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SERVICE HANDBOOK

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Canon

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CONTENTS

CHAPTER 1 MAINTENANCE AND INSPECTION

A. Image Adjustment Basic Procedure.....1-1
B. Periodical Servicing.....1-2

CHAPTER 2 STANDARDS AND ADJUSTMENTS

A. Image Adjustment 2-1
1. Adjusting the Image Leading Edge Margin ([3], No.305; registration ON timing) 2-1
2. Adjusting the Leading Edge Non-Image Width ([3], No.306; blank shutter ON timing) 2-2
3. Adjusting the Image Trailling Edge Non-Image Width ([3], No.309; blank shutter timing) 2-3
4. Adjusting the Left/Right Registration 2-4
5. Adjusting the Left/Right Margin (No.311; left/right margin).....2-5
6. Adjusting the Scanning Lamp Intensity.....2-6
7. AE Adjustment 2-7
B. Exposure System 2-11
1. Routing the Scanner Drive Cable.....2-11
2. Adjusting the Mirror Position optical distance between No.1 mirror and No.2/No.3 mirror) ...2-12
3. Adjusting the Scanner Cable Tension.....2-13
4. Assembling the Mirror Positioning Tool 2-13
5. Points to Note When Attaching the Fluorescent Lamp Heater/ Scanning Lamp 2-14
6. Positioning the Change Solenoid 2-16
C. Image Formation System 2-17
1. Positioning the Blank Shutter Solenoid 2-17
2. Routing the Blank Shutter Cable.....2-18
3. Positioning the Solenoid for the Primary Charging Roller.....2-18
4. After Replacing the Drum Unit.....2-19
5. Attaching the Drum Heater ...2-19
D. Pick-Up/Feeding System.....2-21
1. Orientation of the Pick-Up Roller.....2-21
2. Orientation of the Multifeeder Pick-up Roller.....2-21
3. Positioning the paper Guide Plate Cam (multifeeder) 2-22
E. Fixing System.....2-23
1. Points to Note when Attaching the Fixing Film.....2-23
2. Points to Note when Attaching the Heater Connector.....2-23
3. Adjusting the Fixing Film Drive Roller Pressure 2-24
4. Points to Note after Replacing the Fixing Upper Unit 2-25
5. Adjusting the Nip.....2-26
6. Routing the Drive Belt.....2-27
7. Storing the Fixing Heater Registance 2-27
8. Setting the Fixing Heater Temperature Control Value....2-28
F. Electrical.....2-31
1. After Replacing the PCB.....2-31
2. Clearing the Back-Up RAM...2-31
3. Checking the Photointerrupters.....2-32
4. Adjusting the Multifeeder Paper width Sensor.....2-39
5. Setting the Paper Size for the Universal Cassette 2-40

CHAPTER 3 ARRANGEMENT AND FUNCTIONS OF THE ELECTRICAL PARTS

A. Sensors 3-2
B. Clutches, Solenoids, and Switches 3-4
C. Motors, Heaters, and Lamps 3-6
D. PCBs 3-8
E. Cassette Feeding Module-A2 3-10
F. Variable Registors (VR) and check Pins by PCB 3-12
1. DC controller PCB 3-12
2. Composite power supply PCB 3-13

CHAPTER 4 SERVICE MODE

A. Outline 4-1
B. Using Service Mode 4-1
1. Activating Service Mode 4-1
2. Selecting a Service Mode 4-2
3. Selecting Items 4-2
4. Using Adjustment Mode [3] and Specification Mode [5] 4-2
5. Using Operation/Inspection Mode [4] 4-2
6. Clearing Stored Error 4-2
7. Recording on the Service Mode Label 4-3
C. Control Display Mode [1] 4-4
D. I/O Mode [2] 4-6
E. Adjustment Mode [3] 4-9
F. Operation/Inspection Mode [4] ...4-12
G. Specification Settings Mode [5] ..4-14
H. Counter Mode [6] 4-15

CHAPTER 5 SELF DIAGNOSIS

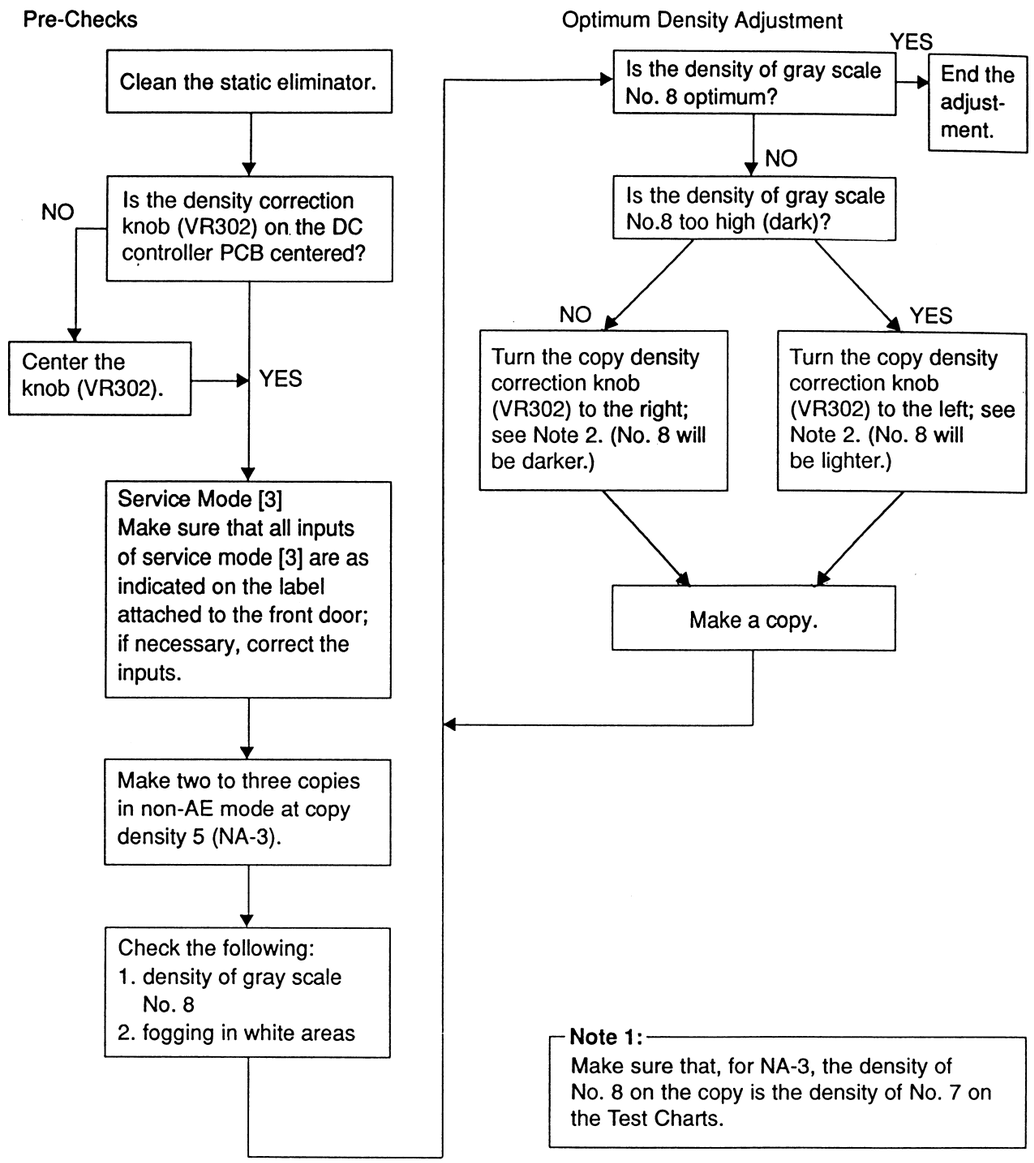
A. Copier 5-1
B. Self Diagnosis (ADF) 5-5
C. Self Diagnosis (Sorter) 5-6

APPENDIX

A. GENERAL TIMING CHART A-1
B. SIGNALS AND ABBREVIATIONS ..A-2
C. GENERAL CIRCUIT DIAGRAM ..A-3
D. SPECIFICATIONS A-5
A. Copier A-5
1. Type A-5
2. System A-5
3. Features A-6
4. Others A-7
B. Cassette Feeding Module-B2/ Cassette Feeding Module-A2 ....A-8

CHAPTER 1 MAINTENANCE AND INSPECTION

A. Image Adjustment Basic Procedure



Note 1:
Make sure that, for NA-3, the density of No. 8 on the copy is the density of No. 7 on the Test Charts.

Note 2:
The development bias (DC component) control is shifted.

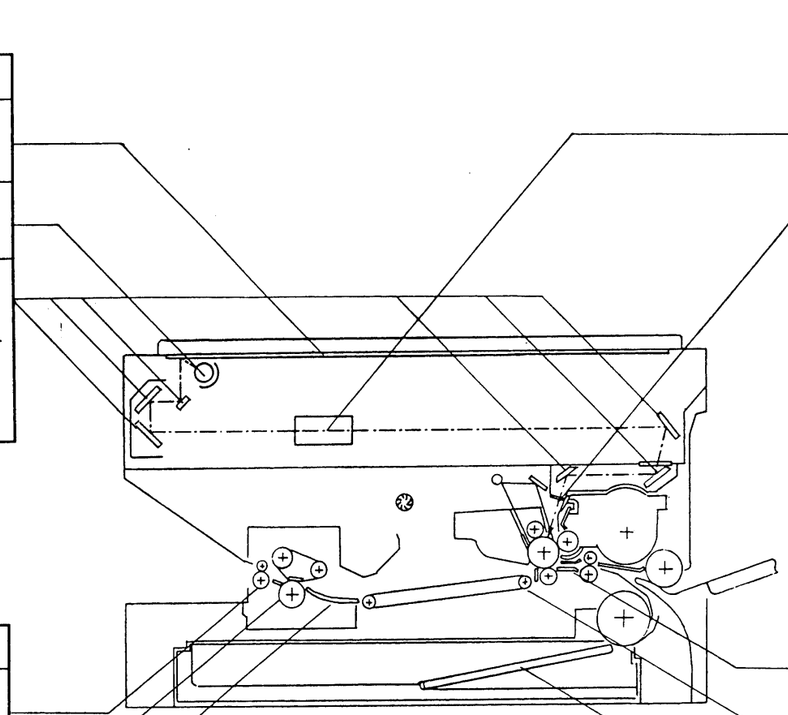
B. Periodical Servicing

Copyboard/Scanner

Part	Tool/Solvent	Remarks
Copyboard glass	Alcohol	Cleaning
Scanning lamp	Lint-free paper	Dry wiping
Reflecting plate	Blower brush	If the dirt is excessive, dry wipe it with lint-free paper.
No. 1 through No. 6 mirror		

Optical path

Part	Tool/Solvent	Remarks
Lens	Blower brush	Cleaning
Dust-proofing glass	Blower brush	Cleaning



Fixing assembly/Delivery assembly

Part	Tool/Solvent	Remarks
Separation claw (lower)	—	—
Lower roller	Cleaning oil (TKN-0464)	Cleaning
Paper guide	Solvent	Cleaning

Feeding/Static eliminator

Part	Tool/Solvent	Remarks
Transfer guide	Moist cloth (Note)	Cleaning
Static eliminator	Special brush	Cleaning
Feeding belt/Feeding base	Moist cloth (Note)	Cleaning

Note: Make sure there are no droplets of water; do not turn on the power until the part is dry.

CHAPTER 2 STANDARDS AND ADJUSTMENTS

A. Image Adjustment

1. Adjusting the Image Leading Edge Margin ([3], No. 305; registration ON timing)

Activate [3] in service mode, and select 'No. 305' (leading edge margin adjustment), and make adjustments so that the image position is as indicated in Figure 2-1 when the Test Sheet is copied in Direct.

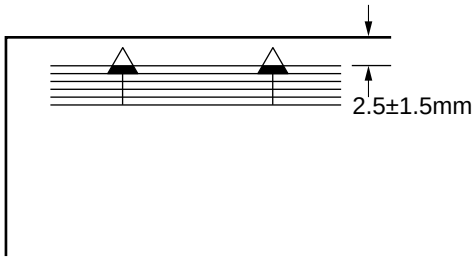


Figure 2-1

Making Adjustments

1) Activate [3] in service mode, and select 'No. 305' using the keypad.
   - The copy count indicator flashes 'No. 305'.
2) Press the Start key.
3) Change the value using the keypad.
   - The value flashes.
   - If the value is negative, '%' turns on. To enter a negative value, press the % key, then enter the value using the keypad.
4) Press the AE key.
   - The value flashes as soon as it is entered.
   - Press the Start key to start copying operation.
5) To change a value continuously, repeat steps 1) through 4).
6) Press the Clear key to return to selecting items.

   The relationship between the setting and the image position is as follows:
   - For each '1' in the setting, the position shifts about 0.27 mm.
   - '+' shifts the image forward.

2. Adjusting the Leading Edge Non-Image Width ([3], No. 306; blank shutter ON timing)

Activate [3] in service mode, select 'No. 306' (leading edge non-image width adjustment), and make adjustments so that the image leading edge non-image width is as indicated in Figure 2-2 when the Test Sheet is copied in Direct.

The copier varies the image leading edge non-image width by varying the timing at which the blank shutter is closed.

You must make this adjustment whenever you have replaced the blank shutter solenoid or the blank exposure assembly.

Leading Edge Non-Image Width

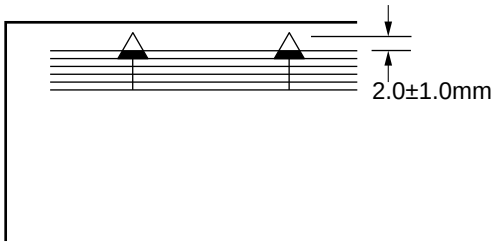


Figure 2-2

Reference:

6 mm or less in Reduce/Enlarge mode.

Making Adjustments

1) Activate [3] in service mode, and select 'No. 306' using the keypad.
   - The copy count indicator flashes 'No. 306'.
2) Press the Start key.
3) Change the value using the keypad.
   - The value flashes.
   - If the value is negative, '%' turns on. To enter a negative value, press the % key, then enter the value using the keypad.
4) Press the AE key.
   - The value flashes as soon as it is entered.
   - Press the Start key to start copying operation.
5) To change a value continuously, repeat steps 1) through 4).
6) Press the Clear key to return to selecting items.

   The relationship between the setting and the image position is as follows:
   - For each '1' in the setting, the position shifts about 0.27 mm.
   - '+' increases the non-image width.

3. Adjusting the Image Trailing Edge Non-Image Width ([3], No. 309; blank shutter timing)

Trailing Edge Non-Image Width

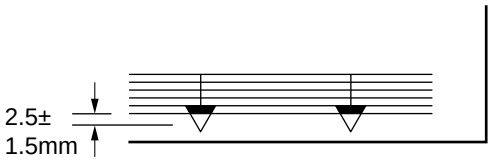


Figure 2-3

Activate [3] in service mode, and select 'No. 309' (leading edge non-image width adjustment); make adjustments so that the image trailing edge non-image width is as indicated in Figure 2-3 when the Test Sheet is copied in Direct.

The copier varies the image trailing edge non-image width by varying the timing at which the blank shutter is opened.

Making Adjustments

1) Activate [3] in service mode, and select 'No. 309' using the keypad.
   - The copy count indicator flashes 'No. 309'.
2) Press the Start key.
3) Change the value using the keypad.
   - The value flashes.
   - If the value is negative, '%' turns on. To enter a negative value, press the % key, then enter the value using the keypad.
4) Press the AE key.
   - The value flashes as soon as it is entered.
   - Press the Start key to start copying operation.
5) To change a value continuously, repeat steps 1) through 2).
6) Press the Clear key to return to selecting items.

   The relationship between the setting and the image position is as follows:
   - For each '1' in the setting, the position shifts about 0.27 mm.
   - '+' decreases the trailing edge non-image width.

4. Adjusting the Left/Right Registration

Make adjustments so that the position of the image is as indicated in Figure 2-5 when the Test Sheet is copied in Direct.

a. Pick-Up from the Cassette

Turn the screw 1 shown in Figure 2-4 to adjust the position of the cassette hook plate.
standard: 0.±1.5 mm
clockwise turn: paper moves in the direction of – shown in Figure 2-5.
counterclockwise turn: paper moves in the direction of + in Figure 2-5.

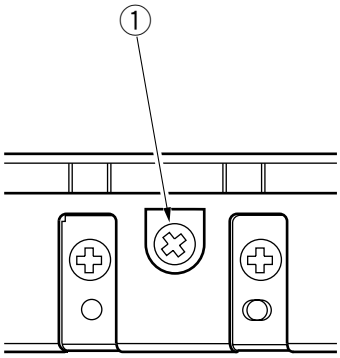


Figure 2-4

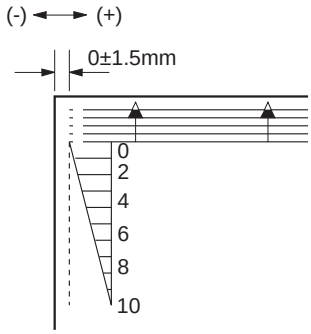


Figure 2-5

b. Pick-Up from the Multifeeder

Loosen the screw 1, and move the position of the tray so that it is 0 ±1.5 mm.

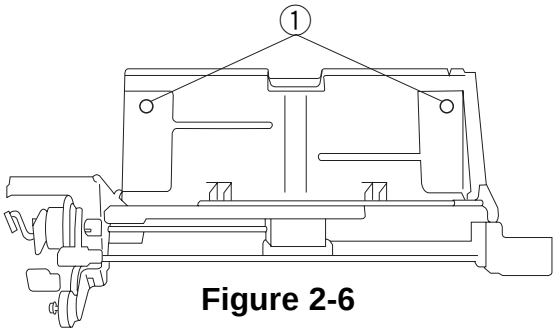


Figure 2-6

5. Adjusting the Left/Right Margin (No. 311; left/right margin)

Select 'No. 311' (left/right margin adjustment); make adjustments so that the left/right margin is 2.5 ±1.5 mm when the Test Sheet is copied in Direct.

You must adjust the left/right registration before making this adjustment.

Making Adjustments

a. Margin (adjusting the width)

1) Activate [3] in service mode, and select 'No. 311' using the keypad.
2) Press the Start key.
3) Enter a value using the keypad.
   - If the value is negative, '%' turns on. To enter a negative value, press the % key, then enter the value using the keypad.

The relationship between the setting and the image position is as follows:

- For each '1' in the setting, the margin (one side) shifts about 0.37 mm.
- range: 0 to 15 mm
- '+' increases the margin.
- '–' decreases the margin.

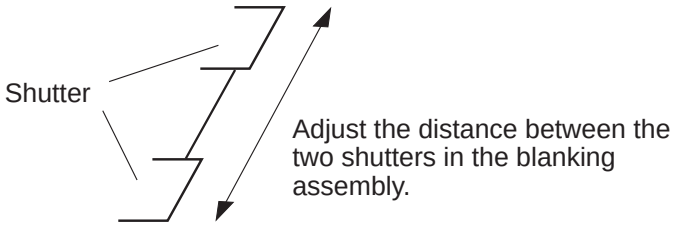


Figure 2-7

b. Left/Right Margin

Turn the blank shutter adjustment screw located on the front side plate shown in Figure 2-8 so that the value is as specified.

clockwise turn:moves the margin toward the front.

counterclockwise turn:moves the margin toward the rear.

a full turn: shifts the margin by about 1 mm.

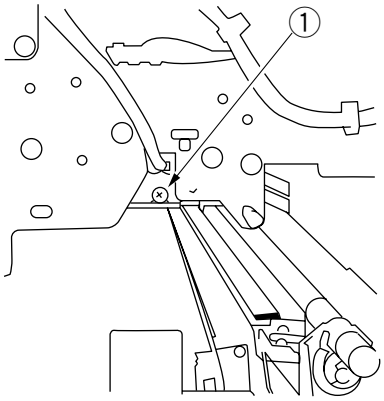


Figure 2-8

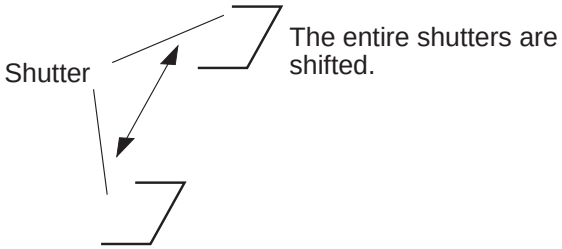


Figure 2-9

Caution:
After the adjustments (both a and b), turn on and off the power switch or change the reproduction ratio so that the blank exposure assembly performs home positioning.

6. Adjusting the Scanning Lamp Intensity

Turn VR301 on the DC controller as follows whenever you have replaced the scanning lamp, intensity sensor, or DC controller.

1) Set Test Sheet NA3 on the copyboard, and close the copyboard cover.
2) Adjust the copy density (AE off) to electrical central position (service mode 1/0 mode [2] No. 212 Value = 153~159).
   ❋ Without this adjustment, exposure value becomes invalid.
3) Turn VR301 on the DC controller so that the image is optimum.
   - If the image is too light, turn the VR slightly clockwise.
   - If the image is too dark, turn the VR slightly counterclockwise.

Reference:

1. The term optimum image refers to a copy whose gray scale No. 8 corresponds to gray scale No. 4 through 7 of the Test Sheet without fogging.
2. An excessive turn on the VR could put out the lamp. If that is the case, turn it clockwise until it stops, and turn off and then on the power for re-adjustment.

Caution:
Be sure to execute AE adjustment after these adjustments.

7. AE Adjustment

Adjust the AE mechanism using the following three service modes:

① AE Basic Adjustment
No. 410 .....scanner forward stop
No. 408 .....scanning lamp on check
No. 208 .....AE sensor voltage display
No. 301lamp intensity automatic adjustment at time of AE scan
② Copy Density in AE Mode (No. 302)
(developing bias) reference adjustment
③ Copy Density in AE Mode
(developing bias) slope adjustment

If the copy density is not optimum after executing AE basic adjustment ① (No. 410, No. 408, No. 208, No. 301), execute ② and then , if necessary, ③, i.e., No. 302 and No. 303.

If you have replaced the AE sensor, scanning lamp, or DC controller, adjust the scanning lamp intensity (VR 301); then, execute AE basic adjustment ①, scanner forward stop (No. 410), scanning lamp on check (No. 408), AE sensor voltage display (No. 208), and lamp intensity automatic adjustment (No. 301).

Go through the following when making adjustments; Table 2-1 is a list of service modes excluding scanner forward stop (No. 410), list of service modes excluding scanner forward stop (No. 410), scanning lamp on check (No. 408), and AE sensor voltage display (No. 208).

a. AE Basic Adjustment (No. 410, No. 408, No. 208, No. 301)

In this adjustment, the intensity of the scanning lamp is read by the lamp intensity sensor and the voltage of the AE sensor unit is adjusted by VR 391 on the DC controller. After the adjustment, execute the lamp intensity automatic adjustment for AE scans.

1) Place the Test Sheet NA-3 on the copyboard, and close the copyboard.
   Adjust to the appropriate copy density in non-AE mode (settings) by suing bias adjustment knob “VR302”. Then press the service mode switch (SW302) to activate service mode.
2) Enter ‘4’ using the keypad, and press the AE key.
   • The display indicates ‘401’.
3) Enter ‘410’ using the keypad.
   • The display indicates ‘410’.
4) Press the Start key once.
   • The scanner moves forward.

Caution:
Each press moves the scanner forward; do not press more than once.

5) Enter ‘408’ using the keypad, and press the Start key.
   • The display indicates ‘ON’, and turns off after about 1.5 sec.
6) Press the Clear key twice.
   • The display indicates ‘4’.
7) Press ‘2’ on the keypad, and press the AE key.
   • The display indicates ‘201’.

8) Enter ‘208’ using the keypad, and press the start button.
   - The display indicates ‘208’.
9) Press the Start key.
   - The display indicates ‘0–255’.
10) Turn VR391 on the DC controller so that the reading on the display is ‘100~105’.

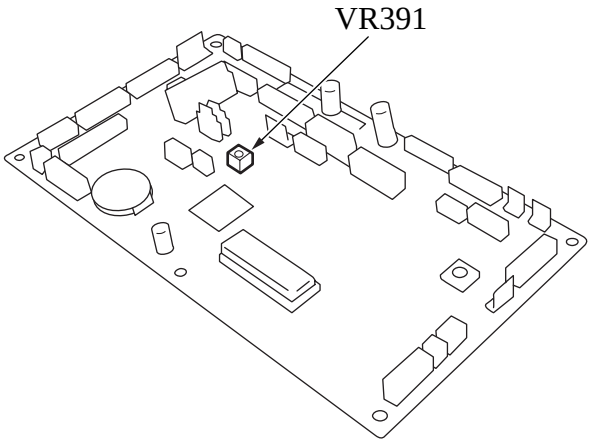


Figure 2-10 DC Controller PCB

11) Turn off and on the power switch.
   - This turns off and on the scanning lamp.
12) Press the service mode switch.
   - The copier enters service mode, and the display indicates ‘1’.
13) Enter ‘3’ using the keypad, and press the AE key.
   - The display indicates ‘301’.
14) Press the Start key.

Caution:
Wait until initial rotation is over.

   - After initial rotation is over, the AE indicators starts to flash.
15) Press the AE key; the following take place to indicate that the optimum intensity is adjusted automatically:
   - The AE indicator stops flashing and remains on.
   - The scanner moves to the AE measurement position.
   - When the intensity has stabilized, the reading taken by the AE sensor is stored in memory.
   - The lamp is turned off, and the scanner is returned to its original position.
16) When the above has ended, press the clear key twice.
   - The display indicated ‘3’.
17) Enter ‘1’ using the keypad, and press the AE key.
   - The display indicates ‘101’.
18) Enter ‘116’ using the keypad, and press the Start key.
   - Make sure that the display indicates ‘68–72’; otherwise, start with step 2) of operation/inspection mode for re-adjustment.

b. Copy Density (development bias) Reference Point Adjustment for AE Mode (No. 302)

1) If the indication is not in the 300's, activate adjustment mode (service mode) as in the case of 'No. 301'.
2) Press [2] on the keypad.
   - The copier indicates '302'.
3) Press the Start key.
   - The copier indicates the current setting.
4) Change the setting using the keypad, and press the AE key.
   - A higher setting causes the AE copies to be darker.
   - default: 0
     range: –26 to +26
   - If the setting is negative, the '%' is indicated. To enter a negative value, press the '%' key, and enter a setting.
   - When the copier has read the setting, the indication stops flashing and remains on.
5) Record the new setting on the service mode label.
6) To end, press the Clear key.
   - The copier returns to selection mode, and indicates '302'.
   - As necessary, execute 'No. 303'.

c. Copy Density (development bias) Slope Adjustment for AE Mode (No. 303)

1) If the indication is not in the 300's, activate adjustment mode (service mode) as in the case of No. 301.
2) Press [3] on the keypad.
   - The copier indicates '303'.
3) Press the Start key.
   - The copier indicates the current setting.
4) Change the setting with the keypad, and press the AE key.
   - A larger setting causes the AE copies to be darker.
   - default:.....0
     range:.....–26 to +26
   - If the setting is negative, '%' is indicated. To enter a negative value, press the '%' key, and enter a setting.
   - When the copier has read the setting, the indication stops flashing and remains on.
5) Record the new settings on the service mode label.
6) Press the Reset key.
   - The copier de-activates service mode.

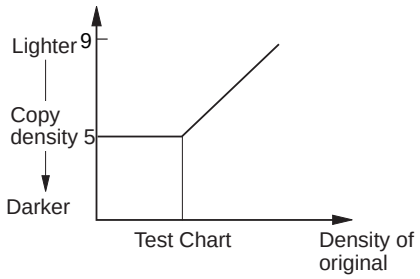
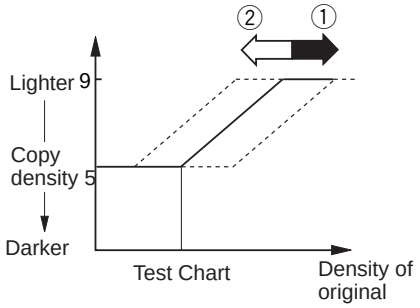
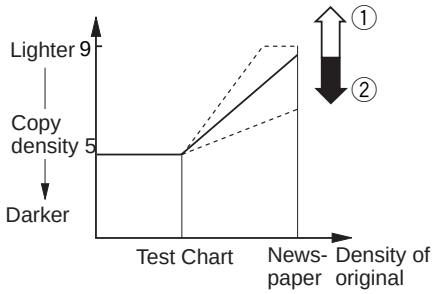
Item	Function	Description	Remarks\
No. 301	Automatic lamp intensity adjustment for AE scans		The lamp intensity is automatically adjusted so that the copies of the Test Chart will be made at density 5.
No. 302	Copy density (development bias) reference point adjustment for AE mode		① A lower setting in service mode causes the AE copies to be darker. ② A higher settings in service mode causes the AE copies to be lighter. default: 0 range: –26 to +26 After adjustment with the test sheet NA-3, using AE mode, density adjustment should show '5'. In non-AE mode, density '5' must also be apprppriate (adjusted with knob VR302).
No. 303	Copy density (development bias) slope adjustment for AE mode		① A higher setting in service mode causes copies of a newspaper to be lighter. ② A lower setting in service mode causes copies of a newspaper to be darker. default: 0 range: –26 to +26

Table 2-1

B. Exposure System

1. Routing the Scanner Drive Cable

Route the cable as shown by ① through ⑩; then, adjust the cable tension and mirror position as described.

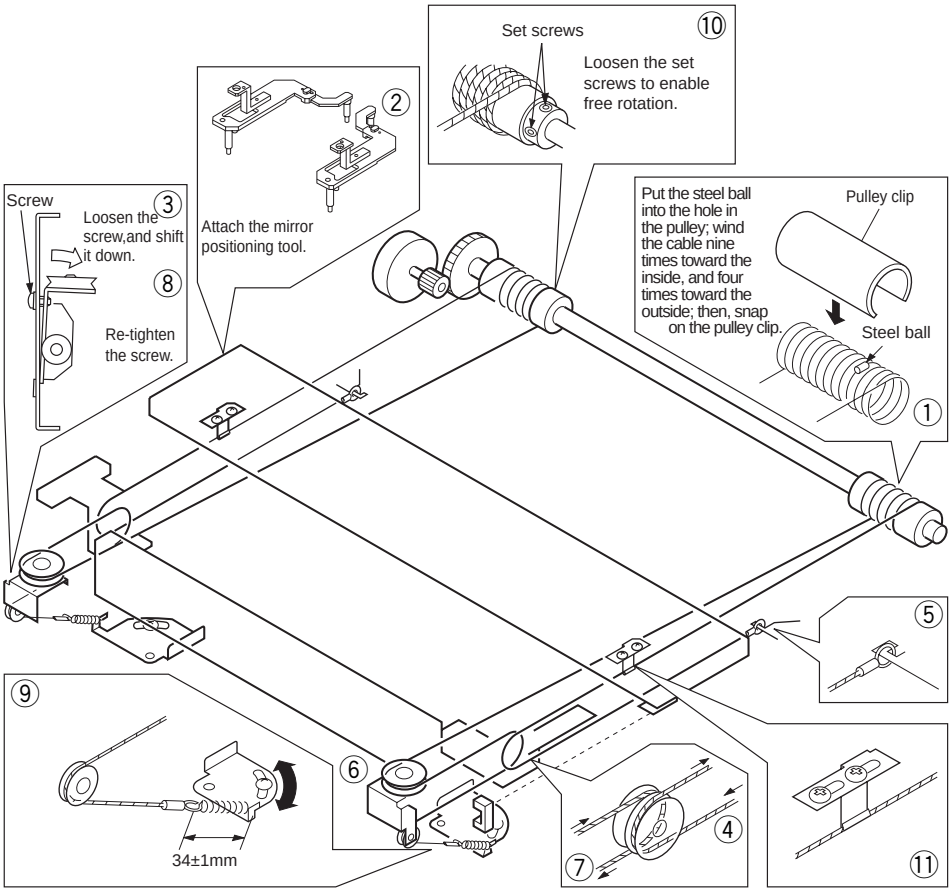


Figure 2-11

Caution:

When attaching the wire spring, pay attention to the orientation of the spring; see the diagrams below. If not attached correctly, its hook tip could interfere with the cable.

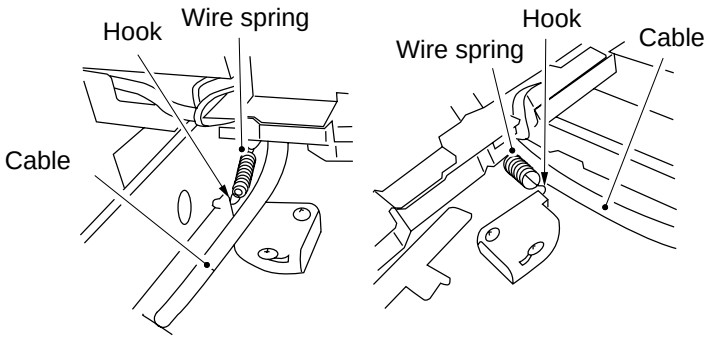


Figure 2-12

2. Adjusting the Mirror Position (optical distance between No. 1 mirror and No. 2/No. 3 mirror)

1) Keep the mirror positioning tool handy.
   (See “4 Assembling the Mirror Positioning Tool on P. 2-13.”)
2) Move the No. 1 mirror mount forward, and match the long hole in the front side plate and the cable fixing screw ①.

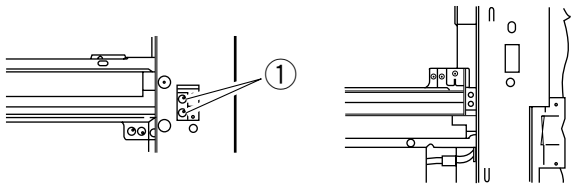


Figure 2-13

3) Loosen the set screw on the pulley.
4) Set the mirror positioning tool ② to the No. 1 mirror mount and the No. 2 mirror mount (both front and rear).

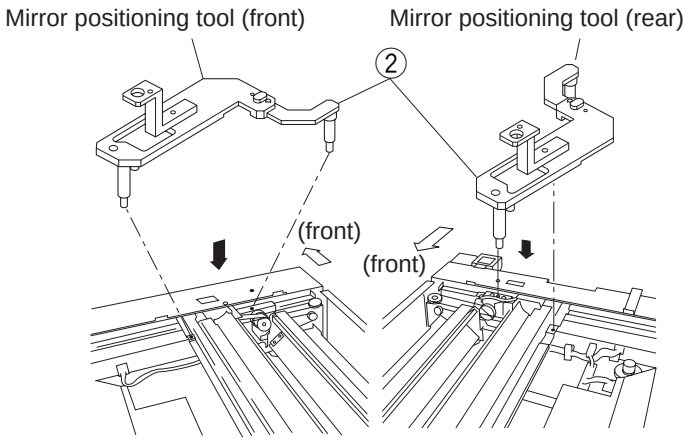


Figure 2-14

5) Attach the scanner cable fixing to the No. 1 mirror mount using two screws ③ (both front and rear).

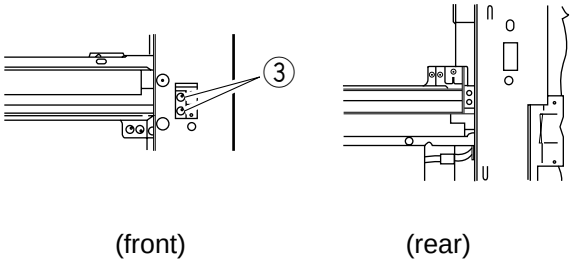


Figure 2-15

6) Tighten the screw on the pulley.
7) Detach the positioning tool (FY9-3009).

3. Adjusting the Scanner Cable Tension

Move the tension plate and tighten the screw ② so that the distance across the ends of the cable spring ① is 34 ±1 mm as indicated in Figure 2-16.

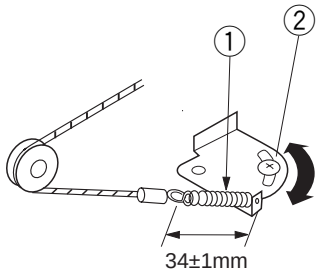


Figure 2-16

4. Assembling the Mirror Positioning Tool

1) Remove the screw found in position B.

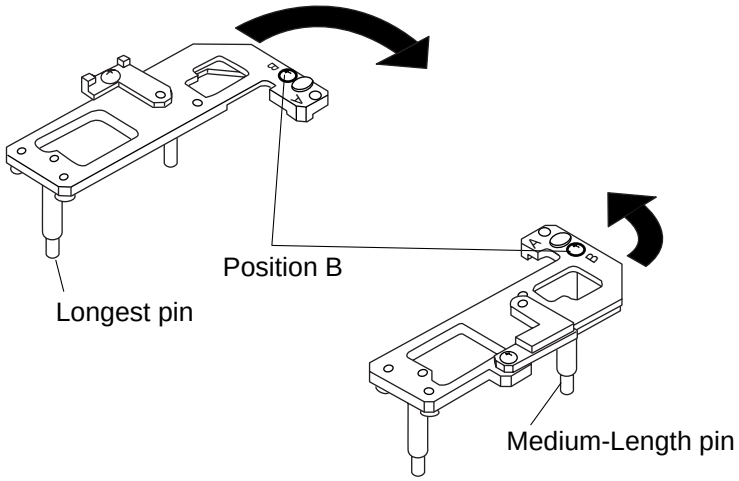


Figure 2-17

2) Fit the screw removed in step 1) in position A, and tighten it slightly.
3) Extend the arm accommodated by the main frame unit it butts against the stopper as in Figure 2-18.

4) Tighten the screw.

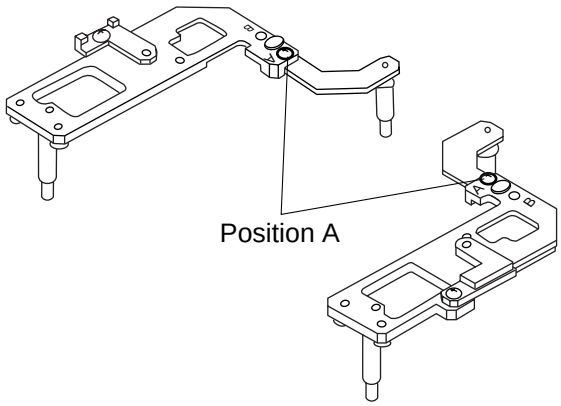


Figure 2-18

5. Points to Note When Attaching the Fluorescent Lamp Heater/Scanning Lamp

- Attach the heater to the lamp as follows:

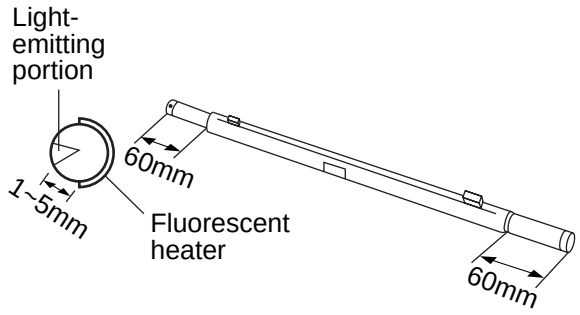


Figure 2-19

Caution:

Do not touch the fluorescent lamp. (Use lint-free paper.)
Do not block the light-emitting portion by the fluorescent lamp heater.

Attach the scanning lamp so that its light-emitting portion (open side) is to the left when viewed from the front of the copier as shown in Figure 2-20.

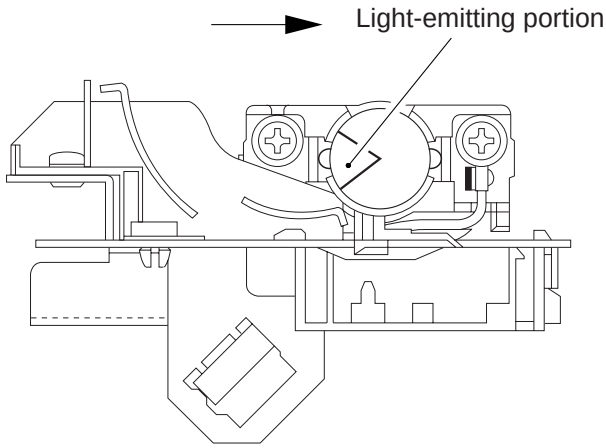


Figure 2-20 (front view)

Caution:

Do not touch the fluorescent lamp. (Use rint-free paper)

Be sure to adjust the gain and AE whenever you have replaced the fluorescent lamp. (See P. 2-7.)

- Make sure that the cut-off of the fluorescent heater is correctly oriented in relation to the intensity adjustment sensor.

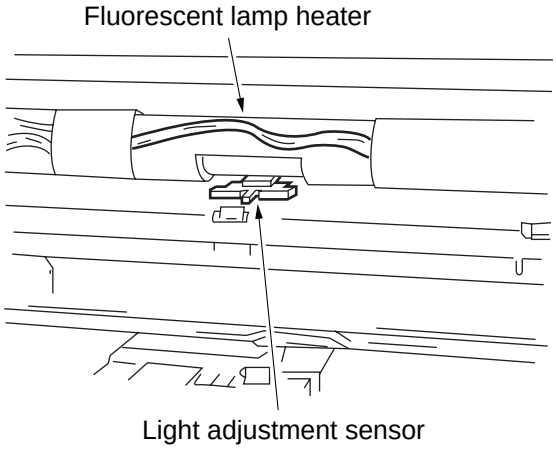


Figure 2-21

Reference:

The fluorescent lamp heater will not operate unless the copier's heater switch is turned on.

6. Positioning the Change Solenoid

Make adjustments by loosening the two screws ⑤ so that the gear ④ butts against the direction of b by the arm ③ when the steel core ① of the solenoid is fully pushed in the direction of B, i.e., when the E-ring comes into contact with the solenoid.

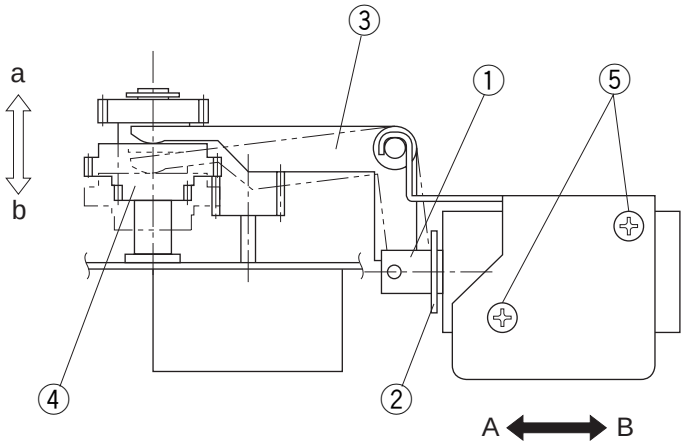


Figure 2-22

C. Image Formation System

1. Positioning the Blank Shutter Solenoid

Adjust the position of the blank shutter solenoid so that the bottom A is 9.5 ±0.5 mm on both sides when the solenoid is moved in the direction of ON; try not to force down the shutter.

After adjustments, make sure that the solenoid moves smoothly.

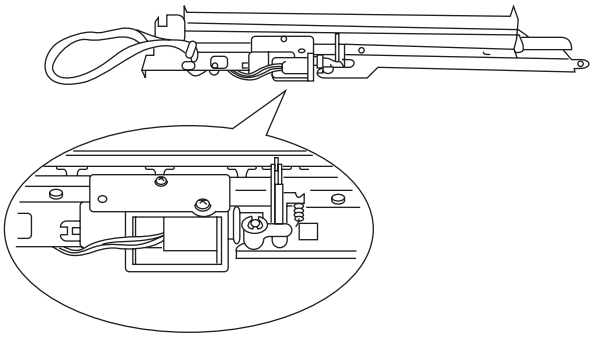


Figure 2-23a

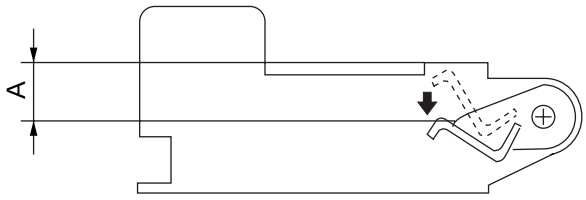


Figure 2-23b

2. Routing the Blank Shutter Cable

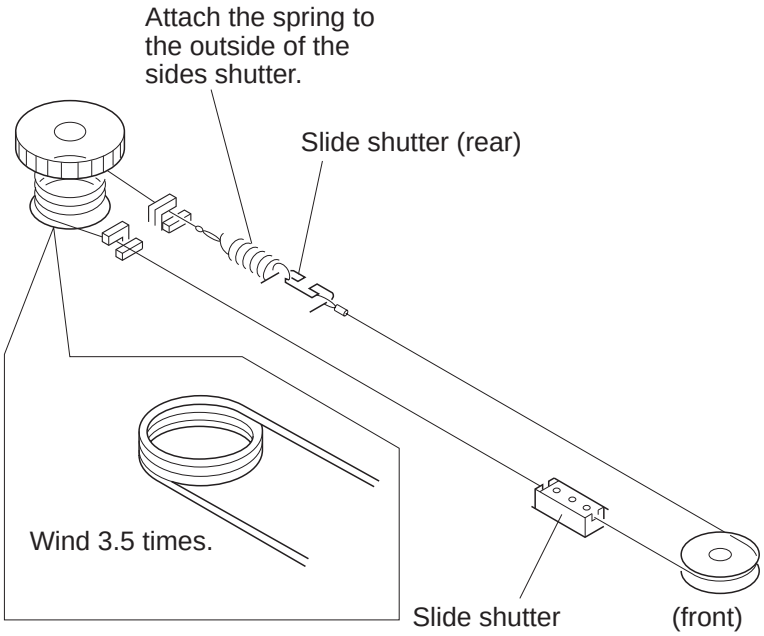


Figure 2-24

3. Positioning the Solenoid for the Primary Charging Roller

Loosen the two screws used to fix the solenoid ③ in place, and move the solenoid in the direction of B so that the ℓ in Figure 2-25 is 5.5 ±0.2 mm when the joint ① is butted against a of the solenoid support plate ②.

Caution:
Be sure to make the adjustment whenever you have replaced the solenoid.

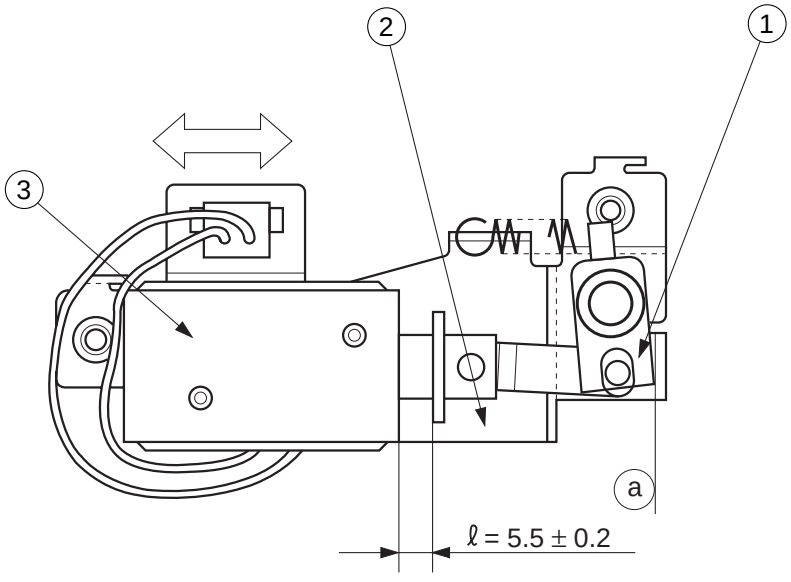


Figure 2-25

4. After Replacing the Drum Unit

Whenever you have replaced the drum unit, enter the date of replacement and the current counter reading on the label (Figure 2-26) that came with the drum unit; attach the label to the front cover of the new drum unit, and perform the image basic adjustment procedure.

日付 date date Datum	カウンター counter compteur. Zahler	備考 notes note Notiz

Figure 2-26

5. Attaching the Drum Heater

1) Detach the front cover.
2) Open the copier's top body by operating the copier open/close lever.
3) Remove the two fixing screws ②, and detach the harness cover ①.

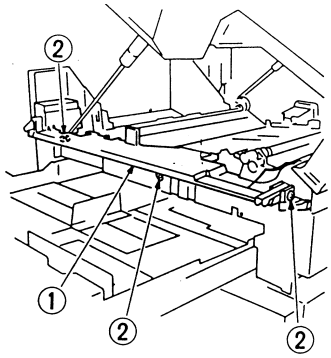


Figure 2-27

4) Detach the transfer roller and the static eliminator.
5) Detach the transfer guide.
6) Butt the two heaters against the transfer guide as shown in Figure 2-28, and fix the two mounts with two screws ③; further, fix the harness in place using two harness bands ④ (front, rear).

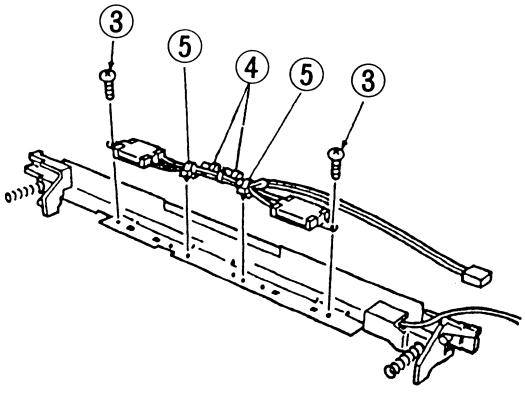


Figure 2-28

7) Fix the harness in place using two SK binders (WT2-5145; front, rear) ⑤; then, insert it into the transfer guide.

Caution:
When fixing the harness in place, make sure that the cap portions of the terminals alternate; keeping them in parallel will bring them in contact with the transfer roller.

8) Fix the harness with two SK binder ⑤ (front, rear) in place, and insert it into the transfer guide.

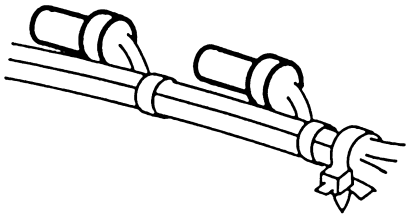


Figure 2-29

9) Connect the connector ⑥ as shown in Figure 2-30.

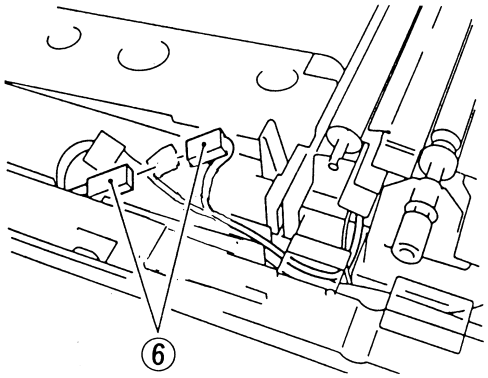


Figure 2-30

Caution:
When attaching the transfer guide to the copier after attaching the drum heater, make sure that the spring at the rear is firmly in the groove.

D. Pick-Up/Feeding System

1. Orientation of the Pick-Up Roller

Attach the pick-up roll ① so that the side ② shown in Figure 2-31 is toward the rear.

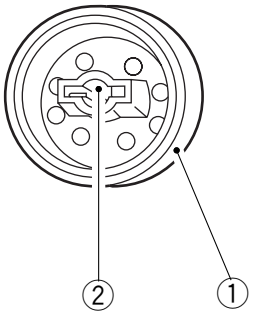


Figure 2-31

2. Orientation of the Multifeeder Pick-Up Roller

Attach the multifeeder pick-up roller ① so that the side with the collar with a cross ② is toward the rear.

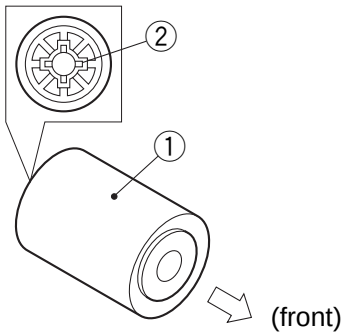


Figure 2-32

3. Positioning the Paper Guide Plate Cam (multifeeder)

Temporarily fix the screw with a hex nut of the spring clutch assembly in place; turn the control ring. Make adjustments so that the hole in the cam and the hole in the multifeeder drive unit match as indicated in Figure 2-33 when the claw of the control ring is engaged with the solenoid; then, fix in place.

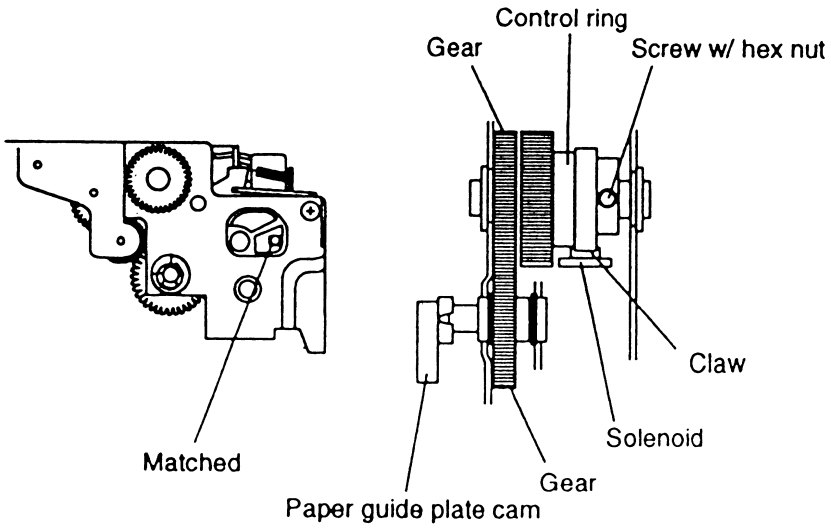


Figure 2-33

E. Fixing System

1. Points to Note When Attaching the Fixing Film

Orient it so that the cut-off is toward the rear.
Make sure that the end toward the front is along the middle groove.

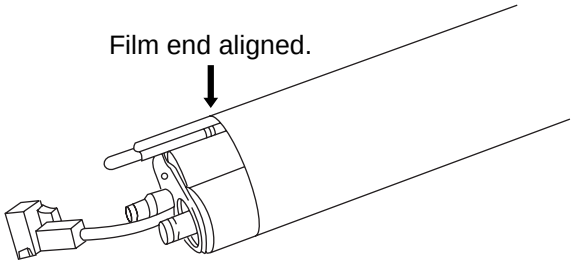


Figure 2-34

2. Points to Note When Attaching the Heater Connector

- When attaching the heater connector to the fixing heater, take care not to damage the heater.
- When tightening the screw, hold the connector making sure that both its top and bottom are free of pressure; do not tighten the screw excessively.

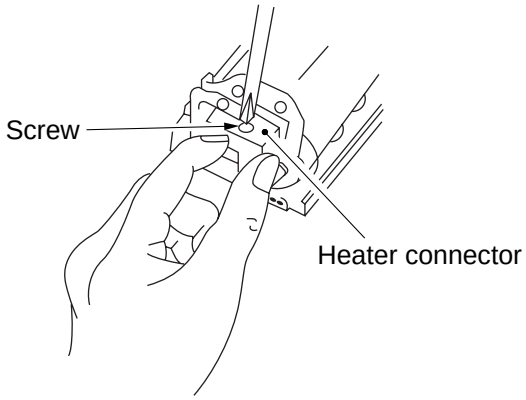


Figure 2-35

3. Adjusting the Fixing Film Drive Roller Pressure

If a fixing fault occurs, be sure to go through the following to adjust the pressure of the drive roller.

1) Detach the fixing cover.
2) Detach the inside cover of the copier's front side.
3) Close the copier's upper body, and insert the door switch actuator.
4) Press the service mode switch (SW302).
   - The copier enters service mode, and the display indicates '1'.
5) Press '4' on the keypad.
   - The display indicates '4'.
6) Press the AE key.
   - The copier enters operation check mode, and the display indicates '401'.
7) Press '5' on the keypad.
   - The display indicates '405'.
8) Press the Start key.
   - The copier enters fixing film initial rotation mode (405) to return the fixing film to its proper position.
   - The fixing film stops automatically as soon as it reaches its proper position.
   - The copier indicates the position of the film in the copy density indicator.
9) Open the copier's top body.
10) Check that the arrow ① is at the middle of the memory as shown in Figure 2-36.

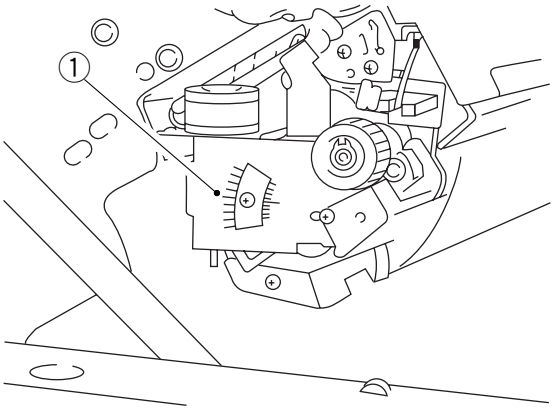


Figure 2-36 (rear view)

11) Close the copier's top body, and activate service mode.
12) Press '4' on keypad; when the display indicates '4', press the AE key.
13) Press '4' on the keypad; when the display indicates '404', press the Start key.
   - The copier enters fixing tension roller mode (404).
   - The fixing tension roller becomes fixed, and the fixing film rotates idly.
   - The count indicator indicates how long the fixing film sensor has remained on.

Caution:
If the copy count indicator keeps indicating '0' or '528' during adjustment, immediately press the Stop key to de-activate service mode.

If the copy countis ‘180’ or higher and ‘348’ or lower and has not changed, go to step 17). Or, if 10’s and 100’s do not change, go to step 17);

14) Loosen the fixing screw ② slightly; i.e., move it to the left about 1 mm.

15) Turn the adjusting screw ③ so that the copy count is ‘180’ or higher’ and ‘348’ or lower.

Caution:
Adjust so that 10’s and 100’s will not change; ignore 1’s may change ±5.)

- A clockwise turn decreases the reading.
- A counterclockwise turn increases the reading.

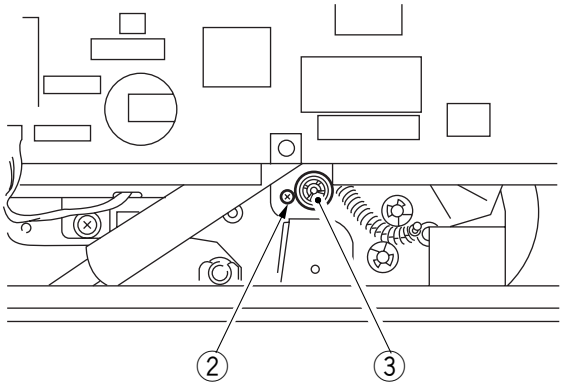


Figure 2-37

16) When the reading in the copy counter is appropriately correct, tighten the screw ②; make sure that the reading is appropriate after tightening the screw.

17) Press the Start key.
- The copier enters check mode (404), and the fixing film rotates idly for about 2.5 min; check that the fixing film has not shifted from the adjusted position.
- The copy count indicator indicates “ 00 ” or “ nG ”; if “ nG ” is indicated, repeat steps starting with 13).
  If “ 00 ” is indicated, repeat steps 4) through 10).

18) Attach the cover.

4. Points to Note after Replacing the Fixing Upper Unit

You must enter the resistance of the heater by selecting ‘No. 304’ in service mode whenever you have replaced the fixing upper unit. (See p. 2-27.)

5. Adjusting the Nip

The nip should be as indicated in Figure 2-38. You must make the following adjustments if fixing faults occur.

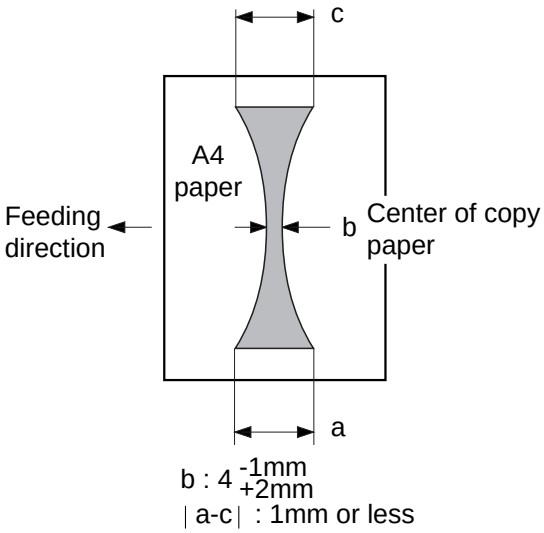


Figure 2-38

Note:
a and c represent points 10 cm from both edges of the copy.

a. Measuring the Nip

Measure the nip before starting the day's work; for example, first thing in the morning.

1) Open the copyboard cover, and make a solid black copy in A4.
2) Place the copy in the multifeeder with the solid black face up.
3) Press the service mode switch (SW302) using a hex key.
   - The copier enters service mode, and indicates '1'.
4) Press [4] on the keypad.
   - The copier indicates '4'.
5) Press the AE key.
   - The copier enters operation/inspection mode, and indicates '401'.
6) Press [6] on the keypad.
   - The copier indicates '406'.
7) Press the Start key.
   - The multifeeder picks up paper, and the copier positions the paper as in Figure 2-38 for measurement, and dischages it.

Reference:
The fixing rollers hold the paper and stop it when half of it has been delivered; the paper is discharged automatically about 10 sec later.

8) Measure the nip.

6. Routing the Drive Belt

Route the drive belt around the pulley and tensioner as shown in Figure 2-39.

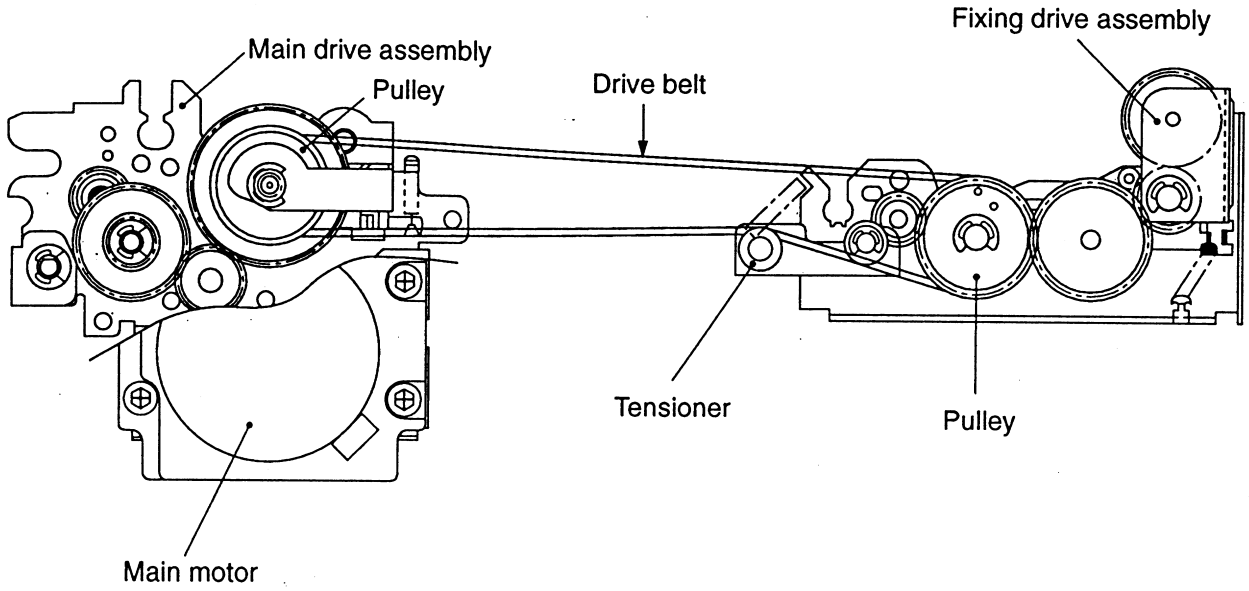


Figure 2-39

7. Storing the Fixing Heater Resistance

You must store the resistance of the fixing heater as follows whenever you are replacing the fixing upper unit; do not change the setting unless you have replaced the heater.

1) Take notes of the resistance (ohm) of the fixing heater recorded on the rear side plate of the fixing upper unit.
2) Attach the fixing upper unit to the copier.
3) Open the front door, and insert the door switch actuator into the door switch.
4) Press the service mode switch (SW302) with a hex key.
   - The copier activates service mode, and indicates '1'.
5) Press [3] on the keypad.
   - The copier activates adjustment mode, and indicates '3'.
6) Press the AE key.
   - The copier enters adjustment mode, and indicates '301'.
7) Press [0] and [4] on the keypad.
   - The copier indicates '304'.
8) Press the Start key.
   - The copier indicates the current setting.
9) Enter the measured reading, and press the AE key to store.
10) Record the new setting on the service mode label.
11) Press the Reset key.
   - The copier de-activates service mode.

unit: ohms; enter a value which is the result of the measured resistance multiplied by 10.

range (default)

220/240V: .....235 to 325 (280)

Reference:

1. If the measured resistance is 9.5 ohms, enter '095'; if 28 ohms, enter '280'.
2. The power supplied to the fixing heater is phase-controlled based on the voltage of the power supply and the resistance being stored.

8. Setting the Fixing Heater Temperature Control Value

You can change the fixing temperature control value in the field in any of the following two ways:

8-1 When Replacing the Fixing Upper Unit

Set the initial control temperature value for the 1st to 4th copies under No. 508 of service mode for when the temperature of the fixing heater is less than 120°C at time copying is started.

1) Take notes of the value recorded on the label on the fixing upper unit heater stay (rear).

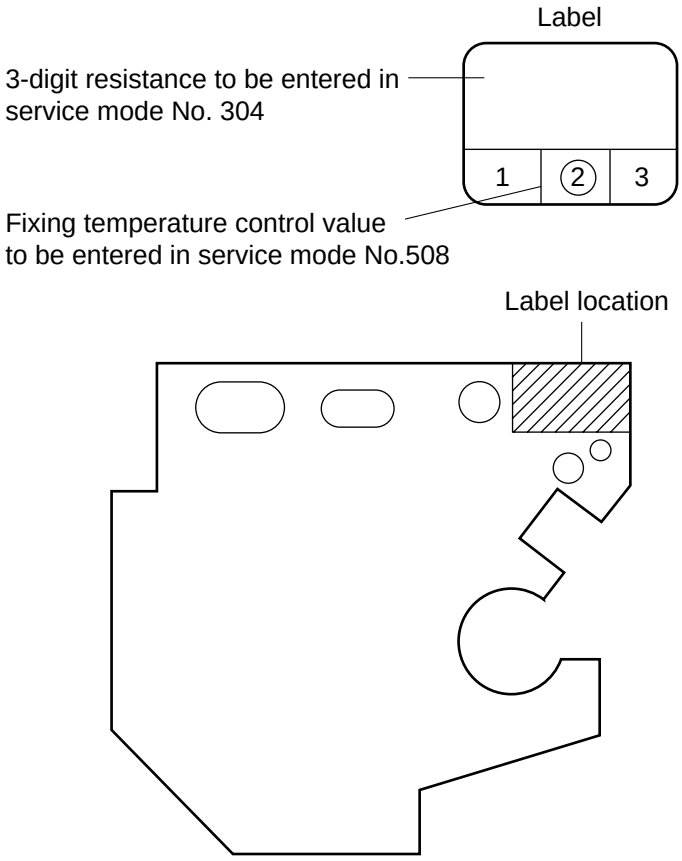


Figure 2-40 Heater Stay Side Plate (rear)

2) Replace the fixing upper unit.
3) Press the service switch (SW302).
   • The copier enters service mode and indicates '1'.
4) Enter '5' using the keypad.
   • The display indicates '5'.
5) Press the AE key, and enter '8' on the keypad.
   • The display indicates '508'.
6) Press the Start key.
   • The display indicates '001', '002', or '003'.
7) Enter the control value you have recorded in step 1) using the keypad.

Example:

If the value recorded on the heater stay (rear) of the fixing upper unit is '2',
a. Enter '2' using the keypad to change the value.
b. Press the AE key.
c. Press the Reset key.

Caution:
You must set the resistance of the heater also when replacing the fixing upper unit.

8-2 When Replacing the Fixing Film
1) Replace the fixing film.
2) Replace the copy paper in the cassette with A3 size copy paper.
3) Press the service switch (SW302).
   • The copier enters service mode and indicates '1'.
4) Enter '5' using the keypad, and press the AE key.
   • The display indicates '501'.
5) Enter '5' using the keypad, and press the Start key.
   • The display indicates '001', '002', or '003'.
6) Enter '2' using the keypad, and press the Clear key.
8) Make 20 copies or more in A3 to warm up the entire fixing upper unit.
9) Place the Test Chart NA-3 on the copyboard, and put a blank sheet of paper (A3) to cover about 2/3 of the Test Chart (bottom).

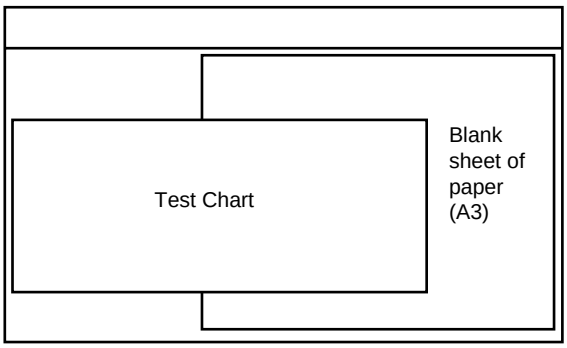


Figure 2-41

10) Enter ‘4’ using the keypad, and set the copy count.
11) Press the service switch (SW302), thereby recalling the temperature of the No. 1 thermistor.
    - The display indicates ‘1’.
12) Press the AE key, and enter ‘9’ on the keypad.
    - The display indicates ‘109’.
13) Press the Start key.
    - Make 4 copies in A3.
14) When copying is finished, take note of the temperature reading in the display. Press the Start key once again when the reading is 116°–118°C.
    - Make four copies in A3.
15) Check if offset has occurred.
    - If offset is noted, change the temperature control value of the fixing heater. Go to step 16).
    - If offset is not noted, go to step 21).
16) Press the Clear key, and enter ‘5’ using the keypad.
    - The display indicates ‘508’.
17) Press the AE key, and enter ‘8’ using the keypad.
    - The display indicates ‘508’.
18) Press the Start key.
    - The display indicates ‘002’.
19) Enter ‘3’ using the keypad.
    - The display indicates ‘003’.
20) Press the AE key.
    - The setting is changed.
21) Press the Reset key.
    - The copier leaves service mode.

F. Electrical

1. After Replacing the PCB

You must make the adjustments that follow whenever you have replaced the following PCBs.

a. DC Controller PCB

1) Enter the value recorded on the service mode label attached behind the front door in service mode (‘3’; see p. 4-9).
2) Adjust the multifeeder paper width sensor; see p. 2-39.
3) Adjust the intensity of the scanning lamp; see p. 2-6.
4) Adjust AE; see p. 2-7.
   As necessary, change the settings in service mode and user mode.

Caution:
Be sure to record all new settings that you have entered.

b. Composite Power Supply PCB

1) Enter the values recorded on the label attached to the composite power supply in service mode (‘No. 315’ through ‘No. 318’; ‘3’ of adjustment mode); see p. 4-9.
   Be sure to record any new settings on the service mode label.

c. AE Sensor PCB

1) Adjust AE; see p. 2-7.

Caution:
Be sure to record all new settings that you have entered.

d. Intensity Sensor PCB

1) Adjust the intensity of the scanner lamp; see p. 2-6.
2) Adjust AE; see p. 2-7.

Caution:
Be sure to record all new settings that you have entered.

2. Clearing the Back-Up RAM

1) Open the front door, and insert the door switch activator into the door switch.
2) Press the service mode switch (SW302) with a hex key.
   - The copier activates service mode, and indicates ‘1’.
3) Press [4] on the keypad.
   - The copier indicates ‘4’.
4) Press the AE key.
   - The copier activates operation/inspection mode, and indicates ‘401’.
5) Press [5] and [0] on the keypad.
   - The copier indicates ‘450’.
6) Press the Start key.
   - The copier indicates ‘noP’.

7) Press the AE key.
   • The indication changes to ‘EE’.
8) Press the Start key.
   • The indication returns to ‘450’.
9) Turn off and on the power switch.
   • The copier clears the backup RAM, and returns the default settings.

Reference:

To cancel RAM clearing, press the Clear key and then the Reset key. To cancel it after having finished step 8), press the Start key once again; when ‘noP’ is indicated, press the Start key once again.

3. Checking the Photointerrupters

The copier allows checking the photointerrupters with a conventional meter or in service mode.

a. Using a Meter

1) Set the meter to the 12VDC range.
2) Connect the (–) probe of the meter to J301-4 (GND) on the DC controller.
3) Make checks as indicated.
   1: 5V
   0: 0V

Reference:

All photointerrupters except PS1, PS2, PS3, PS6, and PS9 are connected in the form of a matrix, and for this reason may show variations if checked by a meter; use service mode for these photointerrupters.

b. Using Service Mode

1) Open the front door, and insert a door switch actuator into the door switch.
2) Press the service mode switch (SW302) with a hex key.
3) Press [2] on the keypad.
• The copier indicates ‘2’.
4) Press the AE key.
• The copier activates I/O display mode, and indicates ‘201’.
5) Enter a number with the keypad, and press the Start key.
• The copier checks each photointerrupter; see the copy count indicator.

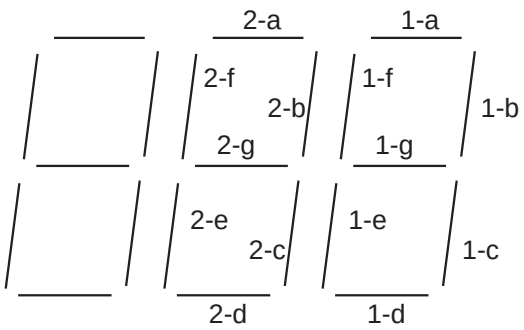


Figure 2-42

a. Copier

Name	+ probe / Service mode	Checks		Display indication	Voltage reading on meter
PS1 Scanner home position sensor (SCHP)	J311-2 —	Move the scanner by hand while in standby.	The scanner is at home position.	1	5V
			The scanner is not at home reposition.	0	0V
PS2 Lens home reposition sensor (LHP)	J307-2 No. 205 1-c	Move the lens mount by hand while in standby.	The light-blocking plate is present.	1	5V
			The light-blocking plate is not present.	0	0V
PS3 Blank shutter home position sensor (BSHP)	J315-2 No. 205 1-d	Detach the blank exposure assembly; do not disconnect J315. Move the blank shutter.	The light-blocking plate is present.	1	5V
			The light-blocking plate is not present.	0	0V
PS4 Cassette paper sensor (CPD*)	J313-9 No. 205 1-c	Slide out the cassette while in standby.	The cassette is slid out.	0	—
			The cassette with paper is slid in.	1	—
PS5 Multifeeder paper sensor (MFPD*)	J313-3 No. 204 1-d	Place paper on the multifeeder tray while in standby.	Paper is placed.	0	—
			Paper is not placed.	1	—
PS6 Registration sensor (RPD)	J314-2 No. 205 1-a	Open the right door while in standby, and insert paper along the paper guide plate.	Paper is inserted.	1	5V
			Paper is not inserted.	0	0V
PS7 Separation sensor (SPD*)	J314-6 No. 204 1-b	Move the detection lever with a finger while in standby.	The lever is moved.	0	—
			The lever is not moved.	1	—

Name	+ probe Service mode	Checks		Display indication	Voltage reading on meter
PS8 Delivery sensor (DSPD*)	J312-2 No. 204 1-g	Move the detection lever with a finger while in standby.	The lever is moved.	0	—
			The lever is not moved.	1	—
PS9 Fixing film sensor (FFD)	J304-12 No. 205 1-e	Move the detection lever with a finger while in standby	The light-blocking plate is present.	1	5V
			The light-blocking plate is not present.	0	0V
PS10 Right door open/closed sensor (RDOP*)	J306-15 No. 204 1-a	Open the right door while in standby	The right door is open.	0	—
			The right door is closed.	1	—
Q651 Cassette size sensor 1 (CSZ-1)	J314-8 No. 203 1-e	Slide out the cassette while in standby, and move the detection lever with a finger.	The lever is moved.	0	—
			The lever is not moved.	1	—
Q652 Cassette size sensor 2 (CSZ-2)	J314-9 No. 203 1-f	Slide out the cassette while in standby, and move the detection lever with a finger	The lever is moved.	0	—
			The lever is not moved.	1	—
Q653 Cassette size sensor 3 (CSZ-3)	J314-10 No. 203 1-g	Slide out the cassette while in standby, and move the detection lever with a finger.	The lever is moved.	0	—
			The lever is not moved.	1	—

Name	+ probe / Service mode	Checks		Display indication	Voltage reading on meter
Q654 Cassette size sensor 4 (CSZ-4)	J314-11 No. 203 2-a	Slide out the cassette while in standby, and move the detection lever with a finger.	The lever is moved.	0	—
			The lever is not moved.	1	—

b. Cassette Feeding Unit

Name	+ probe / Service mode	Checks		Display indication	Voltage reading on meter
PS1cu Cassette 2 vertical path sensor (C2VPD)	J319-A2 No. 204 2-b	Draw out the cassette 2 while in standby, and put copy paper over the pick-up guide plate.	Copy paper is inserted.	1	—
			Copy paper is not inserted.	0	—
PS2cu Cassette 2 paper sensor (C2PD*)	J319-A4 No. 204 1-e	Draw out the cassette 2 while in standby.	The cassette is drawn out.	0	—
			The cassette is put back with paper in it.	1	—
Q651-2 Cassette 2 size sensor 1 (C2SZ-1)	J319-B1 No. 201 1-e	Draw out the cassette while in standby, and move the detecting lever by a finger; be sure to set paper selection to cassette 2.	The lever is moved.	0	—
			The lever is not moved.	1	—

Name	+ probe / Service mode	Checks		Display indication	Voltage reading on meter
Q652-2 Cassette 2 size sensor 2 (C2SZ-2)	J319-B2 No. 201 1-f	Draw out the cassette while in standby, and move the detecting lever by a finger; be sure to set paper selection to cassette 2.	The lever is moved.	0	—
			The lever is not moved.	1	—
Q653-2 Cassette 2 size sensor 3 (C2SZ-3)	J319-B3 No. 201 1-g	Draw out the cassette while in standby, and move the detecting lever by a finger; be sure to set paper selection to cassette 2.	The lever is moved.	0	—
			The lever is not moved.	1	—
Q654-2 Cassette 2 size sensor 4 (C2SZ-4)	J319-B4 No. 201 2-a	Draw out the cassette while in standby, and move the detecting lever by a finger; be sure to set paper selection to cassette 2.	The lever is moved.	0	—
			The lever is not moved.	1	—
PS3cu Cassette 3 vertical path sensor (C3VPD)	J319-A7 No. 203 1-b	Draw out the cassette 3 while in standby, and put copy paper over the pick-up guide plate.	Copy paper is placed.	1	—
			Copy paper is not placed.	0	—

Name	+ probe / Service mode	Checks		Display indication	Voltage reading on meter
PS4cu Cassette 3 paper sensor (C3PD*)	J319-A9 No. 203 1-f	Draw out the cassette 3 while in standby.	The cassette is drawn out.	0	—
			The cassette is inserted with paper in it.	1	—
Q651-3 Cassette 3 size sensor 1 (C3SZ-1)	J319-B1 No. 202 1-e	Draw out the cassette while in standby, and move the detecting lever by a finger; be sure to set paper selection to cassette 3.	The lever is moved.	0	—
			The lever is not moved.	1	—
Q652-3 Cassette 3 size sensor 2 (C3SZ-2)	J319-B2 No. 202 1-f	Draw out the cassette while in standby, and move the detecting lever by a finger; be sure to set paper selection to cassette 3.	The lever is moved.	0	—
			The lever is not moved.	1	—
Q653-3 Cassette 3 size sensor 3 (C3SZ-3)	J319-B3 No. 202 1-g	Draw out the cassette while in standby, and move the detecting lever by a finger; be sure to set paper selection to cassette 3.	The lever is moved.	0	—
			The lever is not moved.	1	—

Name	+ probe Service mode	Checks		Display indication	Voltage reading on meter
Q654-4 Cassette 3 size sensor 4 (C3SZ-4)	J319-B4 No. 202 2-a	Draw out the cassette while in standby, and move the detecting lever by a finger; be sure to set paper selection to cassette 3.	The lever is moved.	0	—
			When the lever is not moved.	1	—
PS5cu Cassette right door open/closed sensor (CRDOP*)	J319-A6 No. 204 2-a	Open the right door while in standby.	The lever is moved.	0	—
			The lever is not moved.	1	—

4. Adjusting the Multifeeder Paper Width Sensor

Store the characteristic of the multifeeder paper width sensor in service mode (501).

Perform the adjustment when you have replaced the sensor if the sensor fails to identify the paper size correctly.

1) Open the front door, and insert the door switch actuator into the door switch.
2) Press the service mode switch (SW302) with a hex key.
- The copier activates service mode, and indicates '1'.

3) Press [5] on the keypad.
- The copier indicates '5'.

4) Press the AE key.
- The copier activate specification settings mode, and indicates '501'.

5) Press the Start key.
- The copier indicates 'A3'.

6) A press on the keypad changes the indication as shown in Table 2-2. Select the size of paper to change. (Do not select CLR.)
- The indication will start to flash if you select a size which has not been stored.
- If you press the Start key when 'CLR' is indicated, the copier clears all stored settings and returns the default settings.

7) Shift the guide on the multifeeder to suit the size to be stored.
- Be sure to hear a click.

8) Press the AE key.
- When the setting is stored, the indication stops flashing and remains on.

9) Press the Reset key.
- The copier de-activates service mode.

Key	Indication	Remarks
1	A3	A3
2	Ldr	Ledger
3	b4	B4
4	LGL	Legal
5	A4r	A4R
6	b5r	B5R
7	A5r	A5R
8	Sr	Statement R
9	JPC	Postcard (100 mm wide)
0	CLr	Clear (Clears settings)

Table 2-2

Reference:

1. When storing JPC (No. 9), adjust the guide width to the smallest width.
2. At time of shipment, the settings are A3, A4R, and JPC; the copier retains the characteristics curves of the corresponding three points and uses them when identifying the size of paper during copying operation. When you store a size other than these three, the copier takes the new settings into account when making computations; for this reason, it is best to store sizes that the user tends to use most frequently.

5. Setting the Paper Size for the Universal Cassette

If the paper size lever for the cassette is at the universal cassette, set the appropriate paper size in service mode (505).

1) Open the front door, and insert the door switch actuator into the door switch.
2) Press the service mode switch (SW302) with a hex key.
• The copier activates service mode, and indicates '1'.
3) Press [5] on the keypad.
• The copier indicates '5'.
4) Press the AE key.
• The copier enters machine settings mode, and indicates '501'.
5) Press [0] and [5] on the keypad.
• The copier indicates '505'.
6) Press the Start key.
• The copier indicates the current setting for the universal cassette.
7) Select the size to store using the keypad according to Table 2-3.
8) Press the AE key to store the new setting.
9) Press the Reset key.
• The copier de-activates service mode.

Keypad	Paper	Size
0	Bolivian OFFICIO	355.0 x 216.0
1	Argentine OFFICIO	340.0 x 220.0
2	Argentine LEGAL	340.0 x 220.0
3	Australian FOOLSCAP	337.0 x 206.0
4	FOOLSCAP	330.2 x 215.9
5	FOLIO	330.0 x 210.0
6	Government LEGAL	330.2 x 203.2
7	Ecuadorian OFFICIO	320.0 x 220.0
8	OFFICIO	317.0 x 216.0
9	Argentine LTTER-R	280.0 x 220.0
10	Korean Government-R	268.0 x 190.0
11	Government LETTER-R	266.7 x 203.2
12	Argentine LETTER	220.0 x 280.0
13	Government LETTER	203.2 x 266.7
14	Korean Government	190.0 x 268.0

Table 2-3

CHAPTER 3 ARRANGEMENT AND FUNCTIONS OF THE ELECTRICAL PARTS

A. Sensors

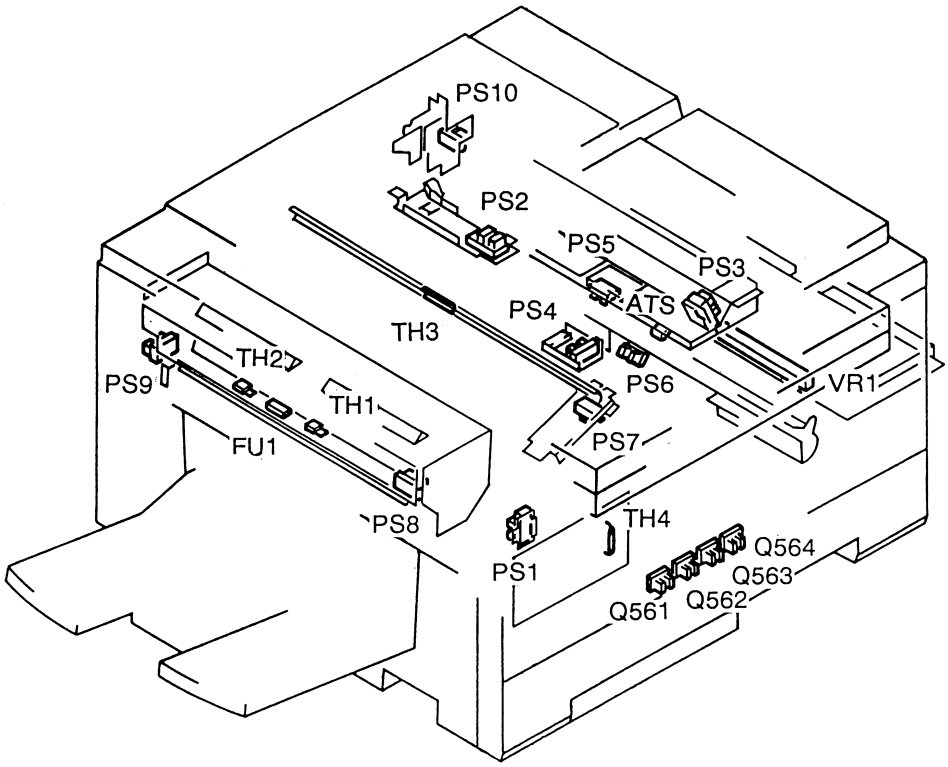


Figure 3-1

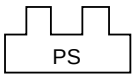
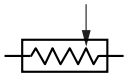
Symbol	Name	Ref.	Description
	Photointerrupter	PS1	detects scanner home position
		PS2	detects lens home position
		PS3	detects blank shutter home position
		PS4	detects presence/absence of paper in cassette
		PS5	detects presence/absence of paper in multifeeder
		PS6	detects paper in front of registration roller
		PS7	detects paper in separation assembly
		PS8	detects paper in delivery assembly
		PS9	detects belt
		PS10	detects right door (open/closed)
		Q561	cassette size detection 1
		Q562	cassette size detection 2
		Q563	cassette size detection 3
		Q564	cassette size detection 4
	Toner sensor	ATS	detects toner inside developing assembly
	Thermistor	TH1	fixing heater temperature detection 1
		TH2	fixing heater temperature detection 2
		TH3	fluorescent lamp temperature detection
		TH4	ambient temperature detection
	Volume	VR1	multifeeder paper width detection
	Thermal fuse	FU1	fixing heater overheating detection

Table 3-1

B. Clutches, Solenoids, and Switches

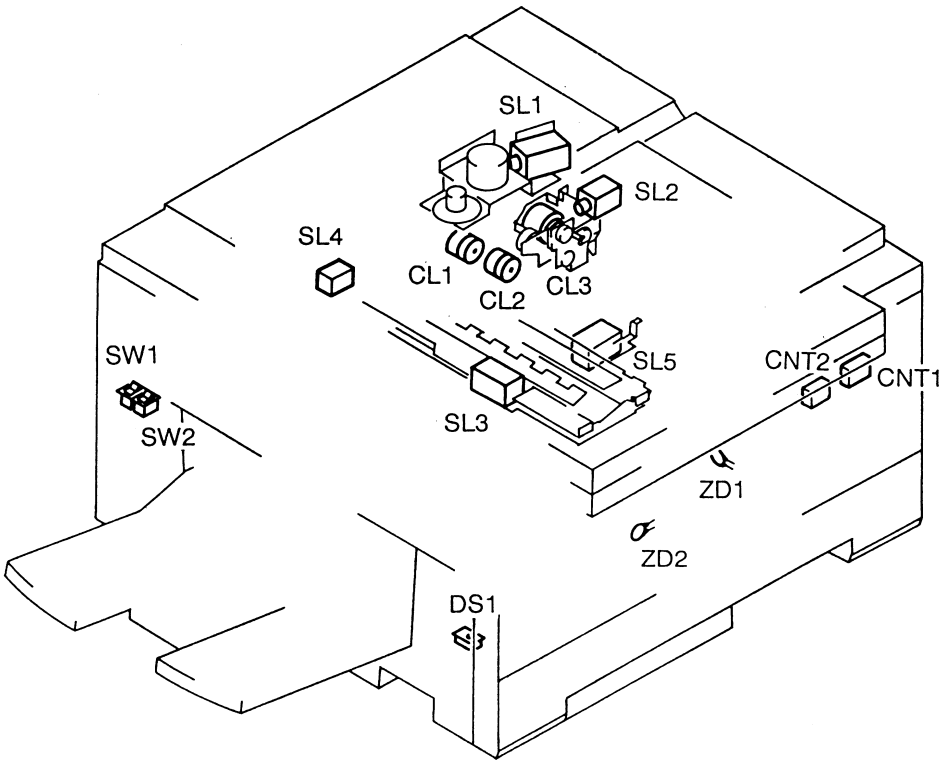


Figure 3-2

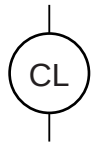
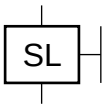
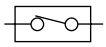
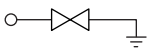
Symbol	Name	Ref.	Description
	Clutch	CL1 CL2 CL3	registration clutch pick-up clutch multifeeder pick-up clutch
	Solenoid	SL1 SL2 SL3 SL4 SL5	change solenoid multifeeder holding plate solenoid blank shutter primary charging roller cleaning solenoid transfer changing roller releasing solenoid
	Push switch	DS1	door switch
	Switch	SW1 SW2	anti-condensation switch fluorescent lamp heater switch
	Varistor	ZD1 ZD2	transfer guide varistor attraction plate varistor
	Counter	CNT1 CNT2	total copy counter option counter

Table 3-2

C. Motors, Heaters, and Lamps

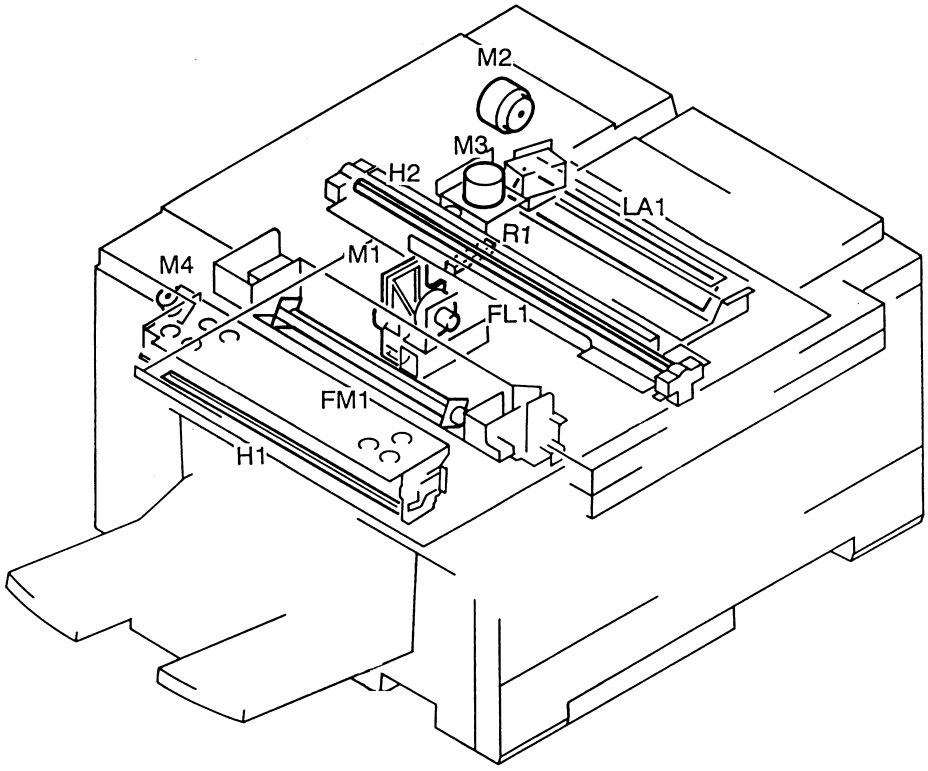


Figure 3-3

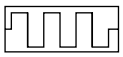
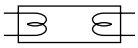
Symbol	Name	Ref.	Description
	Motor	M1 M2 M3 M4	main motor scanning motor lens motor fixing belt motor
	Fan motor	FM1	heat exhaust fan
	Heater	H1 H2 R1	fixing heater fluorescent lamp heater lens heater
	Fluorescent lamp	FL1	scanning lamp
	Lamp	LA1	pre-exposure lamp

Table 3-3

D. PCBs

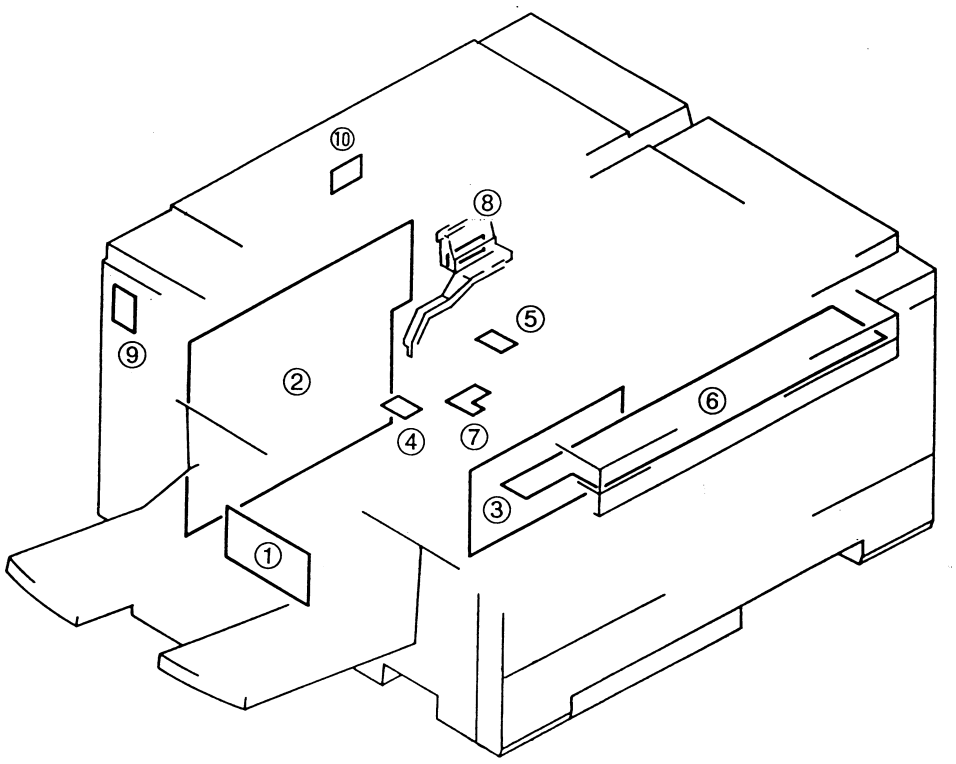


Figure 3-4

Ref.	Name	Function
1	Noise filter	noise prevention
2	Composite power supply	DC power supply, high-voltage generation
3	DC controller	sequence control
4	AE sensor	original density detection
5	Intensity sensor	fluorescent lamp intensity detection
6	Control panel	control panel keys, LEDs
7	High-voltage connector	charging, transfer, static eliminating power relay
8	Development bias connector	development power relay
9	Heater driver	fixing heater drive
10	Heater on detection	fixing heater drive detection

Table 3-4

E. Cassette Feeding Module – A2

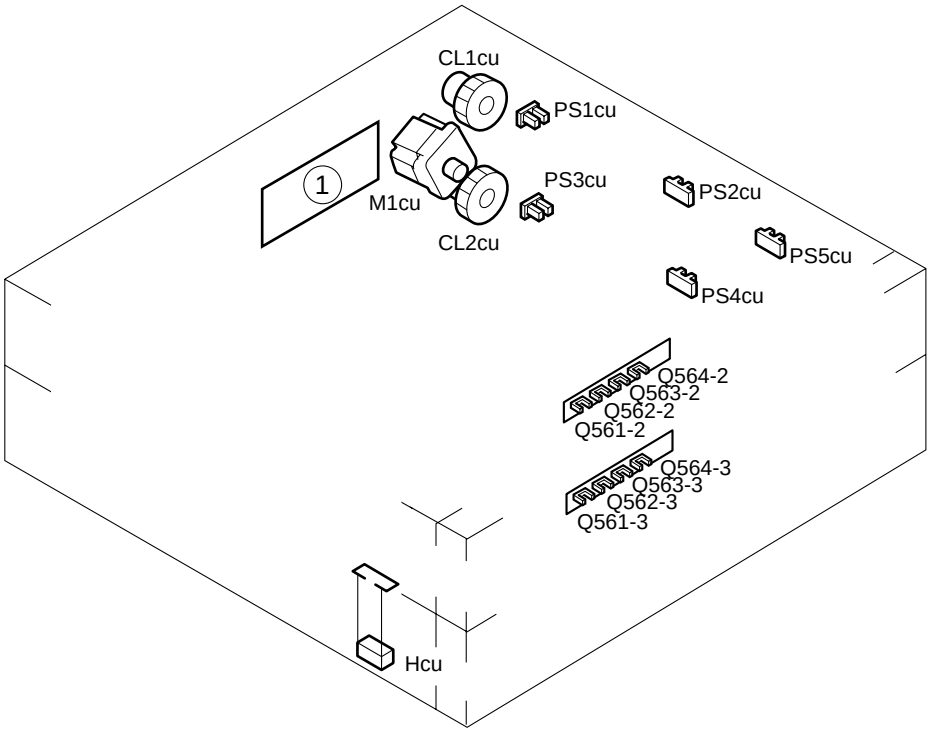


Figure 3-5

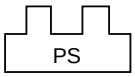
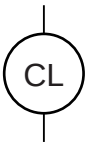
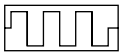
Symbol	Name	Ref.	Description
	Photointerrupter	PS1cu PS2cu PS3cu PS4cu PS5cu Q561-2 Q562-2 Q563-2 Q564-2 Q561-3 Q562-3 Q563-3 Q564-3	mcassette 2 vertical path detection cassette 2 paper detection cassette 3 vertical path detection cassette 3 paper detection cassette right door open/closed detection cassette 2 paper size detection 1 cassette 2 paper size detection 2 cassette 2 paper size detection 3 cassette 2 paper size detection 4 cassette 3 paper size detection 1 cassette 3 paper size detection 2 cassette 3 paper size detection 3 cassette 3 paper size detection 4
	Motor	M1cu	cassette unit motor
	Clutch	CL1cu CL2cu	cassette 2 pick-up clutch cassette 3 pick-up clutch
	Heater	Hcu	cassette heater (accessory)
①	Cassette driver		relay PCB

Table 3-5

F. Variable Resistors (VR) and Check Pins by PCB

Of all the VRs and check pins found in the copier, those that are needed in the field are discussed.

Caution:
Do not touch the VRs and check pins that are not discussed herein; they are for factory adjustment only and require special tools and instruments and must be adjusted with high precision.

1. DC controller PCB

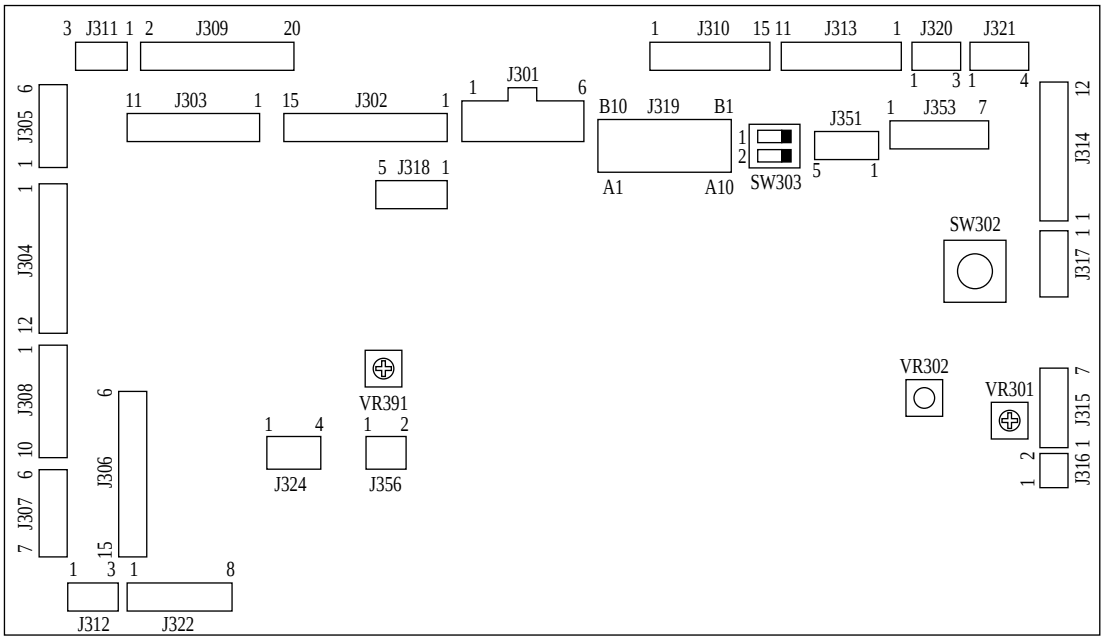


Figure 3-6

2. Composite power supply PCB

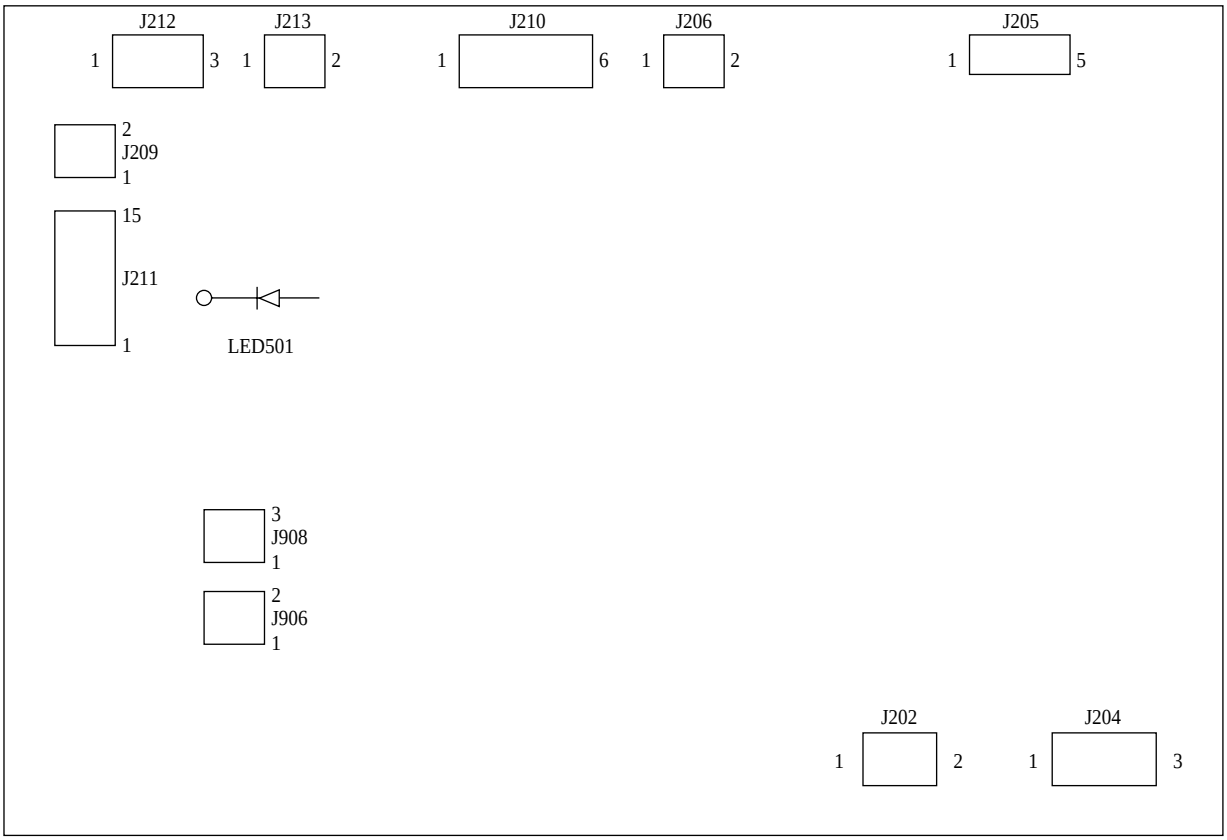


Figure 3-7

CHAPTER 4 SERVICE MODE

A. Outline

The copier's service mode may be classified into the following six:

Item	Description
[1]	control display mode
[2]	I/O display mode
[3]	adjustment mode
[4]	operation/inspection mode
[5]	specification mode
[6]	counter mode

Table 4-1

B. Using Service Mode

1. Activating Service Mode

1) Open the front door, and insert the door switch actuator.
   - If you want to make checks for I/O display mode or the like while making copies, set the copy mode.
2) Press the service mode switch (SW302) on the DC controller with hex key.
   - The copy count indicator indicates [1].
   - While service mode is activated, the copy density indicator LED indicates the position of the fixing belt.
   - A press on the reset key de-activates service mode.

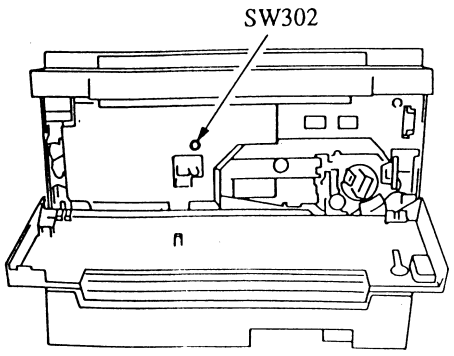


Figure 4-1

2. Selecting a Service Mode

1) While the copy count indicator is indicating [1], press a key from [1] through [6] to select the appropriate mode.
2) Press the AE key.
   - The copier activates the selected mode, and the copy count indicator indicates '301' or the like; '301' represents the first mode of those represented by [3].

3. Selecting Items

1) While the 100th digit on the copy count indicator is flashing ('301' or the like), press the keypad to select the mode to execute.
   - The copy count indicator indicates the selected number; only the 100th digit is flashing.
   - A press on the Clear key returns to selecting a mode ([3] or the like).
2) Press the Start key.
   - The copier activates the specified mode.

4. Using Adjustment Mode [3] and Specification Mode [5]

1) Press the keypad, and change the setting.
   - The value is flashed.
   - If the value is a negative value, '%' turns on. To enter a negative value, press the % key, and then enter the number using the keypad.
2) Press the AE key.
   - The copier stores the value, and flashes it.
   - A press on the Start key starts copying operation.
3) To change the settings continuously, repeat steps 1) and 2).
4) A press on the Clear key returns to selecting items.

5. Using Operation/Inspection Mode [4]

1) A press on the Start key executes the selected service mode.
2) A press on the Stop key stops the operation and then returns to selecting items.
   - If the mode is of a type that stops automatically, the operation stops and returns to selecting items automatically.

6. Clearing Stored Error Code

If E000, E001, E002, E003, E004, or E007 is indicated, remove the cause of the error, and clear the back-up information.

1) Open the front door, and insert the door switch actuator.
2) While holding down the service mode switch (SW302) on the DC controller with a hex key, press the power switch.
3) In about 2 sec, the power goes off; press the power switch once again.

Note:
The copier turns itself off automatically if it detects E000, E001, E002, E003, or E004, not responding to a press on the power switch. To check the error in service mode, perform the above after disconnecting the connector of the heater.

7. Recording on the Service Mode Label

Figure 4-2 shows the label attached behind the front door. At the factory, each machine is adjusted, and the settings used at the time are recorded on the label.
You must record new settings if you changed them in the field. If you replaced the DC controller, be sure to store the settings recorded on the label in service mode.
In addition, if you have replaced drun unit or the composite power supply, enter the settings recorded on the service label attached to the new drum unit or composite power supply and, at the same time, copy the setting on the service label (Figure 4-2)

No.		TYP		
301	AE_LIGHT			
302	AE_SHIFT			
303	AE_SLOPE			
304	HEATER			
305	REGIST			
306	LE_BLANK			
307	REGIST_R			
308	LE_BLANK_R			
309	TE_BLANK			
310	TE_BLANK_MF			
311	B_HOME			
312	B_HOME_RE			
313	PRIMARY			
314	IP_OFST			
315	PW_OFST			
316	IP_ADJ			
317	PH_ADJ			
318	ATVC_STD			
319	MF_LOOP			
320	C1_LOOP			
321	C2_LOOP			
322	C3_LOOP			
323	C1_CL_OFF			
324	C2_CL_OFF			
325	C3_CL_OFF			
326	LIGHT			

Figure 4-2

C. Control Display Mode [1]

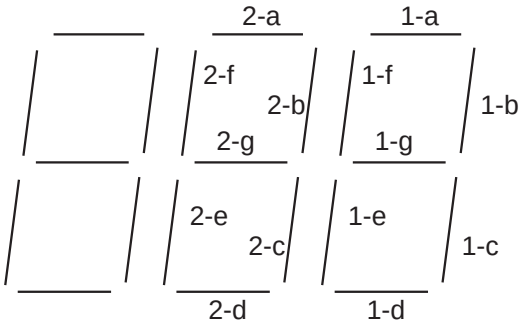
- To select an item, press the appropriate key on the keypad and then the Start key.
- To clear an item, press the Clear key.
- A press on the Start key while a service mode is indicated executes the respective operation.

No.	Description	Remarks
101	Jam location	The display indicates the location of the jam on the copy count indicator; see below.
102	Fixing belt sensor ON time	unit: ms The actual ON time is the value that is obtained by multiplying the indicated value by 2.56; the copy density indicator indicates the position of the belt.
103	Power supply voltage	unit: V
104	Primary charging voltage	unit: V The actual primary charging voltage is the value obtained by turning the displayed value into negative and subtracting 1000 from it.
105	Primary charging current	unit: µA
106	Intensity	unit: lux The actual intensity (lux) is the value obtained by dividing the displayed value by 100.
107	Jam history	See below.
108	Error history (E code)	The display indicates a history of the most recent three errors; a press on [1], [2], or [3] on the keypad indicates the most recent, second recent, and third recent errors respectively.
109	Temperature detected by fixing main thermistor (TH1)	unit: °C
110	Temperature detected by fixing sub thermistor (TH2)	unit: °C
111	Temperature detected by ambient thermistor (TH301; DC controller)	unit: °C
112	AE sensor output	Normal if the value changes for each original in AE mode.
113	ROM version number	Indicates the parts number of the ROM.
114	ROM release number	Indicates the version of the program.
116	Intensity at time of scanning	Normal: between 68 and 72
137	Factory mode	
138	Factory mode	
139	Factory mode	
155	Factory mode	

Table 4-2

No. 101 Jam Location Indicator

In this mode, the copy count indicator turn on to indicate the type of jam. If both delay and stationary are indicated for the same sensor, i.e., at time of power-on or standby, the copier has detected copy paper when it was not making copies.



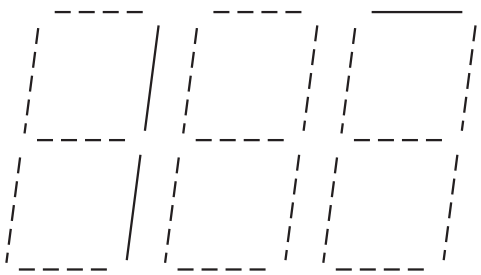
LED (ON)	Jam
1-a	pre-registration delay jam
1-b	pre-registration stationary jam
1-c	separation delay jam
1-d	separation stationary jam
1-e	delivery delay jam
1-f	delivery stationary jam
1-g	sorter jam
2-a	door open
2-b	cassette 2 pick-up delay jam
2-c	cassette 2 pick-up stationary jam
2-d	cassette 3 pick-up delay jam
2-e	cassette 3 pick-up stationary jam

Table 4-3

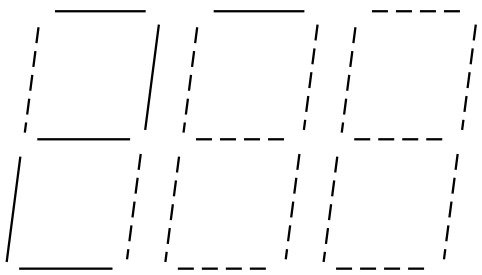
No. 104 Jam History

The 100th digit of the copy count indicator indicates how recent the jam is; to indicate the jam that occurred second most recently, press [2] on the keypad. As in 'No. 101' (jam location), the 10th digit indicates the type of jam.

Example: The most recent jam is a pre-registration delay jam.



The second most recent jam is a door open jam.



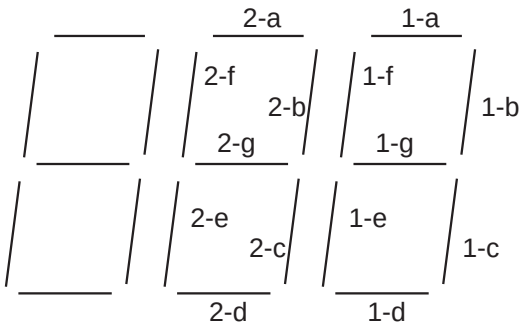
D. I/O Mode [2]

- Press [2] on the keypad and the AE key to activate I/O display mode.
- To clear an item, press the Clear key.
- A press on the Start key while a service mode is indicated executes the respective operation.

No.	Description	Remarks
201	Port C digit 4	When the mode is activated, the copy count indicator turns on to indicate the I/O of the input port; see below.
202	Port C digit 5	When the mode is activated, the copy count indicator turns on to indicate the I/O of the input port; see below.
203	Port C digit 6	When this mode is activated, the copy count indicator turns on to indicate the I/O of the input port; see below.
204	Port C digit 7	When this mode is activated, the copy count indicator turns on to indicate the I/O of the input port; see below.
205	Port H	When this mode is activated, the copy count indicator turns on to indicate the I/O of the input port; see below.
206	Fixing main thermistor (TH1) voltage	Indicates the measurement of voltage using 0 through 255.
207	Fixing sub thermistor (TH2) voltage	Indicates the measurement of voltage using 0 through 255.
208	AE sensor voltage	Indicates the measurement of voltage using 0 through 255.
209	Ambient temperature thermistor (TH301) voltage	Indicates the measurement of voltage using 0 through 255.
210	Multifeeder paper width sensor voltage	Indicates the measurement of voltage using 0 through 255.
211	Intensity sensor voltage	Indicates the measurement of voltage using 0 through 255.
212	Copy density correction knob/switch voltage	Indicates the measurement of voltage using 0 through 255.
213	Toner level sensor	Indicates the measurement of voltage using 0 through 255.

Table 4-4

LED (copy count indicator; from 201 to 205)



No. 201/202/203/204 Port C Digital Display

No.	LED	Description	Remarks
201	1-a	Cassette 2 connect	ON: connected
	1-b	Cassette 2 connect	ON: connected
	1-c	Options counter open circuit	ON: open
	1-d	Jumper connector 3	ON: connected
	1-e	Cassette size 1 (cassette 2)	ON: light-blocking plate present
	1-f	Cassette size 2 (cassette 2)	ON: light-blocking plate present
	1-g	Cassette size 3 (cassette 2)	ON: light-blocking plate present
	2-a	Cassette size 4 (cassette 2)	ON: light-blocking plate present
	2-b	Not used	
202	1-a	Main motor lock	ON: locked
	1-b	Control Card IV connect	ON: connected
	1-c	Total counter connect	ON: connected
	1-d	Option counter connect	ON: connected
	1-e	Cassette size 1 (cassette 3)	ON: light-blocking plate present
	1-f	Cassette size 2 (cassette 3)	ON: light-blocking plate present
	1-g	Cassette size 3 (cassette 3)	ON: light-blocking plate present
	2-a	Cassette size 4 (cassette 3)	ON: light-blocking plate present
	2-b	Not used	
203	1-a	Service mode switch	ON: pushed
	1-b	Jumper connector 1	ON: connected
	1-c	Jumper connector 2	ON: connected
	1-d	Total counter open circuit	ON: open
	1-e	Cassette size 1 (cassette 1)	ON: light-blocking plate present
	1-f	Cassette size 2 (cassette 1)	ON: light-blocking plate present
	1-g	Cassette size 3 (cassette 1)	ON: light-blocking plate present
	2-a	Cassette size 4 (cassette 1)	ON: light-blocking plate present
	2-b	Cassette 3 vertical path sensor (PS3cu)	ON: light-blocking plate present

No.	LED	Description	Remarks
204	1-a	Right door open/closed sensor (PS10)	ON: light-blocking plate present (paper present)
	1-b	Separation sensor (PS7)	ON: light-blocking plate present (right door closed)
	1-c	Cassette paper sensor (PS4)	ON: light-blocking plate present (paper absent)
	1-d	Multifeeder paper sensor (PS5)	ON: light-blocking plate present (paper absent)
	1-e	Cassette 2 paper sensor (PS2cu)	ON: light-blocking plate present (paper absent)
	1-f	Cassette 3 paper sensor (PS4cu)	ON: light-blocking plate present (paper absent)
	1-g	Delivery sensor (PS8)	ON: light-blocking plate present (paper present)
	2-a	Cassette right door open/closed sensor (PS5cu)	ON: light-blocking plate present (right door closed)
	2-b	Cassette 2 vertical path sensor (PS1cu)	ON: light-blocking plate present (paper present)

Table 4-5

No. 205 Port H Display

LED	Description	Signal	Connector	Remarks
1-a	Registration sensor	RPD	J314-2	ON: paper present
1-b	PCB check	PCBCH*	J353-6	For factory only
1-c	Lens home position sensor (PS2)	LHP	J307-2	ON: at HP
1-d	Blank shutter home position sensor (PS3)	BSHP	J315-2	ON: at HP
1-e	Fixing film sensor (PS9)	FFD	J304-12	ON film detected
1-f	Heater on detection (triac short circuit)	HTON*	J324-2	ON: heater ON detected
1-g	Composite power supply ACK	CP-ACK	J302-12	ON: acknowledged
2-a	AC pulse	AC-MNTR	J302-14	ON: H, OFF: L
2-b				

Table 4-6

E. Adjustment Mode [3]

- To activate adjustment mode, press [3] on the keypad and then the AE key.
- To select an item, press the appropriate key on the keypad and then the Start key.
- To change the setting, press the appropriate keys on the keypad and then the AE key.
- To cancel an item, press the Clear key.
- A press on the Start key executes the respective operation.
- If the value is a negative value, '%' is turned on; to enter a negative value, press the % key and the value on the keypad.

No.	88Description	Settings	Remarks
301	Automatic lamp intensity adjustment for AE scans		See p. 2-7.
302	Copy density (development bias) reference point adjustment for AE mode	-26 ~ +26	See p. 2-9. default: 0
303	Copy density (development bias) slope adjustment for AE mode	-26 ~ +26	See p. 2-9. default: 0
304	Fixing heater resistance storage		See p. 2-27.
305	Leading edge margin adjustment (registration roller ON timing)	0 ~ 63	A higher value delays the copy paper in relation to the image, reducing the margin. default: 32 unit: 0.27 mm
306	Leading edge non-image width adjustment (timing at which blank open/close shutter for blank exposure is closed)	0 ~ 63	A higher setting increases the leading edge non-image width. default: 32 unit: 0.27 mm
307	Leading edge registration adjustment for right face in page separation (registration roller ON timing)	0 ~ 63	A higher setting delays the copy paper in relation to the image. default: 32 unit: 0.27 mm
308	Leading edge margin adjustment for right face in page separation (timing at which blank shutter is closed)	0 ~ 63	A higher setting increases the leading edge margin. default: 32 unit: 0.27 mm
309	Trailing edge non-image width adjustment (timing at which open/close shutter for blank exposure is opened)	0 ~ 63	A higher setting reduces the trailing edge margin. default: 32 unit: 0.27 mm
310	Leading edge non-image width for multifeeder (timing at which the open/close shutter for blank exposure is opened)	0 ~ 63	A higher setting reduces the trailing edge margin. default: 32 unit: 0.27 mm

Table 4-7-1

Note: A press on the Start key when in No. 305, 306, 307, or 308 makes copies in the mode that has been effective before the activation of the mode; when executing No. 307 or 308, it is recommended that page separation mode be selected before activating service mode.

No.	Description	Settings	Remarks
311	Left/right margin adjustment (Direct; home position for slide shutter for blank exposure)	0 ~ 15	A higher setting increases the margin on both left and right. default: 8 unit: 0.27 mm
312	Left/right margin adjustment (Reduce; travel distance of slide shutter for blank exposure)	-10 ~ +10	A higher setting increases the margin on both left and right. default: 0 unit: 0.27 mm
313	Primary output voltage correction (corrects output voltage determined by APVC)	-16 ~ +16	Enter the setting recorded on the label after replacing the drum cartridge.
314	APVC measured current shift (corrects the results of APVC)	-40 ~ +40	Enter the setting recorded on the label after replacing the drum cartridge.
315	Voltage correction for measurement in APVC (corrects voltage for measurement applied at time of APVC)	-16 ~ +16	default: 0 unit: 16 V Enter the value recorded on the label on the composite power supply when replacing the composite power supply.
316	Measurement current correction for APVC (corrects current measured at time of APVC)	-10 ~ +10	default: 0 Enter the value recorded on the label on the composite power supply when replacing the composite power supply.
317	Fluorescent lamp pre-heating current adjustment	-9 ~ +9	default: 0 Enter the value recorded on the label on the composite power supply when replacing the composite power supply.
318	Transfer output voltage adjustment (corrects transfer voltage determined by ATVC)	-4 ~ +4	Convert the value recorded on the label on the composite power supply as follows and change the value recorded on the service label; then, enter the value when replacing the composite power supply. Label → Input: 1 → 0, 2 → -1, 3 → -2, 4 → -3, 5 → -4, 6 → +1, 7 → +2, 8 → +3, 9 → +4
319	Arch adjustment when multifeeder is used (pick-up roller OFF timing)	0 ~ 63	A higher setting increases the arch. default: 25 unit: 0.27 mm

No.	Description	Settings	Remarks
320	Arch adjustment when cassette 2 is used (pick-up roller OFF timing)	0 ~ 63	A higher setting increases the arch. default: 25 unit: 0.27 mm
321	Arch adjustment when cassette 2 is used (pick-up roller OFF timing)	0 ~ 63	A higher setting increases the arch. default: 25 unit: 0.27 mm
322	Arch adjustment when cassette 2 is used (pick-up roller OFF timing)	0 ~ 63	A higher setting increases the arch. default: 25 unit: 0.27 mm
323	Pick-up clutch (CL2) off timing adjustment	0 ~ 63	For factory only default: 32
324	Cassette 2 pick-up clutch (CL1cu) off timing adjustment	0 ~ 63	For factory only default: 20
325	Cassette 3 pick-up clutch (CL2cu) off timing adjustment	0 ~ 63	For factory only default: 20
326	Scanning lamp intensity adjustment	0 ~ 76	For factory only default: 75

Table 4-7-2

F. Operation/Inspection Mode [4]

- To activate operation/inspection mode, press [4] on the keypad and then the AE key.
- To select an item, press the appropriate key on the keypad and then the Start key.
- To execute the mode, press the Start key.
- To stop the operation, press the Stop key; the copier returns to selecting an item.
- If the mode is of a type that stops automatically, the copier automatically returns to selecting an item.

No.	Description	Remarks
401	Developing assembly idle rotation	Use it after supplying toner at time of installation.
402	Primary roller cleaning	
403	Transfer roller cleaning	
404	Fixing tension roller	Use it to adjust the fixing film drive roller pressure for the upper fixing unit. (See p. 2-24.) Fix the fixing tension roller and cause the fixing film to rotate idly. The ON period of the fixing film sensor is indicated by the copy count indicator, and the film position is indicated by the copy density indicator. Another press on the Start key checks the position of the fixing film automatically.
405	Fixing film initial rotation mode	Execute the mode when you have replaced the fixing film or the upper fixing unit to return the fixing film to its appropriate position. (See p. 2-24.) The film stops as soon as it reaches the appropriate position automatically. The position of the film in travel is indicated by the copy density indicator.
406	Nip check	Use tit to check the nip or when adjusting the lower fixing roller. (See p. 2-26.)
407	Fixing film displacement correction	The fixing film stops when it reaches the appropriate position or when 30 sec has passed. The position of the film in travel is indicated by the copy density indicator, and the fixing film ON period is indicated by the copy count indicator. The position is normal if the copy density indicator indicates ‘5’ when the film stops; otherwise, check the fixing film and the tension roller. If the fixing film becomes displaced and E007 is indicated, try this mode. (This will prove to be highly useful if displacement occurs because of a minor accident.)
408	Scanning lamp ON check	A press on the Start key keeps the lamp on after about 1.5 sec.
409	Control panel indicators ON	

No.	Description	Remarks
410	Scanner forward stop	
411	Pre-exposure lamp on	
412	Drum unit installation mode	Execute it when installing or replacing the drum unit; a press on the Start key will automatically activate APVC measurement mode; the mode ends in about 23 sec.
450	Back-up RAM clear	See p. 2-31

Table 4-8

G. Specification Settings Mode [5]

- To activate specification settings mode, press [5] on the keypad and then the AE key.
- To select an item, press the appropriate key on the keypad and then the Start key.
- To change the setting, press the appropriate keys on the keypad and then the AE key.
- To clear an item, press the Clear key.
- A press on the Start key executes the respective operation.

No.	Description	Remarks
501	Characteristics storage for multifeeder paper width sensor	See p. 2-39.
502	Copy density notation switching (9/17 steps)	9 steps: 0 17 steps: 1 default: 0 (9 steps)
503	Auto power-off cancel	• When '1' is entered on the keypad, the notation will be 'ON', activating the auto power-off function. • When '0' is entered on the keypad, the notation will be 'OFF', de-activating the auto power-off function. default: on. The auto power-off period is set in user mode; since the copier's WAIT time is 0, it is best to keep the auto power-off mechanism to be enabled.
504	Copy count upper limit	settings: 0 to 99 default: 0 When set to '0', the upper limit will be 100 copies.
505	Universal cassette paper size	See p. 2-40. settings: 0 to 14 default: 0
506	Separation static eliminator output voltage switching	002: 2.5 kV 004: 4 kV default: 0
507	Fixing forced wait	When activated, the period of initial rotation is increased; activate it if the fixing on the first copy is poor because of low temperature conditions. 0: disabled 1: enabled default: 0
508	Fixing control temperature switching	001: 225°C See p. 2-28. 002: 215°C 003: 200°C default: 002

Table 4-9

H. Counter Mode [6]

- To activate the mode, press [6] on the keypad and then the AE key.
- To select an item, press the appropriate key on the keypad and then the Start key.
- To cancel an item, press the Clear key.
- A press on the Start key executes the respective service operation.
- To obtain the actual count, multiply the indication by 100.

No.	Description	Remarks
601	Large copy counter	
602	Small copy counter	
603	Total copy counter/drum counter	For North America only; indicates the use of the drum unit in terms of copies made, and cleared when the drum unit is replaced.

Table 4-10

CHAPTER 5 SELF DIAGNOSIS

A. Copier

The microprocessor on the copier's DC controller is provided with a self diagnosis mechanism that checks the condition of the machine (sensors, in particular). The copier runs self diagnosis and, when it identifies an error, indicates a code that represents each specific error. If the copier finds an error associated with E000, E001, E002, E003, and E004, it automatically shuts itself off (error auto power-off).

Code	Cause	Description
E000	• Thermistor (TH1, TH2; displacement, poor contact, open circuit) • Fixing heater (H1; open circuit, crack) • Thermal fuse (FU1; malfunction) • Triac (faulty) • DC controller (faulty)	• Beginning 1 second after the copy START key is pressed, the main thermister (TH1) does not reach 50°C for 200 ms. • Beginning 2 second after the copy START key is pressed, the main thermister (TH1) does not reach 60°C for 200 ms. • Beginning 4 second after the copy START key is pressed, the main thermister (TH1) does not reach 70°C for 200 ms.
E001	• Thermistor (TH1, TH2; short circuit) • Triac (faulty) • DC controller (faulty)	• The detection temperature of the thermistor (TH1) exceeds 250°C during copying operation. • The detection temperature of the sub thermistor (TH2) exceeds 260°C during copying operation. • The detection temperature of the thermistor (TH1, TH2) rises 30°C over the specified temperature during copying operation. • The detection temperature of the thermistor (TH1, TH2) rises 30°C over the specified temperature during copying operation. • The thermistor detects a rise in temperature of 40°C or more during standby. • The temperature has increased over 100°C or more within 1 sec after the thermistor (TH1, TH2) has detected 100°C.
E002	• Thermistor (TH1, TH2; displacement, poor contact, open circuit) • Fixing heater (H1; open circuit, crack) • Thermal fuse (FU1; malfunction) • Triac (faulty) • DC controller (faulty)	• Beginning 1 second after the main thermister (TH1) detection temperature reaches 60°C, the first thermister does not reach 70°C for 200 ms. • Beginning 1 second after the main thermister (TH1) detection temperature reaches 70°C, the first thermister does not reach 80°C for 200 ms. • Beginning 1 second after the main thermister (TH1) detection temperature reaches 80°C, the first thermister does not reach 90°C for 200 ms. • Beginning 1 second after the main thermister (TH1) detection temperature reaches 90°C, the first thermister does not reach 95°C for 200 ms.

Table 5-1-1

Code	Cause	Description
E003	• Thermistor (TH1, TH2; displacement, poor contact, open circuit) • Fixing heater (H1; open circuit, crack) • Thermal fuse (FU1; malfunction) • Triac (faulty) • DC controller (faulty)	• After the main thermistor (TH1) detection temperature reaches 95°C, the main thermister detects lower than 95°C for 200 ms. • After the sub thermistor (TH2) detection temperature reaches 70°C, the sub thermister detects less than 70°C for 200 ms.
E004	• Triac (faulty) • Heater ON detection PCB (faulty)	The fixing heater is identified as being on when the fixing heater drive signal is off (HTRD=0).
E007	• Fixing film (displacement, tear) • Tension roller (displacement, malfunction) • Fixing film motor (M4; faulty) • Fixing film sensor (PS9; faulty)	The fixing film sensor output remains '1' or '0' for 1.35 sec or more. **Reference:** The fixing film takes about 1.3 sec to make a full rotation.
E010	• Main motor (M1; faulty) • DC controller (faulty)	The main motor revolution is not as specified (MLOCK=0) for 1 sec or more while the main motor drive signal is on (MMD=1).
E030	• Counter (open circuit) • DC controller (faulty)	Checks are made immediately before the counter turns on or off and when copying operation is started. Normal if drive signal = 0 at time the counter turns on; Normal if drive signal = 1 at time the counter turns off. **Note:** Checks are made only when the counter is installed.
E064	• Composite power supply (faulty) • DC controller (faulty)	The high voltage of the composite power supply is different from the setting.
E202 (keys on control panel disabled)	• Scanner cable (displacement, tear) • Scanner home position sensor (PS1; faulty) • Scanner motor (M2; faulty) • DC controller (faulty)	The scanner does not return to the home position within 5 sec when it is started. E002 may be checked in 'No. 108' of service mode.

Table 5-1-2

Code	Cause	Description
E210	• Lens cable (displacement, tear) • Lens home position sensor (PS2; faulty) • Slide shutter (operation) • Blank shutter home position sensor (PS3; faulty) • Change solenoid (SL1; faulty) • Lens motor (M3; faulty) • DC controller (faulty)	• The lens home position sensor signal (LHP) is not generated within a specific period of time after the power switch has been turned on. • The lens home position signal (LHP) is generated longer than a specific period of time. • The blank shutter home position signal (BSHP) is not generated when the slide shutter is moving.
E220	• Scanning lamp (faulty) • Composite power supply (faulty) • DC controller (faulty)	• The lamp is identified as being on during standby. • The lamp is identified as being off during copying operation.
E240	• DC controller (faulty) • Composite power supply (faulty)	A communication error is detected between the CPU (Q301) on the DC controller and the CPU (Q512) on the composite power supply.
E261	• Power supply frequency (fluctuation) • Composite power supply (faulty)	The intervals of the zero cross signal is outside the tolerance.
E710	• DC controller (faulty)	The IPC (Q104) cannot be initialized at power-on.
E711	• DC controller (faulty)	An IPC communication error has been detected twice within 1 sec.
E712	• DC controller (faulty) • DF controller (faulty) • Connector (poor contact)	An error in communication with the DF cannot be cleared.
E717	• DC controller (faulty) • The Remote Diagnostic DeviceII controller (faulty) • Communication (with the Remote Diagnostic DeviceII)	• A communication with the Remote Diagnostic DeviceII has been successfully but failed in the middle. • An open circuit is detected on the line with the Remote Diagnostic DeviceII.

Table 5-1-3

Clearing an Error Code (back-up data)

When the self diagnosis mechanism has been activated, the copier may be reset by turning its power off and on. However, this does not work for E000, E001, E002, E003, or E004; this arrangement is to prevent the user from causally resetting any of the errors, which could damage the film or the heater in side the fixing assembly.

If E000, E001, E002, E003, or E004 is indicated, remove the cause and clear the back-up data as follows:

1) Open the front door, and insert the door switch actuator.
2) Press the power switch while holding down the service mode switch (SW302) on the DC controller with a hex key.
3) The power should go off in about 2 sec; turn on the power.

Caution:

Detection of E000, E001, E002, E003, or E004 automatically turns off the copier. To check the type of error in service mode, go through the above steps after disconnecting the fixing heater.

B. Self Diagnosis (ADF)

Code	Cause	Description
E400	• data communication with copier (error)	The data communication is monitored at all times; the error is identified if the communication with the copier is absent for 5 sec or more.
E402	• belt motor (fails to rotate) • belt motor clock sensor (faulty)	The belt clock pulses within 200 msec are below the specified number.
E404	• delivery motor (fails to rotate) • delivery motor clock sensor (faulty)	The delivery motor clock pulses within 200 msec are below the specified number.
E411	• document detection (faulty) • registration sensor (faulty) • document edge sensor (faulty)	The output of the sensor is 2.3 V or more in the absence of paper.

Table 5-2

Note:
To reset the copier after activation of the self diagnosis mechanism, switch the copier off and then on.
You can still continue to make copies even when the ADF is out of order; simply open the ADF, and set the documents on the copyboard glass.

C. Self Diagnosis (sorter)

Code	Cause	Description
E500	The CPU or the communications IC on the sorter controller is not operating normally.	An error is detected in the communication between the sorter and the copier.
E510	The feeder motor fails to rotate.	The clock signal from the motor is off for 250 msec or more.
E530	The stapler guide bar swing motor fails to rotate.	The home position sensor does not turn off after generation of 2560 pulses of the motor drive signal.
E531	The stapler unit swing motor fails to rotate.	• The stapler unit swing sensor does not turn off within 0.5sec after generation of the motor drive signal. • The sensor does not turn on again within 1.0sec after the stapler unit swing sensor has turned off.
E540	The bin shift motor fails to rotate.	• The reed cam home position sensor does not turn off within 2.0sec after generation of the motor drive signal. • The reed cam home position sensor does not turn on once again within 2.0sec after it has turned off.
E541	• Bin motor (faulty) • Reed cam drive gear (faulty mounting)	The reed cam position sensor does not turn on within 1.0 sec after it has turned off.

Table 5-3

Note:
Some copiers use ‘E500’ to represent all the above errors.

■ Error Condition
① The copier indicates the “TURN ON POWER” message.
② When the power has been turned off and then on, the sorter runs a self check: if the result is good*, it resets; otherwise, enters down state**.

■ Down State
① The copier indicates ‘E5XX’.
② When the sorter has been detached, the copier is available for operations other than those that must use the sorter.
③ If a mode that uses the sorter is selected, some copiers indicate the “MODE NOT AVAILABLE” message.

Note:

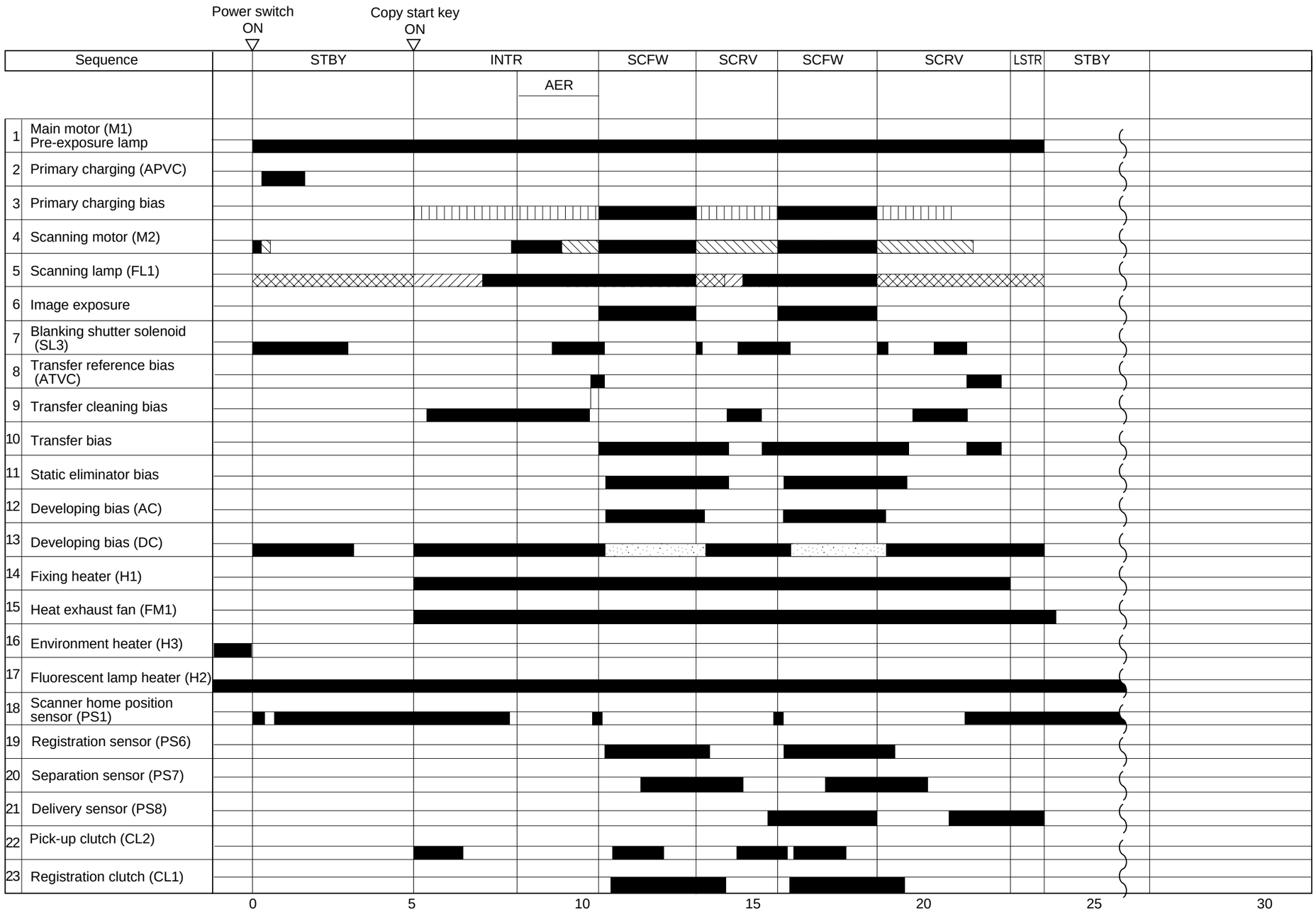
Even in down state, the sorter will run a self check and rest if the result is good if you have switched it off and then on without detaching it from the copier.

* Simply turn off the joint sensor (MS3) to detach the sorter from the copier; you need not disconnect the communication connector.

**When an E code is indicated.

APPENDIX
A. GENERAL TIMING CHART

(A4, 2 Copies, Direct, from copier cassette)



B. SIGNALS AND ABBREVIATIONS

1. Signals and Abbreviations

ACBIAS	DEVELOPING AC BIAS VOLTAGE DETECTION signal
AE	AE SENSOR OUTPUT signal AE
AEREF	AE SENSOR REFERENCE signal AE
ATTH	AMBIENT TEMPERATURE THERMISTOR signal
BIASS	DEVELOPING DC BIAS VOLTAGE DETECTION signal
BPWM	DEVELOPING BIAS DRIVE command
BSHP	BLANKING SHUTTER HOME POSITION signal
BSSLD	BLANKING SHUTTER SOLENOID DRIVE command
C2PUCLD	CASSETTE2 PICK-UP CLUTCH DRIVE command
C2SZ-1	CASSETTE2 SIZE signal
C2SZ-2	CASSETTE2 SIZE signal
C2SZ-3	CASSETTE2 SIZE signal
C2SZ-4	CASSETTE2 SIZE signal
C2PD	CASSETTE2 PAPER DETECTION signal
C2VPD	CASSETTE2 VERTICAL PATH PAPER DETECTION signal
C3PD	CASSETTE3 PAPER DETECTION signal
C3PUCLD	CASSETTE3 PICK-UP CLUCTH DRIVE command
C3SZ-1	CASSETTE3 SIZE signal
C3SZ-2	CASSETTE3 SIZE signal
C3SZ-3	CASSETTE3 SIZE signal
C3SZ-4	CASSETTE3 SIZE signal
C3VPD	CASSETTE3 VERTICAL PATH PAPER DETECTION signal
CCD	CONTROL CARD DRIVE command
CCDT	CONTROL CARD DETECTION signal
CDC	COPY DENSITY CORRECTION signal
CHSLD	CHANGE SOLENOID DRIVE command
CMA	CASSETTE UNIT MOTOR PULSE command A
CMA*	CASSETTE UNIT MOTOR PULSE command A*
CMB	CASSETTE UNIT MOTOR PULSE command B
CMB*	CASSETTE UNIT MOTOR PULSE command B
CMD	CASSETTE UNIT MOTOR DRIVE command
CPD	CASSETTE PAPER DETECTION signal
CRDOP	CASSETTE RIGHT DOOR OPEN signal
CS	CASSETTE SIZE DETECTION command
CS2	CASSETTE2 SIZE DETECTION command
CS3	CASSETTE3 SIZE DETECTION command
CSZ-1	CASSETTE SIZE signal 1
CSZ-2	CASSETTE SIZE signal 2
CSZ-3	CASSETTE SIZE signal 3
CSZ-4	CASSETTE SIZE signal 4
DPD	DELIVERY PAPER DETECTION signal
EHTRL	EARTH RL DRIVE command RL2
FFA	FUSER FILM MOTOR PULSE command A
FFA*	FUSER FILM MOTOR PULSE command A*
FFB	FUSER FILM MOTOR PULSE command B
FFB*	FUSER FILM MOTOR PULSE command
FFCA	FUSER FILM MOTOR VOLTAGE command A
FFCB	FUSER FILM MOTOR VOLTAGE command B
FFD	FIXING FILM POSITION signal
FLHT OFF	FLUORESCENT LAMP HETER OFF command
FL ON	FLUORESCENT LAMP ON command
FLPRHT	FLUORESCENT LAMP PRE-HEAT command
FLS	FLUORESCENT LAMP INTENSITY signal
FLTH	FLUORESCENT LAMP THERMISTOR signal
FLTH ON	FLUORESCENT LAMP HETER ON command
FMD	FUSER FILM MOTOR DRIVE command
HEFD	HEAT EXHAUST FAN DRIVE command
HTNG	FUSER HEATER NG signal
HTRD	HEATER DRIVE command
JCTL	DISCHARGE BIAS DRIVE command
JLVCTL	DISCHARGE BIAS CHANGE command
LHP	LENS HOME POSITION signal
LID	LIGHT INTENSITY signal
LNSA	LENS MOTOR PULSE command A
LNSA*	LENS MOTOR PULSE command A*
LNSB	LENS MOTOR PULSE command B
LNSB*	LENS MOTOR PULSE command B*
LNSC-A	LENS MOTOR DRIVE command A
LNSC-B	LENS MOTOR DRIVE command B
MFPD	MULTIFEEDER PAPER DETECTION signal
MFPUCLD	MULTIFEEDER PICK-UP CLUTCH DRIVE command
MFPWD	MULTIFEEDER PAPER WIDTH DETECTION signal
MFSLD	MULTIFEEDER SOLENOID DRIVE command
MLOCK	MAIN MOTER LOCK signal
MMCLK	MAIN MOTOR CLOCK signal
MMD	MAIN MOTER DRIVE command
MPWM	MAIN PULSE command
PCLSLD	PRIMARY CORONA ROLLER CLEANING SOLENOID command
PDCPWM	PRIMARY CORONA DETECT PULSE command
PDCS	PRIMARY CORONA DETECT command
PEXP	PRE-EXPOSURE LAMP LIT command
PUCLD	PICK-UP CLUTCH DRIVE command
PWSW	POWER SWITCH command
RDOP	RIGHT DOOR OPEN signal
RGCLD	REGISTRATION CLUTCH DRIVE command
RPD	REGISTRATION PAPER DETECTION signal
SC-A	SCANNER MOTOR PULSE command A
SC-A*	SCANNER MOTOR PULSE command A*
SC-B	SCANNER MOTOR PULSE command B
SC-B*	SCANNER MOTOR PULSE command B*
SC-COMA	SCANNER MOTOR DRIVE command A
SC-COMB	SCANNER MOTOR DRIVE command B
SCHP	SCANNE HOME POSITION signal
SPD	SEPARATION PAPER DETECTION signal
SRSW	SERVICE MODE SWITCH signal
TCNTD	TOTAL COUNTER DRIVE command
TEP	TONER EMPTY signal
TFWON	TRNSFER BIAS ON/OFF command
TFWPWM	TRNSFER BIAS LOW VOLTAGE signal
TFWS	TRNSFER BIAS PULSE command
TH 1	FIXING MAIN THERMISTOR signal
TH 2	FIXING SUB THERMISTOR signal
TREVON	TRNSFER REVERSE ON command

C. GENERAL CIRCUIT DIAGRAM

not available

D. SPECIFICATIONS

A. Copier

1. Type

Item	Description
Body	Desk top
Copyboard	Fixed
Light source	Fluorescent lamp
Lens	Zoom
Photosensitive medium	OPC (ϕ30)

2. System

Item		Description
Copying		Indirect electrophotographic
Charging		Roller (direct charging)
Exposure		Slit (moving light source)
Copy density adjustment		Automatic (AE) or manual
Development		Dry (toner projection)
Pick-up	Auto	1 cassette
	Manual	Multifeeder
Transfer		Roller
Separation		Curvature + static eliminator
Cleaning		Cleaning blade
FixingFixing		Fixing (by plane-shaped heater; 1100 W max.)

3. Features

Item			Specification
Original type			Sheet, book, 3-D object (2 kg max.)
Maximum original size			A3 (297 x 420 mm)/LDG (11” x 17”) Center reference
Reproduction ratio			Direct, 2R2E (Table A-1) Zoom 49% to 204%
Wait time			0 sec
First copy			8.2 sec or less (11.6 sec or less at power-on; A4, Direct, non-AE, from cassette)
Continuous copying			100 (max.; upper limit may be varied in service mode)
Copying speed			See Table A-2.
Copy size			Cassette: A3/11” x 17” to A5/STMT 3.94” x 5.88” Manual: A3/11” x 17” to postcard (vertical)
Copy paper	Cassette		Plain paper (64 to 80 g/m^2), tracing paper (SM1), colored paper, recycled paper (64 to 80 g/m^2), ecology paper (80 g/m^2)
	Manual		Plain paper (64 to 80 g/m^2), tracing paper (SM1, GNT80), colored paper, recycled paper (64 to 80 g/m^2), ecology paper (80 g/m^2), transparency, postcard, label sheet, thick paper (81 to 128g/m^2)
	Two-sided/ overlay	Manual	Plain paper (64 to 80 g/m^2), colored paper, postcard, recycled paper (64 to 880 g/m^2), ecology paper (80 g/m^2)
Cassette			34 mm deep (approx.; about 250 sheets of 80 g/,m^2 paper), clawless, front loading (center reference)
Multifeeder			5 mm high (max.; about 50 sheets of 80 g/m^2), clawless (center reference)
Copy tray			100 sheets (approx.; A3 size, 80 g/m^2)
Non-image width	One-sided		2.0 ±1.0 mm (leading edge), 2.5 ±1.5 mm (left/right, trailing edge)
	Multi manual		2.0 ±1.0 mm (leading edge), 3.5 ±1.5 mm (left/right, trailing edge)
Auto clear			Available (2 min standard; may be varied between 1 to 9 min in 1-minute increments; may be disabled)
Auto power-off			Available (5 min standard; may be varied in user mode to 2, 5, 10, 15, 30, 60, 120 min)
Accessary			Cassette Feeding Module-B2, Cassette Feeding Module-A2, Control Card IV N, Stapler Sorter B2/D1, MS-B1 ADF-E1

Caution:

1. Use Canon-recommended paper.
2. Remove curling before feeding for a second time.
3. Fan out the transparencies before setting them on the multifeeder to prevent adhesion.

4. Others

Item		Description	
Operating environment	Temperature	7.5°C to 32.5°C/45.5°F to 90.5°F	
	Humidity	5% RH to 85% RH	
	Atmospheric pressure	810.6 hPa to 1013.3 hPa (0.8 to 1 atm)	
Power supply		Serial numbers	
	230 V (50 Hz)	UCD xxxxx	
Power consumption	Maximum	1.5 kW or less	
	Standby	97.2 kJ per hr (27 wh average; reference only)	
	Continuous	2088 kJ (580 wh average; reference only)	
Noise	Copying	49.7 dB or less (1 m front)	Sound power level by ISO method
	Standby	—	
Ozone (average over 8 hr)		0.01 ppm or less (average); 0.02 ppm or less (max.)	
Dimensions	Width	585 mm/23.0 in	
	Depth	622 mm/24.5 in	
	Height	345 mm/13.6 in	
Weight		48 kg (approx.)	
Consumables	Copy paper	Keep wrapped to protect against humidity.	
	Cartridge	Avoid direct rays of the sun; keep at 40°C/104°F, 85% RH.	

Reproduction ratio	DIRECT	1: 1 (±0.5%)
	REDUCE I	1: 0.500
	REDUCE II	1: 0.707
	ENLARGE I	1: 1.414
	ENLARGE II	1: 2.000
	ZOOM	49% to 204% (1% increments)

Table A-1 Standard Reproduction Ratios

Reproduction ratio		Copy size	Copies/min
DIRECT	1: 1 (±0.5%)	A3 (297 x 420)	10
		A4 (210 x 297)	18
		A5 (148 x 210)	21
		A4R (297 x 210)	14
		A5R (210 x 148)	18
REDUCE	1: 0.500 (+1.0%)	A3 → A5R	20
	1: 0.707 (+1.0%)	A3 → A4R	12
		A4 → A5	12
ENLARGE	1: 2.000 (+1.0%)	A5R → A3	11
	1: 1.414 (+1.0%)	A4R → A3	10
		A5 → A4	19

Table A-2 Copying Speed

B. Cassette Feeding Module-B2/Cassette Feeding Module-A2

Copy paper	As per copier.
Cassette	As per copier.
Power supply	34 VDC, 24V, 5V (from copier)
Dimensions (mm)	Cassette Feeding Module-B2: 585W x 622D x 105H Cassette Feeding Module-A2: 585W x 622D x 210H
Weight	Cassette Feeding Module-B2: 9kg Cassette Feeding Module-A2: 16kg

Table A-3

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