



DF-730

SERVICE MANUAL

Published in April 2007
845H1114
5H1SM064
Rev. 4

CAUTION

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

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

ATTENTION

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

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

Revision history

Revision	Date	Replaced pages	Remarks
1	July 6, 2006	Contents, 1-3-1, 1-3-3, 1-3-4	-
2	August 11, 2006	1-4-2, 1-4-3, 1-4-4, 1-4-5, 1-4-6, 1-4-7, 1-4-8, 2-4-4	-
3	January 23, 2007	1-2-1, 1-5-1, 2-3-1 to 2-3-4, 2-4-5	-
4	April 3, 2007	Contents, 1-4-2 to 1-4-10, 1-5-1	-

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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. 

- Advise customers that they must always follow the safety warnings and precautions in the copier's instruction handbook. 

2. Precautions for Maintenance

WARNING

- Always remove the power plug from the wall outlet before starting machine disassembly. 
 - Always follow the procedures for maintenance described in the service manual and other related brochures. 
 - Under no circumstances attempt to bypass or disable safety features including safety mechanisms and protective circuits. 
 - Always use parts having the correct specifications. 
 - Always use the thermostat or thermal fuse specified in the service manual or other related brochure when replacing them. Using a piece of wire, for example, could lead to fire or other serious accident. 
 - When the service manual or other serious brochure specifies a distance or gap for installation of a part, always use the correct scale and measure carefully. 
 - Always check that the copier is correctly connected to an outlet with a ground connection. 
 - Check that the power cable covering is free of damage. Check that the power plug is dust-free. If it is dirty, clean it to remove the risk of fire or electric shock. 
 - Never attempt to disassemble the optical unit in machines using lasers. Leaking laser light may damage eyesight. 
 - Handle the charger sections with care. They are charged to high potentials and may cause electric shock if handled improperly. 
- ### CAUTION
- Wear safe clothing. If wearing loose clothing or accessories such as ties, make sure they are safely secured so they will not be caught in rotating sections. 
 - Use utmost caution when working on a powered machine. Keep away from chains and belts. 
 - Handle the fixing section with care to avoid burns as it can be extremely hot. 
 - Check that the fixing unit thermistor, heat and press rollers are clean. Dirt on them can cause abnormally high temperatures. 

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



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



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



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



• Remove toner completely from electronic components.



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



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



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



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



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

· Ventilate the room well while using grease or solvents.

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

· Always wash hands afterwards.

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



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



3.Miscellaneous

WARNING

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



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1-1-1 Specifications

Type	Floor model
Number of trays	One tray
Tray capacity.....	When not stapling: A3, B4 (257 mm x 364 mm), 11" x 17" or 8 1/2" x 14": 500 sheets A4R, A4, 8 1/2" x 11" or 11" x 8 1/2": 1000 sheets* *A4R and 8 1/2" x 11" during sorting or offset ejection: 500 sheets (For B5R, job offset is not available.) When stapling 2 or 9 sheets: A3, B4 (257 mm x 364 mm), 11" x 17" or 8 1/2" x 14": 70 to 28 sets A4R, A4, B5, 8 1/2" x 11" or 11" x 8 1/2": 70 to 50 sets When stapling 10 or 20 sheets: A3, B4 (257 mm x 364 mm), 11" x 17" or 8 1/2" x 14": 25 to 12 sets A4R, A4, B5, 8 1/2" x 11" or 11" x 8 1/2": 45 to 16 sets When stapling 21 or 30 sheets: A4R, A4, B5, 8 1/2" x 11" or 11" x 8 1/2": 45 to 16 sets
Stapling limit.....	A3, B4 (257 mm x 364 mm), Folio, 11" x 17" or 8 1/2" x 14": 20 sheets A4R, A4, 8 1/2" x 11" or 11" x 8 1/2": 30 sheets
Power source	Electrically connected to the machine
Dimensions	558 (W) x 526 (D) x 916 (H) mm 22" (W) x 20 11/16" (D) x 36 1/16" (H)
Weight.....	Approx. 25 kg/55 lbs (with attachments)

NOTE: These specifications are subject to change without notice.

1-1-2 Parts names

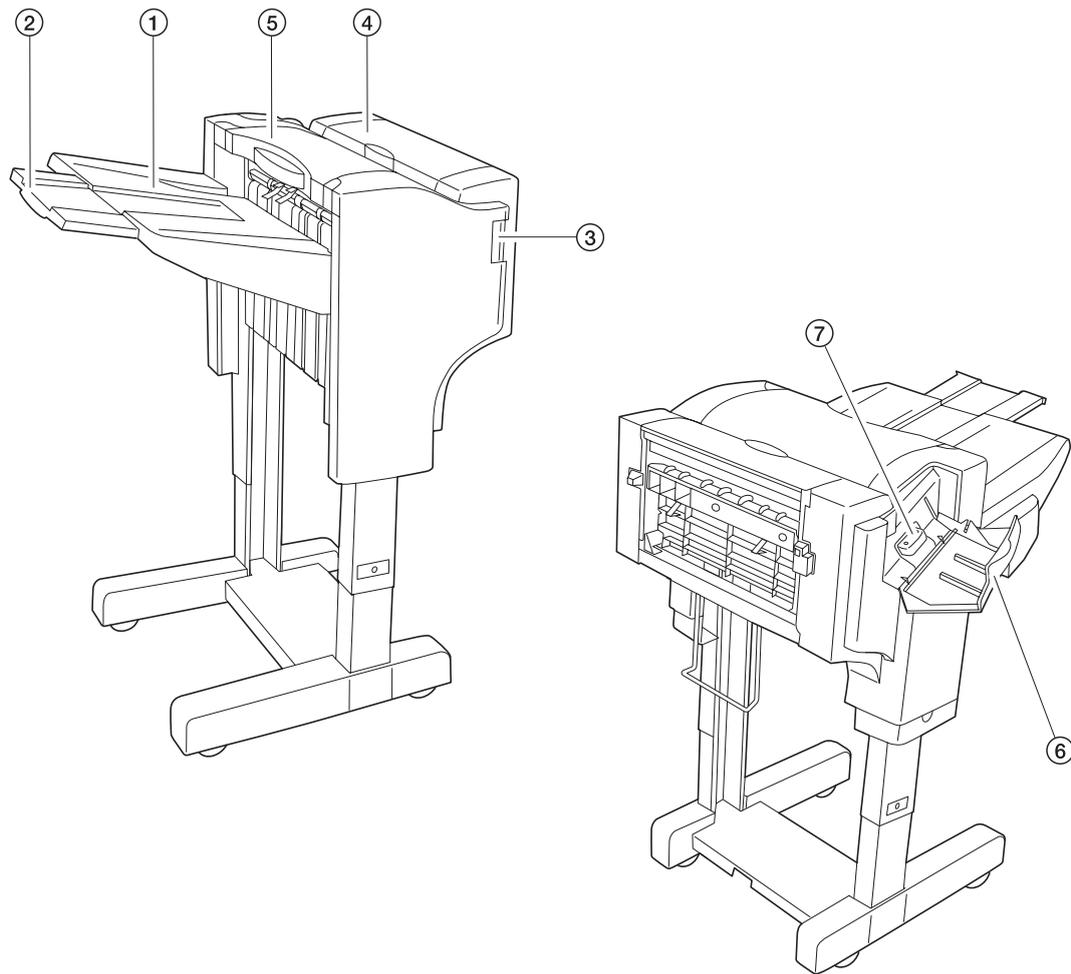


Figure 1-1-1

- 1. Exit tray
- 2. Exit tray extension
- 3. Finisher release button
- 4. Reverse cover
- 5. Upper cover
- 6. Stapler cover
- 7. Staple holder

1-1-3 Machine cross section

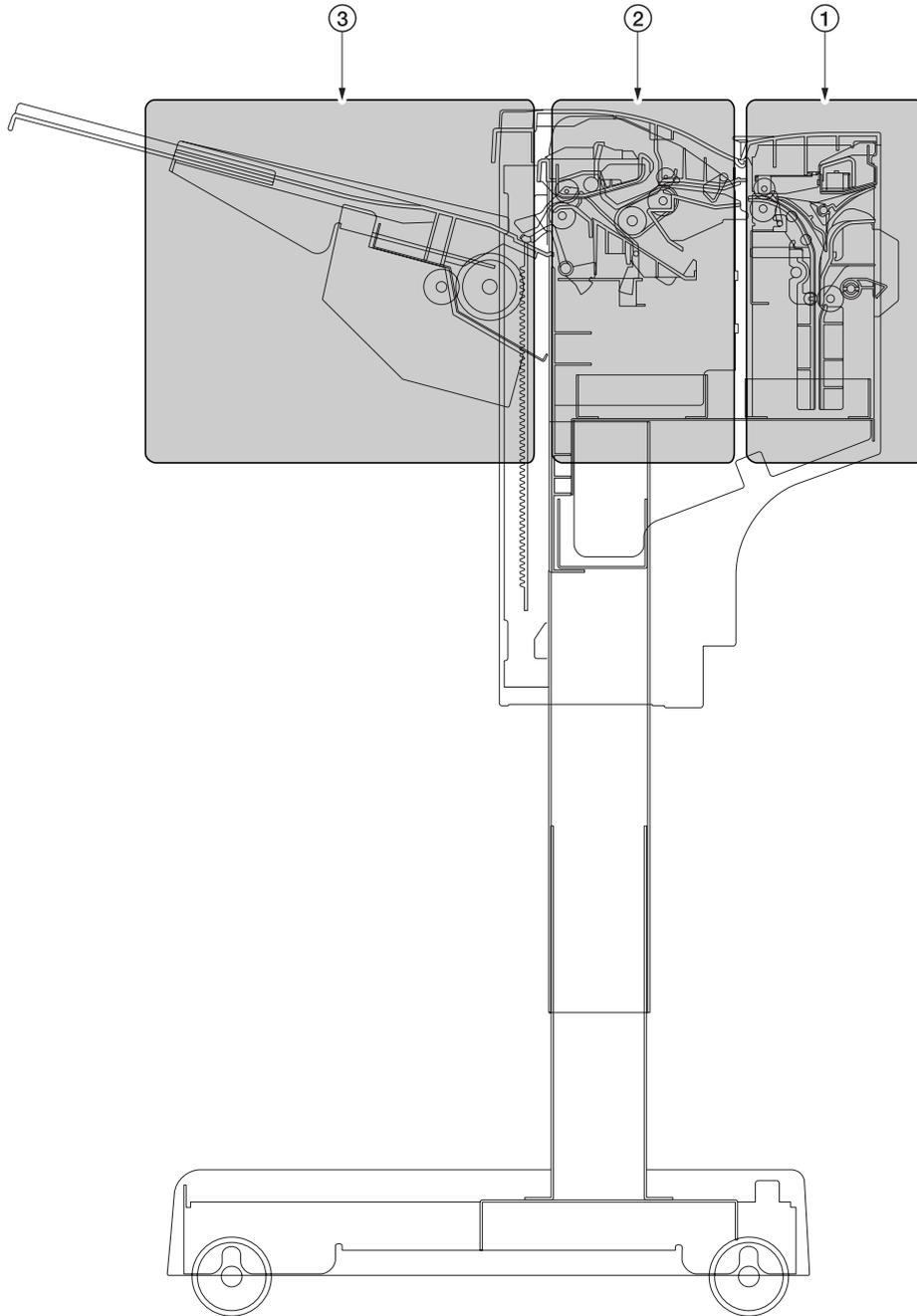


Figure 1-1-2 Machine cross section

- 1. Reverse section
- 2. Processing section
- 3. Exit tray section

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1-2-1 Installation environment

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

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

Avoid 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, NO_x, SO_x gases and chlorine-based organic solvents.

Select a room with good ventilation.

1-2-2 Unpacking and installation

(1) Installation procedure

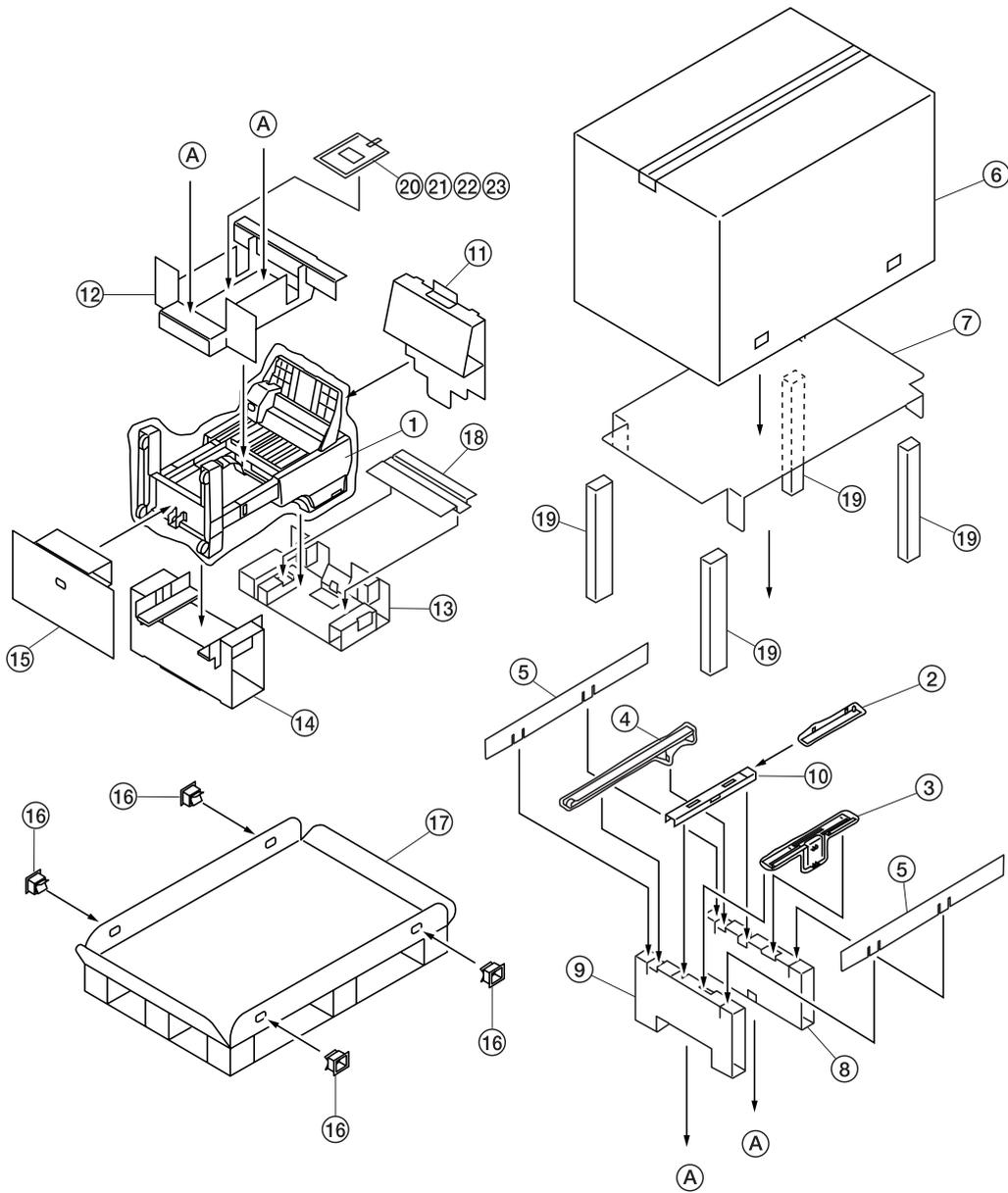


Figure 1-2-1 Unpacking

- | | |
|----------------------|----------------------------|
| 1. Document finisher | 13. Pad |
| 2. Latch catch | 14. Pad |
| 3. Rail retainer | 15. Pad |
| 4. Guide rail | 16. Hinge joints |
| 5. Joints | 17. Skid |
| 6. Outer case | 18. Pad |
| 7. Top plate | 19. Supports |
| 8. Pad | 20. Installation guide |
| 9. Pad | 21. Clamp |
| 10. Pad | 22. M4 x 6 binding screws |
| 11. Pad | 23. M4 x 10 binding screws |
| 12. Pad | |

Caution: Place the machine on a level surface.

(2) Remove the tapes and pad

When installing the machine, be sure to remove the following tapes and pad.

1. Remove the two tapes holding the reverse cover.
2. Remove the two tapes holding the reverse guide.
3. Remove the tape holding the upper cover.
4. Open the upper cover and remove the pad.
5. Remove the tape holding the exit tray extension.
6. Open the stapler cover and remove the tape holding the stapler.
7. Remove the tape holding the signal cable and the air mat.

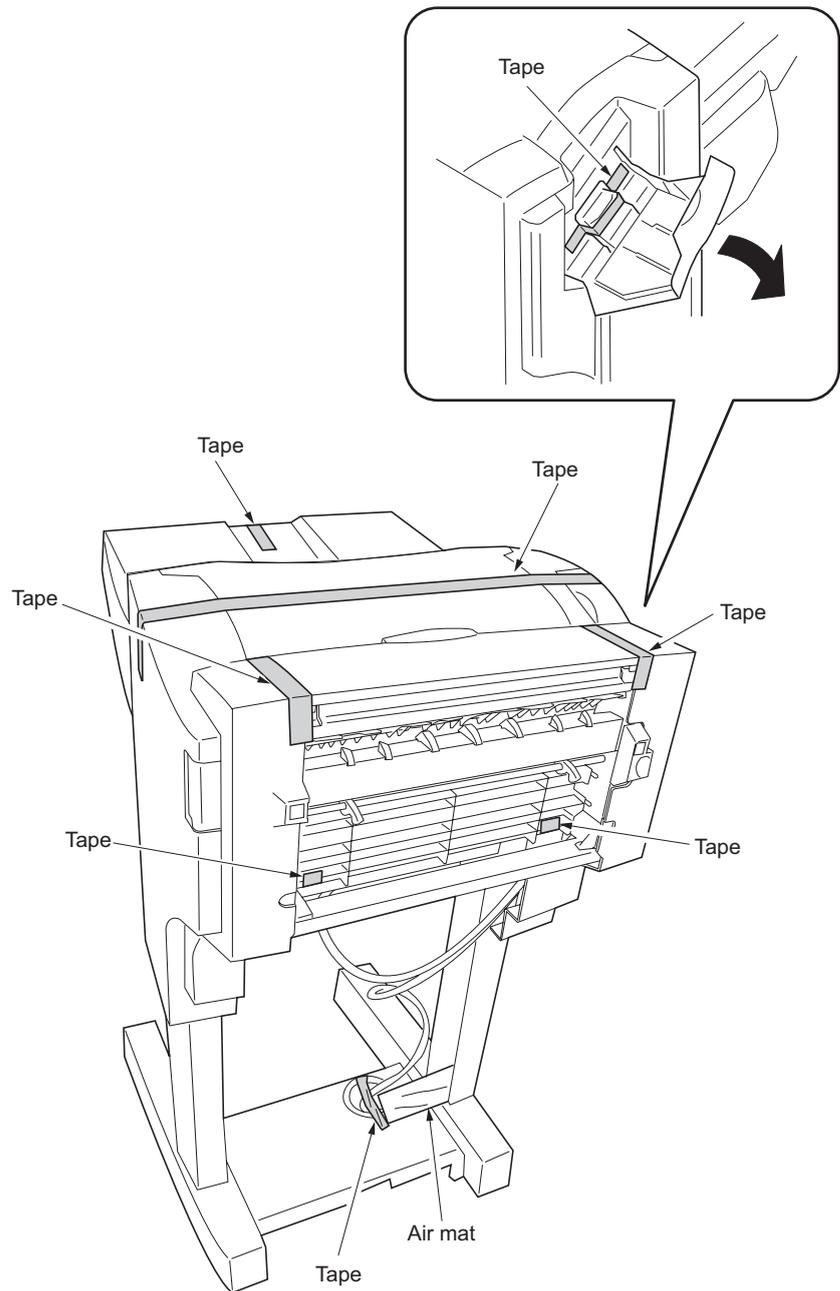


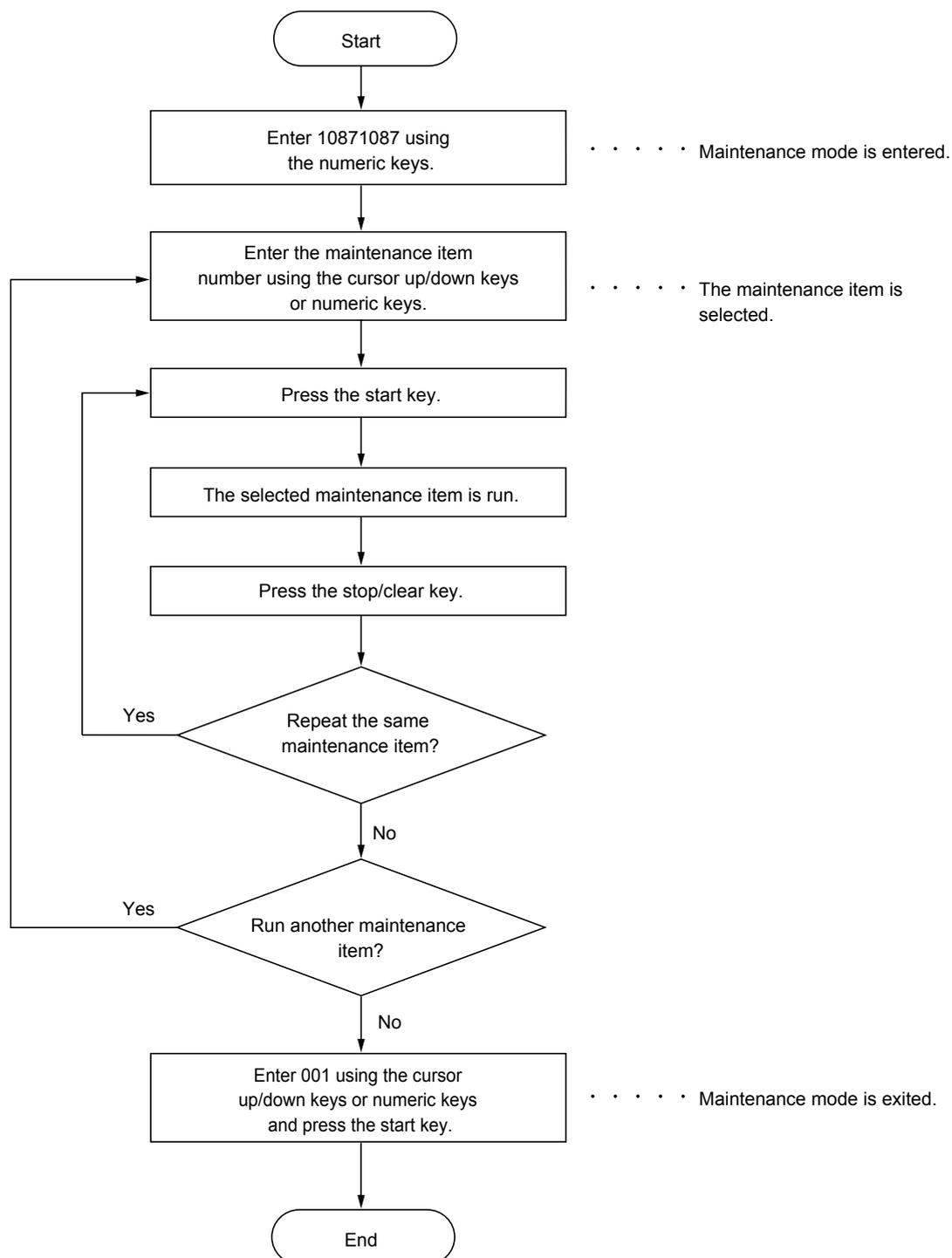
Figure 1-2-2

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1-3-1 Maintenance mode (fullcolor machine)

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

(1) Executing a maintenance item



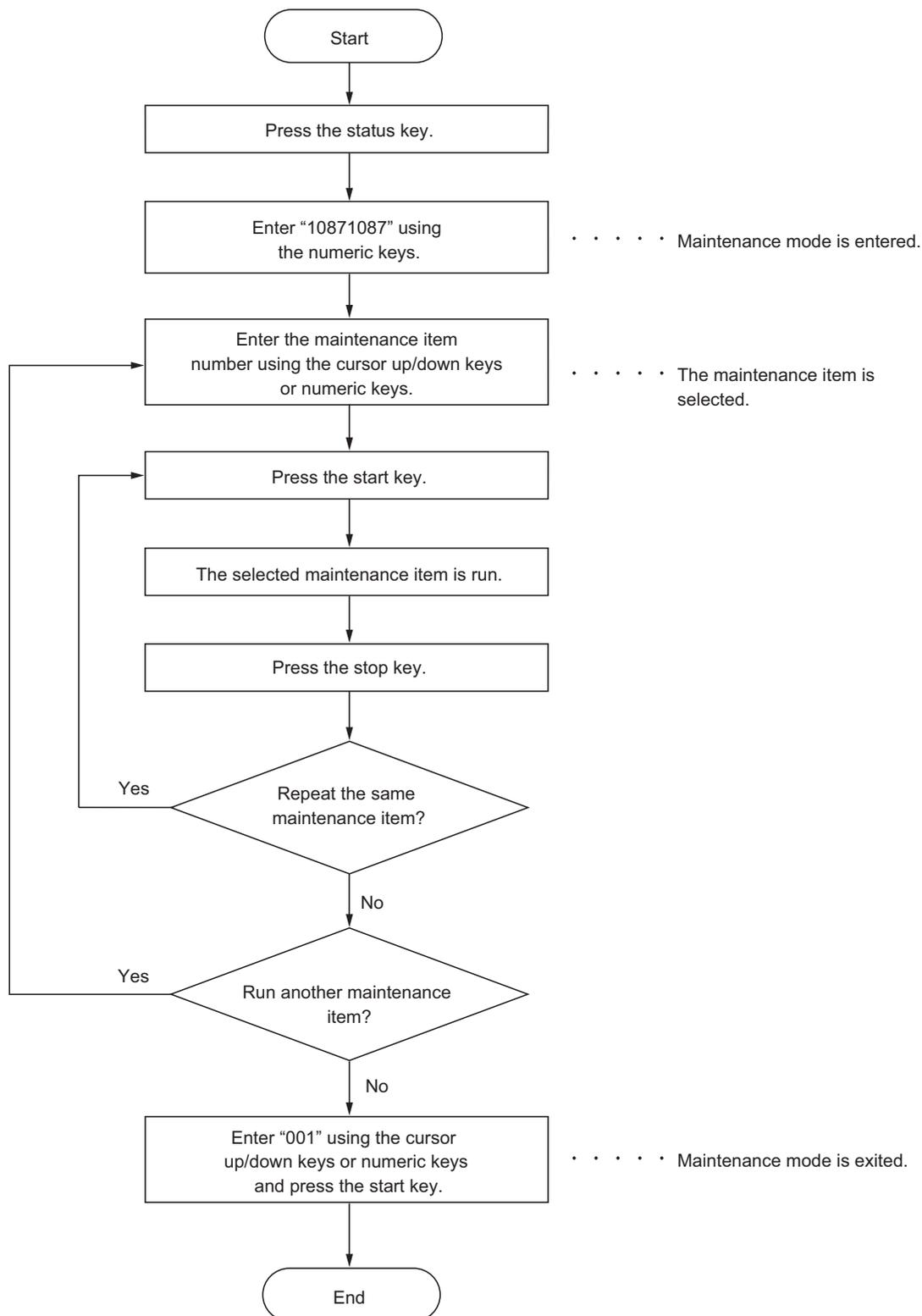
(2) Contents of maintenance mode items

Maintenance item No.	Description																		
<p>U905</p>	<p>Checking counts by optional devices</p> <p>Description Displays the counts of optional DP or finisher.</p> <p>Purpose To check the use of optional DP and finisher.</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" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">Display</th> <th style="text-align: left;">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 (document finisher)</p> <table border="1" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">Display</th> <th style="text-align: left;">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>-</td> </tr> <tr> <td>STACK</td> <td>-</td> </tr> <tr> <td>SADDLE</td> <td>-</td> </tr> </tbody> </table> <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	-	STACK	-	SADDLE	-
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STACK	-																		
SADDLE	-																		

1-3-2 Maintenance mode (monochrome machine)

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

(1) Executing a maintenance item



(2) Contents of maintenance mode items

Maintenance item No.	Description																								
U905	<p>Checking/clearing counts by optional devices</p> <p>Description Displays or clears the counts of DP or finisher.</p> <p>Purpose To check the use of 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. <table border="1" data-bbox="336 546 1398 658"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>DP</td> <td>Counts of optional DP</td> </tr> <tr> <td>FINISHER</td> <td>Counts of optional finisher</td> </tr> </tbody> </table> <p>DP</p> <table border="1" data-bbox="336 730 1398 842"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>ADP</td> <td>No. of single-sided originals that has passed through the DP</td> </tr> <tr> <td>RADP</td> <td>No. of double-sided originals that has passed through the DP</td> </tr> </tbody> </table> <p>Finisher</p> <table border="1" data-bbox="336 902 1398 1126"> <thead> <tr> <th>Display</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>CP CNT</td> <td>No. of copies that has passed</td> </tr> <tr> <td>STAPLE</td> <td>Frequency the stapler has been activated</td> </tr> <tr> <td>PUNCH</td> <td>-</td> </tr> <tr> <td>STACK</td> <td>-</td> </tr> <tr> <td>SADDLE</td> <td>-</td> </tr> </tbody> </table> <p>Clearing</p> <ol style="list-style-type: none"> 1. Select the item to be cleared. To clear the counts for all, press the clear key. 2. Press the start key. The count is cleared. <p>Completion Press the stop key. The screen for selecting a maintenance item No. is displayed.</p>	Display	Description	DP	Counts of optional DP	FINISHER	Counts of optional finisher	Display	Description	ADP	No. of single-sided originals that has passed through the DP	RADP	No. of double-sided originals that has passed through the DP	Display	Description	CP CNT	No. of copies that has passed	STAPLE	Frequency the stapler has been activated	PUNCH	-	STACK	-	SADDLE	-
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SADDLE	-																								

1-4-1 Paper misfeed detection

(1) Paper misfeed indication

When a paper misfeed occurs, the machine immediately stops copying and displays the jam location on the operation panel.

To remove the jammed paper, detach the finisher from the machine.

To reset the paper misfeed detection, turn the joint switch (JSW) off and on.

(2) Paper misfeed detection conditions

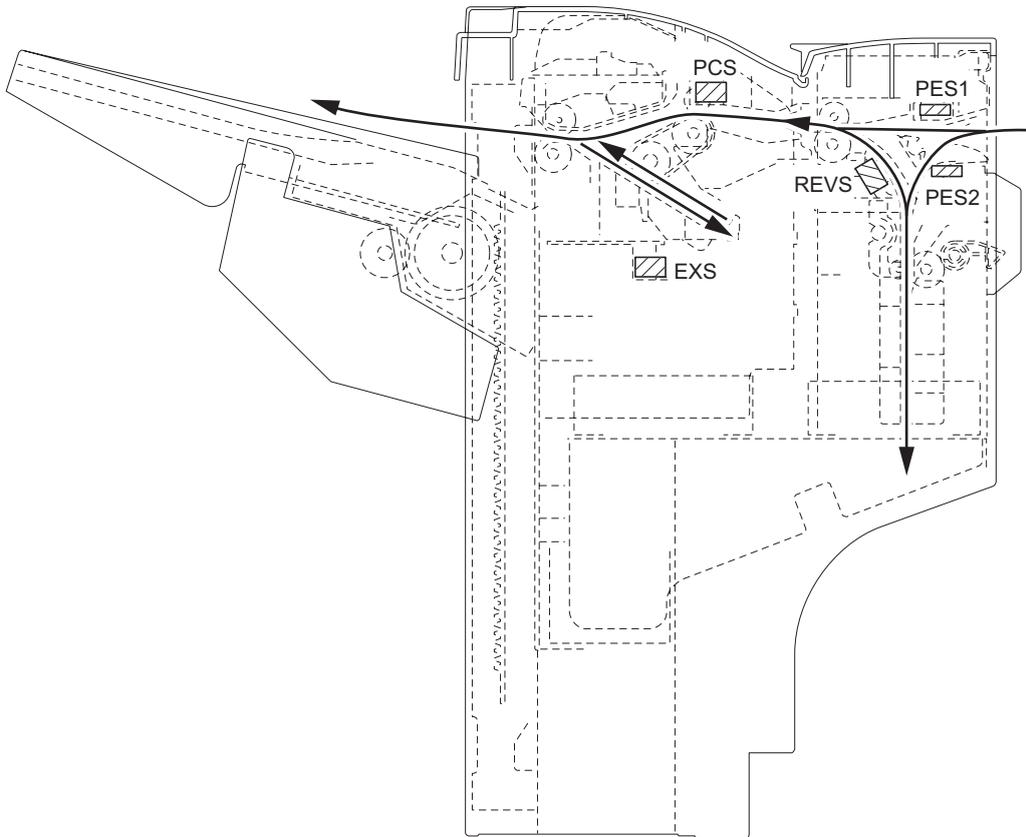


Figure 1-4-1

Fullcolor machine

Section	Jam code	Conditions	Specified time	
			25/25,32/25, 32/32 ppm	40/35 ppm B/W/Color
Finisher	80 Jam between the finisher and machine	Paper ejection is not output from the machine to the document finisher within specified time of the paper entry sensor (PES) turning on.	15 s	15 s
	81 Paper entry sensor non arrival jam	The paper entry sensor (PES) is not turned on even if a specified time has elapsed after the machine eject signal was received.	2539 ms	1846 ms/ 2218 ms
	82 Jam in stapler	The staple home position sensor (STSPS) is not turned on within the specified time when driving the staple motor (STM).	1000 ms	1000 ms
	83 Exit sensor stay jam	In the straight mode, the exit sensor (EXS) is not turned off within specified time of its turning on.	1680 ms	1680 ms
		In the offset or staple mode, the exit sensor (EXS) is not turned off within specified time of its turning on.	5375 ms	5375 ms
	91 Finisher cover open	The front cover, top cover or tray C is opened when starting the finisher operation. The centerfold unit top cover is opened when starting the centerfold operation. The mail box cover is opened when starting the operation.	-	-
	92 Exit sensor non-arrival jam	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.	1770 ms	1770 ms
	93 Reverse sensor jam	The reverse sensor (REVS) does not turn on within specified time of paper entry sensor (PES) turning on.	1036 ms	753 ms/ 905 ms
		The reverse sensor (REVS) is not turned on within specified time.	435 ms	435 ms
		The reverse sensor (REVS) does not turn off within specified time of paper entry sensor (PES) turning off.	601 ms	437 ms/ 525 ms
		The reverse sensor (REVS) is not turned off within specified time its turning on.	Depends on paper size	Depends on paper size
	94 Paper entry sensor stay/remaining jam	The paper entry sensor (PES) is not turned off within specified time its turning on.	Depends on paper size	Depends on paper size
	95 Paper conveying sensor jam	The paper conveying sensor (PCS) does not turn on within specified time of reverse sensor (REVS) turning on.	753 ms	753 ms
		The paper conveying sensor (PCS) does not turn off within specified time of reverse sensor (REVS) turning off.	1004 ms	1004 ms

Monochrome machine

Section	Jam code	Conditions	Specified time
Finisher	80 Jam between the finisher and machine	Paper ejection is not output from the machine to the document finisher within specified time of the paper entry sensor (PES) turning on.	15 s
	81 Paper entry sensor non arrival jam	The paper entry sensor (PES) is not turned on even if a specified time has elapsed after the machine eject signal was received.	2627 ms
	82 Jam in stapler	The staple home position sensor (STSPS) is not turned on within the specified time when driving the staple motor (STM).	1000 ms
	83 Exit sensor stay jam	In the straight mode, the exit sensor (EXS) is not turned off within specified time of its turning on.	1680 ms
		In the offset or staple mode, the exit sensor (EXS) is not turned off within specified time of its turning on.	5375 ms
	91 Finisher cover open	The front cover, top cover or tray C is opened when starting the finisher operation. The centerfold unit top cover is opened when starting the centerfold operation. The mail box cover is opened when starting the operation.	-
	92 Exit sensor non-arrival jam	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.	1770 ms
	93 Reverse sensor jam	The reverse sensor (REVS) does not turn on within specified time of paper entry sensor (PES) turning on.	1071 ms
		The reverse sensor (REVS) is not turned on within specified time.	435 ms
		The reverse sensor (REVS) does not turn off within specified time of paper entry sensor (PES) turning off.	622 ms
		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	The paper entry sensor (PES) is not turned off within specified time its turning on.	Depends on paper size
	95 Paper conveying sensor jam	The paper conveying sensor (PCS) does not turn on within specified time of reverse sensor (REVS) turning on.	753 ms
		The paper conveying sensor (PCS) does not turn off within specified time of reverse sensor (REVS) turning off.	1004 ms

(3) Paper misfeeds

Problem	Causes/check procedures	Corrective measures
(1) A paper jam in document finisher is indicated during copying (jam between finisher and machine). Jam code 80	Defective paper entry sensor.	With 5 V DC present at CN14-1 and CN14-3 on the finisher main PWB, check if CN14-2 and CN14-4 on the finisher main PWB remains low or high when the paper entry sensor is turned on and off. If it does, replace the paper entry sensor.)
(2) A paper jam in document finisher is indicated during copying (paper jam during paper insertion to the finisher). Jam code 81	Extremely curled paper.	Change the paper.
	Defective paper entry sensor.	With 5 V DC present at CN14-1 and CN14-3 on the finisher main PWB, check if CN14-2 and CN14-4 on the finisher main PWB remains low or high when the paper entry sensor is turned on and off. If it does, replace the paper entry sensor.)
(3) A paper jam in document finisher is indicated during copying (finisher stapler jam). Jam code 82	Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
	Defective staple home position sensor.	Run maintenance item U241 and turn the staple home position sensor on and off manually. Replace the sensor if indication of the corresponding sensor on the touch panel is not displayed in reverse.
(4) A paper jam in document finisher is indicated during copying (eject sensor stay jam). Jam code 83	Defective eject sensor.	With 5 V DC present at CN5-4 on the finisher main PWB, check if CN5-6 on the finisher main PWB remains low or high when the eject sensor is turned on and off. If it does, replace the eject sensor.
	Check if the paper conveying motor malfunctions.	Check and remedy.
	Check if the exit roller and exit pulley contact each other.	Check and remedy.
	Check if the exit guide is deformed.	Check and remedy.
	Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
(5) A paper jam in document finisher is indicated during copying (eject sensor non-arrival jam). Jam code 92	Defective eject sensor.	With 5 V DC present at CN5-4 on the finisher main PWB, check if CN5-6 on the finisher main PWB remains low or high when the exit sensor is turned on and off. If it does, replace the exit sensor.
	Check if the paper conveying motor malfunctions.	Check.
	Check if the exit roller and exit pulley contact each other.	Check and remedy.
	Check if the exit guide is deformed.	Check and remedy.
	Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.

Problem	Causes/check procedures	Corrective measures
(6) A paper jam in document finisher is indicated during copying (reverse sensor jam). Jam code 93	Defective reverse sensor.	With 5 V DC present at CN14-5 on the finisher main PWB, check if CN14-7 on the finisher main PWB remains low or high when the reverse sensor is turned on and off. If it does, replace the reverse sensor.
	Check if the reverse motor malfunctions.	Check.
	Check if the reverse roller and reverse pulley contact each other.	Check and remedy.
	Check if the reverse guide is deformed.	Check and remedy.
	Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
(7) A paper jam in document finisher is indicated during copying (paper entry sensor stay jam). Jam code 94	Extremely curled paper.	Change the paper.
	Defective paper entry sensor.	With 5 V DC present at CN14-1 and CN14-3 on the finisher main PWB, check if CN14-2 and CN14-4 on the main PCB remains low or high when the paper entry sensor is turned on and off. If it does, replace the paper entry sensor.
	Check if the paper entry guide is deformed.	Check and remedy.
	Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
(8) A paper jam in document finisher is indicated during copying (paper conveying sensor jam). Jam code 95	Defective paper conveying sensor.	With 5 V DC present at CN4-4 on the finisher main PWB, check if CN4-6 on the finisher main PWB remains low or high when the paper conveying sensor is turned on and off. If it does, replace the paper conveying sensor.
	Check if the paper conveying motor malfunctions.	Check.
	Check if the paper conveying roller and paper conveying pulley contact each other.	Check and remedy.
	Check if the paper conveying guide is deformed.	Check and remedy.
	Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.

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 cover switch off and back on.

(2) Self diagnostic codes

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C0440	Document finisher communication problem A communication error from document finisher is detected 10 times in succession.	Poor contact in the connector terminals.	Check the connection of connector YC33 on the engine PWB and the connector on the finisher main PWB, and the continuity across the connector terminals. Repair or replace if necessary.
		Defective PWB.	Replace the finisher main PWB or engine PWB and check for correct operation.
C8030	Tray upper limit detection problem When the tray elevation motor raises a tray, the ON status of the tray upper limit sensor is detected.	The tray upper limit sensor/push paper sensor/surface view sensor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective tray upper limit sensor/push paper sensor/surface view sensor.	Replace the sensor.
		Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
C8140	Tray elevation motor problem The tray low limit sensor, paper retaining sensor or paper surface sensor cannot be detected to be on within 10 s since the tray elevation motor is activated.	The tray elevation motor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		The tray elevation motor malfunctions.	Replace the tray elevation motor.
		The tray lower limit sensor/push paper sensor/surface view sensor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective tray lower limit sensor/push paper sensor/surface view sensor.	Replace the sensor.
		Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
C8170	Adjustment motor problem The registration home position sensor cannot be detected to be on or off within 125 ms since the registration motor is activated after registration has started. The registration home position sensor cannot be detected to be on within 710 ms since the registration motor is activated after registration has ceased.	The adjustment motor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective adjustment motor.	Replace adjustment motor.
		The adjustment home position sensor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective adjustment home position sensor.	Replace the adjustment home position sensor.
		Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
C8210	Stapler problem When the stapler motor is driving, the ON status of the stapler home position sensor cannot be detected even if 1s has elapsed.	The stapler connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		The stapler is blocked with a staple.	Remove the stapler cartridge, and check the cartridge and the stapling section of the stapler.
		The stapler is broken.	Replace the stapler and check for correct operation.
		Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
C8440	Sensor adjusting problem The sensor cannot be adjusted within the specified range.	The paper entry sensor connector makes poor contact.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
		Defective paper entry sensor.	Replace the paper entry sensor and check for correct operation.
		The optical path of the paper entry sensor is blocked by foreign matter.	Remove the foreign matter.
		Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
C8460	EEPROM problem The read data or written data do not match in three consecutive times.	Defective EEPROM or finisher main PWB.	Replace the finisher main PWB and check for correct operation.

1-4-3 Electric problems

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

Problem	Causes	Check procedures/corrective measures
(1) The reverse motor does not operate.	1. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Defective reverse motor.	Check if the reverse motor rotates when 24 V DC is present at CN15-1 and CN15-2, and drive pulses are at CN15-3, CN15-4, CN15-5 and CN15-6 on the finisher main PWB. If not, replace the reverse motor.
	3. Defective finisher main PWB.	Check if CN15-3, CN15-4, CN15-5 and CN15-6 on the finisher main PWB goes low. If not, replace the finisher main PWB.
(2) The paper conveying motor does not operate.	1. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Defective paper conveying motor.	Check if the paper conveying motor rotates when 24 V DC is present at CN7-5 and CN7-6, and drive pulses are at CN7-1, CN7-2, CN7-3 and CN7-4 on the finisher main PWB. If not, replace the paper conveying motor.
	3. Defective finisher main PWB.	Check if CN7-1, CN7-2, CN7-3 and CN7-4 on the finisher main PWB go low. If not, replace the finisher main PWB.
(3) The adjustment motor does not operate.	1. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Defective adjustment motor.	Check if the adjustment motor rotates when drive pulses are at CN8-1, CN8-2, CN8-3 and CN8-4 on the finisher main PWB. If not, replace the adjustment motor.
	3. Defective finisher main PWB.	Check if CN8-1, CN8-2, CN8-3 and CN8-4 on the finisher main PWB go low. If not, replace the finisher main PWB.
(4) The tray elevation motor does not operate.	1. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	2. Defective tray elevation motor.	Check if the tray elevation motor rotates when 24 V DC is present at CN11-7 and CN11-8 on the finisher main PWB. If not, replace the tray elevation motor.
	3. Defective finisher main PWB.	Check if 24 V DC is present at CN11-7 and CN11-8 on the finisher main PWB. If not, replace the finisher main PWB.
(5) The separate solenoid does not operate.	1. Defective separate solenoid coil.	Check for continuity across the coil. If none, replace the separate solenoid.
	2. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	3. Defective finisher main PWB.	Check if CN12-3 on the finisher main PWB goes low. If not, replace the finisher main PWB.
(6) The flapper solenoid does not operate.	1. Defective flapper solenoid coil.	Check for continuity across the coil. If none, replace the flapper solenoid.
	2. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	3. Defective finisher main PWB.	Check if CN12-1 on the finisher main PWB goes low. If not, replace the finisher main PWB.
(7) The large gear solenoid does not operate.	1. Defective large gear solenoid coil.	Check for continuity across the coil. If none, replace the large gear solenoid.
	2. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	3. Defective finisher main PWB.	Check if CN17-2 on the finisher main PWB goes low. If not, replace the finisher main PWB.

Problem	Causes	Check procedures/corrective measures
(8) The paddle solenoid does not operate.	1. Defective paddle solenoid coil.	Check for continuity across the coil. If none, replace the paddle solenoid.
	2. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	3. Defective finisher main PWB.	Check if CN9-2 on the finisher main PWB goes low. If not, replace the finisher main PWB.
(9) The surface view solenoid does not operate.	1. Defective surface view solenoid coil.	Check for continuity across the coil. If none, replace the surface view solenoid.
	2. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	3. Defective finisher main PWB.	Check if CN6-2 and CN6-3 on the finisher main PWB goes low. If not, replace the finisher main PWB.
(10) Paper jams when the main power switch is turned on.	1. A piece of paper torn from an paper is caught around the paper entry sensor, reverse sensor, paper conveying sensor or exit sensor.	Check visually and remove it, if any.
	2. Defective paper entry sensor.	With 5 V DC present at CN14-1 and CN14-3 on the finisher main PWB, check if CN14-2 and CN14-4 on the finisher main PWB remains low or high when the paper entry sensor is turned on and off. If it does, replace the paper entry sensor.
	3. Defective reverse sensor.	With 5 V DC present at CN14-5 on the finisher main PWB, check if CN14-7 on the finisher main PWB remains low or high when the reverse sensor is turned on and off. If it does, replace the reverse sensor.
	4. Defective paper conveying sensor.	With 5 V DC present at CN4-4 on the finisher main PWB, check if CN4-6 on the finisher main PWB remains low or high when the paper conveying sensor is turned on and off. If it does, replace the paper conveying sensor.
	5. Defective exit sensor.	With 5 V DC present at CN5-4 on the finisher main PWB, check if CN5-6 on the finisher main PWB remains low or high when the exit sensor is turned on and off. If it does, replace the exit sensor.
	6. Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.
(11) [Out of staples. Add staples.] is displayed when the main power switch is turned on.	1. Defective stapler empty sensor.	With 5 V DC present at CN10-6 on the finisher main PWB, check if CN10-6 on the finisher main PWB remains low or high when the stapler empty sensor is turned on and off. If it does, replace the stapler empty sensor.
	2. Poor contact in the connector terminals.	Reinsert the connector. Also check for continuity within the connector cable. If none, remedy or replace the cable.
	3. Defective stapler cartridge sensor.	With 5 V DC present at CN10-5 on the finisher main PWB, check if CN10-5 on the finisher main PWB remains low or high when the stapler cartridge sensor is turned on and off. If it does, replace the stapler cartridge sensor.
	4. Defective finisher main PWB.	Replace the finisher main PWB and check for correct operation.

1-4-4 Mechanical problems

Problem	Causes/check procedures	Corrective measures
(1) No paper conveying.	Paper outside specifications is used.	Use only paper conforming to the specifications.
	Check if the surfaces of the paper conveying roller, paper conveying pulleys, reverse roller and reverse pulleys are soiled with paper powder.	Clean with isopropyl alcohol, if they are soiled.
	Check if the paper conveying roller, paper conveying pulleys, reverse roller and reverse pulleys are deformed.	Replace any deformed or worn pulleys or roller.
(2) No paper ejection to the exit tray.	Paper outside specifications is used.	Use only paper conforming to the specifications.
	Check if the surfaces of the exit roller and pulleys are soiled with paper powder.	Clean with isopropyl alcohol, if they are soiled.
	Check if the exit roller and pulleys are deformed.	Replace any deformed or worn pulleys or roller.
(3) Paper jams.	Paper outside specifications is used.	Use only paper conforming to the specifications.
	Check if the paper is extremely curled.	Change the paper.
	Check if the paper conveying roller and pulleys, or reverse roller and pulleys make proper contact.	Remedy if there are any problems.
	Check if the exit roller and pulleys make proper contact.	Remedy if there are any problems.
(4) Abnormal noise is heard.	Check if rollers, pulleys and gears all operate smoothly.	Apply grease to the bushings and gears.
	Check to see if the vibration noise of each motor is abnormally high.	Readjust the tension of the motor bracket.

1-5-1 Precautions for assembly and disassembly

(1) Precautions

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

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

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

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

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

Output Connector for Interconnecting Cable is non-LPS.

Output: 24 V dc (426 VA max.)

Please use the item below Interconnecting Cables.

P/N: 305H180180

(2) Cleaning the paper conveying roller and reverse exit roller

Follow the procedure below to clean the paper conveying roller and reverse exit roller.

Procedure

1. Remove the two screws holding the front cover and then the cover.

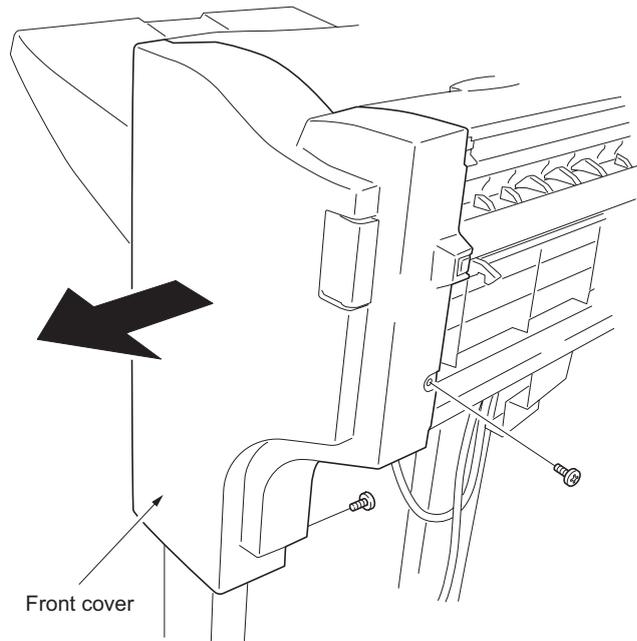


Figure 1-5-1

2. Remove the two screws holding the rear cover and then the cover.

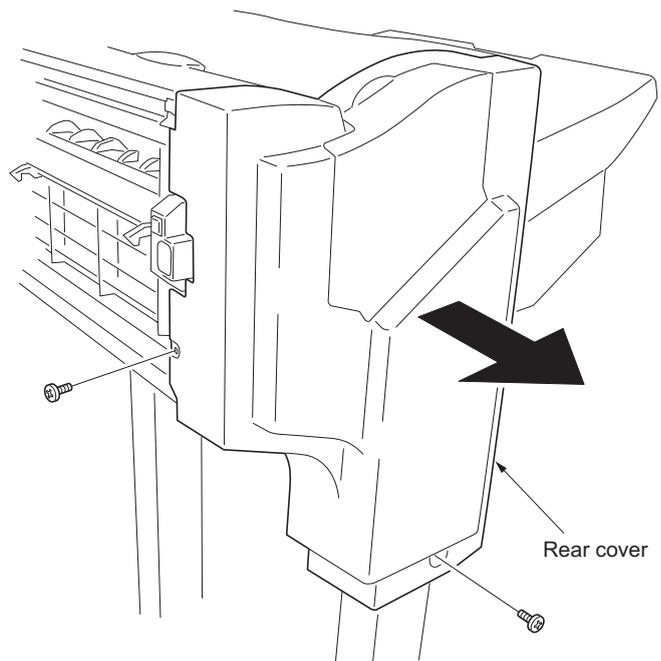


Figure 1-5-2

3. Open the upper cover and release the front and rear stopper.
4. Release the fitting portions of the upper cover and then remove the cover.

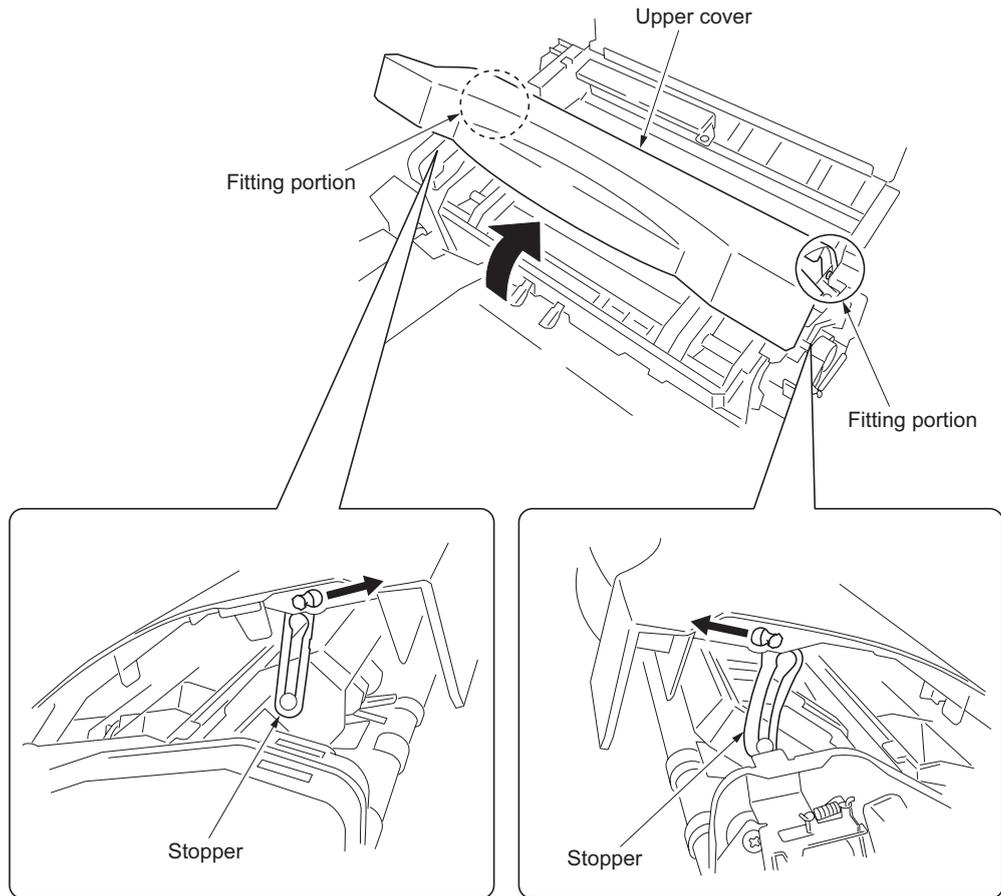


Figure 1-5-3

5. Remove the two screws and connector and then remove the paper conveying guide unit.
6. Clean the paper conveying roller and reverse exit roller.

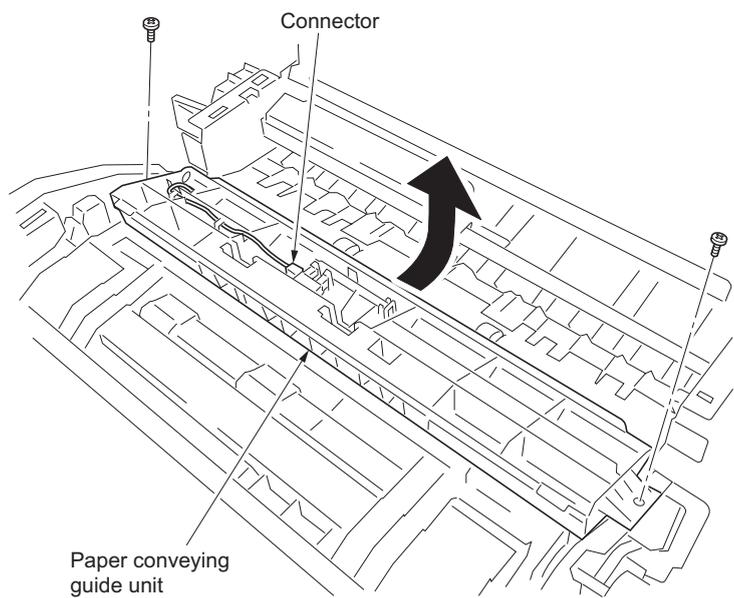


Figure 1-5-4

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2-1-1 Mechanical construction

(1) Reverse section

The reverse section consists of the components shown in Fig. 2-1-1 and conveys paper that is fed from the machine into the finisher to the reverse unit or the processing section. Feedshift to the reverse unit or the processing section is performed with the flapper that is activated by the flapper solenoid (FSOL).

In the reverse mode, paper that is fed into the finisher is temporarily fed to the reverse unit, is reversed, and then is conveyed to the processing section with the rotation of the reverse roller and reverse exit roller.

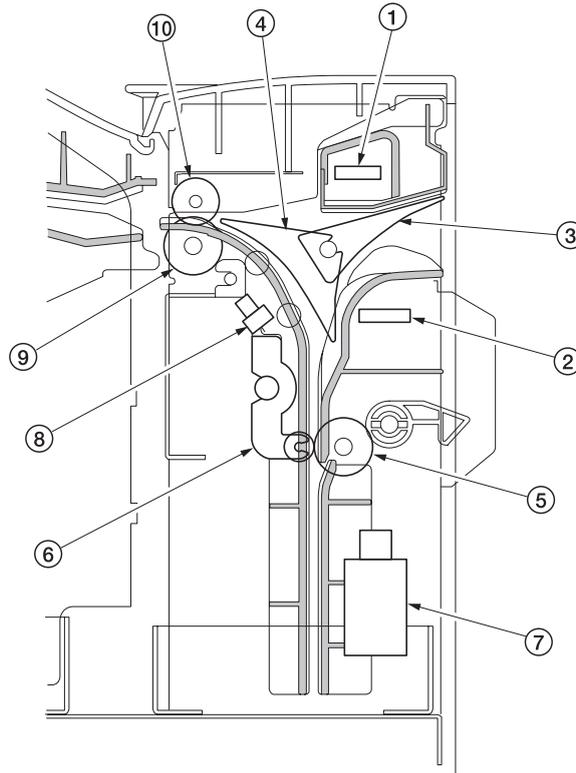


Figure 2-1-1 Reverse section

- | | |
|---------------------------------|------------------------------|
| (1) Paper entry sensor 1 (PES1) | (6) Reverse pulley |
| (2) Paper entry sensor 2 (PES2) | (7) Separate solenoid (SSOL) |
| (3) Flapper | (8) Reverse sensor (REVS) |
| (4) Flapper | (9) Reverse exit roller |
| (5) Reverse roller | (10) Paper conveying pulley |

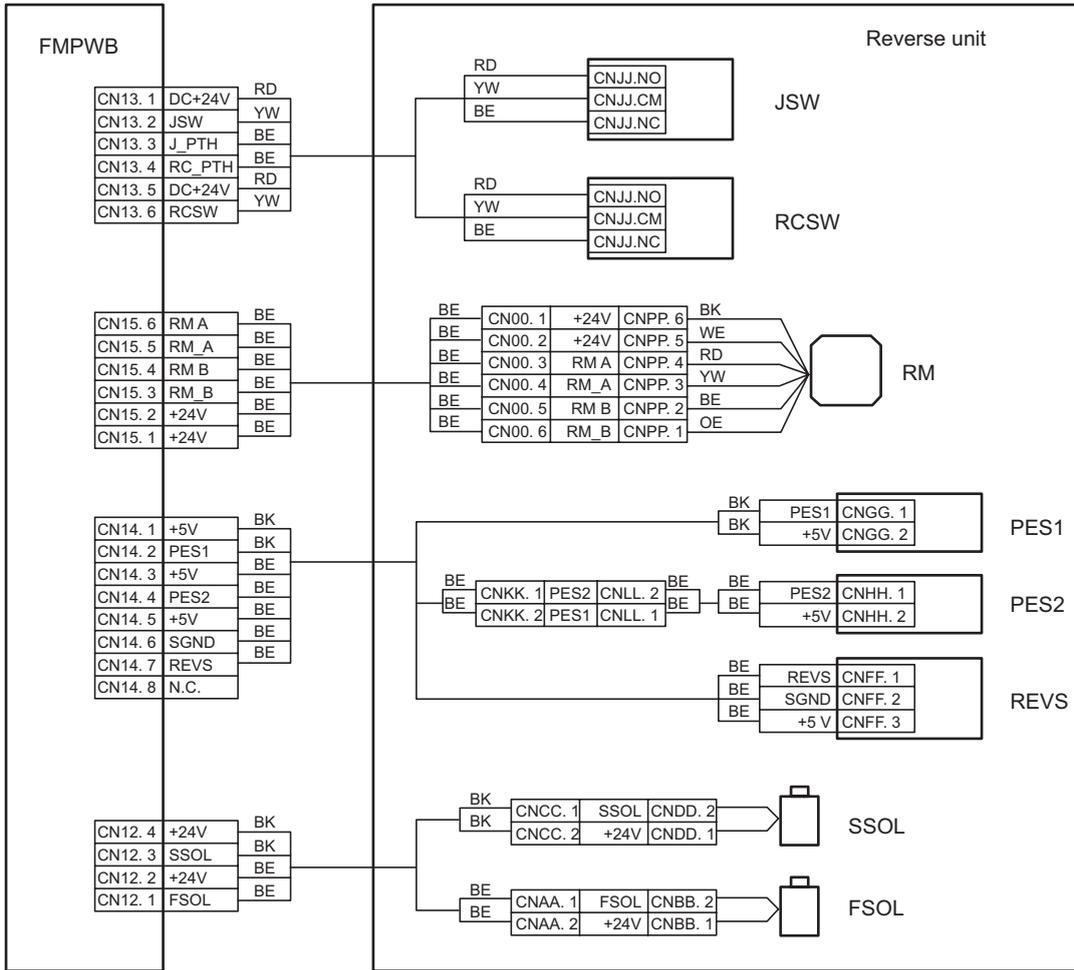


Figure 2-1-2 Reverse section block diagram

Operation without reversing

1. When the operation start signal is received, the flapper solenoid (FSOL) is turned on to open the non-reverse path.
2. After the machine exit signal is received, the reverse motor (RM) is turned on at the machine exit speed.
3. When the leading edge of paper arrives at the paper entry sensor (PES), the paper conveying motor (PCM) is turned on at the machine exit speed.
4. The reverse exit roller that is rotated by the drive of the reverse motor (RM) conveys paper to the processing section.

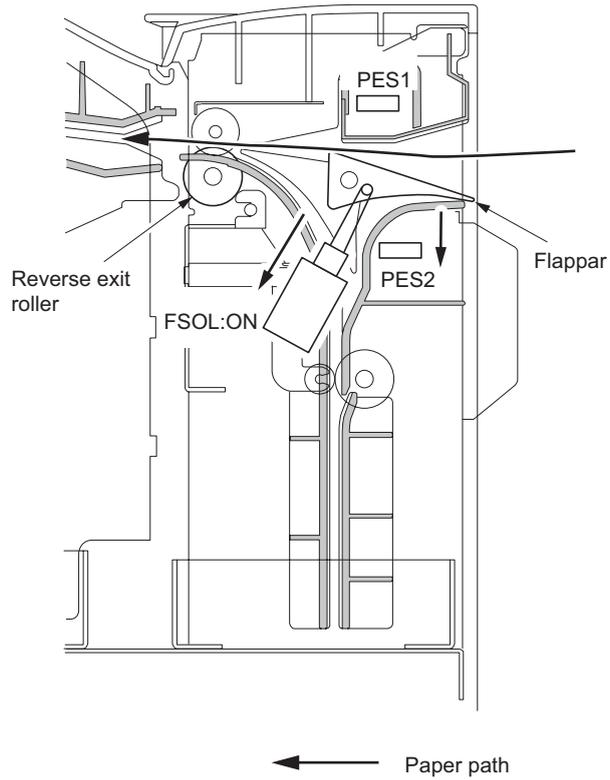


Figure 2-1-3 Operation without reversing

Operation with reversing

1. When the operation start signal is received, the flapper solenoid (FSOL) is turned off to open the reverse path.
2. After the machine exit signal is received, the reverse motor (RM) is turned on at the machine exit speed.

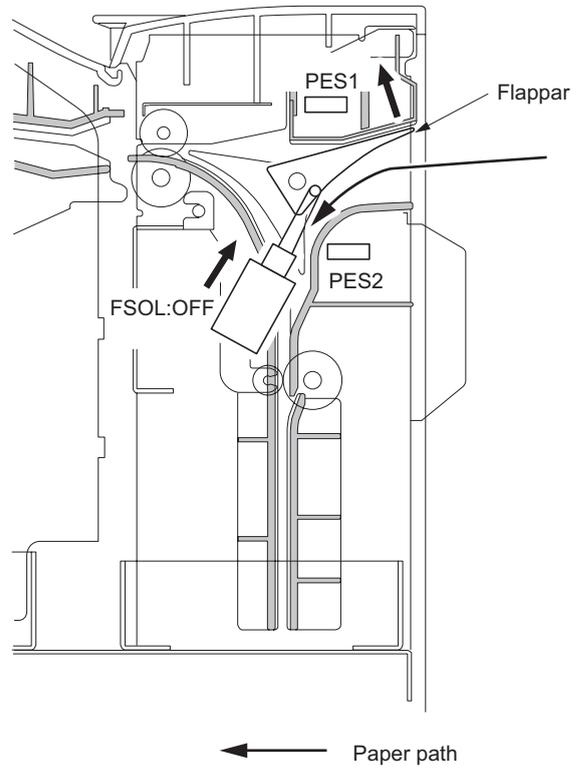


Figure 2-1-4

3. When the leading edge of paper arrives at the paper entry sensor (PES), if the separate solenoid (SSOL) is in the suction state, the paper is separated. If the paper conveying motor (PCM) stops, the motor is turned on at the machine exit speed.

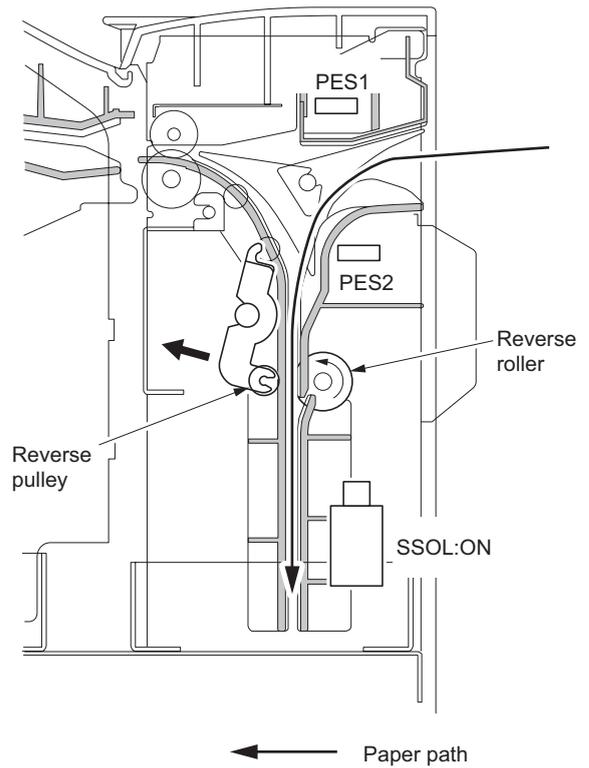


Figure 2-1-5

4. Suction of the separate solenoid (SSOL) is activated just before the trailing edge of paper passes through the machine exit roller.
5. When the trailing edge of paper passed through the machine exit roller, the reverse motor (RM) is accelerated to pull the paper out.

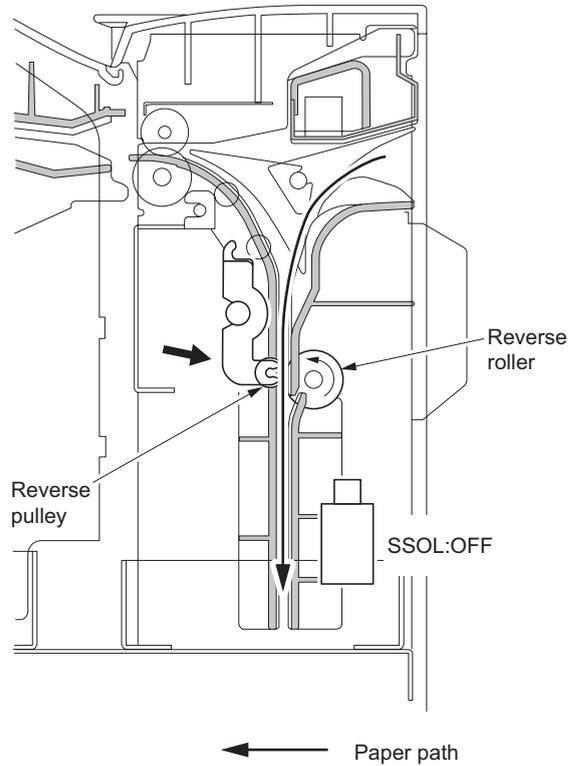


Figure 2-1-6

6. After the paper stops at the reverse position, the reverse motor (RM) is rotated in the reverse direction to convey the paper to the processing section.
7. After the leading edge of paper arrives at the reverse sensor (REVS), the separate solenoid (SSOL) is separated to receive the next paper.

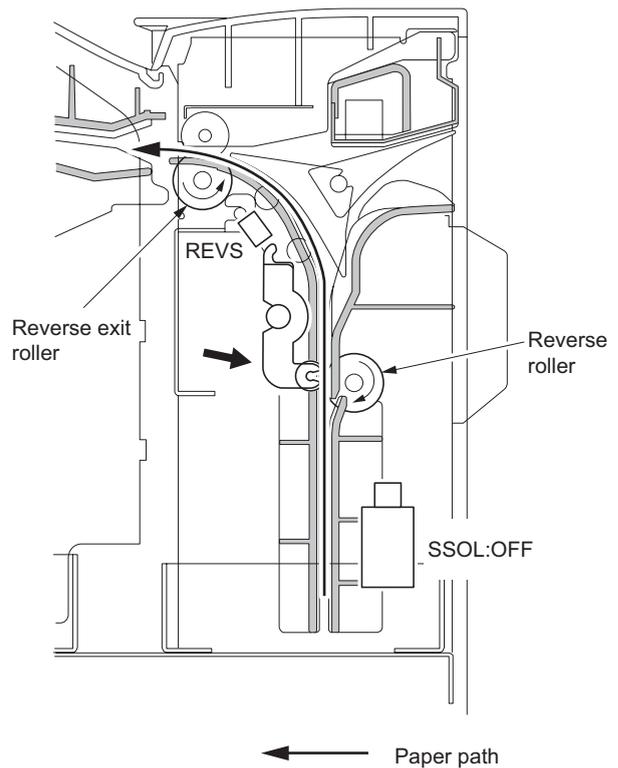


Figure 2-1-7

(2) Processing section

The processing section consists of the components shown in Fig. 2-1-8 and discharges paper conveyed from the finisher reverse section to the exit tray. Also this section performs processing in the bundle discharge mode and the staple mode.

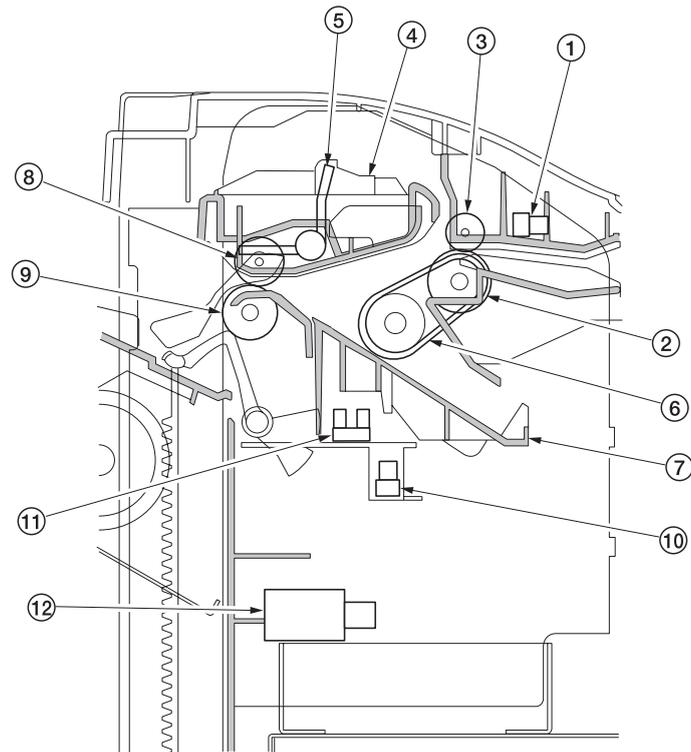


Figure 2-1-8 Processing section

- | | |
|----------------------------------|--|
| (1) Paper conveying sensor (PCS) | (8) Exit pulley |
| (2) Paper conveying roller | (9) Exit roller |
| (3) Paper conveying pulley | (10) Exit sensor (EXS) |
| (4) Bundle discharge unit | (11) Adjustment home position sensor (ADHPS) |
| (5) Paddle | (12) Large gear solenoid (LGSOL) |
| (6) Paper conveying belt | |
| (7) Processing tray | |

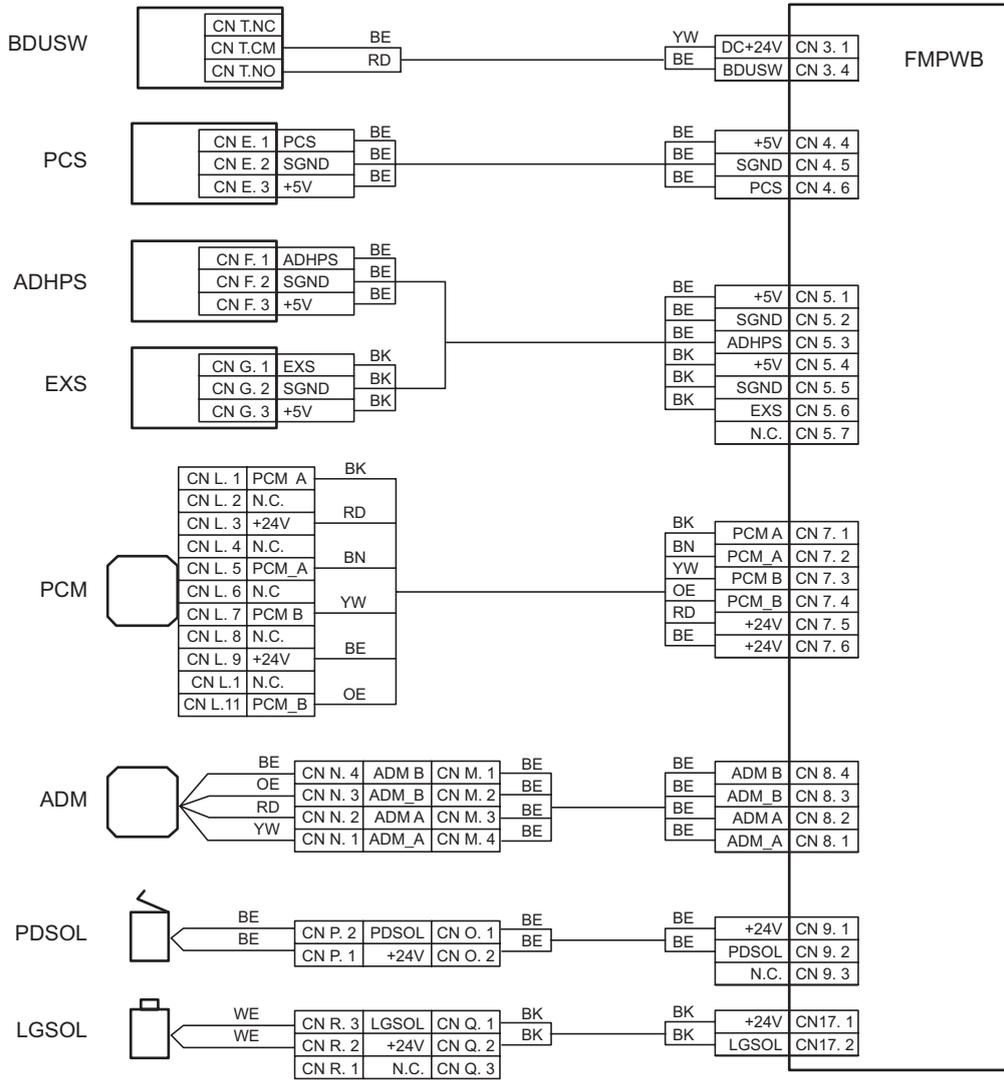


Figure 2-1-9 Processing section block diagram

Bundle discharge operation

1. When paper is conveyed into the processing section, the large gear solenoid (LGSOL)

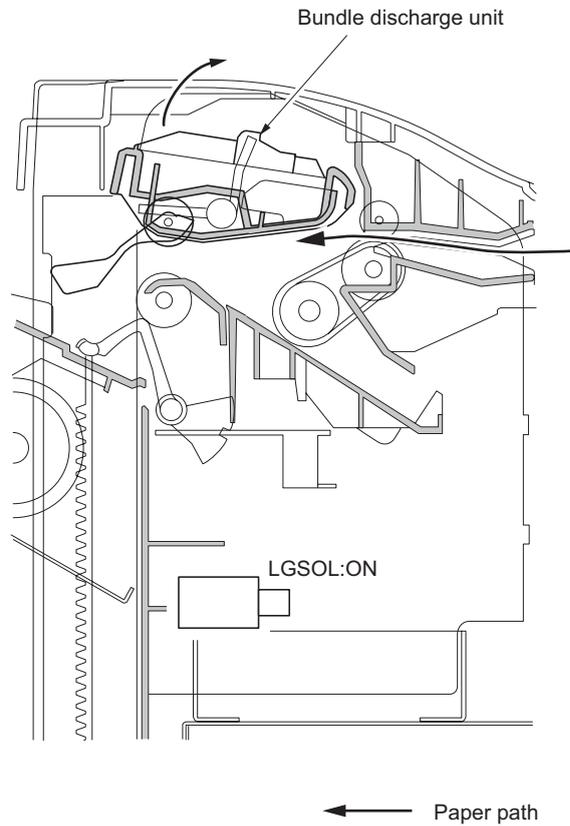


Figure 2-1-10

2. Before the trailing edge of paper passes through the conveying roller, the paper conveying motor (PCM) is decelerated to discharge the paper to the processing tray.
3. The paddle solenoid (PDSOL) is turned on and the paddle rotates one turn to carry the paper into the processing tray.
4. The adjustment motor (ADM) is started to adjust the paper using the adjustment plate.

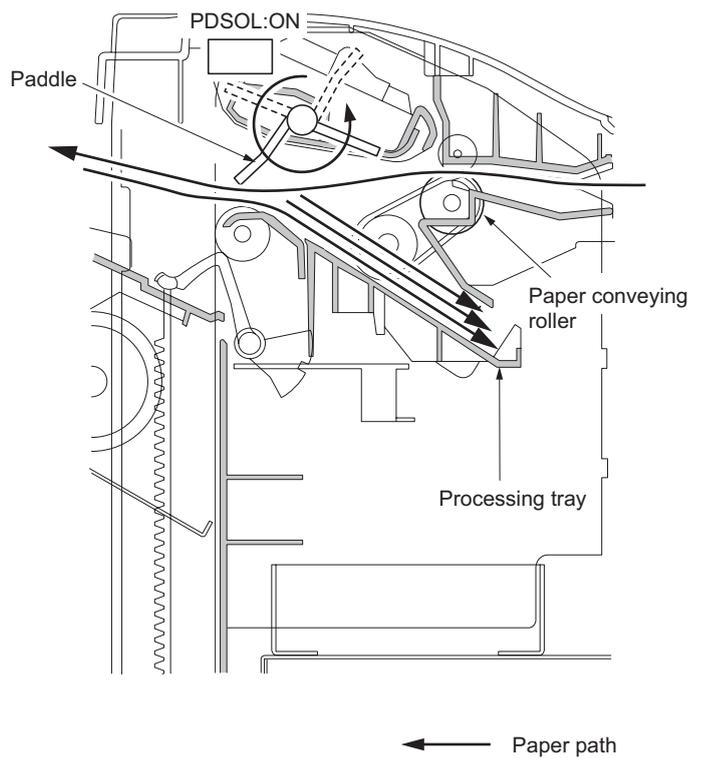
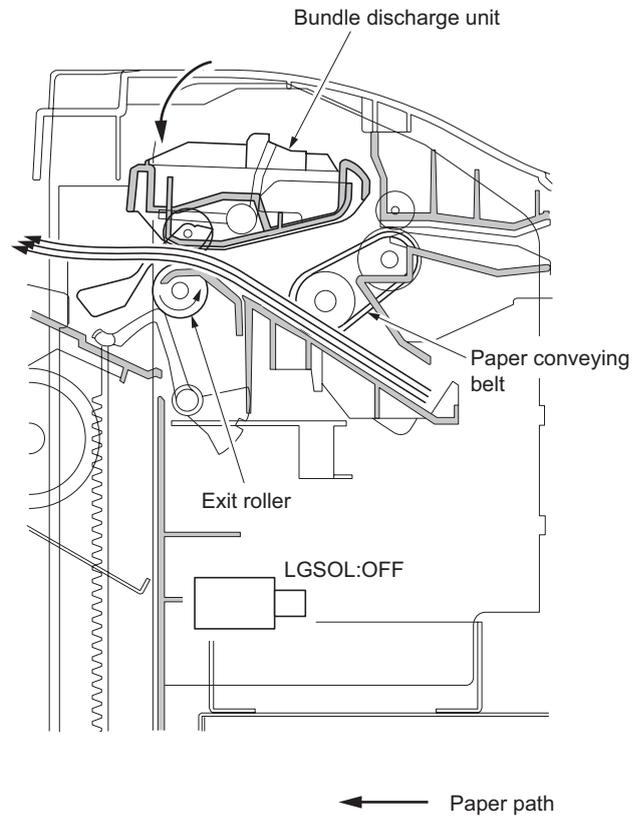


Figure 2-1-11

- When adjustment of the last sheet of the bundle is completed, the large gear solenoid (LGSOL) is turned off to lower the bundle discharge unit.
- The conveying belt and the exit roller rotate to discharge the bundle of paper to the exit tray.

**Figure 2-1-12**

(3) Exit tray section

The exit tray section consists of the components shown in Fig. 2-1-13 and stocks paper discharged from the processing section using rotation of the exit roller and exit pulley.

The upper limit position and the lower limit position of the exit tray are detected with the tray upper limit sensor (TULS) and the tray lower limit sensor (TLLS). Also the paper stock quantity is detected with the push paper sensor (PPS) and the surface view sensor (SVS).

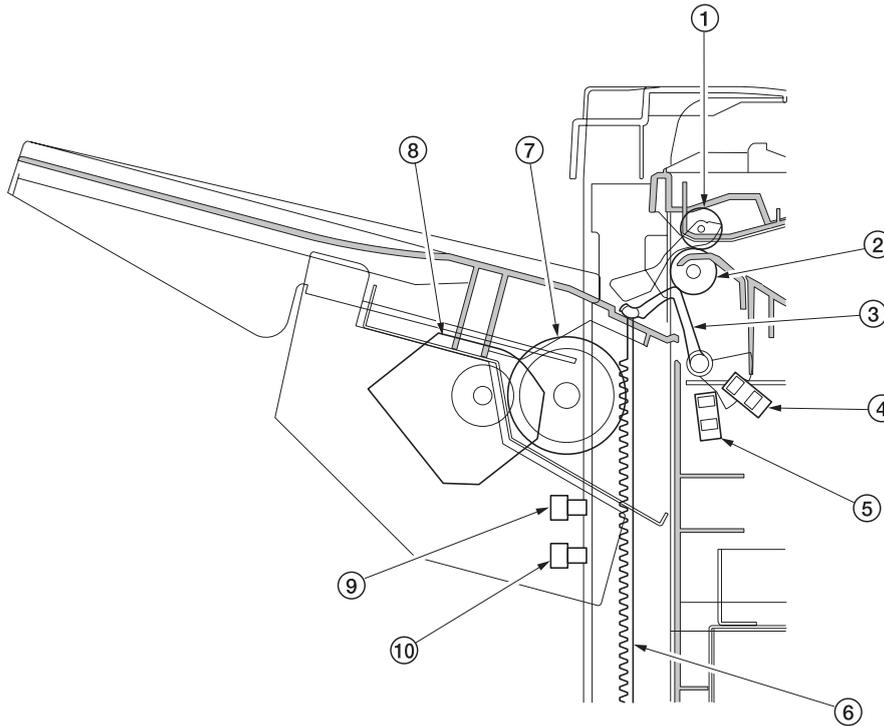


Figure 2-1-13 Drum section

- | | |
|-------------------------------|-------------------------------------|
| (1) Exit pulley | (6) Rack |
| (2) Exit roller | (7) Rack gear |
| (3) Push paper lever | (8) Tray elevation motor (TEM) |
| (4) Push paper sensor (PPS) | (9) Tray upper limit sensor (TULS) |
| (5) Surface view sensor (SVS) | (10) Tray lower limit sensor (TLLS) |

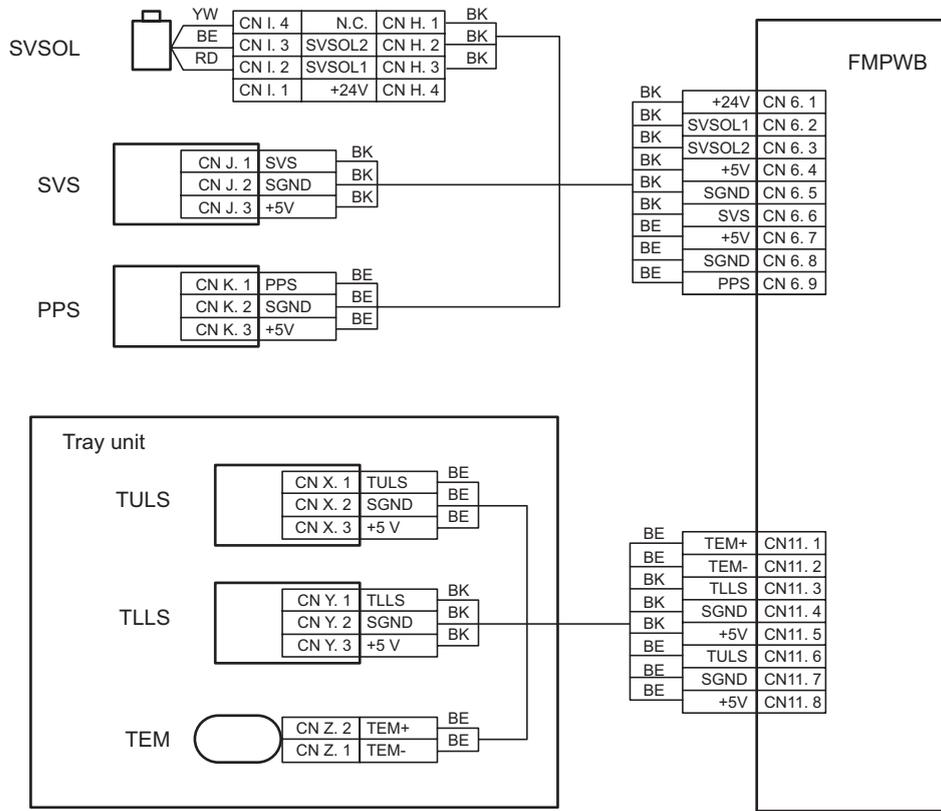
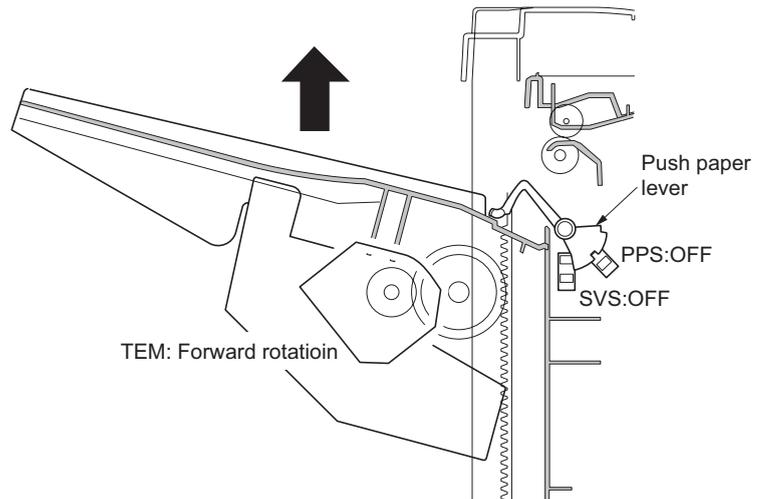


Figure 2-1-14 Exit tray section block diagram

Exit tray up/down operation

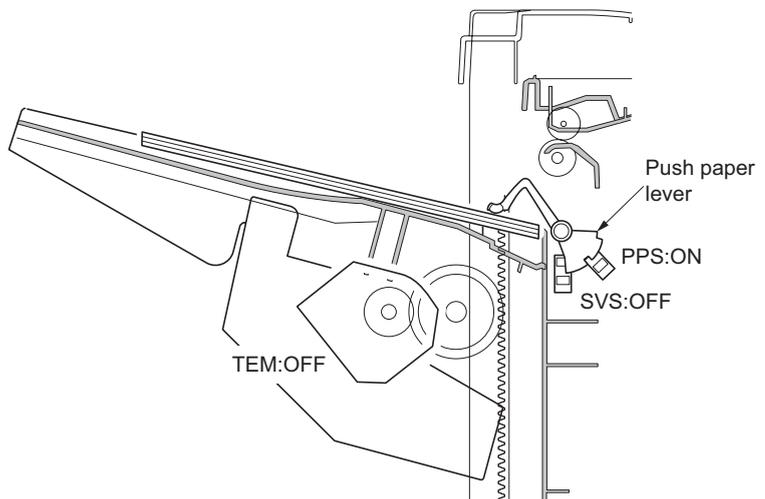
1. Paper surface empty status
 - Sensor status
 - Push paper sensor (PPS): OFF
 - Surface view sensor (SVS): OFF
 - Exit tray control
 - Tray elevation motor (TEM): Forward rotation.
 - Exit tray: Moves up.

This status occurs when paper is removed from the exit tray.

**Figure 2-1-15 Paper surface empty status**

2. Paper surface off status
 - Sensor status
 - Push paper sensor (PPS): ON
 - Surface view sensor (SVS): OFF
 - Exit tray control
 - Tray elevation motor (TEM): OFF
 - Exit tray: Does not move.

If this status is detected when the exit tray is moving up or down, the tray is stopped.

**Figure 2-1-16 Paper surface off status**

3. Paper surface on status

·Sensor status

Push paper sensor (PPS): ON

Surface view sensor (SVS): ON

·Exit tray control

Tray elevation motor (TEM): Reverse rotation.

Exit tray: Moves down.

This status occurs when paper is output onto the exit tray during copying and is accumulated.

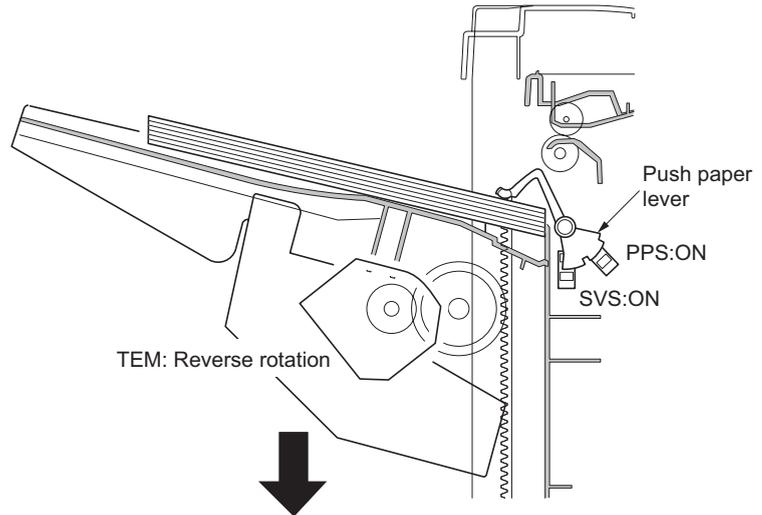


Figure 2-1-17 Paper surface on status

4. Lever stored status

·Sensor status

Push paper sensor (PPS): OFF

Surface view sensor (SVS): ON

·Exit tray control

Tray elevation motor (TEM): Reverse rotation.

Exit tray: Moves down.

This status occurs when paper is accumulated so much, for example at the start of copying, that the push paper lever cannot be released.

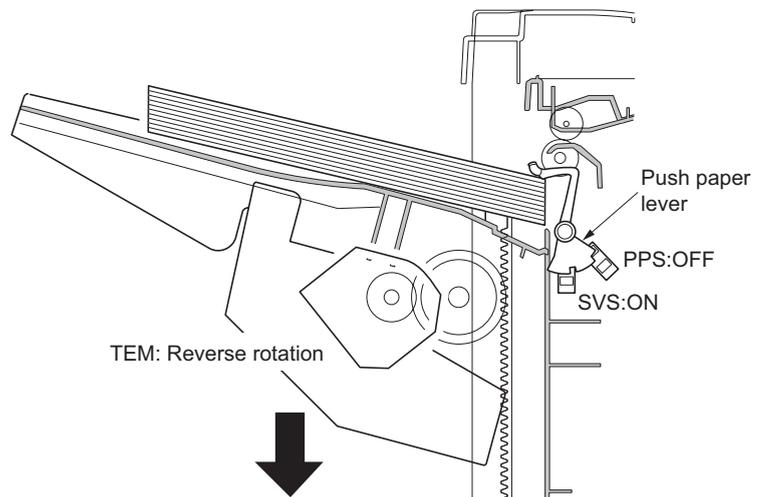


Figure 2-1-18 Lever stored status

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2-2-1 Electrical parts layout

(1) PWBs

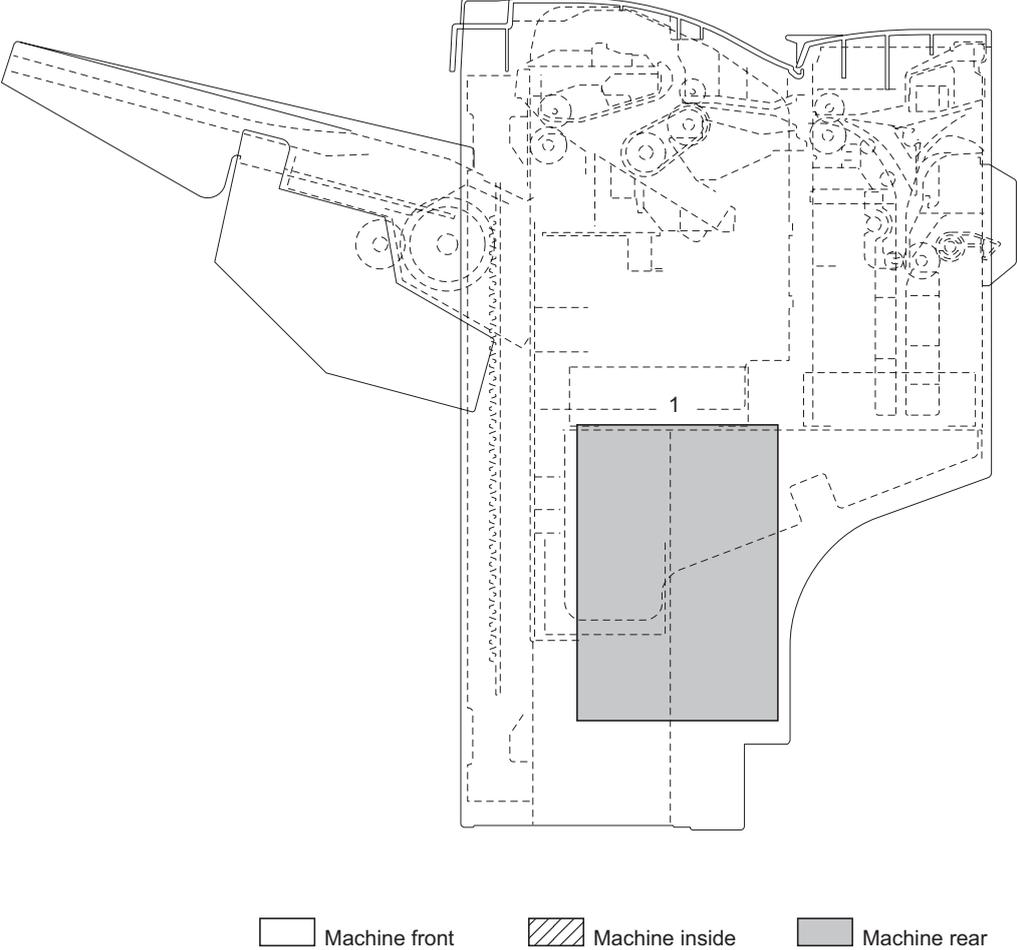


Figure 2-2-1 PWBs

- 1. Finisher main PWB (FMPWB) Controls electrical components.

(2) Switches and sensors

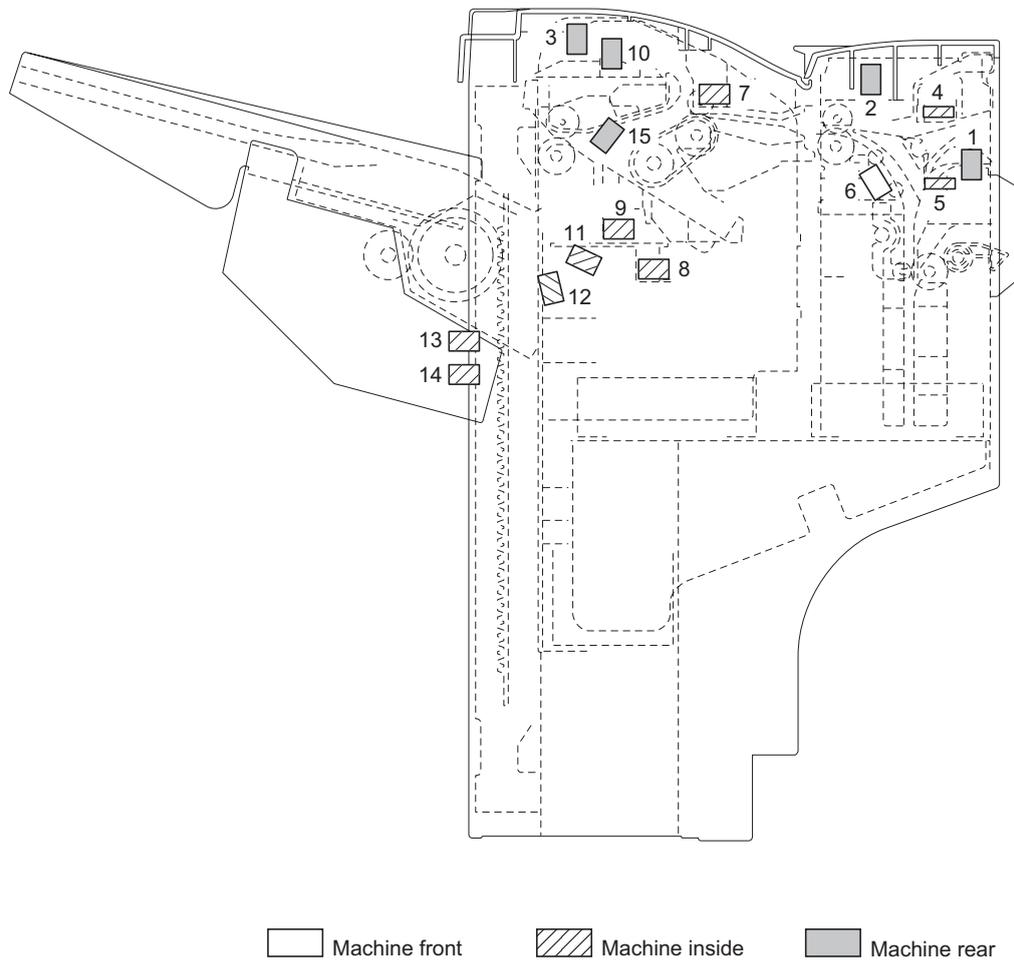


Figure 2-2-2 Switches and sensors

- | | |
|--|---|
| 1. Joint switch (JSW) | Detects the finisher attached to the machine. |
| 2. Reverse cover switch (RCSW) | Detects opening/closing of the reverse cover. |
| 3. Upper cover sensor (UCS)..... | Detects opening/closing of the upper cover. |
| 4. Paper entry sensor 1 (PES1)..... | Detects paper entering the finisher (emitter). |
| 5. Paper entry sensor 2 (PES2)..... | Detects paper entering the finisher (receiver). |
| 6. Reverse sensor (REVS)..... | Detects a paper misfeed in the reverse section. |
| 7. Paper conveying sensor (PCS)..... | Detects a paper misfeed in the processing section. |
| 8. Adjustment home position sensor (ADHPS) | Detects the adjustment plate in the home position. |
| 9. Exit sensor (EXS)..... | Detects a paper misfeed in the exit section. |
| 10. Bundle discharge unit switch (BDUSW)..... | Power supply to the stapler section caused by descent of the bundle discharge unit. |
| 11. Push paper sensor (PPS) | Detects the position of the push paper lever. |
| 12. Surface view sensor (SVS)..... | Detects the position of the push paper lever. |
| 13. Tray upper limit sensor (TULS)..... | Detects the exit tray reaching the upper limit. |
| 14. Tray lower limit sensor (TLLS) | Detects the exit tray reaching the lower limit. |
| 15. Stapler cover switch (STCSW)..... | Detects opening/closing of the stapler cover. |

(3) Motors

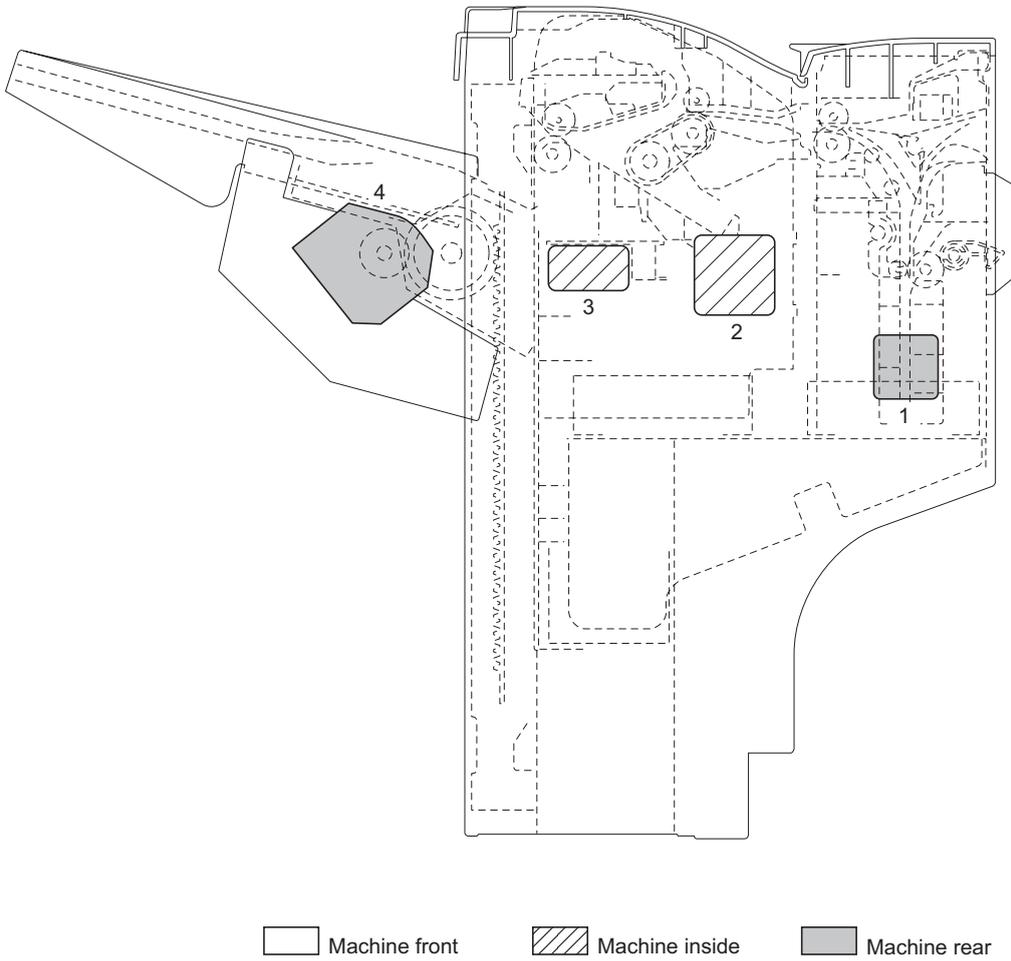


Figure 2-2-3 Motors

- 1. Reverse motor (RM) Drives the reverse section.
- 2. Paper conveying motor (PCM)..... Drives the processing section.
- 3. Adjustment motor (ADM) Drives the adjustment plate.
- 4. Tray elevation motor (TEM) Raises and lowers the exit tray.

(4) Solenoids

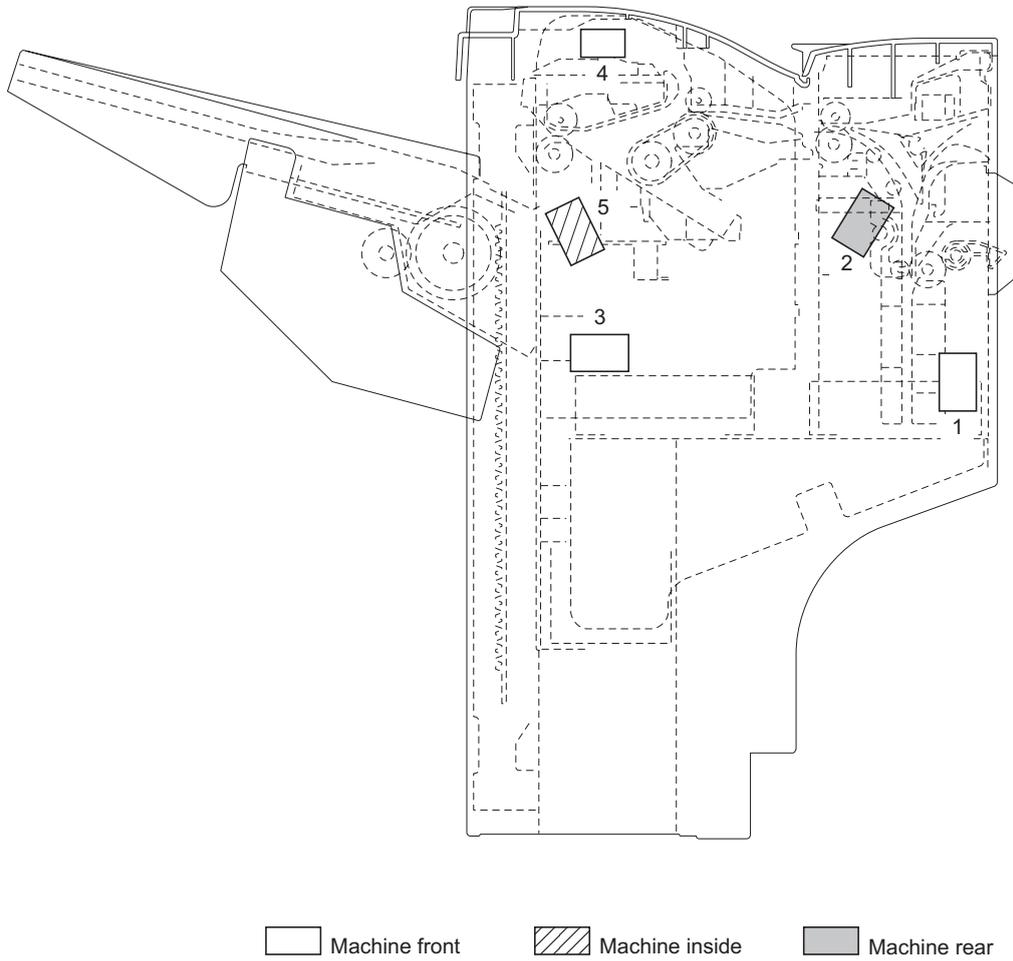
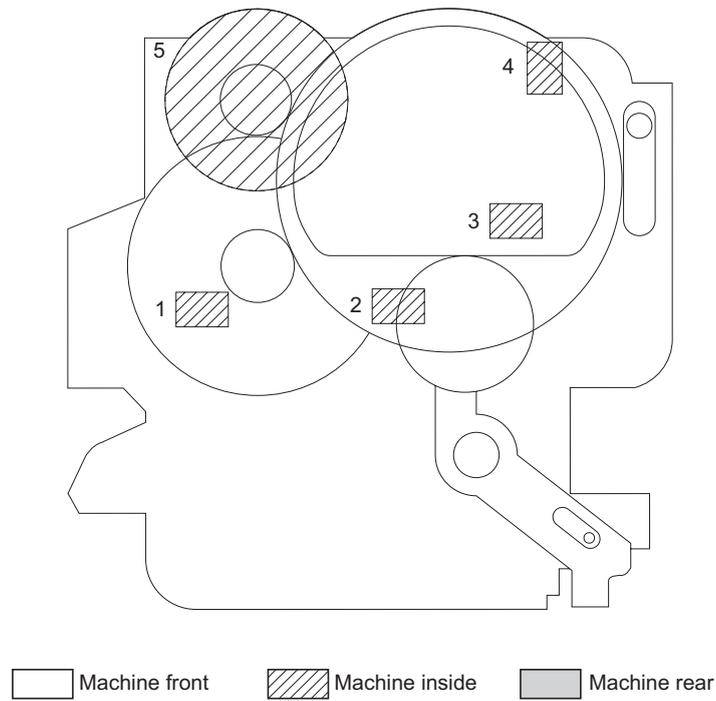


Figure 2-2-4 Solenoids

- 1. Separate solenoid (SSOL)..... Separates the reverse roller.
- 2. Flapper solenoid (FSOL)..... Operates the flapper.
- 3. Large gear solenoid (LGSOL)..... Operates the bundle discharge unit.
- 4. Paddle solenoid (PDSOL)..... Operates the paddle.
- 5. Surface view solenoid (SVSOL)..... Operates the push paper lever.

(5) Stapler section**Figure 2-2-5 Stapler section**

1. Stapler empty sensor (STES) Detects the presence of staples.
2. Stapler cartridge sensor (STCS) Detects the presence of the stapler cartridge.
3. Stapler home position sensor (STHPS) Detects the stapler in the home position.
4. Stapler self-priming sensor (STSPS) Detects the pre-stapling state of the stapler.
5. Stapler motor (STM)..... Drives the stapler.

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2-3-1 Finisher main PWB

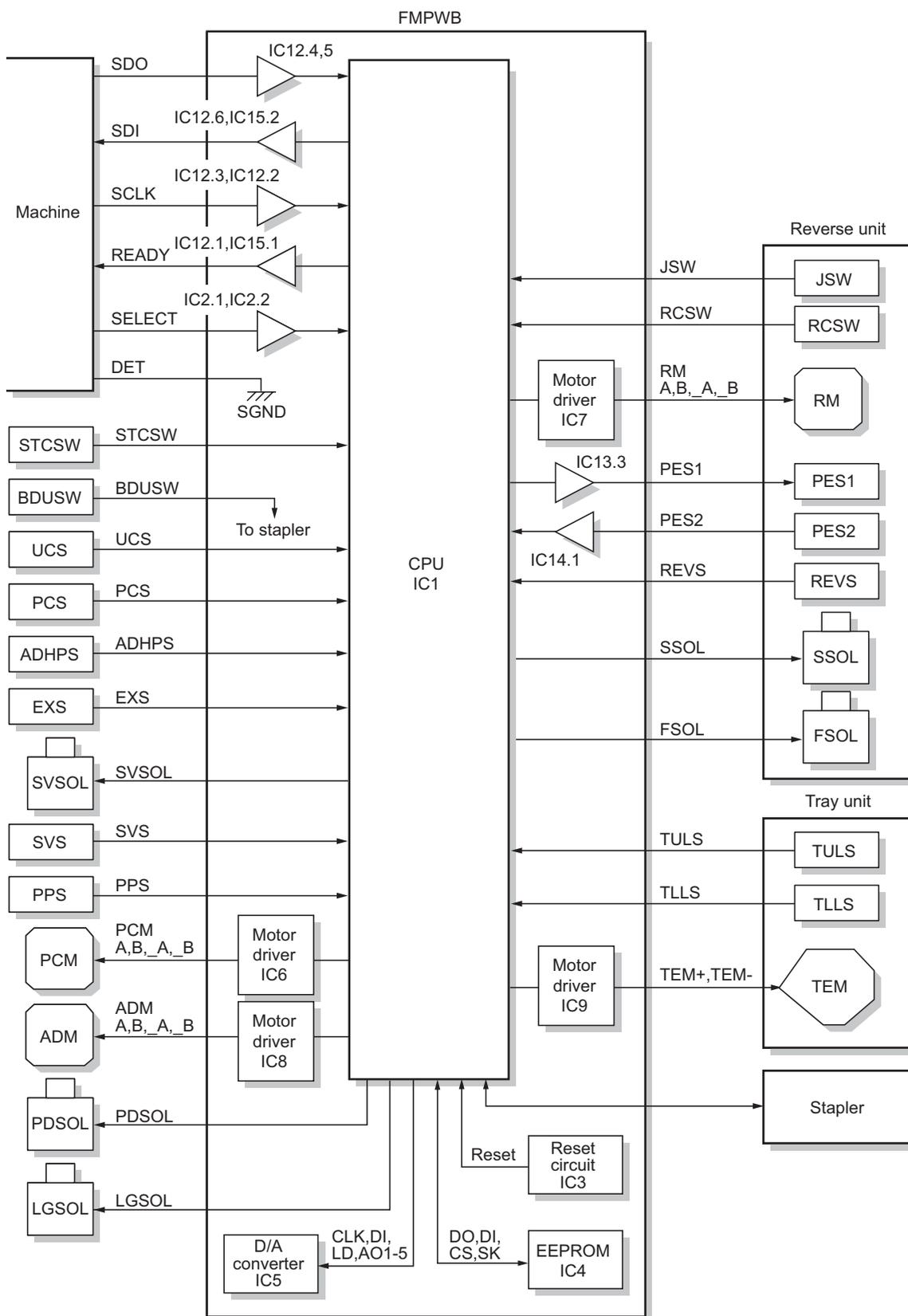


Figure 2-3-1 Finisher main PWB block diagram

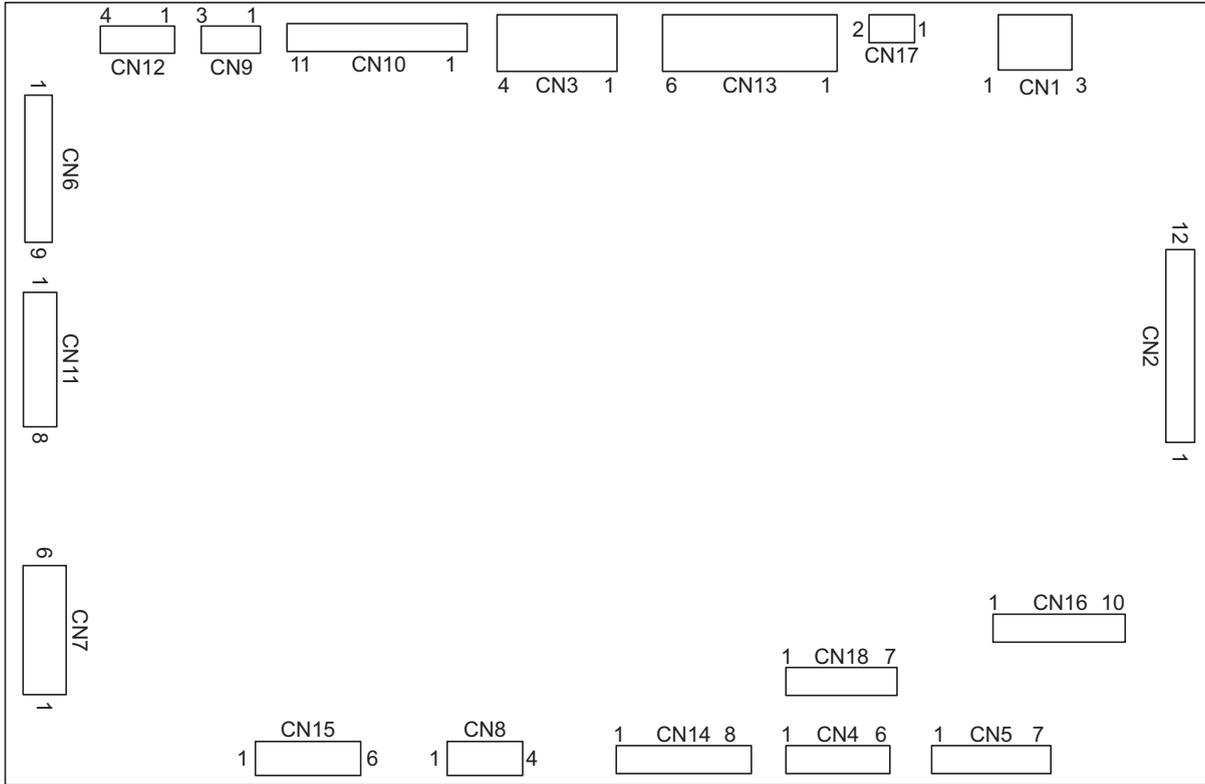


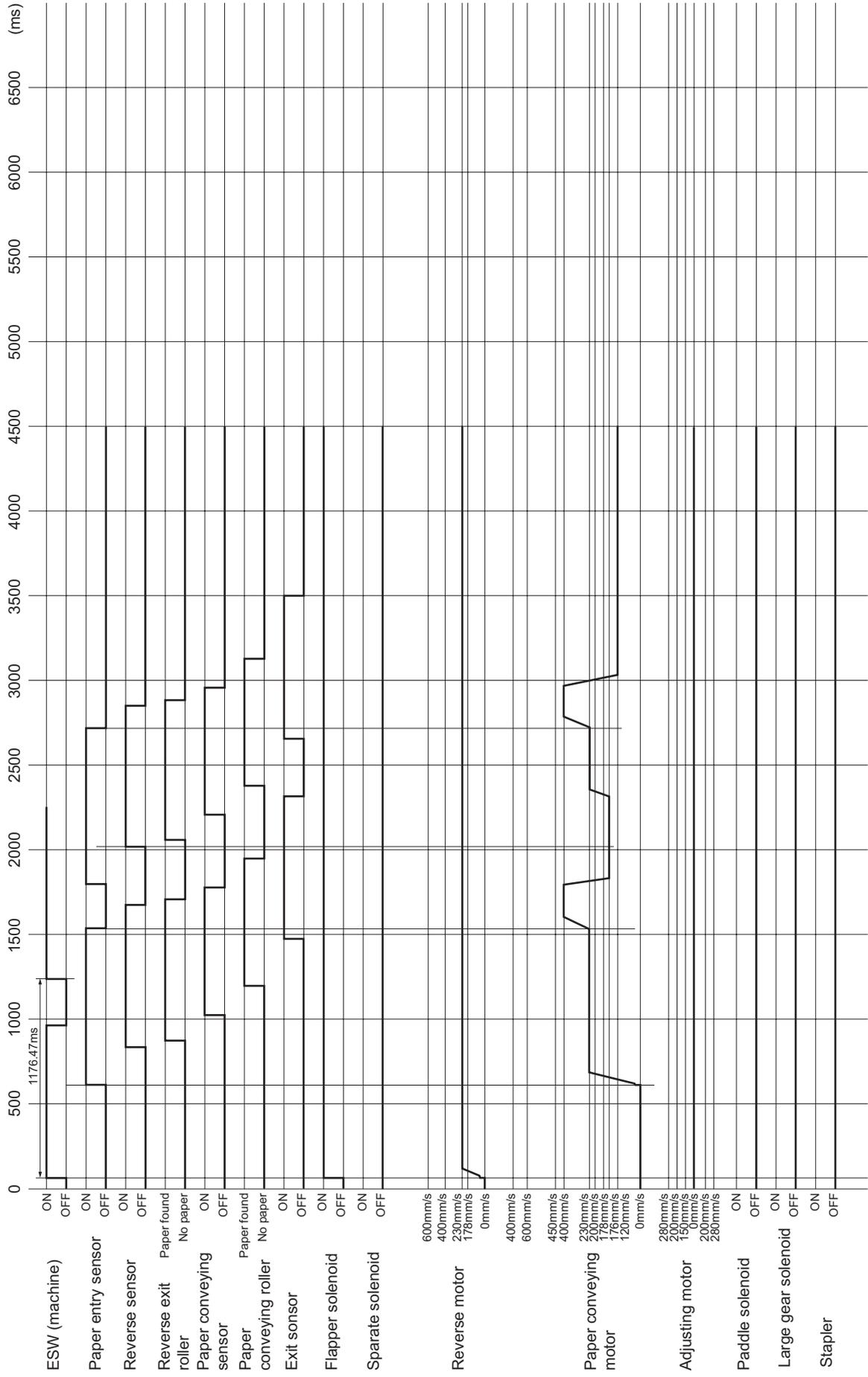
Figure 2-3-2 Finisher main PWB silk-screen diagram

Connector	Pin No.	Signal	I/O	Voltage	Description
CN1 Connected to the machine	1	DC+24V	I	24 V DC	24 V DC power input
	2	PGND	-	-	Ground
	3	DC+5.1V	I	5.1 V DC	5.1 V DC power input
CN2 Connected to the machine	1	SGND	-	-	Ground
	2	SGND	-	-	Ground
	3	SGND	-	-	Ground
	4	SGND	-	-	Ground
	5	SGND	-	-	Ground
	6	SGND	-	-	Ground
	7	DET	O	0/5 V DC	Finisher set signal
	8	SDO	I	0/5 V DC (pulse)	Serial communication signal reception
	9	SDI	O	0/5 V DC (pulse)	Serial communication signal transmission
	10	SCLK	I	0/5 V DC (pulse)	Serial clock
	11	SELECT	I	0/5 V DC	Select signal from the machine
	12	READY	O	0/5 V DC	Ready signal to the machine
CN3 Connected to the stapler cover switch and bundle discharge unit switch	1	DC+24V	O	24 V DC	24 V DC power to STCSW/BDUSW
	2	STCSW	I	0/24 V DC	STCSW: On/Off
	3	STCSW	I	0/24 V DC	STCSW: On/Off
	4	BDUSW	I	0/24 V DC	BDUSW: On/Off

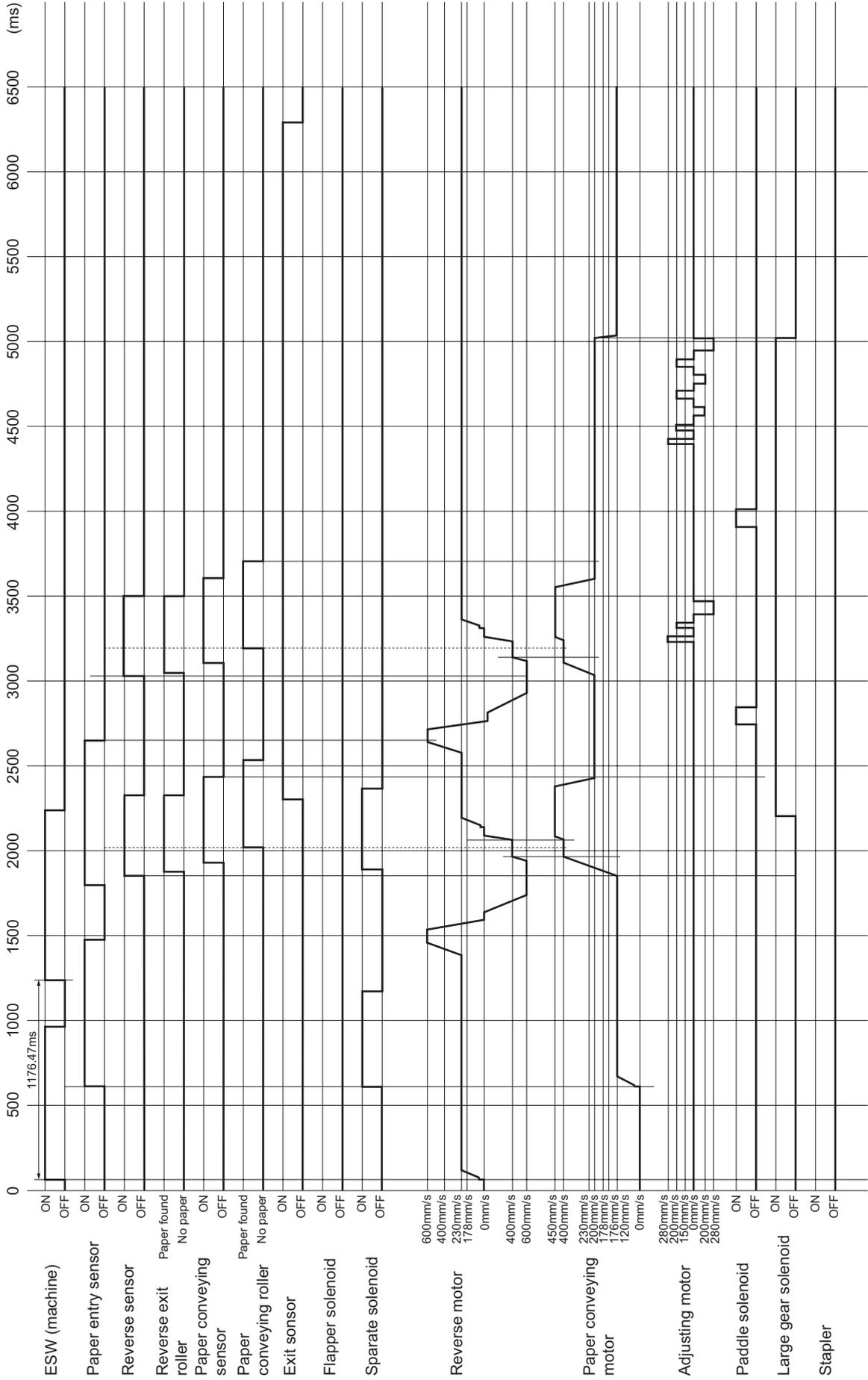
Connector	Pin No.	Signal	I/O	Voltage	Description
CN4 Connected to the upper cover sensor and paper conveying sensor	1	+5V	O	5 V DC	5 V DC power to UCS
	2	SGND	-	-	Ground
	3	UCS	I	0/5 V DC	UCS: On/Off
	4	+5V	O	5 V DC	5 V DC power to PCS
	5	SGND	-	-	Ground
	6	PCS	I	0/5 V DC	PCS: On/Off
CN5 Connected to the adjustment home position sensor and exit sensor	1	+5V	O	5 V DC	5 V DC power to ADHPS
	2	SGND	-	-	Ground
	3	ADHPS	I	0/5 V DC	ADHPS: On/Off
	4	+5V	O	5 V DC	5 V DC power to EXS
	5	SGND	-	-	Ground
	6	EXS	I	0/5 V DC	EXS: On/Off
	7	N.C.	-	-	Not used
CN6 Connected to the surface view solenoid, surface view sensor and push paper sensor	1	+24V	O	24 V DC	24 V DC power supply to SVSOL
	2	SVSOL1	O	0/24 V DC	SVSOL: On/Off (actuate)
	3	SVSOL2	O	0/24 V DC	SVSOL: On/Off (release)
	4	+5V	O	5 V DC	5 V DC power to SVS
	5	SGND	-	-	Ground
	6	SVS	I	0/5 V DC	SVS: On/Off
	7	+5V	O	5 V DC	5 V DC power to PPS
	8	SGND	-	-	Ground
	9	PPS	I	0/5 V DC	PPS: On/Off
CN7 Connected to the paper conveying motor	1	PCM A	O	0/24 V DC (pulse)	PCM drive control signal
	2	PCM_A	O	0/24 V DC (pulse)	PCM drive control signal
	3	PCM B	O	0/24 V DC (pulse)	PCM drive control signal
	4	PCM_B	O	0/24 V DC (pulse)	PCM drive control signal
	5	+24V	O	24 V DC	24 V DC power to PCM
	6	+24V	O	24 V DC	24 V DC power to PCM
CN8 Connected to the adjustment motor	1	ADM_A	O	0/24 V DC (pulse)	ADM drive control signal
	2	ADM A	O	0/24 V DC (pulse)	ADM drive control signal
	3	ADM_B	O	0/24 V DC (pulse)	ADM drive control signal
	4	ADM B	O	0/24 V DC (pulse)	ADM drive control signal
CN9 Connected to the paddle solenoid	1	+24V	O	24 V DC	24 V DC power to PDSOL
	2	PDSOL	O	0/24 V DC	PDSOL: On/Off
	3	N.C.	-	-	Not used
CN10 Connected to the stapler	1	STSPS	I	0/5 V DC	STSPS: On/Off
	2	+5V	O	5 V DC	5 V DC power to stapler
	3	SGND	-	-	Ground
	4	STLS	I	0/5 V DC	STLS: On/Off
	5	STHPS	I	0/5 V DC	STHPS: On/Off
	6	STES	I	0/5 V DC	STES: On/Off
	7	STCS	I	0/5 V DC	STCS: On/Off
	8	STM+	O	0/24 V DC (pulse)	STM drive control signal
	9	STM+	O	0/24 V DC (pulse)	STM drive control signal
	10	STM-	O	0/24 V DC (pulse)	STM drive control signal
	11	STM-	O	0/24 V DC (pulse)	STM drive control signal

Connector	Pin No.	Signal	I/O	Voltage	Description
CN11 Connected to the tray upper limit sensor, tray lower limit sensor and tray elevation motor	1	TEM+	O	0/24 V DC	TEM drive control signal
	2	TEM-	O	0/24 V DC	TEM drive control signal
	3	TLLSN	I	0/5 V DC	TLLS: On/Off
	4	SGND	-	-	Ground
	5	+5V	O	5 V DC	5 V DC power supply to TLLS
	6	TULS	I	0/5 V DC	TULS: On/Off
	7	SGND	-	-	Ground
	8	+5V	O	5 V DC	5 V DC power to TULS
CN12 Connected to the separate solenoid and flapper solenoid	1	FSOL	O	0/24 V DC	FSOL: On/Off
	2	+24V	O	24 V DC	24 V DC power to FSOL
	3	SSOL	O	0/24 V DC	SSOL: On/Off
	4	+24V	O	24 V DC	24 V DC power to SSOL
CN13 Connected to the joint switch and reverse cover switch	1	DC+24V	O	24 V DC	24 V DC power to JSW
	2	JSW	I	0/24 V DC	JSW: On/Off
	3	J_PTH	-	-	Ground
	4	RC_PTH	-	-	Ground
	5	DC+24V	O	24 V DC	24 V DC power to RCSW
	6	RCSW	I	0/24 V DC	RCSW: On/Off
CN14 Connected to the paper entry sensor 1, 2 and reverse sensor	1	+5V	O	5 V DC	5 V DC power to PES1
	2	PES1	I	0/5 V DC	PES1: On/Off
	3	+5V	O	5 V DC	5 V DC power to PES2
	4	PES2	I	0/5 V DC	PES2: On/Off
	5	+5V	O	5 V DC	5 V DC power to REVS
	6	SGND	-	-	Ground
	7	REVS	I	0/5 V DC	REVS: On/Off
	8	N.C.	-	-	Not used
CN15 Connected to the reverse motor	1	+24V	O	24 V DC	24 V DC power supply to RM
	2	+24V	O	24 V DC	24 V DC power supply to RM
	3	RM_B	O	0/24 V DC (pulse)	RM drive control signal
	4	RM B	O	0/24 V DC (pulse)	RM drive control signal
	5	RM_A	O	0/24 V DC (pulse)	RM drive control signal
	6	RM A	O	0/24 V DC (pulse)	RM drive control signal
CN16 Connected to the large gear solenoid	1	+24V	O	24 V DC	24 V DC power to LGSOL
	2	LGSOL	O	0/24 V DC	LGSOL: On/Off

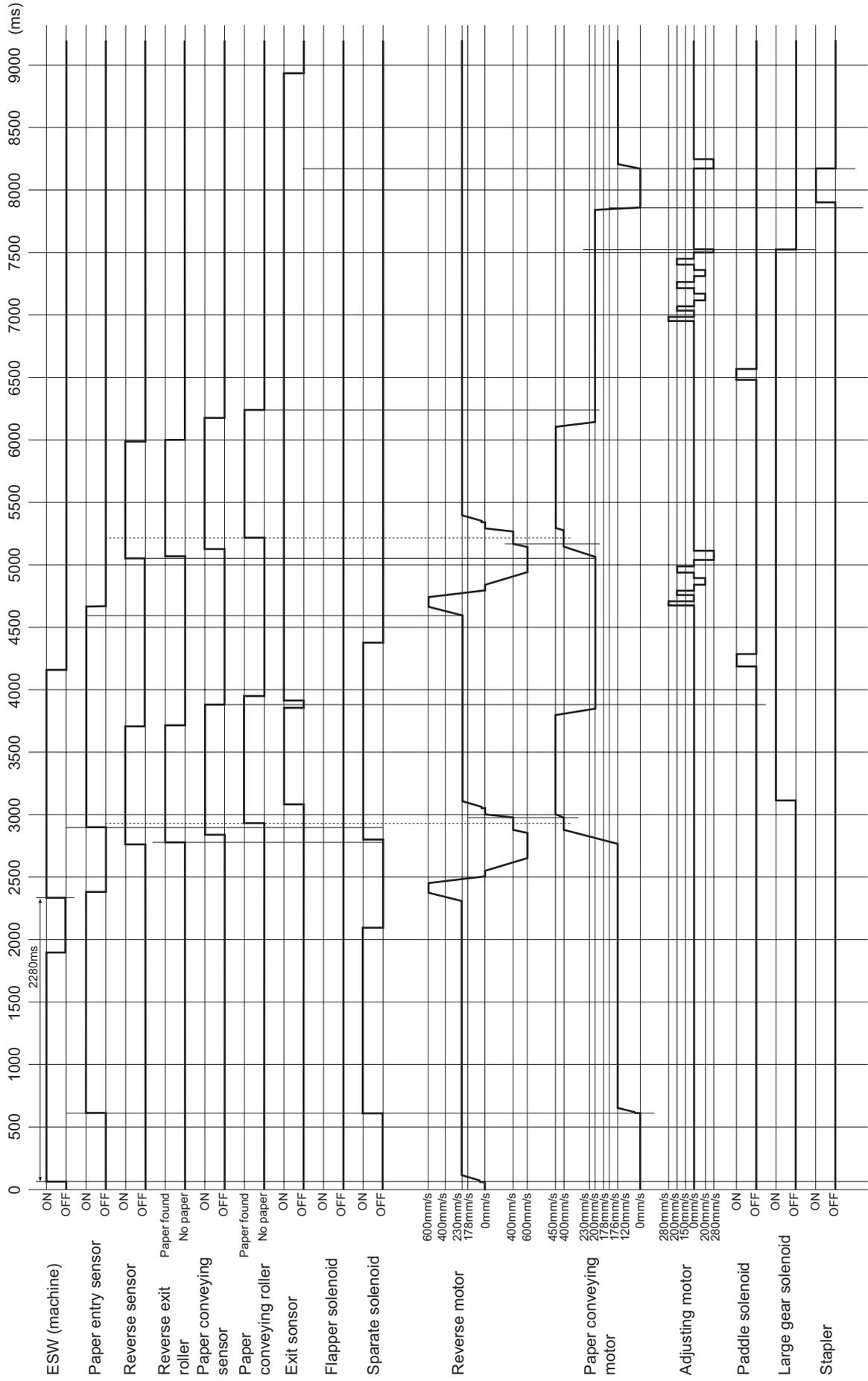
Timing chart No.1 Operation without reversing, A4/11" x 8 1/2" copy paper in the straight mode



Timing chart No.2 Operation with reversing, A4/11" x 8 1/2" copy paper in the shift mode



Timing chart No.3 Operation with reversing, A4/11" x 8 1/2" copy paper in the stapling 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				
Exit roller	ROL-R-H-OUT	5HL09370		1	41
Paper conveying belt	CAT-C	5HL09360		1	55
Paper conveying roller	ROL-R-CAT	5HL09640		1	45
Paddle	PDL-TH	5HL09430		1	22
Front static eliminator	BRUSH-TH-IN	5HL09440		1	14
Rear static eliminator	BRUSH-TH-OUT	5HL09470		1	69
Reverse static eliminator	BRSH-RV	5HL12320		6	59
Push paper lever cushion	CUSION-TM-YO	5HL09660		1	74

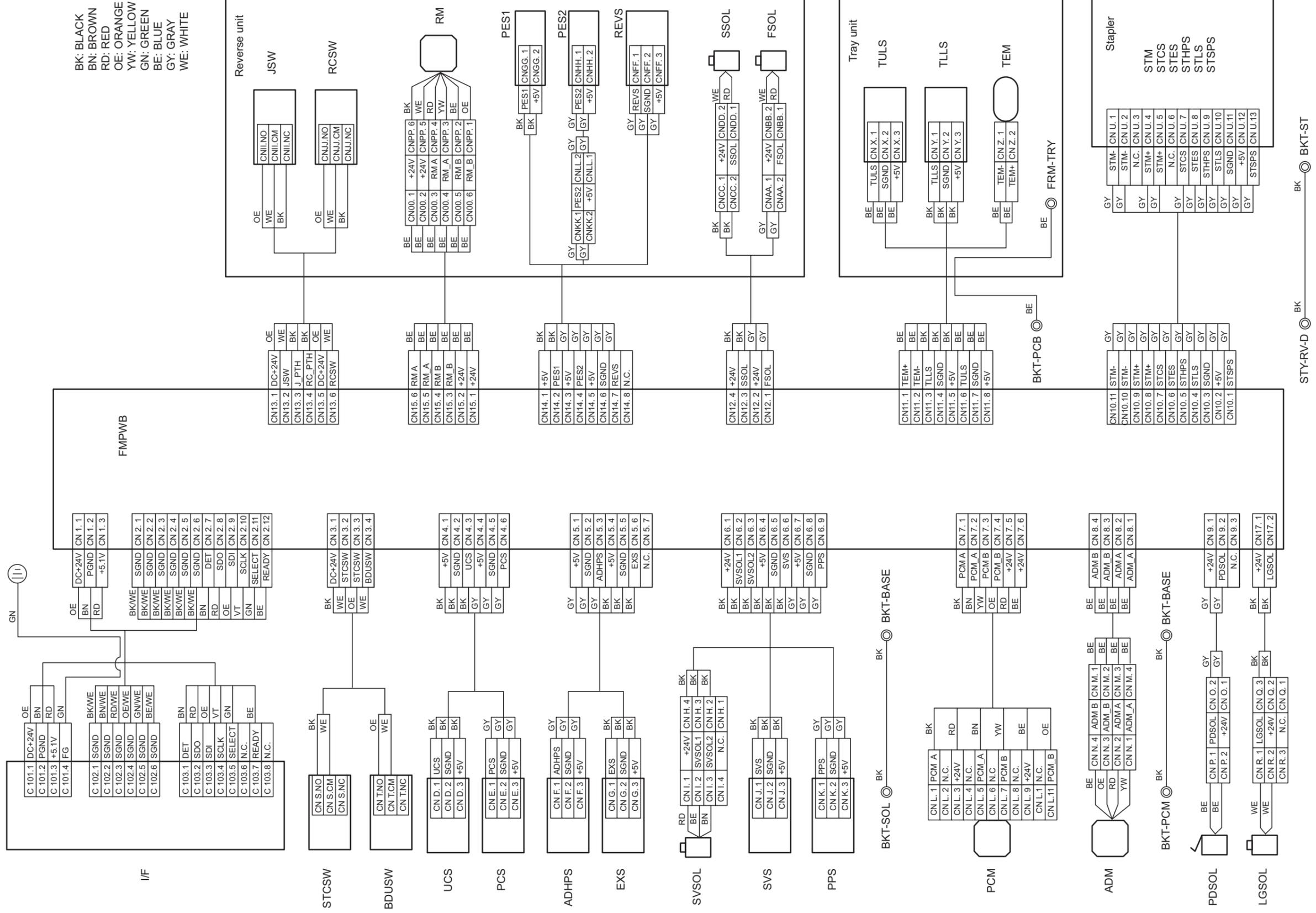
Periodic maintenance procedures

Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Exterior	Overall exterior cover	Cleaning	Every time	Wipe with dry cloth or cloth moistened with alcohol.	



Section	Maintenance part/location	Method	Maintenance cycle	Points and cautions	Page
Paper conveying section	Exit roller	Cleaning	Every time	Wipe with cloth moistened with alcohol.	
	Paper conveying belt	Cleaning	Every time	Wipe with cloth moistened with alcohol.	
	Paper conveying roller	Cleaning	Every time	Wipe with cloth moistened with alcohol.	
	Paddle	Cleaning	Every time	Wipe with cloth moistened with alcohol.	
	Front static eliminator	Check	Every time	If paper powder or dust adheres to tip of brush, remove it.	
	Rear static eliminator	Check	Every time	If paper powder or dust adheres to tip of brush, remove it.	
	Reverse static eliminator	Check	Every time	If paper powder or dust adheres to tip of brush, remove it.	
	Push paper lever cushion	Cleaning	Every time	Wipe with cloth moistened with alcohol.	

Wiring diagram



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