove the rear and shield covers and detach connector CN34 on the main PCB.

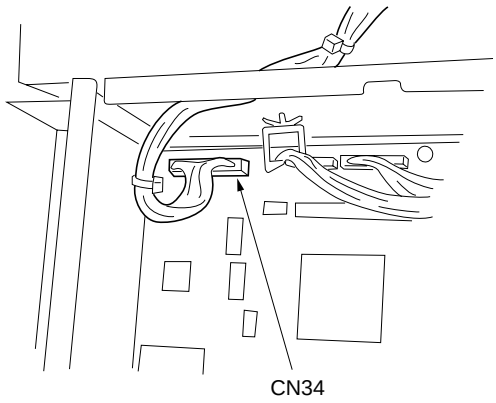


Figure 1-6-46

3. Remove the eight screws holding the ISU cover and then the cover.

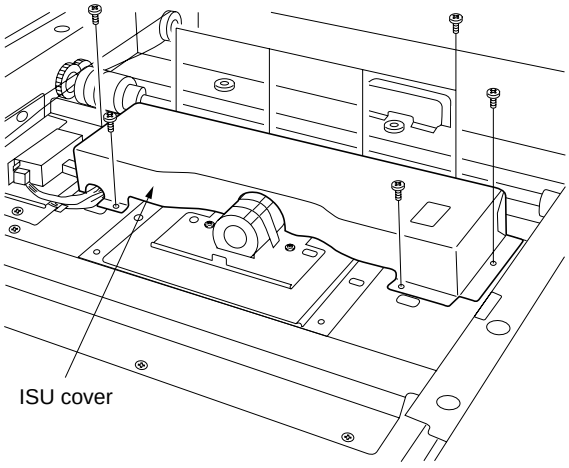


Figure 1-6-47

4. Remove the two screws holding the original size detection sensor retainer and then the retainer.
5. Remove the four screws holding the ISU and then the ISU.
6. Check or replace the ISU.

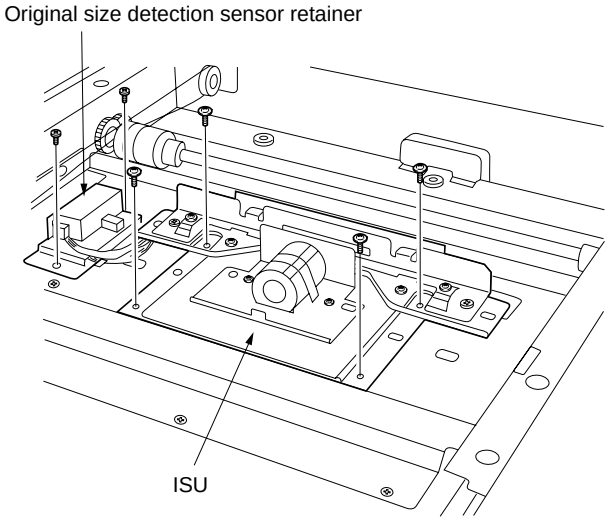


Figure 1-6-48

• Refitting the ISU
  1. Fit the ISU using the two positioning pins.
  2. Secure the ISU using the four screws.
  3. Remove the two positioning pins and refit all the removed parts.

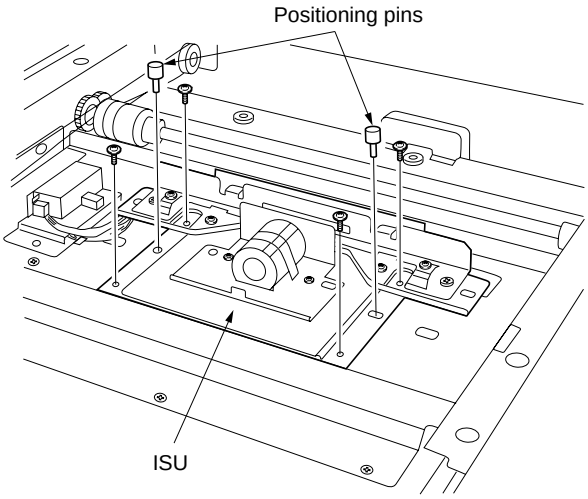
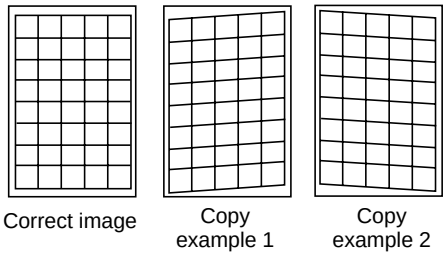


Figure 1-6-49

(6) Adjusting the position of the ISU (reference)
Perform the following adjustment if the leading and trailing edges of the copy image are laterally skewed (lateral squareness not obtained).

Caution:
- Be sure to perform “(4-1) Adjusting the skew of the laser scanner unit” (page 1-6-22) first.
- Before making the following adjustment, output a VTC-PG2 pattern in maintenance item U993 to use as the original for the adjustment.

Procedure



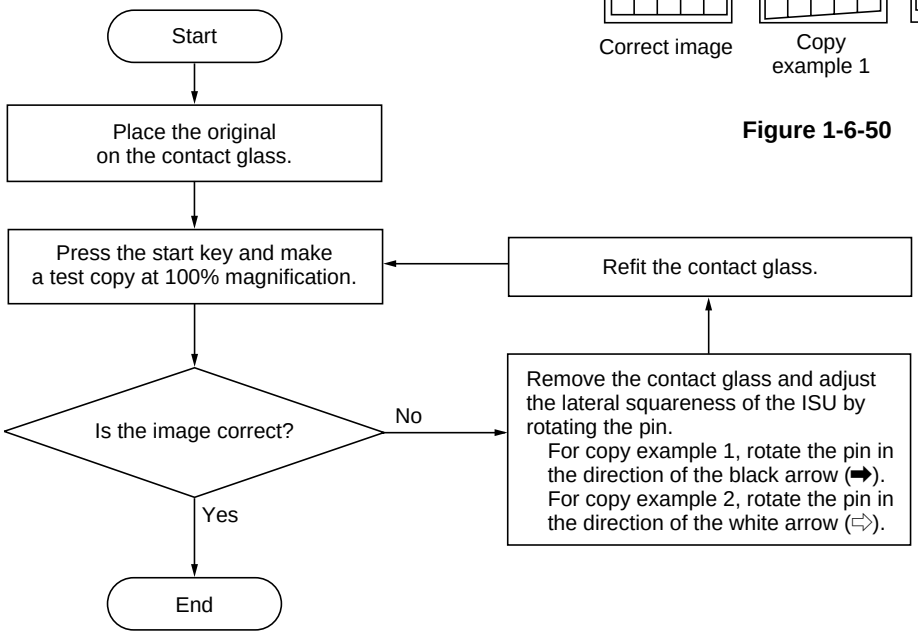


Figure 1-6-50

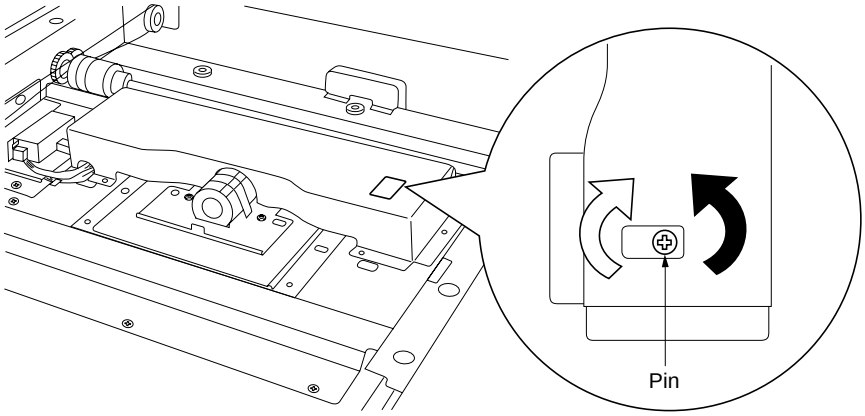


Figure 1-6-51

(7) Adjusting the longitudinal squareness (reference)
Perform the following adjustment if the copy image is longitudinally skewed (longitudinal squareness not obtained).

Caution:
- Adjust the amount of slack in the paper (page 1-6-14) first. Check for the longitudinal squareness of the copy image, and if it is not obtained, perform the longitudinal squareness adjustment.
- Before making the following adjustment, output a VTC-PG2 pattern in maintenance item U993 to use as the original for the adjustment.

Procedure

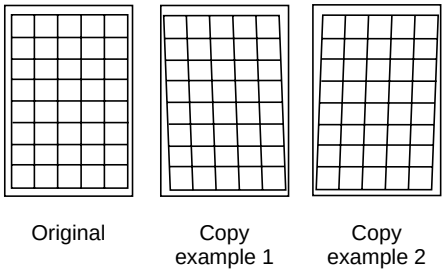
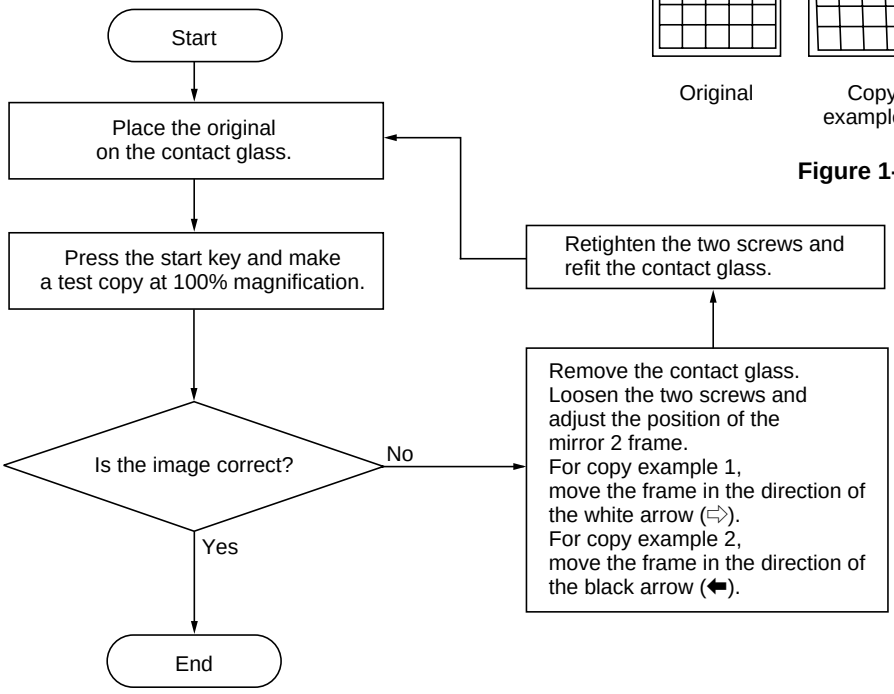


Figure 1-6-52



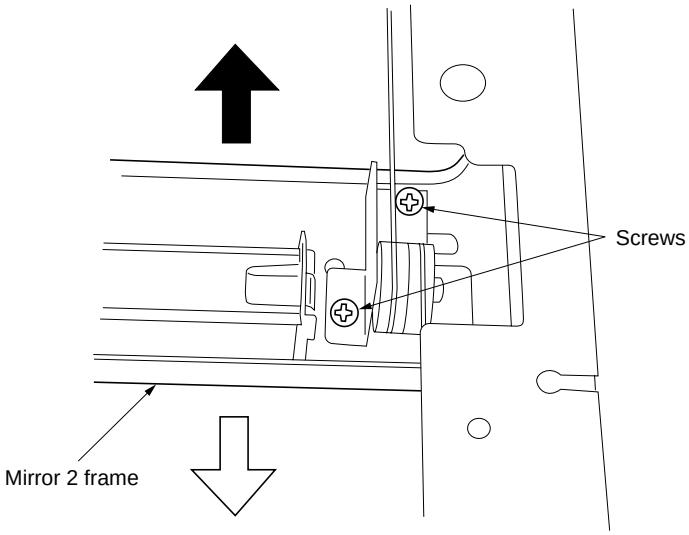
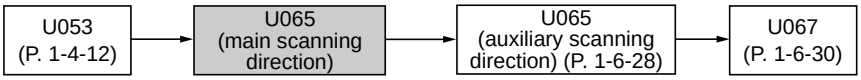


Figure 1-6-53

(8) Adjusting magnification of the scanner in the main scanning direction

Perform the following adjustment if the magnification in the main scanning direction is not correct.



Caution:

Before making the following adjustment, ensure that the above adjustments have been made in maintenance mode. Also, perform "(9) Adjusting magnification of the scanner in the auxiliary scanning direction" (page 1-6-28) and "(11) Adjusting the scanner center line" (page 1-6-30) after this adjustment.

Procedure

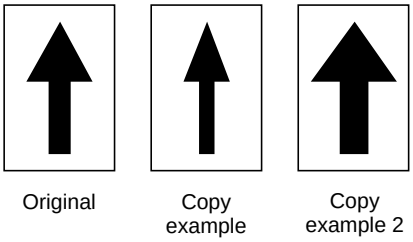
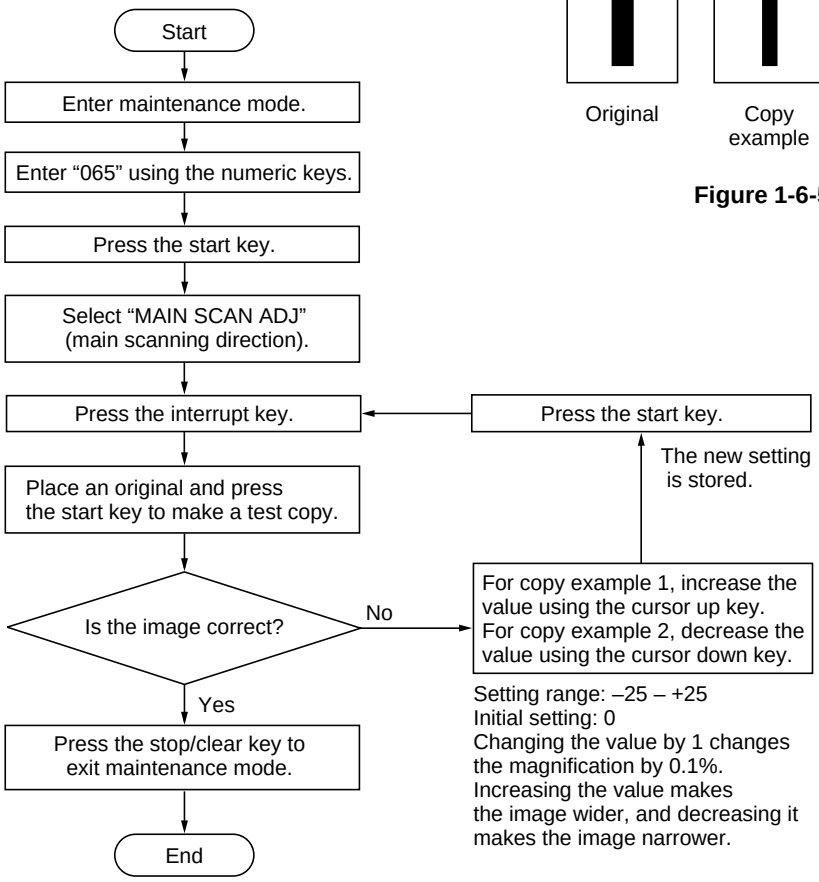
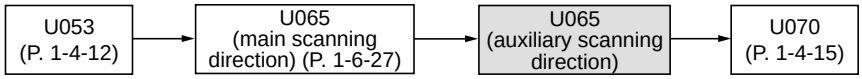


Figure 1-6-54



(9) Adjusting magnification of the scanner in the auxiliary scanning direction

Perform the following adjustment if the magnification in the auxiliary scanning direction is not correct.



Caution:

Before making the following adjustment, ensure that the above adjustments have been made in maintenance mode.

Procedure

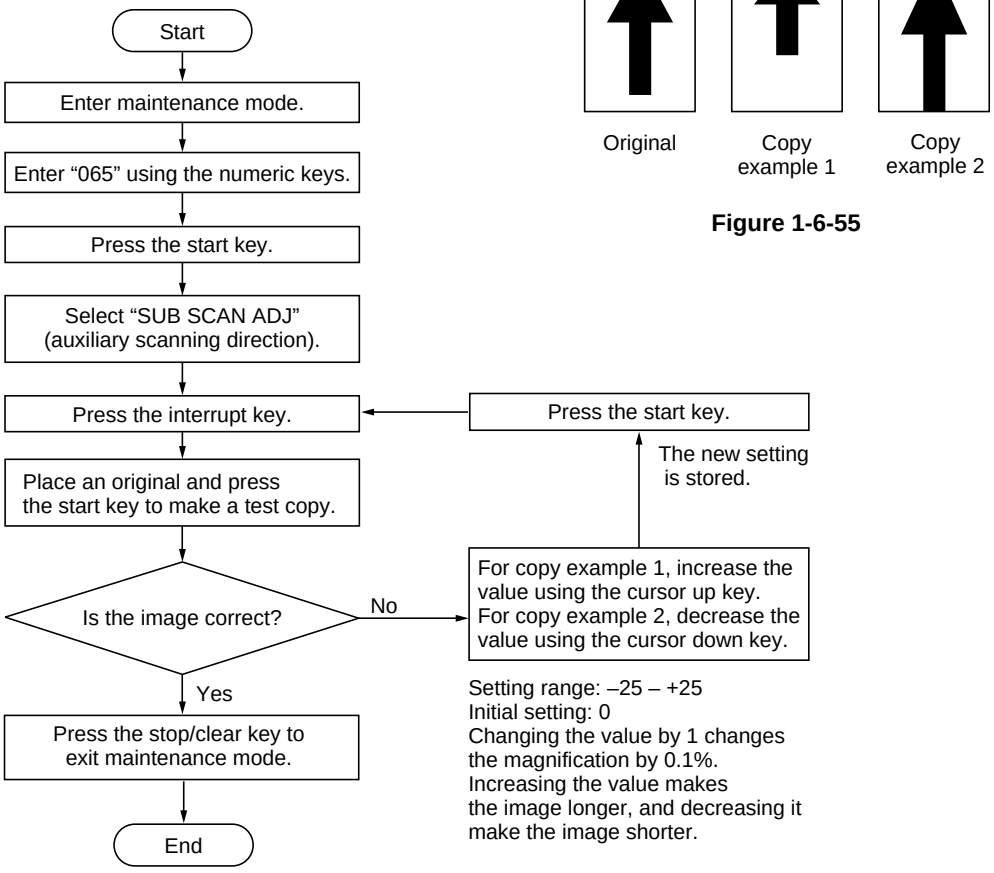
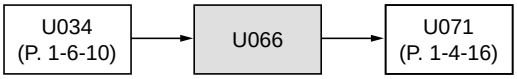


Figure 1-6-55

(10) Adjusting the scanner leading edge registration

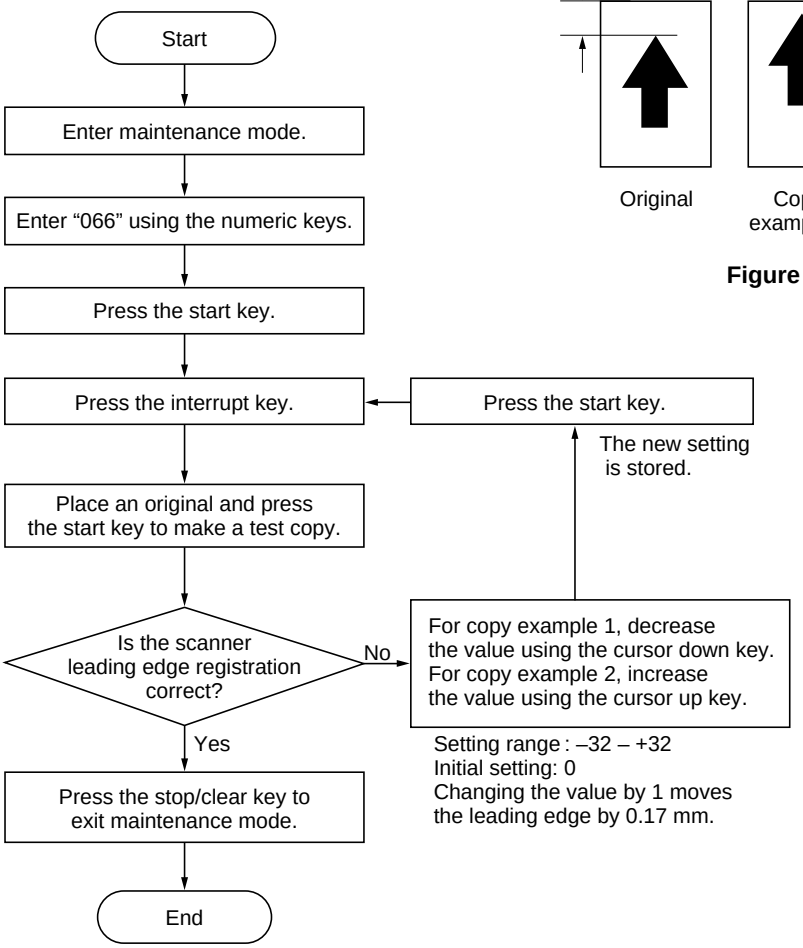
Perform the following adjustment if there is regular error between the leading edges of the copy image and original.



Caution:

Before making the following adjustment, ensure that the above adjustments have been made in maintenance mode.

Procedure



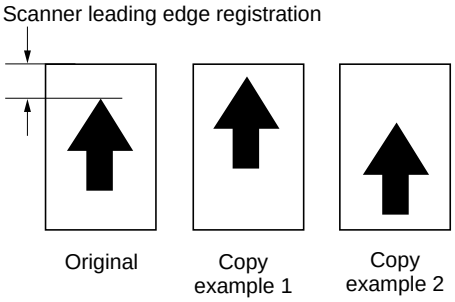
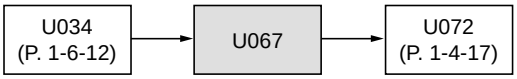


Figure 1-6-56

(11) Adjusting the scanner center line

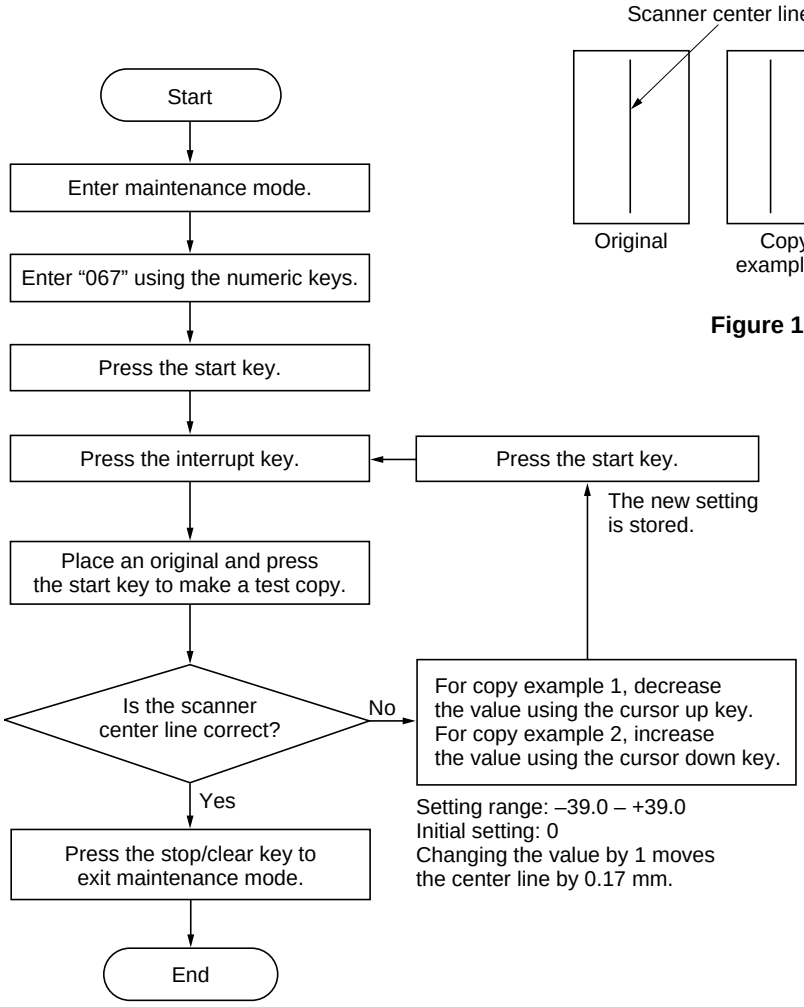
Perform the following adjustment if there is a regular error between the center lines of the copy image and original.



Caution:

Before making the following adjustment, ensure that the above adjustments have been made in maintenance mode.

Procedure



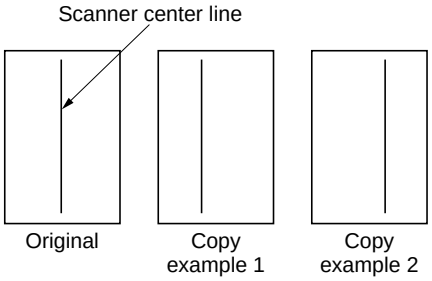
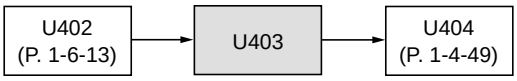


Figure 1-6-57

(12) Adjusting the margins for scanning an original on the contact glass

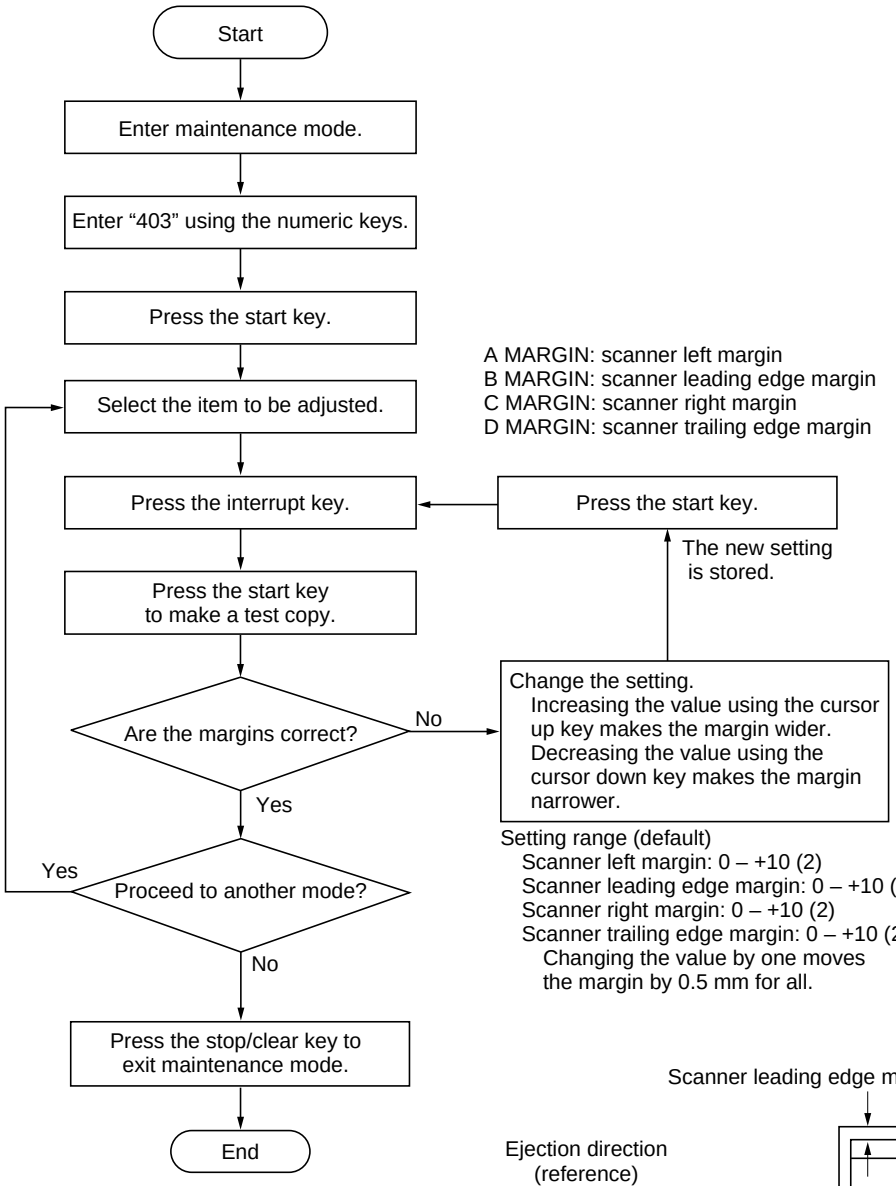
Perform the following adjustment if the margins are not correct.



Caution:

Before making the following adjustment, ensure that the above adjustments have been made in maintenance mode.

Procedure



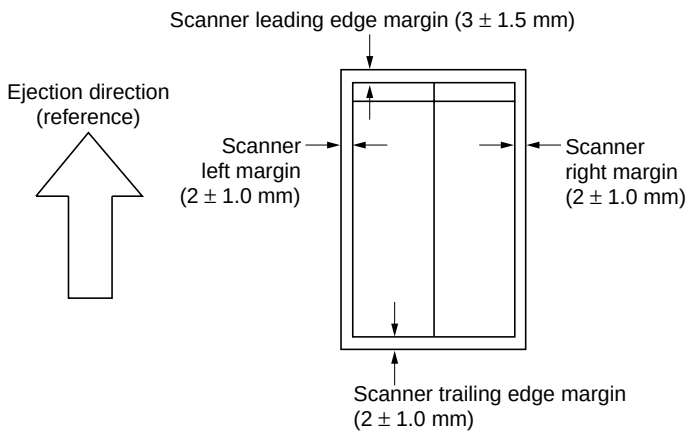


Figure 1-6-58

1-6-4 Drum section

(1) Detaching and refitting the drum unit
Follow the procedure below to replace the drum unit.

Cautions:
- Avoid direct sunlight or strong light when detaching and refitting the drum unit.
- Never touch the drum surface when holding the drum unit.

Procedure
1. Open the conveying cover and remove the developing unit (see page 1-6-34).
2. Remove the screws holding the drum unit and then the unit.
3. Replace the drum unit and refit all the removed parts.

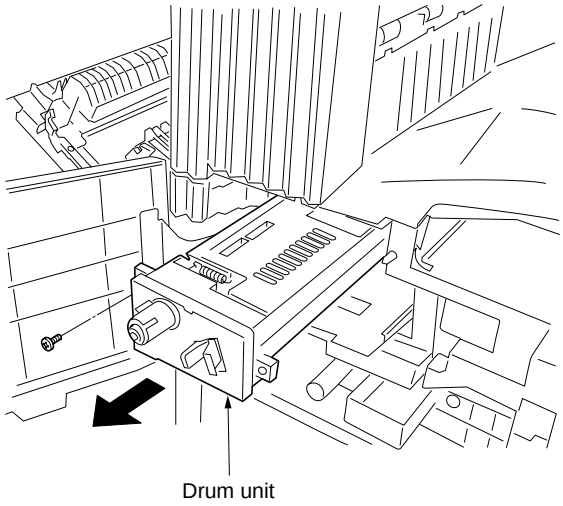


Figure 1-6-59

(2) Detaching and refitting the main charger unit
Follow the procedure below to replace the main charger unit.

Procedure
1. Open the front cover.
2. Pull out the main charger unit holding the knob.
3. While pushing the hole with a sharp-pointed object, remove the main charger unit.
4. Replace the main charger unit and refit all the removed parts.

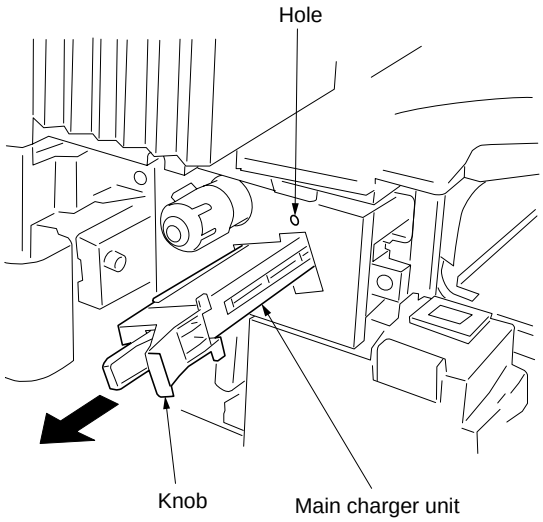


Figure 1-6-60

(3) Detaching and refitting the drum separation claw assemblies

Follow the procedure below to replace the drum separation claw assemblies.

Procedure

1. Remove the drum unit (see page 1-6-32).
2. Push the drum separation claw assemblies with the minus driver from the top of the corner hole and remove the claw assemblies.
3. Replace the drum separation claw assemblies and refit all the removed parts.

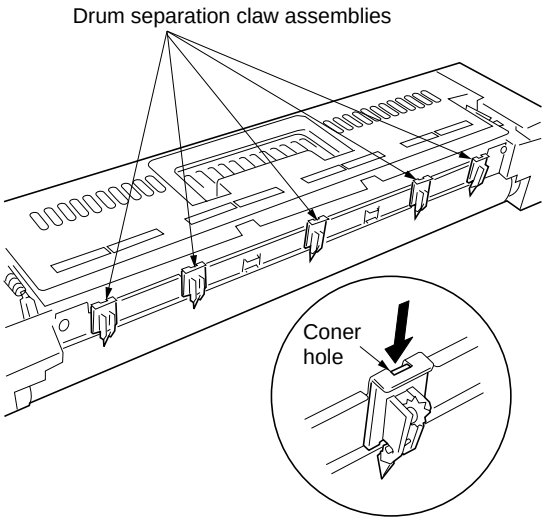


Figure 1-6-61

1-6-5 Developing section

(1) Detaching and refitting the developing unit
Follow the procedure below to replace the developing unit.

Procedure
1. Open the front cover.
2. Remove the toner container and toner disposal tank.
3. Remove the screw and turn the developing release lever in the direction of the arrow.

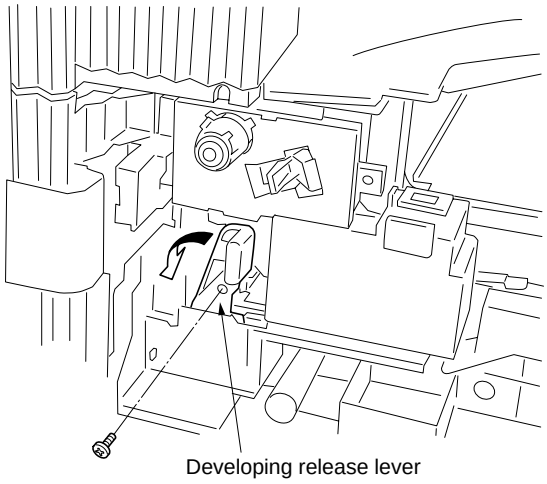


Figure 1-6-62

4. Remove the developing unit.
5. Replace the developing unit and refit all the removed parts.

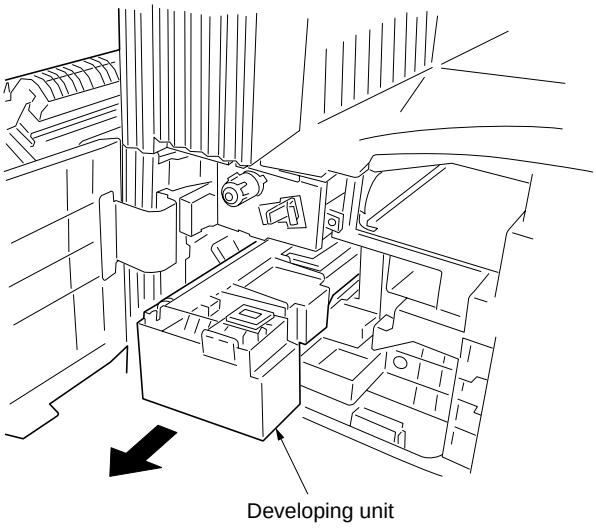


Figure 1-6-63

1-6-6 Transfer section

(1) Detaching and refitting the transfer roller assembly

Follow the procedure below to replace the transfer roller assembly.

Procedure

1. Open the conveying cover.
2. While holding down the projection, slide the transfer roller assembly toward the front to remove it.
3. Replace the transfer roller assembly and refit all the removed parts.

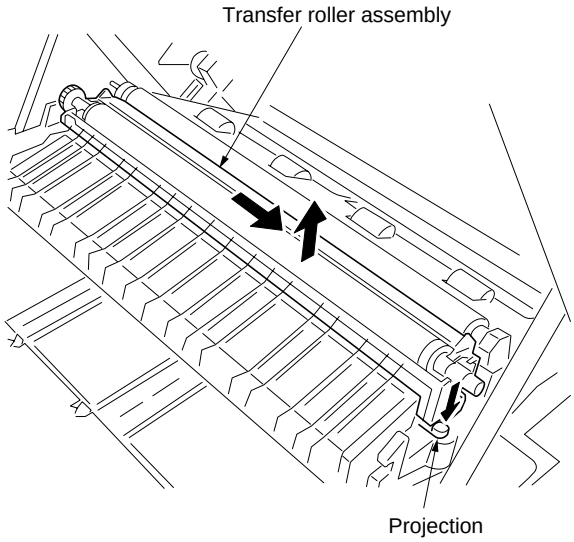


Figure 1-6-64

1-6-7 Fixing section

(1) Detaching and refitting the fixing unit

Follow the procedure below to check or replace the fixing unit.

Procedure

1. Open the front cover and conveying cover.
2. Remove the three screws holding the front left cover and then the cover.

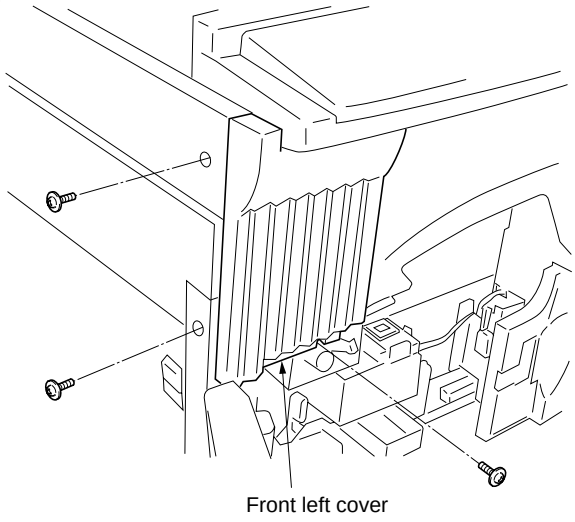


Figure 1-6-65

3. Remove the screw holding the fixing unit and then the unit.
4. Check or replace the transfer roller assembly and refit all the removed parts.

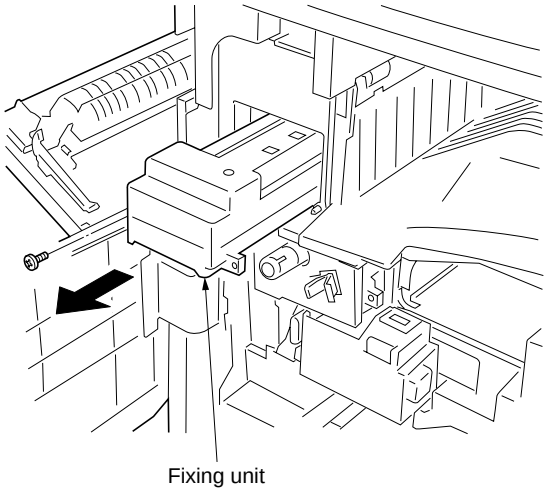


Figure 1-6-66

(2) Detaching and refitting the heat roller separation claws

Follow the procedure below to replace the heat roller separation claws.

Procedure

1. Remove the fixing unit.
2. Remove the two screws and detach the upper fixing cover while holding the four claws.

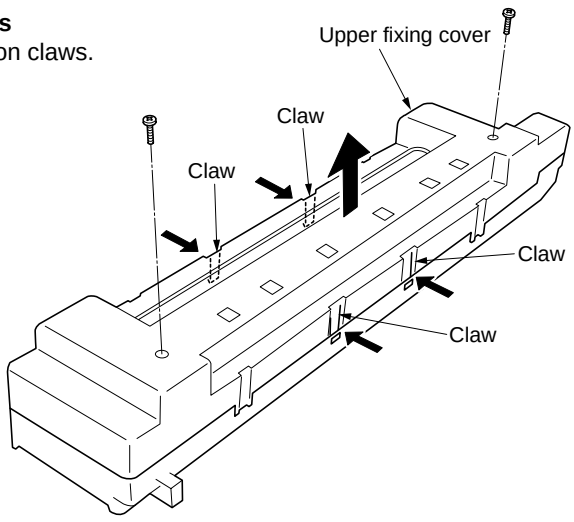


Figure 1-6-67

3. Remove the heat roller separation claws from the upper fixing cover.
4. Replace the heat roller separation claws and refit all the removed parts.

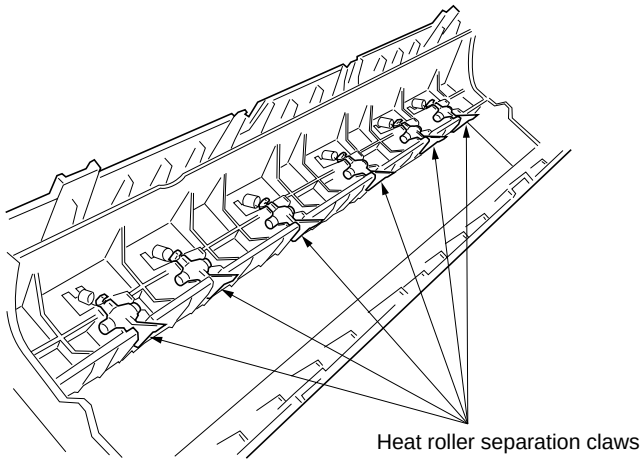


Figure 1-6-68

(3) Detaching and refitting the press roller

Follow the procedure below to replace the press roller.

Procedure

1. Remove the fixing unit (see page 1-6-36).
2. Remove the upper fixing cover (see page 1-6-36).
3. Remove the front and rear press springs.

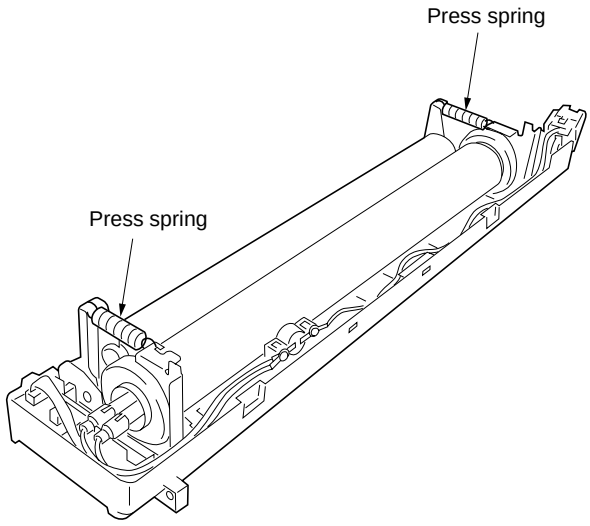


Figure 1-6-69

4. Detach the press roller from the fixing unit and remove the front and rear bearings.
5. Replace the press roller and refit all the removed parts.

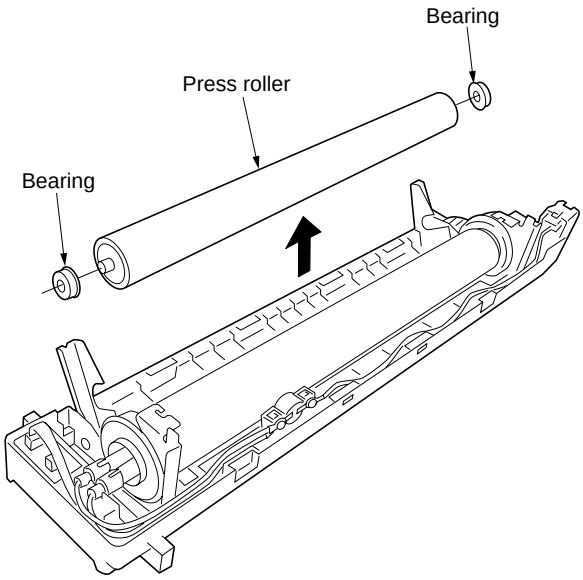


Figure 1-6-70

(4) Detaching and refitting the fixing heater M and S

Follow the procedure below to replace the fixing heater M and S.

Procedure

1. Remove the fixing unit (see page 1-6-36).
2. Remove the upper fixing cover (see page 1-6-36).
3. Remove the screw on the front of the fixing unit thermostat and two screws on the rear of the fixing unit.

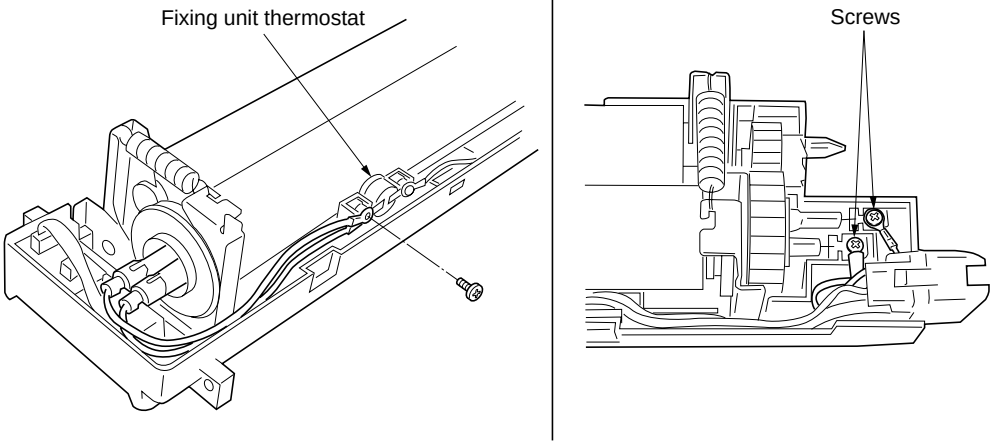


Figure 1-6-71

4. Pull out the fixing heater M and S from the fixing unit.

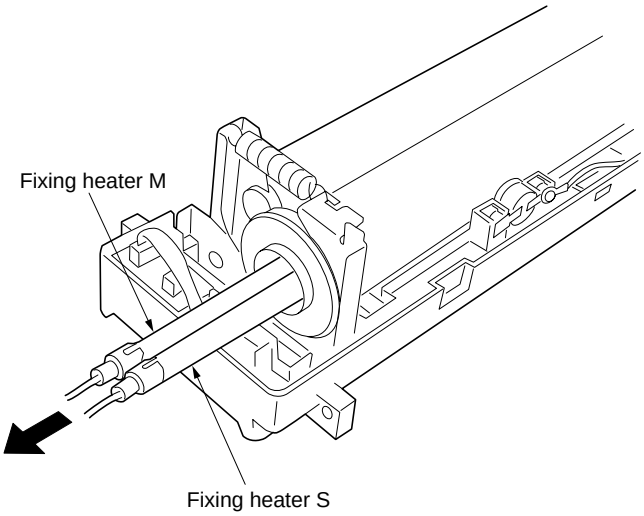


Figure 1-6-72

5. Replace the fixing heater M and S, and refit all the removed parts.
   * When refitting the fixing heaters, take care not to refit fixing heaters M and S to wrong positions. Refit fixing heater M (black wire) to the fixing unit housing with mark B and fixing heater S (white wire) to the housing with mark W.

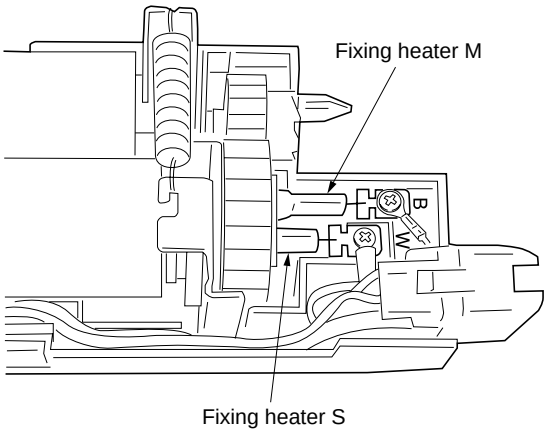


Figure 1-6-73

(5) Detaching and refitting the heat roller

Follow the procedure below to replace the heat roller.

Procedure

1. Remove the fixing unit (see page 1-6-36).
2. Remove the upper fixing cover (see page 1-6-36).
3. Remove the press roller and fixing heater M and S (see pages 1-6-37 and 38).
4. Remove the fixing gear.

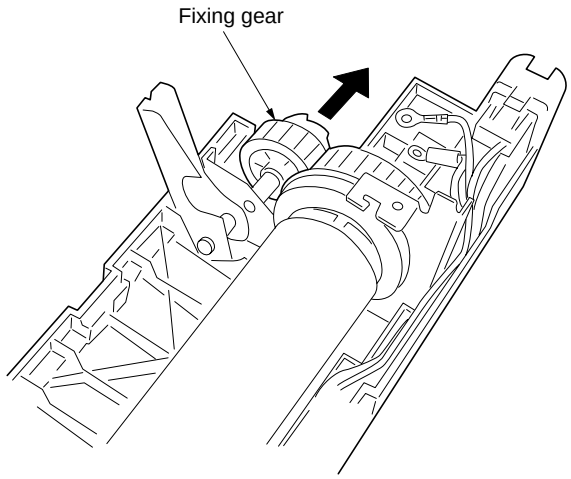


Figure 1-6-74

5. Detach the heat roller from the fixing unit. Remove the C ring, gear, bearing and bushing on the rear of the heat roller and then remove the C ring, bearing and bushing on the front.
6. Replace the heat roller and refit all the removed parts.

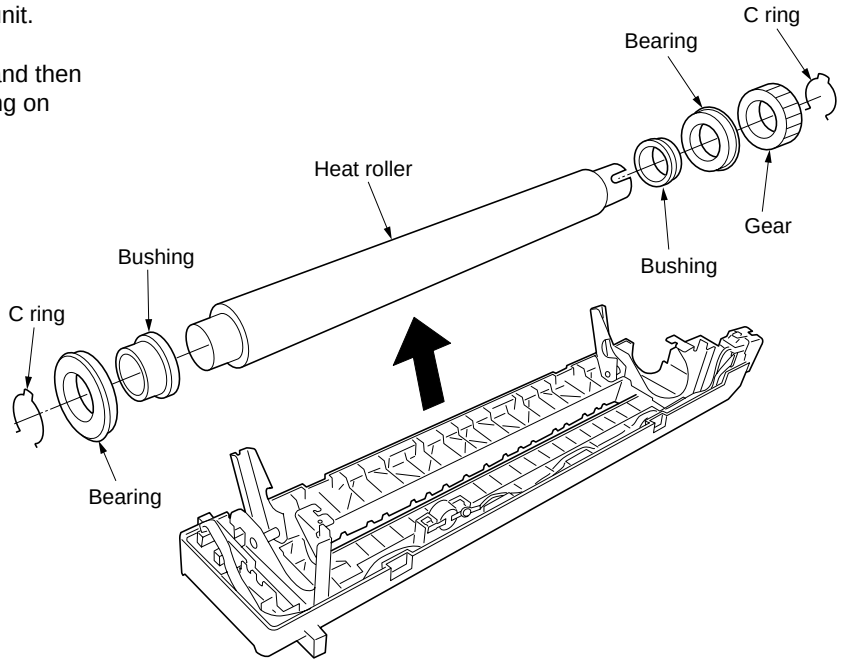


Figure 1-6-75

(6) Detaching and refitting the fixing unit thermistor

Follow the procedure below to replace the fixing unit thermistor.

Procedure

1. Remove the fixing unit (see page 1-6-36).
2. Remove the upper fixing cover (see page 1-6-36).
3. Disconnect the connector of the fixing unit thermistor.

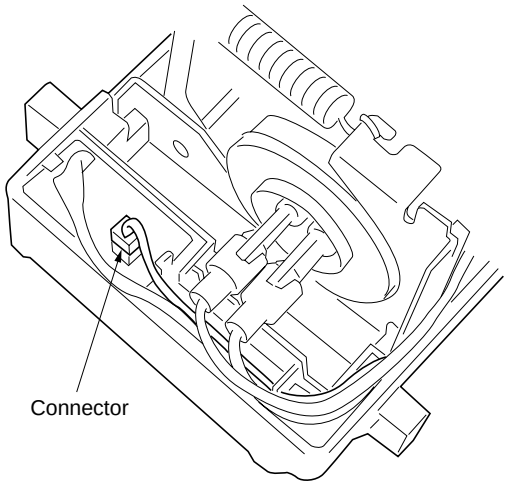


Figure 1-6-76

4. Remove the heat roller (see page 1-6-39).
5. Turn the fixing unit over and remove the screw to remove the fixing unit thermistor.

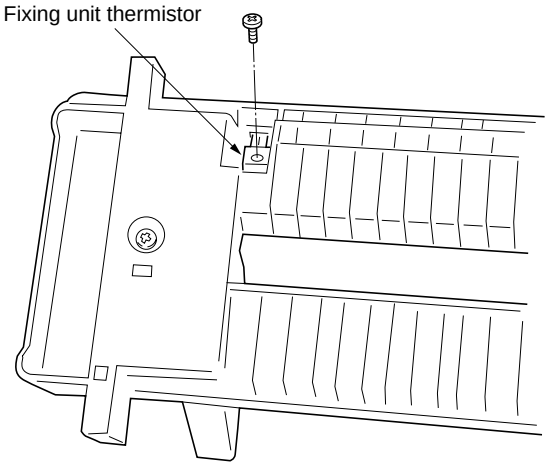


Figure 1-6-77

1-7-1 Upgrading the firmware on the main PCB

Firmware upgrading requires the following tools:
Compact Flash (Products manufactured by SANDISK are recommended.)

NOTE
When writing data to a new Compact Flash from a computer, be sure to format it in advance.
(For formatting, insert a Compact Flash and select a drive.)
For a desktop computer, connect a Compact Flash card reader/writer to it. For a notebook computer, use a PC card adapter or a connection portion only for Compact Flash.

Procedure

1. Turn the main switch off and disconnect the power plug.
2. Remove the middle right cover.
   Insert it with its rear side toward the front side of the machine.
3. Insert Compact Flash in a notch hole of the copier.
4. Insert the power plug and turn the main switch on. Upgrading firmware starts for 3 minutes.
   Caution:
   Never turn the main switch off during upgrading.
5. "Completed" is displayed on the touch panel when upgrading is complete.
6. Turn the main switch off and disconnect the power plug.
7. Remove Compact Flash from the copier and refit the middle right cover.
8. Insert the power plug and turn the main switch on.

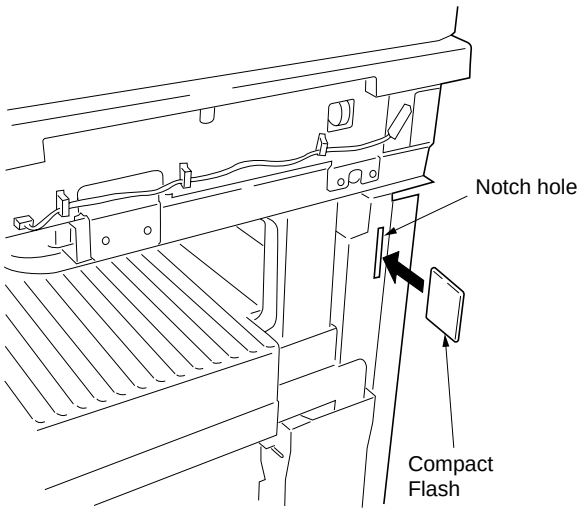


Figure 1-7-1

1-7-2 Replacing the backup ROM

Replacing the backup ROM requires the following tools:
ROM replacing tool

Procedure

1. Insert the claw of the ROM replacing tool into the groove of the backup ROM.
2. Press the ROM replacing tool from both the right and the left sides. The backup ROM is removed.
3. Replace the backup ROM.

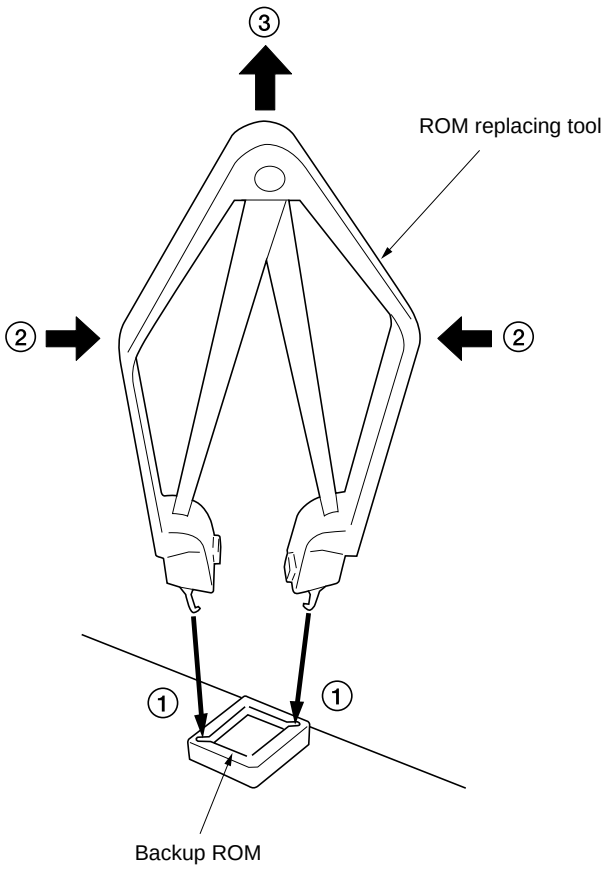


Figure 1-7-3

1-7-3 Adjustment-free variable resistors (VR)

The variable resistors listed below are set at the factory prior to shipping and cannot be adjusted in the field.
• High-voltage transformer PCB: VR42, VR201, VR204, VR205
• Inverter PCB: VR1, VR2

2-1-1 Paper feed section

The paper feed section consists of the primary feed and secondary feed subsections. Primary feed conveys paper from the upper drawer, lower drawer or bypass tray to the left and right registration rollers, at which point secondary feed takes place and the paper travels to the transfer section in sync with the printing timing.

Each drawer consists of a lift driven by the lift motor and other components. Each drawer can hold up to 500 sheets of paper. Paper is fed from the drawer by the rotation of the forwarding pulley and paper feed pulley. The separation pulley prevents multiple sheets from being fed at one time, via the torque limiter.

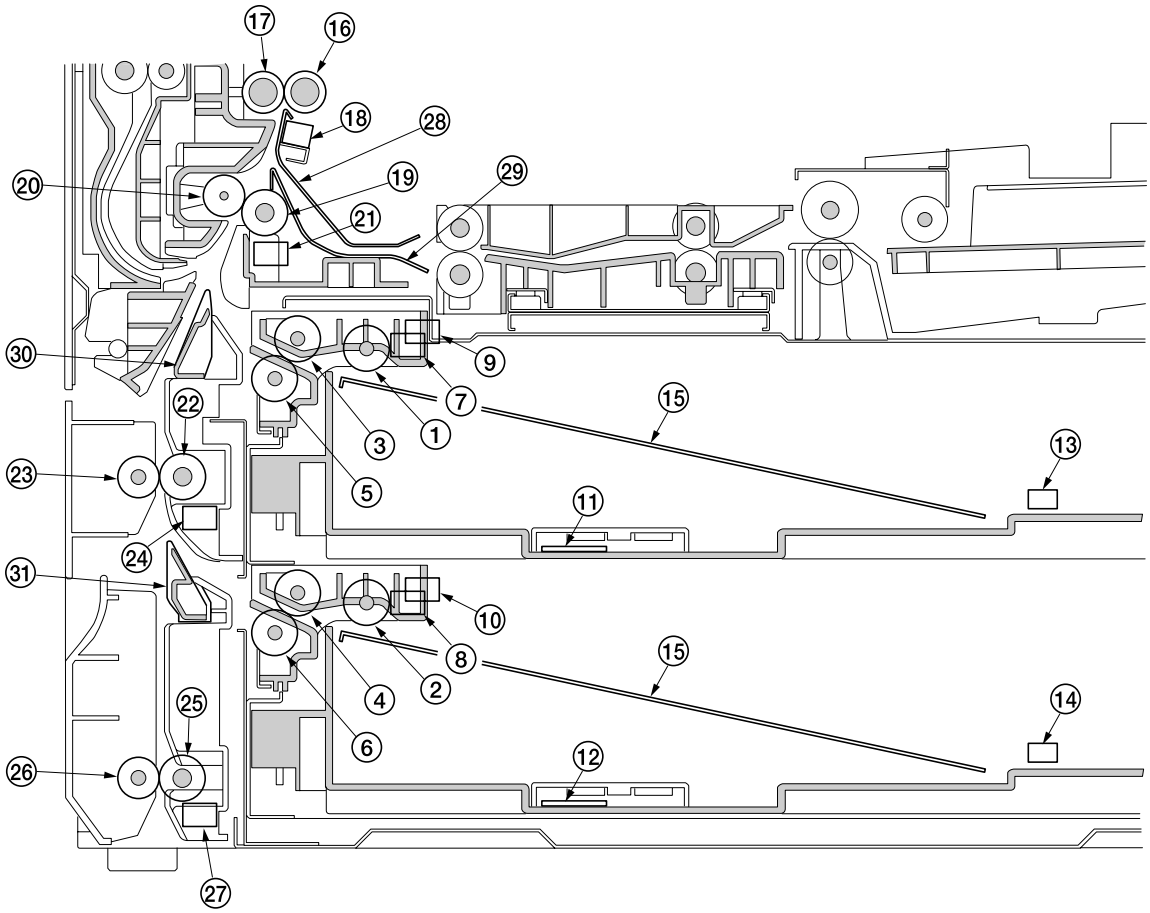


Figure 2-1-1 Paper feed from the upper and lower drawers

① Upper forwarding pulley
② Lower forwarding pulley
③ Upper paper feed pulley
④ Lower paper feed pulley
⑤ Upper separation pulley
⑥ Lower separation pulley
⑦ Upper paper switch (PSW-U)
⑧ Lower paper switch (PSW-L)
⑨ Upper lift limit switch (LICSW-U)
⑩ Lower lift limit switch (LICSW-L)
⑪ Upper paper width switch (PWSW-U)
⑫ Lower paper width switch (PWSW-L)
⑬ Upper paper length switch (PLSW-U)
⑭ Lower paper length switch (PLSW-L)
⑮ Drawer lift
⑯ Right registration roller
⑰ Left registration roller
⑱ Registration switch (RSW)
⑲ Feed roller 1
⑳ Feed pulley
㉑ Feed switch 1 (FSW1)
㉒ Feed roller 2
㉓ Feed pulley
㉔ Feed switch 2 (FSW2)
㉕ Feed roller 3
㉖ Feed pulley
㉗ Feed switch 3 (FSW3)
° Front registration guide
㉙ Paper conveying guide
㉚ Vertical paper conveying guide 1
㉛ Vertical paper conveying guide 2

The bypass table can be hold up to 100 sheets of paper at one time. Paper is fed from the bypass table by the rotation of the bypass forwarding pulley and bypass paper feed pulley. Also during paper feed, the bypass separation pulley prevents multiple sheets from being fed at one time by the torque limiter.

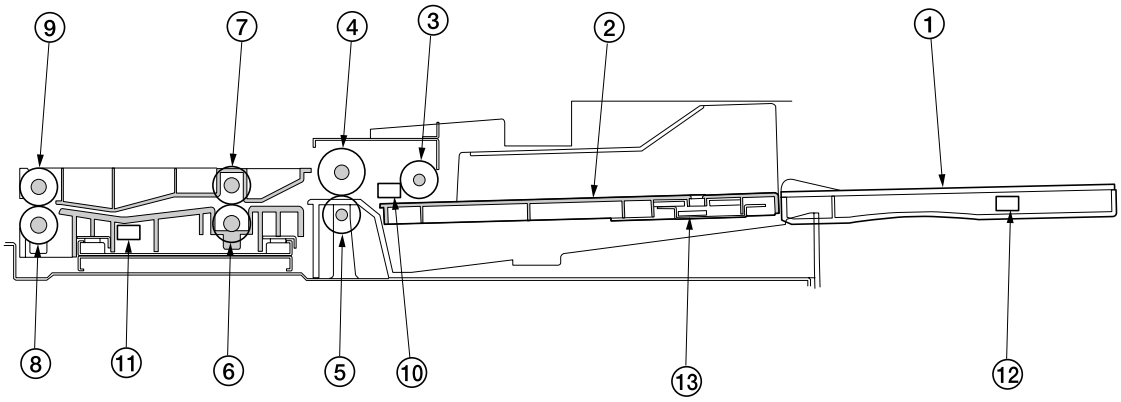


Figure 2-1-2 Paper feed from the bypass table

① Bypass table
② Bypass lift guide
③ Bypass forwarding pulley
④ Bypass paper feed pulley
⑤ Bypass separation pulley
⑥ Bypass feed roller 1
⑦ Bypass feed pulley
⑧ Bypass feed roller 2
⑨ Bypass feed pulley
⑩ Bypass paper switch (BYPPSW)
⑪ Bypass feed switch (BYPFSW)
⑫ Bypass paper length switch (BYPPLSW)
⑬ Bypass paper width switch (BYPPWSW)

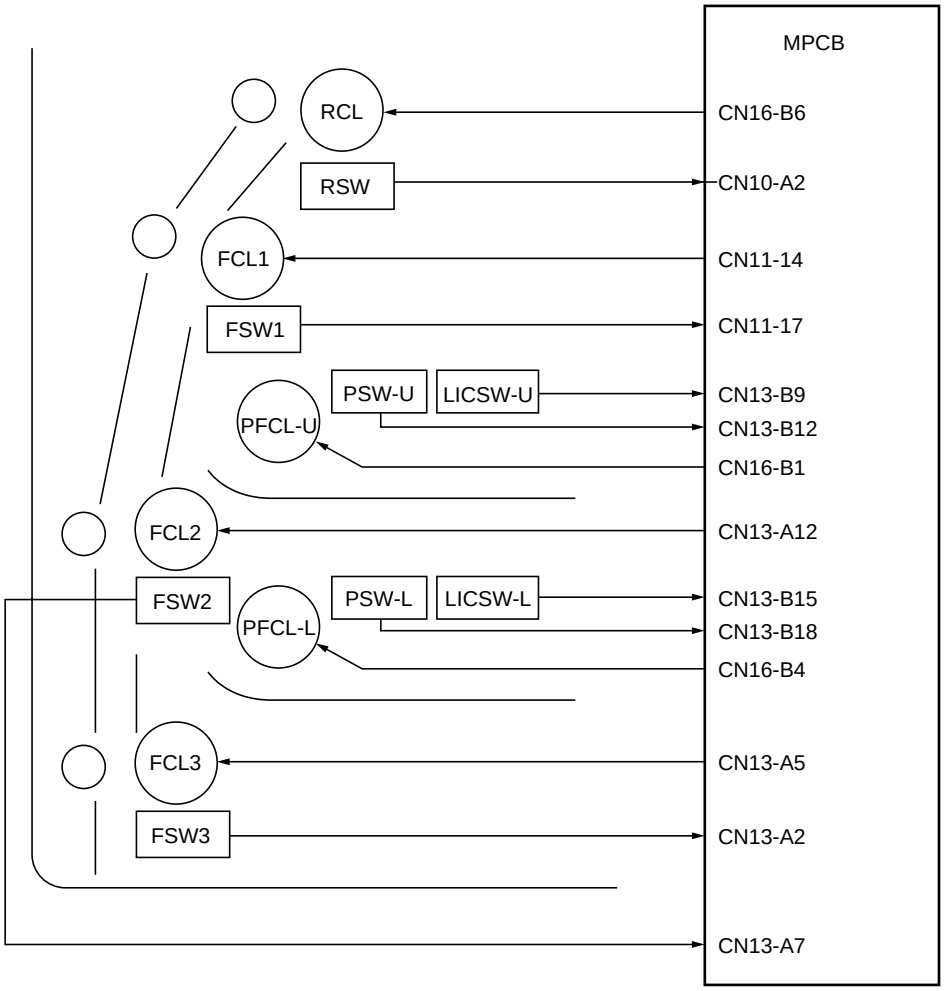


Figure 2-1-3 Paper feed section block diagram (upper and lower drawers)

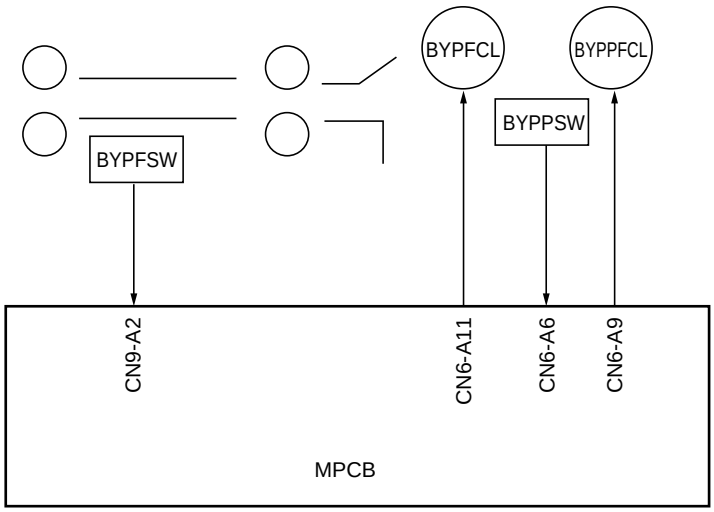
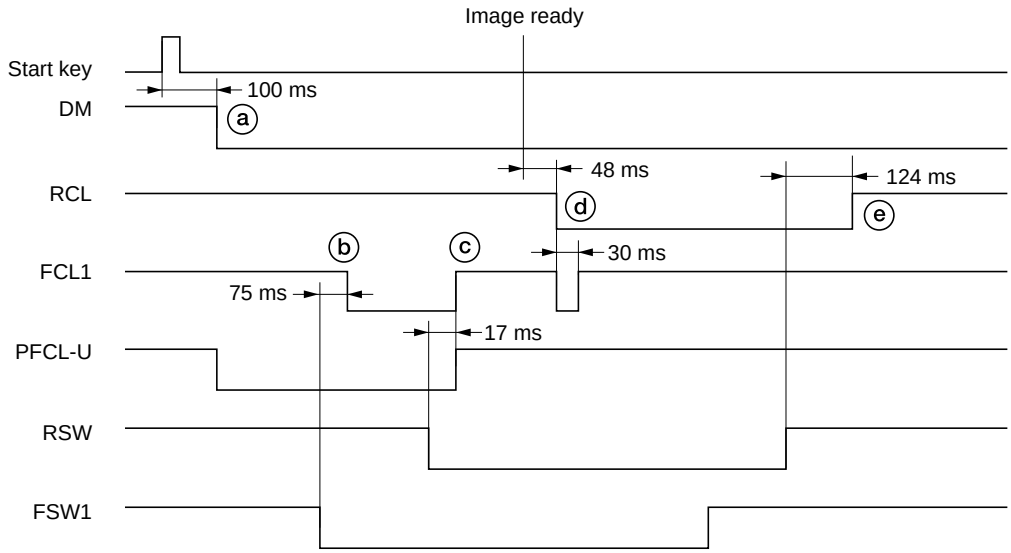
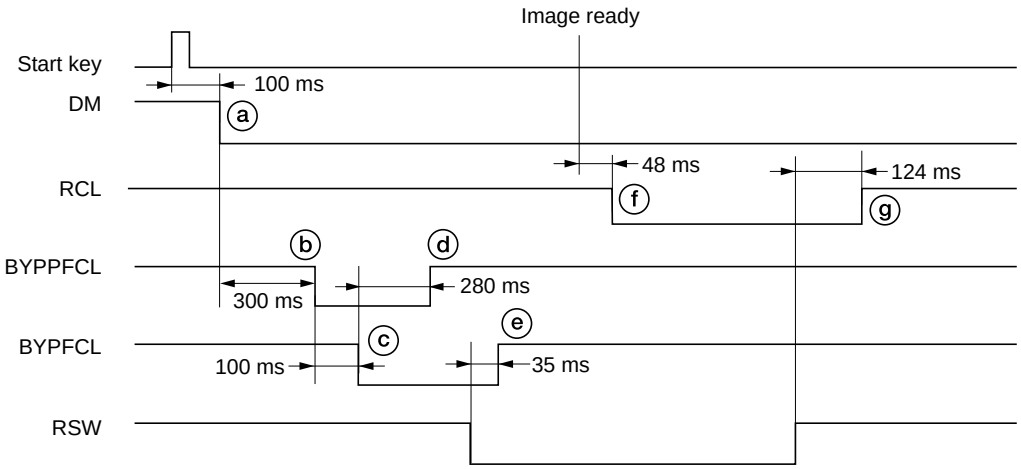


Figure 2-1-4 Paper feed section block diagram (bypass table)



Timing chart 2-1-1 Paper feed from the upper drawer

ⓐ:100 ms after the start key is pressed, the drive motor (DM) turns on to start the drive for the paper feed section. At the same time, the upper paper feed clutch (PFCL-U) turns on, and the forwarding and paper feed pulleys rotate to start primary paper feed.
ⓑ:75 ms after the leading edge of the paper turns the feed switch 1 (FSW1) on, the feed clutch 1 (FCL1) turns on and the feed roller 1 rotates.
ⓒ:17 ms after the leading edge of the paper turns the registration switch (RSW) on, the upper paper feed clutch (PFCL-U) and feed clutch 1 (FCL1) turn off.
ⓓ: 48 ms after image ready signal turns on, the registration clutch (RCL) turns on, and the right registration roller rotates to start secondary paper feed. At the same time, feed clutch 1 (FCL1) turns on for 30 ms.
ⓔ: 124 ms after the trailing edge of the paper turns the registration switch (RSW) off, the registration clutch (RCL) turns off.



Timing chart 2-1-2 Paper feed from the bypass tray

ⓐ: 100 ms after the start key is pressed, the drive motor (DM) turns on to start the drive for the paper feed section.
ⓑ: 300 ms after the drive motor (DM) turns on, the bypass paper feed clutch (BYPPFCL) turns on.
ⓒ: 100 ms after the bypass paper feed clutch (BYPPFCL) turns on, the bypass feed clutch (BYPFCL) turns on.
ⓓ: 280 ms after the bypass feed clutch (BYPFCL) turns on, the bypass paper feed clutch (BYPPFCL) turns off.
ⓔ: 35 ms after the registration switch (RSW) turns on, the bypass feed clutch (BYPFCL) turns off.
ⓕ: 48 ms after image ready signal turns on, the registration clutch (RCL) turns on, and the right registration roller rotates to start secondary paper feed.
ⓖ:124 ms after the trailing edge of the paper turns the registration switch (RSW) off, the registration clutch (RCL) turns off.

2-1-2 Main charging section

The main charging section consists of the main charger assembly, drum and so on. The drum is electrically charged uniformly by means of a grid to form a latent image on the surface.
The main charger unit charges the drum so that a latent image is formed on the surface, the shield grid ensuring the charge is applied uniformly.

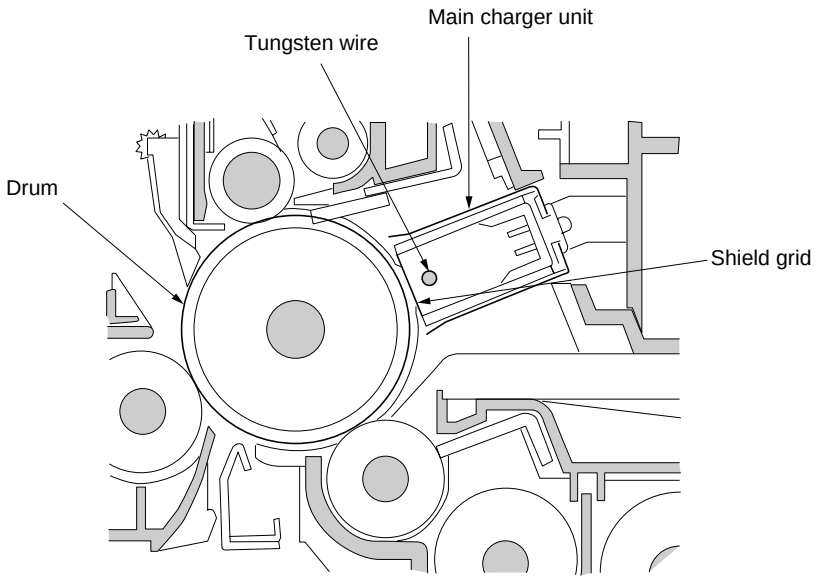


Figure 2-1-5 Main charging section

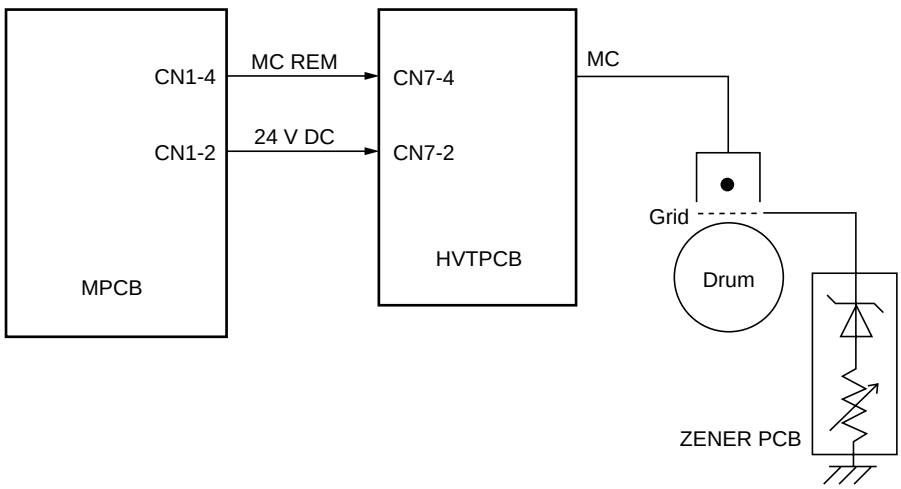
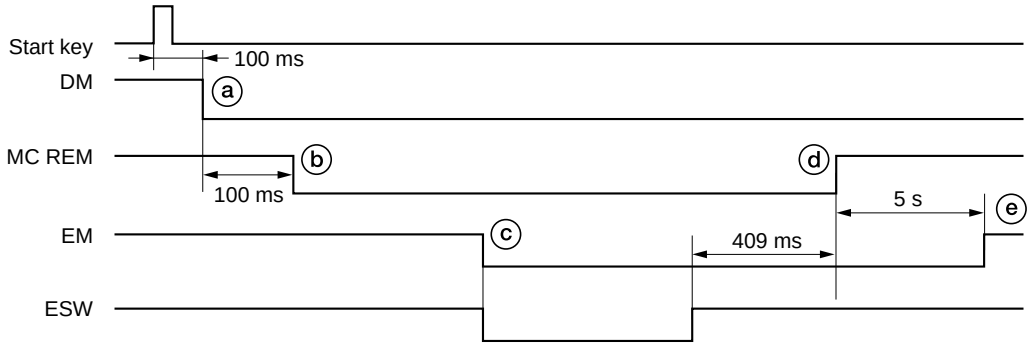


Figure 2-1-6 Main charging section block diagram



Timing chart 2-1-3 Main charging section operation

ⓐ:100 ms after the start key is pressed, the drive motor (DM) turns on.
ⓑ:100 ms after the drive motor (DM) turns on, main charging (MC REM) starts.
ⓒ:The leading edge of the paper turns on the eject switch (ESW), and at the same time the eject motor (EM) turns on.
ⓓ:409 ms after the paper is ejected and the eject switch (ESW) turns off, main charging (MC REM) ends.
ⓔ: 5 s after the end of main charging (MC REM), the eject motor (EM) turns off.

2-1-3 Optical section

The optical section consists of the scanner, mirror frame and image scanning unit for scanning and the laser scanner unit for printing.

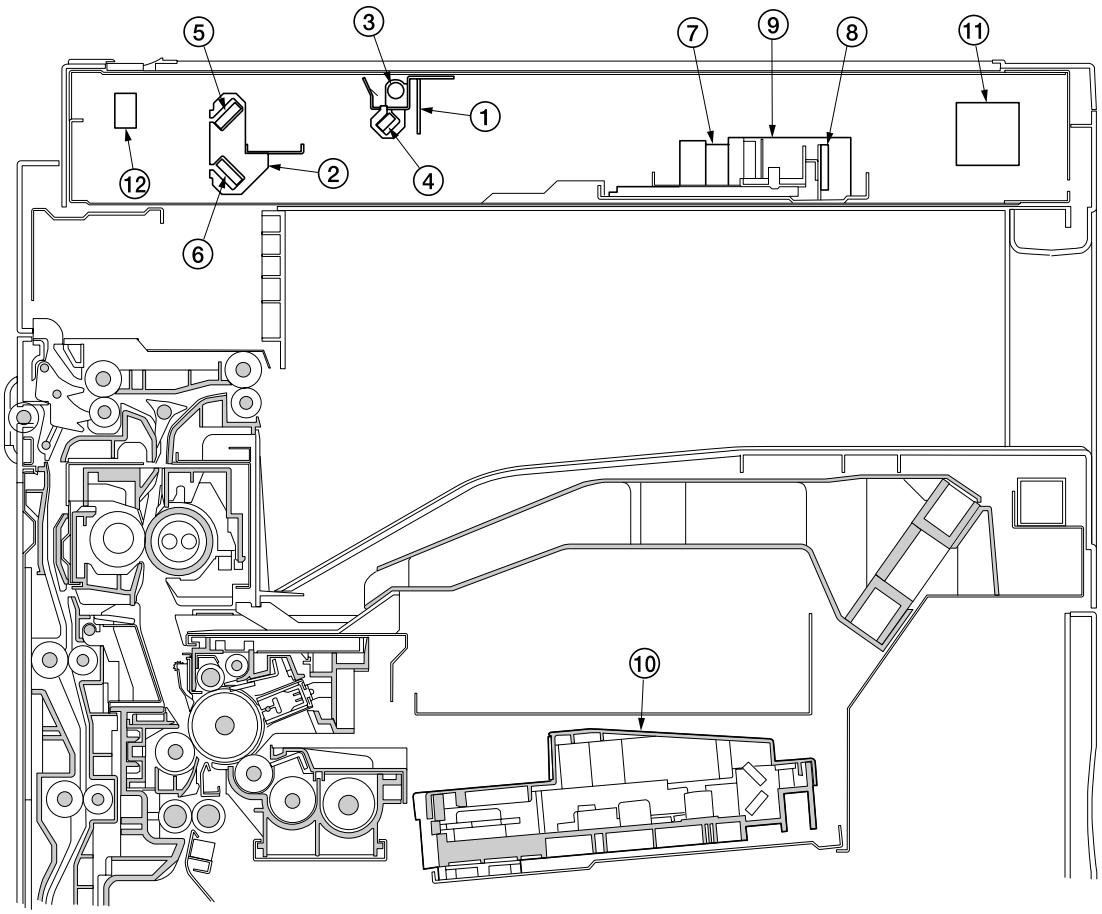


Figure 2-1-7 Optical section

① Mirror 1 frame
② Mirror 2 frame
③ Exposure lamp (EL)
④ Mirror 1
⑤ Mirror 2
⑥ Mirror 3
⑦ Lens
⑧ CCD PCB (CCDPCB)
⑨ Image scanning unit
⑩ Laser scanner unit (LSU)
⑪ Scanner motor (SM)
⑫ Scanner home position switch (SHPSW)

(1) Original scanning

The original image is illuminated by the exposure lamp (EL) and scanned by the CCD PCB (CCDPCB) in the image scanning unit via the three mirrors, the reflected light being converted to an electrical signal.
The scanner and mirror frames travel to scan on the optical rails on the front and rear of the machine to scan from side to side. The speed of the mirror frames is half the speed of the scanner.
When the DF* is used, the scanner and mirror frames stop at the DF original scanning position to start scanning.
* Optional.

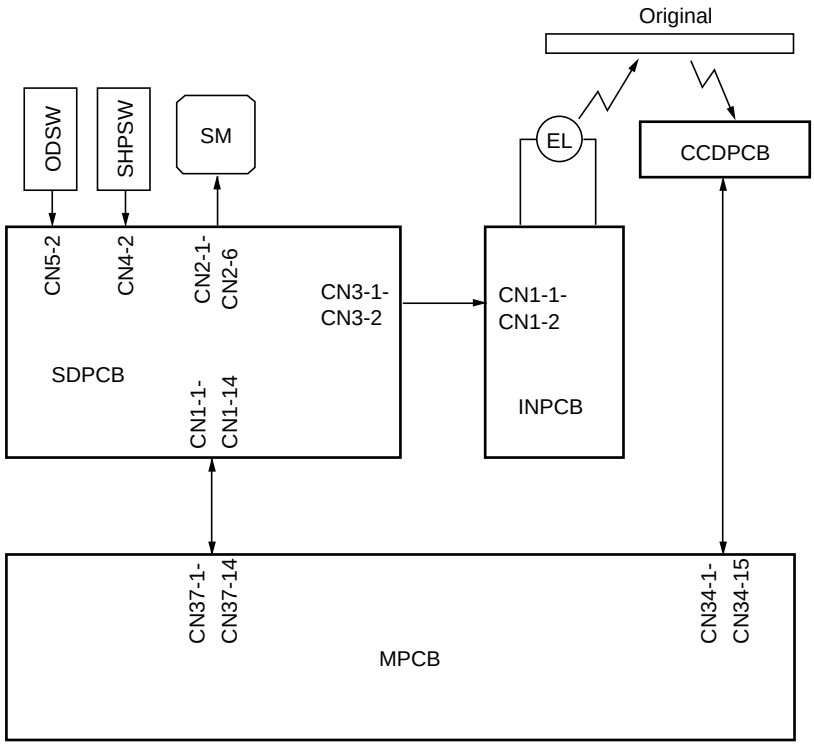
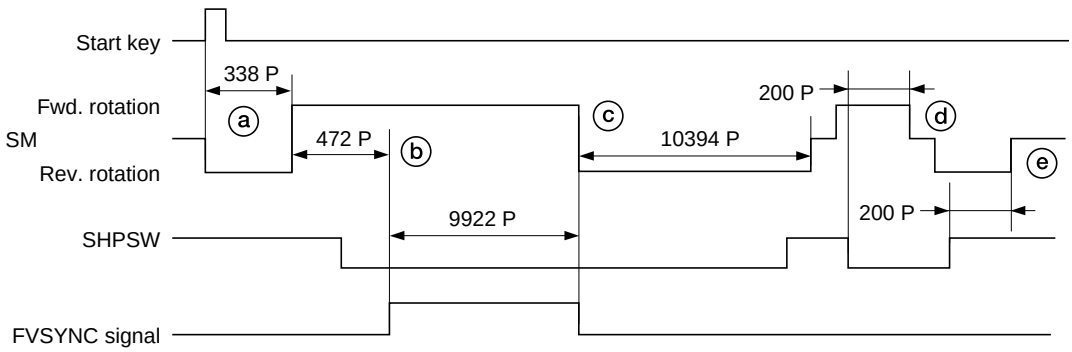


Figure 2-1-8 Optional section block diagram



Timing chart 2-1-4 Scanner operation

ⓐ: When the start key is pressed, the scanner motor (SM) reverses for 338 pulses and then rotates forward.
ⓑ: 472 pulses after the scanner motor (SM) starts rotating forward, the FVSYNC signal turns on for 9922 pulses for scanning.
ⓒ: The scanner motor (SM) reverses for 10394 pulses and then rotates forward.
ⓓ: 200 pulses after the scanner home position switch (SHPSW) turns on, the scanner motor (SM) reverses.
ⓔ: 200 pulses after the scanner home position switch (SHPSW) turns off, the scanner motor (SM) turns off, and the scanner stops at its home position.

(2) Image printing

The image data scanned by the CCD PCB (CCDPCB) is processed on the main PCB (MPCB) and transmitted as image printing data to the laser scanner unit (LSU). By repeatedly turning the laser on and off, the laser scanner unit forms a latent image on the drum surface.

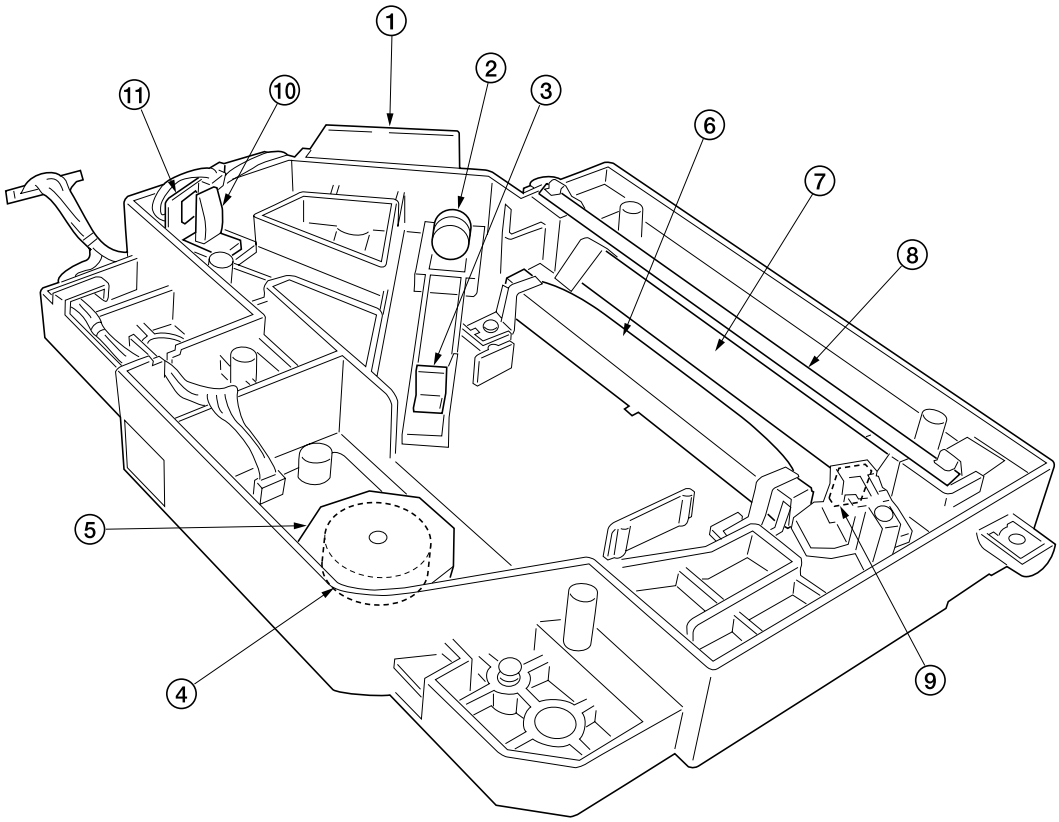


Figure 2-1-9 Laser scanner unit (1)

① Laser diode PCB (LDPCB)
② Collimator lens
③ Cylindrical lens
④ Polygon motor (PM)
⑤ Polygon mirror
⑥ fq lens
⑦ Mirror
⑧ Mirror
⑨ BD sensor mirror
⑩ Cylindrical correcting lens
⑪ BD sensor

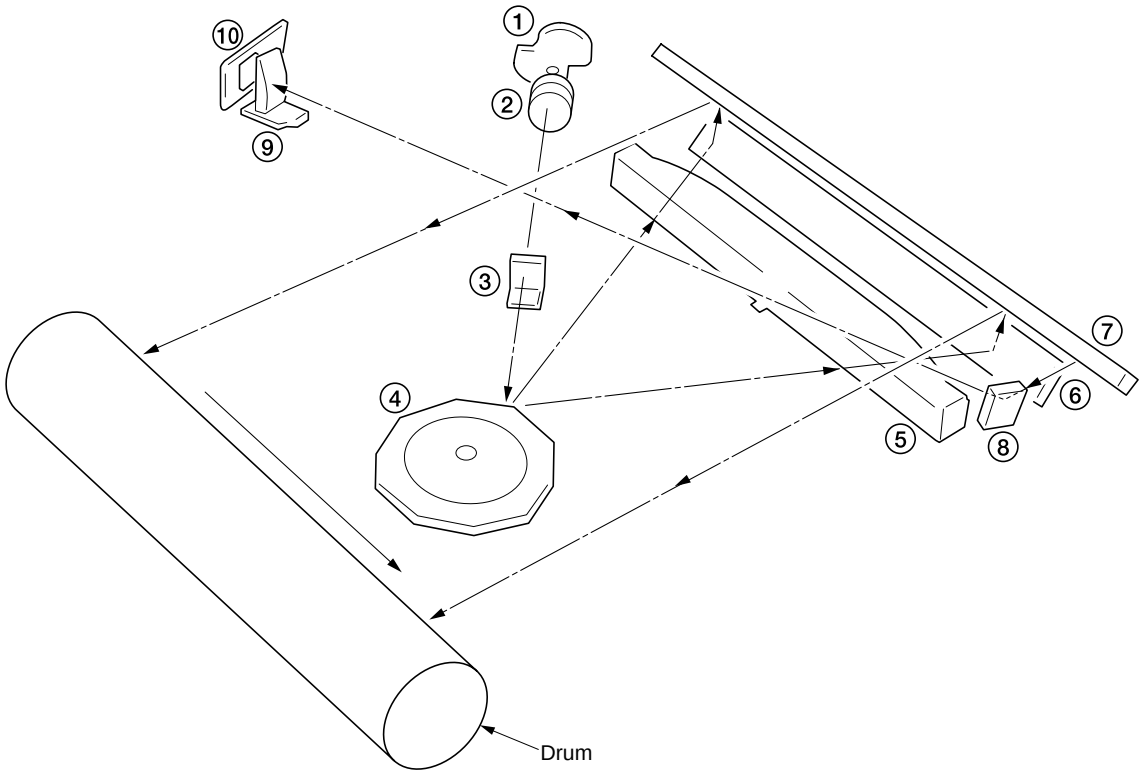


Figure 2-1-10 Laser scanner unit (2)

① Laser diode: Generates the laser beam which forms a latent image on the drum.
② Collimator lens: Collimates the diffused laser beam emitted from the laser diode to convert it into a cylindrical beam.
③ Cylindrical lens: Shapes the collimated laser beam to suit the printing resolution.
④ Polygon mirror: Six-facet mirror that rotates at approximately 28031 rpm with each face reflecting the laser beam toward the drum for one main-direction scan.
⑤ Fq lens: Corrects for non-linearity of the laser beam scanning speed on the drum surface, keeps the beam diameter constant and corrects for the vertical alignment of the polygon mirror to ensure that the focal plane of the laser beam is on the drum surface.
⑥ Mirror: Reflects the laser beam and changes the irradiation direction.
⑦ Mirror: Reflects the laser beam and changes the irradiation direction.
⑧ BD sensor mirror: Reflects the laser beam to the BD sensor to generate the main-direction (horizontal) sync signal.
⑨ Cylindrical correcting lens: Corrects for the deviation of the laser beam reflected by the BD sensor mirror to the BD sensor.
⑩ BD sensor: Detects the beam reflected by the BD sensor mirror, outputting a signal to the main PCB (MPCB) to provide timing for the main-direction sync signal.

The dimensions of the laser beam are as shown in Figure 2-1-11.

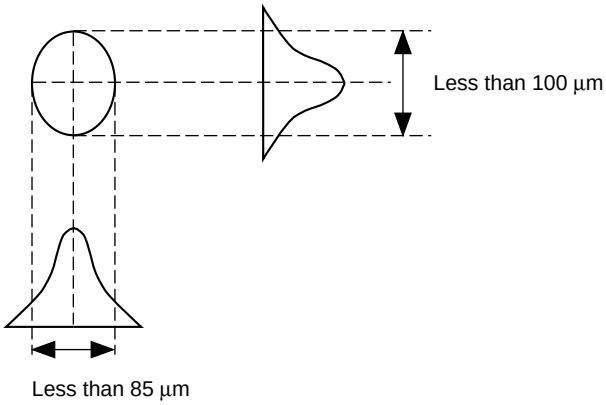


Figure 2-1-11

Scanning in the main direction is provided by the rotating polygon mirror, while scanning in the auxiliary direction is provided by the rotating drum, forming a static latent image on the drum.
The static latent image of the letter “A”, for example, is formed on the drum surface as shown in Figure 2-1-12. Electrical charge is dissipated on the area of the drum surface irradiated by the laser.
The focal point of the laser beam is moved line by line, and adjacent lines slightly overlap each other.

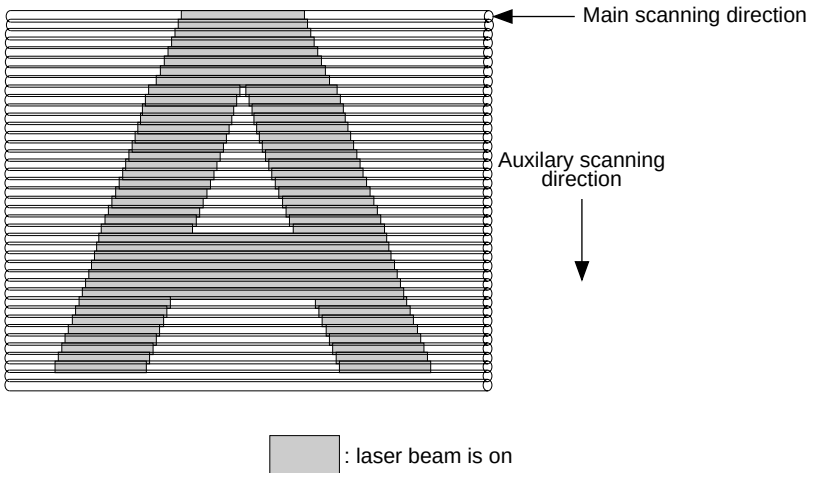
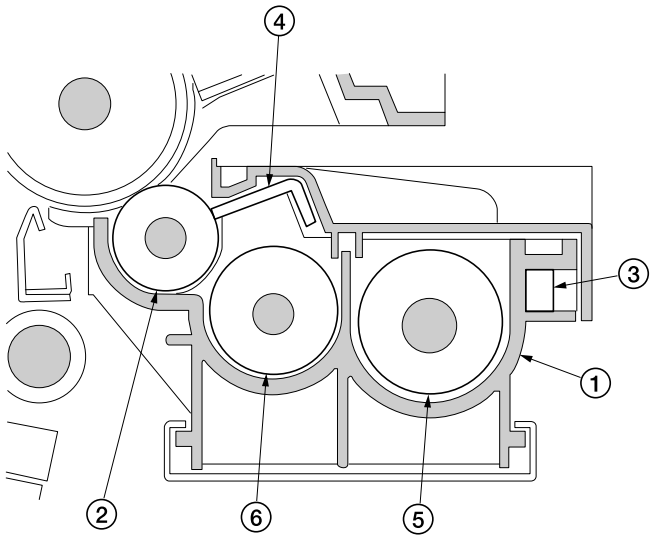


Figure 2-1-12

2-1-4 Developing section

The developing section consists of the developing unit and the toner container.
The developing unit consists of the developing roller where a magnetic brush is formed, the doctor blade and the developing spirals that agitate the developer.
When the toner sensor (TNS) detects a low toner level in the developing unit, the toner replenishment signal is output to the main PCB (MPCB). The main PCB (MPCB) that has received the signal turns on the toner replenishment solenoid (TNFSOL) and replenishes toner from the toner container to the developing unit.
Also, the toner container sensor (TCS) checks whether or not toner remains in the toner container.



① Developing unit housing
② Developing roller
③ Toner sensor (TNS)
④ Doctor blade
⑤ Right developing spiral
⑥ Left developing spiral

Figure 2-1-13 Developing section

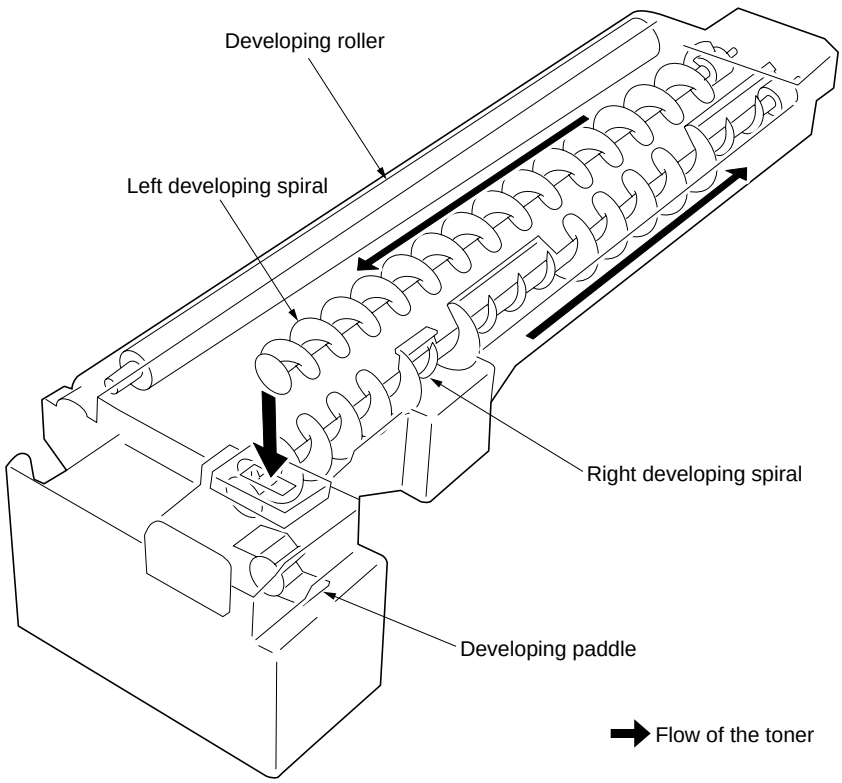
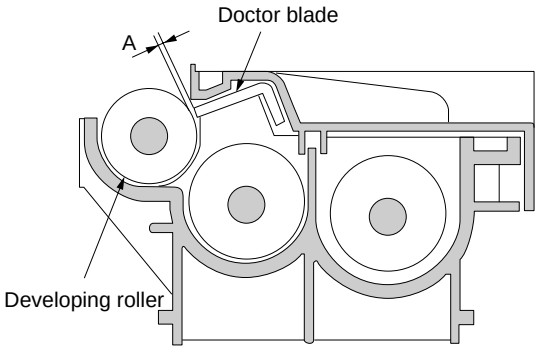
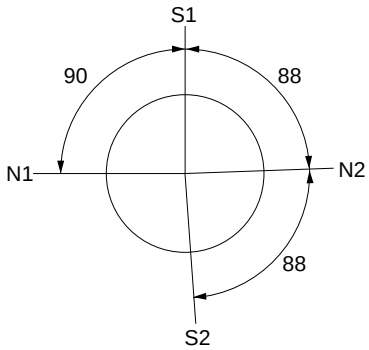


Figure 2-1-14 Flow of the toner

(1) Formation of magnetic brush

The developing roller consists of a magnet roller with four poles and a sleeve roller. Rotation of the sleeve roller around the magnet roller entrains developer, which in turn forms a magnetic brush at pole N1 on the magnet roller. The height of the magnetic brush is regulated by the doctor blade; the developing result is affected by the position of the poles on the magnet roller and the position of the doctor blade.
A developing bias voltage generated by the high-voltage transformer PCB (HVTPCB) is applied to the developing roller to provide image contrast.





A: Distance between the doctor blade and developng roller; 0.23 to 0.35 mm

N1:870 × 10^{-4}T
N2:420 × 10^{-4}T
S1:700 × 10^{-4}T
S2:910 × 10^{-4}T

Figure 2-1-15 Forming a magnetic brush

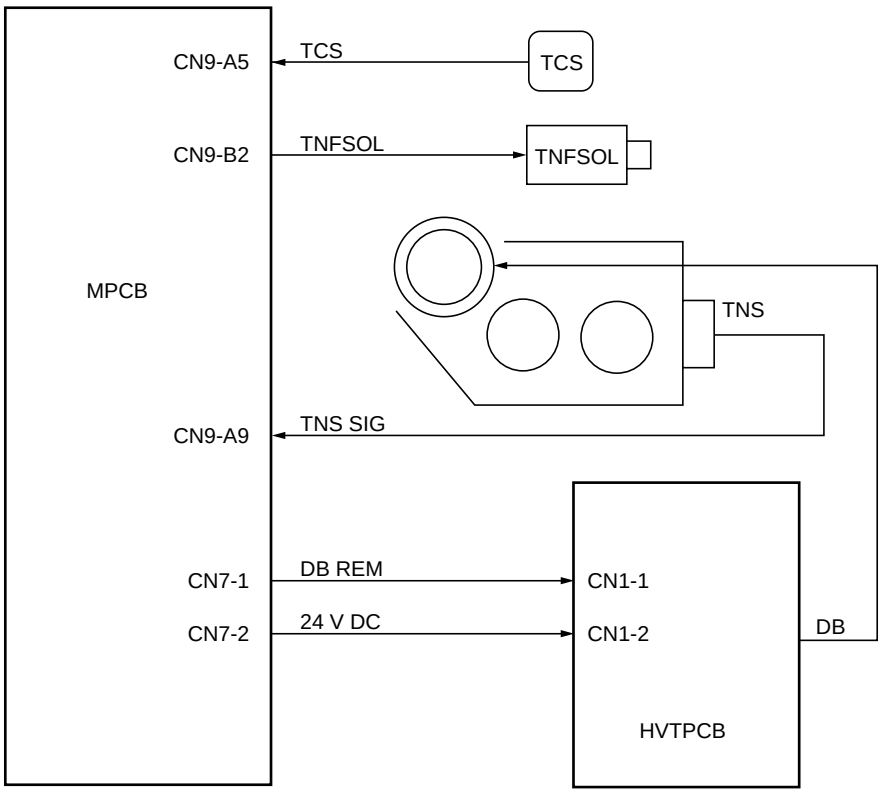


Figure 2-1-16 Developing section block diagram

(2) Computing the absolute humidity

The humidity sensor (HUMSENS) converts the relative humidity detected by the humidity sensing element into a voltage and sends it to the main PCB (MPCB). The main PCB (MPCB) computes the absolute humidity based on this HUMSENS signal and the temperature (ETTH signal) detected by the external temperature thermistor (ETTH).

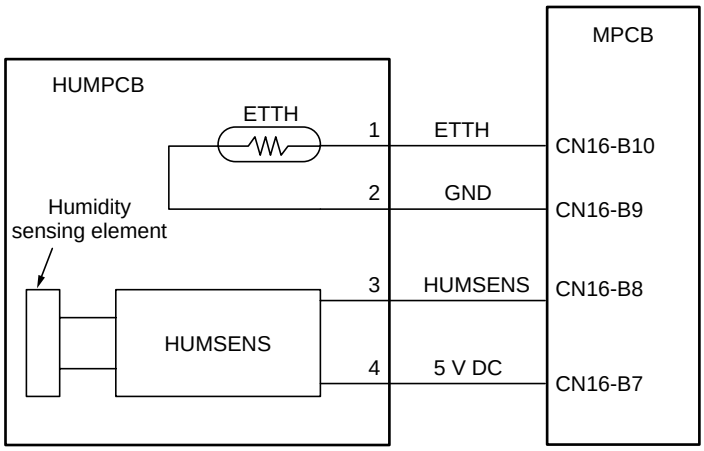


Figure 2-1-17 Absolute humidity computation block diagram

2-1-5 Transfer and separation sections

The transfer and separation section consists mainly of the transfer roller, separation electrode and drum separation claws.
A high voltage generated by the high-voltage transformer PCB (HVTPCB) is applied to the transfer roller for transfer charging.
Paper after transfer is separated from the drum by applying separation bias that is output from the high-voltage transformer PCB (HVTPCB) to the separation electrode.

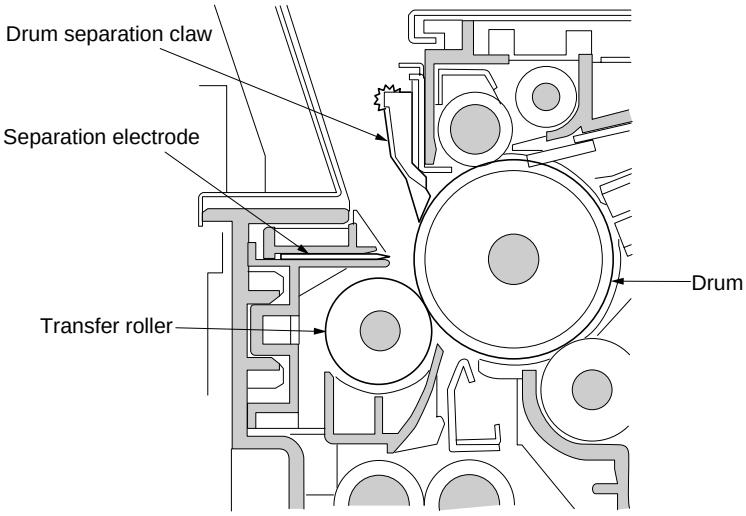


Figure 2-1-18 Transfer and separation sections

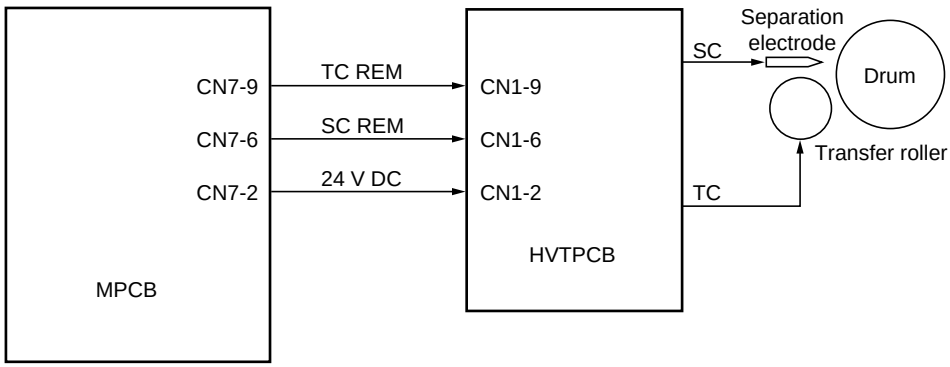
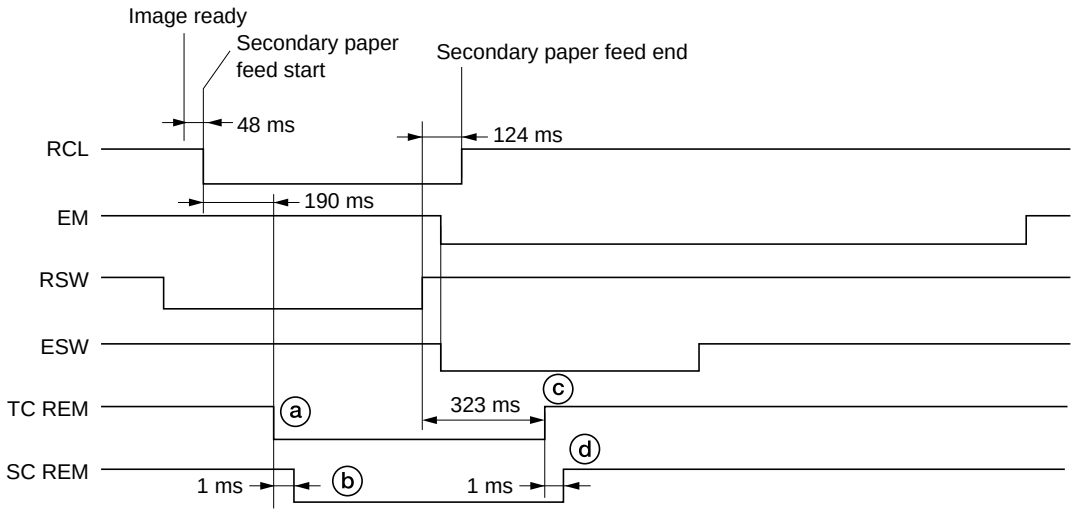


Figure 2-1-19 Transfer and separation sections block diagram



Timing chart 2-1-5 Transfer and separation sections operation

ⓐ: 190 ms after the registration clutch (RCL) turns on to start secondary paper feed, transfer charging (TC REM) starts.
ⓑ: 1 ms after transfer charging (TC REM) starts, separation bias (SC REM) turns on.
ⓒ: 323 ms after the trailing edge of the paper turns the registration switch (RSW) off, transfer charging (TC REM) ends.
ⓓ: 1 ms after transfer charging (TC REM) ends, separation bias (SC REM) turns off.

2-1-6 Cleaning and charge erasing sections

The cleaning section consists of the cleaning blade that removes residual toner from the drum surface after the transfer process, and the cleaning spiral that carries the residual toner back to the waste toner tank.
The cleaning lamp (CL) consists of LEDs and removes residual charge on the drum before main charging.
Also the toner quantity in the waste toner tank is sensed with the overflow sensor (OFS).

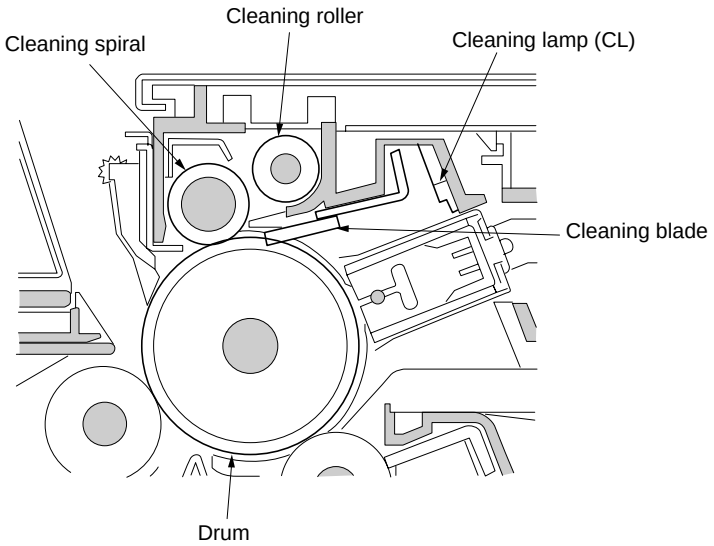


Figure 2-1-20 Cleaning and charge erasing sections

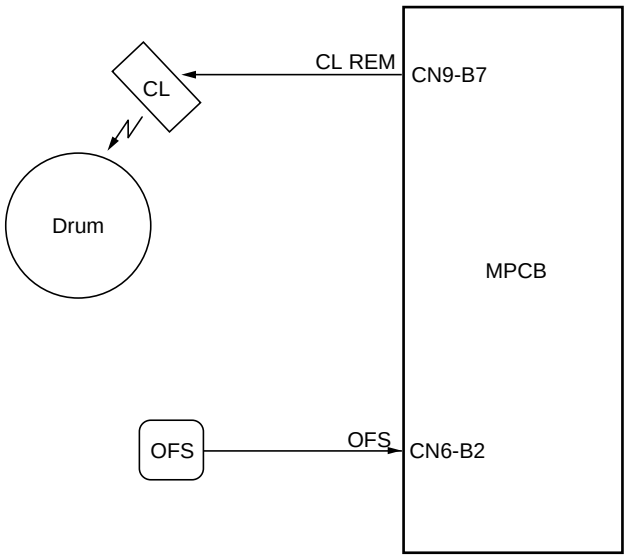
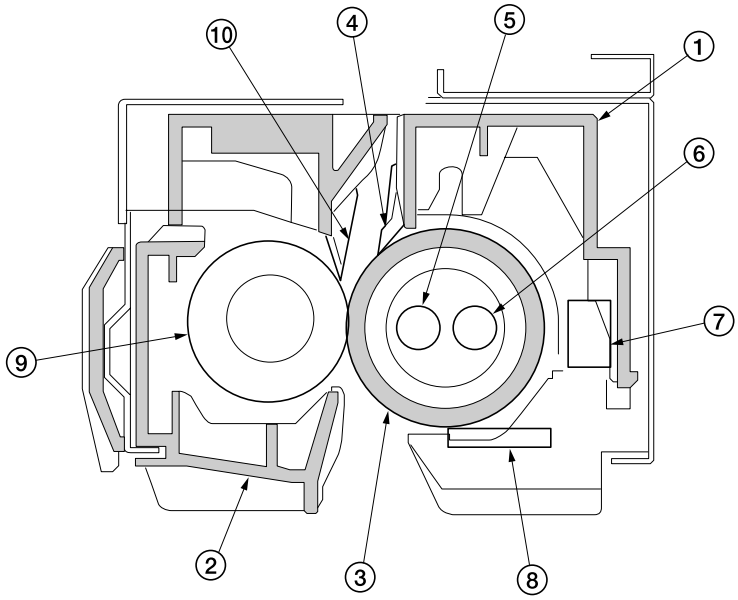


Figure 2-1-21 Cleaning and charge erasing sections block diagram

2-1-7 Fixing section

The fixing section consists of the parts shown in Figure 2-1-22. When paper reaches the fixing section after the transfer process, it passes between the press roller and heat roller, which is heated by fixing heaters M or S (FH-M or FH-S). Pressure is applied by the fixing unit pressure springs so that the toner on the paper is melted, fused and fixed onto the paper. The heat roller is heated by fixing heaters M or S (FH-M or FH-S) inside it; its surface temperature is detected by the fixing unit thermistor (FTH) and is regulated by the fixing heaters turning on and off.
If the fixing section becomes abnormally hot, fixing unit thermostat (FTS) operates shutting the power to the fixing heaters off. When the fixing process is completed, the paper is separated from the heat roller by its separation claws and is conveyed from the copier to eject and switchback section.



① Upper fixing unit cover
② Fixing housing
③ Heat roller
④ Heat roller separation claw
⑤ Fixing heater M (FH-M)
⑥ Fixing heater S (FH-S)
⑦ Fixing unit thermostat (FTS)
⑧ Fixing unit thermistor (FTH)
⑨ Press roller
⑩ Press roller separation claw

Figure 2-1-22 Fixing section

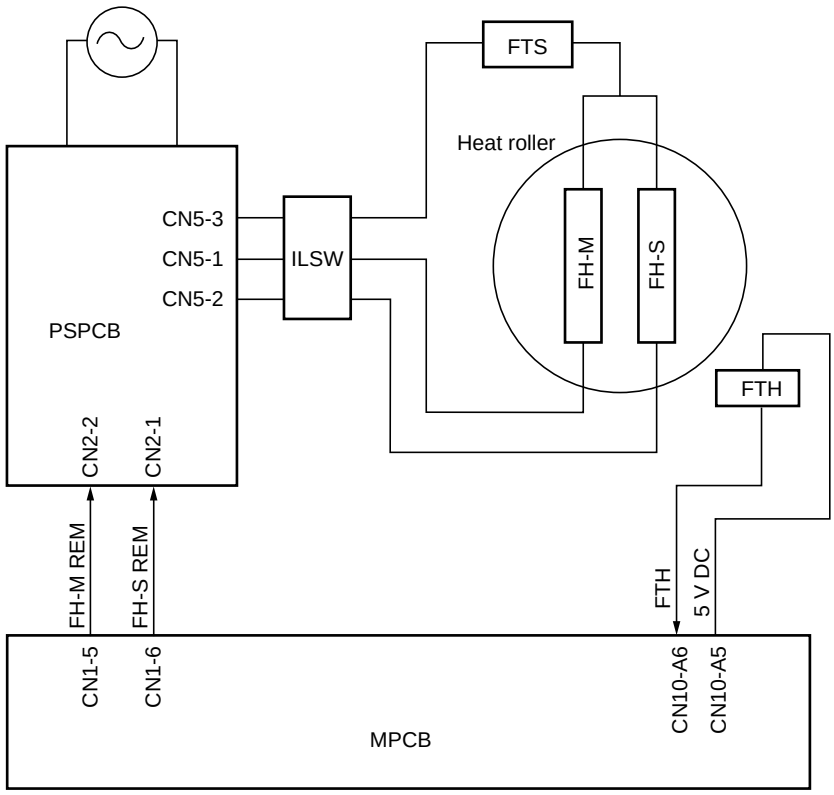
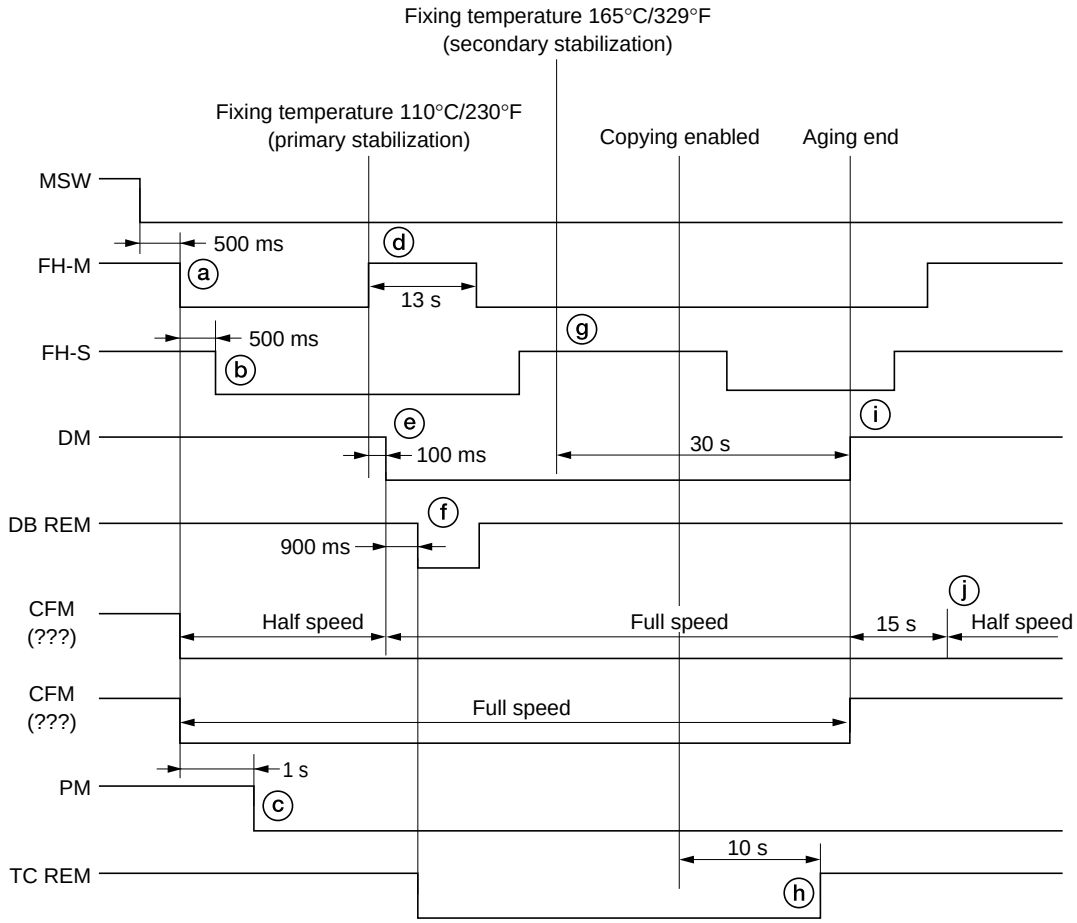


Figure 2-1-23 Fixing section block diagram



Timing chart 2-1-6 Fixing section operation

ⓐ: 500 ms after the main switch (MSW) is turned on, fixing heater M (FH-M) turns on to heat the heat roller. At the same time, cooling fan motor (CFM) turns on.
* The fan motor for second speed rotates at half speed and the motor for first speed rotates at full speed.
ⓑ: 500 ms after fixing heater M (FH-M) turns on, fixing heater S (FH-S) turns on.
ⓒ: 1 s after fixing heater M (FH-M) turns on, the polygon motor (PM) of the laser scanner unit turns on.
ⓓ: When the fixing temperature reaches 110°C/230°F, the copier enters primary stabilization, and fixing heater M (FH-M) turns off temporarily and turns on again after 13 s.
ⓔ: 100 ms after the primary stabilization, the driving motor (DM) turns on. Also the cooling fan motor (for second speed) switches to full speed rotation.
ⓕ: 900 ms after the driving motor (DM) turns on, the developing bias (DB REM) turns on and at the same time transfer charging (TC REM) starts.
ⓖ: When the fixing temperature reaches 165°C/329°F, the copier enters secondary stabilization. Fixing heaters M and S (FH-M and FH-S) are turned on and off to keep the fixing temperature at 165°C/329°F and aging starts.
ⓗ: 10 s after copying is enabled, transfer charging (TC REM) ends.
ⓘ: 30 s after the secondary stabilization, the driving motor (DM) turns off and the aging ends.
ⓙ: 15 s after the driving motor (DM) turns off, the cooling fan motor (for second speed) switches to half speed rotation.

2-1-8 Eject and switchback sections

The eject and switchback sections eject paper on which fixing has ended with the eject roller that is rotated by forward rotation of the eject motor.
In duplex copying, paper is turned over by reverse rotation of the eject motor. When paper is transferred to the job separator or the internal finisher, the feedshift solenoid (FSSOL) is turned on to activate the feedshift guide to switch the paper transfer path.

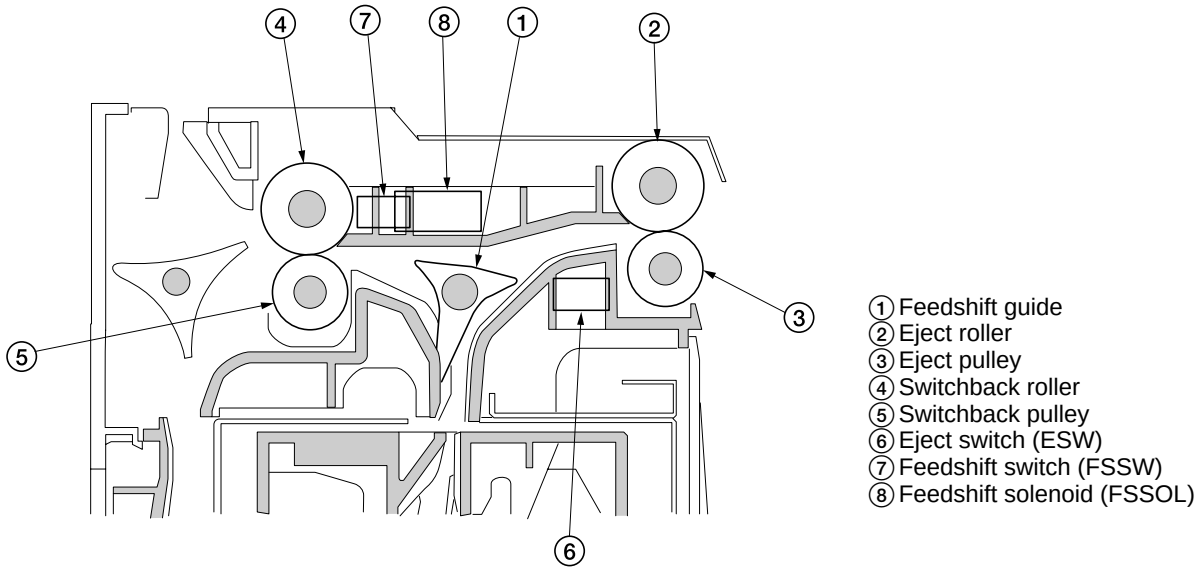


Figure 2-1-24 Eject and switchback sections

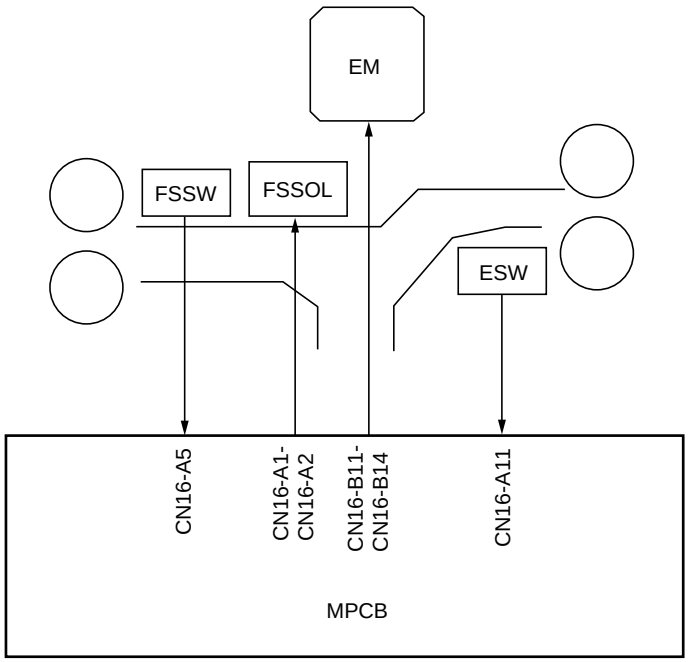
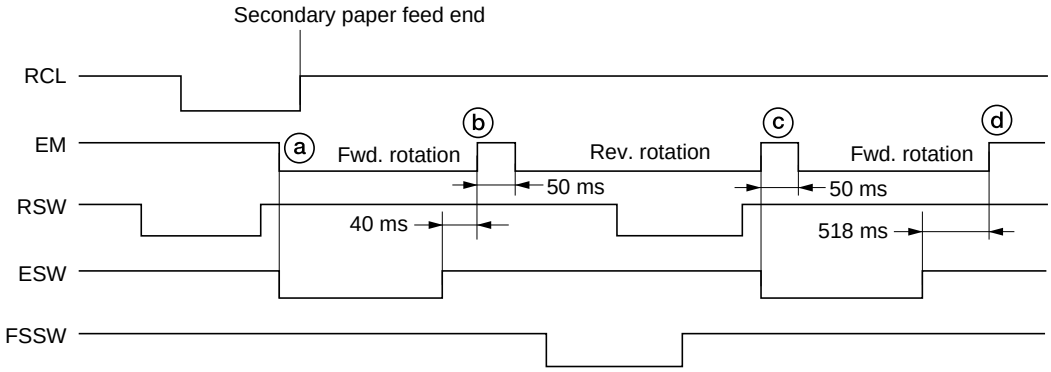


Figure 2-1-15 Eject and switchback sections block diagram



Timing chart 2-1-7 Eject and switchback sections operation

ⓐ: The leading edge of paper (front face) turns on the eject switch (ESW), and at the same time the eject motor (EM) starts forward rotation.
ⓑ: 40 ms after passing of the trailing edge of paper turns off the eject switch (ESW), the eject motor (EM) turns off for 50 ms and then starts reverse rotation.
ⓒ: The leading edge of paper (reverse face) turns on the eject switch (ESW), and at the same time the eject motor (EM) turns off for 50 ms and then starts forward rotation.
ⓓ: 518 ms after passing of the trailing edge of the paper turns off the eject switch (ESW), the eject motor (EM) turns off.

2-2-1 Electrical parts layout

(1) PCBs

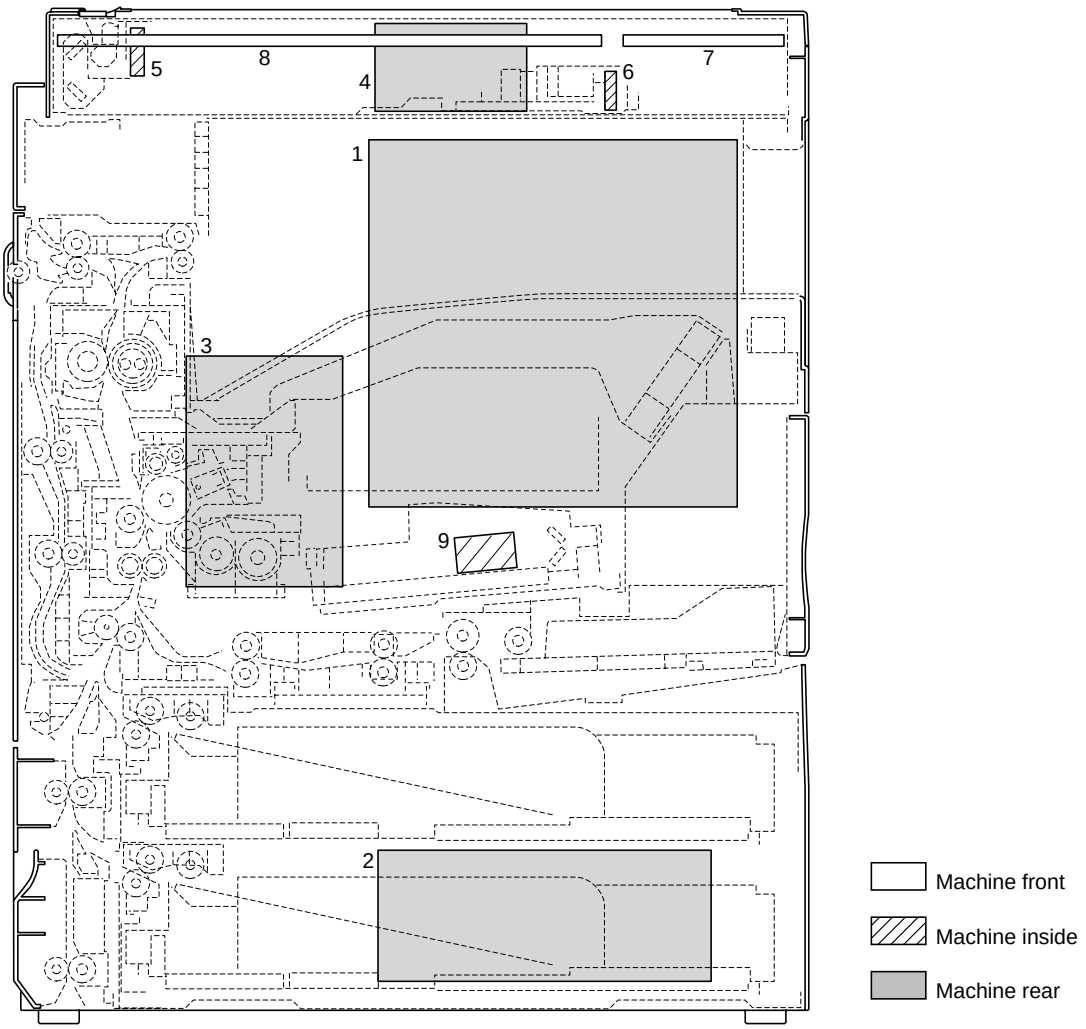


Figure 2-2-1 PCBs

1. Main PCB (MPCB) ..... Controls the other PCBs, electrical components and optional devices.
2. Power source PCB (PSPCB) ..... Generates +24 V DC, 12 V DC and 5V DC; controls the fixing heater.
3. High-voltage transformer PCB (HVTPCB) ..... Main charging. Generates developing bias and high voltages for transfer.
4. Scanner drive PCB (SDPCB) ..... Controls the scanning section.
5. Inverter PCB (INPCB) ..... Controls the exposure lamp.
6. CCD PCB (CCDPCB) ..... Reads the image off originals.
7. Right operation unit PCB (OPCB-R) ..... Consists of the operation keys and display LEDs.
8. Left operation unit PCB (OPCB-L) ..... Controls touch panel and LCD indication.
9. Laser diode PCB (LDPCB) ..... Generates and controls the laser light.

(2) Switches and sensors

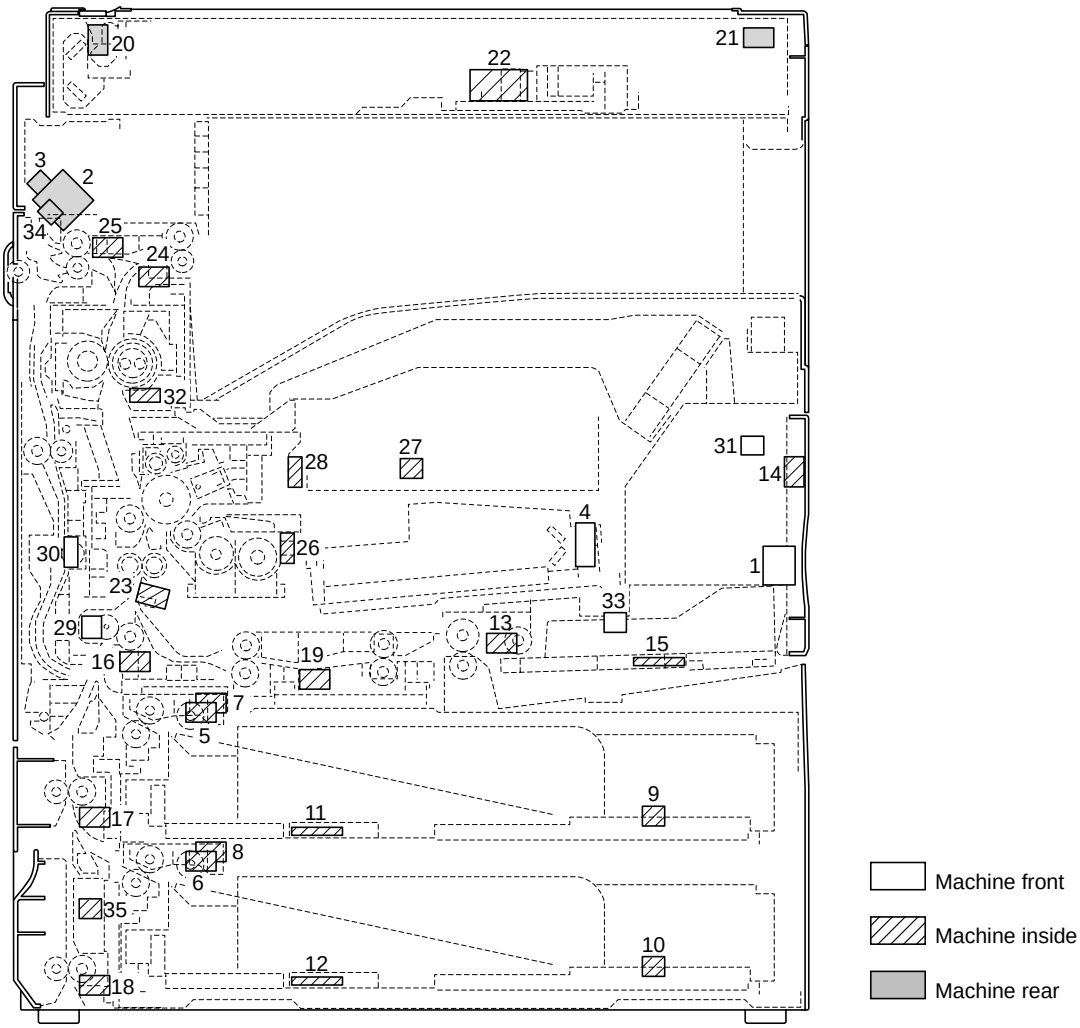


Figure 2-2-2 Switches and sensors

1. Main switch (MSW) ..... Turns the AC power on and off.
2. Interlock switch (ILSW) ..... Turns the AC power for the fixing heater on and off.
3. Safety switch 1 (SSW1) ..... Breaks the safety circuit when the front cover is opened.
4. Safety switch 2 (SSW2) ..... Breaks the safety circuit when the conveying unit is opened.
5. Upper paper switch (PSW-U) ..... Detects the presence of paper in the upper drawer.
6. Lower paper switch (PSW-L) ..... Detects the presence of paper in the lower drawer.
7. Upper lift limit switch (LICSW-U) ..... Detects the upper drawer lift reaching the upper limit.
8. Lower lift limit switch (LICSW-L) ..... Detects the lower drawer lift reaching the upper limit.
9. Upper paper size length switch (PLSW-U) ..... Detects the length of paper in the upper drawer.
10. Lower paper size length switch (PLSW-L) ..... Detects the length of paper in the lower drawer.
11. Upper paper size width switch (PWSW-U) ..... Detects the width of paper in the upper drawer.
12. Lower paper size width switch (PWSW-L) ..... Detects the width of paper in the lower drawer.
13. Bypass paper switch (BYPPSW) ..... Detects the presence of paper on the bypass tray.
14. Bypass paper size length switch (BYPPLSW) ..... Detects the length of paper on the bypass tray.

(3) Motors

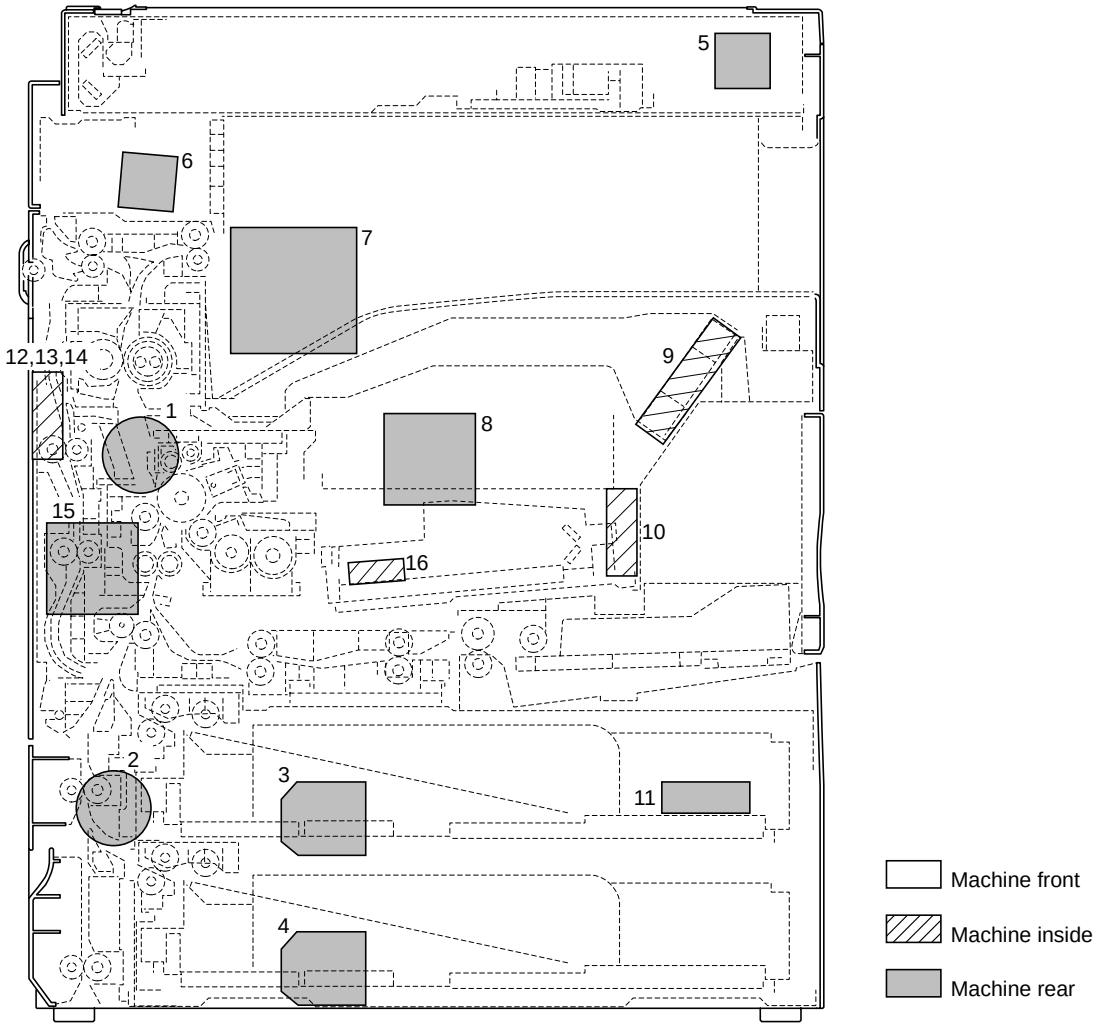


Figure 2-2-3 Motors

1. Drive motor (DM) ..... Drives the machine.
2. Paper feed motor (PFM) ..... Drives paper feed section.
3. Upper lift motor (LM-U) ..... Drives upper drawer lift.
4. Lower lift motor (LM-L) ..... Drives lower drawer lift.
5. Scanner motor (SM) ..... Drives the optical system.
6. Eject motor (EM) ..... Drives the eject section.
7. Cooling fan motor 1 (CFM1) ..... Cools the machine interior.
8. Cooling fan motor 2 (CFM2) ..... Cools the machine interior.
9. Cooling fan motor 3 (CFM3) ..... Cools the machine interior.
10. Cooling fan motor 4 (CFM4) ..... Cools the machine interior (LSU).
11. Cooling fan motor 5 (CFM5) ..... Cools the machine interior (around the power supply unit).
12. Cooling fan motor 6 (CFM6) ..... Cools the machine interior and supports paper transfer for duplex copying.
13. Cooling fan motor 7 (CFM7) ..... Cools the machine interior and supports paper transfer for duplex copying.
14. Cooling fan motor 8 (CFM8) ..... Cools the machine interior and supports paper transfer for duplex copying.
15. Cooling fan motor 9 (CFM9) ..... Cools the machine interior.
16. Polygon motor (PM) ..... Drives the polygon mirror.

(4) Other electrical components

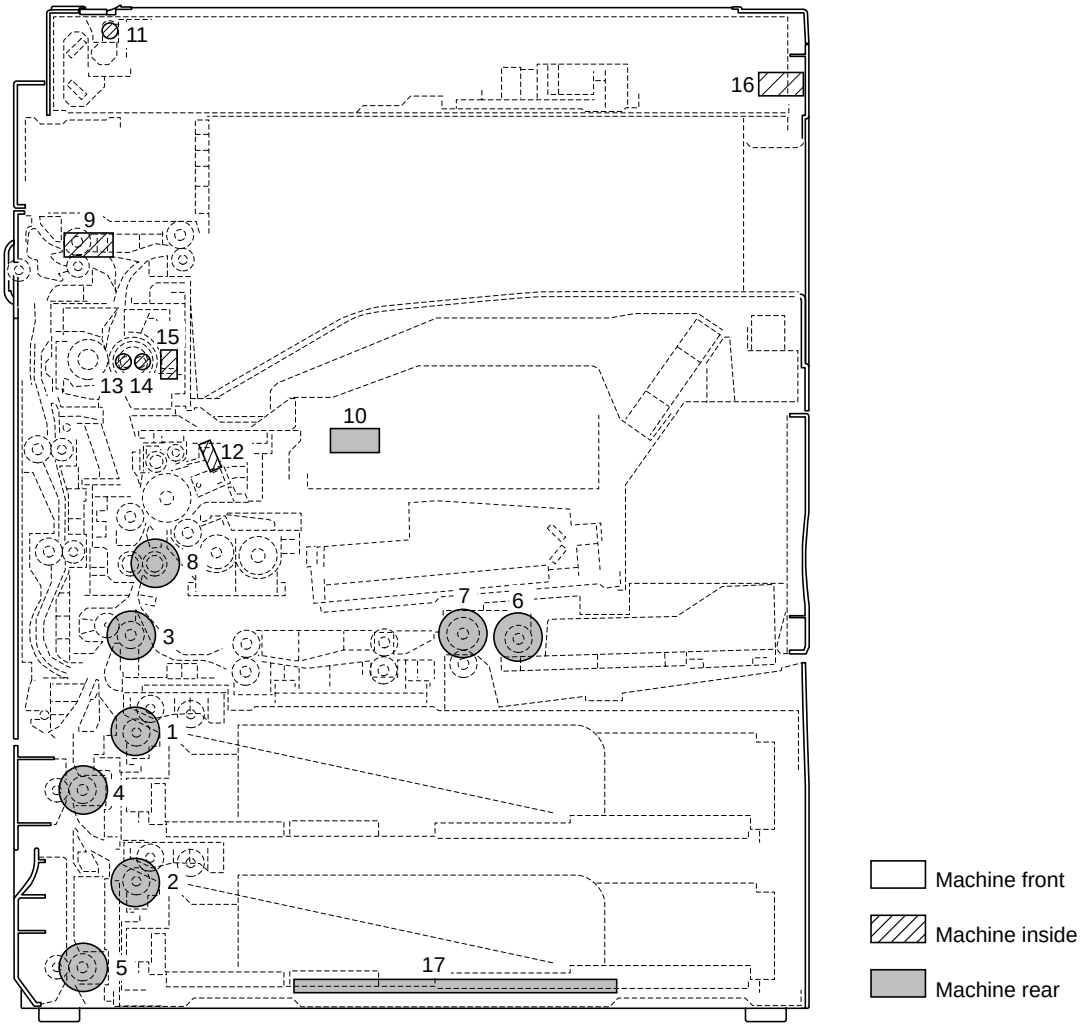


Figure 2-2-4 Other electrical components

1. Upper paper feed clutch (PFCL-U) ..... Primary paper feed from the upper drawer.
2. Lower paper feed clutch (PFCL-L) ..... Primary paper feed from the lower drawer.
3. Feed clutch 1 (FCL1) ..... Controls the drive of feed roller.
4. Feed clutch 2 (FCL2) ..... Controls the drive of feed roller.
5. Feed clutch 3 (FCL3) ..... Controls the drive of feed roller.
6. Bypass paper feed clutch (BYPPFCL) ..... Primary paper feed from the bypass tray.
7. Bypass feed clutch (BYPFCL) ..... Controls the drive of bypass feed roller.
8. Registration clutch (RCL) ..... Secondary paper feed.
9. Feedshift solenoid (FSSOL) ..... Operates the feedshift guide.
10. Toner feed solenoid (TNFSOL) ..... Replenishes toner.
11. Exposure lamp (EL) ..... Exposes originals.
12. Cleaning lamp (CL) ..... Removes residual charge from the drum surface.
13. Fixing heater M (FH-M) ..... Heats the heat roller.
14. Fixing heater S (FH-S) ..... Heats the heat roller.
15. Fixing unit thermostat (FTS) ..... Prevents overheating in the fixing section.
16. Total counter (TC) ..... Displays the total number of copies produced.
17. Drawer heater (DH) ..... Dehumidifies the drawer section.

2-3-1 Power source PCB

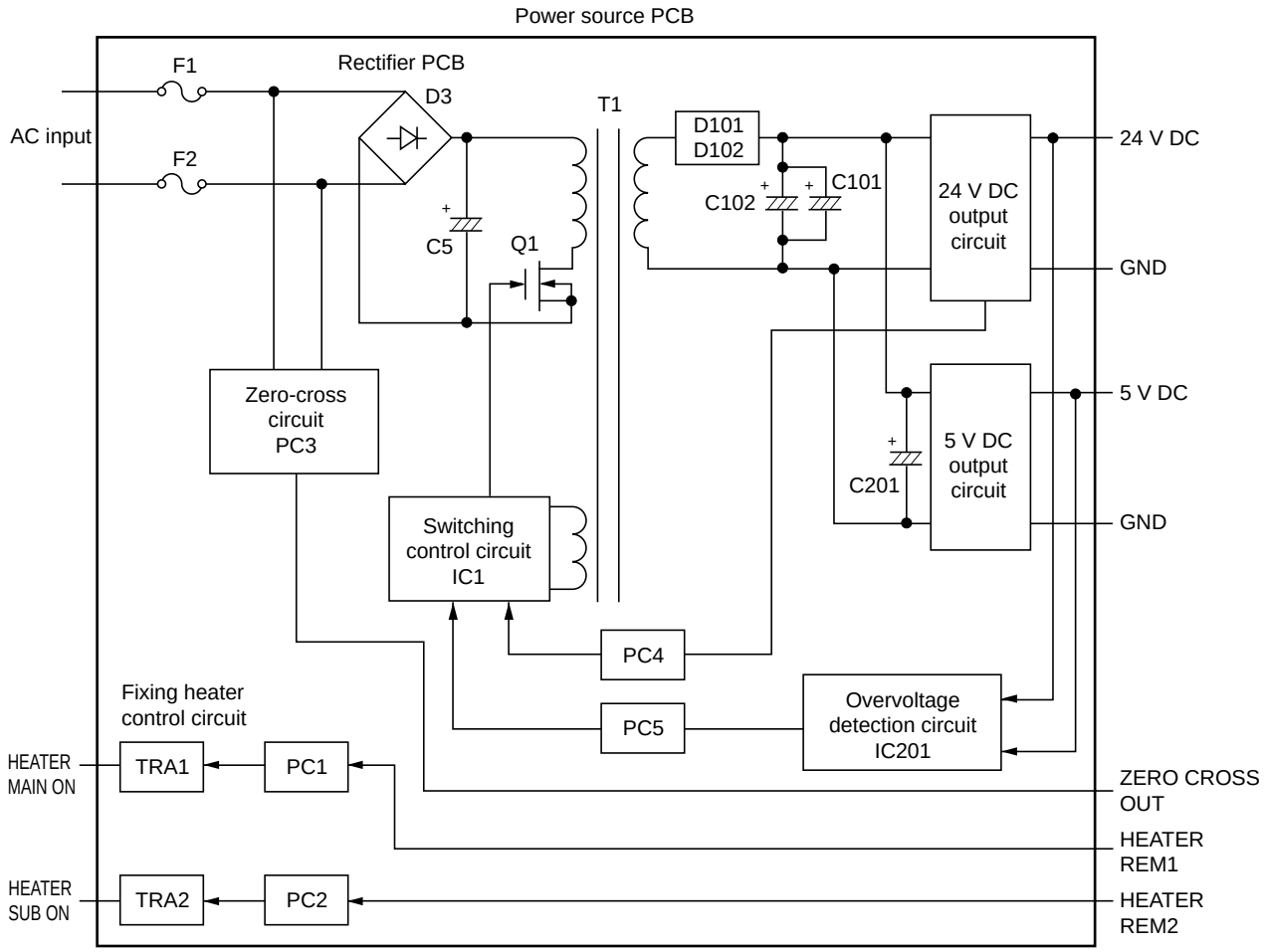


Figure 2-3-1 Power source PCB block diagram

The power source PCB (PSPCB) is a switching regulator that converts an AC input to generate 24 V DC and 5 V DC. It includes a rectifier circuit, a switching regulator circuit, a 24 V DC output circuit, a 5 V DC output circuit and a fixing heater control circuit.

The rectifier circuit full-wave rectifies the AC input using the diode bridge D3. The smoothing capacitor C5 smoothes out the pulsed current from the diode bridge.

In the switching control circuit, PWM controller IC1 turns the power MOSFET Q1 on and off to switch the current induced in the primary coil of the transformer T1.

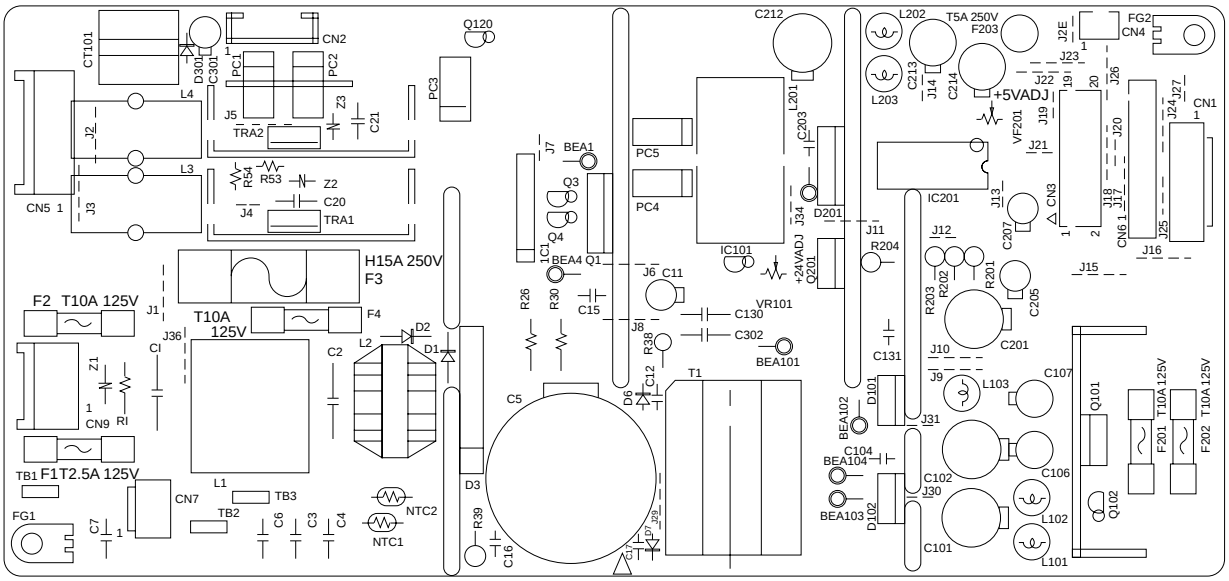
The 24 V DC output circuit smoothes the current induced in the secondary coil of the transformer T1 via diodes D101 and D102 and smoothing capacitors C101 and C102, and the output is controlled by the overvoltage detection circuit IC201 and the power MOSFET Q201. For 24 V DC output, the PWM controller IC (IC1) of the switching control circuit changes the duty of the switching pulse width of the power MOSFET Q1 via a photo coupler PC4 based on the output voltage status to adjust the 24 V DC output.

The 5 V DC output circuit smoothes the current induced in the secondary coil of the transformer T1 via diodes D101 and D102 and smoothing capacitors C101 and C102, and the output is controlled by the overvoltage detection circuit IC201 and the power MOSFET Q201. For 5 V DC output, the PWM controller IC (IC1) of the switching control circuit changes the duty of the switching pulse width of the power MOSFET Q1 via a photo coupler PC5 based on the output voltage status to adjust the 5 V DC output.

The overvoltage detection circuit IC201 monitors the overvoltage status of 24 V DC and 5 V DC, and when it detects an abnormal status, it gives immediately feedback to the PWM controller IC (IC1) via a photocoupler PC5 to stop control operation and moves the power source to a standby condition.

The fixing heater control circuit sends a waveform of which zero-cross is detected to the main PCB (MPCB), which controls the timing of HEATER REM 1 and 2 based on it to turn on the phototriacs PC1 and PC2. When the phototriacs PC1 and PC2 turn on, AC current flows through the triacs TRA1 and TRA2 to turn the fixing heaters M and S on.

100V



200V

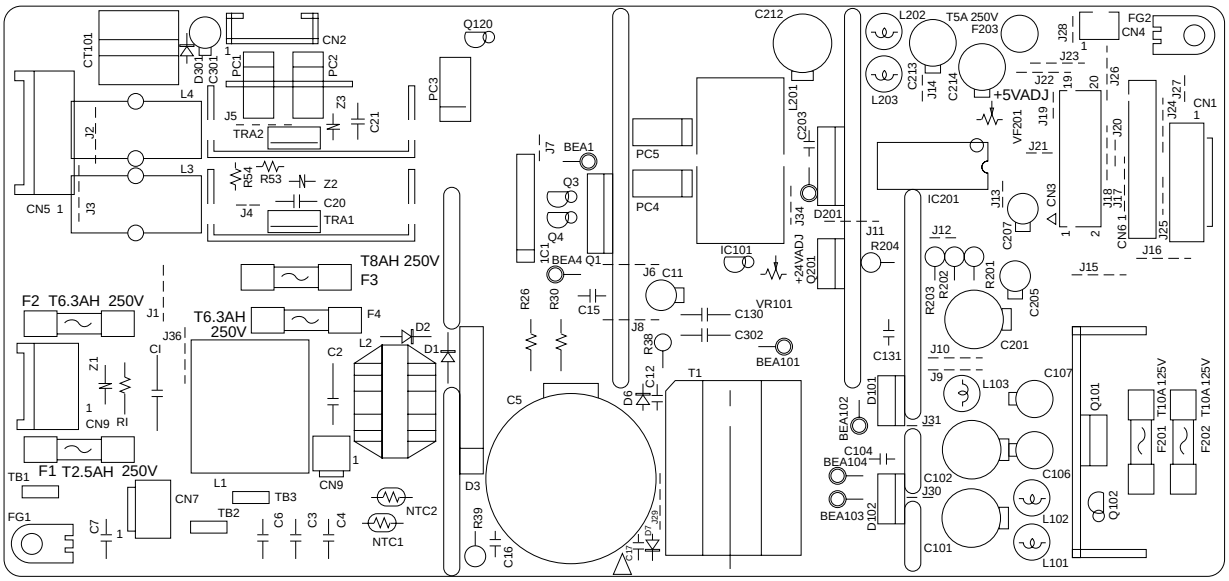
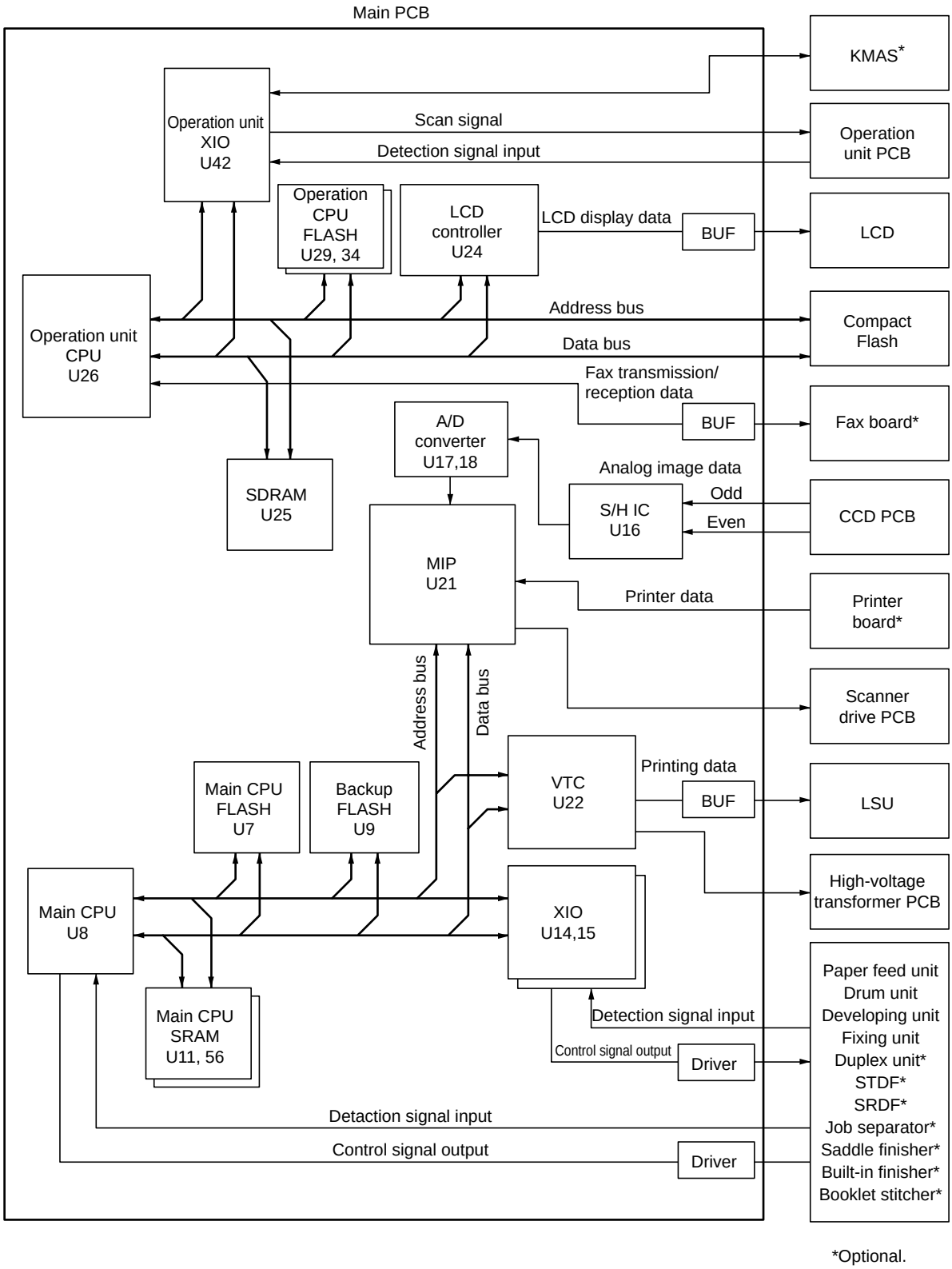


Figure 2-3-2 Power source PCB silk-screen diagram

Terminals (CN)		Voltage	Remarks
TB-1	TB-2	120V AC	120 V AC supply, input
TB-1	TB-2	220-240 V AC	220-240 V AC supply, input
1-1	1-2	24 V DC	24 V DC supply for SSW1, output
1-5	1-2	5 V DC	5 V DC supply for MPCB, output
1-6	1-2	24 V DC	24 V DC supply for MPCB, output
2-1	2-2	0 - 5 V DC	Heater current monitor signal, output
2-3	2-2	0/5 V DC	FH-S on/off, input
2-4	2-2	0/5 V DC	FH-M on/off, input
2-5	2-2	5 V DC	5 V DC supply from MPCB, input
2-6	2-2	0/5 V DC (pulse)	Zero-cross signal, input
2-7	2-2	0/5 V DC	CFM5 remote signal, input
2-8	2-2	0/5 V DC	SLEEP singal, input
3-1	3-5	24 V DC	24 V DC supply for finisher*, output
3-2	3-6	24 V DC	24 V DC supply for finisher*, output
3-3	3-7	24 V DC	24 V DC supply for finisher*, output
3-4	3-8	24 V DC	24 V DC supply for finisher*, output
3-9	3-10	5 V DC	5 V DC supply for finisher*, output
3-11	3-12	5 V DC	5 V DC supply for large paper deck*/paper feed desk*, output
3-14	3-13	24 V DC	24 V DC supply for large paper deck*/paper feed desk*, output
3-15	3-18	24 V DC	24 V DC supply for mailbox*, output
3-16	3-19	24 V DC	24 V DC supply for mailbox*, output
3-17	3-20	5 V DC	5 V DC supply for mailbox*, output
4-1	6-1	0/24 V DC	CFM5 on/off, output
4-2	6-1	24 V DC	24 V DC supply for CFM5, output
5-1	5-3	120/0 V AC	FH-M on/off, output
5-1	5-3	220-240/0 V AC	FH-M on/off, output
5-2	5-3	120/0 V AC	FH-S on/off, output
5-2	5-3	220-240/0 V AC	FH-S on/off, output
6-2	6-1	24 V DC	24 V DC supply for SDPCB, output
6-4	6-3	5 V DC	5 V DC supply for SDPCB, output
6-5	6-7	24 V DC	24 V DC supply for STDF*/SRDF*, output
6-6	6-8	24 V DC	24 V DC supply for STDF*/SRDF*, output
6-9	6-11	5 V DC	5 V DC supply for STDF*/SRDF*, output
6-10	6-12	5 V DC	5 V DC supply for STDF*/SRDF*, output
9-1	TB-2	120 V AC	120 V AC supply for MSW, output
9-1	TB-2	220-240 V AC	220-240 V AC supply for MSW, output

*Optional.

2-3-2 Main PCB



*Optional.

Figure 2-3-3 Main PCB block diagram

The main PCB (MPCB) consists of the main CPU and operation unit CPU. The main CPU U8 communicates with other PCBs, the image processing system and the engine drive system. The operation unit CPU U26 controls the LCD display and the entire operation section.
The main CPU U8 operates on an 8-bit bus. It uses the SRAM U11 and U56 for work memory and FLASH U9 for backup memory. In accordance with the control program in the main CPU FLASH U7, the main CPU U8 communicates with the operation unit CPU and optional devices via the serial communication function in the CPU and XIO U14 and U15. The main CPU U8 controls the CCD PCB (CCDPCB), which is for image input control, and the LSU, which is for image output control via the image processing ASIC MIP U21, and drives the machine, conveys paper and detects abnormalities via XIO U14, U15 and U22.
The operation unit CPU U26 operates on an 32-bit bus. It uses the SRAM U25 for work memory. In accordance with the control program in the main CPU FLASH U29, which also contains LCD display fonts, the operation unit CPU U26 controls key switches and LEDs on the operation unit PCB (OPCB) and controls the LCD display via the LCD controller U24.

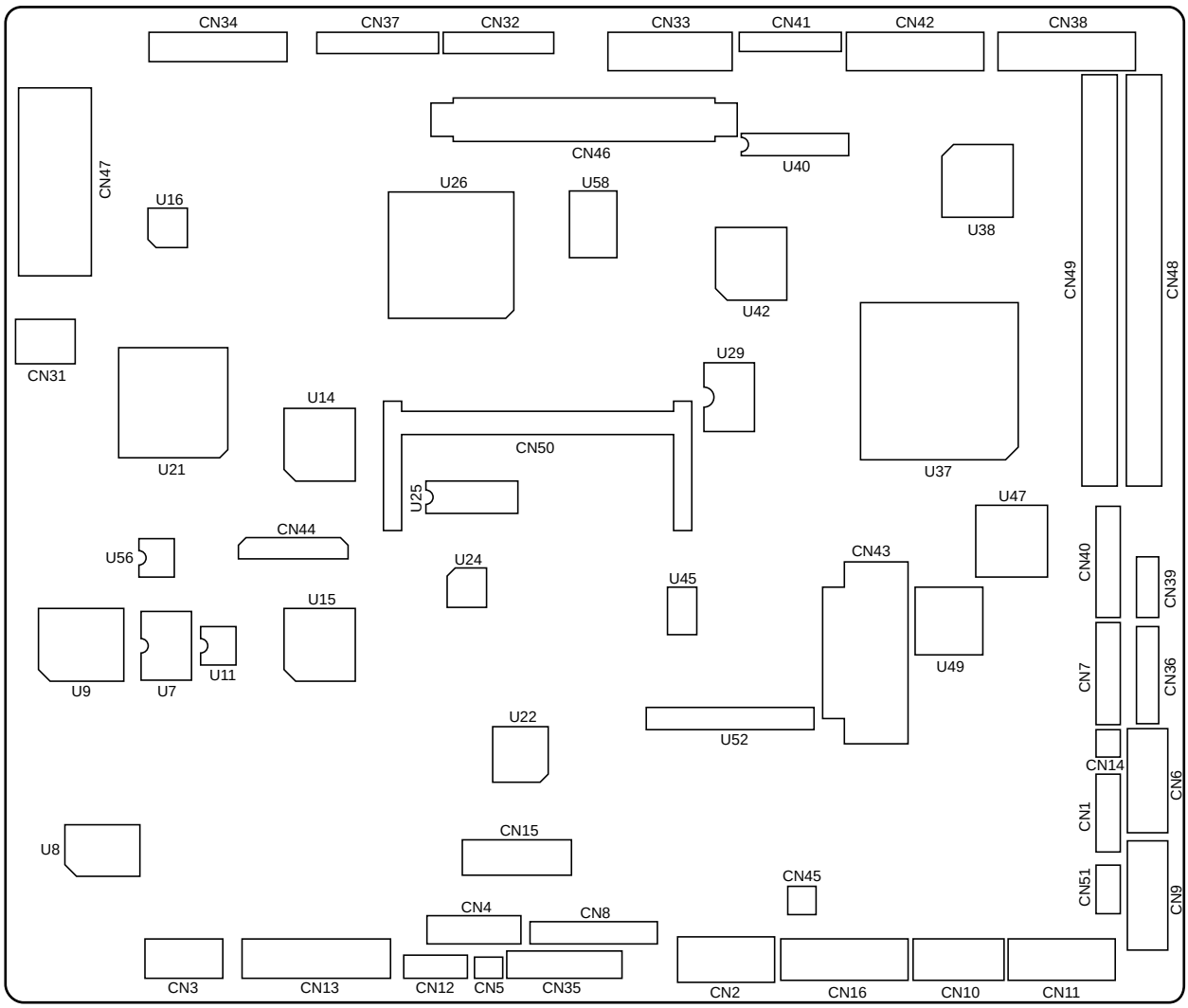


Figure 2-3-4 Main PCB silk-screen diagram

Terminals (CN)		Voltage	Remarks
1-1	1-7	0/5 V DC	SLEEP signal, output
1-2	1-7	0/5 V DC	CFM5 remote signal, output
1-3	1-7	0/5 V DC (pulse)	Zero-cross signal, input
1-4	1-7	5 V DC	DC 5V supply for PSPCB, output
1-5	1-7	0/5 V DC	FH-M on/off, output
1-6	1-7	0/5 V DC	FH-S on/off, output
1-8	1-7	0 - 5 V DC	Heater current monitor signal, input
2-1	2-2	24 V DC	24 V DC supply from SSW2, input
2-5	2-2	5 V DC	5 V DC supply from PSPCB, input
2-6	2-2	24 V DC	24 V DC supply from PSPCB, input
3-A1	3-A2	0/5 V DC (pulse)	Serial signal for mailbox*, input
3-A3	3-A4	0/5 V DC (pulse)	Serial signal from mailbox*, output
3-A5	3-A4	0/5 V DC	Mailbox* connection signal, input
3-A6	3-A4	0/5 V DC	RESET signal for mailbox*, output
3-B1	3-B2	0/5 V DC (pulse)	Serial signal for large paper deck*/paper feed desk*, output
3-B3	3-B4	0/5 V DC (pulse)	Serial signal from large paper deck*/paper feed desk*, input
3-B5	3-B4	0/5 V DC	FSW on/off signal from large paper deck*/paper feed desk*, input
3-B6	3-B4	0/5 V DC	RESET signal for large paper deck*/paper feed desk*, output
4-1	4-2	0/5 V DC (pulse)	Serial signal from finisher*, input
4-3	4-4	0/5 V DC (pulse)	Serial signal for finisher*, output
5-1	4-4	0/5 V DC	RESET signal for finisher*, output
5-2	4-4	0/5 V DC	Finisher* connection signal, input
6-A1	6-A4	0/5 V DC	BYPPWSW paper width detection signal, input
6-A2	6-A4	0/5 V DC	BYPPWSW paper width detection signal, input
6-A3	6-A4	0/5 V DC	BYPPWSW paper width detection signal, input
6-A5	6-A4	5 V DC	5 V DC supply for BYPPSW, output
6-A6	6-A4	0/5 V DC	BYPPSW on/off, input
6-A8	6-A7	24 V DC	24 V DC supply for BYPPFCL, output
6-A9	6-A7	0/24 V DC	BYPPFCL on/off, output
6-A10	6-A7	24 V DC	24 V DC supply for BYPFCL, output
6-A11	6-A7	0/24 V DC	BYPFCL on/off, output
6-B1	6-B3	5 V DC	5 V DC supply for OFS, output
6-B2	6-B3	0/5 V DC	OFS on/off, input
6-B4	6-B5	0/5 V DC	TDDSW on/off, input
6-B6	6-B7	0/5 V DC	FRCSW on/off, input
6-B8	6-B9	0/24V DC	CFM5 on/off, output
6-B10	6-B12	5 V DC	5 V DC supply for BYPPLSW, output
6-B11	6-B12	0/5 V DC	BYPPLSW on/off, input
7-1	7-3	0 - 5 V DC	Developing bias control voltage, output
7-2	7-3	24 V DC	24 V DC supply for HVTPCB, output
7-4	7-3	0/5 V DC	Main charging on/off, output
7-5	7-3	0/5 V DC (pulse)	Developing bias CLOCK signal, output
7-6	7-3	0/5 V DC	Separation charging on/off, output
7-7	7-3	0 - 5 V DC	Separation charging control voltage, output
7-8	7-3	0 - 5 V DC	Transfer charging control voltage, output
7-9	7-3	0 - 5 V DC	Transfer limit voltage, output
7-10	7-3	0/5 V DC	Transfer charging on/off, output
7-11	7-3	0/5 V DC	Transfer reverse bias remote signal, output
7-12	7-3	0/5 V DC	Transfer forward bias remote signal, output
7-13	7-3	0/5 V DC	Transfer current detection signal, input
7-14	7-3	0/5 V DC	Transfer current detection signal, input
8-1	8-7	5 V DC	5 V DC supply for LSU, output
8-2	8-7	0/5 V DC	LSU SAMPLE signal, output
8-3	8-7	0/5 V DC	LSU POWCONT signal, output
8-4	8-7	0/5 V DC	LSU LASER signal, output
8-5	8-7	0/5 V DC	LSU VIDEO + signal, output

*Optional.

Terminals (CN)		Voltage	Remarks
8-6	8-7	0/5 V DC	LSU VIDEO - signal, output
8-8	8-9	0/5 V DC	LSU PD signal, input
8-10	8-11	24 V DC	24 V DC supply for PM, output
8-12	8-11	0/24 V DC	PM SCAN signal, output
8-13	8-9	0/5 V DC	PM READY signal, input
8-14	8-11	0/5 V DC (pulse)	PM CLOCK signal, output
9-A2	9-A1	0/5 V DC	BYPFSW on/off, input
9-A3	9-A1	5 V DC	5 V DC supply for BYPFSW, output
9-A4	9-A6	5 V DC	5 V DC supply for TCS, output
9-A5	9-A6	0/5 V DC	TCS on/off, input
9-A8	9-A10	5 V DC	5 V DC supply for TNS, output
9-A9	9-A10	0/5 V DC	TNS on/off, input
9-A11	9-A10	0/5 V DC	Developing unit detection signal, input
9-A12	9-A10	0/5 V DC	Developing unit FUSE CUT signal, output
9-B2	9-B1	0/24 V DC	TNFSOL on/off, output
9-B3	9-B4	0/5 V DC	TCDSW on/off, input
9-B7	9-B6	0/5 V DC	CL on/off, output
9-B8	9-B6	0/5 V DC	Drum unit DATA signal, output
9-B9	9-B6	0/5 V DC	Drum unit CLOCK signal, output
9-B11	9-B10	0/5 V DC	Drum unit detection signal, input
9-B12	9-10	5 V DC	5 V DC supply for drum unit, output
10-A2	10-A1	0/5 V DC	RSW on/off, input
10-A3	10-A1	5 V DC	5 V DC supply for RSW, output
10-A5	10-A8	5 V DC	5 V DC supply for FTH, output
10-A6	10-A8	0 - 5 V DC	FTH detection voltage, input
10-A7	10-A8	0/5 V DC	FTH FUSE CUT signal, input
10-B1	10-B3	24 V DC	24 V DC supply for DUPFCL*, output
10-B2	10-B3	0/24 V DC	DUPFCL* on/off, output
10-B4	10-B3	0/5 V DC	DUPPCSW* on/off, input
10-B5	10-B3	5 V DC	5 V DC supply for DUPPCSW*, output
10-B7	10-B6	0/5 V DC	Duplex unit* connection signal, input
11-1	11-3	24 V DC	24 V DC supply for DM, output
11-2	11-4	24 V DC	24 V DC supply for PFM, output
11-5	11-7	5 V DC	24 V DC supply for DM, input
11-9	11-3	0/24 V DC	DM S/S signal, output
11-10	11-4	0/24 V DC	PFM S/S signal, output
11-11	11-3	0/24 V DC	DM L/D signal, input
11-12	11-4	0/24 V DC	PFM L/D signal, input
11-13	11-7	0/5 V DC (pulse)	DM CLOCK signal, output
11-14	11-4	0/24 V DC	FCL1 on/off, output
11-15	11-4	24 V DC	24 V DC supply for FCL1, output
11-17	11-16	0/5 V DC	FSW1 on/off, input
11-18	11-16	5 V DC	5 V DC supply for FSW, output
12-1	12-6	24 V DC	24 V DC supply for PWSW-U, output
12-2	12-6	24 V DC	24 V DC supply from PWSW-U, input
12-3	12-6	0/24 V DC	PWSW-U paper width detection signal, input
12-4	12-6	0/24 V DC	PWSW-U paper width detection signal, input
12-5	12-6	0/24 V DC	PWSW-U paper width detection signal, input
12-7	12-12	24 V DC	24 V DC supply for PWSW-L, output
12-8	12-12	24 V DC	24 V DC supply from PWSW-L, input
12-9	12-12	0/24 V DC	PWSW-L paper width detection signal, input
12-10	12-12	0/24 V DC	PWSW-L paper width detection signal, input
12-11	12-12	0/24 V DC	PWSW-L paper width detection signal, input
13-A2	13-A1	0/5 V DC	FSW3 on/off, input
13-A3	13-A1	5 V DC	5 V DC supply for FSW3, output
13-A4	13-A16	24 V DC	24 V DC supply for FCL3, output

*Optional.

Terminals (CN)		Voltage	Remarks
13-A5	13-A16	0/24 V DC	FCL3 on/off, output
13-A7	13-A6	0/5 V DC	FSW2 on/off, input
13-A8	13-A6	5 V DC	5 V DC supply for FSW2, output
13-A10	13-A9	0/5 V DC	SCSW on/off, input
13-A11	13-A16	24 V DC	24 V DC supply for FCL2, output
13-A12	13-A16	0/24 V DC	FCL2 on/off, output
13-A13	13-A14	0/5 V DC	LM-U paper level detection switch on/off, input
13-A15	13-A14	0/5 V DC	LM-U paper level detection switch on/off, input
13-A17	13-A16	0/24 V DC	LM-U on/off, output
13-A19	13-A18	0/5 V DC	PLSW-L on/off, inout
13-B2	13-B1	0/5 V DC	PLSW-U on/off, inout
13-B3	13-B4	0/5 V DC	LM-L paper level detection switch on/off, input
13-B5	13-B4	0/5 V DC	LM-L paper level detection switch on/off, input
13-B7	13-B6	0/24 V DC	LM-L on/off, output
13-B9	13-B8	0/5 V DC	LICSW-U on/off, input
13-B10	13-B8	5 V DC	5 V DC supply for LICSW-U, output
13-B12	13-B11	0/5 V DC	PSW-U on/off, input
13-B13	13-B11	5 V DC	5 V DC supply for PSW-U, output
13-B15	13-B14	0/5 V DC	LICSW-L on/off, input
13-B16	13-B14	5 V DC	5 V DC supply for LICSW-L, output
13-B18	13-B17	0/5 V DC	PSW-L on/off, input
13-B19	13-B17	5 V DC	5 V DC supply for PSW-L, output
16-A1	16-A14	0/24 V DC	FSSOL release signal, output
16-A2	16-A14	0/24 V DC	FSSOL acutuate signal, output
16-A3	16-A14	24 V DC	24 V DC supply for FSSOL, output
16-A5	16-A4	0/5 V DC	FSSW on/off, input
16-A6	16-A4	5 V DC	5 V DC supply for FSSW, input
16-A11	16-A10	0/5 V DC	ESW on/off, input
16-A12	16-A10	5 V DC	5 V DC supply for ESW, output
16-A13	16-A14	0/24 V DC	CFM1 on/off, output
16-A16	16-A15	0/5 V DC	CCSW on/off, input
16-B1	16-A14	0/24 V DC	PFCL-U on/off, output
16-B2	16-A14	24 V DC	24 V DC supply for PFCL-U, output
16-B3	16-A14	24 V DC	24 V DC supply for PFCL-L, output
16-B4	16-A14	0/24 V DC	PFCL-L on/off, output
16-B5	16-A14	24 V DC	24 V DC supply for RCL, output
16-B6	16-A14	0/24 V DC	RCL on/off, output
16-B7	16-B9	5 V DC	5 V DC supply for HUMSENS, output
16-B8	16-B9	0 - 5 V DC	HUMSENS detection voltage, input
16-B10	16-B9	0 - 5 V DC	ETTH detection voltage, input
16-B11	16-A14	0/24 V DC (pulse)	EM coil energization pulse, output ($\overline{B}$)
16-B12	16-A14	0/24 V DC (pulse)	EM coil energization pulse, output (B)
16-B13	16-A14	0/24 V DC (pulse)	EM coil energization pulse, output ($\overline{A}$)
16-B14	16-A14	0/24 V DC (pulse)	EM coil energization pulse, output (A)
16-B15	16-A14	24 V DC	24 V DC supply for CFM4, output
16-B16	16-A14	0/24 V DC	CFM4 on/off, output
31-1	2-2	24 V DC	24 V DC supply from MSW, input
31-2	2-2	0/5 V DC	MSW on/off, output
31-3	2-2	24 V DC	24 V DC supply for TC, output
31-4	2-2	0/5 V DC	TC count signal, output
31-8	31-7	0/5 V DC	Key counter* connection signal, input
31-9	2-2	24 V DC	24V DC supply for key counter*, output
31-10	2-2	0/5 V DC	Key counter* count signal, output
32-1	2-2	0/5 V DC	OFM* RET signal, output
32-2	2-2	0/5 V DC (pulse)	OFM* CLOCK signal, output
32-3	2-2	0/5 V DC	OFM* CWB signal, output

*Optional.

Terminals (CN)		Voltage	Remarks
32-4	2-2	0/5 V DC	OCM* ENABLE signal, output
32-5	2-2	0/5 V DC	OCM* RET signal, output
32-6	2-2	0/5 V DC (pulse)	OCM* CLOCK signal, output
32-7	2-2	0/5 V DC	OCM* CWB signal, output
32-8	2-2		OCM* current control voltage Vref, output
32-9	2-2	0/5 V DC	OCM* drive control signal M3, output
32-10	2-2	0/5 V DC	OCM* drive control signal M2, output
32-11	2-2	0/5 V DC	OCM* drive control signal M1, output
33-A2	2-2	0/5 V DC	OSBSW* on/off, input
33-A3	2-2	0/5 V DC	OFSW* on/off, input
33-A4	2-2	0/5 V DC	OSSW* on/off, input
33-A7	2-2	0/5 V DC	SRDF* connection signal, input
33-A8	2-2	0/5 V DC	OSWSW* on/off, input
33-A9	2-2	0/5 V DC	DFSSW2* on/off, input
33-A10	2-2	0/5 V DC	DFSSW1* on/off, input
33-A11	2-2	0/5 V DC	OSLSW* on/off, input
33-A12	2-2	0/5 V DC	DFTSW* on/off, input
33-B1	2-2	0/5 V DC	OSLED* (red) on/off, output
33-B2	2-2	0/5 V DC	OSLED* (green) on/off, output
33-B3	2-2	0/24 V DC	SBPSOL* release signal, output
33-B4	2-2	0/24 V DC	SBPSOL* actuate signal, output
33-B5	2-2	0/24 V DC	OFCL* on/off, output
33-B6	2-2	0/24 V DC	EFSSOL* on/off, output
33-B8	2-2	0/24 V DC	SBFSSOL* on/off, output
33-B9	2-2	0/24 V DC	OFSOL* release signal, output
33-B10	2-2	0/24 V DC	OFSOL* actuate signal, output
33-B11	2-2	0/5 V DC	OFM* ENABLE signal, input
33-B12	2-2	0/5 V DC	OFM* ENABLE signal, input
34-2	34-1	4.5 V DC (pulse)	CCDPCB ODD signal, input (analog)
34-4	34-3	4.5 V DC (pulse)	CCDPCB EVEN signal, input (analog)
34-5	34-7	12 V DC	12 V DC supply for CCDPCB, output
34-6	34-7	5 V DC	5 V DC supply for CCDPCB, output
34-8	34-9	0/5 V DC (pulse)	CCDPCB CLP signal, output
34-10	34-11	0/5 V DC (pulse)	CCDPCB SHIFT signal, output
34-12	34-11	0/5 V DC (pulse)	CCDPCB CLOCK + signal, output
34-13	34-11	0/5 V DC (pulse)	CCDPCB CLOCK - signal, output
34-14	34-11	0/5 V DC (pulse)	CCDPCB RS + signal, output
34-15	34-11	0/5 V DC (pulse)	CCDPCB RS - signal, output
35-1	35-3	0/5 V DC	JBESW* on/off, input
35-2	35-3	5 V DC	5 V DC supply for JBESW*, output
35-5	35-4	0/5 V DC	Job separator* connection signal, input
35-7	35-6	0/5 V DC	EPDSW* on/off, input
35-8	35-6	5 V DC	5 V DC supply for EPDSW*, output
35-9	35-4	0/5 V DC	LED (JOB)* on/off, output
35-10	35-4	5 V DC	5 V DC supply for LED (JOB)*, output
35-11	35-4	0/24 V DC	FSSOL (JOB)* release signal, output
35-12	35-4	0/24 V DC	FSSOL (JOB)* actuate signal, output
35-13	35-4	24 V DC	24 V DC supply for FSSOL (JOB)*, output
36-1	42-B4	0/5 V DC (pulse)	OPCB-L DIGLED6 signal, output
36-2	42-B4	0/5 V DC (pulse)	OPCB-L DIGLED5 signal, output
36-3	42-B4	0/5 V DC (pulse)	OPCB-L DIGLED4 signal, output
36-4	42-B4	0/5 V DC (pulse)	OPCB-L DIGLED3 signal, output
36-5	42-B4	0/5 V DC (pulse)	OPCB-L DIGLED2 signal, output
36-6	42-B4	0/5 V DC (pulse)	OPCB-L DIGLED1 signal, output
36-7	42-B4	0/5 V DC (pulse)	OPCB-L SCAN4 signal, output
36-8	42-B4	0/5 V DC (pulse)	OPCB-L SCAN3 signal, output

*Optional.

Terminals (CN)		Voltage	Remarks
36-9	42-B4	0/5 V DC (pulse)	OPCB-L SCAN2 signal, output
36-10	42-B4	0/5 V DC (pulse)	OPCB-L SCAN1 signal, output
36-11	42-B4	0/5 V DC	OPCB-L DIGKEY3 signal, input
36-12	42-B4	0/5 V DC	OPCB-L DIGKEY2 signal, input
36-13	42-B4	0/5 V DC	OPCB-L DIGKEY1 signal, input
37-2	37-1	0/5 V DC	SHPSW on/off, input
37-3	37-1	0/5 V DC	EL on/off, output
37-4	37-1	0/5 V DC	SM ENABLE signal, output
37-5	37-1	0/5 V DC	SM RET signal, output
37-6	37-1	0/5 V DC	SM CWB signal, output
37-7	37-1	0/5 V DC (pulse)	SM CLOCK signal, output
37-8	37-1	0/5 V DC	SM drive control signal M5, output
37-9	37-1	0/5 V DC	SM drive control signal M4, output
37-10	37-1	0/5 V DC	SM drive control signal M3, output
37-11	37-1	0/5 V DC	SM drive control signal M2, output
37-12	37-1	0/5 V DC	SM drive control signal M1, output
37-13	37-1		SM current control voltage Vref, output
37-14	37-1	0/5 V DC	ODSW on/off, input
37-16	37-15	0/5 V DC	OSDS on/off, input
37-17	37-15	5 V DC	5 V DC supply for OSDS, output
42-A1	42-B4	0/5 V DC	OPCB-L BUZZER signal, output
42-A2	42-B4	0/5 V DC (pulse)	Touch panel detection voltage X1, input
42-A3	42-B4	0/5 V DC (pulse)	Touch panel detection voltage Y1, input
42-A4	42-B4	0/5 V DC (pulse)	Touch panel detection voltage X2, output
42-A5	42-B4	0/5 V DC (pulse)	Touch panel detection voltage Y2, output
42-A6	42-B4	0/5 V DC (pulse)	LCD FRAME signal, output
42-A7	42-B4	0/5 V DC (pulse)	LCD LOAD signal, output
42-A8	42-B4	0/5 V DC (pulse)	LCD CP signal, output
42-A9	42-B4	GND	LCD VSS signal, output
42-A10	42-B4	5 V DC	LCD VDD signal, output
42-A11	42-B4	GND	LCD VSS signal, output
42-A12	42-B4	0/5 V DC	LCD DISPLAY signal, output
42-A13	42-B4	0/5 V DC (pulse)	LCD D0 data, output
42-A14	42-B4	0/5 V DC (pulse)	LCD D1 data, output
42-A15	42-B4	0/5 V DC (pulse)	LCD D2 data, output
42-A16	42-B4	0/5 V DC (pulse)	LCD D3 data, output
42-A17	42-B4	0/5 V DC (pulse)	LCD VEE signal, output
42-B2	42-B1	24 V DC	24 V DC supply for OPCB-R, output
42-B3	42-B4	0/5 V DC	OPCB-R LAMP OFF signal, output
42-B5	42-B4	5 V DC	5 V DC supply for OPCB-R, output
42-B6	42-B4	0/5 V DC (pulse)	OPCB-R DIGLED8 signal, output
42-B7	42-B4	0/5 V DC (pulse)	OPCB-R DIGLED7 signal, output
42-B8	42-B4	0/5 V DC (pulse)	OPCB-R SCAN8 signal, output
42-B9	42-B4	0/5 V DC (pulse)	OPCB-R SCAN7 signal, output
42-B10	42-B4	0/5 V DC (pulse)	OPCB-R SCAN6 signal, output
42-B11	42-B4	0/5 V DC (pulse)	OPCB-R SCAN5 signal, output
42-B12	42-B4	0/5 V DC	OPCB-R DIGKEY9 signal, input
42-B13	42-B4	0/5 V DC	OPCB-R DIGKEY8 signal, input
42-B14	42-B4	0/5 V DC	OPCB-R DIGKEY7 signal, input
42-B15	42-B4	0/5 V DC	OPCB-R DIGKEY6 signal, input
42-B16	42-B4	0/5 V DC	OPCB-R DIGKEY5 signal, input
42-B17	42-B4	0/5 V DC	OPCB-R DIGKEY4 signal, input
43-A1	43-A2	5/0 V DC (pulse)	Printer board* PRINTN signal, output
43-A3	43-A2	5/0 V DC (pulse)	Printer board* SI signal, output
43-A4	43-A2	5/0 V DC (pulse)	Printer board* SCLK signal, input
43-A5	43-A2	5/0 V DC (pulse)	Printer board* SBSY signal, output

*Optional.

Terminals (CN)		Voltage	Remarks
43-A6	43-A2	5/0 V DC (pulse)	Printer board* SO signal, input
43-A7	43-A2	5/0 V DC (pulse)	Printer board* RESET signal, output
43-A8	43-A2	5/0 V DC (pulse)	Printer board* PDOUT signal, output
43-A10	43-A2	5/0 V DC (pulse)	Printer board* VDATAP signal, input
43-A12	43-A2	5/0 V DC (pulse)	Printer board* VDATAN signal, input
43-A14	43-A2	5/0 V DC (pulse)	Printer board* FPCLKsignal, output
43-A15	43-A2	5/0 V DC (pulse)	Printer board* FPDAT signal, input
43-A17	43-A2	5/0 V DC (pulse)	Printer board* VDATA signal, input
43-B1	43-A2	5 V DC	Printer board* 5 V DC supply, output
43-B2	43-A2	5 V DC	Printer board* 5 V DC supply, output
43-B3	43-A2	5 V DC	Printer board* 5 V DC supply, output
43-B4	43-A2	5/0 V DC (pulse)	Printer board* SDIR signal, output
43-B5	43-A2	5/0 V DC (pulse)	Printer board* ESGIR signal, output
43-B6	43-A2	5/0 V DC (pulse)	Printer board* VDFON signal, output
43-B7	43-A2	5/0 V DC (pulse)	Printer board* VSREQN signal, output
43-B12	43-A2	5/0 V DC (pulse)	Printer board* FPDIR signal, output
43-B13	43-A2	5/0 V DC (pulse)	Printer board* FPPOWER signal, output
43-B15	43-A2	5 V DC	Printer board* 5 V DC supply, output
43-B16	43-A2	5 V DC	Printer board* 5 V DC supply, output
43-B17	43-A2	5 V DC	Printer board* 5 V DC supply, output
43-B18	43-A2	5 V DC	Printer board* 5 V DC supply, output
43-B19	43-A2	5 V DC	Printer board* 5 V DC supply, output
43-B20	43-A2	5 V DC	Printer board* 5 V DC supply, output
44-1	44-2	3.3 V DC	Fax board* 3.3 V DC supply, output
44-3	44-4	5/0 V DC (pulse)	Fax board* FPVCLK signal, output
44-5	44-6	5/0 V DC (pulse)	Fax board* FVCLK signal, input
44-7	44-8	5/0 V DC (pulse)	Fax board* FMRE signal, input
44-9	44-10	5/0 V DC (pulse)	Fax board* /FPVD signal, input
44-11	44-12	5/0 V DC (pulse)	Fax board* /FPHSYNC signal, output
44-13	44-14	5/0 V DC (pulse)	Fax board* /FPVSYNC signal, output
44-15	44-16	5/0 V DC (pulse)	Fax board* /FOVSYNC signal, output
44-17	44-18	5/0 V DC (pulse)	Fax board* /FOHSTHIN signal, output
44-19	44-20	5/0 V DC (pulse)	Fax board* FMIPOUTO signal, output
44-21	44-22	5/0 V DC (pulse)	Fax board* FMREOUT signal, output
44-23	44-24	5/0 V DC (pulse)	Fax board* FFOCLK signal, output
44-25	44-26	5/0 V DC (pulse)	Fax board* /MMISTS signal, output
44-27	44-28	Analog	Fax board* FMMI_TXD2 signal, output
44-29	44-30	Analog	Fax board* FMMI_RXD2 signal, input
44-31	44-30	5/0 V DC (pulse)	Fax board* /FAXRESET signal, output
44-32	44-30	5/0 V DC (pulse)	Fax board* /FAXREADY signal, input
44-33	44-30	5/0 V DC (pulse)	Fax board* /PREQ signal, input
44-34	44-30	5/0 V DC (pulse)	Fax board* /SREQ signal, input
44-35	44-30	5/0 V DC (pulse)	Fax board* /SETFAX signal, input
44-36	44-30	5/0 V DC (pulse)	Fax board* /MAINSTS signal, output
44-38	44-37	Analog	Fax board* FMAIN_TXD0 signal, output
44-40	44-39	Analog	Fax board* FMAIN_RXD0 signal, input

2-3-3 Operation unit PCB

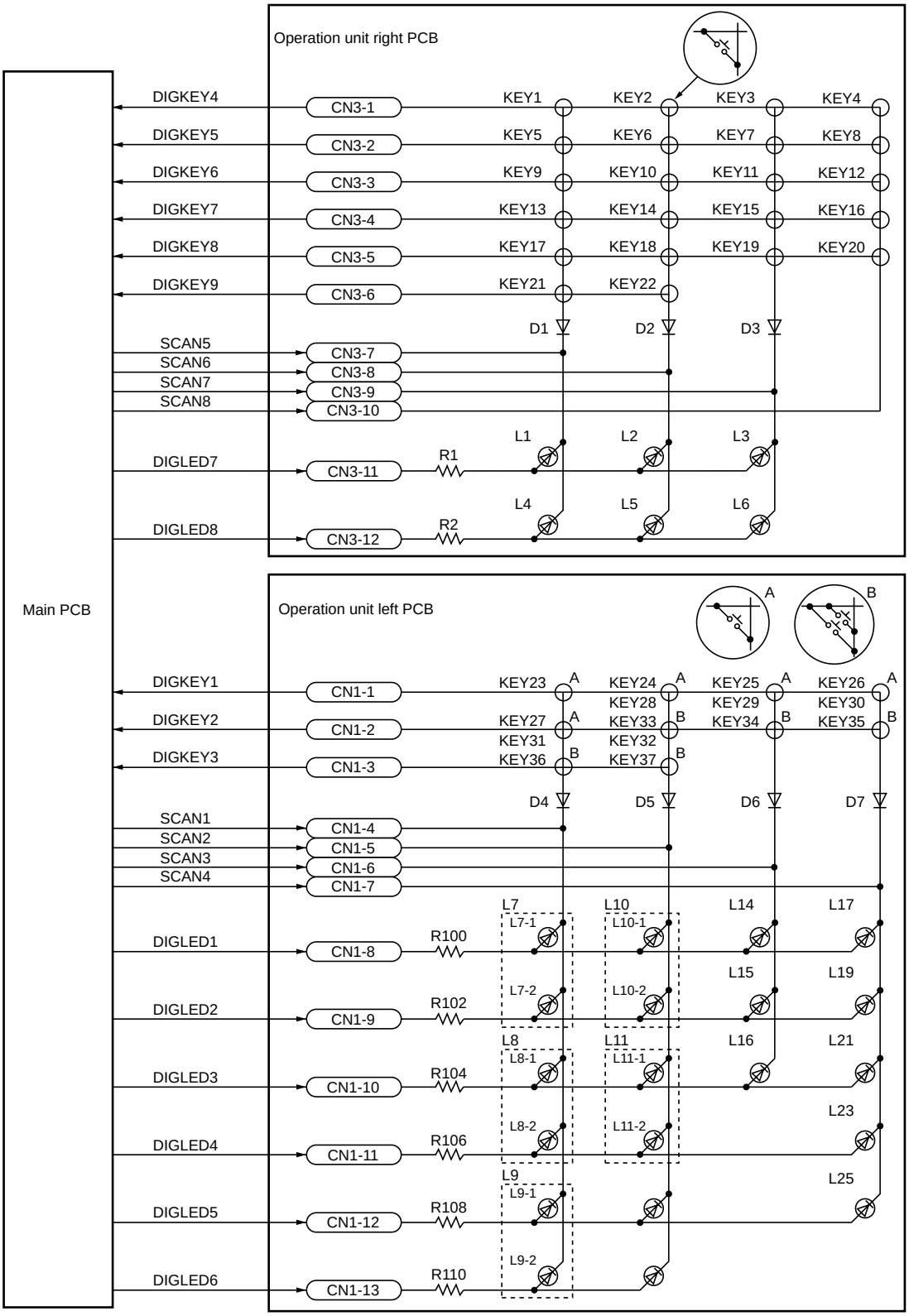


Figure 2-3-5 Operation unit PCB block diagram

The operation unit PCB (OPCB) consists of the operation unit left PCB (OPCB-L) and the operation unit right PCB (OPCB-R).
The operation unit right PCB (OPCB-R) consists of key switches and LEDs. The lighting of LEDs is determined by scan signals (SCAN5 to SCAN8) and LED lighting selection signals (DIGLED7 to DIGLED8) from the main PCB (MPCB). The key switches operated are identified by the scan signals (SCAN5 to SCAN8) and the return signals (DIGKEY4 to DIGKEY9).
As an example, to light LED 1 (L1), the LED lighting selection signal (DIGLED7) should be driven low in synchronization with a low level on the scan signal (SCAN5). LEDs can be lit dynamically by repeating such operations.
As another example, if KEY 1 is pressed, the corresponding key switch is turned on feeding the low level of the scan signal (SCAN5) back to the main PCB (MPCB) via the return signal (DIGKEY4). The main PCB (MPCB) locates the position where the line outputting the scan signal and the line inputting the return signal cross, and thereby determines which key switch was operated.
The operation unit left PCB (OPCB-L) consists of key switches and LEDs. The lighting of LEDs is determined by scan signals (SCAN1 to SCAN4) and LED lighting selection signals (DIGLED1 to DIGLED6) from the main PCB (MPCB). The key switches operated are identified by the scan signals (SCAN1 to SCAN4) and the return signals (DIGKEY1 to DIGKEY3).
As an example, to light LED 7 (L7), the LED lighting selection signal (DIGLED1) should be driven low in synchronization with a low level on the scan signal (SCAN1). LEDs can be lit dynamically by repeating such operations.
As another example, if KEY 23 is pressed, the corresponding key switch is turned on feeding the low level of the scan signal (SCAN1) back to the main PCB (MPCB) via the return signal (DIGKEY1). The main PCB (MPCB) locates the position where the line outputting the scan signal and the line inputting the return signal cross, and thereby determines which key switch was operated.

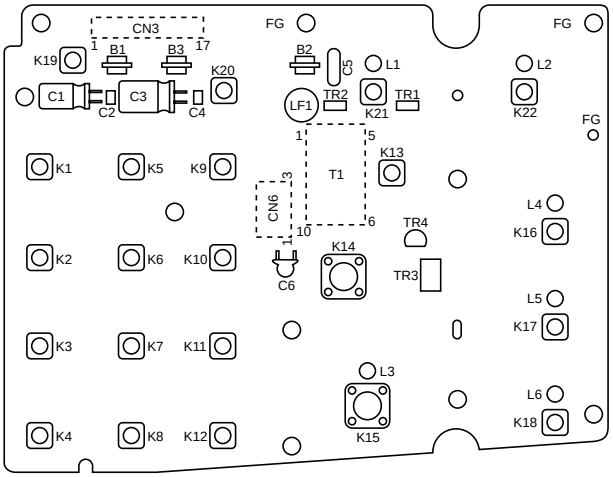


Figure 2-3-6 Operation unit right PCB silk-screen diagram

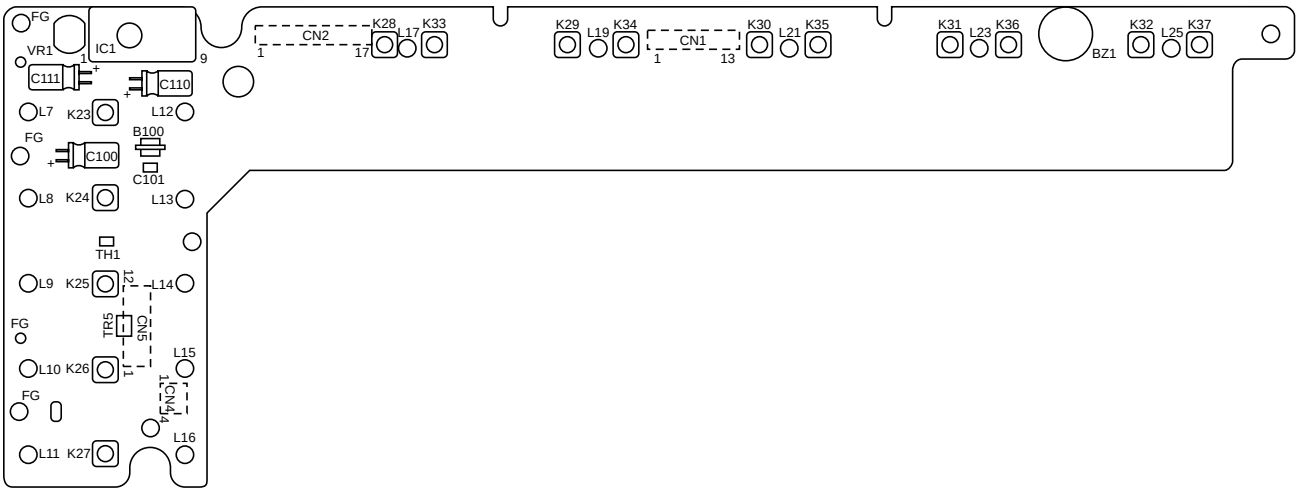


Figure 2-3-7 Operation unit left PCB silk-screen diagram

Terminals (CN)		Voltage	Remarks
1-1	3-14	0/5 V DC	OPCB-L DIGKEY1 signal, output
1-2	3-14	0/5 V DC	OPCB-L DIGKEY2 signal, output
1-3	3-14	0/5 V DC	OPCB-L DIGKEY3 signal, output
1-4	3-14	0/5 V DC (pulse)	OPCB-L SCAN1 signal, input
1-5	3-14	0/5 V DC (pulse)	OPCB-L SCAN2 signal, input
1-6	3-14	0/5 V DC (pulse)	OPCB-L SCAN3 signal, input
1-7	3-14	0/5 V DC (pulse)	OPCB-L SCAN4 signal, input
1-8	3-14	0/5 V DC (pulse)	OPCB-L DIGLED1 signal, input
1-9	3-14	0/5 V DC (pulse)	OPCB-L DIGLED2 signal, input
1-10	3-14	0/5 V DC (pulse)	OPCB-L DIGLED3 signal, input
1-11	3-14	0/5 V DC (pulse)	OPCB-L DIGLED4 signal, input
1-12	3-14	0/5 V DC (pulse)	OPCB-L DIGLED5 signal, input
1-13	3-14	0/5 V DC (pulse)	OPCB-L DIGLED6 signal, input
2-1	3-14	0/5 V DC	LCD VEE signal, input
2-2	3-14	0/5 V DC (pulse)	LCD D3 data, input
2-3	3-14	0/5 V DC (pulse)	LCD D2 data, input
2-4	3-14	0/5 V DC (pulse)	LCD D1 data, input
2-5	3-14	0/5 V DC (pulse)	LCD D0 data, input
2-6	3-14	0/5 V DC	LCD DISPLAY signal, input
2-7	3-14	GND	LCD VSS signal, input
2-8	3-14	5 V DC	LCD VDD signal, input
2-9	3-14	GND	LCD VSS signal, input
2-10	3-14	0/5 V DC (pulse)	LCD CP signal, input
2-11	3-14	0/5 V DC (pulse)	LCD LOAD signal, input
2-12	3-14	0/5 V DC (pulse)	LCD FRAME signal, input
2-13	3-14	0/5 V DC (pulse)	Touch panel detection voltage Y2, input
2-14	3-14	0/5 V DC (pulse)	Touch panel detection voltage X2, input
2-15	3-14	0/5 V DC (pulse)	Touch panel detection voltage Y1, output
2-16	3-14	0/5 V DC (pulse)	Touch panel detection voltage X1, output
2-17	3-14	0/5 V DC (pulse)	OPCB-L BUZZER signal, input
3-1	3-14	0/5 V DC	OPCB-R DIGKEY4 signal, output
3-2	3-14	0/5 V DC	OPCB-R DIGKEY5 signal, output
3-3	3-14	0/5 V DC	OPCB-R DIGKEY6 signal, output
3-4	3-14	0/5 V DC	OPCB-R DIGKEY7 signal, output
3-5	3-14	0/5 V DC	OPCB-R DIGKEY8 signal, output
3-6	3-14	0/5 V DC	OPCB-R DIGKEY9 signal, output
3-7	3-14	0/5 V DC (pulse)	OPCB-R SCAN5 signal, input
3-8	3-14	0/5 V DC (pulse)	OPCB-R SCAN6 signal, input
3-9	3-14	0/5 V DC (pulse)	OPCB-R SCAN7 signal, input
3-10	3-14	0/5 V DC (pulse)	OPCB-R SCAN8 signal, input
3-11	3-14	0/5 V DC (pulse)	OPCB-R DIGLED7 signal, input
3-12	3-14	0/5 V DC (pulse)	OPCB-R DIGLED8 signal, input
3-13	3-14	5 V DC	5 V DC supply for OPCB-R, input
3-15	3-14	0/5 V DC	OPCB-R LAMP OFF signal, input
3-16	3-17	24 V DC	24 V DC supply for OPCB-R, input
4-1	3-14	0/5 V DC (pulse)	Touch panel detection voltage Y2, output
4-2	3-14	0/5 V DC (pulse)	Touch panel detection voltage X2, output
4-3	3-14	0/5 V DC (pulse)	Touch panel detection voltage Y1, input
4-4	3-14	0/5 V DC (pulse)	Touch panel detection voltage X1, input
5-1	3-14	0/5 V DC (pulse)	LCD FRAME signal, output
5-2	3-14	0/5 V DC (pulse)	LCD LOAD signal, output
5-3	3-14	0/5 V DC (pulse)	LCD CP signal, output
5-4	3-14	GND	LCD VSS signal, output
5-5	3-14	5 V DC	LCD VDD signal, output
5-6	3-14	GND	LCD VSS signal, output
5-7	3-14	Analog	LCD control signal, output

Terminals (CN)		Voltage	Remarks
5-8	3-14	0/5 V DC	LCD DISPLAY signal, output
5-9	3-14	0/5 V DC (pulse)	LCD D0 data, output
5-10	3-14	0/5 V DC (pulse)	LCD D1 data, output
5-11	3-14	0/5 V DC (pulse)	LCD D2 data, output
5-12	3-14	0/5 V DC (pulse)	LCD D3 data, output
6-1	3-14	Analog	LCD BACK LIGHT control signal, output
6-3	3-14	GND	LCD BACK LIGHT control signal, output

2-3-4 Scanner drive PCB

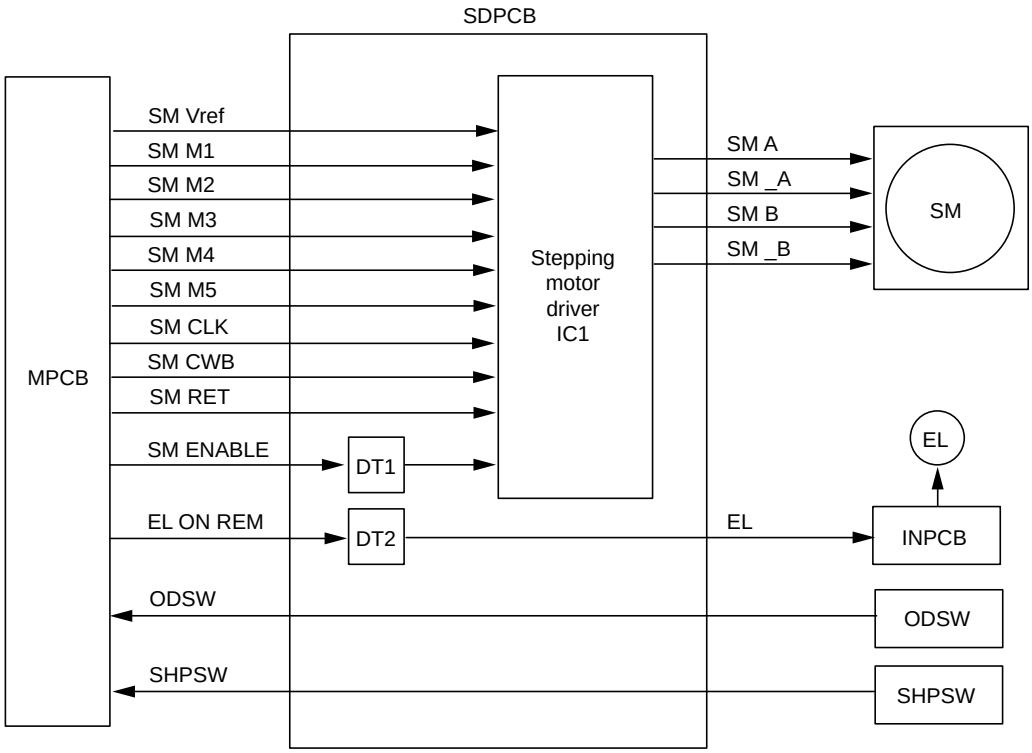


Figure 2-3-8 Scanner drive PCB block diagram

The scanner drive PCB (SDPCB) consists of a stepping motor driver IC (IC1) as the center, digital transistors DT1 and DT2, etc.
Drive of the scanner motor (SM) is controlled by the current setting voltage (SM Vref) that is output from the main PCB (MPCB), the mode signals (SM M1 to M5, SM CWB), the phase switchover clock signal (SM CLK), and the drive/stop signal (SM ENABLE).
Also the main PCB (MPCB) outputs a control signal (EL) through a digital transistor (DT2) to the inverter PCB (INPCB) to turn on or off the exposure lamp (EL).
Also the scanner drive PCB (SDPCB) acts as an interchange circuit of signals for the original detection switch (ODSW) and the scanner home position switch (SHPSW).

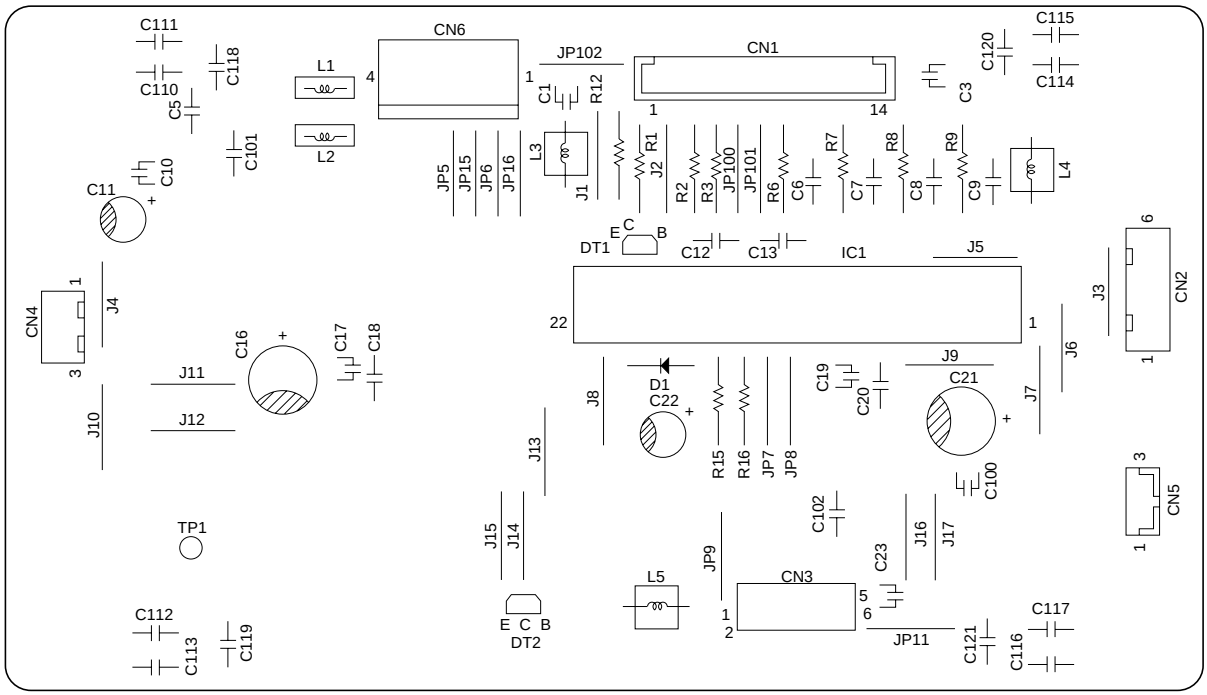


Figure 2-3-9 Scanner drive motor PCB silk-screen diagram

Terminals (CN)		Voltage	Remarks
1-2	1-1	0/5 V DC	SHPSW on/off, output
1-3	1-1	0/5 V DC	EL on/off, input
1-4	1-1	0/5 V DC	SM ENABLE signal, input
1-5	1-1	0/5 V DC	SM RET signal, input
1-6	1-1	0/5 V DC	SM CWB signal, input
1-7	1-1	0/5 V DC (pulse)	SM CLOCK signal, input
1-8	1-1	0/5 V DC	SM drive control voltage M5, input
1-9	1-1	0/5 V DC	SM drive control voltage M4, input
1-10	1-1	0/5 V DC	SM drive control voltage M3, input
1-11	1-1	0/5 V DC	SM drive control voltage M2, input
1-12	1-1	0/5 V DC	SM drive control voltage M1, input
1-13	1-1		SM current control voltage Vref, input
1-14	1-1	0/5 V DC	ODSW on/off, input
2-1	3-6	0/24 V DC (pulse)	SM coil energization pulse, output (_B)
2-2	3-6	24 V DC	24 V DC supply for SM, output
2-3	3-6	0/24 V DC (pulse)	SM coil energization pulse, output (B)
2-4	3-6	0/24 V DC (pulse)	SM coil energization pulse, output (A)
2-5	3-6	24 V DC	24 V DC supply for SM, output
2-6	3-6	0/24 V DC (pulse)	SM coil energization pulse, output (_A)
3-1	3-5	0/5 V DC	EL on/off, output
3-2	3-5	0/5 V DC	EL on/off, output
3-3	3-5	24 V DC	24 V DC supply for INPCB, output
3-4	3-5	24 V DC	24 V DC supply for INPCB, output
4-1	4-3	5 V DC	5 V DC supply for SHPSW, output
4-2	4-3	0/5 V DC	SHPSW on/off, output
5-1	5-3	5 V DC	5 V DC supply for ODSW, output
5-2	5-3	0/5 V DC	ODSW on/off, output
6-2	6-1	24 V DC	24 V DC supply from PSPCB, input
6-4	6-3	5 V DC	5 V DC supply from PSPCB, input

2-3-5 CCD PCB

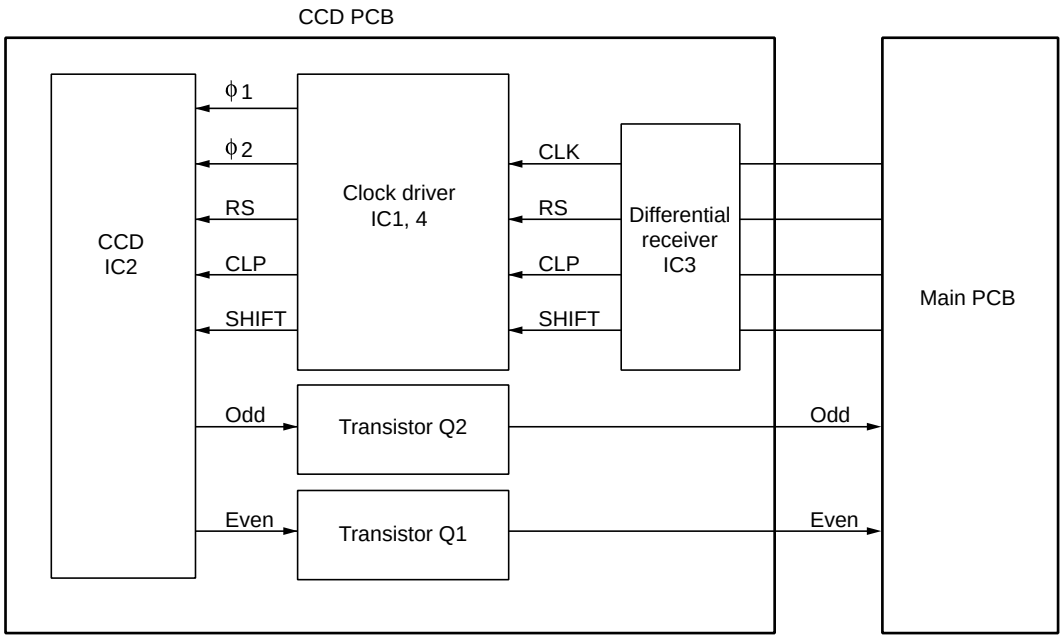


Figure 2-3-10 CCD PCB block diagram

The CCD PCB (CCDPCB) is equipped with a CCD sensor IC2 for original scanning.
The clock signals (CLK, RS, CLP, and SHIFT) for driving the CCD sensor (IC2) are sent as differential signals from the main PCB (MPCB), reconstructed to normal signals by the differential receiver (IC3), and then input to the CCD sensor (IC2) via the clock driver (IC1 and IC4).
Image signals are analog signals. Even- and odd-numbered pixels are output separately. These analog image signals are amplified by emitter followers in the transistors Q1 and Q2 and then transmitted to the analog signal processing circuit in the main PCB (MPCB).

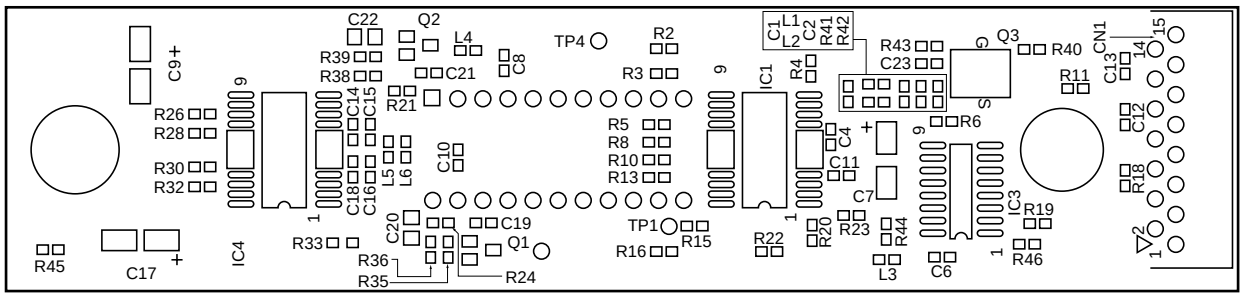
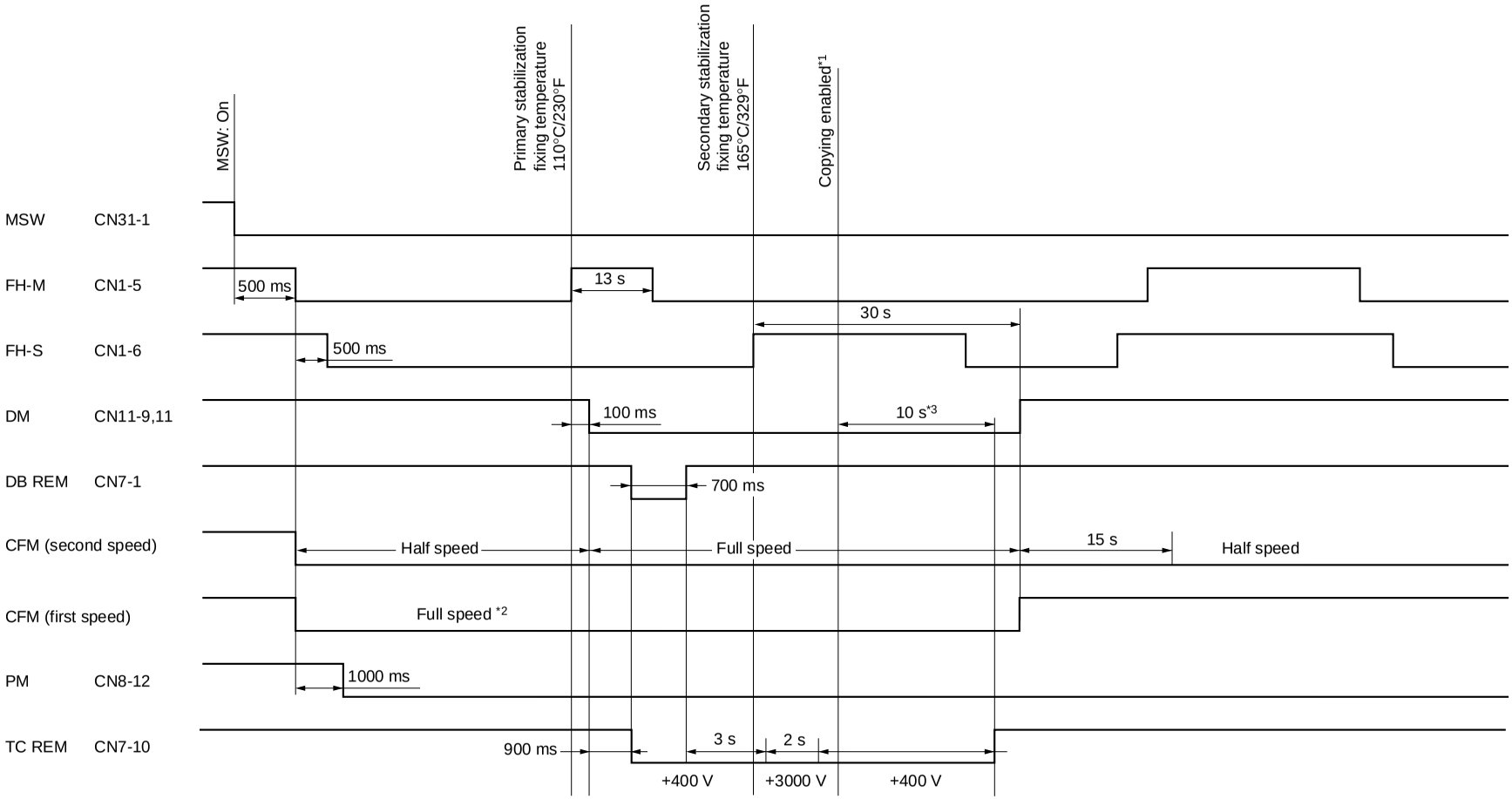


Figure 2-3-11 CCD PCB silk-screen diagram

Terminals (CN)		Voltage	Remarks
1-1	1-5	0/5 V DC (pulse)	CCDPCB RS – signal, input
1-2	1-5	0/5 V DC (pulse)	CCDPCB RS + signal, input
1-3	1-5	0/5 V DC (pulse)	CCDPCB CLOCK – signal, input
1-4	1-5	0/5 V DC (pulse)	CCDPCB CLOCK + signal, input
1-6	1-5	0/5 V DC (pulse)	CCDPCB SHIFT signal, input
1-8	1-7	0/5 V DC (pulse)	CCDPCB CLP signal, input
1-10	1-9	5 V DC	5 V DC supply from CCDPCB, input
1-11	1-9	12 V DC	12 V DC supply from CCDPCB, input
1-12	1-13	4.5 V DC (pulse)	CCDPCB EVEN signal, output (analog)
1-14	1-15	4.5 V DC (pulse)	CCDPCB ODD signal, output (analog)

Timing chart No. 1 From the main switch turned on to machine stabilization

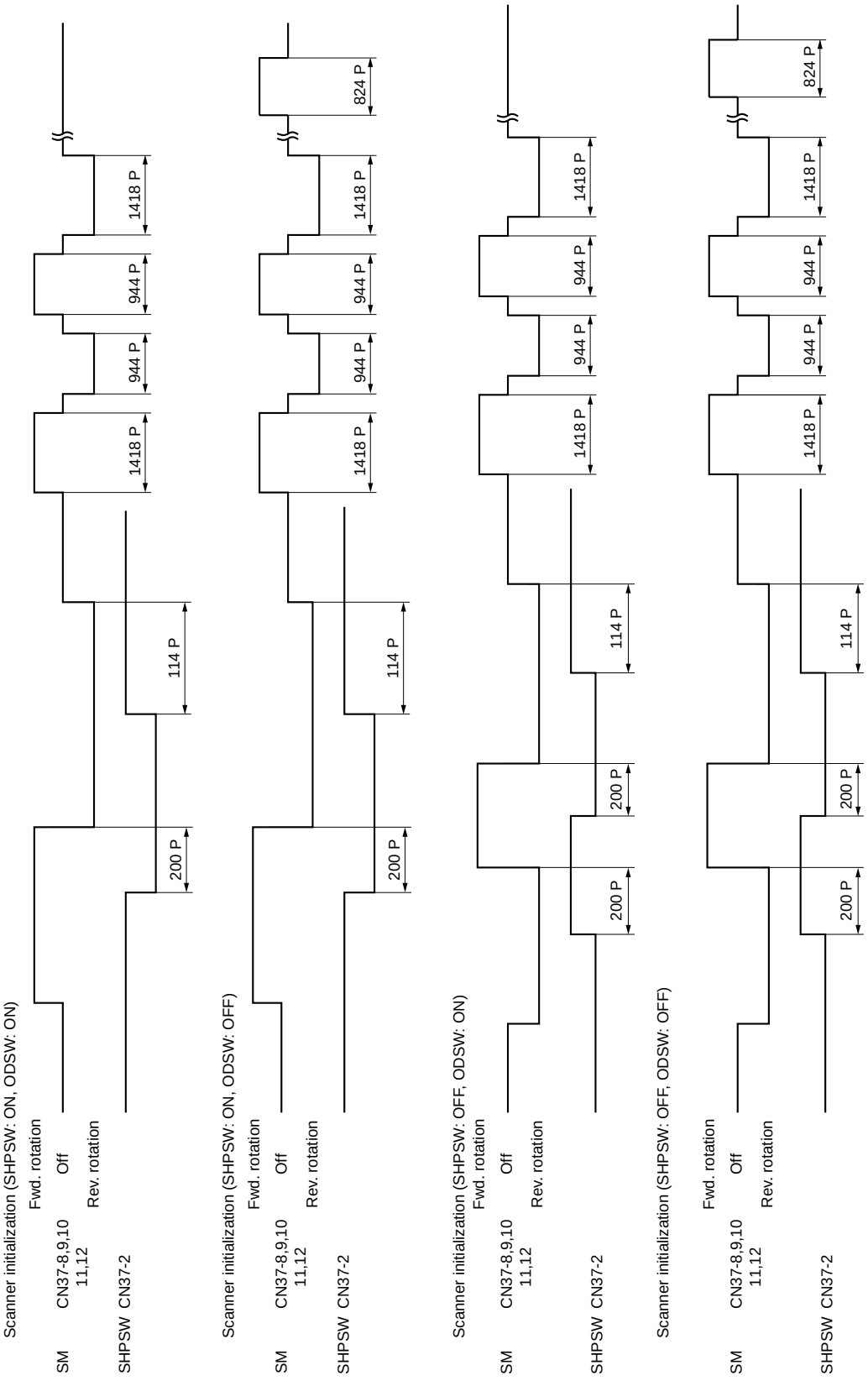


*1: Copying is enabled as follows:
1. When fixing temperature at the main switch turning on is 100°C/212°F or lower
Absolute humidity is 15 g/m^3 or higher:
Copying is enabled 120 s after fixing heater M (FH-M) turning on.
2. When fixing temperature at the main switch turning on is 100°C/212°F or lower
The fixing temperature at the main switch turning on is 13°C/55.4°F or higher and the ambient temperature is 18°C/64.4°F or higher:
Copying is enabled at the earlier timing of either 41 s after fixing heater M (FH-M) turning on or when the copier enters secondary stabilization.
Other than the above:
Copying is enabled at the later timing of either 69 s after fixing heater M (FH-M) turning on or when the copier enters secondary stabilization.
3. Other conditions than 1 and 2
Copying is enabled when the copier enters secondary stabilization.

*2: Rotates for 180 s at full speed when the fixing temperature at the main switch turning on is 100°C/212°F or lower, and the absolute humidity is 15 g/m^3 or higher.

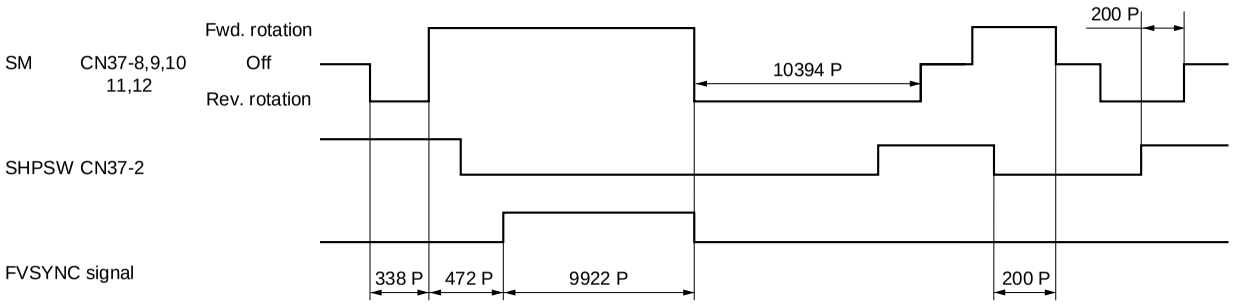
*3: 60 s when the fixing temperature at main switch turning on is 100°C/212°F or lower, and the absolute humidity is 15 g/m^3 or higher.

Timing chart No. 2 Scanner initialization

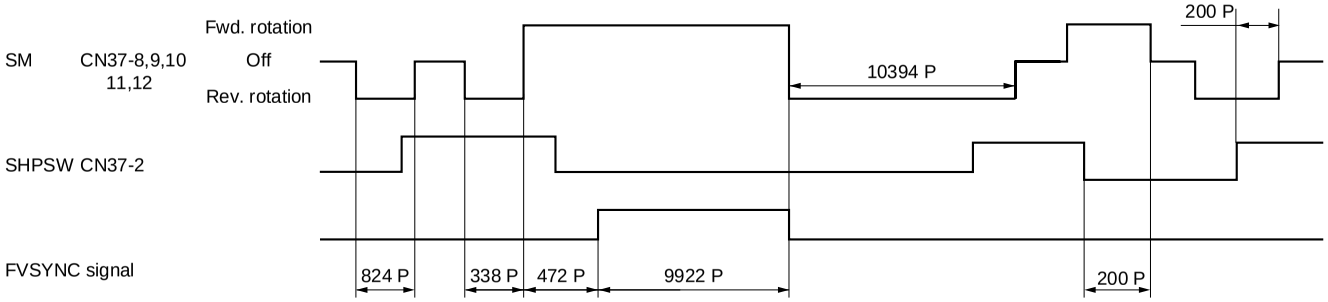


Timing chart No. 3 Original scanning operation

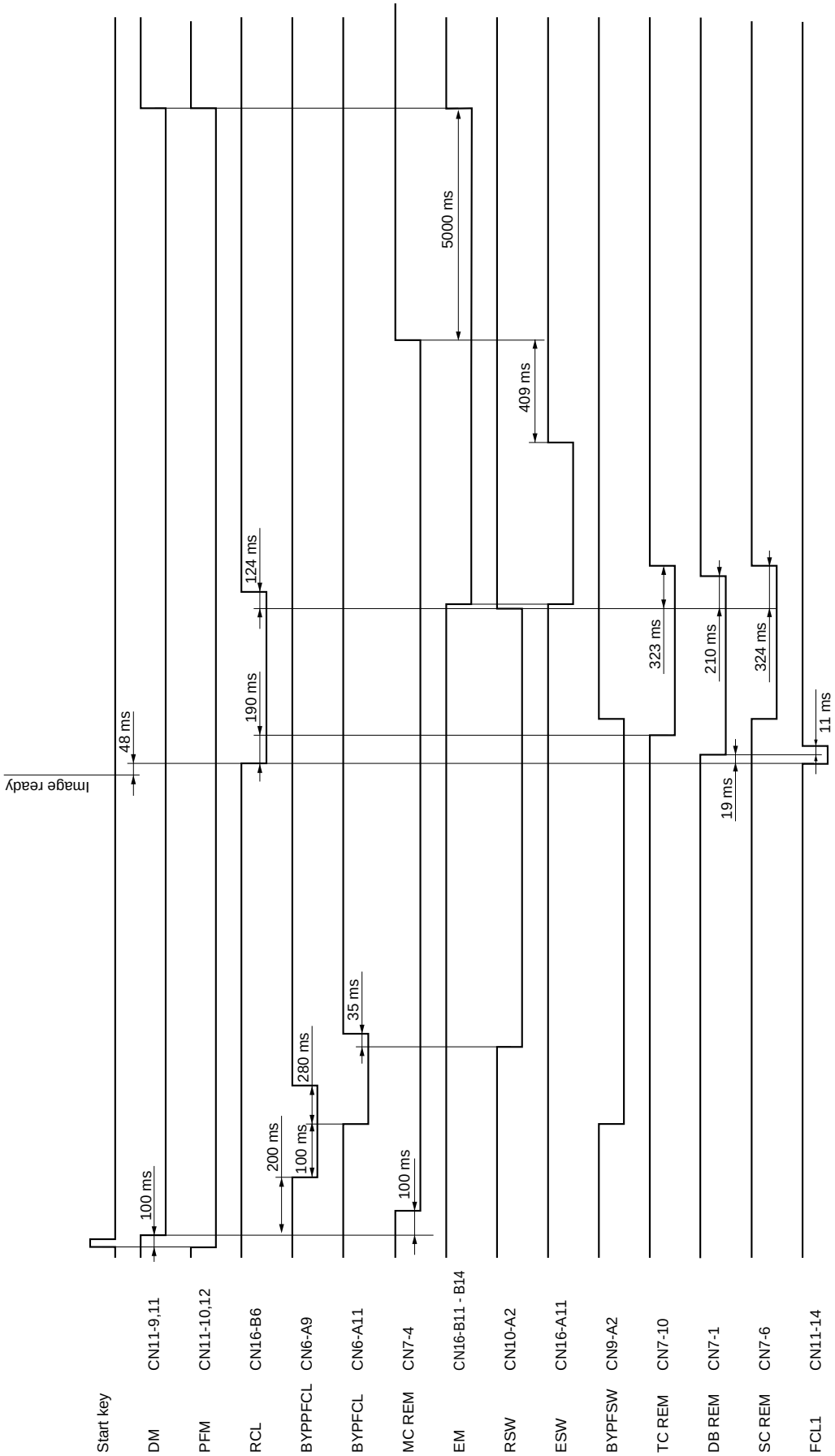
Scanning an A3/11" × 17" original, magnification ratio 100% (ODSW: ON)



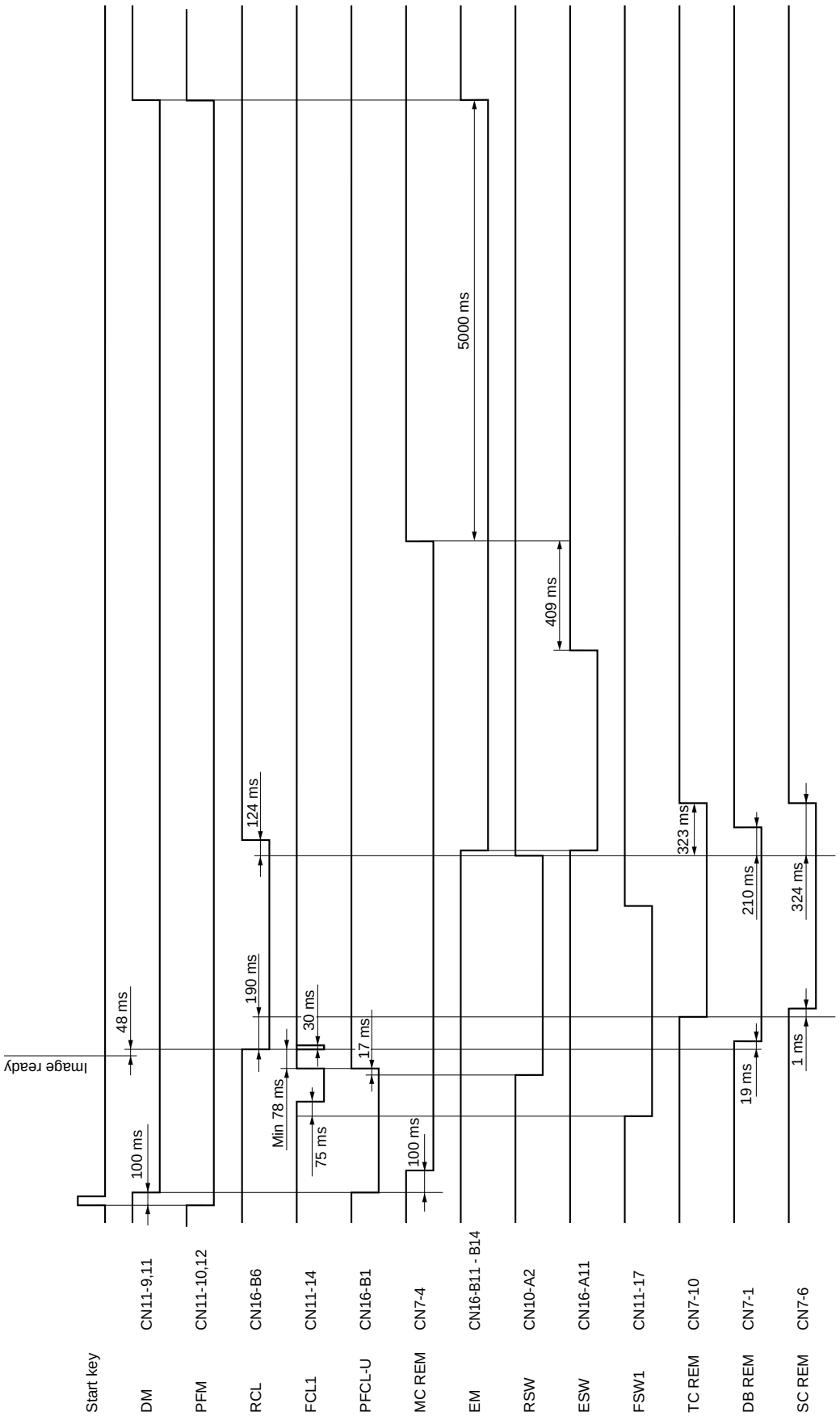
Scanning an A3/11" × 17" original, magnification ratio 100% (ODSW: OFF)



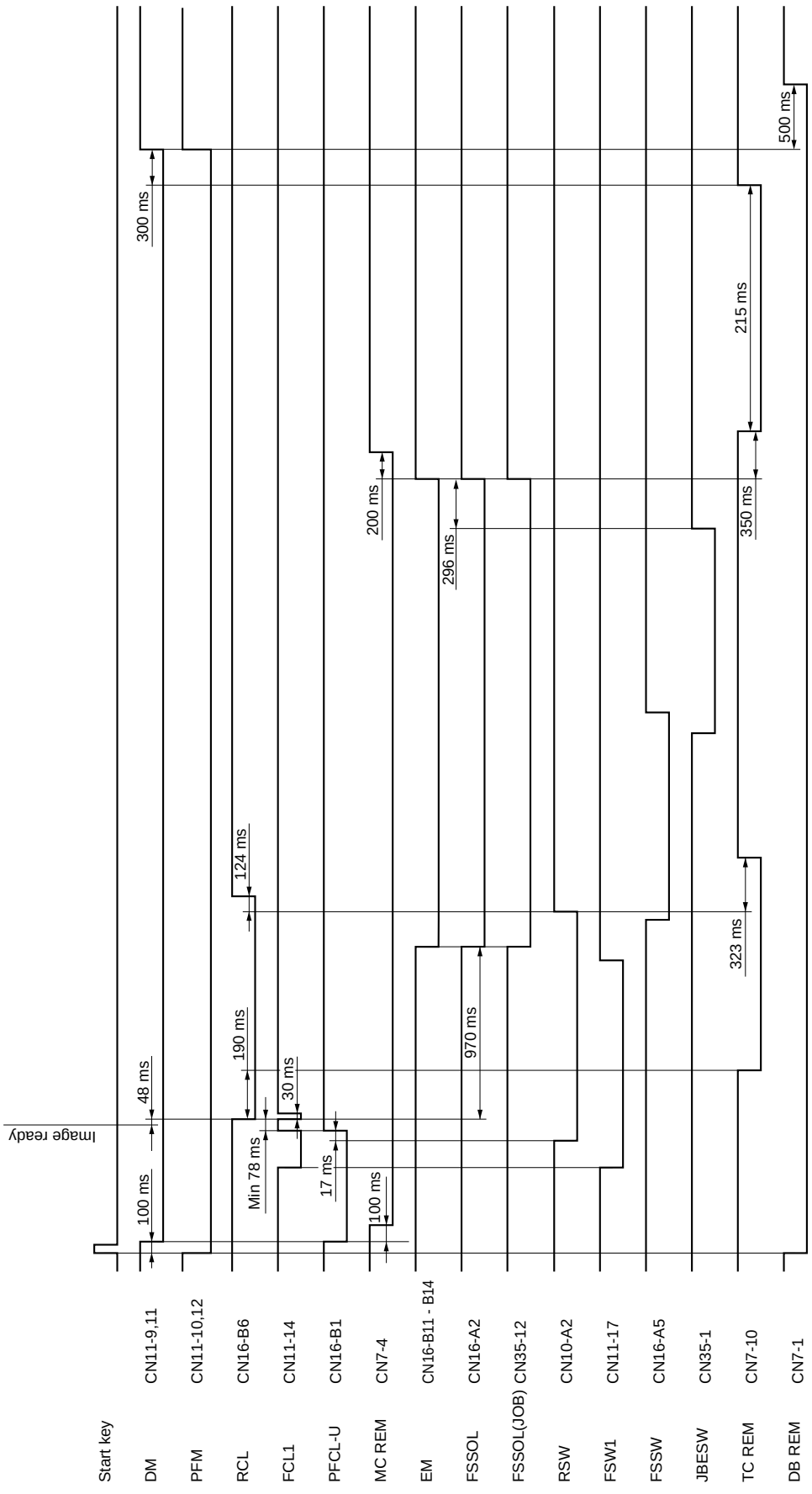
Timing chart No. 4 Copying an A3/11"×17" original onto an A5R/5$^1/_2$"×8$^1/_2$" copy paper from the bypass table, magnification ratio 25%, manual copy density control



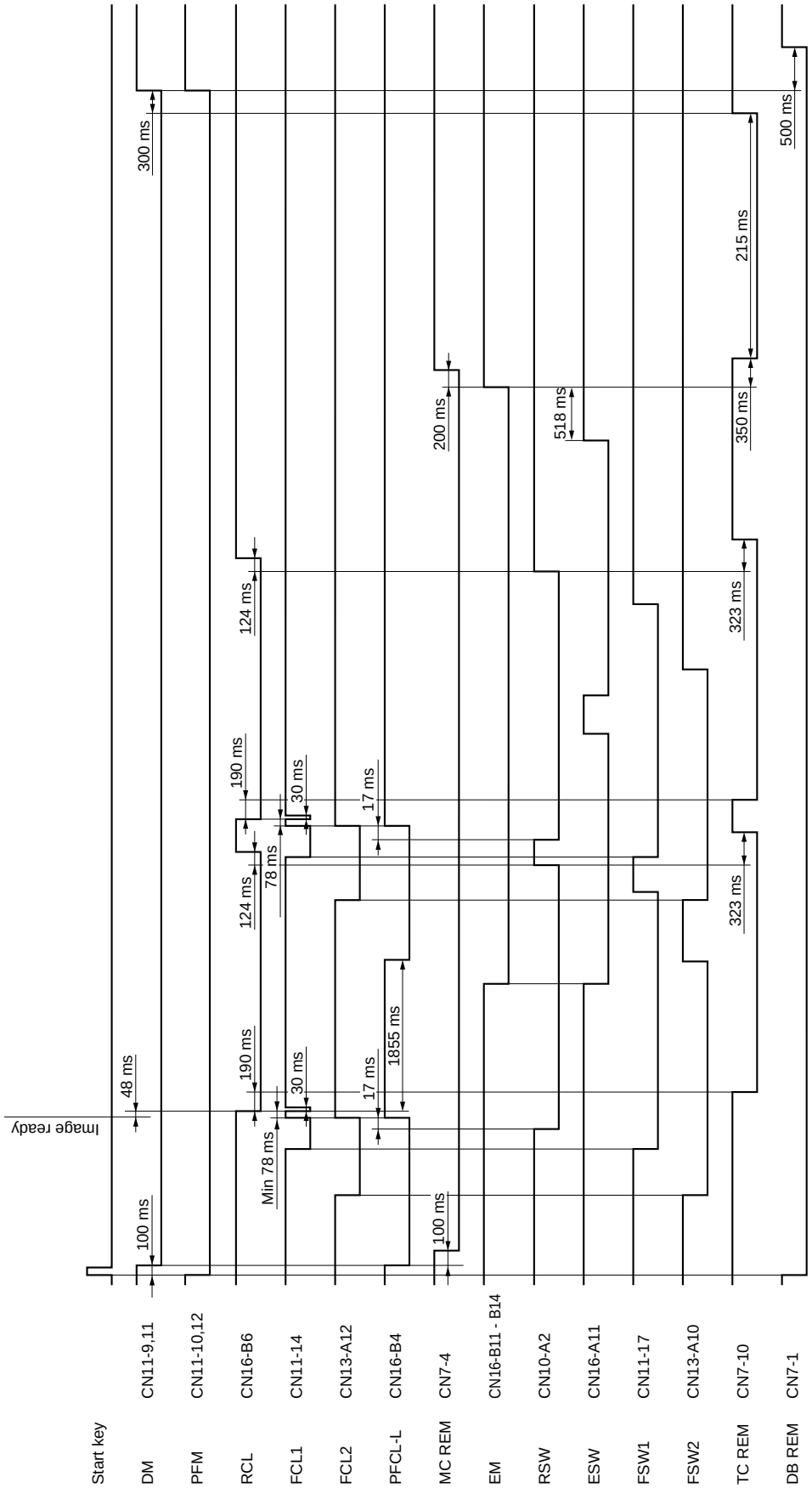
Timing chart No. 5 Copying an A4/11"×8½" original onto an A4/11"×8½" copy paper from the copier upper drawer, magnification ratio 100%, auto copy density control



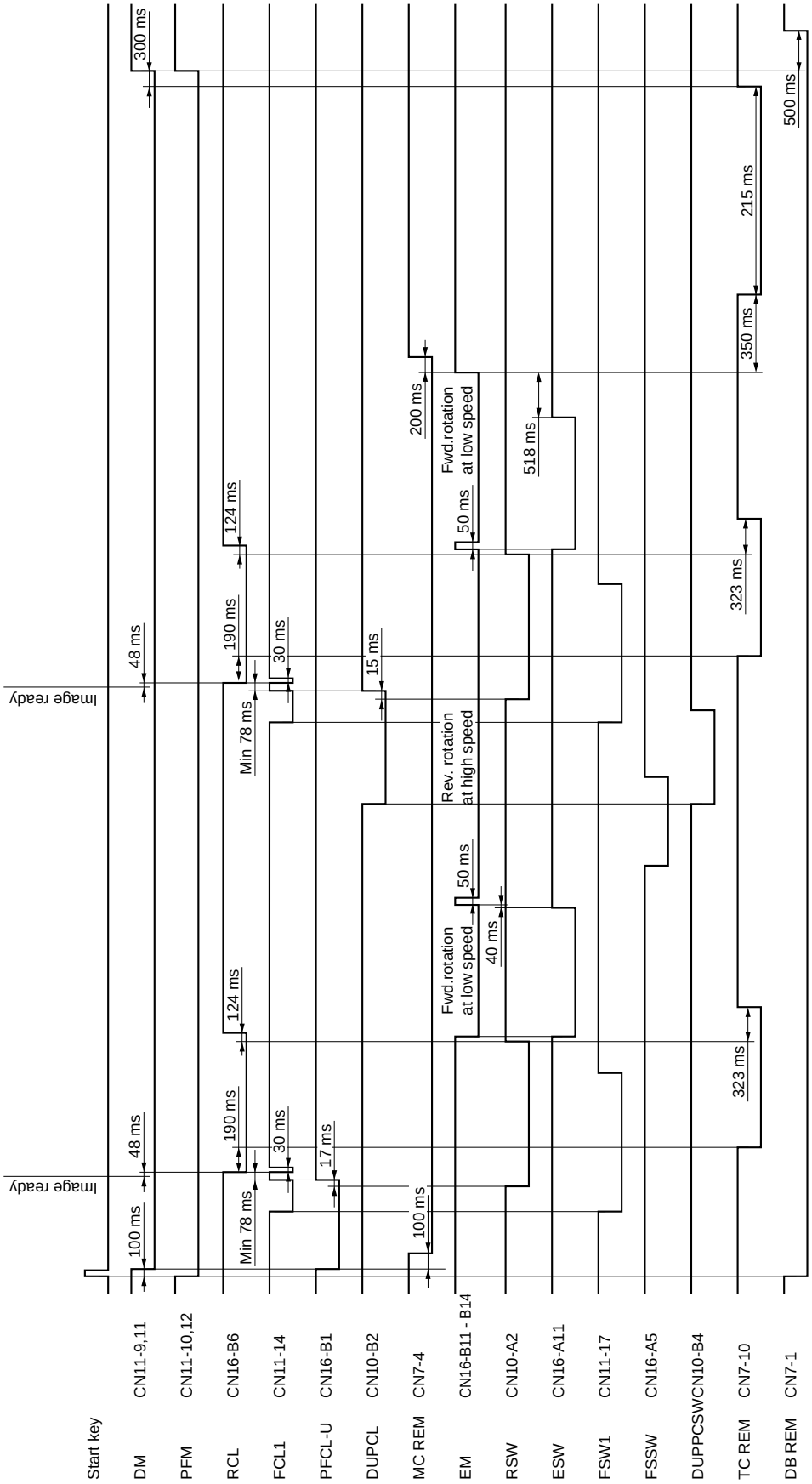
Timing chart No. 6 Copying an A4/11"×8½" original onto an A4/11"×8½" copy paper from the copier upper drawer, magnification ratio 100%, auto copy density control, ejection to the job separator



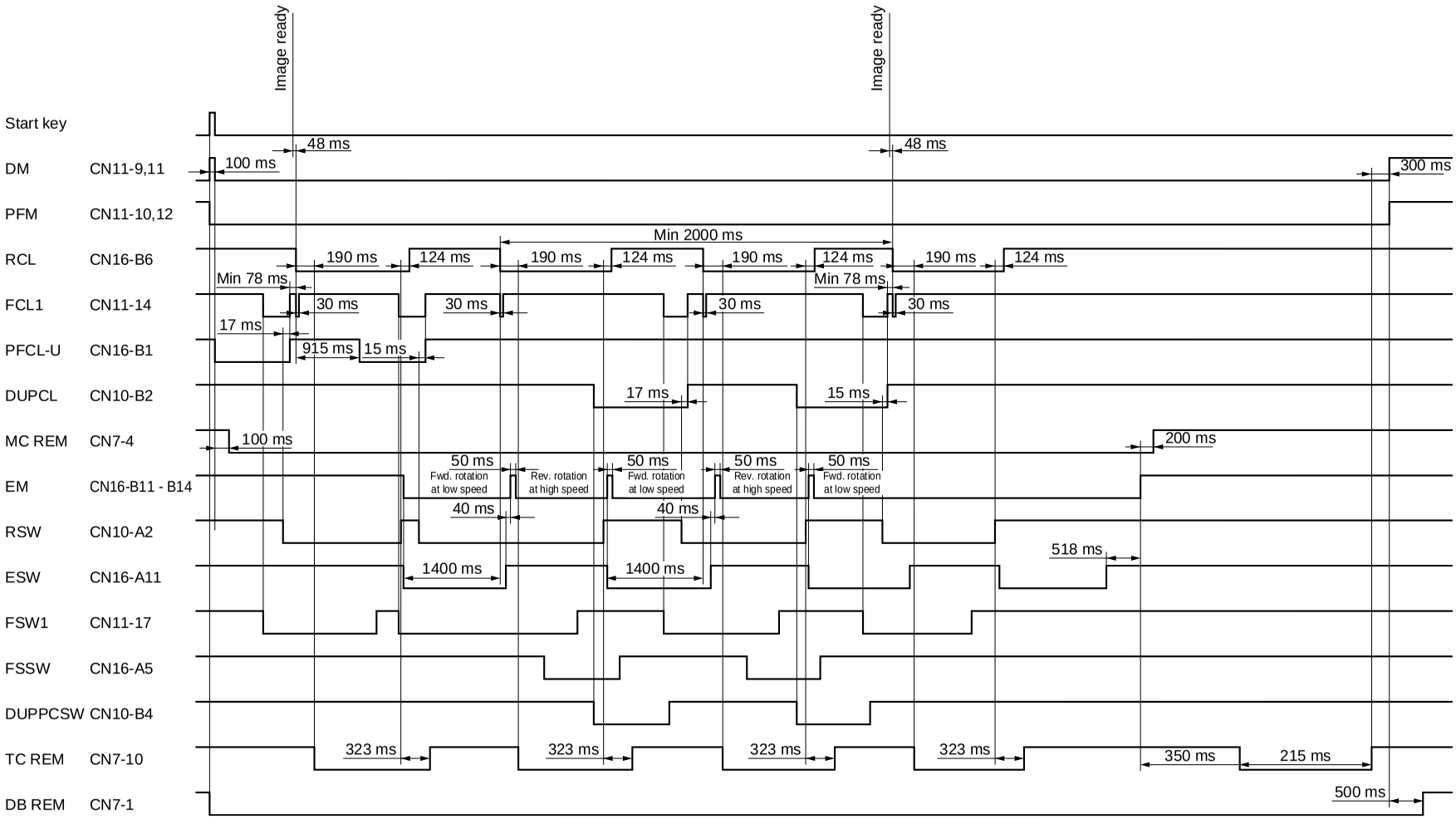
Timing chart No. 7 Continuous copying of an A5R/5 1/2"×8 1/2" original onto two sheets of A3/11"×17" copy paper from the copier lower drawer, magnification ratio 400%, manual copy density control



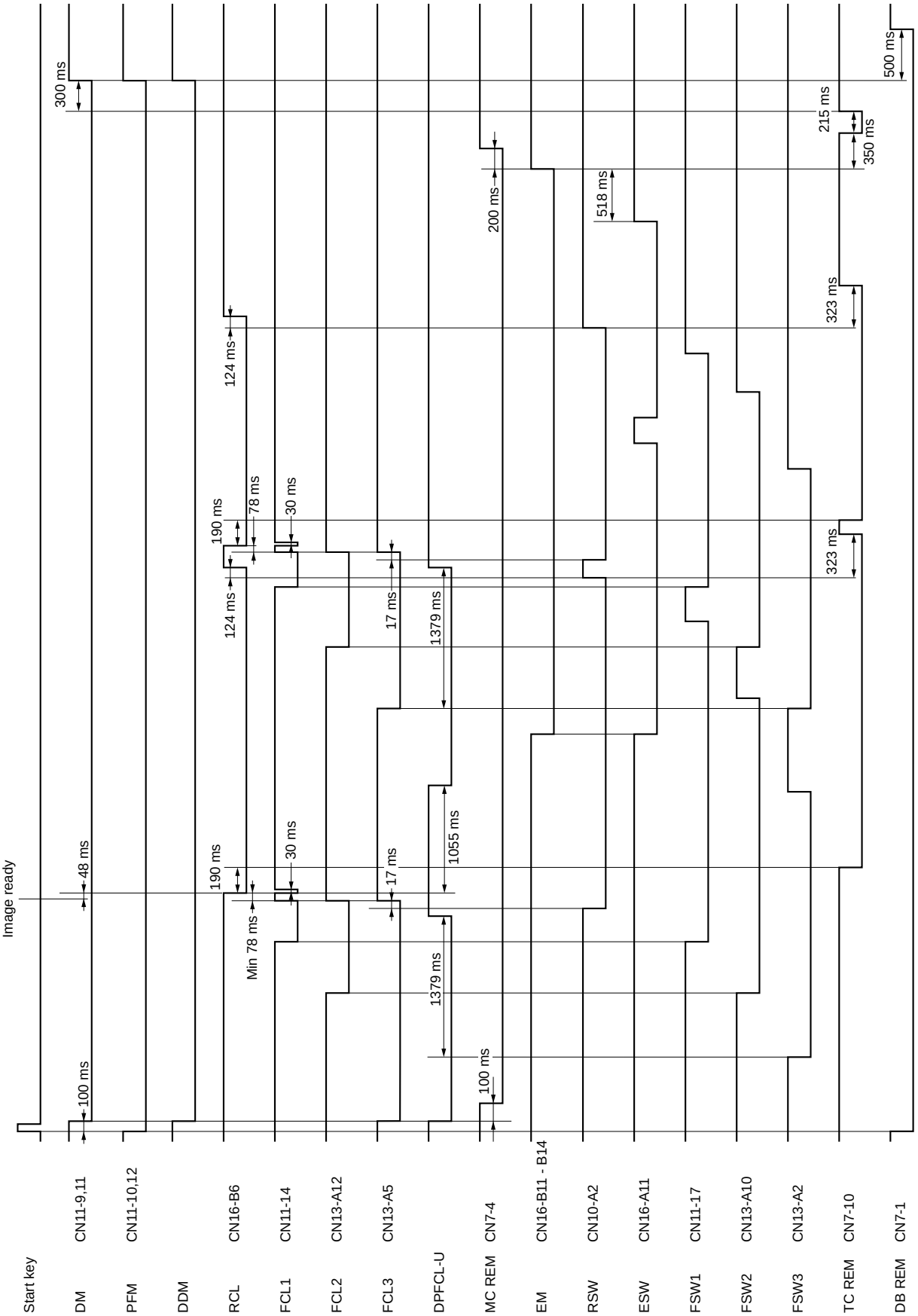
Timing chart No. 8 Duplex copying of an A3/11"×17" book original onto one duplex A4/11"×8½" copy from the copier upper drawer, magnification ratio 100%, auto copy density control



Timing chart No. 9 Continuous, duplex copying of two single-sided A4/11"×8 1/2" originals onto two duplex A4/11"×8 1/2" copies from the copier upper drawer, magnification ratio 100%, auto copy density control



Timing chart No. 10 Continuous copying an A3/11"×17" original onto two sheets of A3/11"×17" copy paper from the paper feed desk upper drawer, magnification ratio 100%, auto copy density control



Timing chart No. 11 Copying an A4/11"×8 1/2" original onto an A4/11"×8 1/2" copy paper from the paper feed desk lower drawer, magnification ratio 100%, manual copy density control

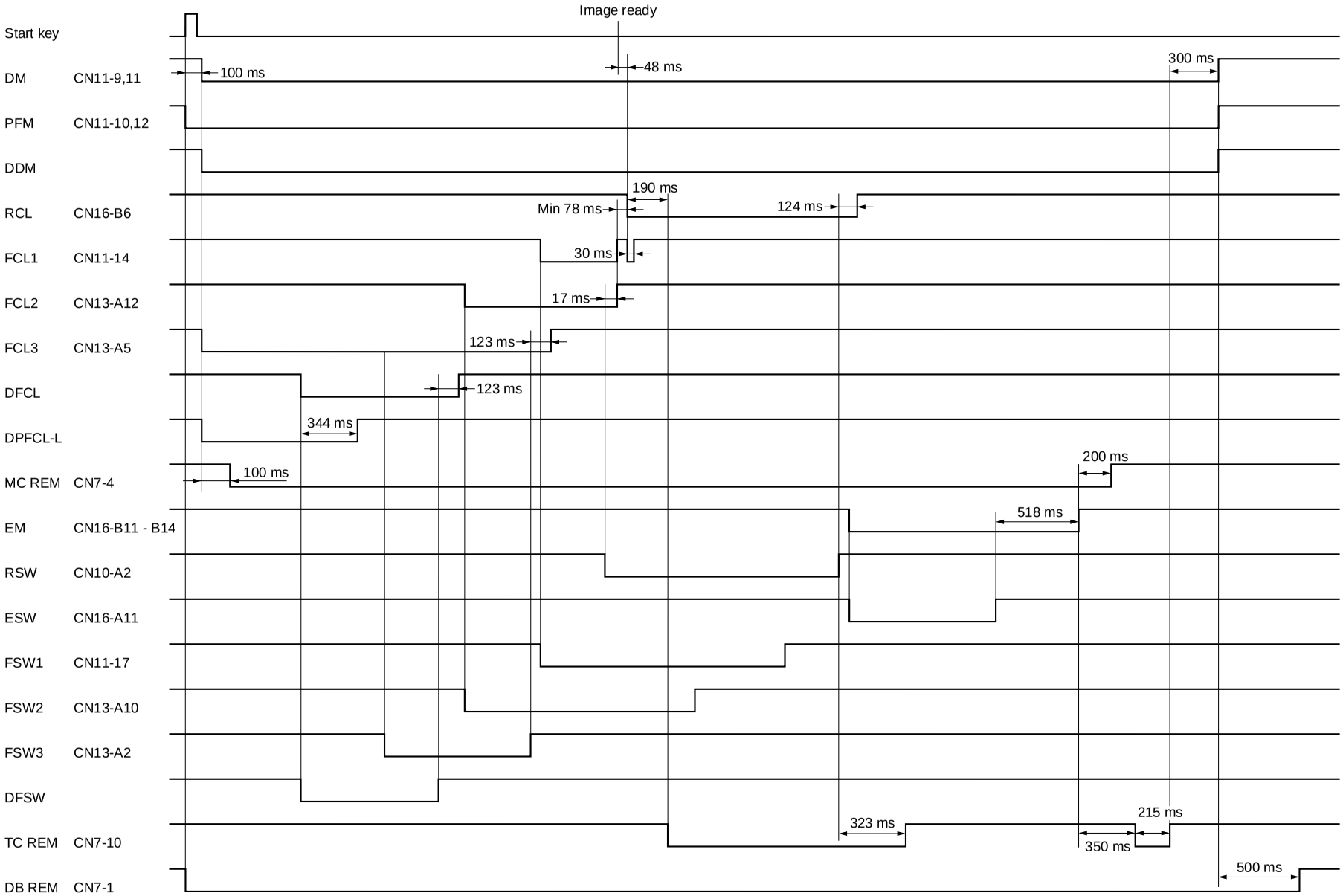
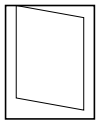
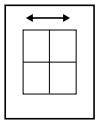
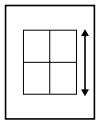
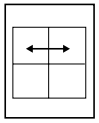
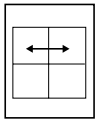
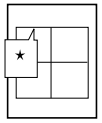
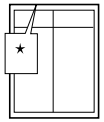
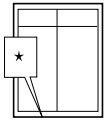
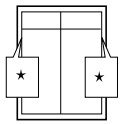
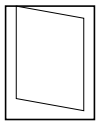
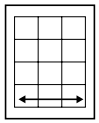
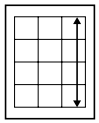
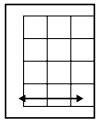
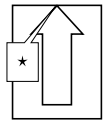
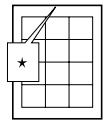
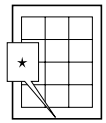
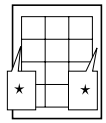


Chart of image adjustment procedures

Adjusting order	Item	Image	Description	Maintenance mode		Original	Page	Remarks
				Item No.	Mode			
①	Adjusting the lateral squareness (printing adjustment)		Adjusting the skew of the laser scanner unit (printing adjustment)	—	—	U993 (PG2) Test chart	1-6-22	
②	Adjusting the magnification in the main scanning direction (printing adjustment)		Polygon motor speed adjustment	U053	POLYGON MOTOR	U053 test pattern	1-4-12	
③	Adjusting the magnification in the auxiliary scanning direction (printing adjustment)		Drive motor speed adjustment	U053	MAIN MOTOR	U053 test pattern	1-4-12	
④	Adjusting the center line of the bypass table (printing adjustment)		Adjusting the LSU print start timing	U034	LSUOUT	U034 test pattern	1-6-12	The center line of the bypass table is used as the reference in the adjustment of the center lines for other paper sources.
⑤	Adjusting the center line of the drawers and large paper deck (printing adjustment)		Adjusting the position of the rack adjuster	—	—	U034 test pattern	—	Adjusts the position of each paper source.
⑥	Adjusting the leading edge registration (printing adjustment)		Registration clutch turning on timing (secondary paper feed start timing)	U034	RCL ON	U034 test pattern	1-6-10	To make an adjustment for duplex copying, select “RCL ON (DUP)”.
⑦	Adjusting the leading edge margin (printing adjustment)		LSU illumination start timing	U402	LEAD	U402 test pattern	1-6-13	
⑧	Adjusting the trailing edge margin (printing adjustment)		LSU illumination end timing	U402	TRAIL	U402 test pattern	1-6-13	To make an adjustment for duplex copying, select “TRAIL (DUP)”.

Adjusting order	Item	Image	Description	Maintenance mode		Original	Page	Remarks
				Item No.	Mode			
⑨	Adjusting the left and right margins (printing adjustment)		LSU illumination start/end timing	U402	AC	U402 test pattern	1-6-13	
⑩	Adjusting the lateral squareness (scanning adjustment)		Adjusting the position of the ISU (scanning adjustment)	—	—	Test chart	1-6-25	
⑪	Adjusting magnification of the scanner in the main scanning direction (scanning adjustment)		Data processing	U065	MAIN SCAN ADJ	Test chart	1-6-27	No adjustment for copying using the DF.
⑫	Adjusting magnification of the scanner in the auxiliary scanning direction (scanning adjustment)		Original scanning speed	U065 U070	SUB SCAN ADJ ADJUST DATA	Test chart	1-6-28 1-4-15	U065: For copying an original placed on the contact glass. U070: For copying originals from the DF.
⑬	Adjusting the center line (scanning adjustment)		Adjusting the original scan data (image adjustment)	U067 U072	ADJUST DATA ADJUST DATA	Test chart	1-6-30 1-4-17	U067: For copying an original placed on the contact glass. U072: For copying originals from the DF.
⑭	Adjusting the leading edge registration (scanning adjustment)		Original scan start timing	U066 U071	ADJUST DATA LEAD EDGE ADJ	Test chart	1-6-29 1-4-16	U066: For copying an original placed on the contact glass. U071: For copying originals from the DF.
⑮	Adjusting the leading edge margin (scanning adjustment)		Adjusting the original scan data (image adjustment)	U403 U404	B MARGIN B MARGIN	Test chart	1-6-31 1-4-49	U403: For copying an original placed on the contact glass. U404: For copying originals from the DF.
⑯	Adjusting the trailing edge margin (scanning adjustment)		Adjusting the original scan data (image adjustment)	U403 U404	D MARGIN D MARGIN	Test chart	1-6-31 1-4-49	U403: For copying an original placed on the contact glass. U404: For copying originals from the DF.

Adjusting order	Item	Image	Description	Maintenance mode		Original	Page	Remarks
				Item No.	Mode			
⑰	Adjusting the left and right margins (scanning adjustment)		Adjusting the original scan data (image adjustment)	U403 U404	AC MARGIN AC MARGIN	Test chart	1-6-31 1-4-49	U403: For copying an original placed on the contact glass. U404: For copying originals from the DF.

When maintenance item U092 (Adjusting the scanner automatically) is run using the specified original (P/N 2A068020), the following adjustments are automatically made:

- Adjusting the scanner center line (U067)
- Adjusting the scanner leading edge registration (U066)
- Adjusting the scanner magnification in the main scanning direction (U065)
- Adjusting the scanner magnification in the auxiliary scanning direction (U065)

Image quality

Item	Specifications
100% magnification	Copier: ±0.8%
	Using SRDF: ±1.5%
Enlargement/reduction	Copier: ±1.0%
	Using SRDF: ±1.5%
Lateral squareness (copier mode)	Copier: ±1.5 mm/375 mm
	Using SRDF: ±2.5 mm/375 mm
Lateral squareness (printer mode)	±1.0 mm/375 mm
Margins (copier mode)	A: $2.0^{+2.0}_{-1.5}$ mm
	B: 3.0 ± 2.5 mm
	C: $2.0^{+2.0}_{-1.5}$ mm
	D: 3.0 ± 2.5mm
Margins (printer mode)	A: 6.0 ± 2.0 mm
	B: 6.0 ± 2.5 mm
	C: 6.0 ± 2.0 mm
	D: 6.0 ± 2.5 mm
Leading edge registration	Drawer: ±2.5 mm
	Bypass: ±2.5 mm
	Duplex copying: ±2.5 mm
Skewed paper feed (left-right difference)	Drawer: 1.5 mm or less
	Bypass: 1.5 mm or less
	Duplex copying: 2.0 mm or less
Lateral image shifting	Drawer: ±2.0 mm or less
	Bypass: ±2.0 mm or less
	Duplex copying: ±3.0 mm or less
Curling	Drawer: ±3.0 mm or less
	Bypass: 10.0 mm or less
	Duplex copying: 10.0 mm or less

Maintenance parts list

Maintenance part name		Part No.	Fig. No.	Ref. No.
Name used in service manual	Name used in parts list			
Upper/lower paper feed pulley	PULLEY, PAPER FEED	2AR07220	4	4
Upper/lower separation pulley	PULLEY, SEPARATION	2AR07230	4	5
Upper/lower fowarding pulley	PULLEY, LEADING FEED	2AR07240	4	6
Bypass paper feed pulley	UPPER PULLEY, BYPASS	61706770	10	29
Bypass separation pulley	PULLEY, SEPARATION	2AR07230	10	20
Bypass forwarding pulley	PULLEY, LEADING FEED	2AR07240	10	34
Bypass feed roller 1	ROLLER2 BYPASSFEED	2BL06540	11	11
Bypass feed roller 2	ROLLER4 BYPASSFEED	2BL06560	11	12
Left registration roller	ROLLER REGIST L	2BL16020	7	11
Right registration roller	RIGHT ROLLER REGIST	2BL06270	5	51
Feed pulley	PULLEY FEED	2BL16080	6,7	37,8
Feed roller 1	PULLEY FEED	2BL06930	5	59
Feed roller 2	ROLLER B FEED	2BL06080	5	5
Feed roller 3	ROLLER C FEED	2BL06090	5	6
Registration switch	SWITCH REGISTRATION	2BL27420	5	32
Contact glass	CONTACT GLASS	35912010	9	46
Slit glass	CONTACT GLASS, ADF	2AV12250	9	19
Mirror 1	MIRROR A	2AV12150	9	9
Mirror 2 and mirror 3	MIRROR B	2AV12160	9	10
Exposure lamp	LAMP, SCANNER	2AV12100	9	4
Original size detection switvh	SENSOR, ORIGINAL	35927290	9	53
Transfer roller unit	TR-700 TRANSFER ASS'Y	5PLPXHLAPKX	7	25
Developing unit	DEVELOPER ASS'Y	2BJ93010	13	1
Drum unit	DRUM ASS'Y	2BJ93020	15	1
Main charger unit	MC ASS'Y	2BL93090	15	48
Fixing unit	FIXING ASS'Y 120	2BJ93040	14	-
	FIXING ASS'Y 230	2BJ93050	14	-
Press roller separation claw	CLAW, PRESS ROLLER	36720493	6	8
Eject roller	ROLLER EXIT	2BL21020	8	4
Switchback roller	ROLLER FEED SHIFT	2BL21030	8	3
Eject pulley	PULLEY EXIT B	2BL21450	8	37
Switchback pulley	PULLEY FEED SHIFT	2BL21330	6	2

Periodic maintenance procedures

Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Test copy and test print	Perform at the maximum copy size	Test copy	Every service		

Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Paper feed section	Upper/lower paper feed pulley	Replace	Every service	Replace.	1-6-3
	Upper/lower separation pulley	Replace	Every service	Replace.	1-6-3
	Upper/lower forwarding pulley	Replace	Every service	Replace.	1-6-3
	Bypass paper feed pulley	Replace	Every service	Replace.	1-6-5
	Bypass separation pulley	Replace	Every service	Replace.	1-6-5
	Bypass forwarding pulley	Replace	Every service	Replace.	1-6-5
	Bypass feed roller 1	Clean	Every service	Clean with alcohol or a dry cloth.	
	Bypass feed roller 2	Clean	Every service	Clean with alcohol or a dry cloth.	
	Left registration roller	Clean	Every service	Clean with alcohol or a dry cloth.	
	Right registration roller	Clean	Every service	Clean with alcohol or a dry cloth.	
	Feed pulley	Clean	Every service	Clean with alcohol or a dry cloth.	
	Feed roller 1	Clean	Every service	Clean with alcohol or a dry cloth.	
	Feed roller 2	Clean	Every service	Clean with alcohol or a dry cloth.	
	Feed roller 3	Clean	Every service	Clean with alcohol or a dry cloth.	
	Registration switch	Clean	Every service	Clean with a dry cloth.	

Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Optical section	Slit glass	Clean	Every service	Clean with alcohol and then a dry cloth.	
	Contact glass	Clean	Every service	Clean with alcohol and then a dry cloth.	
	Mirror 1	Clean	Every service	Clean with alcohol and then a dry cloth only if vertical black lines appear on the copy image.	
	Mirror 2 and mirror 3	Clean	Every service	Clean with alcohol and then a dry cloth only if vertical black lines appear on the copy image.	
	Lens	Clean	Every service	Clean with a dry cloth only if vertical black lines appear on the copy image.	
	Reflector	Clean	Every service	Clean with a dry cloth only if vertical black lines appear on the copy image.	
	Exposure lamp	Clean or replace	Every service	Replace if an image problem occurs.	
	Optical rail	Grease	Every service	Check noise and shifting and then apply scanner rail grease PG671.	
	Original size detection sensor	Clean	Every service	Clean the sensor emitter and receiver with alcohol or a dry cloth only if there is a problem.	

Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Transfer/ separation section	Transfer roller unit	Replace	Every service	Replace.	1-6-35

Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Developing section	Developing unit	Replace	Every service	Replace.	1-6-34

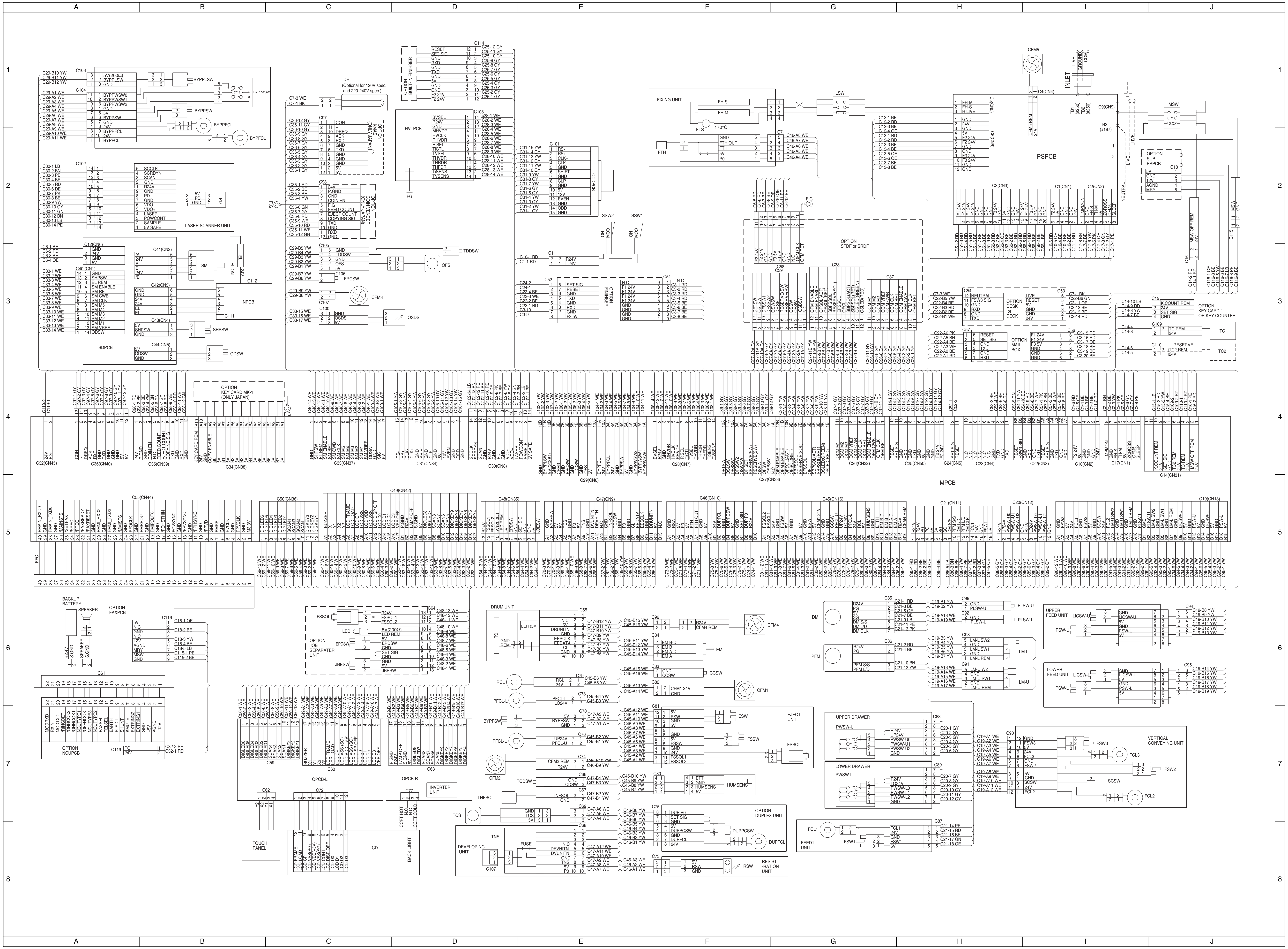
Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Main charging/ drum section	Drum unit	Replace	Every service	Replace.	1-6-32

Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Fixing section	Fixing unit Press roller separation claw	Replace Check, replace and clean	Every service Every service	Replace. Check and replace if it is deformed. Clean with alcohol after feeding 500,000 sheets.	1-6-36

Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Eject section	Eject roller	Clean	Every service	Clean with alcohol or a dry cloth.	
	Eject pulley	Clean	Every service	Clean with alcohol or a dry cloth.	
	Switchback roller	Clean	Every service	Clean with alcohol or a dry cloth.	
	Switchback pulley	Clean	Every service	Clean with alcohol or a dry cloth.	

Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Covers	Covers	Clean	Every service	Clean with alcohol or a dry cloth.	

Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Other	Image quality	Check and adjust	Every service		



FIXING UNIT
PSPCB
MPCB
SDPCB
HVTPCB
CCDPCB
INPCB
LASER SCANNER UNIT
OPTION STDF or SRDF
OPTION FINISHER
OPTION KEY CARD MK-1 (ONLY JAPAN)
OPTION FAXPCB
OPTION NCUPCB
OPCB-L
OPCB-R
TOUCH PANEL
LCD
BACK LIGHT
INVERTER UNIT
DRUM UNIT
DEVELOPING UNIT
OPTION JOB SEPARATER UNIT
EJECT UNIT
OPTION DUPLEX UNIT
RESIST -RATION UNIT
FEED1 UNIT
UPPER DRAWER
LOWER DRAWER
UPPER FEED UNIT
LOWER FEED UNIT
VERTICAL CONVEYING UNIT
OPTION KEY CARD 1 OR KEY COUNTER
OPTION SUB PSPCB
OPTION DESK or DECK
OPTION MAIL BOX
INLET
MSW
ILSW