KYOCERA mita

DP-410

SERVICE MANUAL

Published in May '03
843HL110

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.

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 main 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. .....

CONTENTS

1-1-1 Specifications

Type	Machine mounted type duplex sheet-through document processor
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, recycled paper, thermal paper, art paper and colored paper
Original sizes	A3 – A5R/11" × 17" – 5 1/2" × 8 1/2"
No. of originals	50 sheets (50 – 80 g/m^2) 30 sheets in the auto selection mode
Original processing speed	Original replacement: Max. 20 sheets/min (A4/11" × 8 1/2") Original scanning: 100 mm/s (100%)
Power source	Electrically connected to the copier
Dimensions	552 (W) × 483 (D) × 120 (H) mm 21 3/4" (W) × 19" (D) × 4 3/4" (H)
Weight	Approx. 6.0 kg/13.2 lbs

1-1-2 Parts names and their functions

(1) Parts names

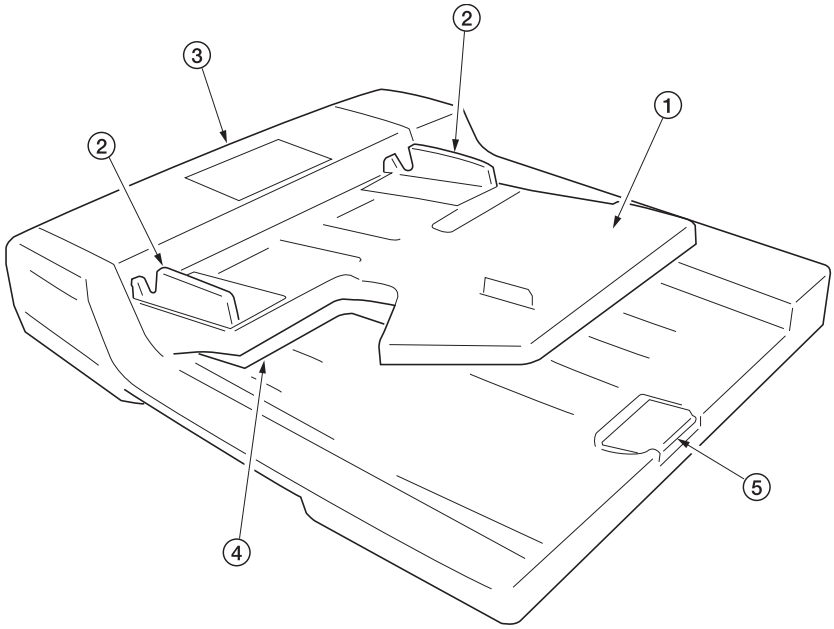


Figure 1-1-1

① Original table
② Original insert guides
③ DP original cover
④ Switchback tray
⑤ Ejection extension

1-1-3 Machine cross section

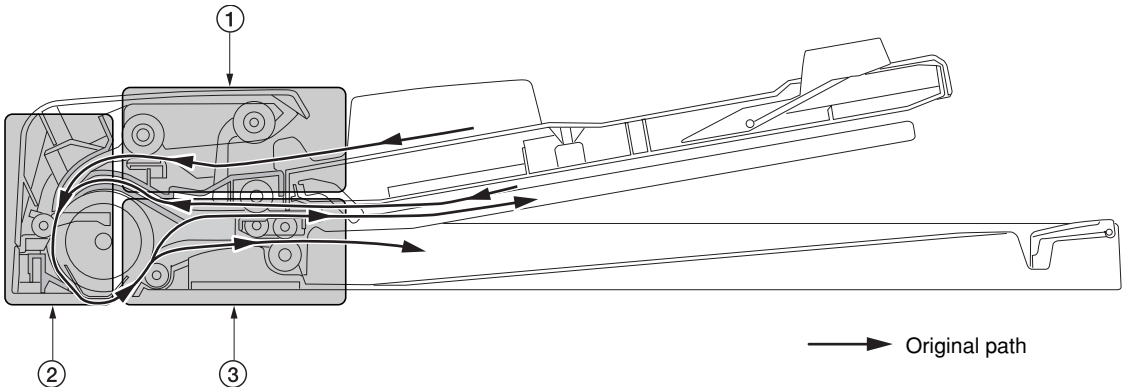
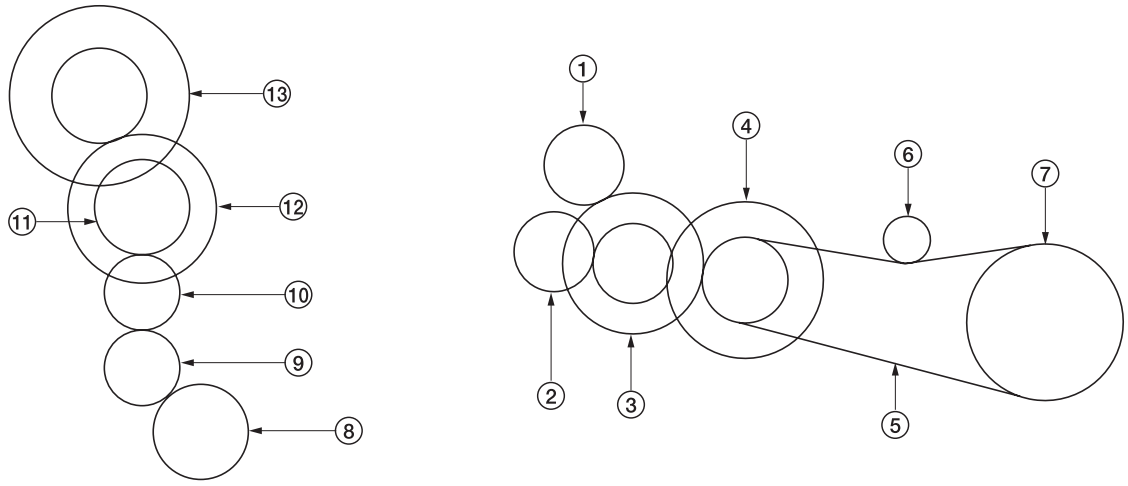


Figure 1-1-2 Machine cross section

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

1-1-4 Drive system

• Original conveying motor



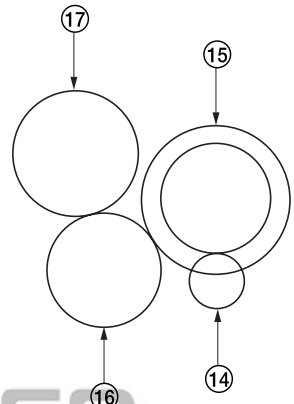
• Inside front of machine

• Inside rear of machine

Figure 1-1-3 Drive system

① Original conveying motor gear
② Gear 16
③ Idle gear 49/13
④ Gear 24/30
⑤ Belt 174S2M
⑥ Pulley
⑦ Conveying pulley 40
⑧ Exit gear 16
⑨ Idle gear 15
⑩ Idle gear 15
⑪ Exit gear 16
⑫ Gear 40
⑬ Gear 30

• Original feed motor



⑭ Original feed motor gear
⑮ Gear 42/29
⑯ Gear 20
⑰ Gear 30

Figure 1-1-4 Drive system

1-2-1 Unpacking and installation

(1) Unpacking

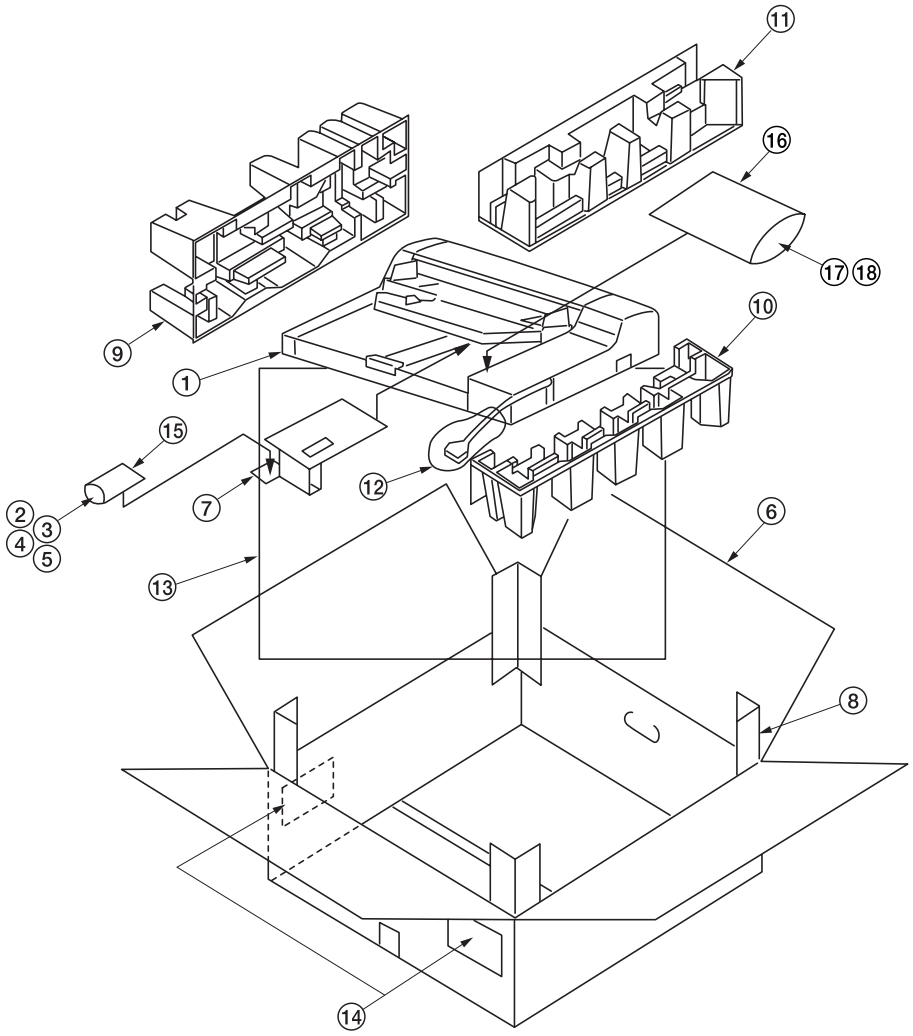


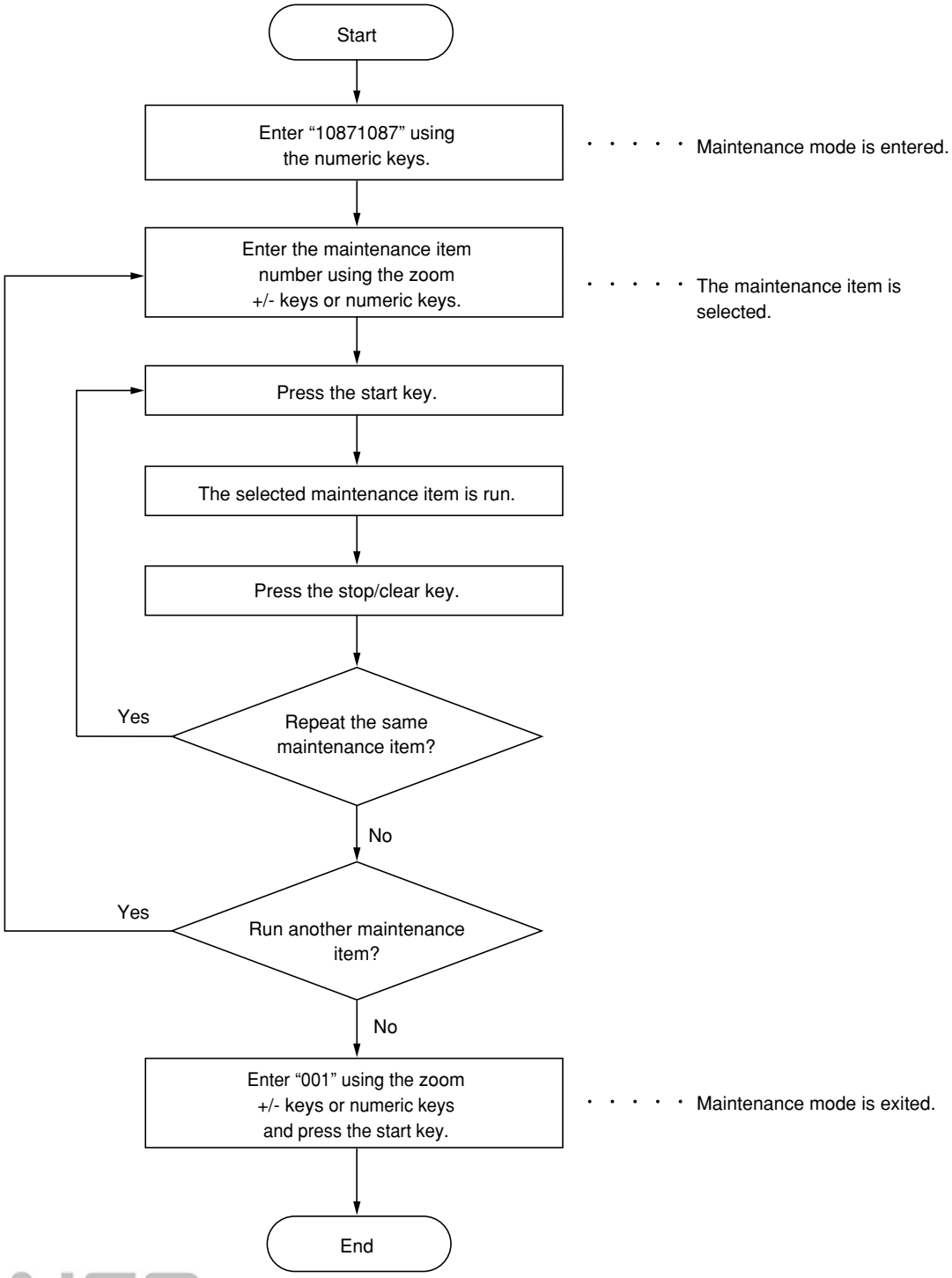
Figure 1-2-1 Unpacking

① Document processor
② Fixing fitting
③ Pin
④ Bronze TP screw M3x06
⑤ Chrome TP screw M4x10
⑥ Outer case
⑦ Spacer
⑧ Supports
⑨ Front pad
⑩ Rear bottom pad
⑪ Rear upper pad
⑫ Air cap bag (70 × 280)
⑬ Plastic sheet (1300 × 1300)
⑭ Bar code labels
⑮ Plastic bag (70 × 110)
⑯ Plastic bag (240 × 350)
⑰ Caution lavel
⑱ Installation guide

1-3-1 Maintenance mode

The copier 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.	Maintenance item contents	Initial setting*
DP	U019	Displaying the ROM version	—
	U068	Adjusting the scanning position for originals from the DP	0
	U070	Adjusting the DP magnification	0
	U071	Adjusting the DP scanning timing • DP leading edge registration • DP trailing edge registration	 0 0
	U072	Adjusting the DP center line	0
	U074	Adjusting the DP input light luminosity	1
	U087	Turning the DP scanning position adjust mode on/off	35
	U203	Operating DP separately	—
	U243	Checking the operation of the DP motors and solenoids	—
	U244	Checking the DP switches	—
	U404	Adjusting margins for scanning an original from the DP	—

* Initial setting for executing maintenance item U020

(3) Contents of maintenance mode items

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U019</td><td>
Displaying the ROM version
Description
Displays the part number of the ROM fitted to each board.
Purpose
To check the part number or to decide if the ROM version is new from the last digit of the number.
Method
1. Press the start key. A selection item appears.
2. Select the item to be displayed using the image mode selection key and copy exposure adjustment keys.
<table>
<tr><th>Image mode LEDs</th><th>Copy exposure indicator</th><th>Copy quantity display</th></tr>
<tr><td>○ Text & Photo
○ Photo
● Text</td><td>Exp. 1
Exp. 2</td><td>number of the main ROM
number of the main ROM sub</td></tr>
<tr><td>○ Text & Photo
● Photo
● Text</td><td>Exp. 1
Exp. 2</td><td>number of the engine ROM
number of the engine ROM sub</td></tr>
<tr><td>● Text & Photo
● Photo
● Text</td><td>Exp. 1
Exp. 2
Exp. 3</td><td>number of the first paper feeder ROM
number of the second paper feeder ROM
number of the third paper feeder ROM</td></tr>
<tr><td>● Text & Photo
● Photo
☼ Text</td><td>Exp. 1</td><td>number of the DP ROM</td></tr>
</table>
○ : Off, ● : On, ☼: Flashing
Completion
Press the stop/clear key. The indication for selecting a maintenance item No. appears.
</td></tr>
<tr><td>U068</td><td>
Adjusting the scanning position for originals from the DP
Description
Adjusts the position for scanning originals from the DP.
Purpose
Used when there is a regular error between the leading edges of the original and the copy image when the DP is used.
Method
Press the start key.
Setting
1. Change the setting using the zoom +/– keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th><th>Change in value per step</th></tr>
<tr><td>Scanning position</td><td>–17 to +17</td><td>0</td><td>0.254 mm</td></tr>
</table>
Increasing the setting moves the image backward, and decreasing it moves the image forward.
2. Press the start key. The value is set.
Completion
Press the stop/clear key. The indication for selecting a maintenance item No. appears.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U070</td><td>Adjusting the DP magnification
Adjustment
See pages 1-5-6.</td></tr>
<tr><td>U071</td><td>Adjusting the DP scanning timing
Adjustment
See page 1-5-8 and 9.</td></tr>
<tr><td>U072</td><td>Adjusting the DP center line
Adjustment
See page 1-5-7.</td></tr>
<tr><td>U074</td><td>Adjusting the DP input light luminosity
Description
Adjusts the luminosity of the exposure lamp for scanning originals from the DP.
Purpose
Used if the exposure amount differs significantly between when scanning an original on the contact glass and when scanning an original from the DP.
Method
Press the start key.
Setting
1. Change the setting using the zoom +/– keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>DP input light luminosity</td><td>0 to 8</td><td>1</td></tr>
</table>
Increasing the setting makes the luminosity higher, and decreasing it makes the luminosity lower.
2. Press the start key. The value is set.
Test copy mode
While this maintenance item is being performed, copying from an original can be made in test copy mode.
Completion
Press the stop/clear key. The indication for selecting a maintenance item No. appears.</td></tr>
</table>

Maintenance item No.	Description
U087	**Turning the DP scanning position adjust mode on/off** **Description** Turns on or off the DP scanning position adjust mode, in which the DP original scanning position is adjusted automatically by determining the presence or absence of dust on the slit glass. Also changes the reference data for identifying dust. **Reference** In the DP original scanning position adjust mode, 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. **Purpose** Used to prevent appearance of black lines due to dust adhering in the original scanning position on the slit glass when the DP is used. **Method** 1. Press the start key. 2. Select the item to be set by lighting a copy exposure indicator using the copy exposure adjustment keys.

Copy exposure indicator	Description
Exp. 1 Exp. 2	Setting the mode on/off Setting the reference data for identifying dust

Setting the mode on/off

1. Select “on” or “oFF” using the zoom +/– keys.

Display	Description
on oFF	DP scanning position adjust mode on DP scanning position adjust mode off

Initial setting: on

2. Press the start key. The setting is set.

Setting the reference data for identifying dust

Available only when the mode is turned on.

1. Change the setting using the zoom +/– keys.

Description	Setting range	Initial setting
Minimum density to be regarded as dust	10 to 95	35

Example

The figure indicates the density in 256 levels of gray (0: white, 255: black). When the setting is 35, data of the level of 35 or higher is regarded as dust and data of lower level is regarded as the background (scan data taken when there is no original).

2. Press the start key. The value is set.

Completion

Press the stop/clear key while a selection item is displayed. The indication for selecting a maintenance item No. appears.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U203</td><td>
Operating DP separately
Description
Simulates the original conveying operation separately in the DP.
Purpose
To check the DP.
Method
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 using the copy exposure adjustment keys.
<table>
<tr><th>Display (copy exposure indicator)</th><th>Operation</th></tr>
<tr><td>d-P (exp. 1)
d-n (exp. 2)
dp2 (exp. 3)
dn2 (exp. 4)</td><td>With paper
Without paper (continuous operation)
With paper (duplex mode)
Without paper (duplex mode)</td></tr>
</table>
4. Press the start key. The operation starts.
5. To stop continuous operation, press the stop/clear key.
Completion
Press the stop/clear key when the operation stops. The indication for selecting a maintenance item No. appears.
</td></tr>
<tr><td>U243</td><td>
Checking the operation of the DP motors and solenoids
Description
Turns the motors and solenoids in the DP on.
Purpose
To check the operation of the DP motors and solenoids.
Method
1. Press the start key.
2. Select the motor or solenoid to be operated using the copy exposure adjustment keys.
3. Press the start key. The operation starts.
<table>
<tr><th>Indication (copy exposure indicator)</th><th>Motor</th></tr>
<tr><td>F-0 (exp. 1)
C-0 (exp. 2)
b-S (exp. 3)
P-S (exp. 4)</td><td>Original feed motor (OFM)
Original conveying motor (OCM)
Switchback feedshift solenoid (SBFSSOL)
Switchback pressure solenoid (SBPSOL)</td></tr>
</table>
4. To turn each motor off, press the stop/clear key.
Completion
Press the stop/clear key when operation stops. The indication for selecting a maintenance item No. appears.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U244</td><td>
Checking the DP switches
Description
Displays the status of the switches in the DP.
Purpose
To check if switches in the DP operate correctly.
Method
1. Press the start key. "-S-" appears.
2. Turn each switche on and off manually to check the status. When the on-status of a switch is detected, the LEDs on the operation panel corresponding to the operated switch lights.
<table>
<tr><th>LEDs</th><th>Switch</th></tr>
<tr><td>Auto Exp.
Text & Photo
Photo
Text
Program
Eco-copy</td><td>Original set switch (OSSW)
DP timing switch (DPTSW)
Original detection switch (ODSW)
DP original cover switch (DPOCSW)
Original size length switch (OSLSW)
Original switchback switch (OSBSW)</td></tr>
</table>
Completion
Press the stop/clear key. The indication for selecting a maintenance item No. appears.
</td></tr>
<tr><td>U404</td><td>
Adjusting margins for scanning an original from the DP
Adjustment
See pages 1-5-10.
</td></tr>
</table>

1-4-1 Original misfeed detection

(1) Original misfeed indication

When an original jams, the copier immediately stops copying and displays the jam location on the operation panel.
To remove the jammed original in the DP, open the DP original cover.
To reset the original misfeed detection, open and close the DP original cover to turn DP original cover switch off and on.

(2) Original misfeed detection conditions

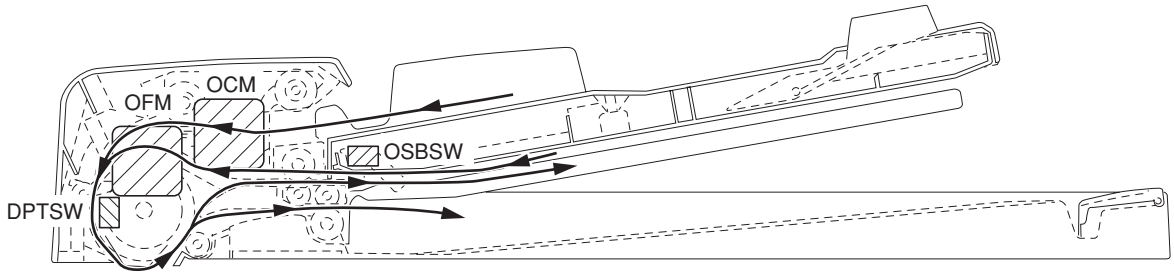


Figure 1-4-1

Section	Jam code	Description	Conditions
Original feed section	70	No original feed	During the primary feed of the second original in the single-sided or double-sided original mode, even if retry operation is performed five times, primary original feed is not performed.
Original conveying section	71	An original jam in the original conveying section 1	During the secondary original feed in the single-sided or double-sided original mode, the DP timing switch (DPTSW) does not turn off within 6500 ms of the original conveying motor (OCM) turning on.
	72	An original size error jam	During the secondary original feed in the single-sided or double-sided original mode, the DP timing switch (DPTSW) does turn off within 750 ms of the original conveying motor (OCM) turning on.
	73	An original jam in the original conveying section 2	During scanning of the second side or reversing of the original for ejection in the double-sided original mode, the DP timing switch (DPTSW) does not turn off within 6500 ms of the original conveying motor (OCM) turning on.
	74	An original jam in the original conveying section 3	During scanning of the second side or reversing of the original for ejection in the double-sided original mode, the DP timing switch (DPTSW) does not turn on within 750 ms of the original conveying motor (OCM) turning on.
Original switchback section	75	An original jam in the original switchback section	During the switchback operation of an original in the double-sided original mode, the original switchback switch (OSBSW) does not turn on within 1300 ms of the original conveying motor (OCM) turning on.

(3) Original misfeeds

Problem	Causes/check procedures	Corrective measures
(1) An original jams when the power switch is turned on.	A piece of paper torn from an original is caught around the DP timing switch or original switchback switch.	Check visually and remove it, if any.
	Defective DP timing switch.	Run maintenance item U244 and turn DP timing switch on and off manually. Replace DP timing switch if indication of the corresponding switch is not light.
	Defective original switchback switch.	Run maintenance item U244 and turn original switchback switch on and off manually. Replace original switchback switch if indication of the corresponding switch is not light.
(2) An original jams in the original feed section is indicated during copying (no original feed). Jam code 70	Defective original set switch.	Run maintenance item U244 and turn original set switch on and off manually. Replace original set switch if indication of the corresponding switch is not light.
	Check if the original feed motor malfunctions.	Run maintenance item U243 and select the original feed motor to be turned on and off. Check the status and remedy if necessary.
	Check if the DP paper feed pulley or DP separation pad is deformed.	Check visually and replace the deformed pulley.
(3) An original jams in the original conveying section is indicated during copying (An original jam in the original conveying section 1). Jam code 71	Broken DP timing switch actuator.	Check visually and replace DP timing switch if its actuator is broken.
	Defective DP timing switch.	Run maintenance item U244 and turn DP timing switch on and off manually. Replace DP timing switch if indication of the corresponding switch is not light.
	Check if the original conveying motor malfunctions.	Run maintenance item U243 and select the original conveying motor to be turned on and off. Check the status and remedy if necessary.
(4) An original jams in the original conveying section is indicated during copying (An original size error jam). Jam code 72	Broken DP timing switch actuator.	Check visually and replace DP timing switch if its actuator is broken.
	Defective DP timing switch.	Run maintenance item U244 and turn DP timing switch on and off manually. Replace DP timing switch if indication of the corresponding switch is not light.
	Check if the original conveying motor malfunctions.	Run maintenance item U243 and select the original conveying motor to be turned on and off. Check the status and remedy if necessary.
(5) An original jams in the original conveying section is indicated during copying (An original jam in the original conveying section 2). Jam code 73	Broken DP timing switch actuator.	Check visually and replace DP timing switch if its actuator is broken.
	Defective DP timing switch.	Run maintenance item U244 and turn DP timing switch on and off manually. Replace DP timing switch if indication of the corresponding switch is not light.
	Check if the original conveying motor malfunctions.	Run maintenance item U243 and select the original conveying motor to be turned on and off. Check the status and remedy if necessary.
	Check if the switchback feedshift solenoid malfunctions.	Run maintenance item U243 and select the switchback feedshift solenoid to be turned on and off. Check the status and remedy if necessary.

Problem	Causes/check procedures	Corrective measures
(6) An original jams in the original conveying section is indicated during copying (An original jam in the original conveying section 3). Jam code 74	Broken DP timing switch actuator.	Check visually and replace DP timing switch if its actuator is broken.
	Defective DP timing switch.	Run maintenance item U244 and turn DP timing switch on and off manually. Replace DP timing switch if indication of the corresponding switch is not light.
	Check if the original conveying motor malfunctions.	Run maintenance item U243 and select the original conveying motor to be turned on and off. Check the status and remedy if necessary.
	Check if the switchback feedshift solenoid malfunctions.	Run maintenance item U243 and select the switchback feedshift solenoid to be turned on and off. Check the status and remedy if necessary.
(7) An original jams in the original switchback section is indicated during copying (An original jam in the original switchback section). Jam code 75	Defective original switchback switch.	Run maintenance item U244 and turn original switchback switch on and off manually. Replace original switchback switch if indication of the corresponding switch is not light.
	Check if the original conveying motor malfunctions.	Run maintenance item U243 and select the original conveying motor to be turned on and off. Check the status and remedy if necessary.
	Check if the switchback feedshift solenoid malfunctions.	Run maintenance item U243 and select the switchback feedshift solenoid to be turned on and off. Check the status and remedy if necessary.
(8) Original jams frequently.	An original outside the specifications is used.	Use only originals conforming to the specifications.
	The DP forwarding pulley or DP paper feed pulley is dirty with paper powder.	Clean with isopropyl alcohol.
	The DP paper feed pulley and DP separation pad do not contact correctly.	Check and remedy.

1-4-2 Self-diagnosis

(1) Self-diagnostic function

When a problem is detected, copying is disabled. "C" and a number 041 altenates.
After removing the problem, the self-diagnostic function can be reset by turning safety switch off and back on.

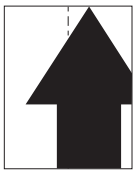
(2) Self diagnostic codes

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C041 (A041*)	**Optional DP communication problem** • Communication fails five times successively.	DP installed incorrectly.	Check the installation state of the DP and adjust it if it is not properly installed.
		Defective main PCB or DP driver PCB.	Replace the main PCB or DP driver PCB and check for correct operation.

"A" is displayed on the operation panel.

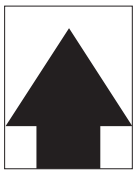
1-4-3 Image formation problems

(1) There is a regular error between the centers of the original and copy image.



See page 1-4-7

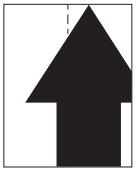
(2) There is a regular error between the leading edges of the original and copy image.



See page 1-4-7

(1) There is a regular error between the centers of the original and copy image.

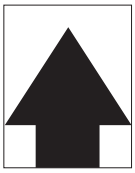
Causes
1. Misadjusted DP center line.



Causes	Check procedures/corrective measures
1. Misadjusted DP center line.	Readjust the DP center line (see page 1-5-7).

(2) There is a regular error between the leading edges of the original and copy image.

Causes
1. Misadjusted DP original scanning start position.



Causes	Check procedures/corrective measures
1. Misadjusted DP original scanning start position.	Readjust the DP original scanning start position (see page 1-5-8).

1-4-4 Electrical problems

Problem	Causes	Check procedures/corrective measures
(1) The machine does not operate when the power switch is turned on.	The DP original cover is not closed completely.	Check the DP original cover.
	Defective DP original cover switch.	Check for continuity across the contacts of switch. If none, replace the switch.
(2) The original feed motor does not operate.	Poor contact in the original feed motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Broken original feed motor gear.	Check visually and replace the original feed motor if necessary.
	Defective original feed motor.	Run maintenance item U243 and check if the original feed motor operates when YC8-3,4,5,6 on the DP driver PCB goes low. If not, replace the original feed motor.
	Defective DP driver PCB.	Run maintenance item U243 and check if YC8-3,4,5,6 on the DP driver PCB goes low. If not, replace the DP driver PCB.
(3) The original conveying motor does not operate.	Poor contact in the original conveying motor connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Broken original conveying motor gear.	Check visually and replace the original conveying motor if necessary.
	Defective original conveying motor.	Run maintenance item U243 and check if the original conveying motor operates when YC8-9,10,11,12 on the DP driver PCB goes low. If not, replace the original conveying motor.
	Defective DP driver PCB.	Run maintenance item U243 and check if YC8-9,10,11,12 on the DP driver PCB goes low. If not, replace the DP driver PCB.
(4) The switchback feedshift solenoid does not operate.	Defective switchback feedshift solenoid coil.	Check for continuity across the coil. If none, replace the switchback feedshift solenoid.
	Poor contact in the switchback feedshift solenoid connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective DP driver PCB.	Run maintenance item U243 and check if YC7-5 on the DP driver PCB goes low. If not, replace the DP driver PCB.
(5) The switchback pressure solenoid does not operate.	Defective switchback pressure solenoid coil.	Check for continuity across the coil. If none, replace the switchback pressure solenoid.
	Poor contact in the switchback pressure solenoid connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective DP driver PCB.	Run maintenance item U243 and check if YC7-2,3 on the DP driver PCB goes low. If not, replace the DP driver PCB.
(6) The original size is not detected correctly.	Poor contact in the original size length switch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective original size length switch.	Check if YC2-4 on the DP driver PCB goes low when the original size length switch is turned on. If not, replace the original size length switch.

Problem	Causes	Check procedures/corrective measures
(6) The original size is not detected correctly.	Poor contact in the original size width switch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective original size width switch.	Check if YC2-2 on the DP driver PCB goes low when the original size width switch is turned on. If not, replace the original size width switch.
(7) A original jam in the DP is indicated when the power switch is turned on.	A piece of paper torn from copy paper is caught around DP timing switch or original switchback switch.	Check and remove if any.
	Defective DP timing switch.	Run maintenance item U244 and turn DP timing switch on and off manually. Replace DP timing switch if indication of the corresponding sensor is not light.
	Defective original switchback switch.	Run maintenance item U244 and turn original switchback switch on and off manually. Replace original switchback switch if indication of the corresponding sensor is not light.
(8) The message requesting cover to be closed is displayed when the DP original cover is closed.	Poor contact in the DP original cover switch connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	Defective DP original cover switch.	Run maintenance item U244 and turn DP original cover switch on and off manually. Replace DP original cover switch if indication of the corresponding sensor is not light.
(9) Others.	Wiring is broken, shorted or makes poor contact.	Check for continuity. If none, repair.
	Noise.	Locate the source of noise and remove.

1-4-5 Mechanical problems

Problem	Causes/check procedures	Corrective measures
(1) No primary original feed.	Check if the surfaces of the following pulleys are dirty with paper powder: DP forwarding pulley, DP paper feed pulley and DP separation pad.	Clean with isopropyl alcohol.
	Check if the DP forwarding pulley, DP paper feed pulley or DP separation pad is deformed.	Check visually and replace any deformed pulleys (see page 1-5-3 and 5).
(2) Multiple sheets of original are fed at one time.	Check if the DP separation pad is worn.	Replace the DP separation pad if it is worn (see page 1-5-5).
(3) Originals jam.	Deformed guides along the paper conveying path.	Repair or replace if necessary.
	Check if the contact between the conveying roller and pulley is correct.	Check visually and remedy if necessary.
	Check if the contact between the exit roller and pulley is correct.	Check visually and remedy if necessary.
	Check if the contact between the switchback roller and pulley is correct.	Check visually and remedy if necessary.
(4) Abnormal noise is heard.	Check if the pulleys, rollers and gears operate smoothly.	Grease the bearings and gears.

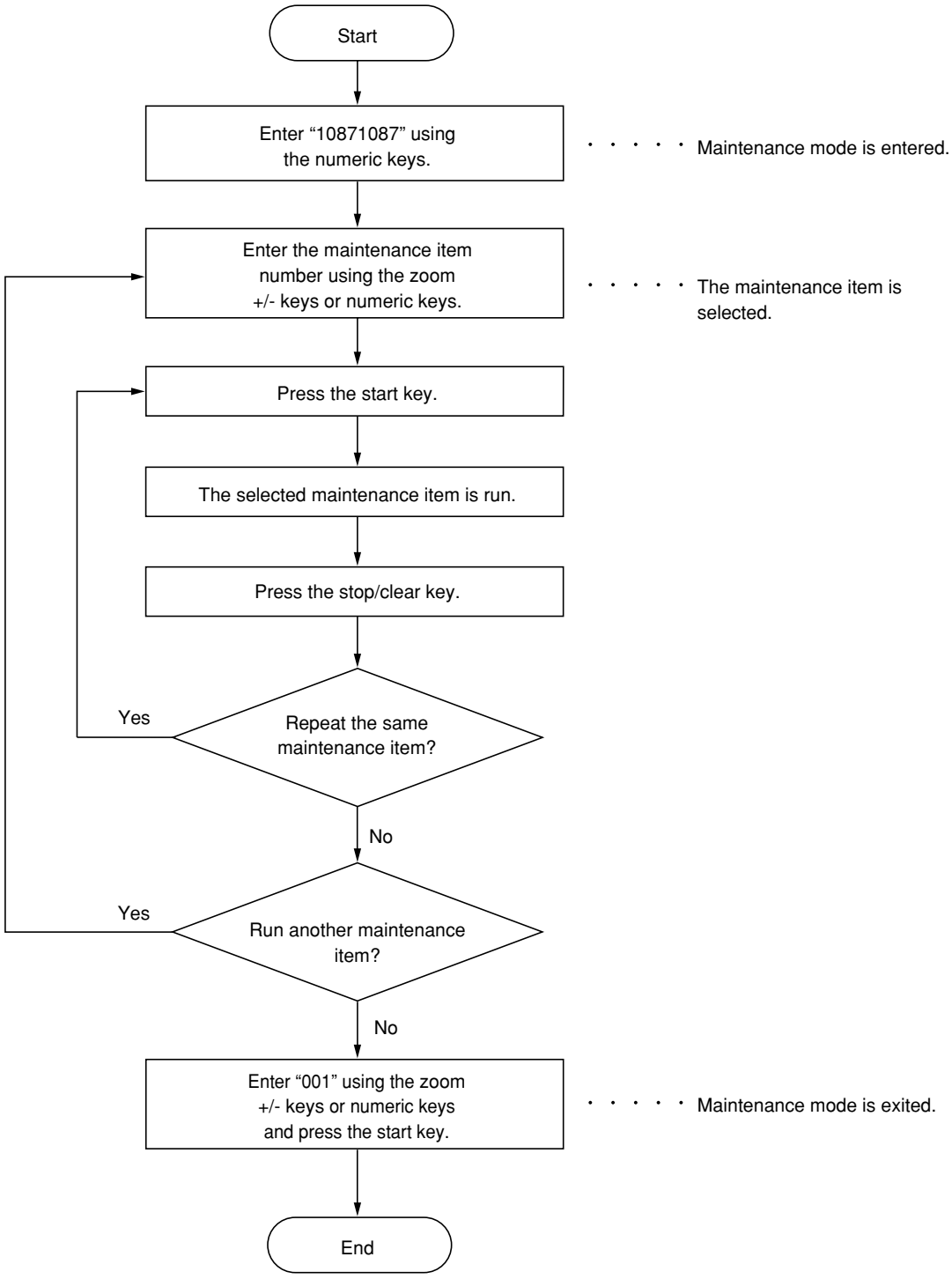
1-5-1 Precautions for assembly and disassembly

(1) Precautions

- Be sure to turn the power switch off and disconnect the power plug before starting disassembly.
- When handling PCBs, do not touch connectors with bare hands or damage the board.
- Do not touch any PCB containing ICs with bare hands or any object prone to static charge.
- Use the following testers when measuring voltages:

  Hioki 3200
  Sanwa MD-180C
  Sanwa YX-360TR
  Beckman TECH300
  Beckman DM45
  Beckman 330*
  Beckman 3030*
  Beckman DM850*
  Fluke 8060A*
  Arlec DMM1050
  Arlec YF1030C
  * Capable of measuring RMS values.

(2) Running a maintenance item



1-5-2 DP

(1) Detaching and refitting the DP forwarding pulley and DP paper feed pulley
Follow the procedure below to clean or replace the DP forwarding pulley or DP paper feed pulley.

Procedure

• Detaching the DP forwarding pulley

1. Open the DP original cover.
2. Raise the DP paper feed pulley unit and pull the hooking portion for the DP forwarding pulley shaft toward the front side to remove the DP forwarding pulley shaft.
3. Remove the DP forwarding pulley.

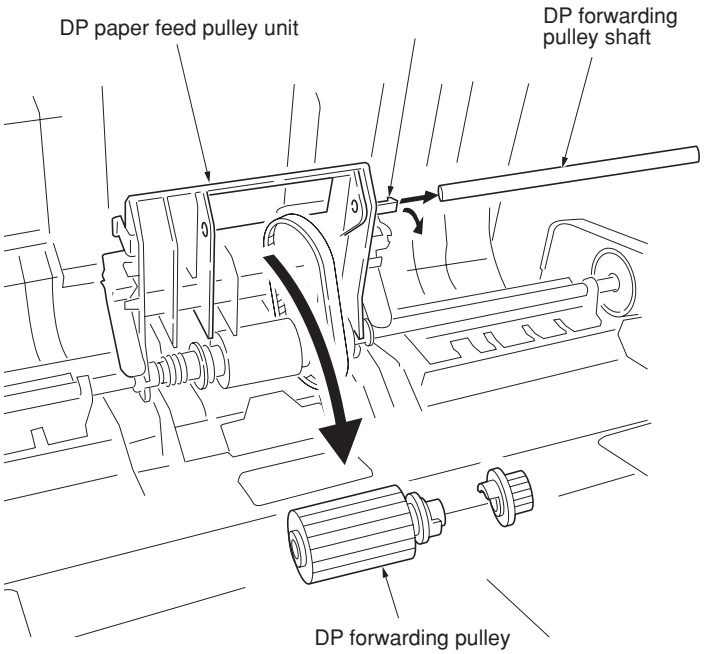


Figure 1-5-1

• Detaching the DP paper feed pulley

4. Remove the stop ring and paper feed guide at front side of the DP paper feed pulley shaft.
   * When mounting the paper feed guide, fit the projection of the paper feed guide into the groove of the DP paper feed pulley shaft.
5. Remove the DP paper feed pulley unit from DP.

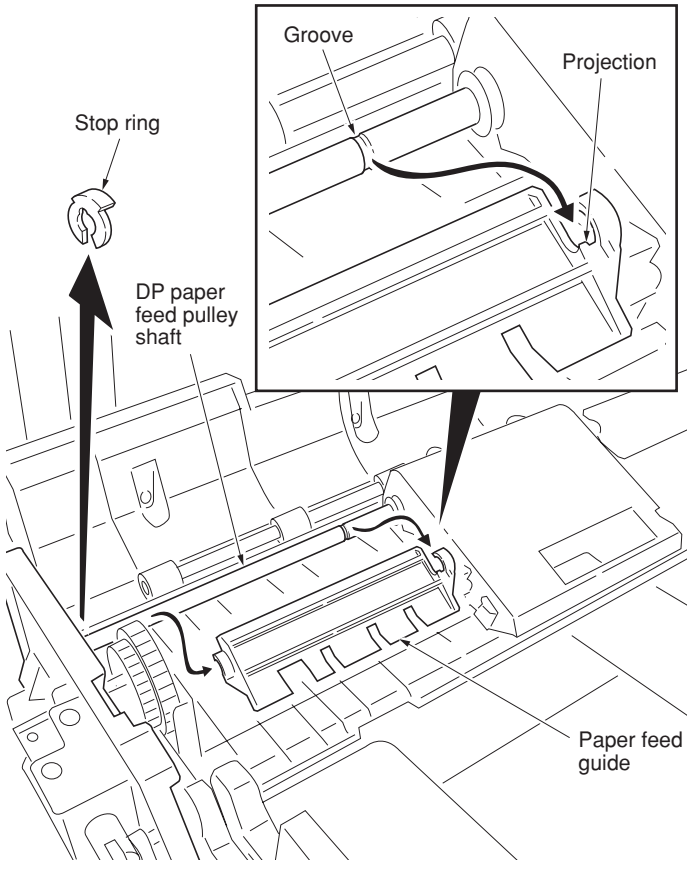


Figure 1-5-2

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

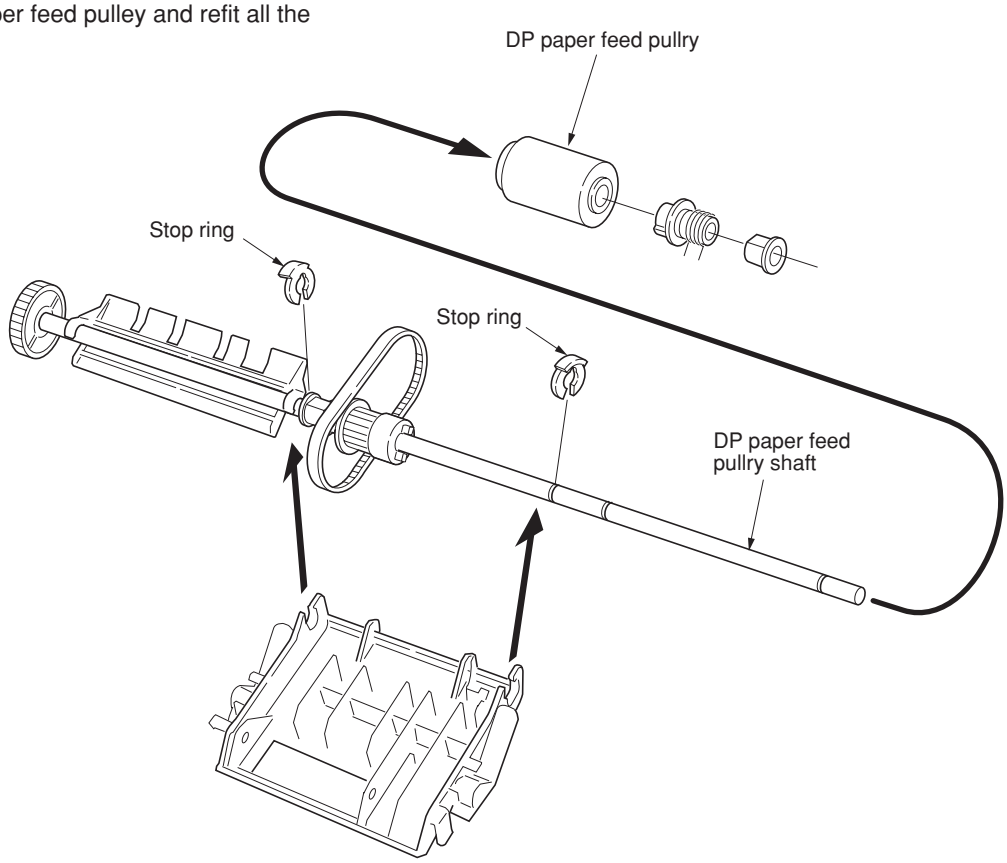


Figure 1-5-3

(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 paper feed pulley unit (see page 1-5-3).
2. Push the fitting portions of the DP separation pad. Remove the DP separation pad.
3. Clean or replace the DP separation pad and refit all the removed parts.

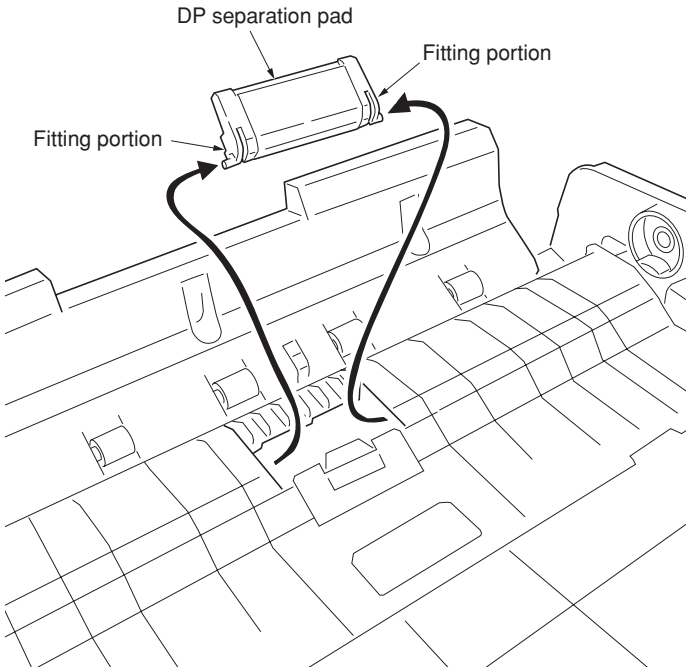
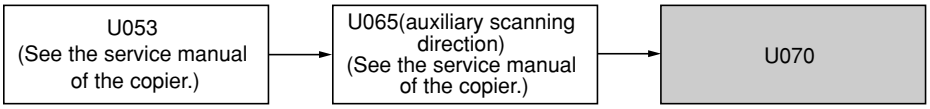


Figure 1-5-4

(3) Adjusting the DP magnification

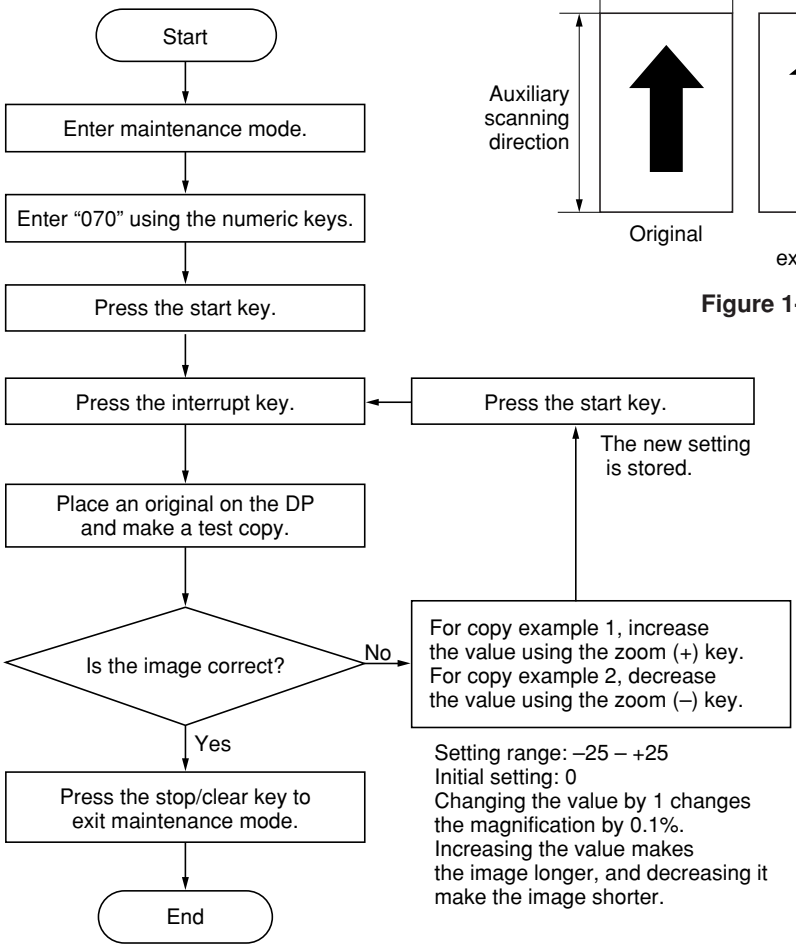
Adjust magnification in the auxiliary scanning direction if magnification is incorrect when the DP is used.



Caution

Before making the following adjustment, ensure that the above adjustments have been made in maintenance mode.

Procedure



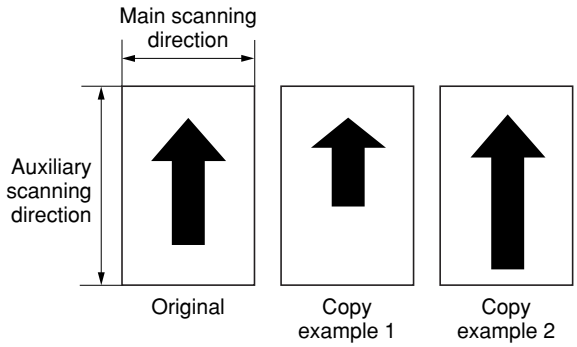
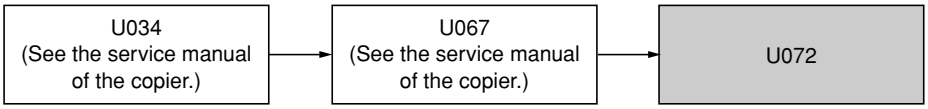


Figure 1-5-5

(4) Adjusting the DP center line

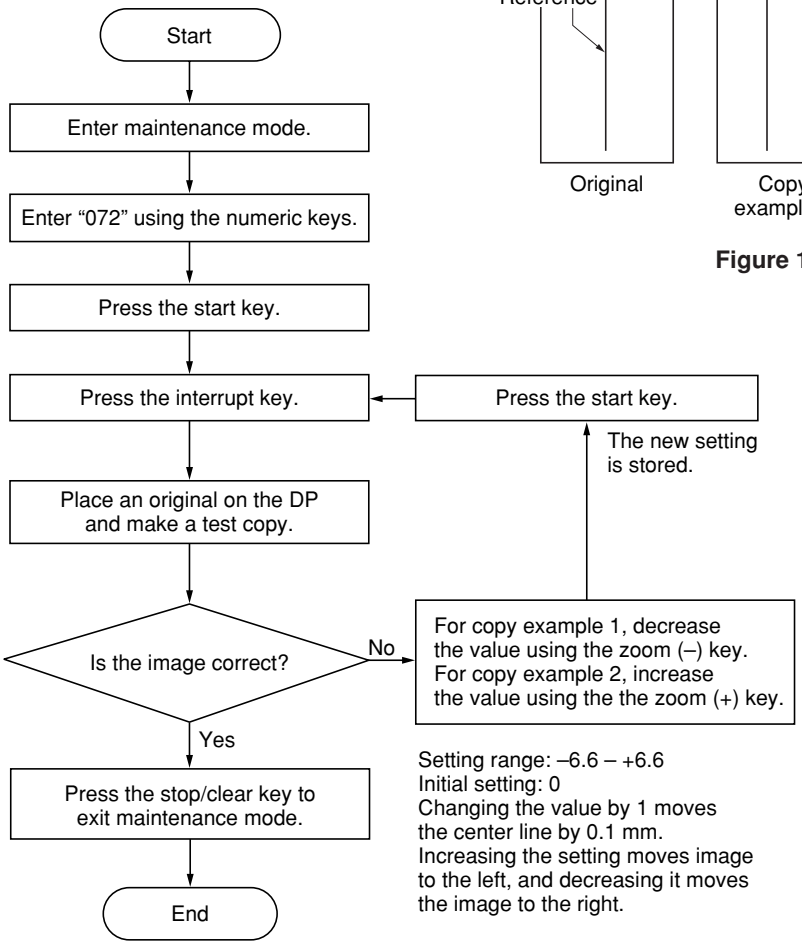
Perform the following adjustment if there is a regular error between the centers of the original and the copy image when the DP is used.



Caution

Before making the following adjustment, ensure that the above adjustments have been made in maintenance mode.

Procedure



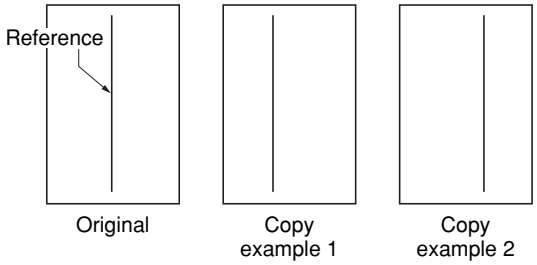
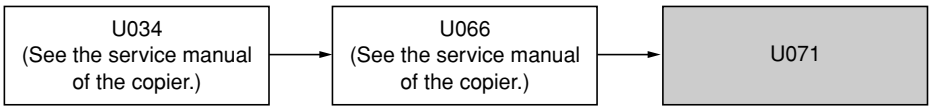


Figure 1-5-6

(5) Adjusting the DP scanning timing

Perform the following adjustment if there is a regular error between the leading or trailing edges of the original and the copy image.



Caution

Before making the following adjustment, ensure that the above adjustments have been made in maintenance mode.

(5-1) Adjusting the DP leading edge registration

Procedure

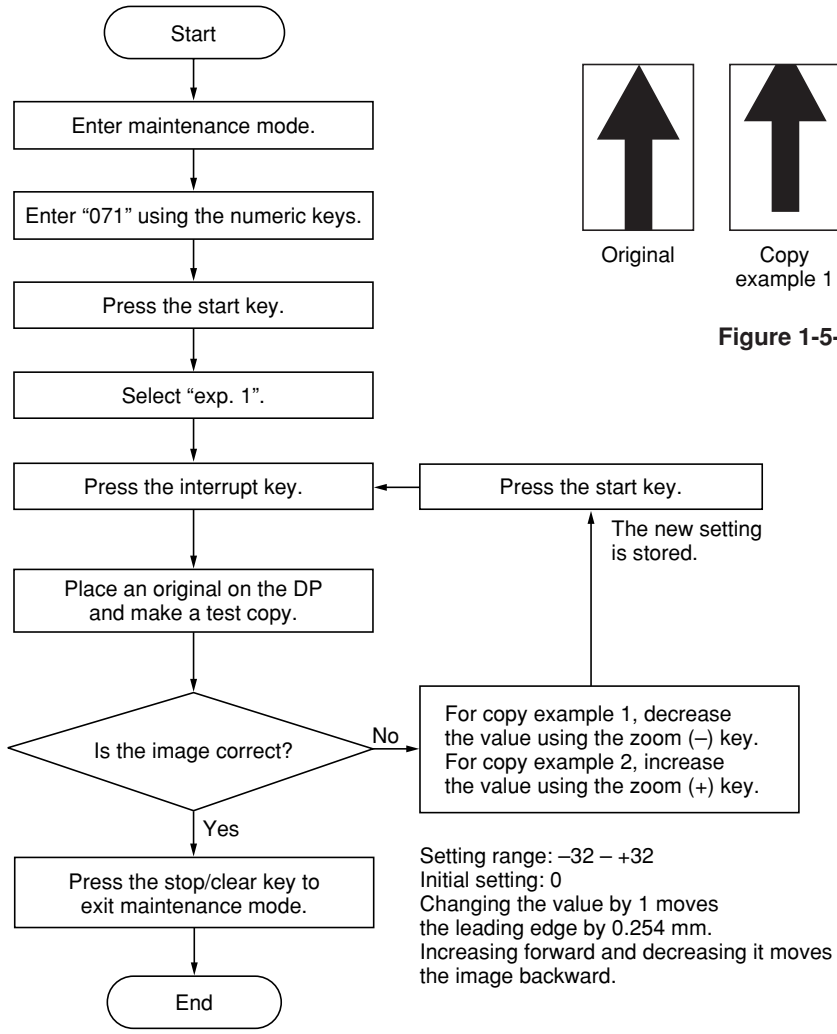


Figure 1-5-7

(5-2) Adjusting the DP trailing edge registration

Procedure

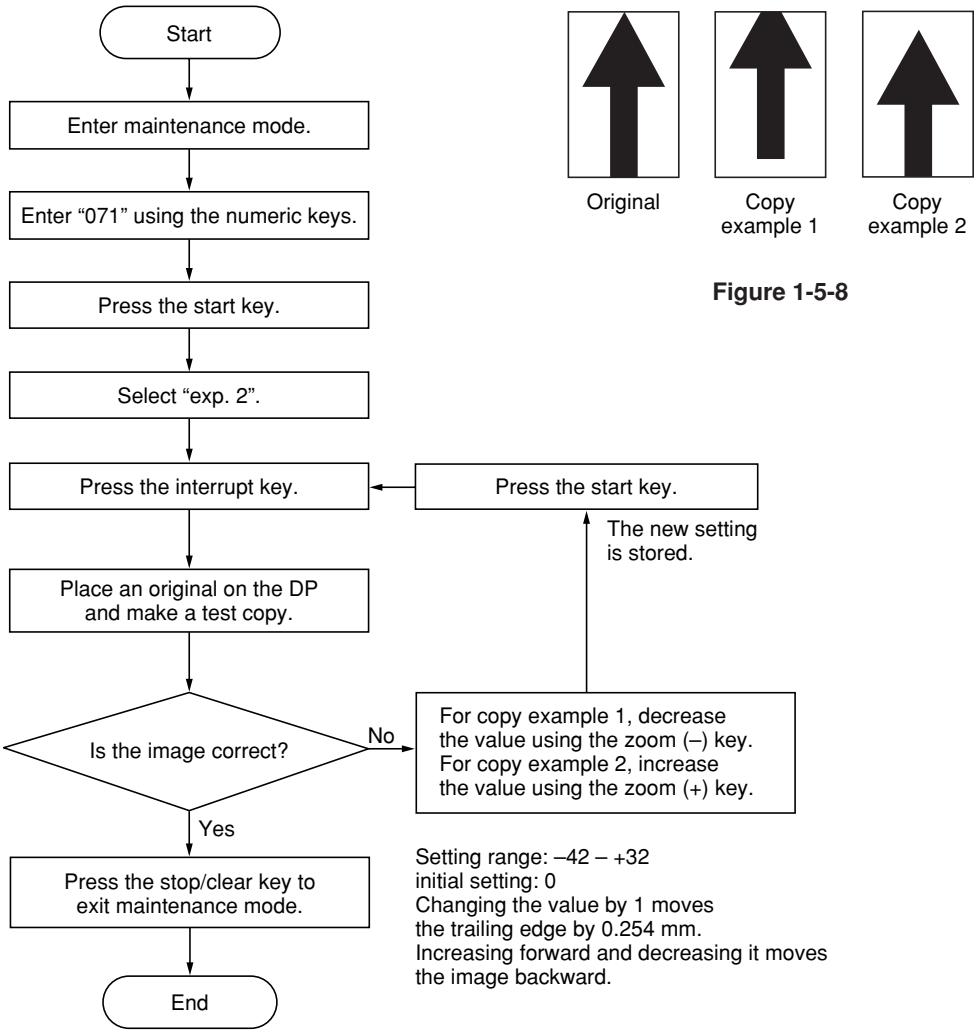
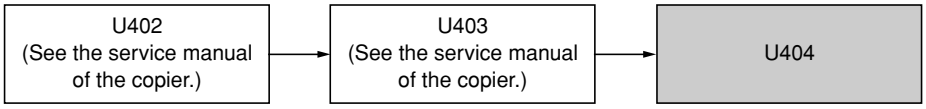


Figure 1-5-8

(6) Adjusting the margins for scanning the original from the DP

Perform the following adjustment if margins are not correct.



Caution

Before making the following adjustment, ensure that the above adjustments have been made in maintenance mode.

Procedure

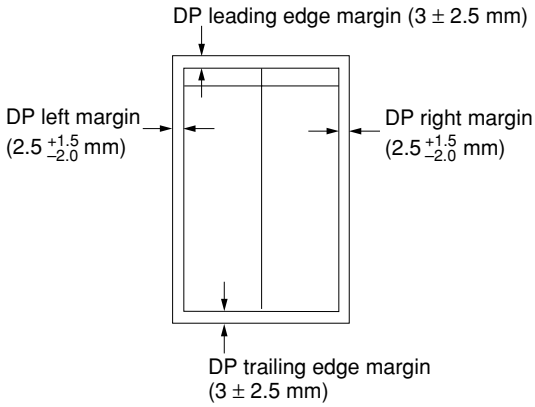
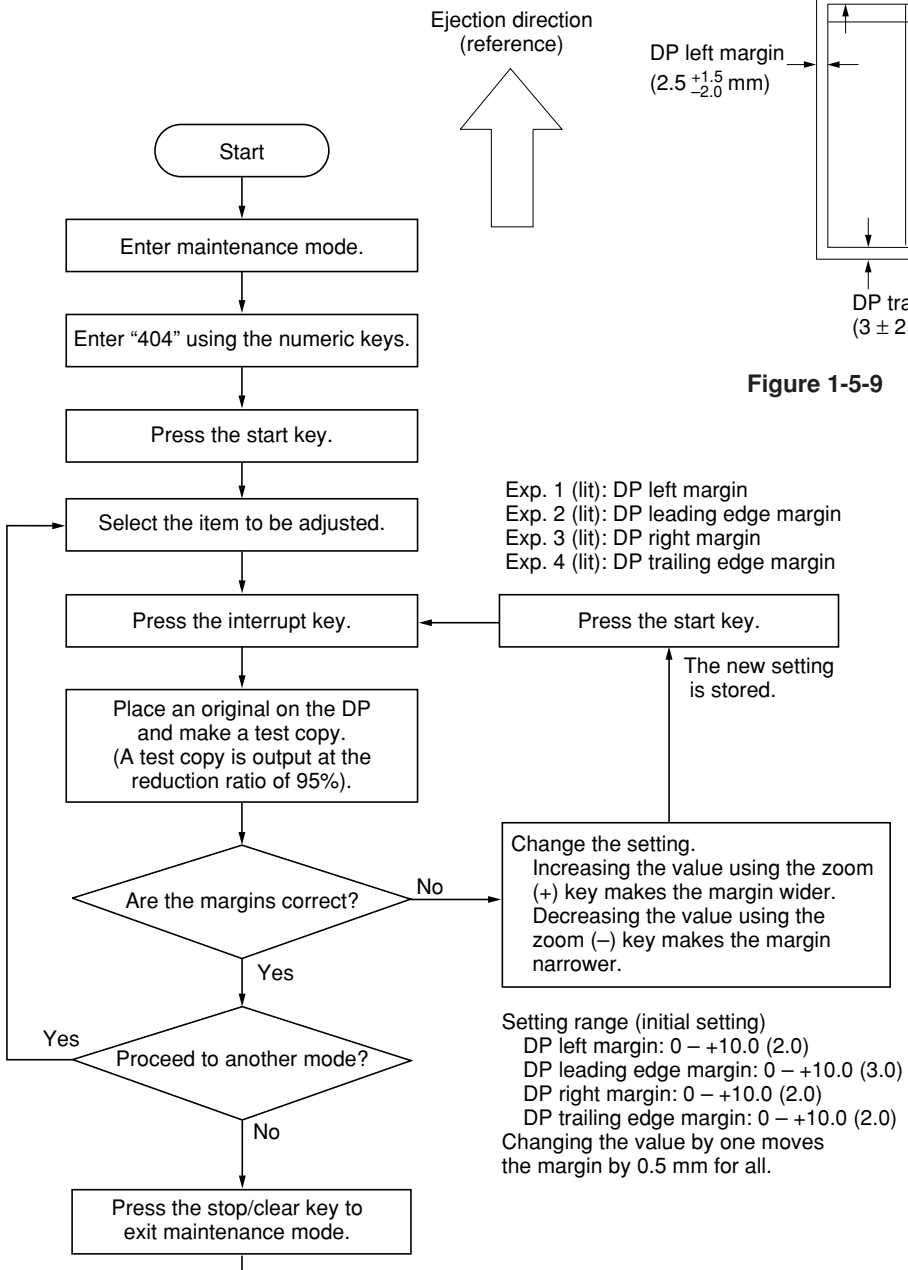


Figure 1-5-9



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 copier.
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.

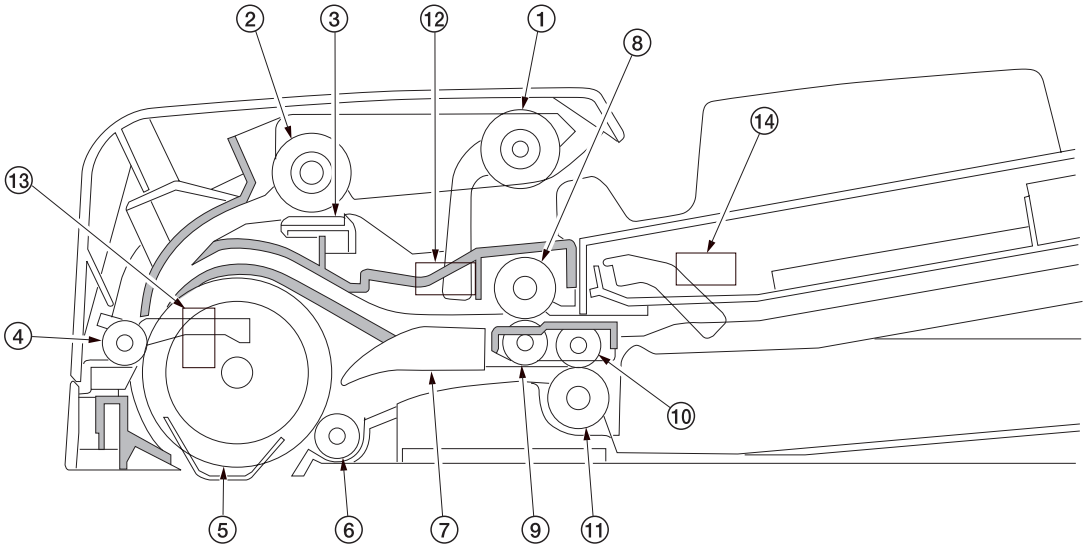


Figure 2-1-1

① DP forwarding pulley
② DP paper feed pulley
③ DP separation pad
④ Conveying pulley
⑤ Conveying roller
⑥ Conveying pulley
⑦ Switchback feedshift guide
⑧ Switchback roller
⑨ Switchback pulley
⑩ Exit pulley
⑪ Exit roller
⑫ Original set switch (OSSW)
⑬ DP timing switch (DPTSW)
⑭ Original switchback switch (OSBSW)

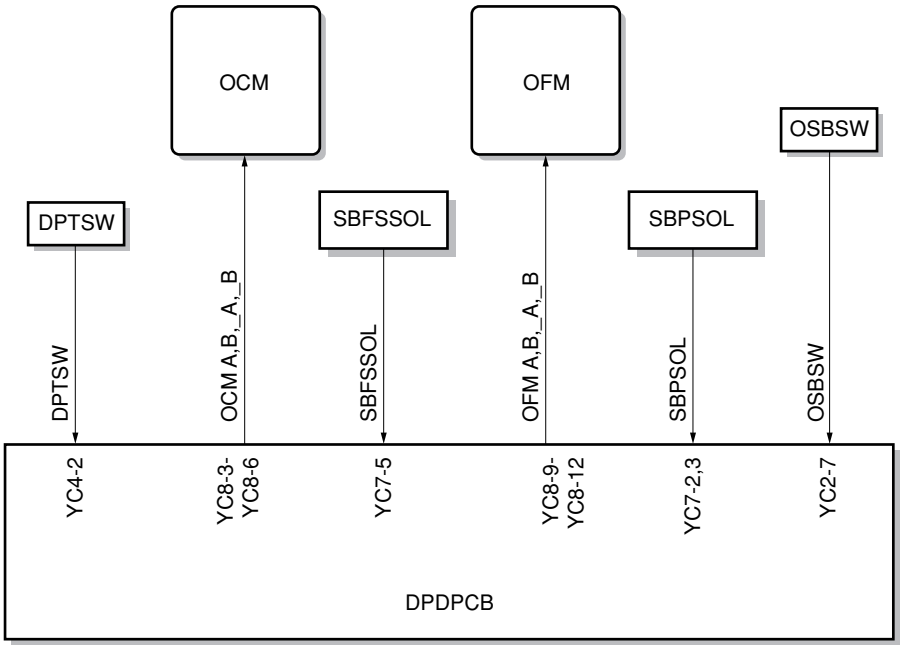
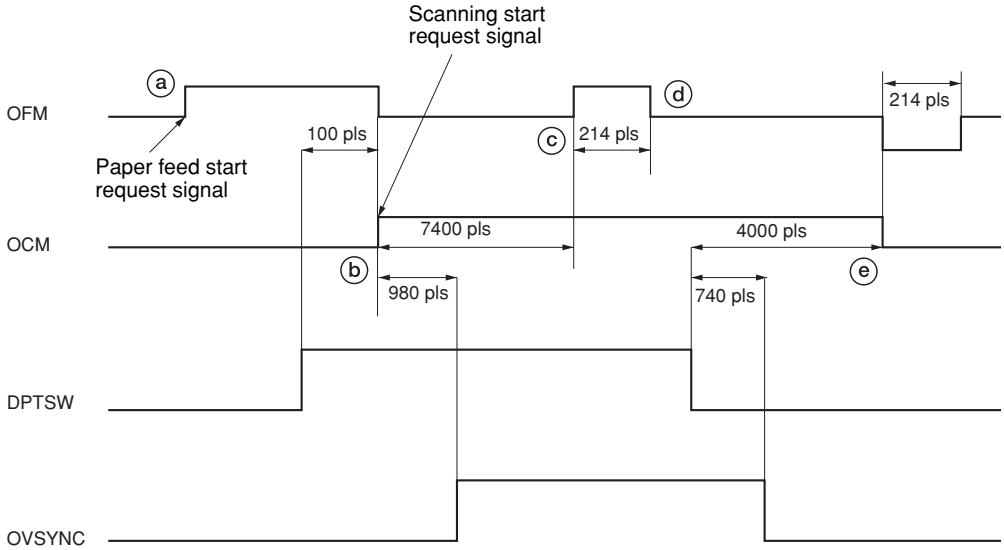


Figure 2-1-2 Block diagram



Timing chart 2-1-1 Original feed (A3, single-sided original mode)

ⓐ When the paper feed start request signal is input from the copier, the original feed motor (OFM) turns on and an original is fed.
ⓑ 100 pulses after the DP timing switch (DPTSW) turns on, the original feed motor (OFM) turns off and original conveying motor (OCM) turns on.
ⓒ 7400 pulses after the original conveying motor (OCM) turns on, the original feed motor (OFM) turns on.
ⓓ 214 pulses after the original feed motor (OFM) turns on, the original feed motor (OFM) turns off.
ⓔ 4000 pulses after the DP timing switch (DPTSW) turns off, the original conveying motor (OCM) turns off.

(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 conveying motor (OCM) 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.

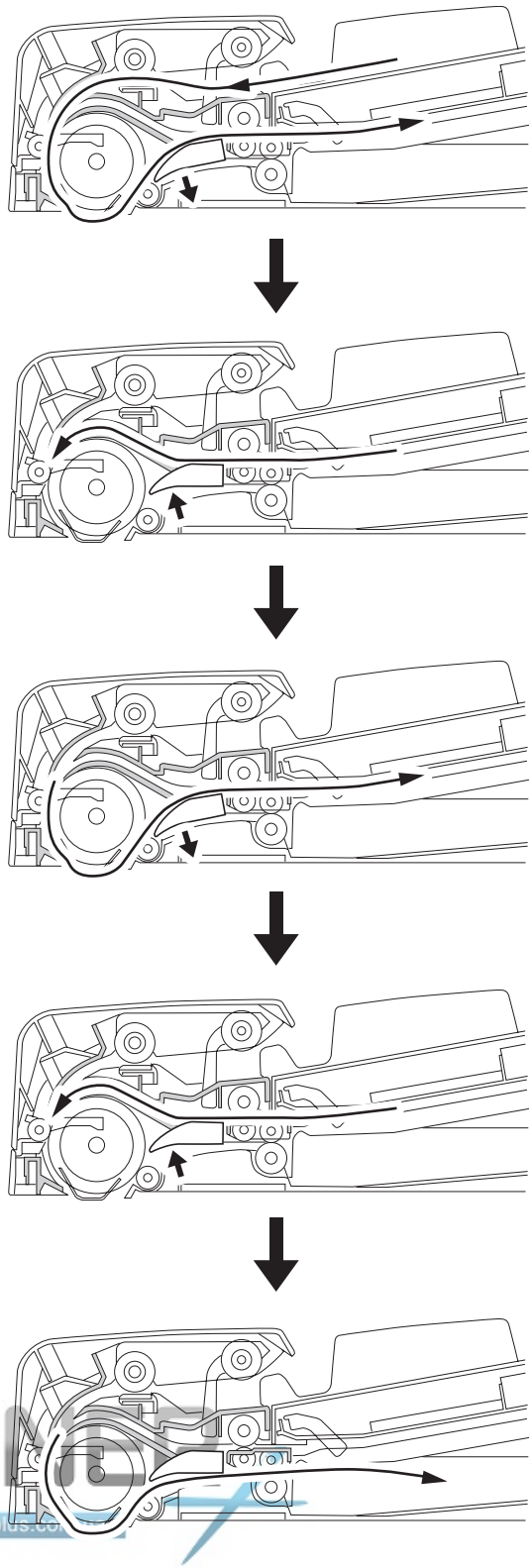
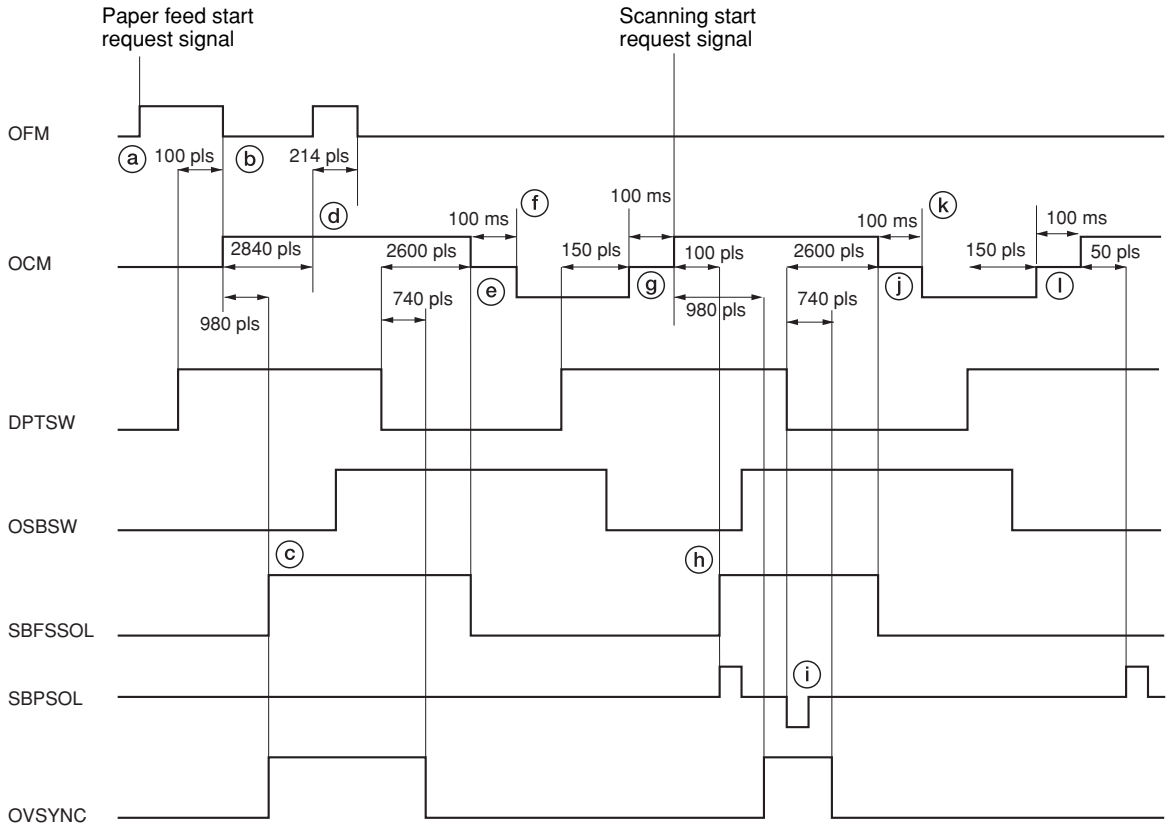


Figure 2-1-3 Operation of original switchback



Timing chart 2-1-2 Original feed (A4, double-sided original mode)

ⓐ When the paper feed start request signal is input from the copier, the original feed motor (OFM) turns on and an original is fed.
ⓑ 100 pulses after the DP timing switch (DPTSW) turns on, the original feed motor (OFM) turns off and original conveying motor (OCM) rotates forward.
ⓒ 980 pulses after the original conveying motor (OCM) turns on, the switchback feedshift solenoid (SBFSSOL) turns on.
ⓓ 2840 pulses after the original conveying motor (OCM) turns on, the original feed motor (OFM) turns on for 214 pulses.
ⓔ 2600 pulses after the DP timing switch (DPTSW) turns on, the original feed motor (OFM) and switchback feedshift solenoid (SBFSSOL) turns off.
ⓕ 100 pulses after the original conveying motor (OCM) turns off, the original conveying motor (OCM) rotates reverse.
ⓖ 150 pulses after the DP timing switch (DPTSW) turns on, the original conveying motor (OCM) turns off, and 100 ms later, the motor turns on (forward).
ⓗ 100 pulses after the original conveying motor (OCM) turns on, the switchback feedshift solenoid (SBFSSOL) and switchback pressure (SBPSOL) turns on.
ⓘ The DP timing switch (DPTSW) turns off at the same time, the switchback pressure (SBPSOL) turns off.
ⓙ 2600 pulses after the DP timing switch (DPTSW) turns off, the original conveying motor (OCM) and switchback feedshift solenoid (SBFSSOL) turns off.
ⓚ 100 pulses after the original conveying motor (OCM) turns off, the original conveying motor (OCM) rotates reverse.
ⓛ 150 pulses after the DP timing switch (DPTSW) turns on, the original conveying motor (OCM) turns off, and 100 ms later, the motor turns on (forward).

2-2-1 Electrical parts layout

(1) PCBs

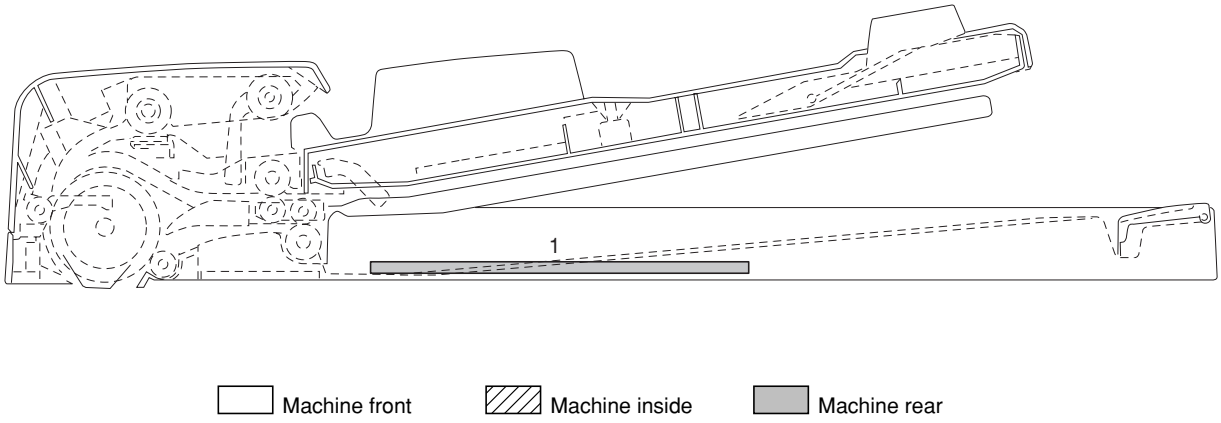


Figure 2-2-1 PCBs

1. DP driver PCB (DPDPCB) ..... Controls electrical components of the DP.

(2) Switches and sensors

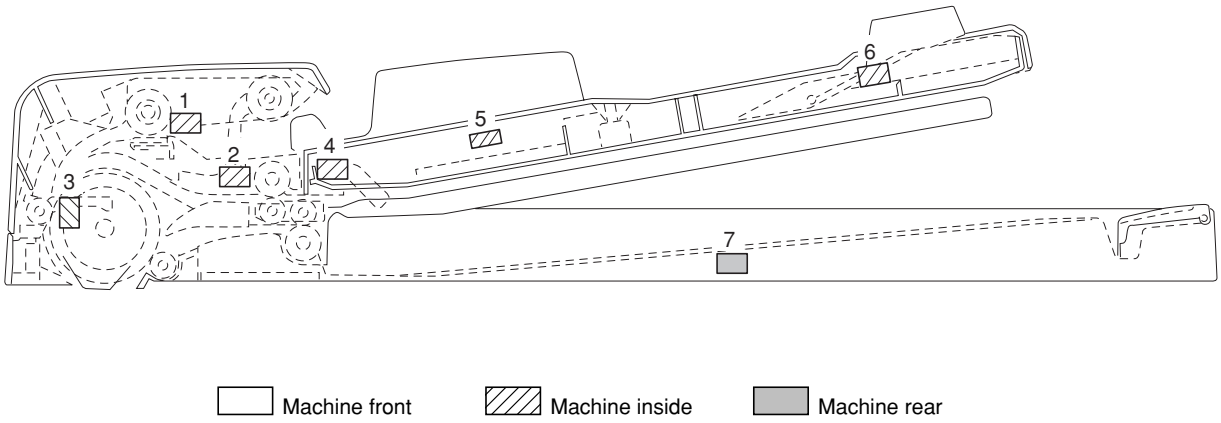


Figure 2-2-2 Switches and sensors

1. DP original cover switch (DPOCSW) ..... Breaks the safety circuit when the DP original 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 and solenoids

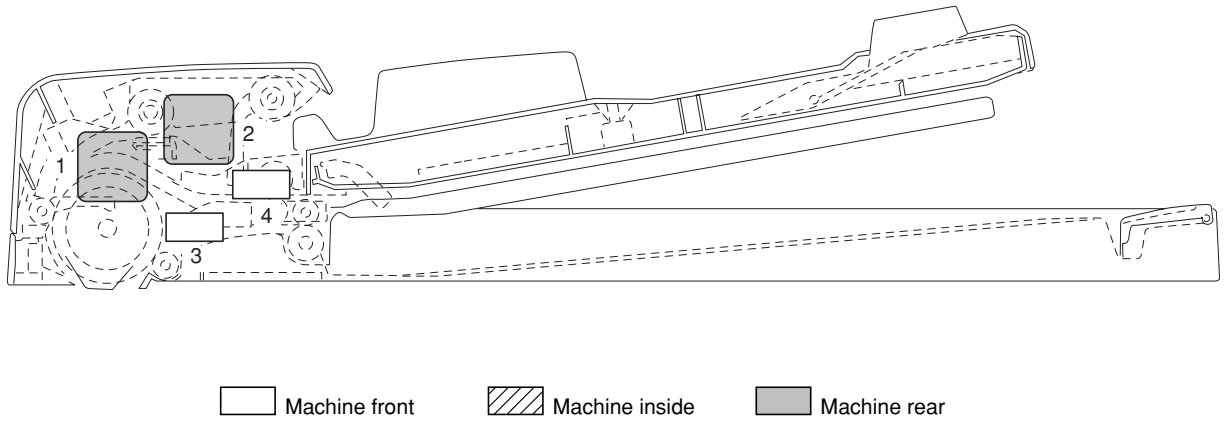


Figure 2-2-3 Motors and solenoids

1. Original feed motor (OFM) ..... Drives the original feed section.
2. Original conveying motor (OCM) ..... Drives the original conveying and switchback sections.
3. Switchback feedshift solenoid (SBFSSOL) ..... Operates the switchback feedshift guide.
4. Switchback pressure solenoid (SBPSOL) ... Operates the switchback pulley.

2-3-1 DP driver PCB

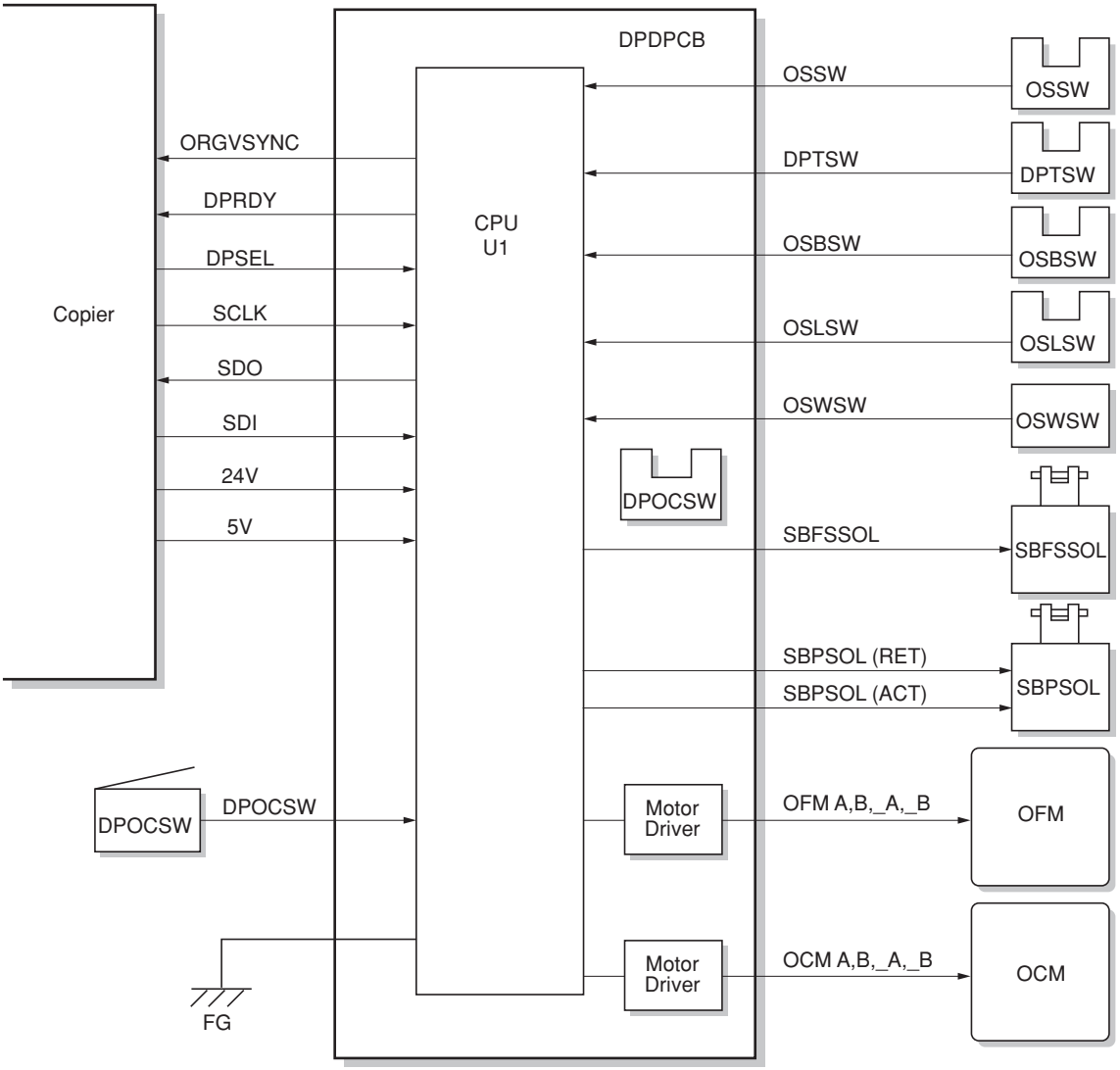


Figure 2-3-1 DP driver PCB block diagram

The DP driver PCB (DPDPCB) is controlled by the engine PCB (EPCB) in the copier, and the engine PCB (EPCB) uses serial communication to control input and output of each motor, solenoid, and switch of the DP through the CPU (U1) equipped with a function of bidirectional serial/parallel conversion of 8-bit data.

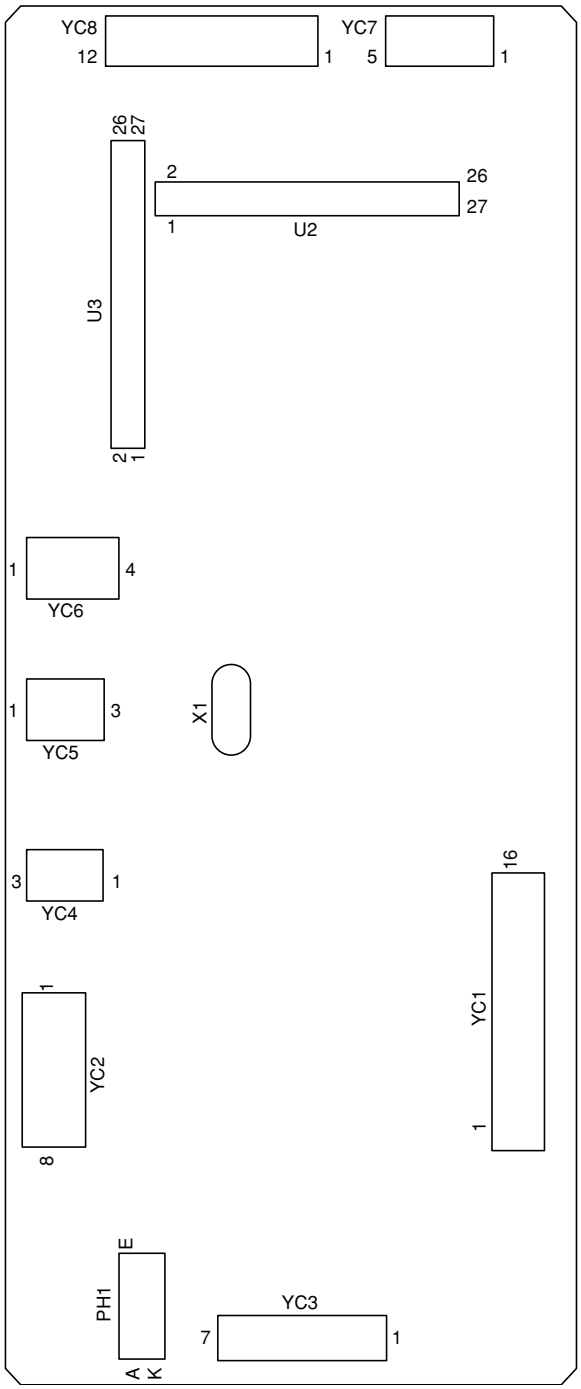


Figure 2-3-2 DP driver PCB silk-screen diagram

Connector	Pin No.	Signal	I/O	Description
YC1 Connected to the copier	1	FG	-	Ground
	2	24 V	I	24 V DC power supply from copier
	3	24 V	I	24 V DC power supply from copier
	4	P.GND	-	Ground
	5	P.GND	-	Ground
	6	SRESETN	I	Reset signal from copier
	7	ORGVSYNC	O	DP original scanning interval signal
	8	DPRDY	O	DP READY signal
	9	DPSEL	I	DP SEL signal
	10	DPCLK	I	DP clock signal
	11	SDI	I	DP serial communication reception
	12	SDO	O	DP serial communication transmission
	13	FG	-	Ground
	14	FG	-	Ground
	15	S.GND	-	Ground
	16	5 V	I	5 V DC power supply from copier
YC2 Connected to the original size width switch, original size length switch and original switchback switch	1	5 V	O	5 V DC power supply for OSWSW
	2	OSWSW	I	OSWSW on/off
	3	S.GND	-	Ground
	4	OSLSW	I	OSLSW on/off
	5	5 V	O	5 V DC power supply for OSLSW
	6	5 V	O	5 V DC power supply for OSBSW
	7	OSBSW	I	OSBSW on/off
	8	S.GND	-	Ground
YC4 Connected to the DP timing switch	1	5 V	O	5 V DC power supply for DPTSW
	2	DPTSW	I	DPTSW on/off
	3	S.GND	-	Ground
YC5 Connected to the original set switch	1	5 V	O	5 V DC power supply for OSSW
	2	OSSW	I	OSSW on/off
	3	S.GND	-	Ground
YC6 Connected to the DP original cover swich	1	24 V	O	24 V DC power supply for DPOCSW
	2	Reserve	-	Not used
	3	Reserve	-	Not used
	4	24 V	I	24 V DC power supply
YC7 Connected to the switchback pressure solenoid and switchback feedshift solenoid	1	24 V	O	24 V DC power supply for SBPSOL
	2	SBPSOL (ACT)	O	SBPSOL (ACT) on/off
	3	SBPSOL (RET)	O	SBPSOL (RET) on/off
	4	24 V	O	24 V DC power supply for SBFSSOL
	5	SBFSSOL	O	SBFSSOL on/off

Connector	Pin No.	Signal	I/O	Description
YC8	1	OFM 24 V	O	24 V DC power supply for OFM
Connected to the original feed motor and original conveying motor	2	OFM 24 V	O	24 V DC power supply for OFM
	3	OFM A	O	OFM control signal (A)
	4	OFM B	O	OFM control signal (B)
	5	OFM _A	O	OFM control signal (_A)
	6	OFM _B	O	OFM control signal (_B)
	7	OCM 24 V	O	24 V DC power supply for OCM
	8	OCM 24 V	O	24 V DC power supply for OCM
	9	OCM A	O	OCM control signal (A)
	10	OCM B	O	OCM control signal (B)
	11	OCM _A	O	OCM control signal (_A)
	12	OCM _B	O	OCM control signal (_B)

Maintenance parts list

Maintenance part name		Part No.	Fig. No.	Ref. No.
Name used in service manual	Name used in parts list			
DP forwarding pulley	PULLEY, LEADING FEED ADF	36211110	3	47
DP paper feed pulley	PULLEY, PAPER FEED	3BR07040	3	44
DP separation pad	PAD, SEPARATION	3HL07100	3	11
Friction plate	FRICTION PLATE, CASSETTE	2A107060	3	36
Conveying roller	CONVEYING ROLLER, ASS'Y	3HL00010	4	1
Conveying pulley	PULLEY CONVEYING	3HL08080	3,4	32,8
Reading guide	GUIDE READING	3HL08040	2	19
Switchback roller	ROLLER LOOP	3HL10030	4	15
Switchback pulley	PULLEY LOOP	3HL10140	4	25
Exit roller	ROLLER EJECT	3HL10100	4	21
Exit pulley	PULLEY CONVEYING	3HL08080	4	8
Original holder mat	MAT, ORIGINAL HOLDER	2A612810	1	14

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	Test copy	Every service		

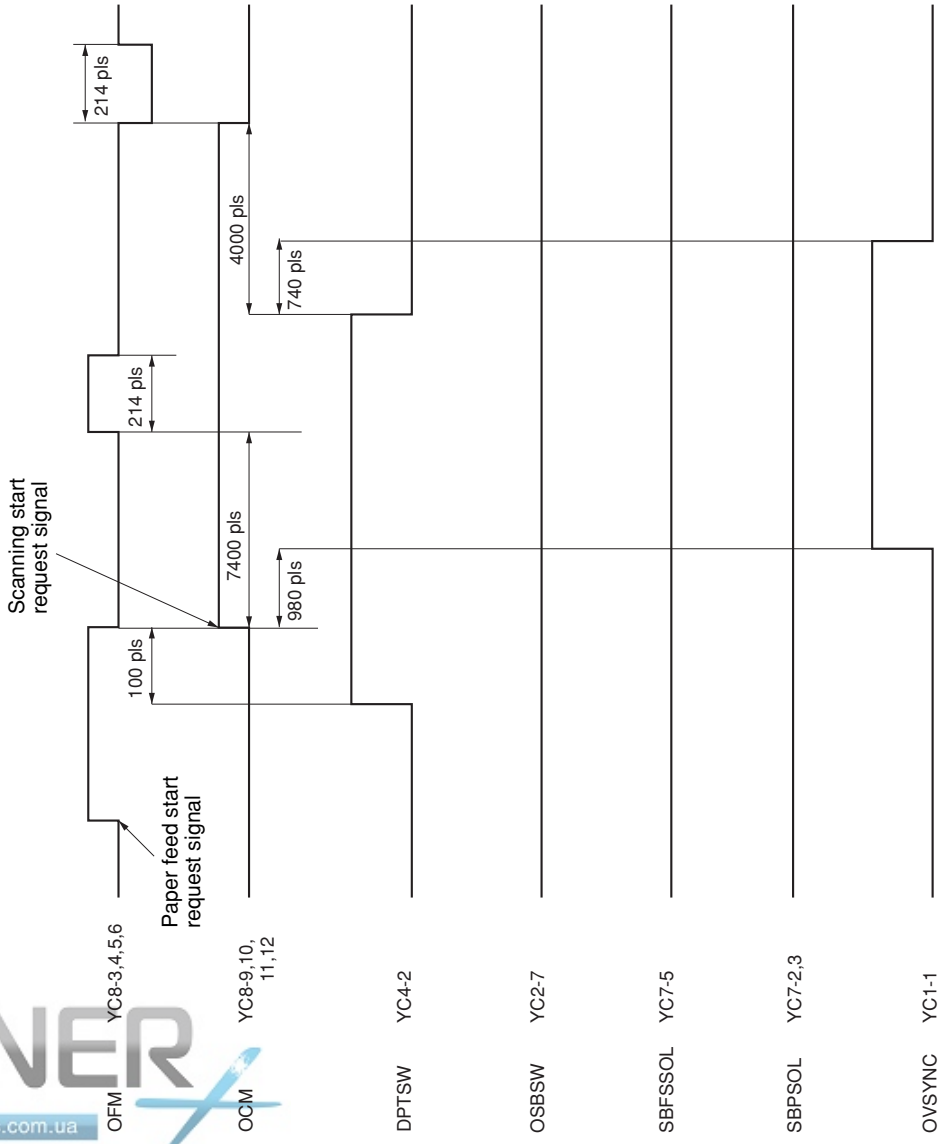
Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Original feed section	DP forwarding pulley	Replace or clean	Every 100,000 counts	Clean with alcohol when visiting the user.	1-5-3
	DP paper feed pulley	Replace or clean	Every 100,000 counts	Clean with alcohol when visiting the user.	1-5-3
	DP separation pad	Replace or clean	Every 100,000 counts	Clean with alcohol when visiting the user.	1-5-5
	Friction plate	Clean	Every service	Clean with alcohol when visiting the user.	

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	Every service	Clean with alcohol or a dry cloth if it is dirty.	
	Reading 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	Every service	Clean with alcohol or a dry cloth if it is dirty.	
	Exit roller	Clean	Every service	Clean with alcohol or a dry cloth	
	Exit pulley	Check or clean	Every service	Clean with alcohol or a dry cloth if it is dirty.	

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

Timing chart No. 1 Original size A3/11" × 17", 1 sheet, single-sided mode



KYOCERA MITA EUROPE B.V.

Hoeksteen 40, 2132 MS Hoofddorp,
The Netherlands
Phone: +31.(0)20.654.000
Home page: http://www.kyoceramita-europe.com
Email: info@kyoceramita-europe.com

KYOCERA MITA NEDERLAND B.V.

Hoeksteen 40 2132 MS Hoofddorp
The Netherlands
Phone: +31.(0)20.587.7200

KYOCERA MITA (UK) LTD.

8 Beacontree Plaza
Gillette Way,
Reading Berks RG2 0BS, UK
Phone: +44.(0)118.931.1500

KYOCERA MITA ITALIA S.P.A.

Via Verdi 89 / 91 20063 Cernusco sul Naviglio,
Italy
Phone: +39.02.92179.1

S.A. KYOCERA MITA BELGIUM N.V.

Hermesstraat 8A 1930 Zaventem Belgium
Phone: +32.(0)2.720.9270

KYOCERA MITA FRANCE S.A.

Parc Les Algorlthmes
Saint Aubin
91194 GIF-SUR-YVETTE
France
Phone: +33.(0)1.6985.2600

KYOCERA MITA ESPAÑA S.A.

Edificio Kyocera, Avda de Manacor N. 2,
Urb. Parque Rozas 28290 Las Rozas,
Madrid, Spain
Phone: +34.(0)91.631.8392

KYOCERA MITA FINLAND OY

Kirvesmiehenkatu 4 00810 Helsinki,
Finland
Phone: +358.(0)9.4780.5200

KYOCERA MITA (SCHWEIZ) AG

Holzliwisen Industriestrasse 28
8604 Volketswil, Switzerland
Phone: +41.(0)1.908.4949

KYOCERA MITA DEUTSCHLAND GMBH

Mollsfeld 12 D-40670 Meerbusch,
Germany
Phone: +49.(0)2159.918.0

KYOCERA MITA GMBH AUSTRIA

Eduard-Kittenberger Gasse 95
1230 Wien, Austria
Phone: +43.(0)1.86338.0

KYOCERA MITA SVENSKA AB

Box 1402 171 27 Solna, Sweden
Phone: +46.(0)8.546.550.00

KYOCERA MITA NORGE

Postboks 150 Oppsal, NO 0619 Oslo
Olaf Helsetsvei 6, NO 0694 Oslo
Phone: +47.(0)22.62.73.00

KYOCERA MITA DANMARK A/S

Hovedkontor: Slotsmarken 11,
DK-2970 Hørsholm, Denmark
Phone: +45.(70)22.3880

KYOCERA MITA PORTUGAL LDA.

Rua do Centro Cultural, no 41 1700-106
Lisbon, Portugal
Phone: +351.(0)21.842.9100

KYOCERA MITA SOUTH AFRICA (PTY) LTD.

527 Kyalami Boulevard,
Kyalami Business Park 1685 Midrand South
Phone: +27.(0)11.466.3290

KYOCERA MITA AMERICA, INC.

Headquarters:
225 Sand Road,
Fairfield, New Jersey 07004-0008,
U.S.A.
Phone: (973) 808-8444

KYOCERA MITA AUSTRALIA PTY. LTD.

Level 3, 6-10 Talavera Road, North Ryde,
N.S.W. 2113 Australia
Phone: (02) 9888-9999

KYOCERA MITA NEW ZEALAND LTD.

1-3 Parkhead Place, Albany
P.O. Box 302 125 NHPC,Auckland,
New Zealand
Phone: (09) 415-4517

KYOCERA MITA (THAILAND) CORP., LTD.

9/209 Ratchada-Prachachem Road,
Bang Sue, Bangkok 10800, Thailand
Phone: (02) 586-0320

KYOCERA MITA SINGAPORE PTE LTD.

121 Genting Lane, 3rd Level,
Singapore 349572
Phone: 67418733

KYOCERA MITA HONG KONG LIMITED

11/F., Mita Centre,
552-566, Castle Peak Road,
Tsuen Wan, New Territories,
Hong Kong
Phone: 24297422

KYOCERA MITA TAIWAN Corporation.

7F-1~2, No.41, Lane 221, Gangchi Rd.
Neihu District, Taipei, Taiwan, 114. R.O.C.
Phone: (02) 87511560

KYOCERA MITA Corporation

2-28, 1-chome, Tamatsukuri, Chuo-ku
Osaka 540-8585, Japan
Phone: (06) 6764-3555
http://www.kyoceramita.com

Printed in Holland