NP6320

SERVICE HANDBOOK

REVISION 0

Canon

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Reading the Troubleshooting Tables

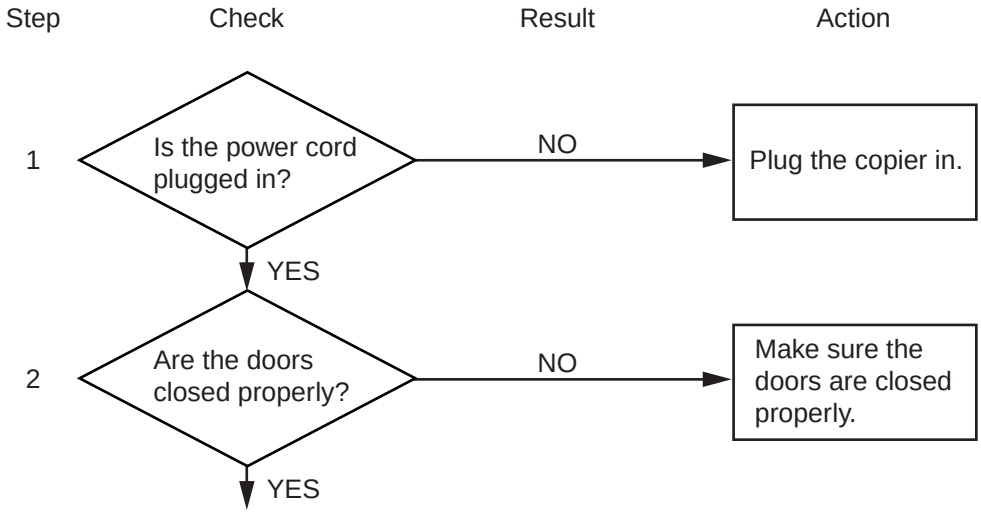
The troubleshooting tables used in this chapter are modifications of the general servicing flowchart. The example below shows how to read the tables.

Example: AC power is not supplied.

Cause	Step	Checks	YES/ NO	Action
Power cord	1	Is the power cord plugged in?	NO	Plug the copier in.
Doors	2	Are the front door and copy delivery door closed properly?	NO	Make sure the doors are closed properly.

- To find possible causes of trouble, refer to the “Cause” column in the table.
  For example, for “AC power is not supplied,” shown above, the possible causes include the following: power cord, power cord, and door switches.

- To find the repair or check procedure for a certain type of problem, go through the table step by step.
  Depending on the answer to the “Check” question, perform the action described in the “Action” column, or continue to the next step.



- Included among the voltage checks to be performed using a meter is “Measure the voltage between J109-1 (+) and J109-2 (-) on the DC controller PCB.” Here, the (+) and (-) signs after the connector number indicate the polarity of the meter leads that are to be connected to the connectors.
  Example: J109- 1(+) Positive lead
  J109- 2(-) Negative lead

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CHAPTER 1 MAINTENANCE AND INSPECTION

A. Periodic Servicing Inspection

Note:
Do not use solvents or oils other than those specified.

Δ: Clean ●: Replace ×: Lubricate □: Adjust ◎: Check

Unit	Description	Periodic servicing				Remarks
		Every 15,000 copies*	Every 30,000 copies	Every 60,000 copies	Every 90,000 copies	
External	Copyboard glass	Δ				Clean with alcohol.
	Ozone filter			●		or 1 year
	Dustproofing filter			●		or 1 year
Scanner drive unit	Scanner rails		×			Clean with alcohol; then apply high-viscosity lubricating oil (TKN-0451).
Feeder	Transfer guide	Δ				Damp cloth
	Feeder belt	Δ				
	Feeder frame	Δ				
Optical path	Scanning lamp reflector		Δ			Clean with a blower brush. If excessively solid, clean with alcohol. Clean mirrors 5 and 6 with the mirror cleaning tool.
	Scanning lamp side reflector		Δ			
	Mirrors 1 to 6		Δ			
	Lens		Δ			
	Dustproofing glass	Δ				
Corona assemblies	Primary corona assembly	Δ				Dry wipe using lint-free paper; then clean using alcohol.
	Primary corona wire	Δ				
	Transfer corona assembly	Δ				
	Transfer corona wire	Δ		●		
	Static charge eliminator	Δ		●		Clean with a brush.
Developing assembly	Developing rollers (front and rear)		Δ			Clean with alcohol.
Fixing assembly	Upper fixing roller	Δ				Clean with cleaning oil.
	Lower fixing roller	Δ				Clean with solvent.
	Paper guide plate	Δ				
	Separation claws (upper and lower)	Δ				
Drum unit	Lower face of drum unit	Δ				
	Coupling pin	Δ				

* Items to be cleaned every 15,000 copies or every 6 months, whichever comes first.

Table 1-1

B. Periodically Replaced Parts

To maintain the copier at its peak performance, the parts listed in the following chart must be replaced periodically. Although the deterioration of a part may not be visible, it can seriously hamper the performance of the copier if not replaced on schedule.

Parts should be replaced during the regular service visit that is closest to the end of the service life of the part.

as of Dec. 1999

No.	Description	Part No.	Quantity	Replacement	Remarks
1	Ozone filter	FF2-5595-00P	1	60,000	or 1 year
2	Dustproofing filter	FA0-0339-00P	1	60,000	or 1 year
3	Static charge eliminator	FF1-9438-070	1	60,000	
4	Transfer corona wire	FY3-0040-000	AR	60,000	

Table 1-2

Note:
The above values are estimates and are subject to change based on future data.

C. Durable Parts

The values shown in the table below indicate the expected average life (number of copies) of parts which may require replacement at least once during the warranty period due to deterioration or damage but which can be simply replaced to restore the performance of the copier.

as of Dec. 1999

No.	Description	Part No.	Quantity	Service life (number of copies)	Remarks
1	Paper pick-up roller (pick-up assembly)	FA0-0241-00P	12	100,000	
2	Multi-feeder roller	FC1-0741-00P	1	100,000	Must be replaced at the same time
3	Pad (multi feeder)	FC1-0736-00P	1	100,000	
4	Scanner drive cable	FF0-0041-00P	1	120,000	
5	Scanning lamp (scanner)	FH7-3114-000	1	100,000	
6	Pre-exposure lamp	FG2-4048-00P	1	200,000	
7	Upper fixing roller (fixing assembly)	FC2-9961-00P	1	200,000	
8	Upper separation claw (fixing assembly)	FB1-0301-000	5	200,000	
9	Lower separation claw (fixing assembly)	FA2-9037-000	5	200,000	
10	Lower fixing roller (fixing assembly)	FC2-8962-00P	1	200,000	
11	Thermistor assembly	FF3-2855-00P	1	100,000	
13	Fixing roller bushing	FS1-1240-00	2	200,000	
14	Developing assembly	FG3-0351-00P	1	300,000	
15	Oil applying roller	FA0-0711-00P	1	60,000	

Table 1-3

Note:
The above values are estimates and are subject to change based on future data.

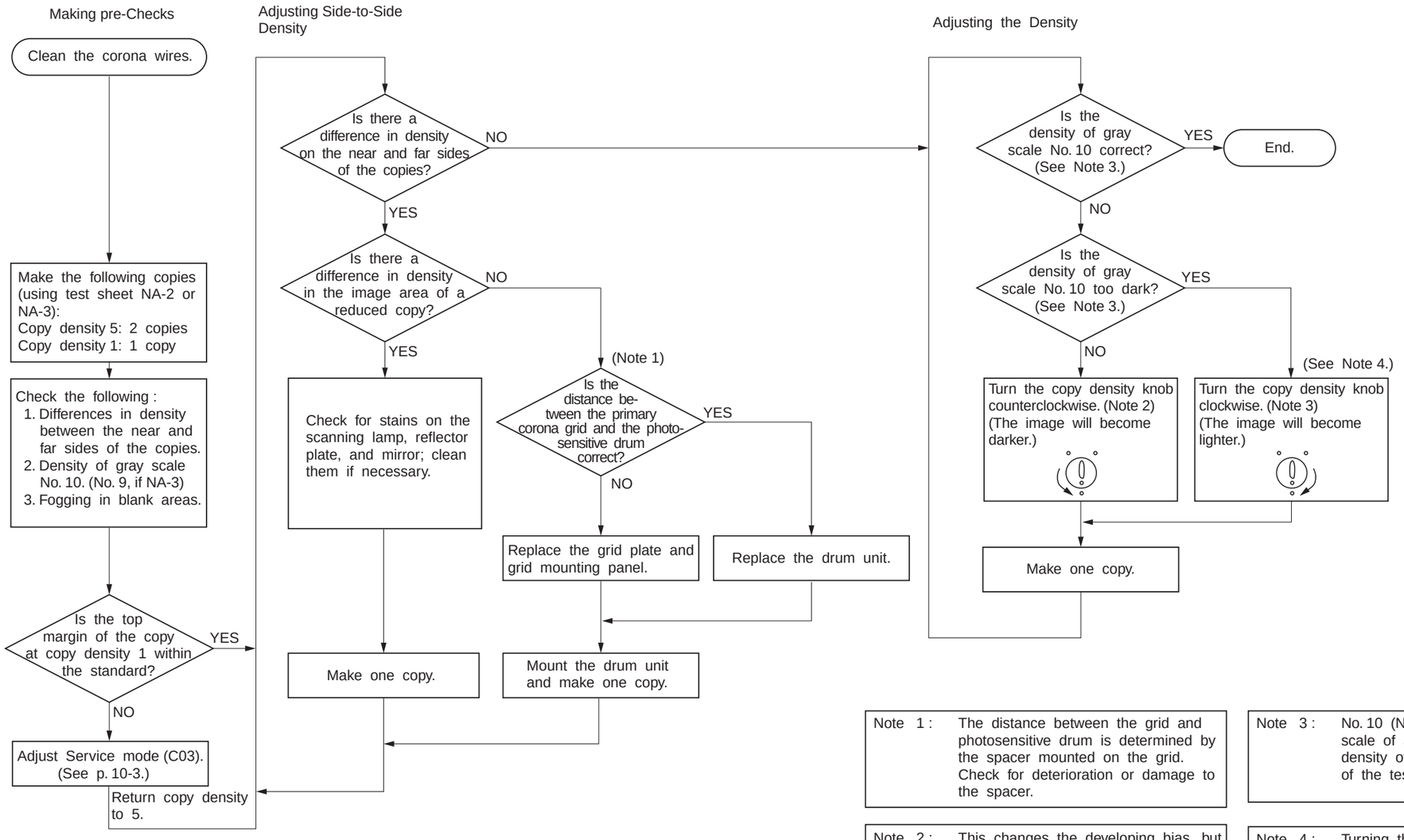
D. Basic Image Adjustment Procedure

Image adjustment should be performed using the following settings:

1. Manual (non AE) exposure
2. Density cursor setting : 5
3. Direct reproduction ratio

Adjust the image by the following procedure when the photosensitive drum has been replaced.

Make this adjustment with the upper front panel and front door installed.



Note 1 : The distance between the grid and photosensitive drum is determined by the spacer mounted on the grid. Check for deterioration or damage to the spacer.

Note 2 : This changes the developing bias, but not the intensity of the scanning lamp.

Note 3 : No. 10 (No. 9, if NA-3) on the gray scale of a copy should have the density of No. 8 on the gray scale of the test sheet.

Note 4 : Turning the copy density knob clockwise too far past the proper position will result in fogging in blank areas.

Figure 1-1

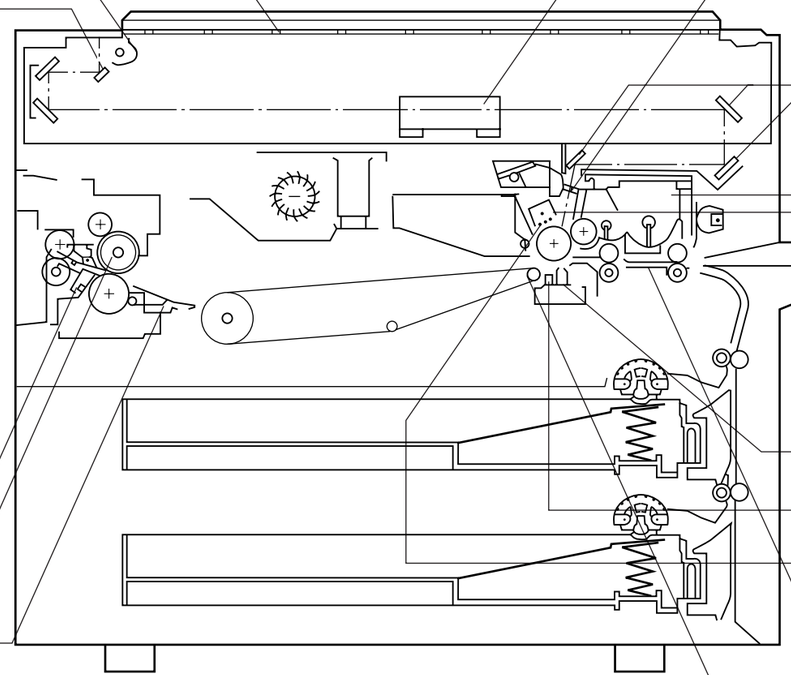
E. Periodic Maintenance Check points

Copyboard/Scanner

Location	Tool/Cleaner	Action/Remarks
Copyboard glass	Alcohol	Cleaning
Reflectors	Blower brush	Cleaning
Mirrors 1, 2 and 3	Blower brush or alcohol and lint-free paper	Clean with a blower brush. If dirt cannot be removed with a blower brush, clean with alcohol.

Optical path

Location	Tool/Cleaner	Action/Remarks
Lens	Blower brush or alcohol and lint-free paper	Clean with a blower brush. If dirt cannot be removed with a blower brush, clean with alcohol.
Dust-proofing glass		
Mirror 4, 5 and 6	Mirror cleaning tool	Cleaning



Corona assemblies

Location	Tool/Cleaner	Action/Remarks
Developing rolls	Alcohol	Cleaning
Primary corona assembly	Alcohol and lint-free paper	Wipe with a dry cloth; then, clean with lint-free paper moistened with alcohol.
Transfer corona assembly		
Static charge ellminator	Blower brush	
Primary corona grid	Blower brush	Cleaning

Fixing assembly and Paper pick-up assembly

Location	Tool/Cleaner	Action/Remarks
Separation claws	MEK	Cleaning
Upper fixing roller, lower fixing roller	Cleaning oil (TKN-0464)	Cleaning
Paper guide plate	MEK	Cleaning

Separation and Transfer assemblies

Location	Tool/Cleaner	Action/Remarks
Transter guide	Damp cloth	Cleaning
Feeder belt, Feeder assembly		

Figure 1-2

CHAPTER 2 STANDARDS AND ADJUSTMENTS

A. Mechanical

1. Leading Edge Non-Reproduced Area

There is a white strip on the bottom of the copyboard glass in the position shown in the figure below. If bias is being applied to the grid of the primary corona while the scanner is passing the white strip, the leading edge of the copy will be reproduced blank. If the leading edge non-image width is outside the standards, adjust the timing at which the grid bias goes from OFF to ON in the service mode (C03).

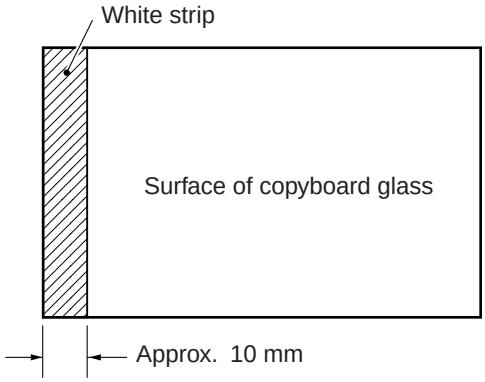


Figure 2-1

The standard leading edge nonreproduced area on a Direct copy of the test sheet is 2.0 ±1.5 mm.

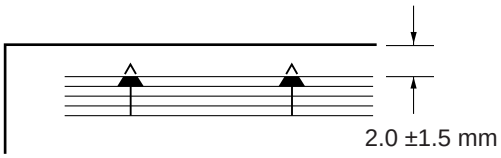


Figure 2-2

A higher setting (C03) increases the leading edge non-image width; in units of 0.25 mm.

2. Leading Edge Registration

Make adjustments in the service mode (C02) so that the distance shown is 10.0 ±1.5 mm when the test sheet is copied in Direct.

Note:
Adjust the leading edge non-reproduced area before making this adjustment.

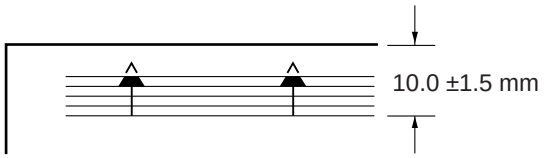


Figure 2-3

A higher setting in the service mode (C02) increases the leading edge margin.

3. Side-to-Side Registration

The standard near side registration on a Direct copy of the test sheet is 10.0 ±2 mm.

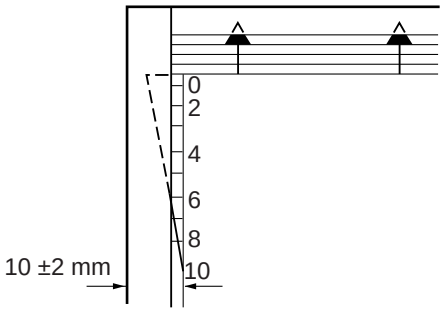


Figure 2-4

Loosen the two screws, and adjust the latch assembly for the cassette found on the back of the bottom plate by sliding it.

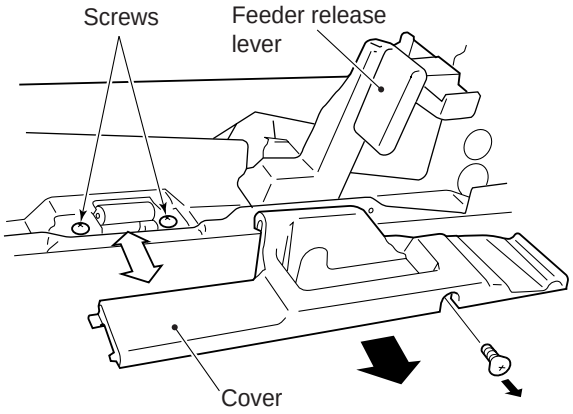


Figure 2-5

4. Installing the Lens Drive Cable

This unit has been accurately adjusted at the factory with special gauges. Do not remove parts other than those shown below, nor loosen any other screws.

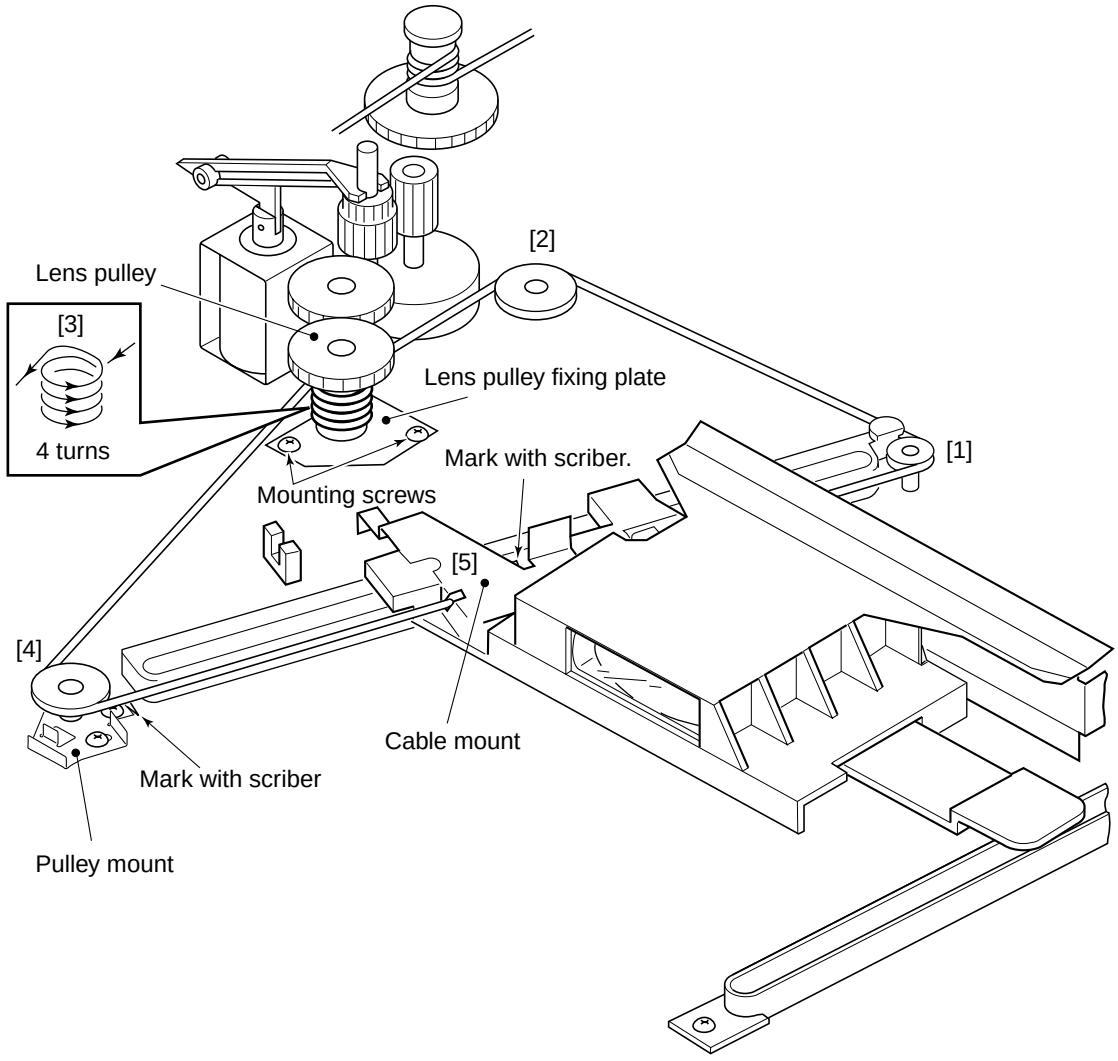


Figure 2-6

a. Removing the Lens Wire

1) Unscrew the three screws; then remove the upper frame.
2) Mark the positions of the pulley fixing base and the wire fixing with a scriber.
3) Unscrew the two screws used to hold the pulley fixing base.
4) Remove the wire.

b. Attaching the Lens Wire

1) Unscrew the two screws used to hold the lens pulley fixing plate, and remove the lens pulley. (See Figure 2-6.)
2) Wind the lens wire around the lens pulley as shown in Figure 2-6, and fix it with the two fixing screws.
3) Shift the pulley fixing base to the position of the scriber mark; then fix it with the two fixing screws.

5. Installing the Scanner Drive Cable

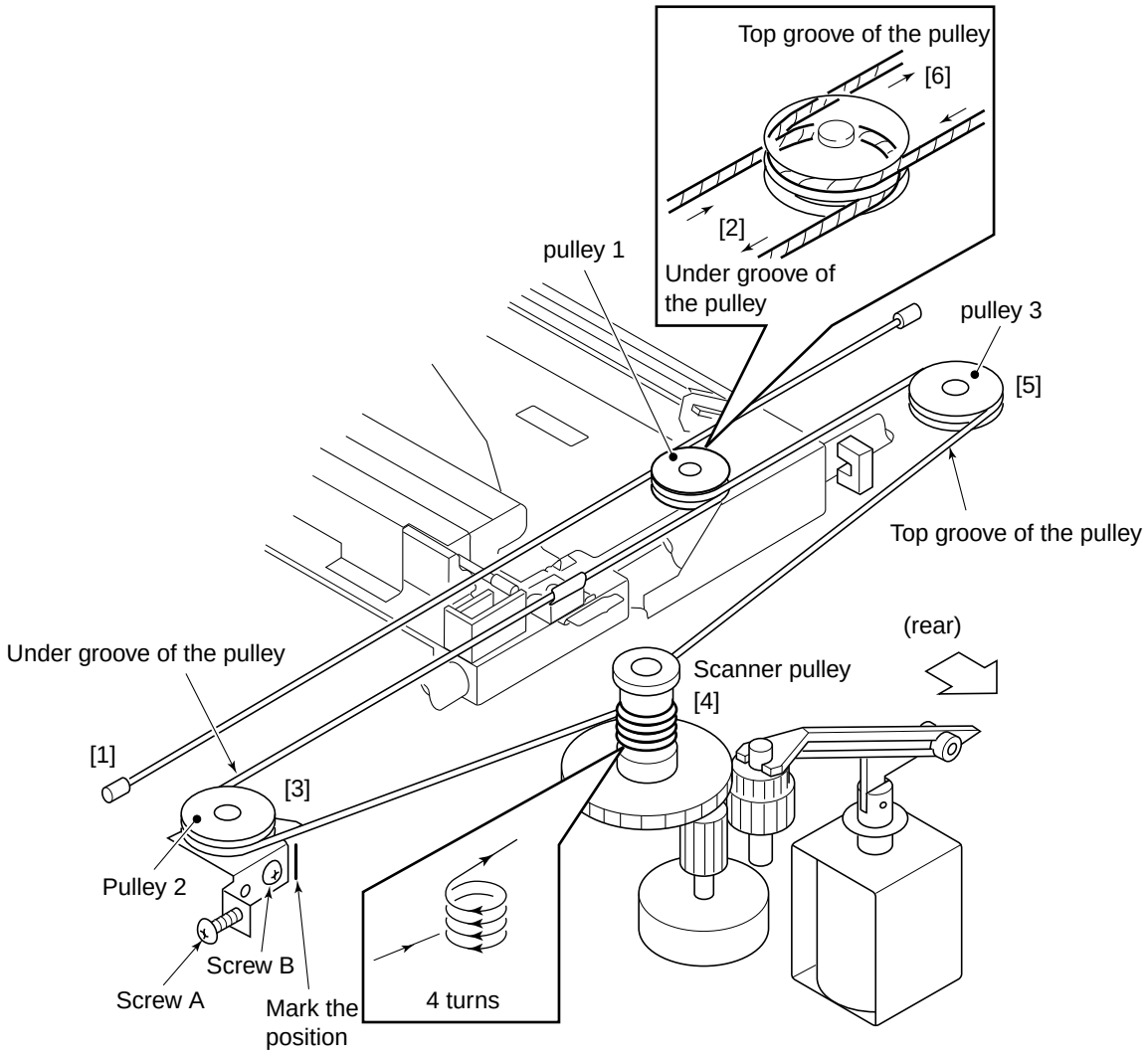


Figure 2-7

6. Adjusting the Tension of the Scanner Drive Cable

Move the mirror 1 mount to the home position (start position). As shown in Figure 2-8, pull at point [A] (approximate center) of the free cable with a spring gauge so that the wires touch each other. If the reading on the spring balance is not about 1.0±0.5 kg, turn screw A of Figure 2-7 to achieve this reading.

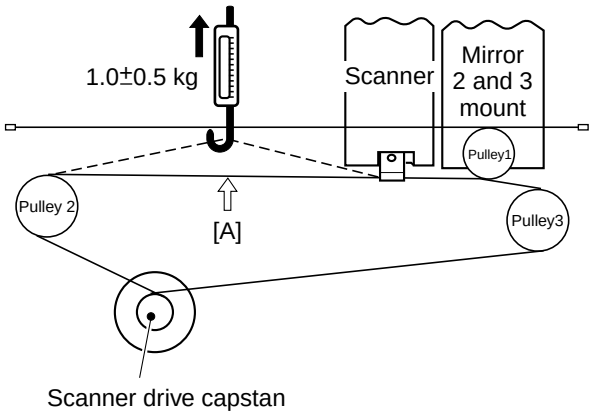


Figure 2-8 Top View

7. Adjusting the Position of the Mirrors (length of optical path between mirrors 1 and 2)

Adjust the tension of the scanner drive cable before making this adjustment. Adjust the position of the scanner (mirror 1) by altering the tension of the scanner drive cable. (Loosen the cap screws.)

Reference:

1. The cable will stretch after a large number of copies have been made, making readjustment necessary.
2. An incorrect distance between mirror 1 and mirror 2 will cause an incorrect side-to-side reproduction ratio and poor focus, resulting in poor sharpness and fuzziness in the copy image.

1) Mark a line 10 mm from each edge of a piece of copy paper (B4), as shown in Figure 2-9.

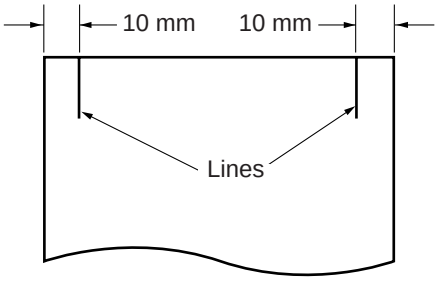


Figure 2-9

2) Make a copy of the paper with the lines marked on it. (A)
3) Place a blank sheet of paper on the copyboard and feed the marked sheet of paper into the copier. (Use manual feed.) (B)
   • Passing the sheet through the copier indicates the amount of shrinkage caused by heat.
4) Align the lines on the left side of the copy sheet (A) and the sheet passed through the copier (B). If the lines on the right are not in line, adjust the position of the scanner so that dimensions x and y are equal.

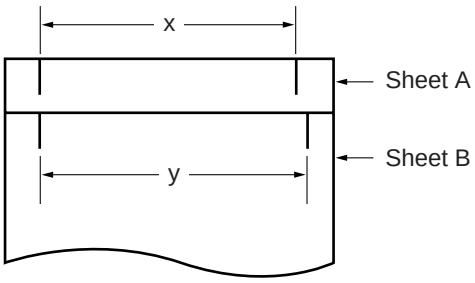


Figure 2-10

x=y Correct
x>y Move the scanner in direction [a] (Figure 2-11).
x<y Move the scanner in direction [b] (Figure 2-11).

Reference:

If the distance between the mirrors is short, the image will be enlarged. If the distance is long, the image will be reduced.

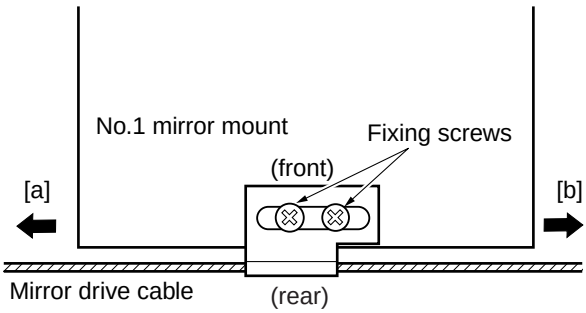


Figure 2-11 Top View

8. Mounting the Main Motor

The drive of the main motor is used to drive the drum and execute pick-up operations by way of timing belts.

Adjust the tension of the belt by selecting the mounting hole of the main motor so that when the center of the timing belt is pushed down with a force of 500 g, the distance between the two runs of the belt is between 20 and 25 mm.

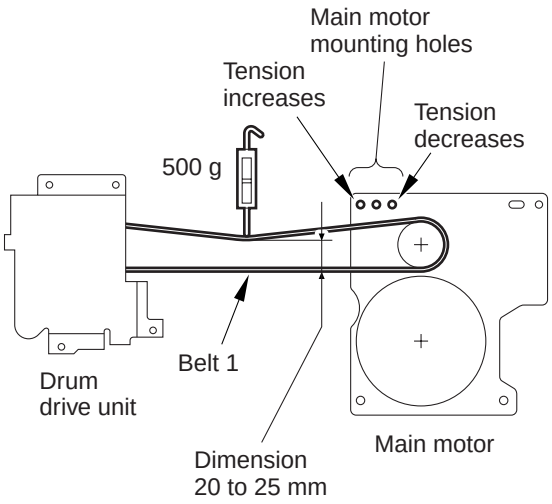


Figure 2-12

To adjust the timing belt used to execute pick-up operations, on the other hand, push the pulley support plate with a force of 2.4 kg, and fix it in place when it stops; see Figure 2-13.

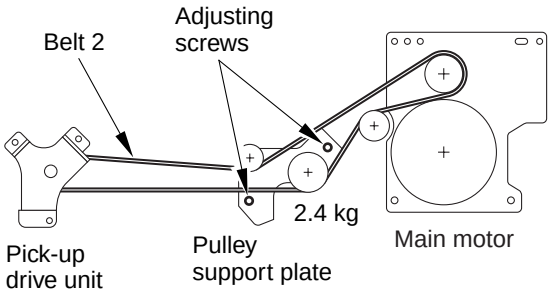


Figure 2-13

9. Installation Position of the Transfer Guide

When installing the transfer guide, ensure that the clearance between the transfer assembly roller and the photosensitive drum is about 1.8 ± 0.2 mm, as shown in Figure 2-14.

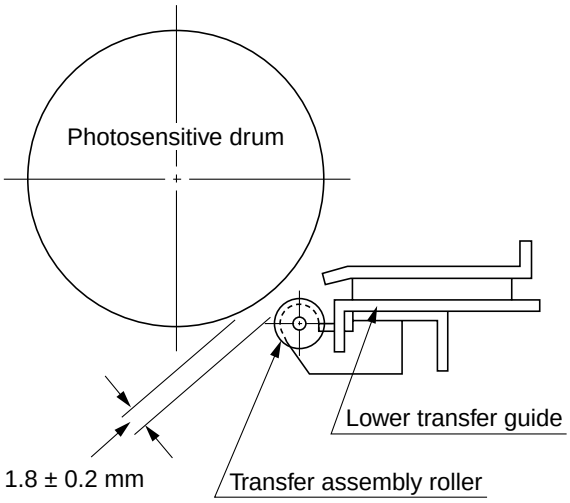


Figure 2-14

10. Installation Position of the Scanner Drive Assembly

Loosen the four screws of the scanner drive assembly; then while pushing the scanner drive assembly against the rear plate (direction of arrow [1]) move it in the direction of the manual feed tray (direction of arrow [2]) so that it touches the pulley base and the lens gear. In this condition, tighten the screws; then, confirm that there is play between the lens gear and the gear of the lens drive capstan.

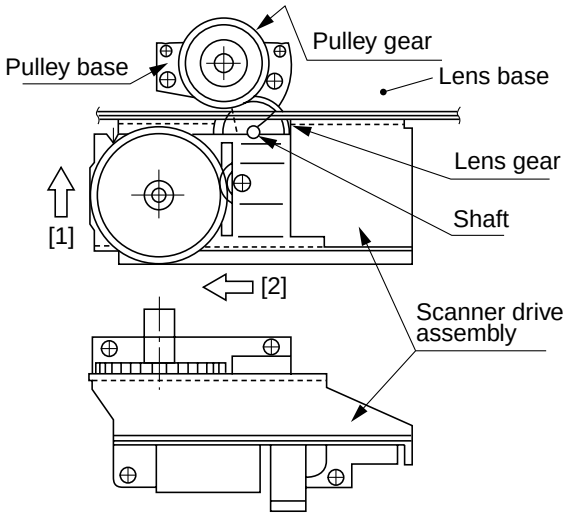


Figure 2-15

11. Installing the Corona Wires in the Primary and Transfer Corona Assemblies

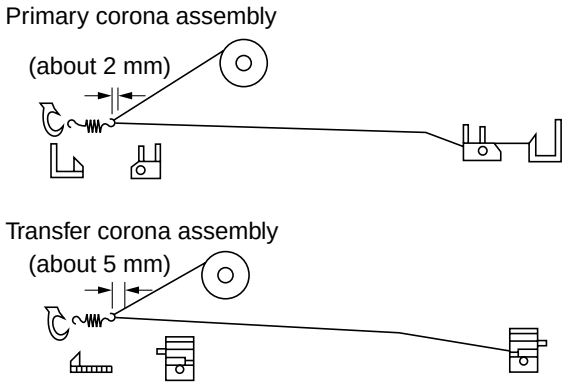


Figure 2-16

- The corona wire must not be bent or twisted, and the gold plating must not be peeling off.
- The corona wire must not be slack. (The length of the corona wire tension spring should be about 12 mm.)
- The corona wire must be in the V groove of the height adjusting piece.

12. Adjusting the Height of the Corona Wires

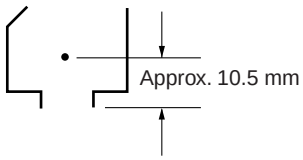
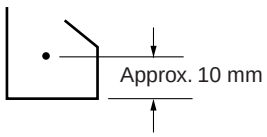
Corona assembly	Standard position	Allowable range
Primary corona assembly		±2 mm
Transfer corona assembly		±2 mm

Figure 2-17

Note:

The height (position) of the corona wire of the primary and transfer corona assemblies can be adjusted by turning the screw at the back of the corona wire. Turning the screw once causes the height of the corona wire to change by about 0.7 mm.

13. Installation Position of Side Seals

1) Clean the surface on which the side magnetic seal will be hooked using alcohol.
2) Fix the side magnetic seal at the position shown in Figure 2-19.

Note:
Put the hook of the magnetic side seal on its side on the plastic marking so that the magnetic side seals is firmly in the correct position.

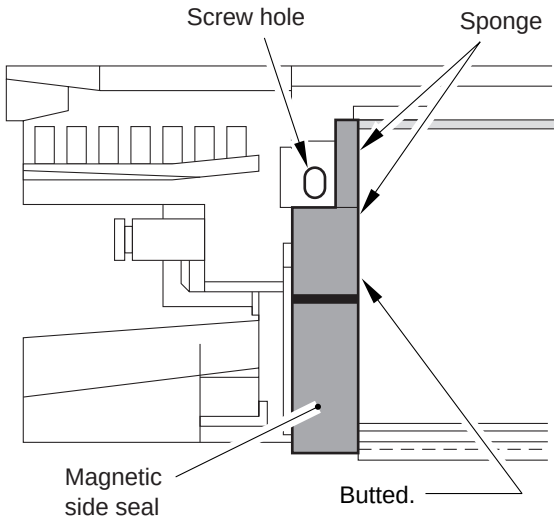


Figure 2-18

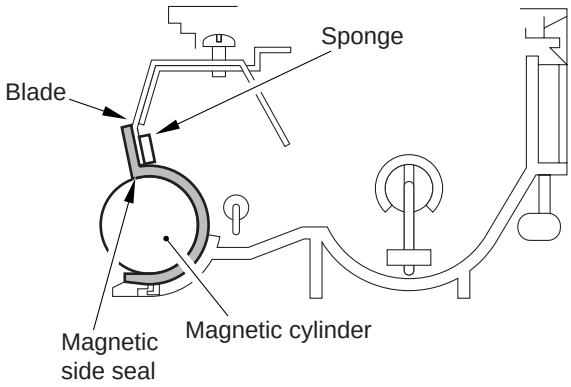


Figure 2-19

14. Adjusting the Fixing Assembly Roller Pressure (adjusting the nip width)

The nip width should conform to the dimension shown in Table 2-1. Adjust the nip width with the bolt when it is out of standard.

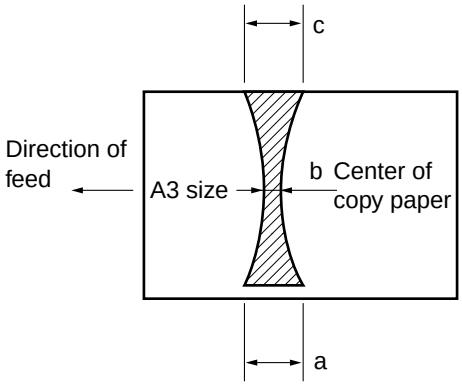


Figure 2-20

Note:
a and c are the dimensions of the 10 mm position at both edges of the copy paper.

Dimension	Measure after the upper and lower rollers have been adequately heated.
b	4.0 ±0.5 mm
|a-c|	0.5 mm or less

Table 2-1

• Measuring the Nip Width
If the rollers are cool, leave the copier ON, keep the Wait indicator ON for 15 minutes; make 20 copies, and then measure the nip width.

Measuring Procedure
1) Open the copyboard cover and make an A3 size solid black copy.
2) Set the solid black copy to the multifeeder.
3) Select the service mode C13.
   3-1) Detach the VR cover from the rear of the left cover.
   3-2) Press the service switch (SW300) on the DC controller PCB.
   3-3) Select the service mode C13 using the 10-key or the zoom key.
4) Press the Sort/Group key.
   • The solid black paper is automatically picked up from the multifeeder.
   • Then the solid black paper is stopped at the fixing roller and, after a specific period, is delivered.
5) Measure the width of the toner portion which has a glossy surface, as shown in Figure 2-20.
6) Press the service switch (SW300) to exit from the service mode.

15. Cassette Spring Strength

If the strength of the springs in the cassette that raise the paper-lifting plate is not correct, improper paper pick-up or other problem will result.

If such a problem occurs, check the spring strength with a compression spring scale.

Press the scale at point A shown in Figure 2-21 to push the plate down 3 mm and read the scale. If the indication is outside the range shown in Table 2-2, replace both springs. (The springs cannot be adjusted.)

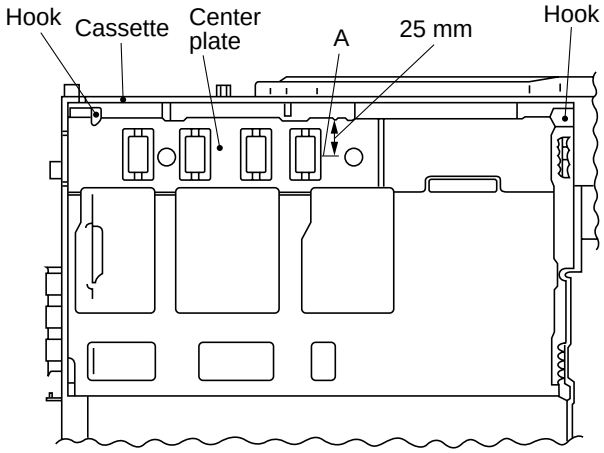


Figure 2-21

Cassette size	Indication on spring scale
A3 and LGR cassette	390 ±30g
A4R and LTR-R cassette	350 ±20g
STMT	330 ±40g

Table 2-2

16. Degree of Arching (multifeeder)

Make the following adjustments if the copy paper picked up from the multifeeder moves askew or wrinkles are noted on the leading edge of the copy paper; the adjustments are made by changing the degree of arching of the copy paper between the multifeeder pick-up roller and the registration roller.

1) Set 50 sheets of A4 paper (80 g/m^2) on the multifeeder tray.
2) Press the Paper Select key on the control panel to select the multifeeder.
3) Press the Copy Start key.
4) Check that the leading edge of the copy paper butts against the registration roller and arches; at the time, turn the copier OFF.
5) Measure the distance between [A] (trailing edge of the second sheet) and [B] (trailing edge of the first sheet).

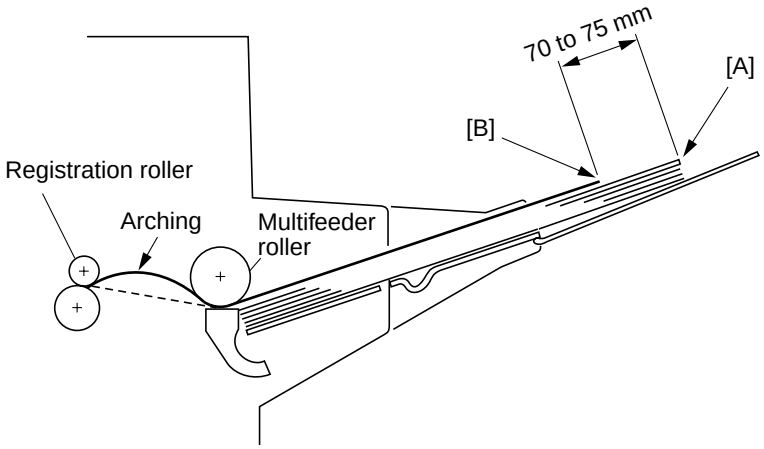


Figure 2-22

6) Turn the copier ON, and select C04 in the service mode.
7) Enter a setting so that the measurement between [A] and [B] (step 5)) is between 70 and 75 mm.

Note:
A higher setting increases the measurement, i.e., the multifeeder clutch OFF timing is delayed (in units of 0.25 mm).

B. Electrical

1. List of PCBs/VRs/LEDs/Check Pins

Variable resistors, LEDs and check pins which are used for adjustments in the field are listed below.

VRs and check pins not listed here are used only for factory adjustments which require special tools and measuring instruments, as well as great care and precision. Do not attempt to adjust such parts.

Notes:

1. Leakage current may flow through some LEDs and cause them to glow dimly even though they are supposed to be OFF.
2. VRs which can be adjusted in the field ..... ⊘
   VRs which should not be adjusted in the field..... ⊘

a. DC Controller PCB

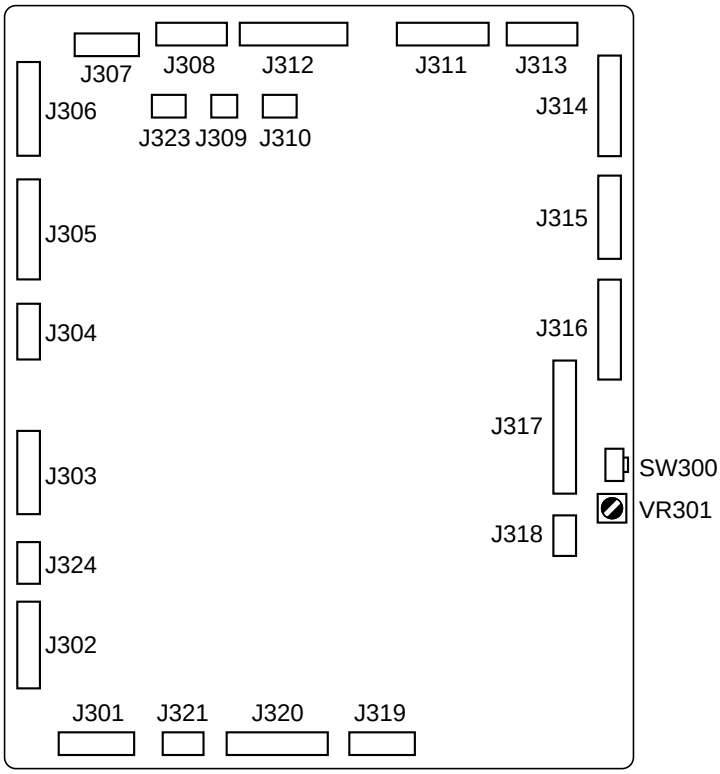


Figure 2-23

VR No	Purpose
VR301	Adjusting AE reference point

Table 2-3

SW No	Purpose
SW300	Press to enter or leave the SERVICE mode.

Table 2-4

b. Lamp driver PCB

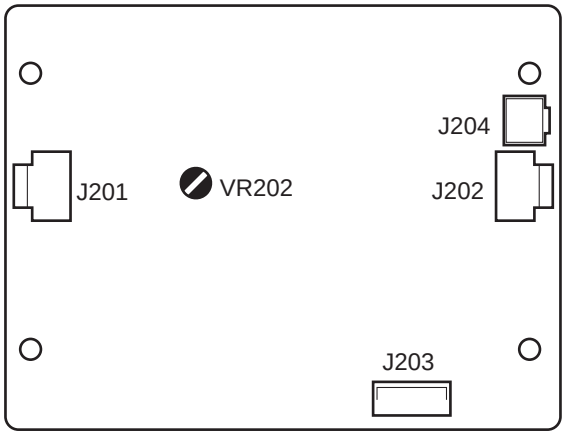


Figure 2-24

VR No	Purpose
VR202	Lamp intensity adjustment

Table 2-5

2. AE Adjustment

Make the following adjustments when the AE sensor or the DC controller PCB has been replaced.

1) Remove the VR cover at the back of the left cover.
2) Set the power switch ON.
   • Wait until the wait period has ended.
3) Place an NB-3 or NA-2, NA-3 test sheet on the copyboard, and lower the copyboard cover.
4) Press switch SW300 on the DC controller PCB.
   • 'C00' will appear on the Copy Count/Ratio indicator on the control panel.
   • If 'C00' does not appear, press the "0" number key on the control panel so that 'C00' appears.
5) Press the Sort/Group key on the control panel.
   • The scanner will move forward to the AE measuring position; then, the scanning lamp will go ON. (Note)
6) Adjust VR301 on the DC controller so that "20" appears on the Copy Count/Ratio indicator.

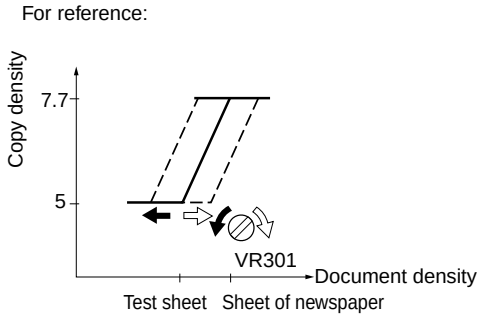


Figure 2-25

7) Press the Sort/Group key.
   • The scanning lamp will go OFF, and the scanner will return to the home position.
8) Remove the test sheet, place a sheet of newspaper on the copyboard, and lower the copyboard cover.
9) Press the Sort/Group key.
   • The copier will perform the same operations as described in step 5).
10) Make a note of the numerical value displayed on the Copy Count/Ratio indicator.
11) Press the Sort/Group key.
   • 'C00' will appear on the Copy Count/Ratio indicator.
12) Press the "1" number key.
   • 'C01' will appear on the Copy Count/Ratio indicator.
13) Enter the value recorded in step 10) using the numeric keypad.

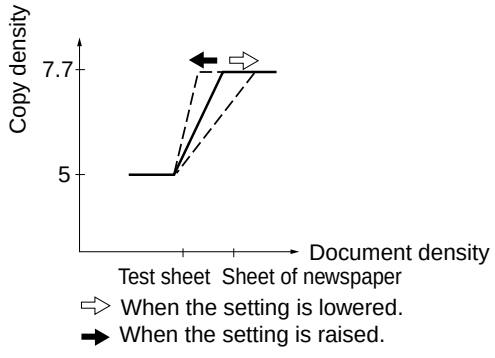


Figure 2-26

3. Fixing Assembly Temperature Adjustment

You will perform this adjustment after replacing the fixing assembly.

1) Open the delivery door and record the 3-digit number described on the label [1].

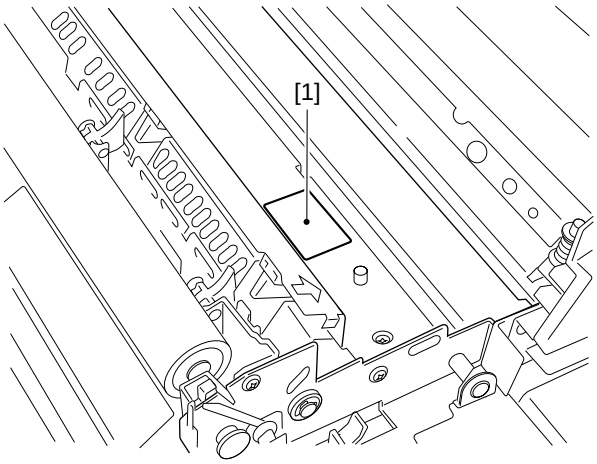


Figure 2-27

2) Detach the VR cover.
3) Press the service SW on the DC controller PCB.
4) Press the keys “1” and then “7”.
5) Press the “Sort/Group” key.
6) Enter the 3-digit recorded in step 1).
7) Press the “Sort/Group” key to store the setting.

If you replace the fixing heater or you have offset fixing or a fixing ability problem, perform the following:

- Offset Fixing

1) Reduce the C17 setting from 5 to 10. Then check the offset. If offset is corrected, record the new setting to the label of the delivery door.

- Fixing Ability Problem

1) Increase the C17 setting from 5 to 10. Then check the fixing ability. If fixing ability is corrected, record the new setting to the label on the delivery door.

4. Adjusting VR 202 on the Lamp Driver PCB

When you replace the scanning lamp or the lamp driver PCB, perform this adjustment.

1) Take some NA-3 copy samples: non-AE, copy density lever in center, the density knob as the previous.
2) Turn the VR so that No. 9 of the gray scale on the copy is the same density as gray scale No. 8 on NA-3.

5. Checking Photointerrupters

No.	Q1	Q2	Q3
Purpose	Multifeeder paper sensor (MFPD)	Pre-registration paper sensor (PDP1)	Scanner home position sensor (SCHP)
(+) lead (–) lead	J312-5 J312-4	J312-2 J312-1	J317-2 J317-1
Check: Operation is normal if the meter needle swings to the right	With the copier in STANDBY, raise and lower the arm manually. • Arm raised: voltage approx. 0.6V • Arm lowered: voltage approx. 0V	With the copier in STANDBY, raise and lower the arm manually. • Arm raised: voltage approx. 5V • Arm lowered: voltage approx. 0V	With the copier in STANDBY, move the scanner by hand. • Scanner in HOME position: voltage approx. 5V • Scanner not in HOME position: voltage approx. 0V

No.	Q4	Q5	Q6
Purpose	Lens home position sensor (LHP)	Delivery paper sensor (PDP2*)	Cassette 1 paper sensor (UCPD)
(+) lead (–) lead	J317-5 J317-4	J313-3 J313-4	J306-6 J306-5
Check: Operation is normal if the meter needle swings to the right	With the copier in STANDBY: insert a sheet of copy paper into the Q4 section. • With paper in Q4: voltage approx. 5V • With no paper in the Q4: voltage approx. 0V	Remove the delivery cover with the copier in STANDBY, raise and lower the arm manually. • Arm raised: voltage approx. 0V • Arm lowered: voltage approx. 0.6V	Remove the upper cassette with the copier in STANDBY, move the arm up and down manually. • Arm raised: voltage approx. 0.6V • Arm lowered: voltage approx. 0V

No.	Q7
Purpose	Cassette 2 paper sensor (LCPD)
(+) lead (–) lead	J306-9 J306-8
Check: Operation is normal if the meter needle swings to the right	Remove the lower cassette with the copier in STANDBY, move the arm up and down manually. • Arm raised: voltage approx. 0.6V • Arm lowered: voltage approx. 0V

CHAPTER 3 FUNCTION AND ARRANGEMENT OF THE ELECTRICAL PARTS

A. Sensors, Fuses and Lamps

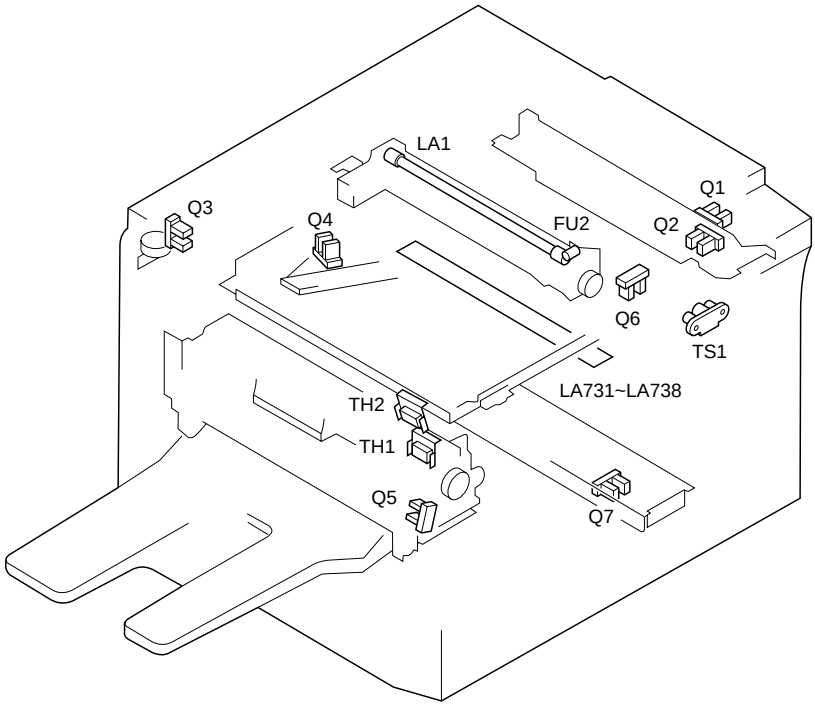
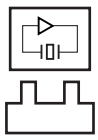
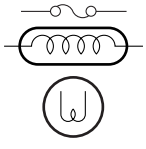


Figure 3-1

Symbol	Name	Code	Function
	Black toner level sensor	TS1	Senses the toner in the development assembly
	Photointerrupter	Q1	Multifeeder paper sensor
		Q2	Pre-registrarion paper sensor
		Q3	Scanner home position sensor
		Q4	Lens home position sensor
		Q5	Delivery paper sensor
		Q6	Cassette 1 paper sensor
		Q7	Cassette 2 paper sensor
	Thermistor	TH1	Upper fixing roller temperature sensor (main)
		TH2	Upper fixing roller temperature sensor (auxiliary)
	Thermal fuse	FU2	Scanning lamp protection
	Lamp	LA1	Scanning lamp
		LA731	Pre-exposure lamp
		|	|
		LA738	Pre-exposure lamp

B. Clutches, Solenoids, Fans, Motors and Heaters

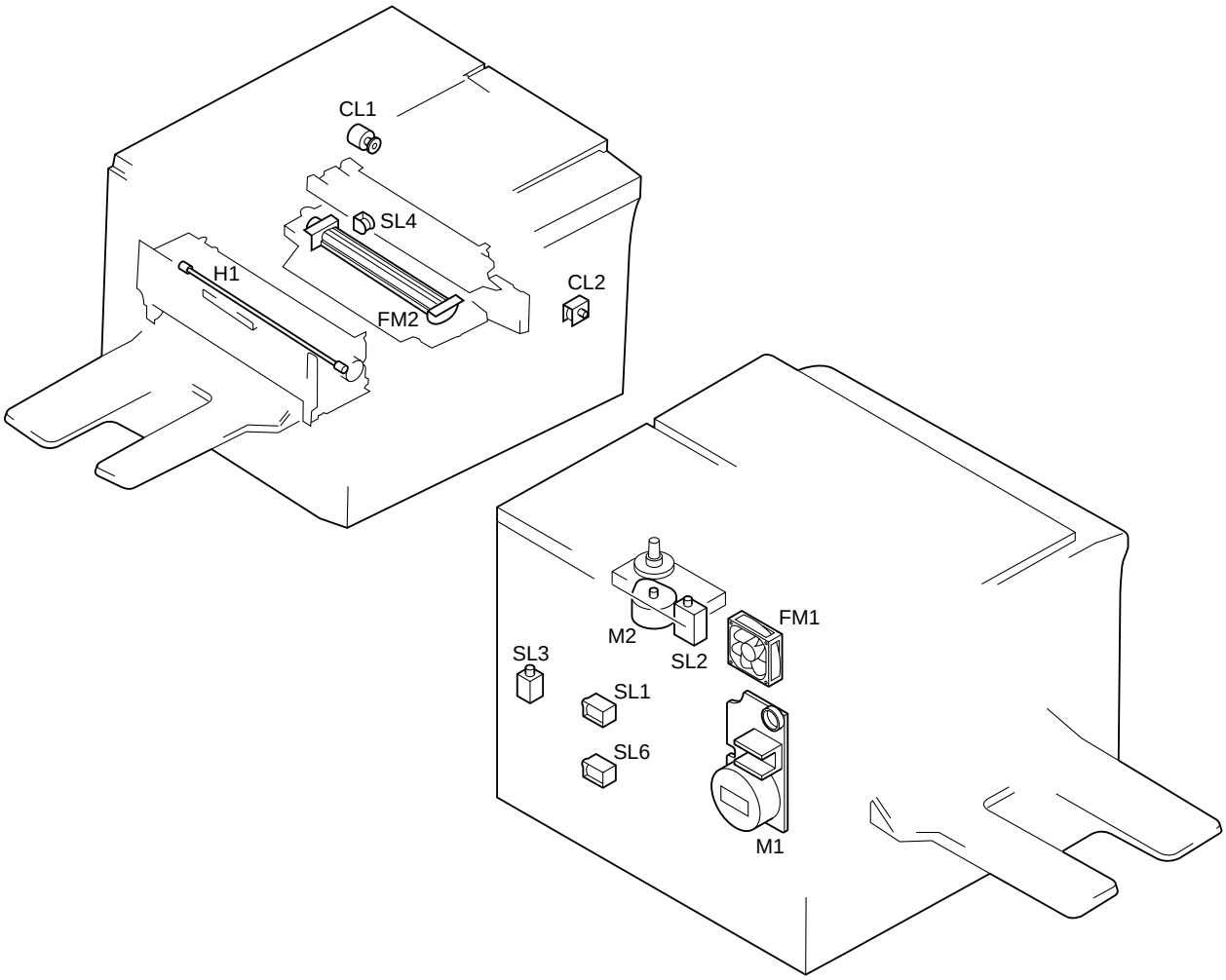


Figure 3-2

Symbol	Name	Code	Function
CL	Clutch	CL1	Registration roller clutch
		CL2	Multifeeder clutch
SL	Solenoid	SL1	Cassette 1 pick-up roller clutch solenoid
		SL2	Lens drive solenoid
		SL3	Multifeeder solenoid
		SL4	Blank solenoid
		SL6	Cassette 2 pick-up roller clutch solenoid
M	Motor	M1	Main motor
		M2	Scanner motor
	Fan unit	FM1	Scanner cooling fan
		FM2	Exhaust fan
	Heater	H1	Fixing roller heater

C. Switches, Circuit Breakers, Counters, Etc.

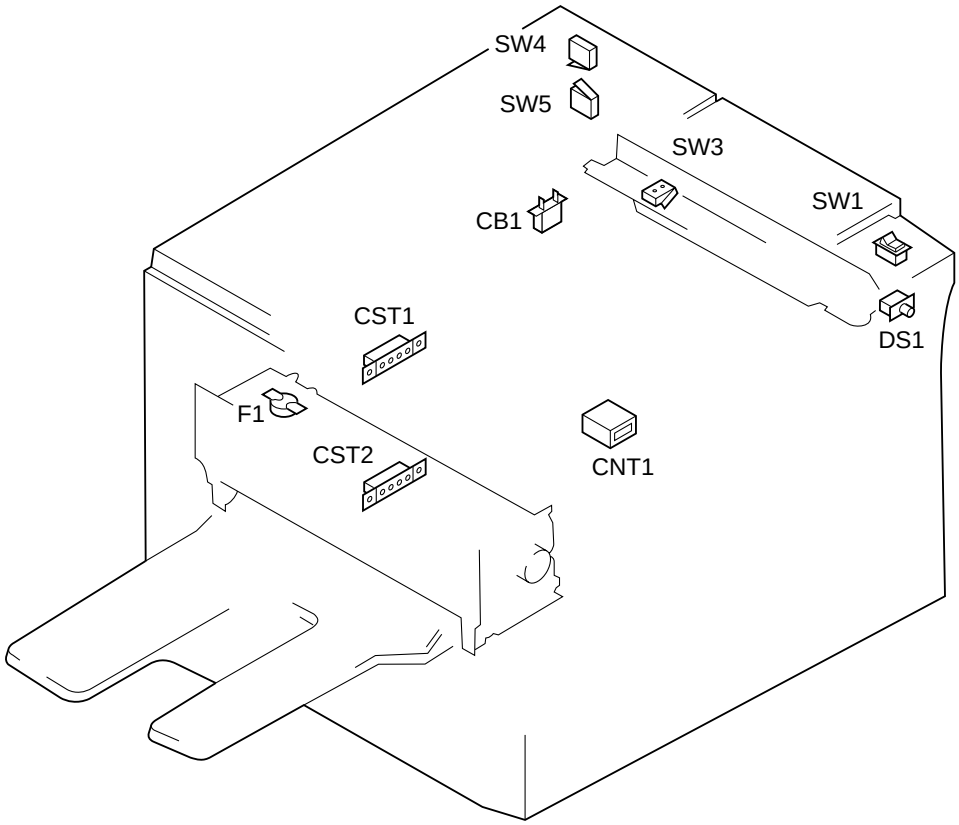


Figure 3-3

Symbol	Name	Code	Function
	Switch	SW1	Power switch
	Microswitch	DS1	Front door switch
		SW3	Right door switch
		SW4	Copyboard cover switch 1
		SW5	Copyboard cover switch 2
		CST1	Cassette 1 size sensor
		CST2	Cassette 2 size sensor
	Thermoswitch	TS1	Fixing assembly protection
CB	Circuit breaker	CB1	AC power line protection
CNT	Counter	CNT1	Total counter

D. PCBs

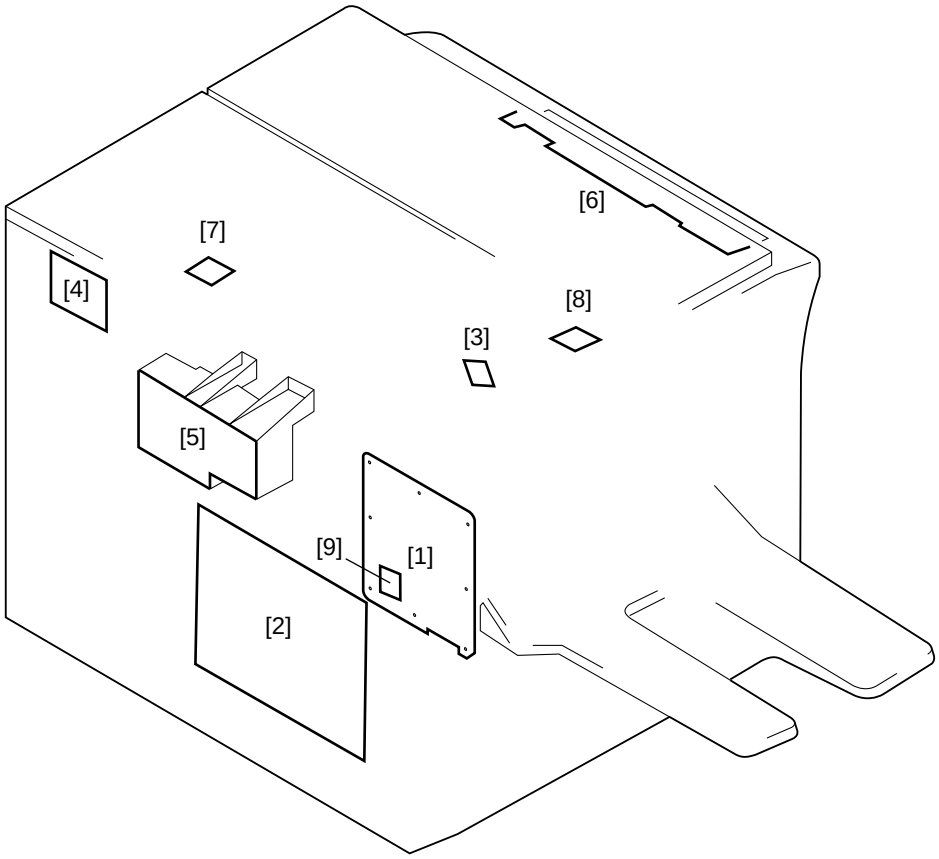


Figure 3-4

Symbol	Name	Function
[1]	DC controller PCB	Controlling operations
[2]	Power supply PCB	Powering the fixing roller heater and supplying DC power to the copier/options
[3]	AE sensor PCB	Measuring the document density
[4]	Lamp driver PCB	Controlling scanning lamp voltage
[5]	High-voltage transformer PCB	Supplying high voltage for primary and transfer assemblies and developing bias
[6]	Control panel PCB	Controls the control panel
[7]	Document identification PCB 0	Document identification
[8]	Document identification PCB 1	Document identification
[9]	Differential PCB	Detects the fixing error

Note

The differential PCB is soldered on the DC controller PCB.

CHAPTER 4 IMAGE TROUBLESHOOTING

A. Initial Check

1. Checking the Installation Environment

a. The line voltage should be within 10% of the voltage on the rating plate.
b. The copier should not be installed in a hot or humid location (such as near a water faucet or humidifier), a cold area, near an open flame, or in a dusty location.
c. Do not install the copier in a location where ammonia gas is generated. (diazo copiers, etc.)
d. Do not install the copier in direct sunlight. If such a location is unavoidable, install curtains or other means to block out sunlight.
e. Install the copier in a well-ventilated location.
f. Install the copier where it can be set level.

2. Check the Original

Determine if the trouble is due to the original or a malfunction of the copier.

a. The copy density lever should normally be set to 4.5 ± 1.5.
b. Check if the original has a background color, such as yellow, which causes poor contrast.
c. Check the density of the original.

Examples:

Originals which are diazo copies or transparent originals ... Copies are likely to be mistakenly judged as being foggy.
Pencil originals ... Copies are likely to be mistakenly judged as having a light image.

3. Check the Copyboard Cover or the Copyboard Glass

If the cover or glass is dirty, clean it with a mild detergent or with alcohol. If there is damage, replace the damaged part.

4. Check Corona Assemblies

a. Check for dirt on the corona assemblies or abnormalities (such as scratches) on the corona wires.
b. Clean the corona wires and shield plates of each corona assembly. (Replace the wires if the dirt cannot be removed.)
c. Ensure that each corona assembly is installed correctly.
d. Make sure that the corona wire tension springs are not rusted.

5. Check the Transfer Feed Guides

If the transfer guides or feed guides are dirty, clean them with a damp cloth.

6. Check the Fixing Assembly

7. Check the Static Charge Eliminator

8. Check the Copy Paper

a. Is copy paper recommended by Canon being used?
b. Has the copy paper absorbed moisture? Open a new package of copy paper and make copies; then, compare the copies.

9. Others

When a copier is brought in to a warm room from a warehouse or other cold area in winter, particularly when it is being installed, condensation may form inside the copier and cause various problems.

Examples of problems:

a. The copy image may become light due to condensation in the scanner (lens, mirrors, etc.).
b. The drum may be cold (the electrical resistance of the OPC will be high), causing the contrast to be low.
c. Current leakage from the coronas may occur.
d. Paper may jam or fail to be fed satisfactorily due to condensation on the pick-up and delivery guide plates.
e. The friction of the lower manual feed paper pick-up roller may be reduced, resulting in unsatisfactory paper pick-up.

If condensation occurs in the copier, switch the copier ON and leave it to stand for 10 to 20 minutes.

If a cartridge in its original sealed wrapping is taken from a cold place to a warm place and then immediately unwrapped, condensation may form on it, resulting in image problems. To prevent this, instruct the customer to leave the cartridge sealed in the room for a sufficient period to allow it to reach the temperature of the room (between one and two hours) before unwrapping it.

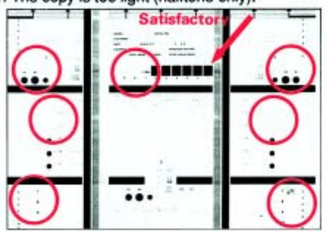
Note:

When defects such as uneven density (differences in the density on the near and far sides of the copy), lightness or fogging occurs, first make the adjustments outlined in “Basic image Adjustment Procedures.”

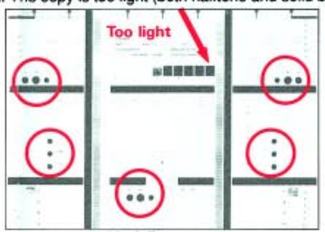
B. Image Fault Samples

Note: The samples are created intentionally. The NA-3 Test Sheet was copied in the direct mode in A3 and printed with a reduction of about 19%; actual images may be somewhat different.

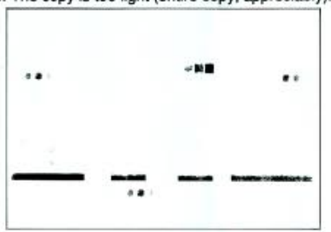
1. The copy is too light (halftone only).



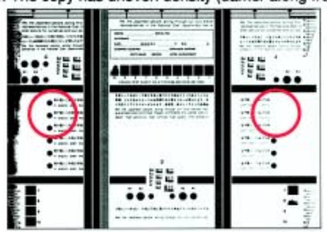
2. The copy is too light (both halftone and solid black).



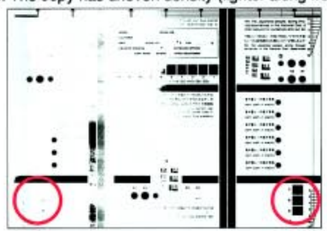
3. The copy is too light (entire copy, appreciably).



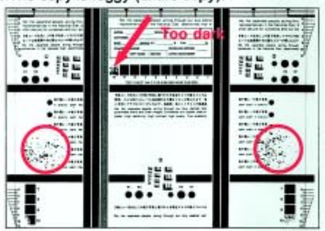
4. The copy has uneven density (darker along front).



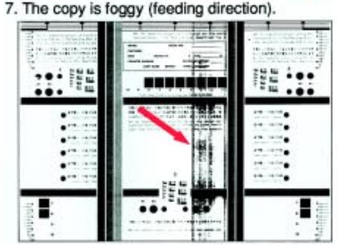
5. The copy has uneven density (lighter along front).



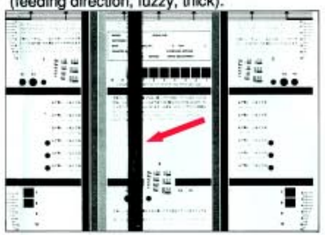
6. The copy is foggy (entire copy).



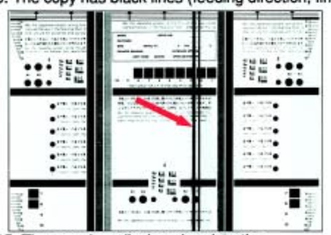
7. The copy is foggy (feeding direction).



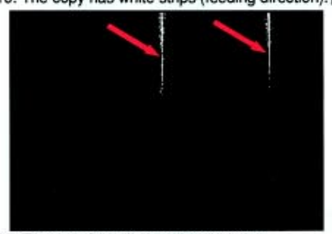
8. The copy has black lines (feeding direction, fuzzy, thick).



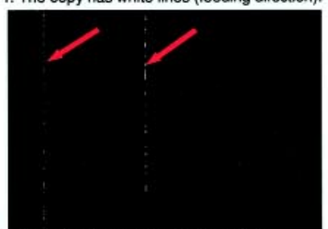
9. The copy has black lines (feeding direction, fine).



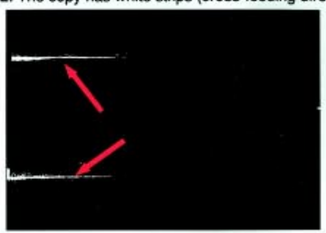
10. The copy has white strips (feeding direction).†



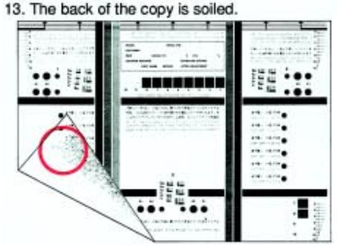
11. The copy has white lines (feeding direction).*



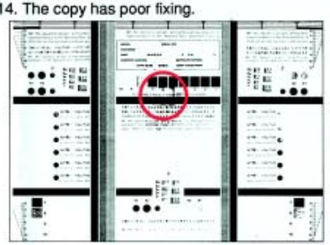
12. The copy has white strips (cross-feeding direction).



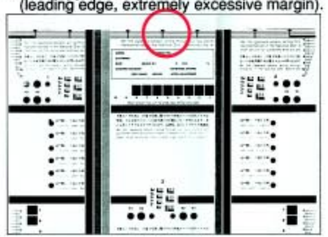
13. The back of the copy is soiled.



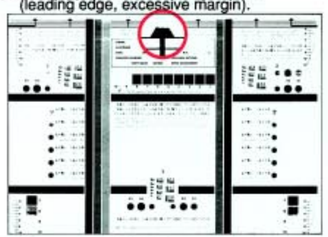
14. The copy has poor fixing.



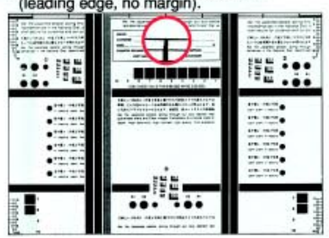
15. The copy has displaced registration (leading edge, extremely excessive margin).



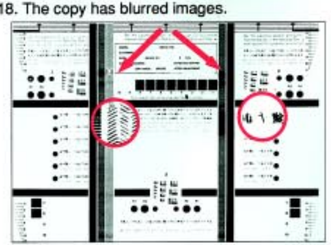
16. The copy has displaced registration (leading edge, excessive margin).



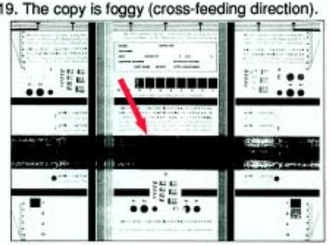
17. The copy has displaced registration (leading edge, no margin).



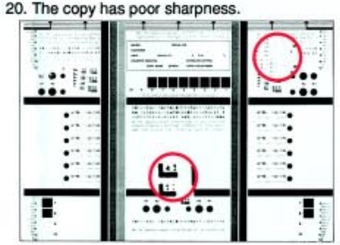
18. The copy has blurred images.



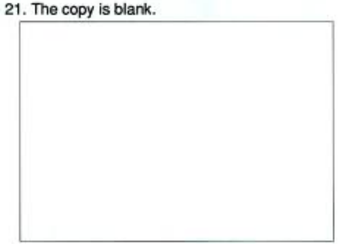
19. The copy is foggy (cross-feeding direction).



20. The copy has poor sharpness.



21. The copy is blank.



22. The copy is solid black.



* Copies made with the copyboard lifted; faults may also appear on normally made copies.

† Strips may vary in width.

C. Troubleshooting of Image Faults

1. Light image (halftone areas only)

Cause	Step	Checks	YES/ NO	Action
	1	Does the image quality improve after the Basic Adjustment Procedure is followed?	YES	End.
AE adjustment	2	Is the image lighter when a copy is made using AE?	YES	Perform AE adjustment.
Black developing assembly	3	Is the image lighter when a copy is made using a black developing assembly?	YES	Check that J39-1 and J39-4 of the black developing assembly are connected by a jumper wire. If they are not, connect them.
Lens, Dustproofing glass	4	Is the image quality improved after the lens, dust proofing glass, and mirror are cleaned?	YES	End.
Photosensitive drum			NO	Replace the drum unit.

2. Light image (even in dark areas)

3. Light image (very light overall)

Cause		Step	Checks	YES/NO	Action
		1	Does the image quality improve after the Basic Adjustment Procedure is followed?	YES	End.
		2	Switch the copier OFF during copying and open the front door. Does the toner image on the surface of the photosensitive drum (prior to transfer) appear normal?	NO	Perform step 6 and subsequent steps.
Faulty transfer	Transfer corona assembly	3	Are the corona and grid wires of the transfer corona assembly installed correctly, and is the corona wire height normal?	NO	1. Install the corona wires correctly. 2. Adjust the height of the corona wires. 3. Clean the corona wire. 4. Install the corona assembly securely.
	Copy paper	4	Does the image become darker when fresh copy paper is used?	YES	1. The paper may have absorbed moisture, so instruct the user about the correct method of storing paper. 2. Explain to the user that if paper not recommended by Canon is being used, the image quality may not be as expected.
	• Lower transfer assembly guide plate • Varistor	5	Is the resistance between the metal part of the lower transfer guide and the feeder 0Ω?	YES	1. Check if the lower transfer assembly guide plate is touching the spring of the feeder. 2. Replace the varistor.
	• High-voltage transformer • DC controler PCB			NO	Check the high-voltage transformer and the DC controller PCB.
Developing defect	Developing unit pressure applying mechanism	6	Is the developing roller of the developing assembly pressing against the photosensitive drum?	NO	Check the pressure applying mechanism of the developing assembly.
	Amount of toner in developing assembly	7	Is the surface of the developing cylinder coated uniformly with toner?	NO	If the problem is in the black developing assembly, see sub-section "Add Toner indicator does not go ON."
	Developing bias			YES	Check if the developing bias is being supplied to the developing cylinder.

4. Uneven density (front side dark)

5. Uneven density (front side light)

Cause	Step	Checks	YES/ NO	Action
Primary corona wire height	1	Does the image quality improve after the basic adjustment procedure is followed?	YES	End.
Developing assembly	2	Is the spacer roller of the developing assembly pressing against the photosensitive drum?	NO	Check the pressure applying mechanism of the developing assembly.
Dirt on the scanner	3	Does the image improve after the scanning lamp, reflectors, side reflectors, lens and dust-proofing glass are cleaned?	YES	End.
Pre-exposure lamp unit	4	Do the pre-exposure lamps go ON during copying?	NO	1. Replace the pre-exposure lamp unit. 2. Replace the DC controller PCB.
Developing assembly	5	Is the surface of the developing cylinder coated uniformly with toner?	NO	1. Clean the edge of the blade of the developing assembly. 2. If the problem is in the black developing assembly, wipe the surface of the developing cylinder with a dry cloth.
Corona assembly and copy paper			YES	1. Clean all the corona wires once more; then, recheck the position of each corona wire. 2. Try changing the copy paper.

6. Fogging (overall)

Cause	Step	Checks	YES/NO	Action
	1	Does the image quality improve after the basic adjustment procedure is followed?	YES	End.
Dirt on the scanner	2	Does the image improve after the scanning lamp, reflectors, mirrors, lens and dust-proofing glass are cleaned?	YES	End.
Pre-exposure lamps	3	Do the pre-exposure lamps go ON during copying?	NO	1.Replace the pre-exposure lamp unit. 2.Replace the DC controller PCB.
DC controller PCB	4	Set the meter to the 30VDC range and measure the voltage between J307-6 (+) and J307-7 (–) of the DC controller PCB. Is the voltage 10V or less during copying and approx. 20V at other times?	NO	Replace the DC controller PCB.
High-voltage transfomer	5	Is the voltage between J307-5 (+) and J307-7 (–) of the DC controller PCB approx. 0.6V during copying and approx. 14V at other times?	YES	1.Replace the high-voltage transformer. 2.Replace the drum unit.
DC controller PCB			NO	Replace the DC controller PCB.

7. Fogging in paper feed direction

8. Dark lines (broad lines in paper feed direction)

Cause	Step	Checks	YES/NO	Action
Primary corona assembly	1	Does the image quality improve after the primary corona wires, grid wires, and corona frame are cleaned?	YES	End.
Scanner	2	Does the image quality improve after the scanning lamp, reflectors, lens mirrors, and dust-proofing glass are cleaned?	YES	End.
Pre-exposure lamps	3	Are the pre-exposure lamps brighter after they are cleaned?	YES	End.
Feed roller			NO	Clean the feed roller below the developing unit.

9. Dark lines (thin lines in paper feed direction)

Cause	Step	Checks	YES/ NO	Action
	1	Press the Copy Start key and switch the copier OFF to stop the paper on the feeder. Are there black lines on the copy image before the paper passes through the fixing assembly?	NO	Check from step 3.
Photosensitive drum	2	Are there any scratches or black lines around the circumference of the photosensitive drum? (In the case of black lines on the drum surface, do the black lines on copies disappear when the lines are gently wiped off the drum surface with a piece of flannel?)	YES	Replace the drum unit. (If there are scratches, find out what is causing them before replacing the drum unit.)
Developing system, Exposure system			NO	Check the developing system and exposure system.
Fixing assembly	3	Are there any scratches or black lines around the circumference of the upper fixing roller?	YES	1. Replace the upper fixing roller. 2. Check and clean the separation claws and fixing blade.
			NO	Check for dirt at the inlet of the fixing assembly.

10. White strips (in paper feed direction)

11. Narrow white lines (in paper feed direction)

Cause	Step	Checks	YES/NO	Action
Fixing assembly	1	Press the Copy Start key with the copyboard cover open; then, switch the copier OFF to stop the copy paper on the feeder. Are there any white strips or narrow white lines on the copy image before the paper passes through the fixing assembly?	NO	1. Clean the upper and lower inlet guides of the fixing assembly. 2. Check the upper fixing roller. 3. Check and clean the separation claws.
Primary corona assembly	2	Does the image improve after the corona wires, grid plate and frame of the primary corona assembly are cleaned?	YES	Wipe the corona wires with dry lint-free paper; then, clean them with alcohol. If the dirt will not come off, replace the corona wires.
Developing assembly	3	Is the surface of the developing cylinder coated uniformly with toner?	NO	If the trouble is in the black developing assembly, check the edge of the blade. If there is no toner in the developing assembly, see the subsection "Add Toner indicator does not go ON."
Copy paper	4	Does the image improve when fresh copy paper is used?	YES	The paper may be absorbing moisture, so instruct the user about the correct method of storing paper.
Photosensitive drum	5	Are there any scratches around the circumference of the photosensitive drum?	YES	Replace the drum unit. (Find out the cause of the scratches on the drum.)
Light from outside			NO	Check if outside light is striking the photosensitive drum.
Transfer corona assembly	6	Does the image improve after the corona wires and frame of the transfer corona assembly are cleaned?	YES	End.
Static charge eliminator			NO	Clean the static charge eliminator.

12. White strips (in cross feed direction)

Cause	Step	Checks	YES/ NO	Action
Developing assembly	1	Do the white strips occur at intervals of approx. 63mm? (scratches on developing cylinder)	YES	1. Clean the developing cylinder spacer rollers. 2. Clean the surface of the developing cylinder. 3. If there are scratches on the surface of the developing cylinder, replace the cylinder.
Photosensitive drum	2	Do the white strips occur at intervals of approx. 94mm? (scratches on the photosensitive drum)	YES	1. Clean the drum. 2. If the drum is scratched, replace it.
Copy paper	3	Does the image become darker when fresh copy paper is used?	YES	The paper may be absorbing moisture, so instruct the use about the correct method of storing paper.
Scanner rail, Scanner cable	4	Do the white strips occur on the same part of each copy?	YES	1. Check the scanner rail for foreign matter adhering to it. 2. Adjust the tension of the scanner drive cable.
Dirt on the corona wires			NO	Clean each corona assembly (wires and frame).

13. Toner marks on back of copy paper

Cause	Step	Checks	YES/NO	Action
	1	Press the Copy Start key, and switch the copier OFF while the copy paper is on the feeder. Are there any toner marks on the back of the copy paper?	NO	Check from step 3.
Developing assembly	2	Do the toner marks occur at intervals of approx. 50mm?	YES	1. Clean the registration rollers and transfer assembly guide. 2. Check if toner is leaking from the developing assembly.
Fixing assembly	3	Are the upper and lower fixing rollers dirty?	YES	1. Clean the upper and lower fixing rollers. 2. Check if the oiling roller is soiled with toner. If the dirt is excessive, replace it.
			NO	Clean the copy delivery rollers, separation claws, and fixing assembly paper guide.

14. Faulty fixing

Cause	Step	Checks	YES/NO	Action
Upper and lower developing rollers	1	Is faulty fixing occurring in the feed direction of the paper?	YES	Check for scratches on the upper and lower fixing rollers.
Fixing roller heater (H1)	2	Does the fixing roller heater (H1) go ON immediately after the copier is switched ON?	NO	Refer to the sub-section "Fixing roller heater does not operate."
Lower fixing roller pressure	3	Is the nip width within the standard?	NO	Adjust the lower fixing roller pressure.
Copy paper			YES	Check if the recommended paper is being used. If the results are satisfactory when the recommended paper is used, instruct the user to use it.

15.

16. Faulty leading edge registration

17.

Cause	Step	Checks	YES/ NO	Action
Original	1	Is the original set correctly?	NO	Set the original correctly.
Copier paper	2	Is copy paper recommended by Canon being used?	NO	Check if the recommended paper is being used. If the results are satisfactory, recommend that the customer use it.
Pick-up roller	3	Is the pick-up roller soiled by paper dust, etc.?	YES	1. Clean the pick-up roller. 2. Check the total number of sheets picked up by the pick-up roller. If it has reached 90,000, replace the pick-up roller.
Registration adjustment	4	Does the copy improve when registration is adjusted? (leading edge blank area)	YES	End.
Registration rollers; Registration roller clutch	5	Set the meter to the 30VDC range and measure the voltage between J308-3 (+) and J308-4 (–) of the DC controller PCB. Is the voltage 24V or less during copying and approx. 0V at other times?	YES	1. Check the registration rollers for deformation and wear. 2. Check the wiring from the DC controller PCB to the registration roller clutch. If it is normal, replace the registration roller clutch.
DC controller PCB			NO	Replace the DC controller PCB.

18. Blurred image

Cause	Step	Checks	YES/ NO	Action
Scanner drive cable	1	Does the cable overlap as it winds around the drive capstan while the scanner is moving? Is the tension of the cable alternately too slack and too tight?	YES	1. Re-tension the cable. 2. Replace the drive cable if it is twisted or frayed.
Scanner system rail	2	Does the scanner move smoothly when it is pushed gently by hand?	NO	Clean the scanner rails with alcohol; then, apply a small quantity of low-viscosity lubricating oil.
Scanner drive system	3	Is the gear of the scanner drive system missing?	YES	Replace the gear.
Photosensitive drum	4	Does the blurring occur at intervals of approx. 95mm?	YES	1. Check the drum drive gear. 2. Check the ends of the drum (where the spacer rollers contact it) for scratches or projections.
Developing gear	5	Does the blurring occur at intervals of approx. 63mm?	YES	Check the developing assembly.
Drum drive system			NO	Check the drum drive unit.

19. Broad dark lines in cross feed direction

Cause	Step	Checks	YES/ NO	Action
	1	Are the dark lines always in the same position when Direct copies are made?	YES	Check from step 4.
Scanning lamp Lamp regulator	2	Does the scanning lamp flicker when the scanner is moving forward?	YES	Check the scanning lamp and lamp regulator.
Black developing unit	3	Is there any difference in the broad dark lines on a black copy compared with on a color copy?	YES	Check the toner coating on the developing cylinder of the developing assembly in which the problem occurs.
Scanner blurring	4	Does the position of the dark lines change on a Reduce copy as compared with a Direct copy?	YES	Check the scanner.
Paper feeder blurring			NO	Check the paper feeder.

20. Unsharp (unforcussed) image

Cause	Step	Checks	YES/ NO	Action
Original	1	Is the original lying flat on the glass?	NO	1. Check if the copyboard cover is wrapped. 2. Explain to the user how to place the original on the copyboard.
Copyboard glass	2	Is any oil or other substance adhering to the copyboard glass?	YES	Clean the copyboard glass.
Lens drive assembly	3	Set the power switch OFF and then ON again. Does the lens move smoothly?	NO	Check the lens drive unit.
Mirror position	4	Is the horizontal reproduction ratio within the standard for a Direct copy?	NO	Adjust the distance between the No.1 mirror mount and the mirror 2 mount.
Dirt on the scanner			YES	Clean the scanning lamp, reflectors, mirrors, lens, and dust-proofing glass.

21. Blank image

Cause	Step	Checks	YES/ NO	Action
Drum unit	1	Is the drum unit inserted?	NO	Insert the drum unit.
Developing assembly	2	Is the developing assembly inserted?	NO	Insert the developing assembly.
Drum drive unit	3	Does the photosensitive drum rotate during copying?	NO	1. Check if the photosensitive drum rotates smoothly. 2. Check the drum drive unit.
DC controller PCB	4	Set the meter to the 30VDC range and measure the voltage between J307-1 (+) (GRDON) and J307-7 (–) of the DC controller PCB. Is the voltage approx. 15V when the scanner is advancing and 0V at other times?	NO	Replace the DC controller PCB.
High-voltage transformer (HVT)			YES	Replace the high-voltage transformer (HVT).

22. Black image

Cause	Step	Checks	YES/ NO	Action
	1	Does the scanning lamp go ON during copying?	NO	Check according to "Scanning lamp does not go ON."

CHAPTER 5 OPERATION TROUBLESHOOTING

A. Troubleshooting of Malfunction

1. "E000" indication

Cause	Step	Checks	YES/ NO	Action
	1	Clear 'E000'. Open the front cover and the delivery cover, insert the door switch actuator into the door switch unit, and put paper into the delivery sensor unit. Does the fixing heater go ON as soon as the power is turned ON? (Check by the naked eye.)	NO	See "The fixing heater fails to operate."
Thermistor (TH1)	2	Turn the power OFF, open the delivery cover, and cool the fixing heater. Set the meter to the 12 VDC range, and connect its probes to J318-4 (+; MAIN-TH) and -3 (–) on the DC controller PCB. Close the delivery cover, and turn the power ON; does the voltage lower from 5V gradually?	NO	Check the wiring between the thermistors and the DC controller PCB; if normal, replace the thermistors.
Thermistors (position)	3	Are the thermistors evenly in contact with the upper fixing roller?	NO	Re-mount the thermistors.
Thermistors (dirt)	4	Clean the contact face of the thermistors. Is the probelm corrected?	YES	End.
Thermistors	5	Replace the thermistors. Is the problem corrected?	YES	End.
DC controller PCB			NO	Replace the DC controller PCB.

2. "E001" indication

Cause	Step	Checks	YES/ NO	Action
	1	Cancel the E001 indication. Does the fixing roller heater (H1) go ON immediately after power is switched ON?	NO	Refer to the sub-section "Fixing roller heater does not operate."
Thermistors (TH1/TH2)	2	Does the problem disappear when the thermistors (TH1/TH2) are replaced?	YES	End.
DC controller PCB DC Power supply PCB			NO	Replace the power supply PCB or the DC controller PCB.

3. "E010" indication

Cause	Step	Checks	YES/ NO	Action
Wiring	1	Is the wiring between the main motor and the DC controller PCB correct?	NO	Correct the wiring.
Motor driving mechanism	2	Is the mechanism (the gear and the timing belt) driven by the main motor normal?	NO	Correct the mechanism.
Main motor	3	Replace the main motor. Is the error cleared?	YES	End.
			NO	Replace the DC controller PCB.

4. "E030" indication

Cause	Step	Checks	YES/ NO	Action
	1	Does the total counter operate normally?	NO	Refer to the sub-section "Counter does not operate."
DC controller PCB			YES	Replace the DC controller PCB.

5. "E202" indication

Cause	Step	Checks	YES/ NO	Action
	1	Set the power switch OFF, remove the copyboard glass, and move the scanner fully to the right manually. Switch the power ON. Does the scanner reverse?	NO	Refer to the sub-section "Scanner does not move."
	2	Set the power switch OFF and move the scanner fully to the left manually. Switch the power ON. Does the scanner advance very slightly after the lens moves?	NO	Refer to the sub-section "Scanner does not move."
Scanner home position sensor (Q3)	3	Is the scanner home position sensor (Q3) normal? (See p. 10-19.)	NO	Check the wiring from the DC controller PCB to Q3. If it is normal, replace the scanner home position sensor (Q3).
DC controller PCB			YES	Replace the DC controller PCB.

6. “E210” indication

Cause	Step	Checks	YES/ NO	Action
	1	Switch the power ON. Does the lens move to the left?	YES	Check from step 2.
			NO	Refer to the sub-section "Lens does not move."
Lens home position sensor (Q4)	2	Is the lens home position sensor (Q4) functioning normally? (See p. 10-19.)	NO	Check the wiring between the DC controller PCB and Q4. If it is normal, replace Q4.
DC controller PCB			YES	Replace the DC controller PCB.

7. “E220” indication

Cause	Step	Checks	YES/ NO	Action
Scanning lamp (LA1)	1	Check if the scanning lamp (LA1) does not light when copying.	YES	Refer to the sub-section "Scanning lamp does not light."
DC controller PCB	2	Check if the scanning lamp (LA1) lights when copier is in standby.	YES	Replace the DC controller PCB.
Lamp regulator PCB			NO	Replace the lamp regulator PCB.

8. “E240” indication

Cause	Step	Checks	YES/ NO	Action
DC controller PCB	1	Does the problem disappear when the DC controller PCB is replaced?	YES	End.

9. “E261” indication

Cause	Step	Checks	YES/ NO	Action
Power supply PCB	1	Does the problem disappear when the power suply PCB is replaced?	YES	End.
DC controller PCB			NO	Replace the DC controller PCB.

10. "E400" indication

Cause	Step	Checks	YES/ NO	Action
	1	Does the problem disappear when the power is switched OFF and then ON again?	YES	End. (Check the wiring between the DC controller and the ADF controller.)
Circuit breaker (CB2)	2	Does the problem disappear when circuit beaker CB2 on the ADF controller PCB is pressed?	YES	End. (Be sure to determine why CB2 went OFF.)
	3	Set the meter to the 12VDC range, then connect the (+) lead to J10-3 and the (–) lead to J10-2 of the ADF controller PCB. Is the voltage approx. 5V?	YES	Check from step 6.
3-terminal (5V) power supply	4	Set the meter to the 30VDC range, then connect the (+) lead to J9-1 and the (–) lead to J9-2 of the ADF controller PCB. Is the voltage approx. 24V?	YES	Check the continuity through the circuit breaker (CB2). If it is normal, replace the 3-terminal (5V) power supply.
Power supply PCB	5	Set the meter to the 30VDC range, then connect the (+) lead to J112-1 and the (–) lead to J112-4. Is the voltage approx. 24V?	NO	Replace the power supply PCB.
Wiring			YES	Check the wiring from the AC driver/DC power supply to the ADF controller.
DC controller PCB	6	Does the problem disappear when the DC controller PCB or ADF controller PCB is replaced?	YES	End.
ADF controller PCB			NO	Replace the cable between the DC controller PCB and the ADF controller PCB.

11. "E500" indication

Cause	Step	Checks	YES/ NO	Action
Wiring	1	Does the problem disappear when the power is switched OFF and then ON again?	YES	End. (Check the wiring between the DC controller PCB and the sorter controller PCB.)
Circuit breaker (CB1)	2	Does the problem disappear when circuit breaker CB1 on the sorter controller PCB is reset?	YES	End. (Be sure to determined the reason why CB1 tripped.)
Power supply PCB	3	Set the meter to the 30VDC range, then connect the (+) lead to J2-1 and the (–) lead to J2-3 of the sorter PCB. Is the voltage approx. 24V?	NO	Replace the power supply PCB.
Communications cable	4	Set the meter to the x10kΩ range. Is there continuity between the sorter controller PCB and the DC controller PCB?	YES	Check if the cable between the sorter controller PCB and the DC controller PCB is connected correctly. If it is normal, replace the sorter controller PCB.
			NO	Replace the communications cable.
DC controller PCB, Sorter controller PCB	5	Does the problem disappear when the DC controller PCB or the sorter controller PCB is replaced?	YES	End.

12. "E802" indication

Cause	Step	Checks	YES/ NO	Action
Wiring	1	Is the wiring between J313-6 and -7 on the DC controller PCB and the power switch normal?	NO	Correct the wiring.
Power switch (SW1)	2	Check the power switch operation by hand. Is it smooth?	NO	Replace the switch.
DC controller PCB			YES	Replace the DC controller PCB.

Note

You can check the automatic shut-off operation by service mode C20.

13. AC power is not supplied

Cause	Step	Checks	YES/ ON	Action
Power plug	1	Is the power cord plugged into the outlet?	NO	Plug it in.
Door switch	2	Are the front door and the copy delivery cover closed completely?	NO	Close the door or the cover.
Line power	3	Is line voltage being supplied to the power outlet?	NO	Explain to the user that the problem is not in the copier.
	4	Is line voltage present between J101-1 and J101-2?	YES	Check from step 6.
Circuit breaker (CB1)	5	Check the continuity between the terminals of the circuit breaker (CB1). Is the resistance 0Ω?	NO	Press the button on the circuit breaker; then check continuity again. If the resistance is still not 0Ω, replace the circuit breaker (CB1).
Power cord			YES	Check the power cord.
Door switch (DS1)	6	Check the continuity between the terminals of the door switch (DS1). Is the resistance 0Ω when the actuator is pressed, and ∞ when the actuator is released?	NO	Replace the door switch (DS1).
Power switch (SW1)	7	Check the continuity between the terminals 1 and 2 of the power switch (SW1). Is the resistance 0Ω when the switch is "ON" and infinite when "OFF"?	NO	Replace the power switch (SW1).
Wiring			YES	Check the AC power line wiring and connectors.

14. DC power is not supplied

<table>
<tr><th>Cause</th><th>Step</th><th>Checks</th><th>YES/ NO</th><th>Action</th></tr>
<tr><td>Overcurrent protection circuit</td><td>1</td><td>Does the problem disappear when the copier is switched OFF and then ON again?</td><td>YES</td><td>End. (Be sure to find out why the protection circuit operated.)</td></tr>
<tr><td>AC power supply</td><td>2</td><td>Is AC line voltage present between terminals J101-1 and J101-2?</td><td>NO</td><td>See sub-section "AC power is not supplied."</td></tr>
<tr><td>Power supply PCB</td><td rowspan="2">3</td><td rowspan="2">Are the following output voltages present at the various connectors on the AC driver/ DC power supply PCB shown below?
<table><tr><td>Range to which meter is set</td><td>Position to which (+) lead is connected</td><td>Position to which (–) lead is connected</td><td>Meter indication</td></tr><tr><td>50VDC</td><td>J110-1/2</td><td>J110-6</td><td>24V</td></tr><tr><td>10VDC</td><td>J110-5</td><td>J110-6</td><td>5V</td></tr></table></td><td>NO</td><td>Replace the AC driver/ DC power supply PCB.</td></tr>
<tr><td>DC controller PCB</td><td>YES</td><td>Replace the DC controller PCB.</td></tr>
</table>

15. Drum does not rotate

Cause	Step	Checks	YES/ NO	Action
Drum unit	1	Does the drum rotate when it is properly installed?	NO	End.
Torque limiter	2	Is copy paper or other foreign matter jammed between the drum and the cleaning unit?	YES	Remove the foreign matter.
Drive belt	3	Is the drive belt installed correctly?	NO	Install the belt correctly.
Drum drive unit			YES	Remove and check the drum drive unit. Repair or replace the unit.

16. Paper is not picked up from cassette

Cause	Step	Checks	YES/ NO	Action
	1	Does the indicator remain ON?	YES	Refer to the sub-section "Indicator does not go OFF."
Drive belt	2	Is the drive belt installed correctly?	NO	Install the belt correctly.
	3	Is the leading edge of the copy paper reaching the registration rollers?	YES	Refer to the sub-section "Registration rollers do not rotate."
Pick-up rollers	4	Open the right door and press the lever of the right door switch (SW3) by hand. Do the paper pick-up rollers rotate when the Copy Start key is pressed? (visual check)	YES	Check or replace the pick-up rollers.
Spring clutch	5	Does the pick-up clutch solenoid (SL1/ SL6) operate when the Copy Start key is pressed?	YES	Check the position of the solenoid. If it is normal, check the spring clutch and control ring. Replace any necessary parts.
Pick-up clutch solenoid (SL1/ SL6)	6	Switch the copier OFF and disconnect connector J308 on the DC controller PCB. Set the meter to the 1kΩ range, measure the resistance between the the following connectors (attached to solenoid wiring). Is resistance approx. 165Ω.	NO	Check the wiring from the pick-up clutch solenoid (SL1/SL6) to the DC controller PCB. If it is normal, replace SL1 or SL6.
DC controller PCB			YES	Replace the DC controller PCB.

SL 1	J308-5 and J308-6
SL 6	J308-1 and J308-2

17. Paper is not picked up from multifeeder

Cause	Step	Checks	YES/ NO	Action
Sensor arm	1	Is the arm of the pre-registration paper sensor (Q2) broken? Does it move smoothly?	NO	Replace the sensor arm.
Pre-registration paper sensor (Q2)	2	Is the pre-registration paper sensor (Q2) functioning normally?	NO	Replace the pre-registration paper sensor (Q2).
Multifeeder Clutch (CL2)	3	Disconnect J312 on the DC controller PCB. Set the meter to the 1kΩ range. Connect the leads to J312-9 and J312-10 of part of J312 connected to the wiring. Is the resistance approx. 155Ω?	NO	Check the wiring from J312 to CI2. If it is normal, replace multifeeder clutch (CL2).
	4	Is the leading edge of the copy paper reaching the registration rollers?	YES	Refer to the sub-section "Registration rollers do not turn."
Gears	5	Are all drive gears from the main motor (M1) to the pre-registration rollers normal?	NO	Re-install or replace the gears.
DC controller PCB			YES	Replace the DC controller PCB.

18. Registration rollers do not rotate

Cause	Step	Checks	YES/ NO	Action
Belts and gears	1	Are the belts and gears from the main motor (M1) to the registration roller clutch (CL1) normal?	NO	Re-install or replace any belts or gears.
Registration roller clutch (CL1)	2	Disconnect J308 on the DC controller PCB. Set the meter to the 1kΩ range. Connect the leads to J308-3 and J308-4 of part of J308 connected to the wiring. Is the registance approx. 120Ω?	NO	Check the wiring from J308 to CL1. If it is normal, replace the registration roller clutch (CL1).
DC controller PCB	3	Connect J308 to the DC controller PCB. Set the meter to the 30VDC range. Connect the (+) lead to J308-3 and the (–) lead to J308-4. Press the Copy Start key. Does the voltage change from 0V to about 24V?	NO	Replace the DC controller PCB.
			YES	Do the registration rollers or drive gears interfere with other parts? Remove parts as necessary.

19. Scanner does not move

Cause	Step	Checks	YES/ NO	Action
Drive cable	1	Is the scanner drive cable installed correctly?	NO	Install the cable correctly.
Foreign object in the path of the scanner	2	Switch the copier OFF, hold the back of the scanner and move it back and forth. Does it move smoothly?	NO	Check for dirt or foreign matter on the scanner rails or some object that is touching the scanner. If necessary, clean, lubricate, or repair.
Gears	3	Is the scanner Pulley engaged with the interruption gear? (See Figure 5-1.)	NO	Check if the spring that lifts the interruption gear, the interruption gear, or the scanner pulley is damaged. Adjust or replace any parts as necessary.
Power supply PCB	4	Set the meter to the 50VDC range. Connect the (+) lead to J110-1 and the (–) lead to J110-6 of the power supply PCB. Is the voltage approx. 24V?	NO	See "DC power is not supplied."
Scanner motor (M2)	5	Does the problem disappear when the scanner motor (M2) is replaced?	YES	End.
DC controller PCB			NO	Replace the DC controller PCB.

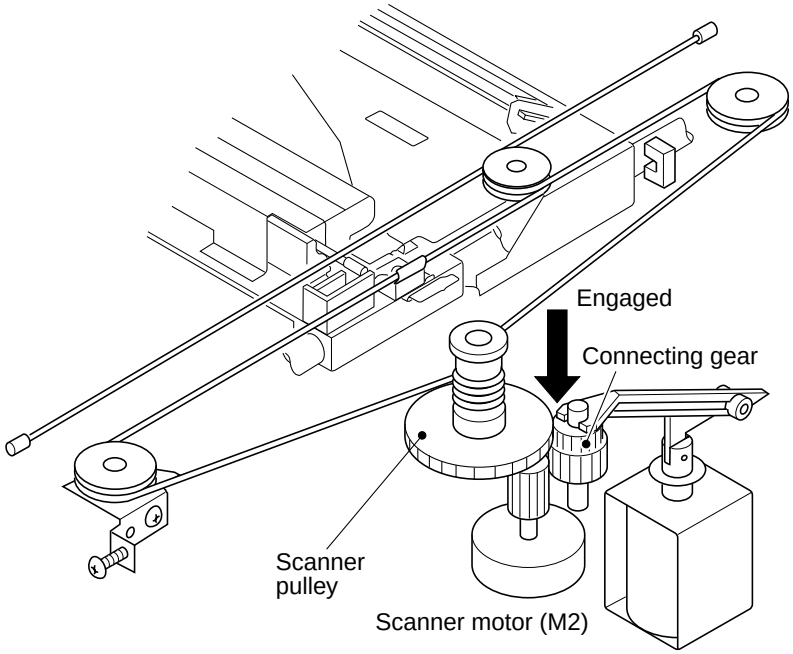


Figure 5-1

20. Pre-exposure lamp does not light

Cause	Step	Checks	YES/NO	Action
Pre-exposure lamp PCB	1	Disconnect J304 from the DC controller PCB. Set the meter to the 1Ω range. Connect the leads to J304-5 and J304-6 of the part of J304 connected to the wiring. Is the resistance approx. 9Ω?	NO	Replace the pre-exposure lamp PCB.
DC controller PCB			YES	Replace the DC controller PCB.

21. Scanning lamp does not light

Cause	Step	Checks	YES/NO	Action
Lamp	1	Is the lamp installed correctly?	NO	Re-installed the lamp.
Thermal fuse (FU2)	2	Check the continuity of the thermal fuse (FU2). (Connect the leads to both ends of the fuse). Is there continuity?	NO	Replace the thermal fuse (FU2). Note: There may be trouble with the lamp not lighting normally, the fuse being installed in the wrong position, or the cooling fan not operating, so be sure to check operation after replacing the fuse.
Broken lamp filament	3	Disconnect connector J602 (2P) from the lamp regulator. Set the meter to the 1kΩ range. Connect the leads to the lamp terminals. Does the needle move?	NO	Replace the lamp.
DC controller PCB	4	Set the meter to the 50VDC range. Connect the (+) lead to J305-4 and the (–) lead to J305-2; then, press the Copy Start key. Does the voltage change from about 15V to about 0V when the lamp goes ON?	NO	Replace the DC controller PCB.
Lamp driver PCB	5	Does the lamp go ON where the lamp driver PCB is replaced?	YES	End.
Wiring			NO	Check the AC wiring from the power switch to the lamp driver and lamp, and check the DC wiring from the DC controller to the lamp driver.

22. Fixing roller heater does not operate

Cause	Step	Check	YES/ NO	Action
	1	Disconnect connector J102 (2P) from the power supply PCB. Set the meter to the 1kΩ range. Connect the leads to J102-1 and J102-2. Does the needle move?	YES	Go to step 3.
Thermoswitch (TS1)	2	Remove the fixing assembly. Connect the leads to both ends of the thermoswitch (TS1). Does the needle move?	NO	Replace the thermoswitch (TS1). Note: There may be trouble with the heater going ON, a faulty thermoswitch installed improperly, so be sure to check after replacing the thermoswitch (TS1). Also be sure to check for damage to the fixing rollers or the separation claws.
Heater (H1)	3	Connect the leads to the heater terminals. Does the needle move?	NO	Check the installation of the heater (H1). If it is normal, replace the heater.
AC line			YES	Check the AC wiring inside the fixing assembly.
DC controller PCB	4	Set the meter to the 10VDC range. Connect the (+) lead to J303-4 and the (–) lead to J303-6. Switch the power ON. Is the voltage approx. 1V?	NO	Replace the DC controller PCB.
Power supply PCB			YES	Replace the power supply PCB.

23. Lens does not move

Cause	Step	Checks	YES/ NO	Action
Lens solenoid (SL2)	1	Switch the power OFF and remove the rear cover. Set the power switch ON. Does the lens solenoid (SL2) go ON?	NO	Check the wiring from the DC controller PCB to the lens solenoid (SL2). If it is normal, replace SL2.
Lens drive cable pulley, Rails	2	Switch the power OFF. Move the lens in the enlargement and reduction directions by hand. Does the lens move smoothly?	NO	Check the lens drive cable and capstan, and rails. If necessary clean or re-install the wire.
Power supply PCB	3	See step 4 of "Scanner does not move."		
Scanner motor (M2)	4	See step 5 of "Scanner does not move."		
DC controller PCB				

24. Counter does not operate

Cause	Step	Checks	YES/ NO	Action
Counter	1	Switch the power OFF. Disconnect J313 on the DC controller PCB. Set the meter to the 1kΩ range and connect the leads to J313-1 and J313-2 of the part of J313 connected to the wiring. Does the needle move?	NO	Check the wiring betweeen the DC controller PCB and the counter. If it is normal, replace the counter.
Counter	2	Connect J313 to the DC controller PCB and set the switch ON. Set the meter to the 30VDC range and connect the (+) lead to J313-2 and the (–) lead to J313-1. Press the Copy Start key. Does the voltage change from approx. 0V to approx. 24V?	YES	Replace the counter.
DC controller PCB			NO	Replace the DC controller PCB.

25. indicator does not go ON

Cause	Step	Checks	YES/ NO	Action
Cassette size sensor PCB	1	Does the indicator remain OFF when the cassette is removed?	YES	Check the wiring from the DC controller PCB to the cassette size sensor PCB. If it is normal, replace the cassette size sensor PCB.
Multifeeder paper sensor (Q1), Cassette paper sensor (Q6, Q7)	2	Is the multifeeder paper sensor (Q1) or cassette paper sensor (Q6, Q7) performing normally? (See p.2-17.)	NO	Check the wiring from the DC controller PCB to Q1, Q6 or Q7. If it is normal, replace Q1, Q6 or Q7.
Control panel	3	Does the trouble diappear if the control panel is replaced?	YES	End.
DC controller PCB			NO	Replace the DC controller PCB.

26. indicator does not go OFF

Cause	Step	Checks	YES/ NO	Action
Cassette	1	Is the cassette pushed fully into the holder?	NO	Push the cassette fully in.
Multifeeder paper sensor (Q1), Cassette paper sensor (Q6, Q7)	2	Is the multifeeder paper sensor (Q1) or cassette paper sensor (Q6, Q7) functioning normally? (See p.2-17.)	NO	Check the wiring from the DC controller PCB to Q1, Q6 or Q7. If it is normal, replace Q1, Q6 or Q7.
DC controller PCB			YES	Replace the DC controller PCB.

27. indicator does not go ON

Cause	Step	Checks	YES/NO	Action
	1	Does the copying operation stop when a jam occurs?	YES	Continue from step 3.
Jam sensor	2	Are the following sensors functioning normally? (See p.2-17.) • Pre-registration paper sensor (Q2) • Delivery paper sensor (Q5)	NO	Replace the jam sensor.
DC controller PCB			YES	Replace the DC controller PCB.
Control panel	3	Does the trouble disappear when the control panel is replaced?	YES	End.
DC controller PCB			NO	Replace the DC contorller PCB.

28. indicator goes ON when paper feeding is normal

Cause	Step	Checks	YES/NO	Action
Jam sensor	1	Are the following sensors functioning normally? (See p.2-17.) • Pre-registration paper sensor (Q2) • Delivery paper sensor (Q5)	NO	Replace the jam sensor.
DC controller PCB			YES	Replace the DC controller PCB.

29. indicator does not go ON when there is no toner

Cause	Step	Checks	YES/NO	Action
J39 connection	1	Is the connector J39 of the pin inside the upper front cover connected?	NO	Connect J39 securely.
Black toner level sensor (TS1)	2	Set the meter to the 12VDC range. Connect the (+) lead to J306-2 (BTEP*) and the (–) lead to J306-1 (GND) on the DC controller PCB. Is the voltage approx. 0V?	NO	Check the wiring from the DC controller PCB to TS1 and check the movement of the stirring rod inside the black developing assembly. If these are normal, replace the black toner level sensor (TS1).
				End.
Control panel	3	Does the problem disappear when the control panel is replaced?	YES	Replace the DC controller PCB.
DC controller PCB			NO	

30. indicator does not go OFF when there is toner

Cause	Step	Check	YES/ NO	Action
DC controller PCB	1	Does the indicator come back ON when the power switch is set OFF and then ON again?	YES	Replace the DC controller PCB.
DC controller PCB	2	Turn the power OFF, and disconnect J39. Turn the power ON, and press the Copy Start key to make any copies of the following: [1] making 7 continuous copies on A3 [2] making 9 continuous copies on A4 [3] making 5 single copies on A3 [4] making 5 single copies on A4 Press the Copy Start key once again. Does the indicator go red when any copies of the above has been made?	YES	Replace the DC controller PCB.
Stirring rod gear	3	Does the stirring rod inside the black developing assembly operate normally?	NO	Check the stirring rod and gear.
Black toner level sensor			YES	Replace the black toner level sensor (TS1).

CHAPTER 6 TROUBLESHOOTING THE FEEDING PROBLEMS

A. Paper Jams

The main areas in this copier where jams could occur are as follows:

[1] Paper pick-up area
[2] Separation and feeder area
[3] Fixing and delivery assembly area
[4] Drum cleaner area

Troubleshooting of paper jamming is described here for each of the above areas.

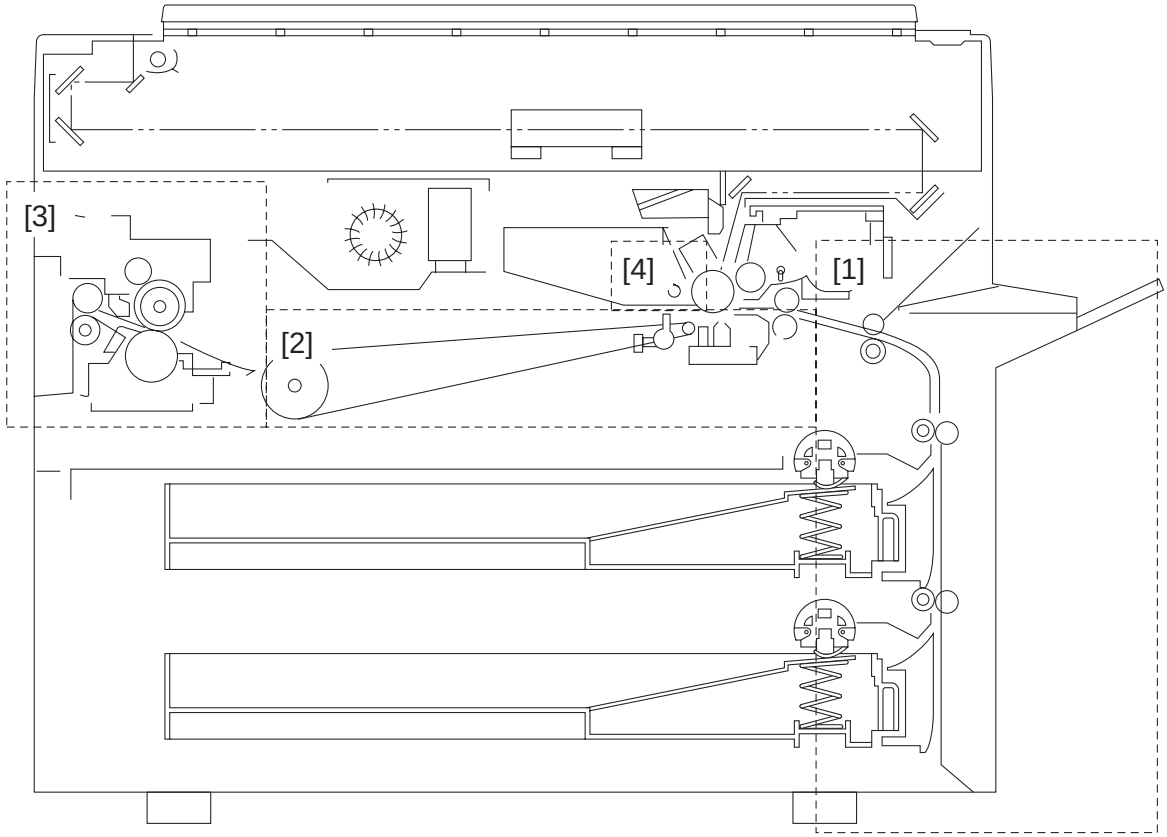


Figure 6-1

1. Jamming in the paper pick-up area

Cause	Step	Checks	YES/ NO	Action
Cassette	1	Is the cassette pushed fully into the copier?	NO	Push the cassette fully in.
	2	Does the problem disappear when a different casssette is used?	YES	1. Check the paper hold-down tabs. 2. Check the strength of the paper-lifting springs.
Copy paper	3	Is the copy paper curled or creased?	YES	1. Change the copy paper. 2. Instruct the user about the correct method of storing paper.
	4	Does the problem disappear when paper recommended by Canon is used?	YES	Request the user to use the recommended paper.
DC controller PCB, Pick-up roller clutch	5	Does the pick-up roller rotate during the copying cycle?	NO	Refer to the sub-section "Paper is not picked up."
Pick-up roller	6	Are the pick-up roller shoes deformed or worn?	YES	Replace the pick-up rollers.
Pre-registration paper sensor (Q2)	7	Is the pre-registration paper sensor (Q2) normal? (See p.2-17)	NO	Replace the pre-registration paper sensor (Q2).
Feed roller and paper guide plate			YES	1. Check each feed roller for wear and deformation. 2. Check the paper guide plate for burrs or deformation.

2. Jamming in the separation and feeder assembly area

Cause	Step	Checks	YES/ NO	Action
	1	Does the leading edge of the copy paper pass through the registration rollers?	YES	Continue with step 5.
Registration roller clutch (CL1)	2	Does the registration roller clutch (CL1) operate correctly?	NO	Check the registration roller clutch (CL1).
Registration roller	3	Are the registration rollers worn, deformed, or soiled?	YES	If they are soiled, clean them with alcohol. If they are deformed, replace them.
	4	Are the retaining springs at the ends of the registration rollers installed correctly?	NO	Install the springs correctly.
			YES	Check the transfer guide for foreign matter and deformation.
Paper guide wire	5	Is the paper guide wire of the transfer corona assembly installed correctly?	NO	Install the wire correctly.
Feeder belt			YES	Check the feeder belt, roller, and pulleys.

3. Jamming in the fixing and paper delivery assembly area

Cause		Step	Checks	YES/NO	Action
Delivery assembly separation claws		1	Are the separation claws worn or deformed?	YES	1. Replace the separation claws. 2. If the separation claws are soiled, clean them with MEK.
Delivery assembly	Upper and lower fixing rollers	2	Is the upper or lower fixing roller deformed or scratched?	YES	Replace the upper and lower fixing rollers (both at the same time).
	Paper guide plate	3	Is toner, etc., adhering to the paper guide?	YES	Clean the paper guide plate with MEK.
		4	Is the height of the paper guide plate correct?	NO	Adjust the height of the paper guide plate.
	Nip width	5	Is the roller pressure (nip width) within the standard?	NO	Adjust the nip width.
Fixing assembly	Delivery paper sensor arm	6	Does the delivery sensor arm move smoothly?	NO	Adjust the arm so that it moves smoothly.
	Delivery paper sensor (Q5)	7	Is the delivery paper sensor functioning correctly? (See p.2-19.)	NO	Replace the delivery paper sensor (Q5).
	Delivery roller drive assembly	8	Do the delivery rollers rotate smoothly?	NO	Check the delivery roller drive assembly.
Leading edge blank area				YES	Check if there is a leading edge blank area (2.0 +1.5 mm) on the leading edge of the copy paper.

4. Jamming around the drum cleaning unit area

Cause	Step	Checks	YES/NO	Action
Copy paper	1	Does jamming occur when thin paper is used?	YES	Explain to the user that thin paper is likely to jam.
	2	Did a jam occur when a 2-sided or overlay copy was being made?	YES	Instruct to the user to remove curling from the copy paper before using it.
Static charge eliminator, High-voltage transformer			NO	Check if voltage is being supplied to the static charge eliminator.

B. Incorrect Paper Feed Operation

1. Sheets stuck together

Cause	Step	Checks	YES/ NO	Action
Cassette	1	Is the copy paper positioned correctly under the hold-down tabs?	NO	Set the copy paper correctly.
	2	Push the copy paper down in the cassette and release it. Does it rise smoothly?	NO	1. Check the width of the copy paper. 2. Check the position of the side panels of the cassette. 3. Measure the strength of the paper-lifting springs. If they are weak, replace them.
Copy paper	3	Is paper recommended by Canon being used?	NO	Suggest that the user use paper recommended by Canon.
Hold-down tabs			YES	Check if the hold-down tabs are deformed.

2. Wrinkles

Cause		Step	Checks	YES/NO	Action
Pick-up assembly		1	Switch the power OFF while the copy paper is passing along the feeder. Are there any wrinkles in the copy paper at this point? Is the paper skewed?	YES	1. Check the pick-up assembly. 2. Check the registration rollers.
Copy paper		2	Does the problem disappear when new copy paper is used?	YES	The paper may be absorbing moisture. Instruct the user in the correct paper storage method.
		3	Is paper recommended by Canon being used?	NO	Suggest that the user use paper recommended by Canon.
Fixing assembly	Paper guide	4	Is any foreign matter or toner adhering to the paper guide?	YES	Clean the paper guide with MEK.
		5	Is the height of the paper guide correct?	NO	Adjust the height of the paper guide.
	Roller pressure	6	Is the roller pressure (nip width) within the standard?	NO	Adjust the nip width.
	Upper and lower fixing rollers			YES	Replace the upper and lower fixing rollers (both at the same time).

CHAPTER 7 SERVICE MODE

A. Outline

The NP6320's service mode allows the following:
- checking the operation of some switches and LEDs
- changing data in EEPROM.

B. Using the Service Mode

1) Detach the VR cover from the rear of the left cover.
2) Check that the Copy Start key is glowing green.
3) Press the service switch (SW300) on the DC controller PCB.
4) Check that 'C00' is indicated.
5) Enter the No. of the desired service mode using the numeric keypad on the control panel.
   - For example, the display indicates 'C03' in response to a press on '3'.
6) Press the Sort/Group key.
7) Operate as follows as necessary:

<Mode Nos. C00, C09, C10, C11, C12, C13, C14 and C20>
A press on the Sort/Group key executes the selected mode; a second press stops the execution.

<Mode Nos. C01 through C08 and, C15, C17 and C19>
Change the setting using the numeric keypad, and press the Sort/Group key; the setting will be stored in EEPROM.

<Mode No. C18>
Press the AE key twice, and check 'CEE' is indicated on the control panel; then, press the Sort/Group key.

8) Press the service switch (SW300) to leave the service mode.

C. Guide to Service Mode

Mode No.	Display	Default Settings	Remarks
C00	AE sensor output	—	Use it when adjusting the AE reference point/slope; see p.10-18.
C01	AE adjustment	23 0 to 50	A higher setting causes copies of newspaper to become lighter; see p.10-18. (unit: 0.1V)
C02	Leading-edge registration adjustment (registration roller ON timing adjustment)	32 0 to 63	A higher setting delays the registration roller ON timing. (unit: 0.25 mm)
C03	Leading-edge non-image width adjustment (grid bias switch timing adjustment)	32 0 to 63	A higher setting increases the leading edge non-image width. (unit: 0.25 mm)
C04	Degree of arching (multifeeder pick-up; clutch off timing adjustment)	32 0 to 63	A higher setting delays the multifeeder clutch OFF timing. (unit: 0.25 mm)
C05	Leading edge registration adjustment (2nd page in page separation; registration roller ON timing adjustment)	32 0 to 63	A higher setting advances the registration roller ON timing. (unit: 0.25 mm)
C06	Leading edge non-image width adjustment (2nd page in page separation; grid bias switch timing adjustment)	32 0 to 63	A higher setting increases the leading edge non-image width. (unit: 0.25 mm)
C07	Automatic paper selection (APS) mode setting	1 0 or 1	Selects/Deselects the APS mode at time of power-on: 1, APS ON; 0, APS OFF.
C08	Auto shut-off mode setting	1 0 or 1	Selects/Deselects the auto shut-off mode: 1, Auto shut-off ON; 0, Auto shut-off OFF.
C09	The output voltage of document size sensor 0 is indicated on the control panel.	–	About 6 (0.6V) when the copyboard cover is closed. About 40 (4.0V) when the copyboard cover is open. (unit: 0.1V)
C10	The output voltage of document size sensor 1 is indicated on the control panel.	–	About 6 (0.6V) when the copyboard cover is closed. About 40 (4.0V) when the copyboard cover is open. (unit: 0.1V)

Mode No.	Display	Default / Settings	Remarks
C11	Lower cassette size	–	The size of the cassette is indicated in code in response to the output of the activated cassette switch; see Table 10-801.
C12	Upper cassette size		
C13	Nip width check	–	Perform this mode when checking the nip width.
C14	LED ON check (on control panel)	–	
C15	AE mode setting	1 0 or 1	Selects/Deselects the AE mode at time of power-on: 1, AE ON; 0, AE OFF.
C16	For factory adjustment	0 0 to 5	Do not change the setting; i.e., keep it to '0'.
C17	Fixing unit temperature adjustment	170 140 to 190	Set the three digit described on the fixing assembly label.
C18	EEPROM reset	–	Initializes EEPROM on the DC controller PCB.
C19	Automatic energy saving mode on/off	1 1 or 0	To activate the energy saving mode, press "1" and then "Sorter" keys. To inactivate, press "0" and then "Sorter" keys.
C20	Automatic shut-off checking	–	To perform checking, press the "Sorter" key. As a result, the copier shuts off when service mode C08 is "1".

Code	Cassette size	Code	Cassette size
0	No cassette	9	U1
1	B5	10	U2
2	U3	11	Letter
3	A4	12	STMT-R
4	B5-R	13	Legal
5	B4	14	Letter-R
6	A4-R	15	11×17
7	A3	16	Multifeed
8	A5-R		

Table 7-1 Cassette Size Codes

CHAPTER 8 SELF DIAGNOSIS

A. Self Diagnosis

The DC controller PCB has a microprocessor that diagnoses the functions of the copier (particularly the sensors) at appropriate intervals. If this microprocessor detects an error, it will display the type of the error on the indicator on the control panel.

The table below shows the various fault codes, their meaning, and the corresponding detection timing.

Example of E000 code indication:

E⇔000 light alternately.

Code displayed	Main cause	Fault criteria
E000	Thermistor (TH1), Fixing heater (H1), Power supply PCB, DC controller PCB or Thermoswitch (TS1).	•If the fixing assembly temperature is lower than 50°C after 15 sec from the power on. (main thermistor) •If the warm-up is not over after 60 sec from when the temperature reached 50°C. (main thermistor) •If the fixing unit temperature drops below 50°C while the copier is in stand by or copying (main thermistor)
E001	Thermistors (TH1/TH2), Fixing heater (H1), Power supply PCB or DC controller PCB.	•If the temperature remains 220°C or higher for 0.1 sec or longer (main thermistor) •If the temperature difference between the main thermistor and the auxiliary thermisor is 50°C or higher. •If the HTON signal is on while HTRD signal is off.
E010	Main motor error: Main motor (M1), DC controller PCB	If the main motor speed feedback signal does not appear after 2 sec from the main motor.
E030	Counter, DC controller PCB	If the break signal is emitted continuously for 0.1 sec or more when the counter is not being driven.

Code displayed	Main cause	Fault criteria
E202	Scanner Home position sensor (Q3), scanner motor (M2), power supply PCB, or DC controller PCB	1. If the scanner is not at the Home position (SCHP = 0) when the Copy Start key is pressed. If the scanner does not return to the home position (SCHP remains 0) within 15 sec (A4 size) after it starts to reverse. 2. If the scanner is in the home position (SCHP = 1) when the Copy Start key is pressed. • If the scanner does not leave the home position (SCHP remains 1) within 1.5 sec after it starts to advance. • If the scanner does not return to the home position (SCHP remains 0) within 1 second after it leaves the home position (SCHP = 0).
E210	Lens home position sensor (Q4), or DC controller PCB	• If the lens does not return to the home position (LHP remains 0) within 2.5 sec. • If LHP remains 1 for at least 4 sec.
E220	Lamp driver PCB Scanning lamp	• At the lamp ON timing, LAON=1 is not true. • At the lamp OFF timing, LAON=0 is not true.
E240	DC controller PCB	The communication between microprocessor (master) and microprocessor (slave) is interrupted.
E245	DC controller PCB	If the data in EEPROM has been rewritten more than specified.
E261	Power supply PCB or DC controller PCB	If the main frequency is out of the allowed range.
E400	ADF controller PCB, power supply PCB, or DC controller PCB	If ADF remains 0 for 12 sec or longer.
E500	Sorter controller PCB or DC controller PCB	• If the copier does not communicate with the sorter for at least 12 sec. • If the SORTER STANDBY signal does not return within 35 sec after the BCR signal is outputted.
E802	Main switch or DC controller PCB.	The DC controller PCB detects the automatic shut-off mechanism does not work.

Note:
After self diagnosis has been executed, the copier may be reset by switching it OFF and then ON unless 'E000' or 'E001' is indicated on the display.

This consideration is made to prevent the user from resetting the copier when the fixing assembly has a serious fault (open thermistor or others) that can damage the assembly.

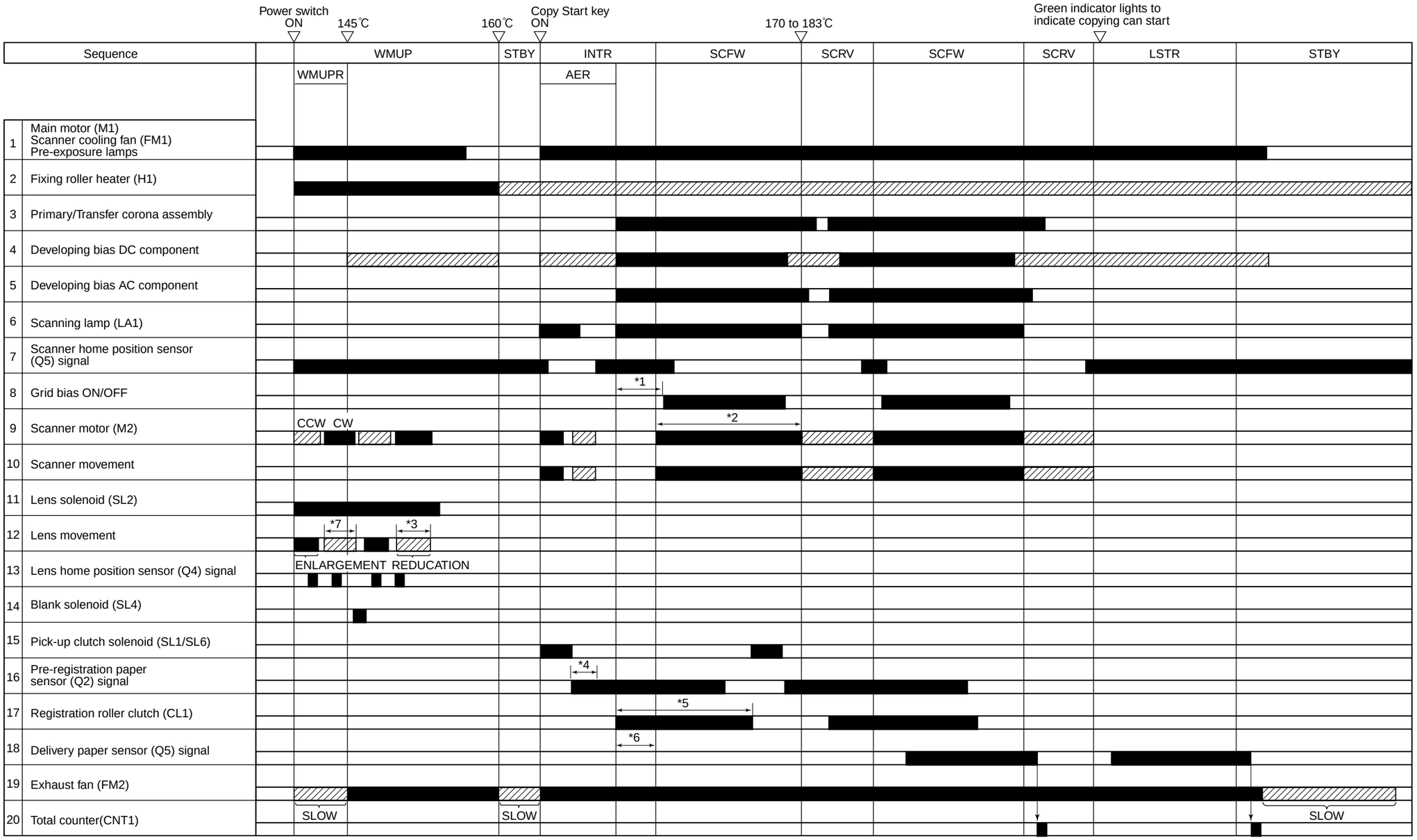
Reset the copier as follows if 'E000' or 'E001' is indicated:

1) Detach the switch cover (one screw).
2) Shift the main switch (SW1) to ON and continuously hold the main switch down so that the main power does not turn OFF.
3) Press the service switch (SW300) on the DC controller PCB once.
4) Shift the main switch to OFF.
5) Attach the switch cover.

APPENDIX

A. General Timing Chart

(A4, AE, 2 copies, cassette)



*1 Varies depending on the reproduction ratio and the setting of 'leading edge (C03)' in the service mode.
*2 Varies depending on the cassette size and the selected reproduction ratio.
*3 Varies depending on the reproduction ratio.
*4 Varies depending on the setting of 'arc adjustment (C04)' in the service mode; multifeeder in use.
*5 Varies depending on the cassette size.
*6 Varies depending on the setting of 'leading edge non-image width' in the service mode.
*7 Varies depending on the cassette size.

<MULTI FEED>

(A4, 2 copies, multifeeder)



*Varies depending on the setting of 'arc adjustment (C04)' in the service mode; multifeeder in use.

B. List of Signals/Commands

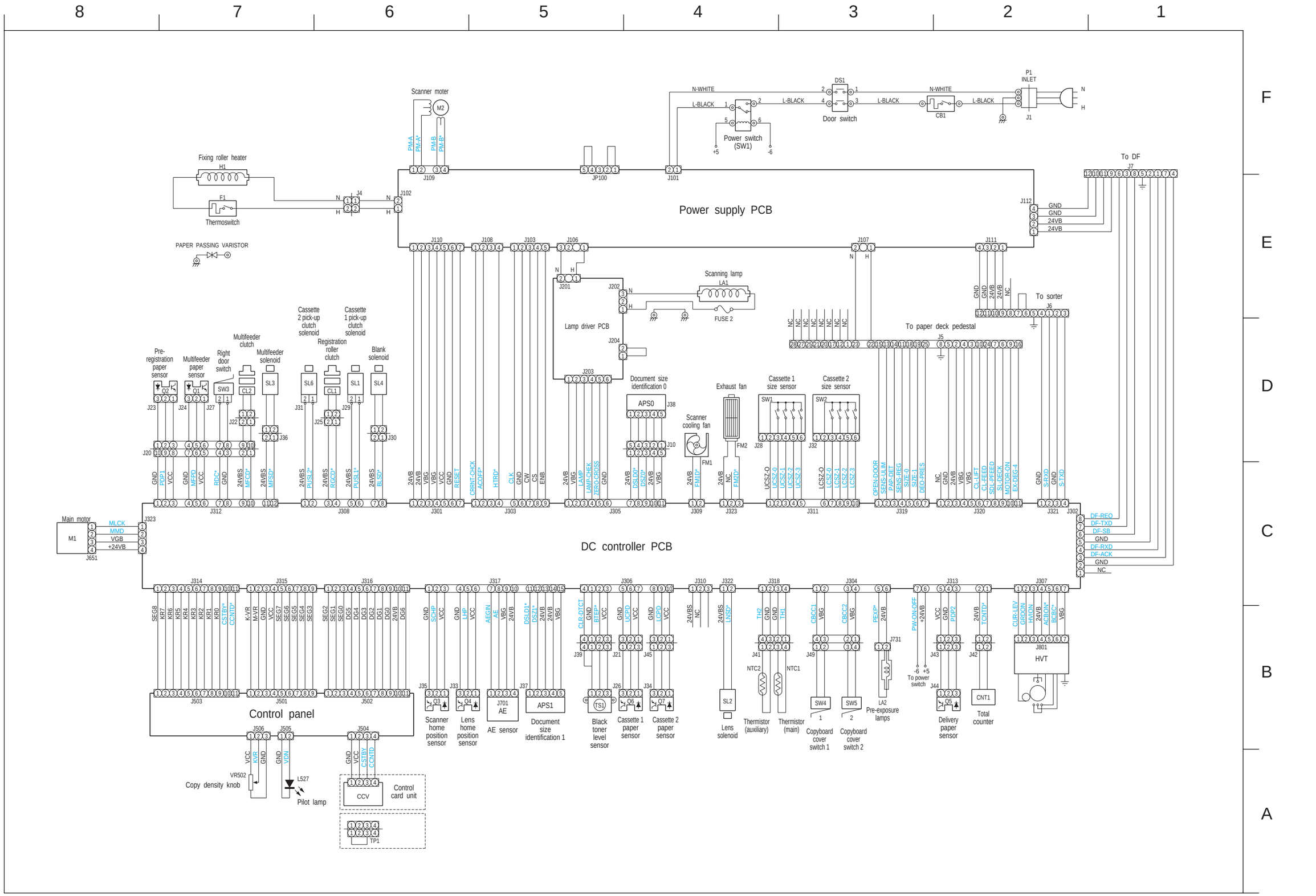
1. Signal

ACBON	AC BIAS ON command
ACOFF	AC SHUT-OFF command
AE	AE SENSOR OUTPUT signal (analog)
AEGIN	AE SENSOR GAIN signal
BLSD	BLANK SOLENOID DRIVE command
BTEP	BLACK TONER EMPTY signal
CBCC1	COPYBOARD COVER CLOSED signal 1
CBCC2	COPYBOARD COVER CLOSED signal 2
CCNTD	CONTROL COUNTER DRIVE command
CSTBY	CONTROL CARD STANDBY signal
CSZ0	CASSETTE SIZE signal 0
CSZ1	CASSETTE SIZE signal 1
CSZ2	CASSETTE SIZE signal 2
CSZ3	CASSETTE SIZE signal 3
CSZ4	CASSETTE SIZE signal 4
CTD	CT-UNIT DETECTION signal
DCBC	DC BIAS CONTROL command
DSLD	DOCUMENT SIZE LED DRIVE commad
DSZ	DOCUMENT SIZE DETECTION signal
FM1D	FAN MOTOR 1 DRIVE command
FM2D	FAN MOTOR 2 DRIVE command
GRDON	GRID ON signal
HTRD	HEATER DRIVE command
HVTON	HVTON command
LAON	LAMP ON command
LCPD	LOWER CASSETTE PAPER DETECTION signal
LGHT	LIGHT signal
LHP	LENS HOME POSITION signal
LIC	LIGHT INTENSITY CONTROL command
LNSC	LENS SOLENOID DRIVE command
MFCD	MULTIFEEDER CLUTCH DRIVE command
MFPD	MULTIFEEDER PAPER DETECTION signal
MFSD	MULTIFEEDER SOLENOID DRIVE command
MLCK	MAIN MOTOR LOCK signal
MMD	MAIN MOTOR DRIVE command
PDP1	PAPER DETECTION signal 1 (Q2)
PDP2	PAPER DETECTION signal 2 (Q5)
PEXP	PRE-EXPOSURE LAMP LINT command
PUSL1	PICK-UP ROLLER CLUTCH SOLENOID DRIVE command 1
PUSL2	PICK-UP ROLLER CLUTCH SOLENOID DRIVE command 2
RGCD	REGISTRATION ROLLER CLUTCH SOLENOID DRIVE command
RDC	RIGHT DOOR CLOSE signal
SCCLK	SCANNER SPEED CONTROL command
SCHP	SCANNER HOME POSITION signal
SCMD	SCANNER MOTOR DRIVE command
TCNTD	TOTAL COUNTER DRIVE command

TEP	TONER EMPTY signal
TH_AUX	AUXILIARY FIXING ROLLER TEMPERATURE signal (analog)
TH_MAIN	MAIN FIXING ROLLER SURFACE TEMPERATURE signal (analog)
UCPD	UPPER CASSETTE PAPER DETECTION signal
ZXDP	ZERO CROSS DETECTION signal

2. Abbreviations

AER	AE ROTATION
INTR	INITIAL ROTATION
LSTR	LAST ROTATION
SCFW	SCANNER FORWARD
SCRV	SCANNER REVERSE
STBY	STANDBY
WMUP	WARM UP
WMUPR	WARM UP ROTATION


8
7
6
5
4
3
2
1
F
E
D
C
B
A
Power supply PCB
DC controller PCB
Control panel
Lamp driver PCB
Fixing roller heater
H1
F1
Thermoswitch
PAPER PASSING VARISTOR
Scanner moter
M2
PM-A
PM-A*
PM-B
PM-B*
J109
JP100
J101
N-WHITE
L-BLACK
DS1
Door switch
Power switch
(SW1)
CB1
P1
INLET
J1
To DF
J7
J112
GND
GND
24VB
24VB
J111
To sorter
J6
To paper deck pedestal
J5
J102
J4
J110
J108
J103
J106
J107
J201
J202
J204
J203
Scanning lamp
LA1
FUSE 2
Pre-
registration
paper
sensor
Multifeeder
paper
sensor
Right
door
switch
Multifeeder
clutch
Multifeeder
solenoid
Cassette
2 pick-up
clutch
solenoid
Cassette
1 pick-up
clutch
solenoid
Registration
roller
clutch
Blank
solenoid
Q2
Q1
SW3
CL2
SL3
SL6
CL1
SL1
SL4
J23
J24
J27
J22
J36
J31
J25
J29
J30
Document size
identification 0
APS0
J38
J10
Exhaust fan
FM2
Scanner
cooling fan
FM1
Cassette 1
size sensor
Cassette 2
size sensor
SW1
SW2
J28
J32
Main motor
M1
J651
J323
MLCK
MMD
VGB
+24VB
J312
J308
J301
J303
J305
J309
J323
J311
J319
J320
J321
J302
DF-REQ
DF-TXD
DF-SB
GND
DF-RXD
DF-ACK
GND
NC
J314
J315
J316
J317
J306
J310
J322
J318
J304
J313
J307
J503
J501
J502
J506
J505
J504
J35
J33
J37
J39
J21
J45
J26
J34
J41
J49
J731
J43
J44
J42
J801
HVT
Control
2
Control
card unit
CCV
TP1
VR502
Copy density knob
L527
Pilot lamp
Q3
Scanner
home
position
sensor
Q4
Lens
home
position
sensor
J701
AE
AE sensor
APS1
Document
size
identification 1
TS1
Black
toner
level
sensor
Q6
Cassette 1
paper
sensor
Q7
Cassette 2
paper
sensor
SL2
Lens
solenoid
NTC2
NTC1
Thermistor
(auxiliary)
Thermistor
(main)
SW4
SW5
Copyboard
cover
switch 1
Copyboard
cover
switch 2
LA2
Pre-exposure
lamps
-6 +5
To power
switch
Q5
Delivery
paper
sensor
CNT1
Total
counter

D. Specifications

1. Type

Body	Desktop
Copyboard	Fixed
Light sourse	Halogen lamp (330W)
Lens	Zoom lens
Photosensitive medium	OPC

2. Construction

Copying		Indirect static photocopying
Charging		Corona
Exposure		Slit (moving light source)
Copy density adjustment		Automatic (AE) or Manual
Development		Dry (toner projection)
Pick-up	Automatic	2 cassettes
	Manual	Multifeeder (about 50 sheets of 80g/m^2)
Transfer		Corona
Separation		Curvature and Static eliminator
Cleaning		Blade
Fixing		Heat roller (900 W)

3. Performance

Document type			Sheet, Book, 3-D object (2 kg)
Document size (max.)			A3 (297×420 mm)
Reproduction ratio			See Table 1-1; 50% to 200%, zoom.
Wait time			30 sec or less (20°C)
First copy			8 sec or less (AE and non-AE)
Continuous copying			1 to 99 copies
Copy size			A3 (297 × 431.8 mm) max. Postcard (100 × 148 mm) min.
Copy paper	Cassette		Plain paper (64 to 80 g/m^2), Tracing paper*, Colored paper*
	Multifeed tray		Plain paper (64 to 128 g/m^2), Tracing paper* Colored paper*, OHP film*, Postcard, Label*
		Two-sided copy Overlay copy	Plain paper (64 to 128 g/m^2), Colored paper*, Postcard
Cassette			Claws, Front loading: 27 mm deep (about 250 sheets of 80 g/m^2)
Copy tray			99 sheets (80 g/m^2)
Non-image width			2.0 ±1.5 mm (leading edge), 2.5 ±1.5 mm (left/right)
Auto clear mechanism			Provided. (2 min, standard)
Auto shut-off mechanism			Provided. (30 min, standard; may be disabled and changed)
Auto start			Provided.
Option			Sorter-A1, MS-A1, Paper Deck Pedestal-J1, Control Card V, Stapler Sorter-D3, ADF-A1, ADF-D1

** Of a type recommended by Canon.*

4. Others

Operating environment	Temperature	7.5° to 32.5°C	
	Humidity	5% to 85%	
	Atmospheric pressure	0.6 to 1 atm.	
Power source		Serial No.	
	230V/50 Hz	QEPxxxxx (UK)	
	230V/50 Hz	UEPxxxxx (AMS)	
Power consumption	Maximum	1.5 kW	
	During copying	0.840 kWH (reference only)	
	At standby	0.158 kWH (reference only)	
Noise	During copying	50 dB or less	(Sound power level as
	At standby	40 dB or less	prescribed by ISO)
Ozone (average over 8 hrs.)		0.05 ppm or less (UL standards)	
Dimensions	Width	697 mm	
	Depth	617 mm	
	Height	541 mm	
Weight		62.5 kg (approx.)	
Consumables	Copy paper	Keep wrapped to protect against humidity.	
	Toner	Avoid direct sun, and keep under 40°C, 85%.	

Reproduction mode		Paper size	Cassette	Copies/min
DIRECT		A3 (297×420mm)	A3	11
		A4 (210×297mm)	A4	20
		A4R (297×210mm)	A4R	15
		B4 (257×365mm)	(B4)	12
		B5 (182×257mm)	(B5)	21
		A5R (210×149mm)	A5R	20
REDUCE	I	50%		
	II	A3→ A4R	A4R	13
ENLARGE	I	A4R→ A3	A3	11
	II	200%		

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