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# DP-670

# SERVICE MANUAL



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Rev. 1

## **CAUTION**

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

It may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for proper disposal.

## **ATTENTION**

IL Y A UN RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UN MODÈLE DE TYPE INCORRECT. METTRE AU REBUT LES BATTERIES UTILISÉES SELON LES INSTRUCTIONS DONNÉES.

Il peut être illégal de jeter les batteries dans des eaux d'égout municipales. Vérifiez avec les fonctionnaires municipaux de votre région pour les détails concernant des déchets solides et une mise au rebut appropriée.

## Revision history

Revision	Date	Replaced pages	Remarks
1	October 31, 2007	1-1-1, 1-2-1, 1-3-2, 1-3-5, 1-3-6, 1-3-18, 1-3-21, 1-3-22, 1-3-24, 1-5-6, 1-5-8, 1-6-2, 2-4-2, 2-4-3	-

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# Safety precautions

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This booklet provides safety warnings and precautions for our service personnel to ensure the safety of their customers, their machines as well as themselves during maintenance activities. Service personnel are advised to read this booklet carefully to familiarize themselves with the warnings and precautions described here before engaging in maintenance activities.

## Safety warnings and precautions

Various symbols are used to protect our service personnel and customers from physical danger and to prevent damage to their property. These symbols are described below:

 **DANGER:** High risk of serious bodily injury or death may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

 **WARNING:** Serious bodily injury or death may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

 **CAUTION:** Bodily injury or damage to property may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

### Symbols

The triangle () symbol indicates a warning including danger and caution. The specific point of attention is shown inside the symbol.



General warning.



Warning of risk of electric shock.



Warning of high temperature.

 indicates a prohibited action. The specific prohibition is shown inside the symbol.



General prohibited action.



Disassembly prohibited.

 indicates that action is required. The specific action required is shown inside the symbol.



General action required.



Remove the power plug from the wall outlet.



Always ground the copier.

# 1. Installation Precautions

## WARNING

- Do not use a power supply with a voltage other than that specified. Avoid multiple connections to one outlet: they may cause fire or electric shock. When using an extension cable, always check that it is adequate for the rated current. .... 
- Connect the ground wire to a suitable grounding point. Not grounding the copier may cause fire or electric shock. Connecting the earth wire to an object not approved for the purpose may cause explosion or electric shock. Never connect the ground cable to any of the following: gas pipes, lightning rods, ground cables for telephone lines and water pipes or faucets not approved by the proper authorities. .... 

## CAUTION:

- Do not place the copier on an infirm or angled surface: the copier may tip over, causing injury. .... 
- Do not install the copier in a humid or dusty place. This may cause fire or electric shock. .... 
- Do not install the copier near a radiator, heater, other heat source or near flammable material.  
  
This may cause fire. .... 
- Allow sufficient space around the copier to allow the ventilation grills to keep the machine as cool as possible. Insufficient ventilation may cause heat buildup and poor copying performance. .... 
- Always handle the machine by the correct locations when moving it. .... 
- Always use anti-toppling and locking devices on copiers so equipped. Failure to do this may cause the copier to move unexpectedly or topple, leading to injury. .... 
- Avoid inhaling toner or developer excessively. Protect the eyes. If toner or developer is accidentally ingested, drink a lot of water to dilute it in the stomach and obtain medical attention immediately. If it gets into the eyes, rinse immediately with copious amounts of water and obtain medical attention. .... 
- Advise customers that they must always follow the safety warnings and precautions in the copier's instruction handbook. .... 

## 2. Precautions for Maintenance

### WARNING

- Always remove the power plug from the wall outlet before starting machine disassembly. .... 
- Always follow the procedures for maintenance described in the service manual and other related brochures. .... 
- Under no circumstances attempt to bypass or disable safety features including safety mechanisms and protective circuits. .... 
- Always use parts having the correct specifications. .... 
- Always use the thermostat or thermal fuse specified in the service manual or other related brochure when replacing them. Using a piece of wire, for example, could lead to fire or other serious accident. .... 
- When the service manual or other serious brochure specifies a distance or gap for installation of a part, always use the correct scale and measure carefully. .... 
- Always check that the copier is correctly connected to an outlet with a ground connection. .... 
- Check that the power cable covering is free of damage. Check that the power plug is dust-free. If it is dirty, clean it to remove the risk of fire or electric shock. .... 
- Never attempt to disassemble the optical unit in machines using lasers. Leaking laser light may damage eyesight. .... 
- Handle the charger sections with care. They are charged to high potentials and may cause electric shock if handled improperly. .... 

### CAUTION

- Wear safe clothing. If wearing loose clothing or accessories such as ties, make sure they are safely secured so they will not be caught in rotating sections. .... 
- Use utmost caution when working on a powered machine. Keep away from chains and belts. .... 
- Handle the fixing section with care to avoid burns as it can be extremely hot. .... 
- Check that the fixing unit thermistor, heat and press rollers are clean. Dirt on them can cause abnormally high temperatures. .... 

• Do not remove the ozone filter, if any, from the copier except for routine replacement. ....



• Do not pull on the AC power cord or connector wires on high-voltage components when removing them; always hold the plug itself. ....



• Do not route the power cable where it may be stood on or trapped. If necessary, protect it with a cable cover or other appropriate item. ....



• Treat the ends of the wire carefully when installing a new charger wire to avoid electric leaks. ....



• Remove toner completely from electronic components. ....



• Run wire harnesses carefully so that wires will not be trapped or damaged. ....



• After maintenance, always check that all the parts, screws, connectors and wires that were removed, have been refitted correctly. Special attention should be paid to any forgotten connector, trapped wire and missing screws. ....



• Check that all the caution labels that should be present on the machine according to the instruction handbook are clean and not peeling. Replace with new ones if necessary. ....



• Handle greases and solvents with care by following the instructions below: .....



· Use only a small amount of solvent at a time, being careful not to spill. Wipe spills off completely.

· Ventilate the room well while using grease or solvents.

· Allow applied solvents to evaporate completely before refitting the covers or turning the power switch on.

· Always wash hands afterwards.

• Never dispose of toner or toner bottles in fire. Toner may cause sparks when exposed directly to fire in a furnace, etc. ....



• Should smoke be seen coming from the copier, remove the power plug from the wall outlet immediately. ....



### 3.Miscellaneous

#### WARNING

• Never attempt to heat the drum or expose it to any organic solvents such as alcohol, other than the specified refiner; it may generate toxic gas. ....



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### 1-1-1 Specifications

Type .....	Machine mounted type duplex sheet-through document feeder
Original feed method .....	Automatic feed
Original weight .....	Single-sided original mode: 45 to 160 g/m <sup>2</sup> Double-sided original mode: 50 to 120 g/m <sup>2</sup>
Original type .....	Sheet originals
Original size .....	A3 to A5R/Ledger (11 x 17") to StatementR (5 1/2 x 8 1/2")
Original No. of sheets .....	75 sheets or less (50 to 80 g/m <sup>2</sup> ) Mixed original sizes: 30 sheets or less (50 to 80 g/m <sup>2</sup> )
Original scanning speed .....	Monochrome (normal): 78.5 to 157 mm/s Monochrome (hi-speed): 350 mm/s Color: 78.5 mm/s
Power source .....	Electrically connected to the machine
Dimensions .....	559 (W) x 487 (D) x 131 (H) mm 22" (W) x 19 3/16" (D) x 5 3/16" (H)
Weight .....	7 kg/15.4 lbs or less

a: 559 mm/22"

b: 487 mm/19 3/16"

c: 131 mm/5 3/16"

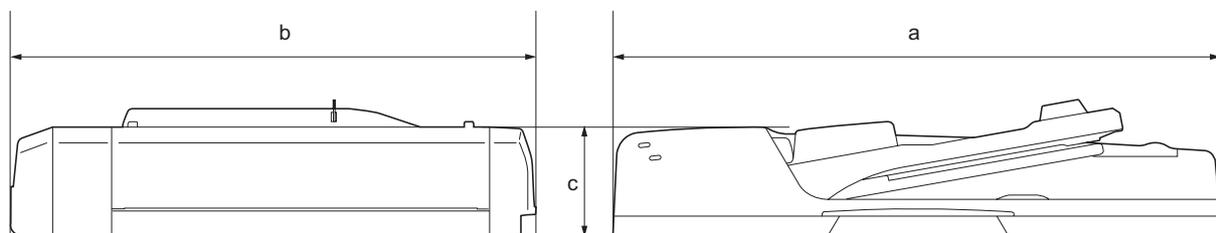


Figure 1-1-1

NOTE: These specifications are subject to change without notice.

1-1-2 Parts names

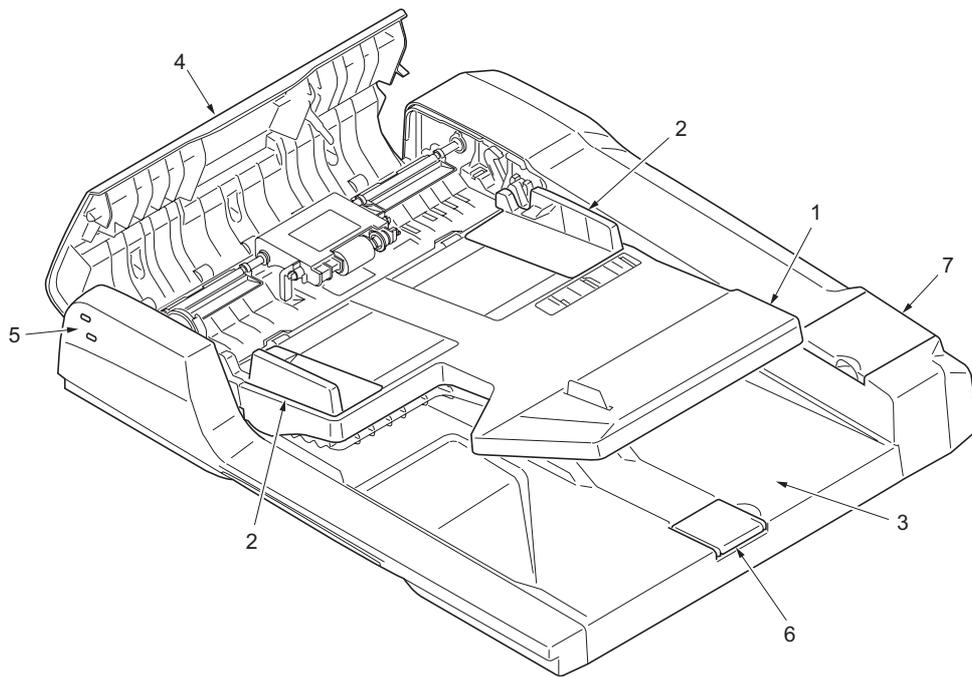
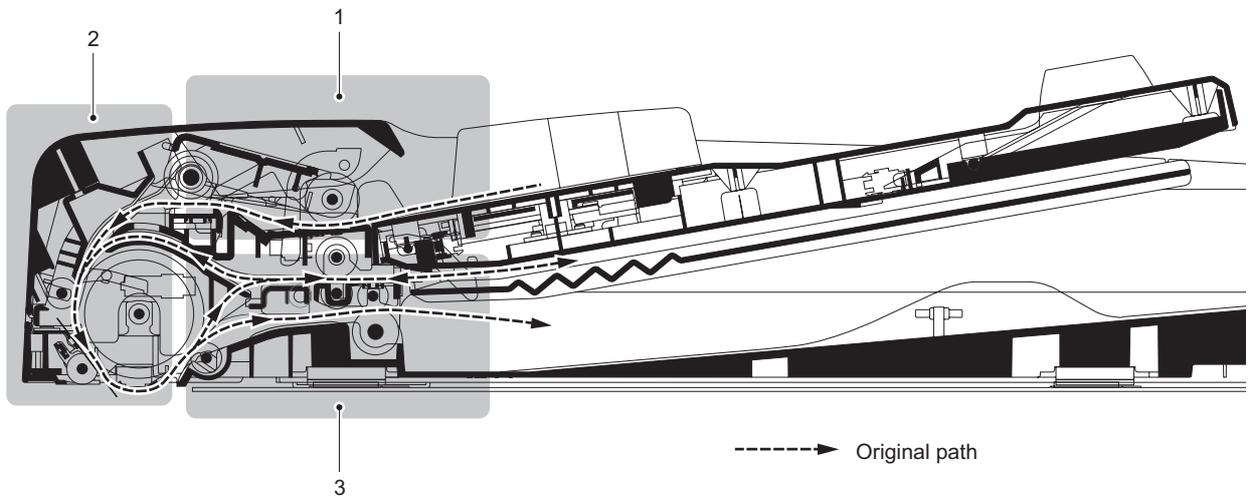


Figure 1-1-2

1. Original table
2. Original width guides
3. Original eject table
4. Document processor top cover
5. Original placement indicator
6. Original stopper
7. Cleaning cloth compartment

**1-1-3 Machine cross section****Figure 1-1-3 Machine cross section**

1. Original feed section
2. Original conveying section
3. Original switchback section

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### 1-2-1 Installation environment

#### Installation location (Be based on the machine establishment place.)

Avoid direct sunlight or bright lighting. Ensure that the photo-conductor will not be exposed to direct sunlight or other strong light when removing paper jams.

Avoid locations subject to high temperature and high humidity or low temperature and low humidity; an abrupt change in the environmental temperature; and cool or hot, direct air.

Avoid places subject to dust and vibrations.

Choose a surface capable of supporting the weight of the machine.

Place the machine on a level surface (maximum allowance inclination: 1°).

Avoid air-borne substances that may adversely affect the machine or degrade the photo-conductor, such as mercury, acidic or alkaline vapors, inorganic gasses, NOx, SOx gases and chlorine-based organic solvents.

Select a well-ventilated location.

1-2-2 Unpacking

(1) Unpacking

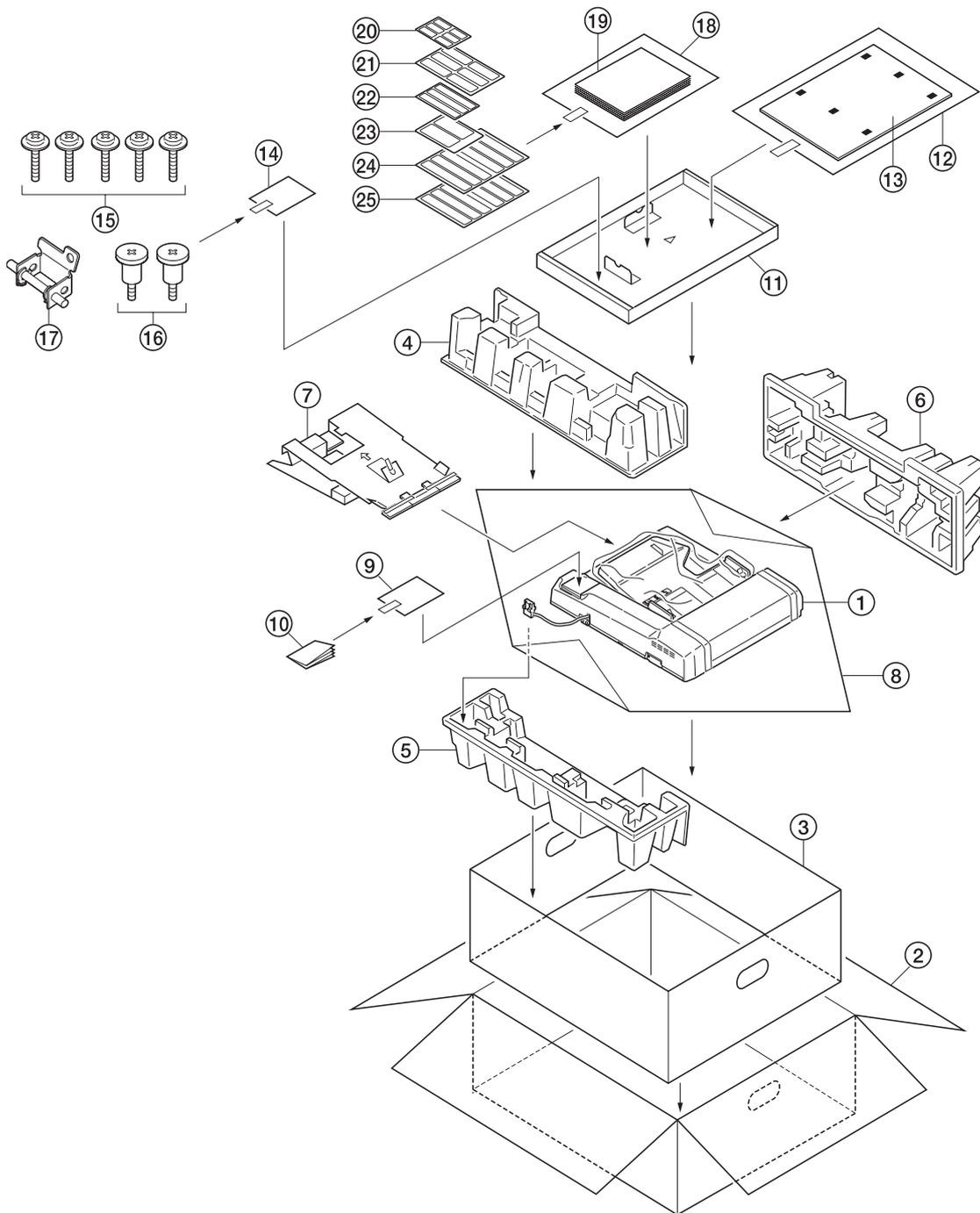


Figure 1-2-1 Unpacking

- 1. Document processor
- 2. Outer case
- 3. Inner case
- 4. Rear upper pad
- 5. Rear lower pad
- 6. Front pad
- 7. Spacer
- 8. Plastic sheet
- 9. Plastic bag

- 10. Cloth
- 11. Tray spacer
- 12. Plastic bag
- 13. Original mat
- 14. Plastic bag
- 15. M4 x 14 screws
- 16. Pins
- 17. Angle adjusting plate
- 18. Plastic bag

- 19. Installation guide
- 20. Caution label
- 21. Caution label
- 22. Operation label\*<sup>1</sup>
- 23. Operation label A\*<sup>2</sup>
- 24. Operation label B\*<sup>2</sup>
- 25. Operation label C\*<sup>2</sup>
- \*1: Inch models only
- \*2: Metric models only

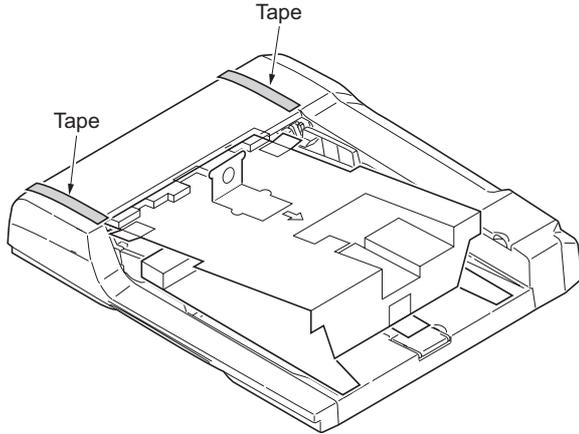


Caution: See the Installation Guide for installation.

**(2) Removing the tapes and the spacer**

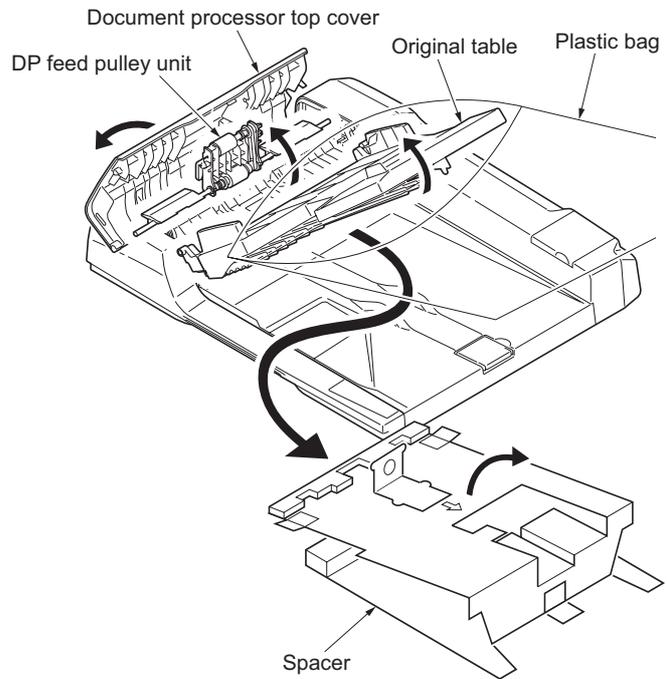
**Procedure**

1. Remove two tapes.



**Figure 1-2-2**

2. Open the document processor top cover.
3. Raise the DP feed pulley unit.
4. Open the spacer.
5. Raise the original table.
6. Remove the spacer.
7. Remove the plastic bag.



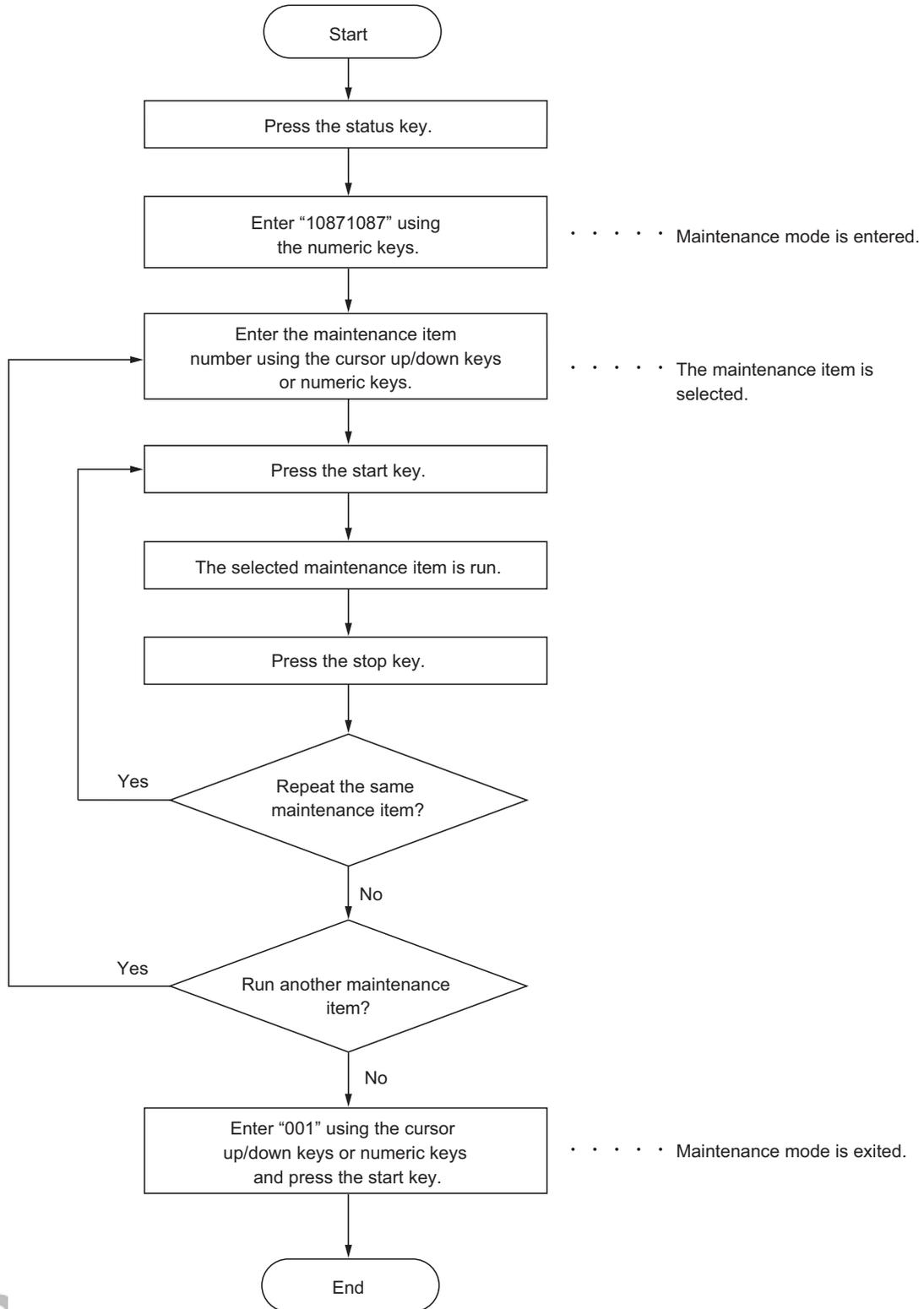
**Figure 1-2-3**

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### 1-3-1 Maintenance mode (models with color touch panel)

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

#### (1) Executing a maintenance item



## (2) Maintenance mode item list

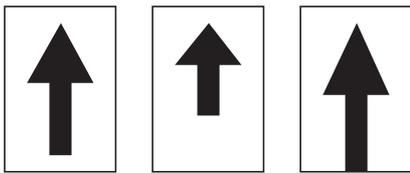
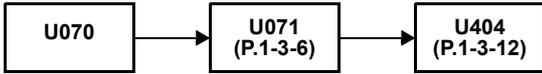
Section	Item No.	Content of maintenance item	Initial setting*
General	U019	Displaying the ROM version	-
Optical	U068	Adjusting the scanning position for originals from the DP	0/0 <sup>*1</sup>
	U070	Adjusting the DP magnification	0/0 <sup>*1</sup>
	U071	Adjusting the DP scanning timing	0/0/0/0/0/0/0 <sup>*1</sup>
	U072	Adjusting the DP center line	0/0 <sup>*1</sup>
	U074	Adjusting the DP input light luminosity	0/0/0/0 <sup>*1</sup>
	U087	Setting DP reading position modification operation	125/125/120 <sup>*1</sup>
Operation panel and support equipment	U203	Checking DP operation	-
	U243	Checking the operation of the DP motors	-
	U244	Checking the DP switches	-
Mode setting	U326	Setting the black line cleaning indication	ON/8 <sup>*1,*2</sup>
Image processing	U404	Adjusting margins for scanning an original from the DP	3.0/2.5/3.0/4.0 <sup>*1</sup>
	U411	Adjusting the scanner automatically	-
Other	U905	Checking/clearing counts by optional devices	-
	U942	Setting of deflection for feeding from DP	0/0 <sup>*1</sup>

\*Initial setting for executing U020, \*1: The item initialized for executing U020, \*2: The item initialized for executing U021

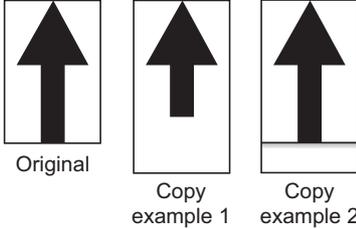
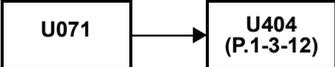
(3) Contents of maintenance mode items

Maintenance item No.	Description																																				
<p><b>U019</b></p>	<p><b>Displaying the ROM version</b>  <b>Description</b>                      Displays the part number of the ROM fitted to each PWB.  <b>Purpose</b>                      To check the part number or to decide, if the newest version of ROM is installed.  <b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key. The ROM version are displayed.</li> <li>2. Change the screen using the cursor up/down keys.</li> </ol> <table border="1" data-bbox="331 555 1398 1301"> <thead> <tr> <th data-bbox="331 555 715 595">Display</th> <th data-bbox="715 555 1398 595">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="331 595 715 636">MAIN</td> <td data-bbox="715 595 1398 636">Main PWB ROM IC</td> </tr> <tr> <td data-bbox="331 636 715 676">MMI</td> <td data-bbox="715 636 1398 676">Operation PWB ROM IC</td> </tr> <tr> <td data-bbox="331 676 715 716">ENGINE</td> <td data-bbox="715 676 1398 716">Engine PWB ROM IC</td> </tr> <tr> <td data-bbox="331 716 715 757">ENGINE BOOT</td> <td data-bbox="715 716 1398 757">Engine PWB booting</td> </tr> <tr> <td data-bbox="331 757 715 797">OPTION LANGUAGE</td> <td data-bbox="715 757 1398 797">Optional language ROM IC</td> </tr> <tr> <td data-bbox="331 797 715 837">DICTIONARY</td> <td data-bbox="715 797 1398 837">-</td> </tr> <tr> <td data-bbox="331 837 715 878">DP</td> <td data-bbox="715 837 1398 878">DP main PWB ROM IC</td> </tr> <tr> <td data-bbox="331 878 715 918">OPTION CASSETTE</td> <td data-bbox="715 878 1398 918">Optional paper feeder main PWB ROM IC</td> </tr> <tr> <td data-bbox="331 918 715 958">INNER DF</td> <td data-bbox="715 918 1398 958">Optional built-in finisher main PWB ROM IC</td> </tr> <tr> <td data-bbox="331 958 715 999">SIMPLE DF MAIN</td> <td data-bbox="715 958 1398 999">Optional document sheet finisher main PWB ROM IC</td> </tr> <tr> <td data-bbox="331 999 715 1039">ENGINE POWER</td> <td data-bbox="715 999 1398 1039">Engine power CPU</td> </tr> <tr> <td data-bbox="331 1039 715 1079">FAX BOOT1</td> <td data-bbox="715 1039 1398 1079">Optional fax control PWB booting (port 1)</td> </tr> <tr> <td data-bbox="331 1079 715 1120">FAX APL1</td> <td data-bbox="715 1079 1398 1120">Optional fax control PWB APL (port 1)</td> </tr> <tr> <td data-bbox="331 1120 715 1160">FAX IPL1</td> <td data-bbox="715 1120 1398 1160">Optional fax control PWB IPL (port 1)</td> </tr> <tr> <td data-bbox="331 1160 715 1200">FAX BOOT2</td> <td data-bbox="715 1160 1398 1200">Fax control PWB booting (port 2: optional dual FAX)</td> </tr> <tr> <td data-bbox="331 1200 715 1240">FAX APL2</td> <td data-bbox="715 1200 1398 1240">Fax control PWB APL (port 2: optional dual FAX)</td> </tr> <tr> <td data-bbox="331 1240 715 1281">FAX IPL2</td> <td data-bbox="715 1240 1398 1281">Fax control PWB IPL (port 2: optional dual FAX)</td> </tr> </tbody> </table> <p><b>Completion</b>                      Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	MAIN	Main PWB ROM IC	MMI	Operation PWB ROM IC	ENGINE	Engine PWB ROM IC	ENGINE BOOT	Engine PWB booting	OPTION LANGUAGE	Optional language ROM IC	DICTIONARY	-	DP	DP main PWB ROM IC	OPTION CASSETTE	Optional paper feeder main PWB ROM IC	INNER DF	Optional built-in finisher main PWB ROM IC	SIMPLE DF MAIN	Optional document sheet finisher main PWB ROM IC	ENGINE POWER	Engine power CPU	FAX BOOT1	Optional fax control PWB booting (port 1)	FAX APL1	Optional fax control PWB APL (port 1)	FAX IPL1	Optional fax control PWB IPL (port 1)	FAX BOOT2	Fax control PWB booting (port 2: optional dual FAX)	FAX APL2	Fax control PWB APL (port 2: optional dual FAX)	FAX IPL2	Fax control PWB IPL (port 2: optional dual FAX)
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FAX IPL2	Fax control PWB IPL (port 2: optional dual FAX)																																				

Maintenance item No.	Description															
U068	<p><b>Adjusting the scanning position for originals from the DP</b></p> <p><b>Description</b> Adjusts the position for scanning originals from the DP. Performs the test copy at the four scanning positions after adjusting.</p> <p><b>Purpose</b> Used when the image fogging occurs because the scanning position is not proper when the DP is used. Run U071 to adjust the timing of DP leading edge when the scanning position is changed.</p> <p><b>Setting</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> </ol> <table border="1" data-bbox="331 535 1398 745"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Setting range</th> <th>Initial setting</th> <th>Change in value per step</th> </tr> </thead> <tbody> <tr> <td>ADJUST DATA</td> <td>Starting position adjustment for scanning originals</td> <td>-33 to 33</td> <td>0</td> <td>0.086 mm</td> </tr> <tr> <td>TEST POSITION</td> <td>Scanning position for the test copy originals</td> <td>0 to 3</td> <td>0</td> <td>0.22 mm</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>2. Select [ADJUST DATA] of the screen for selecting an item.</li> <li>3. Change the setting using the +/- or numeric keys. When the setting value is increased, the scanning position moves to the right and it moves to the left when the setting value is decreased.</li> <li>4. Press the start key. The value is set.</li> <li>5. Select [TEST POSITION] of the screen for selecting an item.</li> <li>6. Select the scanning position using the +/- or numeric keys.</li> <li>7. Press the start key. The value is set.</li> <li>8. Set the original (the one which density is known) in the DP and press the system menu key. The screen for the test copy mode is displayed.</li> <li>9. Press the start key. Test copy is executed.</li> <li>10. Perform the test copy at each scanning position with the setting value from 0 to 3 and check that no black line appears and the image is normally scanned.</li> </ol> <p><b>Completion</b> Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	Setting range	Initial setting	Change in value per step	ADJUST DATA	Starting position adjustment for scanning originals	-33 to 33	0	0.086 mm	TEST POSITION	Scanning position for the test copy originals	0 to 3	0	0.22 mm
Display	Description	Setting range	Initial setting	Change in value per step												
ADJUST DATA	Starting position adjustment for scanning originals	-33 to 33	0	0.086 mm												
TEST POSITION	Scanning position for the test copy originals	0 to 3	0	0.22 mm												

Maintenance item No.	Description															
U070	<p><b>Adjusting the DP magnification</b></p> <p><b>Description</b> Adjusts the DP original scanning speed.</p> <p><b>Purpose</b> Make the adjustment if the magnification is incorrect in the main scanning direction or auxiliary scanning direction when the DP is used.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Select the item to be adjusted.</li> </ol> <table border="1" data-bbox="331 533 1398 734"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Setting range</th> <th>Initial setting</th> <th>Change in value per step</th> </tr> </thead> <tbody> <tr> <td>MAIN ADJ</td> <td>Magnification in the main scanning direction (first page)</td> <td>-25 to 25</td> <td>0</td> <td>0.1 %</td> </tr> <tr> <td>SUB ADJ</td> <td>Magnification in the auxiliary scanning direction (second page)</td> <td>-25 to 25</td> <td>0</td> <td>0.1 %</td> </tr> </tbody> </table> <p><b>Adjustment</b></p> <ol style="list-style-type: none"> <li>1. Press the system menu key.</li> <li>2. Place an original on the DP and press the start key to make a test copy.</li> <li>3. Press the system menu key.</li> <li>4. Change the setting value using the +/- or numeric keys. For copy example 1, increase the value. For copy example 2, decrease the value.</li> </ol> <div data-bbox="646 958 1056 1198" style="text-align: center;">  <p>Original      Copy example 1      Copy example 2</p> </div> <p style="text-align: center;"><b>Figure 1-3-1</b></p> <ol style="list-style-type: none"> <li>5. Press the start key. The value is set.</li> </ol> <p><b>Caution</b> Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.</p> <div data-bbox="284 1377 826 1451" style="text-align: center;">  <pre> graph LR     U070[U070] --&gt; U071[U071 (P.1-3-6)]     U071 --&gt; U404[U404 (P.1-3-12)] </pre> </div> <p><b>Completion</b> Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	Setting range	Initial setting	Change in value per step	MAIN ADJ	Magnification in the main scanning direction (first page)	-25 to 25	0	0.1 %	SUB ADJ	Magnification in the auxiliary scanning direction (second page)	-25 to 25	0	0.1 %
Display	Description	Setting range	Initial setting	Change in value per step												
MAIN ADJ	Magnification in the main scanning direction (first page)	-25 to 25	0	0.1 %												
SUB ADJ	Magnification in the auxiliary scanning direction (second page)	-25 to 25	0	0.1 %												

Maintenance item No.	Description				
<b>U071</b>	<p><b>Adjusting the DP scanning timing</b></p> <p><b>Description</b> Adjusts the DP original scanning timing.</p> <p><b>Purpose</b> Make the adjustment if there is a regular error between the leading or trailing edges of the original and the copy image when the DP is used.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Select the item to be adjusted.</li> </ol>				
	<b>Display</b>	<b>Description</b>	<b>Setting range</b>	<b>Initial setting</b>	<b>Change in value per step</b>
	ADJUST DATA1	Leading edge registration (first page)	-32 to 32	0	0.196 mm
	ADJUST DATA2	Trailing edge registration (first page)	-32 to 28	0	0.196 mm
	ADJUST DATA3	Leading edge registration (second page)	-32 to 32	0	0.196 mm
	ADJUST DATA4	Trailing edge registration (second page)	-32 to 28	0	0.196 mm
	ADJUST DATA1(H)	Leading edge registration at high-speed scanning (first page)	-32 to 32	0	0.196 mm
	ADJUST DATA2(H)	Trailing edge registration at high-speed scanning (first page)	-32 to 28	0	0.196 mm
	ADJUST DATA3(H)	Leading edge registration at high-speed scanning (second page)	-32 to 32	0	0.196 mm
	ADJUST DATA4(H)	Trailing edge registration at high-speed scanning (second page)	-32 to 28	0	0.196 mm
	<p><b>Adjustment: leading edge registration</b></p> <ol style="list-style-type: none"> <li>1. Press the system menu key.</li> <li>2. Place an original on the DP and press the start key to make a test copy.</li> <li>3. Press the system menu key.</li> <li>4. Change the setting value using the +/- or numeric keys. For copy example 1, increase the value. For copy example 2, decrease the value.</li> </ol>				
	<b>Figure 1-3-2</b>				
	<ol style="list-style-type: none"> <li>5. Press the start key. The value is set.</li> </ol>				
	<p><b>Caution</b> Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.</p>				

Maintenance item No.	Description
<p><b>U071</b></p>	<p><b>Adjustment: trailing edge registration</b></p> <ol style="list-style-type: none"> <li>1. Press the system menu key.</li> <li>2. Place an original on the DP and press the start key to make a test copy.</li> <li>3. Press the system menu key.</li> <li>4. Change the setting value using the +/- or numeric keys. For copy example 1, increase the value. For copy example 2, decrease the value.</li> </ol> <div style="text-align: center;">  <p>Original                  Copy example 1                  Copy example 2</p> </div> <p style="text-align: center;"><b>Figure 1-3-3</b></p> <ol style="list-style-type: none"> <li>5. Press the start key. The value is set.</li> </ol> <p><b>Caution</b> Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.</p> <div style="text-align: center;">  </div> <p><b>Completion</b> Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>

Maintenance item No.	Description															
<b>U072</b>	<p><b>Adjusting the DP center line</b></p> <p><b>Description</b> Adjusts the scanning start position for the DP original.</p> <p><b>Purpose</b> Make the adjustment if there is a regular error between the centers of the original and the copy image when the DP is used.</p> <p><b>Adjustment</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Select the item to be adjusted.</li> </ol> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Display</th> <th style="text-align: left;">Description</th> <th style="text-align: left;">Setting range</th> <th style="text-align: left;">Initial setting</th> <th style="text-align: left;">Change in value per step</th> </tr> </thead> <tbody> <tr> <td>ADJUST DATA1</td> <td>Center line (first page)</td> <td>-78 to 78</td> <td>0</td> <td>0.085 mm</td> </tr> <tr> <td>ADJUST DATA2</td> <td>Center line (second page)</td> <td>-78 to 78</td> <td>0</td> <td>0.085 mm</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>3. Press the system menu key.</li> <li>4. Place an original on the DP and press the start key to make a test copy.</li> <li>5. Press the system menu key.</li> <li>6. Change the setting value using the +/- or numeric keys. For copy example 1, increase the value. For copy example 2, decrease the value.</li> </ol> <div style="text-align: center; margin: 10px 0;"> </div> <ol style="list-style-type: none"> <li>7. Press the start key. The value is set.</li> </ol> <p><b>Caution</b> Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.</p> <div style="text-align: center; margin: 10px 0;"> </div> <p><b>Completion</b> Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	Setting range	Initial setting	Change in value per step	ADJUST DATA1	Center line (first page)	-78 to 78	0	0.085 mm	ADJUST DATA2	Center line (second page)	-78 to 78	0	0.085 mm
Display	Description	Setting range	Initial setting	Change in value per step												
ADJUST DATA1	Center line (first page)	-78 to 78	0	0.085 mm												
ADJUST DATA2	Center line (second page)	-78 to 78	0	0.085 mm												

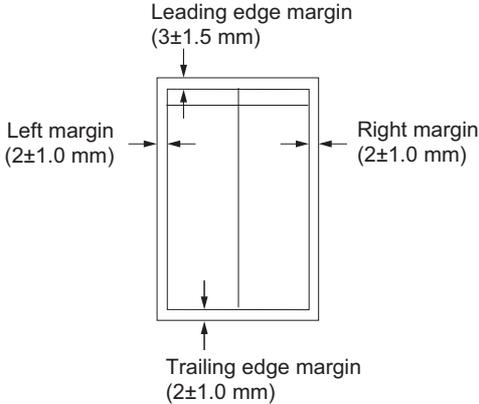
Maintenance item No.	Description																						
<p><b>U074</b></p>	<p><b>Adjusting the DP input light luminosity</b>  <b>Description</b>                      Adjusts the luminosity of the exposure lamp for scanning originals from the DP.  <b>Purpose</b>                      Used if the exposure amount differs significantly between when scanning an original on the platen and when scanning an original from the DP.  <b>Setting</b>                      1. Press the start key.                      2. Select the item to be set.</p> <table border="1" data-bbox="331 533 1398 775"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Setting range</th> <th>Initial setting</th> </tr> </thead> <tbody> <tr> <td>R</td> <td>DP input light luminosity of R image</td> <td>-12 to 12</td> <td>0</td> </tr> <tr> <td>G</td> <td>DP input light luminosity of G image</td> <td>-12 to 12</td> <td>0</td> </tr> <tr> <td>B</td> <td>DP input light luminosity of B image</td> <td>-12 to 12</td> <td>0</td> </tr> <tr> <td>K</td> <td>DP input light luminosity of K image</td> <td>-12 to 12</td> <td>0</td> </tr> </tbody> </table> <p>3. Change the setting using the +/- or numeric keys.                      Increasing the setting makes the luminosity higher, and decreasing it makes the luminosity lower.                      4. Press the start key. The value is set.</p> <p><b>Supplement</b>                      While this maintenance item is being executed, copying from an original is available in interrupt copying mode (which is activated by pressing the system menu key).  <b>Completion</b>                      Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	Setting range	Initial setting	R	DP input light luminosity of R image	-12 to 12	0	G	DP input light luminosity of G image	-12 to 12	0	B	DP input light luminosity of B image	-12 to 12	0	K	DP input light luminosity of K image	-12 to 12	0		
Display	Description	Setting range	Initial setting																				
R	DP input light luminosity of R image	-12 to 12	0																				
G	DP input light luminosity of G image	-12 to 12	0																				
B	DP input light luminosity of B image	-12 to 12	0																				
K	DP input light luminosity of K image	-12 to 12	0																				
<p><b>U087</b></p>	<p><b>Setting DP reading position modification operation</b>  <b>Description</b>                      The presence or absence of dust is determined by comparing the scan data of the original trailing edge and that taken after the original is conveyed past the DP original scanning position. If dust is identified, the DP original scanning position is adjusted for the following originals.  <b>Purpose</b>                      When using DP, to solve the problem when black lines occurs due to the dust with respect to original reading position.  <b>Method</b>                      1. Press the start key.                      2. Select the item to be set. The setting screen for the selected item is displayed.</p> <table border="1" data-bbox="331 1357 1398 1485"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>CCD</td> <td>Setting of standard data when dust is detected.</td> </tr> <tr> <td>BLACK</td> <td>Initialization of original reading position.</td> </tr> </tbody> </table> <p><b>Setting: standard data when dust is detected</b>                      1. Select the item to be set.                      2. Change the value using the +/- or numeric keys.</p> <table border="1" data-bbox="331 1592 1398 1760"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Setting range</th> <th>Initial setting</th> </tr> </thead> <tbody> <tr> <td>CCD R</td> <td>Lowest density of the R regard as the dust</td> <td>0 to 255</td> <td>125</td> </tr> <tr> <td>CCD G</td> <td>Lowest density of the G regard as the dust</td> <td>0 to 255</td> <td>125</td> </tr> <tr> <td>CCD B</td> <td>Lowest density of the B regard as the dust</td> <td>0 to 255</td> <td>120</td> </tr> </tbody> </table> <p>3. Press the start key. The value is set.  <b>Setting: Initialization of original reading position</b>                      1. Select [CLEAR].                      2. Press the start key. The setting is cleared.  <b>Completion</b>                      Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	CCD	Setting of standard data when dust is detected.	BLACK	Initialization of original reading position.	Display	Description	Setting range	Initial setting	CCD R	Lowest density of the R regard as the dust	0 to 255	125	CCD G	Lowest density of the G regard as the dust	0 to 255	125	CCD B	Lowest density of the B regard as the dust	0 to 255	120
Display	Description																						
CCD	Setting of standard data when dust is detected.																						
BLACK	Initialization of original reading position.																						
Display	Description	Setting range	Initial setting																				
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CCD G	Lowest density of the G regard as the dust	0 to 255	125																				
CCD B	Lowest density of the B regard as the dust	0 to 255	120																				



Maintenance item No.	Description																								
<b>U203</b>	<p><b>Checking DP operation</b></p> <p><b>Description</b> Simulates the original conveying operation separately in the DP.</p> <p><b>Purpose</b> To check the DP operation.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Place an original in the DP if running this simulation with paper.</li> <li>3. Select the item to be operated.</li> <li>4. When selecting [ADP] or [RADP], to set the magnification using the +/- keys.</li> </ol> <table border="1" data-bbox="331 566 1398 891"> <thead> <tr> <th>Display</th> <th>Operation</th> <th>Setting range</th> <th>Initial setting</th> </tr> </thead> <tbody> <tr> <td>ADP</td> <td>With paper, single-sided original</td> <td>100 to 200 (%)</td> <td>100</td> </tr> <tr> <td>RADP</td> <td>With paper, double-sided original</td> <td>100 to 200 (%)</td> <td>100</td> </tr> <tr> <td>ADP (NON P)</td> <td>Without paper, single-sided original (continuous operation)</td> <td>-</td> <td>-</td> </tr> <tr> <td>RADP (NON P)</td> <td>Without paper, double-sided original (continuous operation)</td> <td>-</td> <td>-</td> </tr> <tr> <td>SPEED</td> <td>Switching between normal reading (600 dpi) and high-speed reading</td> <td>0 (Normal)/ 1 (high-speed)</td> <td>0</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>5. Press the start key. The operation starts.</li> <li>6. To stop continuous operation, press the stop key.</li> </ol> <p><b>Completion</b> Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Operation	Setting range	Initial setting	ADP	With paper, single-sided original	100 to 200 (%)	100	RADP	With paper, double-sided original	100 to 200 (%)	100	ADP (NON P)	Without paper, single-sided original (continuous operation)	-	-	RADP (NON P)	Without paper, double-sided original (continuous operation)	-	-	SPEED	Switching between normal reading (600 dpi) and high-speed reading	0 (Normal)/ 1 (high-speed)	0
Display	Operation	Setting range	Initial setting																						
ADP	With paper, single-sided original	100 to 200 (%)	100																						
RADP	With paper, double-sided original	100 to 200 (%)	100																						
ADP (NON P)	Without paper, single-sided original (continuous operation)	-	-																						
RADP (NON P)	Without paper, double-sided original (continuous operation)	-	-																						
SPEED	Switching between normal reading (600 dpi) and high-speed reading	0 (Normal)/ 1 (high-speed)	0																						
<b>U243</b>	<p><b>Checking the operation of the DP motors</b></p> <p><b>Description</b> Turns the motors and solenoids in the DP on.</p> <p><b>Purpose</b> To check the operation of the DP motors or solenoids.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Select the item to be operated.</li> <li>3. Press the start key. The operation starts.</li> </ol> <table border="1" data-bbox="331 1301 1398 1547"> <thead> <tr> <th>Display</th> <th>Motors and solenoids</th> </tr> </thead> <tbody> <tr> <td>DP FEED MOTOR</td> <td>Original feed motor (OFM) is turned on.</td> </tr> <tr> <td>DP CONV MOTOR</td> <td>Original conveying motor (OCM) is turned on.</td> </tr> <tr> <td>DP REV MOTOR</td> <td>Original switchback motor (OSBM) is turned on.</td> </tr> <tr> <td>DP RJ SOL</td> <td>Switchback feedshift solenoid (SBFSSOL) is turned on.</td> </tr> <tr> <td>DP RP SOL</td> <td>Switchback pressure solenoid (SBPSOL) is turned on.</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>4. To stop operation, press the stop key.</li> </ol> <p><b>Completion</b> Press the stop key when operation stops. The screen for selecting a maintenance item No. is displayed.</p>	Display	Motors and solenoids	DP FEED MOTOR	Original feed motor (OFM) is turned on.	DP CONV MOTOR	Original conveying motor (OCM) is turned on.	DP REV MOTOR	Original switchback motor (OSBM) is turned on.	DP RJ SOL	Switchback feedshift solenoid (SBFSSOL) is turned on.	DP RP SOL	Switchback pressure solenoid (SBPSOL) is turned on.												
Display	Motors and solenoids																								
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DP RP SOL	Switchback pressure solenoid (SBPSOL) is turned on.																								

Maintenance item No.	Description														
<p><b>U244</b></p>	<p><b>Checking the DP switches</b>  <b>Description</b>                      Displays the status of the respective switches in the DP.  <b>Purpose</b>                      To check if respective switches in the DP operate correctly.  <b>Method</b>                      1. Press the start key.                      2. Turn the respective switches on and off manually to check the status.                      When a switch is detected to be in the ON position, the display for that switch will be highlighted.</p> <table border="1" data-bbox="331 533 1398 824"> <thead> <tr> <th>Display</th> <th>Switches</th> </tr> </thead> <tbody> <tr> <td>DP SET SW</td> <td>Original set switch (OSSW)</td> </tr> <tr> <td>DP PSD SW</td> <td>Original size length switch (OSLSW)</td> </tr> <tr> <td>DP REV SW</td> <td>Original switchback switch (OSBSW)</td> </tr> <tr> <td>CCD TMING SW</td> <td>DP timing switch (DPTSW)</td> </tr> <tr> <td>DP COVER SW</td> <td>DP interlock switch (DPILSW)</td> </tr> <tr> <td>DP OPEN SW</td> <td>DP open/close switch (DPOCSW)</td> </tr> </tbody> </table> <p><b>Completion</b>                      Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Switches	DP SET SW	Original set switch (OSSW)	DP PSD SW	Original size length switch (OSLSW)	DP REV SW	Original switchback switch (OSBSW)	CCD TMING SW	DP timing switch (DPTSW)	DP COVER SW	DP interlock switch (DPILSW)	DP OPEN SW	DP open/close switch (DPOCSW)
Display	Switches														
DP SET SW	Original set switch (OSSW)														
DP PSD SW	Original size length switch (OSLSW)														
DP REV SW	Original switchback switch (OSBSW)														
CCD TMING SW	DP timing switch (DPTSW)														
DP COVER SW	DP interlock switch (DPILSW)														
DP OPEN SW	DP open/close switch (DPOCSW)														
<p><b>U326</b></p>	<p><b>Setting the black line cleaning indication</b>  <b>Description</b>                      Sets whether to display the cleaning guidance when detecting the black line.  <b>Purpose</b>                      Displays the cleaning guidance in order to make the call for service with the black line decrease by the rubbish on the platen when scanning from the DP.  <b>Setting</b>                      1. Press the start key.                      2. Select ON or OFF.</p> <table border="1" data-bbox="331 1178 1398 1346"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>Displays the cleaning guidance</td> </tr> <tr> <td>OFF</td> <td>Not to display the cleaning guidance</td> </tr> <tr> <td>COUNT</td> <td>Setting counts of the cleaning guidance indication</td> </tr> </tbody> </table> <p>Initial setting: ON                      3. Press the start key. The setting is set.  <b>Setting the count value</b>                      1. Enter a count using the +/- or numeric keys.                      Setting range: 0 to 999                      Initial setting: 8                      When setting is 0, the black line cleaning indication is displayed only if the black line is detected.                      2. Press the start key. The count is set.  <b>Completion</b>                      Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	ON	Displays the cleaning guidance	OFF	Not to display the cleaning guidance	COUNT	Setting counts of the cleaning guidance indication						
Display	Description														
ON	Displays the cleaning guidance														
OFF	Not to display the cleaning guidance														
COUNT	Setting counts of the cleaning guidance indication														



Maintenance item No.	Description																									
<p><b>U404</b></p>	<p><b>Adjusting margins for scanning an original from the DP</b></p> <p><b>Description</b> Adjusts margins for scanning the original from the DP.</p> <p><b>Purpose</b> Make the adjustment if margins are incorrect when the DP is used.</p> <p><b>Caution</b> Before making this adjustment, ensure that the following adjustments have been made in maintenance mode.</p> <div style="text-align: center; border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>U402</b> (See the service manual for the machine.)</p> <p>→</p> <p><b>U403</b> (See the service manual for the machine.)</p> <p>→</p> <p><b>U404</b></p> </div> <p><b>Adjustment</b></p> <ol style="list-style-type: none"> <li>Press the start key.</li> <li>Select the item to be adjusted.</li> </ol> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Setting range</th> <th>Initial setting</th> <th>Change in value per step</th> </tr> </thead> <tbody> <tr> <td>A MARGIN</td> <td>Left margin</td> <td>0 to 10.0</td> <td>3.0</td> <td>0.5 mm</td> </tr> <tr> <td>B MARGIN</td> <td>Leading edge margin</td> <td>0 to 10.0</td> <td>2.5</td> <td>0.5 mm</td> </tr> <tr> <td>C MARGIN</td> <td>Right margin</td> <td>0 to 10.0</td> <td>3.0</td> <td>0.5 mm</td> </tr> <tr> <td>D MARGIN</td> <td>Trailing edge margin</td> <td>0 to 10.0</td> <td>4.0</td> <td>0.5 mm</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>Press the system menu key.</li> <li>Place an original on the DP and press the start key to make a test copy.</li> <li>Press the system menu key.</li> <li>Change the setting value using the +/- keys. Increasing the value makes the margin wider, and decreasing it makes the margin narrower.</li> </ol> <div style="text-align: center; margin: 10px 0;">  <p>The diagram shows a rectangular scanned page with four margin indicators. At the top, a vertical double-headed arrow indicates the 'Leading edge margin (3±1.5 mm)'. On the left side, a horizontal double-headed arrow indicates the 'Left margin (2±1.0 mm)'. On the right side, a horizontal double-headed arrow indicates the 'Right margin (2±1.0 mm)'. At the bottom, a vertical double-headed arrow indicates the 'Trailing edge margin (2±1.0 mm)'.</p> </div> <p style="text-align: center;"><b>Figure 1-3-5</b></p> <ol style="list-style-type: none"> <li>Press the start key. The value is set.</li> </ol> <p><b>Completion</b> Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	Setting range	Initial setting	Change in value per step	A MARGIN	Left margin	0 to 10.0	3.0	0.5 mm	B MARGIN	Leading edge margin	0 to 10.0	2.5	0.5 mm	C MARGIN	Right margin	0 to 10.0	3.0	0.5 mm	D MARGIN	Trailing edge margin	0 to 10.0	4.0	0.5 mm
Display	Description	Setting range	Initial setting	Change in value per step																						
A MARGIN	Left margin	0 to 10.0	3.0	0.5 mm																						
B MARGIN	Leading edge margin	0 to 10.0	2.5	0.5 mm																						
C MARGIN	Right margin	0 to 10.0	3.0	0.5 mm																						
D MARGIN	Trailing edge margin	0 to 10.0	4.0	0.5 mm																						



Maintenance item No.	Description																											
<p><b>U411</b></p>	<p><b>Adjusting the scanner automatically</b></p> <p><b>Description</b>                      Uses a specified original and automatically adjusts the following items in the scanner and the DP scanning sections.</p> <p><b>Purpose</b>                      To perform automatic adjustment of various items in the scanner and the DP scanning sections.                      To adjust scanner automatically when initializing the machine using the maintenance item U020 or U022.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Select the item. The screen for executing is displayed.</li> </ol> <table border="1" data-bbox="331 593 1398 745"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Original to be used for adjustment (P/N)</th> </tr> </thead> <tbody> <tr> <td>SCANNER</td> <td>Automatic adjustment in the scanner section</td> <td>302FZ56990</td> </tr> <tr> <td>DP</td> <td>Automatic adjustment in the DP scanning section</td> <td>2AC68241</td> </tr> </tbody> </table> <p><b>Method: SCANNER</b></p> <ol style="list-style-type: none"> <li>1. Select [SCANNER].</li> <li>2. Enter the target values which are shown on the specified original (P/N: 302FZ56990) executing maintenance item U425.</li> <li>3. Set a specified original (P/N: 302FZ56990) on the platen.</li> <li>4. Select the item.</li> </ol> <table border="1" data-bbox="331 958 1398 1473"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>ALL</td> <td>Automatic adjustment using the platen for: original size magnification/leading edge timing/center line, input gamma, chromatic aberration filter, MTF filter, matrix, input gamma in monochrome mode and MTF filter in monochrome mode</td> </tr> <tr> <td>INPUT</td> <td>Automatic adjustment using the platen for: original size magnification/leading edge timing/center line</td> </tr> <tr> <td>GAMMA</td> <td>Automatic adjustment using the platen for: input gamma</td> </tr> <tr> <td>C.A.</td> <td>Automatic adjustment using the platen for: chromatic aberration filter</td> </tr> <tr> <td>MTF</td> <td>Automatic adjustment using the platen for: MTF filter</td> </tr> <tr> <td>MATRIX</td> <td>Automatic adjustment using the platen for: matrix</td> </tr> <tr> <td>MONO GAMMA</td> <td>Automatic adjustment using the platen for: input gamma in monochrome mode</td> </tr> <tr> <td>MONO MTF</td> <td>Automatic adjustment using the platen for: MTF filter in monochrome mode</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>5. Press the start key. Auto adjustment starts.                      When automatic adjustment has normally completed, [RESULT OK 00] is displayed. If a problem occurs during auto adjustment, [ERROR XX] (XX is replaced by an error code) is displayed and operation stops. Should this happen, determine the details of the problem and either repeat the procedure from the beginning, or adjust the remaining items manually by running the corresponding maintenance items.</li> <li>6. To return to the screen for selecting an item, press the stop key.</li> </ol>	Display	Description	Original to be used for adjustment (P/N)	SCANNER	Automatic adjustment in the scanner section	302FZ56990	DP	Automatic adjustment in the DP scanning section	2AC68241	Display	Description	ALL	Automatic adjustment using the platen for: original size magnification/leading edge timing/center line, input gamma, chromatic aberration filter, MTF filter, matrix, input gamma in monochrome mode and MTF filter in monochrome mode	INPUT	Automatic adjustment using the platen for: original size magnification/leading edge timing/center line	GAMMA	Automatic adjustment using the platen for: input gamma	C.A.	Automatic adjustment using the platen for: chromatic aberration filter	MTF	Automatic adjustment using the platen for: MTF filter	MATRIX	Automatic adjustment using the platen for: matrix	MONO GAMMA	Automatic adjustment using the platen for: input gamma in monochrome mode	MONO MTF	Automatic adjustment using the platen for: MTF filter in monochrome mode
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Maintenance item No.	Description				
<p><b>U411</b></p>	<p><b>Method: DP</b></p> <ol style="list-style-type: none"> <li>1. Select [DP].</li> <li>2. Set a specified original (P/N: 2AC68241) in the DP. Cut the trailing edge of the original.</li> </ol> <div data-bbox="651 414 1061 801" style="text-align: center;"> <p>128±1 mm 60±1 mm</p> <p>Cut with the edge of black belt.</p> </div> <p style="text-align: center;"><b>Figure 1-3-6</b></p> <ol style="list-style-type: none"> <li>3. Press [INPUT].</li> </ol> <table border="1" data-bbox="331 896 1396 1008" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>INPUT</td> <td>Automatic adjustment of first page using the DP for: original size magnification/leading edge timing/center line</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>4. Press the start key. Auto adjustment starts. When automatic adjustment has normally completed, [RESULT OK 00] is displayed. If a problem occurs during auto adjustment, [ERROR XX] (XX is replaced by an error code) is displayed and operation stops. Should this happen, determine the details of the problem and either repeat the procedure from the beginning, or adjust the remaining items manually by running the corresponding maintenance items.</li> <li>5. To return to the screen for selecting an item, press the stop key.</li> </ol>	Display	Description	INPUT	Automatic adjustment of first page using the DP for: original size magnification/leading edge timing/center line
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Maintenance item No.	Description																																																												
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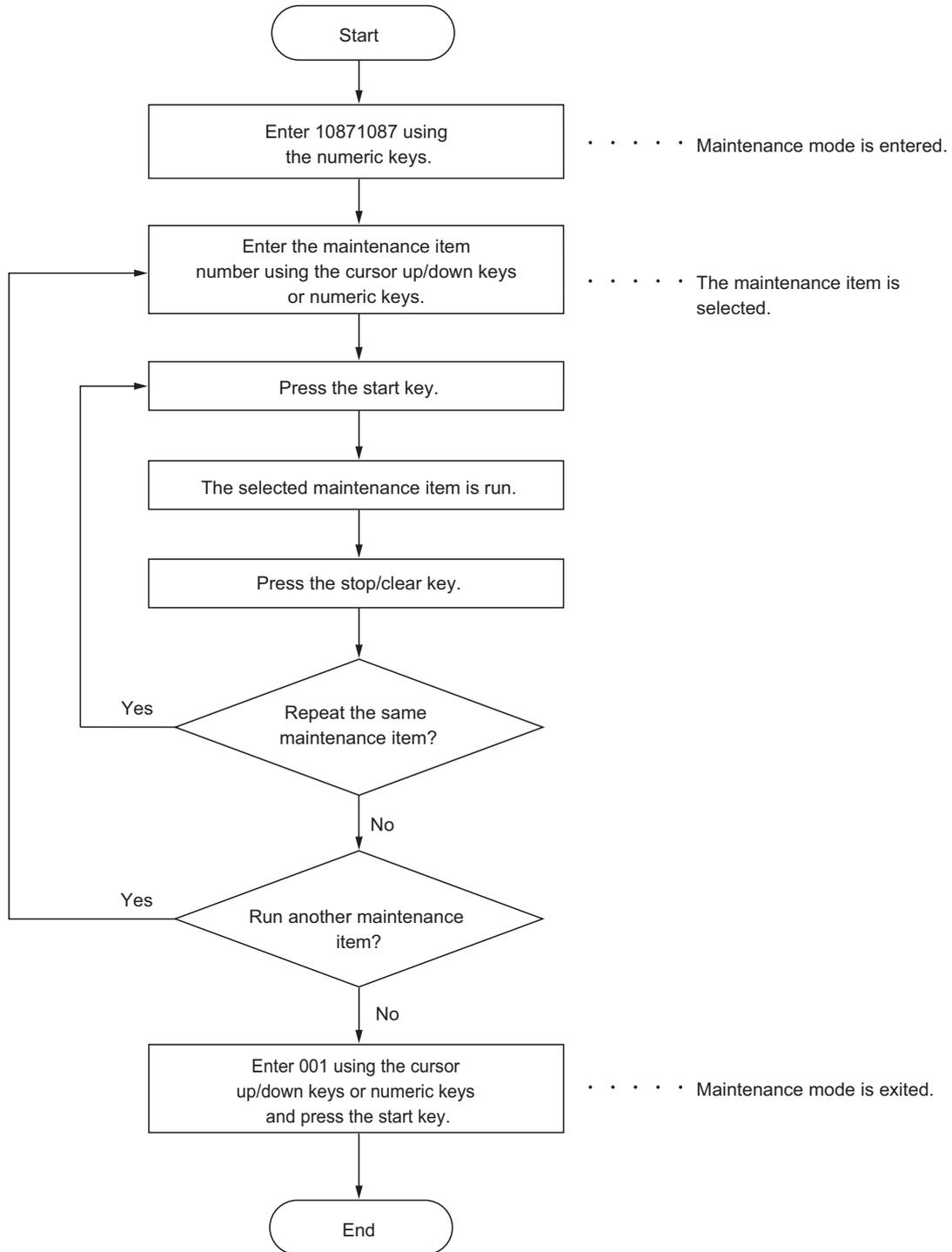
Maintenance item No.	Description																		
<p><b>U905</b></p>	<p><b>Checking/clearing counts by optional devices</b>  <b>Description</b>                      Displays or clears the counts of DP or finisher.  <b>Purpose</b>                      To check the use of DP and finisher. Also to clear the counts after replacing consumable parts.  <b>Method</b>                      1. Press the start key.                      2. Select the device, the count of which is to be checked. The count of the selected device is displayed.</p> <table border="1" data-bbox="331 504 1396 629"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>DP</td> <td>Counts of optional DP</td> </tr> <tr> <td>FINISHER</td> <td>Counts of optional finisher</td> </tr> </tbody> </table> <p>DP</p> <table border="1" data-bbox="331 689 1396 815"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>ADP</td> <td>No. of single-sided originals that has passed through the DP</td> </tr> <tr> <td>RADP</td> <td>No. of double-sided originals that has passed through the DP</td> </tr> </tbody> </table> <p>Finisher</p> <table border="1" data-bbox="331 864 1396 990"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>CP CNT</td> <td>No. of copies that has passed</td> </tr> <tr> <td>STAPLE</td> <td>Frequency the stapler has been activated</td> </tr> </tbody> </table> <p><b>Clearing</b>                      1. Select the item to be cleared.                      To clear the counts for all, press the clear key.                      2. Press the start key. The count is cleared.  <b>Completion</b>                      Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	DP	Counts of optional DP	FINISHER	Counts of optional finisher	Display	Description	ADP	No. of single-sided originals that has passed through the DP	RADP	No. of double-sided originals that has passed through the DP	Display	Description	CP CNT	No. of copies that has passed	STAPLE	Frequency the stapler has been activated
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<p><b>U942</b></p>	<p><b>Setting of deflection for feeding from DP</b>  <b>Description</b>                      Adjusts the deflection generated when the DP is used.  <b>Purpose</b>                      Use this mode if an original non-feed jam, oblique feed or wrinkling of original occurs when the DP is used.  <b>Setting</b>                      1. Press the start key.                      2. Select the item to be adjusted.</p> <table border="1" data-bbox="331 1429 1396 1608"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Setting range</th> <th>Initial setting</th> <th>Change in value per step</th> </tr> </thead> <tbody> <tr> <td>FEED MOT</td> <td>Deflection in the original feed motor</td> <td>-31 to 31</td> <td>0</td> <td>0.098 mm</td> </tr> <tr> <td>REV MOT</td> <td>Deflection in the original switchback motor</td> <td>-31 to 31</td> <td>0</td> <td>0.098 mm</td> </tr> </tbody> </table> <p>3. Press the system menu key.                      4. Place an original on the DP and press the start key to make a test copy.                      5. Press the system menu key.                      6. Change the setting value using the +/- or numeric keys.                      The greater the value, the larger the deflection; the smaller the value, the smaller the deflection.                      If an original non-feed jam or oblique feed occurs, increase the setting value. If wrinkling of original occurs, decrease the value.                      7. Press the start key. The setting is set.  <b>Completion</b>                      Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	Setting range	Initial setting	Change in value per step	FEED MOT	Deflection in the original feed motor	-31 to 31	0	0.098 mm	REV MOT	Deflection in the original switchback motor	-31 to 31	0	0.098 mm			
Display	Description	Setting range	Initial setting	Change in value per step															
FEED MOT	Deflection in the original feed motor	-31 to 31	0	0.098 mm															
REV MOT	Deflection in the original switchback motor	-31 to 31	0	0.098 mm															



### 1-3-2 Maintenance mode (models with monochrome touch panel)

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

#### (1) Executing a maintenance item



## (2) Maintenance mode item list

Section	Item No.	Content of maintenance item	Initial setting*
General	U019	Displaying the ROM version	-
Optical	U068	Adjusting the scanning position for originals from the DP	0/0*1
	U070	Adjusting the DP magnification	0/0*1
	U071	Adjusting the DP scanning timing	0/0/0/0*1
	U072	Adjusting the DP center line	0/0/0*1
	U074	Adjusting the DP input light luminosity	0*1
	U087	Setting DP reading position modification operation	35*1
Operation panel and support equipment	U203	Checking DP operation	-
	U243	Checking the operation of the DP motors	-
	U244	Checking the DP switches	-
Mode setting	U326	Setting the black line cleaning indication	ON/8*1,*2
Image processing	U404	Adjusting margins for scanning an original from the DP	3.0/2.5/3.0/4.0*1
	U411	Adjusting the scanner automatically	-
Other	U905	Checking counts by optional devices	-
	U942	Setting of deflection for feeding from DP	0/0*1

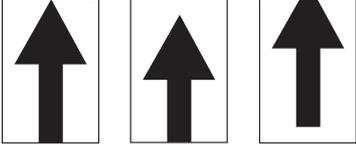
\*Initial setting for executing U020, \*1: The item initialized for executing U020, \*2: The item initialized for executing U021

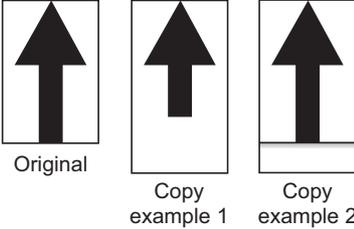
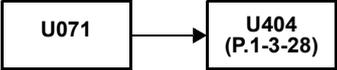
## (3) Contents of maintenance mode items

Maintenance item No.	Description																												
U019	<p><b>Displaying the ROM version</b></p> <p><b>Description</b> Displays the part number of the ROM fitted to each PWB.</p> <p><b>Purpose</b> To check the part number or to decide, if the newest version of ROM is installed.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key. The ROM version are displayed.</li> <li>2. Change the screen using the * or # keys.</li> </ol> <table border="1" data-bbox="331 555 1398 1133"> <thead> <tr> <th data-bbox="331 555 715 595">Display</th> <th data-bbox="715 555 1398 595">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="331 595 715 636">MAIN</td> <td data-bbox="715 595 1398 636">Main PWB ROM IC</td> </tr> <tr> <td data-bbox="331 636 715 676">MAIN BOOT</td> <td data-bbox="715 636 1398 676">Main PWB booting</td> </tr> <tr> <td data-bbox="331 676 715 716">ENGINE</td> <td data-bbox="715 676 1398 716">Engine PWB ROM IC</td> </tr> <tr> <td data-bbox="331 716 715 757">ENGINE BOOT</td> <td data-bbox="715 716 1398 757">Engine PWB booting</td> </tr> <tr> <td data-bbox="331 757 715 797">LANGUAGE</td> <td data-bbox="715 757 1398 797">Standard language ROM IC</td> </tr> <tr> <td data-bbox="331 797 715 837">OPTION LANGUAGE</td> <td data-bbox="715 797 1398 837">Optional language ROM IC</td> </tr> <tr> <td data-bbox="331 837 715 878">DICTIONARY</td> <td data-bbox="715 837 1398 878">-</td> </tr> <tr> <td data-bbox="331 878 715 918">PRINTER</td> <td data-bbox="715 878 1398 918">Optional printer board ROM IC</td> </tr> <tr> <td data-bbox="331 918 715 958">DP</td> <td data-bbox="715 918 1398 958">DP main PWB ROM IC</td> </tr> <tr> <td data-bbox="331 958 715 999">OPTION CASSETTE</td> <td data-bbox="715 958 1398 999">Optional paper feeder main PWB ROM IC</td> </tr> <tr> <td data-bbox="331 999 715 1039">INNER DF</td> <td data-bbox="715 999 1398 1039">Optional built-in finisher main PWB ROM IC</td> </tr> <tr> <td data-bbox="331 1039 715 1079">SIMPLE DF MAIN</td> <td data-bbox="715 1039 1398 1079">Optional document finisher main PWB ROM IC</td> </tr> <tr> <td data-bbox="331 1079 715 1133">ENGINE POWER</td> <td data-bbox="715 1079 1398 1133">Engine power CPU</td> </tr> </tbody> </table> <p><b>Completion</b> Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	MAIN	Main PWB ROM IC	MAIN BOOT	Main PWB booting	ENGINE	Engine PWB ROM IC	ENGINE BOOT	Engine PWB booting	LANGUAGE	Standard language ROM IC	OPTION LANGUAGE	Optional language ROM IC	DICTIONARY	-	PRINTER	Optional printer board ROM IC	DP	DP main PWB ROM IC	OPTION CASSETTE	Optional paper feeder main PWB ROM IC	INNER DF	Optional built-in finisher main PWB ROM IC	SIMPLE DF MAIN	Optional document finisher main PWB ROM IC	ENGINE POWER	Engine power CPU
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SIMPLE DF MAIN	Optional document finisher main PWB ROM IC																												
ENGINE POWER	Engine power CPU																												

Maintenance item No.	Description															
U068	<p><b>Adjusting the scanning position for originals from the DP</b></p> <p><b>Description</b> Adjusts the position for scanning originals from the DP. Performs the test copy at the four scanning positions after adjusting.</p> <p><b>Purpose</b> Used when the image fogging occurs because the scanning position is not proper when the DP is used. Run U071 to adjust the timing of DP leading edge when the scanning position is changed.</p> <p><b>Setting</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> </ol> <table border="1" data-bbox="331 533 1396 750"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Setting range</th> <th>Initial setting</th> <th>Change in value per step</th> </tr> </thead> <tbody> <tr> <td>ADJUST DATA</td> <td>Starting position adjustment for scanning originals</td> <td>-33 to 33</td> <td>0</td> <td>0.086 mm</td> </tr> <tr> <td>TEST POSITION</td> <td>Scanning position for the test copy originals</td> <td>0 to 3</td> <td>0</td> <td>0.22 mm</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>2. Select [ADJUST DATA] of the screen for selecting an item.</li> <li>3. Change the setting using the cursor up/down keys. When the setting value is increased, the scanning position moves to the right and it moves to the left when the setting value is decreased.</li> <li>4. Press the start key. The value is set.</li> <li>5. Select [TEST POSITION] of the screen for selecting an item.</li> <li>6. Select the scanning position using the cursor up/down keys.</li> <li>7. Press the start key. The value is set.</li> <li>8. Set the original (the one which density is known) in the DP and press the interrupt key. The screen for the test copy mode is displayed.</li> <li>9. Press the start key. Test copy is executed.</li> <li>10. Perform the test copy at each scanning position with the setting value from 0 to 3 and check that no black line appears and the image is normally scanned.</li> </ol> <p><b>Completion</b> Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	Setting range	Initial setting	Change in value per step	ADJUST DATA	Starting position adjustment for scanning originals	-33 to 33	0	0.086 mm	TEST POSITION	Scanning position for the test copy originals	0 to 3	0	0.22 mm
Display	Description	Setting range	Initial setting	Change in value per step												
ADJUST DATA	Starting position adjustment for scanning originals	-33 to 33	0	0.086 mm												
TEST POSITION	Scanning position for the test copy originals	0 to 3	0	0.22 mm												

Maintenance item No.	Description															
<b>U070</b>	<p><b>Adjusting the DP magnification</b></p> <p><b>Description</b> Adjusts the DP original scanning speed.</p> <p><b>Purpose</b> Make the adjustment if the magnification is incorrect in the auxiliary scanning direction when the DP is used.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Select the item to be adjusted.</li> </ol> <table border="1" data-bbox="331 504 1396 705"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Setting range</th> <th>Initial setting</th> <th>Change in value per step</th> </tr> </thead> <tbody> <tr> <td>MAIN ADJ</td> <td>Magnification in the main scanning direction (first page)</td> <td>-25 to 25</td> <td>0</td> <td>0.1 %</td> </tr> <tr> <td>SUB ADJ</td> <td>Magnification in the auxiliary scanning direction (second page)</td> <td>-25 to 25</td> <td>0</td> <td>0.1 %</td> </tr> </tbody> </table> <p><b>Adjustment</b></p> <ol style="list-style-type: none"> <li>1. Press the interrupt key.</li> <li>2. Place an original on the DP and press the start key to make a test copy.</li> <li>3. Press the interrupt key.</li> <li>4. Change the setting value using the cursor up/down keys. For copy example 1, increase the value. For copy example 2, decrease the value.</li> </ol> <div data-bbox="646 929 1061 1176" style="text-align: center;"> <p>Original      Copy example 1      Copy example 2</p> </div> <p>5. Press the start key. The value is set.</p> <p><b>Caution</b> Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.</p> <div data-bbox="284 1344 829 1422" style="text-align: center;"> <pre> graph LR     U070[U070] --&gt; U071[U071 (P.1-3-22)]     U071 --&gt; U404[U404 (P.1-3-28)] </pre> </div> <p><b>Completion</b> Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	Setting range	Initial setting	Change in value per step	MAIN ADJ	Magnification in the main scanning direction (first page)	-25 to 25	0	0.1 %	SUB ADJ	Magnification in the auxiliary scanning direction (second page)	-25 to 25	0	0.1 %
Display	Description	Setting range	Initial setting	Change in value per step												
MAIN ADJ	Magnification in the main scanning direction (first page)	-25 to 25	0	0.1 %												
SUB ADJ	Magnification in the auxiliary scanning direction (second page)	-25 to 25	0	0.1 %												

Maintenance item No.	Description																									
<b>U071</b>	<p><b>Adjusting the DP scanning timing</b></p> <p><b>Description</b> Adjusts the DP original scanning timing.</p> <p><b>Purpose</b> Make the adjustment if there is a regular error between the leading or trailing edges of the original and the copy image when the DP is used.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Select the item to be adjusted.</li> </ol> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Display</th> <th style="text-align: left;">Description</th> <th style="text-align: left;">Setting range</th> <th style="text-align: left;">Initial setting</th> <th style="text-align: left;">Change in value per step</th> </tr> </thead> <tbody> <tr> <td>ADJUST DATA1</td> <td>Leading edge registration (first page)</td> <td>-32 to 32</td> <td>0</td> <td>0.196 mm</td> </tr> <tr> <td>ADJUST DATA2</td> <td>Trailing edge registration (first page)</td> <td>-32 to 28</td> <td>0</td> <td>0.196 mm</td> </tr> <tr> <td>ADJUST DATA3</td> <td>Leading edge registration (second page)</td> <td>-45 to 45</td> <td>0</td> <td>0.196 mm</td> </tr> <tr> <td>ADJUST DATA4</td> <td>Trailing edge registration (second page)</td> <td>-45 to 28</td> <td>0</td> <td>0.196 mm</td> </tr> </tbody> </table> <p><b>Adjustment: Leading edge registration</b></p> <ol style="list-style-type: none"> <li>1. Press the interrupt key.</li> <li>2. Place an original on the DP and press the start key to make a test copy.</li> <li>3. Press the interrupt key.</li> <li>4. Change the setting value using the cursor up/down keys. For copy example 1, increase the value. For copy example 2, decrease the value.</li> </ol> <div style="text-align: center;">  <p style="display: flex; justify-content: space-around; margin-top: 5px;"> <span>Original</span> <span>Copy example 1</span> <span>Copy example 2</span> </p> </div> <p style="text-align: center;"><b>Figure 1-3-8</b></p> <ol style="list-style-type: none"> <li>5. Press the start key. The value is set.</li> </ol> <p><b>Caution</b> Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.</p> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-right: 10px;">U071</div> <span style="font-size: 24px;">→</span> <div style="border: 1px solid black; padding: 5px; display: inline-block;">U404 (P.1-3-28)</div>	Display	Description	Setting range	Initial setting	Change in value per step	ADJUST DATA1	Leading edge registration (first page)	-32 to 32	0	0.196 mm	ADJUST DATA2	Trailing edge registration (first page)	-32 to 28	0	0.196 mm	ADJUST DATA3	Leading edge registration (second page)	-45 to 45	0	0.196 mm	ADJUST DATA4	Trailing edge registration (second page)	-45 to 28	0	0.196 mm
Display	Description	Setting range	Initial setting	Change in value per step																						
ADJUST DATA1	Leading edge registration (first page)	-32 to 32	0	0.196 mm																						
ADJUST DATA2	Trailing edge registration (first page)	-32 to 28	0	0.196 mm																						
ADJUST DATA3	Leading edge registration (second page)	-45 to 45	0	0.196 mm																						
ADJUST DATA4	Trailing edge registration (second page)	-45 to 28	0	0.196 mm																						

Maintenance item No.	Description
<p><b>U071</b></p>	<p><b>Adjustment: Trailing edge registration</b></p> <ol style="list-style-type: none"> <li>1. Press the interrupt key.</li> <li>2. Place an original on the DP and press the start key to make a test copy.</li> <li>3. Press the interrupt key.</li> <li>4. Change the setting value using the cursor up/down keys. For copy example 1, increase the value. For copy example 2, decrease the value.</li> </ol> <div style="text-align: center;">  <p>Original      Copy example 1      Copy example 2</p> </div> <p style="text-align: center;"><b>Figure 1-3-9</b></p> <ol style="list-style-type: none"> <li>5. Press the start key. The value is set.</li> </ol> <p><b>Caution</b> Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.</p> <div style="text-align: center;">  </div> <p><b>Completion</b> Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>

Maintenance item No.	Description																				
<b>U072</b>	<p><b>Adjusting the DP center line</b></p> <p><b>Description</b> Adjusts the scanning start position for the DP original.</p> <p><b>Purpose</b> Make the adjustment if there is a regular error between the centers of the original and the copy image when the DP is used.</p> <p><b>Adjustment</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Select the item to be adjusted.</li> </ol> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Display</th> <th style="text-align: left;">Description</th> <th style="text-align: left;">Setting range</th> <th style="text-align: left;">Initial setting</th> <th style="text-align: left;">Change in value per step</th> </tr> </thead> <tbody> <tr> <td>DATA(simplesx)</td> <td>DP center line (simplesx mode)</td> <td>-39 to 39</td> <td>0</td> <td>0.086 mm</td> </tr> <tr> <td>DATA(duplex 1)</td> <td>DP center line (first page of duplex mode)</td> <td>-39 to 39</td> <td>0</td> <td>0.086 mm</td> </tr> <tr> <td>DATA(duplex 2)</td> <td>DP center line (second page of duplex mode)</td> <td>-39 to 39</td> <td>0</td> <td>0.086 mm</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>3. Press the interrupt key.</li> <li>4. Place an original on the DP and press the start key to make a test copy.</li> <li>5. Press the interrupt key.</li> <li>6. Change the setting value using the cursor up/down keys. For copy example 1, increase the value. For copy example 2, decrease the value.</li> </ol> <div style="text-align: center;"> <p style="text-align: center;"><b>Figure 1-3-10</b></p> </div> <ol style="list-style-type: none"> <li>7. Press the start key. The value is set.</li> </ol> <p><b>Caution</b> Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.</p> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-bottom: 10px;"> <b>U072</b> </div> <div style="display: inline-block; vertical-align: middle; margin: 0 5px;">→</div> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>U404</b> (P.1-3-28)         </div> <p><b>Completion</b> Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	Setting range	Initial setting	Change in value per step	DATA(simplesx)	DP center line (simplesx mode)	-39 to 39	0	0.086 mm	DATA(duplex 1)	DP center line (first page of duplex mode)	-39 to 39	0	0.086 mm	DATA(duplex 2)	DP center line (second page of duplex mode)	-39 to 39	0	0.086 mm
Display	Description	Setting range	Initial setting	Change in value per step																	
DATA(simplesx)	DP center line (simplesx mode)	-39 to 39	0	0.086 mm																	
DATA(duplex 1)	DP center line (first page of duplex mode)	-39 to 39	0	0.086 mm																	
DATA(duplex 2)	DP center line (second page of duplex mode)	-39 to 39	0	0.086 mm																	

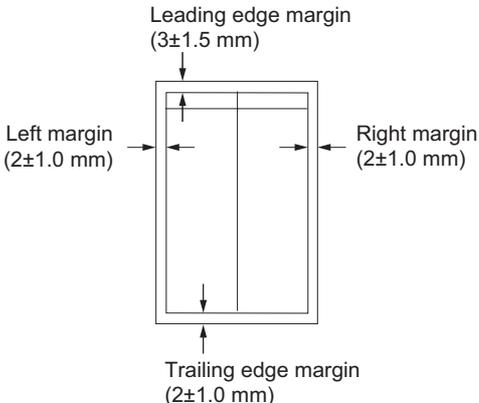


Maintenance item No.	Description												
<p><b>U074</b></p>	<p><b>Adjusting the DP input light luminosity</b>  <b>Description</b>                      Adjusts the luminosity of the exposure lamp for scanning originals from the DP.  <b>Purpose</b>                      Used if the exposure amount differs significantly between when scanning an original on the platen and when scanning an original from the DP.  <b>Setting</b>                      1. Press the start key.                      2. Select the item to be set.</p> <table border="1" data-bbox="331 535 1398 618"> <thead> <tr> <th>Description</th> <th>Setting range</th> <th>Initial setting</th> </tr> </thead> <tbody> <tr> <td>DP input light luminosity</td> <td>-12 to 12</td> <td>0</td> </tr> </tbody> </table> <p>3. Change the setting using the cursor up/down keys.                      Increasing the setting makes the luminosity higher, and decreasing it makes the luminosity lower.                      4. Press the start key. The value is set.  <b>Supplement</b>                      While this maintenance item is being executed, copying from an original is available in the interrupt copying mode.  <b>Completion</b>                      Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Description	Setting range	Initial setting	DP input light luminosity	-12 to 12	0						
Description	Setting range	Initial setting											
DP input light luminosity	-12 to 12	0											
<p><b>U087</b></p>	<p><b>Setting DP reading position modification operation</b>  <b>Description</b>                      The presence or absence of dust is determined by comparing the scan data of the original trailing edge and that taken after the original is conveyed past the DP original scanning position. If dust is identified, the DP original scanning position is adjusted for the following originals.  <b>Purpose</b>                      When using DP, to solve the problem when black lines occurs due to the dust with respect to original reading position.  <b>Method</b>                      1. Press the start key.                      2. Select the item.</p> <table border="1" data-bbox="331 1207 1398 1364"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Setting range</th> <th>Initial setting</th> </tr> </thead> <tbody> <tr> <td>CCD</td> <td>Setting of standard data when dust is detected.</td> <td>10 to 95</td> <td>35</td> </tr> <tr> <td>BLACK LINE</td> <td>Initialization of original reading position.</td> <td>-</td> <td>-</td> </tr> </tbody> </table> <p><b>Setting: Standard data when dust is detected</b>                      1. Change the value using the cursor up/down keys.                      2. Press the start key. The value is set.  <b>Setting: Initialization of original reading position</b>                      1. Select [CLEAR].                      2. Press the start key. The setting is cleared.  <b>Completion</b>                      Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	Setting range	Initial setting	CCD	Setting of standard data when dust is detected.	10 to 95	35	BLACK LINE	Initialization of original reading position.	-	-
Display	Description	Setting range	Initial setting										
CCD	Setting of standard data when dust is detected.	10 to 95	35										
BLACK LINE	Initialization of original reading position.	-	-										

Maintenance item No.	Description																				
<b>U203</b>	<p><b>Checking DP operation</b></p> <p><b>Description</b> Simulates the original conveying operation separately in the DP.</p> <p><b>Purpose</b> To check the DP operation.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Place an original in the DP if running this simulation with paper.</li> <li>3. Select the item to be operated.</li> <li>4. When selecting [ADF] or [RADF], to set the magnification using the cursor up/down keys.</li> </ol> <table border="1" data-bbox="331 564 1398 824"> <thead> <tr> <th>Display</th> <th>Operation</th> <th>Setting range</th> <th>Initial setting</th> </tr> </thead> <tbody> <tr> <td>ADF</td> <td>With paper, single-sided original</td> <td>100 to 200 (%)</td> <td>100</td> </tr> <tr> <td>RADF</td> <td>With paper, double-sided original</td> <td>100 to 200 (%)</td> <td>100</td> </tr> <tr> <td>ADF (NON P)</td> <td>Without paper, single-sided original (continuous operation)</td> <td>-</td> <td>-</td> </tr> <tr> <td>RADF (NON P)</td> <td>Without paper, double-sided original (continuous operation)</td> <td>-</td> <td>-</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>5. Press the start key. The operation starts.</li> <li>6. To stop continuous operation, press the stop/clear key.</li> </ol> <p><b>Completion</b> Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Operation	Setting range	Initial setting	ADF	With paper, single-sided original	100 to 200 (%)	100	RADF	With paper, double-sided original	100 to 200 (%)	100	ADF (NON P)	Without paper, single-sided original (continuous operation)	-	-	RADF (NON P)	Without paper, double-sided original (continuous operation)	-	-
Display	Operation	Setting range	Initial setting																		
ADF	With paper, single-sided original	100 to 200 (%)	100																		
RADF	With paper, double-sided original	100 to 200 (%)	100																		
ADF (NON P)	Without paper, single-sided original (continuous operation)	-	-																		
RADF (NON P)	Without paper, double-sided original (continuous operation)	-	-																		
<b>U243</b>	<p><b>Checking the operation of the DP motors</b></p> <p><b>Description</b> Turns the motors and solenoids in the DP on.</p> <p><b>Purpose</b> To check the operation of the DP motors or solenoids.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Select the item to be operated.</li> <li>3. Press the start key. The operation starts.</li> </ol> <table border="1" data-bbox="331 1229 1398 1478"> <thead> <tr> <th>Display</th> <th>Motors and solenoids</th> </tr> </thead> <tbody> <tr> <td>DP FEED MOTOR</td> <td>Original feed motor (OFM) is turned on.</td> </tr> <tr> <td>DP CONV MOTOR</td> <td>Original conveying motor (OCM) is turned on.</td> </tr> <tr> <td>DP REV MOTOR</td> <td>Original switchback motor (OSBM) is turned on.</td> </tr> <tr> <td>DP RJ SOL</td> <td>Switchback feedshift solenoid (SBFSSOL) is turned on.</td> </tr> <tr> <td>DP RP SOL</td> <td>Switchback pressure solenoid (SBPSOL) is turned on.</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>4. To stop operation, press the stop/clear key.</li> </ol> <p><b>Completion</b> Press the stop/clear key when operation stops. The screen for selecting a maintenance item No. is displayed.</p>	Display	Motors and solenoids	DP FEED MOTOR	Original feed motor (OFM) is turned on.	DP CONV MOTOR	Original conveying motor (OCM) is turned on.	DP REV MOTOR	Original switchback motor (OSBM) is turned on.	DP RJ SOL	Switchback feedshift solenoid (SBFSSOL) is turned on.	DP RP SOL	Switchback pressure solenoid (SBPSOL) is turned on.								
Display	Motors and solenoids																				
DP FEED MOTOR	Original feed motor (OFM) is turned on.																				
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DP RP SOL	Switchback pressure solenoid (SBPSOL) is turned on.																				

Maintenance item No.	Description														
<p><b>U244</b></p>	<p><b>Checking the DP switches</b>  <b>Description</b>                      Displays the status of the respective switches in the DP.  <b>Purpose</b>                      To check if respective switches in the DP operate correctly.  <b>Method</b>                      1. Press the start key.                      2. Turn the respective switches on and off manually to check the status.                      When a switch is detected to be in the ON position, the display for that switch will be highlighted.</p> <table border="1" data-bbox="331 533 1398 824"> <thead> <tr> <th>Display</th> <th>Switches</th> </tr> </thead> <tbody> <tr> <td>DP SET SW</td> <td>Original set switch (OSSW)</td> </tr> <tr> <td>DP PSD SW</td> <td>Original size length switch (OSLSW)</td> </tr> <tr> <td>DP REV SW</td> <td>Original switchback switch (OSBSW)</td> </tr> <tr> <td>CCD TIMING SW</td> <td>DP timing switch (DPTSW)</td> </tr> <tr> <td>DP COVER SW</td> <td>DP interlock switch (DPILSW)</td> </tr> <tr> <td>DP OPEN SW</td> <td>DP open/close switch (DPOCSW)</td> </tr> </tbody> </table> <p><b>Completion</b>                      Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Switches	DP SET SW	Original set switch (OSSW)	DP PSD SW	Original size length switch (OSLSW)	DP REV SW	Original switchback switch (OSBSW)	CCD TIMING SW	DP timing switch (DPTSW)	DP COVER SW	DP interlock switch (DPILSW)	DP OPEN SW	DP open/close switch (DPOCSW)
Display	Switches														
DP SET SW	Original set switch (OSSW)														
DP PSD SW	Original size length switch (OSLSW)														
DP REV SW	Original switchback switch (OSBSW)														
CCD TIMING SW	DP timing switch (DPTSW)														
DP COVER SW	DP interlock switch (DPILSW)														
DP OPEN SW	DP open/close switch (DPOCSW)														
<p><b>U326</b></p>	<p><b>Setting the black line cleaning indication</b>  <b>Description</b>                      Sets whether to display the cleaning guidance when detecting the black line.  <b>Purpose</b>                      Displays the cleaning guidance in order to make the call for service with the black line decrease by the rubbish on the platen when scanning from the DP.  <b>Setting</b>                      1. Press the start key.                      2. Select ON or OFF.</p> <table border="1" data-bbox="331 1178 1398 1346"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>Displays the cleaning guidance</td> </tr> <tr> <td>OFF</td> <td>Not to display the cleaning guidance</td> </tr> <tr> <td>COUNT</td> <td>Setting counts of the cleaning guidance indication</td> </tr> </tbody> </table> <p>Initial setting: ON                      3. Press the start key. The setting is set.  <b>Setting the count value</b>                      1. Enter a count using the cursor up/down keys.                      Setting range: 0 to 999                      Initial setting: 8                      When setting is 0, the black line cleaning indication is displayed only if the black line is detected.                      2. Press the start key. The count is set.  <b>Completion</b>                      Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	ON	Displays the cleaning guidance	OFF	Not to display the cleaning guidance	COUNT	Setting counts of the cleaning guidance indication						
Display	Description														
ON	Displays the cleaning guidance														
OFF	Not to display the cleaning guidance														
COUNT	Setting counts of the cleaning guidance indication														



Maintenance item No.	Description																									
<p><b>U404</b></p>	<p><b>Adjusting margins for scanning an original from the DP</b></p> <p><b>Description</b> Adjusts margins for scanning the original from the DP.</p> <p><b>Purpose</b> Make the adjustment if margins are incorrect when the DP is used.</p> <p><b>Caution</b> Before making this adjustment, ensure that the following adjustments have been made in maintenance mode.</p> <div style="text-align: center; border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>U402</b> (See the service manual for the machine.)</p> <p>→</p> <p><b>U403</b> (See the service manual for the machine.)</p> <p>→</p> <p><b>U404</b></p> </div> <p><b>Adjustment</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Select the item to be adjusted.</li> </ol> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Setting range</th> <th>Initial setting</th> <th>Change in value per step</th> </tr> </thead> <tbody> <tr> <td>A MARGIN</td> <td>Left margin</td> <td>0 to 10.0</td> <td>3.0</td> <td>0.5 mm</td> </tr> <tr> <td>B MARGIN</td> <td>Leading edge margin</td> <td>0 to 10.0</td> <td>2.5</td> <td>0.5 mm</td> </tr> <tr> <td>C MARGIN</td> <td>Right margin</td> <td>0 to 10.0</td> <td>3.0</td> <td>0.5 mm</td> </tr> <tr> <td>D MARGIN</td> <td>Trailing edge margin</td> <td>0 to 10.0</td> <td>4.0</td> <td>0.5 mm</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>3. Press the interrupt key.</li> <li>4. Place an original on the DP and press the start key to make a test copy.</li> <li>5. Press the interrupt key.</li> <li>6. Change the setting value using the cursor up/down keys. Increasing the value makes the margin wider, and decreasing it makes the margin narrower.</li> </ol> <div style="text-align: center; margin: 10px 0;">  <p>The diagram shows a rectangular page with four margins indicated by arrows and labels:                     <ul style="list-style-type: none"> <li>Leading edge margin (top): 3±1.5 mm</li> <li>Left margin (left side): 2±1.0 mm</li> <li>Right margin (right side): 2±1.0 mm</li> <li>Trailing edge margin (bottom): 2±1.0 mm</li> </ul> </p> </div> <p style="text-align: center;"><b>Figure 1-3-11</b></p> <ol style="list-style-type: none"> <li>7. Press the start key. The value is set.</li> </ol> <p><b>Completion</b> Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	Setting range	Initial setting	Change in value per step	A MARGIN	Left margin	0 to 10.0	3.0	0.5 mm	B MARGIN	Leading edge margin	0 to 10.0	2.5	0.5 mm	C MARGIN	Right margin	0 to 10.0	3.0	0.5 mm	D MARGIN	Trailing edge margin	0 to 10.0	4.0	0.5 mm
Display	Description	Setting range	Initial setting	Change in value per step																						
A MARGIN	Left margin	0 to 10.0	3.0	0.5 mm																						
B MARGIN	Leading edge margin	0 to 10.0	2.5	0.5 mm																						
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D MARGIN	Trailing edge margin	0 to 10.0	4.0	0.5 mm																						

Maintenance item No.	Description																	
<p><b>U411</b></p>	<p><b>Adjusting the scanner automatically</b></p> <p><b>Description</b>                      Uses a specified original and automatically adjusts the following items in the scanner and the DP scanning sections.</p> <p><b>Purpose</b>                      To perform automatic adjustment of various items in the scanner and the DP scanning sections.                      To adjust scanner automatically when initializing the machine using the maintenance item U020 or U022.</p> <p><b>Method</b></p> <ol style="list-style-type: none"> <li>1. Press the start key.</li> <li>2. Select the item. The screen for executing is displayed.</li> </ol> <table border="1" data-bbox="331 593 1398 748"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Original to be used for adjustment (P/N)</th> </tr> </thead> <tbody> <tr> <td>SCANNER</td> <td>Automatic adjustment in the scanner section</td> <td>302FZ56990</td> </tr> <tr> <td>DP</td> <td>Automatic adjustment in the DP scanning section</td> <td>2AC68241</td> </tr> </tbody> </table> <p><b>Method: SCANNER</b></p> <ol style="list-style-type: none"> <li>1. Select [SCANNER].</li> <li>2. Set a specified original (P/N: 302FZ56990) on the platen.</li> <li>3. Select the item.</li> </ol> <table border="1" data-bbox="331 907 1398 1133"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>ALL</td> <td>Automatic adjustment using the platen for: original size magnification/leading edge timing/center line and input gamma</td> </tr> <tr> <td>INPUT</td> <td>Automatic adjustment using the platen for: original size magnification/leading edge timing/center line</td> </tr> <tr> <td>GAMMA</td> <td>Automatic adjustment using the platen for: input gamma</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>4. Press the start key. Auto adjustment starts.                      When automatic adjustment has normally completed, [RESULT OK 00] is displayed. If a problem occurs during auto adjustment, [ERROR XX] (XX is replaced by an error code) is displayed and operation stops. Should this happen, determine the details of the problem and either repeat the procedure from the beginning, or adjust the remaining items manually by running the corresponding maintenance items.</li> <li>5. To return to the screen for selecting an item, press the stop/clear key.</li> </ol> <p><b>Method: DP</b></p> <ol style="list-style-type: none"> <li>1. Select [DP].</li> <li>2. Set a specified original (P/N: 2AC68241) in the DP.                      Cut the trailing edge of the original.</li> </ol> <div data-bbox="651 1496 1061 1892" data-label="Diagram"> <p>128±1 mm 60±1 mm</p> <p>Cut with the edge of black belt.</p> </div>	Display	Description	Original to be used for adjustment (P/N)	SCANNER	Automatic adjustment in the scanner section	302FZ56990	DP	Automatic adjustment in the DP scanning section	2AC68241	Display	Description	ALL	Automatic adjustment using the platen for: original size magnification/leading edge timing/center line and input gamma	INPUT	Automatic adjustment using the platen for: original size magnification/leading edge timing/center line	GAMMA	Automatic adjustment using the platen for: input gamma
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Figure 1-3-12



Maintenance item No.	Description																																																																
<b>U411</b>	<p>3. Press [INPUT].</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Display</th> <th style="text-align: left;">Description</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">INPUT</td> <td>Automatic adjustment of first page using the DP for: original size magnification/leading edge timing/center line</td> </tr> </tbody> </table> <p>4. Press the start key. Auto adjustment starts. When automatic adjustment has normally completed, [RESULT OK 00] is displayed. If a problem occurs during auto adjustment, [ERROR XX] (XX is replaced by an error code) is displayed and operation stops. Should this happen, determine the details of the problem and either repeat the procedure from the beginning, or adjust the remaining items manually by running the corresponding maintenance items.</p> <p>5. To return to the screen for selecting an item, press the stop/clear key.</p> <p><b>Error Codes</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Codes</th> <th style="text-align: left;">Description</th> </tr> </thead> <tbody> <tr><td>ERROR 01</td><td>Black band detection error (scanner leading edge registration)</td></tr> <tr><td>ERROR 02</td><td>Black band detection error (scanner center line)</td></tr> <tr><td>ERROR 03</td><td>Black band detection error (scanner main scanning direction magnification)</td></tr> <tr><td>ERROR 04</td><td>Black band is not detected (scanner leading edge registration)</td></tr> <tr><td>ERROR 05</td><td>Black band is not detected (scanner center line)</td></tr> <tr><td>ERROR 06</td><td>Black band is not detected (scanner main scanning direction magnification)</td></tr> <tr><td>ERROR 07</td><td>Black band is not detected (scanner auxiliary scanning direction magnification)</td></tr> <tr><td>ERROR 08</td><td>Black band is not detected (DP main scanning direction magnification far end)</td></tr> <tr><td>ERROR 09</td><td>Black band is not detected (DP main scanning direction magnification near end)</td></tr> <tr><td>ERROR 0a</td><td>Black band is not detected (DP auxiliary scanning direction magnification leading edge)</td></tr> <tr><td>ERROR 0b</td><td>Black band is not detected (DP auxiliary scanning direction magnification leading edge original check)</td></tr> <tr><td>ERROR 0c</td><td>Black band is not detected (DP auxiliary scanning direction trailing edge)</td></tr> <tr><td>ERROR 0d</td><td>Black band is not detected (DP auxiliary scanning direction trailing edge 2)</td></tr> <tr><td>ERROR 0e</td><td>DMA time out</td></tr> <tr><td>ERROR 0f</td><td>Auxiliary scanning direction magnification error</td></tr> <tr><td>ERROR 10</td><td>Auxiliary scanning direction leading edge detection error</td></tr> <tr><td>ERROR 11</td><td>Auxiliary scanning direction trailing edge detection error</td></tr> <tr><td>ERROR 12</td><td>Auxiliary scanning direction skew 1.5 error</td></tr> <tr><td>ERROR 13</td><td>Maintenance request error</td></tr> <tr><td>ERROR 14</td><td>Main scanning direction center line error</td></tr> <tr><td>ERROR 15</td><td>Main scanning direction skew 1.5 error</td></tr> <tr><td>ERROR 16</td><td>Main scanning direction magnification error</td></tr> <tr><td>ERROR 17</td><td>Carriage error</td></tr> <tr><td>ERROR 18</td><td>Service call error</td></tr> <tr><td>ERROR 19</td><td>DP status error</td></tr> <tr><td>ERROR 1a</td><td>DP open error</td></tr> <tr><td>ERROR 1b</td><td>Original is not detected</td></tr> <tr><td>ERROR ff</td><td>Other error</td></tr> <tr><td>ERROR 65</td><td>Memory over error</td></tr> </tbody> </table> <p><b>Completion</b> Press the stop/clear key. 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<p><b>U905</b></p>	<p><b>Checking counts by optional devices</b>  <b>Description</b>                      Displays the counts of DP or finisher.  <b>Purpose</b>                      To check the use of DP and finisher.  <b>Method</b>                      1. Press the start key.                      2. Select the device, the count of which is to be checked. The count of the selected device is displayed.</p> <table border="1" data-bbox="331 506 1398 629"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>DP</td> <td>Counts of optional DP</td> </tr> <tr> <td>FINISHER</td> <td>Counts of optional finisher</td> </tr> </tbody> </table> <p>DP</p> <table border="1" data-bbox="331 689 1398 813"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>ADP</td> <td>No. of single-sided originals that has passed through the DP</td> </tr> <tr> <td>RADP</td> <td>No. of double-sided originals that has passed through the DP</td> </tr> </tbody> </table> <p>Finisher</p> <table border="1" data-bbox="331 864 1398 987"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>CP CNT</td> <td>No. of copies that has passed</td> </tr> <tr> <td>STAPLE</td> <td>Frequency the stapler has been activated</td> </tr> </tbody> </table> <p><b>Completion</b>                      Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	DP	Counts of optional DP	FINISHER	Counts of optional finisher	Display	Description	ADP	No. of single-sided originals that has passed through the DP	RADP	No. of double-sided originals that has passed through the DP	Display	Description	CP CNT	No. of copies that has passed	STAPLE	Frequency the stapler has been activated
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<p><b>U942</b></p>	<p><b>Setting of deflection for feeding from DP</b>  <b>Description</b>                      Adjusts the deflection generated when the DP is used.  <b>Purpose</b>                      Use this mode if an original non-feed jam, oblique feed or wrinkling of original occurs when the DP is used.  <b>Setting</b>                      1. Press the start key.                      2. Select the item to be adjusted.</p> <table border="1" data-bbox="331 1317 1398 1503"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Setting range</th> <th>Initial setting</th> <th>Change in value per step</th> </tr> </thead> <tbody> <tr> <td>FEED MOT</td> <td>Deflection in the original feed motor</td> <td>-31 to 31</td> <td>0</td> <td>0.098 mm</td> </tr> <tr> <td>REV MOT</td> <td>Deflection in the original switchback motor</td> <td>-31 to 31</td> <td>0</td> <td>0.098 mm</td> </tr> </tbody> </table> <p>3. Press the interrupt key.                      4. Place an original on the DP and press the start key to make a test copy.                      5. Press the interrupt key.                      6. Change the setting value using the cursor up/down keys.                      The greater the value, the larger the deflection; the smaller the value, the smaller the deflection.                      If an original non-feed jam or oblique feed occurs, increase the setting value. If wrinkling of original occurs, decrease the value.                      7. Press the start key. The setting is set.</p> <p><b>Completion</b>                      Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	Setting range	Initial setting	Change in value per step	FEED MOT	Deflection in the original feed motor	-31 to 31	0	0.098 mm	REV MOT	Deflection in the original switchback motor	-31 to 31	0	0.098 mm			
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REV MOT	Deflection in the original switchback motor	-31 to 31	0	0.098 mm															



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## 1-4-1 Original misfeed detection

### (1) Original misfeed indication

When an original jams, the machine immediately stops operation and a message is shown on the machine operation panel.

To remove the jammed original, open the document processor top cover.

To reset the original misfeed detection, open and close the document processor top cover.

### (2) Original misfeed detection conditions

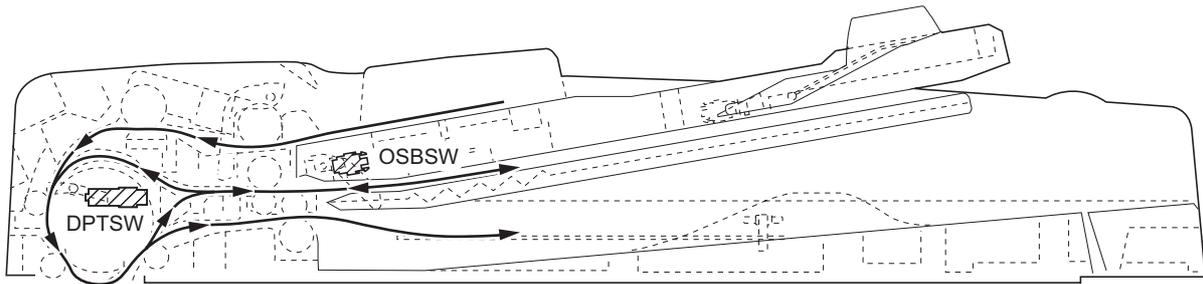


Figure 1-4-1

Section	Jam code	Conditions	Specified time
DP	70 No original feed	The DP timing switch (DPTSW) does not turn on within specified time during the first sheet feeding (Retry 5 times).	1468 pulses
		The DP timing switch (DPTSW) does not turn on within specified time during the second sheet feeding (Retry 5 times).	1468 pulses
	71 An original jam in the original conveying section 1	DP timing switch (DPTSW) does not turn off within specified time of the original conveying motor (OCM) turning on.	9900 pulses 30558 pulses for large sizes
	72 An original jam in the original conveying section 2	DP timing switch (DPTSW) turns off within the specified time of period of the original conveying motor (OCM) turning on.	1145 pulses
	73 An original jam in the original switchback section	During original switchback operation, DP timing switch (DPTSW) does not turn off within specified time of the original conveying motor (OCM) turning on.	9900 pulses 30558 pulses for large sizes
	74 An original jam in the original switchback/feed section	DP timing switch (DPTSW) does not turn on within specified time of the original switchback motor (OSBM) turning on.	2300 pulses
	75 An original jam in the original switchback/conveying section	The original switchback switch (OSBSW) does not turn on within specified time of the DP timing switch (DPTSW) turning off.	1815 pulses
	78 Document processor cover open	The document processor or document processor top cover is opened during original feeding. DP timing switch (DPTSW) or original switchback switch (OSBSW) turns on when starting the original paper feed.	-

**(3) Paper misfeeds**

<b>Problem</b>	<b>Causes/check procedures</b>	<b>Corrective measures</b>
(1) An original jams in DP is indicated during copying (no original feed). Jam code 70	Defective DP timing switch.	Run maintenance item U244 and turn the DP timing switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse.
	Check if the original feed motor malfunctions.	Run maintenance item U243 and select the original feed motor on the touch panel to be turned on and off. Check the status and remedy if necessary.
(2) An original jams in DP is indicated during copying (a jam in the original conveying section 1). Jam code 71	Defective DP timing switch.	Run maintenance item U244 and turn the DP timing switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse.
(3) An original jams in DP is indicated during copying (a jam in the original conveying section 2). Jam code 72	Defective DP timing switch.	Run maintenance item U244 and turn the DP timing switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse.
	Check if the original conveying motor malfunctions.	Run maintenance item U243 and select the original conveying motor on the touch panel to be turned on and off. Check the status and remedy if necessary.
(4) An original jams in DP is indicated during copying (a jam in the original switchback section). Jam code 73	Defective DP timing switch.	Run maintenance item U244 and turn the DP timing switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse.
	Check if the original conveying motor malfunctions.	Run maintenance item U243 and select the original conveying motor on the touch panel to be turned on and off. Check the status and remedy if necessary.
(5) An original jams in DP is indicated during copying (a jam in the original switchback/feed section). Jam code 74	Defective DP timing switch.	Run maintenance item U244 and turn the DP timing switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse.
	Check if the original switchback motor malfunctions.	Run maintenance item U243 and select the original switchback motor on the touch panel to be turned on and off. Check the status and remedy if necessary.
(6) An original jams in DP is indicated during copying (a jam in the original switchback/conveying section). Jam code 75	Defective switch.	Run maintenance item U244 and turn switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse. DP timing switch, original switchback switch

## 1-4-2 Self-diagnosis

### (1) Self-diagnostic function

This unit is equipped with a self-diagnostic function. When a problem is detected, copying is disabled and the problem displayed as a code consisting of C followed by a number, indicating the nature of the problem. A message is also displayed requesting the user to call for service.

After removing the problem, the self-diagnostic function can be reset by turning the main power switch off and back on.

### (2) Self diagnostic codes

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C9000	<b>DP communication problem</b> A communication error is detected.	Poor contact in the connector terminals.	Check the connection of connector YC24 and YC31 on the engine PWB and the connector of the DP, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective DP main PWB.	Replace the DP main PWB and check for correct operation.
C9060	<b>DP EEPROM error</b> Read and write data does not match. Data in the specified area of the backup memory does not match the specified values.	Defective DP main PWB.	Replace the DP main PWB and check for correct operation.
		Device damage of EEPROM.	Contact the Service Administrative Division.

### 1-4-3 Electric problems

Troubleshooting to each failure must be in the order of the numbered symptoms.

Problem	Causes	Check procedures/corrective measures
(1) The original feed motor, original conveying motor or original switchback motor does not operate.	1. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Defective drive transmission system.	Check if the rollers and gears rotate smoothly. If not, grease the bushings and gears. Check for broken gears and replace if any.
	3. Defective motor.	Run maintenance item U243 and check if the motor operates. If not, replace the motor.
	4. Defective DP main PWB.	Run maintenance item U243 and check if the motor operates. If not, replace the DP main PWB.
(2) The DP cooling fan motor does not operate.	1. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Broken motor coil.	Check for continuity across the coil. If none, replace the motor.
(3) The switchback feed-shift solenoid or switchback pressure solenoid does not operate.	1. Defective solenoid coil.	Check for continuity across the coil. If none, replace the solenoid.
	2. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	3. Defective DP main PWB.	Run maintenance item U243 and check if the solenoid operates. If not, replace the DP main PWB.
(4) A message indicating cover open is displayed when the document processor top cover is closed correctly.	1. Poor contact in the connector terminals of DP interlock switch.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Defective DP interlock switch.	Check for continuity across the contacts of the switch. If none when the switch is on, replace DP interlock switch.
(5) An original jams when the main power switch is turned on.	1. A piece of paper torn from an original is caught around the switch.	Remove any found.
	2. Defective DP timing switch or original switchback switch.	Run maintenance item U244 and turn the switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse.

## 1-4-4 Mechanical problems

Problem	Causes/check procedures	Corrective measures
(1) No primary original feed.	The surfaces of the DP forwarding pulley, DP feed pulley or DP separation pad are dirty with paper powder.	Check and clean them with isopropyl alcohol if they are dirty.
	Check if the DP forwarding pulley or the DP feed pulley is deformed.	If so, replace (see page 1-5-2).
	Electrical problem with the original feed motor.	See page 1-4-5.
(2) Originals jam.	Originals outside the specifications are used.	Use only originals conforming to the specifications.
	The surfaces of the DP forwarding pulley, DP original feed pulley or DP separation pad are dirty with paper powder.	Check and clean them with isopropyl alcohol if they are dirty.
	Check if the contact between the eject roller and eject pulley is correct.	Check visually and remedy if necessary.
	Check if the contact between the switchback roller and switchback pulley is correct.	Check visually and remedy if necessary.

## 1-5-1 Precautions for assembly and disassembly

### (1) Precautions

Before starting disassembly, press the Power key on the operation panel to off. Make sure that the Power lamp is off before turning off the main power switch. And then unplug the power cable from the wall outlet. Turning off the main power switch before pressing the Power key to off may cause damage to the equipped hard disk.

When handling PWBs (printed wiring boards), do not touch parts with bare hands. The PWBs are susceptible to static charge.

Do not touch any PWB containing ICs with bare hands or any object prone to static charge.

When replacing battery on a PWB, dispose properly according to laws and regulations.

When removing the hook of the connector, be sure to release the hook.

Output Connector for Interconnecting Cable is non-LPS.

Output: 357VA max.

Please use the item below Interconnecting Cable/

P/N: 303K546050

## 1-5-2 Original feed section

### (1) Detaching and refitting the DP forwarding pulley and DP feed pulley

Follow the procedure below to clean or replace the DP forwarding pulley or DP feed pulley.

#### Procedure

##### Removing the DP forwarding pulley

1. Open the document processor top cover.
2. Raise the DP feed pulley unit.  
Release the claw holding the DP forwarding pulley shaft and then pull out the shaft.
3. Remove the DP forwarding pulley.

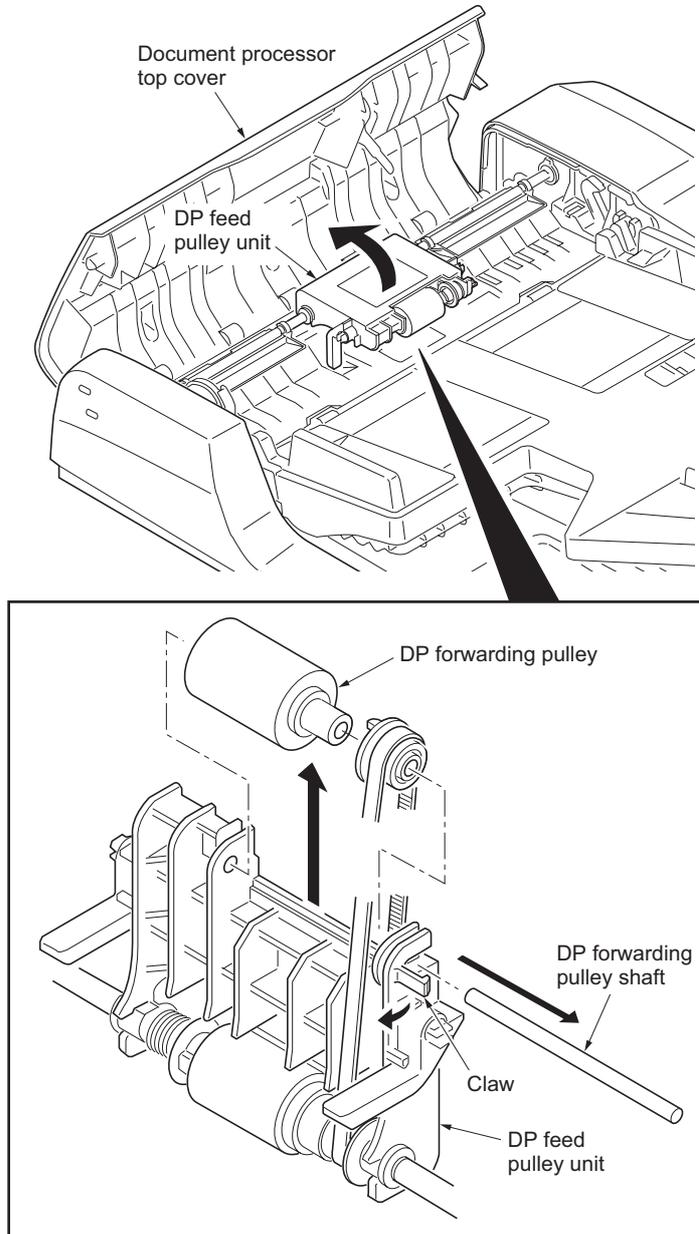


Figure 1-5-1

### Removing the DP feed pulley

4. Remove the stop ring and two original feed guides of the DP feed pulley shaft.  
When mounting the original feed guide, fit the projection of the original feed guide into the groove of the DP feed pulley shaft. Align the original feed guide with the side affixed with a C label facing the front side of the machine.
5. Remove the DP feed pulley unit from the DP.

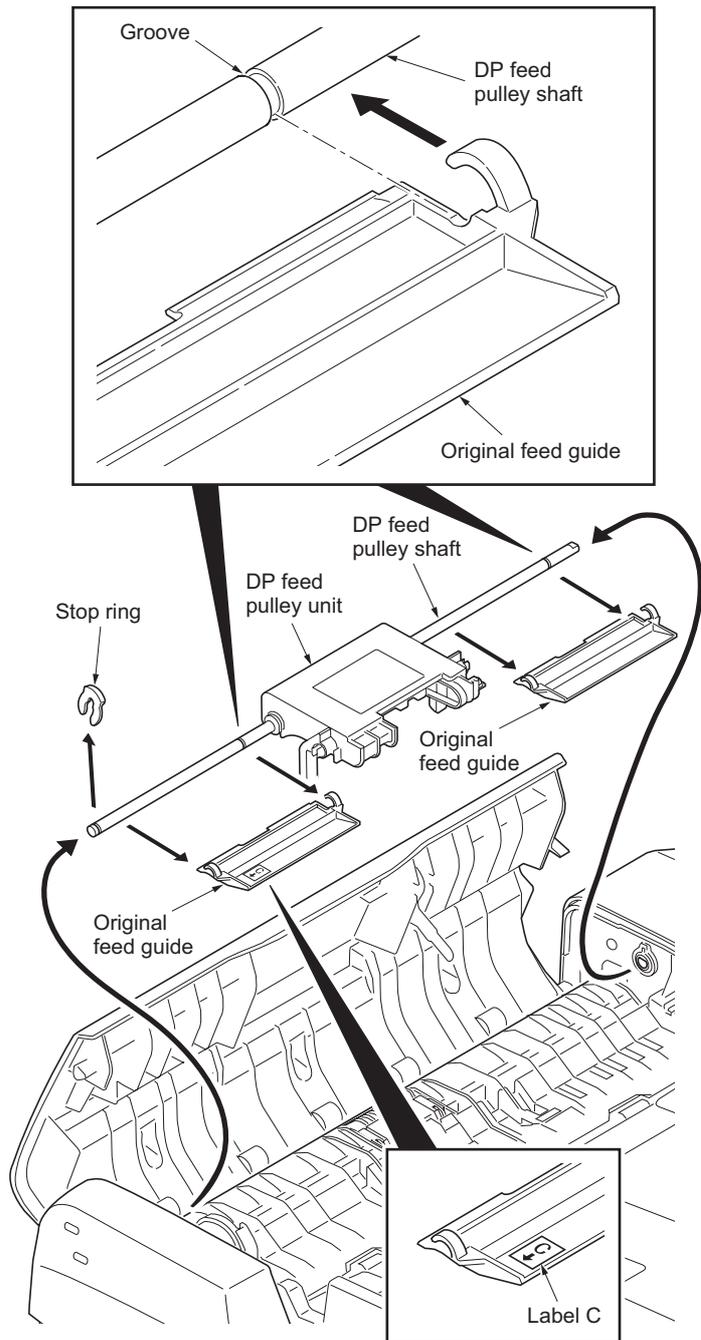


Figure 1-5-2

6. Remove two stop rings and then remove DP feed pulley shaft from the DP feed pulley unit.
7. Remove DP feed pulley from the DP feed pulley shaft.
8. Clean or replace the DP forwarding pulley and the DP feed pulley. Refit all the removed parts.

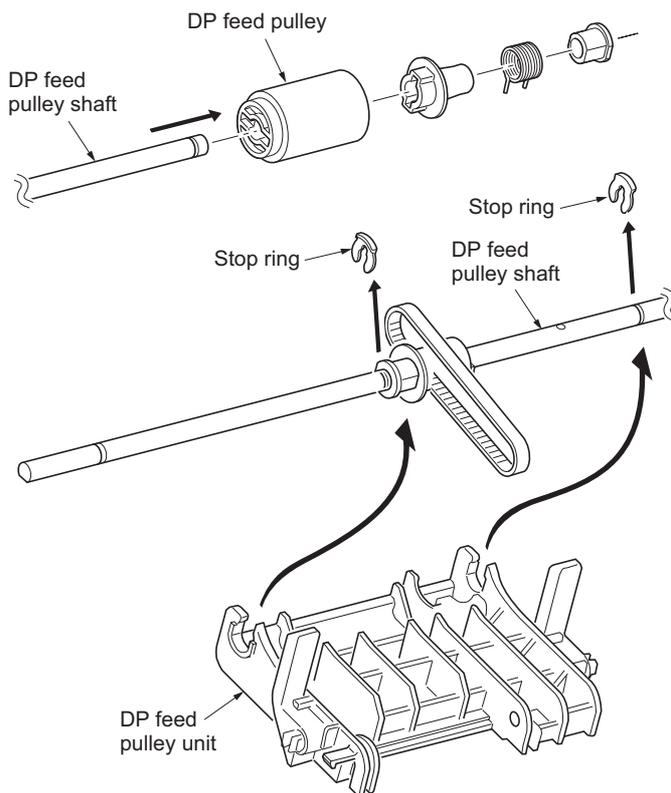


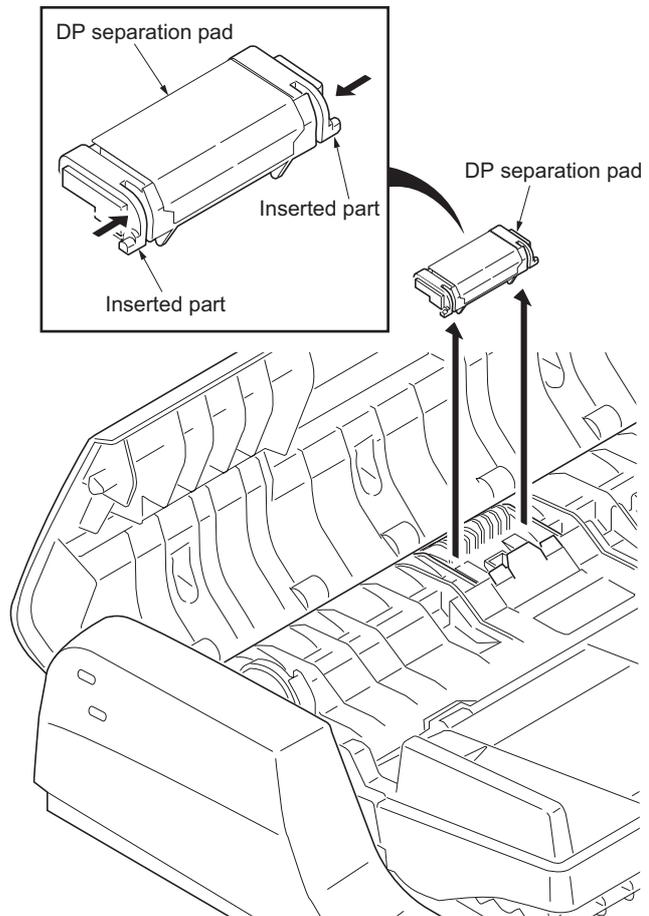
Figure 1-5-3

**(2) Detaching and refitting the DP separation pad**

Follow the procedure below to clean or replace the DP separation pad.

**Procedure**

1. Remove the DP feed pulley unit. (see page 1-5-2)
2. Push the inserted parts of the DP separation pad and then remove the DP separation pad.
3. Clean or replace the DP separation pad. Refit all the removed parts.



**Figure 1-5-4**

### 1-5-3 Image adjustment

#### (1) Adjusting the angle of leading edge

Perform the following adjustment if the leading edge of the copy image is laterally skewed.

##### Procedure

1. Place an original on the DP and press the start key to make a test copy.
2. If the gap of leading edge exceeds the reference value, perform the following adjustment.  
Reference value  
For simplex copying: Within  $\pm 3.0$  mm  
For duplex copying: Within  $\pm 4.0$  mm

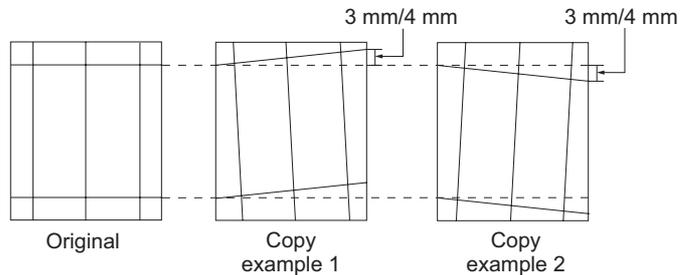


Figure 1-5-5

3. Open the DP and loosen two adjusting screws of right hinge.
4. Adjust the position of the DP.  
For copy example 1: Move the DP down (⇩).  
For copy example 2: Move the DP up (⇧).  
Amount of change per scale: Approx. 0.5 mm
5. Tighten two adjusting screws.

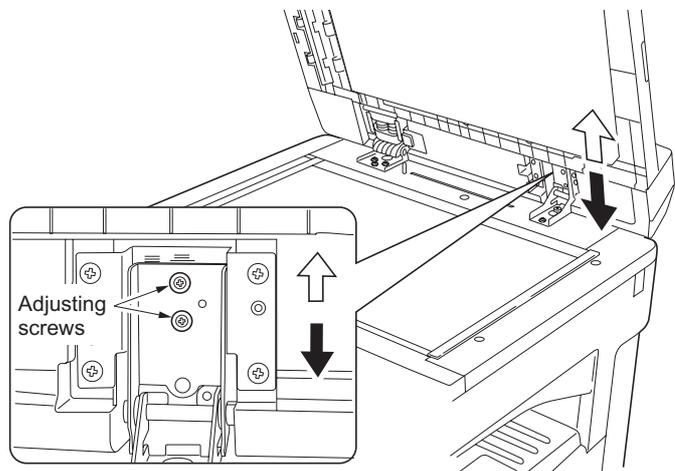


Figure 1-5-6

6. Remove the original mat.
7. Place the original mat with its hook and loop fasteners up over the platen.  
Align the original mat corner that has not been surface cut with the rear left corner of the platen.
8. Close the DP slowly to attach the original mat.
9. Make a test copy again.
10. Repeat steps 3 to 9 above until the gap of the leading edge falls within the reference values.

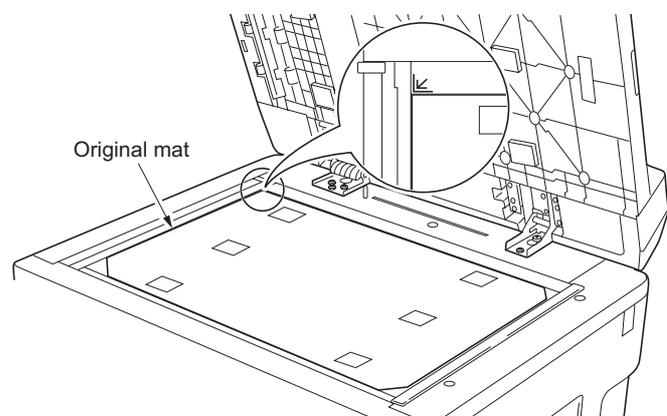


Figure 1-5-7

**(2) Adjusting the angle of trailing edge**

Perform the following adjustment if the trailing edge of the copy image is laterally skewed.

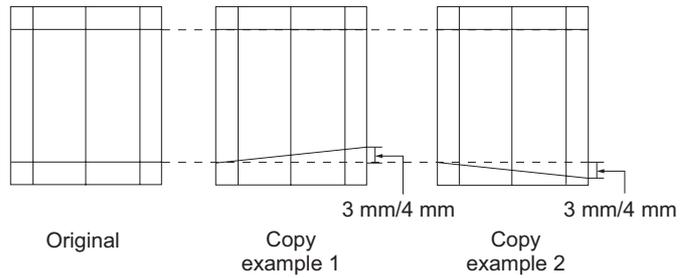
**Procedure**

1. Place an original on the DP and press the start key to make a test copy.
2. If the gap of trailing edge exceeds the reference value, perform the following adjustment.

Reference value

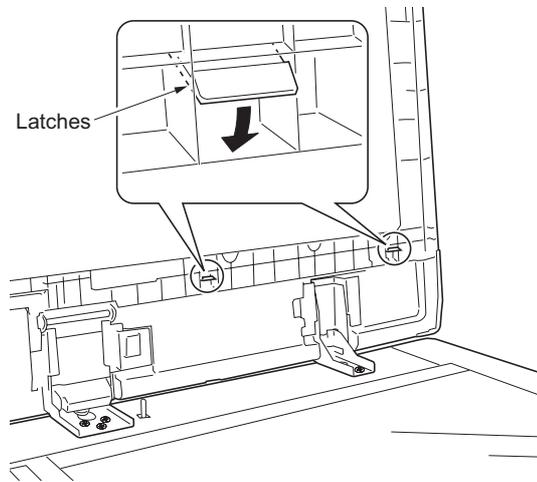
For simplex copying: Within  $\pm 3.0$  mm

For duplex copying: Within  $\pm 4.0$  mm



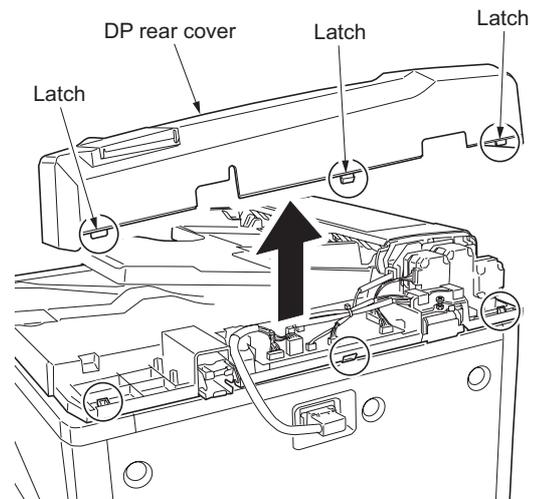
**Figure 1-5-8**

3. Open the DP and release two latches using a flat-head screwdriver.



**Figure 1-5-9**

4. Release three latches using a flat-head screwdriver and remove the DP rear cover.



**Figure 1-5-10**

5. Adjust the height of DP.
  - 1) Loosen the nut.
  - 2) For copy example 1:  
Loosen the adjusting screw (➡).
  - For copy example 2:  
Tighten the adjusting screw (⇐).
  - 3) Tighten the nut.
6. Refit the DP rear cover.

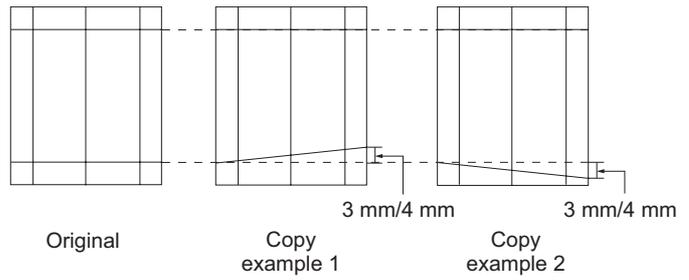


Figure 1-5-11

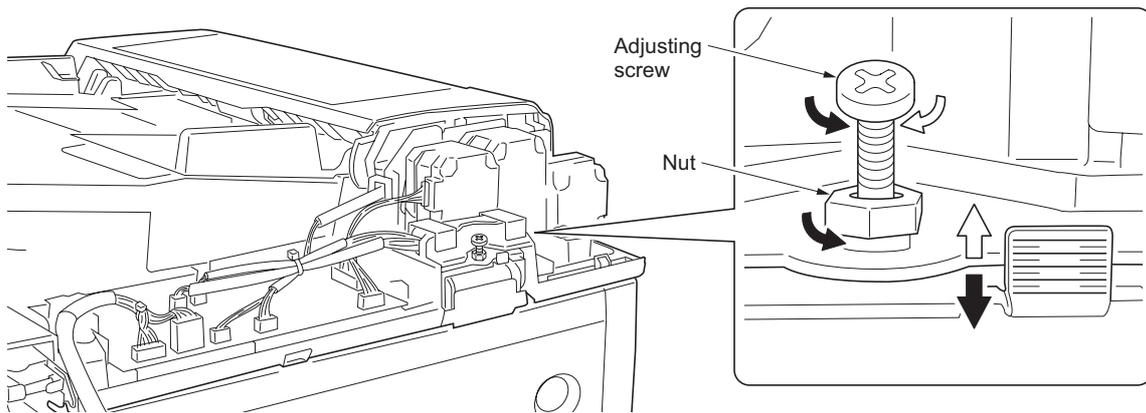


Figure 1-5-12

7. Remove the original mat.
8. Place the original mat with its hook and loop fasteners up over the platen.  
Align the original mat corner that has not been surface cut with the rear left corner of the platen.
9. Close the DP slowly to attach the original mat.
10. Make a test copy again.
11. Repeat steps 3 to 10 above until the gap of the trailing edge falls within the reference values.

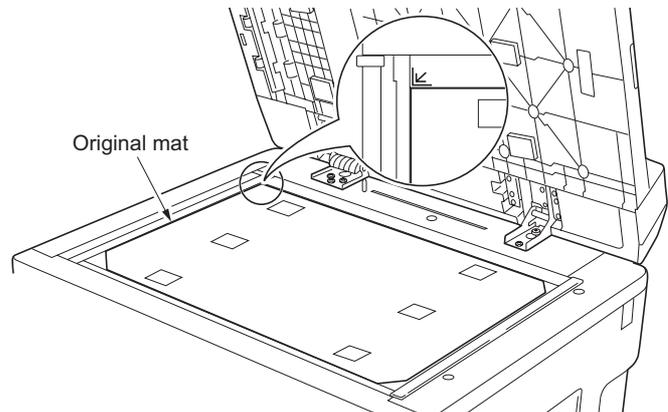


Figure 1-5-13

### 1-6-1 Upgrading the firmware (models with color touch panel)

Follow the procedure below to upgrade the firmware.

#### Firmware upgrading requires the following tools:

Compact Flash (Products manufactured by SANDISK are recommended.) or USB memory

#### NOTE

When writing data to a new Compact Flash from a computer, be sure to format it in advance.

#### Procedure

1. Press the power key on the operation panel to off. Make sure that the power indicator and the memory indicator are off before turning off the main power switch. And then unplug the power cable from the wall outlet.
2. Insert Compact Flash or USB memory in a notch hole of the machine.  
Insert the surface of Compact Flash toward the machine rear.
3. Insert the power plug and turn the main power switch on. Upgrading firmware starts for 3 minutes.

#### Caution:

Never turn the main power switch off during upgrading.

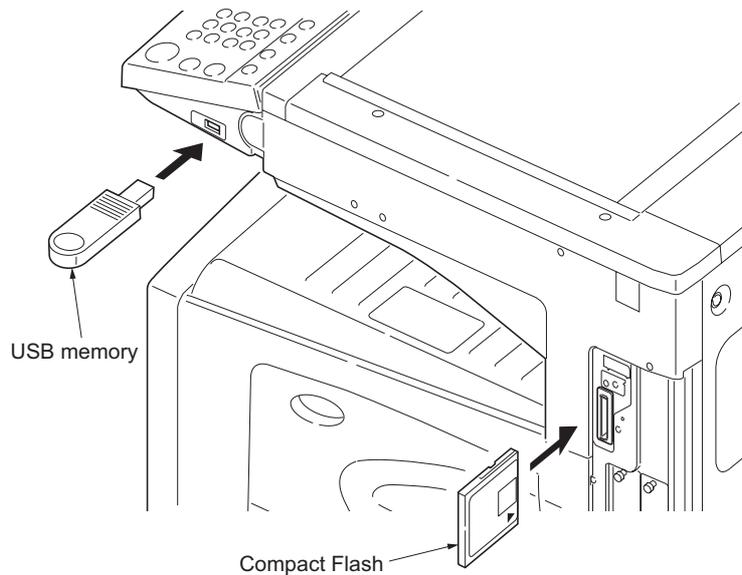


Figure 1-6-1

4. [Completed] is displayed on the touch panel when upgrading is complete.
5. Press the power key on the operation panel to off. Make sure that the power indicator and the memory indicator are off before turning off the main power switch. And then unplug the power cable from the wall outlet.
6. Remove Compact Flash or USB memory from the machine.
7. Insert the power plug and turn the main power switch on.

## 1-6-2 Upgrading the firmware (models with monochrome touch panel)

Follow the procedure below to upgrade the firmware.

### Firmware upgrading requires the following tools:

Compact Flash (Products manufactured by SANDISK are recommended.)

### NOTE

When writing data to a new Compact Flash from a computer, be sure to format it in advance.

### Procedure

1. Press the power key on the operation panel to off. Make sure that the power indicator and the memory indicator are off before turning off the main power switch. And then unplug the power cable from the wall outlet.
2. Remove two screws and remove the right upper plate lid.
3. Insert Compact Flash in a notch hole of the machine.  
Insert the surface of Compact Flash toward the machine rear.
4. Insert the power plug and turn the main power switch on. Upgrading firmware starts .

### Caution:

Never turn the main power switch off during upgrading.

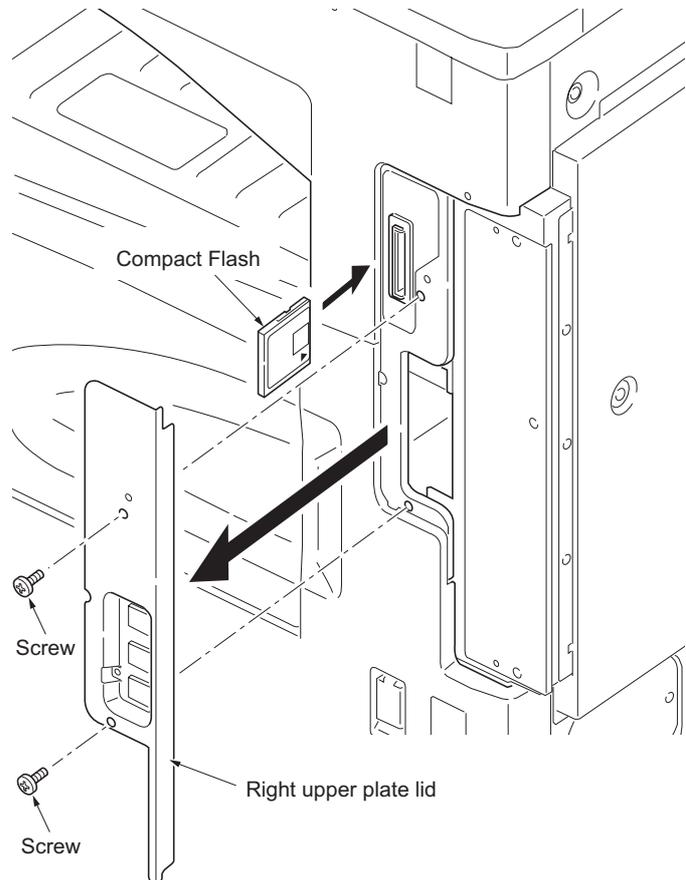
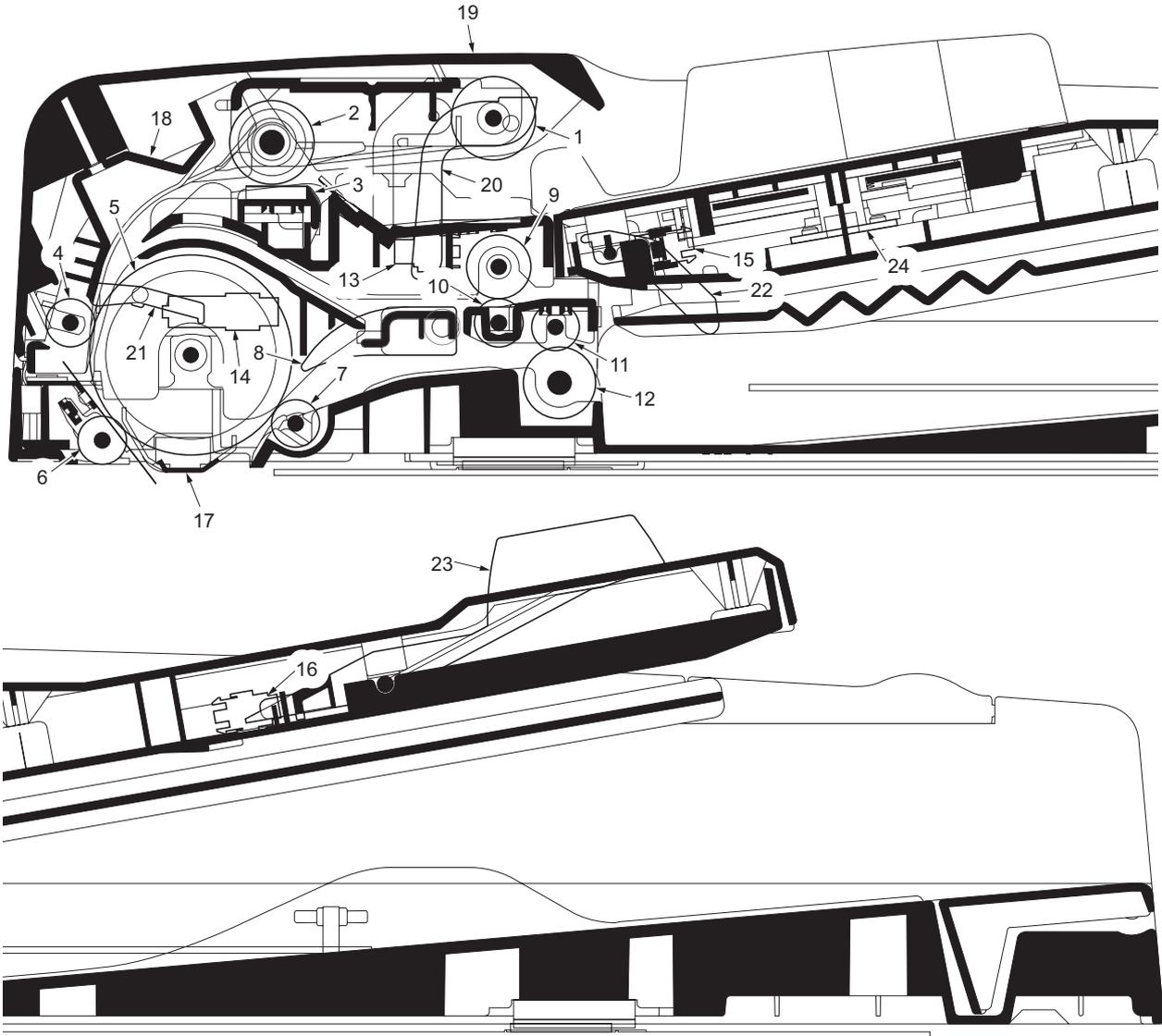


Figure 1-6-2

5. [Completed] is displayed on the touch panel when upgrading is complete.
6. Press the power key on the operation panel to off. Make sure that the power indicator and the memory indicator are off before turning off the main power switch. And then unplug the power cable from the wall outlet.
7. Remove Compact Flash from the machine.
8. Refit the right upper plate lid.
9. Insert the power plug and turn the main power switch on.

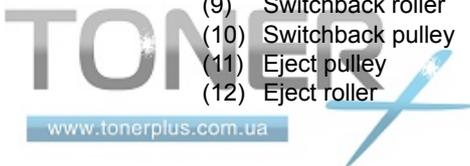
**2-1-1 Mechanical construction**

The DP consists of the original feed section, original conveying section and original switchback section.  
 The original feed section conveys an original set on the original table to the original conveying section in synchronization with original scanning of the scanner on the machine.  
 The original conveying section conveys an original onto the slit glass and ejects it after scanning is complete.  
 The original switchback section reverses an original conveyed from the original conveying section and conveys it again to the original conveying section in the double-sided original mode.



**Figure 2-1-1 Original feed section**

- |                                |   |
|--------------------------------|---|
| (1) DP forwarding pulleys      | (13) Original set switch (OSSW)             |
| (2) DP original feed pulley    | (14) DP timing switch (DPTSW)               |
| (3) DP separation pad          | (15) Original switchback switch (OSBSW)     |
| (4) Conveying pulley           | (16) Original size length switch (OSLSW)    |
| (5) Conveying roller           | (17) Scanning guide                         |
| (6) Conveying pulley           | (18) Conveying upper guide                  |
| (7) Conveying pulley           | (19) Document processor top cover           |
| (8) Switchback feedshift guide | (20) Actuator (Original set switch)         |
| (9) Switchback roller          | (21) Actuator (DP timing switch)            |
| (10) Switchback pulley         | (22) Actuator (Original switchback switch)  |
| (11) Eject pulley              | (23) Actuator (Original size length switch) |
| (12) Eject roller              | (24) Original size width switch (OSWSW)     |



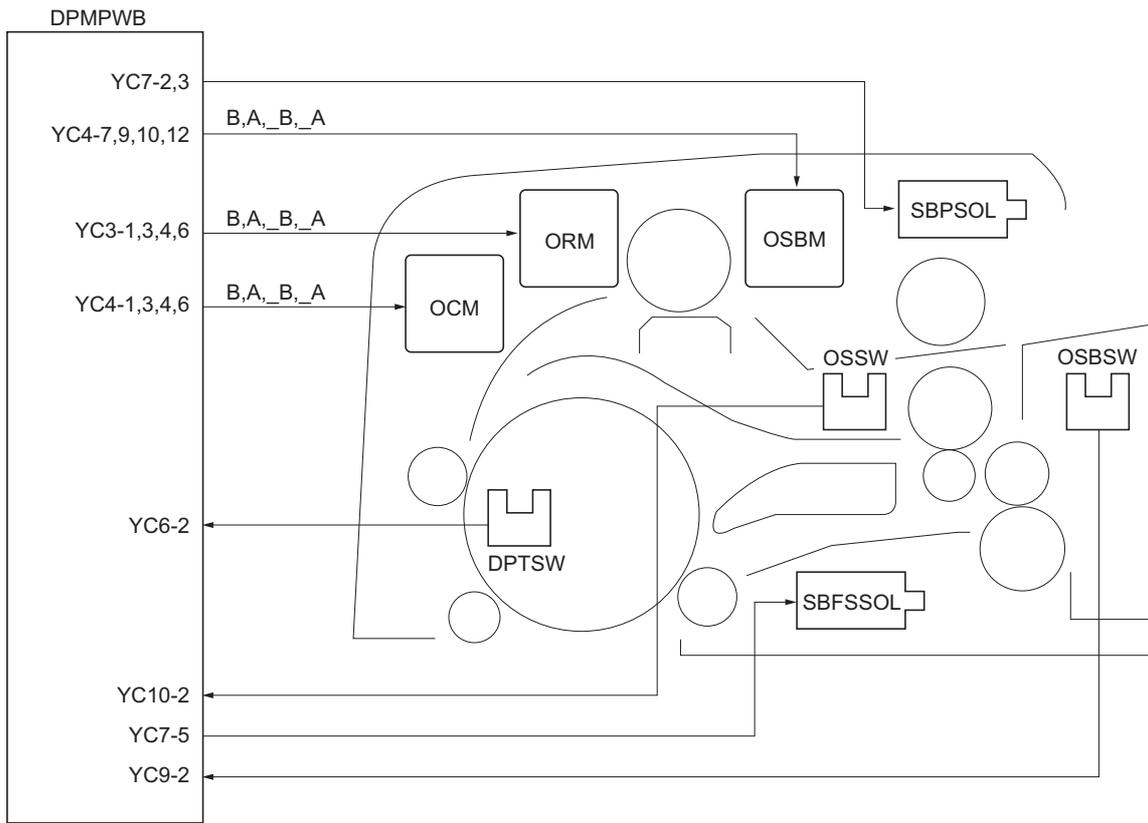
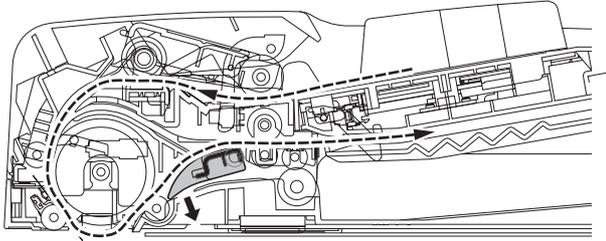


Figure 2-1-2

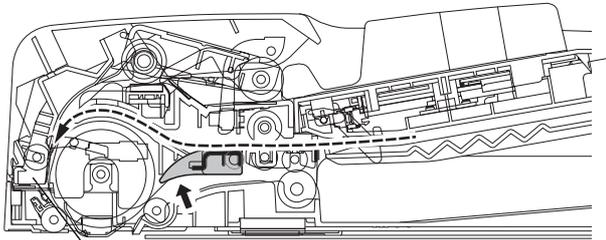
**(1) Operation of original switchback**

In the double-sided original mode, after the first side of an original is scanned, the switchback feedshift guide is activated to switch the conveying path to the switchback tray side and the original is fed to the switchback tray. Then, the original is reversed by the reverse rotation of the original switchback motor (OSBM) and conveyed again to the original conveying section. After the second side is scanned, the original is fed temporarily to the switchback tray, is reversed, is conveyed without scanning, and then is ejected to the exit tray. Also the switchback press solenoid (SBPSOL) is activated to release the switchback pulley for preventing original jams in the original switchback section.



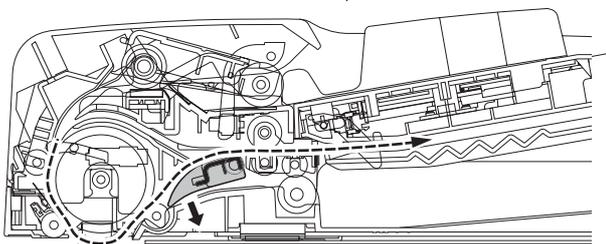
**First side scanning → Switchback tray**

Original conveying motor (OCM): Forward rotation  
 Original switchback motor (OSBM): Forward rotation  
 Switchback feedshift solenoid (SBFSSOL): ON



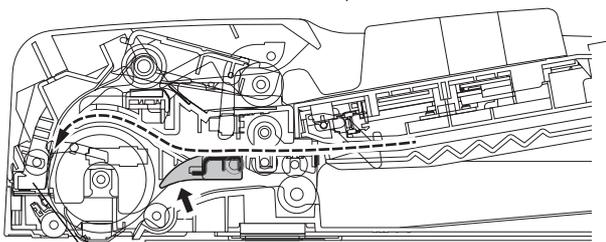
**Original switchback operate**

Original conveying motor (OCM): Stop  
 Original switchback motor (OSBM): Reverse rotation  
 Switchback feedshift solenoid (SBFSSOL): OFF



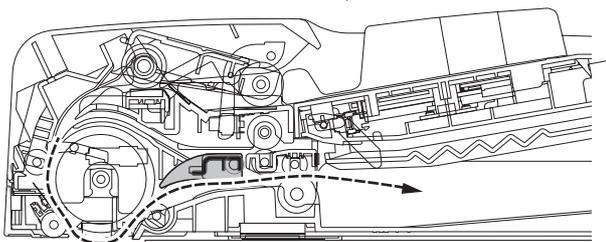
**Second side scanning → Switchback tray**

Original conveying motor (OCM): Forward rotation  
 Original switchback motor (OSBM): Forward rotation  
 Switchback feedshift solenoid (SBFSSOL): ON



**Original switchback operate**

Original conveying motor (OCM): Stop  
 Original switchback motor (OSBM): Reverse rotation  
 Switchback feedshift solenoid (SBFSSOL): OFF



**Conveyed without scanning → Eject tray**

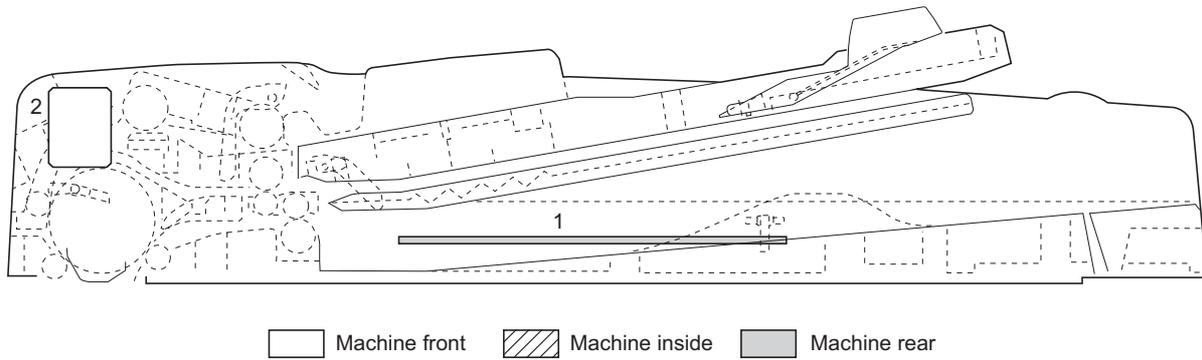
Original conveying motor (OCM): Forward rotation  
 Original switchback motor (OSBM): Forward rotation  
 Switchback feedshift solenoid (SBFSSOL): OFF

**Figure 2-1-3**

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## 2-2-1 Electrical parts layout

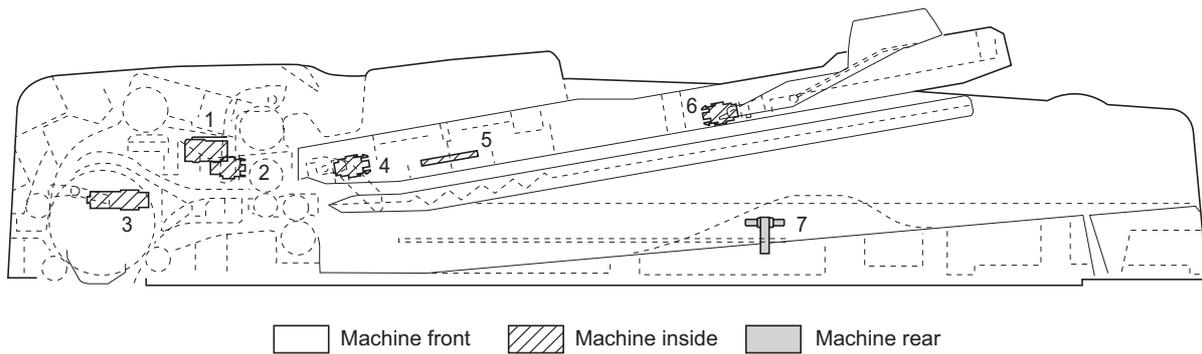
### (1) PWBs



**Figure 2-2-1 PWBs**

1. DP main PWB (DPMPWB) ..... Controls electrical components of the DP.
2. Original set LED PWB (OSLEDPWB)..... Indicates presence of originals on the DP or an original jam.

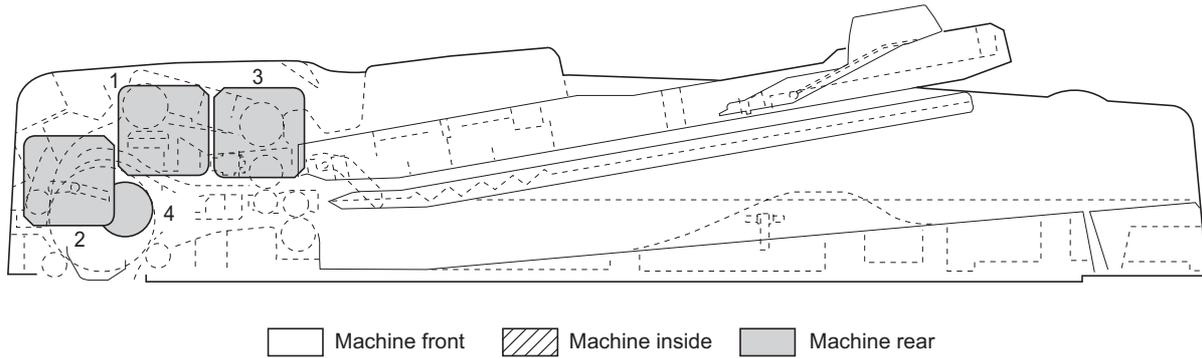
**(2) Switches and sensors**



**Figure 2-2-2 Switches and sensors**

1. DP interlock switch (DPILSW) ..... Breaks the safety circuit when the document processor top cover is opened; resets original misfeed detection.
2. Original set switch (OSSW) ..... Detects the presence of an original.
3. DP timing switch (DPTSW) ..... Detects the original scanning timing.
4. Original switchback switch (OSBSW) ..... Detects an original misfeed in the original switchback section.
5. Original size width switch (OSWSW) ..... Detects the width of the original.
6. Original size length switch (OSLSW) ..... Detects the length of the original.
7. DP open/close switch (OPOCSW) ..... Detects the opening/closing of the DP.

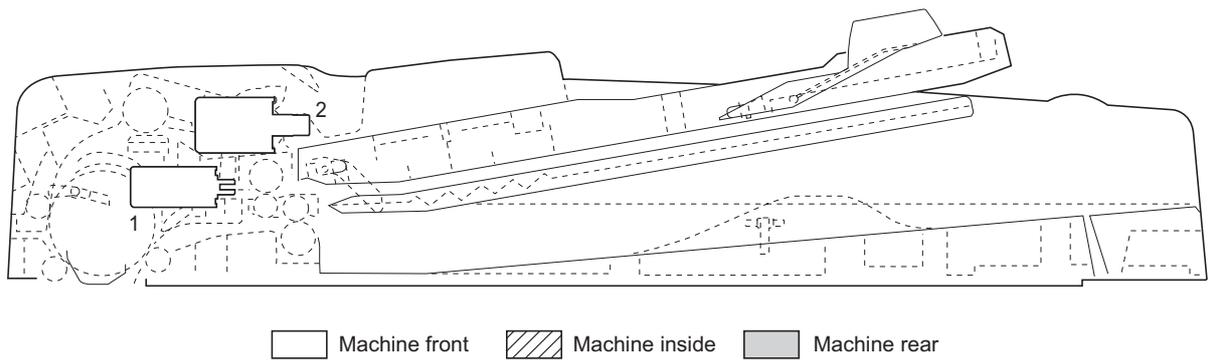
**(3) Motors**



**Figure 2-2-3 Motors**

- 1. Original feed motor (OFM) ..... Drives the original feed section.
- 2. Original conveying motor (OCM) ..... Drives the original conveying section.
- 3. Original switchback motor (OSBM) ..... Drives the original switchback section.
- 4. DP cooling fan motor (DPCFM) ..... Cools the drive section.

**(4) Solenoids**



**Figure 2-2-4 Solenoids**

1. Switchback feedshift solenoid (SBFSSOL).. Operates the switchback feedshift guide.
2. Switchback pressure solenoid (SBPSOL).... Operates the switchback pulley.

2-3-1 DP main PWB

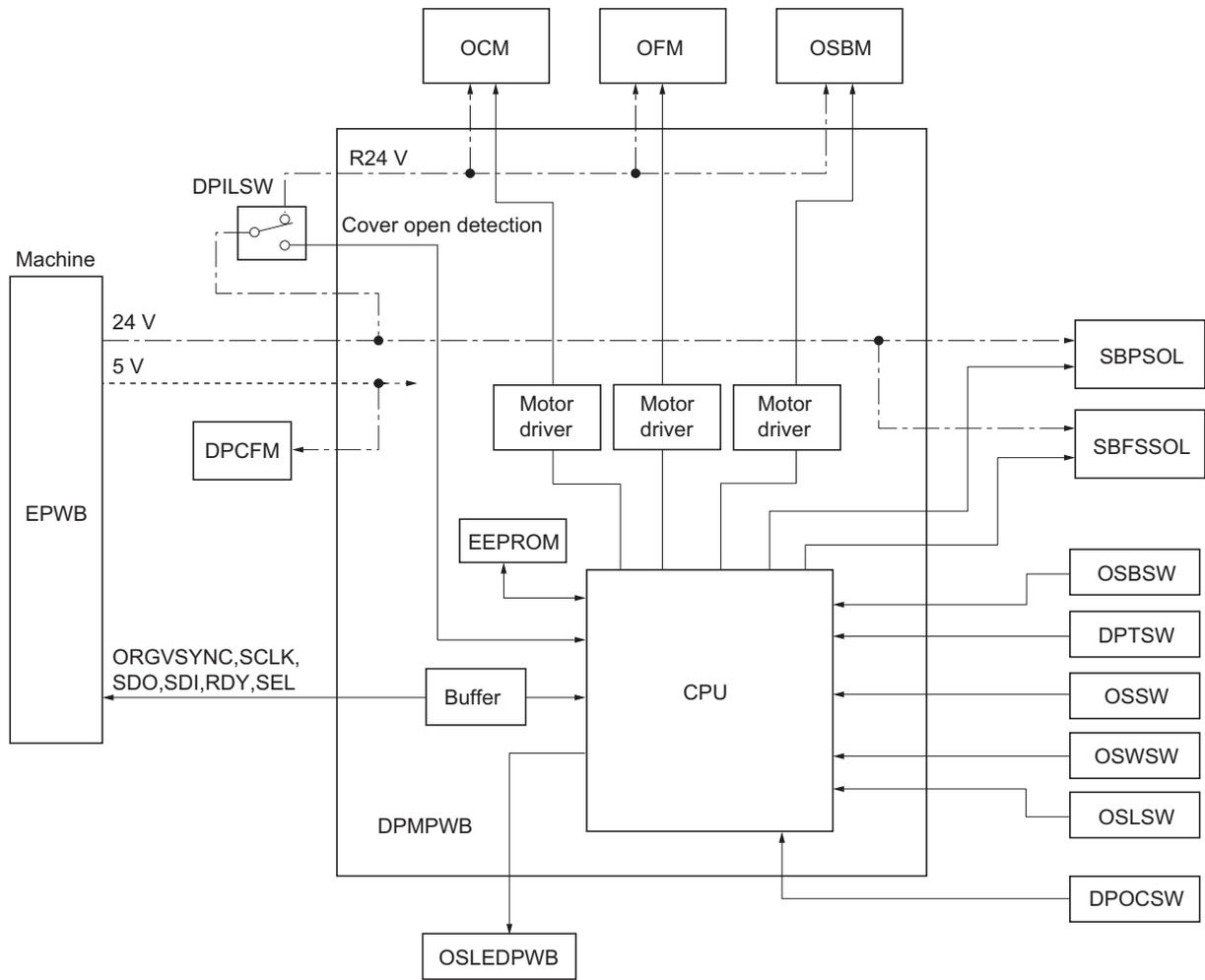


Figure 2-3-1 DP main PWB block diagram

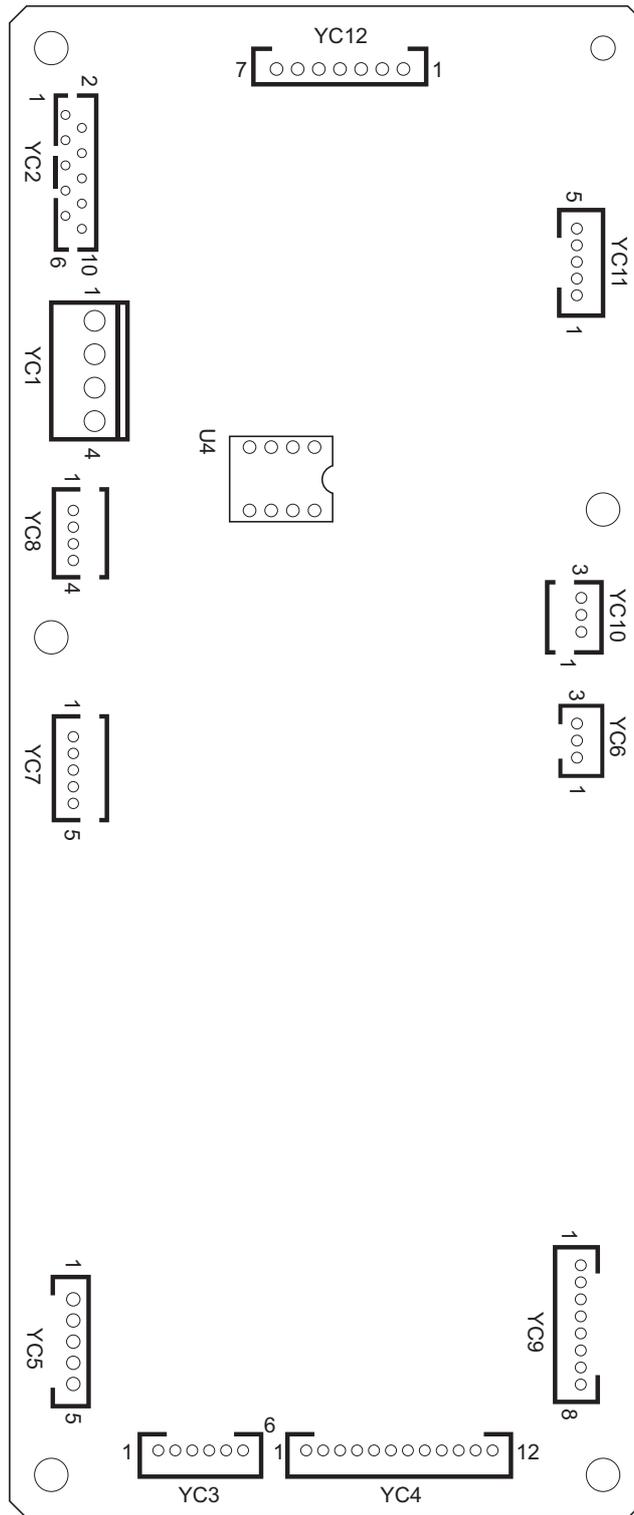


Figure 2-3-2 DP main PWB silk-screen diagram

Connector	Pin No.	Signal	I/O	Voltage	Description
YC1 Connected to the machine.	1	FG	-	-	Ground
	2	5V	I	5 V DC	5 V DC supply
	3	GND	-	-	Ground
	4	24V	I	24 V DC	24 V DC supply
YC2 Connected to the machine.	1	SDI	I	0/5 V DC (pulse)	Serial communication data signal
	2	SDO	O	0/5 V DC (pulse)	Serial communication data signal
	3	SCLK	I	0/5 V DC (pulse)	Serial communication clock signal
	4	DPSEL	I	0/5 V DC	DP select signal
	5	DPRDY	O	0/5 V DC	DP ready signal
	6	ORGVSYNC	O	5 V DC	DP original scanning interval signal
	7	GND	-	-	Ground
	8	GND	-	-	Ground
	9	GND	-	-	Ground
	10	GND	-	-	Ground
YC3 Connected to the original feed motor.	1	B	O	0/24 V DC (pulse)	OFM drive control signal (B)
	2	COM_A(R24V)	O	24 V DC	24 V DC supply
	3	A	O	0/24 V DC (pulse)	OFM drive control signal (A)
	4	_B	O	0/24 V DC (pulse)	OFM drive control signal (_B)
	5	COM_B(R24V)	O	24 V DC	24 V DC supply
	6	_A	O	0/24 V DC (pulse)	OFM drive control signal (_A)
YC4 Connected to the original conveying motor and original switchback motor.	1	B	O	0/24 V DC (pulse)	OCM drive control signal (B)
	2	COM_A(R24V)	O	24 V DC	24 V DC supply
	3	A	O	0/24 V DC (pulse)	OCM drive control signal (A)
	4	_B	O	0/24 V DC (pulse)	OCM drive control signal (_B)
	5	COM_B(R24V)	O	24 V DC	24 V DC supply
	6	_A	O	0/24 V DC (pulse)	OCM drive control signal (_A)
	7	B	O	0/24 V DC (pulse)	OSBM drive control signal (B)
	8	COM_A(R24V)	O	24 V DC	24 V DC supply
	9	A	O	0/24 V DC (pulse)	OSBM drive control signal (A)
	10	_B	O	0/24 V DC (pulse)	OSBM drive control signal (_B)
	11	COM_B(R24V)	O	24 V DC	24 V DC supply
	12	_A	O	0/24 V DC (pulse)	OSBM drive control signal (_A)
YC5 Connected to the DP interlock switch.	1	24V	O	24 V DC	24 V DC supply
	2	N.C.	-	-	Not used
	3	R24V	I	0/24 V DC	24 V DC supply
	4	N.C.	-	-	Not used
	5	COV_OPN	I	24/0 V DC	DPILSW: On/Off
YC6 Connected to the DP timing switch.	1	5V	O	5 V DC	5 V DC supply
	2	TMG SW	I	0/5 V DC	DPTSW: On/Off
	3	GND	-	-	Ground

Connector	Pin No.	Signal	I/O	Voltage	Description
YC7 Connected to the switchback presser solenoid and switch-back feed-shift solenoid.	1	24V	O	24 V DC	24 V DC supply
	2	ACT	O	0/24 V DC	SBPSOL (ACT): On/Offd
	3	RET	O	0/24 V DC	SBPSOL (RET): On/Off
	4	24V	O	24 V DC	24 V DC supply
	5	ACT	O	0/24 V DC	SBFSSOL: On/Off
YC8 Connected to the original set LED PWB.	1	LED_RD	O	2.1/0 V DC	OSLEDPWB (red): On/Off
	2	GND	-	-	Ground
	3	LED_GN	O	2.1/0 V DC	OSLEDPWB (green): On/Off
	4	N.C.	-	-	Not used
YC9 Connected to the original switch-back switch, original size length switch and original size width switch.	1	5V	O	5 V DC	5 V DC supply
	2	REV SW	I	0/5 V DC	OSBSW: On/Off
	3	GND	-	-	Ground
	4	SZ_SW_L	I	0/5 V DC	OSLSW: On/Off
	5	5V	O	5 V DC	5 V DC supply
	6	GND	-	-	Ground
	7	SZ_SW_W	I	Analog	OSWSW: On/Off
	8	5V	O	5 V DC	5 V DC supply
YC10 Connected to original set switch.	1	GND	-	-	Ground
	2	SET SW	I	0/5 V DC	OSSW: On/Off
	3	5V	O	5 V DC	5 V DC supply
YC11 Connected to DP cooling fan motor.	1	5V	O	5 V DC	5 V DC supply
	2	N.C.	-	-	Not used
	3	N.C.	-	-	Not used
	4	N.C.	-	-	Not used
	5	GND	-	-	Ground

**List of maintenance parts**

Maintenance part name		Part No.	Alternative part No.	Fig. No.	Ref. No.
Name used in service man-	Name used in parts list				
DP forwarding pulley	PULLEY,LEADING FEED ADF	36211110	-	3	41
DP feed pulley	PULLEY PAPER FEED	3BR07040	-	3	45
DP separation pad	PAD SEPARATION	303K507060	3K507060	3	18
Friction plate	FRICTION PLATE LF	3HK07240	-	3	46
Conveying roller	PARTS CONVEYING ROLLER ASSY SP	303K594010	3K594010	4	17
Conveying pulley	PULLEY CONVEYING	3HL08080	-	3	61
Conveying pulley	PULLEY CONVEYING	3HL08080	-	4	37
Conveying pulley	PULLEY LOOP	3HL10140	-	4	46
Scanning guide	GUIDE READING	303K524010	3K524010	2	17
Switchback roller	PARTS ROLLER LOOP SP	303K594050	3K594050	4	19
Switchback pulley	PULLEY LOOP	3HL10140	-	4	46
Eject roller	PARTS ROLLER EJECT SP	303K594040	3K594040	4	18
Eject pulley	PULLEY CONVEYING	3HL08080	-	4	37
Original holder mat	PLARTE ORIGINAL	303JC04200	3JC04200	1	7

**Periodic maintenance procedures**

Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Test copy and test print	Perform at the maximum copy size	Clean	Every service.		



Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Original feed section	DP forwarding pulley	Replace	150K	Replace (Clean with alcohol when user call occurs).	P.1-5-2
	DP feed pulley	Replace	150K	Replace (Clean with alcohol when user call occurs).	P.1-5-2
	DP separation pad	Replace	150K	Replace (Clean with alcohol when user call occurs).	P.1-5-5
	Friction plate	Clean	Every service.	Clean with alcohol.	



Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Original conveying section	Conveying roller	Clean	Every service	Clean with alcohol or a dry cloth.	
	Conveying pulley	Check or clean	150K	Clean with alcohol or a dry cloth.	
	Scanning guide	Clean	Every service	Clean with alcohol or a dry cloth.	



Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Original switchback section	Switchback roller	Clean	Every service	Clean with alcohol or a dry cloth.	
	Switchback pulley	Check or clean	150K	Clean with alcohol or a dry cloth.	
	Eject roller	Clean	Every service	Clean with alcohol or a dry cloth.	
	Eject r pulley	Check or clean	150K	Clean with alcohol or a dry cloth.	



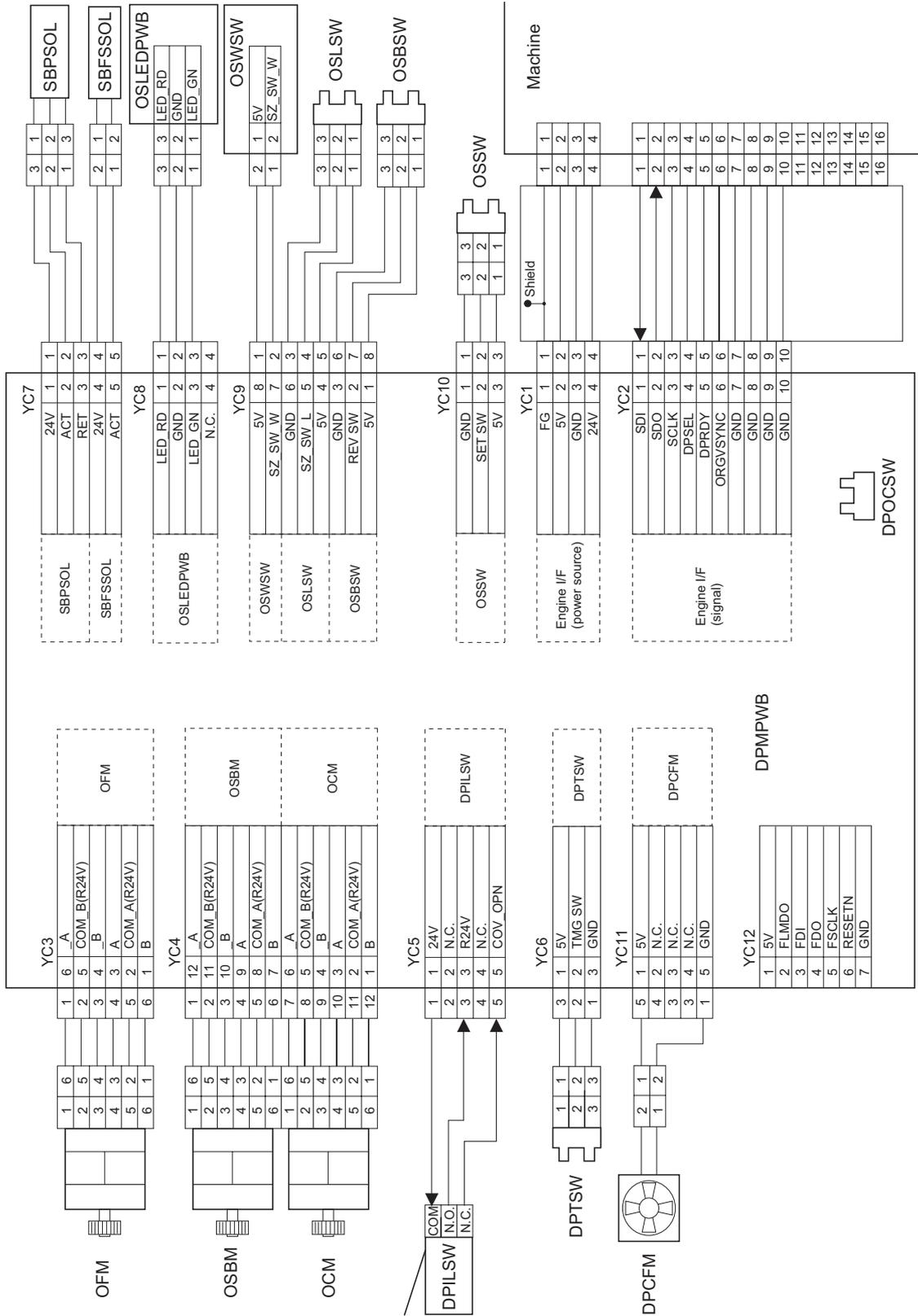
Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Other	Original holder mat	Clean	150K	Clean with alcohol or a dry cloth.	



Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Covers	Covers Slit glass*	Clean Check or clean	Every service Every service	Clean with alcohol. Clean with alcohol or a dry cloth (do not clean with a wet cloth).	

\*: Equipped with the machine.

Wiring diagram



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