



DP-710

SERVICE MANUAL



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First Edition

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

CAUTION

Double-pole/neutral fusing.

Revision history

Revision	Date	Replaced pages	Remarks

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Safety precautions

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. 
- Advice 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.



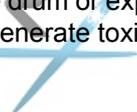
• Should smoke be seen coming from the copier, remove the power plug from the wall outlet immediately.



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 system	Automatic feed
Originals	Sheets
Original weights	Single-sided original mode: 45 - 160 g/m ² Double-sided original mode: 50 - 120 g/m ²
Original paper	Plain paper, thermal paper, art paper and colored paper
Original sizes	A3 - A5R, folio/11" x 17" - 5 1/2" x 8 1/2"
No. of originals	Up to 70 sheets (B4/8 1/2" x 14" or larger) Up to 100 sheets (A4/11" x 8 1/2" or smaller) Up to 30 sheets in the auto selection mode
Original processing speed	Original replacement: Max. 32 sheets/min (A4/11" x 8 1/2") Original scanning: 150 mm/s (100%)
Power source	Electrically connected to the machine (5 V DC and 24 V DC)
Dimensions	571 (W) x 488 (D) x 134 (H) mm 22 1/2" (W) x 19 3/16" (D) x 5 1/4" (H)

a: 571 mm/22 1/2"

b: 488 mm/19 3/16"

c: 134 mm/5 1/4"

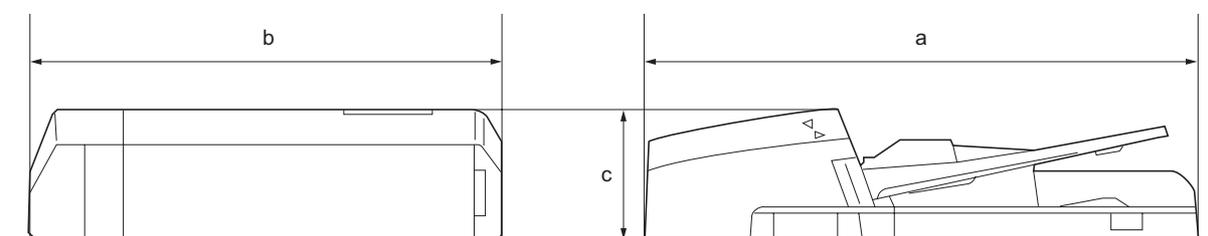


Figure 1-1-1

Weight..... Approx. 11.5 kg/Approx. 25.3 lbs

NOTE: These specifications are subject to change without notice.

1-1-2 Parts names

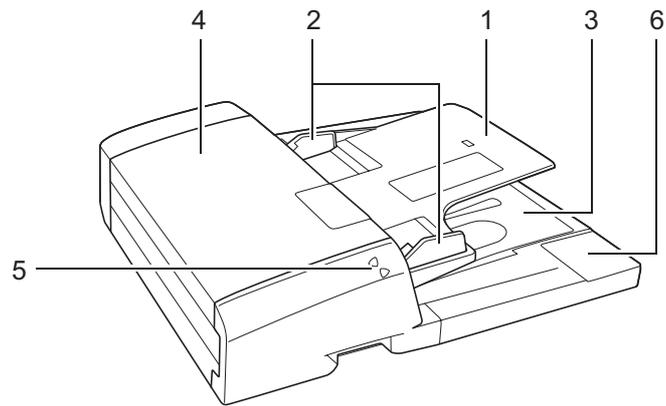
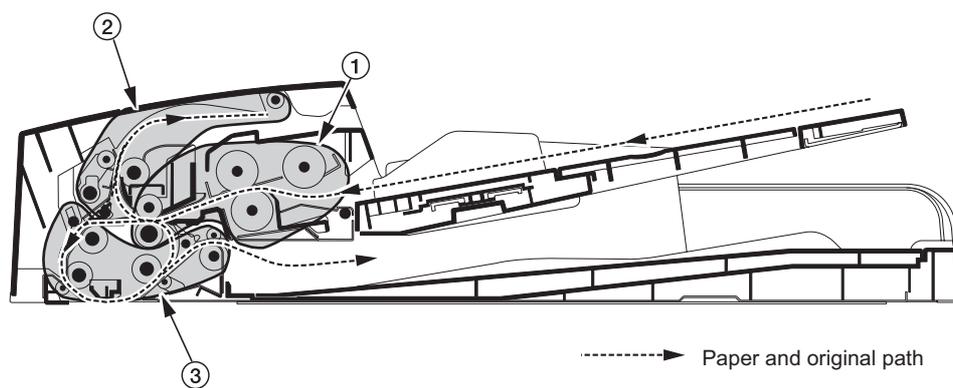


Figure 1-1-2

1. Original table
2. Original width guides
3. Original eject table
4. Document processor cover
5. Original loaded indicator
6. Cleaning cloth compartment

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

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

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1-2-1 Installation environment

1. 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 extremes of temperature and humidity, abrupt ambient temperature changes, and hot or cold air directed onto the machine.
 - Avoid dust and vibration.
 - 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 room with good ventilation.

1-2-2 Unpacking

(1) Unpacking

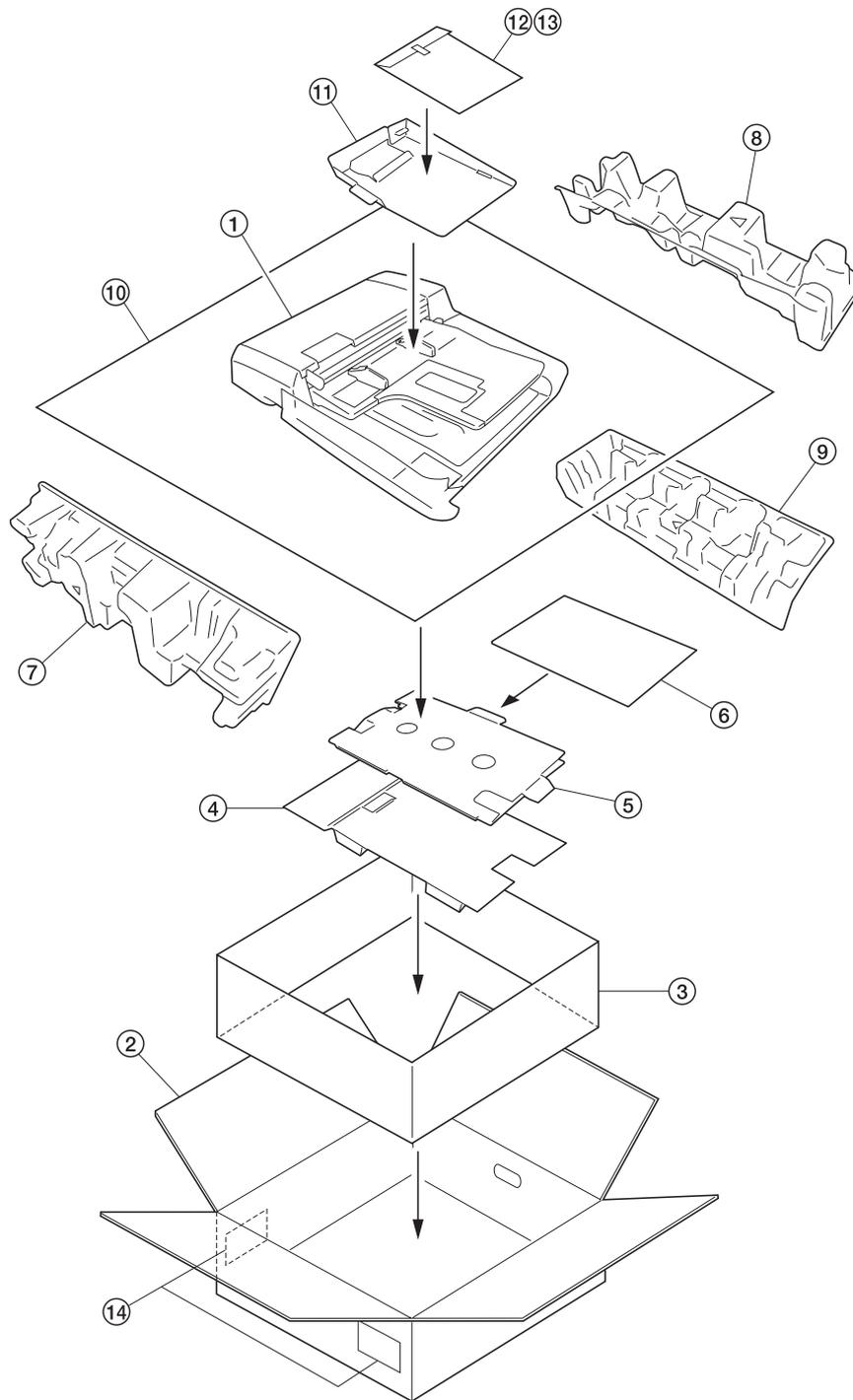


Figure 1-2-1 Unpacking

- | | |
|-----------------------|------------------------|
| 1. Document processor | 8. Rear upper pad |
| 2. Outer case | 9. Rear lower pad |
| 3. Stay | 10. Plastic sheet |
| 4. Bottom pad | 11. Spacer |
| 5. Spacer | 12. Plastic bag |
| 6. Original mat | 13. Installation guide |
| 7. Front pad | 14. Bar code labels |



Caution: Place the machine on a level surface.

(2) Removing tapes and spacer

Procedure

1. Remove two tapes and then remove the air cap.
2. Remove two tapes and spacer.

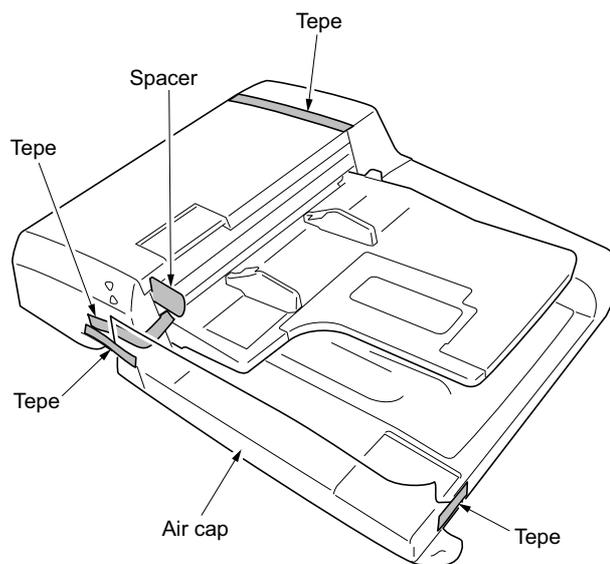


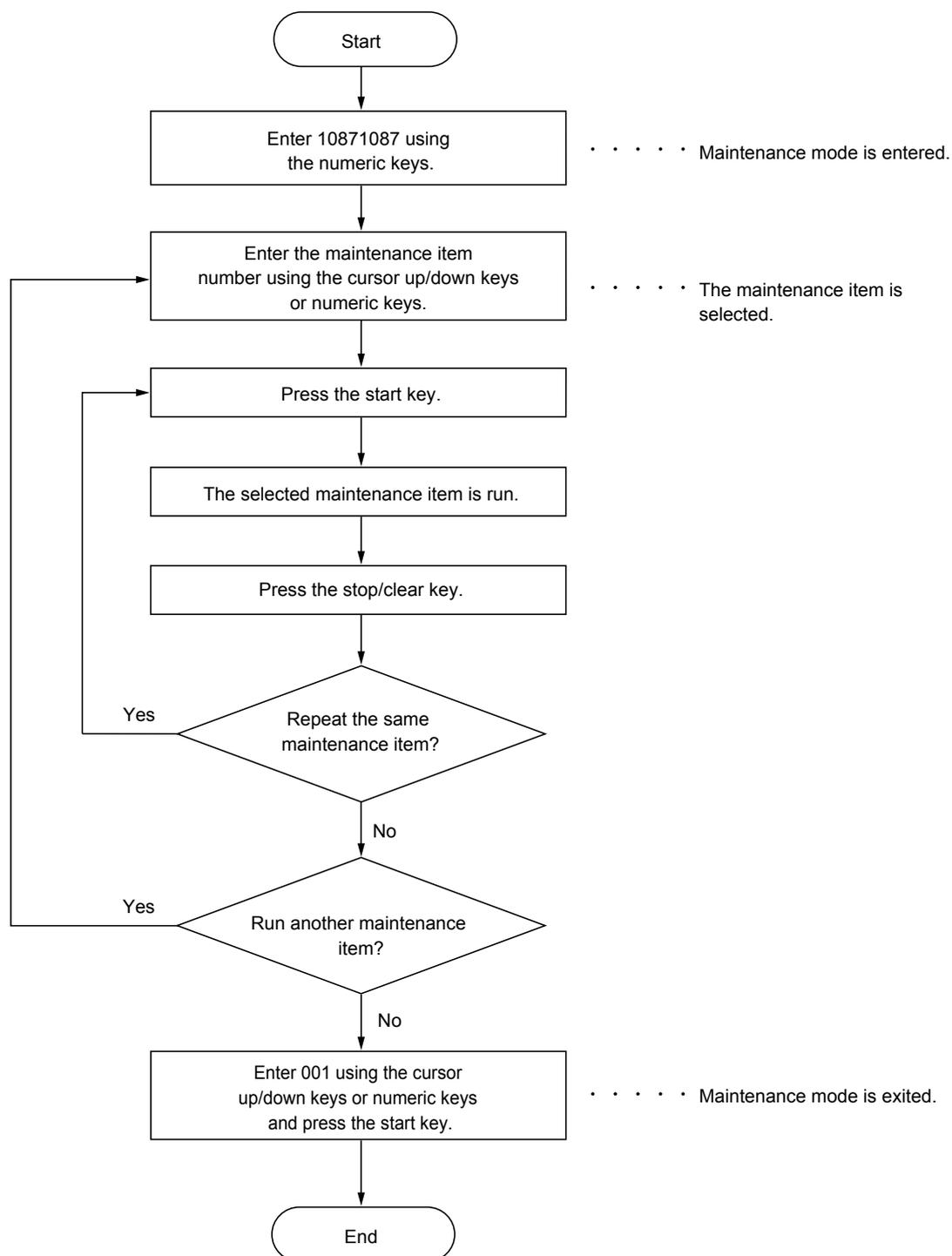
Figure 1-2-2

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1-3-1 Maintenance mode

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

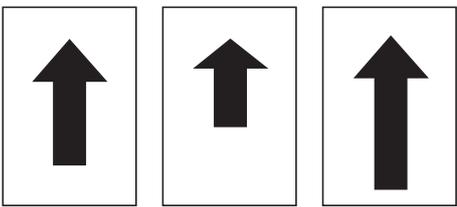
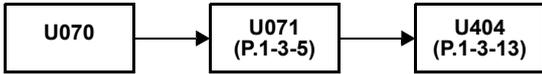
Section	Item No.	Content of maintenance item	Initial setting*
Optical	U068	Adjusting the scanning position for originals from the DP	0/0 ^{*1}
	U070	Adjusting the DP magnification	0 ^{*1}
	U071	Adjusting the DP scanning timing	0/0 ^{*1}
	U072	Adjusting the DP center line	0/0/0 ^{*1}
	U076	Executing DP automatic adjustment	-
	U087	Setting DP reading position modification operation	200/200/200 ^{*1}
Operation panel and support equipment	U203	Operating the DP separately	-
	U243	Checking the operation of the DP motors	-
	U244	Checking the DP switches	-
Mode setting	U263	Setting the paper ejection when copying from the DP	NORMAL ^{*1,*2}
	U326	Setting the black line cleaning indication	ON ^{*1}
Image processing	U404	Adjusting margins for scanning an original from the DP	3.0/2.5/3.0/4.0 ^{*1}
Other	U905	Checking counts by optional devices	-

*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>U068</p>	<p>Adjusting the scanning position for originals from the DP</p> <p>Description Adjusts the position for scanning originals from the document processor. Performs the test copy at the four scanning positions after adjusting.</p> <p>Purpose Used when the image fogging occurs because the scanning position is not proper when the document processor is used. Run U071 to adjust the timing of DP leading edge when the scanning position is changed.</p> <p>Setting</p> <ol style="list-style-type: none"> 1. Press the start key. <table border="1" data-bbox="331 577 1414 786"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Setting range</th> <th>Default 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>-40 to 32</td> <td>0</td> <td>0.09 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>-</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 2. Select ADJUST DATA of the screen for selecting an item. 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. 4. Press the start key. The value is set. 5. Select TEST POSITION of the screen for selecting an item. 6. Select the Scanning position using the cursor up/down keys. 7. Press the start key. The value is set. 8. Set the original (the one which density is known) in the document processor and press the interrupt key. The screen for the test copy mode is displayed. 9. Press the start key. Test copy is executed. 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. <p>Completion Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	Setting range	Default setting	Change in value per step	ADJUST DATA	Starting position adjustment for scanning originals	-40 to 32	0	0.09 mm	TEST POSITION	Scanning position for the test copy originals	0 to 3	0	-
Display	Description	Setting range	Default setting	Change in value per step												
ADJUST DATA	Starting position adjustment for scanning originals	-40 to 32	0	0.09 mm												
TEST POSITION	Scanning position for the test copy originals	0 to 3	0	-												



Maintenance item No.	Description								
U070	<p>Adjusting the DP magnification</p> <p>Description Adjusts the DP original scanning speed.</p> <p>Purpose Make the adjustment if the magnification is incorrect in the auxiliary scanning direction when the optional DP is used.</p> <p>Adjustment</p> <ol style="list-style-type: none"> 1. Press the start key. <table border="1" data-bbox="331 504 1396 616"> <thead> <tr> <th>Description</th> <th>Setting range</th> <th>Initial setting</th> <th>Change in value per step</th> </tr> </thead> <tbody> <tr> <td>Original conveying motor speed</td> <td>-25 to 25</td> <td>0</td> <td>0.1 %</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 2. Press the interrupt key. 3. Place an original on the DP and press the start key to make a test copy. 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. <div data-bbox="625 801 1082 1064" style="text-align: center;">  <p>Original Copy example 1 Copy example 2</p> </div> <p style="text-align: center;">Figure 1-3-1</p> <ol style="list-style-type: none"> 5. Press the start key. The value is set. <p>Caution 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 1243 826 1317" style="text-align: center;">  <pre> graph LR U070[U070] --> U071[U071 (P.1-3-5)] U071 --> U404[U404 (P.1-3-13)] </pre> </div> <p>Completion Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Description	Setting range	Initial setting	Change in value per step	Original conveying motor speed	-25 to 25	0	0.1 %
Description	Setting range	Initial setting	Change in value per step						
Original conveying motor speed	-25 to 25	0	0.1 %						

Maintenance item No.	Description																		
U071	<p>Adjusting the DP scanning timing</p> <p>Description Adjusts the DP original scanning timing.</p> <p>Purpose Make the adjustment if there is a regular error between the leading or trailing edges of the original and the copy image when the optional DP is used.</p> <p>Adjustment</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Select the item using the exposure adjustment keys. <table border="1" data-bbox="331 533 1401 685"> <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 DATA1</td> <td>DP leading edge registration</td> <td>-32 to 32</td> <td>0</td> <td>0.19 mm</td> </tr> <tr> <td>ADJUST DATA2</td> <td>DP trailing edge registration</td> <td>-32 to 32</td> <td>0</td> <td>0.19 mm</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 3. Press the interrupt key. 4. Place an original on the DP and press the start key to make a test copy. 5. Change the setting value using the cursor up/down keys. For copy example 1, increase the value of exp.1. For copy example 2, decrease the value of exp.1. <div data-bbox="673 907 1031 1115" style="text-align: center;">  <p>Original Copy example 1 Copy example 2</p> </div> <p style="text-align: center;">Figure 1-3-2</p> <ol style="list-style-type: none"> 6. Press the start key. The value is set. <p>Caution Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.</p> <div data-bbox="287 1294 624 1364" style="text-align: center;"> <table border="1"> <tr> <td style="padding: 5px;">U071</td> <td style="text-align: center; vertical-align: middle;">→</td> <td style="padding: 5px;">U404 (P.1-3-13)</td> </tr> </table> </div> <p>Completion 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 DATA1	DP leading edge registration	-32 to 32	0	0.19 mm	ADJUST DATA2	DP trailing edge registration	-32 to 32	0	0.19 mm	U071	→	U404 (P.1-3-13)
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ADJUST DATA1	DP leading edge registration	-32 to 32	0	0.19 mm															
ADJUST DATA2	DP trailing edge registration	-32 to 32	0	0.19 mm															
U071	→	U404 (P.1-3-13)																	

Maintenance item No.	Description																							
<p>U072</p>	<p>Adjusting the DP center line</p> <p>Description Adjusts the scanning start position for the DP original.</p> <p>Purpose Make the adjustment if there is a regular error between the centers of the original and the copy image when the optional DP is used.</p> <p>Adjustment</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Select the item. <table border="1" data-bbox="331 533 1398 723"> <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>DATA(simplesx)</td> <td>DP center line (simplesx mode)</td> <td>-78 to 78</td> <td>0</td> <td>0.17 mm</td> </tr> <tr> <td>DATA(duplex 1)</td> <td>DP center line (duplex mode)</td> <td>-78 to 78</td> <td>0</td> <td>0.17 mm</td> </tr> <tr> <td>DATA(duplex 2)</td> <td>DP center line (duplex mode)</td> <td>-78 to 78</td> <td>0</td> <td>0.17 mm</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 3. Press the interrupt key. 4. Place an original on the DP and press the start key to make a test copy. 5. Change the setting value using the cursor up/down keys. For copy example 1, increase the value. For copy example 2, decrease the value. <div data-bbox="635 907 1066 1171" style="text-align: center;"> <p>Reference</p> <p>Original Copy example 1 Copy example 2</p> </div> <p>6. Press the start key. The value is set.</p> <p>Caution 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 1348 624 1420" style="text-align: center;"> <table border="1"> <tr> <td style="padding: 5px;">U072</td> <td style="text-align: center;">→</td> <td style="padding: 5px;">U404 (P.1-3-13)</td> </tr> </table> </div> <p>Completion 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)	-78 to 78	0	0.17 mm	DATA(duplex 1)	DP center line (duplex mode)	-78 to 78	0	0.17 mm	DATA(duplex 2)	DP center line (duplex mode)	-78 to 78	0	0.17 mm	U072	→	U404 (P.1-3-13)
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DATA(duplex 2)	DP center line (duplex mode)	-78 to 78	0	0.17 mm																				
U072	→	U404 (P.1-3-13)																						



Maintenance item No.	Description										
<p>U076</p>	<p>Executing DP automatic adjustment</p> <p>Description Uses a specified original and automatically adjusts the following items in the DP scanning section. Adjusting the DP magnification (U070) Adjusting the DP scanning timing (U071) Adjusting the DP center line (U072) When you run this maintenance mode, the preset values of U070, U071 and U072 will also be updated.</p> <p>Purpose To perform automatic adjustment of various items in the DP scanning section.</p> <p>Remarks Cut a trail edge of a specified original (part number: 2AC68241) as shown in a figure.</p> <div data-bbox="651 600 1056 1019" style="text-align: center;"> <p>128±1mm 60±1mm Cut with the edge of black belt.</p> </div> <p>Figure 1-3-4</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Set a specified original (part number: 2A068021) in the DP. 3. Press the start key. Auto adjustment starts. When adjustment is complete, each adjusted value is displayed. <table border="1" data-bbox="331 1272 1401 1460"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>CONVEY SPEED</td> <td>DP magnification in the auxiliary scanning direction</td> </tr> <tr> <td>LEAD EDGE ADJ</td> <td>DP leading edge registration</td> </tr> <tr> <td>TRAIL EDGE ADJ</td> <td>DP trailing edge registration</td> </tr> <tr> <td>DP CENTER</td> <td>DP original center line</td> </tr> </tbody> </table>	Display	Description	CONVEY SPEED	DP magnification in the auxiliary scanning direction	LEAD EDGE ADJ	DP leading edge registration	TRAIL EDGE ADJ	DP trailing edge registration	DP CENTER	DP original center line
Display	Description										
CONVEY SPEED	DP magnification in the auxiliary scanning direction										
LEAD EDGE ADJ	DP leading edge registration										
TRAIL EDGE ADJ	DP trailing edge registration										
DP CENTER	DP original center line										



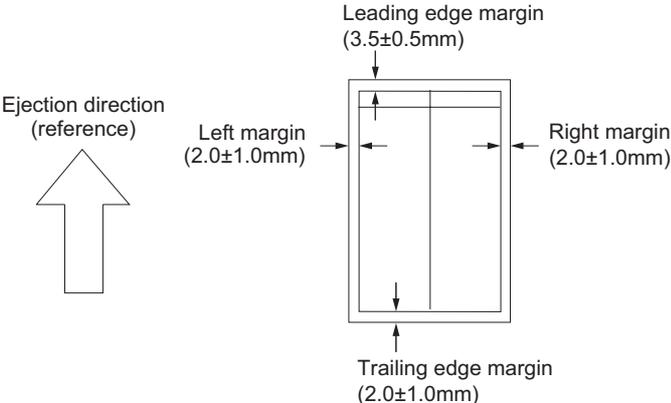
Maintenance item No.	Description																								
U076	<p>If a problem occurs during auto adjustment, DATA: XX (XX is replaced by an error code) is displayed and operation stops. Should this happen, determine the details of the problem and either repeat the procedure from the beginning, or adjust the remaining items manually by running the corresponding maintenance items.</p> <table border="1" data-bbox="331 394 1398 846"> <thead> <tr> <th>Code</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>61</td> <td>Sub scan magnification is above the $\pm 2.5\%$</td> </tr> <tr> <td>62</td> <td>Leading timing is above $\pm 3.2\text{mm}$</td> </tr> <tr> <td>63</td> <td>Trailing timing is above $\pm 3.2\text{mm}$</td> </tr> <tr> <td>64</td> <td>The gap of sub scan direction is above $\pm 1.5\text{mm}$</td> </tr> <tr> <td>65</td> <td>The gap of the center line is above $\pm 3.2\text{mm}$</td> </tr> <tr> <td>67</td> <td>The gap of main scanning direction is above $\pm 1.5\text{mm}$</td> </tr> <tr> <td>68</td> <td>The leading black edge of the adjustment original is not detected.</td> </tr> <tr> <td>69</td> <td>The trailing black edge of the adjustment original is not detected.</td> </tr> <tr> <td>6a</td> <td>The right edge black edge of the adjustment original is not detected.</td> </tr> <tr> <td>6b</td> <td>The left edge black edge of the adjustment original is not detected.</td> </tr> <tr> <td>6f</td> <td>Timeout occurred when reading out from memory.</td> </tr> </tbody> </table> <p>Completion Press the stop/clear key after auto adjustment is complete. The screen for selecting a maintenance item is displayed. If stop/ during auto adjustment, adjustment stops and no settings are changed.</p>	Code	Description	61	Sub scan magnification is above the $\pm 2.5\%$	62	Leading timing is above $\pm 3.2\text{mm}$	63	Trailing timing is above $\pm 3.2\text{mm}$	64	The gap of sub scan direction is above $\pm 1.5\text{mm}$	65	The gap of the center line is above $\pm 3.2\text{mm}$	67	The gap of main scanning direction is above $\pm 1.5\text{mm}$	68	The leading black edge of the adjustment original is not detected.	69	The trailing black edge of the adjustment original is not detected.	6a	The right edge black edge of the adjustment original is not detected.	6b	The left edge black edge of the adjustment original is not detected.	6f	Timeout occurred when reading out from memory.
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U087	<p>Setting DP reading position modification operation</p> <p>Description Sets the black line inspection at the time of reading the original from the DP.</p> <p>Purpose When using optional DP, to solve the problem when black lines occurs due to the dust with respect to original reading position.</p> <p>Method</p> <ol style="list-style-type: none"> Press the start key. Select the item to be set. The screen for selecting an item is displayed. <table border="1" data-bbox="331 1261 1398 1373"> <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>Setting: standard data when dust is detected</p> <ol style="list-style-type: none"> Change the value using the cursor up/down keys. <table border="1" data-bbox="331 1456 1398 1666"> <thead> <tr> <th>Display</th> <th>Description</th> <th>Setting range</th> <th>Default 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>200</td> </tr> <tr> <td>CCD G</td> <td>Lowest density of the G regard as the dust.</td> <td>0 to 255</td> <td>200</td> </tr> <tr> <td>CCD B</td> <td>Lowest density of the B regard as the dust.</td> <td>0 to 255</td> <td>200</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Press the start key. The value is set. <p>Setting: Initialization of original reading position</p> <ol style="list-style-type: none"> Select CLEAR. Press the start key. The setting is cleared. <p>Completion Press the stop/clear 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	Default setting	CCD R	Lowest density of the R regard as the dust.	0 to 255	200	CCD G	Lowest density of the G regard as the dust.	0 to 255	200	CCD B	Lowest density of the B regard as the dust.	0 to 255	200		
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Maintenance item No.	Description										
U203	<p>Operating the DP separately</p> <p>Description Simulates the original conveying operation separately in the optional DP.</p> <p>Purpose To check the DP operation.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Place an original in the DP if running this simulation with paper. 3. Select the item to be operated. The operation starts. <table border="1" data-bbox="331 533 1398 725"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>ADP</td> <td>With paper, single-sided original</td> </tr> <tr> <td>RADP</td> <td>With paper, double-sided original</td> </tr> <tr> <td>ADP (NON P)</td> <td>Without paper, single-sided original (continuous operation)</td> </tr> <tr> <td>RADP (NON P)</td> <td>Without paper, double-sided original (continuous operation)</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 4. To stop continuous operation, press the stop/clear key. <p>Completion Press the stop/clear key when the operation stops. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	ADP	With paper, single-sided original	RADP	With paper, double-sided original	ADP (NON P)	Without paper, single-sided original (continuous operation)	RADP (NON P)	Without paper, double-sided original (continuous operation)
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Maintenance item No.	Description																								
U243	<p>Checking the operation of the DP motors</p> <p>Description Turns the motors, solenoids or clutch in the document processor on.</p> <p>Purpose To check the operation of the document processor motors, solenoids and clutch.</p> <p>Method</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Select the item to be operated. The operation starts. <table border="1" data-bbox="331 506 1398 808"> <thead> <tr> <th>Display</th> <th>Motors, solenoids and clutch</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>F MOT</td> <td>Original feed motor (OFM)</td> <td>In operation</td> </tr> <tr> <td>C MOT</td> <td>Original paper conveying motor (OCM)</td> <td>In operation</td> </tr> <tr> <td>FD CL</td> <td>Original feed clutch (OFCL)</td> <td>On for 0.5 s</td> </tr> <tr> <td>EJ SL</td> <td>Eject feedshift solenoid (EFSSOL)</td> <td>On for 0.5 s</td> </tr> <tr> <td>RJ SL</td> <td>Switchback feedshift solenoid (SBFSSOL)</td> <td>On for 0.5 s</td> </tr> <tr> <td>FD SL</td> <td>Original feed solenoid (OFSOL)</td> <td>On and off</td> </tr> <tr> <td>RP SL</td> <td>Switchback pressure solenoid (SBPSOL)</td> <td>On and off</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 3. To turn each motor off, press the stop/clear key. <p>Completion Press the stop/clear key when operation stops. The screen for selecting a maintenance item No. is displayed.</p>	Display	Motors, solenoids and clutch	Operation	F MOT	Original feed motor (OFM)	In operation	C MOT	Original paper conveying motor (OCM)	In operation	FD CL	Original feed clutch (OFCL)	On for 0.5 s	EJ SL	Eject feedshift solenoid (EFSSOL)	On for 0.5 s	RJ SL	Switchback feedshift solenoid (SBFSSOL)	On for 0.5 s	FD SL	Original feed solenoid (OFSOL)	On and off	RP SL	Switchback pressure solenoid (SBPSOL)	On and off
Display	Motors, solenoids and clutch	Operation																							
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FD SL	Original feed solenoid (OFSOL)	On and off																							
RP SL	Switchback pressure solenoid (SBPSOL)	On and off																							
U244	<p>Checking the DP switches</p> <p>Description Displays the status of the respective switches in the document processor.</p> <p>Purpose To check if respective switches in the document processor operate correctly.</p> <p>Start</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Select the type of switches (SW or VR) to be checked. The screen for executing each item is displayed. <table border="1" data-bbox="331 1167 1398 1279"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>SW</td> <td>On/off switches</td> </tr> <tr> <td>VR</td> <td>Volume switch</td> </tr> </tbody> </table> <p>Method for the on/off switches (SW)</p> <ol style="list-style-type: none"> 1. Turn the respective switches on and off manually to check the status. If the on-status of a switch is detected, the corresponding switch is displayed in reverse. <table border="1" data-bbox="331 1391 1398 1615"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>SET SW</td> <td>Original set switch (OSSW)</td> </tr> <tr> <td>FEED SW</td> <td>Original feed switch (OFSW)</td> </tr> <tr> <td>REV SW</td> <td>Original switchback switch (OSBSW)</td> </tr> <tr> <td>TMG SW</td> <td>DP timing switch (DPTSW)</td> </tr> <tr> <td>SZ A SW</td> <td>Original size length switch (OSLSW)</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 2. To return to the screen for selecting an item, press the stop/clear key. 	Display	Description	SW	On/off switches	VR	Volume switch	Display	Description	SET SW	Original set switch (OSSW)	FEED SW	Original feed switch (OFSW)	REV SW	Original switchback switch (OSBSW)	TMG SW	DP timing switch (DPTSW)	SZ A SW	Original size length switch (OSLSW)						
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Maintenance item No.	Description																											
U244	<p>Method for the volume switch (VR)</p> <p>1. Move the original insertion guides to check the detection status of the original size width switch. The detected original width is displayed as a numerical value with the decimals omitted.</p> <table border="1" data-bbox="590 358 1117 1276"> <thead> <tr> <th data-bbox="590 358 718 414">Numerical value</th> <th colspan="2" data-bbox="718 358 1117 414">Original width to be detected</th> </tr> </thead> <tbody> <tr> <td data-bbox="590 414 718 481">000 ⋮ 49.664</td> <td data-bbox="718 414 925 481" rowspan="2">A5R</td> <td data-bbox="925 414 1117 481">5 1/2" x 8 1/2"</td> </tr> <tr> <td data-bbox="590 481 718 548">50.176 ⋮ 61.440</td> <td data-bbox="718 481 925 548" rowspan="2">B5R</td> <td data-bbox="925 481 1117 548" rowspan="2">8 1/2" x 14"/ 8 1/2" x 11"</td> </tr> <tr> <td data-bbox="590 548 718 616">61.952 ⋮ 103.936</td> <td data-bbox="718 548 925 616">Folio/A4R</td> <td data-bbox="925 548 1117 616" rowspan="2">11" x 17"/ 11" x 15"/ 11" x 8 1/2"</td> </tr> <tr> <td data-bbox="590 616 718 683">104.448 ⋮ 139.264</td> <td data-bbox="718 616 925 683" rowspan="2">B4/B5</td> <td data-bbox="925 616 1117 683" rowspan="2"></td> </tr> <tr> <td data-bbox="590 683 718 750">139.776 ⋮ 146.432</td> <td data-bbox="718 683 925 750" rowspan="2">CF (11" x 15")</td> <td data-bbox="925 683 1117 750" rowspan="2"></td> </tr> <tr> <td data-bbox="590 750 718 817">146.994 ⋮ 197.120</td> <td data-bbox="718 750 925 817">A3/A4</td> <td data-bbox="925 750 1117 817"></td> </tr> <tr> <td data-bbox="590 817 718 884">197.632 ⋮ 197.720</td> <td data-bbox="718 817 925 884"></td> <td data-bbox="925 817 1117 884"></td> </tr> <tr> <td data-bbox="590 884 718 952">223.232 ⋮ 256</td> <td data-bbox="718 884 925 952"></td> <td data-bbox="925 884 1117 952"></td> </tr> </tbody> </table> <p>For example, if any value between 105 and 139 is displayed when the original insertion guides are adjusted for A4R paper, it indicates that the original width is detected correctly.</p> <p>2. To return to the screen for selecting an item, press the stop/clear key.</p> <p>Completion Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Numerical value	Original width to be detected		000 ⋮ 49.664	A5R	5 1/2" x 8 1/2"	50.176 ⋮ 61.440	B5R	8 1/2" x 14"/ 8 1/2" x 11"	61.952 ⋮ 103.936	Folio/A4R	11" x 17"/ 11" x 15"/ 11" x 8 1/2"	104.448 ⋮ 139.264	B4/B5		139.776 ⋮ 146.432	CF (11" x 15")		146.994 ⋮ 197.120	A3/A4		197.632 ⋮ 197.720			223.232 ⋮ 256		
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Maintenance item No.	Description								
U263	<p>Setting the paper ejection when copying from the DP</p> <p>Description Sets whether the copies will be ejected in the same or opposite order as the originals when copying from the document processor.</p> <p>Purpose Set according to the preference of the user.</p> <p>Setting</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Select the ejection order. <table border="1" data-bbox="331 535 1398 687"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>FACE-DOWN (NOMAL)</td> <td>Face down ejection</td> </tr> <tr> <td>FACE-UP (SPEED)</td> <td>Face up ejection with bitmap copy</td> </tr> <tr> <td>FACE-UP (MEMORY)</td> <td>Face up ejection with memory copy</td> </tr> </tbody> </table> <p>Initial setting: FACE-DOWN</p> <ol style="list-style-type: none"> 3. Press the start key. The setting is set, and the screen for selecting a maintenance item No. is displayed. <p>Completion Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	FACE-DOWN (NOMAL)	Face down ejection	FACE-UP (SPEED)	Face up ejection with bitmap copy	FACE-UP (MEMORY)	Face up ejection with memory copy
Display	Description								
FACE-DOWN (NOMAL)	Face down ejection								
FACE-UP (SPEED)	Face up ejection with bitmap copy								
FACE-UP (MEMORY)	Face up ejection with memory copy								
U326	<p>Setting the black line cleaning indication</p> <p>Description Sets whether to display the cleaning guidance when detecting the black line.</p> <p>Purpose Displays the cleaning guidance in order to make the call for service with the black line decrease by the rubbish on the contact glass when scanning from the DP.</p> <p>Setting</p> <ol style="list-style-type: none"> 1. Press the start key. 2. Select ON or OFF. <table border="1" data-bbox="331 1099 1398 1211"> <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> </tbody> </table> <p>Initial setting: ON Setting count value is displayed only if the setting is ON.</p> <ol style="list-style-type: none"> 3. Press the start key. The setting is set, and the screen for selecting a maintenance item No. is displayed. <p>Completion 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		
Display	Description								
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OFF	Not to display the cleaning guidance								

Maintenance item No.	Description																									
U404	<p>Adjusting margins for scanning an original from the DP</p> <p>Description Adjusts margins for scanning the original from the DP.</p> <p>Purpose Make the adjustment if margins are incorrect when the DP is used.</p> <p>Caution 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>U402 (See the service manual for the machine.)</p> <p>→</p> <p>U403 (See the service manual for the machine.)</p> <p>→</p> <p>U404</p> </div> <p>Adjustment</p> <ol style="list-style-type: none"> Press the start key. Select the item. <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"> Press the interrupt key. Place an original on the DP and press the start key to make a test copy. Change the setting value using the zoom +/- keys. Increasing the value makes the margin wider, and decreasing it makes the margin narrower. <div style="text-align: center; margin: 10px 0;">  </div> <p>Figure 1-3-5</p> <ol style="list-style-type: none"> Press the start key. The value is set. <p>Completion 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																						
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D MARGIN	Trailing edge margin	0 to 10.0	4.0	0.5 mm																						

Maintenance item No.	Description																		
<p>U905</p>	<p>Checking counts by optional devices</p> <p>Description Displays or clears the counts of optional DP or finisher.</p> <p>Purpose To check the use of optional DP and finisher. Also to clear the counts after replacing consumable parts.</p> <p>Method</p> <ol style="list-style-type: none"> 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>DP</p> <table border="1" data-bbox="331 535 1398 647"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>ADP</td> <td>Number of single-sided originals that has passed through the DP</td> </tr> <tr> <td>RADP</td> <td>Number of double-sided originals that has passed through the DP</td> </tr> </tbody> </table> <p>FINISHER (3000-sheet document finisher or document finisher)</p> <table border="1" data-bbox="331 701 1398 927"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>CP CNT</td> <td>Number of copies that has passed</td> </tr> <tr> <td>STAPLE</td> <td>Frequency the stapler has been activated</td> </tr> <tr> <td>PUNCH</td> <td>Frequency the punch has been activated</td> </tr> <tr> <td>STACK</td> <td>Frequency the stacker has been activated</td> </tr> <tr> <td>SADDLE</td> <td>Frequency the center holding has been activated</td> </tr> </tbody> </table> <p>When installing the document finisher, value of CP CNT and STAPLE are displayed.</p> <p>Completion Press the stop/clear key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	ADP	Number of single-sided originals that has passed through the DP	RADP	Number of double-sided originals that has passed through the DP	Display	Description	CP CNT	Number of copies that has passed	STAPLE	Frequency the stapler has been activated	PUNCH	Frequency the punch has been activated	STACK	Frequency the stacker has been activated	SADDLE	Frequency the center holding has been activated
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SADDLE	Frequency the center holding has been activated																		



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. The DP original set indicator also flashes red.

To remove the jammed original, open the document processor cover or the DP original reversing cover.

To reset the original misfeed detection, open and close the document processor cover or DP original reversing cover to turn DP safety switch 1 or 2 off and on.

(2) Original misfeed detection conditions

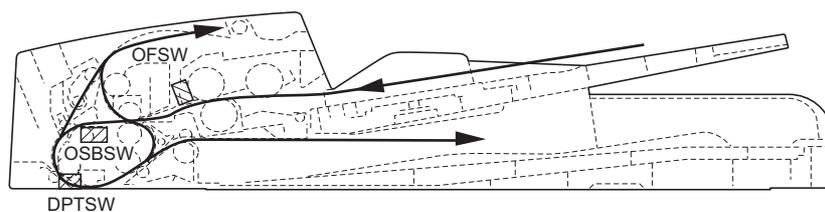


Figure 1-4-1

Section	Jam code	Conditions	Specified time
DP	70 No original feed	In the single-sided or double-sided original mode, primary original feed does not start.	
	71 An original jam in the original feed/conveying section	During the secondary original feed in the single-sided original mode, the DP timing switch (DPTSW) does not turn on within specified time.	1740ms
	72 An original jam in the original feed/conveying section 2	During the secondary original feed in the single-sided original mode, the original feed switch (OFSW) or original switchback switch (OSBSW) does not turn off within specified time.	5956ms
		During original switchback operation in the double-sided original mode, the original feed switch (OFSW) or original switchback switch (OSBSW) does not turn off within specified time.	4318ms
	73 An original jam in the original conveying section	During the secondary original feed in the single-sided or double-sided original mode, the DP timing switch (DPTSW) does not turn off within specified time.	3784ms
	74 An original jam in the original registration section	The original switchback switch (OSBSW) does not turn on within specified time.	2045ms
	75 An original jam in the original registration section	In the single-sided original mode, the DP timing switch (DPTSW) does not turn on within specified time.	1740ms
		In the double-sided original mode, the DP timing switch (DPTSW) does not turn on within specified time.	907ms
		In the single-sided original mode, the original feed switch (OFSW) does not turn off within specified time.	5956ms
		In the double-sided original mode, the original switchback switch (OSBSW) does not turn off within specified time.	4318ms
	76 An original jam in the original feed/conveying section	During the secondary original feed in the single-sided original mode, the original switchback switch (OSBSW) does not turn on within specified time.	2774ms
	78 DP cover open	DP cover is open.	-
	Optional finisher	92 Exit sensor non-arrival jam (document finisher only)	In the straight mode, the exit sensor (EXS) is not turned on even if a specified time has elapsed after the paper entry sensor (PES) was turned on.
93 Reverse sensor jam (document finisher only)		The reverse sensor (REVS) does not turn on within specified time of paper entry sensor (PES) turning on.	1071ms
		The reverse sensor (REVS) is not turned on within specified time.	435ms
		The reverse sensor (REVS) does not turn off within specified time of paper entry sensor (PES) turning off.	622ms
		The reverse sensor (REVS) is not turned off within specified time its turning on.	Depends on paper size
94 Paper entry sensor stay/remaining jam (document finisher only)	The paper entry sensor (PES) is not turned off within specified time its turning on.	Depends on paper size	

(3) Paper misfeeds

Problem	Causes/check procedures	Corrective measures
(1) An original jams in DP is indicated during copying (no original feed). Jam code 70	Defective original feed switch.	Run maintenance item U244 and turn the original feed switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse.
	Defective original feed motor.	Run maintenance item U243 and select 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 feed/conveying section 1). Jam code 71	Defective switch.	Run maintenance item U244 and turn the following 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 feed switch, original switchback switch
	Defective pulleys or rollers.	Check visually and replace. DP feed pulley, DP separation pulley DP registration roller, DP registration pulley Lower conveying roller, reading pulley
	Defective motor.	Run maintenance item U243 and select the following motor on the touch panel to be turned on and off. Check the status and remedy if necessary. Original feed motor, original conveying motor
(3) An original jams in DP is indicated during copying (a jam in the original feed/conveying section 2). Jam code 72	Defective switch.	Run maintenance item U244 and turn the following 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 feed switch, original switchback switch
	Defective pulleys or rollers.	Check visually and replace. DP feed pulley, DP separation pulley DP registration roller, DP registration pulley Lower conveying roller, reading pulley
	Defective motor.	Run maintenance item U243 and select the following motor on the touch panel to be turned on and off. Check the status and remedy if necessary. Original feed motor, original conveying motor
(4) An original jams in DP is indicated during copying (a jam in the original conveying section). Jam code 73	Defective switch.	Run maintenance item U244 and turn the following 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 feed switch, original switchback switch
	Defective pulleys or rollers.	Check visually and replace. DP feed pulley, DP separation pulley DP registration roller, DP registration pulley Lower conveying roller, reading pulley
	Defective motor.	Run maintenance item U243 and select the following motor on the touch panel to be turned on and off. Check the status and remedy if necessary. Original feed motor, original conveying motor
(5) An original jams in DP is indicated during copying (jam in the original registration section). Jam code 74	Defective original switchback switch.	Run maintenance item U244 and turn the original switchback switch on and off manually. Replace the original switchback switch if indication of the corresponding switch on the touch panel is not displayed in reverse.



Problem	Causes/check procedures	Corrective measures
(6) An original jams in DP is indicated during copying (jam in the original registration section). Jam code 75	Defective switch.	Run maintenance item U244 and turn the following 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 feed switch, original switchback switch
	Defective motor.	Run maintenance item U243 and select the following motor on the touch panel to be turned on and off. Check the status and remedy if necessary. Original feed motor, original conveying motor
(7) An original jams in DP is indicated during copying (jam in the original feed/registration section). Jam code 76	Defective switch.	Run maintenance item U244 and turn the following switch on and off manually. Replace the switch if indication of the corresponding switch on the touch panel is not displayed in reverse. Original feed switch, original switchback switch
	Defective motor.	Run maintenance item U243 and select the following motor on the touch panel to be turned on and off. Check the status and remedy if necessary. Original feed motor, original conveying motor



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 front cover/feed cover switch off and back on.

(2) Self diagnostic codes

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C0410	DP communication problem There is no reply after 5 retries at communication or a communication error occurs.	Poor contact in the connector terminals.	Check the connection of connector YC17 on the scanner PWB and the connector YC1 on the DP drive PWB. Repair or replace if necessary.
		Defective PWB.	Replace the DP drive PWB or scanner PWB and check for correct operation.
C9060	EEPROM problem Read and write data does not match.	Poor contact in the connector terminals.	Check the connection of connector YC7 on the scanner PWB and the continuity across the connector terminals. Repair or replace if necessary.
		Defective DP drive PWB.	Replace DP drive PWB and check for correct operation.

1-4-3 Electric problems

Problem	Causes	Check procedures/corrective measures
(1) The original feed motor or original conveying motor does not operate.	Defective motor coil.	Check for continuity across the coil. If none, replace the original feed motor or original conveying motor.
	Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective motor.	Run maintenance item U243 and check if the motor operates when the following terminals on the DP driver PWB go low. If not, replace the corresponding motor. Original feed motor: YC2-3, 2-4, 2-5, 2-6 Original conveying motor: YC2-9, 2-10, 2-11, 2-12
	Defective DP driver PWB.	Run maintenance item U243 and check if following terminals on the DP driver PWB go low. If not, replace the DP driver PWB. Original feed motor: YC2-3, 2-4, 2-5, 2-6 Original conveying motor: YC2-9, 2-10, 2-11, 2-12
(2) The original feed solenoid, switchback feedshift solenoid, eject feedshift solenoid or switchback pressure solenoid does not operate.	Defective solenoid coil.	Check for continuity across the coil. If none, replace the corresponding solenoid.
	Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective DP driver PWB.	Run maintenance item U243 and check if following terminals on the DP driver PWB goes low. If not, replace the DP driver PWB. Original feed solenoid: YC2-14 and 2-15 Switchback feedshift solenoid: YC3-2 Eject feedshift solenoid: YC3-4 Switchback pressure solenoid: YC2-17 and 2-18
(3) The original feed clutch does not operate.	Defective clutch coil.	Check for continuity across the coil. If none, replace the corresponding solenoid.
	Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective DP driver PWB.	Run maintenance item U243 and check if YC4-2 on the DP driver PWB goes low. If not, replace the DP driver PWB.
(4) A message indicating cover open is displayed when the DP is closed correctly.	Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective DP safety switch 1.	Check for continuity across the contacts of the switch. If none when the switch is on, replace DP safety switch 1.
(5) An original jams when the main power switch is turned on.	A piece of paper torn from an original is caught around the switch.	Remove any found.
	Defective original feed switch, original switchback switch or DP timing 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.
	The surface facing the DP timing switch is soiled.	Check if the projection at the center of the conveying cover that is facing the DP timing switch is soiled with paper powder. If so, clean it.

1-4-4 Mechanical problems

Problem	Causes/check procedures	Corrective measures
(1) No primary original feed.	The surfaces of the DP forwarding pulleys, DP original feed pulley or DP separation pulley are dirty with paper powder.	Check and clean them with isopropyl alcohol if they are dirty.
	Check if the DP original feed pulley or the DP forwarding pulley is deformed.	If so, replace (see page 1-5-3).
	Electrical problem with the following clutch or solenoid: Original feed solenoid Original feed clutch	See page 1-5-7.
(2) No secondary original feed.	The DP registration pulley and the DP registration roller do not contact each other correctly.	Check and clean them with isopropyl alcohol if they are dirty.
(3) Originals jam.	Originals outside the specifications are used.	Use only originals conforming to the specifications.
	The surfaces of the DP forwarding pulleys, DP original feed pulley or DP separation pulley are dirty with paper powder.	Check and clean them with isopropyl alcohol if they are dirty.
	The DP original feed pulley and the DP separation pulley do not contact each other correctly.	Check visually and remedy if necessary.

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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.

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

1. Open the document processor cover.
2. Remove two screws holding the upper original feed cover and then the cover.

Detaching the DP forwarding pulley

3. Remove the stop ring at the machine front and then remove the bushing.
4. Pull out the forwarding shaft toward the rear side of the machine and slide the bushing.
5. Remove the DP forwarding pulley from the forwarding shaft.

Detaching the DP feed pulley

6. Remove the stop ring at the machine front and then remove the bushing.
7. Remove the stop ring at the machine rear.
8. Pull out the front original feed shaft toward the rear side of the machine and slide the bushing.
9. Remove the DP feed pulley from the front original feed shaft.
10. Clean or replace the DP forwarding pulley and the DP feed pulley.
11. Refit all the removed parts.

When refitting the DP forwarding pulley and DP feed pulley, ensure that the notches in the pulleys are aligned with the projections in the pulleys are aligned with the projections on the one-way clutches.

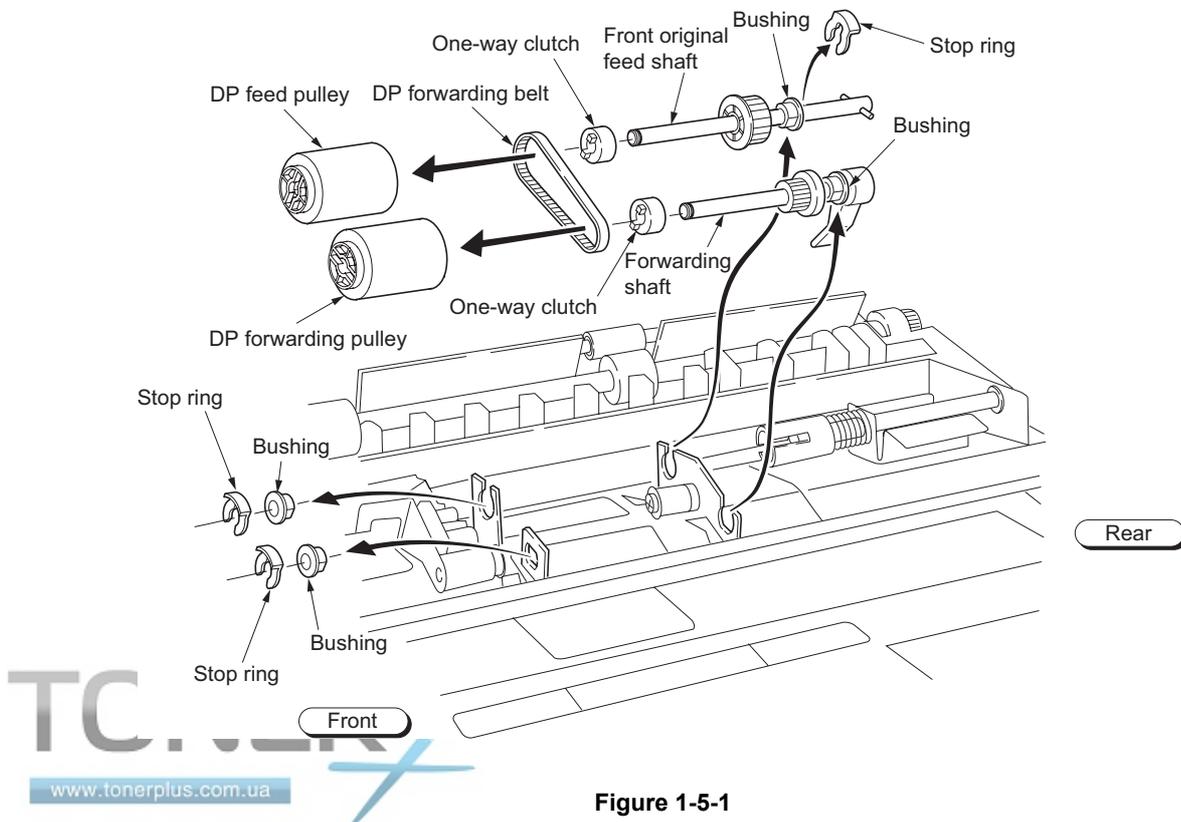


Figure 1-5-1

(2) Detaching and refitting the DP separation pulley

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

Procedure

1. Open the document processor cover
2. Remove two screws holding the upper original feed cover and then the cover.

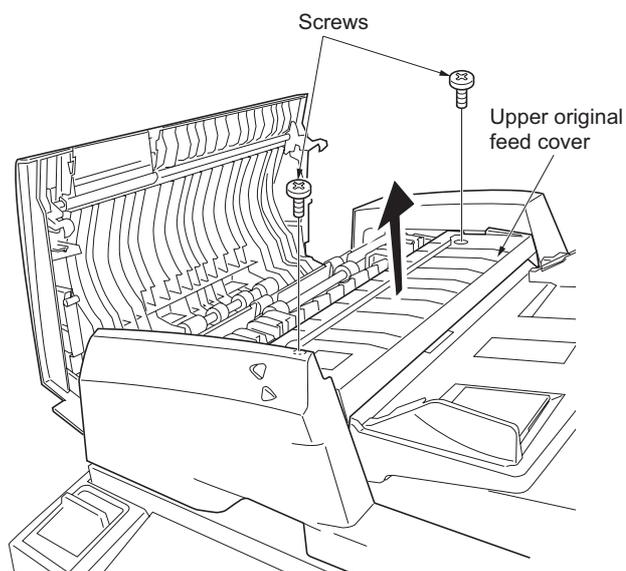


Figure 1-5-2

3. Remove two screws holding the upper feed guide.
4. Remove the two screws holding the original feed lift and then the lift.

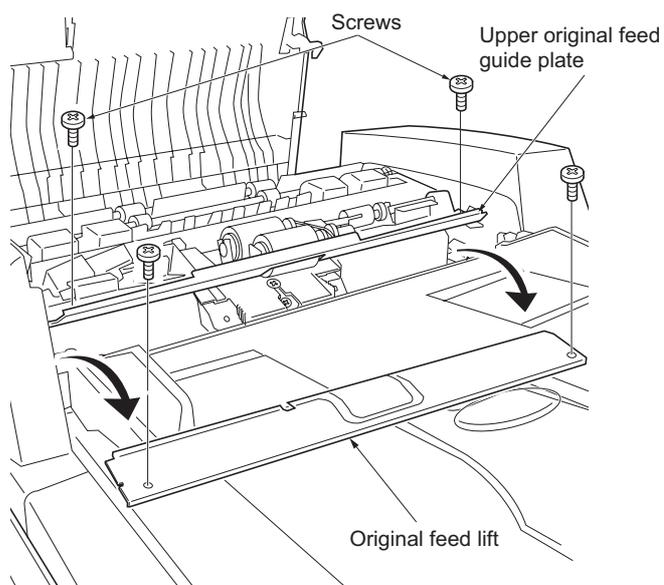


Figure 1-5-3

5. Remove the screw holding the separation pulley unit and then the unit.

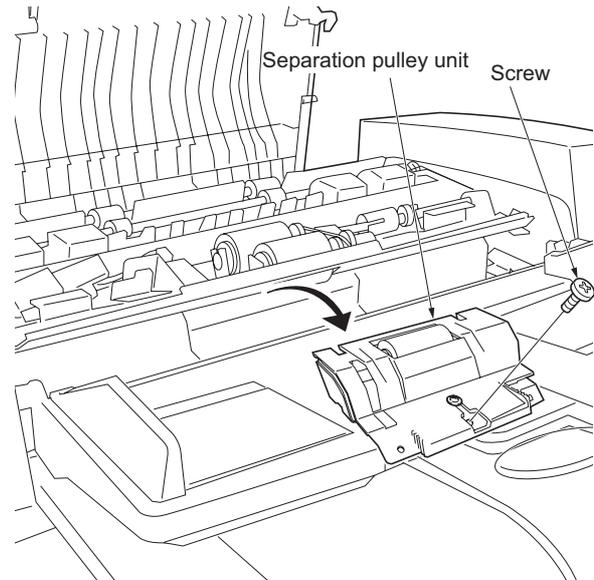


Figure 1-5-4

6. Remove the screw holding the separation guide and then the guide.
7. Remove the separation shaft from the separation pulley arms.
8. Remove the stopper from the separation shaft and then remove the DP separation pulley.
9. Clean or replace the DP separation pulley.
10. Refit all the removed parts.

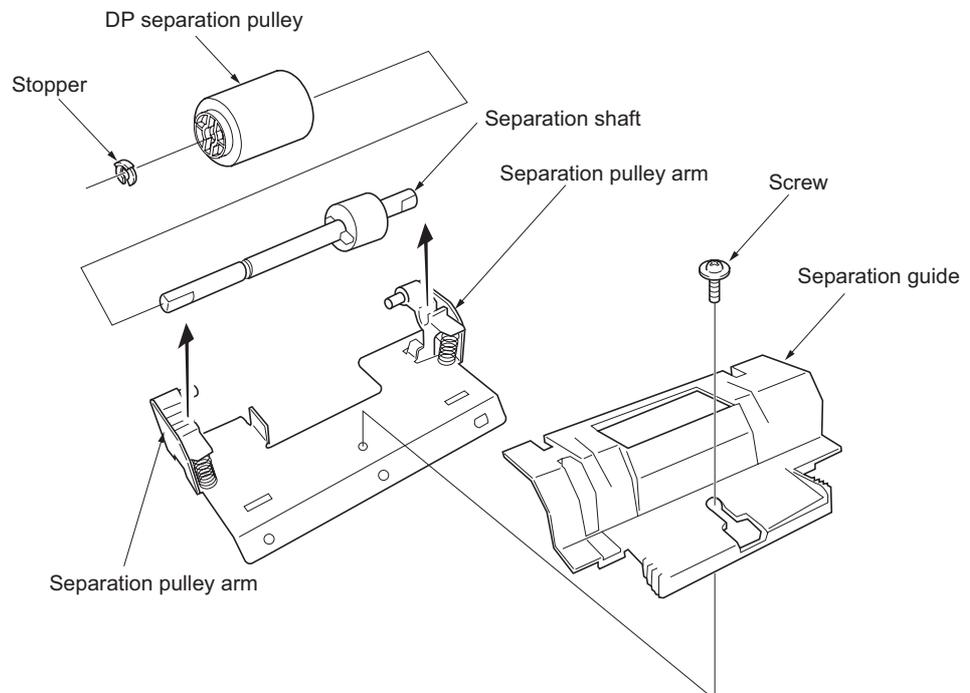


Figure 1-5-5

2-1-1 Original feed section

The original feed section consists of the parts shown in figure 2-1-1. An original placed on the original table is conveyed to the original switchback section or the original conveying section.

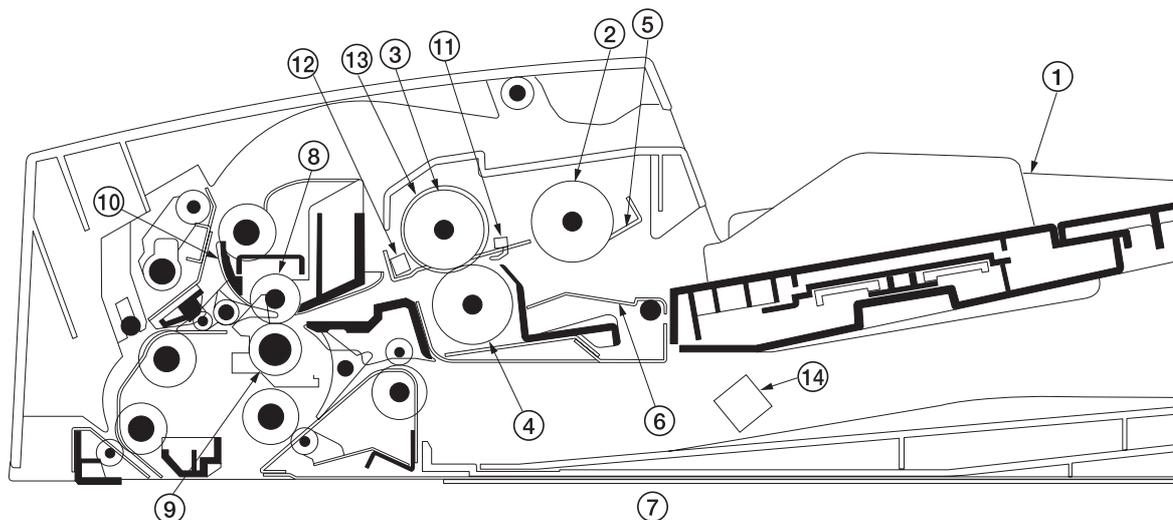


Figure 2-1-1 Original feed section

- | | |
|----------------------------------|-------------------------------------|
| (1) Original table | (8) DP registration pulley |
| (2) DP forwarding pulleys | (9) DP registration roller |
| (3) DP original feed pulley | (10) DP registration guide |
| (4) DP separation pulley | (11) Original set switch (OSSW) |
| (5) DP original feed upper guide | (12) Original feed switch (OFSW) |
| (6) DP original feed lower guide | (13) Original feed clutch (OFCL) |
| (7) Original feed lift | (14) Original feed solenoid (OFSOL) |

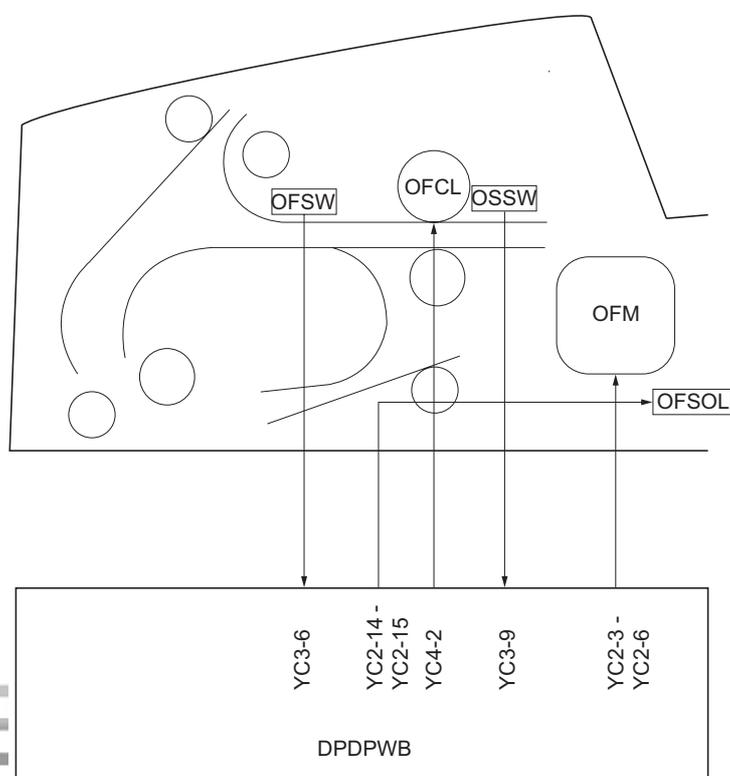


Figure 2-1-2 Original feed section block diagram

2-1-2 Original switchback section

The original switchback section consists of the parts shown in figure 2-1-3. The original from the original feed section or original conveying section is reversed and conveyed to the original conveying section.

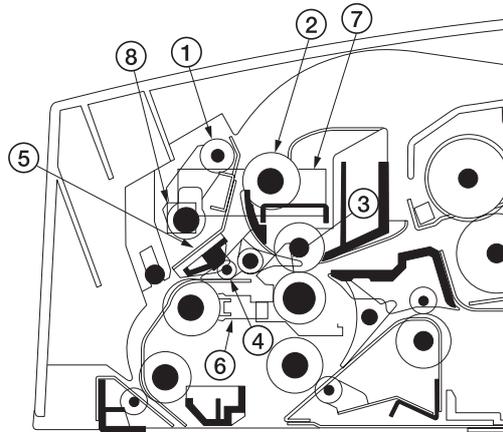


Figure 2-1-3 Original switchback section

- | | |
|--------------------------------|---|
| (1) Switchback pulley | (6) Original switchback switch (OSBSW) |
| (2) Switchback roller | (7) Switchback feedshift solenoid (SBFSSOL) |
| (3) Switchback feedshift guide | (8) Switchback pressure solenoid (SBPSOL) |
| (4) Left switchback guide | |
| (5) Switchback guide | |

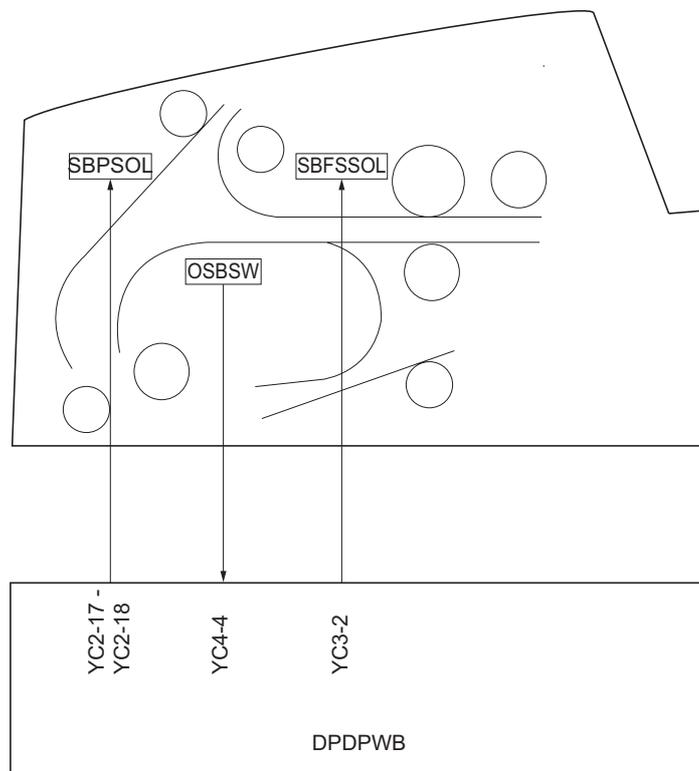


Figure 2-1-4 Original switchback section block diagram

(1) Operation of original switchback

In the double-sided original mode, the switchback feedshift solenoid (SBFSSOL) turns on, changing the position of the switchback feedshift guide. This switches the path of the original to the original switchback section to where the original is fed.

The switchback feedshift solenoid (SBFSSOL) then turns off, allowing the switchback feedshift guide to return to the original position by which the path of the original is switched back to the original conveying section. The now reversed original is carried to the original conveying section and the switchback pressure solenoid (SBPSOL) turns off, releasing the switchback pulley to prevent an original jam in the original switchback section.

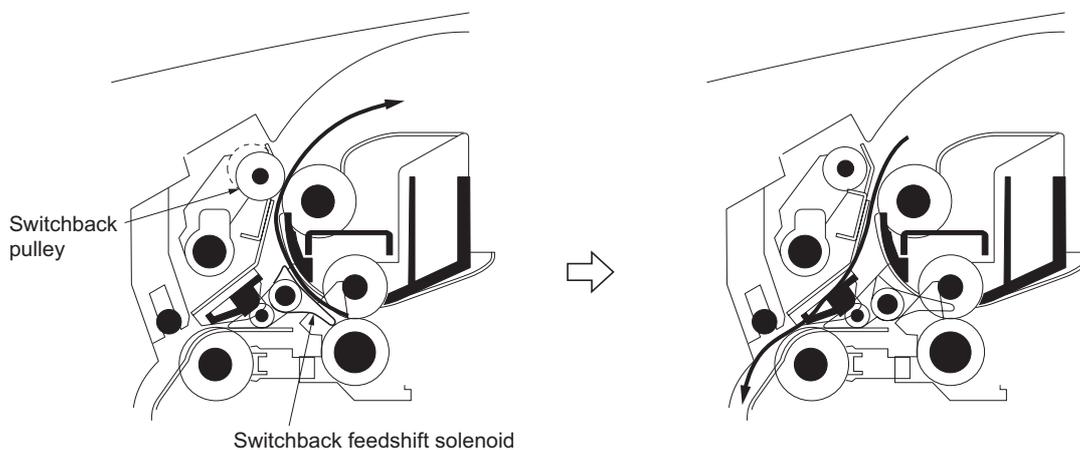


Figure 2-1-5

2-1-3 Original conveying section

The original conveying section consists of the parts shown in Figure. Synchronized with the copier scanning operation, the original is conveyed across the slit glass and ejected when scanning is complete. In the double-sided original mode, the eject feedshift solenoid (EFSSOL) turns on, moving the eject feedshift guide to switch the path of the original. When the scanning of the first face (reverse face) of the original is complete, the original is conveyed to the original switchback section again.

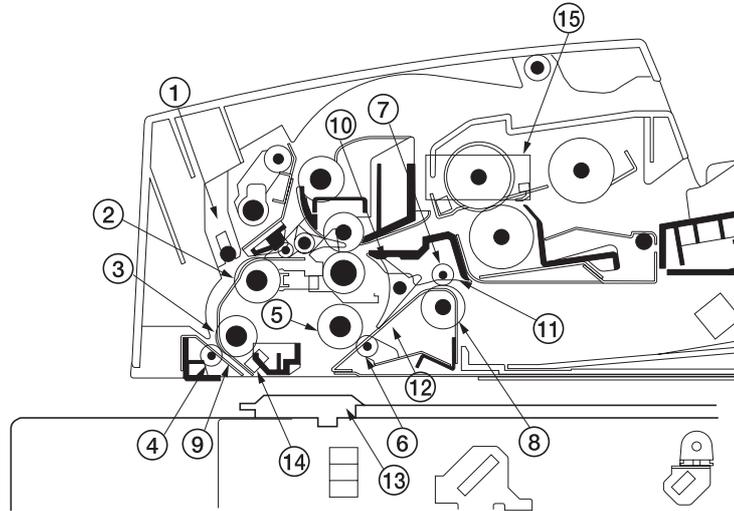


Figure 2-1-6 Original conveying section

- | | |
|--------------------------------------|--|
| (1) Upper original conveying pulley | (9) Original conveying guide |
| (2) Upper original conveying roller | (10) Eject feedshift guide |
| (3) Lower original conveying roller | (11) Upper eject guide |
| (4) Front scanning pulley | (12) Lower eject guide |
| (5) Middle original conveying roller | (13) Slit glass (copier) |
| (6) Middle original conveying pulley | (14) DP timing switch (DPTSW) |
| (7) Eject pulley | (15) Eject feedshift solenoid (EFSSOL) |
| (8) Eject roller | |

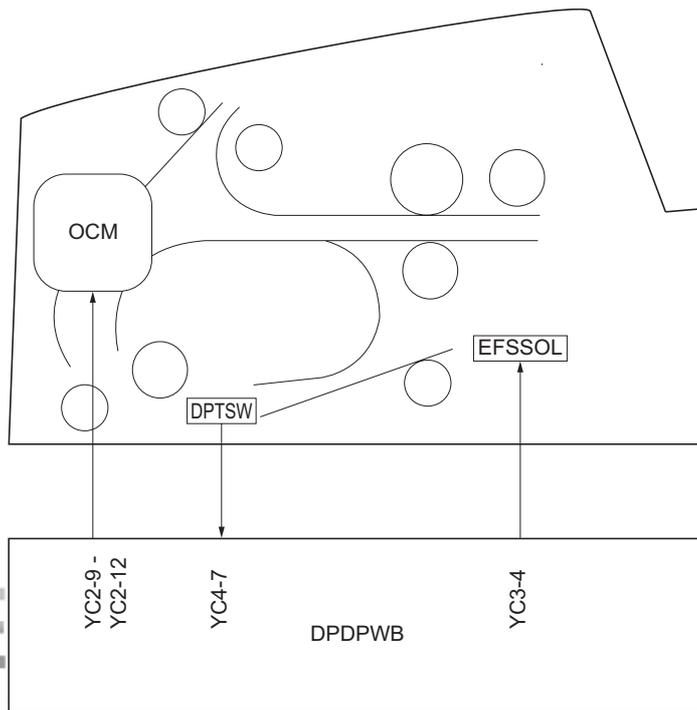


Figure 2-1-7 Original conveying section block diagram

2-2-1 Electrical parts layout

(1) PWBs

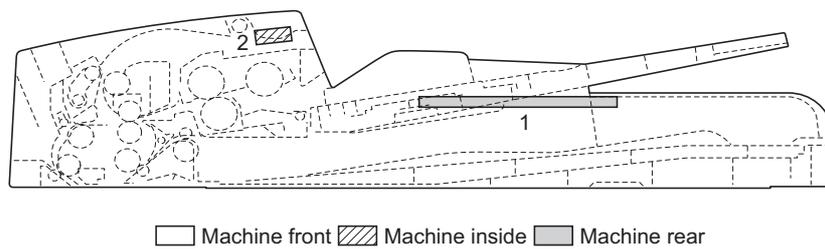


Figure 2-2-1 PWBs

1. DP driver PWB (DPDPWB)..... 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

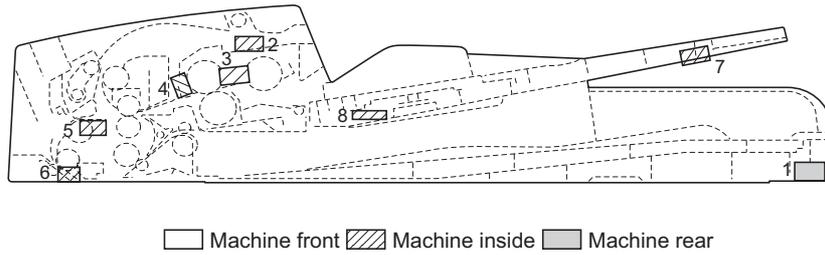
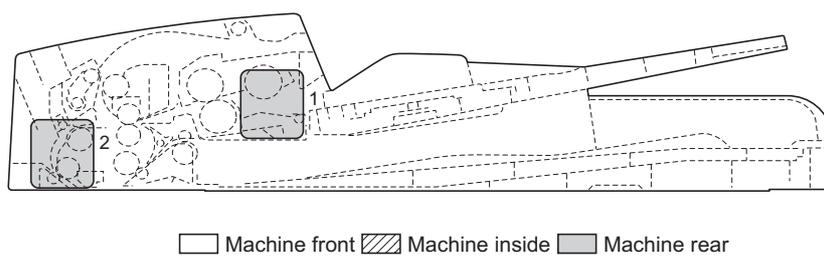
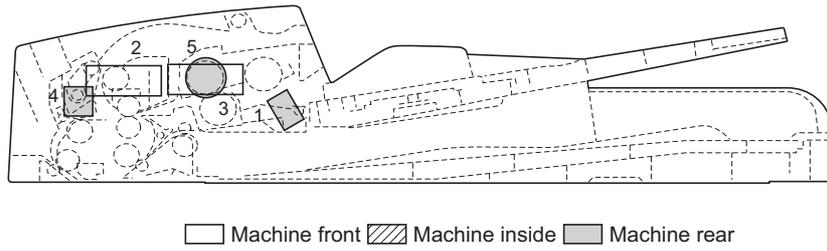


Figure 2-2-2 Switches and sensors

1. DP safety switch 1 (DPSSW1)..... Breaks the safety circuit when the DP is opened; resets original misfeed detection.
2. DP safety switch 2 (DPSSW2)..... Breaks the safety circuit when the DP original switchback cover is opened; resets original misfeed detection.
3. Original set switch (OSSW) Detects the presence of an original.
4. Original feed switch (OFSW) Detects primary original feed end timing.
5. Original switchback switch (OSBSW) Detects an original misfeed in the original switchback section.
6. DP timing switch (DPTSW)..... Detects the original scanning timing.
7. Original size length switch (OSLSW)..... Detects the length of the original.
8. Original size width switch (OSWSW)..... Detects the width of the original.

(3) Motors**Figure 2-2-3 Motors**

1. Original feed motor (OFM) Drives the original feed and switchback sections.
2. Original conveying motor (OCM) Drives the original conveying section.

(4) Clutches and solenoids**Figure 2-2-4 Clutches and solenoids**

1. Original feed solenoid (OFSOL)..... Operates the paper feed lift.
2. Switchback feedshift solenoid (SBFSSOL) ... Operates the switchback feedshift guide.
3. Eject feedshift solenoid (EFSSOL) Operates the eject feedshift guide.
4. Switchback pressure solenoid (SBPSOL).... Operates the switchback pulley.
5. Original feed clutch (OFCL) Controls the drive of the DP original feed pulley.

2-3-1 DP driver PWB

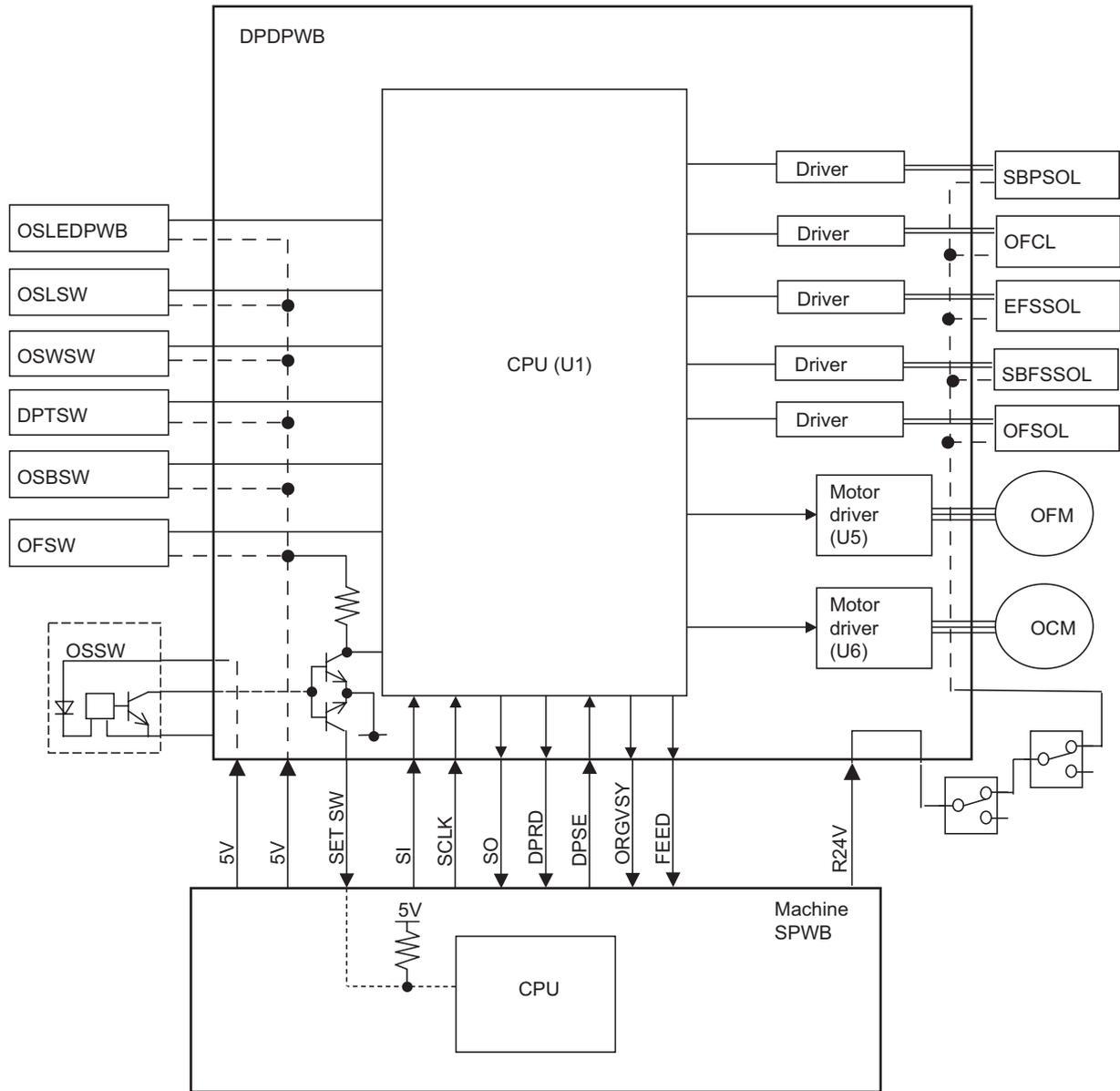


Figure 2-3-1DP driver PWB block diagram

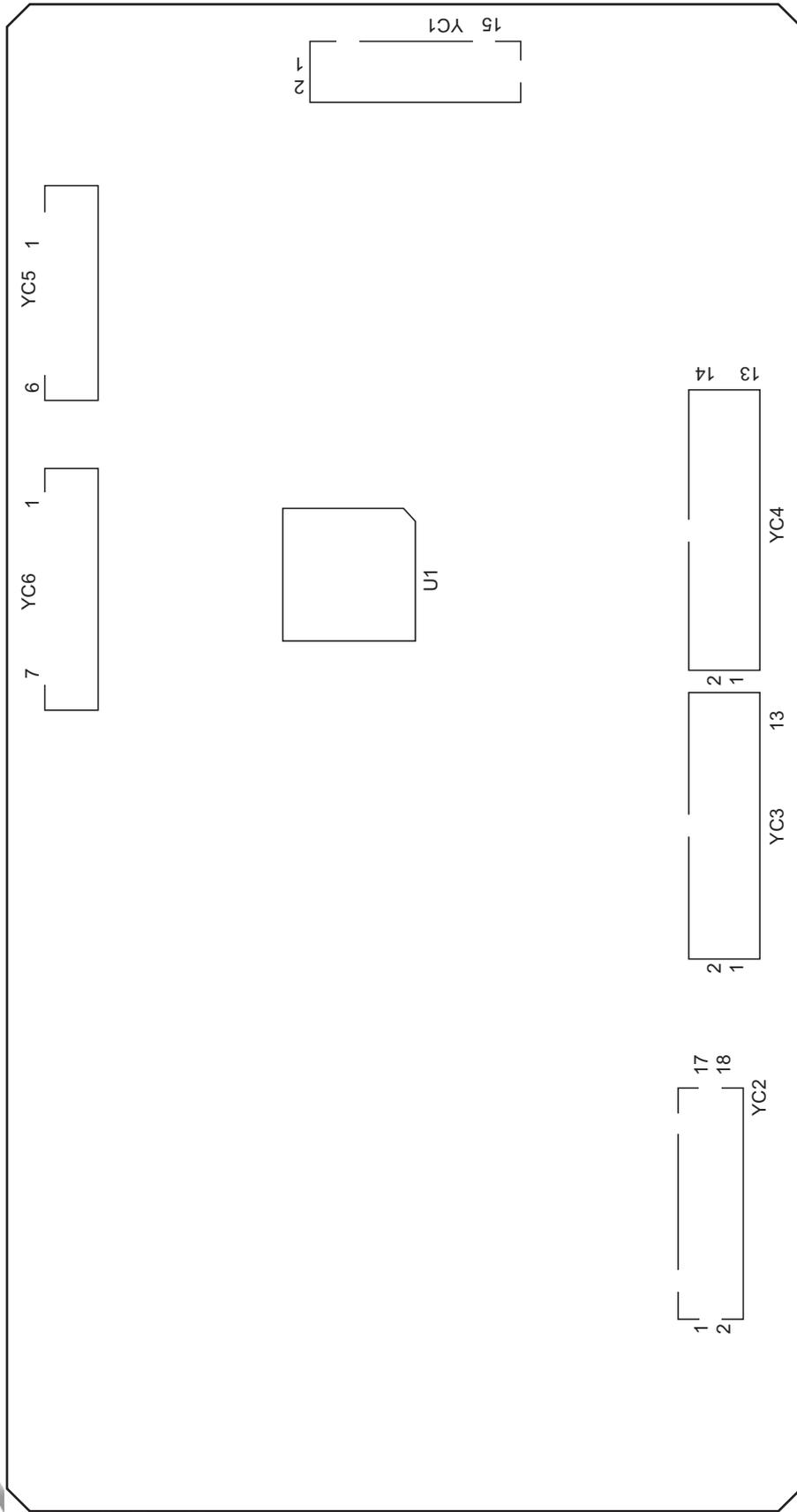
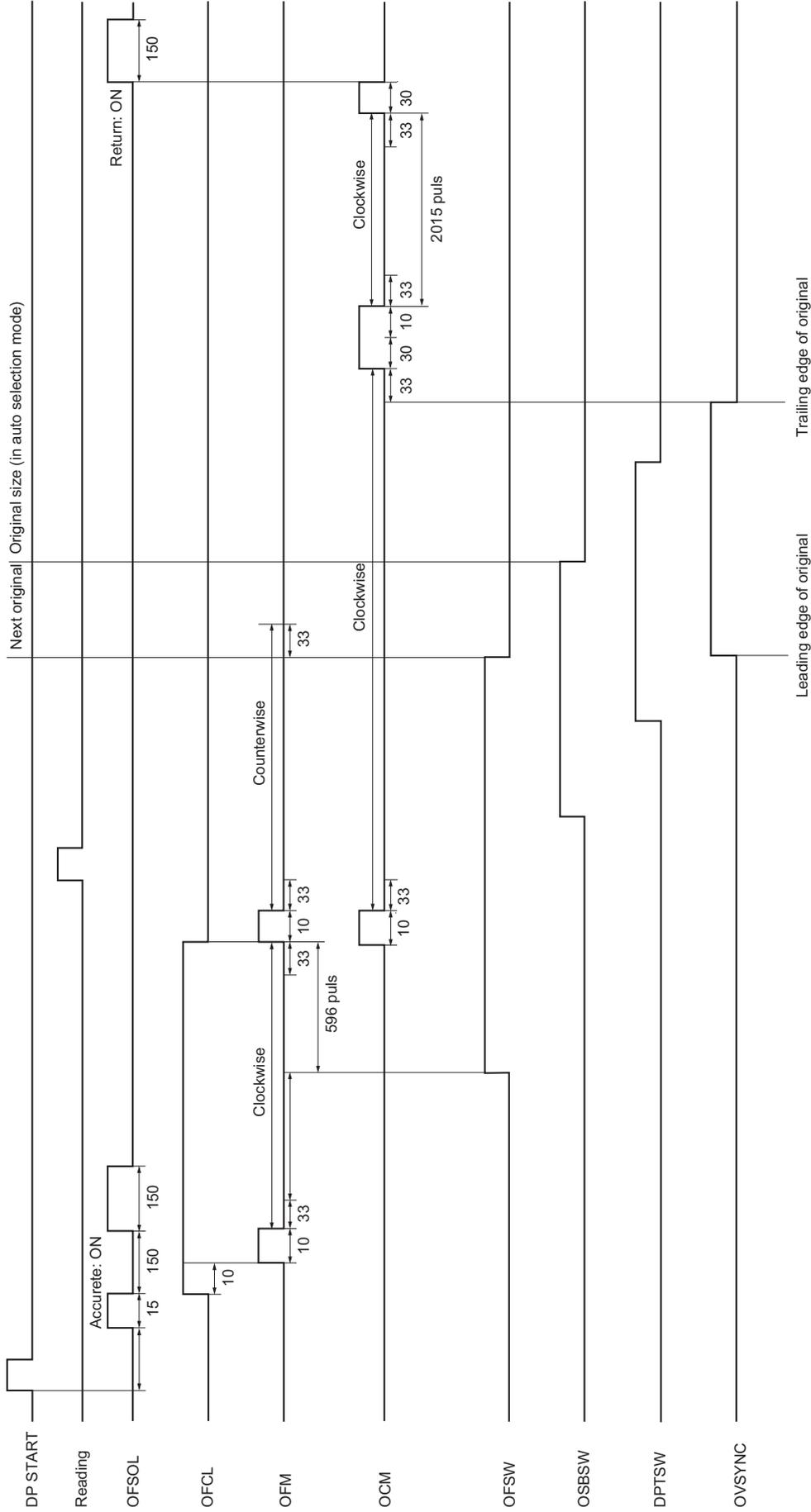


Figure 2-3-2 DP driver PWB silk-screen diagram

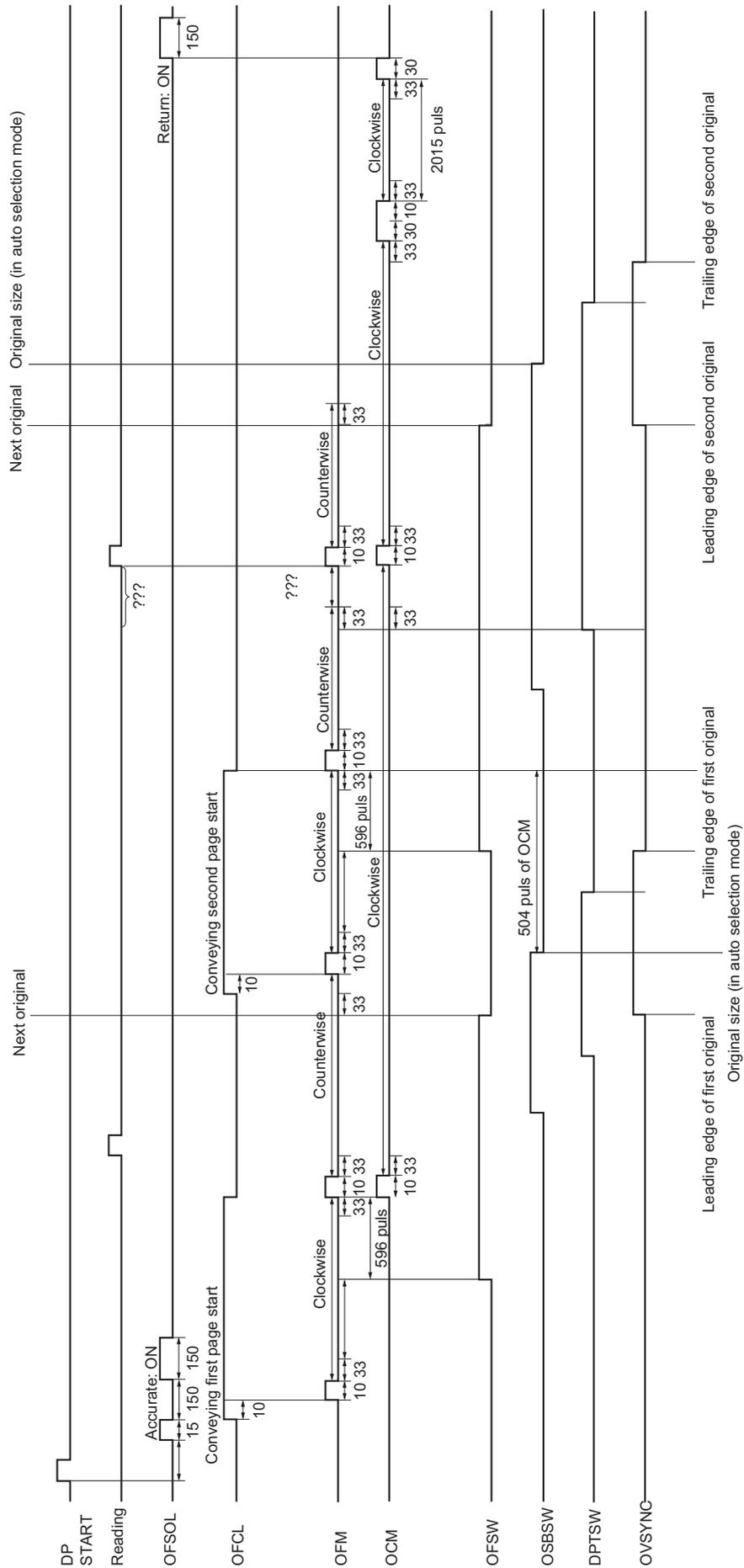
Connector	Pin No.	Signal	I/O	Voltage	Description
YC1 Connected to the machine.	1	24V	I	24 V DC	24 V DC supply
	2	24V	I	24 V DC	24 V DC supply
	3	PG	-	-	Power ground
	4	PG	-	-	Power ground
	5	R5V	I	5 V DC	5 V DC supply
	6	SG	-	-	Signal ground
	7	5V	I	5 V DC	5 V DC supply
	8	SETOUT	-	-	Not used
	9	SDI	I	5 V DC	Serial communication SI signal
	10	SDO	O	5 V DC	Serial communication SD signal
	11	SCLK	I	5 V DC	Serial communication SCLK signal
	12	SEL	I	5 V DC	Serial communication select signal
	13	RDY	O	5 V DC	Serial communication ready signal
	14	DPVSYNC	O	5 V DC	DPTSW: On/Off
	15	N.C.	-	-	Not used
	16	DPFEED	O	5 V DC	Timing signal for the machine
YC2 Connected to the original feed motor, original conveying motor, original feed solenoid and switchback pressure solenoid.	1	R24V	O	24 V DC	24 V DC supply
	2	R24V	O	24 V DC	24 V DC supply
	3	FMOT A	O	24 V DC	OFM motor coil energization pulse
	4	FMOT B	O	24 V DC	OFM motor coil energization pulse
	5	FMOT-A	O	24 V DC	OFM motor coil energization pulse
	6	FMOT-B	O	24 V DC	OFM motor coil energization pulse
	7	R24V	O	24 V DC	24 V DC supply
	8	R24V	O	24 V DC	24 V DC supply
	9	CMOT A	O	24 V DC	OCM motor coil energization pulse
	10	CMOT B	O	24 V DC	OCM motor coil energization pulse
	11	CMOT-A	O	24 V DC	OCM motor coil energization pulse
	12	CMOT-B	O	24 V DC	OCM motor coil energization pulse
	13	R24V	O	24 V DC	24 V DC supply
	14	FD SOL(ACT)	O	24 V DC	OFSOL: actuate
	15	FD SOL(RET)	O	24 V DC	OFSOL: return
	16	R24V	O	24 V DC	24 V DC supply
	17	REV SOL(ACT)	O	24 V DC	SBPSOL: actuate
	18	REV SOL(RET)	O	24 V DC	SBPSOL: return
YC3 Connected to the switchback feedshift solenoid, eject feed-shift solenoid, original feed switch, original set switch and original set LED PWB.	1	R24V	O	24 V DC	24 V DC supply
	2	REV JCT SOL	O	24 V DC	SBFSSOL: On/Off
	3	R24V	O	24 V DC	24 V DC supply
	4	EJ JCT SOL	O	24 V DC	EFSSOL: On/Off
	5	R5V	O	5 V DC	5 V DC supply
	6	FD SW	I	5 V DC	OFSW: On/Off
	7	G(5V)	-	-	Signal ground
	8	5V	O	5 V DC	5 V DC supply
	9	SET SW	I	5 V DC	OSSW: On/Off
	10	G(5V)	-	-	Signal ground
	11	LED-	O	5 V DC	OSLEDPWB (red): On/Off
	12	G(5V)	-	-	Signal ground
	13	LED PWB(GN)	O	5 V DC	OSLEDPWB (green): On/Off

Connector	Pin No.	Signal	I/O	Voltage	Description
YC4 Connected to the original feed clutch, original switch-back switch, DP timing switch, original size length switch and original size width switch.	1	R24V	O	24 V DC	24 V DC supply
	2	FD CL	O	24 V DC	OFCL: On/Off
	3	G(5V)	-	-	Signal ground
	4	REV SW	I	5 V DC	OSBSW: On/Off
	5	R5V	O	5 V DC	5 V DC supply
	6	G(5V)	-	-	Signal ground
	7	TMG SW	I	5 V DC	DPTSW: On/Off
	8	R5V	O	5 V DC	5 V DC supply
	9	G(5V)	-	-	Signal ground
	10	SZ DET	I	5 V DC	OSLSW: On/Off
	11	R5V	O	5 V DC	5 V DC supply
	12	G(5V)	-	-	Signal ground
	13	SZ SW A	I	5 V DC	OSWSW: On/Off
	14	R5V	O	5 V DC	5 V DC supply
YC5 Connected to DP safety switch 1 and 2.	1	24V	O	24 V DC	24 V DC supply
	2	N.C.	-	-	Not used
	3	R24V	I	24 V DC	24 V DC supply
	4	N.C.	-	-	Not used
	5	COV SF OPEN	I	5 V DC	DPSSW1: On/Off
	6	DF SF OPEN	I	5 V DC	DPSSW2: On/Off

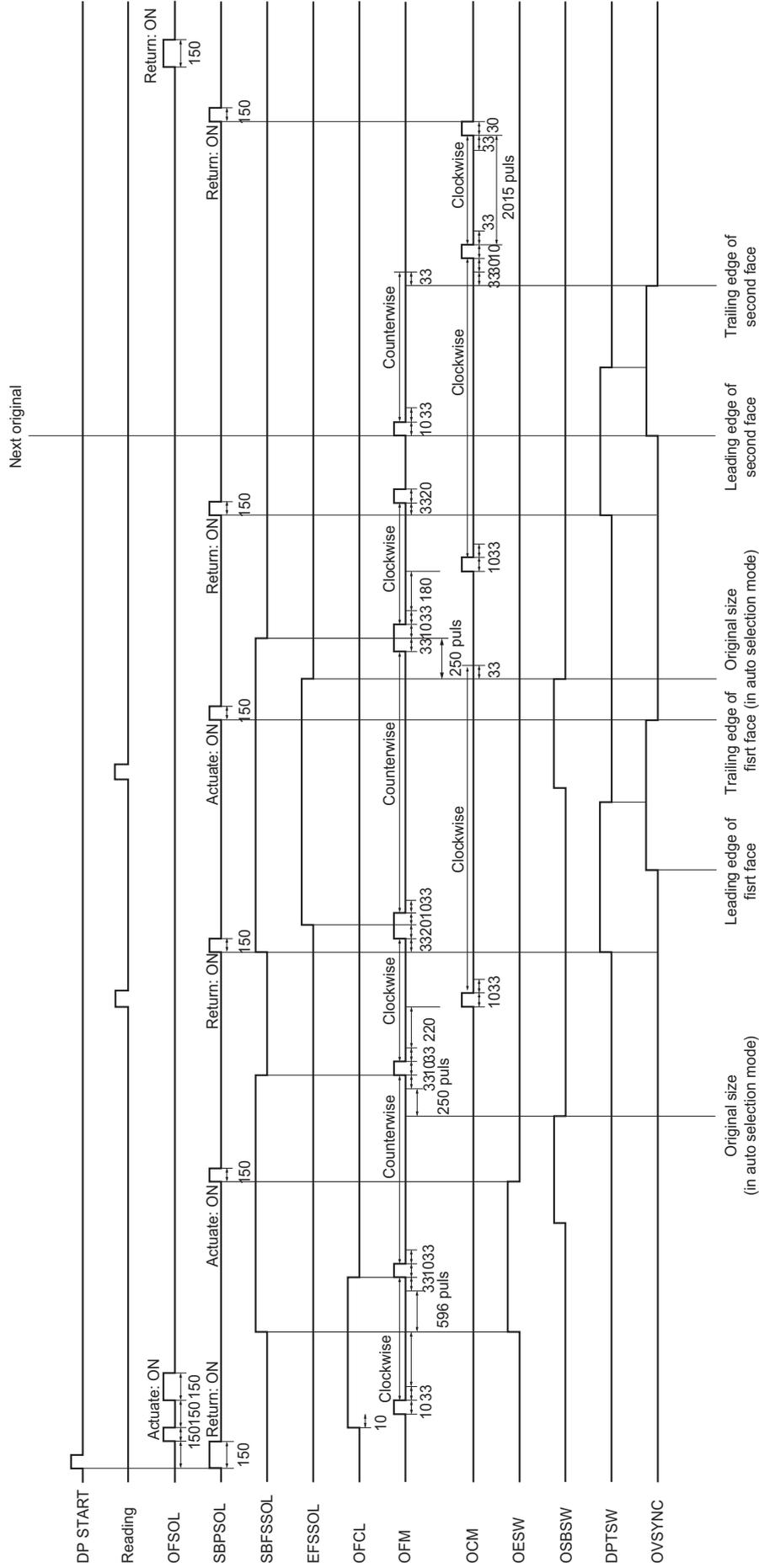
Timing chart No.1 Original feed operation 1: Feeding an A4/11" x 8 1/2" original in single-sided original mode



Timing chart No.3 Original feed operation 3: Feeding two A4/11" x 8 1/2" originals successively in single-sided original mode



Timing chart No.4 Original feed operation 4: Feeding two A4R/8 1/2" x 11" originals successively in double-sided original mode



List of maintenance parts

Maintenance part name		Part No.	Alternative part No.	Fig. No.	Ref. No.
Name used in service manual	Name used in parts list				
DP forwarding pulley	ROLLER FEED	303J906010	3J906010	4	27
DP feed pulley	ROLLER FEED	303J906010	3J906010	4	27
DP separation pulley	ROLLER FEED	303J906010	3J906010	4	27
DP registration roller	ROLLER REGISTRATION	303JC08040	3JC08040	6	56
Original feed switch	PARTS,SWITCH FEED SP	303JC94040	3JC94040	4	17
Upper original conveying roller	UPPER ROLLER CONVEYING	303JC08050	3JC08050	6	30
Lower original conveying roller	LOWER ROLLER CONVEYING	303JC08060	3JC08060	6	32
Middle original conveying roller	INNER ROLLER CONVEYING	303JC08070	3JC08070	6	19
Original conveying guide	GUIDE READING	3C008010	-	6	9
DP timing switch	PARTS,SENSOR TIMING SP	303JC94050	3JC94050	6	22
Eject roller	ROLLER EJECT	303JC08080	3JC08080	6	39
Switchback roller	ROLLER LOOP	303JC08090	3JC08090	5	6
Original set switch	SENSOR ORIGINAL	3H627240	-	3	12
Original holder mat	PLATE ORIGINAL	303JC04200	3JC04200	1	38

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	Clean or replace	Every service.	Clean with alcohol. Replace every 200,000	P.1-5-3
	DP feed pulley	Clean or replace	Every service.	Clean with alcohol. Replace every 200,000	P.1-5-3
	DP separation pulley	Clean or replace	Every service.	Clean with alcohol. Replace every 200,000	P.1-5-4
	DP registration roller	Clean	Every service.	Clean with alcohol or a dry cloth.	
	Original feed switch	Clean	Every service.	Air blow.	
	Pulleys	Check or clean	Every service.	Clean with alcohol or a dry cloth.	
	Guide	Clean	Every service.	Clean with alcohol or a dry cloth.	



Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Original conveying sec-	Lower original conveying roller	Clean	Every service	Clean with alcohol or a dry cloth.	
	Upper original conveying roller	Clean	Every service	Clean with alcohol or a dry cloth.	
	Middle original conveying roller	Clean	Every service	Clean with alcohol or a dry cloth.	
	Original conveying guide	Clean	Every service	Clean with alcohol or a dry cloth.	
	DP timing switch	Clean	Every service	Air blow.	
	Pulleys	Check or clean	Every service	Clean with alcohol or a dry cloth.	
	Guide	Clean	Every service	Clean with alcohol or a dry cloth.	



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



Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Original table	Original set switch	Clean	Every service	Air blow.	



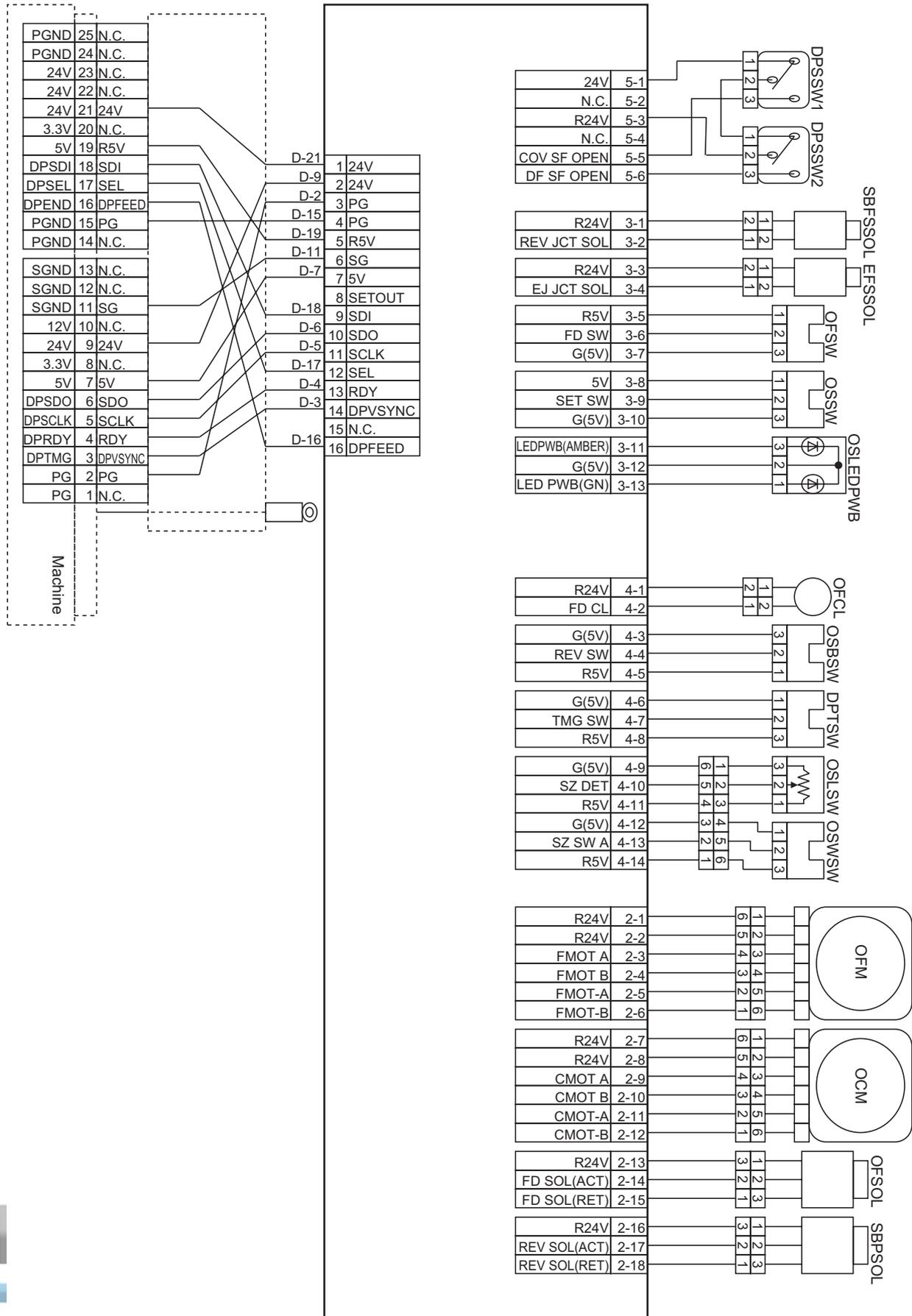
Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Covers	Covers	Clean	Every service	Clean with alcohol or a dry cloth.	
	Original holder mat	Clean	Every service	Clean with alcohol or a dry cloth.	
	Slit glass*	Check or clean	Every service	Clean with a dry cloth. (Do not clean with alcohol nor wet cloth)	



Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Other	Sensors	Clean	Every service	Air blow.	

*Equipped with the machine.

Wiring diagram



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