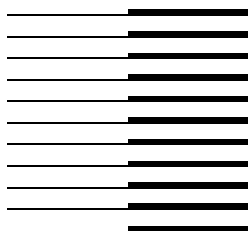
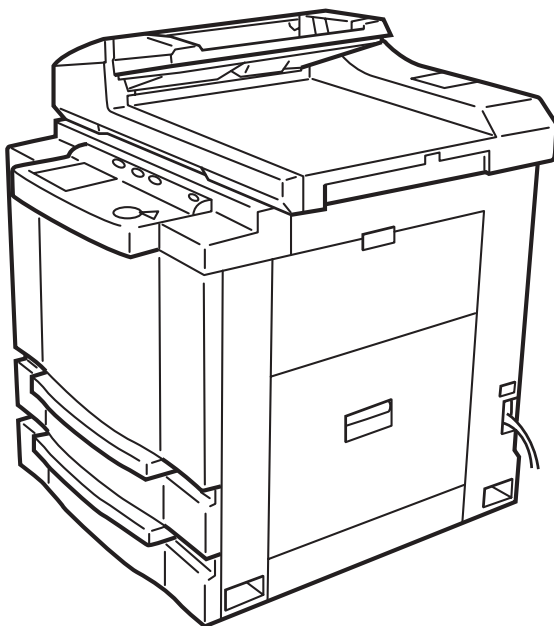


Océ



Technical Service Manual
Océ 3121/3122



3121/3122

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TROUBLE SHOOTING
GENERAL**

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02 - CHARGING
04 - EXPOSURE
05 - DEVELOPING
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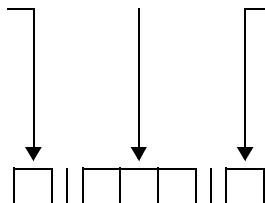
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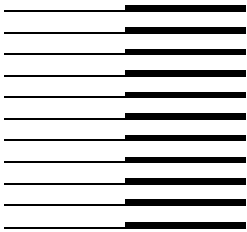
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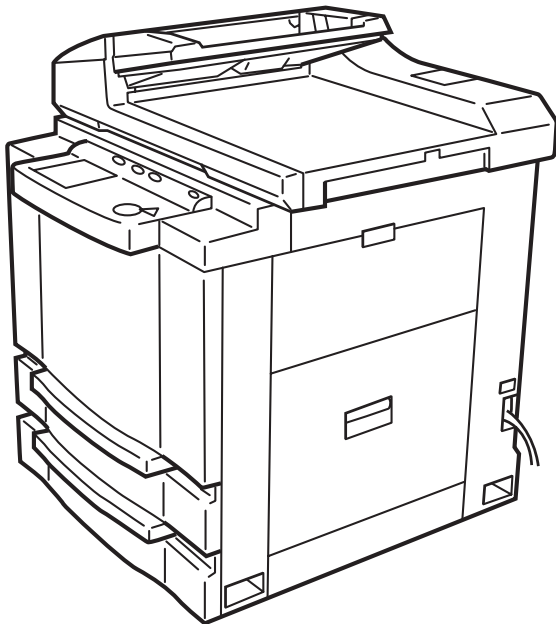
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Technical Service Manual
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INSTALLATION

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Installation

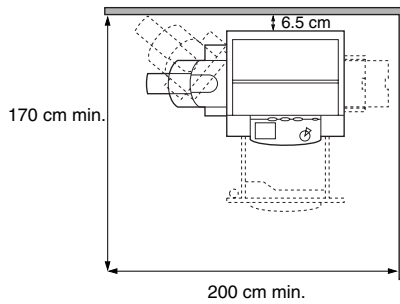
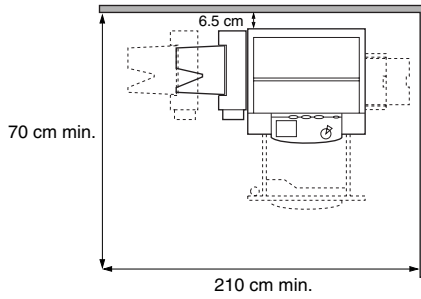
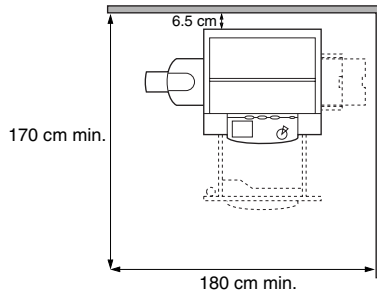
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Installation

1 The site

Requirements:

- 1 A mains supply of the correct rating.
- 2 The site must be 7.5° to 32.5°C in temperature and 5% to 85% in humidity.
- 3 Avoid areas near water faucets, water boilers, humidifiers, refrigerators; near to sources of fire, or dust or ammonia gas; places subject to direct sunshine.
- 4 Further requirements are:
 - The site must be well ventilated.
 - A level floor, so that all feet of the machine are supported, and the machine will remain level.
 - Allow at least 10 cm of space between the machine and any wall, for maintenance work.
 - A modular connection for the telephone.
Otherwise, you need to convert it into a modular type.
 - Space required for Servicing

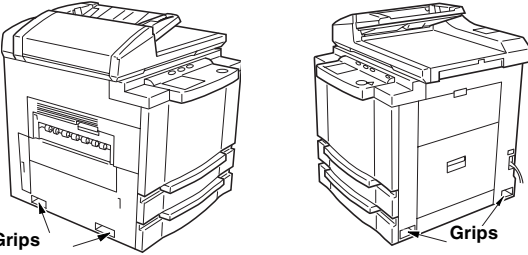


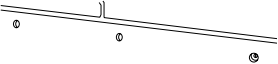
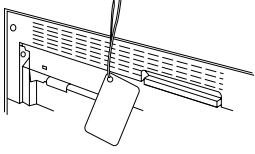
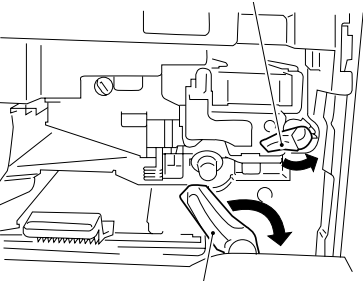
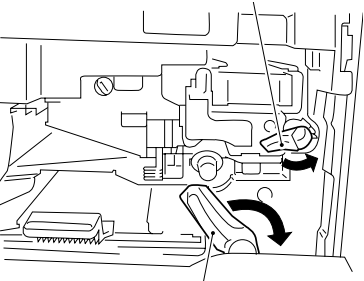
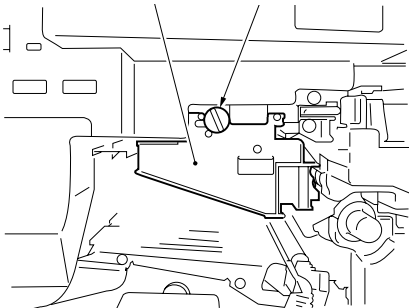
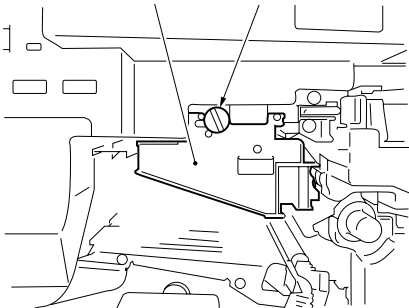
2 Unpacking and installation

Condensation can occur when a machine arrives at the destination.

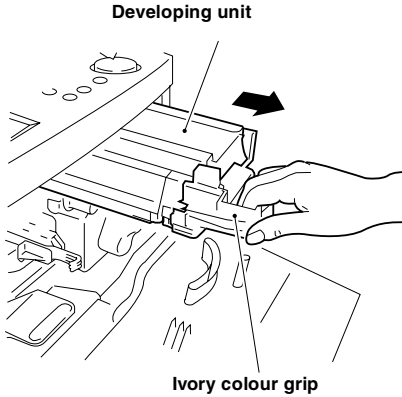
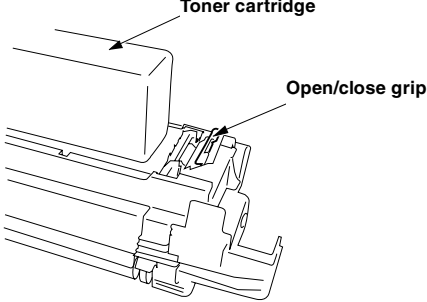
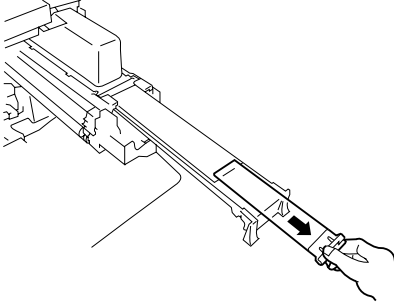
If the copier has just been moved from a cold place, allow it to acclimatise for at least one hour before unpacking.

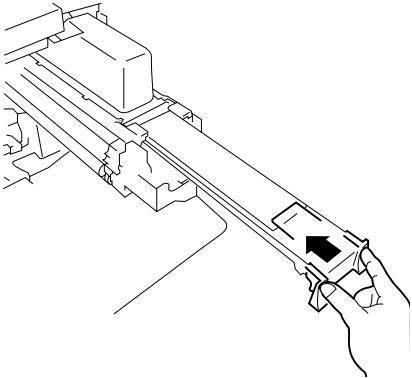
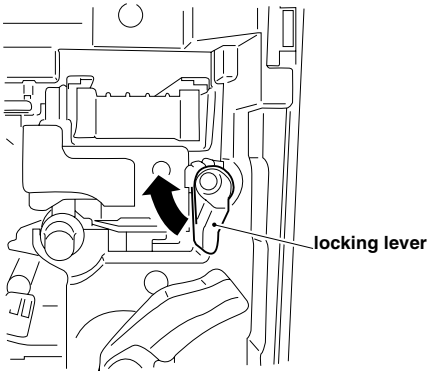
Unpacking

No.	Adjustments	Remarks
1	Unpack the machine, and remove the plastic covers. ■ If necessary, unpack the pedestal.	
2	Holding the copier by the grips, place the copier on the pedestal (this is work for two people).	 <p>Grips</p> <p>Grips</p>
3	Open the cardboard box, and remove the contents.	Check the contents: ■ Copy tray ■ User Manuals ■ Mains supply cable ■ OPC unit ■ Toner ■ Lower cover ■ Size label for the cassette (inside the cassette) ■ Key pad label (for machines with fax function) ■ Modular cable (for machines with fax function) ■ Document delivery tray (for machines with RDF) ■ Tray hinge (RDF only) ■ Hinge cover (RDF only)

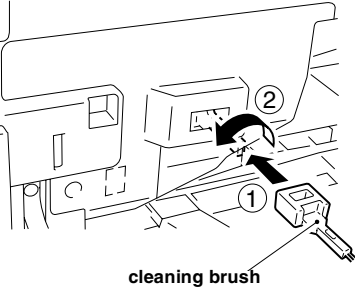
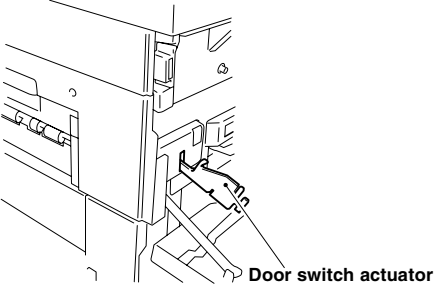
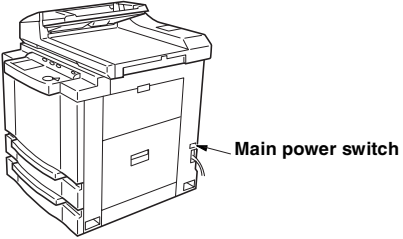
No.	Adjustments	Remarks
4	Remove the screw that is fixing the scanner. There is a label attached.	 <p>Scanner fixing screw</p>
5	Slide out the cassette. Remove the packing from inside the copier.	
6	Open the front door.	
7	Turn the lever, releasing the feeding unit.	<p>Locking lever for the developing unit</p> 
8	Turn the lever to the left, releasing the developing unit.	 <p>Lever for the feeding unit</p>
9	Loosen the screw, releasing the dummy drum. <ul style="list-style-type: none"> ■ Keep the removed screw. It is to secure the OPC unit. 	<p>Dummy drum Screw</p> 
10	Pull the dummy drum out to the front. <ul style="list-style-type: none"> ■ Dispose of the dummy drum. 	


Filling toner

No.	Adjustments	Remarks
1	Holding the ivory coloured grip, pull out the developing unit, until it stops.	 <p style="text-align: center;">Developing unit</p> <p style="text-align: center;">Ivory colour grip</p>
2	Shake the toner cartridge several times.	
3	Place the toner cartridge on the developing unit. Push the cartridge down, releasing the grip. <ul style="list-style-type: none"> ■ The cartridge will be held in place on the developing unit. 	 <p style="text-align: center;">Toner cartridge</p> <p style="text-align: center;">Open/close grip</p>
4	While holding the toner cartridge, pull the grip forwards until it stops.	

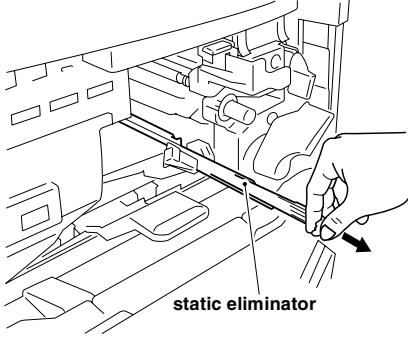
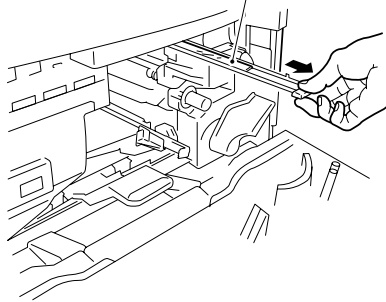
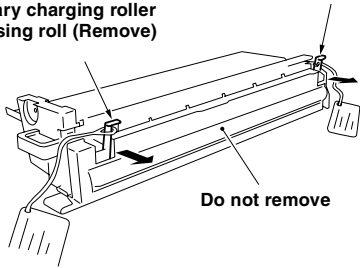
No.	Adjustments	Remarks
5	Tap lightly on the top of the toner cartridge so that all toner will fall off.	
6	Push the black cover back into the developing unit. ■ The toner cartridge will be released.	
7	Remove the toner cartridge	
8	Push in the developing unit until it stops.	
9	Turn the locking lever in the direction of the arrow, to lock the developing unit in place.	

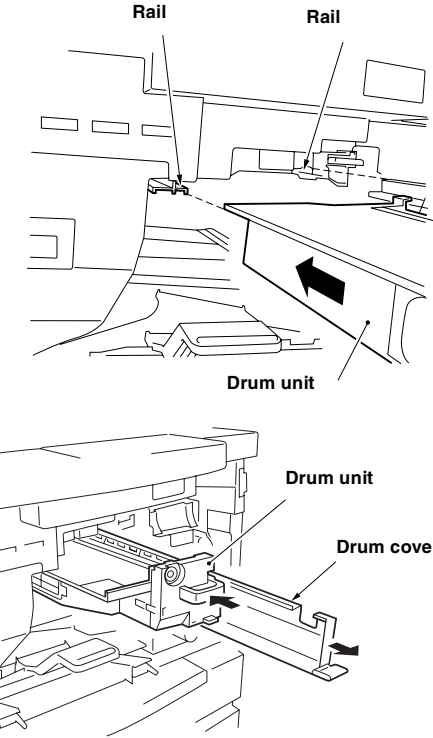
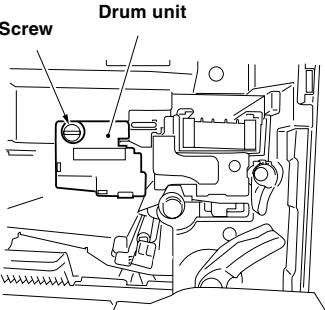
Stirring the Toner

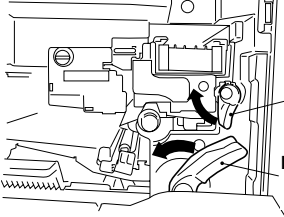
No.	Adjustments	Remarks
1	Insert the brush into the release opening, locking the fuser unit.	 <p>cleaning brush</p>
2	Insert the dummy actuator in the door switch.	 <p>Door switch actuator</p>
3	Connect the mains supply cable.	
4	Switch ON.	 <p>Main power switch</p>

No.	Adjustments	Remarks
5	<p>Switch to service mode, as follows:</p> <ol style="list-style-type: none"> 1) Press the service switch. 2) Check that '\$' is displayed on the LCD. Then, press '*' twice. 3) Press 'FUNCTION' (* 4 *). Then, press 'OK'. 4) Press  to turn pages to the Toner Stirring screen. 5) Press 'START'. Then, press 'OK'. <ul style="list-style-type: none"> ■ The stirring of the toner will start. ■ Install the output tray. 	<p>Toner stir screen</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>*4*FUNCTION 02 CANCEL</p> <p>TONER_S [240]</p> <p>START (OK)</p> <p>STOP (OK)</p> </div> <div style="display: flex; justify-content: center; gap: 10px; margin-top: 10px;"> << >> + - OK </div> <p>The stirring of the toner takes 4 minutes. It will stop automatically.</p>

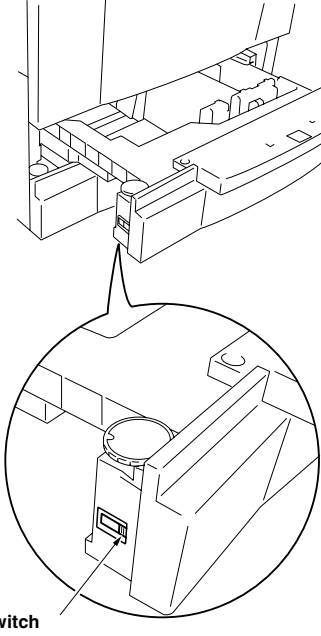
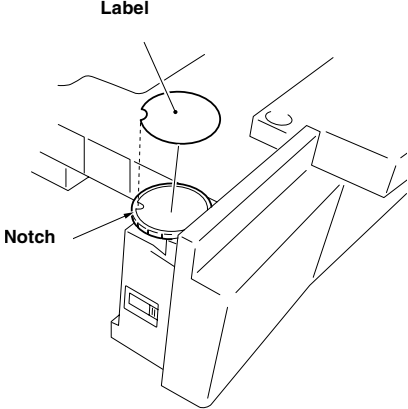
Installing the OPC

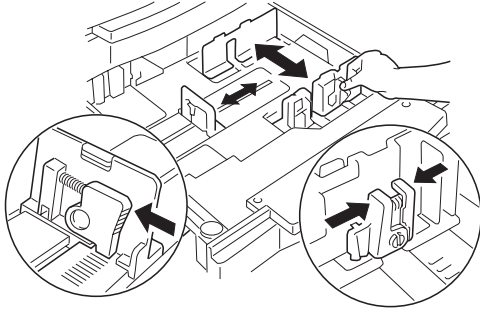
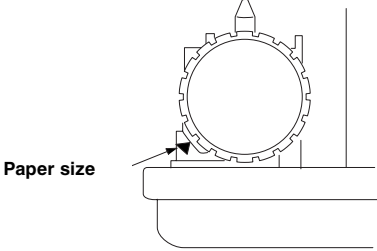
No.	Adjustments	Remarks
1	Turn OFF the main power switch.	
2	Release the developing unit lever.	
3	Remove the static eliminator, and clean with the special cleaning brush. After cleaning, put back the static eliminator. (Push it until a click is felt.)	 <p style="text-align: center;">static eliminator</p>
4	Remove the dust-proofing glass, and clean it with lint-free paper. Then, refit the glass	<p style="text-align: center;">Dust proofing glass</p> 
5	<p>Unpack the OPC unit. Remove the two spacers from between the rollers.</p> <p>120 V: Do not remove the drum cover</p> <ul style="list-style-type: none"> ■ Grip the centre of the OPC unit, when taking it out of the box. This is to prevent damage. 	<p style="text-align: center;">Primary charging roller releasing roll (Remove)</p>  <p style="text-align: center;">Do not remove</p>

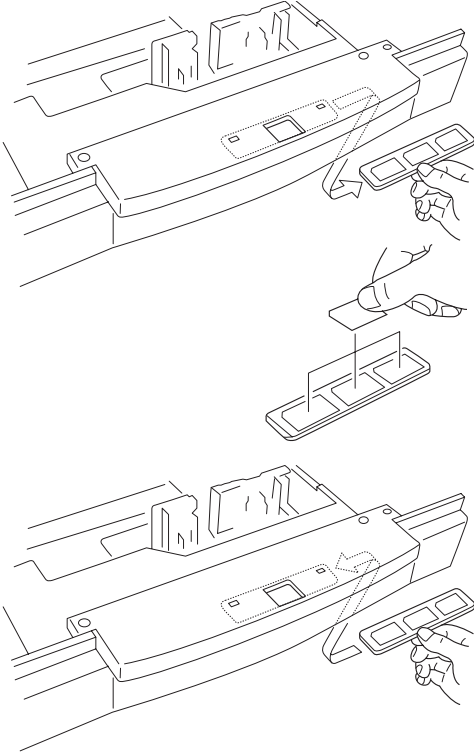
No.	Adjustments	Remarks
6	<p>Check that the developing unit is released. Then, slide the OPC drum unit slowly along the rail.</p> <p>120V model: Do not remove the drum cover</p>	 <p>The top diagram shows a perspective view of the OPC drum unit being slid along a rail. Labels include 'Rail' at the top left and top right, and 'Drum unit' at the bottom center. A large black arrow points to the left, indicating the direction of movement.</p> <p>The bottom diagram shows a similar perspective view, but with the drum unit and drum cover being moved. Labels include 'Drum unit' at the top center and 'Drum cover' at the right center. Two black arrows point to the right, indicating the direction of movement for both components.</p>
7	<p>Secure the OPC unit, using the screw that was previously removed.</p>	 <p>The diagram shows a close-up of the OPC unit being secured. A label 'Screw' points to a screw being inserted into the unit. Another label 'Drum unit' points to the unit itself. The unit is shown in a perspective view, with the screw being inserted from the left side.</p>

No.	Adjustments	Remarks						
8	Enter the data on the label. Attach the label to the front cover of the drum unit.	<table border="1"> <thead> <tr> <th>date date Datum</th> <th>counter compteur Zähler</th> <th>notes note Notiz</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	date date Datum	counter compteur Zähler	notes note Notiz			
date date Datum	counter compteur Zähler	notes note Notiz						
9	<ul style="list-style-type: none"> ■ Turn the lever, locking the developing unit in place. ■ Lock the feeding unit in place. 	 <p>Developing unit lever</p> <p>Feeding unit lever</p>						

Installing the Cassettes

No.	Adjustments	Remarks
1	Slide out the cassette.	
2	<p>Confirm the size of paper to be used. Then, moving the selector switch, select A/B or Inch configuration. Each cassette has its own switch. Set all switches according to requirements.</p>	 <p style="text-align: center;">Switch</p>
3	<p>Fix the appropriate label to the rotary switch. (the recess in the label should fit exactly over the notch on the dial).</p> <p>Note: Ensure that the correct label is used: for A/B or Inch configuration.</p>	 <p style="text-align: center;">Label</p> <p style="text-align: center;">Notch</p>

No.	Adjustments	Remarks
4	Holding the lever of the width guide and the length guide, slide the guides to suit the index of the appropriate paper size.	
5	Set the paper size dial to the appropriate paper size.	

No.	Adjustments	Remarks
6	<p>Attach the cassette size label, as shown, to identify the size of the paper.</p> <p>■ Note: Sizes A3 and 11" x 17" cannot be handled by the cassettes 3 and 5. As counted from the top.</p>	
7	<p>Place copy paper in the cassette.</p>	

Machine Specifications: Setting Mode (* 5 *)

No.	Adjustments	Remarks
1	Turn ON the main power switch.	
2	Press 'user mode '. Set the following: <ul style="list-style-type: none"> ■ Date ■ Time 	
3	Place the machine in mixed text/photo mode, so that the LCD displays the text mode, mixed text/photo mode and photo mode.	<ul style="list-style-type: none"> ■ Switch the machine OFF/ON. ■ Select Custom Copy Settings (in additional function features). ■ Select photo mode ON (screen 2/3). ■ Select Standard Settings (screen 3/3). ■ Select Store and Yes. ■ Press Done twice. <p>Now the three symbols are visible and in the display the text/photo button is selected.</p>
4	Press the service switch, and press the * key twice.	A '\$' will be displayed on the LCD. The screen for the Service Mode Menu will be displayed.
5	Press 'OPTION' (*5*) to highlight. Then, press 'OK'.	
6	Select the item to set.	Examples: COPY-LIM:upper limit of copy count. SHUT-OFF:ON/OFF of switch to sleep mode. CST-U1:ON/OFF of notation of U-size cassette paper size.

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Fax Settings (FAX)

1 Executing All-Clear (in service mode)

No.	Adjustments	Remarks
1	Press 'Cancel'. The screen for the Service Mode Menu will appear.	
2	Press 'FAX' (*8*) to highlight. Then, press 'OK'.	
3	Press '#8 CLEAR' to highlight. Then, press 'OK'.	
4	Press 'ALL' on the screen to highlight. Then, press 'OK'.	
5	Turn OFF the main power switch.	

2 Connecting to the Telephone Line

No.	Adjustments	Remarks
1	Connect the modular cord to the connector at the rear of the copier.	* The top connector is for the telephone line.
2	Connect the other end of the modular cord to the telephone socket.	

3 Setting the dialling type

No.	Adjustments	Remarks
1	Turn ON the main power switch.	
2	Press the User Mode key, and press 'FAX spec settings' on the screen that has appeared.	
3	Press 'Basic Registration'. ■ The setting screen for the basic registration will appear.	
4	Press the “down” key to open the 2/3 screen. Then, press 'Selecting Line Type'.	
5	Select the appropriate telephone line type, and press 'OK'.	■ 20 pps ■ 10 pps ■ Touch tone
6	Press the 'Close' key several times to return to the Standard screen.	

4 Adjusting the transmission level

No.	Adjustments	Remarks
1	Enter *8* in service mode	
2	Press '#5 TYPE '. Select the appropriate country. Then, press 'OK '.	
3	Press '#2. MENU' on the Menu screen, and press 'OK'.	
4	Press ' ATT (P) ', opening the Value Input screen. Press the appropriate item, causing it to highlight. Enter the appropriate value using the keypad. Then, press 'OK '.	
5	<ul style="list-style-type: none"> ■ If you wish to adjust NL, go to step 3 of NL adjustment. ■ If you are not adjusting NL, press 'Cancel ', and press 'Reset ' twice, to end service mode. 	

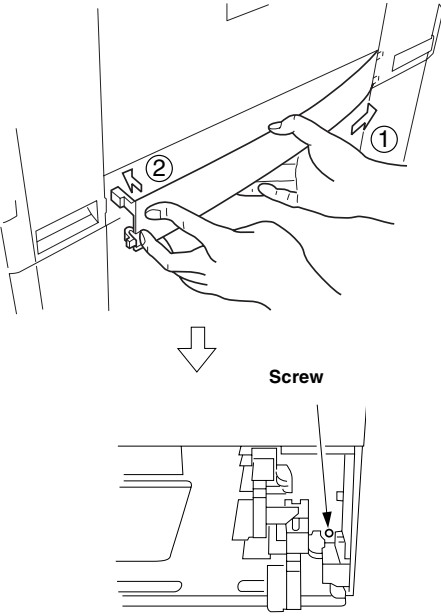
5 Adjusting NL

No.	Adjustments	Remarks
1	Enter *8* FAX in service mode	
2	Press '#2. MENU' on the Menu screen, and press 'OK'.	
3	Press ' NLEQ ', causing it to highlight. When the ON and OFF Setting screen appears, press ' ON ' or ' OFF '. The selection will highlight.	
4	Press 'OK '.	
5	Press the Cancel key, and press the Reset key twice to end service mode.	


6 Communications Test (for machines equipped with fax functions)

No.	Adjustments	Remarks
1	Remove the brush and the door switch actuator. Then, close the front door.	
2	Perform “test print” to make sure that the images are normal.	Taking Test prints ■ Press ‘FAX’ to select the FAX screen. ■ Press ‘Special features’. ■ Press ‘Test print’. Place a document, and press ‘OK’.
3	Try communications tests to check the operation and the images.	


Checking the copy images

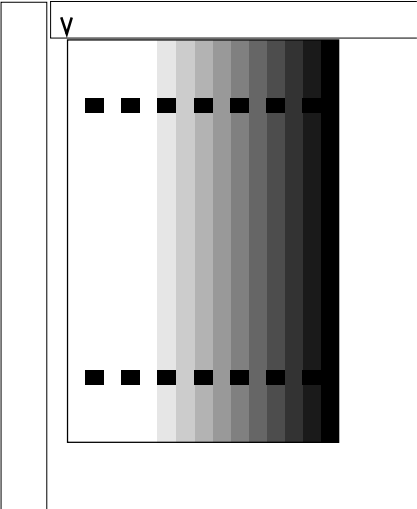

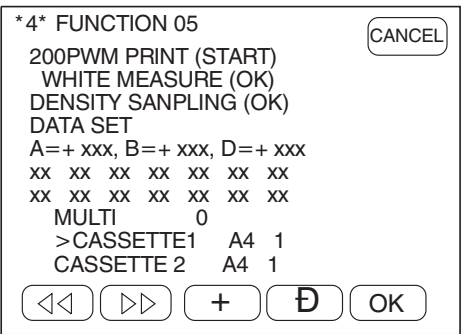
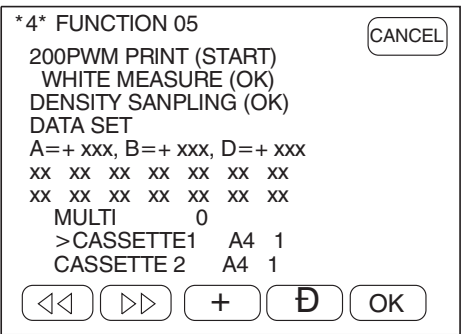
No.	Adjustments	Remarks
1	If in service mode, press the Reset key twice to end it.	If the front door is open, remove the switch actuator and the brush. Then, close the front door.
2	If the copier is not on a pedestal, install the lower right cover as shown. Then, slide out the upper and lower cassettes, and fit and tighten a screw.	
3	Using test chart 1, make copies to check the images.	<p>Optimum Images Text: The white background is free of fogging. Text/Photo: Step edge No. 10 is barely visible. The white background is free of fogging. Photo: The white background is free of fogging. (Moire near the step edge of halftone bands may be ignored).</p>
4	Clean the area around the machine, and fill out the service sheet.	



1 Shading Adjustment

No.	Adjustments	Remarks
1	Start service mode, and execute shading	Start service mode: <ul style="list-style-type: none"> ■ Open the front door ■ Insert the brush into the release opening, locking the fuser unit. ■ Insert the actuator in the door switch.
2	Using a thin pin, press the service switch.	
3	Press ‘*’ twice	
4	Press ‘FUNCTION (* 4 *)’ on the LCD, causing it to highlight. Then, press ‘OK’.	
5	Press  to turn pages to the Shading screen.	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p>* 4* FUNCTION 03 AUTO SHEADING START (OK) CANCEL</p> <p style="text-align: center;">Now [xxxxxxxxxxxxxx]</p> <hr style="border-top: 1px dashed black;"/> <p>WB xxxH WP xxxH LAMP xxxH GDA1 xxH GD2 xxH CDA3 xxH CDA4 xxH ADDA5 xxH D-ODD xxH D-EVN xxH</p> <p style="text-align: center;"> ◀◀ ▶▶ + - OK </p> </div>
6	Press ‘AUTO SHADING START’ on the LCD, causing it to highlight.	
7	Press ‘OK’. ■ Shading will be executed. ■ Shading will stop when ‘Now [END]’ is displayed.	

2 Automatic Density Adjustment

No.	Adjustments	Remarks
1	Execute the automatic density adjustment. ■ Execute 'PD', '200PWM', and '600PWM'.	
2	Press 'Reset' once, to end service mode. ■ '\$' will be indicated in the upper left corner of the screen.	
3	Holding the feeder or the platen cover at about 45°, make two A4 copies (solid black).	
4	Press '*' twice.	
5	Press 'FUNCTION' (* 4 *) on the screen to highlight. Then, press 'OK'.	<div style="border: 1px solid black; padding: 5px;"> <p>*4* FUNCTION 04 CANCEL</p> <p>PD PRINT (START)</p> <p>WHITE MEASURE (OK)</p> <p>DENSITY SANPLING (OK)</p> <p>DATA SET</p> <p>A=+ xxx, B=+ xxx, D=+ xxx</p> <p>xx xx xx xx xx xx xx</p> <p>xx xx xx xx xx xx xx</p> <p>MULTI 0</p> <p>>CASSETTE1 A4 1</p> <p>CASSETTE 2 A4 1</p> <p style="text-align: center;"> ◀◀ ▶▶ + D OK </p> </div>
6	Press  to turn pages to the PD Density Automatic Adjustment screen.	
7	Close the front cover as far as possible, and press 'PD PRINT' on the screen, causing it to highlight. Then, press the copy button. ■ The copier will generate a test pattern. (This will be used later.)	
8	Place a blank white sheet of copy paper (A4/LTR or larger; not for colour copiers; but the whitest of all used by the user) on the platen glass. Then, close the feeder or the platen cover.	
9	Press 'WHITE MEASURE' on the screen to highlight. Then, press 'OK'.	The scanner will make a single scan.

No.	Adjustments	Remarks
10	Place the test pattern on the platen, as shown. Close the RDF or the platen cover. Then, press 'DENSITY MEASURE' on the screen, and press 'OK'. ■ The scanner will make 13 scans.	Align the test pattern with the V mark at the rear (left) of the platen. (If the sheet is not placed correctly, the adjustment may not be accurate.) Place the test pattern face down on the platen,
11	After executing 'DENSITY SAMPLING', check that the settings under 'A', 'B', and 'D' are as specified: Insert PD: $20 \leq A \leq 50$ 200PWM: $-40 \leq B \leq 40$ $0 \leq D \leq 8$ $20 \leq A \leq 60$ 600PWM: $-70 \leq B \leq 20$ $0 \leq D \leq 8$ If the settings are correct, press 'SET', causing it to highlight. Then, press 'OK'. ■ This ends the automatic density control. Execute the 200PWM density adjustment.	 Face down, i.e., the printed side at the bottom.
12	Press  to turn pages to the 200PWM Density Automatic Adjustment screen.	
13	Perform the 200PWM density adjustment. ■ Proceed as described for the PD density adjustment.	

No.	Adjustments	Remarks
14	Press   to turn pages to the 600PWM Density Automatic Adjustment screen.	<div style="border: 1px solid black; padding: 5px;"> <p>*4* FUNCTION 06 CANCEL</p> <p>600PWM PRINT (START)</p> <p>WHITE MEASURE (OK)</p> <p>DENSITY SANPLING (OK)</p> <p>DATA SET</p> <p>A=+ xxx, B=+ xxx, D=+ xxx</p> <p>xx xx xx xx xx xx xx</p> <p>xx xx xx xx xx xx xx</p> <p>MULTI 0</p> <p>>CASSETTE1 A4 1</p> <p>CASSETTE 2 A4 1</p> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> << >> + ⌂ OK </div> </div>
15	Perform the 600PWM density adjustment. ■ Proceed as described for the PD density adjustment.	
16	Press the Reset key twice.	
17	Place the test chart 1 on the platen, and close the front cover as far as possible. Then, make copies at density setting 5: - in text mode, - in text and photo mode, - and in photo mode. ■ Try all the cassettes and the speciality tray.	Optimum Images ■ For text mode, the background must remain white. ■ In text and photo mode, step wedge No. 10 should be barely visible. And the background should remain white. ■ In photo mode, the background should remain white. (Moire in the halftones may be ignored.)

After completing the installation, install the optionals: sorter, etc.

3 Relocating the Machine

Perform the following work if the machine needs to be relocated, by truck or other means of transportation:

1 Points to note

If it is necessary to move the copier from room to room, and the copier is on the pedestal, do not lift the copier with your hands in the grips. This could separate the copier from the pedestal.

2 Before relocating the Machine

Step	Adjustments	Checks
1	Remove the OPC.	Put the OPC unit in a separate box for transport.
2	Fix the scanner in place.	
3	Tape the charging assemblies and the feeding unit releasing lever in place to prevent displacement by vibration.	
4	Tape the front door and the delivery unit in place.	
5	Place a single sheet of A3 copy paper on the platen, and tape the platen cover (feeder) in place.	

3 Lifting the copier off the pedestal

Step	Adjustments	Checks
1	Open the pedestal's right corner, and release the guide (shift to the right) used to join the pedestal and the copier.	
2	Hold the copier's grips, and lift the copier upright so that the pedestal's pin will slide off the holes. (Work in a group of two.)	
3	Lower the copier on the floor or on a desk.	

4 Installing the Control Card V

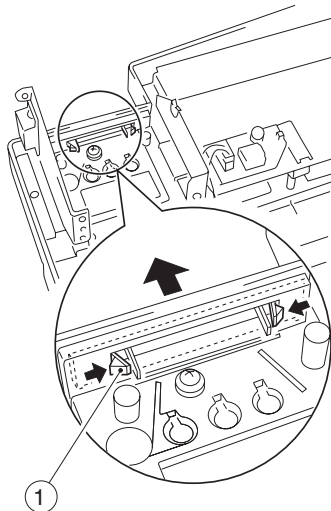
Warning: Ensure that the MEMORY TX/RX indicator is OFF, before switching off the copier.

Removing the Control Panel

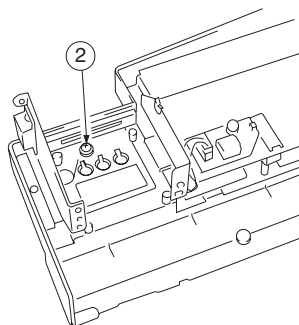
- 1 Remove the following, so that the inside cover can be removed:
 - Front door
 - Fuser cover
 - OPC unit (Release the developing unit.)
 - The lever of the feeding unit
 - The knob of the registration roller
 - The upper cassette
- 2 Remove the inside cover (5 screws, see chapter Miscellaneous).
- 3 Remove the following, so that the control panel can be removed:
 - Fuser control PBA (1 screw)
 - The magnet plate from the top of the control panel (1 screw)
 - The RS232C connector (1 screw)
- 4 Remove the four screws, and disconnect the four connectors. Then, remove the control panel, and turn it over.

Before installation of the control card

- 1 Remove the face plate (1) of the card slot.



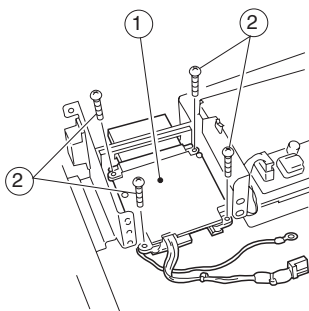
- 2 Remove the screw from the face plate (2).



- 3 Remove the backing sheet from the display of the Control Card V.

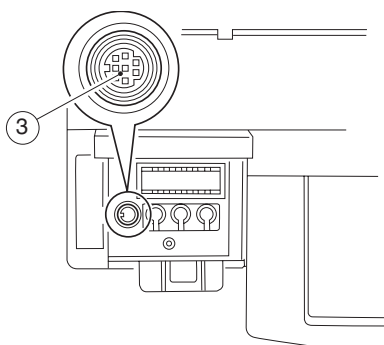
Installing the Control Card

- 1 Position the Control Card (1) on the control panel, using four screws (2).

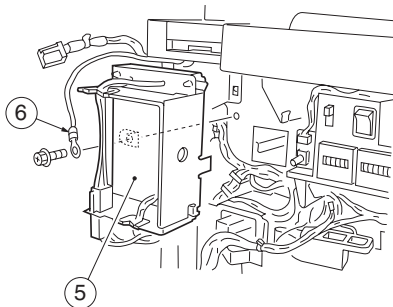


Note: Slide a card in and out, and fix the Control Card V when a card can be moved smoothly.

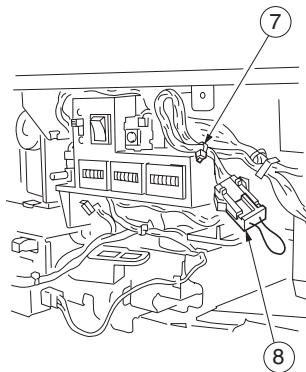
Note: Check that the connector (3) for the printer is aligned over the hole.



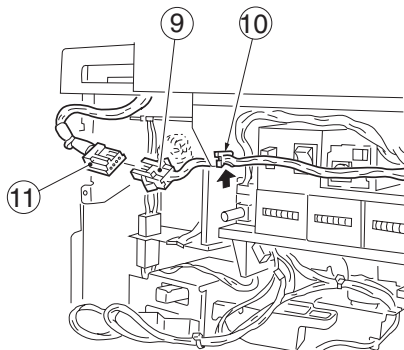
- 2 Connect the earthing wire (4) of the Control Card V, taking care not to trap the wires.
- 3 Fit the control panel to the copier.
- 4 Fit the fuser control PBA (5).
At this time, be sure to fix the grounding wire (6) of the Control Card V in place by tightening the screw.



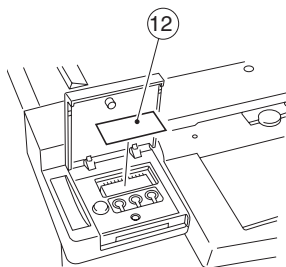
- 5 Cut the cable tie (7), and disconnect the bridge connector (8).



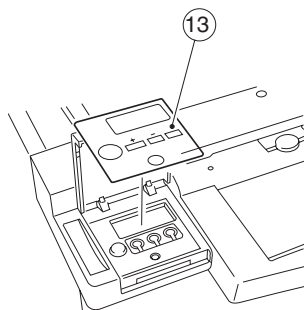
- 6 Lead the 4P connector (9) from the copier, and through the saddle (10).
- 7 Connect the 4P connectors (10) and (11).



- 8 Position the plastic (12) in the hole in the control panel.



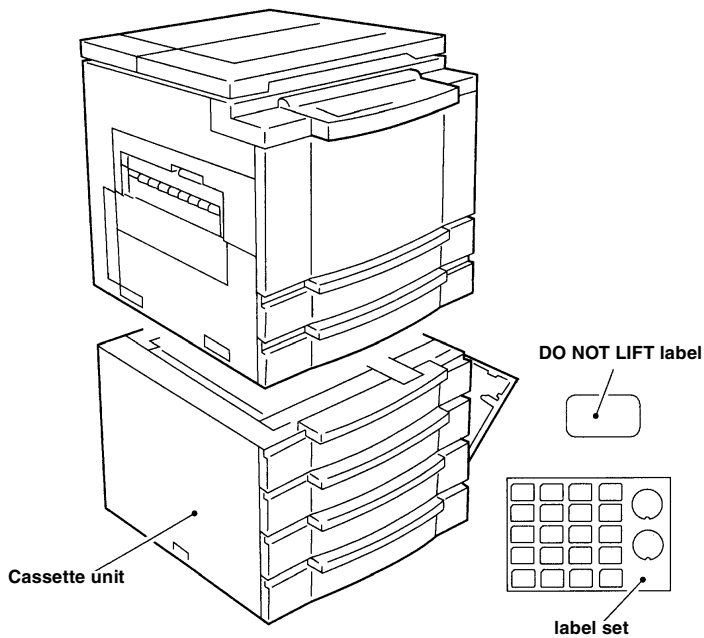
- 9 Remove the backing sheet from the face plate.
- 10 Attach the face plate (13) to the control panel.



- 11 Attach the memory record and the transparent sheet.
- 12 Switch OFF.
Check the functioning of the Control Card V.

5 Installation of the Cassette unit

Unpacking



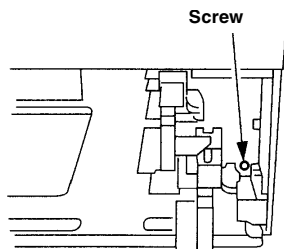
Contents:

- Cassette unit: 1 unit.
- 'Do not lift' label: 1pc.
- Label set: 2 or 4 sets

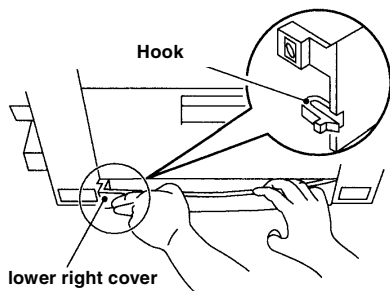
Preparations

If the lower right cover is fitted to the copier, remove it.

- 1 Disconnect the mains supply cable.
- 2 Slide out the upper cassette and the lower cassette.
- 3 Remove the screw from the lower, right side cover.

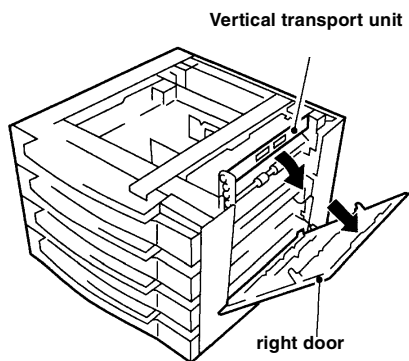


- 4 While pulling the centre of the cover, disengage the hook and remove the cover.

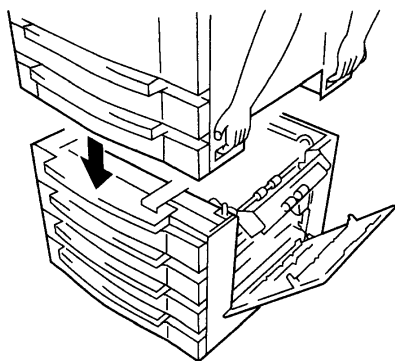


Installation

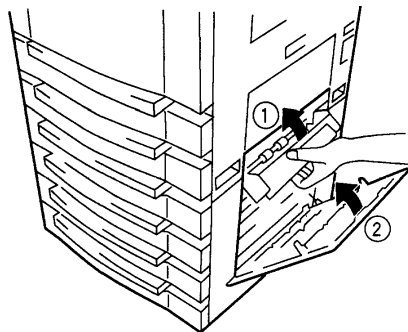
- 1 Open the right-hand panel.
- 2 Open the vertical transport unit.



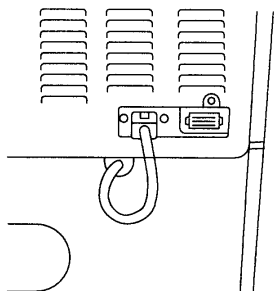
- 3 Holding the copier by its grips, carefully place the copier on the pedestal.



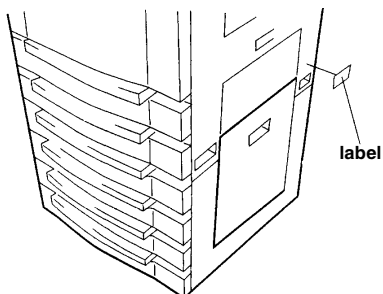
- 4 Close the vertical transport unit, and close the right door.



- 5 Ensure that the mains supply cable is disconnected. Connect the cable from the cassette feeding unit to the copier



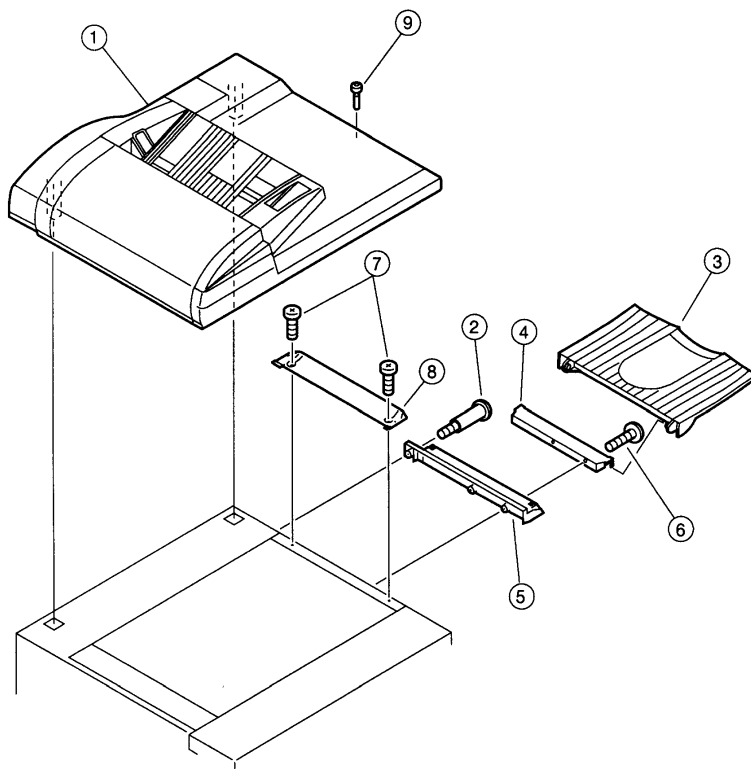
- 6 Continue with the work for each cassette as described at ['Installing the Cassettes'](#) on page 12.
- 7 Attach the 'DO NOT LIFT' label, as shown.



- 8 Perform ['Adjusting the Registration in Rear/Front Direction'](#) on page 301 from 12 papertrays, to correct the registration in front/rear direction.

6 RDF Installation procedure

Unpacking the machine

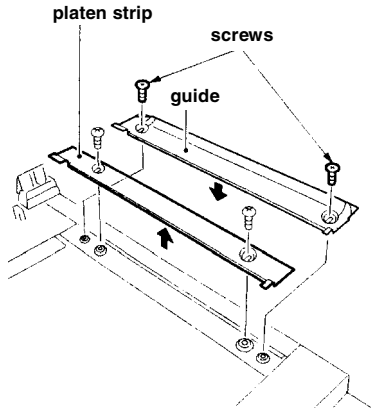


RDF 1 unit

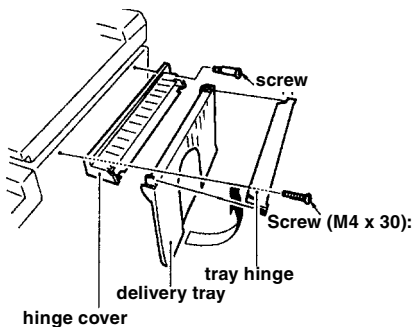
- Stepped screw 1 pc.
- Delivery tray 1 pc.
- Tray hinge 1 pc.
- Hinge cover 1 pc.
- Screw (M4x30) 1 pc.
- Screw (M3x4) 2 pcs.
- Guide base 1 pc.
- Stamp 1 pc.

Fitting the RDF

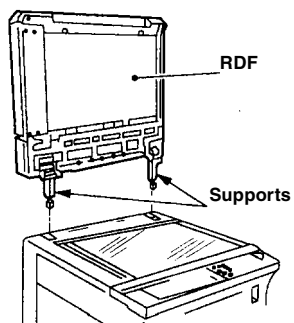
- 1 Ensure that the copier has been properly installed.
 - 2 Keep the mains supply cable disconnected during the installation work.
 - 3 Identify the screws by type (length, diameter, location).
 - 4 Some screws come with a washer to protect against static electricity. Ensure that these are used.
-
- 1 Lift the platen cover, and remove it from the copier.
 - 2 Remove the two screws, and remove the platen retainer from the right-hand side. Then, install the guide base to the right side of the copier (2 screws).



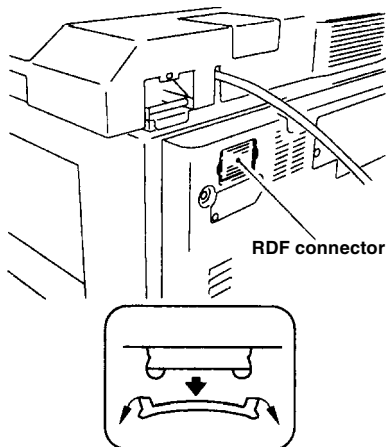
- 3 Assemble the tray hinge and the hinge cover to the delivery tray. Then, install the unit (2 screws).



- 4 Insert the supports of the RDF into the holes in the copier. Ensuring that the bolts of the supports are at the bottom of the holes. Close the RDF.



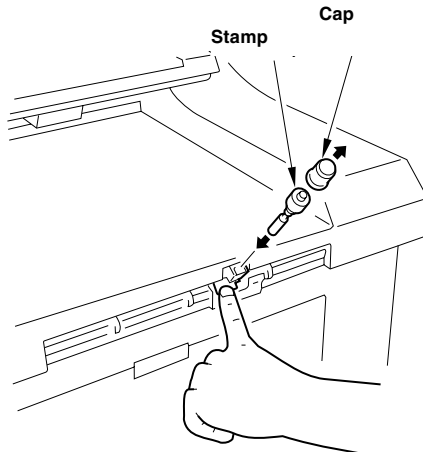
- 5 Remove the connector cover.



- 6 Connect the RDF connector.

Warning: *Ensure that the mains supply cable is disconnected.*

7 Remove the cap and fit the stamp in the RDF.



Caution: Do not touch the stamp face. Immediately rinse your hands if you touch the ink.

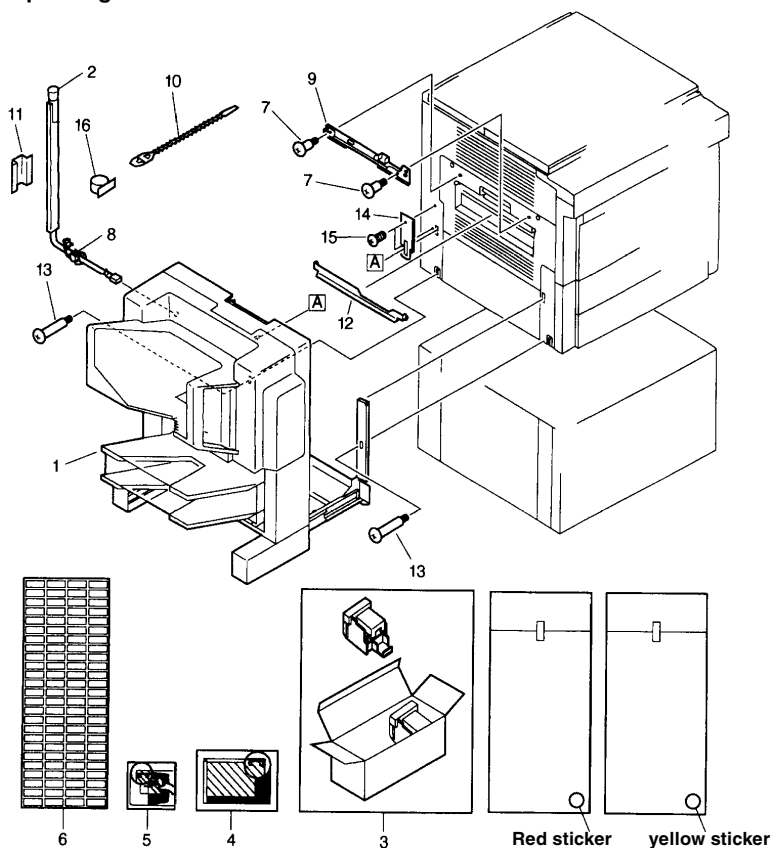
Checks after Installation

After installation, adjust the following:

- the height of the RDF, see 10: adjustment 1
- the document position, see 10: adjustment 2, 3 & 4
- the sheet distance with image composition mode, see 10: adjustment 5

7 Sorter installation

Unpacking

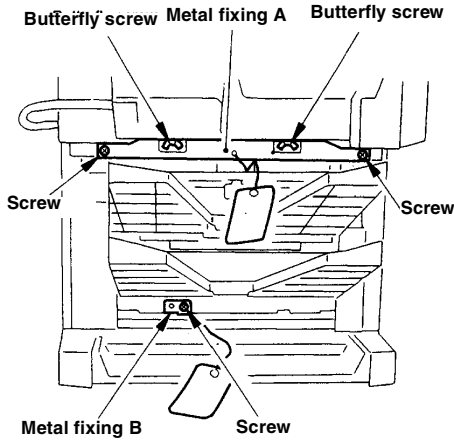


Contents:

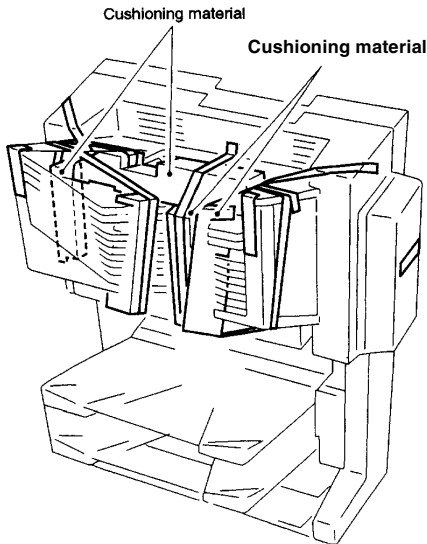
- | | | | |
|---|----------------------------------|----|-------------------------------------|
| 1 | sorter, 1 pc. | 10 | Harness band, 1 pc. |
| 2 | Paper on Tray indicator, 1 pc. | 11 | Guide plate, 1 pc. |
| 3 | Staple (spare 2 sets), 1 pc. | 12 | Delivery guide, 1 pc. |
| 4 | Stapling position label A, 1 pc. | 13 | stepped screw (6 x 27.7), 2 pcs. |
| 5 | Stapling position label B, 1 pc. | 14 | Reinforcement plate, 1 pc. |
| 6 | Tray label, 1 pc. | 15 | Binding screw (black M4 x 6) 3 pcs. |
| 7 | Stepped screw (6 x 11), 2 pcs. | 16 | Cable retainer, 1 pc. |
| 8 | Cable bushing 1 pc. | | |
| 9 | Latch plate, 1 pc. | | |

Unpacking and removing the metal fixings

- 1 Remove the packing material and keep the sorter upright.
- 2 Remove the two screws and two butterfly screws. Then remove the metal fixing A from the sorter. Remove the screw and remove the metal fixing B.

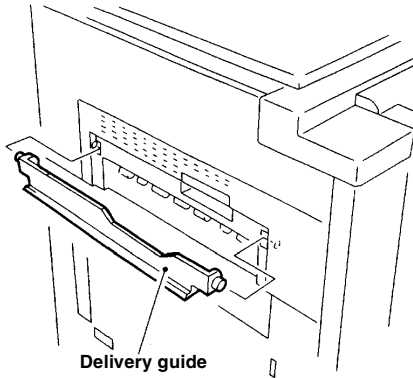


- 3 Remove the taping and cushioning material from the bins.

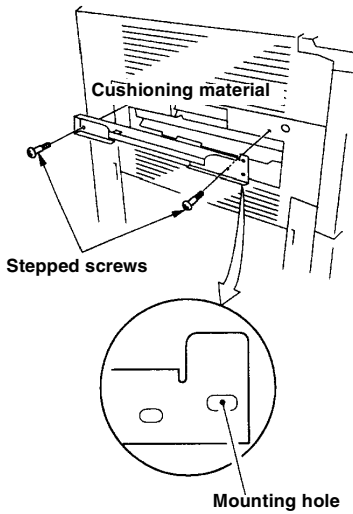


Installation

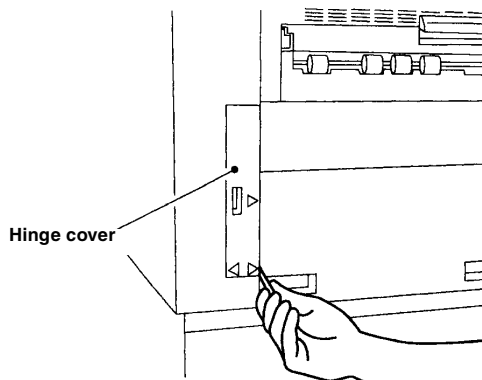
- 1 Mount the delivery guide.



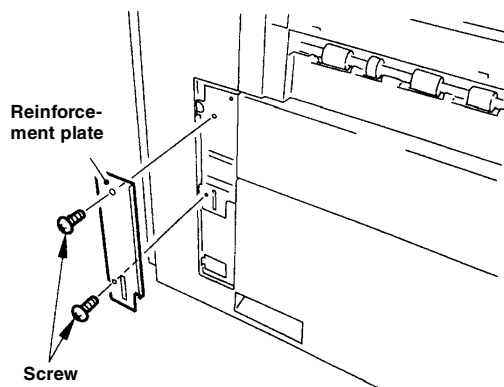
- 2 Install the latch plate with the two stepped screws (6 dia. x 11).



- 3 Remove the hinge cover of the copier's left cover, using a screwdriver.

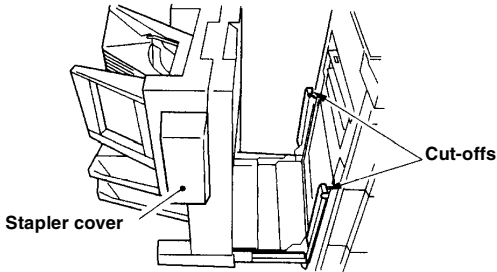


- 4 Fix the reinforcement plate in place to the copier with two screws (black M4 x 6).

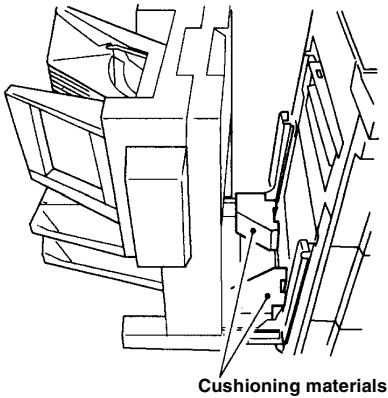


- 5 Reinstall the hinge cover
- 6 Hook the sorter on the two cut-offs on the copier's left side.

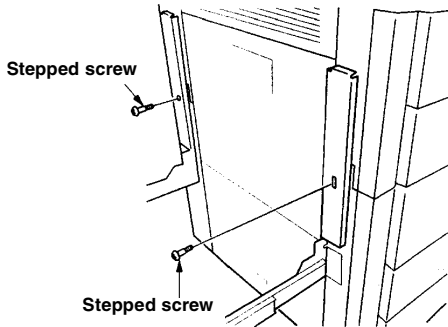
Warning: *Be sure to support the bottom of the sorter when lifting the sorter. Do not hold the stapler cover.*



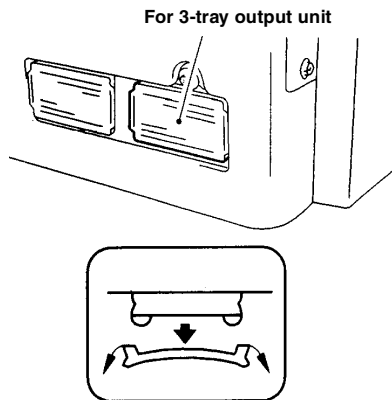
Note: *To facilitate the work, put cushioning material as shown in the figure and extend the rail.*



- 7 Fix the sorter in place with two stepped screws (6 dia. x 27.5).



- 8 Remove the connector cover from the rear of the copier.



Warning: *Be sure that the mains cable is disconnected.*

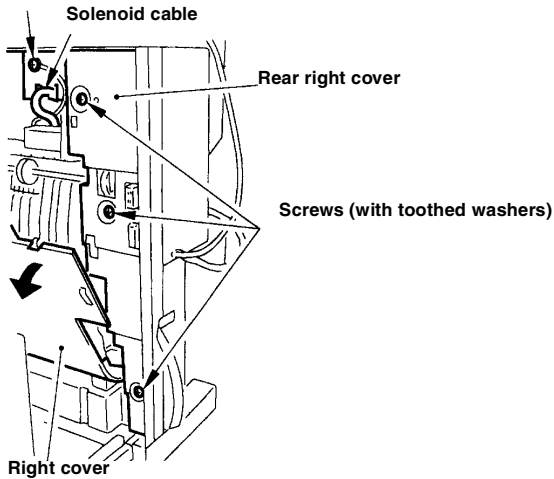
- 9 Connect the sorter's cable to the copier.

DIP switch settings

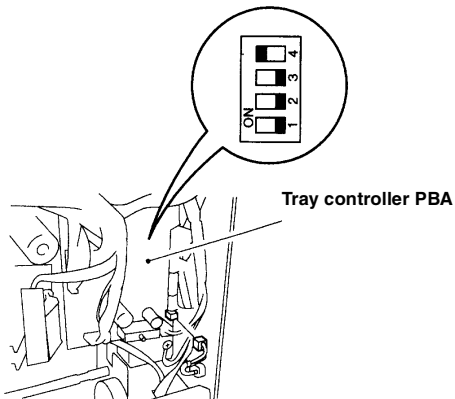
Check the mode of communication with the copier.

- 1 Release the latch and separate the sorter from the copier.
- 2 Open the sorter's right cover and remove the rear right cover (4 screws) while detaching the solenoid cable.

Screw (with toothed washer)

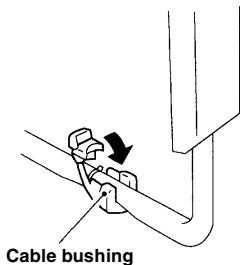


- 3 Check to make sure that bit 4 of the DIP-switch SW1 on the tray controller PBA is at ON.

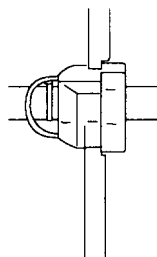
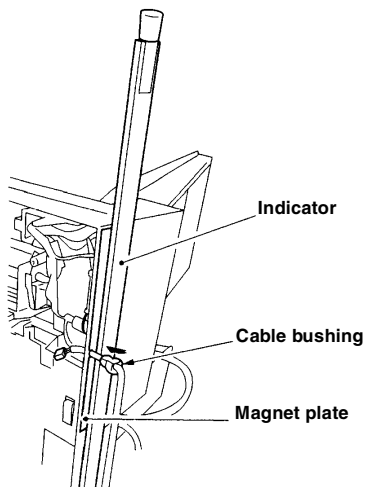


Installing the paper on tray indicator

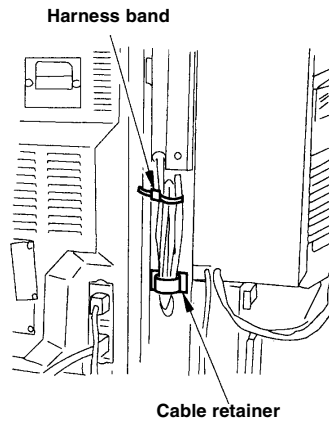
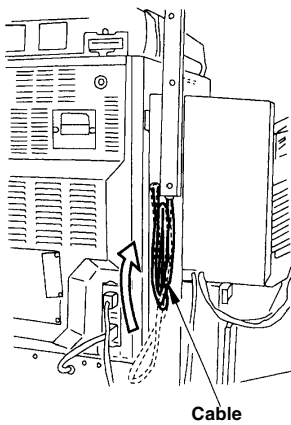
- 1 Attach the cable bushing.



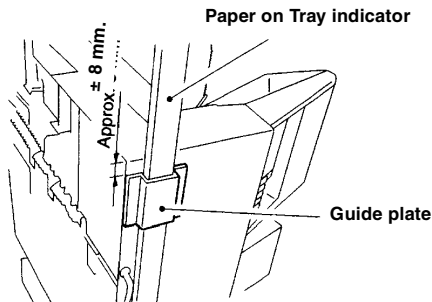
- 2 Insert the cable into the hole.



- 3 Connect the cable with J15 on the tray control PBA.
- 4 Bend the cable into two, hold it in place with a harness band. Then keep the cable in place to the machine using the cable retainer.



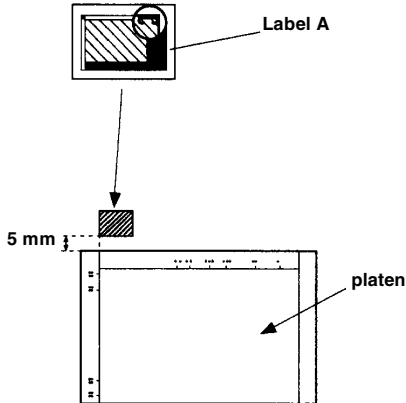
- 5 Attach the guide plate.



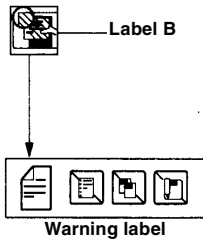
- 6 Install the rear right cover and close the right cover. Then set the sorter on the copier.

Attaching the labels

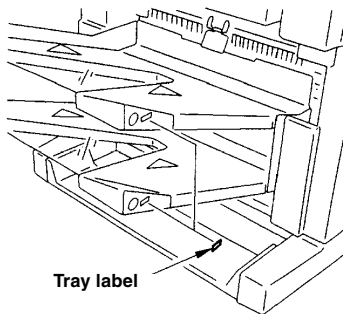
- 1 Attach the label A to the rear of the platen.



- 2 Attach the label B so that the leftmost illustration on the Warning label on the DF is hidden.

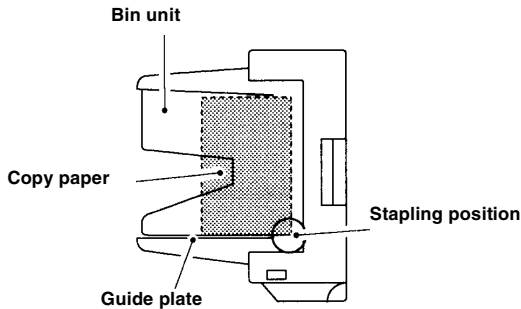


- 3 Attach the appropriate tray label to the side of each tray.



Checking the operations

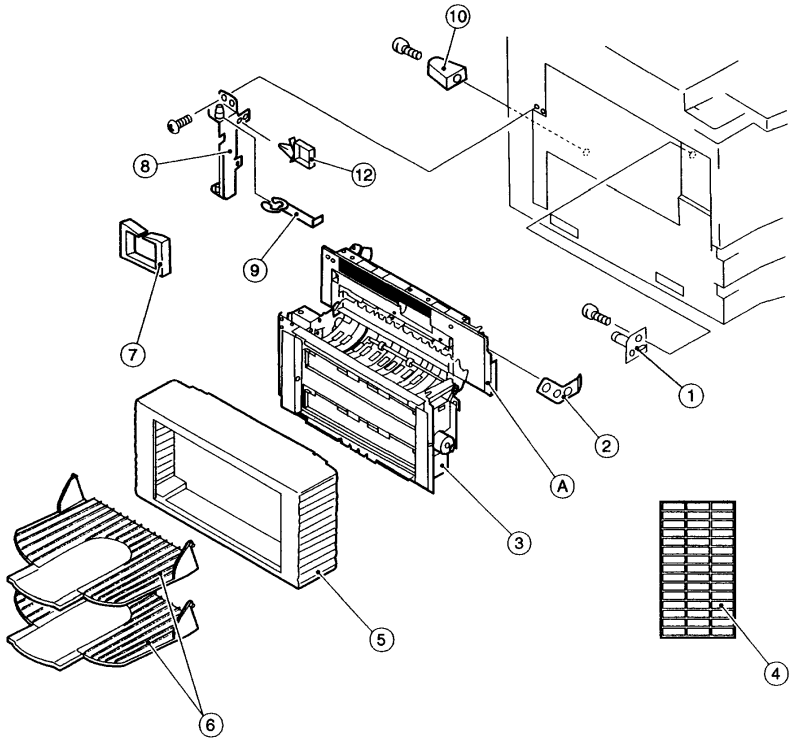
- 1 Switch on the copier.
- 2 Place three sheets of paper in the upper bin and butt them against the front guide plate.



- 3 The manual staple button must turn on. Then press the button.
- 4 After stapling, check that the Add Staple indicator has started to flash. If it is not flashing, adjust the detection level set for staples as instructed in the TSM.
- 5 Supply the stapler with staples. (instructions in the stapler door).
- 6 Check the following operations:
 - Connection/disconnection between the copier and the sorter.
 - Up/down movement of the bins.
 - Feeding of copy paper.
 - Auto stapling

8 The 3-tray delivery unit

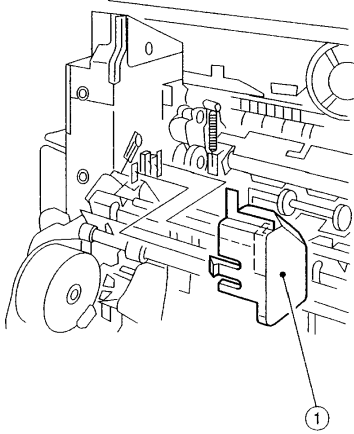
Unpacking



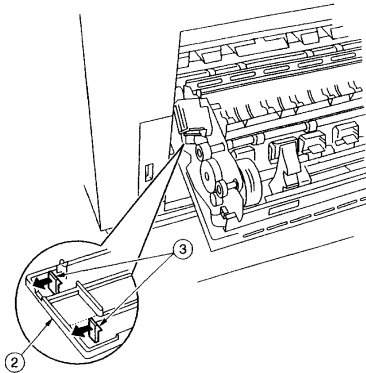
- 1 Height adjusting plate, 1 pc.
- 2 Interlock retaining plate 2, 1 pc.
- 3 Delivery unit, 1 pc.
- 4 Tray sticker, 1 pc.
- 5 External cover, 1 pc.
- 6 Tray, 2 pcs.
- 7 Edge saddle, 1 pc.
- 8 Hinge, 1 pc.
- 9 Stop spacer, 1 pc.
- 10 Delivery unit spacer, 1 pc.
- 11 Screw, 12 pcs.
- 12 Wire saddle, 1 pc.

Removing the delivery unit

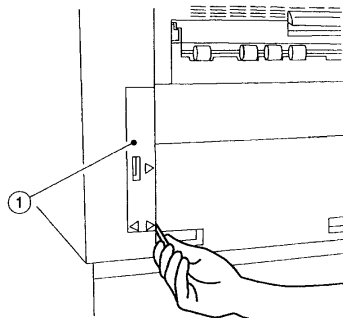
- 1 Switch off the machine and disconnect the mains supply cable.
- 2 Open the front cover.
- 3 Open the delivery unit and remove the connector cover (1). (The cover is hooked in place, use a finger to snap it off).



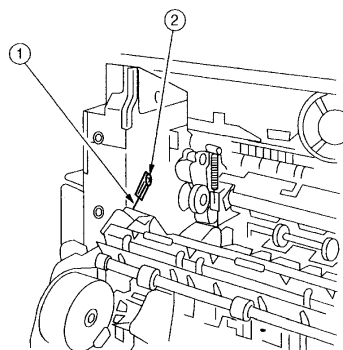
- 4 Release the hook (3) of the lower cover (2)



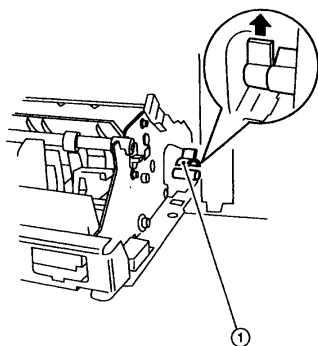
- 5 Close the delivery unit and shift the lower cover to remove.
- 6 Remove the hinge cover (1) with a small flat-blade screwdriver.



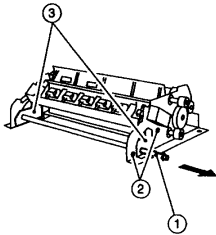
- 7 Disconnect the connector of the delivery unit.
- 8 Open the delivery unit and remove the wire (1) from the copier (2 screws (2)).



- 9 Pull out the spacer (1) from the right side of the delivery unit.



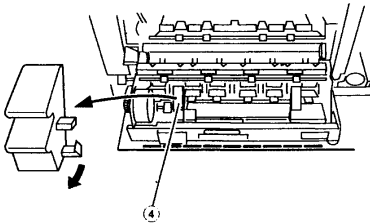
- 10 Release the bushing (1) to the left.



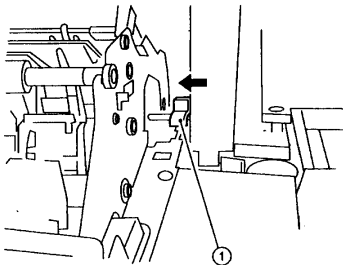
- 11 Move the delivery unit to the right. Detach the left side of the unit first and then the right side.

Installing the delivery unit to the 3-tray delivery unit

- 1 Remove the bushing and pull out the fixing shaft (1).
2 Remove the lower delivery guide (3) (4 screws (2)).

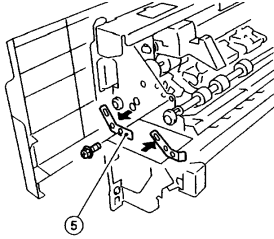


- 3 While paying attention to the spring, release the hook of the lever (4) with a flat-blade screwdriver and remove the lever.

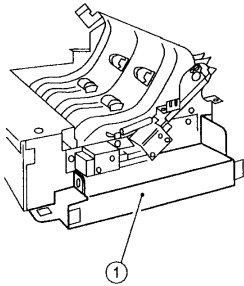


- 4 Detach the wire from the delivery unit side (1 screw).

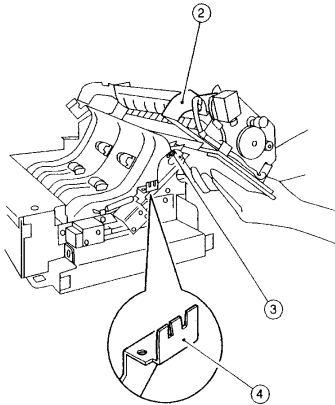
- 5 Replace the interlock retaining plate 1 (5) with the one for the 3-tray delivery unit.
 - The fixing shaft, lower delivery guide, lever, wire and interlock retaining plate 1 will not be used.



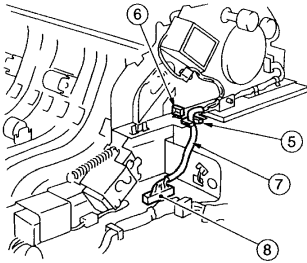
- 6 Place the 3-tray delivery unit (1) on its side so that the tray side is at the bottom.



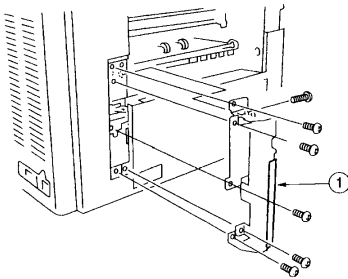
- 7 Install the delivery unit to the 3-tray delivery unit with 4 screws (pay attention to the spring (3) on the 3-tray delivery unit side. Further, you may refer to the hook (4) as a guide to facilitate the work).



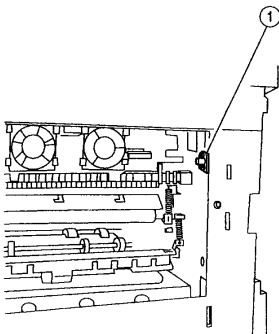
- 8 Install the edge saddle (5) that comes with the 3-tray delivery unit to the edge off the delivery unit.
- 9 Remove the cable (7) from the delivery unit.
- 10 Lead the cable through the edge saddle and connect it to the connector (8) of the 3-tray delivery unit.



- 11 Install the hinge (1) with six screws.



- 12 Install the height adjusting plate (1) with a screw.



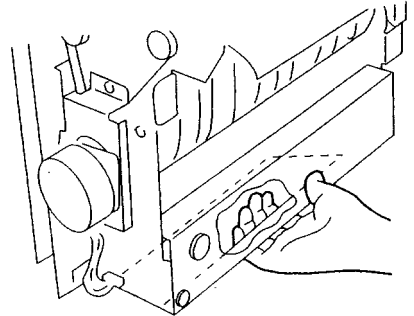
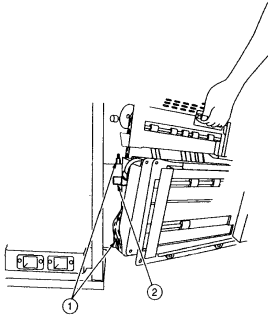
- 13 Check to make sure that the hole used to fix the height adjusting plate in place is tapped. If not, use the stepped screw from the wires to tap the hole.
- 14 Install the height adjusting plate (1) using the binding screw that comes with the tray.

Placing the 3-tray delivery unit on the hinge

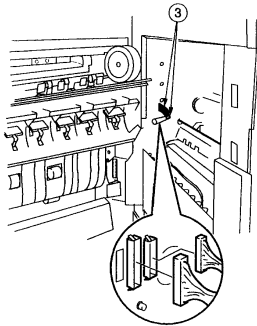
- 1 Holding the delivery door by its latch with one hand and the bottom of the 3-tray unit with the other, place the 3-tray unit on the hinge pins (1) of the hinge. (At this time, make sure that you set the 3-tray unit on the bottom shaft and then the top shaft).

Warning: You will not be able to install the 3-tray unit securely if the opening angle is not 40° to 50°.

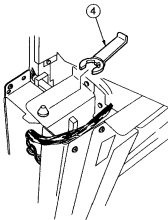
- 2 Lead the cable through the edge saddle (2).
- 3 Install the wire saddle that comes with the unit and lead the cable through it.



- 4 Connect the two connectors (3).



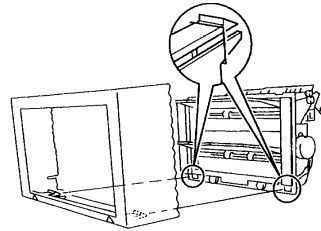
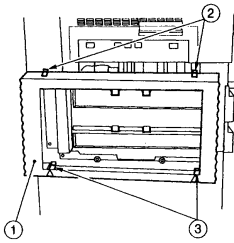
- 5 Insert the stop spacer (4).



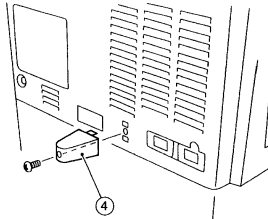
- 6 Close the delivery unit.

Installing the external cover, tray and spacer

- 1 Locate the four hooks on the external cover (1). Engage the top hooks (2) first and then the bottom hooks (3).



- 2 Attach the appropriate tray label to the side of each tray.
- 3 Install the spacer (4) with one screw.

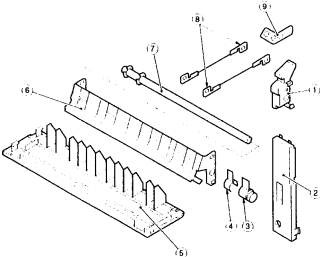


Checking the operation

- 1 Switch off and on the main power to check that the 3-tray delivery unit shifts correctly.
- 2 Perform a copy job while testing the sorting function of the delivery unit.

Identifying the obsolete parts

- 1 Lever
- 2 Hinge unit cover
- 3 Bushing
- 4 Spacer
- 5 Delivery unit lower cover
- 6 Lower delivery guide
- 7 Fixing shaft
- 8 Wire
- 9 Interlock retaining plate 1



9 Installation of the Fax

INSTALLATION

Preparation

- 1 The Basic Expansion Kit is required.
- 2 If the Basic Expansion Kit is already installed, remove its component units before starting.
- 3 Ensure that the mains supply cable is disconnected before starting.
- 4 If a PBA other than the FAX PBA is fitted in the Base Unit, first remove that PBA before installing the FAX PBA..
- 5 If the Printer PBA is fitted, cut the cable tie (as shown in the figure), and remove the CORE PBA from the Base Unit.

(Be sure to use the new cable tie when refitting the CORE PBA.)

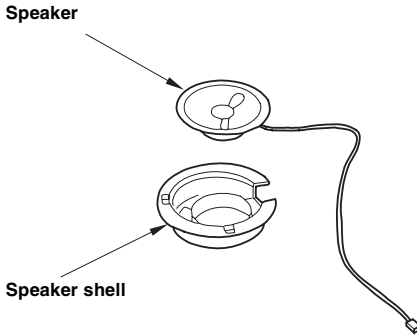
- 1 Ensure that the copier has been properly installed.
- 2 Ensure that the mains supply cable is disconnected before starting the installation.
- 3 Identify the screws by type (length, diameter, location).
- 4 Some screws come with a washer to protect against static electricity. Ensure that these are used.

The installation should proceed in the following sequence:

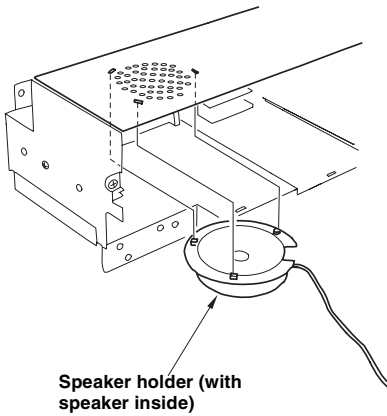
- 1 Speaker
- 2 Setting the Bits on the NCU PBA
- 3 Modular Unit
- 4 Base Unit
- 5 CORE PBA
- 6 Modular Unit Harness
- 7 FAX PBA, Earth Cable, Harness, Cover
- 8 Making Settings (line, NL, transmission level, etc.)

Installing the Speaker

- 1 Put the speaker into the speaker holder.

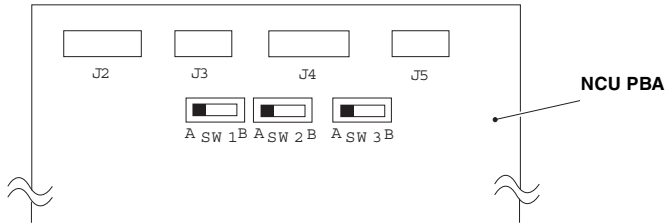


- 2 Fit the speaker and the speaker shell in the expansion unit.
 - Fit the notches on the speaker shell into the holes in the expansion unit. Turn it to lock.



Setting the NCU

To operate the unit, make correct settings using the following NCU switches. NCU Switch Configuration (The NCU for France has no switches.)

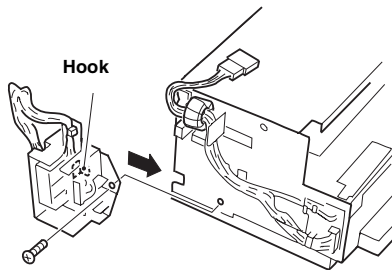


NCU Switch Settings

	SW1	SW2	SW3
Europe (general)	A	A	A
Sweden	A	B	A
UK/Australia/Asia/Oceania	B	A	B
France	-	-	-

Modular unit

- 1 Fit the modular unit in the Expansion Unit (1 screw).

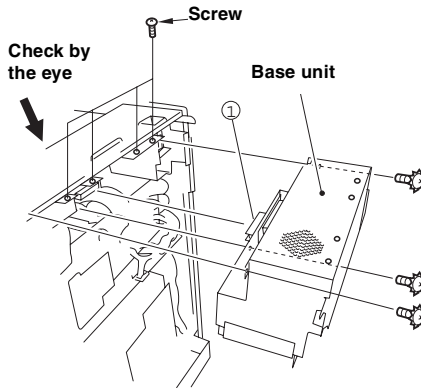


- 2 If the CORE/IP PBA has not yet been installed, install it.

Base Unit

Fit the expansion unit to the copier.

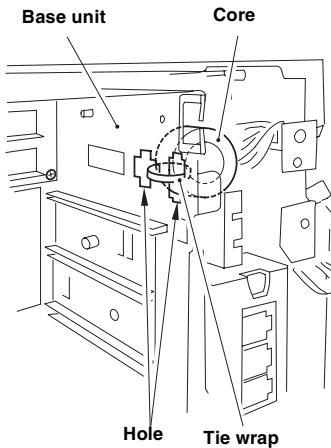
When fitting, ensure that the connector (1) is kept straight. This can best be seen from the CORE/IP PBA side.



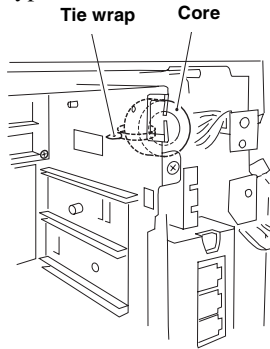
Core

Position the core in the Base Unit. Using the cable tie, secure the core in the appropriate manner.

1 Type 1, with a Square Hole (4 holes)



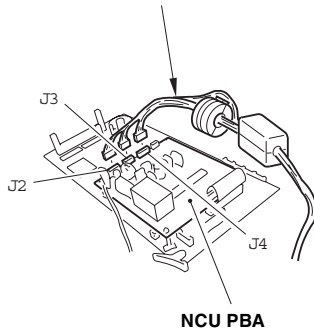
2 Type 2, with a Round Hole (1 hole)



Modular Unit Harness

Connect the modular unit to the connectors J2, J3, and J4 on the NCU PBA of the FAX PBA.

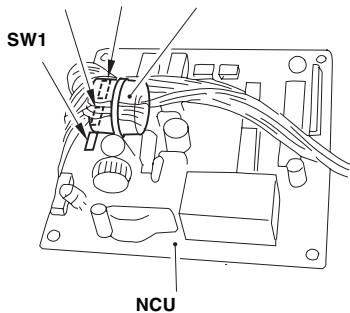
Harness of modular unit



Europe (except France)

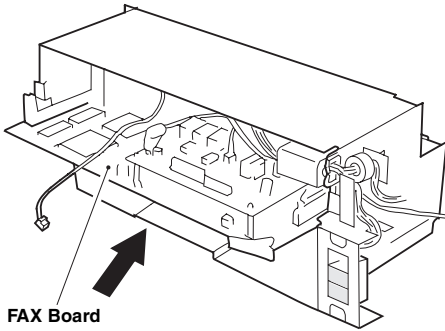
When positioning the core (round), take care that bits 1 through 3 of the switch on the NCU will not interfere with the core.

SW2 SW3 Core (round)

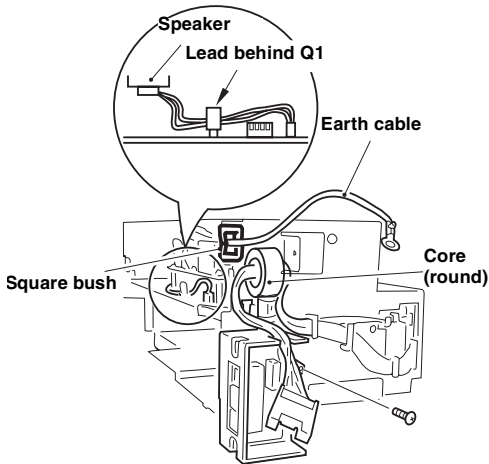


Insert the FAX PBA

- 1 Ensuring that the cable for the speaker is in front of the FAX PBA, insert the FAX PBA and check to make sure that it is secure.

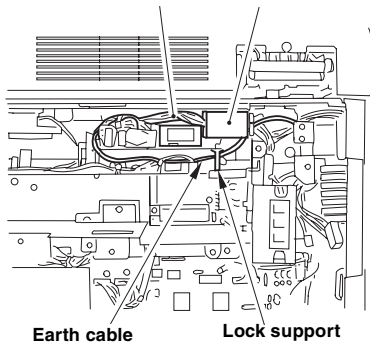


- 2 Connect the cable for the speaker to J2, as shown. Then, lead the harnesses for the earth cable and the modular unit through the square bush. Lead behind Q1.



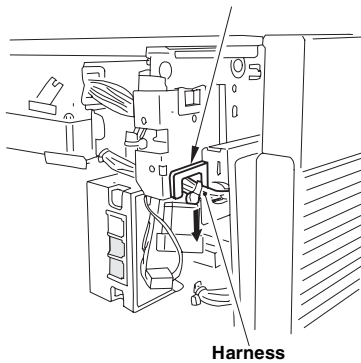
- 3** Arrange the core of the harness for the modular unit, as shown. Insert the FAX PBA in the Expansion Kit.

Harness of modular unit Core (cube)

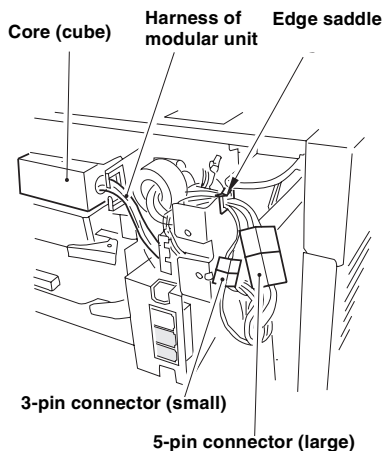


- 4** Free the harness, coming from the copier, from the edge saddle.

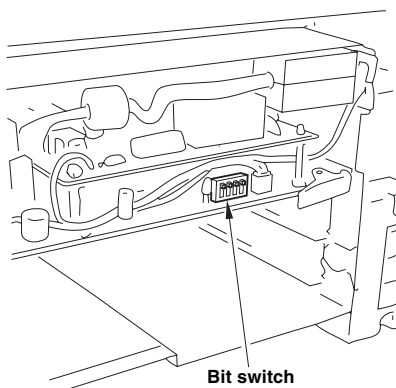
Edge saddle



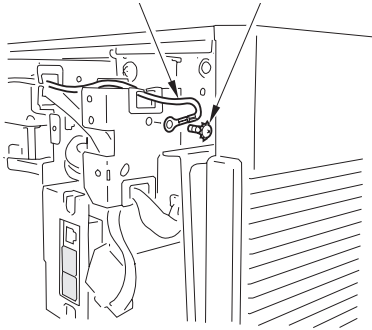
- 5 Connect the 5-pin connector (large), and the 3-pin connector (small). Fit the harness in the edge saddle, as shown.



- 6 Before fitting the front cover. Ensure that all bits of the switch, as shown in the figure, are shifted to the top positions.



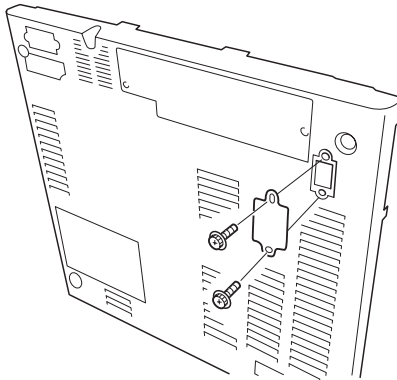
- 7 Secure the earth cable (blue), as shown
earth cable Screw (+ washer)



- 8 Shift the slide switch SW2 from OFF to 3.



- 9 Fit the cover to the expansion unit. Be careful not to trap any wires.
Screw (+ washer)
- 10 Remove the jack cover from the rear panel of the copier.



- 11 Fit the the rear panel to the copier.

10 Installing the expansion memory

Note: Prior to the installation, switch OFF the copier and disconnect the mains supply cable.

The expansion memory may either be 3Mb or 9Mb. Installing the memory in slot A or B on the Fax PBA provides the following functions:

Slot A:

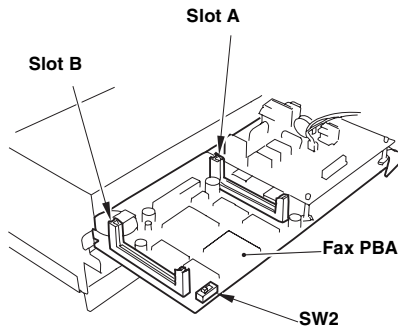
- used for page memory
- 3Mb memory may be installed
- as resolution Ultra Fine Mode may be selected

Slot B:

- Used for image memory
- 9Mb or 3Mb may be installed
- increases memory for transmission/reception images.

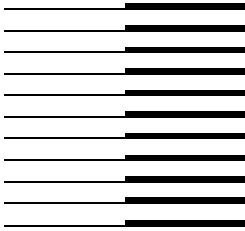
Installation

- 1 Turn OFF SW2 on the Fax PBA
- 2 Remove the rear cover of the copier and the expansion unit cover. Slide out the Fax PBA, halfway.



- 3 Open the claw of the slot. Insert the expansion memory straight down in the slot.
- 4 Turn ON SW2 on the Fax PBA.
- 5 Slide the Fax PBA back into the original position, and replace the covers.

Océ



Technical Service Manual
Océ 3121/3122

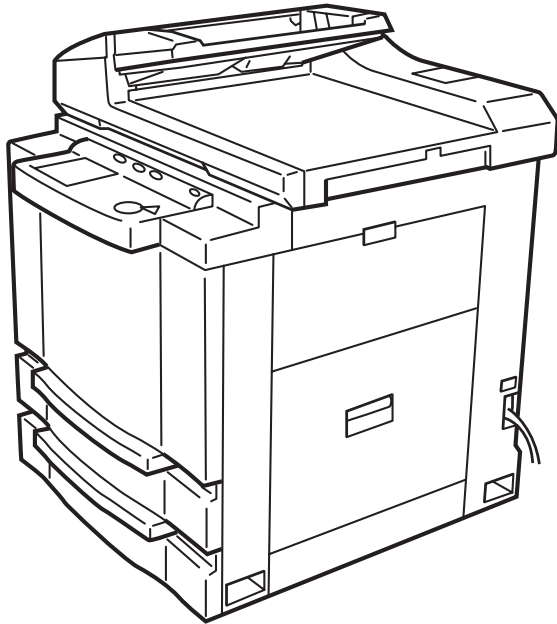


IMAGE QUALITY

Contents

Image quality

- 1 Initial check 1
- 2 Image adjustment basic procedure 3
- 3 Check and adjustment of the image registration 4
- 4 Trouble shooting: image faults 6
- 5 Isolating a PBA : FAX image fault 21
- 6 Shading for service 22
- 7 Automatic correction of the copy density 24
- 8 Shading for R&D and factory 28
- 9 AE adjustment 30

Image quality

1 Initial check

The site

- 1 Ensure that the mains supply voltage is according to specifications.
- 2 Make sure that the site is not subject to ammonium gas.

The quality of the documents

Define whether the problem is due to the quality of the documents, or the function of the machine.

- 1 The exposure control should be set to 5 ± 1 .
- 2 Copies of documents with a reddish background tend to have a poor contrast.
- 3 Check the contrast of the documents:- diazo documents or transparencies can produce vague copies,- documents with pencil drawings or pencil text tend to produce 'light image copies'.

Checking the platen cover, the platen and the standard white plate.

Check that the platen cover, the platen, and the standard white plate are all clean. Replace as necessary.

Checking the charging rollers

- 1 Check that the charging rollers are clean.

Checking the quality of the paper

- 1 Check that the paper is of a recommended quality.
- 2 Check that the paper is dry.
Try to make copies with fresh paper.

Checking the parts replaced at fixed intervals

Check that the scheduled parts have not exceeded their scheduled lifetimes. If the scheduled life has been exceeded, replace the relevant parts.

Others

When a machine is brought from a cold location to a warm location, it is possible that condensation will occur. This leads to various problems.

- 1 Condensation in the document exposure system, or the laser exposure system (glass, mirror, lens), causes light or dark images.
- 2 Condensation in the charging system can cause leakage.
- 3 Condensation in the pick-up system, or on the feeding guide, can cause feeding problems. If condensation is noted, wipe the part until it is dry, or leave the machine switched on 10 to 20 minutes.

Warning: *The image adjustment: basic procedure should be followed if any of the following occur:- uneven density (difference in density between front and rear),- light images,- or a grey background .*

2 Image adjustment basic procedure

ed.1

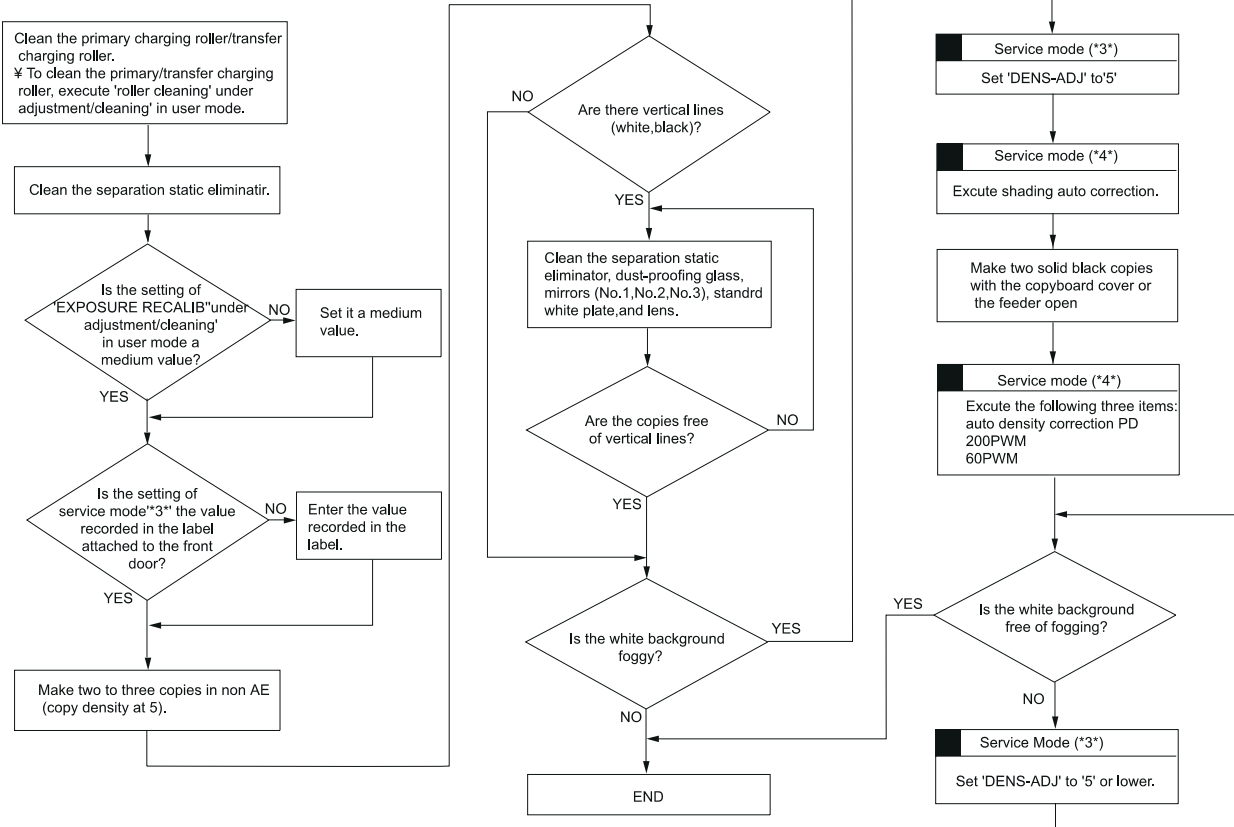


Image quality 3

3 Check and adjustment of the image registration

For confirmation of the image registration we have the next adjustments.

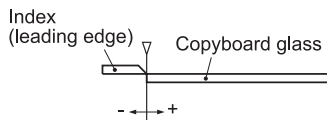
- 1 the image read position in the sub scanning and main scanning direction
- 2 the LASER-write position in the sub scanning and main scanning direction.
- 3 The cassette position
- 4 the rear/front registration for the lower feeding assembly

1. The Image Read Position.

- To adjust the CCD reading start position in the sub scanning direction

SDS *3*ADJUST 04 V-ADJ

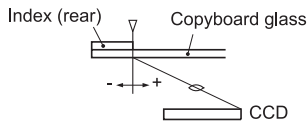
A higher setting delays the registration ON timing.



- To adjust the CCD reading start position in the main scanning direction.

SDS *3*ADJUST 04 H-ADJ

An increment shifts the read start position to the right.



2. The LASER-Write position.

- Sub scanning direction: the leading edge marging

Check the leading edge margin. This margin must be $2.5 \pm 1.5\text{mm}$

Adjustment: *3* ADJUST 04 RESIST

This adjustment adjusts the timing of the registration clutch.

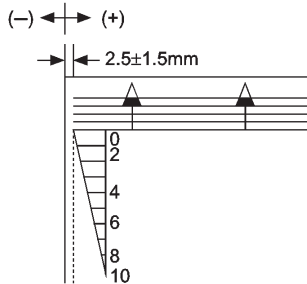


■ **Main scanning direction: left right registration:**

Check the the margin on the front. The margin must be $2.5 \pm 1.5\text{mm}$

Adjustment: *3*ADJUST 04 PVE-OFST (offset LASER centre)

This adjustment influences the result for all the cassettes in the same way.)

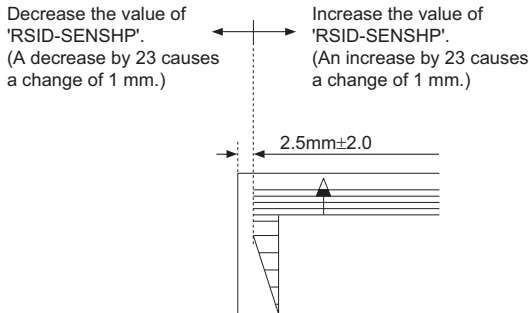


3 The cassette position

For the different cassettes the front margin of the copy must be the same ($2.5 \pm 1.5\text{mm}$) . For adjustment of the cassettes see: 12 - Paper trays -adjustments

4. Lowerfeeding assembly, 2nd side of two sided/overlay copies

Rear/front adjustment for images on paper from the lower feeding assembly:
Check to make sure that the printing position of the image on the second side of a two-sided/overlay copy is $2.5 \pm 2.0\text{ mm}$.



If the value is not as specified, select (*3*) RSID-SENSHP in service mode and make adjustments.

- An increase by '23' of RSID-SENSHP will shift the image print position to the rear by 1 mm. A decrease by '23', on the other hand, will shift the position to the front by 1 mm.

4 Trouble shooting: image faults

The copy is too light (half-tone only)

Cause	Step	Checks	Y/N	Action
	1	Carry out the image adjustment procedure. Is the problem corrected? Is the pattern print placed in reverse (left/right) orientation?	Yes	End. The image will be much lighter if the pattern print is placed in reverse (left/right) orientation. Ensure correct orientation of the test chart.
Incorrect AE adjustment	2	Make copies in AE mode. Are the images too light?	Yes	Carry out AE adjustment <ul style="list-style-type: none"> ■ In the case of 'image quality priority' mode, increase the setting *3*.->AD-JUST->AE_DARK. ■ In the case of 'speed priority' mode, increase the setting under *3*.->AD-JUST->ABC_TBL.
Position of the developing unit	3	Is the developing roller in correct contact with the OPC?	No	Check that the lever for the developing unit is correctly positioned, and check the surface of the developing roller for foreign matter.
Developing unit	4	Is there an even coating of toner on the developing roller?	No	Check the developing unit.
Scanner (dirty)	5	Clean the mirror, the lens and the exposure aperture. Is the image corrected?	Yes	End.
OPC			No	Replace the OPC unit

The copy is too light. (including solid black)

Cause	Step	Checks	Y/N	Action
	1	Carry out the image adjustment procedure. Is the problem corrected?	Yes	End. The image will be much lighter if the pattern print is placed in reverse (left/right) orientation. Ensure correct orientation of the test chart.
	2	Switch OFF in the middle of the copying cycle. Open the front door. Is there a fairly normal toner image on the OPC ?	No	■ Go to step 9
Transfer unit (Transfer fault)	3	Is the transfer unit properly installed?	No	Correctly fit the transfer unit.
	4	Is there a leakage of charge from the transfer roller?	Yes	Check the transfer unit.
	5	Is there dirt, cracks or scratches on the transfer roller?	Yes	Replace the transfer charging roller.
	6	Check the spring for the transfer roller:- undamaged,- correct tension.	No	Correct the position of the spring, or replace the spring.
Paper (Transfer fault)	7	Using an alternative copy paper, is the image darker?	Yes	<ul style="list-style-type: none"> ■ The paper may be moist. Advise the user regarding the correct method of storing paper. ■ Advise the user that the use of non-recommended paper may reduce the quality.
Transfer guide (Transfer fault)	8	Position the feeding unit in the operating position. Measure the resistance between the transfer guide and the support of the rail for the transfer unit. Is the resistance 0 ohm?	Yes	Check the mechanical connection of the metal components (e.g. the side plate of the feeding unit).
High-voltage cable, high voltage transformer, DC control PBA (Transfer fault)			No	<ul style="list-style-type: none"> ■ Check the high-voltage cable for electrical continuity. ■ Check the high voltage transformer, and the DC control PBA

Cause	Step	Checks	Y/N	Action
Developing unit (Development fault)	9	Is the developing unit fitted correctly? Ensure that the developing rollers are in firm contact with the OPC.	No	Refit the developing unit.
Toner detection (Development fault)	10	Does the developing unit contain toner?	No	<ul style="list-style-type: none"> ■ Check the toner sensor. ■ Check the connector and the harness for electrical continuity.
OPC unit	11	Replace the OPC unit. Is the problem corrected?	Yes	End.
Image processor PBA Analogue processor PBA			No	Try replacing the image processor PBA , or the analogue processor PBA.

The copy is very light (overall)

Cause	Step	Checks	Y/N	Action
	1	Carry out the image adjustment procedure. Is the problem corrected?	Yes	End. The image will be much lighter if the pattern print is placed in reverse (left/right) orientation. Ensure correct orientation of the test chart.
	2	Switch OFF in the middle of the copying cycle. Open the front door. Is there a fairly normal toner image on the OPC ?	No	Go to step 7
Transfer unit (Transfer fault)	3	Is the transfer unit properly installed?	No	Correctly fit the transfer unit.
	4	Is there a leakage of charge from the transfer roller?	Yes	Check the transfer unit.
High voltage cable Transfer unit (Transfer fault)	5	Is there electrical continuity between the power supply PBA and the transfer roller?	No	<ul style="list-style-type: none"> ■ Replace the high voltage cable. ■ Check the transfer unit.
High voltage transformer. DC control PBA (Transfer fault)			Yes	Check the power supply PBA and the DC control PBA.
Transfer guide (Transfer fault)	6	Position the feeding unit in the operating position. Measure the resistance between the transfer guide and the support of the rail for the transfer unit. Is the resistance 0 ohm?	Yes	Check the mechanical connection of the metal components (e.g. the side plate of the feeding unit).
Paper (Transfer fault)			No	Use an alternative copy paper.
	7	Is the developing roller in correct contact with the OPC?	No	Refit the developing unit.
(Development fault)			Yes	<ul style="list-style-type: none"> ■ Check the developing unit. ■ Check the developing bias.

There is background on the copy. (overall)

Cause	Step	Checks	Y/N	Action										
Scanner (dirty)	1	Clean the scanning lamp, the exposure reference strip, the mirror, the lens and the exposure aperture. Is the image corrected?	Yes	End.										
	2	Carry out the image adjustment procedure. Is the problem corrected?	Yes	End.										
AGC	3	<p>Execute 'Function 15' in service mode ('* 4 *', 'SERCT_GAMMA_NUM', 'AGC_MEASURE').</p> <ul style="list-style-type: none"> ■ Open the '* 4 *', 'FUNCTION 15' screen, and press the copy button. ■ Check the following: <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>SERCT_GAMMA_NUM</th> <th>AGC_MEASURE</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>~-28.0 uA</td> </tr> <tr> <td>1</td> <td>-28.1 ~ -36.5 uA</td> </tr> <tr> <td>2</td> <td>-36.6 ~ -43.0 uA</td> </tr> <tr> <td>3</td> <td>-43.1 uA ~</td> </tr> </tbody> </table> <p>Is the variation of value too large?</p>	SERCT_GAMMA_NUM	AGC_MEASURE	0	~-28.0 uA	1	-28.1 ~ -36.5 uA	2	-36.6 ~ -43.0 uA	3	-43.1 uA ~	Yes	<p>Set 'AGS NON' of 'OPTION' ('* 5 *') to 1.</p> <p>If the resulting image is satisfactory, keep the setting to 1 as a temporary remedy. However, be sure to take proper action, as there may be a problem on the image processor PBA or the DC control PBA.</p>
SERCT_GAMMA_NUM	AGC_MEASURE													
0	~-28.0 uA													
1	-28.1 ~ -36.5 uA													
2	-36.6 ~ -43.0 uA													
3	-43.1 uA ~													
Developing unit	4	<p>Is the developing roller insulated from the earth of the machine? Switch OFF. Disconnect J205 from the power supply PBA. Check the electrical continuity between J205-1 and the side of the developing unit, and between J205-1 and the side frame of the machine.</p>	No	Check the developing roller and the components adjacent to the connector of the developing unit.										
Developing unit	5	Replace the power supply PBA. Is the problem solved?	Yes	End.										
			No	Replace the DC control PBA										

**The copy has vertical lines of background
The copy has black lines. (vertical, thick, fuzzy)**

Cause	Step	Checks	Y/N	Action
Charging roller	1	Clean the charging roller in user mode. Is the problem solved?	Yes	End.
Scanner (dirty)	2	Clean the mirror, the lens and the exposure aperture. Is the problem solved?	Yes	End.
Developing unit	3	Is there an even coating of toner on the developing roller?	No	<ul style="list-style-type: none"> ■ Check the edge of the doctor blade. ■ Wipe the surface of the developing roller, until it is dry.
OPC	4	Are there scratches on the OPC, in the peripheral direction.	Yes	Replace the OPC unit.
Light (intrusion)			No	Check whether the OPC is being subjected to exposure from an outside source.

The copy has black lines. (vertical, thick, fuzzy)

Cause	Step	Checks	Y/N	Action
Laser exposure system	1	Make a test copy, using (‘ * 4 * ‘), ‘ L-TEST2 ‘ in service mode. Does the copy have black lines?	No	The scanner system may be faulty. Clean the mirrors 1 to 3.
Charging roller	2	Clean the charging roller in user mode. Is the problem solved?	Yes	End.
OPC	3	Are there scratches on the OPC, in the peripheral direction. <ul style="list-style-type: none"> ■ Try wiping the black lines (if visible) from the OPC, using a cloth coated with toner. Check whether the copies no longer have black lines. 	Yes	Replace the OPC unit. <ul style="list-style-type: none"> ■ If there are scratches, check to find the cause.
Fusing unit	4	Are there any scratches or black lines on the surface of the fixing film? In peripheral direction?	Yes	Replace the fuser unit.
			No	Check that there is no dirt in the entry of the fuser unit.

The copy has white spots (vertical pattern)
The copy has white lines (vertical)

Cause	Step	Checks	Y/N	Action
Laser exposure system	1	Execute (' * 4 * '), ' L-TEET1 ' in service mode. Are there white lines in the resulting image?	Yes	Go to step 7.
Transfer roller and the static eliminator for the separator	2	Is there dirt or foreign matter on the transfer roller, or on the static eliminator?	Yes	Clean the transfer roller, or the static eliminator. If the problem is still not solved, replace the transfer unit, or the static eliminator.
Developing unit	3	Is there an even coating of toner on the developing roller?	No	Check the edge of the doctor blade. If there is no toner in the developing assembly, refer to ' The ADD TONER ' message is not displayed.
Fusing unit	4	Are there scratches on the fixing film, in the peripheral direction.	Yes	<ul style="list-style-type: none"> ■ Replace the fuser unit. ■ Clean the separation claw. ■ Check the separation claw.
Fuser entry	5	Is there dirt or foreign matter in the entry to the fuser?	Yes	Clean the area.
OPC	6	Are there scratches on the OPC, in the peripheral direction.	Yes	Replace the OPC unit <ul style="list-style-type: none"> ■ Check to find the source of the scratches.
Aperture glass	7	Replace the aperture glass.		
Laser exposure system	8	Clean the exposure reference strip and all the mirrors. Is the problem solved?	No	Change the value of (' * 3 * '), ' ADJ-S ' in service mode, and change the point of shading measurement.

The copy has white spots (horizontal).

Cause	Step	Checks	Y/N	Action
Developing unit	1	Execute (' * 4 * '), ' L-TEET1 ' in service mode. Are there white lines in the resulting image?	Yes	Go to step 4.
Developing unit	2	Is the problem repeated at intervals of approximately 35 mm?	Yes	<ul style="list-style-type: none"> ■ Clean the developing roller. ■ Wipe the surface of the developing roller, until it is dry. ■ If scratches are found on the developing cylinder, replace the developing unit.
OPC unit	3	Is the problem repeated at intervals of approximately 94 mm?	Yes	<ul style="list-style-type: none"> ■ Clean the OPC. ■ If there are scratches, replace the OPC unit.
Paper	4	Using an alternative copy paper, is the image darker?	Yes	The paper may be moist. Advise the user regarding the correct method of storing paper.
Transfer unit	5	Are there white spots on the photosensitive drum during copying?	No	Check the transfer unit assembly for leakage.
Developing bias	6	Are there white spots on the photosensitive drum during copying?	Yes	Check the developing bias.
The scanning rail, and the scanner cable	7	Is the problem repeated at the same location on every copy?	Yes	<ul style="list-style-type: none"> ■ Check the scanner rail for foreign matter. ■ Adjust the tension of the scanner cable.

The back of the copy is soiled

Cause	Step	Checks	Y/N	Action
	1	Switch OFF, while copy paper is passing through the feeding unit. Is the back of the copy paper soiled at this time?	No	Go to step 0.
Bias for the transfer guide	2	Is the voltage between the transfer guide and the side plate of the machine -600V or more? (connect + to the transfer guide).	No	<ul style="list-style-type: none"> ■ Check the bias for the transfer unit. ■ Clean the transfer guide.
Developing unit and the registration roller	3	Is the problem repeated at intervals of approximately 50 mm?	Yes	<ul style="list-style-type: none"> ■ Clean the registration roller. ■ Clean the transfer guide. ■ Check the developing unit for leakage of toner.
OPC cleaning unit	4	Is the problem repeated at intervals of approximately 50 mm?	No	<ul style="list-style-type: none"> ■ Clean the feeding unit ■ Check the waste container unit for leakage of toner.
Fusing unit	5	Is there soiling of the lower roller in the fusing unit?	Yes	<ul style="list-style-type: none"> ■ Clean the lower roller in the fusing unit? ■ Clean the entry guide for the fusing unit.
Transfer roller	6	Execute cleaning of the roller, in user mode.		
	7	Make several black copies		
	8	Is there excessive soiling of the transfer roller?	Yes	Replace the transfer unit.

The copy has faults with the fusing

Cause	Step	Checks	Y/N	Action
Paper	1	Is the paper in use a thick type of paper, or a paper that is difficult to fuse?	Yes	Set (' * 5 * '), ' SPCL-PPR ' to 1. Then, set the following and advise the user: <ul style="list-style-type: none"> ■ Select a cassette for thick paper as the special cassette. ■ Select the following icon for the selected cassette (2nd column from the right and 3rd row from top). Thick paper icon <input type="checkbox"/> ■ Advise the user to use this cassette for thick paper.
	2	Is a recommended type of paper being used?	No	Make a test run, using recommended paper. If the results are satisfactory, advise the user to use recommended paper.
Fusing unit label (' FILM-LANK ')	3	Decrease the setting of (' * 3 * '), ' FILM-LANK ' . In service mode.		
Fusing unit	4	Is the problem evident in the vertical direction?	Yes	Check the fixing film for scratches or wrinkles. If any, replace the fixing unit.
Fusing heater	5	Open the MIN_TH screen in service mode (*1*) and press the copy start key. Thereafter, is the value of MAIN_TH 200°C or more?	No	Refer to: The fusing heater fails to switch ON.
			Yes	Check the DC control PBA, and the thermistor.

The copy has a displaced leading edge

Cause	Step	Checks	Y/N	Action
	1	Is the RDF being used?	Yes	Solve the problem, by referring to the RDF section.
Document	2	Is the document position correct?	No	Place the document correctly?
The pick-up roller, the feeding roller, and the separation roller	3	Has the relevant roller reached the end of its scheduled lifetime?	Yes	Replace the roller
(* 3 * '), ' REGIST '	4	Execute 'REGIST' in service mode (*3*).		
The registration roller, the pick-up roller and the feeding guide.	5	Is the problem evident only on the second side of a two-sided copy, or an overlay copy?	No	Check the lower fuser roller
			Yes	Check and clean: <ul style="list-style-type: none"> ■ Registration roller ■ The pick-up roller and the feeding guide.

The copy has blurred images

Cause	Step	Checks	Y/N	Action
Scanner cable	1	Is the cable twisted or frayed on the pulley, when the scanner is moving?	Yes	Correct the routing of the cable, or replace the cable.
Scanner rail	2	Move mirror 1 by hand. Does it move smoothly?	No	Clean the surface of the scanner rail, using alcohol. Then, apply a drop of lubricant.
Drive for the OPC, and the OPC	3	Is the problem repeated at intervals of approximately 94 mm?	Yes	<ul style="list-style-type: none"> ■ Check the drive of the OPC ■ Check for scratches or foreign matter at the ends of the OPC. These are in contact with the developing roller.
Gear for the developing roller	4	Is the problem repeated at intervals of 35 mm?	Yes	Check the developing unit.
OPC drive OPC unit			No	<ul style="list-style-type: none"> ■ Check the drive of the OPC ■ Replace the OPC unit

The copy has horizontal lines of background

Cause	Step	Checks	Y/N	Action
	1	Is the location of the problem area on the copy consistent for all copies made in direct mode?	Yes	Go to step 4
Scanning lamp, power supply PBA	2	Does the scanning lamp flicker while the scanner is moving?	Yes	Check the scanning lamp and the power supply PBA (lamp ON circuit), and the 2.4V power supply.
Developing unit	3	Is there an even coating of toner on the developing roller?	No	Check the developing bias.
Scanner	4	Make reduced size copies. Compare the copies with the copies made in direct mode. Has the location of the problem changed?	Yes	Check the scanning system
OPC drive OPC unit			No	Check the feeding system

The copy is not sharp

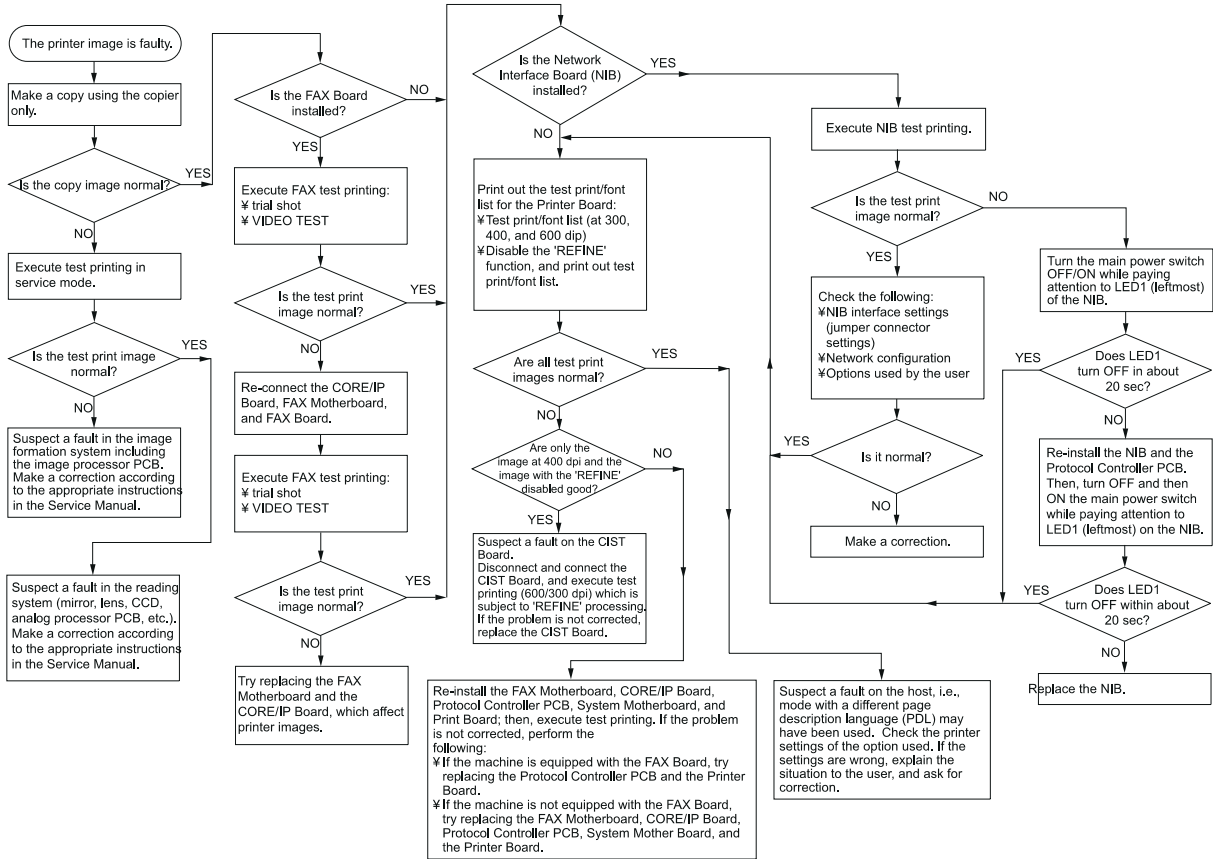
Cause	Step	Checks	Y/N	Action
	1	Is a printed photo (with raster pattern) copied in photo mode?	Yes	Advise the user that moiré may occur at times.
Platen	2	Is there oil on the platen?	Yes	Clean the platen
Scanner (dirty)	3	Clean the scanning lamp, the exposure reference strip, the mirror, the lens and the exposure aperture.		
Position of the mirror	4	Is the horizontal reproduction ratio within the specified range, in direct mode?	No	Adjust the distance between the mirror 1 and the mirror 2.
Developing bias	5	Is the developing bias generated correctly?	No	<ul style="list-style-type: none"> ■ Replace the power supply PBA ■ Replace the DC control PBA
OPC unit, the transfer system	6	Replace the OPC unit. Is the problem corrected?	No	Check the transfer system

The copy is completely blank

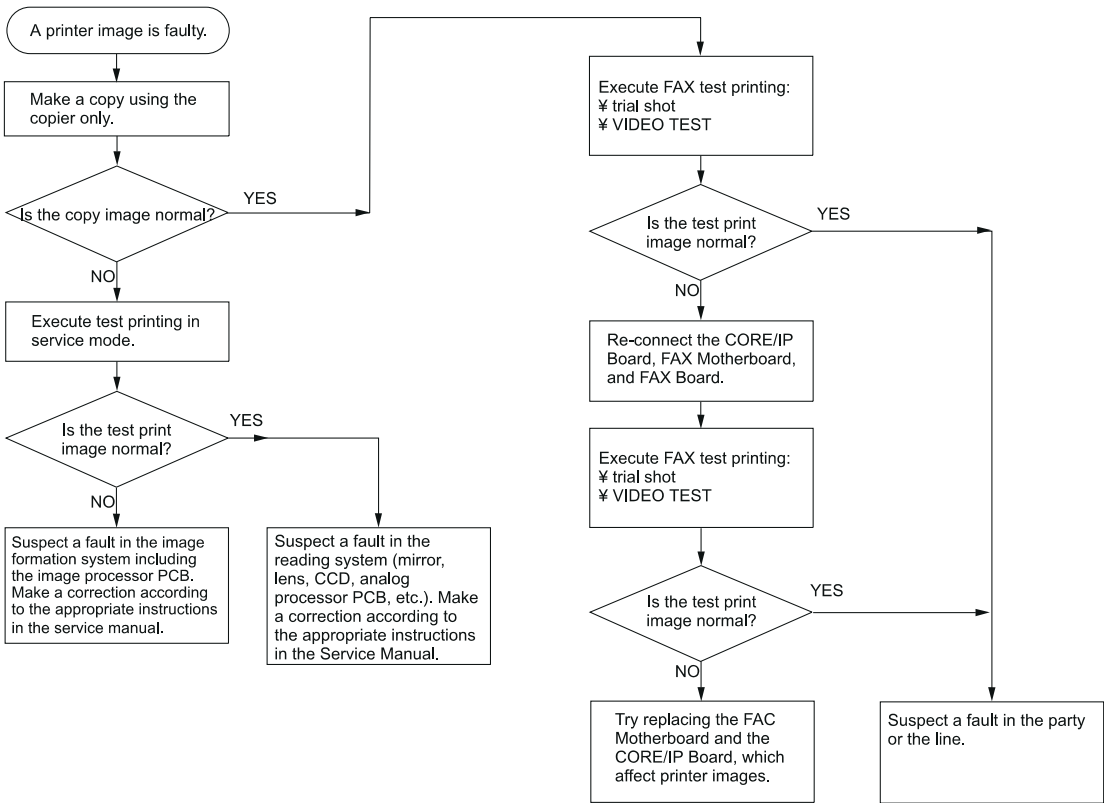
Cause	Step	Checks	Y/N	Action
Locking lever for the developing unit	1	Is the developing unit locked against the OPC drum, during copying?	No	Check the locking of the developing unit.
Drive for the developing unit	2	Does the developing roller rotate during copying?	No	Check the drive of the developing unit.
Developing unit	3	Is toner available?	No	Refer to: The ' ADD TONER ' message fails to switch ON.
	4	Execute test printing using (' * 4 * '), ' L-TEST1-7 '. In service mode. Is the image correct on the OPC?	No	Go to step 11.
Transfer unit	5	Is the transfer unit fitted correctly?	No	Insert it securely
	6	Is there a leakage of charge from the transfer roller?	Yes	Check the transfer unit
High voltage cable for the transfer	7	Is there an open circuit or poor contact on the transfer HT cable? (The cable leads from the transformer 502 on the power supply PBA).	Yes	Reconnect the cable, or fit a new HT cable.
DC control PBA	8	Replace the DC control PBA	OK ?	End.
Power supply PBA	9	Replace the power supply PBA	OK ?	End.
Power supply to the CCD unit	10	Is the voltage correct from the analogue processor PBA to the CCD unit?	No	<ul style="list-style-type: none"> ■ Check the cables between the CCD and the power supply PBA. If undamaged, replace the CCD. ■ Check the power supply PBA
Laser unit, the image processor PBA	11	Remove the developing unit and make a copy of a solid black document. Is a laser beam striking the OPC?	No	<ul style="list-style-type: none"> ■ Replace the laser unit ■ Replace the image processor PBA
OPC unit			Yes	Replace the OPC unit.

The copy is completely black

Cause	Step	Checks	Y/N	Action
Scanning lamp	1	Does the scanning lamp remain ON during copying?	No	Refer to: The scanning lamp fails to switch ON.
Charging roller	2	Is there a correct contact, and a correct connection between J205-3, on the power supply PBA, and the charging roller?	No	Reconnect
	3	Execute test printing using (* 4 *), 'L-TEST1-7'. In service mode. Is the image correct on the OPC?	No	Go to step 5
DC control PBA	4	Connect the test probe to J102-B5 (+) on the DC control PBA. Is the voltage 0V during copying?	No	Replace the DC control PBA
Power supply PBA			Yes	Replace the power supply PBA
Image processor PBA	5	Execute (* 4 *), 'IP-CHK'. In service mode. Is 'OK' displayed as the result?	No	Replace the image processor PBA
CCD unit			Yes	Replace the CCD unit



5 Isolating a PBA : FAX image fault



6 Shading for service

There are two types of automatic correction of shading: for service and for R&D. (‘ * 4 * ‘ , 3rd screen and 12th screen).

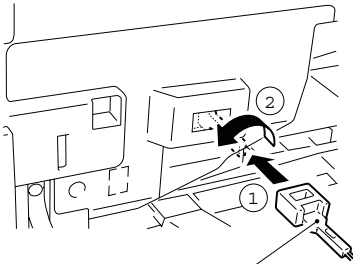
For the automatic correction of shading, various data is monitored and stored in RAM on the image processor PBA. The stored data is used as a target value for the correction of shading carried out prior to the copying cycle.

Auto shading for service

This mode should be used in the following situations:

- When replacing the image processor PBA
- After executing (‘ * 4 * ‘), ‘ RAM INIT ‘.
- Before executing (‘ * 4 * ‘), ‘ COPY AUTO DENSITY CORRECTION ‘.
- After replacing the power supply PBA
- After replacing the laser unit.
- After replacing the CCD unit.
- After replacing the analogue processor PBA.

- 1 Open the front door, and insert the brush in the fuser release.

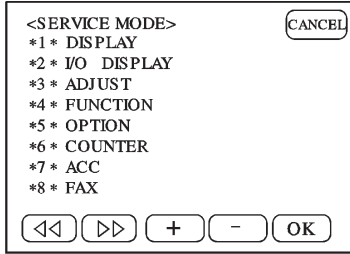


Separation static eliminator cleaning brush

- 2 Insert the switch actuator in the door switch.
- 3 Using a thin pin, press the service switch.
 - A ‘ \$ ’ will be displayed in the upper corner of the screen.


4 Press ‘ * ’ twice

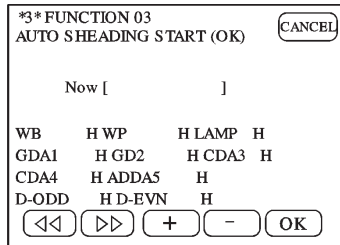
- The Service Mode Menu screen will be displayed.



5 Press ‘ FUNCTION ’ (‘ * 4 * ’). It will highlight.

Then, press ‘ OK ’.

6 Press the Page key  to bring up the shading screen (3rd screen).



7 Press ‘ AUTO SHADING ’ on the LCD , causing it to highlight. Then, press ‘ OK ’.

- ‘ Shading Auto Correction ’ will be executed.

8 After a time, ‘ NOW [END] ’ will be displayed, indicating the end of the shading correction.

7 Automatic correction of the copy density

There are three manners of automatic correction of the copy density. The three manners should be executed as a single set. (automatic correction of shading should be executed before correction of the copy density).

- 1 Automatic correction of PD density
- 2 Automatic correction of 200PWM density
- 3 Automatic correction of 500 PWM density

This mode is executed to correct the following:

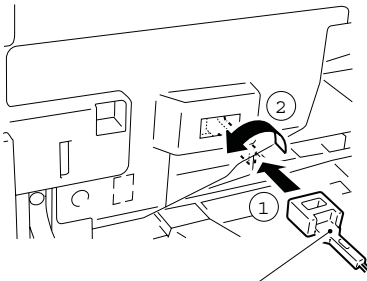
- Laser characteristics
- Developing bias

This mode should be used in the following situations:

- After replacing the laser unit.
- After replacing the power supply PBA
- When image faults occur.
- When replacing the image processor PBA

Operation

- 1 Open the front door, and insert the brush in the fuser release.

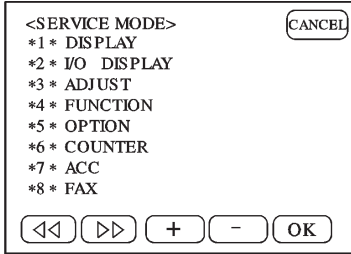


Separation static eliminator cleaning brush

- 2 Insert the switch actuator in the door switch.
- 3 Using a thin pin, press the service switch.
 - A ' \$ ' will be displayed in the upper corner of the screen.

4 Press ‘ * ’ twice

- The Service Mode Menu screen will be displayed.



5 Press ‘ FUNCTION ’ (‘ * 4 * ’). It will highlight.

Then, press ‘ OK ’.

6 Press the Page key (⏪) to bring up the shading screen (3rd screen).

7 Execute ‘ automatic correction of shading ’.

8 At the end of ‘ automatic correction of shading ’, press once on ‘ RESET ’.

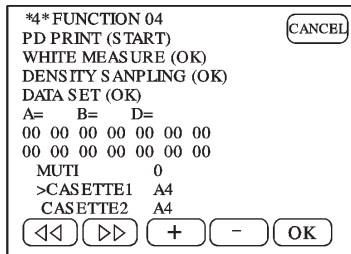
9 With the RDF raised, or the platen cover open, make two totally black copies.

10 2) Check that ‘ \$ ’ is displayed on the LCD. Then, press ‘ * ’ once.

11 Press ‘ FUNCTION ’ (* 4 *), causing it to highlight.

Then, press ‘ OK ’.

12 Press the Page key (⏪) to bring up the PD Density Auto Correction screen (4th screen).

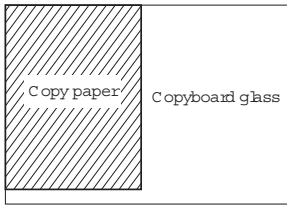


13 Select either ‘ MULTI ’, ‘ CASSETTE 1 ’, or ‘ CASSETTE 2 ’. (Press the appropriate item to select so that the cursor (⏪) points to the item.)

14 Make a PD pattern copy. Press ‘ PD PRINT ’. It will highlight. Press the copy button.

- The pattern copy will be used later.

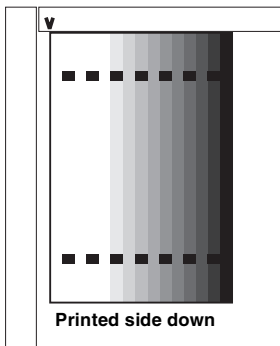
15 Place five to ten sheets of blank paper on the platen. Close the RDF or the cover.



- 16 Press 'WHITE MEASURE' on the screen, causing it to highlight. Then, press 'OK'.
 - The scanner will move forward, to scan the blank paper.
- 17 Remove the paper from the platen. Place the pattern copy on the platen, aligning it with the V marking. (Position the pattern copy correctly. Otherwise, correct adjustment will not be possible).

Place the test pattern face down on the platen,

If the pattern copy is positioned wrongly, the image will be much lighter.



- 18 Press 'DENSITY SAMPLING', causing it to highlight. Then, press 'OK'.
 - The scanner will make 13 scans.
- 19 At the end of the sequence, check that the values A, B and D on the LCD are as follows. If incorrect, restart the adjustment at step 7, as the adjustment may be wrong.

A, B and D are approximate values. Optimum images may still be obtained even if the values are outside the range. You may omit ‘temporary remedy’ if the images are optimum.

■ For PD and 200 PWM

$$20 \leq A \leq 50$$

$$-40 \leq B \leq 40$$

$$0 \leq D \leq 8$$

■ For 600 PWM

$$20 \leq A \leq 60$$

$$-70 \leq B \leq 20$$

$$0 \leq D \leq 8$$

- 20** Check the above and press ‘DATA SET’. It will highlight. Then, press ‘OK’.
- This will set the measured values under A, B and D.
- 21** Press ‘Page’ and execute ‘200 PWM: density automatic adjustment’. Follow the same steps, starting with step 9.
- 22** When ‘200 PWM density automatic adjustment’ is finished, execute ‘600 PWM density automatic adjustment’. Follow the same steps, starting with step 9.
- 23** Press ‘Reset’ twice, ending the service mode. If the values for A, B and D do not match, after repeated execution of ‘copy density automatic correction’, and it proves to be impossible to obtain optimum images, the follow temporary remedy can be used. The temporary remedy will enable normal copying. However, as the image quality is inferior, correct the faults as soon as possible. Then, execute ‘copy density automatic correction’.

Possible fault

- OPC unit
- Scanning lamp
- Laser unit
- Power supply PBA
- Analogue processor PBA
- Image processor PBA

8 Shading for R&D and factory

There are two manners of shading correction: for service and for R&D.

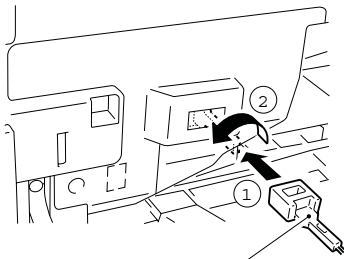
For the automatic correction of shading, various data is monitored and stored in RAM on the image processor PBA. The stored data is used as a target value for the correction of shading carried out prior to the copying cycle.

Shading for R&D and factory

Execute the R&D mode in the following situations:

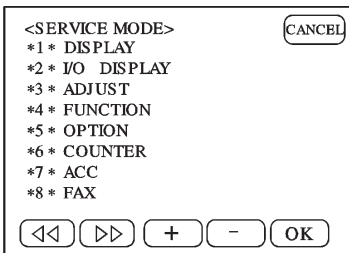
- After replace the exposure reference strip.
- After replacing the scanner lamp.
- After replacing the DC control PBA.


- 1 Open the front door, and insert the brush in the fuser release.

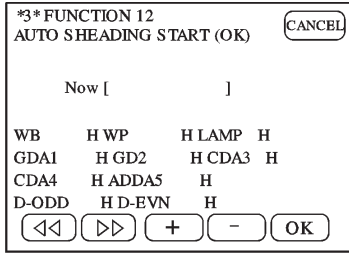


Separation static eliminator cleaning brush

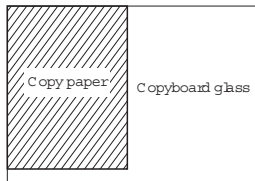
- 2 Insert the switch actuator in the door switch.
- 3 Using a thin pin, press the service switch.
 - A ' \$ ' will be displayed in the upper corner of the screen.
- 4 Press ' * ' twice, to exit service mode.



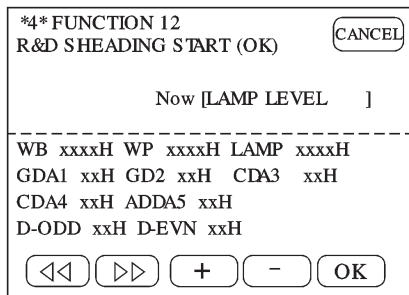
- 5 Press 'FUNCTION' on the Menu screen ('* 4 * '). Press 'OK'.
- 6 Press the Page key () to bring up the Shading screen (12th screen).



- 7 Place 5 to 10 sheets of paper on the platen.



- 8 Press 'AUTO SHADING START' on the LCD, causing it to highlight. Then, press 'OK'.
 - 'Shading Auto Correction' will be executed.
- 9 A beep will sound while the lamp is adjusted, 'LAMP LEVEL' will be displayed. Press 'OK' when the beep stops.
 - If no beep is heard, remove the rear cover and turn VR1, on the DC controller PBA, until you hear the beep. If you still hear no beep while VR1 is turned fully clockwise, press 'OK' while keeping VR1 at the maximum setting.



- 10 After a time, 'NOW [END]' will be displayed, indicating the end of the shading correction.

9 AE adjustment

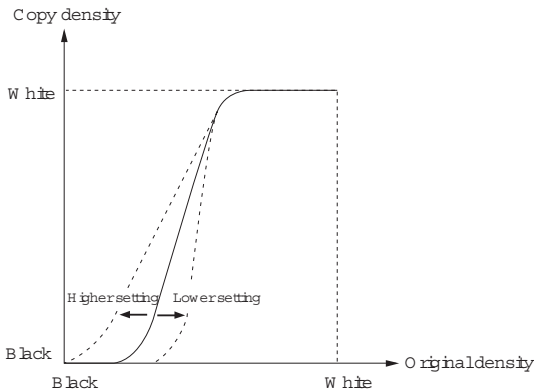
The AE ' auto density adjustment ' mode may be either ' priority on speed ' or ' priority on image quality '. Each of these modes may be adjusted in service mode. The concepts used for the modes are as follows:

Priority on speed mode

Use 'ABC_TBL', under 'ADJUST'. In service mode (' * 3 * ').

- A lower value for 'ABC_TBL' will make the image darker. (value 1 ~ 9).
- A higher value for 'ABC_TBL' will make the image lighter. (value 1 ~ 9, default = 3).

The adjustment will modify the density correction curve.



' Priority on image quality ' mode

1 ' AE_SLOP '

For ' priority on image quality ' an AE table is selected, based on a computation of the density histogram which is prepared during a pre-scan. The slice level, distinguishing the data into text (black) and background (white), can be adjusted under 'AE_SLOP'. In service mode (' * 3 * ', 'ADJUST').

'AE-SLOP': A higher setting makes the image darker. (value 1 ~19).

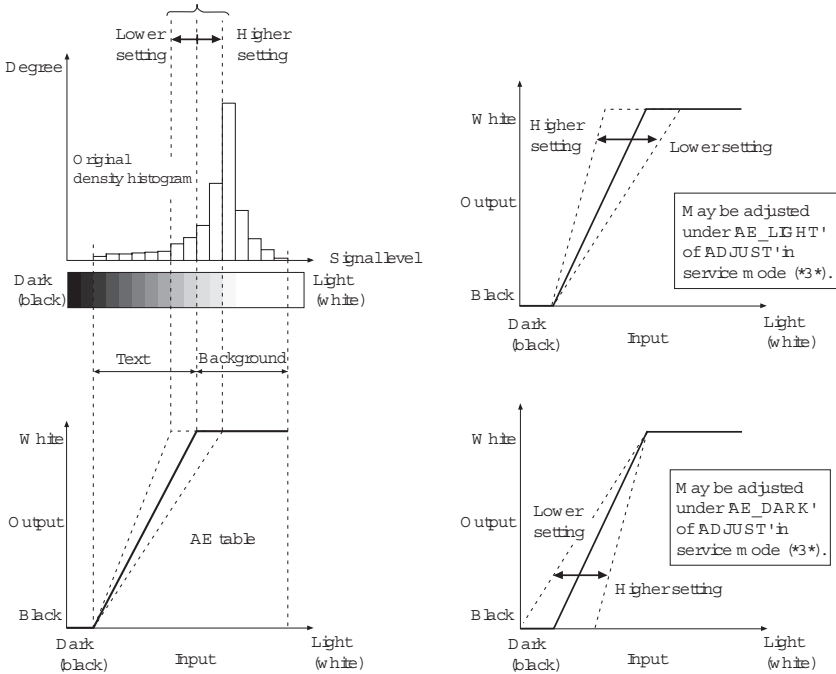
2 'AE_LIGHT' or 'AE_DARK'

The AE table, selected as a result of a pre-scan, may be corrected to suit the preference of the user.

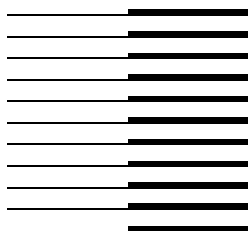
'AE_LIGHT': A higher setting emphasises the background of the document. A lower setting softens the background of the document. (value: 0 ~ 40, default = 20).

'AE_DARK': A higher setting will increase black, a lower setting will decrease black. (value: 0 ~ 40, default = 20).

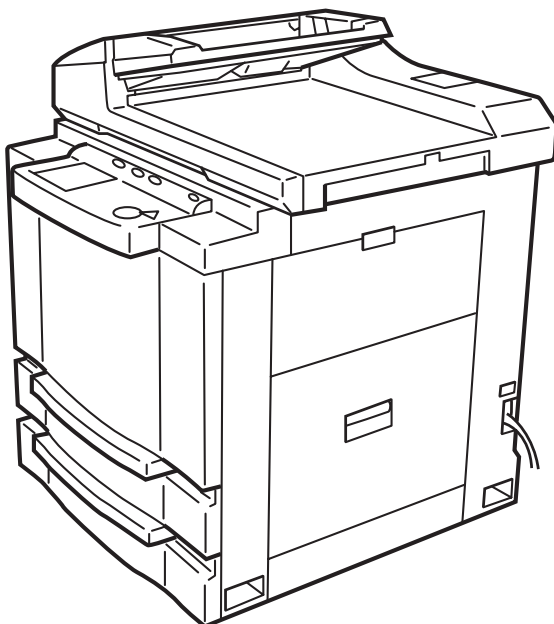
Slide level dividing white area (background) and black area (text; may be changed under 'AE_SLOP' of 'ADJUST' in service mode (*3*)).



Océ



Technical Service Manual
Océ 3121/3122



TROUBLE SHOOTING

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RDF Self Diagnosis

FAX related error codes

Trouble shooting

1 Introduction to this chapter

The Océ 3121/3122 has several ways to inform you about malfunction. The most important is the self-diagnosis system which generates an error code if there is something wrong with the basic machine. Besides that, the composite power supply of the machine can indicate malfunction in the power supply area, by a flashing LED on the composite power supply PBA.

Also the RDF and the 12-bin sorter have their own self-diagnosis system which are able to generate error codes and alarm codes. The error codes are displayed on the copier's display, the alarm codes will cause an appropriate message on the display. In service mode, it is possible to read the alarm code number.

In the first part of this chapter, you find the descriptions of the error codes and the description of the LED at the composite power supply.

The second part gives you procedures to solve faults by error code or by fault situations.

The third part is a list of fax related error codes.

2 Error codes descriptions

The Océ 3121/3122 has a self diagnostic mechanism that indicates a code on the control panel upon detection of an error.

Code	Main cause	Description
E000	The fixing temperature fails to rise. <ul style="list-style-type: none">■ Thermistor (TH1; poor contact, open circuit)■ Heater driver (faulty)■ DC control PBA	<ul style="list-style-type: none">■ The main thermistor (TH1) detects less than 50°C for 200 ms 1 sec after voltage has been applied to the heater.■ The main thermistor (TH1) detects less than 90°C for 200 ms 2 sec after voltage has been applied to the heater.■ The sub thermistor (TH2) detects less than 90°C for 200 ms 4 sec after voltage has been applied to the heater.
E001	The fixing temperature rises abnormally. <ul style="list-style-type: none">■ Thermistor (TH1, TH2; short circuit)■ DC control PBA (faulty)	<ul style="list-style-type: none">■ The main thermistor (TH1) detects more than 250°C for 200 ms during copying operation.■ The sub thermistor (TH2) detects more than 260°C for 200 ms during copying operation.■ The main thermistor (TH1) detects a temperature in excess of a specific temperature by 30°C or more for 200 ms during copying operation.■ The thermistor (TH1, TH2) detects an increase in temperature of 40°C or more during stand-by.■ The main thermistor (TH1) detects an increase in temperature of 100°C or more in 1 sec.■ The main thermistor (TH1) detects in increase in temperature of 100°C or more in 1 sec.

Code	Main cause	Description
E002	<p>The fixing temperature fails to reach a specific value.</p> <ul style="list-style-type: none"> ■ Thermistor (TH1, TH2; off contact, poor contact, open circuit) ■ Fixing heater (open circuit; cracking) ■ Fixing heater drive circuit (faulty) 	<ul style="list-style-type: none"> ■ The main thermistor detected less than 105°C for 200 ms 1 sec after it has detected 90°C. ■ The main thermistor (TH1) detected less than 120°C for 200 ms 1 sec after it has detected 105°C. ■ The main thermistor detected less than 120°C for 200 ms after it has detected 105°C. ■ The main thermistor (TH1) detects less than 135°C for 200 ms 1 sec after it has detected 120°C. ■ The main thermistor (TH1) detects less than 150°C for 200 ms 1 sec after it has detected 135°C.
E003	<p>The fixing temperature drops abnormally.</p> <ul style="list-style-type: none"> ■ Thermistor (TH1, TH2; off contact, poor contact, open circuit) ■ Fixing heater (open circuit, cracking) ■ Fixing heater drive circuit (faulty) ■ DC control PBA (faulty) 	<ul style="list-style-type: none"> ■ The main thermistor (TH1) detects less than 150°C for 200 ms after it has detected 150°C. ■ The sub thermistor (TH2) detects less than 150°C for 200 ms after it has detected 150°C.
E007	<p>The fixing film has become displaced.</p> <ul style="list-style-type: none"> ■ Fixing film (wrong position, tear) ■ Tension roller (wrong position, wrong operation) ■ Fixing film motor (faulty) ■ Fixing film sensor (faulty) 	<ul style="list-style-type: none"> ■ The output of the fixing film sensor continues to be '1' or '0' for 2.1 sec or more.
E007-01	<p>The fixing film has become fully displaced.</p> <ul style="list-style-type: none"> ■ Fixing film (recovery mechanism fault) 	<ul style="list-style-type: none"> ■ The displacement is not corrected after executing film recovery mode which turns on when the main power is tuned off and on in response to 'E007'.
E010	<p>The main motor fails to lock.</p> <ul style="list-style-type: none"> ■ Main motor (M1; faulty) ■ DC control PBA (faulty) 	<ul style="list-style-type: none"> ■ The value is outside a specific range, and the main motor does not lock for 3 sec.
E030	<p>The total counter fails.</p> <ul style="list-style-type: none"> ■ Total counter (CNT1,CNT2; open circuit) ■ DC control PBA (faulty) 	<ul style="list-style-type: none"> ■ A check is made immediately before the counter turns on and off. (Normal, if the counter drive signal is '0' when the counter turns on.)

Code	Main cause	Description
E031	The option counter fails. <ul style="list-style-type: none"> ■ Option counter (CNT3; open circuit) ■ DC control PBA (faulty) 	<ul style="list-style-type: none"> ■ A check is made immediately before the counter turns on and off. (Normal, if the counter drive signal is '0' when the counter turns on.)
E032	The copy data controller counter is faulty. <ul style="list-style-type: none"> ■ Communication (counter data between Copy Data Controller and copier) ■ DC control PBA (faulty) 	<ul style="list-style-type: none"> ■ The count data is not detected by the Copy Data Controller within a specific period of time after the copier has generated the copy start signal.
E051	The home position detection of the horizontal registration fails. <ul style="list-style-type: none"> ■ Horizontal registration sensor PS14 ■ Horizontal registration motor M9 ■ DC control PBA 	<ul style="list-style-type: none"> ■ The home position is not detected after generation of the horizontal registration drive signal.
E064	The high voltage supply is faulty: charging, transfer and developing <ul style="list-style-type: none"> ■ Composite power supply PBA ■ DC control PBA ■ Wiring (short circuit, open circuit) 	<ul style="list-style-type: none"> ■ The difference between the high voltage control signal and the actual high voltage output is more than a specific value. ■ There is an output error on the primary charging roller, transfer charging roller or the developing roller.
E100	A beam detection error has occurred. <ul style="list-style-type: none"> ■ Laser unit ■ BD detection PBA ■ Laser driver PBA ■ Image processor PBA 	<ul style="list-style-type: none"> ■ The BD signal is not generated within 2 sec after the laser has been turned on. ■ The BD signal cycle has a discrepancy
E110	The laser scanner motor fails. <ul style="list-style-type: none"> ■ Laser scanner motor M3 ■ Laser scanner driver PBA ■ DC control PBA 	<ul style="list-style-type: none"> ■ A specific speed is not reached, after the laser scanner motor drive signal has been generated. ■ The speed deviates, after it has reached a specific speed.
E190	RAM error.	
E191	An error has occurred in the serial communication between the DC control PBA and the composite power supply PBA.	<ul style="list-style-type: none"> ■ The communication data is not updated within 8 sec. ■ Three consecutive errors occur with the check sum of the communication.

Code	Main cause	Description
E202 ■ No code indication. ■ Keys on control panel locked.	The scanner home position cannot be detected. ■ Scanner home sensor PS1 ■ Scanner motor M2 ■ DC control PBA	■ The scanner does not return to home position after it has started to move.
E220	■ Scanning lamp (error activation) ■ Scanning lamp ■ Composite power supply PBA ■ DC control PBA	■ Activation of the lamp has been detected during stand-by. ■ Deactivation of the lamp has been detected during copying.
E240	An error in the communication with the DC control PBA has occurred. ■ DC control PBA ■ Image processor PBA	■ An error has been detected in the communication between the DC control PBA and the image processing PBA.
E243	An error has occurred in communication with the control panel. ■ Control panel CPU ■ Image processor PBA	An error has been detected in the communication between the CPU on the control panel and the image processor PBA.
E261	There is an error in the zero cross signal. ■ Power supply frequency (fluctuation) ■ Composite power supply PBA	The intervals of zero cross signals are outside the allowed range.
E301	The intensity of the scanning lamp is incorrectly adjusted. ■ Intensity sensor ■ Scanning lamp ■ DC control PBA	
E400 (RDF)	■ Fault in data communication with copier	■ The communication is monitored at all times. This error is identified when the communication with the copier is interrupted for 5 sec or more.
E401 (RDF)	■ Pick-up motor M1: fails to rotate ■ Pick-up roller sensor S5	■ A vane is fitted to the shaft of the pick-up motor M1. The rotation is monitored by checking the passage of the vane past the sensor S5. This error is identified if S5 is not switched on and off twice within 1 sec.

Code	Main cause	Description
E402 (RDF)	Belt motor M3: fails to rotate <ul style="list-style-type: none"> ■ Belt motor M3 ■ Clock sensor S10 for the belt motor 	The number of clock pulses for 200 ms is below a specific value.
E403 (RDF)	Feeder motor M2: fails to rotate <ul style="list-style-type: none"> ■ Feeder motor M2 ■ Feeder motor clock sensor S9 	The number of feeding motor clock pulses for 200 ms is below a specific value.
E411 (RDF)	<ul style="list-style-type: none"> ■ Original tray paper sensor S1 ■ Registration sensor S3 	The sensor output is 2.3 V or more in the absence of paper.
E422 (3-bin output unit)	The home position sensor for the tray shift mechanism fails.	<ul style="list-style-type: none"> • The home position detection signal does not turn on within 5 sec during shift tray home position search.
E500 (12-bin output unit)	The CPU (Q7) or the communication IC (Q11) on the tray controller PBA are defective.	An error has occurred in the communication between the multi tray and the copier.
E510 (12-bin output unit)	<ul style="list-style-type: none"> ■ The bin feeding motor (M2) fails to rotate. ■ The clock sensor (PI2) of the bin feeding motor has a fault. 	The clock sensor PI2 does not transmit pulses within 4 seconds after the motor drive signal (BFMD) has been generated.
E515 (12-bin output unit)	<ul style="list-style-type: none"> ■ The tray feeding motor (M6) fails to rotate. ■ The clock sensor (PI6) of the tray feeding motor has a fault. 	The clock sensor PI6 does not transmit pulses within 1 second after the motor drive signal (TFMD) has been generated.
E521 (12-bin output unit)	<ul style="list-style-type: none"> ■ The tray shift motor (M7) fails to rotate. ■ The tray position sensor (PI12) has a fault. 	The position sensor PI12 does not switch on or off within 2.5 seconds after the tray shift drive signal has been generated.
E530 (12-bin output unit)	The drive motor (M4) for the guide bar fails to rotate.	The position sensor PI5 does not switch on or off within 2.5 second or more after the guide bar swing signal has been generated.
E531 (12-bin output unit)	<ul style="list-style-type: none"> ■ The stapler motor M3 does not rotate. ■ The stapler swing motor M5 does not rotate. 	<ul style="list-style-type: none"> ■ The sensor MS7 does not switch within 1 second after the stapler motor CW (M3) signal was generated, and the sensor MS 7 does not switch within 1 second after the stapler motor CCW signal is subsequently generated. ■ The stapler position sensor PI4 is not switched off within 1 second after motor M5 was started.

Code	Main cause	Description
E540 (12-bin output unit)	<ul style="list-style-type: none"> ■ The bin shift motor M1 does not rotate. 	<ul style="list-style-type: none"> ■ The cam home sensor PI1 does not switch OFF within 1 second after the motor M1 drive signal has been generated.
E601	The communication between the machine and the SCS1 board has a fault.	An error exists in the communication between the SCS1-CPU and the IP-CPU.
E603	The SCS1 fuse has blown.	The SCS1 fuse has blown.
E604	The image memory has a fault. The RAM has a fault. The expansion memory is not fitted properly.	A white fault is detected when image data is written to the image memory.
E605	The image memory battery has a fault. The battery has a fault. (The image memory battery is an accessory to the FAX board.)	The voltage of the image memory battery is lower than a specific value (if after an adequate charging time and the power was turned on within a charge life.)
E674	The fax unit has a fault. The chip has a fault. The fax unit has poor connection.	An error is detected when writing to the chip while receiving a fax message.
E675	Tolerance in power supply of the expansion B2 kit	Bad communication between IP-board and X2e controller
E677	The communication between the machine and the printer board has a fault.	The communication with the printer board has an error.
E710	The IPC chip self diagnosis has an error. An error exists in the IPC chip self diagnosis mechanism on the image processor PBA.	The IPC chip self diagnosis mechanism on the image processor PBA does not end normally when power is turned on.
E711	The IPC communication has a fault. <ul style="list-style-type: none"> ■ The cable has poor contact. ■ The cable has a fault. ■ The options print PBA unit has a fault. ■ The accessory IPC chip has a fault. 	The communication between the IPC chip on the image processor PBA and the IPC chip (accessory) has a fault.
E712	The communication with the feeder has a fault.	The communication is interrupted.
E713	The sorter IC has an error.	The communication is interrupted.
E716 (Cassette unit)	The communication with the pedestal has a fault.	The communication is interrupted.

Code	Main cause	Description
E717	The communication with the copy data controller has a fault.	The communication is interrupted.
E803	An error has occurred in the output voltage of the composite power supply PBA. Both ends of the fluorescent lamp are blackened: because of deterioration.	Incorrect output voltage (+24VU or +24VR) of the composite power supply PBA.
E901 (Cassette unit)	<ul style="list-style-type: none"> ■ Pedestal motor M20 (faulty) ■ Pedestal control PBA is faulty 	<ul style="list-style-type: none"> ■ The rpm failed to reach a specific value within 10 second, after the pedestal motor was turned on. ■ The rpm deviated from a specific value for 3 sec or more.

Action in response to error codes

When the diagnostic system has switched ON, and an error has been logged, the machine can be reset by switching the ON/OFF switch OFF, then ON. E000, E001, E002, E003, E004, and E007-01, and E717 cannot be reset by switching OFF and ON.

Resetting:

- 1 Go to “*4* FUNCTION” in service mode.
- 2 Press ‘ERROR’ on the LCD to highlight; then, press the OK key.
 - This will interrupt the mains supply for an instant.

Note: *In the case of ‘E007’, turning off and then on the main power switch will activate film recovery mode (‘FILM_COMEBACK’ in service mode *4*), thereby resetting the machine after returning the film to its correct position. If the film fails to return to the correct position after executing this recovery mode, ‘E007-01’ will be indicated. If this happens, replace the fixing assembly or take appropriate measures, return the film to its correct position, and execute ‘ERROR’ in service mode (*4*).*

*Note that ‘E007-01’ in service mode will be indicated as ‘E007’, omitting the last two digits under ‘ERR’ of ‘DISPLAY’ in service mode (*1*).*

After the film has returned to normal position, following the execution of ‘FILM COMEBACK’, switch OFF, then ON: without touching the other buttons.

Note: *In the case of ‘E202’, the keys on the control panel will be locked without indicating an error code; use ‘ERR’ under ‘DISPLAY’ in service mode (*1*) if this is the case.*

Operation in Response to an Error E5XX or E713 (12-bin output unit)

- 1 The copier’s message display indicates “TURN ON POWER”.
- 2 When the copier’s power has been turned off and then on, the copier will reset the error if the results of self diagnosis it has run are good. (it will indicate an error code if any error is detected).

Copier operation with an Error Code On

- 1 The copier indicates ‘E5XX’ or ‘E713’.
- 2 The copier allows making copies when the multi-tray is detached from it*.
- 3 A message will be displayed if a sorter application is selected.

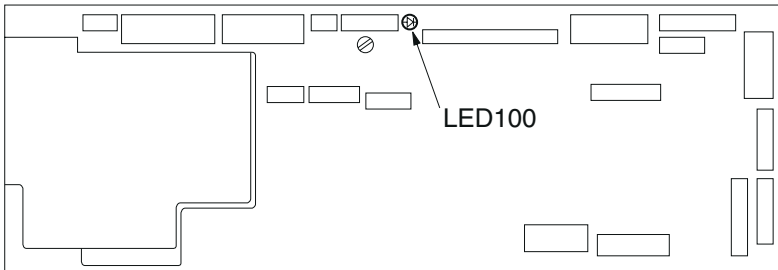
* Turn off the joint sensor (MS3; feeding the multi-tray from the copier); you need not disconnect the communication connector to the copier.

3 Detecting errors on the composite power supply PBA

The composite power supply PBA has a self diagnostic function for errors in the output of the PBA and its communication with the DC controller PBA.

The errors are indicated by the flashing frequency of LED100 on the DC controller PBA (See the table below). At the same time, the control panel displays an error code.

Deterioration of the scanning lamp is also checked by this detection mechanism. (In this case you need to replace the lamp to clear the error)



Status indications by flashing LED

Pattern	Message	Description
0.5 seconds ON, 0.5 seconds OFF	Normal	The composite power supply PBA is functioning in a normal manner.
2 seconds ON, 2 seconds OFF	Excess current	An excess current has been detected. Or, an error in the load relation of +24VR or +24VU outputs.
3 seconds ON, 3 seconds OFF	Low-voltage control error in stand-by	The difference between the setting for +24VR output and the control value in stand-by is larger than specified. Upon detection, error data is sent to the DC controller PBA. "E803" will be indicated on the control panel.
5 seconds ON, 5 seconds OFF	Error in the communication with the DC controller PBA	A communication error: DC control PBA to composite power supply PBA. The communication data was not renewed within 8 seconds. LED100 may fail to flash. E191 is logged.

Pattern	Message	Description
6 seconds ON, 6 seconds OFF	Low voltage: control error during copying *	Unacceptable difference between the +24VR output and the actual control value. Error data is transmitted to the DC control PBA. E803 is logged.
8 seconds ON, 8 seconds OFF	+5.1V output: control error	Output is incorrect. All output from the composite power supply PBA will stop. The display will also be OFF.
10 seconds ON, 10 seconds OFF	Check sum error on the DC controller PBA	Two consecutive check sum errors have been detected by the CPU on the DC control PBA.

* Can also be due to a faulty fluorescent lamp. Check that the glass at each end of the tube is not black.

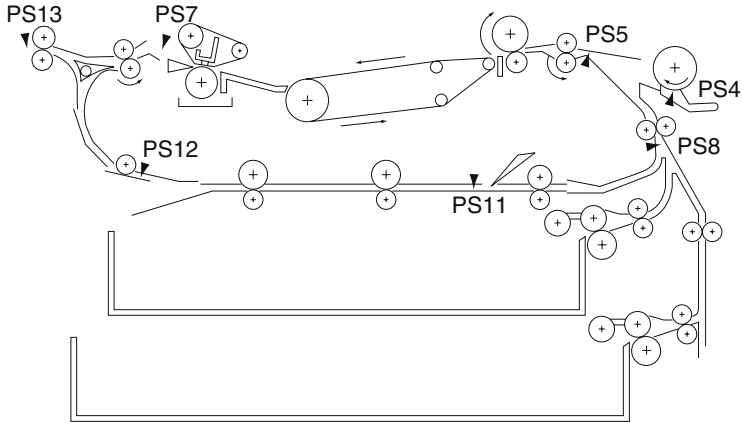
4 Self diagnosis of the RDF and the 12-bin sorter

The RDF control PBA and the sorter control PBA have a self diagnosis mechanism which generates an error/alarm code. You may check the code in the copier's service mode (*1* DISPLAY 03). For a description of these codes, see the SDS description chapter, *1* DISPLAY 03.

5 Detection of jams

Seven paper sensors (figure) are used to check whether copy paper is moving properly.

The microprocessor on the DC controller PBA runs checks the presence/absence of paper at specific sensors at specific times. When it detects a jam, it will turn OFF the main motor and indicate a jam message on the control panel.



	Sensor	Signal	Connection
PS4	Sensor for the speciality tray	MFPD	J113-A11
PS5	Sensor for the pre-registration	PDP 1	J113-A5
PS7	Fuser sensor PS7	PDP 3	J109-6
PS8	Sensor for the vertical transport	PDP 4	J113-A2
PS11	Sensor for the re-pick entry	PDP 5	J103-2
PS12	Sensor for the re-feed unit	PDP 6	J105-B2
PS13	Sensor for the output tray	PDP 7	J105-A2

Types

The microprocessor identifies jams as follows:

- Delay
The paper did not reach the appropriate sensor within the specified time: i.e. the sensor is not ON.
- Stationary
The paper did not leave the appropriate sensor within the specified time: i.e. the sensor does not switch OFF.
- Persistent
The paper remains over a sensor, with power ON. i.e. the sensor detects paper.

Note: *A jam will be signalled in any of the following occur, during copying:*

- *the front door is opened,*
- *the right door is opened,*
- *the output door is opened,*
- *or the cassette is withdrawn.*

Record of jams

The machine retains a history of the jams which have occurred. The history can be checked in service mode.

In memory are:

- The remaining number of copies, and
- the relevant copying mode.

This memory will be used for job recovery, after the jam has been removed.

Note: *If the message “Return Original and Press Start” appears on the control panel after removing the jam, put the original back into the feeder as they were set initially.*

Error code solving / machine fault solving

1 E000 The fixing temperature fails to rise.

Cause	Step	Checks	Yes/No	Action
The thermistor relay connector J50 is disconnected.	1	Clear the error using 'ERROR' in service mode (*4*). Is the connection of the connector J50 (4-wire harness under the counter mount) good?	No	Reconnect it.
Thermistor: open circuit.	2	Let the fixing assembly to cool; then, disconnect J50, and measure the resistance of the thermistor. Is the reading as follows? J501/-2 (yellow line) about 1388 kohm J503/-4 (white line) about 3636 kohm	No	Replace the fuser unit.
Heater: open circuit.	3	Disconnect the connector J4 (near the door switch assembly), and check electrical continuity. Is there electrical continuity?	No	Replace the fuser unit.
Thermistor: poor contact.	4	Replace the fuser unit. Is the problem corrected?	Yes	End.
Fixing heater driver	5	Replace the fixing heater driver. Is the problem corrected?	Yes	End.
DC control PBA			No	Replace the DC control PBA

2 E001 The fixing temperature is abnormally high.

Cause	Step	Checks	Yes/No	Action
Thermistor: short circuit.	1	Clear the error using 'ERROR' in service mode (*4*). Let the fixing assembly to cool; then, disconnect J50, and measure the resistance of the thermistor. Is the reading as follows? J501/-2(yellow line) about 0kohm J503/-4 (white line) about 0 kohm	Yes	Replace the fixing unit.
Fixing heater driver	2	Replace the fixing heater driver. Is the problem corrected?	Yes	End.
DC control PBA			Yes	Replace the DC control PBA.

3 E002/E003 The fixing temperature is abnormally high.

Cause	Step	Checks	Yes/No	Action
	1	Clear the error using 'ERROR' in service mode (*4*). Is any of the following correct after the machine has booted? The fixing heater fails to switch ON. 'E000' is indicated.	Yes	See the appropriate section.
Thermistor: short circuit.	2	Check the cables between the thermistor and connection J108, on the DC control PBA.	No	Repair the cable connections.
Fixing heater driver	3	Replace the DC control PBA. Is the problem corrected?	Yes	End.
DC control PBA			No	Replace the fixing heater driver.

4 E007 The fixing film has become displaced.

Cause	Step	Checks	Yes/No	Action
Film (displacement)	1	Switch OFF, then ON. Is the problem corrected? Switching OFF/ON automatically starts the film recovery mode. If the film fails to return to the correct position, 'E007-01' will be indicated, and no recovery can be made by switching the machine OFF and ON.	Yes	
			No	

5 E007-01 The fixing film does not realign.

Cause	Step	Checks	Yes/No	Action
Front cover (the switch actuator)	1	Switch OFF. Is the switch actuator damaged?	Yes	Replace the front cover.
Roller	2	Have any of the rollers slipped off? The lower roller, the tension roller or the cleaning roller.	Yes	Replace the fuser unit.
Fixing film	3	Is the film cut, or bent, or torn?	Yes	Replace the fuser unit.
	4	Have more than 200,000 copies been made with the fixing unit?	Yes	Replace the fuser unit.
Releasing lever	5	Is the releasing lever faulty?	Yes	Replace the fuser unit.
Detect lever	6	Is the tension spring of the detect lever in good condition? Also, does it move smoothly?	No	Correct it.
Film sensor PS2	7	Is the sensor PS2 in good condition?	No	Check the wiring between: the DC control PBA, via the connector J47, to the sensor. If undamaged, replace the sensor.
M5 Fixing film motor	8	Turn on the main power, and reset the error using 'ERROR' in service mode (*4*). When the main power turns off automatically thereafter, turn it on once again, and execute 'FILM COME-BACK' in service mode (*4*). Is the operation of the fixing film motor (M5) normal?	No	Replace the motor (M5).
			Yes	Replace the fuser unit.

6 E010 Main motor fails to lock

Cause	Step	Checks	Yes/No	Action
	1	Does the main motor rotate until 'E010' is indicated?	No	Go to step 4.
Main motor (including motor driver PBA)	2	Is MLCK 0 V (main motor specific speed signal), while the main motor is running?	No	Replace the main motor.
DC power supply	3	Is the voltage between the following connectors on the main motor driver normal? J150-1: 24 V J150 2 = 0 V.	No	Check the wiring from J204-3 (24 V)/J204-4 (0 V) on the composite power supply PBA to the main motor; if normal, see "DC power is absent."
Main motor	4	Replace the main motor. Is the problem corrected?	Yes	End.
DC control PBA			No	Replace the DC control PBA

7 E030 The total counter fails.

Cause	Step	Checks	Yes/No	Action
	1	Check the operation of the counters. Counter 1 (right): total copy counter Counter 2 (left): printer counter	No	See "The counter fails to operate."
DC control PBA			Yes	Replace the DC control PBA

8 E031 The fax counter fails.

Cause	Step	Checks	Yes/No	Action
	1	Check the operation of the fax counter. Counter 3 (left): fax counter	No	"The counter fails to operate."
DC control PBA			Yes	Replace the DC control PBA PBA

9 E032 The copy data controller is faulty.

Cause	Step	Checks	Yes/No	Action
Connector (poor contact)	1	Check the connection of the communication cable, between the copy data controller and the copier.	No	Connect the connector correctly.
Communication cable (open circuit)	2	Is there an open circuit in the connection between the copy data controller and the copier.	Yes	Replace the communication cable.
Copy Data Controller	3	Replace the copy data controller. Is the problem corrected.?	Yes	End
DC control PBA			No	Replace the DC control PBA

10 E051 The home detection of the horizontal registration has failed.

Cause	Step	Checks	Yes/No	Action
	1	Is the registration sensor PS14 functioning normally? Procedure: Open the right door, and insert copy paper into the pick-up feeding assembly through the lower feeding assembly. While paying attention to 'DC PC0' in service mode (*2*), move the inserted paper toward the rear. Does the value under 'DC PC0' change from '1' to '0'?	Yes	Go to step 3.
Registration sensor PS14: faulty.	2	Check the cables between the DC control PBA and the registration sensor: connection J114.	Yes	Replace the sensor.
Horizontal registration motor connector (poor contact)	3	Check the cables between the DC control PBA and the registration motor: connection J115.	No	Connect the connector correctly.
Motor for the side registration	5	Replace the horizontal registration motor. Is the problem corrected?	Yes	End.
DC control PBA			No	Replace the DC control PBA

11 E064 The high tension supply is faulty.

Cause	Step	Checks	Yes/No	Action
Trapped cables	1	Turn OFF/ON the power switch, and set the copy count to '1'. Is 'E064' indicated after copying?	Yes	Check the harness of the DC controller PBA and the composite power supply PBA.
composite power supply PBA	2	Set the count to '1' once again, and make a copy. Is 'E064' indicated after copying?	Yes	Perform steps 3 to 6. Then, replace the composite power supply PBA.
Transfer charging assembly/transfer charging roller	3	Check the connections of the transfer unit and the transfer roller.	Yes	Replace the transfer unit or the transfer roller.
Primary charging roller	4	Remove the OPC, and check the charging roller. Check the connection of the charging roller.	Yes	Replace the OPC unit.
Developing unit	5	Remove the developing assembly, and check the developing cylinder and the contact. Is the developing cylinder or the contact faulty?	Yes	Replace the developing cylinder or the developing assembly.
High tension cable	6	Are there any scratches or tears in the high tension cables? Inspect the cables for the charging, the transfer and the developing unit.	Yes	Replace the high tension cable.

12 E100 A beam detection error has occurred.

Cause	Step	Checks	Yes/No	Action
J602 J603	1	Are the connectors J602 and J603 of the laser driver connected?	No	Reconnect
J518			Yes	Check the connector J518: on the image processor PBA. If correct, go to 2.
J5041	2	Is J5041 connected to the BD PBA?	No	Reconnect.
J504			Yes	Check the connector J504: on the image processor PBA. If correct, go to 3.
BD PBA (soiled face)	2	Clean the face of the BD PBA. Is the problem solved?	Yes	End.
BD PBA, laser unit, image processor PBA			Yes	Try replacing the following items: <ul style="list-style-type: none"> ■ BD PBA ■ Laser unit ■ Image processor PBA

13 E110 Scanner motor fails

Cause	Step	Checks	Yes/No	Action
J153	1	Inspect the connection of J153, to the laser driver PBA.	No	Connect the connector.
	2	Perform key operation during stand-by. Is the sound of the rotation of the laser scanner motor heard?	Yes	Go to step 4.
DC power supply	3	Is there a power supply to the laser driver PBA? <ul style="list-style-type: none"> ■ J152 1 = 24 V. ■ J152 2 = 0 V. 	No	Check the wiring between the connector J152 on the laser scanner driver PBA to the connector J204-5/-6 on the composite power supply PBA.
Laser scanner drive PBA, laser scanner unit			Yes	Try replacing the following items: <ul style="list-style-type: none"> ■ Laser scanner drive PBA ■ Laser unit
DC control PBA	4	Replace the DC control PBA. Is the problem corrected?	Yes	End
Laser unit			No	Replace the laser unit

14 E190 RAM error.

Cause	Step	Checks	Yes/No	Action
	1	Switch OFF, then ON. Is the problem corrected?	Yes	End
Image processor PBA	2	Execute 'IP-CHK' in service mode (*4*). Is 'OK' indicated after execution?	No	Replace the image processor PBA
DC control PBA			Yes	End if the problem is corrected after turning OFF/ON the main power supply. If 'E190' is indicated, replace the DC controller PBA.

15 E191 Error in serial communication between DC controller PBA and composite power supply PBA

Cause	Step	Checks	Yes/No	Action
	1	Switch OFF, then ON. Is the problem corrected?	Yes	End
Connector (poor contact)	2	Is the connection between the connector J102 on the DC controller PBA and the connector J209 on the composite power supply PBA normal?	No	Reconnect
composite power supply PBA and the DC control PBA.			Yes	Try replacing the following items: <ul style="list-style-type: none"> ■ DC control PBA ■ composite power supply PBA

16 E202 Scanner home position is not detected.

Cause	Step	Checks	Yes/No	Action
	1	Is the scanner at home position when 'E202' is indicated?	Yes	See "The scanner fails to move forward/in reverse."
Scanner home sensor PS1	2	Inspect the Scanner home sensor PS1.	No	Check the wiring from the DC controller PBA to PS1; if normal, replace PS1.
Scanner motor M2			Yes	End.
DC control PBA		Replace the scanner motor. Is the problem solved?		Replace the DC control PBA

17 E220 The scanning lamp operates incorrectly.

Cause	Step	Checks	Yes/No	Action
	1	Does the scanning lamp switch ON?	No	See “The scanning lamp fails to turn ON.”
Scanning lamp (low intensity)	1	Are both ends of the scanning lamp black?	Yes	Replace the scanning lamp. <ul style="list-style-type: none"> ■ The scanner may fail to move forward, due to low intensity.
DC control PBA	2	Replace the DC control PBA. Is the problem corrected?	Yes	Replace the DC control PBA
composite power supply PBA			No	Check the wiring of the DC controller PBA and the composite power supply PBA; if normal, replace the composite power supply PBA.

18 E240 An error has occurred in the communication between the DC control PBA and the image processor PBA.

Cause	Step	Checks	Yes/No	Action
	1	Switch OFF, then ON. Is the problem corrected?	No	End
Connector (poor contact)	2	Is the connection of the connector J111 on the DC controller PBA and the connector J509 on the image processor PBA good?	Yes	Connect the connector properly.
DC control PBA	3	Replace the DC control PBA. Is the problem corrected?	Yes	End
Image processor PBA			No	Replace the image processor PBA

19 E243 Error in communication between control panel and image processor PBA

Cause	Step	Checks	Yes/No	Action
	1	Switch OFF, then ON. Is the problem solved?	Yes	End
Connector (poor contact)	2	Is the connection of the connector J517 on the image processor PBA and the connector J905 on the control panel good?	No	Connect the connector properly.
The operating panel	3	Replace the control panel. Is the problem corrected?	Yes	End
Image processor PBA			No	Replace the image processor PBA

20 E261 zero cross error

Cause	Step	Checks	Yes/No	Action
	1	Switch OFF, then ON. Is the problem solved?	Yes	End
Connector (poor contact)	2	Is the connection of the connector J102 on the DC controller PBA and the connector J209 on the composite power supply PBA good?	No	Connect the connector properly.
DC control PBA	3	Replace the DC control PBA. Is the problem corrected?	Yes	End
Composite Power supply PBA			No	Replace the composite Power supply PBA

21 E310 The intensity of the scanning lamp is incorrectly adjusted.

Cause	Step	Checks	Yes/No	Action
	1	Press the copy button. Does the scanning lamp switch ON?	No	See “The scanning lamp fails to turn ON.”
Connector (poor contact)	2	Check the cables between the DC control PBA and the lamp intensity sensor. Connection J112.	No	Correct it.
Intensity sensor is dirty	3	Clean the face of the intensity sensor. Is the problem solved?	Yes	End
Intensity sensor	4	Replace the intensity sensor. Is the problem solved?	Yes	End
DC control PBA			No	Replace the DC control PBA

22 E400/E712

Cause	Step	Checks	Y/N	Action
	1	Turn off and on the power switch. Is the problem corrected?	Yes	End. (Check the wiring between the copier’s DC controller PBA and the RDF controller PBA.)
Wiring	2	Set the meter to the 200VDC range, and connect the + probe to J2-6 and the – probe to J2-4 on the RDF controller. Is the voltage about 24 V?	No	Check the wiring for the supply of power from the copier.
RDF controller PBA	3	Replace the RDF controller PBA. Is the problem corrected?	Yes	End.
			No	Replace the copier’s DC controller.

23 E401

Cause	Step	Checks	Y/N	Action
Pick-up roller sensor (S5)	1	Set the meter to the 20VDC range, and connect the + probe to J5-2 and the – probe to J5-3 on the RDF controller PBA. Turn the flag (light-blocking plate) of the pick-up roller shaft by hand; is the voltage about 5 V when the flag is at the sensor and about 0.15 V otherwise?	No	Check the wiring from the pick-up roller sensor (S5) to the RDF controller PBA; if normal, replace the pick-up roller sensor (S5).
Pick-up motor (M1)	2	Set the meter to the 200VDC range, and connect the + probe to J12-1 and – probe to J12-2 on the RDF controller PBA. Does the meter reading change to about 22 V when the Copy Start key is pressed?	Yes	Check the wiring from the pick-up motor (M1) to the RDF controller; if normal, replace the pick-up motor (M1).
			No	Replace the RDF controller PBA.

24 E402

Cause	Step	Checks	Y/N	Action
Belt motor clock sensor (S10)	1	Set the meter to the 20VDC range, and connect the + probe to J9-18 and the – probe to J9-19 on the RDF controller PBA. Does the reading alternate between 5 V and 0 V when the clock disk is turned slowly by hand?	No	Check the wiring from the belt motor clock sensor (S10) to the RDF controller PBA; if normal, replace the belt motor clock sensor (S10).
Belt motor (M3)	2	Set the meter to the 200VDC range, and connect the + probe to J7-1 and the – probe to J7-2 on the RDF controller PBA. Does the reading of the meter change to 23 V when the Copy Start key is pressed?	Yes	Check the wiring from the belt motor (M3) to the RDF controller PBA; if normal, replace the belt motor (M3).
			No	Replace the RDF controller PBA.

25 E403

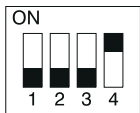
Cause	Step	Checks	Y/N	Action
Feeding motor clock sensor (S9)	1	Set the meter to the 20VDC range, and connect the + probe to J9-15 and the – probe to J9-16 on the RDF controller PBA. Does the reading alternate between 5 V and 0 V when the clock disk is turned slowly by hand?	No	Check the wiring from the feeding motor clock sensor (S9) to the RDF controller PBA; if normal, replace the motor clock sensor (S9).
Feeding motor (M2)	2	Set the meter to the 200VDC range, and connect the + probe to J11-1 and the – probe to J11-2 on the RDF controller PBA. Does the reading of the meter change to 23 V when the Copy Start key is pressed?	Yes	Check the wiring from the feeding motor (M2) to the RDF controller PBA; if normal, replace the feeding motor (M2).
			No	Replace the RDF controller PBA.

26 E411

Cause	Step	Checks	Y/N	Action
Original tray paper sensor (S1), Registration sensor (S3)	1	Connect the probes of the meter to the connectors on the RDF controller PC shown below. Is the reading of the meter 2.3 V or lower when nothing blocks the sensor? Original tray sensor S1: (+) J5-7, (-) J5-8 Registration sensor S3: (+) J9-20, (-) J9-21	Yes	Go to step 2.
			No	Replace the RDF controller PBA.
S1, S3	2	Is the light-receiving face of each sensor soiled with paper lint?	Yes	Clean the light-receiving face of the sensor with a cotton swab, and go to step 3.
LED1, LED2 (for sensor)	3	Connect the probes of the meter to the connectors of the RDF controller PBA shown below. Is the reading of the meter about 0.6 to 1.1 V? LED1: (+) J9-1, (-) J9-2 LED2: (+) J9-3, (-) J9-4	No	Check the wiring from the LED to the RDF controller PBA; if normal, replace the LED.


Cause	Step	Checks	Y/N	Action
Output level (sensor)	4	After steps 2 and 3, check the output according to the table in step 1. Is the reading of the meter 1.2 V or lower?	No	Mount the sensor correctly.
Sensor	5	Perform step 4. Is the problem corrected?	Yes	End.
			No	Replace the sensor. (After replacement, be sure to adjust each sensor.)

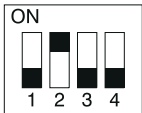
27 E500/E713

Cause	Step	Checks	Yes/No	Action
Communication cable: to the copier	1	Check the connection of the communication cable, between the copy data controller and the copier.	No	Connect the cable correctly.
Multi tray communication mode	1	Is the mode set correctly? Use the DIP switch, on the tray control PBA, to set the mode. 	No	Reset the mode set.
Circuit breaker CB1	2	Press the circuit breaker CB1, on the tray control PBA. Is the problem corrected?	Yes	End.
Resistor R12, on the tray control PBA	3	Check the continuity over the resistor R12, on the tray control PBA. Approximately 2.2 Ohm?	No	Replace the tray control PBA.
24V power supply	4	Set the meter to the DC range. Connect the + to J1-2 and the - to J1-1 on the tray control PBA. Does the voltage change to approximately 24 V?	No	Check the copier's 24V power supply.

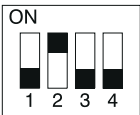
Cause	Step	Checks	Yes/No	Action
Tray control PBA	5	Replace the tray control PBA. Is the problem corrected?	Yes	End.
DC controller PBA (copier's)			No	Replace the copier's DC controller PBA.

28 E510

Cause	Step	Checks	Yes/No	Action
	1	Switch on joint sensor.	Yes	Go to step 3.
Bin drive motor M2	2	Set the DIP switch SW3, on the tray control PBA, as follows:  Does the motor M2 rotate when the manual staple button is pressed? To stop, press the button again.	No	Check the cables to motor M2. If undamaged, replace the motor M2.
Tray control PBA		3			Disconnect J5 from the tray control PBA. Check the resistance between J5-1 and J5-2: cable side. Correct is approximately 100 Ohm.	No	Replace the tray control PBA.
Bin unit clock sensor P12.		Set the meter to the 500V DC range. Connect to the tray controller PBA: + to J5-1 and - to J5-2. Does the meter reading change to approximately 24 V, when the manual staple button is pressed?	Yes	Replace the bin unit clock sensor P12.

Cause	Step	Checks	Y/N	Action
	1	Switch on the joint sensor. Set the DIP switch SW3, on the tray control PBA, as follows:  Does the motor M2 rotate when the manual staple button is pressed? To stop, press the button again.	Yes	Go to step 3.
Tray drive motor M6	2	Disconnect J10 from the tray control PBA. Check the resistance between J10-1 and J10-2: cable side. Correct is approximately 100 Ohm.	No	Check the wiring to the tray drive motor. If undamaged, replace the motor.
Tray control PBA	3	Set the meter to the 50V DC range. Connect the + to J10-1 and the - to J10-2 on the tray control PBA. Does the voltage change to approximately 24 V?	No	Replace the tray control PBA.
Motor clock sensor PI6.			Yes	Replace the clock sensor PI6.

30 E521

Cause	Step	Checks	Y/N	Action
	1	Switch on the joint sensor. Set the DIP switch SW3, on the tray control PBA, as follows:  Does the tray motor M7 rotate in response to each press on the manual staple button?	No	Replace the tray motor M7.
Connector J12: poor contact	2	Check the connection of J12 to the tray control PBA.	No	Improve the connection.
Sensor for the tray position PI12	3	Set the meter to the DC range. Connect the + to J12-7 and the - to J12-8 on the tray control PBA. Is the voltage approximately 0 V when the tray is at the front, and 5 V when the tray is at the rear?	Yes	Check the wiring to the tray position sensor PI12. If undamaged, replace the sensor.
Tray control PBA			No	Replace the tray control PBA.

31 E530

Cause	Step	Checks	Y/N	Action
Obstruction	1	Is something obstructing the guide bar?	Yes	Remove the obstruction.
Connector (poor contact)	2	Check the connection of J4 to the tray control PBA.	No	Improve the connection.
Guide bar: home position sensor PI5	3	Set the meter to the DC range. Connect the + to J4-5 and the - to J4-7 on the tray control PBA. Is the voltage approximately 5 V?	Yes	Check the wiring to the home position sensor PI5. If undamaged, replace the sensor.
Motor M4 for the swing guide	4	Replace the motor M4. Is the problem solved?	Yes	End.
Tray control PBA			No	Replace the tray control PBA.

Cause	Step	Checks	Y/N	Action
Connector (poor contact)	1	Check the connection of J7 to the tray control PBA.	Yes	Improve the connection.
Motor M5 for the staple swing	2	Connect the + to J7-1 and the – to J7-2 on the tray control PBA. Does the voltage change to approximately 24 V, when the stapler swings?	Yes	Replace motor M5.
Stapler motor M3	3	Disconnect J7 from the tray controller PBA. Is the resistance between J7-10 and J7-11 on the harness side about 20 ohm?	No	Replace motor M3.
	4	Connect the + to J7-11 and the – to J7-10 on the tray control PBA. Does the voltage change to approximately 24 V?	Yes	Replace motor M3.
Stapler: detection of position PI4	5	Set the meter to the DC range. Connect the + to J7-3 and the – to J7-4 on the tray control PBA. Is the voltage approximately 5 V?	Yes	Check the wiring to the stapler position sensor PI4. If undamaged, replace the sensor.
Stapler home sensor MS7	6	Set the meter to the DC range. Connect the + to J7-8 and the – to J7-7 on the tray control PBA. Is the voltage approximately 5 V?	Yes	Check the wiring to the home position sensor MS7. If undamaged, replace the sensor.

33 E540

Cause	Step	Checks	Y/N	Action
	1	Does the bin unit move up or down when SW2 or SW3 is pressed? (On the tray control PBA).	Yes	Go to step 4.
Drive belt for the lead cam	2	Is the drive belt correctly fitted?	No	Fit the belt correctly.
The bin shift motor M1	3	Disconnect J5 of the tray controller PBA. Is the resistance between J5-3 and J5-4 on the harness side about 30 ohm?	No	Check the wiring to the bin motor M1. If undamaged, replace the motor M1.
Bin: home sensor MS1	4	Disconnect J8 of the tray controller PBA. Is the resistance between J16-3 and J16-4 \times ohm when MS1 is pressed and 0 ohm when released?	No	Replace the home sensor MS1
Lead cam: home position sensor PI1	5	Connect to the tray controller PBA: + to J8-6 and - to J8-5. Does the meter reading alternate between 5 V and 0 V, when the lead cam is moving?	Yes	Replace the home position sensor PI1
Tray control PBA			No	Replace the tray control PBA.

34 E541

Cause	Step	Checks	Y/N	Action
	1	Switch OFF, then ON. Is the tray now in the forward position?	Yes	Go to step 4.
DC control PBA	2	Connect a meter to J104-7 + and to J104-3 - on the DC control PBA. The correct reading is 5V, when the vane is blocking the sensor, and 0 V when the vane is out of the sensor.	No	Disconnect and reconnect the connector. If the reading is normal, replace the DC control PBA.
Shift motor	3	Connect a meter to J104-3 + and to J104-8 - on the DC control PBA. There should be continuity. (70 to 80 ohms).	No	Check the wiring; if it is normal, replace the shift motor.

Cause	Step	Checks	Y/N	Action
DC control PBA	4	Connect a meter to J104-2 + and to J104-3 - on the DC control PBA. The correct reading is 5V, when the machine is switched ON.	No	Check the wiring and the mains supply. If it is normal, replace the DC control PBA.
Sensor for the tray position PS16	5	Connect a meter to J104-8 + and to J104-3 - on the DC control PBA. The correct reading is 24V: immediately after switching the machine ON.	No	Replace the sensor for the tray position

35 SCSI interface E601 (The communication between the SCSI board and the machine has a fault.)

Cause	Step	Checks	Yes/No	Action
	1	Turn off and then on the main power.	YES	End.
PBA	2	Is the SCSI board firmly connected to the system motherboard?	NO	Correct the connection.
SCSI board		Replace the SCSI board. Is the problem corrected?	YES	End
System motherboard				Replace the system motherboard image processor PBA.

36 SCSI interface E603 (The SCSI fuse has an open circuit.)

Cause	Step	Checks	Yes/No	Action
	1	Turn off and then on the main power. Is the problem corrected?	YES	End.
Fuse	2	Is there electrical continuity in the fuse on the SCSI board?	NO	Replace the fuse.
Is there continuity in the fuse on the SCSI board?			YES	Replace the SCSI board.

37 Fax Unit E674 (The fax unit has a fault.)

Cause	Step	Checks	Yes/No	Action
Connector	1	Is the connection of the following normal? <ul style="list-style-type: none"> ■ between fax PBA and system motherboard ■ between system motherboard and image processor PBA (between fax unit and machine) 	YES	Correct the connection. At this time, check the pins for deformation.
Fax PBA			NO	Replace the fax PBA.

38 X2e Controller E675

Cause	Step	Checks	Yes/No	Action
Power supply from B2 kit See 'Modification bulletin survey' on page 6	1			Replace the power supply

39 Communication Errors E677 (The communication between the printer board and the machine has a fault.)

Cause	Step	Checks	Yes/No	Action
PBA	1	Check the connection between the printer board and the PDL I/F board and the system motherboard. Is any of the pins bent or otherwise not normal?	YES	Correct the connection.
Printer board	2	Replace the printer board. Is the problem corrected?	YES	End.
PDL I/F board, System motherboard, Image processor PBA			NO	Replace the PDL I/F board, system motherboard, and image processor PBA

40 Communication Errors E710 (The IPC communication chip on the image processor PBA has a fault.)

Cause	Step	Checks	Yes/No	Action
	1	Turn off and then on the main power supply. Is the problem corrected?	YES	End.
Image processor PBA			NO	Check that the image processor PBA is free of dust or foreign matter; then, replace the image processor PBA

41 E711, E712, E713, E716 (IPC communication error)

Cause	Step	Checks	Yes/No	Action
	1	Switch OFF, then ON. Is the problem solved?	Yes	End
DC control PBA			No	Replace the DC control PBA

42 E717 Error in the communication with the copy data controller.

Cause	Step	Checks	Yes/No	Action
	1	Clear 'E717' by executing 'ERROR' in service mode (*4*); thereafter, turn OFF/ON the main power supply. Is the problem corrected?	Yes	End
Copy Data Controller	2	Replace the Copy Data Controller. Is the problem corrected?	Yes	End
DC control PBA			No	Replace the DC control PBA

43 E803 24 V output error from the composite Power supply PBA.

Cause	Step	Checks	Yes/No	Action
	1	Turn OFF/ON the main power switch. Is the problem corrected?	Yes	End
Scanning lamp	2	Does the scanning lamp remain OFF?. Or does the scanning lamp remain dim, when the copy button is pressed?	Yes	<ul style="list-style-type: none"> ■ If the lamp does not turn ON, see “The scanning lamp fails to turn ON.” ■ If the lamp switches ON, check the ends of the lamp. If the ends are black, replace the lamp.
DC control PBA	3	Replace the DC control PBA. Is the problem corrected?	Yes	End
Composite Power supply PBA			No	Replace the composite Power supply PBA

44 There is no AC power.

Cause	Step	Checks	Yes/No	Action
Error code	1	Is an error code displayed, when the main ON/OFF switch is switched ON?	Yes	See the description for the relevant error code.
Mains supply is disconnected.	2	Is the copier connected to the mains supply?	No	Connect the mains supply cable.
Mains power supply	3	Is the rated supply available?	No	The problem is not of the copier. Advise the user.
Wiring	4	Is the wiring from the power supply cord mount to the composite power supply PBA normal?	No	Correct it.
Noise filter			Yes	Check the fuse of the noise filter. If blown, replace the fuse.

Cause	Step	Checks	Yes/No	Action
ON/OFF switch	5	Disconnect the power plug from the power outlet, and connect the tester probes to both terminals (fastons) of the main power switch. Is the resistance 0 ohm when the switch is turned ON and ° ohm when the switch is turned OFF?	No	Replace the main ON/OFF switch.
Noise filter, AC supply			Yes	Check the wiring of the AC line and the connector for contact; if normal, replace the noise filter.

45 There is no DC power.

Cause	Step	Checks	Yes/No	Action
Error code	1	Turn ON the main power supply switch. Is the error code indicated?	Yes	See the description for the relevant error code.
AC power supply (faulty)	2	Is there an AC supply?	No	See “AC power is absent.”
Wiring and the DC loads	3	Turn OFF the main power switch, and disconnect all following connectors Composite Power Supply PBA J204, J211, J213, J214, J215 ACC Power Supply J134, J142. Is the output voltage of each terminal (Table) normal?	No	Turn OFF the power switch, connect one of the disconnected connectors, and turn ON the power switch. Repeat this for all connectors to find the connector that activates the protection circuit. Then, check the wiring from that connector and DC loads.
Fuse and wiring	4	Has a fuse blown?	Yes	Replace the fuse. Check the related DC loads, and the wiring.
The composite Power supply PBA and the ACC power supply PBA			No	Replace the power supply PBA. or the ACC power supply PBA.

■ Composite Power supply PBA

Connector	Pin	Output	Connector	Pin	Output
J204	1	+24VU	J213	1	+15V
	2	0Vu		2	+15V
	3	+24VU		3	+15V
	4	0Vu		4	-12V
	5	+24VU		5	-12V
	6	0Vu		6	-12V
	7	+24VU	J214	1	+15V
	8	0Vu		2	0V
	9	+24VU		3	-12V
	10	0Vu			
J211	1	+5V	J215	1	+7V
	2	0V		2	0V
	3	+5V			
	4	0V			
	5	+5V			
	6	0V			
	7	+5V			
	8	0V			
	9	+5V			
	10	0V			

■ ACC Power supply PBA

Connector	Pin	Output
J142	1	+24V
	2	+24V
	3	0V
	4	0V
J143	1	+24V
	2	+24V
	3	0V
	4	0V

46 The OPC does not rotate

Cause	Step	Checks	Yes/No	Action
	1	Is 'E010' indicated?	Yes	See the descriptions for 'E010'.

Cause	Step	Checks	Yes/No	Action
Position of the OPC	2	Reposition the OPC unit. Is the problem corrected?	Yes	End
OPC drive			No	Remove the drum drive assembly, and correct or replace the parts as necessary.

47 No pick-up from the cassette

Cause	Step	Checks	Yes/No	Action
	1	Does the "Add Paper" message fails to turn OFF?	Yes	See if "The Add Paper message fails to turn OFF."
Position of the cassette)	2	Slide out and then in the cassette. Is the problem corrected?	Yes	End
Pick-up roller	3	Has the pick-up roller exceeded its scheduled life-time?	Yes	Replace the pick-up roller.
Pick-up motor	4	Replace the pick-up motor. Is the problem solved?	Yes	End
Fuse: F1601 on the pick-up PBA			No	Check the fuse F1601 on the pick-up PBA. If it is intact, go to the next step.
DC control PBA	5	Is the leading edge of the paper against the registration roller?	Yes	See if the registration roller fails to rotate."
DC control PBA	6	Replace the DC control PBA. Is the problem solved?	Yes	End
Pick-up assembly			No	Replace the pick-up unit.

48 The lifter does not rise.

Cause	Step	Checks	Yes/No	Action
Cassette	1	Slide out the cassette. Does the holding plate move smoothly, when lifted by hand?	No	Check the inside of the cassette for foreign matter.
Sensor for the lifter	2	Is the lifter position sensor normal?	No	Replace the lifter position sensor.

Cause	Step	Checks	Yes/No	Action
Lifter drive	3	Is the lifter drive assembly normal?	No	Correct it.
Pick-up assembly			Yes	Replace the pick-up unit.

49 Pick-up failure: specialities

Cause	Step	Checks	Yes/No	Action
Pick-up clutch CL2 for the speciality tray	1	Select speciality pick-up, and press the copy button. Does the pick-up roller rotate?	No	Check the wiring. If it is normal, replace the clutch CL2.
Cam for the paper guide	2	Select speciality pick-up, and press the copy button. Does the guide plate jump up?	Yes	Check the position of the cam and the separation pad. Adjust as necessary, or replace it.
Multifeeder holding plate releasing solenoid (SL3)	3	Connect the + to J14-B12 and the – to J14-B13 on the DC control PBA. Does the meter reading change from 0V to approximately 24 V when the copy button is pressed?	Yes	Check the wiring. If it is normal, replace the solenoid SL3.
DC control PBA			No	Replace the DC control PBA

50 The registration roller fails to rotate.

Cause	Step	Checks	Yes/No	Action
Registration roller	1	Press the copy button. Does the registration roller start rotating immediately after the scanner starts to move?	Yes	Check the drive of the registration roller.
DC control PBA	2	Connect the + to J114-B10 and the – to J114-B1 on the DC control PBA. Does the meter reading change from 0V to approximately 24 V when the scanner starts to move?	No	Replace the DC control PBA
Clutch CL1 for the registration roller			Yes	Check the wiring from the DC control PBA. If undamaged, replace the clutch CL1.

51 The scanner fails to move forward or in reverse.

Cause	Step	Checks	Yes/No	Action
Scanner cable	1	Is the scanner drive cable positioned correctly?	No	Reposition the cable.
The scanner path is dirty.	2	Inspect the scanner rail for dirt or obstructions. Check that the scanner moves smoothly.	No	Check the surface of the scanner rail for foreign matter or an object that comes into contact with the scanner.
Connector (poor contact)	3	Check the wiring/connection from the connector J116 on the DC controller PBA to the scanner motor. Is it normal?	No	Correct it.
Scanner motor M2	4	Replace the scanner motor. Is the problem solved?	Yes	End.
DC control PBA			No	Replace the DC control PBA

52 The pre-exposure lamp fails to switch ON.

Cause	Step	Checks	Yes/No	Action
Pre-exposure lamp	1	Connect the + to J107-A11 and the – to J107-A12 on the DC control PBA. Does the meter reading change from 0V to approximately 24 V when the copy button is pressed?	Yes	Check the wiring from the DC controller PBA to the pre-exposure lamp; if normal, replace the pre-exposure lamp.
DC control PBA			No	Replace the DC control PBA

53 The scanning lamp fails to switch ON.

Cause	Step	Checks	Yes/No	Action
Scanning lamp	1	Are both ends of the scanning lamp black?	Yes	Replace the scanning lamp.
Position of the scanning lamp	2	Is the scanning lamp positioned correctly?	No	Refit it.
Connector (poor contact)	3	Is the connection of the relay connectors J20 and J95 normal? Further, is the connection of the connector J802 on the composite power supply PBA normal?	No	Reconnect.
DC control PBA	4	Replace the DC control PBA. Is the problem corrected?	Yes	End
Composite Power supply PBA			No	Replace the composite Power supply PBA

54 The fixing heater fails to switch ON.

Cause	Step	Checks	Yes/No	Action
	1	Is 'E000' indicated?	Yes	See the descriptions for 'E000'.
Fixing heater driver	2	Replace the fixing heater driver. Is the problem corrected?	Yes	End
Fixing unit	3	Replace the fuser unit. Is the problem corrected?	Yes	End
DC control PBA			No	Replace the DC control PBA

55 The counter fails to operate.

Cause	Step	Checks	Yes/No	Action
Counter	1	Turn OFF the main power switch, and disconnect the following connectors: is the resistance on the counter side about 480 ohm? Total copy counter (CNT1):J57 Print counter (CNT2):J93 Fax counter (CNT3):J94	No	Replace the counter.
DC control PBA	2	Does the voltage of the following connectors on the DC controller PBA change from 0 V to 24 V and then to 0 V after copy paper is discharged? Total copy counter CNT1: ■ J107-B3 (+) ■ J107-B4 (-) Printer counter CNT2: ■ J107-B5 (+) ■ J107-B6 (-) Fax counter CNT3: ■ J107-B7 (+) ■ J107-B8 (-)	Yes	Replace the counter.
			No	Replace the DC control PBA

56 The 'Add Paper' display remains ON.

Cause	Step	Checks	Yes/No	Action
	1	Does the ramp rise?	No	See "The lifter fails to move up."
Paper sensor	2	Put paper in the cassette, and check 'P-SENS' in service mode (*1*; 7th page). Is the value '0'? (upon detection, '1')	Yes	Check the sensor lever; if normal, replace the sensor in question.
DC control PBA			No	Replace the DC control PBA

57 The 'Jam' display remains ON.

Cause	Step	Checks	Yes/No	Action
Jam	1	Is there paper around the sensor which has turned on? (Check by referring to the jam code in service mode (*1*; JAM).)	Yes	Remove all paper.
Sensor	2	Inspect the sensor, identified by the jam code (* 1 *).	No	Replace the sensor.
DC control PBA			Yes	Replace the DC control PBA

58 The 'Add Toner' display remains ON.

Cause	Step	Checks	Yes/No	Action
Stirring spring	1	Remove the developing assembly. Is the spring used to stir the toner around the toner sensor (TS1) installed correctly?	Yes	Refit it.
Toner sensor	2	Replace the toner sensor. Is the problem solved?	Yes	End.
DC control PBA			No	Replace the DC control PBA

59 The fax error display remains ON.

Cause	Step	Checks	Yes/No	Action
Lack of paper	1	Do all the installed cassettes contain paper?	No	Add paper. ■ The fax error indication (lamp) flashes if all cassettes contain paper. Advise the operator.
Fax	2	Is the fax reception normal?	No	Check the connection to the telephone system.
Image processor PBA	3	Replace the image processor PBA. Is the problem solved?	Yes	End
FAX PBA			No	Replace the fax PBA.

RDF Self Diagnosis

RDF Self Diagnosis

The microprocessor, on the RDF control PBA, is equipped to check the condition of the machine. When it detects an error, the copier will display an error code on the screen.

Code	Cause	Description
E400	<ul style="list-style-type: none"> ■ Fault with data communication with copier (faulty) 	<ul style="list-style-type: none"> ■ The communication is monitored at all times, and this error is detected if the communication is interrupted for 5 seconds or more.
E401	<ul style="list-style-type: none"> ■ Pick-up motor M1; fails to rotate ■ Pick-up sensor S5; faulty. 	<ul style="list-style-type: none"> ■ A vane is attached to the shaft of the pick-up motor (M1). The rotation of the motor is monitored as the vane blocks the pick-up sensor (S5). This error is detected when S5 does not turn on and off twice or more within 1 sec.
E402	<ul style="list-style-type: none"> ■ Belt motor M3: fails to rotate. ■ Clock sensor S10, for the belt motor: faulty. 	<ul style="list-style-type: none"> ■ The number of clock pulses within 200 msec is below a specific number.
E403	<ul style="list-style-type: none"> ■ Feeding motor M2: fails to rotate. ■ Clock sensor S9 for the feeding motor: faulty. 	<ul style="list-style-type: none"> ■ The number of clock pulses within 200 ms is below a specific number.
E411	<ul style="list-style-type: none"> ■ Paper sensor S1 for the document tray: faulty. ■ Registration sensor S3: faulty. 	<ul style="list-style-type: none"> ■ When there is no paper present, the output of the sensor is 2.3 V or more.

Note:

1. When the self-diagnosis mechanism is activated, switch off the copier once to reset.
2. You may continue to make copies while the RDF is out of order; simply open the RDF, and place documents on the platen.

FAX related error codes

User error codes

#001 (trans) The document has jammed.	
Main cause	Action
<ul style="list-style-type: none">■ The document has jammed while being fed.■ The size or the thickness of the document is outside the specifications.■ The internal mechanism has a fault.	<ul style="list-style-type: none">■ Remove the document, and restart.■ Make a standard size copy of the document, and restart.■ Check the electrical connections (e.g., PBA of the feeder; sensors, motors).

#003 (trans/recep) Time-out occurred while transmitting or receiving a single-page document.

Main cause	Action
<ul style="list-style-type: none"> ■ The document is too long: requiring longer than specified for transmission or scanning. ■ Reception is taking longer than specified. ■ The internal mechanism has a fault. 	<ul style="list-style-type: none"> ■ Split the document into several pages, and restart. ■ Increase the setting of the page timer, using bit 0/1 of #1 SSSW/SW12. ■ Ask the other party to split the document into several pages for transmission. ■ Increase the setting of the page timer, using bit 0/1 of #1 SSSW/SW12. ■ Check the electrical connections (e.g., PBA of the feeder; sensors, motors).

#005 (trans/recep) Time-out occurred during initial identification (T1).

Main cause	Action
<ul style="list-style-type: none"> ■ Incorrect tone and pulse setting. ■ The delay for a line connection is too long. ■ The other machine does not respond. ■ The communication mode (e.g., G2, G3) of the other machine is incorrect (mismatch). ■ The other machine malfunctions: because of an echo during transmission. ■ The machine malfunctions: because of an echo during reception. 	<ul style="list-style-type: none"> ■ Correct the tone and pulse settings, using [TEL LINE TYPE] with user data. ■ Allow a relatively long pause when registering for auto dialling. This delays the timer start function. ■ Increase the T1 timer setting, using ' # 3 NUMBER-IC ' Param. 10 (service data). Preventing time-out. ■ Contact the other party, and enquire about the cause. ■ No corrective action is available. (Some machines do not offer certain communication modes.) ■ Prevent echoes, using #1SSSW SW03: with service data.

#009 (recep) The recording paper has jammed or run out.

Main cause	Action
<ul style="list-style-type: none"> ■ The recording paper has jammed. ■ The recording paper has run out. ■ The internal mechanism has a fault. 	<ul style="list-style-type: none"> ■ Remove the jam. ■ Place copy paper in the cassette. ■ Check the jam sensor. ■ Check the electrical connections (e.g., PBA of the pick-up section; sensors).

#011 (recep) A polling reception error has occurred.

Main cause	Action
<ul style="list-style-type: none"> ■ No document is available. ■ The document was positioned incorrectly at the time of transmission, triggering polling reception. 	<ul style="list-style-type: none"> ■ Ask the other party to reposition the document. ■ Reposition the document.

#012 (recep) The other machine has run out of paper.

Main cause	Action
<ul style="list-style-type: none"> ■ The other machine has run out of paper. 	<ul style="list-style-type: none"> ■ Ask the other party to refill with paper.

#018 (trans/recep) An auto calling error has occurred.

Main cause	Action
<ul style="list-style-type: none"> ■ Incorrect tone and pulse setting. ■ The delay for a line connection is too long. ■ The other machine is occupied, causing a time-out. ■ The other machine is disconnected, or switched off, causing a time-out. ■ The other machine has run out of paper, causing a time-out. 	<ul style="list-style-type: none"> ■ Correct the tone and pulse setting. ■ Allow a relatively long pause when registering for auto dialling. This delays the timer start function. ■ Increase the T1 timer setting, using ‘ # 3 NUMBER-IC ‘ Param. 10 (service data). Preventing time-out. ■ Try calling once again. ■ Contact the other party. ■ Ask the other party to refill with paper.

#021 (recep) DCN has been received during polling reception.

Main cause	Action
<ul style="list-style-type: none"> ■ The polling password is incorrect. 	<ul style="list-style-type: none"> ■ Contact the other party to obtain the correct password.

#022 (trans) Calling fails.

Main cause	Action
<ul style="list-style-type: none"> ■ Broadcasting transmission or multi-polling reception was used, without registering the telephone number of the other machine for auto dialling. 	<ul style="list-style-type: none"> ■ Register the telephone number of the other machine for auto dialling.

#037 (recep) The memory overflowed during reception.	
Main cause	Action
<ul style="list-style-type: none"> ■ The volume of reception (document) exceeded the limit, during reception. 	<ul style="list-style-type: none"> ■ Ask the other party to delete unnecessary image data, prior to transmission.

#039 (trans) Failure of closed net transmission.	
Main cause	Action
<ul style="list-style-type: none"> ■ The closed-net transmission switch is off. ■ The closed-net transmission switch of the other party is off. ■ The closed net ID of the machine does not match that of the other machine. 	<ul style="list-style-type: none"> ■ Set the closed-net transmission switch to 1. (bit 7 of SW07 under #1SSSW, service data). ■ Ask the other party to turn on the closed-net reception switch. ■ Match the closed net ID's of both machines (SW08 of #1SSSW).

#995 (trans/recep) Memory transmission reservation has been cancelled.	
Main cause	Action
<ul style="list-style-type: none"> ■ The user has cancelled the memory transmission reservation. 	<ul style="list-style-type: none"> ■ Ask the other party to start transmission.

SERVICE ERROR CODE

- Service error code: output and display
Set bit 0 of SW1 under #SSSW (service data) to 1. This is to include service error codes, when generating communications control reports, reception results reports, error transmission reports, or system dump lists. (The appropriate error code will be displayed, in response to an error.)

Check the following, for specifics:

- To increase the level of transmission,
Set service data #2MENU Parameter No. 07 to 0. (dBm).
- To decrease the level of transmission,
Set service data #2MENU Parameter No. 07 to -15. (dBm).
- Echo
Change the following bit switches of #1SSSW SW03 (service data):
bit 4: 1 To ignore the first DIS signal sent by the other fax machine.
0 To ignore the first DIS signal sent by the other fax machine.
bit 5: 1 To transmit a tone signal (1850 or 1650 Hz), when the other fax machine sends a DIS signal.
0 Not to transmit a tone signal, when the other fax machine sends a DIS signal.

- bit 6:** 1 To transmit a 1850-Hz tone signal, when bit 5 is set to 1.
0 To transmit a 1650-Hz tone signal, when bit 5 is set to 1.
- bit 7:** 1 To transmit a tone signal, before sending a CED signal.
0 Not to transmit a tone signal, before sending a CED signal.

- EPT
Change service data #1SSSW SW03 bit 1.
bit 1: 1 To transmit an echo protect tone.
0 To transmit an echo protect tone.
- To adjust NL equaliser,
Set service data #2MENU Parameter No. 05 to ON.
- To reduce the start speed of transmission.
Reduce the transmission speed, by changing user data [SYSTEM SETTINGS] [TX START SPEED].
- To loosen the TCF standard,
Function is not available for this machine.
- To loosen the RTN transmission conditions,
Change service data #3 NUMERIC . Parameter No. 02 to 04.
No. 02: percentage of errors in all lines. Set close to 99%.
No. 03: number of lines of burst condition. Set close to 99 lines.
No. 04: lines below the burst condition. Set close to 99.
- To increase the non-sound time after CFR reception.
Change service data #1SSSW SW04 bit 4 to 1.
bit 4: 1 To time when the low-speed signal is ignored, after sending a CFR signal: 1500 ms
0 To time when the low-speed signal is ignored, after sending a CFR signal: 700 ms

##100 (trans) The number of times that the protocol signal has been transmitted during transmission has exceeded the limit.

Main cause	Action
<p>(if after transmission of the Q signal, following an image signal)</p> <ul style="list-style-type: none"> ■ The line condition is poor. Preventing correct reception of the image signals or the Q signal. <p>(if after transmission of TCF, prior to an image signal)</p> <ul style="list-style-type: none"> ■ The level of transmission is too low. The other machine cannot correctly receive NSS, TSI, DCS, TCF, or training signals. ■ The other machine malfunctions: because of an echo. 	<ul style="list-style-type: none"> ■ So that the other party can correctly receive the Q signal. <ol style="list-style-type: none"> 1. Increase the level of transmission of the modem, using parameter 07 of #2 MENU (service data). 2. Adjust the NL equaliser, using parameter 05 of #2 MENU (service data). ■ Decrease the start speed. ■ Attach EPT to the V29 modem signal, using bit 1 on SW03 of #1 SSSW (service data). ■ Increase the level of transmission of the modem, using parameter 07 of #2 MENU (service data). ■ Prevent echoes, using SW03 of #1 SSSW. ■ Pause for a relatively long time after the telephone number, when requesting auto dial, so that the machine will not respond to the first DIS.

##101 (trans/recep) The modem speed of the machine doe not match that of the other party.	
Main cause	Action
<p>(during transmission)</p> <ul style="list-style-type: none"> ■ The modem speed of the machine doe not match that of the other party. ■ The fall-back speed of the machine doe not match that of the other party. <p>(during reception)</p> <ul style="list-style-type: none"> ■ The modem speed of the machine doe not match that of the other party. 	<p>No corrective action is available. (Some machines do not offer certain communication speeds.)</p> <ul style="list-style-type: none"> ■ So that the other party can correctly receive the TCF signal. <ol style="list-style-type: none"> 1. Increase the level of transmission of the modem, using parameter 07 of #2 MENU. 2. Adjust the NL equaliser, using parameter 05 of #2 MENU. ■ Pause for a relatively long time after the telephone number, when requesting auto dial, so that the machine will not respond to the first DIS. ■ Ask the other party to decrease the level of transmission, so that it will not receive echoes. <p>No corrective action is available. (Some machines do not offer certain communication speeds.)</p>

##102 (trans) Fall-back fails during transmission.	
Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Preventing correct transmission of TCF. ■ The other machine has malfunctioned because of an echo. 	<ul style="list-style-type: none"> ■ Increase the level of transmission of the modem, using parameter 07 of #2 MENU. ■ Adjust the NL equaliser, using parameter 05 of #2 MENU. ■ Prevent echoes, using SW03 of #1 SSSW. ■ Pause for a relatively long time after the telephone number, when requesting auto dial, so that the machine will not respond to the first DIS. ■ Ask the other party to decrease the level of transmission, so that it will not receive echoes.

##103 (recep) EOL cannot be detected for 5 seconds, during reception.

Main cause	Action
<ul style="list-style-type: none">■ The line condition is poor. Preventing correct reception of image signals.	<ul style="list-style-type: none">■ Increase the level of transmission of the modem, using parameter 07 of #2 MENU.■ Ask the other party to decrease the start speed of the transmission, using parameter 05 of #2 MENU.■ Adjust the echo monitor time used, after transmission of CFR, permitting correct reception of image signals.

##104 (trans) RTN or PIN has been received during transmission.

Main cause	Action
<ul style="list-style-type: none">■ The line condition is poor. Preventing correct reception of the image signals. ■ The other machine malfunctions: because of an echo.	<ul style="list-style-type: none">■ Increase the level of transmission of the modem, using parameter 07 of #2 MENU.■ Decrease the start speed.■ Attach EPT to the V29 modem signal, using bit 1 on SW03 of #1 SSSW.■ Adjust the NL equaliser, using parameter 05 of #2 MENU. ■ Prevent echoes, using SW03 of #1 SSSW.■ Pause for a relatively long time after the telephone number, when requesting auto dial, so that the machine will not respond to the first DIS.■ Ask the other party to decrease the level of transmission.

##106 (reception) The protocol signal is not received for 6 seconds, during reception.

Main cause	Action
<ul style="list-style-type: none">■ The line condition is poor. Preventing correct reception of the protocol signal.■ The line condition is poor. Preventing correct reception of the image signals.■ The other machine malfunctions: because of an error.	<ul style="list-style-type: none">■ Ask the other party to decrease the level of transmission, permitting correct receipt of the protocol signal.■ Increase the level of transmission of the modem, using parameter 07 of #2 MENU.■ Prevent echoes, using SW03 of #1 SSSW.■ Decrease the level of transmission of the modem, using parameter 07 of #2 MENU.

##107 (recep) Fall-back failure, on the transmitting machine, during reception.

Main cause	Action
<ul style="list-style-type: none">■ The line condition is poor. Preventing correct reception of the signals, after starting the 2400 bps reception mode. ■ The machine malfunctions: because of an echo.	<ul style="list-style-type: none">■ Ask the other party to increase the level of transmission, permitting correct receipt of the signal.■ Adjust the NL equaliser, using parameter 05 of #2 MENU.■ Loosen the transmission conditions, using 02 through 04 of #3 NUMERIC Parameters, so that RTN is not transmitted.■ Prevent echoes, using SW03 of #1 SSSW.■ Decrease the level of transmission of the modem, using parameter 07 of #2 MENU.

##109 (trans) During transmission, a signal other than DIS, DTC, FTT, CFR, or CRP has been received, after transmitting DCS. This results in too frequent transmission of the protocol signal.

Main cause	Action
<ul style="list-style-type: none">■ There is an error in the protocol signal.	<ul style="list-style-type: none">■ Record the communication procedure sound on DAT, for analysis by a technical centre.

##111 (trans/recep) A memory error has occurred.

Main cause	Action
<ul style="list-style-type: none">■ Due to noise, an error occurred during the printing of data stored in image memory.	<ul style="list-style-type: none">■ Print all data, delete it, and store it once again.

#114 (recep) RTN has been received during reception.	
Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Preventing correct reception of the image signals. ■ The machine malfunctions: because of an echo (CFR). 	<ul style="list-style-type: none"> ■ Ask the other party to increase the level of transmission, permitting correct receipt of the image signals. ■ Ask the other party to decrease the start speed of the transmission. ■ Adjust the NL equaliser, using parameter 05 of #2 MENU. ■ Loosen the RTN transmission conditions, using 02 through 04 of #3 NUMERIC Parameters, so that RTN is not transmitted. ■ Prevent echoes, using SW03 of #1 SSSW. ■ Decrease the level of transmission of the modem, using parameter 07 of #2 MENU. Preventing receipt of an echo of the transmitted CFR.

##200 (recep) EOL The carrier, within a reception image, cannot be detected for 5 seconds: during reception.	
Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Preventing correct reception of image signals. ■ A CFR echo has prevented the reception of the training signal, causing a time-out. 	<ul style="list-style-type: none"> ■ Ask the other party to increase the level of transmission, permitting correct receipt of the image signals. ■ Ask the other party to decrease the speed of the transmission. ■ Prevent echoes, using SW03 of #1 SSSW. ■ Decrease the level of transmission of parameter 07 of #2 MENU. Preventing receipt of an echo of the transmitted CFR.

##201 (trans/recep) DCN has been received, in the absence of the normal binary procedure.

Main cause	Action
<ul style="list-style-type: none"> ■ The other machine has run out of paper, causing a time-out. ■ The telephone number of the other machine* has not been registered. *If RICOH 3000L. ■ The polling password does not match. ■ No document is ready for polling transmission. ■ The machine has no paper, when transmission reservation has been selected on the other machine. ■ The line condition is poor. Preventing correct reception of the protocol signals, by the other machine. ■ The machine malfunctions: because of an echo. ■ The number of times that the protocol signal has been transmitted has exceeded the limit, without detecting either image signals or the Q signal on the other machine. ■ The line condition is poor. Preventing the use of fall-back by the other machine. 	<ul style="list-style-type: none"> ■ Ask the other party to set the other machine for reception. ■ Register the telephone number. ■ If the other machine is a Canon machine, contact the other party for the correct password. Otherwise, contact the other party, and ask to set the other machine so that it is ready for polling transmission. ■ Position the document, and ask the other party to make the call again. ■ Place copy paper in the cassette. ■ Increase the level of transmission of the modem, using parameter 07 of #2 MENU. Permitting correct receipt of the protocol signal. ■ Prevent echoes, using SW03 of #1 SSSW. ■ Decrease the level of transmission of the modem, using parameter 07 of #2 MENU. Preventing receipt of an echo. ■ Ask the other party to increase the level of transmission, permitting correct receipt of the signals. ■ Adjust the NL equaliser, using 05 of #2 MENU. Permitting correct receipt of the signals. ■ Ask the other party to decrease the start speed of the transmission. ■ Adjust the NL equaliser. Permitting correct receipt of the signals. ■ Loosen the transmission conditions, using 02 through 04 of #3 NUMERIC Parameters.

##204 (trans) DTC was received in the absence of transmission data. Transmission data is absent, even though DIS has been received. after transmitting image data in abbreviated procedure 2 of direct transmission.

Main cause	Action
<p>(if during DTC reception)</p> <ul style="list-style-type: none"> ■ There is an error in the protocol signal. <p>(if during DIS reception)</p> <ul style="list-style-type: none"> ■ During transmission (in abbreviated procedure 2) the state of the other machine, as stored in memory, does not match the actual state of the other machine. 	<ul style="list-style-type: none"> ■ Record the communication procedure sound on DAT, for analysis by a technical centre. ■ Try transmission once again. ■ Record the communication procedure sound on DAT, for analysis by a technical centre.

##220 (reception/transmission) A system error has occurred. (The main programme has run incorrectly.)

Main cause	Action
■ The CPU has malfunctioned, because of noise.	■ Switch OFF, then ON.

##224 (trans/recep) An error has occurred in the protocol signal, in G3 communication mode.

Main cause	Action
■ There is an error in the protocol signal.	■ Record the communication procedure sound on DAT, for analysis by a technical centre.

##232 (trans) The unit for ENCODE control has malfunctioned.

Main cause	Action
■ The UPI operation for ENCODE control did not end normally.	■ Replace the unit (e.g., system control PBA) for ENCODE control.

##237 (recep) The UPI for DECOE control has malfunctioned

Main cause	Action
■ The UPI operation for DECODE control did not end normally.	■ Replace the unit (e.g., system control PBA) for DECODE control.

##238 (recep) The unit for PRINT control has malfunctioned

Main cause	Action
■ The UPI operation for PRINT control did not end normally.	■ Replace the unit (e.g., system control PBA) for PRINT control.

##261 (trans/recep) A system error has occurred in the modem, or the gate array.

Main cause	Action
■ The internal unit has a fault. When RS is set to 1, CS will not change to 1.	■ Replace the modem PBA. ■ Replace the system control PBA.

##280 (trans) The number of times that the protocol signal has been transmitted during transmission has exceeded the limit.

Main cause	Action
<ul style="list-style-type: none"> ■ The level of transmission is too low. The other machine cannot correctly receive the appropriate signal, after transmission of TCF. ■ The other machine malfunctions: because of an echo. 	<ul style="list-style-type: none"> ■ Increase the level of transmission of the modem, using parameter 07 of #2 MENU. Permitting correct receipt of the appropriate signal. ■ Prevent echoes, using SW03 of #1 SSSW. ■ Press 'start', after hearing the first DIS from the other machine: in manual calling mode. ■ Pause for a relatively long time after the telephone number, when requesting auto dial, so that the machine will not respond to the first DIS. ■ Ask the other party to decrease the level of transmission, so that it will not receive echoes.

##281 (recep) The number of times that the protocol signal has been transmitted during transmission has exceeded the limit.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Image signals or EOP are not transmitted correctly, preventing reception of the appropriate signal after transmission of EOP. 	<ul style="list-style-type: none"> ■ Increase the level of transmission of the modem, using parameter 07 of #2 MENU. Permitting correct receipt of the appropriate signals. ■ Decrease the start speed. ■ Adjust the NL equaliser, using 05 of #2 MENU. Permitting correct receipt of the image signals or EOP by the other machine. ■ Attach EPT to the V29 modem signal. ■ Adjust the continuous transmission time 1, used before transmitting image signals. Permitting correct receipt of the image signals. ■ Increase the period of silence, after reception of CFR. Permitting correct receipt of the image signals.

##285 (recep) DCN has been received, after transmitting EOP during transmission.

Main cause	Action
■ Stop has been pressed during communication.	■ Try transmission once again.

##286 (trans) DCN has been received, after transmitting EOM during transmission.

Main cause	Action
■ Stop has been pressed during communication.	■ Try transmission once again.

##287 (trans) DCN has been received, after transmitting MPS during transmission.

Main cause	Action
■ Stop has been pressed during communication.	■ Try transmission once again.

##288 (trans) A signal, other than PIN, RIP, MCF, RTP, or RTN, has been received during transmission.

Main cause	Action
■ There is an error in the protocol signal.	■ Record the communication procedure sound on DAT, for analysis by a technical centre.

##289 (trans) A signal, other than PIN, RIP, MCF, RTP, or RTN, has been received after transmission of EOM.

Main cause	Action
■ There is an error in the protocol signal.	■ Record the communication procedure on DAT, for analysis by a technical centre.

##290 (trans) A signal, other than PIN, RIP, MCF, RTP, or RTN, has been received after transmitting MPS during transmission.

Main cause	Action
■ There is an error in the protocol signal.	■ Record the communication procedure on DAT, for analysis by a technical centre.

##750 (trans) The appropriate signal could not be received, after transmitting PPS-NULL during ECM transmission. And, the number of times that the protocol signal was transmitted exceeded the limit.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Preventing transmission of PPS-NULL. ■ The line condition is poor. Preventing correct reception of signals. 	<ul style="list-style-type: none"> ■ Increase the level of transmission of the modem, using parameter 07 of #2 MENU. Permitting correct receipt of the PPS- signal. ■ Adjust the NL equaliser, using 05 of #2 MENU. Permitting correct receipt of the PPS-NULL signal. ■ Attach EPT to the V29 modem signal, using bit 1 on SW03 of #1 SSSW. ■ Ask the other party to increase the level of transmission, permitting correct receipt of the signals.

##752 (recep) DCN has been received, after transmitting PPS-NULL during ECM transmission.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Preventing correct reception of the PPS-NULL signal. ■ Stop has been pressed during communication. 	<ul style="list-style-type: none"> ■ Increase the level of transmission of the modem, using parameter 07 of #2 MENU. Permitting correct receipt of the PPS-NULL signal. ■ Try transmission once again.

##753 (trans) T5 time out (60 seconds) has occurred. Or, the number of times the protocol signal has been sent has exceeded the limit in ECM transmission after transmitting PPS-NULL.

Main cause	Action
<ul style="list-style-type: none"> ■ The page buffer of the other machine is full or busy. The RNR cannot be received correctly, after transmitting PPS-NULL, and the appropriate signal cannot be received correctly after transmitting RR. 	<ul style="list-style-type: none"> ■ Increase the T5 timer setting, to avoid an error. ■ Change the ECM frame size: from 256 bytes to 64K bytes.

##754 (trans) The number of times that the protocol signal has been received has exceeded the limit, after transmitting PPS-NULL in ECM.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. PPS-NULL has been transmitted, PPR has been received four times, CTC has been transmitted. But, the other machine cannot receive it correctly. ■ The line condition is poor. PPS-NULL has been transmitted, PPR has been received four times, CTC has been transmitted. But, the other machine cannot receive the appropriate signal correctly. 	<ul style="list-style-type: none"> ■ Increase the level of transmission. Permitting correct receipt of the CTC signal. ■ Ask the other party to increase the level of transmission, permitting correct receipt of the signals.

##755 (recep) The number of times the protocol signal has been transmitted has exceeded the limit. Without receiving the appropriate signal, after transmitting PPS-MPS in ECM transmission.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Preventing transmission of PPS-MPS. ■ The line condition is poor. Preventing correct reception of signals. 	<ul style="list-style-type: none"> ■ Increase the level of transmission. Permitting correct receipt of the PPS-MPS signal. ■ Adjust the NL equaliser. Permitting correct receipt of the PPS-MPS signal. ■ Attach EPT to the V29 modem signal. ■ Ask the other party to increase the level of transmission, permitting correct receipt of the signals.

##757 (recep) DCN has been received, after transmitting PPS-MJPS during ECM transmission.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Preventing correct reception of the PPS-MPS signal. ■ Stop has been pressed during communication. 	<ul style="list-style-type: none"> ■ Increase the level of transmission of the modem, using parameter 07 of #2 MENU. Permitting correct receipt of the PPS-MPS signal. ■ Try transmission once again.

##758 (trans) T5 time out (60 seconds) has occurred. Or, the number of times the protocol signal has been sent has exceeded the limit in ECM transmission after transmitting PPS-MPS.

Main cause	Action
<ul style="list-style-type: none"> ■ The page buffer of the other machine is full or busy. The RNR cannot be received correctly, after transmitting PPS-MPS, and the appropriate signal cannot be received correctly after transmitting RR. 	<ul style="list-style-type: none"> ■ Increase the T5 timer setting, to avoid an error. ■ Change the ECM frame size: from 256 bytes to 64K bytes.

##759 (recep) The number of times the protocol signal has been transmitted has exceeded the limit. Without receiving the appropriate signal, after transmitting PPS-MPS in ECM transmission.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. PPS-MPS has been transmitted, PPR has been received four times, CTC has been transmitted. But, the other machine cannot receive it correctly. ■ The line condition is poor. PPS-MPS has been transmitted, PPR has been received four times, CTC has been transmitted. But, the other machine cannot receive the appropriate signal. 	<ul style="list-style-type: none"> ■ Increase the level of transmission, using parameter 07 of #2 MENU. Permitting correct receipt of the CTC signal. ■ Ask the other party to increase the level of transmission, permitting correct receipt of the signals.

##760 (trans) The appropriate signal could not be received, after transmitting PPS-EOM during ECM transmission. And, the number of times that the protocol signal was transmitted exceeded the limit.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Preventing transmission of PPS-MPS. ■ The line condition is poor. Preventing correct reception of signals. 	<ul style="list-style-type: none"> ■ Increase the level of transmission. Permitting correct receipt of the PPS-MPS signal. ■ Adjust the NL equaliser. Permitting correct receipt of the PPS-MPS signal. ■ Attach EPT to the V29 modem signal. ■ Ask the other party to increase the level of transmission, permitting correct receipt of the signals.

##762 (trans) DCN has been received, after transmitting PPS-EOM during ECM transmission.

Main cause	Action
<ul style="list-style-type: none">■ The line condition is poor. Preventing correct reception of the PPS-EOM signal.■ Stop has been pressed during communication.	<ul style="list-style-type: none">■ Increase the level of transmission. Permitting correct receipt of the PPS-EOM signal.■ Try transmission once again.

##763 (trans) T5 time out (60 seconds) has occurred. Or, the number of times the protocol signal has been sent has exceeded the limit in ECM transmission after transmitting PPS-EOM.

Main cause	Action
<ul style="list-style-type: none">■ The page buffer of the other machine is full or busy. The RNR cannot be received correctly, after transmitting PPS-EOM, and the appropriate signal cannot be received correctly after transmitting RR.	<ul style="list-style-type: none">■ Increase the T5 timer setting, to avoid an error.■ Change the ECM frame size: from 256 bytes to 64K bytes.

##764 (trans) The number of times the protocol signal has been transmitted has exceeded the limit. After transmitting PPS-EOM in ECM transmission.

Main cause	Action
<ul style="list-style-type: none">■ The line condition is poor. PPS-EOM has been transmitted, PPR has been received four times, CTC has been transmitted. But, the other machine cannot receive it correctly.■ The line condition is poor. PPS-EOM has been transmitted, PPR has been received four times, CTC has been transmitted. But, the other machine cannot receive the appropriate signal.	<ul style="list-style-type: none">■ Increase the level of transmission. Permitting correct receipt of the CTC signal.■ Ask the other party to increase the level of transmission, permitting correct receipt of the signals.

##765 (recep) The appropriate signal could not be received, after transmitting PPS-EOP during ECM transmission. And, the number of times that the protocol signal was transmitted exceeded the limit.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Preventing correct reception of the PPS-EOP signal. ■ The line condition is poor. Preventing correct reception of signals. 	<ul style="list-style-type: none"> ■ Increase the level of transmission. Permitting correct receipt of the PPS-EOP signal. ■ Adjust the NL equaliser. Permitting correct receipt of the PPS-EOP signal. ■ Attach EPT to the V29 modem signal. ■ Ask the other party to increase the level of transmission, permitting correct receipt of the signals.

##767 (trans) DCN has been received, after transmitting PPS-EOP during ECM transmission.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Preventing correct reception of the PPS-EOP signal. ■ Stop has been pressed during communication. 	<ul style="list-style-type: none"> ■ Increase the level of transmission. Permitting correct receipt of the PPS-EOM signal. ■ Try transmission once again.

##768 (trans) T5 time out (60 seconds) has occurred. Or, the number of times the protocol signal has been sent has exceeded the limit in ECM transmission after transmitting PPS-EOP.

Main cause	Action
<ul style="list-style-type: none"> ■ The page buffer of the other machine is full or busy. The appropriate signal cannot be received correctly, after transmitting RR in response to RNR. RNR was received after transmitting PPS-EOP. 	<ul style="list-style-type: none"> ■ Increase the T5 timer setting, to avoid an error. ■ Change the ECM frame size: from 256 bytes to 64K bytes.

##769 (trans) The number of times the protocol signal has been transmitted has exceeded the limit. After transmitting PPS-EOP in ECM transmission.

Main cause	Action
<ul style="list-style-type: none">■ The line condition is poor. PPS-EOP has been transmitted, PPR has been received four times, CTC has been transmitted. But, the other machine cannot receive it correctly.■ The line condition is poor. PPR has been transmitted, PPR has been received four times, CTC has been transmitted. But, the machine cannot receive the appropriate signal.	<ul style="list-style-type: none">■ Increase the level of transmission. Permitting correct receipt of the CTC signal.■ Ask the other party to increase the level of transmission. Permitting correct receipt of the signals.

##770 (trans) The appropriate signal could not be received, after transmitting EOR-NULL during ECM transmission. And, the number of times that the protocol signal was transmitted exceeded the limit.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Preventing correct reception of the EOR-NULL signal. ■ The line condition is poor. Preventing correct reception of signals. 	<ul style="list-style-type: none"> ■ Increase the level of transmission. Permitting correct receipt of the EOR-NULL signal. ■ Ask the other party to increase the level of transmission. Permitting correct receipt of the signals.

##772 (trans) DCN has been received. After transmitting EOR-NULL during ECM transmission.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Preventing correct reception of the EOR-NULL signal. ■ Stop has been pressed during communication. 	<ul style="list-style-type: none"> ■ Increase the level of transmission. Permitting correct receipt of the EOR-NULL signal. ■ Try transmission once again.

##773 (trans) T5 time out (60 seconds) has occurred. Or, the number of times the protocol signal has been sent has exceeded the limit in ECM transmission after transmitting EOR-NULL.

Main cause	Action
<ul style="list-style-type: none"> ■ The page buffer of the other machine is full or busy. The appropriate signal cannot be received correctly, after transmitting RR in response to RNR. RNR was received after transmitting EOR-NULL. 	<ul style="list-style-type: none"> ■ Increase the T5 timer setting, to avoid an error. ■ Change the ECM frame size: from 256 bytes to 64K bytes.

##774 (trans) ERR has been received. After transmitting EOR-NUL during ECM transmission.

Main cause	Action
<ul style="list-style-type: none">■ The line condition is poor. Frequently preventing correct reception of the image signals.■ The other machine malfunctions: because of an echo.	<ul style="list-style-type: none">■ Increase the level of transmission. Permitting correct receipt of the signals.■ Adjust the NL equaliser. Permitting correct receipt of the image signals.■ Reduce occurrence of echo.■ Press 'start', after hearing the first DIS from the other machine: in manual calling mode.■ Pause for a relatively long time after the telephone number, when requesting auto dial, so that the machine will not respond to the first DIS.■ Ask the other party to decrease the level of transmission, so that it will not receive echoes.

##775 (trans) The appropriate signal could not be received, after transmitting EOR-MPS during ECM transmission. And, the number of times that the protocol signal was transmitted exceeded the limit.

Main cause	Action
<ul style="list-style-type: none">■ The line condition is poor. Preventing correct reception of the EOR-MPS signal.■ The line condition is poor. Preventing correct reception of signals.	<ul style="list-style-type: none">■ Ask the other party to increase the level of transmission. Permitting correct receipt of the EOR-MPS signal.■ Ask the other party to increase the level of transmission. Permitting correct receipt of the signals.

##777 (trans) DCN has been received. After transmitting EOR-MPS during ECM transmission.

Main cause	Action
<ul style="list-style-type: none">■ The line condition is poor. Preventing correct reception of the EOR-MPS signal.■ Stop has been pressed during communication.	<ul style="list-style-type: none">■ Increase the level of transmission. Permitting correct receipt of the EOR-MPS signal.■ Try transmission once again.

##778 (trans) T5 time out (60 seconds) has occurred. Or, the number of times the protocol signal has been sent has exceeded the limit in ECM transmission after transmitting EOR-MPS.

Main cause	Action
<ul style="list-style-type: none"> ■ The page buffer of the other machine is full or busy. EOR-MPS has been transmitted. The RNR has been received correctly, after transmitting RR. But, the appropriate signal cannot be received. 	<ul style="list-style-type: none"> ■ Increase the T5 timer setting, to avoid an error. ■ Change the ECM frame size: from 256 bytes to 64K bytes.

##779 (trans) ERR has been received. After transmitting EOR-MPS during ECM transmission.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Frequently preventing correct reception of the image signals. ■ The other machine malfunctions: because of an echo. 	<ul style="list-style-type: none"> ■ The line condition is poor. Frequently preventing correct reception of the image signals. ■ Adjust the NL equaliser. Permitting correct receipt of the image signals. ■ Prevent echoes, using SW03 of #1 SSSW. ■ Press 'start', after hearing the first DIS from the other machine: in manual calling mode. ■ Pause for a relatively long time after the telephone number, when requesting auto dial, so that the machine will not respond to the first DIS. ■ Ask the other party to decrease the level of transmission, so that it will not receive echoes.

##780 (trans) The appropriate signal could not be received, after transmitting EOR-EOM during ECM transmission. And, the number of times that the protocol signal was transmitted exceeded the limit.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Preventing correct reception of the EOR-EOM signal. ■ The line condition is poor. Preventing correct reception of signals. 	<ul style="list-style-type: none"> ■ Increase the level of transmission. Permitting correct receipt of the EOR-EOM signal. ■ Ask the other party to increase the level. Permitting correct receipt of the signals.

##782 (trans) DCN has been received. After transmitting EOR-EOM during ECM transmission.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Preventing correct reception of the EOR-EOM signal. ■ Stop has been pressed during communication. 	<ul style="list-style-type: none"> ■ Increase the level of transmission. Permitting correct receipt of the EOR-OEM signal. ■ Try transmission once again.

##783 (trans) T5 time out (60 seconds) has occurred. Or, the number of times the protocol signal has been sent has exceeded the limit in ECM transmission after transmitting EOR-EOM.

Main cause	Action
<ul style="list-style-type: none"> ■ The page buffer of the other machine is full or busy. EOR-EOM has been transmitted. The RNR has been received correctly, after transmitting RR. But, the appropriate signal cannot be received. 	<ul style="list-style-type: none"> ■ Increase the T5 timer setting, to avoid an error. ■ Change the ECM frame size: from 256 bytes to 64K bytes.

##784 (trans) ERR has been received. After transmitting EOR-EOM during ECM transmission.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Frequently preventing correct reception of the image signals. ■ The other machine malfunctions: because of an echo. 	<ul style="list-style-type: none"> ■ Increase the level of transmission. Permitting correct receipt of the image signals. ■ Adjust the NL equaliser. Permitting correct receipt of the image signals. ■ Prevent echoes, using SW03 of #1 SSSW. ■ Press 'start', after hearing the first DIS from the other machine: in manual calling mode. ■ Pause for a relatively long time after the telephone number, when requesting auto dial, so that the machine will not respond to the first DIS. ■ Ask the other party to decrease the level of transmission, so that it will not receive echoes.

##785 (trans) The appropriate signal could not be received, after transmitting EOR-EOP during ECM transmission. And, the number of times that the protocol signal was transmitted exceeded the limit.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Preventing correct reception of the EOR-EOP signal. ■ The line condition is poor. Preventing correct reception of signals. 	<ul style="list-style-type: none"> ■ Increase the level of transmission. Permitting correct receipt of the EOR-EOP signal. ■ Ask the other party to increase the level of transmission. Permitting correct receipt of the signals.

##787 (trans) DCN has been received. After transmitting EOR-EOP during ECM transmission.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Preventing correct reception of the EOR-EOP signal. ■ Stop has been pressed during communication. 	<ul style="list-style-type: none"> ■ Increase the level of transmission. Permitting correct receipt of the EOR-EOP signal. ■ Try transmission once again.

##788 (trans) T5 time out (60 seconds) has occurred. Or, the number of times the protocol signal has been sent has exceeded the limit in ECM transmission after transmitting EOR-EOP.

Main cause	Action
<ul style="list-style-type: none"> ■ The page buffer of the other machine is full or busy. EOR-EOP has been transmitted. The RNR has been received correctly, after transmitting RR. But, the appropriate signal cannot be received. 	<ul style="list-style-type: none"> ■ Increase the T5 timer setting, to avoid an error. ■ Change the ECM frame size: from 256 bytes to 64K bytes.

##789 (trans) ERR has been received. After transmitting EOR-EOP during ECM transmission.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Frequently preventing correct reception of the image signals. ■ The other machine malfunctions: because of an echo. 	<ul style="list-style-type: none"> ■ Increase the level of transmission. Permitting correct receipt of the image signals. ■ Adjust the NL equaliser. Permitting correct receipt of the image signals. ■ Prevent echoes, using SW03 of #1 SSSW. ■ Press 'start', after hearing the first DIS from the other machine: in manual calling mode. ■ Pause for a relatively long time after the telephone number, when requesting auto dial, so that the machine will not respond to the first DIS. ■ Ask the other party to decrease the level of transmission, so that it will not receive echoes.

##790 (recep) ERR has been received. After transmitting EOR-Q during ECM transmission.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Frequently preventing correct reception of the image signals. ■ The machine malfunctions: because of an echo. 	<ul style="list-style-type: none"> ■ Ask the other party to increase the level of transmission. Permitting correct receipt of the signals. ■ Adjust the NL equaliser. Permitting correct receipt of the signals. ■ Prevent echoes, using SW03 of #1 SSSW.

##793 (recep) Time-out has occurred, without detecting an effective frame, during high-speed reception in ECM reception.

Main cause	Action
<ul style="list-style-type: none"> ■ The line condition is poor. Preventing correct reception of CFR. ■ The line condition is poor. Preventing correct reception of image signals. ■ The training signal cannot be received, because of a CFR echo. 	<ul style="list-style-type: none"> ■ Increase the level of transmission. Permitting correct receipt of the signals. ■ Adjust the NL equaliser. Permitting correct receipt of the signals. ■ Ask the other party to decrease the start speed of the transmission. ■ Ask the other party to increase the level of transmission, permitting correct receipt of the signals. ■ Prevent echoes, using SW03 of #1 SSSW.

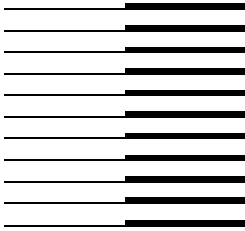
##795 (trans/recep) An error has occurred in the decoding processing, during communication.

Main cause	Action
■ The coding mechanisms for communication are occupied.	■ Switch OFF, then ON. ■ Replace the system control PBA.

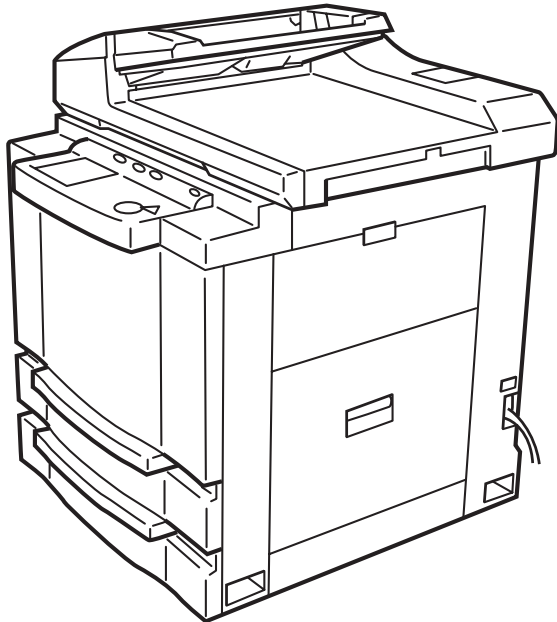
##799 (trans) A system error has occurred.

Main cause	Action
■ An attempt was made to transmit EOR: as a part of an abbreviated procedure.	■ Switch OFF, then ON. ■ Replace the system control PBA.

Océ



Technical Service Manual
Océ 3121/3122



GENERAL

Contents

General operation

- 1 System 1
- 2 Nomenclature 2
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- 4 Auxiliary Process 10
- 5 High voltage system 10

General operation

1 System

Principle of operation

The following optionals can be added to the machine configuration:




- FAX PBA
- Printer PBA
- Sorter
- RDF
- SCSI PBA
- FAX Motherboard PBA
- CORE/IP PBA
- Protocol control PBA
- System motherboard PBA

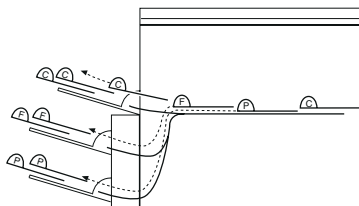
1st copying

In this mode, specific jobs of the copier, fax, or printer are executed continuously.

Specifically, a copier image, a fax image, and a printer image can be placed alternately on copy paper, while it is being fed continuously. Thus executing three types of jobs, without suspending operation.

To take advantage of this mode, the machine must be equipped with the 12-bin sorter or the 3 tray output unit.

-  _____ **Print paper for copier image**
-  _____ **Print paper for fax image**
-  _____ **Print paper for printer image**



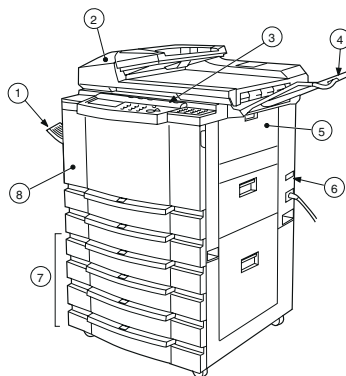
Conceptual diagram of Non-Stop copying

2 Nomenclature

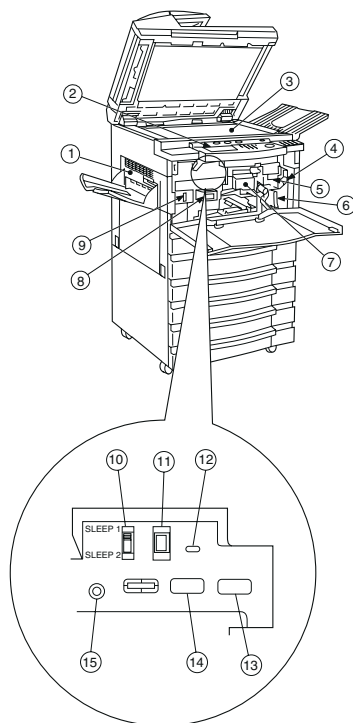
External View

Model with RDF

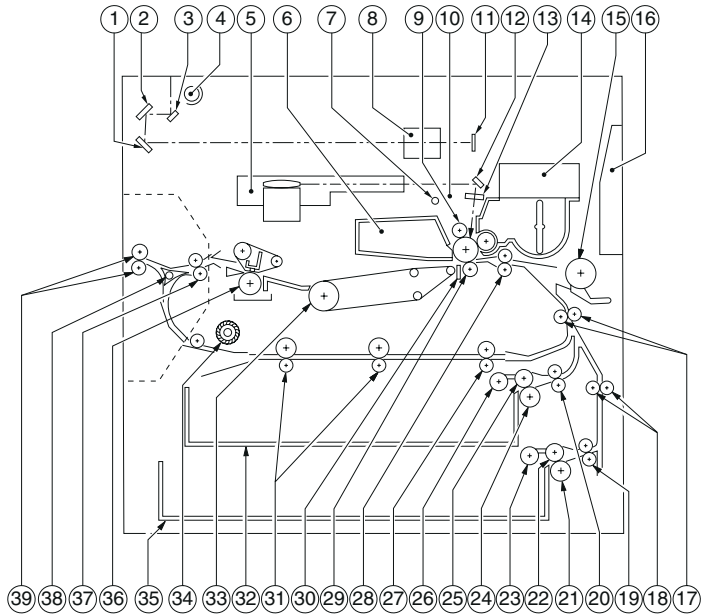
- 1 Output tray
- 2 RDF
- 3 Control panel: ON/OFF switch
- 4 Document tray (for RDF)
- 5 Speciality tray
- 6 ON/OFF switch
- 7 Cassette pedestal (optional)
- 8 Front door



- 1 Copy delivery
- 2 The operating panel
- 3 Platen
- 4 Lever for the developing unit
- 5 Developing unit
- 6 Lever for the feeding unit
- 7 OPC unit
- 8 Aperture for releasing the fuser unit
- 9 Door switch actuator
- 10 Economy-mode switch
 - SLEEP 1 (top):
 - Quick start mode
 - Anti-condensation function ON
 - SLEEP 2 (bottom):
 - Power saving mode
 - Anti-condensation function OFF
- 11 Switch for the cassette heater (optional)
- 12 Service-mode switch
- 13 Counter (total)
- 14 Counter (prints)
- 15 Contrast control for LCD display



Cross-section

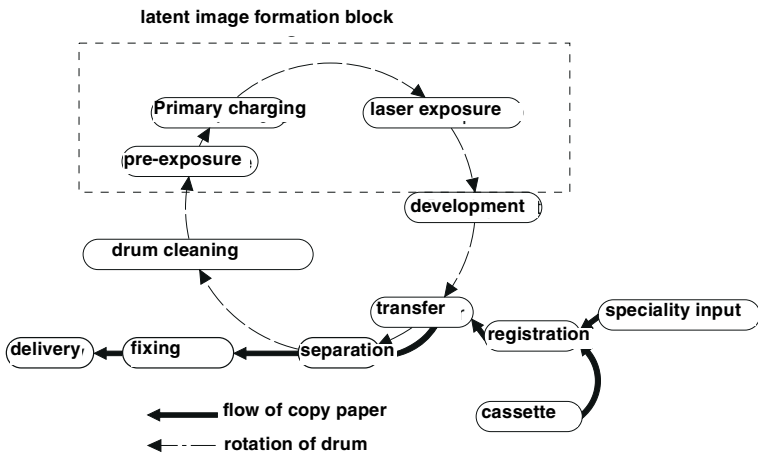
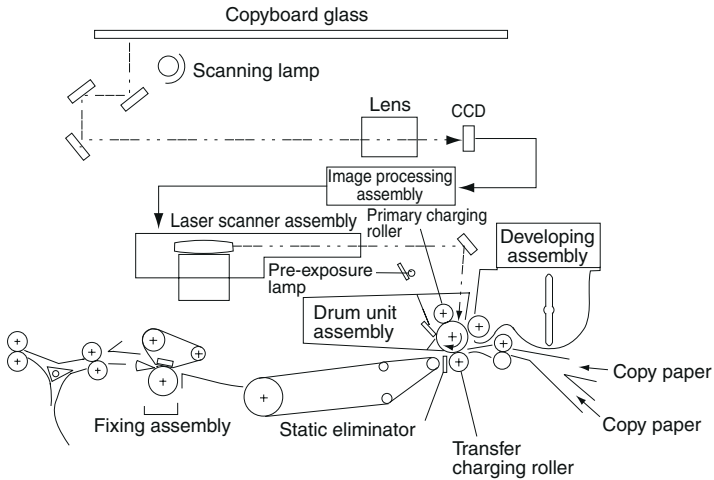


- | | |
|------------------------------------|----------------------------------|
| 1 Mirror 3 | 20 Cassette pick-up (upper) |
| 2 Mirror 2 | 21 Cassette 2: separation roller |
| 3 Mirror 1 | 22 Cassette 2: feeding roller |
| 4 Scanning lamp (fluorescent lamp) | 23 Cassette 2: pick-up roller |
| 5 Laser unit | 24 Cassette 1: separation roller |
| 6 OPC cleaning unit | 25 Cassette 1: feeding roller |
| 7 Pre-exposure lamp | 26 Cassette 1: pick-up roller |
| 8 Lens | 27 Refeed unit: exit roller |
| 9 Charging roller | 28 Registration roller |
| 10 OPC unit | 29 Transfer roller |
| 11 CCD | 30 Static eliminator |
| 12 Laser mirror | 31 Retarding roller |
| 13 Aperture glass | 32 cassette 1 |
| 14 Developing unit | 33 Feeding unit |
| 15 Specialities: pick-up roller | 34 Fan |
| 16 Speciality tray | 35 Cassette 2 |
| 17 Vertical transport: roller 1 | 36 Fusing unit |
| 18 Vertical transport: roller 2 | 37 Delivery roller 1 |
| 19 Cassette pick-up (lower) | 38 Deflector |
| | 39 Delivery roller |

3 Image Formation

Outline

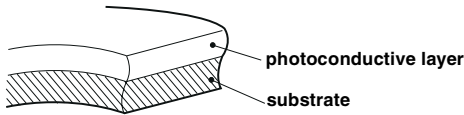
The Océ 3121 employs an indirect photographic method of reproduction.



The image formation process consists of the following steps:

- 1 Pre-exposure
- 2 Charging (AC + negative DC)
- 3 laser exposure
- 4 Development (AC + negative DC bias)
- 5 Transfer (positive DC)
- 6 Separation (negative DC)
- 7 Fusing
- 8 OPC cleaning

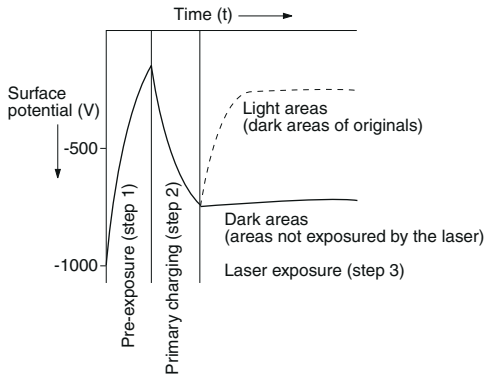
The OPC has a layer construction. The outer layer is a photo-conductive layer of OPC. The inner layer is a conductive aluminium substrate.



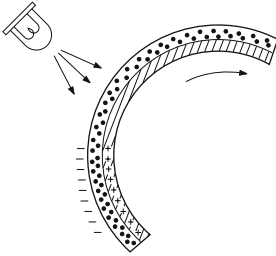
Formation of the latent image

The image creation is in three phases. Ultimately, negative charges remain on the OPC in the areas where the document is white. The negative charge is dissipated in those areas which correspond with the black areas on the document.

These images on the OPC, created by the negative charges, are invisible to the human eye. They are referred to as static, or latent images.

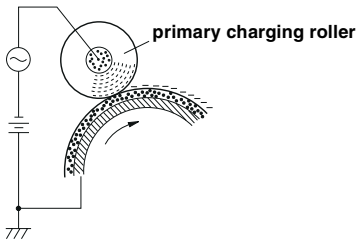


Pre-Exposure



Prior to charging, light from the pre-exposure lamp is directed onto the surface of the OPC. This removes any residual charges, later preventing uneven copy density.

Primary Charging

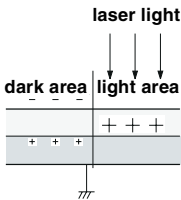


The charging roller is a conductive rubber. The use of direct charging requires a lower application voltage than the conventional corona charging system. Also, it produces almost no ozone.

An AC bias is applied to stabilise the charges applied to the photosensitive drum.

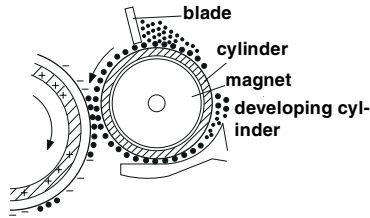
The primary charging roller is a special roller and is not the same as the transfer roller.

Laser Exposure



A laser beam, containing the darker areas of the document image, is directed onto the surface of the OPC. This neutralises the charges. The areas of this laser image on the OPC will later attract toner, during the development phase.

Development

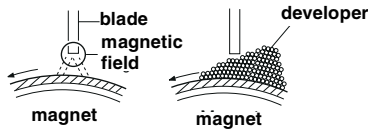


The static image on the surface of the OPC is made visible by the application of toner.

As shown in the figure, the developing assembly consists of a developing cylinder (made of a fixed magnet and a cylinder rotating around it) and a magnetic blade.

The main ingredients of the toner are magnetite and resins. The toner has insulating properties and is charged to a negative potential by friction against the cylinder.

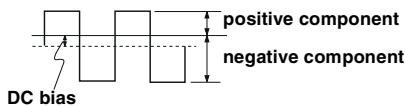
The Océ 3121 deposits toner over the areas on the surface of the drum whose charges have been neutralised by a laser beam (light areas); for this reason, the polarity of the toner is negative, which is the same as the polarity of primary charging.



A concentrated magnetic field occurs from the magnet to the edge of the blade, attracting toner.

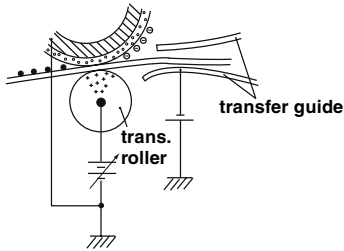
Once inside the field, the toner becomes virtually immobile because of the strong bond with the blade so that, when deposited, it forms an even, thin layer on the cylinder.

An AC bias and a DC bias (negative component) are applied to the developing cylinder and the blade at the same time (developing bias); the negative component of the developing bias is stronger than the positive component.



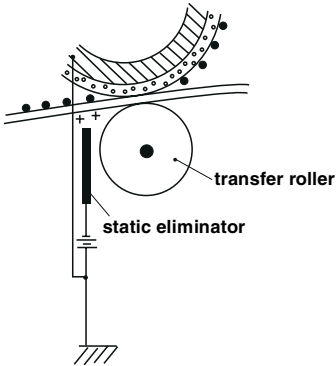
During copying, toner is attracted to the image areas on the OPC. The latent image is then a visible image created by the negatively charged toner. The excess toner is removed from the OPC. This is due to the positive bias on the developing roller and the surface potential on the OPC.

Transfer



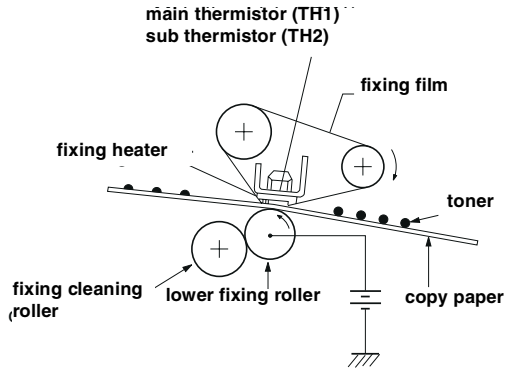
The transfer roller applies positive charges to the rear of the copy paper. This is to transfer the toner image from the surface of the OPC to the copy paper. The Océ 3121 uses a roller transfer method, which requires less transfer voltage than a corona transfer method and generates virtually no ozone. To prevent transfer faults or soiling of the back of copy paper, the transfer guide is given a negative bias.

Separation



Use is made of the rigidity of the copy paper. This assists the separation of the paper from the OPC. (curvature separation). As thin paper is less rigid, it tends to stick to the OPC. To prevent this, a negative potential is applied to the static eliminator. This reduces the static bond between the OPC and the paper, allowing an improved separation.

Fusing



After separation, the copy paper is passed between the fusing film and the fuser roller. The toner image is fused to the fibres of the paper.

The fixing heater is a plane-shaped heater; it serves to eliminate warm-up time by heating the area of contact with the fixing film.

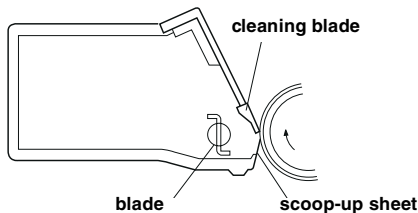
The temperature of the fixing heater is monitored by the main thermistor (TH1) located at the centre of the heater. (The fixing heater is controlled to a specific temperature at all times.)

A sub thermistor (TH2) is provided at the end of the fixing heater to monitor the temperature of the area which remains free of contact with paper when small-size paper is moved through the fixing assembly, thereby preventing overheating.

The fixing cleaning roller is made of aluminium and is kept in contact with the lower fixing roller to remove toner from the lower fixing roller. (It also serves to discharge heat from the lower fixing roller.)

The metal core of the lower fixing assembly is given a positive bias to prevent offset of toner to the fixing film.

OPC cleaning



The remaining toner on the OPC is scraped off by the cleaning blade. This is a preparation for the next copy. The toner that is scraped off is caught by a melinex strip, and moved to the waste container by a rotary blade.

4 Auxiliary Process

Static elimination during output

As it leaves the fuser, the copy carries residual charges from the transfer stage. To dissipate these charges, a static eliminator is provided at the output side charges (earthed brush).

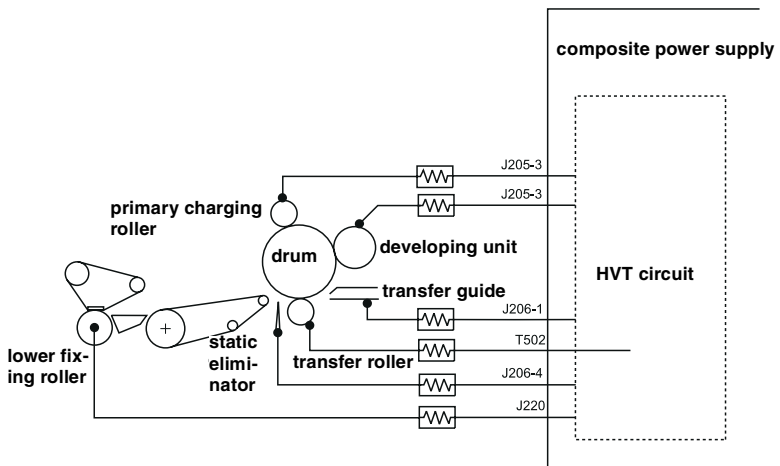
5 High voltage system

HT transformer circuit

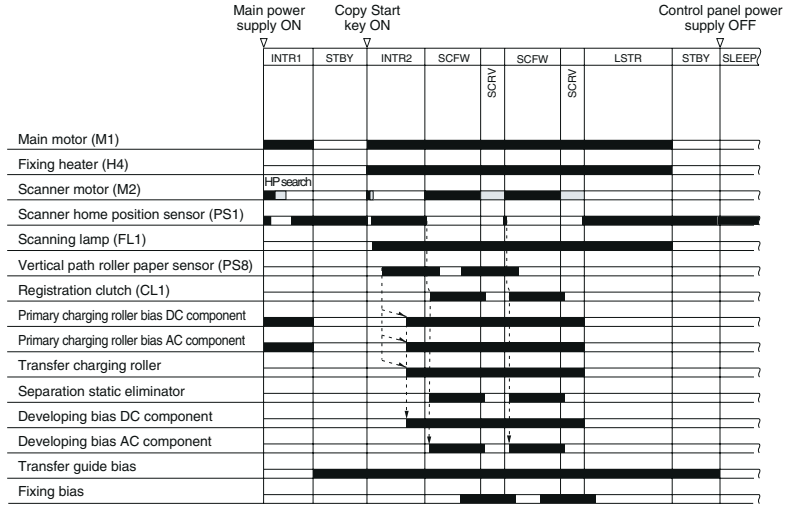
The HT circuit for the formation of the image is a part of the power supply PBA. It is used for the following:

- Limiting the charging voltage
- Limiting the transfer voltage
- Limiting the current for the static eliminator, for the separation
- Limiting the DC developing bias
- Switching the AC developing bias ON and OFF
- Applying a potential to the transfer guide
- Switching the fusing bias ON and OFF

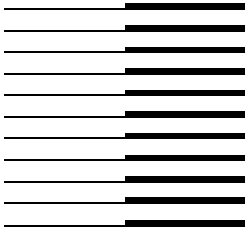
The power supply PBA also incorporates the circuits for the lamp regulation and for the control of the power supply for the lamp.



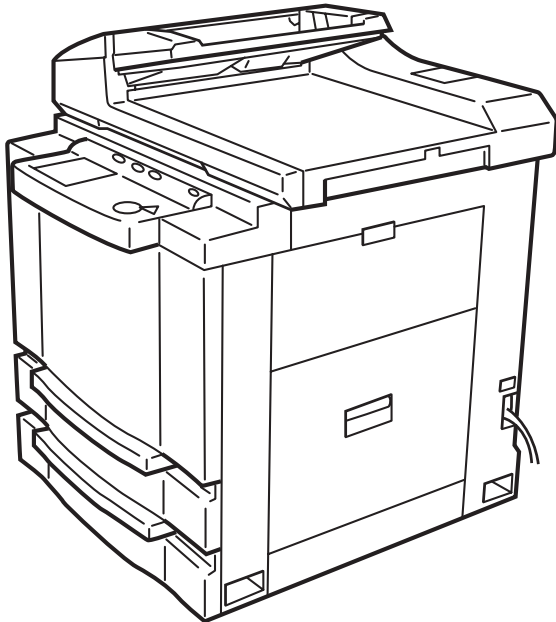
Timing of operations



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01 PHOTOCONDUCTOR

Contents

Dis-/assembly

1 Replacing the OPC unit 401

Functional description

1 Resistance of the OPC drum 501

Dis-/assembly

1 Replacing the OPC unit

When you replace the OPC, record the date and the latest counter reading on the label. Attach the label to the front cover of the new OPC.

date date Datum	counter compteur Zähler	notes note Notiz

Functional description

1 Resistance of the OPC drum

The resistance of the OPC tends to decrease as time elapses. The Océ 3121 makes use of this phenomenon to determine the deterioration of the drum.

To measure the resistance, the surface of the OPC is charged to a uniform level at a specific voltage (DC + AC). The CPU on the power supply PBA samples the current of the charges as they are applied and can then determine the resistance of the OPC. The result is converted into a density correction curve. This is used to control the reliable generation of good quality images. This mode of control is called automatic density correction, through curve selection (ADC).

The timing of the measurements are:

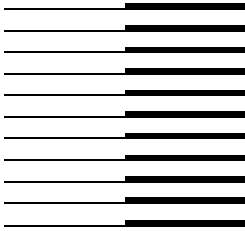
- During initial rotation, after a press on the copy button
- During initial rotation, after opening or closing the front door (except for jam removal)
- During initial rotation, after switching ON the copier.
- During final rotation, after generating 500 copies/prints.

Handling the OPC after installation

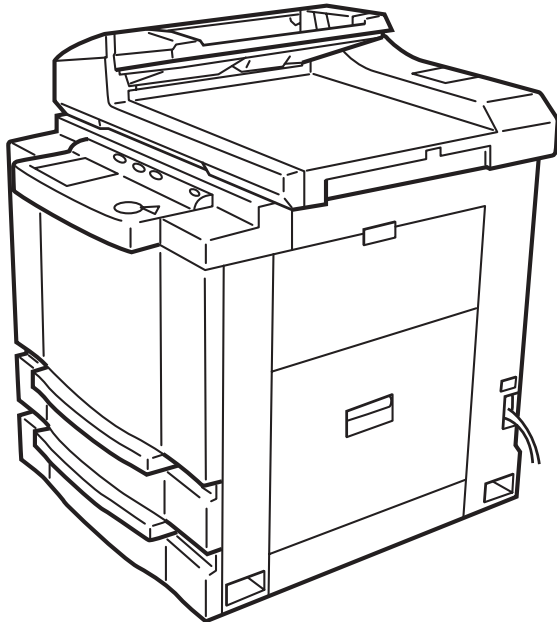
The OPC is highly susceptible to light, and mere exposure to room lighting can lead to the production of copies with white spots or black stripes. Observe the following, so avoiding problems:

- Try to finish jam removal work within 5 minutes.
- When taking the OPC out of the copier for servicing:- wrap it in fresh copy paper,- keep it in a dark place.
- Do not touch the surface of the OPC.
- If the surface of the OPC is soiled, wipe it with a flannel cloth coated with toner. (Do not use paper: lint-free or otherwise.)
- Do not use solvents.

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02 CHARGING

Contents

Functional description

- 1 Limiting the charging bias 501
- 2 Roller cleaning 503

Functional description

1 Limiting the charging bias

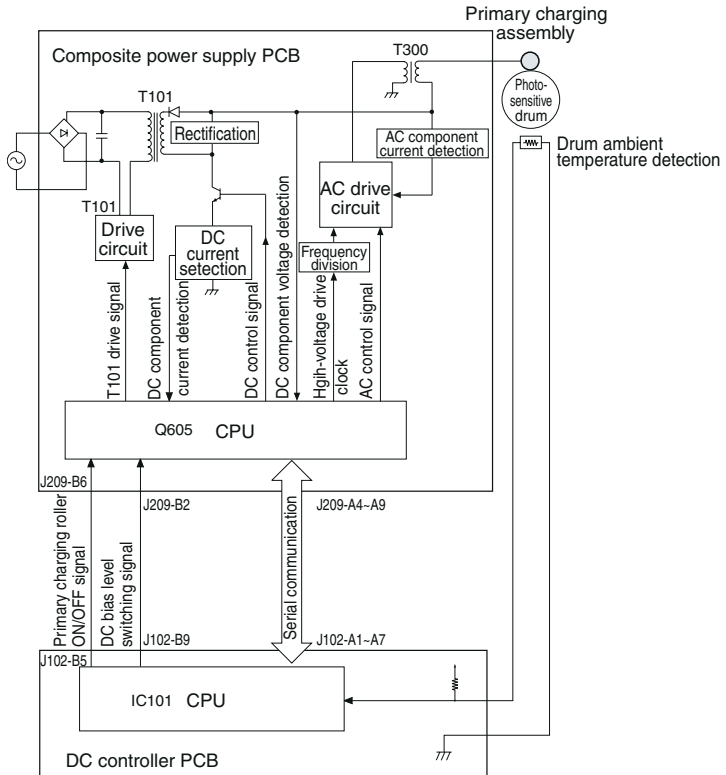
Outline

The bias for the charging roller is controlled by the power supply PBA, following the instructions from the DC control PBA.

In addition, an AC bias is applied to the charging roller to ensure stable charging.

The power supply PBA serves the following functions:

- Limiting the DC bias to a specific voltage
- Limiting the AC bias to a specific current



Switching the charging roller ON and OFF

The charging roller is switched ON and OFF by the charging roller ON/OFF signal (HVPDC) from the DC control PBA.

The primary side of the main transformer (T101) on the power supply PBA is controlled by the CPU (Q605). When the HVPDC signal is sent to the power supply PBA, the CPU (Q605) generates the DC control signal (PPWM) to switch ON the secondary side of T101. A DC bias is applied to the charging roller.

Then, the CPU generates the AC control signal (PAPWM) following the commands created via the serial communications with the DC control PBA. As a result, the transformer T300 applies AC to the charging roller.

Controlling the charging bias

The output values of the DC and the AC applied to the charging roller are controlled by:

- the DC control signal (PDPWM)
- the AC control signal (PAPWM)

These are pulse signals, generated by the CPU (Q605).

For the DC bias, the output voltage value is returned to the CPU (Q605). This continuously varies the duty ratio of the DC control signal. Thereby controlling it to a specific voltage (constant voltage control).

For the AC bias, the current value of the AC output is sent to the AC drive circuit.

The AC drive circuit uses the reference signal (AC control signal PAPWM) and the value of the AC current to generate signals to drive the transformer T300. These limit the AC bias to a constant current.

Correcting the Apparent Surface Voltage on the Drum

The apparent surface voltage of the drum fluctuates in relation to changes in the ambient temperature inside the machine. This is corrected by varying the charge voltage. The temperature is measured by the thermistor, positioned on the rear frame of the copier. The data is sent to the CPU on the DC control PBA.

The CPU and the DC control PBA compute the data, and the results are sent to the power supply PBA in serial communication mode.

The power supply PBA, in response, uses the data to determine the DC charge level.

2 Roller cleaning

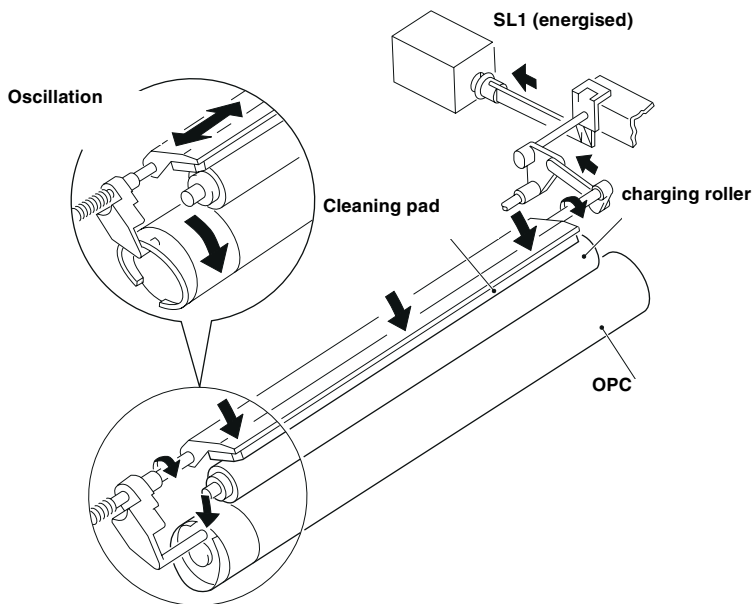
Outline

The copier is equipped to automatically clean the charging roller.

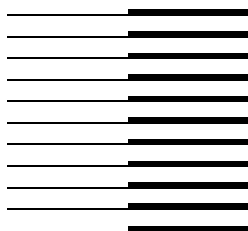
Solenoid (SL1) is switched ON, while the charging roller is rotating, to move the cleaning pad against the charging roller. The cleaning pad oscillates in the axial direction of the charging roller.

The cleaning occurs:

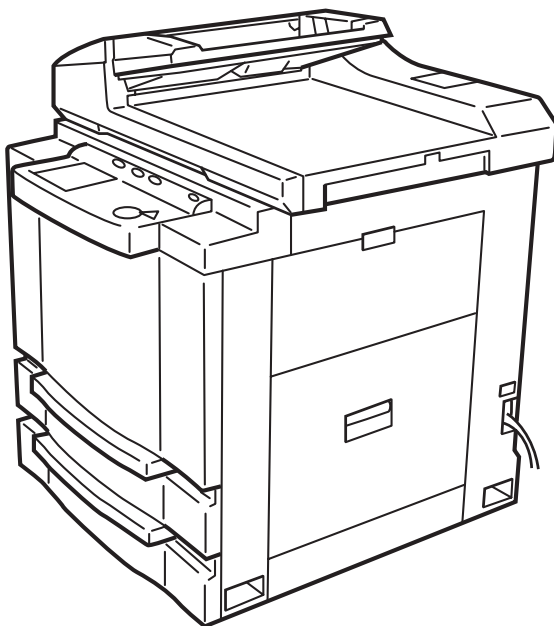
- After each series of 50 copies: for run lengths exceeding 50 copies.
- At the end of the copying cycle: for run lengths exceeding 500 copies and for run lengths below 50 copies.
- When 'adjustment/cleaning' is executed in user mode. (In this case, a cleaning bias is applied to the charging roller and the transfer roller).



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04 EXPOSURE

Contents

Dis-/assembly

- 1 Removing the Scanner Motor 401
- 2 Removing the Scanner Cable 402
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- 4 Preparing the tool for the positioning of the mirror 405
- 5 Adjusting the position of the mirror 406
- 6 Replacing the exposure lamp 407
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Functional description

- 1 The Document Exposure System 501
- 2 Varying the Reproduction Ratio 502
- 3 Scanner Motor 503
- 4 Controlling the Exposure Lamp 504
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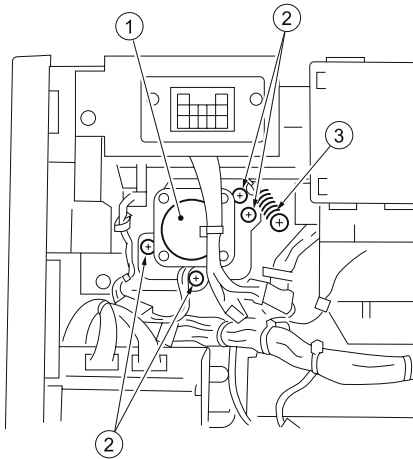
Laser Exposure System

- 1 Laser Processing Unit 509

Dis-/assembly

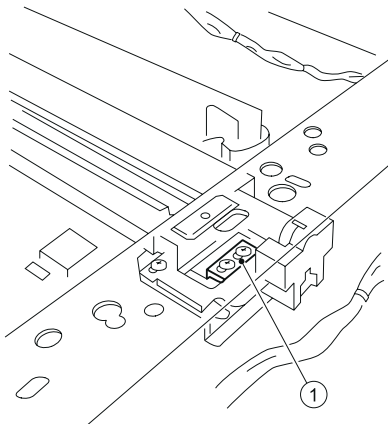
1 Removing the Scanner Motor

- 1 Remove the rear cover (4 screws).
- 2 Remove the flywheel (3 screws).
- 3 Detach the spring (3) and remove the scanner motor (1) (3 screws).

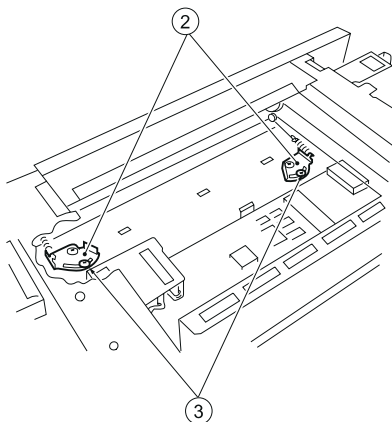


2 Removing the Scanner Cable

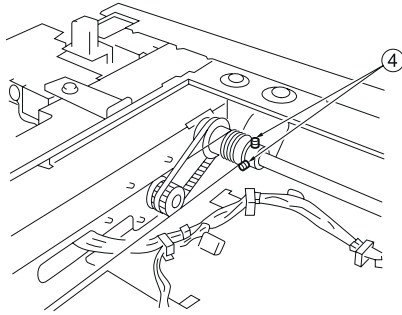
- 1 Remove the following:
 - The platen
 - The operating panel
 - The rear covers, the right cover and the left cover.
- 2 Remove the metal clamps (1) (front and rear) from the scanner cable.



- 3 Release the front cable spring (2) and the rear cable spring (2) screws (3).



4 Loosen the set screw (4), and remove the cable (front and rear).



3 Routing the Scanner Cable

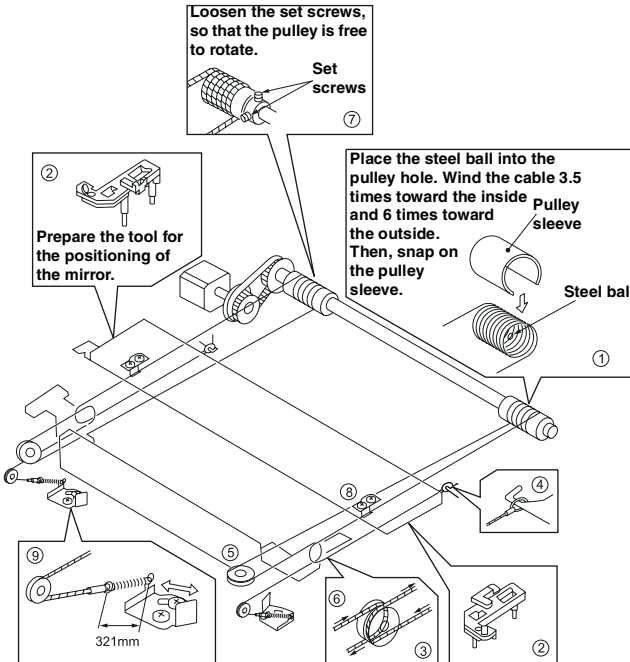
Note: The following tools are required when routing the scanner cable:

1.The tool for the positioning of the mirror

2.The pulley sleeve

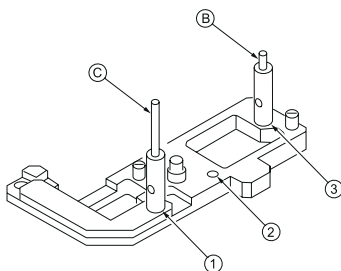
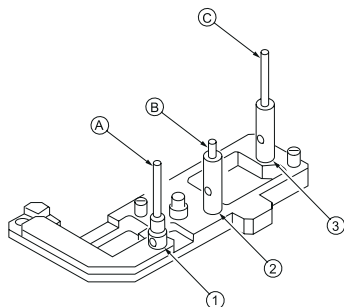
Proceed as follows:

- 1 Place the steel ball into the pulley hole (1). Wind the cable 3.5 times toward the inside and 6 times toward the outside (both front and rear).
- 2 Secure the cable, using the pulley sleeve.
- 3 Locate the tool for the positioning of the mirror (2).
- 4 Thread the cable as shown (3),(4),(5),(6).
- 5 Loosen and, then, tighten the set screw (7) of the drive pulley, so that the tension of the scanner cables is equalised.
- 6 Fix the mirror support No. 1, and refit the cable clamps (8).
- 7 Adjust the cable pulley, until the spring length is 32 ± 1 mm (9).



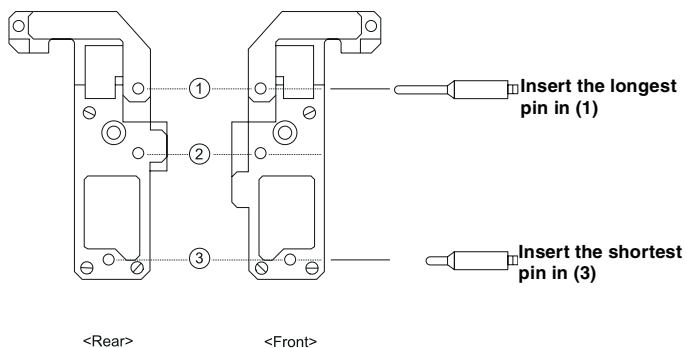
4 Preparing the tool for the positioning of the mirror

Before using the positioning tool, the arrangement of the pins needs to be set. The figures show the positions (1), (2) and (3) for the pins and A, B, and C.



(the pins arranged for the front of the machine)

1 The arrangement of the pins for the front and the rear of the machine.

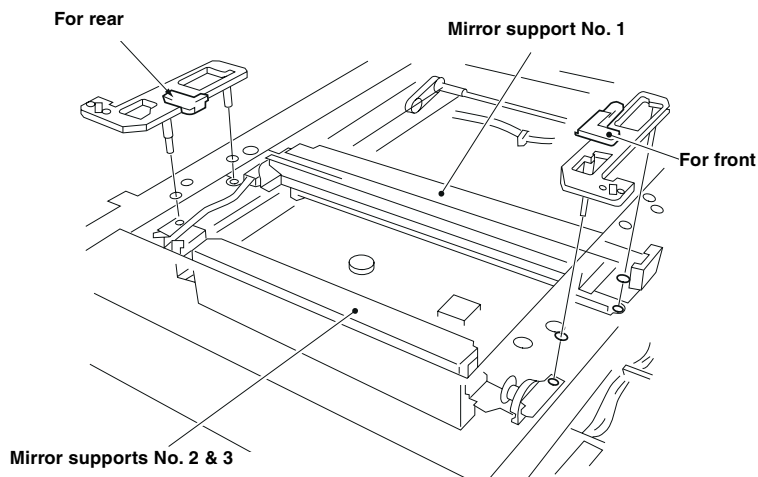


Note: The pin A of the positioning tool is not used.

5 Adjusting the position of the mirror

(the optical length of the mirror No. 1, No. 2 and No. 3)

- 1 Prepare the positioning tool. [see 'Preparing the tool for the positioning of the mirror' on page 405.](#)
- 2 Move the mirror support No. 1 forwards until the hole in the side plate and the hole in the slide for the mirror support No. 1 are in line and, also, the holes for the mirror support No. 2.(Do the same for the rear side plate.)
- 3 Fit the positioning tool to the mirror support No. 1 and to the mirror support No. 2.(Both front and rear).



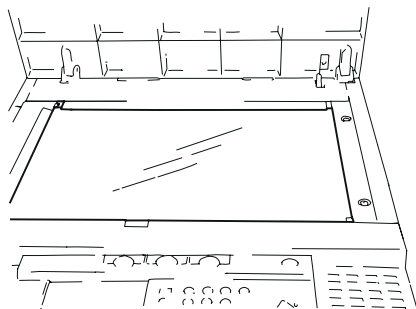
- 4 Tighten the set screw of the pulley.
- 5 Remove the tools.

6 Replacing the exposure lamp

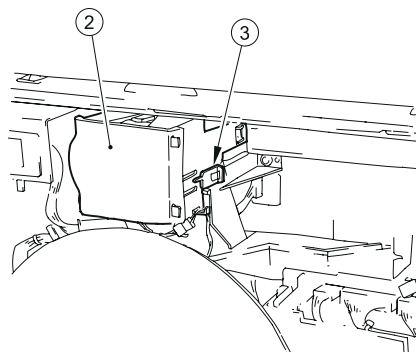
Warning:

- 1) *Ensure that the surface of the exposure lamp has cooled before starting the work.*
- 2) *Do not leave fingerprints on the surface of the exposure lamp. (in particular, on the transparent side).*
- 3) *If the surface of the exposure lamp is soiled, wipe it with a clean, dry cloth.*

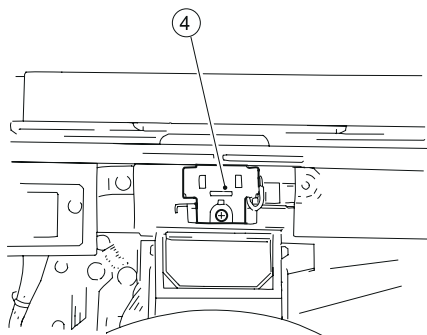
- 1 Disconnect the mains supply cable.
- 2 Remove the platen.



- 3 Remove the rear cover (4 screws).
- 4 Remove the document feeder or the platen cover. Then, remove the upper cover from the rear of the copier (2 screws).
- 5 Disconnect the connector. Release the clips (3). Then, remove the cooling fan.



- 6 Move the Mirror support No. 1 until it is as shown; when viewed from the rear.
- 7 Remove the cover (4) from the fluorescent lamp (1 screw). Then, pull out the scanning lamp.

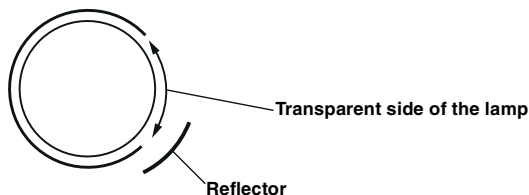


- 8 Mount the new lamp and refit all the removed parts.

Warning:

The exposure lamp has a fixed orientation. Note the following:

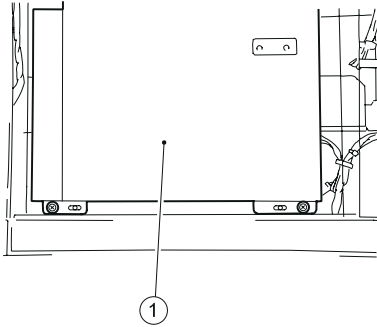
- 1) *Ensure that the manufacturer's name on the lamp is at the rear of the machine.*
- 2) *Keep the transparent side of the lamp facing the reflector.*
- 3) *Do not touch the transparent side of the lamp.*



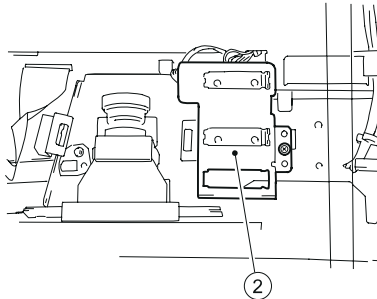
- 9 Execute: '* 4 *; FUNCTION': 12: 'R & D SHADING'.

7 Replacing the CCD Unit

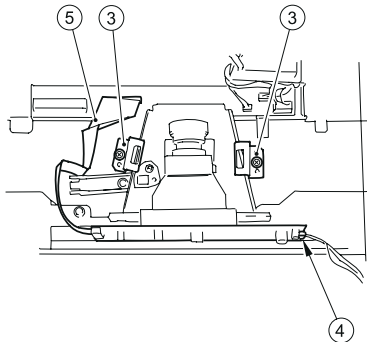
- 1 Disconnect the mains supply cable.
- 2 Remove the platen.
- 3 Remove the CCD cover (1).



- 4 Remove the screw that holds the document-size sensor (2), and move the sensor away from the CCD unit.

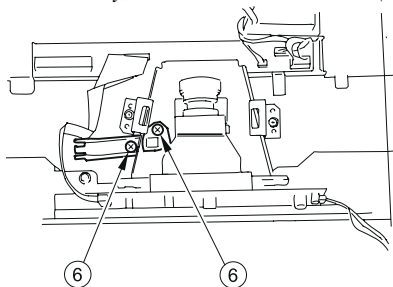


- 5 Remove the retaining spring (3) that holds the CCD unit (1 screw). Disconnect the connector (4). Release the flat cable (5), and remove the CCD unit.



Warning:

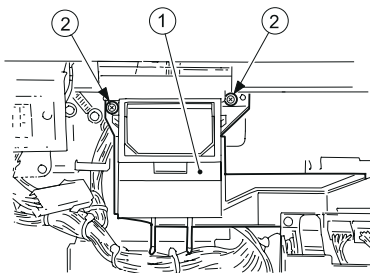
*Do not touch any paint-locked screws
Particularly, never remove the screw (6).*



- 6 Mount the new CCD unit and refit all the removed parts.
- 7 Execute: '* 4 * FUNCTIONS': '04': 'AUTO SHADING START'.

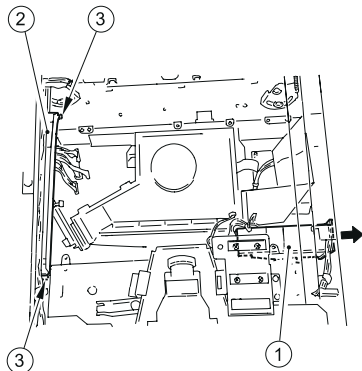
8 Removing the Fan Duct 1

- 1 Remove the rear cover (4 screws).
- 2 Remove the cooling fan.
- 3 Remove the flywheel (3 screws).
- 4 Release the clips, and remove the cable guide.
- 5 Remove the fan duct (1) by sliding it to the left (2 screws).

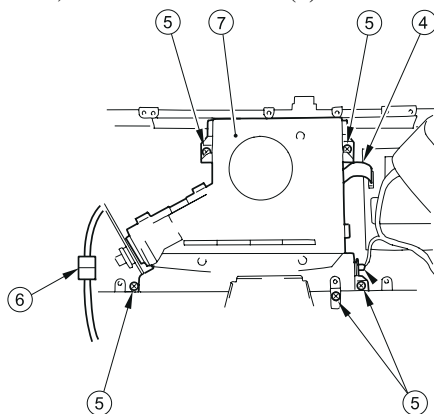


9 Replacing the Laser Unit

- 1 Remove the rear cover, and fan duct.
- 2 Remove the platen, the CCD cover, the IP cover, and the IP PBA.
- 3 Remove the fan duct 2 (1), by sliding it to the rear.
- 4 Release the clips, and remove the cable guide (3).



- 5 Remove the cable (4), and the five screws (5). Disconnect the connector (6). Then, remove the laser unit (7).



- 6 Replace the laser unit and refit all removed parts.
- 7 Execute * 4 * FUNCTIONS: '04': 'PD PRINT'.
- 8 Execute * 4 * FUNCTIONS: '05': '200PWM PRINT'.
- 9 Execute * 4 * FUNCTIONS: '07': '600PWM PRINT'.

10 Replacing the Analogue Processor PBA

Note: *If you replace the analogue processor PBA, (part of the CCD unit) you must execute (*4* Function 03 Shading Auto Start)*

11 Standard white plate

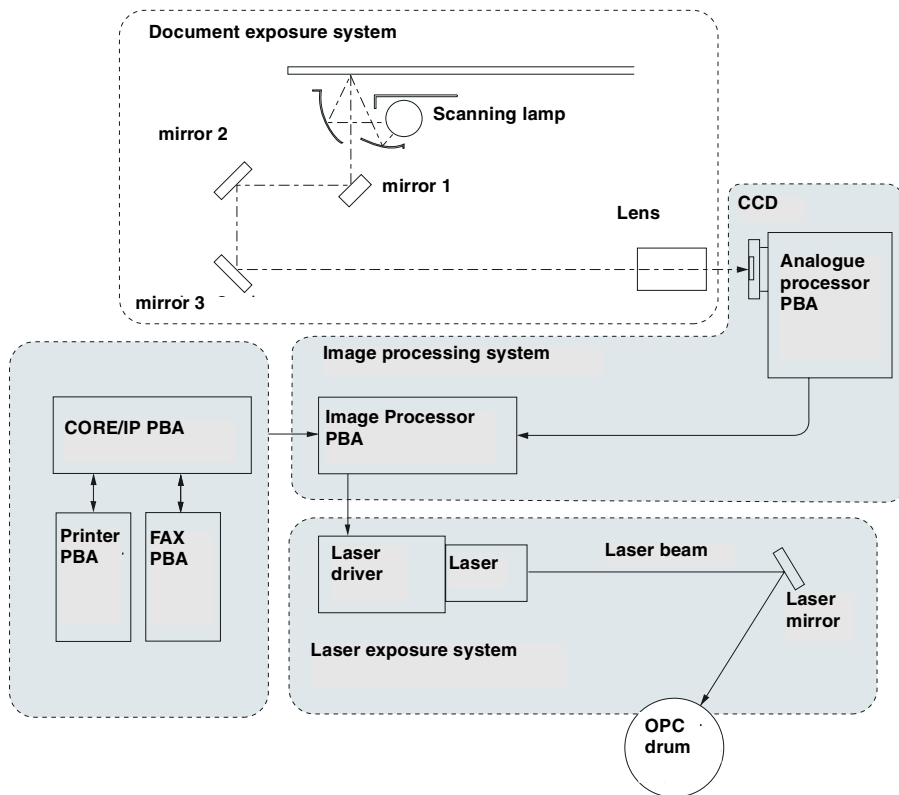
Note: *If you replace the standard white plate, you must execute (*4* Function 13 R&D Shading Start).*

Functional description

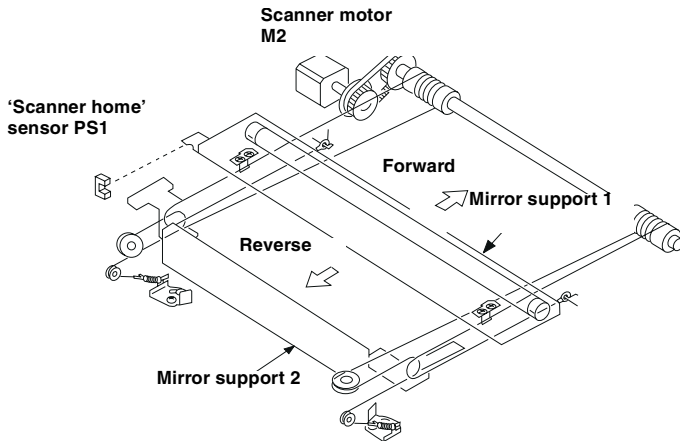
1 The Document Exposure System

Outline

The document exposure system refers to the illumination of a document, and the projection of the reflected image onto the CCD.



outline



general view

2 Varying the Reproduction Ratio

The reproduction ratio in the forward direction is changed by skipping image signals (reduction), when writing into line memory. Or reading a multiple number of times (enlargement), when reading from the line memory.

The reproduction ratio in the reverse direction is changed by moving the mirror faster (reduction) or slower (enlargement).

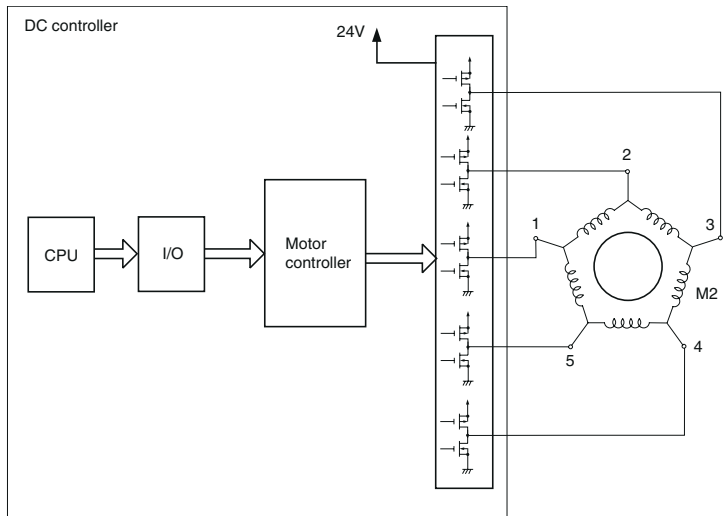
3 Scanner Motor

Outline

The scanner motor (M2) is a stepping motor. The motor is controlled by the DC control PBA.

The CPU on the DC control PBA transmits signals through the I/O circuit to the motor controller PBA. The signals are: clockwise rotation (moving the scanner forward), counter-clockwise rotation (moving the scanner in reverse), and rotation speed.

The motor control circuit follows the instructions from the CPU, and sends pulse signals to the power control circuit. The power control circuit, in turn, accordingly supplies power to the scanner motor (M2), causing the scanner motor to rotate.

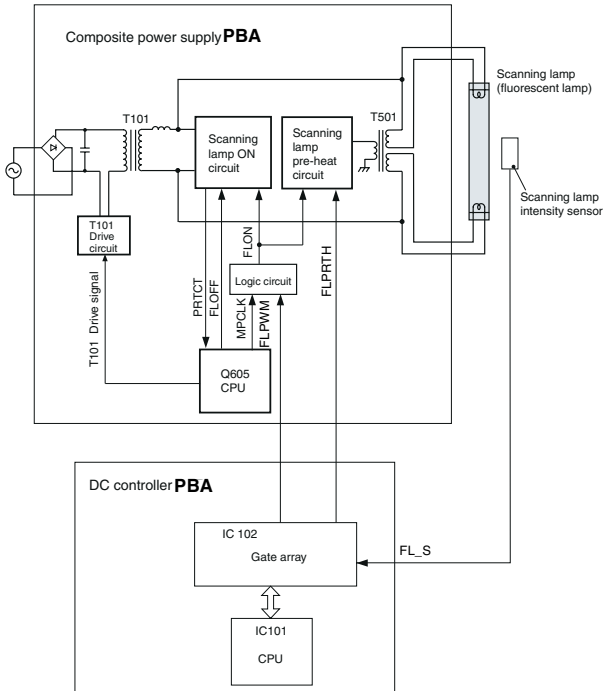


4 Controlling the Exposure Lamp

Outline

The exposure lamp is a fluorescent lamp. It is controlled by the power supply PBA:

- Controlling the preheating of the exposure.
- Switching the exposure lamp ON and OFF.
- Controlling the intensity of the exposure lamp.



Control of the preheating

The exposure lamp is pre-heated. This shortens the time required for the intensity of the exposure lamp to reach its optimum value, after a press on the Copy button.

Preheating may be initial preheating or exposure lamp ON preheating.

- Initial Preheating
Power is applied during initial rotation.
- Preheating in ON situation
Power is applied during the copying operation.

Switching the exposure lamp ON and OFF

The exposure lamp is switched ON and OFF by the lamp ON signal (FLPWM). The signal is from the DC control PBA.

The FLPWM signal is sent to the logic circuit together with the MPCLK (pulse signals), generated by the power supply PBA. The logic circuit uses these two signals to generate the signal for 'exposure lamp ON', thereby switching on the scanning lamp.

Varying the Intensity

The FLPWM signal is a pulse signal. This is used to control the intensity of the exposure lamp to a specific level by varying the duty ratio. This is based on the results of the automatic shading correction as executed in service mode, and in accordance with the output of the exposure lamp intensity sensor.

Detecting Errors

If the exposure lamp fails to switch ON, although the lamp ON signal has been generated, the exposure lamp ON circuit detects the condition. The error detection signal (PRTCT) is sent to the CPU.

In response, the CPU generates the exposure lamp OFF signal (FLOFF). The CPU does not wait for a command from the DC controller.

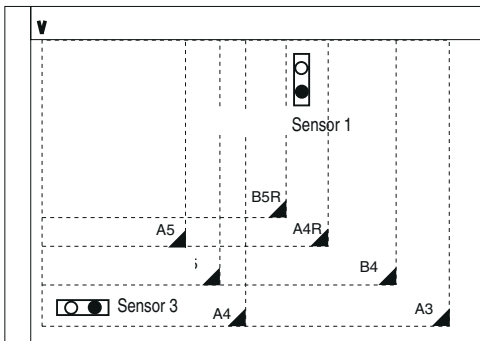
5 Identifying the Size of Documents

Outline

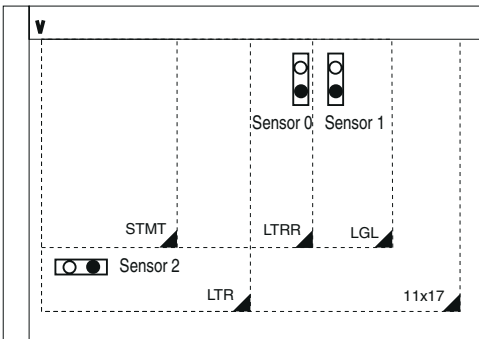
The document-size detection by the copier or by the feeder is used to detect the size of a document placed on the platen or in the feeder. The size data that is obtained is used for the following:

- Auto paper selection,
- Auto ratio selection.

· AB-Configuration



· Inch-Configuration



Operation of the Document-size Sensors

A reflecting type sensor is located below the platen. This detects the size of a document placed on the platen.

When the platen cover is lowered to approximately 30°, the sensor (PS3), located at the rear of the copier, is switched ON. The vane interrupts the light beam to PS3.

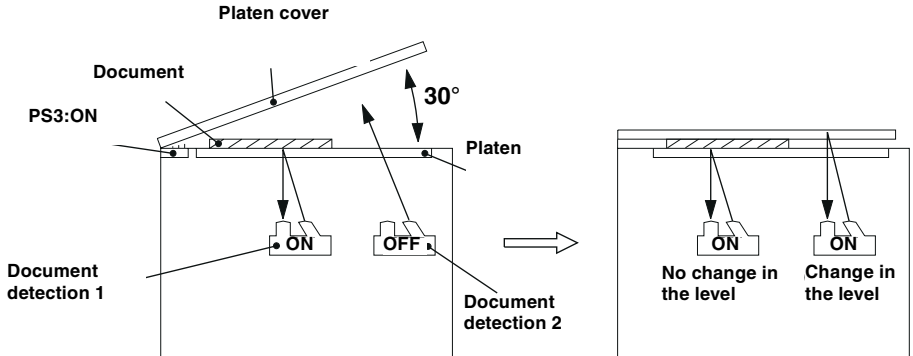
The output level of each sensor is read for 15 seconds. Or, when the platen cover is down, at intervals of 0.128 seconds until the copy button is pressed. If the output level remains unchanged during the period, a document is presumed to be present at the sensor position. The size of the document is identified as shown in the tables.

For cases a & b: the output level will remain unchanged.

For case of c: A3 will be given priority. If no cassette contains A3 paper, the cassette that is selected under standard mode will be selected.

- a) A3 black document
- b) Book document (the thickness of a book prevents any changes to the output level from the sensor.)
- c) The platen cover is not closed. (PS3 is OFF.)

Note: In cases of a, b, or c, the size detection could be incorrect.



Detecting the Size of the Documents

The combination of the outputs from the sensors represents the presence or absence of a document. Using this information, the image processor PBA determines the size of the document.

- Unchanged
Indicates that there has been no change in the sensor output. The presence of a document is assumed. (The sensor output is checked every 128 ms).
- Changed
Indicates that a change has occurred in the sensor output. The absence of a document is assumed.

Size	Document-size sensor	
	1	3
A3	Unchanged	Unchanged
A4R	Changed	Unchanged
A4	Unchanged	Changed
None	Changed	Changed

A-configuration

Size	Document size sensor		
	0	1	2
11"x 17"	Unchanged	Unchanged	Unchanged
LGL	Changed	Unchanged	Unchanged
LTR-R	Changed	Unchanged	Changed
LTR	Unchanged	Changed	Changed

Inch configuration

Dimensioning of the Documents, by the Document Feeder

The document feeder detects the width of a document and the length of a document, and communicates the result to the image processor.

The RDF dimensions the document: recording the width as detected by the side guides, and the length as detected in the feeding direction. The size is determined when the document is picked up. The applicable sizes are any of the default sizes, as follows:

- A-configuration: A5, A4, A4R, A3.
- B-configuration: B5, B5R, B4.
- Inch-configuration: STMT, LTR, LTRR, FOOLSCAP, LGL, 11"x17".

Laser Exposure System

1 Laser Processing Unit

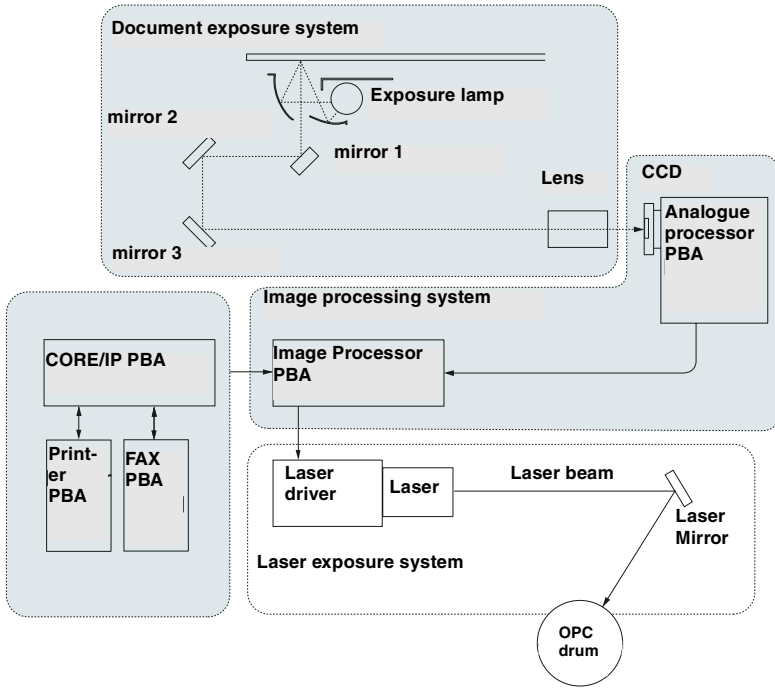
Outline

The main components of the laser unit are:

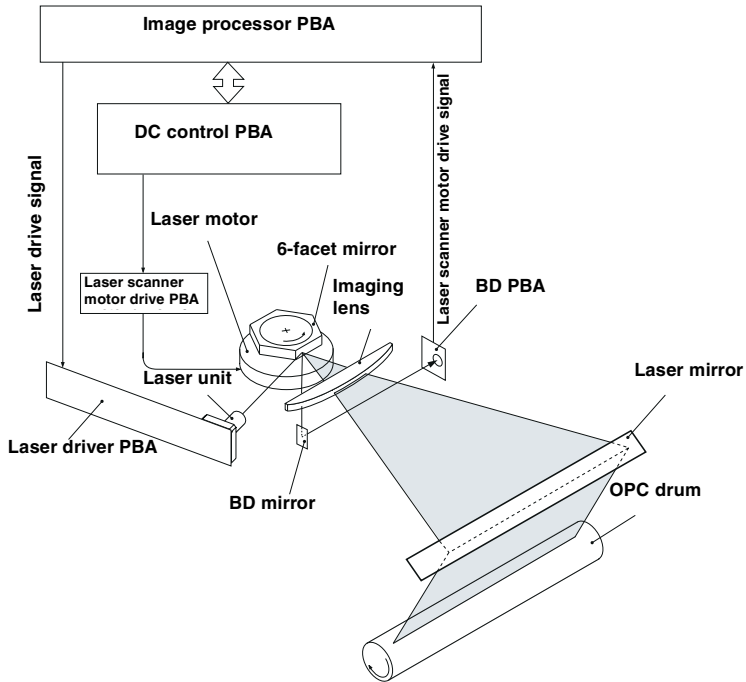
- a laser unit, as the source of laser beams
- a scanner motor, which is equipped with a 6-facet mirror
- a BD detection PBA, for the detection of the laser beams.

The laser beam generated by the laser unit is directed to the 6-facet mirror. The mirror rotates at a specific speed. The laser beam reflected by the mirror is passed through the imaging lens. The optical path is bent by the laser mirror before it reaches the photosensitive drum. Meanwhile, the laser beam is bent to an acute angle by the BD mirror, located inside the laser unit. This is for the BD detection PBA.

As the mirror rotates, the laser beam scans the surface of the OPC. This removes charges and, as a result, creates a latent image.



outline



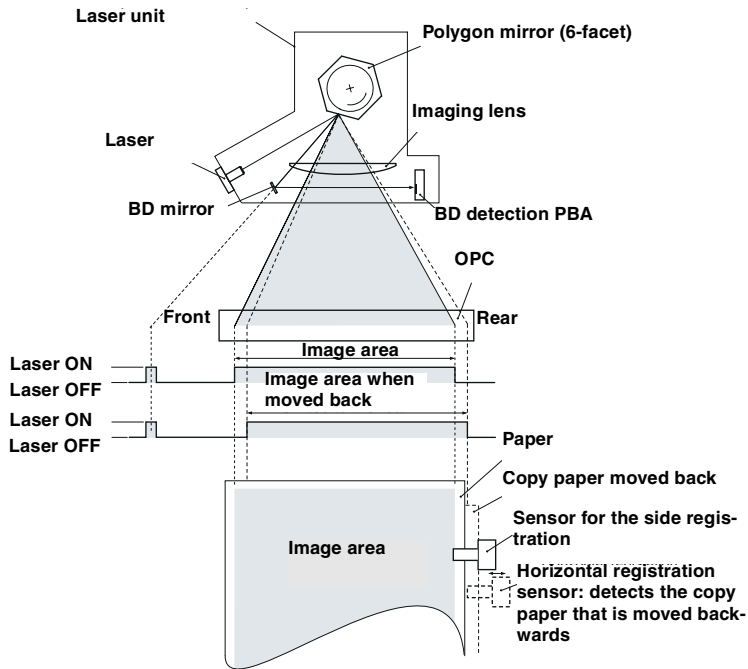
laser exposure

Generating the BD Signal

A laser ON signal (horizontal, synchronised signal) is needed when directing a laser beam to the OPC. The laser beam detection signal (BD) is used to generate this start signal.

If two-sided copying or overlay copying is in progress, the edge of the copy paper is detected. This determines any discrepancy with regard to the position of the paper perpendicular to the transport direction

The result of this measurement varies the laser ON timing, in relation to the BD signal. This ensures that the image will be at a specific position on every copy. For details on how the side edge of copy paper is detected, see chapter 16, Duplex.



Laser Driver Circuit

Operation

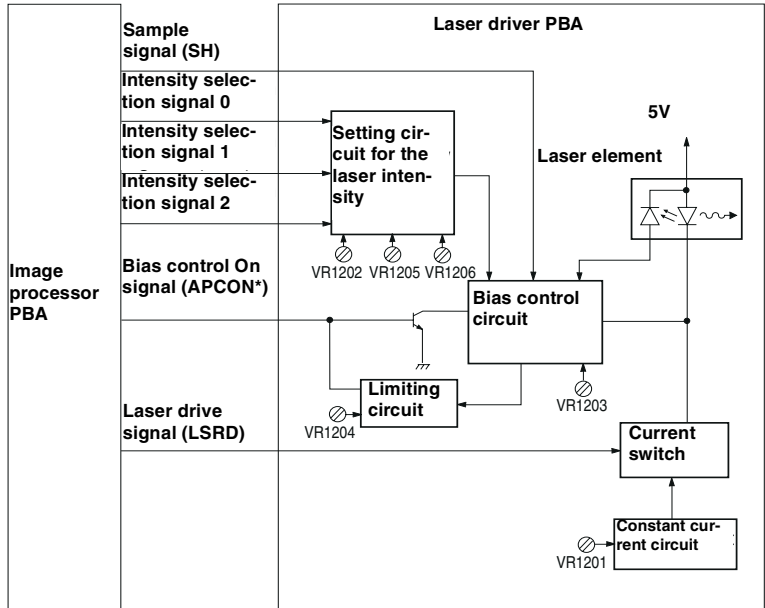
The optical output of the laser (semi-conductor laser) is sensitive to changes in the ambient temperature. A control circuit automatically varies the laser drive current, to suit the ambient temperature, thereby ensuring a specific output.

When the copy button is pressed, the image processor PBA sends the bias control signal (APCON*) and the laser drive signal (LSRD) to the laser driver PBA. These activate the bias control circuit and the constant current circuit on the laser PBA. The laser beam is switched ON.

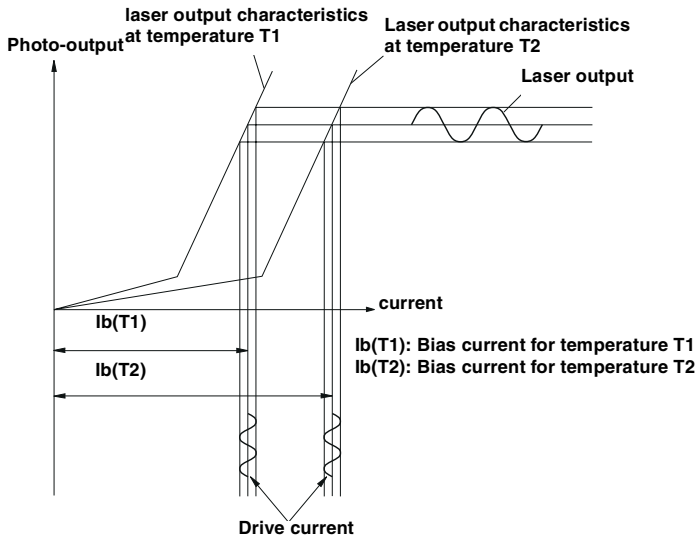
The laser beam is detected by the pin photo-diode (PD) (not in this drawing). The pin photo-diode (PD) is built into the laser element. The photo-output voltage from the PD is returned to the bias control circuit.

The photo-output voltage is sampled and compared to the reference voltage supplied by the setting circuit for the laser intensity. This determines the value of the laser bias current. This laser bias current is varied continuously to compensate for the changes in temperature, so ensuring a specific output.

This procedure occurs several times during each signal line of scanning.



⊗: Do not touch!



The laser bias current

Switching the Laser Output

The laser output can be: high, medium, or low. Thus ensuring the best image for the selected mode. The output is limited by the output signal “intensity selection signal 0, 1, 2” from the image processor PBA.

The laser output is used for its respective mode, as shown:

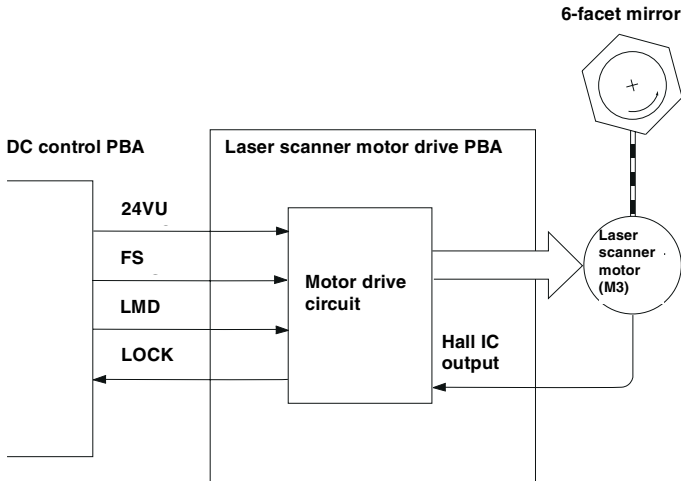
Laser output	Mode
High	Text mode, text and photo mode
Medium	Photo mode, Fax output
Low	Printer output

Controlling the Scanner Motor

The scanner motor rotates in accordance with the instructions received from the DC control PBA. The power supply is controlled by the scanner driver PBA.

The scanner motor (M3) rotates when the laser scanner motor drive signal (LMD=1) is sent, by the DC control PBA, to the scanner driver PBA. At this time, the hall IC signal is returned from M3. This signal is used to control the power supply for M3.

The timing of the power supply is controlled in phase with the rotation reference pulses (FS) from the DC control PBA. Thus ensuring a specific speed of rotation.



Switching the Laser Scanner Motor ON and OFF

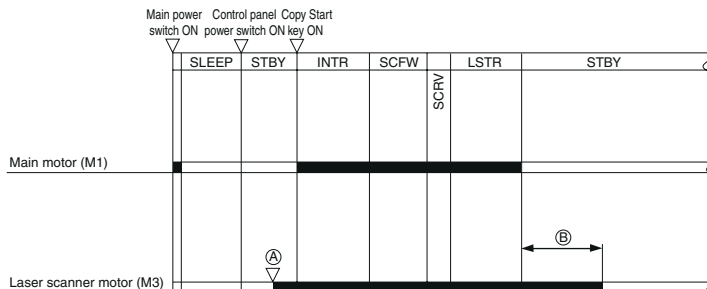
The timing of the start of the laser scanner motor (M3) varies in accordance with the setting of the 'time to quiet mode'. This is set (in user mode) to '1-9' or '0'.

If the time is set to '1-9', rotation starts when the following occurs during stand-by:

- a button is pressed
- the platen cover is opened, or the document feeder is opened
- a document is placed in the document feeder.

If the time is set to '0', rotation starts when the copy button is pressed.

The laser scanner motor is switched OFF in accordance with the settings in 'time to quiet mode'. (If the time is set to '0', the rotation stops at the end of 'LSTR'.)

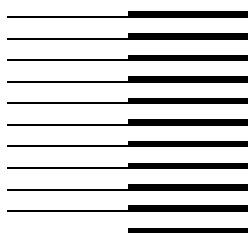


A: If the setting of 'time to quiet mode' is not '0', one of the following situations apply:

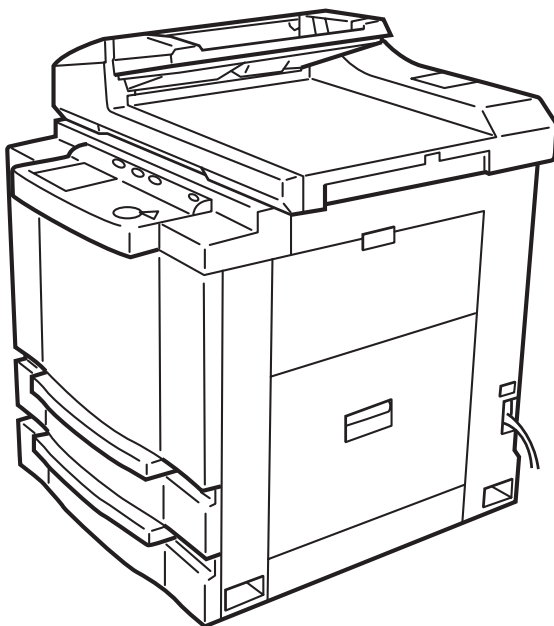
- a button has been pressed,
- a document has been placed in the document feeder, or, the platen cover has been raised.

B: Can be varied in user mode (quiet mode). If '0' is set, there will be no B period.

Océ



Technical Service Manual
Océ 3121/3122



05 DEVELOPING

Contents

Adjustments

- 1 Adjusting the doctor blade 301

Dis-/assembly

- 1 Developing Clutch 401
- 2 Removing the Toner Sensor 402
- 3 Blade Mount 403
- 4 The position of the magnetic seal in the developing unit 404

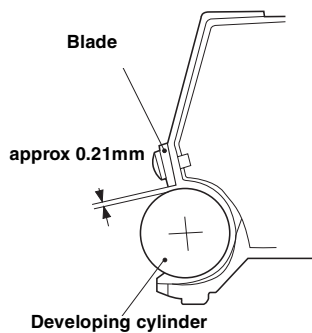
Functional description

- 1 Controlling the Developing Bias 501
- 2 The cleaner in the developing unit 503

Adjustments

1 Adjusting the doctor blade

This is a factory adjustment.

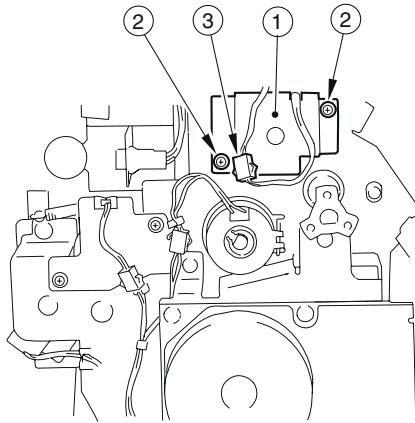


Note: *The gap between the developing roller and the doctor blade is adjusted in the factory (high precision). Do not try to adjust it in the field.*

Dis-/assembly

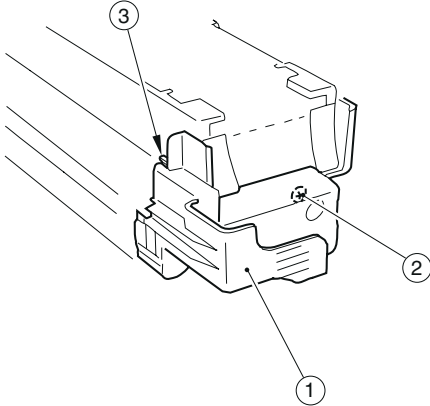
1 Developing Clutch

- 1 Remove the following:
 - rear cover (4 screws),
 - flywheel (3 screws),
 - and the cable clip (high-voltage cable).
- 2 Disconnect the connector (3), and remove the developing clutch (2 screws).

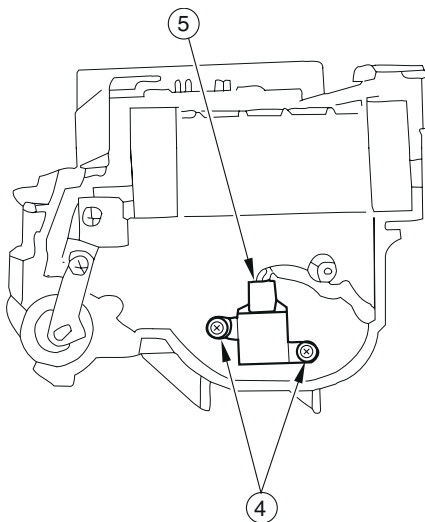


2 Removing the Toner Sensor

- 1 Remove the developing unit.
- 2 Remove the screw (2). Disengage the hook (3). Then, remove the grip (1) from the developing unit.

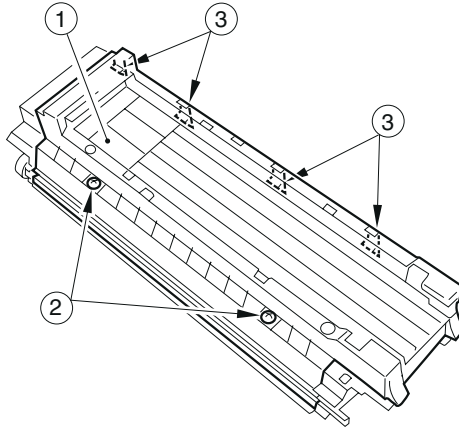


- 3 Remove the two screws (4) . Disconnect the connector (5), and take out the toner sensor.

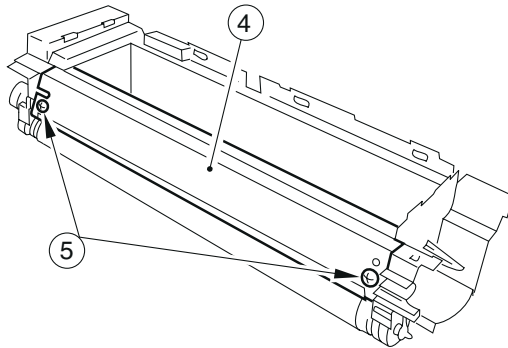


3 Blade Mount

- 1 Disengage the four fasteners (3). Remove the two screws (2) and take off the cover (1).

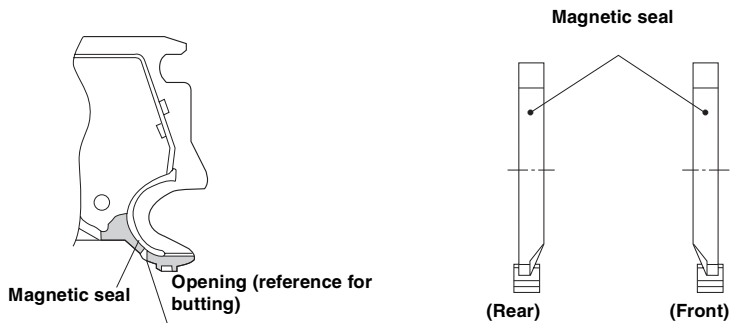


- 2 Remove the two screws (5) , and remove the blade mount (4).



4 The position of the magnetic seal in the developing unit

When fitting the magnetic seal, hold it firmly against the opening. Ensure that the magnetic seal and the housing are in firm contact.



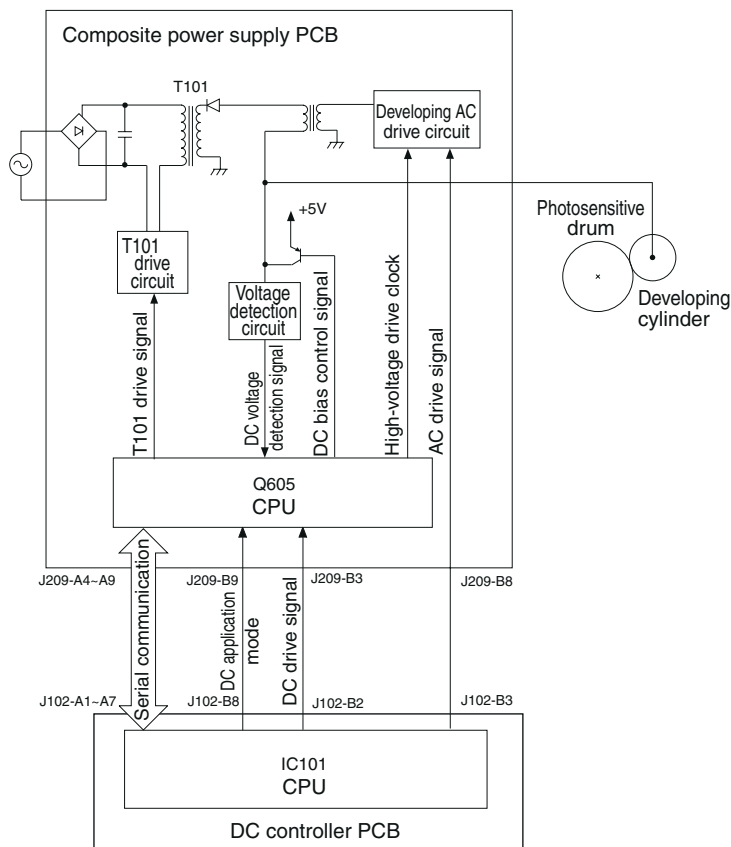
Functional description

1 Controlling the Developing Bias

Outline

The circuit for the control of the developing bias, on the power supply PBA, has the following functions:

- Switching the AC developing bias ON and OFF.
- Switching the DC developing bias ON and OFF.
- Limiting the DC developing bias to a specific voltage.



Switching the DC developing bias ON and OFF

The DC developing bias is switched ON and OFF by the DC bias ON/OFF signal (DCON). The signal comes from the DC control PBA .

The primary side of the main transformer (T101), on the power supply PBA, is controlled by the CPU (Q605). When the DCON signal is sent to the power supply PBA , the CPU (Q605) generates the DC bias control signal (BPWM). This switches on the secondary side of the main transformer (T101), applying the DC developing bias.

Limiting the DC Developing Bias to a Specific Voltage

When the DC developing bias is being applied, the CPU (Q605) on the power supply PBA receives the application voltage from the voltage detection circuit. Thus, the duty ratio of the BPWM signal is varied, ensuring that the DC output voltage is maintained to a specific value.

Switching the AC developing bias ON and OFF

The developing AC drive circuit on the power supply PBA receives drive pulse signals from the CPU (Q605). When the AC drive signal (ACON) is directed from the DC control PBA to the AC drive circuit, the AC transformer (T400) is switched ON. This supplements AC to the DC developing bias.

- Application frequency: 1838 Hz
- Application voltage: 800 V_{p-p}

Varying the DC Developing Bias

The density of the image is adjusted by varying the density correction curve (DC developing bias).

During printing (printer function), the density is adjusted by fixing the density correction curve. Then, varying the bias DC to maintain correct gradation.

To compensate for variations in the OPC, the control is carried out according to a specific timing. (with AGS measurement to increase the developing bias).

2 The cleaner in the developing unit

Outline

The developing unit is locked mechanically by the locking levers on each of the developing rails.

The drive from the main motor rotates the following:

- the developing roller,
- the stirring rod in the developing unit,
- the rotary blade inside the drum cleaner.

The level of toner is detected via the toner absent signal (TEP), from the toner level sensor (TS1) inside the developing unit

The waste toner is collected by the rotary blade. The waste toner sensor (PS10) turns on when the waste container is full.

Detecting the level of toner

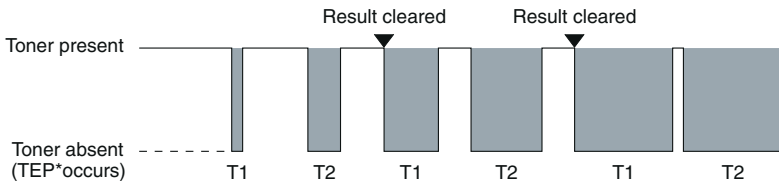
A toner sensor (TS1) of an oscillator type is provided to monitor the level of toner. The sensor is located inside the developing unit.

When the level of toner in the unit is above a specific level, the output of the toner sensor is '1'. When the toner falls below that level, the output of the toner sensor is '0'.

When the developing clutch (CL4) is energised, the CPU on the DC control PBA reads the output of the toner sensor. It then computes the period during which the toner sensor output remained ON to issue a message to supply toner.

Result	Operation	Resetting
Toner absent level 1 is assumed if the 'toner is absent state' continued for 20 seconds or more during the last two checks.	Toner supply is initiated. Copying is prohibited. (FAX reception and printer output are possible.)	Resetting occurs when toner has been stirred: by keeping the developing clutch ON for 6 seconds. This is after the control panel power switch was switched ON, or the front door was opened and closed.
Toner absent level 2 is assumed if the 'toner is absent' state continues for 160 seconds or more.	Toner supply is initiated. Copying, FAX output, and printing are all prohibited.	Resetting occurs when toner has been stirred: by keeping the developing clutch ON for 30 seconds. And, toner is present is detected after the control panel power switch was switched ON or the front door was opened and closed.

Computation of Level



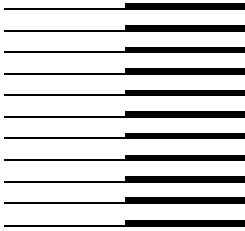
When the toner is stirred by the stirring rod, the toner is absent or the toner is present state is repeated at intervals.

- The absence of toner is assumed by monitoring the TEP* signal. This occurs only while the developing clutch remains energised. The periods during which the developing clutch remains ON are added.
- The time elapsed from the first toner absent (TEP*) signal up to the end of the last 'toner absent signal' is referred to as T1.
- The time elapsed from the start of the next 'toner absent signal' until the end of the 'toner absent signal' is referred to as T2.
- Then, the sums are cleared and replaced by alternately adding subsequent T1 and T2.

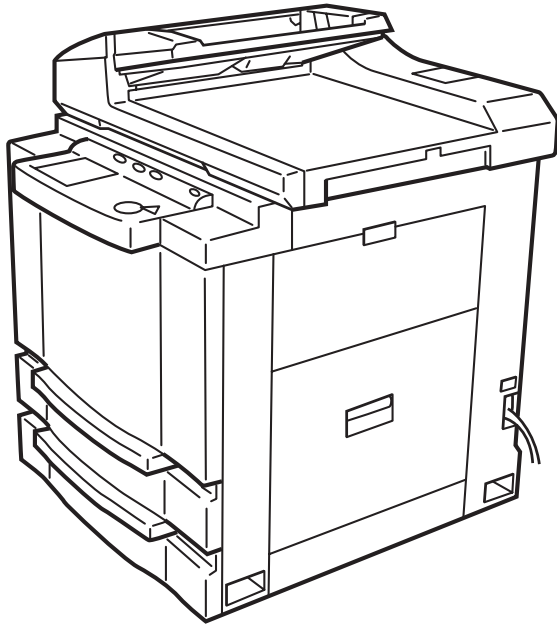
Based on the results, the absence of toner is assumed for the following:

- $(T1 + T2) > 20$ seconds: toner absent, level 1
- $(T1)$ or $(T2) > 160$ seconds: toner absent, level 2

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06 TRANSFER

Contents

Adjustments

- 1 Adjusting the bias for the transfer roller 301

Functional description

- 1 Transfer 501
- 2 Controlling the bias to the transfer roller 502
- 3 Controlling the bias for the transfer roller 504
- 4 Controlling the bias for the Static Eliminator during separation 505
- 5 Controlling the bias for the transfer guide and the bias for the fixing roller 506

Adjustments

1 Adjusting the bias for the transfer roller

If image faults occur, as a result of an incorrect transfer charging roller bias, the transfer bias may be adjusted. Carry out ‘TRN-1’, ‘TRN-2TS’, or ‘TRN-20L’ in service mode (*3*; ADJUST).

An image fault may be any of the following:

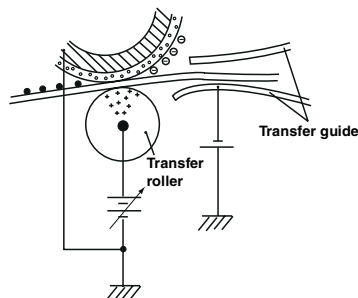
- 1 Background is noted in the margin along the trailing edge, because of stray toner.
- 2 The density of copies increases every 94 intervals (approximately) when making half-tone copies (entire surface).

In the case of “1”, increase the setting; in the case of “2”, decrease the setting.

- Use TRN-1 to adjust the transfer bias for copying on the 1st side.
- Use TRN-2ST to adjust the transfer bias for copying on the 2nd side of a two-sided copy.
- Use TRN-20L to adjust the transfer bias for copying on the 2nd side of an overlay copy.

Functional description

1 Transfer



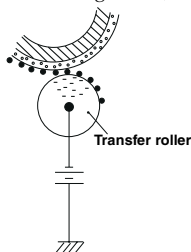
The transfer roller applies a positive charge to the rear of the copy paper. This is to transfer the toner image from the surface of the OPC to the copy paper.

A roller transfer method is employed. This requires less transfer voltage than a corona transfer method, and this method generates virtually no ozone.

The transfer guide is given a negative bias. This is to prevent transfer faults occurring, and to avoid soiling of the back of the copy paper.

Note: *If the transfer guide was connected to earth, it would dissipate the charge on the back of copy paper: leading to transfer faults. If separated completely, the transfer guide would be charged. This would soil the transfer guide and, ultimately, soil the rear of the copy paper.*

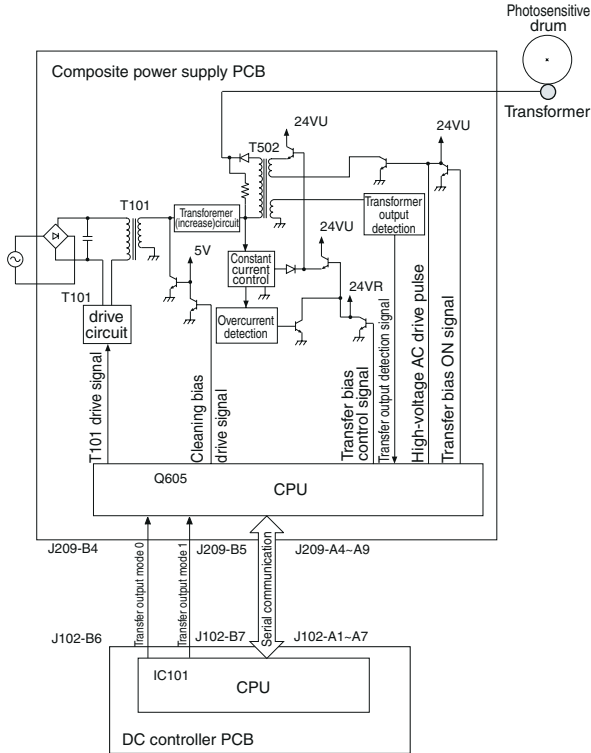
Note: *If the image from the OPC was not fully transferred to the copy paper (because of a jam), toner could stick to the transfer roller. A negative voltage is applied to the roller, during the initial rotation and the final rotation. Any remaining toner, carrying a negative charge, is returned to the OPC.*



2 Controlling the bias to the transfer roller

Outline

The copier uses direct transfer executed by means of a roller. Four charging potentials are applied to the transfer roller. These have the following functions and timing:



Transfer Bias

This positive bias is used to transfer the image from the OPC to the copy paper.

Cleaning Bias

As the machine uses direct transfer, toner from the OPC could stick to the transfer roller (because of a jam). To counteract this, a negative voltage is applied. This returns the toner from the transfer roller to the OPC:

- During the initial rotation, after a press on the Copy button.
- During a part of the last rotation.
- During a roller cleaning, initiated in user mode 'adjustment and cleaning'. In this case, the charging roller is cleaned at the same time.

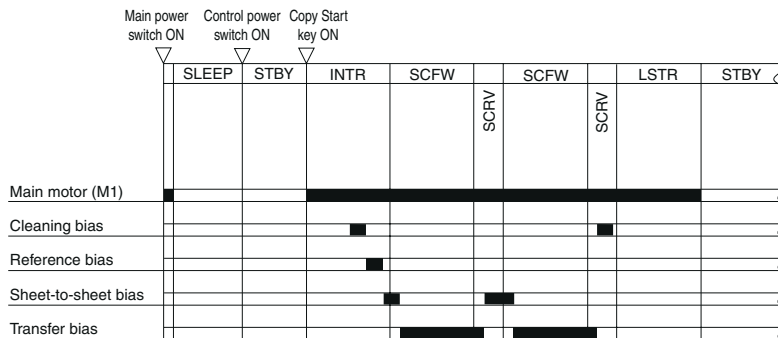
Reference Bias

At times, the transfer efficiency varies. This is due to changes in the environment or changes in the resistance of the charging roller. To prevent loss of image quality due to such variations, a correction is made to the level of the voltage to the transfer roller.

The reference bias is applied each time the copy button is pressed. Thus correcting the voltage level.

Sheet-to-Sheet Distance

During copying runs, the bias value is decreased. This is to prevent adhesion of toner to the transfer roller between sheets of copy paper.



3 Controlling the bias for the transfer roller

The bias for the transfer roller is controlled by the CPU (Q605) on the power supply PBA. This is according to instructions from the DC control PBA .

Switching of the application of bias

The bias types are switched, based on combinations of the transfer output mode 0 (HVTM0) and the transfer output mode 1 (HVTM1) from the DC control PBA .

HVTM0	HVTM1	Bias type
0	0	Cleaning bias
1	0	Transfer bias
0	1	Reference bias
1	1	Sheet-to-sheet bias

Switching ON and OFF the Cleaning Bias

When the cleaning bias drive signal is '1' (TREVON from the power supply PBA), the secondary side of the main transformer (T101) is switched on. This applies a cleaning bias (negative) to the transfer roller.

The timing of the application of the cleaning bias is determined by serial communication data, exchanged with the DC control PBA .

Switching the transfer roller ON and OFF

The bias for the transfer roller bias is switched ON and OFF by the transfer bias control signal (TFWPWM) and the transfer bias ON signal (TFWON).

When the TFWON signal is '0', the transformer T502 switches ON.

4 Controlling the bias for the Static Eliminator during separation

Switching ON and OFF the bias for the static eliminator

The CPU (Q605) on the power supply PBA, receives the separation static eliminator ON signal (SEBON). This causes the separation static eliminator bias drive circuit to apply a bias to the static eliminator.

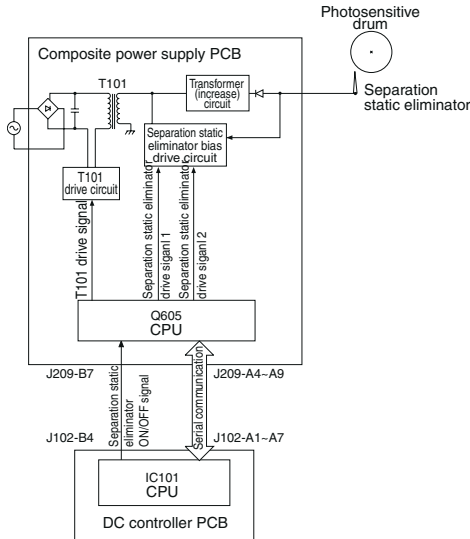
Controlling the voltage

The output for the eliminator bias is returned to the bias drive circuit. This is used to control the voltage to a specific value.

Switching the bias voltage for the static eliminator

The separation bias differs physically for copying on the first and second side of a two-sided copy or for an overlay copy.

To suit differences, the separation static eliminator drive signal 1/2 is used to switch the bias voltage. This ensures efficient separation.



5 Controlling the bias for the transfer guide and the bias for the fixing roller

Bias for the transfer guide

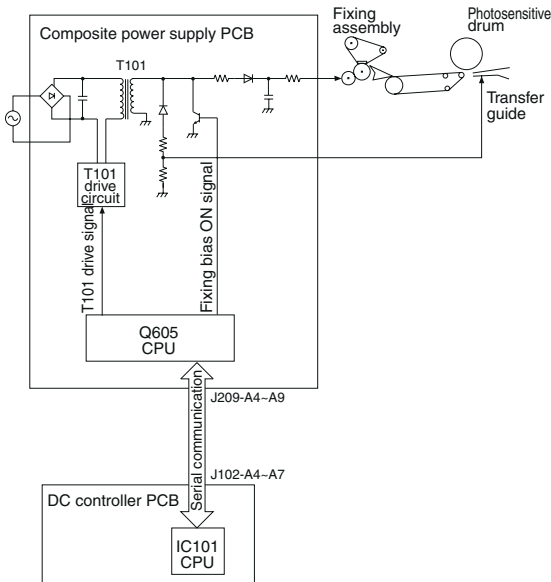
The negative bias (-600 V DC) for the transfer guide is used to prevent adhesion of toner to the transfer guide. The same potential is applied to the toner.

Application of the bias continues when the control panel power remains ON.

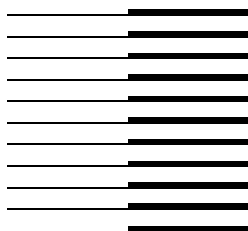
Bias to the lower fixing roller

A positive bias is applied to the steel core of the lower fixing roller. This is to prevent offset to the fixing film.

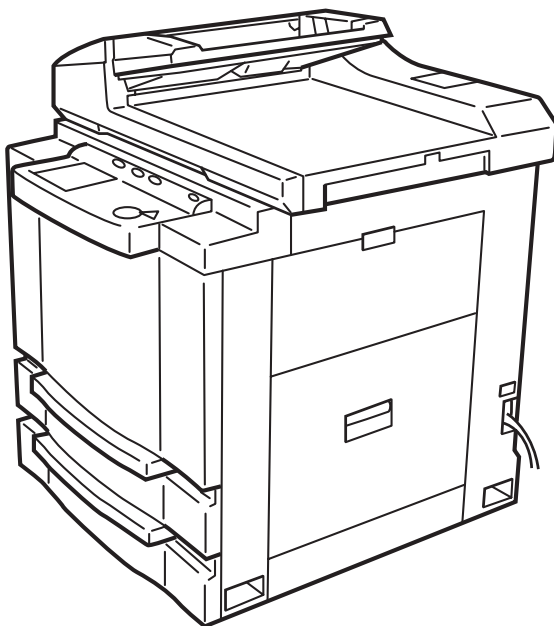
The electrode terminal on the end of the lower fixing roller shaft is for this purpose. Pay attention to the orientation of the lower roller if you have removed it.



Océ



Technical Service Manual
Océ 3121/3122



07 CLEANING

Contents

Functional description

1 Waste Toner 501

Functional description

1 Waste Toner

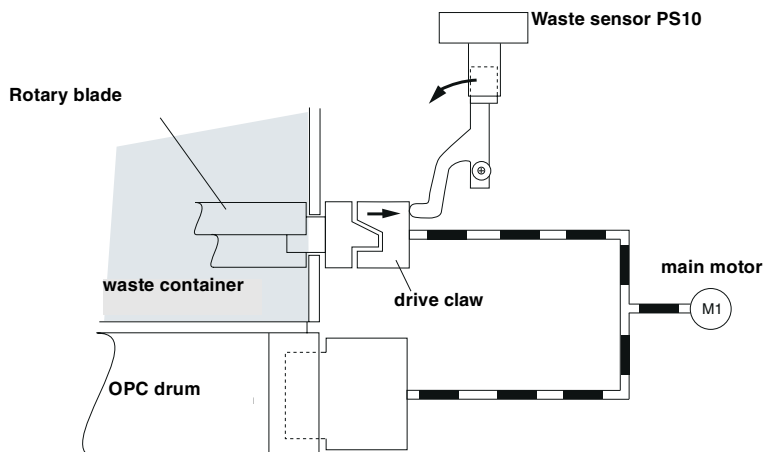
The waste toner that has been scraped by the cleaning blade is moved away to the waste container at the rear. The toner is moved by the rotary blade situated below the drum cleaner.

The drive claw is pushed against the rotary blade by a spring. This transmits the drive of the main motor to rotate the blade.

When the waste container is full of toner, the rotation of the rotary blade is blocked. This forces the drive claw outwards against the switch lever. The waste toner sensor (PS10) is switched ON and OFF alternately.

The DC control PBA monitors the switching of PS10 for approximately 8 seconds after the main motor is switched ON. The waste container is assumed to be full if, during those 8 seconds, 10 or more signals are received from PS10.

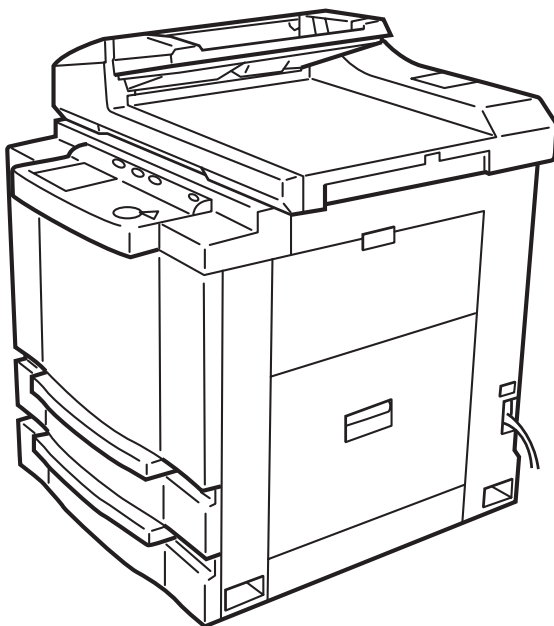
Upon detection, the 'Waste Toner Case Full' message will be displayed: during standby.



Océ



Technical Service Manual
Océ 3121/3122



08 IMAGE PROCESSING

Contents

Dis-/assembly

- 1 Replacing the IP PBA 401
- 2 IP software update 403

Functional description

- 1 Image Processing 501
- 2 Analogue Image Processing 503
- 3 Digital Image Processing 505

Dis-/assembly

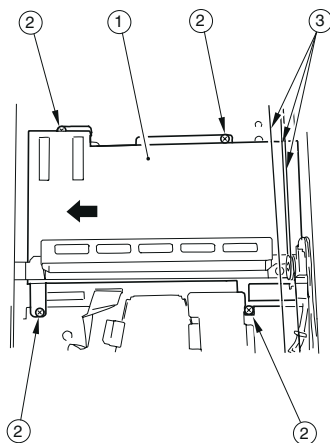
1 Replacing the IP PBA

Disassembly

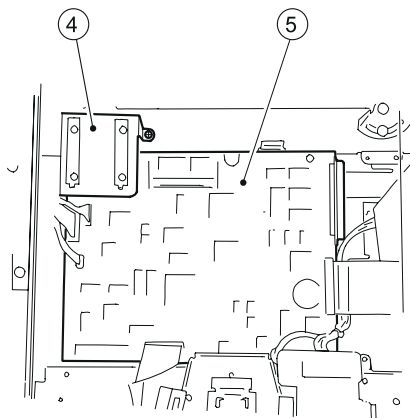
- 1 Before you disassemble the IP PBA:
 - Use (*4* Function 18 PRM_PRNT) to print out all registration data (one touch dialing, speed dialing, user data list, etc; these are important if the machine is equipped with the fax PBA).
 - Take notes of the settings in user mode and others.

Note: *4* Function 18 is only available if the fax PBA has been installed.

- 2 Remove the platen, and remove the CCD cover.
- 3 Return the mirror support No. 1 to the home position.
- 4 Remove the four screws (2), and move the IP cover (1) to the front. Then, remove the PBA, first lifting the rear of the PBA.



- 5 Remove the size sensor (4). Then, remove the flat cable and all connectors from the IP PBA (5).



- 6 Remove the IP PBA (4 screws).

Assembly

- 1 Perform the actions which are described above in the reverse order.
- 2 Switch on the copier.
- 3 Enter service mode.
- 4 Perform (*4* Function 17 RAM Init)
- 5 Enter the values in service mode (*3* Adjust) which are recorded on the service label on the front door.
- 6 Enter the values which are recorded on the service label on the IP PBA:
 - 600 PWM MIN
 - 600 PWM MAX
 - 200 PWM MIN
 - 200 PWM MAX
- 7 Execute (*4* Function 03 Auto Shading Start).
- 8 Execute (*4* Function 04 PD Print).
- 9 Execute (*4* Function 05 200 PWM Print).
- 10 Execute (*4* Function 06 600 PWM Print).
- 11 Enter the relevant settings/values under (*5* Options) and in user mode.

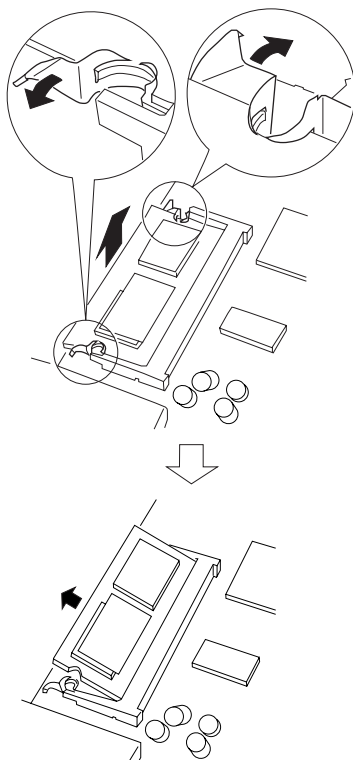
2 IP software update

The software for the image processing system resides in two flash ROM's (IC103 and IC104). These are of the DIMM-type (Dual In-line Memory Module). There are two ways to update the system software:

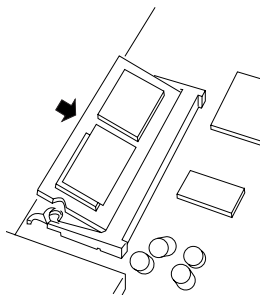
- 1 By replacing the flash ROM.
- 2 By downloading new software to the existing flash ROM.

Replacing the flash ROM

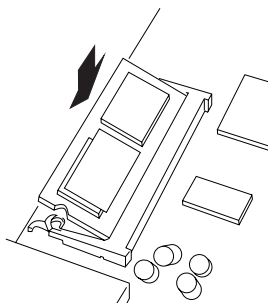
- 1 Switch OFF.
- 2 Disconnect the mains supply cable.
- 3 Remove the following:- the platen,- the lens cover- and the IP cover.
- 4 While opening the claw, lift the ROM to remove.



5 Holding it at an angle, insert the new flash ROM into the slot.



6 Press flash ROM downwards,
■ Press it down until “click” is heard.



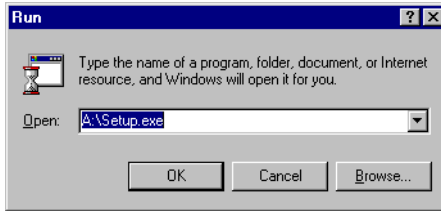
7 Refit the removed covers. Connect the mains supply cable. Then, switch ON.

The downloading method

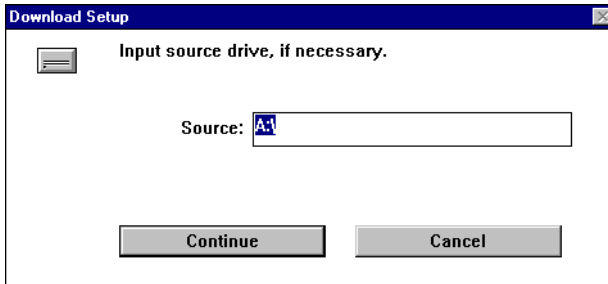
Requirements are:

- A PC or laptop with the download-utility
- A diskette with the new system software installed
- A RS232C null-modem cable.

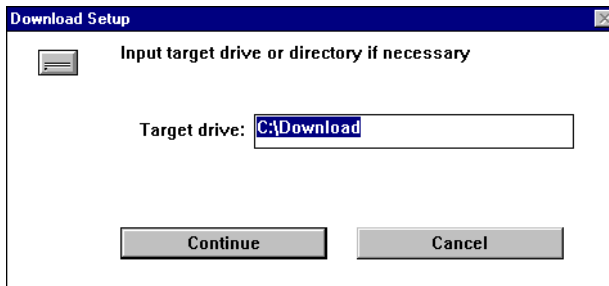
- 1 If the download utility, and the Océ 3121 system software are already installed on your laptop, then continue with step 8.
- 2 Insert the diskette with the download programme in your laptop.
- 3 Select [Run] on Window's Start menu. Type [A:\Setup.exe] or use the [Browse] button.



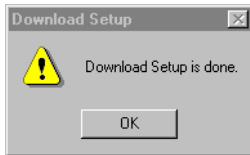
- 4 When the setup programme starts and for approval of the source drive, click the [Continue] button.



- 5 When a message appears asking for approval of the destination directory, click the [Continue] button. In response, a folder will automatically be created with the name “Download”. The download programme will be installed in that directory.



- 6 The following message will appear after a while. Press the [OK] button.

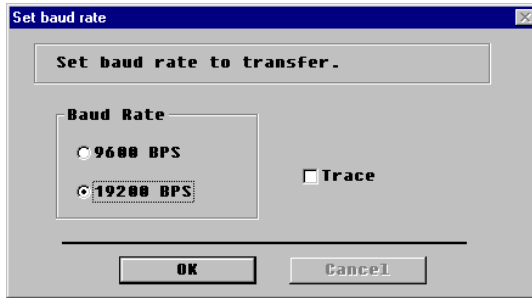


After clicking OK, another message appears. This is the same message, but then in Japanese. In English Windows 95, it looks garbled

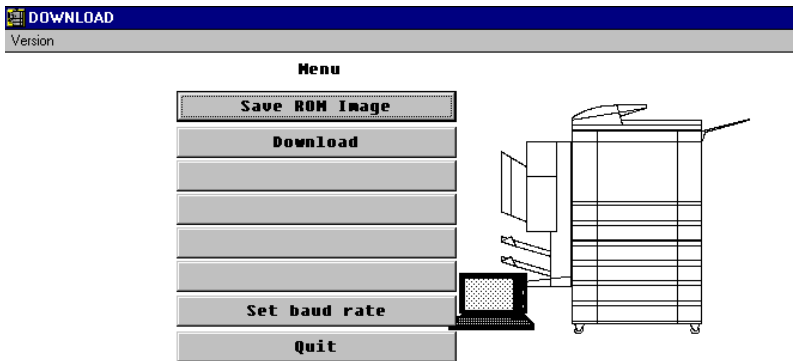
- 7 Now the download programme has been installed. You will find it in the C:\Download directory.

The next step is to install the file with the new system software for the image processor. Initially, you will have this file on a floppy, in a compressed format. You must use the following procedure to install it on your PC.

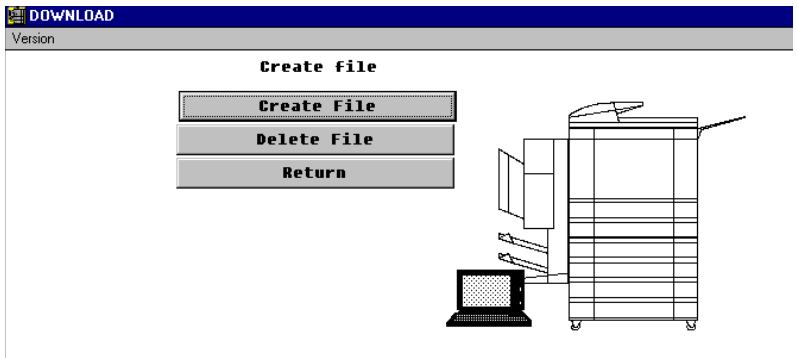
- 8 Start the download programme. You can use the [Start] button in Windows 95. Select then [Programs] -> [Download] -> [Download]. The next dialog box will appear



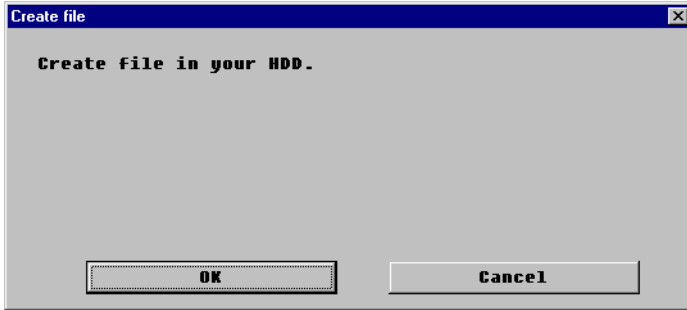
- 9 Select the baud rate to 19200 bps. Then click [OK].
- 10 Click [Save ROM Image]:



- 11 Click [Create File]:



- 12 When the following message appears, click [OK]:



- 13 Then, insert the floppy with the system software for the image processor and click [OK]:



- 14 The floppy disk must have a volume label "1". Otherwise you will get the following message:

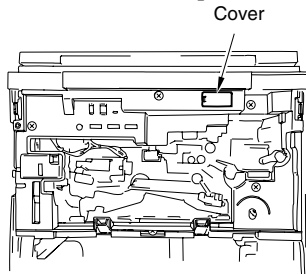


The official floppies will be OK. But if you make a spare copy of the disk, do this by using a disk duplicating utility. Another option is to change the label to "1" afterwards. (By changing the properties of [3.5 Floppy A:] in Windows Explorer).

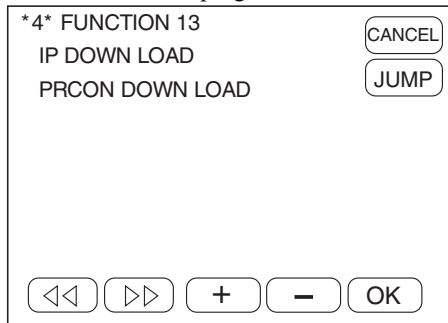
When all is correct, the files will be extracted and installed on your PC. You will return to the [Create File] menu.

Next, you will connect the PC to the copier: with the null-modem cable.

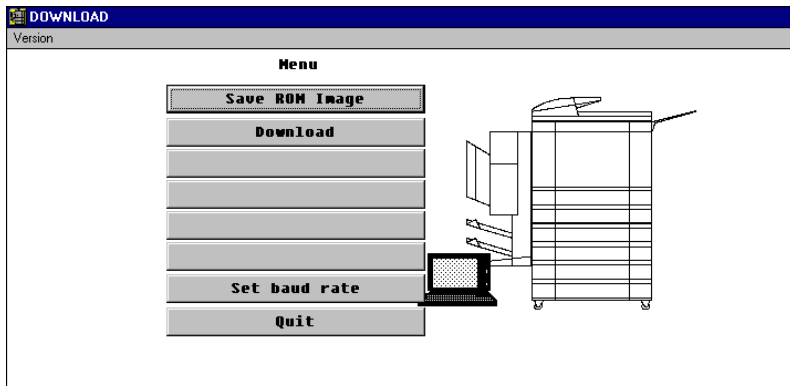
- 15 Shut down and switch off the PC and the copier.
- 16 Connect the null-modem cable to the COM-port of your PC and to the service connector of the copier.



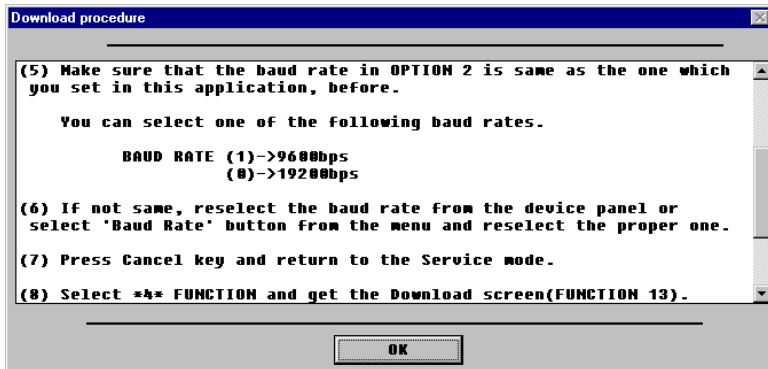
- 17 Switch on the copier and enable service mode.
- 18 Select (*5* Option 2 > Baud rate). Put this on "0". This specifies 19200 bps.
- 19 Then set the copier in downloading mode: Use (*4* Function 13). Select (IP Download). The machine will switch off and on, and then respond with "IP FDIMM download program".



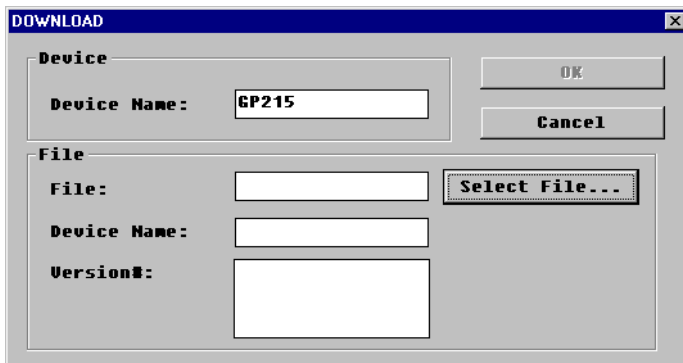
- 20 Switch on the PC.
- 21 Start the download programme and select [Download]:



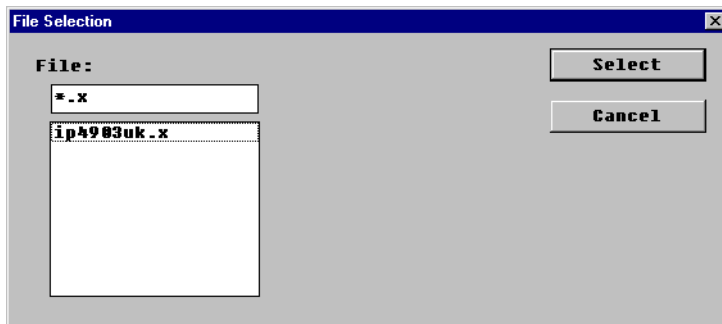
22 The next instruction will appear, click [OK].



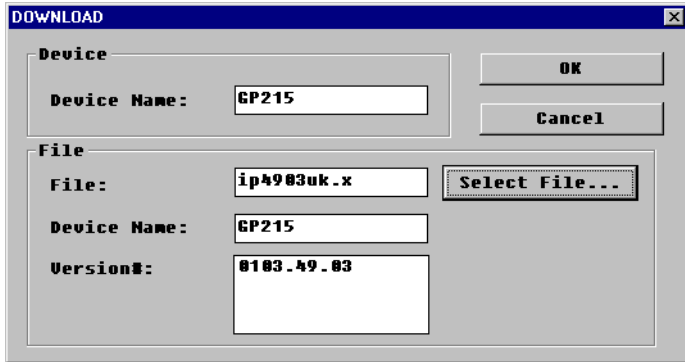
23 The next screen appears, check if the device name is as shown. Then click [Select File].



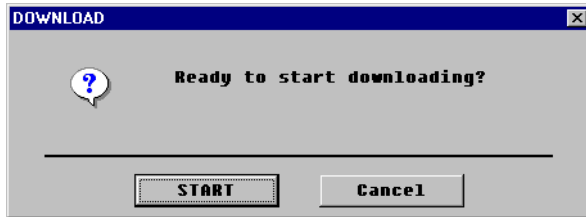
24 Then click on the appropriate file and click [Select].



- 25 Ensure that the confirmation is correct:



- 26 Start the download process by clicking on [START]:



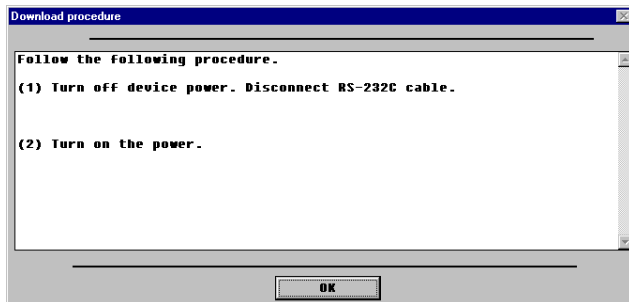
- 27 The next message will appear during the download process. This will last for 10 minutes (changing language) up to 60 minutes (complete system software download).



- 28 Normal termination:



29 After clicking [OK], the next instruction appears:



Follow the instructions to finish the procedure.

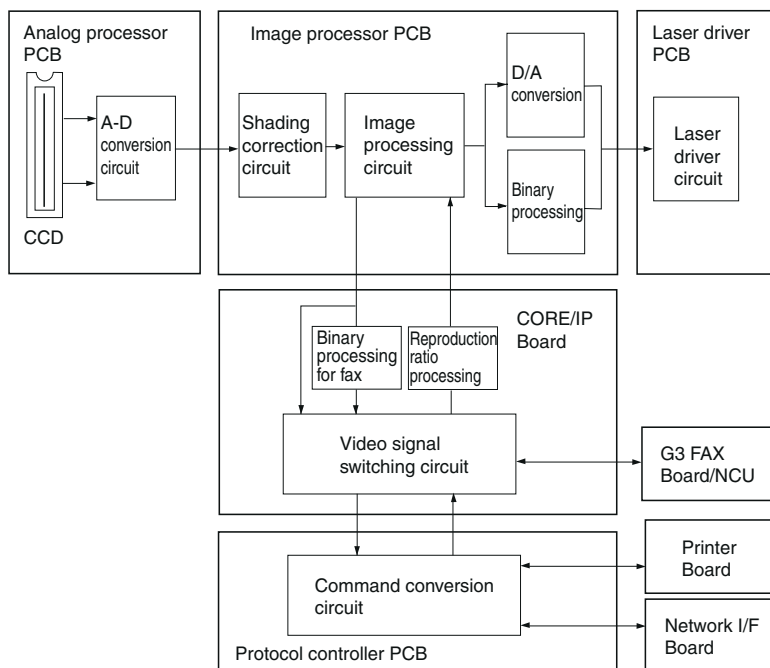
Functional description

1 Image Processing

Outline

The image processing system converts the optical image on the CCD into electrical signals (image signals) for correction and processing.

The routing of the correction functions and processing functions.



PBA	Correction/processing	Destination
Analogue processor PBA	<ul style="list-style-type: none"> ■ A/D conversion ■ ABC (automatic background compensation) 	To the image processor PBA
Image processor PBA	<ul style="list-style-type: none"> ■ Shading correction ■ Reproduction ratio processing ■ Filter processing ■ Negative/positive reversal ■ Framing/blanking ■ Density processing ■ Binary processing (for copy images) 	To the laser driver PBA and the Core/IP PBA
Core/IP PBA	<ul style="list-style-type: none"> ■ Binary processing (for fax images) ■ Reproduction ratio processing (for fax images and printer default transmission) 	To the FAX PBA through the Fax motherboard. (also, to the electronic sorter)
FAX PBA	<ul style="list-style-type: none"> ■ Coding/decoding ■ Rotation 	To the telephone line
Protocol controller PBA	<ul style="list-style-type: none"> ■ Protocol control ■ Protocol exchange (between printer PBA and Network Interface PBA) 	

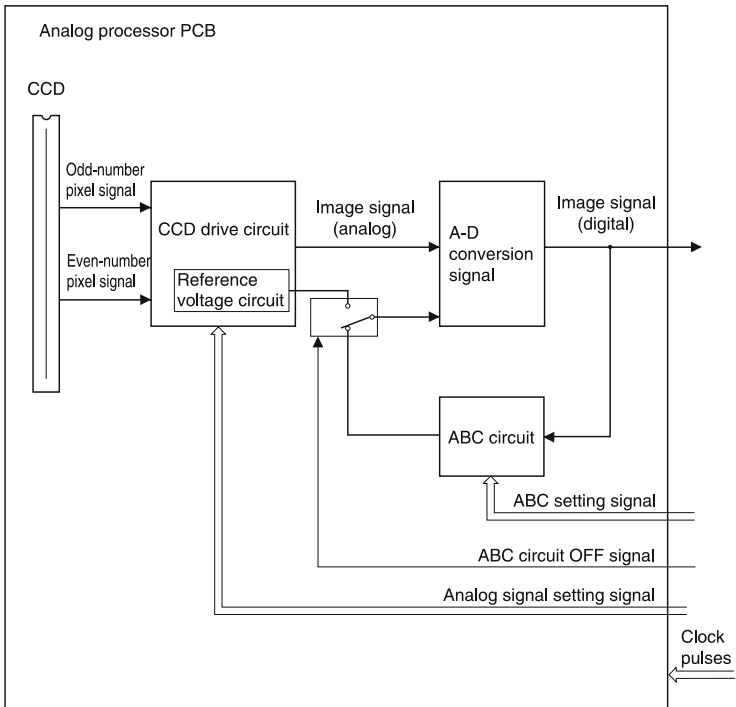
2 Analogue Image Processing

Outline

The Analogue processor PBA converts CCD drive signals and CCD output signals (Analogue signals) to digital signals. (It also executes AE measurement.)

CCD/CCD Driver

The copier's CCD is a linear image sensor consisting of a single line of 7500 photocells. The signals subjected to photoelectric conversion in the photocell unit are forwarded to the CCD drive circuit. (The even-number pixels and the odd-number pixels are sent separately.) The CCD drive circuit synthesises the signals coming separately in even-number units and odd-number units for output to the A-D conversion circuit.

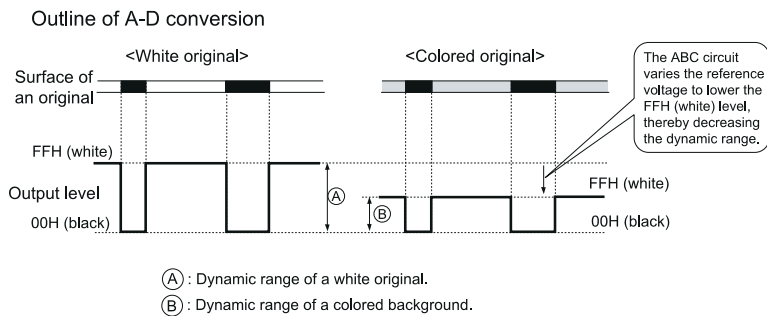


A-D Conversion Circuit

The A-D conversion circuit converts Analogue signals from the CCD to 8-bit digital image signals.

In general, the A-D conversion signal performs A-D conversion based on the reference voltage. As such, increasing or decreasing the reference voltage will increase or decrease the dynamic range (difference between maximum output level and minimum output level). Thus affecting the signal level after A-D conversion. (This means faithful digital conversion of Analogue inputs is not possible.)

The ABC circuit takes advantage of this fact. The reference voltage is varied according to the A-D conversion circuit output signal level to vary the dynamic range. Also, cancelling the background density of documents. (This processing is executed for every main scanning line.)



ABC (automatic background control)

If 'priority on speed' is selected, the ABC circuit operates as part of AE (automatic exposure control) settings. Image signals after A-D conversion are returned to the ABC circuit for the following processing.

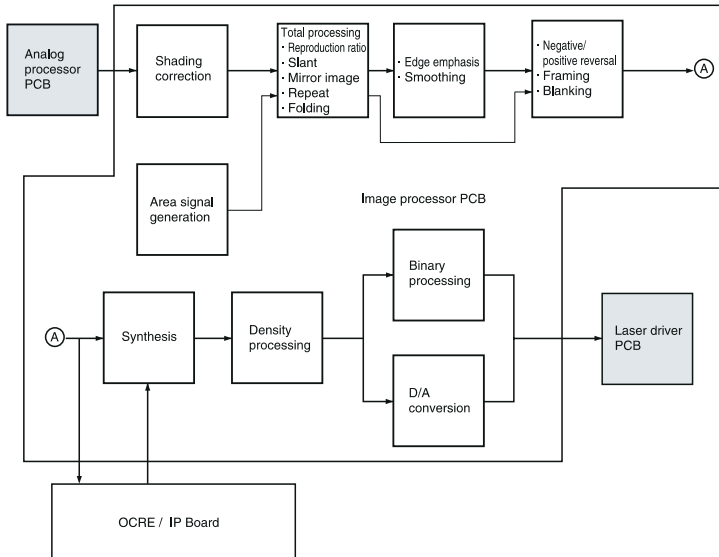
- Identifies the A-D conversion circuit output signal level.
- Varies the reference voltage, based on the results of identification.

The reference voltage obtained here is sent to the A-D conversion circuit. The "priority on speed" function can be adjusted in service mode (*3*).

3 Digital Image Processing

Outline

The digital image processing serves to process image signals from various PBA.



Shading Correction

The output of the CCD will not be constant for the following factors (even when the light reflected by a document with even density is projected to the CCD).

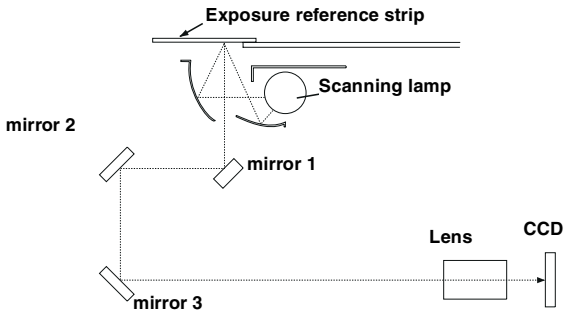
- 1 The sensitivity of each pixel of the CCD is not the same.
- 2 The variations of the lens: centre versus edges.
- 3 The variations of the exposure lamp, between the centre and the ends.
- 4 The exposure lamp can deteriorate.

Shading correction is performed to correct the above discrepancies. Shading correction may be executed for each copy, or executed automatically, according to the target value determined in service mode.

Shading Automatic Correction

Shading automatic correction is executed by using service mode (* 4 *; FUNCTION).

In this type of correction, the density of blank paper and the density of the exposure reference strip is measured and stored in memory. The stored data is computed and, subsequently, used as the “target value” for shading correction.



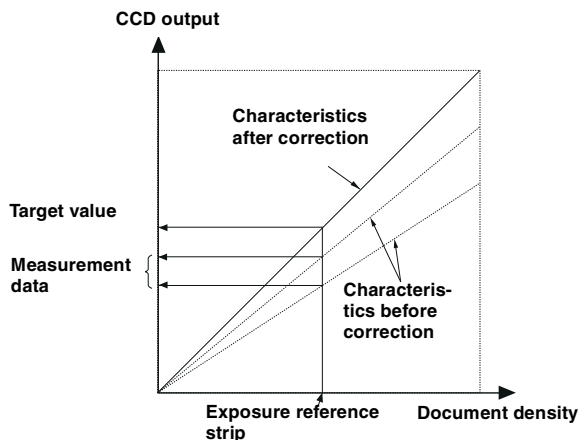
Shading Correction

Shading correction is executed during the scanning of each document.

The light from the exposure lamp is directed at the exposure reference strip. The reflected light is turned into digital signals by the analogue image processing block. The reflected light data, which was converted into digital signals, is sent to the shading circuit of the image processor PBA.

The shading circuit compares the pre-determined target value and shading data and computes the difference as the shading correction value.

The shading correction value is used to correct variations among CCD pixels that occur during the scanning. This is to ensure a specific image density level.



Total Processing

The total processing block handles the following:

- Reproduction ratio
- Shift
- Mirror image
- Slanting
- Repeat
- Folding

Reproduction Ratio

1 Horizontal Reproduction Ratio (forward scanning direction)

When writing image data into memory, data units may be skipped for reduction. When reading data from memory, data units are read several times (enlargement).

2 Vertical Reproduction Ratio (reverse scanning direction)

The speed of the scanner movement is varied. This changes the width of scanning a document. The table below gives an impression of how the copier processes reproduction ratios.

3 Zoom Fine-Adjustment

The vertical reproduction ratio or the horizontal reproduction ratio using zoom adjustment in user mode (in 0.1% increments).

For instance, for 'adjustment width' +1% (both X and Y),

50% -> 51%

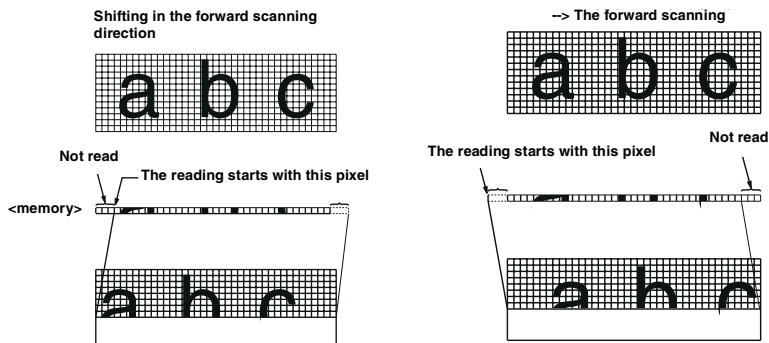
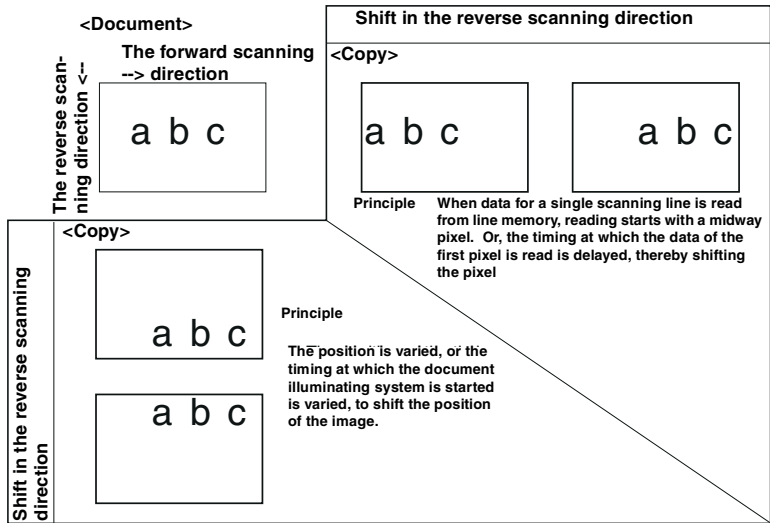
100% -> 101%

400% -> 401%

	Direct	Reduce	Enlarge
Document (image data) (writing) Line memory (reading) Copy			
Reproduction ratio in forward scanning direction	All data is written 'as-it-is' into memory.	To reduce to 1/2, every other data unit is skipped during the writing into memory.	To enlarge to 200%, all data units are written 'as-it-is', but the data units are read twice when reading from memory.
Reproduction ratio in reverse scanning direction		The speed at which the scanner is moved is increased. This increases the width of the scanning of the document in relation to a single pixel.	The speed at which the scanner is moved is decreased. This decreases the width of the scanning of the document in relation to a single pixel.

Shift Processing

Samples of image shifting, and conceptual outlines of shifting in the forward scanning direction and in the reverse scanning direction.



The image of a document may be shifted by combining shifts in the forward scanning direction and shifts in the reverse scanning directions.

1 Corner Shift

The co-ordinates (X1, Y1) of the corner of a specific area is moved to any of the four corners of the copy.

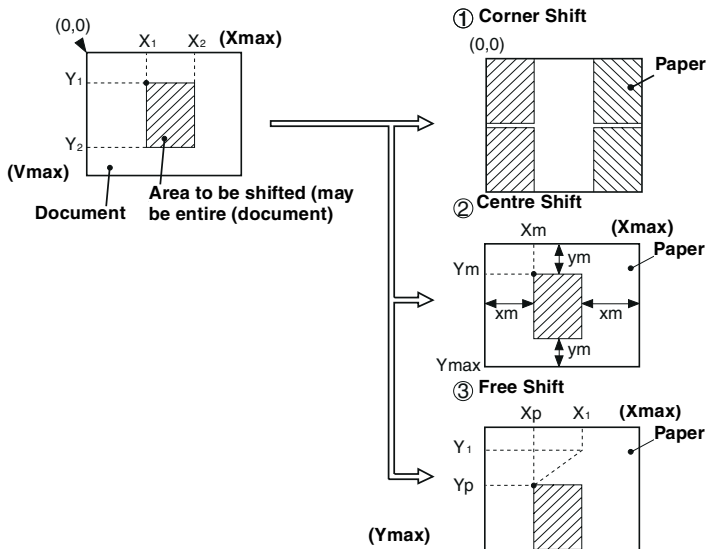
2 Centre Shift

The co-ordinates (Xm, Ym) are computed from the size of the area to be shifted and the size of the copy, so that the margins at the top and the bottom and the margins at the left and the right will be identical; the area will be moved to X1 and Y1.

Note: $X_m = (X_{max} - (X_2 - X_1)) / 2$, $Y_m = (Y_{max} - (Y_2 - Y_1)) / 2$

3 Free Shift

The co-ordinates (X1, Y1) of a specific area is moved to a specific point (Xp, Yp).



Reduced Image Composition

Reduced image composition mode may either of the following:

- 1 2-on-1 mode: in which two documents are reduced for copying on a single sheet of copy paper.
- 2 4-on-1 mode: in which four documents are reduced for copying on a single sheet of copy paper.

Executing these modes requires control of a combination of:- reproduction ratio processing,- shift processing,- and overlay processing.


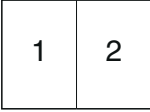
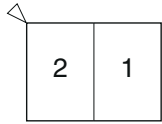
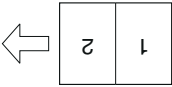
For reproduction ratio processing: a ratio is computed, based on the size of the document and the size of the copy.

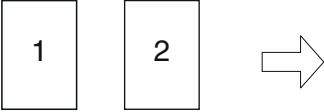

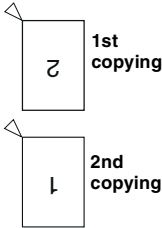
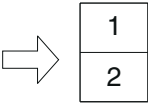
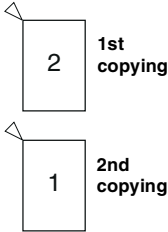
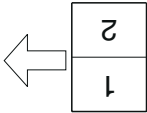
- Formula for Lengthways Direction
 - a: copy paper length \div (document length x 2)
 - b: copy paper length \div document length
- Formula for Widthways Direction
 - c: copy paper width \div (document width x 2)
 - d: copy paper width \div document width

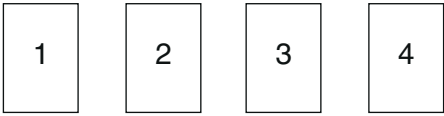
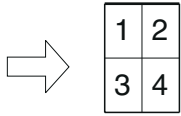
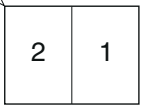
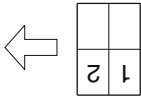

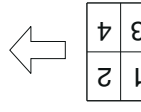

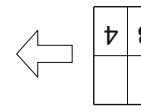
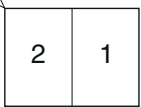
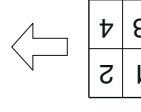
If the reproduction ratio in lengthways direction and that in widthways direction are different, the smaller of the two will be selected. However, the reproduction ratio will be between 25% and 800%.

Shift processing and overlay processing are controlled as explained on the next page. The table shows which modes are available in relation to different combinations of the RDF and the duplexing unit.

Mode	Duplexing unit	RDF	Lengthwise ratio	Widthwise ratio
2-on-1 (overlay)	Required	Not required	b	c
2-on-1 (continuous)	Not required	Required	a	d
2-on-1 (two-sided)	Required	Required	a	d
4-on-1	Not required	Not required	a	c

2-on-1 mode (continuous, two-sided)	Document (A4 x 2)		Copy (A4R x 1)
			
Mode	Orientation of documents on the platen	Image after copying (arrow indicating feeding direction)	Remarks
<ul style="list-style-type: none"> ■ Book mode ■ RDF in use 	<p>Document</p>  <p>Two documents are placed on the platen, side by side.</p>	<p>Paper</p> 	<ul style="list-style-type: none"> ■ Executed in reduced copying only ■ May be executed for two sided copying ■ When feeding documents, this uses the reversing function of the RDF, thereby changing the sequence of the documents (2 then 1 instead of 1 then 2)

2-on-1 (overlay)	Document (A4 x 2)		Copy (A4R x 1)
			
Mode	Orientation of documents on the platen	Image after copying (arrow indicating feeding location)	Remarks
■ Book mode	<p>Document</p> 	<p>Copy</p> 	<p>Combines the following:</p> <ul style="list-style-type: none"> ■ Reduced copying ■ Image shifting ■ Overlay copying
■ RDF in use	<p>Document</p> 	<p>Copy</p> 	<p>Combines the following:</p> <ul style="list-style-type: none"> ■ Reduced copying ■ Image shifting ■ Overlay copying

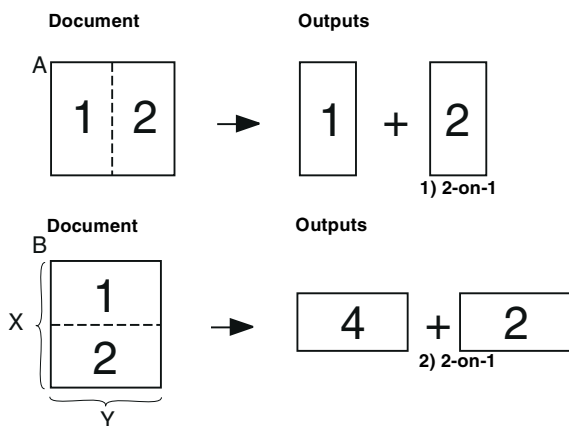
4-on-1	4 documents (A4)			1 copy (A4)
				
Mode	Copying	Orientation of the documents on the platen	Image after copying (arrow indicating the feeding direction)	Remarks
■ Book mode	1st copying			Combines the following: ■ Reduced copying ■ Image shifting ■ Overlay copying
	2nd copying			
■ RDF in use	1st copying			Combines the following: ■ Reduced copying ■ Image shifting ■ Overlay copying When feeding documents, this uses the reversing function of the RDF. This changes the sequence of the documents. (4 3 2 1 instead of 3 4 1 2)
	2nd copying			

Enlarged Image Composition

In enlarged image composition, the reduced image of a document is returned to its document size. It may be any of the following:

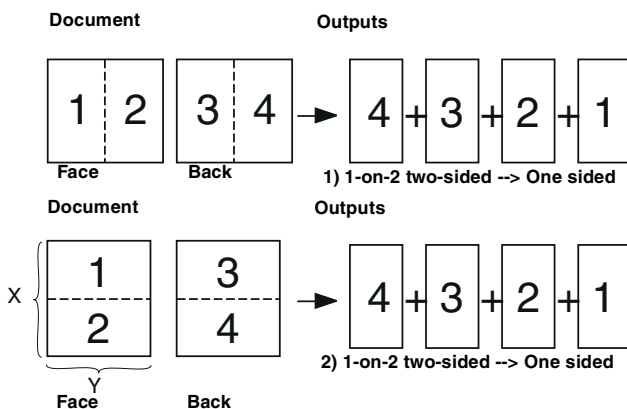
- 2-on-1, generating 2 outputs
- 2-on-1 two-sided, generating 4 outputs
- 4-on-1, generating 4 outputs
- 4-on-1 two-sided, generating 8 outputs.

1 2-on-1, Generating 2 Outputs



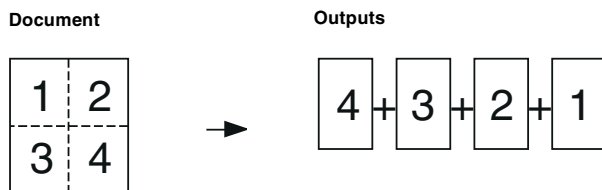
- The image (document width) of continuous 2-on-1 is divided vertically for output.
- The image (document length) of continuous 2-on-1 is divided horizontally for output.
- Documents may be placed on the platen or in the RDF.

2 2-on-1 Two-Sided, Generating 4 Outputs



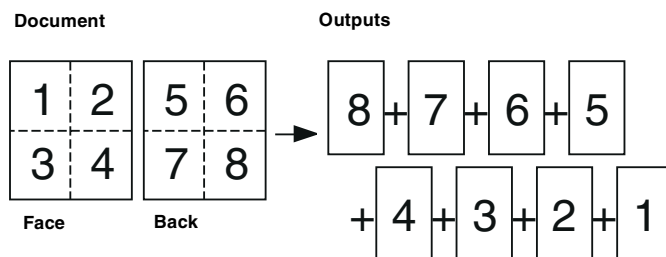
- The image (document width) of continuous 2-on-1 is divided vertically for output.
- The document (document length) is divided horizontally for output.

3 4-on-1, Generating 4 Outputs



- No number of effective areas of the last document is specified; i.e., if section 4 of the document is blank, output 4 will be blank.

4 4-on-1 Two-Sided, Generating 8 Outputs



- No number of effective areas of the last document is specified; i.e., the same as in the case of 4-on-1, generating 4 outputs.

Sharpness/Filter Processing

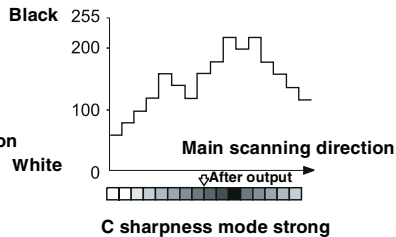
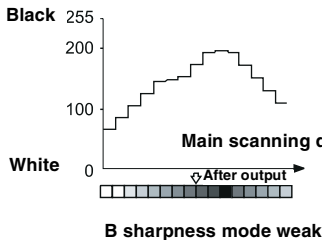
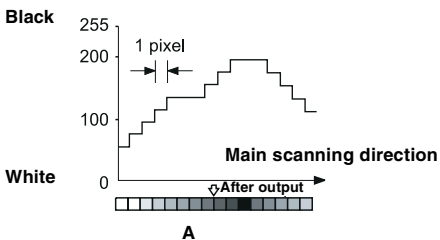
In sharpness/filter processing, computations are performed so that a crisp or soft image may be obtained as specified on the control panel.

Figure B shows the output level occurring as the result of selecting ‘sharpness mode weak’ for the image data shown in figure A.

In ‘sharpness mode weak’, the variations in the density of an image are smoothed out to generate a soft image. (The effect may be used to make moiré less conspicuous.)

Figure C shows the output level occurring when ‘sharpness mode strong’ is selected.

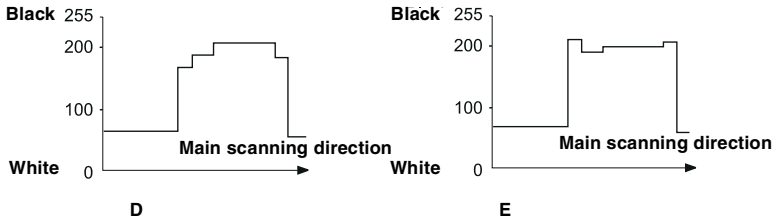
In ‘sharpness mode strong’, the variations in the density of an image are emphasised to generate a crisp image.



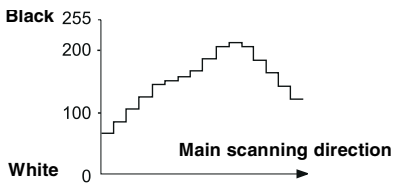
AI Outline processing

AI outline processing emphasises the edges of characters.

When image data input is as shown in figure D, the CPU assumes the presence of characters and initiates outline processing.



When image data input is as shown in figure F, the CPU assumes the presence of a photo and does not initiate outline processing.



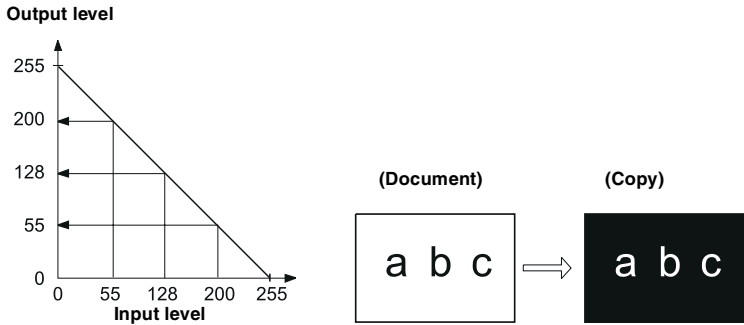
Negative/Positive Reversal

The negative/positive reversal circuit executes the following image processing:

- Negative/positive reversal
- Framing
- Blanking
- Pasting

a) Negative/Positive Reversal

Level conversion is executed so that the white area of a document will be black and the black area will be white on copies.

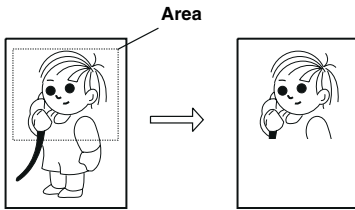


b) Framing/Blanking

For framing/blanking, areas may be as many as 4 areas; for a rectangle, as many as 10 points may be specified.

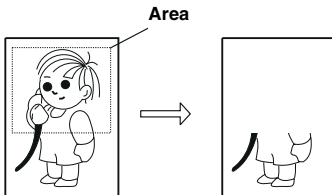
■ Framing

The signals representing non-specified areas are forced to represent white.



■ Blanking

As opposed to framing, the signals representing the specified area are forced to represent white.



c) Pasting

This function may be used when the Retention Memory Unit (option) is installed. Images stored in the retention memory in advance and the image on the platen are synthesised for output.

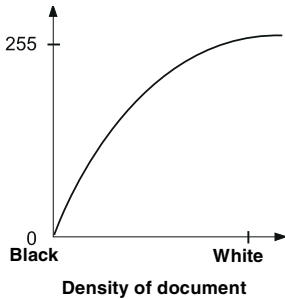
Density Processing

a) Logarithmic Correction

The CCD output has linear characteristics in relation to the light reflected by a document. However, the density of a document as perceived by the human eye does not show linear characteristics in relation to the light reflected by the document.

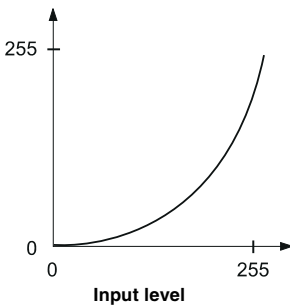
The relationship between the density as perceived by the naked eye and the output of the CCD are as shown.

CCD output



To correct the discrepancy, the correction curve is used to execute level conversion.

Output level



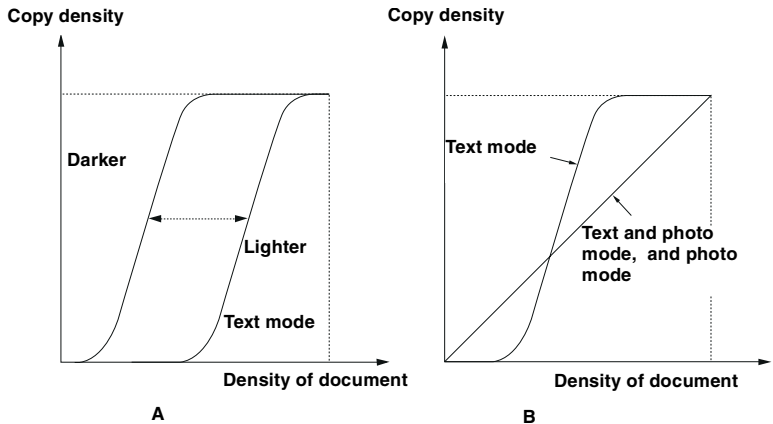
b) Density Processing

The correction curve for density processing varies according to the following:

- 1 Setting of the Copy Density key on the control panel.
- 2 Results of AE measurement
- 3 Selection of text and photo mode, or photo mode
- 4 Results of OPC resistance

According to the setting of the Copy Density, the curve will be for darker or lighter: see figure A.

When text/photo or photo mode is selected, the curve shown in figure B will be selected to ensure good gradation and faithful reproduction of the density of a document.



The AE may be 'priority on speed' (default) or 'priority on image quality'. (Here, the discussions are on 'priority on image quality'; for 'priority on speed', see (((((

In 'priority on image quality', the density correction curve is varied according to the type of document.

In 'priority on image quality', the scanner is moved forward to suit the size of the detected document, thereby executing full scanning for measuring the density of the entire document.

In this manner, the density of the background and the density of the image are measured to classify the document into any of the following three types:

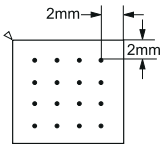
- 1 Background Type Document
Documents which are white, or light in density, carrying text.
- 2 Reversal Type Document
Documents which are coloured, or light in density, carrying light text or reversed text.
- 3 Other Documents
Documents with slight variation in density (e.g., photos).

Depending on the type of document, one of the following three AE tables is selected to generate a correction table suitable for density correction of the document.

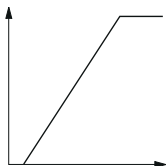
Adjustment of the “priority on image” function in service mode (*3*); see ((((((

When AE is executed using the RDF, AE is initiated for each document which is picked up.

In page separation, a signal AE scan is used to check the density of all documents for the selection of an AE table.

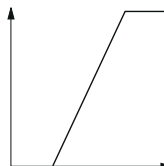


Copy density



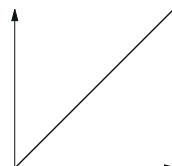
AE Table for Background Type

Copy density



AE Table for Reversal Type

Copy density



AE Table for Other Type

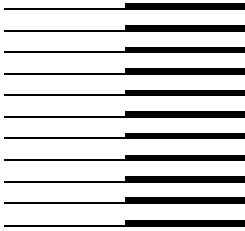
Binary Processing

The binary processing circuit converts multiple-value image signals into binary signals. The method used is called the PD method, which enables better reproduction of highlight areas than the median density (MD) retention method. Binary processing is executed in text mode, and text and photo mode.

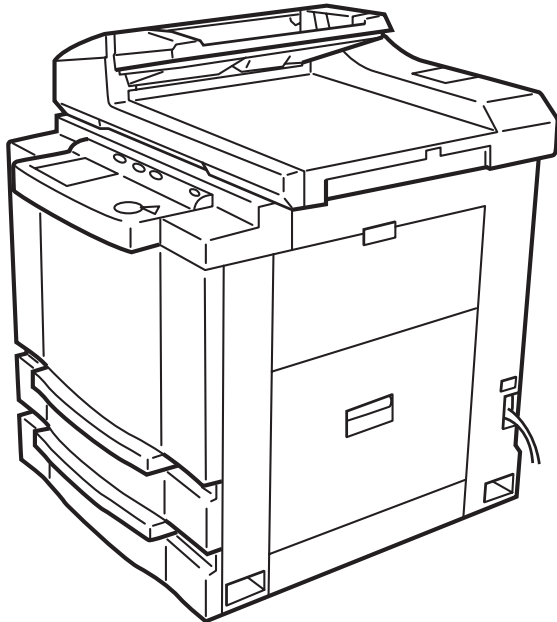
D-A Conversion

The D-A conversion circuit is used to convert multiple-value image signals into analogue signals. D-A conversion is executed in photo mode.

Océ



Technical Service Manual
Océ 3121/3122



10 RDF

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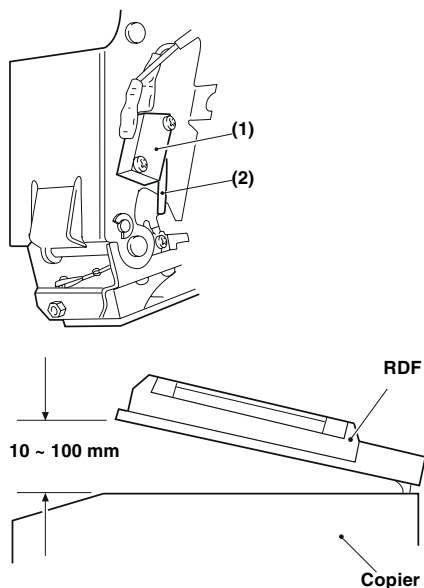
Adjustments

1 Adjusting the RDF Switch (MS1)

Note: Two micro-switches are fitted. These prevent operation of the RDF when either the body is opened, or the upper cover is opened. MS1 monitors the body, MS2 monitors the upper cover.

As a rule, skip the following adjustment; make adjustments only when necessary.

- 1 Remove the cover.
- 2 Open and close the RDF. Adjust the retaining plate (2), until switch MS1 (1) switches on and off when the lower edge of the RDF is between 10 and 100 mm from the platen.

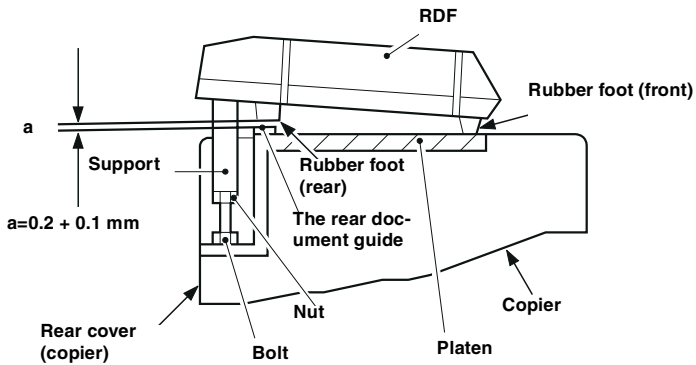


2 Switch (MS2) for the upper cover

- 1 Check that both the switch for the front cover and the switch for the rear upper cover are actuated: when the upper cover is closed.

3 Adjusting the height of the RDF

- 1 Remove the rear cover.
 - 2 Close the RDF, and check that there is a 0.2 ± 0.1 mm gap.
 - 3 To adjust, loosen the nut and turn the bolt of the appropriate support.
 - 4 After adjustment, tighten the nuts to lock.
- *Approximately two sheets of paper (80 g/m²) may be inserted.

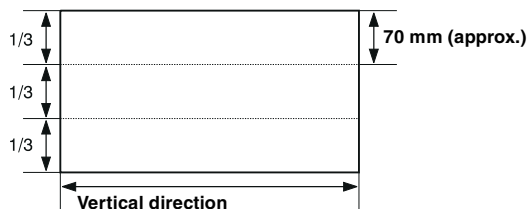


- 5 Also, at the front, check that both of the rubber feet are touching the platen glass.

4 Adjusting the Solenoid SL2

1 Prepare a test sheet.

Cut a sheet of A4 or LTR copy paper (64 g/m²) lengthways into strips of about 70 mm wide.

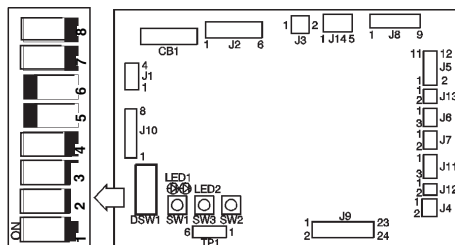


2 Remove the front cover and remove the cover from the RDF control PBA.

3 Shift bit 5 and 6 to ON: DIP switch (DSW1) on the RDF control PBA.

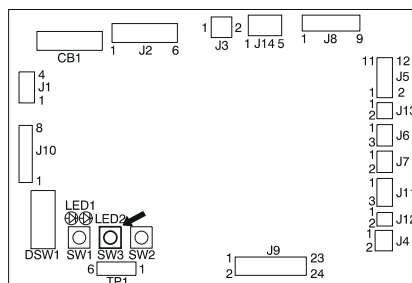
Press switch SW3.

- The pick-up roller will rotate. The roller will stop rotating when it is at the pick-up position for the fax mode.

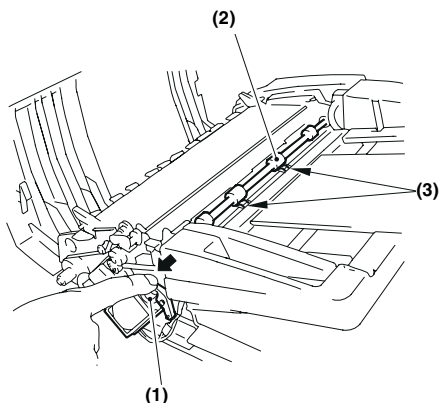


4 When the pick-up roller stops, push the switch SW3.

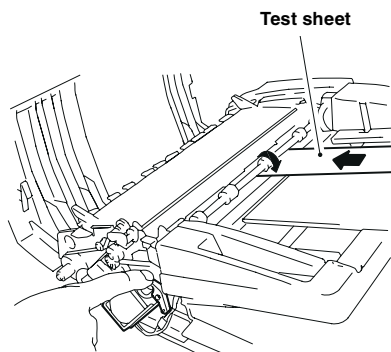
- The motor will stop.



- 5 Push the plunger (1) of the solenoid SL2. Adjust the position of SL2 so that rollers (2) and (3) are touching.



- 6 Push in the test sheet, prepared in step 1, between the delivery roller and the pick-up roller while the plunger of the paper retaining solenoid is fully pushed; check to make sure that the delivery roller rotates when the test sheet is pushed in to the pick-up roller of the rear and the front.

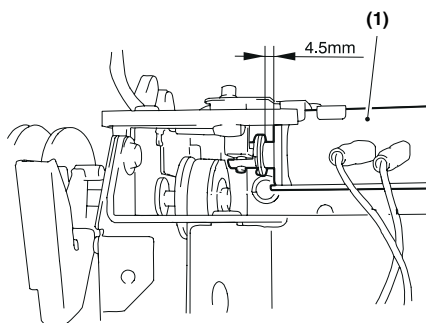


Note: When the test sheet is pulled, the one-way clutch prevents the delivery roller from rotating.

- 7 If the delivery roller does not rotate when the test sheet is inserted, repeat the adjustment: starting with step 3.
- 8 Shift the bits back to the initial positions: DIP switch DSW1.

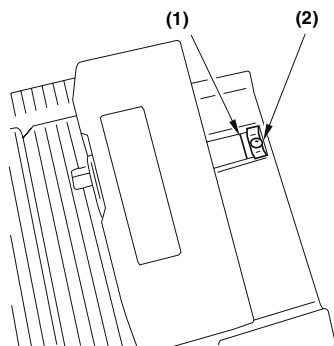
5 Adjusting the Solenoid SL3

- 1 Remove the cover.
- 2 Adjust the position of the solenoid (1), so that the stroke is 4.5 mm.

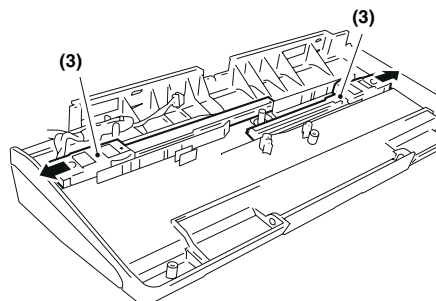


6 Adjusting the document width (VR1)

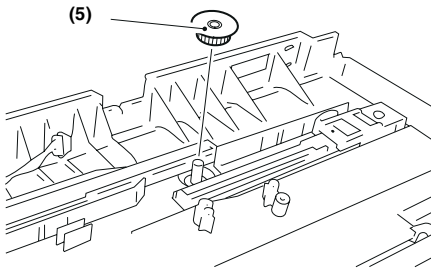
- 1 Loosen the screw (2), and remove the side guide.



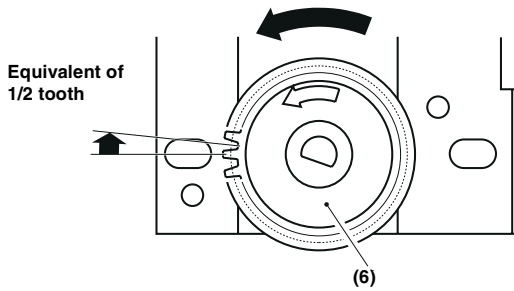
- 2 Fully open the rear guide (3) and the front guide (4).



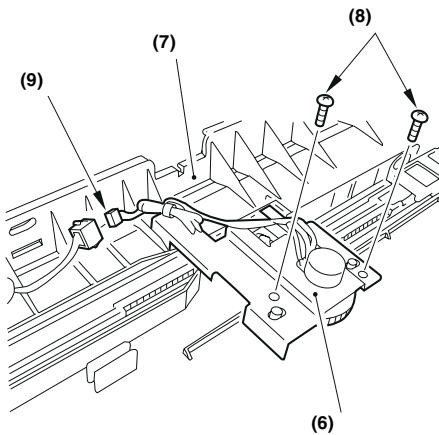
- 3 Fit the gear (5).



- 4 Turn the width gear (6) fully counter-clockwise. Then, turn it clockwise (a half of a tooth).



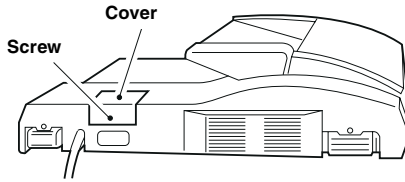
- 5 Fit the lock for the side guide. Adjust the document width.



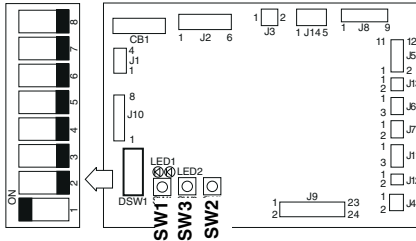
7 Parallel transport 2

Parallel transport 2

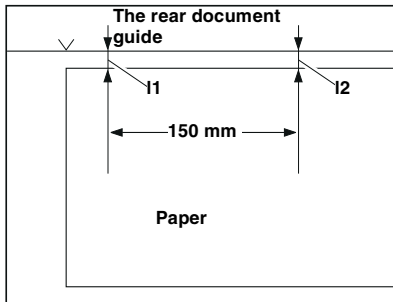
- 1 Remove the RDF cover (1 screw).



- 2 Shift bit 1 to ON: DIP switch (DSW1) on the RDF control PBA.



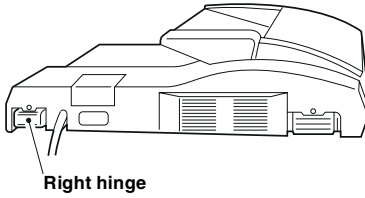
- 3 Place a sheet of A4 or 11"x 17" paper (80 g/m²) on the document tray.
- 4 Press once on the switch (SW3) on the RDF control PBA.
 - The paper will be picked up, and stopped on the platen.
- 5 Open the RDF slowly, and ensure that the difference between *l1* and *l2* is 1 mm or less.



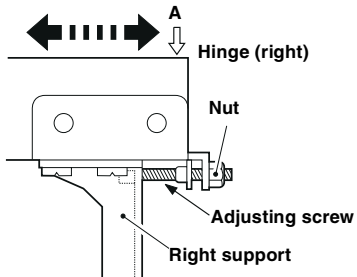
Standards:

* $l1 - l2 = 0 \pm 1 \text{ mm}$

- 6 If the difference is excessive, loosen the nut at the rear of the right hinge to adjust it.



- 7 When turning the adjusting screw, force the hinge in the direction of the arrow A.



- Turning the Adjusting Screw and $l1 / l2$

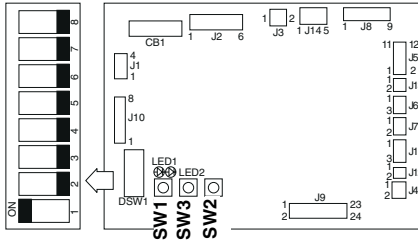
Rotation	$l1$ and $l2$
Clockwise	$l1 < l2$
Counter-clockwise	$l1 > l2$

- 8 After adjustment, fix the adjusting screw with the nut.

8 Adjusting the parallel transport 2

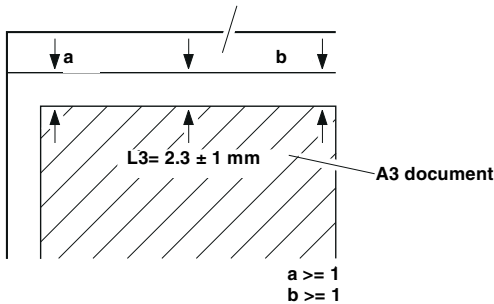
Note: Adjust the parallel transport 2 only after adjusting parallel transport.

- 1 Shift bit 1 to ON: DIP switch (DSW1) on the RDF control PBA.

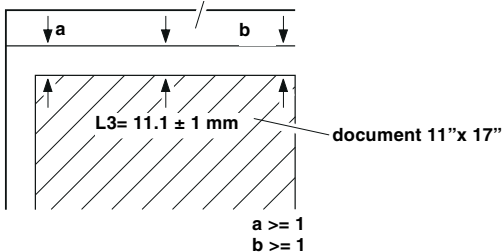


- 2 Place a sheet of A3 or 11"x 17" paper (80 g/m²) on the document tray.
- 3 Press once on the switch (SW3) on the RDF control PBA.
 - The paper will be picked up, and stopped on the platen.
- 4 Open the RDF slowly, and ensure that β 3 is as indicated at the centre of the copy paper and that distances a and b are 1 mm. or more.

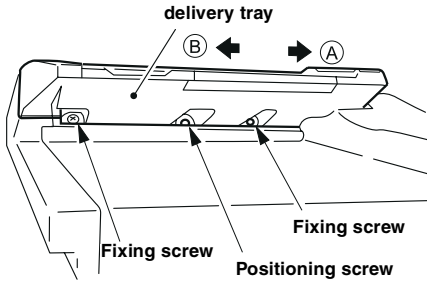
The rear document guide



The rear document guide



- 5 If the distance is incorrect, loosen the fixing screw and the positioning screw on the RDF document tray. Adjust the position of the RDF document tray.



RDF Original Tray Movement and L3

Direction of movement	L3
A	Decreases
B	Increases

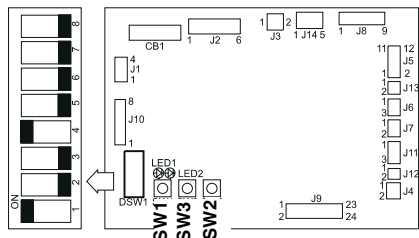
- 6 After adjustment, tighten the screws securing the RDF document tray.

9 Adjusting the transport distance

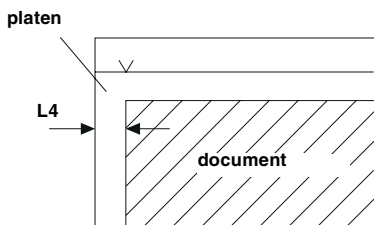
Note: Adjust the transport distance only after adjusting the parallel transport 1 and the parallel transport 2.

Copier mode

- 1 Shift bits 1 and 4 to ON: DIP switch (DSW1) on the RDF control PBA.



- 2 Place a sheet of A3 or 11"x 17" paper (80 g/m²) on the document tray.
- 3 Press once on the switch (SW3) on the RDF control PBA.
 - The paper will be picked up, and stopped on the platen.
- 4 Open the RDF slowly, and measure the document stop position *L4*; then, close the RDF slowly.

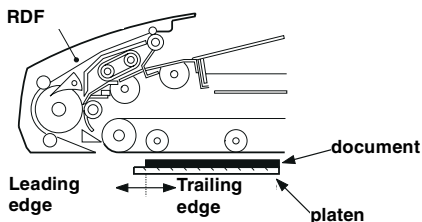


Standards:
Stop position *L4* = 11.6 ± 1mm

- Press the switches SW1 and SW2 to adjust the transport distance. Each press on the switch changes the stop position by 0.34 mm. When the position is appropriate, press the switch SW3 once to discharge the document and store the value.

■ Change of the position of the document

Push switch	Direction of change
SW1	Trailing edge
SW2	Leading edge



Example

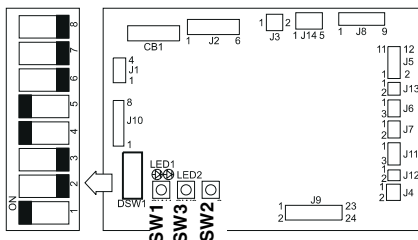
If the stop position *l*4 is 10 mm from the leading edge of the glass platen when the switch SW3 on the RDF controller was pressed once, the document was stopped on the glass platen, and the RDF was opened. Close the RDF leaving the copy paper as is.

To change the gap 1.6 mm toward the trailing edge: press the switch SW1 five times. $1.6 \text{ mm} / 0.34 = 4.70$.

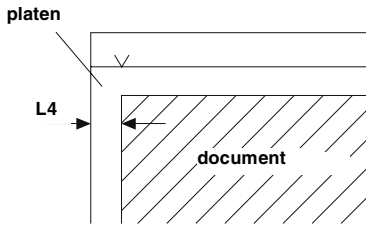
After pressing the switch SW1 five times, press once on switch SW3. The paper will be ejected and the value will be stored.

Fax mode

- Shift bits 1, 4, and 5 to ON: DIP switch (DSW1) on the RDF control PBA.



- 2 Place an A3 or 11" x 17" document (80 g/m2) on the document tray.
- 3 Press once on the switch SW3 on the RDF control PBA.
 - The paper will be picked up, and carried onto the platen.
- 4 Open the RDF slowly, and measure the stop position l_4 of the document; then, close the RDF slowly.

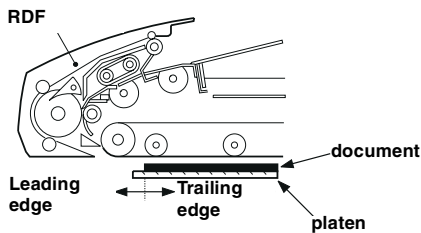


Standards:
Stop position $l_4 = 11.6 \pm 1$ mm

- 5 Press the switches SW1 and SW2 on the RDF control PBA to adjust the transport distance. Each press on the switch changes the transport by 0.34 mm. When the position is correct, press once on the switch SW3. The paper will be ejected and the value will be stored.

■ Direction of change

Push switch	Direction of change
SW1	Trailing edge
SW2	Leading edge

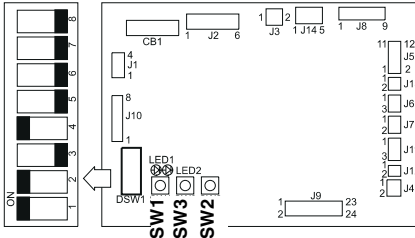


10 Adjusting the Sheet Distance: in Image Composition Mode

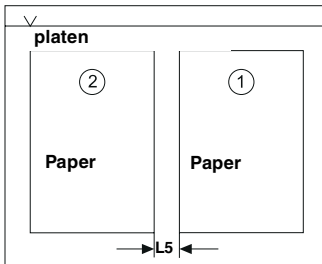
Adjust the sheet distance after “adjusting the height of the RDF” and “adjusting the parallel transport 1 .”

Copier mode

- 1 Shift bits 1, 2, and 4 to ON: DIP switch (DSW1) on the RDF control PBA.



- 2 Place two sheets of A4 or LTR paper (80 g/m²) on the document tray. Be sure to use A4 paper for an A/B-configured RDF and to use LTR paper for an INCH-configured RDF.
- 3 Press once on the switch (SW3) on the RDF control PBA.
 - The paper will be picked up, and stopped on the platen.
- 4 Open the RDF slowly, and measure the distance L_5 between the two sheets of paper; then, close the RDF slowly.



Standards:
Sheet gap $L_5 = 0 \pm 3$ mm

- Use the switches SW1 and SW2 on the RDF control PBA to adjust the transport distance. Each press on the switch changes the sheet distance by 0.34 mm. When the position is appropriate, press once on the switch SW3. The paper will be ejected and the value will be stored.

Sheet gap

Push switch	Sheet gap
SW1	Increases
SW2	Decreases

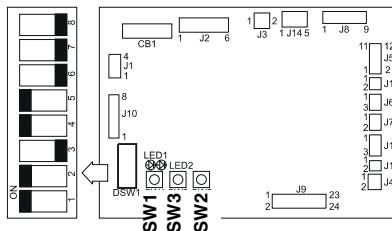
- After “adjusting parallel transport 1 ,” “adjusting the parallel transport 2,” “adjusting the transport distance,” and “adjusting the sheet distance in image composition mode,” switch off. Shift all bits to OFF: DIP switch (DSW1). Switch ON, and check that the RDF functions correctly.

Note: Shift bit 7 to ON: DIP switch (DSW1). Only if the document size (length in feeding direction) is as follows:

RDF-configuration	Document size (length in feeding direction)
A/B	220 to 250mm
INCH	220 to 260mm

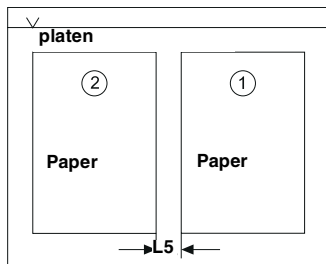
Fax mode

- Shift bits 1, 2, 4, and 5 to ON: DIP switch (DSW1) on the RDF control PBA.



- Place two sheets of A4 or LTR paper (80 g/m²) on the document tray. Be sure to use A4 paper for an A/B-configured RDF and to use LTR paper for an INCH-configured RDF.
- Press once on the switch (SW3) on the RDF control PBA.
 - The paper will be picked up, and stopped on the platen.

- 4 Open the RDF slowly, and measure the distance $L5$ between the two sheets; then, close the RDF slowly.



Standards:
Sheet gap $L5 = 0 \pm 3$ mm

- 5 Use the switches SW1 and SW2 on the RDF control PBA to adjust the transport distance. Each press on the switch changes the sheet distance by 0.34 mm. When the position is appropriate, press once on the switch SW3. The paper will be ejected and the value will be stored.

■ Sheet gap

Push switch	Sheet distance $L5$
SW1	Increases
SW2	Decreases

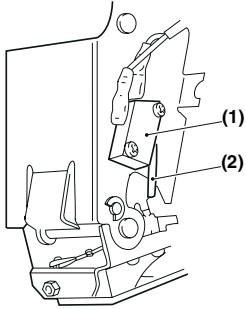
- 6 After 'parallel transport 2', adjusting the sheet distance to the rear document guide, adjusting the transport distance, and adjusting the sheet distance in image composition mode, switch OFF. Shift all bits to OFF: DIP switch (DSW1). Switch ON. Check that the RDF functions correctly.

Note: Shift bit 7 to ON: DIP switch (DSW1). Only if the document size (length in feeding direction) is as follows:

RDF-configuration	Document size (length in feeding direction)
A/B	220 to 250mm
INCH	220 to 260mm

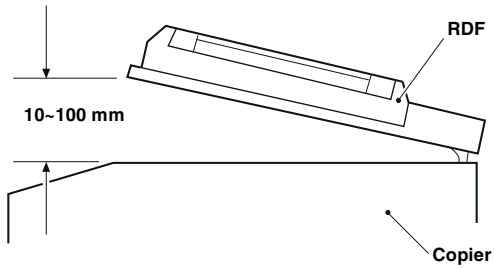
11 Adjusting the Switch (MS1)

- 1 .Remove the cover.
- 2 Open and close the RDF. Adjust the retaining plate (2) until switch MS1 (1) switches on and off when the lower edge of the RDF is between 10 and 100 mm from the platen.



(1) RDF switch (MS1), (2) Retaining plate

Right Hinge



12 Adjusting the pressure of the separation belt

Symptoms prior to adjustment:

- documents start to skew
- because of wear on the separation roller or the feeding roller.

Also, the adjustments should be carried out after replacing the separation belt or the feeding roller.

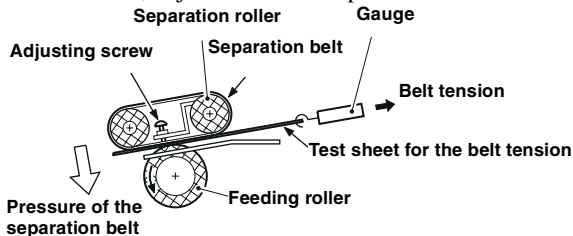
Outline

The pressure of the separation belt varies for copier mode and fax mode.

Turning the adjusting screw varies the pressure on the belt.

To adjust the pressure for copier mode, adjust the two outer separator tracks.

For fax mode, adjust the centre separator track.

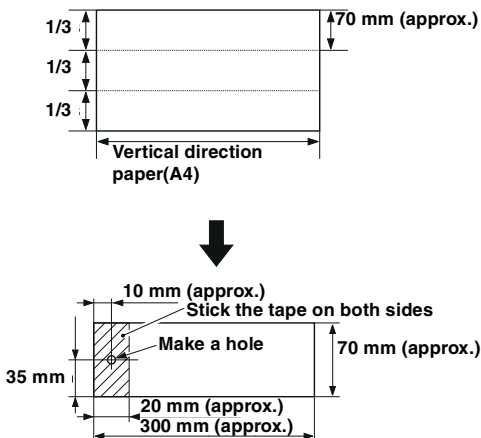


Preparing for Adjustment

- 1 Prepare a test sheet for the belt tension.

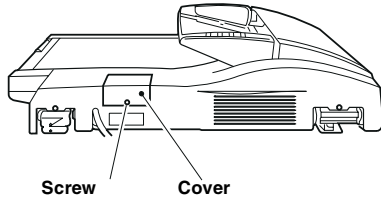
Cut an A4 or LTR sheet of copy paper (64 or 80 g/m²) into strips of about 70 mm wide.

Put a length of cellophane tape on both sides, and make a hole.

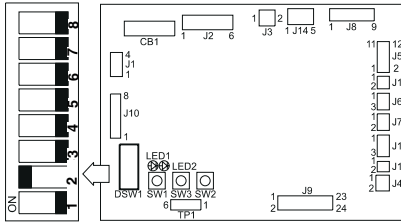


Copier mode

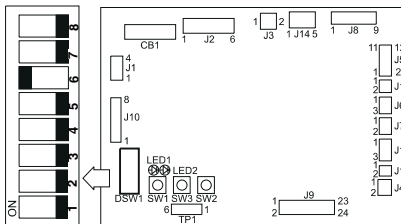
- 1 Remove the cover from the RDF control (1 screw).



- 2 Shift bit 2 to ON: DIP switch (DSW1) on the RDF control PBA. Select the continuous pick-up and delivery mode. Switch ON.



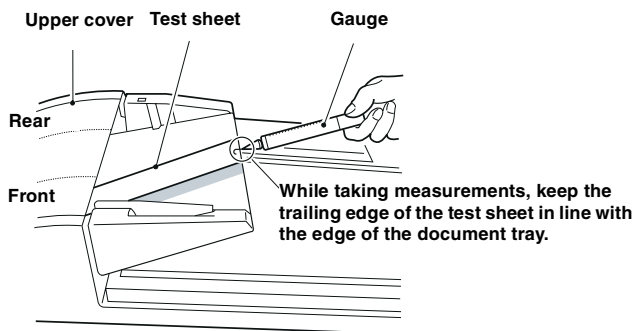
- 3 Place five to ten sheets of A4 LTR paper on the document tray. Press the switch SW3 on the RDF control PBA: to select continuous pick-up and delivery mode.
- 4 After approximately 2 minutes, press the switch SW3 once again to stop the operation.
- 5 Shift bit 2 to OFF: DIP switch (DSW1) on the RDF control PBA. Then, shift bit 6 to ON, to select the cleaning mode for the separation belt and the feeding roller. (service mode for copier mode). Remove the paper from the document tray.



- 6 Press the switch SW3, on the RDF control PBA.
Let the test sheet you have prepared move into the separation assembly at the front to measure the power of feeding at the front.

Points to note, when measuring the belt tension

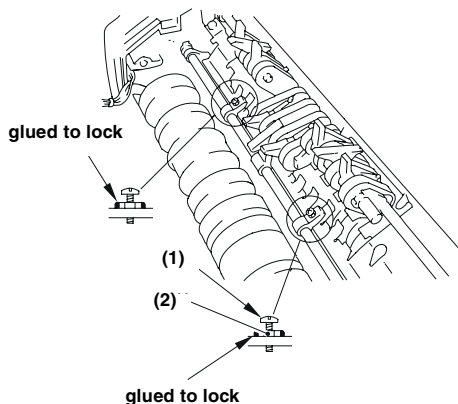
- Check that the three separator belts are in contact with the test sheet.
- Take care to pull the test sheet straight, in line with the separator belt.
- Check the tension only when the trailing edge of the test sheet is aligned with the edge of the document tray.



Spring gauge: range 0 - 600 g.

Measuring the belt tension (front)

- 7 Open the cover of the RDF.
- 8 Loosen the lock nut (1). Turn the screw (2) until the correct tension is reached. Tighten the lock nut (1).



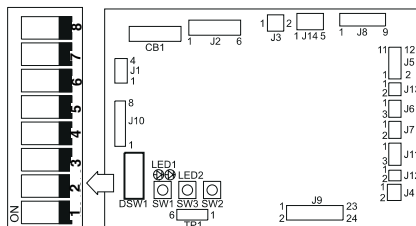
Test sheet	tension in gr.
64 g/m2 paper	520±20
80 g/m2 paper	570±20

Guide: the tension should be equal at the front and at the rear.

Turning	Tension
Clockwise	Decreases
Counter-clockwise	Increases

Guide: A 90° turn of the adjusting screw changes the power of feeding by about 25 g. Adjustment Screw and Power of Feeding

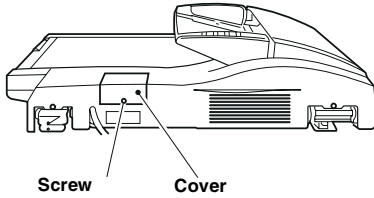
- 9 Adjust the tension at the rear in the same manner as the front.
- 10 Check the tension at the front and at the rear. When correct, tighten the lock nut.
- 11 Shift bit 6 to OFF: DIP switch (DSW1) on the RDF control PBA. This switches off the service mode.



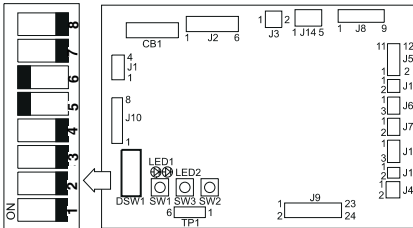
- 12 Refit the cover over the RDF control PBA.

Fax mode

- 1 Remove the cover from the RDF control PBA.



- 2 Shift bits 5 and 6 to ON: DIP switch (DSW1) of the RDF control PBA. Select the cleaning mode for the separation belt and the feeding roller: for fax in service mode.

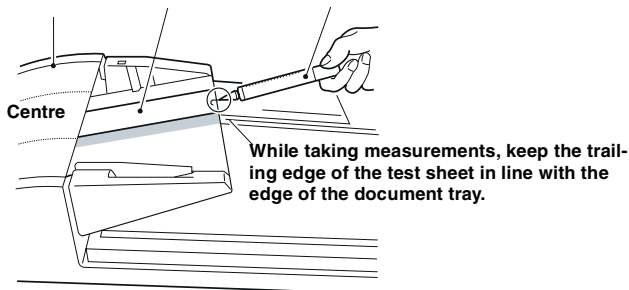


- 3 Press the switch (SW3), on the RDF control PBA. Allow the test sheet to feed into the separator, so that the tension can be checked.

Points to note, when measuring the belt tension

- Check that the three separator belts are in contact with the test sheet.
- Take care to pull the test sheet straight, in line with the separator belt.
- Check the tension only when the trailing edge of the test sheet is aligned with the edge of the document tray.

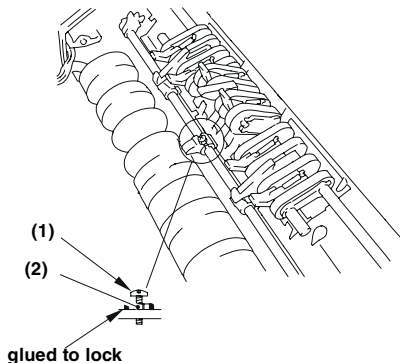
Upper cover Test sheet Gauge



Spring gauge: range 0 - 600 g.

Measuring the tension (centre)

- 4 Open the cover of the RDF.
- 5 Loosen the lock nut (1). Turn the screw (2) until the correct tension is reached. Tighten the lock nut (1).



Test sheet	tension in gr.
64 g/m2 paper	270±20
80 g/m2 paper	300±20

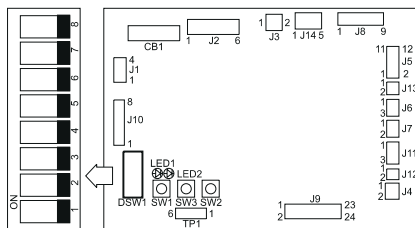
Tension

Turning	Tension
Clockwise	Decreases
Counter-clockwise	Increases

Adjusting screw and tension

Guide: A 90° turn of the adjusting screw changes the power of feeding by about 25 g.

- 6 After adjustment, tighten the nut.
- 7 Shift bit 5 and to OFF: DIP switch (DSW1) on the RDF control PBA. This will switch off the service mode.



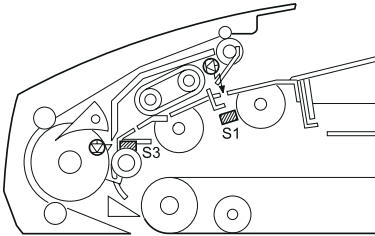
- 8 Refit the cover over the RDF control PBA.

13 Adjustment of the Electrical System

After replacing the main components

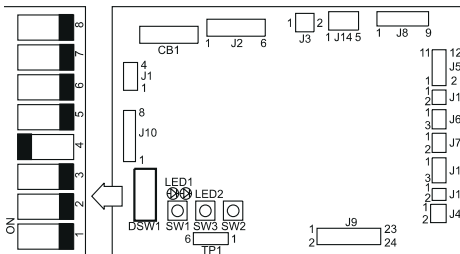
Main components	Adjustments
<ul style="list-style-type: none"> ■ RDF control PBA 	<ul style="list-style-type: none"> ■ The level of the document sensor (S1). And the registration sensor (S3). ■ The width of the document (VR1). ■ The parallel transport 1 . ■ The sheet gap in the image composition mode.
<ul style="list-style-type: none"> ■ The sensor for the document tray (S). 	<ul style="list-style-type: none"> ■ The level of the sensor in the document tray (S1). The registration sensor (S3).
<ul style="list-style-type: none"> ■ Registration sensor (S3). 	<ul style="list-style-type: none"> ■ The level of the document sensor (S1). And the registration sensor (S3).
<ul style="list-style-type: none"> ■ Document width (VR1) 	<ul style="list-style-type: none"> ■ The document width detection (VR1).

Adjusting the sensor (S1) in the document tray, and the registration sensor (S3)



1 Remove the RDF cover.

Shift bit 4 to ON : DIP switch (DSW1) on the RDF control PBA.

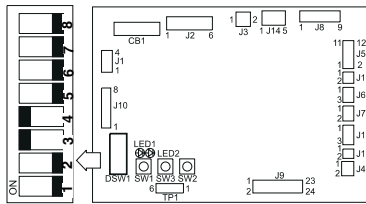


- 2 With no document on the document tray, press the switch (SW3) on the RDF control PBA.
 - LED 1 and 2 switch ON . On the RDF control PBA.
 - If LED 1 and 2 fail to switch ON within 30 seconds, there is probably a fault in the sensor (S1), for document tray , or a fault on the RDF control PBA.
- 3 After checking that LED 1 and 2 have switched ON , press the switch (SW3) on the RDF control PBA.
 - The two LED are switched off. The functional test is finished.
- 4 Shift bit 4 to ON : DIP switch (DSW1) on the RDF control PBA.

Adjusting the document width (VR1)

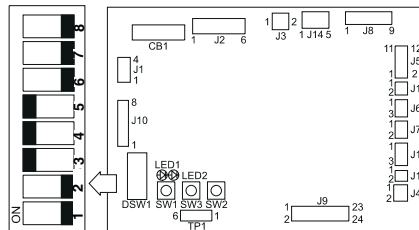
- 1 Prepare one sheet of A4 or LTR Paper.
- 2 Remove the RDF cover. Set the DIP switch (DSW1) on the RDF control PBA as follows.

Note: Different settings are used for different sizes of paper.



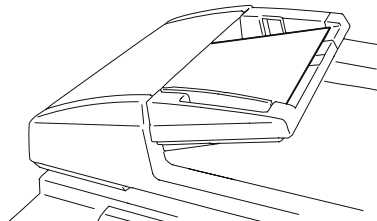
(using A4 paper)

(using A4 paper)

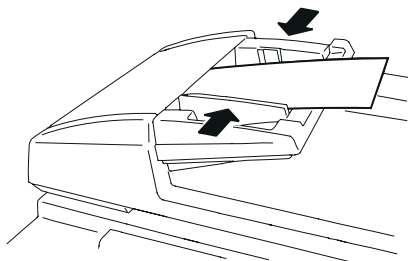


(using LTR paper)

- 3 Place the paper on the document tray, in A4/LTR orientation. Adjust the side guide to suit the paper.



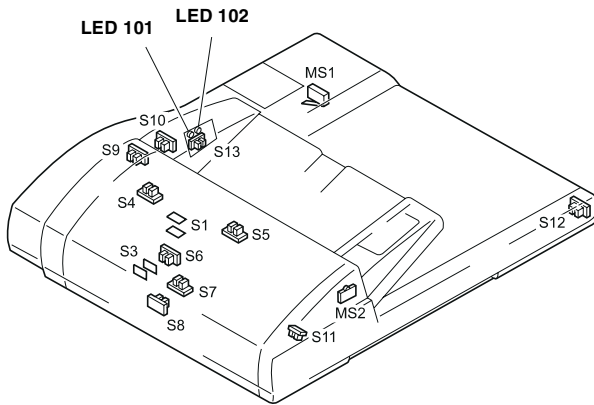
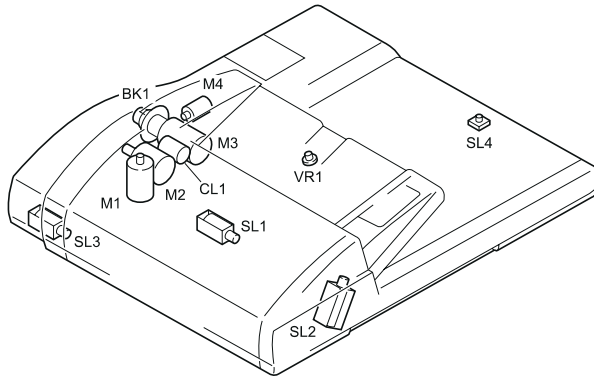
- 4 Press the switch (SW3), on the RDF control PBA.
 - LED1 is on when the RDF control starts to read data.
Then, LED1 is off, and LED2 is on.
- 5 After LED2 is ON, place the paper in the document tray. This time in A4R/LTRR orientation. Adjust the side guides.








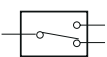


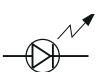
- 6 Press the switch (SW3), on the RDF control PBA.
 - LED1 and LED2 are on, on the RDF control PBA . The function test is finished.
 - If an error is found, LED1 and LED2 start to flash.
- 7 Shift the bits back to the initial positions. DIP switch (DSW1).

14 Location of the electrical Parts

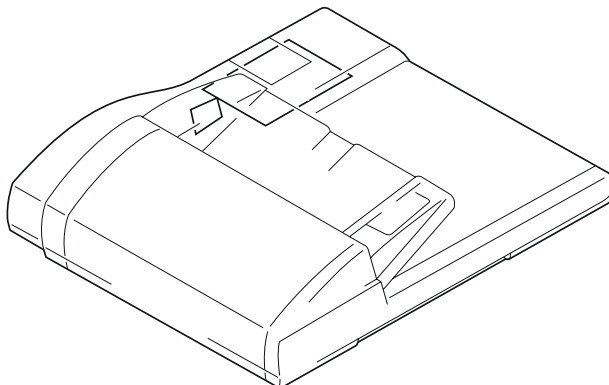
Motors, Solenoids, and Sensors



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Symbol	Name	Number	Description
	Motor	M1 M2 M3 M4	Pick-up motor Feeding Belt Re-circulating
	Clutch	CL1	Clutch
	Brake	BK1	Belt stopping
	Solenoid	SL1 SL2 SL3 SL4	Stop plate Paper retainer Paper deflector Stamp
	Variable resistor	VR1	Width detection
	Microswitch	S1 MS2	RDF open or closed Upper cover
	Photo-transistor	S1 S3	Paper in the document tray Registration
	Sensor	S4 S5 S6 S7 S8 S9 S10 S11 S12 S13	Upper cover Pick-up roller Delivery roller Pick-up Reversal Feeding clock Clock sensor Registration clock Delivery 2 Re-circulation
	LED	LED101 LED 102	Set indication Set indication

B.PCB



Name	Number	Description
RDF control PBA	(1)	Controls the RDF
Display PBA	(2)	Indicates the presence of a document

15 Components on the PBA: variable resistors (VR), light-emitting diodes (LED), : check pins.

Warning: Do not touch the unlisted variable resistors (VR) and the unlisted check pins.

The unlisted items are for factory use only, and require special tools and high precision instruments for adjustment.

RDF Control PBA

Note:

1. Some LED's emit dim light when off because of leakage current; this is a normal condition and should be kept in mind.

2. VRs that may be used in the field

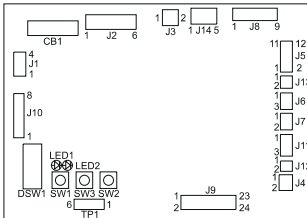


<symbol > **Black VR**

VRs that must not be used in the field



<symbol > **White VR**



LED	Display
LED1	Use it to check the output of the original tray paper sensor.
LED2	Use it to check the output of the registration sensor.

LED on the RDF Control PBA

	Display
TP1-1 TP1-2 TP1-3 TP1-4 TP1-5 TP1-6	+5V Earth

Test Pins on the RDF Control PBA

Checking the output of the paper sensor in the document tray and the output of the registration Sensor

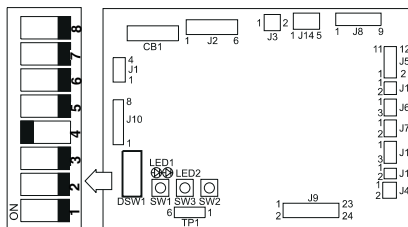
The output from the various sensors requires checking, in the following cases:

- if the RDF control PBA has been replaced
- if the paper sensor in the document tray has been replaced
- the registration sensor has been replaced.

Check that the output of each sensor is correct, as the light source and the light destination are on separate components.

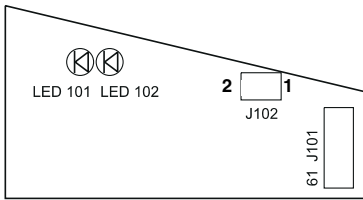
Procedure:

- 1 Switch OFF.
- 2 Shift bit 4 to ON: DIP switch (DSW1) on the RDF control PBA.



- 3 Switch ON.
- 4 With no paper on the document tray, press once on the switch (SW3) on the RDF.
- 5 Check that LED1 and LED2 have switched on, on the RDF control PBA. Check that voltage of TP2-1 and TP2-2 is 1.1 ± 0.1 V. If the voltage is incorrect, check the position of the sensor. The alignment of the light source and the light destination of the sensor may be wrong.

Display PBA

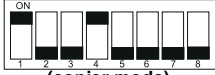
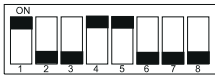
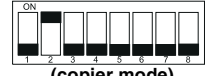
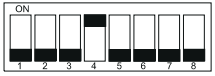
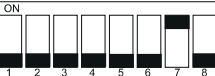
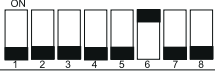
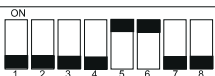
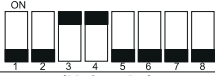
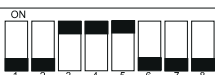


LED	Description
LED101	Indicates that an original has been set.
LED102	Indicates that an original has been set.

LED on the Display PBA

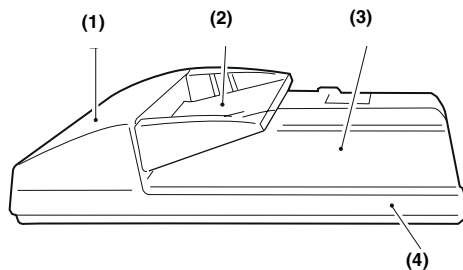
Functions of the DIP Switch DSW1 on the RDF control PBA.

Purpose	DSW1 settings	Description
To select normal operation	<p>Diagram showing 8 DIP switches labeled 1 through 8. All switches are in the OFF position (pointing down). An 'ON' label is positioned above the first switch.</p>	With all bits at OFF, normal operation mode is assumed.
To execute pick-up and delivery	<p>Diagram showing 8 DIP switches labeled 1 through 8. Switch 1 is in the ON position (pointing up), and switches 2 through 8 are in the OFF position (pointing down). An 'ON' label is positioned above the first switch. The text '(copier mode)' is centered below the diagram.</p>	Each press on the switch (SW3) causes the pick-up and the delivery operations to repeat.
To adjust the sheet gap: for image composition mode	<p>Diagram showing 8 DIP switches labeled 1 through 8. Switches 1, 3, 5, and 7 are in the ON position (pointing up), and switches 2, 4, 6, and 8 are in the OFF position (pointing down). An 'ON' label is positioned above the first switch. The text '(copier mode)' is centered below the diagram.</p> <p>Diagram showing 8 DIP switches labeled 1 through 8. Switches 1, 2, 4, 6, and 8 are in the ON position (pointing up), and switches 3, 5, 7 are in the OFF position (pointing down). An 'ON' label is positioned above the first switch. The text '(fax mode)' is centered below the diagram.</p>	After a press on the switch (SW3), two documents are fed in and, then, placed side by side on the platen. Then, the switches and SW2 are used to adjust the gap between the sheets. Switch (SW3) is then pressed, to store the adjustment value. Setting bit 6 to ON, in FAX mode, puts a stamp mark during delivery.
To execute the pick-up, to reversal, to delivery operation	<p>Diagram showing 8 DIP switches labeled 1 through 8. Switches 1, 3, 5, and 7 are in the ON position (pointing up), and switches 2, 4, 6, and 8 are in the OFF position (pointing down). An 'ON' label is positioned above the first switch. The text '(copier mode)' is centered below the diagram.</p>	Each press on the switch (SW3) repeats the pick-up, then the reversal and, finally, the delivery operations.

Purpose	DSW1 settings	Description
To adjust parallel transport I	 <p style="text-align: center;">(copier mode)</p>  <p style="text-align: center;">(fax mode)</p>	After a press on the switch (SW3), a document is fed and placed on the platen. Then, using the switches and SW2, the parallel transport 1 is adjusted. Then, the switch (SW3) is pressed, to store the adjustment value. Setting bit 6 to ON, in FAX mode, puts a stamp mark during delivery.
For continuous pick-up/delivery operation	 <p style="text-align: center;">(copier mode)</p>	Placing three or more sheets of paper on the document tray, and pressing the switch (SW3), causes the pick-up operation and the delivery operation to repeat continuously.
To check the sensor level		Each press on the push switch on the RDF controller PCB causes the original tray paper sensor and the registration sensor to be ready for a check on the output level.
To use non-default original size		Shift the bit to ON when using any of the following size:
To clean separation belt/feeding roller	 <p style="text-align: center;">(copier mode)</p>  <p style="text-align: center;">(fax mode)</p>	A press on the push switch (SW3) on the RDF controller PCB causes the pick-up motor to rotate, thereby cleaning the separation belt and the feeding roller. To stop, press the push switch (SW3) once again.
To store original size (horizontal direction)	 <p style="text-align: center;">(Using A4)</p>  <p style="text-align: center;">(Using LTR)</p>	Use it to store the position of the original tray side guide for A4 or LTR.(see concerning adjustment)

Dis-/assembly

1 External View

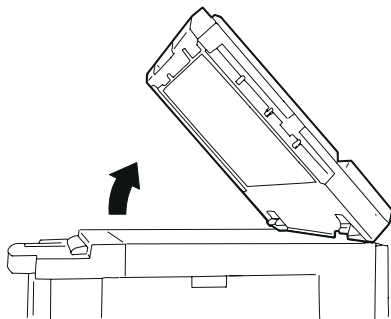


(1) Upper cover; (2) Body cover; (3) Original tray; (4) Body front cover.

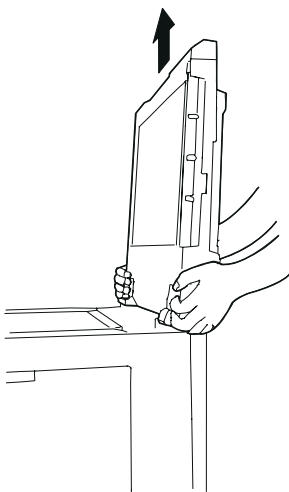
Remove the covers as necessary when cleaning, checking, or repairing the machine.

2 Removing the RDF

- 1 Switch OFF.
- 2 Open the front door



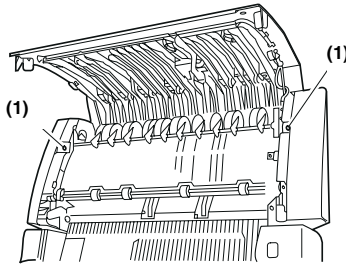
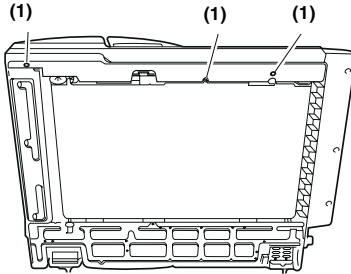
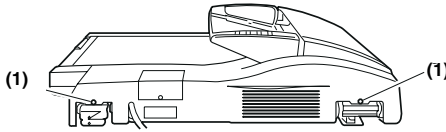
- 3 Standing at the rear of the copier, pull the RDF vertically to remove it.



Note: *The hinge feet are equipped with a locking mechanism to prevent slippage. Open it fully, before removing it from the copier.*

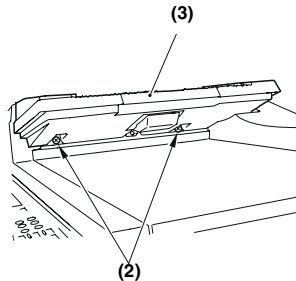
3 Removing the Body Cover

- 1 Remove the seven screws (1).



- 2 Remove the two screws (2), and remove the document tray (3).

Warning: *The original tray is connected with a cable. Take adequate care not to damage it during work.*



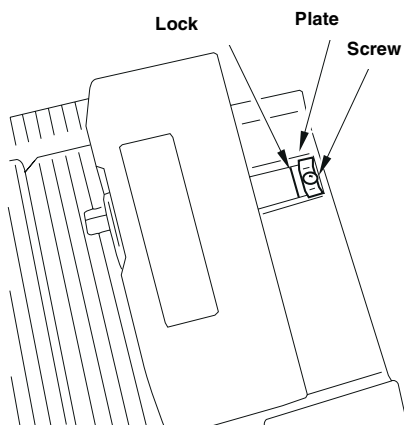
- 3 Remove the body cover and the body front cover.

4 Lock for the side guide

The side guide is fitted with a lock. This prevents the guide opening further than 297 mm (A4 and A3).

To handle documents that are larger than 297 mm, remove the lock. Maximum width is 304 mm or 12”.

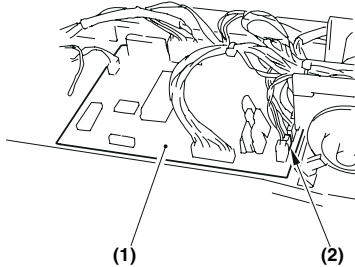
- 1 Loosen the screw (4), and remove the lock.



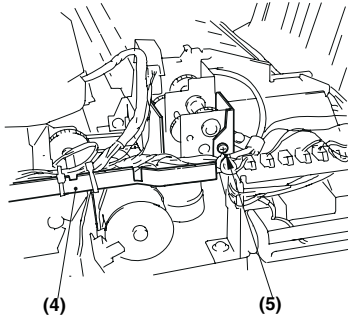
Warning: Before making copies, make sure that the size guide is adjusted to the size of the original. If not set correctly, the originals tend to move askew.

5 Removing the Pick-Up Motor Unit

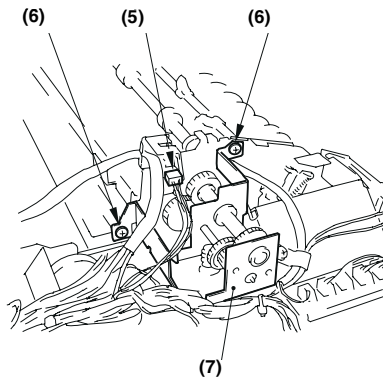
- 1 Remove the cover.
- 2 Remove the cable tie.
- 3 Disconnect the connector J12 (2) from the RDF control PBA (1).



- 4 Remove the screw (3), and remove the cable guide (4).

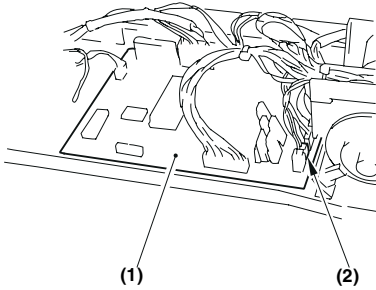


- 5 Disconnect the connector (5) from the sensor (S4).
- 6 Remove the two screws, and remove the pick-up motor (7).

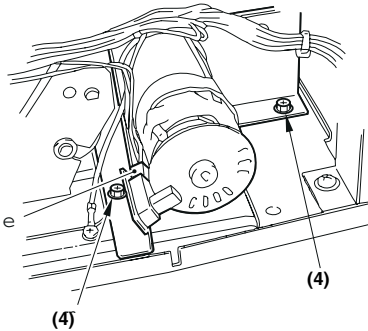


6 Removing the feeding motor

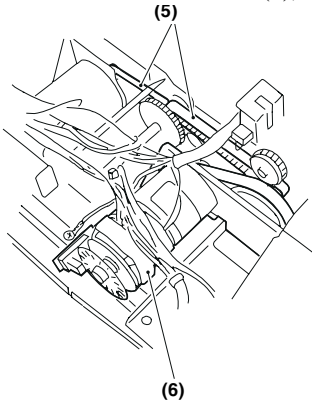
- 1 Remove the pick-up motor
- 2 Remove the cable tie.
- 3 Disconnect the connector J11 (2) from the RDF control PBA (1).



- 4 Disconnect the connector (3) for sensor (S9) and remove the two screws (4).

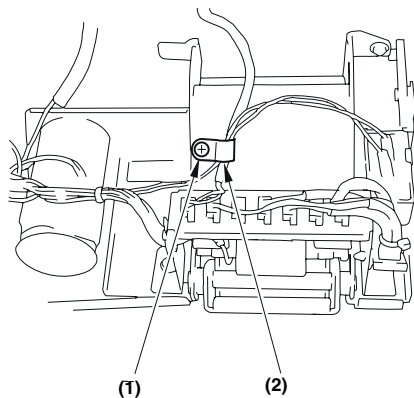


- 5 Detach the two drive belts (5), and remove the feeding motor (6).

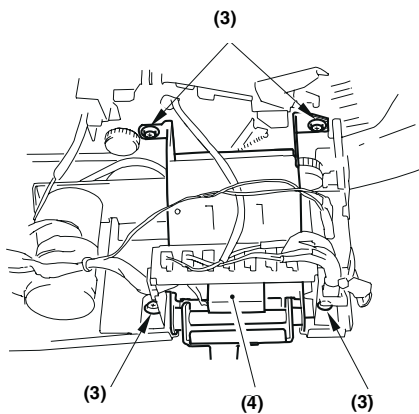


7 Removing the belt motor

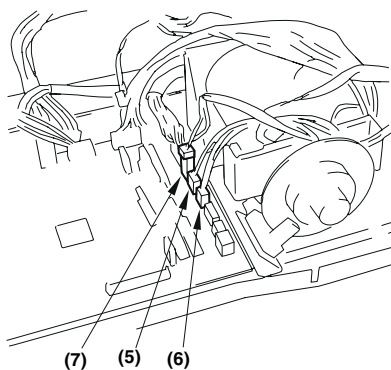
- 1 Remove the RDF from the copier.
- 2 Remove the feeding motor.
- 3 Remove the cable tie.
- 4 Remove the screw (1), and remove the cable clip (2).



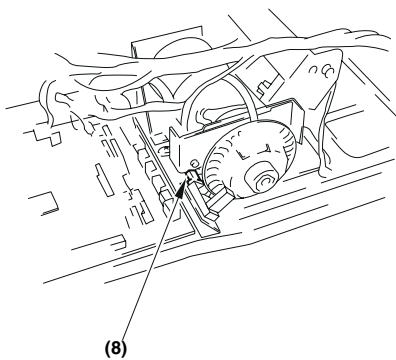
- 5 Remove the four screws (3), and remove the right hinge (4).



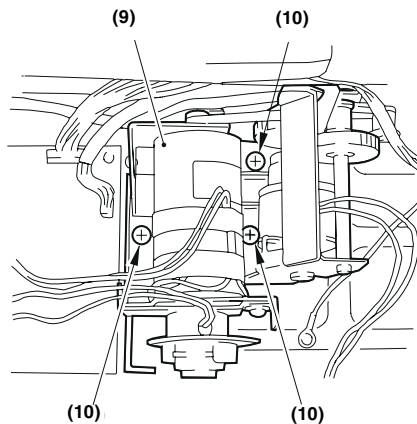
- 6 Remove the feeding motor.
- 7 Disconnect the connectors J6(5), J7(6), and J13(7) from the RDF control PBA.



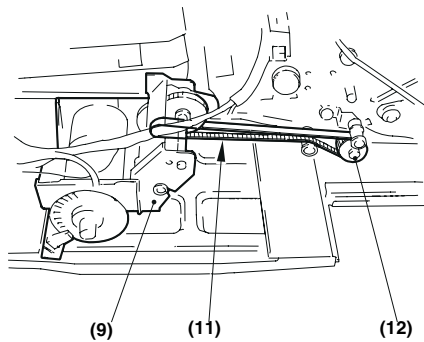
- 8 Disconnect the connector (8) for the sensor (S10).



- 9** Using a scribe, mark the position of the belt motor (9). Remove the three screws (10).

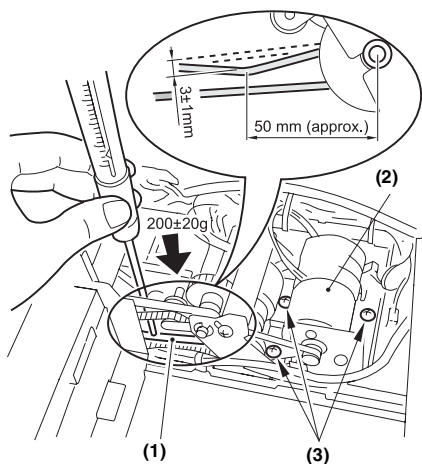


- 10** Detach the belt (11) from the roller (12). Remove the belt motor (9).



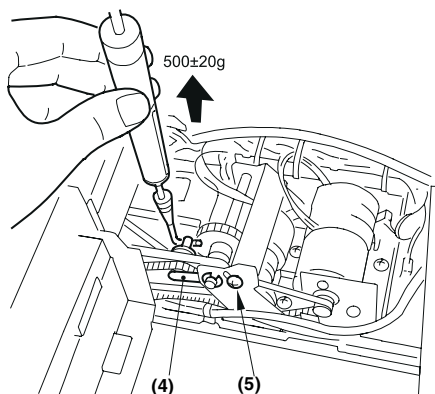
8 Replacing the belt motor unit

- 1 Fix the belt motor unit (2), with three screws (3) . There should be a slack of 3 ± 1 mm, when the timing belt (1) is pressed down with a force of 200 ± 20 g.



Spring gauge: range 0 - 600 g.

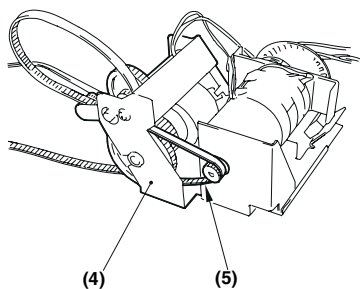
- 2 Pull the belt tensioner (4), with a force of 500 ± 50 g, and fix it with the screw (5).



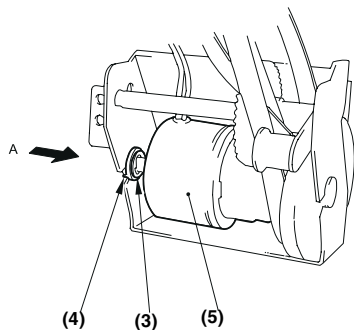
Spring gauge: range 0 - 600 g.

9 Removing the clutch unit

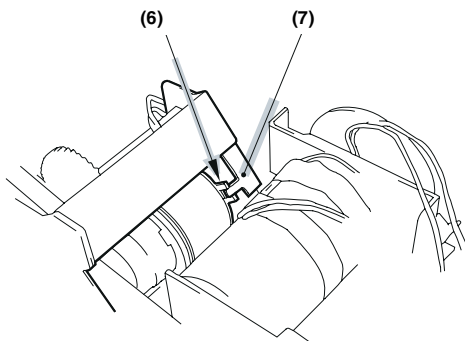
- 1 Remove the belt motor (1).
- 2 Detach the drive belt (2).



- 3 Remove the E-ring (3).
- 4 Slide the bush (4), in the direction of arrow A, and remove the clutch unit (5).

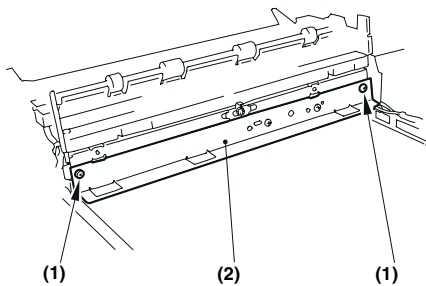


- 5 When installing the clutch unit, make sure that the stop ring (6) is engaged with the stopper (7) of the mount.

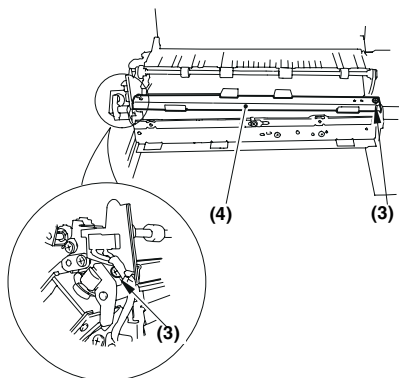


10 Pick-up roller unit

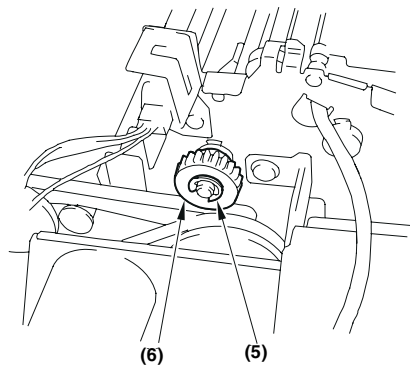
- 1 Remove the cover.
- 2 Remove the two screws (1). Remove the support (2).



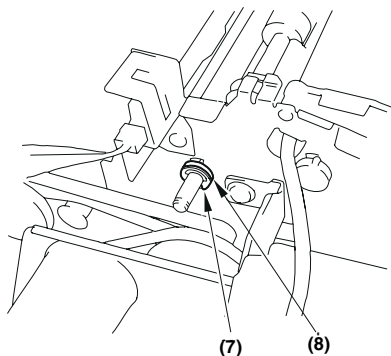
- 3 Remove the two screws, and remove the guide (4).



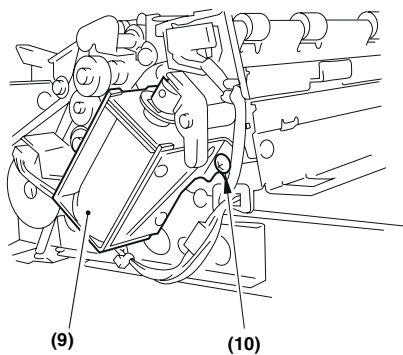
- 4 Remove the pick-up motor
- 5 Remove the E-ring (5), and remove the gear (6). (Take care not to drop the pin).



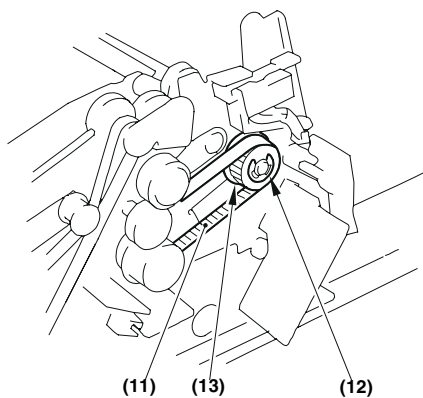
- 6 Remove the E-ring (7), and remove the bush (8).



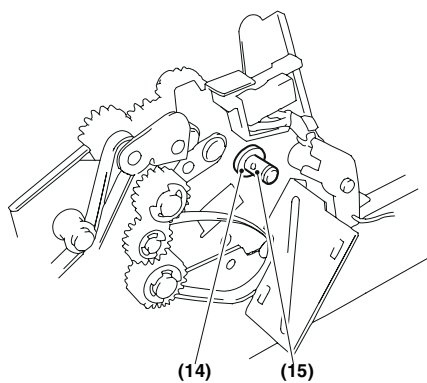
- 7 Remove the screw (10), and remove the solenoid (9).



- 8** Detach the timing belt (11), and remove the E-ring (12) and the gear (13).

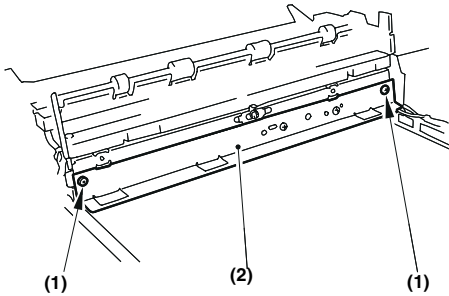


- 9** Remove the bush (14), and remove the pick-up roller (15).

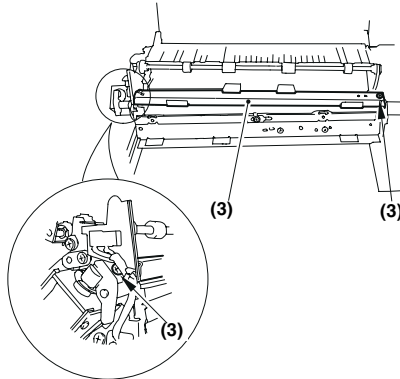


11 Pick-up roller

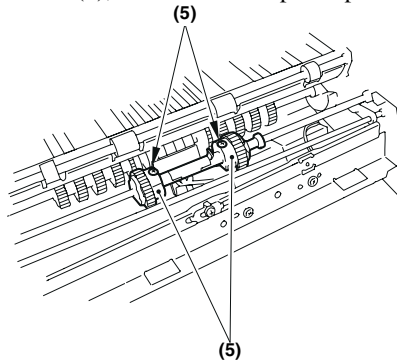
- 1 Remove the cover.
- 2 Remove the two screws (1). Remove the support (2).



- 3 Remove the two screws (3), and remove the guide (4).

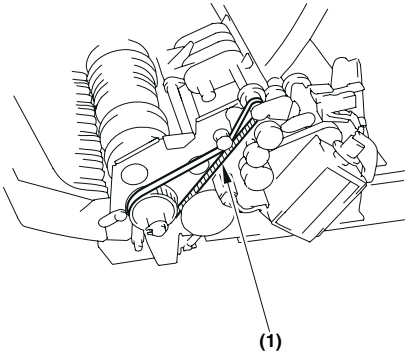


- 4 Rotate the pick-up rollers (5), so that they are as shown. Then, remove the screws (6), and remove the pick-up rollers (5).

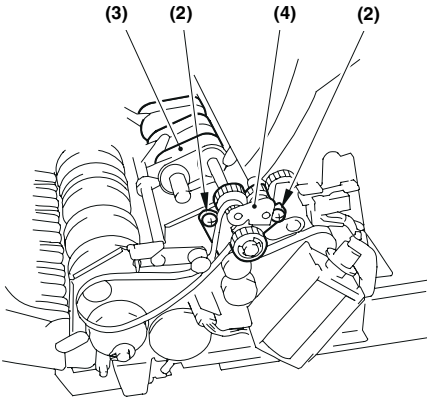


12 Separation Belt

- 1 Remove the cover.
- 2 Remove the drive belt (1).

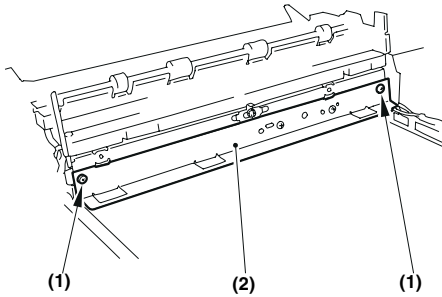


- 3 Remove the two screws (2) and remove the separation belt (3), together with the fixing plate (4).

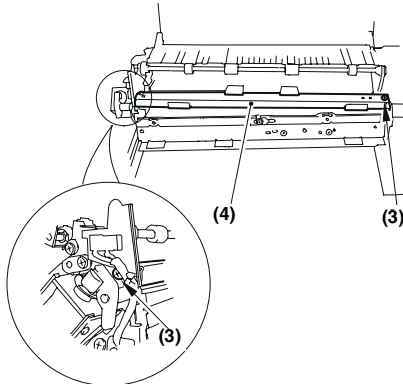


13 Feeding Rollers

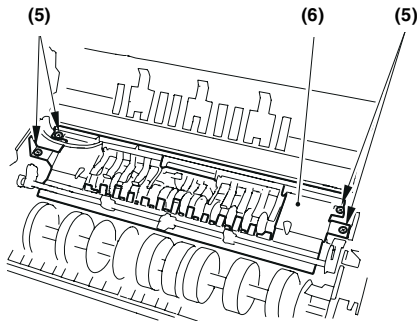
- 1 Remove the cover.
- 2 Remove the two screws (1). Remove the support (2).



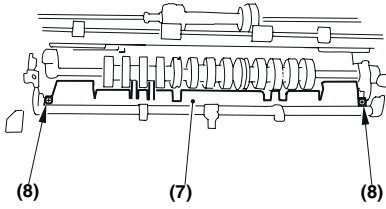
- 3 Remove the two screws (3), and remove the guide (4).



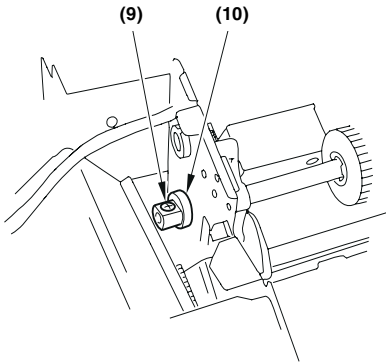
- 4 Remove the separation belt.
- 5 Remove the four screws (5), and remove the guide plate (6).



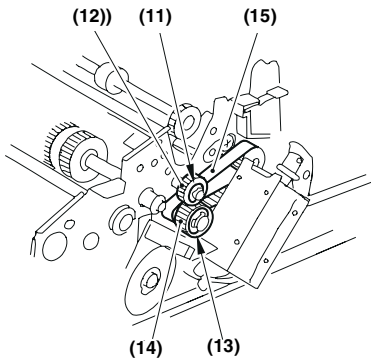
- 6** Remove the two screws (8), and remove the inside guide (7).



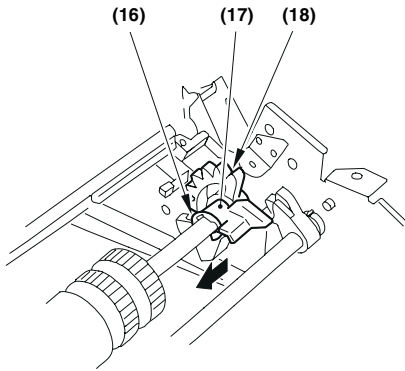
- 7** Remove the screw (9), and remove the ring (10).



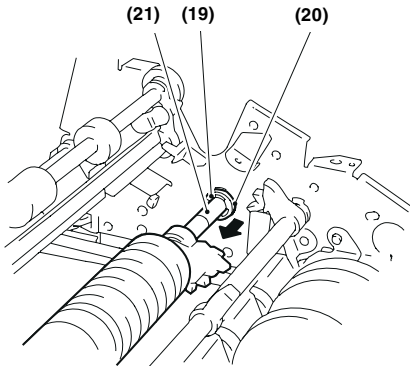
- 8** Remove the E-ring (11), and remove the idler gear (12).
9 Remove the E-ring (13), and remove the gear (14) and the timing belt (15).
(Take care not to drop the pin.)



- 10** Remove the E-ring (16), and slide the arm (17) and the gear (18) inwards.

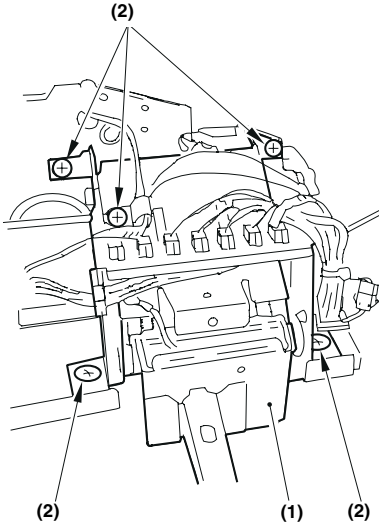


- 11** Remove the E-ring (19), and slide the bush (20) inwards. Then, remove the feeding roller (21).

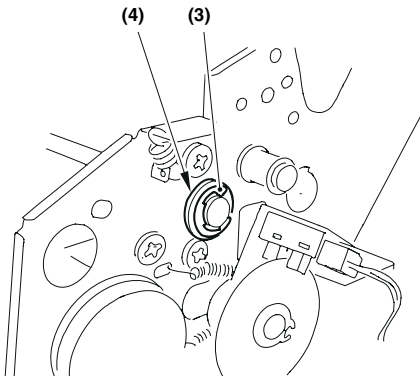


14 Registration roller

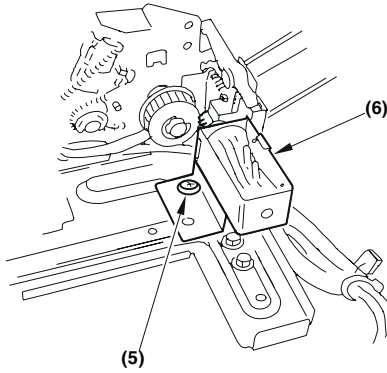
- 1 Remove the RDF from the copier.
- 2 Remove the cover.
- 3 Remove the feeding roller.
- 4 Remove the five screws (2), and remove the right hinge.



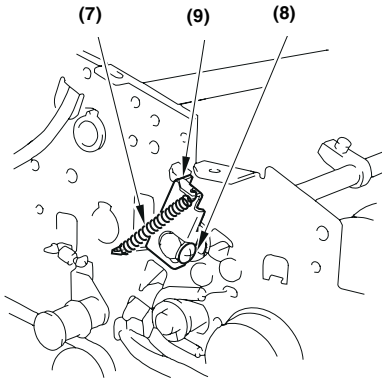
- 5 Remove the E-ring (3), and remove the bush (4).



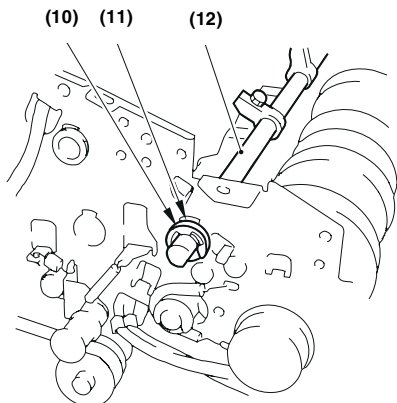
6 Remove the screw (5) , and remove the solenoid support (6).



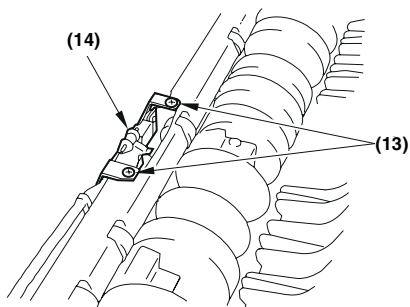
7 Detach the spring (7) and the screw (8). Then, remove the arm (9).



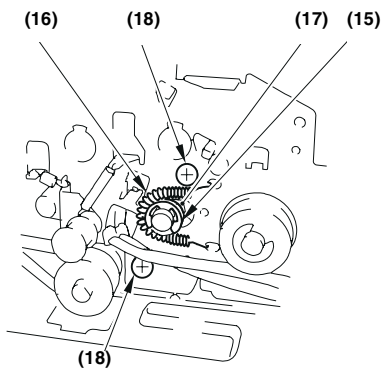
- 8** Remove the E-ring (10), and remove the bush (11). Then, remove the shaft (12).



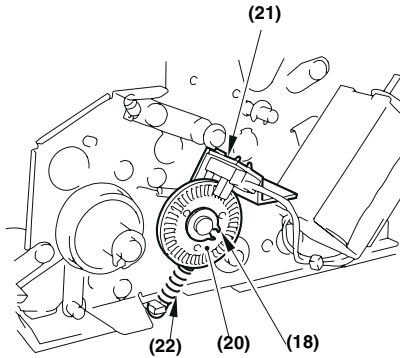
- 9** Remove the two screws (13), and remove the sensor support (14).



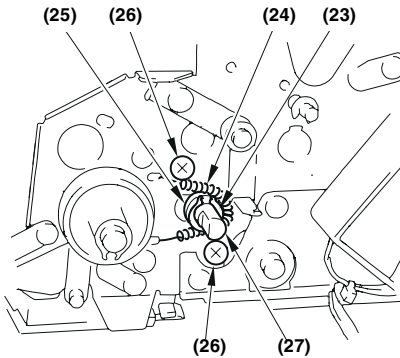
- 10** Remove the following:
E-ring (15), spring (16), bush (17), and the two screws (18)



- 11** Remove the following:
grip ring (19), disc (20), sensor support (21), and the spring (22)

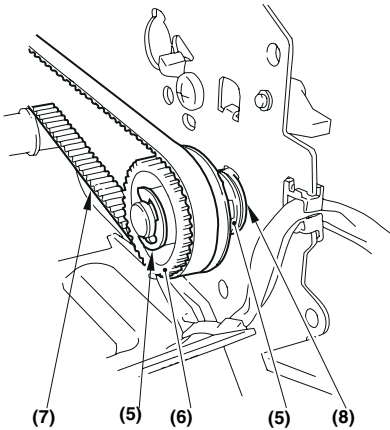


- 12** Remove the following:
grip ring (23), spring (24), bushing (25), and two screws (26).
Then, remove the registration roller (27).

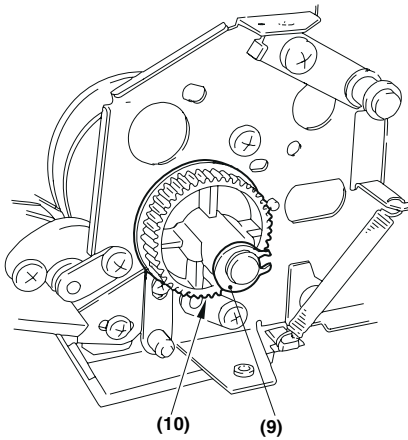


15 Delivery and reversing roller

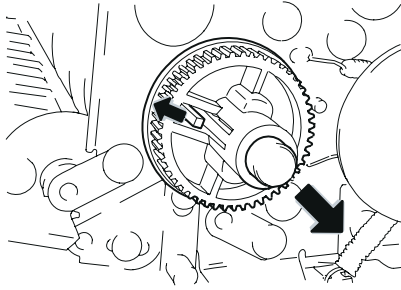
- 1 Remove the RDF from the copier.
- 2 Remove the cover.
- 3 Remove the pick-up roller
- 4 Remove the registration roller.
- 5 Remove the following:
E-ring (5), gear (6), timing belt (7), and bush (8).



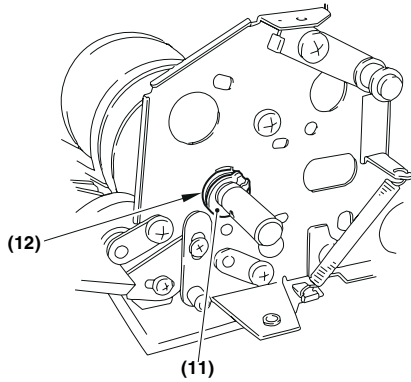
- 6 Remove the grip ring (9) of the gear (10).
(Take care not to drop the pin.)



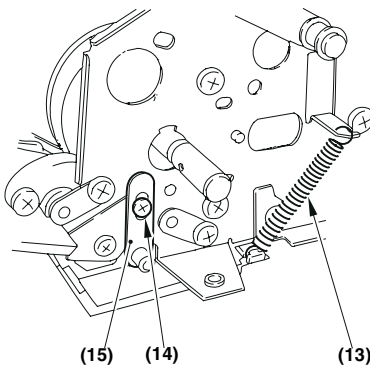
7 Remove the gear while unlocking it.



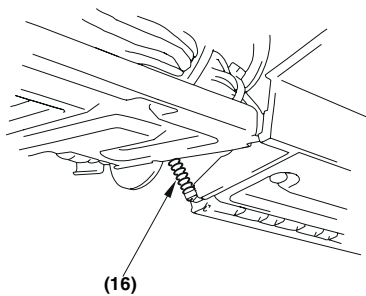
8 Remove the grip ring (11), and remove the bush (12).



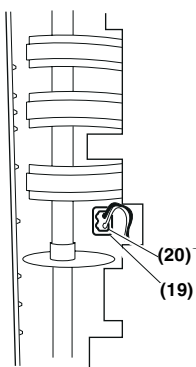
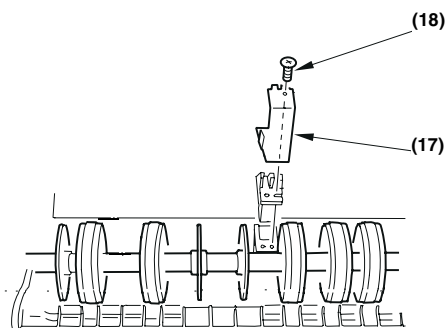
9 Detach the spring (13) and remove the screw (14). Then, remove the strip (15).



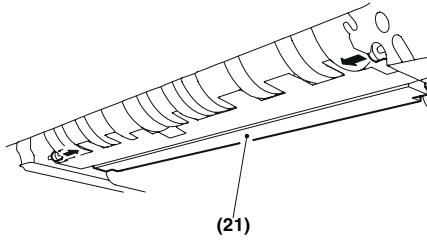
10 Remove the spring (16).



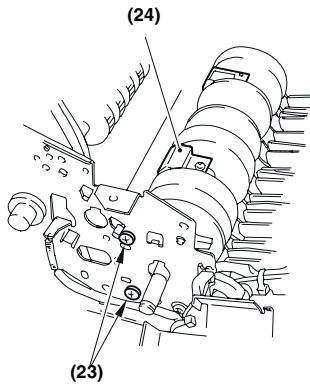
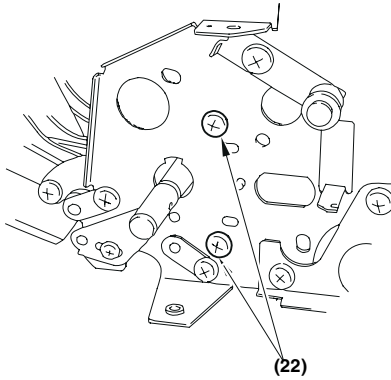
11 Remove the screw (18), and remove the sensor cover (17).
Then, disconnect the sensor connector (19).
Remove the registration sensor (20): pulling it upwards.



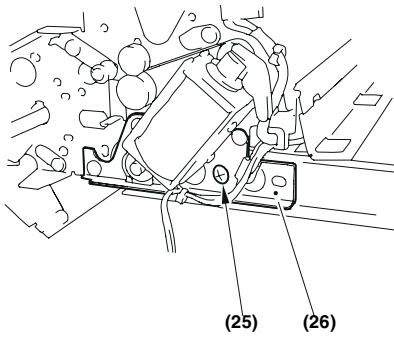
12 Remove the paper guide (21).



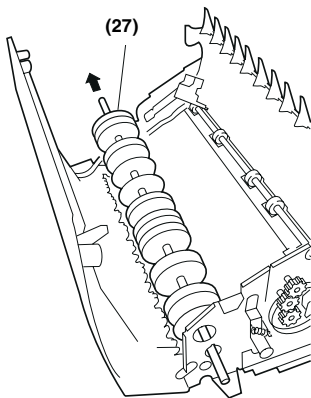
13 Remove the two screws (22) at the front, and the two screws (23) at the rear. Then, remove the reverse clip (24): pulling it downwards.



14 Remove the screw (25), and remove the strip (26).

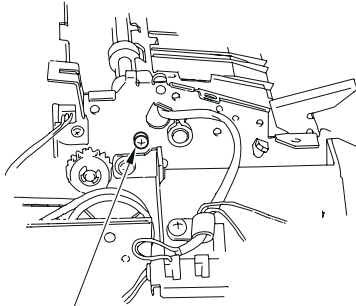


15 Remove the delivery and reversing roller (27).



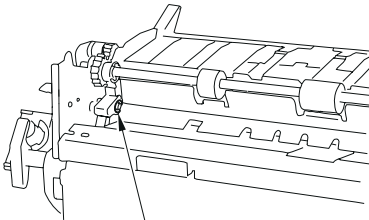
16 Delivery Roller (copier mode)

- 1 Remove the cover.
- 2 Remove the pick-up motor.
- 3 Remove the screw (1).



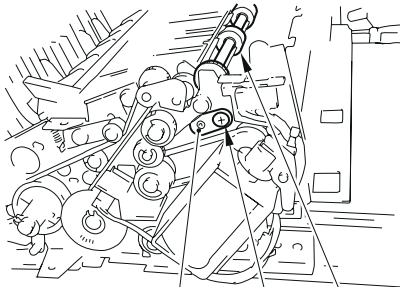
(1)

- 4 Remove the E-ring (2).



(2)

- 5 Remove the screw (3), and remove the pin (4).
Then, remove the delivery roller (5).



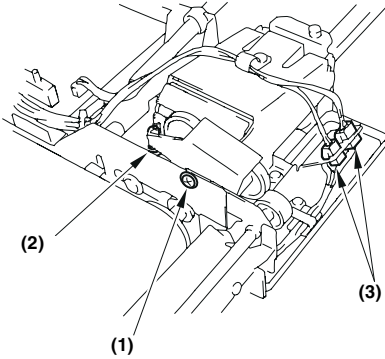
(4)

(3)

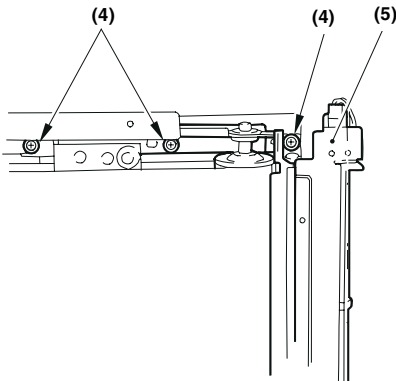
(5)

17 Delivery Roller (fax mode)

- 1 Remove the cover.
- 2 Remove the screw (1), and the spring (2).
Then, disconnect the connectors (3).

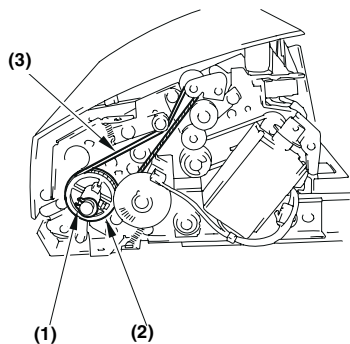


- 3 Remove the three screws (4), and remove the delivery roller (5).

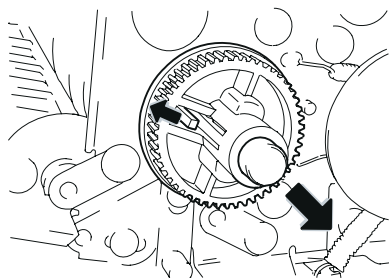


18 Reversing guide

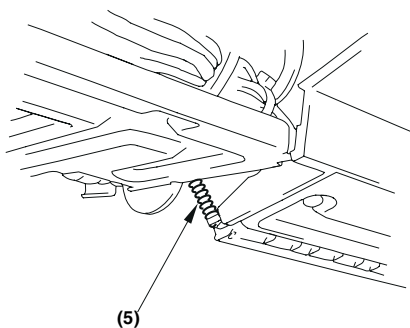
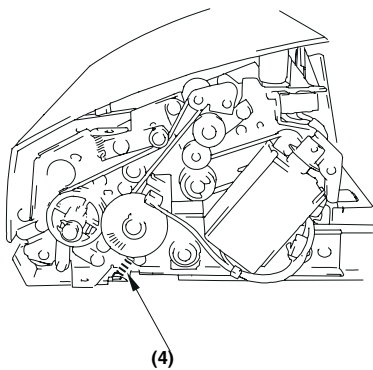
- 1 Remove the cover.
- 2 Remove the grip ring (1), and the gear (2). Remove the timing belt (3).



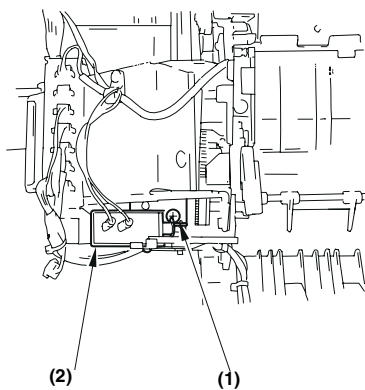
Note: Remove the gear while unlocking it.



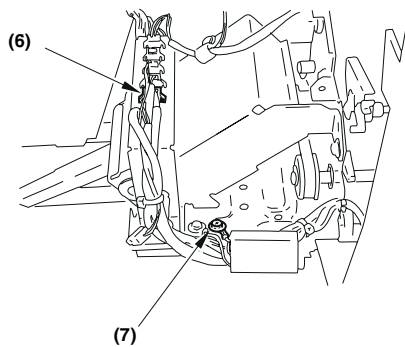
3 Detach the springs (4) and (5) from each end of the reversing guide.



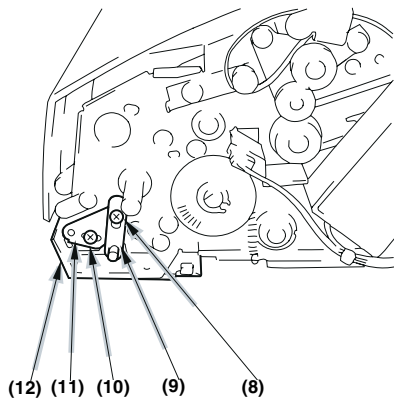
4 Remove the screw (1), and remove the solenoid (2).



5 Disconnect the sensor (6), and disconnect the earth cable (7).

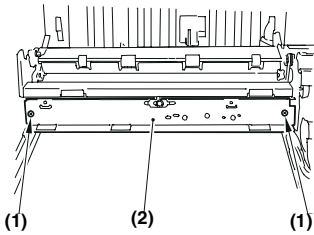


6 Remove the following:
Screw (8), the strip (9), screw (10), the pin (11).
Then, remove the reversing guide (12).

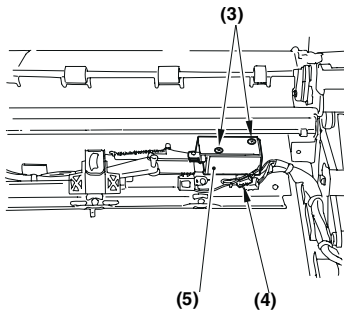


19 Removing the stop solenoid

- 1 Remove the cover.
- 2 Remove the two screws (1). Remove the support (2).

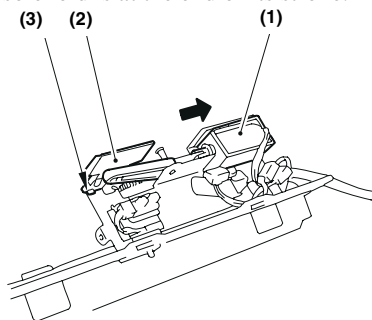


- 3 Remove the two screws (3). Disconnect the connector (4). Then, remove the stop solenoid (5).



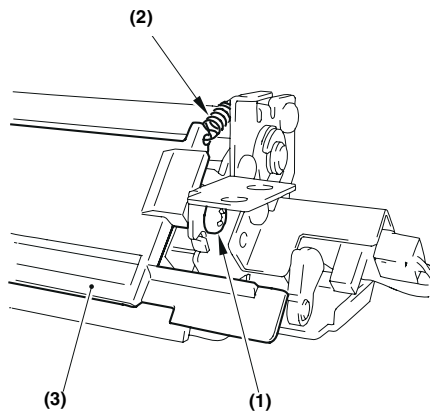
20 Fixing the stop solenoid

- 1 Fix the solenoid (1) in place where the stopper (3) (rubber block) comes into contact with the trailing edge of the stopper plate (2) when the plunger of the solenoid is at the end of its stroke.

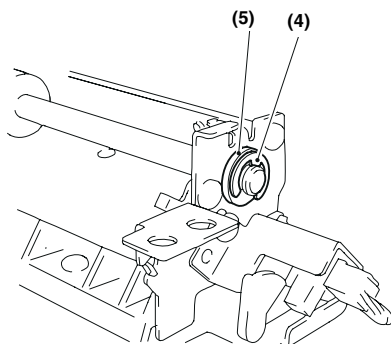


21 Stamping Solenoid SL4

- 1 Remove the delivery roller (fax mode)
- 2 Remove the screw (1), and the spring (2). Remove the guide (3).

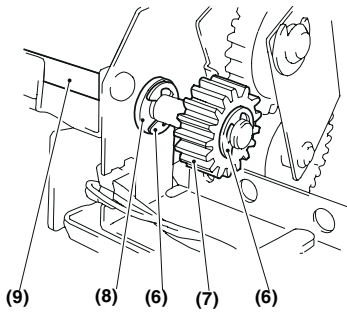


- 3 Remove the E-ring (4), and remove the bush (5).

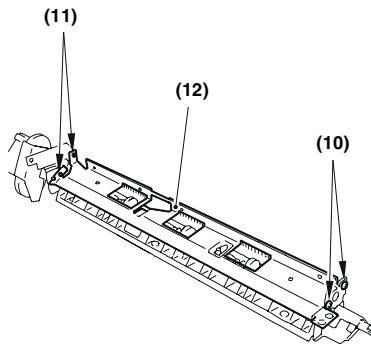


4 Remove the following:

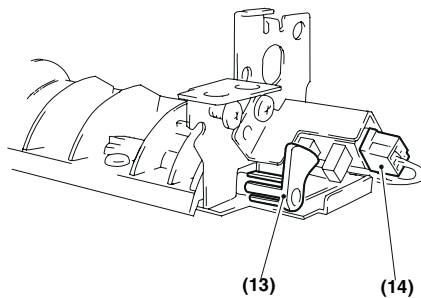
Two E-rings (6), gear (7), bush (8), and the delivery roller (9).



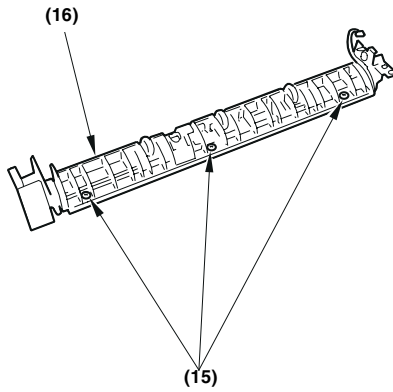
5 Remove the two screws (10) at the front, and the two screws (11) at the rear. Then, remove the paper guide (12).



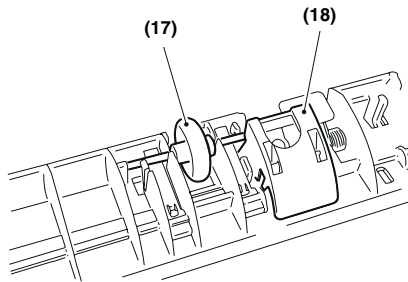
6 Remove the vane of the sensor (13). Disconnect the connector (14).



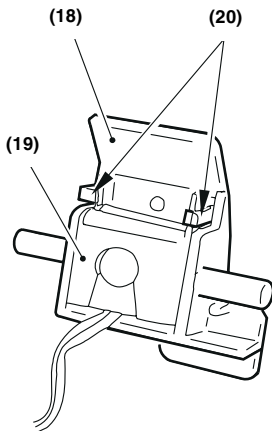
7 Remove the three screws (15), and remove the support (16).



8 Remove the delivery roller (17), and remove the support for SL4 (18).

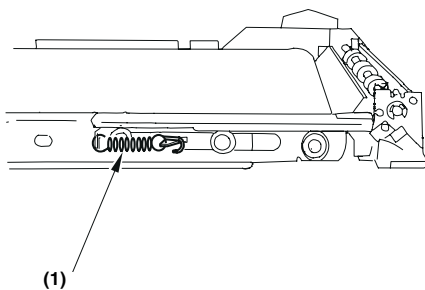


9 Release the clips (20), and remove the solenoid SL4 (19).

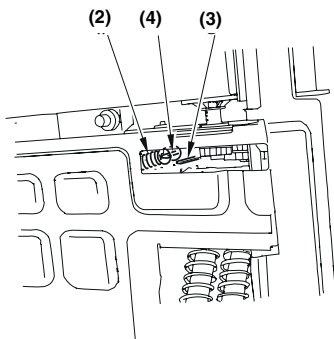


22 Feeding Belt

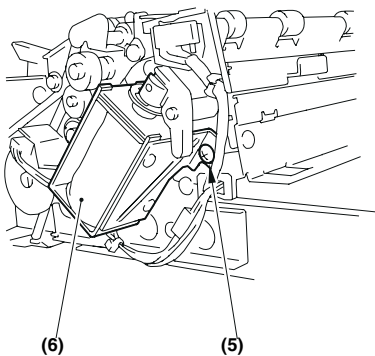
- 1 Remove the cover.
- 2 Remove the spring at the front(1).



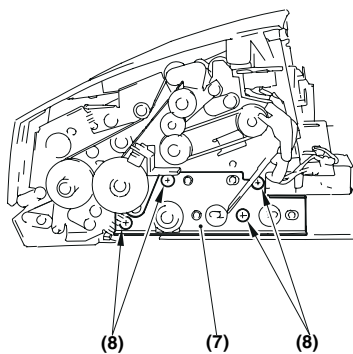
- 3 Detach the spring at the rear (2) from the hook (3). Attach the spring to the temporary hook (4).



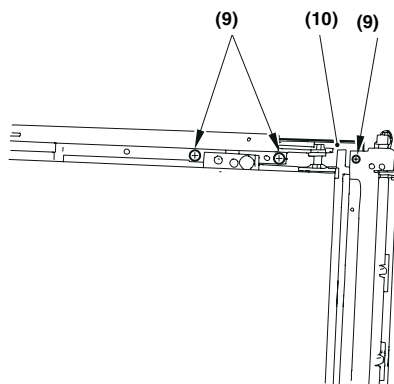
- 4 Remove the screw (5), and remove the solenoid (6).



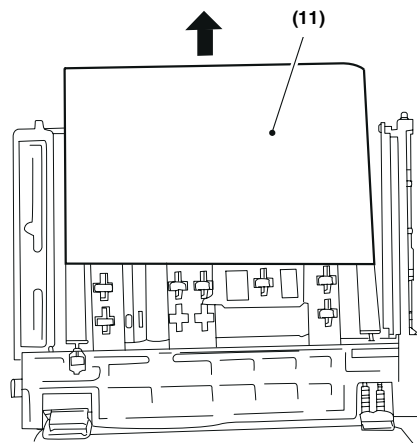
5 Remove the four screws (8), and the side plate (7).



6 Remove the three screws (9), and remove the outer frame (10).

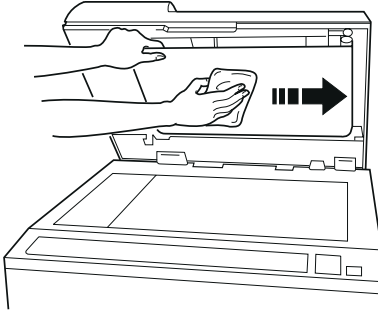


7 Pull the feeding belt (11) out to the front.



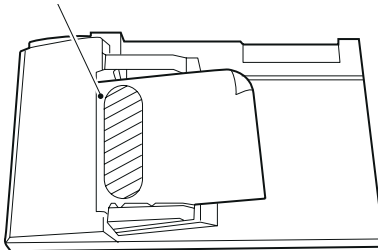
23 Cleaning the belt

- 1 When cleaning the feeding belt, move the belt in the direction of the arrow A.



- 2 Moisten a sheet of paper with alcohol.
Place the paper on the document tray.
Shift bit 6 to ON: DIP switch DSW1. The document will be fed in copier mode.
Then, shift bits 5 and 6 to ON: DIP switch DSW1. The document will be fed in fax mode.

Area moistened with alcohol



- 3 When the cleaning is completed, shift all the bits to OFF : DIP switch DIPSW1.
- 4 Refit the cover over the RDF control PBA.

24 Sensors

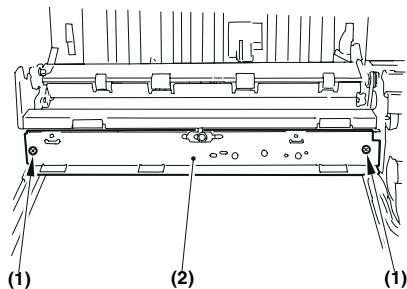
There are two sensors in the paper path. The document sensor S1 and the registration sensor S3.

(The pick-up sensor S7, the delivery sensor S6 and the reversal sensor S8 are sensors with interrupter vanes.)

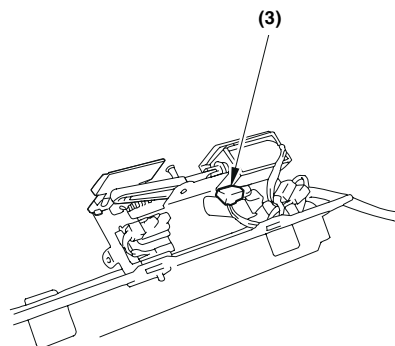
The orifice of a sensor attracts dust. The dust can lead to faulty operation. The sensors should be cleaned as follows:

25 Cleaning the sensor S1

- 1 Remove the two screws (1). Remove the support (2).

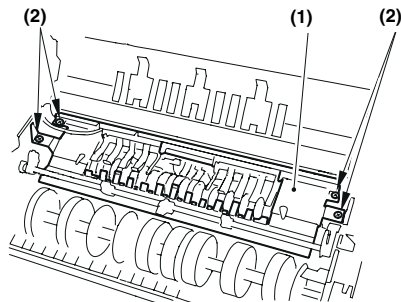


- 2 Clean the sensor S1 (3).

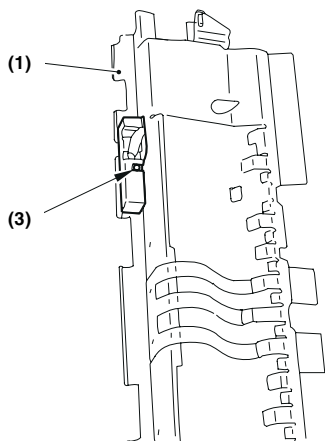


2. Sensor LED1 for S1

- 1 Remove the separation belt.
- 2 Remove the four screws (2), and remove the guide plate (1).

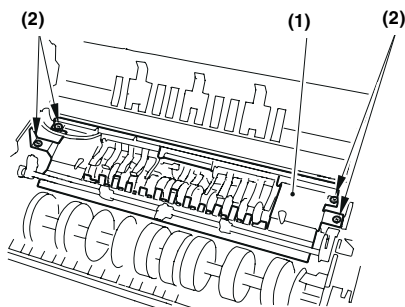


- 3 Clean the orifice of the LED1 (3). The led is located behind the guide plate (1).

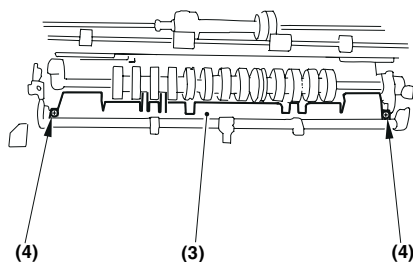


Registration sensor S3.

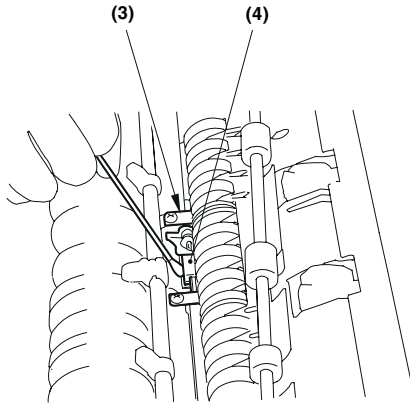
- 1 Remove the separation belt.
- 2 Remove the four screws (2), and remove the guide plate (1).



- 3 Remove the two screws (4), and remove the inside guide (3).

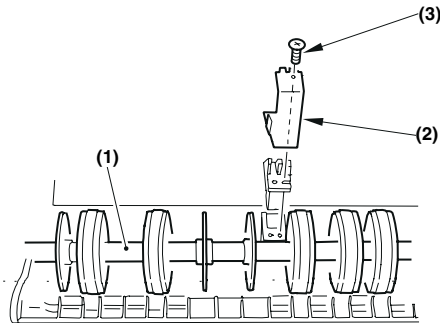


- 4 Clean the sensor S3. The sensor is fitted to the inside guide (4).

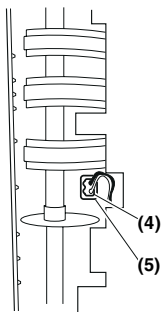


Sensor LED3 for S3.

- 1 Remove the screw (3), and remove the cover (2) from the LED3. Reversing roller (1).

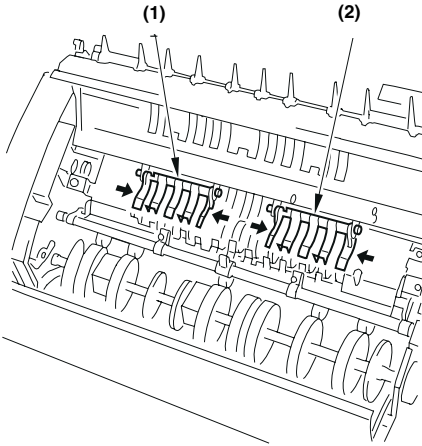


- 2 Remove the reversing guide.
3 Disconnect the connector (4) from the LED3. Withdraw the LED (5) vertically.

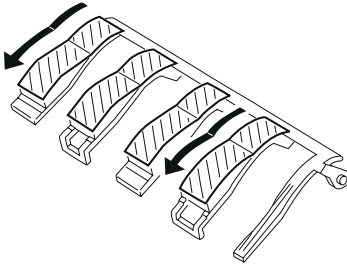


Separation shoes

- 1 Remove the separation belt.
- 2 Remove the separation shoes: rear (1) and front (2).
 - The separation shoes can be removed by pushing in the arrowed direction.

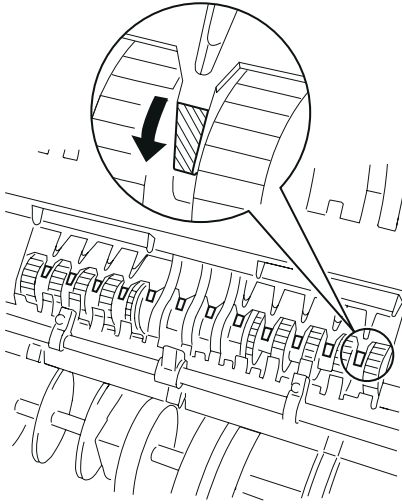


- 3 Clean the shaded areas of the separation shoes.
 - Wipe only in the document feed direction.



Separation guide

- 1 Remove the separation belt.
- 2 Remove the separation shoes: front and rear.
- 3 Clean the shaded areas (12 areas) of the separation guide.
 - Wipe only in the document feed direction.



Lubrication

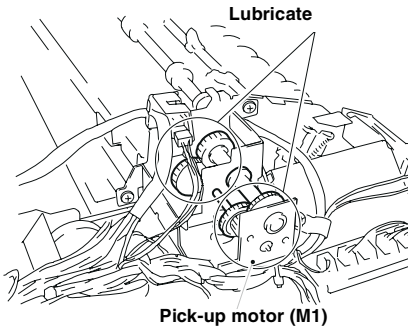
The RDF requires no lubrication. Apply lubricant as necessary when replacing gears, etc.

Caution: *When applying lubricant, take care so that it will not come into contact with the timing belt or the cable..*

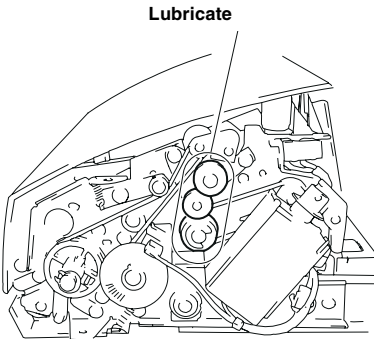
Pick-Up Drive

Lubricate the following parts:

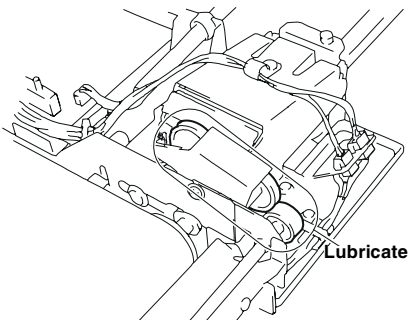
Rear



Front



Delivery Drive.



Functional description

1 Features

- 1** Handles fax documents for page collation.
The RDF offers two feeding modes: copier and fax.
In copier mode: it feeds the bottom page first.
In fax mode: it feeds the top page first.
- 2** Stamping function.
The RDF has a stamping function. The fax documents are stamped, to indicate that they have been processed.
- 3** Measuring the size of documents.
The RDF measures the length (in feeding direction) and the width of documents. This information is sent to the copier.

2 Specifications

RDF

Item	Specifications	Remarks
Pick-up of the documents	Circulating system; automatic pick-up and delivery for two-sided documents.	
Orientation of documents	Face up	
Position of the documents	Centre reference	
Separation of the documents	Fax mode: separation from the top Copier mode: separation from the bottom	
Type of document	Sheet documents of 50 to 105 g/m ² single sided documents, two-sided documents	Non-standard lengths of documents should not be used
Size of document	A5/STMT to A3/11"x 17"	
Capacity of the document tray	Small sizes (50 sheets, maximum of 5.5 mm high): A5, B5, B5R, A4, A4R, STMT, LTR, LTRR Large sizes (25 sheets): B4, A3, LGL, 11"x 17"	Paper of 80 g/m ² or less.
Capacity of the output tray	Small sizes (50 sheets): A5, B5, B5R, A4, A4R, STMT, LTR, LTRR Large sizes (25 sheets): B4, A3, LGL, 11"x 17"	Paper of 80 g/m ² or less.
Document processing mode	Processing of single sided documents. Processing of two-sided documents. Processing for image composition.	
Measuring the side of the documents	The length (in feeding direction) and the width	
Detection of document in the tray	Possible, in combination with copier systems	
Continuous feeding	Provided	In fax mode only.

Item	Specifications	Remarks
Mode for various sizes of documents	Provided	Of the same width only.
Stamping function	Provided	In fax mode only.
Communication with copier	IPC communication 2	
Power supply	From copier (24 VDC)	
Maximum power consumption	170 W.	
Weight	14.1 kg/31 lbs. (approximately)	Excluding the output tray
Dimensions (WxDxH)	684x527x161 mm / 26.9" x 20.7" x 6.3".	Excluding the output tray
Operating environment: Temperature Humidity	Same as for the copier	

Specifications subject to change without notice.

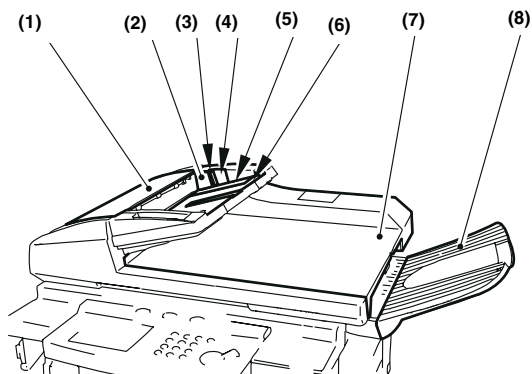
The following types of documents must not be used:

- Documents with an opacity of 80% or less, transparencies, and transparent documents.
- Documents with a carbon coating on the back.
- Documents with cut-and-paste work.
- Documents with cuts, holes, or tears.
- Documents with cuts, holes, or tears.
- Documents with curling and wrinkling.

Note: *To protect against damage, avoid feeding the same document more than 30 times.*

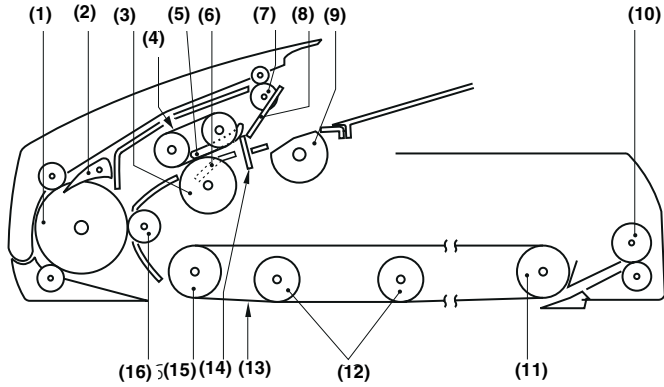
3 Nomenclature

External View



1. Upper cover	5. Document tray
2. Side guide	6. Tray
3. T-O-T-S bar	7. Cover
4. Set indication	8. Output tray

Cross Section



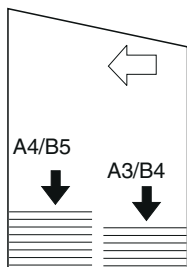
1. Reversing roller	7. Delivery/pick-up roller	12. Retaining roll
2. Paper deflecting plate	8. Paper holding plate	13. Feeding belt
3. Feeding roller	9. Pick-up roller	14. Paper stopper plate
4. Separation belt	10. Delivery roller	15. Feeding belt drive roller
5. Separation flapper	11. Feeding belt link roller	16. Registration roller
6. Separation front guide		

4 Operation

Set indication

The set indicator is switched ON when a document is placed on the document tray.

The set indicator flashes when a document jams.



Using the RDF

- 1 If the document is size B5R or size A5 or larger (in feeding direction), open the tray.
- 2 Set the side guide to suit the size of the original.

Note: When copying documents with a width exceeding 297 mm, it is necessary to release the guide lock.

- 3 Place the stack of documents in the document tray, with the first page at the top.
- 4 Select copier mode or fax mode, as appropriate.
- 5 Press the copy button.

Warnings and Actions

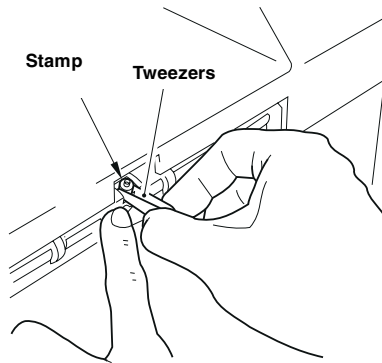
If the set indicator starts to flash, while the documents are being fed, this may be due to a jammed document.

Proceed as follows:

- 1 Remove the documents from the document tray.
- 2 Open the RDF cover, and remove any document that is jammed. Then, open the RDF to clear the warning. Remove any documents from the platen.
- 3 Sort the documents into their original sequence. Replace the stack of documents in the document tray.

Replacing the stamp

If stamp marks are no longer readable, replace the stamp using a pincet.

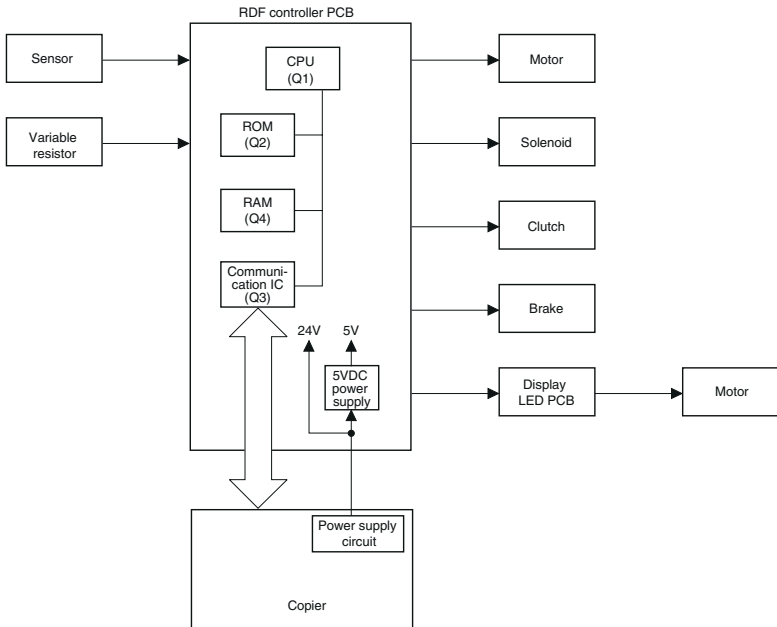


5 Functional design

Electrical circuitry

The electrical circuits are controlled by the microprocessor (CPU) on the RDF control PBA.

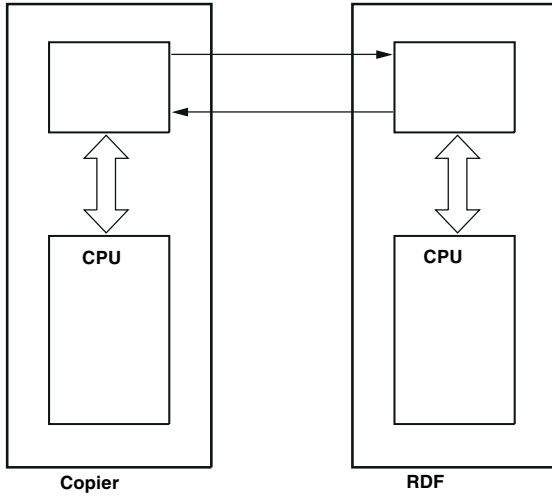
The CPU receives various signals from the sensors in the RDF and in the copier. In turn, the CPU generates signals to activate the various electrical components, according to pre-programmed instructions.



6 Communication with the copier

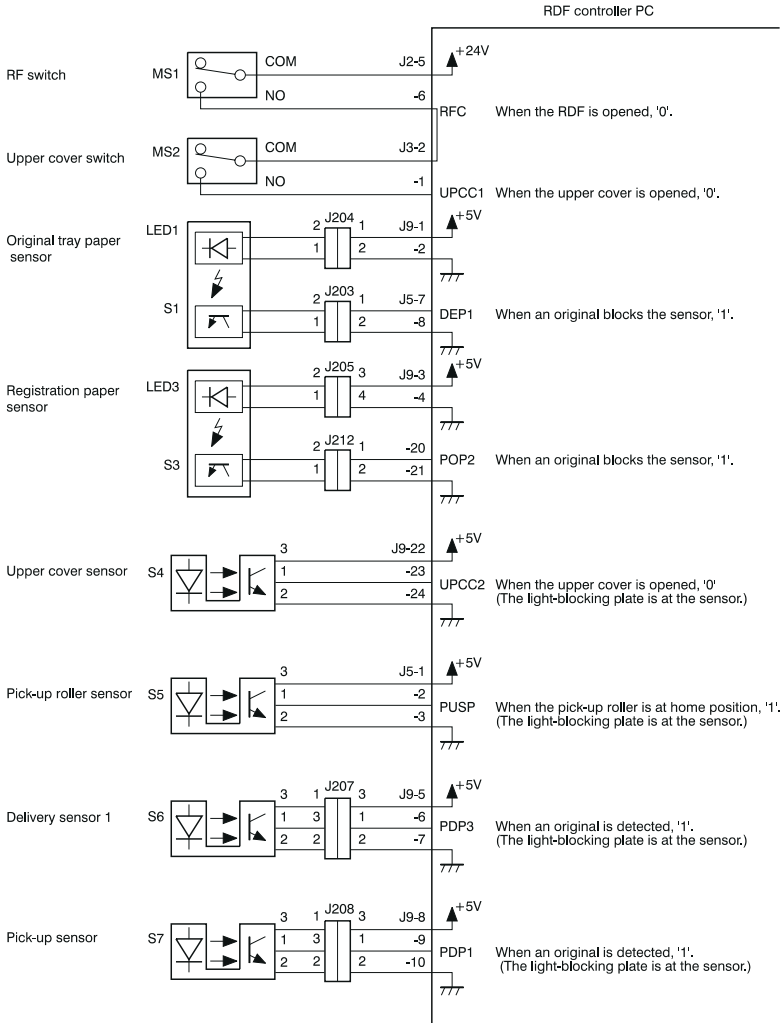
An IPC communication mode is used for the communication between the RDF and the copier.

An error message “ E400 ‘ or ‘ E712 ‘ is displayed if any errors occur with the IPC communication.

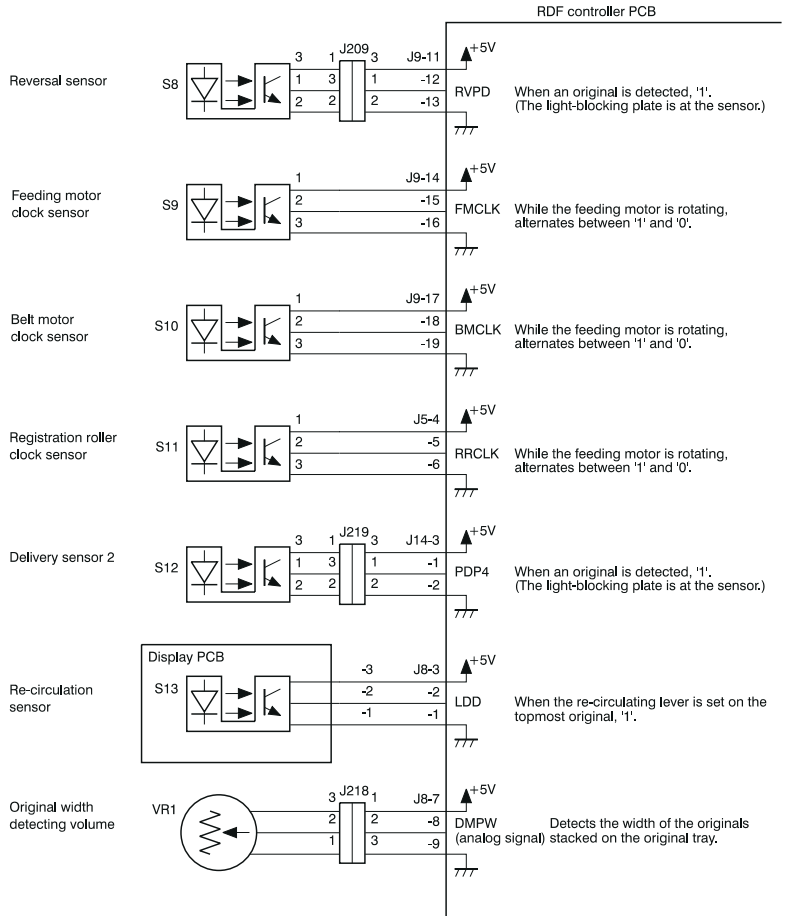


7 Inputs to the RDF Control PBA

1. Inputs to the RDF Control PBA

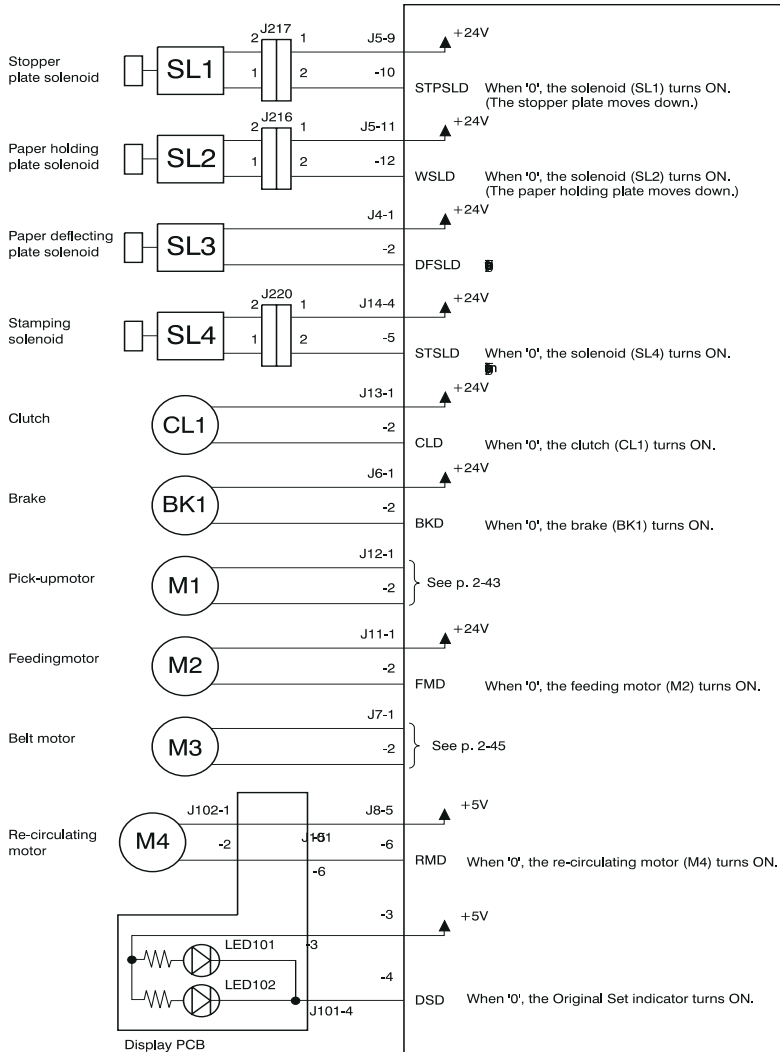


2. Inputs to the RDF Control PBA



8 Outputs from the RDF Control PBA

1. Outputs from the RDF Control PBA



9 Principle of operation

Outline

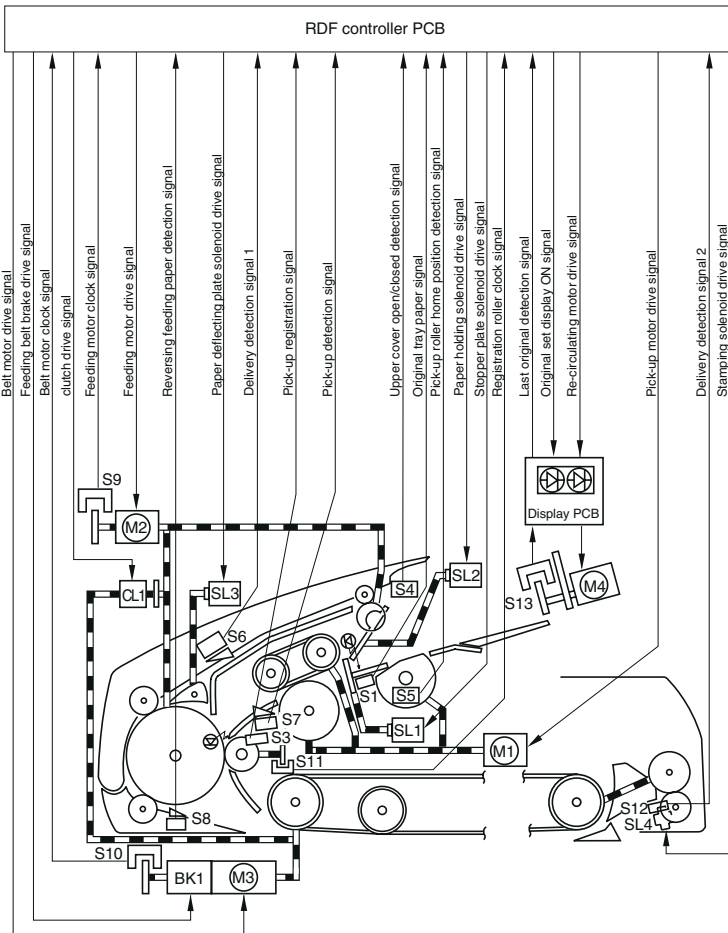
Three motors and a clutch are used in the RDF. These are used to pick-up the documents, feed the documents and eject the documents.

The pick-up motor (M1) picks up the documents.

The feeding motor (M2) delivers and reverses the documents.

The belt motor (M3) carries the documents to the platen, stops the documents and ejects them after they have been scanned.

The clutch CL1 engages and disengages the drive from the feeding motor (M2) and the belt motor (M3)



Operation

The RDF offers six operating modes:

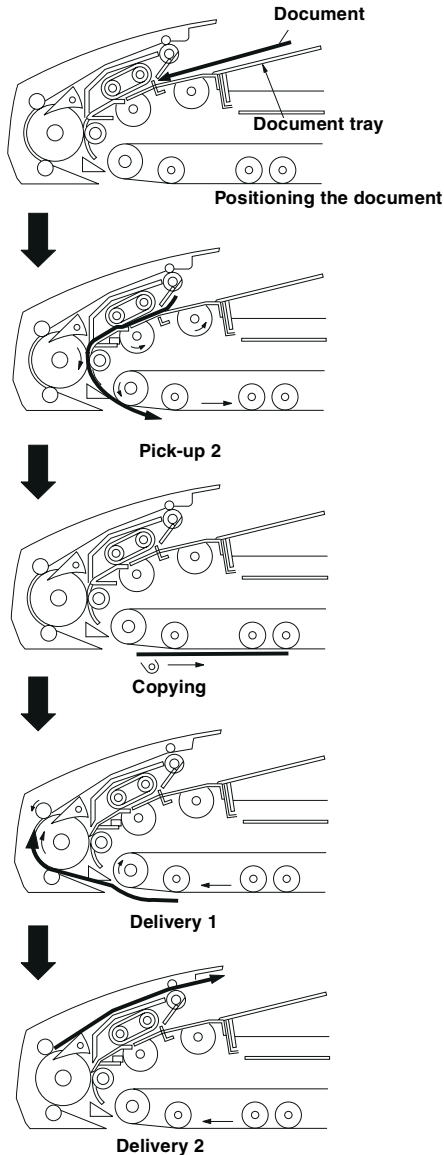
- 1 single sided documents to single sided copy
- 2 two-sided document to single sided copies
- 3 two small-sized documents to a page-layout copy
- 4 one-sided documents to two-sided copy
- 5 two-sided document to two-sided copy
- 6 fax mode feeding

One of the following operations will be executed, according to the instructions from the copier:

1) Single sided documents Mode

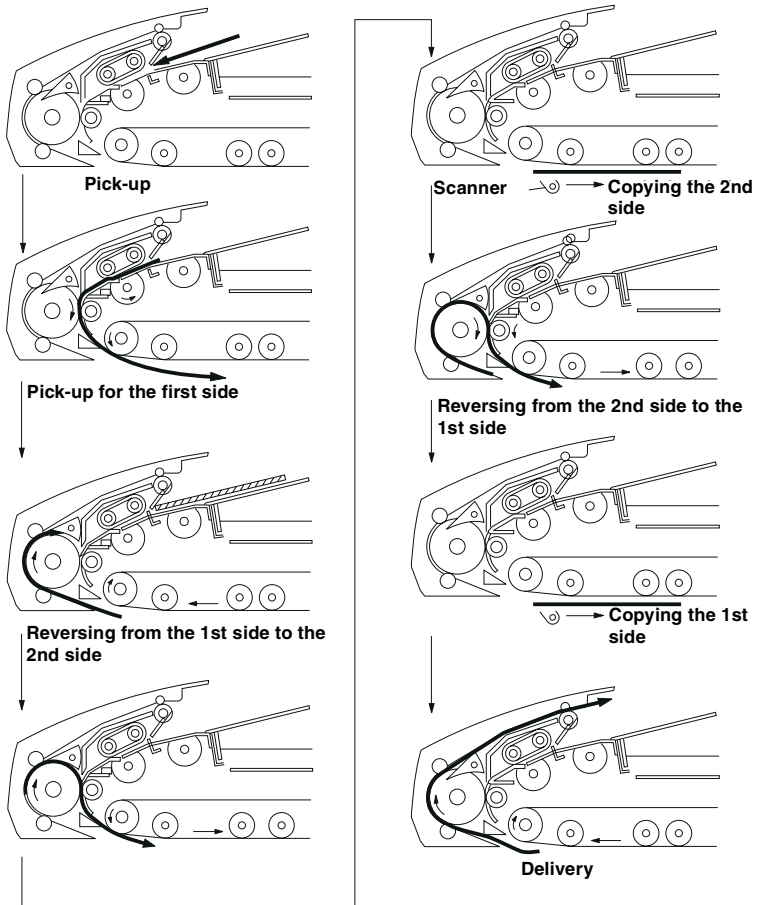
The RDF picks up the bottom page of the stack on the document tray, and carries the document to the platen.

When the scanning is completed, the document is taken off the platen, and returned to the document tray.



2) Two-Sided Document Mode

In this mode, the RDF reverses a two-sided document, to copy the rear side (1st side) and the front (2nd side).



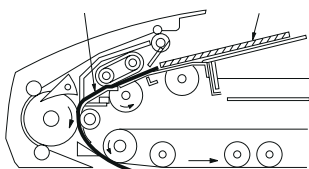
3) Image Composition Mode

In this mode, the RDF places two documents on the platen for a reduced copy. The following sizes of documents can be used for this mode:

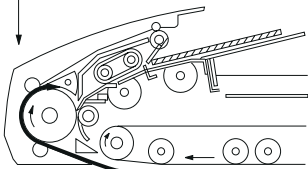
A/B-configured RDF	INCH-configured RDF
A5	STMT
B5	LTR

A/B-configured RDF	INCH-configured RDF
A4	

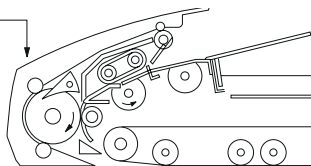
1st document 2nd document



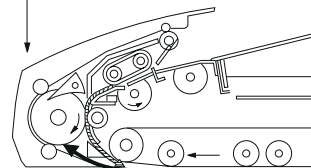
Picking up the 1st document



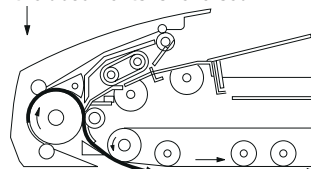
Reversing from the 1st side to the 2nd side



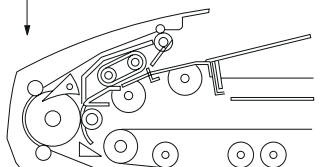
Picking up the 2nd document



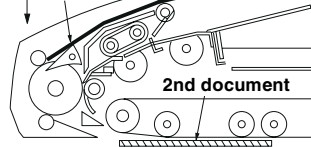
Picking up the 2nd document, while reversing the 1st document. At this time, the sequence of the documents is reversed



Feeding the 2nd document and the 1st document



1st document → Copy

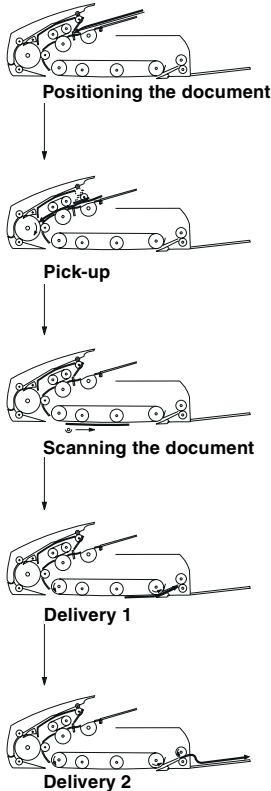


Delivery of the 1st document and, then, the 2nd document

4) Feeding document for faxing

The RDF picks up the top page of the stack on the document tray, and carries the document to the platen.

When the scanning is completed, the document is taken off the platen, and ejected to the output tray.



5) Re-Circulating Mode

In this mode, the RDF assists with the sorting of the copies. Each document is copied in sequence, so generating a complete set of copies. This operation is repeated until the required number of sets have been made.

■ Using Re-Circulating Mode

- 1 Position the documents on the document tray.
- 2 Select the sort mode.
- 3 Enter the number of sets, using the numeric keypad.
- 4 Press the copy button.

10 Checking the quality of the documents

1) Outline

The RDF carries out the following checks:

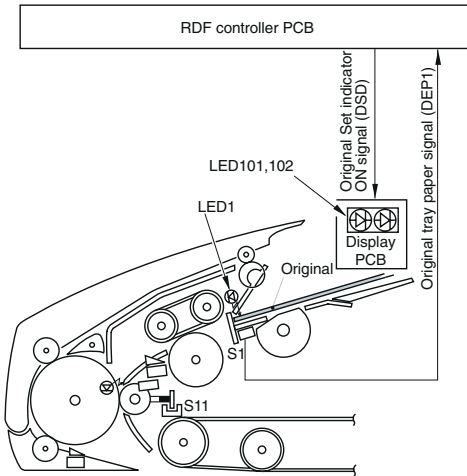
- 1 The presence of a document on the document tray.
- 2 The size of the document on the document tray.
- 3 The number of documents on tray, to give confirmation that all documents have been copied.
- 4 The trailing edge of the last document.

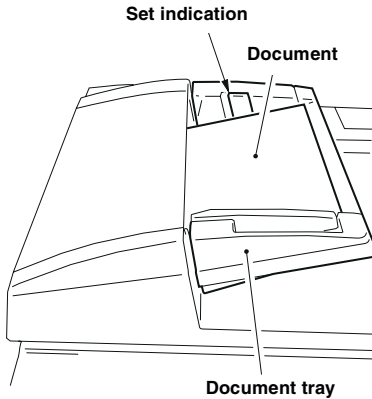
2) Checking the Presence of Originals

Sensor S1 checks the presence of a document on the document tray.

When a document is placed on the document tray, the light from LED1 is blocked. The document sensor S1 generates the original detection signal DEP1.

When the RDF control PBA receives the DEP1 signal, the PBA switches on the set indicator (LED101 and LED 102).





Measuring the Size of Documents

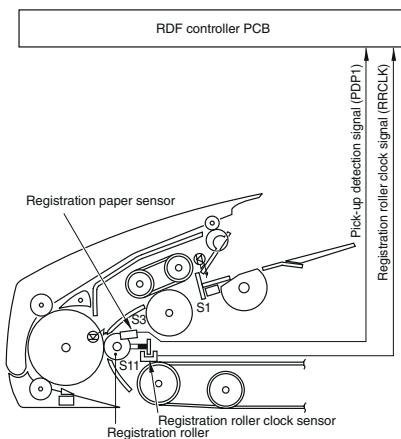
Outline

The measurements of the document are monitored to obtain correct control and, for fax applications, for use in the communication protocol.

Document size (length in feeding direction)

The length of a document, in the feeding direction, is checked by the sensor (S3) and by the clock sensor (S11).

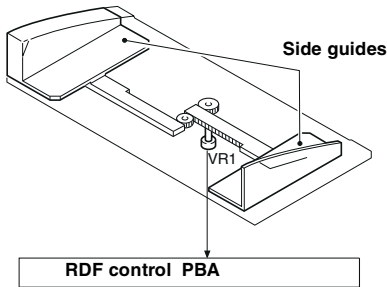
The registration paper sensor checks the leading edge and the trailing edge of an original, while the registration roller clock sensor checks the rotation of the registration roller while the original moves past it. (The RDF controller computes the rotation into a length.)



Document size (in width direction)

VR1 measures the width of a document, while it is on the document tray. The resistance of VR1 varies in accordance with the movement of the side guides.

The change of resistance are translated into a width measurement by the RDF control PBA.



The dimensions obtained by the RDF are translated into a default size.

RDF is configured for A/B sizes

Default size	Vertical length	Width of the document
B5R	257mm	177mm to 187mm
A5	148.5mm	205 to 215mm
A4R	330mm	
FOOLSCAP	330mm	
B5	182mm	252 to 262mm
B4	364mm	
COMPUTER paper	381mm	274 to 284mm
A4	210mm	292 to 302mm
A3	420mm	

For the vertical length: the default size will be the default size ± 10 mm.

for the width dimension: the default size will be the default size ± 5 mm.

Other lengths are not considered to be default sizes.

RDF is configured for INCH

Default size	Vertical length	Width of the document
STMT	140mm	211 to 221mm
LTRR	279mm	
FOOLSCAP	330mm	
LGL	356mm	
LTR	216mm	274 to 284mm
COMPUTER paper	381mm	
11"x 17"	432mm	

For the vertical length: the default size will be the default size ± 10 mm.
for the width dimension: the default size will be the default size ± 5 mm.
Other lengths are not considered to be default sizes.

RDF is configured for A/B sizes

Default size	Vertical length	Width of the document
B5R	257mm	177 to 187mm
A5	148mm	205 to 213mm
A4R	297mm	
STMT	140mm	214 to 221mm
LTRR	279mm	
FOOLSCAP	330mm	
LGL	356mm	
B5	182mm	252 to 262mm
B4	364mm	
LTR	216mm	274 to 284mm
COMPUTER paper	381mm	
11"x 17"	432mm	
A4	210mm	
A3	420mm	

For the vertical length: the default size will be the default size ± 10 mm.
for the width dimension: the default size will be the default size ± 5 mm.
Other lengths are not considered to be default sizes.

4) Checking the Number of Documents

The number of documents is counted. This information relates to:

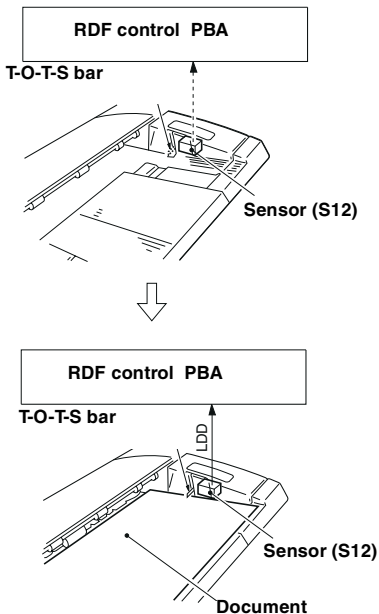
- whether the documents have been copied
- the passage of the trailing edge of the last document
- how many documents there are.

1 Checking whether the documents have been copied

In copier mode, the same tray serves as the pick-up tray and the delivery tray. It is therefore necessary to distinguish between the documents that have been copied and the documents that still need to be copied.

For this purpose, the RDF places a top-of-the-stack bar on the top page of the stack of documents.

When copying proceeds, and all the documents have been picked up, the t-o-t-s bar drops through an aperture in the document tray. Sensor S12 then identifies the last document, and the last document detection signal (LDD) is generated.

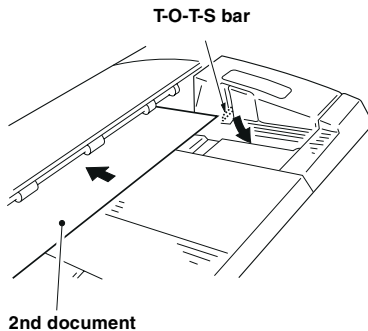


2 Detection of the trailing edge of the last document.

Copiers with a long feeding path (from cassette to drum) usually pick up copy paper early. This is to speed up the copying operation. Copy paper is frequently picked up before the document arrives on the platen.

For this reason, the RDF is programmed to pick up a document at the same time as the copy paper is picked up.

If the documents are 220 mm or less, the RDF feeds the second document past the registration roller, after setting the first document on the platen.



If the t-o-t-s bar is on a document, the RDF communicates to the copier the presence of a third and subsequent document. This allows the copier to pick up copy paper.

If the t-o-t-s bar fall through the aperture in the document tray, the RDF communicates to the copier the absence of a third and subsequent document. LDD signal is ON. The copier not pick up copy paper.

3 Counting the documents

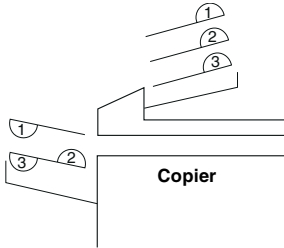
The number of documents do not need to be counted for:

- single-sided documents to single-sided copies
- two-sided documents to single-sided copies
- for two-sided documents to two-sided copies.

The RDF feeds the documents from the tray to the platen in a fixed sequence.

It must know, however, if the number of originals is odd or even when making one sided to two sided copies. To enable this the RDF counts the originals while the copier is at rest

Note: The RDF picks up the last page of a stack for copying, making it necessary to find out whether the number of originals is odd or even when making 'one-sided original to two-sided copies' so that it can decide whether to copy the first original page on the face or the back of the last page copy. As shown in the figure, copying an odd number of originals without such data will result in the first original page copied on the back of a copy page. You may disable this count function in the user mode.



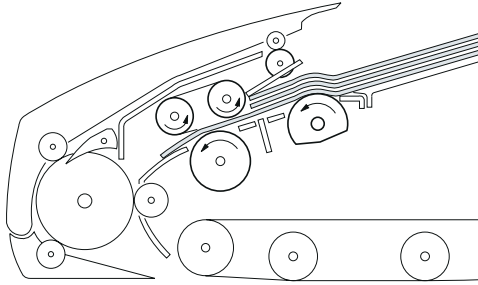
11 Pick-up of documents for copying

1) Outline

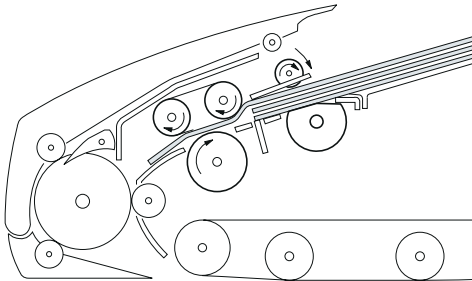
There are two pick-up methods:

- 1 Copier mode: the first document if fed from the bottom of the stack.
- 2 Fax mode: the first document if fed from the top of the stack.

Separate feed mechanisms are used for each of the two modes.



Pick-up: copier mode



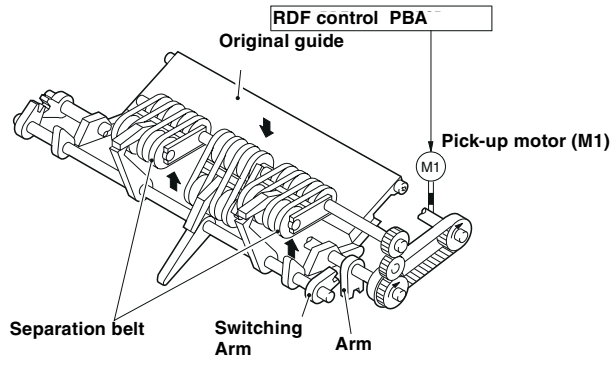
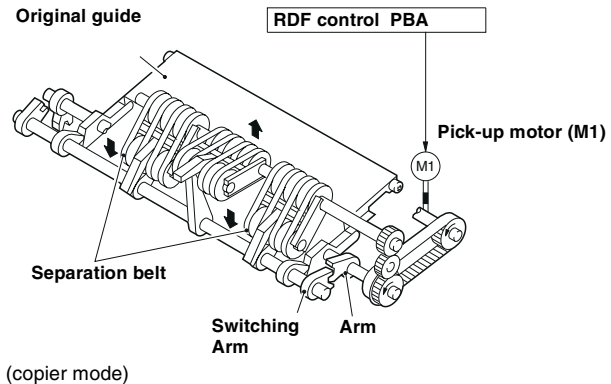
Pick-up: fax mode

2) Changing between copier mode and fax mode.

Motor M1 switches the document feed unit to suit the application mode. When M1 rotates clockwise, the feed unit moves to copier mode. When M1 rotates counter-clockwise, the feed unit moves to fax mode.

When M1 rotates clockwise, the arm on the pick-up roller actuates the switching arm. The original guide is raised. The outer groups of separation belts move downwards. The feed unit is in copier mode.

When M1 rotates counter-clockwise, the arm on the pick-up roller actuates the switching arm. The original guide is lowered. The outer groups of separation belts move upwards. The feed unit is in fax mode.



(fax mode)

3) Pick-up: copier mode

3a) Operation

The following occurs when the documents have been placed in the tray, and the copy button is pressed:

1 Pick-up

The paper stop is lowered, and the pressure plate is lowered. This allows the last page to be picked off the stack.

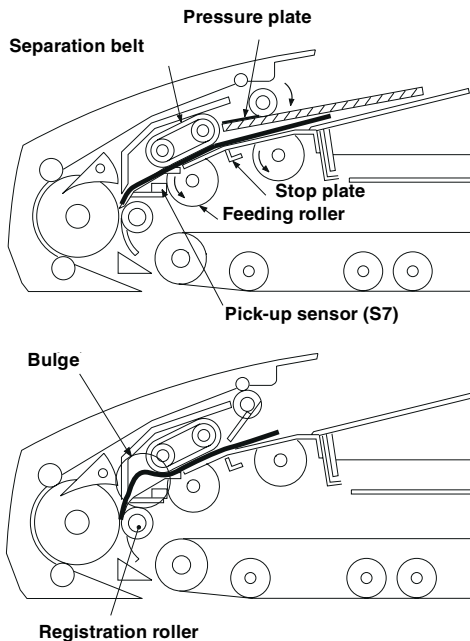
The document is fed between the separation belt and the feeding roller. This is to make sure that only one document is fed.

Note: *The pressure plate is always lowered for the first document. Normally, for subsequent documents it does not need to move.*

But, if the pick-up sensor S7 does not detect a document within 500 ms after M1 is switched on, the pressure plate is lowered again to attempt a new feed cycle.

2 Bulge

The document is fed against the registration roller. A bulge is created.



3 Feeding

The feeding belt, the registration roller, and the feeding roller are rotated. The document is carried to the platen.

4 Picking up the 2nd document

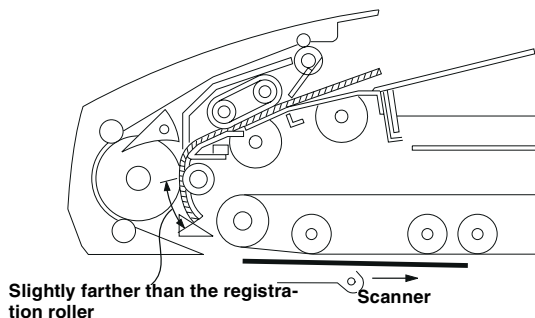
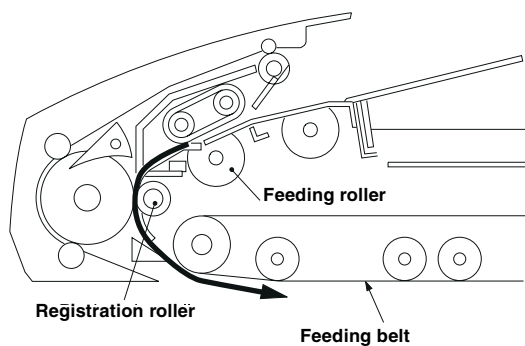
When the document reaches a specific position on the platen, the scanner starts to move forwards.

If small size documents are being handled, the RDF picks up the second document.

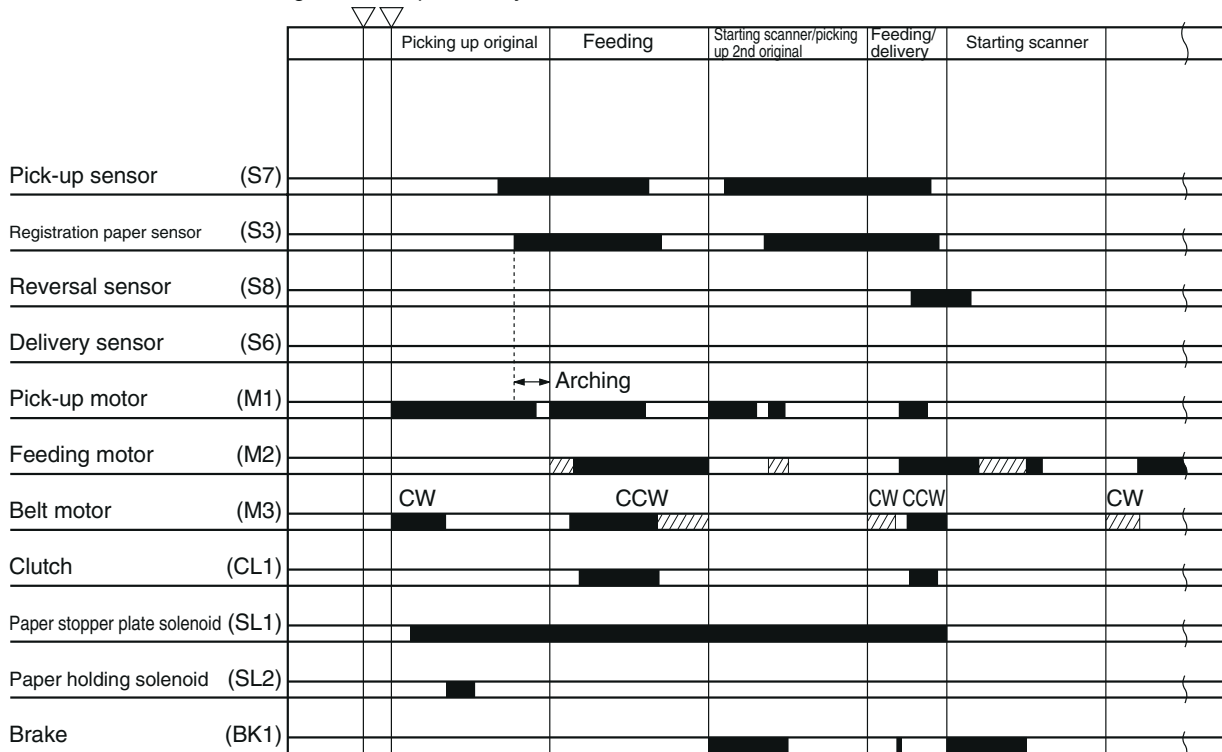
If handling large size documents, the second document is picked up after ejection of the first document.

Small sizes	A5,B5,B5R,A4,STMT,LTR,LTRR
Large sizes	B4,A3,LGL,11"x 17"

Note: For small size documents: the second and subsequent documents are fed slightly farther than the registration roller. This shortens the time required to feed the documents.



Original set Cop Start key ON



▨ : Low speed
 CW : Feeding belt rotates clockwise
 CCW : Feeding belt rotates counterclockwise

4) Pick-up: Fax mode

4a) Operation

The following occurs when the documents have been placed in the tray, and a fax is transmitted:

1 Pick-up

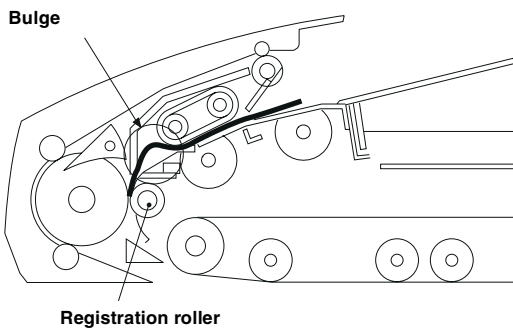
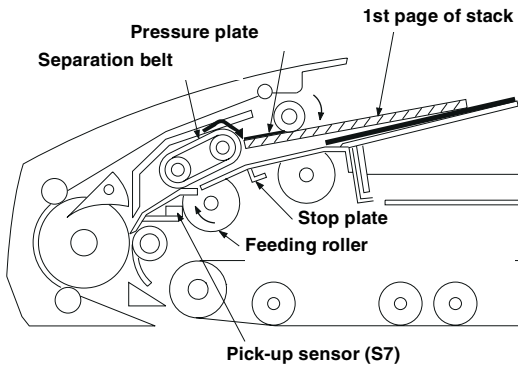
The paper stop is lowered, and the pressure plate is lowered. This allows the top page to be picked off the stack.

The document is fed between the separation belt and the feeding roller. This is to make sure that only one document is fed.

The separation belt and the feeding roller rotate in the opposite direction to that used for the copier mode.

2 Bulge

The document is fed against the registration roller. A bulge is created.



3 Feeding

The feeding belt and the registration roller are rotated. The document is carried to the platen.

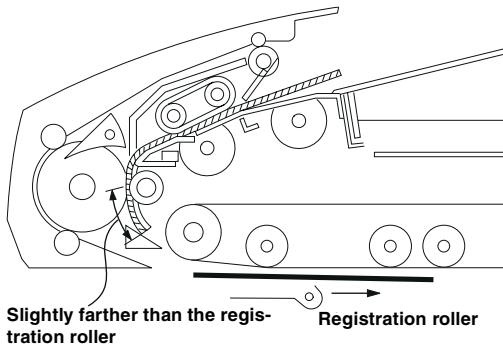
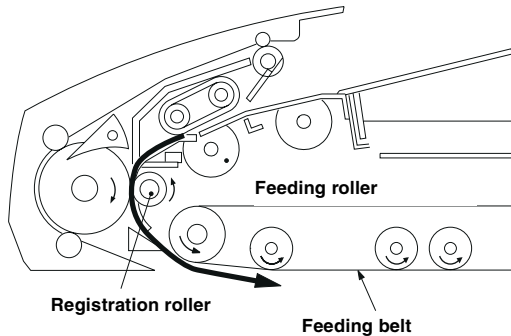
4 Picking up the 2nd document

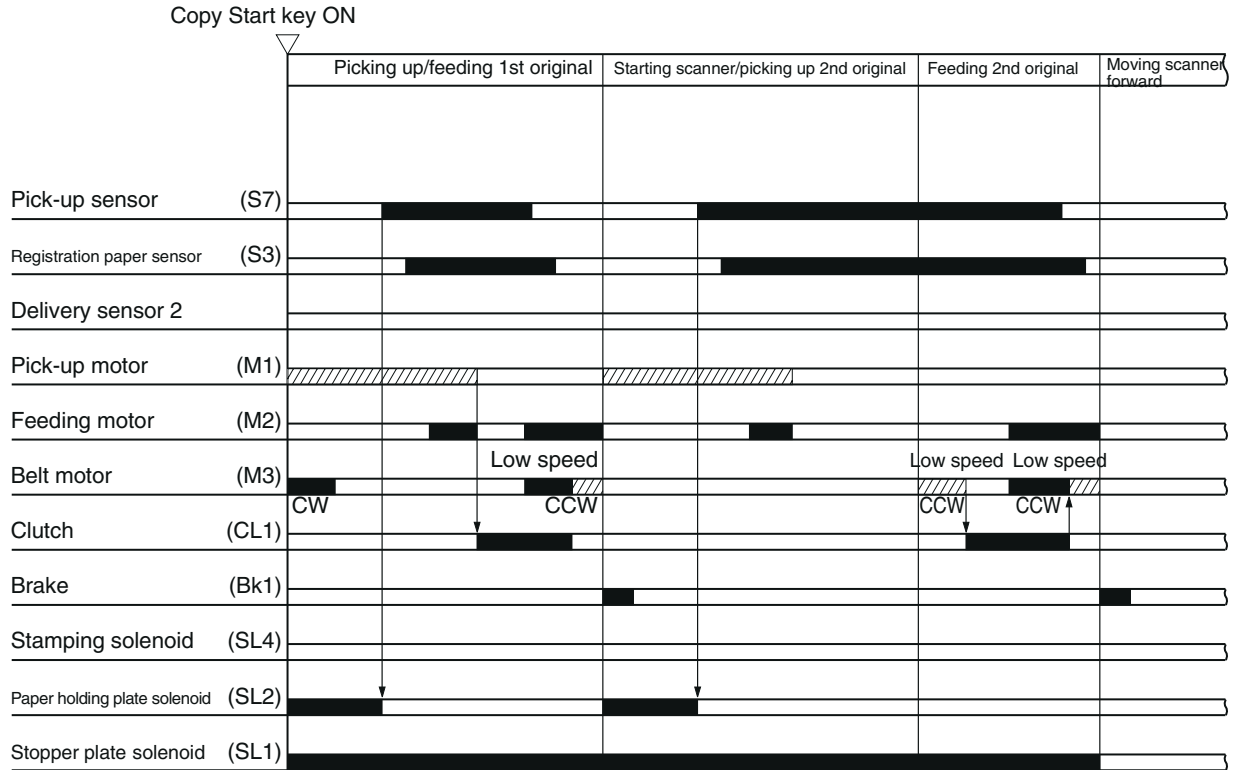
When the document reaches a specific position on the platen, the scanner starts to move forwards.

The second document is picked up.

If stamping is selected, the second document is not picked up.

For large size documents: the second document is picked up after the first document has been ejected.





▨ : The pick-up motor rotates in the direction opposite the direction in copier mode.

CW : Feeding belt rotates clockwise.

CCW : Feeding belt rotates counterclockwise.

12 Turning the documents over

Operation

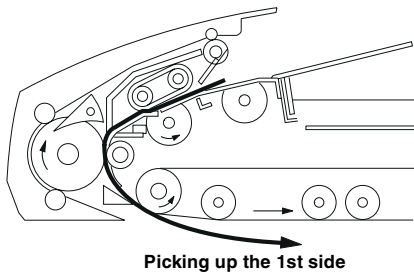
The documents are turned over only in copy mode. The turning over can be from the first side to the second side, or from the second side to the first side. The description is based on the situation applicable for turning over from the first side to the second side.

- 1 Pick-up for the first side
A document is fed from the document tray and onto the platen.
- 2 Turning over and feeding
The feeding belt is rotated clockwise. This turns over the document.
- 3 Turning over the document and turning it back.
The deflecting solenoid (SL3) is energised, opening the deflecting plate. The document is carried back onto the platen, turned over.

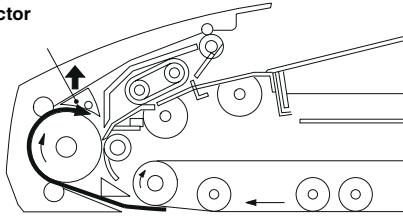
The scanner starts to move forward when the second side of the document is positioned on the platen.

While the scanner is moving in reverse, the document is turned over: the first side is positioned on the platen.

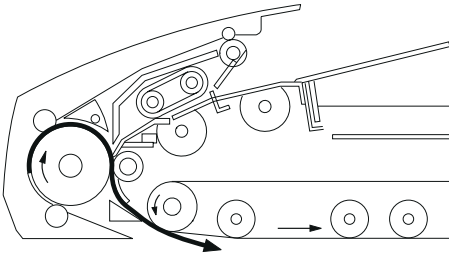
When the scanning of the first side is completed, the document is returned to the document tray.



Deflector



Turning over, from the 2nd side to the 1st side



Timing of operations: turning over

	Picking up 1st original	Reversing 1st side	Copying 2nd side	Reversing/feeding	Copying 1st side	
Pick-up sensor (S7)	█					⌋
Registration paper sensor (S3)		█		█		⌋
Reversal sensor (S8)		█		█	█	⌋
Delivery sensor (S6)					█	⌋
Pick-up motor (M1)	█					⌋
Feeding motor (M2)		█	█	█	█	⌋
Belt motor (M3)		CCW █ CW █ CCW █		CW █ CCW █	CW █	⌋
Paper deflecting plate solenoid (SL3)		█		█		⌋
Clutch (CL1)		█		█		⌋
Brake (BK1)		█ █	█ █	█ █	█ █	⌋

CW : Feeding belt rotates clockwise.
 CCW: Feeding belt rotates counterclockwise.

13 Image Composition Mode

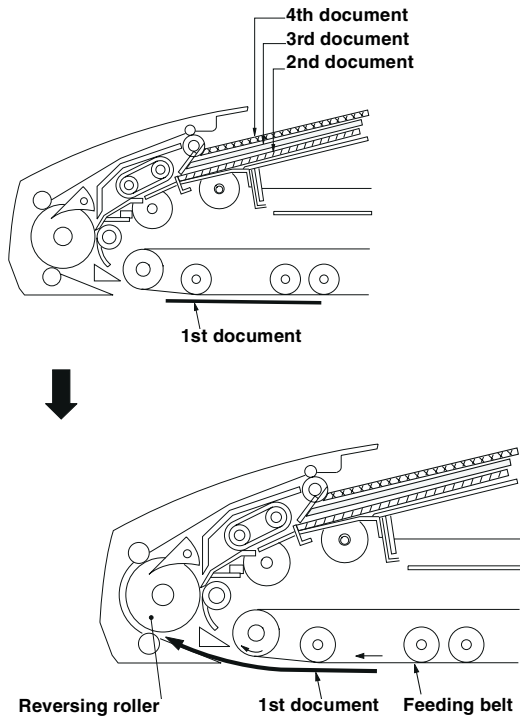
a) Operation

The image composition mode differs for copy mode and for fax mode. After selection of the required mode, and after pressing the copy button, the following occurs:

As the last page is picked up first, the sequence of the documents needs to be reversed.

b) Copier mode

- 1 Pick-up for the first side
The first document is picked up and carried onto the platen.
- 2 Turning for the first side
The feeding belt is rotated clockwise. This carries the document from the platen to the reversing roller.

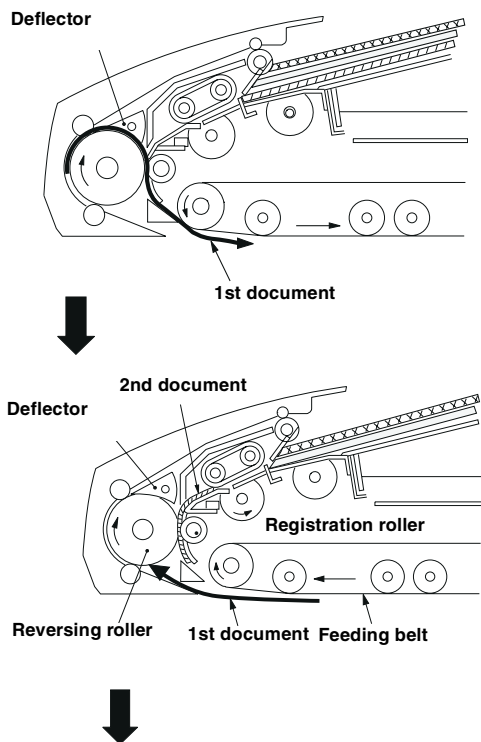


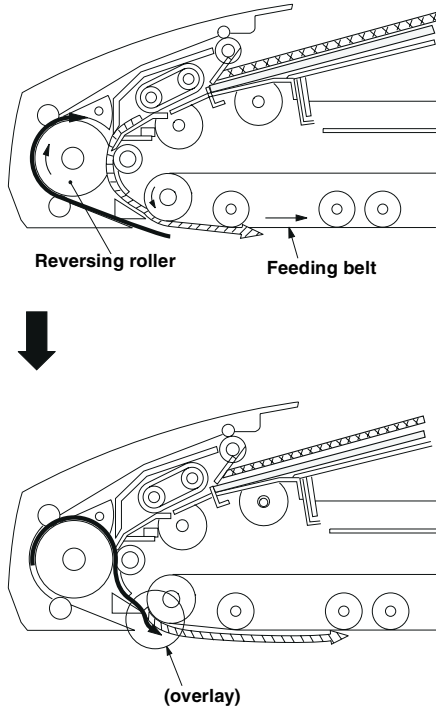
- 3 Turning over the 1st document and swapping the delivery
The deflecting solenoid (SL3) is energised, opening the deflecting plate. The document is carried back onto the platen, turned over.
- 4 Separating the second document, and swapping the documents on the platen.
The deflecting solenoid (SL3) is energised, opening the deflecting plate.

The second document is picked up and stopped at the registration roller.
The feeding belt is rotated clockwise, leading the first document to the reversing roller.

- 5 Simultaneous feeding of the first and the second documents.
The clutch (CL1) energises. This eliminates the difference in speed between the reversing roller and the feeding belt. Two documents are moved simultaneously.

The sequence of the documents has changed. The two documents overlap slightly: for sheet gap adjustment.





6 Adjusting the gap between documents.

The clutch (CL1) de-energises. The feeding belt is slowly rotated counter-clockwise, eliminating the overlap and adjusting the gap between the documents.

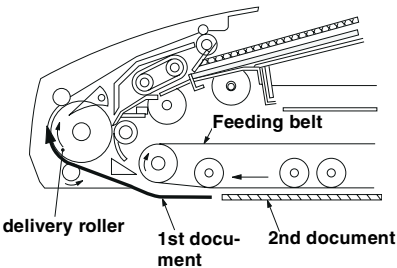
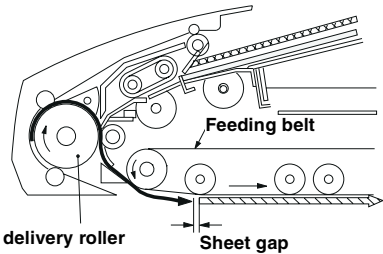
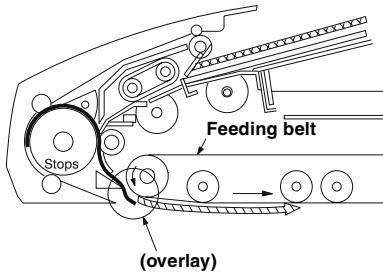
7 Feeding

When the gap between the two documents has been adjusted to a specific value, the clutch (CL1) is energised. The difference in speed between the reversing roller and the feeding belt is eliminated, and the two documents are carried onto the platen.

8 Returning the first document

After copying, the feeding belt is rotated clockwise slowly. The reversing roller pulls in the first document for return to the document tray.

Note: At this time, the leading edge of the second document is moved to the appropriate position on the platen.



9 Separating the third document

The third document is picked up and stopped at the registration roller.

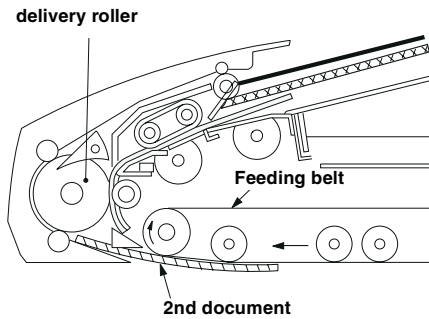
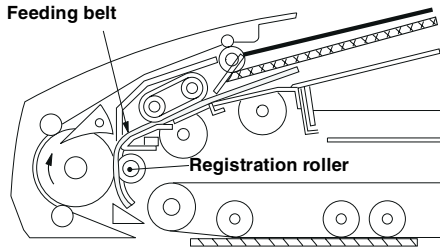
10 Feeding up the 2nd document

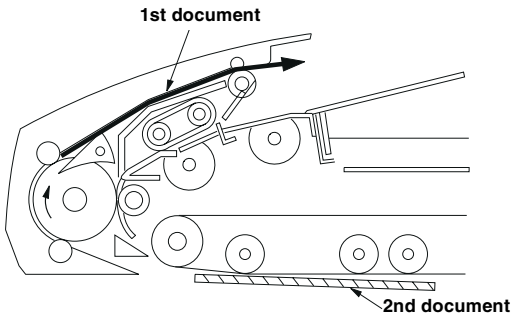
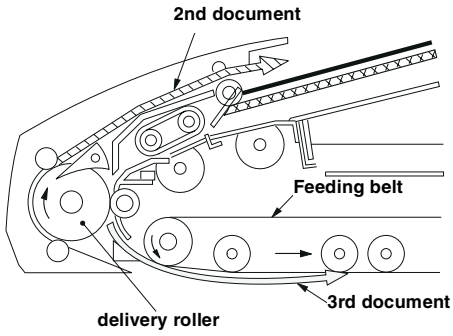
The feeding belt is rotated clockwise. This carries the second document from the platen to the reversing roller.

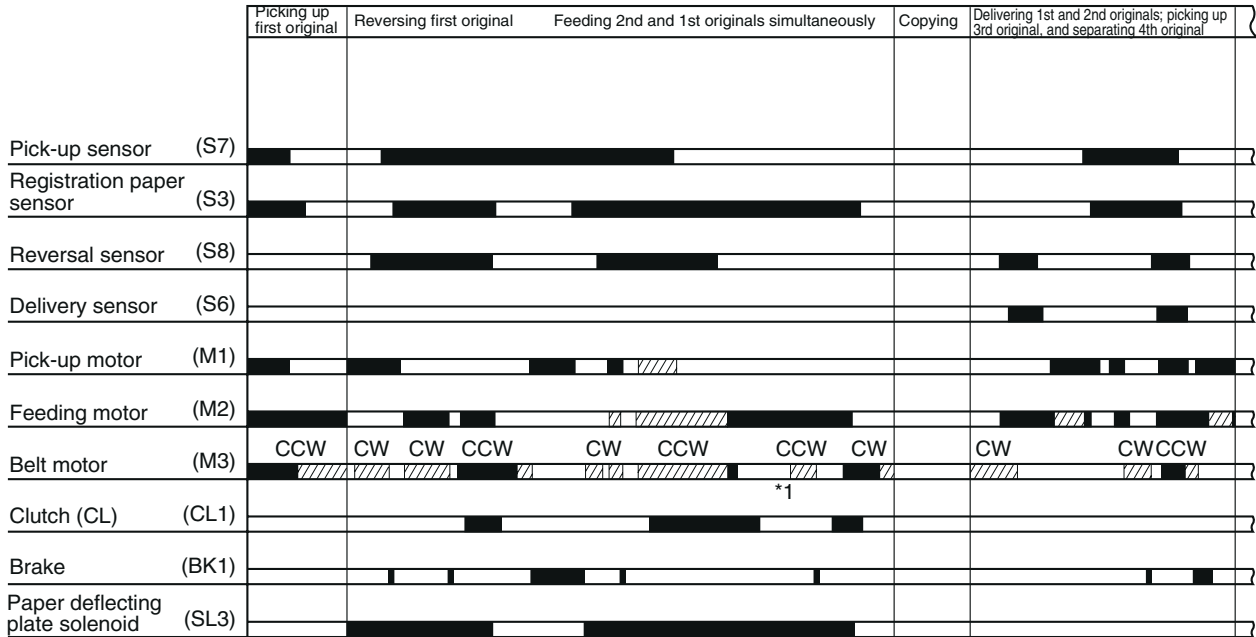
- 11** Returning the second document and picking up the third document
The clutch (CL1) is energised. The difference in speed between the reversing roller and the feeding belt is eliminated. The second document is returned to the tray, and the document is picked up and carried onto the platen.

Subsequently, the same procedure is repeated: starting at 1.

If there are no further documents, the second document is returned after the return of the first document.







*1 Adjusting sheet distance

▨ : Low speed.
 CW : Feeding belt rotates clockwise.
 CCW : Feeding belt rotates counterclockwise.

d) Fax Mode

In fax mode, the sequence of the documents does not need to be reversed.

1 Pick-up for the first side

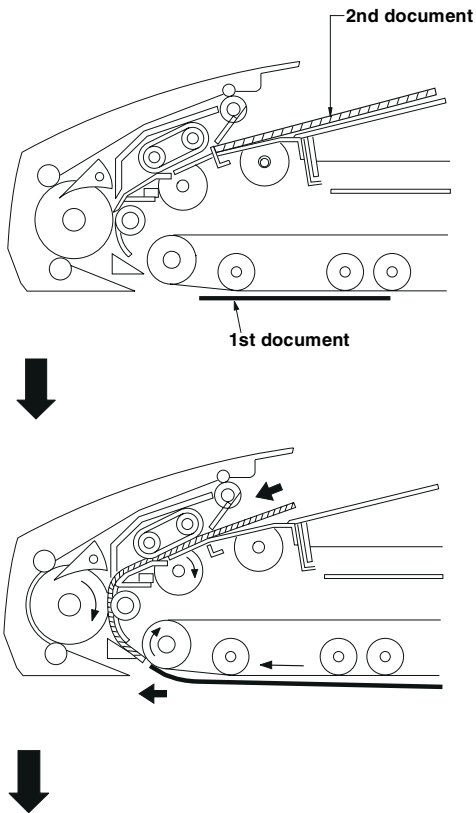
The first document is picked up and carried onto the platen.

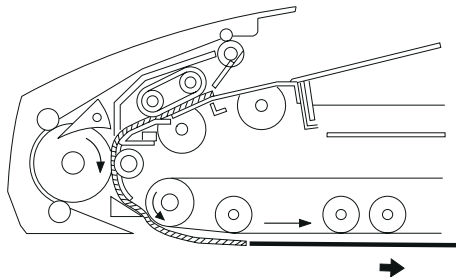
2 Adjusting the position of the first side, and feeding for the second side of the document.

The first document is moved back, to adjust the distance to the second document. Then, the two documents are moved simultaneously, and stopped at a specific position.

3 Simultaneous feeding of the first and the second documents.

The clutch (CL1) energises. This eliminates the difference in speed between the reversing roller and the feeding belt. Two documents are moved simultaneously.

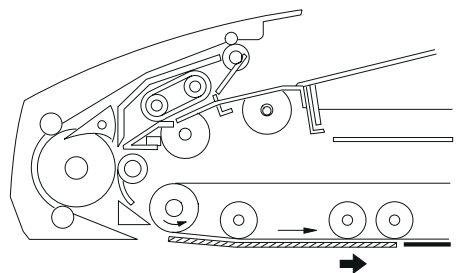




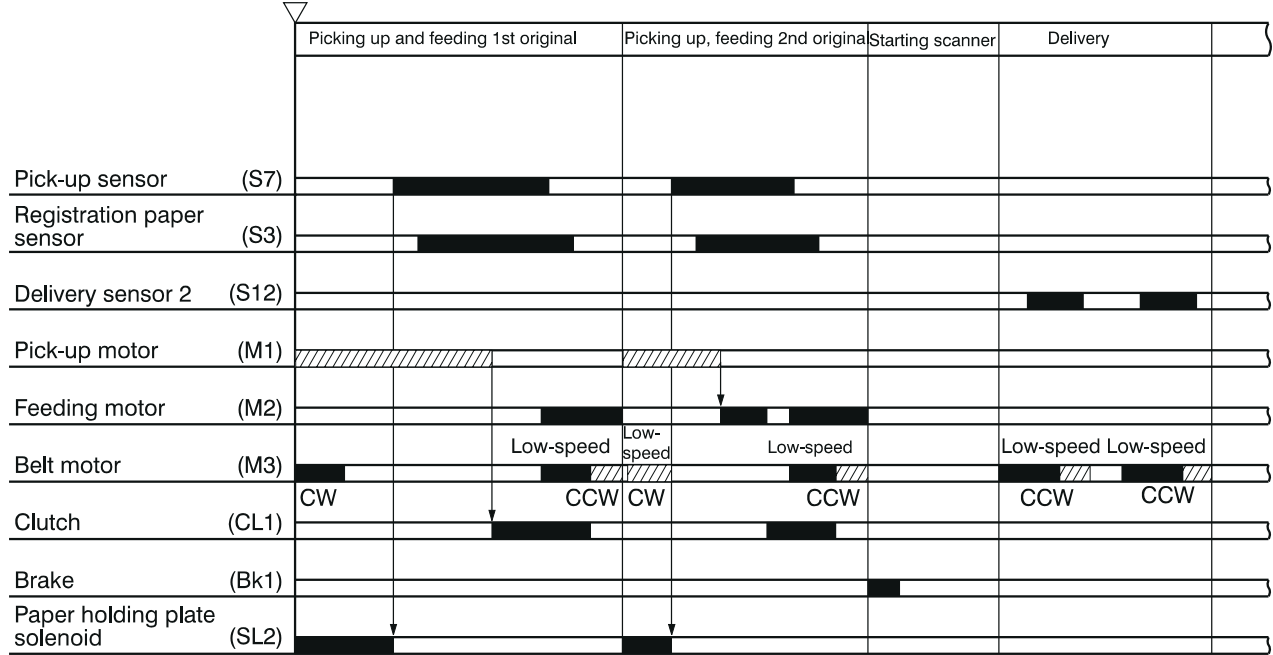
4 Returning the first document and the second document

When the documents have been scanned, the feeding belt is rotated counter-clockwise to deliver the first and the second documents.

If a third and fourth documents exist, the operations are repeated starting with pick-up.



Copy Start key ON



▨ : The pick-up motor rotates in the direction opposite the direction in copier mode.

CW : Feeding belt rotates clockwise.

CCW : Feeding belt rotates counterclockwise.

14 Delivery

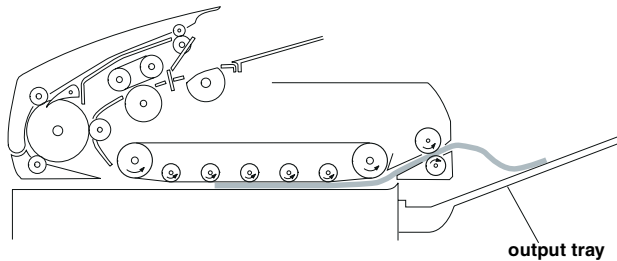
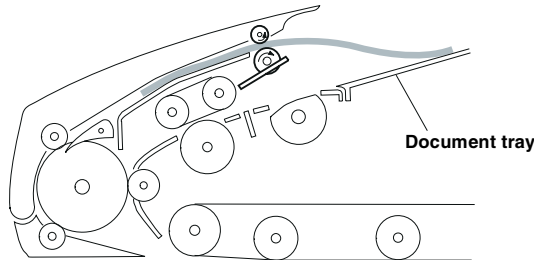
a) Outline

There are two methods for returning the documents to the document tray:

- 1 Copier mode
- 2 Fax mode

In copier mode, the documents are returned to the document tray.

In fax mode, the documents are delivered to the output tray.



b) Return in copier mode

Operation

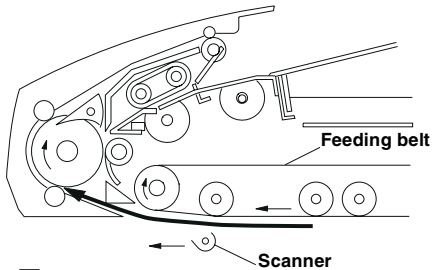
The document is carried from the platen to the document tray.

- 1 By the feeding belt
The feeding belt is rotated clockwise. This carries the document from the platen to the reversing roller.
- 2 By the reversing roller
The document carried by the feeding belt is gripped between the lower roller and the reversing roller. The return movement continues. If the documents are small, two are moved simultaneously.

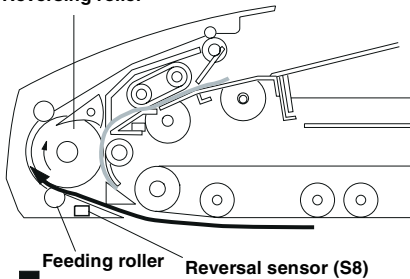
3 Switching between Delivery and Reversal

The deflecting solenoid (SL3) is de-energised. The deflecting plate is closed, and the document is returned to the document tray.

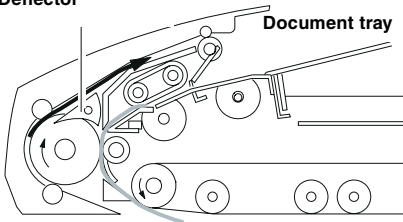
The next document is carried onto the platen.



Reversing roller

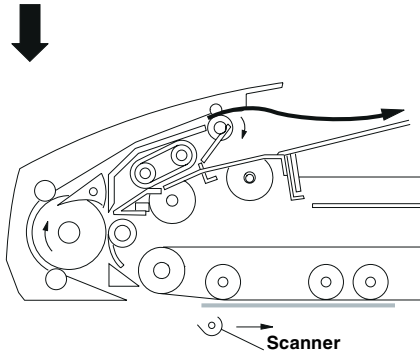


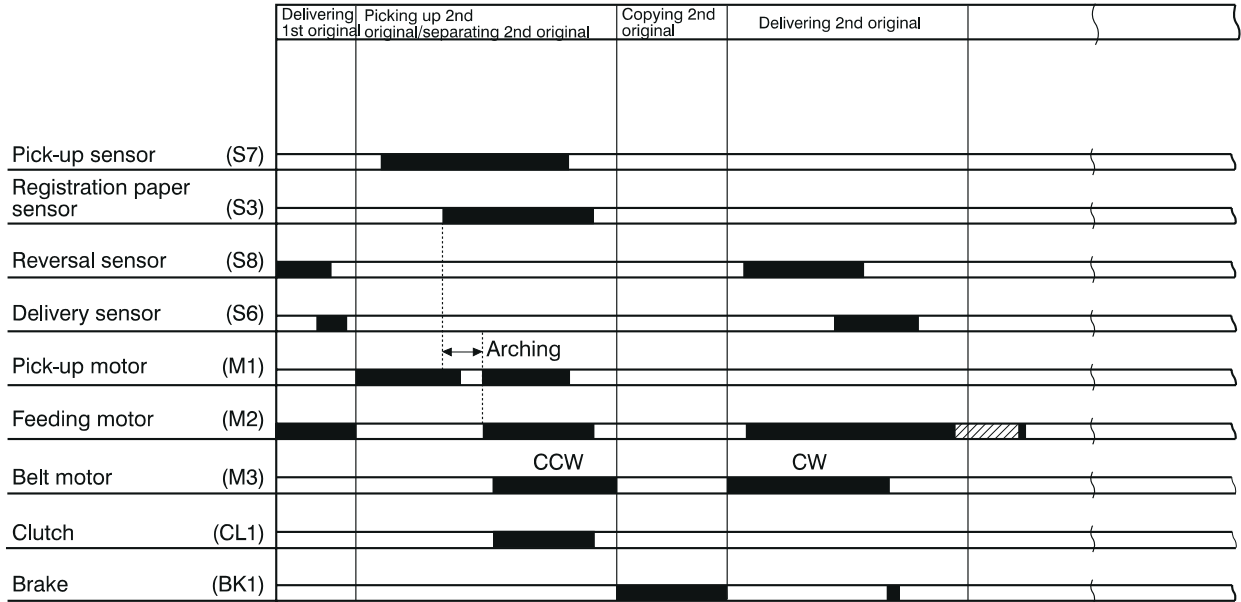
Deflector



4 Return to the Document tray

When the trailing edge passes the reversal roller, the feeding motor is switched to low speed. The document return is slowed.





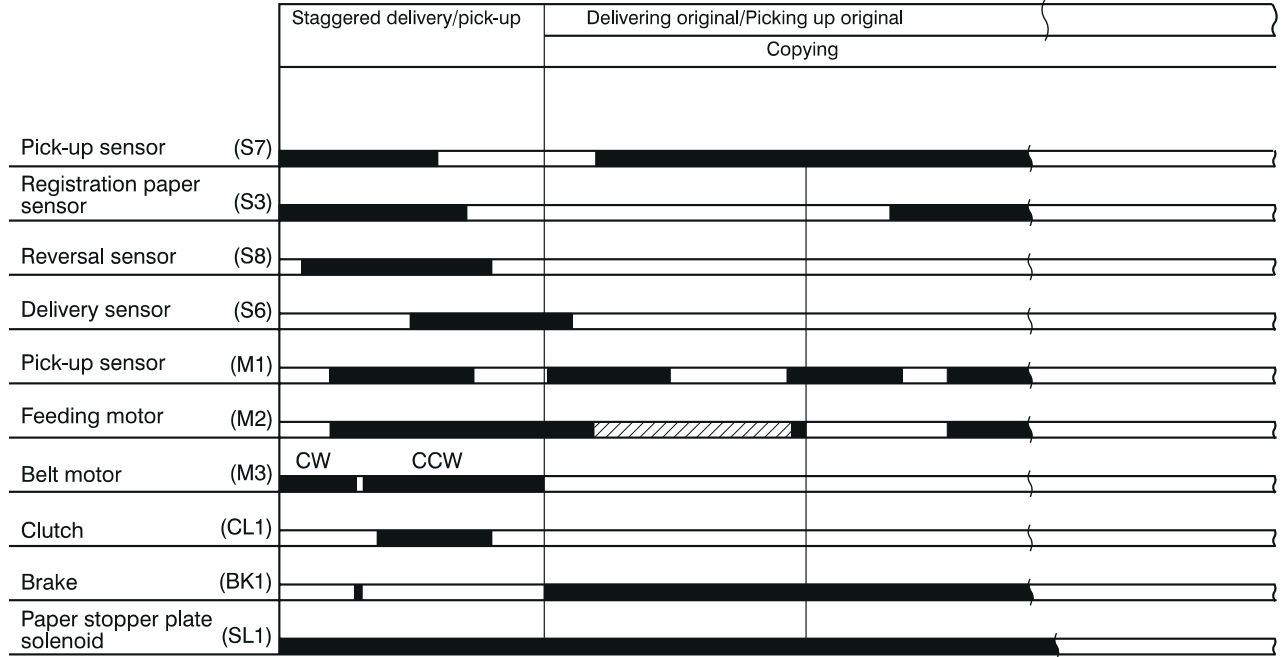
▨ : Low-speed.

CW : Feeding belt rotates clockwise.

CCW : Feeding belt rotates counterclockwise.

		Moving scanner forward/Separating 3rd original	Delivering 2nd original / Picking up 3rd original	Moving scanner forward / Separating 4th original	Delivering 3rd original / Picking up 4th original
		Copying 2nd original		Copying 3rd original	
Pick-up sensor	(S7)	[Active during Copying 2nd original, Copying 3rd original, and Delivering 3rd original / Picking up 4th original]			
Registration paper sensor	(S3)	[Active during Copying 2nd original, Copying 3rd original, and Delivering 3rd original / Picking up 4th original]			
Reversal sensor	(S8)		[Active during Delivering 2nd original / Picking up 3rd original]		[Active during Delivering 3rd original / Picking up 4th original]
Delivery sensor	(S6)	[Active during Copying 2nd original]	[Active during Delivering 2nd original / Picking up 3rd original]	[Active during Copying 3rd original]	[Active during Delivering 3rd original / Picking up 4th original]
Pick-up motor	(M1)	[Active during Copying 2nd original]	[Active during Delivering 2nd original / Picking up 3rd original]	[Active during Copying 3rd original]	[Active during Delivering 3rd original / Picking up 4th original]
Feeding motor	(M2)	[Active during Copying 2nd original, Copying 3rd original, and Delivering 3rd original / Picking up 4th original]			
Belt motor	(M3)	CCW	CW CCW		CW CCW
Clutch	(CL1)		[Active during Delivering 2nd original / Picking up 3rd original]		[Active during Delivering 3rd original / Picking up 4th original]
Brake	(BK1)	[Active during Copying 2nd original]	[Active during Delivering 2nd original / Picking up 3rd original]	[Active during Copying 3rd original]	[Active during Delivering 3rd original / Picking up 4th original]

CW : Feeding belt rotates clockwise.
 CCW : Feeding belt rotates counterclockwise.



Sequence of Operations (small sizes; return)

: Low-speed

CW : Feeding belt rotates clockwise.

CCW : Feeding belt rotates counterclockwise.

b) Return in fax mode

Operation

Documents are carried from the platen for delivery to the output tray.

If applicable, the stamp marks the documents.

1 Feeding the first document

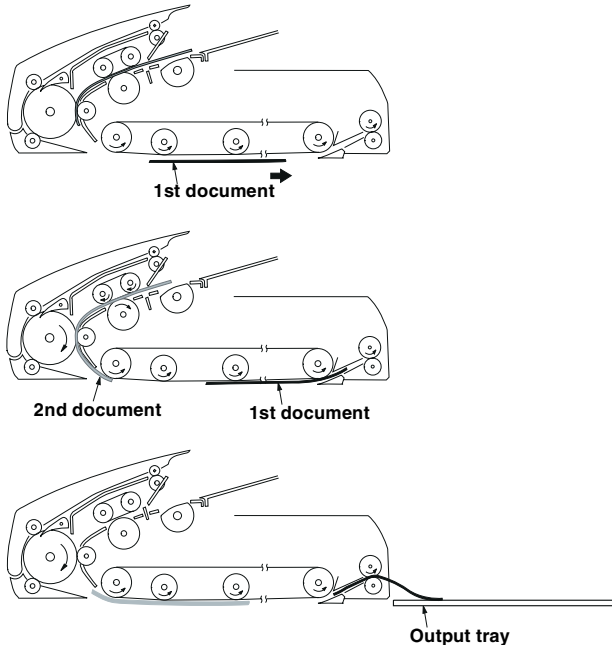
The feeding belt is rotated counter-clockwise. This carries the document approximately 30 mm. (this is to create a gap before the second document).

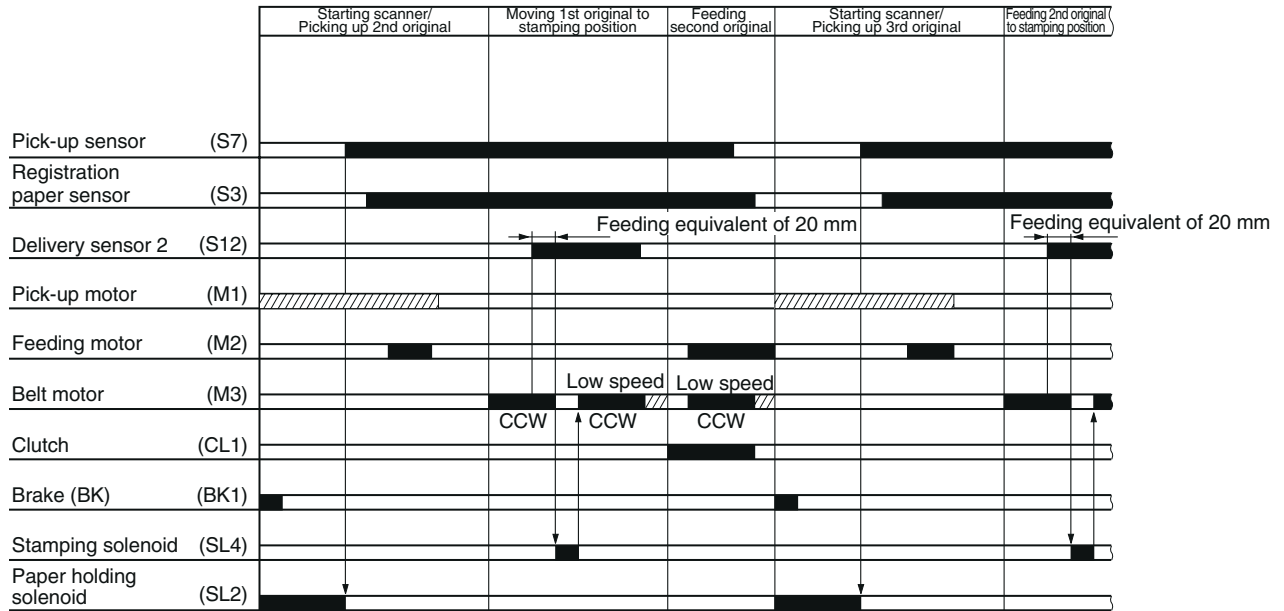
2 Returning the first document and picking up the second document

The clutch (CL1) is energised. The difference in speed between the reversing roller and the feeding belt is eliminated. The first document is returned to the tray, and the second document is picked up and carried onto the platen.

3 Delivering to the output tray

When the trailing edge passes the reversal roller, the feeding motor is switched to low speed. The document return is slowed.

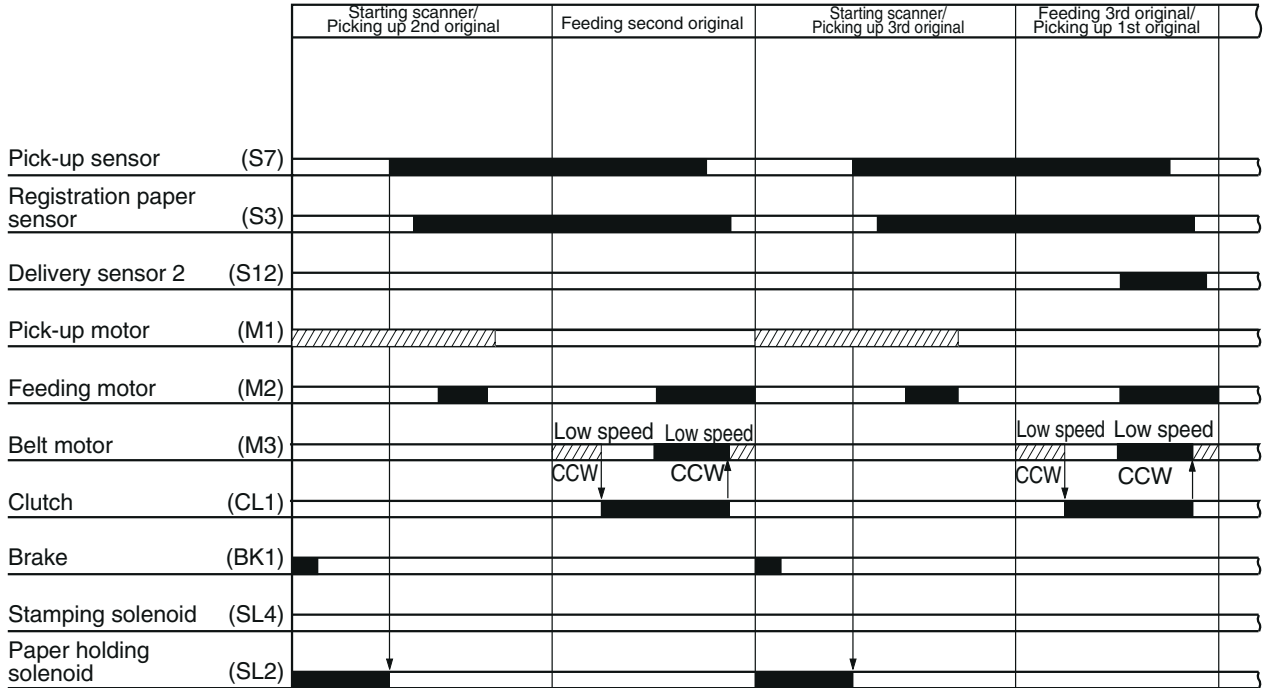




[Hatched] : The pick-up motor rotates in the direction opposite the direction in copier mode.

CW : Feeding belt rotates clockwise.

CCW: Feeding belt rotates counterclockwise.



Sequence of Operations (small sizes: stamp OFF)

: The pick-up motor rotates in the direction opposite the direction in copier mode.
 CW : The feeding belt rotates clockwise.
 CCW : The feeding belt rotates counterclockwise.

15 Stamping function

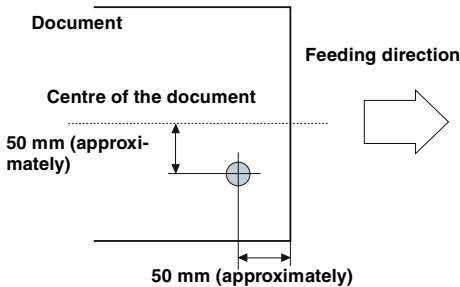
Outline

The stamp operates in memory transmission state or direct transmission state.

The stamping operation is initiated in response to a command from the copier. Solenoid (S14) energises, placing a dot of approximately 3 mm in diameter on the surface of documents.

Mode	Location of the stamp
Single sided documents mode	Stamps on each document.
two-sided document mode	Stamps the first document
Image Composition Mode	Stamps on each document.

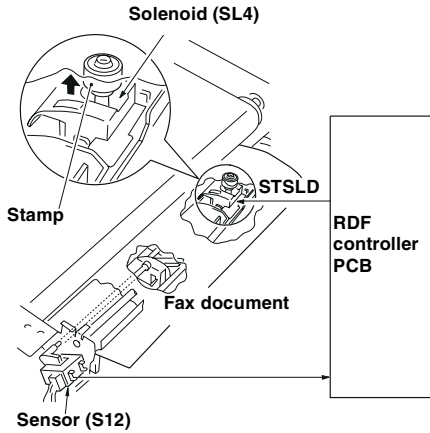
The location of the stamp.



Operation

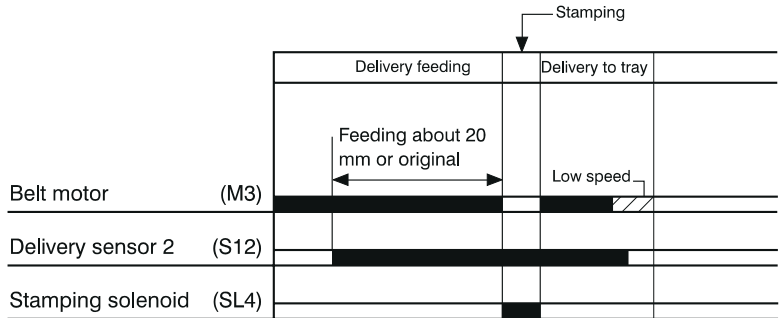
Stamping occurs when the document is stopped during delivery.

The document is stopped, after feeding it about 20 mm from a point where the sensor (S12) has detected its leading edge. When the document stops, the RDF control PBA generates the stamp solenoid drive signal (STSLD). The solenoid (SL4) energises. The stamp face, attached to the tip of the plunger of the solenoid, is brought down onto the surface of the document.



Note: Reference: Each new stamp can stamp approximately 7,000 documents.

Timing of operations (stamping)



16 Controlling the pick-up motor

Outline

Block diagram of the control circuit for the pick-up motor.

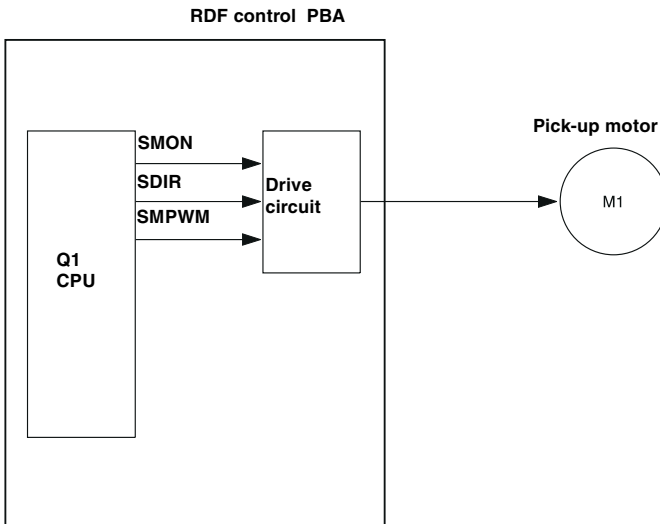
The pick-up motor is a DC motor.

The microprocessor (Q1) on the RDF control PCB sends the following signals to the drive circuit:

- the pick-up motor drive signal (SMON)
- the pick-up motor rotation direction signal (SDIR)
- the pick-up motor rotation speed control signal (SMPWM).

The three signals trigger the drive circuit to drive the pick-up motor.

The control circuit is not equipped with a monitor circuit. The SMPWM signal remains at a constant level.



Relationship between the Pick-Up Motor and the signals (SMON), (SDIR) and (SMPWM).

(SMON)	(SDIR)	(SMPWM)	Operation of the pick-up motor
'1'	'1'	Pulse	The pick-up motor rotates in the pick-up direction for copier mode (counter-clockwise).
'1'	'1'	'0'	The pick-up roller rotates in the pick-up direction for copier mode(counter-clockwise) by inertia.
'1'	'0'	Pulse	The pick-up roller rotates in the pick-up direction for the fax mode (clockwise).
'1'	'0'	'0'	The pick-up roller rotates in the pick-up direction for the fax mode (clockwise), by inertia.
'0'	'1'	'1'	The pick-up roller stops.

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17 Controlling the belt motor

Outline

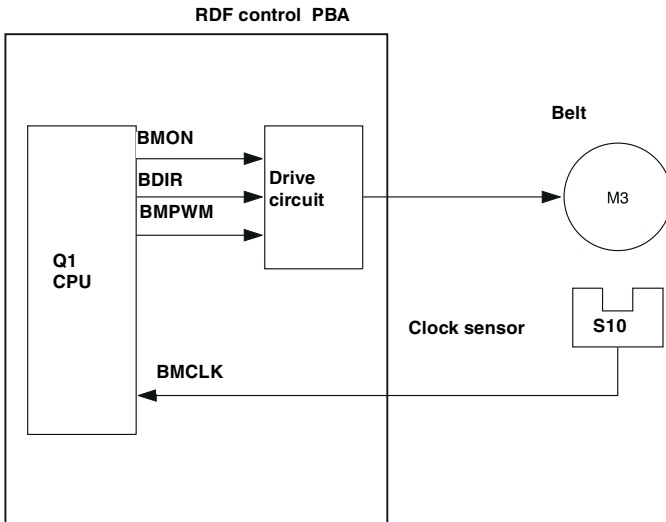
Block diagram of the control circuit for the belt motor.

The belt motor is a DC motor.

The microprocessor (Q1) on the RDF control PCB sends the following signals to the drive circuit:

- the belt motor drive signal (BMON)
- the belt motor rotation direction signal (BDIR)
- the belt motor rotation speed control signal (BMPWM).

When the belt motor (M3) rotates, the clock sensor (S10) sends the belt motor clock signal (BMCLK) to the microprocessor (Q1). In response, the microprocessor (Q1) compares the belt motor clock signal (BMCLK) against the pre-set rotation speed, and varies the level of the belt motor rotation speed control signal (PMPWM), The speed of the belt motor (M3) is fixed at a specific level at all times.



Relationship between the feeding belt and the signals (BMON), (BDIR) and (BMPWM).

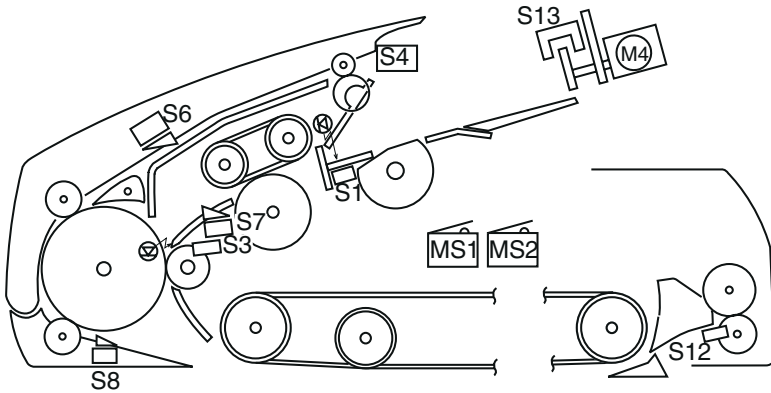
Belt motor drive signal (BMON)	Belt motor rotation direction signal (BDIR)	Belt motor rotation speed control signal (BMPWM)	Operation
'1'	'1'		The feeding belt rotates in the pick-up direction (counter-clockwise).
'1'	'1'	'0'	The feeding belt rotates in the pick-up direction (counter-clockwise) by inertia.
'1'	'0'		The feeding belt rotates in the delivery direction for copier mode (clockwise).
'1'	'0'	'0'	The feeding belt rotates in the delivery direction for the copier mode (clockwise), by inertia.
'0'		'1'/'0'	The feeding belt stops.

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Protecting the belt motor against overload

The handling of certain types of documents can cause an overload. A current limitation circuit is incorporated to prevent excessive loads occurring when the belt rotates in the pick-up direction.

18 Detecting of jammed documents



Paper sensor S1 for the document tray	Delivery sensor S6	Delivery sensor S12
Registration sensor S3	Pick-up sensor S7	Recirculation sensor S13
Upper cover sensor S4	Reversal sensor S8	RDF Switch MS1
		Upper cover switch MS2

The RDF control PBA monitors the presence or absence of documents at various locations. These checks are compared to an internal timing memory. The monitoring is carried out by various sensors.

The table shows the various situations that are monitored during document handling. If a jam is detected, the copier displays a message.

	Characteristic of jam	Sensor	Situation	Code
P i c k - u p	Loss of document	S1,S7	The sensor (S7) does not detect the leading edge of a document. And, the sensor (S1) did not detect a document within 1500 ms after the motor M1 was switched on.	01H
	Pick-up delay	S7	The sensor S7 did not detect the leading edge of a document within 1500 ms after the motor M1 was switched on.	02H
	Registration delay	S3,S7	The sensor S3 did not detect the leading edge of a document within 350 ms after the sensor S7 detected the leading edge of a document.	03H
	Double-feeding	S3	The sensor S3 detects a document, although the first document is located on the platen.	06H
	Leading edge delay	S3	The sensor S3 did not detect the leading edge of a document after the document pick-up was started.	08H
R e v e r s a l	Reversal delay 1	S8	During the reversal or the delivery of the document. The sensor S8 did not detect the leading edge of a document within 140 mm (or 225 ms) after the motor M3 started rotating, in the clockwise direction.	11H
	Reversal interrupted	S8	During the reversal or the delivery of the document. The sensor S8 did not detect the trailing edge of a document.	12H
	Reversal delay 2	S8	During the delivery pick-up of the documents. The document is carried towards the platen, together with the document that has been picked up. This error occurs when the sensor S8 fails to detect the advancing document within 50 mm after the belt motor starts to rotate in a counter-clockwise direction.	13H
	Reversal of the initial document	S8	During the reversal of the document. The sensor S8 detects a document.	20H
	Delay in the reversal pick-up	S3, S8	During the reversal of the document. The sensor S3 did not detect the leading edge of a document within 100 mm (or 300 ms) after the sensor S8 detected the document.	21H
	Interrupted reversal pick-up	S3, S8	The sensor S3 did not detect the trailing edge of a document, longer than 180 mm, after the sensor S8 detected the document.	23H

	Characteristic of jam	Sensor	Situation	Code
D e l i v e r y	Delivery delay	S6, S8	During the delivery of the document. The sensor S6 did not detect a document within 100 mm (or 250 ms) after the sensor S8 detected the leading edge of a document.	41H
	Delivery is interrupted	S6	The sensor S6 did not detect the trailing edge of a document within 100 mm (or 250 ms) after the reversal delivery check was carried out.	42H
	RDF is open	MS1	The RDF is opened while it is running	81H
	Upper cover is open	MS2, S4	The upper cover is opened while the RDF is running	82H
	Interruption of the recirculation of the document	S1	The sensor S1 does not detect a document that is delivered to the document tray.	83H
	Persistent jam	S6, S3, S8, S7	At the start of the document pick-up. A document is detected by any of the sensors S6, S3, S8 or, if the paper stop is raised, S7.	84H
	Document on the platen	S8	During the pick-up of the first document. A document is detected on the platen.	88H
	Idle swing of the t.o.t.s.. lever (2nd document or later)	S13	For the second or subsequent documents. The t.o.t.s.. lever swung without touching a document.	89H

Warning: 1. *Timing of jams. The operation of the RDF is suspended immediately after detection of any of the jams listed above.*

2. *Resetting the jam detection. For delays during the pick-up: the machine can be reset by removing the documents from the document tray.*

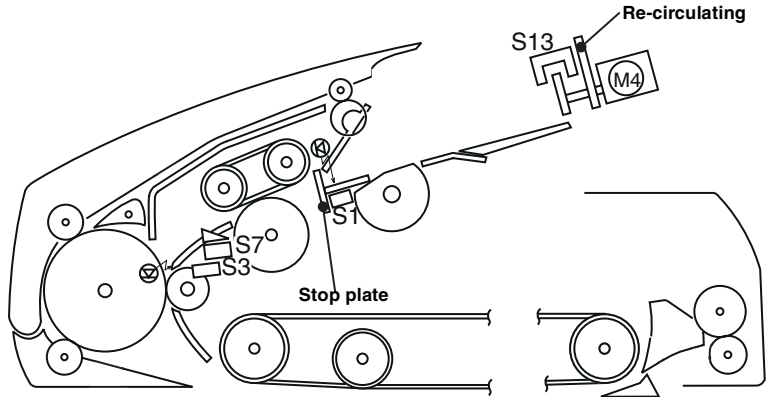
For other jams:

- *remove the documents from the document tray*
- *open the RDF*
- *remove the jammed documents.*

Note: *If the jam detection concerns the first document, the RDF will generally assume that the document has been positioned incorrectly*

If the condition concerns the second document or the subsequent documents, the RDF will assume that a document has jammed.

19 Document is positioned incorrectly



Paper sensor S1 for the document Pick-up sensor S7
tray

Registration sensor S3

Recirculation sensor S13

Incorrect positioning of the documents can cause damage to occur. To ensure the correct positioning of the document, the RDF monitors the movement of the documents. The monitoring is carried out by various sensors.

The table shows the various situations that are monitored during document handling. If a jam is detected, the copier displays a message.

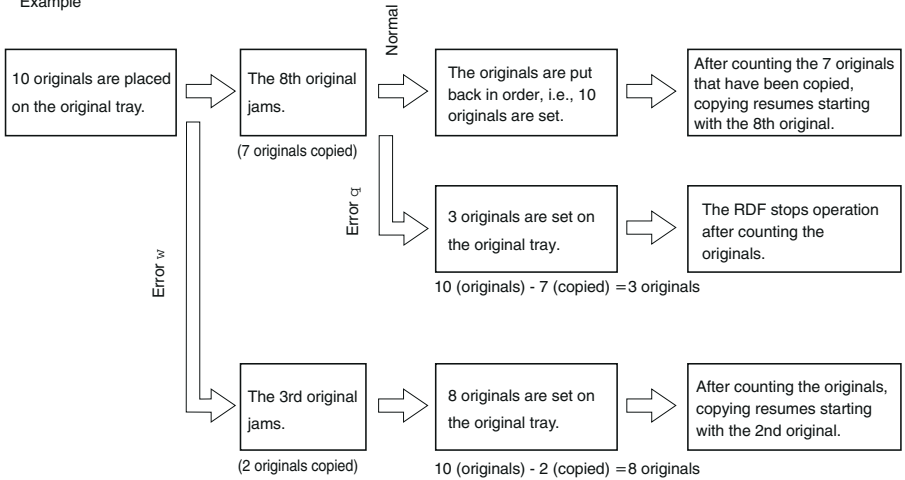
Envelope	Sensor	Situation	Reaction by the RDF	Code
Idle swing of the t.o.t.s. lever (2nd document or later)	S11	The t.o.t.s. lever swung without touching a document: immediately after the motor M4 started running.	The RDF stops immediately.	01H
Pick-up fault	S7	The sensor S7 did not detect the leading edge of a document within 1500 ms after the motor M1 was switched on.	The separation belt, the feeding roller and the pick-up roller are stopped immediately. The RDF stops after delivering the copy made of the previous document.	03H
Over-ride of the paper stop	S7	The document moved over the paper stop, when the original was positioned.	The RDF stops immediately.	05H

Envelope	Sensor	Situation	Reaction by the RDF	Code
Different number of originals, after jam removal	S3	The number of documents on the tray was changed: See Supplement.	The RDF stops immediately.	11H
Incorrect number of documents	S3	The last document cannot be detected, because the t.o.t.s... lever fails to fall through the aperture in the tray. Note: Normally, the document tray can hold: - 50 sheets of A5, STMT, A4, B5, or LTR - or 25 sheets of A3, B4, 11"x 17", or LGL.	Stops after counting 100 documents.	12H
Loss of document	S11	The t.o.t.s... lever dropped through the aperture in the document tray: while a document was being processed.	The RDF stops immediately.	13H
Incorrect size of document	S3	The documents that has been picked up is a non-standard size.	The RDF stops immediately.	14H
Incorrect size of document, or mixed sizes of documents: for image composition mode. See Note 1.	S3	1. The size of the document is not possible, using the image composition mode. 2. The sizes of the documents are not the same.	The RDF stops immediately. See the supplement.	15H

Note: To reset the RDF control, remove the documents from the document tray. Then open the RDF.

Supplement:

Example



When a jam occurs, the copier knows how many documents have been copied. When the jam has been removed, the copier sends the data to the RDF. The RDF, in response, circulates the copied documents, and positions the remaining documents on the platen for copying.

For this reason, normal copying will not continue if there is a discrepancy in the number of documents counted: before and after a jam has occurred.

For error 1: the RDF will stop, and the display will be 'different number of documents after jam removal'.

For error 2: the RDF will continue to function.

Resetting

To reset the machine after it has stopped because of the incorrect positioning of documents:

- remove all documents from the document tray.

If a message is displayed, follow the instructions accordingly.

However, if the machine is stopped during image composition mode

- open the machine after removing the documents from the document tray.

20 Power supply

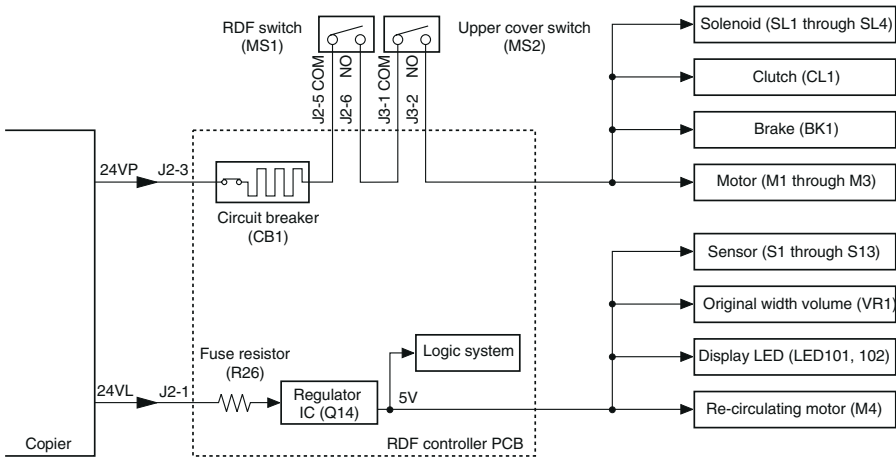
Outline

Block diagram of the control circuit for the power supply.

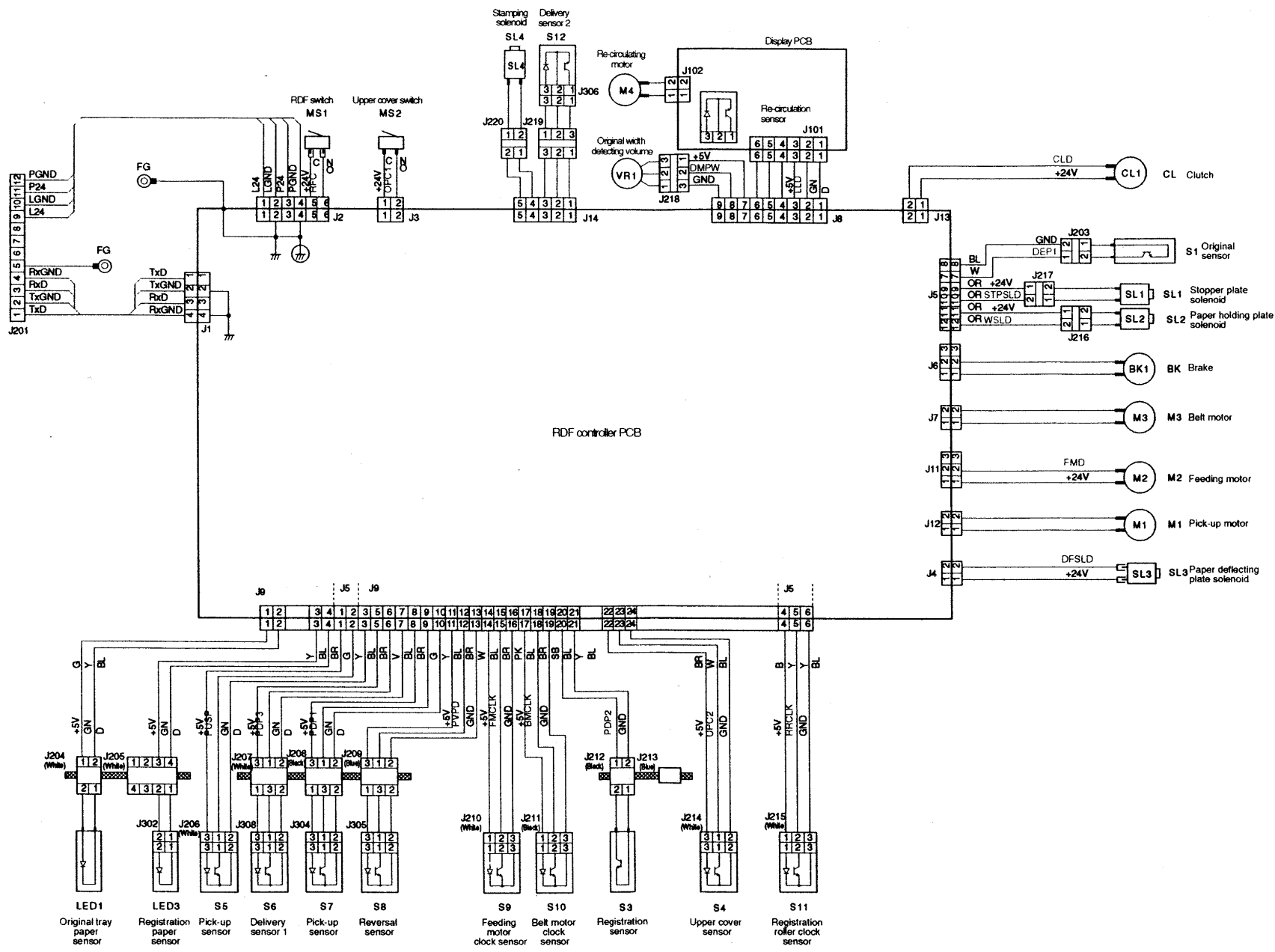
The RDF receives two 24 V power supplies from the copier: 24 VP and 24 VL.

The 24 VP is mainly for loads. It is interrupted when the RDF is opened or the upper cover is opened. The circuit breaker CB1 isolates the circuits in response to an excess current.

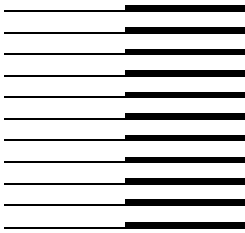
The 24 VL is converted to 5 V by the regulator. The 5V supply is used by the logic circuits and the sensors. The fuse resistor R26 melts to interrupt the power supply if an overload occurs.



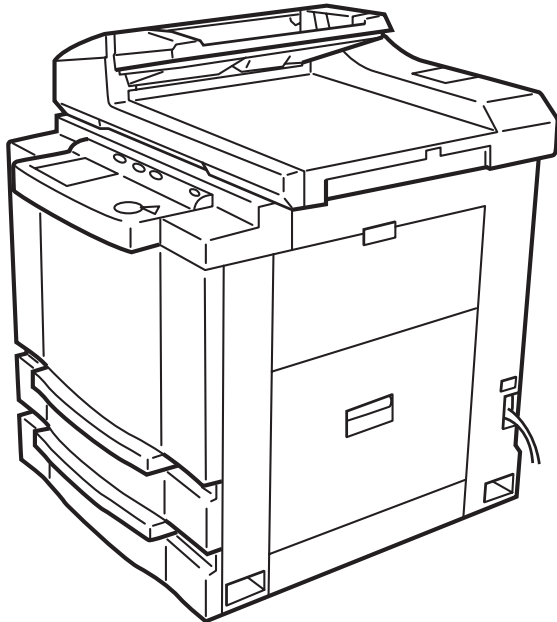
Electrical diagrams



Océ



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11 DIGITAL DOCUMENT HANDLING

Contents

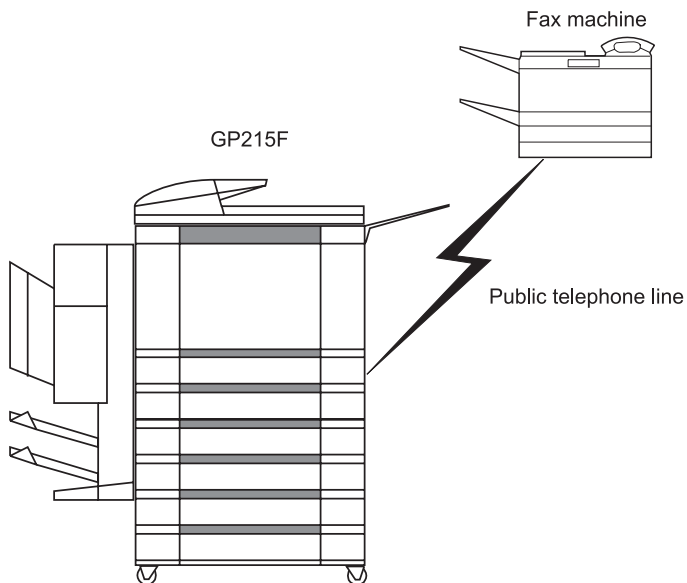
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Functional description

1 PRODUCT OUTLINE

The Océ 3121 is a digital black-and-white copier equipped with communication functions that use telephone lines so that it can serve as a fax transmission/reception device as well as a copier.



2 SPECIFICATIONS

Standards and Performance

The FAX Board is designed to comply with the standards that follow, providing the levels of performance shown.

Communication Unit

Item	Description
Applicable line	General subscription telephone line network
Number of connection lines	1 line (PSTN)
Communication method	Half duplexing communication
Modem speed	14400, 12000, 9600, 7200, 4800, 2400 [bps]
Modulation method (image transmission)	ITU-T V.33 (14400/12000 bps) ITU-T V.17 (14400/12000 bps/TC9600/TC7200 bps) ITU-T V.29 (9600/7200 bps) ITU-T V.27ter (4800/2400 bps)
Compression method	MMR/MR/MH
Communication mode	G3 (no G2/G1/MF)
Error correction method	ITU-T ECM method (may be disabled)
Communication speed	6 sec (ECM-MMR/14400 bps; using Canon FAX Standard Chart No. 1)

Recording System

Item	Description
Maximum original size	A3 (297 x 420 mm)
Transmission original size	A3, A4, A4R, A5, A5R, A6, B4, B5, B5R, LTR, LTRR, LGL, 11x17, STMT, STMTR ADF-F1: supports stream reading, long original (630 mm max.) RDF-G1: supports two-sided original
Recording paper size	A3, A4, A4R, A5, A5R, B4, B5, B5R, LTR, LTRR, LGL, 11x17, STMT, STMTR (cassette only, 6 cassettes max.)
Scanning line density	8 pels/mm x 3.851 lines/mm (Standard) 8 pels/mm x 7.7 lines/mm (Fine) With option memory, the following resolutions are possible: 8 pels/mm x 15.4 lines/mm (Super Fine) 16 pels/mm x 15.4 lines/mm (Ultra Fine) (400 dpi x 400 dpi) (In direct transmission, 400 dpi is given priority.)
Reading density adjustment	3 steps + AE (density correction in 9 steps in user mode)
Halftone	256 gradations, AA (auto adjust) mode
Maximum reception size	A3 (297 x 420 mm)
Scanning line density (recording)	600 dpi (main scanning) 600 dpi (sub scanning)
Test shot	Provided

Memory

Item	Description
Memory	1 MB (standard; using about 52 pages of Canon FAX Standard Chart No.1) 3 MB (option; 4 MB in total; about 244 pages) 9 MB (option; 10 MB in total; about 628 pages)
Power outage back-up	Battery (for 24 about 24 hr; retains image data)
Memory size indication	Provided

Transmission

Item	Description
Memory transmission	Provided (100 reservations max.); direct transmission if memory is full
Direct (manual) transmission	Provided
Broadcasting	216 addresses max. (60 one-touch, 140 speed, 16 keypad addresses)
Memory polling transmission	Provided (memory box function)
Multi polling transmission	216 addresses max.
Fixed time multi polling	Once
Confidential function (address-specific transmission)	Uses addresses (no in-house mode)
Time sharing dialing	Provided
Transmission reservation	Provided (memory, direct)
Batch transmission by address	Provided
Mail post transmission	Batch by timer address; 200 max. (one-touch + speed); 5 times
2-on-1 transmission	Provided (w/ RDF in use)
Timer transmission	200 addresses max.; 32 times
Rotation transmission	Provided
DONE stamp	Provided (w/ RDF in use); READ stamp, SENT stamp (direct
Dual access	transmission only)
Interrupt transmission	Provided (100 reservations max.)
Error re-transmission	Provided (direct transmission)

Reception

Item	Description
Confidential reception	Provided (using memory box; 70 boxes max.)
Relay broadcasting	Provided (using memory box; 70 boxes max.) 200 addresses (1 box)
Substitute reception	Provided (about 52 pages; auto output)
Memory reception	Provided (about 52 pages; time may be set for start/end)
Polling reception	Provided
Fixed time polling reception	Provided (200 addresses max.; once)
Rotation reception	Provided
Number of reception print-outs	1 (may be set to 1 through 99)
Reception image reduction	Provided (97%, 95%, 90%, or 75% ratio; may be auto/fixe; direction of reduction may be vertical/horizontal or vertical only)
Cassette switch (A,B, C, D)	A: division recording B: margin recording (same paper configuration) C: reduction recording (different paper configuration) D: margin recording (on paper larger than reception document)
Reception printouts ordering	Provided
Two-sided reception print-outs	Provided (A4, A4R, B4, A3; model with duplexing function only)
N-on-1 recording reception	A5+A5 - A4, B5+B5 - B4, A4+A4 - A3 (N may be 3 max.; using short original)
Transfer	Provided (time may be set; source may be limited)
Remote reception	Provided
Memory box function	Confidential, relay, fixed time, bulletin, general-purpose
Closed network	Provided

Dialing

Item	Description
One-touch dialing	60 addresses (120 digits max.; telephone number)
Speed dialing	140 addresses (120 digits max.; telephone number) 24 characters (destination abbreviation)
Group dialing	199 groups (one-touch, grouped abbreviations)
Keypad dialing	On-hook (120 digits max.; telephone number)
Auto re-dialing	2 min (may be between 2 min and 99 min) twice (may be once to 15 times) For error, 1st page and error page only (all pages yes/no selection)
Electronic telephone directory	Provided

Reference

Item	Description
User abbreviation registration	Provided
Caller name	Provided (99 max.)
Communications control recording	Provided (40 communications)
Memory reference	Provided

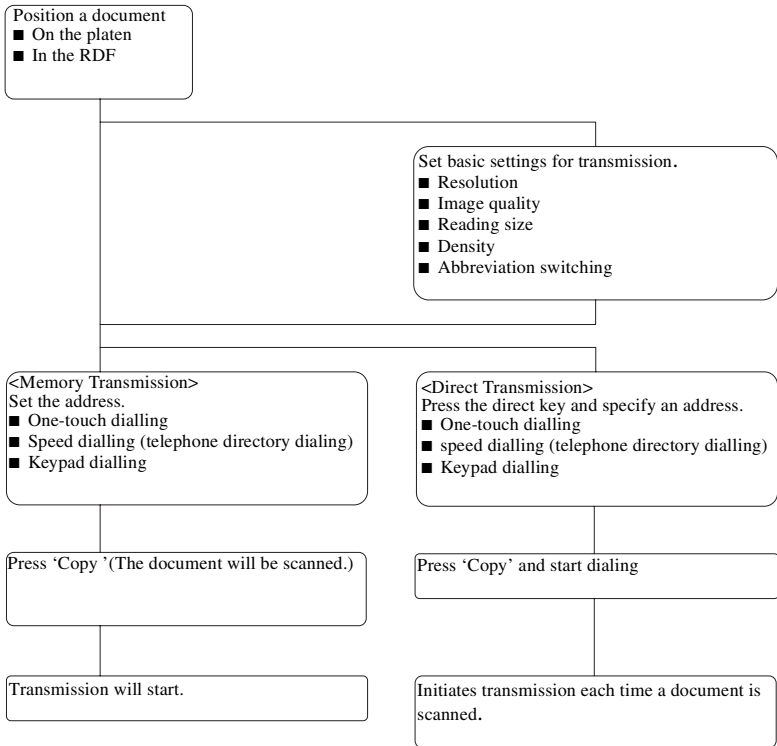
Reporting

Item	Description
Transmission result reporting	At time of shipment, 'when in error' only (yes/no selection)
Reception result reporting	At time of shipment, 'no' (yes/'in error only' selection)
Communications control reporting	At time of shipment, auto printing after 40 communications (transmission/reception separation, time-specific printing selection)
Memory box reception reporting	At time of shipment, 'yes' ('yes/no' selection)
Multiple communications control reporting	Provided
Memory clear reporting	Provided

Transmission Original Editing

Item	Description
Continuous/two-sided	Page separation Two-sided reading (RDF only)
Reduction/enlargement transmission	Default ratio (50% to 200%)
Original frame erasing	Provided
Area selection	Framing, blanking (keypad input; up to 4 areas)
2-on-1 transmission	Provided (w/ RDF in use)
Reading size	At time of shipment, auto reading size (reading size may be set in manual; A3, A4, A4R, A5, A5R, A6, B4, B5, B5R, LTR, LTRR, LGL, 11x17, STMT, STMTR; up to 2 non-default sizes may be registered)

Basic Operations



User Data

The board offers a password function which requires separate passwords: a password used to change or delete the settings of the confidential box or the memory box (or other boxes) and pass-word used for control by group.

What is called the "master password" is the one to be used during servicing or when the user forgets his/her password.

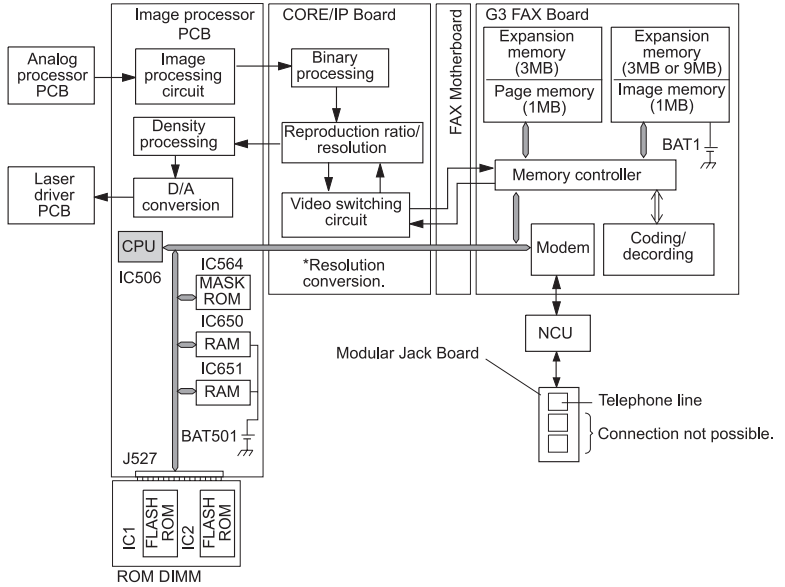
Master Password "4559769"

Note: The master password is intended for use by the technician only. Be sure not to disclose it to the user.

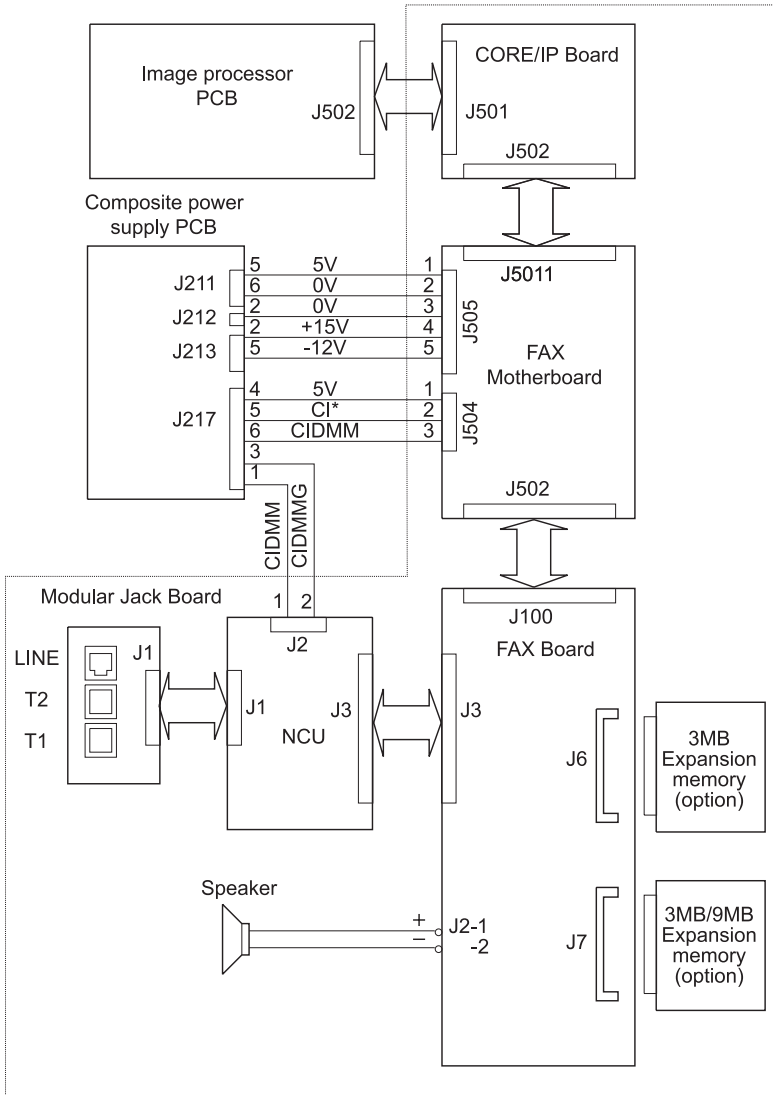
3 BASIC CONSTRUCTION

Basic Functional Construction

The FAX Board can be divided as shown in the figure below, and the functions are controlled by the CPU (IC506) mounted on the image processor PCB.



Inputs to and Outputs from the FAX Board



Reading Operations

1 Reading for Memory Transmission

Originals are placed on the glass platen and are read one by one so that multiple pages may be transmitted. When a feeder is used, on the other hand, multiple originals set in it are read. An original placed on the glass platen and an original picked up from the feeder cannot be joined for reading.

2 Reading for Direct Transmission

A single original placed on the glass platen is read in response to a press on the Start key. If a feeder is used, on the other hand, all multiple originals stacked in it are read. As in the case of reading for memory transmission, an original placed on the glass platen and an original picked up by the feeder cannot be joined for reading.

Memory

The machine is equipped with two types of memory:

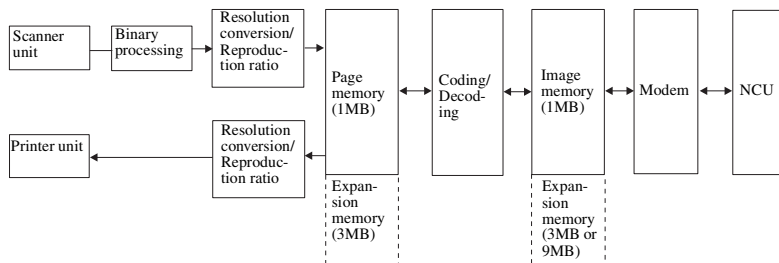
- page memory serving as buffer memory for processing images which have been read and
- image memory serving to store coded transmission image data or reception images.

1 Page Memory

The page memory that comes as standard is as large as 1 MB, capable of storing an A3 original in Fine. It may be increased by 3 MB (option) to enable the use of Super Fine and Ultra Fine.

2 Image memory

The image memory that comes as standard is as large as 1 MB and may be increased to 3 MB or 9 MB (option). When the image memory becomes full during memory transmission, the mode will automatically switch to direct transmission. (See “Processing in Case of Memory Full.”)



READ/SENT Stamp

The stamp function is found in the feeder.

The stamp may be “READ” or “SENT,” and the function operates as follows according to how ‘transmission function settings’ in user data is set:

		Condition	Operation timing
READ stamp	Memory transmission	A page must be read into memory.	When a page is read into image memory.
SENT stamp	Direct transmission	The received response (postmessage response) must be RTP, MCF, or PIP.	When an affirmative response (postmessage response) is received in response to Q (postmessage command).

- Stamping will not occur for a copier function, test shot, or reading from the glass platen.
- Stamping will be treated as mixed original mode, possibly slowing down the reading speed.
- In 2-on-1 reading mode, a stamp is printed on both originals.
- In two-sided original reading mode, a stamp will be printed on the face only.

Processing in Memory Full Condition

If the image memory is expected to become full while reading for memory transmission, direct transmission mode will automatically be selected.

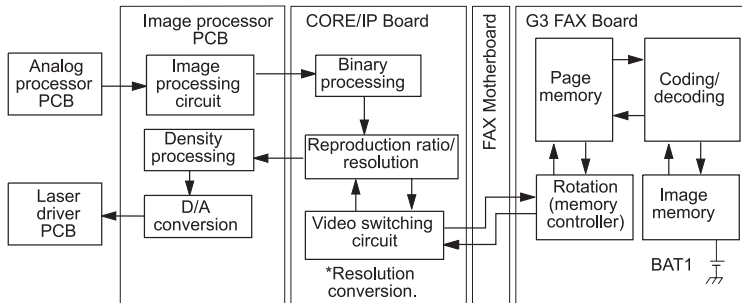
If a shift to direct transmission cannot be made in memory full condition, the image read up to that point will be discarded (not transmitted).

Test Shot

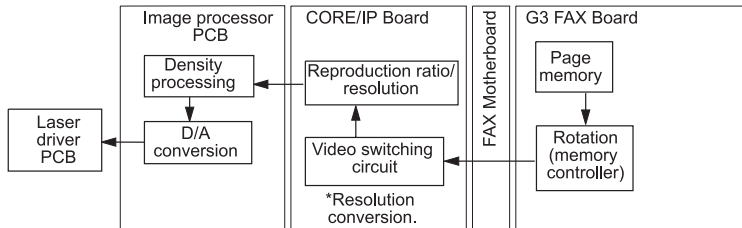
When the test shot function is used, an original is read under the exactly same conditions as are used for actual transmission, and the data is stored first before output (printing). This way, the quality and the arrangement of the transmission images may be checked. In addition, the function may be used to help isolate an error in image processing from reading to memory units.

In addition to a test shot, the machine allows test printing (‘test print’ or ‘VIDEO test’) using #10 TEST mode. See the figure for the flow of image signals.

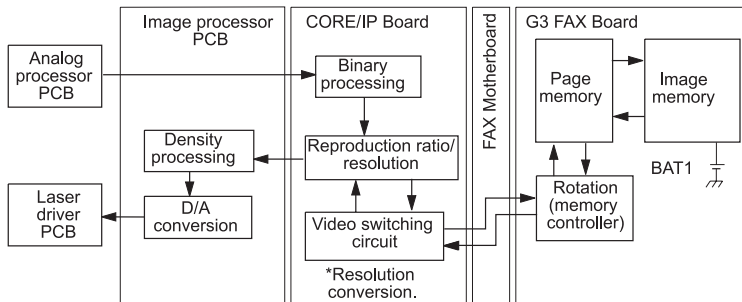
< Test Shot >



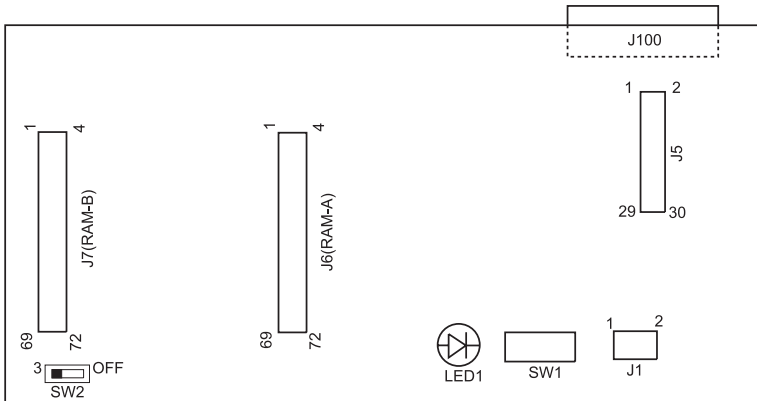
< Test Printing >



< VIDEO Test >



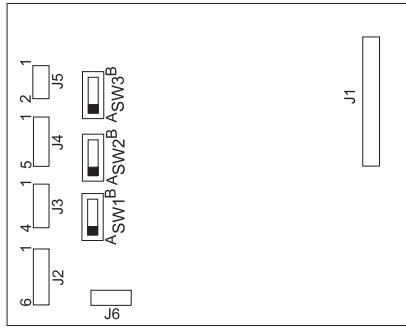
Fax Controller Board



Notation	Description
J1	Speaker connector
J5	NCU interface connector
J6	RAM-A (for page memory); when installed, it enables the use of Super Fine and Ultra Fine modes. Its installation must be followed by installation of RAM-B. (3MB)
J7	RAM-B (for image memory); when installed, it provides more space for storing transmission/ reception images. (3MB or 9MB).
J100	Fax Motherboard Interface connector
LED1	Remains ON when 5V is being supplied normally
SW1	For factory adjustment; be sure it is OFF
SW2	Use it for back-up. Turn it off once when installing expansion memory; then, turn it on at the end of the work (toward 3, for back-up). If the board is to be installed as an accessory (post-installation) to the Océ 3121, be sure to shift SW2 from OFF to 3 at time of installation.

NCU Board

230V Areas (outside France)



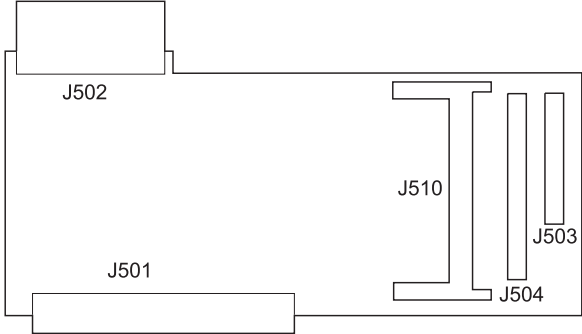
Note: The NCU in the French model do not have SW1 through SW3.

Notation	Description
J1	Fax controller Board interface connector
J2	Connector for telephone line jack
J3	Connector for extension phone jack. (Note that a face plate is provided over the modular jack upon shipment from the factory.)
J4	Connector for handset jack
J5	Not used
J6	ARG cable terminal

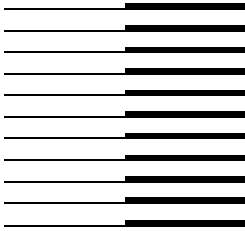
Switch settings

	SW1	SW2	SW3
Ec (general)	A	A	A
Sweden	A	B	A
UK/Australia/Asia/Oceania	B	A	B
France	-	-	-

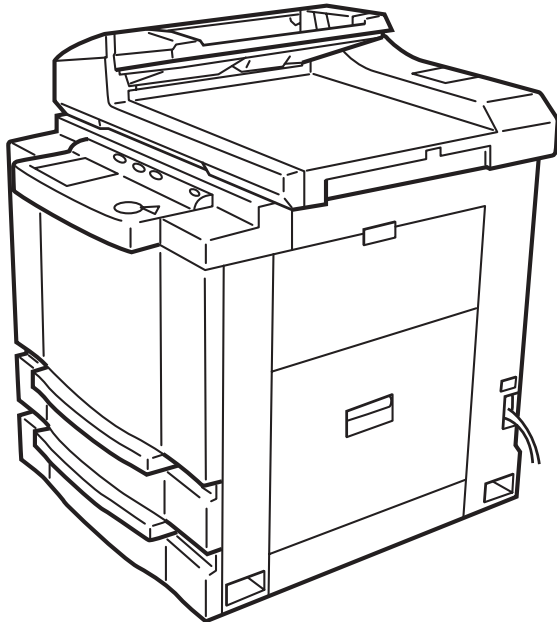
CORE/IP Board



Océ



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12 PAPER

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Functional description

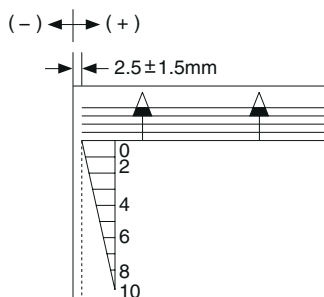
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Adjustments

1 Adjusting the Registration in Rear/Front Direction

Aim:

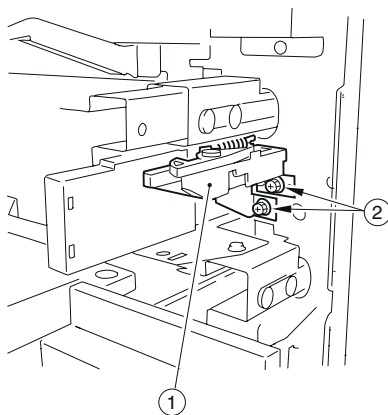
Check to make sure that the margin along the image front is 2.5 ± 1.5 mm on copies. (Try all cassettes.)



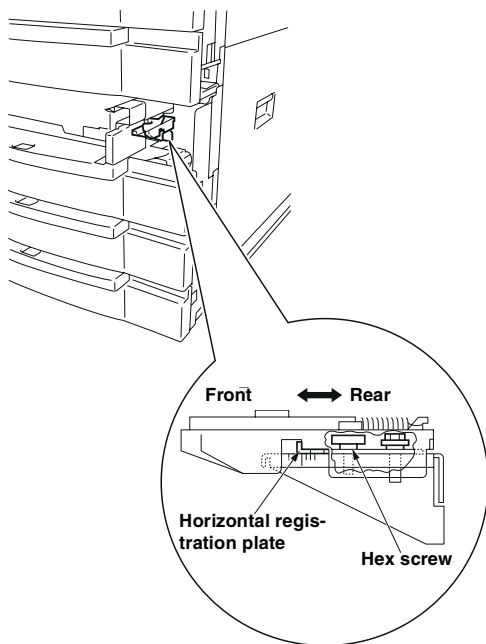
Correction:

If the margin is not as indicated, perform the following:

- 1 Slide out the cassette from the holder to be adjusted.
- 2 Remove the two screws (2), and remove the horizontal registration mount (1).



- 3 Loosen the hex screw, and move the horizontal registration plate to the rear so that the width is as specified.

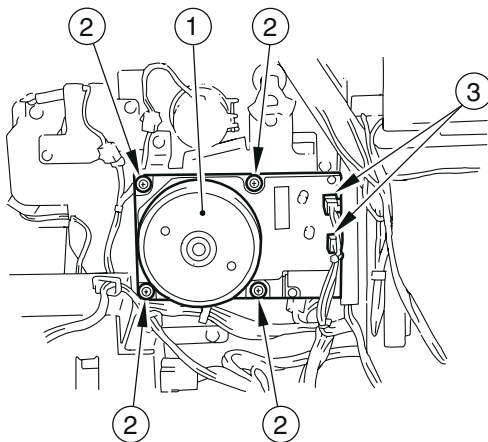


Note: Adjust the horizontal registration plate by matching the inner side of the L shape on the horizontal plate at a specific scale notch.

Dis-/assembly

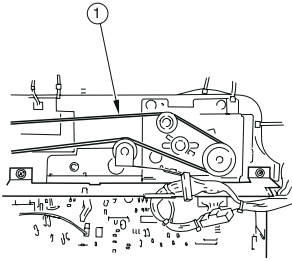
1 Removing the Main Motor

- 1 Disconnect the power plug, and remove the following:
 - Rear cover (4 screws)
 - Flywheel (3 screws)
- 2 Remove the four screws (2), and disconnect the two connectors (3); then, remove the main motor (1).

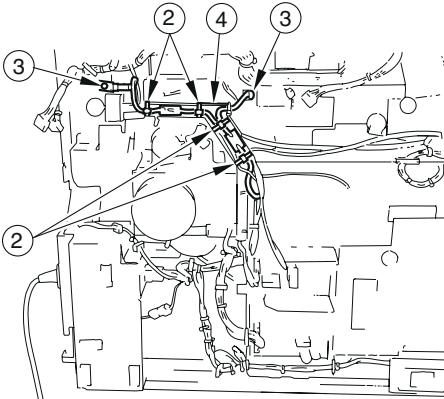


2 Removing the Pick-Up drive Unit

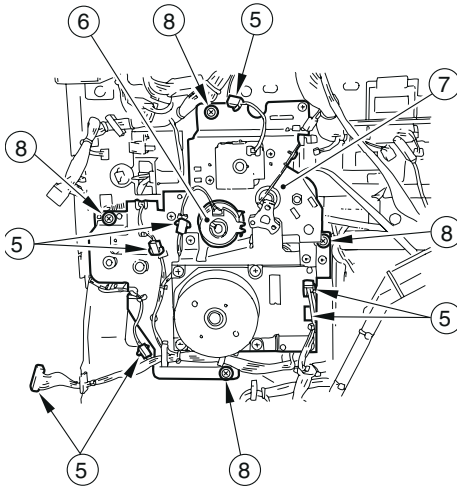
- 1 Disconnect the power plug, and remove the following:
 - Rear cover (4 screws)
 - Flywheel (3 screws)
 - Scanner cooling fan (hook, connector)
- 2 Remove the pick-up assembly.
- 3 Release the belt (1).



- 4 Remove the harness retainer (2), two high-voltage cables (3), and power supply cord mount (4) (2 screws).

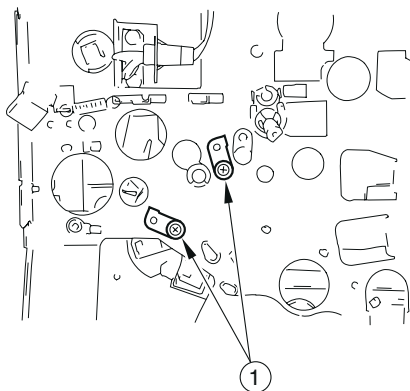


- 5 Disconnect the seven connectors (5).
- 6 Remove the registration roller clutch (6).
- 7 Remove the four screws (8), and remove the pick-up drive unit.

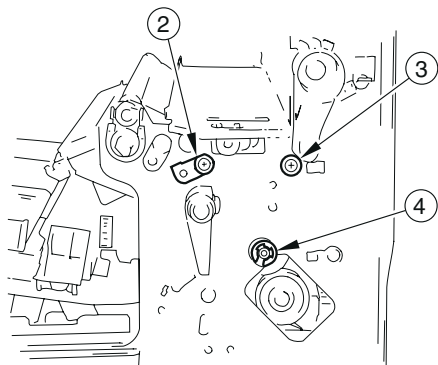


3 Vertical Path Assembly

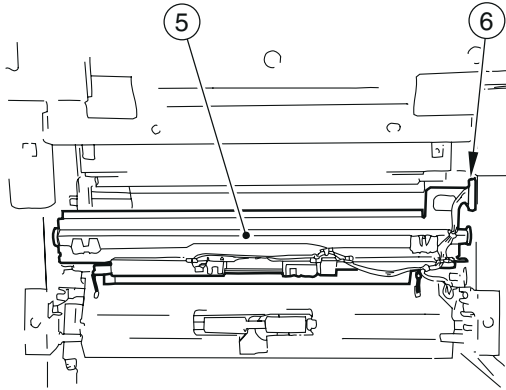
- 1 Remove the following:
 - Pick-up assembly
 - Pick-up drive unit
- 2 Remove the two rolls, and disconnect the connector; then, remove the multi-feeder assembly.
- 3 Remove the two screws (1) from behind the machine.



- 4 Release the feeding lever, and remove the three screws to remove the feeding lever and the feeding assembly locking assembly.
- 5 Remove the screw (2), grounding screw (3), and E-ring (4).

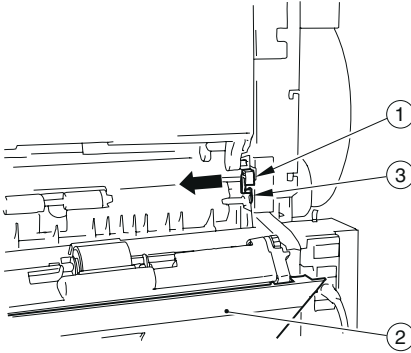


6 Disconnect the connector (6), and remove the vertical path assembly.

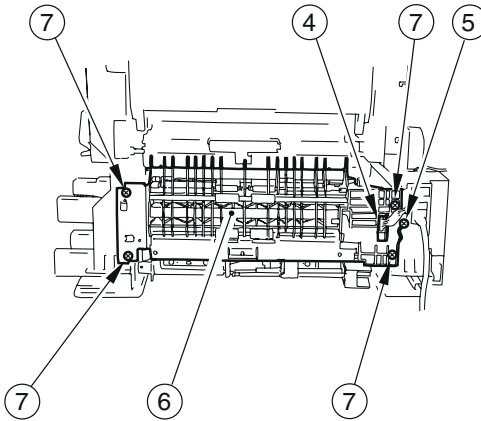


4 Removing the Pick-Up Assembly

- 1 Remove the cassette from the copier.
- 2 Remove the right cover.
- 3 Pull off the roll (1) of the multi tray cover.
- 4 Detach the cable of the right door (2) from the hook (3); then, remove the right door.

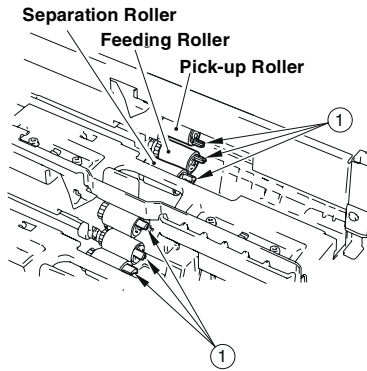


- 5 Disconnect the connector (4) of the pick-up assembly, and remove the grounding screw (5).
- 6 Remove the four screws (7), and remove the pick-up assembly (6).



5 Removing the Pick-Up/Feeding/Separation Roller

- 1 Slide out the cassette.
- 2 Holding the knob assembly (1), pull it off in the axial direction.

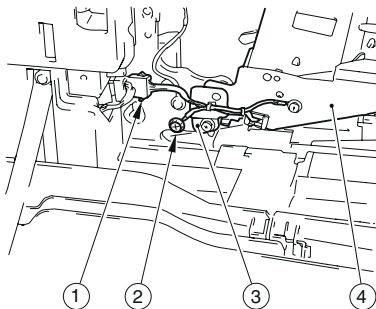


6 Installing the Pick-UP/Feeding/Separation Roller

- 1 Holding the knob assembly, push it in until a click is heard.

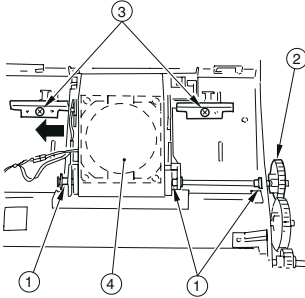
7 Removing the Feeding Assembly

- 1 Open the front door, and remove the fixing inside cover; then, remove the fixing unit. (4 connectors, 1 screw, 1 grounding screw)
- 2 Remove the drum unit.
- 3 Disconnect the connector (1), and remove the grounding screw (2).
- 4 Remove the screw, and remove the feeding assembly positioning pin (3); then, remove the feeding assembly (4) from the front.

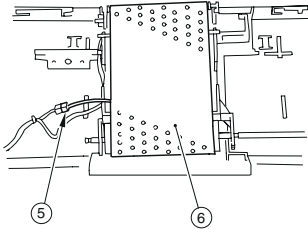


8 Removing the Feeding Fan

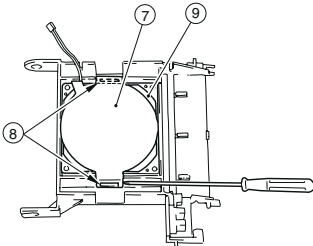
- 1 Remove the feeding assembly.
- 2 Remove the screw, and remove the transfer charging roller unit from the feeding assembly.
- 3 Remove the three bushings (1) and the gear (2) by disengaging the hooks.
- 4 Remove the screw, and remove the static eliminator (3).
- 5 Remove the feeding fan assembly (4) from the mount in the direction of the arrow.



- 6 Disconnect the connector (5), and remove the feeding belt (6) as if to displace it.

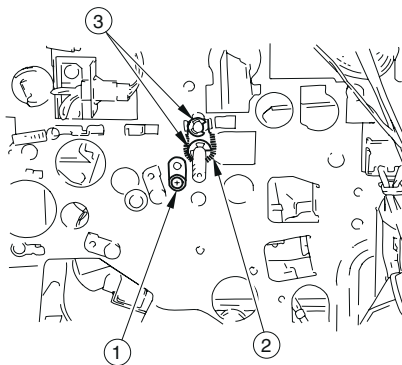


- 7 Release the hook assembly (8) of the feeding fan cover (7) with a small flat-blade screwdriver.
- 8 Remove the feeding fan (9).

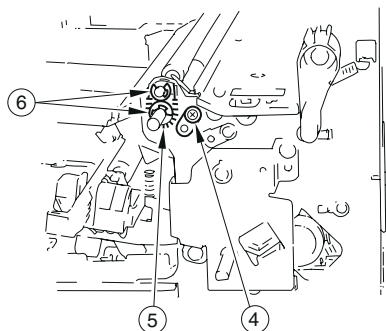


9 Removing the Registration Roller

- 1 Remove the following:
 - DC controller PCB
 - harness guide
 - Power supply mount
 - Drive unit
 - Developing assembly
 - Drum unit
- 2 Remove the screw (1), spring (2), and two E-rings (3) from the rear of the machine.



- 3 Remove the screw (4), spring (5), and two E-rings (6) from the front of the machine.



- 4 Remove the transfer guide unit.
- 5 Remove the registration roller.

Functional description

1 Pick-up and feeding

Outline

The copier has a centre reference. The copy paper moves along the centre of the pick-up and feeding unit. The pick-up system comprises two cassettes (upper, lower) and the speciality tray.

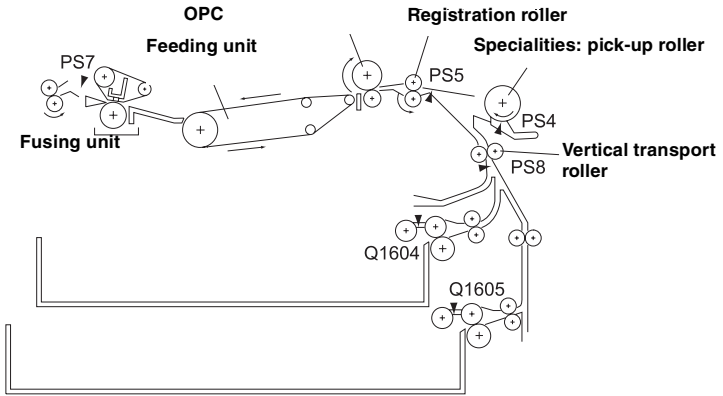
Copy paper from one of the cassettes, or the speciality tray, is controlled by the registration roller. This roller ensures that the leading edge of the paper coincides with the leading edge of the image on the OPC.

Nine sensors are used to monitor the movement of the copy paper. Seven sensors are used to detect jams.

Notation	Name	Signal	Pin*
PS4	Sensor for the speciality tray	MFPD*	J113-A11
PS5	Sensor for the pre-registration	PDP1	J113-A5
PS7	Fuser sensor PS7	PDP3	J109-6
Q1604	Sensor for the upper cassette	UCSPD*	J114-A10
Q1605	Sensor for the lower cassette	LCSPD*	J114-A11
PS8	Sensor for the vertical transport	PDP4	J113-A2
PS11	Sensor for the re-pick entry	PDP5*	J103-2
PS12	Sensor for the lower refeed	PDP6*	J105-B2
PS13	Sensor for the output tray	PDP7*	J105-A2

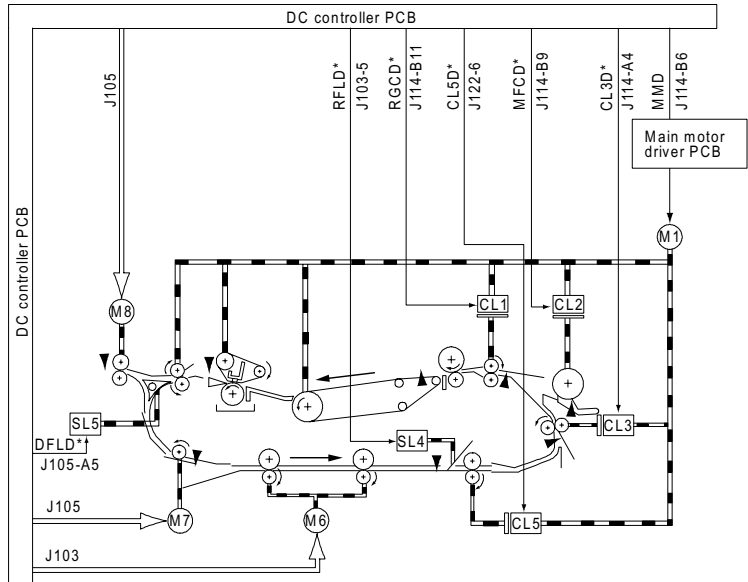
*pin on the DC control PCB.

List of sensors



No.	Name
CL1	Clutch for the registration roller
CL2	Clutch for the speciality roller
CL3	Clutch for the vertical transport
CL5	Clutch for the lower refeed
SL4	Solenoid for the re-pick entry
SL5	Solenoid for the paper deflector
M1	main motor
M6	Motor for the retarding roller
M7	Motor for the lower refeed
M8	Motor for the output roller

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Pick-up from the cassette

Pick-up

The paper in the cassette is supported by a ramp. This keeps the paper in contact with the pick-up roller when the paper feed occurs.

The pick-up roller is driven by the motor (M4). The roller is lowered onto the paper during the pick-up.

A cam, turned by motor M1, lowers the roller for feeding. The down solenoid SL2 energises to allow the cam to turn.

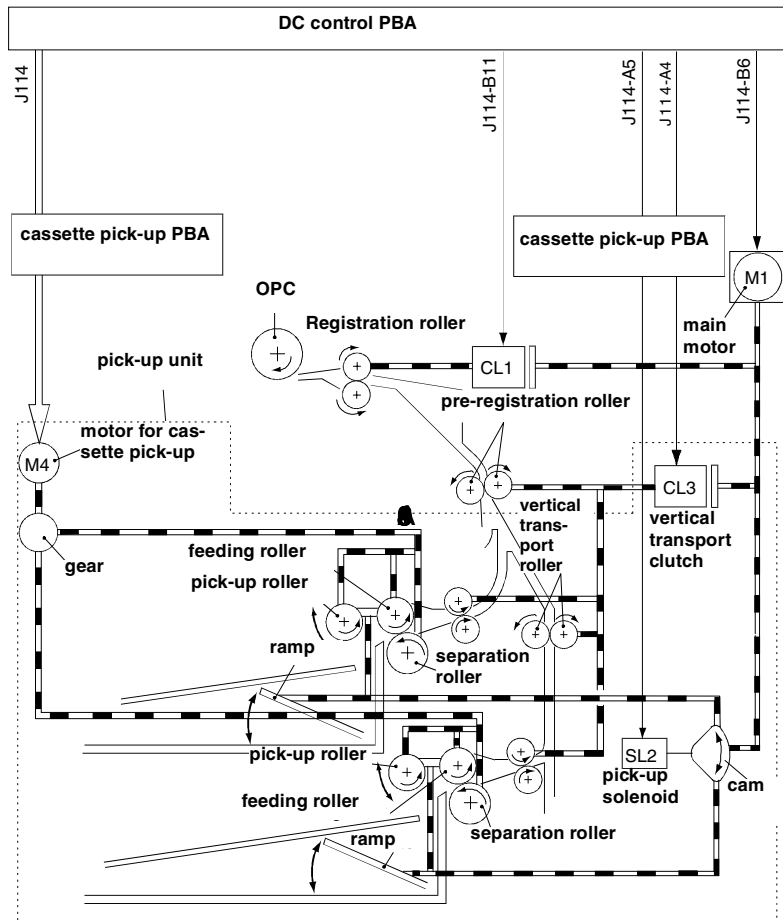
The feeding roller and the separation roller make sure that only one sheet of copy paper is fed; the copy paper is moved to the feeding assembly and then to the registration roller by the vertical path roller 1/2.

Motor M1 drives the vertical transport and the pre-registration roller. The drive is controlled by switching the clutch CL2 ON and OFF.

The clutch CL1 allows the motor M1 to drive the registration roller.

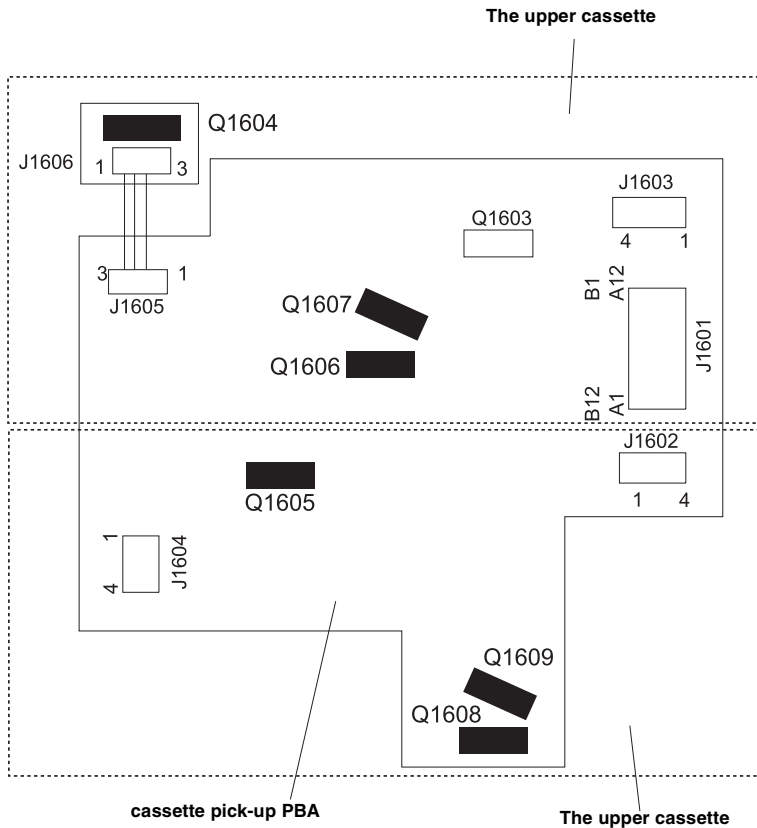
Number	Name	Signal	Pin on DC control PBA
M1	Main motor	MMD	J114-B6
M4	Motor for cassette pick-up	Note:	J114
CL1	Clutch for the registration roller	RGCD*	J114-B11
CL3	Clutch for the vertical transport	CL3D*	J114-A4
SL2	Solenoid for lowering the pick-up roller	SL2D*	J114-A5

Note: Pulse signal: this cannot be checked (0, 1) by a meter.



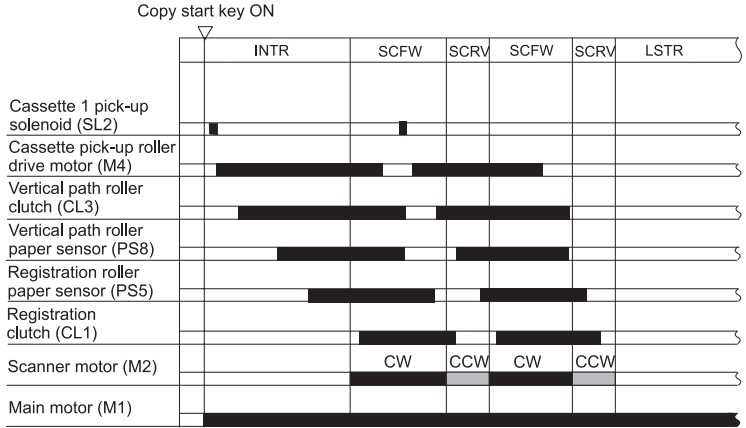
Number	Name	Signal	Pin*
Q1604	Sensor for the upper cassette	LCSPD	J105-10
Q1605	Sensor for the lower cassette	LCSPD	J105-11
Q1606	Sensor for the upper cassette: level 0	1RPD0	J108-1
Q1607	Sensor for the upper cassette: level 1	1RPD1	J108-2
Q1608	Sensor for the lower cassette: level 0	2RPD0	J108-3
Q1609	Sensor for the lower cassette: level 1	2RPD1	J108-4

*pin on the DC control PCB.



Timing of operations

■ Cassette 1, A4, 2 Copies, Continuous



Sequence of pick-up operations (cassette)

Operation of the ramp in the cassette

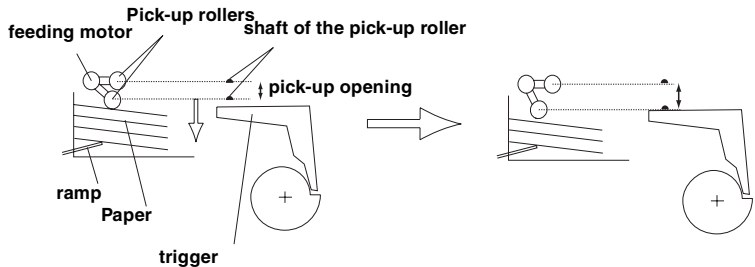
When the cassette is in use, the ramp is raised continuously, so maintaining the height of the top sheet in the cassette.

Movement of the ramp during the copying cycle

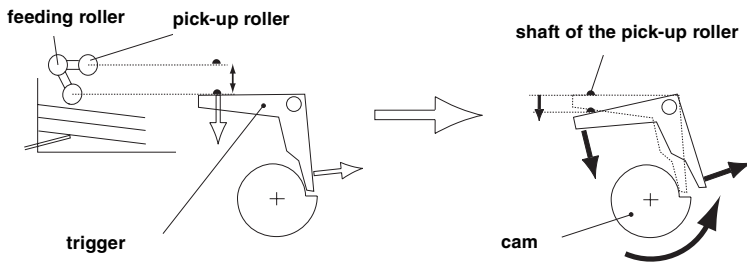
The level of the paper is maintained as follows:

- The movement of the ramp is started when the shaft of the pick-up roller releases the trigger and releases the cam.
- The movement of the ramp stops when there is no paper in the cassette.

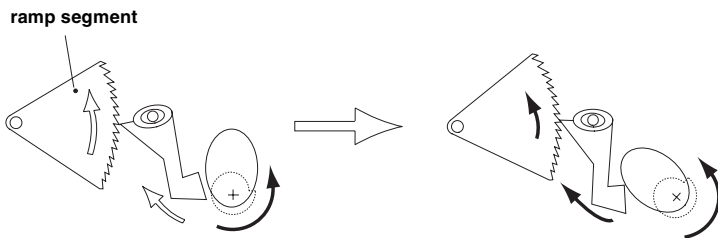
- 1 As copy paper is used, the pick-up roller is gradually lowered.



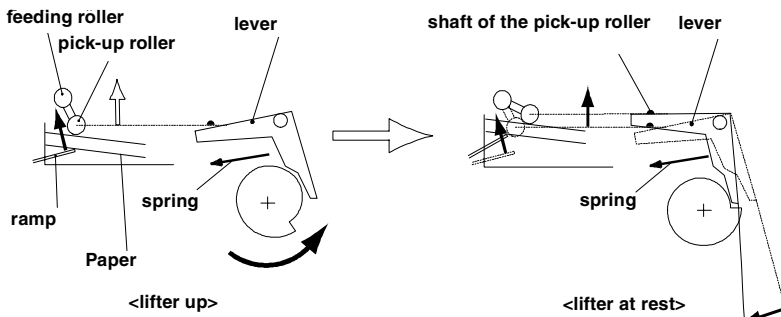
- 2 The stack depletes, and the shaft of the pick-up roller moves downwards. This causes the shaft of the pick-up roller to push the trigger. This movement frees the cam, so that the cam starts to rotate.



- 3 The cam rotates, lifting the lever.



- 4 The stack is raised by the ramp. The pick-up roller moves upwards, and the spring draws the lever against the cam.



Releasing the ramp

When the cassette is withdrawn, it releases the ramp. One claw raises the ramp, another claw holds the ramp up. When the machine is at stand-by, the ramp is held by the retaining claw. When the cassette is opened, the retaining claw is released, and the ramp drops.

Warning: *If the power supply fails while the ramp is being raised, the claw for raising the ramp holds the ramp up. In such cases, ensure that the machine is switched OFF, then ON. This makes sure that the cassette is released in the proper manner.*

Operation of the pick-up from the cassette

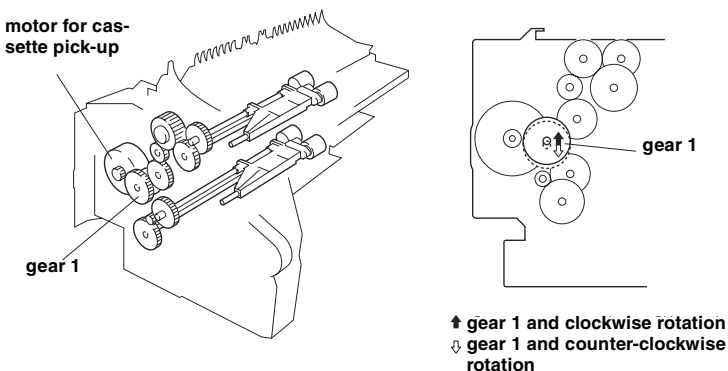
a) Pick-Up Operation

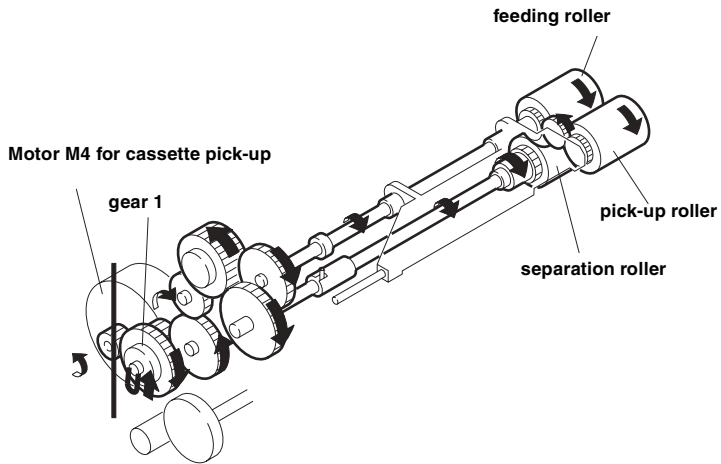
- 1 The pick-up roller is driven by the motor M4, via a gear system.
- 2 The motor M4 is controlled by the cassette pick-up PBA. When the paper feed is from the upper cassette, motor M4 runs clockwise. Motor M4 runs counter-clockwise when the paper is fed from the lower cassette
- 3 Sensor for the pick-up roller (S5)
When the cassette is closed, the pick-up roller is lowered and the ramp is raised to bring the paper into position.

b) Drive Control

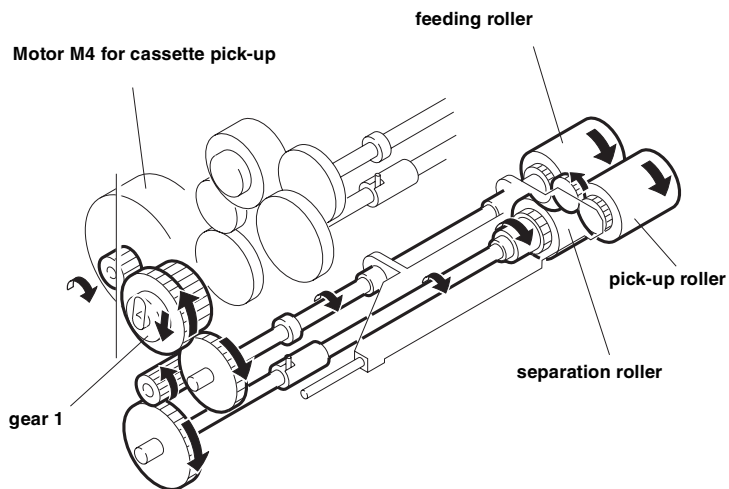
When M4 rotates clockwise, gear 1 is raised to drive the pick-up roller for the upper cassette.

When M4 rotates counter-clockwise, gear 1 is lowered to drive the pick-up roller for the lower cassette.





Pick-up drive for the upper cassette: pick-up motor rotating clockwise.



Pick-up drive for the upper cassette: pick-up motor rotating clockwise.

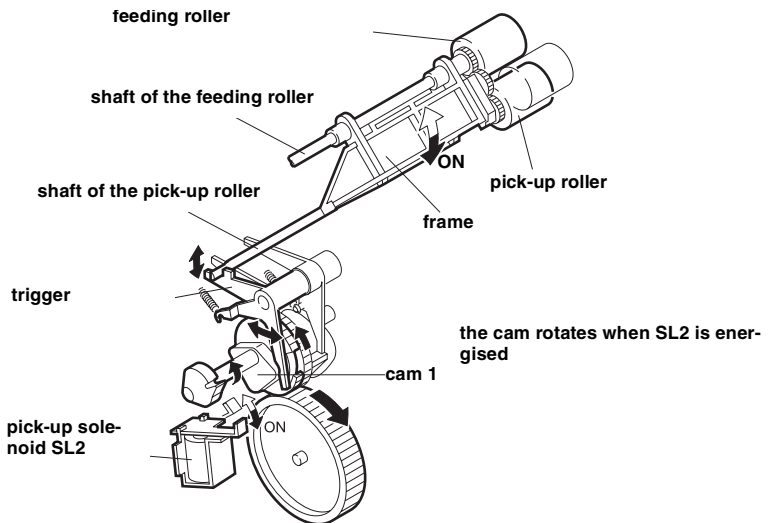
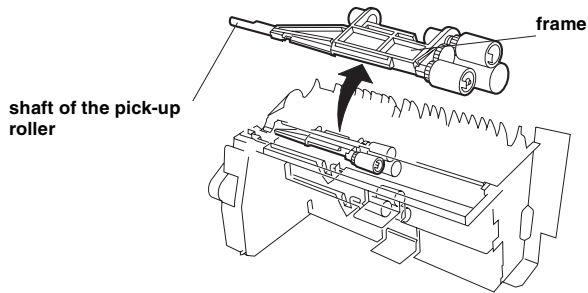
c) Movement of the pick-up roller

M1 provides the drive for the shaft of the pick-up roller. The cam is activated by the solenoid SL2

The raised position is the stand-by position of the shaft of the pick-up roller.

The following occurs when a sheet is fed:

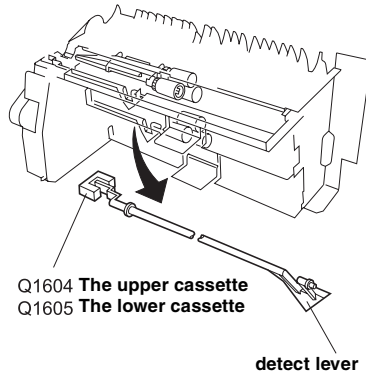
- 1 - Solenoid SL2 energises.
- The motor M1 rotates the cam, for a single rotation.
- 2 The single rotation of the cam rotates, releasing the trigger.
- 3 The pick-up roller is lowered to reach the copy paper, and the motor M4 rotates and starts to pick up a sheet of paper.
- 4 The rotation of the cam raises the shaft of the pick-up roller.



Movement of the shaft of the pick-up roller

d) Detection of 'cassette is empty'

When the last sheet leaves the cassette, the detect lever drops through the slot in the cassette. The vane on the detect lever interrupts the sensor (Q1604 for the upper cassette, and Q1605 for the lower cassette). The 'no paper' message is displayed.



Cassette in the stand-by situation

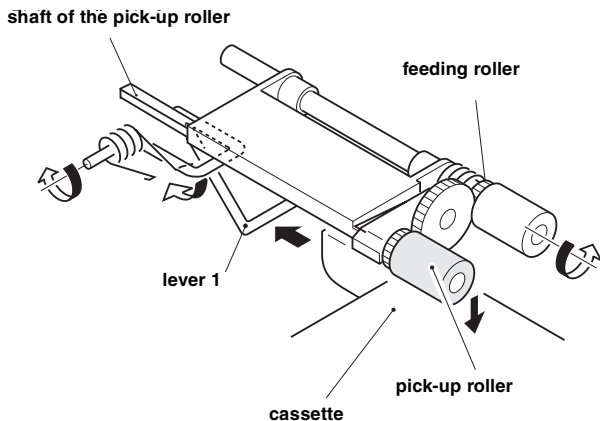
The following occurs when the cassette is removed or replaced.

1 With the ramp up, and the shaft of the pick-up roller down

a) Shaft of the pick-up roller is down

When the cassette is inserted, and the machine is ON, the shaft of the pick-up roller will be lowered until it reaches the paper.

- The rear of the cassette pushes lever 1 upwards.
- The motor M1, and the pick-up solenoid SL2 are switched on, following the signal from the size sensor. The trigger turns.
- The position of the shaft of the pick-up roller is controlled by the lever 1 and the trigger.



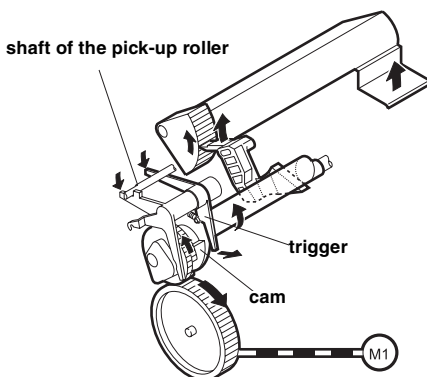
Movement of the lever 1 when the cassette is inserted

b) the ramp is raised

When the cassette is inserted, and the machine is ON, the shaft of the pick-up roller will be lowered pressing down the trigger.

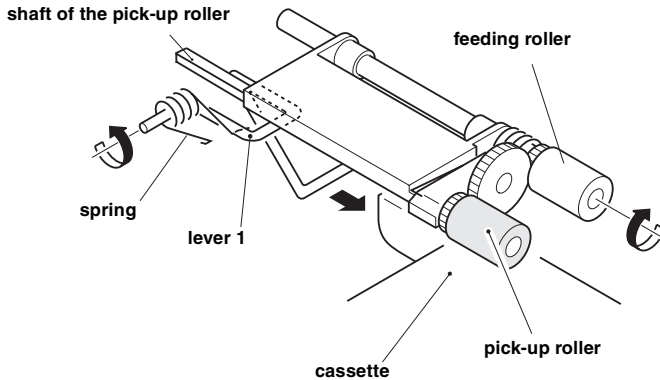
When one end of the trigger is pressed by the shaft of the pick-up roller, the ramp is raised by the motor M1.

The pick-up roller is against the copy paper. The paper has moved up to a certain position, and the shaft of the pick-up roller has risen to the highest position. The movement of the ramp is stopped.



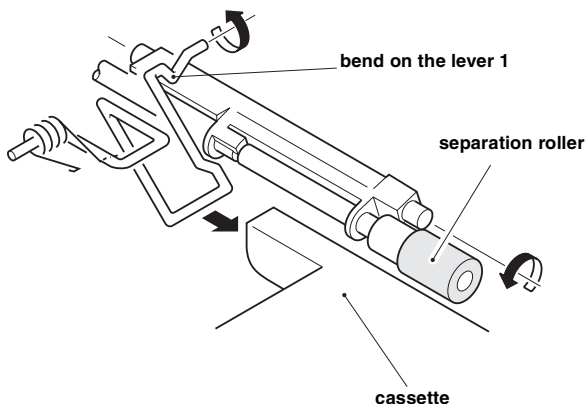
Raising the ramp

- 2 Moving up the shaft of the pick-up roller, and releasing the ramp and the separation roller: when removing the cassette.
- Movement of the shaft of the pick-up roller
- When the cassette is withdrawn, the spring rotates the lever 1. This raises the shaft of the pick-up roller. The pick-up roller allows the withdrawal of the cassette.



Moving up the pick-up roller

- Releasing the separation roller
- A bend is incorporated in the lever 1. This presses down the separation roller. As the lever 1 turns, when the cassette is withdrawn, the bend is rotated off the separation roller. This reduces the pressure.



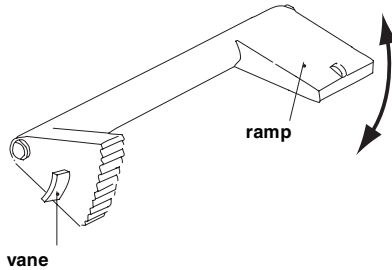
Releasing the separation roller

Releasing the ramp

The ramp is released, when the cassette is withdrawn: in stand-by.

Detecting the level of copy paper





The ramp rises gradually as the paper depletes. Together with the ramp, the segment also rises. This moves a vane through the sensors Q1606 and Q1607.



	Cassette is full	Cassette is empty
Position of the ramp		
Segment and sensors		

d) Monitoring the stock of paper in the upper cassette

The stock of copy paper, the sensors and the displays.

stock	Q1606	Q1607	display
500 sheets	0	0	
	1	0	
	1	1	
0	0	1	

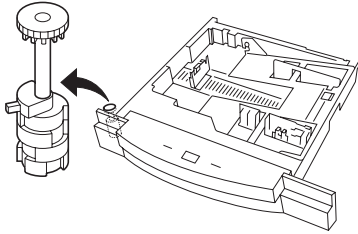
1: The light-blocking plate is over the sensor.

0: The light-blocking plate is not over the sensor.

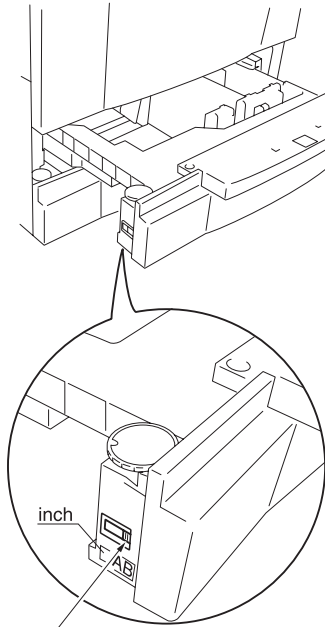
Detecting the size of the paper

Outline

The size of the paper is selected on the size dial, and a switch to select A/B or inch sizes.



Location of the dial



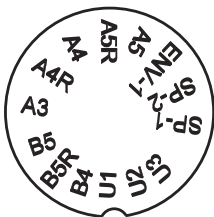
Switch
A/B or Inch switch

Paper sizes

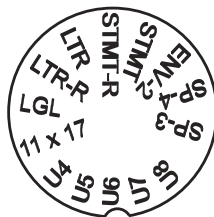
The sizes of paper that can be used in the copier.

Configuration	Cassette	Main scanning direction (mm)	Reverse scanning direction (mm)	
A/B	A4	210	148	
	A5R	148	210	
	A4	297	210	
	A4R	210	297	
	A3	297	420	
	B5	257	182	
	B5R	182	257	
	B4	257	364	
	U1	FLSO	216	330
		OFICIO	216	317
		A-OFI	220	340
		E-OFI	220	320
		B-OFI	216	355
		A-LGL	220	340
	U2 FOLIO	210	330	
	U3 A-FLS	206	337	
	SP-1	Set by user	Set by user	
	SP-2	Set by user	Set by user	
	ENV1	Set by user	Set by user	

Configuration	Cassette	Main scanning direction (mm)	Reverse scanning direction (mm)
Inch	STMT	216	140
	STMTR	140	216
	LTR	279	216
	A-LTR	280	220
	LTRR	216	279
	A-LTRR	220	280
	LGL	216	356
	11 ¥ 17	279	432
	U4	267	203
	U5	203	267
	U6	203	330
	U7	268	190
	U8	190	268
	SP-3	Set by user	Set by user
	SP-4	Set by user	Set by user
ENV2	Set by user	Set by user	



rotary label: A/B



rotary label: inch

Note: The U-prefix refers to the following:

U1..... FOOLSCAP	U2..... FOLIO	U8..... K-LGL (R)
OFFICIO	U3..... A-FLS	
A-OFFICIO	U4..... G-LTR	
E-OFFICIO	U5..... G-LTR (R)	
B-OFFICIO	U6..... G-LGL	
A-LGL	U7..... K-LGL	

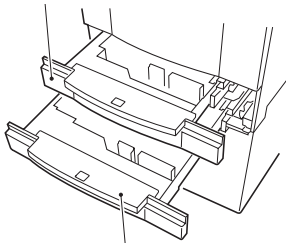
Note: The prefix SP-1/2 is for special 1/2. This applies for modes using default sizes at the request of the customer. A display icon can be selected to refer to the special cassette. For further details, refer to the user documentation.

Size of the cassette

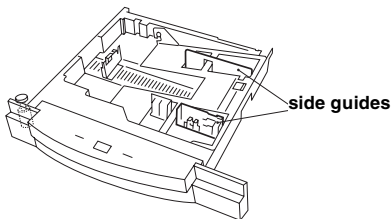
The upper cassette and the lower cassette differ in size. The upper cassette may be used for copy paper of size B4 or smaller.

Inside the cassette are the side guides. The guides are manually adjustable. The side guides are not equipped with a sensor. The setting of the rotary switch should correspond with the settings of the side guides.

The upper cassette
For sizes A5 to B4



The lower cassette
For sizes A5 to A3



Controlling the clutch for the registration roller

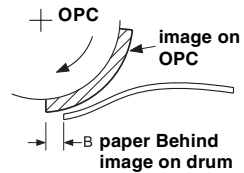
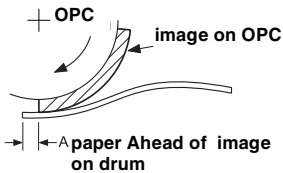
The clutch CL1 times the feeding of the paper, so that the leading edge of the paper coincides with the leading edge of the image area on the OPC.

The timing of the operation of the clutch CL1 can be set in the service mode (* 3 *, RESIST).

Selected mode		Paper	Movement (mm)	Paper and Image
one-sided original -> one-sided copy		B	Between 0 and 20 mm; the drawings show a movement of 5 mm.	
one-sided original -> two-sided copy	copying on the 1st side	A		
	copying on the 2nd side	B		
two-sided original -> two-sided copy	copying on the 1st side	A		
	copying on the 2nd side	B		
two-sided original -> one-sided copy	copying on the 1st side	B		
	copying on the 2nd side	B		
page separation -> (one-sided copy)	copying on the 1st side (left)	B		
	copying on the 2nd side (right)	B		
page separation -> two-sided copy	copying on the 1st side (left)	A		
	copying on the 2nd side (right)	B		
one-sided original -> overlay copy	copying on the 1st side	B		
	copying on the 2nd side	B		
two-sided original -> overlay copy	copying on the 1st side	B		
	copying on the 2nd side	B		
page separation -> overlay copy	copying on the 1st side (left)	B		
	copying on the 2nd side (right)	B		

Copy paper-image area when copying on 1st side

Image area when copying on 2nd side D area: Erased by blank exposure.

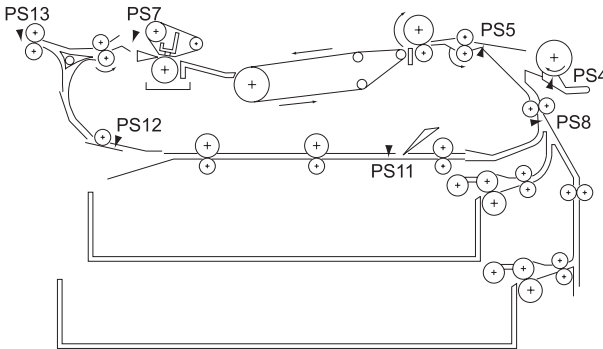


2 Detection of jams

Outline

Seven sensors are used to monitor the movement of the copy paper, and to detect jams.

The DC control PBA monitors various points of the paper transport, to check the arrival and departure of the paper. If one of the sensors detects a jam, the main motor is switched OFF, and a message is displayed on the control panel.



	Sensor	Signal	Pin*
PS4	Sensor for the speciality tray	MFPD*	J113-A11
PS5	Sensor for the pre-registration	PDP 1	J113-A5
PS7	Fuser sensor PS7	PDP 3	J109-6
PS8	Sensor for the vertical transport	PDP 4	J113-A2
PS11	Sensor for the re-pick entry	PDP 5*	J103-2
PS12	Sensor for the refeed unit	PDP 6*	J105-B2
PS13	Sensor for the output tray	PDP 7*	J105-A2

*pin on the DC control PCB.

Types

The microprocessor identifies jams as follows:

Delay

The paper did not reach the appropriate sensor within the specified time: i.e. the sensor is not ON.

Stationary

The paper did not leave the appropriate sensor within the specified time: i.e. the sensor does not switch OFF.

Persistent

The paper remains over a sensor, with power ON. i.e. the sensor detects paper.

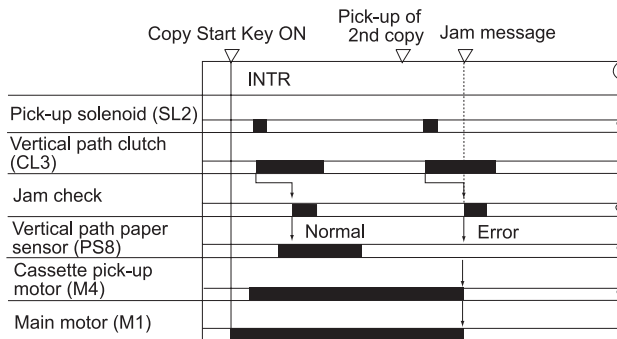
Note: A jam will be signalled if any of the following occurs, during copying:

- the front door is opened,
- the right door is opened,
- the output door is opened,
- or the cassette is withdrawn.

Timing of operations

Pick-up delay

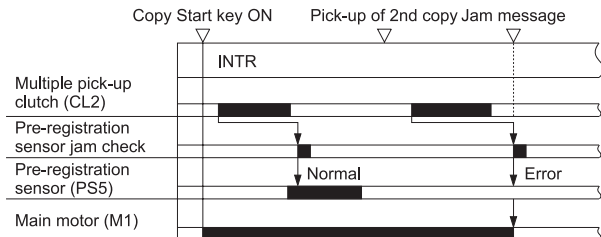
A delay will be signalled if the paper does not reach the sensor PS8 within a specified period of time after the clutch CL3 has energised.



Timing for delay at pick-up

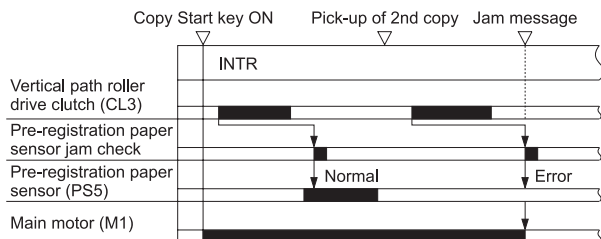
Delay at the pre-registration sensor PS5

A delay will be signalled if the paper does not reach the sensor PS5 within a specified period of time after the clutch CL2 has energised.



Delay at the pre-registration sensor PS5

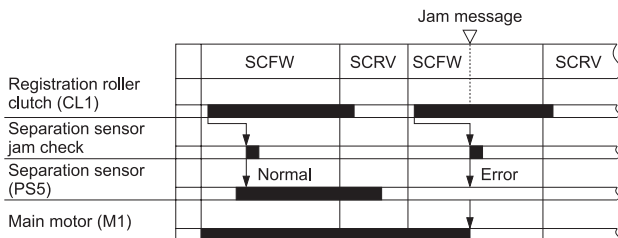
A delay will be signalled if the paper does not reach the sensor PS5 within a specified period of time after the clutch CL3 has energised.



Timing for delay at the pre-registration roller

Delay at the fuser sensor PS7

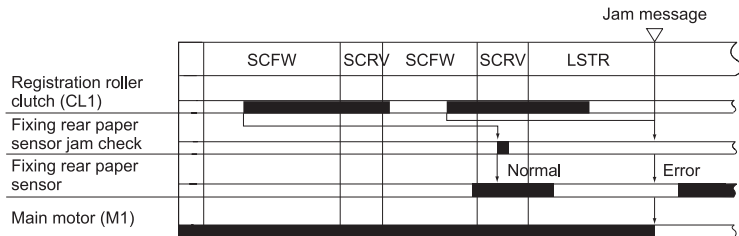
A delay will be signalled if the paper does not reach the sensor PS7 within a specified period of time after the paper passes the clutch CL1.



Timing for delay at the fuser

Delay at the output tray PS13

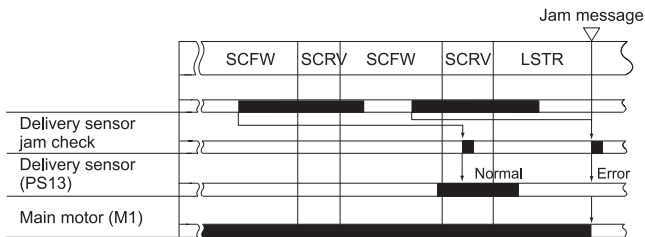
A delay will be signalled if the paper does not reach the sensor PS13 within a specified period of time after the paper passes the sensor PS7.



Timing for delay at the output tray

Delay at the separation sensor PS6

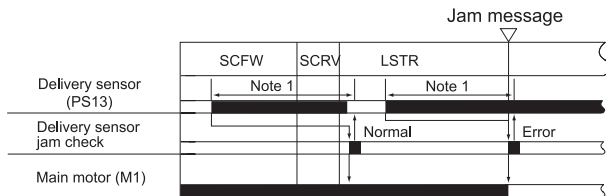
A delay will be signalled if the paper does not reach the sensor PS6 within a specified period of time after the clutch CL1 has energised.



Sequence for Separation Sensor Delay Jams

Delivery Sensor Stationary Jams

A stationary jam will be identified if copy paper does not move through the delivery paper sensor within a specific period of time after the delivery paper sensor (PS13) has turned ON.



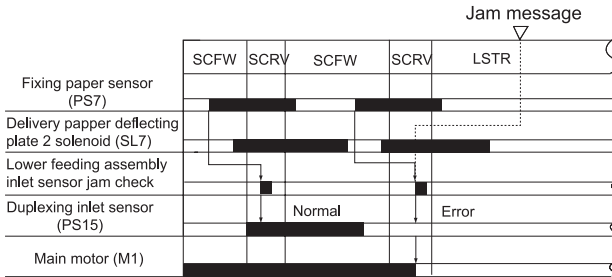
Note 1 : The distance varies according to the length of copy paper.

Sequence for Delivery Sensor Stationary Jams

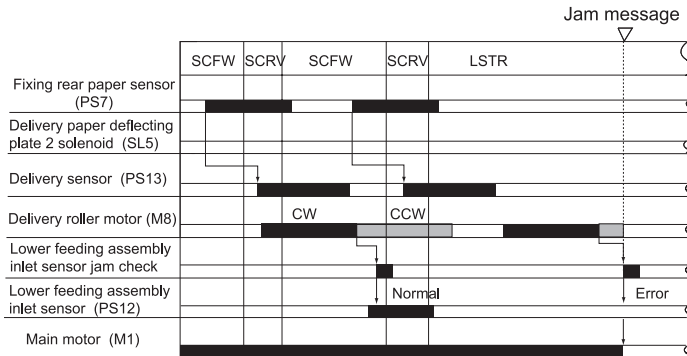
Note: The distance varies according to the length of the paper.

Delay at the refeed sensor PS12

A delay will be signalled if the paper does not reach the sensor PS12 within a specified period of time after the paper passes the sensor PS7.



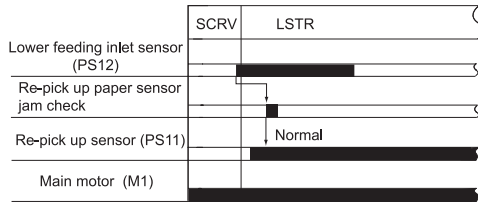
Timing for the refeed sensor PS12 (overlay copying)



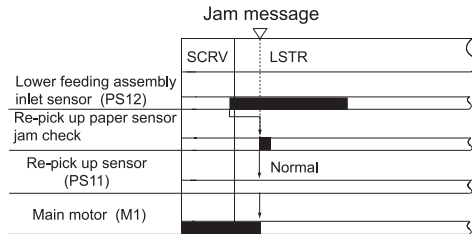
Timing for the refeed sensor PS12 (two-sided copying)

Delay at the sensor PS11

A delay will be signalled if the paper does not reach the sensor PS11 within a specified period of time after the paper passes the sensor PS12.



Timing for PS12



Timing for delay at the sensor PS12

Record of jams

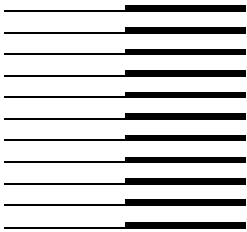
The machine retains a history of the jams which have occurred. The history can be checked in service mode.

The memory contains:

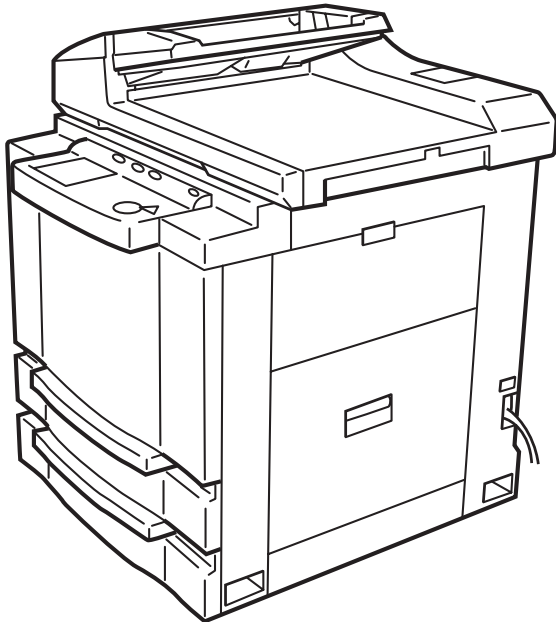
- The remaining number of copies, and
- the relevant copying mode.

This memory will be used for job recovery, after the jam has been removed.

Océ



Technical Service Manual
Océ 3121/3122



13 SPECIALITY INPUT

Contents

Adjustments

- 1 The position of the multifeeder paper guide cam 301
- 2 Recording the VR settings 301

Dis-/assembly

- 1 Multi Clutch 401
- 2 Speciality tray 402
- 3 Fitting the timing belt 404

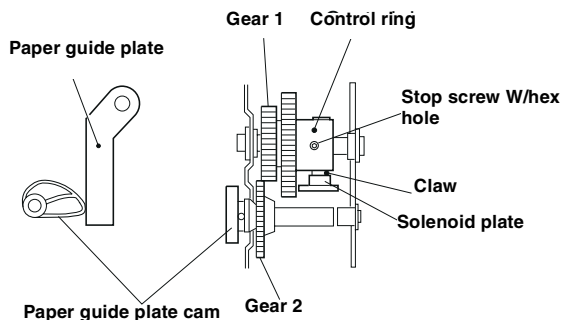
Functional description

- 1 Specialities input 501

Adjustments

1 The position of the multifeeder paper guide cam

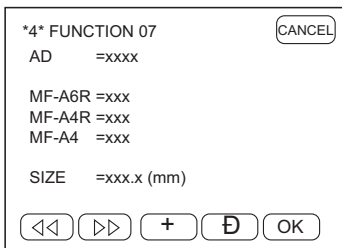
Adjust the cam so that it is horizontal, when the solenoid ring is touching the claw.



2 Recording the VR settings

After fitting a new VR, enter the relevant data.

- 1 Fit the paper width VR
- 2 Open the front door, and insert the brush in the fuser release.
- 3 Insert the switch actuator in the door switch.
- 4 Using a thin pin, press the service switch.
- 5 Press ‘ * ’ twice
- 6 Press ‘FUNCTION’ (* 4 *). It will highlight. Then, press ‘ OK ’.
- 7 Press the Page key to move to the relevant screen.



- 8 Place size A6 paper in the speciality tray, and adjust the side guide to A6R.

Note: A6 is obtained by folding A4 into four, width 105 mm.

- 9 When the side guide is adjusted to A6R, the VR output value will be displayed below 'AD=xxx'. After checking the value, press 'MF-A6R': causing it to highlight. Then, press 'OK'.

- The value will be stored in 'MF-A6R'.

- 10 Place size A4R paper in the speciality tray, and adjust the side guide to A4R.

- 11 Check that the value of 'AD' is displayed. Then, press 'A4R', and press 'OK'.

- The value will be stored in 'A4R'.

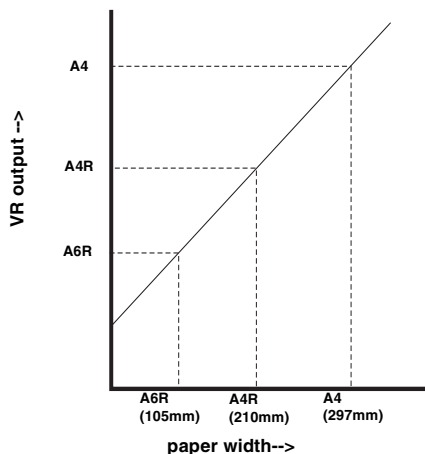
- 12 Place size A4 paper in the speciality tray, and adjust the side guide to A4.

- 13 Check that the value of 'AD' is displayed. Then, press 'A4', and press 'OK'.

- The value will be stored in 'A4'.

- 14 Press 'Reset' twice, to end service mode.

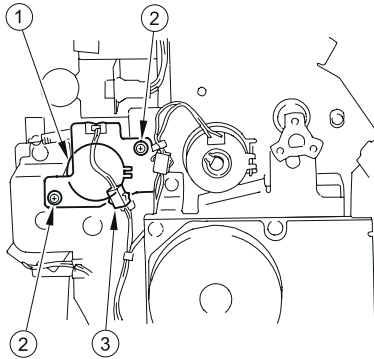
- 15 Switch OFF.



Dis-/assembly

1 Multi Clutch

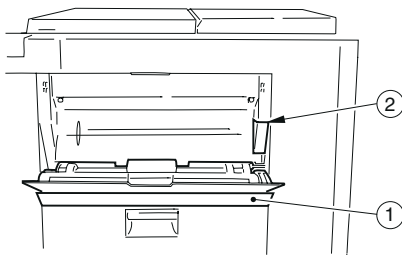
- 1 Remove the following:
 - rear cover (4 screws)
 - flywheel (3 screws).
- 2 Remove the two screws (2), and disconnect the connector (3). Then, remove the multi clutch.



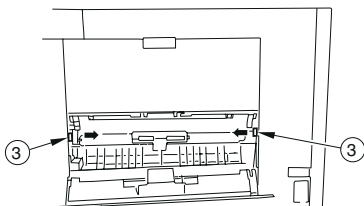
2 Speciality tray

Removing the speciality tray

- 1 Open the speciality tray (1). Insert a screwdriver into the top of the connector cover (2), turn the screwdriver and remove the cover. Disconnect the connector.



- 2 Close the speciality tray. Open the right door. Pull out the rolls (3): left and right.

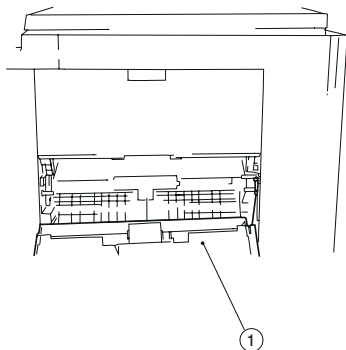


- 3 Remove the speciality tray

Note: When fitting the cover, align it at the top before pushing in the bottom.

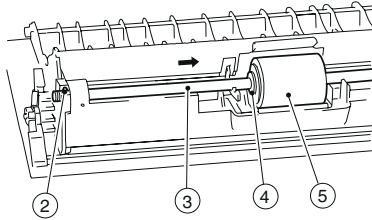
Removing the pick-up roller

- 1 Pull out the rolls.
- 2 Detach the cable from the cable, and remove the right door (1).

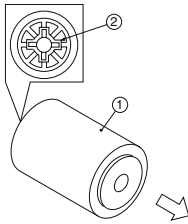


- 3 Remove the bush (2), and slide the roller shaft (3) to the right.
- 4 Remove the ring (4), and remove the pick-up roller (5).

Warning: Pay attention to the pin at the rear of the pick-up roller.

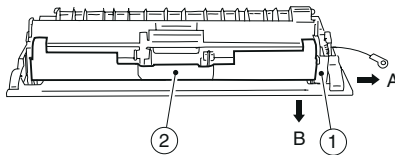


Warning: Install the new multifeeder pick-up roller (1) so that the side with a cross -2- on the collar is pointing towards the rear of the machine.

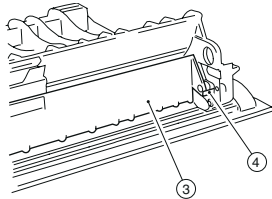


Removing the Separation Pad

- 1 Remove the right door.
- 2 Remove the pick-up roller.
- 3 Pushing the end (1) of the right door in the direction of A, remove the rear of the pad cover (2): in the direction of arrow B.

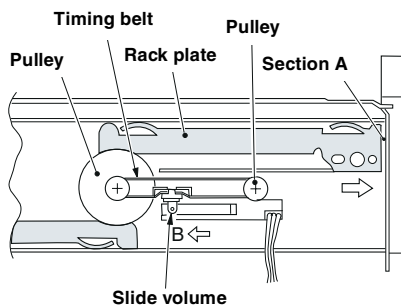


- 4 Release the catch (4), and remove the retainer (3).



3 Fitting the timing belt

- 1 Move the rack gear against the side frame (A).
- 2 Move the 'T' slide to the left.



- 3 Carry out adjustment "Recording the VR settings".

Functional description

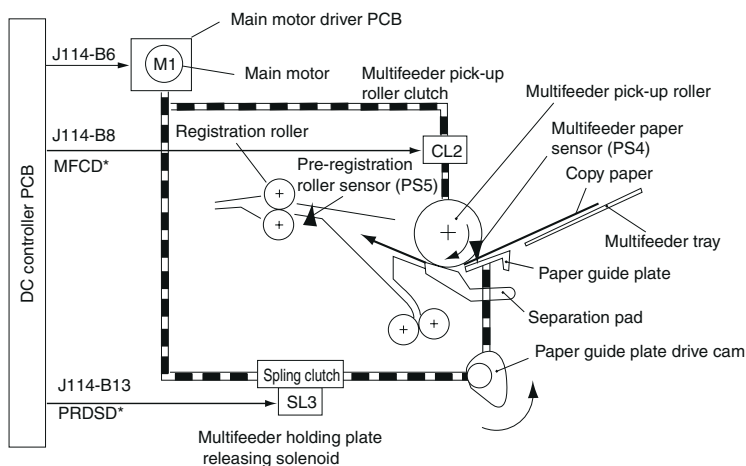
1 Specialities input

Outline

The paper is fed off the top of the stack in the speciality tray.

The paper guide holds the paper against the pick-up roller. The pick-up roller is driven by the motor M1 and the clutch CL2.

The interaction of the pick-up roller and the separation pad ensure that only one sheet of paper is carried to the registration roller. This procedure occurs for each sheet.



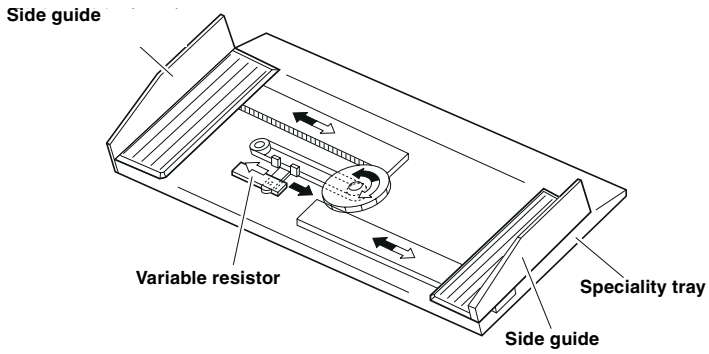
Detecting the size of the paper

■ The width

The width of copy paper is detected by the variable resistor (VR1751) operating in conjunction with the movement of the slide guide. The slide guide settings are registered when the user makes adjustments for the copy paper set on the speciality tray.

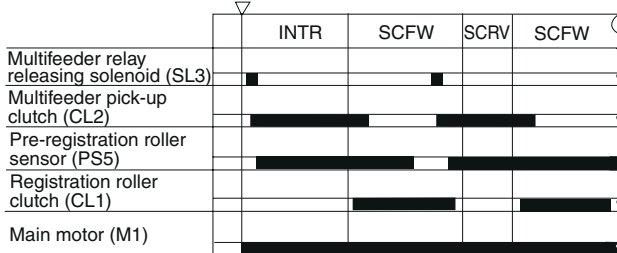
■ Length

The length of paper is measured by the pre-registration sensor (PS5). The maximum size of specialities is 432 x 279 mm (11" x 17").

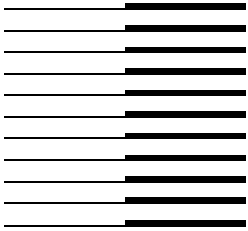


Sequence of pick-up (2 size A4 documents, speciality feed)

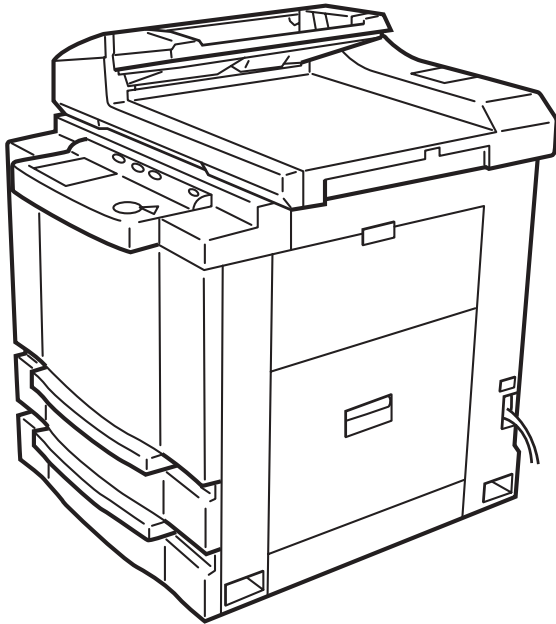
Copy Start Key ON



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16 DUPLEX

Contents

Dis-/assembly

- 1 Duplex motor M7 401
- 2 Motor M6 402
- 3 The refeed unit 403
- 4 Horizontal Registration Motor 404

Functional description

- 1 Making Overlay Copies 501
- 2 Making Two-Sided Copies 503
- 3 The refeed unit 504

Dis-/assembly

1 Duplex motor M7

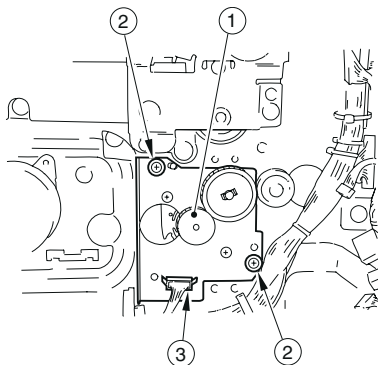
Removing the duplex motor M7

- 1 Disconnect the mains supply cable.

Remove the following:

- The rear cover (4 screws)
- The flywheel (3 screws)
- The support
- DC control PBA (2 screws, connectors)
- The power supply PBA (screws, connectors)

- 2 Remove the two screws (2) . Disconnect the connector (3), and take out the motor M7.



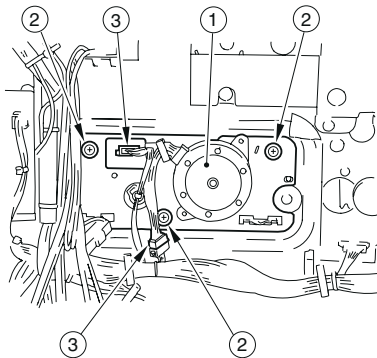
2 Motor M6

Removing the motor M6

1 Disconnect the mains supply cable.

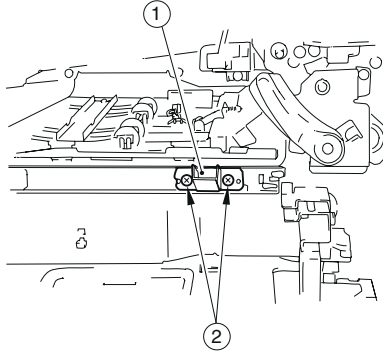
Remove the following:

- The rear cover (4 screws)
 - The flywheel (3 screws)
 - The support
 - DC control PBA (2 screws, connectors)
 - The power supply PBA (screws, connectors)
- 2 Remove the three screws (2), and disconnect the two connectors (3). Then, remove the motor M6.

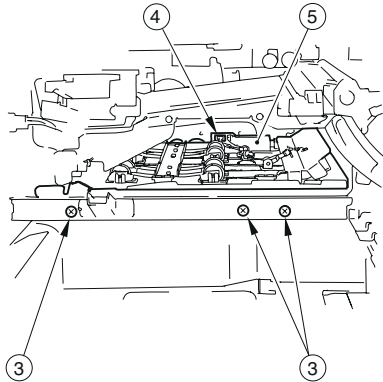


3 The refeed unit

- 1 Remove the inside cover and the support.
- 2 Lock the feeding unit in place.
- 3 Remove the two screws (2), and remove the door support (right) (1).

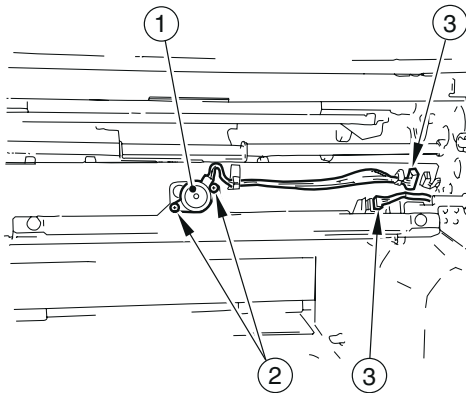


- 4 Remove the two screws (3). Take out the refeed unit.
- 5 Disconnect the connector, and remove the refeed unit.



4 Horizontal Registration Motor

- 1 Remove the following:
 - Pick-up assembly (Func 12)
 - Pick-up drive unit (Func 12)
 - Vertical path assembly (Func 12)
- 2 Remove the two screws (2), and disconnect the two connectors (3); then, remove the horizontal registration motor (1).



Functional description

1 Making Overlay Copies

Outline

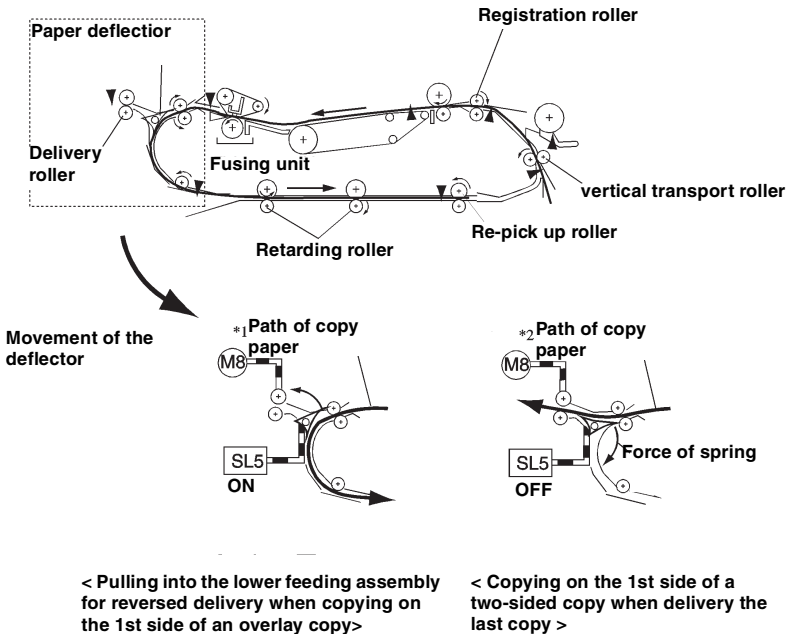
The figure below shows the paper path used to make overlay copies.

Copy paper that has moved through the fixing assembly is sent to the lower feeding assembly by the movement of the paper deflecting plate*. In the lower feeding assembly, the set-back roller puts the incoming sheet in a staggered stack and waits for the next sheet.

When picked up from this stack (re-pick up), copy paper is discharged by the movement of the paper deflecting plate 1**.

The solenoid SL5 energises, rotating the deflector in a counter-clockwise direction.

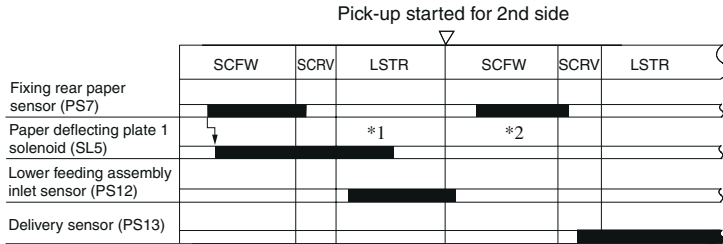
**The paper deflecting plate 1 solenoid (SL5) deenergises so that the paper deflecting plate 1 is restrained by the force of the spring.



Sequence of Operations (overlay copying)

The deflector guides the copy paper from the fuser to the output tray or to re-feed unit.

The solenoid SL5 is energised at a specified time after the paper passes the sensor PS7.



*1 : Copy paper to the lower feeding assembly.

*2 : Copy paper to the delivery assembly.

*pin on the DC control PCB.

Electrical parts	Signal	Signal	Jack
Fuser sensor PS7	PS7	PDP3	J109-6
Solenoid for the paper deflector	SL5	DFLD*	J105-A5
Sensor for the refeed unit	PS12	PDP6*	J105-B2
Sensor for the output tray	PS13	PDP7*	J105-A2

2 Making Two-Sided Copies

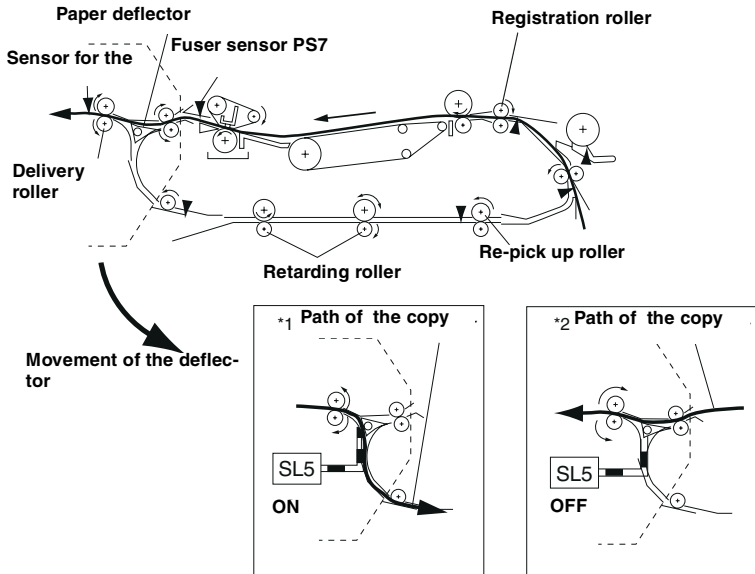
Outline

The figure below shows the paper path used when making two-sided copies.

After it leaves the fuser, the copy is directed towards the output tray. A short time after the copy passes the sensor PS7, the delivery roller reverses*. The motor M8 is switched on at a specified time after the copy passes PS7.

For the second side of a two-sided copy, the delivery roller rotates clockwise**. Then, the copy is sent to the output tray.

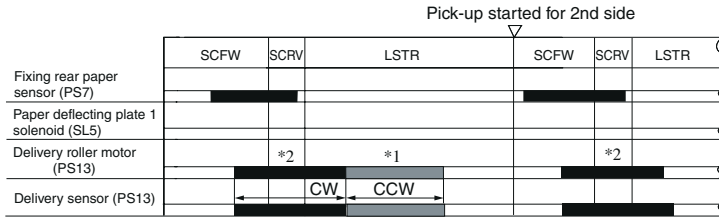
	Two-sided		Overlay	
	1st side	2nd side	1st side	2nd side
Solenoid for the paper deflector SL5	OFF	OFF	ON	OFF
Motor for the output roller M8	CW -> CCW	CW	OFF	CW



Sequence of operations (two-sided copying)

After it leaves the fuser, the copy is directed towards the output tray. A short time after the copy passes the sensor PS7, the delivery roller reverses. The motor M8 is switched on at a specified time after the copy passes PS7.

The copy is directed down to the refeed unit, preparing for the imaging of the second side. The figure shows the sequence of operations for two-side copies.



- *1 : Copy paper is moved to the lower feeding assembly.
- *2 : Copy paper is moved to the delivery assembly.

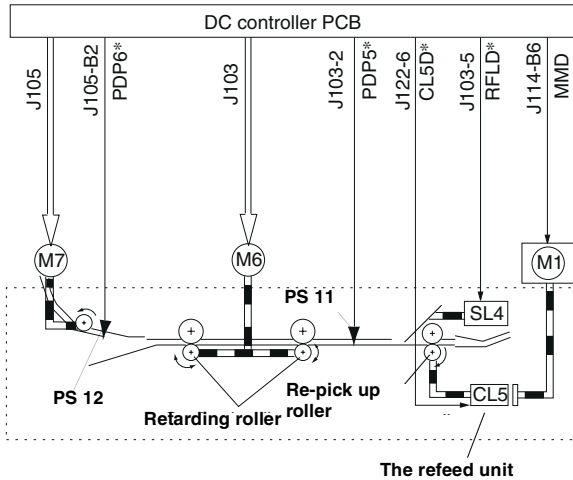
3 The refeed unit

Outline

The copies carried to the refeed unit, are arranged in a step formation: ready for two-sided copying or for overlay copying.

The step formation: the leading edge of each sheet is slightly behind the leading edge of the previous sheet. This enables correct separation of the copies as they are peeled off the bottom of the stack.

Parts name	Notation
Main motor	M1
Motor for the retarding roller	M6
Motor for the exit roller	M7
Sensor for the re-pick entry	PS11
Lower feeding assembly inlet paper sensor	PS12
Solenoid for the re-pick entry	SL4
Clutch for the lower refeed	CL5



Sizes	Q'ty	Paper sizes (mm; main ¥ sub scanning directions)
LTR	20	179.40 x 215.90
A4	20	297.00 x 210.00
G-LTR	20	266.70 x 203.20
K-LGL	20	268.00 x 290.00
B5	20	257.00 x 182.00
A5	20	210.00 x 148.50
STMT	20	215.90 x 139.70
Others*	1	

*AB: A3, A4, A4R, B5R, A5R

Inch: 11 x 17, LGL, B-OFFI, A-OFFI,
A-LGL, AUS-FLS, FOOLSCAP, FOLIO,
G-LGL, E-DFFI, OFFICIO, A-LTRR, LTRR,
K-LGLR, G-LTRR, A-LTR, STMTR

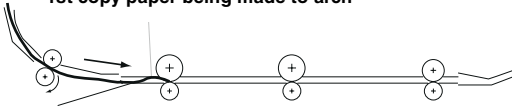
Number of sheets in refeed unit, per size

Retarding the copies

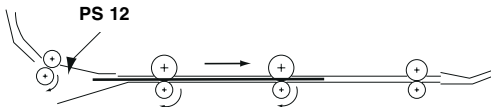
a) Stacking the copies (after first side was imaged)

- 1 The copy paper moves into the refeed unit, creating a bulge.

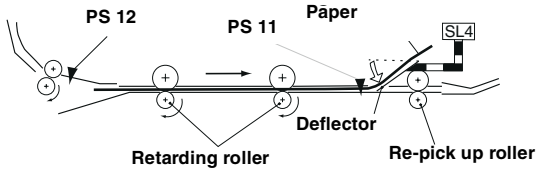
1st copy paper being made to arch



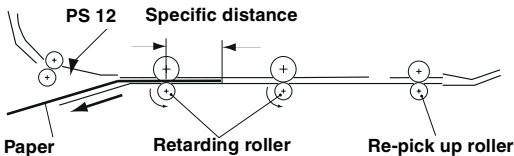
- 2 The retarding roller rotates clockwise. This feeds the copy past the sensor PS12.



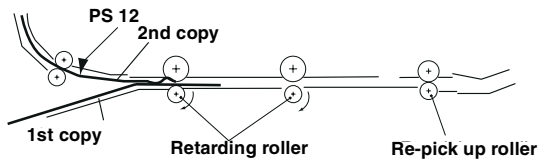
- 3 If the copy is size A4 or larger, solenoid SL4 is energised. This prevents the copy approaching the re-pick roller.



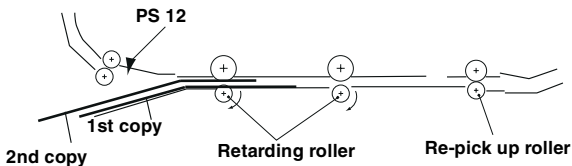
- 4 The retarding rollers are rotated in the reverse direction. The paper is carried back to a pre-determined position.



5 The 2nd copy paper moves into the refeed unit.



6 The copy paper is handled in the same manner as the 1st copy.



This process is repeated until there are a maximum of 20 sheets in the refeed unit.

The sequence of operations for stacking the copies in the refeed unit.

	SCRV	LSTR
Lower feeding assembly inlet roller motor (M7)		
Lower feeding assembly inlet sensor (PS12)	*1	*1
Set-back roller motor (M6)	*1	*1 *1 *1
Flapper solenoid (SL4)	CW	CCW CW
Re-pick up front paper sensor (PS11)		
Main motor (M1)		

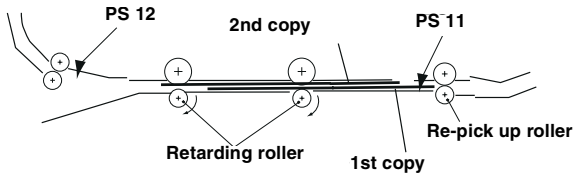
*1 : Varies according to the length of copy paper.

(2 copies, size A4: Direct, two-sided or overlay)

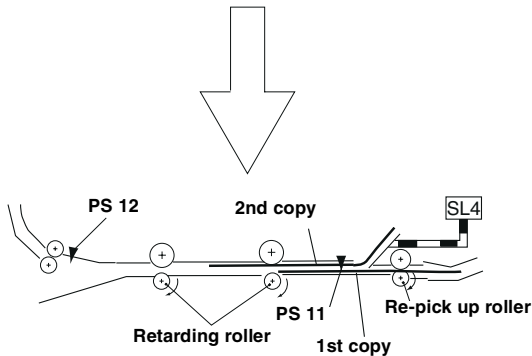
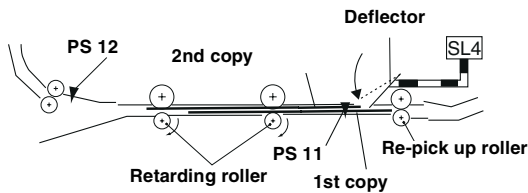
B) Re-pick up: for copying on the 2nd side

The copies, in the refeed unit, are transported by the re-pick roller. The copying of the second side commences.

- 1 When the stacking is completed, the set-back roller is moved clockwise. The copy paper is moved until the re-pick up sensor PS11 detects the leading edge.



- 2 The copy paper is moved continuously. The solenoid SL4 is energised for an instant after the sensor PS11 is activated. Only the first sheet moves through the re-pick-up roller: the second and subsequent sheets will be guided over the deflector.

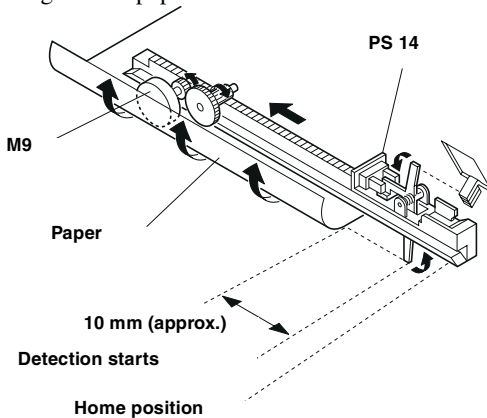


When the trailing edge of the first copy passes the retarding rollers, the retarding rollers will reverse. The rollers carry the copy paper back to a position when the leading edge of the next sheet will not reach the sensor PS11.

Side alignment

a) Outline

- The copies carried from the refeed unit, require alignment of the leading edge.
- The detection of the sides of the copy is carried out by the sensor PS14, together with motor M9. The sensor and motor are located near to the vertical transport roller.
- The registration motor M9 moves the registration sensor PS14, to detect the edge of the paper. The result is used to determine the position of the image.



b) Operations

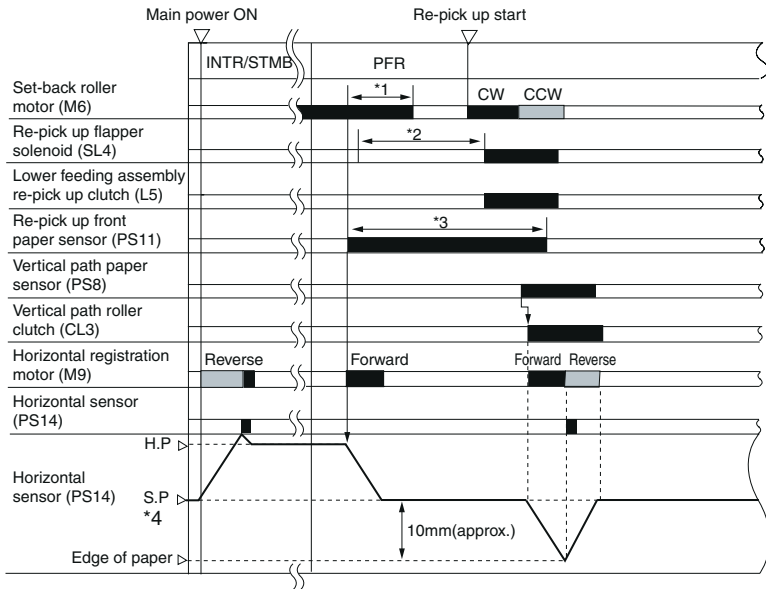
The home position of the registration sensor PS14 is checked when the machine is switched ON, and the front cover is closed. The movement of the sensor is started when the sheet is detected by PS8.

When the paper leaves the refeed unit, and enters the vertical transport, it is detected by the sensor PS8. The registration motor moves the sensor PS14 until it locates the edge of the paper. The side detection occurs for every sheet as it leaves the refeed unit.

The position of the start of the detection differs for each sheet. Ideally it is a point approximately 10 mm from the edge of the paper that is being transported. The start position is determined by the size dictated by the cassette, or the side guide of the speciality tray.

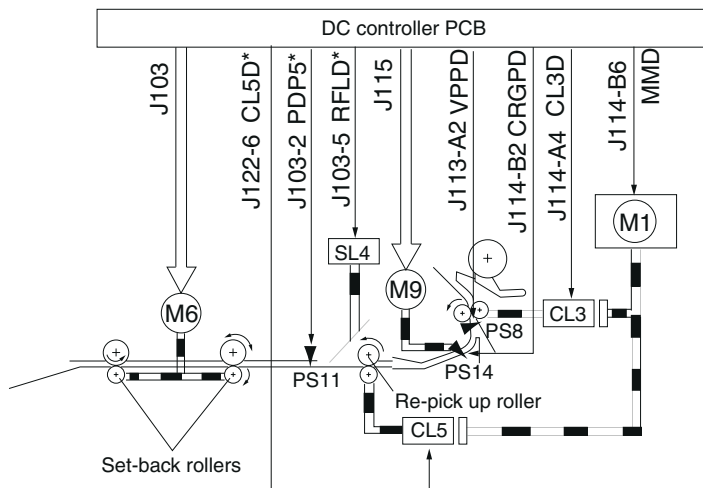
The sequence of operations for the side registration.

The next figure shows the sequence of operations for rear/front registration detection.



- 1: During the stacking phase, the retarding roller will switch ON and OFF.
 - 2: During the stacking phase, the separator solenoid SL4 will energise as necessary.
 - 3: During the stacking phase, the sensor PS11 will detect the sheets as necessary.
 - 4: The edge of the paper is detected: as the vane is opened by the edge of the paper.
 - 5: The position of the edge of the paper differs, according to the size of the copy paper. The start position is also variable.
- HP: Home position of the registration sensor PS14.
 SP: Start of the detection by the registration sensor PS14.

Components for the side registration.



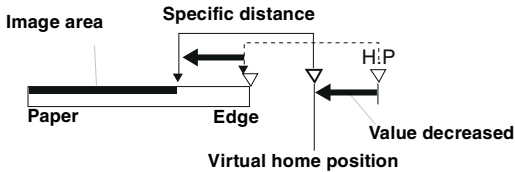
	Electrical components
M1	main motor
M6	Motor for the retarding roller
M9	Motor for the side registration
CL3	Clutch for the vertical transport
CL5	Clutch for the lower refeed
SL4	Solenoid for the re-feed separator
PS8	Sensor for the vertical transport
PS11	Sensor for the refeed entry
PS14	Sensor for the side registration

c) Adjusting the side registration (in service mode)

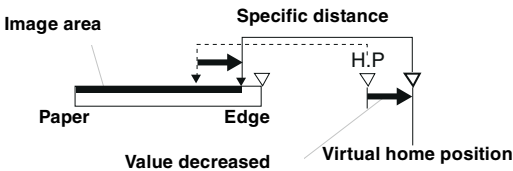
If there is a discrepancy in the position of the image on the second side of a copy, the side registration can be adjusted. To do this, enter service mode (* 3 *), ' ADJUST ', ' RSID-SNSHP ' : 4th screen.

The adjustment changes the position of the laser exposure. It does not change the mechanical position of the sensor PS14.

- If the image is displaced to the rear, decrease the value.



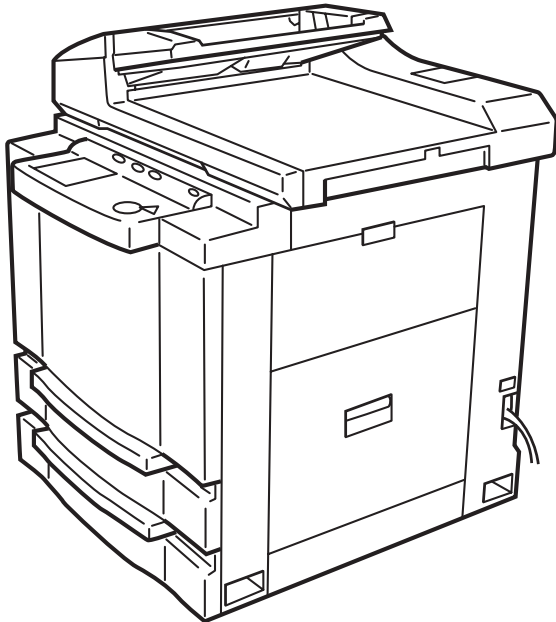
- If the image is displaced to the front, increase the value.



Océ



Technical Service Manual
Océ 3121/3122



17 FIXING

Contents

Adjustments

- 1 Adjusting the pressure of the fusing film drive roller. 301

Dis-/assembly

- 1 Fuser drive 401
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- 3 Replacing the fusing film 408

Functional description

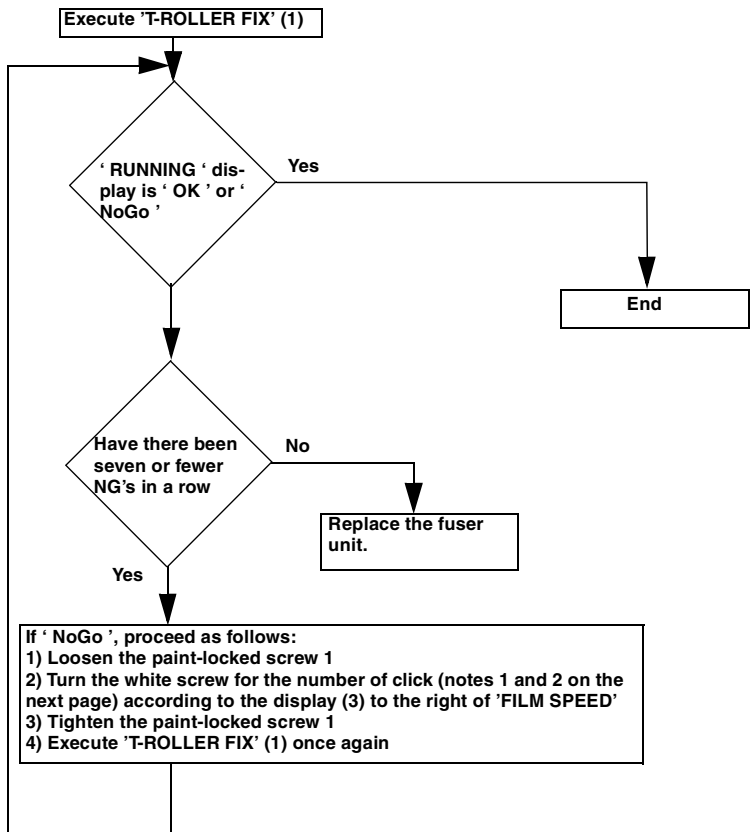
- 1 Controlling the bias for the fusing roller 501
- 2 Fusing the copies and output of the copies 502

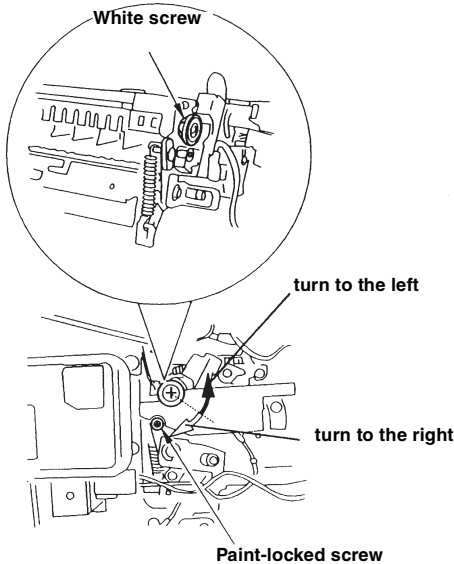
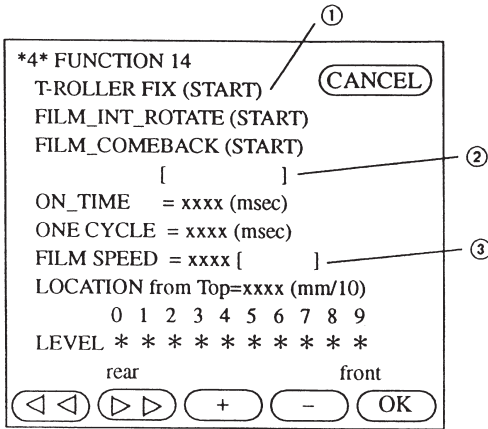
Adjustments

1 Adjusting the pressure of the fusing film drive roller.

Note: Carry out this adjustment after replacing the fusing film.

- 1 Open the front door, and insert the brush in the fuser release.
- 2 Insert the switch actuator in the door switch.
- 3 Switch ON.
- 4 Using a thin pin, press the service switch.
- 5 Using screen 14 (FUNCTION *4*), select 'T-ROLLER FIX'; then press the OK key. See the following for the adjustments after 'T-ROLLER FIX'.





Note: You may end the adjustment if *RUNNING* (2) display is OK at the end of *T-ROLLER FIX* (1). If the *RUNNING* display (2) is NG, use the value under 'CW' and 'CCW' indicated to the right of *FILM SPEED* (3)

Note: According to the numbers under 'CW' and 'CCW' indicated to the right of *FILM SPEED* (3), turn the white screw (see figure) for the number of clicks. (The number represents the number of clicks on the white screw)

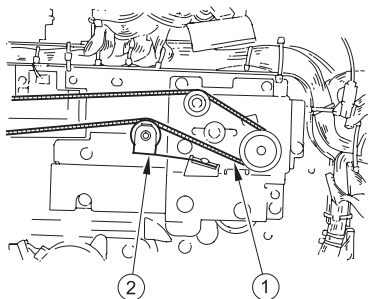
Example: If the number in parentheses under *FILM SPEED* (3) is '5', turn the white screw clockwise for five clicks.

Dis-/assembly

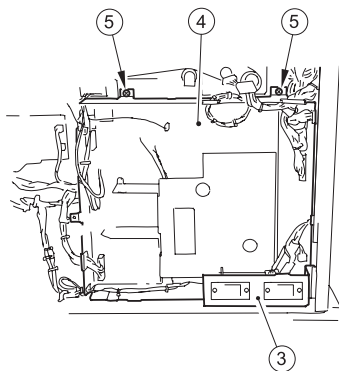
1 Fuser drive

Removing the fuser drive

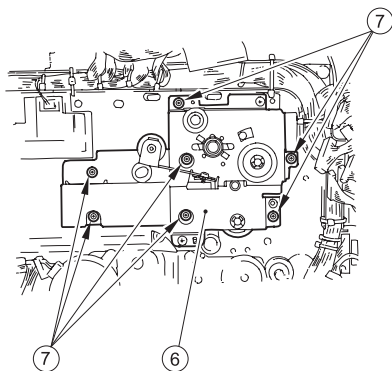
- 1 Disconnect the mains supply cable.
- 2 Remove the rear cover (4 screws).
- 3 Remove the flywheel (3 screws).
- 4 Remove the DC control PBA (2 screws, connectors).
- 5 Release the tension spring (2), and remove the drive belt.



- 6 Remove the two screws, and remove the support (3).
- 7 Remove the power supply PBA (two screws, connectors).



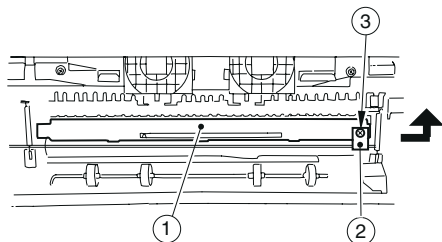
8 Remove the two screws (7). Take out the fuser drive (6).



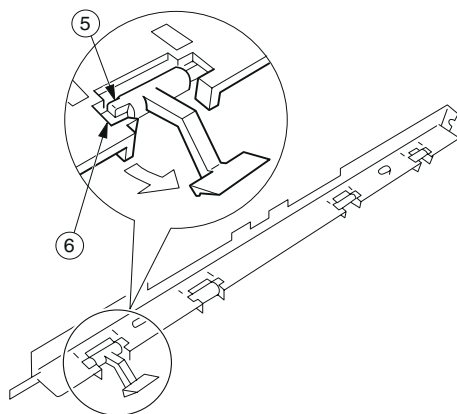
2 Fuser

Separation claw.

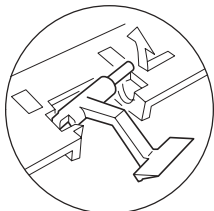
- 1 Open the output door
- 2 Remove the screw (3). Then, remove the grip (2) of the separation claw (1).
- 3 Remove the separation claw, by sliding it to the right.



- 4 When fitting the separation claw, make sure that the flat surface (5) is adjacent to the limit strip (6).



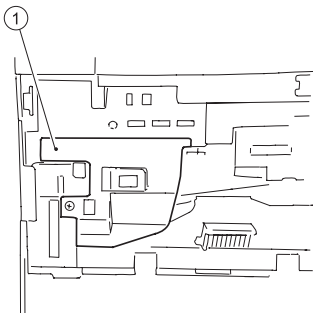
- 5 To remove the claw, slide it as shown. First lift out the round end.



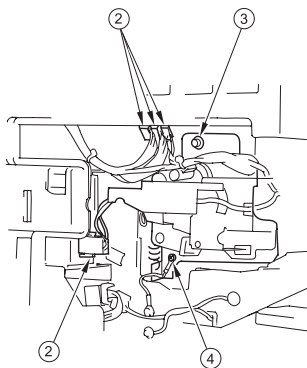
Removing the fuser unit

Note: When replacing the fuser unit, do not forget to enter the values of the label on the fuser unit. Enter the values in service mode (Adjust *3*) 06 FILM LANK and FIXER-RESIST.

- 1 Open the output door
- 2 Remove the inner cover (1) from the fuser (1 screw).

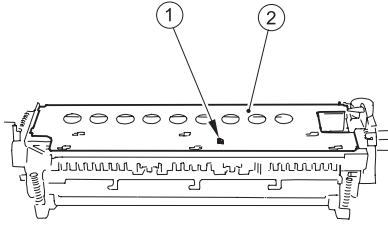


- 3 Disconnect the four connectors (2). Remove the screw (3), and the earthing screw (4). Then, slide out the fuser unit.



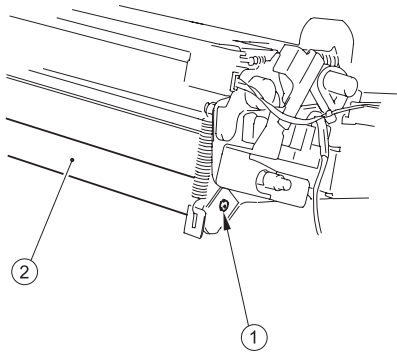
Removing the upper guide

- 1 Slide out the fuser unit.
- 2 Press the notch (1), and remove the upper guide (2), by sliding it to the rear.



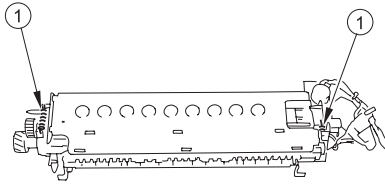
Removing the cleaning roller

- 1 Slide out the fuser unit.
- 2 Remove the two screws (1). Remove the cleaning roller (2).

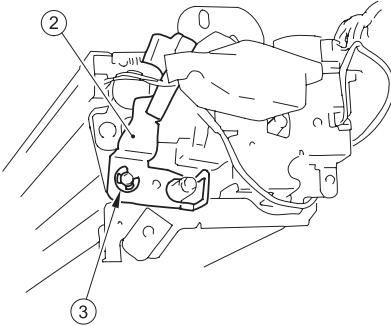


Removing the lower roller from the fuser unit

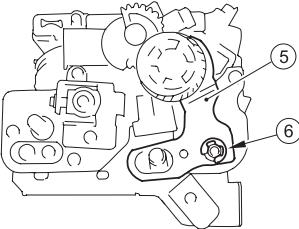
- 1 Slide out the fuser unit.
- 2 Detach the springs (1).



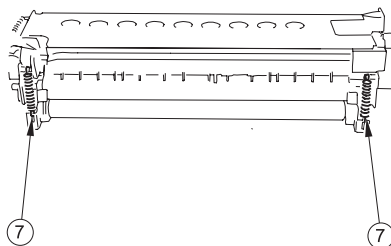
- 3 Remove the E-ring (3). Remove the lever (2), at the front.



- 4 Remove the E-ring (6). Remove the lever (5), at the rear.



5 Detach the springs (7).

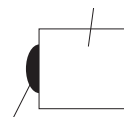


6 Remove the separation claw.

7 Remove the lower roller.

Note: The shaft of the roller is connected by an electrode, at the rear of the machine. When fitting the roller, ensure that the electrode connection is at the rear of the machine.

Lower fuser roller end



Nipple for the electrode connection.

At the rear of the machine

Lower roller



at the front of the machine

3 Replacing the fusing film

Note: After replacing the fusing film carry out adjustment:” Adjusting the pressure of the fusing film drive roller”.

Removing the fuser unit

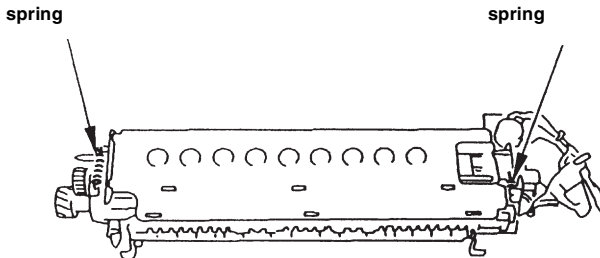
- 1 Open the front door
- 2 Open the output door
- 3 Release the refeed unit.
- 4 Remove the inner cover (1) from the fuser (1 screw).
- 5 Cut the cable tie, and disconnect the connector. Then, remove the fuser (3 screws).

Removing the upper fuser

Warning: Before dismantling the unit, place paper under the unit.
Do not touch the outer surface of the fusing film. If necessary, protect the fusing film with paper.

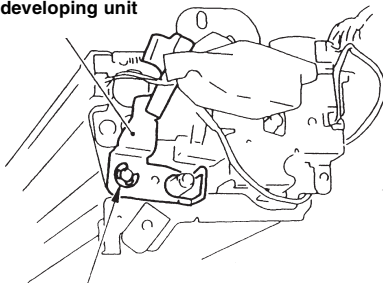
Do not touch any paint-locked screws

- 1 Detach the springs.

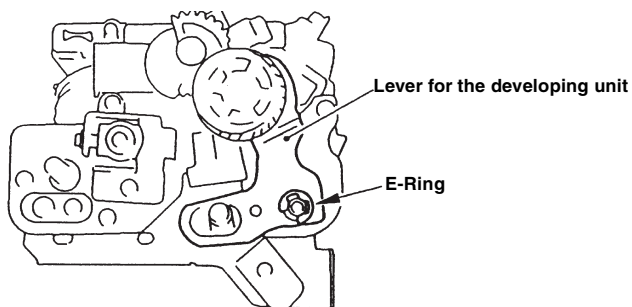


- 2 Remove the E-ring, the washer and the tension lever. From the front and the rear of the unit.

Lever for the developing unit



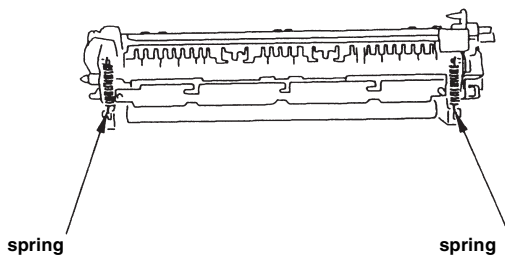
E-Ring



Lever for the developing unit

E-Ring

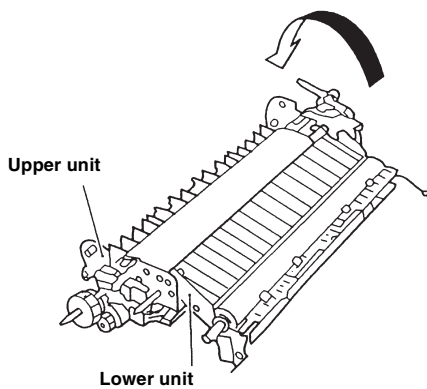
- 3 Detach the springs.



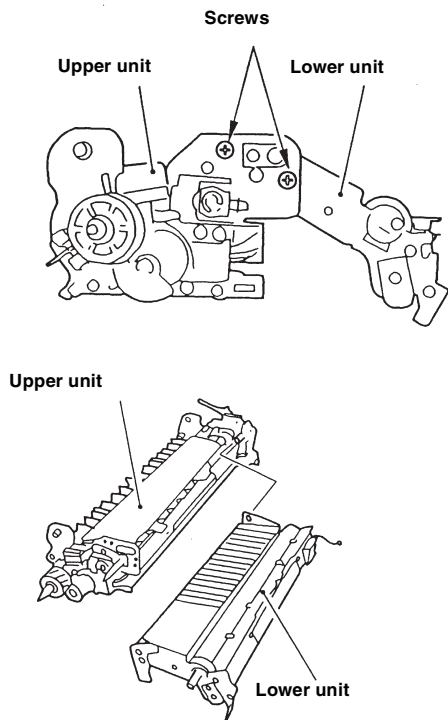
spring

spring

4 Open the upper unit.

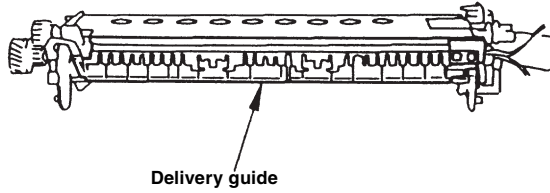


5 Remove the two screws from the rear of the upper unit. Then, separate the upper unit and the lower unit.

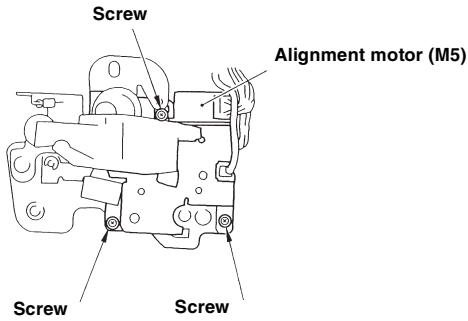


Removing the film

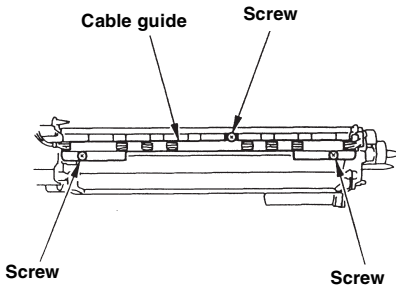
- 1 Disconnect the connector, and remove the upper guide.



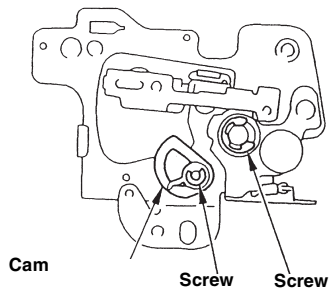
- 2 Disconnect the heater, at the front (1 screw).
- 3 Remove the alignment motor (3 screws). Then, disconnect the heater.



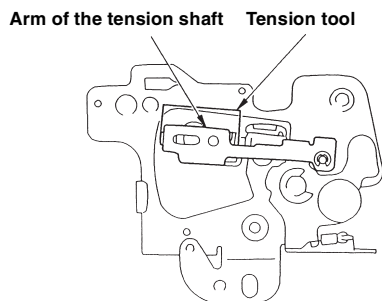
- 4 Remove the cable guide (3 screws).



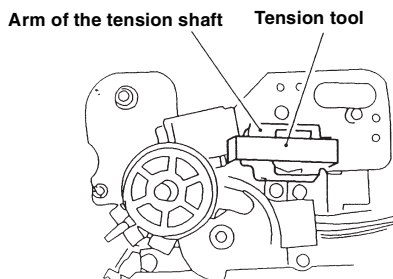
- 5 Remove the E-ring . Remove the cam and the bush.
- 6 Remove the E-ring and the washer from the drive roller. Then, release the shaft.



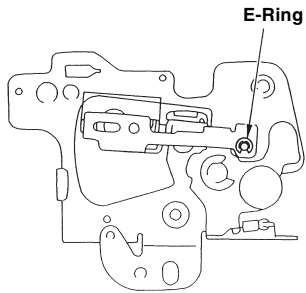
- 7 Fit the tension tool to the arm of the tension shaft: at the front.



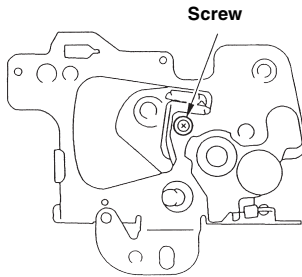
- 8 Fit the tension tool to the arm of the tension shaft: at the rear.



9 Remove the E-ring, and remove the tension arm.

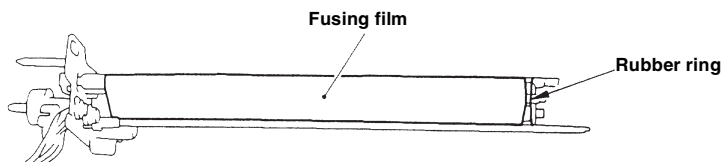


10 Carefully remove the upper section of the unit (1 screw).

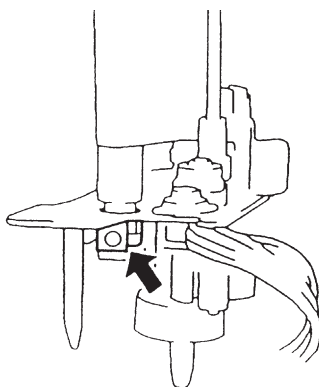


11 Fit the tension tool to the arm of the tension shaft: at the front.

Warning: Do not touch the outer surface of the fusing film, or the surface of the heater.



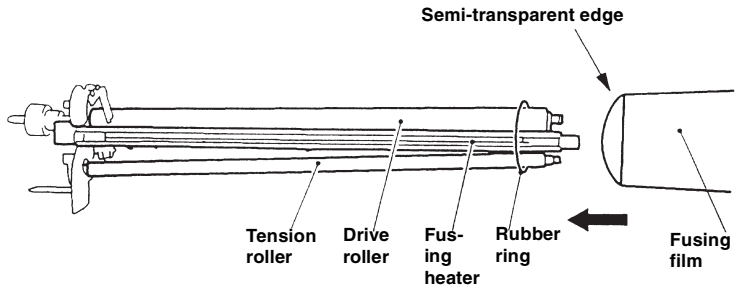
Note: If you do not have the pressure tools, push the arrowed point and remove the fusing film.



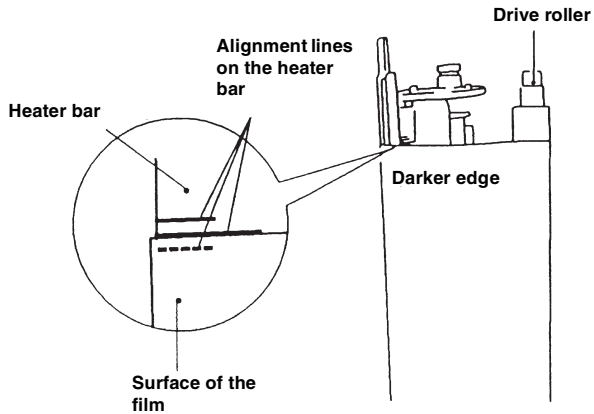
Fitting the fusing film

Warning: The film should be fitted with the alignment shaping at the rear (semi-transparent edge).

First slide the semi-transparent edge of the film over the rollers.

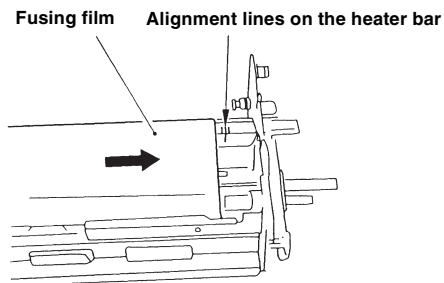


- 1 Remove the rubber ring, and align the straight edge (the darker edge) of the fusing film with the centre index mark on the heater bar.

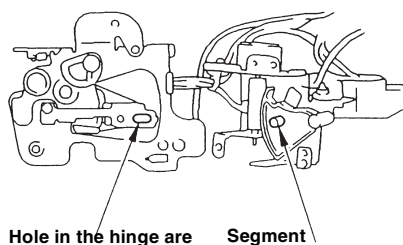


- 2 Refit the fusing film, proceeding in the reverse sequence.
 - Screw
 - Drive roller (bearing, washer, E-ring)
- 3 Fit the tension arm.
 - E-ring

- 4 Check the alignment of the fusing film, in relation to the centre mark on the pressure heater bar. If necessary, realign the film.

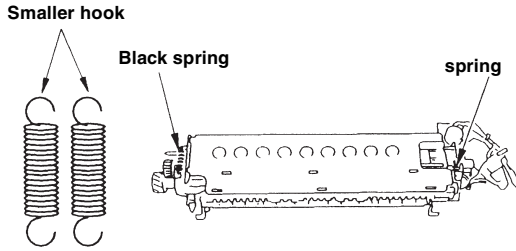


- 5 Remove the pressure tools, from the front and the rear.
- 6 Fit the cam.
- 7 Fit the cable guide (3 screws).
- 8 Fit the alignment motor M5, making sure that the segment is correctly located in relation to the hole in the hinge arm.

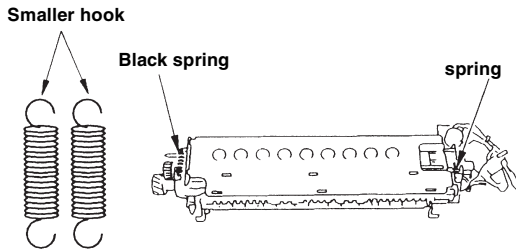


- 9 Reconnect the heater (1 screw).

- 10 The black spring is for the rear of the unit, with the smaller hook fitted to the spring post.



- Correct location of the springs.



- 11 Reassemble the upper section and the lower section of the fuser unit.

- screws
- springs

- 12 Fit the tension levers: to the front and to the rear.

- washer
- E-Ring
- springs

Note: After replacing the fusing film carry out adjustment:” Adjusting the pressure of the fusing film drive roller”.

Functional description

1 Controlling the bias for the fusing roller

Bias for the transfer guide

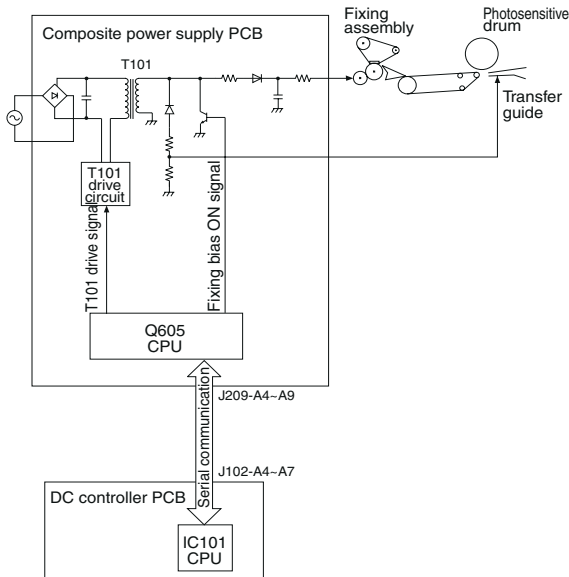
The negative bias (-600 V DC) for the transfer guide is used to prevent adhesion of toner to the transfer guide. The same potential is applied to the toner.

Application of the bias continues when the control panel power remains ON.

Bias to the fuser roller

A positive bias is applied to the steel core of the fuser roller. This is to prevent offset to the fuser film.

For this reason the lower roller is connected by an electrode at the rear of the machine. For details see Dis-assembly “Removing the lower roller from the fuser unit”.



2 Fusing the copies and output of the copies

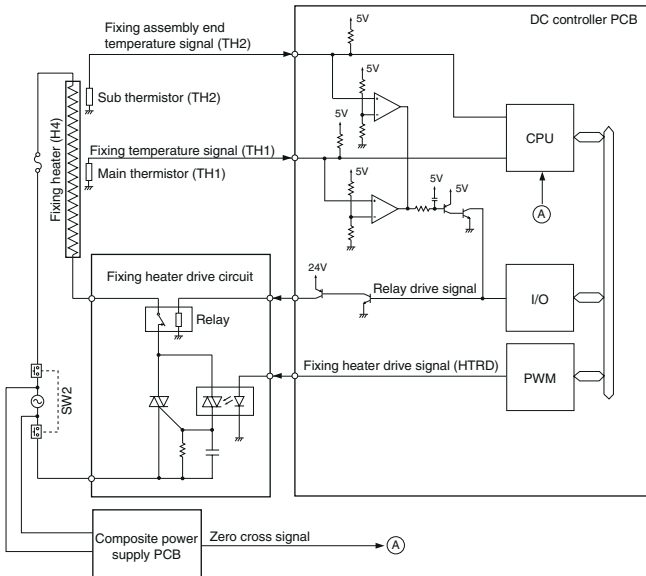
Outline

Motor M1 rotates the drive roller of the fuser. The drive roller turns the fusing film which, in turn, rotates the lower roller.

The inside of the fusing film is heated by the heater. The temperature of the heater is monitored by the thermistor TH1. The heater temperature detection signal TH1 is transmitted to the DC control PBA. As a result, the DC control PBA varies the heater drive signal HTRD to control the temperature of the heater.

A thermistor TH2 is located at the rear end of the heater. This is to protect against over-heating.

If the front door is opened, there is a reduction of pressure between the fuser film and the lower roller.



Controlling the temperature of the fuser

The heater is switched OFF when the machine is in stand-by.

1 If the temperature at copy start is less than 100°C, either of further five types of control is chosen depending on the count of copies:

- 1) 235° to 190°C,
- 2) 225° to 180°C,
- 3) 215° to 180°C,
- 4) 205° to 180°C,
- 5) 195° to 180°C.

Normally, one of 2) through 4) is selected.

■ Control 1)

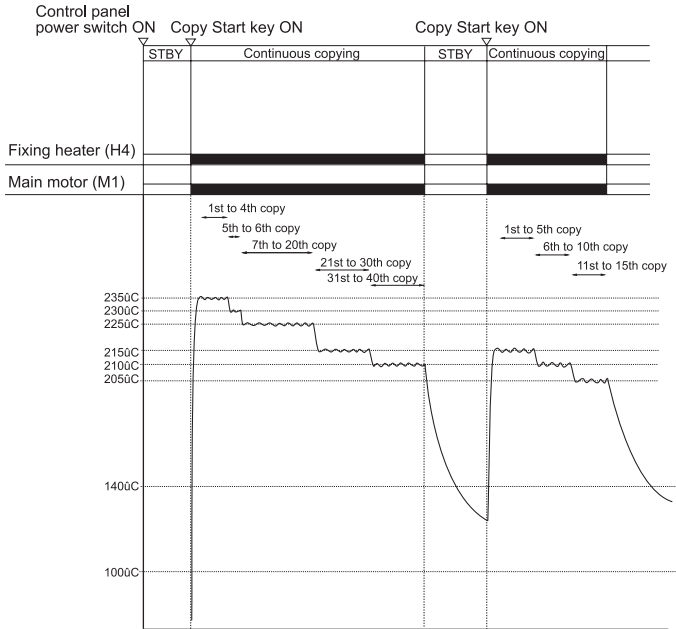
No of copies	°C
1 - 4	235
5 - 6	230
7 - 20	225
21 - 30	215
31 - 40	210
41 - 50	200
51 - 100	190

■ Control 2)

No of copies	°C
1 - 4	225
5 - 6	220
7 - 20	215
31 - 40	210
41 - 50	190
51 - 100	180

■ Control 3)

No of copies	°C
1 - 20	215
21 - 30	210
31 - 40	200
41 - 50	190
51 - 100	180



■ Control 4)

No of copies	°C
1 - 30	205
31 - 40	200
41 - 50	190
51 - 100th	180

■ Control 5)

No of copies	°C
1 - 40	195
41 - 50	190
51 - 100	180

- 2 If the temperature is 100°C or more, or less than 140°C at copy start, one of further three types of control is chosen depending on the count of copies:
- 1) 215° through 180°C,
 - 2) 205° through 180°C,
 - 3) 195° through 180°C:

■ Control 1)

No of copies	°C
1 - 5	215
6 - 10	210
11 - 15	205
16 - 20	200
21 - 30	195
31 - 40	190
41 - 50	185
51 to 100	180

■ Control 2)

No of copies	°C
1 - 15	205
16 - 20	200
21 - 30	195
31 - 40	190
41 - 50	185
51 - 100	180

■ Control 3)

No of copies	°C
1 - 30	195
31 - 40	190
41 - 50	185
51 - 100	180

- 3 If the temperature is 140°C or more at copy start, control is exerted so that the temperature will be 180°C at all times.

1st to 100th copy 180°C

Note that, a (less than 100°C at copy start) and c (100°C or more and less than 140°C) are always combined as follows; the notation “value on label” here refers to the label attached to the fuser, and the settings recorded on the label may be entered in ‘FILM LAMK’ in service mode (Adjust *3*) 06 to select a specific fuser control temperature.

Value on label	a	c
0	1)	1)
1	2)	1)
2	3)	2)
3	4)	3)
4	5)	3)

Note: Normally, as value on the label is one of 2 through 4 is selected. Select a higher temperature (lower value) in service mode if fusing faults occur; select a lower temperature (higher value) if offset occurs. For instance, if fusing faults occur with 2 selected, change it to 1 or 0. Try 1 first and then try 0 if necessary. If offset occurs with 2 selected, change it to 3; if offset continues, change it to 4.

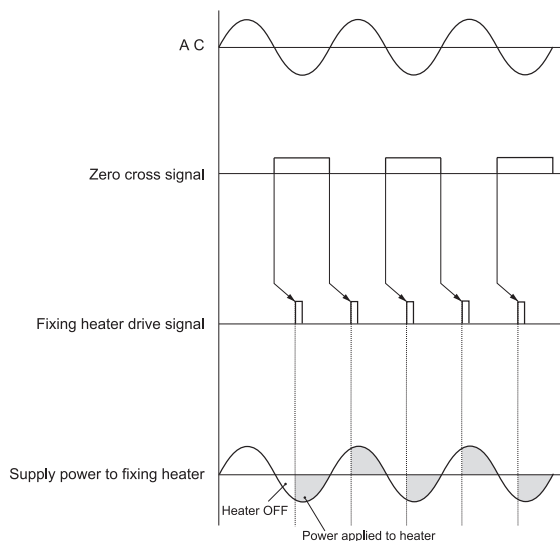
Controlling the Supply Power to the Fuser Heater

The temperature of the heater is controlled by controlling the power supplied to the heater. The plane-shaped heater used, tends to be subject to variation because of production factors.

Because of this, you must enter the resistance in service mode (Adjust *3*) 06 ‘FIXER-RESIST’ whenever you have replaced the fuser so that the microprocessor on the DC controller PCB executes appropriate power control.

Warning: The heater resistance is entered in service mode at the factory; do not change it unless you have replaced the fuser.

The power to the heater is controlled by means of phase power control. The microprocessor controls the output timing of the heater drive signal (HTRD) so that power appropriate to the target temperature of the heater may be supplied (through phase control).



Protection against excess temperature of the fuser

Themistor TH2 monitors the rear end of the fusing film. This is to prevent an excessive temperature occurring, as this could damage the fusing film: particularly when processing size B4 or smaller.

When the output of TH2 exceeds 250°C. The sheet-to-sheet distance is increased, to accelerate the heat discharge of the heater. The copying run, with the increased sheet-to-sheet distance, is continued even though the output of TH2 falls below 250°C.

If the overheating persists, after increasing the sheet-to-sheet distance, and the temperature rises above 260°C, the copying run will be interrupted. The copier will switch OFF. E001 will be logged in the fault logging.

Protection circuits

The following circuits are incorporated to prevent malfunctioning of the heater:

1 Thermistor TH1, TH2

- The DC control PBA monitors the signals from the thermistors TH1 and TH2. If an exceptionally high or low temperature is detected, the machine is switched OFF. Codes E000 through to E003 will be logged.
- The maximum acceptable reading from for TH1 is 250° and for TH2 it is 260°C. The heater error detection signal (HTNG) is issued, isolating the machine.

2 Thermal fuse (FU1)

If the ambient temperature at the thermal fuse reaches 226 °C, and remains at that level for a certain period, the thermal fuse will melt, interrupting the power to the heater.

3 Heater ON detection circuit (200V model only)

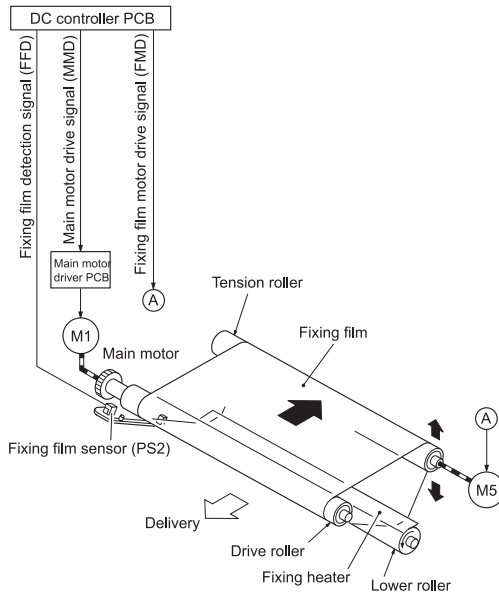
The time during which the heater drive signal (HTRD) remains OFF is monitored. If an error is detected, the power is switched OFF. (E004 is logged)

Alignment of the fusing film

1 Outline

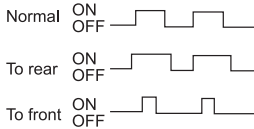
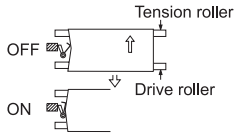
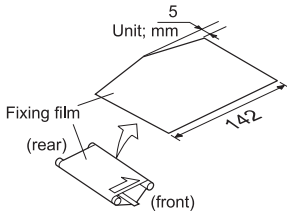
During rotation, the fusing film tends to run towards the front or the rear of the machine. This movement is monitored by the film sensor PS2. The motor M5 is used to correct the alignment.

Warning: *The lower roller is released when the front door is open. Switching the machine ON could, in such cases cause misplacement of the film or damage to the heater. Ensure that the roller is locked when working with the front door open.*



The alignment sensor PS2 rests against the edge of the fusing film. The rear edge of the fusing film is not straight, causing the alignment sensor to continually switch ON and OFF.

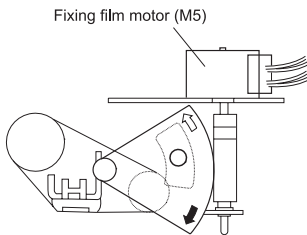
If the film is correctly aligned, the time of the ON and the OFF periods is the same. If the film traverses to the rear, the sensor will remain ON longer than it remains OFF. If the film traverses to the front, the sensor will remain OFF longer than it remains ON. The DC control PBA compares the ON and OFF times, so correcting the position of the film.



If misalignment occurs, the motor M5 is switched ON, to raise or lower the tension roller. The film will traverse to the centre, correcting the misalignment.

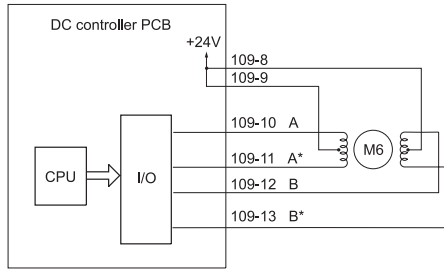
Correction is continued as necessary to ensure correct alignment of the film.

If the film has become displaced so much that the correction mechanism cannot control it, 'E007' will be indicated.



2 Control of the alignment motor

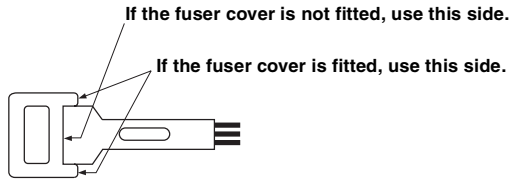
The alignment motor is a stepping motor, rotated by the pulse signals A, A*, B, B*.



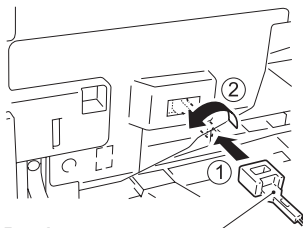
Locking the Fuser

The locking of the film and the lower roller is designed to be released when the front door is opened. It is therefore necessary to secure the film and the roller when necessary for service work. The unit is locked by inserting the handle of the cleaning brush in the aperture.

Inserting the brush

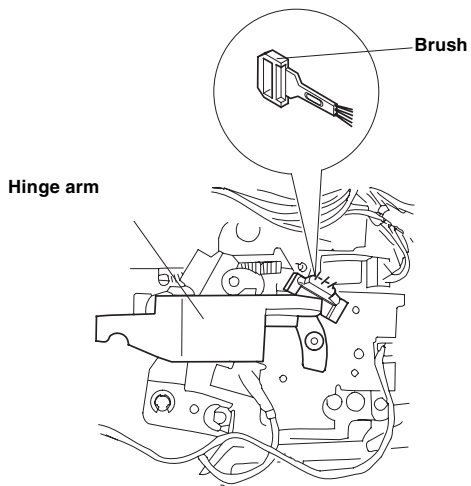


- 1 If the fuser cover is fitted, insert the handle of the brush as shown, and turn it 90°. This secures the fuser.

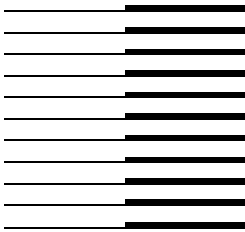


Brush

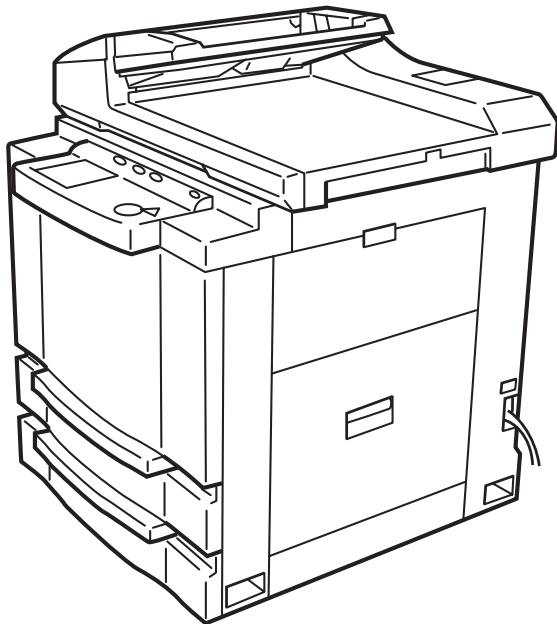
- 2 If the cover is not fitted, hold the hinge arm so that it is parallel to the front of the machine and insert the brush in the gap to the right of the hinge arm.



Océ



Technical Service Manual
Océ 3121/3122



19 DELIVERY

Contents

Adjustments

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Dis-/assembly

- 1 Output 401

Dis-/assembly of the 3-tray unit

- 2 Removing the covers 403
- 3 Removing the 3-tray unit 404
- 4 Removing the feeder motor (M9) 405
- 5 Removing the sensor PS19 and the sensor PS17 406
- 6 Removing the shift unit 407
- 7 Removing the shift motor M11 408
- 8 Removing the output sensor PS18 408
- 9 Removing the output roller 409

Functional description

- 1 Output 501

Functional description of the 3-tray unit

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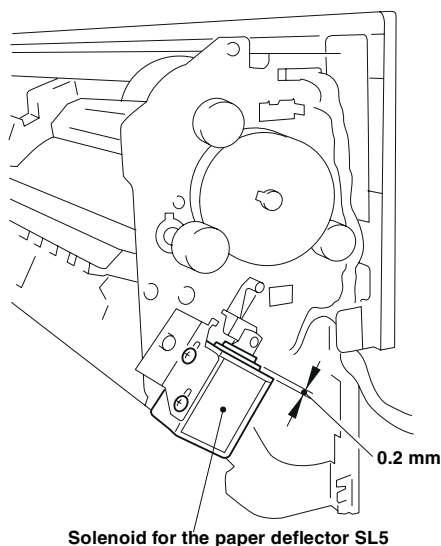
Electrical diagrams

- 1 Delivery 701

Adjustments

1 The position of the deflection solenoid SL5

- 1 Remove the output unit
- 2 Place the output unit vertically on a level surface.
- 3 Press the plunger of the solenoid SL5 as far as it will go.
- 4 The gap between the ring on the plunger and the housing of the solenoid should be 0.2 mm. If necessary, loosen the screws and adjust the position of the solenoid.
- 5 Refit the output unit.

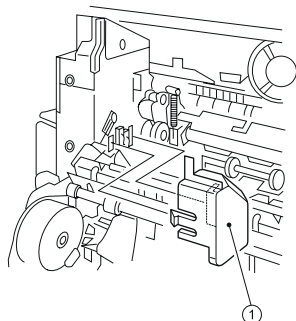


Dis-/assembly

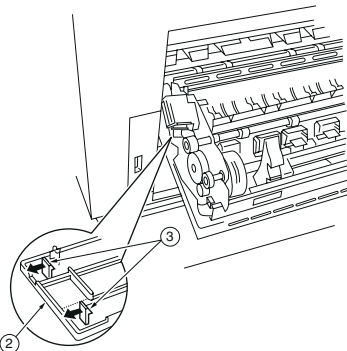
1 Output

Removing the lower cover from the delivery unit

- 1 Switch OFF. Disconnect the mains supply cable.
- 2 Open the front door
- 3 Open the delivery unit, and remove the connector cover. The cover snaps open.



- 4 Release the catch (3), holding the cover (2) of the delivery unit.

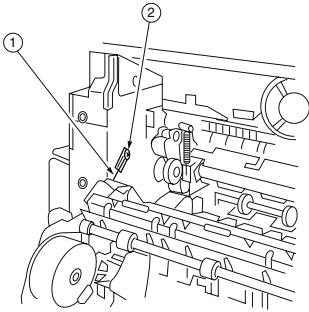


- 5 Close the delivery unit. Remove the lower cover from the delivery unit.

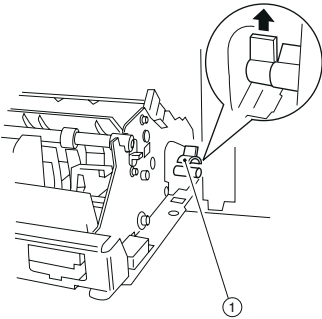
Note: The delivery assembly lower cover cannot be removed unless the delivery assembly is closed. Be sure to close the delivery assembly after releasing the catch.

Removing the output unit

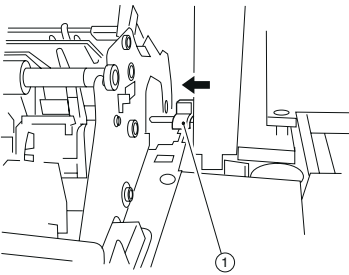
- 1 Disconnect the connector.
- 2 Open the unit and remove the screw (2). Release both ends of the cable.



- 3 Withdraw the spacer (1) from the right side of the unit.



- 4 Release the bushing (1), by shifting it to the left.

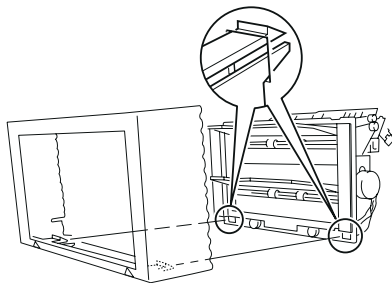
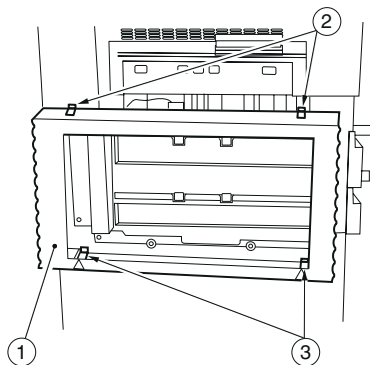


- 5 Move the unit to the right. Remove the unit: sliding it to the left and, then, to the right.

Dis-/assembly of the 3-tray unit

2 Removing the covers

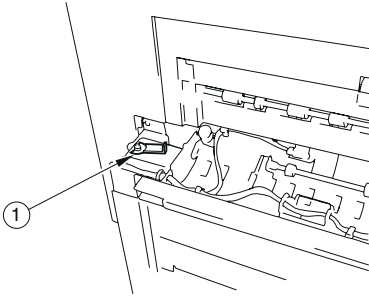
- 1 Remove the output tray
- 2 Release the four catches for the cover (1): two at the top and two at the bottom. Use a small screwdriver to release the lower catches.



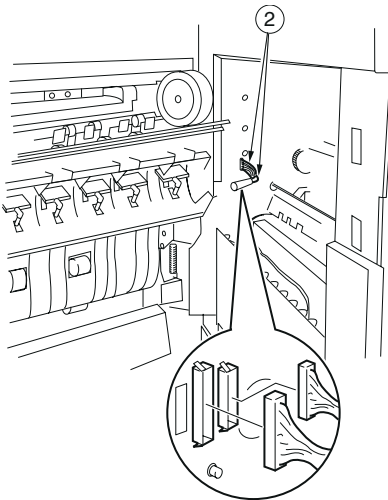
3 Removing the 3-tray unit

Whenever you have to relocate the copier carry out the following procedure.

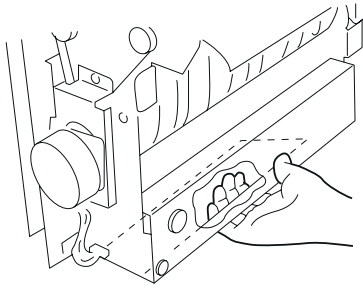
- 1 Remove the cover (4 catches).
- 2 Withdraw the strip (1).



- 3 Open the 3-tray unit, and disconnect the connector (2).



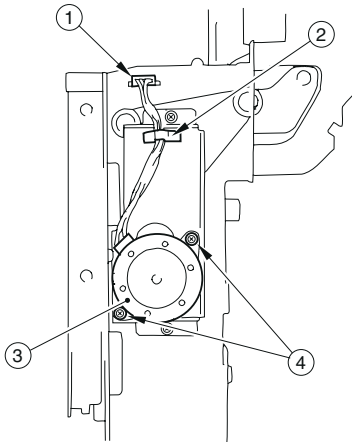
- 4 Free the harness from the edge saddles adjacent to the hinge.
- 5 Gripping the bottom of the 3-tray unit, remove the unit: supporting the top of the 3-tray unit, near to the catch.



Warning: *If the 3-tray unit is to be placed on the floor, place it with the trays underneath.*

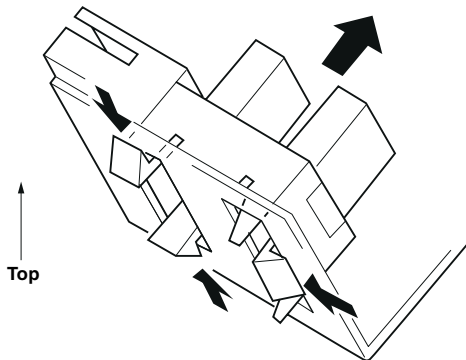
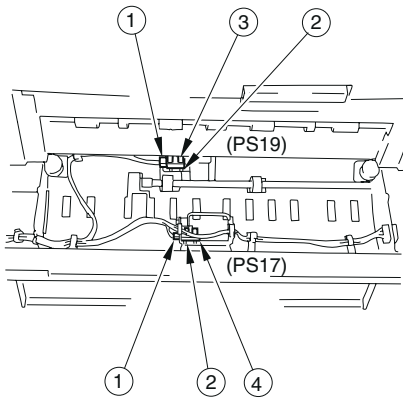
4 Removing the feeder motor (M9)

- 1 Open the front door, and open the 3-tray unit.
- 2 Disconnect the connector (1), and release the cables from the saddle (2).
- 3 Remove the feeder motor (4): two screws.



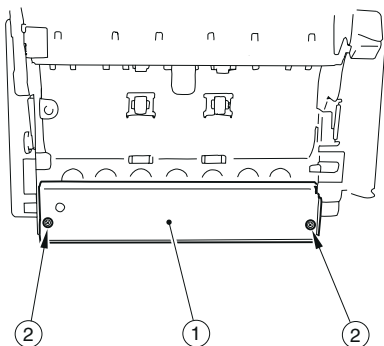
5 Removing the sensor PS19 and the sensor PS17

- 1 Remove the cover (4 catches).
- 2 Disconnect the connector (1) and release the catch (2). Remove the 3-tray sensor PS19 (3) and the tray sensor PS17 (4).

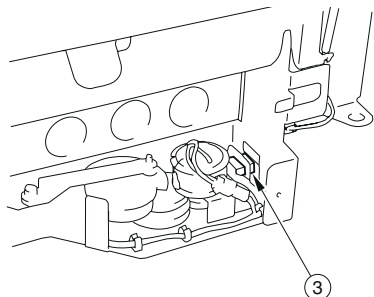


6 Removing the shift unit

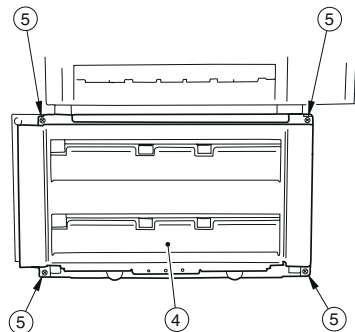
- 1 Remove the sorter from the copier.
- 2 Remove the motor cover (1) (2 screws).



- 3 Disconnect the connector (3).

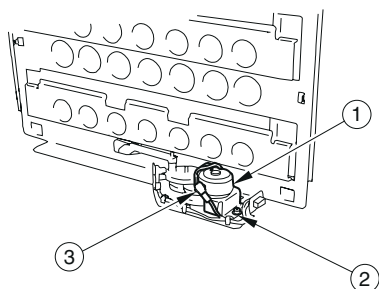


- 4 Remove the shift unit (4) (4 screws 5).



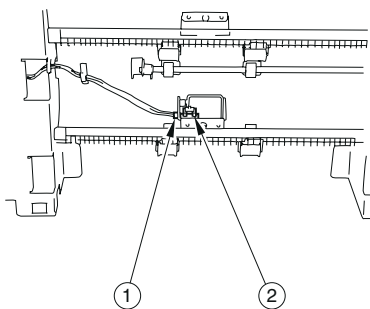
7 Removing the shift motor M11

- 1 Remove the shift unit
- 2 Disconnect the connector (3), and remove the shift motor (1): (screw 2).



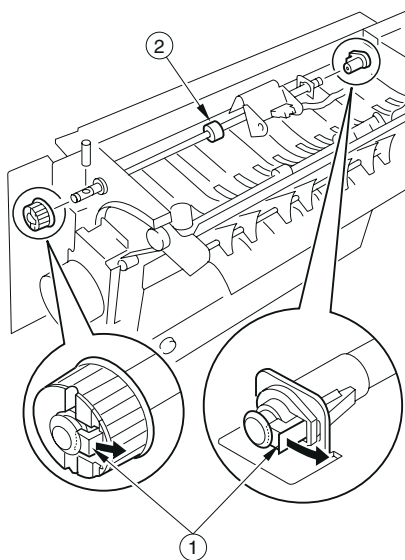
8 Removing the output sensor PS18

- 1 Remove the shift unit
- 2 Disconnect the connector (1), and remove the output sensor PS18 (2).



9 Removing the output roller

- 1 Remove the cover (4 catches).
- 2 Release the catch (1), and remove the delivery roller (2).



Functional description

1 Output

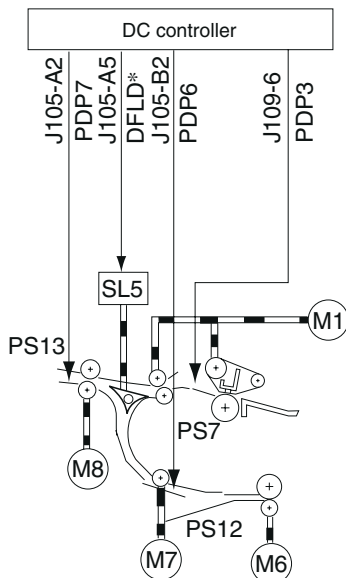
Outline

Two delivery modes can be selected: face-up mode or face-down mode.

a) Face-up output

The copies are fed out with the image side upwards.

Initially, face-up mode is selected, regardless of the selected copying mode.



a) Face-down output

The copies are fed out with the image side downwards.

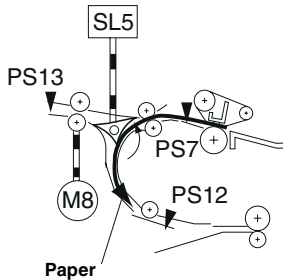
Copy paper that has moved through the fuser unit assembly is sent to the lower feeding unit by the movement of the deflector.

A short time after the leading edge of the copy passes the sensor PS12, the delivery roller reverses. The copy is carried to the output slot: face-down.

M1	main motor
M6	Motor for the retarding roller
M7	Motor for the lower refeed
M8	Motor for the output roller
SL5	Solenoid for the paper deflector
PS7	Fuser sensor PS7
PS12	Sensor for the lower refeed
PS13	Sensor for the output tray

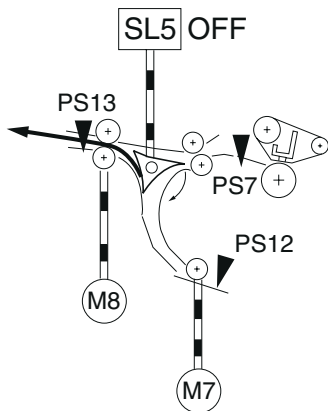
Electrical components

- 1 When the leading edge of the last copy reaches the sensor PS7 the deflector solenoid SL5 is energised, directing the copy paper to the lower delivery unit.



Solenoid for the paper deflector 1 is energised

- 2 Shortly after the leading edge of the last copy reaches the sensor PS12, the motor M7 starts to rotate in reverse. Later, the output motor M8 starts running for face-down delivery.



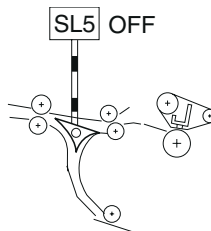
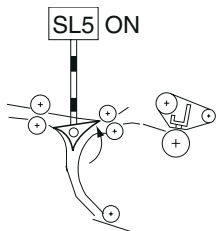
Solenoid for the paper deflector 1 is de-energised

2) Timing of operations

The sequence of operations for the face-down output.

	SCFW	SCRV	LSTR
Registration clutch (CL1)	█		
Paper deflecting plate 1 solenoid (SL7)	█	█	█
Lower feeding assembly inlet roller motor (M7)		CW	CCW
Delivery sensor (PS16)			█
Delivery roller motor (M8)			█

Face-down output



Feeding the copy paper from the fuser to the lower output unit.

Movement of the deflector

Functional description of the 3-tray unit

2 The 3-tray unit

Features

- Sorts fax output and printer output.
Dedicated trays can be allocated for copies, fax output and printer output.
- Shift of the trays
The trays shift to the front and the rear: sorting the output into sets.

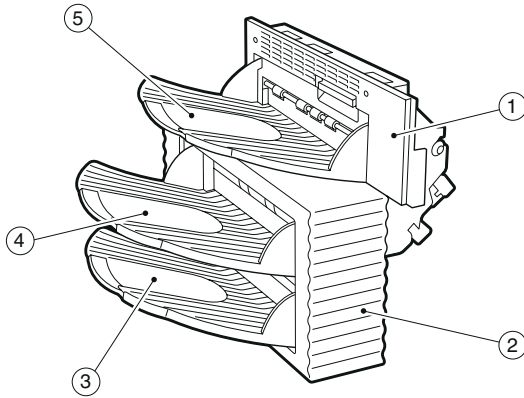
3 Specifications

Item	Specifications	Remarks
Number of bins	2 trays	1 output tray (part of copier)
Modes	Copying, printing and fax	
Stacking	Face-up Face-down (64 to 80 g/m ²)	
Size of paper	A5/STMT to A3/297 mm x 432 mm	
Volume of stack	Tray 1	100 sheets
	Tray 2	100 sheets
Power supply	From copier (24 V DC)	
Dimensions (W x D x H)	195 (117) x 485 x 262 mm	195 is the total width, 117 is the width outside the copier paneling.
Weight	6.1 kg (approximately)	
Maximum power consumption		

Specifications subject to change without notice.

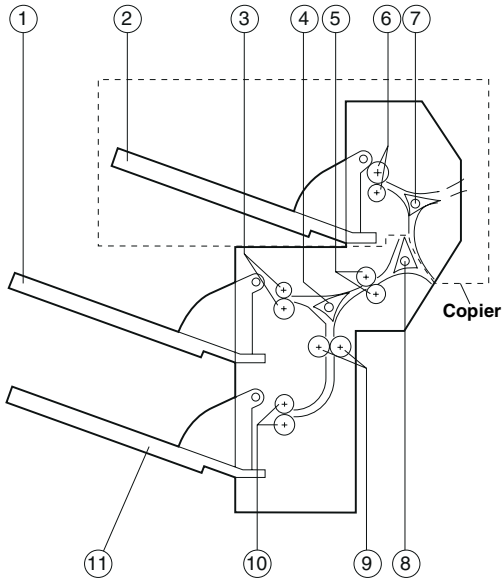
4 Nomenclature

External View



- 1 Copier's delivery assembly
- 2 3-tray unit
- 3 Tray 2
- 4 Tray 1
- 5 Output tray

Cross Section



1 Tray 1

2 Output tray

3 Delivery roller 2

4 Paper deflector 3

5 Transport roller 1

6 Delivery roller 1

7 Paper deflector

8 Paper deflector 2

9 Transport roller 2

10 Delivery roller 3

11 Tray 2

Cross section of 3-tray unit

5 Operation

Settings are selected on the copier's LCD. Of the copier settings, the following relate to the Multitray:

Custom common settings

To select custom common settings, select 'ADDITIONAL FUNCTIONS' and select 'custom common settings'.

No.	Item	Description	Factory default
1	PRINTING PRIORITY	To set the level of priority: copier, fax or printer.	Copier: 1 Fax: 2 Printer: 3
2	TRAY	To specify which functions are allocated to the trays.	A: Copier outputs B: Fax/printer output

Sorting Operation

The 3-tray unit sorts the output according to the following conditions: Whether a mode (copier, fax, printer) has been selected under 'TRAY' in user mode. The Multitray will sort outputs to the selected tray.

Face-down output

Face-down delivery requires a reversing function in the copier's delivery assembly and is executed as follows:

Fax Outputs: the output will automatically be face-down.

6 Basic Functions

The Multitray comes with two special trays that are designed to shift for sorting outputs and serve as a 3-bin output device with the addition of the copier's delivery assembly.

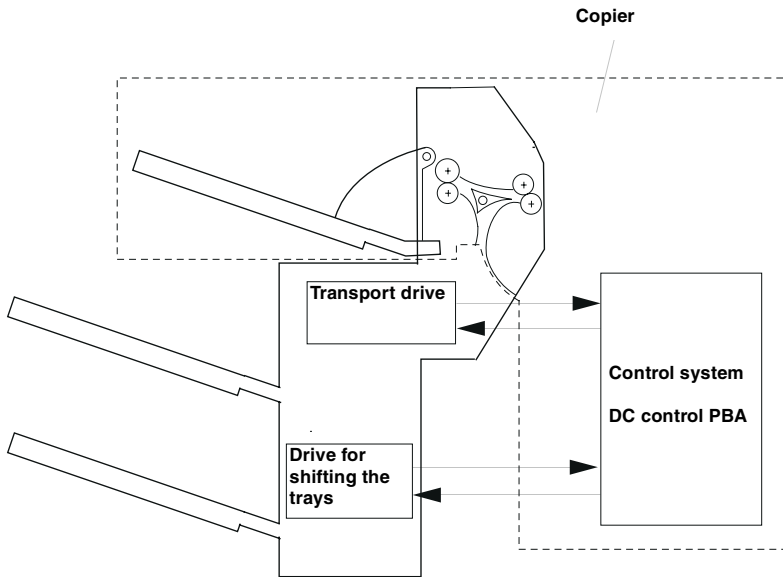
Dedicated trays 1 and 2 can be allocated for copies, fax output and printer output.

The Multitray is supplied with 24VDC by the copier, and its electrical mechanisms are controlled by the copier's DC controller PCB.

7 Functional design

Functional design

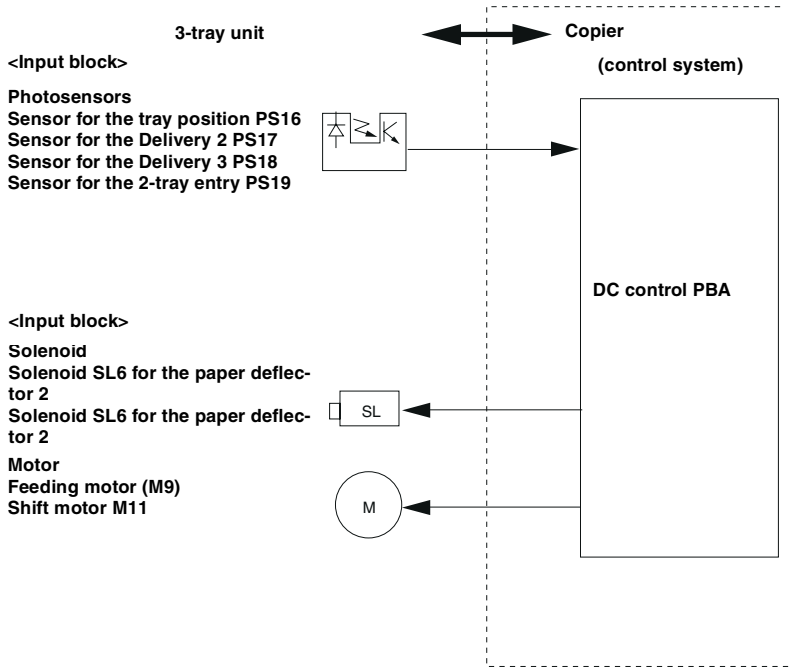
The 3-tray unit has two basic functions: the drive for the shifting of the trays and the drive for the copy transport.



The functional blocks

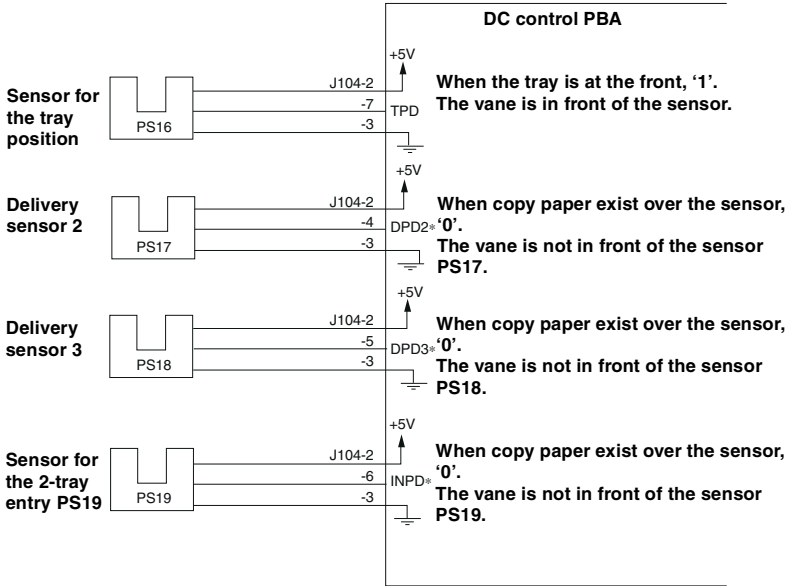
Electrical circuitry

The Multitray's electrical mechanisms are controlled by the copier's DC controller PCB.

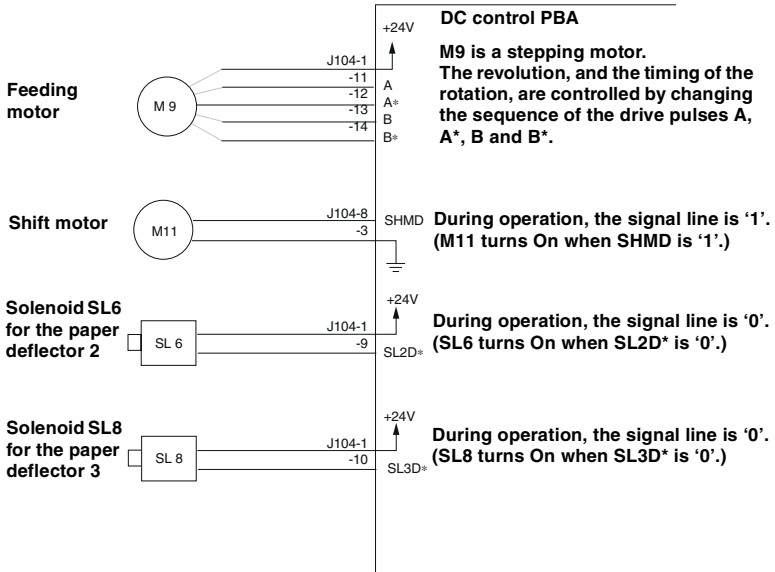


Inputs to and Outputs from the Copier's DC Controller

1 Inputs to the DC Control PBA



2 Outputs from the DC Controller PBA



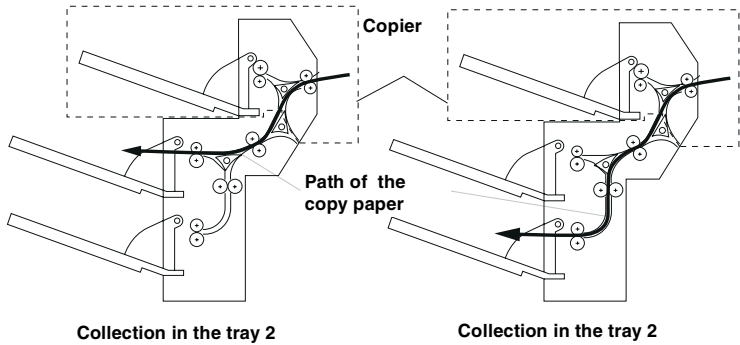
8 Principle of operation

Outline

The 3-tray unit collects the output, according to the usage mode, and allows for the selection of the required tray.

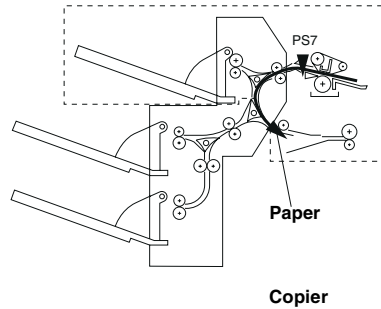
- 1 Collecting the copier output
The outputs may be sorted, and collected in the trays 1, 2 or 3.
- 2 Collecting the printer output
The outputs may be stacked, and collected in the trays 1, 2 or 3.
- 3 Collecting the fax output
The output may be stacked, and collected in the trays 1, 2 or 3.

■ Face-up output (normal collection)

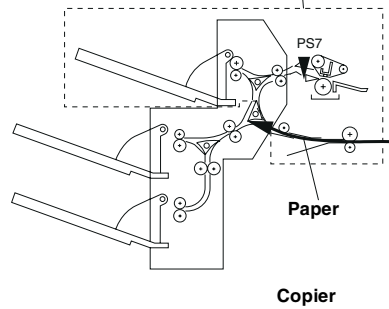


- The face-down output to the tray 2: with use of the lower feed unit.
The following description is based on collection in the tray 2. It is equally applicable for the trays 1 and 3, and after turning the copies.

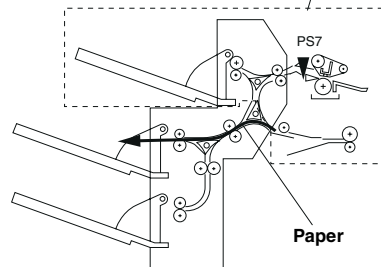
- 1 Copy paper that has moved through the fuser unit is directed to the lower feeding unit.



- 2 Shortly after passing the sensor PS7, the paper is turned over and carried towards the 3-tray unit.



- 3 The copy paper is collected in the tray 2.



9 Feeding drive system

Functional design

Copy paper coming from the copier is controlled by the copier's DC controller PCB and delivered to the delivery tray.

The figure shows the transport drive system, and the location of the electrical components. Also included are the names of the various signals.

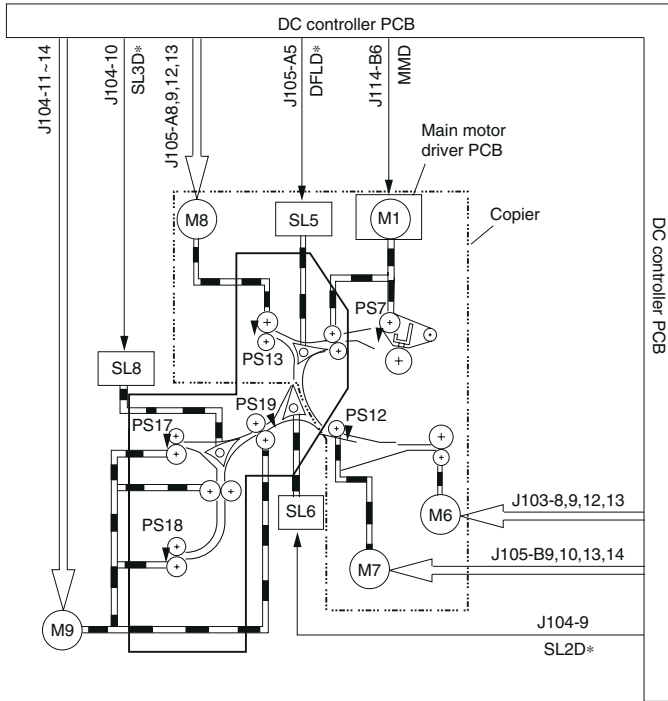
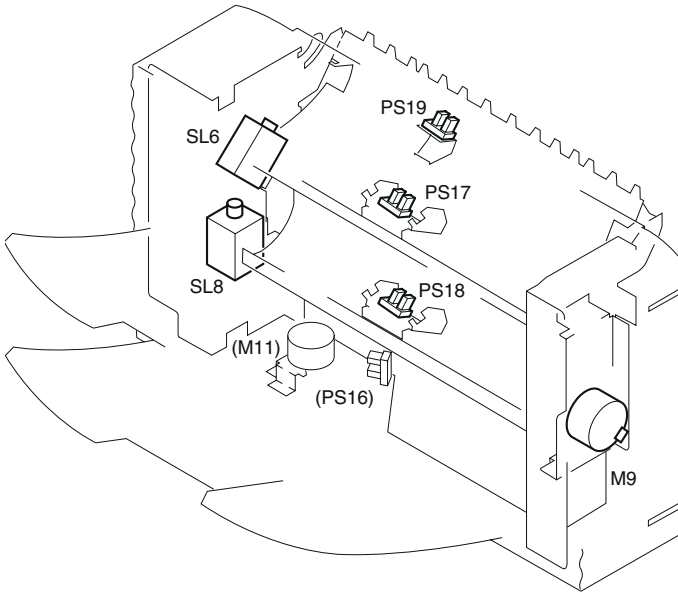


Diagram of the transport drive system.



PS16 is the tray position sensor, and M11 is the tray shift drive motor; both are explained in the section on the tray shift mechanism.

Location of the electrical components: transport drive system.

Symbol	Nomenclature	Pin No. (* 2)	State (* 3)
PS19	Sensor for the 3-tray entry PS19	J104-6	0
PS17	Delivery sensor 2	J104-4	0
PS18	Delivery sensor 3	J104-5	0
M9	Motor for the tray feeder (* 1)	J104-11~14	–
SL6	Solenoid SL8 for the paper deflector 2	J104-9	0
SL8	Solenoid SL8 for the paper deflector 3	J104-10	0

*1 Stepping motor.

*2 pin on the DC control PCB (signal line).

*3 late when the sensor is ON.

Electrical components, signals and signal lines

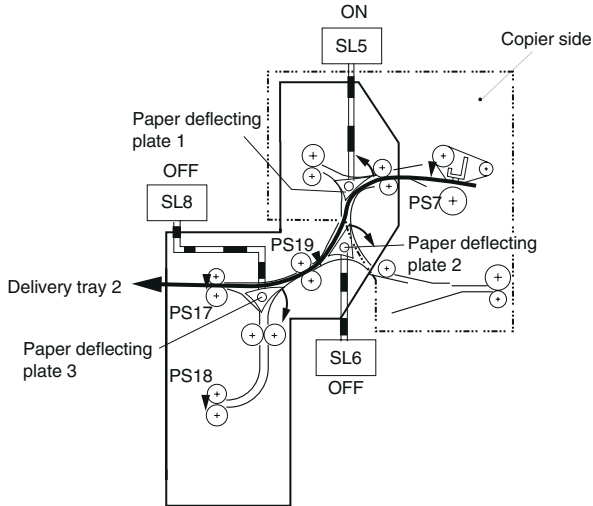
Transport drive

1 Drive and sequence of operations (face-up delivery)

■ Collection in the tray 2

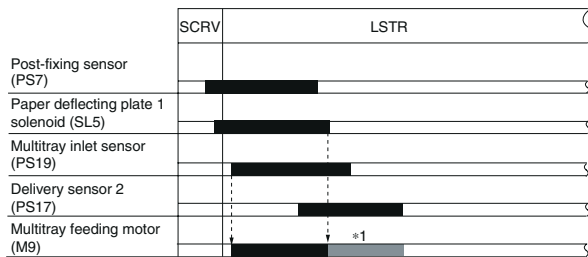
The solenoid SL5 is energised at a specified time after the paper passes the sensor PS7.

(Copy paper is delivered to delivery tray 3 when the paper deflecting plate 3 solenoid SL8 turns ON.)



■ Sequence of Operations (small sizes; continuous pick-up and return)

Shortly after passing the sensor PS7, the paper is turned over and carried towards the 3-tray unit.

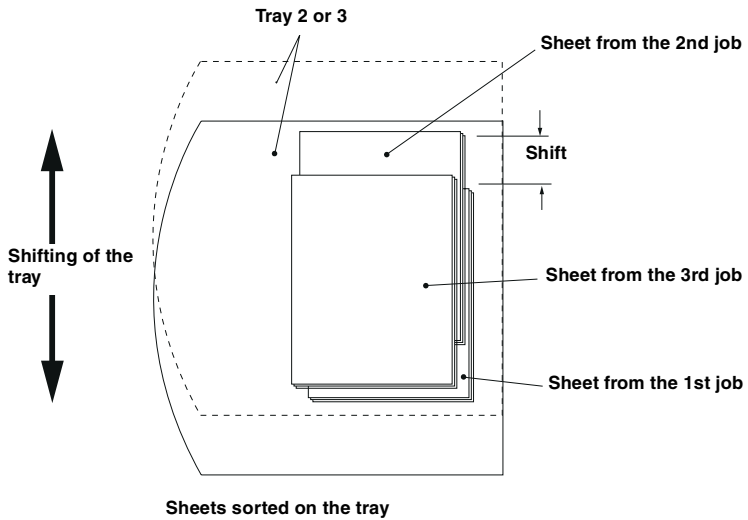


*1: The feeding motor doubles its speed of rotation when the paper deflecting plate 1 solenoid turns OFF.

The copy paper is collected in the tray 2 (A4, 1 sheet).

Movement of the trays

The delivery trays 2 and 3 shift to the rear and the front to sort outputs, thereby stacking the outputs as shown in the Figure.



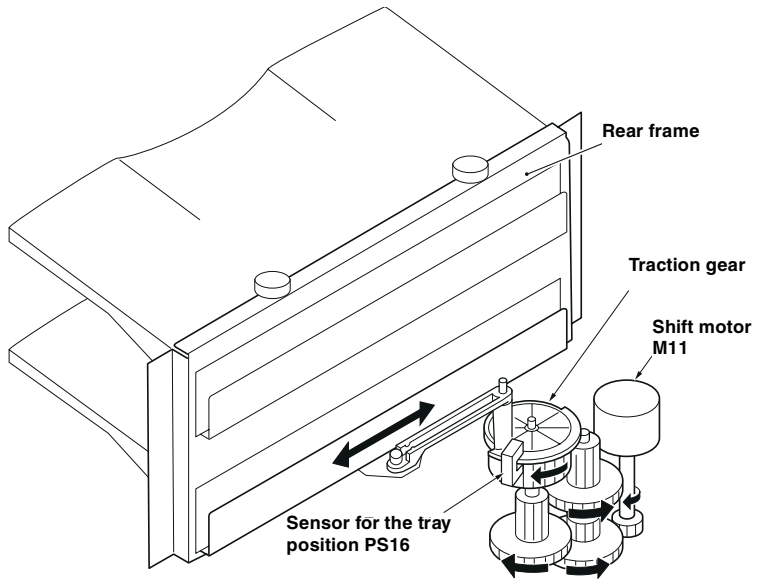
Operation

a) Drive for the shift

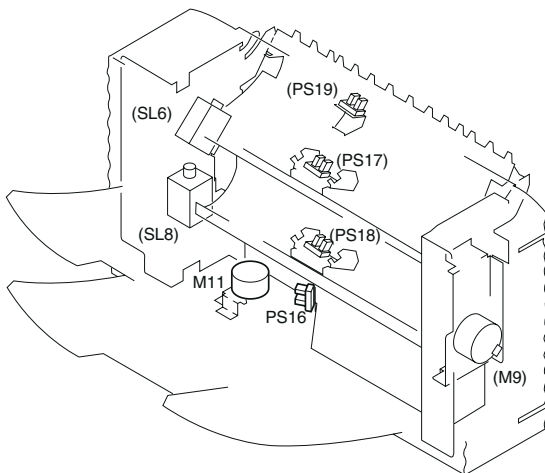
M11 provides the drive for the shift of the copies. Gears and cams simultaneously transmit the drive action to both the trays.

The shift motor (M11) is a DC motor that rotates in one-direction only, and its speed and timing of rotation is controlled by the drive signals from the copier's DC controller PCB.

The diagrams show the mechanical construction of the shift of the trays, and the location of the electrical components.



Drive for the shift



Electrical components

Symbol	Nomenclature	Pin No.	State
PS16	J104-7	Sensor for the tray position	0
M11	J104-8	Drive for shifting the trays	1

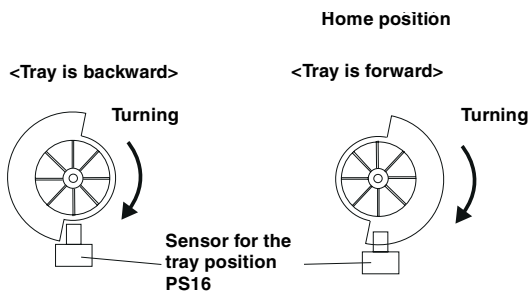
Electrical components, signals and signal lines

B) Determining the position of the trays

The position of the tray is identified by the copier's DC controller PCB with reference to the tray position signal from the tray position sensor (PS16).

The tray is considered to be at the home position when the trays are at the forward position, and the vane on the traction gear blocks the sensor.

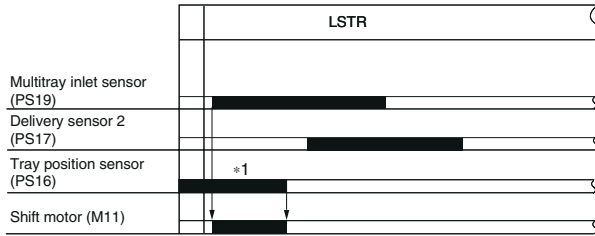
The home position is checked when the machine is switched ON.



The traction gear and the position of the trays.

c) Timing of operations

The motor M11 is switched ON when the leading edge of copy paper passes the inlet sensor PS19.

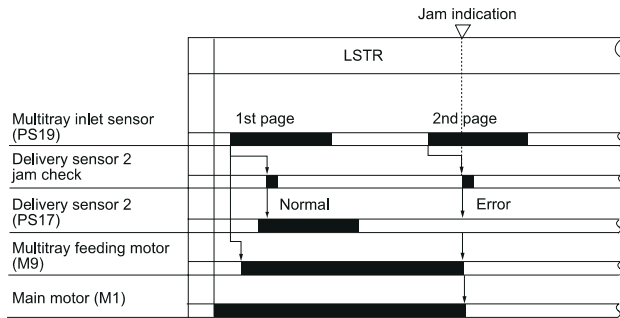


*1: Light-blocking plate over the sensor.

Detection of jams

1 Delay at the inlet sensor PS19

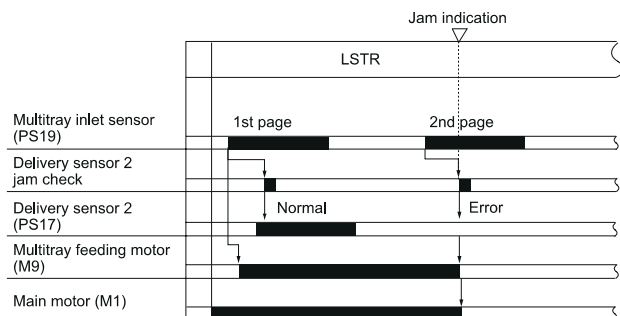
A delay will be signalled if the paper does not reach the sensor PS19 within a specified period of time after the paper passes the sensor PS7.



Delay at the inlet sensor PS19 (2 size A4 copies).

2 Delay at the output tray PS13

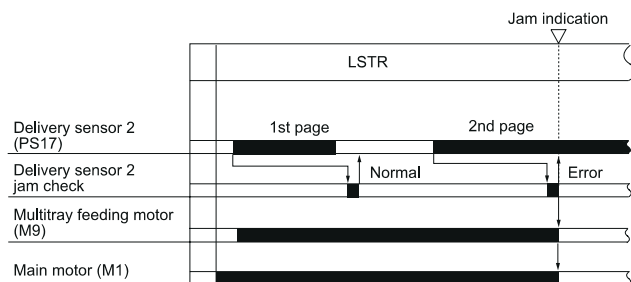
A delay jam is identified if the leading edge of copy paper does not reach the delivery sensor 2 (PS17) within a specific period of time after it has moved past the multitray inlet sensor (PS19).



Delivery Upper Sensor 2 Delay Jam (A4, 2 sheets)

3 Delivery Sensor 2 Stationary Jam

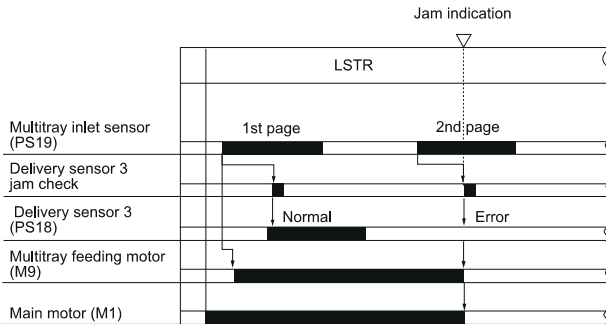
A stationary jam is identified if the leading edge of copy paper does not reach the delivery sensor 2 (PS17) within a specific period of time after it has moved past the delivery sensor 2 (PS17).



Delivery Sensor 2 Stationary Jam (A4, 2 copies)

4 Delivery Sensor 3 Delay Jam

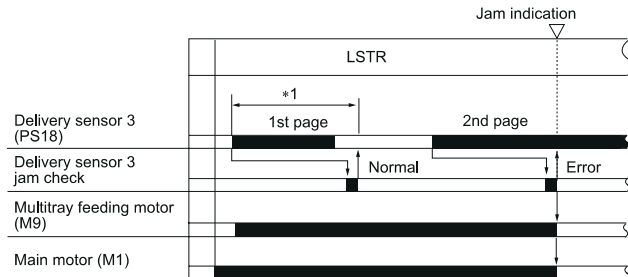
A delay jam is identified if the leading edge of copy paper does not reach the delivery sensor 3 (PS18) within a specific period of time after it has moved past the multitray inlet sensor (PS19).



Delivery Sensor 3 Delay Jam (A4, 2 sheets)

5 Delivery Sensor 3 Stationary Jam

A stationary jam is identified if the leading edge of copy paper does not move past the delivery sensor 3 (PS18) within a specific period of time after it has moved past the delivery sensor 3 (PS18).



*1: Length detected varies depending on copy paper size.

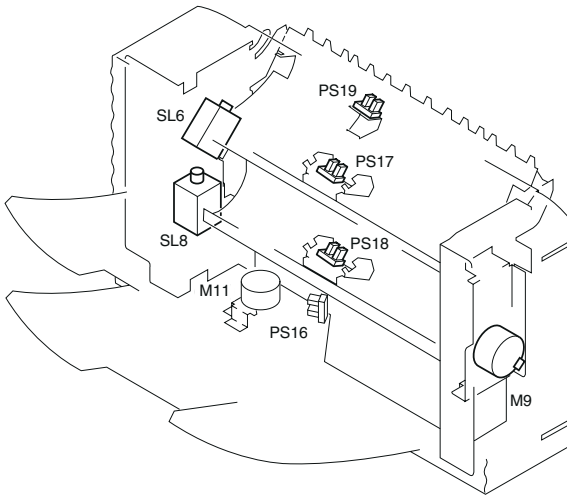
Delivery Sensor 3 Stationary Jam (A4, 2 sheets)

6 Power-On Jam

A jam will be identified if any of the sensors is on when the copier's power switch is turned on.

- Multitray inlet sensor (PS19)
- Delivery tray 2 sensor (PS17)
- Delivery tray 3 sensor (PS18)

10 Location of the electrical components



Symbol	Name	Number	Description
	Sensor	PS16 PS17 PS18 PS19	Tray: detection of position Tray 2: detection of copy delivery Tray 3: detection of copy delivery 3-tray unit: detection of copy at inlet
	Motor	M9 M11	Drive motor for 3-tray feed Drive motor for shifting the trays
	Solenoid	SL6 SL8	Solenoid for the paper deflector 2 Solenoid for the paper deflector 3

11 Service mode.

The service modes are controlled by the DC controller PCB, and data is indicated on the copier's LCD.

1 Control Display Mode

The logging of the jams is displayed on the second screen: the types, the locations, the history.

2 I/O Display Mode

The states of the sensors used in the 3-tray unit are displayed on the second screen.

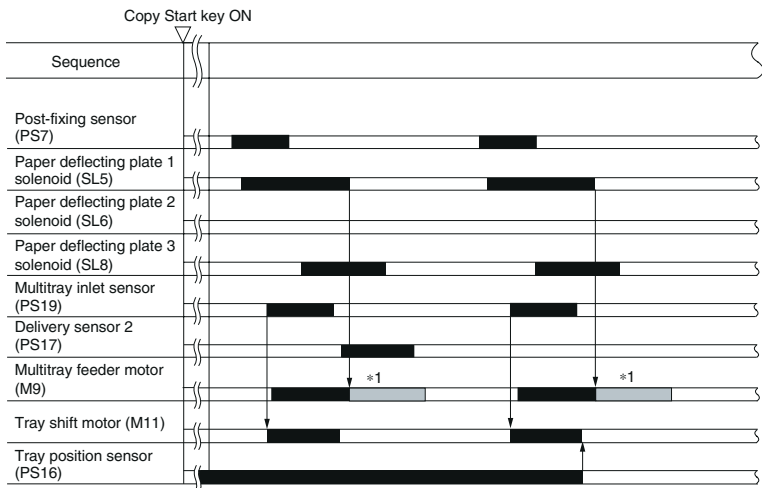
12 Self Diagnosis

The microprocessor of the copier's DC controller PCB is equipped with a mechanism to check the condition of the 3-tray unit (condition of sensors, in particular). The mechanism runs checks as necessary and indicates a specific code on the copier's control panel if it finds an error.

Self Diagnosis

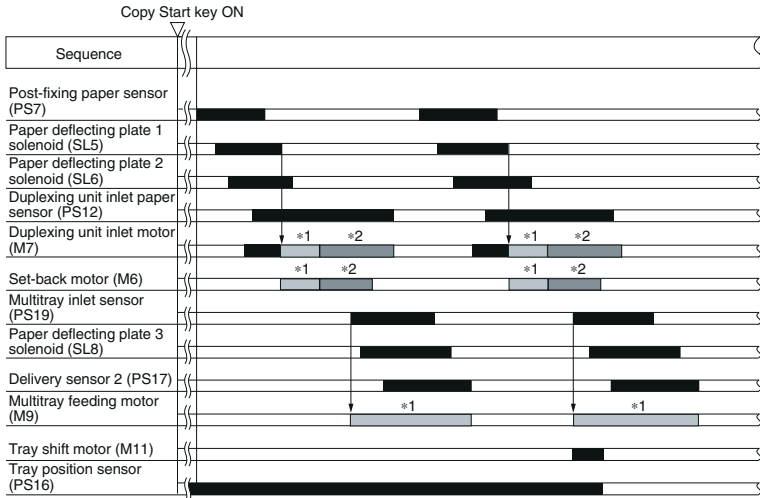
Code	Cause	Description
E540	Malfunctioning of the sensor for the detection of the home position.	The home position detection signal is not received within 5 seconds after the 'shift tray is home' check is started.

Normal delivery of 2 size A4 copies to delivery tray 2



*1: The feeding motor doubles its speed of rotation when the paper deflecting plate 1 solenoid (SL5) turns OFF.

Face-down delivery of 2 size A4 copies to tray 2



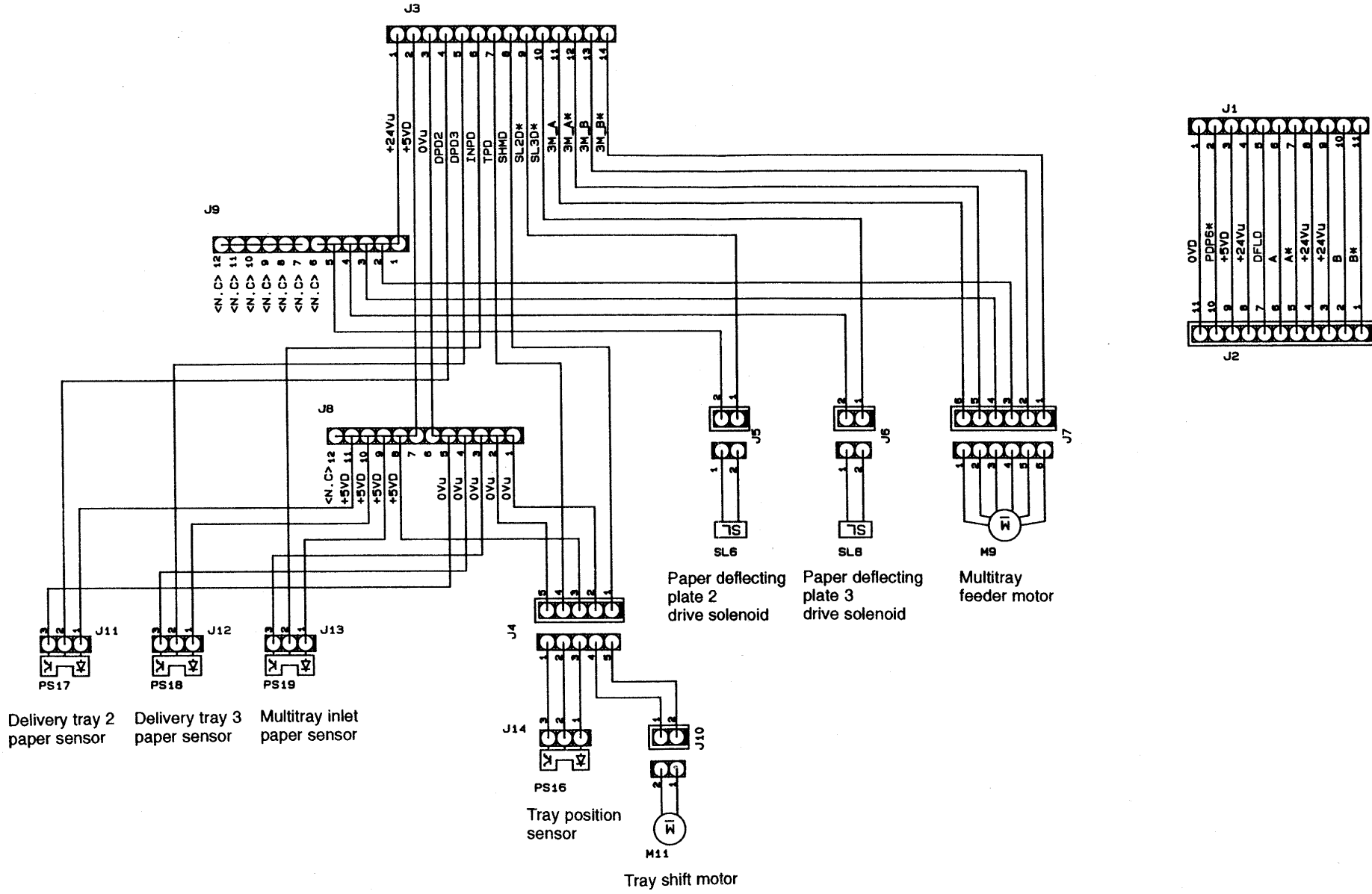
Circuit Diagram

List of Signals

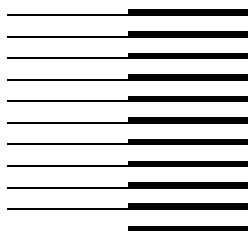
Names of Signals

TPD	Tray Position Detection signal
DPD2	Delivery Paper Detection 2 signal
DPD3	Delivery Paper Detection 3 signal
INPD	Inlet Paper Detection signal
SHMD	Shift Motor Drive Signal
SL2D	Solenoid 2 Drive Signal
SL3D	Solenoid 3 Drive Signal

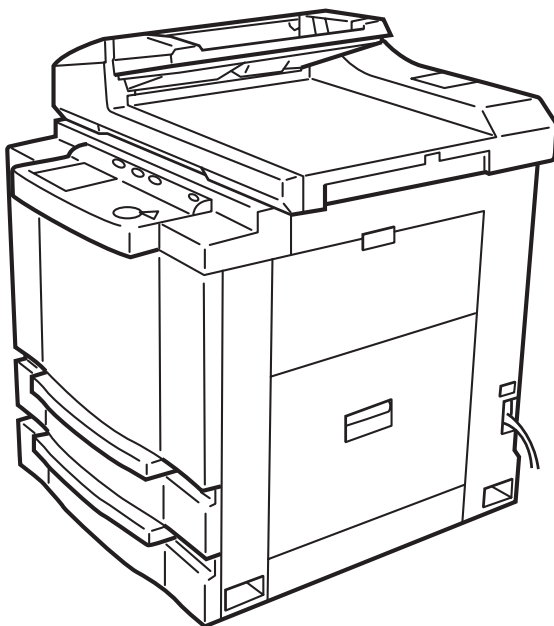
Electrical diagrams



Océ



Technical Service Manual
Océ 3121/3122



21 SORTER

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Functional description of the sorter

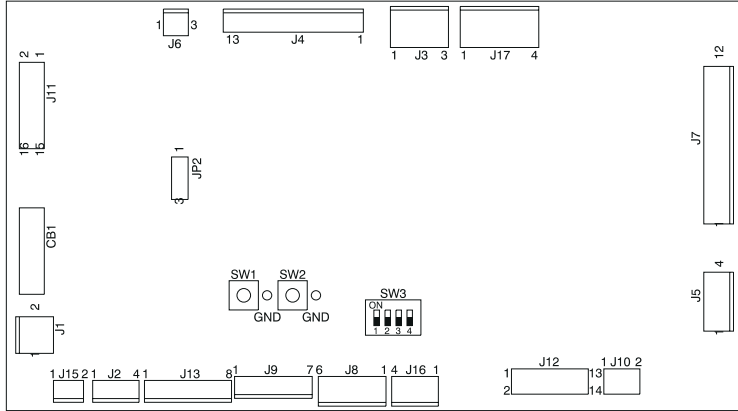
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SDS

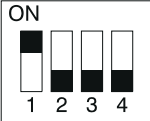

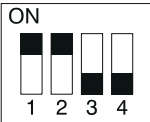




1 Tray Controller PBA



Switch number	Switch name	Description
SW1	Push switch	To move up the bin unit.
SW2		To move down the bin unit.
SW3	DIP switch	To set test-modes. (See the table below.)

The functions of the DIP switch (SW3):

Purpose	SW3 setting	Description
Normal operation (IPC communication)		Executes normal operations in IPC communication mode.
Normal operation (IPC communication 2)		Executes normal operations in IPC communication 2 mode.

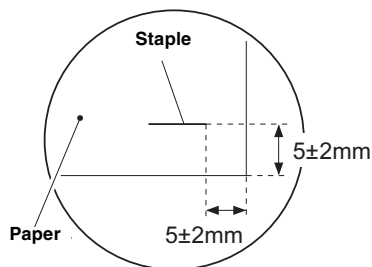
Purpose	SW3 setting	Description
Bin paper sensor check mode		The sensor is normal if the Manual Staple key is on when paper is in the bin and off when no paper is in the bin.
Bin unit drive motor operation mode		A press on the Manual Staple key causes the bin unit drive motor (M2) to rotate. A press on the Manual Staple key while the motor is rotating stops the motor. The Manual Staple key is off while the bin unit drive motor is rotating at a specific speed. The Manual Staple key flashes when an error occurs in the rotation.
Operation check mode		Each press on the Manual Staple key initiates the following operations: Delivers one page to the No. 1 bin through the No. 10 bin (bin shift in normal sorting direction). A page is delivered to special tray A and special tray B. The pages in the No. 1 through No. 10 bins are stapled. The special tray shifts. A press on the Manual Staple key stops the operation. The Manual Staple key flashes in response to an error in the operation.
Stapler swing operation check mode		Each press on the Manual Staple key causes the stapler swing motor to rotate, moving the stapler back-and-forth between the stapling position and the home position.
Tray Drive Motor Mode		A press on the Manual Staple key causes the tray drive motor (M6) to rotate. A press on the Manual Staple key while the motor is rotating stops the motor. The Manual Staple key is off while the tray drive motor is rotating at a specific speed. The Manual Staple key flashes in response to an error in the rotation of the motor.
Special tray shift operation check mode		Each press on the Manual Staple key causes the tray shift motor (M6) to rotate, shifting the special tray back and forth between the front and the rear.
Solenoid ON/OFF check mode		Each press on the Manual Staple key causes all solenoids to repeat turning on and off.

Adjustments

1 Adjustment of the stapling position

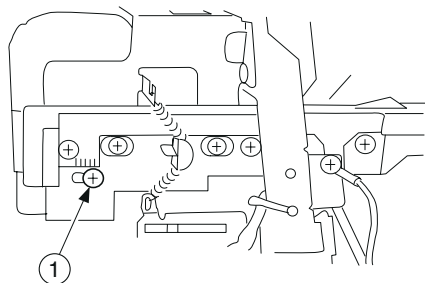
If the stapling position is not according to the specifications, adjust the position as follows:

- 1 Execute stapling, and check the stapling position.
<Specifications>



← Feeding direction

- 2 If necessary, loosen the screw (1), and adjust the position of the stapler guide.



2 Adjustment of the microswitch MS6 for the stack thickness.

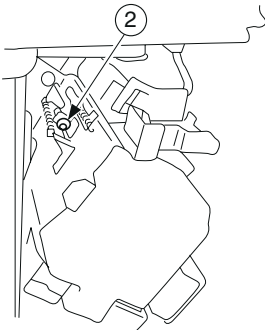
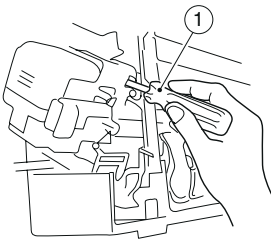
If a stack of 4.5 to 5.8 mm is inserted, the microswitch MS6 will operate, preventing the operation of the stapler.

Adjust the position of MS6 if the following applies:

- 1 The microswitch MS6 fails to operate when stapling a stack 5.8 mm or more in thickness.
- 2 The microswitch MS6 operates when stapling a stack of less than 4.5 mm.

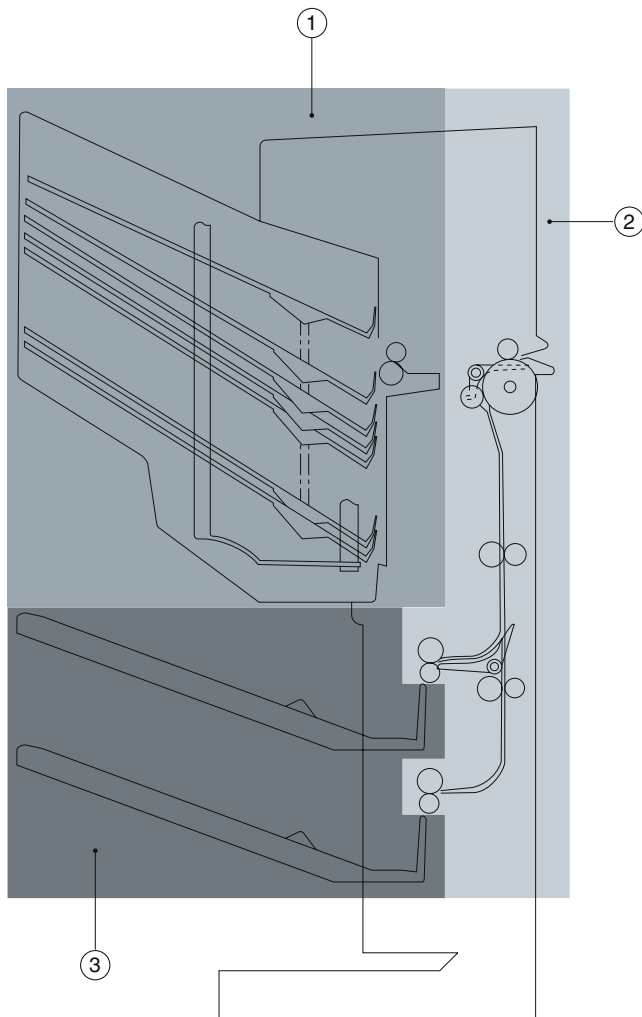
■ Adjustment

- 1 Insert a screwdriver (1), and loosen the screw.
- 2 Using a hexagon socket key, turn the screw (2) to make adjustments.



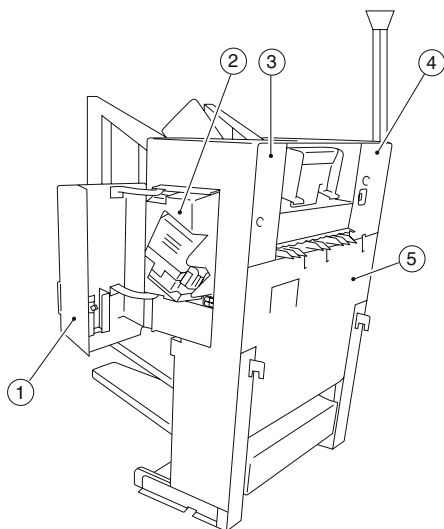
Note: MS6 will not operate when the cover is removed from the stapler.

Dis/assembly of the sorter



- 1 Sorter
- 2 Tray feeding
- 3 Auxiliary trays

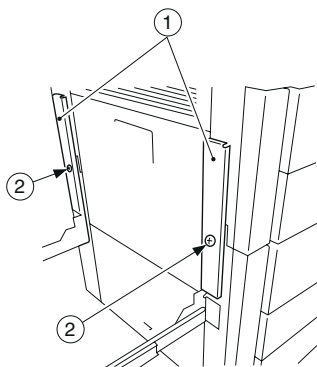
1 Removing the covers



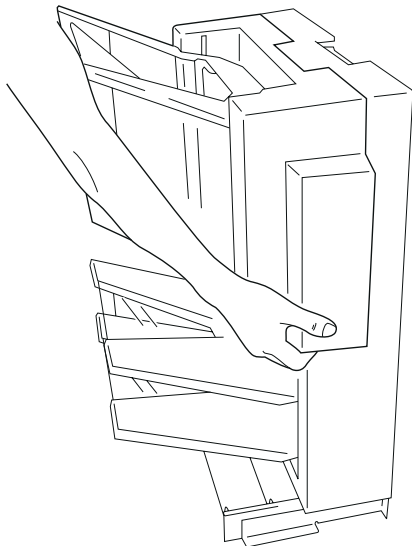
- 1 Stapler cover (2 screws)
- 2 Stapler cover, inner (1 screw)
- 3 Upper cover, front (2 screws)
- 4 Upper cover, rear (3 screws)
- 5 Lower cover

2 Removing the sorter from the copier

- 1 Release the latch, and pull the sorter away from the copier.
- 2 Remove the two screws (2) from the rail (1).

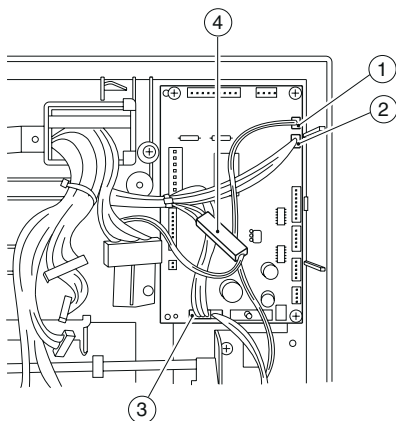


- 3 Gripping the front and the rear of the sorter, lift the sorter a little. Release the catches from the rail, and remove the sorter from the copier.

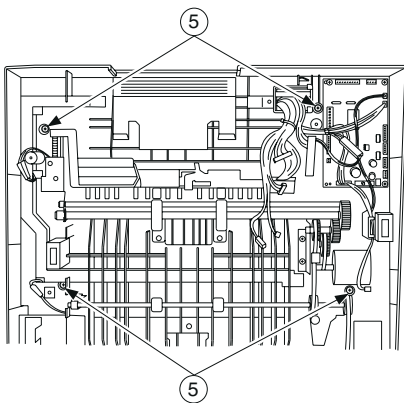


3 Removing the transport Unit

- 1 Remove the upper covers.
- 2 Disconnect all the connectors from the tray control PBA.
With the exception of: J10 (1), J11 (2), and J12 (3).
- 3 Disconnect connector (4).

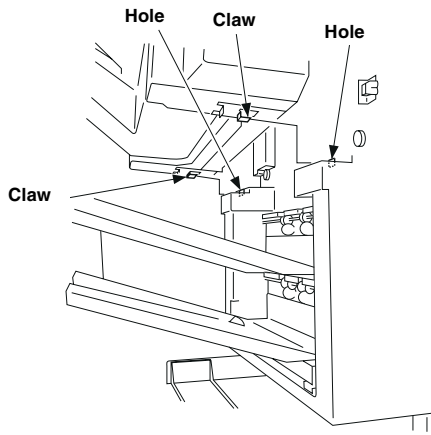


- 4 Open the right cover, and remove the four screws (5).
Carefully remove the transport unit.



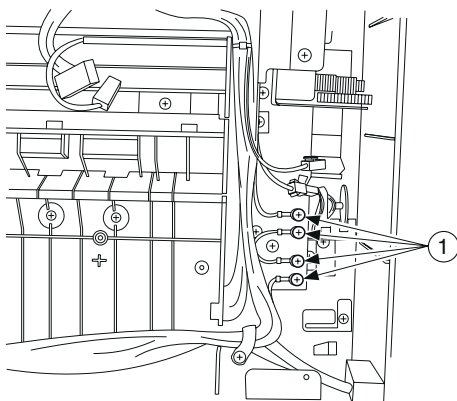
Note: Points to note when refitting the transport unit.

- a) Make sure that the claws, that are located at the bottom of the unit, are in the holes in the cover.
- b) Securely connect all the connectors.

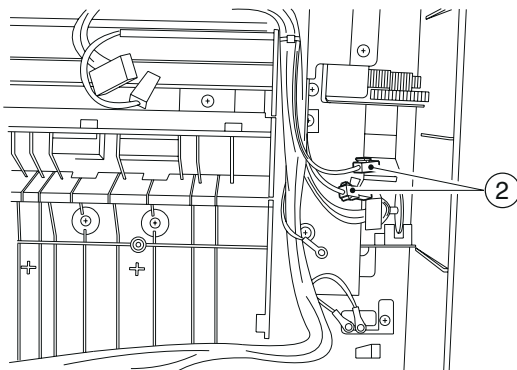


4 Removing the bin unit

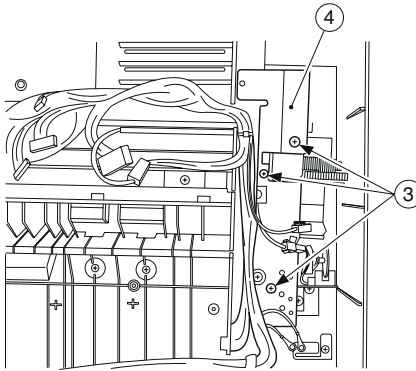
- 1 Check that the bin unit is in the home position.
If it is not at home position, turn off and then on the copier's power switch.
- 2 Remove the sorter from the copier.
- 3 Remove the transport unit.
- 4 Remove the stapler unit.
- 5 Disconnect the earth cables (1).



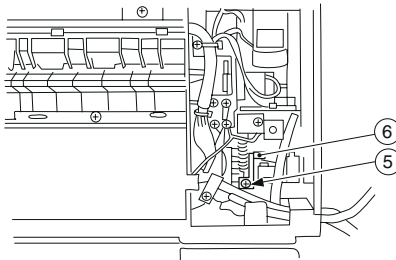
- 6 Disconnect the connector (2) for the shift motor and the feed motor.



7 Remove the three screws (3), and remove the cables. Remove the strip (4).



8 Remove the four screws (5), and remove the detection plate (6).

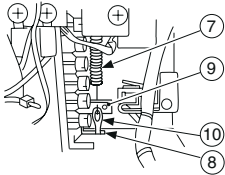
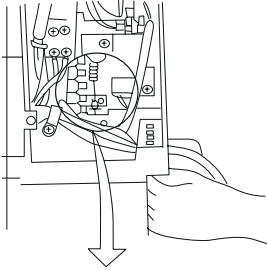


- 9 Detach the springs that suspend the front and rear of the bin unit. To do this, proceed as follows:

Note: *Removing the suspension springs*

The suspension springs are located at the rear of the drive unit.

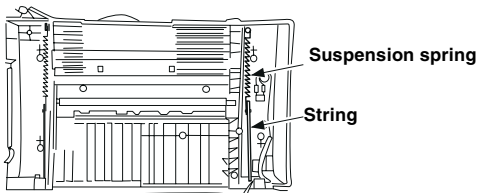
- a) Pass the loop on the end of the string (10) through the recess (8) in the cover and over the hook, passing the arm (9).



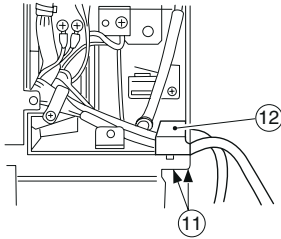
- b) Holding the string, detach the spring from the arm.
c) When the spring is relaxed, tape the end of the string to the side of the cover.

Note: •Do not remove the string from the spring . It will be used when refitting the bin unit.

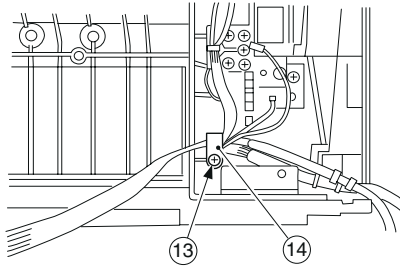
Note: *The situation with the spring relaxed.*



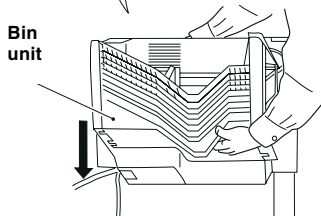
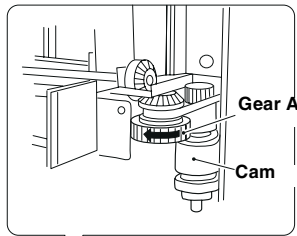
10 Remove the two screws (11). Remove the cable cover (12).



11 Remove the cable clip (14) (1 screw), and release the cables.



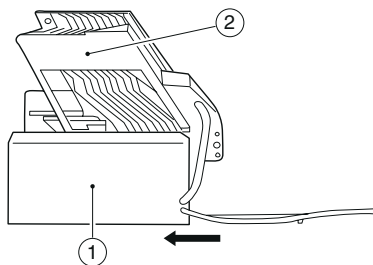
12 While holding the bin unit with one hand, turn the gear A to the right (arrowed direction). This releases the cam. Then, remove the bin unit.



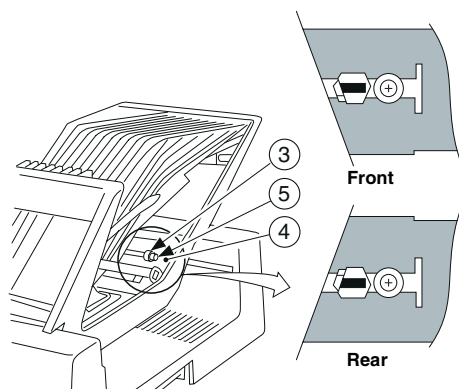
Note: Remove the dummy pins from the grooves of the bin plate, both front and rear, after removing the bin unit.

5 Refitting the bin unit

- 1 Place the sorter assembly (1), and slide in the bin unit (2).

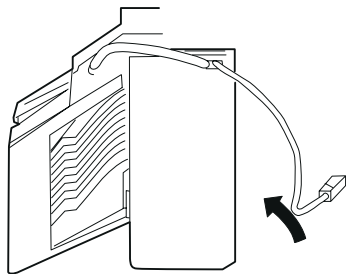


When the fixed pin (3) is in the groove of the bin plate (4), insert the dummy pin (5) as indicated.

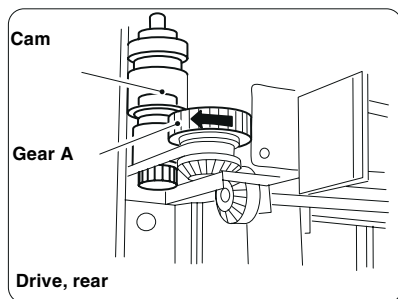
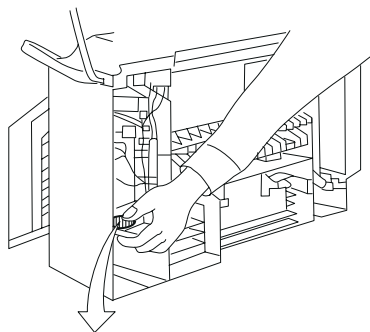


Continue fitting the pins in the grooves of the bin plates.

- 2 When the fixed pin touches the cam, raise the unit as shown. The weight of the bins will move the pins into the grooves in the bin plates.

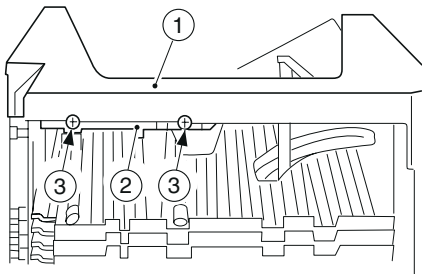


- 3 While holding the bin unit with one hand, turn the gear A to the left (arrowed direction). Continue to turn the gear until the rolls of the No. 1 bin are located above the cams.

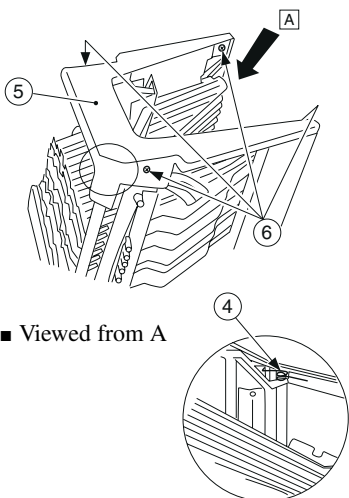


6 Removing the bins

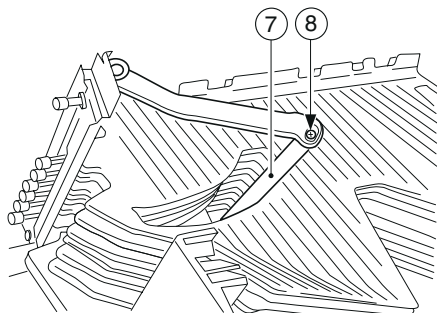
- 1 Remove the bin unit from the sorter assembly. (See “Removing the Bin Unit.”)
- 2 Remove the two screws (3), and remove the light transmitter (2) from the upper cover (1).



- 3 While paying attention to the spring (4), used to keep the guide bar and the front bin plate together, remove the four screws (6). Remove the upper cover (5).



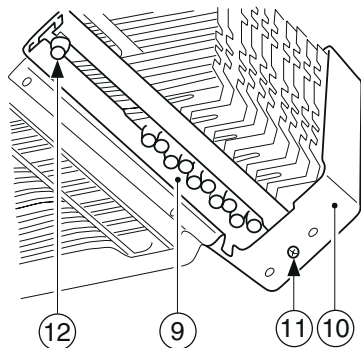
- 4 Remove the screw (8), and remove the guide (7).



- 5 Loosen the screw (11), securing the front plate (9) to the base frame (10).

Caution:

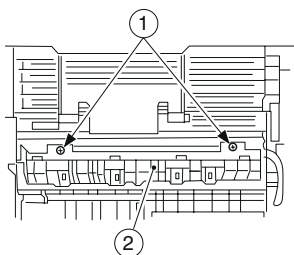
Warning: Do not move the fixed pin (12). If pin (12) must be moved, mark its position with a scriber.



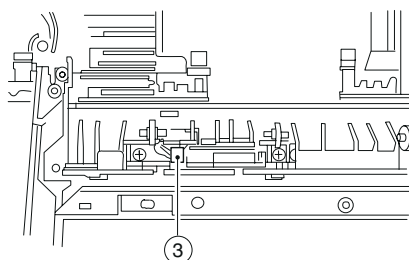
- 6 Remove the bins from the ribs one by one.

7 Removing the delivery sensor

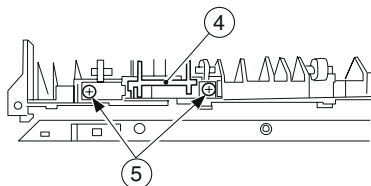
- 1 Remove the transport unit
- 2 Remove the two screws (1). Remove the guide (2).



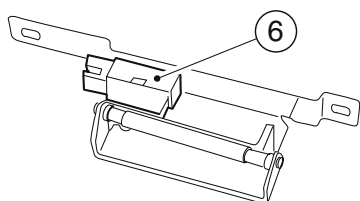
- 3 Disconnect the connector (3).



- 4 Remove the two screws (5), and remove the sensor support (4).

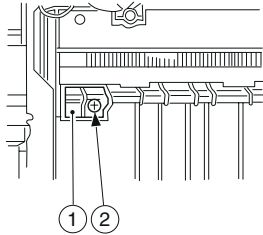


- 5 Remove the delivery sensor (6).



8 Removing the delivery roller

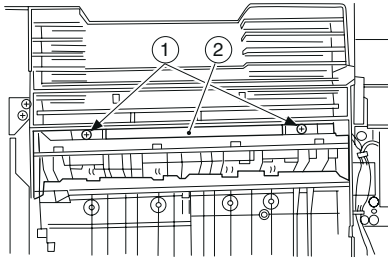
- 1 Remove the transport unit
- 2 Remove the inlet guide.
- 3 Remove the stapler unit.
- 4 Remove the screw (2), and remove the delivery guide (1).



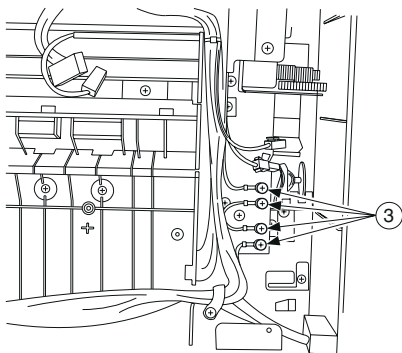
- 5 Remove the delivery roller.

9 Removing the feeding unit

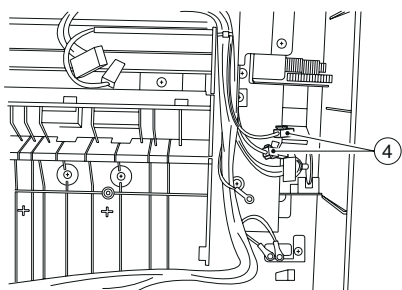
- 1 Remove the bin unit.
- 2 Remove the two screws (1). Remove the guide (2).



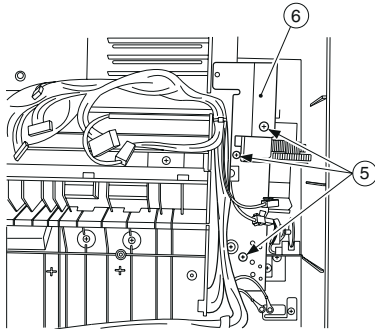
3 Disconnect the earth cables (3).



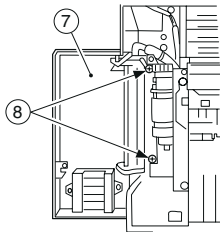
4 Disconnect the connector (4) for the shift motor and the feed motor.



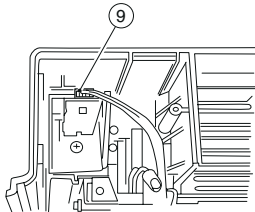
- 5 Remove the three screws (5), and remove the plate (6).



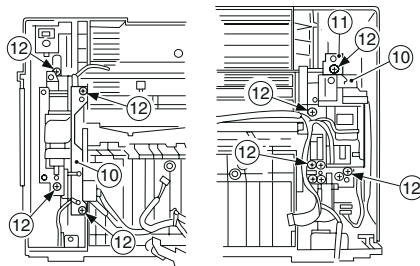
- 6 Remove the two screws (8). Remove the stapler cover (7).



- 7 Disconnect the connector J22 (9) from the control PBA.



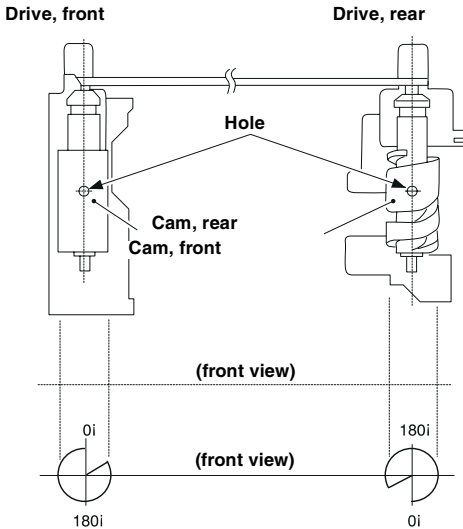
- 8 Remove the eight screws (12). These secure the plate (10) and the plate (11).



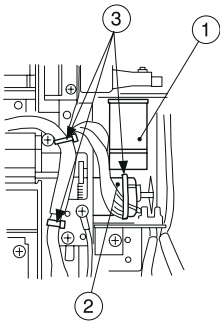
- 9 Holding the units tightly together, remove the drive unit.

10 Refitting the drive

- 1 Holding the holes in the cams to the front, fix the drive as shown. Then, secure the front cam with a screw, as shown.

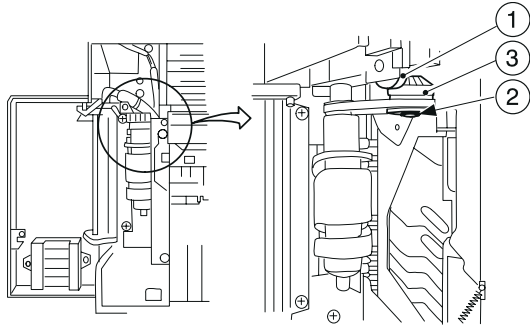


Warning: IF the shift motor (1) or the feed motor (2) has been replaced, fit the cable clips (3) as shown, so protecting the cables from damage.



Note: The position of the cam requires adjustment whenever the drive has been refitted.

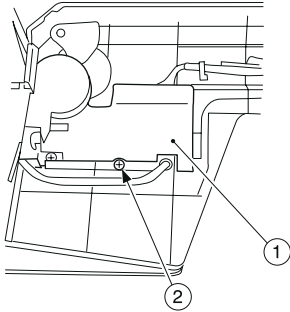
-
- 2** Remove the E-ring (2) from the gear A (1).
- 3** Disengage gear A from gear B.



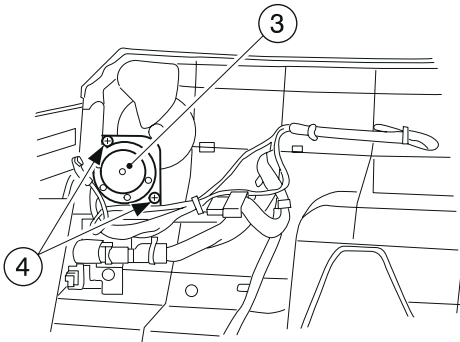
-
-
-
- 4** By turning the lead cam of the front drive assembly by hand, position it as indicated in “Installing the Drive Assembly”.
- 5** Put the gear A back in its original position. Check the position of the cam, and refit the E-ring.

11 Removing the swing motor

- 1 Remove the transport unit
- 2 Remove the bin unit and the bins from the sorter assembly. (See “Removing the Bin Unit” and C. “Removing the Bins.”)
- 3 Remove the screw (2), and remove the harness cover (1) from the motor assembly.

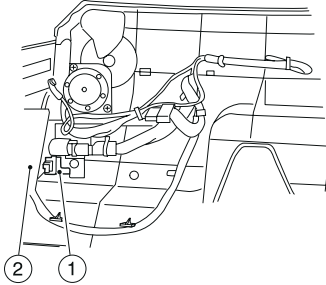


- 4 Remove the two screws (4) . Remove the swing motor (3).

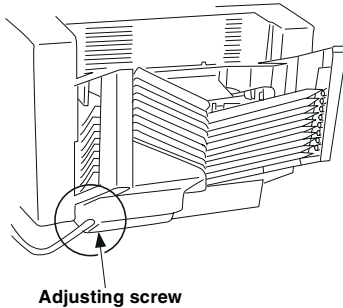


12 Removing the sensor P15 for the guide-home position

- 1 Remove the transport unit
- 2 Remove the bin unit and the bins from the sorter assembly. (See “Removing the Bin Unit” and “Removing the Bins.”)
- 3 Remove the cable cover from the swing motor.
- 4 Remove the screw (2), and remove the position sensor P15 (1).

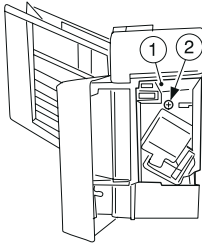


Note: If the detection of the home position fails, adjust the position of the sensor P15.

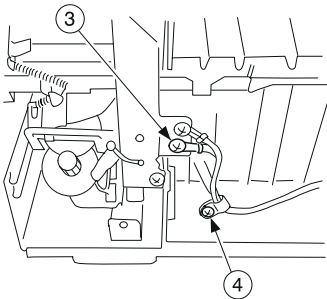


13 Removing the stapler

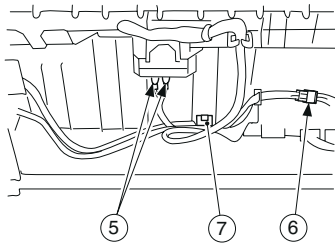
- 1 Remove the transport unit
- 2 Remove the screw (2), and remove the cover (1).



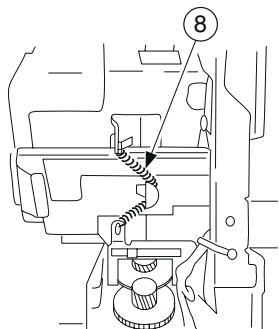
- 3 Disconnect the earth cable (3) and release the cable clip (4).



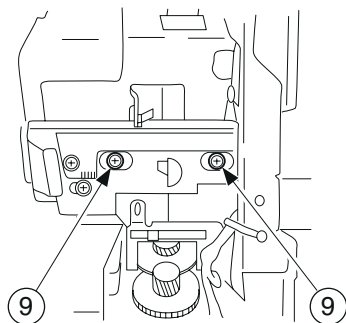
- 4 Remove the two fasteners (5), and the cable ties (6) and (7).



5 Remove the spring (8).



6 Remove the two screws (9).

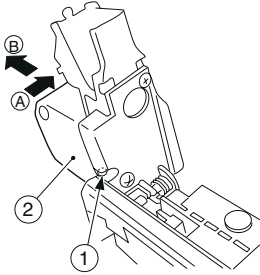


7 Pull out the slide rail, and remove the stapler.

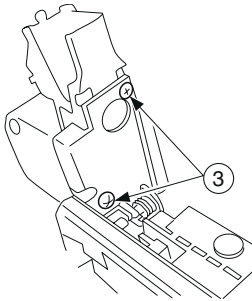
Warning: After refitting the stapler, ensure that the cables are fitted correctly.

14 Removing the stapler mechanism

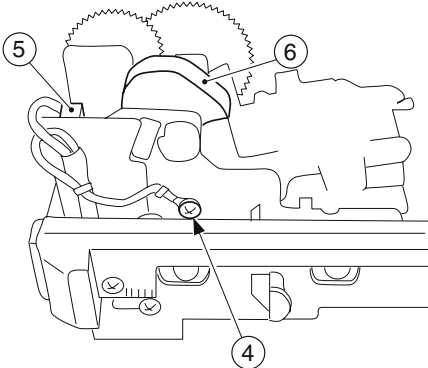
- 1 Open the stapler cover.
- 2 Slide out the stapler.
- 3 Raise the stapler.
- 4 Remove the screw (1), and remove the cover (2).
(Remove the cover in the direction B while moving it in the direction A.)



- 5 Remove the two screws (3).

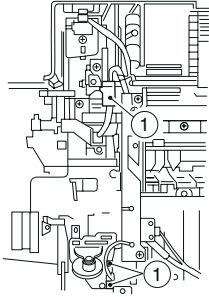


- 6 Remove the screw (4) . Disconnect the connector (5), and take out the stapler (6).

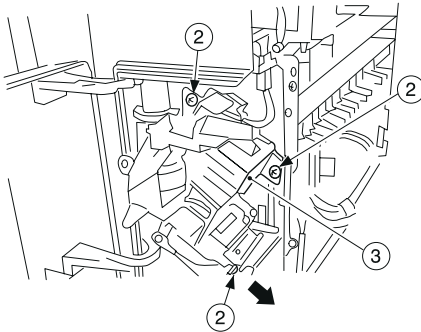


15 Removing the slide unit.

- 1 Remove the stapler unit.
- 2 Disconnect the three connectors (1).

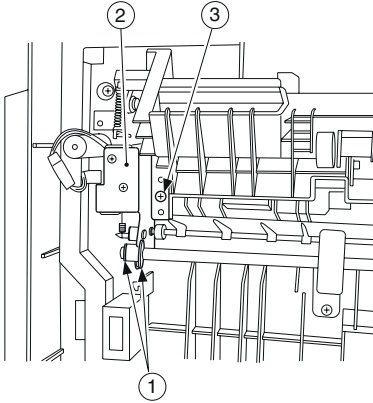


- 3 Remove the three screws (2), and remove the slide unit (3) in the direction of the arrow.

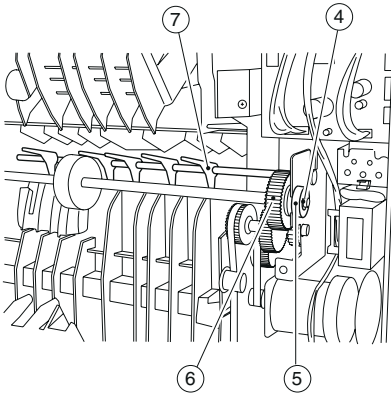


16 Removing the inlet roller

- 1 Remove the upper covers, and open the lower cover.
- 2 Remove the two E-rings (1). Then, slightly loosen the screw securing the drive solenoid (2).

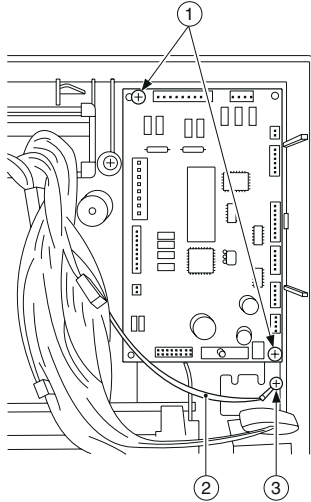


- 3 Remove the E-ring (4), and the gear (6) and the pulley (5). Then, while raising the deflecting plate (7), remove the inlet roller together with its shaft.

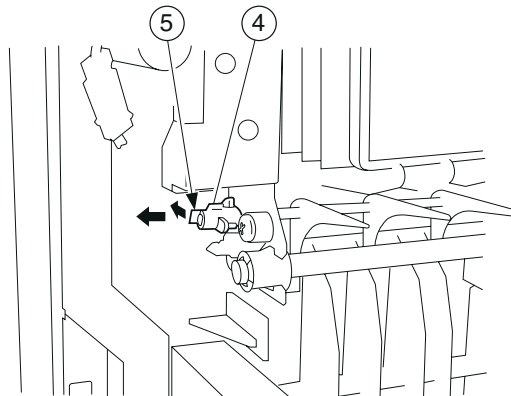


17 Removing the feed motor

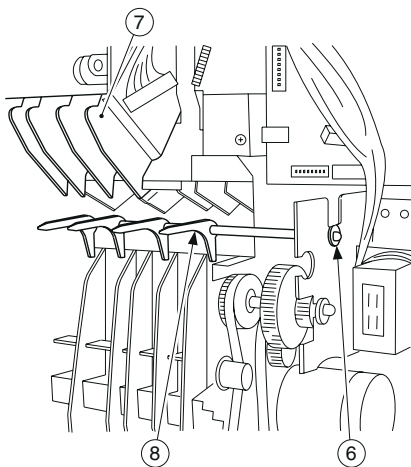
- 1 Remove the sorter from the copier.
- 2 Remove the upper covers, and open the lower cover.
- 3 Disconnect all connectors from the tray control PBA.
Then, remove the two screws (1), and remove the tray control PBA.
- 4 Remove the screw (3), and disconnect the earth cable (2).



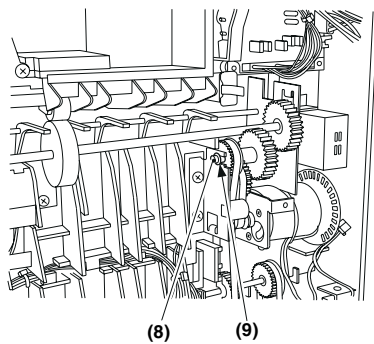
- 5 Remove the inlet roller
- 6 Release the clip (5) and remove the bush (4) from the shaft of the deflecting plate.



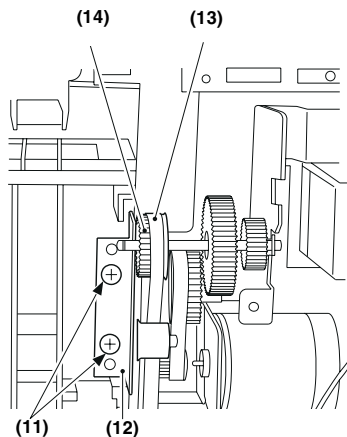
- 7** Remove the E-ring (6) from the rear of the deflecting plate. Then, raising the inlet guide (7), remove the deflecting plate (8).



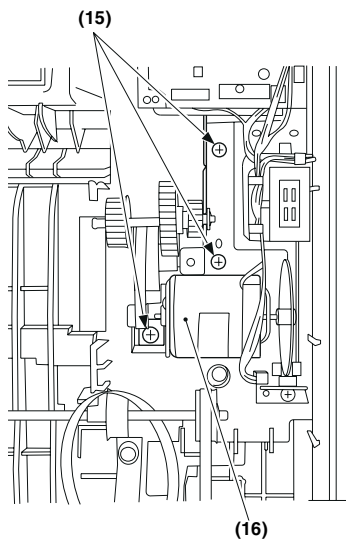
- 8** Remove the E-ring (9), from the belt tensioner, and remove the bush (10).



- 9** Remove the two screws (11). Remove the tensioner (12). Take the timing belt (13) off the gear (14).

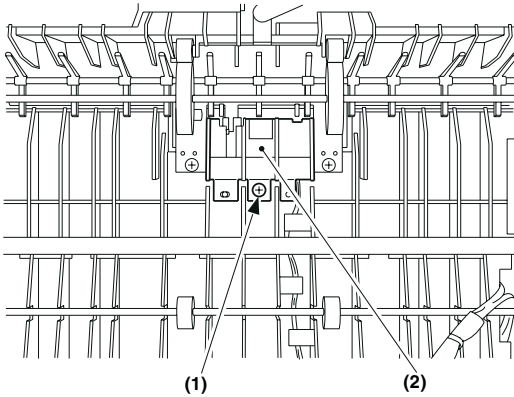


- 10** Remove the three screws (15), and remove the feed motor (16), complete with the support.

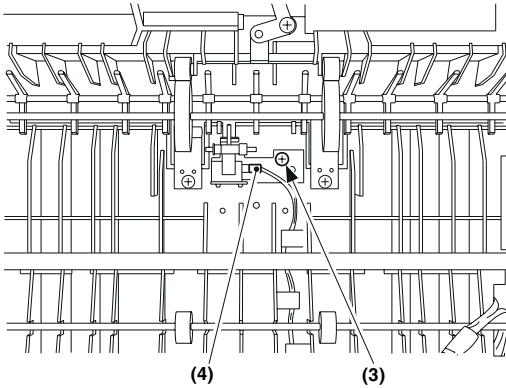


18 Removing the inlet sensor PS17

- 1 Open the lower cover
- 2 Remove the screw (1), and remove the sensor cover (2).

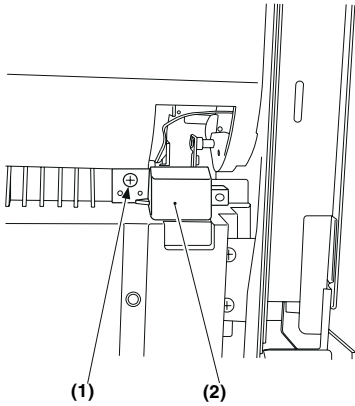


- 3 Remove the screw (3), and disconnect the connector (4).
Then, remove the inlet sensor PS17, complete with the support.

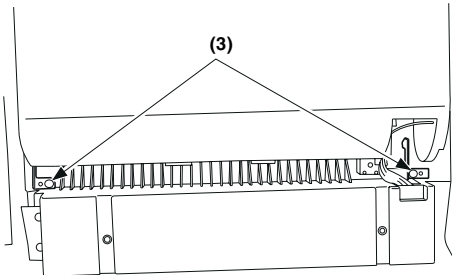


19 Removing the delivery sensor for tray A

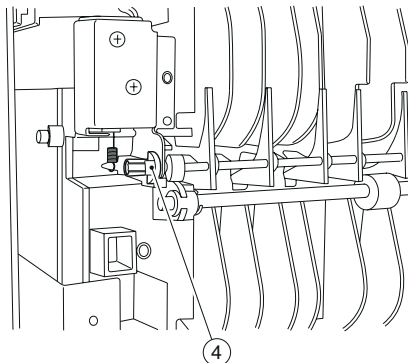
- 1 Remove the upper covers, and open the lower cover.
- 2 Remove the screw (1), and remove the sensor cover (2).



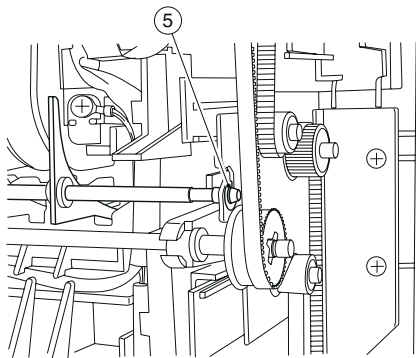
- 3 Unscrew the two screws (3), and remove the right hinge.



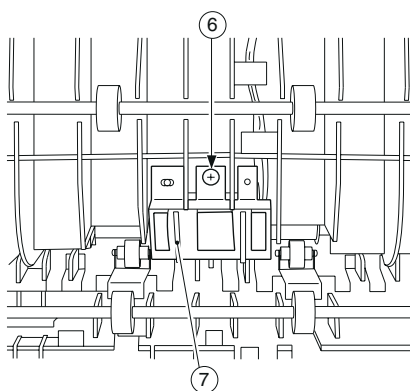
- 4 Open the right cover, and remove the right cover.
- 5 Remove the bushing (4) from the front of the shaft of the deflecting plate.



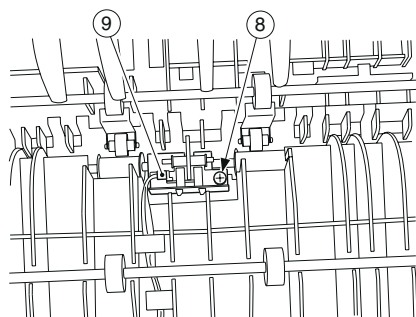
- 6** Remove the E-ring (5) from the rear of the deflecting plate.
Then, moving the deflecting plate to the rear, remove the deflecting plate.



- 7** Remove the screw (6), and remove the sensor cover (7).



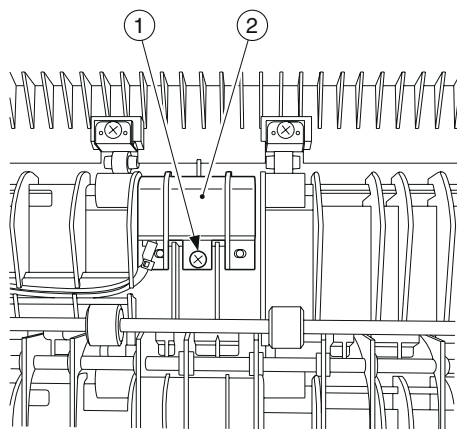
- 8** Remove the screw (8), and disconnect the connector (9).
Then, remove the inlet sensor PS17, complete with the support.



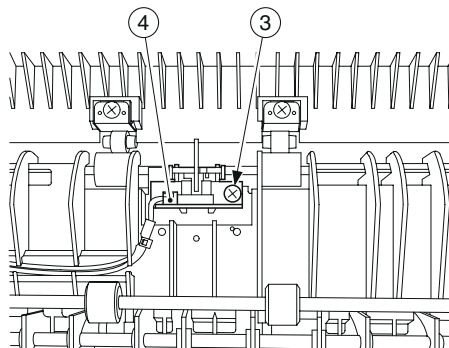
- 9** Remove the sensor from the support plate.

20 Removing the delivery sensor for tray B

- 1 Remove the right cover.
- 2 Remove the screw (1), and remove the sensor cover (2).

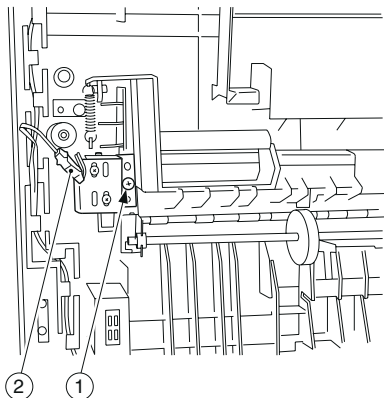


- 3 Remove the screw (3), and disconnect the connector (4).
Then, remove the delivery sensor.



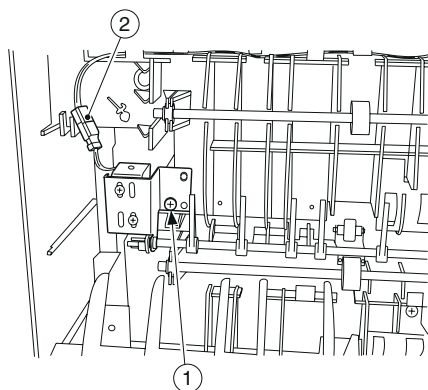
21 Removing the solenoid for the deflecting plate 1.

- 1 Remove the inlet roller
- 2 Remove the deflecting plate 1.
- 3 Remove the screw (1), and disconnect the connector (2).
Then, remove the solenoid, complete with the support.



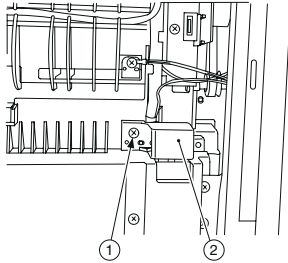
22 Removing the solenoid for the deflecting plate 2.

- 1 Remove the right cover.
- 2 Remove the deflecting plate 2.
- 3 Remove the screw (2), and disconnect the connector (2).
Then, remove the solenoid, complete with the support.

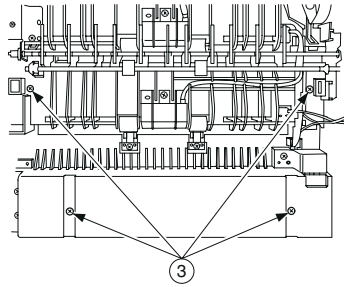


23 Removing the special tray assembly

- 1 Remove the upper covers and the lower cover.
- 2 Remove the screw (1), and remove the cover (2).
Then, from inside, disconnect the three connectors.

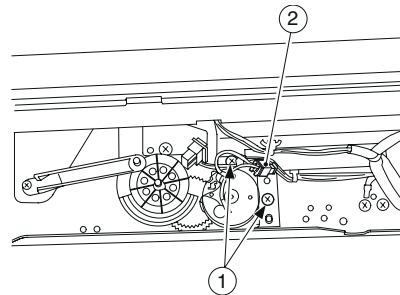


- 3 Remove the four screws (3), and remove the special tray assembly.



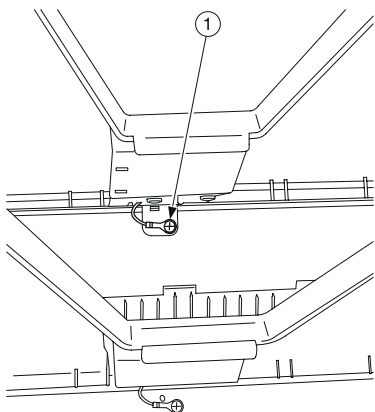
24 Removing the Shift Motor

- 1 Remove the special tray assembly.
- 2 Remove the two screws (1), and disconnect the connector (2).
Then, remove the shift motor, together with the support.

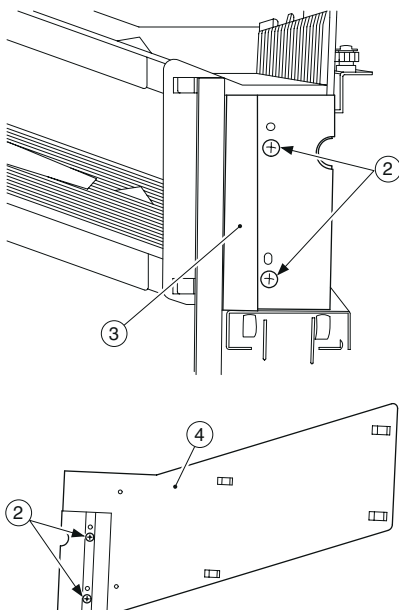


25 Removing the paper sensor for tray A

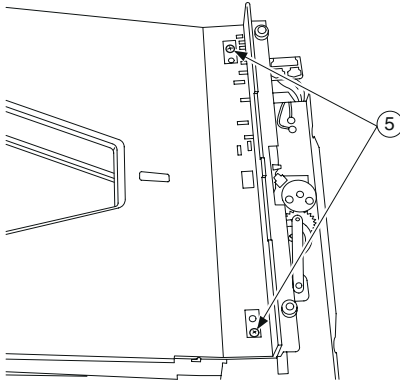
- 1 Remove the special tray assembly.
- 2 Disconnect the earth cable (1).



- 3 Remove the two screws (2), and remove the front (3) and rear (4) supports.



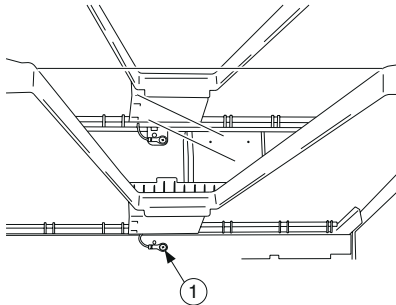
- 4 Remove the two screws (5). Remove the special tray A.



- 5 Remove the two screws from the rear of the special tray A. Remove the paper sensor, together with the cover.
- 6 Disconnect the connector, and remove the paper sensor.

26 Removing the paper sensor for tray B

- 1 Remove the special tray assembly.
- 2 Disconnect the earth cable (1).



- 3 Remove the two screws from the rear of the special tray B. Remove the paper sensor, together with the cover.
- 4 Disconnect the connector, and remove the paper sensor.

Functional description of the sorter

1 Features of the sorter

- 1 Separates fax output, printer output and copier output.
 - Using specific trays, the sorter can separate the delivered documents according to type: fax mode or printer mode or copier mode.
 - The trays A & B can move forward and backward for each fax or printer output, so enabling distinction between the various jobs.
- 2 Handles sort, group, and staple sort modes (in copier mode).
 - Using the bin unit (1 through 10 bins), the outputs in copier mode may be sorted according to mode: sort, group, and staple sort.
 - The sheets in the bin unit may be stapled: when in staple sort mode or using the manual staple mode.

2 Specifications

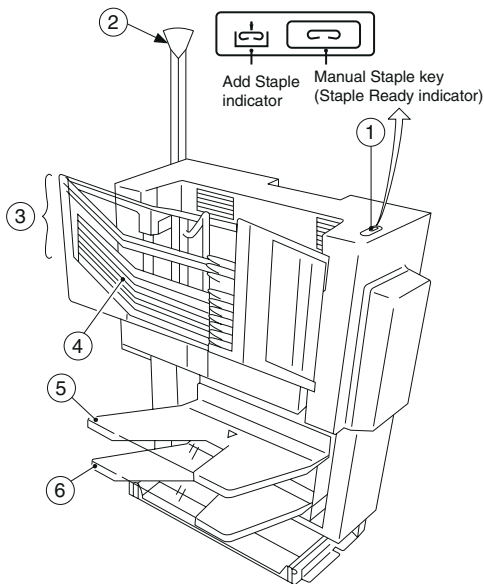
Item		Specifications	Remarks
Number of bins		12 bins	
Modes of use		Non-sort, sort, staple sort, group, special tray modes	
Stacking		Face-up, bin shift, bi-directional sorting	
Stacking capacity		A5/STMT to A3/11"x17"	
Stacking	no. 1 bin through no. 10 bin	Non-sort:100 sheets Sort:30 sheets (A4/LTR, A4R/LTRR, A5/STMT, A5R/STMTR, B5, B5R) 25 sheets (B4/LGL) 10 sheets (A3/11"x17") Group:20 sheets (A3/11"x17") 10 sheets (A3/11"x17")	
	Special tray A	200 sheets	
	Special tray B	200 sheets	

Item		Specifications	Remarks
Stapler	Stapling method	Punching by rotating cam	
	Stapling position	5 ± 2 mm from paper edge.	
	Stapling capacity	20 sheets max. (of 80 g/m2 paper)	
	Supply of staples	Special cartridge (2000 staples)	
	Staples	In special cartridge	
	Staple detection	Provided	
	Stapling size	A3/11”x17”, B4/LGL, A4/LTR, B5, A4R/LTRR	
	Manual stapling	Provided (however, not on special tray)	
The operating panel		Provided (manual staple button)	
Display	Manual Stapling Ready/Not Ready indication		ON when ready Flashes for error
	Add Staple indication		Flashes when staples run out
	‘Tray occupied’ lamp		Flashes when a fax or printer page arrives
Dimensions (WxDxH)		394 x 568 x 655 mm / 15.5 x 22.4 x 25.8 inch	
Weight	Sorter 12 bin	25 kg / 55.1 lbs. (approximately)	
	Sorter	25 kg / 55.1 lbs. (approximately)	
Power supply		From copier (24 V DC)	
Maximum power consumption		70 W.	

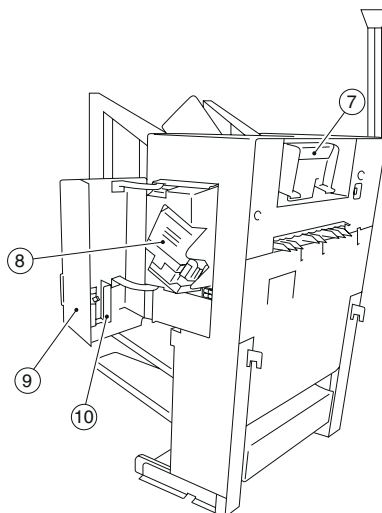
3 Nomenclature

External View

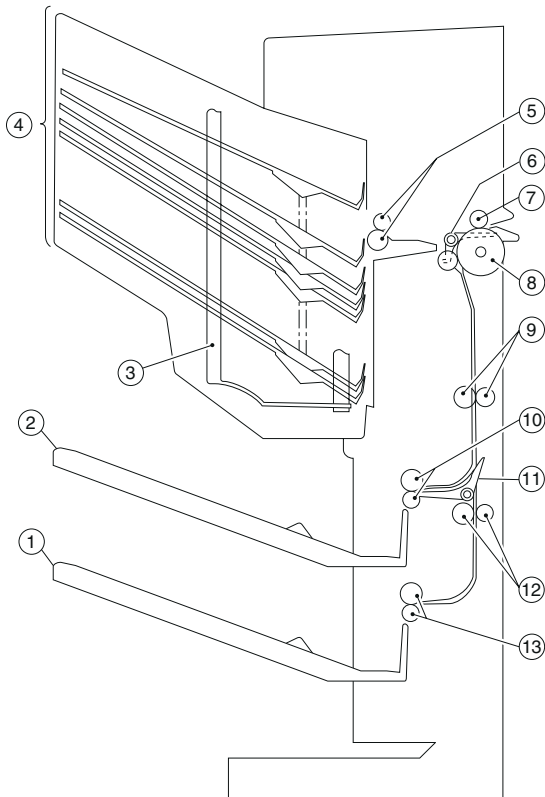
- 1 The operating panel
- 2 'Tray occupied' lamp
- 3 Bin unit (no. 1 to 10 bins)
- 4 Bin
- 5 Special tray A
- 6 Special tray B



- 7 Latch
- 8 Stapler
- 9 Stapler cover
- 10 Spare cartridge compartment



- 1 Special tray B
- 2 Special tray A
- 3 Guide bar
- 4 Bin unit (no. 1 to 10 bins)
- 5 Bin unit: delivery roller
- 6 Paper deflector 1
- 7 Inlet roller
- 8 Tray drive: inlet roller
- 9 Vertical transport: roller 1
- 10 Tray A: delivery roller
- 11 Paper deflector 2
- 12 Vertical transport: roller 2
- 13 Tray B: delivery roller



4 Operation

Sorting: Fax or printer output

With the sorter fitted to the copier. Documents from the fax or the host computer may be sorted to specific tray A or B.

The 'tray occupied' lamp switches on when a sheet is on the tray.

The 'tray occupied' lamp flashes when the arrival of an incoming document is signalled. Subsequently, the lamp remains on until the sheet is removed.

Operations in Copier Mode

When the copier is used in copier mode, the output will be delivered as follows:

The output in copier mode will not be delivered to special tray A or B; operations are selected on the copier's control panel.

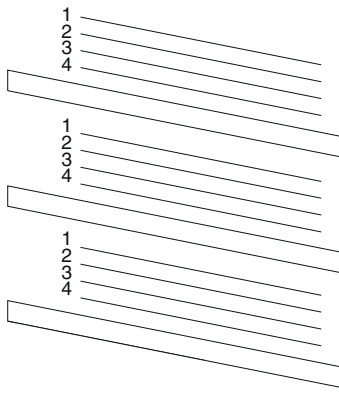
1 Non-sort mode

The output will be delivered to the No. 1 bin (top bin).

2 Sort Mode and Staple Sort Mode

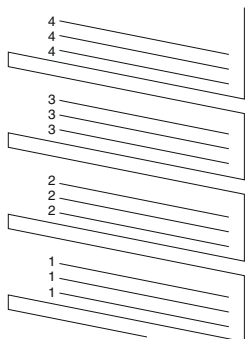
The bin unit will be used to sort the output as it is delivered.

In staple sort mode, the outputs will be stapled automatically.



3 Group mode

The bin unit will be used to group and sort the output as it is delivered.



Staple mode

In this mode, the bin unit is used to staple outputs.

Note: *Stapling does not occur on special tray A or B.*

1 Auto Staple Mode

When staple mode is selected on the copier's control panel and the Copy Start key is pressed, the outputs delivered to the bin will be stapled automatically.

The copy button is disabled, in staple sort mode, if stapled outputs remain in the bin.

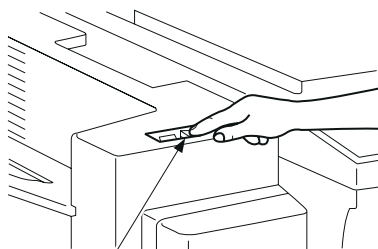
Remove the outputs from the bin to enable staple sort mode.

2 Manual staple mode

If the Copy Start key is pressed without selecting staple sort mode on the copier's control panel, the Manual Staple key will turn on after copying operation.

To staple the outputs, press the Manual Staple key—the outputs in the bins will be stapled in sequence.

However, stapling will not occur if only one output has been delivered to each bin.



Manual staple button

Note: *To stop stapling in the middle of operation, press the manual staple button once more.*

3 Manual insert stapling

In addition to stapling outputs delivered to the sorter, manually insertion of sheets is also possible.

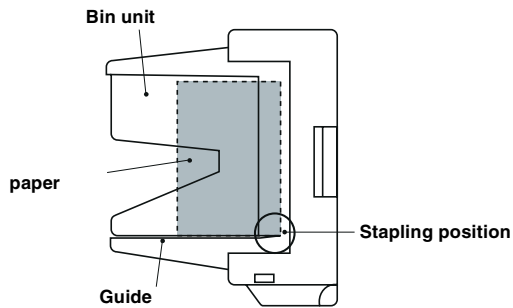
Up to 20 sheets may be stapled: 80 g/m² paper. More sheets may cause a stapling error.

- Remove all copy paper from the bin unit.
- Check that the bin unit is in the home position.

Note: *Otherwise, turn off and then on the copier's power switch.*

- Put the stack of sheets to staple in the top bin: No. 1 bin. Jog the stack against the guide plate at the front.

Note: *Manual insert stapling is available only in the top bin.*



5 Basic Functions

Functional design

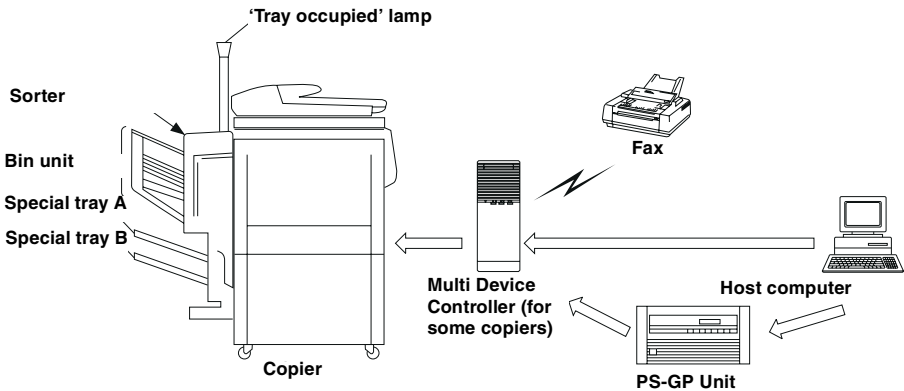
The sorter is capable of collecting output: sorting according to whether they are generated in copier mode or received from the host computer or a fax transmission.

When the copier is used in copier mode, the output will be delivered as: non-sort, sort, group sort or staple sort jobs.

The documents received from the host computer or the fax may be delivered to special tray A or B according to the settings made on the copier's control panel.

The sorter can, thus, be used to sort outputs from the copier and the outputs from the host computer and the fax transmissions.

The tray occupied lamp will illuminate when output enters the special tray A or B.



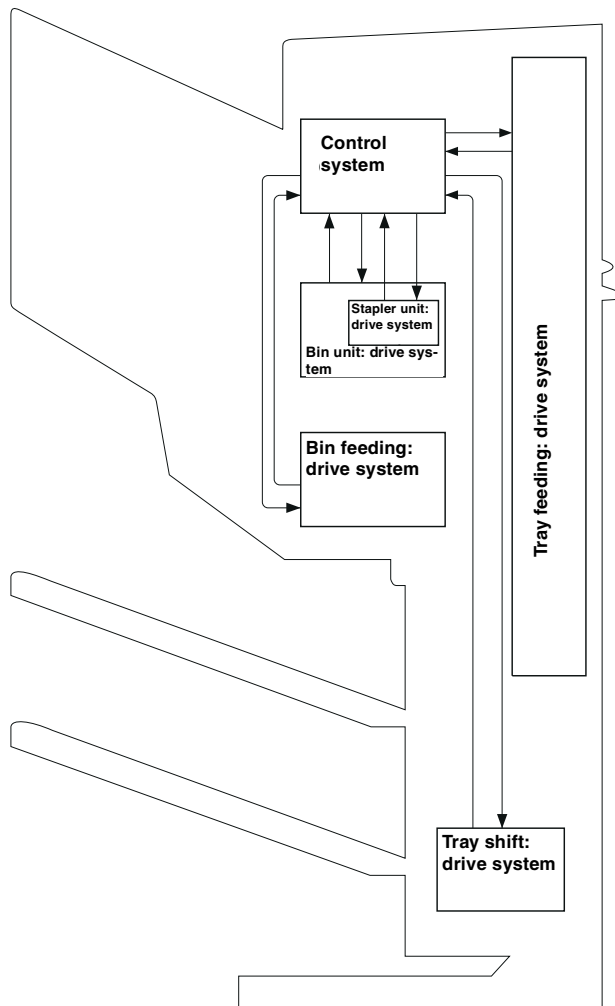
typical system configuration

6 Functional design

Functional design

The Speciality consists of six functional blocks:

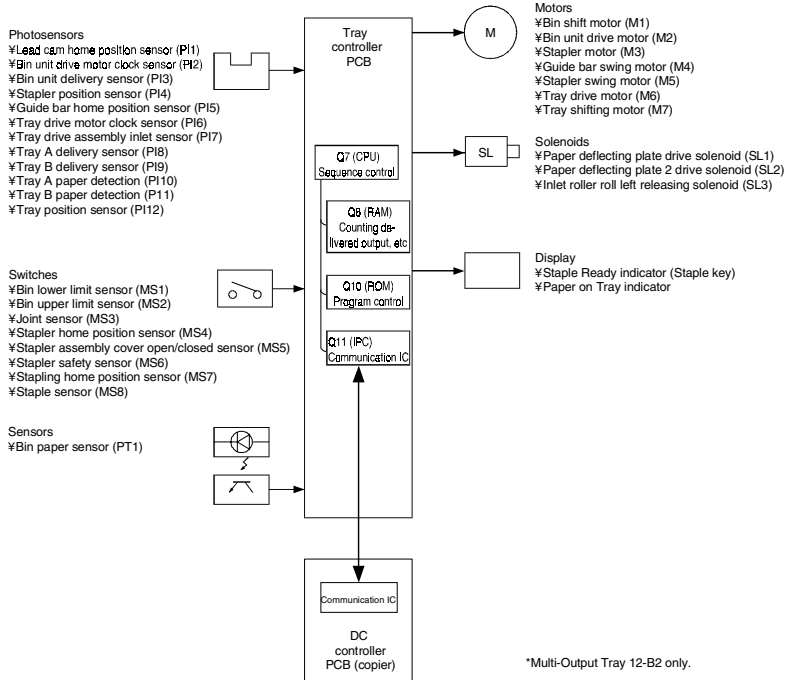
- 1 drive system for the bin unit
- 2 drive system for the stapler
- 3 feed system for the bin unit
- 4 drive system for the tray feeding
- 5 drive system for the tray shift
- 6 control system.



Electrical circuit

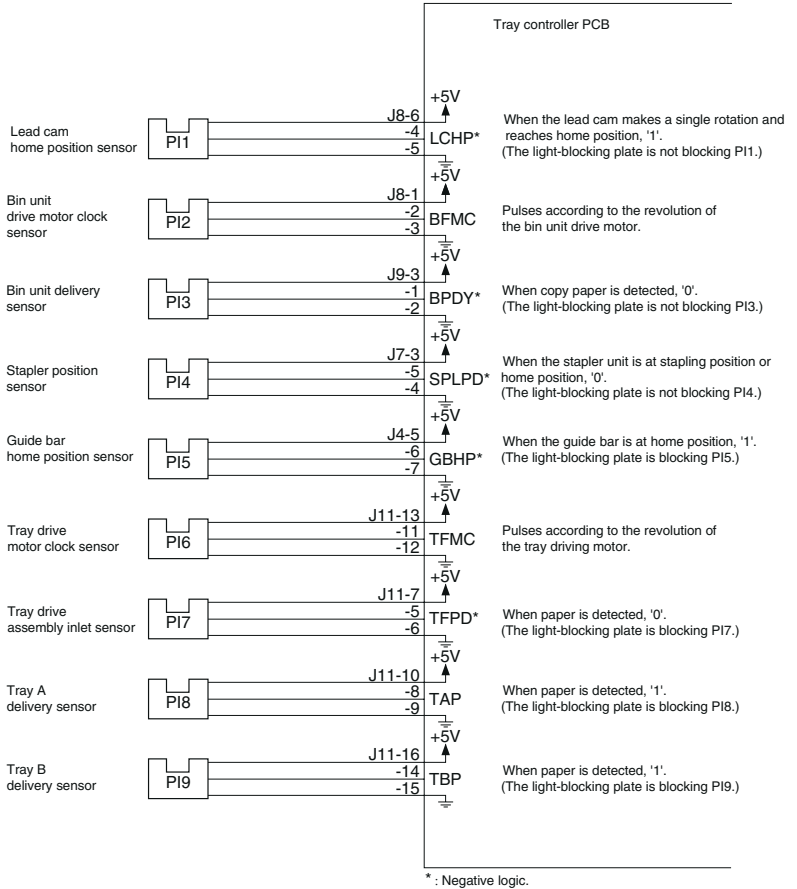
The Multitray's electrical mechanisms are controlled by the tray controller PCB equipped with a built-in microprocessor.

The relation between the electrical circuits and the major functions of the integrated circuits.

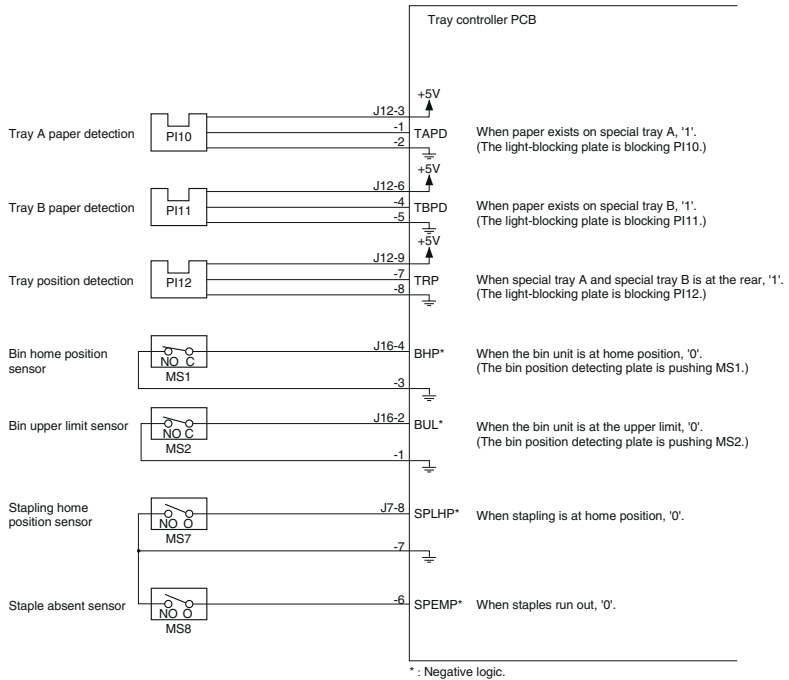


Inputs and outputs: Tray control PBA

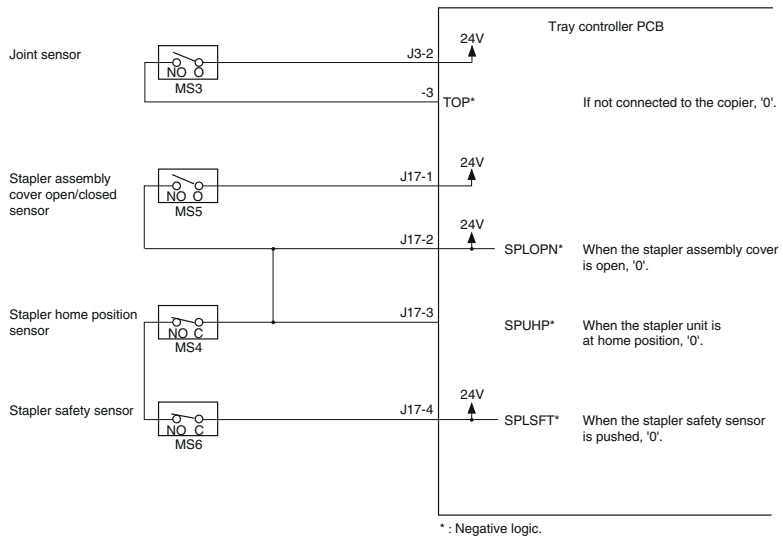
1 Inputs to the Tray control PBA (1/4)



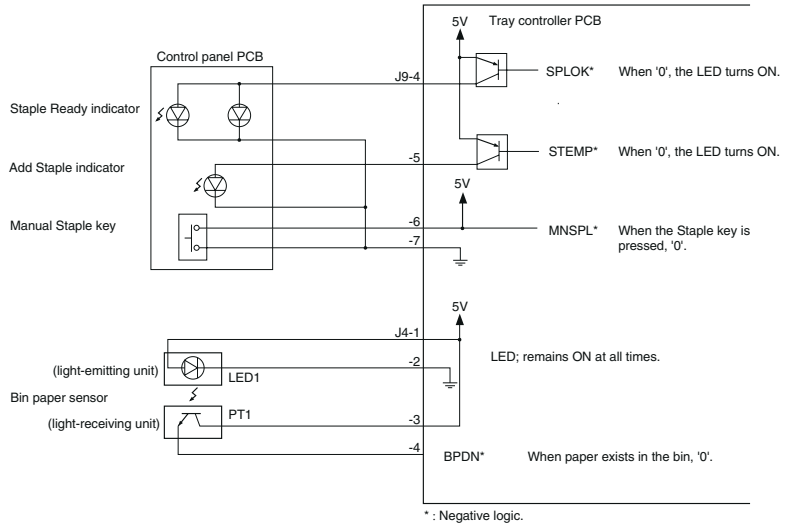
Inputs to the Tray control PBA (2/4)



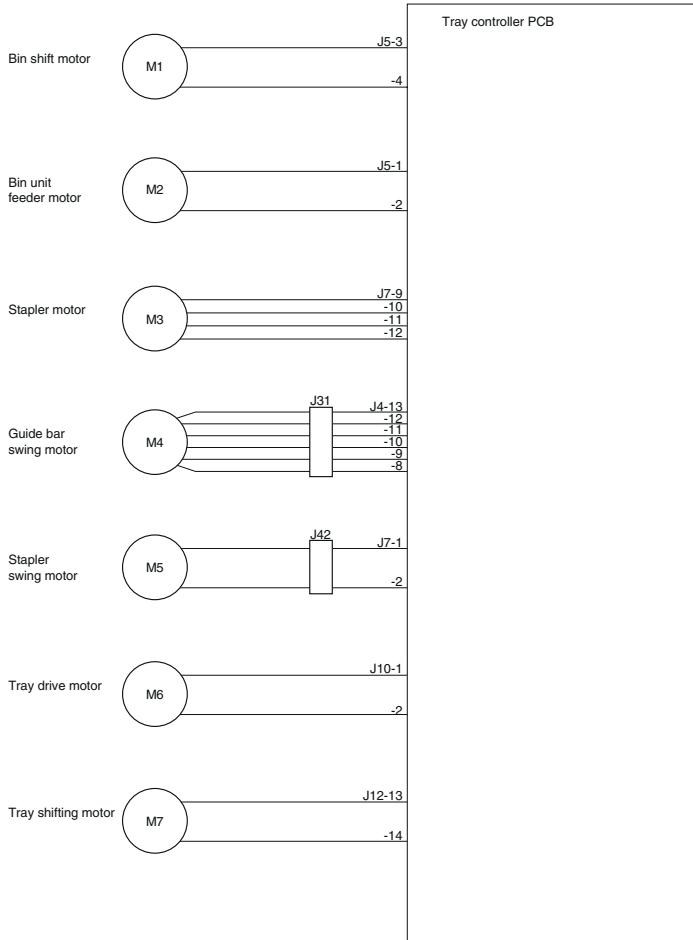
Inputs to the Tray control PBA (3/4)



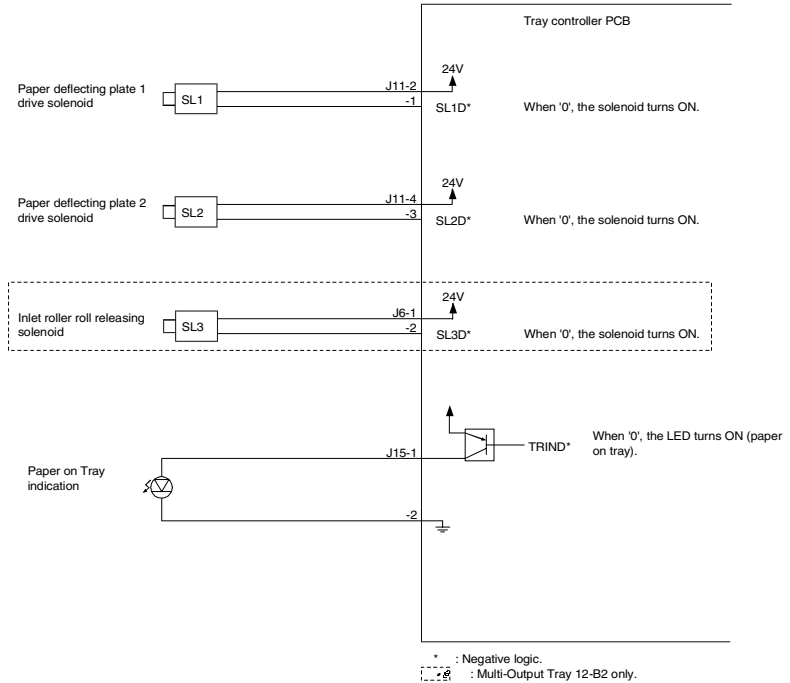
Inputs to the Tray control PBA (4/4)



Outputs from the Tray Control PBA (1/2)



Outputs from the Tray Control PBA (2/2)



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Communication with the copier

The sorter communicates with the copier in IPC communication mode, using a communication IC.

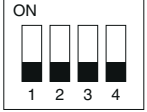
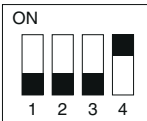
As shown, the communication IC (Q11) on the Multitray's tray controller PCB and the copier's communication IC exchange status signals and data, and such exchanges are controlled by the microprocessor of each machine.

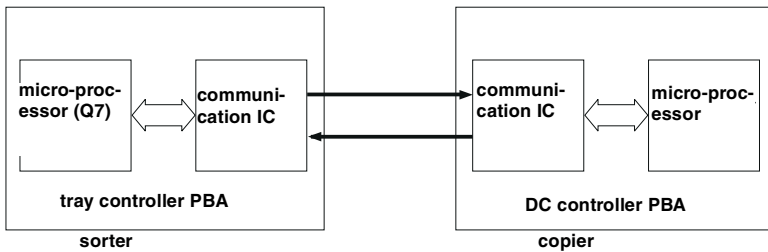
IPC communication uses communication ICs, freeing the copier's microprocessor from some work loads.

Warning: *If the self diagnosis function becomes activated because of a communication error, turn off the copier's power supply, detach the Multitray, and then turn on the copier's power supply. This way, the copier may be used for making copies.*

The Multitray's IPC communication offers a new IPC communication mode in addition to the existing IPC communication method. IPC communication 2 provides a higher (double) communication speed than the existing communication mode.

The required communication mode can be selected on the DIP switch (SW3) on the tray control PBA.

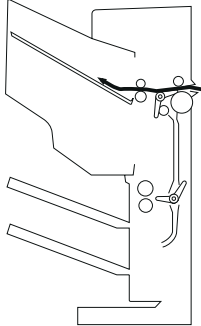
Mode	DIP switch settings
IPC communication	 <p>Factory default</p>
IPC communication 2	



7 Principle of operation

The Multitray offers the following modes, selected on the copier's control panel:

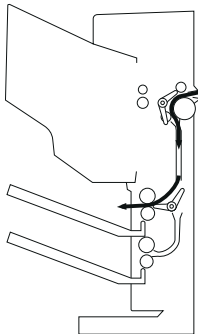
- Non-sort Mode
- Sort mode
- Group mode
- Staple sort mode
- Special tray mode



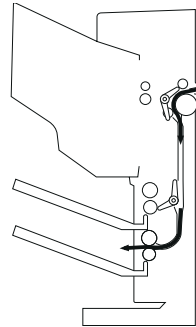
Paper flow in non-sort, sort, group and staple sort mode

The output generated in copier mode may be processed in non-sort, sort, group, or staple sort mode. At such times, the operation will use the bin unit (No. 1 through 10 bins), not using special trays A and B.

In special tray mode, the outputs will be stacked in special trays A and B: for output received from the host computer or the fax and documents generated in copier mode.



Paper flow in special tray mode (delivery to special tray A)



Paper flow in special tray mode (delivery to special tray B)

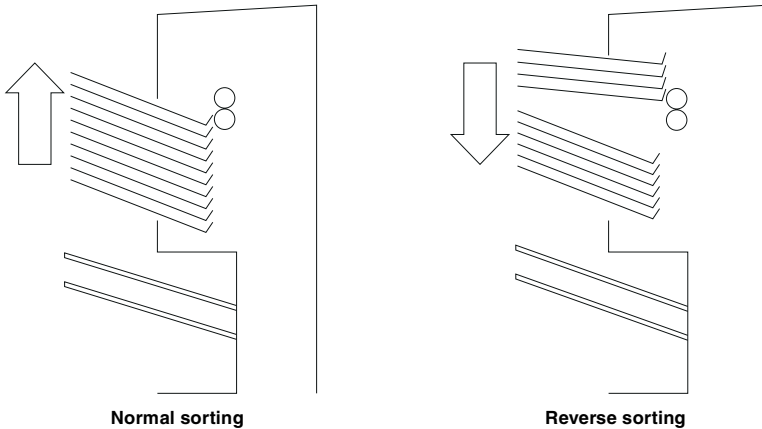
Shifting the bins

When sort, group, or staple sort mode is selected, each of the bins from No. 1 through 10 is shifted to accept the output.

The shifting of the bins upwards for sorting is referred to as normal sorting.
The shifting of the bins downwards for sorting is referred to as reverse sorting.

The home position of the bin unit is where the bin unit is moved up an equivalent of a single rotation of the lead cam from its bottom position (lower limit sensor ON).

Note: *The special trays A and B do not move up or down.*



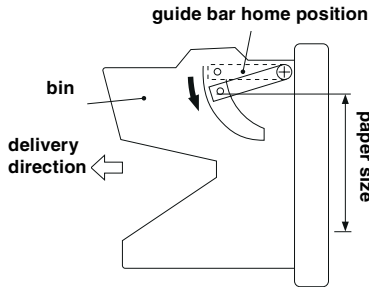
Principle of operation

The sequence of operations for each mode is as follows:

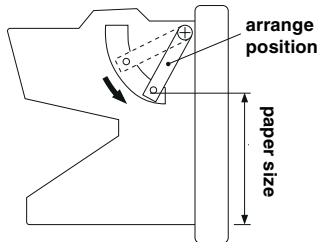
Non-sort mode (using bin 1)

If the copier is used in copier mode, while selecting non-sort mode, the operations will be as follows:

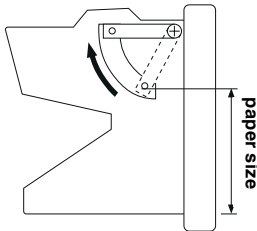
- The copier's Copy Start key is pressed
- The bin unit moves to the home position.
- The guide bar moves from the home position to the escape position, and stops. (The escape position differs, depending on the paper size.)



- The output is delivered to the No. 1 bin (top bin).
- The guide bar swings, joggling the output against the front guide.

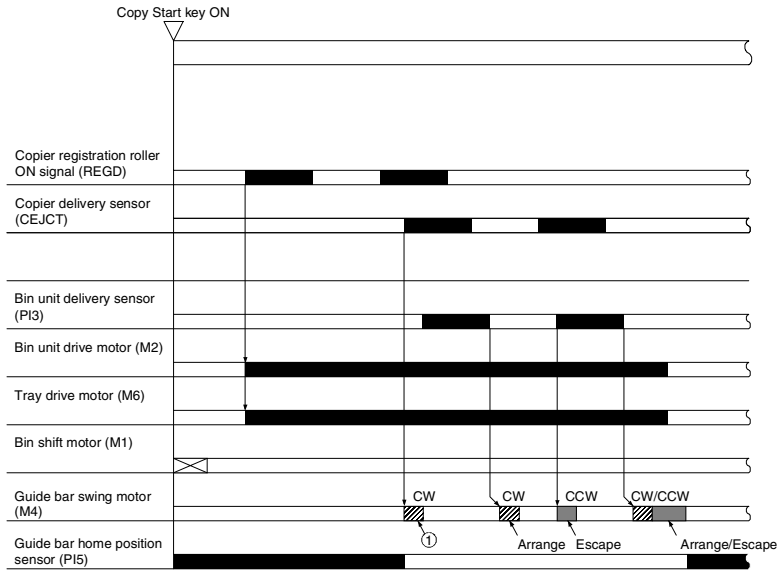


- The guide bar moves to the escape position.
- Operations 4 through 6 are repeated for each delivery. (All deliveries are to the No. 1 bin.)
- When the required number of copies have been delivered, the guide bar returns to the home position.



Basic sequence of operations (non-sort mode)

■ 2 Copies

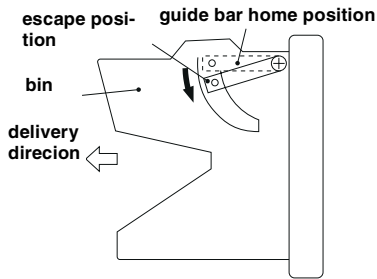


áIn ①, the guide bar is moved to the escape position and kept in wait for delivery.

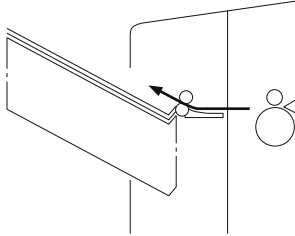
á During this period, the bin shift motor (M1) rotates to return the bin to home position.

2 Sort Mode (using No. 1 through 10 bins)

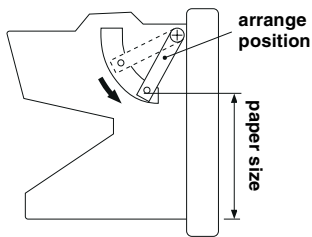
- The copier's Copy Start key is pressed.
- The bin unit moves to the home position.
- The guide bar moves from the home position to the escape position, and stops. (The escape position differs, depending on the paper size.)



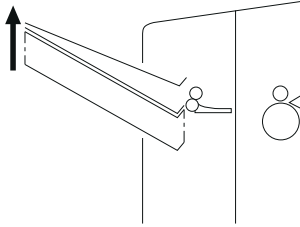
- The output is delivered to the No. 1 bin (top bin).



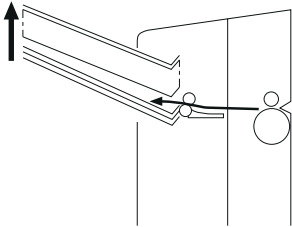
- The guide bar swings, jogging the output against the front guide.



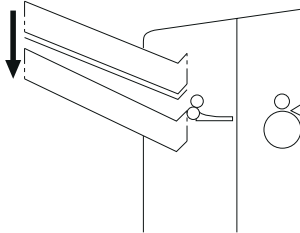
- The guide bar moves to the escape position. The bin unit moves down one bin.



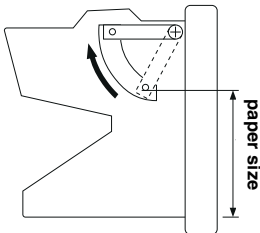
- Operations 4 through 6 are repeated for each delivery. The bin unit sorts the output.



- The next document is fed, and the bin unit commences the reverse sorting procedure.

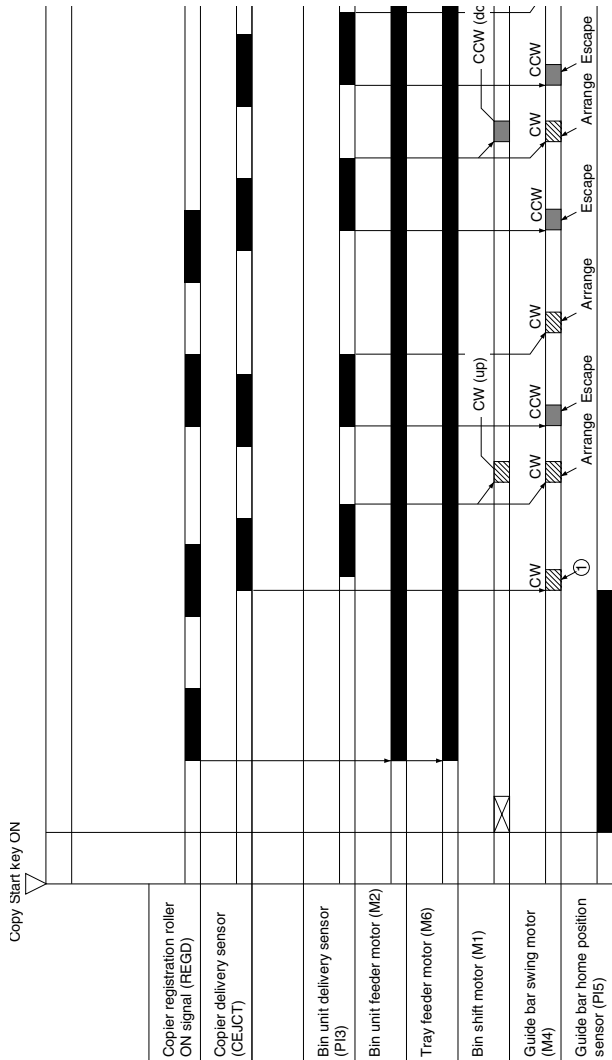


- Operations 3 through 8 are repeated for each original that is fed.
- The required number of copies are made.
- The guide bar moves to the home position.



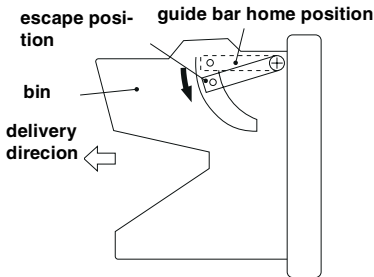
Note: If the DF is not used, the bin unit returns to the home position each time a new document is positioned, and the copy button key is pressed. In this way, no reverse sorting takes place.

Note: If the copy count is set to '11' or higher (in excess of the count allowed for the number of bins), a message will be indicated on the copier's control panel to that effect.

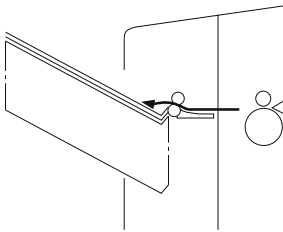


3 Group mode

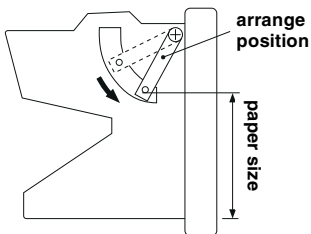
- The copier's Copy Start key is pressed.
- The bin unit moves to the home position.
- The guide bar moves from the home position to the escape position, and stops. (The escape position differs, depending on the paper size.)



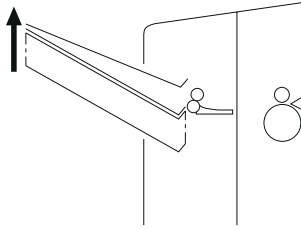
- The first output is delivered to the No. 1 bin (top bin).



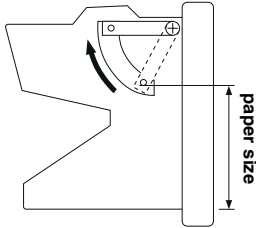
- The guide bar swings, joggling the output against the front guide.



- The guide bar moves to the escape position.
- Operations 3 through 6 are repeated for the required number of copies.
- The next document is fed, and the bin unit moves down one bin.

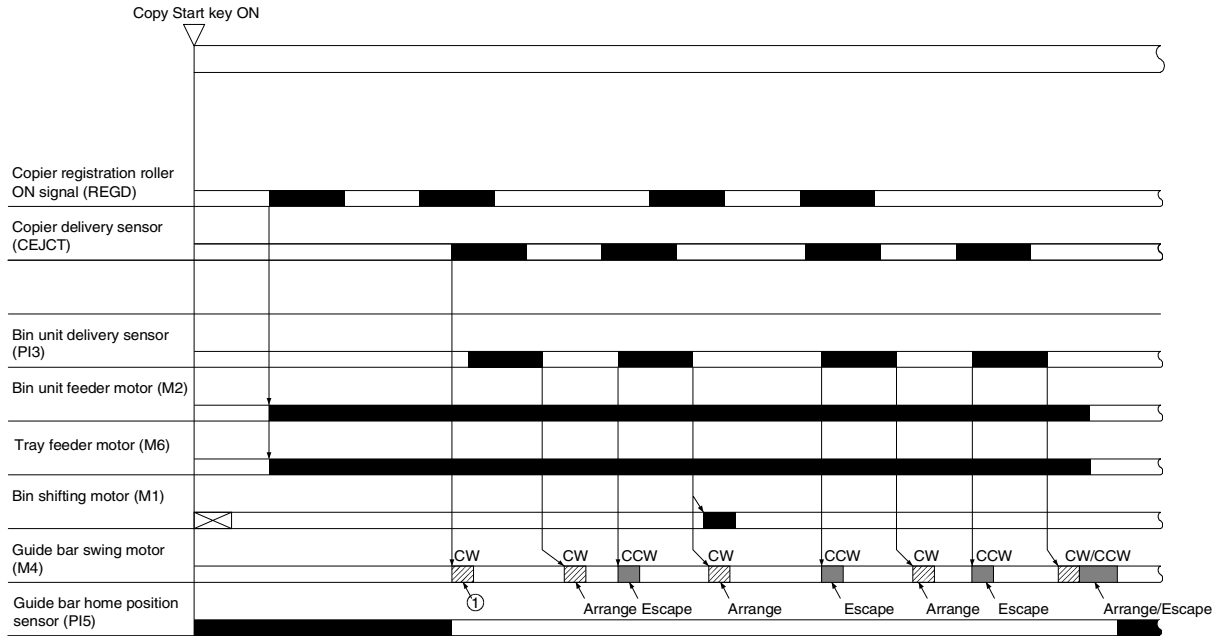


- Operations 3 through 8 are repeated for each original that is fed.
- The copying runs ends, and the guide bar moves to the home position.



Note: *If the DF is not used, the bin unit returns to the home position each time a new document is positioned, and the copy button key is pressed.*

Note: *If the DF is used, the copying operation will end after copying the 10th document (for 10 bins).,*

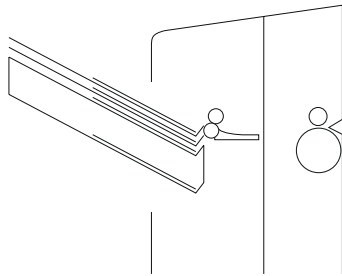


âIn ①, the guide bar is moved to escape position and kept in wait for delivery.

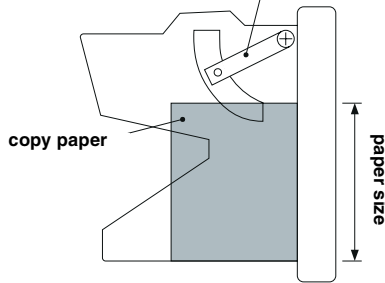
â During this period, the bin shift motor (M1) rotates to return the bin unit to home position.

4 Staple sort mode (using No. 1 through 10 bins)

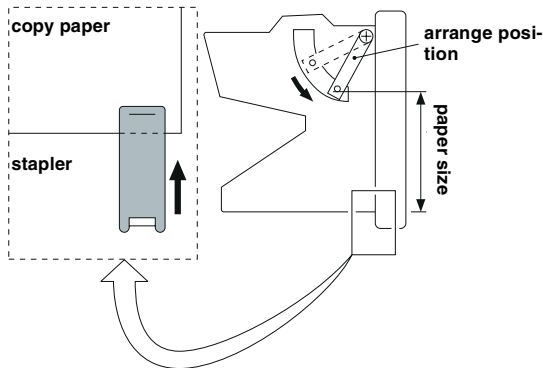
- The same operations as in sort mode are performed, and all outputs are delivered to the bins. The guide bar remains in the escape position.



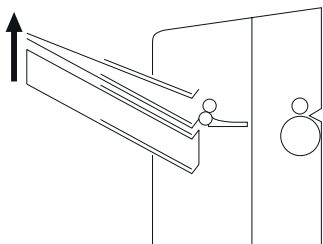
escape position



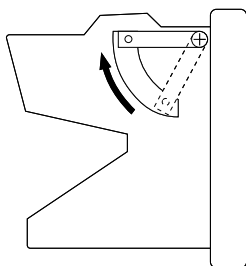
- The first copy of the final document is delivered. The guide bar jogs the set of copies against the rear guide, and the stapler moves forward to staple the set of copies.

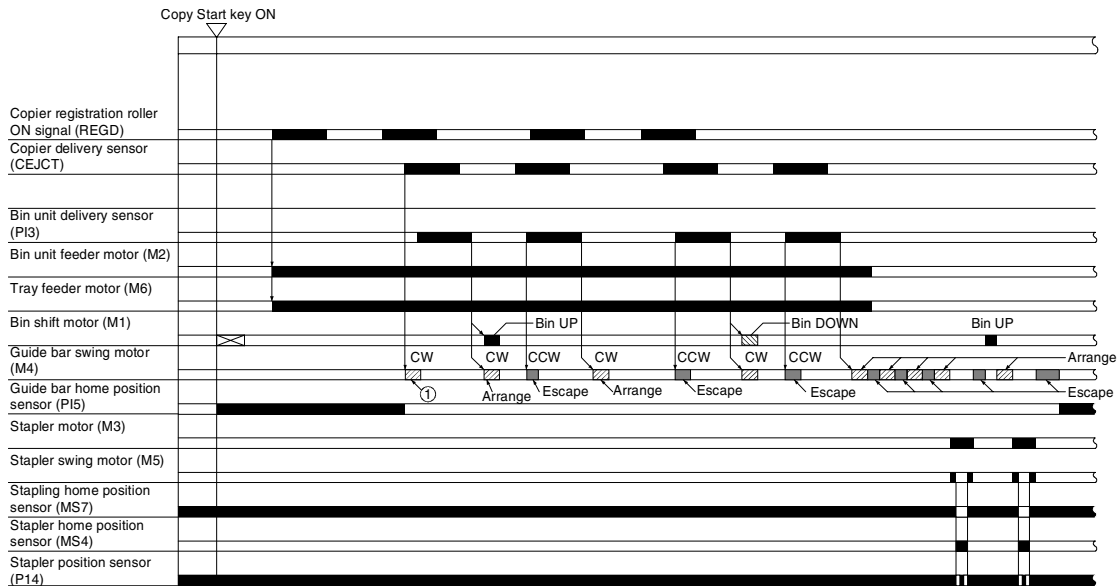


- The stapler moves away from the paper and returns to the home position.
The guide bar moves to the escape position.
- The bin unit moves down one bin.



- Operations 2 through 5 are repeated for each bin to complete the stapling.
- The guide bar moves to the home position.





Bin Shift Motor

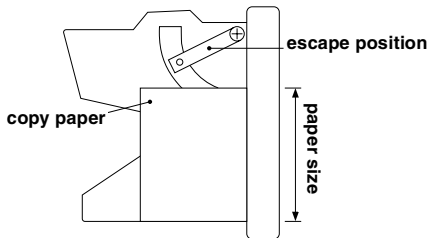
- á During this period, the bin shift motor (M1) rotates to return the bin unit to home position.
- á During this period, the bin shift motor rotates clockwise to move up the bin unit.
- á During this period, the bin shift motor rotates counterclockwise to move down the bin unit.

Guide Bar Swing Motor

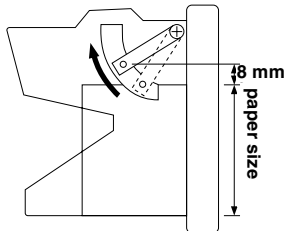
- á In ① the guide bar is moved to escape position and kept in wait for delivery.
- á During this period, the guide bar swing motor rotates clockwise.
- á During this period, the guide bar swing motor rotates counterclockwise.

5 Manual staple mode

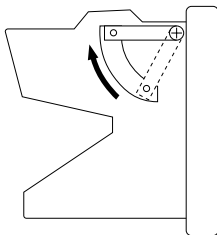
- All outputs are delivered to the bins.
The guide bar is stationary at the escape position.



- The manual staple button is pressed.
- The guide bar swings to suit the paper size and keeps the paper in position. *
- The stapler moves to the stapling position and staples the sheets.
- The stapler moves away from the paper and returns to the home position.
- If stapling is for sheets delivered not in non-sort mode, the guide bar returns to a point determined by 'paper size + 8 mm'.
- If stapling is for sheets delivered in non-sort mode, the guide bar returns to home position.



- The bin unit moves down one bin.
- Operations 3 through 6 are repeated for each bin to complete the stapling.
- The guide bar moves to the home position.

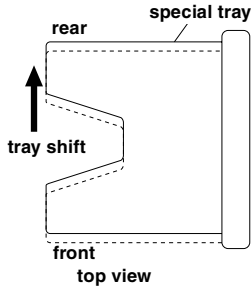


*For the first stapling operation, the guide bar swings twice to hold the paper twice. Then, the guide bar swings once to hold the paper for each shift of the bin unit.

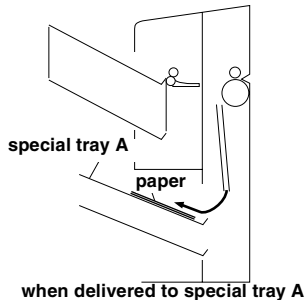
6 Special tray mode

The following occurs when special tray A or B is selected for delivery of outputs from the host computer or the fax:

- The Device Controller or the PS-GP Unit sends a command to the copier to print out the received pages.
- The special tray moves backward, or forward *.



- The output is delivered to the selected tray.



- The selected number of pages are delivered to the tray: ending the sequence.

In some situations, the special tray does not move prior to delivery. For example:

- The tray moves.
The document from the 1st transmission is delivered to special tray A.
- The tray moves.
The document from the 2nd transmission is delivered to special tray B.
- The tray does not move.
The document from the 3rd transmission is delivered to special tray A.

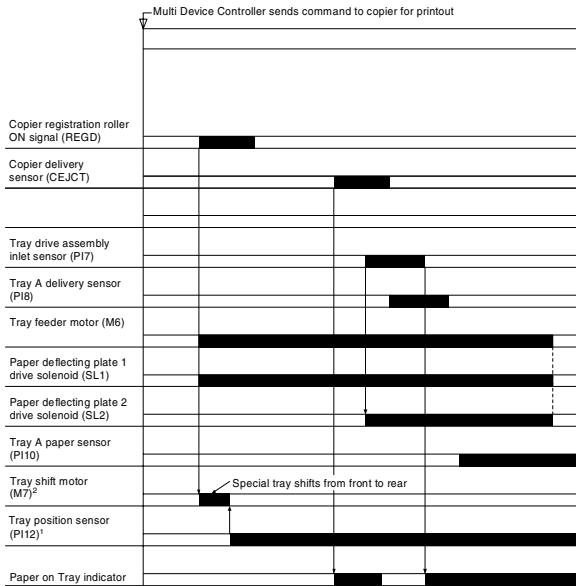
In the above case, if the tray was moved before the output from the 3rd transmission was delivered to special tray A, the output would be mixed with the output already on the tray from 1st transmission.

The position of the special trays at time of the delivery of the output is stored in memory by the Device Controller, and the data is used by the sorter to determine whether or not to move the tray.

The tray does not move if the document is a printout of data from the host computer.

Sequence of Operations (special tray mode)

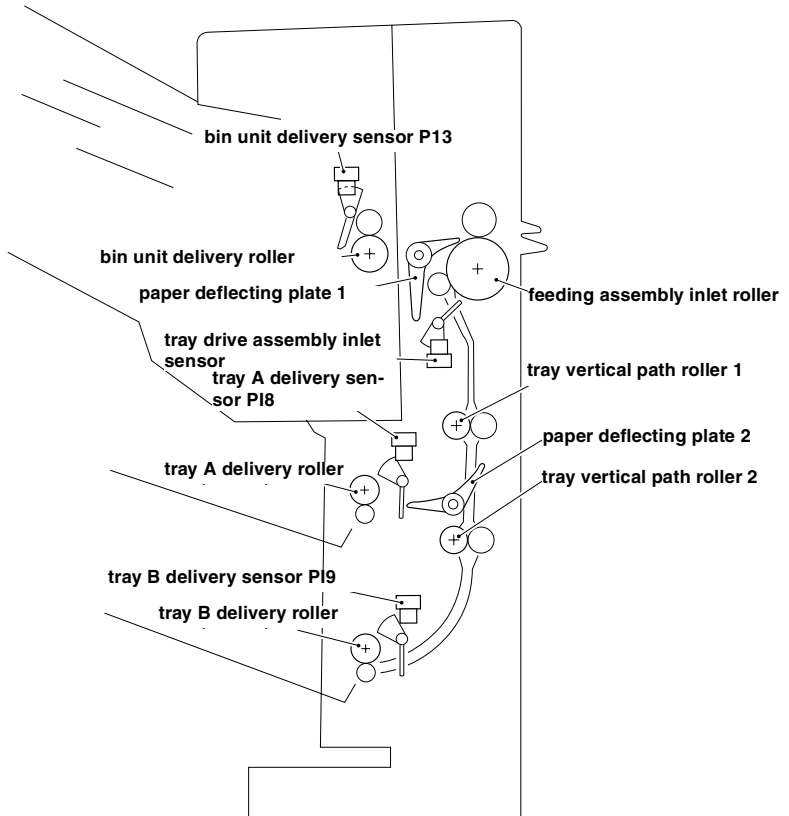
■ Delivering outputs from the controller to special tray A



¹ Represents the sequence in which the special tray shifts from the front to the rear.
² The tray shift motor (M7) does not rotate (and the tray does not shift) if the output is of the data from the host computer.

8 Feeding drive system

The figure shows the feeding drive system. The output from the copier is delivered to the bin unit or the special tray, according to the mode selected by the tray control PBA.

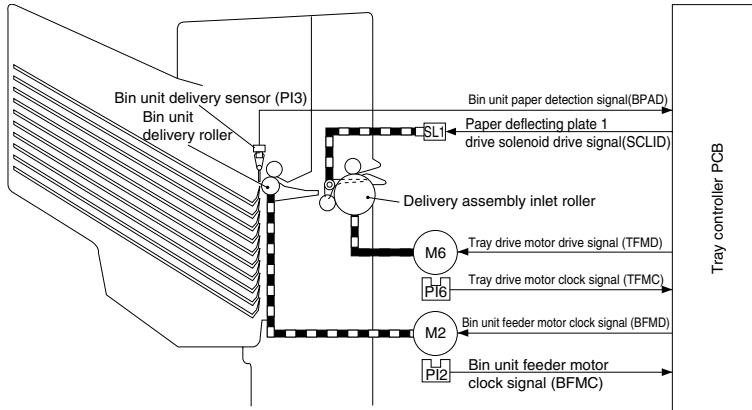


Driving the bin unit

1 Functional design

The figure below shows the drive system for the bin unit.

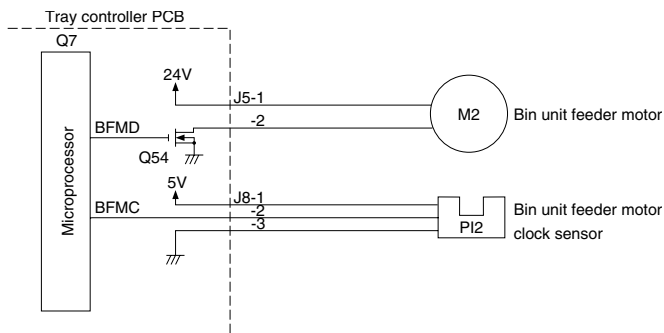
Output from the copier is forwarded to the bin unit by the delivery roller and the inlet roller. These are rotated by the drive motor (M6) and the feeder motor (M2).



The movement of the output is monitored by the delivery sensor (PI3).

The motors are DC motors, which rotate only clockwise. The drive of these motors is controlled by pulses from the clock sensors.

The circuit for the drive of the bin unit.



Bin unit drive motor drive circuit

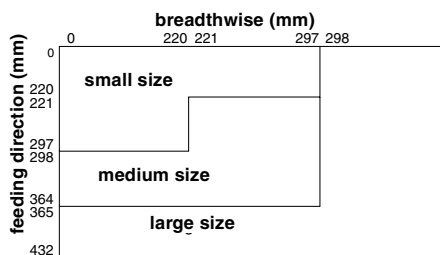
2 Overstacking (bin unit)

The number of sheets that can be stacked in each bin is limited. Any excess will be an overstacking error.

Non-sort Mode	Maximum stacking
All sizes	100 Copies

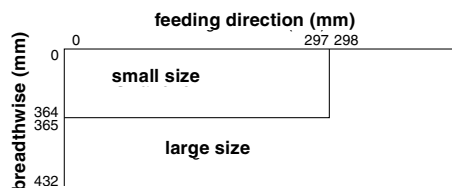
Sort or staple sort mode	Maximum stacking
Small sizes	30 sheets
Medium sizes	25 sheets
Large sizes	10 sheets

■ Size classification (sort mode, staple sort mode)



Group	Maximum stacking
Small sizes	20 sheets
Large sizes	10 sheets

■ Size classification (group mode)



The following occurs when the stacking limit per bin is exceeded when selecting the number of copies:

a. non-sort mode

In non-sort mode, the copying operation stops when the total number of copies reaches 101:

A4, 2 Originals, Copy Count '70'

- The copy button is pressed.
- 70 copies are delivered to the No. 1 bin.
- A second document is positioned. The operation is stopped upon delivery of the 31st copy in the No. 1 bin.
The operation will recommence when all the copies have been removed from the bin and the copy button is pressed.
- The remaining copies will be produced.

Note: *With some copiers, if continuous copying is executed in non-sort mode after setting the copy count to '101' or higher, all copies will be delivered to the No. 1 bin without stopping operation upon delivery of the 101st copy.*

b. Group mode

If the selected number of copies exceeds the limit per bin, the copier will not start when the copy button is pressed. A message will be displayed.

c. Sort mode or staple sort mode

If the number of copies exceeds the limit per bin, the copier will stop when the bin capacity is exceeded by more than 1 copy.

31 documents A4

- Sorting has commenced.
- The copier stops when the sorter has counted the 31st copy. When all copies have been removed from the bins, and the copy button key is pressed, the copier starts operation. (Some copiers start operation automatically.)

Feeding sequence: in special tray mode

In special tray mode, the output is fed only by the motor for the tray drive. The drive motor for the bin unit does not rotate.

The motor for the tray drive is a DC motor. The clockwise rotation of the motor is controlled by pulses from the clock sensors.

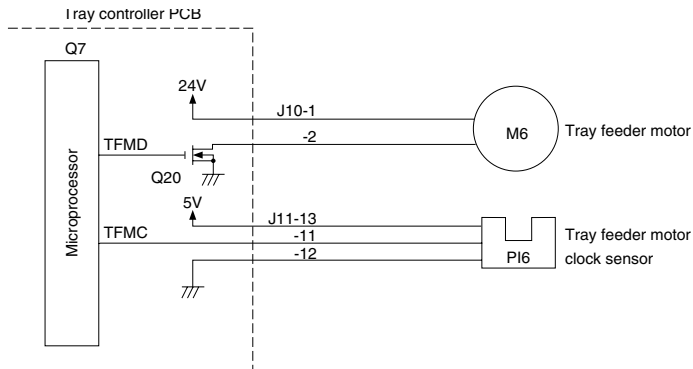
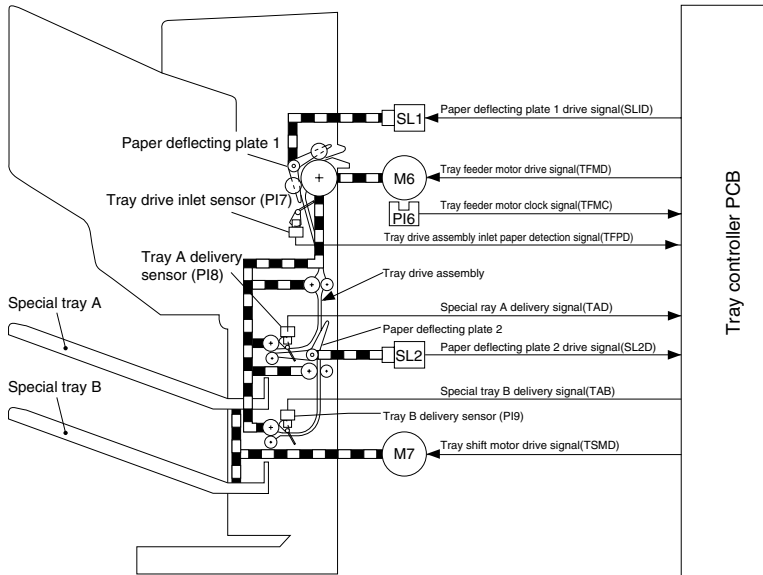
The output from the copier is carried through the feeding path, formed by the deflecting plate 1. This is controlled by the solenoid SL1.

The deflecting plate 2 is located in the tray drive. The solenoid SL2 is switched off and on, to rotate the deflecting plate 2 and to form a path to one of the special trays.

Each paper path has sensors to monitor the movement of the output.

- inlet sensor PI7
- tray A sensor PI8
- tray B sensor PI9.

The tray movement motor M7 is used to displace the outputs delivered onto the special trays.



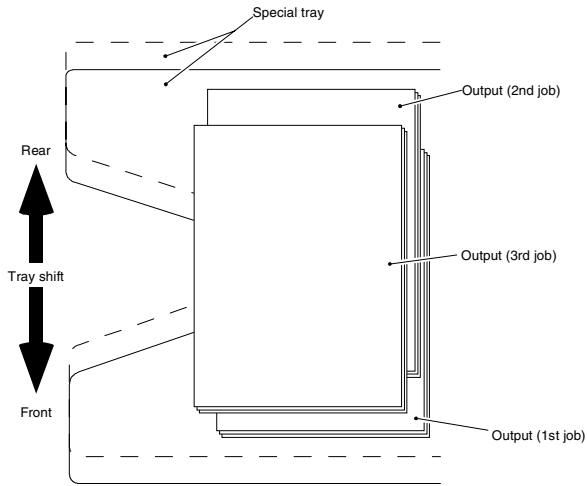
Tray drive motor drive circuit

Movement of the trays (special tray mode)

The special tray moves to the front or to the rear, prior to the commencement of a job, to displace the output on the tray.

The output on the special tray is stacked as shown.

Warning: *The tray movement motor M7 does not rotate when the output is a print from the host computer.*



Outputs sorted on the special tray (top view)

Movement of the trays

a. Drive system for the movement of the trays

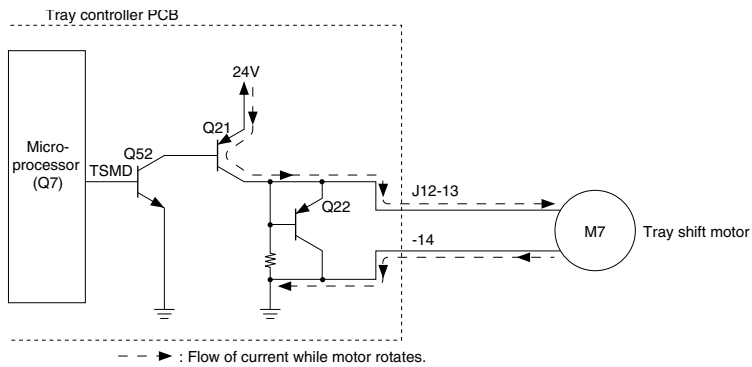
Motor M7 rotates a gear and cam system to move the trays.

The motor M7 for the tray movement is a DC motor. The clockwise rotation of the motor is controlled by the tray shift motor drive signal (TSMD) from the tray control PBA.

b. Timing of the movement of the trays

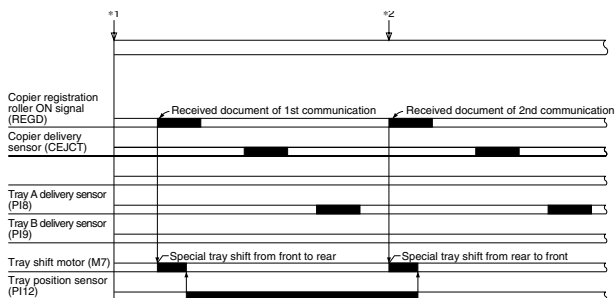
The tray starts to shift as soon as the copier's registration roller turns on in response to the first page of a received document.

Special trays A and B move as a single unit.



■ Timing of the movement of the trays

2 types of output delivered to special tray A: continuously



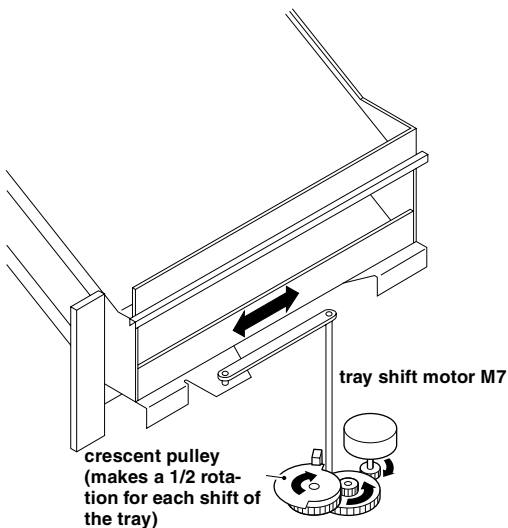
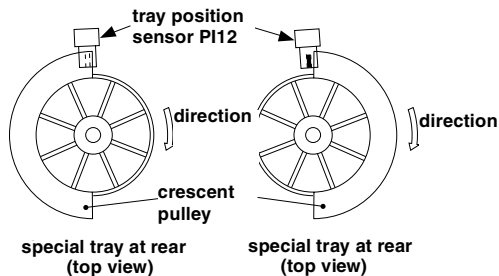
*1 The Multi Device Controller sends a command to the copier for a printout of the 1st communication.

*2 The Multi Device Controller sends a command to the copier for a printout of the 2nd communication.

c. Monitoring the position of the trays

The position of the trays is monitored by the microprocessor Q7 on the tray control PBA. The tray position detection signal (TPD) is emitted by the position sensor PI12.

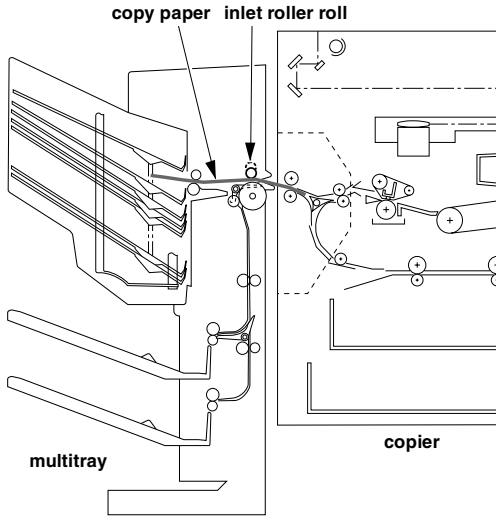
- Moving the tray to the rear
The microprocessor (Q7) on the tray controller PCB judges that the special tray has shifted to the rear when the edge of the crescent pulley blocks the tray position sensor (PI12), i.e., when TPD goes from '0' to '1', and stops the tray shift motor (M7).
- Moving the tray to the front
The microprocessor Q7 considers the tray to be in the front position when the crescent leaves the position sensor PI12. The tray movement motor M7 stops.



Feeding sequence in two-sided copying mode

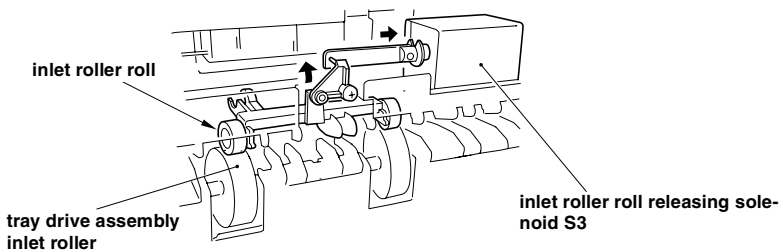
When the copier operates in two-sided copying mode, the copier pulls the output back in for copying the second side.

When such an output returns from the Multitray to the copier, the Multitray's feeding drive system must rotate in reverse of the copier; however, since the Multitray is not designed to do so, the inlet roller roll pressure is released to let the output (copy paper) slip off the roller.

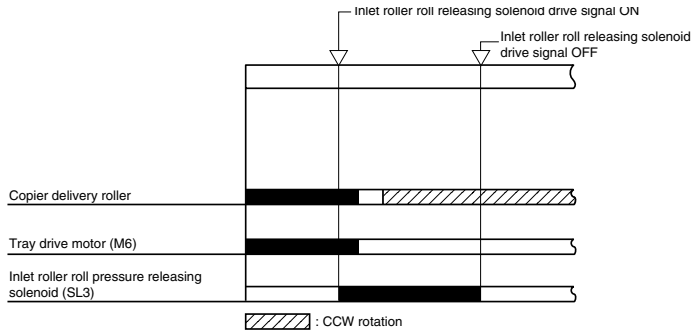


1 Releasing the inlet pressure

The pressure is released by the solenoid S3, lifting the roll away from the inlet roller.



2 Sequence of operations (two-sided copying)



Detection of jams

When the sorter detects a jam, the jam signal (JAM) is transmitted to the copier. In response, the copier stops copying, and displays the JAM message.

When the jam has been removed and the copy button has again been pressed, the remaining number of copies (jam recovery) will be made and delivered to the bins.

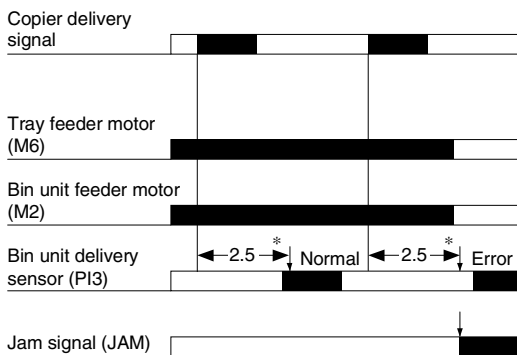
If a jam occurs in the copier, all sheets moving through the sorter are delivered to a specific bin and the operation is stopped.

Note: *If a jam occurs in the Multitray, disconnect the Multitray from the copier (turning the joint sensor off), remove the jam, and turn off the copier's power switch to reset.*

1 Delay

■ Bin unit: drive delay

When the copier is used in copier mode, the bin unit delivery sensor (PI3) does not detect paper within 2.5 sec after the copier's delivery sensor has detected paper (PDP=1).

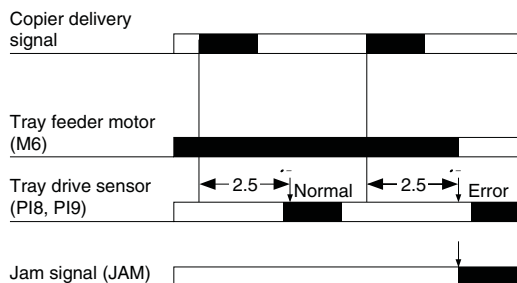


*Varies depending on the model.

(unit: sec)

■ Tray drive: delay

When special tray A or B is used, the tray delivery sensor (PI8, PI9) does not detect paper within 2.5 sec after the copier's delivery sensor has detected paper (PDP=1).



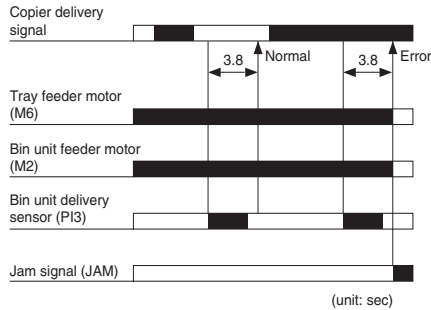
*Depends on the model.

(unit: sec)

2 Stationary

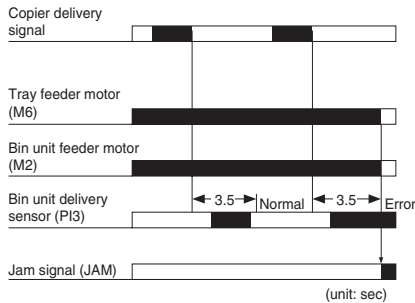
■ Delivery sensor: stationary

With the copier in copier mode. The delivery sensor in the copier does not switch off within 3.8 seconds after the delivery sensor P13 has detected paper.



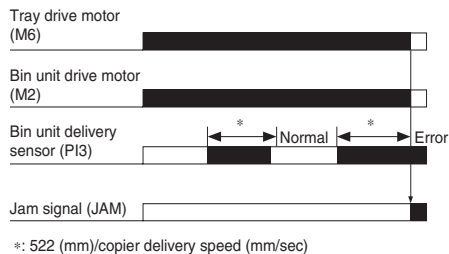
■ Delivery sensor in the bin unit: stationary

With the copier in copier mode. The delivery sensor PI3 does not switch off within 3.5 seconds after the paper left the delivery sensor in the copier.



■ Delivery sensor in the bin unit: stationary

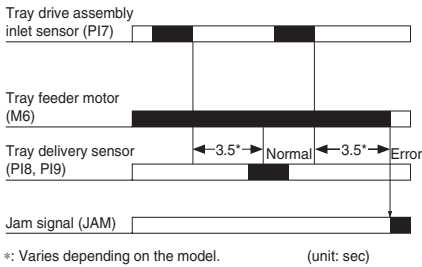
With the copier in copier mode. The delivery sensor PI3 does not switch off within a specified time after the sensor PI3 was switched on.



*: 522 (mm)/copier delivery speed (mm/sec)

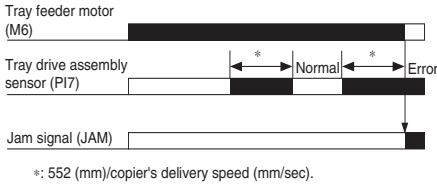
■ Tray drive: stationary in inlet

The paper does not reach the sensor PI8 or PI9 within 3.5 seconds * after the paper moved past the inlet sensor PI7.



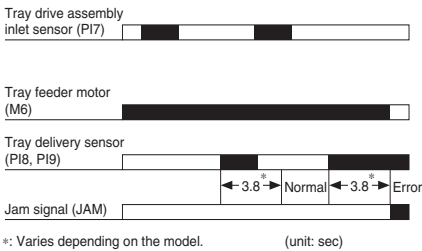
■ Tray drive: stationary in inlet

The inlet sensor PI7 does not switch off within a specified time after the inlet sensor PI7 was switched on.



■ Tray delivery: stationary

The sensor PI8 or PI9 does not switch off within 3.8 seconds * after the paper arrived at the sensor.



■ Start situation: stationary

The JAM signal is generated if any of the following sensors is on when the copy button is pressed:

- Tray drive: inlet sensor PI7
- Bin unit: delivery sensor PI3
- Tray A: delivery sensor PI8
- Tray B: delivery sensor PI9

3 Power-on jam (persistent paper jam)

The JAM signal is generated if any of the following sensors is on when the copier's power switch is turned on:

- Tray drive: inlet sensor PI7
- Bin unit: delivery sensor PI3
- Tray A: delivery sensor PI8
- Tray B: delivery sensor PI9

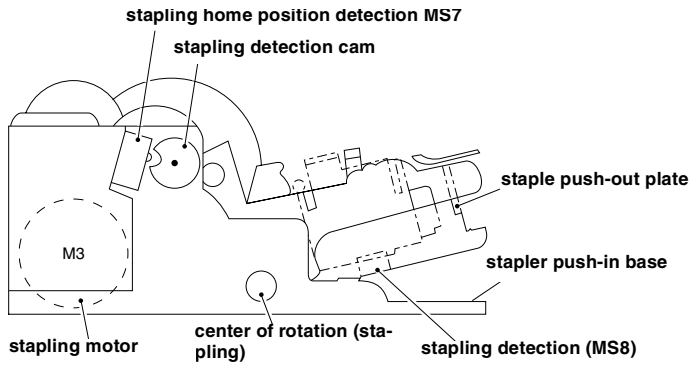
4 Door open: persistent jam

The JAM signal is generated if the sorter is moved away from the copier, or the stapler cover is opened while the machine is in operation.

Stapling

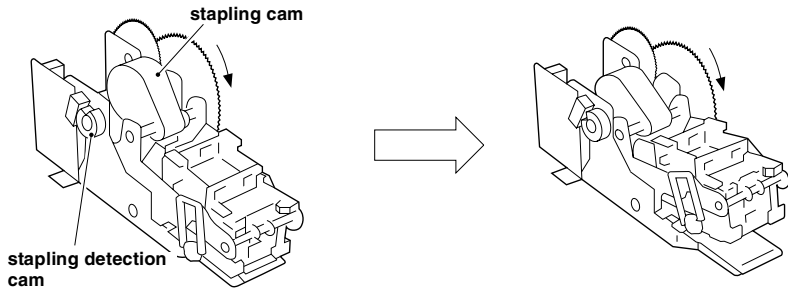
The motor M3 rotates and operates a cam to move the stapler up and down. The stapler detection cam makes a single rotation each time the stapler is activated.

The rotation of the cam is monitored by the sensor MS7.



Functional design

The stapler operates as follows.



Controlling the stapling motor M3

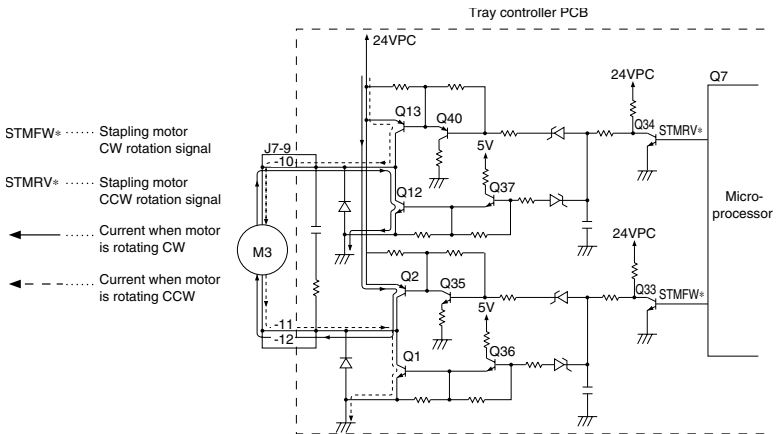
Motor M3 is a DC motor.

The stapling home position sensor (MS7) remains on while stapling operation takes place. (See figure 'Stapler Construction')

Stapling takes place when the motor M3 rotates clockwise. If a staple jam prevents the motor from rotating clockwise, the motor is rotated in reverse, to return the stapler to the home position.

a.Direction of rotation: in relation to combinations of drive signals

STMFW (stapling motor CW rotation signal)	STMRV (stapling motor CCW rotation signal)	direction
0	1	CW
1	0	CCW
0	0	at rest



Response to a stapling error

If an error occurs in the stapler and the stapling motor (M3) therefore cannot operate normally, an alert signal is sent to the copier to indicate 'E531'.

The error can be reset: by removing the cause and switching the copier OFF, then ON.

- 1 An excess load is imposed on the stapling motor, because of a staple jam.
- 2 The state of the home sensor MS7 does not change for 1 second or more.
- 3 The stapling motor is rotated CCW; if the state of the stapling home position sensor (MS7) does not change for 1 sec or more thereafter (i.e., stapler not returning to stapling home position), 'E531' will be indicated on the copier's control panel.

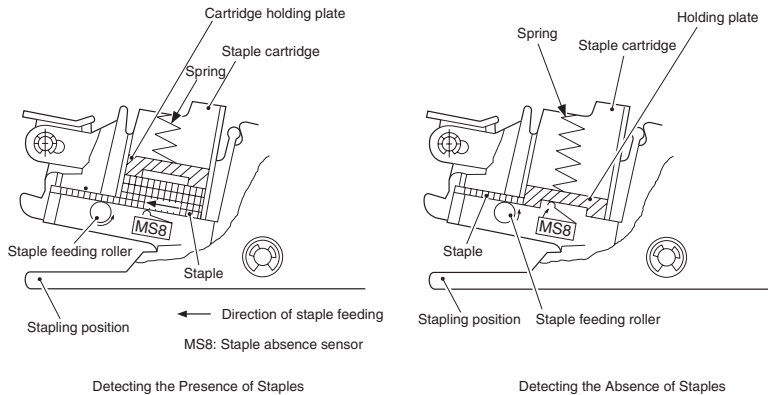
Detecting the absence of staples

Sensor MS8 monitors the stock of staples in the cartridges.

The staples inside the staple cartridges are pressed against the sensor MS8.

When all staples have been moved to the end of the stapler, the sensor MS8 opens. This informs the tray control PBA that all staples have been used. The Add Staple display illuminates. Subsequent stapling will be suspended.

If the lack of staples is detected in stapling mode, idle stapling will occur until the job has been completed.

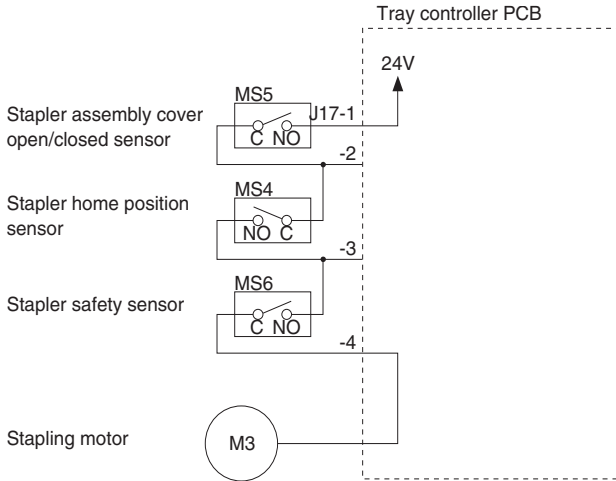


Stapler: detection for safety

The power for the stapling motor M3 is supplied via the following micro-switches:

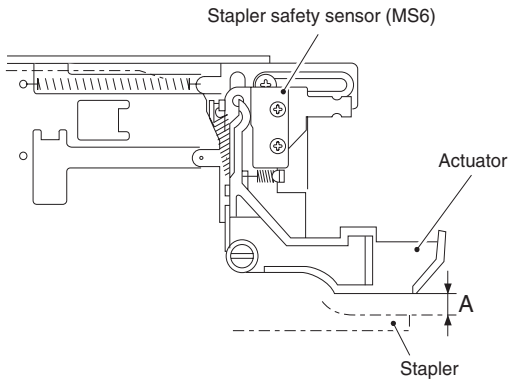
- Stapler: detection of cover position MS5
- Stapler: home sensor MS4
- Stapler: detection for safety MS6

The supply to the stapling motor will be interrupted if any of these sensors open.



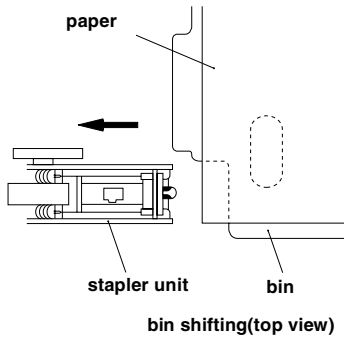
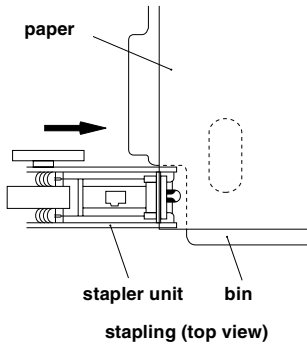
Sensor MS6 opens when the actuator in the stapler is raised. Gap A for the movement of the actuator is 4.5 to 5.8 mm.

Warning: MS6 will not operate when the cover is removed from the stapler.



Controlling the movement of the stapler

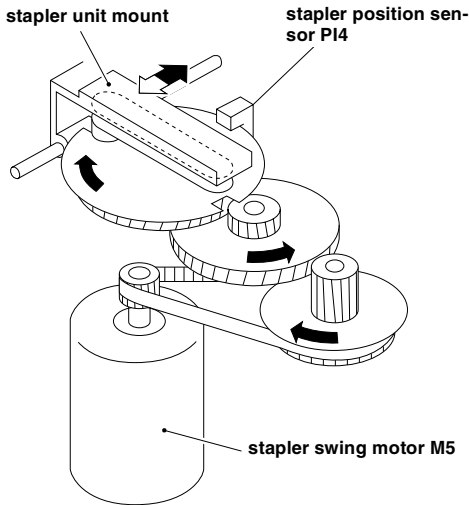
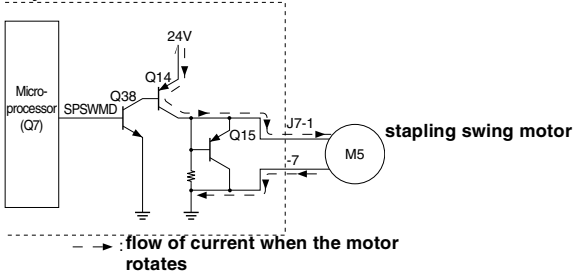
The stapler is moved to prevent interference with the paper in the bin.



The motor M5 moves the stapler unit mount back and forth .

The motor M5 for the stapler movement is a DC motor. The clockwise rotation of the motor is controlled by the stapler swing motor drive signal (SPSWMD).

tray control PBA

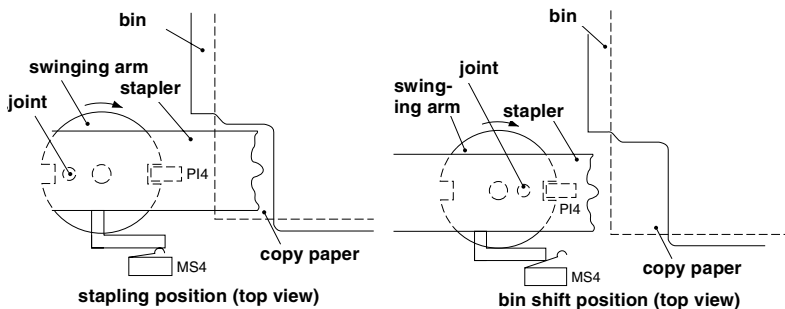


Detection of the position of the stapler during the movement

The position of the stapler is determined by combinations of the states (ON/OFF) of two sensors:

- Stapler: detection of position PI4
- Stapler: home sensor MS4

Sensor	Stapling position (left picture)	Stapler in home position (right picture)
Stapler: detection of position PI4	ON	ON
Stapler: home sensor MS4	ON	OFF



Overstacking

No more than 20 sheets may be stapled. Stapling occurs as follows:

Staple sort mode is selected

a. a maximum of 20 sheets (normal operation)

Staple the sheets inside the bin.

b. More than 20 sheets (overstacking)

The machine stops without stapling. Manual stapling is also not possible.

Manual stapling, after copying in sort mode

a. a maximum of 20 sheets (normal operation)

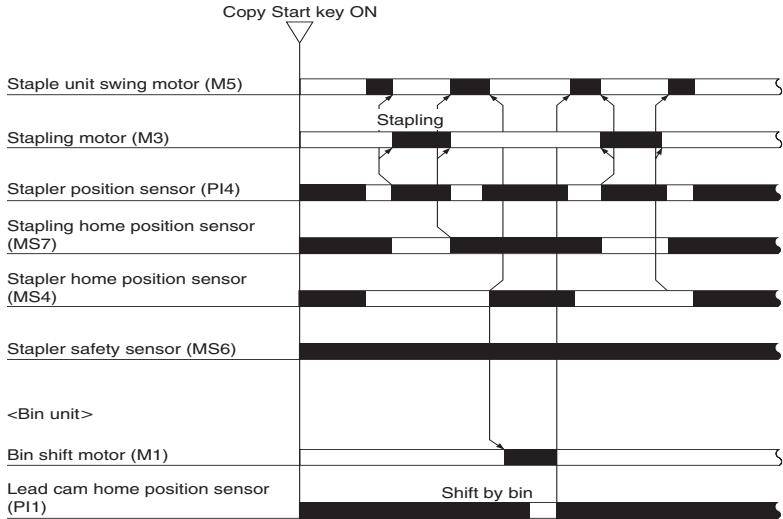
After copying in sort mode, the manual staple button illuminates. Pressing the manual staple button will staple the sheets in the bin.

b. More than 20 sheets (overstacking)

The manual staple button will fail to illuminate. No action will follow if the button is pressed.

Note: In manual insert mode, stapling will occur. The sorter cannot count the number of sheets in the bin. However, if the thickness of the stack is 4.5 to 5.8 mm or more, the safety sensor will activate, so preventing stapling.

■ Sequence of operations (stapling 2 sets)



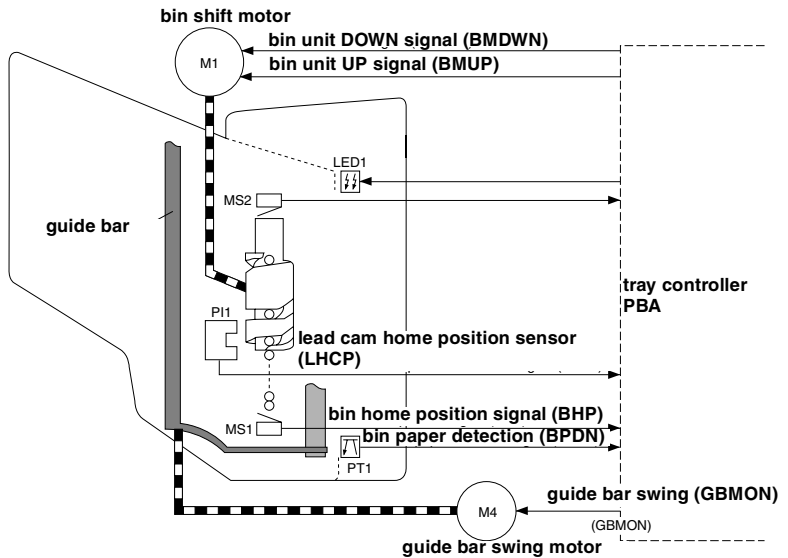
10 Bin unit: drive system

The figure below shows the drive system for the bin unit.

The bin unit moves each of the bins up and down, to sort the output from the copier.

The home position of the bin unit is where the bin unit is moved up an equivalent of a single rotation of the lead cam from its bottom position (bin home sensor MS1 is ON).

Note: *Trays A and B do not move up or down.*



Bin unit

The figure below shows the principle of the bin unit.

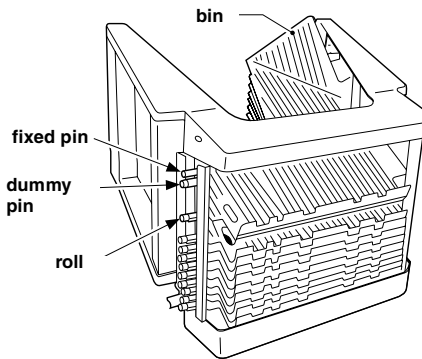
The fixed pins at the front and at the rear are part of the bin unit. They are kept in position at both sides of the bin frame.

A dummy pin is mounted to both sides of the bin unit.

The bin unit is suspended from the body by two springs.

It is held in position by rolls and cams fitted to the front and the rear of the bin frame.

The suspension by two springs reduces the load on the cams during the movement of the bins.

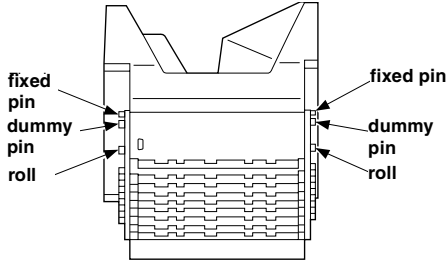


Movement of the dummy Pin

A dummy pin is provided between the fixed pin and the roll, on both sides of the bin unit.

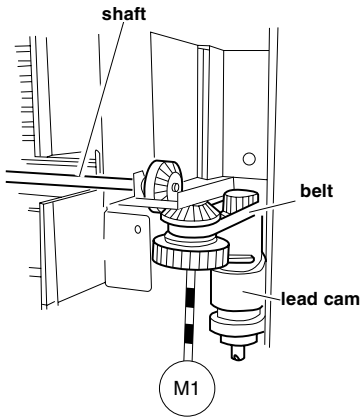
The dummy pin prevents the bin unit moving down too far. The dummy pin engages with the lead cams and the fixed pins after the bin unit has reached its lower limit.

The fixed pins are in this way always above the cams, thereby keeping the bin unit above its lower limit.

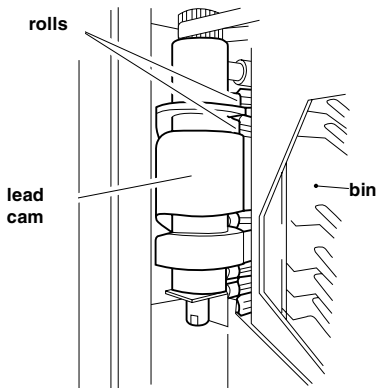


Movement of the lead cam

A lead cam is fitted to the front and to the rear of the bin unit. The cam is driven by the bin movement motor M1. The motor rotates in two directions.

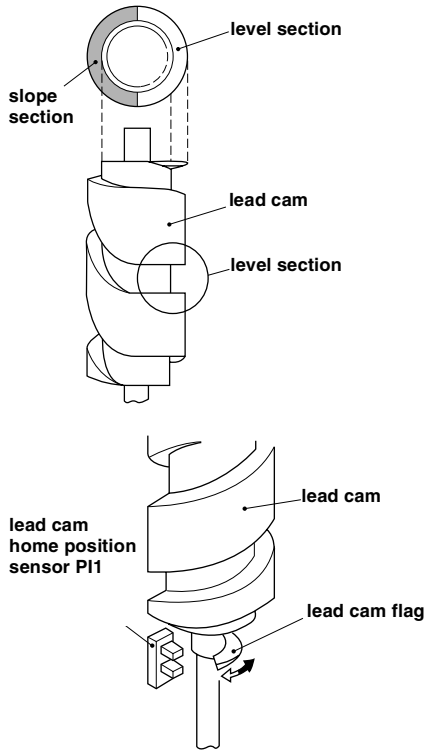


When the cams rotate, and the rolls move up or down through the grooves of the cams, the connected bin will also move up or down.



A flat section is cut in the lead cam. This is to prevent the lead cam from rotating under the weight of the bin unit.

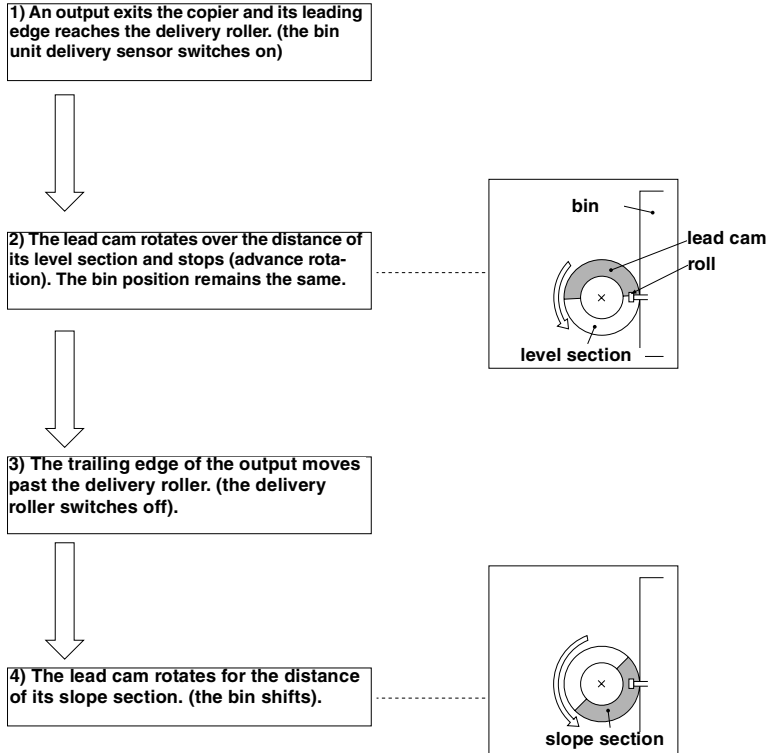
When the bin unit is stationary, the cam home sensor (PI1) monitors the situation. The rolls are held within the flat section of the cam. The van of the sensor is the same width as the flat section of the cam.



- Advance rotation of the cam
In sort mode, the lead cam rotates in advance.

To ensure that the bins are in position before the copy arrives, the lead cam is first rotated the equivalent distance to the width of the flat section. The movement commences when PI3 detects the leading edge of the sheet. The bin will not move.

When the sheet leaves PI3, the rotation of the cam will continue for the length of the slope until the flat section is reached. The bin will be moved.



■ Sequence of operations (lead cam: advance rotation)

Bin unit delivery sensor (PI3)	[Active]		[Active]		[Active]		[Active]	
Bin shift motor (M1)	[Active]	[Active]	[Active]	[Active]	[Active]	[Active]	[Active]	[Active]
Lead cam home position sensor (PI1)	[Active]	[Active]	[Active]	[Active]	[Active]	[Active]	[Active]	[Active]
Movement of roll on lead cam	Over level section	Over slope section	Over level section	Over slope section	Over level section	Over slope section	Over level section	Over slope section
Over level section	Height constant	(stationary)	Bin shift	(stationary)	Height constant	(stationary)	Bin shift	(stationary)

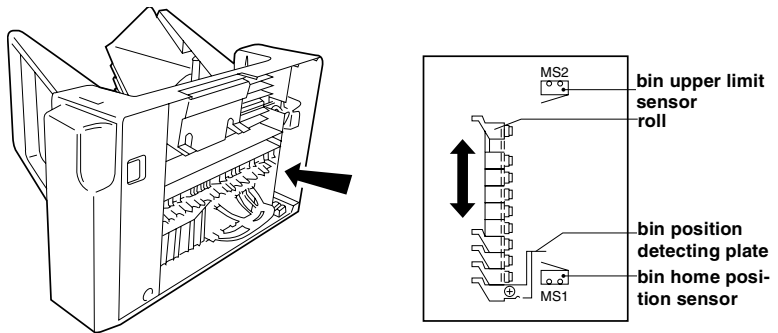
Bin: home sensor MS1

The home position of the bin unit is determined when the detecting plate presses against the bin home sensor MS1.

When the bin unit moves to the home position, the bin unit first moves down, then up, for a single rotation of the lead cam: after detection of the home position by the sensor MS1.

Upper sensor MS2

The motor M1 will stop if an error occurs, causing the bin unit to continue moving until the detecting plate presses the upper sensor MS2.



Controlling the bin shift motor

Motor M1 is a DC motor. The direction of rotation is controlled by combinations of the drive pulses from the microprocessor.

When the motor rotates clockwise, the bin unit moves up.

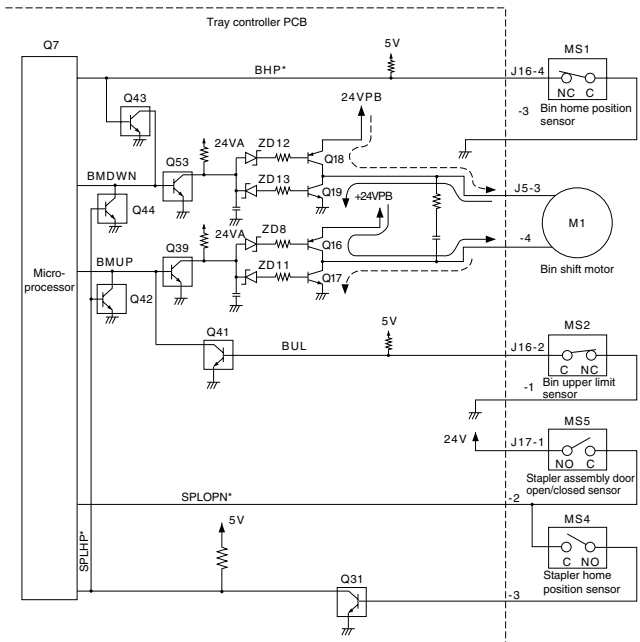
When the motor rotates counter clockwise, the bin unit moves down.

The motor rotates only when:

the upper sensor MS2 is off, and

the home sensor MS1 is off, and

the stapler home sensor MS4 is on.



• The arrows indicate the flow of current.

→ Bin shift motor rotates CW (bin moves up).

--- Bin shift motor rotates CCW (bin moves down).

BMDWN: Bin unit DOWN signal

BMUP: Bin unit UP signal

BHP: Bin home position signal

BUL: Bin upper limit signal

SPLHP*: Stapler home position signal

SPLOPN*: Stapler cover open/closed signal

Bin movement and combination of bin shift signals

Bin shift motor UP signal (BMUP)	Bin shift motor DOWN signal (BMDWN)	Operation
0	1	The bin shift motor rotates CCW. The bin unit moves down.
1	0	The bin shift motor rotates CW. The bin unit moves up.
0	0	The bin shift motor stops. The bin unit stops.

a. Moving the bin UP

To move the bin up, the microprocessor (Q7) generates:
the bin shift motor UP signal BMUP=1
and the bin shift motor DOWN signal BMDWN=0

■ BMUP=1

Q39 is switched ON.

Q16 is switched ON.

Q17 is switched OFF.

24 V is applied to the motor M1.

■ BMDWN=0

Q53 is switched OFF.

Q18 is switched OFF.

A reverse current flows to ZD13, and Q19 is switched ON.

b. Moving the bin DOWN

To move the bin down, the microprocessor (Q7) generates:
the bin shift motor DOWN signal BMDWN=1
and the bin shift motor UP signal BMUP=0

■ BMDWN=1

Q53 is switched ON.

Q18 is switched ON.

Q19 is switched OFF.

24 V is applied to the motor M1.

■ BMUP=0

Q39 is switched OFF.

Q16 is switched OFF.

A reverse current flows to ZD11, and Q17 is switched ON.

Stopping the movement of the bin

The motor (M1) stops when the microprocessor (Q7) generates:
the bin DOWN signal BMDWN=0
and the bin UP signal BMUP=0.

The microprocessor generates BMDWN=0 and BMUP=0 when :

- (1) the bin unit moves up/down by a single bin, or
- (2) when the bin DOWN signal BLL=1 is generated.

The safety circuit used to isolate the motor M1 functions as follows:

If the microprocessor generates BMDWN=1, even though the bin home sensor MS1 is actuated.

- MS1 is actuated, with the bin at the lower limit position.

BHP=1

Q43 is switched ON.

BMDWN changes from '1' to '0', forcing M1 to stop

If the upper sensor MS2 switches ON. (The sensor does not actuate under normal circumstances.)

- BMUP=1, rotating the motor M1, and moving up the bin.

The bin moves up too far, actuating MS2.

BUL=1.

Q41 is switched ON.

BMUP changes from '1' to '0', forcing M1 to stop.

An error code will be logged.

If the stapler home sensor MS4 is OFF.

The stapler is not in the home position,

If the bin moved while the stapler was not in the home position, the stapler could touch the paper.

To prevent this, the motor M1 is prevented from rotating in either direction when the stapler home sensor is off.

- The stapler is not in the home position (MS4 is OFF).

SPLHP* is '1'.

Q42 and Q44 switch ON.

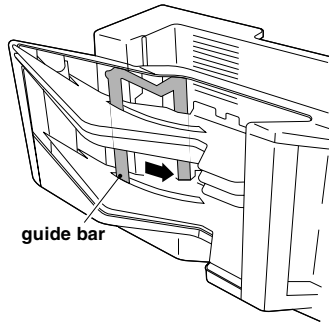
In addition, MS4 communicates to the microprocessor that MS4 is not in the home position.

If the microprocessor generates BMDWN=1 or BMUP=1 at this time, Q42 and Q44 switch off. The motor M1 will not rotate.

Controlling the guide bar

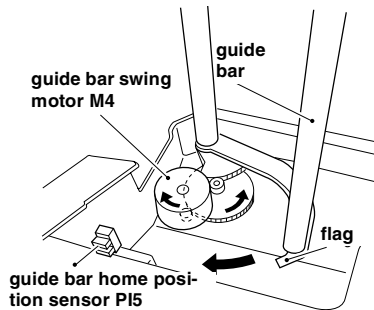
The guide bar is inside the bin unit. The bar swings each time an output is delivered to position the output against the side guide.

In addition, the guide bar swings for stapling operation, holding the sheets in position.



Motor M4 drives the guide bar.

The home position of the guide bar is detected when the vane blocks the bar home sensor PI5.

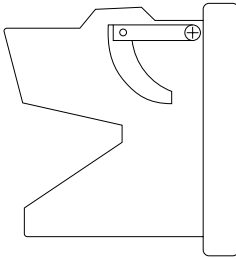


Position of the guide bar

The position of the guide bar is controlled by the paper size signals from the bar home sensor PI5, and the signals from the copier.

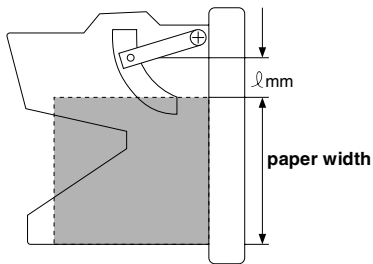
The guide bar stops at the following four points:

1 Home position



2 Escape position

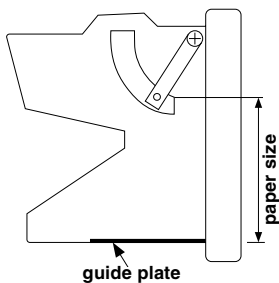
The escape position varies according to the paper size.



Paper size	Paper width	Length R
A3/A4	297	2.5
B4/B5	257	22.5
A5/A4R	210	46
B5R	182	60
A5R	148	77

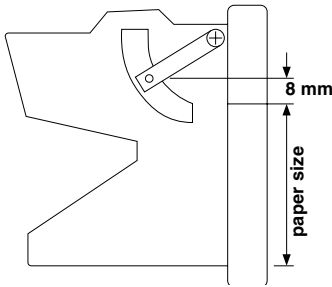
3 Paper holding position

The guide bar swings, jogging the output against the front guide.



4 Stapling wait position (manual stapling)

If copies are made in sort mode and outputs are stapled manually, the guide bar is held in wait position at a point 'paper size + 8 mm' while bins are shifted.

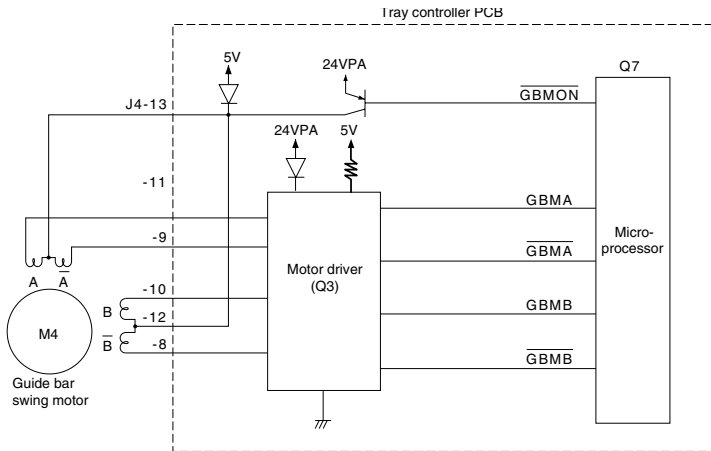


Controlling the motor M4

Motor M4 is a 2-phase stepping motor. Pulse signals cause the guide bar to move to a specific position *. The signals represent a paper size and are generated by the CPU on the tray control PBA.

*See "Controlling the Guide Bar Position."

The 5V supply serves as a retention current used to keep the guide bar stationary.



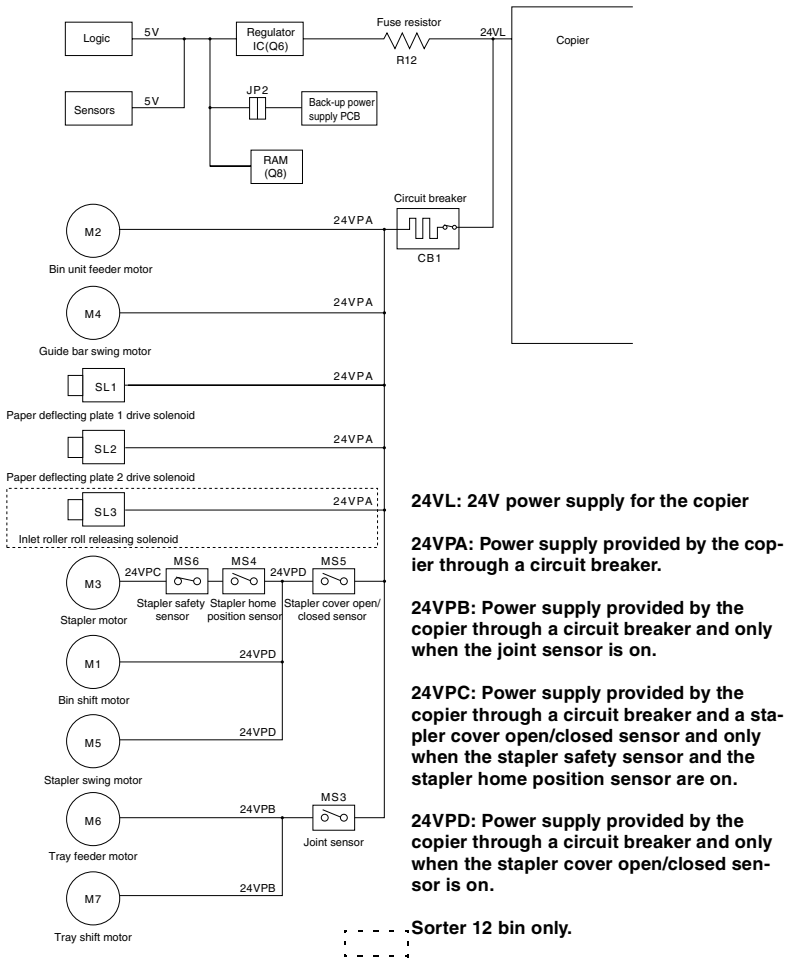
GBMON: Guide bar swing signal
 GBMA: Phase A excitation signal (pulse signal)
 GBMB: Phase B excitation signal (pulse signal)

11 Power supply

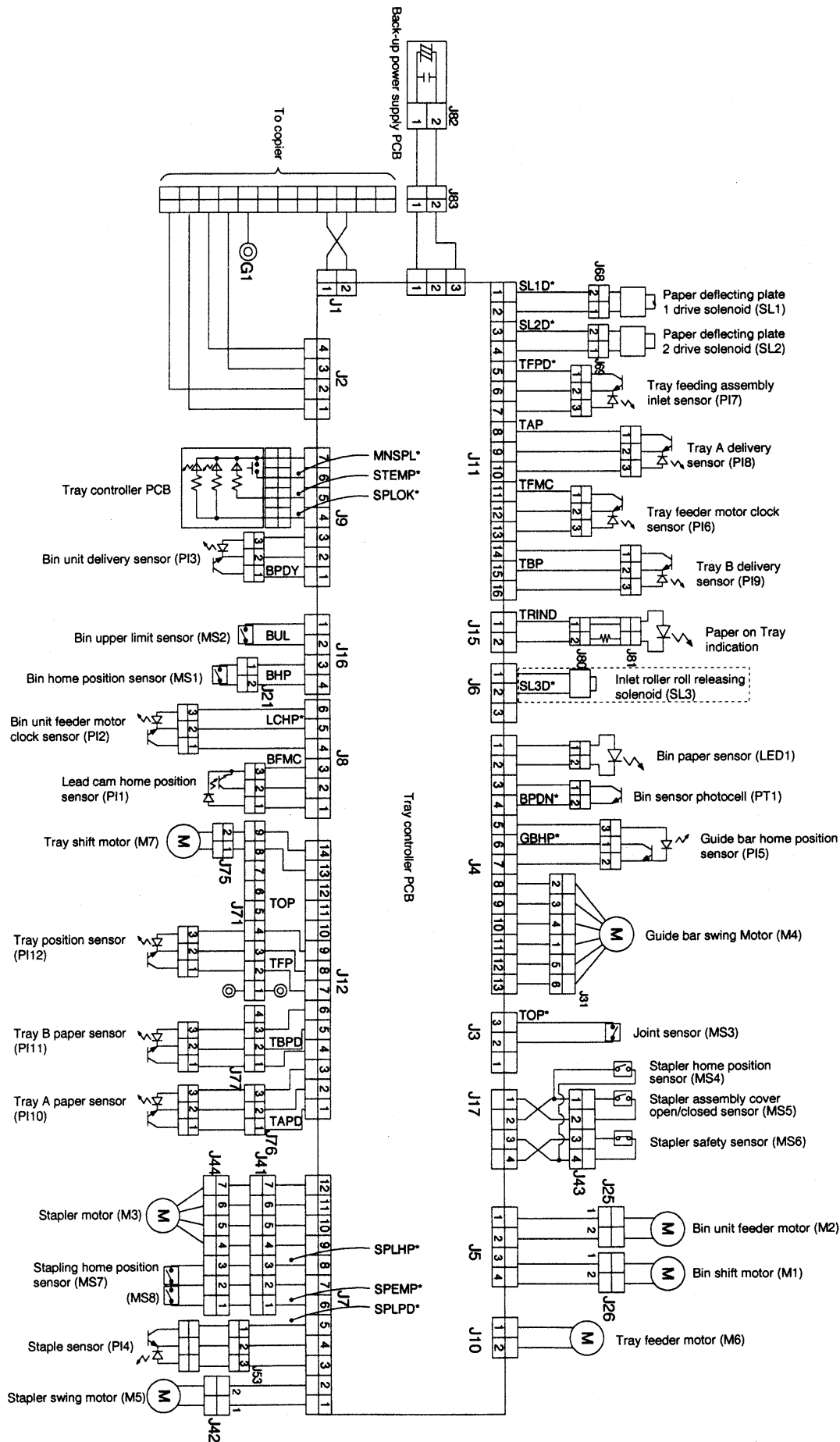
The power for the sorter is supplied by the copier.

The 5V supply for the logic system is generated from 24V power. It is controlled by the regulator on the tray control PBA.

The power to the Multitray will be cut when the copier's power is turned off or the connection between the copier and the Multitray is disconnected. To back up the data in the RAM (Q8) on the tray controller PCB, the Multitray is equipped with a back-up power supply PCB whose capacitor is capable of supplying power for about one hour.

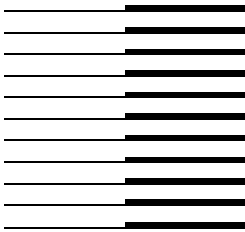


Electrical diagrams

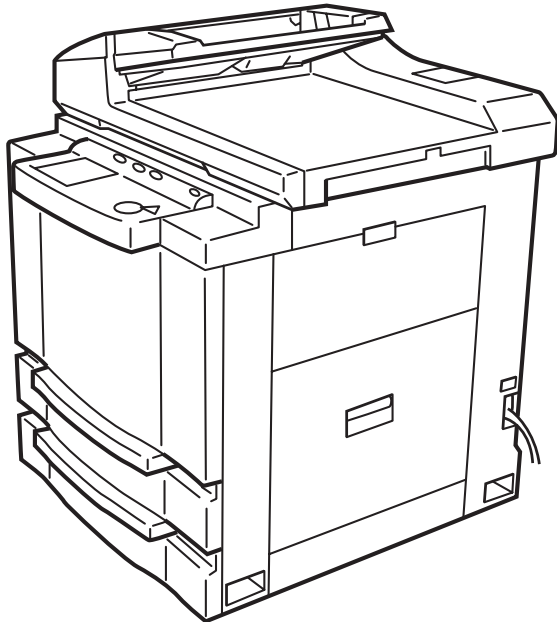


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Océ



Technical Service Manual
Océ 3121/3122



22 POWER & CONTROL

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Electrical diagrams

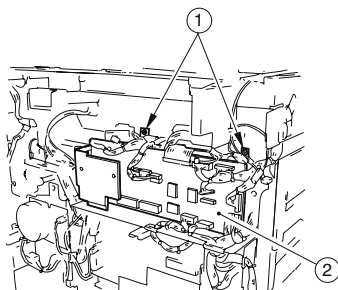
- 1 Power & Control 1 701
- 2 Power & Control 2 702
- 3 Power & Control 3 703
- 4 Power & Control 4 704

Dis-/assembly

1 DC control PBA

Replacing the DC Control PBA

- 1 Disconnect the mains supply cable.
- 2 Remove the rear cover (4 screws).
- 3 Remove the two screws (1) . Disconnect all the connectors. Then, remove the DC control PBA (2).



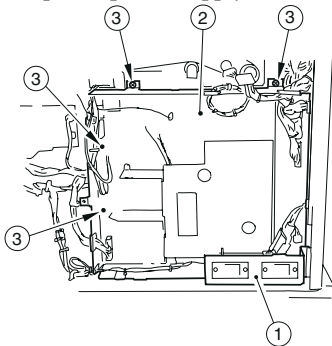
- 4 Replace the new PBA with the actions in reverse order.

Note: After replacement, execute (*4* Function 12 R&D Shading Start)

2 Power supply PBA

Replacing the Power Supply PBA

- 1 Remove the DC control PBA.
- 2 Remove the two screws, and remove the connector support (1).
- 3 Remove the two screws (3), and disconnect all connectors; then, remove the composite power supply PCB.

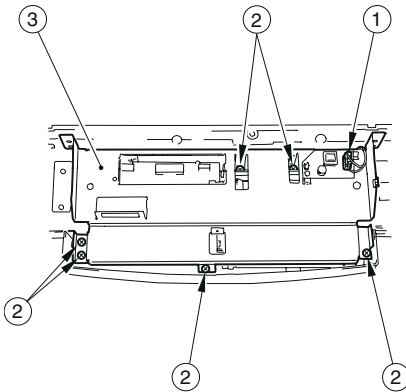


- 4 Replace the composite power supply with the actions in reverse order.
- 5 After replacement:
 - Enter the values, which are recorded on the label attached to the composite power supply PBA, in (*3* Adjust 03).
 - Execute (*4* Function 03 Auto Shading Start).
 - Execute (*4* Function 04 PD Print).
 - Execute (*4* Function 05 200 PWM Print).
 - Execute (*4* Function 04 600 PWM Print).

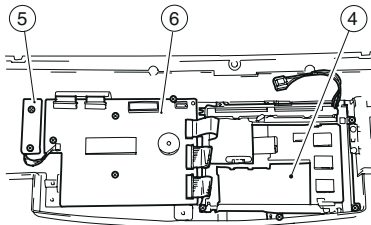
3 LCD PBA and CPU PBA

Removing the LCD PBA and the CPU PBA

- 1 Remove the inside, front cover (See Miscellaneous Page)
- 2 Remove the magnetic latch plate (1 screw) of the RDF: at the front of the platen.
- 3 Remove the RDF and the sorter power supply unit (top left).
- 4 Remove 2 x black and 2 x silver coloured screws, to remove the control panel from the machine.
- 5 Remove the RS 232 connector from the support (2 screws).
- 6 Disconnect the 2 small connectors from the PBA on the operating panel (2 purple lead connectors).
- 7 Disconnect the connector (1), and remove the six screws (2). Then, remove the control panel support (3).



- 8 Remove the four screws and the three flat cables. Then, remove the LCD PBA (4).
- 9 Remove the two screws and the switch PBA (5). Then, remove the four screws and the two flat cables, and remove the CPU PBA (6).



Functional description

1 Electrical Circuitry

Control

The Océ 3121's electrical mechanisms are controlled by the CPU on the PBAs shown in the "Block diagram of the CPU". See the tables for an idea of the functions of the CPU and the functions of the ROMs/RAMs and the ICs around the CPU.

Image Processor PBA

Name	IC No	Description
CPU	IC506	Controls the image processing Controls the laser operation Controls the job schedules Controls the fax sequence Controls the system memory Detects errors Controls the communications with the DC control PBA Controls the serial communications (for FLASH ROM downloading) Controls the control panel Controls the feeder/editor Controls the fax communications Controls the copying sequence Controls the power supply Controls the communication with the control panel
ROM (FLASH ROM)	ROM DIMM IC1 IC2	Contains the control programmes Controls the copying operations Controls the fax operations Control panel message
MASK ROM	IC564	Controls the fonts (e.g., the fonts used for the fax headers)
RAM	IC650 IC651	Stores the service mode, the user mode, and various parameters
DP RAM	IC528	Controls the communications with the DC control PBA

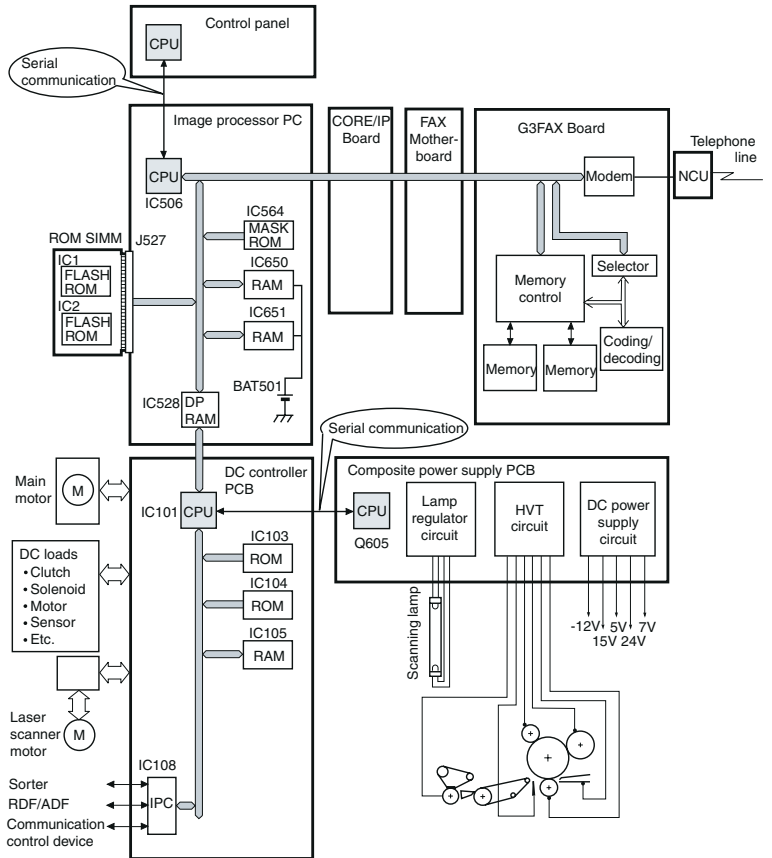
DC control PBA

Name	IC No	Description
CPU	IC101	Controls the pick-up and feed operations Controls the pedestal Controls the HT sequence Controls the laser scanner motor Detects jams Controls the service mode Controls the IPC Controls the sorter Controls the fusing Controls the main motor Controls the scanner motor Detects the cassette or paper Detects the size of documents
ROM	IC103 IC104	Contains the control programmes
IPC	IC108	Controls the sorter and RDF combinations

Power supply PBA

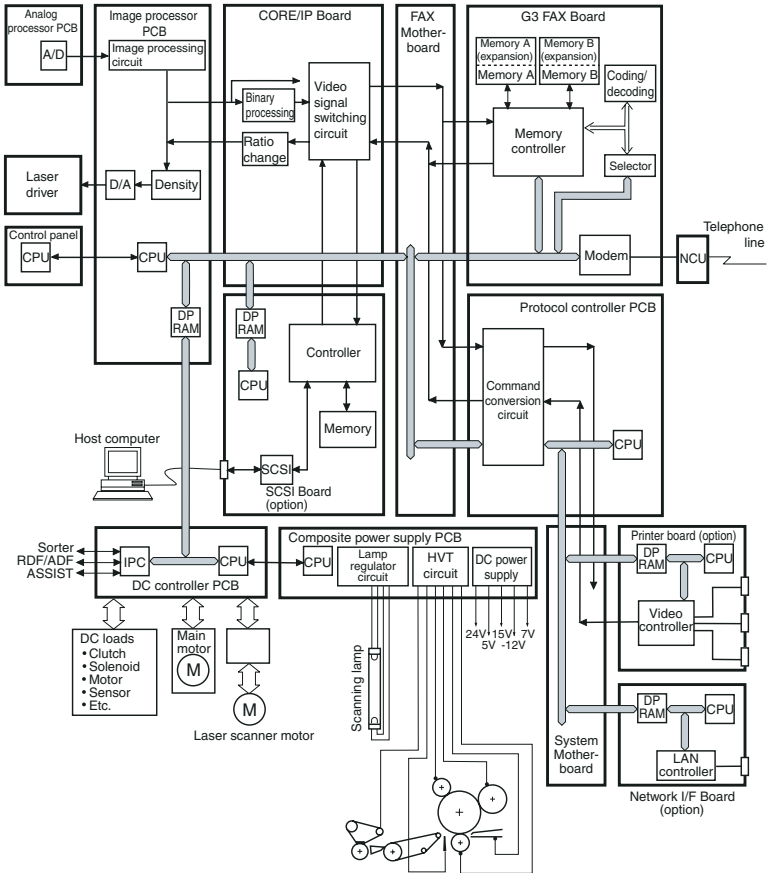
Name	IC No	Description
CPU	C605	Controls the power supply system Controls the HT supply Monitors the inputs to the power switch and the de-humidifier switch Monitors the calling indicator (fax call signal) Controls the loading of the power supply Controls the scanning lamp

Block Diagram of the CPU



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General Block Diagram



Note: The CORE/IP board, FAX motherboard come standard with the Océ 3121. The G3 FAX board is optional

Inputs to the major PBA

Power supply circuit

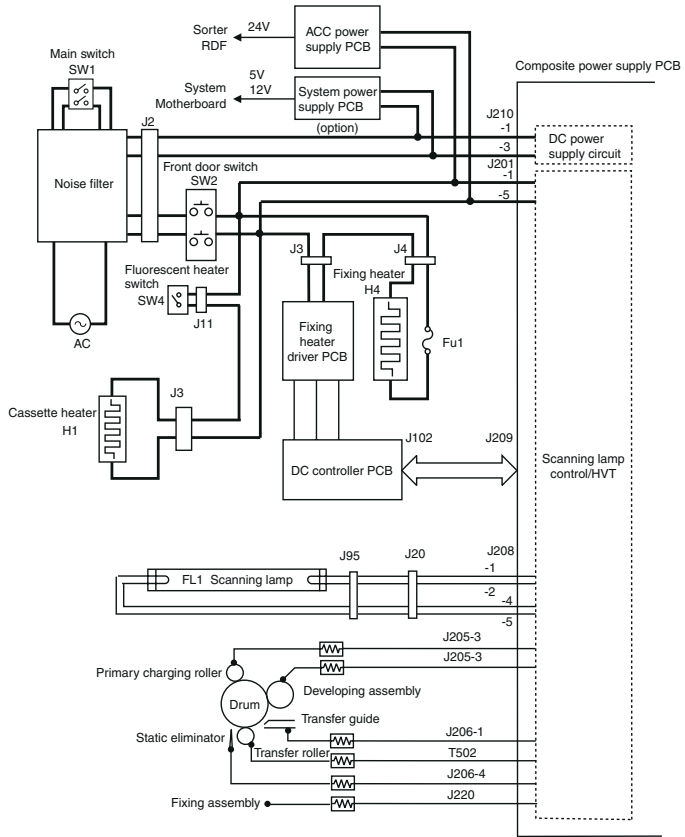


Image processor PBA (1/3): inputs and outputs.

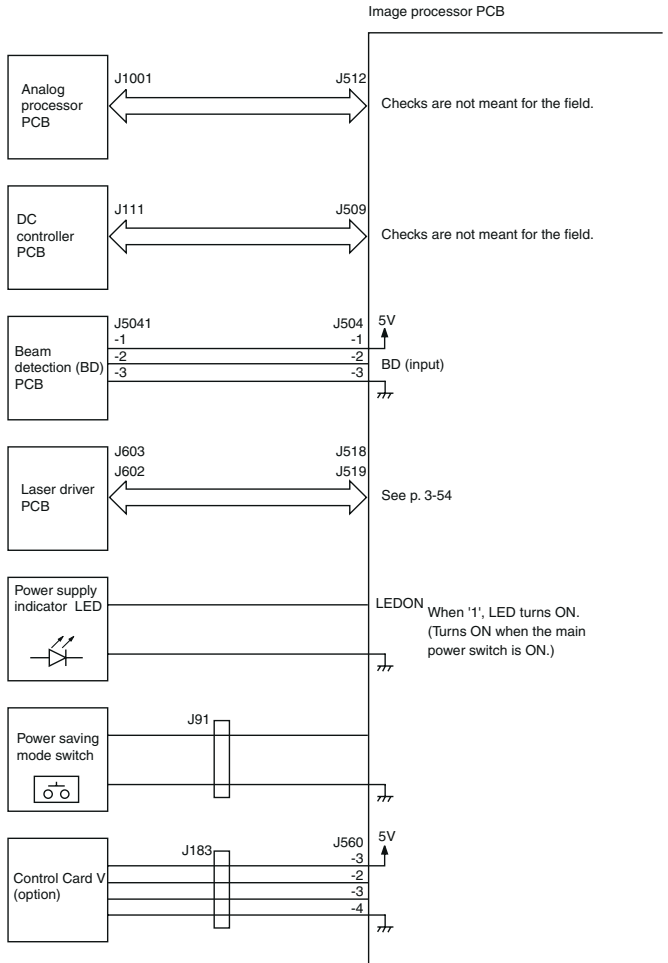


Image processor PBA (2/3): inputs and outputs.

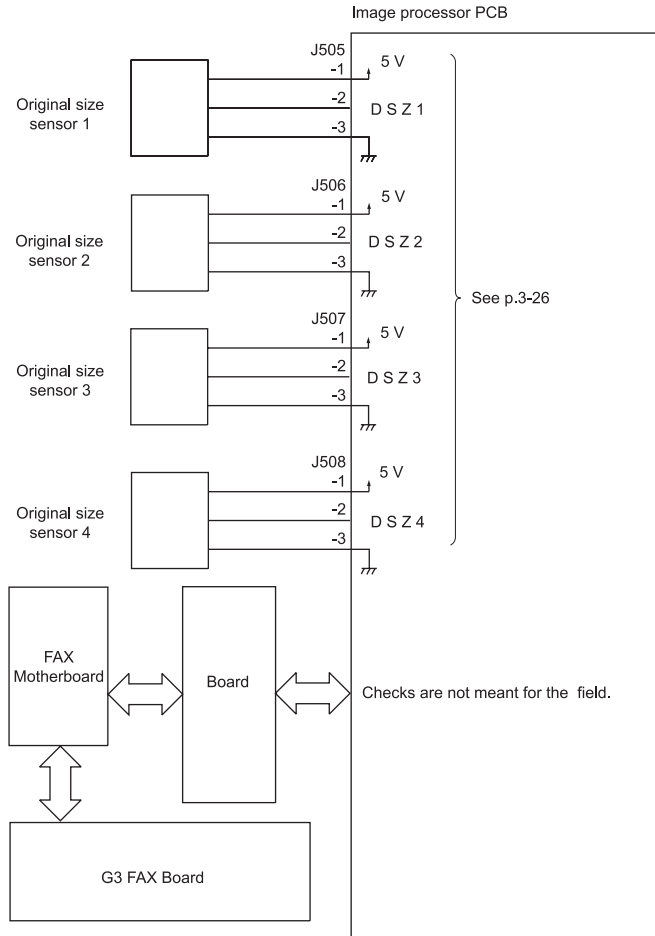
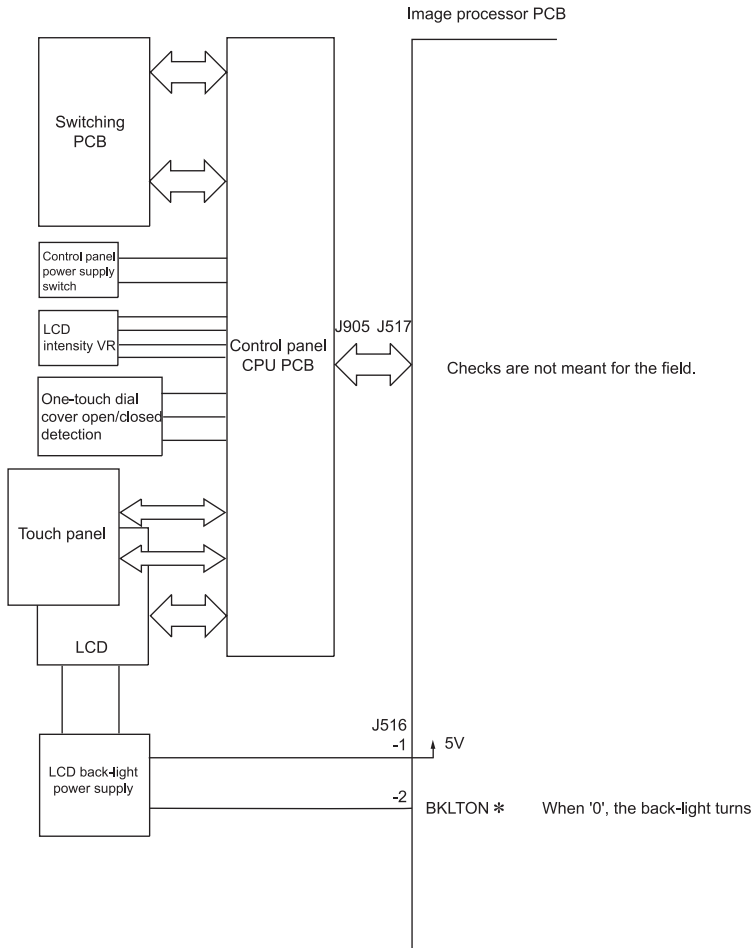
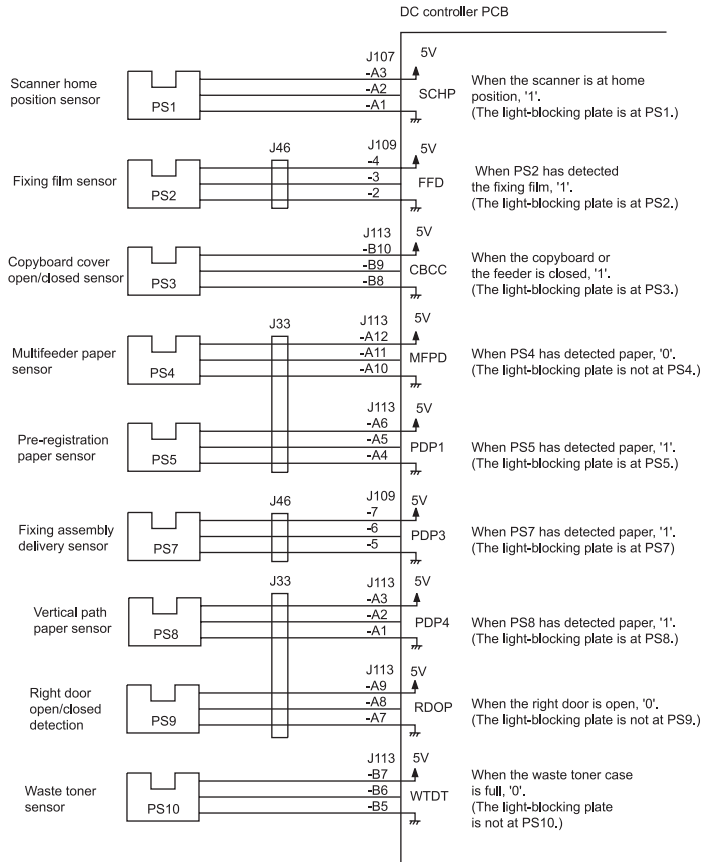


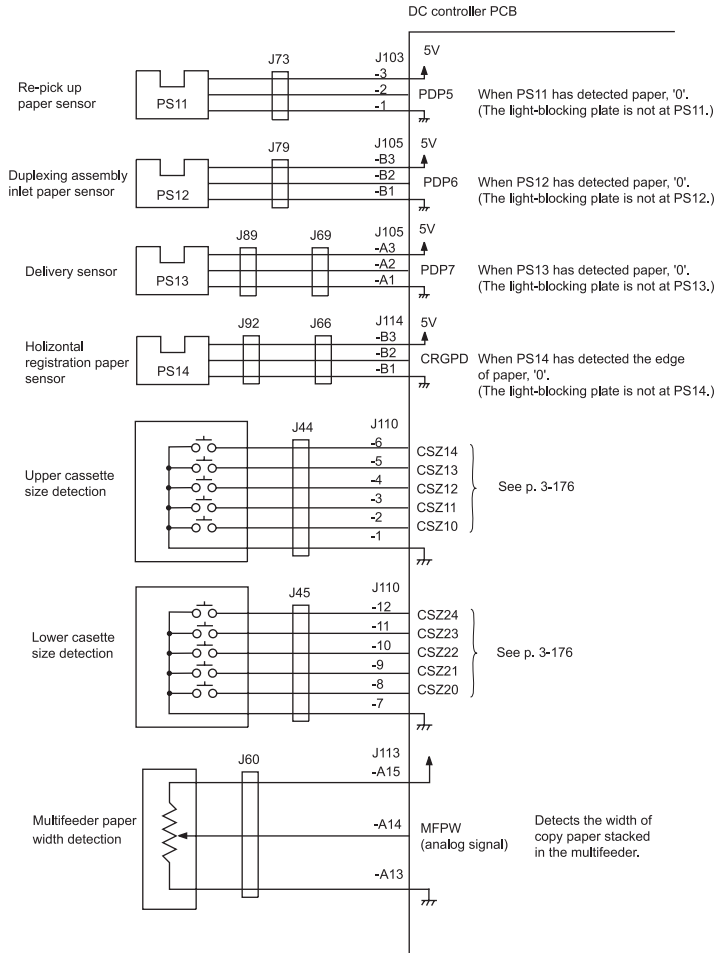
Image processor PBA (3/3): inputs and outputs.



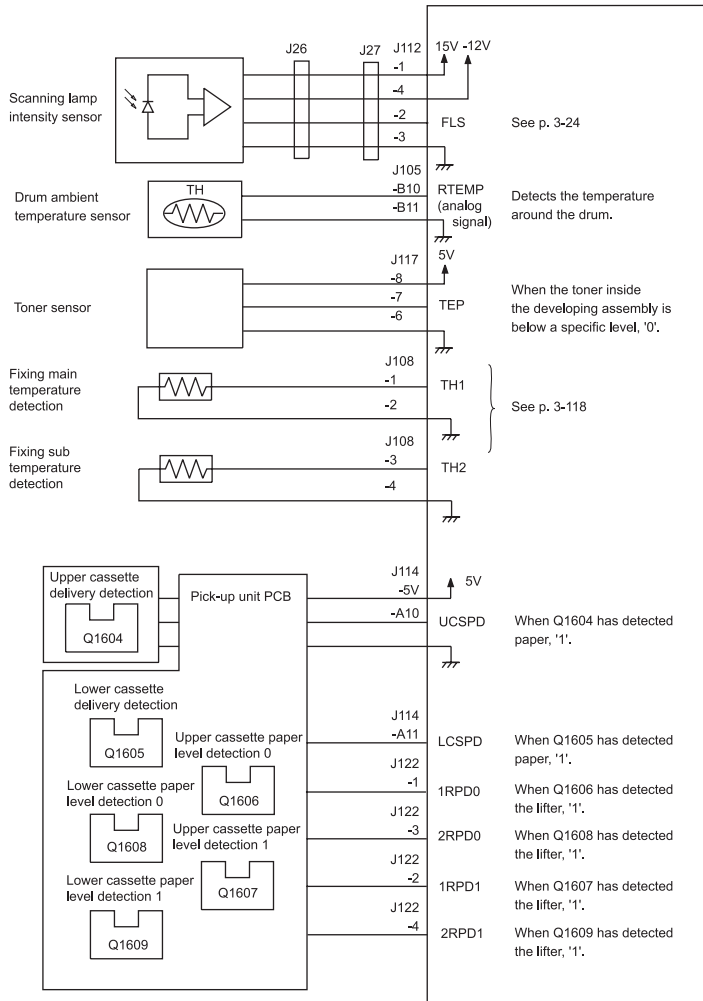
DC Control PBA (1/3): inputs



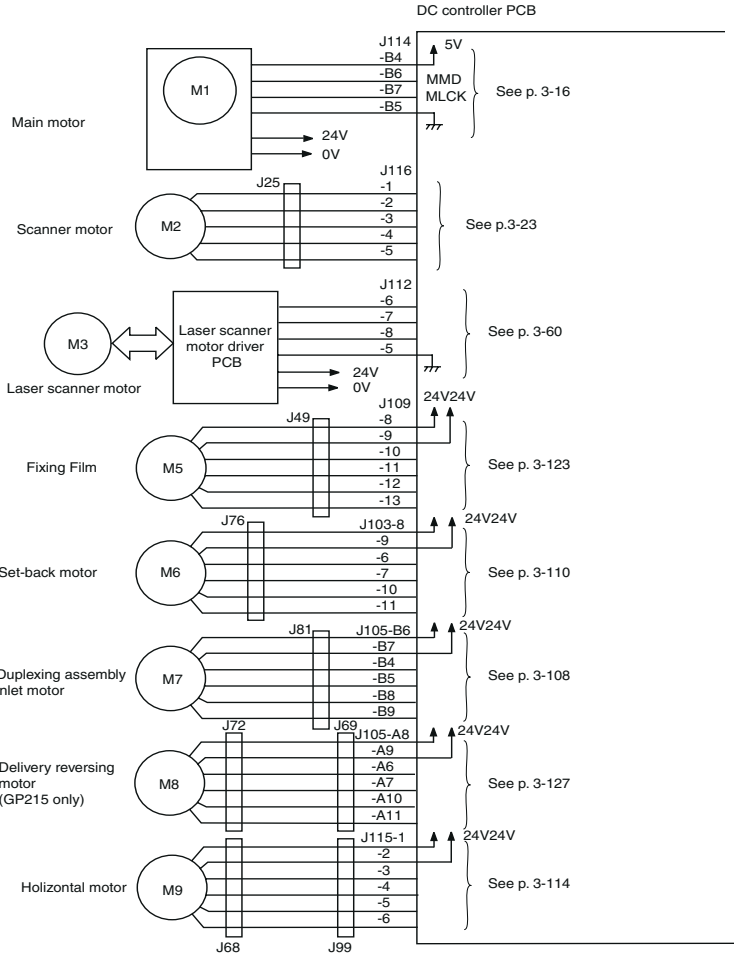
DC Control PBA (2/3): inputs



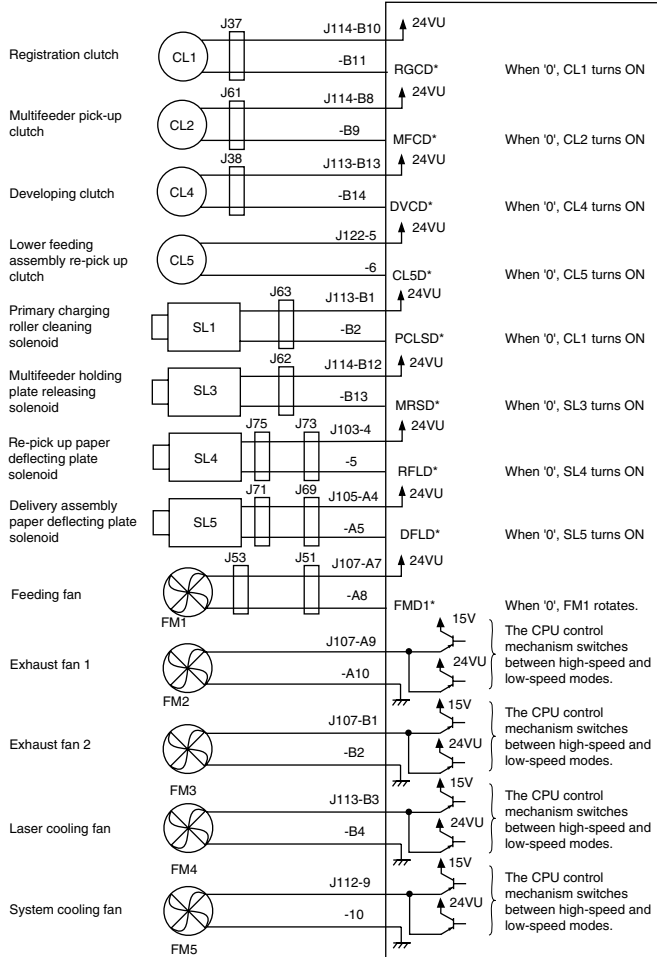
DC Control PBA (3/3): inputs



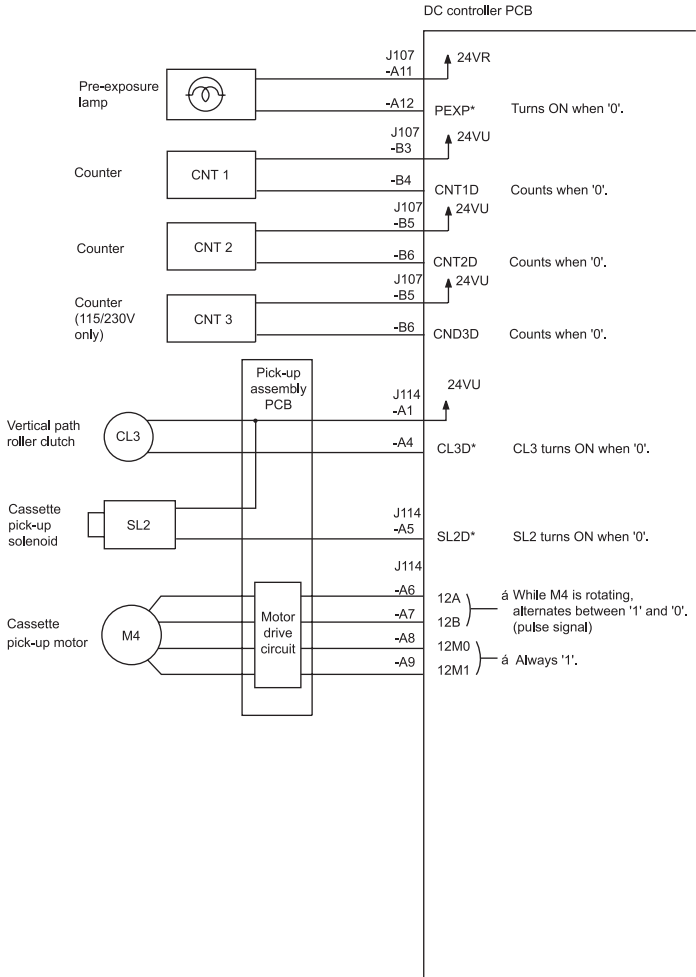
DC control PBA (1/3): outputs

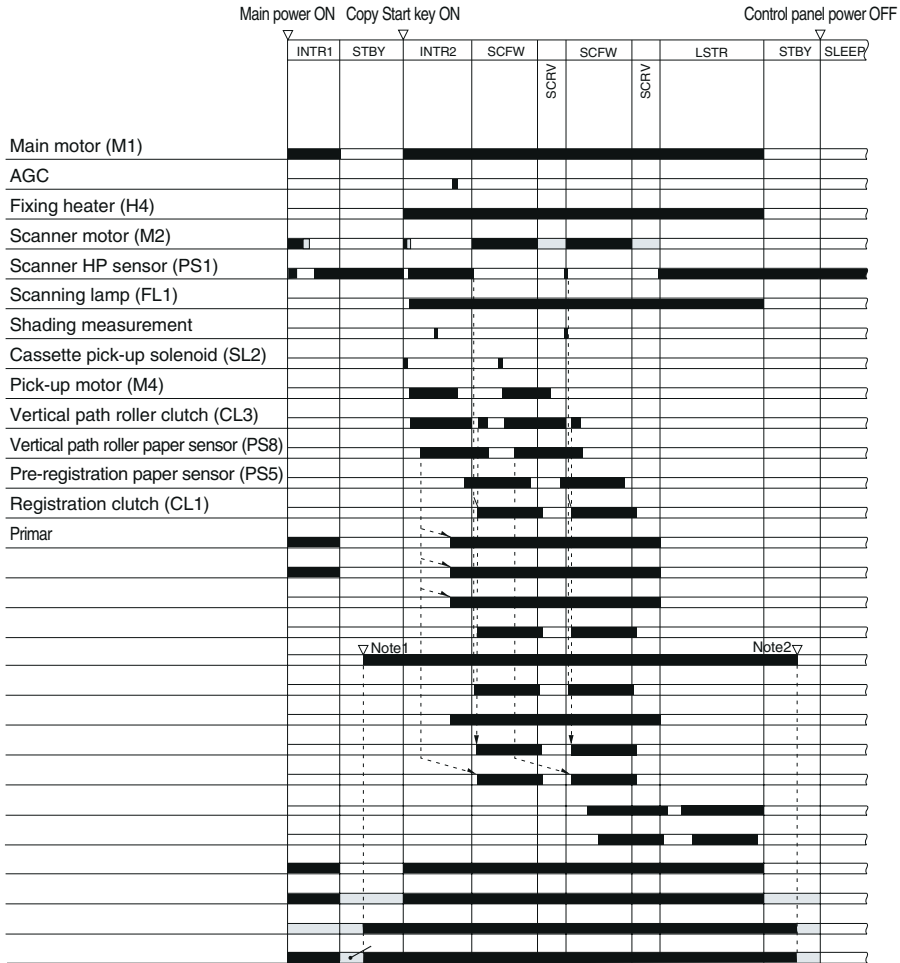


DC control PBA (2/3): outputs



DC control PBA (3/3): outputs





Note: 1, A button on the operating panel is pressed. Or, a document is placed in the DF.

Note: 2, Varies according to the time set in user mode (quiet mode).

Period		Purpose	Remarks
TNTR1 (initial rotation 1)		From when the machine is switched ON. Or, when the front panel is open or closed. Up to the commencement of standby.	Measures the resistance of the OPC
SLEEP (sleep)	Economy mode (SLEEP 2)	When the ON/OFF switch on the operating panel is OFF and the main ON/OFF switch is ON. Fax reception is enabled but printer functions are disabled.	Switches OFF the loads when the machine is not used for a long time (such as at night). For details on “power saving mode” see the appropriate descriptions under “Power Supply.”
	Quick-start mode (SLEEP 1)	When the ON/OFF switch on the operating panel is OFF and the main ON/OFF switch is ON. Fax reception and printer functions are enabled.	
INTR2 (initial rotation 2)		From when the copy button is pressed, until the scanner starts to move forward.	Stabilizes the drum sensitivity, preparing for the copying operation. Executes shading correction.
SCFW (scan forward)		While the scanner is moving forward. The distance that the scanner moves forward varies according to the selected paper size and the reproduction ratio.	The scanning lamp illuminates the document. The reflection is projected on the CCD, via mirrors and lenses. The forward movement is related to the detection signal for the vertical transport.
SCRV (scan reverse)		While the scanner is moving in reverse.	Returns the scanner to the home position, preparing for the next copying operation.

Period		Purpose	Remarks
LSTR (last rotation)	From the end of SCRIV until the copy passes the output sensor.	Cleans the surface of the drum: dissipation of residual charge.	Delivers the last output. Two minutes after the end of LSTR, the display on the operating panel is reset to 'standard screen'. (The 2 minute delay is a variable.)

Detection of errors on the power supply PBA

The power supply PBA has an internal diagnostic function. This checks for errors in the output from the PBA, and the communication with the DC control PBA.

The results are shown by varying the flash pattern of the LED100. Refer to the troubleshooting chapter to find out the descriptions.

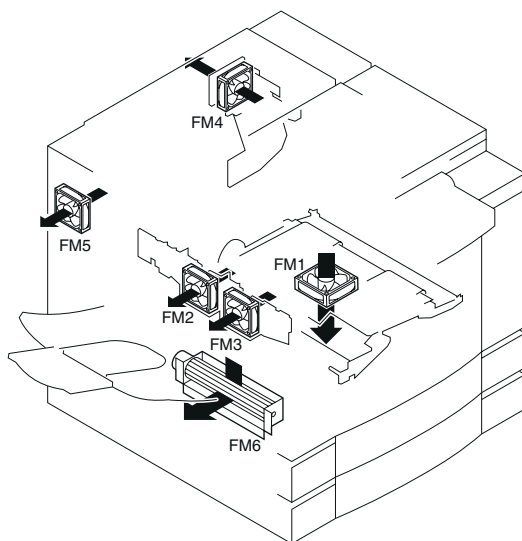
Electrical adjustments after replacing major PBA's

2 Fans

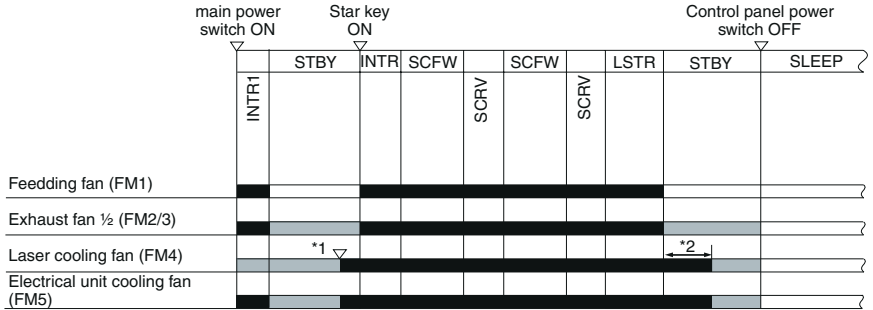
Functions and Operations

Five fans are used in the machine.

No.	Name	Air flow	Function
FM1	Feeding fan	Suction	Holds the copy paper against the feeding belt.
FM2	Exhaust fan	Suction	Exhausts heat.
FM3			
FM4	Laser cooling fan	Suction	Cools the laser unit.
FM5	Electrical unit fan	Suction	Exhausts the heat from the electrical unit.
FM6	Refeed cooling fan	Exhaust	Cooling the copy paper in the refeed unit



Timing of operations



■ High-speed rotation

■ Low-speed rotation

1: Quiet mode is set to either 1 through 9 min; the operation occurs when

* A key is pressed,

* An original is placed in the feeder, or

* The copyboard cover or the feeder is opened.

2: Varies depending on the setting for quiet mode.

3 Power supply

The machine's DC power is generated by the composite power supply PBA. The composite power supply PBA serves as the DC power supply and also as a lamp unit and a high-voltage transformer unit. The table is a block diagram of the entire composite power supply PBA, and gives an outline of the DC power supply.

Power supply PBA: output

Output voltage	Output voltage
24VR	24V±5%
24VU	24V±10%
+7V	8.75V±26%
+15V	15V±5%
-12V	-12V±5%
5.1V	5.1V±3%
+5V	+5V

Power Supply :SLEEP mode

SLEEP mode = ON/OFF switch on the operating panel is OFF.

There are two possibilities:

SLEEP2 = economy mode, or

SLEEP1 = quick start mode.

Economy mode (SLEEP 2)

Power is supplied only to the CPU on the power supply PBA.

A separate facility is provided for the power required for the printer functions.

Fax reception is enabled.

When a transmission is received, the CI signal is generated in the NCU. The CI signal is transmitted to the CPU on the power supply PBA, via the Fax motherboard PBA. This switches on the power supply PBA, to supply power to the other PBA.

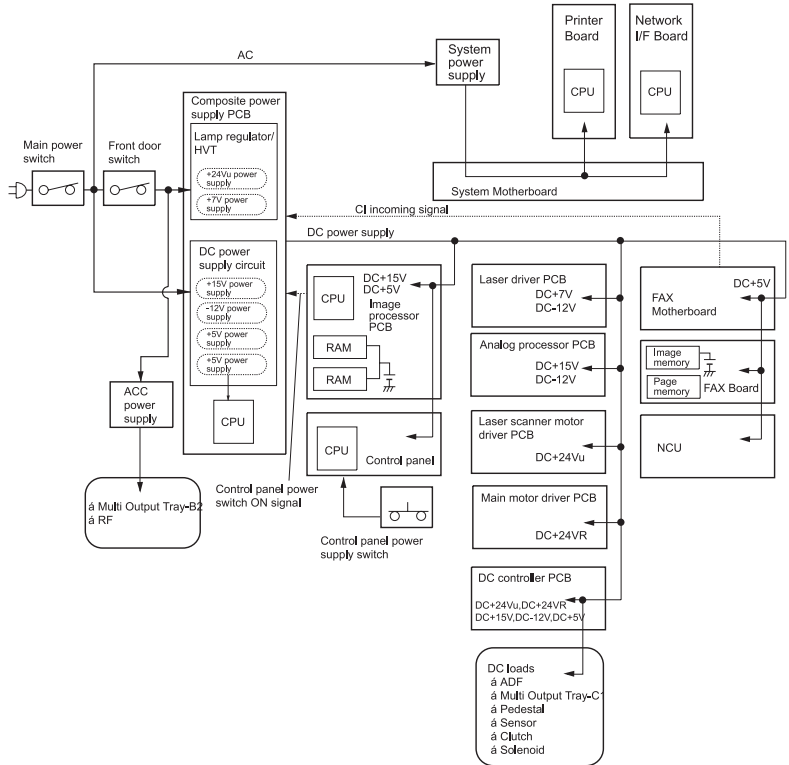
The printer functions are not enabled.

Economy mode is disabled for printer mode. The same applies if the fax mode is set to start at a specific time of the day.

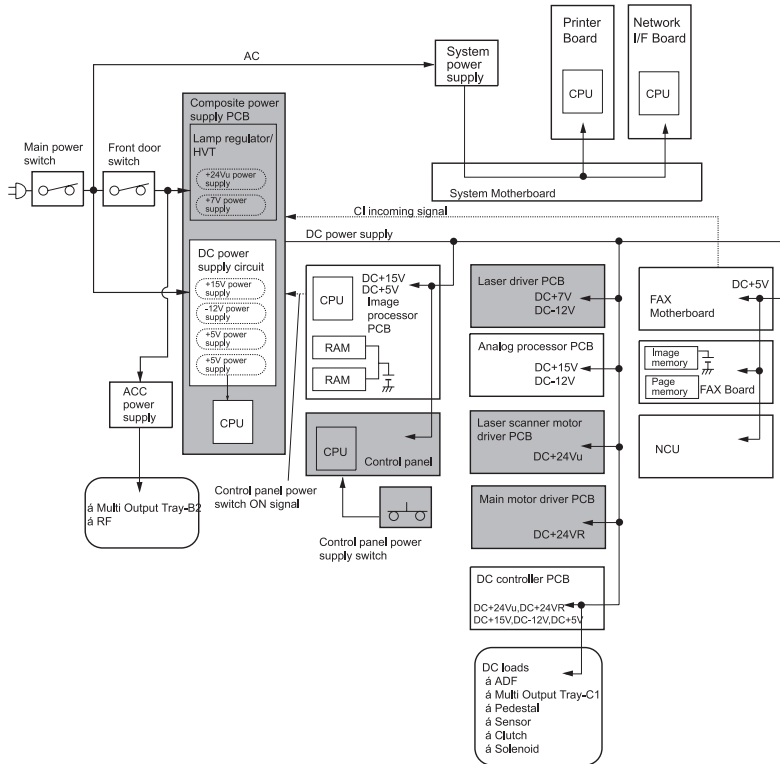
Quick-start mode (SLEEP 1)

In quick start mode, the image processor PBA and the DC CONTROL PBA (white areas in figure “Outline of Power Supply in SLEEP 1 (quick start mode)”) are supplied with power. In this mode, FAX and printer functions are enabled.

Outline of the power supply: standby

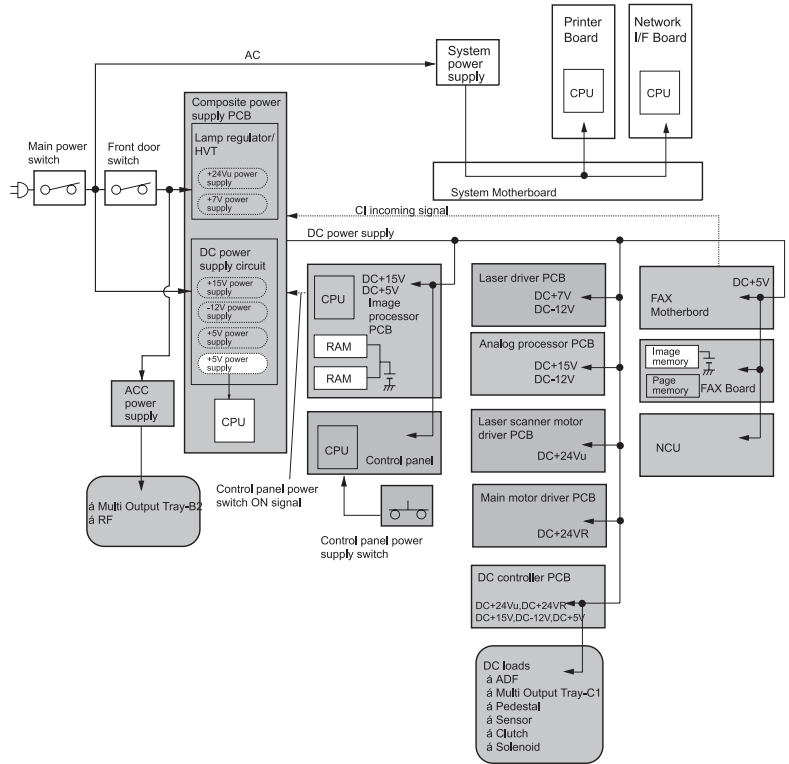


Outline of the power supply: SLEEP1 (quick start mode)



*Power is not supplied to the shaded functions.

Outline of the power supply: SLEEP2 (economy mode)



*Power is not supplied to the shaded functions.

4 SLEEP Mode

Four situations apply:

- Power OFF = the main ON/OFF switch is OFF.
- SLEEP 1 = quick start mode is enabled.
- SLEEP 2 = economy mode is enabled.
- Standby = the machine is ready for use.

The phasing of these situations is as follows:

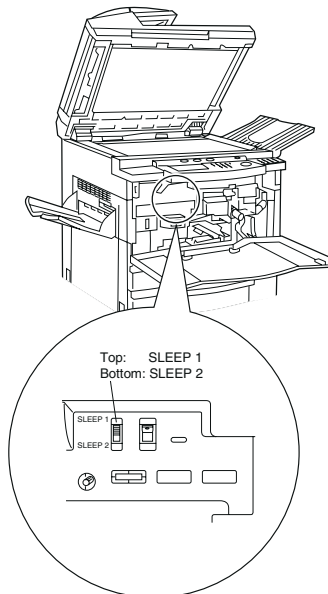
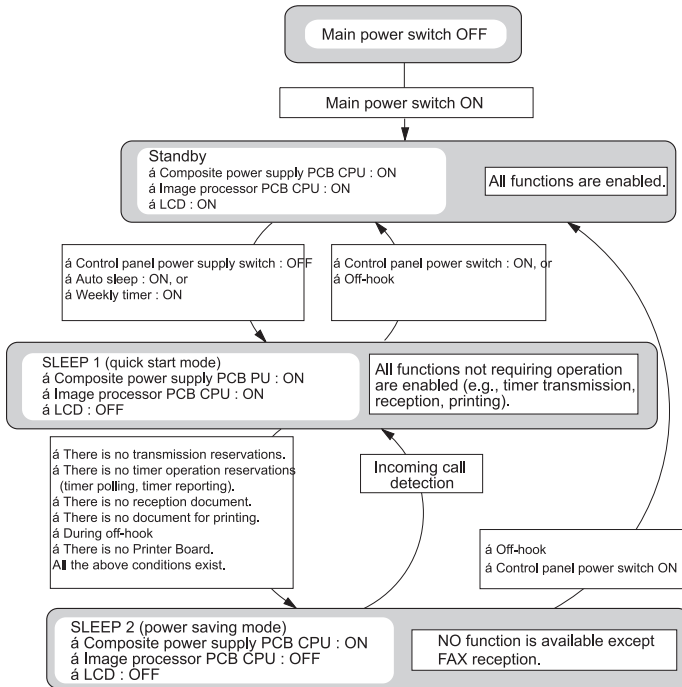
- 1 Power OFF to Standby
 - When the main ON/OFF switch is switched ON.
- 2 Standby to SLEEP 1
 - When the ON/OFF switch on the operating panel is switched ON.
 - When auto power-off is enabled, or
 - When a weekly timer is enabled.
- 3 SLEEP 1 to Standby
 - When the ON/OFF switch on the operating panel is switched ON, or
 - During off-hook.
- 4 SLEEP 1 to SLEEP 2

The microprocessor identifies jams as follows:

 - There are no transmission reservations.
 - There are no timer operation reservations (e.g., timer polling, timer reporting).
 - There is no reception document.
 - When there is no document waiting for printing.
 - During on-hook.
 - There is no printer board PBA.
 - The economy switch is at the bottom position.
- 5 SLEEP 2 to SLEEP 1
 - Occurs when an incoming call is detected.
- 6 SLEEP 2 to Standby
 - During off-hook.
 - When the ON/OFF switch on the operating panel is switched ON.
 - When the economy switch is switched ON (moved up).

State	Device				Description
	CPU on the power supply PBA	CPU on the image processor PBA	LCD	FAX image memory	
Power OFF	Stops	Stops	Stops	Retained by battery	None
SLEEP 2	Operates	Operates	Operates	Retained by power supply	Fax reception is enabled; after receipt, it moves to sleep 1
SLEEP 1					Remote functions are enabled: e.g. fax transmission, fax reception, printing.
Standby			Operates		All functions are available

Cycle of SLEEP Mode States



5 Signals and Abbreviations

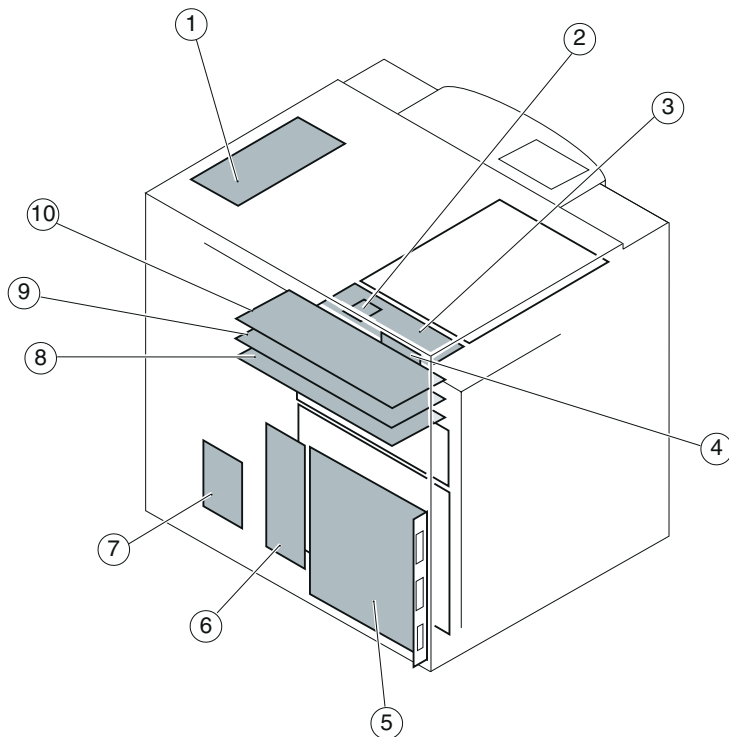
1.	Signals
IRPD0	UPPER CASSETTE PAPER DETECTION 0 signal
IRPD1	UPPER CASSETTE PAPER DETECTION 1 signal
2RPD0	LOWER CASSETTE PAPER DETECTION 0 signal
3RPD1	LOWER CASSETTE PAPER DETECTION 1 signal
ACON	AC DEVELOPING BIAS DRIVE command
APCON	AUTO POWER CONTROL ON command
ASCNTP	ASSIST COUNTER PULSE signal
ASRXD	ASSIST RECEPTION DATA signal
ASTDX	ASSIST TRANSMISSION DATA signal
BD	BEAM DETECT signal
BKLTON	BACK LIGHT ON signal
CBCC	COPYBOARD COVER CLOSED signal
CCV CONNECT	CONTROL CARD CONNECT signal
CCV COUNT	CONTROL CARD COUNTER PULSE signal
CI	CALLING INDICATOR signal
CL3D	VERTICAL PATH ROLLER CLUTCH 3 DRIVE command
CL5D	ROLLER CLUTCH 5 DRIVE command
CNT1D	COUNTER DRIVE 1 command
CNT2D	COUNTER DRIVE 2 command
CNT3D	COUNTER DRIVE 3 command
CS10_D	UPPER CASSETTE SIZE DETECTION signal 0
CS11_D	UPPER CASSETTE SIZE DETECTION signal 1
CS12_D	UPPER CASSETTE SIZE DETECTION signal 2
CS13_D	UPPER CASSETTE SIZE DETECTION signal 3
CS14_D	UPPER CASSETTE SIZE DETECTION signal 4
CS20_D	LOWER CASSETTE SIZE DETECTION signal 0
CS21_D	LOWER CASSETTE SIZE DETECTION signal 1
CS22_D	LOWER CASSETTE SIZE DETECTION signal 2
CS23_D	LOWER CASSETTE SIZE DETECTION signal 3
CS24_D	LOWER CASSETTE SIZE DETECTION signal 4
DCH	DC DEVELOPING BIAS DRIVE command
DCON	DC DEVELOPING BIAS DRIVE command
DFLD	DELIVERY DEFLECTION SOLENOID DRIVE signal
DSZ1	DOCUMENT SIZE DETECTION signal 1
DSZ2	DOCUMENT SIZE DETECTION signal 2
DSZ3	DOCUMENT SIZE DETECTION signal 3
DSZ4	DOCUMENT SIZE DETECTION signal 4
DVCD	DEVELOPING CLUTCH DRIVE signal

1.	Signals
FFD	FIXING FILM DETECTION command
FL_S	FLUORESCENT LAMP INTENSITY signal
FLPRTH	FLUORESCENT LAMP PRE THERMISTOR signal
FLPWM	FLUORESCENT LAMP PWM DRIVE command
FLTH	FLUORESCENT LAMP THERMISTOR signal
Cassette 1	FAN1 (FM1) DRIVE command
Cassette 2	EXHAUST FAN2 (FM2) DRIVE command
Cassette 3	EXHAUST FAN3 (FM3) DRIVE command
Cassette 4	FAN4 (FM4) DRIVE command
Cassette 5	FAN5 (FM5) DRIVE command
Cassette 6	FAN6 (FM6) DRIVE command
FS	FS signal
HTNG	HEATER NG signal
HTRD	HEATER DRIVE command
HVTM0	HIGH VOLTAGE TRANSFER MODE 0
HVTM1	HIGH VOLTAGE TRANSFER MODE 1
LCSPD	LOWER CASSETTE PAPER DETECTION signal
LED 102	PILOT LED DRIVE command
LMD	LAZER SCANNER MOTOR DRIVE command
LOCK	LAZER SCANNER MOTOR LOCK signal
LOW DETECT	ONE TOUCH DIAL LOW DETECTION signal
LSRD	LASER DRIVE command
MFCK	MULTIFEEDER CLUTCH DRIVE signal
MFPD	MULTIFEEDER PAPER DETECTION signal
MFPW	MULTIFEEDER PAPER WIDTH signal
MMCK	MAIN MOTOR CLOCK signal
MMD	MAIN MOTOR DRIVE command
MRSD	MULTIFEED ROLLER SOLENOID DRIVE command
PCSD	PRIMARY CHARGING ROLLER CLEANING SOLENOID DRIVE command
PDP1	PAPER DETECTION signal 1
PDP3	PAPER DETECTION signal 3
PDP4	VERTICAL PATH PAPER DETECTION signal 4
PDP5	PAPER DETECTION signal 5
PDP6	PAPER DETECTION signal 6
PDP7	PAPER DETECTION signal 7
PEXP	PRE-CONDITIONING EXPOSURE LAMP LIT command
RDOD	RIGHT DOOR OPEN DETECTION signal
RFLD	REPICK UP ROLLER SECTION SOLENOID DRIVE signal
RGCD	REGIST CLUTCH DRIVE signal
RTEMP	DRUM TEMPERATURE DETECTION signal

1.	Signals
SCHP	SCANNER HOME POSITION signal
SEBON	SEPARATION STATIC ELIMINATOR ON command
SH	SAMPLE HOLD signal
SL2D	SOLENOID DRIVE signal 2
SRGPD	SIDE REGISTRATION PAPER DETECTION signal
Laser ON	ANTI-CONDENSATION HEATER SWITCH DRIVE command
SW0	LIGHT INTENSITY SW0
SW1	LIGHT INTENSITY SW1
TEP	TONER EMPTY signal
TH1	FIXING THERMISTOR 1 signal
TH2	FIXING THERMISTOR 2 signal
UCSPD	UPPER CASSETTE PAPER DETECTION signal
UP DETECT	ONT TOUCH DIAL UP DETECTION signal
VPPD	CASSETTE CERTICAL PATH PAPER DETECTION signal
WTDT	WASTE TONER DETECTION signal

Location of components

1 Location of the extension boards

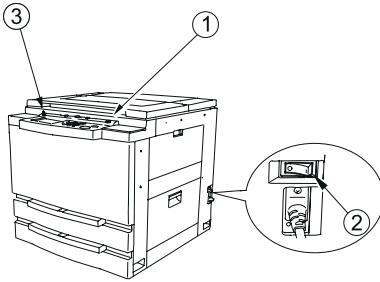


- | | |
|-----------------------|--------------------------|
| 1 SCSI PBA | 6 System motherboard PBA |
| 2 CIST PBA | 7 System power supply |
| 3 CORE/IP PBA | 8 Protocol control PBA |
| 4 FAX Motherboard PBA | 9 Network interface PBA |
| 5 Printer PBA | 10 FAX PBA |

Operation

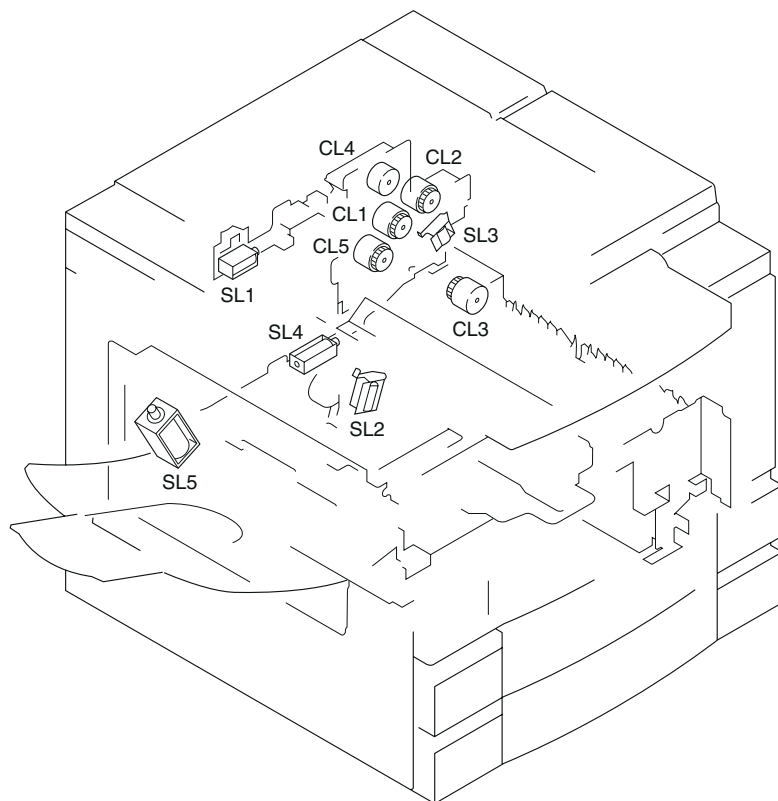
Switching ON.

The copier has two power switches: the ON/OFF switch, and the power switch on the operating panel. The ON/OFF switch should be operated first.



- 1 Control panel: ON/OFF switch
- 2 ON/OFF switch
- 3 Main power supply lamp

2 Clutches and solenoids



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CL1 Drives the registration roller

CL2 Drives the pick-up roller for specialities

CL1 Drives the vertical transport roller

CL4 Drives the developing roller

CL5 Drives the refeed assembly pick-up

SL1 Drives the cleaner for the charging roller

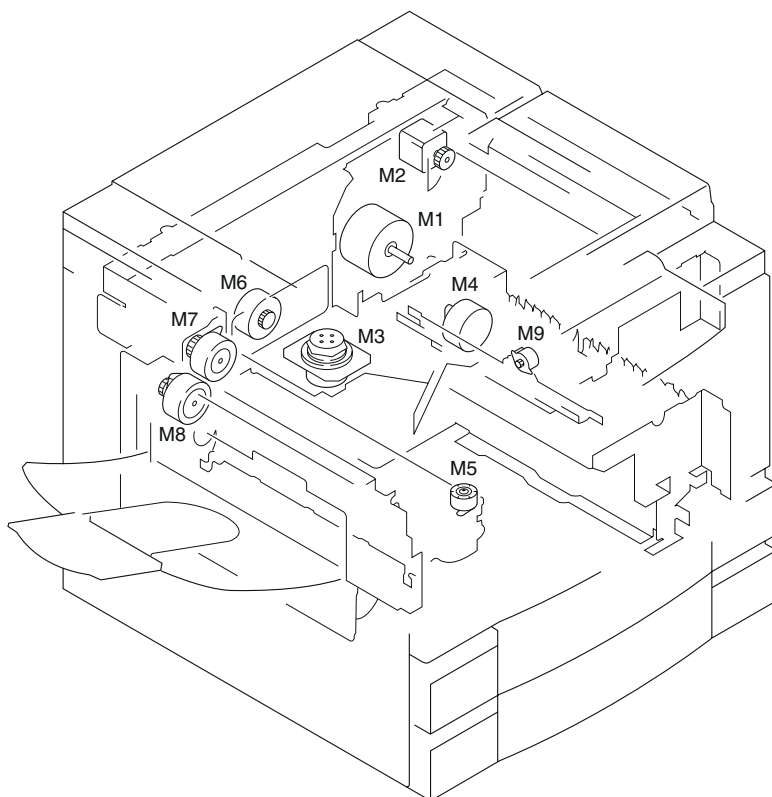
SL2 Lowers the pick-up roller

SL3 Releases the specialities

SL4 Drives the deflecting plate for the re-feed

SL5 Drives the deflecting plate for output

3 Motors



M1 Main motor

M2 Scanner motor

M3 Laser scanner motor

M4 Pick-up motor

M5 Fusing film motor

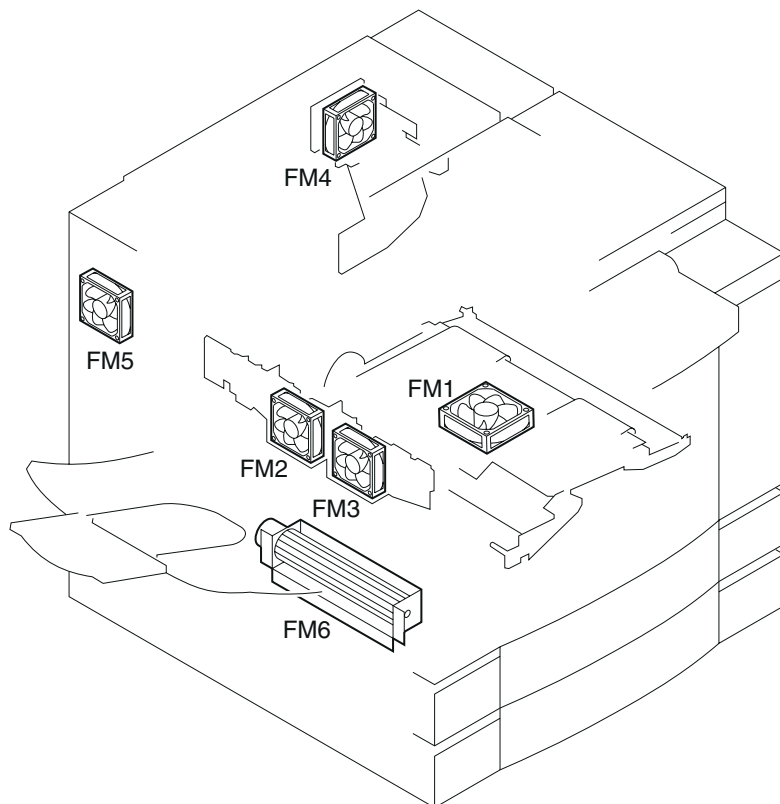
M6 Motor for the retarding roller

M7 Duplex motor

M8 Motor for the output roller

M9 Horizontal registration: sensor drive motor

4 Fans



FM1 Feeding fan

FM2 Delivery fan 1 (rear)

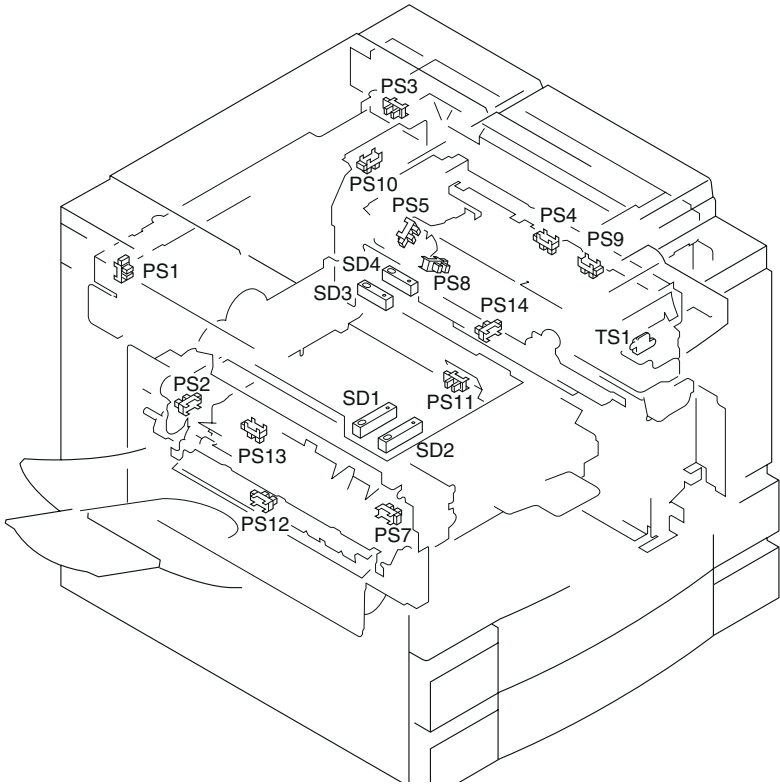
FM3 Delivery fan 2 (front)

FM4 Laser cooling fan

FM5 Electrical unit fan

FM6 Lower feed: inlet fan

5 Sensors



PS1 Detects 'scanner home position'

PS2 Detects 'displacement of the fixing film'

PS3 Detects 'platen cover open or closed'

PS4 Detects 'paper in the speciality tray'

PS5 Detects 'paper in front of the registration assembly'

PS7 Detects 'output from the fuser'

PS8 Detects 'paper in front of the vertical transport'

PS9 Detects 'right door open/closed'

PS10 Detects 'waste toner'

PS11 Detects 'paper in front of the re-feed assembly'

PS12 Detects 'paper at the refeed unit inlet'

PS13 Detects 'output of paper'

PS14 Detects 'paper at the horizontal registration'

TS1 Detects 'level of remaining toner'

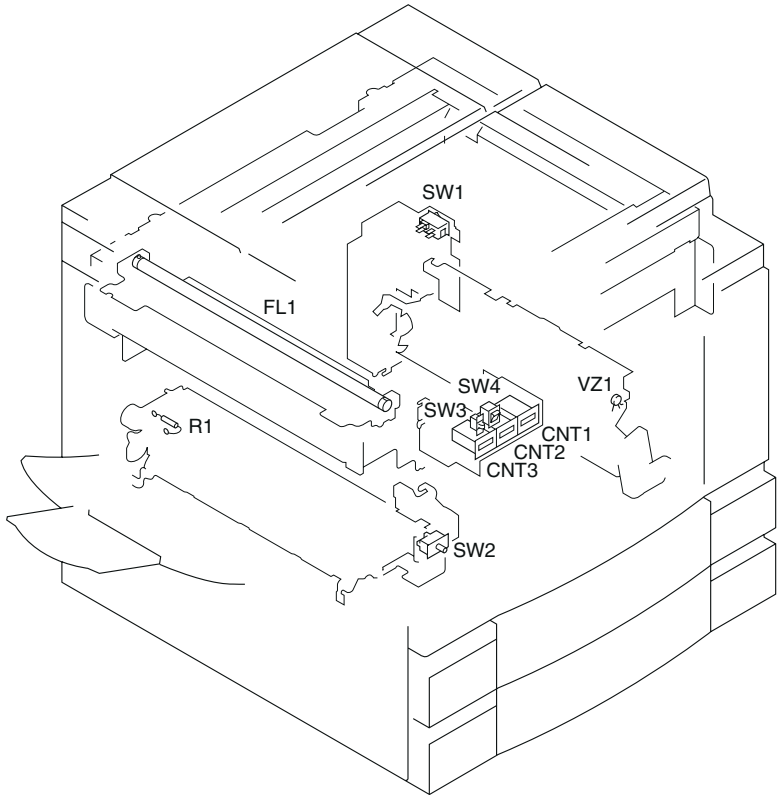
SD1 Document size sensor 1

SD2 Document size sensor 2

SD3 Document size sensor 3

SD4 Document size sensor 4

6 Switches and counters



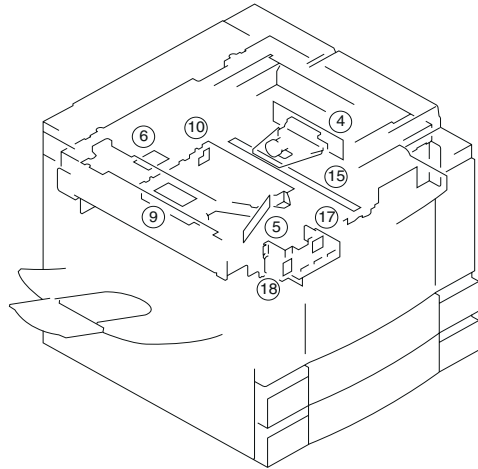
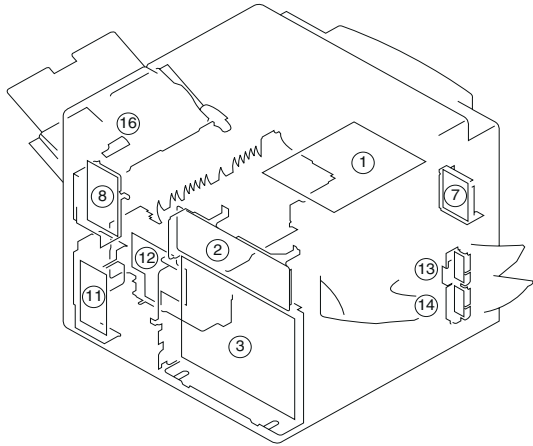
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SQ1 ON/OFF switch
SW2 Front door switch
SW3 Economy-mode switch
SW4 Cassette heater switch
CNT1 Counter 1

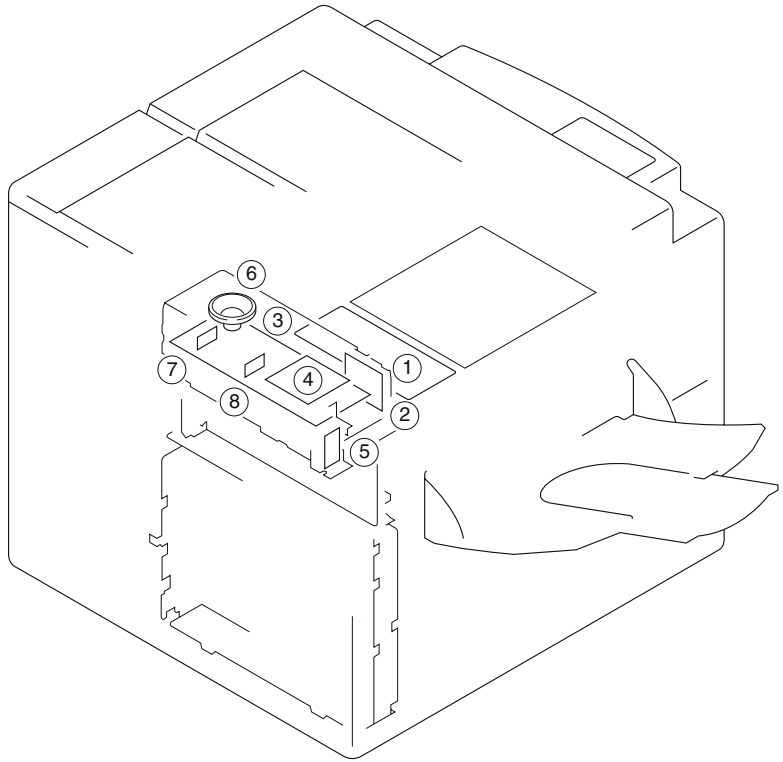
CNT2 Counter 2
CNT3 Counter 3
VZ1 Pre-registration guide varistor
R1 High voltage resistor
FL1 Scanning lamp

7 PBA's

- 1 Image processor PBA
- 2 DC control PBA
- 3 Power supply PBA
- 4 Analogue processor PBA
- 5 Laser driver PBA
- 6 Laser scanner motor driver
- 7 Fusing heater driver
- 8 Options power supply
- 9 Intensity adjusting sensor
- 10 BD PBA
- 11 Noise filter
- 12 Pick-up unit PBA
- 13 Cassette size detection (upper)
- 14 Cassette size detection (lower)
- 15 Pre-exposure lamp PBA
- 16 Speciality paper width detection PBA
- 17 Service switch PBA
- 18 LCD intensity adjustment PBA
- 19 LCD PBA (control panel)
- 20 CPU PBA (control panel)



8 Fax related PBA's



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1 CORE/IP PBA

2 FAX Motherboard PBA

3 FAX PBA

4 NCU

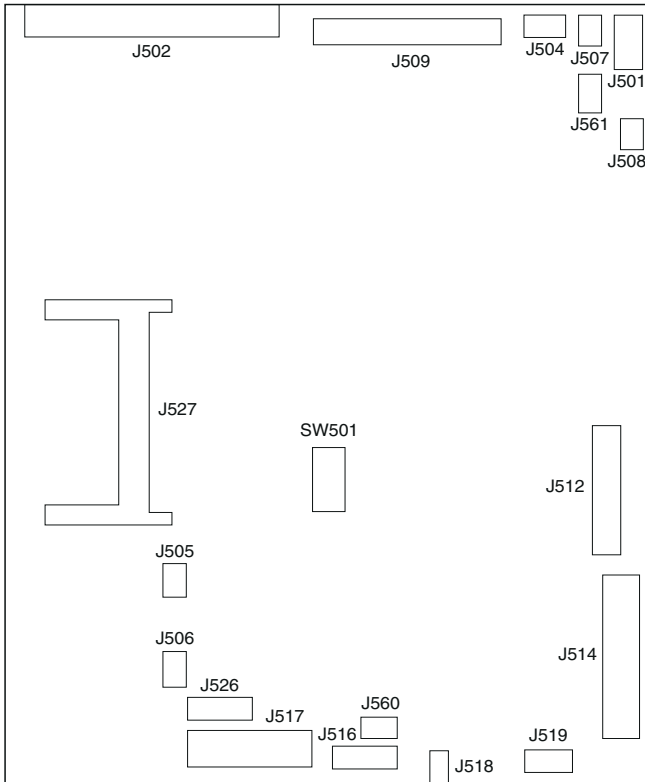
5 Modular jack PBA

6 Speaker

7 Expansion memory (option 3 MB or 9 MB, image memory)

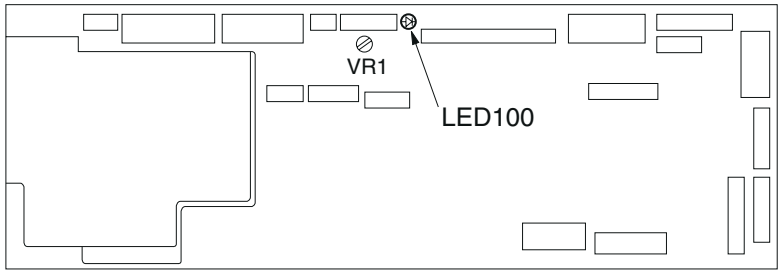
8 Expansion memory (option 3 MB, page memory)

9 Image processor PBA



	100V AB	120V Inch	230V A	230V AB/Inch
SW501	OFF ON 1 <input checked="" type="checkbox"/> <input type="checkbox"/>	OFF ON 1 <input type="checkbox"/> <input checked="" type="checkbox"/>	OFF ON 1 <input checked="" type="checkbox"/> <input type="checkbox"/>	OFF ON 1 <input type="checkbox"/> <input checked="" type="checkbox"/>
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	3 <input checked="" type="checkbox"/> <input type="checkbox"/>	3 <input type="checkbox"/> <input checked="" type="checkbox"/>	3 <input checked="" type="checkbox"/> <input type="checkbox"/>	3 <input type="checkbox"/> <input checked="" type="checkbox"/>
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	6 <input checked="" type="checkbox"/> <input type="checkbox"/>	6 <input checked="" type="checkbox"/> <input type="checkbox"/>	6 <input type="checkbox"/> <input checked="" type="checkbox"/>	6 <input type="checkbox"/> <input checked="" type="checkbox"/>

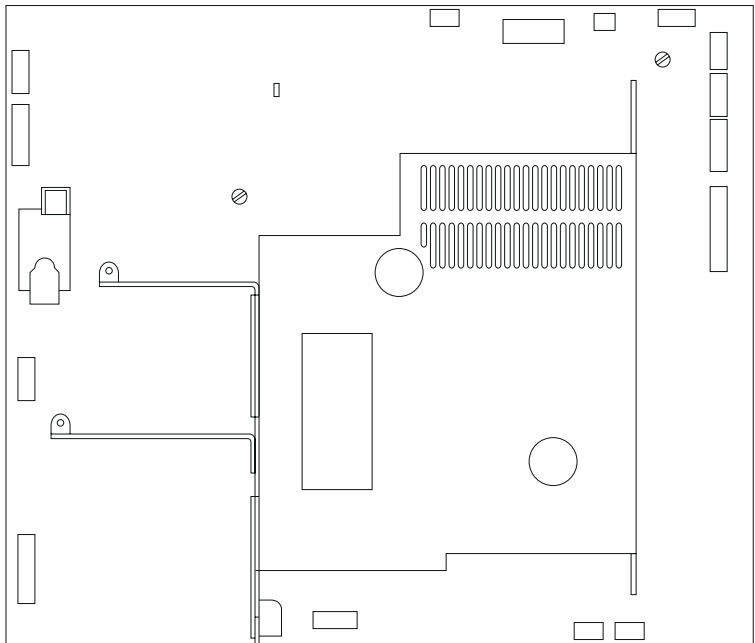
10 DC control PBA



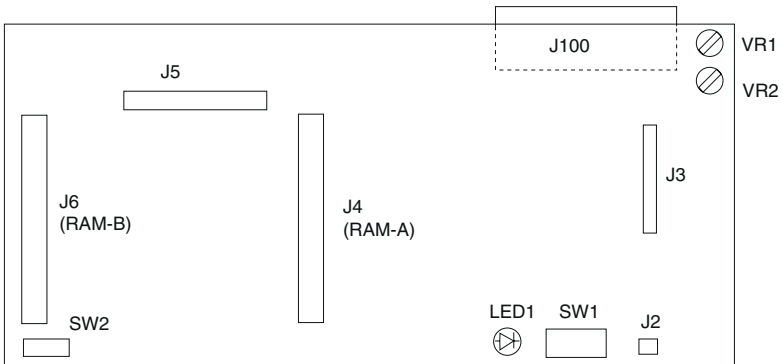
LED 100 indicates the condition of the power supply PBA, by varying ON/OFF intervals.

VR1 adjusts the intensity of the scanning lamp when executing 'factory/R&D shading' under *4* FUNCTION.

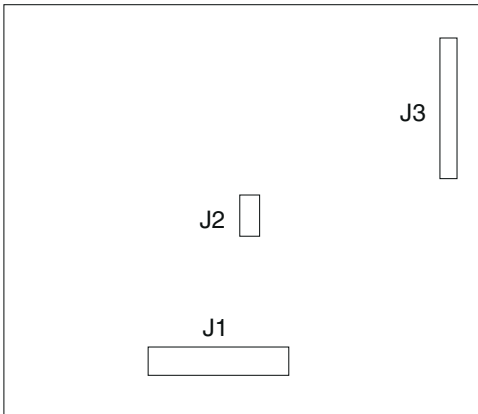
11 Power supply PBA



12 FAX PBA/NCU



RAM-A is the page memory. It enables the use of ultra-fine mode. (install RAM-B if RAM-A, 3 MB has been installed).

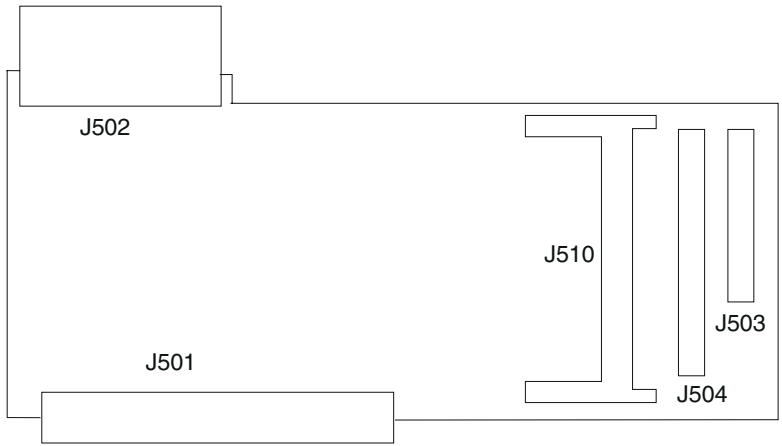


SW1 to be used with all bits OFF

SW2 to be OFF first when installing expansion memory. Then, ON after the work.

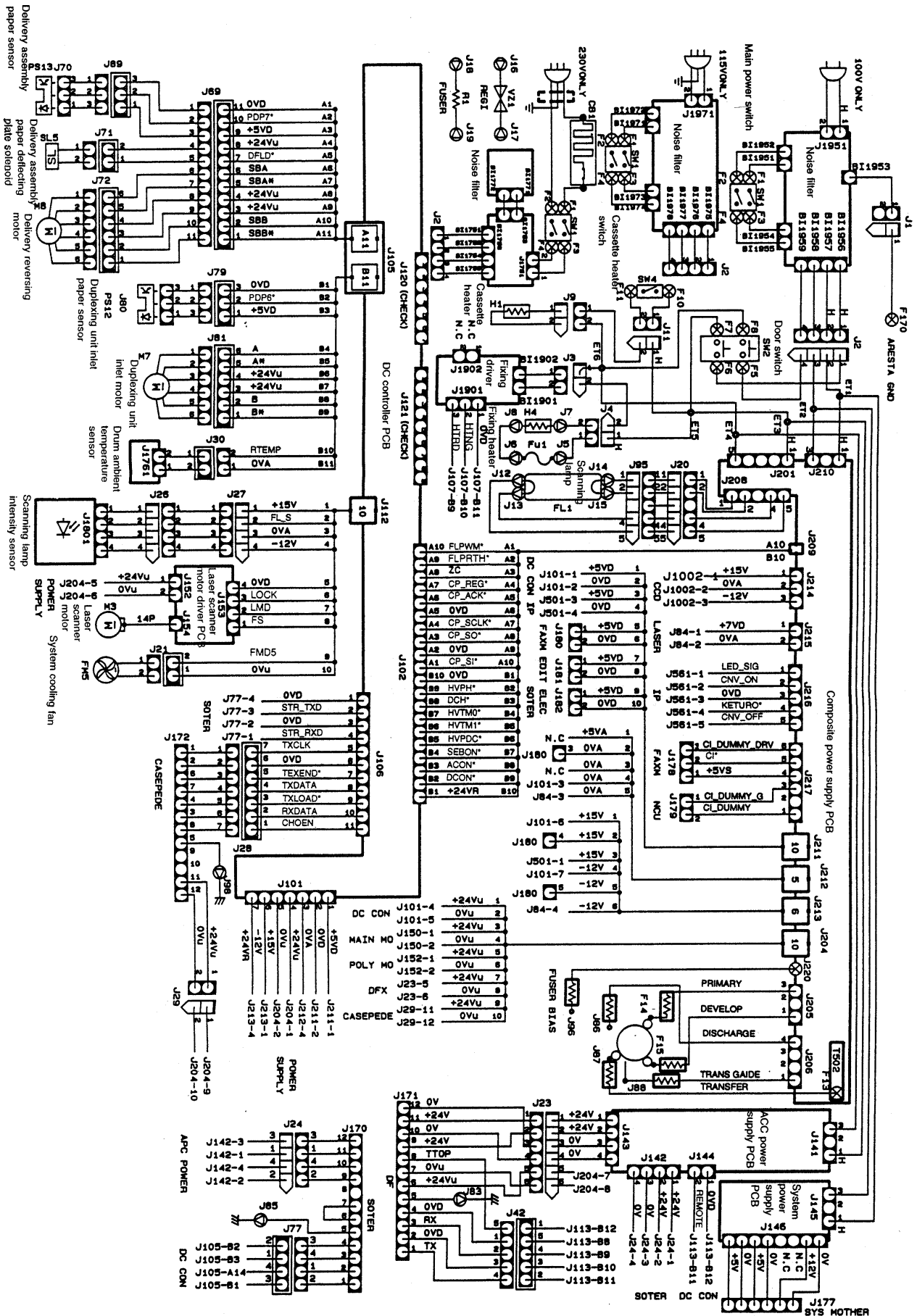
LED1 ON when 5V is supplied normally.

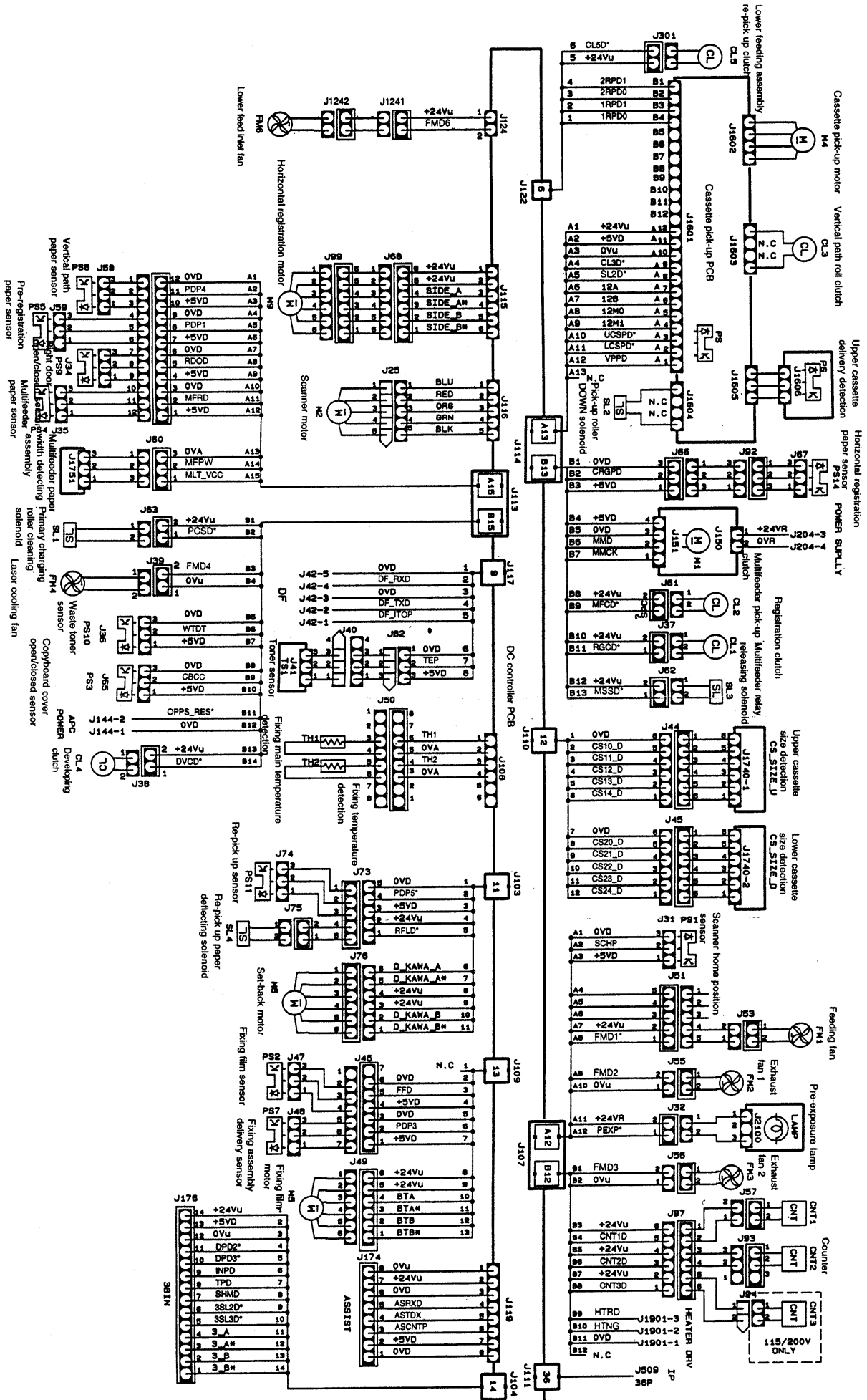
13 CORE/IP PBA

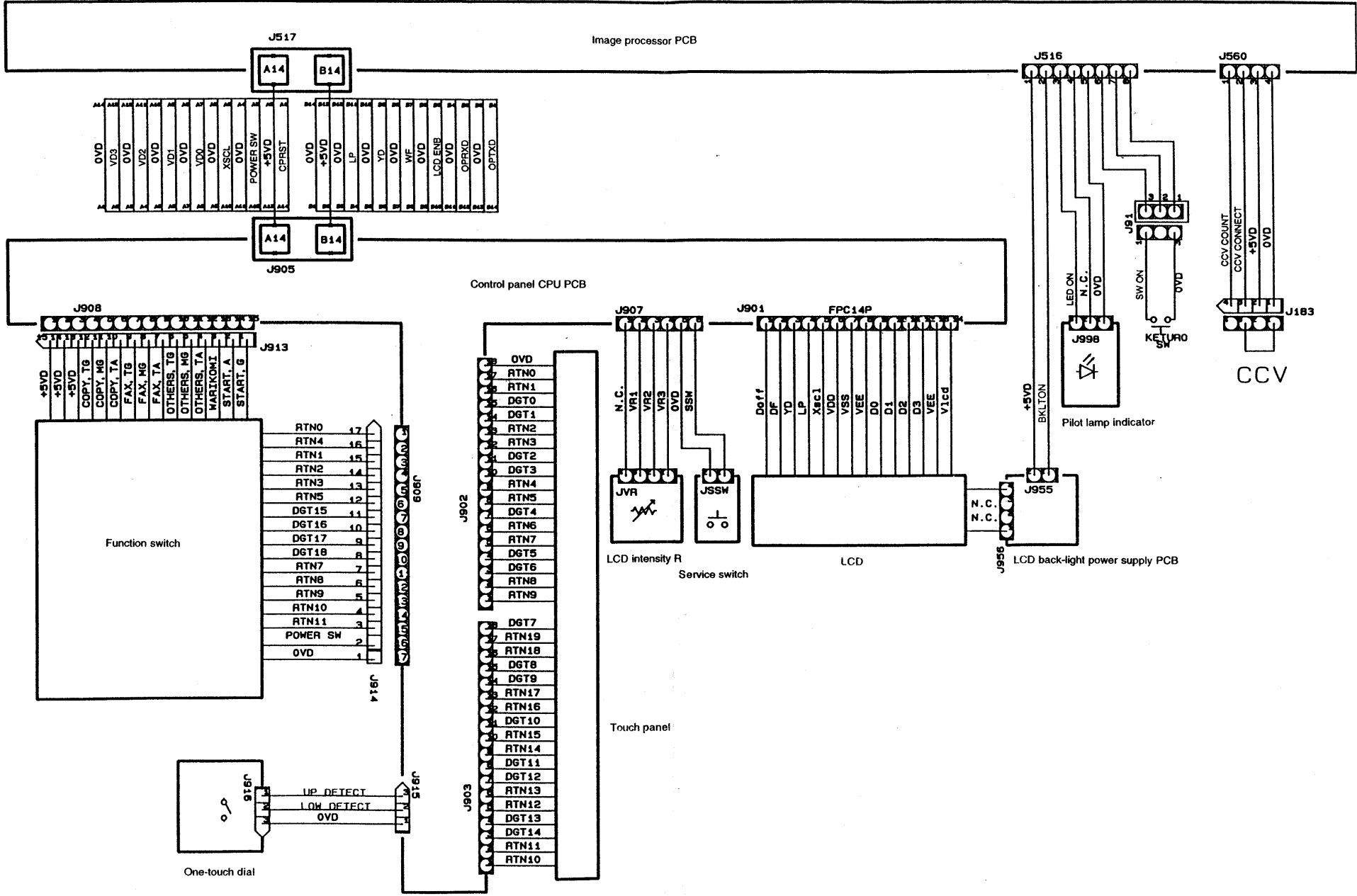


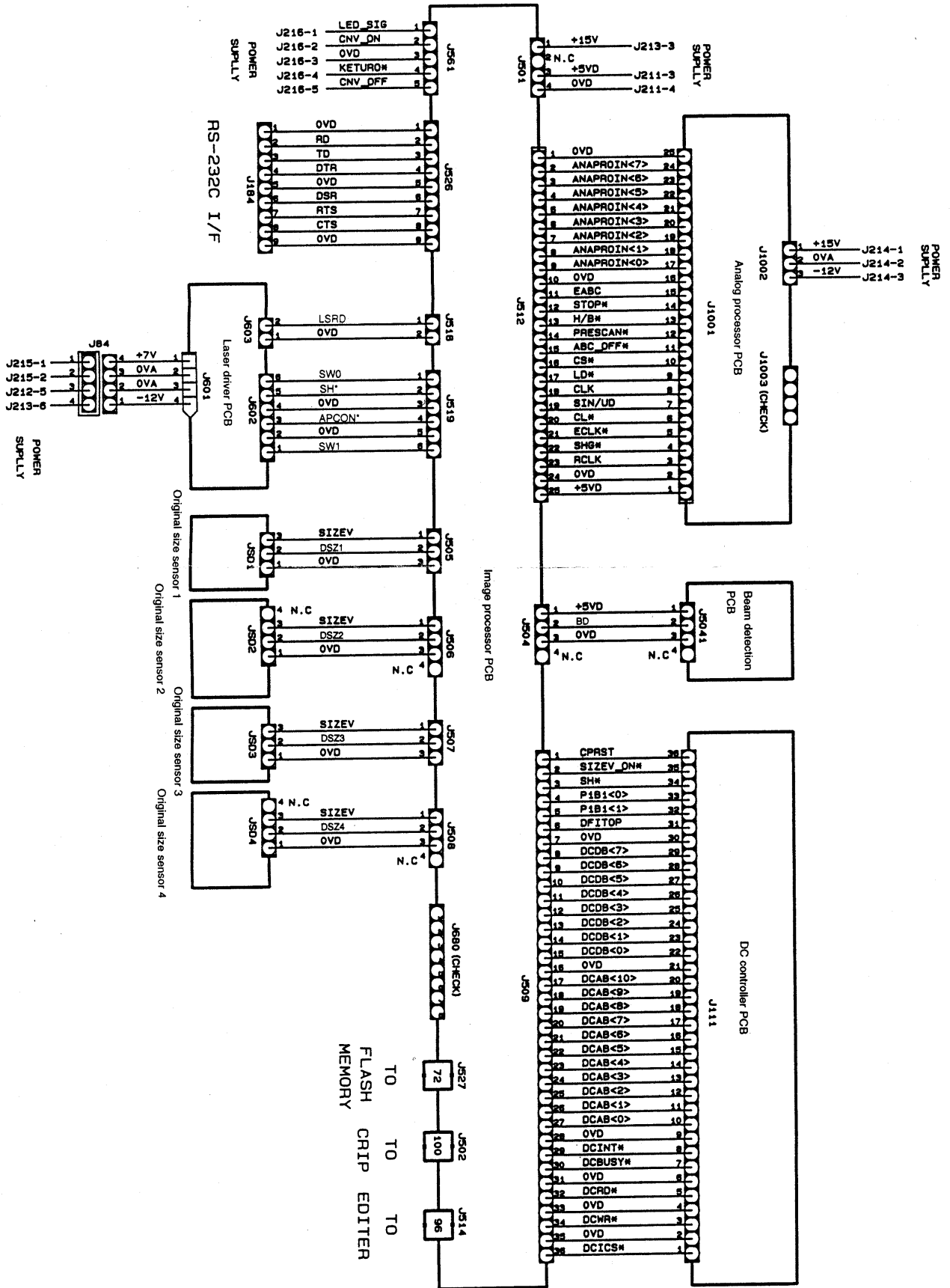
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Electrical diagrams

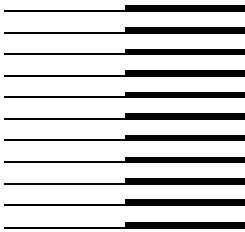




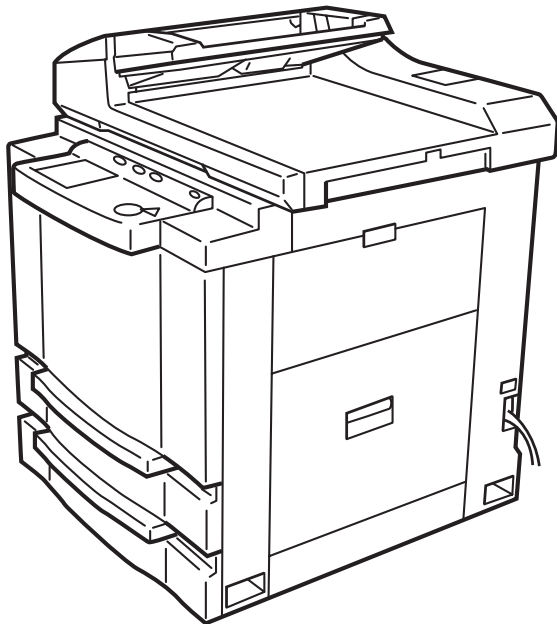




Océ



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23 DRIVE

Contents

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- 1 Removing the main motor 401

Functional description

- 1 Main motor control PBA 501
- 2 Rotation 501
- 3 Controlling the Speed 502

Dis-/assembly

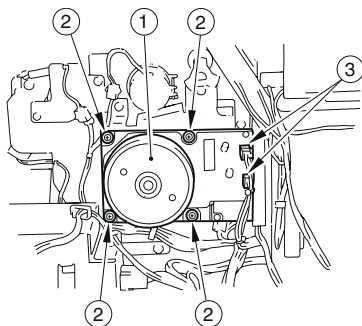
1 Removing the main motor

- 1 Disconnect the mains supply cable.

Remove the following:

- The rear cover (4 screws)
- The flywheel (3 screws)

- 2 Remove the four screws (2), and disconnect the two connectors (3). Then, remove the main motor (1).



Functional description

1 Main motor control PBA

Outline

The main motor (M1) is controlled by the drive signal (MMD) generated by the DC control PBA. The motor drives:

- OPC
- Developing unit
- Feeding unit
- Fusing unit
- Specialities: pick-up roller
- Registration roller
- Vertical transport: roller 1/2
- Delivery roller 1
- Refeed unit: exit roller

The speed of the motor is controlled by the main motor control PBA.

2 Rotation

The main motor is driven by DC + 24 Vu supplied by the composite power supply PCB. When the drive signal (MMD) generated by the DC controller PCB goes '1', the control circuit on the main motor control PCB turns ON to drive the drive circuit.

The drive circuit supplies drive current to the main motor. Simultaneously, the output of the hall IC is returned to the drive circuit. The motor continues rotating.

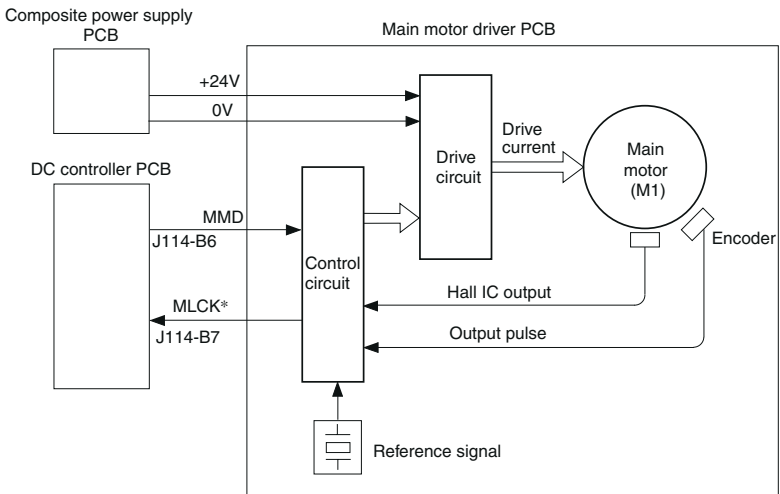
3 Controlling the Speed

Motor M1 is a DC motor with an integrated clock pulse generator. This generates clock pulses (MMCLK signal) in relation to the rotation of the motor.

The phases of these clock pulses are compared to the phases of a reference signal, and are controlled until they match. This matching controls the current to the motor, and maintains the rpm of the motor at a fixed level.

The condition in which the phase of the clock pulses generated by the motor and the phase of the reference pulses match is called “locking,” in which the constant speed state signal (MLCK=1) is sent to the DC controller PCB. If a discrepancy occurs in the revolution for some reason, MLCK will go ‘0’.

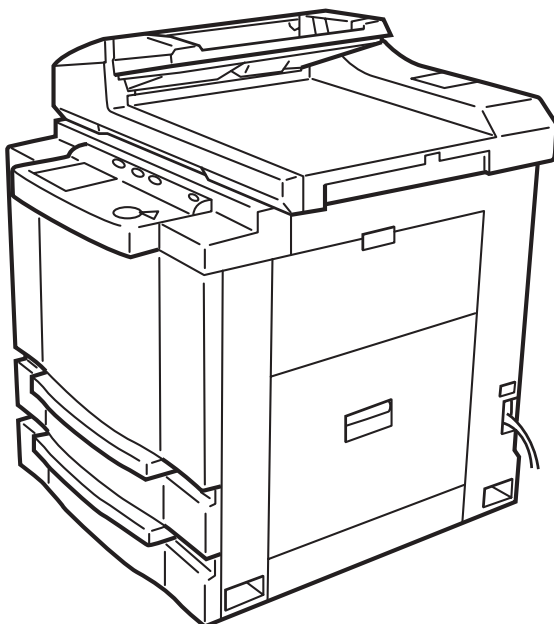
If MLCK remains ‘0’ for about 3 sec, a main motor error is detected, causing all operations to stop. (‘E010’ will be indicated on the control panel.)



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MISCELLANEOUS

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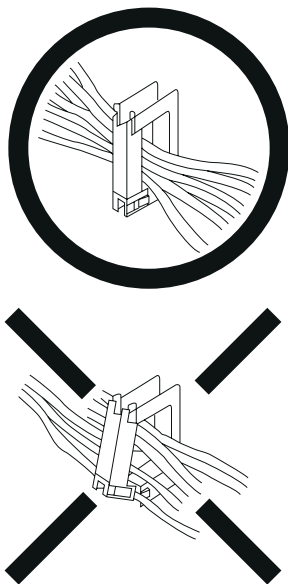
Miscellaneous

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- 2 Covers 102
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- 4 Inside Cover 104

Miscellaneous

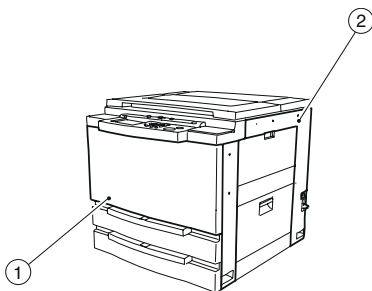
1 Handling the cables

Exercise care when moving the harness retainer (square cable clip) to avoid damaging any cables.

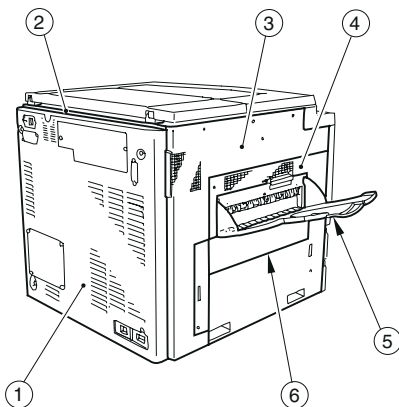


2 Covers

External View



- 1 Front door
- 2 Right cover

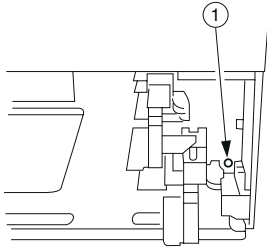


- 1 Rear cover
- 2 Output unit cover
- 3 Left cover
- 4 Output tray
- 5 Tray cover
- 6 Lower output cover

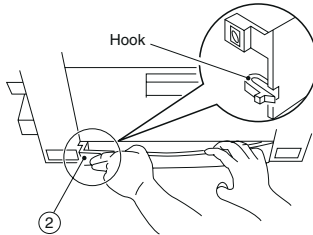
Remove the covers as necessary when cleaning, inspecting, or repairing the inside of the machine.

3 Removing the right cover

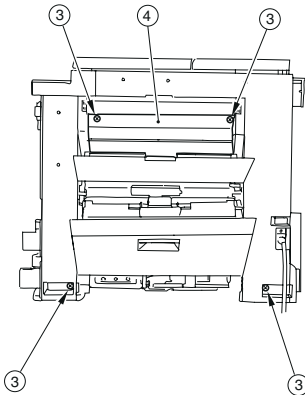
Note: Skip steps 4) and 5) if the lower right cover is not fitted.



- 1 Remove the rear cover (4 screws).
- 2 Open the front door
- 3 Slide open the cassette.
- 4 Remove the screw (1) from the lower cover.
- 5 While pulling the centre of the cover, disengage the hook and remove the cover.

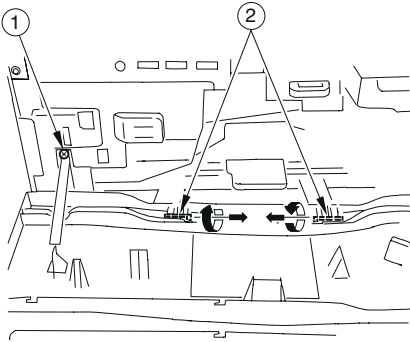


- 6 Open the speciality tray
- 7 Remove the 4 screws and take off the right cover (4).

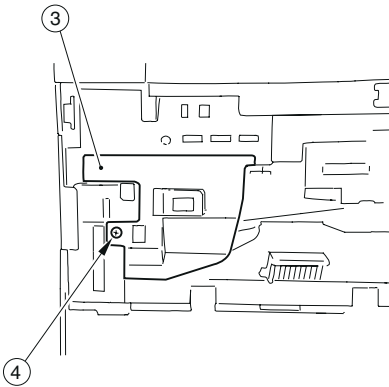


4 Inside Cover

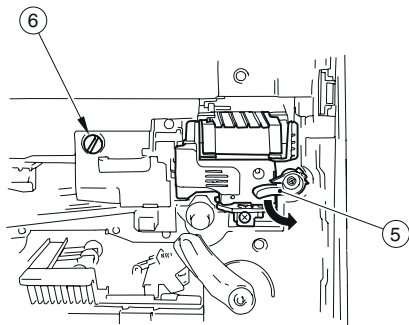
- 1 Remove the screw (1), and slide the two pins (2) out of the hinges to remove the front door.



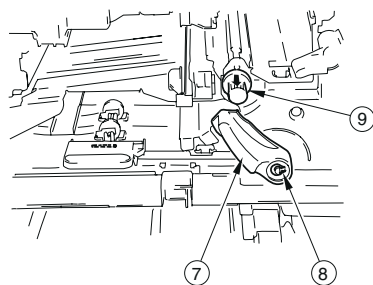
- 2 Remove the inner cover (3) from the fuser (1 screw).



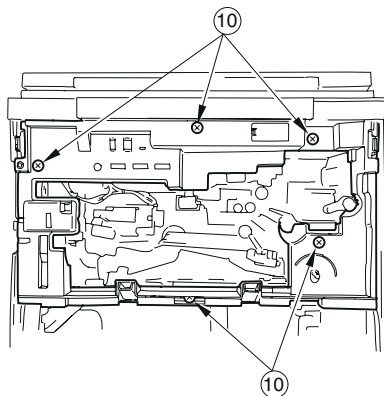
- 3 Release the lever (5). Unscrew the button (6), and remove the OPC unit.
- 4 Turn the lever (5), to lock the developing unit.



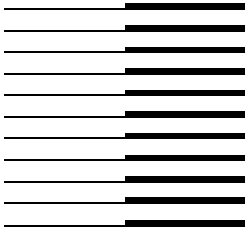
- 5 Release the feeding unit. Remove the clip (8), the lever (7) and the knob (9).



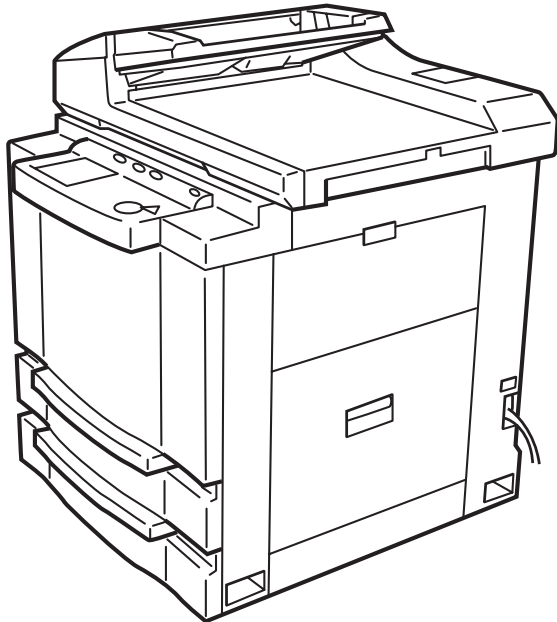
- 6 Slide out the upper cassette.
- 7 Remove the inside cover (5 screws, index 10).



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PREVENTIVE MAINTENANCE

Contents

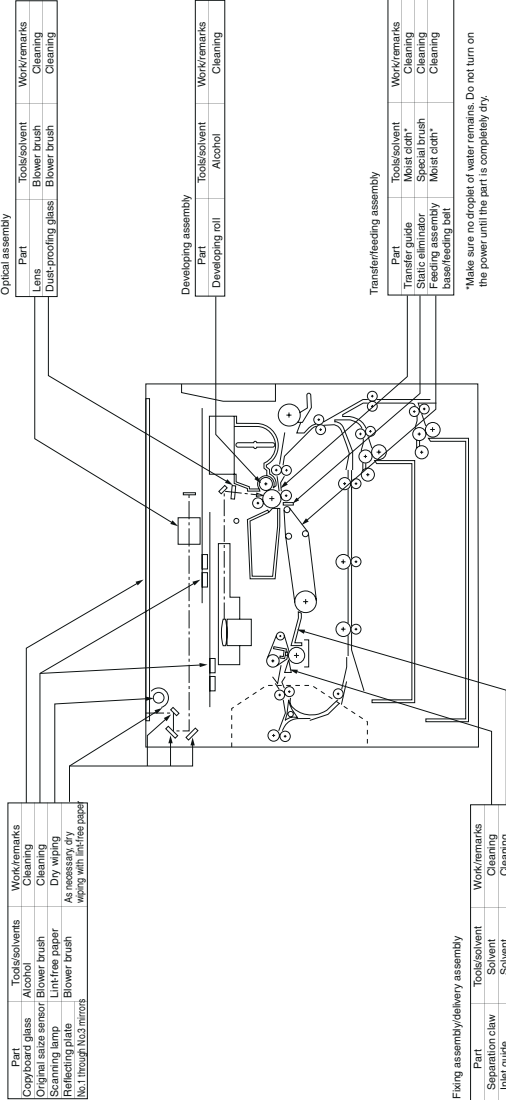
Preventive maintenance

- 1 Points to note for scheduled servicing 1
- 2 Periodically Replacable Parts 2
- 3 Consumables and Durables 2
- 4 Scheduled Servicing Work Flow 3
- 5 Scheduled Cleaning 4

Preventive maintenance

1 Points to note for scheduled servicing

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2 Periodically Replacable Parts

The machine does not have parts that must be replaced on a periodical basis.

3 Consumables and Durables

Some parts of the machine may have to be replaced once or more over the period of warranty because of deterioration or wear. Replace them as necessary.

No.	Parts	Parts No.	Q'ty	Life (copies)	Remarks
1	Lower fusing: separation claw	....	4	100,000	
2	Static eliminator	....	1	100,000	
3	Fusing unit	....	1	200,000	....
		....	1	200,000	....
		....	1	200,000	....
4	Fuser, cleaning roller	....	1	200,000	Included in fuser unit.
5	lower fusing roller	....	1	200,000	Included in fuser unit.
6	Scanning lamp	....	1	200,000	
7	Transfer roller	....	1	200,000	
8	Pick-up and feeding roller	....	4	100,000	Copies produced
9	Separation roller	....	2	200,000	Copies produced
10	Separation pad	....	1	200,000	
11	Pre-exposure lamp	....	1	200,000	
12	Developing roller	....	1	400,000	....
		....	1	400,000	....

4 Scheduled Servicing Work Flow

Step	Adjustments	Checks	Remarks
1	Consult the operator	Enquire about machine performance.	
2	Record the counter reading.	Check the copy quality, etc.	
3	Make a series of test copies	Check the following: a Image density b Background (for minimum) c Characters (for clarity) d Leading edge margin (see Note) e Fusing, registration, back (minimum soiling) f Functioning of the counters	Note: Standards: 2.5 ± 1.0 mm
4	Clean the optical system: <ul style="list-style-type: none"> ■ Reflector for the scanning lamp ■ Lens ■ Mirrors 1, 2 and 3 ■ Aperture glass ■ Standard white plate 		Use a blower brush. If the dirt cannot be removed, use alcohol. Wipe the standard white plate, using a dry cloth.
5	Clean the transfer guide. <ul style="list-style-type: none"> ■ Transfer guides, upper and lower ■ Guide rail for the transfer unit 		Remove the OPC.
6	Clean the separation unit and the refeed unit <ul style="list-style-type: none"> ■ Static eliminator ■ Feeding belt 		
7	Clean the fusing and output unit <ul style="list-style-type: none"> ■ Fuser entry ■ Lower fusing: separation claw 		
8	Check the scheduled parts for wear and copy production.		
9	Clean the platen.		
10	Make a series of test copies		

Step	Adjustments	Checks	Remarks
11	Carry out the image adjustment procedure.		
12	Make a series of test copies		
13	Clean up the working area.		
14	Record the final counter reading.		
15	Complete the service report. Release copier for normal use.		

5 Scheduled Cleaning

Warning: Do not use unlisted solvents or lubricants.

Unit	Part	Interval 100,000 copies	Remarks
Scanner drive	Scanner rail	X	Lubricant
Feeding unit	Feeding belt	Clean	
	The base of the feeding unit	Clean	
	Transfer guide	Clean	
Optical system	Reflector for the scanning lamp	Clean	
	The mirrors 1 to 3.	Clean	
	Lens	Clean	
	Document size sensor	Clean	
	Aperture glass	Clean	
Developing unit	The developing roller	Clean	
Fusing unit	Fuser entry	Clean	
	Lower fusing: separation claw	Replace	

RDF Consumables and durables

Some parts may have to be replaced once or more during the period of warranty because of wear or damage. Replace such parts when they fail.

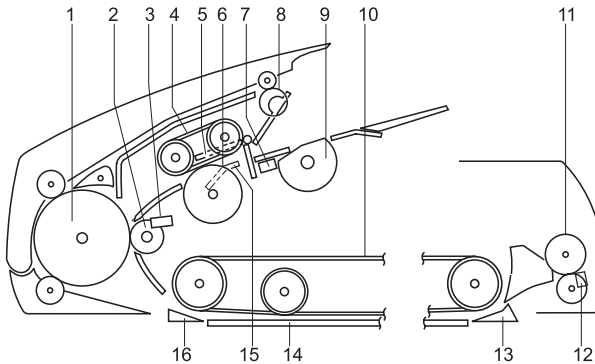
No.	Parts	Parts No.	Q'ty	Life (copies)	Remarks
1	Feeding belt		1	200,000	If dirt cannot be removed
2	Pick-up roller		2	500,000	
3	Separation belt (fax mode)		4	250,000	
4	Separation belt (copier mode)		8	500,000	
5	Feeding roller (fax mode)		1	500,000	
6	Feeding roller belt (copier mode, large)		8	500,000	
7	Feeding roller belt (copier mode, small)		2	500,000	
8	Separation flapper (rear)		1	250,000	
9	Separation flapper (front)		1	250,000	
10	Stamp ink cartridge		1	7,000	

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

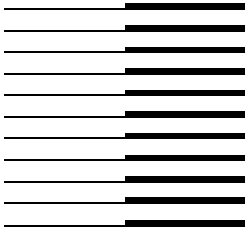
RDF Scheduled servicing

Warning: Do not use other solvents or oils than listed.

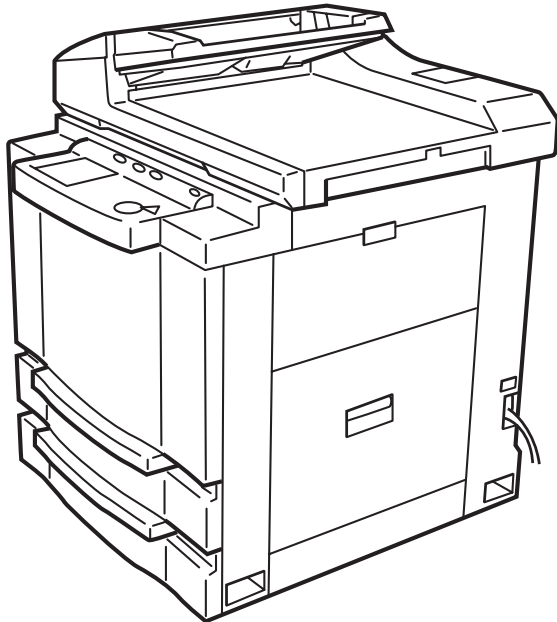
Ref.	Part name	Scheduled servicing		Remarks
		100,000	200,000	
1	Feeding/reversing roller	Clean		
2	Registration roller	Clean		
3	Registration paper sensor S3		Clean	
4	Separation belt (pick-up assembly)	Clean		
5	Separation flapper (rear, front)	Clean		
6	Feeding roller	Clean		
7	Original tray paper sensor S1		Clean	
8	Delivery roller (copier mode)	Clean		
9	Pick-up roller (pick-up assembly)		Clean	
10	Feeding belt	Clean		
11	Delivery roller (fax mode)		Clean	
12	Stamping cartridge	Check/Replace		
13	Platen retainer (right)	Clean		
14	Platen	Clean		
15	Separation front guide	Clean		
16	Vertical size plate	Clean		



Océ



Technical Service Manual
Océ 3121/3122



TECHNICAL DATA

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Technical data

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- 4 Specifications 8

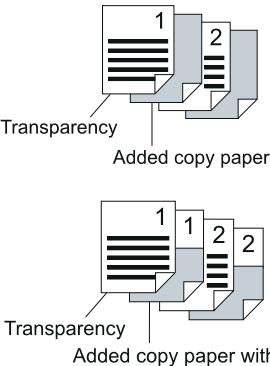
Technical data

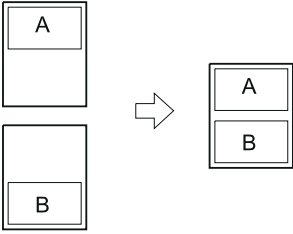
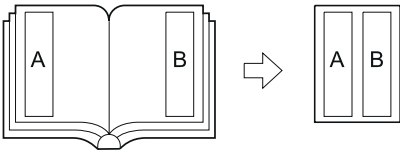
1 SPECIAL FEATURES Screen

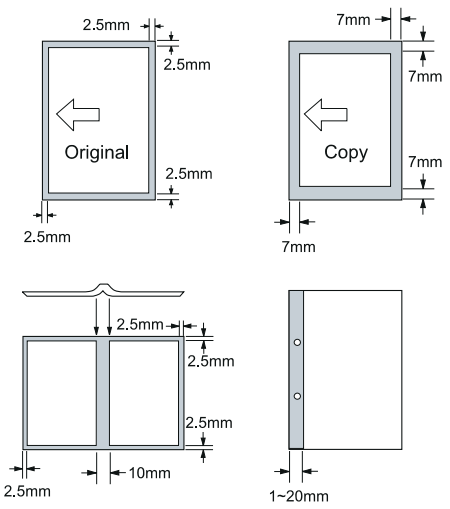
SPECIAL FEATURES screen	Next screen	Remarks
TWO-PAGE SEPARATION		
TRANSP. INTERLEAVING	Stack bypass Select	A4, A4R, LTR, LTRR
SHIFT	Center Shift, Corner Shift (8 directions), Keypad Setting	
SHEET OVERLAY	SHEET OVERLAY BOOK OVERLAY	Requires a duplexing unit.
DIF. SIZE ORIGINAL/THIN SHEET ORIGINAL		Requires an RDF for original mix size mode and an ADF for thin paper originals.
MARGIN	Left margin, Right margin, Top margin, Bottom margin	
AREA DESIG.	Area Desig. (editor or keypad), Framing, Blanking, Negative/Positive Reversal	
SHARPNESS	Soft to Hard (9 steps)	
FRAME ERASE	Sheet Frame Erasing, Original Frame Erasing, Book Frame Erase, Binding erase	
IMAGE CREATION	Mirror Image, Image Repeat, Negative/Positive Reversal, Slant image	
IMAGE COMB.	2-on-1, 4-on-1, 2-on-1 Two-Sided	Requires an RDF.
IMAGE SEPARATION	1-on-2, 1-on-4, 1-on-2 / One-sided, 1-on-4/One Sided	Requires an RDF.
MODE MEMORY	M1 through M5	
REC.	Most Recent, 2nd Most Recent, 3rd Most Recent	








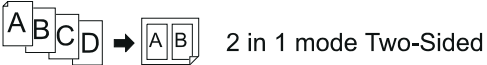
2 Functions

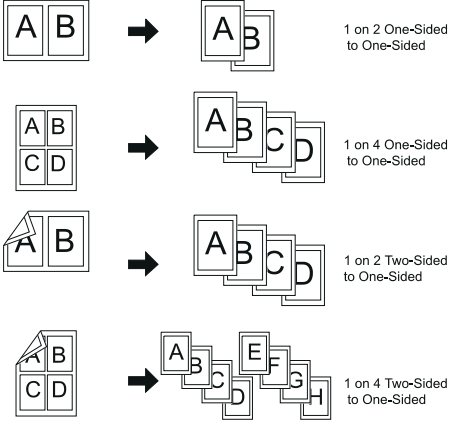
Keys

Key	Description
Page Separation	You can copy both left and right pages of an open original (book) on separate sheets by a single operation (on a single page basis).
Transparency Interleaf	<p>You can add copy paper between transparencies when copying on transparencies. Set the transparencies in the multifeeders. (Or, you may use a feeder).</p> <p>(1) Adding Copy Paper (2) Copying on Copy Paper</p>  <p>The diagram consists of two parts. The top part shows a transparency labeled '1' with horizontal lines, and a sheet of copy paper labeled '2' being inserted between it and another transparency. The bottom part shows the same setup, but the copy paper now has a copied image from the transparency, labeled 'Added copy paper with copied images'.</p>
Shift: Center Shift Corner Shift Keypad Shift	You can shift the position of the original anywhere for copying. For corner shift, you may select one from eight directions.

Key	Description
Overlay: Sheet Overlay Book Overlay	<p>You can lay two images on the same side of a single sheet of copy paper in any of three ways:</p> <ul style="list-style-type: none"> ■ Making an overlay copy from two one-sided originals. ■ Making an overlay copy from an open original (book).  
DIF. Size Original	<p>You can use originals of different sizes using a feeder. (The originals may be of different lengths but must be of the same feeding width.)</p>
Margin: Left Margin Right Margin Top Margin Bottom Margin	<ul style="list-style-type: none"> ■ You may move an image to the front or the rear in sub scanning direction by specifying a distance so as to create a margin on the left/right of the output. ■ The binding width may be adjusted between 1 and 20 mm in 1mm increments. ■ You may select cover only, back only, or both cover and back.
Area Desig: Framing Blanking Negative/Positive Reversal	<p>You can select an area in a specific image for special processing. The X coordinate must be 432 mm or less and Y, 297 mm or less.</p>
Sharpness	<p>You can emphasize or subdue images. You may select one from nine different degrees. Select 'hard' for crisp characters and lines or 'soft' for photos.</p>

Key	Description
<p>Frame Erase: Sheet Frame Erase Original Frame Erase Book Frame Erase Binding Erase</p>	<p>You can select from among the following four types of frame erasing:</p> <ol style="list-style-type: none"> (1) Original Frame Erase (2) Sheet Frame Erase (3) Book Frame Erase (4) Binding Erase  <p>The diagrams show the following specifications:</p> <ul style="list-style-type: none"> Original Frame Erase: A square frame with a 2.5mm border on all sides. An arrow points left from the center, labeled 'Original'. Copy Frame Erase: A square frame with a 7mm border on all sides. An arrow points left from the center, labeled 'Copy'. Book Frame Erase: A rectangular frame with a 2.5mm border on all sides and a 10mm gutter between two vertical sections. An arrow points down from the top center. Binding Erase: A vertical rectangular frame with a 1-20mm border on the left side. Two small circles are shown on the left edge.

Key	Description
<p>Image Creation: Mirror Image Image Repeat Negative/Positive Reversal Slant Image</p>	<p>You can select any of the following modes after pressing the Image Create key.</p> <p>Original</p>  <p>Slant mode Select from between +45° and -45°.</p>  <p>Mirror mode Select from three patterns.</p>  <p>Image repeat mode Specify 2 to 20 repetitions in main scanning direction.</p>  <p>Negative / positive reversal</p> 
<p>Image Comb.: 2-on-1 4-on-1 2-on-1 Two-Sided</p>	<p>You can reduce two or four originals to copy on a single sheet of copy paper. For details, see the Operator's Manual, as the specifics vary depending on the copier model and options configuration.</p> <p>Original</p>  <p>2 in 1 mode</p>  <p>4 in 1 mode</p>  <p>2 in 1 mode Two-Sided</p>

Key	Description
Separation image: ■ 1-on-2 One-Sided to One-Sided ■ 1-on-4 One-Sided to One-Sided ■ 1-on-2 Two-Sided to One-Sided ■ 1-on-4 Two-Sided to One-Sided	You can divide a single original into several parts for enlargement and copying on one side of several copies.  <p>The diagram illustrates four separation image configurations. Each configuration shows an original document divided into parts (A, B, C, D) and the resulting copies. 1. 1 on 2 One-Sided to One-Sided: Original with parts A and B; copies are A and B. 2. 1 on 4 One-Sided to One-Sided: Original with parts A, B, C, and D; copies are A, B, C, and D. 3. 1 on 2 Two-Sided to One-Sided: Original with parts A and B on one side and a backside; copies are A, B, C, and D. 4. 1 on 4 Two-Sided to One-Sided: Original with parts A, B, C, and D on one side and a backside; copies are A, B, C, D, E, F, G, and H.</p>
Mode Memory: M1 through M5	You can store as many as five combinations of any copying modes. In addition, you may store the name of each mode key.
REC.: Most Recent 2nd Most Recent 3rd Most Recent	You can recall a copying mode which has been stored previously for use; as many as three modes may be recalled.
User Mode:	
Auto Sort	You can opt for automatic switching to sort mode when an original is placed in the RDF. (This is effective when the Multi Tray 12 and an RDF are installed).
Face Down Output	You can opt for reversed delivery of copies so that the backs of the copies are upward.
Photo mode	You can select the use of photo mode. When 'ON' is selected, the Photo key will be displayed on the Copier Basic screen.
Standard Key 1/2 setting	You can select up to two Preference keys from among the extension mode keys for display on the Copier Basic screen.
Custom Setting Initialize	You can initialize the copier specifications settings to factory defaults.

Key	Description
Standard settings: <ul style="list-style-type: none"><li>■ Store<li>■ Init.	You can store/initialize the combination of copying modes in response to power-on or a press on the Reset key.

3 Features

- 1 Establishes a new set of standards for “high-quality imaging” at a resolution of 1200 x 600 dpi (equivalent), which is the world’s first.
 - In copier mode, the resolution is 600 x 600 dpi when reading and 1200 x 600 dpi when writing.
 - In fax reception mode, the resolution is 600 x 600 dpi (hyper genesis smoothing).
 - In printer mode, the resolution is 1200 x 600 dpi (new super smoothing technology).

- 2 Ease of operation and productivity from an integrated design.
 - The display is a large LCD touch panel for clear viewing and simple operation. (The display intensity may be varied.)
 - The on-going fax communication status may be indicated while in copier mode.
 - The display indicates the status (reception/transmission) job number, fax number, party number, and number of processing pages at intervals of 1 sec.

- 3 Power-saving, space saving, and ozone-less considerations for the office and the environment.
 - The on-demand fixing method warms up the machine quickly so that sleep mode may be made use of without the risk of wasting time.
 - The wait time is 8 sec or less. (at power-on on the control panel; 8.6 sec or less if the main switch is used)
 - The machine is appreciably quieter than the existing models for a better office environment.
 - With the help of its power-saving design, the power consumption is 4 W or less* in sleep mode, and 57 W or less** in standby.
 - The roller charging method has enabled ozone-less operation.
 - The width is only 58.5 cm.

*Sleep state is when the main power is OFF. Fax reception is possible. (Not 4W if a fax transmission reservation has been made or the printer function has been added.)

**Standby state is when the main power is on. In copier/fax mode, 57 W or less. In copier mode, 50 W or less.

4 Specifications

Type

Item	Specifications
Body	Desktop
Copyboard	Fixed
Light source	Fluorescent lamp
Lens	Lens array
Photosensitive medium	OPC

System

Item	Specifications	
Copying	Indirect electrophotographic	
Charging	AC roller charging	
Exposure	Spot laser	
Copy density adjustment	Automatic or manual	
Development	Dry, single component toner projection	
Pick-up	Automatic	2 cassettes
	Manual	Multifeeder (about 5 mm deep)
Transfer	Roller charging	
Separation	Static (static eliminator) + curvature	
Cleaning	Blade	
Fixing	SURF	

Performance

		120V	230V
Types of originals		Sheet, book, 3-D object (2 kg max.)	
Maximum size of original		A3, (11 x 17) max.	
Reproduction ratio	Direct	1:1±0.5%	
	Reduce I	1:0.250	
	Reduce II	1:0.500	
	Reduce III	1:0.647	–
	Reduce IV	1:0.737	–
	Reduce V	1:0.786	–
	Enlarge I	1:1.214	1:1.414
	Enlarge II	1:1.294	–
	Enlarge III	1:2.000	
	Enlarge IV	1:4.000	–
	Enlarge V	1:8.000	–
	Zoom	1: 0.250 to 8.000 (25% to 800%, in 1% increments)	
Wait time		<ul style="list-style-type: none"> ■ 8.6 sec or less (20°C) from main power-on to start of copying ■ 7.9 sec or less from control panel power-on (sleep) to start of copying (fax model) 	
First copy		GP215: 9.2 sec or less (shortest mode)	
Continuous copying		100 copies	
Copy size	Cassette pick-up	A3 (297 x 420 mm; max.) / 11"x17" (279x432mm:max) A5 (STMT; min.)	
	Multifeeder	A3 (297 x 431.8 mm; max.) / 11"x17" (279x432mm:max) Postcard (A6 vertical)	
Paper source		500 sheets in each cassette, 50 sheets in multi-feeder (80 g/m2 paper)	

		120V	230V
Types of copy paper	Cassette	Plain paper (64 to 80 g/m ²), tracing paper *, colored paper*, recycled paper (64 to 80 g/m ²), envelope *May be used but may not feed as expected	
	Multifeeder	Plain paper (64 to 128 g/m ²), tracing paper* , transparency*, postcard, label sheet, recycled paper (64 to 80 g/m ²), envelope *May be used but may not feed as expected	
	<ul style="list-style-type: none"> ■ Two sided/overlay copying ■ Automatic multifeeder 	Plain paper (64 to 80 g/m ²)	
		Plain paper (64 to 128 g/m ²) (no overlay copying)	
Cassette	Claw	Non	
	Regular/universal	55 mm (max.) stacking height (about 500 sheets of 80 g/m ² paper)	
Multifeeder tray		50 sheets (80 g/m ²)	
Delivery tray		100 sheets (approx.; 80 g/m ²)	
Nonimage width	Leading/trailing edge	2.5 mm in Direct	
	Left/right	2.5 mm in Direct	
Auto clear		Provided	
Auto shut-off		Provided (2-min standard, may be varied between 0 and 9 min in 1-min increments)	
Option	Feeder	RF-G1	
	Sorter	Multi-Output Tray -C1 Multi-Output Tray -B2	
	Pedestal	Cassette Feeding Unit-L1 Cassette Feeding Unit-M1	

Others

Operating environment	Temperature	7.5° to 32.5°C
	Humidity	5% to 85%
	Atmospheric pressure	0.8 to 1.0 atm
Power consumption	Maximum	1.5 kW or less
	Standby	0.080 kWh (reference only)
	Continuous copying	0.750 kWh (reference only)
	Quick start mode (SLEEP 1)	0.045 kWh (reference only)
	Power saving mode (SLEEP 2)	0.003 kWh (reference only)
Noise	Copying	66 dB or less (sound power level)
	Standby	40 dB or less (sound power level)
Ozone		0.01 ppm or less (average); 0.02 ppm or less (max.)
Dimensions	Width	585 mm (pedestal, copyboard cover)
	Depth	700 mm (pedestal)
	Height	571 mm (pedestal, RDF)
Weight		Body only 72.4kg (w/ original glass cover) With RDF 84.7kg
Consumables	Copy paper Toner	Keep copy paper wrapped to protect against humidity.

Copying Speed

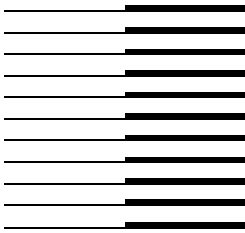
Reproduction ratio		Size	Copy paper size	Copies/min
Direct		A3 (297 x 420mm)	A3	12
		A4 (210 x 297mm)	A4	21
		A4R (297 x 210mm)	A4R	16
		A5 (148.5 x 210mm)	A5	22
		A5R (210 x 148.5mm)	A5R	22
		B4 (267 x 364mm)	B4	13
		B5 (182 x 257mm)	B5	22
		B5R (257 x 182mm)	B5R	18
Reduce	II	A3 - A5	A5R	20
	III	A3 - B5	B5R	18
	IV	A3 - A4	A4R	15
		B4 - B5	B5R	18
	V	B4 - A4	A4R	16
		B5 - A5	A5	22
	VI	A3 - B4	B4	13
		A5 - B5	B5	22
Enlarge	II	A5 - A3	A3	12
	III	A4 - A3	A3	12
		B5 - B4	B4	14
	IV	A4 - B4	B4	14
		A5 - B5	B5	22
	V	B4 - A3	A3	12
		B5 - B4	B4	14

Copying Speed (copier only)

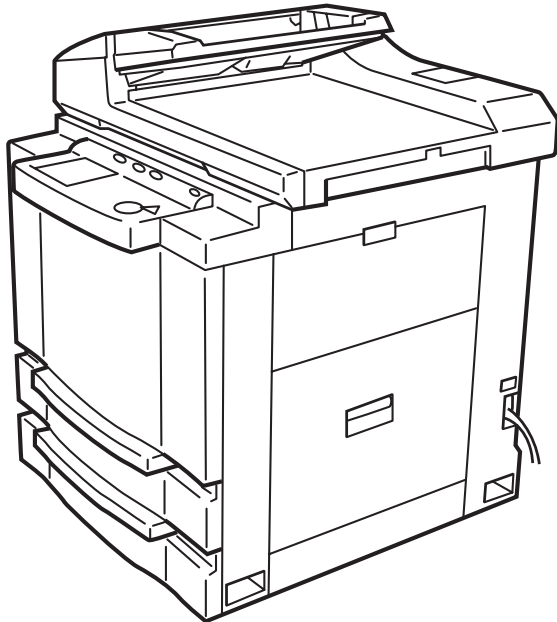
Ratio	Size	Copies/min
DIRECT	LTR	20
	11x17	11
	LGL	14
	LTRR	17
	STMT	22
	STMT-R	20
REDUCE	LGL - LTRR	17
	11x17 - LGL	15
	11x17 - LTRR	16
	11x17 - STMTR	19
	11x15 - LTRR	16
ENLARGE	LGL - 11x17	12
	LTR-R - 11x17	12
	STMTR - 11x17	12

Specifications subject to change for product improvement.

Océ



Technical Service Manual
Océ 3121/3122



SDS DESCRIPTION

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* 8 * 10 ' Test mode 85

* 8 * 10 TEST ' , 1 DRAM test

To execute a write or read check of data for all area of the D-RAM (D-RAM A (Q6, Q18), D-RAM B (Q8, Q20)). A check will be made on the expansion memory (option), if any. 86

* 8 * 10 TEST ' , 2 PRINT test 88

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(1) LINE DETECT 1 94

(2) LINE DETECT 2 95

(3) LINE DETECT 3 96

(4) VOICE Tx 96

SDS Description

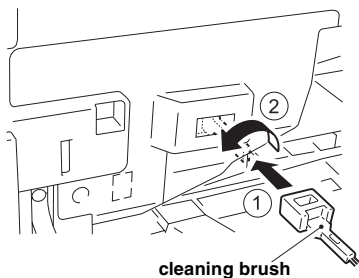
1 Outline

The machine's service mode is grouped into the following:

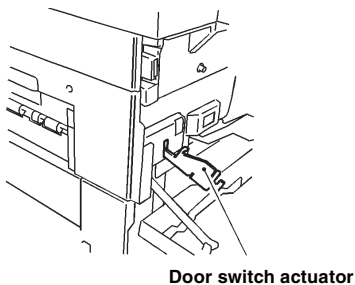
Item	Description
1 DISPLAY	Display Mode ■ Indicates the values controlled by the CPU, nature of control, and version number of the ROM.
2 I/O DISPLAY	I/O Display Mode ■ Indicates the elements controlled by the CPU or the input/output signals to and from options.
3 ADJUST	Adjustment Mode ■ Indicates items adjusted in service mode and allows changes to settings.
4 FUNCTION	Function Mode ■ Executes machine operations. Indicates items that may be automatically adjusted through execution from the screen.
5 OPTION	Settings Mode ■ Indicates items that may be changed for machine maintenance or items that may be changed to suit the needs of the user.
6 COUNTER	Counter Mode ■ Indicates the numbers of machine operations.
7 ACC	Options Mode ■ Indicates items for options, allowing changes to the settings.
8 FAX	Fax Service Mode ■ Indicates items to be set/changed or operated for fax functions from the screen.

2 Starting Service Mode

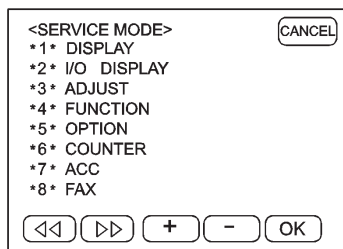
- 1 Open the front door, and insert the handle of the static eliminator cleaning brush into the fixing assembly releasing assembly.



- 2 Insert the door switch actuator into the door switch assembly.
(If you want to execute a specific mode such as 'I/O display' while making copies, see the appropriate copying modes).




- 3 Press the service switch with a hex key.
 - '\$' will appear in the upper left corner of the LCD, indicating that the machine has started service mode.
- 4 Press the * key twice.
 - The LCD changes to the Service Mode Menu screen (initial screen).





- 5 Press the appropriate item to highlight.
- 6 Press the OK key to bring up the first screen of the selected screen.


Keys


You will be using the following keys:


:Page Forward key; press it to bring up the next page.

:Page Back key; press it to bring up the previous screen.

:OK key; press it to accept a setting or execute an item.

:Cancel key; press it to bring up the high-order menu screen.

:+ key; press it to move down the levels.

:- key; press it to move up the levels.

Using Adjustment Mode and Settings Mode

In adjustment mode (*3*; ADJUST) and in settings mode (*5*; OPTION), the settings changed/selected on the control panel are stored in RAM on the image processor PCB and operation/control is executed according to the settings. (These settings will be stored permanently when the main power switch is turned off and on after execution.)

The factory default settings of adjustment mode (*3*; ADJUST) are recorded in the service-label. Be sure to record any new settings if you made changes in the field. Further, you must enter the settings recorded on the label whenever you have cleared the RAM.

If you replaced the image processor PCB or the composite power supply PCB, be sure to enter the settings recorded on the respective label. (You need not do so when you have replaced only the ROM.)

MF-A6R			DVLP DC OFST			FILM LANK			
MF-A4R			H-ADJ			ABC_TBL			
MF-A4			V-ADJ			STRD_ADJ			
PRI DC (IMG)			REGIST			PPR			
PRI DC(on IMG)			RSIDE-SENSHP			W-PLT			
DVLP DC (IMG)			PVE-OFST			TRNS_1			
DVLP DC (on IMG)			IC-DENS			TRNS_2TS			
TRNS (IMG)			CST-LOOP			TRNS_2OL			
TRNS(on IMG)			MF-LOOP						
PRI AC (IMG)			DENS-ADJ						
PRI AC(no IMG)			ADJ-S						
AGS GAIN			LASER OFF						
AGS OFST			PWN 600 MIN						
PRI DC OFST			PWN 600 MAX						
PRI AC OFST1			PWN 200 MIN						
PRI AC OFST2			PWN 200 MAX						
TRNS OFST			AE-SLOP						
FL OFST			FIXER_RESIST						

Service Label; attached behind the front door

P6L
P6H
P2L
P2H

Service Label; attached to the image processor PBA

APVC GAIN	
APVC OFST	
PDC OFST	
PAC OFST1	
PAC OFST2	
ATVC OFST	
FL OFST	
DDC OFST	

Service Label; attached to the composite power supply PBA

3 *1* DISPLAY (control display mode)

Use this mode to display the settings controlled by the CPU or the nature of control. You cannot change the displayed values or settings.

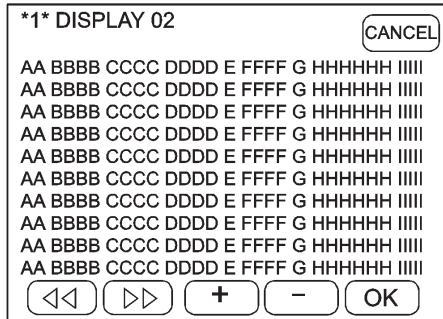
1 DISPLAY 01 Temperature Indication

1 DISPLAY 01	CANCEL
DRAM_TH=xxxx (C)	
MAIN_TH=xxxx (C)	
SUB_TH=xxxx (C)	
◀◀	▶▶
+	-
OK	

Item	Description	Remarks
DRAM_TH	Indicates the temperature around the photosensitive drum.	Unit: °C
MAIN_TH	Indicates the temperature at the middle of the fixing assembly. (output of thermistor TH1)	Unit: °C
SUB_TH	Indicates the temperature at the end of the fixing assembly. (output of thermistor TH2)	Unit: °C

***1* DISPLAY 02 Jam History 1**

- Use this mode to display a history of jams (jam data) covering the most recent 40 jams in reversed order of occurrence.



- Press the **+** or **-** key to scan through the levels (screen Nos. 11 through 20, 21 through 30, and 31 through 40).

Item	Description	
AA	No. 1 through 40 (the higher, the older)	
BBBB	Date of occurrence: Example '0801' for August 1	
CCCC	Time of occurrence	Example '1012' for 10:12. DDDD: indicates the time that the machine entered stand-by state after jam removal.
DDDD	Time of recovery	
E	Location: 0: copier 1: feeder 2: sorter	
FFFF	Jam code: high-order 2 digits: jam type low-order 2 digits: sensor detecting the jam*	
G	Pick-up position**	
HHHHHH	Pick-up counter	
IIII	Paper size	

Sample Display 01 0821 1430 1435 0 0101 1 06543 000A4

A4 paper jam
soft counter reading
of the source of paper

1st cassette

jam code (pre-registration delay
jam)

location

time of recovery (14:35)

time of occurrence (14:30)

date of occurrence (August 21)

No.

- * A jam code is a 4-digit code, the high-order 2 digits indicating the type of jam and the low-order 2 digits, the sensor which detected the jam. Set the table below for level 1 classification of the jam codes.

Jam code	FF
High-order 2 digits	Low-order 2 digits
01:delay 02:stationary 10:residual (at power-on)	01:pre-registration sensor (PS5) 02:vertical path sensor (PS8) 03:vertical path sensor (pedestal; Q1603) 32:fixing delivery sensor (PS7) 33:delivery sensor (PS13) 34:delivery tray 2 paper sensor (multi tray 3; PS17) 35:delivery tray 3 paper sensor (multi tray 3; PS 18) 61:Multi tray 3 inlet sensor (PS19) 62:Duplexing unit inlet sensor (PS12) 63:re-pick up paper sensor (PS11)
11:door open	01:front door 02:right door 03:pedestal right door
00:multi tray 12/feeder	See p. 7-51.

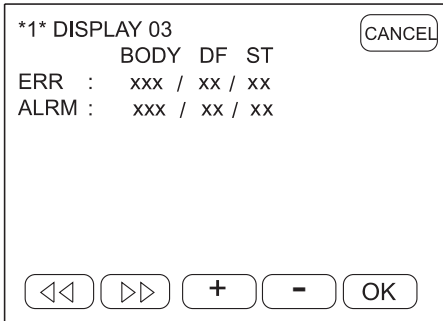
** Pick-Up Location Codes

Code	Pick-up location
1	Cassette 1
2	Cassette 2
3	Cassette 3
4	Cassette 4
5	Cassette 5
6	Cassette 6
8	Multifeeder
9	Two-sided/overlay re-pick up

Multi tray 12-/Feeder-Related Jam Codes

Unit	Jam code	Description
Multi Tray-12	0003	Sorter feeding delay jam
	0004	Sorter feeding stationary jam
	0006	Sorter staple jam
	0007	Sorter power-on jam
	0008	Sorter door open jam (paper present)
	0009	Sorter door open (paper absent)
RDF	0001	Original pulled out
	0002	Registration delay jam
	0003	Pick-up delay
	0005	Registration delay
	0011	Reversal delay 1
	0012	Reversal stationary
	0013	Reversal delay 2
	0020	Reversal paper present
	0021	Reversal pick-up delay
	0023	Reversal pick-up stationary
	0041	Delivery delay
	0042	Delivery stationary
	0081	Opened with RDF in operation
	0082	Upper cover opened during operation
	0083	Original circulation fault
	0084	Original left behind
0088	Original left behind on the original glass	
0089	Re-circulating lever fault	

1 DISPLAY 03 Error/Alarm Indication

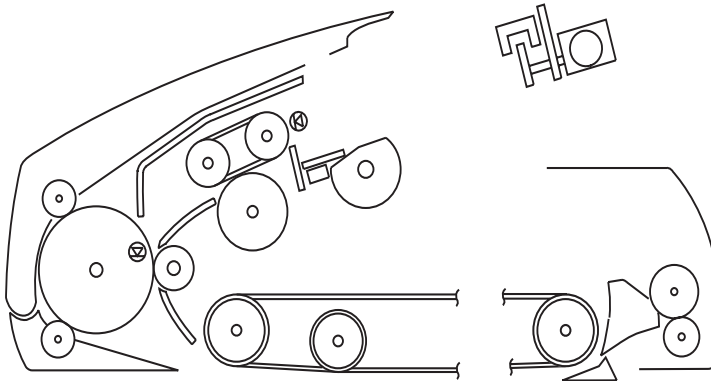


Item	Description
ERR	See the descriptions (Trouble shooting) for self diagnosis.
ALRM	See the table below for the nature of alarm.
BODY	Refers to the copier.
DF	Refers to the feeder (ADF/RDF).
ST	Refers to the sorter.

■ Copier-Related Alarm

Code	Description
001	Replace the drum unit.

ALARM (RDF)



S1 Original tray paper sensor
S3 Registration paper sensor

S7 Pick-up sensor
S13 Re-circulation sensor

Type	Sensor	Conditions	RF operation	Code
Re-circulating lever idle swing	S13	The re-circulating lever swung idly without coming into contact with an original immediately after the re-circulating motor (M4) has started to operate.	Stops immediately upon detection.	01H
Pick-up fault	S7	The sensor (S7) does not detect the leading edge of an original 1500 ms after pick-up.	The separation belt, feeding roller, and pick-up roller stop immediately. The RDF stops after delivering the copy of the advance original.	03H
Paper stopper plate override	S7	The original has ridden over the paper stopper plate when the original was set.	Stops immediately upon detection	05H
Different number of originals after jam removal	S3	The number of originals set on the tray is less than the number of originals copied. See Supplement.	Stops immediately upon detection	11H
Wrong number of originals	S3	The last original cannot be detected because the re-circulating lever does not fall through the original tray. Reference: Normally, the original tray holds 50 sheets of A5, STMT, A4, B5, or LTR, or 25 sheets of A3, B4, 11"x17", or LGL.	Stops after counting the 100th original	12H
Original forced off	S13	The re-circulating lever dropped through the original tray while an original was being processed.	Stops immediately upon detection	13H
Wrong original size	S3	The original that has been picked up is of a non-default size.	Stops immediately upon detection	14H
Wrong original size or mixed sizes in image composition mode (see note)	S3	1) The original is of a size that image composition mode does not accommodate. 2) The original is of a size different from the first original.	Stops immediately upon detection. See supplement.	15H
Not reset when mode is changed		1) When executing fax mode without resetting after copying mode. 2) When making a copy in the middle of fax operation or when making a copy without resetting after fax mode.	Stops operation immediately upon detection	21H

Note: To reset, remove the originals from the original tray and then open the RDF.

Overstacking alarm (Multi Tray-12)

Code	Nature	Cause	Operation	Display	Resetting
02H	Overstacking of paper	The paper being stacked during multi tray operation has exceeded the capacity of a single bin.	Stops upon detection overstacking	Indicates a message on the copier's control panel	Remove all paper from the bin

Partial fault alarm (Multi Tray -12))

Code	Nature	Cause	Operation	Display	Resetting
10H	Partial fault	An error occurred in the bin unit feeding motor M2, bin shift motor M1, guide bar swing motor M4 or stapler swing motor M5; the same type of error has occurred after turning off and on the power	Prohibits delivery to the sorter; however, permits delivery to the tray.	No indication	Remove all the cause of the error, turn off and then on the power.

Stapler alarm (Multi Tray-12)

Code	Nature	Cause	Operation	Display	Resetting
02H	Staple jam	The stapler safety sensor MS6 has turned on for some reason. The stapler is not securely installed. Normal stapling operation is not possible.	Stops stapling	Flashes the Manual Staple key. Indicates a message on the copier's control panel.	Wait until the machine automatically recovers (about 1 sec after the stapler safety sensor turns off). Open and then close the stapler cover.
03H	Stapling safety protection mechanism activation	The stapler safety sensor MS6 has turned on during stapling operation.	Stops stapling.	No indication	Remove the cause that turned on the stapler safety sensor MS6; wait until the machine recovers automatically in about 1 sec after the stapler safety sensor turns off.
05H	Over stapling capacity	The volume of paper in a single bin has exceeded the maximum value (20 sheets) in stapler sorter mode.	Finishes sorting but stops without stapling.	Indicates a message on the copier's control panel.	Remove all paper (stack).
06H	Full stapling capacity.	The volume of paper in a single bin has reached the maximum value (20 sheets) in stapler sorter mode.	Operates normally.	No indication	Remove all paper (stack).
07H	Mixed paper sizes	Sheets of different widths have been placed in the bin.	Finishes sorting but stops without stapling.	No indication.	Remove all paper (stack).
09H	Paper in bin.	Paper is remaining inside the bin	Indicates a message if the stapler sorter mode is selected.	Turns on the Manual Staple key. Indicates a message on the copier's control panel if the stapler sorter mode is selected in this condition.	Remove all paper (stack).
0AH	Staple absent.	The stapler has run out of staples.	Prohibits stapling.	Indicates the Add Staple message.	Replace the staple cartridge.

1 DISPLAY 04 Version indication 1

1 DISPLAY 04		CANCEL
IP	xxxx.yy.zz	
DCON	xxxx.yy.zz	
DF	xxxx.yy.zz	
SORT	xxxx.yy.zz	
PANEL	xxxx.yy.zz	
LANG	xxxx.yy.zz	
POWER_CPU	xxxx.yy.zz	
<input type="button" value="◀◀"/>		<input type="button" value="▶▶"/>
<input type="button" value="+"/>		<input type="button" value="-"/>
<input type="button" value="OK"/>		

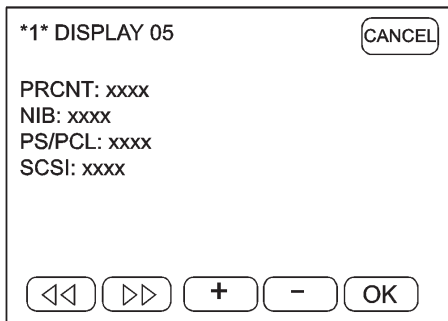
Guide to Version Numbers

xxxx: type of software
yy: version number
zz: R&D control number

Item	Description
IP	Indicates the version number of the ROM DIMM on the image processor PCB.
DCON	Indicates the version number of the EPROM (IC103, IC104) on the DC controller PCB.
DF	Indicates the version number of the ROM on the feeder (ADF, RDF) controller.
SORT	Indicates the version number of the ROM on the sorter controller PCB.
PANEL	Indicates the version number of the ROM on the CPU PCB of the control panel.
LANG	Indicates a specific language: COMMON, JAPANESE, ENGLISH, FRENCH, GERMAN, DANISH, DUTCH, FINNISH, ITALIAN, NORWEGIAN, PORTUGUESE, SPANISH, SWEDISH
POWER_CPU	Indicates the version number of the CPU on the composite power supply PBA.

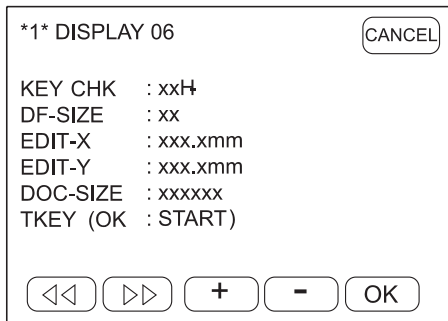
***1* DISPLAY 05 Version indication 2**

The indication is given when an expansion board is installed and, therefore, no indication appears in the absence of such a board.



Item	Description
PRCNT	Indicates the version number of the Protocol Control PCB.
NIB	Indicates the version number of the Network Interface Board (NIB).
PS/PCL	Indicates the version number of the Printer Board (PS/PCL).
SCSI	Indicates the version number of the SCSI Board.

***1* DISPLAY 06 Key/Editor Indication**



Item	Description
KY-CHK	Indicates the code of a specific key that is being pressed (except the Reset key). (See the next page.)
DF-SIZE	Indicates the size of the original detected by the ADF or the RDF.
EDIT-X EDIT-Y	Indicates the editor input coordinates. EDIT-X:X direction EDIT-Y:Y direction
DOC-SIZE	Indicates the size of the original detected by the original size sensor.
TKEY	Touch Panel <ul style="list-style-type: none"> ■ Press 'TKEY' to highlight; then, press the OK key (All messages turn off). Then, when the touch panel is pressed the area will become highlighted (reverse video). After the check, press the Reset key to end service mode

KEY-CHK code

Key	Code	One-Touch key	Code	One-Touch key	Code	One-Touch key	Code
Keypad 0	30	1	00	21	20	41	40
Keypad 1	31	2	01	22	21	42	41
Keypad 2	32	3	02	23	22	43	42
Keypad 3	33	4	03	24	23	44	43
Keypad 4	34	5	04	25	24	45	44
Keypad 5	35	6	05	26	25	46	45
Keypad 6	36	7	06	27	26	47	46
Keypad 7	37	8	07	28	27	48	47
Keypad 8	38	9	08	29	28	49	48
Keypad 9	39	10	09	30	29	50	49
Start	50	11	10	31	30	51	50
Stop	51	12	11	32	31	52	51
*	2A	13	12	33	32	53	52
#	23	14	13	34	33	54	53
Clear	3A	15	14	35	34	55	54
Interrupt	53	16	15	36	35	56	55
Guide	54	17	16	37	36	57	56
User Mode	03	18	17	38	37	58	57
		19	18	39	38	59	58
		20	19	40	39	60	59

1 DISPLAY 07 Copy Paper Size Indication

Use this mode to indicate the size of copy paper set in the multiffeeder or in the cassettes and the output readings of the paper size sensors.

1 DISPLAY 07				CANCEL
A/D	P-SENS	SIZE		
MULTI:	xxxxxx.xxmm			
SW	P-SENS	DET	REMAIN	
CST-1:	xxxxxxxxxxxx			
CST-2:	xxxxxxxxxxxx			
CST-3:	xxxxxxxxxxxx			
CST-4:	xxxxxxxxxxxx			
CST-5:	xxxxxxxxxxxx			
CST-6:	xxxxxxxxxxxx			
<<	>>	+	-	OK

Item	Descriptions
MULTI	Refers to the multiffeeder.
A/D	Indicates the output (analog) of the multiffeeder width sensor.
P-SENS	Indicates the presence/absence of paper. 0:paper absent. 1:paper present.
SIZE	Indicates the A/D input value of the multiffeeder in mm.
SW	Refers to a specific cassette (cassette size sensor output; rear to Table 0-00).
DET	Indicates the paper size.
REMAIN	Indicates the volume of paper inside the cassette: 00:full (500 sheets) 10:much 11:little (about 10 mm high) 01:little/absent
CST-1	Cassette 1 Cassette 2 Cassette 3 Cassette 4 Cassette 5 Cassette 6
CST-2	Descriptions
CST-3	Refers to the multiffeeder.
CST-4	Indicates the output (analog) of the multiffeeder width sensor.
CST-5	Indicates the presence/absence of paper. 0:paper absent. 1:paper present.
CST-6	Indicates the A/D input value of the multiffeeder in mm.

List of Cassette Sizes

Configuration	Cassette	Cassette code
AB	Cassette absent	11111
	A5	10010
	A5R	10000
	A4	10001
	A4R	10101
	A3	10100
	B5	10110
	B5R	10111
	B4	10011
	U1:FLSC OFICIO A-OFI E-OFI B-OFI A-LGL	11011
	U2FOLIO	11010
	U3A-FLS	11000
	SPECAL1	11101
	SPECAL2	11100
	Envelope 1	11110

Configuration	Cassette	Cassette code
Inch	Cassette absent	11111
	STMT	00010
	STMTR	00000
	LTR	00001
	A-LTR	
	LTRR	00101
	A-LTRR	
	LGL	00100
	11*17	00110
	U4G-LTR	00111
	U5G-LTRR	00011
	U6G-LGL	01011
	U7K-LGL	01010
	U8K-LGLR	01000
	SPECAL1	01101
	SPECAL2	01100
	Envelope 2	01110

4 *2* I/O DISPLAY (I/O display mode)

Use this mode to indicate the states of the input/output ports of the image processor PBA and (DC) control PBA's. You cannot change the indicated values/settings.

2 I/O DISPLAY 01 Inputs/Outputs to and from the Image Processor PCB

2 I/O DISPLAY 01 CANCEL

IP PA0 : xxxxxxxx
IP PB0 : xxxxxxxx
IP PC0 : xxxxxxxx
IP PA1 : xxxxxxxx
IP PB1 : xxxxxxxx
IP PC1 : xxxxxxxx
IP PA2 : xxxxxxxx
IP PB2 : xxxxxxxx
IP PC2 : xxxxxxxx

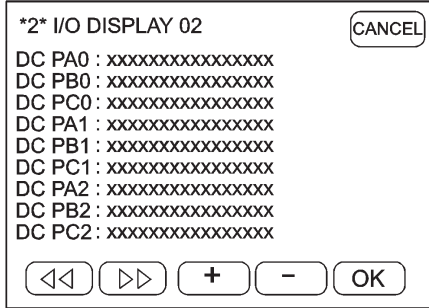
<< >> + - OK

Guide to the Screen: IP PA0:XXXXXXX bit 7..... bit 0

Address	bit	Indication	Logic
PA0 (input)	0 1 2 3 4 5 6 7	PBA internal signal PBA internal signal PBA internal signal PBA internal signal PBA internal signal PBA internal signal Not used Not used	
PB0 (input)	0 1 2 3 4 5 6 7	CORE/IP connect 1 CORE/IP connect 2 editor board connect CCF connect PBA internal signal power saving mode switch Not used main power switch	0: not connected 1: not connected 0: connected 0: connected 0:ON 0: ON
PC0 (input)	0 1 2 3 4 5 6 7	DIP SW DIP SW DIP SW DIP SW DIP SW Not used Not used	
PA1 (out- put)	0 1 2 3 4 5 6 7	LCD back light CCV count sleep mode switch PBA internal signal DIP SW DIP SW DIP SW Interrupt	1: ON 1: count 0: saving mode 0: connect 0: ON 1: ON (DC controller communication)
PB1 (out- put)	0 1 2 3 4 5 6 7	scanner start registration roller ON PBA internal signal PBA internal signal PBA internal signal PBA internal signal PBA internal signal PBA internal signal	1: ON (DC controller communication) 1: ON (DC controller communication)

Address	bit	Indication	Logic
PC1	0		1: ON
	1		1: ON
	2	PBA internal signal	
	3	PBA internal signal	
	4	PBA internal signal	
	5	PBA internal signal	
	6	PBA internal signal	
	7	PBA internal signal	
PA2 (out-put)	0	PBA internal signal	
	1	PBA internal signal	
	2	PBA internal signal	
	3	PBA internal signal	
	4	PBA internal signal	
	5	PBA internal signal	
	6	PBA internal signal	
	7	PBA internal signal	
PB2 (out-put)	0	STOP	CCD control
	1	B/H	CCD control
	2	ABC OFF	CCD control
	3	CS	CCD control
	4	LD/RS	CCD control
	5	CLK	CCD control
	6	SIN/UD	CCD control
	7	PRESCAN	CCD control
PC2 (out-put)	0	bias ON	laser control
	1	power SW 0	laser control
	2	marker ON	for editing board
	3	PAD OFF	for editing board
	4	power SW1	laser control
	5	area signal switching	1: w/editing board installed
	6	Not used	
	7	Post ratio change reversal switching	

***2* I/O DISPLAY 02 I/O ports on the DC controller PBA**



Guide to the screen: DC PA0: XXXXXXXXXXXXXXXX = bit 15 ~ bit 0

Address	bit	Indication	Signal	Jack	Logic
PA0 (input)	0	Fixing film detect PS2	FFD	J109-3	1: film detected
	1	Copyboard cover PS3	CBCC	J113-B9	1: closed
	2	Multifeed paper detect PS4	MFPD	J113-A11	0: paper present
	3	Pre registration sensor PS5	PDP1	J113-A5	1: paper present
	4		-	-	
	5	Fixing unit delivery sensor PS7	PDP3	J109-6	1: paper present
	6	Cassette pick-up PBA	UCSPD	J114-10	1: paper not present
	7	Cassette pick-up PBA	LCSPD	J114-A11	1: paper not present
	8	Cassette pick-up PBA	VPPD	J114-A12	1: paper present
	9	Vertical path paper sensor PS8	PDP4	J113-A2	1: paper present
	10	Right door open/close PS9	RDOP	J113-A8	1: right door close
	11	Waste toner sensor PS10	WTDT	J113-B6	0: waste toner full
	12	Toner sensor TS1	TEP	J117-7	1: toner present
	13	Multifeed pick-up clutch M1	MLCK	J114-B7	1: locked
	14	Laser scanner motor M3 PBA	LOCK	J112-6	1: locked
15		-	-	-	
PB0 (input)	0	Upper cassette size detection	CSZ10	J110-2	
	1	Upper cassette size detection	CSZ11	J110-3	
	2	Upper cassette size detection	CSZ12	J110-4	
	3	Upper cassette size detection	CSZ13	J110-5	
	4	Upper cassette size detection	CSZ14	J110-6	
	5	Lower cassette size detection	CSZ20	J110-8	
	6	Lower cassette size detection	CSZ21	J110-9	
	7	Lower cassette size detection	CSZ22	J110-10	
	8	Lower cassette size detection	CSZ23	J110-11	
	9	Lower cassette size detection	CSZ24	J110-12	
	10				
	11				
	12				
	13				
	14				
15					

Address	bit	Indication	Signal	Jack	Logic
PC0 (input)	0	re-pick up unit front paper detection PS11	PDP5	J103-2	0: paper present
	1	duplexing unit inlet paper detection PS12	PDP6	J105-B2	0: paper present
	2	delivery paper detection PS 13	PDP7	J105-A2	0: paper present
	3	bin 2 paper detection *	CRGPD	J104-4	1: lower feeding assembly present 1: lower feeding assembly inlet present 1: multi tray 3 connected
	4	bin 3 paper detection *		J104-5	
	5	bin 3 inlet paper detection *		J104-6	
	6	horizontal registration paper detection PS14		J114-B2	
	7	bin 3 tray position detection *		J104-7	
	8	lower feeding assembly ID *			
	9	lower feeding assembly inlet unit ID *			
	10	multi tray 3 ID *			
	11	not used			
	12	not used			
	13	not used			
	14	not used			
15	not used				
		(*: 3-bin delivery unit)			
PA1 (output)	0	main motor drive M1	MMD	J114-B6	0: rotates
	1	laser scanner motor drive M3	RSMD	J112-7	1: rotates
	2	registration clutch drive CL1	RGCD	J114-B11	0: ON
	3	multifeeder pick-up clutch CL2	MFCD	J114-B9	0: ON
	4	vertical path roller clutch CL3	CL3D	J114-A4	0: ON
	5	developing clutch CL4	DVCD	J113-B14	0: ON
	6	pick-up roller DOWN sol. SL2	SL2D	J114-A5	0: ON
	7	multifeeder holding plate releasing solenoid SL3	PRDSD	J14-B13	0: ON
	8	counter 1 drive CNT1	CNT1D	J107-B4	1: count
	9	counter 2 drive CNT2	CNT2D	J107-B6	1: count
	10	cassette pedestal communication signal	CHOEN	J106-11	
	11	bin 3 shift tray drive		J104-8	
	12	re-pick up paper deflecting plate solenoid SL4	PFLD	J103-5	0: ON
	13	paper deflecting plate 2 solenoid			0: ON
	14	delivery assembly paper deflecting plate solenoid	3SL2D	J104-9	0: ON
15	bin 3 flapper solenoid *	DFLD	J105-A5	0: ON	
		(*: 3-bin delivery unit)		J104-10	

Address	bit	Indication	Signal	Jack	Logic
PB1 (out-put)	0	pick-up motor drive M4	A	J114-A6	
	1	pick-up motor drive M4	B	J114-A7	
	2	pick-up motor drive M4	M0	J114-A8	
	3	pick-up motor drive M4	M1	J114-A9	
	4	fixing film drive M5	A	J109-10	
	5	fixing film drive M5	A*	J109-11	
	6	fixing film drive M5	B	J109-12	
	7	fixing film drive M5	B*	J109-13	
	8	horizontal registration drive M9	A	J115-3	
	9	horizontal registration drive M9	A*	J115-4	
	10	horizontal registration drive M9	B	J115-5	
	11	horizontal registration drive M9	B*	J115-6	
	12	feeding fan drive FM1	FMD1	J107-A8	
	13	exhaust fan 1 drive FM2	FMD2	J107-A9	
	14	laser cooling fan drive FM4	FMD4	J113-B3	
15	PBA internal signal				
PC1 (out-put)	0	set back motor drive M6	A	J103-6	
	1	set back motor drive M6	A*	J103-7	
	2	set back motor drive M6	B	J103-10	
	3	set back motor drive M6	B*	J103-11	
	4	duplex unit inlet mot. drive M9	A	J105-B4	
	5	duplex unit inlet mot. drive M9	A*	J105-B5	
	6	duplex unit inlet mot. drive M9	B	J105-B8	
	7	duplex unit inlet mot. drive M9	B*	J105-B9	
	8	delivery reverse motor drive M8	A	J105-A6	
	9	delivery reverse motor drive M8	A*	J105-A7	
	10	delivery reverse motor drive M8	B	J105-A10	
	11	delivery reverse motor drive M8	B*	J105-A11	
	12	bin 3 drive motor (3-bin deliv.)	A	J104-11	
	13	bin 3 drive motor (3-bin deliv.)	A*	J104-12	
	14	bin 3 drive motor (3-bin deliv.)	B	J104-13	
15	bin 3 drive motor (3-bin deliv.)	B*	J104-14		

Address	bit	Indication	Signal	Jack	Logic
PA2	0	scanner motor drive (PBA internal signal) M2			
	1	scanner motor drive (PBA internal signal) M2			
	2	scanner motor drive (PBA internal signal) M2			
	3	scanner motor drive (PBA internal signal) M2			
	4	scanner motor drive (PBA internal signal) M2			
	5	scanner motor drive (PBA internal signal) M2			
	6	scanning reference signal (PBA internal signal)			
	7	scanning reference signal (PBA internal signal)			
	8	scanning reference signal (PBA internal signal)			
	9	scanning reference signal (PBA internal signal)			
	10	not used			
	11	re-pick up clutch drive CL5	CLSD	J122-6	
	12	pre-exposure lamp drive LAMP	PEXP	J107-A12	
	13	not used			
	14	fixing heater relay drive	HRRD	J107-B9	
15	image processor communication signal		J111-35		
PB2 (input)	0	PBA internal signal			
	1	PBA internal signal			
	2	PBA internal signal			
	3	PBA internal signal			
	4	not used			
	5	not used			
	6	not used			
	7	not used			
	8	not used			
	9	not used			
	10	not used			
	11	not used			
	12	not used			
	13	not used			
	14	not used			
15	not used				

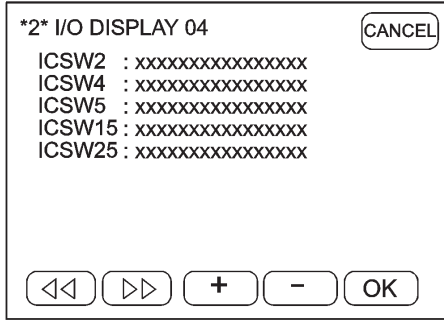
Address	bit	Indication	Signal	Jack	Logic
PC2 (out-put)	0	PBA internal signal	PCLSD	J113-B2	0: ON
	1	PBA internal signal			
	2	PBA internal signal			
	3	primary charging roller cleaning solenoid SL1	CNT3D	J107-B8	1: ON
	4	counter 3 drive (115V/230V model) CNT3			
	5	electric. unit fan drive (opt.)	J112-9		
	6	FM5			
	7	exhaust fan 1 half-speed (PBA internal signal)			
	8	laser fan half-speed (PBA internal signal)	J107-B1		
	9	electrical unit fan half-speed (PBA internal signal)			
	10	exhaust fan 2 drive FM3			
	11	exhaust fan 2 half-speed (PBA internal signal)			
	12	not used			
	13	not used			
	14	not used			
15	not used				

***2* I/O DISPLAY 03**

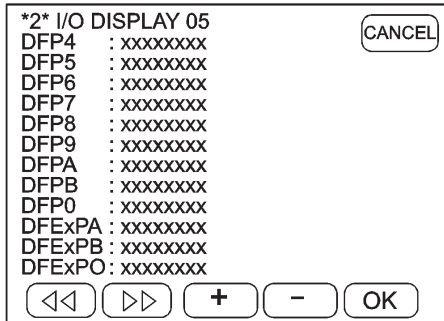
2 I/O DISPLAY 03		CANCEL
IP PA0:	xxxxxxxx	
IP PB0:	xxxxxxxx	
IP PC0:	xxxxxxxx	
<div style="display: flex; justify-content: space-around; margin-top: 20px;"> << >> + - OK </div>		

Address	bit	Indication	Signal	Jack
PA0	0	primary charging DC bias switching	HVPH	J102-B9
	1	developing bias DC application mode	HADCH	J102-B8
	2	transfer output mode 0	HVTM0	J102-B7
	3	transfer output mode 1	HVTM1	J102-B6
	4	primary charging roller ON/OFF	HVPDC	J102-B5
	5	static eliminator ON/OFF	HVD1	J102-B4
	6	laser scanner motor reference clock M3	FS	J112-8
PB0	7	developing AC drive	ACON	J102-B3
	0	scanner motor reference clock (PCB internal signal) M2		
	1	scanner motor CW/CCW rotation (PCB internal signal) M2		
	2	composite power supply PCB communication signal	ACK	J102-A6
	3	zero cross	ZC	J102-A8
	4	developing DC drive		
	5	Not used.	CDON	J102-B2
	6	Not used.		
	0	composite power supply PCB communication signal	REQ	J102-A7
	1	Not used.		
	2	upper cassette paper detection 0	UCRMN	J122-1
	3	upper cassette paper detection 1	UCRMN	J122-2
	4	lower cassette paper detection 0	LCRMN	J122-3
	5	lower cassette paper detection 1	LCRMN	J122-4
6	Not used.			
7	Not used.			

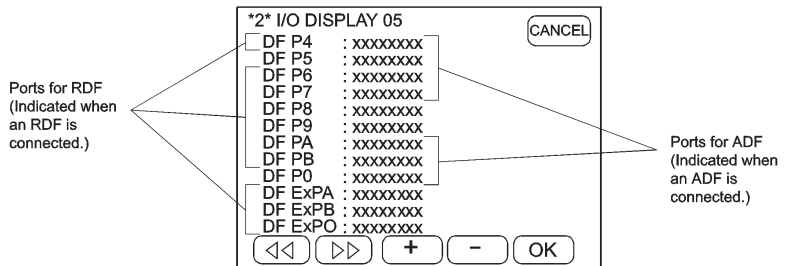
***2* I/O DISPLAY 04 Gate Array Input/Output of the DC Controller PCB**



***2* I/O DISPLAY 05 Input/Output Port 1 of the Feeder**



Guide to the Screen



Addr ess	bit	Indication	Signal	Jack	Logic
DFP4	0	stopper plate solenoid (SL1)	STPSL	J5-10	1: ON
	1	paper deflecting plate solenoid (SL3)	DFSLD	J4-2	1: ON
	2	stamping solenoid (SL4)	STSLD	J14-5	1: ON
	3	Not used.			
	4	Not used.			
	5	Not used.			
	6	Not used.			
	7	Not used.			
DFP6	0	pick-up roller sensor (S5)	PUSP	J5-2	1: paper present
	1	delivery sensor 1 (S6)	PSP3	J9-6	1: paper present
	2	pick-up sensor (S7)	PDP1	J9-9	1: paper present
	3	Not used.			
	4	PCB internal signal			
	5	PCB internal signal			
	6	Not used.			
	7	Not used.			
DFP7	0	original sensor (S1)	DEP1	J5-1	1: paper present
	1	registration sensor (S3)	PDP2	J9-20	1: paper present
	2	original width detecting VR1	DMPW	J8-8	A/D value stored in adjust- ment mode
	3	Not used.			
	4	reversal sensor (S8)	RVPD	J9-12	1: paper present
	5	delivery sensor 2 (S12)	PDP4	J8-2	1: paper present
	6	original tray paper sensor (LED1)			1: light ON
	7	registration sensor (LED2)			1: light ON
DFP8	0	belt motor clock sensor (S10)	BMCLK	J9-18	alternates 1 and 0 during rotation
	1	feeding motor clock sensor (S9)	FMCLK	J9-15	alternates 1 and 0 during rotation
	2	registration roller clock sensor (S11)	RRCLK	J5-5	alternates 1 and 0 during rotation
	3	PCB internal signal			
	4	PCB internal signal			
	5	Not used.			
	6	Not used.			
	7	Not used.			
DFP9	0	copier communication signal			
	1	copier communication signal			
	2	copier communication signal			
	3	Not used.			
	4	copier communication signal			
	5	Not used.			
	6	Not used.			
	7	Not used.			

a: Input/Output Port of the RDF (2/2)

Address	bit	Indication	Signal	Jack	Logic
DFPA	0	PBA internal signal			1: ON (PBA internal signal)
	1	not used			
	2	PBA internal signal			
	3	belt motor drive signal M3			1: ON (PBA internal signal)
	4	PBA internal signal			
	5	feeding motor drive signal M2			
	6	PBA internal signal			1: ON (PBA internal signal)
7	pick-up motor M1				
DFPB	0	PBA internal signal			1: belt motor CW rotation 1: pick-up motor CW rotation
	1	PBA internal signal			
	2	PBA internal signal			1: ON
	3	original detection LED S1	DSD	J8-4	
	4	PBA internal signal			
	5	brake BK1	BKD	J6-2	1: ON
	6	clutch CL1	CLD	J13-2	1: ON
7	paper retaining solenoid SL2	WSLD	J5-12	1: ON	
DF ExPA	0	push switch SW1	SW1		1: pressed
	1	push switch SW2	SW2		
	2	push switch SW3	SW3		
	3	re-circulation sensor S13	LDD	J14-1	1: paper present
	4	upper cover switch MS2	UPCC1	J3-2	1: closed
	5	RDF switch MS1	RFC	J2-6	1: closed
	6	PBA internal signal			
DF ExPB	0	LED (PBA internal signal)			
	1	LED (PBA internal signal)			
	2	not used			
	3	not used			
	4	not used			
	5	not used			
	6	not used			
DF ExPO	0	DIP SW1			1: ON
	1	DIP SW2			1: ON
	2	DIP SW3			1: ON
	3	DIP SW4			1: ON
	4	DIP SW5			1: ON
	5	DIP SW6			1: ON
	6	DIP SW7			1: ON
7	DIP SW8			1: ON	

***2* I/O DISPLAY 06 Input/Output Port 2 of the Feeder**

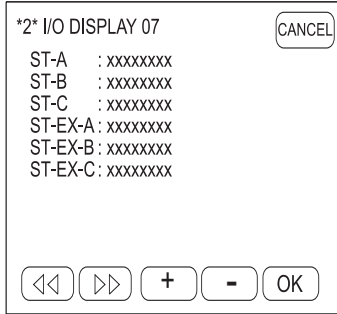
2 I/O DISPLAY 06 CANCEL

DF-AD0: xx
 DF-AD1: xx
 DF-AD2: xx
 DF-AD3: xx
 DF-AD4: xx
 DF-AD5: xx
 DF-DA0: xx
 DF-DA1: xx

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+
-
OK

Address	Indication	Signal	Jack	Logic
DF-AD0	original sensor S1	DEP1	J5-7	In hexadecimal notation
DF-AD1	registration sensor S3	PDP2	J9-20	In hexadecimal notation
DF-AD2	original width volume VR1	DMPS	J8-8	In hexadecimal notation
DF-AD3	not used			
DF-AD4	not used			
DF-AD5	not used			
DF-DA0	original tray sensor LED1 ON signal			
DF-DA1	registration sensor LED3 ON signal			

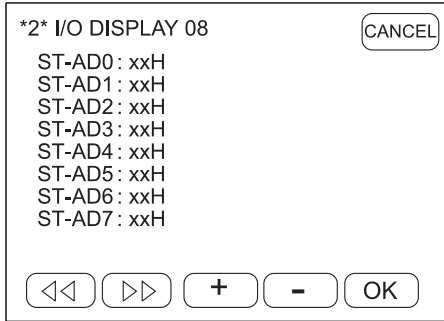
***2* I/O DISPLAY 07 Input/Output Port 1 of the Sorter**



Address	Bit	Indication	Signal	Jack	Logic
ST-A	0	Guide bar motor drive signal 1 M4			Pulse signal
	1	Guide bar motor drive signal 2 M4			Pulse signal
	2	Guide bar motor drive signal 2 M4			Pulse signal
	3	Guide bar motor drive signal 4 M4			Pulse signal
	4	Guide bar motor drive signal ON signal			1: motor ON
	5	Stapler motor drive signal 1 M5			1: motor CW
	6	Stapler motor drive signal 2 M5			1: motor CCW
ST-B	7	Stapler swing motor drive signal M3			1: motor ON
	0	Sorter feeding motor drive signal M7			pulse signal
	1	Tray feeding motor drive signal M6			pulse signal
	2	Not used			
	3	Add Staple LED ON/OFF	STEMP	J9-5	0: ON
	4	Stapler LED ON/OFF	SPLOK	J9-4	0: ON
	5	Not used			
ST-C	6	Paper on tray indicator	TRIND	J15-1	1: ON
	7	PCB internal signal			
	0	Not used			
	1	PCB internal signal			
	2	Bin feeding motor clock (PI2)	BFMC	J8-2	pulse input
	3	Not used			
	4	Tray feeding motor clock (PI6)	TFMC	J11-11	pulse input
5	Lead cam HP sensor (PI1)	LCHP	J8-4	1: lead cam horizontal	
6	PCB internal signal				
7	Bin unit delivery sensor (P3)	BPDY	J9-1	0: paper detect.	

Address	Bit	Indication	Signal	Jack	Logic
ST-EX-A	0	Not used			
	1	Not used			
	2	Not used			
	3	Not used			
	4	Not used			
	5	Not used			
	6	Not used			
ST-EX-B	0	Stapler cover open/closed detection (MS5)	SPLON	J17-2	1: open
	1	Joint sensor (MS3)	TOP	J3-3	1: released
	2	Stapler safety sensor (MS6)	SPLSFT	J17-4	1: safety
	3	Stapler position sensor (PI4)	SPLPD	J17-3	
	4	Tray position detection (PI12)	TRP	J12-7	
	5	Guide bar HP sensor (PI5)	GBHP	J4-6	
	6	Stapler HP sensor (MS4)	SPUHP	J17-3	
ST-EX-C	7	Stapling HP sensor (MS7)	SPLHP	J7-8	
	0	not used			
	1	PBA internal signal			
	2	PBA internal signal			
	3	tray B paper detection PI11	TBPD	J12-4	1: paper present
	4	tray A paper detection PI10	TAPD	J12-1	1: paper present
	5	tray B discharge paper detection PI9	TBP	J12-14	1: paper detect.
6	tray A delivery detection PI8	TAP	J11-8	1: paper detect.	
7	tray feeding assembly inlet slot sensor PI 7	TFPD	J11-5	1: paper detect.	

***2* I/O DISPLAY 08 Input/Output Port 2 of the Sorter**



Address	Indication	Signal	Jack	Logic
ST-AD0	24V motor			
ST-AD1	Bin paper sensor PT1	BPDN	J4-4	Analog input
ST-AD2	not used			
ST-AD3	for factory/R&D			
ST-AD4	staple key	MNSPT	J9-6	0: key ON
ST-AD5	push switch SW2			0: SW2 pressed
ST-AD6	push switch SW1			0: SW1 pressed
ST-AD7	staple absent			1: staple present

5 *3* ADJUST (adjustment mode)

Use this mode to fine-adjust or set back-up data needed for copying operations.

- Use the keypad to enter numbers.
- Press the **OK** key to accept the selected setting.
- Record all new settings on the service label.
- When done, turn off and then on the main power switch.

3 ADJUST 01 Fine-Adjusting and Entering the Multifeeder Paper Width Basic Setting

3 ADJUST 01 CANCEL

MF-A6R : xxxxx <- (xxxxx)

MF-A4R : xxxxx <- (xxxxx)

MF-A4 : xxxxx <- (xxxxx)

<<
>>
+
-
OK

Item	Description	Remarks	Settings
MF-A6R	Use it to fine-adjust or enter the multifeeder paper width basic setting. MF-A6R:Indicates the stored A6R (105mm) value of the multifeeder paper width sensor.	If you have replaced the image processor PCB, be sure to enter the value recorded on the service label. For how to enter a new value after replacement of the paper width sensor, see service handbook p. 2-15.	0~65535
MF-A4R	MF-A4R:Indicates the stored A4R (210mm) value of the multifeeder paper width sensor.		
MF-A4	MF-A4:Indicates the stored A4 (297mm) value of the multifeeder paper width sensor.		

***3* ADJUST 02 Primary Charging Roller/Transfer Charging Roller/Developing Bias**

3 ADJUST 02 CANCEL

PRI DC (IMG) : xxxxx <= (xxxxx)
 PRI DC (no IMG) : xxxxx <= (xxxxx)
 DVLP DC (IMG) : xxxxx <= (xxxxx)
 DVLP DC (no IMG): xxxxx <= (xxxxx)
 TRNS (IMG) : xxxxx <= (xxxxx)
 TRNS (no IMG) : xxxxx <= (xxxxx)
 PRI AC (IMG) : xxxxx <= (xxxxx)
 PRI AC (no IMG) : xxxxx <= (xxxxx)

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▶▶
+
-
OK

Item	Description	Remarks	Settings
PRI DC (IMG)	Indicates the primary charging DC output effective when an image is exposed.	If you have replaced the image processor PCB, be sure to enter the value recorded on the service label.	0~65536
PRI DC (no IMG)	Indicates the primary charging DC output between sheets.		
DVLP DC (IMG)	Indicates the developing DC output while an image is exposed.		
DVLP DC (no IMG)	Indicates the developing DC output between sheets.		
TRNS (IMG)	Indicates the transfer charging DC output while an image is exposed.		
TRNS (no IMG)	Indicates the transfer charging DC output between sheets.		
PRI AC (IMG)	Indicates the primary charging AC output while an image is exposed.		
PRI AC (no IMG)	Indicates the primary charging AC output between sheets.		

***3* ADJUST 03 Back-Up Data for the Composite Power Supply PCB**

3 ADJUST 03 CANCEL

AGS GAIN : xxxxx <= (xxxxx)

AGS OFST : xxxxx <= (xxxxx)

PRI DC OFST : xxxxx <= (xxxxx)

PRI AC OFST1 : xxxxx <= (xxxxx)

PRI AC OFST2 : xxxxx <= (xxxxx)

TRNS OFFST : xxxxx <= (xxxxx)

FL OFST : xxxxx <= (xxxxx)

DEV DC OFST : xxxxx <= (xxxxx)

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▶▶
+
-
OK

Item	Description	Label*	Remarks	Settings
AGS GAIN	Indicate APVC gain.	PVC GAIN	If you have replaced the composite power supply PCB, be sure to enter the value recorded on the label attached to the composite power supply PCB. (see P3-160)	0~255
AFS OFST	Indicates APVC offset.	APVC OFST		
PRI DC OFST	Indicates primary charging DC offset.	PDC OFST		
PRI AC OFST1	Indicate primary charging AC offset 1.	PAC OFST1		
PRI AC OFST2	Indicates primary charging AC offset 2.	PAC OFST2		
TRSN OFST	Indicates transfer charging offset.	ATVC OFST		
FL OFST	Indicates scanning lamp offset.	FL OFST		
DEV DC OFST	Indicates developing bias DC component offset.	DDC OFST		

* Service label; attached to the composite power supply

3 ADJUST 04 Image registration adjustments

CANCEL

3 ADJUST 04

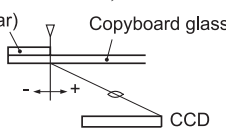
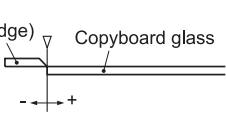
H-ADJ : xxxxx <- (xxxxx)

V-ADJ : xxxxx <- (xxxxx)

RESIST : xxxxx <- (xxxxx)

RSIDE-SENSHP : xxxxx <- (xxxxx)

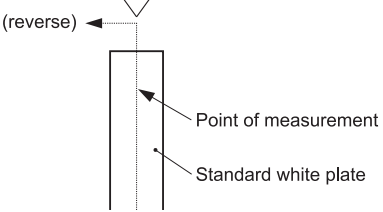
PVE-OFST : xxxxx <- (xxxxx)

Item	Description	Settings	Remarks
H-ADJ	<p>To fine adjust the CCD reading start position (main scanning direction; book mode)</p>  <p>An increment shifts the read start position to the right.</p>	0~500	unit: 1 mm. (approx. at 23 mm.)
V-ADJ	<p>To adjust the image reading start position (sub scanning direction)</p>  <p>A higher setting delays the registration ON timing.</p>	0~1000	unit: 1 mm. (approx. at 23 mm.)
RESIST	Use it to adjust the registration clutch ON timing (leading edge margin).	0~1000	Standard: 2.5 ± 1.0 mm.
RSIDE-SEN-SHP	<p>Use it to make adjustments if images on paper picked up from the lower feeding assembly (2nd side of overlay/two-sided copies) are often displaced to the rear or front.</p> <ul style="list-style-type: none"> ■ If the displacement is to the rear, decrease the value (in units of 23, a single unit being equivalent to 1 mm.) ■ If the displacement is to the front, increase the value (in units of 23, a single unit being equivalent to 1 mm.) 	0~65535	Within ± 46 (32x2) of the factory adjustment value.
PVE-OFST	<p>Use it to correct offset from the laser centre.</p> <ul style="list-style-type: none"> ■ If you have initialized the RAM or replaced the image processor PBA, enter the value recorded on the service label. 	-200~+200	

***3* ADJUST 05 Scanner-, Cassette-, and Laser-Related Items**

3 ADJUST 05		CANCEL
IC DENS	: xxxxx <= (xxxxx)	
CST LOOP	: xxxxx <= (xxxxx)	
MF LOOP	: xxxxx <= (xxxxx)	
DENS ADJ	: xxxxx <= (xxxxx)	
LASER OFF	: xxxxx <= (xxxxx)	
PWM 600 MIN	: xxxxx <= (xxxxx)	
PWM 600 MAX	: xxxxx <= (xxxxx)	
PWM 200 MIN	: xxxxx <= (xxxxx)	
PWM 200 MAX	: xxxxx <= (xxxxx)	
<div style="display: flex; justify-content: space-around; align-items: center;"> << >> + - OK </div>		

Item	Description	Settings	Remarks
IC-DENS	<p>Use it to adjust the original slice level in image create mode (with the image editing board installed).</p> <p style="text-align: center;">(conceptual diagram)</p>	50~200	
CST-LOOP	Use it to adjust arching (cassette pick-up; for factory use)	0~65535	
MF-LOOP	Use it to adjust arching (multifeeder pick-up; factory use).	0~65535	
DENS-ADJ	<p>Use it to make adjustments if the copy image is foggy as a result of executing copy density auto correction.</p>	1~9	


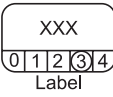
Item	Description	Settings	Remarks
ADJ-S	<p>Use it to fine-adjust the point at which data for shading correction is measured on the standard white plate.</p> <ul style="list-style-type: none"> ■ The adjustment is in units of 1/12 mm. ■ The presence of scratches on the standard white plate can cause noticeable white, vertical lines on copies. If such is the case, shift the point of measurement in ADJ-S 	50~80	
LASER-OFF	Use it to adjust the laser OFF timing (trailing edge).	0~65535	
PWM 600 MIN PWM 600 MAX PWM 200 MIN PWM 200 MAX	<p>Use it to enter laser basic values</p> <p>Label on the image processor PBA: P6L: Value for PWM600MIN P6M: Value for PWM600MAX P2M: Value for PWM200MIN P2L: Value for PWM200MAX</p>	0~65535	If you have initialized the RAM or replaced the image processor PBA, enter the value recorded on the label attached to the image processor PBA.

3 ADJUST 06 Adjusting the AE/Fixing Assembly Settings

3 ADJUST 06 CANCEL

AE_SLOP : xxxxx <- (xxxxx)
 FIXER-RESIST : xxxxx <- (xxxxx)
 FILM-ALNK : xxxxx <- (xxxxx)
 ABC_TBL : xxxxx <- (xxxxx)
 STRD_ADJ : xxxxx <- (xxxxx)

◀◀
▶▶
+
-
OK

Item	Description	Settings	Remarks
AE-SLOP	When copying in AE mode with priority on image quality, some types of originals generate light images. If such is the case, use this mode to adjust the copy image density.	1~19	
FIXER-RESIST	Use it to enter the resistance of the fixing assembly. ■ If you have replaced the fixing assembly, enter the value recorded on the label attached to the fixing assembly. <div style="text-align: center; margin-top: 10px;">  <p>Resistance to enter</p> </div>		
FILM LANK	Use it to enter the film thickness (fixing temperature control value). ■ If you have replaced the fixing assembly, enter the value recorded on the label attached to the fixing assembly, thereby setting the fixing temperature control value. <div style="text-align: center; margin-top: 10px;">  <p>Label Value to enter (in this case,'3')</p> </div>	0~4	Enter a value higher than the recorded value by 1 to 2 if shiny lines (vertical) occur on solid black copiers.
ABC_TBL	Use it to decrease the setting if the text density is too low (light image) when executing AE mode with priority on speed.	0~9	
AE_LIGHT	Use it to decrease the setting if the background of the original is too conspicuous when using AE mode with priority on image quality mode.	0~40	
AE_DARK	Use it to increase the setting if the text density is too low (light image) when executing AE mode with priority on image quality.	0~40	

3 ADJUST 07 Shading Back-Up Data

CANCEL

3 ADJUST 07

PPR : xxxxx <= (xxxxx)

W-PLT : xxxxx <= (xxxxx)

<< >> + - OK

Item	Description	Settings	Remarks
PPR	Indicates the standard paper data (density data of the standard white plate).	0~65535	If you have initialized the RAM or replaced the image processor PBA, be sure to enter the value recorded on the service label.
W-LTP	Indicates the standard white plate data (density data of the standard white plate).	0~65535	

3 ADJUST 08 Adjusting the Transfer Charging Roller Bias

CANCEL

3 ADJUST 08

TRNS-1: xxxxx <= (xxxxx)

TRNS-2TS: xxxxx <= (xxxxx)

TRNS-2OL: xxxxx <= (xxxxx)

<< >> + - OK

Item	Description	Settings	Remarks
TRNS-1	Use it to adjust the transfer roller bias occurring when copying on the 1st side.	0~10	Make adjustments if image faults occur because of an incorrect transfer roller bias. Guide ■ If fogging caused by stray toner occurs in the trailing edge margin, increase the value. ■ If the density grows higher (darker) at intervals of about 94 mm when copying an entirely halftone image, decrease the value.
TRNS-2 TS	Use it to adjust the transfer roller bias occurring when copying on the 2nd side of a two-sided copy.	0~10	
TRNS2 OL	Use it to adjust the transfer roller bias occurring when copying on the 2nd side of an overlay copy.	0~10	

Note: Settings are between 0 and 10; however, a value higher than 10 may be entered. (Any such number will be treated as '5' for control).

6 *4* FUNCTION (function mode)

Use this mode to operate the machine under a specific set of settings or execute auto adjustment. (Check to make sure that the machine is in stand-by mode before executing any item.)

Note: For the sorter, you can execute special tests with the DIP-switch on the sorter control PBA. See 21-SDS for a description

- A press on the **JUMP** and a key on the keypad put the corresponding number into the parentheses '*4* FUNCTION1 -> ()'; a press on the **JUMP** key then causes a leap to the corresponding page.

4 FUNCTION 01 Clearing Errors

4 FUNCTION 01 -> ()

ERROR (OK : CLEAR)

CANCEL

JUMP

<< >> + - OK

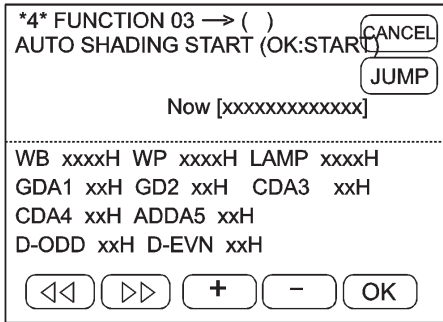
Item	Description	Reference page
Clearing E000, E001, E003, E004, E007-01, or E717	To clear an error indication, press 'ERROR' on the screen to highlight; then, press the OK key, and turn OFF/ON the main power switch.	

***4* FUNCTION 02 Stirring the Toner**

4 FUNCTION 02 → ()	CANCEL
TONER_S [240]	JUMP
START (OK)	
STOP (OK)	
<div style="display: flex; justify-content: space-around; margin-top: 20px;"> << >> + - OK </div>	

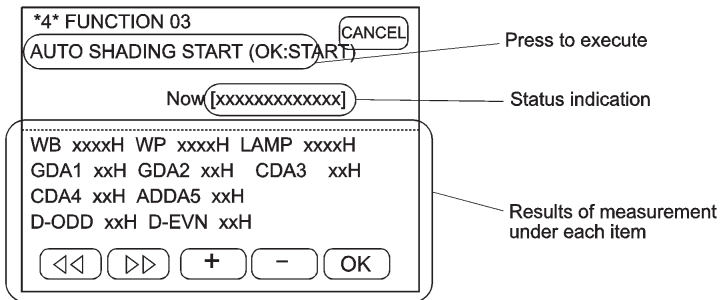
Item	Description	Reference page
Stirring toner inside the developing assembly at installation	Press 'START' on the screen to highlight; then, press the OK key to start stirring the toner inside the developing assembly. At the same time, 'TONER_S' [240] (in sec) starts to decrement; the operation stops at [0]. To stop in the middle, press 'STOP' to highlight, and press the OK key to stop.	

***4* FUNCTION 03 Shading Auto Correction**



Item	Operation	Reference page
Shading auto correction (for servicing in the field)	1) Press 'AUTO SHADING START' on the screen to highlight; then, press the OK key. 2) The notation 'END' indicates the end of the operation.	

Guide to the Screen

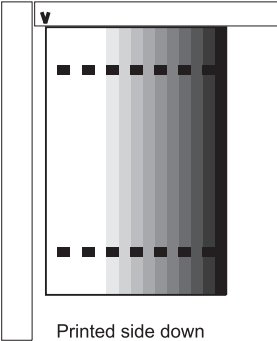


***4* FUNCTION 04 PD Density Auto Correction**

- This mode must be executed in combination with 200PWM density auto correction and 600PWM density auto correction.

```

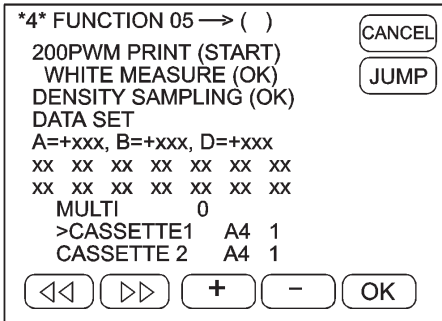
*4* FUNCTION 04 → ( )
PD PRINT (START)
WHITE MEASURE (OK)
DENSITY SAMPLING (OK)
DATA SET
A=+xxx, B=+xxx, D=+xxx
xx xx xx xx xx xx xx
xx xx xx xx xx xx xx
MULTI      0
>CASSETTE1 A4 1
CASSETTE 2 A4 1
    
```

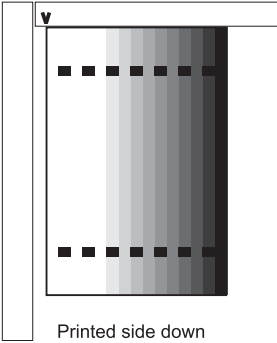
Item	Description	Remarks
PD density auto correction	<p>1) Start 'PD PRINT'.</p> <ul style="list-style-type: none"> ■ A 15-gradation test pattern will be generated. <p>2) Place a pile of 3 white sheets on the glass platen. Then, start 'WHITE MEASURE'.</p> <ul style="list-style-type: none"> ■ The scanner makes a single scan. <p>3) Place the 15-gradation test sheet on the glass platen. Then, start 'DENSITY MEASURE'.</p>  <p>4) Check the values under A, B, and D: $20 \leq A \leq 50$ $-40 \leq B \leq 40$ $0 \leq D \leq 8$</p> <p>5) If the values are as indicated, press 'DATA SET' to highlight, and press the OK key</p>	<p>A, B or D not OK: suspect:</p> <ul style="list-style-type: none"> ■ drum unit ■ scanning lamp ■ laser unit ■ composite power supply ■ analog processor PBA ■ image processor PBA <p>See note</p>

Note: A, B, and D are approximate values so that optimum images may still be obtained even if the values are outside the range; you may omit "temporary remedy" as long as the images are optimum.

***4* FUNCTION 05 200PWM Density Auto Correction**

- You must execute this mode in combination with PD density auto correction and 600PWM density auto correction.

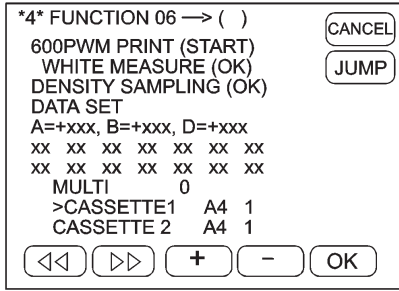


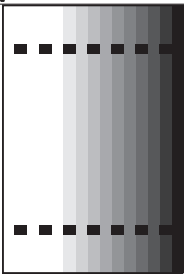
Item	Description	Remarks
200PWM density auto correction	<p>1) Start '200PWM PRINT'.</p> <ul style="list-style-type: none"> ■ A 15-gradation test pattern will be generated. <p>2) Place a pile of 5 white sheets on the glass platen. Then, start 'WHITE MEASURE'.</p> <ul style="list-style-type: none"> ■ The scanner makes a single scan. <p>3) Place the 15-gradation test sheet on the glass platen. Then, start 'DENSITY MEASURE'.</p>  <p>4) Check the values under A, B, and D: $20 \leq A \leq 50$ $-40 \leq B \leq 40$ $0 \leq D \leq 8$</p> <p>5) If the values are as indicated, press 'DATA SET' to highlight, and press the OK key.</p>	<p>A, B or D not OK: suspect:</p> <ul style="list-style-type: none"> ■ drum unit ■ scanning lamp ■ laser unit ■ composite power supply ■ analog processor PBA ■ image processor PBA <p>See note</p>

Note: A, B, and D are approximate values so that optimum images may still be obtained even if the values are outside the range; you may omit "temporary remedy" as long as the images are optimum.

***4* FUNCTION 06 600PWM Density Auto Correction**

- You must execute this mode in combination with PD density auto correction and 200PWM density auto correction.



Item	Description	Remarks
600PWM density auto correction	<p>1) Start '600PWM PRINT'.</p> <ul style="list-style-type: none"> ■ A 15-gradation test pattern will be generated. <p>2)Place a pile of 5 white sheets on the glass platen. Then, start 'WHITE MEASURE'.</p> <ul style="list-style-type: none"> ■ The scanner makes a single scan. <p>3)Place the 15-gradation test sheet on the glass platen. Then, start 'DENSITY MEASURE'.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;">  </div> <p>4)Check the values under A, B, and D: $20 \leq A \leq 60$ $-70 \leq B \leq 20$ $0 \leq D \leq 8$</p> <p>5)If the values are as indicated, press 'DATA SET' to highlight, and press the OK key.</p>	<p>A, B or D not OK: suspect:</p> <ul style="list-style-type: none"> ■ drum unit ■ scanning lamp ■ laser unit ■ composite power supply ■ analog processor PBA ■ image processor PBA <p>See note</p>

Note: A, B, and D are approximate values so that optimum images may still be obtained even if the values are outside the range; you may omit "temporary remedy" as long as the images are optimum.

***4* FUNCTION 07 Registering the Mulfifeeder Paper Width**

4 FUNCTION 07 → ()

AD =xxxx CANCEL

JUMP

MF-A6R=xxx

MF-A4R=xxx

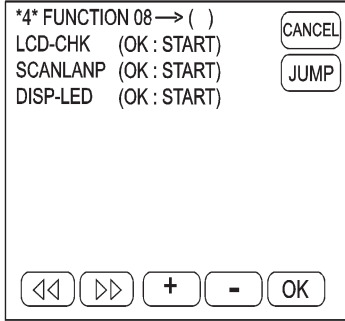
MF-A4=xxx

SIZE=xxx.x (mm)

◀◀
▶▶
+
-
OK

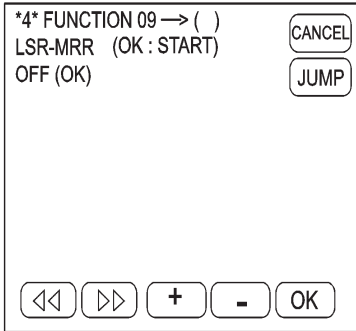
Item	Description	Refer- ence page
Multifeeder paper width basic value registration	<ol style="list-style-type: none"> 1) Place an A6R sheet* in the multifeeder, and adjust the side guide to A6R. <ul style="list-style-type: none"> ■ *A6 is what you obtain folding A4 into four, with its width being 105 mm. 2) Check the screen to make sure that the VR output is indicated under 'AD=xxx' as soon as the side guide is adjusted to A6R. <ul style="list-style-type: none"> ■ Then, press 'MF-A6R' to highlight, and press the OK key. ■ The value will be stored under 'MF-A6R'. 3) Likewise, place and A4R sheet in the multifeeder, and adjust the side guide to A4R. 4) Check to make sure that the AD value has been indicated; then, press 'A4R' to highlight, and press the OK key. <ul style="list-style-type: none"> ■ The value will be stored under 'A4R'. 5) Then, place an A4 sheet of paper in the multifeeder, and adjust the side guide to A4. 6) Check to make sure that the AD value has been indicated; then, press 'A4;' to highlight, and press the OK key. <ul style="list-style-type: none"> ■ The value will be stored under 'A4'. 7) Press the Reset key twice to end service mode. 8) Turn off and then on the main power switch. 	See page 2-15

***4* FUNCTION 08 Checking the Control Panel Indications**



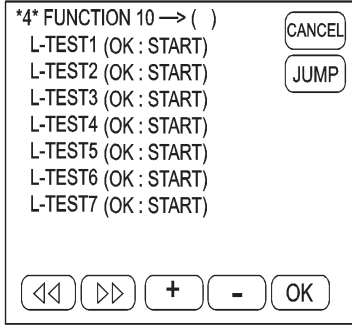
Item	Description	Reference page
<p>LCD-CHK</p> <ul style="list-style-type: none"> ■ checking for missing dots on LCD 	<p>1) Press 'LCD-CHK' to highlight.</p> <p>2) Press the OK key.</p> <ul style="list-style-type: none"> ■ The entire face of the LCD reverses (white video; keys and notations disappear). <p>3) Press the area where the OK key was shown.</p> <ul style="list-style-type: none"> ■ The entire face of the LCD reverses (black video). <p>4) Press the area where the OK key was shown.</p> <ul style="list-style-type: none"> ■ The LCD will return to normal state. 	
<p>SCAN_LAMP</p> <ul style="list-style-type: none"> ■ checking activation of scanning lamp 	<p>1) Press 'SCAN_LAMP' to highlight.</p> <p>2) Press the OK key.</p> <ul style="list-style-type: none"> ■ The scanning lamp will turn on. <p>3) Press the OK key.</p> <ul style="list-style-type: none"> ■ The scanning lamp will turn off. 	
<p>DISP-LED</p> <ul style="list-style-type: none"> ■ checking control panel LEDs 	<p>1) Press 'DISP-LED' to highlight.</p> <p>2) Press the OK key.</p> <ul style="list-style-type: none"> ■ The LEDs on the control panel will turn on. <p>3) Press the OK key.</p> <ul style="list-style-type: none"> ■ The LEDs on the control panel will turn off. 	

***4* FUNCTION 09 Laser**



Item	Description	Reference page
LSR-MRR ■ checking laser scanner motor operation OFF ■ stopping operation	1) Press 'LSR-MRR' to highlight; then, press the OK key. ■ The laser scanner motor will start to rotate 2) Press 'OFF' to highlight; then, press the OK key to stop the laser scanner motor (after 10 sec).	

***4* FUNCTION 10 Test Print**



Item	Description	Reference page
Test print output	Select the desired test print (press the item to highlight); then, press the OK key. L-TEST1: solid black test print L-TEST2: halftone test print L-TEST3: blank test print L-TEST4: 17-gradation test print L-TEST5: grid test print L-TEST6: vertical line test print L-TEST7: horizontal line test print	

1 L-TEST1: Solid black test print



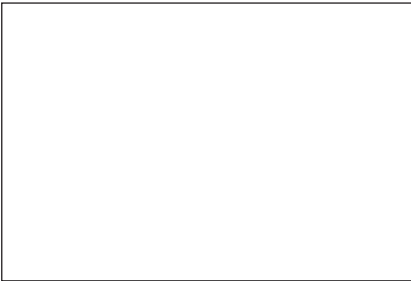
- Use it to check white spots or white lines.
- If white spots are noted, suspect dirt on the transfer charging roller or the separation static eliminator.
- If white lines are noted, suspect shading faults because of dirt on the standard white plate

2 L-TEST2: Halftone test print



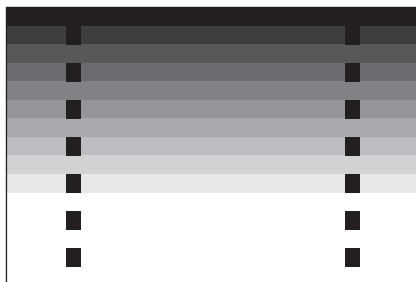
- Use it to check for transfer faults, black lines, white lines or uneven intervals.
- If transfer faults are noted (vertical white spots), suspect dirt on the transfer charging roller or the separation static eliminator.
- If black lines are noted, suspect scratches on the drum or dirt on the primary charging roller.

3 L-TEST3: blank test print



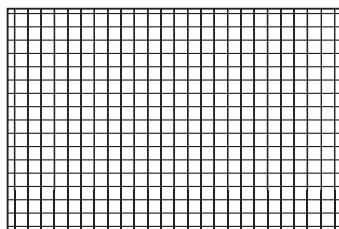
- Use it to check for fogging.
- If fogging is noted, suspect a fault in the photosensitive drum, developing system or laser system.

4 17-gradation test print



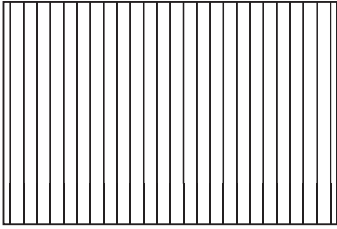
- Use it to check gradation and check for fogging, white lines and uneven (left/right) density.
- If gradation is not good, suspect a fault in the laser system.
- If fogging is noted, suspect a fault in the photosensitive drum, developing assembly or laser system.
- If white bands are noted, suspect a fault in the developing system or dirt on the transfer charging roller.
- If white lines are noted, suspect a shading fault because of dirt on the standard white plate.
- If uneven density (left/right) is noted, suspect dirt on the primary charging roller or a fault in the developing system.

5 L-TEST5: grid test print



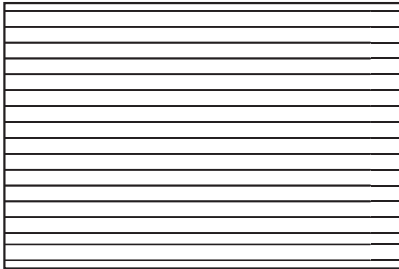
- Use it to check straight line and angles.
- If a discrepancy is noted, suspect a displaced laser beam or a fault in beam detection.

6 L-TEST6: Vertical line test print



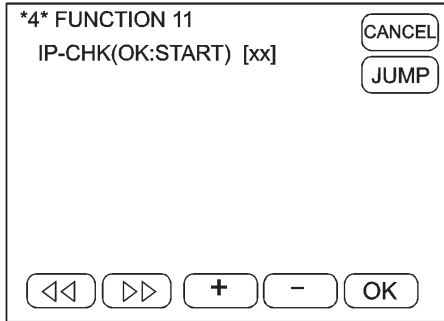
- Use it to check straight lines.
- If a discrepancy is noted, suspect a displaced laser beam or a fault in beam detection.

7 L-TEST7: Horizontal line test print



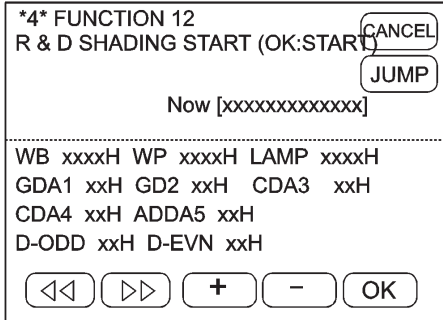
- Use it to check straight lines.
- If a discrepancy is noted, suspect a displaced laser beam or a fault in beam detection.

***4* FUNCTION 11 Checking the Image Processor PCB**



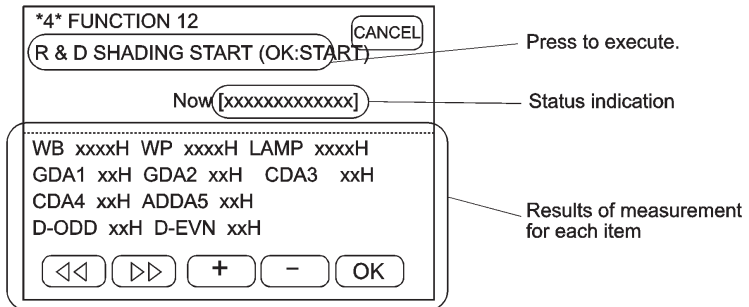
Item	Description	Reference page
Image processor PBA self check	1) Press 'IP-CHK' to highlight. 2) Press the OK key to start a check on the image processor PBA. ■ 'OK' or 'NG' will be indicated; if 'NG', replace the image processor PBA.	

***4* FUNCTION 12 Shading Adjustment (for R&D/factory)**

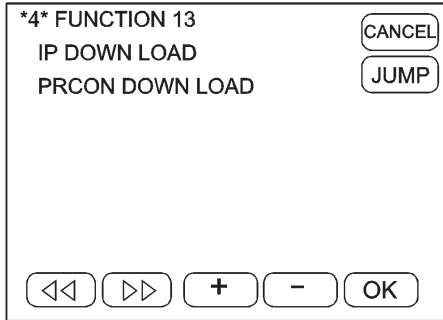


Item	Description	Reference page
R&D/factory shading auto correction	1)Place the standard white paper on the copyboard glass. 2)Press 'AUTO SHADING START' on the screen to high-light; then, press the OK key. 3)When a beep is sounded, press the OK key. ('LAMP LEVEL' will be indicated on the screen while the lamp is being adjusted.) If no beep is heard, turn VR1 on the DC controller PCB so that a beep will be heard; then, press the OK key. 4)End the operation when 'END' appears on the screen.	

Guide to the Screen



***4* FUNCTION 13 Downloading Mode (updating FLASH ROM)**



Item	Description	Reference page
<p>FLASH ROM updating mode</p> <p>IP DOWNLOAD: <ul style="list-style-type: none"> ■ for updating FALSH ROM on image processor PCB </p> <p>PRCON DOWNLOAD: <ul style="list-style-type: none"> ■ for updating FLASH ROM on protocol controller </p>	<p>1) Perform the following in advance:</p> <ul style="list-style-type: none"> ■ Turn off the main power switch. ■ Open the front door, and remove the connector cover for servicing; then, connect the copier to a PC with an RS232C cable. ■ Insert the handle of the static eliminator cleaning brush into the fixing assembly releasing assembly; then, turn on the main power switch. ■ Press the service switch, and press the * key twice; select 'FUCNTION'>(*4*) so that the Downloading screen will appear. <p>2) Press 'IP DOWNLOAD' or 'PRCON DOWNLOAD' to highlight; then, press the OK key.</p> <ul style="list-style-type: none"> ■ The power will automatically be removed and then will be supplied. ■ The following screen will appear to indicate that the system is ready to accept downloading: <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">IP FDIMM download program</p> </div> <p>3) Operate according to the instructions on the PC screen.</p>	

4 FUNCTION 14 Adjusting the Fixing Film

4 FUNCTION 14 → () CANCEL

T-ROLLER FIX (OK:START)

FILM_INIT_ROTATE (OK:START) JUMP

FILM_COMEBACK (OK:START)

ON_TIME =xxxx (msec)

ONE_CYCLE =xxxx (msec)

FILM_SPEED=xxxx[]

LOCATION from Top=xxxx (mm/10)

1 2 3 4 5 6 7 8 9

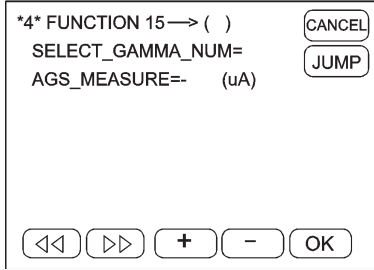
LEVEL * * * * * * * * *

rear front

◀◀
▶▶
+
-
OK

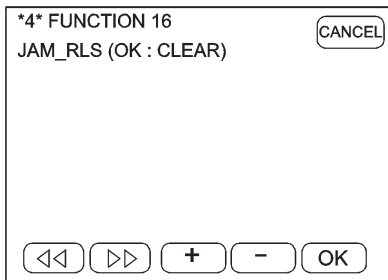
Item	Description
T-ROLLER FIX ■ fixing tension roller fixing mode (Use it to mechanically adjust the pressure of the fixing film drive roller.) Execute it as part of adjustment performed after replacing the film.	In this mode, the fixing film is rotated idly with the fixing tension roller being held in place after returning the film to an appropriate position (same as in FILMCOMEBACK). While the fixing film is rotated idly, the speed of displacement to the rear/front of the film is measured, and the result is indicated under 'FILM SPEED' on the control panel.
FILM_INIT_ROTATE ■ fixing film initial rotation mode (Use it after replacement of the fixing film or the fixing assembly.)	In this mode, the fixing film will automatically stop at a specific position, indicating the position under 'LOCATION from Top' and 'LEVEL' as it rotates.
FILM_COMEBACK ■ fixing film displacement recovery mode (Use it if 'E007' is indicted when the fixing film has become displaced for some reason.)	In this mode, the film is returned to its proper position. The operation ends when the film has returned to the proper position or after a specific period of time has passed. (The rough adjustment range is not reached in 30 sec; or, the fine-adjustment range is not reached in 60 sec.)
ON-TIME	Indicates the period during which the fixing film sensor has been ON.
ONE CYCLE	Indicates the time taken by the fixing film to make a complete rotation.
FILM_SPEED	Indicates the measured film speed.
LOCATION from TOP	Indicates the position of the rear end of the fixing film from the V-cut.
LEVEL	Indicates the position of the fixing film (4 or 5 is optimum).

***4* FUNCTION 15 Measuring the Drum Resistance**



Item	Description								
Photosensitive drum resistance measurement	<p>1) Bring up the screen, and press the Copy Start key.</p> <ul style="list-style-type: none"> ■ The resistance of the photosensitive drum will be measured, and the result will be indicated. ■ Execute this mode before changing 'AGSNON' of 'OPTION' in service mode *5* to '0', so that the measurement may be used as a reference. ■ For a guide, see the diagram below. 								
<p>SELECT_GAMMA_NUL setting</p> <p>AGS_MEASURE setting</p>	<table border="1"> <caption>AGS_MEASURE values for different SELECT_GAMMA_NUL settings</caption> <thead> <tr> <th>SELECT_GAMMA_NUL setting</th> <th>AGS_MEASURE (uA)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>-28.0</td> </tr> <tr> <td>1</td> <td>-36.5</td> </tr> <tr> <td>2</td> <td>-43.0</td> </tr> </tbody> </table>	SELECT_GAMMA_NUL setting	AGS_MEASURE (uA)	0	-28.0	1	-36.5	2	-43.0
SELECT_GAMMA_NUL setting	AGS_MEASURE (uA)								
0	-28.0								
1	-36.5								
2	-43.0								

***4* FUNCTION 16 Resetting the Jam History**



Item	Description
Resetting jam history	<p>Use this mode to collectively reset the jam histories shown under 'DISPLAY' in service mode (*1*).</p> <p>Press 'JAM_RLS' to highlight; then, press the OK key.</p>

4 FUNCTION 17 Initializing the Memory (RAM)

4 FUNCTION 17

RAM-INIT CANCEL

COPY (CLEAR+OK / CLEAR): x JUMP

ALL (CLEAR+OK / CLEAR): x

◀◀
▶▶
+
-
OK

Item	Description
Initializing RAM	<p>Press the appropriate item to highlight; then, press the Clear key, and press the OK key.</p> <p>COPY: Select it to initialize the data needed for the copier's service mode (*3*, *5*, *6*) and various copying modes to initial values.</p> <p>ALL: Select it to collectively initialize the above data. (Executing this item will initialize the back-up data of both fax and copier.)</p>

4 FUNCTION 18 Printing the Parameters

4 FUNCTION 18




PRM_PRINT (OK : START) CANCEL

◀◀
▶▶
+
-
OK

Item	Description
Use it to print out the contents of service mode *3*, *5*, and *6*; however, the machine must be installed with a FAX Board.	<p>1) Press 'PRM_PRINT' to highlight; then, press the OK key.</p> <p>*3*: ADJUST *5*: OPTION *6*: COUNTER</p> <p>The machine must be equipped with fax functions.</p>

7 *5* OPTION (settings mode)

Use this mode to set/change various machine settings (specifications).

- Each press on the  key brings up the next screen; each press on the  key, on the other hand, brings up the previous screen.
- Press the desired item (notation on the screen) to highlight.
- Use the keypad to enter numbers.
- A press on the  key will permanently store the entered value.
- When done, be sure to turn off and then on the main power switch.

5 OPTION 01 Setting the Copy Count and Shut-Off Slant Mode

5 OPTION 1 CANCEL






COPY-LIM (100) : 100 <- (000)

SHUT_OFF (OFF : 1): 0 <- (0)

IM-ANGLE : 0 <- (0)

COIN_OPERT : 0 <- (0)

DRM_MSG : 0 <- (0)

Item	Function	Description
COPY-LIM	Use it to change the upper limit imposed on the copy count.	You may change the upper limit imposed on the copy count between 1 and 100 (copies).
SHUT_OFF	Use it to enable/disable the sleep function.	You may disable the auto shift function (time) to sleep state.
IM-ANGLE	Use it to switch slant mode.	Copies made in slant mode may become jagged; change the setting of this mode from '0' to '1' if such a problem is noted.
COIN_OPERT	Coin vender switching	Select '1' to support a coin vender.
DRM_MSG	Use this to switch the "Replace Drum" message.	0: Will not indicate the Replace Drum message on the control panel. (default in 230V model) 1: Will indicate the Replace Drum message. (default in 120V model)

***5* OPTION 02 Switching the Baud Rate, Drum Resistance Measurements, and Thick Paper Mode**

5 OPTION 2		CANCEL
BAUD RATE	: 0 <- (0)	
ENV_SW	: 1 <- (1)	
AGS NON	: 0 <- (0)	
SPCL-PPR	: 0 <- (0)	
SCAN_SEL	: 0 <- (0)	
FAX_DOC_FEED	: 0 <- (0)	
<input type="button" value="◀◀"/> <input type="button" value="▶▶"/> <input type="button" value="+"/> <input type="button" value="-"/> <input type="button" value="OK"/>		

Item	Function	Description
BAUD RATE	Use it to change the communication speed of the RS232C interface for servicing.	0: 19200 baud 1: 9600 baud
ENV_SW	<ul style="list-style-type: none"> Be sure to set it to '1' if you have selected a cassette exclusively for envelopes. The switch determines whether the machine should recognize an envelope cassette. 	0: If the paper size dial of the cassette is set to the envelope index, the cassette will not be identified as an envelope cassette. 1: If the paper size dial of the cassette is set to the envelope index, the cassette will be identified as an envelope cassette. Default: 1
AGS NON	Use it to specify whether the density correction curve should be modified based on the results of measuring the resistance of the photosensitive drum.	0: Change the density correction curve based on the results of measuring the resistance of the photosensitive drum. 1: Do not change the density correction curve. Guide If the results of making adjustments according to the Basic Image Adjustment Procedure are not good, execute the 15th screen (*4*). If the indicated value is far off the target value, set the item in this mode to '1' so normal images may be obtained. However, if such a problem occurs, you must suspect a fault in the image processor PCB, DC controller PCB, or composite power supply PCB.

Item	Function	Description
SPCL-PPR	Use it to change thick paper mode.	0:The thick paper mode remains off. 1:Switching the fixing temperature, the thick paper mode is supported. 2:The fixing temperature is switched so that paper thicker than that supported under '1' may be supported. However, for '1' and '2', the icon for the special cassette must be registered using 'ADDITIONAL FUNCTION' (i.e., the third icon from the middle row).
SCAN_SEL	Use it if parts of an image are missing in main scanning direction on large-size papers when using the feeder and copying a non-default original.	0:Normal copying mode. 7:Priority on paper mode* *Centre reference output prevents missing images.
FAX_DOC_F EED	use it to switch reading patterns for RDF-G1 fax originals.	0:The topmost page of the stack of originals will be picked up and read first and discharged on the right. 1:The bottom-most page of the stack of originals will be picked up and read first and returned to the original tray (same way as copying).

***5* OPTION 03 Setting the Mode of Notation for the U1 Cassette (universal 1 cassette)**

5 OPTION 3 CANCEL

CST-U1 0 <- (0)(U1 : 0)

CST-U1 0 <- (0): 0 : FLSC

: 1 : OFI

: 2 : E-OFI

: 3 : A-LGL

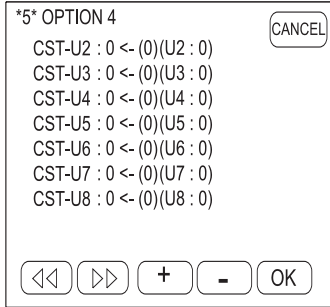
: 4 : B-OFI

: 5 : A-OFI

<<
>>
+
-
OK

Item	Function	Description
CST-U1	Use it to turn on and off the U-size cassette paper name.	0: If the paper size dial of the cassette is set to U1, 'U1' will be indicated on the LCD. 1: If the paper size dial of the cassette is set to U1, the abbreviation selected in the following item will be indicated on the LCD.
CST-U1: 0:FLSC 1:OFI 2:E-OFI 3:A-LGL 4:B-OFI 5:A-OFI	Use it to specify the U1-size cassette paper name (abbreviation).	If '1' is set for the previous item, one of the following may be selected for indication: 0: FLSC', standing for FOOLSCAP. 1: 'OFFI', standing for OFICIO. 2: 'OFI', standing for Ecuadorian OFICIO. 3: 'LGL', standing for Argentine LEGAL. 4: 'OFFI', standing for Bolivian OFICIO. 5: 'OFFI', standing for Argentine OFICIO.

***5* OPTION 04 Setting the Mode of Notation for the U2 through U8 Cassettes (universal cassettes 2 through 8)**



Item	Function	Description
CST-U2 CST-U3 CST-U4 CST-U5 CST-U6 CST-U7 CST-U8	Use it to turn on/off the U-size cassette name.	0:If the paper size dial of the cassette is set to U2 through U8, 'U1-U8' will be indicated on the LCD. 1:If the paper size dial of the cassette is set to U2 through U8, the following will be indicated: PaperNotation U2: FOLIO_FOLIO U3: A-FLS_FLS U4: G-LTR_LTR U5: G-LTRR_LTRR U6: G-LGL_LGL U7: LGL_LGL U8: K-LGLR_LGLR

***5* OPTION 05 Setting the Mode of Notation for the LTR/LTRR Cassette**

5 OPTION 5 CANCEL

CSTLTR : 0 : LTR: 0 <-(0)
 : 1 : A-LTR

CST LTRR: 0 : LTRR: 0 <-(0)
 : 1 : A-LTRR

<<
>>
+
-
OK

Item	Function	Description
CST-LTR	Use it to select the paper name notation for the LTR-size cassette.	0: If the paper size dial of the cassette is set to LTR, 'LTR' will be indicated on the LCD. 1: If the paper size dial of the cassette is set to LTR, 'LTR' will be indicated to stand for Argentine LETTER.
CST-LTRR	Use it to select the paper name notation for the LTRR-size cassette.	0: If the paper size dial of the cassette is set to LTR, 'LTRR' will be indicated on the LCD. 1: If the paper size dial of the cassette is set to LTRR, 'LTRR' will be indicated to stand for Argentine LETTER-R.

8 *6* COUNTER (counter mode)

Use this mode to find out the numbers of specific operations the machine has performed.

- To clear the counter reading, press the item to highlight; then, press the **OK** key.

When a dialogue box appears asking you whether to clear the counter reading, press the OK key to reset the counter reading to '0'.

6 COUNTER 01

6 COUNTER 01		CANCEL
SERV_TOTAL1	xxxxx	
SERV_TOTAL2	xxxxx	
L_TOTAL	xxxxx	
L_MULTI	xxxxx	
L_CAST1	xxxxx	
L_CAST2	xxxxx	
L_CAST3	xxxxx	
L_CAST4	xxxxx	
L_CAST5	xxxxx	
L_CAST6	xxxxx	
<<	>>	+
-	OK	

Indication	Description
SERV_TOTAL 1	Indicates the servicing total copy count 1.
SERV_TOTAL 2	Indicates the servicing total copy count 2.
L_TOTAL	Indicates the large-size copy/print count.
L_MULTI	Indicates the large-size copy count from the multifeder.
L_CAST1	Indicates the large-size copy count from the cassette 1.
L_CAST2	Indicates the large-size copy count from the cassette 2.
L_CAST3	Indicates the large-size copy count from the cassette 3.
L_CAST4	Indicates the large-size copy count from the cassette 4.
L_CAST5	Indicates the large-size copy count from the cassette 5.
L_CAST6	Indicates the large-size copy count from the cassette 6.

***6* COUNTER 02**

6 COUNTER 02	CANCEL
L_OVLY_TRAY xxxxx	
L_DUP_TRAY xxxxx	
S_TOTAL xxxxx	
S_MULT1 xxxxx	
S_CAST1 xxxxx	
S_CAST2 xxxxx	
S_CAST3 xxxxx	
S_CAST4 xxxxx	
S_CAST5 xxxxx	
S_CAST6 xxxxx	
<<	>>
+	-
OK	

Indication	Description
L_OVLY_TRAY	Indicates the large-size overlay copy 2nd side pick-up count.
L_DUP_TRAY	Indicates the large size two-sided copy 2nd side pick-up count.
S_TOTAL	Indicates the small-size copy/print count.
S_MULT1	Indicates the small-size multifeeper pick-up count.
S_CAST1	Indicates the small size copy count from the cassette 1.
S_CAST2	Indicates the small-size copy counter from the cassette 2.
S_CAST3	Indicates the small-size copy counter from the cassette 3.
S_CAST4	Indicates the small-size copy counter from the cassette 4
S_CAST5	Indicates the small-size copy counter from the cassette 5.
S_CAST6	Indicates the small-size copy counter from the cassette 6.

***6* COUNTER 03**

6 COUNTER 03	CANCEL
S_OVLY_TRAY xxxxx	
S_DUP_TRAY xxxxx	
COPY_L_PRINT xxxxx	
FAX_L_PRINT xxxxx	
PDL_L_PRINT xxxxx	
ETC_L_PRINT xxxxx	
COPY_S_PRINT xxxxx	
FAX_S_PRINT xxxxx	
PDL_S_PRINT xxxxx	
ETC_S_PRINT xxxxx	
<<	>>
+	-
OK	

Indication	Description
S_OVLY_TRAY	Indicates the small-size overlay copy 2nd side count.
S_DUP_TRAY	Indicates the small-size two-sided 2nd side count.
COPY_L_PRINT	Indicates the large-size copy count.
FAX_L_PRINT	Indicates the large-size fax print count.
PDL_L_PRINT	Indicates the large-size printer print count.
ETC_L_PRINT	Indicates the large-size print count by other system.
COPY_S_PRINT	Indicates the small-size copy count.
FAX_S_PRINT	Indicates the small-size fax print count.
PDL_S_PRINT	Indicates the small-size printer print count.
ETC_S_PRINT	Indicates the small-size print count by other system.

6 COUNTER 04

6 COUNTER 04		CANCEL
L_ORG_FEED	xxxxx	
S_ORG_FEED	xxxxx	
SCAN_TOTAL	xxxxx	
COPY_SCAN	xxxxx	
FAX_SCAN	xxxxx	
PDL_SCAN	xxxxx	
ETC_SCAN	xxxxx	
PRINT_JAM	xxxxx	
DH_JAM	xxxxx	
<<	>>	+ - OK

Indication	Description
L_ORG_FEED	Indicates the large-size original pick-up count.
S_ORG_FEED	Indicates the small-size original pick-up count.
SCAN_TOTAL	Indicates the total scan count.
COPY_SCAN	Indicates the scan count for copier mode.
FAX_SCAN	Indicates the scan count for fax mode.
PDL_SCAN	Indicates the scan count for printer mode.
ETC_SCAN	Indicates the scan count for other system.
PRINT_JAM	Indicates the print jam count.
DH_JAM	Indicates the feeder jam count.

9 *7* ACC (accessory mode)

Use this mode to adjust/operate options.

- Use the keypad to enter numerals.
- A press on the **OK** key will permanently store the value.
- After operation, turn off and then on the rear main power switch.

7 ACC 01 Adjusting the Original Stop Position for the RDF

- This screen is effective only when an RDF is installed.

7 ACC 01 CANCEL

DOC_ST_T : (+xx) <- (+xx)
P_INTRVL_T : (+xx) <- (+xx)
DOC_ST_B : (+xx) <- (+xx)
P_INTRVL_B : (+xx) <- (+xx)

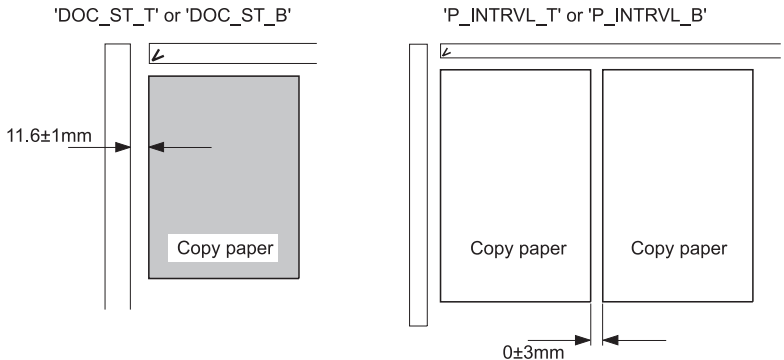
<< >> + - OK

Item	Function
DOC_ST_T	Use it to adjust the original stop position for upper separation pick-up.
P_INTRVL_T	Use it to adjust the original stop position for upper separation pick-up in 2-on-1 mode.
DOC_ST_B	Use it to adjust the original stop position for lower separation pick-up.
P_INTRVL_B	Use it to adjust the original stop position for lower separation pick-up in 2-on-1 mode.

When this mode is selected, the sheets set on the RF's original tray will be picked up and stopped on the copyboard glass. Check how they are stopped, and make adjustments so that they are stopped correctly.

Making Adjustments

- 1 Start service mode.
- 2 Select the appropriate item.
 - Press the appropriate item to highlight.
- 3 Place copy paper on the RF's original tray as follows:
 - In the case of 'DOC_ST_T' or 'DOC_ST_B', place one A3 sheet of copy paper.
 - In the case of 'P_INTRVL_T' or 'P_INTRVL_B', place two A4 sheets of copy paper.
- 4 Enter a setting on the keypad.
 - In the case of 'DOC_ST_T' or 'DOC_ST_B',
A higher setting will result in a shift to the trailing edge.
A lower setting will result in a shift to the leading edge.
 - In the case of 'P_INTRVL_T' or 'P_INTRVL_B',
A higher setting will increase the sheet-to-sheet distance.
A lower setting will decrease the sheet-to-sheet distance.
- 5 Press the OK key.
 - The sheet on the original tray will be picked up and stopped on the copyboard glass.
- 6 Open the RF slowly, and check where the paper has been stopped. Thereafter, close the RF without removing the paper. (See below for standards.)



- 7 Press the OK key.
 - The sheet on the copyboard glass will be discharged to the RF's original tray. (However, in the case of 'DOC-STP-T' and 'P_INTRVL_T', the sheet will be discharged to the RF's original delivery tray.)
- 8 To end the work, press the Reset key twice to leave service mode.

Adjusting the RDF Sensor/Cleaning the Belt

- This screen is effective only when an RDF is installed.

Item	Function	Description
SENS_ADJ	Use it to execute auto sensitivity adjustment for the RDF sensor. <ul style="list-style-type: none"> ■ Original sensor (S1) ■ Registration sensor (S3) 	<ol style="list-style-type: none"> 1) Press 'SENS_SDJ' to highlight. 2) Without any original on the RF's original tray, press the OK key. <ul style="list-style-type: none"> ■ '1' will appear under 'SENS_ADJ', indicating that automatic adjustment is being executed. ■ If '1' remains for 30 sec or more, suspect a fault in the original tray sensor (S1), registration sensor (S3), or RF controller. 3) If '0' appears under 'SENS_ADJ', indicating that the adjustment is over, press the Reset key twice to leave service mode. (The foregoing adjustment is the same as using SW3 on the RF controller PCB.)
S_BCLN_T	Use it to execute cleaning of the separation belt for upper separation.	<ol style="list-style-type: none"> 1) Press the appropriate item ('S_BCLN_T' or 'S_BCLN_B') to highlight. 2) Set a sheet of copy paper whose centre has been moistened with alcohol on the RDF's tray. 3) Press the OK key. <ul style="list-style-type: none"> ■ The sheet of copy paper will be picked up and the separation belt will be rotated idly. 4) Press the OK key to end the operation. 5) Open the RF's top cover, and remove the sheet of copy paper. Then, close the RF's top cover. The foregoing adjustment is the same as using bit 6 of DIPS1 on the RF controller PCB.
S_BCLN_B	Use it to clean the separation belt for lower separation.	

10 * 8 * FAX

Using the (REPORT) button, a printout can be made of the system data, complete with the FAX SDS settings, dump list, error transmission report and a reception report.

FAX SERVICE MODE MAIN MENU CANCEL

- #1 SSSW
- #2 MENU
- #3 NUMERIC Param
- #4 NCU
- #5 TYPE
- #6 GENESISI
- #7 PRINTER
- #8 CLEAR
- #9 ROM
- #10 TEST

▼ ▲ ◀ REPORT OK

8 #1 SSSW Service Soft Switch

#1 SSSW CANCEL

SW01 0 0 0 0 0 0 0 0

SW02 0 0 0 0 0 0 0 0

SW03 0 0 0 0 0 0 0 0

SW04 1 0 0 0 0 0 0 0

SW05 0 0 0 0 0 0 0 0

◀◀ ▶▶ ◀ ▶ OK

Warning: This menu contains very detailed fax settings. For example: timing, tone frequency, protocol specifications, etc. The settings are pre-set, when you specify the country setting in (* 5 * TYPE). No changes need to be made to this menu.

' * 8 * 2 MENU ' Menu Switch Settings

#2 MENU		CANCEL
NL EQ	OFF	
MONITOR	DIAL	
ATRT(P)	10	
PCI FREQUENCY	25Hz	
DATE	DD/MM 'YY	
		<< >> < > OK

NL-EQ:

To turn the NL equaliser ON and OFF. Set to ON if an error frequently occurs, due to line conditions, during the transmission or receipt of a communication.

MONITOR:

To set the monitor function for the telephone line.

- If 'DIAL' is selected, a monitor sound (telephone line) will be generated by the speaker between the start of a communication and DIS during transmission.
- If 'SERVICEMAN' is selected, a monitor sound (telephone line) will be generated by the speaker between the start and the end of a communication.
- If 'OFF' is selected, no sound will be generated.

ATT (P)

To set the transmission level (ATT). Increase the transmission level if an error frequently occurs, due to line conditions, during the transmission or receipt of a communication.

Note: A lower value increases the transmission level. As the values are in a logarithmic scale, change the value in single steps.

PCI FREQUENCY

Use it to set the frequency of the pseudo CI signal. Increase the frequency of the pseudo CI signal if the ringing sound fails, due to the type of extension, when fax to telephone switching is initiated.

DATE

To change the format of the presentation of the date.

' * 8 * 3 NUMERIC ' Parameter

#3 NUMERIC Param.		CANCEL
001 (0__9999) :	0	
002 (1__ 99) :	10	
003 (2__ 99) :	15	
004 (1__ 99) :	12	
005 (1__ 60) :	1	
006 (1__ 60) :	1	
007 (0__9999) :	0	
008 (0__9999) :	0	
009 (0__ 20) :	6	
010 (0__9999) :	3500	
<input type="button" value="◀◀"/> <input type="button" value="▶▶"/> <input type="button" value="◀"/> <input type="button" value="▶"/>		<input type="button" value="OK"/>

The values are set automatically when you select a country in (* 5 * TYPE).

' * 8 * 4 NCU'

#4 NCU		CANCEL
1.TONE/PULSE	11.RKEY	
2.DIAL TONE	12.PBX DIAL TONE	
3.2nd DIAL TONE	13.PBX BUSY TONE	
4.BUSY TONE 0		
5.BUSY TONE 1		
6.REORDER TONE		
7.MULTI		
8.AUTO RX		
9.CNG DETECT		
10.SPECIAL		
<input type="button" value="◀◀"/> <input type="button" value="▶▶"/> <input type="button" value="◀"/> <input type="button" value="▶"/>		<input type="button" value="OK"/>

The values are set automatically when you select a country in (* 5 * TYPE).

‘ * 8 * 5 TYPE ‘

#5 TYPE	(1/2)	CANCEL
EUROPE	BELGIUM	
U.K.	AUSTRALIA	
SWEDEN	FINLAND	
SWISS	N.Z.	
AUSTRIA	ITALY	
DENMARK	SPAIN	
NORWAY	PORTUGAL	
HOLLAND	IRELAND	
	HONG KONG	
	MALAYSIA	
◀◀	▶▶	△
		▽
		OK

#5 TYPE	CANCEL	
HUNGARY		
SAF		
CHINA		
GERMAN		
FRANCE		
SINGAPORE		
CZECH		
SLOVENIA		
KOREA		
◀◀	▶▶	△
		▽
		OK

Selection of the appropriate country in this menu sets all the service data: to match the country's domestic telecommunication standards.

‘ * 8 * 6 GENESIS ‘

Do not change the settings. A change could reduce the quality level of the reading image.

‘ * 8 * 7 PRINTER ‘

Service soft switch settings

#7 PRINTER	CANCEL
SW01 0 0 0 0 0 0 0 0	
SW02 0 0 0 0 0 0 0 0	
SW03 0 0 0 0 0 0 0 0	
SW04 0 0 0 0 0 0 0 0	
SW05 0 0 0 0 0 0 0 0	
◀◀	▶▶
◀	▶
OK	

SW	bit	Description	setting = 0	setting = 1
01 ~ 04	0	Change prohibited		
	1	Change prohibited		
	2	Change prohibited		
	3	Change prohibited		
	4	Change prohibited		
	5	Change prohibited		
	6	Change prohibited		
05	0	Priority on LTR recording paper	No	Yes
	1	Priority on LGL recording paper	No	Yes
	2	Change prohibited		
	3	Change prohibited		
	4	Prohibit reduction recording on A4 recording paper	No	Yes
	5	Prohibit reduction on LTR recording paper	No	Yes
	6	Change prohibited		
	7	Priority on reverse scanning direction	Yes	No

bit 0

To give priority to LTR recording paper, when an image is received in the same number of divisions, and could be printed on LTR, A4 or LGL in Direct.

bit 1

To give priority to LGL recording paper, when an image is received in the same number of divisions, and could be printed on LTR, A4 or LGL in Direct.

The priority will be in accordance with the settings of bit 0 and bit 1.

bit 0	bit 1	Priority of recording paper
0	0	A4> LTR> LGL
0	1	LTR> A4> LGL
1	0	LGL> LTR> A4
1	1	LTR> LGL> A4

bit 2

To specify the use of a cassette, even though there is no recording paper in the cassette.

bit 3

To specify whether reduced printing should be permitted during copying.

bit 4

To specify whether reduced printing on A4 recording paper should be enabled. Set to 'No' if reduced printing is to be disabled.

bit 5

To specify whether reduced printing on LTR recording paper should be enabled. Set to 'No' if reduced printing is to be disabled.

bit 6

To specify whether printing of reports should be permitted only when a report cassette has been specified.

bit 7

Use it to specify whether priority should be given to recording in reverse scanning direction. Set it to 'No' if a B4 image should be printed on B5 recording paper, through division, when both B5 and A4 are selected.

SW	bit	Description	setting = 0	setting = 1
06	0	Reduction for image division	Yes	No
	1	Change prohibited		
	2	Change prohibited		
	3	Change prohibited		
	4	Change prohibited		
	5	Change prohibited		
	6	Change prohibited		
	7	Change prohibited		

bit 0

To specify whether printing should be on two sheets through reduction, or in Direct, when a long original consisting of two or more pages (Direct) is received.

SW	bit	Description	setting = 0	setting = 1
07	0	Change prohibited		
08	1	Change prohibited		
09				
10	2	Change prohibited		
12	3	Change prohibited		
13				
14	4	Change prohibited		
15	5	Change prohibited		
16				
17	6	Change prohibited		
18	7	Change prohibited		
19				
20		Change prohibited		

SW	bit	Description	setting = 0	setting = 1
11	0	Change prohibited		
	1	Change prohibited		
	2	Print after approval	Yes	No
	3	Change prohibited		
	4	Change prohibited		
	5	Change prohibited		
	6	Change prohibited		
	7	Change prohibited		

bit 2

To specify how a multiple-page reception document should be printed: whether all pages should be printed in succession, after storage in memory, or the first three pages should be printed first upon reception in memory, with the subsequent pages printed on a page-by-page basis.

‘ 7 NUMERIC ‘ Parameter settings

001	(0__9999)	:	12
002	(0__9999)	:	0
003	(0__9999)	:	0
004	(0__9999)	:	2
005	(0__9999)	:	4
006	(0__ 0)	:	0
007	(0__ 0)	:	0
008	(0__ 0)	:	0
009	(0__ 0)	:	0
010	(0__ 0)	:	0

Parameter	Setting	Range (mm)
01	Maximum non-image	0 to 9999
02		
03		
04	Leading edge margin	0 to 9999
05	Trailing edge margin	0 to 9999
06 through 30		

No. 1

To specify the non-image area, when a long-length reception image is received.

If you want to avoid a non-image area along the trailing edge, when receiving a long-length image in excess of the effective recording length, lower the parameter to decrease the non-image range.

When an image longer than the effective recording length is received, the image will be printed in reduce mode. This eliminates the area within the specified range (provided that the length of the reduced image is between the effective recording length and the setting). Otherwise, the image will be printed in divisions.

No.4

To specify the leading edge margin for the effective recording length.

No.5

To specify the trailing edge margin for the effective recording length.

‘ * 8 * 8 CLEAR ‘

001	(0__9999)	:	12
002	(0__9999)	:	0
003	(0__9999)	:	0
004	(0__9999)	:	2
005	(0__9999)	:	4
006	(0__ 0)	:	0
007	(0__ 0)	:	0
008	(0__ 0)	:	0
009	(0__ 0)	:	0
010	(0__ 0)	:	0

Item	Description
TEL	To clear the settings registered under TEL registration (i.e., one-touch dialling, speed dialling, and group dialling settings). Execution also clears the settings under: memory control of user data.
USSW SW	To clear the settings registered in user data, or under SSSW# through #3. Execution does not clear the settings under memory control*. *It will, however, clear the image data in memory.
SERVICE SW	To clear the settings registered in user data, or under SSSW#1 through #3, #6, and #7.
NCU	To clear the settings registered under SSSW#4.
SERVICE DATA	To clear the contents of the system dump list.
REPORT	To clear the contents of the communications control report.
ALL	To clear all settings and registered data items.
COUNTER	To clear the print count, reading page count and communications control numbers.

‘ * 8 * 9 ROM ‘ Info display

The same function as ‘ DISPLAY 04 ’ in the copier service mode (* 1 *). It cannot be executed. To check the ROM version, execute ‘ DISPLAY 04 ’ in the copier service mode (* 1 *).

' * 8 * 10 ' Test mode

TEST MODE	
1 : D-RAM	CANCEL
2 : PRINT	
3 : VIDEO	
4 : MODEM NCU	
5 : FACULTY	
6 : DATA SET	OK

D-RAM:

To execute a write or read check of data for all areas of the D-RAM (D-RAM A, D-RAM B). A check will be made on the expansion memory (option), if any.

PRINT:

Use it to generate a test print.

VIDEO:

To store the scanned images in the image memory, without coding, and then print them.

MODEM NCU:

To execute a transmission or reception test on the modem and the NCU.

FACULTY:

To run a function test.

DATA SET:

Not available for servicing in the field.

■ **Using the Mode**

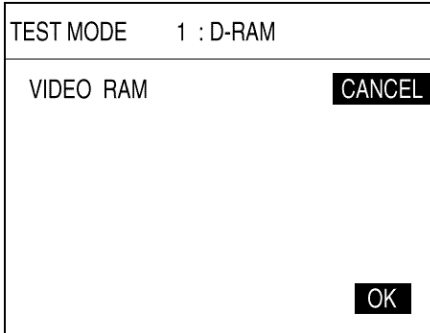
Press the appropriate item, causing it to highlight.

Press the ' OK ' key to invoke the corresponding screen

' * 8 * 10 TEST ' , 1 DRAM test

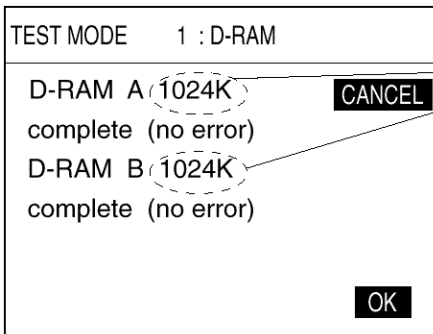
To execute a write or read check of data for all area of the D-RAM (D-RAM A (Q6, Q18), D-RAM B (Q8, Q20)). A check will be made on the expansion memory (option), if any.

Executing a D-RAM test will clear the image data stored in memory. If necessary, print all image data prior to execution.



■ Using the mode

- 1 Open the screen. Then press ' VIDEO RAM '. It will highlight. Press ' OK '. A D-RAM test will be executed.
- 2 If the results of the test are correct, the following will be displayed:



D-RAM size (in bytes);
a different value will be
indicated to represent
any increase

If an error is found during the D-RAM test, the test will be suspended. The error display screen will appear. If this is the case, press ' OK ' to run the test once again. The error end screen will appear.

■ Error display screen

TEST MODE	1 : D-RAM
D-RAM B	CANCEL
WRT=5555	
RD =FFFF	
ADR=400000	
	OK

Notations:

D-RAM: type of RAM with error

WRT: data written

RD: data read

ADR: address

■ Error end screen

TEST MODE	1 : D-RAM
D-RAM A 1024K	CANCEL
complete (no error)	
D-RAM B 1024K	
complete (no error)	
	OK

■ Action to take

If an additional memory is installed, suspect poor contact. Remove and install the memory and then run a D-RAM test once again.

If an error still occurs after running a D-RAM test twice or three times, replace the FAX PBA or the expansion memory.

‘ * 8 * 10 TEST ‘ , 2 PRINT test

The following is the printing mode used for test patterns:

Recording size: A4H

Resolution: Fine

Printing pattern:

AMI pattern (for factory)

STRIPES (vertical lines)

BIAS (slanted lines)

Rotation: yes, if A4H; no if A4R

TEST MODE	2 : PRINT
1 : AMI PATTERN (A4H)	CANCEL
2 : STRIPES (A4H)	
3 : BIAS (A4H)	
4 : AMI PATTERN (A4R)	
5 : STRIPES (A4R)	
6 : BIAS (A4R)	OK

- Using the mode
Select the appropriate print pattern on the screen. Then, press ‘ OK ‘. A test print will be made.

' * 8 * 10 TEST ' , 3 VIDEO test

To store the scanned images in the image memory, without coding, and printing them.

- Position of document: platen or feeder
- Document size: A4
- Recording paper size: A4 (A4R not permitted)
- Resolution: fine
- Density: standard
- Rotation: set for reading: yes, if original size is A4H; no, if A4R

TEST MODE	3 : VIDEO
1 : A4H	CANCEL
2 : A4R	
	OK

A4H: document is A
A4R: document is A4R

' * 8 * 10 TEST ' , 4 MODEM NCU test

To run a transmission and reception test on the modem and the NCU. This mode consists of five items, as shown in the figure.

- MODEM NCU menu screen

TEST MODE	4 : MODEM NCU
1 : RELAY	CANCEL
2 : FREQ	
3 : G3 Tx	
4 : DTMF Tx	
5 : TONE Tx	
	OK

■ Relay test (RELAY)

Press 'RELAY' on the MODEM NCU menu screen. Press 'OK' to start relay test mode, and to invoke the corresponding screen. A press on each item will activate the appropriate relay.

TEST MODE	4-1 : MODEM NCU
1 : CML=OFF	CANCEL
2 : P=OFF	
3 : S=OFF	
4 : H0=OFF	
5 : H1=OFF	

■ Frequency test (FREQ)

Press 'FREQ' on the MODEM NCU menu screen. Press 'OK' to start the frequency test mode, and to invoke the corresponding screen.

- Select an item so that the frequency selected by closing the DC circuit will be transmitted, using the tone transmission function of the modem. Simultaneously monitoring the transmission signal from the speaker. To interrupt, press the CANCEL key.

TEST MODE	4-2 : MODEM NCU
1 : RBT	CANCEL
2 : 462Hz	
3 : 1100Hz	
4 : 1300Hz	
5 : 1500Hz	
6 : 1650Hz	
7 : 1850Hz	
8 : 2100Hz	

- G3 signal transmission test (G3 TX)

Press 'G3 TX' on the MODEM NCU menu screen and press 'OK'. This will start the G3 signal transmission test mode and invoke the corresponding screen. Select an item to transmit the frequency selected by closing the DC circuit, using the G3 signal transmission function of the modem. Simultaneously monitoring the transmission signal from the speaker. To interrupt, press 'CANCEL'.

TEST MODE	4-3 : G3 Tx
1 : 300dps	CANCEL
2 : 2400dps	
3 : 4800dps	
4 : 7200dps	
5 : 9600dps	
6 : TC7200dps	
7 : TC9600dps	
8 : 12000dps	
9 : 14400dps	

- DTMF transmission Test (DTMF TX)

Press 'DTMF TX' on the MODEM NCU menu screen and press 'OK'. This will start the DTMF transmission test mode and invoke the corresponding screen. Select an item to transmit the frequency selected by closing the DC circuit, using the DTMF signal transmission function. Simultaneously monitoring the transmission signal from the speaker.

The DTMF signal will be transmitted in relation to the keys on the keypad, * key and # key.

Pressing any key will highlight the corresponding notation.

The period during which the DRTF signal will be transmitted may be selected as follows: LONG: until the next key is pressed; SHORT: for about 100 ms.

To interrupt, press 'CANCEL'.

TEST MODE	4-4 : DTMF Tx
	CANCEL
0 1 2 3 4 5 6 7 8 9 * #	
>	LONG SHORT

■ **Tone Signal: Reception Test (Tone TX)**

Press 'Tone TX' and press 'OK' to start test the tone signal, and to invoke the corresponding screen.

The frequency selected by closing the DC circuit and the DTMF signal will be detected. Use is made of the tone detection function of the modem and the DTMF reception function. The frequencies checked are as follows:

462, tolerance 14 Hz

1100, tolerance 30 Hz

2100, tolerance 25 Hz

To interrupt, press 'CANCEL'.

TEST MODE		4-5 : TONE Tx	
1	: 426Hz=OFF	CANCEL	
2	: 1100Hz=OFF		
3	: 2100Hz=OFF		
4	: DTMF=		
>	EXTERNAL	INTERNAL	

- The notation will change to ON when the applicable frequency (1 through 3) is detected.
- A notation will be displayed upon detection of the DTMF signal.
- The tone input source may be selected as follows: External: from line; Internal: from remote

‘ * 8 * 10 TEST ’, **5 PRINT Function test (Faculty)**

Use this mode to activate each function for testing.

TEST MODE		5 : FACULTY TEST	
1	: G3 4800dps Tx	CANCEL	
2	: SPEAKER		
3	: LINE DETECT		
		OK	

- G3 signal transmission test (G3 4800 bps TX)

Press 'G3 4800 Tx' and press 'OK' to start the G3 signal transmission test and to invoke the corresponding screen.

The DC circuit will be closed and a signal of a frequency of 4800 bps will be transmitted by the G3 signal transmission function of the modem. At the same time, the transmission signal from the speaker is monitored.

To interrupt, press 'CANCEL'.

TEST MODE	5-1 : G3 4800dps Tx
1 : G3 4800dps Tx	CANCEL



- Speaker Test (SPEAKER)

Press 'SPEAKER' and press 'OK' to start the test of the speaker, and to invoke the corresponding screen.

The speaker will function at the selected frequency as soon as the screen appears.

To interrupt, press 'FREQ'. It will highlight. Each press on the arrow key will increase the frequency at intervals of 100 Hz. (200 Hz ~ 5000 Hz)

Press 'VOL'. It will highlight. Each press on the arrow key will increase or decrease the sound between and 9.

TEST MODE	5 : FACULTY TEST
1 : FREQ =200	CANCEL
2 : VOL=1	
	

■ Line Test (LINE DETECT)

Press 'LINE TEST' and press 'OK' to start the line test, and to invoke the corresponding screen.

This mode tests the sensors around the NCU and the frequency counter.

TEST MODE	5-3 : LINE DETECT
1 : LINE DETECT1	CANCEL
2 : LINE DETECT2	
3 : LINE DETECT3	
4 : VOICE Tx	
	OK

(1) LINE DETECT 1

Press 'LINE DETECT 1. Press 'OK' to invoke the corresponding screen

This function will check CI, Fc and hook state (ON/OFF) from the line.

For CI, the appropriate frequency (0 if CI is off; the current CI frequency if ON).

TEST MODE	5-3-1 : LINE DETECT1
1 : CI=OFF	CANCEL
2 : CI FREQ=0Hz	
3 : HOOK=OFF	
4 : FC=OFF	

(2) LINE DETECT 2

Press 'LINE DETECT' '2. Press 'OK' to invoke the corresponding screen
This function will switch ON the CNL and P-relay. Checking the absence or presence of a single signal from the line and the frequency of the signal, if any.

TEST MODE	5-3-2 : LINE DETECT2
1 : SIG=OFF	CANCEL
2 : FERQ=0Hz	
3 : LVL=0	

Be sure to set the appropriate level, in advance.

Level	Level of detection (dBm)
0	-25.96 or higher
1	-30.66 or higher
2	-32.96 or higher
3	-35.96 or higher
4	-38.46 or higher
5	-40.96 or higher
6	-44.70 or higher
7	-49.71 or higher

(3) LINE DETECT 3

Press 'LINE DETECT 3'. Press 'OK' to invoke the corresponding screen. This mode checks the CNG signal by the PLL.

When this mode is executed, a direct current is applied between L1 and L2, putting the extension telephone into off-hook state. Then 100 Hz (CG) signals are input from the line or the extension telephone. The notation "ON" will be displayed upon detection of the signals.

TEST MODE	5-3-3 : LINE DETECT3
1 : CNG=OFF	CANCEL

(4) VOICE Tx

Press 'VOICE TX'. Press 'OK' to invoke the corresponding screen. The functioning of OMG is checked by transmitting two types of OMG to the line and to the speaker.

TEST MODE	5-3-4 : VOICE Tx
1 : VOICE1	CANCEL
2 : VOICE2	