



KM-4850w

**SERVICE
MANUAL**

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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 (\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.













• Advise 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.



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1-1-1 Specification

Type	Console type
Copying method	Dry indirect electrostatic photocopying
Original type	Sheet
Original feed method	Fixed platen
Paper	Plain paper: 64 – 80 g/m ² (fed from the roll unit or bypass table) Special paper: Vellum, film (fed from the roll unit or bypass table) Paper roll width: 210 – 920 mm/17" – 36" Paper roll outer diameter: 180 mm/6 ³ / ₄ " or less Paper roll inner diameter: 76 mm/3"
Original size	Standard: A0 – A4R (64 – 80 g/m ²) 36" × 48" – 8 ¹ / ₂ " × 11" (64 – 80 g/m ²) Maximum: 920 (W) × 6,000 (L) mm (64 – 80 g/m ²) 36" (W) × 237" (L) (64 – 80 g/m ²)
Copy size	Standard: A0 – A4R (64 – 80 g/m ²) 36" × 48" – 8 ¹ / ₂ " × 11" (64 – 80 g/m ²) Maximum: 920 (W) × 6,000 (L) mm (64 – 80 g/m ²) 36" (W) × 237" (L) (64 – 80 g/m ²) Effective image width: 920 mm/36" Void area: Leading/trailing edge: 10 mm or less, right/left edge: 3 mm or less
Copying magnification ratios	Manual mode: 25 – 400% (at intervals of 1% or 0.1%) Fixed ratios: Metric: 1:1±0.5%, 1:4.000, 1:2.829, 1:2.000, 1:1.410, 1:0.706, 1:0.500, 1:0.352, 1:0.250 Inch: 1:1±0.5%, 1:4.000, 1:2.667, 1:2.588, 1:1.545, 1:1.500, 1:1.333, 1:1.294, 1:0.772, 1:0.750, 1:0.667, 1:0.647, 1:0.500, 1:0.386, 1:0.375, 1:0.250
Copying speed	4.8 m/minute
First copy time	Within 18 seconds (A1 [36" × 14"] standard size copying)
Warm up time	Within 10 minutes (room temperature 20°C/68°F, 65%RH)
Paper feed system	Automatic feed from the roll unit and manual feed from the bypass table
Continuous copying	1 – 99 copies
Photoconductor	OPC (Drum diameter: 90 mm)
Charging system	Scorotron charging
Exposure system	Scanning exposure of moving original
Resolution	600 × 600 dpi
Light source	Xenon lamp
Developing system	Dry (magnetic brush) Developer: dual component (ferrite carrier and black toner: N26T) Toner density control: Toner sensor Toner replenishing: Supply from the bottle cartridge
Transfer system	Single negative corona charging
Separation system	Single AC corona charging
Fixing system	Heat roller Heat source: Halogen heaters (main: 750 W, sub: 350 W) Control temperature: 155°C/311°F (plain paper) 150°C/302°F (film) 185°C/365°F (Vellum) Abnormal temperature increase-prevention device: Thermostat (140°C/284°F) Fixing pressure: 49N
Charge erasing system	Exposure by cleaning lamp
Cleaning system	Cleaning blade and cleaning far brush
Memory for storage of image	128 MB as standard (1024 MB at the maximum)
Machine dimensions	1330 (W) × 704 (D) × 1205 (H) mm 52 ³ / ₈ " (W) × 25 ¹ / ₈ " (D) × 47 ⁷ / ₁₆ " (H)
Weight	Approx. 252 kg/554.4 lbs. (main unit only)
Installation dimensions	1330 (W) × 774 (D) mm (1330 mm (H) × 1319 (D) with full options) 52 ³ / ₈ " (W) × 30 ¹ / ₂ " (D) (52 ³ / ₈ " (H) × 51 ¹⁵ / ₁₆ " (D) with full options)
Functions	AMS, zoom copy, preset R/E, XY zoom, sort, image shift, margin copy, border erase, mirror copy, preview copy, repeat copy, interrupt, job reserve, program, energy saver, auto shut-off, self-diagnosis

2A7

Power requirement	120 V AC, 60 Hz, 13 A 220 – 240 V AC, 50 Hz, 7 A
Rated power consumption	1560 W (120 V specifications) 1620 W (220 – 240 V specifications)
Accessories	Copy tray support plate, original loop guide, roll flange
Options	Roll unit, original tray, key counter, carrier sheet (A0, A1, A2, 36" × 48" and 24" × 36"), printer/scanner controller, expansion memory (128 MB, 256 MB and 512 MB).

1-1-2 part names and functions

(1) Main unit

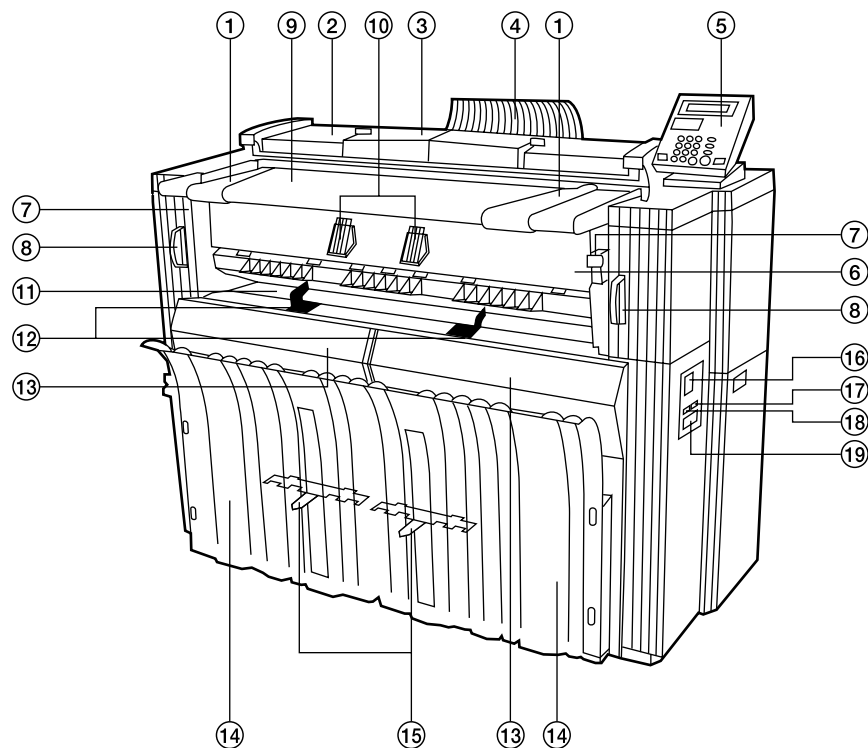


Figure 1-1-1

- | | |
|-------------------------------|----------------------------|
| ① Original guides | ⑪ Bypass table |
| ② Original cover | ⑫ Bypass guide |
| ③ Original leading edge cover | ⑬ Front covers |
| ④ Original loop guide | ⑭ Copy trays |
| ⑤ Operation panel | ⑮ Copy tray support plates |
| ⑥ Eject cover | ⑯ Main switch |
| ⑦ Ejection release levers | ⑰ Scanner counter |
| ⑧ Main unit release levers | ⑱ Total counter |
| ⑨ Original table | ⑲ Key counter* insert slot |
| ⑩ Original holders | |

* Optional

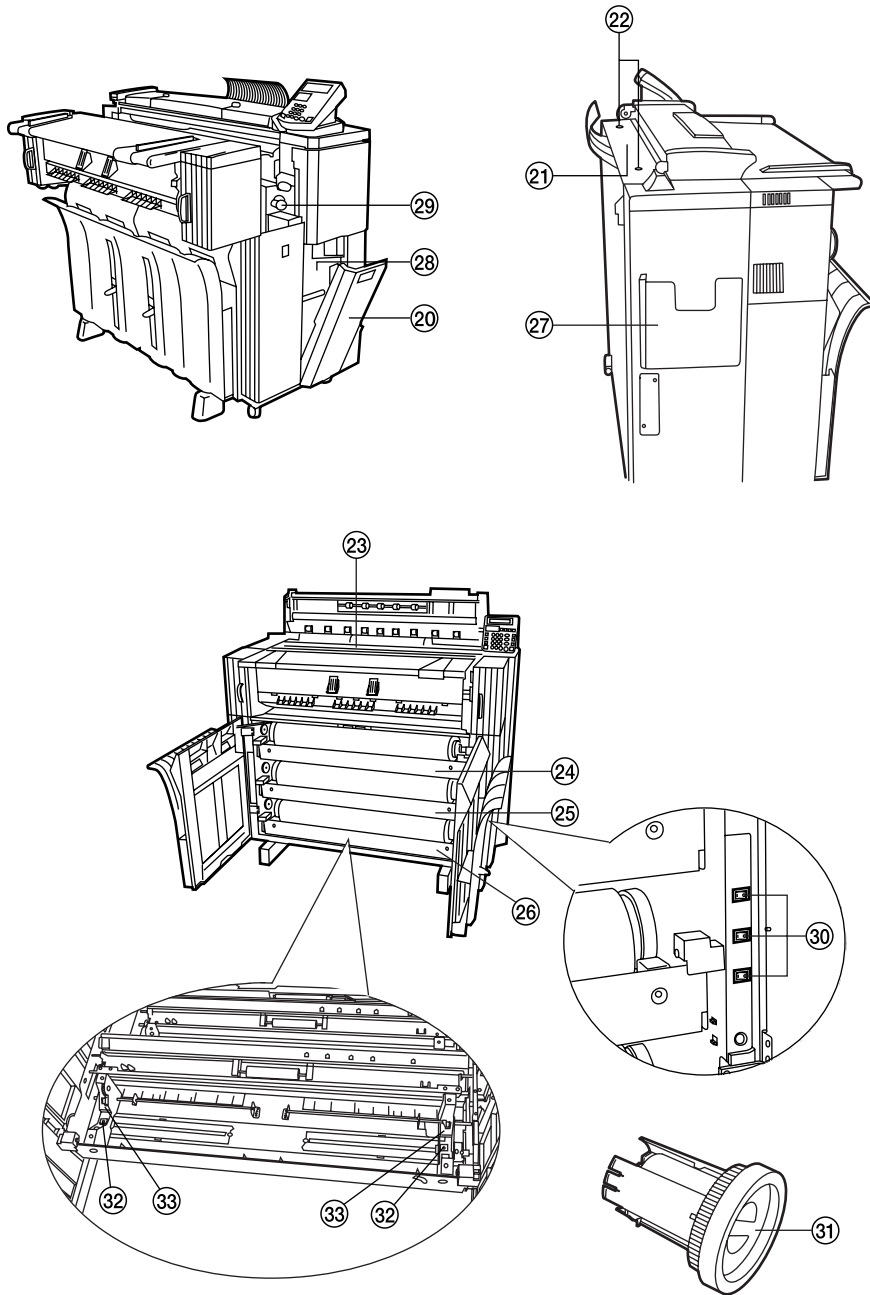


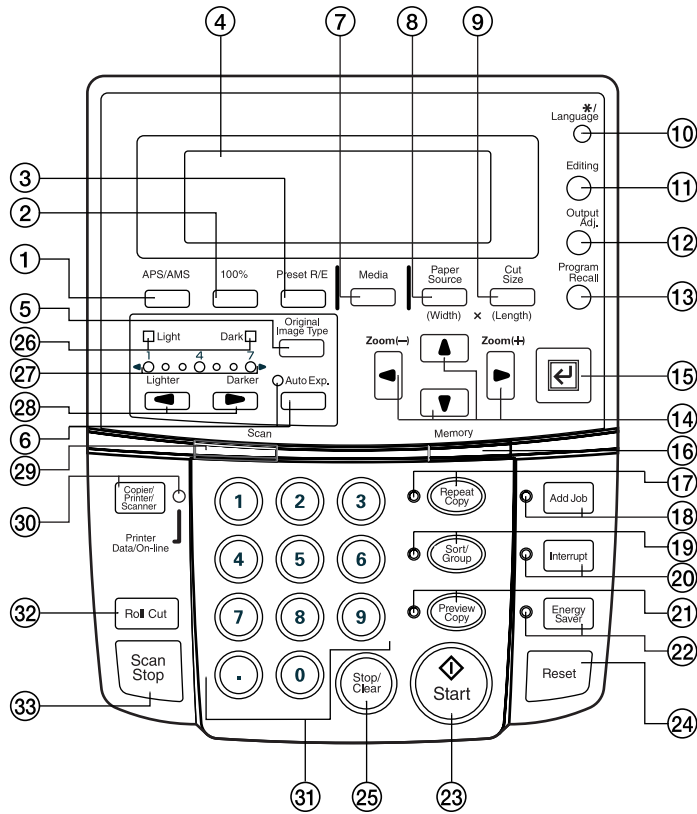
Figure 1-1-2

- ②0 Right cover
- ②1 Toner replenishing slot
- ②2 Toner replenishing slot screw
- ②3 Contact glass
- ②4 Upper roll unit*
- ②5 Middle roll unit
- ②6 Lower roll unit
- ②7 Instruction handbook box
- ②8 Waste toner tank
- ②9 Paper transport knob
- ③0 Upper, middle and lower roll unit heater switches
- ③1 Roll flange
- ③2 Release levers
- ③3 Roll flange guides

* Optional

(2) Operation panel

Inch



- ① APS/AMS key
- ② 100% key
- ③ Preset R/E key
- ④ Message display
- ⑤ Original Image Type key
- ⑥ Auto Exp. key (indicator)
- ⑦ Media key
- ⑧ Paper Source key
- ⑨ Cut Size key
- ⑩ * / Language key
- ⑪ Editing key
- ⑫ Output Adj. key
- ⑬ Program Recall key
- ⑭ Cursor keys
- ⑮ OK key
- ⑯ Memory indicator
- ⑰ Repeat Copy key (indicator)
- ⑱ Add Job key (indicator)
- ⑲ Sort/Group key (indicator)
- ⑳ Interrupt key (indicator)
- ㉑ Preview Copy key (indicator)
- ㉒ Energy Saver key (indicator)
- ㉓ Start key
- ㉔ Reset key
- ㉕ Stop/Clear key
- ㉖ Light/Dark indicators
- ㉗ Copy contrast indicators
- ㉘ Copy contrast keys
- ㉙ Scan indicator
- ㉚ Copier/Printer/Scanner key (indicator)
- ㉛ Numeric keys
- ㉜ Roll Cut key
- ㉝ Scan Stop key

Metric

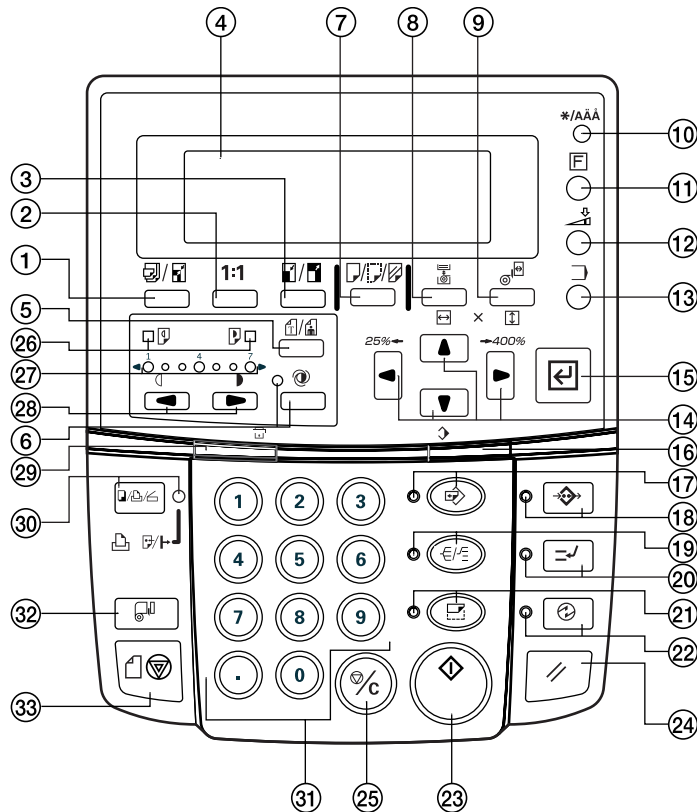


Figure 1-1-3

1-1-3 Copy process

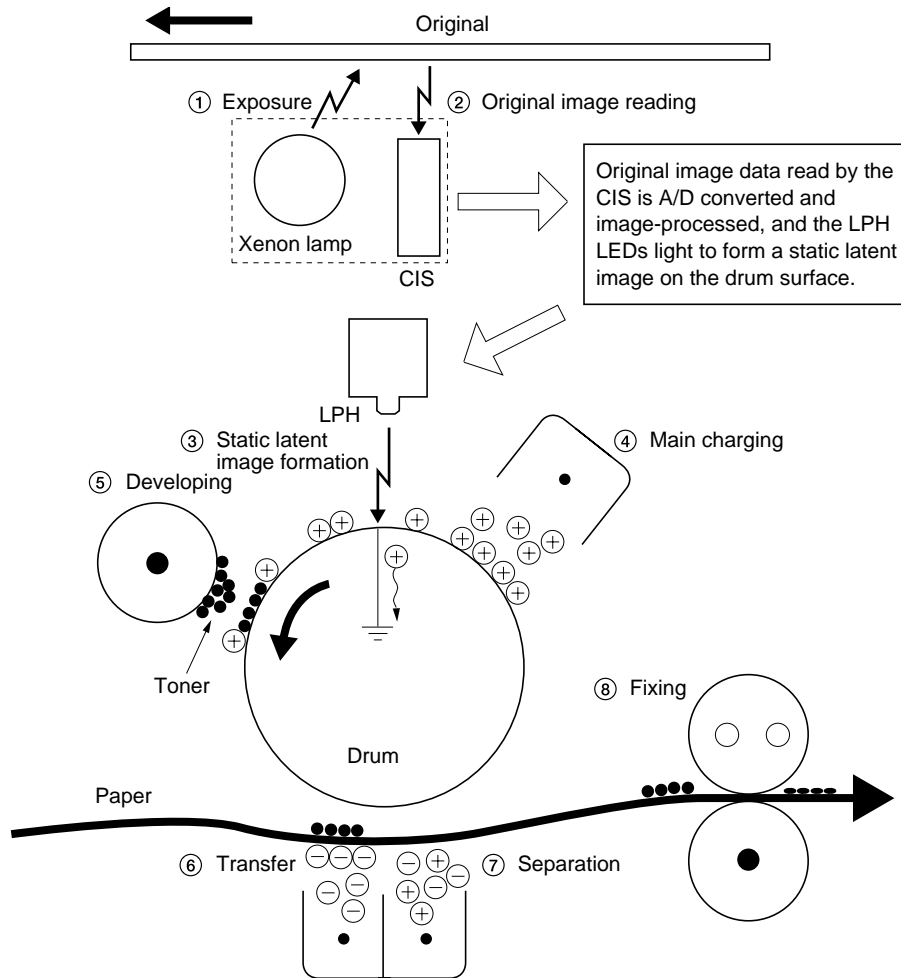
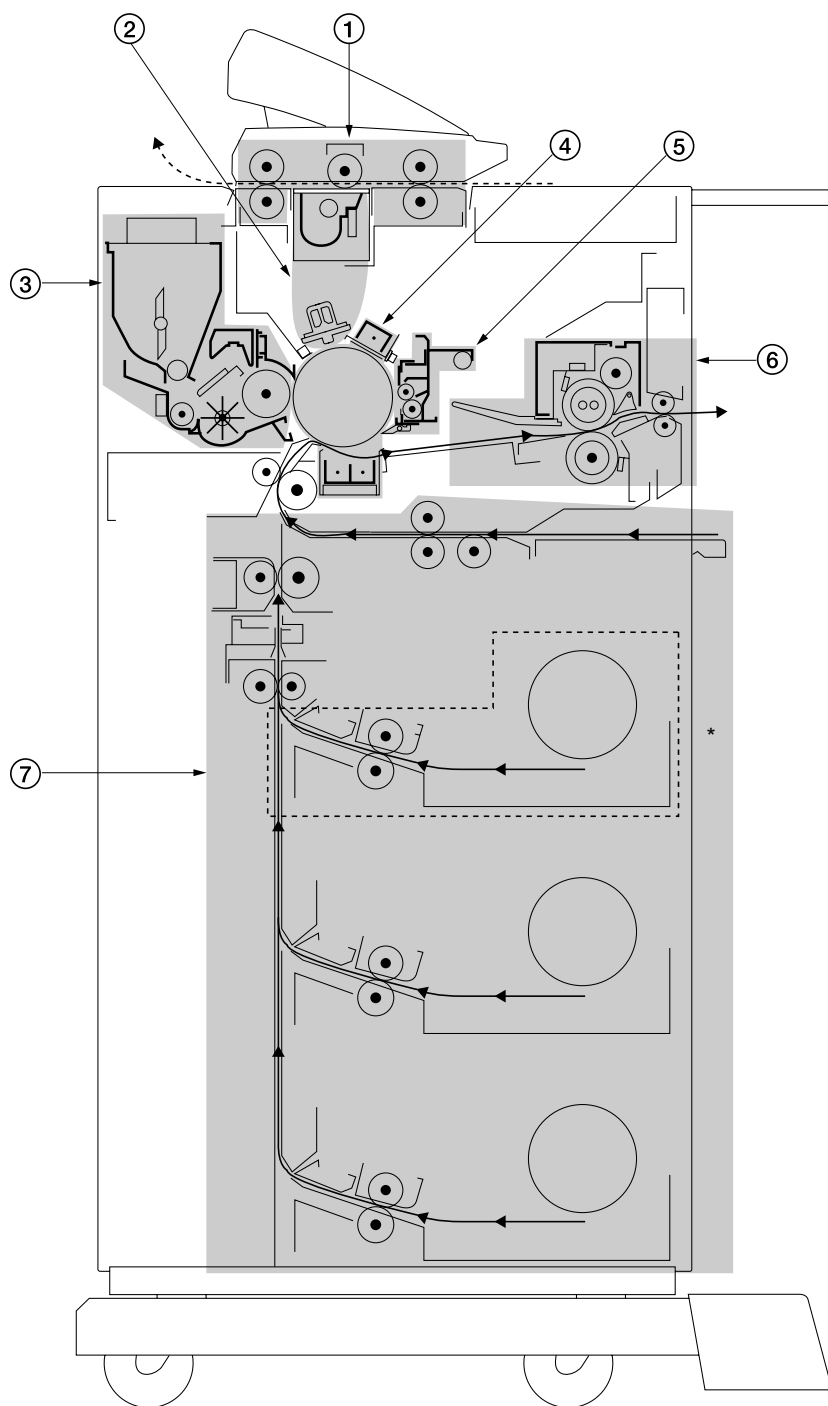


Figure 1-1-4 Copy process

1-1-4 Machine cross sectional view



←----- Original conveying path

← Paper conveying path

* The upper roll unit is optional.

Figure 1-1-5 Machine cross sectional view

① Original conveying section

② Optical section

③ Developing section

④ Image formation section

⑤ Cleaning section

⑥ Fixing section

⑦ Paper feed/conveying section

1-1-5 Machine drive system

(1) Drive system 1 (driven by the paper feed motor)

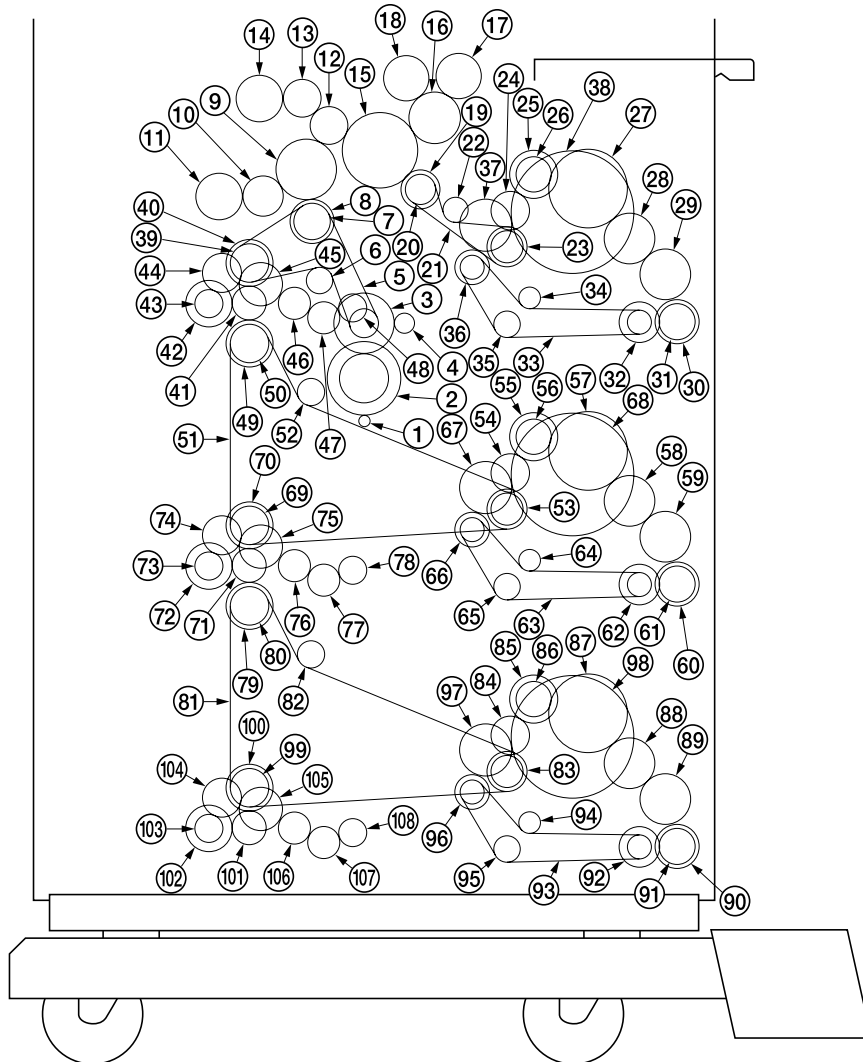


Figure 1-1-6

- | | | |
|---------------------------------|-------------------------------------|---------------------------------|
| 1 Paper feed motor gear | 17 Bypass feed clutch | 33 Roll unit belt* |
| 2 Gear 82/35 | 18 Bypass registration clutch | 34 Drum tension pulley* |
| 3 Idle pulley 25/45 | 19 Pre-transfer drive pulley 32 | 35 Idle pulley 21* |
| 4 Pulse plate gear | 20 Flange pulley 36 | 36 Roll unit pulley* |
| 5 Paper feed section drive belt | 21 Cleaning section drive belt* | 37 Idle gear 40* |
| 6 Drive tension pulley | 22 Drive tension pulley* | 38 Roll flange* |
| 7 Flange pulley 36 | 23 Idle pulley 32/36* | 39 Flange pulley 36 |
| 8 Pre-transfer drive pulley 32 | 24 Idle gear 30* | 40 Pre-transfer drive pulley 32 |
| 9 Feed gear 47 | 25 Upper roll winding clutch* | 41 Idle gear 30 |
| 10 Idle gear 30 | 26 Roll drive gear 16* | 42 Upper feed clutch* |
| 11 Roll feed clutch | 27 Roll drive gear 40* | 43 Developer gear 20 |
| 12 Idle gear 30 | 28 Roll drive gear 26* | 44 Idle gear 30 |
| 13 Idle gear 30 | 29 Roll drive gear 26* | 45 Duplex gear 32 |
| 14 Roll registration clutch | 30 Developer spiral roller gear 23* | 46 Idle gear 25 |
| 15 Cartridge drive idle gear | 31 Cleaning section drive gear 25* | 47 Idle gear 25 |
| 16 Feed gear 40 | 32 Roll unit pulley* | 48 Drive gear 20T |

49 Pre-transfer drive pulley 32	80 Flange pulley 36
50 Flange pulley 36	81 Roll winding drive belt
51 Roll winding drive belt	82 Drive tension pulley
52 Drive tension pulley	83 Idle pulley 32/36
53 Idle pulley 32/36	84 Idle gear 30
54 Idle gear 30	85 Lower roll winding clutch
55 Middle roll winding clutch	86 Roll drive gear 16
56 Roll drive gear 16	87 Roll drive gear 40
57 Roll drive gear 40	88 Roll drive gear 26
58 Roll drive gear 26	89 Roll drive gear 26
59 Roll drive gear 26	90 Developer spiral roller gear 23
60 Developer spiral roller gear 23	91 Cleaning section drive gear 25
61 Cleaning section drive gear 25	92 Roll unit pulley
62 Roll unit pulley	93 Roll unit belt
63 Roll unit belt	94 Drum tension pulley
64 Drum tension pulley	95 Idle pulley 21
65 Idle pulley 21	96 Roll unit pulley
66 Roll unit pulley	97 Idle gear 40
67 Idle gear 40	98 Roll flange
68 Roll flange	99 Flange pulley 36
69 Flange pulley 36	100 Pre-transfer drive pulley 32
70 Pre-transfer drive pulley 32	101 Idle gear 30
71 Idle gear 30	102 Lower feed clutch
72 Middle feed clutch	103 Developer gear 20
73 Developer gear 20	104 Idle gear 30
74 Idle gear 30	105 Duplex gear 32
75 Duplex gear 32	106 Idle gear 25
76 Idle gear 25	107 Idle gear 25
77 Idle gear 25	108 Drive gear 20T
78 Drive gear 20T	
79 Pre-transfer drive pulley 32	

* 21 to 39 and 42 are present when the upper roll unit (optional) is installed.

(2) Drive system 2 (driven by the drum motor and fixing motor)

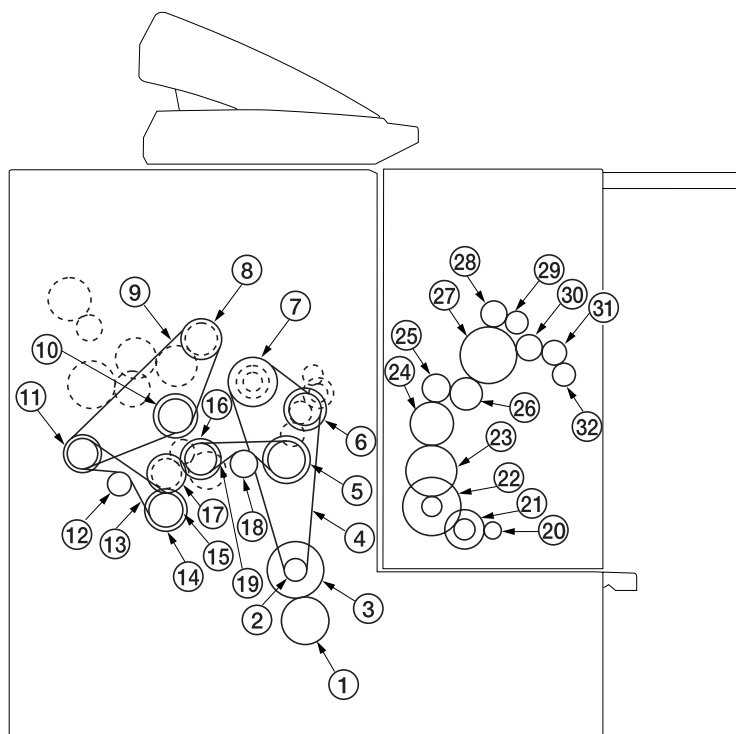
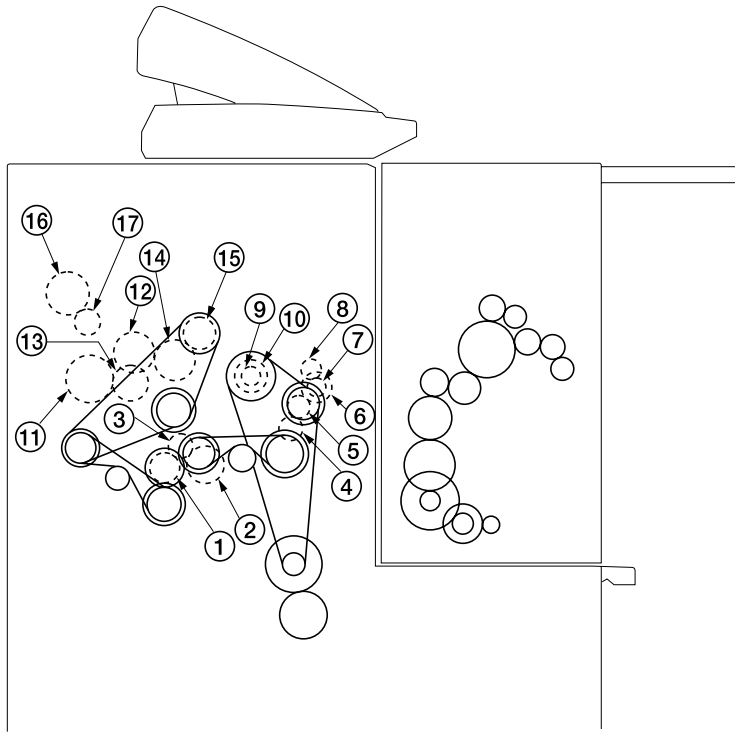


Figure 1-1-7

- | | |
|---------------------------------------|--------------------------------|
| ① Drum motor gear 40 | ①⑦ Transfer drive gear 32 |
| ② Drum drive pulley 17 | ①⑧ Drive tension pulley |
| ③ Drum drive gear 40 | ①⑨ Cleaning section drive belt |
| ④ Drum drive belt | ②⑩ Fixing motor gear |
| ⑤ Cleaning section drive pulley 36/22 | ②⑪ Idle gear 21/72 |
| ⑥ Idle pulley 32 | ②⑫ Idle gear 21/63 |
| ⑦ Drum drive pulley 40 | ②⑬ Drum drive gear 40 |
| ⑧ Developing unit drive pulley 30 | ②⑭ Gear 35 |
| ⑨ Developing unit drive belt | ②⑮ Eject idle gear 20 |
| ⑩ Idle pulley 32 | ②⑯ Idle gear 24 |
| ⑪ Main pulley 24/32 | ②⑰ Heat roller gear 42 |
| ⑫ Drive tension pulley | ②⑱ Idle gear 20 |
| ⑬ Pre-transfer drive belt | ②⑲ Oil roller gear 16 |
| ⑭ Transfer pulley 32 | ③⑰ Idle gear 20 |
| ⑮ Transfer gear 30 | ③⑱ Eject idle gear 20 |
| ⑯ Pre-transfer drive pulley 32 | ③⑲ Eject roller gear 17 |

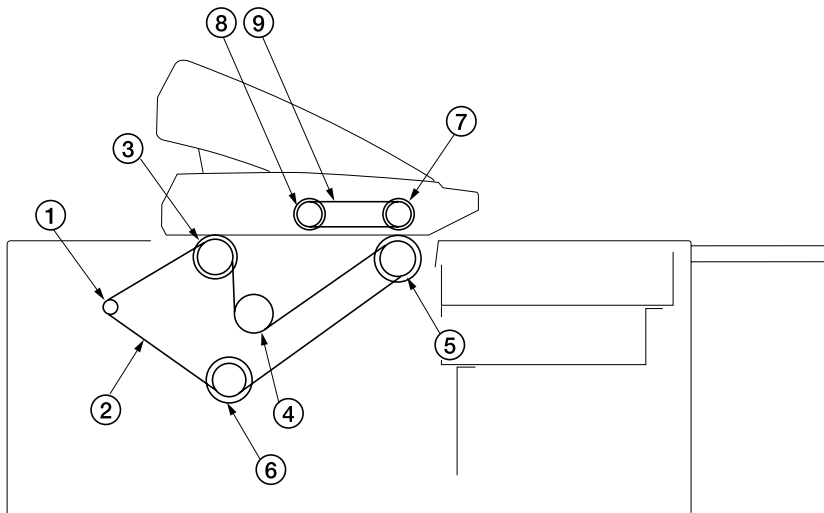
(3) Drive system 3 (driven by the main motor and toner motor)



- ① Pre-transfer drive gear 22
- ② Pre-transfer gear 30
- ③ Idle gear 20
- ④ Idle gear 20
- ⑤ Idle gear 20
- ⑥ Post-developing gear 25
- ⑦ Gear 18
- ⑧ Gear 17
- ⑨ Drum joint
- ⑩ Drum flange
- ⑪ Roller mix gear
- ⑫ Registration gear 31
- ⑬ Developer paddle gear
- ⑭ Developer roller gear
- ⑮ Developing unit drive gear 25
- ⑯ Toner gear 34
- ⑰ Toner motor gear 20

Figure 1-1-8

(4) Drive system 4 (driven by the original motor)



- ① Original motor pulley
- ② Original feed drive belt
- ③ Original feed pulley 40
- ④ Tension pulley 20
- ⑤ Original feed pulley 40
- ⑥ Original feed pulley 40
- ⑦ Eject pulley 26
- ⑧ Eject pulley 26
- ⑨ Original cover belt

Figure 1-1-9

1-2-1 Handling and storage of the drum

Use the following caution when handling the drum.

- When removing the drum from the main unit, make sure not to expose it to direct sunshine or strong lighting.
- Store the drum where the ambient temperature is kept between $-20^{\circ}\text{C}/-4^{\circ}\text{F}$ and $40^{\circ}\text{C}/104^{\circ}\text{F}$ and humidity not higher than 85% RH. Sudden changes in temperature and humidity even within the permitted ranges should be avoided, too.
- Avoid atmosphere laden with substances that might chemically damage the drum surface.
- Never touch the drum surface with any object. Protect it from bare or gloved hands; if it is accidentally touched, or stained with oil, clean it.

1-2-2 Storage of developer and toner

Store developer and toner in a cool, dark place free from direct sunlight or high humidity.

1-2-3 Handling of the heaters (for 120 V specifications only)

This copier is equipped with heaters to avoid condensation inside. These heaters can be individually turned on or off with a switch. If plain paper or film is kept in the roll units and there is a risk of high humidity, keep their heaters on.

1-2-4 Paper

1. Acceptable paper

- From the upper roll unit*, middle roll unit and lower roll unit
Roll of plain paper ($64 - 80 \text{ g/m}^2$), vellum and film with a width of 210 – 920 mm, outer diameter of 180 mm maximum and inner diameter of 76 mm.
- From the bypass table
Sheet of plain paper ($64 - 80 \text{ g/m}^2$), vellum and film of A0 – A4R size ($36" \times 48" - 8\frac{1}{2} \times 11"$) or width of 210 – 920 mm and length of 297 – 6000 mm.
Other types of paper than the above or stapled sheets of paper cannot be used. If paper is creased, folded or torn, cut off that part before using.

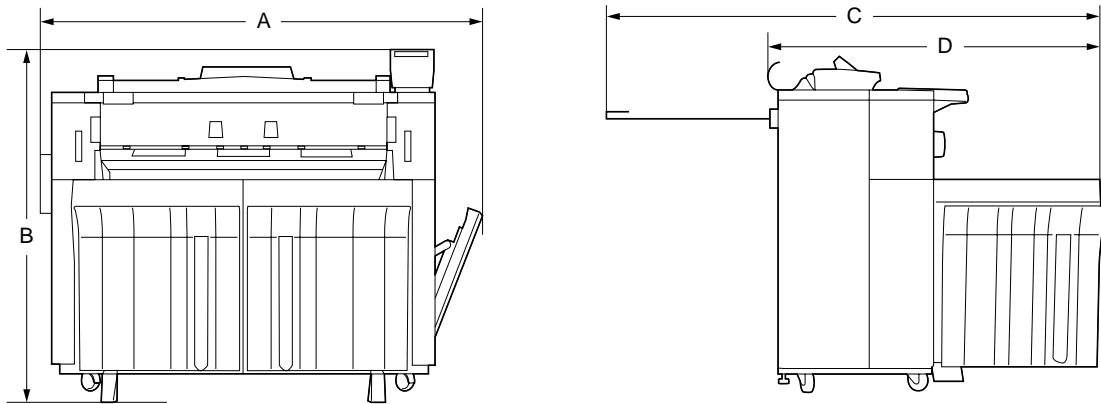
* Optional

2. Storage of paper

Paper should be stored in a cool, dark place free from direct sunlight, high temperature or humidity. If it is not going to be used for a long time, take paper out of the roll unit, put it in the original wrapping paper and seal. Vellum must be kept in a sealed vinyl bag.

1-2-5 Installation environment

1. Temperature: 10°C – 35°C/50°F – 95°F
2. Humidity: 15% – 85% RH
3. Power source: 120 V AC, 13 A/220 – 240 V AC, 7 A
4. Power source frequency stability: 50 Hz \pm 0.3%/60 Hz \pm 0.3%
5. Installation location
 - Avoid locations with direct sunlight or bright areas such as near windows or with strong lighting. Be sure to avoid letting direct sunlight or strong light reach the photoconductor when removing jammed paper.
 - Avoid locations with high temperature or humidity, low temperature or humidity, and areas with sudden changes in temperature. Also avoid areas with hot or cold draughts.
 - Avoid areas with excessive dust or vibration.
 - Be sure that the platform or floor area can support the weight of the equipment.
 - Locate on a flat, horizontal surface (maximum inclination of 0.3°).
 - Avoid atmosphere laden with substances that might chemically damage the equipment or the photoconductor (mercury, alkali or acid vapors, inorganic gases, gases such as NO_x and SO_x, and chlorine-based organic solvents).
 - Choose a location with adequate ventilation.
6. There should be sufficient space for operation and maintenance of the equipment:
800 mm/31¹/₂" at front, 500 mm/19¹¹/₁₆" at right and 300 mm/11¹³/₁₆" at rear and left.

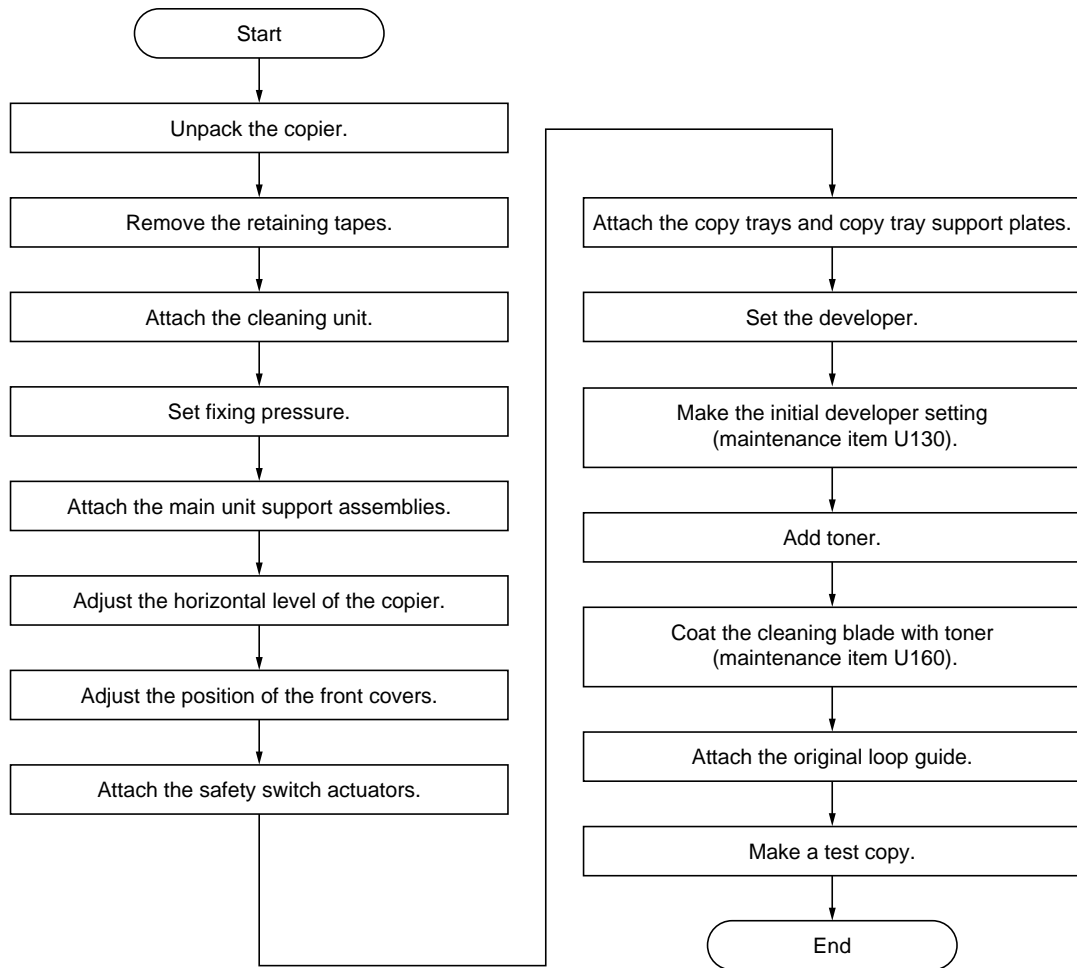


- A: 1555 mm/63¹/₂"
 B: 1205 mm/49³/₁₆"
 C: 1688 mm/68⁷/₈"
 D: 1073 mm/43¹³/₁₆"

Figure 1-2-1 Installation measurements

1-3-1 Unpacking and installing the copier

(1) Installation procedure



Unpack the copier.

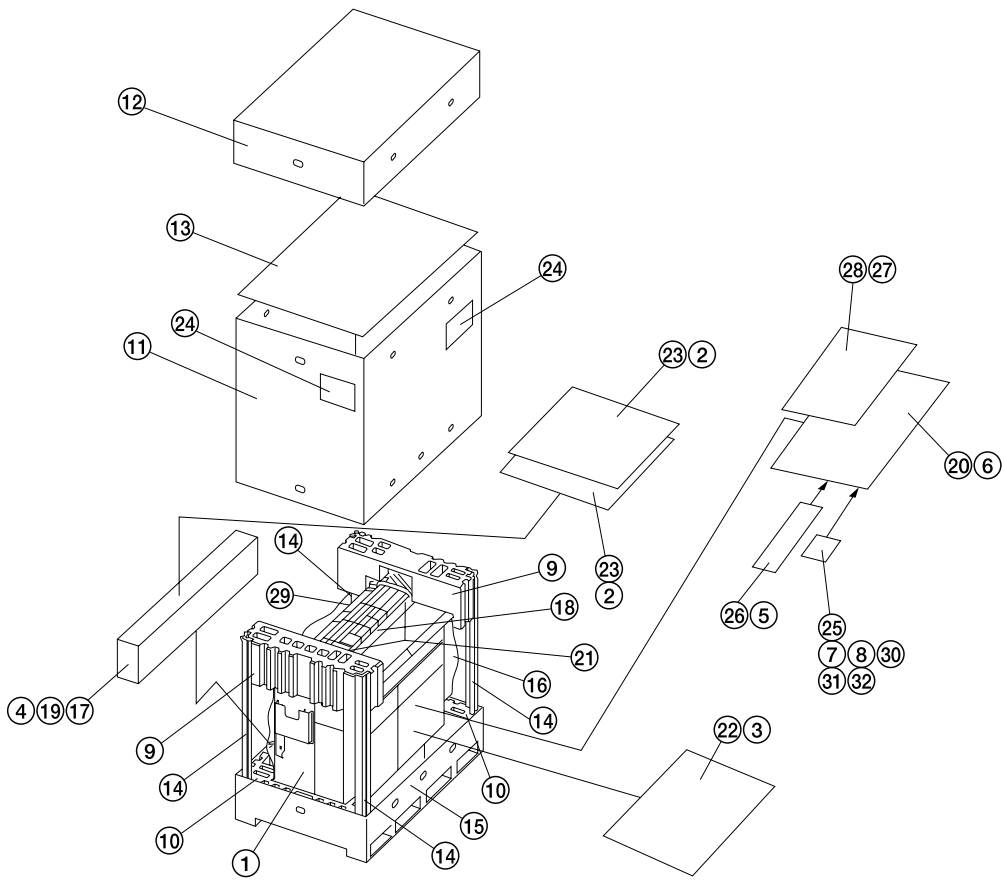


Figure 1-3-1 Copier package

- | | | |
|--------------------------------|--------------------------|--|
| ① Machine body | ⑫ Top case | ⑳ Air cap bag |
| ② Copy trays | ⑬ Top board | ㉑ Barcode label |
| ③ Roll flange | ⑭ Props | ㉒ Vinyl bag |
| ④ Main unit support assemblies | ⑮ Skid | ㉓ Polyethylene bag |
| ⑤ Copy tray support plates | ⑯ Accessory case | ㉔ Instruction handbook |
| ⑥ Original loop guide | ⑰ Pad sheet | ㉕ Polyethylene bag |
| ⑦ Hinge joints | ⑱ Air cap bag | ㉖ Power cord (230/240 V) |
| ⑧ M4 × 08 TP-A chrome screws | ㉒ Original cover spacers | ㉗ Safety switch actuators |
| ⑨ Top pad | ㉓ Air cap bag | ㉘ Stopper labels |
| ⑩ Bottom pad | | ㉙ BVM3 × 05 cross-head bronze binding screws |

Remove the retaining tapes.

1. Remove the tape retaining the air cap bag.
2. Remove the two tapes retaining the power cord and then the tape binding the cord. (For 120 V specifications only)
3. Remove the retaining tape from each main unit release lever.
4. Remove the four tapes retaining the front covers.
5. Remove the tape retaining the waste toner tank cover.

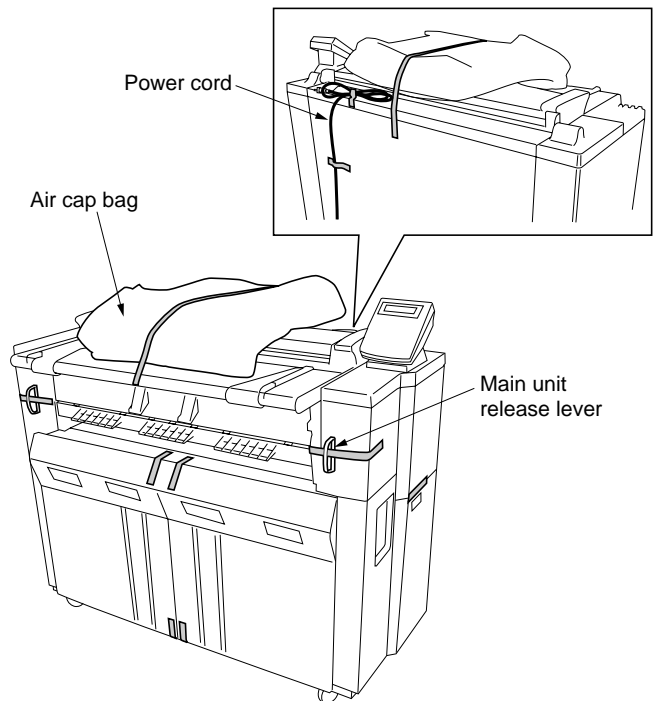


Figure 1-3-2

6. Remove the two tapes retaining the original guide.
7. Pull the main unit release levers and open the detachable unit.
8. Remove the two tapes retaining the original cover.
9. Open the original cover and remove the pad.
10. Remove the two spacers from the original cover.
11. Remove the two tapes retaining the original leading edge cover.
12. Close the detachable unit.
13. Open the front covers and remove the two tapes from each magnet.
14. Pull out the middle roll unit and remove the tape retaining the air cap bag with the original loop guide inside.
15. Pull out the lower roll unit and remove the tape retaining the air cap bag with the roll flange inside.
16. Close the front covers.

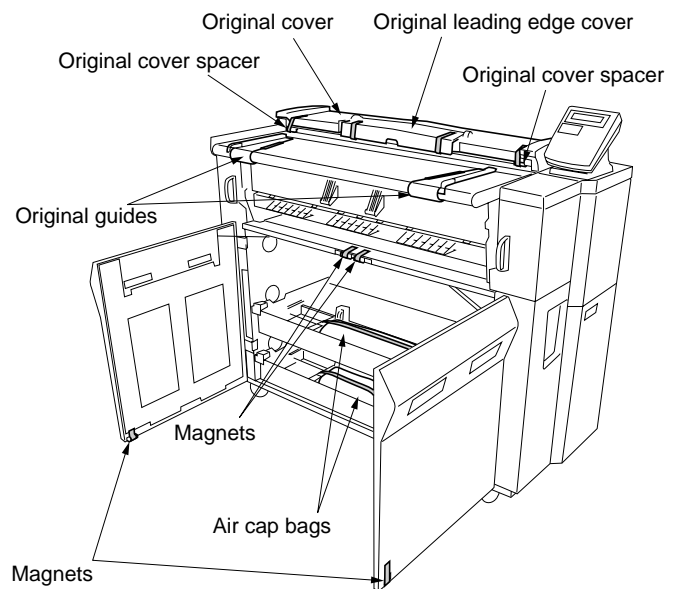


Figure 1-3-3

Attach the cleaning unit.

1. Pull the main unit release levers and open the detachable unit.
2. Remove the screw from each of the right and left cleaning unit retention stoppers.
3. Slide the right and left cleaning unit retention stoppers inward and release the cleaning unit.

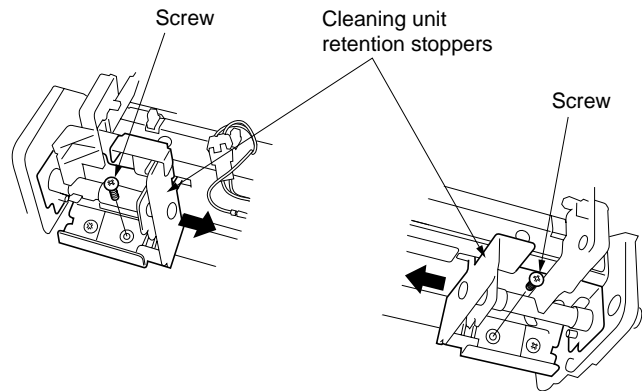


Figure 1-3-4

4. Move the right and left cleaning unit retention stays from hole A to hole B on each of the right and left side plates.
 * When retaining the cleaning unit, take care that your fingers are not caught by the left and right cleaning unit retention stoppers.
5. Connect the 9-pin connector to the cleaning unit.

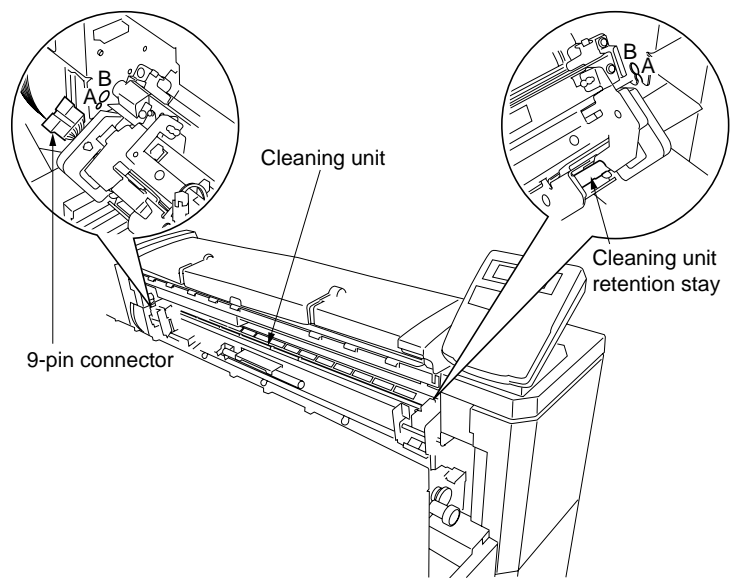


Figure 1-3-5

6. Secure the right and left cleaning unit retention stoppers using one screw removed in step 2 for each stopper.

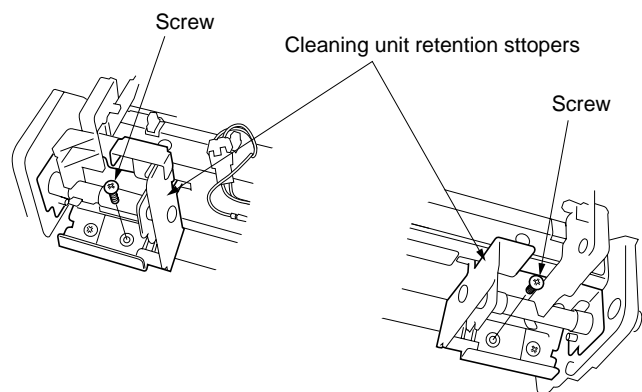


Figure 1-3-6

Set fixing pressure.

1. Set fixing pressure by rotating the fixing pressure adjustment nuts at the front and rear of the fixing unit clockwise until they are tight.

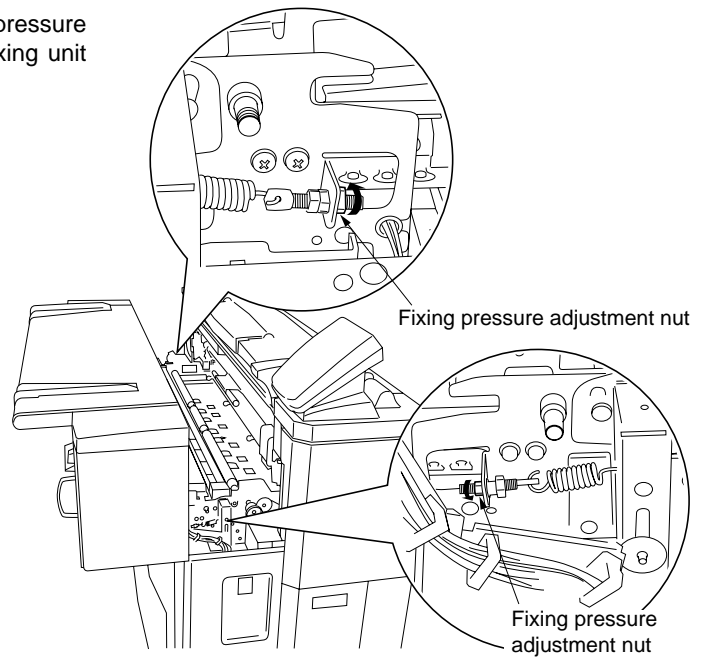


Figure 1-3-7

2. Push in the main unit release levers until closing the detachable unit.

Attach the main unit support assemblies.

1. Open the front covers.
2. Remove the screw retaining the main unit support assembly cover.
3. Attach the main unit support assembly to the lower right of the main unit using the four M4 × 08 TP-A chrome screws.
4. Attach the main unit support assembly to the lower left of the main unit in the same way.
5. Rotate the nuts of the main unit support assemblies and adjust the horizontal level.

* Adjust the level with the casters of the main unit off the floor.

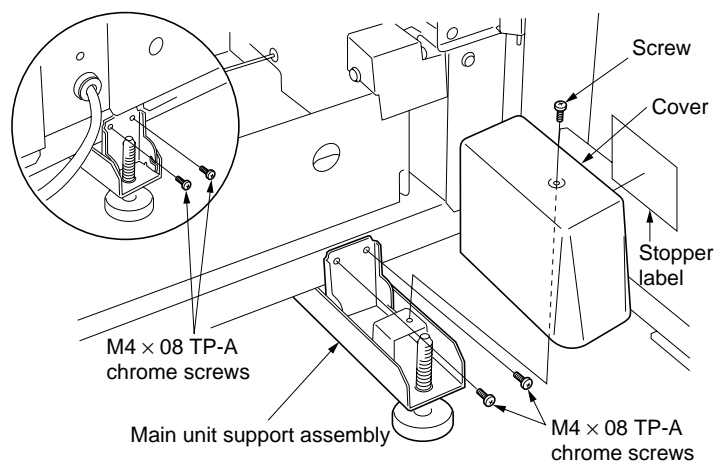


Figure 1-3-8

Adjust the horizontal level of the unit.

1. Place three levels on the center, right and left of the contact glass and check that the unit is level in all directions.
2. After any leveling adjustments, reattach the main unit support assembly covers using one screw for each cover.
3. Attach the stopper labels to the covers of the right and left main unit support assemblies.

Adjusting the position of the front covers.

1. Open and close the front covers and check that there are no problems.
2. In case of trouble, loosen the two screws on each of the top and bottom hinges, adjust the front cover position and then retighten the screws.

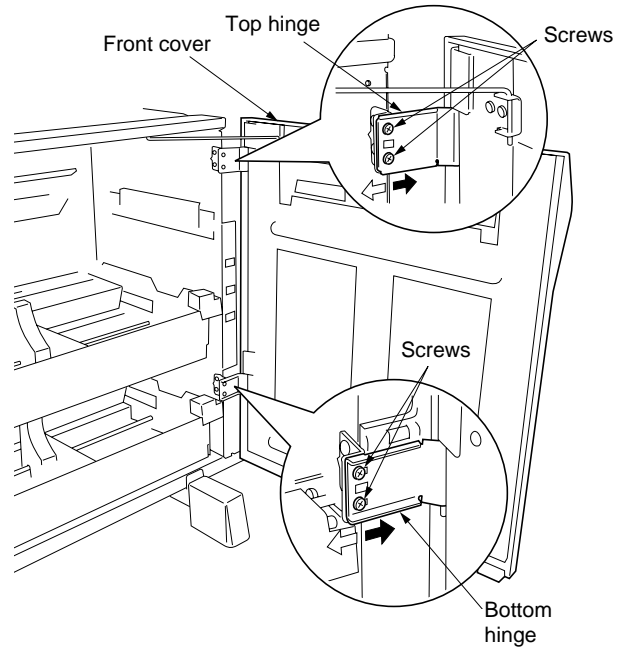


Figure 1-3-9

Attach the safety switch actuators.

1. Temporarily set the safety switch actuator onto the left and right front covers using a BVM3 × 05 cross-head bronze binding screw for each.
2. Adjust the positions of the safety switch actuators so that the switches are turned on upon closing the front covers, and then tighten the screws.

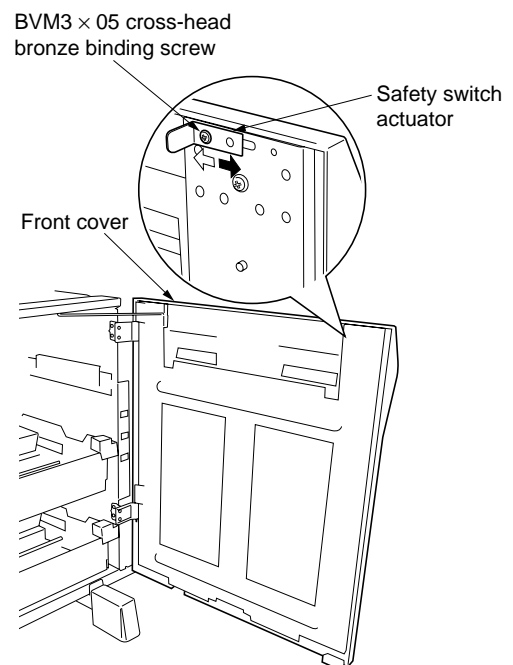


Figure 1-3-10

Attach the copy trays and copy tray support plates.

1. Attach the copy tray support plates to the front covers with the projections on the copy tray support plates fitting into the grooves on the front covers.

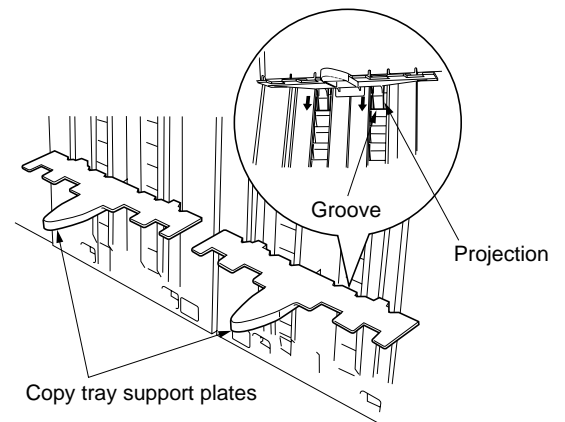


Figure 1-3-11

2. Attach the copy trays to the front covers using the two hinge joints for each tray.

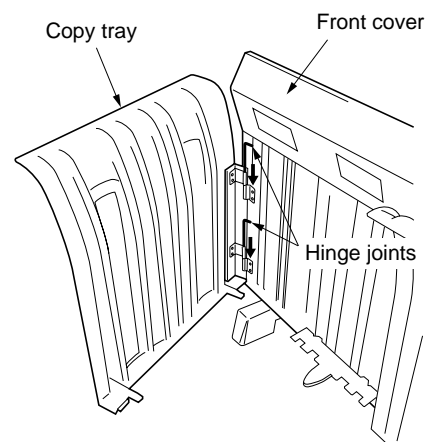


Figure 1-3-12

Set the developer.

1. Open the toner replenishing slot.
2. Remove the screw, the connector protective cover and then the 5-pin connector.
* Always turn the main switch off before removing and connecting the 5-pin connector.
3. Remove the five screws and then the the upper rear cover.

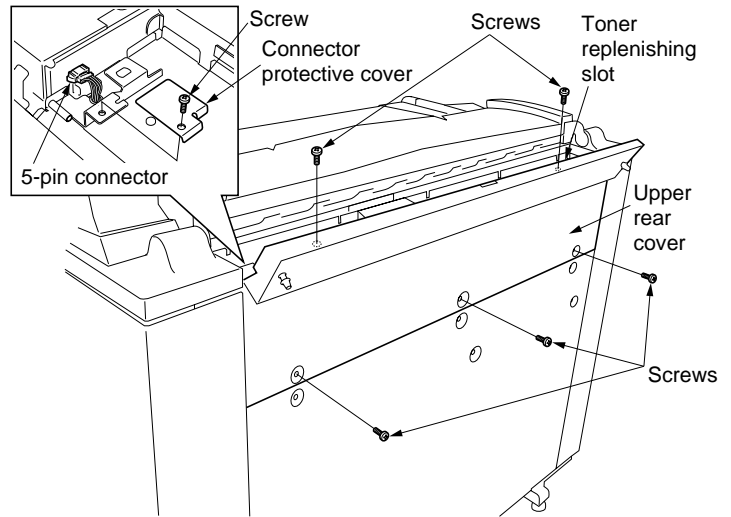


Figure 1-3-13

4. Remove the two blue screws, the right and left connectors and then the developing unit.

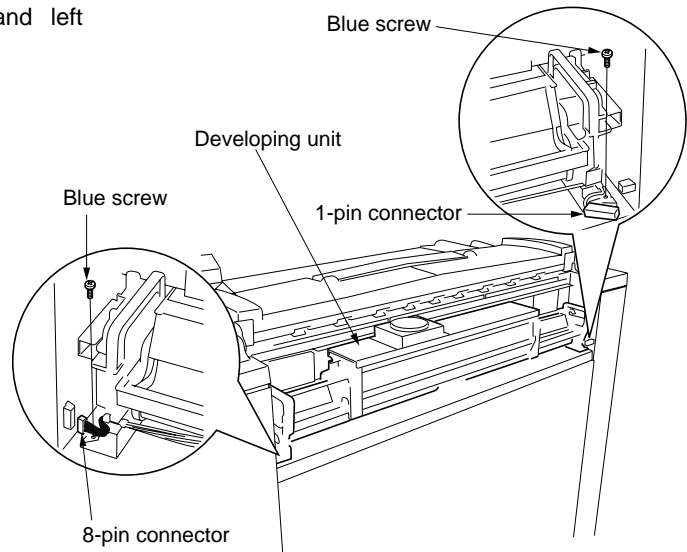


Figure 1-3-14

5. Remove the two pins and 2-pin connector and then the toner hopper unit.

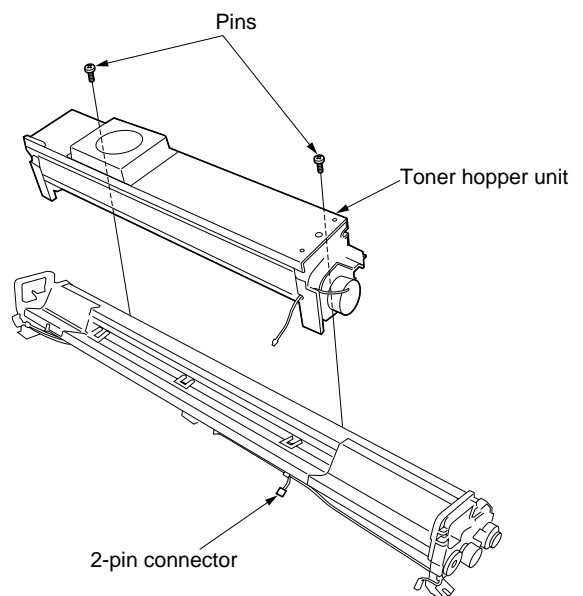


Figure 1-3-15

6. Align the developing unit with the guide and insert into the main unit.
7. Lower the developing unit securing lever until it locks, and connect the right and left connectors.

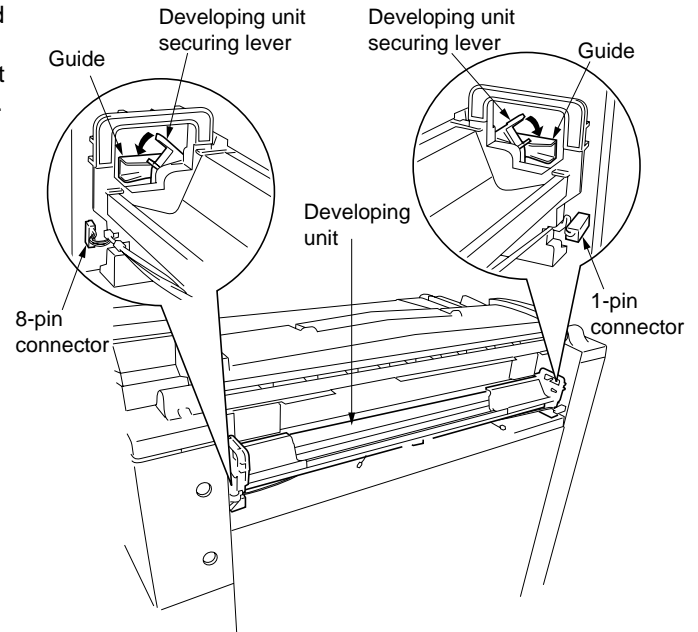


Figure 1-3-16

8. Shake the bottle of the developer well to mix the developer.
9. Connect the power cord to the wall outlet.
10. Turn the main switch on and enter "10871087" using the numeric keys to enter the maintenance mode.
11. Enter "030" using the numeric keys and press the start key.
12. Select "Main/Drum motor" using the cursor up/down keys and press the start key.
* The machine drive starts.
13. Pour two bottles of developer into the developing unit being careful to spread the developer evenly across the unit.

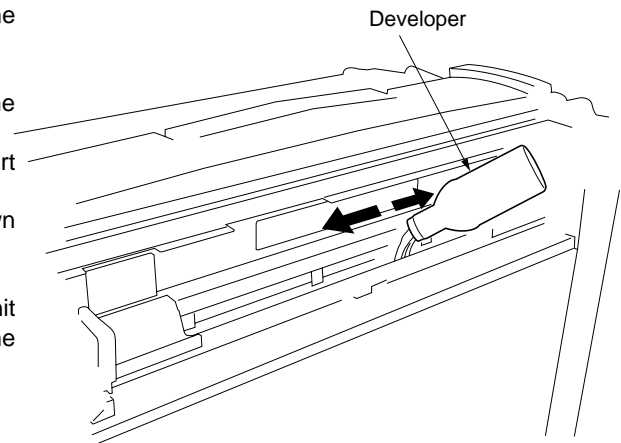


Figure 1-3-17

14. After pouring the developer, press the stop/clear key.
* The machine drive stops.
15. Turn the main switch off.
16. Remove the right and left connectors from the developing unit.
17. Raise the developing unit securing lever. Release the developing unit and remove from the main unit.
18. Attach the toner hopper unit to the developing unit using the two screws and connect the 2-pin connector.
19. Reattach the upper rear cover.
20. Connect the 5-pin connector and attach the connector protective cover.

Make the initial developer setting (maintenance item U130).

1. Pull the main unit release levers. Turn the main switch on while the detachable unit is open and enter "10871087" to enter the maintenance mode.
2. Push in the main unit release levers until closing the detachable unit.
3. Enter "130" using the numeric keys and press the start key.
4. Press the start key.

* Unit drive will stop in 3 minutes. The toner sensor output and the toner control voltage reference will be displayed.

Example:

Toner C: 95

Target: 118

Confirm: 118

Setting range: 105 to 135 (reference)

5. Press the stop/clear key.

Add toner.

1. Shake the bottle of toner well to mix toner.

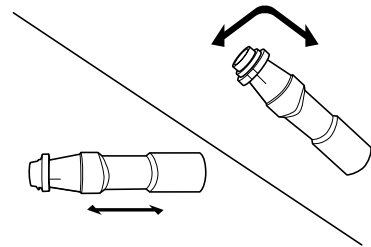


Figure 1-3-18

2. Uncap the toner bottle. Open the toner replenishing slot and place the bottle over the cartridge slot. Then, turn the bottle in the direction in the arrow.
3. Make sure that all of toner has been poured out of the bottle and then pull the bottle away from the machine.
4. Close the toner replenishing slot.

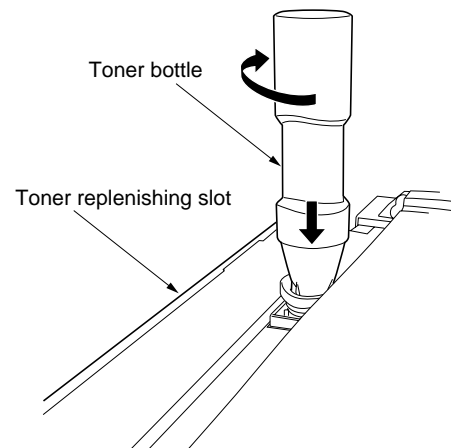


Figure 1-3-19

Coat the cleaning blade with toner (maintenance item U160).

1. Enter "160" using the numeric keys and press the start key.
2. Select "Action" using the cursor up/down keys and press the start key.
3. Pull the main unit release levers to open the detachable unit. Loosen the screw retaining the cleaning blade retention stopper, slide the stopper to the left and then retighten the screw.
4. Push in the main unit release levers until closing the detachable unit.
* The cleaning blade will be coated with toner.
5. After the machine drive stops, press the stop/clear key. Enter "001" using the numeric keys and press the start key to exit the maintenance mode.

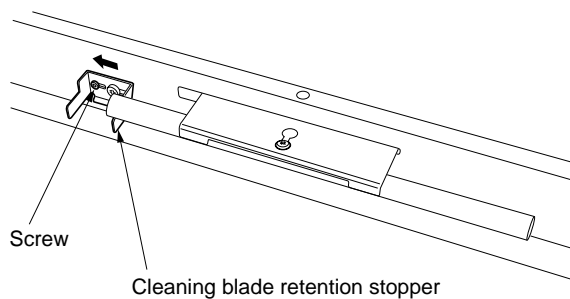


Figure 1-3-20

Attach the original loop guide.

1. Attach the original loop guide to the upper rear cover being careful to fit the two pins on the cover into the grooves of the guide.

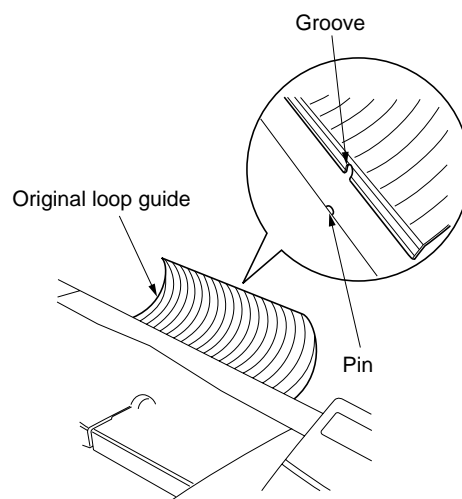


Figure 1-3-21

Make a test copy.

1. Load paper and make a test copy.

The copier is now installed.

1-3-2 Copy mode initial settings

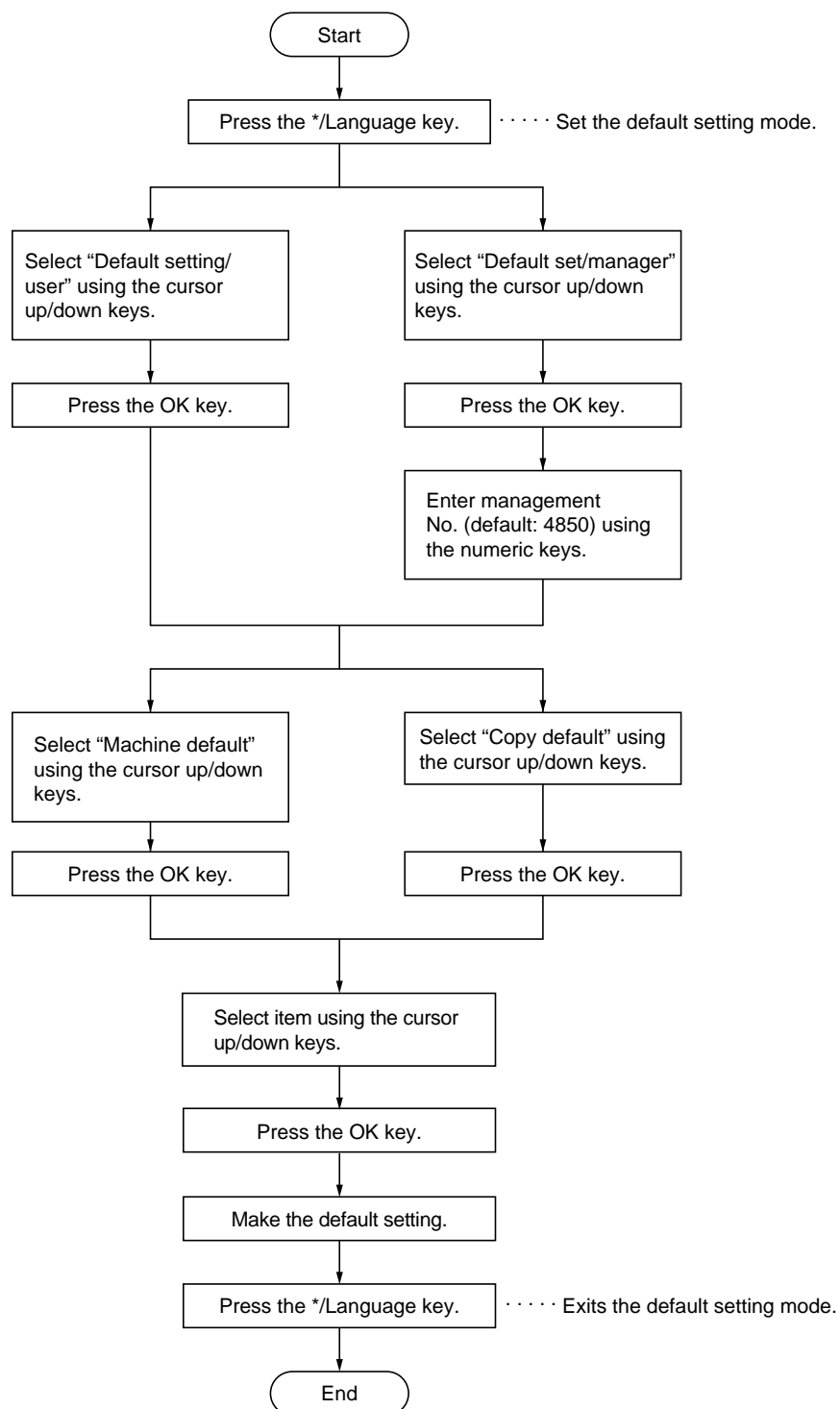
The factory settings for this machine are as shown below.

Maintenance item No.	Contents	Setting at factory
U256 U258 U267 U269 U271	Auto Preheat Time Switching copy operation at toner empty detection Adjusting the cutting length for the paper leading edge Selecting the timing for total counting Setting the unit of counting	ON Single Select temperature Paper feeding Total count: 1.0 Key counter: 0.1
U273 U344	Setting the maximum paper length Setting the preheat (energy saving) mode	Paper length Ltd.: 6000 Returnable Len. L: 1400 Energy save
User settings	Auto Clear Time Auto Shut-off Time Copy size adjustment Fusing temperature Custom paper adj. Standard size set Auto roll over Management #	1 min OFF 0.0% Bond: 155°C Vellum: 185°C Film: 150°C Custom: 165°C Vellum A sizes/Architecture OFF 4850

1-3-3 User Settings

The user can make default settings that determines how the copier acts when the main switch is turned on or after the reset key is pressed. Default settings are categorized as “Machine default” that determine the copier’s basic operations and “Copy default” which determine operability. Default settings are also divided into “user” and “manager” defaults, this former being available to all users while this latter is restricted to only certain users. To make “manager defaults”, you need to input a management No.

(1) Default settings making procedure



(2) Making default settings**Machine default**

Items common to user/manager

Paper width adjustment

1. Select a paper source and press the OK key.
2. Select between "Auto" and "Input width", and press the OK key.
3. If having selected "Input width", input the width using the numeric keys and press the OK key.
Setting range: 210 to 920 mm (8.5" to 36.2")

Paper working

1. Select between "ON" and "OFF", and press the OK key.

Paper material adjustment

First turn "ON" Paper working.

1. Select a paper source and press the OK key.
2. Select a paper type and press the OK key.
Paper type: Bond, Vellum, Film, Custom

Items for managers only

Auto Clear Timer [Auto clear]

1. Select between "ON" and "OFF", and press the OK key.

Auto Shut-off Time [Auto shut off]

1. Select between "Shut off mode" and "OFF", and press the OK key.

Timer Set

First turn "ON" Auto Clear Timer and set Auto Shut-off Time to "Shut off mode".

Auto Clear Time

1. Select "Auto Clear Time" and press the OK key.
2. Select a time and press the OK key.
Setting range: 30 s, 1 min, 3 min, 5 min

Auto Preheat Time

1. Select "Auto Preheat Time" and press the OK key.
2. Select a time and press the OK key.
Setting range: Any 5 min mark between 5 and 45 min
Set Auto Preheat Time shorter than Auto Shut-off Time.

Auto Shut-off Time

1. Select "Auto Shut-off Timer" and press the OK key.
2. Select a time and press the OK key.
Setting range: Any 5 min mark between 15 and 120 min

Copy size adjustment

1. Select a paper type and press the OK key.
Paper type: Bond, Vellum, Film, Custom
2. Change the size and press the OK key.
Setting range: -3.0 to +3.0%

Roll end adjustment

1. Select a paper type and press the OK key.
2. Select between "Fix" and "Unfix", and press the OK key.

Display contrast

1. Select a contrast level and press the OK key.
Setting range: 1 to 7

Orig. eject direct

1. Select between "Discharge to back" and "Discharge to front", and press the OK key.

Fusing temperature [Set fixing temp.]

1. Select a paper type and press the OK key.
Paper type: Bond, Vellum, Film, Custom
2. Select a temperature and press the OK key.
Bond: 145°C, 155°C, 165°C
Vellum: 165°C, 175°C, 185°C
Film: 150°C, 160°C, 170°C
Custom: Select a temperature based on settings in Custom paper adj.

Custom paper adj. [Custom paper material adj.]

1. Select "Custom" as the paper type and press the OK key.
2. Select a fixing temperature and press the OK key.
3. Adjust magnification and press the OK key.

Standard size set

1. Select between "A sizes (Architecture)" and "B sizes (Engineer)", and press the OK key.

Auto roll over

1. Select between "ON" and "OFF", and press the OK key.

Management # [Management code change]

1. Enter a new 4-digit management No. using the numeric keys and press the OK key.
If you press the stop/clear key before the OK key, the management No. reverts back to the default (4850).

Copy default

Items common to user/manager

Auto rotation mode

1. Select between "ON" and "OFF", and press the OK key.

Zoom step [Zoom steps]

1. Select between "1%" and "0.1%", and press the OK key.

Zoom register

1. Select a user No. and press the OK key.
2. Select between "Zoom" and "XY Zoom", and press the OK key.
3. Set the magnification.

Zoom

Enter the zoom ratio using the cursor left/right keys and the numeric keys, and press the OK key.

XY Zoom

Select a direction using the cursor up/down/left/right keys, enter the zoom ratio using the cursor up/down/left/right keys and the numeric keys, and press the OK key.

Cut size register

1. Select between "User-1" and "User-2", and press the OK key.
 2. Enter the cut size using the numeric keys and press the OK key.
- Setting range: 297 to 6000 mm (8.5 to 197")

Items for manager only

Standard drawer

1. Select a paper source and press the OK key.
- Paper source: 1st paper drawer*, 2nd paper drawer, 3rd paper drawer, Bypass
* Optional

Auto select set

1. Select a copy mode and press the OK key.
- Copy mode: APS, AMS, Manual

AMS mode

1. Select between "ON" and "OFF", and press the OK key.

Method copy start

1. Select between "Auto start" and "Start key", and press the OK key.

Start late time

1. Select a time and press the OK key.
- Setting range: 0.5 s, 1 s, 2 s, 3 s, 4 s, 5 s

Exposure step [Exposure steps]

1. Select between "7 steps" and "13 steps", and press the OK key.

Auto/Manual exp.

1. Select an original mode and press the OK key.
- Original mode: Auto, Normal, Normal darker, Normal lighter/Text/Line/Photo

Default exposure

- First set Auto/Manual exp. to the setting other than "Auto".
1. Select an exposure level and press the OK key.
- Setting range: 1 to 7

Exposure adj.

1. Select an original mode and press the OK key.
- Original mode: Auto exposure, Normal originals, Character/Line, Photo
2. Select an exposure level and press the OK key.
- Setting range: 1 to 7

Paper cut [Select cut. Method]

1. Select a cutting mode and press the OK key.
- Setting range
- When "A sizes" (metric) is set: Synchronized cut, 1189 mm, 841 mm, 594 mm, 420 mm, 297 mm, User-1, User-2
- When "B sizes" (metric) is set: Synchronized cut, 1030 mm, 728 mm, 515 mm, 364 mm, User-1, User-2
- When "Architecture" (inch) is set: Synchronized cut, 9.0", 12.0", 18.0", 22.0", 34.0", User-1, User-2
- When "Engineer" (inch) is set: Synchronized cut, 8.5", 11.0", 17.0", 24.0", 36.0", User-1, User-2

Sync. Cut length

1. Select between "ON" and "OFF", and press the OK key.

Delete memory

1. Select between "Delete" and "Check data of repeat copy", and press the OK key.

Permit repeat

1. Select a mode and press the OK key.
- Setting range: Permit, Code number, Unpermit

Change repeat # [Repeat code change]

First set Permit repeat to "Code number".

1. Enter a new 4-digit code No. using the numeric keys and press the OK key.

If you press the stop/clear key before the OK key, the code No. reverts back to the default (4850).

Memory compress

1. Select a compression mode and press the OK key.

Setting range: Non-compression, Standard-compression, High-compression

Maximum Jobs

1. Select a max. number of jobs and press the OK key.

Setting range: 5 Jobs, 10 Jobs, 20 jobs

Default of edit function

Image shift up/down

1. Select "Image shift up/down" and press the OK key.
2. Switch between the up and down direction using the cursor up/down keys.
3. Enter a shift range using the numeric keys and press the OK key.

Setting range 1 to 200 mm (0.1 to 8.0")

Image shift L/R

1. Select "Image shift up L/R" and press the OK key.
2. Switch between the left and right direction using the cursor left/right keys.
3. Enter a shift range using the numeric keys and press the OK key.

Setting range 1 to 200 mm (0.1 to 8.0")

Leading edge

1. Select "Leading edge" and press the OK key.
2. Switch between "+" and "-" using the cursor up/down keys, enter a size using the numeric keys and press the OK key.

Setting range -1 to -200 mm (-0.1 to -8.0"), +1 to +200 mm (+0.1 to +8.0")

Trailing edge

1. Select "Trailing edge" and press the OK key.
2. Switch between "+" and "-" using the cursor up/down keys, enter a size using the numeric keys and press the OK key.

Setting range -1 to -200 mm (-0.1 to -8.0"), +1 to +200 mm (+0.1 to +8.0")

Border erase

1. Select "Border erase" and press the OK key.
2. Enter a size using the numeric keys and press the OK key.

Setting range 0 to 200 mm (0.1 to 8.0")

Adj. Preview copy

1. Select between "Preview contrast" and "Preview image", and press the OK key.

1-3-4 Installation of the upper roll unit (option)

Procedure

1. Open the front covers and lift up the right and left front cover stoppers to remove them from the front covers.

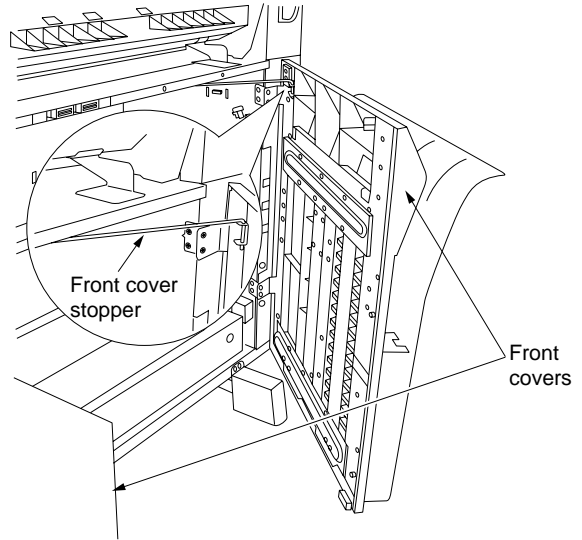


Figure 1-3-22

2. Slide the right and left front cover stoppers to remove them from the main body of the machine.
3. Lift up the front covers to remove them.

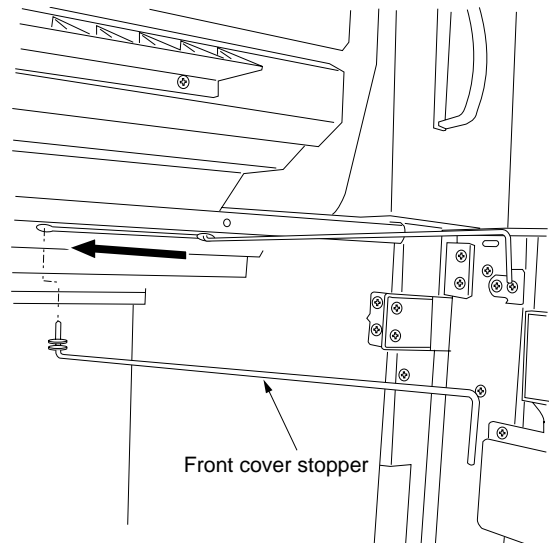


Figure 1-3-23

4. Pull the main unit release levers to open the detachable unit and remove the six screws to remove the left rear cover.

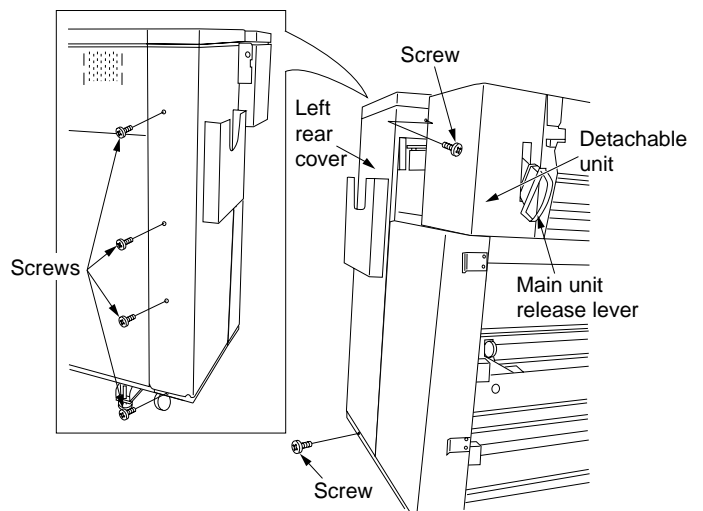


Figure 1-3-24

- 5. Remove the five screws to remove the left side cover.
- 6. Close the detachable unit.

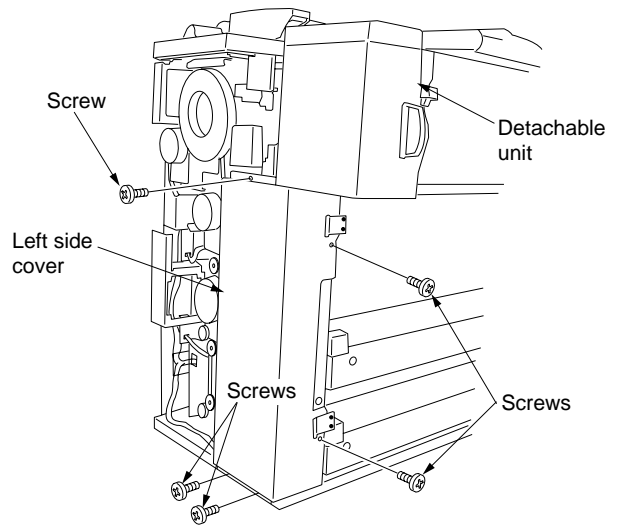


Figure 1-3-25

- 7. Remove the two screws to remove the roll drive cover.

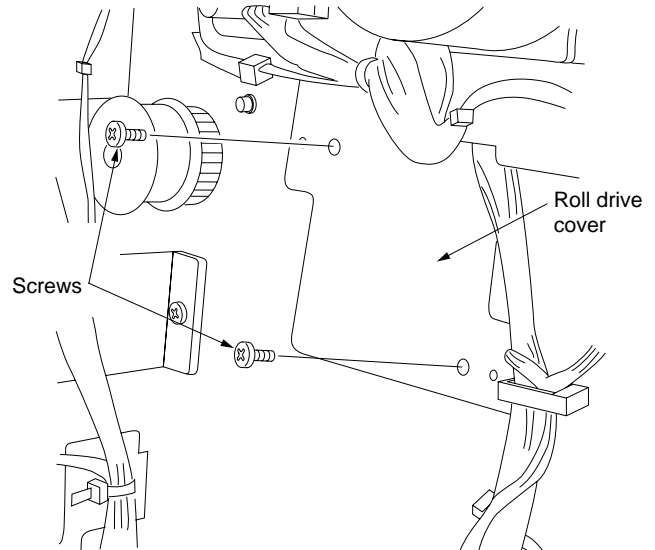


Figure 1-3-26

- 8. Fit the upper winding drive assembly to the location to which the roll drive cover has been attached using the two screws that have been removed in step 7 while hanging the belt on the pulley.
* Fit it by pressing it down.

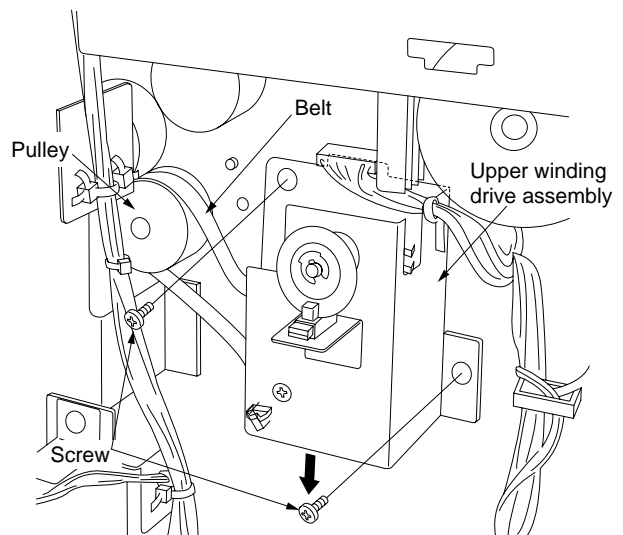


Figure 1-3-27

9. Fit the tension plate paper feed assembly using a drum lift pin.
10. Fit the blade spring to the tension plate paper feed assembly and the drum motor assembly.

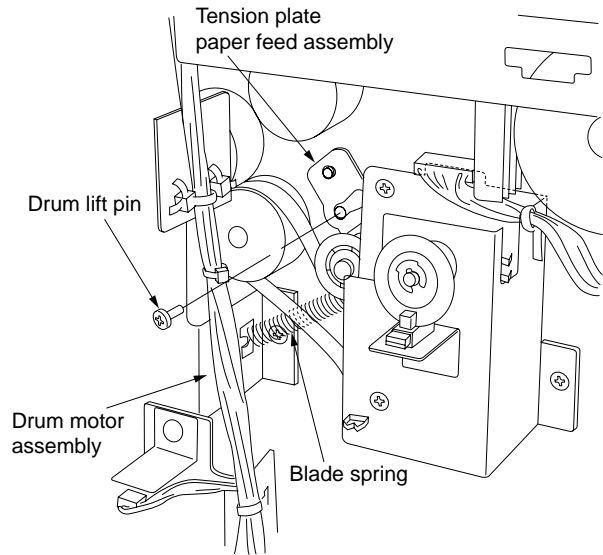


Figure 1-3-28

11. Fit the feed clutch and secure it using the stopper.
12. Connect the 2-pin connector of the feed clutch.

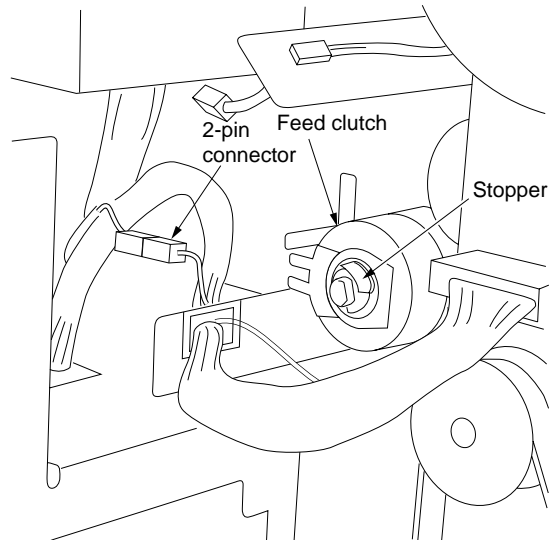


Figure 1-3-29

13. Connect the 3-pin connector and the 2-pin connector of the upper winding drive assembly.

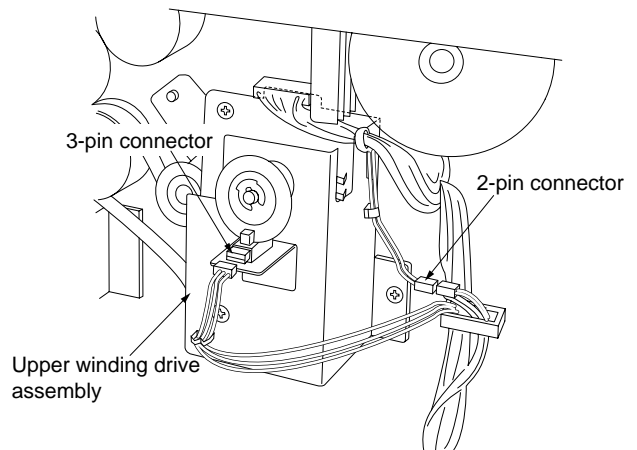


Figure 1-3-30

100V/120V models only

14. Pull out the roll unit of the main body, fit the upper roll unit heater to the roll guide plate from the front of the machine using two M4 × 06 bronze binding screws, insert the two cable ties into the holes of the roll guide plate, and secure them to tie the harness.

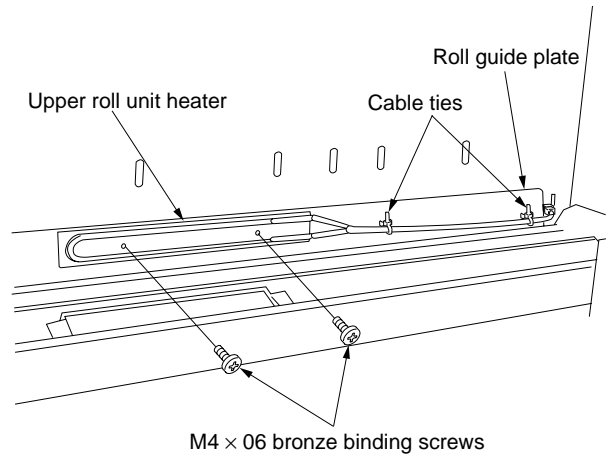


Figure 1-3-31

15. Connect the connector of the upper roll unit heater to the connector of the main body of the machine and fit the heater connector cover using a M4 × 06 bronze binding screw.
16. Paste the high temperature caution label.

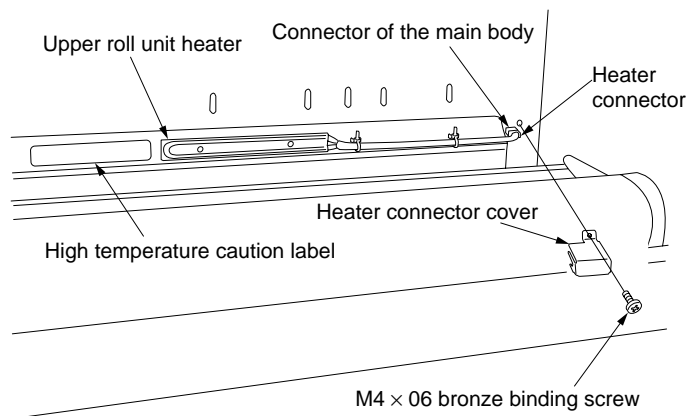


Figure 1-3-32

17. Keeping the right slider assembly and the left slider assembly pulled out, fit them to the side plates at the lower location using two M4 × 06 bronze binding screws respectively.

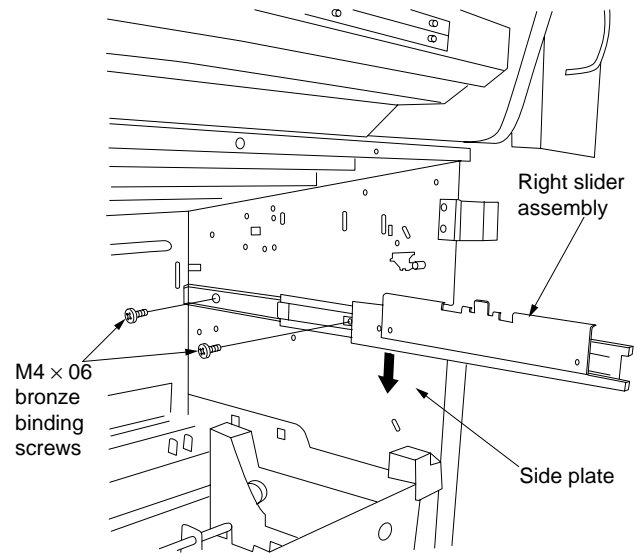


Figure 1-3-33

18. Hang the upper size detection assembly on the two spot sections of the roll guide and secure it using two M4 × 06 bronze binding screws.
19. Connect the connector of the upper size detection assembly.

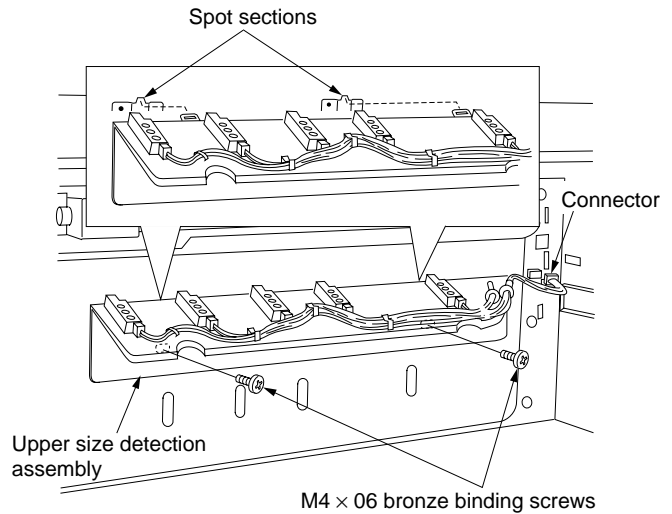


Figure 1-3-34

20. Fit the roll drive gear 40 to the pin located inside the left side plate and secure it using the E ring.

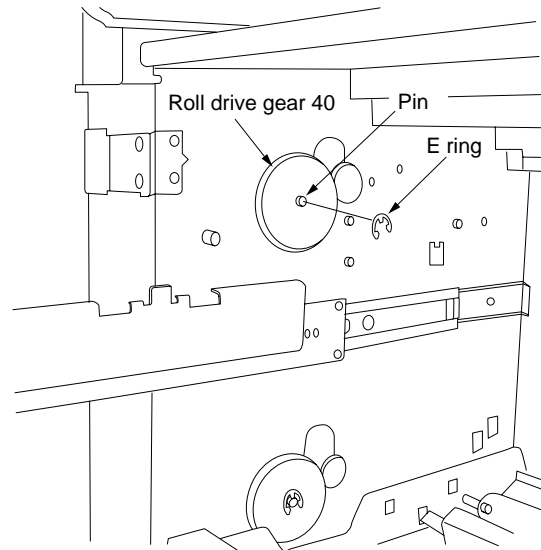


Figure 1-3-35

21. Pull out the right slider assembly and the left slider assembly that have been fitted, place the upper roll unit on the assemblies, and secure it to them from above using two M4 × 06 bronze binding screws respectively.
- * When carrying the upper roll unit, be sure to grasp the lower portions of the right and left side plates. Grasping the guide plate for carrying may cause deformation of the guide plate, resulting in malfunctions.

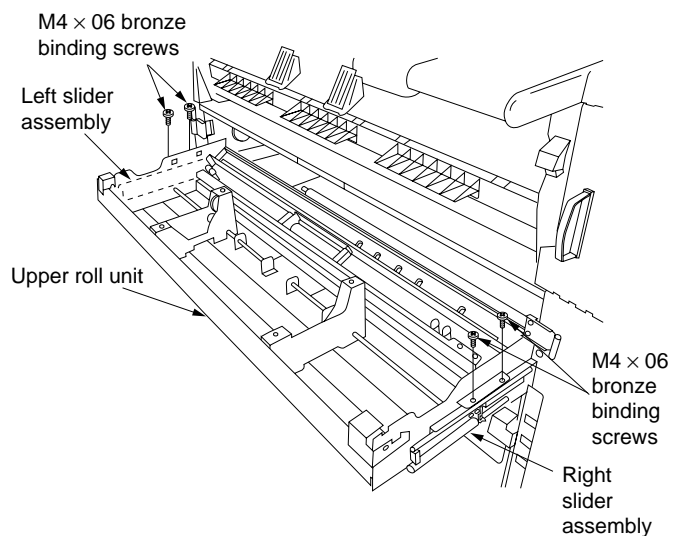


Figure 1-3-36

2A7

22. Insert the roll flanges into the right and left portions of the paper and turn the levers of the roll flanges in the direction indicated by the arrow to secure them.
23. Set the paper in the upper roll unit and insert the upper roll unit securely into the main body of the machine.
24. Refit the covers that have been removed to their original positions.

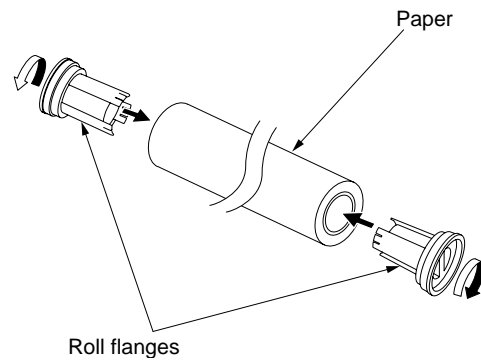


Figure 1-3-37

25. Turn the main switch on and enter the maintenance mode.
26. Run maintenance item U272 and set the optional roll unit setting to "ON".
27. Exit the maintenance mode.
28. Make a test copy to check the operation.

1-3-5 Attaching the original tray

Procedure

1. Detach the original loop guide.
2. Fit the four drum lift pins and two M4 × 06 bronze binding screws into the upper rear cover.

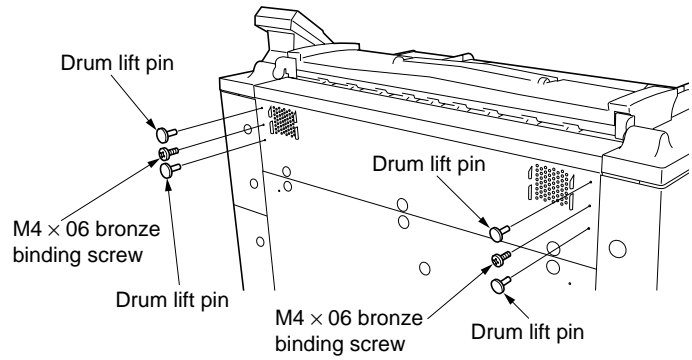


Figure 1-3-38

3. Hang the brackets on the pins and screws installed in step 2.

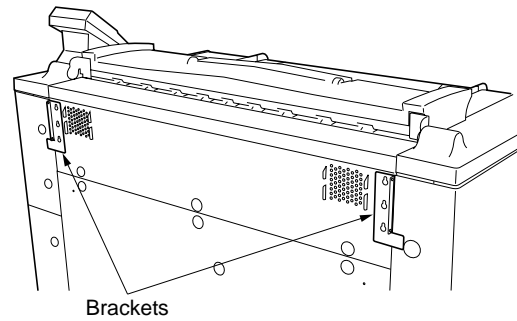


Figure 1-3-39

4. Attach the original tray hinges to the lower rear cover using the fixing fulcrum pins.
5. Insert the support bar into the holes on the original tray hinges.

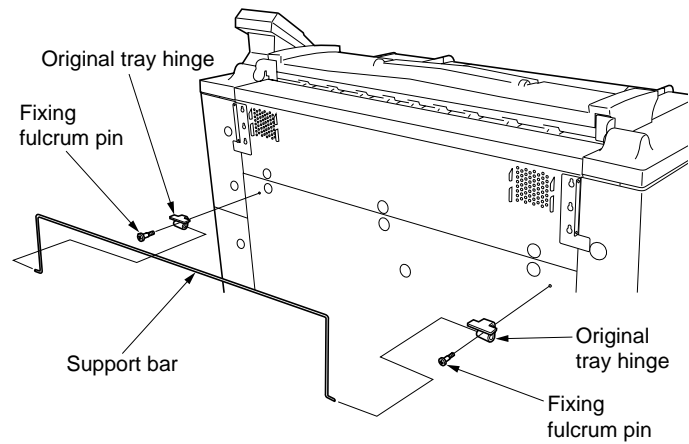


Figure 1-3-40

2A7

6. Insert the fulcrum bar of the original tray into the top holes of the brackets, and then attach the M3 × 05 bronze binding screw to each end of the bar.

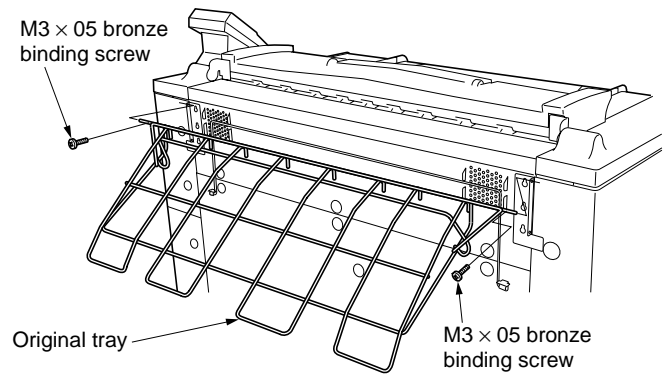


Figure 1-3-41

7. Hook the original stopper onto the original tray.

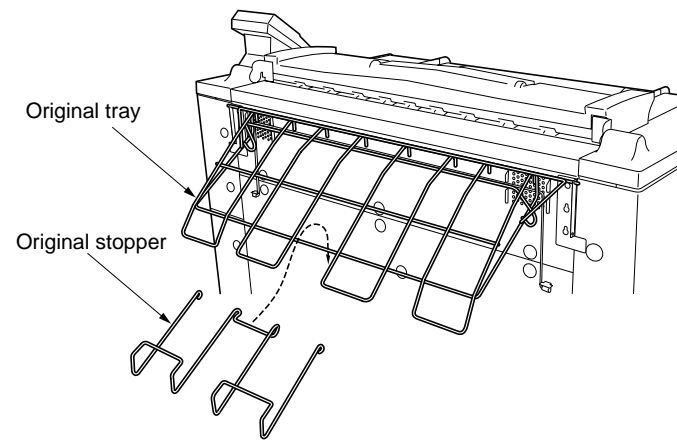


Figure 1-3-42

1-3-6 Attaching the key counter (option)

Procedure

1. Open the front covers.
2. Pull the main unit release levers and open the detachable unit. Then, open the lower right cover and remove the three screws from the side of the front right cover. After that, remove the two screws from the front of the front right cover and detach the cover.
3. Remove the two screws from the main switch assembly cover and then the cover.
4. Remove the two screws from the key counter cover and then the cover.

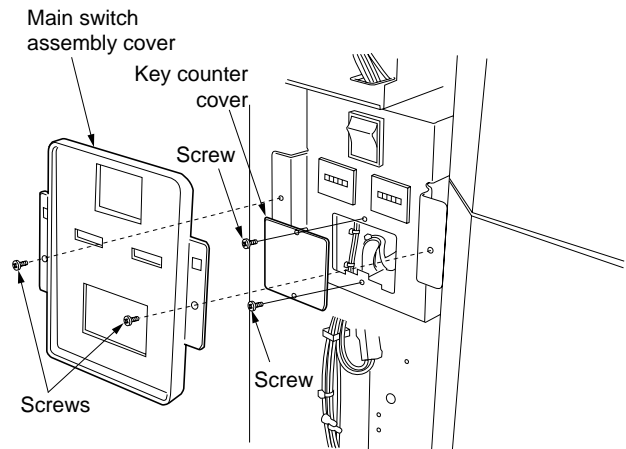


Figure 1-3-43

5. Remove the shorting plug from the 4-pin connector on the main body.
6. Connect the 4-pin connector of the key counter socket to the 4-pin connector on the main body.
7. Attach the key counter socket to the main switch assembly using the two screws that locked down the key counter cover.

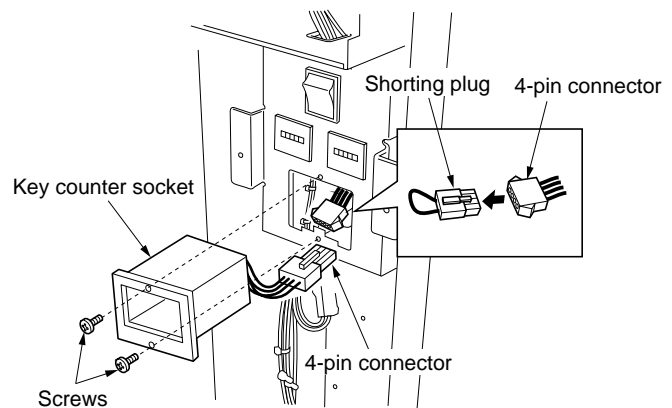


Figure 1-3-44

8. Reattach the main switch assembly cover using the two screws.
9. Refit the front right cover and close the lower right cover.
10. Refit the front right cover and press in the main unit release levers until closing the detachable unit.
11. Set the key counter in the key counter socket.
12. Turn the main switch on and enter the maintenance mode.
13. Run maintenance item U204 and set "Key counter".
14. Exit the maintenance mode.
15. Remove the key counter and check that the message "Insert key counter." is displayed.
16. Check the key counter counts up by one each time a copy is made.

1-3-7 Installing expansion memory (DIMM, option)

The following parts are required to install the expansion memory board on the IPU PCB.
Expansion memory board (168-pin DIMM, 128 MB, 256 MB or 512 MB)

1. Remove the six screws in the lower rear cover and loosen the three screws at the bottom of the cover. Then, lift the cover upward and out.
2. Install the expansion memory board in expansion memory connectors CN8 and CN9 on the IPU PCB.
* Hold the expansion memory board by the sides, orient so that the cutouts on the connector and board align, and press-fit into the socket from above.

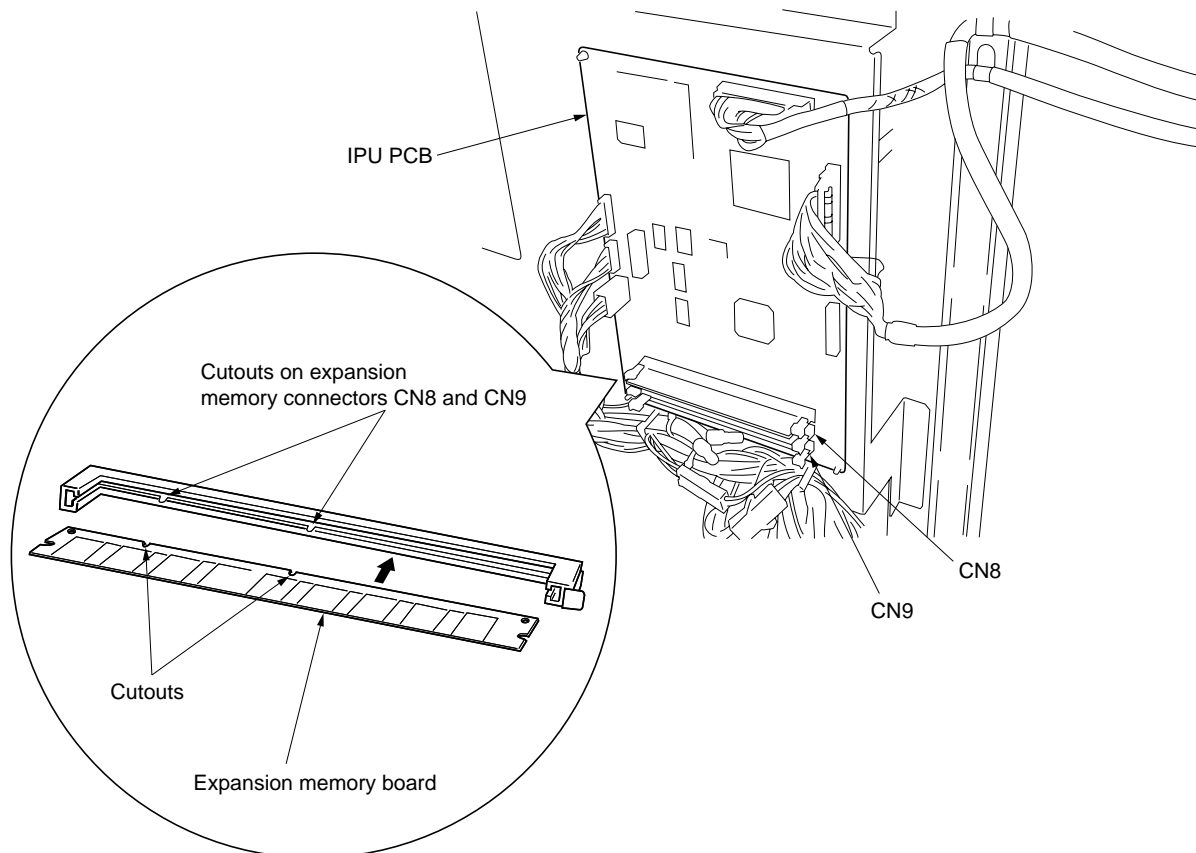


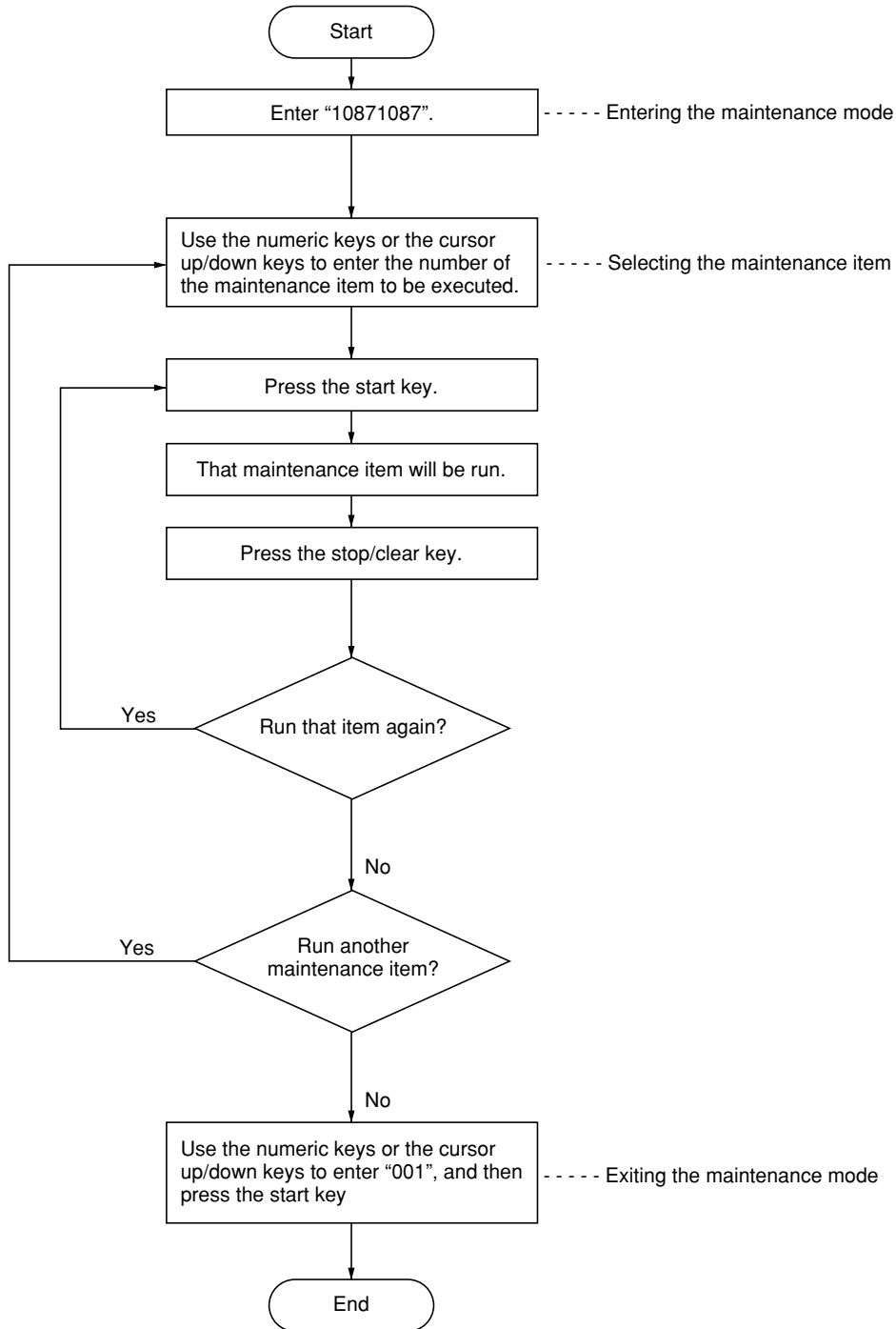
Figure 1-3-45

3. Refit the lower rear cover.

1-4-1 Maintenance mode

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

(1) Executing a maintenance item



(2) Maintenance mode item list

Section	Item No.	Content of maintenance item	Initial setting*
General	U000	Printing out an own-status report	—
	U001	Exiting the maintenance mode	—
	U003	Setting the service telephone number	—
	U004	Setting the machine model number	—
	U005	Copying without paper	—
	U019	Displaying the ROM version	—
Initialization	U020	Initializing all data	—
Drive, paper feed, paper conveying and cooling systems	U030	Checking the operation of the motors	—
	U031	Checking switches for paper conveying	—
	U032	Checking the operation of the clutches	—
	U033	Checking the operation of the solenoids	—
	U034	Adjusting the print start timing	Roll: 0 Bypass: 0
	U037	Checking the operation of the fan motors	—
	U038	Checking safety switches	—
	U039	Adjusting printing magnification	Normal/MAIN SCAN: 0 Normal/SUB SCAN: 0 Vellum/MAIN SCAN: 0 Vellum/SUB SCAN: 0 Film/MAIN SCAN: 0 Film/SUB SCAN: 0
	U040	Adjusting the synchronized cut length	0
U041	Adjusting the standard cut length	Normal/1/S: 0 Normal/1/M: 0 Normal/1/L: 0 Normal/2/S: 0 Normal/2/M: 0 Normal/2/L: 0 Normal/3/S: 0 Normal/3/M: 0 Normal/3/L: 0 Vellum/1/S: 0 Vellum/1/M: 0 Vellum/1/L: 0 Vellum/2/S: 0 Vellum/2/M: 0 Vellum/2/L: 0 Vellum/3/S: 0 Vellum/3/M: 0 Vellum/3/L: 0	

* Initial setting when executing maintenance item U020.

Section	Item No.	Content of maintenance item	Initial setting*
Drive, paper feed, paper conveying and cooling systems	U041	Adjusting the standard cut length	Film/1/S: 0 Film/1/M: 0 Film/1/L: 0 Film/2/S: 0 Film/2/M: 0 Film/2/L: 0 Film/3/S: 0 Film/3/M: 0 Film/3/L: 0
	U044	Adjusting the long copy cut length	PLAIN PAPER: 0 VELLUM: 0 FILM: 0
	U045	Checking paper size switches	—
Optical	U060	Adjusting the input gamma	Copier: 0 Scanner: 0
	U061	Checking the operation of the xenon lamps	—
	U065	Adjusting the scanning magnification	Main scan (%): 0 Sub scan (%): 0
	U066	Adjusting the scanner leading edge registration	0
	U067	Adjusting the optical axis (center line)	0
	U073	Checking the operation of the original motor	—
	U077	Checking the switches for original conveying	—
	U079	Checking the shading operation	—
High voltage	U090	Checking the AGC processing operation	—
	U100	Setting the drum surface potential	Grid data: 158 Target Level: 200 LPH: 7
	U101	Turning the transfer/separation charger on	—
	U105	Forcing the cleaning lamps to be turned on	—
	U111	Checking/Clearing the drum drive time	0
Developing	U129	Turning potential correction on/off	ON
	U130	Initial setting for the developer	—
	U131	Changing the initial setting for the developer	Control: 120
	U132	Forcing toner to be replenished	—
	U135	Checking the operation of the toner feed motor	—
	U139	Displaying thermistor temperatures	—
	U155	Displaying the toner sensor output	—
	U156	Changing the toner density control data	Adjust: 0
	U157	Checking/Clearing the developing section drive time	0
U158	Checking/Clearing the developing count	0	
Fixing and cleaning	U160	Coating the cleaning blade with toner	—
	U162	Forced stabilization	—
	U163	Releasing the fixing section error state	—
	U196	Checking the operation of the fixing heater	—
	U199	Displaying the fixing unit thermistor temperatures	—

* Initial setting when executing maintenance item U020.

Section	Item No.	Content of maintenance item	Initial setting*
Operation panel/Optional units	U200	Turning all LEDs on	—
	U204	Turning the key card/key counter option on/off	OFF
	U213	Checking the operation of the counters	—
	U214	Checking the upper roll unit	—
	U245	Checking messages	—
Mode setting	U250	Setting the maintenance cycle	3000 m
	U251	Checking/Clearing the maintenance count	0
	U252	Setting the region of use	JAPAN METRIC
	U256	Turning the auto preheat function on/off	ON
	U258	Switching copy operation at toner empty detection	Single
	U262	Ignoring a call for service detection	—
	U267	Adjusting the cutting length for the paper leading edge	Select temperature
	U269	Selecting the timing for total counting	Paper feeding
	U271	Setting the unit of counting	Total count: 1.0 Key counter: 0.1
	U272	Turning the upper roll unit option on/off	OFF
	U273	Setting the maximum paper length	Paper length Ltd.: 6000 Returnable Len. L: 1400
U344	Setting the preheat (energy saving) mode	Energy save	
Image processing	U400	Adjusting the image width in the main scanning direction	0
	U406	Adjusting the trailing edge margin	Trailing edge: 0
	U450	Selecting the PG mode	—
	U451	PG gray printout	—
	U452	PG 16-level grayscale printout	—
	U454	Adjusting the exposure amount	Normal original: 0 Character/Line: 0 Photo: 0
	U455	Adjusting the automatic exposure	Base: 3
	U457	Adjusting the filter gain	Normal original: 10 Character/Line: 10 Photo: 10
	U459	Adjusting the output gamma	0
	U461	Adjusting the focus and measuring the solid-black density	—
	U462	Printing PG to check LPH operation	
	U470	Setting the data compression ratio	80
	U475	Setting the stain compensation mode	MODE1
	U476	Setting the photo mode scanning width	MODE1

* Initial setting when executing maintenance item U020.

Section	Item No.	Content of maintenance item	Initial setting*
Other	U901	Checking/Clearing total copy counts by paper feed location	0
	U903	Checking/Clearing the paper jam counts	0
	U904	Checking/Clearing the call for service counts	0
	U908	Checking/Clearing the total count	0
	U916	Clearing all counts	—
	U991	Checking/Clearing the scan count	0
	U993	Printing out all PGs	—
	U999	Checking the memory	—

* Initial setting when executing maintenance item U020.

(3) Contents of maintenance mode items

Item No.	Description and Procedure										
<p>U000</p>	<p>Printing out an own-status report</p> <p>Description Prints out a list of the current settings of all maintenance items, and occurrences of paper jams and service calls.</p> <p>Purpose To check the current setting of the maintenance items, or the occurrences of paper jams and service calls. Before initializing or replacing the backup ROM, print out a list of the current settings of the maintenance items so that you can reenter the same settings after initialization or replacement.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. The screen that allows you to select the desired item will be displayed. 2. Use the cursor up/down keys to select the item that you want to print out. <table border="1"> <thead> <tr> <th>Display</th> <th>List to be printed out</th> </tr> </thead> <tbody> <tr> <td>Maintenance</td> <td>List of the current settings of all maintenance items</td> </tr> <tr> <td>JAM</td> <td>List of paper jams</td> </tr> <tr> <td>Service Call</td> <td>List of service calls</td> </tr> <tr> <td>User default</td> <td>List of current user settings</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 3. Press the start key. The test copy screen will be displayed. 4. Press the start key. The selected list will be printed out. <div style="text-align: center; margin-top: 20px;"> <p>Maintenance</p> <pre> TEMPERATURE 000:SELF STATUS REPORT 27 001:RETURN TO NORMAL COPY MODE 003:SET TELEPHONE NUMBER 004:MACHINE NUMBER SET 000000 005:COPY WITHOUT PAPER FEED1 019:ROM VERSION CTRL.E,M,S,F 68050A 68060A 68070A 68080A BOOT E,M,S,OPTION FONT 01130A 01150A 01140A 0000 020:INITIALIZE ALL MEMORY 030:DRIVE MOTORS ON </pre> <p style="text-align: center;">JAM</p> <pre> J-10: 0000 BYPASS NO FEED J-11: 0000 PAPER FEED 1 NO FEED J-12: 0000 PAPER FEED 2 NO FEED J-13: 0000 PAPER FEED 3 NO FEED J-30: 0000 BYPASS REGISTRATION J-31: 0000 ROLL REGISTRATION J-40: 0000 FIXING UNIT J-50: 0000 EJECT SECTION J-70: 0000 ORIGINAL CONVEYING </pre> <p style="text-align: center;">Service Call</p> <pre> C0110: 000 BACKUP MEMORY DATA C0210: 000 S-CPU COMMUNICATION C0220: 000 E-CPU COMMUNICATION C0310: 000 H-CPU COMMUNICATION C0620: 000 MEMORY C0800: 000 IPU C0850: 000 BACKUP MEMORY C1300: 000 CUTTER MOTOR C2201: 000 DRUM MOTOR C5100: 000 MAIN CHARGER </pre> <p style="text-align: center;">User default</p> <pre> *** MACHINE DEFAULT *** M- 1 PAPER WIDTH ADJ. [DRAWER1] ----- [DRAWER2] AUTO [DRAWER3] AUTO M- 2 PAPER WORKING [DRAWER1] ----- [DRAWER2] PLAIN [DRAWER3] PLAIN M- 3 PAPER MATERIAL [BYPASS] PLAIN [PLAIN] PLAIN M- 4 ROLL END SET [PLAIN] NOT SETTLE [YELLOW] NOT SETTLE [FILM] SETTLE [CUSTOM] NOT SETTLE </pre> </div> <p>Completion Press the stop/clear key.</p>	Display	List to be printed out	Maintenance	List of the current settings of all maintenance items	JAM	List of paper jams	Service Call	List of service calls	User default	List of current user settings
Display	List to be printed out										
Maintenance	List of the current settings of all maintenance items										
JAM	List of paper jams										
Service Call	List of service calls										
User default	List of current user settings										

Figure 1-4-1 Own-status report

Item No.	Description and Procedure																
<p>U001</p>	<p>Exiting the maintenance mode</p> <p>Description Exits the maintenance mode and returns to the normal copy mode.</p> <p>Purpose To exit the maintenance mode.</p> <p>Method Press the start key. <ul style="list-style-type: none"> • The machine will enter the normal copy mode. </p>																
<p>U003</p>	<p>Setting the service telephone number</p> <p>Description Sets the telephone number to be displayed when a service call code is detected.</p> <p>Purpose To set (during initial set-up of the machine) the telephone number for contacting service.</p> <p>Method Press the start key. <ul style="list-style-type: none"> • The currently set telephone number will be displayed. </p> <p>Setting</p> <ol style="list-style-type: none"> Use the numeric keys and the keys shown below to enter a telephone number (up to 16 digits). <ul style="list-style-type: none"> • Use the cursor left/right keys to move the cursor and the cursor up/down keys to select the desired number or symbol. • The display at the cursor position will scroll through the numbers and symbols shown below each time the cursor up/down keys are pressed. <table border="1"> <thead> <tr> <th>Key</th> <th>Numbers/Symbols</th> </tr> </thead> <tbody> <tr> <td>Numeric keys</td> <td>0 to 9</td> </tr> <tr> <td>APS/AMS key</td> <td>*</td> </tr> <tr> <td>100% key</td> <td>#</td> </tr> <tr> <td>Preset R/E key</td> <td>[</td> </tr> <tr> <td>Media key</td> <td>]</td> </tr> <tr> <td>Paper source key</td> <td>-</td> </tr> <tr> <td>Cut size key</td> <td>(space)</td> </tr> </tbody> </table> Press the start key and set the telephone number. If you want to cancel the telephone number setting, press the stop/clear key. 	Key	Numbers/Symbols	Numeric keys	0 to 9	APS/AMS key	*	100% key	#	Preset R/E key	[Media key]	Paper source key	-	Cut size key	(space)
Key	Numbers/Symbols																
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100% key	#																
Preset R/E key	[
Media key]																
Paper source key	-																
Cut size key	(space)																
<p>U004</p>	<p>Setting the machine model number</p> <p>Description Displays and changes the machine model number.</p> <p>Purpose To check, as well as to set, the machine model number.</p> <p>Method Press the start key. <ul style="list-style-type: none"> • The current machine model number will be displayed. </p> <p>Setting</p> <ol style="list-style-type: none"> Use the numeric keys to enter the lowest 6 digits of the machine model number. (If you want to clear the current machine model number, press the reset key.) <ul style="list-style-type: none"> • It is not necessary to enter the first 2 digits (“37”) of the machine model number. Press the start key and set the machine model number. <p>Completion Press the stop/clear key.</p>																

Item No.	Description and Procedure								
<p>U005</p>	<p>Copying without paper</p> <p>Description Initiates copy operation without paper feed.</p> <p>Purpose To check the overall operation of the machine.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Press the interrupt key. The test copy screen will be displayed. 3. Remove all the paper from the paper source. 4. Select the operation conditions on the test copy screen. <ul style="list-style-type: none"> • Set the number of copies to be made to 99 for continuous operation. 5. Press the start key. Test copying will start. <ul style="list-style-type: none"> • Copy operation will be initiated without paper under the set conditions and the original conveying section will feed the original accordingly. <p>Completion Press the stop/clear key.</p>								
<p>U019</p>	<p>Displaying the ROM version</p> <p>Description Displays the part number and version for the ROM fitted to each PCB.</p> <p>Purpose To check the part number or to decide, based on the last digit of the number, if the newest version of ROM is installed.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Use the cursor up/down keys to switch between screens and select the ROM that you want to check. 3. Use the cursor left/right keys to switch the displayed information. <ul style="list-style-type: none"> • The part number and version for the ROM will be displayed. <table border="1"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Engine Main Scanner/MMI</td> <td>Part number and version for the engine's ROM Part number and version for the main ROM Part number and version for the scanner/MMI</td> </tr> <tr> <td>HDC Font Engine boot</td> <td>Part number and version for the HDC Part number and version for the font ROM Part number and version for the engine boot</td> </tr> <tr> <td>Main boot Scanner/MMI boot Option font</td> <td>Part number and version for the main boot Part number and version for the scanner/MMI boot Part number and version for the optional font ROM</td> </tr> </tbody> </table> <p>Completion Press the stop/clear key.</p>	Display	Description	Engine Main Scanner/MMI	Part number and version for the engine's ROM Part number and version for the main ROM Part number and version for the scanner/MMI	HDC Font Engine boot	Part number and version for the HDC Part number and version for the font ROM Part number and version for the engine boot	Main boot Scanner/MMI boot Option font	Part number and version for the main boot Part number and version for the scanner/MMI boot Part number and version for the optional font ROM
Display	Description								
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Main boot Scanner/MMI boot Option font	Part number and version for the main boot Part number and version for the scanner/MMI boot Part number and version for the optional font ROM								
<p>U020</p>	<p>Initializing all data</p> <p>Description Initializes the backup ROM on the engine main PCB in order to return to the factory default settings.</p> <p>Purpose Use when replacing the engine main PCB.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Use the cursor up/down keys to select "Action". <ul style="list-style-type: none"> • If you want to cancel the initialization, select "Cancel". 3. Press the start key. <ul style="list-style-type: none"> • All data in the backup ROM will be initialized and the screen for selecting a maintenance item No. will be displayed again. 								

Item No.	Description and Procedure																						
<p>U030</p>	<p>Checking the operation of the motors</p> <p>Description Drives each motor.</p> <p>Purpose To check the operation of each motor.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Use the cursor up/down keys to select the motor that you want to check. <table border="1"> <thead> <tr> <th>Display</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>Main/Drum motor</td> <td>The main motor (MM), drum motor (DM), and developing bias are turned on.</td> </tr> <tr> <td>Fixing motors</td> <td>The fixing motor (FM) is turned on.</td> </tr> <tr> <td>Feed motors</td> <td>The paper feed motor (PFM) is turned on.</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 3. Press the start key. <ul style="list-style-type: none"> • The selected motor is turned on. 4. When you want to stop the motor, press the stop/clear key. <p>Completion Press the stop/clear key.</p>	Display	Operation	Main/Drum motor	The main motor (MM), drum motor (DM), and developing bias are turned on.	Fixing motors	The fixing motor (FM) is turned on.	Feed motors	The paper feed motor (PFM) is turned on.														
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Fixing motors	The fixing motor (FM) is turned on.																						
Feed motors	The paper feed motor (PFM) is turned on.																						
<p>U031</p>	<p>Checking switches for paper conveying</p> <p>Description Displays the on/off status of each paper detection switch on the paper path.</p> <p>Purpose To check the operation of the switches for paper conveying.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Use the cursor up/down keys to switch between screens and select the switch that you want to check. 3. Turn each switch on and off manually to check its status. <ul style="list-style-type: none"> • When a switch is detected to be in the on position, the display for that switch will be highlighted. <table border="1"> <thead> <tr> <th>Display</th> <th>Switch name</th> </tr> </thead> <tbody> <tr> <td>Pulse se. 1</td> <td>Upper paper empty switch* (PESW-U)</td> </tr> <tr> <td>Pulse se. 2</td> <td>Middle paper empty switch (PESW-M)</td> </tr> <tr> <td>Pulse se. 3</td> <td>Lower paper empty switch (PESW-L)</td> </tr> <tr> <td>Lead 1</td> <td>Upper paper feed switch (PFSW-U)</td> </tr> <tr> <td>Lead 2</td> <td>Middle paper feed switch (PFSW-M)</td> </tr> <tr> <td>Lead 3</td> <td>Lower paper feed switch (PFSW-L)</td> </tr> <tr> <td>Resist</td> <td>Registration switch (RSW)</td> </tr> <tr> <td>Output</td> <td>Eject switch (ESW)</td> </tr> <tr> <td>Lead Bp</td> <td>Bypass timing switch (BTSW)</td> </tr> <tr> <td>BPResi.</td> <td>Bypass registration switch (BRSW)</td> </tr> </tbody> </table> <p>* Optional</p> <p>Completion Press the stop/clear key.</p>	Display	Switch name	Pulse se. 1	Upper paper empty switch* (PESW-U)	Pulse se. 2	Middle paper empty switch (PESW-M)	Pulse se. 3	Lower paper empty switch (PESW-L)	Lead 1	Upper paper feed switch (PFSW-U)	Lead 2	Middle paper feed switch (PFSW-M)	Lead 3	Lower paper feed switch (PFSW-L)	Resist	Registration switch (RSW)	Output	Eject switch (ESW)	Lead Bp	Bypass timing switch (BTSW)	BPResi.	Bypass registration switch (BRSW)
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BPResi.	Bypass registration switch (BRSW)																						

Item No.	Description and Procedure																						
<p>U032</p>	<p>Checking the operation of the clutches</p> <p>Description Turns each clutch on.</p> <p>Purpose To check the operation of each clutch.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Remove all the paper from the paper source. 3. Use the cursor left/right keys to switch between screens and select the clutch that you want to check. 4. Use the cursor up/down keys to select the clutch that you want to check. <ul style="list-style-type: none"> • The display for the selected clutch will be highlighted. 5. Press the start key. <ul style="list-style-type: none"> • The selected clutch will be turned on for 1 second and the paper feed motor (PFM) will be turned on as well. <table border="1"> <thead> <tr> <th>Display</th> <th>Clutch name</th> </tr> </thead> <tbody> <tr> <td>feed 1</td> <td>Upper feed clutch* (FCL-U)</td> </tr> <tr> <td>feed 2</td> <td>Middle feed clutch (FCL-M)</td> </tr> <tr> <td>feed 3</td> <td>Lower feed clutch (FCL-L)</td> </tr> <tr> <td>CL1</td> <td>Upper roll winding clutch* (RWCL-U)</td> </tr> <tr> <td>CL2</td> <td>Middle roll winding clutch (RWCL-M)</td> </tr> <tr> <td>CL3</td> <td>Lower roll winding clutch (RWCL-L)</td> </tr> <tr> <td>Roll feed</td> <td>Roll feed clutch (RFCL)</td> </tr> <tr> <td>Roll resi.</td> <td>Roll registration clutch (RRCL)</td> </tr> <tr> <td>BPFeed</td> <td>Bypass feed clutch (BFCL)</td> </tr> <tr> <td>BPreisist</td> <td>Bypass registration clutch (BRCL)</td> </tr> </tbody> </table> <p>* Optional</p> <p>Completion Press the stop/clear key.</p>	Display	Clutch name	feed 1	Upper feed clutch* (FCL-U)	feed 2	Middle feed clutch (FCL-M)	feed 3	Lower feed clutch (FCL-L)	CL1	Upper roll winding clutch* (RWCL-U)	CL2	Middle roll winding clutch (RWCL-M)	CL3	Lower roll winding clutch (RWCL-L)	Roll feed	Roll feed clutch (RFCL)	Roll resi.	Roll registration clutch (RRCL)	BPFeed	Bypass feed clutch (BFCL)	BPreisist	Bypass registration clutch (BRCL)
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<p>U033</p>	<p>Checking the operation of the solenoids</p> <p>Description Applies current to each solenoid in order to check its on status.</p> <p>Purpose To check the operation of each solenoid.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Use the cursor up/down keys to select the solenoid that you want to check. <ul style="list-style-type: none"> • The display for the selected solenoid will be highlighted. 3. Press the start key. <ul style="list-style-type: none"> • The selected solenoid will be turned on for 1 second. <table border="1"> <thead> <tr> <th>Display</th> <th>Solenoid name</th> </tr> </thead> <tbody> <tr> <td>Separa. of solenoids</td> <td>Separation claw solenoid (SSOL)</td> </tr> <tr> <td>Main switch solenoid</td> <td>(Turns power off)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • Select "Main switch solenoid" in order to check the operation of the main switch when the auto shut-off function engages. <p>Completion Press the stop/clear key.</p>	Display	Solenoid name	Separa. of solenoids	Separation claw solenoid (SSOL)	Main switch solenoid	(Turns power off)																
Display	Solenoid name																						
Separa. of solenoids	Separation claw solenoid (SSOL)																						
Main switch solenoid	(Turns power off)																						

Item No.	Description and Procedure																								
<p>U034</p>	<p>Adjusting the print start timing</p> <p>Method See page 1-6-44.</p>																								
<p>U037</p>	<p>Checking the operation of the fan motors</p> <p>Description Drives each fan motor.</p> <p>Purpose To check the operation of each fan motor.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Use the cursor up/down keys to select the fan motor that you want to check. <table border="1"> <thead> <tr> <th>Display</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>LPH</td> <td>The LPH fan motor (LFM) is turned on.</td> </tr> <tr> <td>Fixing</td> <td>The fixing fan motor (FFM) is turned on at full speed.</td> </tr> <tr> <td>Fixing Low</td> <td>The fixing fan motor (FFM) is turned on at half speed.</td> </tr> <tr> <td>Convey</td> <td>The paper conveying section fan motor (PCFM) is turned on.</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 3. Press the start key. <ul style="list-style-type: none"> • The selected fan motor will be turned on. 4. When you want to stop the motor, press the stop/clear key. <p>Completion Press the stop/clear key.</p>	Display	Operation	LPH	The LPH fan motor (LFM) is turned on.	Fixing	The fixing fan motor (FFM) is turned on at full speed.	Fixing Low	The fixing fan motor (FFM) is turned on at half speed.	Convey	The paper conveying section fan motor (PCFM) is turned on.														
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Convey	The paper conveying section fan motor (PCFM) is turned on.																								
<p>U038</p>	<p>Checking safety switches</p> <p>Description Displays the on/off status of each safety switch.</p> <p>Purpose To check the operation of the safety switches.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Open the respective covers to turn each switch on and off to check its status. <ul style="list-style-type: none"> • When a switch is detected to be in the on position, the display for that switch will be highlighted. <table border="1"> <thead> <tr> <th>Display</th> <th>Switch name</th> <th>Opening cover</th> </tr> </thead> <tbody> <tr> <td>Ori. Table</td> <td>Safety switches 1 and 2 (SSW1&2)</td> <td>Detachable unit</td> </tr> <tr> <td>Fixing</td> <td>Safety switch 3 (SSW3)</td> <td>Eject cover</td> </tr> <tr> <td>Dis. tank</td> <td>Safety switch 4 (SSW4)</td> <td>Right cover</td> </tr> <tr> <td>F cover</td> <td>Safety switches 5 and 6 (SSW5&6)</td> <td>Front covers</td> </tr> <tr> <td>Hopper</td> <td>Toner replenishing slot opening cover switch (OCSW)</td> <td>Toner replenishing slot</td> </tr> <tr> <td>Original 1</td> <td>Safety switches 7 (SSW7)</td> <td>Original cover</td> </tr> <tr> <td>Original 2</td> <td>Safety switches 8 (SSW8)</td> <td>Original leading edge cover</td> </tr> </tbody> </table> <p>Completion Press the stop/clear key.</p>	Display	Switch name	Opening cover	Ori. Table	Safety switches 1 and 2 (SSW1&2)	Detachable unit	Fixing	Safety switch 3 (SSW3)	Eject cover	Dis. tank	Safety switch 4 (SSW4)	Right cover	F cover	Safety switches 5 and 6 (SSW5&6)	Front covers	Hopper	Toner replenishing slot opening cover switch (OCSW)	Toner replenishing slot	Original 1	Safety switches 7 (SSW7)	Original cover	Original 2	Safety switches 8 (SSW8)	Original leading edge cover
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Original 2	Safety switches 8 (SSW8)	Original leading edge cover																							

Item No.	Description and Procedure																				
<p>U039</p>	<p>Adjusting printing magnification Method See page 1-6-43.</p>																				
<p>U040</p>	<p>Adjusting the synchronized cut length Method See page 1-6-46.</p>																				
<p>U041</p>	<p>Adjusting the standard cut length Method See page 1-6-45.</p>																				
<p>U044</p>	<p>Adjusting the long copy cut length Method See page 1-6-47.</p>																				
<p>U045</p>	<p>Checking paper size switches Description Displays the on/off status of each paper detection switch in the upper roller unit (optional) or middle/lower roller units. Purpose To check the operation of the paper size switches. Method 1. Press the start key. 2. Turn each switch on and off manually to check its status. • When a switch is detected to be in the on position, the display for that switch will be highlighted.</p> <table border="1"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>P.SIZE11</td> <td>Upper paper size switch 1* (PSSW1-U)</td> </tr> <tr> <td>P.SIZE12</td> <td>Upper paper size switch 2* (PSSW2-U)</td> </tr> <tr> <td>P.SIZE13</td> <td>Upper paper size switch 3* (PSSW3-U)</td> </tr> <tr> <td>P.SIZE14</td> <td>Upper paper size switch 4* (PSSW4-U)</td> </tr> <tr> <td>P.SIZE21</td> <td>Paper size switch 1 (PSSW1)</td> </tr> <tr> <td>P.SIZE22</td> <td>Paper size switch 2 (PSSW2)</td> </tr> <tr> <td>P.SIZE23</td> <td>Paper size switch 3 (PSSW3)</td> </tr> <tr> <td>P.SIZE24</td> <td>Paper size switch 4 (PSSW4)</td> </tr> <tr> <td>P.SIZE25</td> <td>Paper size switch 5 (PSSW5)</td> </tr> </tbody> </table> <p>* Optional</p> <p>Completion Press the stop/clear key.</p>	Display	Description	P.SIZE11	Upper paper size switch 1* (PSSW1-U)	P.SIZE12	Upper paper size switch 2* (PSSW2-U)	P.SIZE13	Upper paper size switch 3* (PSSW3-U)	P.SIZE14	Upper paper size switch 4* (PSSW4-U)	P.SIZE21	Paper size switch 1 (PSSW1)	P.SIZE22	Paper size switch 2 (PSSW2)	P.SIZE23	Paper size switch 3 (PSSW3)	P.SIZE24	Paper size switch 4 (PSSW4)	P.SIZE25	Paper size switch 5 (PSSW5)
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P.SIZE23	Paper size switch 3 (PSSW3)																				
P.SIZE24	Paper size switch 4 (PSSW4)																				
P.SIZE25	Paper size switch 5 (PSSW5)																				

Item No.	Description and Procedure									
<p>U060</p>	<p>Adjusting the input gamma</p> <p>Description Adjusts the density at which images will be scanned in the copy operation mode or the scanner operation mode.</p> <p>Purpose Used when the overall image is too light or too dark.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Use the cursor up/down keys to select the item that you want to set. <table border="1"> <thead> <tr> <th>Display</th> <th>Setting item</th> <th>Setting range</th> </tr> </thead> <tbody> <tr> <td>Copier</td> <td>Adjust input gamma in the copy operation mode</td> <td>-15 to +15</td> </tr> <tr> <td>Scanner</td> <td>Adjust input gamma in the scanner operation mode</td> <td>-15 to +15</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 3. Use the cursor left/right keys to change the setting as desired. <ul style="list-style-type: none"> • Raising the setting value will increase the density while lowering it will decrease the density. 4. Press the start key to set the selected values. 5. Press the interrupt key. The test copy screen will be displayed. 6. Set the original and make a test copy. <p>Completion Press the stop/clear key.</p>	Display	Setting item	Setting range	Copier	Adjust input gamma in the copy operation mode	-15 to +15	Scanner	Adjust input gamma in the scanner operation mode	-15 to +15
Display	Setting item	Setting range								
Copier	Adjust input gamma in the copy operation mode	-15 to +15								
Scanner	Adjust input gamma in the scanner operation mode	-15 to +15								
<p>U061</p>	<p>Checking the operation of the xenon lamps</p> <p>Description Lights the right and left xenon lamps one at a time.</p> <p>Purpose To check whether the right and left xenon lamps are turned on.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Press the start key again. <ul style="list-style-type: none"> • The right xenon lamp (XL-R) and left xenon lamp (XL-L) will light. 3. To turn the right and left xenon lamps off, press the stop/clear key. <p>Completion Press the stop/clear key.</p>									
<p>U065</p>	<p>Adjusting the scanning magnification</p> <p>Method See page 1-6-8.</p>									
<p>U066</p>	<p>Adjusting the scanner leading edge registration</p> <p>Method See page 1-6-9.</p>									
<p>U067</p>	<p>Adjusting the optical axis (center line)</p> <p>Method See page 1-6-10.</p>									

Item No.	Description and Procedure														
<p>U073</p>	<p>Checking the operation of the original motor</p> <p>Description Operates the original motor (OM).</p> <p>Purpose To check the operation of the original conveying system.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Press the start key again. <ul style="list-style-type: none"> • The following operations will take place every 4 seconds. The original motor will be run normally. <li style="text-align: center;">↓ The original motor will be operated in reverse. <li style="text-align: center;">↓ The original motor will be turned off. 3. To turn the original motor off, press the stop/clear key. <p>Completion Press the stop/clear key.</p>														
<p>U077</p>	<p>Checking the switches for original conveying</p> <p>Description Displays the on/off status of each switch on the original conveying path.</p> <p>Purpose To check the operation of the switches when the original size is not detected correctly or when an original jam occurs.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Turn each switch on and off manually to check its status. <ul style="list-style-type: none"> • When a switch is detected to be in the on position, the display for that switch will be highlighted. <table border="1"> <thead> <tr> <th>Display</th> <th>Switch name</th> </tr> </thead> <tbody> <tr> <td>Size SW4</td> <td>Original size switch 4 (OSSW4)</td> </tr> <tr> <td>Size SW3</td> <td>Original size switch 3 (OSSW3)</td> </tr> <tr> <td>Size SW2</td> <td>Original size switch 2 (OSSW2)</td> </tr> <tr> <td>Size SW1</td> <td>Original size switch 1 (OSSW1)</td> </tr> <tr> <td>Back SW</td> <td>Original trailing edge switch (OTSW)</td> </tr> <tr> <td>Front SW</td> <td>Original leading edge switch (OLSW)</td> </tr> </tbody> </table> <p>Completion Press the stop/clear key.</p>	Display	Switch name	Size SW4	Original size switch 4 (OSSW4)	Size SW3	Original size switch 3 (OSSW3)	Size SW2	Original size switch 2 (OSSW2)	Size SW1	Original size switch 1 (OSSW1)	Back SW	Original trailing edge switch (OTSW)	Front SW	Original leading edge switch (OLSW)
Display	Switch name														
Size SW4	Original size switch 4 (OSSW4)														
Size SW3	Original size switch 3 (OSSW3)														
Size SW2	Original size switch 2 (OSSW2)														
Size SW1	Original size switch 1 (OSSW1)														
Back SW	Original trailing edge switch (OTSW)														
Front SW	Original leading edge switch (OLSW)														

Item No.	Description and Procedure																								
U079	<p>Checking the shading operation</p> <p>Description Performs the shading operation and shows the CIS channel data.</p> <p>Purpose To check the respective channel data when the solid black areas are too light or when white stripes appear on the copy image. Also used when installing the optional book carrier.</p> <p>Note Always install the original cover when running maintenance item U079.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. <ul style="list-style-type: none"> • After shading correction is completed, the data for each CIS channel will be displayed. 2. Use the cursor up/down keys to access the next data display. <p style="text-align: center;">Sample display</p> <p style="text-align: center;">Data for CH1 to CH2 with the xenon lamp turning on/off</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="text-align: left;">Checking Shading Correct.</th> <th colspan="2" style="text-align: right;">U079</th> </tr> </thead> <tbody> <tr> <td>BL/ch1</td> <td style="text-align: right;">: 8</td> <td>BL/ch2</td> <td style="text-align: right;">: 8</td> </tr> <tr> <td>WH/ch1</td> <td style="text-align: right;">: 103</td> <td>WH/ch2</td> <td style="text-align: right;">: 105</td> </tr> </tbody> </table> <p style="text-align: center;">↓ ↑</p> <p style="text-align: center;">Data for CH3 to CH4 with the xenon lamp turning on/off</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="text-align: left;">Checking Shading Correct.</th> <th colspan="2" style="text-align: right;">U079</th> </tr> </thead> <tbody> <tr> <td>BL/ch3</td> <td style="text-align: right;">: 7</td> <td>BL/ch4</td> <td style="text-align: right;">: 12</td> </tr> <tr> <td>WH/ch3</td> <td style="text-align: right;">: 110</td> <td>WH/ch4</td> <td style="text-align: right;">: 102</td> </tr> </tbody> </table> <p style="text-align: center;">Figure 1-4-2</p> <ul style="list-style-type: none"> • When the data with the xenon lamp off is around 0 and that with the lamp on is 100 or more, the shading operation is judged to be normal. <p>Completion Press the stop/clear key.</p>	Checking Shading Correct.		U079		BL/ch1	: 8	BL/ch2	: 8	WH/ch1	: 103	WH/ch2	: 105	Checking Shading Correct.		U079		BL/ch3	: 7	BL/ch4	: 12	WH/ch3	: 110	WH/ch4	: 102
Checking Shading Correct.		U079																							
BL/ch1	: 8	BL/ch2	: 8																						
WH/ch1	: 103	WH/ch2	: 105																						
Checking Shading Correct.		U079																							
BL/ch3	: 7	BL/ch4	: 12																						
WH/ch3	: 110	WH/ch4	: 102																						

Item No.	Description and Procedure																								
<p>U090</p>	<p>Checking the AGC processing operation</p> <p>Description Performs AGC processing and shows the CIS channel data.</p> <p>Purpose To check for an AGC error during A-D conversion.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. <ul style="list-style-type: none"> • After AGC processing is completed, the data for each CIS channel will be displayed. 2. Use the cursor up/down keys to access the next data display. <p style="text-align: center;">Sample display</p> <p style="text-align: center;">Data for CH1 to CH2 with the xenon lamp turning on/off</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="background-color: black; color: white;">Checking AGC Correct.</th> <th colspan="2" style="background-color: black; color: white;">U090</th> </tr> </thead> <tbody> <tr> <td>BL/ch1</td> <td>: 32</td> <td>BL/ch2</td> <td>: 32</td> </tr> <tr> <td>WH/ch1</td> <td>: 260</td> <td>WH/ch2</td> <td>: 255</td> </tr> </tbody> </table> <p style="text-align: center;">↓ ↑</p> <p style="text-align: center;">Data for CH3 to CH4 with the xenon lamp turning on/off</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="background-color: black; color: white;">Checking AGC Correct.</th> <th colspan="2" style="background-color: black; color: white;">U090</th> </tr> </thead> <tbody> <tr> <td>BL/ch3</td> <td>: 29</td> <td>BL/ch4</td> <td>: 27</td> </tr> <tr> <td>WH/ch3</td> <td>: 257</td> <td>WH/ch4</td> <td>: 253</td> </tr> </tbody> </table> <p style="text-align: center;">Figure 1-4-3</p> <ul style="list-style-type: none"> • When the data with the xenon lamp off is 100 or less and that with the lamp on is 250 or more, the AGC processing operation is judged to be normal. <p>Completion Press the stop/clear key.</p>	Checking AGC Correct.		U090		BL/ch1	: 32	BL/ch2	: 32	WH/ch1	: 260	WH/ch2	: 255	Checking AGC Correct.		U090		BL/ch3	: 29	BL/ch4	: 27	WH/ch3	: 257	WH/ch4	: 253
Checking AGC Correct.		U090																							
BL/ch1	: 32	BL/ch2	: 32																						
WH/ch1	: 260	WH/ch2	: 255																						
Checking AGC Correct.		U090																							
BL/ch3	: 29	BL/ch4	: 27																						
WH/ch3	: 257	WH/ch4	: 253																						
<p>U100</p>	<p>Setting the drum surface potential</p> <p>Method See page 1-6-21.</p>																								

Item No.	Description and Procedure								
<p>U101</p>	<p>Turning the transfer/separation charger on</p> <p>Description Performs transfer and separation charging.</p> <p>Purpose To check, when a transfer or separation problem occurs, whether charging is being performed correctly or not.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Use the cursor up/down keys to select the operation that you want to be performed. <table border="1"> <thead> <tr> <th>Display</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>TC: OFF (ON)</td> <td>Transfer charging</td> </tr> <tr> <td>AC: OFF (ON)</td> <td>Separation charging</td> </tr> <tr> <td>Transcript: OFF (ON)</td> <td>Switch between high and low transfer voltage</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 3. Use the cursor left/right keys to switch between the off and on display, or switch between on and off for "Transcript". 4. Press the start key. <ul style="list-style-type: none"> • The selected charging operation will be performed. 5. When you want to stop the charging operation, press the stop/clear key. <p>Completion Press the stop/clear key.</p>	Display	Operation	TC: OFF (ON)	Transfer charging	AC: OFF (ON)	Separation charging	Transcript: OFF (ON)	Switch between high and low transfer voltage
Display	Operation								
TC: OFF (ON)	Transfer charging								
AC: OFF (ON)	Separation charging								
Transcript: OFF (ON)	Switch between high and low transfer voltage								
<p>U105</p>	<p>Forcing the cleaning lamps to be turned on</p> <p>Description Turns the right, middle and left cleaning lamps on.</p> <p>Purpose To check, when an offset appears in the image, the operation of the cleaning lamps.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Press the start key again. <ul style="list-style-type: none"> • The right cleaning lamp (CL-R), middle cleaning lamp (CL-M) and the left cleaning lamp (CL-L) will be turned on. 3. To turn the right, middle and left cleaning lamps off, press the stop/clear key. <p>Completion Press the stop/clear key.</p>								
<p>U111</p>	<p>Checking/Clearing the drum drive time</p> <p>Description Displays and clears the drum drive time.</p> <p>Purpose To check usage conditions of the drum, as well as to clear the drum drive time after replacing the drum during the periodic maintenance service.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> • The current drum drive time (minute) will be displayed. <p>Clearing the drive time</p> <ol style="list-style-type: none"> 1. Use the numeric keys to enter "0" or press the reset key. 2. Press the start key to clear the drum drive time. <ul style="list-style-type: none"> • If you want to cancel the operation to clear the drum drive time, press the stop/clear key. <p>Completion Press the stop/clear key.</p>								

Item No.	Description and Procedure								
<p>U129</p>	<p>Turning potential correction on/off</p> <p>Description Selects whether or not potential correction is to be performed.</p> <p>Purpose To turn potential correction off when the drum surface potential sensor (DPS) has been removed for replacement, and to enable the copy operation while ignoring a C5500 (drum surface potential sensor error) detection.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> The current setting will be displayed. <p>Setting</p> <ol style="list-style-type: none"> Use the cursor left/right keys to select either "ON" or "OFF", as desired. <table border="1"> <thead> <tr> <th>Display</th> <th>Setting</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>Potential correction</td> </tr> <tr> <td>OFF</td> <td>No potential correction</td> </tr> </tbody> </table> <ul style="list-style-type: none"> The factory default setting is "ON". <ol style="list-style-type: none"> Press the start key and check the setting. <p>Note Select "OFF" before removing the drum surface potential sensor for replacement, and select "ON" again after installing the new sensor.</p> <p>Completion Press the stop/clear key.</p>	Display	Setting	ON	Potential correction	OFF	No potential correction		
Display	Setting								
ON	Potential correction								
OFF	No potential correction								
<p>U130</p>	<p>Initial setting for the developer</p> <p>Description Automatically sets the toner sensor control voltage for the installed developer.</p> <p>Purpose To set the desired value during initial set-up of the machine or when replacing the developer.</p> <p>Method</p> <ol style="list-style-type: none"> Press the start key. Press the start key again. <ul style="list-style-type: none"> Aging will be performed for 3 minutes and the value for toner sensor output will be displayed. During this time, neither toner replenishment nor toner empty detection will be performed. After aging is completed, the toner sensor control voltage for the installed developer will automatically be set and the value displayed. <table border="1"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Toner C</td> <td>Toner sensor output value</td> </tr> <tr> <td>Target</td> <td>Toner sensor control voltage</td> </tr> <tr> <td>Confirm</td> <td>Automatic setting of the toner sensor control voltage</td> </tr> </tbody> </table> <ul style="list-style-type: none"> If you want to stop the machine and return the setting to its previous value without having the toner sensor control voltage set automatically, press the stop/clear key. <p>Supplement The following data is also changed or cleared (set to zero) when this maintenance item is performed:</p> <ul style="list-style-type: none"> Changing the toner sensor control voltage (U131) Clearing the toner density control data setting (U156) Clearing the developing section drive time (U157) Clearing the developing count (U158) <p>Completion Press the stop/clear key.</p>	Display	Description	Toner C	Toner sensor output value	Target	Toner sensor control voltage	Confirm	Automatic setting of the toner sensor control voltage
Display	Description								
Toner C	Toner sensor output value								
Target	Toner sensor control voltage								
Confirm	Automatic setting of the toner sensor control voltage								

Item No.	Description and Procedure								
<p>U131</p>	<p>Changing the initial setting for the developer</p> <p>Description Displays and changes the toner sensor control voltage that was automatically set in maintenance item U130.</p> <p>Purpose To check the automatically set toner sensor control voltage, as well as to change the toner density if the images are too dark or to light.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> • The current toner sensor control voltage will be displayed. <p>Setting</p> <ol style="list-style-type: none"> 1. Use the cursor up/down keys to select the item that you want to set. <table border="1"> <thead> <tr> <th>Display</th> <th>Setting item</th> <th>Setting range</th> </tr> </thead> <tbody> <tr> <td>Control</td> <td>Toner sensor control voltage</td> <td>0 to 255</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 2. Use the cursor left/right keys to change the setting as desired. <ul style="list-style-type: none"> • Raising the toner sensor control voltage will increase toner density while lowering the voltage will decrease the density. Raising the toner sensor control voltage too high may result in toner scattering. 3. Press the start key to set the selected values. <p>Completion Press the stop/clear key.</p>	Display	Setting item	Setting range	Control	Toner sensor control voltage	0 to 255		
Display	Setting item	Setting range							
Control	Toner sensor control voltage	0 to 255							
<p>U132</p>	<p>Forcing toner to be replenished</p> <p>Description Forcibly replenishes the toner until the toner sensor output reaches the toner control level.</p> <p>Purpose Used when a toner empty state is frequently detected.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. <ul style="list-style-type: none"> • The following data will be displayed. <table border="1"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Toner sensor outp</td> <td>Toner sensor output value</td> </tr> <tr> <td>Toner sensor leve</td> <td>Toner control level</td> </tr> <tr> <td>Ton. Sen. cont. d</td> <td>Toner sensor control voltage</td> </tr> </tbody> </table> 2. Press the start key. <ul style="list-style-type: none"> • Toner will be replenished until the toner sensor output reaches the toner control level. 3. When you want to stop the operation, press the stop/clear key. <p>Completion Press the stop/clear key.</p>	Display	Description	Toner sensor outp	Toner sensor output value	Toner sensor leve	Toner control level	Ton. Sen. cont. d	Toner sensor control voltage
Display	Description								
Toner sensor outp	Toner sensor output value								
Toner sensor leve	Toner control level								
Ton. Sen. cont. d	Toner sensor control voltage								

Item No.	Description and Procedure										
<p>U135</p>	<p>Checking the operation of the toner feed motor</p> <p>Description Drives the toner feed motor.</p> <p>Purpose To check the operation of the toner feed motor when the toner is not replenished properly.</p> <p>Note Be sure to operate the toner feed motor for only a few seconds as driving it for too long may cause toner to jam which can result in the machine locking up.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Press the start key again. <ul style="list-style-type: none"> •The toner feed motor will be turned on for 5 seconds. If you want to stop the motor while it is running, press the stop/clear key. <p>Completion Press the stop/clear key.</p>										
<p>U139</p>	<p>Displaying the thermistor temperatures</p> <p>Description Displays the detected temperatures of the thermistors.</p> <p>Purpose To check the temperature of the drum as well as that outside the machine.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> • The detected temperature (°C) of the thermistors shown below will be displayed. <table border="1"> <thead> <tr> <th>Display</th> <th>Corresponding thermistor</th> </tr> </thead> <tbody> <tr> <td>Drum (°C)</td> <td>Developing thermistor (temperature around the developing section)</td> </tr> <tr> <td>Atmosphere (°C)</td> <td>External temperature thermistor (temperature outside the machine)</td> </tr> </tbody> </table> <p>Completion Press the stop/clear key.</p>	Display	Corresponding thermistor	Drum (°C)	Developing thermistor (temperature around the developing section)	Atmosphere (°C)	External temperature thermistor (temperature outside the machine)				
Display	Corresponding thermistor										
Drum (°C)	Developing thermistor (temperature around the developing section)										
Atmosphere (°C)	External temperature thermistor (temperature outside the machine)										
<p>U155</p>	<p>Displaying the toner sensor output</p> <p>Description Displays the toner sensor output value and related data.</p> <p>Purpose To check the toner sensor output.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Press the start key again. <ul style="list-style-type: none"> • The machine will begin operation without toner replenishment control, and the current data will be displayed. <table border="1"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Toner C</td> <td>Toner sensor output value after the start key is pressed</td> </tr> <tr> <td>Target</td> <td>Current toner control level</td> </tr> <tr> <td>Control</td> <td>Current toner sensor control voltage (corrected values for temperature and developing count)</td> </tr> <tr> <td>Temp.</td> <td>Current developing thermistor detection temperature (°C)</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 3. When you want to stop the operation, press the stop/clear key. <p>Completion Press the stop/clear key.</p>	Display	Description	Toner C	Toner sensor output value after the start key is pressed	Target	Current toner control level	Control	Current toner sensor control voltage (corrected values for temperature and developing count)	Temp.	Current developing thermistor detection temperature (°C)
Display	Description										
Toner C	Toner sensor output value after the start key is pressed										
Target	Current toner control level										
Control	Current toner sensor control voltage (corrected values for temperature and developing count)										
Temp.	Current developing thermistor detection temperature (°C)										

Item No.	Description and Procedure																		
<p>U156</p>	<p>Changing the toner density control data</p> <p>Description Displays and changes the data used in controlling the toner density.</p> <p>Purpose Performed during replacement of the engine main PCB.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> The current toner density control data will be displayed. <table border="1"> <thead> <tr> <th>Display</th> <th>Setting item</th> <th>Setting range</th> </tr> </thead> <tbody> <tr> <td>Tmot. ON</td> <td>Toner feed motor on level</td> <td>—</td> </tr> <tr> <td>Tmo. OFF</td> <td>Toner feed motor off level</td> <td>—</td> </tr> <tr> <td>Empty</td> <td>Toner empty level</td> <td>—</td> </tr> <tr> <td>Forbid</td> <td>Copy disabling level</td> <td>—</td> </tr> <tr> <td>Adjust</td> <td>All data shift</td> <td>-30 to +30</td> </tr> </tbody> </table> <p>Setting for all data shift</p> <ol style="list-style-type: none"> Use the cursor up/down keys to select “Adjust”. Use the cursor left/right keys to change the setting as desired. Press the start key to set the selected value. <ul style="list-style-type: none"> The values for all four items will be changed by the amount selected here. <p>Completion Press the stop/clear key.</p>	Display	Setting item	Setting range	Tmot. ON	Toner feed motor on level	—	Tmo. OFF	Toner feed motor off level	—	Empty	Toner empty level	—	Forbid	Copy disabling level	—	Adjust	All data shift	-30 to +30
Display	Setting item	Setting range																	
Tmot. ON	Toner feed motor on level	—																	
Tmo. OFF	Toner feed motor off level	—																	
Empty	Toner empty level	—																	
Forbid	Copy disabling level	—																	
Adjust	All data shift	-30 to +30																	
<p>U157</p>	<p>Checking/Clearing the developing section drive time</p> <p>Description Displays and clears the developing section drive time.</p> <p>Purpose To check the developing section drive time after replacing the developer.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> The current developing section drive time will be displayed. <p>Clearing the drive time</p> <ol style="list-style-type: none"> Use the numeric keys to enter “0” or press the reset key. Press the start key to clear the developing drive time. <ul style="list-style-type: none"> If you want to cancel the operation to clear the developing section drive time, press the stop/clear key. <p>Completion Press the stop/clear key.</p>																		
<p>U158</p>	<p>Checking/Clearing the developing count</p> <p>Description Displays and clears the developing count.</p> <p>Purpose To check the developing count after replacing the developer.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> The current developing count will be displayed. <p>Clearing the time</p> <ol style="list-style-type: none"> Use the numeric keys to enter “0”. Press the start key to clear the developing count. <ul style="list-style-type: none"> If you want to cancel the operation to clear the developing count, press the stop/clear key. <p>Completion Press the stop/clear key.</p>																		

Item No.	Description and Procedure
<p>U160</p>	<p>Coating the cleaning blade with toner</p> <p>Description Applies toner to the cleaning blade by coating the drum with toner. This maintenance item can be run after machine stabilization. If you want to run this maintenance item BEFORE machine stabilization, be sure to run maintenance item U162 first.</p> <p>Purpose Used when replacing the cleaning blade or the drum, or during initial set-up of the machine.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Remove the cleaning blade from the drum. 3. Use the cursor up/down keys to select "Action". <ul style="list-style-type: none"> • If you want to cancel the operation, select "Cancel". 4. Press the start key. <ul style="list-style-type: none"> • Drum operation will begin and, after applying toner to the drum at a pre-determined interval, the drum will be stopped. 5. Once the drum is stopped, open the detachable unit, move the cleaning blade back to the drum and stabilize it there. 6. Close the detachable unit. <ul style="list-style-type: none"> • The drum will turn at a pre-determined interval and will then stop. <p>Completion Press the stop/clear key.</p>
<p>U162</p>	<p>Forced stabilization</p> <p>Description Cancels the stabilization drive of the fixing section regardless of the fixing temperature.</p> <p>Purpose To force the machine into a stable state before the fixing section reaches its stabilization temperature.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Press the start key again. <ul style="list-style-type: none"> • A forced stabilization mode will be entered, the stabilization drive of the fixing section will be canceled regardless of the fixing temperature, and the screen for selecting a maintenance item No. will be displayed again. <p>Completion Turn the main switch off and then back on again.</p>
<p>U163</p>	<p>Releasing the fixing section error state</p> <p>Description Releases the service call state that was generated in the fixing section.</p> <p>Purpose To release the service call state after any required repair, service or replacement of related parts whenever a service call code is detected in the fixing section.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Press the start key again and the service call state will be released. <ul style="list-style-type: none"> • If you want to cancel the operation to release the service call state, press the stop/clear key. <p>Completion Turn the main switch off and then back on again.</p>

Item No.	Description and Procedure																		
<p>U196</p>	<p>Checking the operation of the fixing heater</p> <p>Description Turns the main or sub fixing heaters on.</p> <p>Purpose To check the fixing heaters.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Use the cursor up/down keys to select the heater that you want to turn on. <table border="1"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>HEAT1</td> <td>Main fixing heater</td> </tr> <tr> <td>HEAT2</td> <td>Sub fixing heater</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 3. Press the start key. <ul style="list-style-type: none"> • The selected heater will be turned on for 3 seconds. <p>Completion Press the stop/clear key.</p>	Display	Description	HEAT1	Main fixing heater	HEAT2	Sub fixing heater												
Display	Description																		
HEAT1	Main fixing heater																		
HEAT2	Sub fixing heater																		
<p>U199</p>	<p>Displaying the fixing unit thermistor temperatures</p> <p>Description Displays the detected temperatures of fixing unit thermistors 1 through 3 and the external temperature thermistor.</p> <p>Purpose To check the fixing temperature when a fixing problem occurs.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. <ul style="list-style-type: none"> • The detected temperature (°C) of the thermistors shown below will be displayed. <table border="1"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Corresponding thermistor</th> </tr> </thead> <tbody> <tr> <td>H.rol-M</td> <td>Surface temperature at the center of the heat roller</td> <td>Fixing unit thermistor 1</td> </tr> <tr> <td>H.rol-E</td> <td>Surface temperature at the edges of the heat roller</td> <td>Fixing unit thermistor 2</td> </tr> <tr> <td>P.rol-M</td> <td>Surface temperature at the center of the press roller</td> <td>Fixing unit thermistor 3</td> </tr> <tr> <td>P.rol-E</td> <td>Surface temperature at the edges of the press roller</td> <td>Fixing unit thermistor 4</td> </tr> <tr> <td>Atmosphere</td> <td>Temperature outside the machine</td> <td>External temperature thermistor</td> </tr> </tbody> </table> <p>Completion Press the stop/clear key.</p>	Display	Description	Corresponding thermistor	H.rol-M	Surface temperature at the center of the heat roller	Fixing unit thermistor 1	H.rol-E	Surface temperature at the edges of the heat roller	Fixing unit thermistor 2	P.rol-M	Surface temperature at the center of the press roller	Fixing unit thermistor 3	P.rol-E	Surface temperature at the edges of the press roller	Fixing unit thermistor 4	Atmosphere	Temperature outside the machine	External temperature thermistor
Display	Description	Corresponding thermistor																	
H.rol-M	Surface temperature at the center of the heat roller	Fixing unit thermistor 1																	
H.rol-E	Surface temperature at the edges of the heat roller	Fixing unit thermistor 2																	
P.rol-M	Surface temperature at the center of the press roller	Fixing unit thermistor 3																	
P.rol-E	Surface temperature at the edges of the press roller	Fixing unit thermistor 4																	
Atmosphere	Temperature outside the machine	External temperature thermistor																	
<p>U200</p>	<p>Turning all LEDs on</p> <p>Description Turns all of the LEDs on the operation panel on.</p> <p>Purpose To check the operation of all of the LEDs on the operation panel.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> • All of the LEDs on the operation panel will light up. <p>Completion Press the stop/clear key to turn the LEDs off.</p>																		

Item No.	Description and Procedure										
<p>U204</p>	<p>Turning the key card/key counter option on/off</p> <p>Description Turns the installation setting for the optional key card or key counter on/off.</p> <p>Purpose It is not necessary to run this maintenance item if a key card is installed on a 120 V specification machine. A key card is not available for 220 – 240 V specifications.</p> <p>Method Press the start key.</p> <p>Setting</p> <ol style="list-style-type: none"> Use the cursor up/down keys to select the type of optional counter that is installed. <table border="1"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>No counter installed</td> </tr> <tr> <td>Key counter</td> <td>The key counter is installed</td> </tr> <tr> <td>Key card</td> <td>The MK-1 Key Card is installed</td> </tr> <tr> <td>Key card 2</td> <td>The DC Key Card I is installed</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Press the start key to activate the selected setting. <p>Completion Press the stop/clear key.</p>	Display	Description	OFF	No counter installed	Key counter	The key counter is installed	Key card	The MK-1 Key Card is installed	Key card 2	The DC Key Card I is installed
Display	Description										
OFF	No counter installed										
Key counter	The key counter is installed										
Key card	The MK-1 Key Card is installed										
Key card 2	The DC Key Card I is installed										
<p>U213</p>	<p>Checking the operation of the counters</p> <p>Description Increases the count for each counter without actually making a copy.</p> <p>Purpose To check the operation of the counters.</p> <p>Method</p> <ol style="list-style-type: none"> Press the start key. Use the cursor up/down keys to select the counter for which you want to check operation. <table border="1"> <thead> <tr> <th>Display</th> <th>Type of counter</th> </tr> </thead> <tbody> <tr> <td>Print counter</td> <td>Total counter</td> </tr> <tr> <td>Scan counter</td> <td>Scan counter</td> </tr> <tr> <td>Key counter</td> <td>Key counter*</td> </tr> <tr> <td>Key card</td> <td>Key card*</td> </tr> </tbody> </table> <p>* Optional</p> <ol style="list-style-type: none"> Press the start key. <ul style="list-style-type: none"> The count for the selected counter will be increased each time you press the start key. <p>Completion Press the stop/clear key.</p>	Display	Type of counter	Print counter	Total counter	Scan counter	Scan counter	Key counter	Key counter*	Key card	Key card*
Display	Type of counter										
Print counter	Total counter										
Scan counter	Scan counter										
Key counter	Key counter*										
Key card	Key card*										

Item No.	Description and Procedure
U214	<p>Checking the upper roll unit</p> <p>Description Checks the operation of the optional upper roll unit.</p> <p>Purpose Used to check the operation of the upper roll winding clutch when there are problems with paper feed from the upper roll unit.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Manually turn the pulse plate for the upper paper empty switch (PESW-U) and check the operation of the upper roll winding clutch (RWCL-U). <ul style="list-style-type: none"> • If the upper roll winding clutch is on when the upper paper empty switch is on and the upper roll winding clutch is off when the upper paper empty switch is off, the operation of the upper roll winding clutch is judged to be normal. <p>Completion Press the stop/clear key.</p>
U245	<p>Checking messages</p> <p>Description Displays all messages that appear in the message display.</p> <p>Purpose To check displayed messages.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. <ul style="list-style-type: none"> • A message will be displayed. 2. Use the cursor up/down keys to switch between messages. <p>Completion Press the stop/clear key.</p>
U250	<p>Setting the maintenance cycle</p> <p>Description Displays and changes the maintenance cycle.</p> <p>Purpose To check and change the maintenance cycle.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> • The currently set maintenance cycle will be highlighted. <p>Setting</p> <ol style="list-style-type: none"> 1. Use the numeric keys to enter the desired maintenance cycle. <ul style="list-style-type: none"> • Setting range: 0 – 999999 (m) <p>Setting example If you set the maintenance cycle to 1500, a message to inform you that it is time for periodic maintenance will be displayed once the maintenance count reaches 1500 m. If you set the maintenance cycle to 0, the maintenance indication message will not be displayed.</p> 2. Press the start key to register the selected setting. <p>Completion Press the stop/clear key.</p>

Item No.	Description and Procedure										
<p>U251</p>	<p>Checking/Clearing the maintenance count</p> <p>Description Displays and clears or changes the maintenance count.</p> <p>Purpose To check, as well as to clear, the maintenance count during the periodic maintenance service.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> • The current maintenance count will be displayed. <p>Clearing the count</p> <ol style="list-style-type: none"> 1. Use the numeric keys to enter "0". 2. Press the start key to clear the maintenance count. <ul style="list-style-type: none"> • If you want to cancel the operation to clear the maintenance count, press the stop/clear key. <p>Changing the count</p> <ol style="list-style-type: none"> 1. Use the numeric keys to enter the desired count value. 2. Press the start key to set the selected value. <ul style="list-style-type: none"> • If you want to cancel the operation to change the maintenance count, press the stop/clear key. <p>Completion Press the stop/clear key.</p>										
<p>U252</p>	<p>Setting the region of use</p> <p>Description Sets operation procedures and displayed screens according to the region in which the machine will be used.</p> <p>Purpose Returns the region of use setting to the value before replacement or initialization when the backup ROM on the engine main PCB has been replaced, or when the backup ROM has been initialize by running maintenance item U020.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> • The current setting will be highlighted. <p>Setting</p> <ol style="list-style-type: none"> 1. Use the cursor up/down keys to select the region of use. <table border="1"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>JAPAN METRIC</td> <td>Metric specifications (Japan)</td> </tr> <tr> <td>INCH</td> <td>Inch specifications (North America)</td> </tr> <tr> <td>EUROPE METRIC</td> <td>Metric specifications (Europe)</td> </tr> <tr> <td>ASIA PACIFIC</td> <td>Metric specifications (Asia/Oceania)</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 2. Press the start key to activate the selected setting. <p>Completion Press the stop/clear key.</p>	Display	Description	JAPAN METRIC	Metric specifications (Japan)	INCH	Inch specifications (North America)	EUROPE METRIC	Metric specifications (Europe)	ASIA PACIFIC	Metric specifications (Asia/Oceania)
Display	Description										
JAPAN METRIC	Metric specifications (Japan)										
INCH	Inch specifications (North America)										
EUROPE METRIC	Metric specifications (Europe)										
ASIA PACIFIC	Metric specifications (Asia/Oceania)										


Item No.	Description and Procedure						
<p>U256</p>	<p>Turning the auto preheat function on/off</p> <p>Description Turns the auto preheat function on or off.</p> <p>Purpose Set according to the preference of the user.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> • The current setting will be highlighted. <p>Setting</p> <ol style="list-style-type: none"> 1. Use the cursor up/down keys to select either “ON” or “OFF”, as desired. <table border="1"> <thead> <tr> <th>Display</th> <th>Setting</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>Turns the auto preheat function on</td> </tr> <tr> <td>OFF</td> <td>Turns the auto preheat function off</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • The factory default setting is “ON”. • Any time you change the setting from “OFF” to “ON”, the time for the auto preheat function to engage will be set to its default value (15 min). <ol style="list-style-type: none"> 2. Press the start key to activate the selected setting. <p>Completion Press the stop/clear key.</p>	Display	Setting	ON	Turns the auto preheat function on	OFF	Turns the auto preheat function off
Display	Setting						
ON	Turns the auto preheat function on						
OFF	Turns the auto preheat function off						
<p>U258</p>	<p>Switching copy operation at toner empty detection</p> <p>Description Selects the mode that the machine will enter (continuous copying or single copy) any time a toner empty state is detected.</p> <p>Purpose Set according to the preference of the user.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> • The current setting will be highlighted. <p>Setting</p> <ol style="list-style-type: none"> 1. Use the cursor up/down keys to select either “Single” or “Continue”, as desired. <table border="1"> <thead> <tr> <th>Display</th> <th>Setting</th> </tr> </thead> <tbody> <tr> <td>Single</td> <td>Only single copies possible</td> </tr> <tr> <td>Continue</td> <td>Enables continuous copying</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • The factory default setting is “Single”. <ol style="list-style-type: none"> 2. Press the start key to register the selected setting. <p>Completion Press the stop/clear key.</p>	Display	Setting	Single	Only single copies possible	Continue	Enables continuous copying
Display	Setting						
Single	Only single copies possible						
Continue	Enables continuous copying						


Item No.	Description and Procedure																																						
<p>U262</p>	<p>Ignoring a call for service detection</p> <p>Description Enables you to control the machine by ignoring any call for service detection.</p> <p>Purpose To ignore any call for service detection in those cases when a call for service might be detected and operation stopped, such as during adjustment of the machine.</p> <p>Method Press the start key.</p> <p>Setting</p> <ul style="list-style-type: none"> When you want to ignore only a specific type of call for service detection. <ol style="list-style-type: none"> Use the cursor left/right keys to access the next display. <div style="text-align: center;"> <table border="1"> <thead> <tr> <th colspan="2">Cancel service call</th> <th colspan="2">U262</th> </tr> </thead> <tbody> <tr> <td>C0210</td> <td>: 0</td> <td>C0800</td> <td>: 0</td> </tr> <tr> <td>C0220</td> <td>: 0</td> <td></td> <td></td> </tr> <tr> <td>C0310</td> <td>: 0</td> <td>ALL</td> <td></td> </tr> </tbody> </table> <p style="font-size: 2em; margin: 10px 0;">↓ ↑</p> <table border="1"> <thead> <tr> <th colspan="2">Cancel service call</th> <th colspan="2">U262</th> </tr> </thead> <tbody> <tr> <td>C6200</td> <td>: 0</td> <td>C7200</td> <td>: 0</td> </tr> <tr> <td>C6220</td> <td>: 0</td> <td></td> <td></td> </tr> <tr> <td>C7101</td> <td>: 0</td> <td>ALL</td> <td></td> </tr> </tbody> </table> </div> <p style="text-align: center;">Figure 1-4-4</p> <ol style="list-style-type: none"> Use the cursor up/down keys to select the code for the type of call for service detection that you want to ignore. Use the numeric keys to enter the value that corresponds to the desired setting. <ul style="list-style-type: none"> If you want to return the setting to its original value, press the stop/clear key. <table border="1"> <thead> <tr> <th>Display</th> <th>Setting</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Does NOT ignore a call for service detection</td> </tr> <tr> <td>1</td> <td>Ignores a call for service detection</td> </tr> </tbody> </table> Press the start key to register the selected setting. <ul style="list-style-type: none"> When you want to ignore all types of call for service detection. <ol style="list-style-type: none"> Use the cursor up/down keys to select "ALL". Use the numeric keys to enter the value that corresponds to the desired setting. <ul style="list-style-type: none"> If you want to return the setting to its original value, press the stop/clear key. Press the start key to register the selected setting. <p>Completion Press the stop/clear key.</p>	Cancel service call		U262		C0210	: 0	C0800	: 0	C0220	: 0			C0310	: 0	ALL		Cancel service call		U262		C6200	: 0	C7200	: 0	C6220	: 0			C7101	: 0	ALL		Display	Setting	0	Does NOT ignore a call for service detection	1	Ignores a call for service detection
Cancel service call		U262																																					
C0210	: 0	C0800	: 0																																				
C0220	: 0																																						
C0310	: 0	ALL																																					
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C6200	: 0	C7200	: 0																																				
C6220	: 0																																						
C7101	: 0	ALL																																					
Display	Setting																																						
0	Does NOT ignore a call for service detection																																						
1	Ignores a call for service detection																																						

Item No.	Description and Procedure														
<p>U267</p>	<p>Adjusting the cutting length for the paper leading edge</p> <p>Description Selects whether or not the cutting length for the leading edge of paper will be changed according to the temperature outside the machine when vellum is being used and the roll cut key is pressed. It is also possible to adjust the temperature at which the cutting length is changed.</p> <p>Purpose If the user's preference is for the leading edge of paper to be cut at 279 mm regardless of the temperature outside the machine, adjust this setting to "Ignore".</p> <p>Method Press the start key.</p> <p>Setting 1. Use the cursor up/down keys to select either "Select temperature" or "Ignore", as desired.</p> <table border="1"> <thead> <tr> <th>Display</th> <th>Setting</th> </tr> </thead> <tbody> <tr> <td>Select temperature</td> <td>The cutting length for the leading edge of paper will be changed from 279 mm to 800 mm when vellum is being used, the roll cut key is pressed and the temperature outside the machine drops under 15°C.</td> </tr> <tr> <td>Ignore</td> <td>Regardless of the temperature outside the machine, the cutting length for the leading edge of paper will be set to 279 mm.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • The factory default setting is "Select temperature". <p>2. Press the start key to activate the selected setting.</p> <ul style="list-style-type: none"> • If you selected "Select temperature", you will need to perform step 3 below as well. <p>3. Use the cursor left/right keys to change the activated temperature as desired.</p> <table border="1"> <thead> <tr> <th>Setting item</th> <th>Setting range</th> <th>Default setting</th> <th>Allowable setting increment</th> </tr> </thead> <tbody> <tr> <td>Temperature</td> <td>-5 to +5</td> <td>0 (15°C)</td> <td>1°C</td> </tr> </tbody> </table> <p>Example: If you select -5°C as this setting, the cutting length for the leading edge of paper will be changed from 279 mm to 800 mm when the temperature outside the machine drops under 10°C.</p> <p>4. Press the start key to register the selected setting.</p> <p>Completion Press the stop/clear key.</p>	Display	Setting	Select temperature	The cutting length for the leading edge of paper will be changed from 279 mm to 800 mm when vellum is being used, the roll cut key is pressed and the temperature outside the machine drops under 15°C.	Ignore	Regardless of the temperature outside the machine, the cutting length for the leading edge of paper will be set to 279 mm.	Setting item	Setting range	Default setting	Allowable setting increment	Temperature	-5 to +5	0 (15°C)	1°C
Display	Setting														
Select temperature	The cutting length for the leading edge of paper will be changed from 279 mm to 800 mm when vellum is being used, the roll cut key is pressed and the temperature outside the machine drops under 15°C.														
Ignore	Regardless of the temperature outside the machine, the cutting length for the leading edge of paper will be set to 279 mm.														
Setting item	Setting range	Default setting	Allowable setting increment												
Temperature	-5 to +5	0 (15°C)	1°C												
<p>U269</p>	<p>Selecting the timing for total counting</p> <p>Description Sets the timing at which each count will be added to the total counter.</p> <p>Purpose Set according to the preference of the user. If a paper jam occurs at a given location and the count timing is set to a point prior to that, the copy count (and related cost) will go up without the corresponding copy being made. In cases such as this, it is possible to delay the timing of the count.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> • The current setting will be highlighted. <p>Setting 1. Use the cursor up/down keys to select either "Paper feeding" or "Output the back", as desired.</p> <table border="1"> <thead> <tr> <th>Display</th> <th>Setting</th> </tr> </thead> <tbody> <tr> <td>Paper feeding</td> <td>One count will be added during paper feed.</td> </tr> <tr> <td>Output the back</td> <td>One count will be added after paper is ejected.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • The factory default setting is "Paper feeding". <p>2. Press the start key to register the selected setting.</p> <p>Completion Press the stop/clear key.</p>	Display	Setting	Paper feeding	One count will be added during paper feed.	Output the back	One count will be added after paper is ejected.								
Display	Setting														
Paper feeding	One count will be added during paper feed.														
Output the back	One count will be added after paper is ejected.														

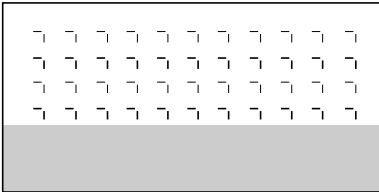
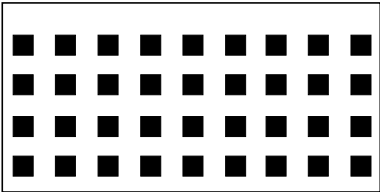
Item No.	Description and Procedure									
<p>U271</p>	<p>Setting the unit of counting</p> <p>Description Sets the unit of counting for the total counter and the optional key counter.</p> <p>Purpose To change the unit of counting to fit the paper usage.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> • The current setting will be displayed. <p>Setting</p> <ol style="list-style-type: none"> 1. Use the cursor up/down keys to select the item that you want to change the setting for. <table border="1"> <thead> <tr> <th>Display</th> <th>Setting item</th> <th>Default setting</th> </tr> </thead> <tbody> <tr> <td>Total count (m)</td> <td>Total counter</td> <td>1.0</td> </tr> <tr> <td>Keycounter (m)</td> <td>Key counter</td> <td>0.1</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 2. Use the cursor left/right keys to select a value of either 0.1 or 1.0, as desired. <ul style="list-style-type: none"> • If you set the count value to 0.1, one count will be added to the selected counter for each 0.1 meters. If you set the count value to 1.0, one count will be added for each meter. • If you want to return the setting to its original value, press the stop/clear key. 3. Press the start key to register the selected setting. <p>Completion Press the stop/clear key.</p>	Display	Setting item	Default setting	Total count (m)	Total counter	1.0	Keycounter (m)	Key counter	0.1
Display	Setting item	Default setting								
Total count (m)	Total counter	1.0								
Keycounter (m)	Key counter	0.1								
<p>U272</p>	<p>Turning the upper roll unit option on/off</p> <p>Description Turns the installation setting for the optional upper roll unit on/off.</p> <p>Purpose Used when the optional upper roll unit is installed.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> • The current setting will be displayed. <p>Setting</p> <ol style="list-style-type: none"> 1. Use the cursor left/right keys to select either “ON” or “OFF”, as desired. <table border="1"> <thead> <tr> <th>Display</th> <th>Setting</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>The upper roll unit is NOT installed</td> </tr> <tr> <td>ON</td> <td>The upper roll unit is installed</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • The factory default setting is “OFF”. • If you want to return the setting to its original value, press the stop/clear key. <ol style="list-style-type: none"> 2. Press the start key to activate the selected setting. <p>Completion Press the stop/clear key.</p>	Display	Setting	OFF	The upper roll unit is NOT installed	ON	The upper roll unit is installed			
Display	Setting									
OFF	The upper roll unit is NOT installed									
ON	The upper roll unit is installed									

Item No.	Description and Procedure												
U273	<p>Setting the maximum paper length</p> <p>Description Sets the length at which copy paper will be cut when making long copies and the maximum allowable original length.</p> <p>Purpose Set according to the preference of the user.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> • The current setting will be displayed. <p>Setting</p> <ol style="list-style-type: none"> 1. Use the cursor up/down keys to select the item that you want to change the setting for. <table border="1"> <thead> <tr> <th>Display</th> <th>Setting item</th> <th>Setting range</th> <th>Default setting</th> </tr> </thead> <tbody> <tr> <td>Paper length Ltd.</td> <td>Length at which copy paper will be cut when making long copies</td> <td>6000 – 9999 (mm)</td> <td>6000</td> </tr> <tr> <td>Returnable Len. L</td> <td>Maximum original length allowed for returning</td> <td>1400 – 2500 (mm)</td> <td>1400</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 2. Use the cursor left/right keys to select the desired value for that setting. <ul style="list-style-type: none"> • The setting can be changed to any 100 mm increment with the allowable setting range. • If you want to return the setting to its original value, press the stop/clear key. 3. Press the start key to register the selected setting. <p>Completion Press the stop/clear key.</p>	Display	Setting item	Setting range	Default setting	Paper length Ltd.	Length at which copy paper will be cut when making long copies	6000 – 9999 (mm)	6000	Returnable Len. L	Maximum original length allowed for returning	1400 – 2500 (mm)	1400
Display	Setting item	Setting range	Default setting										
Paper length Ltd.	Length at which copy paper will be cut when making long copies	6000 – 9999 (mm)	6000										
Returnable Len. L	Maximum original length allowed for returning	1400 – 2500 (mm)	1400										
U344	<p>Setting the preheat (energy saving) mode</p> <p>Description Changes the control mode for the preheat (energy saving) function.</p> <p>Purpose Set according to the preference of the user, and give priority to either the time required to recover from the preheat state or to saving more energy.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> • The current setting will be highlighted. <p>Setting</p> <ol style="list-style-type: none"> 1. Use the cursor up/down keys to select either “Energy save” or “Time save”, as desired. <table border="1"> <thead> <tr> <th>Display</th> <th>Setting</th> </tr> </thead> <tbody> <tr> <td>Energy save</td> <td>Controls the fixing temperature at 105°C/221°F and stabilizes the machine 210 seconds after releasing the preheat state.</td> </tr> <tr> <td>Time save</td> <td>Controls the fixing temperature at 140°C/284°F and stabilizes the machine 120 seconds after releasing the preheat state.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • The factory default setting is “Energy save”. <ol style="list-style-type: none"> 2. Press the start key to activate the selected setting. <p>Completion Press the stop/clear key.</p>	Display	Setting	Energy save	Controls the fixing temperature at 105°C/221°F and stabilizes the machine 210 seconds after releasing the preheat state.	Time save	Controls the fixing temperature at 140°C/284°F and stabilizes the machine 120 seconds after releasing the preheat state.						
Display	Setting												
Energy save	Controls the fixing temperature at 105°C/221°F and stabilizes the machine 210 seconds after releasing the preheat state.												
Time save	Controls the fixing temperature at 140°C/284°F and stabilizes the machine 120 seconds after releasing the preheat state.												

Item No.	Description and Procedure									
U400	<p>Adjusting the image width in the main scanning direction</p> <p>Method See page 1-6-11.</p>									
U406	<p>Adjusting the trailing edge margin</p> <p>Method See page 1-6-48.</p>									
U450	<p>Selecting the PG mode</p> <p>Description Selects and prints out the PG pattern that is to be generated at the copier.</p> <p>Purpose Used when performing adjustments related to printing images in order to check the status of other parts of the machine, besides the scanning section, using a PG pattern that is generated without the need to scan an original.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. <table border="1"> <thead> <tr> <th>Display</th> <th>Setting item</th> <th>Setting range</th> </tr> </thead> <tbody> <tr> <td>Pattern</td> <td>Type of PG pattern</td> <td>0 to 30</td> </tr> <tr> <td>Exposure</td> <td>Printout density</td> <td>0 to 60</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 2. Use the cursor up/down keys to select "Pattern". 3. Use the cursor left/right keys to change the setting and, thereby, select the desired PG pattern. 4. Use the cursor up/down keys to select "Exposure". 5. Use the cursor left/right keys to change the setting and, thereby, select the desired PG density. <ul style="list-style-type: none"> • Raising the setting will increase the contrast of the image while lowering it will decrease the contrast. 6. Press the interrupt key. The test copy screen will be displayed. 7. Press the start key. The selected PG pattern will be printed out. <p>Completion Press the stop/clear key.</p>	Display	Setting item	Setting range	Pattern	Type of PG pattern	0 to 30	Exposure	Printout density	0 to 60
Display	Setting item	Setting range								
Pattern	Type of PG pattern	0 to 30								
Exposure	Printout density	0 to 60								
U451	<p>PG gray printout</p> <p>Description Prints out a gray test pattern.</p> <p>Purpose Used when check for problems with the IPU PCB, LPH or the drum, and whether or not the main charger wire, main charger housing or main grid are dirty.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Press the start key again and the test copy screen will be displayed. 3. Press the start key one more time and the test pattern will be printed out. <div style="text-align: center;">  </div> <p style="text-align: center;">Figure 1-4-5 PG gray printout</p> <p>Completion Press the stop/clear key.</p>									

Item No.	Description and Procedure
<p>U452</p>	<p>PG 16-level grayscale printout</p> <p>Description Initiates current correction to the LPH and prints out a PG 16-level grayscale.</p> <p>Purpose Used when check for problems with the LPH, whether or not the main charger wire, main charger housing or main grid are dirty, or to check the dark potential after replacing the drum.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Press the start key again and the test copy screen will be displayed. 3. Press the start key one more time and the test pattern will be printed out. <ul style="list-style-type: none"> • The test pattern will be printed as a 16-level gradation. <div style="text-align: center;">  </div> <p style="text-align: center;">Figure 1-4-6 PG 16-level grayscale printout</p> <p>Completion Press the stop/clear key.</p>
<p>U454</p>	<p>Adjusting the exposure amount</p> <p>Method See page 1-6-12.</p>
<p>U455</p>	<p>Adjusting the automatic exposure</p> <p>Method See page 1-6-13.</p>

Item No.	Description and Procedure														
<p>U457</p>	<p>Adjusting the filter gain</p> <p>Description Sets the filter gain for each original mode.</p> <p>Purpose To adjust the filter gain so that text appears more clearly on copy images.</p> <p>Method Press the start key.</p> <p>Setting</p> <ol style="list-style-type: none"> Use the cursor up/down keys to select the type of original that you want to change the setting for. <table border="1"> <thead> <tr> <th>Display</th> <th>Type of original</th> </tr> </thead> <tbody> <tr> <td>Normal original</td> <td>Illustrations and newspapers</td> </tr> <tr> <td>Character/Line</td> <td>Maps and originals with both text and photographs</td> </tr> <tr> <td>Photo</td> <td>Originals that have been cut and pasted together. Shadows from the areas around the pasted sections will be reduced.</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Use the cursor left/right keys to select the desired setting. <table border="1"> <thead> <tr> <th>Setting item</th> <th>Setting range</th> <th>Default setting</th> </tr> </thead> <tbody> <tr> <td>Filter gain</td> <td>0 – 31</td> <td>Normal original: 10, Character/Line: 10, Photo: 10</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Raising the setting will increase the contrast of the image while lowering it will decrease the contrast. Lowering it will additionally reduce the instances where dirt on the contact glass can be seen on the copies, but text will be harder to read as well. <ol style="list-style-type: none"> Press the start key to register the selected setting. <p>Completion Press the stop/clear key.</p>	Display	Type of original	Normal original	Illustrations and newspapers	Character/Line	Maps and originals with both text and photographs	Photo	Originals that have been cut and pasted together. Shadows from the areas around the pasted sections will be reduced.	Setting item	Setting range	Default setting	Filter gain	0 – 31	Normal original: 10, Character/Line: 10, Photo: 10
Display	Type of original														
Normal original	Illustrations and newspapers														
Character/Line	Maps and originals with both text and photographs														
Photo	Originals that have been cut and pasted together. Shadows from the areas around the pasted sections will be reduced.														
Setting item	Setting range	Default setting													
Filter gain	0 – 31	Normal original: 10, Character/Line: 10, Photo: 10													
<p>U459</p>	<p>Adjusting the output gamma</p> <p>Description Adjusts the density at which images will be printed.</p> <p>Purpose Used when the overall image is too light or too dark.</p> <p>Method Press the start key.</p> <p>Setting</p> <ol style="list-style-type: none"> Use the cursor left/right keys to change the setting as desired. <table border="1"> <thead> <tr> <th>Setting item</th> <th>Setting range</th> <th>Default setting</th> </tr> </thead> <tbody> <tr> <td>Gamma value to be used when printing images</td> <td>-5 to +5</td> <td>0</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Raising the setting value will increase the density while lowering it will decrease the density. <ol style="list-style-type: none"> Press the start key to set the selected values. <p>Completion Press the stop/clear key.</p>	Setting item	Setting range	Default setting	Gamma value to be used when printing images	-5 to +5	0								
Setting item	Setting range	Default setting													
Gamma value to be used when printing images	-5 to +5	0													


Item No.	Description and Procedure				
<p>U461</p>	<p>Adjusting the focus and measuring the solid-black density</p> <p>Description Prints out a test pattern for adjusting the focus, as well as for measuring the density of a solid black image.</p> <p>Purpose Used to adjust the focus.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Use the cursor up/down keys to select the PG test pattern that you want to print out. <table border="1"> <thead> <tr> <th>Display</th> <th>PG test pattern content</th> </tr> </thead> <tbody> <tr> <td>Adjust Focus Measure Black Density</td> <td>Test pattern for adjusting the focus Image for adjusting solid black</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 3. Press the start key. The test copy screen will be displayed. 4. Press the start key again and the selected test pattern will be printed out. <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>Test pattern for adjusting the focus</p>  </div> <div style="text-align: center;"> <p>Image for adjusting solid black</p>  </div> </div> <p style="text-align: center;">Figure 1-4-7</p> <p>Completion Press the stop/clear key.</p>	Display	PG test pattern content	Adjust Focus Measure Black Density	Test pattern for adjusting the focus Image for adjusting solid black
Display	PG test pattern content				
Adjust Focus Measure Black Density	Test pattern for adjusting the focus Image for adjusting solid black				
<p>U462</p>	<p>Printing PG to check LPH operation</p> <p>Description Prints out a test pattern for checking LPH operation.</p> <p>Purpose Used when checking for problems with the LPH.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Use the cursor up/down keys to select the PG test pattern. <table border="1"> <thead> <tr> <th>Display</th> <th>PG test pattern</th> </tr> </thead> <tbody> <tr> <td>PATTERN1 PATTERN2</td> <td>Continuous printing of PG for HDC Gray (half-tone) printing of PG for MIP</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 3. Press the start key. The test copying screen will be displayed. 4. Press the start key. The test pattern will be printed out. <p>Completion Press the stop/clear key.</p>	Display	PG test pattern	PATTERN1 PATTERN2	Continuous printing of PG for HDC Gray (half-tone) printing of PG for MIP
Display	PG test pattern				
PATTERN1 PATTERN2	Continuous printing of PG for HDC Gray (half-tone) printing of PG for MIP				

Item No.	Description and Procedure												
U470	<p>Setting the data compression ratio</p> <p>Description Sets the data compression ratio when the user default setting for the memory data compression is set to "Standard-compression".</p> <p>Purpose Fundamentally, the data compression ratio is selected in the corresponding user default setting, so there is normally no need to change this setting here.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> The current setting will be displayed. <p>Setting</p> <ol style="list-style-type: none"> Use the cursor left/right keys to select the desired compression ratio. <table border="1"> <thead> <tr> <th>Setting item</th> <th>Setting range</th> <th>Default setting</th> </tr> </thead> <tbody> <tr> <td>Compression ratio</td> <td>1 to 99</td> <td>80</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Raising the setting will decrease the compression ratio while lowering it will increase the ratio. If you want to return the setting to its original value, press the stop/clear key. <ol style="list-style-type: none"> Press the start key to set the selected value. <p>Completion Press the stop/clear key.</p>	Setting item	Setting range	Default setting	Compression ratio	1 to 99	80						
Setting item	Setting range	Default setting											
Compression ratio	1 to 99	80											
U475	<p>Setting the stain compensation mode</p> <p>Description Sets the stain compensation mode.</p> <p>Purpose To select "MODE2" when stains or dust on the contact glass or the shading roller (middle upper original roller) appear on the copy image.</p> <p>Method Press the start key.</p> <p>Setting</p> <ol style="list-style-type: none"> Use the cursor up/down keys to select "MODE1" or "MODE2". <table border="1"> <thead> <tr> <th>Display</th> <th>Setting</th> </tr> </thead> <tbody> <tr> <td>MODE1</td> <td>No stain compensation</td> </tr> <tr> <td>MODE2</td> <td>Stain compensation</td> </tr> </tbody> </table> <ul style="list-style-type: none"> The factory default setting is "MODE1". <ol style="list-style-type: none"> If you selected "MODE2", use the cursor left/right keys to change the setting. <table border="1"> <thead> <tr> <th>Setting item</th> <th>Setting range</th> <th>Default setting</th> </tr> </thead> <tbody> <tr> <td>Low density reproducibility</td> <td>-128 to +128</td> <td>-100</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Raising the setting will increase the low density reproducibility of the image, and stains and dust will be less visible in the copy image. Lowering it will decrease the low density reproducibility, making stains and dust more visible in the copy image. <ol style="list-style-type: none"> Press the start key to activate the setting. <p>Completion Press the stop/clear key.</p>	Display	Setting	MODE1	No stain compensation	MODE2	Stain compensation	Setting item	Setting range	Default setting	Low density reproducibility	-128 to +128	-100
Display	Setting												
MODE1	No stain compensation												
MODE2	Stain compensation												
Setting item	Setting range	Default setting											
Low density reproducibility	-128 to +128	-100											

Item No.	Description and Procedure						
U476	<p>Setting the photo mode scanning width</p> <p>Description Sets the image scanning width when copying in the photo mode.</p> <p>Purpose To select "MODE2" if the image of the shading roller (middle upper original roller) fogs both edges of the copy image in the photo mode.</p> <p>Method Press the start key.</p> <p>Setting</p> <ol style="list-style-type: none"> Use the cursor up/down keys to select "MODE1" or "MODE2". <table border="1"> <thead> <tr> <th>Display</th> <th>Setting</th> </tr> </thead> <tbody> <tr> <td>MODE1</td> <td>Scans at a width (original size switch) that is one size larger than the detected size of the original.</td> </tr> <tr> <td>MODE2</td> <td>Scans at the width assigned to the detected size of the original.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> The factory default setting is "MODE1". <ol style="list-style-type: none"> Press the start key to activate the setting. <p>Completion Press the stop/clear key.</p>	Display	Setting	MODE1	Scans at a width (original size switch) that is one size larger than the detected size of the original.	MODE2	Scans at the width assigned to the detected size of the original.
Display	Setting						
MODE1	Scans at a width (original size switch) that is one size larger than the detected size of the original.						
MODE2	Scans at the width assigned to the detected size of the original.						

Item No.	Description and Procedure																												
<p>U901</p>	<p>Checking/Clearing total copy counts by paper feed location</p> <p>Description Checks the total copy count of each paper feed location or resets all of the counts back to zero.</p> <p>Purpose Used to check the timing of the standard replacement of maintenance parts, or to clear all copy counts after replacement of those parts.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> The copy count will be displayed for each paper feed location. <p style="text-align: center;">Sample display</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="background-color: black; color: white;">Paper feeder counter</th> <th colspan="2" style="background-color: black; color: white;">U901</th> </tr> </thead> <tbody> <tr> <td>Bypass</td> <td>: 121212</td> <td>3rd dr</td> <td>: 343434</td> </tr> <tr> <td>1st dr</td> <td>: 232323</td> <td></td> <td></td> </tr> <tr> <td>2nd dr</td> <td>: 343434</td> <td>ALL</td> <td></td> </tr> </tbody> </table> <p style="text-align: center;">Figure 1-4-8</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Display</th> <th>Paper source</th> </tr> </thead> <tbody> <tr> <td>Bypass</td> <td>Bypass</td> </tr> <tr> <td>drawer 1</td> <td>Upper roll unit*</td> </tr> <tr> <td>drawer 2</td> <td>Middle roll unit</td> </tr> <tr> <td>drawer 3</td> <td>Lower roll unit</td> </tr> <tr> <td>ALL</td> <td>Clear counts for all locations</td> </tr> </tbody> </table> <p>* Optional</p> <p>Clearing the count</p> <ol style="list-style-type: none"> Use the cursor up/down keys to select "ALL". Press the start key. <ul style="list-style-type: none"> The copy counts for all paper feed locations will be returned to zero. <p>Completion Press the stop/clear key.</p>	Paper feeder counter		U901		Bypass	: 121212	3rd dr	: 343434	1st dr	: 232323			2nd dr	: 343434	ALL		Display	Paper source	Bypass	Bypass	drawer 1	Upper roll unit*	drawer 2	Middle roll unit	drawer 3	Lower roll unit	ALL	Clear counts for all locations
Paper feeder counter		U901																											
Bypass	: 121212	3rd dr	: 343434																										
1st dr	: 232323																												
2nd dr	: 343434	ALL																											
Display	Paper source																												
Bypass	Bypass																												
drawer 1	Upper roll unit*																												
drawer 2	Middle roll unit																												
drawer 3	Lower roll unit																												
ALL	Clear counts for all locations																												

Item No.	Description and Procedure																																																																	
<p>U903</p>	<p>Checking/Clearing the paper jam counts</p> <p>Description Checks the total number of paper jams that have occurred by location and type, or resets all of the counts back to zero.</p> <p>Purpose Used to check the occurrence of paper jams, or to clear all counts after replacement of maintenance parts.</p> <p>Method</p> <ol style="list-style-type: none"> Press the start key. <ul style="list-style-type: none"> The paper jam count will be displayed for each paper feed location. Use the cursor left/right keys to switch between screens. <p style="text-align: center;">Sample display</p> <div style="text-align: center;"> <table border="1" style="margin: 0 auto;"> <thead> <tr> <th colspan="2">Clear paper misfeed count</th> <th colspan="2">U903</th> </tr> </thead> <tbody> <tr> <td>1st dr</td> <td>: 12</td> <td>Bypass</td> <td>: 17</td> </tr> <tr> <td>2nd dr</td> <td>: 17</td> <td>B-Resi</td> <td>: 15</td> </tr> <tr> <td>3rd dr</td> <td>: 9</td> <td>ALL</td> <td></td> </tr> </tbody> </table> <p style="font-size: 2em; margin: 10px 0;">↓ ↑</p> <table border="1" style="margin: 0 auto;"> <thead> <tr> <th colspan="2">Clear paper misfeed count</th> <th colspan="2">U903</th> </tr> </thead> <tbody> <tr> <td>R-Resi</td> <td>: 14</td> <td>Origin</td> <td>: 20</td> </tr> <tr> <td>Convey</td> <td>: 18</td> <td></td> <td></td> </tr> <tr> <td>Eject</td> <td>: 9</td> <td>ALL</td> <td></td> </tr> </tbody> </table> </div> <p style="text-align: center;">Figure 1-4-9</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Display</th> <th>Paper jam location or type</th> <th>Jam code</th> </tr> </thead> <tbody> <tr> <td>1st dr</td> <td>Upper roll unit*; No paper feed</td> <td>J-11</td> </tr> <tr> <td>2nd dr</td> <td>Middle roll unit; No paper feed</td> <td>J-12</td> </tr> <tr> <td>3rd dr</td> <td>Lower roll unit; No paper feed</td> <td>J-13</td> </tr> <tr> <td>Bypass</td> <td>Bypass; No paper feed</td> <td>J-10</td> </tr> <tr> <td>B-Resi</td> <td>Bypass registration</td> <td>J-30</td> </tr> <tr> <td>R-Resi</td> <td>Roll unit registration</td> <td>J-31</td> </tr> <tr> <td>Convey</td> <td>Paper conveying</td> <td>J-40</td> </tr> <tr> <td>Eject</td> <td>Paper ejection</td> <td>J-50</td> </tr> <tr> <td>Origin</td> <td>Originals</td> <td>J-70</td> </tr> <tr> <td>ALL</td> <td>Clear all jam counts</td> <td>—</td> </tr> </tbody> </table> <p>* Optional</p> <p>Clearing the count</p> <ol style="list-style-type: none"> Use the cursor up/down keys to select ALL. Press the start key. <ul style="list-style-type: none"> The paper jam counts for all locations and types will be returned to zero. <p>Completion Press the stop/clear key.</p>	Clear paper misfeed count		U903		1st dr	: 12	Bypass	: 17	2nd dr	: 17	B-Resi	: 15	3rd dr	: 9	ALL		Clear paper misfeed count		U903		R-Resi	: 14	Origin	: 20	Convey	: 18			Eject	: 9	ALL		Display	Paper jam location or type	Jam code	1st dr	Upper roll unit*; No paper feed	J-11	2nd dr	Middle roll unit; No paper feed	J-12	3rd dr	Lower roll unit; No paper feed	J-13	Bypass	Bypass; No paper feed	J-10	B-Resi	Bypass registration	J-30	R-Resi	Roll unit registration	J-31	Convey	Paper conveying	J-40	Eject	Paper ejection	J-50	Origin	Originals	J-70	ALL	Clear all jam counts	—
Clear paper misfeed count		U903																																																																
1st dr	: 12	Bypass	: 17																																																															
2nd dr	: 17	B-Resi	: 15																																																															
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Eject	: 9	ALL																																																																
Display	Paper jam location or type	Jam code																																																																
1st dr	Upper roll unit*; No paper feed	J-11																																																																
2nd dr	Middle roll unit; No paper feed	J-12																																																																
3rd dr	Lower roll unit; No paper feed	J-13																																																																
Bypass	Bypass; No paper feed	J-10																																																																
B-Resi	Bypass registration	J-30																																																																
R-Resi	Roll unit registration	J-31																																																																
Convey	Paper conveying	J-40																																																																
Eject	Paper ejection	J-50																																																																
Origin	Originals	J-70																																																																
ALL	Clear all jam counts	—																																																																

Item No.	Description and Procedure																																
<p>U904</p>	<p>Checking/Clearing the call for service counts</p> <p>Description Checks the total number of call for service detections, or resets the count back to zero.</p> <p>Purpose Used to check the occurrence of call for service detections, or to clear the count after replacement of maintenance parts.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> The call for service detection count will be displayed for each code. <p>Clearing the count</p> <ul style="list-style-type: none"> When you want to clear the count for only a specific call for service code <ol style="list-style-type: none"> Use the cursor left/right keys to switch between screens. <p style="text-align: center;">Sample display</p> <div style="text-align: center;"> <table border="1"> <thead> <tr> <th colspan="2">Clear service call count</th> <th colspan="2">U904</th> </tr> </thead> <tbody> <tr> <td>C0110</td> <td>: 4</td> <td>C0310</td> <td>: 0</td> </tr> <tr> <td>C0210</td> <td>: 0</td> <td></td> <td></td> </tr> <tr> <td>C0220</td> <td>: 2</td> <td>ALL</td> <td></td> </tr> </tbody> </table>  <table border="1"> <thead> <tr> <th colspan="2">Clear service call count</th> <th colspan="2">U904</th> </tr> </thead> <tbody> <tr> <td>C6220</td> <td>: 3</td> <td>C7200</td> <td>: 0</td> </tr> <tr> <td>C6400</td> <td>: 0</td> <td></td> <td></td> </tr> <tr> <td>C7101</td> <td>: 1</td> <td>ALL</td> <td></td> </tr> </tbody> </table> </div> <p style="text-align: center;">Figure 1-4-10</p> <ol style="list-style-type: none"> Use the cursor up/down keys to select the call for service code that you want to clear the count for. Press the start key. <ul style="list-style-type: none"> The count for the selected call for service code will be returned to zero. When you want to clear the count for all call for service codes. <ol style="list-style-type: none"> Use the cursor up/down keys to select "ALL". Press the start key. <ul style="list-style-type: none"> The count for all call for service codes will be returned to zero. <p>Completion Press the stop/clear key.</p>	Clear service call count		U904		C0110	: 4	C0310	: 0	C0210	: 0			C0220	: 2	ALL		Clear service call count		U904		C6220	: 3	C7200	: 0	C6400	: 0			C7101	: 1	ALL	
Clear service call count		U904																															
C0110	: 4	C0310	: 0																														
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C6220	: 3	C7200	: 0																														
C6400	: 0																																
C7101	: 1	ALL																															

Item No.	Description and Procedure														
<p>U908</p>	<p>Checking/Clearing the total count</p> <p>Description Displays and clears the total count value.</p> <p>Purpose Used to check the timing of the standard replacement of maintenance parts.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> • The current total count will be displayed. <p>Clearing the count</p> <ol style="list-style-type: none"> 1. Use the numeric keys to enter "0". 2. Press the start key to clear the total count. <ul style="list-style-type: none"> • If you want to cancel the operation to clear the total count, press the stop/clear key. <p>Completion Press the stop/clear key.</p>														
<p>U916</p>	<p>Clearing all counts</p> <p>Description Clears all related counts.</p> <p>Purpose Used during a full maintenance operation.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Use the cursor up/down keys to select "Action". If you want to cancel the operation to clear all counts, select "Cancel". 3. Press the start key. <ul style="list-style-type: none"> • The values for the counts shown below will all be cleared and the screen for selecting a maintenance item No. will be displayed again. <table border="1"> <thead> <tr> <th>Maintenance Item No.</th> <th>Type of count</th> </tr> </thead> <tbody> <tr> <td>U251</td> <td>Maintenance count</td> </tr> <tr> <td>U901</td> <td>Total count by paper source</td> </tr> <tr> <td>U903</td> <td>Paper jam count</td> </tr> <tr> <td>U904</td> <td>Call for service count</td> </tr> <tr> <td>U908</td> <td>Total count</td> </tr> <tr> <td>U991</td> <td>Scan count</td> </tr> </tbody> </table>	Maintenance Item No.	Type of count	U251	Maintenance count	U901	Total count by paper source	U903	Paper jam count	U904	Call for service count	U908	Total count	U991	Scan count
Maintenance Item No.	Type of count														
U251	Maintenance count														
U901	Total count by paper source														
U903	Paper jam count														
U904	Call for service count														
U908	Total count														
U991	Scan count														
<p>U991</p>	<p>Checking/Clearing the scan count</p> <p>Description Displays and clears the scan count value.</p> <p>Purpose Used to check the timing of the standard replacement of maintenance parts.</p> <p>Method Press the start key.</p> <ul style="list-style-type: none"> • The current scan count will be displayed. <p>Clearing the count</p> <ol style="list-style-type: none"> 1. Use the numeric keys to enter "0". 2. Press the start key to clear the scan count. <ul style="list-style-type: none"> • If you want to cancel the operation to clear the scan count, press the stop/clear key. <p>Completion Press the stop/clear key.</p>														

Item No.	Description and Procedure												
<p>U993</p>	<p>Printing out all PGs</p> <p>Description Selects and prints out all PG patterns generated at the machine.</p> <p>Purpose Used when performing adjustments related to printing images in order to check the status of the ASIC on the IPU PCB, using a PG pattern that is generated without the need to scan an original.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. <table border="1"> <thead> <tr> <th>Display</th> <th>Setting item</th> <th>Setting range</th> </tr> </thead> <tbody> <tr> <td>1: HDC 2: MCP 3: MIP</td> <td>Type of ASIC</td> <td>1 (Check LPH problems) 2 (Check DIMM problems) 3 (Check IPU PCB problems)</td> </tr> <tr> <td>Pattern</td> <td>Type of PG pattern</td> <td>0 to 30</td> </tr> <tr> <td>Exposure</td> <td>Printout density</td> <td>0 to 60</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 2. Use the cursor up/down keys to select "1: HDC 2: MCP 3: MIP". 3. Use the cursor left/right keys to change the setting and, thereby, select the desired mode. 4. Use the cursor up/down keys to select "Pattern". 5. Use the cursor left/right keys to change the setting and, thereby, select the desired PG pattern. 6. Use the cursor up/down keys to select "Exposure". 7. Use the cursor left/right keys to change the setting and, thereby, select the desired PG density. <ul style="list-style-type: none"> • Raising the setting will increase the contrast of the image while lowering it will decrease the contrast. 8. Press the interrupt key. The test copy screen will be displayed. 9. Press the start key. The selected PG pattern will be printed out. <p>Completion Press the stop/clear key.</p>	Display	Setting item	Setting range	1: HDC 2: MCP 3: MIP	Type of ASIC	1 (Check LPH problems) 2 (Check DIMM problems) 3 (Check IPU PCB problems)	Pattern	Type of PG pattern	0 to 30	Exposure	Printout density	0 to 60
Display	Setting item	Setting range											
1: HDC 2: MCP 3: MIP	Type of ASIC	1 (Check LPH problems) 2 (Check DIMM problems) 3 (Check IPU PCB problems)											
Pattern	Type of PG pattern	0 to 30											
Exposure	Printout density	0 to 60											
<p>U999</p>	<p>Checking the memory</p> <p>Description Checks the memory capacity of the DIMM chips on the IPU PCB.</p> <p>Purpose Used to check the memory capacity of the DIMM chips that are installed on the IPU PCB as well as to check if they are functioning correctly.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Press the start key again. <ul style="list-style-type: none"> • The DIMM chips will be checked and then the total memory capacity of those chips displayed. If "0" is displayed, there are either no DIMM chips installed or they are not functioning correctly. <p>Completion Press the stop/clear key.</p>												


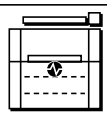

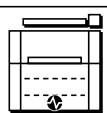
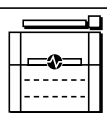
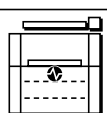


1-5-1 Paper misfeed detection

(1) Paper misfeed indication

When a paper jam occurs, the copier immediately stops copying and the operation panel shows a paper misfeed message. Paper jam counts sorted by the detecting conditions can be checked by maintenance item U903.

To remove paper, open the front covers and take out roll units, or open the detachable unit or original cover.

To reset the paper misfeed detection, open and close the front covers, detachable unit, lower right cover, eject cover or original cover to turn the safety switches 5 & 6, 1 & 2, 4, 3, or 7 & 8 off and on, respectively.

JAM code	Description	Messages
J-10	No paper feed from the bypass table	Paper misfeed Remove paper 
J-11	No paper feed from the upper roll unit*	Paper misfeed Open front cover 
J-12	No paper feed from the middle roll unit	Paper misfeed Open front cover 
J-13	No paper feed from the lower roll unit	Paper misfeed Open front cover 
J-30	Bypass table registration jam	Paper misfeed Remove paper 
J-31	Roll unit registration jam	Paper misfeed Open front cover 
J-40	Paper jam in the paper conveying section	Paper misfeed Pull out Original table 
J-50	Paper jam in the eject section	Paper misfeed Press "Cut paper" key 
J-70	Paper jam in the original feed section	Set original again 100% <input type="checkbox"/> Bond 1cp 18.0×Sync" Remove original 100% <input type="checkbox"/> Bond 1cp 18.0×Sync"

* Optional

(2) Paper misfeed detection conditions

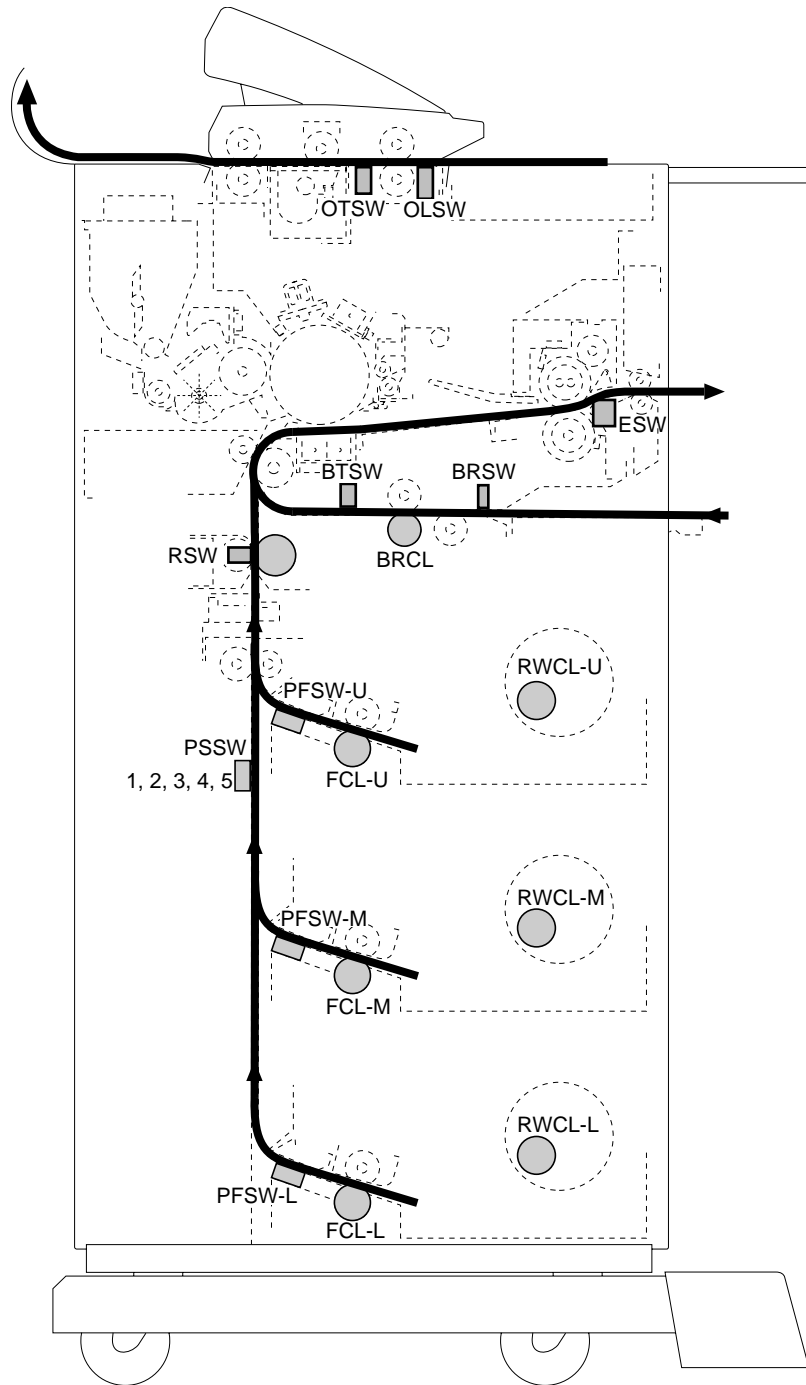
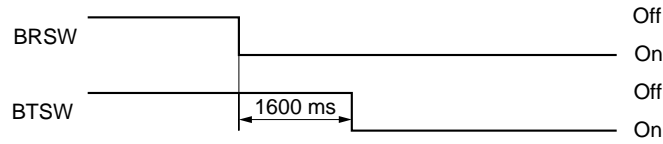


Figure 1-5-1 Paper misfeed detection

1. No paper feed from the bypass table: J-10

When the bypass timing switch (BTSW) does not turn on within 1600 ms of the bypass registration switch (BRSW) turning on.

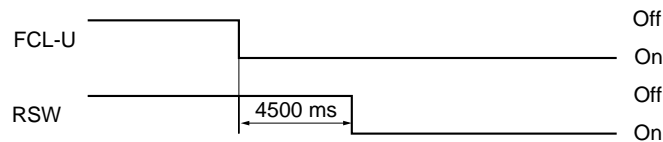


Timing chart 1-5-1

When the bypass registration switch (BRSW) is on at turning on of the main switch or opening/closing of the detachable unit.

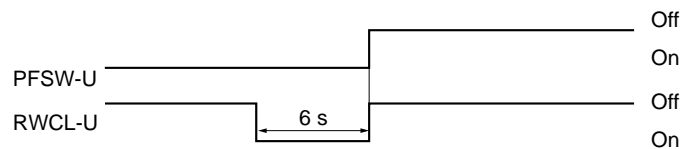
2. No paper feed from the upper roll unit: J-11

When copying starts, the registration switch (RSW) does not turn on within 4500 ms of the upper feed clutch (FCL-U) turning on (primary paper feed).



Timing chart 1-5-2

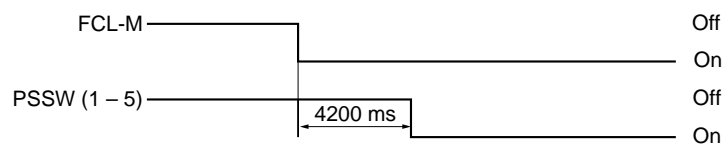
When the upper paper feed switch (PFSW-U) does not turn off within 6 s of the upper roll winding clutch (RWCL-U) turning on.



Timing chart 1-5-3

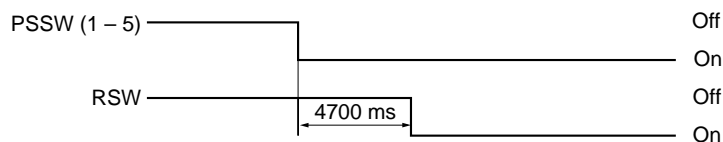
3. No paper feed from the middle roll unit: J-12

When copying starts, the paper size switches (PSSW 1 to 5) do not turn on within 4200 ms of the middle feed clutch (FCL-M) turning on (primary paper feed).



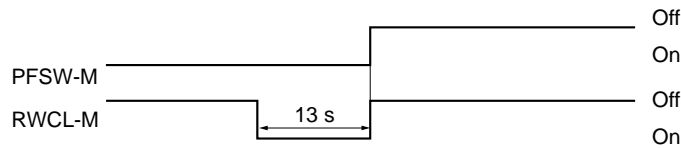
Timing chart 1-5-4

When the registration switch (RSW) does not turn on within 4700 ms of the paper size switches (PSSW 1 to 5) turning on.



Timing chart 1-5-5

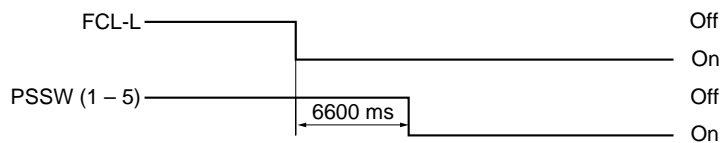
When the middle paper feed switch (PFSW-M) does not turn off within 13 s of the middle roll winding clutch (RWCL-M) turning on.



Timing chart 1-5-6

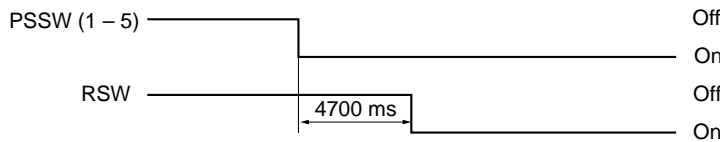
4. No paper feed from the lower paper roll unit: J-13

When copying starts, the paper size switches (PSSW 1 to 5) do not turn on within 6600 ms of the lower feed clutch (FCL-U) turning on (primary paper feed).



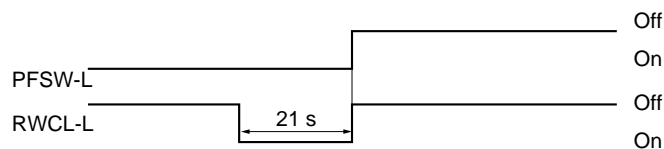
Timing chart 1-5-7

When the registration switch (RSW) does not turn on within 4700 ms of the paper size switches (PSSW 1 to 5) turning on.



Timing chart 1-5-8

When the lower paper feed switch (PFSW-L) does not turn off within 21 s of the lower roll winding clutch (RWCL-L) turning on.



Timing chart 1-5-9

5. Bypass table registration jam: J-30

When paper is fed from the bypass table, the bypass timing switch (BTSW) does not turn off when the paper has been fed 300 mm beyond the maximum copy length*.

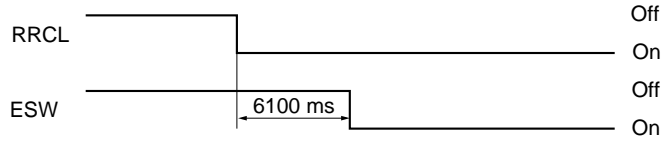
* The maximum length allowed for copying is 6000 mm when the standard size of memory is mounted.

6. Roll unit registration jam: J-31

When the roll registration clutch (RRCL) does not turn on within 15 s of the secondary paper feed starting.

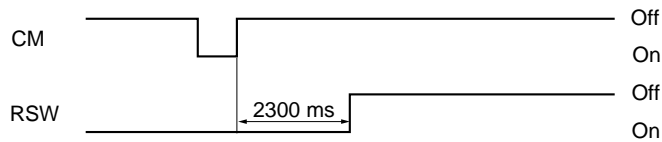
7. Paper jam in the paper conveying section: J-40

When the eject switch (ESW) does not turn on within 6100 ms of the roll registration clutch (RRCL) turning on (secondary paper feed).



Timing chart 1-5-10

When the registration switch (RSW) does not turn off within 2300 of the cutter motor (CM) turning off.

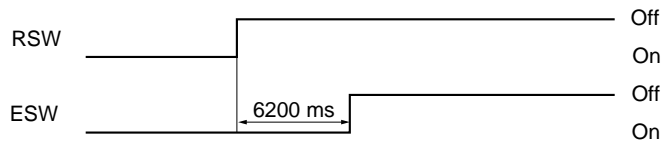


Timing chart 1-5-11

When the cutter stops during cutting operation and cutting has not been successfully completed.

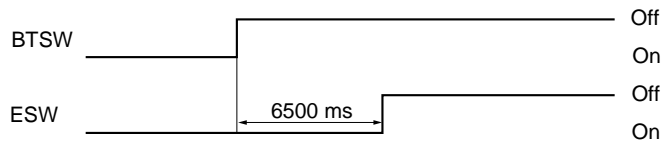
8. Paper jam in the eject section: J-50

After the paper has been cut, the eject switch (ESW) does not turn off within 6200 ms of the registration switch (RSW) turning off.



Timing chart 1-5-12

When the eject switch (ESW) does not turn off within 6500 ms of the bypass timing switch (BTSW) turning off.

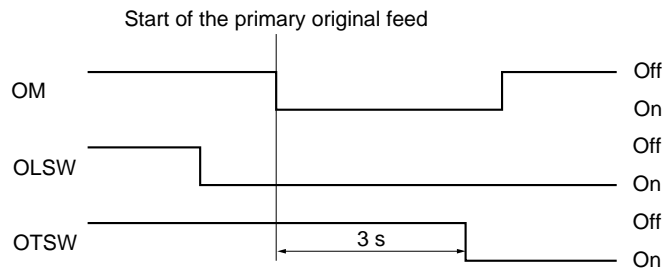


Timing chart 1-5-13

When the eject switch (ESW) is on at the main switch turning on or opening/closing of the detachable unit.

9. Paper jam in the original feed section: J-70

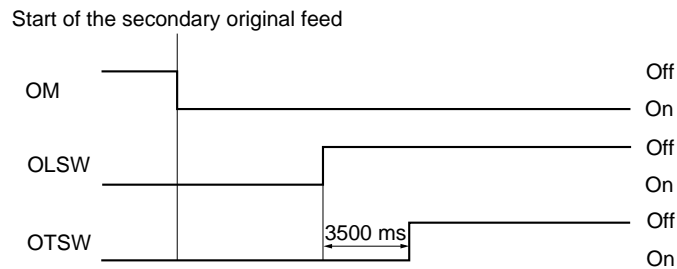
When the original trailing edge switch (OTSW) does not turn on within 3 s of the original motor (OM) turning on (primary original feed).



Timing chart 1-5-14

When the original trailing edge switch (OTSW) is off at the original motor (OM) turning on (secondary original feed).

When the original trailing edge switch (OTSW) does not turn off within 3500 ms of the original leading edge switch (OLSW) turning off.



Timing chart 1-5-15

When the original trailing edge switch (OTSW) is on at the scan stop key being pressed.

When the original leading edge switch (OLSW) does not turn off if the original has been fed beyond the maximum length allowed for long copies.

In the original return mode, the original trailing edge switch (OTSW) does not turn off if the time required to feed that original elapses.

(3) Paper misfeeds

Problem	Causes/check procedures	Corrective measures
(J-10) No paper feed from the bypass table	A piece of paper torn from copy paper is caught around the bypass feed roller or upper or lower bypass roller.	Check and remove it, if any.
	Defective bypass timing switch.	If CN3-11 on the engine main PCB remains the same when the bypass timing switch is turned on and off, replace the bypass timing switch.
	Defective bypass registration switch.	If CN3-12 on the engine main PCB remains the same when the bypass registration switch is turned on and off, replace the bypass registration switch.
(J-11) No paper feed from the upper roll unit*	Wrong paper.	Check and if the paper is extremely curled or inappropriate for copying, change it.
	A piece of paper torn from copy paper is left along the paper conveying path between the upper roll unit and the roll registration roller.	Check and remove it, if any.
	Guide plates or other components along the paper conveying path between the upper roll unit and the roll registration roller.	Check and remedy or replace any deformed parts.
	The roll paper feed upper roller of the upper roll unit is dirty with paper powder.	Check the roll paper feed upper roller and, if it is dirty, clean it with isopropyl alcohol.
	The roll paper feed upper roller of the upper roll unit is deformed or worn.	Check and replace the roll paper feed upper roller if necessary.
	Broken registration switch actuator.	Check and, if the actuator is broken, replace the registration switch.
	Defective registration switch.	If CN3-7 on the engine main PCB remains the same when the registration switch is turned on and off, replace the registration switch.
	Defective upper paper feed switch*.	If CN16-1 on the engine main PCB remains the same when the upper paper feed switch is turned on and off, replace the upper paper feed switch.
	Electrical problem with the upper roll winding clutch*.	See page 1-5-29.
	Electrical problem with the upper feed clutch*.	See page 1-5-30.
(J-12) No paper feed from the middle roll unit	Wrong paper.	Check and if the paper is extremely curled or inappropriate for copying, change it.
	A piece of paper torn from copy paper is left along the paper conveying path between the middle roll unit and the roll registration roller.	Check and remove it, if any.

Problem	Causes/check procedures	Corrective measures
(J-12) No paper feed from the middle roll unit	Guide plates or other components along the paper conveying path between the middle roll unit and the roll registration roller.	Check and remedy or replace any deformed parts.
	The roll paper feed upper roller of the middle roll unit is dirty with paper powder.	Check the roll paper feed upper roller and, if it is dirty, clean it with isopropyl alcohol.
	The roll paper feed upper roller of the middle roll unit is deformed or worn.	Check and replace the roll paper feed upper roller if necessary.
	Broken registration switch actuator.	Check and, if the actuator is broken, replace the registration switch.
	Defective registration switch.	If CN3-7 on the engine main PCB remains the same when the registration switch is turned on and off, replace the registration switch.
	Defective middle paper feed switch.	If CN16-2 on the engine main PCB remains the same when the lower paper feed switch is turned on and off, replace the middle paper feed switch.
	Electrical problem with the middle roll winding clutch.	See page 1-5-30.
	Electrical problem with the middle feed clutch.	See page 1-5-30.
	Electrical problem with the roll registration clutch.	See page 1-5-31.
(J-13) No paper feed from the lower roll unit	Wrong paper.	Check and if the paper is extremely curled or inappropriate for copying, change it.
	A piece of paper torn from copy paper is left along the paper conveying path between the lower roll unit and the roll registration roller.	Check and remove it, if any.
	Guide plates or other components along the paper conveying path between the lower roll unit and the roll registration roller.	Check and remedy or replace any deformed parts.
	The roll paper feed upper roller of the lower roll unit is dirty with paper powder.	Check the roll paper feed upper roller and, if it is dirty, clean it with isopropyl alcohol.
	The roll paper feed upper roller of the lower roll unit is deformed or worn.	Check and replace the roll paper feed upper roller if necessary.
	Broken registration switch actuator.	Check and, if the actuator is broken, replace the registration switch.
	Defective registration switch.	If CN3-7 on the engine main PCB remains the same when the registration switch is turned on and off, replace the registration switch.
	Defective lower paper feed switch.	If CN16-3 on the engine main PCB remains the same when the lower paper feed switch is turned on and off, replace the lower paper feed switch.
	Electrical problem with the lower roll winding clutch.	See page 1-5-30.

Problem	Causes/check procedures	Corrective measures
(J-13) No paper feed from the lower roll unit	Electrical problem with the lower feed clutch.	See page 1-5-30.
	Electrical problem with the roll registration clutch.	See page 1-5-31.
(J-30) Bypass table registration jam	A piece of paper torn from copy paper is caught around the bypass registration switch.	Check and remove it, if any.
	Defective bypass timing switch.	If CN3-11 on the engine main PCB remains the same when the bypass timing switch is turned on and off, replace the bypass timing switch.
(J-31) Roll unit registration jam	A piece of paper torn from copy paper is caught around the registration switch.	Check and remove it, if any.
	Defective registration switch.	If CN3-7 on the engine main PCB remains the same when the registration switch is turned on and off, replace the registration switch.
(J-40) Paper jam in the paper conveying section	A piece of paper torn from copy paper is left along the paper conveying path between the roll registration roller and the eject roller.	Check and remove it, if any.
	Guide plates or other components along the paper conveying path between the roll registration roller and the eject roller.	Check and remedy or replace any deformed parts.
	Dirty roll registration, pre-transfer or eject rollers.	Check the rollers and, if they are dirty, clean them with isopropyl alcohol.
	Deformed or worn roll registration, pre-transfer or eject rollers.	Check and replace rollers if necessary.
	Extremely dirty press roller separation claws or heat roller.	Check and clean if necessary.
	Deformed press roller separation claws or heat roller.	Check and replace any deformed parts. See page 1-6-37.
	Broken separation charger wire.	Check and replace the separation charger wire if it is broken. See page 24.
	Electrical problem with the roll registration clutch.	See page 1-5-31.
	Defective eject switch.	If CN3-13 on the engine main PCB remains the same when the eject switch is turned on and off, replace the eject switch.
	Broken eject switch actuator.	Check and, if the actuator is broken, replace the actuator.
	Defective separation claw solenoid.	See page 1-5-34.

Problem	Causes/check procedures	Corrective measures
(J-50) Paper jam in the eject section	Roll paper is left uncut.	Press the roll cut key to cut remaining paper and remove it.
	A piece of paper is caught around the eject switch.	Check and remove it, if any.
	Defective eject switch.	If CN3-13 on the engine main PCB remains the same when the eject switch is turned on and off, replace the eject switch.
(J-70) Paper jam in the original feed section	A piece of paper is caught around the original trailing edge switch.	Check and remove it, if any.
	Defective original trailing edge switch.	If CN7-1 on the scanner PCB remains the same when the original trailing edge switch is turned on and off, replace the original trailing edge switch.
	Original is extremely curled.	Check and correct if necessary.
	The original is longer than the maximum length.	Use the original whose length meets specifications.
	The surface of the front upper, middle upper, rear upper, front lower or rear lower original rollers is dirty with the paper powder.	Check the rollers and, if they are dirty, clean them with isopropyl alcohol.
	The front upper, middle upper, rear upper, front lower or rear lower original rollers are deformed or worn.	Check and replace rollers if necessary.
	The original cover is not closed completely.	Close the original cover completely.
	Electrical problem with the original motor or original motor PCB.	See page 1-5-29.
	Defective original leading edge switch.	If CN7-2 on the scanner PCB remains the same when the original leading edge switch is turned on and off, replace the original leading edge switch.

1-5-2 Self-diagnostic function

(1) Self-diagnostic display

This unit is equipped with a self-diagnostic function. When it detects a problem with itself, it disables copying and displays a 4-digit self-diagnostic code (0110 to 7200) preceded by "C" indicating the nature of the problem together with a message requesting to call for service on the display.

After removing the problem, the self-diagnostic function can be reset by opening and closing the detachable unit (SSW1 and 2 turning off and on) or turning the main switch off and back on.



Figure 1-5-2 Service call code display

(2) Self diagnostic codes

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C0110	Backup RAM error •Backup area has been altered.	Problem with a back-up memory data.	Open and close the detachable unit and run maintenance item U020 to format the backup memory data.
		The engine main PCB is defective.	If "C011" is displayed after formatting the backup memory data, replace the engine main PCB.
C0210	MMI communication error •Initial communication between IPU PCB and engine main PCB was still not complete after 50 seconds elapsed. •Retry was conducted 20 times after data was sent but there was still no response.	The engine main PCB or IPU PCB is defective.	Replace the engine main PCB or the IPU PCB and check for correct operation.
C0220	Engine communication error •Initial communication between IPU PCB and engine main PCB is still not complete after a certain amount of time elapsed.	The engine main PCB or IPU PCB is defective.	Replace the engine main PCB or the IPU PCB and check for correct operation.
C0310	HDC communication error •Retry was conducted 50 times after data was sent but there was still no response.	The engine main PCB or IPU PCB is defective.	Replace the engine main PCB or the IPU PCB and check for correct operation.
C0620	Memory problem •No DIMM is detected in the memory slot.	DIMM is not installed correctly.	Reinstall the DIMM into CN7, CN8 and CN9 on the IPU PCB. (Be sure to install the DIMM into CN7 first.)
		The IPU PCB is defective.	Replace the IPU PCB and check for correct operation.
C0800	Image processing error •There has been no change in image processing ASIC status.	The IPU PCB is defective.	Replace the IPU PCB and check for correct operation.
C0850	Backup memory error •Data can not be written normally in backup memory.	The IPU PCB is defective.	Replace the IPU PCB and check for correct operation.
C1300	Cutter motor error •The cutter has not returned to its home position after a certain amount of time (900 ms) when the main switch is turned on or when the detachable unit, eject cover or lower right cover is opened/closed.	The cutter motor connector terminals are loosely connected or are making poor contact.	Reinsert the connector. Also check for continuity across the terminal wire and if none, remedy or replace the cutter unit (see page 1-6-42).
		The cutter motor does not operate correctly.	Replace the cutter unit (see page 1-6-42).
		The left or right cutter home position switch is defective.	Replace the cutter unit (see page 1-6-42).
		The engine main PCB is defective.	Replace the engine main PCB and check for correct operation.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C2201	Drum motor lock error •Drum motor lock detection signal to CN7-11 on the engine main PCB remains on after 1 s has elapsed with drum motor REM signal on.	The drum motor connector terminals are loosely connected or are making poor contact.	Reinsert the connector. Also check for continuity across the terminal wire and if none, remedy or replace the wire.
		The drum motor does not operate correctly.	Replace the drum motor and check for correct operation.
		The engine main PCB is defective.	Replace the engine main PCB and check for correct operation.
C5100	Main high-voltage error Main grid short detection signal was input to CN6-18 on the engine main PCB when the main high-voltage REM signal was on.	The main charger wire is broken.	Replace the main charger wire (see page 1-6-22).
		The main charger grid is broken.	Replace the main charger grid.
		The main high-voltage transformer connector terminals are loosely connected or are making poor contact.	Reinsert the connector. Also check for continuity across the terminal wire and if none, remedy or replace the wire.
		The main high-voltage transformer is defective.	Replace the main high-voltage transformer and check for correct operation.
C5110	Transfer high-voltage error Transfer short detection signal was input to CN3-3 on the engine main PCB when the transfer high-voltage REM signal was on.	The transfer charger wire or separation charger wire is broken.	Replace the transfer charger wire or the separation charger wire (see page 1-6-24).
		A foreign matter is adhering to the transfer charger wire or separation charger wire.	Clean the transfer charger wire or the separation charger wire.
		The ST high-voltage transformer connector terminals are loosely connected or are making poor contact.	Reinsert the connector. Also check for continuity across the terminal wire and if none, remedy or replace the wire.
		The ST high-voltage transformer is defective.	Replace the ST high-voltage transformer and check for correct operation.
C5500	Drum surface potential sensor error •Potential sensor input to CN2-5 on the engine main PCB was less than 500 V (3.1 V) (average of 15 inputs) during surface potential correction executed when copying starts or when the detachable unit, eject cover or lower right cover is opened/closed.	The drum surface potential sensor connector terminals make poor contact.	Check for continuity across the connector terminals and remedy if necessary.
		The drum surface potential sensor is defective.	Replace the drum surface potential sensor and the drum surface potential PCB and check for correct operation.
		The drum surface potential PCB is defective.	Replace the drum surface potential sensor and the drum surface potential PCB and check for correct operation.
		The main charger wire is broken.	Replace the main charger wire (see page 1-6-22).
		The main charger grid is broken.	Replace the main charger grid.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C5500	Drum surface potential sensor error • Potential sensor input to CN2-5 on the engine main PCB was less than 500 V (3.1 V) (average of 15 inputs) during surface potential correction executed when copying starts or when the detachable unit, eject cover or lower right cover is opened/closed.	The main high-voltage transformer connector terminals are loosely connected or are making poor contact.	Reinsert the connector. Also check for continuity across the terminal wire and if none, remedy or replace the wire.
		The main high-voltage transformer is defective.	Replace the main high-voltage transformer and check for correct operation.
		The engine main PCB is defective.	Replace the engine main PCB and check for correct operation.
C5650	Dark potential error Surface potential is still not within the effective range for target potential after surface potential correction is executed 10 times.	The drum surface potential sensor connector terminals are loosely connected or make poor contact.	Check for continuity across the connector terminals and remedy if necessary.
		The drum surface potential sensor is defective.	Replace the drum surface potential sensor and the drum surface potential PCB and check for correct operation.
		The drum surface potential PCB is defective.	Replace the drum surface potential sensor and the drum surface potential PCB and check for correct operation.
		The main charger wire is broken.	Replace the main charger wire (see page 1-6-22).
		The main charger grid is broken.	Replace the main charger grid.
		The main high-voltage transformer connector terminals are loosely connected or are making poor contact.	Reinsert the connector. Also check for continuity across the terminal wire and if none, remedy or replace the wire.
		The main high-voltage transformer is defective.	Replace the main high-voltage transformer and check for correct operation.
		The engine main PCB is defective.	Replace the engine main PCB and check for correct operation.
C6000	Broken main fixing heater connection • Machine operation still did not become stable after 20 minutes in ambient temperature of 15°C or higher. • Machine operation still did not become stable after 30 minutes in ambient temperature lower than 15°C. • Temperature detected by fixing unit thermistor 1 was lower than 100°C after fixing stabilized.	The main fixing heater is not installed correctly.	Check and reinstall if necessary.
		The main fixing heater has a break.	Check for continuity and if none, replace the main fixing heater (see page 1-6-34).
		Fixing unit thermistor 1 is not installed correctly.	Check and reinstall if necessary.
		Fixing unit thermistor 1 connector terminals are loosely connected.	Check the connection of CN2-15 on the engine main PCB and continuity across the terminals. If there is abnormality, remedy or replace (see page 1-6-38).
		Fixing unit thermistor 1 has a break.	Measure the resistance. If the resistance is $\infty\Omega$, replace fixing unit thermistor 1 (see page 1-6-38).
		The fixing unit thermostat operates.	Check for continuity. If none, replace the fixing unit thermostat (see page 1-6-40).

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C6000	Broken main fixing heater connection <ul style="list-style-type: none"> Machine operation still did not become stable after 20 minutes in ambient temperature of 15°C or higher. Machine operation still did not become stable after 30 minutes in ambient temperature lower than 15°C. Temperature detected by fixing unit thermistor 1 was lower than 100°C after fixing stabilized. 	The fixing heater control circuit on the power source PCB is broken.	Run maintenance item U196 by selecting "HEAT1". If voltage between TB3 and CN2-1 on the power source PCB does not become 100 V AC, replace the PCB.
		The engine main PCB or the power source PCB is defective.	Run maintenance item U196 by selecting "HEAT1". If CN4-8 on the engine main PCB does not go low, replace the engine main PCB or the power source PCB and check for correct operation.
C6020	Main fixing heater high temperature error <ul style="list-style-type: none"> Temperature detected by fixing unit thermistor 1 was 195°C or higher. 	Fixing unit thermistor 1 has shorted.	Measure the resistance. If the resistance is 0Ω, replace fixing unit thermistor 1 (see page 1-6-38).
		The fixing heater control circuit on the power source PCB is broken.	Replace the power source PCB.
C6200	Broken sub fixing heater connection <ul style="list-style-type: none"> Temperature detected by fixing unit thermistor 2 was lower than 100°C after fixing stabilized. 	The sub fixing heater is not installed correctly.	Check and reinstall if necessary.
		The sub fixing heater has a break.	Check for continuity and if none, replace the sub fixing heater (see page 1-6-34).
		Fixing unit thermistor 2 is not installed correctly.	Check and reinstall if necessary.
		Fixing unit thermistor 2 connector terminals are loosely connected.	Check the connection of CN2-14 on the engine main PCB and continuity across the terminals. If there is abnormality, remedy or replace (see page 1-6-38).
		Fixing unit thermistor 2 has a break.	Measure the resistance. If the resistance is ∞Ω, replace fixing unit thermistor 2 (see page 1-6-38).
		The fixing unit thermostat operates.	Check for continuity. If none, replace the fixing unit thermostat (see page 1-6-40).
		The fixing heater control circuit on the power source PCB is broken.	Run maintenance item U196 by selecting "HEAT2". If voltage between TB3 and CN2-2 on the power source PCB does not become 100 V AC, replace the PCB.
		The engine main PCB or the power source PCB is defective.	Run maintenance item U196 by selecting "HEAT2". If CN4-9 on the engine main PCB does not go low, replace the engine main PCB or the power source PCB and check for correct operation.
C6220	Sub fixing heater high temperature error <ul style="list-style-type: none"> Temperature detected by fixing unit thermistor 2 was 200°C or higher. 	Fixing unit thermistor 2 has shorted.	Measure the resistance. If the resistance is 0Ω, replace fixing unit thermistor 2 (see page 1-6-38).
		The fixing heater control circuit on the power source PCB is broken.	Replace the power source PCB.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C6400	Zero-cross interruption error <ul style="list-style-type: none"> The zero-cross signal was not input into CN3-1B on the engine main PCB for more than 5 s during fixing phase control. 	Connector terminals are loosely connected or are making poor contact.	Check the connection of CN4-7 on the engine main PCB and CN9-1 on the power source PCB and continuity across the terminals. If there is abnormality, remedy or replace.
		The power source PCB is defective.	Check if the zero-cross signal is output from CN9-1 on the power source PCB. If not, replace the PCB.
		The engine main PCB is defective.	Check if the zero-cross signal is input to CN4-7 on the engine main PCB. If not, replace the PCB.
C7101	Toner sensor error <ul style="list-style-type: none"> Toner sensor input to CN2-9 on the engine main PCB was 4.6 V or higher. Toner sensor input to CN2-9 on the engine main PCB was 0.8 V or lower. 	The toner sensor is defective.	Replace the toner sensor.
		The toner sensor connector terminals are loosely connected or are making poor contact.	Reinsert the connector. Also check for continuity across the terminal wire and if none, remedy or replace the wire.
		The developer is defective.	Replace the developer (see page 1-6-14).
C7200	Broken developing thermistor connection <ul style="list-style-type: none"> The temperature detected by the developing thermistor was 0°C or lower for 100 ms. The temperature detected by the developing thermistor was 56°C or higher for 100 ms. 	The developing thermistor is not installed correctly.	Check and reinstall if necessary.
		The developing thermistor connector terminals are loosely connected.	Check the connection of CN2-1 on the engine main PCB and continuity across the terminals. If there is abnormality, remedy or replace.
		The developing thermistor has a break.	Measure the resistance. If the resistance is $\infty\Omega$, replace the developing thermistor.
		The developing thermistor has shorted.	Measure the resistance. If the resistance is 0 Ω , replace the developing thermistor.

1-5-3 Image formation problems

(1) No image (entirely white).



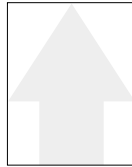
See page 1-5-18.

(2) Part or all of the image is solid black.



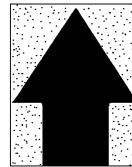
See page 1-5-19.

(3) Image is too light.



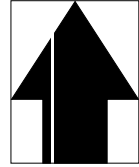
See page 1-5-20.

(4) Background is visible.



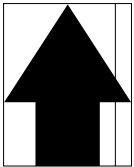
See page 1-5-20.

(5) A white line appears longitudinally.



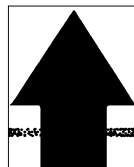
See page 1-5-21.

(6) A black line appears longitudinally.



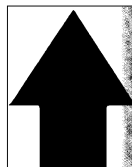
See page 1-5-21.

(7) A black line appears laterally.



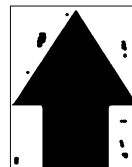
See page 1-5-22.

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



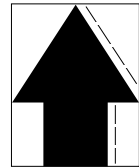
See page 1-5-22.

(9) Black dots appear on the image.



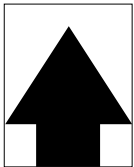
See page 1-5-23.

(10) Image is blurred.



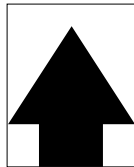
See page 1-5-23.

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



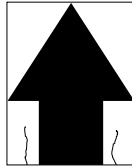
See page 1-5-24.

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



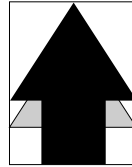
See page 1-5-24.

(13) Paper creases.



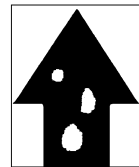
See page 1-5-24.

(14) Offset occurs.



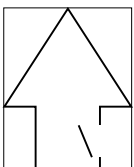
See page 1-5-25.

(15) Image is partly missing.



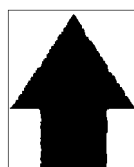
See page 1-5-25.

(16) Fixing is poor.



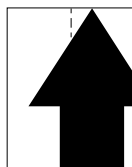
See page 1-5-25.

(17) Image is out of focus.



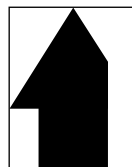
See page 1-5-26.

(18) The center of the image is misaligned with the original.



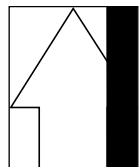
See page 1-5-26.

(19) One forth the A0 width of the image is white.



See page 1-5-27.

(20) One forth the A0 width of the image is black.



See page 1-5-27.

2A7

(1) No image (entirely white).



Causes

1. No transfer charging.
2. LPH fails to turn on.

Causes	Check procedures/corrective measures
1. No transfer charging.	
Defective engine main PCB.	Run maintenance item U101 by selecting "TC: ON" and check if CN4-3 on the engine main PCB goes low. If not, replace the PCB.
Defective ST high-voltage transformer.	If transfer charging does not take place during maintenance item U101 is executed by selecting "TC: ON" while CN1-2 on the ST high-voltage transformer or CN4-3 on the engine main PCB goes low, replace the ST high-voltage transformer.
2. LPH fails to turn on.	
Defective power source PCB.	Measure voltage of the terminals on the power source PCB that supply power to the LPH. If none, replace the PCB.
Poor contact in the LPH data wire or power wire connectors.	Check for loose connectors and poor contact in them, and remedy if necessary. Check for continuity across connector terminals of each wire and, if none, replace them.
Defective IPU PCB or LPH.	Run maintenance item U451 and if no gray pattern is output, replace the IPU PCB or LPH (see page 1-6-3).

(2) Part or all of the image is solid black.



Causes

1. Right or left xenon lamp fails to light.
2. No main charging.
3. Loose LPH data wire connectors.
4. Defective LPH.
5. Loose IPU data wire connectors.
6. Defective IPU PCB.

Causes	Check procedures/corrective measures
1. Right or left xenon lamp fails to light.	
Right or left inverter PCB is defective.	Run maintenance item U061 and if the right or left xenon lamp does not light while CN1-2 on the right or left inverter PCB goes low, replace the PCB.
Defective scanner PCB.	Run maintenance item U061 and check if CN8-5 or CN8-6 on the scanner PCB goes low. If not, replace the PCB.
2. No main charging.	
Defective engine main PCB.	If CN6-12 on the engine main PCB does not go low during copying, replace the PCB.
3. Loose LPH data wire connectors.	Run maintenance item U461 by selecting "Measure Black Density". If an image for adjusting solid black is not output, check the connection of the LPH data wire connectors and remedy if necessary.
4. Defective LPH.	Run maintenance item U461 by selecting "Measure Black Density". If an image for adjusting solid black is not output after the LPH data wire connection and IPU PCB have been confirmed to be fine, replace the LPH (see page 1-6-6).
5. Loose IPU data wire connectors.	Run maintenance item U461 by selecting "Measure Black Density". If an image for adjusting solid black is output, run maintenance item U062. If the value of each channel is 255, check the connection of the IPU data wire connectors and remedy if necessary.
6. Defective IPU PCB.	Run maintenance item U461 by selecting "Measure Black Density". If an image for adjusting solid black is output, run maintenance item U062. If the value of each channel is close to 0, replace the IPU PCB (check that the xenon lamp is lit).

(3) Image is too light.

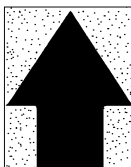


Causes

1. Insufficient toner.
2. Deteriorated developer.
3. Deteriorated drum.
4. Misadjusted xenon lamp intensity.
5. Misadjusted developing section.
6. Misadjusted drum surface potential.
7. Dirty LPH.
8. Defective ST high-voltage transformer.

Causes	Check procedures/corrective measures
1. Insufficient toner.	If the message requesting to add toner is displayed on the operation panel, replenish toner.
2. Deteriorated developer.	Check the number of copies made with the current developer. If it has reached the specified limit, replace the developer (see page 1-6-14).
3. Deteriorated drum.	Replace the drum (see page 1-6-18).
4. Misadjusted xenon lamp intensity.	Run maintenance item U454 and adjust the exposure volume (see page 12).
5. Misadjusted developing section.	Readjust the position of the magnetic brush or doctor blade (see pages 1-6-16 and 17).
6. Misadjusted drum surface potential.	Run maintenance item U100 and readjust the drum surface potential (see page 1-6-21).
7. Dirty LPH.	Clean the LPH (see page 1-6-3).
8. Defective ST high-voltage transformer.	If transfer charging does not take place during maintenance item U101 is executed by selecting "TC: ON" while CN1-2 on the ST high-voltage transformer or CN4-3 on the engine main PCB goes low, replace the ST high-voltage transformer.

(4) Background is visible.

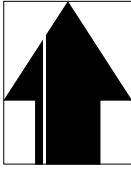


Causes

1. Dirty lens array in the CIS.
2. Deteriorated developer.
3. Misadjusted xenon lamp intensity.
4. Misadjusted developing section.
5. Misadjusted drum surface potential.
6. Dirty LPH.

Causes	Check procedures/corrective measures
1. Dirty lens array in the CIS.	Clean the lens array in the CIS.
2. Deteriorated developer.	Check the number of copies made with the current developer. If it has reached the specified limit, replace the developer (see page 1-6-14).
3. Misadjusted xenon lamp intensity.	Run maintenance item U454 and adjust the exposure volume (see pages 1-6-12).
4. Misadjusted developing section.	Readjust the doctor blade position (see page 1-6-16).
5. Misadjusted drum surface potential.	Run maintenance item U100 and readjust the drum surface potential (see page 1-6-21).
6. Dirty LPH.	Clean the LPH (see page 1-6-3).

- (5) A white line appears longitudinally.

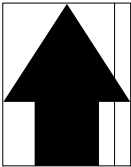


Causes

1. Dirty or flawed main charger wire.
2. Foreign matter in the developing assembly.
3. Flawed drum.
4. Dirty contact glass.
5. Dirty middle upper original roller.
6. Dirty LPH.
7. Defective LPH.

Causes	Check procedures/corrective measures
1. Dirty or flawed main charger wire.	Clean the main charger wire. If the wire is flawed, replace it (see page 1-6-22).
2. Foreign matter in the developing assembly.	Check if the magnetic brush is formed uniformly. If there is a foreign matter, replace the developer (see page 1-6-14).
3. Flawed drum.	Replace the drum (see page 1-6-18).
4. Dirty contact glass.	Clean the contact glass.
5. Dirty middle upper original roller.	Clean the middle upper original roller.
6. Dirty LPH.	Clean the LPH (see page 1-6-3).
7. Defective LPH	Run maintenance item U451. If no gray pattern is output, replace LPH (see page 6).

- (6) A black line appears longitudinally.

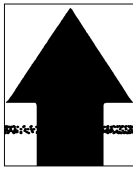


Causes

1. Dirty contact glass.
2. Dirty lens array in the CIS.
3. Flawed drum.
4. Deformed or worn cleaning blade.
5. Dirty middle upper original roller.
6. Dirty or flawed main charger wire.
7. Defective LPH.
8. Defective IPU PCB.

Causes	Check procedures/corrective measures
1. Dirty contact glass.	Clean the contact glass.
2. Dirty lens array in the CIS.	Clean the lens array in the CIS.
3. Flawed drum.	Replace the drum (see page 1-6-18).
4. Deformed or worn cleaning blade.	Replace the cleaning blade (see page 1-6-29).
5. Dirty middle upper original roller.	Clean the middle upper original roller.
6. Dirty or flawed main charger wire.	Clean the main charger wire. If the wire is flawed, replace it (see page 1-6-22).
7. Defective LPH.	Run maintenance item U461 by selecting "Measure Black Density". If an image for adjusting solid black is not output after the LPH data wire connection and IPU PCB have been confirmed to be fine, replace the LPH (see page 1-6-6).
8. Defective IPU PCB.	Run maintenance item U461 by selecting "Measure Black Density". If an image for adjusting solid black is output, run maintenance item U062. If the value of each channel is close to 0, replace the IPU PCB (check that the xenon lamp is lit).

(7) A black line appears laterally.

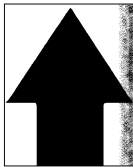


Causes

1. Flawed drum.
2. Developing bias voltage is not output.
3. Dirty developing section.

Causes	Check procedures/corrective measures
1. Flawed drum.	If the distance between lines is 283 mm, replace the drum (see page 1-6-18).
2. Developing bias voltage is not output.	
Loose connection or poor contact of the main high-voltage transformer connectors.	Check if the main high-voltage transformer connectors are securely connected. If not, remedy. Check for continuity across the terminals. If none, replace them.
Defective main high-voltage transformer.	During copying, if CN1-6 on the main high-voltage transformer goes low but the developing bias voltage is not output, replace the transformer.
Defective engine main PCB.	If CN6-13 on the engine main PCB does not go low during copying, replace the PCB.
3. Dirty developing section.	Clean the developing section.

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

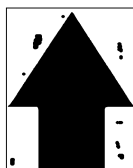


Causes

1. Dirty main charger wire.
2. Dirty lens array in the CIS.
3. Right or left xenon lamp is defective.

Causes	Check procedures/corrective measures
1. Dirty main charger wire.	Clean the main charger wire. If it is extremely dirty, replace it (see page 1-6-22).
2. Dirty lens array in the CIS.	Clean the lens array in the CIS.
3. Right or left xenon lamp is defective.	Run maintenance item U061 and check the right or left xenon lamp. If any problem exists, replace the CIS (see page 1-6-3).

(9) Black dots appear on the image.

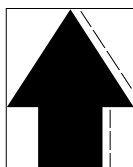


Causes

1. Flawed drum.
2. Deformed or worn cleaning blade.
3. Dirty or flawed cleaning fur brush.

Causes	Check procedures/corrective measures
1. Flawed drum.	If the distance between dots is 283 mm, replace the drum (see page 1-6-18).
2. Deformed or worn cleaning blade.	Replace the cleaning blade (see page 1-6-29).
3. Dirty or flawed cleaning fur brush.	Clean the cleaning fur brush. If it is flawed, replace it (see page 1-6-31).

(10) Image is blurred.



Causes

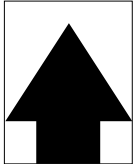
1. Original is conveyed erratically.
2. Deformed press roller.
3. Paper conveying drive system problem.

Causes	Check procedures/corrective measures
1. Original is conveyed erratically.	
Dirty or deformed front upper, middle upper, rear upper, front lower or rear lower original roller(s).	Clean or replace any of the front upper, middle upper, rear upper, front lower and rear lower original rollers if necessary.
Original feed section drive system problem.	Check the gears and belts. Grease the gears or readjust the belt tension if necessary.
Original cover installed incorrectly.	Reinstall.
2. Deformed press roller.	Replace the press roller (see page 1-6-37).
3. Paper conveying drive system problem.	Check the gears and belts. Grease the gears or readjust the belt tension if necessary.

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

Causes

1. Misadjusted leading edge registration.

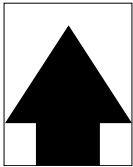


Causes	Check procedures/corrective measures
1. Misadjusted leading edge registration.	Run maintenance item U066 and readjust the leading edge registration (see page 1-6-44).

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

Causes

1. Roll registration clutch or bypass registration clutch installed or operating incorrectly.

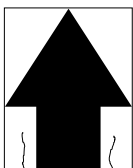


Causes	Check procedures/corrective measures
1. Roll registration clutch or bypass registration clutch installed or operating incorrectly.	Check the installation position and operation of each clutch; if it has any operation problem, replace it.

(13) Paper creases.

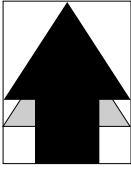
Causes

1. Paper curled.
2. Paper damp.
3. Misadjusted fixing pressure.



Causes	Check procedures/corrective measures
1. Paper curled.	Check the paper storage conditions.
2. Paper damp.	Check the paper storage conditions.
3. Misadjusted fixing pressure.	Check if the fixing pressure adjustment nuts are tightened correctly and, if not, remedy.

(14) Offset occurs.

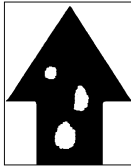


Causes

1. Defective cleaning blade.
2. Right, middle or left cleaning lamp fails to light.

Causes	Check procedures/corrective measures
1. Defective cleaning blade.	Replace the cleaning blade (see page 1-6-29).
2. Right, middle or left cleaning lamp fails to light.	Run maintenance item U105. If right, middle or left cleaning lamp is not lit with the connectors securely connected, replace the lamp.

(15) Image is partly missing.

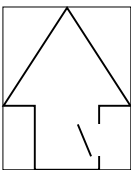


Causes

1. Paper damp.
2. Paper creased.
3. Flawed drum.
4. Deformed pre-transfer inner upper guide.

Causes	Check procedures/corrective measures
1. Paper damp.	Check the paper storage conditions.
2. Paper creased.	Change the paper.
3. Flawed drum.	Replace the drum (see page 1-6-18).
4. Deformed pre-transfer inner upper guide.	Remedy or replace.

(16) Fixing is poor.

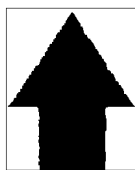


Causes

1. Wrong paper.
2. Misadjusted fixing pressure.
3. Misadjusted fixing temperature.
4. Flawed press roller.

Causes	Check procedures/corrective measures
1. Wrong paper.	Check if the paper meets specifications.
2. Misadjusted fixing pressure.	Check if the fixing pressure adjustment nuts are tightened correctly and, if not, remedy.
3. Misadjusted fixing temperature.	Readjust the fixing temperature in the user default.
4. Flawed press roller.	Replace the press roller (see page 1-6-37).

(17) Image is out of focus.

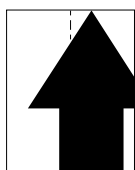


Causes

1. LPH installed incorrectly.
2. Defective LPH.
3. Defective CIS.

Causes	Check procedures/corrective measures
1. LPH installed incorrectly.	Run maintenance item U461 by selecting "Adjust Focus" and output the test pattern for image focus adjustment. If the image is not correct, adjust the LPH position (see page 1-6-7).
2. Defective LPH.	After adjusting the LPH position, run maintenance item U461 by selecting "Adjust Focus". If the test pattern is still not correct, replace the LPH.
3. Defective CIS.	If the image is still out of focus during normal copying after the correct pattern has been obtained by maintenance item U461 by selecting "Adjust Focus", replace the CIS.

(18) The center of the image is misaligned with the original.

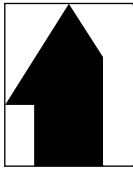


Causes

1. Paper roll is not installed correctly on the roll shaft.
2. Paper is not placed correctly on the bypass table.
3. Original is not placed correctly.

Causes	Check procedures/corrective measures
1. Paper roll is not installed correctly on the roll shaft.	Correct.
2. Paper is not placed correctly on the bypass table.	Correct.
3. Original is not placed correctly.	Correct.

(19) One forth the A0 width of the image is white.



Causes

1. Defective CIS or ISU PCB.
2. Defective LPH.

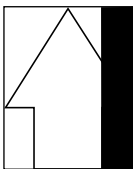
Causes	Check procedures/corrective measures
1. Defective CIS or ISU PCB.	Change the connections of the CIS and ISU PCB as shown in the following example to locate the problem.
2. Defective LPH.	Run maintenance item U451. If no gray pattern is output, replace the LPH (see page 1-6-6).

Example

If there is a problem with CN3 (CN1) but CN4 (CN2) to CN6 (CN4) are normal, check by swapping the connections of CN1 – CN3 and CN2 – CN4 of the CIS and ISU PCB.

When connection between CN2 of the CIS with CN3 of the ISU PCB are normal.	Connect CN1 of the CIS to CN4 of the ISU PCB. If there is a problem, the CIS is defective. Replace the CIS.
When connection between CN1 of the CIS with CN4 of the ISU PCB are normal.	Connect CN2 of the CIS to CN3 of the ISU PCB. If there is a problem, the ISU PCB is defective. Replace the ISU PCB.

(20) One forth the A0 width of the image is black.



Causes

1. Defective CIS or ISU PCB.
2. Defective LPH.

See “(19) One forth the A0 width of the image is white” for check procedures and corrective measures.

1-5-4 Electrical problems

Problem	Causes	Check procedures/corrective measures
(1) The machine does not operate at all when the main switch is turned on.	There is no power at the wall outlet.	Measure the input voltage.
	The power plug is not connected correctly.	Check that the power cord is firmly connected to the outlet.
	The power cord has a break.	Check for continuity. If none, replace the power cord.
	The noise filter on the power source PCB is defective.	Check for continuity across the input and output terminals. If none, replace the filter.
	The main switch is defective.	Check for continuity across the contacts. If none, replace the switch.
	The fuse on the power source PCB is blown.	Check for continuity across the fuse. If none, find the cause of fuse blowing and replace it.
	The power source PCB is defective.	Check if 24 V, 5 V, 3 V, -5 V and 12 V DC are output when AC is supplied. If not, replace the PCB.
(2) The main motor does not operate.	The engine main PCB is defective.	Run maintenance item U030 by selecting "Main/Drum Motor". If CN7-7 on the engine main PCB does not go low, replace the PCB.
	The main motor is defective.	Run maintenance item U030 by selecting "Main/Drum Motor". If CN7-7 on the engine main PCB goes low but the main motor does not rotate, replace the motor.
(3) The drum motor does not operate.	The drum motor is defective.	Run maintenance item U030 by selecting "Main/Drum Motor". If CN7-3 on the engine main PCB goes low but the drum motor does not rotate, replace the motor.
	The engine main PCB is defective.	Run maintenance item U030 by selecting "Main/Drum Motor". If CN7-3 on the engine main PCB does not go low, replace the PCB.
(4) The fixing motor does not operate.	The fixing motor is defective.	Run maintenance item U030 by selecting "Fixing motors". If CN7-5 on the engine main PCB goes low but the fixing motor does not rotate, replace the motor.
	The engine main PCB is defective.	Run maintenance item U030 by selecting "Fixing motors". If CN7-5 on the engine main PCB does not go low, replace the PCB.
(5) The paper feed motor does not operate.	The paper feed motor is defective.	Run maintenance item U030 by selecting "Feed motors". If CN7-1 on the engine main PCB goes low but the paper feed motor does not rotate, replace the motor.
	The engine main PCB is defective.	Run maintenance item U030 by selecting "Feed motors". If CN7-1 on the engine main PCB does not go low, replace the PCB.

Problem	Causes/check procedures	Corrective measures
(6) The original feed motor does not operate.	The original feed motor coil is broken.	Check for continuity across the coil. If none, replace the original feed motor.
	The original motor PCB is defective.	Run maintenance item U073. If the CN1-4 on the original motor PCB goes low but the original motor does not rotate, replace the PCB.
	The scanner PCB is defective.	Run maintenance item U073. If CN8-1 on the scanner PCB does not go low, replace the PCB.
(7) The toner feed motor does not operate.	The toner feed motor coil is broken.	Check for continuity across the coil. If none, replace the toner feed motor.
	The engine main PCB is defective.	Run maintenance item U135. If 24 V DC is not output across CN4-1 and CN4-2 on the engine main PCB, replace the PCB.
(8) The paper conveying fan motor does not operate.	The paper conveying fan motor is defective.	Run maintenance item U037 by selecting "Convey". If CN4-14 on the engine main PCB goes low but the paper conveying fan motor does not rotate, replace the motor.
	The engine main PCB is defective.	Run maintenance item U037 by selecting "Convey". If CN4-14 on the engine main PCB does not go low, replace the PCB.
(9) The fixing unit fan motor does not operate.	The fixing unit fan motor is defective.	Run maintenance item U037 by selecting "Fixing". If CN4-10 and CN4-12 on the main PCB go low but the fixing unit fan motor does not rotate, replace the motor.
	The engine main PCB is defective.	Run maintenance item U037 by selecting "Fixing". If CN4-10 and CN4-12 on the engine main PCB do not go low, replace the PCB.
(10) LPH fan motor does not operate.	The LPH fan motor coil is broken.	Check for continuity across the coil. If none, replace LPH fan motor.
	LPH fan motor is defective.	Run maintenance item U037 by selecting "LPH". If CN16-9 on the engine main PCB goes low but LPH fan motor does not rotate, replace the motor.
	The engine main PCB is defective.	Run maintenance item U037 by selecting "LPH". If CN16-9 on the engine main PCB does not go low, replace the PCB.
	The LPH fan motor is defective.	If the LPH fan motor does not rotate with power relay 1 on, replace the motor.
(11) The upper roll winding clutch* does not operate.	The upper roll winding clutch coil is broken.	Check for continuity across the coil. If none, replace the upper roll winding clutch.
	The connector terminals of the upper roll winding clutch make poor contact.	Check for continuity across the terminals. If none, replace them.
	The engine main PCB is defective.	Run maintenance item U032 by selecting "CL1". If CN6-9 on the engine main PCB does not go low, replace the PCB.

* Optional

Problem	Causes/check procedures	Corrective measures
(12) The middle roll winding clutch does not operate.	The middle roll winding clutch coil is broken.	Check for continuity across the coil. If none, replace the middle roll winding clutch.
	The connector terminals of the middle roll winding clutch make poor contact.	Check for continuity across the terminals. If none, replace them.
	The engine main PCB is defective.	Run maintenance item U032 by selecting "CL2". If CN6-10 on the engine main PCB does not go low, replace the PCB.
(13) The lower roll winding clutch does not operate.	The lower roll winding clutch coil is broken.	Check for continuity across the coil. If none, replace the lower roll winding clutch.
	The connector terminals of the lower roll winding clutch make poor contact.	Check for continuity across the terminals. If none, replace them.
	The engine main PCB is defective.	Run maintenance item U032 by selecting "CL3". If CN6-11 on the engine main PCB does not go low, replace the PCB.
(14) The upper feed clutch* does not operate.	The upper feed clutch coil is broken.	Check for continuity across the coil. If none, replace the upper feed clutch.
	The connector terminals of the upper feed clutch make poor contact.	Check for continuity across the terminals. If none, replace them.
	The engine main PCB is defective.	Run maintenance item U032 by selecting "Feed 1". If CN6-6 on the engine main PCB does not go low, replace the PCB.
(15) The middle feed clutch does not operate.	The middle feed clutch coil is broken.	Check for continuity across the coil. If none, replace the middle feed clutch.
	The connector terminals of the middle feed clutch make poor contact.	Check for continuity across the terminals. If none, replace them.
	The engine main PCB is defective.	Run maintenance item U032 by selecting "Feed 2". If CN6-7 on the engine main PCB does not go low, replace the PCB.
(16) The lower feed clutch does not operate.	The lower feed clutch coil is broken.	Check for continuity across the coil. If none, replace the lower feed clutch.
	The connector terminals of the lower feed clutch make poor contact.	Check for continuity across the terminals. If none, replace them.
	The engine main PCB is defective.	Run maintenance item U032 by selecting "Feed 3". If CN6-8 on the engine main PCB does not go low, replace the PCB.
(17) The roll feed clutch does not operate.	The roll feed clutch coil is broken.	Check for continuity across the coil. If none, replace the roll feed clutch.
	The connector terminals of the roll feed clutch make poor contact.	Check for continuity across the terminals. If none, replace them.
	The engine main PCB is defective.	Run maintenance item U032 by selecting "Roll feed". If CN6-5 on the engine main PCB does not go low, replace the PCB.

* Optional

Problem	Causes/check procedures	Corrective measures
(18) The roll registration clutch does not operate.	The roll registration clutch coil is broken.	Check for continuity across the coil. If none, replace the roll registration clutch.
	The connector terminals of the roll registration clutch make poor contact.	Check for continuity across the terminals. If none, replace them.
	The engine main PCB is defective.	Run maintenance item U032 by selecting "Roll resi.". If CN6-4 on the engine main PCB does not go low, replace the PCB.
(19) The bypass registration clutch does not operate.	The bypass registration clutch coil is broken.	Check for continuity across the coil. If none, replace the bypass registration clutch.
	The connector terminals of the bypass registration clutch make poor contact.	Check for continuity across the terminals. If none, replace them.
	The engine main PCB is defective.	Run maintenance item U032 by selecting "BPResist". If CN6-1 on the engine main PCB does not go low, replace the PCB.
(20) The bypass feed clutch does not operate.	The bypass feed clutch coil is broken.	Check for continuity across the coil. If none, replace the bypass feed clutch.
	The connector terminals of the bypass feed clutch make poor contact.	Check for continuity across the terminals. If none, replace them.
	The engine main PCB is defective.	Run maintenance item U032 by selecting "BPFeed". If CN6-2 on the engine main PCB does not go low, replace the PCB.
(21) The right or left xenon lamp does not light.	The right or left inverter PCB is defective.	Run maintenance item U061. If CN1-2 on the right or left inverter PCB goes low but the right or left xenon lamp does not light, replace the PCB.
	The scanner PCB is defective.	Run maintenance item U061. If CN8-5 or CN8-6 on the scanner PCB does not go low, replace the PCB.
	The CIS is defective.	Run maintenance item U061. If CN8-5 or CN8-6 on the scanner PCB goes low but the right or left xenon lamp does not light, replace the CIS.
(22) The right or left xenon lamp does not go off.	The right or left inverter PCB is defective.	Check if the right or left xenon lamp goes off when CN1-2 on the right or left inverter PCB is high. If not, replace the PCB.
	The scanner PCB is defective.	Check if CN8-5 or CN8-6 on the scanner PCB remains low constantly. If so, replace the PCB.
(23) The right, middle or left cleaning lamp does not light.	The right, middle or left cleaning lamp has a break.	Check for continuity across the coil. If none, replace the right, middle or left cleaning lamp.
	The engine main PCB is defective.	Run maintenance item U105. If CN6-16 on the engine main PCB does not go low, replace the PCB.

Problem	Causes/check procedures	Corrective measures
(24) The main fixing heater does not turn on.	The main fixing heater has a break.	Check for continuity across the terminals. If none, replace the main fixing heater (see page 1-6-34).
	Fixing unit thermistor 1 has a break.	Measure the resistance. If it is 0Ω , replace fixing unit thermistor 1 (see page 1-6-38).
	The fixing unit thermostat operates.	Check for continuity across the terminals. If none, replace the fixing unit thermostat (see page 1-6-40).
	The power source PCB is defective.	Run maintenance item U196 by selecting "HEAT1". If CN9-3 on the power source PCB goes low but the main fixing heater does not turn on, replace the PCB.
	The engine main PCB is defective.	Run maintenance item U196 by selecting "HEAT1". If CN4-8 on the engine main PCB does not go low, replace the PCB.
(25) The sub fixing heater does not turn on.	The sub fixing heater has a break.	Check for continuity across the terminals. If none, replace the sub fixing heater (see page 1-6-34).
	Fixing unit thermistor 2 has a break.	Measure the resistance. If it is 0Ω , replace fixing unit thermistor 2 (see page 1-6-38).
	The fixing unit thermostat operates.	Check for continuity across the terminals. If none, replace the fixing unit thermostat (see page 1-6-40).
	The power source PCB is defective.	Run maintenance item U196 by selecting "HEAT2". If CN9-4 on the power source PCB goes low but the sub fixing heater does not turn on, replace the PCB.
	The engine main PCB is defective.	Run maintenance item U196 by selecting "HEAT2". If CN4-9 on the engine main PCB does not go low, replace the PCB.
(26) The main fixing heater fails to turn off.	The thermal sensing section of fixing unit thermistor 1 is dirty.	Visually check and clean if necessary.
	Fixing unit thermistor 1 is shorted.	Measure the resistance. If it is $\infty\Omega$, replace fixing unit thermistor 1 (see page 1-6-38).
	The power source PCB is defective.	Check if CN9-3 on the power source PCB remains low constantly. If so, replace the PCB.
	The engine main PCB is defective.	Check if CN4-8 on the engine main PCB remains low constantly. If so, replace the PCB.
(27) The sub fixing heater fails to turn off.	The thermal sensing section of fixing unit thermistor 2 is dirty.	Visually check and clean if necessary.
	Fixing unit thermistor 2 is shorted.	Measure the resistance. If it is $\infty\Omega$, replace fixing unit thermistor 2 (see page 1-6-38).
	The power source PCB is defective.	Check if CN9-4 on the power source PCB remains low constantly. If so, replace the PCB.
	The engine main PCB is defective.	Check if CN4-9 on the engine main PCB remains low constantly. If so, replace the PCB.

Problem	Causes/check procedures	Corrective measures
(28) No main charging.	The main charger wire is broken.	Replace the main charger wire (see page 1-6-22).
	The main charger unit leaks.	Clean the main charger unit.
	The main high-voltage transformer connectors make poor contact.	Check for continuity across the terminals. If none, replace the terminals.
	The main high-voltage transformer is defective.	During copying, if CN1-3 on the main high-voltage transformer goes low but the main charging is not conducted, replace the transformer.
	The engine main PCB is defective.	If CN6-12 on the engine main PCB does not go low during copying, replace the PCB.
(29) No transfer charging.	The transfer charger wire is broken.	Replace the transfer charger wire (see page 1-6-24).
	The transfer charger unit leaks.	Clean the transfer charger unit.
	The ST high-voltage transformer connectors make poor contact.	Check for continuity across the terminals. If none, replace the terminals.
	The ST high-voltage transformer is defective.	Run maintenance item U101 by selecting "TC: ON". If CN1-1 on the ST high-voltage transformer or CN4-3 on the engine main PCB goes low but the transfer charging is not conducted, replace the transformer.
	The engine main PCB is defective.	Run maintenance item U101 by selecting "TC: ON". If CN4-3 on the engine main PCB does not go low, replace the PCB.
(30) No separation charging.	The separation charger wire is broken.	Visually check. Replace the wire if necessary (see page 1-6-24).
	The ST high-voltage transformer connectors make poor contact.	Check if the connectors are securely connected. If not, remedy. Check for continuity across the terminals. If none, replace them.
	The ST high-voltage transformer is defective.	Run maintenance item U101 by selecting "AC: ON". If CN1-2 on the ST high-voltage transformer CN4-4 on the engine main PCB goes low but the separation charging is not conducted, replace the PCB.
	The engine main PCB is defective.	Run maintenance item U101 by selecting "AC: ON". If CN4-4 on the engine main PCB does not go low, replace the PCB.
(31) No developing bias voltage.	The main high-voltage transformer connectors are loosely connected or are making poor contacts.	Check if the connectors are securely connected. If not, remedy. Check for continuity across the terminals. If none, replace them.
	The main high-voltage transformer is defective.	Run maintenance item U140. If CN1-6 on the main high-voltage transformer goes low but the developing bias voltage is not output, replace the transformer.
	The engine main PCB is defective.	Run maintenance item U140. If CN6-13 on the engine main PCB does not go low, replace the PCB.

Problem	Causes/check procedures	Corrective measures
(32) The scan stop key does not operate.	The operation unit PCB is defective.	If CN2-3 on the operation unit PCB does not go low when the scan stop key is pressed, replace the PCB.
(33) The drum heater does not operate.	The drum heater wire is broken.	Measure the resistance across the terminals. If it is $\infty\Omega$, replace the drum heater.
(34) The upper roll unit heater* does not operate.	The upper roll unit heater has a break.	Measure the resistance across the terminals. If it is $\infty\Omega$, replace the upper roll unit heater.
	The upper roll unit heater switch is defective.	Check for continuity across the upper roll unit heater switch. If none with the switch set to on, replace it.
	The power source PCB is defective.	If the upper roll unit heater does not operate with CN9-5 on the power source PCB low, replace the PCB.
	The engine main PCB is defective.	If the upper roll unit heater does not operate with CN4-11 on the engine main PCB low, replace the PCB.
(35) The middle roll unit heater does not operate.	The middle roll unit heater has a break.	Measure the resistance across the terminals. If it is $\infty\Omega$, replace the middle roll unit heater.
	The middle roll unit heater switch is defective.	Check for continuity across the middle roll unit heater switch. If none with the switch set to on, replace it.
	The power source PCB is defective.	If the middle roll unit heater does not operate with CN9-5 on the power source PCB low, replace the PCB.
	The engine main PCB is defective.	If the middle roll unit heater operates with CN4-11 on the engine main PCB low, replace the PCB.
(36) The lower roll unit heater does not operate.	The lower roll unit heater has a break.	Measure the resistance across the terminals. If it is $\infty\Omega$, replace the lower roll unit heater.
	The lower roll unit heater switch is defective.	Check for continuity across the lower roll unit heater switch. If none with the switch set to on, replace it.
	The power source PCB is defective.	If the lower roll unit heater does not operate with CN9-5 on the power source PCB low, replace the PCB.
	The engine main PCB is defective.	If the lower roll unit heater operates with CN4-11 on the engine main PCB low, replace the PCB.
(37) The separation claw solenoid does not operate.	The separation claw solenoid connectors make poor contact.	Check for continuity across the terminals. If none, replace the separation claw solenoid.
	The engine main PCB is defective.	Run maintenance item U033 by selecting "Separa. of solenoids". If CN6-15 on the engine main PCB does not go low, replace the PCB.

* Optional

1-5-5 Mechanical problems

Problem	Causes/check procedures	Corrective measures
(1) No primary paper feed.	Check if the surface of the roll paper feed upper and lower rollers of the upper roll unit* is dirty with paper powder.	If they are, clean with isopropyl alcohol.
	Check if the roll paper feed upper and lower rollers of the upper roll unit* are deformed or worn.	If it is, replace.
	Check if the surface of the roll paper feed upper and lower rollers of the middle roll unit is dirty with paper powder.	If they are, clean with isopropyl alcohol.
	Check if the roll paper feed upper and lower rollers of the middle roll unit are deformed or worn.	If it is, replace.
	Check if the surface of the roll paper feed upper and lower rollers of the lower roll unit is dirty with paper powder.	If they are, clean with isopropyl alcohol.
	Check if the roll paper feed upper and lower rollers of the lower roll unit are deformed or worn.	If it is, replace.
	After inserting the cutter, check if the surface of the rollers is dirty with paper powder.	If they are, clean with isopropyl alcohol.
	After inserting the cutter, check if the rollers are deformed or worn.	If it is, replace.
	Check if the bypass registration switch operates correctly.	If CN3-12 on the engine main PCB does not change levels when the bypass registration switch is turned on and off, replace the switch.
	Check if the bypass registration switch actuator is broken.	If it is, replace the switch.
	Check if the surface of the bypass paper feed roller, bypass upper roller and bypass lower roller is dirty with paper powder.	If they are, clean with isopropyl alcohol.
	Check if the bypass paper feed roller, bypass upper roller and bypass lower roller are deformed or worn.	If it is, replace.
	Check if the upper*, middle and lower feed clutches, roll registration clutch, bypass feed clutch, bypass registration clutch and roll feed clutch are installed correctly.	If not, reinstall.
	Check if the upper*, middle and lower feed clutches, roll registration clutch, bypass feed clutch, bypass registration clutch and roll feed clutch operate correctly.	If not, replace the component.
Check if paper feed section drive belts 1 and 2 are installed correctly.	If not, reinstall.	

* Optional

Problem	Causes/check procedures	Corrective measures
(2) No secondary paper feed.	Check if the surfaces of the roll registration roller and roll registration pulley is dirty with paper powder.	If they are, clean with isopropyl alcohol.
	Check if the surfaces of the bypass upper roller, bypass lower roller, pre-transfer pulley and pre-transfer roller is dirty with paper powder.	If they are, clean with isopropyl alcohol.
	Check if the roll registration clutch and bypass registration clutch are installed correctly.	If not, reinstall.
	Check if the roll registration clutch and bypass registration clutch operate correctly.	If not, replace.
(3) No original conveying.	Check if the surfaces of the front upper, middle upper, rear upper, front lower and rear lower original rollers is dirty with paper powder.	If they are, clean with isopropyl alcohol.
	Check if the front upper and rear upper original rollers are deformed or worn.	If it is, replace.
	Check if the original leading edge switch operates correctly.	If CN7-1 on the scanner PCB does not change levels when the original leading edge switch is turned on and off, replace the switch.
	Check if the actuator of the original leading edge switch is broken.	If it is, replace the switch.
	Check if the original trailing edge switch operates correctly.	If CN7-2 on the scanner PCB does not change levels when the original trailing edge detection switch is turned on and off, replace the switch.
	Check if the actuator of the original trailing edge switch is broken.	If it is, replace the switch.
	Check if original feed section drive belts 1 and 2 are installed correctly.	If not, reinstall.
(4) Original jam.	Check if the original cover is installed correctly.	If not, reinstall.
	Check if a guide plate or other component along the original conveying path is deformed.	If it is, correct or replace.

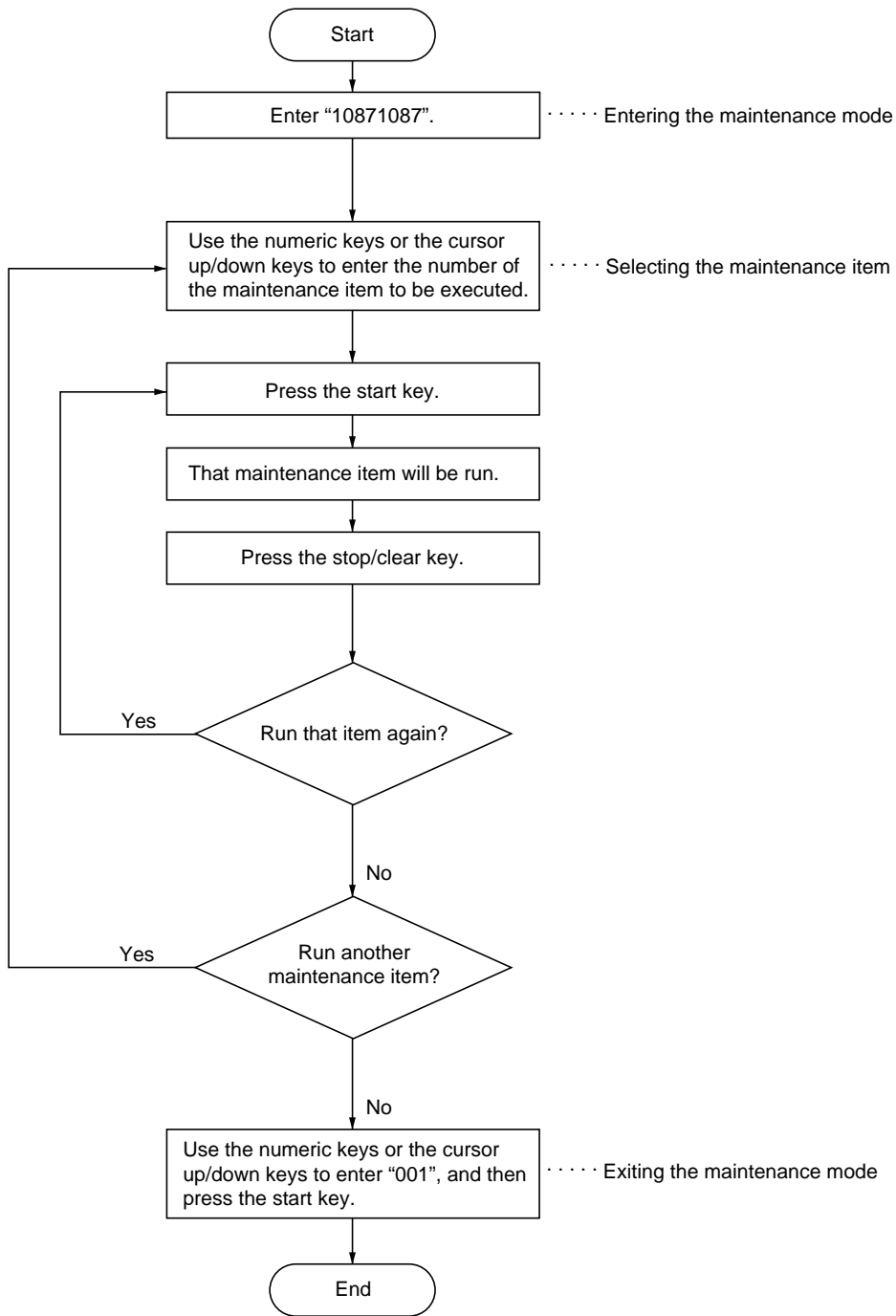
Problem	Causes/check procedures	Corrective measures
(5) Paper jam.	Check the paper.	If the paper is extremely curled or has other problems, replace.
	Check if the separation charger wire on the transfer charger unit is broken.	If it is, replace (see page 1-6-24).
	Check if the paper conveying fan motor rotates correctly.	If not, replace.
	Check if a guide plate or other component along the paper conveying path is deformed.	If it is, correct or replace.
	Check if the press roller separation claws or the heat roller is extremely dirty.	If it is, clean.
	Check if the press roller separation claw or the heat roller is deformed.	If it is, replace (see page 1-6-37).
	Check if the oil roller is extremely dirty.	If it is, replace (see page 1-6-33).
	Check if the separation claw solenoid is defective.	See page 1-5-34.
(6) Toner falls onto the paper conveying section.	Check if the developing section is extremely dirty.	If it is, clean the developing section and around that area.
	Check if the lower cleaning seal is deformed.	If it is, replace (see page 1-6-30).
(7) Abnormal noise.	Check if all the rollers and gears rotate smoothly.	If there is a problem, grease the bearings and gears.
	Check if all the drive belts are tensioned correctly.	If not, adjust.

1-6-1 Cautions during disassembly and assembly

(1) Caution

- When carrying out disassembly, be sure to turn the main switch off and pull out the power cord before starting.
- When handling PCBs avoid touching PCB connectors with the bare hands or scratching equipment.
- When ICs are used on PCBs, do not touch the board with the bare hands or with objects charged with static electricity.
- When replacing the fixing unit thermal switches (thermostats), be sure to use the specified part. If a simple wire is used instead, damage to the machine may occur.
- Use one of the testers shown below when measuring voltage:
 - HIOKI 3200
 - SANWA MD-180C
 - SANWA YX-360TR
 - BECKMAN TECH300
 - BECKMAN 3030: Possible to measure RMS values
 - BECKMAN 330: Possible to measure RMS values
 - BECKMAN DM45
 - BECKMAN DM850: Possible to measure RMS values
 - FLUKE 8060A: Possible to measure RMS values
 - ARLEC DMM1050
 - ARLEC YF1030C
- Originals used.
 1. NTC (new test chart)
 2. NPTC (newspaper test chart)

(2) Executing a maintenance item



1-6-2 Original feed and optical section

(1) Attachment and removal of the contact image sensor

Follow the procedure below when replacing the contact image sensor.

Procedure

1. Open the detachable unit.
2. Remove the left upper cover, left center cover, right upper cover and right center cover.
3. Open the original cover.
4. Remove the screw holding the ISU cover. Slide the ISU cover to the right and then detach it.

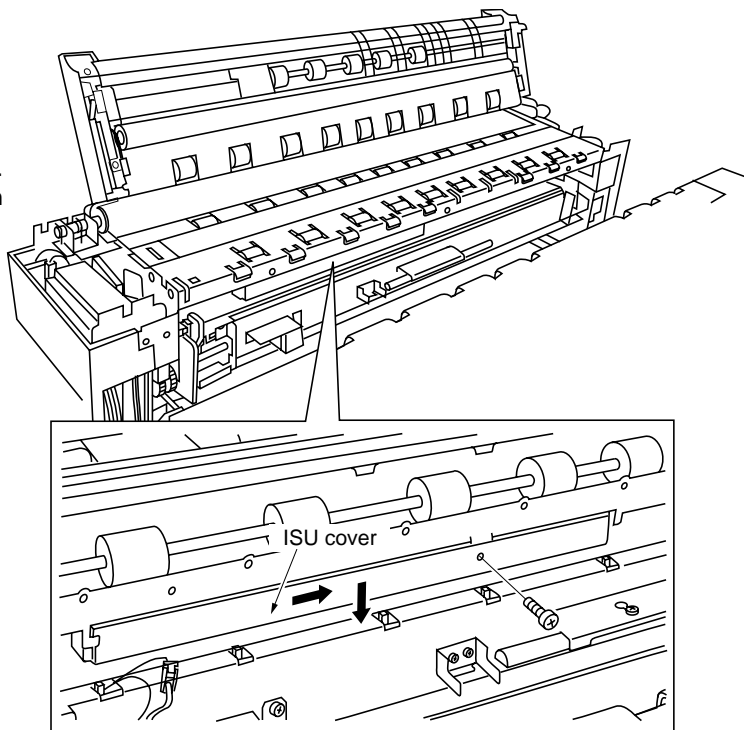


Figure 1-6-1

5. Remove the four connectors to the contact image sensor that is connected to the ISU PCB.

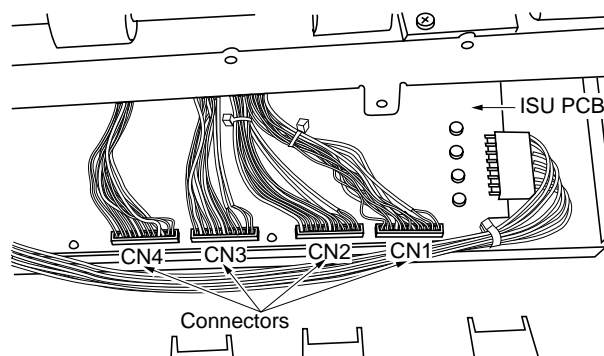


Figure 1-6-2

6. Remove the three screws and rotate the flywheel in a counterclockwise direction in order to detach it.

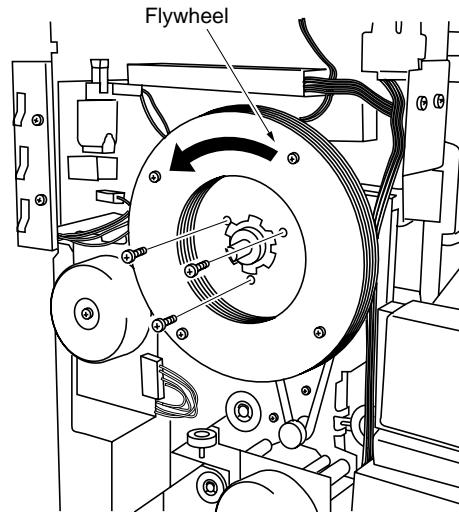


Figure 1-6-3

7. Remove the 4-pin connectors to the left and right xenon lamps which are connected respectively to the left and right inverter PCBs.

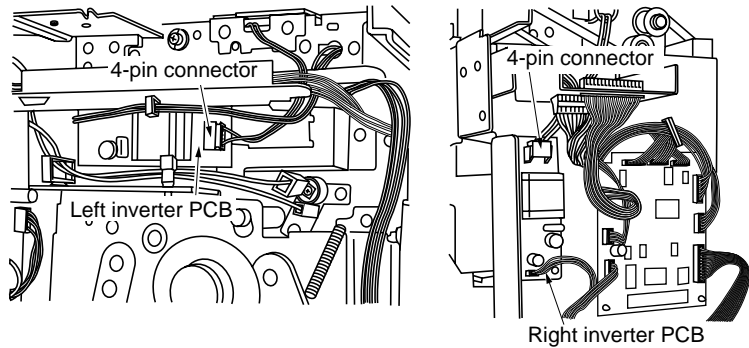


Figure 1-6-4

8. Remove the four screws holding the contact image sensor and then detach the contact image sensor from the main unit.

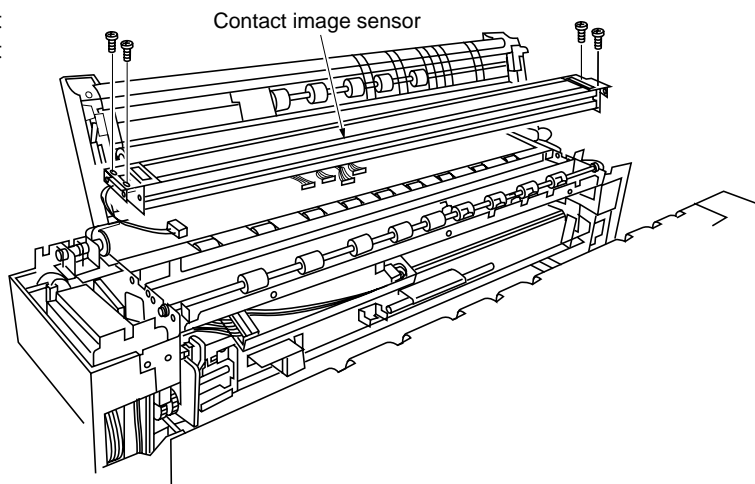


Figure 1-6-5

9. After replacing the contact image sensor, refit all the removed parts.
* Refit the four connectors of the contact image sensors to the ISU PCB so that numbers CN1 to CN4 indicated on the connectors match connector numbers CN1 to CN4 on the ISU PCB (see Figure 1-6-2).

(2) Attachment and removal of the LED printhead

Follow the procedure below when cleaning or replacing the LED printhead.

Procedure

1. Detach the developing unit (see page 1-6-14), the cleaning unit (see page 1-6-28), and the drum (see page 1-6-18).
2. Remove the four screws holding the LPH partition. Then remove the 4-pin connector connected to the drum surface potential sensor PCB, and pull upwards in order to detach the LPH partition.

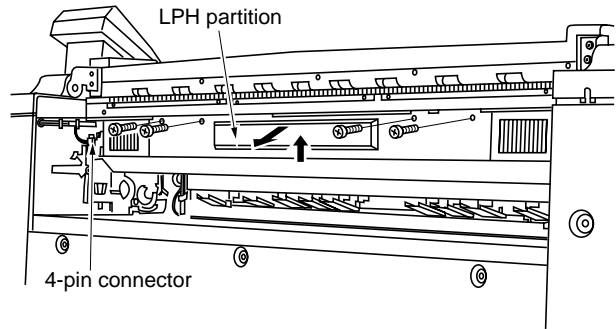


Figure 1-6-6

3. Remove the 4-pin connector, the 9-pin connector, the three 4-pin connectors of the main wires, and the black connector for the LPH data conduit, all connected to the LPH PCB.
4. Loosen the two screws for each of the left and right LPH retainers, raise the retainers and tighten the inside pins to fasten the retainers.
* When installing the LED printhead, lower the left and right LPH retainers in order to fasten the printhead.
5. Detach the LED printhead from the main unit.

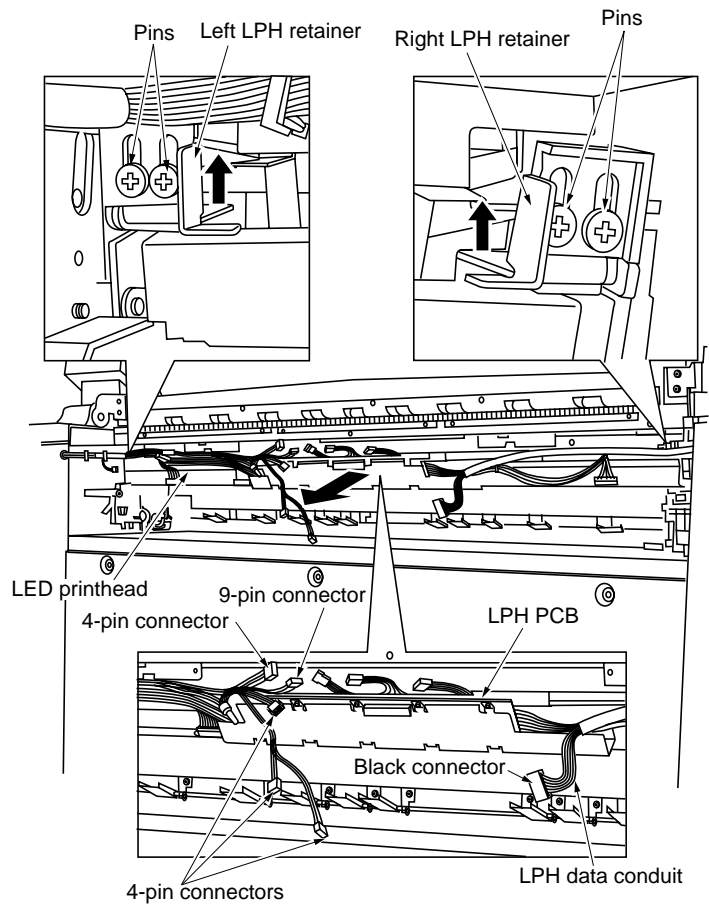


Figure 1-6-7

6. Remove the two screws and slide the LPH circuit mount to the left in order to detach it.
7. Remove the six connectors on the front side of the LED printhead.
* When installing the LED printhead, connect the connectors for the black wires to the front side of the LED printhead as shown in the figure.

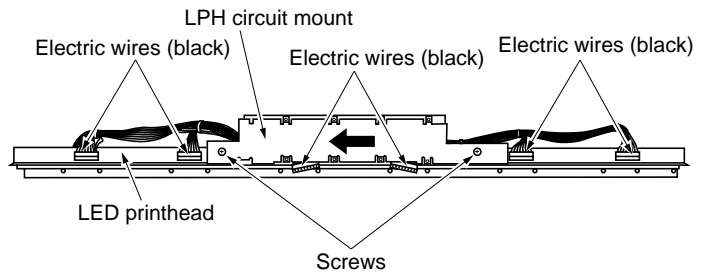


Figure 1-6-8

8. Turn the LED printhead over and remove the six connectors on the back side.
- * When installing the LED printhead, connect the connectors for the pink wires to the right side of the LED printhead and the connectors for the white wires to the left side of the LED printhead as shown in the figure.

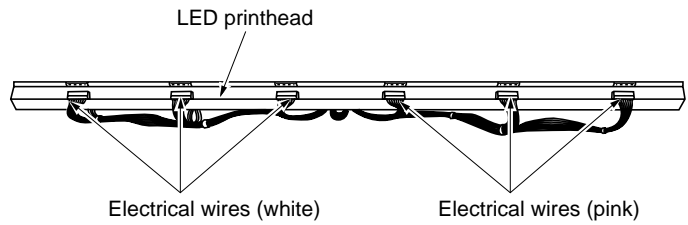


Figure 1-6-9

9. If the LED printhead has been replaced, replace the LPHROM (U12) on the LPH PCB with the LPHROM that is included with the new LED printhead.
- * Always use a PLCC removal tool when detaching the LPHROM from the LPH PCB. Always check whether the serial number of the LPHROM matches the serial number of the LED printhead to be installed.

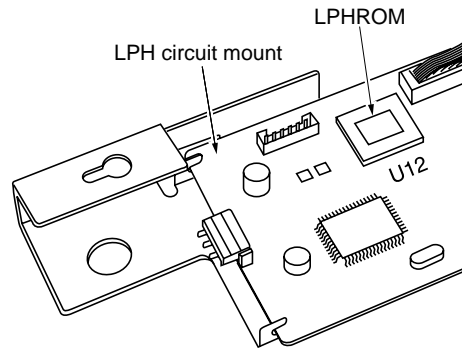


Figure 1-6-10

When replacing the LPH PCB, follow steps 10 to 12.

Replacing the LPH main PCB

10. Remove the six connectors from the LPH main PCB.
11. Remove the eight screws and then detach the LPH PCB from the LPH main circuit mount.
12. Attach the LPHROM (U12) that was mounted on the old LPH PCB onto the new LPH PCB. If the LED printhead has been replaced, install the LPHROM that is included with the new LED printhead.

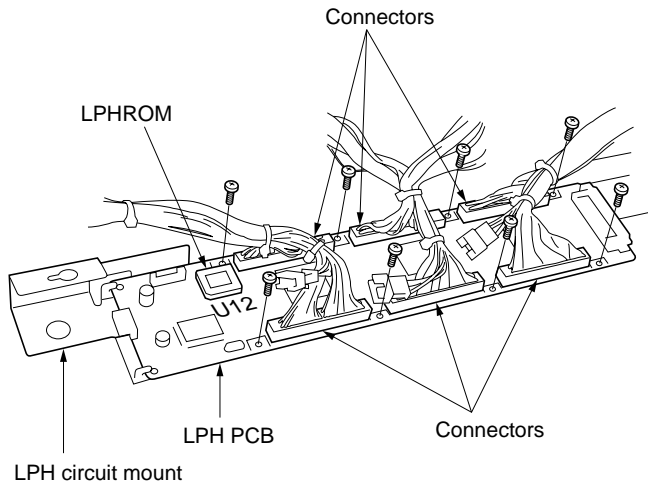


Figure 1-6-11

13. Refit all the removed parts.
14. Perform the adjustment of the image focus (LPH height adjustment) procedure. (See page 1-6-7.)

(3) Adjustment of the image focus (LPH height adjustment)

Perform after replacing the LED printhead.

Procedure

1. Perform adjustment of the image focus adjustment (maintenance item U461) and print out a test pattern.
2. Using a magnifying glass, check whether the lines of the smaller pattern are printed clearly or not.
If the test pattern obtained is not correct, follow the procedure from step 3.

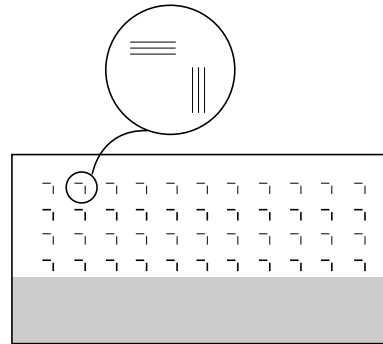


Figure 1-6-12

3. Remove the left upper cover, right upper cover, left lower cover and right center cover.
* With the connector to the operation panel still connected, move the right upper cover to the right and fasten it with the screws to that cover.

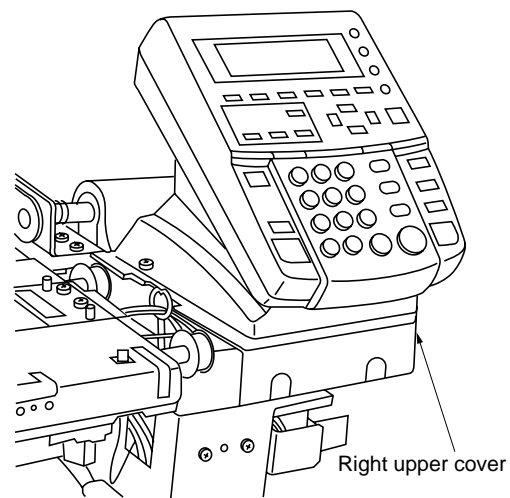


Figure 1-6-13

4. Loosen the two screws holding each of the LPH adjustment plates on the left and right sides of the main unit.
5. Adjust the height of the LPH by turning the left and right adjustment pins with a flat-head screw driver.
* Turn the adjustment pins clockwise to raise the LPH. Turn them counterclockwise to lower the LPH.
6. If a correct test pattern is obtained, refit all the removed parts.

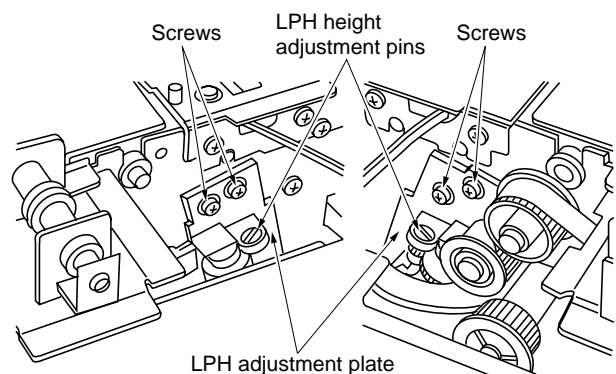


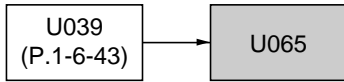
Figure 1-6-14

(4) Adjusting scanning magnification

Follow the procedure below when there is a magnification error between the original and the copy image.

Caution:

Before making the following adjustment, ensure that the below adjustment has been made in the maintenance mode.



Procedure

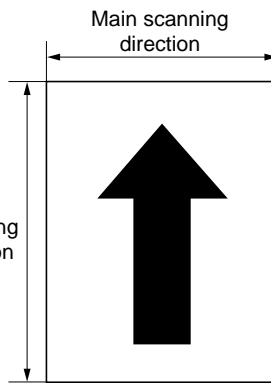
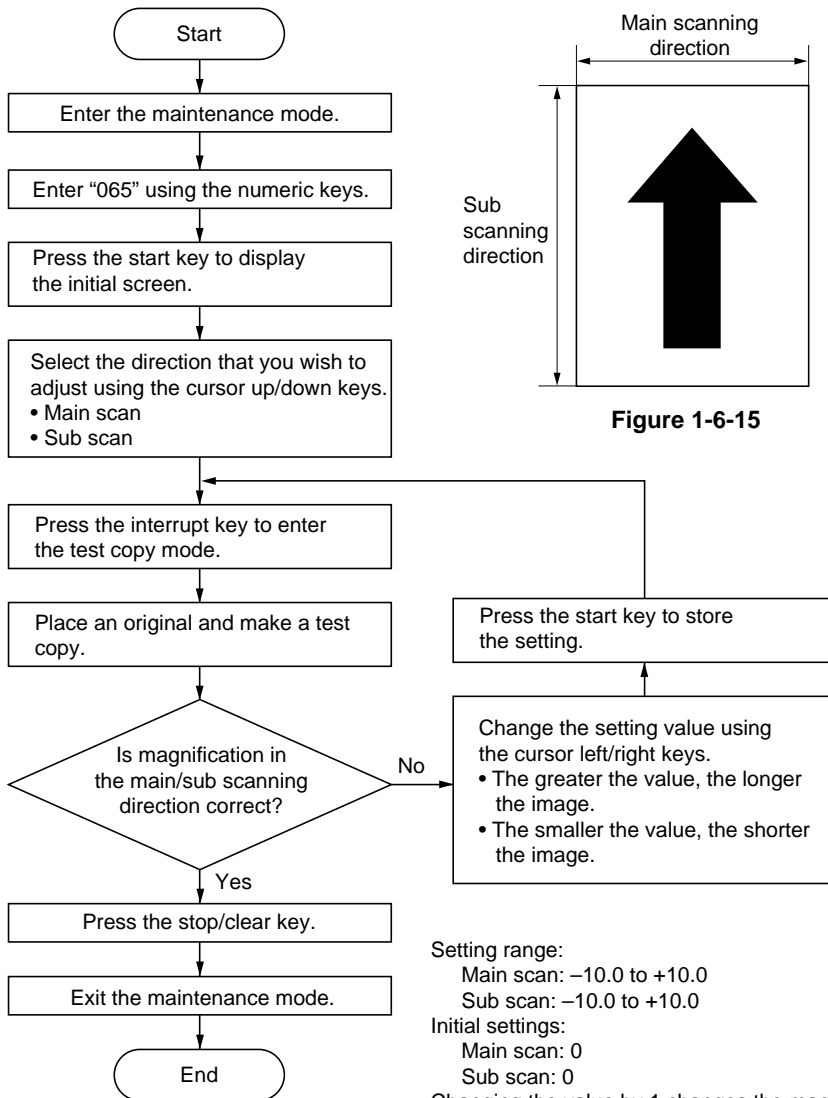


Figure 1-6-15

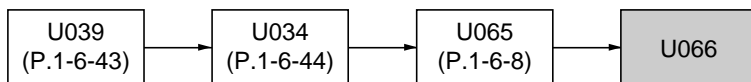
Setting range:
 Main scan: -10.0 to +10.0
 Sub scan: -10.0 to +10.0
 Initial settings:
 Main scan: 0
 Sub scan: 0
 Changing the value by 1 changes the magnification by 0.1% in the main scanning direction (1.0 mm for a 1000 mm original) and 0.5 mm in the sub scanning direction.

(5) Adjusting the scanner leading edge registration

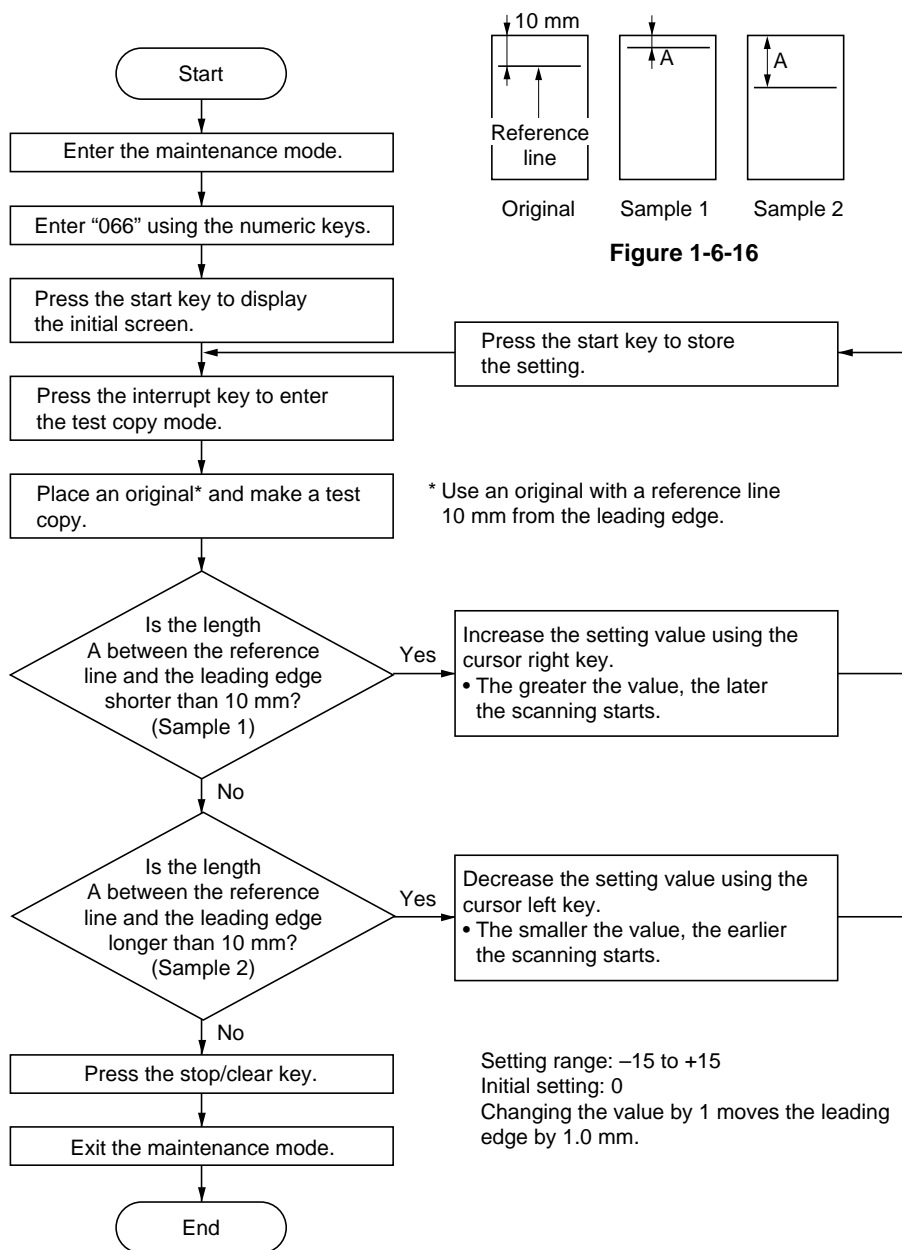
Follow the procedure below when there is a regular error between the leading edges of the original and the copy image.

Caution:

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



Procedure

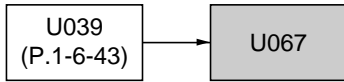


(6) Adjusting the optical axis (center line)

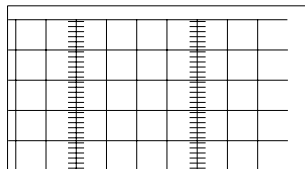
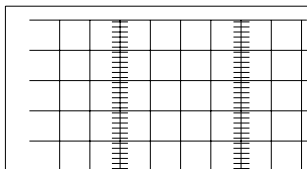
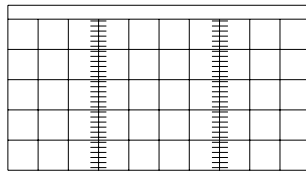
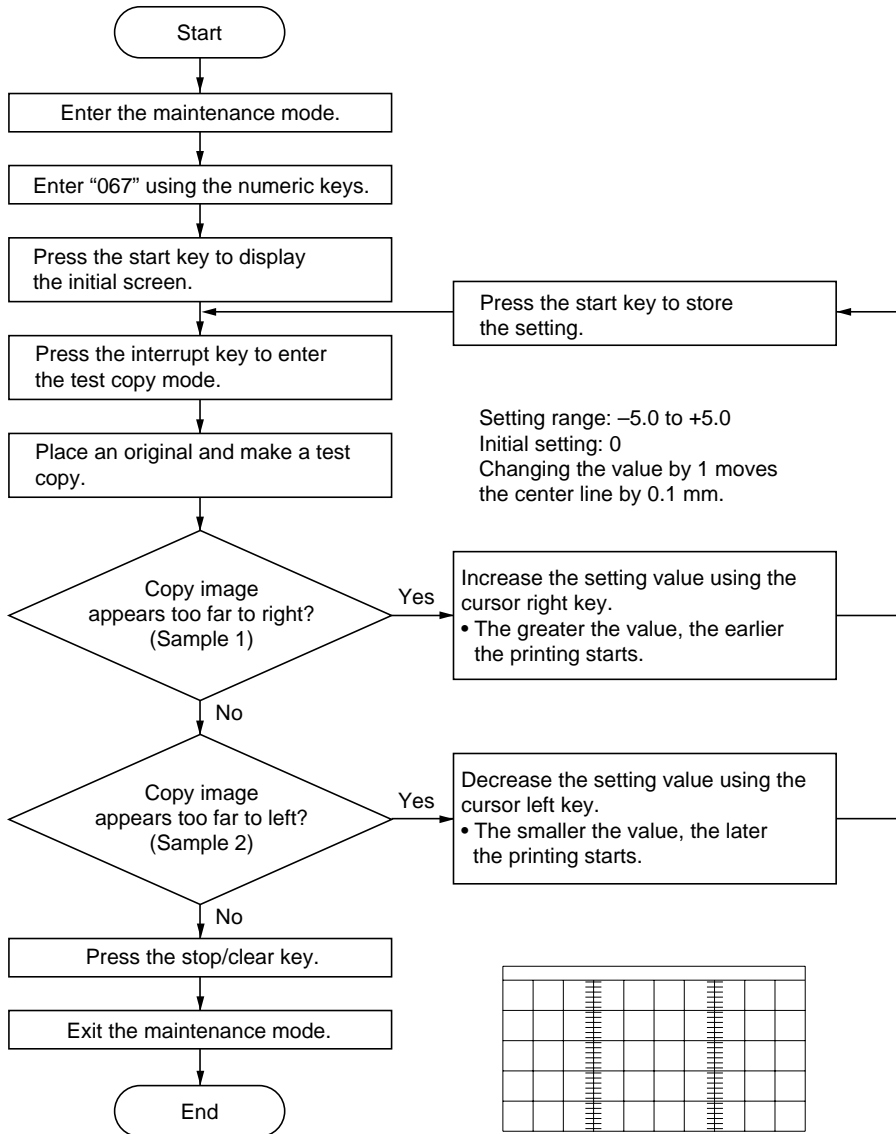
Follow the procedure below when there is a regular error between the center lines of the original and the copy image.

Caution:

Before making the following adjustment, ensure that the below adjustment has been made in the maintenance mode.



Procedure



Sample 1

Sample 2

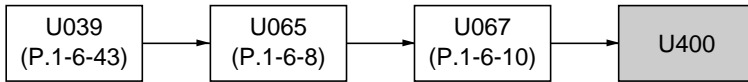
Figure 1-6-17

(7) Adjusting the image width in the main scanning direction

Follow the procedure below in order to widen the maximum LPH printing width when the edges in the main scanning direction of the copy image are missing.

Caution:

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



Procedure

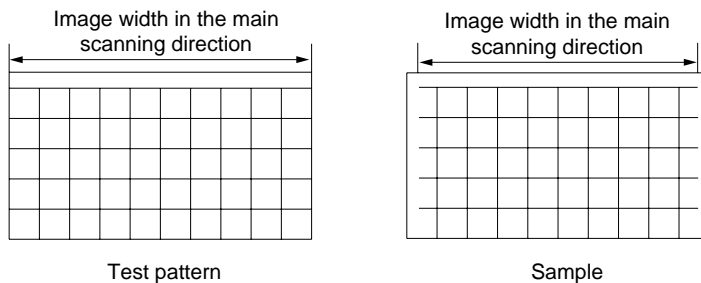
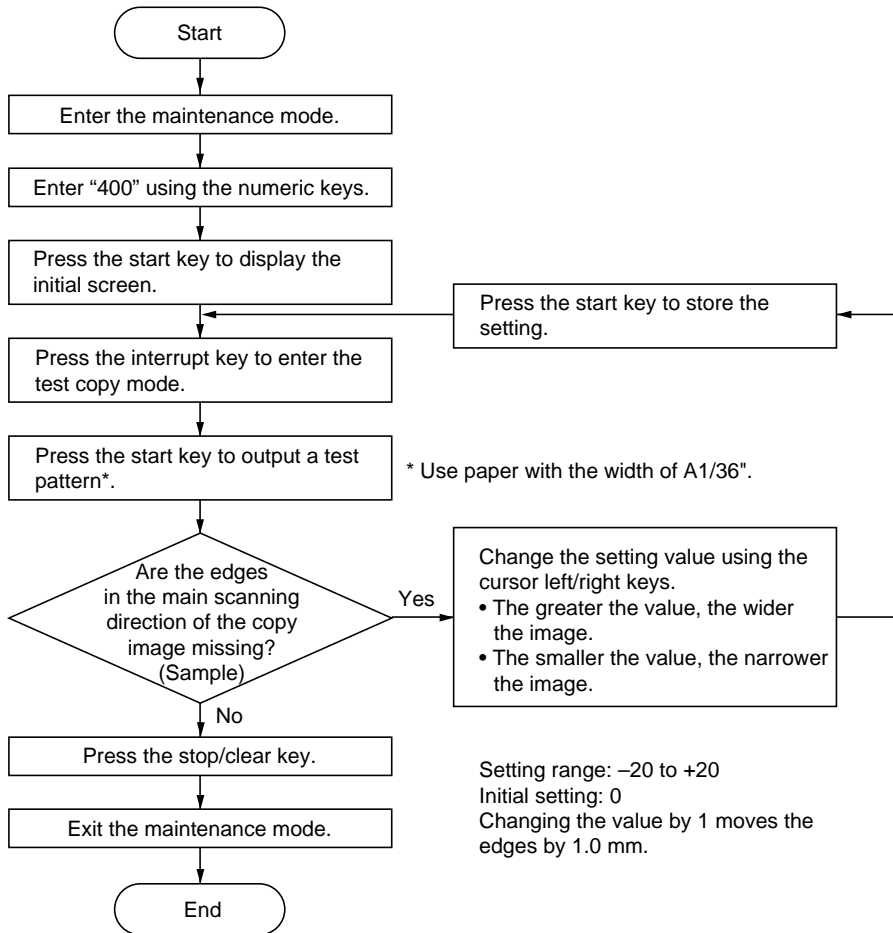
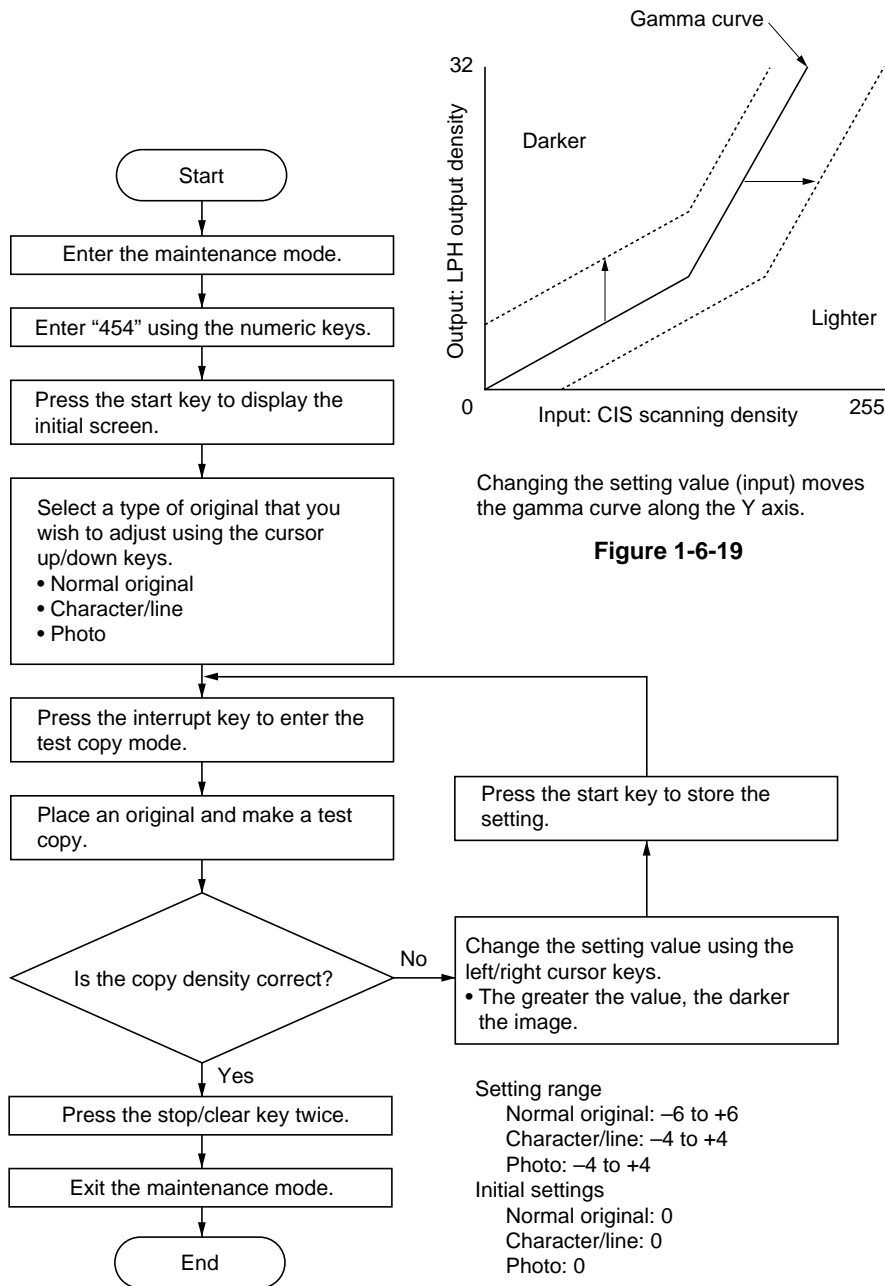


Figure 1-6-18

(8) Adjusting the exposure amount

Follow the procedure below to adjust the LPH output density when the test copy density is not correct after cleaning or replacing the CIS or contact glass. Also, perform the adjustment if the correct copy density cannot be obtained when the copy mode is selected correctly for the original.

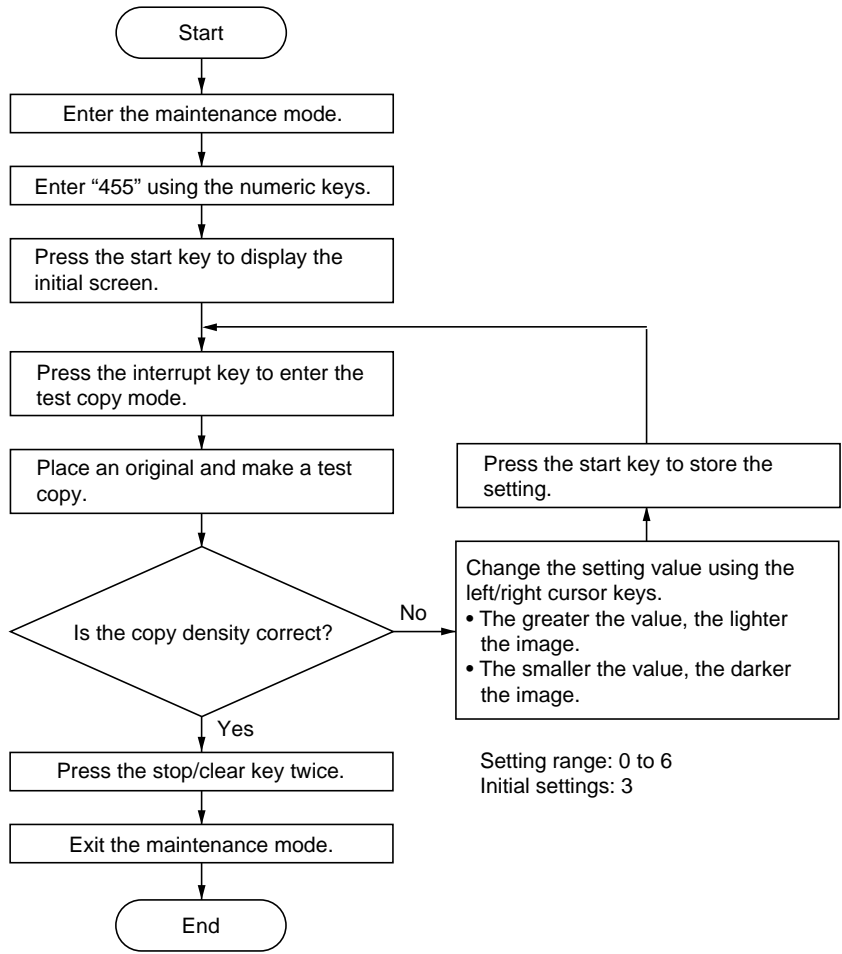
Procedure



(9) Adjusting the automatic exposure

Follow the procedure below when the test copy density in the automatic exposure mode is not correct after cleaning or replacing the CIS or contact glass.

Procedure



1-6-3 Developing section

(1) Replacement of developer

Follow the procedure below when replacing developer.

Procedure

1. Open the toner replenishing slot.
2. Remove the screw in order to detach the connector protection plate, and then remove the 5-pin connector.
* Always turn the main switch off before removing and connecting the 5-pin connector.
3. Remove the five screws and then detach the rear upper cover.

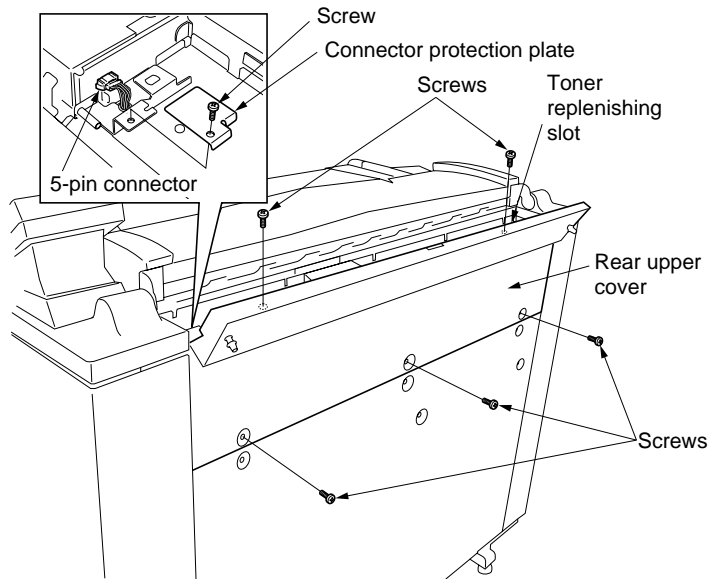


Figure 1-6-20

4. Release the left and right developing unit retaining levers, remove the connector on each of the left and right sides, and then detach the developing unit from the main unit.

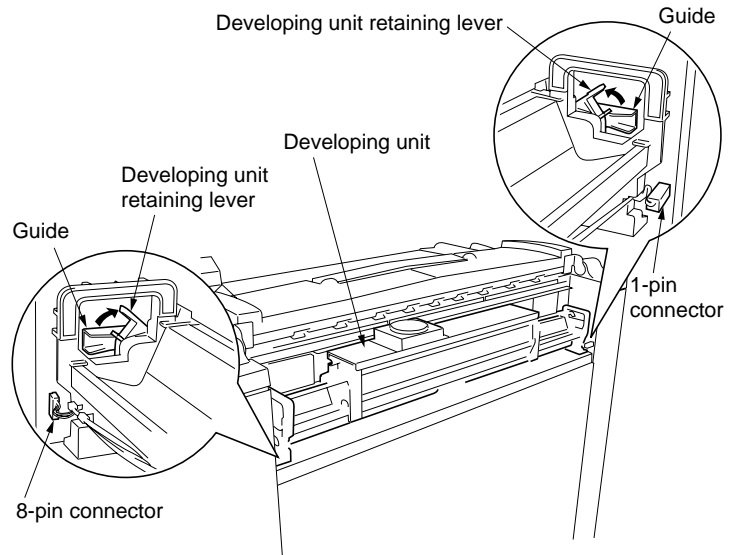


Figure 1-6-21

5. Remove the two pins and the connector on the toner hopper unit and then detach the toner hopper unit from the developing unit.

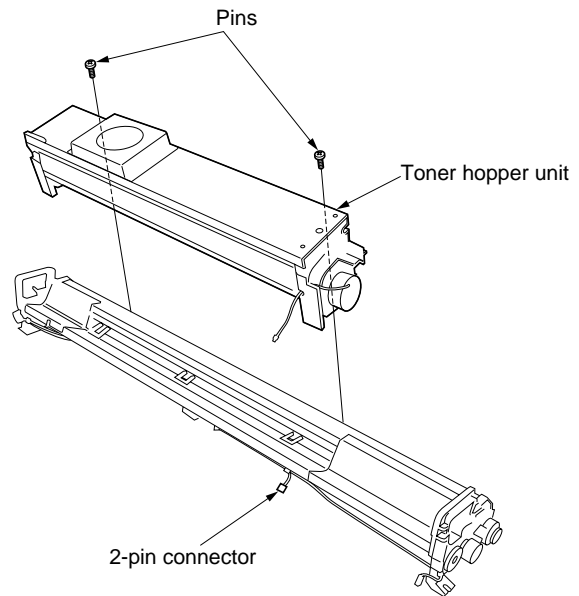


Figure 1-6-22

6. Remove the screw from each of the left and right developing lids and slide the lids inwards in order to detach them.

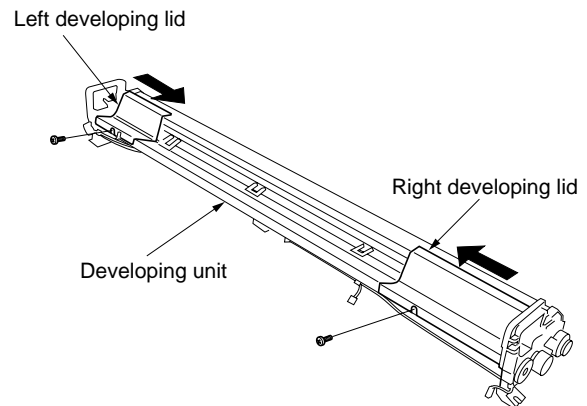


Figure 1-6-23

7. Turn the developing unit upside down and empty the developer out.
8. Turn the gear of the developing roller in order to remove any developer remaining on the developing roller, and then turn the developing unit upside down in order to empty the developer out. (Repeat several times.)
9. Remove any developer remaining on the developing roller using a magnetic screwdriver or vacuum.
10. Pour new developer into the developing unit and perform the initial settings for the developer (see page 1-3-8).
11. Refit all the removed parts.

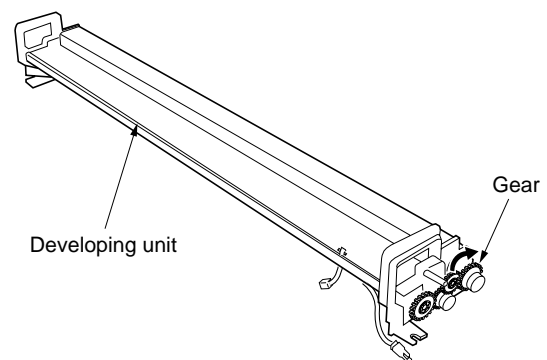


Figure 1-6-24

(2) Adjustment of the doctor blade: reference

Follow the procedure below when carrier appears or a dark background shows up on copies.

Procedure

1. Detach the developing unit and the toner hopper unit, and remove the developer from the developing unit (see page 1-6-14).
2. Remove the two screws holding the upper developing seal, and then detach the upper developing seal from the developing unit.

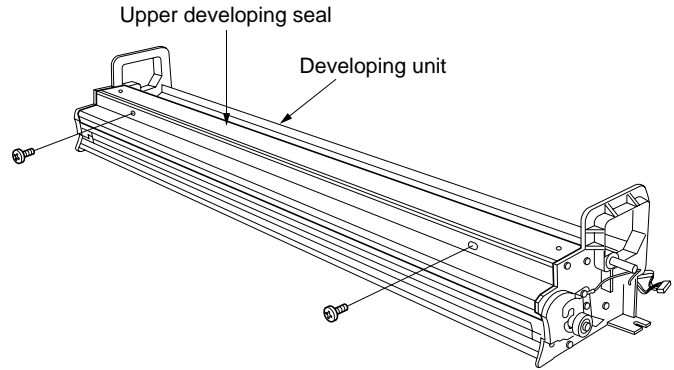


Figure 1-6-25

3. Adjust the gap between the doctor blade and the developing roller to the individually specified distances by loosening the screws at the five points indicated in the figure.
4. Fasten screws ① and ⑤.
5. Fasten screw ③.
6. Fasten screws ② and ④.

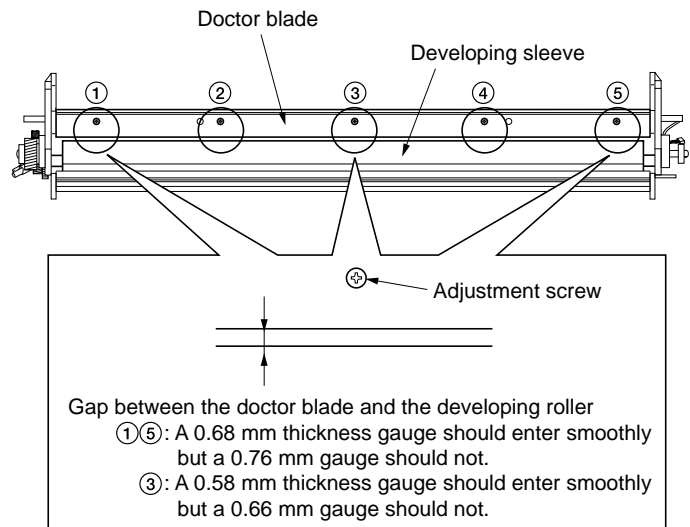


Figure 1-6-26

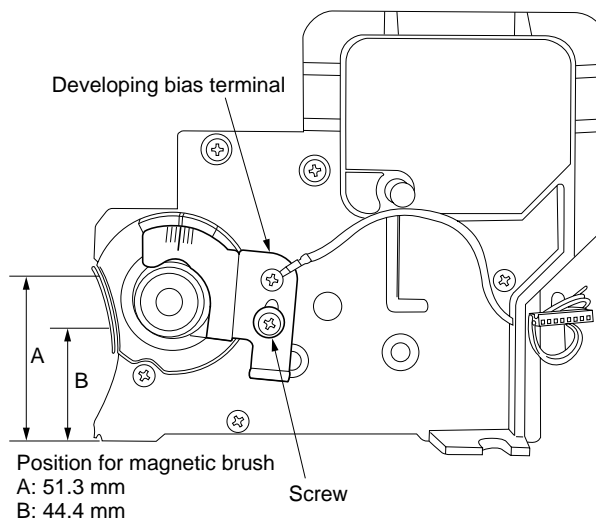
7. Pour developer into the developing unit and perform the initial settings for the developer (see page 1-3-8).
8. Refit all the removed parts and make a test copy in order to check the copy image.

(3) Adjustment of position for magnetic brush: reference

Follow the procedure below when carrier appears or a dark background shows up on copies.

Procedure

1. Detach the developing unit and toner hopper unit (see page 1-6-14).
2. Loosen the screws holding the developing bias terminal and carry out adjustment based on the marks inscribed on the developing bias terminal.
* Adjust within one mark before or after the center mark.
3. Refit all the removed parts and make a test copy in order to check the copy image.

**Figure 1-6-27**

(4) Replacing the main charger wire

Follow the procedure below when the charger wire is broken or when performing maintenance.

Caution

- Use the specified gilding tungsten oxide wire for the charger wire. (Item No. 2A768020)
 - The section wound around the charger spring should not protrude from the main charger housing.
 - The end of the charger wire should not protrude from under the screw.
 - Be sure to use tungsten wire that is free from soiling or damage.
 - Keep the charger taut by stretching the charger spring.
 - When replacing the charger wire, be sure to clean the individual sections of the main charger unit (main grid, charger housing, etc.).
- * Do not use organic solvents such as alcohol and thinner to clean the main charger shield, and wipe with a dry cloth or a cloth that is damp with water.

Procedure

1. Open the detachable unit.
2. Remove the screw and slide the main charger retainer to the right.
 - * When installing the main charger unit, move the main charger retainer to the left side and then fasten it.
3. Move the main charger unit to the right side and rotate in the direction shown by the arrow in order to detach the main charger unit from the cleaning unit.

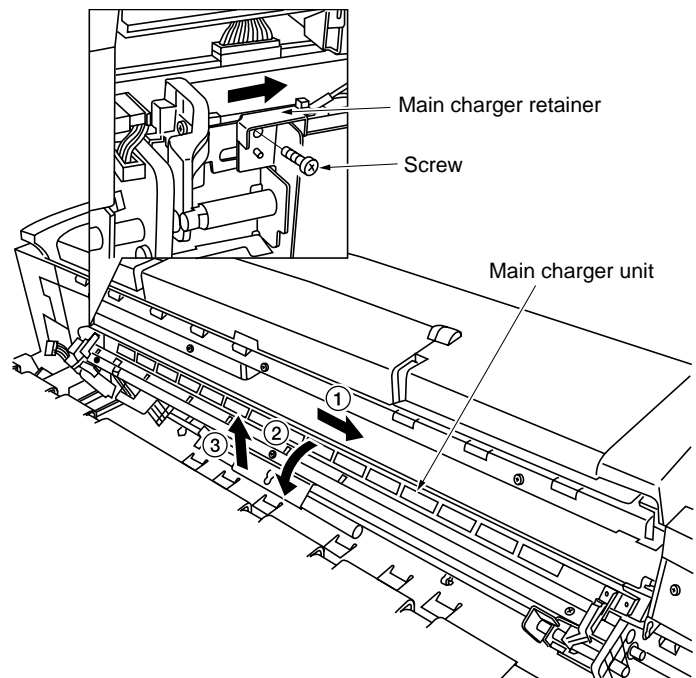


Figure 1-6-34

4. Remove the left and right charger lids.
5. Loosen the screws holding the charger wire, remove the charger spring from the main charger terminal, and remove the charger wire.

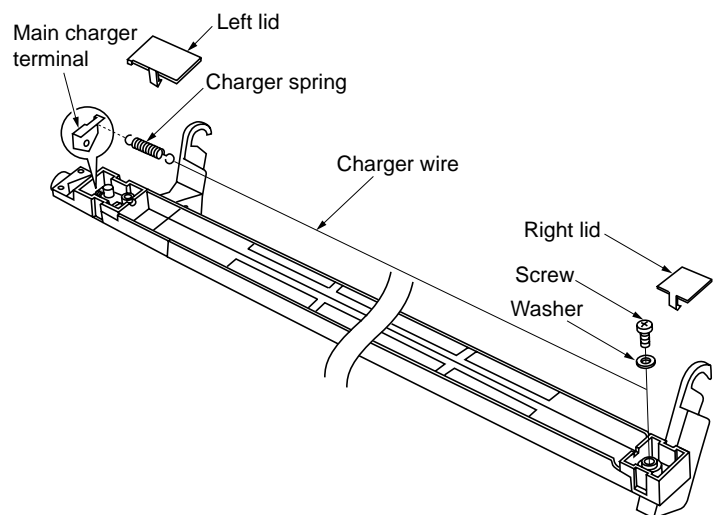


Figure 1-6-35

6. Wind the new tungsten wire five times around one end of the charger spring and trim the end of the wire.
 - * The length of the cut wire must be less than 1 mm.

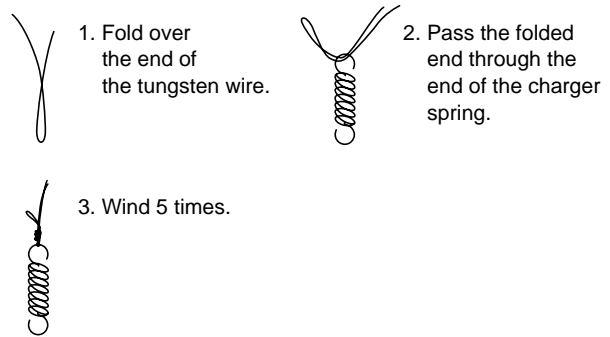


Figure 1-6-36

7. Hook one end of the charger spring to the main charger terminal, pass the other end of the charger spring through the thin metal rod, and insert the rod into the housing notch.
 - * The length of the charger spring should be about 16 mm.
8. Pass the other end of the charger wire under the washer, fasten the screw, and cut off the excess wire under the washer.
 - * The end of the wire should not protrude more than 2 mm.
 - * The charger wire must be set so as to touch the angle of the housing.
9. Remove the metal rod from the charger spring.

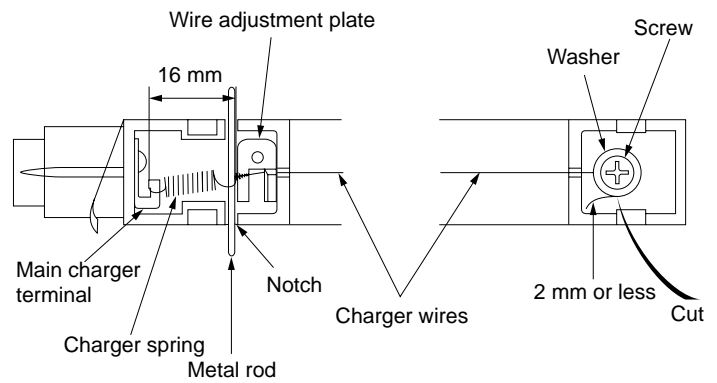


Figure 1-6-37

10. Turn the adjustment screw of the wire adjustment plate until 1.0 ± 0.5 mm of its tip protrudes in order to adjust the height of the wire adjustment plate.
11. Refit all the removed parts.

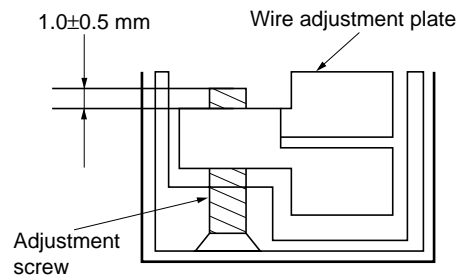


Figure 1-6-38

(5) Replacing the transfer/separation charger wire

Follow the procedure below when the charger wire is broken.

Caution

- Use the specified tungsten oxide wire for the charger wire. (Item No. 74716280)
- The section wound around the charger spring should not protrude from the transfer charger housing.
- The end of the charger wire should not protrude from under the screw.
- Be sure to use tungsten wire that is free from soiling or damage.
- Keep the charger taut by stretching the charger spring.
- When replacing the charger wire, be sure to clean the individual sections of the transfer charger unit (charger housing, etc.).

Procedure

1. Open the detachable unit.
2. Remove the screw holding the retainer and then the retainer. Remove the screw on the right side of the transfer charger unit. Detach the transfer charger unit from the main unit by lifting up on the right side of the transfer charger unit and sliding the protrusions that are on the left side out.

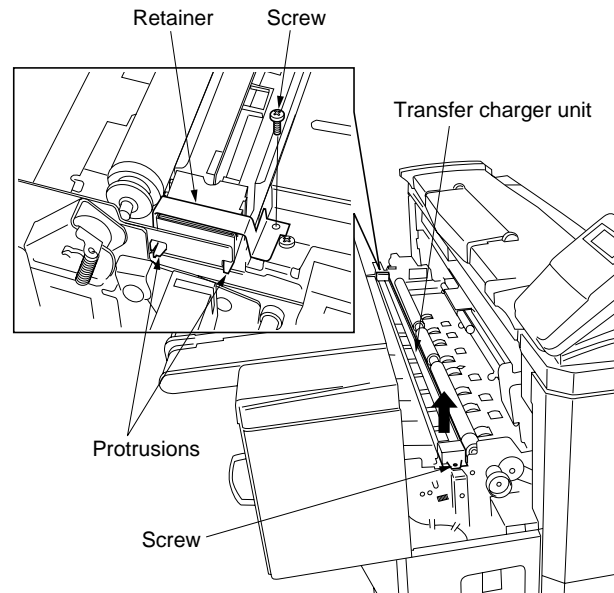


Figure 1-6-39

3. Pull out the transfer inner shield from the transfer outer shield.

* When pulling out the transfer inner shield, take care that the shield does not contact the transfer wire and cut it.

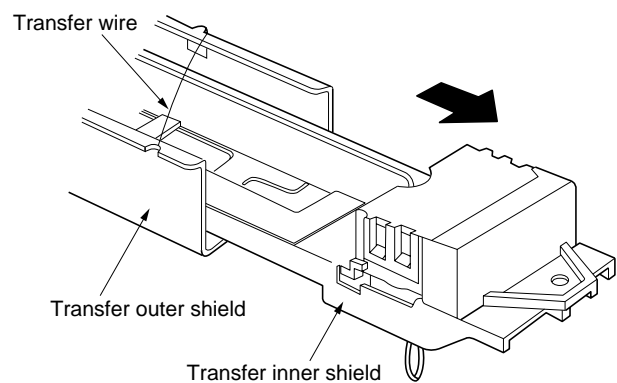


Figure 1-6-40

4. Remove the left and right charger lids from the transfer charger unit.
5. Loosen the screws holding the charger wire, remove the charger spring from the transfer charger terminal, and remove the charger wire.

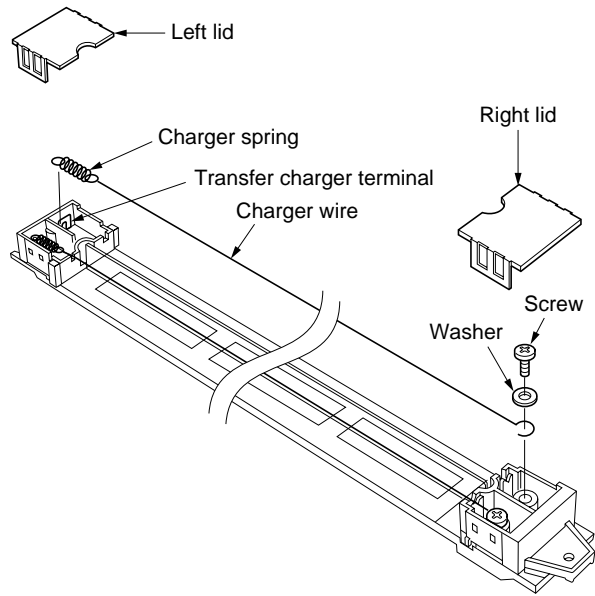


Figure 1-6-41

6. Wind the new tungsten wire five times around one end of the charger spring and trim the end of the wire.
 - * The length of the cut wire must be less than 1 mm.

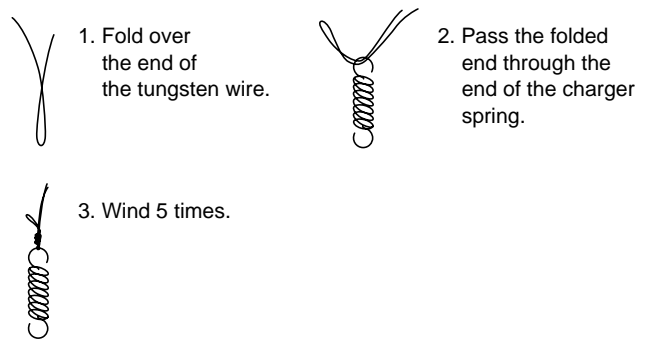


Figure 1-6-42

7. Hook one end of the charger spring to the transfer charger terminal, pass the other end of the charger spring through the thin metal rod, and insert the rod into the housing notch.
 - * The length of the charger spring should be about 16 mm.
8. Pass the other end of the charger wire under the washer, fasten the screw, and cut off the excess wire under the washer.
 - * The end of the wire should not protrude more than 2 mm.
9. Remove the metal rod from the charger spring.
10. Follow the same procedure to replace the separation charger wire.
11. Refit all the removed parts.

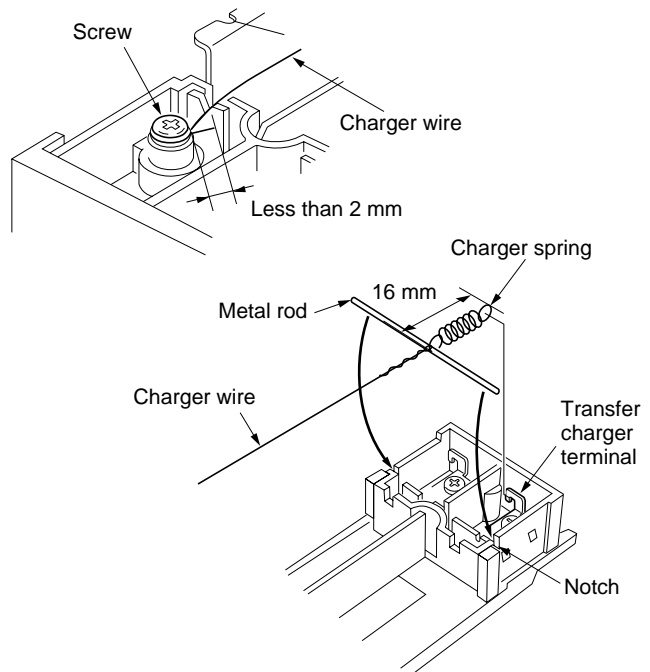


Figure 1-6-43

(6) Replacing the transfer wire

Follow this procedure when the transfer wire is broken.

Caution

Use the specified wire for the transfer wire (Item No. 2A716220).

Procedure

1. Detach the transfer charger unit (see page 1-6-24).
2. Loosen the two screws on the bottom of the transfer outer shield and remove the transfer wire.

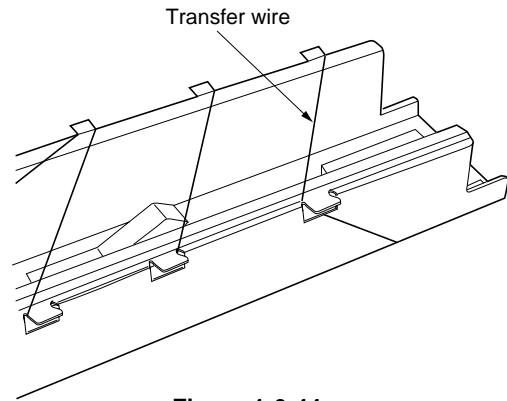


Figure 1-6-44

3. Wind one end of the new transfer wire once around the screw on the right side of the bottom of the transfer outer shield, and then tighten that screw.

* The transfer wire should be passed under the washer and the end should not protrude more than 5 mm from the washer.

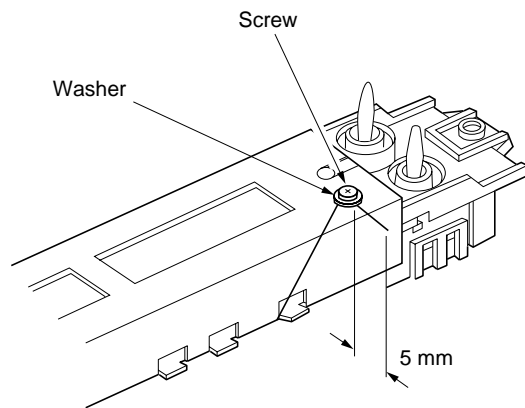


Figure 1-6-45

4. Hook the transfer wire onto the claw and thread it through the grooves of the transfer outer shield as shown in the figure. Cross the wire at the 16th claw and continue to thread the wire.

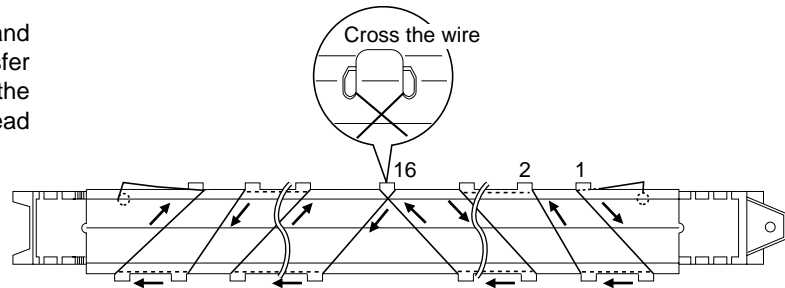


Figure 1-6-46

5. Tighten the transfer wire in order to remove any slack, wind the end of the transfer wire once around the screw on the left side of the bottom of the transfer outer shield, and then tighten that screw.

* The transfer wire should be passed under the washer and its end should not protrude more than 5 mm from the washer.

6. Refit all the removed parts.

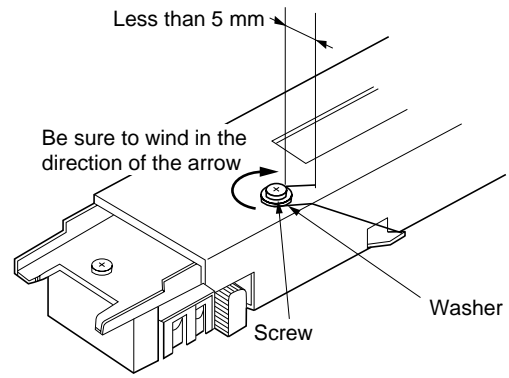


Figure 1-6-47

1-6-5 Cleaning section

(1) Attachment and removal of the cleaning unit

Follow the procedure below when performing maintenance on the cleaning unit, the main charger unit and the drum, and when replacing the LED printhead.

Procedure

• Removal

1. Open the detachable unit.
2. Cover the feeding section with paper so that toner does not fall into the main unit.
3. Remove the 9-pin connector on the left side of the machine.
4. Remove the left and right screws holding the cleaning unit stopper, press the retaining levers towards each other, and lower the cleaning unit down toward you.
5. Detach the cleaning unit from the main unit.

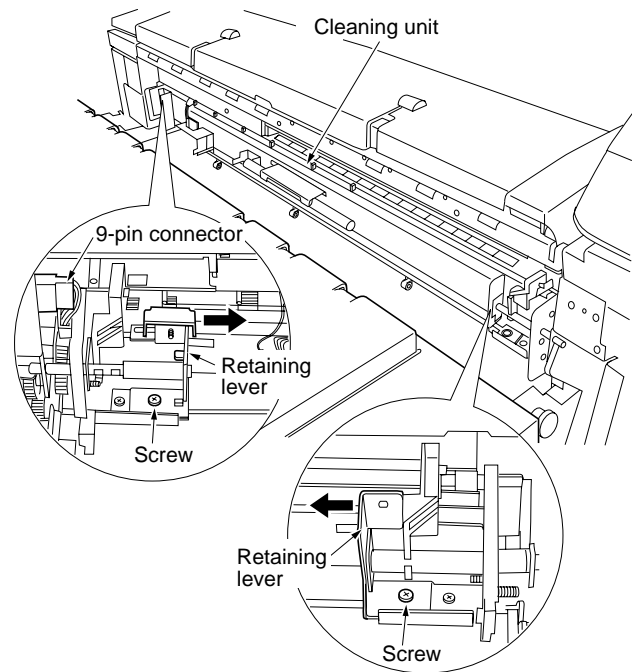


Figure 1-6-48

• Attachment

1. Making sure that the ribs of the waste toner nozzle touch the guide of the waste toner duct on the right side of the main unit, refit the cleaning unit into the main unit.
 - * The rib will rotate and the aperture of the nozzle will open.
2. Install the cleaning unit inside the main unit by following the procedure for removal in the opposite order.
 - * When retaining the cleaning unit, take care that your fingers are not caught by the left and right cleaning unit retention stoppers.

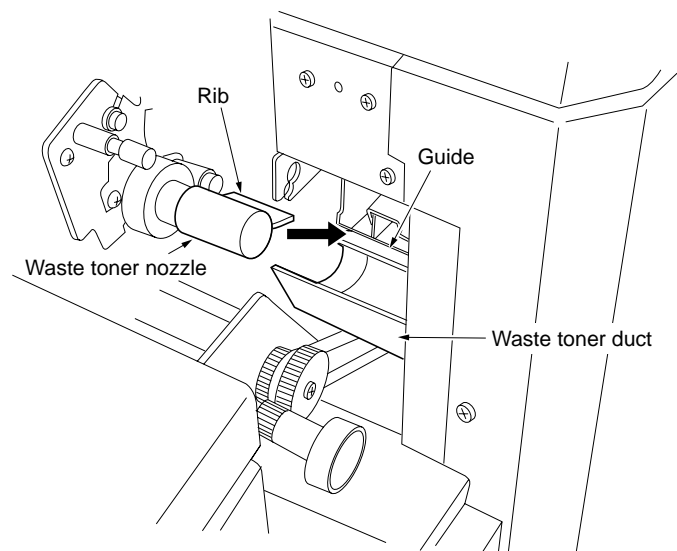


Figure 1-6-49

(2) Attachment and removal of the cleaning blade

Follow the procedure below when performing maintenance on the cleaning blade.

Caution

After replacing the cleaning blade, always perform maintenance item U160 in order to coat the cleaning blade with toner (see page 1-4-22).

Procedure

1. Remove the cleaning unit (see page 1-6-28).
2. Remove the main charger unit (see page 1-6-22).
3. Remove the 2-pin connector and then the earth screw.
4. Remove the 4-pin connector from the cleaning unit and the four screws holding the main grid, and then detach the main grid.

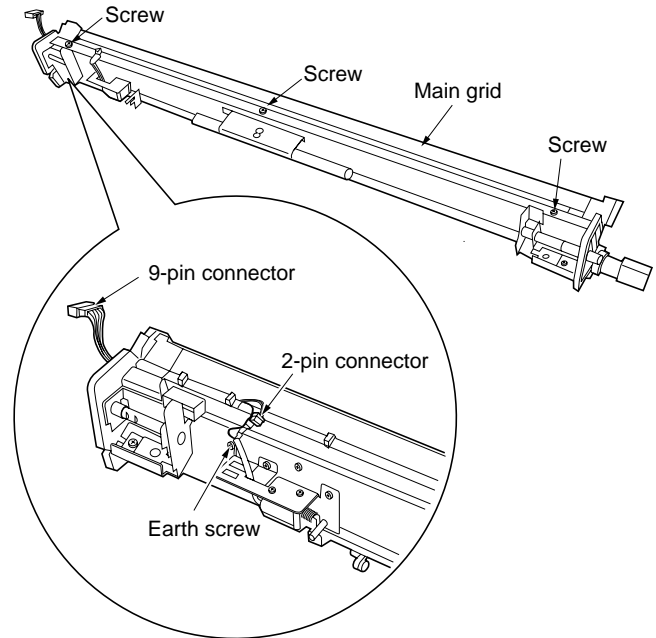


Figure 1-6-50

5. Remove the four screws holding the cleaning blade and then detach the blade.
6. Replace the cleaning blade and refit all the removed parts.

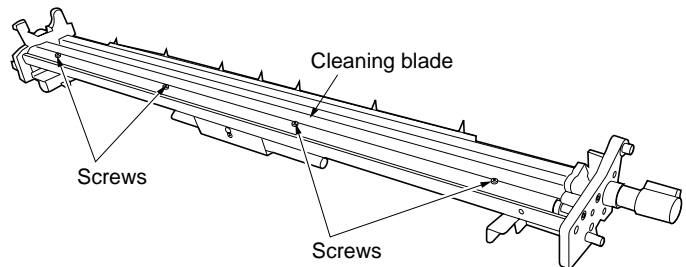


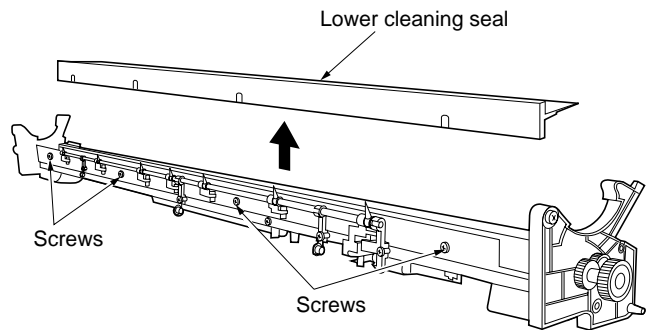
Figure 1-6-51

(3) Attachment and removal of the lower cleaning seal

Follow the procedure below when performing maintenance on the lower cleaning seal.

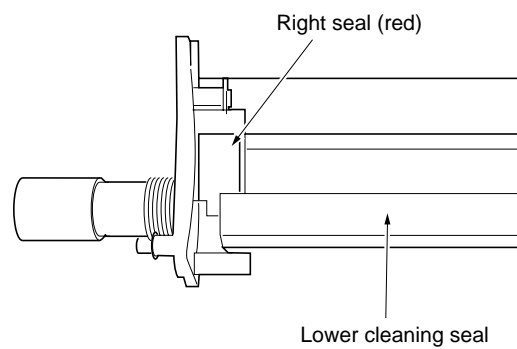
Procedure

1. Remove the cleaning unit (see page 1-6-28).
2. Remove the main charger unit and the main grid (see pages 1-6-22 and 1-6-29).
3. Loosen the four screws holding the lower cleaning seal and then detach the seal.

**Figure 1-6-52**

4. Clean or replace the lower cleaning seal and refit all the removed parts.

* When installing the lower cleaning seal, place it next to the right seal (red) for the cleaning unit.

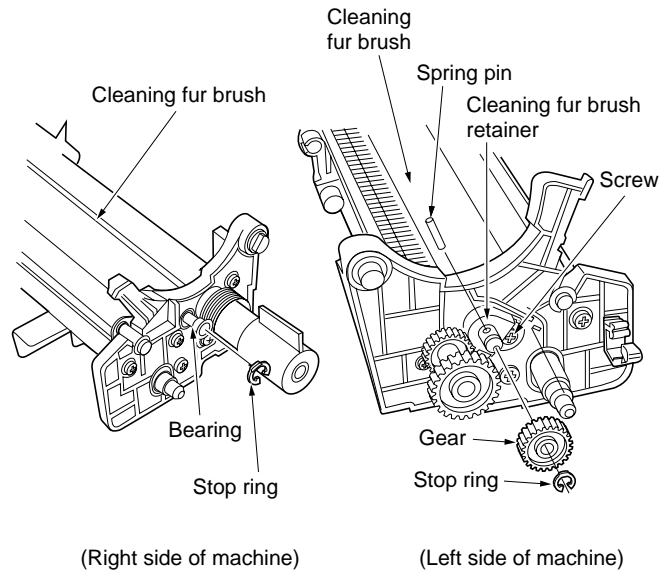
**Figure 1-6-53**

(4) Attachment and removal of the cleaning fur brush

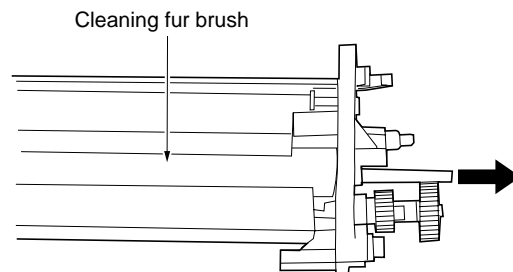
Follow the procedure below when performing maintenance on the cleaning fur brush.

Procedure

1. Remove the cleaning unit (see page 1-6-28).
2. Remove the main charger unit (see page 1-6-22).
3. Remove the cleaning blade and lower cleaning seal (see pages 1-6-29 and 1-6-30).
4. Remove the stop ring, gear, spring pin and bearing from the cleaning fur brush, and then remove the screw in order to detach the cleaning fur brush retainer.

**Figure 1-6-54**

5. Pull in the direction of the arrow in order to detach the cleaning fur brush.

**Figure 1-6-55**

6. Replace the cleaning fur brush and refit all the removed parts.

* When installing the cleaning fur brush, first insert the shaft of the cleaning fur brush into the hole on the left side of the machine and then fit the cleaning fur brush in place.

(5) Attachment and removal of the separation claw

Follow the procedure below when performing maintenance on the separation claw.

Procedure

1. Remove the cleaning unit (see page 1-6-28).
2. Remove the stop ring from the main unit by aligning it along the D-cut section.

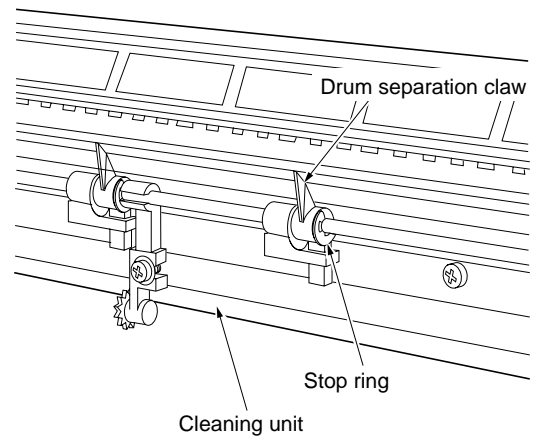


Figure 1-6-56

3. Clean or replace the drum separation claw and refit all the removed parts.

1-6-6 Fixing section

(1) Attachment and removal of the oil roller

Follow the procedure below when performing maintenance on the oil roller.

Procedure

1. Open the detachable unit and pull out the eject cover.
2. Loosen the two screws to the eject cover and open the cover downward.
3. Remove the two screws holding the ejection guide and then detach the guide.

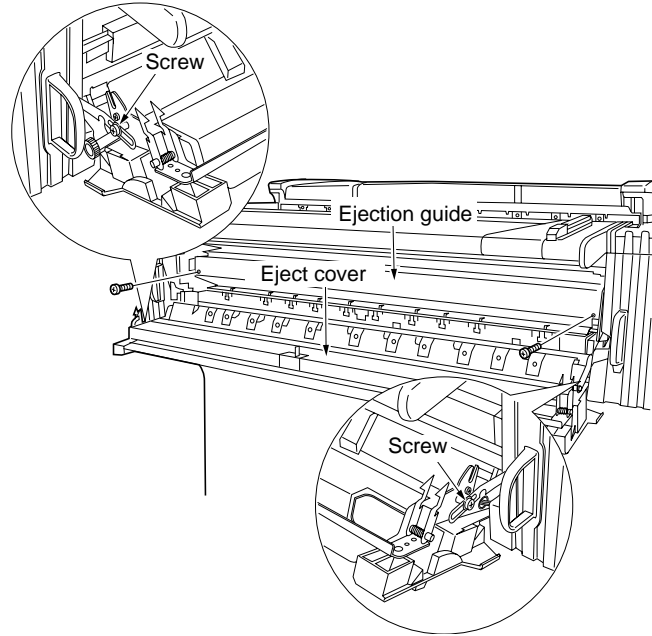


Figure 1-6-57

4. Remove the screws holding each of the left and right oil roller mounting springs and then detach the springs from the main unit.

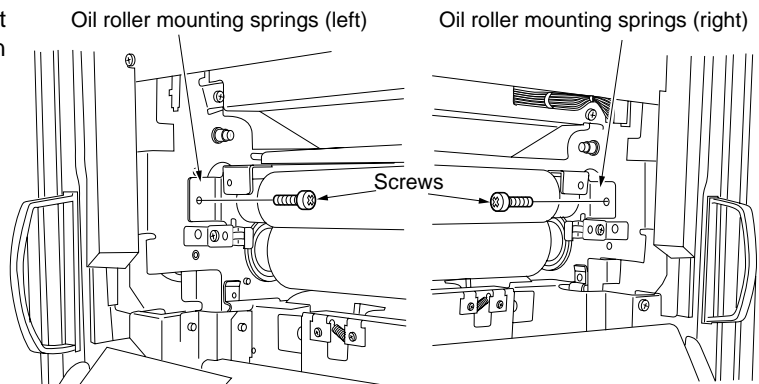


Figure 1-6-58

5. Remove the oil roller from the main unit.
6. Remove the E-ring, the oil roller gear and the left and right bearings from the oil roller.
7. Replace the oil roller and refit all the removed parts.

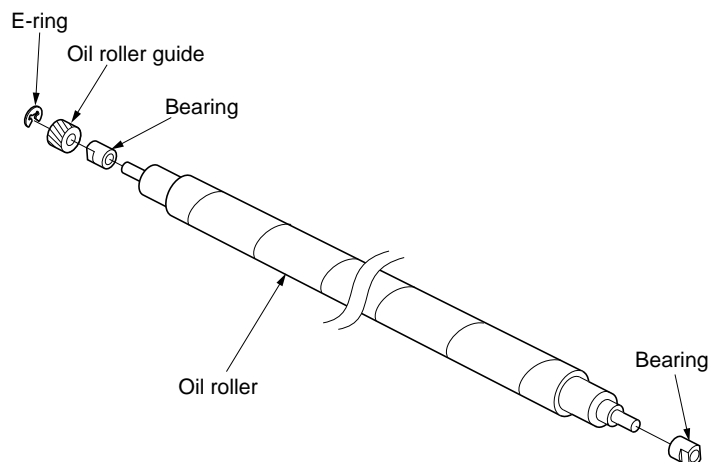


Figure 1-6-59

(2) Attachment and removal of the main and sub fixing heaters

Follow the procedure below when inspecting or replacing the main and sub fixing heaters.

Procedure

1. Open the detachable unit and completely open the eject cover downward (see page 1-6-33).
2. Remove the two screws holding the original table unit as well as the 8-pin connector, and then detach the unit.
3. Detach the left and right upper and lower detachable unit covers.

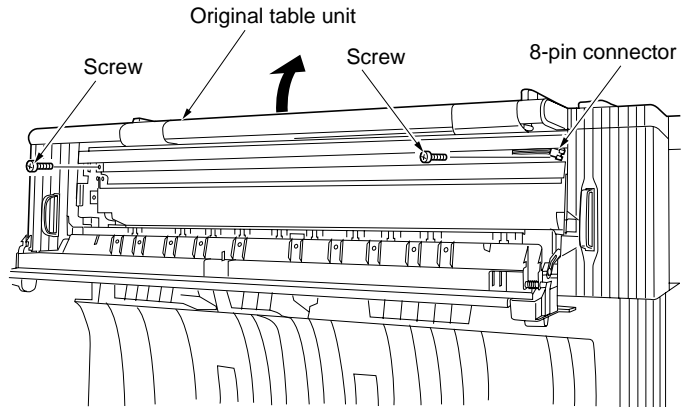


Figure 1-6-60

4. Remove the left and right screws holding the fixing unit and open the fixing unit in the direction of the arrow.

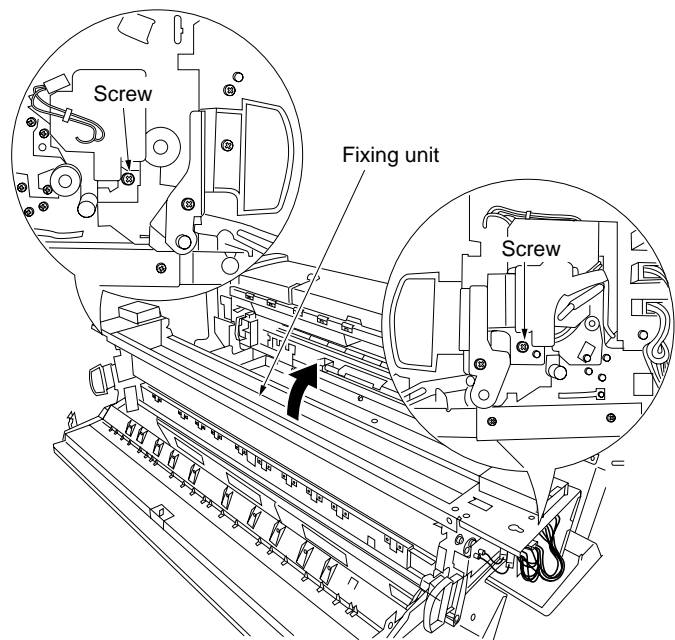


Figure 1-6-61

5. Disconnect the 1-pin connectors from both ends of the main and sub fixing heaters.
6. Remove the two screws holding each of the left and right mounts to the fixing heater and then detach the fixing heater mounts.
7. Remove the main and sub fixing heaters by pulling them together out of the heat roller.

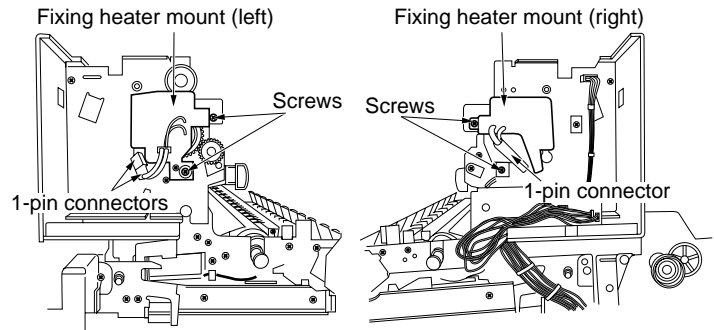


Figure 1-6-62

8. Inspect or replace the main and sub fixing heaters, as required, and refit all the removed parts.
 - * When installing the main and sub fixing heaters, be sure that the blue 1-pin connector (for the sub fixing heater) is towards the front of the machine and the white one (for the main fixing heater) is towards the rear as indicated on the corresponding mounts.
 - * When installing the main and sub fixing heaters, always be careful of the protrusion on the center part of the fixing heaters.

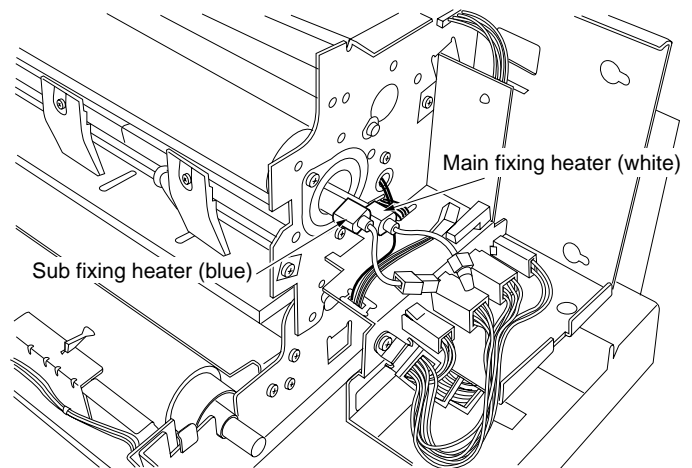


Figure 1-6-63

(3) Attachment and removal of the heat roller

Follow the procedure below when performing maintenance on the heat roller.

Procedure

1. Remove the oil roller (see page 1-6-33).
2. Remove the main and sub fixing heaters (see page 1-6-34).
3. Remove the retaining ring, the heat roller gear, the bearing retainer (two screws), and the heat roller bearing from the left side of the heat roller.
4. Slide the heat roller in the direction of the arrow and remove the heat roller from the main unit.
5. Apply conductive grease (GE334) to both ends of the heat roller.
6. Replace the heat roller and refit all the removed parts.

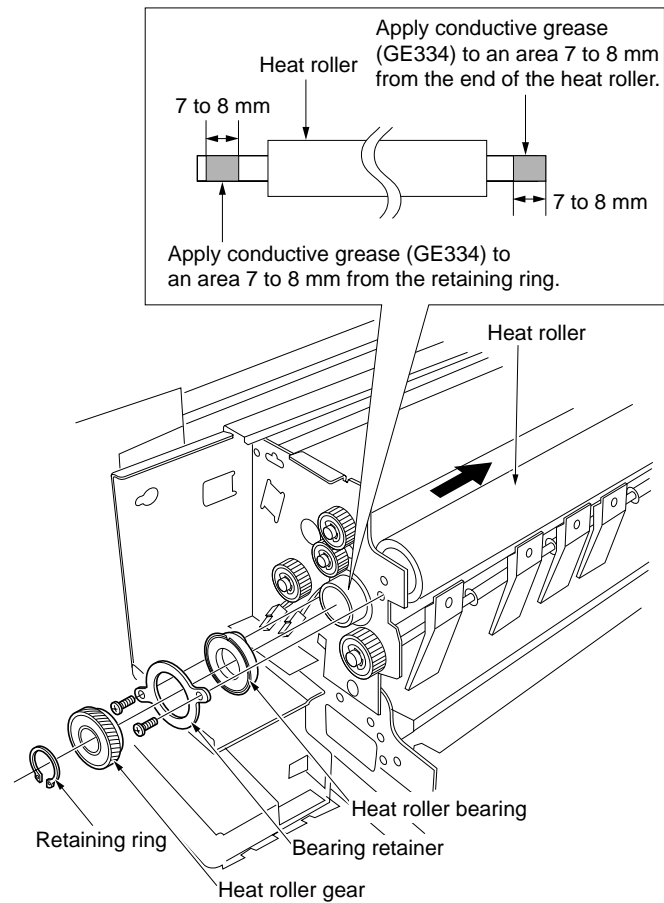


Figure 1-6-64

(4) Attachment and removal of the press roller

Follow the procedure below when performing maintenance on the press roller.

Procedure

1. Open the fixing unit (see page 1-6-34).
2. Remove the 2-pin connector and the two screws, and then detach the fixing unit partition.
3. Open the front fixing guide and remove the press roller from the main unit.

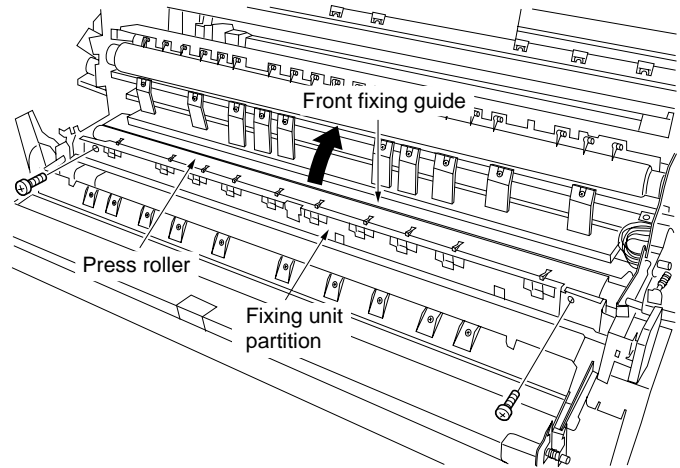


Figure 1-6-65

4. Pull the press roller shaft out from the press roller.
5. Replace the press roller and refit all the removed parts.
 - * Apply some grease to press roller shaft bearings before replacing the shaft in its original position.
 - * Apply heat resistant grease to the U-shaped cutouts on the side plate which hold the press roller shaft.
 - * Close the fixing unit after replacing the front fixing guide.

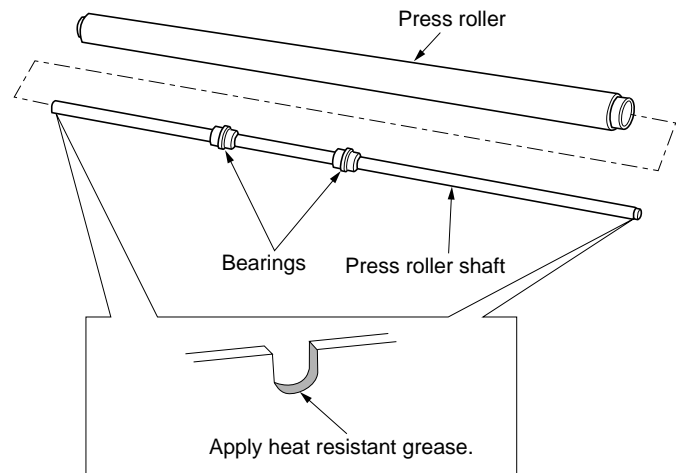


Figure 1-6-66

(5) Attachment and removal of fixing unit thermistors 1 and 2 (for use with the heat roller)

Follow the procedure below when inspecting or replacing fixing unit thermistors 1 and 2.

Procedure

1. Open the detachable unit and completely open the eject cover downward (see page 1-6-33).
2. Remove the two screws holding the original table unit as well as the 8-pin connector, and then open the original table unit in the direction of the arrow.

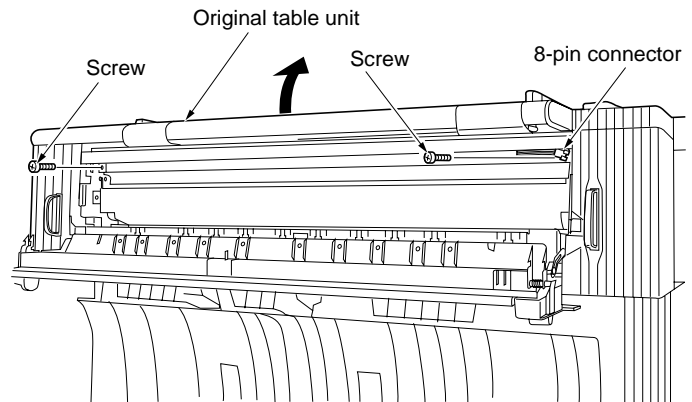


Figure 1-6-67

3. Remove the four screws holding the fixing unit cover and then detach the cover from the fixing unit.

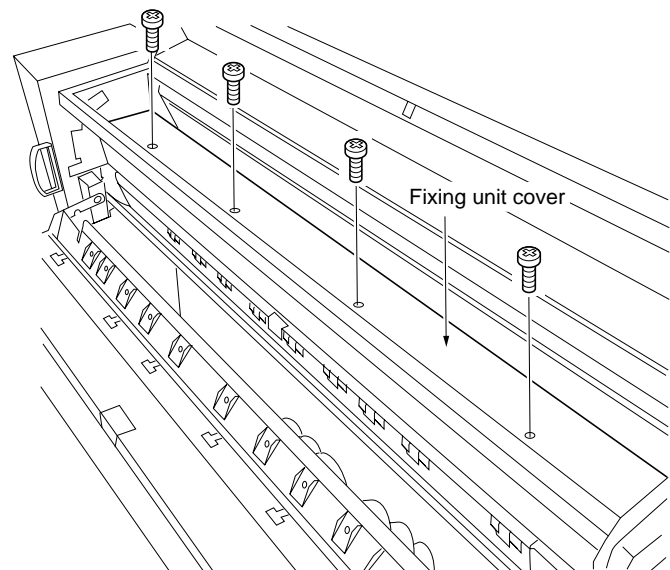


Figure 1-6-68

4. Remove the 2-pin connector from each of the fixing unit thermistors 1 and 2 and the screws holding each fixing unit thermistor retainer, and then detach the retainers.
5. Remove the screws from each of fixing unit thermistors 1 and 2 in order to detach them from their respective retainers.

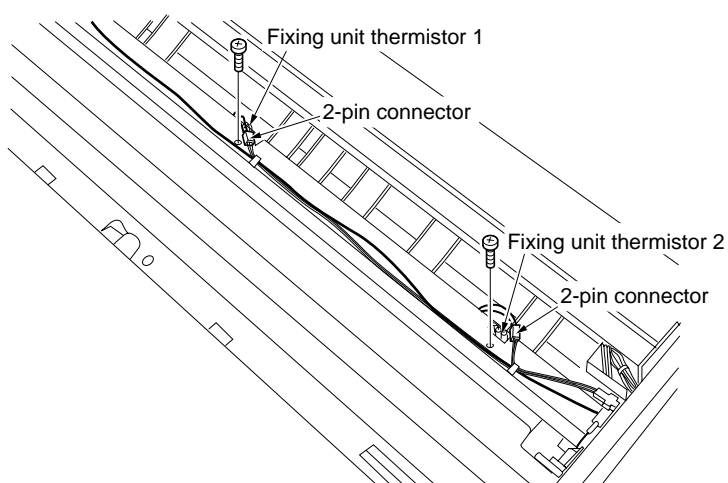


Figure 1-6-69

6. Inspect or replace fixing unit thermistors 1 and 2, as required, and refit all the removed parts.
* When installing fixing unit thermistors 1 and 2, be sure that the surface of the thermistors is contacting the heat roller.

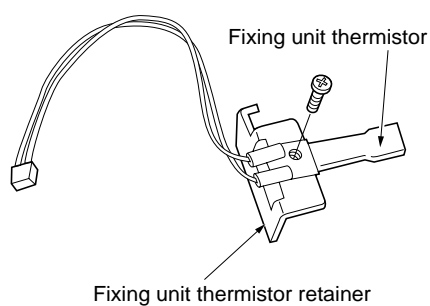


Figure 1-6-70

(6) Attachment and removal of the fixing unit thermostat

Follow the procedure below when inspecting or replacing the fixing unit thermostat.

Procedure

1. Open the detachable unit and completely open the eject cover downward (see page 1-6-33).
2. Open the original table unit and remove the fixing unit cover (see page 1-6-38).
3. Remove the two screws holding the fixing unit thermostat as well as the two 1-pin connectors, and then detach the thermostat.
4. Inspect or replace the fixing unit thermostat, as required, and refit all the removed parts.

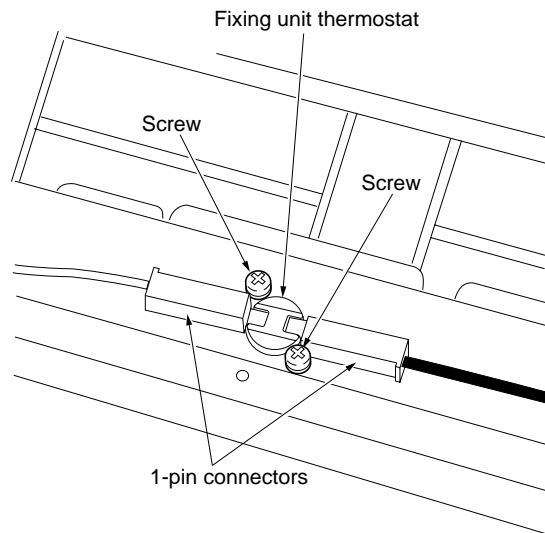


Figure 1-6-71

(7) Attachment and removal of fixing unit thermistors 3 and 4 (for use with the press roller)

Follow the procedure below when inspecting or replacing fixing unit thermistors 3 and 4.

Procedure

1. Open the detachable unit and completely open the eject cover downward (see page 1-6-33).

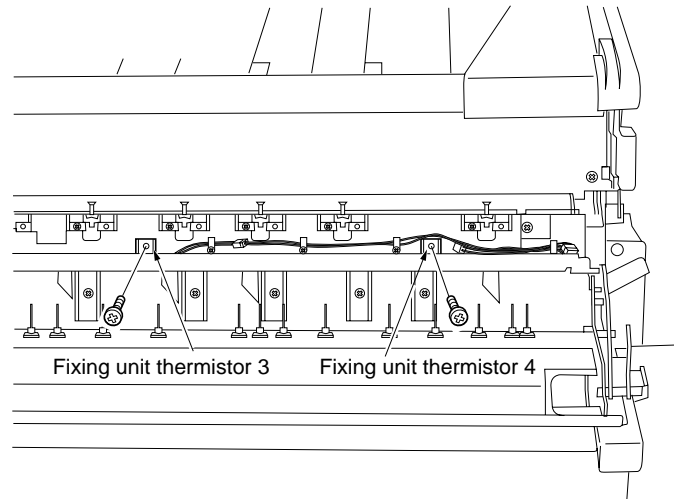


Figure 1-6-72

2. Remove the 2-pin connector from each of the fixing unit thermistors 3 and 4 and the screws holding each thermistor, and then detach fixing unit thermistors 3 and 4.
3. Inspect or replace fixing unit thermistors 3 and 4, as required, and refit all the removed parts.
 - * When installing fixing unit thermistors 3 and 4, be sure that the surface of the thermistors is contacting the press roller.

1-6-7 Paper feed section

(1) Attachment and removal of the cutter unit

Follow the procedure below when replacing the cutter unit.

Procedure

1. Remove the lower rear cover.
2. Remove the three screws and then detach the data partition by pulling it in the direction of the arrow.

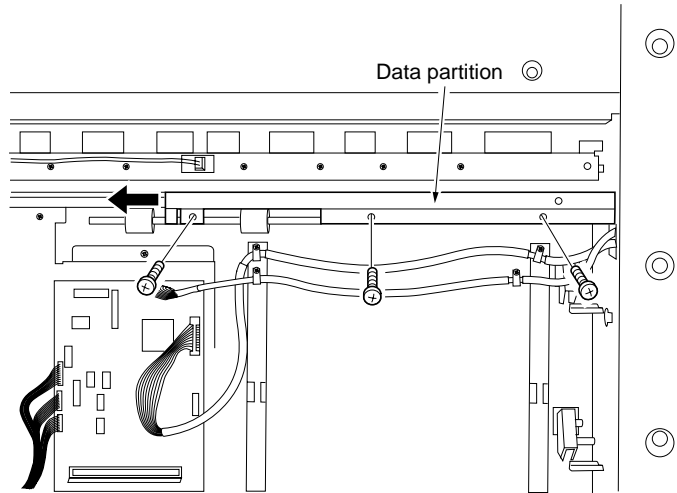


Figure 1-6-73

3. Remove the 2-pin and 4-pin connectors from the cutter unit.
4. Remove the two screws holding the cutter unit and detach the cutter unit from the main unit by sliding it in the direction of the arrow.
5. Replace the cutter unit and refit all the removed parts.

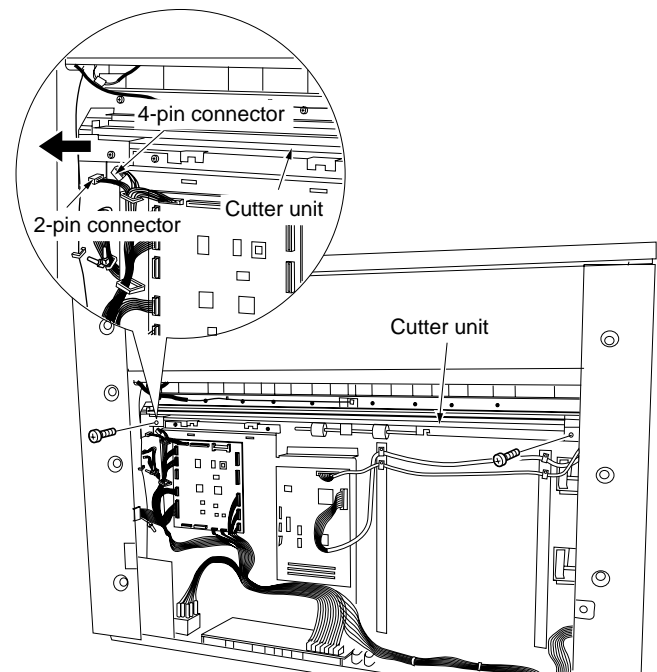


Figure 1-6-74

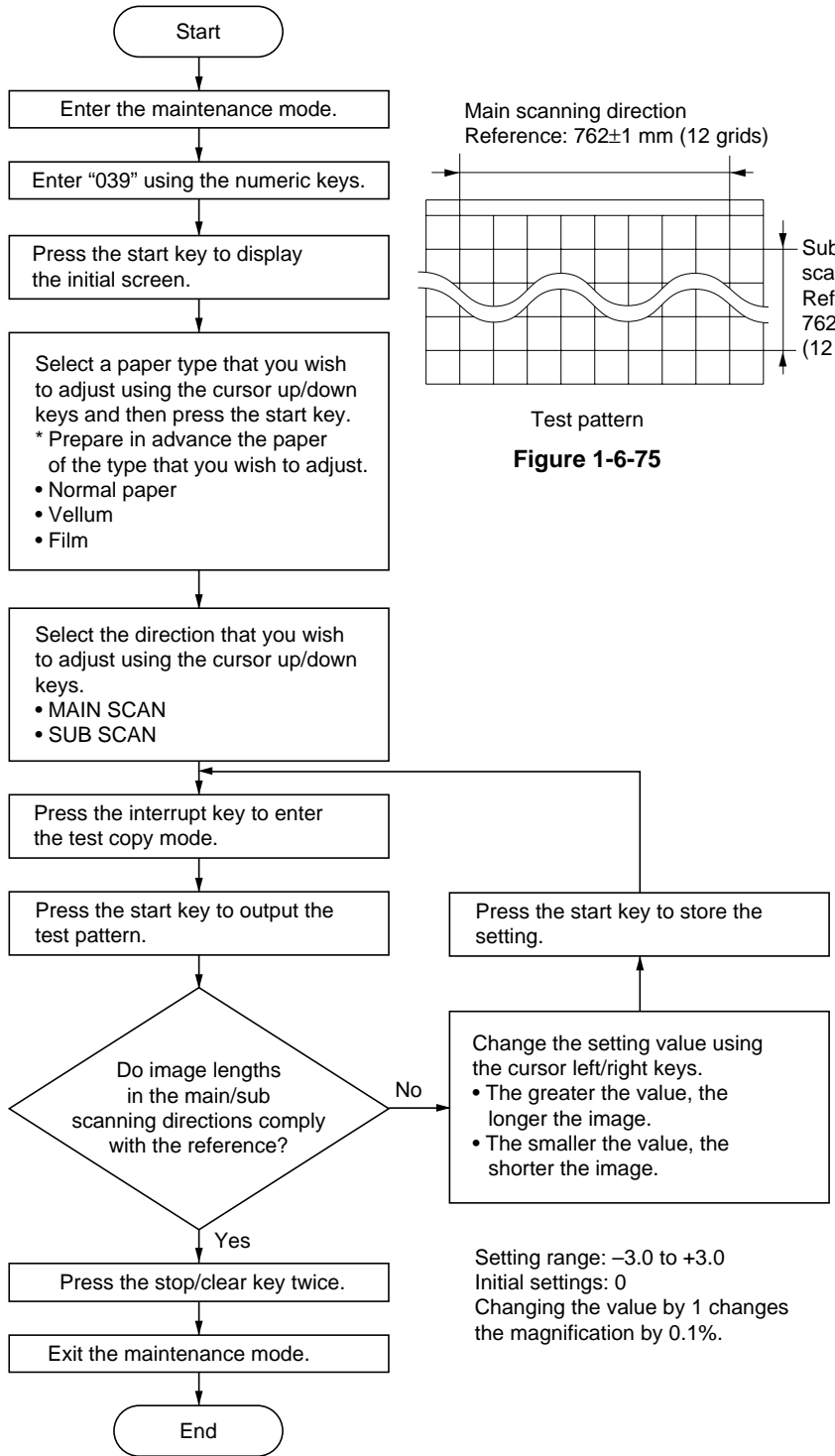
(2) Adjusting printing magnification

Follow the procedure below when the printing magnification is not correct.

Caution:

Use paper with the width of 841 mm or more.

Procedure

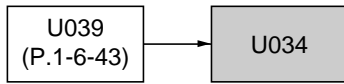


(3) Adjusting the print start timing

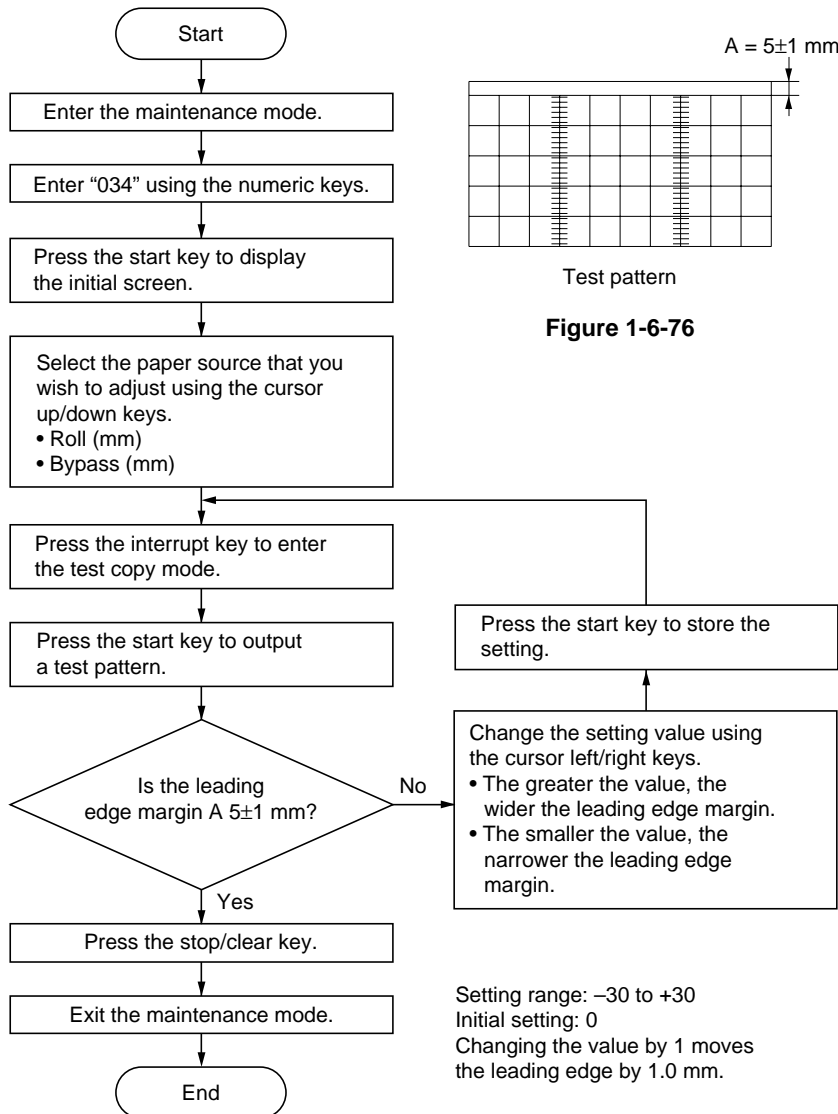
Follow the procedure below when there is a regular error between the leading edges of the copy image and original .

Caution:

Before making the following adjustment, ensure that the below adjustment has been made in the maintenance mode.



Procedure



(4) Adjusting the standard cut length

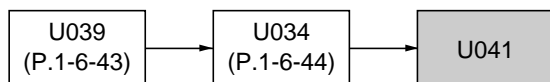
Follow the procedure below if the paper is not cut correctly in standard cut copying.

Also, perform this adjustment when the paper is set to cut at different lengths according to the paper type (standard paper, vellum or film).

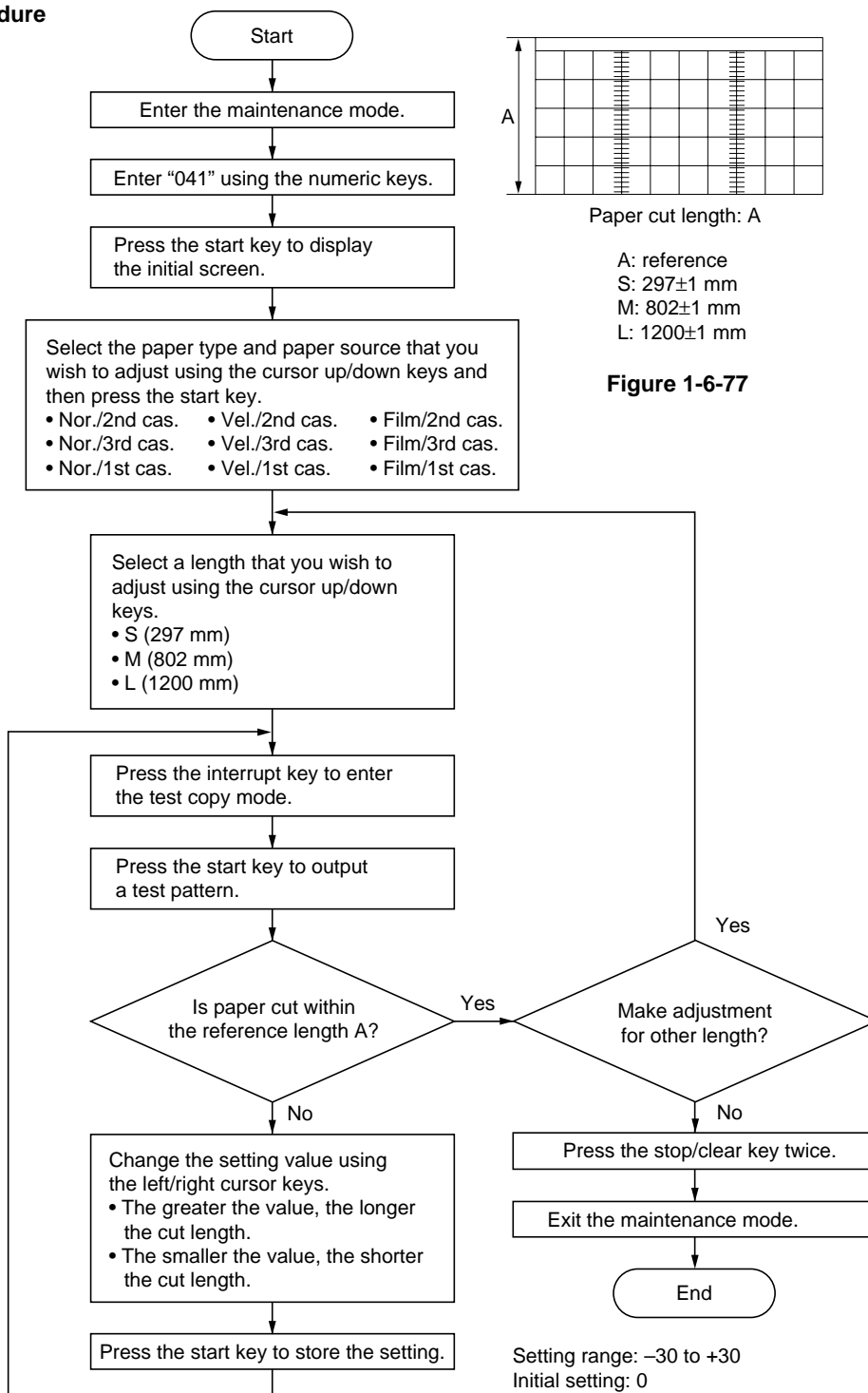
Caution:

Always make this adjustment for lengths S, M and L.

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



Procedure



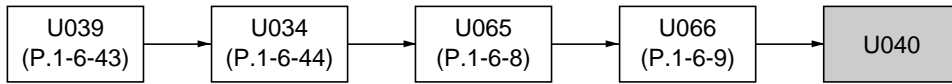
Setting range: -30 to +30
 Initial setting: 0
 Changing the value by 1 changes the length by 1.0 mm.

(5) Adjusting the synchronized cut length

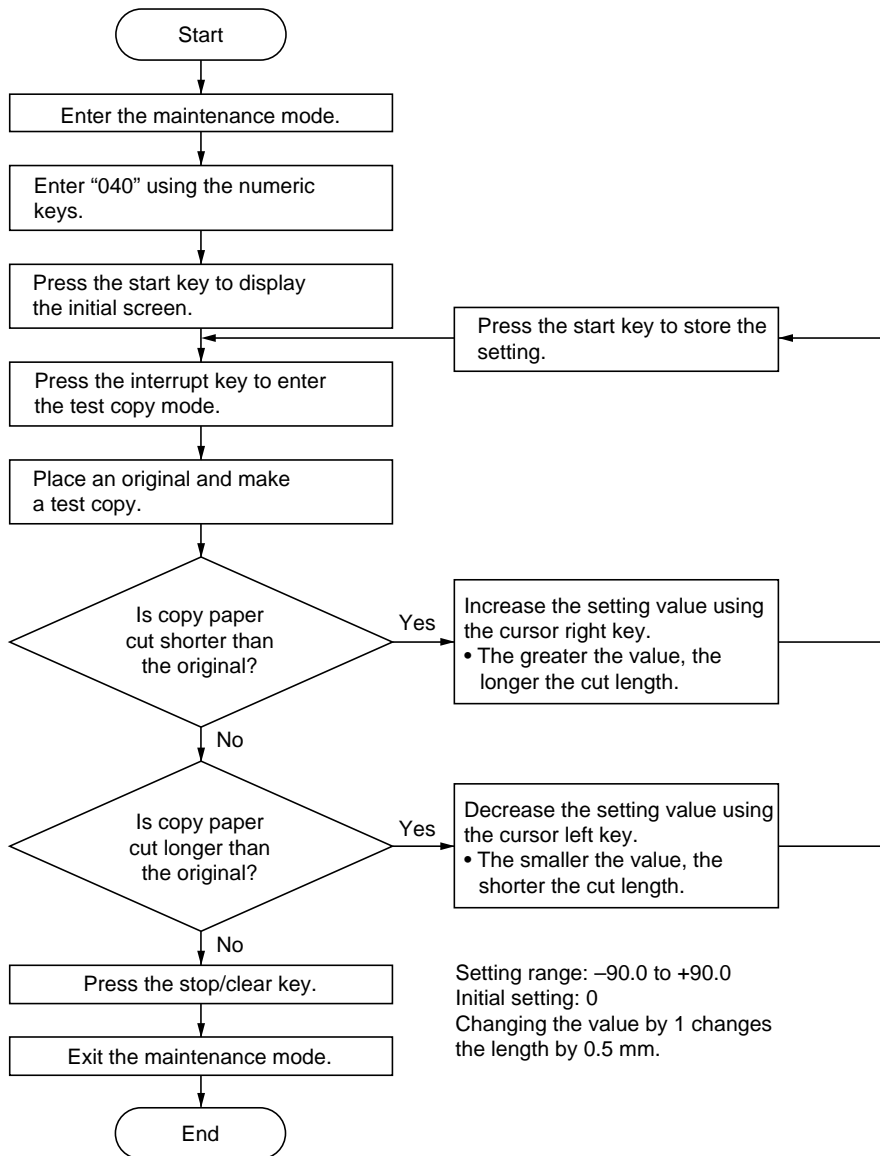
Follow the procedure below if the lengths of the cut copy paper and original are different in synchronized cut copying.

Caution:

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



Procedure

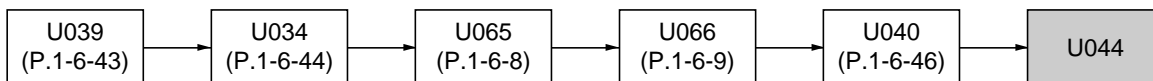


(6) Adjusting the long copy cut length

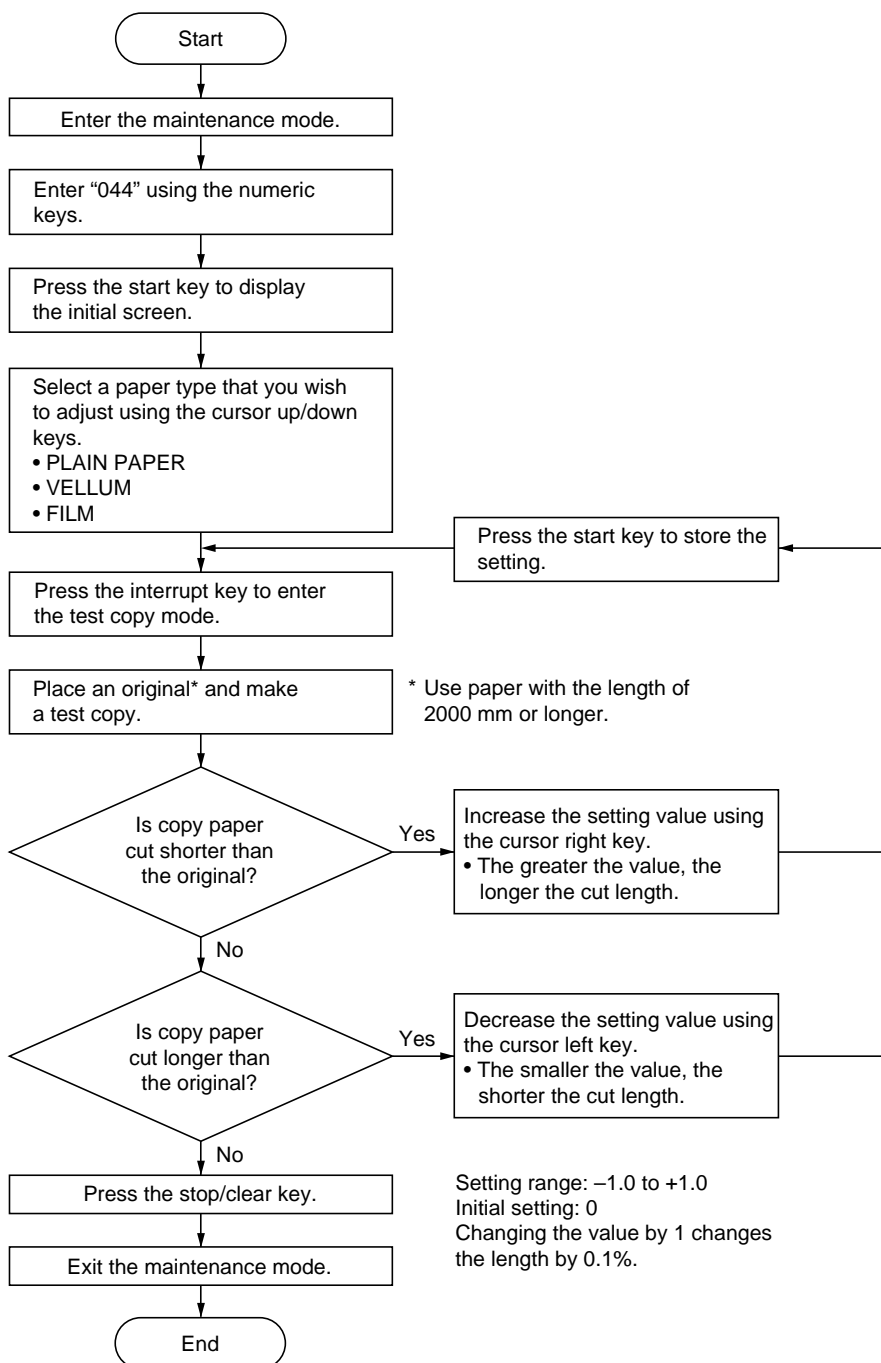
Follow the procedure below if the length of the cut paper is too short when synchronized cut copying is performed using paper with the length of 2000 mm or longer.

Caution:

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



Procedure

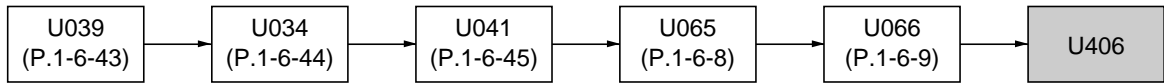


(7) Adjusting the trailing edge margin

Follow the procedure below when the trailing edge margin is not correct (not 0 mm).

Caution:

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



Procedure

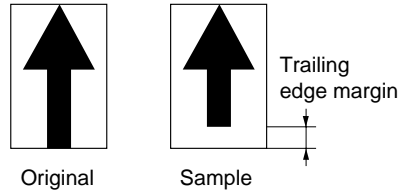
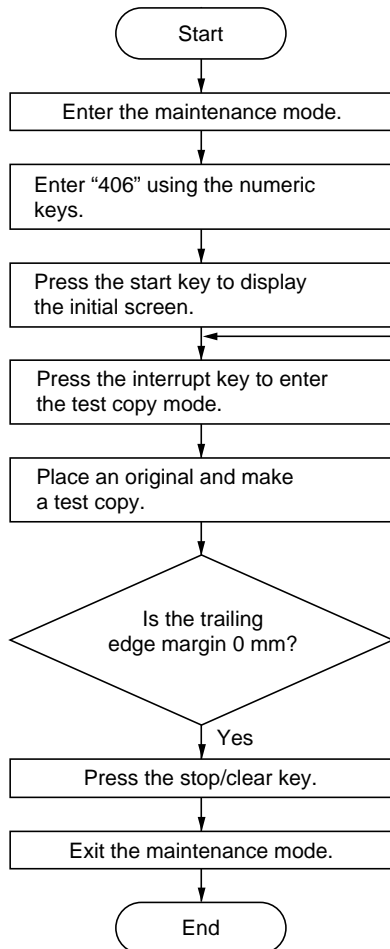


Figure 1-6-78

Press the start key to store the setting.

Change the setting value using the cursor left/right keys.

- The greater the value, the wider the trailing edge margin.
- The smaller the value, the narrower the trailing edge margin.

Setting range: -30 to +30
 Initial setting: 0
 Changing the value by 1 moves the trailing edge by 1.0 mm.

1-6-8 Paper feed section

(1) Attachment and removal of the ozone filter

Follow the procedure below when replacing the ozone filter.

Procedure

1. Open the detachable unit.
2. Remove the screw holding the ozone filter retainer and then detach the retainer.
3. Remove and replace the ozone filter.
4. Refit all the removed parts.

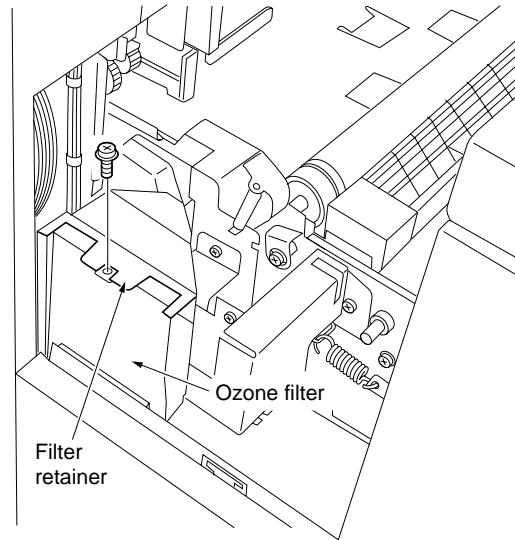


Figure 1-6-79

(2) Attachment and removal of the cooling filter

Follow the procedure below when replacing the cooling filter.

Procedure

1. Open the detachable unit and completely open the eject cover downward (see page 1-6-33).
2. Remove the original table unit (see page 1-6-34).
3. Remove the right upper cover and the left upper cover.
4. Remove and replace the cooling filter.
5. Refit all the removed parts.

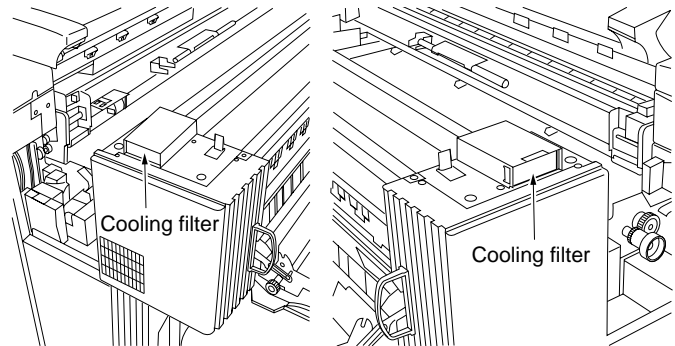


Figure 1-6-80

1-7-1 Replacing the engine main PCB

Procedure

1. Enter the maintenance mode.
2. Run maintenance item U000 to output a list of current settings for the maintenance mode.
3. Exit the maintenance mode.
4. Turn the main switch off and disconnect the power cord.
5. Using the PLCC removal tool, remove the backup ROM from the engine main PCB.
6. Mount the backup ROM on the replacement engine main PCB.
7. Replace the engine main PCB.
8. Insert the CompactFlash memory in CN17 on the engine main PCB.
9. Plug the power cord back in the socket, turn the main switch on, and load the software.
10. When the software is loaded, turn the main switch off and remove the CompactFlash memory.
11. Turn the main switch on and enter the maintenance mode.
12. Run maintenance item U019 to make sure the software has been loaded properly.
13. Run maintenance item U000 to output a list of current settings for the maintenance mode.
14. Compare the lists output in step 2 and step 13. Reset adjustment data that differs to the original setting.
15. Exit the maintenance mode.

1-7-2 Replacing the IPU PCB

Procedure

1. Turn the main switch off and disconnect the power cord.
2. Remove the DIMM from the IPU PCB.
3. Mount the DIMM in the replacement IPU PCB.
4. Replace the IPU PCB.
5. Insert the CompactFlash memory in CN13 on the IPU PCB.
6. Plug the power cord back in the socket, turn the main switch on, and load the software.
7. When the software is loaded, turn the main switch off and remove the CompactFlash memory.
8. Turn the main switch on and enter the maintenance mode.
9. Run maintenance item U019 to make sure the software has been loaded properly.
10. Exit the maintenance mode.

1-7-3 Replacing the scanner PCB

Procedure

1. Turn the main switch off and disconnect the power cord.
2. Replace the scanner PCB.
3. Insert the CompactFlash memory in CN13 on the IPU PCB.
4. Plug the power cord back in the socket, turn the main switch on, and load the software.
5. When the software is loaded, turn the main switch off and remove the CompactFlash memory.
6. Turn the main switch on and enter the maintenance mode.
7. Run maintenance item U019 to make sure the software has been loaded properly.
8. Exit the maintenance mode.

1-7-4 Upgrading the version of the flash ROM firmware (engine main PCB, IPU PCB, and scanner PCB)

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

Precautions

- When writing data to a new CompactFlash from a computer, be sure to format it in advance.
(For formatting, insert a CompactFlash and select a drive.)
For a desktop computer, connect a CompactFlash card reader/writer to it. For a notebook computer, use a PC card adapter or a connection portion only for CompactFlash.
- Always turn the main switch off before removing and connecting connectors.

Procedure

1. Enter the maintenance mode.
2. Run maintenance item U000 to output a list of current settings for the maintenance mode.
3. Exit the maintenance mode.
4. Turn the main switch off and disconnect the power cord.
5. Remove the lower rear cover and main PCB cover.
6. Insert the CompactFlash memory in CN17 on the engine main PCB.
7. Plug the power cord back in the socket, turn the main switch on, and load the software.

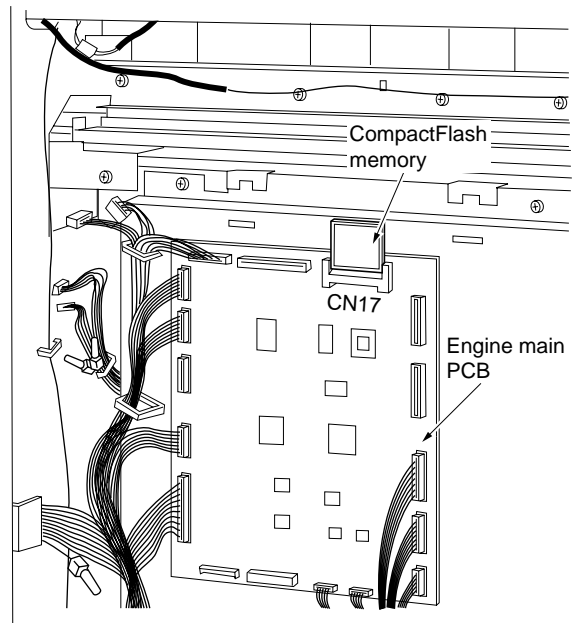


Figure 1-7-1

- Version upgrade begins and a message is displayed on the LCD (for approx. 2 min).
 - When version upgrade is complete, "OK" is displayed by the LCD.
8. Turn the main switch off and disconnect the power cord.

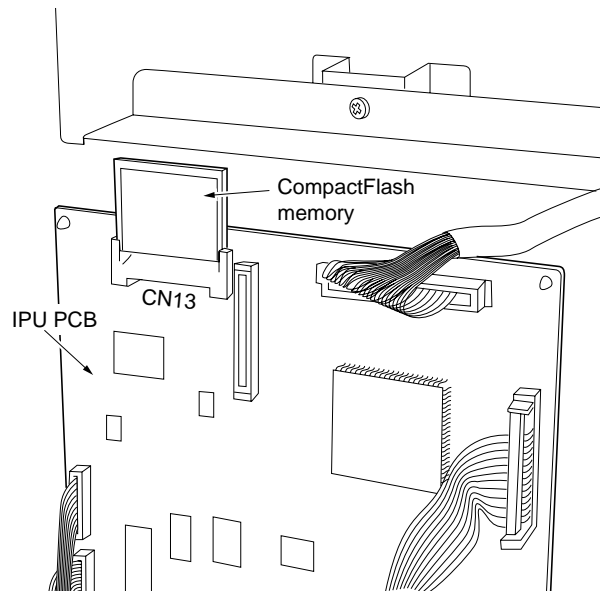


Figure 1-7-2

2A7

9. Remove the CompactFlash memory.
10. Insert the CompactFlash memory in CN13 on the IPU PCB.
 - Load the upgrade version firmware into the CompactFlash memory in advance. (The upgraded firmware for the scanner PCB is transmitted from the IPU PCB.)
11. Plug the power cord back in the socket and turn the main switch on.
 - Version upgrade begins and a message is displayed on the LCD.
 - When version upgrade is complete, "OK" is displayed by the LCD.
12. Turn the main switch off.
13. Remove the CompactFlash memory.

14. Turn the main switch back on.
15. Enter the maintenance mode.
16. Run maintenance item U000 to output a list of current settings for the maintenance mode.
17. Compare the lists output in step 2 and step 16. Reset adjustment data that differs to the original setting.
18. Exit the maintenance mode.

1-7-5 Fixed variable resistor (VR)

Some of the variable resistors adjusted at the factory cannot be adjusted once they leave the factory.

The following variable resistors cannot be adjusted after being shipped from the factory. Do not attempt to adjust these resistors.

- Main high-voltage transformer: VRF, VRMC, VRG, VRB
- ST high-voltage transformer: VR101, VR102, VR201, VR202, VR203
- Drum surface potential PCB: VR1, VR3
- Right and left inverter PCBs: VR1

2-1-1 Mechanical construction of each section

(1) Paper feed and conveying section

The paper feed and conveying section is comprised of the parts shown in Figure 2-1-1. Paper can be fed either manually or automatically from a paper roll.

In the paper feed and conveying section, paper fed from the roll unit or placed on the bypass table is conveyed to the transfer section in synch with the LED on timing of the LPH section.

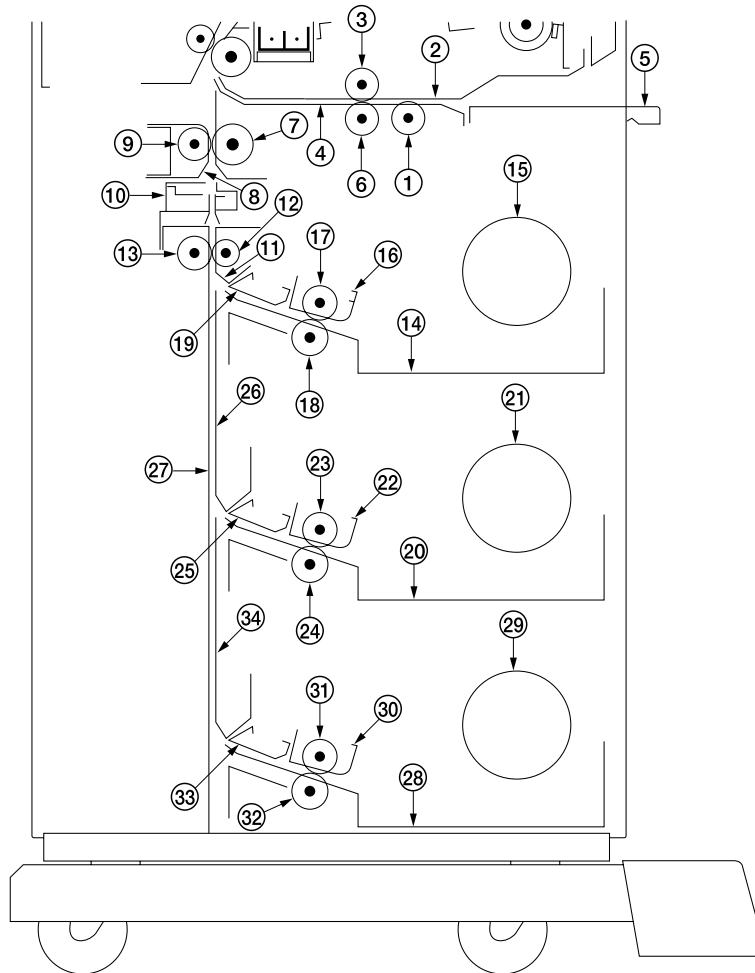


Figure 2-1-1 Paper feed and conveying section

- | | | |
|---------------------------------|---------------------------------|------------------------------------|
| ① Bypass feed roller | ⑬ Cutter insertion rear roller | ⑳ Paper roll front guide |
| ② Bypass upper guide | ⑭ Roll base* | ㉑ Roll paper conveying front guide |
| ③ Bypass upper roller | ⑮ Roll flange | ㉒ Roll paper conveying rear guide |
| ④ Bypass lower guide | ⑯ Roll paper feed upper guide* | ㉓ Roll base |
| ⑤ Bypass table | ⑰ Roll paper feed upper roller* | ㉔ Roll flange |
| ⑥ Bypass lower roller | ⑱ Roll paper feed lower roller* | ㉕ Roll paper feed upper guide |
| ⑦ Roll registration roller | ㉒ Paper roll front guide* | ㉖ Roll paper feed upper roller |
| ⑧ Cutter eject rear guide | ㉓ Roll base | ㉗ Roll paper feed lower roller |
| ⑨ Roll registration pulley | ㉔ Roll flange | ㉘ Paper roll front guide |
| ⑩ Cutter unit | ㉕ Roll paper feed upper guide | ㉙ Roll paper conveying front guide |
| ⑪ Cutter insertion front guide | ㉖ Roll paper feed upper roller | |
| ⑫ Cutter insertion front roller | ㉗ Roll paper feed lower roller | |
- * Parts ⑭ to ⑱ are present when the upper roll unit (optional) is installed.

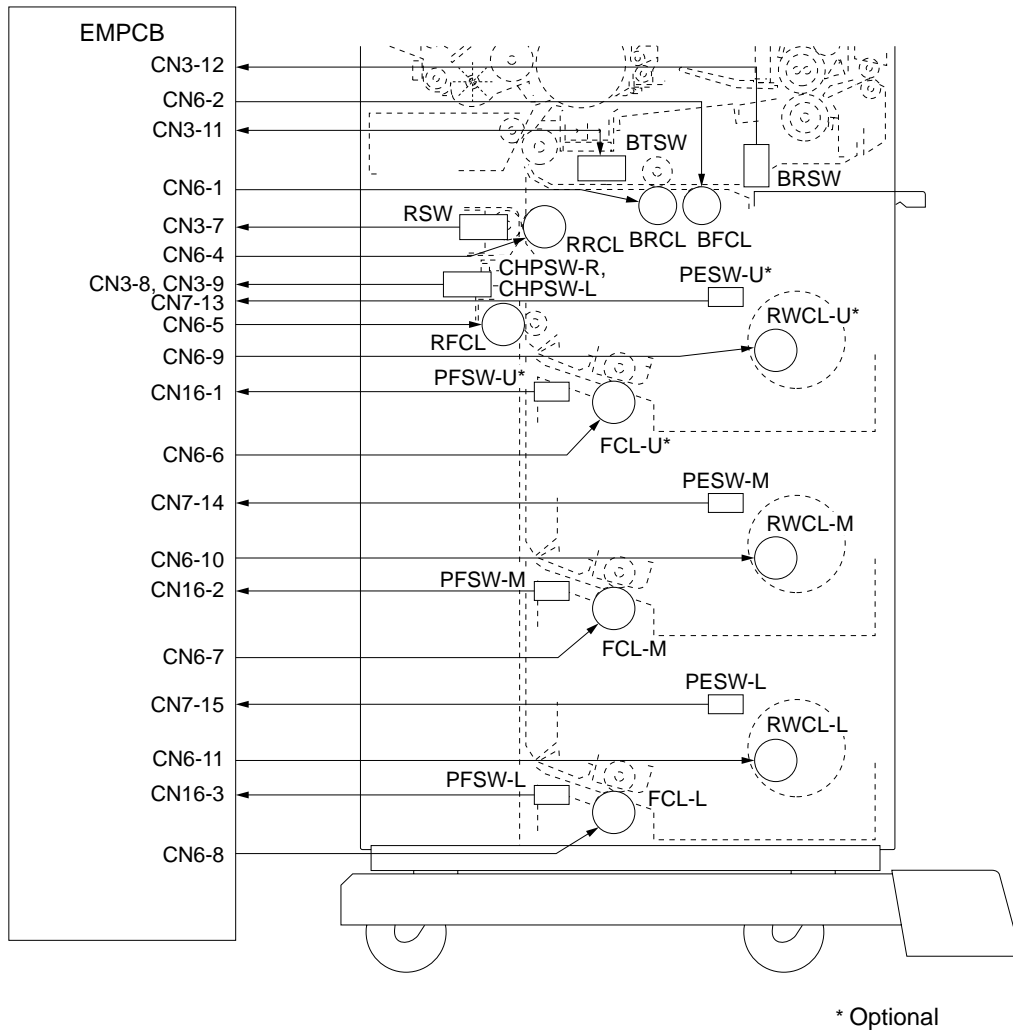


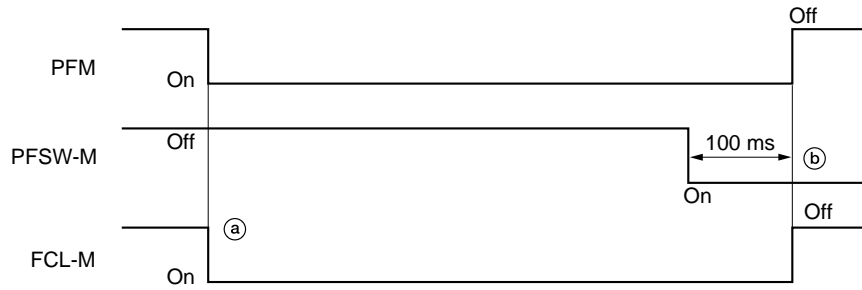
Figure 2-1-2 Block diagram of the paper feed and conveying section

Winding operation of paper roll

The leading edge of the paper in the roll unit is first fed to the home position (copy ready position) by the winding operation, where it is ready for copying.

- A. After the following operations, if the leading edge of the paper roll is not at the home position, the winding operation for that roll unit will be performed.
- 1) After pressing the reset key.
 - 2) After performing the auto clear function.
 - 3) After changing the paper feed position with the paper source key.
 - 4) One minute after a copy cycle ends and the ready lamp (copy ready indicator) lights. (If any key is pressed after the ready lamp is lit, another minute will be counted after the key press.)
 - 5) After opening/closing the detachable unit (cycling safety switches 1 and 2), the eject cover (cycling safety switch 3), the lower right cover (cycling safety switch 4), or the front covers (cycling safety switches 5 and 6).
- B. After the following operation, the winding operation for all the roll units will be performed. (Winding starts with the lowest roll unit.)
- 1) After opening/closing the front covers (cycling safety switches 5 and 6).

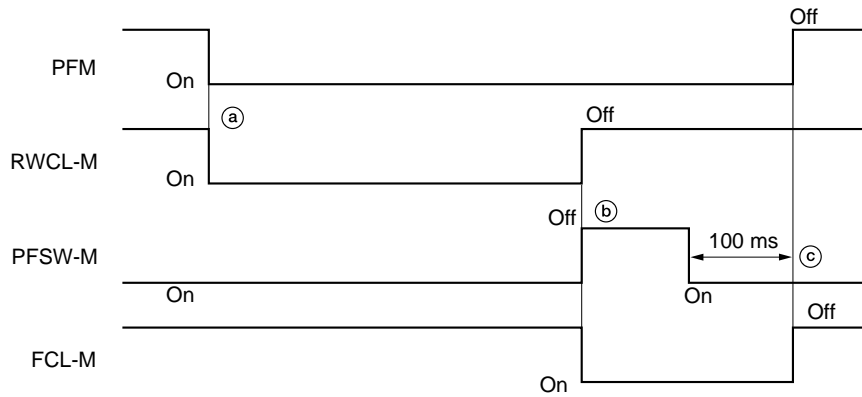
• With the paper feed switch off



Timing chart 2-1-1 Winding operation for the middle roll unit (1)

- a: The paper feed motor (PFM) and the middle feed clutch (FCL-M) turn on, and the paper is conveyed in the feed direction.
- b: 100 ms after the middle paper feed switch (PFSW-M) is turned on, the middle feed clutch (FCL-M) and the paper feed motor (PFM) turn off and the leading edge of the paper stops at the home position (copy ready position).
- Winding operation for the upper and lower roll units is performed similarly.

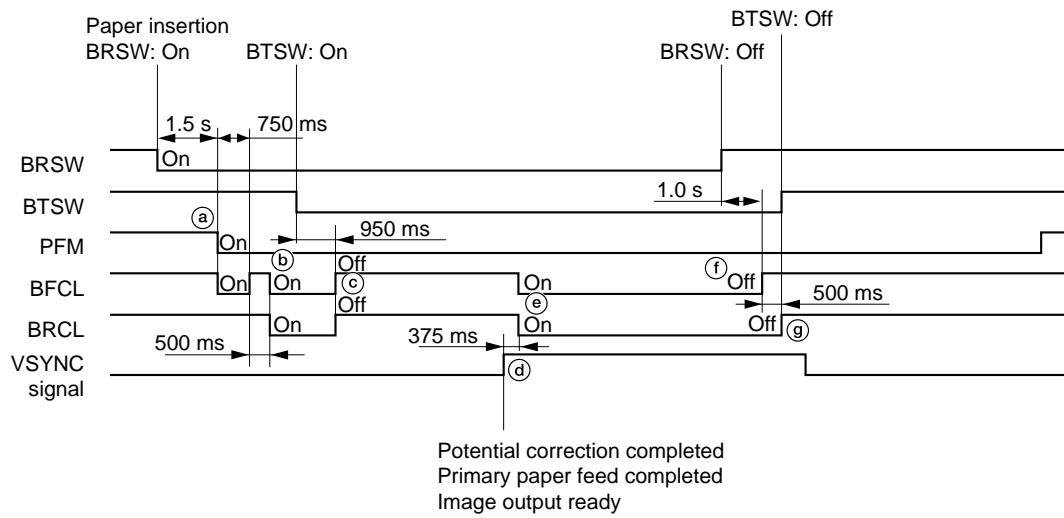
• With the paper feed switch on



Timing chart 2-1-2 Winding operation for the middle roll unit (2)

- a: The paper feed motor (PFM) and the middle roll winding clutch (RWCL-M) turn on, and the paper starts to wind.
- b: After the middle paper feed switch (PFSW-M) is turned off, the middle roll winding clutch (RWCL-M) turns off and the middle feed clutch (FCL-M) turns on, and the paper is conveyed in the feed direction.
- c: 100 ms after the middle paper feed switch (PFSW-M) is turned on, the middle feed clutch (FCL-M) and the paper feed motor (PFM) turn off, and the leading edge of the paper stops at the home position (copy ready position).
- Winding operation for the upper and lower roll units is performed similarly.

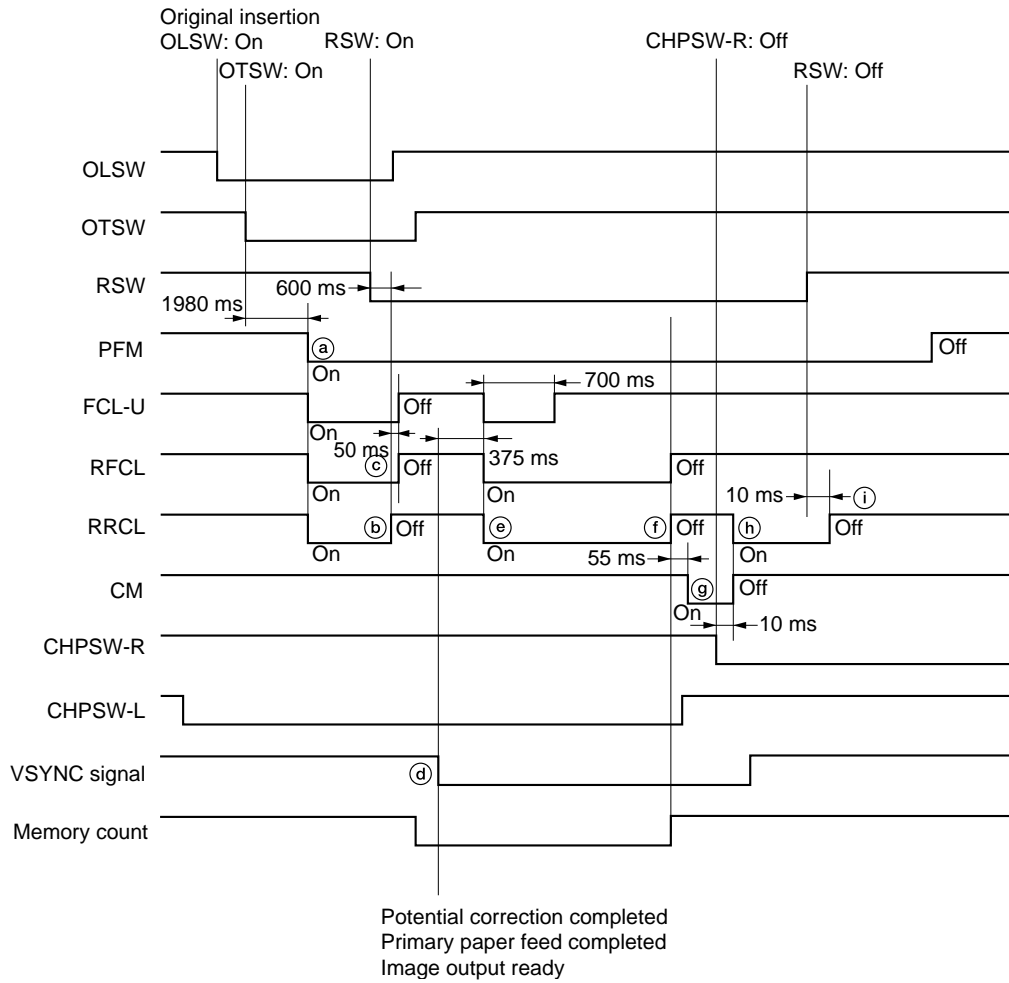
(1-1) Bypass paper feed



Timing chart 2-1-3 Bypass paper feed

- a: 1.5 s after the bypass registration switch (BRSW) is turned on by inserting paper into the bypass table, the paper feed motor (PFM) turns on and the bypass feed clutch (BFCL) turns on for 750 ms, and forwarding of the inserted paper starts.
- b: 500 ms after the bypass feed clutch (BFCL) turns off, the bypass feed clutch (BFCL) and the bypass registration clutch (BRCL) turn on to start the primary paper feed.
- c: 950 ms after the bypass timing switch (BSW) is turned on, the bypass feed clutch (BFCL) and the bypass registration clutch (BRCL) turn off, and the paper stops at the copy ready position.
- d: Potential correction and the primary paper feed are completed and image output is ready. After these secondary paper feed start conditions are satisfied, the VSYNC signal is turned on.
- e: The bypass feed clutch (BFCL) and the bypass registration clutch (BRCL) turn on to convey the paper to the transfer section.
- f: 1.0 s after the bypass registration switch (BRSW) is turned off, the bypass feed clutch (BFCL) turns off.
- g: 500 ms after the bypass feed clutch (BFCL) turns off, the bypass registration clutch (BRCL) turns off, and the paper feed operation is completed.

(1-2) Roll unit paper feed



Timing chart 2-1-4 Roll unit paper feed

- a: 1980 ms after the original is inserted and the original trailing edge switch (OTSW) is turned on, the paper feed motor (PFM), the feed clutch for currently selected roll unit [the upper/middle/lower feed clutches (FCL-U/M/L)], the roll feed clutch (RFCL), and the roll registration clutch (RRCL) turn on to start feeding the paper in the selected roll unit.
- b: The paper turns the registration switch (RSW) on. After 600 ms, the roll registration clutch (RRCL) turns off and the paper stops. (Primary paper feed is completed.)
- c: 50 ms after the roll registration clutch (RRCL) turns off, the upper/middle/lower feed clutches (FCL-U/M/L) turn off to make paper slack in the lower part of the paper cutting section.
- d: Potential correction and the primary paper feed are completed and image output is ready. After these secondary paper feed start conditions are satisfied, the PSYNC signal is turned on.
- e: The roll feed clutch (RFCL) and roll registration clutch (RRCL) turn on, and the upper/middle/lower feed clutches (FCL-U/M/L) turn on for 700 ms to start the secondary paper feed.
- f: When the paper length reaches the memory count value, the roll feed clutch (RFCL) and roll registration clutch (RRCL) turn off.
- g: 55 ms after the paper length reaches the memory count value, the cutter motor (CM) turns on and the paper is cut.
- h: 10 ms after the right cutter home position switch (CHPSW-R) is turned off, the cutter motor (CM) turns off and the cutter stops at the home position. At the same time, the roll registration clutch turns off and the cut paper is conveyed.
- i: 10 ms after the registration switch (RSW) is turned off, the roll registration clutch (RRCL) turns off to complete secondary paper feed.

(2) Main charger section

The main charger section is comprised of the drum, the drum surface potential sensor (DPS), the main charger unit and the main grid as shown in Figure 2-1-3.

The drum is electrically charged uniformly by means of the main grid to form a static latent image on the surface. The drum surface potential sensor measures the dark potential of the drum surface.

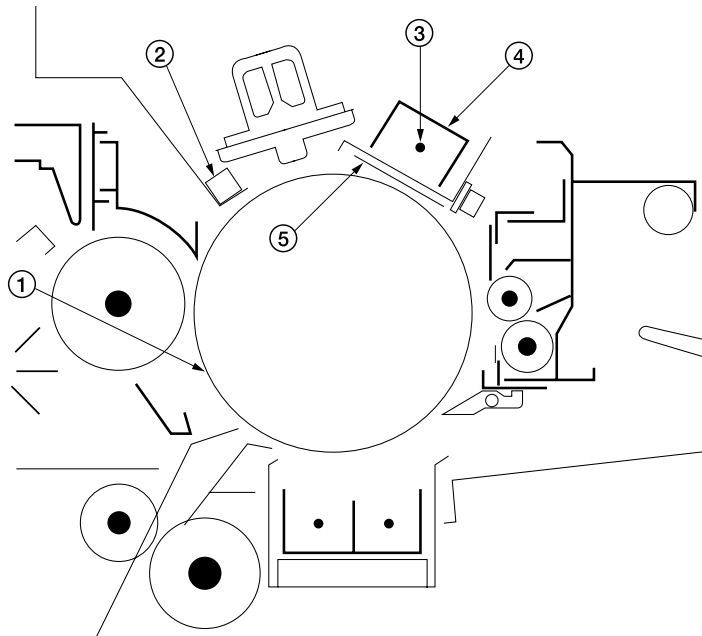


Figure 2-1-3 Main charger section

- | | |
|--|---------------------|
| ① Drum | ④ Main charger unit |
| ② Drum surface potential sensor (DPS) | ⑤ Main grid |
| ③ Charger wire (gilding tungsten oxide wire) | |

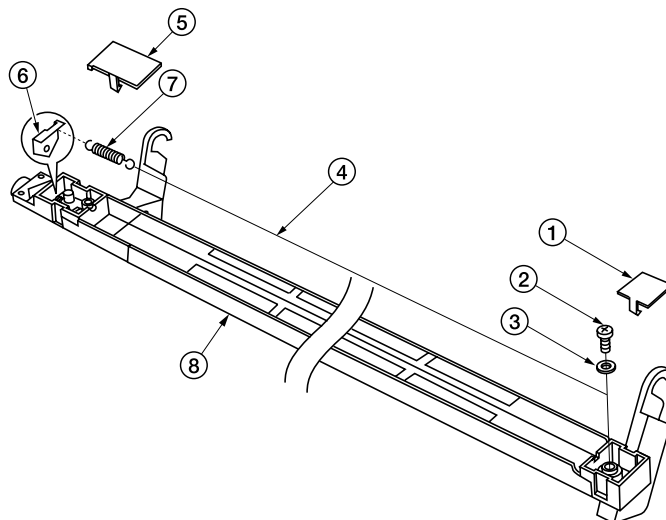


Figure 2-1-4 Main charger unit

- | | |
|--|-------------------------|
| ① Right main charger lid | ⑤ Left main charger lid |
| ② Screw | ⑥ Main charger terminal |
| ③ Washer | ⑦ Charger spring |
| ④ Charger wire (gilding tungsten oxide wire) | ⑧ Main charger shield |

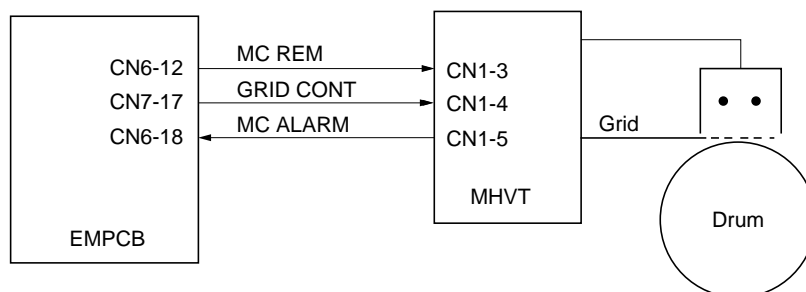
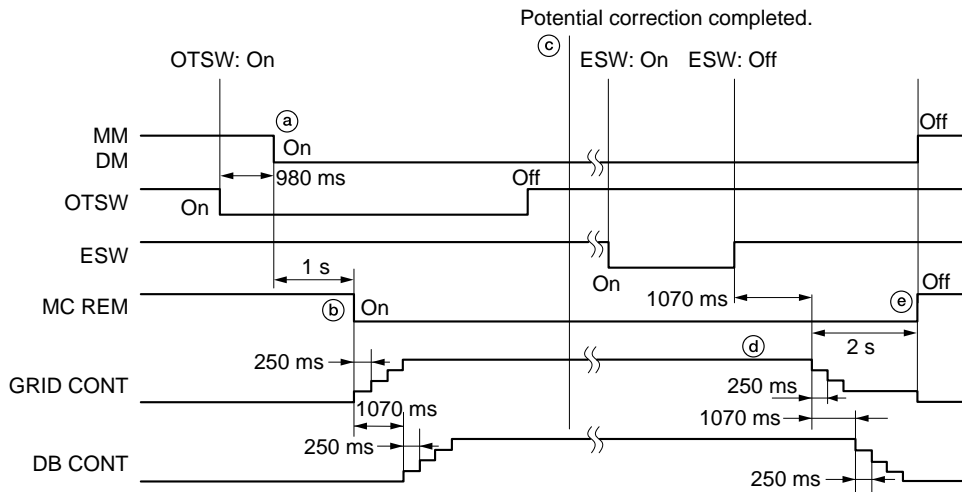


Figure 2-1-5 Block diagram of the main charger section



Timing chart 2-1-5 Operation of the main high-voltage transformer

- a: 980 ms after the original is inserted and the original trailing edge switch (OTSW) is turned on, the main motor (MM) and drum motor (DM) turn on.
- b: 1 s after the main motor (MM) and drum motor (DM) turn on, main charging (MC REM) starts. The grid voltage (GRID CONT) and developing bias voltage (DB CONT) are controlled stepwise to increase the drum potential gradually.
- c: When the drum potential reaches 780 V DC, potential correction is completed.
- d: 1070 ms after copying is completed and the eject switch (ESW) is turned off, the grid voltage (GRID CONT) and developing bias voltage (DB CONT) are controlled stepwise to decrease the drum potential gradually.
 - When there is no request for toner replenishment, the voltages are controlled stepwise as soon as the eject switch is turned off. If there is a request for toner replenishment, the voltages will be controlled stepwise after toner is replenished.
- e: When the grid voltage (GRID CONT) step-down control ends, main charging (MC REM) ends.

(3) Exposure and original conveying section

Exposure is accomplished by scan exposure method with a moving original. The left and right xenon lamps (XL-R/L) used as the light source. While being conveyed across the contact glass by the rollers, the original is exposed by the xenon lamps and the exposed image is read by the CIS (contact image sensor).

The CIS reads the reflection of the xenon lamp light on the middle upper original roller (white reference) to maintain the intensity constant.

The original is fed by the rotation of the front/middle/rear upper original rollers and the front/rear lower original rollers. These rollers are controlled by the original leading edge switch (OLSW) and the original trailing edge switch (OTSW). The original motor (OM) drives the original feed section.

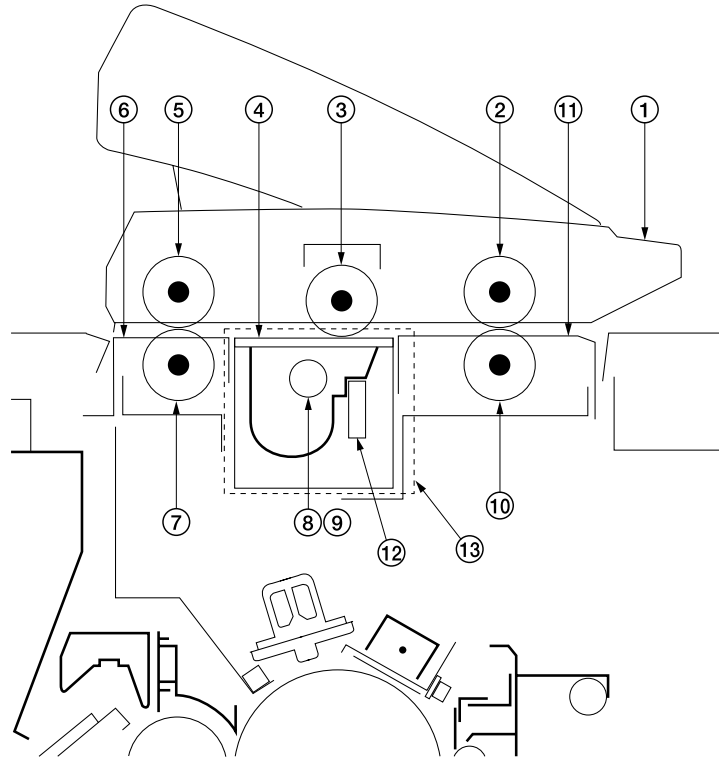


Figure 2-1-6 Exposure and original conveying section

- | | |
|--------------------------------|-------------------------------|
| ① Original cover | ⑧ Right xenon lamp (XL-R) |
| ② Front upper original roller | ⑨ Left xenon lamp (XL-L) |
| ③ Middle upper original roller | ⑩ Front lower original roller |
| ④ Contact glass | ⑪ Original feed front guide |
| ⑤ Rear upper original roller | ⑫ SLA (SELFOC lens array) |
| ⑥ Original feed rear guide | ⑬ CIS (contact image sensor) |
| ⑦ Rear lower original roller | |

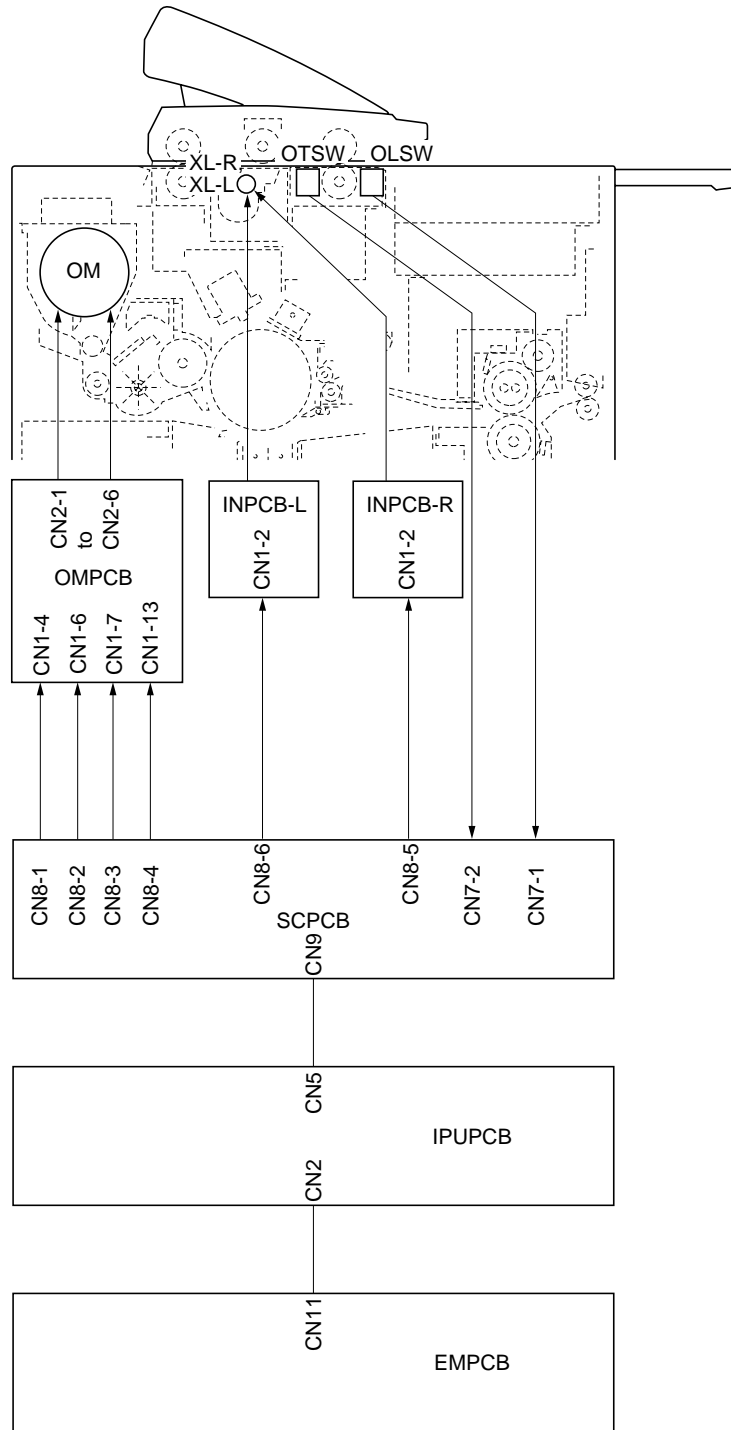
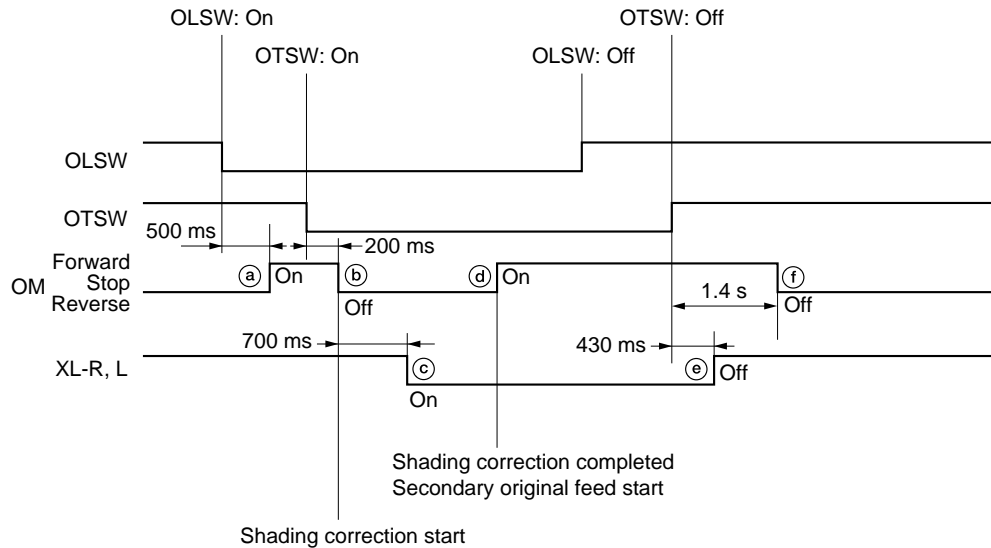


Figure 2-1-7 Block diagram of the exposure and original conveying section



Timing chart 2-1-6 Operation of the exposure and original conveying section

- a: 500 ms after the original is inserted and the original leading edge switch (OLSW) is turned on, the original motor (OM) starts to rotate forward to start conveying the original.
- b: 200 ms after the original is conveyed and the original trailing edge switch (OTSW) is turned on, the original feed clutch (OFCL) turns off and the original stops at the copy ready position. At the same time, the shading correction of the CIS (contact image sensor) starts.
- c: 700 ms after the original motor (OM) turns off, the right and left xenon lamps (XL-R/L) light.
- d: When the shading correction is completed, the original motor (OM) again turns on. The secondary original feed starts and the original is conveyed across the contact glass for exposure.
- e: Original exposure is completed. 430 ms after the original trailing edge switch (OTSW) is turned off, the right and left xenon lamps (XL-R/L) go off.
- f: 1.4 s after the original trailing edge switch (OTSW) is turned off, the original motor (OM) turns off to complete conveying the original.

(4) CIS and LPH section

In the CIS and LPH section, the CIS reads the original image exposed by the right and left xenon lamp (XL-R/L) and the drum surface is irradiated by the LPH to form a static latent image on it.

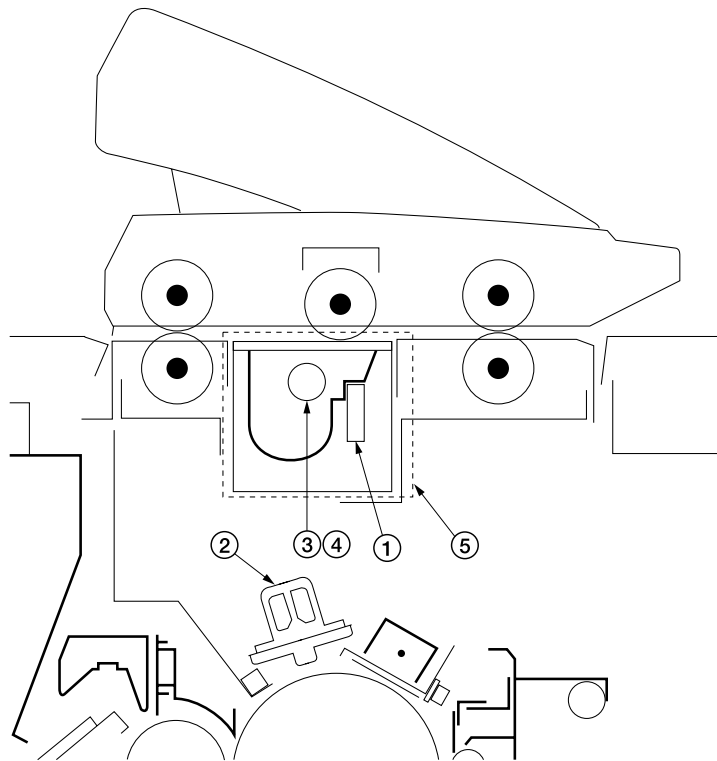


Figure 2-1-8 CIS and LPH section

- | | |
|---------------------------|------------------------------|
| ① SLA (SELFOC lens array) | ④ Left xenon lamp (XL-L) |
| ② LPH (LED printhead) | ⑤ CIS (contact image sensor) |
| ③ Right xenon lamp (XL-R) | Contains ①, ③ and ④. |

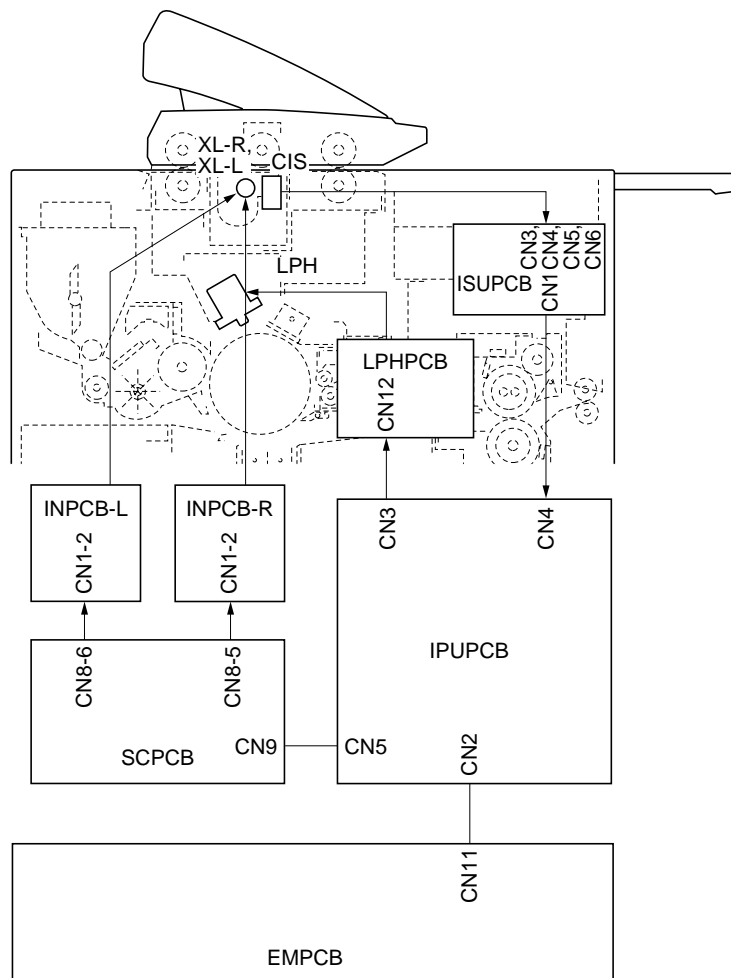


Figure 2-1-9 Block diagram of the CIS and LPH section

Original image reading

The CIS (contact image sensor) consists of four channels of 3712 phototransistors. The original image is read by 14592 phototransistors along a line of the width of A0 (934 mm), and its analog data is sent to the ISU PCB (ISUPCB).

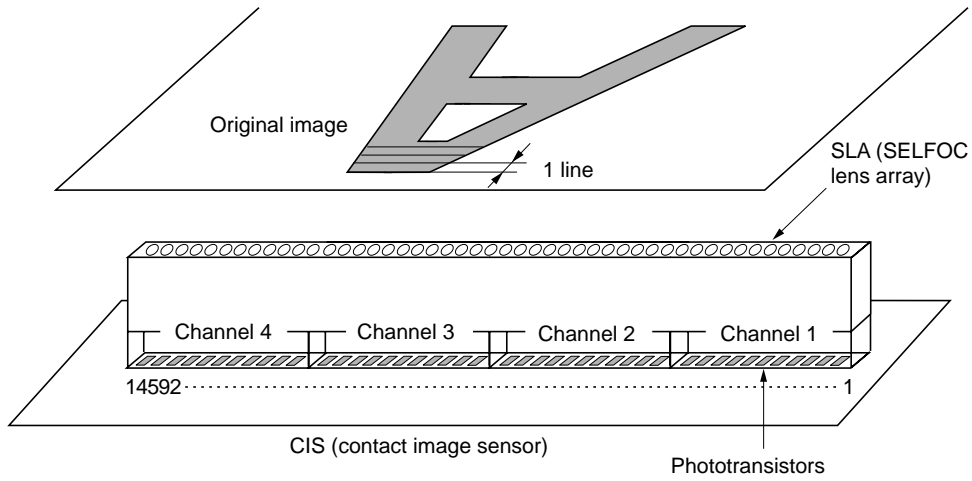


Figure 2-1-10 Original image reading

Static latent image formation

The LPH (LED printhead) consists of 14592 LEDs which are turned on and off based on the image data read by the CIS to form a static latent image on the drum surface line by line. Toner adheres only to the areas irradiated by the lit LEDs, so the image is formed.

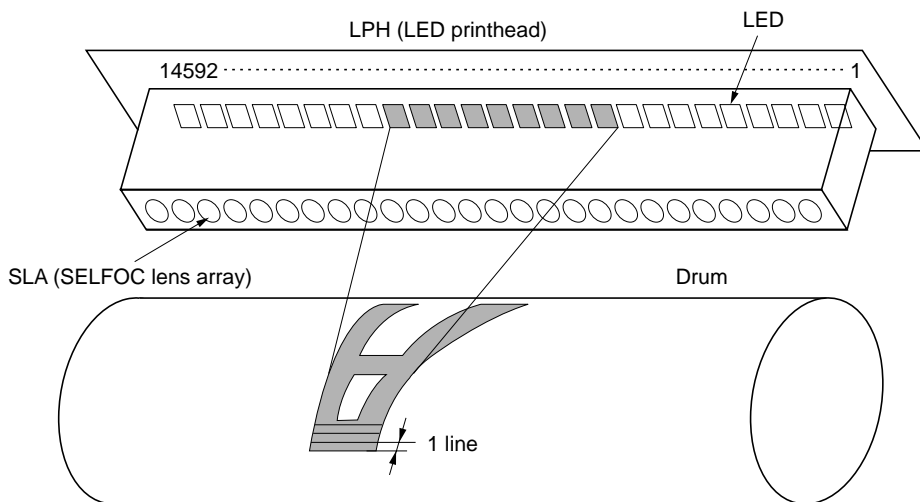
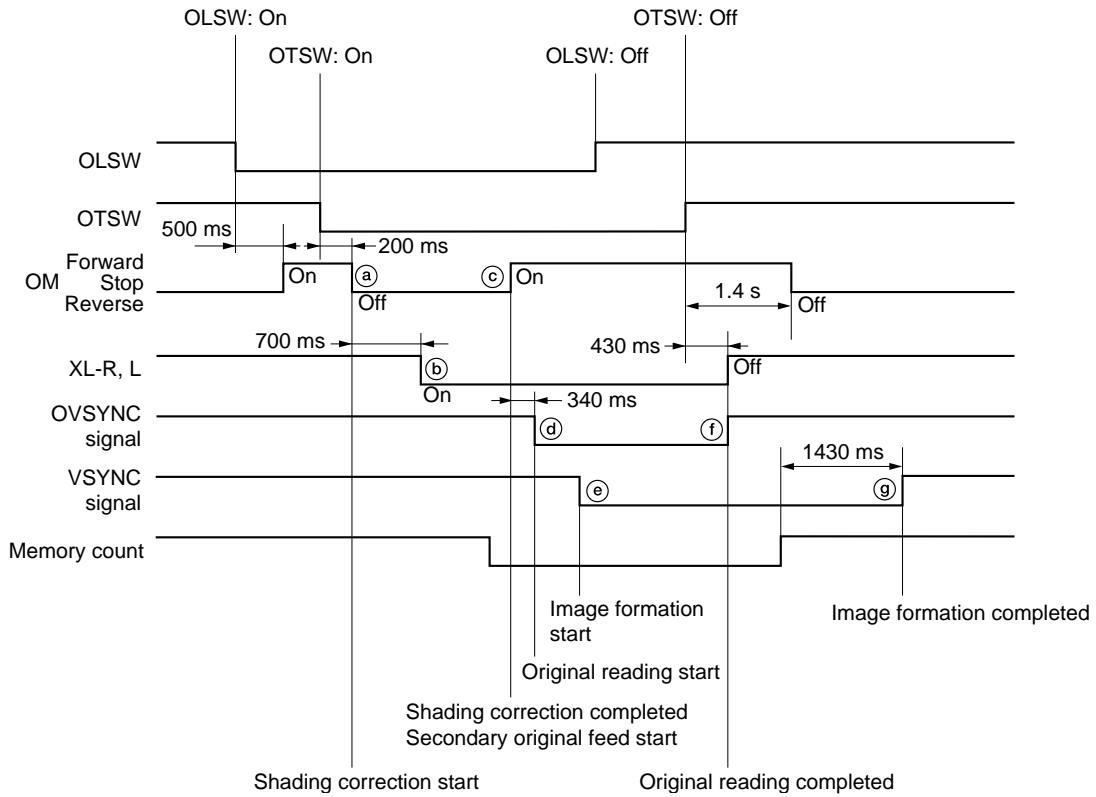


Figure 2-1-11 Static latent image formation



Timing chart 2-1-7 Image reading and formation

- a: 200 ms after the original is conveyed and the original trailing edge switch (OTSW) is turned on, the CIS (contact image sensor) starts shading correction.
- b: 700 ms after the original motor (OM) turns off, the right and left xenon lamps (XL-R/L) light.
- c: When the shading correction is completed, the original motor again turns on to start the secondary original feed.
- d: 340 ms after the original motor (OM) turns on, the OVSYNC signal is turned on and the CIS starts to read the original image.
OVSYNC: original leading edge synchronization signal
- e: When the potential correction and the primary paper feed are completed and image formation is ready, the VSYNC signal is turned on and LPH forms a static latent image.
VSYNC: image formation synchronization signal
- f: 430 ms after the original trailing edge switch (OTSW) is turned off, the OVSYNC signal is turned off to complete image reading. At the same time, the right and left xenon lamps (XL-R/L) go off and then the original motor (OM) turns off.
- g: 1430 ms after the paper length reaches the memory count value, the VSYNC signal is turned off to complete the image formation.

(5) Developing section

The developing section is comprised of the developing unit assembly and the toner hopper assembly. The developing unit assembly is comprised of the developing roller and doctor blade which form a magnetic brush, and the developer paddle and developer spiral roller which mix the developer. The toner hopper assembly is installed on the top of the developing unit assembly to supply toner to the developing unit assembly and is comprised of the toner feed roller and the toner agitation rod.

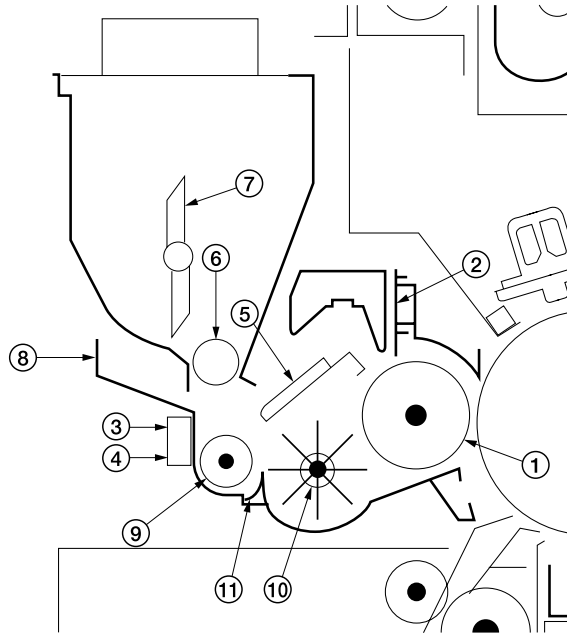


Figure 2-1-12 Developing section

- | | |
|------------------------------------|----------------------------|
| ① Developing roller | ⑦ Toner agitation rod |
| ② Doctor blade | ⑧ Developing unit housing |
| ③ Developing unit thermistor (DTH) | ⑨ Developer spiral roller |
| ④ Toner sensor (TNS) | ⑩ Developer paddle |
| ⑤ Developing unit partition | ⑪ Developing support plate |
| ⑥ Toner feed roller | |

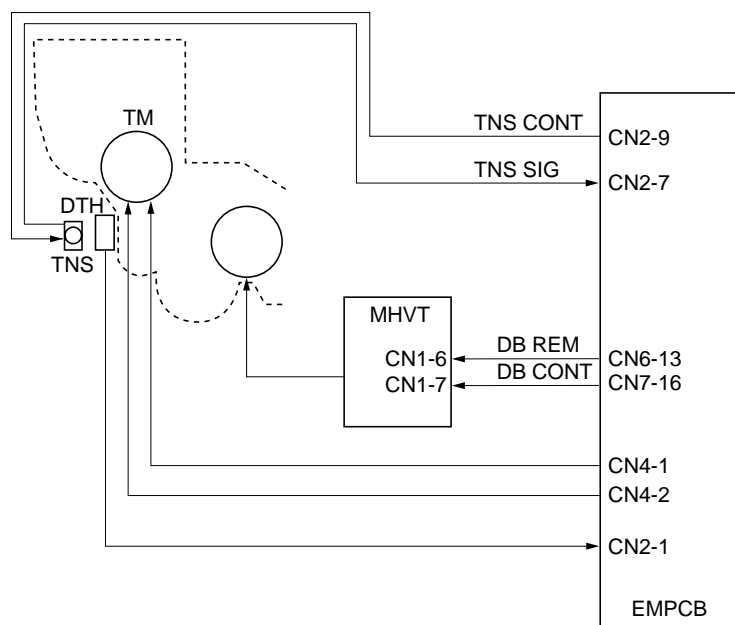
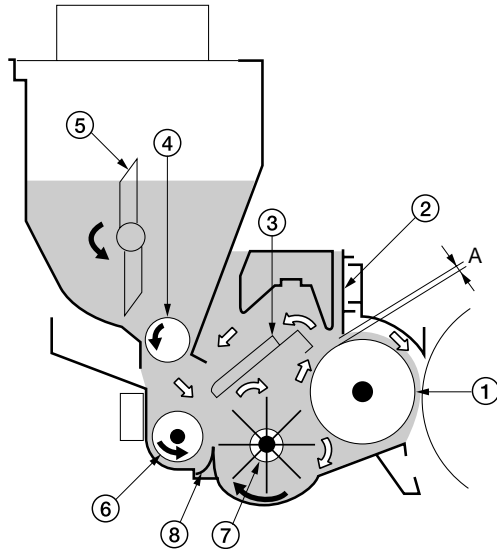


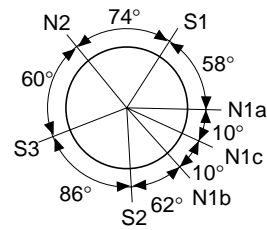
Figure 2-1-13 Block diagram of the developing section

Forming the magnetic brush

The developer flows by the rotation of the developing roller and the magnetic brush is formed on poles N1a, N1b and N1c. The height of the magnetic brush is set by the doctor blade. The developing bias voltage (650 V DC) which is output from the main high-voltage transformer (MHVT) is applied to the developing roller to improve the image contrast. When the drum surface potential reaches 0 V after completion of copying, the developing bias voltage is switched to -100 V DC to prevent toner and carrier from adhering to the drum.



A (gap between doctor blade and developing roller):
 0.58 to 0.66 mm around the center
 0.68 to 0.76 mm at both ends



- N1a: $830 \times 10^{-4} \pm 50 \times 10^{-4}T$
- N1b: $1020 \times 10^{-4} \pm 50 \times 10^{-4}T$
- N1c: $680 \times 10^{-4} \pm 70 \times 10^{-4}T$
- N2: $620 \times 10^{-4} \pm 50 \times 10^{-4}T$
- S1: $810 \times 10^{-4} \pm 50 \times 10^{-4}T$
- S2: $715 \times 10^{-4} \pm 50 \times 10^{-4}T$
- S3: $580 \times 10^{-4} \pm 50 \times 10^{-4}T$

Figure 2-1-14 Forming the magnetic brush and agitation of the developer

- ① Developing roller
- ② Doctor blade
- ③ Developing unit partition
- ④ Toner feed roller
- ⑤ Toner agitation rod
- ⑥ Developer spiral roller
- ⑦ Developer paddle
- ⑧ Developing support plate

Toner density control

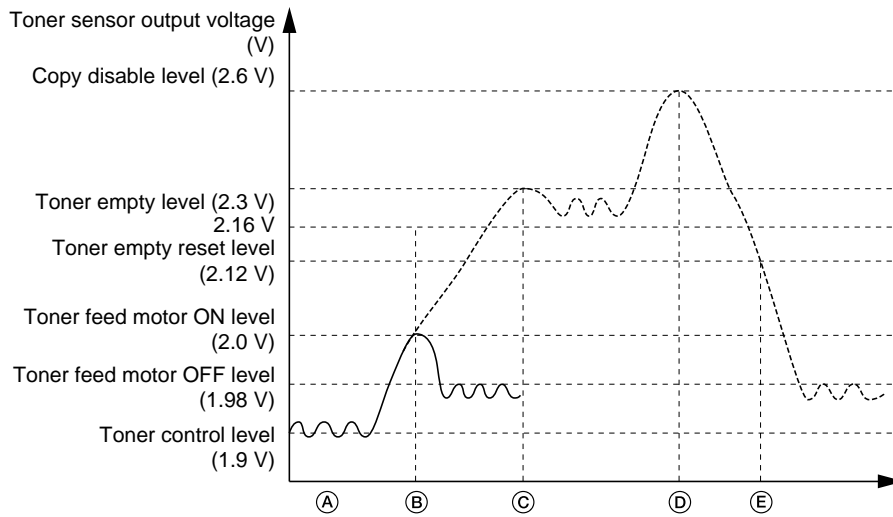


Figure 2-1-15 Toner density control

- A: While maintenance item U130 (Initial setting for the developer) is performed, the toner sensor control voltage (TNS CONT) is set so that the toner sensor output voltage becomes the reference value of 1.9 V (toner control level).
- B: If the temperature- and developing count-corrected toner sensor output voltage reaches the toner feed motor ON level, the toner feed motor (TM) turns on (for 0.5 s) and off (for 1.0 s) repeatedly only while the main motor (MM) is on, and supply toner from the toner hopper to developing unit assembly. When a dark original is copied and the toner sensor output voltage exceeds 2.16 V, the toner feed motor (TM) turns on (for 1.0 s) and off (for 1.5 s) repeatedly and supply toner. When the toner sensor output voltage falls until it drops below the toner feed motor OFF level, the toner feed motor (TM) turns off.
- C: If the toner sensor output voltage rises further and remains 0.3 V or more above the toner control level for 15 s, the toner empty level is detected and the message requesting toner to be replenished is displayed.
- D: If the toner sensor output voltage rises 0.3 V or more above the toner control level, copy disable level is detected. The message requesting toner to be replenished is displayed and copying operation is disabled.
- E: When toner is replenished to the toner hopper and the toner replenishing slot is closed (cycling the toner replenishing slot opening cover switch) or the detachable unit and the lower right cover is opened/closed (cycling safety switches 1, 2 and 4), the toner feed motor (TM) turns on (for 1.0 s) and off (for 1.0 s) repeatedly and toner will be replenished for 6 minutes maximum. While replenishing toner, the message indicating that toner is being replenished appears. When the toner sensor output voltage falls until it drops below the toner empty reset level, aging is performed for 2 minutes with no toner being replenished and copying operation is enabled.

Correcting the toner sensor control voltage

The toner sensor control voltage (TNS CONT) is set while maintenance item U130 (Initial setting for the developer) is performed. It is corrected based on the change of temperature of the developing section and developing count.

Corrected toner sensor control voltage = toner sensor control voltage set by the maintenance item U130 + correction value based on the temperature + correction value based on the developing count

• Toner sensor control voltage corrected based on the temperature

The toner sensor control voltage is corrected as below based on the temperature of the developing section detected by the developing unit thermistor (DTH).

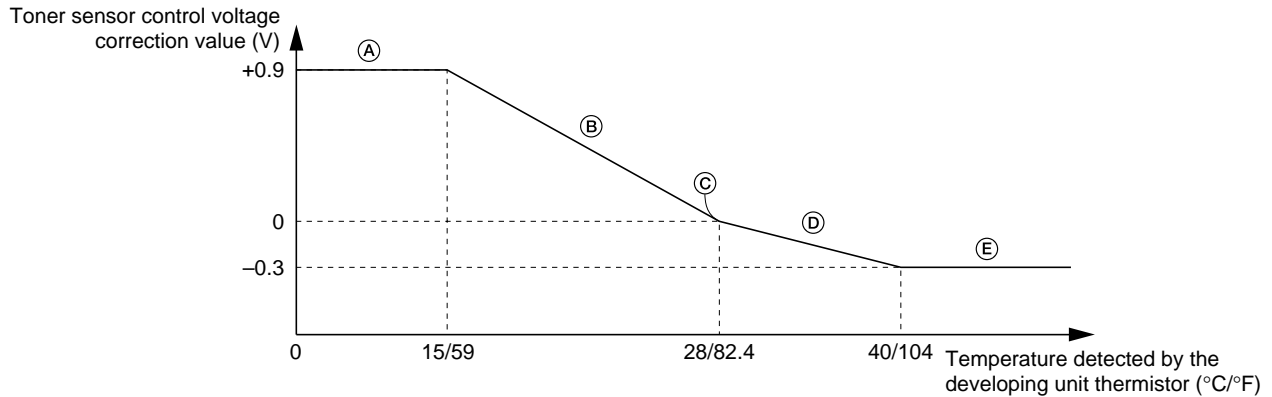


Figure 2-1-16 Toner control level correction based on the temperature

- A: When the temperature detected by the developing unit thermistor is below 15°C/59°F, a constant value of +0.9 V is added to toner sensor control voltage.
- B: When the temperature detected by the developing unit thermistor is between 15 to 28°C/59 to 82.4°F, the correction value is reduced according to the rise of the temperature.
- C: When the temperature detected by the developing unit thermistor becomes 28°C/82.4°F, the correction value becomes 0 and the toner sensor control voltage is not corrected.
- D: When the temperature detected by the developing unit thermistor is between 28 to 40°C/82.4 to 104°C, the correction value is below 0 and decreases the toner sensor control voltage according to the rise of the temperature.
- E: When the temperature detected by the developing unit thermistor is above 40°C/104°F, the correction value becomes a constant value of -0.3 V, decreasing the toner sensor control voltage.

• Correcting the toner sensor control voltage based on the developing section total drive time

The toner sensor control voltage is corrected as below based on the developing section total drive time (total drive time of the main motor).

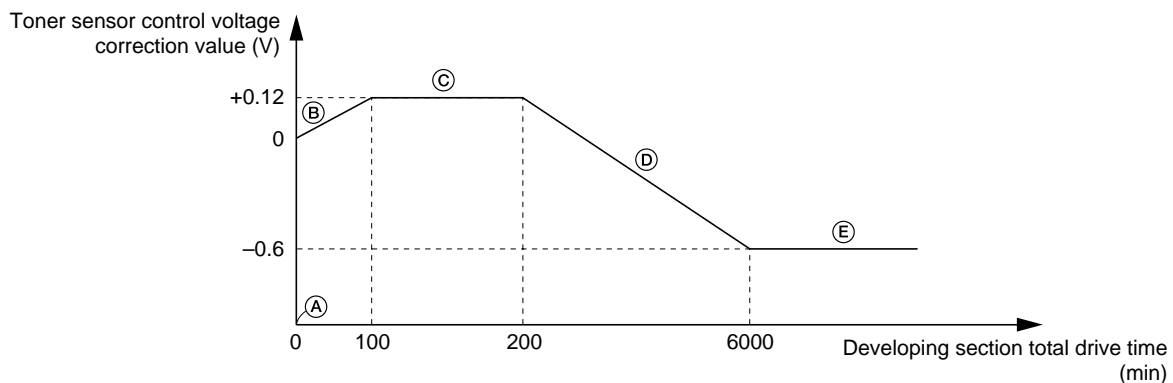


Figure 2-1-17 Toner control level correction based on the developing section total drive time

- A: During the initial setting for the developer (maintenance item U130 performed), the developing count is reset to 0.
- B: When the developing section total drive time is between 0 to 100 min, the correction value is increased according to the change of the developing count, increasing the toner sensor control voltage to increase the toner density.
- C: When the developing section total drive time is between 100 to 200 min, a constant value of +0.12 V is added to the toner sensor control voltage.
- D: When the developing section total drive time is between 200 to 6000 min, the correction value is decreased according to the change of the developing count, decreasing the toner sensor control voltage to decrease the toner density.
- E: When the developing section total drive time exceeds 6000 min, the correction value becomes a constant value of -0.6 V, decreasing the toner sensor control voltage.

(6) Transfer/separation section

The transfer/separation section is comprised of the transfer charger unit, the pre-transfer roller, and the drum separation claws as shown in Figure 2-1-18.

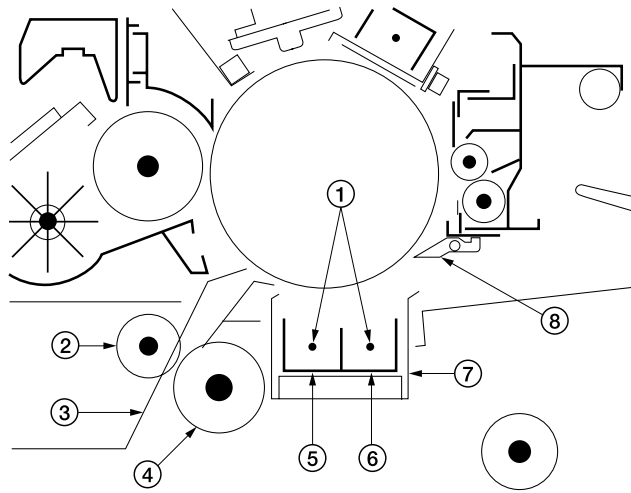


Figure 2-1-18 Transfer/separation section

- | | |
|----------------------------|-------------------------|
| ① Tungsten oxide wires | ⑤ Transfer charger |
| ② Pre-transfer pulley | ⑥ Separation charger |
| ③ Pre-transfer outer guide | ⑦ Transfer charger unit |
| ④ Pre-transfer roller | ⑧ Drum separation claws |

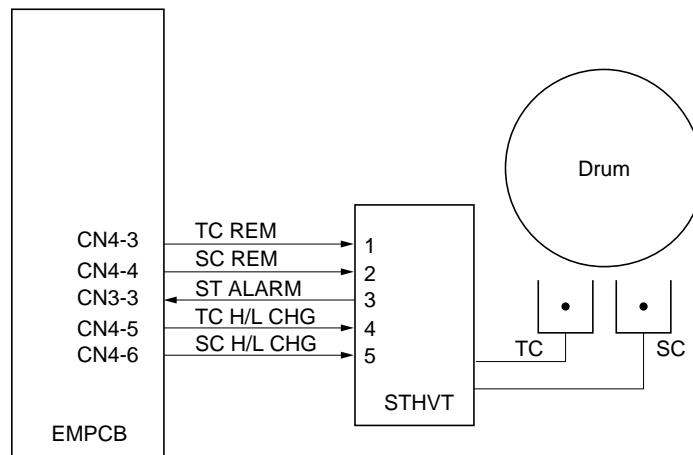


Figure 2-1-19 Block diagram of the transfer section

The transfer charger unit is divided into the transfer charger which transfers the toner image formed on the drum to the paper, and the separation charger which removes the paper from the drum. Transfer charging and separation charging are performed by applying high voltage which is output from the ST high-voltage transformer (STHVT) to both ends of each tungsten oxide transfer charger and separation charger wires. The drum separation claws are installed to ensure paper separation.

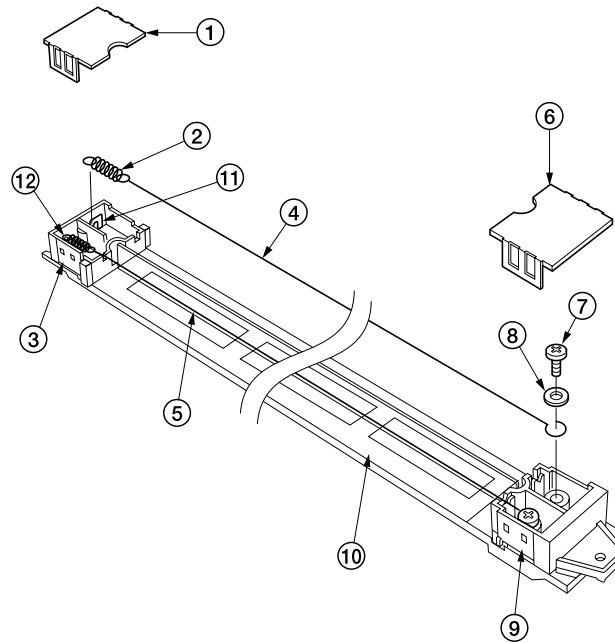
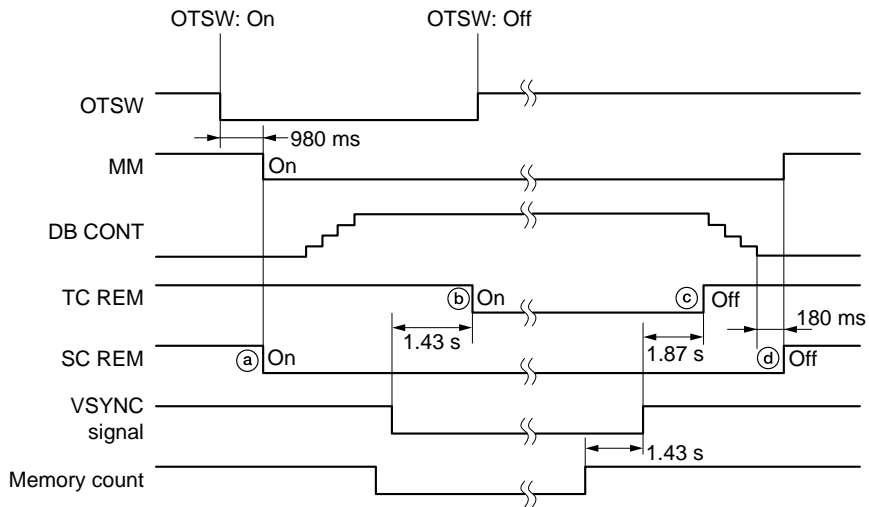


Figure 2-1-20 Transfer charger assembly

- | | |
|--|----------------------------------|
| ① Left transfer charger lid | ⑦ Screw |
| ② Charger spring | ⑧ Washer |
| ③ Transfer charger left housing | ⑨ Transfer charger right housing |
| ④ Tungsten oxide wire (for transfer charger) | ⑩ Transfer inner shield |
| ⑤ Tungsten oxide wire (for separation charger) | ⑪ Transfer charger terminal |
| ⑥ Right transfer charger lid | ⑫ Separation charger terminal |



Timing chart 2-1-8 Operation of the transfer/separation section

- a: 980 ms after the original is inserted and the original trailing edge switch (OTSW) is turned on, the main motor (MM) turns on and, at the same time, separation charging (SC REM) starts.
- b: 1.43 s after the VSYNC signal is turned on, transfer charging (TC REM) starts.
- c: 1.87 s after the VSYNC signal is turned off, transfer charging (TC REM) ends.
- d: 180 ms after the developing bias step-down control is completed, separation charging (SC REM) ends.

(7) Cleaning section

Cleaning is performed by the blade cleaning method and the cleaning fur brush. The cleaning section is comprised of the cleaning blade and the cleaning fur brush which remove the residual toner adhering to the drum after transfer, and the cleaning unit spiral which collects and sends toner to the waste toner tank.

The cleaning fur brush rotates always in contact with the drum surface and prevents the toner scraped off the drum by the cleaning blade from dropping inside of the machine. Other foreign matter such as paper fragments adhering to the surface of the drum are also removed by the brush.

When the waste toner tank becomes full, the overflow sensor (OFS) is turned on and the message requesting the waste toner tank to be checked appears on the display on the operation panel, and copying is disabled.

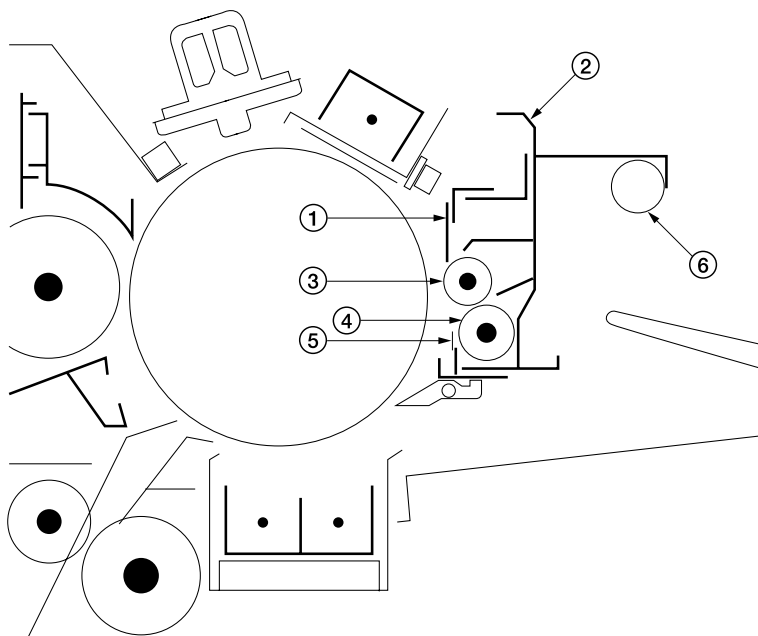


Figure 2-1-21 Cleaning section

- | | |
|----------------------|------------------------|
| ① Cleaning blade | ④ Cleaning unit spiral |
| ② Cleaning housing | ⑤ Lower cleaning seal |
| ③ Cleaning fur brush | ⑥ Cleaning weight |

(8) Static eliminator section

The static eliminator section is comprised of the right, middle and left cleaning lamps (CL-R/M/L) as shown in Figure 2-1-22 and eliminates the residual charge after transfer.

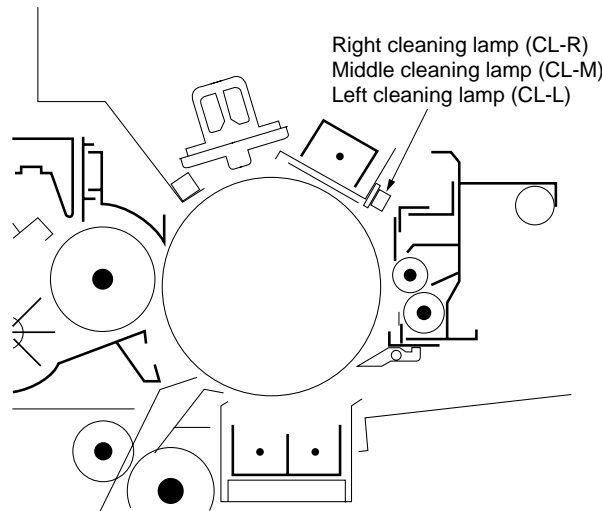


Figure 2-1-22 Static eliminator section

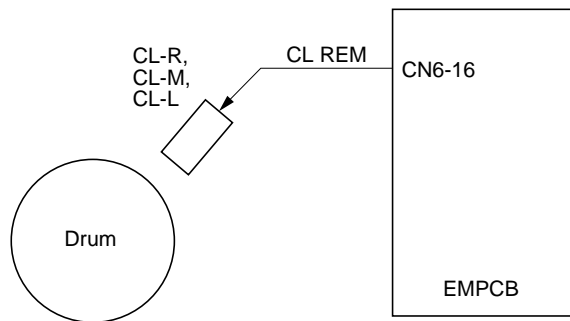
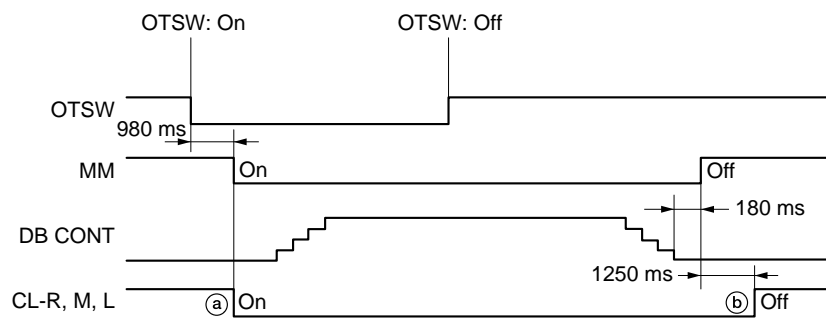


Figure 2-1-23 Block diagram of the static eliminator section



Timing chart 2-1-9 Operation of the static eliminator section

- a: As soon as the main motor (MM) turns on, the right, middle and left cleaning lamps (CL-R/M/L) are turned on.
- b: 1250 ms after copying operation is completed and the main motor (MM) turns off, the right, middle and left cleaning lamps (CL-R/M/L) are turned off.

(9) Fixing section

The fixing section is comprised of the parts shown in Figure 2-1-24. After the transfer operation, the paper is conveyed to the fixing section and passes between the heat roller and the press roller. A constant pressure is applied between the heat roller and the press roller by the fixing press spring and the toner transferred is fixed on the paper by the heat and pressure applied from each roller.

The main fixing heater (FH-M) heats the center of the heat roller and sub fixing heater (FH-S) heats the ends of the heat roller.

The oil roller cleans the surface of the heat roller to prevent the paper from wrapping around the heat roller due to melted toner.

After fixing, the paper is separated from the heat roller by the separation claws and ejected to outside of the machine via the eject roller and the eject pulley.

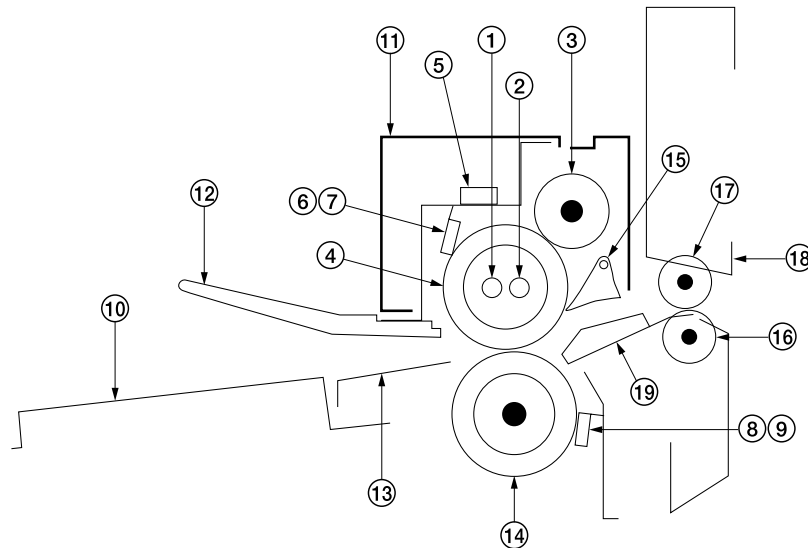


Figure 2-1-24 Fixing section

- | | |
|--|-------------------------------|
| ① Main fixing heater (FH-M) | ⑩ Paper conveying guide |
| ② Sub fixing heater (FH-S) | ⑪ Fixing unit cover |
| ③ Oil roller | ⑫ Fixing unit front guide |
| ④ Heat roller | ⑬ Fixing unit insertion guide |
| ⑤ Fixing unit thermostat (FTS) | ⑭ Press roller |
| ⑥ Fixing unit thermistor 1 (FTH1: near the center of the heat roller) | ⑮ Heat roller separation claw |
| ⑦ Fixing unit thermistor 2 (FTH2: right end of the heat roller) | ⑯ Eject roller |
| ⑧ Fixing unit thermistor 3 (FTH3: near the center of the press roller) | ⑰ Eject pulley |
| ⑨ Fixing unit thermistor 4 (FTH4: right end of the press roller) | ⑱ Upper eject guide |
| | ⑲ Lower eject guide |

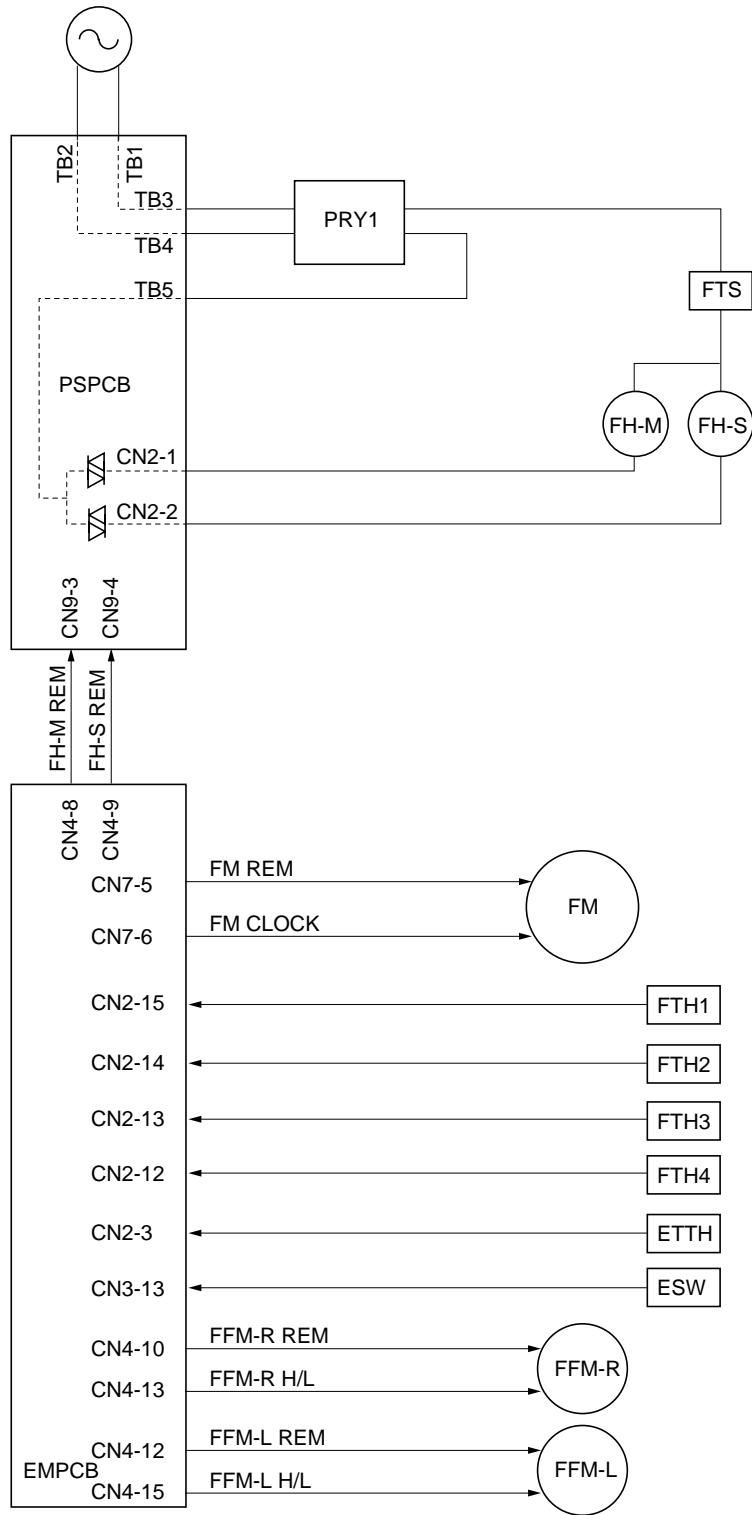


Figure 2-1-25 Block diagram of the fixing section

Heating and temperature control of heat roller and press roller

• Heat roller temperature control 1

Fixing unit thermistor 1 (FTH1) detects the surface temperature around the center of the heat roller and fixing unit thermistor 2 (FTH2) detects the surface temperature of the right end of the heat roller.

If the temperature detected by fixing unit thermistors 1 and 2 (FTH1 and 2) becomes less than T (control temperature), the main and sub fixing heaters (FH-M/S) are turned on to heat the heat roller. Control temperature T is controlled by the following formula.

$$\text{Control temperature } T = T_{\text{HCON}} + k (T_{\text{PTH}} - T_{\text{PRD}})$$

When the maximum value obtained from $k (T_{\text{PTH}} - T_{\text{PRD}})$ is T_{HMAX} .

T_{HCON} : heat roller control temperature

k : temperature compensation coefficient (varies between while standby and copying)

T_{PTH} : press roller temperature threshold value

T_{PRD} : fixing unit thermistor 3 (FTH3) temperature (surface temperature around the center of the press roller)

T_{HMAX} : The maximum value for the heat roller control temperature

• Heat roller temperature control 2

When the ambient temperature T_{ETTH} detected by the external temperature thermistor (ETTH) is as in the table, the control temperatures are changed depending on the paper used to prevent poor fixing. If the ambient temperature is below 15°C/59°F, fixing is not performed sufficiently, and if greater than 30°C/86°F, the image may be blurred.

• Plain paper

External temperature thermistor detection temperature	Primary stabilization temperature	Secondary stabilization temperature	Heat roller control temperature	Press roller control temperature
$T_{\text{ETTH}} \leq 15^{\circ}\text{C}/59^{\circ}\text{F}$	180°C/356°F	165°C/329°F	160°C/320°F	85°C/185°F
$15^{\circ}\text{C}/59^{\circ}\text{F} < T_{\text{ETTH}} < 30^{\circ}\text{C}/86^{\circ}\text{F}$	180°C/356°F	170°C/338°F	155°C/311°F	85°C/185°F
$30^{\circ}\text{C}/86^{\circ}\text{F} \leq T_{\text{ETTH}}$	180°C/356°F	170°C/338°F	150°C/302°F	85°C/185°F

• Vellum

External temperature thermistor detection temperature	Primary stabilization temperature	Secondary stabilization temperature	Heat roller control temperature	Press roller control temperature
$T_{\text{ETTH}} \leq 15^{\circ}\text{C}/59^{\circ}\text{F}$	180°C/356°F	185°C/365°F	185°C/365°F	130°C/266°F
$15^{\circ}\text{C}/59^{\circ}\text{F} < T_{\text{ETTH}} < 30^{\circ}\text{C}/86^{\circ}\text{F}$	180°C/356°F	185°C/365°F	185°C/365°F	130°C/266°F
$30^{\circ}\text{C}/86^{\circ}\text{F} \leq T_{\text{ETTH}}$	180°C/356°F	185°C/365°F	185°C/365°F	130°C/266°F

• Film

External temperature thermistor detection temperature	Primary stabilization temperature	Secondary stabilization temperature	Heat roller control temperature	Press roller control temperature
$T_{\text{ETTH}} \leq 15^{\circ}\text{C}/59^{\circ}\text{F}$	140°C/284°F	155°C/311°F	155°C/311°F	80°C/176°F
$15^{\circ}\text{C}/59^{\circ}\text{F} < T_{\text{ETTH}} < 30^{\circ}\text{C}/86^{\circ}\text{F}$	165°C/329°F	150°C/302°F	150°C/302°F	80°C/176°F
$30^{\circ}\text{C}/86^{\circ}\text{F} \leq T_{\text{ETTH}}$	165°C/329°F	145°C/293°F	145°C/293°F	80°C/176°F

• **Press roller temperature control**

If the surface temperature of the press roller is less than its minimum value or the surface temperature between the heat roller side and on the opposite side is different, fixing problems may occur. Therefore, the following control is performed to keep the surface temperature of the press roller constant.

In ready status, if fixing unit thermistor 3 (FTH3) detection temperature (temperature around the center of the press roller) becomes less than 85°C/185°F (130°C/266°F for vellum), the fixing motor (FM) turns on at low speed to increase the surface temperature of the press roller. When fixing unit thermistor 3 (FTH3) detection temperature reaches 95°C/203°F (140°C/284°F for vellum), the fixing motor (FM) turns off. By repeating these operations, the surface temperature of the press roller is maintained between 85°C/185°F and 95°C/203°F.

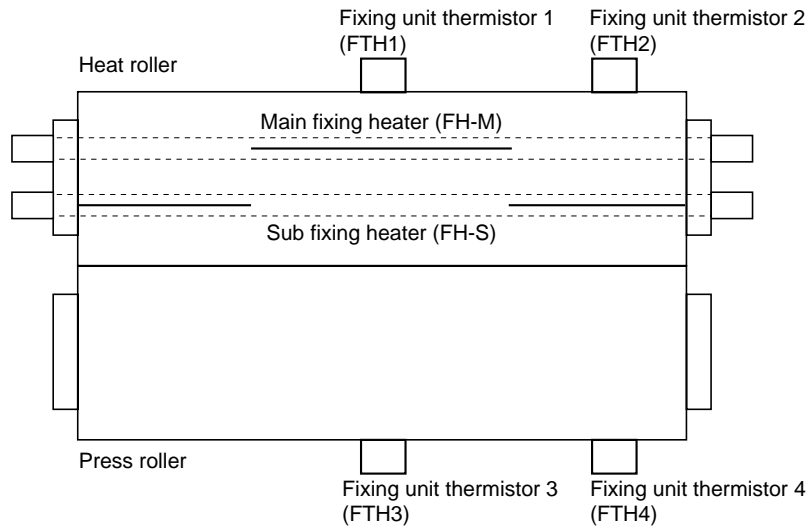


Figure 2-1-26 Heat roller and press roller temperature detection

2-2-1 Electric parts layout

(1) PCBs

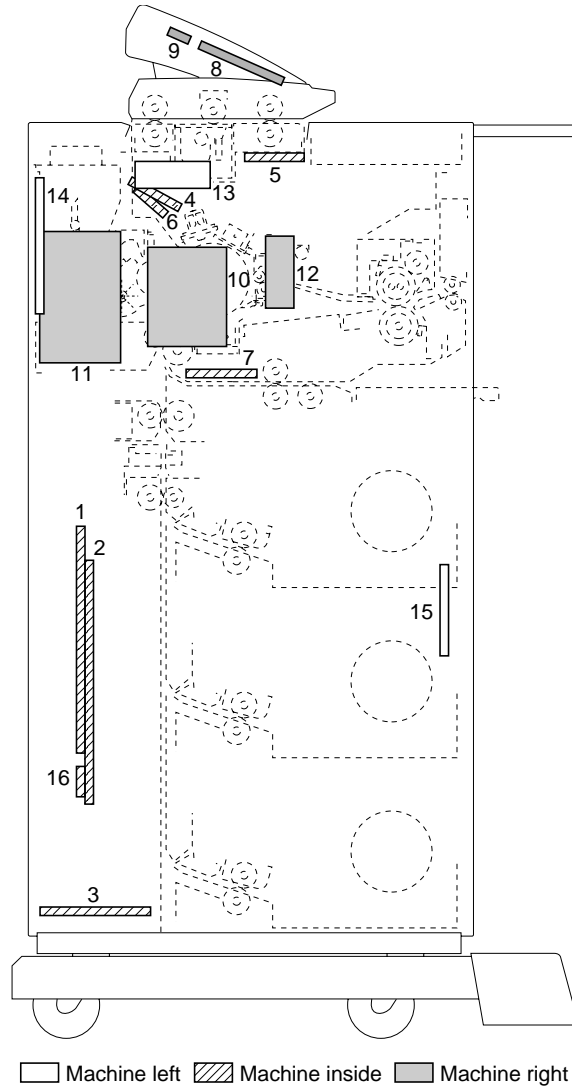


Figure 2-2-1 PCBs

- | | |
|--|---|
| 1. Engine main PCB (EMPCB) | Controls other PCBs and electric components. |
| 2. IPU PCB | Controls image processing. |
| 3. Power source PCB (PSPCB) | Turns 24 V DC, -12 V DC, ±5 V DC and 3.4 V DC supply on. |
| 4. LPH PBC (LPHPCB) | Output control for LPH (LED printhead). |
| 5. ISU PCB (ISUPCB) | Digital conversion of analog data from the contact image sensor. |
| 6. Drum surface potential PBC (DPPBC) | Detection of the input to the drum surface potential sensor. |
| 7. ST high-voltage transformer (STHVT) | Generates a high voltage for transfer and separation charging. |
| 8. Operation unit PCB (OPCB) | Consists of operation keys and display LEDs. |
| 9. LCD PCB (LCDPCB) | Lights backlight and displays messages. |
| 10. Scanner PCB (SCPCB) | Controls the original motor and xenon lamps, detects the input to the original switch and controls LCD message display. |
| 11. Original motor PCB (OMPCB) | Drive control of the original motor. |
| 12. Right inverter PCB (INPCB-R) | Supplies AC power to the right xenon lamp. |
| 13. Left inverter PCB (INPCB-L) | Supplies AC power to the left xenon lamp. |
| 14. Main high-voltage transformer (MHVT) | Generates a high voltage for main charging and developing bias voltage. |
| 15. Scanner power source PCB (SPSPCB) | Turns 12 V DC, 5 V DC and 3.4 V DC supply on, and relays -5 V DC supply. |

(2) Switches and sensors

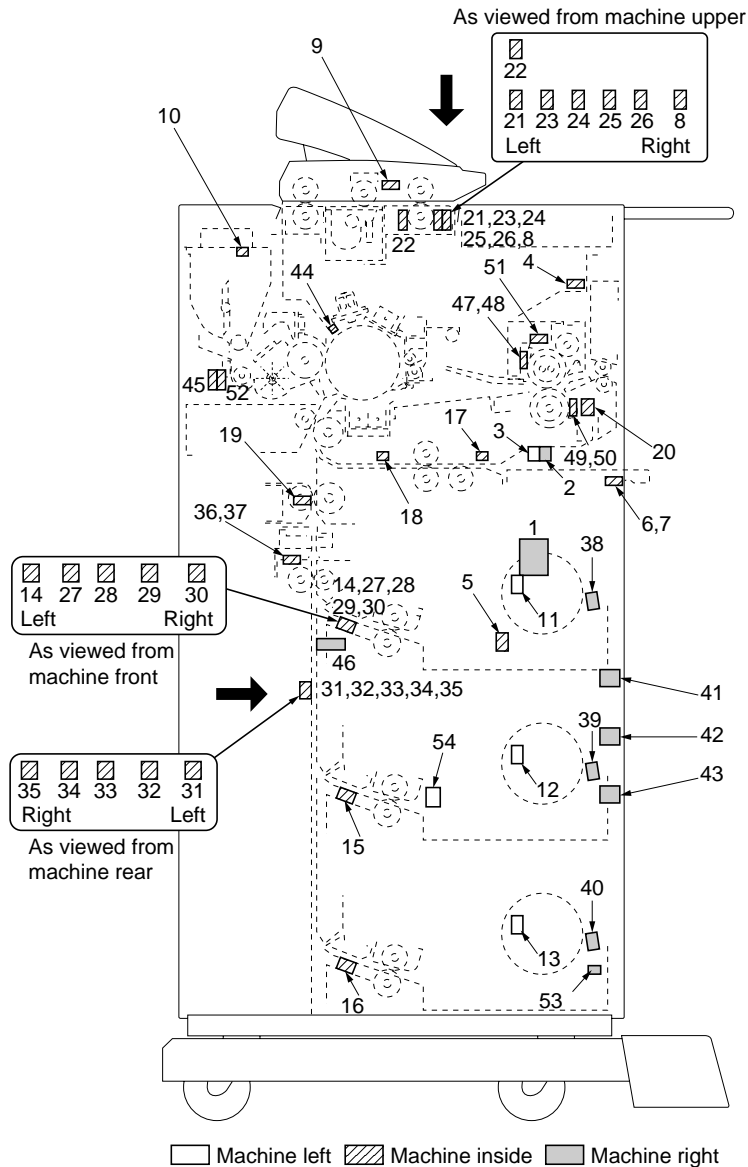


Figure 2-2-2 Switches and sensors

- 1. Main switch (MSW) Turns AC power supply on and off.
- 2. Safety switch 1 (SSW1) Forms a safety circuit when the detachable unit is open and closed.
- 3. Safety switch 2 (SSW2) Forms a safety circuit when the detachable unit is open and closed.
- 4. Safety switch 3 (SSW3) Forms a safety circuit when the eject cover is opened and closed.
- 5. Safety switch 4 (SSW4) Forms a safety circuit when the right cover is opened and closed.
- 6. Safety switch 5 (SSW5) Forms a safety circuit when the front covers are opened and closed.
- 7. Safety switch 6 (SSW6) Forms a safety circuit when the front covers are opened and closed.
- 8. Safety switch 7 (SSW7) Forms a safety circuit when the original cover is opened and closed.
- 9. Safety switch 8 (SSW8) Forms a safety circuit when the original leading edge cover is opened and closed.
- 10. Toner replenishing slot opening cover switch (OCSW) Detection of toner replenishing slot opened/closed.
- 11. Upper paper empty switch* (PESW-U) Detection of paper-out in the upper roll unit.
- 12. Middle paper empty switch (PESW-M) Detection of paper-out in the middle roll unit.
- 13. Lower paper empty switch (PESW-L) Detection of paper-out in the lower roll unit.
- 14. Upper paper feed switch* (PFSW-U) Detection of leading edge home position of paper in the upper roll unit and control of the upper feed clutch and upper roll winding clutch.

* Optional

- | | |
|--|---|
| 15. Middle paper feed switch (PFSW-M) | Detection of leading edge home position of paper in the middle roll unit and control of the middle feed clutch and middle roll winding clutch. |
| 16. Lower paper feed switch (PFSW-L) | Detection of leading edge home position of paper in the lower roll unit and control of the lower feed clutch and lower roll winding clutch. |
| 17. Bypass registration switch (BRSW) | Detection of leading edge of paper on the bypass table, control of the bypass feed clutch and bypass registration clutch, and detection of paper jams in the bypass feed section. |
| 18. Bypass timing switch (BTSW) | Control of the bypass feed clutch and bypass registration clutch, and detection of paper jams in the bypass feed section. |
| 19. Registration switch (RSW) | Control of the feed clutch, roll feed clutch and roll registration clutch, control of rotation speed change of the main motor and fixing motor, and detection of paper jams. |
| 20. Eject switch (ESW) | Control of rotation speed change of the main motor and fixing motor, control of the fixing fan motor, and detection of paper jam. |
| 21. Original leading edge switch (OLSW) | Control of the original motor and detection of original insertion and paper jams. |
| 22. Original trailing edge switch (OTSW) | Control of motors and detection of document passage timing and paper jams. |
| 23. Original size switch 1 (OSSW1) | Detection of original size. (297 mm) |
| 24. Original size switch 2 (OSSW2) | Detection of original size. (420 mm) |
| 25. Original size switch 3 (OSSW3) | Detection of original size. (594 mm) |
| 26. Original size switch 4 (OSSW4) | Detection of original size. (841 mm) |
| 27. Upper paper size switch 1* (PSSW1-U) | Detection of paper size in the roll unit. (297 mm) |
| 28. Upper paper size switch 2* (PSSW2-U) | Detection of paper size in the roll unit. (420 mm) |
| 29. Upper paper size switch 3* (PSSW3-U) | Detection of paper size in the roll unit. (594 mm) |
| 30. Upper paper size switch 4* (PSSW4-U) | Detection of paper size in the roll unit. (841 mm) |
| 31. Paper size switch 1 (PSSW1) | Detection of paper size in the roll unit. (210 mm) |
| 32. Paper size switch 2 (PSSW2) | Detection of paper size in the roll unit. (297 mm) |
| 33. Paper size switch 3 (PSSW3) | Detection of paper size in the roll unit. (420 mm) |
| 34. Paper size switch 4 (PSSW4) | Detection of paper size in the roll unit. (594 mm) |
| 35. Paper size switch 5 (PSSW5) | Detection of paper size in the roll unit. (841 mm) |
| 36. Right cutter home position switch
(CHPSW-R) | Detection of the cutter home position. |
| 37. Left cutter home position switch
(CHPSW-L) | Detection of the cutter home position. |
| 38. Upper roll unit switch* (RUSW-U) | Detection of the upper roll unit installed or not. |
| 39. Middle roll unit switch (RUSW-M) | Detection of the middle roll unit installed or not. |
| 40. Lower roll unit switch (RUSW-L) | Detection of the lower roll unit installed or not. |
| 41. Upper roll unit heater switch* (RHSW-U) | Upper roll unit heater in use/not in use. |
| 42. Middle roll unit heater switch (RHSW-M) | Middle roll unit heater in use/not in use. |
| 43. Lower roll unit heater switch (RHSW-L) | Lower roll unit heater in use/not in use. |
| 44. Drum surface potential sensor (DPS) | Detection of drum surface potential. |
| 45. Toner sensor (TNS) | Detection of toner density in the developing section. |
| 46. Overflow sensor (OFS) | Detection of toner overflow collected in the waste toner tank. |
| 47. Fixing unit thermistor 1 (FTH1) | Detection of temperature of the heat roller at the center. |
| 48. Fixing unit thermistor 2 (FTH2) | Detection of temperature of the heat roller at the right end. |
| 49. Fixing unit thermistor 3 (FTH3) | Detection of temperature of the press roller at the center. |
| 50. Fixing unit thermistor 4 (FTH4) | Detection of temperature of the press roller at the right end. |
| 51. Fixing unit thermostat (FTS) | Forms a safety circuit for the main and sub fixing unit heaters. |
| 52. Developing thermistor (DTH) | Detection of temperature in vicinity of developing section. |
| 53. External temperature thermistor (ETTH) | Detection of external (ambient) temperature. |
| 54. Main motor FG pulse sensor
(MMFGPS) | Detection of rotation speed of the main motor. |

* Optional

(3) Motors

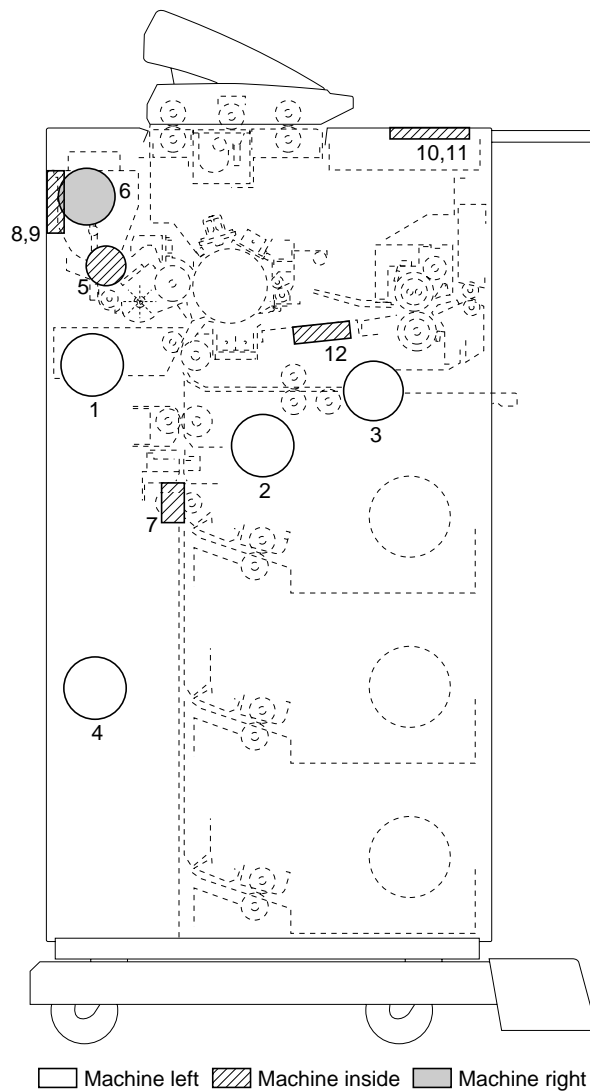


Figure 2-2-3 Motors

- 1. Main motor (MM) Drives the developing section, transfer section and cleaning section.
- 2. Drum motor (DM) Drives the drum section.
- 3. Fixing motor (FM) Drives the fixing section.
- 4. Paper feed motor (PFM) Drives the paper feed section.
- 5. Toner feed motor (TM) Supplies toner.
- 6. Original motor (OM) Drives the original feed section.
- 7. Cutter motor (CM) Drives the cutter.
- 8. LPH right fan motor (LFM-R) Cools the LED printhead.
- 9. LPH left fan motor (LFM-L) Cools the LED printhead.
- 10. Fixing unit right fan motor (FFM-R) Heat exhaust in the fixing section.
- 11. Fixing unit left fan motor (FFM-L) Heat exhaust in the fixing section.
- 12. Paper conveying section fan motor (PCFM) Ozone exhaust in the paper conveying section.

(4) Clutches and heaters

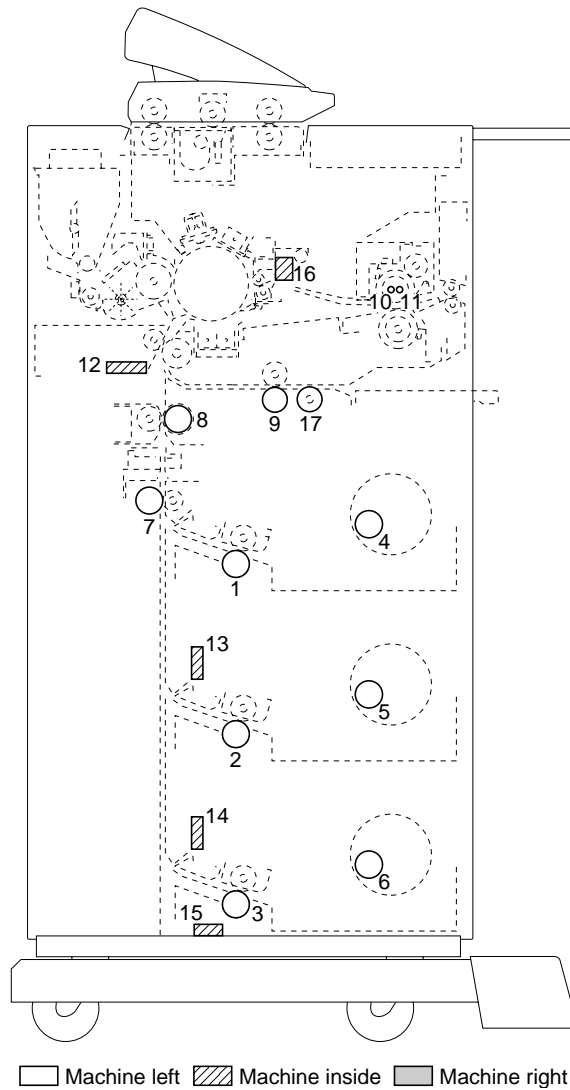


Figure 2-2-4 Clutches and heaters

- 1. Upper feed clutch*1 (FCL-U) Primary paper roll feed from the upper roll unit.
- 2. Middle feed clutch (FCL-M) Primary paper roll feed from the middle roll unit.
- 3. Lower feed clutch (FCL-L) Primary paper roll feed from the lower roll unit.
- 4. Upper roll winding clutch*1 (RWCL-U) Winding of paper roll in the upper roll unit.
- 5. Middle roll winding clutch (RWCL-M) Winding of paper roll in the middle roll unit.
- 6. Lower roll winding clutch (RWCL-L) Winding of paper roll in the lower roll unit.
- 7. Roll feed clutch (RFCL) Conveys paper from the roll unit.
- 8. Roll registration clutch (RRCL) Secondary paper roll feed from the roll unit.
- 9. Bypass registration clutch (BRCL) Primary and secondary paper feed from the bypass table.
- 10. Main fixing heater (FH-M) Heats the heat roller at the center.
- 11. Sub fixing heater (FH-S) Heats the heat roller at both ends.
- 12. Drum heater (DH) Prevents condensation on drum.
- 13. Upper roll unit heater*2 (RH-U) Dehumidifies paper in the upper roll unit.
- 14. Middle roll unit heater*2 (RH-M) Dehumidifies paper in the middle roll unit.
- 15. Lower roll unit heater*2 (RH-L) Dehumidifies paper in the lower roll unit.
- 16. Separation claw solenoid (SSOL) Operates the separation claws.
- 17. Bypass feed clutch (BFCL) Primary paper feed from the bypass table.

*1 Optional

*2 For 120 V specifications only.

(5) Others

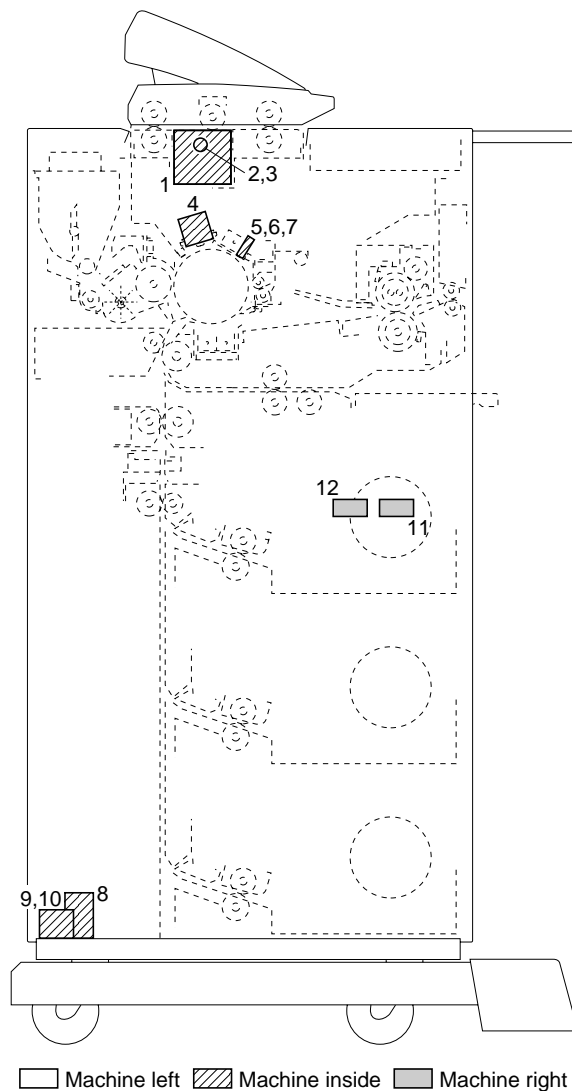


Figure 2-2-5 Others

- 1. Contact image sensor (CIS) Scans originals and output analog data.
- 2. Right xenon lump (XL-R) Exposure of originals.
- 3. Left xenon lump (XL-L) Exposure of originals.
- 4. LED printhead (LPH) Forms an image using the data from originals on the drum surface via LED illumination.
- 5. Right cleaning lump (CL-R) Removes residual charge from the drum surface.
- 6. Middle cleaning lump (CL-M) Removes residual charge from the drum surface.
- 7. Left cleaning lump (CL-L) Removes residual charge from the drum surface.
- 8. Power relay 1 (PRY1) Turns power supply to the main and sub fixing heaters on and off.
- 9. Power relay 2 (PRY2) Turns 24 V DC supply on and off for the paper feed section drive system.
- 10. Power relay 3 (PRY3) Turns 24 V DC supply on and off.
- 11. Total counter (TC) Displays the number of copies.
- 12. Scanner counter (SC) Displays the number of scanned originals.

2-3-1 Power source PCB

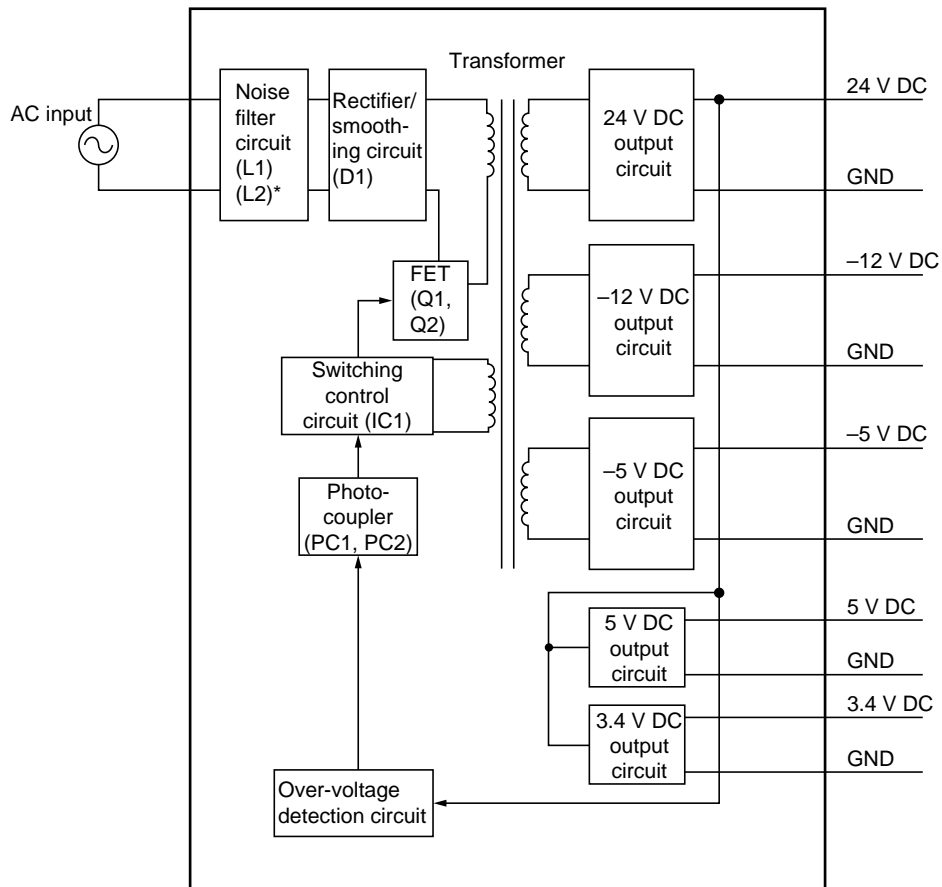


Figure 2-3-1 Power source PCB block diagram

The power source PCB (PSPCB) is a switching regulator which converts an AC input to generate 24 V DC, ± 5 V DC, 3.4 V DC and -12 V DC. It consists of a noise filter circuit, rectifier circuit, switching control circuit, 24 V DC output circuit, 5 V DC output circuit, 3.4 V DC output circuit and -12 V DC output circuit.

The noise filter circuit, which centers on line filters L1 and L2* and includes capacitors, attenuates external noise, and prevents the switching noise generated on the power source PCB from leaving the machine via the AC line.

The rectifier circuit full-wave rectifies the AC input which has passed through the noise filter circuit using diode bridge D1. The smoothing capacitor smoothes out the pulsed voltage from the diode bridge.

The switching control circuit turns on/off FETs Q1 and Q2 via controller IC1 to switch the current induced on the secondary coil of the transformer.

The 24 V DC output circuit, ± 5 V DC output circuits, 3.4 V DC output circuit and -12 V DC output circuit smooth out the voltages from the currents induced on the secondary coil of the transformer via a diode and smoothing capacitor, and output stable voltages using a regulator IC.

* For 200 V specifications only.

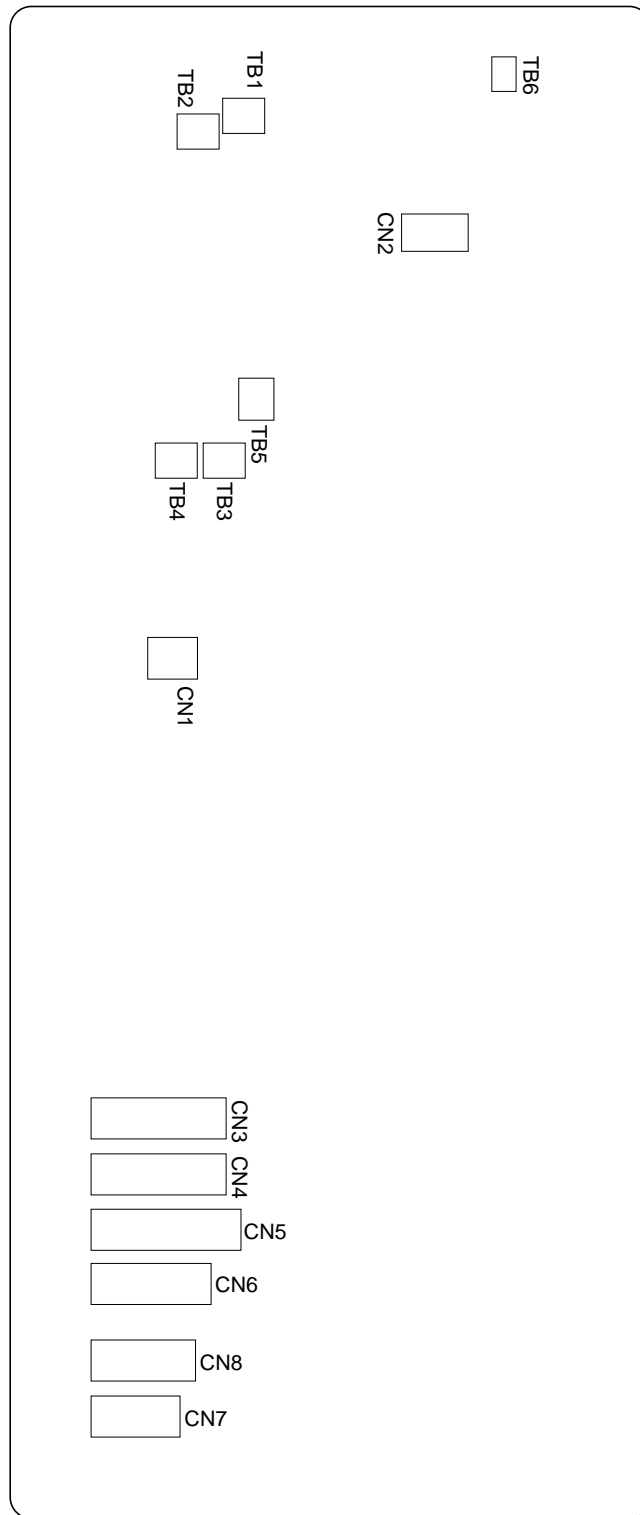


Figure 2-3-2 Power source PCB silkscreen image

Terminals (CN)		Voltage	Remarks
TB-1	TB-2	120 V AC 220 – 240 V AC	AC supply, input
TB-3	TB-4	120 V AC 220 – 240 V AC	AC supply for MSW, output
TB-5	TB-2	120/0 V AC 220 – 240/0 V AC	PRY1 on/off, input
TB-6	TB-2	120/0 V AC 220 – 240/0 V AC	MSW on/off, input
1-1	TB-2	120/0 V AC 220 – 240/0 V AC	MSW on/off, input
1-3	TB-2	120/0 V AC 220 – 240/0 V AC	MSW on/off, input
2-1	TB-2	120 V AC 220 – 240 V AC	AC supply for FH-M, output
2-2	TB-2	120 V AC 220 – 240 V AC	AC supply for FH-S, output
3-1	3-6	24 V DC	24 V DC supply, output
3-2	3-7	24 V DC	24 V DC supply, output
3-3	3-8	24 V DC	24 V DC supply, output
3-4	3-9	24 V DC	24 V DC supply, output
3-5	3-9	24 V DC	24 V DC supply, output
4-1	4-6	24 V DC	24 V DC supply, output
4-2	4-7	24 V DC	24 V DC supply, output
4-3	4-8	24 V DC	24 V DC supply, output
4-4	4-9	24 V DC	24 V DC supply, output
4-5	4-9	24 V DC	24 V DC supply, output
5-1	5-6	5 V DC	5 V DC supply, output
5-2	5-7	5 V DC	5 V DC supply, output
5-3	5-8	5 V DC	5 V DC supply, output
5-4	5-9	5 V DC	5 V DC supply, output
5-5	5-10	5 V DC	5 V DC supply, output
6-1	6-5	5 V DC	5 V DC supply, output
6-2	6-6	5 V DC	5 V DC supply, output
6-3	6-7	5 V DC	5 V DC supply, output
6-4	6-8	5 V DC	5 V DC supply, output
7-1	7-4	3.4 V DC	3.4 V DC supply, output
7-2	7-5	3.4 V DC	3.4 V DC supply, output
7-3	7-6	–5 V DC	–5 V DC supply, output
8-1	8-5	5 V DC	5 V DC supply, output
8-2	8-6	–5 V DC	–5 V DC supply, output
8-3	8-7	–12 V DC	–12 V DC supply, output
8-4	8-7	–12 V DC	–12 V DC supply, output
9-1	9-2	0/5 V DC (pulse)	PSPCB zero-cross signal, input
9-3	9-2	0/5 V DC	FH-M on/off, input
9-4	9-2	0/5 V DC	FH-S on/off, input
9-5	9-2	0/5 V DC	DH on/off, input
9-6	9-2	5 V DC	5 V DC supply, input

2-3-2 Engine main PCB

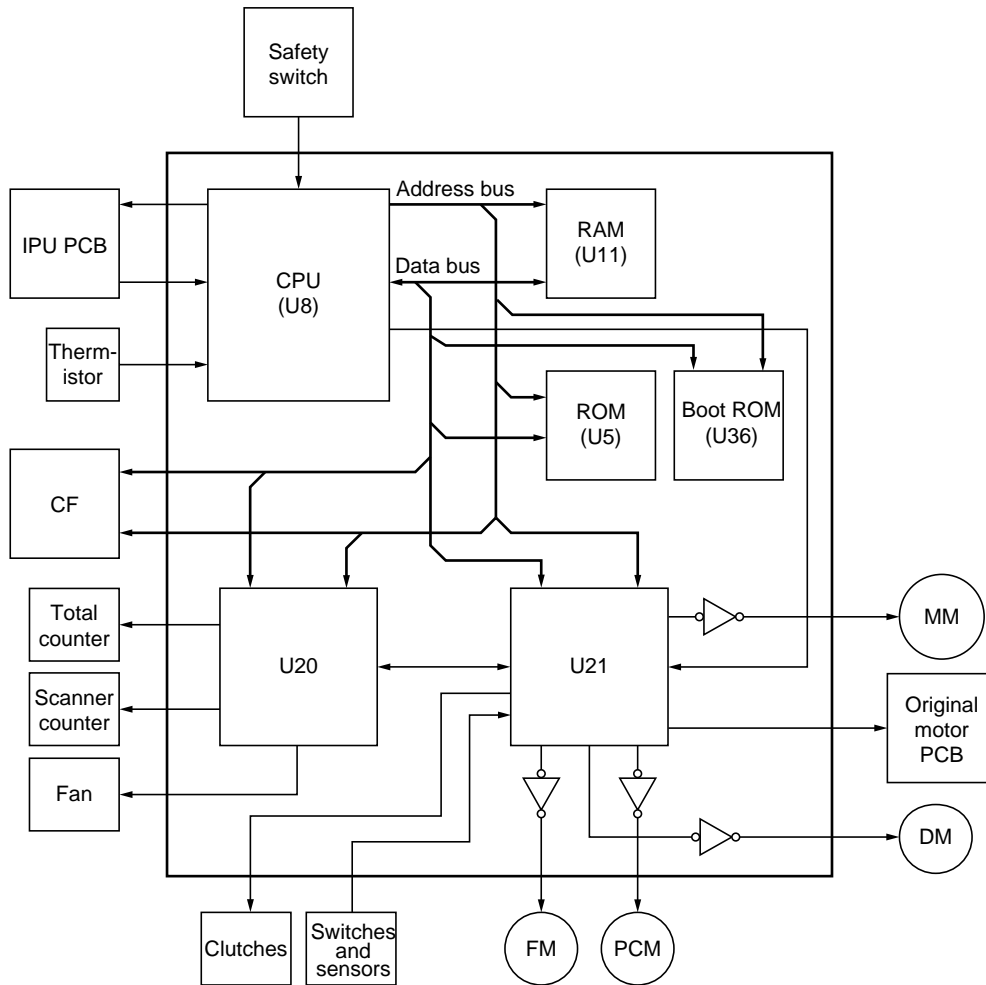


Figure 2-3-3 Engine main PCB block diagram

The engine main PCB (EMPCB) centers on CPU U8 and includes the ROM and RAM circuit, I/O control circuit, analog signal input/output circuit and communication control circuit.

CPU U8 controls the entire system based on the data written into RAM U11 according to the control program in ROM U5. CPU U8 also communicates with the IPU PCB and other PCBs via the serial communication circuit as well as controls motors and clutches via ASIC U20 and U21.

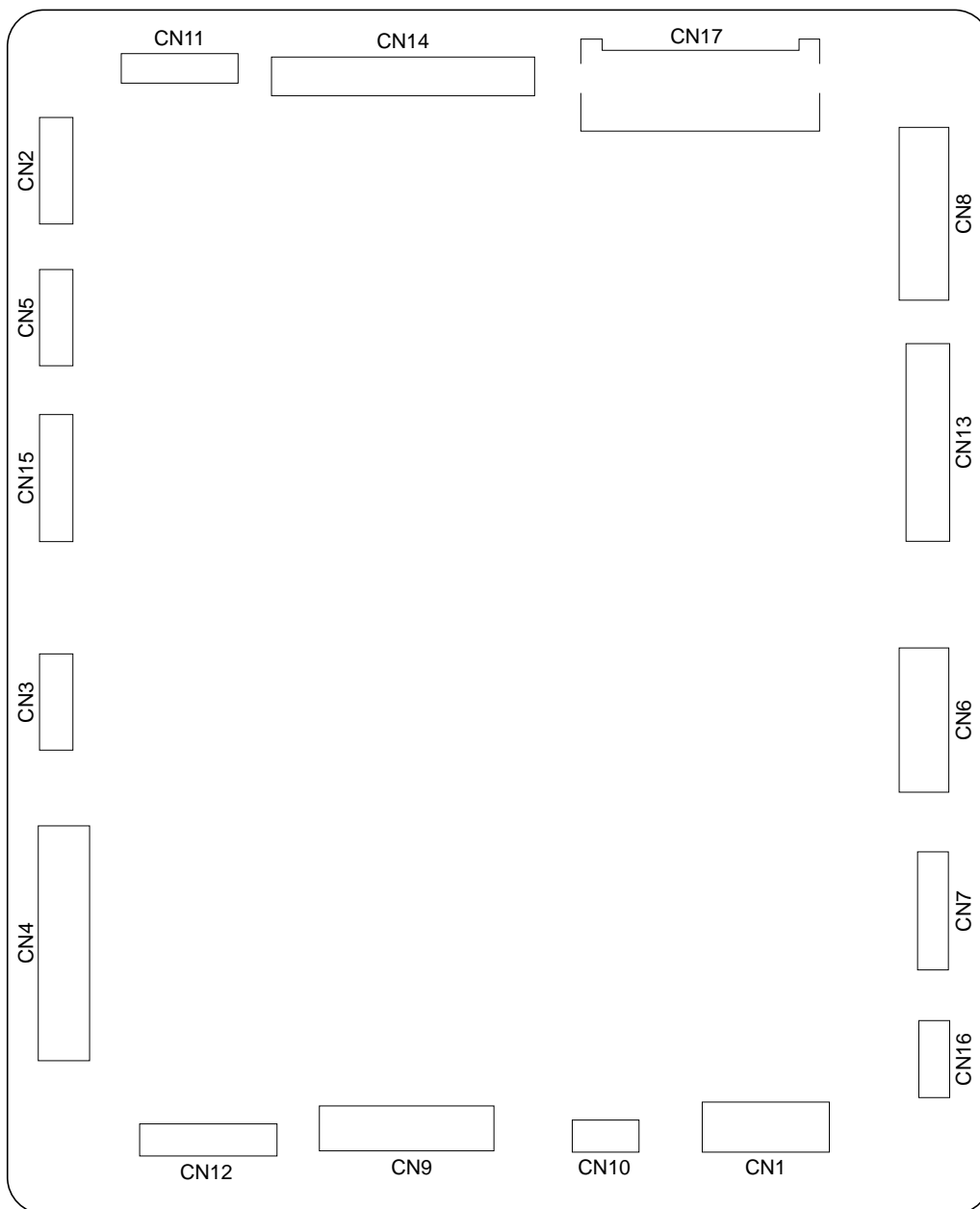


Figure 2-3-4 Engine main PCB silkscreen image

Terminals (CN)		Voltage	Remarks
1-1	1-2	24 V DC	24 V DC supply, input
1-3	1-5	5 V DC	5 V DC supply, input
1-4	1-6	5 V DC	5 V DC supply, input
2-1	2-2	0 – 5 V DC	DTH detection voltage, input
2-3	2-4	0/24 V DC	ETTH on/off, output
2-5	2-6	0/5 V DC	DPPCB DPS signal, output
2-7	2-8		TNS detection voltage, input
2-9	2-8	7.2 – 15 V DC	TNS control voltage, output
2-12	2-16	0 – 5 V DC	FTH4 on/off, input
2-13	2-16	0 – 5 V DC	FTH3 on/off, input
2-14	2-17	0 – 5 V DC	FTH2 on/off, input
2-15	2-17	0 – 5 V DC	FTH1 on/off, input
3-1	3-14	0/5 V DC	Key counter connected signal, input*
3-2	3-14	0/5 V DC	Key card connected signal, input*
3-3	3-14	0/5 V DC	STHVT ST ALARM signal, input
3-4	3-14	5/0 V DC	RUSW-U on/off, input*
3-5	3-14	5/0 V DC	RUSW-M on/off, input
3-6	3-14	5/0 V DC	RUSW-L on/off, input
3-7	3-14	0/5 V DC	RSW on/off, input
3-8	3-14	0/5 V DC	CHPSW-R on/off, input
3-9	3-14	0/5 V DC	CHPSW-L on/off, input
3-10	3-14	0/5 V DC	OFS on/off, input
3-11	3-14	0/5 V DC	BTSW on/off, input
3-12	3-14	0/5 V DC	BRSW on/off, input
3-13	3-14	5/0 V DC	ESW on/off, input
3-15	3-14	5 V DC	5 V DC supply for ESW and BTSW, output
3-16	3-14		EPI signal, input
4-1	4-2	24/0 V DC	TM on/off, output
4-3	2-2	0 – 15 V DC	STHVT (TC) on/off, output
4-4	2-2	0/24 V DC	STHVT (SC) on/off, output
4-5	2-2	0/14 V DC	TC H/L CHANGE signal, output
4-6	2-2	0/5 V DC	SC H/L CHANGE signal, output
4-7	2-2	0/5 V DC (pulse)	PSPCB zero-cross signal, input
4-8	2-2	0/5 V DC	FH-M on/off, output
4-9	2-2	0/5 V DC	FH-S on/off, output
4-10	2-2	0/24 V DC	FFM-R on/off, output
4-11	2-2	0/5 V DC	DH on/off, input
4-12	2-2	0/24 V DC	FFM-L on/off, output
4-13	2-2	0/5 V DC	FFM-R full-/half-speed, output
4-14	2-2	0/24 V DC	PCFM on/off, output
4-15	2-2	0/5 V DC	FFM-L full-/half-speed, output
4-16	2-2	5/0 V DC	CM (–) signal, output
4-17	2-2	0/5 V DC	PCFM full-/half-speed, output
4-18	2-2	5/0 V DC	CM (+) signal, output
4-19	2-2	0/24 V DC	MSW off signal, output
4-21	2-2	0/24 V DC	Key counter count signal, output*
4-22	2-2	0/24 V DC	Key card count signal, output*
4-23	2-2	0/24 V DC	Total counter count signal TC, output
4-24	2-2	0/24 V DC	Scanner counter count signal SC, output
4-25	2-2	0/24 V DC	PRY1 on/off, output
4-26	2-2	24 V DC	24 V DC supply for PRY1, output
4-27	2-2	24/0 V DC	SSW3 on/off, input
4-30	2-2	24/0 V DC	SSW4 on/off, input
4-31	2-2	24/0 V DC	SSW1 on/off, input
5-1	5-2	0/5 V DC (pulse)	Serial signal for HDCPCB, output
5-3	5-4	0/5 V DC (pulse)	Serial signal from HDCPCB, input

* Optional

Terminals (CN)		Voltage	Remarks
5-5	5-4	0/5 V DC	HDCPCB VSYNC signal, output
5-6	5-4	0/5 V DC	HDCPCB RESET signal, output
5-7	5-4	0/5 V DC	HDCPCB ENGN WRITING signal, output
6-1	1-2	0/24 V DC	BRCL on/off, output
6-2	1-2	0/24 V DC	BFCL on/off, output
6-4	1-2	0/24 V DC	RRCL on/off, output
6-5	1-2	0/24 V DC	RFCL on/off, output
6-6	1-2	0/24 V DC	FCL-U on/off, output*
6-7	1-2	0/24 V DC	FCL-M on/off, output
6-8	1-2	0/24 V DC	FCL-L on/off, output
6-9	1-2	0/24 V DC	RWCL-U on/off, output*
6-10	1-2	0/24 V DC	RWCL-M on/off, output
6-11	1-2	0/24 V DC	RWCL-L on/off, output
6-12	1-2	0/17 V DC	MHVTPCB main charger on/off, output
6-13	1-2	0/24 V DC	MHVTPCB developing bias on/off, output
6-15	1-2	0/24 V DC	SSOL on/off, output
6-16	1-2	0/16 V DC	CL-R, CL-M, CL-L on/off, output
6-18	1-2	0/5 V DC	MHVT ALARM signal, input
6-19	1-2	0/24 V DC	PRY2 on/off, output
7-1	1-2	0/5 V DC	PFM on/off, output
7-2	1-2	0/5 V DC	PFM CLOCK signal, output
7-3	1-2	0/5 V DC	DM on/off, output
7-4	1-2	0/5 V DC	DM CLOCK signal, output
7-5	1-2	0/5 V DC	FM on/off, output
7-6	1-2	0/5 V DC	FM CLOCK signal, output
7-7	1-2	0/5 V DC	MM on/off, output
7-8	1-2	0/5 V DC	MM CLOCK signal, output
7-9	1-2	0/5 V DC	MMFGPS on/off, input
7-11	1-2	0/5 V DC	DM ALARM signal, input
7-12	1-2	0/5 V DC	FM ALARM signal, output
7-13	1-2	0/5 V DC	PESW-U on/off, input*
7-14	1-2	0/5 V DC	PESW-M on/off, input
7-15	1-2	0/5 V DC	PESW-L on/off, input
7-16	1-2	0 – 5 V DC	DB control voltage, output
7-17	1-2	0 – 3.5 V DC	GRID control voltage, output
9-A1	9-B9	5 V DC	5 V DC supply for key card (MK-1), output*
9-A2	9-B9	5 V DC	5 V DC supply for key card (MK-1), output*
9-A3	9-B9	5 V DC	5 V DC supply for key card (MK-1), output*
9-A4	9-B9	5 V DC	5 V DC supply for key card (MK-1), output*
9-A5	9-B9	5 V DC	5 V DC supply for key card (MK-1), output*
9-A6	9-B9	5 V DC	5 V DC supply for key card (MK-1), output*
9-A7	9-B9	5 V DC	5 V DC supply for key card (MK-1), output*
9-A8	9-B9	5 V DC	5 V DC supply for key card (MK-1), output*
9-A9	9-B9	0/5 V DC	Key card (MK-1) on/off, output*
9-A10	9-B9	24 V DC	24 V DC supply for key card (MK-1), output*
9-B1	9-B9	0/5 V DC	Key card (MK-1) control signal S0, output*
9-B2	9-B9	0/5 V DC	Key card (MK-1) control signal S1, output*
9-B3	9-B9	0/5 V DC	Key card (MK-1) control signal S2, output*
9-B4	9-B9	0/5 V DC	Key card (MK-1) control signal S3, output*
9-B5	9-B9	0/5 V DC	Key card (MK-1) control signal S4, output*
9-B6	9-B9	0/5 V DC	Key card (MK-1) control signal S5, output*
9-B7	9-B9	0/5 V DC	Key card (MK-1) control signal S6, output*
9-B8	9-B9	0/5 V DC	Key card (MK-1) control signal S7, output*
9-B10	9-B9	0/5 V DC	Key card (MK-1) count signal, output*
10-1	1-5	0/5 V DC	PSSW2-U on/off, input*
10-2	1-5	0/5 V DC	PSSW3-U on/off, input*

* Optional

Terminals (CN)		Voltage	Remarks
10-3	1-5	0/5 V DC	PSSW4-U on/off, input*
10-4	1-5	0/5 V DC	PSSW5-U on/off, input*
10-5	1-5	5/0 V DC	CLM (+) signal, output
10-6	1-5	5/0 V DC	CLM (-) signal, output
10-7	1-5	0/5 V DC	LICSW on/off, input*
10-8	1-5	0/5 V DC	PLSW on/off, input*
10-9	1-2	0/5 V DC	PWSW on/off, input
11-1	11-2	0/5 V DC (pulse)	Serial signal for IPUPCB, output
11-3	11-2	0/5 V DC (pulse)	Serial signal from IPUPCB, input
11-5	11-4	0/5 V DC	IPUPCB ACK signal, input
11-6	11-4	0/5 V DC	IPUPCB ERROR signal, input
11-7	11-4	0/5 V DC	IPUPCB ACK signal, output
11-8	11-4	0/5 V DC	IPUPCB ERROR signal, output
11-9	11-4	0/5 V DC	IPUPCB ENGN WRITING signal, output
11-10	11-4	0/5 V DC	IPUPCB JIGSEL signal, input
13-A1	13-A2	0/5 V DC	IPUPCB SCAN0 signal, input
13-A3	13-A4	0/5 V DC	IPUPCB SRDY0 signal, output
13-A5	13-A6	0/5 V DC	IPUPCB EPRDY0 signal, output
13-A7	13-A8	0/5 V DC	IPUPCB CPRDY0 signal, input
13-A9	13-A10	0/5 V DC	IPUPCB SBSY0 signal, output
13-A11	13-A12	0/5 V DC	IPUPCB CBSY0 signal, input
13-A13	13-A15	0/5 V DC	IPUPCB STS0 signal, input
13-A14	13-A16	0/5 V DC	IPUPCB /STS0 signal, input
13-B1	13-B2	0/5 V DC	IPUPCB PRINT0 signal, input
13-B3	13-B4	0/5 V DC	IPUPCB PRDY0 signal, output
13-B5	13-B10	0/5 V DC	IPUPCB CMD0 signal, input
13-B6	13-B10	0/5 V DC	IPUPCB /CMD0 signal, input
13-B7	13-B10	0/5 V DC	IPUPCB CCLK0 signal, input
13-B8	13-B10	0/5 V DC	IPUPCB /CCLK0 signal, input
13-B9	13-B10	0/5 V DC	IPUPCB COPY0 signal, input
13-B11	13-B12	0/5 V DC (pulse)	Serial signal for IPUPCB, output
13-B13	13-B14	0/5 V DC (pulse)	Serial signal from IPUPCB, input
14-A2	14-A1	5 V DC	5 V DC supply, output
14-A3	14-A1	0/5 V DC	Data 0, input
14-A4	14-A1	0/5 V DC	Data 1, input
14-A5	14-A1	0/5 V DC	Data 2, input
14-A6	14-A1	0/5 V DC	Data 3, input
14-A7	14-A1	0/5 V DC	Data 4, input
14-A8	14-A1	0/5 V DC	Data 5, input
14-A9	14-A1	0/5 V DC	Data 6, input
14-A10	14-A1	0/5 V DC	Data 7, input
14-A19	14-A1	0/5 V DC	_CSSEL signal, input
14-A20	14-A1	0/5 V DC	_END signal, output
14-A22	14-A1	5 V DC	5 V DC supply, output
14-A23	14-A1	5 V DC	5 V DC supply, output
14-A24	14-A1	0/5 V DC	_JICROM signal, output
14-A25	14-A1	5 V DC	5 V DC supply, output
14-B2	14-B1	5 V DC	5 V DC supply, output
14-B3	14-B1	0/5 V DC	Address A0, output
14-B4	14-B1	0/5 V DC	Address A1, output
14-B5	14-B1	0/5 V DC	Address A2, output
14-B6	14-B1	0/5 V DC	Address A3, output
14-B7	14-B1	0/5 V DC	Address A4, output
14-B8	14-B1	0/5 V DC	Address A5, output
14-B9	14-B1	0/5 V DC	Address A6, output
14-B10	14-B1	0/5 V DC	Address A7, output

* Optional

Terminals (CN)		Voltage	Remarks
14-B11	14-B1	0/5 V DC	Address A8, output
14-B12	14-B1	0/5 V DC	Address A9, output
14-B13	14-B1	0/5 V DC	Address A10, output
14-B14	14-B1	0/5 V DC	Address A11, output
14-B15	14-B1	0/5 V DC	Address A12, output
14-B16	14-B1	0/5 V DC	Address A13, output
14-B17	14-B1	0/5 V DC	Address A14, output
14-B18	14-B1	0/5 V DC	Address A15, output
14-B19	14-B1	0/5 V DC	Address A16, output
14-B20	14-B1	0/5 V DC	Address A17, output
14-B21	14-B1	0/5 V DC	Address A18, output
14-B22	14-B1	5 V DC	5 V DC supply, output
14-B25	14-B1	5 V DC	5 V DC supply, output
15-1	15-3	5 V DC	5 V DC supply for LCDPCB, output
15-2	15-4	5 V DC	5 V DC supply for LCDPCB, output
15-5	15-4	0/5 V DC	LCDPCB LCD RS signal, output
15-6	15-4	0/5 V DC	LCDPCB LCD R/W signal, output
15-7	15-4	0/5 V DC	LCDPCB LCD E signal, output
15-8	15-4	0/5 V DC	LCDPCB LCD D0 data, output
15-9	15-4	0/5 V DC	LCDPCB LCD D1 data, output
15-10	15-4	0/5 V DC	LCDPCB LCD D2 data, output
15-11	15-4	0/5 V DC	LCDPCB LCD D3 data, output
15-12	15-4	0/5 V DC	LCDPCB LCD D4 data, output
15-13	15-4	0/5 V DC	LCDPCB LCD D5 data, output
15-14	15-4	0/5 V DC	LCDPCB LCD D6 data, output
15-15	15-4	0/5 V DC	LCDPCB LCD D7 data, output
15-16	15-4	0/5 V DC	LCDPCB KEY0 signal, output
15-17	15-4	0/5 V DC	LCDPCB KEY1 signal, output
15-18	15-4	0/5 V DC	LCDPCB KEY2 signal, output
15-19	15-4	0/5 V DC	LCDPCB KEY3 signal, output
15-20	15-4	0/5 V DC	LCDPCB scan signal SCAN0, output
15-21	15-4	0/5 V DC	LCDPCB scan signal SCAN1, output
15-22	15-4	0/5 V DC	LCDPCB scan signal SCAN2, output
15-23	15-4	0/5 V DC	LCDPCB LED0 signal, output
15-24	15-4	0/5 V DC	LCDPCB LED1 signal, output
15-25	15-4	0/5 V DC	LCDPCB LED2 signal, output
16-1	1-5	0/5 V DC	PFSW-U on/off, input*
16-2	1-5	0/5 V DC	PFSW-M on/off, input
16-3	1-5	0/5 V DC	PFSW-L on/off, input
16-4	1-5	0/5 V DC	PSSW1 on/off, input
16-5	1-5	0/5 V DC	PSSW2 on/off, input
16-6	1-5	0/5 V DC	PSSW3 on/off, input
16-7	1-5	0/5 V DC	PSSW4 on/off, input
16-8	1-5	0/5 V DC	PSSW5 on/off, input
16-9	1-5	0/24 V DC	LFM-R/L on/off, output
16-10	1-5	0/5 V DC	OFS on/off, input

* Optional

2-3-3 IPU PCB

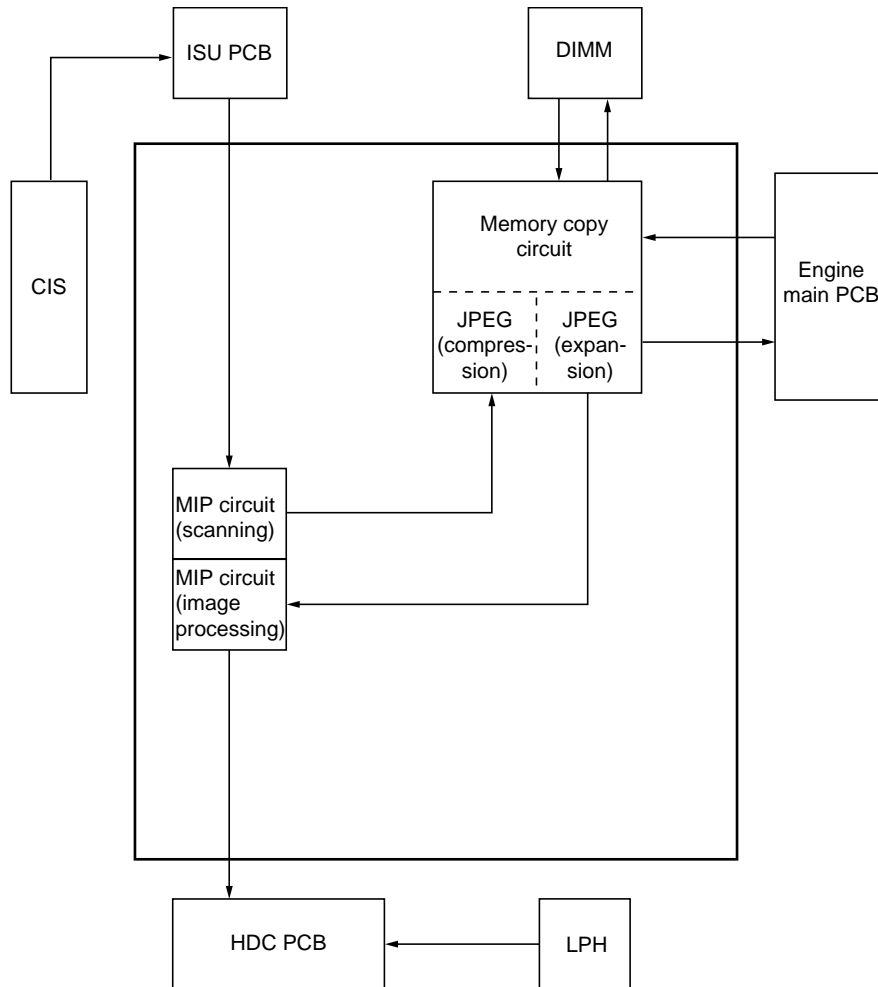


Figure 2-3-5 IPU PCB block diagram

The IPU PCB holds original image data read by the contact image sensor (CIS) for sampling via the ISU PCB, and consists of the MIP circuit (scanning and image processing), memory copy circuit and image processing IC (JPEG). Image data from the CIS is sent to the ISU PCB in synch with the start signal. After being processed there, the data is further sent to the MIP circuit. The IPU PCB serially communicates with the engine main PCB (EMPCB). The engine main PCB (EMPCB) receives commands from the IPU PCB via the TXD line and reads the register value of the CPU of the engine main PCB (EMPCB). The CPU of the engine main PCB (EMPCB) sends the status of the received commands to the IPU PCB via the RXD line. The memory copy PCB mainly serves to read images from the MIP circuit (scanning) based on the control signals from the engine main PCB (EMPCB) and output the image to the MIP circuit (image processing).

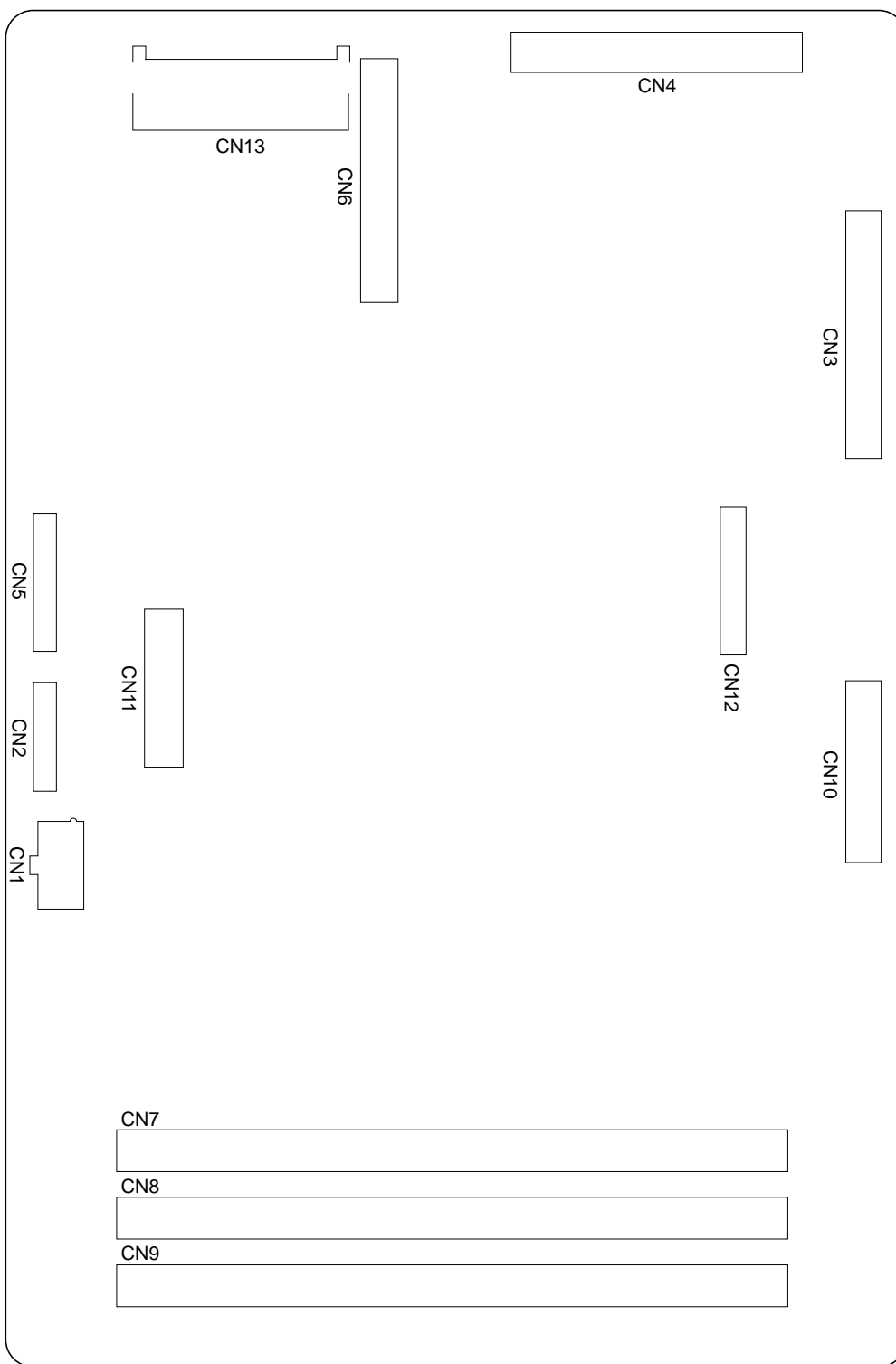


Figure 2-3-6 IPU PCB silkscreen image

Terminals (CN)		Voltage	Remarks
1-1	1-3	5 V DC	5 V DC supply, input
1-2	1-4	5 V DC	5 V DC supply, input
1-5	1-7	3.4 V DC	3.4 V DC supply, input
1-6	1-8	3.4 V DC	3.4 V DC supply, input
2-1	2-2	0/5 V DC (pulse)	Serial signal from EMPCB, input
2-3	2-2	0/5 V DC (pulse)	Serial signal for EMPCB, output
2-5	2-4	0/5 V DC	EMPCB ACK signal, output
2-6	2-4	0/5 V DC	EMPCB ERROR signal, output
2-7	2-4	0/5 V DC	EMPCB ACK signal, input
2-8	2-4	0/5 V DC	EMPCB ERROR signal, input
2-9	2-4	0/5 V DC	EMPCB ENGN WRITING signal, input
2-10	2-4	0/5 V DC	EMPCB JIGSEL signal, output
3-A1	3-A15, 16	0/5 V DC	SVSYNC signal
3-A2	3-A15, 16	0/5 V DC	/SVSYNC signal
3-A3	3-A15, 16	0/5 V DC	PVSYNC signal
3-A4	3-A15, 16	0/5 V DC	/PVSYNC signal
3-A5	3-A15, 16	0/5 V DC	SHSYNC0 signal
3-A6	3-A15, 16	0/5 V DC	/SHSYNC0 signal
3-A7	3-A15, 16	0/5 V DC	PHSYNC0 signal
3-A8	3-A15, 16	0/5 V DC	/PHSYNC0 signal
3-A9	3-A15, 16	0/5 V DC	SVCLK1 signal
3-A10	3-A15, 16	0/5 V DC	/SVCLK1 signal
3-A11	3-A15, 16	0/5 V DC	SVCLK2 signal
3-A12	3-A15, 16	0/5 V DC	/SVCLK2 signal
3-A13	3-A15, 16	0/5 V DC	SVCLK3 signal
3-A14	3-A15, 16	0/5 V DC	/SVCLK3 signal
3-A17	3-A23, 24	0/5 V DC	SSPGT1 signal
3-A18	3-A23, 24	0/5 V DC	/SSPGT1 signal
3-A19	3-A23, 24	0/5 V DC	SSPGT2 signal
3-A20	3-A23, 24	0/5 V DC	/SSPGT2 signal
3-A21	3-A23, 24	0/5 V DC	SSPGT3 signal
3-A22	3-A23, 24	0/5 V DC	/SSPGT3 signal
3-A25	3-A23, 24	0/5 V DC	SVD10 signal
3-A26	3-A23, 24	0/5 V DC	/SVD10 signal
3-B1	3-B7, 8	0/5 V DC	SVD11 signal
3-B2	3-B7, 8	0/5 V DC	/SVD11 signal
3-B3	3-B7, 8	0/5 V DC	SVD12 signal
3-B4	3-B7, 8	0/5 V DC	/SVD12 signal
3-B5	3-B7, 8	0/5 V DC	SVD13 signal
3-B6	3-B7, 8	0/5 V DC	/SVD13 signal
3-B9	3-B17, 18	0/5 V DC	SVD20 signal
3-B10	3-B17, 18	0/5 V DC	/SVD20 signal
3-B11	3-B17, 18	0/5 V DC	SVD21 signal
3-B12	3-B17, 18	0/5 V DC	/SVD21 signal
3-B13	3-B17, 18	0/5 V DC	SVD22 signal
3-B14	3-B17, 18	0/5 V DC	/SVD22 signal
3-B15	3-B17, 18	0/5 V DC	SVD23 signal
3-B16	3-B17, 18	0/5 V DC	/SVD23 signal
3-B19	3-B17, 18	0/5 V DC	SVD30 signal
3-B20	3-B17, 18	0/5 V DC	/SVD30 signal
3-B21	3-B17, 18	0/5 V DC	SVD31 signal
3-B22	3-B17, 18	0/5 V DC	/SVD31 signal
3-B23	3-B17, 18	0/5 V DC	SVD32 signal
3-B24	3-B17, 18	0/5 V DC	/SVD32 signal
3-B25	3-B17, 18	0/5 V DC	SVD33 signal
3-B26	3-B17, 18	0/5 V DC	/SVD33 signal

Terminals (CN)		Voltage	Remarks
5-1	3-2	0/5 V DC (pulse)	Serial signal from SCPCB, input
5-3	3-2	0/5 V DC (pulse)	Serial signal for SCPCB, output
5-5	3-4	0/5 V DC	SCPCB ACK signal, input
5-6	3-4	0/5 V DC	SCPCB ERROR signal, input
5-7	3-4	0/5 V DC	SCPCB ACK signal, output
5-8	3-4	0/5 V DC	SCPCB ERROR signal, output
5-9	3-4	0/5 V DC	SCPCB OVSYNC signal, input
5-10	3-4	0/5 V DC	SCPCB PVSYNC signal, input
5-11	3-4	0/5 V DC	SCPCB IPUWRITING signal, input
5-12	3-4	0/5 V DC	SCPCB SCANJIGSEL signal, output
6-A2	6-A1	5 V DC	5 V DC supply, output
6-A3	6-A1	0/5 V DC	Data 0, input
6-A4	6-A1	0/5 V DC	Data 1, input
6-A5	6-A1	0/5 V DC	Data 2, input
6-A6	6-A1	0/5 V DC	Data 3, input
6-A7	6-A1	0/5 V DC	Data 4, input
6-A8	6-A1	0/5 V DC	Data 5, input
6-A9	6-A1	0/5 V DC	Data 6, input
6-A10	6-A1	0/5 V DC	Data 7, input
6-A19	6-A1	0/5 V DC	_CSSEL signal, input
6-A20	6-A1	0/5 V DC	_END signal, output
6-A22	6-A1	5 V DC	5 V DC supply, output
6-A23	6-A1	5 V DC	5 V DC supply, output
6-A24	6-A1	0/5 V DC	_JICROM signal, output
6-A25	6-A1	5 V DC	5 V DC supply, output
6-B2	6-B1	5 V DC	5 V DC supply, output
6-B3	6-B1	0/5 V DC	Address A0, output
6-B4	6-B1	0/5 V DC	Address A1, output
6-B5	6-B1	0/5 V DC	Address A2, output
6-B6	6-B1	0/5 V DC	Address A3, output
6-B7	6-B1	0/5 V DC	Address A4, output
6-B8	6-B1	0/5 V DC	Address A5, output
6-B9	6-B1	0/5 V DC	Address A6, output
6-B10	6-B1	0/5 V DC	Address A7, output
6-B11	6-B1	0/5 V DC	Address A8, output
6-B12	6-B1	0/5 V DC	Address A9, output
6-B13	6-B1	0/5 V DC	Address A10, output
6-B14	6-B1	0/5 V DC	Address A11, output
6-B15	6-B1	0/5 V DC	Address A12, output
6-B16	6-B1	0/5 V DC	Address A13, output
6-B17	6-B1	0/5 V DC	Address A14, output
6-B18	6-B1	0/5 V DC	Address A15, output
6-B19	6-B1	0/5 V DC	Address A16, output
6-B20	6-B1	0/5 V DC	Address A17, output
6-B21	6-B1	0/5 V DC	Address A18, output
6-B22	6-B1	5 V DC	5 V DC supply, output
6-B25	6-B1	5 V DC	5 V DC supply, output
13-A2	13-A1	0/5 V DC	IDE0 signal
13-A4	13-A3	0/5 V DC	IDE2 signal
13-A6	13-A5	0/5 V DC	IDE4 signal
13-A8	13-A7	0/5 V DC	IDE6 signal
13-A10	13-A9	0/5 V DC	_IDEWR signal
13-A12	13-A11	0/5 V DC	IDEWREQ signal
13-B2	13-B1	0/5 V DC	IDE1 signal
13-B4	13-B3	0/5 V DC	IDE3 signal
13-B6	13-B5	0/5 V DC	IDE5 signal

Terminals (CN)		Voltage	Remarks
13-B8	13-B7	0/5 V DC	IDE7 signal
13-B10	13-B9	0/5 V DC	_IDERD signal
13-B12	13-B11	0/5 V DC	IDEREEQ signal

2-3-4 Operation unit PCB

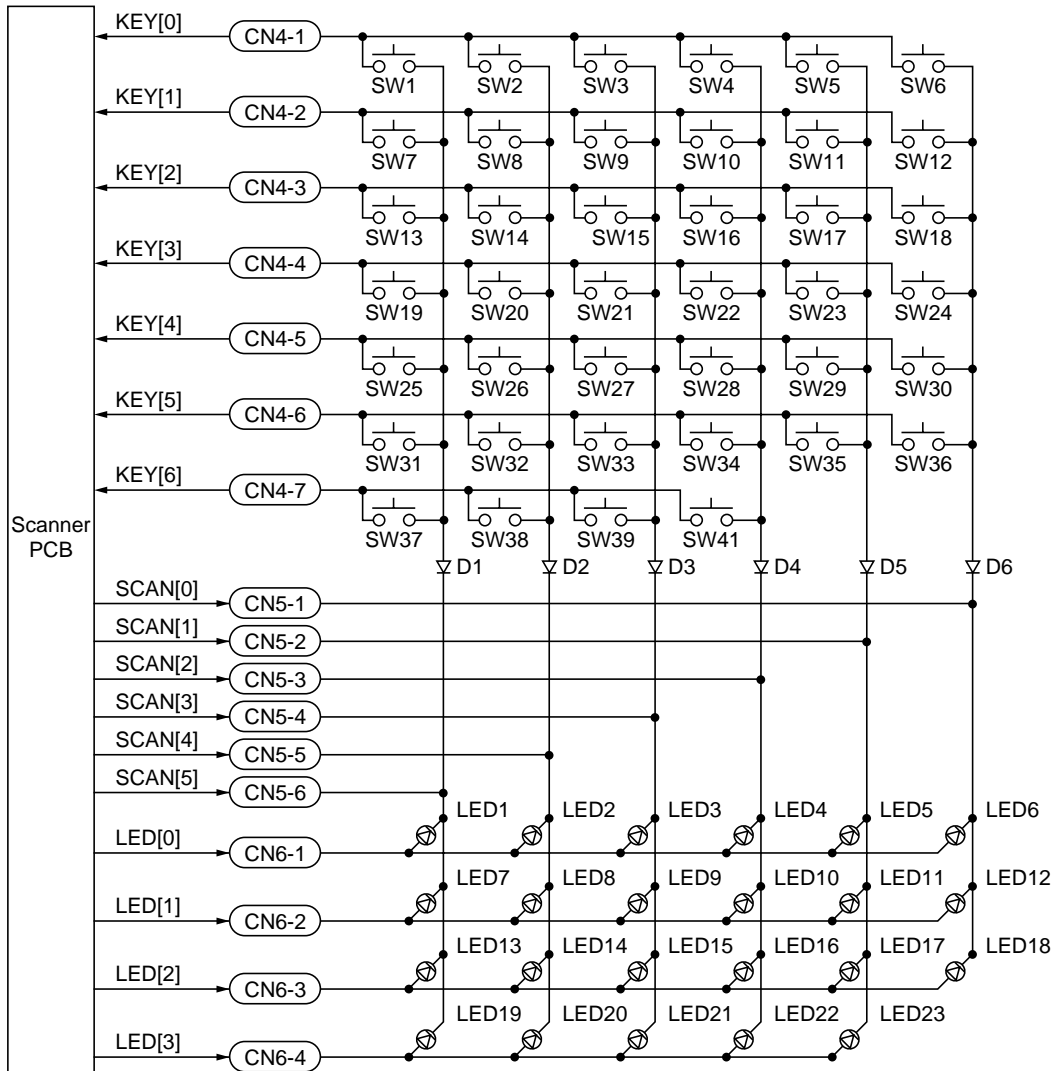


Figure 2-3-7 Operation unit PCB block diagram

Selection of key switches and the lighting of LEDs of the operation unit PCB (OPCB) are determined by scan signals (SCAN[0] to SCAN[5]) from the scanner PCB (SCPCB) and LED lighting selection signals (LED[0] to LED[3]). The key switch (SW1 to SW36) operated is identified by the scan signals (SCAN[0] to SCAN[5]) and the return signals (KEY[0] to KEY[6]).

As an example, to light LED 1, LED lighting selection signal LED[0] should be driven low in synch with a low level of scan signal SCAN[5]. LEDs can be lit dynamically by repeating such operations.

As an example, if SW1 is pressed, the corresponding key switch is turned on feeding the low level of scan signal SCAN[5] back to the scanner PCB (SCPCB) via return signal KEY[0]. The scanner PCB (SCPCB) 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.

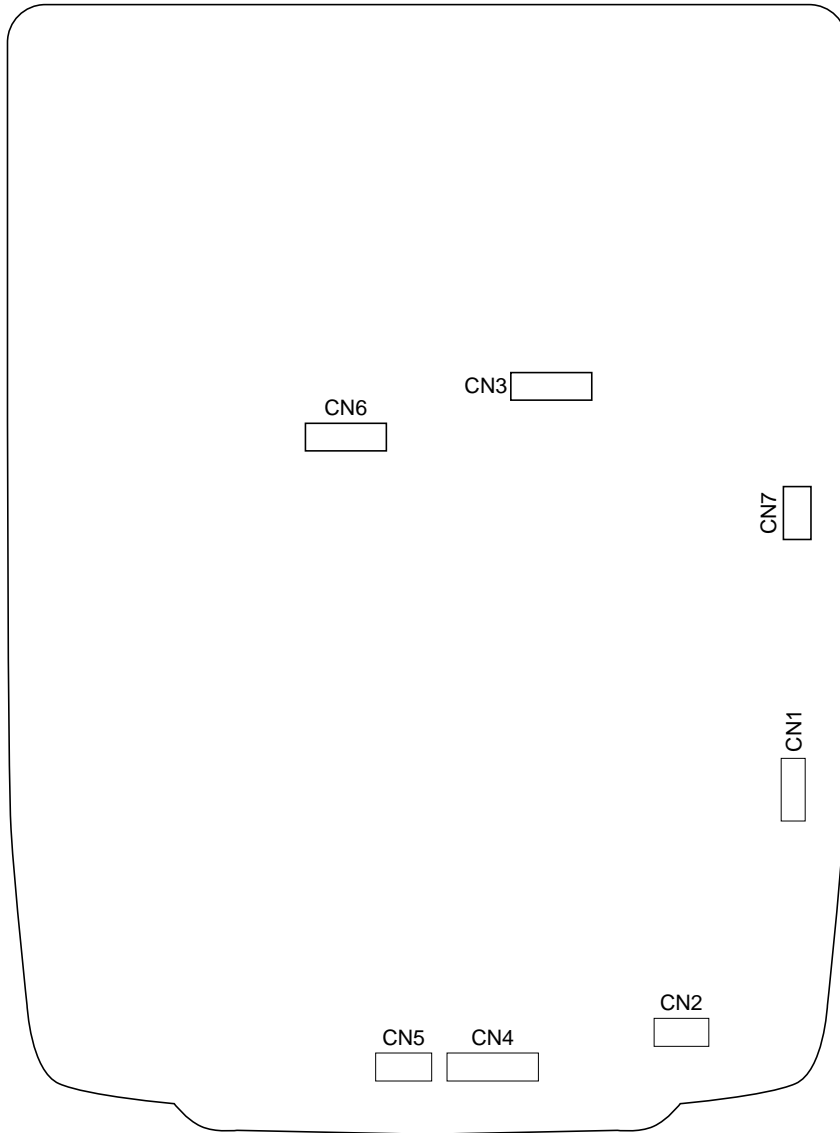


Figure 2-3-8 Operation unit PCB silkscreen image

Terminals (CN)		Voltage	Remarks
1-1	1-2	24 V DC	24 V DC supply, input
1-3	1-4	5 V DC	5 V DC supply, input
2-1	1-2	0/5 V DC	OPCB P.HEAT LED signal, input
2-2	1-2	0/5 V DC	OPCB P.HEAT KEY signal, output
2-3	1-2	0/5 V DC	OPCB STOP KEY signal, output
3-1	3-5	0/5 V DC	CFL on/off output
4-1	1-2	0/5 V DC	OPCB KEY0 signal, output
4-2	1-2	0/5 V DC	OPCB KEY1 signal, output
4-3	1-2	0/5 V DC	OPCB KEY2 signal, output
4-4	1-2	0/5 V DC	OPCB KEY3 signal, output
4-5	1-2	0/5 V DC	OPCB KEY4 signal, output
4-6	1-2	0/5 V DC	OPCB KEY5 signal, output
4-7	1-2	0/5 V DC	OPCB KEY6 signal, output
5-1	1-2	0/5 V DC	OPCB scan signal SCAN0, input
5-2	1-2	0/5 V DC	OPCB scan signal SCAN1, input
5-3	1-2	0/5 V DC	OPCB scan signal SCAN2, input
5-4	1-2	0/5 V DC	OPCB scan signal SCAN3, input
5-5	1-2	0/5 V DC	OPCB scan signal SCAN4, input
5-6	1-2	0/5 V DC	OPCB scan signal SCAN5, input
6-1	1-2	0/5 V DC	OPCB LED0 signal, input
6-2	1-2	0/5 V DC	OPCB LED1 signal, input
6-3	1-2	0/5 V DC	OPCB LED2 signal, input
6-4	1-2	0/5 V DC	OPCB LED3 signal, input
6-5	1-2	0/5 V DC	OPCB LED4 signal, input

2-3-5 Scanner PCB

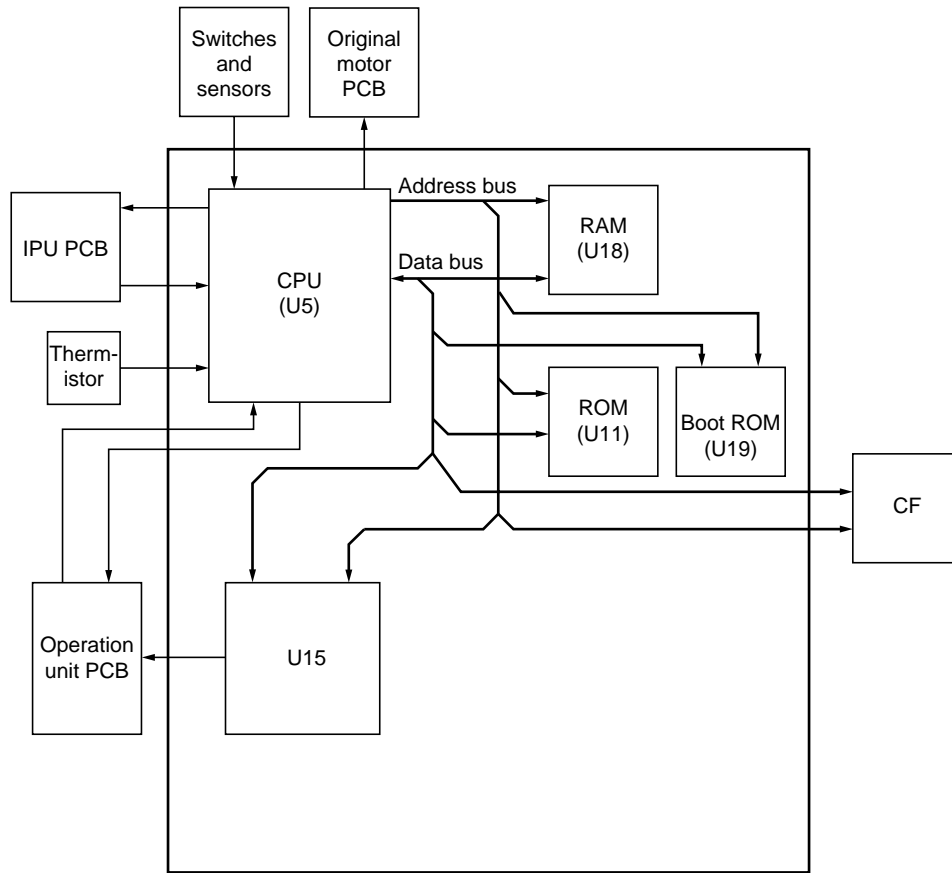


Figure 2-3-9 Scanner PCB block diagram

The scanner PCB (SCPCB) centers on CPU U5 and includes the ROM and RAM circuit, LCD control circuit, analog signal input/output circuit and communication control circuit. CPU U5 controls the entire system based on the data written into RAM U18 according to the control program in ROM U11. CPU U5 also communicates with the IPU PCB and other PCBs via the serial communication circuit as well as controls lighting of the operation panel LCD via ASIC U15.

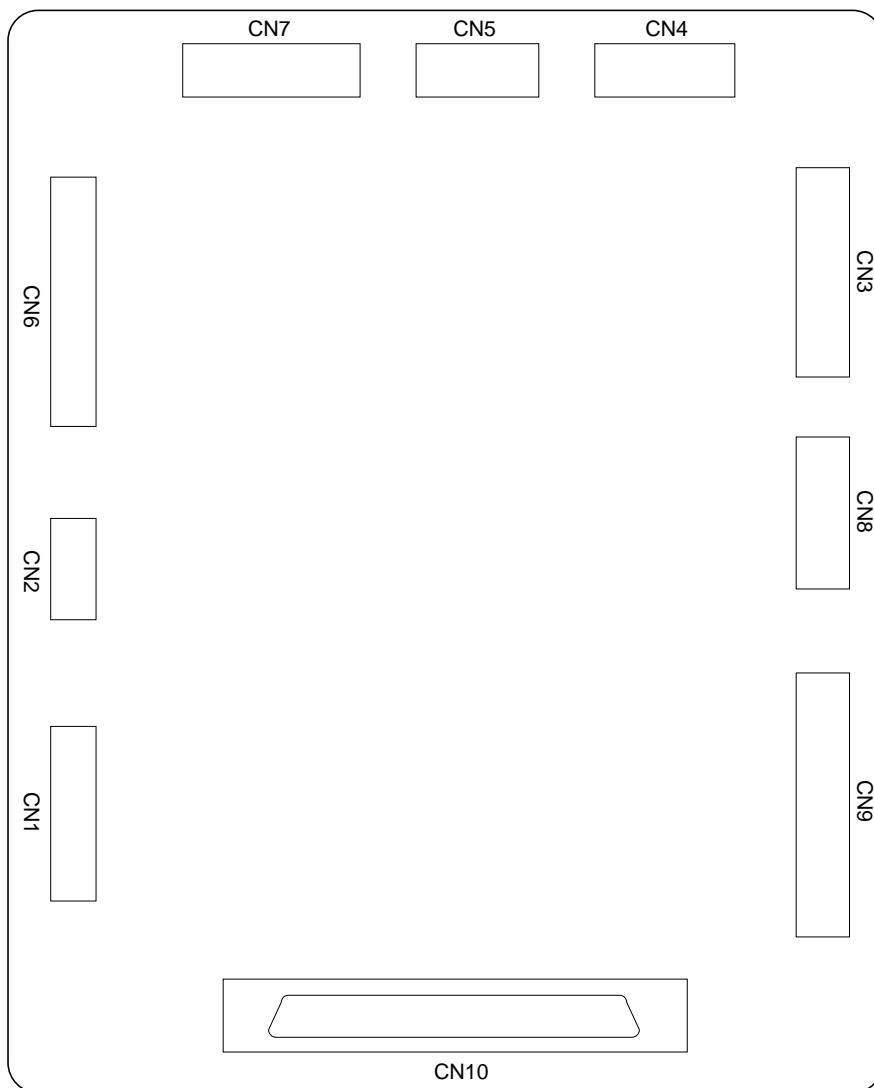


Figure 2-3-10 Scanner PCB silkscreen image

Terminals (CN)		Voltage	Remarks
1-1	1-2	24 V DC	24 V DC supply, input
1-3	1-4	5 V DC	5 V DC supply, input
2-1	2-2	24 V DC	24 V DC supply for OPCB, output
2-3	2-4	5 V DC	5 V DC supply for OPCB, output
3-1	1-2	0/5 V DC	OPCB KEY6 signal, input
3-2	1-2	0/5 V DC	OPCB KEY5 signal, input
3-3	1-2	0/5 V DC	OPCB KEY4 signal, input
3-4	1-2	0/5 V DC	OPCB KEY3 signal, input
3-5	1-2	0/5 V DC	OPCB KEY2 signal, input
3-6	1-2	0/5 V DC	OPCB KEY1 signal, input
3-7	1-2	0/5 V DC	OPCB KEY0 signal, input
3-8	1-2	0/5 V DC	OPCB STOP KEY signal, input
3-9	1-2	0/5 V DC	OPCB P.HEAT KEY signal, input
3-10	1-2	0/5 V DC	OPCB P.HEAT LED signal, output
4-1	1-2	0/5 V DC	OPCB scan signal SCAN5, output
4-2	1-2	0/5 V DC	OPCB scan signal SCAN4, output
4-3	1-2	0/5 V DC	OPCB scan signal SCAN3, output
4-4	1-2	0/5 V DC	OPCB scan signal SCAN2, output
4-5	1-2	0/5 V DC	OPCB scan signal SCAN1, output
4-6	1-2	0/5 V DC	OPCB scan signal SCAN0, output
5-1	1-2	0/5 V DC	OPCB LED4 signal, output
5-2	1-2	0/5 V DC	OPCB LED3 signal, output
5-3	1-2	0/5 V DC	OPCB LED2 signal, output
5-4	1-2	0/5 V DC	OPCB LED1 signal, output
5-5	1-2	0/5 V DC	OPCB LED0 signal, output
6-1	6-12	0/5 V DC	LCDPCB LCD VDD signal, output
6-2	6-12	0/5 V DC	LCDPCB LCD VEE signal, output
6-3	6-12	0/5 V DC	LCDPCB LCD D3 signal, output
6-4	6-12	0/5 V DC	LCDPCB LCD D2 signal, output
6-5	6-12	0/5 V DC	LCDPCB LCD D1 signal, output
6-6	6-12	0/5 V DC	LCDPCB LCD D0 signal, output
6-7	6-12	0/5 V DC	LCDPCB LCD CP signal, output
6-8	6-12	0/5 V DC	LCDPCB LPD FLM signal, output
6-9	6-12	0/5 V DC	LCDPCB LCD D. off signal, output
6-10	6-12	0/5 V DC	LCDPCB LCD LP signal, output
6-11	6-12	0 – 22 V DC	LCDPCB LCD VO signal, output
7-1	1-5	0/5 V DC	OLSW on/off, input
7-2	1-5	0/5 V DC	OTSW on/off, input
7-3	1-5	0/5 V DC	OSSW1 on/off, input
7-4	1-5	0/5 V DC	OSSW2 on/off, input
7-5	1-5	0/5 V DC	OSSW3 on/off, input
7-6	1-5	0/5 V DC	OSSW4 on/off, input
7-7	1-5	0/5 V DC	SSW7 on/off, input
7-8	1-5	0/5 V DC	SSW8 on/off, input
8-1	1-5	0/5 V DC	OM on/off, output
8-2	1-5	0/5 V DC	OMPCB OM CW/CCW signal, output
8-3	1-5	0/5 V DC	OMPCB OM CLOCK signal, output
8-4	1-5	0/5 V DC	OMPCB OM Vref signal, output
8-5	1-5	0/24 V DC	FL-R on/off, output
8-6	1-5	0/24 V DC	FL-L on/off, output
9-1	1-5	0/5 V DC (pulse)	Serial signal for IPUPCB, output
9-3	1-5	0/5 V DC (pulse)	Serial signal from IPUPCB, input
9-5	1-5	0/5 V DC	IPUPCB ACK signal, output
9-6	1-5	0/5 V DC	IPUPCB ERROR signal, output
9-7	1-5	0/5 V DC	IPUPCB ACK signal, input
9-8	1-5	0/5 V DC	IPUPCB ERROR signal, input

Terminals (CN)		Voltage	Remarks
9-9	1-5	0/5 V DC	IPUPCB OVSYNC signal, output
9-10	1-5	0/5 V DC	IPUPCB PVSYSYNC signal, output
9-11	1-5	0/5 V DC	IPUPCB IPUWRITING signal, output
9-12	1-5	0/5 V DC	SMP PCB SCANJIGSEL signal, output
10-A2	10-A1	5 V DC	5 V DC supply, output
10-A3	10-A1	0/5 V DC	Data 0, input
10-A4	10-A1	0/5 V DC	Data 1, input
10-A5	10-A1	0/5 V DC	Data 2, input
10-A6	10-A1	0/5 V DC	Data 3, input
10-A7	10-A1	0/5 V DC	Data 4, input
10-A8	10-A1	0/5 V DC	Data 5, input
10-A9	10-A1	0/5 V DC	Data 6, input
10-A10	10-A1	0/5 V DC	Data 7, input
10-A19	10-A1	0/5 V DC	_CSSEL signal, input
10-A20	10-A1	0/5 V DC	_END signal, output
10-A22	10-A1	5 V DC	5 V DC supply, output
10-A23	10-A1	5 V DC	5 V DC supply, output
10-A24	10-A1	0/5 V DC	_JICROM signal, output
10-A25	10-A1	5 V DC	5 V DC supply, output
10-B2	10-B1	5 V DC	5 V DC supply, output
10-B3	10-B1	0/5 V DC	Address A0, output
10-B4	10-B1	0/5 V DC	Address A1, output
10-B5	10-B1	0/5 V DC	Address A2, output
10-B6	10-B1	0/5 V DC	Address A3, output
10-B7	10-B1	0/5 V DC	Address A4, output
10-B8	10-B1	0/5 V DC	Address A5, output
10-B9	10-B1	0/5 V DC	Address A6, output
10-B10	10-B1	0/5 V DC	Address A7, output
10-B11	10-B1	0/5 V DC	Address A8, output
10-B12	10-B1	0/5 V DC	Address A9, output
10-B13	10-B1	0/5 V DC	Address A10, output
10-B14	10-B1	0/5 V DC	Address A11, output
10-B15	10-B1	0/5 V DC	Address A12, output
10-B16	10-B1	0/5 V DC	Address A13, output
10-B17	10-B1	0/5 V DC	Address A14, output
10-B18	10-B1	0/5 V DC	Address A15, output
10-B19	10-B1	0/5 V DC	Address A16, output
10-B20	10-B1	0/5 V DC	Address A17, output
10-B21	10-B1	0/5 V DC	Address A18, output
10-B22	10-B1	5 V DC	5 V DC supply, output
10-B25	10-B1	5 V DC	5 V DC supply, output

2-3-6 Original motor PCB

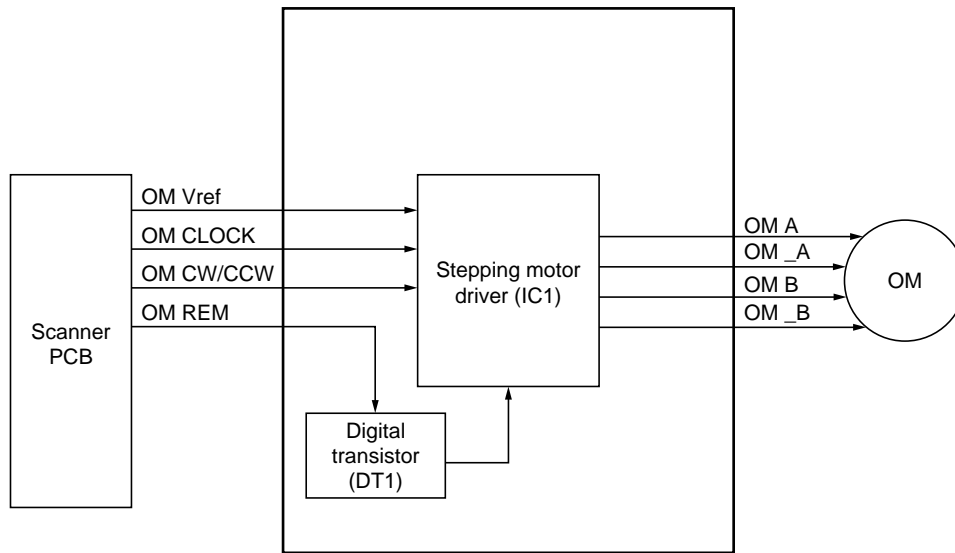


Figure 2-3-11 Original motor PCB block diagram

The original motor PCB (OMPCB) centers on stepping driver IC1 and includes digital transistor DT1. The original motor (OM) is driven by current control voltage (OM Vref), phase changeover clock signals (OM CLK), mode signals (OM CW/CCW) and drive/stop signals (OM REM) from the scanner control PCB (SCPCB).

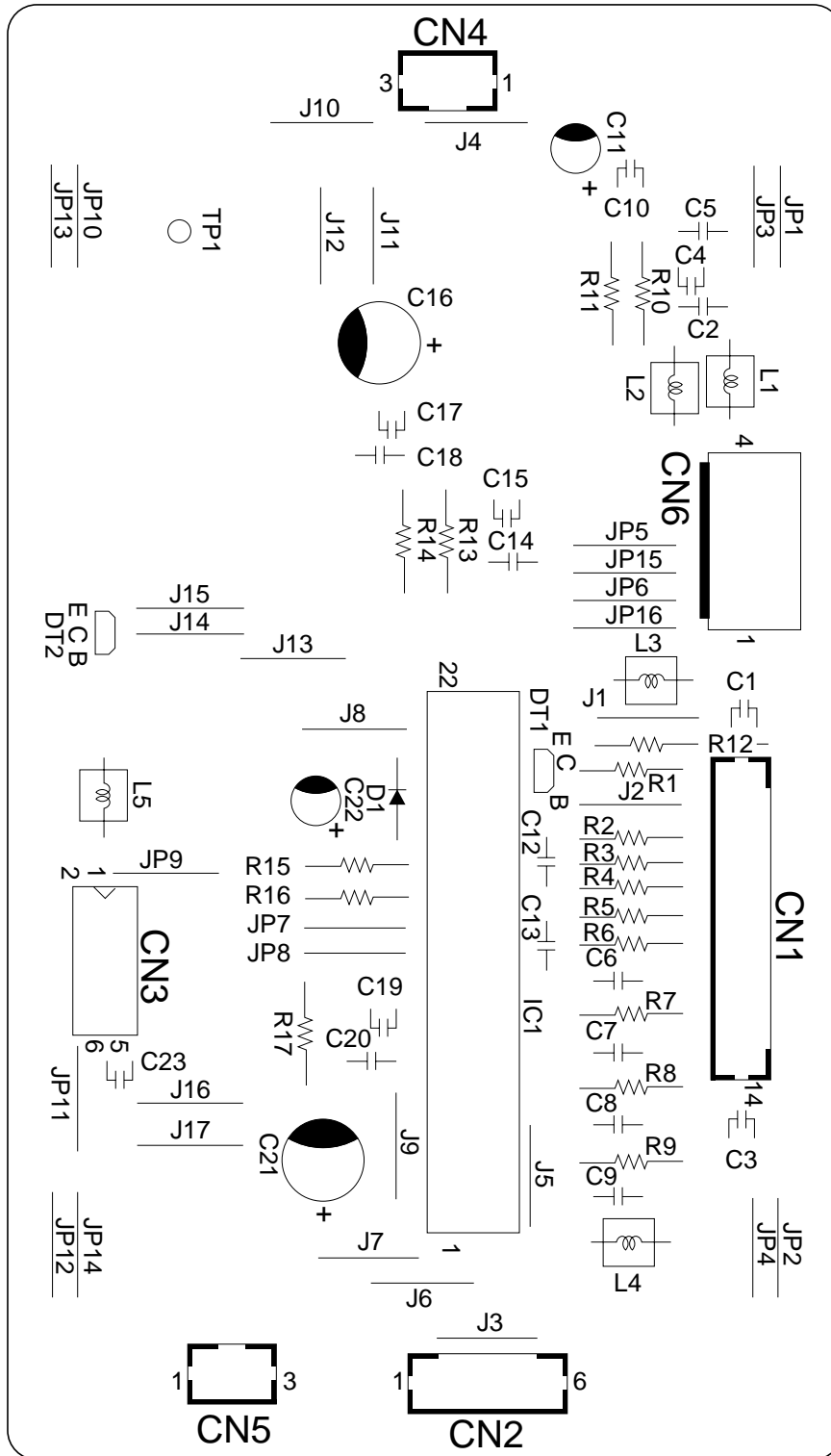


Figure 2-3-12 Original motor PCB silkscreen image

Terminals (CN)		Voltage	Remarks
1-4	1-12	0/5 V DC	OM on/off, input
1-6	1-12	0/5 V DC	OMPCB OM CW/CCW signal, input
1-7	1-12	0/5 V DC	OMPCB OM CLOCK signal, input
1-13	1-12	0/5 V DC	OMPCB OM Vref signal, input
2-1	1-12	0/24 V DC (pulse)	OM coil energization pulse (_B), output
2-2	1-12	0/24 V DC	OM SMOT signal, output
2-3	1-12	0/24 V DC (pulse)	OM coil energization pulse (B), output
2-4	1-12	0/24 V DC (pulse)	OM coil energization pulse (A), output
2-5	1-12	0/24 V DC	OM SMOT signal, output
2-6	1-12	0/24 V DC (pulse)	OM coil energization pulse (_A), output
6-2	6-1	24 V DC	24 V DC supply, input
6-4	6-3	5 V DC	5 V DC supply, input

2-3-7 Left (right) inverter PCB

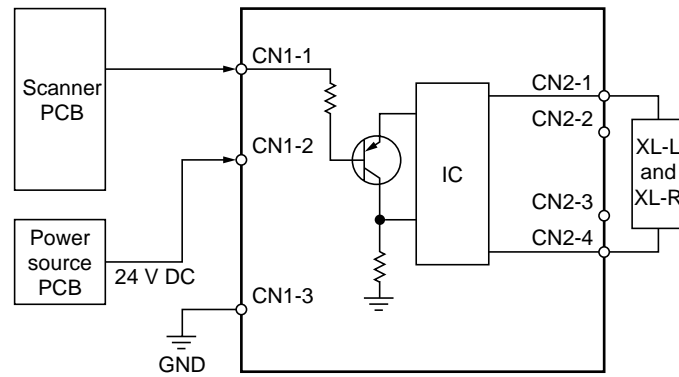


Figure 2-3-13 Left (right) inverter PCB block diagram

The left (right) inverter PCB consists of the high-frequency pulse generating circuit from which a high-frequency pulse is emitted to the xenon lamps and the preheat circuit for the xenon lamp filaments.

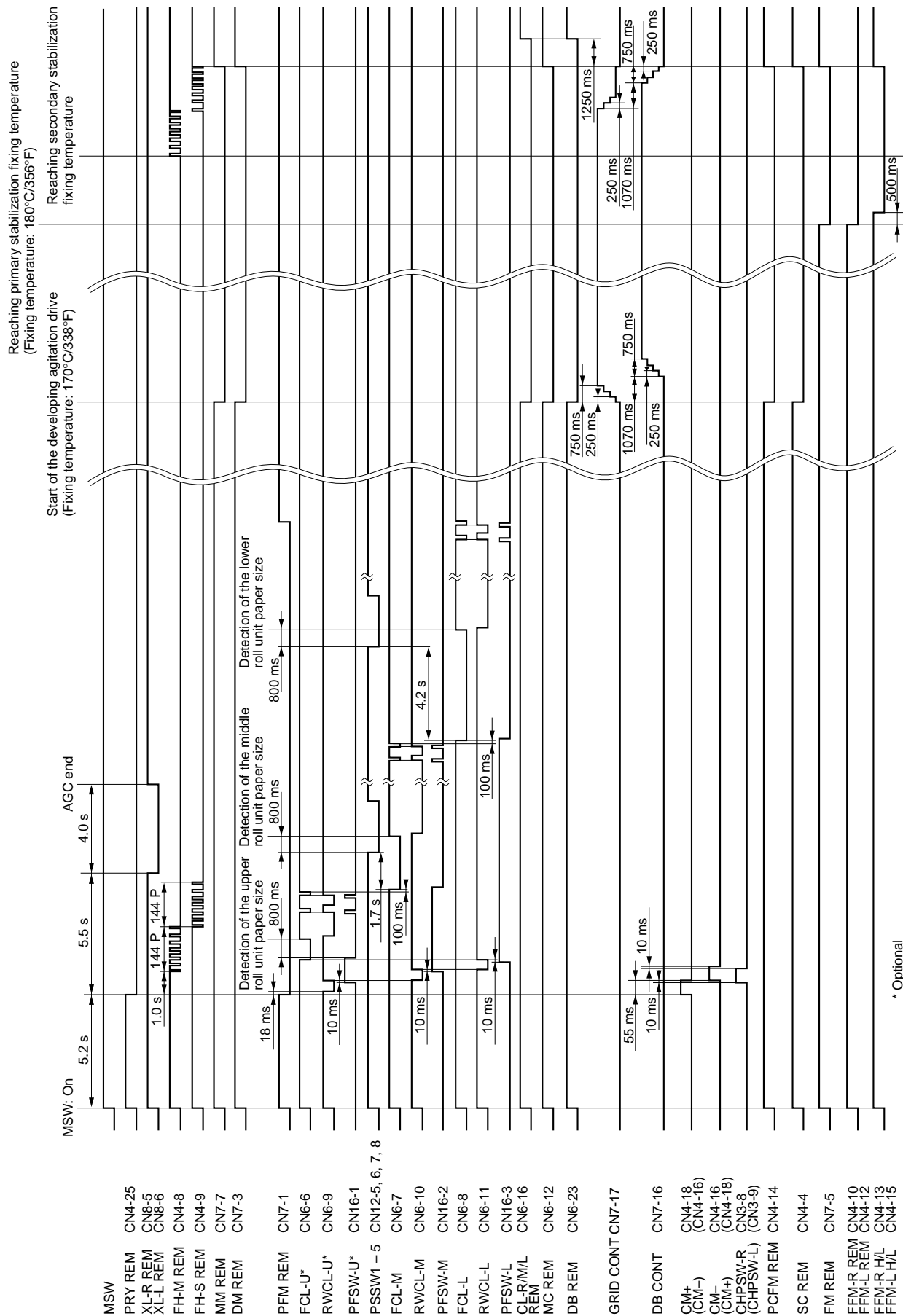
Upon receiving the lighting signal (LAMP REM) from the scanner PCB (SCPCB), the high-frequency pulse is generated from the high-frequency pulse generating circuit and sent to the xenon lamp to turn it on.



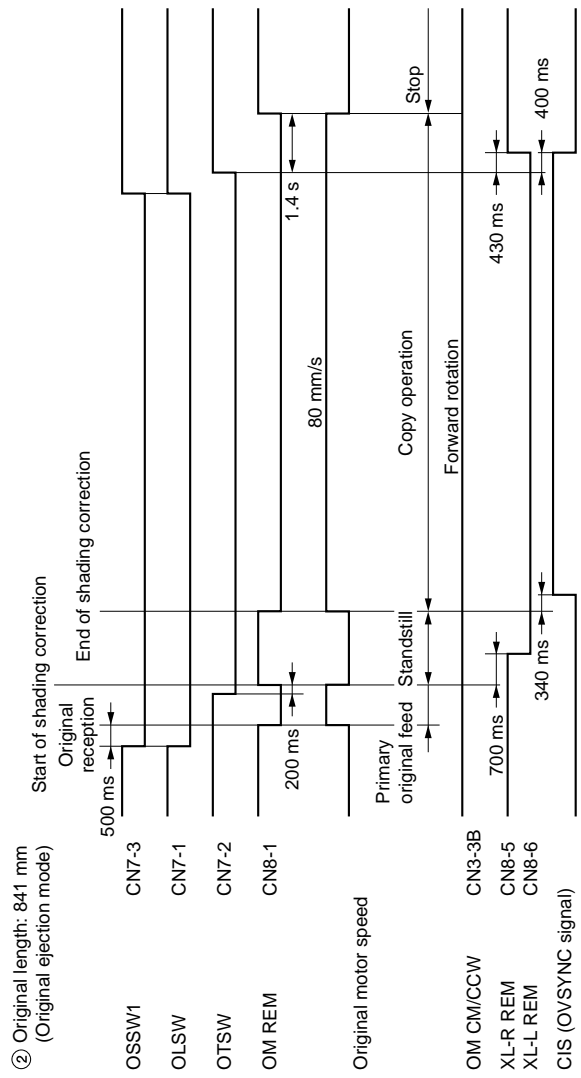
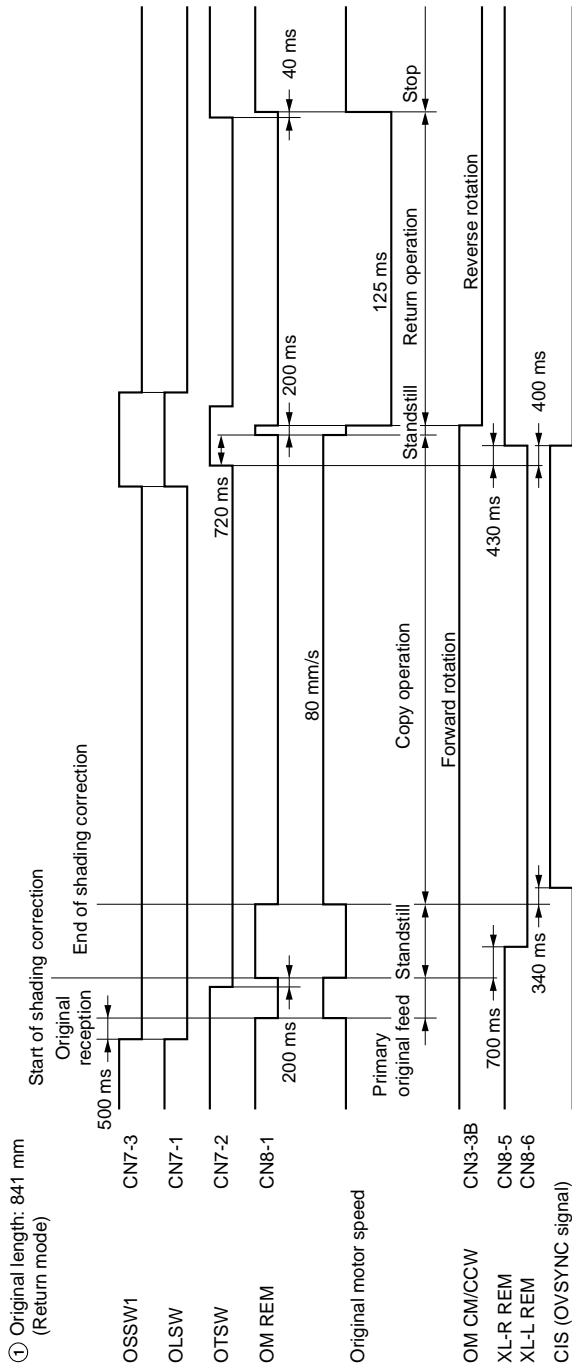
Figure 2-3-14 Left (right) inverter PCB silkscreen image

Terminals (CN)		Voltage	Remarks
1-1	1-3	0/24 V DC	FL-L (FL-R) on/off, input
1-2	1-3	24 V DC	24 V DC supply, input
2-1	1-3		FL-L (FL-R) lighting, output
2-4	1-3		FL-L (FL-R) lighting, output

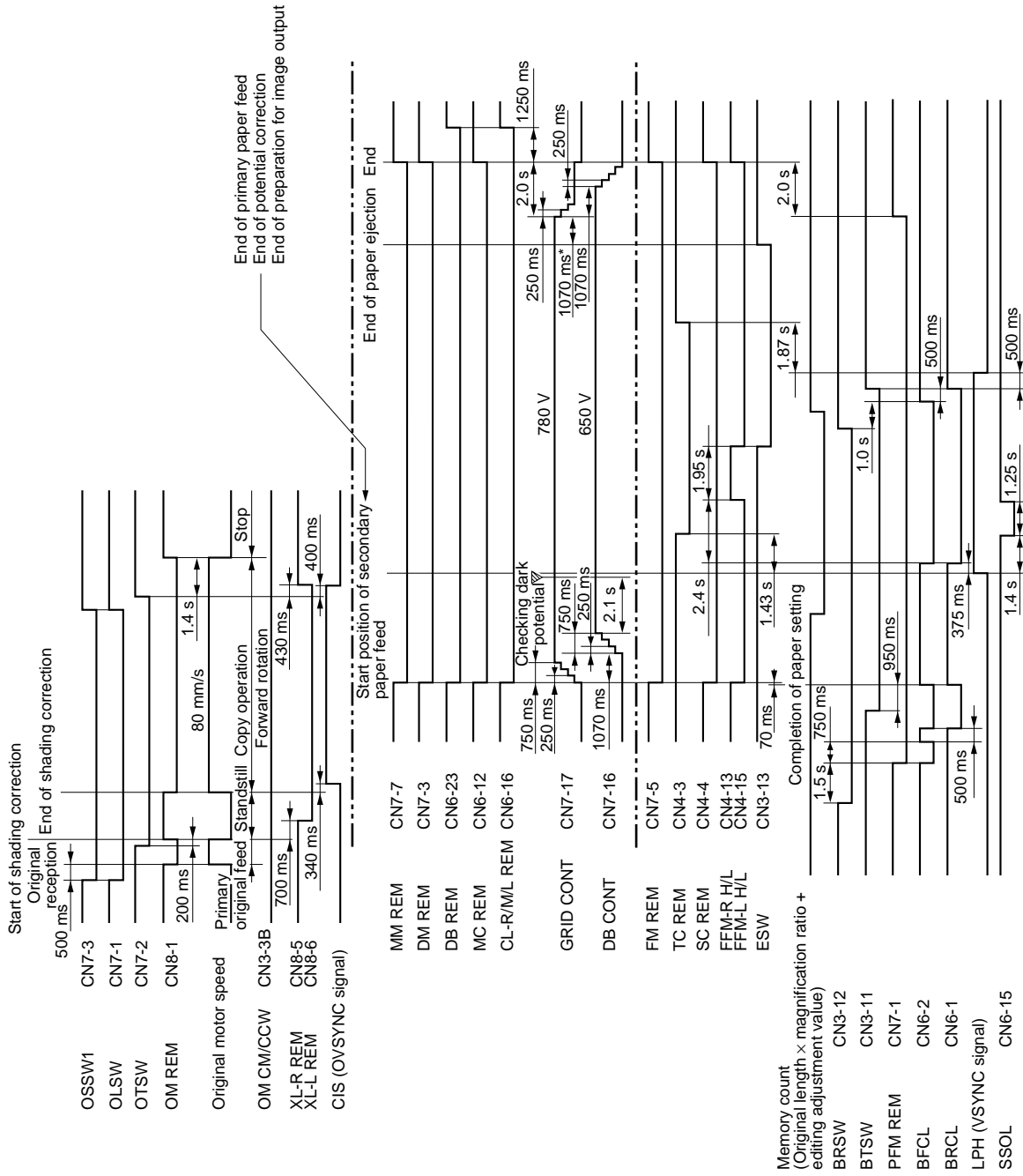
Timing Chart No. 1 From turning the main switch ON to stabilization



Timing Chart No. 2 Original scanning operation

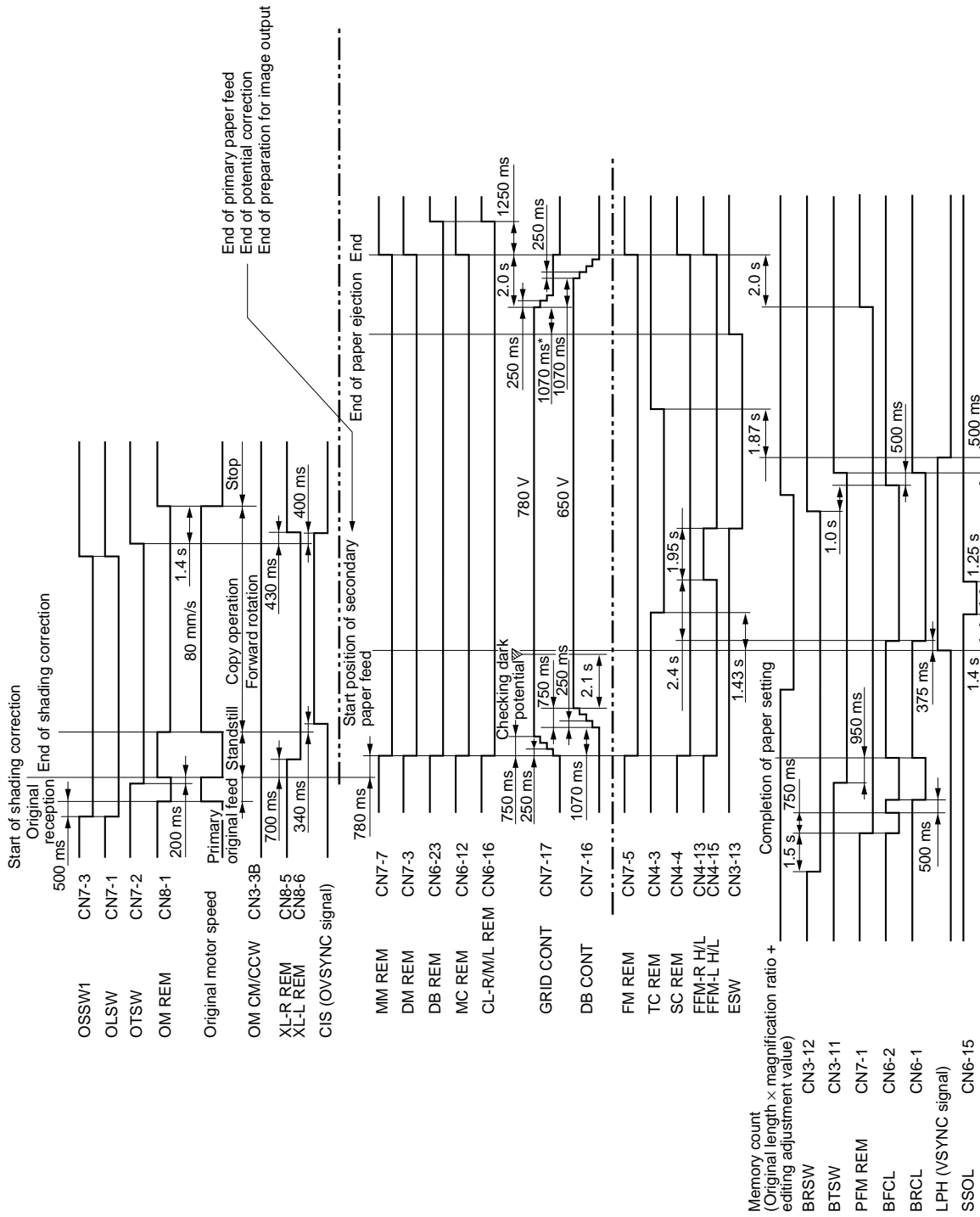


Timing Chart No. 3 When inserting the original first during manual paper feed



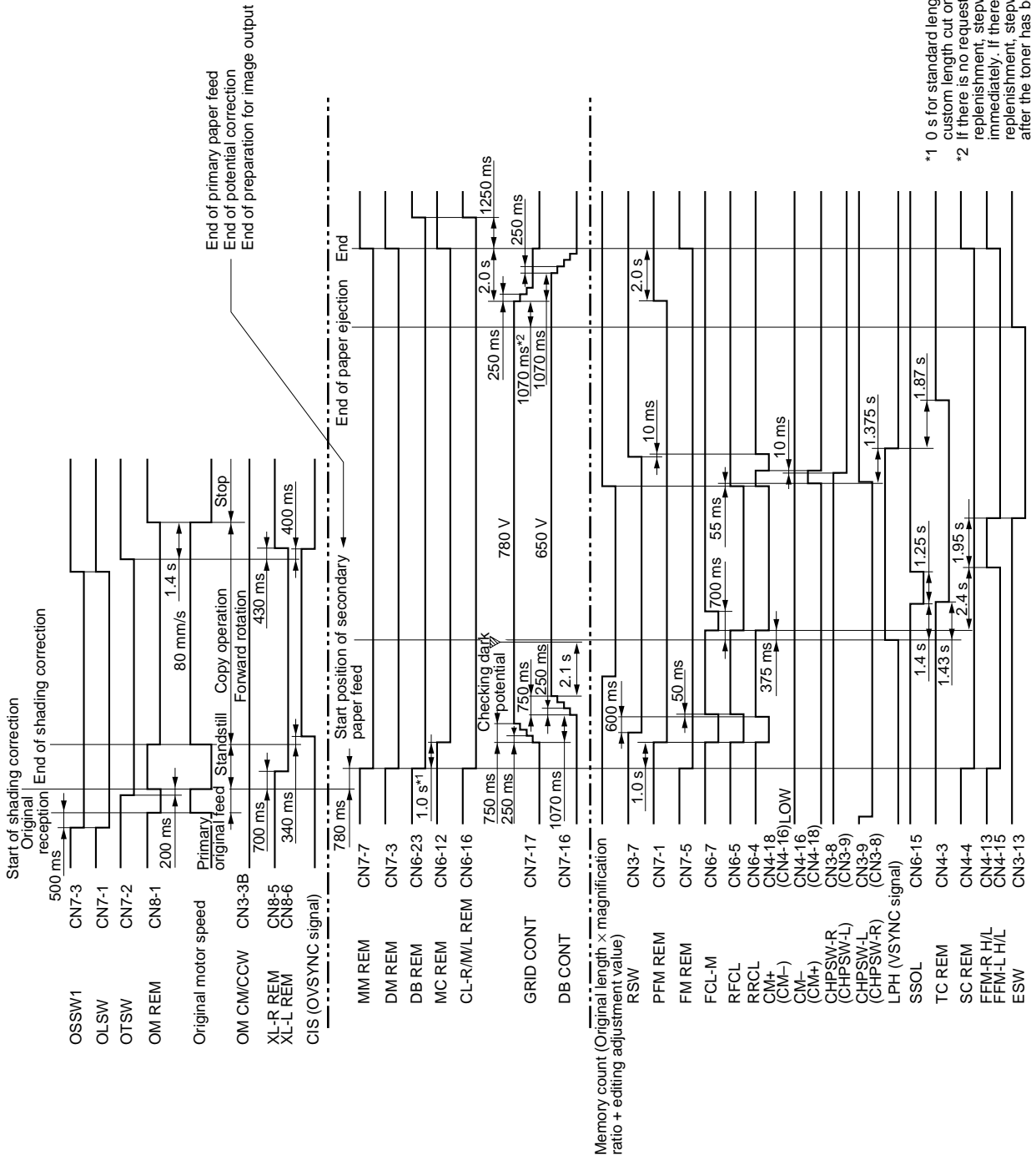
* If there is no request for toner replenishment, stepwise control will start immediately. If there is a request for toner replenishment, stepwise control will start after the toner has been replenished.

Timing Chart No. 4 When inserting the copy paper first in manual paper feed



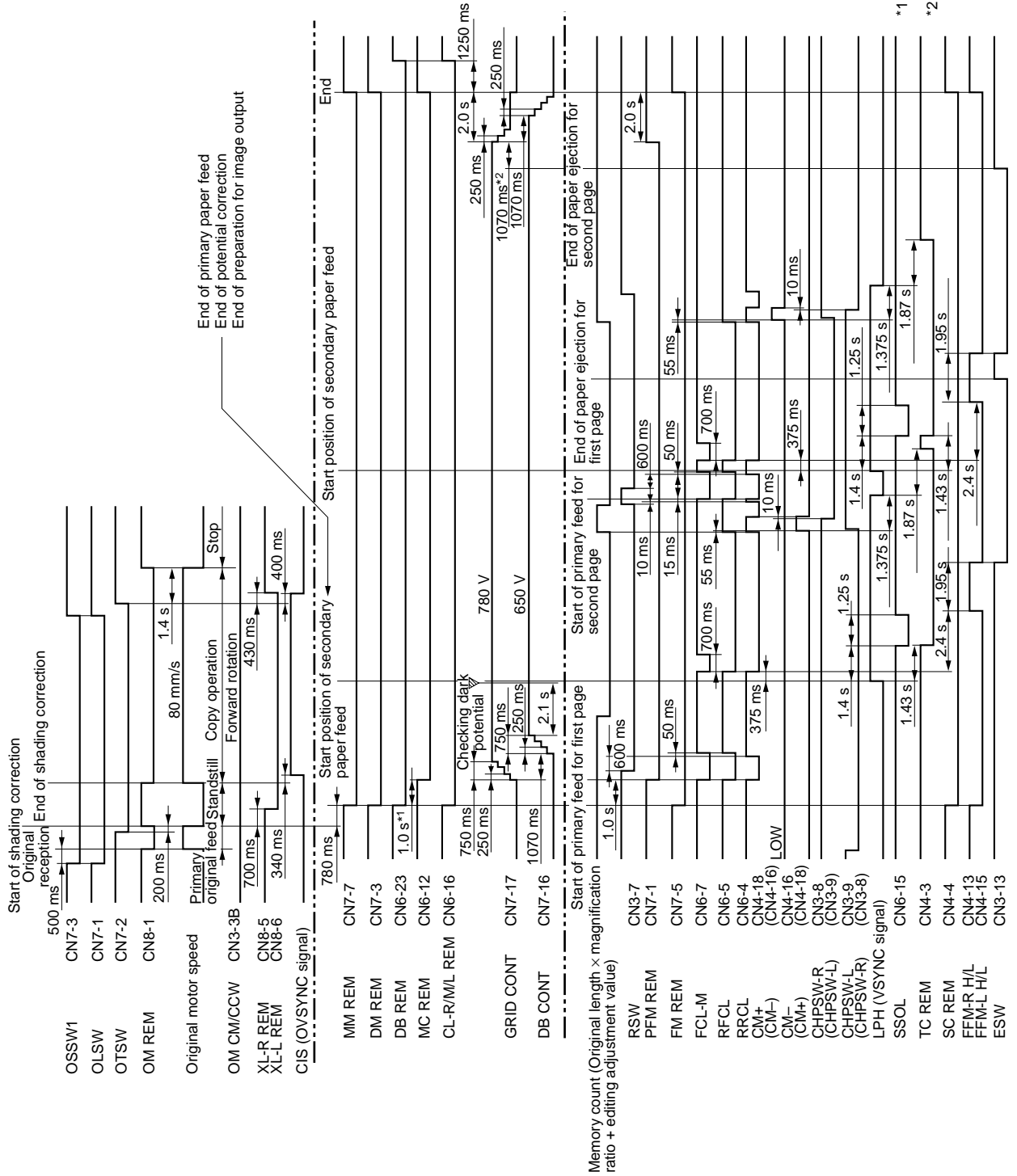
* If there is no request for toner replenishment, stepwise control will start immediately. If there is a request for toner replenishment, stepwise control will start after the toner has been replenished.

Timing Chart No. 5 Roll paper feed, one copy



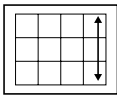
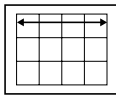
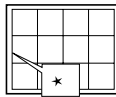
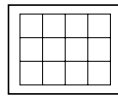
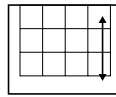
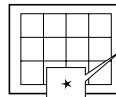
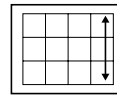
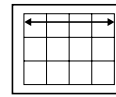
*1 0 s for standard length cut and 1.0 s for custom length cut only.
*2 If there is no request for toner replenishment, stepwise control will start immediately. If there is a request for toner replenishment, stepwise control will start after the toner has been replenished.

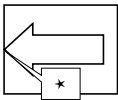
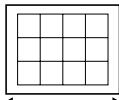
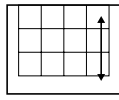
Timing Chart No. 6 Roll paper feed, continuous copy



*1 0 s for standard length cut and 1.0 s for custom length cut only.
*2 If there is no request for toner replenishment, stepwise control will start immediately. If there is a request for toner replenishment, stepwise control will start after the toner has been replenished.

Image adjustment procedure table

Adjustment order	Item	Image	Adjustment details	Maintenance mode		Adjustment original	Reference page	Remarks
				No.	Mode			
①	Adjusting the magnification in the main scanning direction (printing side)		Adjusts the printing magnification	U039	Main scan (%)	Test pattern	P. 1-6-43	Adjust to obtain a grid length of 63.5 mm. 12 grids (762 mm)
②	Adjusting the magnification in the sub scanning direction (printing side)		Adjusts the printing magnification	U039	Sub scan (%)	Test pattern	P. 1-6-43	Adjust to obtain a grid length of 63.5 mm. 12 grids (762 mm)
③	Adjusting the leading edge registration (printing side)		Adjusts the printing magnification	U034	—	Test pattern	P. 1-6-44	Adjust so that the position of the leading line is 5 mm from the edge of paper.
④	Adjusting the standard cut length (printing side)		Adjusts the standard cut length	U041	—	Test pattern	P. 1-6-45	S: 297 mm M: 802 mm L: 1200 mm
⑤	Adjusting the image width in the main scanning direction (printing side)		Adjusts the LPH printing width	U400	—	Test pattern	P. 1-6-11	Eliminate blank space at both edges of the image.
⑥	Adjusting the trailing edge margin (printing side)		Adjusts the LPH printing time	U406	—	Test pattern	P. 1-6-48	Adjust when the blank space at the trailing edge is not appropriate in the border erase mode.
⑦	Adjusting the magnification in the main scanning direction (scanning side)		Adjusts the scanning magnification	U065	Main scan (%)	Test chart	P. 1-6-8	±0.5%
⑧	Adjusting the magnification in the sub scanning direction (scanning side)		Adjusts the original motor speed	U065	Sub scan (%)	Test chart	P. 1-6-8	±0.5%

Adjustment order	Item	Image	Adjustment details	Maintenance mode		Adjustment original	Reference page	Remarks
				No.	Mode			
⑨	Adjusting the leading edge registration (scanning side)		Adjusts the timing for scanning the original	U066	—	Test chart	P. 1-6-9	±3.5 mm
⑩	Adjusting the synchronized cut length (scanning side)		Adjusts the original scanning length	U040	—	Test chart	P. 1-6-46	All adjustments on the image printing side must be completed first.
⑪	Adjusting the center line (scanning side)		Adjusts the LPH lighting area	U067	—	Test chart	P. 1-6-10	±1 mm

Periodic maintenance procedure

Processing area	Maintenance part(s) and location	Contents	Maintenance cycle	Essential points and notes	Page
Test copies and test prints	To be performed at the maximum copy size	Test copy	Every time		



Processing area	Maintenance part(s) and location	Contents	Maintenance cycle	Essential points and notes	Page
Paper feed and conveying section	Paper conveying guide	Cleaning	Every 30 km	Wipe with a dry cloth	



Processing area	Maintenance part(s) and location	Contents	Maintenance cycle	Essential points and notes	Page
Optical section	Contact glass	Cleaning	When needed	Wipe with a wet cloth and then with a dry cloth	
	LED printhead	Cleaning	Every 6 km		



Processing area	Maintenance part(s) and location	Contents	Maintenance cycle	Essential points and notes	Page
Original conveying section	Front upper original roller	Cleaning	Every 30 km	Wipe with a dry cloth	
	Middle upper original roller	Cleaning	When needed	Wipe with a wet cloth and then with a dry cloth	
	Rear upper original roller	Cleaning	Every 30 km	Clean with Gum Roller Clean and Soft Recover	
	Front lower original roller	Cleaning	Every 30 km	Clean with Gum Roller Clean and Soft Recover	
	Rear lower original roller	Cleaning	Every 30 km	Clean with Gum Roller Clean and Soft Recover	



Processing area	Maintenance part(s) and location	Contents	Maintenance cycle	Essential points and notes	Page
Developing section	Developer	Replace	Every 30 km	Wipe with a dry cloth Wipe with a dry cloth Wipe with a dry cloth Wipe with a dry cloth Wipe with a dry cloth Wipe with a dry cloth When toner is sticking on the toner sensor Wipe the sensor section with a dry cloth	1-6-14
	Right developing film	Clean	Every 9 km		
	Left developing film	Clean	Every 9 km		
	Side developing seal	Clean	Every 9 km		
	Upper developing seal	Clean	Every 9 km		
	Lower developing seal	Clean	Every 9 km		
	Agitating plate film assembly	Check and replace	Every 30 km		
	Toner sensor	Clean	Every 30 km		

Processing area	Maintenance part(s) and location	Contents	Maintenance cycle	Essential points and notes	Page
Cleaning section	Cleaning blade	Replace	Every 18 km	Wipe with a dry cloth	1-6-29
	Lower cleaning seal	Clean	Every 6 km		1-6-30
	Cleaning fur brush	Replace	Every 18 km		1-6-31
	Waste toner tank	Replace	Every 12 km	Wipe with a dry cloth	1-6-32
	Drum separation claw	Clean	Every 30 km		



Processing area	Maintenance part(s) and location	Contents	Maintenance cycle	Essential points and notes	Page
Fixing section	Oil roller	Replace	Every 9 km	When replacing the rollers, apply grease GE334 on parts in contact with the bearings of both ends.	1-6-33
	Heat roller	Replace	Every 18 km		1-6-36
	Heat roller bearing	Replace	Every 18 km		1-6-36
	Press roller	Replace	Every 18 km		1-6-37
	Heat roller separation claw	Clean	Every 9 km	Wipe with cloth damp with alcohol	1-6-38
	Press roller separation claw	Clean	Every 9 km	Wipe with cloth damp with alcohol	
	Heat roller thermistor	Clean	Every 18 km	Wipe with cloth damp with alcohol	1-6-38
	Press roller thermistor	Clean	Every 9 km	Wipe with cloth damp with alcohol	1-6-41
	Separation ratchet	Clean	Every 18 km	Wipe with cloth damp with alcohol	1-6-41
	Feedback pulley	Clean	Every 18 km	Wipe with cloth damp with alcohol	



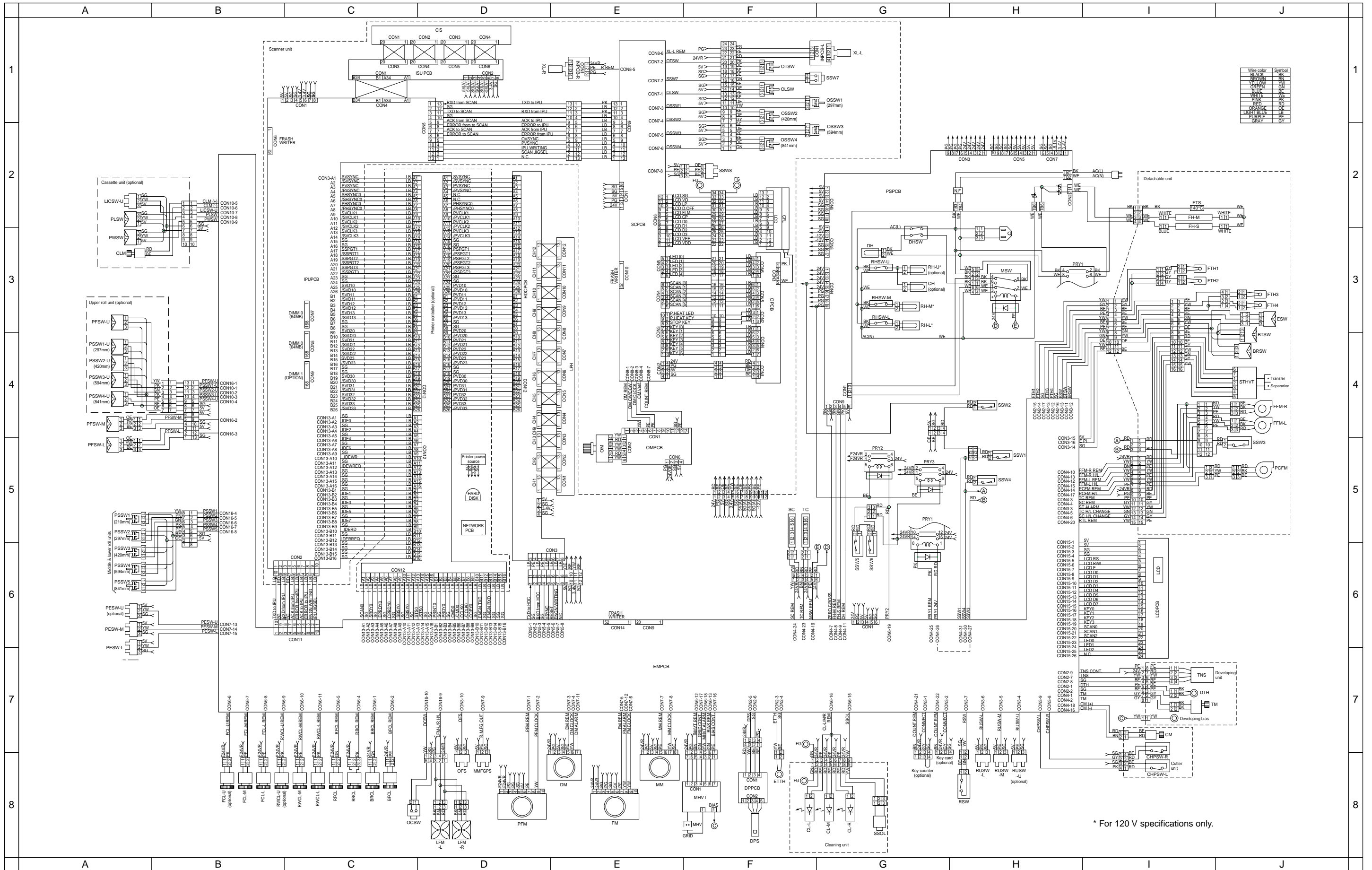
Processing area	Maintenance part(s) and location	Contents	Maintenance cycle	Essential points and notes	Page
Image formation section	Drum	Replace	Every 30 km	Wipe with a wet cloth and then with a dry cloth	1-6-18
	Main charger shield	Clean	Every 6 km		
	Main grid	Clean	Every 6 km		
	Transfer outer shield	Clean	Every 6 km	Wipe with a wet cloth and then with a dry cloth	1-6-22
	Transfer inner shield	Clean	Every 6 km	Wipe with a wet cloth and then with a dry cloth	
	Main charger wire	Clean	Every 3 km	Wipe with a wet cloth and then with a dry cloth	
		Replace	Every 12 km		
Transfer/separation charger wire	Clean	Every 6 km	1-6-24		
	Replace	Every 24 km			

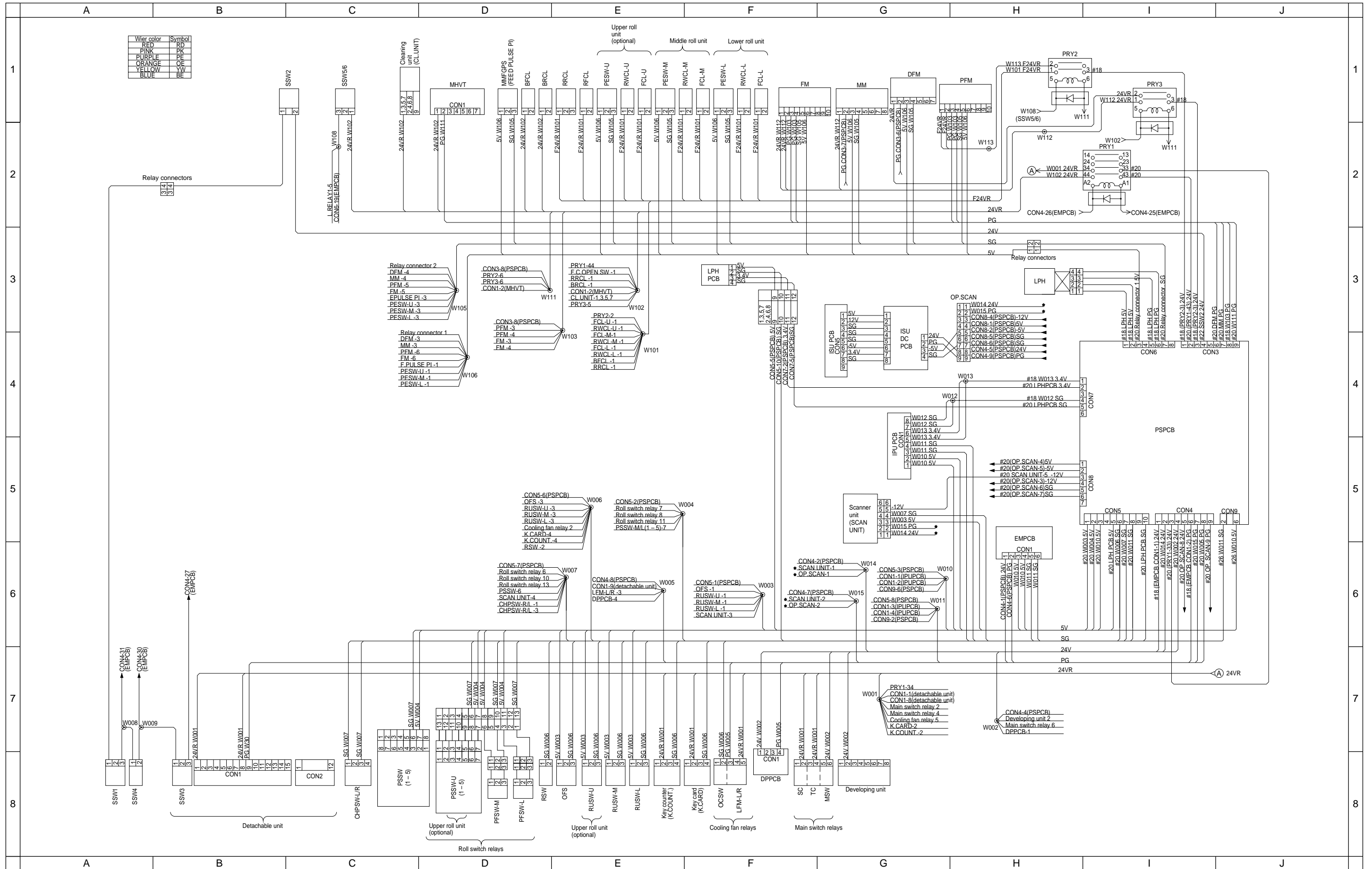


Processing area	Maintenance part(s) and location	Contents	Maintenance cycle	Essential points and notes	Page
Others	Ozone filter	Replace	Every 12 km		1-6-49
	Cooling filter	Replace	Every 12 km		1-6-49

List of maintenance parts

Part names		Part number	Fig. No.	Ref. No.
Name used in the service manual	Name used in the part list			
Contact glass LED printhead	LPH ASS'Y	2A701180	10	2
Front upper original roller	FRONT ROLLER, ORIGINAL HOLDER	2A713230	9	35
Middle upper original roller	INNER ROLLER, ORIGINAL HOLDER	2A713430	9	39
Rear upper original roller	REAR ROLLER, ORIGINAL HOLDER	2A713440	9	40
Front lower original roller	LOWER ROLLER, ORIGINAL	2A713370	9	72
Rear lower original roller	LOWER ROLLER, ORIGINAL	2A713370	9	72
Right developing film	RIGHT FILM, DEVELOPING	2A714210	11	18
Left developing film	LEFT FILM, DEVELOPING	2A714220	11	24
Side developing seal	SEAL, DEVELOPING LEFT RIGHT	2A714230	11	38
Upper developing seal	FRONT COVER, DEVELOPING	2A714150	11	39
Lower developing seal	FILM, TONER RECEIVING	2A714160	11	12
Agitating plate film assembly	AGITATION PLATE FILM ASS'Y (S P)	2A768090	11	19
Toner sensor	SENSOR, TONER	35914830	11	21
Cleaning blade	BLADE, CLEANING	2A718040	13	33
Lower cleaning seal	LOWER BLADE, CLEANING	2A718070	13	42
Cleaning fur brush	FUR BRUSH, CLEANING	2A718060	13	18
Waste toner tank	DISPOSAL TANK ASS'Y	2A700430	14	30
Drum separation claw	SEPARATION CLAW DRUM	78618240	13	22
Oil roller	ROLLER, FIXING OIL	2A720300	15	26
Heat roller	HEAT ROLLER	2A720010	15	27
Heat roller bearing	BEARING, HEAT ROLLER 6806ZZNR	45529400	15	22
Press roller	ROLLER, PRESSURE FIXING	2A720020	16	70
Heat roller separation claw	SEPARATION CLAW, HEAT ROLLER	2AZ20430	15	12
Press roller separation claw	CLAW, PRESS ROLLER	36720493	16	60
Heat roller thermistor	THERMISTOR, FIXING	2A720520	15	21
Press roller thermistor	THERMISTOR, FIXING	2A720520	16	58
Separation ratchet	RATCHET, SEPARATION	71818200	6	10
Feedback pulley	FEEDBACK PULLEY	66321430	15	28
Drum	SET, DRUM	2A782010	7	17
Main charger shield	SHIELD, MAIN	2A710010	7	45
Main grid	GRID ASS'Y	2A700460	7	30
Transfer outer shield	OUTER SHIELD, TRANSFER	2A716100	8	13
Transfer inner shield	INNER SHIELD, TRANSFER	34016091	8	1
Main charger wire	WIRE, CHARGER	2A768020	7	48
Transfer/separation charger wire	ST CHARGER WIRE	74716280	8	12
Ozone filter	FILTER, CONVEYING	67823080	19	47
Cooling filter	FILTER, COOLING	34023130	15	19





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