Product: 1993 Canon NP6650 Series Printer Service Repair Workshop Manual
Full Download: https://www.arepairmanual.com/downloads/1993-canon-np6650-series-printer-service-repair-workshop-manual/

NP-6650 SERIES

SERVICE MANUAL (for 220/240V)

REVISION 1 DEC. 1993

Canon
FY8-1392-010

COPYRIGHT BY CANON INC.
CANON NP-6650 REV.1 DEC. 1993 PRINTED IN JAPAN

Sample of manual. Download All 299 pages at:
https://www.arepairmanual.com/downloads/1993-canon-np6650-series-printer-service-repair-workshop-manual/

Product: 1993 Canon NP6650 Series Printer Service Repair Workshop Manual
Full Download: https://www.arepairmanual.com/downloads/1993-canon-np6650-series-printer-service-repair-workshop-manual/

I. FEATURES

1. Automaic 2-color copy mechanism, and copying at a speed as high as 50 copies per minute.

The copier is equipped with two built-in developing assemblies; with these assemblies and automatic two-sided or overlay mode, 2-color copies can be obtained by simple key operation. In addition, as many as 50 copies can be made per minute in normal mode.

2. Automatic two-sided copy mode and automatic overlay mode.

With the automatic two-sided or overlay mode, up to 50 two-sided copies or overlay copies can be made without interruption from one-sided and two-sided documents of from a book spread open on the copyboard glass.

3. Trimming, masking, and color conversion for enhanced visual effects.

With the area designation and a press on the color conversion key, six types of trimming, masking, or color conversion copy modes may be selected. The use of the NP-Editor will further facilitate area designation.

Sample of manual. Download All 299 pages at:
https://www.arepairmanual.com/downloads/1993-canon-np6650-series-printer-service

II. SPECIFICATIONS

A. Type

Body	Console
Copyboard	Fixed
Light source	Halogen lamp (250 W)
Lens	Floating-element lens (zoom)
Photosensitive drum	Amorphous silicon

B. System

Copying process		Indirect electrostatic method
Charging		Corona
Exposure		Slit (moving light source)
Copy density adjustment		Automatic or manual
Development		Dry
Paper pick-up	Automatic	2 cassettes + paper deck
	Manual	Multifeed (5 mm deep)
Transfer		Corona
Separation		Corona (electrostatic)
Cleaning		Blade
Fixing		Heat roller (1200 W)

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.0 NOV. 1988 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

C. Specifications

Document type		Cut sheet, book, 3-D objects (2 kg/4.4 lb. max.)
Document size		A3 max.
Reproduction ratio	DIRECT	1 : 1 (±0.5%)
	REDUCTION I	1 : 0.500 (±1.0%)
	REDUCTION II	1 : 0.707 (±1.0%)
	REDUCTION III	1 : 0.816 (±1.0%)
	REDUCTION IV	1 : 0.865 (±1.0%)
	ENLARGEMENT I	1 : 2.000 (±1.0%)
	ENLARGEMENT II	1 : 1.414 (±1.0%)
	ENLARGEMENT III	1 : 1.224 (±1.0%)
	ENLARGEMENT IV	1 : 1.154 (±1.0%)
	Zoom	1 : 0.500 ~ 2.000 (±1.0%)
Warm-up time		4 min (at 20°C)
First copy		3.6 sec (A4, non AE mode, upper cassette)
Continuous copying		999 sheets
Copy size		A3 max., B5 min.
Copy paper type	Cassette	Plain paper (64 g/m² to 80 g/m²), tracing paper, colored paper
	Manual	Plain paper (64 g/m² to 128 g/m²), tracing paper, colored paper; OHP film (single feed), Canon-recommended postcard, label sheets (single feed)
Two-sided copy	Automatic	Plain paper (64 g/m² to 80 g/m²; NP-6650 only)
	Manual	Plain paper (64 g/m² to 128/m²), colored paper; Canon-recommended postcard
Overlay copy	Automatic	Plain paper (64 g/m² to 80 g/m²; NP-6650 only)
	Manual	Plain paper (64 g/m² to 128 g/m²), colored paper; OHP film, Canon-recommended postcard
Cassette	Claw	None.
	Standard	27 mm deep (about 250 sheets of 80g/m² paper)
	Universal	20 mm deep (about 200 sheets of 80g/m² paper)
Tray		About 100 sheets (80 g/m²)
Non-image area	Leading edge	3.5 ±1.5 mm wide (DIRECT)
	Left/Right	2.5 ±1.3 mm wide
Auto clear		Provided. (2 min standard; variable between 0 to 9 min in 1-min increment)
Auto shut-off		Provided. (2 hr standard; variable between 0 to 300 min in 10-min increment)
Options		Control Cards III and V, Control Counter, CD Unit, Sorters VII-I and -II, Sorter VIII, D-ADF, RDF-II, Stapler Sorter

COPYRIGHT © 1993 CANON INC.

D. Others

Operating environment	Temperature	7.5° to 32.5°C
	Humidity	10% to 85%
	Atmospheric pressure	0.6 to 1 atm.
Power source		220 V 50 Hz , 240 V 50 Hz
Power consumption	Max.	1.5 kW or less
	Standby	0.252 kWh
	Continuous copying	1.33 kWh
Noise	Copying	55 dB or less (1 m from copier)
	Standby	40 dB or less (1 m from copier)
Ozone (average over 8 hr)		0.1 ppm or less
Dimensions	Width	1152 mm
	Depth	670 mm
	Height	1096 mm (w/RDF-II)
Weight		170.5 kg (w/RDF-II)
Consumables	Copy paper	Wrap to protect against humidity.
	Toner	Avoid direct sunlight; store under 40°C, 85%.
	Developing assembly	Keep in box or pedestal to avoid direct sunlight; store under 30°, 85%.

Table 1-1

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.1 DEC. 1993 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)d

Reproduction ratio		Size	Cassette	copies/min
DIRECT		A3 (297 × 420 mm)	A3	29
		A4 (210 × 297 mm)	A4	50
		B4 (257 × 364 mm)	B4	33
		B5 (182 × 257 mm)	B5	50
		US (176 to 230 mm) (251 to 290 mm) (176 to 230 mm) (128 to 158 mm)	US	–
		UL (307 to 370 mm) (193 to 226 mm)	UL	–
REDUCTION	I	A3 → A4	A4R	31
		B4 → B5	B5R	35
	II	B4 → A4	A4R	31
	III	A3 → B4	B4	27
		A4 → B5	B5	39
ENLARGEMENT	I	A4 → A3	A3	29
		B5 → B4	B4	33
	II	A4 → B4	B4	33
	III	B4 → A3	A3	29
		B5 → A4	A4	49

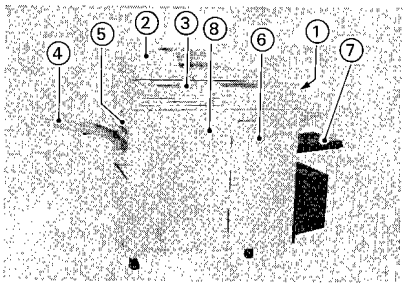
Table 1-2

Specifications are subject to change without notice for product improvement.

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.1 DEC. 1993 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)d

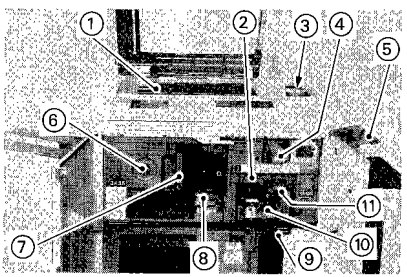
III. NAMES OF PARTS

A. Exterior View



① Power switch
② RDF-II
③ Control panel
④ Copy tray
⑤ Delivery unit cover
⑥ Front right door
⑦ Cassette
⑧ Front left door

Figure 1-1

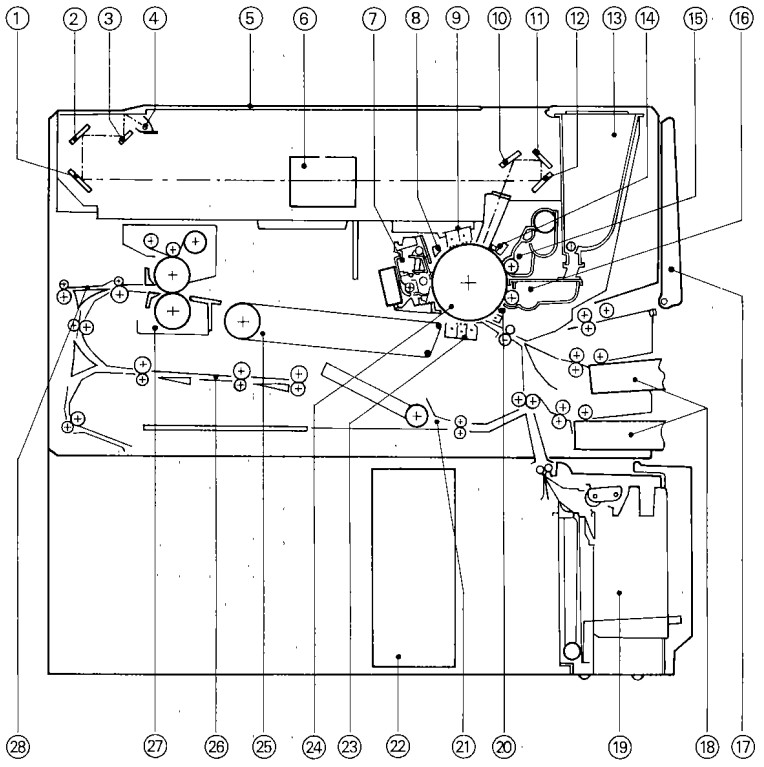


① Copyboard glass
② Transfer/Separation corona unit
③ Hopper for black
④ CD unit
⑤ Multifeed tray
⑥ Fixing assembly knob
⑦ Feeder unit 1 release lever
⑧ Tray guide plate
⑨ Paper feed guide release lever
⑩ Pick-up unit 2 release lever
⑪ Lower transfer guide unit release lever

Figure 1-2

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.0 NOV. 1988 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

B. Cross-Sectional View



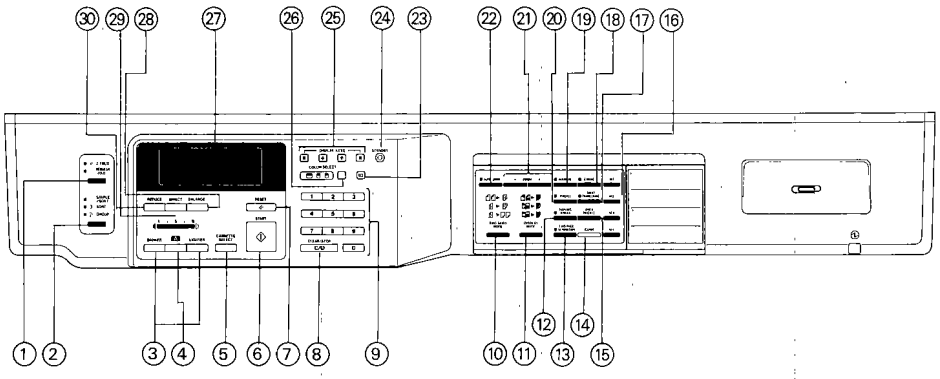
① Mirror 3
② Mirror 2
③ Mirror 1
④ Scanning lamp
⑤ Copyboard glass
⑥ Lens
⑦ Drum cleaning unit
⑧ Pre-conditioning exposure lamp
⑨ Primary corona unit
⑩ Mirror 6
⑪ Mirror 5
⑫ Mirror 4
⑬ Hopper unit
⑭ Blank exposure lamp
⑮ CD unit
⑯ Black developing assembly
⑰ Multifeed tray
⑱ Cassettes
⑲ Paper deck
⑳ Pre-transfer corona unit
㉑ No. 2 paper pick-up unit
㉒ Waste toner receptacle
㉓ Transfer/Separation corona unit
㉔ Drum
㉕ No. 1 feeder unit
㉖ No. 2 feeder unit
㉗ Fixing assembly
㉘ Delivery unit

Figure 1-3

COPYRIGHT © 1993 CANON INC.

IV. OPERATION

A. Control Panel



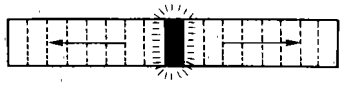
① PAPER FOLD key
② SORT/GROUP/STAPLE key
③ COPY DENSITY key
④ AE key
⑤ CASSETTE SELECTION key
⑥ COPY START key
⑦ RESET key
⑧ CLEAR/STOP key
⑨ INPUT keys
⑩ TWO-SIDED MODE key
⑪ OVERLAY MODE key
⑫ AREA DESIGNATION key
⑬ PAGE SEPARATION key
⑭ GUIDE key
⑮ AREA RECALL key
⑯ COPY MODE MEMORY key
⑰ SHEET FRAME ERASE key
⑱ FRAME ERASE key
⑲ BINDING MARGIN key
⑳ PHOTO MODE key
㉑ ZOOM key
㉒ AUTO REPRODUCTION RATIO key
㉓ ID key
㉔ STANDBY key
㉕ DISPLAY key
㉖ COLOR SELECTION key
㉗ MESSAGE display
㉘ ENLARGEMENT key
㉙ DIRECT key
㉚ REDUCTION key

Figure 1-4 (NP-6650)

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.1 DEC. 1993 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

B. Basic Copy Operation

1) Shift the POWER switch to 'I'.
① If the temperature of the fixing assembly is below the specified value, 'WAIT' lights in red.
② If the temperature of the fixing assembly is of the specified value or above, 'WAIT' lights in green.
③ Normally, the warm-up is four minutes (room temperature, 20°C).
2) Open the copyboard cover, and set the document face down aligned with the size index.
3) Press the DIRECT, REDUCTION, ENLARGEMENT, or ZOOM key to select the reproduction ratio desired.
4) Select the cassette holder holding the cassette to be used if a particular paper size is desired.
① Replace the cassette if necessary.
5) Press the COPY DENSITY key to select copy density suited to the document.
① For a higher copy density, press the 'DARKER' key; this will move the copy density indicator to the left. To obtain lower density, on the other hand, press the 'LIGHTER' key; this will move the copy density indicator to the right.



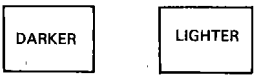


Figure 1-5

6) Specify the number of copies desired (1 to 999) with the input keys; check the number on the 'MESSAGE' display.
① If the input keys do not work, or to correct a mistake, press the CLEAR/STOP key and specify the number again.
7) Select the developing assembly with the color desired.
① Replace the developing assembly if necessary.
8) Press the COPY START key.
① If a D-ADF or RDF is used, the document(s) on the document tray will be picked up automatically and the copy operation will start.
② Copies in numbers specified will be made automatically.
③ Keys for copy modes other than the CLEAR/STOP and COPY DENSITY keys will not work between the first and last copies.
④ Between the first and last copies, a change from automatic to manual density control can be made; however, a change from manual to automatic is not possible.

Note:
If copies prove to be too dark or too light in the AE mode, use the 'COPY DENSITY' display as reference and press the COPY DENSITY key until the desired density is obtained; the method will not interrupt the copy operation.

⑤ To stop continuous copy operation, press the CLEAR/STOP key; the copy operation will stop after finishing the copy cycle in effect.
⑥ The number on the 'MESSAGE' display upon completion of copy operation is the number specified initially. If the ADD PAPER indication lights in the middle of copy operation and the copy operation stops, a press on the COPY START key again after setting paper and cassette will finish the remaining number of copies automatically.
⑦ A jam in the middle of copy operation causes 'JAM' to light on the display, and the copy operation stops.
The number on the 'MESSAGE' display after removal of the jam is the remaining number of copies.
⑧ If left alone for about two minutes after finishing copy operation or operating a key, the copier returns to its standard mode. (This auto-clear time can be changed if desired.)

C. Pre-Heat Mode

A press on the STANDBY key during warm-up will activate the pre-heat mode and all indications except 'STANDBY' on the panel will go out.
① The indications on the control panel cannot be returned by pressing the keys on the panel; the STANDBY key, however, is effective.
② A press on the STANDBY key once again clears the pre-heat mode.
③ The pre-heat mode controls the temperature of the fixing assembly by maintaining it 5°C lower than normal.
④ The pre-heat mode is canceled when the control Card/ Counter is inseted.

COPYRIGHT © 1993 CANON INC.

D. Binding Mode

A press on the BINDING MARGIN key produces copies with a binding margin.

① Copies made in the binding mode will have a margin on the right or left. The width of the margin is specified by the asterisk mode between 1 mm and 20 mm.

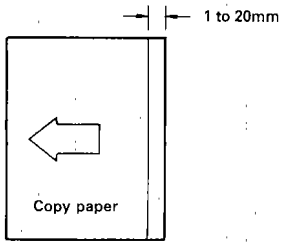


Figure 1-6

E. Document Frame Erasing Mode

A press on the DOCUMENT FRAME ERASING key produces copies with white margins on three sides of the document each about 2.5 mm in width.

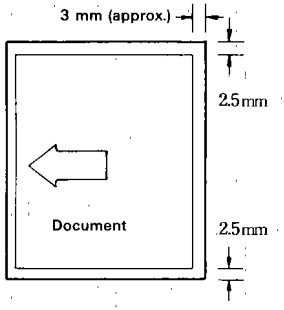


Figure 1-7

F. Sheet Frame Erasing Mode

A press on the SHEET FRAME ERASING key produces copies with white margins on all four sides of the copies about 7.5 mm in width.

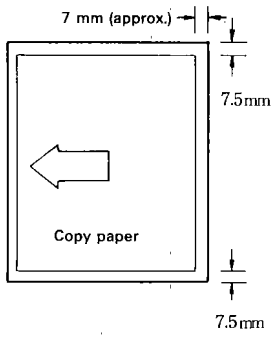


Figure 1-8

G. Two-Sided Copy Operation

1. Automatic Two-Sided Copy Operation (NP-6650 only)

A press on the TWO-SIDED COPY key produces two types of two-sided copy.

① Two-Sided Copy from One-Sided Document
- Use of a D-ADF/RDF makes replacement of documents easier.
- A press on the PAGE SEPARATION key at the same time produces two-page separation/two-sided copies.

② Two-Sided Copy from Two-Sided Document
- This operation is possible only for copiers equipped with a D-ADF/RDF.

2. Manual Two-Sided Copy Operation

Two-sided copies can be produced manually using the multifeeder tray. Take note of the following in making use of this feature.

① Turn over the copy when its first side is completed; do not turn it around, but feed the same edge first into the copier.
② Make sure that the copy paper is not moist or curled.

H. Overlay Copy Operation

1. Automatic Overlay Copy Operation (NP-6650 only)

① A press on the OVERLAY key produces overlay copies.
② A press on the PAGE SEPARATION key at the same time produces page separation/overlay copies.

2. Manual Overlay Copy Operation

Overlay copies can be produced manually using the multifeeder tray. Take note of the following when making use of this feature.

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.1 DEC. 1993 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

① Make sure that the copy paper is not moist or curled.
② Make sure that the paper has cooled enough before the second copy operation; this holds true for OHP film in particular.

I. Automatic Selection of Paper Size

When this mode is selected, the copier automatically selects the cassette (copy paper) best suited to the document size and reproduction ratio.

If neither of the cassettes contains such paper, the copier selects the cassette with paper that can hold the most image (spatial) and indicates its selection on the display. The copy operation starts upon a press on the COPY START key. The copy operation is stopped by a press on the CLEAR/STOP key.

J. Automatic Selection of Reproduction Ratio

When this mode is selected, the copier automatically selects the reproduction ratio best suited to the document size and the cassette (copy paper).

Documents, if not of standard size, are identified as one of the standard sizes; for this reason, this mode is executed within the ratios available for standard document sizes.

K. Color Conversion

An area or areas can be specified over the document (up to eight areas if rectangular). Copies may be of the inside of the area(s) only (trimming) or of the outside of the area(s) only (masking); in addition, the inside and outside of the area(s) may be copied in different (two) colors.

The area is formed by the blank exposure lamp; as such, the area specified and that on the copy may have a discrepancy of 6 ± 1.3 mm.

L. Replacing the CD Unit

1) Open the front right door.
2) Slide the CD unit out to the front.
3) Hold the handle of the CD unit, and lift it with care.

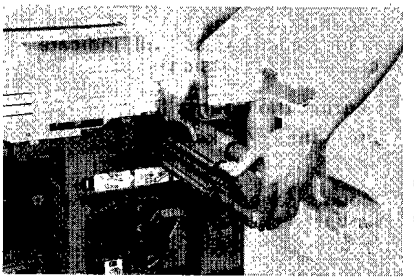


Figure 1-9

4) Set the CD unit desired with care, and slide it inside.
5) Close the right front door.

Note:
1. Do not tilt or shake the CD unit.
2. Do not place the CD unit on the floor; always keep it in its box when not in use.

M. ID Mode

With the ID mode, copies will not be made unless an ID No. is entered; the ID No. consists of four digits and is registered in advance.

A total of 25 ID Nos. may be registered. As counts can be made for each ID No. (copies made), copy loads can be monitored for each group, section, department, etc.

1. Registering an ID No.

1) Press the ☒ → ID → AUTO ZOOM → ☒ keys.
2) Press the # key, and enter a four-digit ID No. with the input keys.
3) Press the ☒ key to return to the standard screen.

2. Entering the ID No.

1) Enter the ID No. (registered) with the ten-key pad.
2) Press the ID key.
   The copier will be ready for copying.
3) Make copies.
4) Press the ↓ key when copying is complete.
   The copier will return to the ID mode, in which copies cannot be made unless an ID No. is entered once again.

3. Count Control

Counts can be indicated by ID No.; counts refer to the total number of copies that have been made up to that point in time.

1) Press the ☒ → ID → ☒ → AUTO ZOOM ↓ keys.
2) Press the # key.

COPYRIGHT © 1993 CANON INC.

3) Press the ⊡ key to indicate the counts representing the number of copies made; each press will indicate the counts in succession for each ID No.

4. Clearing the Counts for All ID Nos.

1) Press the C/S key.

Note:
The counts cannot be cleared on a single ID No. basis.

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.0 NOV. 1988 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

N. Asterisk Mode (user mode)

The asterisk mode enables the user to make mode settings of his/her choice.

<table>
<tr><th>Key operation</th><th>Description</th><th>Operations/Remarks</th></tr>
<tr><td>[*] → [1] → [*]</td><td>● Selecting the reproduction ratio.
The optimum reproduction ratio is automatically selected in response to the document size and desired copy size entered.</td><td>If the calculation result is 50% or less, 50% will be selected; if 200% or more, 200% will be selected.</td></tr>
<tr><td>[*] → [2] → [*]</td><td>● Mixing documents of mixed sizes.
Documents set on the feeder may be of different sizes as long as they are of the same feed size (e.g., A4 and A3). The paper size and reproduction ratio will be automatically selected according to the size of each document.</td><td>[1] : OFF ..... mixing not
[2] : ON ..... Mixing allowed.
Mixed documents are checked for size for each document. The copy speed therefore will slow down.</td></tr>
<tr><td>[*] → [3] → [*]</td><td>● Selecting the left/right binding.
The location of binding margins in the binding mode and copy priority between right and left pages in the page separation mode will be specified.</td><td><table><tr><th></th><th>[1] : L binding</th><th>[2] : R binding</th></tr><tr><td>Margin</td><td>L binding</td><td>R binding</td></tr><tr><td>Page separation</td><td>L page first</td><td>R page first</td></tr></table>Normally, left binding is selected.</td></tr>
<tr><td>[*] → [4] → [*]</td><td>● Specifying the auto-clear time.
The time for auto-clear will be specified between 1 min and 9 min at 1-min. increment.</td><td>If set to 0 min, the auto-clear mechanism will be disabled.</td></tr>
<tr><td>[*] → [5] → [*]</td><td>● Specifying the date and time.</td><td>—</td></tr>
<tr><td>[*] → [6] → [*]</td><td>● Cover page mode.
See p. 1-15.</td><td>● Without cover.
● Black copy as cover.
● Color copy as cover.</td></tr>
<tr><td>[*] → [7] → [*]</td><td>● Canceling the document count mode for RDF-II.
In making two-sided copies from a one-sided document with the RDF-II, the number of documents are automatically counted. The feature can be canceled.</td><td>[1] : OFF
[2] : ON</td></tr>
<tr><td>[*] → [8] → [*]</td><td>● Cleaning the corona wires.
The primary, transfer, and separation corona unit wires will be automatically cleaned.</td><td>[1] : OFF
[2] : ON</td></tr>
<tr><td></td><td>● Storing the copy modes.
Up to four copy modes (any) can be stored in the memory.</td><td>1) Press the copy mode key desired.
2) Press the [*] key.
3) Press the COPY MODE MEMORY key (M1, M2, M3 or M4).
4) Press the [*] key.</td></tr>
</table>

Table 1-4

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.1 DEC. 1993 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

1. Cover Mode

The cover mode is used in combination with an RDF-II or D-ADF; paper different from that used for the body of the document can be added as a cover page.

The paper used as the cover page is picked up from the upper cassette; therefore, it is necessary that the paper be placed in the upper cassette before starting copy operation.

1. Copy on Cover Page

The last document fed from the RDF-II or D-ADF will be automatically copied onto the cover page.

2. No Copy on Cover Page

Place a blank sheet of paper on top of the stack of document pages. Make sure that the sheet is of the same size as the document pages.

The blank sheet will be copied on the cover page.

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.0 NOV. 1988 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

V. WARNING INDICATIONS AND CORRECTIVE ACTIONS

A. Jam Indication

When a jam is indicated on the display of the control panel, make a check and take a corrective action as follows; for jams occurring in options (sorter, RDF), refer to the Service Manual of the appropriate options.

In general, if the jam is in the copier, check the pick-up unit, separation/feeder unit, fixing/delivery unit, cleaning unit, and duplexing/feeder unit, and make sure that no paper is left behind. The location lamps shown in Figure 1-10 comes into view and light when the front door is opened for identification of the jam location.

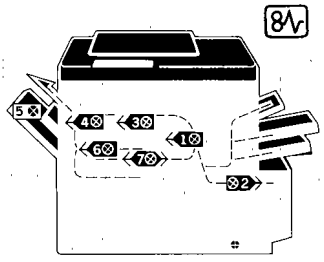
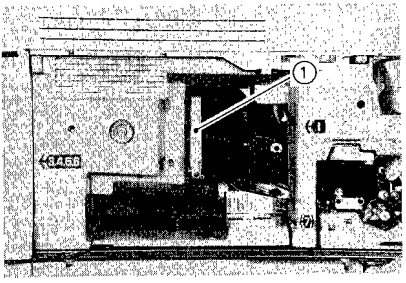


Figure 1-10

1. When lamp 1 lights,

1) Turn the release lever of the feeder unit clockwise, and remove the copy paper.



① Release lever

Figure 1-11

2) Check the cassette holder selected.

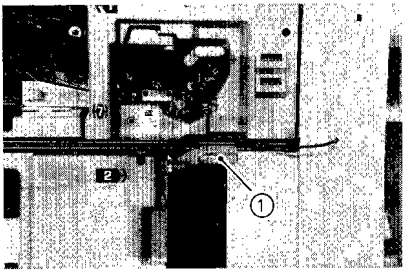
a. Remove the cassette from the cassette holder, and remove the copy paper from the pick-up unit.

- If copy paper sticks out of the cassette, remove it.

b. If copy paper from the multifeed tray has jammed, pull it back out.

2. When lamp 2 lights,

1) Turn the paper deck feed guide plate release lever down.



① Release lever

Figure 1-12

2) Open the door of the paper deck, and remove the copy paper.
3) Close the door of the paper deck.

3. When lamp 3, 4, 5, or 6 lights,

1) Take away the copies from the copy tray.
2) Open the delivery unit.
3) If the jam is between the fixing rollers, turn the fixing assembly knob counterclockwise, and remove the copy paper.

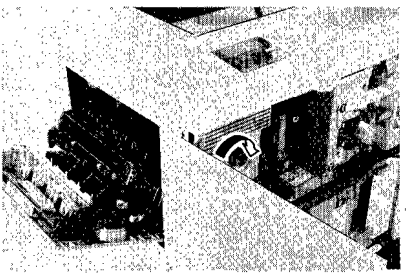
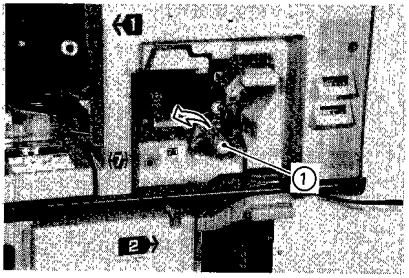


Figure 1-13

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.1 DEC. 1993 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

4. If lamp 7 lights

1) Turn the release lever of the No. 2 pick-up unit counterclockwise.



① Release lever

Figure 1-14

2) Pull the tray guide plate to the front, and remove the copy paper.

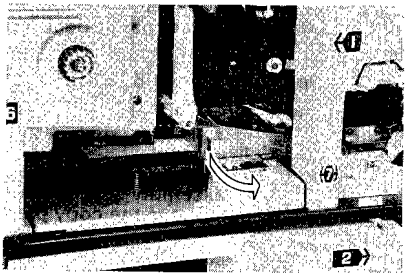


Figure 1-15

5. After Removing the Jam

1) Return all levers to their original positions.
2) Close all covers and delivery unit.

B. ADD PAPER Indication

If no cassette is set in the cassette holder selected or no paper is in the cassette, 'ADD PAPER' will be indicated on the display.

1) Pull the cassette out of the cassette holder selected.
2) Set paper in the cassette.

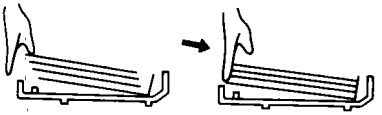


Figure 1-16

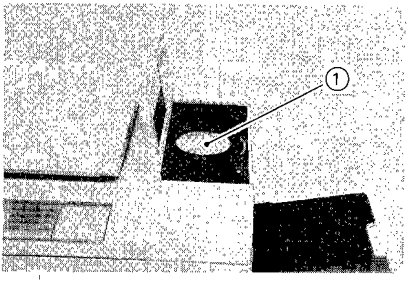
3) Set the cassette in the cassette holder.

C. ADD TONER Indication

When the toner inside the hopper or developing unit is running short, 'ADD TONER' will be indicated on the display.

1. Supplying the Black Toner

1) Open the hopper cover, and remove the cap from the hopper.



① Cap

Figure 1-17

2) Shake the toner bottle up and down several times.

Figure 1-18

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.0 NOV. 1988 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

3) Remove the seal from the opening of the toner bottle.
4) Fit the toner bottle over the opening of the hopper.
5) Hold the toner bottle with one hand, and turn the tab of the bottle clockwise 90°.

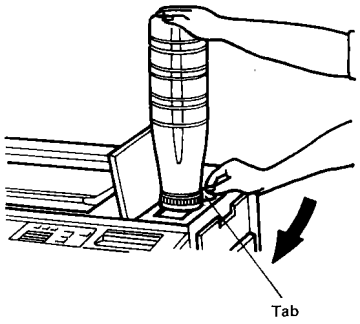


Figure -19

6) Tap the toner bottle on its bottom and side several times so that all of the toner will fall into the hopper.
7) Turn the tab of the toner bottle counter-clockwise 90°, and remove the toner bottle.
8) Install the cap and close the hopper cover.

2. Supplying the Color Toner

1) Open the front door.
2) Turn the empty cartridge clockwise, and pull it out to the front.
- Put the empty cartridge back into its box; the box holds two cartridges.

3) Make sure that the toner of the new cartridge is of the right color, and shake the cartridge end-to-end about 10 times. Set the cartridge in the holder, aligning the tab at the tip of the cartridge with the groove on the holder. Push the cartridge in the holder along the groove while peeling the seal with care as in Figure 1-20.

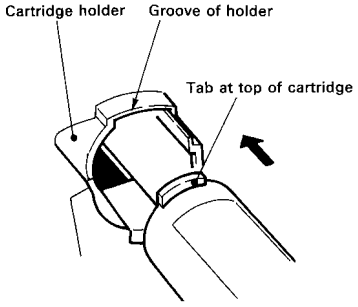


Figure 1-20

4) When the cartridge is fully inside, turn its tab slowly four to five times.

Note:
Supply a cartridgeful of toner; keep the cartridge inserted.

5) Close the front door.

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.1 DEC. 1993 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

VI. ROUTINE INSPECTION BY THE USER

Instruct the user to clean the following parts at least once a week.

1. Copyboard Glass
   Wipe it with a moist cloth; then, wipe it dry.
2. Copyboard Cover and Feed Belt
   Wipe it with mild detergent solution; then, wipe it dry.

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.1 DEC. 1993 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

I. IMAGE FORMATION PROCESS

A. Outline

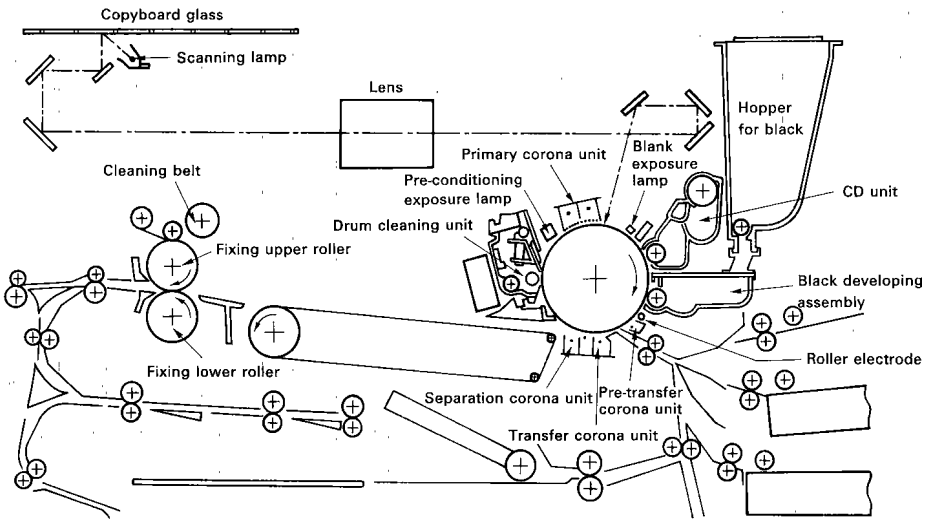


Figure 2-1

The copier is an electrophotographic copier equipped with a photosensitive drum. See Figure 2-1 for its construction. Images are formed in the following nine steps.

Step 1 Pre-conditioning exposure
Step 2 Primary corona (positive DC)
Step 3 Image exposure
Step 4 Development (AC and positive DC)
Step 5 Pre-transfer corona (AC and negative DC)
Step 6 Transfer corona (positive DC)
Step 7 Separation corona (AC and positive DC)
Step 8 Fixing
Step 9 Drum cleaning

Figure 2-2 is a sequential diagram which shows how steps involved in forming images are related to each other.

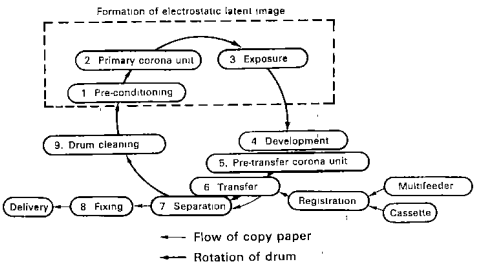


Figure 2-2

The photosensitive drum is of a two-layer construction; its outer layer is made of amorphous silicon, and the inner layer is an aluminum base made of conductor.

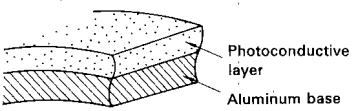


Figure 2-3

COPYRIGHT © 1993 CANON INC.

B. Formation of Electrostatic Latent Image

This block consists of the first three steps of the image formation process; at its end, the areas of the drum corresponding to dark areas of the document are left with positive charges, and those representing light areas are rid of positive charges.

The pattern of charges so formed is not visible to the human eye and, therefore, is called an "electrostatic latent image."

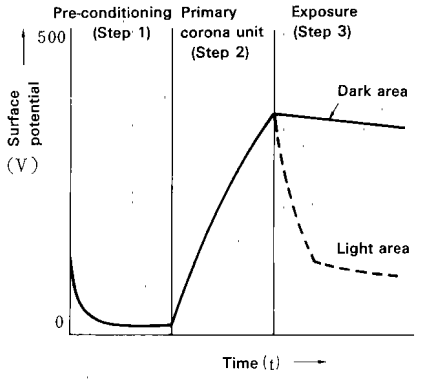


Figure 2-4

C. Step 1 Pre-conditioning exposure

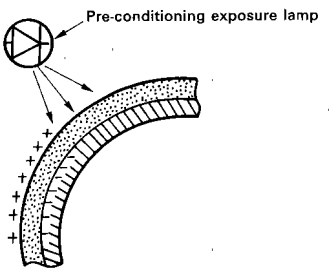


Figure 2-5

In this step, or pre-conditioning exposure, the surface of the drum is exposed to light from the pre-conditioning exposure lamps. All charges remaining on the surface of the drum from the preceding copy cycle are eliminated in preparation for exposure by the primary corona. Such charges, if left as they are, could result in copies with uneven density.

D. Step 2 Primary corona

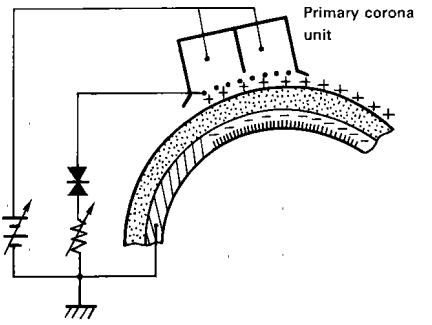


Figure 2-6

In this step, the drum is exposed by the primary corona. As a result, its surface will come to have a uniform layer of positive charges and maintain primary potential.

E. Step 3 Image exposure

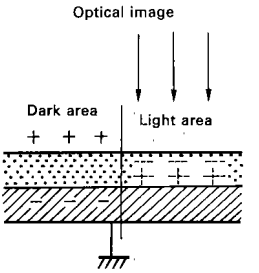


Figure 2-7

In this step, the optical image of the document is projected on the surface of the drum to neutralize the charges in light areas.

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.0 NOV. 1988 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

F. Step 4 Development

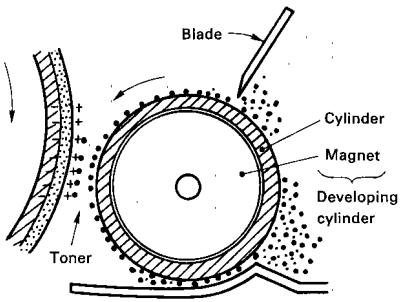


Figure 2-8

As shown in Figure 2-8, the developing assembly consists of a developing cylinder and a magnetic blade; the developing cylinder itself is made up of a magnet fixed in position and a cylinder which rotates around the magnet.

The black developer is composed of magnetite and resin.

The developer has insulating properties and is charged to a negative potential by friction against the rotating cylinder.

The color developer is a fixed-ratio mixture of carrier (iron powder) and toner (resin). By friction against the rotating cylinder, the iron powder is charged to a positive potential, and the toner to a negative potential.

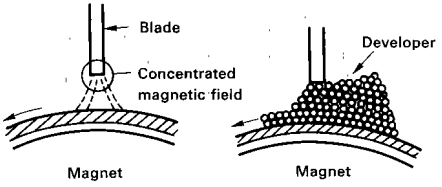


Figure 2-9

A concentrated magnetic field develops between the magnet and the tip of the blade, and the developer is attracted to the magnetic field.

The magnetic field holds the developer it has attracted virtually immobile and creates a collection of developer particles hanging from the tip of the blade. As the cylinder rotates, the developer particles leave the magnetic field to deposit themselves on the cylinder in a thin, uniform layer.

Since both the developing cylinder and blade are given an AC bias and DC bias (positive component) at the same time, the resulting wave form of the developing bias has a larger positive component than negative.

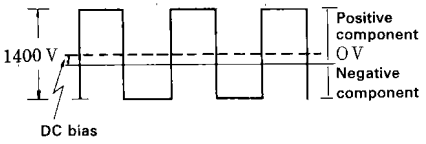


Figure 2-10

During development, the toner is attracted to the drum by the work of the surface potential of the drum and the developing bias (at time of negative component) and turns the electrostatic latent image to a visible image. Excess toner is repelled by the surface potential of the drum and the developing bias (at time of positive component).

G. Step 5 Pre-transfer corona

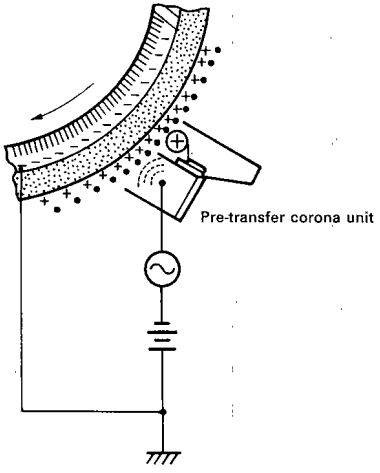


Figure 2-11

In this step, an AC corona discharge in combination with a DC bias optimizes the potential of the toner on the drum surface and, at the same time, eliminates excess charge from the drum surface. This serves to improve transfer efficiency and facilitate separation of the copy paper from the drum.

COPYRIGHT © 1993 CANON INC.

H. Step 6 Transfer corona

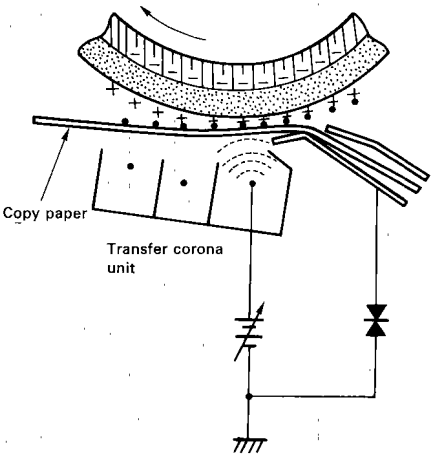


Figure 2-12

In this step, a positive corona is applied to the back of the copy paper so as to attract the negatively charged toner to the paper.

To prevent poor transfer or soiling on the back of the paper, the transfer guides are grounded through a varistor.

Note:
If grounded directly, the transfer guides will allow the charge needed on the back of the copy paper to escape; if not grounded, on the other hand, the transfer guides will be charged, coated with toner, and become soiled.

Once having left the fixing assembly, the copy paper is dried by the heat and has a high electrical resistance.

For this reason, during the second copy cycle in the automatic two-sided or overlay copy mode, the transfer corona discharge is reduced to prevent poor separation of the copy paper after transfer.

I. Step 7 Separation corona

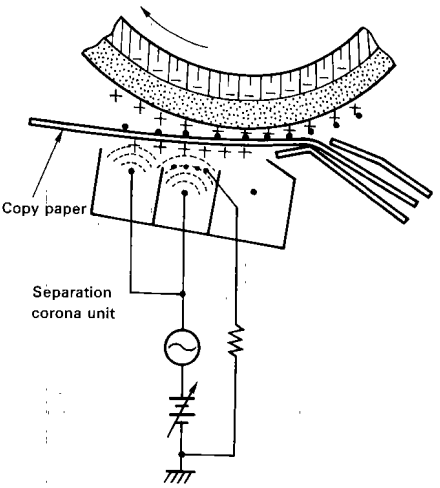


Figure 2-13

Step 7 is where copy paper is separated from the drum. The copy paper has been given a positive potential by the transfer corona and attracted to the surface of the drum by the work of electrostatic force. To separate the paper from the drum, an AC corona with a DC bias is applied to break the electrostatic force between the drum and paper.

The copy paper comes out of the fixing assembly with curl. For this reason, the output of the separation corona discharge during the second copy cycle in the automatic two-sided or overlay mode is varied to ensure proper separation.

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.0 NOV. 1988 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

J. Step 8 Fixing

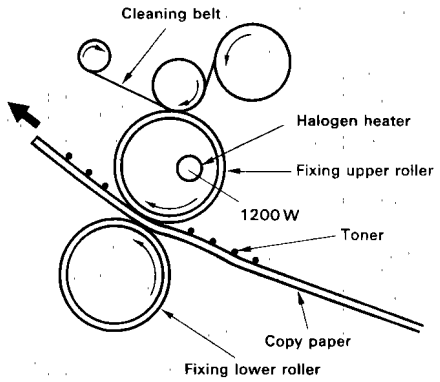


Figure 2-14

In this step, the copy paper carrying a toner image moves between two heated rollers, and the toner image is fixed to the paper.

To prevent jams and toner offset, the upper roller remains in contact with a cleaning belt impregnated with silicone oil; the take-up mechanism advances the point of contact on the cleaning belt, thereby cleaning the upper roller and, at the same time, applying the silicone oil.

K. Step 9 Drum cleaning

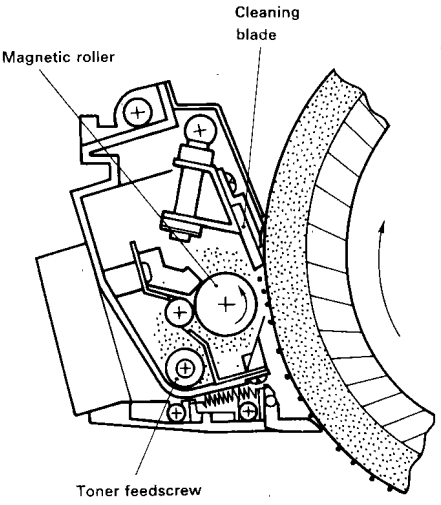


Figure 2-15

In this step, toner remaining on the drum surface is scraped off by the cleaning blade and collected by the magnet roller so as to prepare for the next copy cycle.

The toner so collected is forwarded by the waste toner feedscrew to the waste toner receptacle.

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.0 NOV. 1988 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)d

II. AUXILIARY PROCESSES

A. Roller Electrode

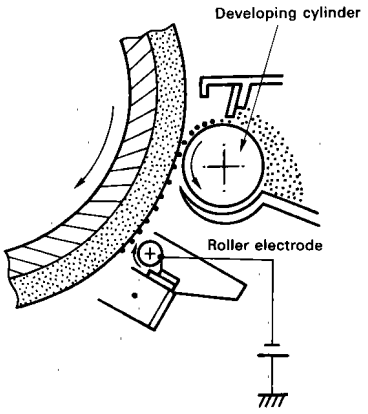


Figure 2-16

A DC bias (negative component) is applied to the roller electrode to collect stray toner.

B. Separation Claw

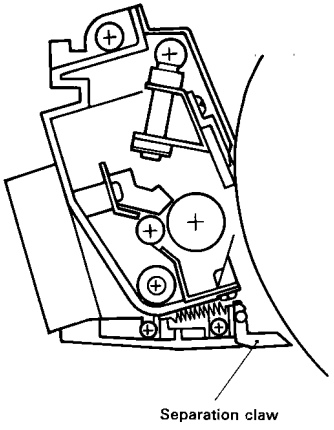


Figure 2-17

The copy paper can advance into the cleaning unit if not separated properly from the drum because of faulty pre-transfer or separation corona operation or owing to faulty paper feed. The separation claw is located at the bottom of the cleaning unit and serves to hook off the copy paper, preventing its advance into the cleaning unit.

C. Blank Exposure Lamp

The blank exposure lamp eliminates the surface potential of the drum over non-image areas so as to keep the drum free from excess toner.

The copier has zoom capability for the selection of reproduction ratios; to deal with varying non-image areas, the blank exposure lamp of the copier is composed of an array of LEDs.

D. Ozone Filter

The exhaust fan and feeder unit fan are equipped with an ozone filter, which breaks down the ozone generated by the coronas into oxygen by catalytic action.

E. Static Charge Eliminator

Copy paper prior to delivery has residual charge it has picked up at time of transfer. A grounded steel-wool brush is provided at the exit of the delivery unit to serve as a static charge eliminator.

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.1 DEC. 1993 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

I. BASIC OPERATIONS

A. Functional Blocks

The copier can be divided into four functional blocks; i.e., paper pick-up and feed system, exposure system, image formation system, and control system.

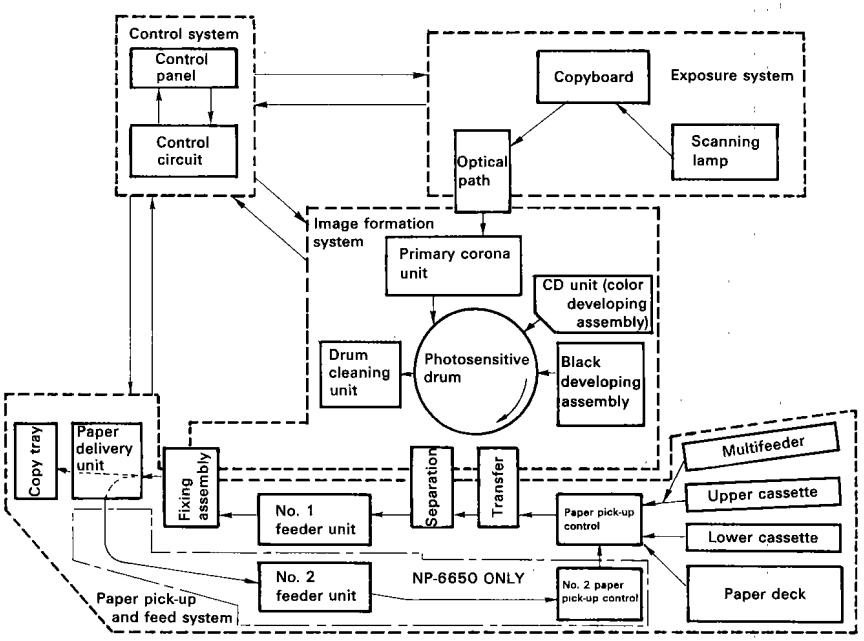


Figure 3-1

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.0 NOV. 1988 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

B. Electrical Circuitry

The electrical operations of the copier are controlled by two microprocessors and one communication IC on the DC controller PCB.

The functions of these two microprocessors and one communication IC are as follows:

1) Q101 (master; M)
   - Controls copy sequence
   - Controls control panel
   - Controls main motor and scanner motor
   - Controls surface potential of drum
2) Q242 (slave; S)
   - Controls blank exposure LEDs
   - Controls scanning lamp
   - Controls tray drive motor, cleaning belt motor, and lens motor
   - Controls fixing roller temperature (thermistor)
   - Detects document size
3) Q120
   - Communication with RDF/D-ADF, sorter, and others

The master has three ROMs and two RAMs connected to it and communicates with the slave as necessary for data transfer.

Figure 3-3 is a block diagram showing the relationship among the major circuits of the copier.

The DC controller PCB communicates with the controller PCB of the RDF/D-ADF and sorter for control of these options.

The input section of each microprocessor is equipped with a buffer and the output section, with a driver. These, however, are left out of the block diagram.

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.0 NOV. 1988 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

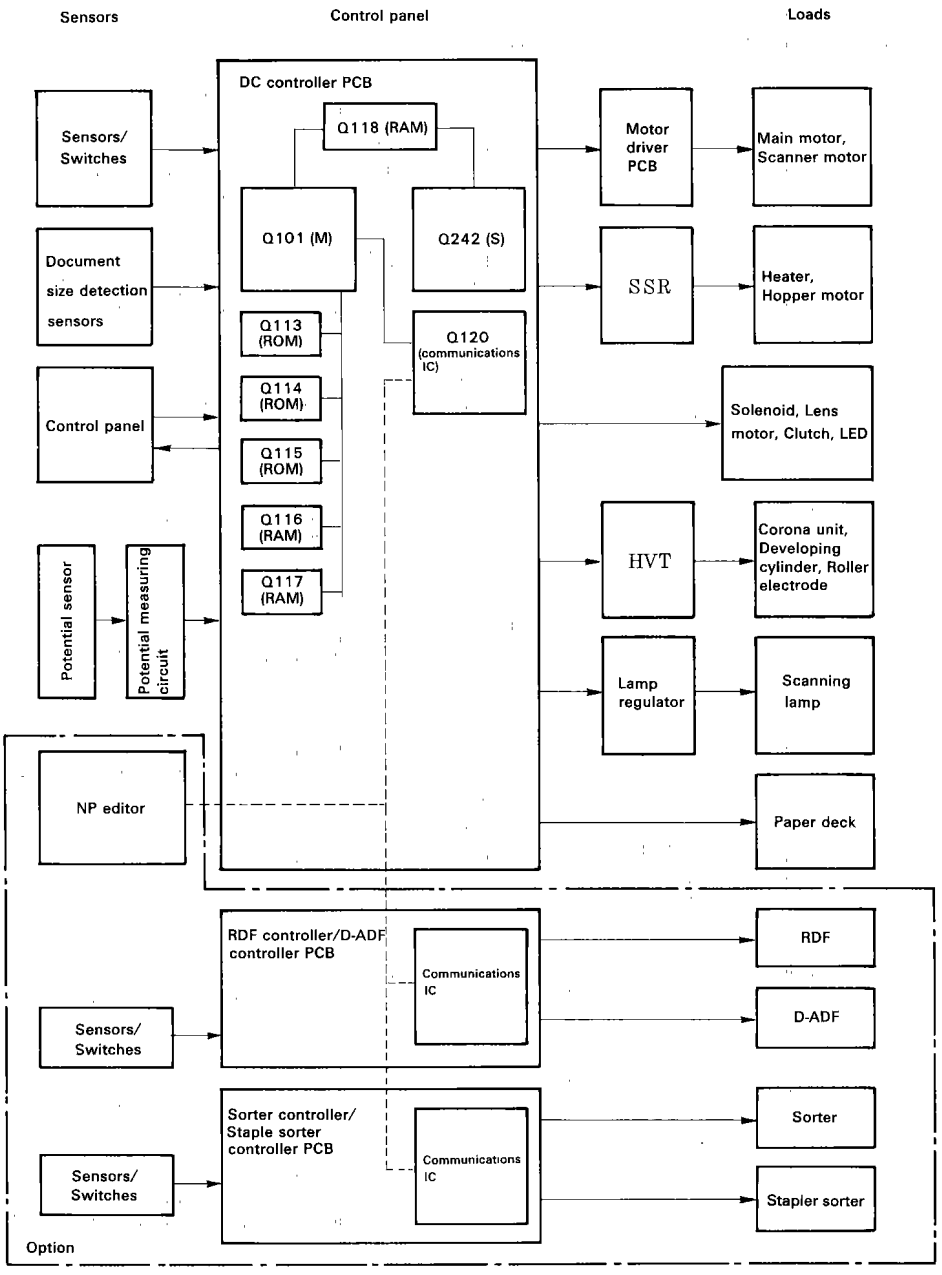


Figure 3-3

COPYRIGHT © 1993 CANON INC.

C. DC Controller Input

1. Input from Sensors and Switches (1/5)

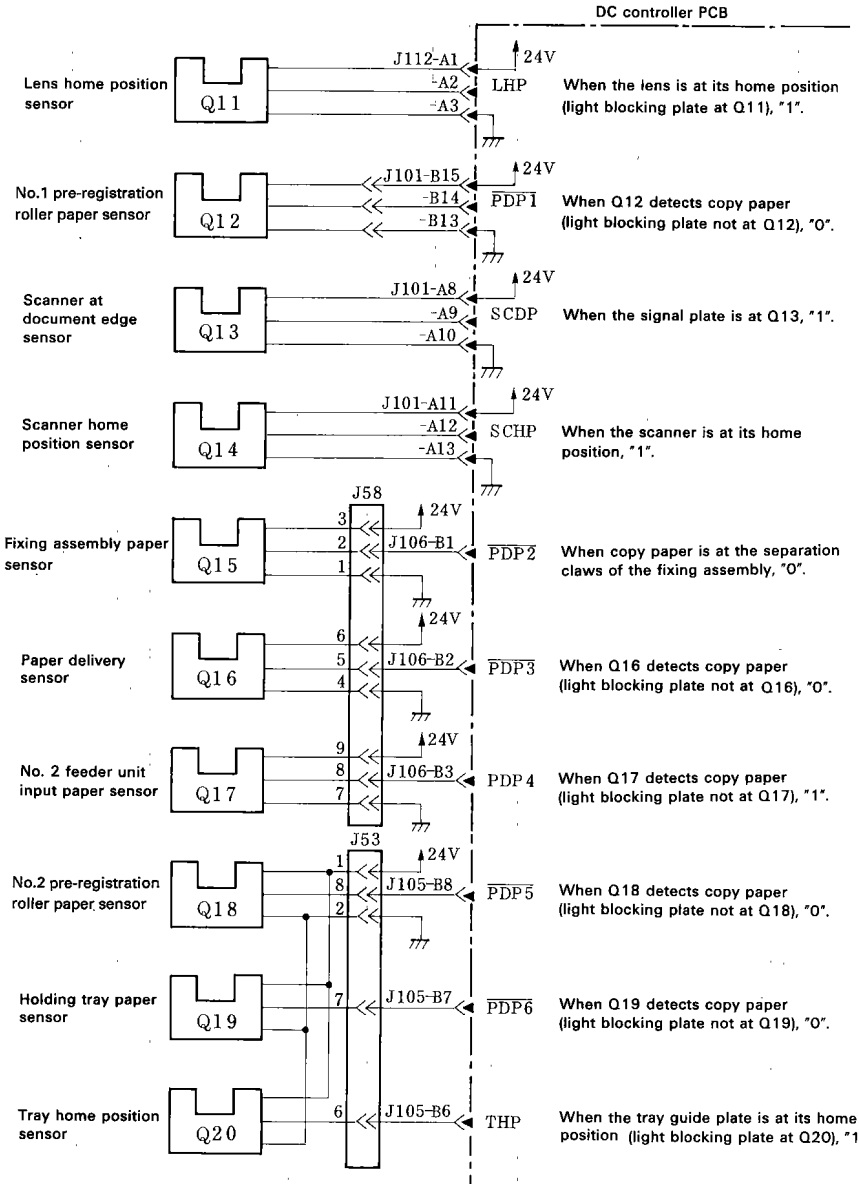


Figure 3-4

COPYRIGHT © 1993 CANON INC.
CANON NP-6650 REV.1 DEC. 1993 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

Product: 1993 Canon NP6650 Series Printer Service Repair Workshop Manual
Full Download: https://www.arepairmanual.com/downloads/1993-canon-np6650-series-printer-service-repair-workshop-manual/

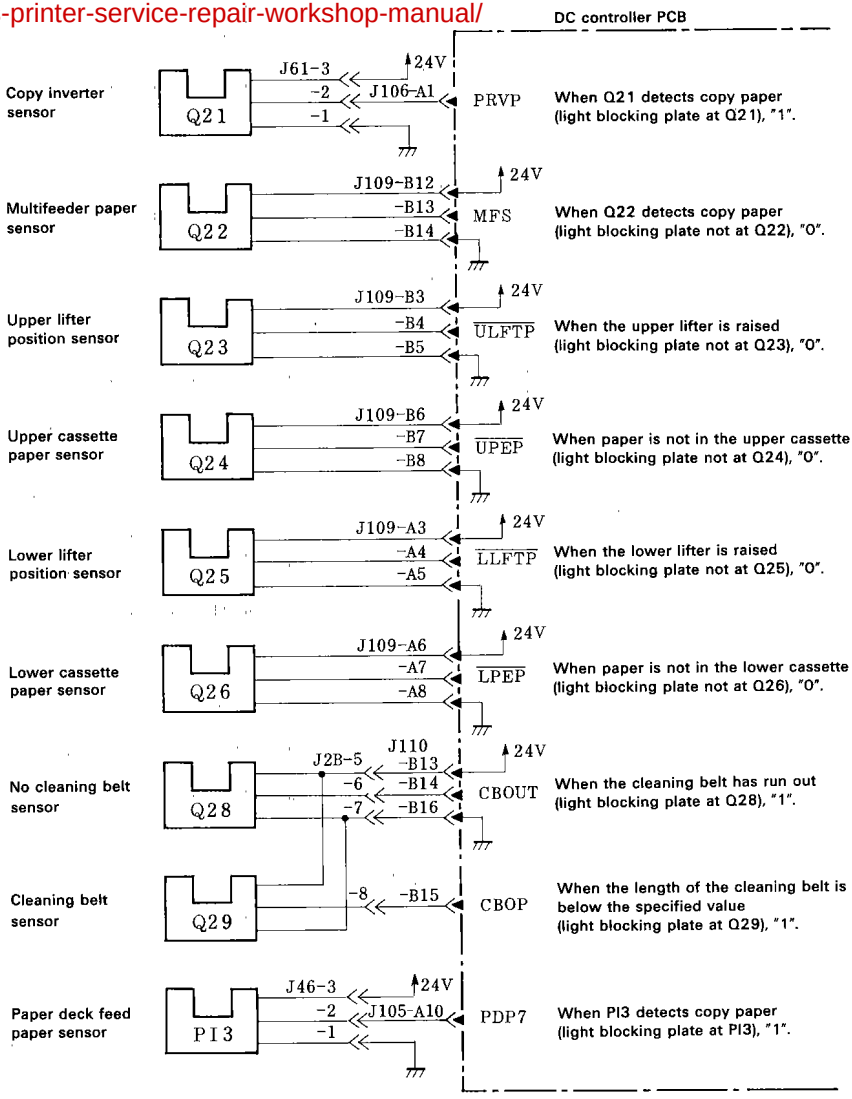


Figure 3-5

Sample of manual. Download All 299 pages at:
https://www.arepairmanual.com/downloads/1993-canon-np6650-series-printer-service