

Service Manual

Finisher, Sorter, DeliveryTray
Saddle Finisher-V2

Canon

Application

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Use of this manual should be strictly supervised to avoid disclosure of confidential information.

Symbols Used

This documentation uses the following symbols to indicate special information:

Symbol	Description
	Indicates an item of a non-specific nature, possibly classified as Note, Caution, or Warning.
	Indicates an item requiring care to avoid electric shocks.
	Indicates an item requiring care to avoid combustion (fire).
	Indicates an item prohibiting disassembly to avoid electric shocks or problems.
	Indicates an item requiring disconnection of the power plug from the electric outlet.
 Memo	Indicates an item intended to provide notes assisting the understanding of the topic in question.
 REF.	Indicates an item of reference assisting the understanding of the topic in question.
	Provides a description of a service mode.
	Provides a description of the nature of an error indication.

The following rules apply throughout this Service Manual:

1. Each chapter contains sections explaining the purpose of specific functions and the relationship between electrical and mechanical systems with reference to the timing of operation.

In the diagrams,  represents the path of mechanical drive; where a signal name accompanies the symbol, the arrow  indicates the direction of the electric signal.

The expression "turn on the power" means flipping on the power switch, closing the front door, and closing the delivery unit door, which results in supplying the machine with power.

2. In the digital circuits, '1' is used to indicate that the voltage level of a given signal is "High", while '0' is used to indicate "Low". (The voltage value, however, differs from circuit to circuit.) In addition, the asterisk (*) as in "DRMD*" indicates that the DRMD signal goes on when '0'.

In practically all cases, the internal mechanisms of a microprocessor cannot be checked in the field. Therefore, the operations of the microprocessors used in the machines are not discussed: they are explained in terms of from sensors to the input of the DC controller PCB and from the output of the DC controller PCB to the loads.

The descriptions in this Service Manual are subject to change without notice for product improvement or other purposes, and major changes will be communicated in the form of Service Information bulletins.

All service persons are expected to have a good understanding of the contents of this Service Manual and all relevant Service Information bulletins and be able to identify and isolate faults in the machine."

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Chapter 1 Specifications

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1.1 Product Specifications

1.1.1 Specifications (finisher)

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Item	Description		Remarks
Stacking mechanism	tray A/B	by tray lift	
Stacking orientation	tray A	face-down/face-up	
	tray B	face-down	
Stack size	tray A	A3,A4,A4R,A5R,B4,B5,B5R,Jpn postcard R,279.4mmx432.8mm(11x17),LGL,LTR,EXE,LTRR,STMTR,EXER	in feed direction, 148 to 432.8 mm; in cross-feed direction,100 to 297 mm
	tray B	A3,A4,A4R,B4,B5,B5R,279.4mmx432.8mm(11x17),LGL,LTR,EXE,LTRR,EXER	in feed direction, 182 to 432.8 mm; in cross-feed direction, 182 to 297mm
Paper weight	64g/m2 to 300g/m2		
Number of trays	2		
Mode type	non-staple, staple		
Number of sheets (Note 1)	non-staple sort	tray A: if small-/large-size, equivalent of 1000 sheets(147 mm in height)	in multiple mode, the number of sheets are as follows: if small-size, equivalent of 3000 sheets (423 mm in height); if large-size, 1500 sheets (216 mm in height)
		tray B: if small-size, equivalent of 2000 sheets (285mm in height),if large-size, equivalent of 1000 sheets(147 mm in height)	
	staple sort	tray A: if small-/large-size, equivalent of 1000 sheets (147 mm in height), or 100 sets	
		tray B: if small-size, equivalent of 2000 sheets (285 mm in height), or 100 sets; if large-size, equivalent of 1000 sheets (147 mm in height), or 100 sets	
Staple/non-staple mix (Note 1)	if small-size, equivalent of 200 sets (285 m in height), or 100 sets; if large-size, equivalent of 100 sheets(9147 mm in height), or 100 sets		applicable to tray B only
Folded sheet mix (Note 1)	tray A: 10 folded sheets max. per set/20 folded sheets max. per job		
	tray B: 10 folded sheets max. per set/30 folded sheets max. per job		
Stapling method	stapling by rotating cam		
Stapled stack	if small-size, 100 sheets		as converted with reference to paper of 80g/m2
	if large-size, 50 sheets		

⚠1: The number of sheets refers to the result of conversion based on paper of 80g/m2

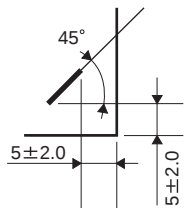
⚠2: A sheet of paper may be grouped into the following:
 -large-size; A3,B4,279.4mmx432.8mm(11x17),LGL
 -small-size; A4,A5,B5,EXE,LTR,STMT,postcard,A4R,B5R,LTRR

T-1-2

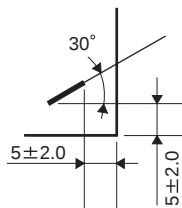
Item	Description		Remarks
Staple accommodation	in special staple cartridge (5000 staples)		
Detection of staples	yes		an alert condition identified at 0 to 40 staples
Manual stapling	no		
Stack size	front 1-point		
		A3,A4,A4R,B4,B5,279.4mmx432.8mm(11x17),EXE,LGL,LTR,LTRR	
	rear 1-point		
		A3,A4,A4R,B4,B5,279.4mmx432.8mm(11x17),EXE,LGL,LTR,LTRR	
	2-point		
		A3,A4,A4R,B4,B5,279.4mmx432.8mm(11x17),EXE,LGL,LTR,LTRR	
Paper detection	yes		
Control panel	no		
Display	no		
Dimensions	W:800xD:786xH:1180mm		
Weight	126 kg (approx.)		
Power supply	100V,200-240V		
Maximum power consumption	360 W or less		

Staple Position

1-Point Stapling (front)

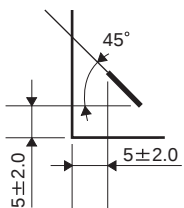


A3, B4, A4, B5, / 11"x17", LTR

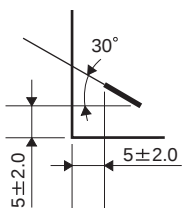


A4R / LGL, LTRR

1-Point Stapling (rear)

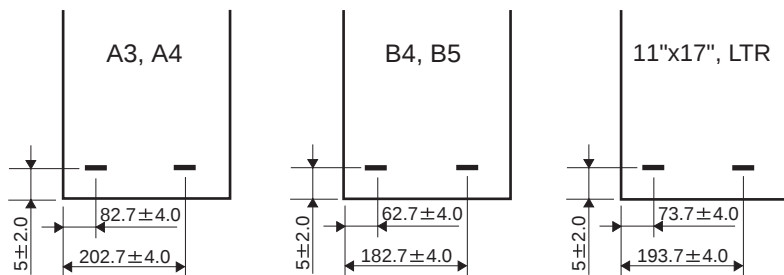


A3, B4, A4, B5, / 11"x17", LTR



A4R / LGL, LTRR

2-Point Stapling



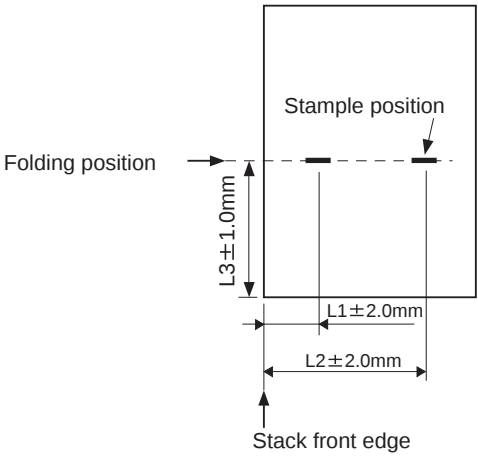
unit: mm

1.1.2 Specifications (saddle finisher)

T-1-3

Item	Specifications	Remarks
Stapling method	middle stapling, double-folding	
Paper size	A3AAA4RAAB4AA279.4mmx432.8mmA11×17ÅjÅALGLÅALTRR	
Stack	2 to 20 sheets	including 1 cover
Paper weight	64 to 80g/au(inside paper),64 to 200g/au(cover paper)	
Number of sets	no limit (free fall)	
Stapling position	2 points (middle-side adjusted; fixed interval)	
Cartridge capacity	2000 staples	
Staple replenishment	Special cartridge	
Staple type	special staple	
Folding method	by roller (under pressure)	
Folding mode	in half	
Folding position	middle	
Staple detection	yes	
Dimensions	W:800×D:786×H:1180mm	
Weight	178 kg (approx.)	
Power supply	from finisher	

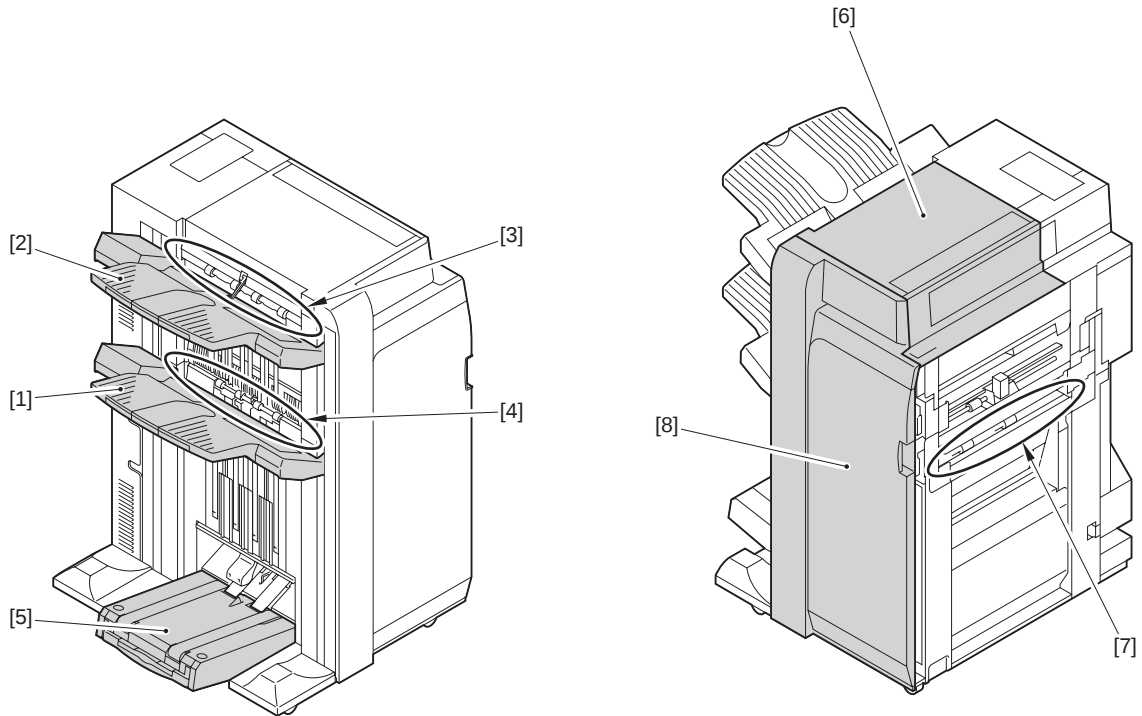
Staple and Folding Positions



Paper Size	L1	L2	L3
A3	88.5	208.5	210
B4	68.5	188.5	182
A4R	45	165	148.5
11"x17"	79.7	199.7	216
LGL	48	168	177.8
LTRR	48	168	139.7

1.2 Names of Parts

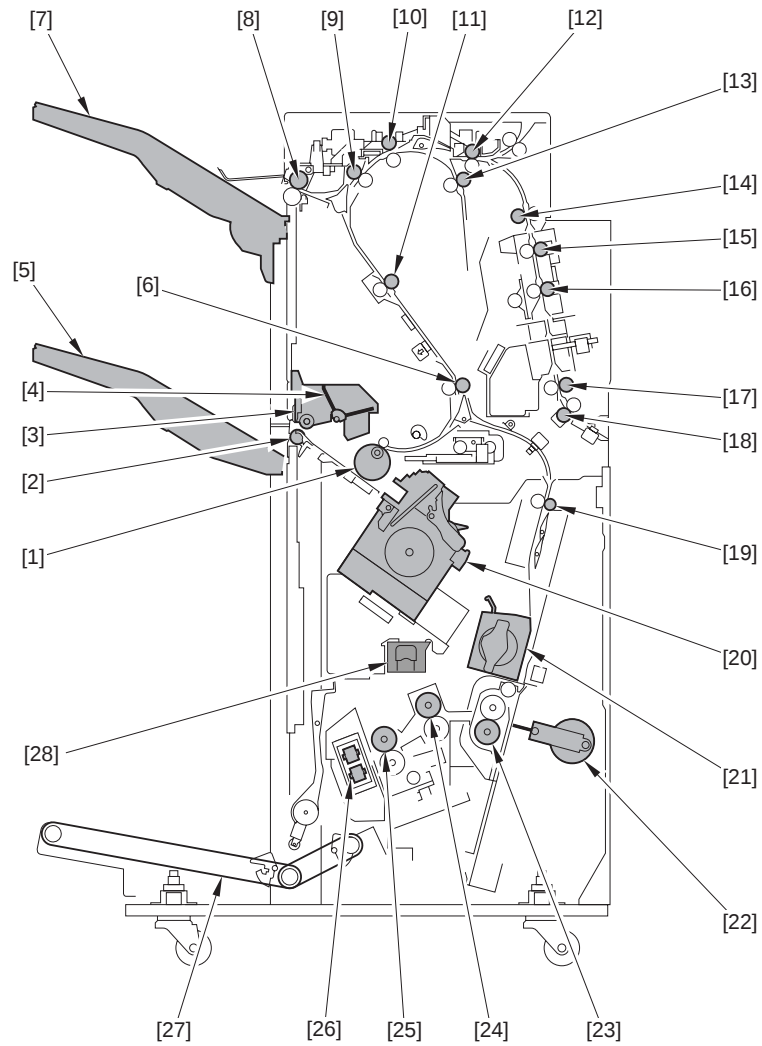
1.2.1 External View



F-1-1

- [1]Tray B
- [2]Tray A
- [3]Top delivery outlet
- [4]Bottom delivery outlet
- [5]Saddle delivery belt
- [6]Upper cover
- [7]Inlet transport unit
- [8]Front cover

1.2.2 Cross Section



F-1-2

- | | |
|----------------------------|------------------------------------|
| [1] Transport belt | [15] Shift roller 2 |
| [2] Stack delivery roller | [16] Shift roller 1 |
| [3] Swing guide | [17] Assist roller 1 |
| [4] Paddle | [18] Inlet transport roller |
| [5] Tray B | [19] Saddle inlet transport roller |
| [6] Stack transport roller | [20] Stapler |
| [7] Tray A | [21] Stitcher |
| [8] Delivery roller | [22] Paper retaining plate |
| [9] Buffer roller 2 | [23] Folding roller |
| [10] Assist roller 3 | [24] Stack transport roller |
| [11] Buffer roller 3 | [25] Pressing front roller |
| [12] Transport roller | [26] Pressing unit |
| [13] Buffer roller 1 | [27] Saddle delivery belt |
| [14] Assist roller 2 | [28] Waste staple case |

Chapter 2 Functions

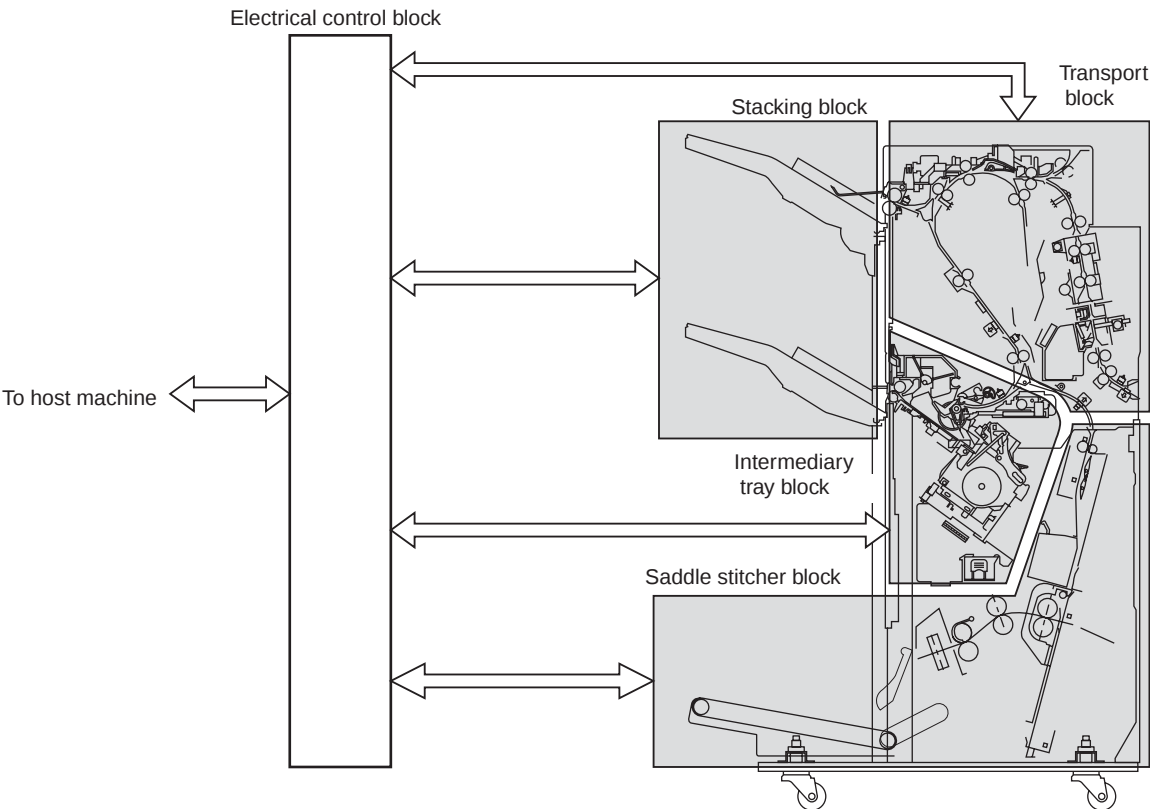
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2.1 Basic Construction

2.1.1 Overview

The machine consists of the following 5 blocks: electrical control block, stacking block, transport block, intermediary tray, and saddle stitcher block (Note).



F-2-1

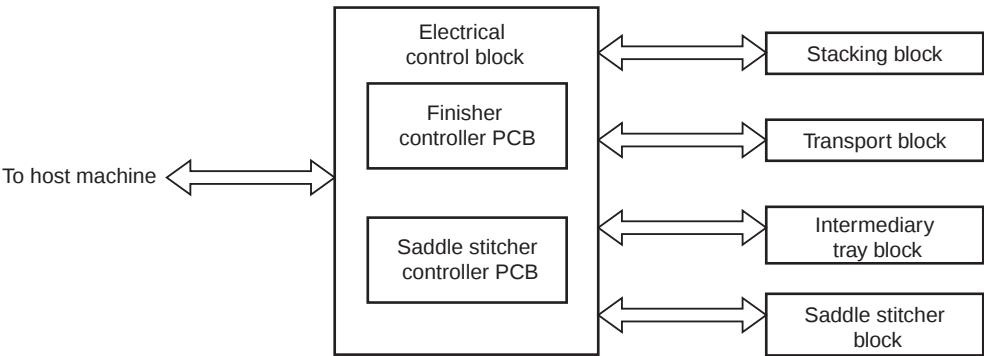
The descriptions on the saddle stitcher block apply to the Saddle Finisher V2/V2L.

2.2 Electrical Control Unit

2.2.1 Overview

The electrical control block governs all the control mechanisms of the machine, i.e., stacking block, transport block, intermediary tray block, and saddle stitcher block.

The electrical control block consists of 2 entities: finisher controller PCB and saddle stitcher controller PCB (Note). The following is a block diagram of the machine's electrical control block, each serving the functions described:



F-2-2

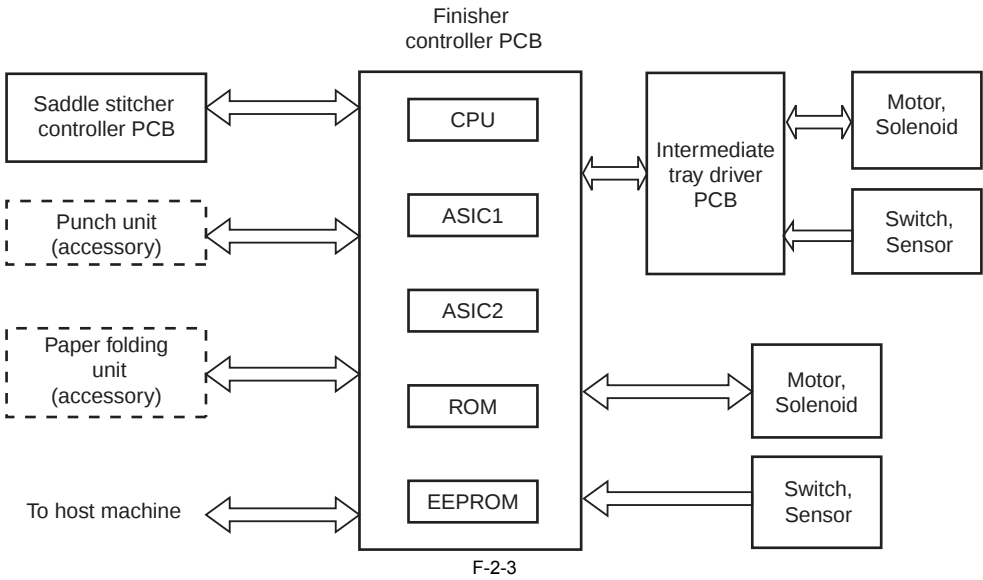


The descriptions on the saddle stitcher controller PCB apply to the Saddle Finisher V2/V2L.

2.2.2 Finisher Controller PCB

The finisher controller PCB drives the various loads (motors, solenoids) of the machine in response to the commands from the host machine (copier), and indicates the states of the sensors and switches to the host machine.

It also serves to control the 2 types of accessories (punch unit, paper folding unit) and the saddle finisher controller PCB.

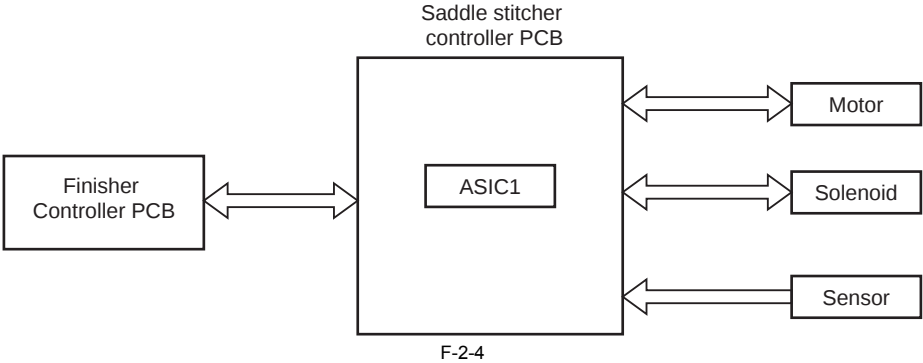


The machine uses the following ICs, each possessing specific functions:

IC	Description
CPU	Controls the communications with the host machine; controls ASIC1/ASIC2.
ASIC1	Controls the communications with accessories; controls the drive to various loads.
ASIC2	Controls the drive to various loads.
ROM	Stores the firmware used to operate the machine.
EEPROM	Stores counter readings and adjustment values.

2.2.3 Saddle Stitcher Controller PCB

The saddle stitcher controller PCB drives the machine’s various loads (motors, solenoids) in response to the commands from the finisher controller, and indicates the states of sensors and switches to the host machine.



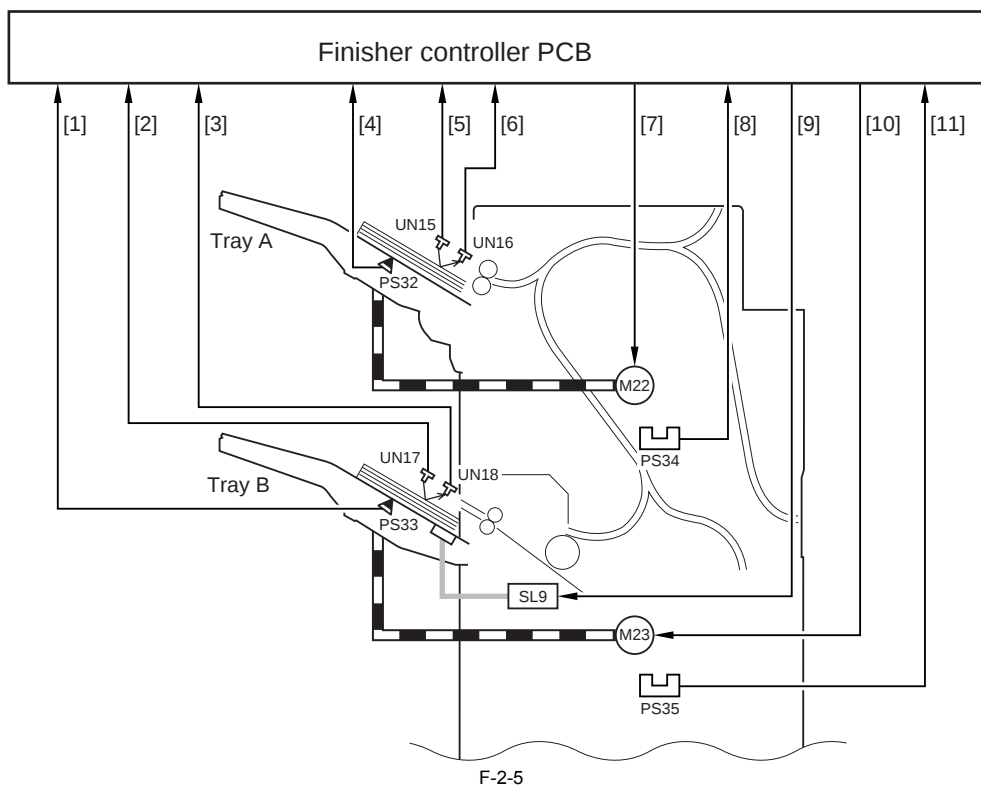
The machine uses the following major ICs possessing specific functions:

IC	Description
ASIC1	Controls the communications with the finisher controller; controls the drive to various loads.

2.3 Stacking Unit

2.3.1 Overview

The stacking block moves up and down the 2 delivery trays according to the instructions from the finisher controller PCB.



- [1]Tray B paper detection signal
- [2]Tray B paper surface detection light-emitting signal
- [3]Tray B paper surface detection light-receiving signal
- [4]Tray A paper detection signal
- [5]Tray A paper surface detection light-emitting signal
- [6]Tray A paper surface detection light-receiving signal

- [7]Tray A lift motor drive single
- [8]Tray A lift motor rotation detection signal
- [9]Auxiliary tray solenoid drive signal
- [10]Tray B lift motor drive signal
- [11]Tray B lift motor rotation detection signal

M22:tray A lift motor
 M23:tray B lift motor
 SL9:auxiliary tray solenoid
 PS32:tray A paper sensor
 PS33:tray B paper sensor
 PS34:tray A lift motor rotation sensor

PS35:tray B lift motor rotation sensor
 UN15:tray A paper surface sensor (light-emitting)
 UN16:tray A paper surface sensor (light-receiving)
 UN17:tray B paper surface sensor (light-emitting)
 UN18:tray B paper surface sensor (light-receiving)

2.3.2 Tray Ascent/Descent Control

The tray A/B is moved up or down by controlling 2 motors (M22, M23) in response to the instructions from the finisher controller.

The machine uses 2 sensors (PS34, PS35) to check for faults in these motors.

The sensor monitors the rotation of the motors; when any of the following occurs, the finisher controller PCB will stop the drive to the motor and, at the same time, will communicate the fact to the host machine:

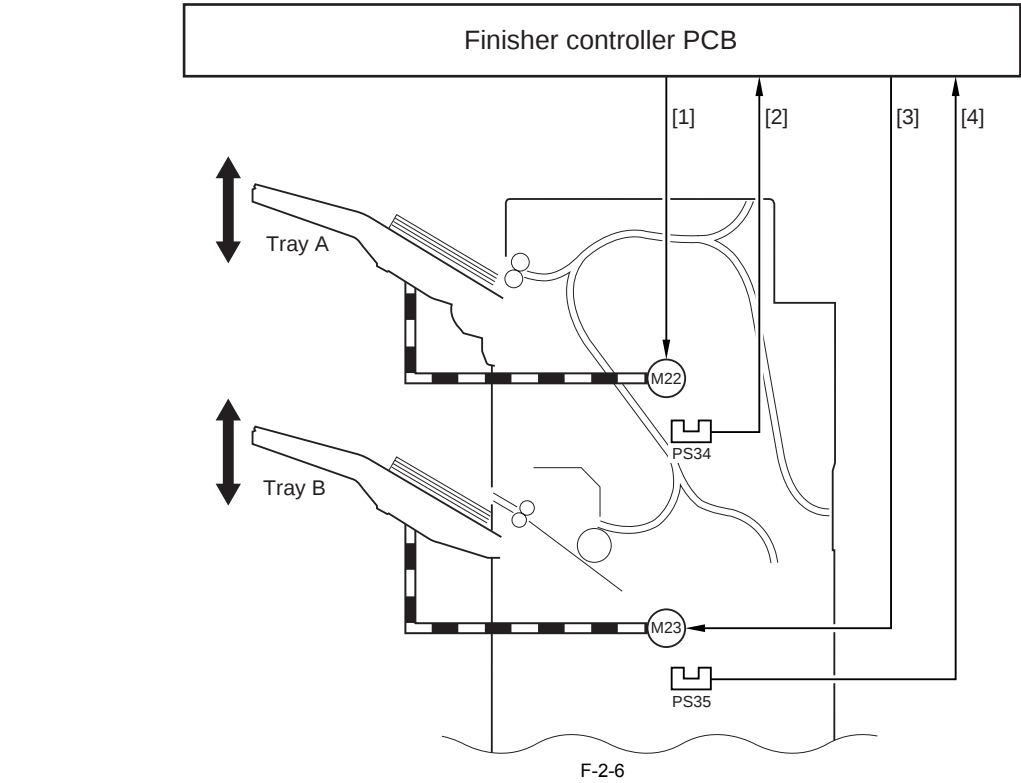
Related Error Code

- E540 (fault in tray A)

While the tray A motor (M22) is rotating, the tray A lift motor rotation detection signal is absent for 250 msec or more.

- E542 (fault in tray B)

While the tray B motor (M23) is rotating, the tray B lift motor rotation detection signal is absent for 250 msec or more.

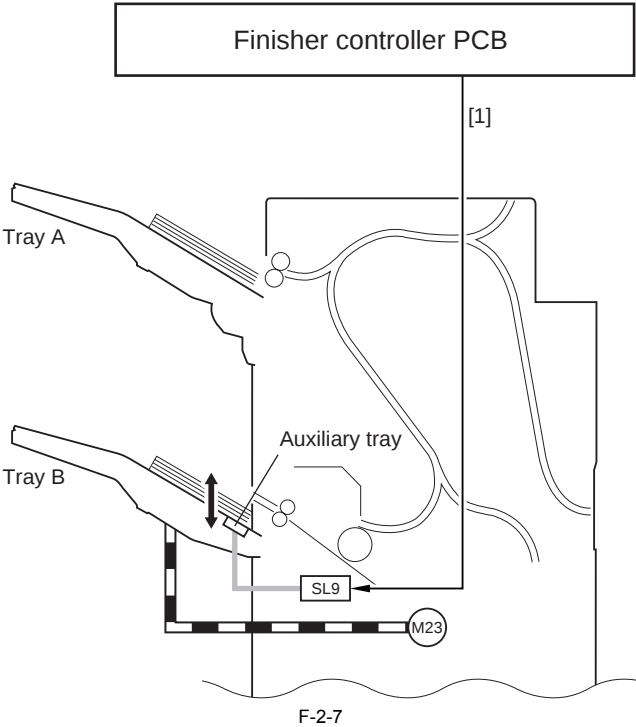


- [1]Tray A lift motor drive signal
- [2]Tray A lift motor rotation detection signal
- [3]Tray B lift motor drive signal
- [4]Tray B lift motor rotation detection signal
- M22:tray A lift motor
- M23:tray B lift motor
- PS34:tray A lift motor rotation sensor
- PS35:tray B lift motor rotation sensor

2.3.3 Auxiliary Tray Lift Control

In response to an increase in the number of folded sheets in the tray, the auxiliary tray is moved up to prevent a delivery jam associated with the tray B (memo) by making sure that the lead and trail edges of the stacks deposited in the tray will be even.

The auxiliary tray is moved by operating the solenoid (SL9) according to the instructions from the finisher controller PCB.

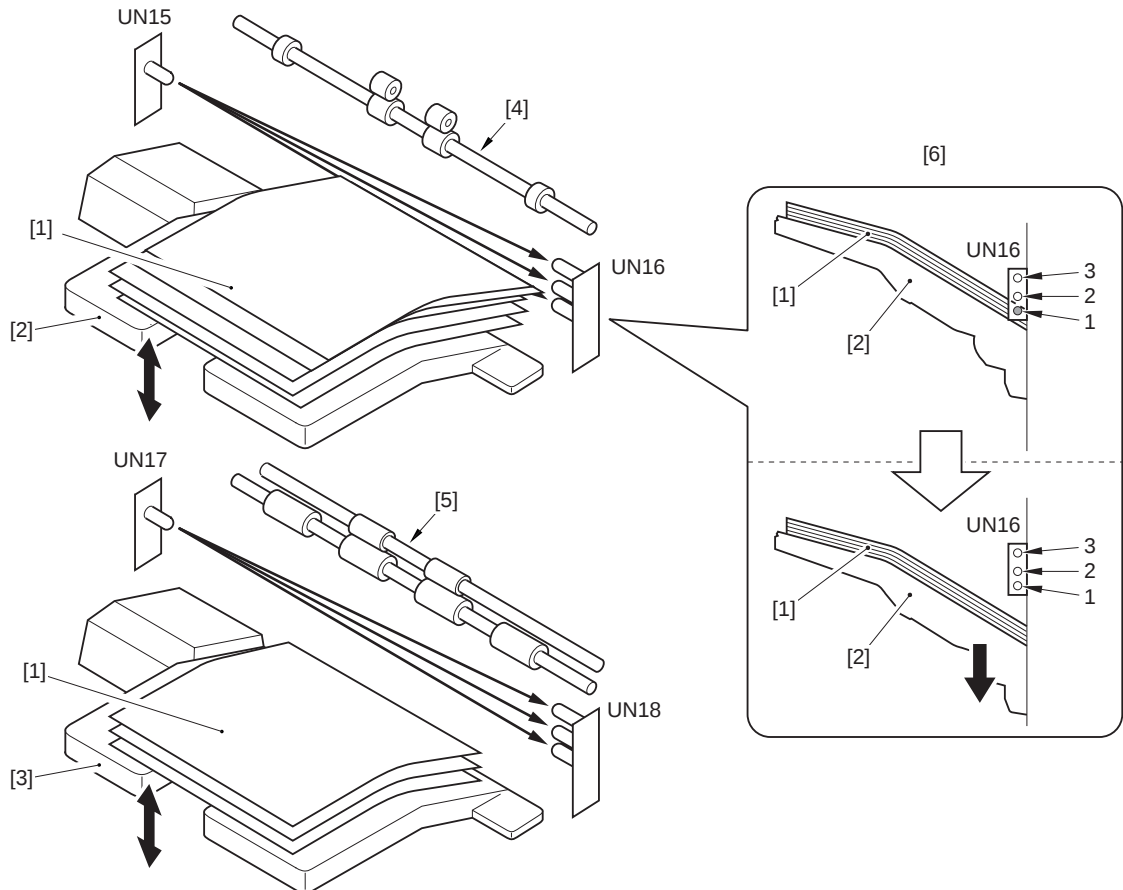


- [1]Auxiliary tray solenoid drive signal
- SL9:Auxiliary tray solenoid

MEMO:
A stack with a folded sheet tends to be higher along its lead edge than its trail edge, blocking the discharge slot when it contains multiple folded sheets. (A subsequent sheet will likely hit the preceding sheet, causing a jam.)
The fact is more likely when multiple Z-folded sheets are deposited, and that is why the lift mechanism is found only in the tray B, which tends to receive Z-folded sheets. (An auxiliary tray solenoid comes with the paper folding unit, and the lift mechanism will be added to the machine when the solenoid is fitted to the machine.)

2.3.4 Tray Paper Surface Detection

The machine is equipped with a mechanism to detect the position of the top of the stack deposited in its 2 trays.
The trays are each fitted with a sensor PCB that consists of a light-emitting segment (UN15, UN17) and a light-receiving segment (UN16, UN18).
The light-emitting segment is arranged at the rear of the machine, and is a LED. The light-receiving segment, on the other hand, is found at the front of the machine, and it consists of 3 photosensors.
When the power is turned on or a jam has been removed, the finisher controller PCB checks the 3 photosensors (light-receiving segment) as soon as the LED (light-emitting segment) goes on.
As more and more sheets are deposited in the tray, the light reaching the light-receiving segments will be blocked, causing the finisher controller PCB to move down the tray to keep the top of the stack at a specific level.
When the tray becomes full of paper (i.e., light blocked, not reaching any of the 3 photosensors), the finisher controller PCB switches over to a different tray for subsequent delivery. If the newly selected tray is full, it will stop the operation of the machine, and will indicate the fact to the host machine.



F-2-8

- [1]Paper

[2]Tray A

[3]Tray B

[4]Non-sort delivery roller
- [5]Stack delivery roller

[6]Tray descent movement (sample)
- UN15:tray A paper surface sensor (light-emitting)

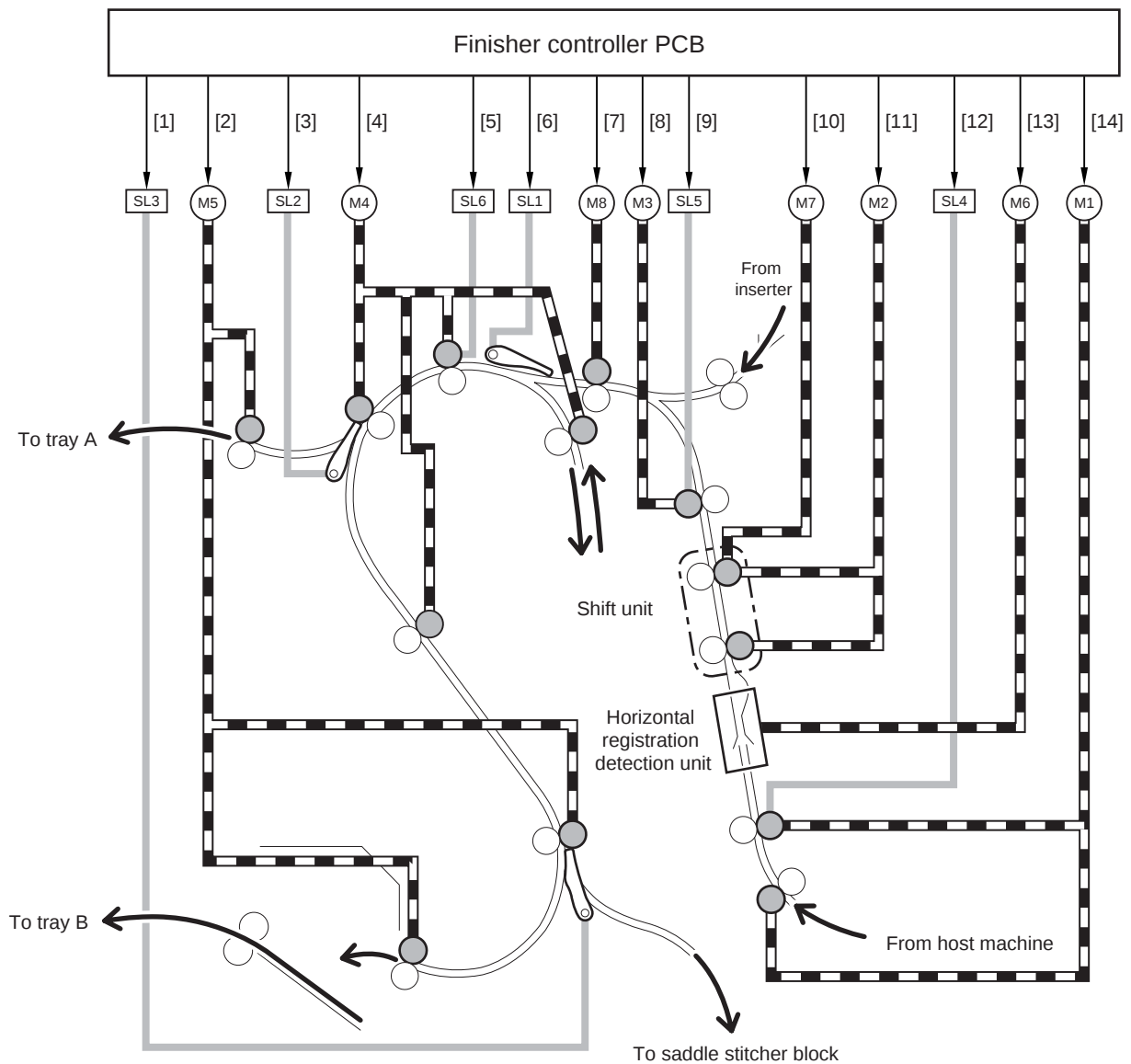
UN16:tray A paper surface sensor (light-receiving)
- UN17:tray B paper surface sensor (light-emitting)

UN18:tray B paper surface sensor (light-receiving)

2.4 Feeding Unit

2.4.1 Overview

The machine's transport block serves to move paper to the stacking block or the saddle stitcher block according to the instructions from the finisher controller PCB. It also is used in conjunction with horizontal registration adjustment and alignment operation.
The machine uses 6 sensors to check for jams in the paper path.



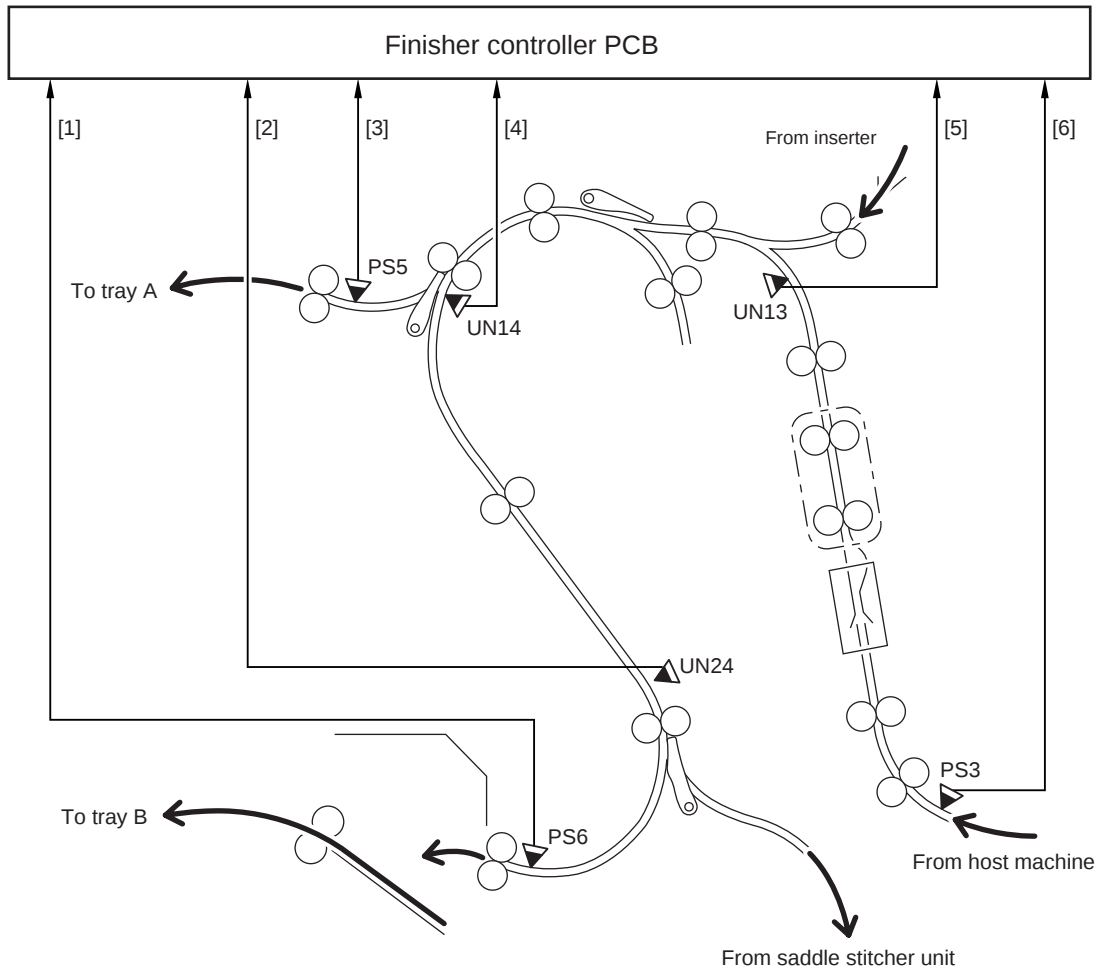
F-2-9

- [1] Saddle path switch solenoid drive signal
- [2] Delivery motor drive signal
- [3] Upper path switch solenoid drive signal
- [4] Buffer motor drive signal
- [5] Assist roller 3 shift solenoid drive signal
- [6] Buffer path switch solenoid
- [7] Transport roller shift motor drive signal
- [8] Buffer front transport motor drive signal

- [9] Assist roller 2 shift solenoid drive signal
- [10] Horizontal registration motor drive signal
- [11] Shift transport motor drive signal
- [12] Assist roller 1 shift solenoid drive signal
- [13] Horizontal registration detection unit shift motor drive signal
- [14] Inlet transport motor drive signal

M1: inlet transport motor
 M2: shift transport motor
 M3: buffer front transport motor
 M4: buffer motor
 M5: delivery motor
 M6: horizontal registration detection unit shift motor
 M7: horizontal registration shift motor
 M8: transport roller shift motor

SL1: buffer path switch solenoid
 SL2: upper path switch solenoid
 SL3: saddle path switch solenoid
 SL4: assist roller 1 shift solenoid
 SL5: assist roller 2 shift solenoid
 SL6: assist roller 3 shift solenoid



F-2-10

- [1] Lower delivery sensor signal
- [2] Lower path sensor signal
- [3] Upper delivery sensor signal
- [4] Buffer path 2 sensor signal

- [5] Buffer path 1 sensor signal
- [6] Inlet sensor signal

PS3: inlet sensor
 PS5: upper delivery sensor
 PS6: lower delivery sensor

UN13: buffer path 1 sensor
 UN14: buffer path 2 sensor
 UN24: lower path sensor

2.4.2 Basic Sequence of Operations

The transport block uses a sequence of operations that consists of the following 5:

1. Horizontal Registration Detection [1]

Detects the position of the paper.

2. Horizontal Registration Correction [2]

Corrects the position of the paper with reference to the result of horizontal registration detection.

3. Alignment [3]

Switches the position of the stack with reference to the result of horizontal registration detection. (only in shift mode)

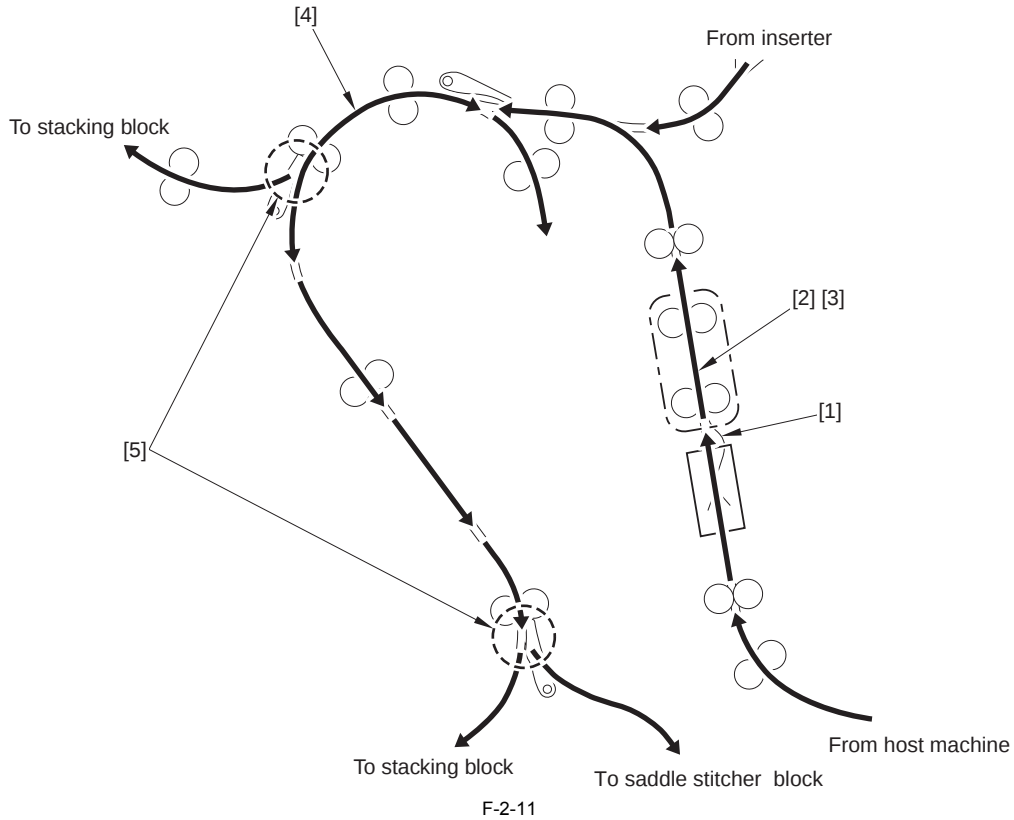
4. Buffer Operation [4]

Keeps the sheet stationary inside the transport block; thereafter, joins it with the subsequent sheet for forward movement.

5. Movement Switch-Over [5]

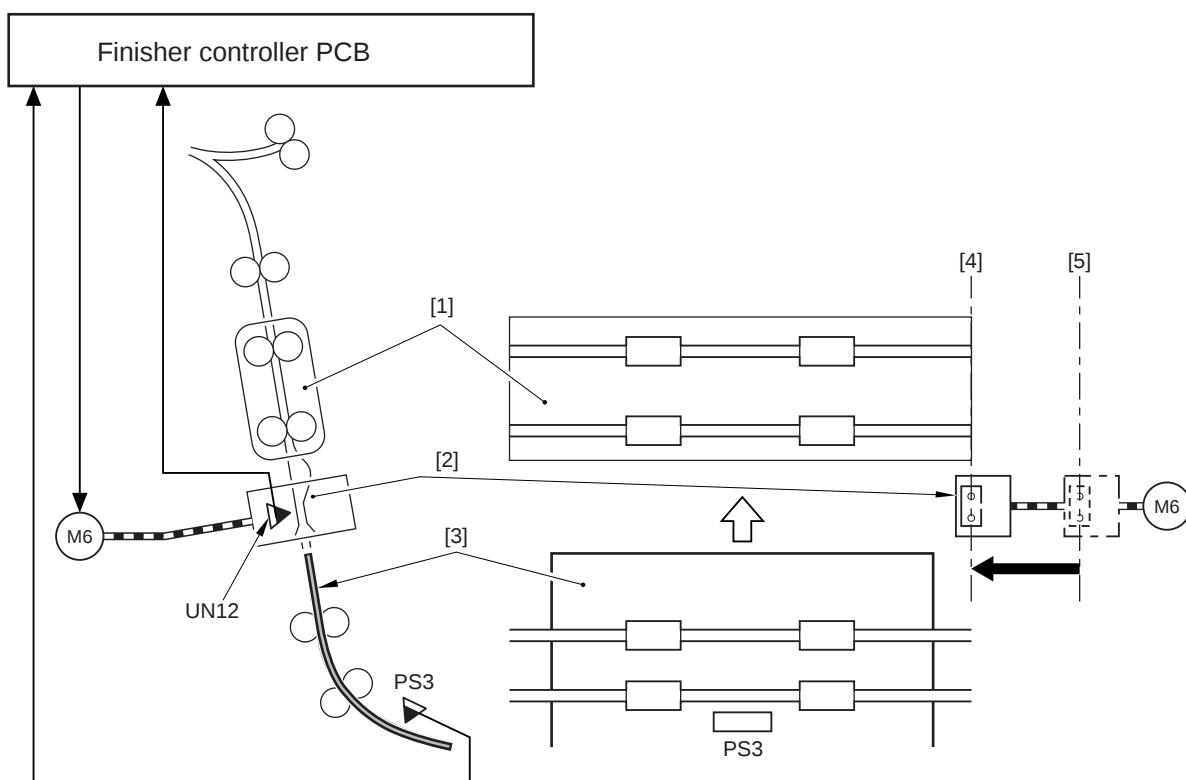
Moves the paper to the stacking block or the saddle stitcher block.

The particulars of individual operations are as follows:



2.4.3 Horizontal Registration Detection

1) About 150 msec after the lead edge of paper has moved past the inlet sensor (PS3), the finisher controller PCB causes the horizontal registration detection unit shift motor (M6) to rotate clockwise so that the horizontal registration sensor (UN12) moves to its standby position (paper edge) from home position.



F-2-12

[1] Shift roller unit

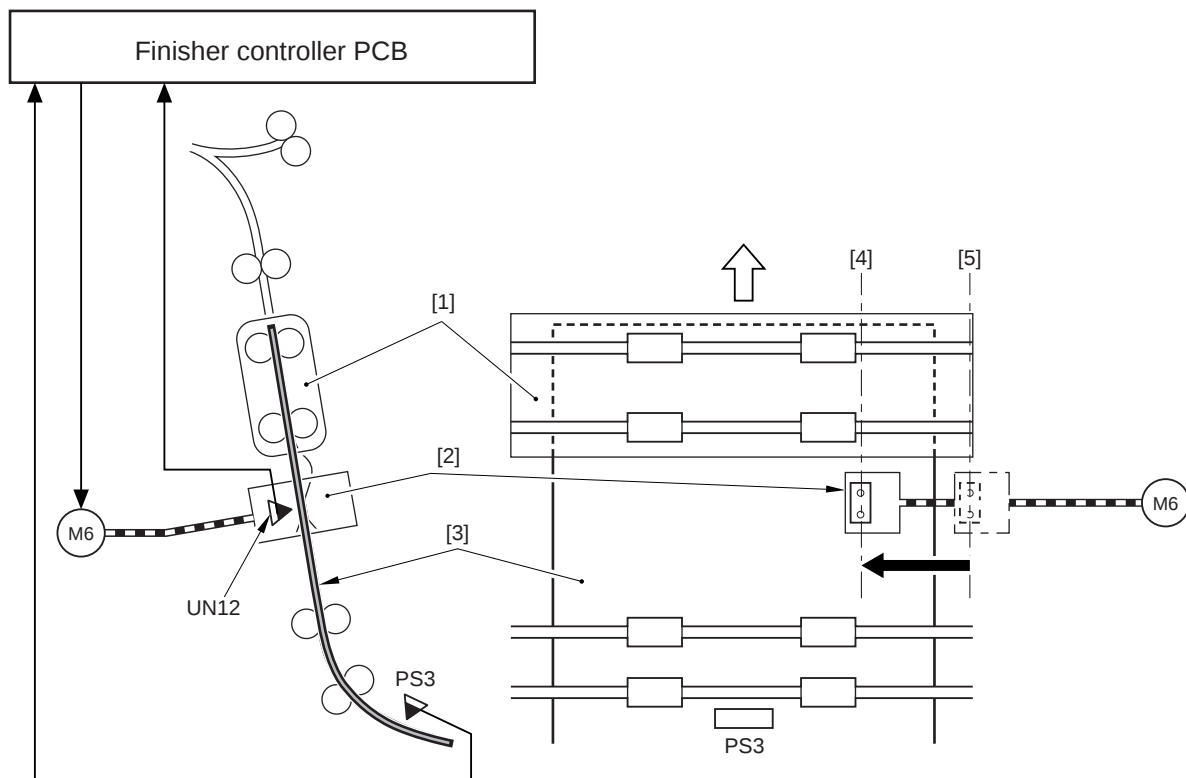
[2] Horizontal registration detection unit

[3] Paper

[4] Standby position

[5] Home position

2) The finisher controller PCB causes M6 to rotate clockwise so that UN12 moves to horizontal registration detection position (11 mm toward the inside from standby position), during which UN12 detects the edge of paper to be moved. The finisher controller PCB uses the results of the detection to compute the horizontal registration value.



F-2-13

[1] Shift roller unit

[2] Horizontal detection unit

[3] Paper

[4] Horizontal registration detection position

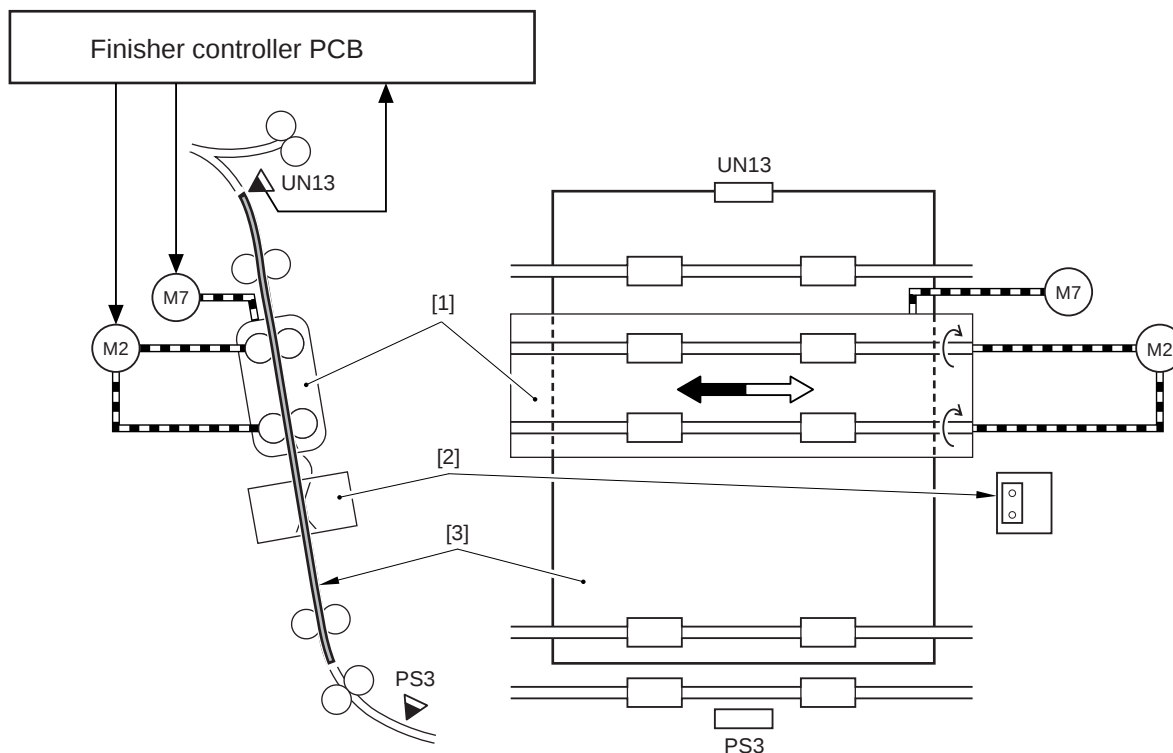
[5] Standby position

3) The finisher controller PCB causes M6 to rotate counterclockwise to move PS5 to standby position.

2.4.4 Horizontal Registration Correction/Alignment Operation

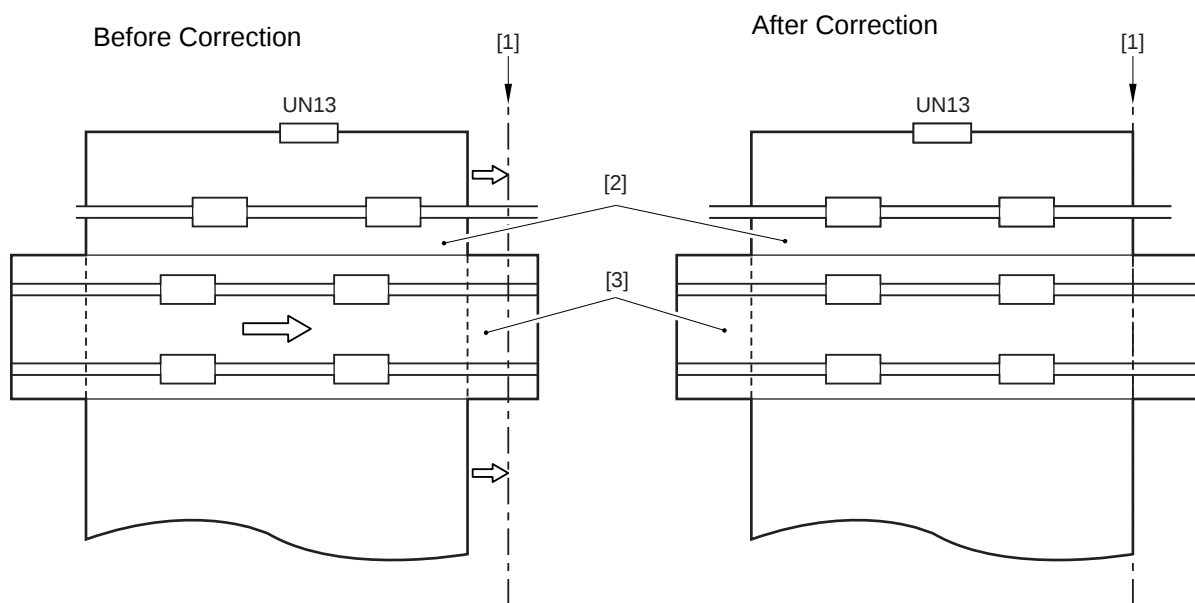
1) About 200 msec after the inlet sensor (PS3) detects the lead edge of paper, the finisher controller PCB causes the transport motor (M2) to rotate clockwise, thereby causing the roller inside the shift roller unit to rotate.

2) The finisher controller PCB computes the horizontal registration correction value with reference to the result of horizontal registration detection. Thereafter, when the lead edge of paper reaches the buffer path 1 sensor (UN13), the PCB causes the horizontal registration shift motor (M7) to rotate clockwise or counterclockwise in keeping with the horizontal registration correction value so that the shift roller unit moves to the front or the rear, causing the paper clamped by the shift roller to move to the front or to the rear. All this serve to correct the horizontal registration of the paper to an appropriate value.



F-2-14

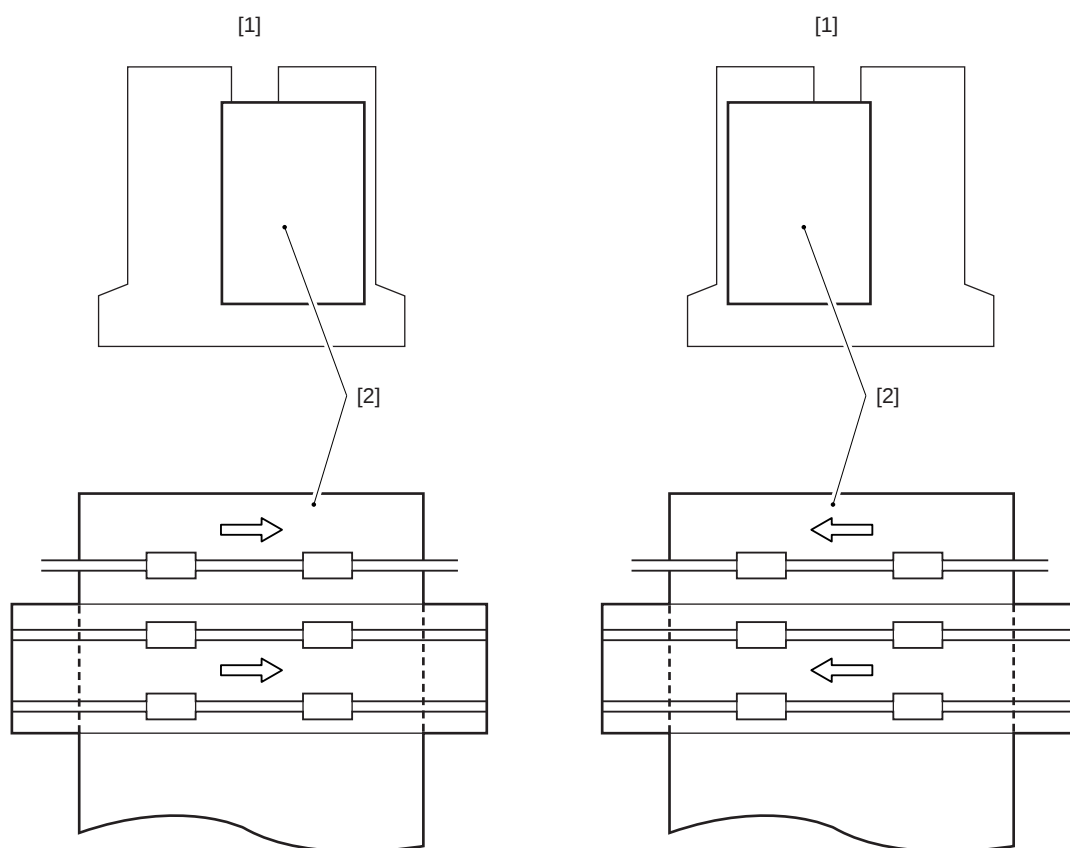
- [1] Shift roller unit
- [2] Horizontal registration detection unit
- [3] Paper



F-2-15

- [1] Correct position
- [2] Paper
- [3] Shift roller unit

3) If the machine is in job offset mode, the shift roller unit is moved to the front or the rear as in the case of horizontal registration correction operation (Note), thereby offsetting the stacks of sheets discharged to the delivery tray.

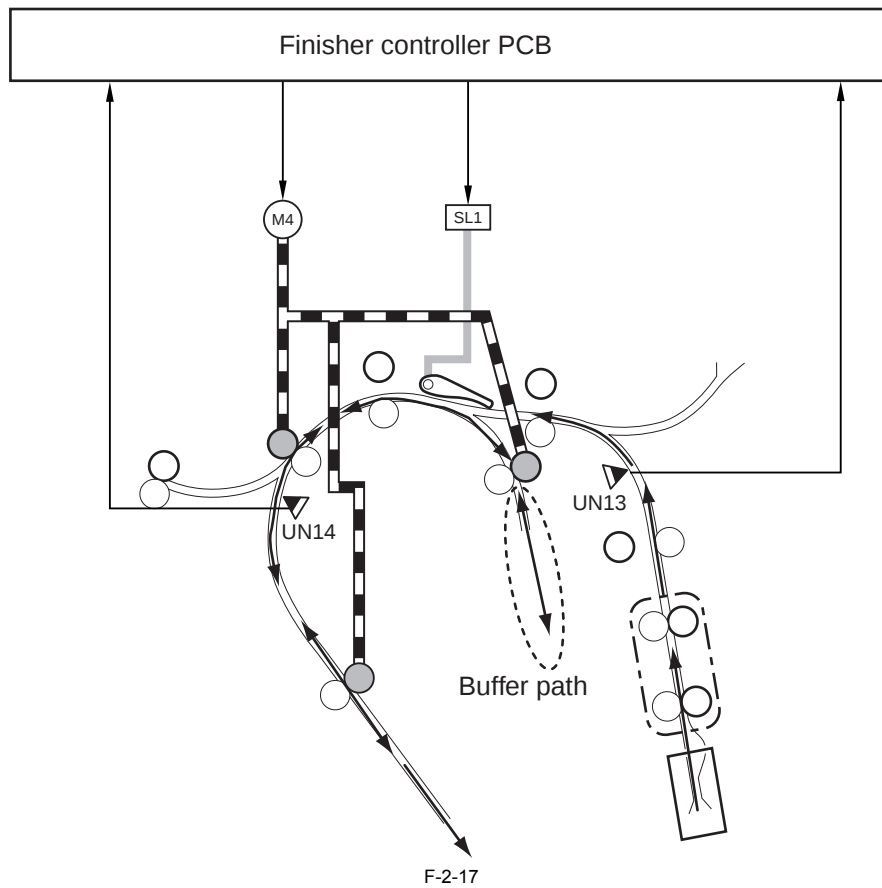


F-2-16

⚠ At this time, the degree of shift is determined with the horizontal registration correction taken into account.

2.4.5 Buffer Operation

The finisher controller PCB keeps a sheet of paper in the paper path and forwards it together with the subsequent sheet of paper using the buffer motor (M4) and the buffer path switching solenoid (SL1) with the help of the buffer path 1 sensor and the buffer path 2 sensor (UN13,UN14).



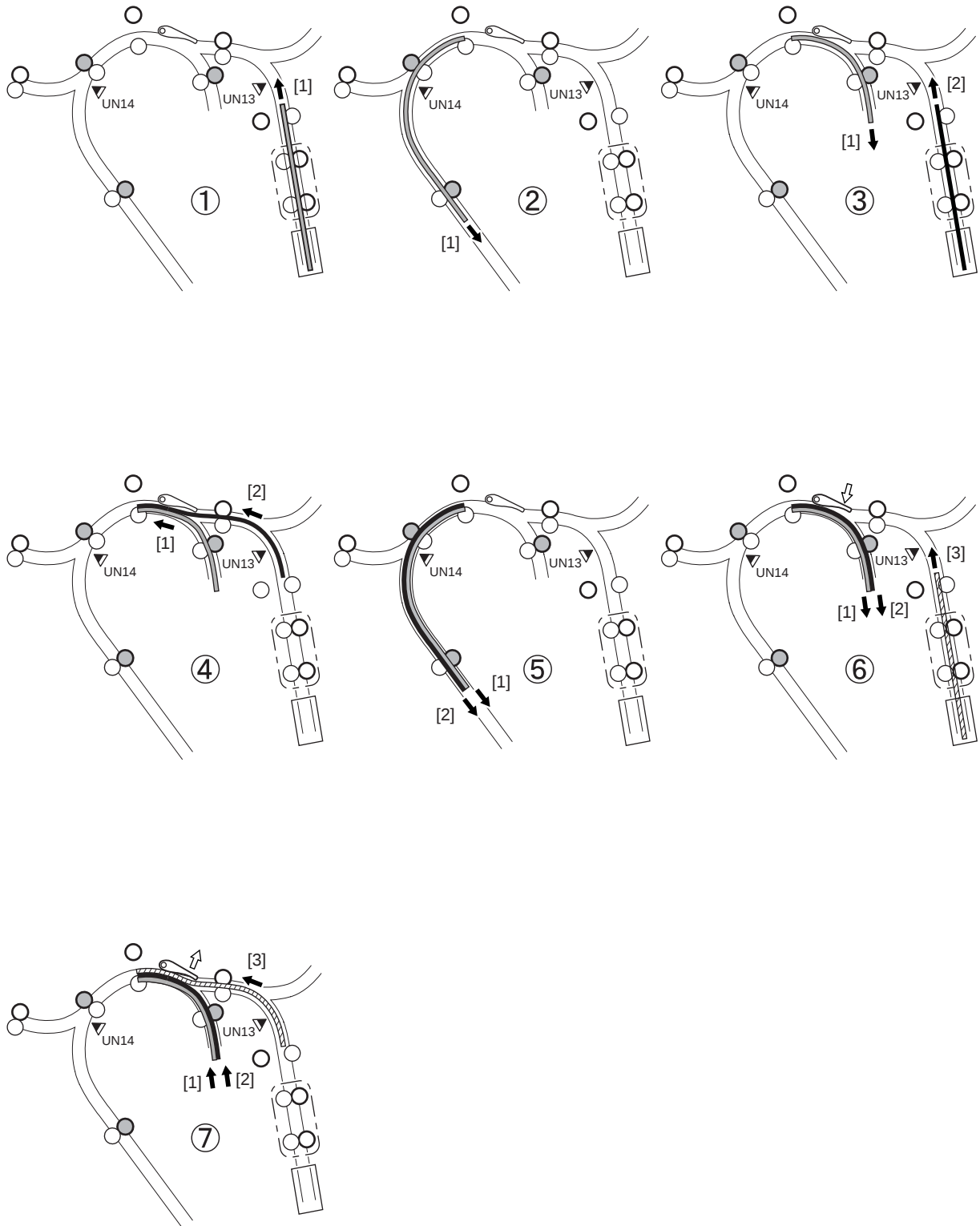
M4:buffer motor

SL1:buffer path switching solenoid

UN13:buffer path 1 sensor

UN14:buffer path 2 sensor

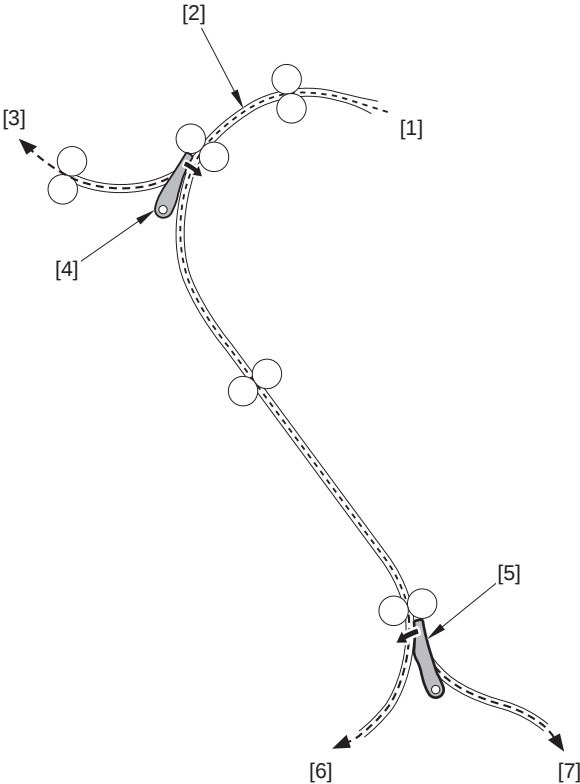
The buffer operation takes place as follows when 3 sheets of paper are moved:



F-2-18

2.4.6 Switching Over the Paper Path

1) The finisher controller PCB turns off or on the 2 flappers (upper delivery flapper, lower delivery flapper) to switch over the destination of paper.

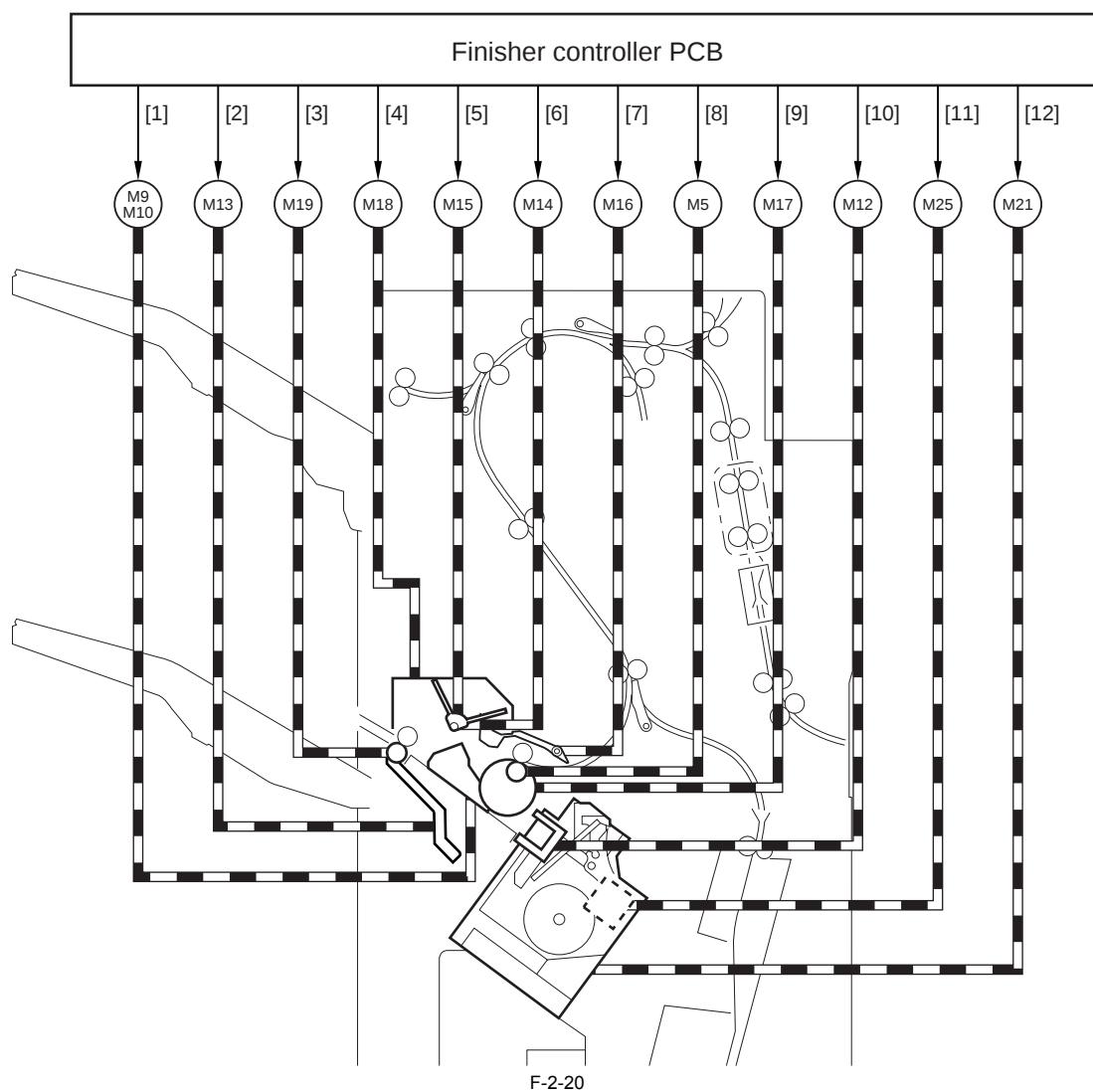


F-2-19

2.5 Intermediate Process Tray Assembly

2.5.1 Overview

The intermediary tray block serves to shift or staple a stack of sheets in response to the instructions from the finisher controller PCB, and then sends the result to the stacking block. The paper path is fitted with 2 sensors for detection of a jam.

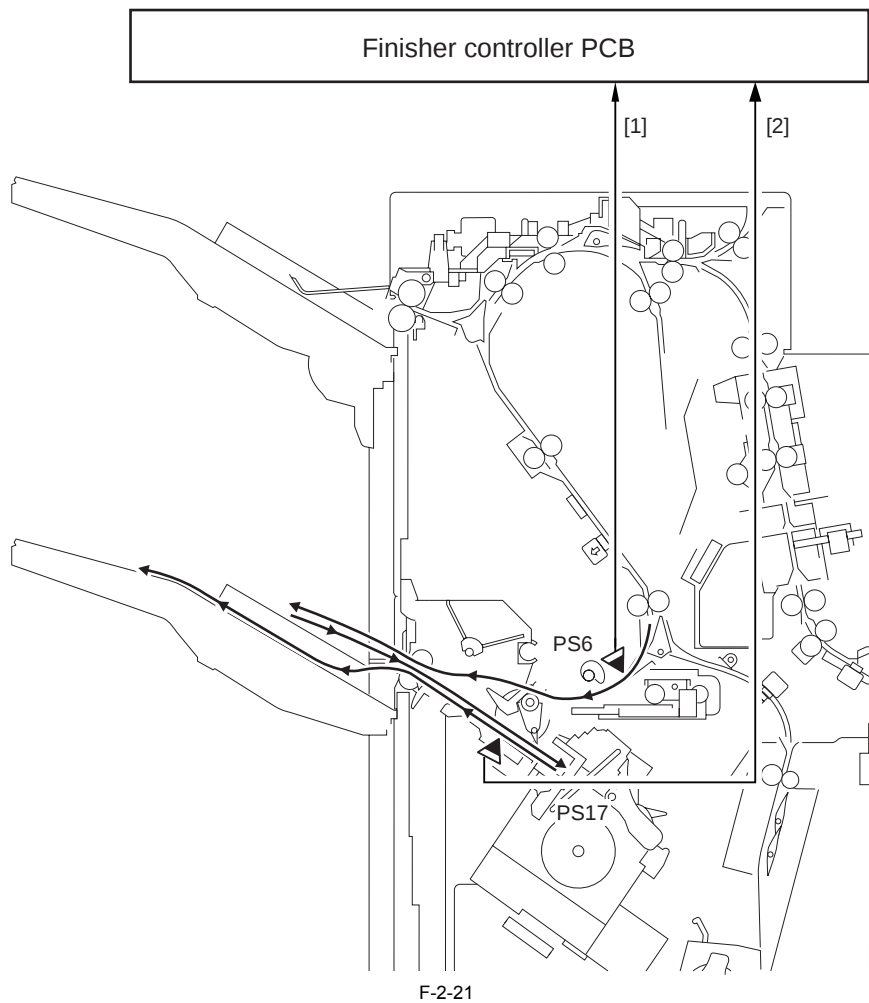


- [1]Front alignment motor drive signal/rear alignment motor signal
- [2]Stack delivery auxiliary motor drive signal
- [3]Stack delivery motor drive signal
- [4]Swing guide motor drive signal
- [5]Paddle rotation motor drive signal
- [6]Paddle lift motor drive signal

- [7]Paper trail edge retaining motor drive signal
- [8]Delivery motor drive signal
- [9]Transport belt motor drive signal
- [10]Assist motor drive signal
- [11]Staple motor drive signal
- [12]Staple motor shift drive signal

M5:delivery motor
 M9:front alignment motor
 M10:rear delivery auxiliary motor
 M12:assist motor
 M13:stack delivery auxiliary motor
 M14:paddle rotation motor
 M15:paddle lift motor
 M16:paper trail edge retaining motor

M17:transport belt shift motor
 M18:swing guide motor
 M19:stack delivery motor
 M21:staple shift motor
 M25:staple motor



[1] Lower delivery sensor signal
PS6: lower delivery sensor

[2] Handling tray sensor signal
PS17: processing tray sensor

2.5.2 Basic Sequence of Operations

The intermediary tray block uses the following 4 sequences of operations:

1. Stacking Operation [1]

Deposits sheets coming from the transport block in the intermediary tray.

2. Aligning Operation [2]

Switches over the point of depositing stacks between the front and the rear of the tray. (in shift mode)

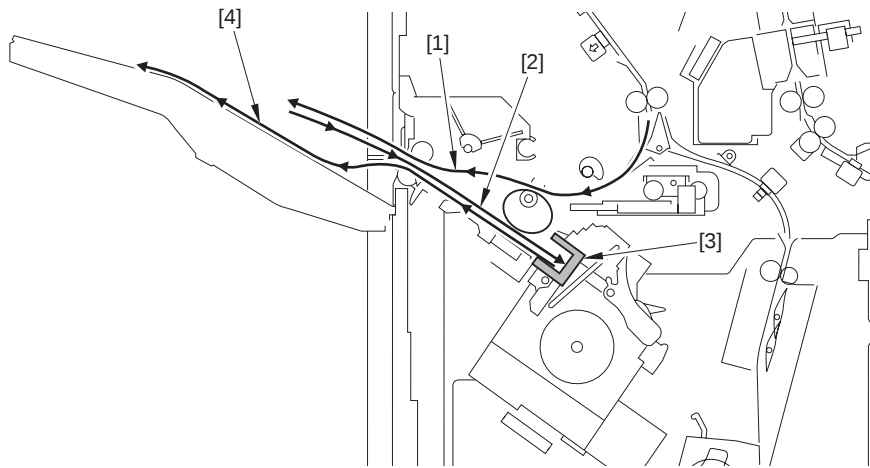
3. Stapling Operation [3]

Staples a stack of sheets at a specific point. (in staple mode)

4. Delivery Operation [4]

Discharges the sheets deposited in the intermediary tray to the tray A or the tray B.

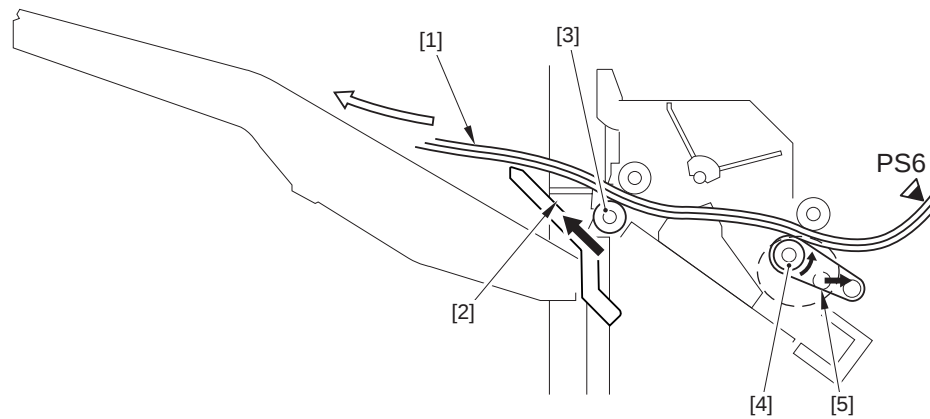
The following are the particulars of the individual operations:



F-2-22

2.5.3 Stacking Operation

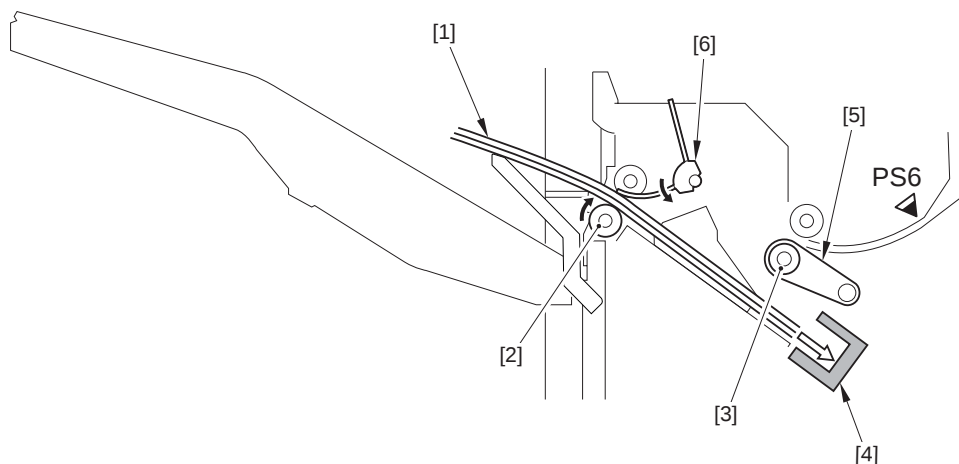
1) When the sheet coming from the transport block reaches the lower delivery sensor (PS6), the machine moves the transport belt in the direction of the arrow, and rotates the delivery roller in the direction of the arrow. As a result, the transport belt rotates to move the paper in the direction of the tray. At the same time, the stack delivery roller is rotated to discharge the paper to the outside of the machine. The machine's stack delivery auxiliary mechanism (Note) causes the stack delivery tray to extend outside the machine to support the paper.



F-2-23

- | | |
|-----------------------------------|--------------------------|
| [1] Paper | [4] Sort delivery roller |
| [2] Stack delivery auxiliary tray | [5] Transport belt |
| [3] Stack delivery roller | |

2) When the trail edge of paper moves past PS6, the stack delivery roller and the paddle rotate in the direction of the arrow, thereby pulling the paper back into the machine.

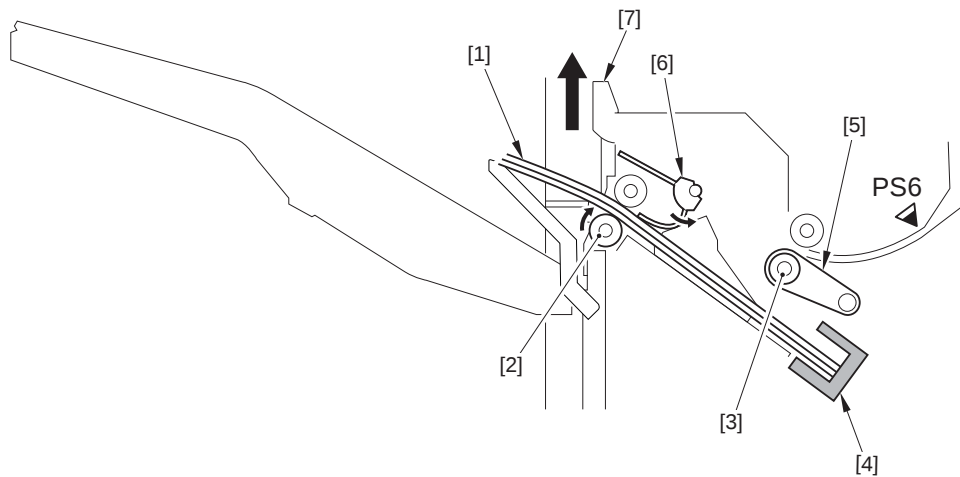


F-2-24

- | | |
|---------------------------|--------------------|
| [1] Paper | [4] Assist stopper |
| [2] Stack delivery roller | [5] Transport belt |
| [3] Sort delivery roller | [6] Paddle |

3) When the trail edge of paper reaches the process stopper, the machine stops the rotation of the stack delivery roller and the paddle. The swing guide [7] is moved

up.



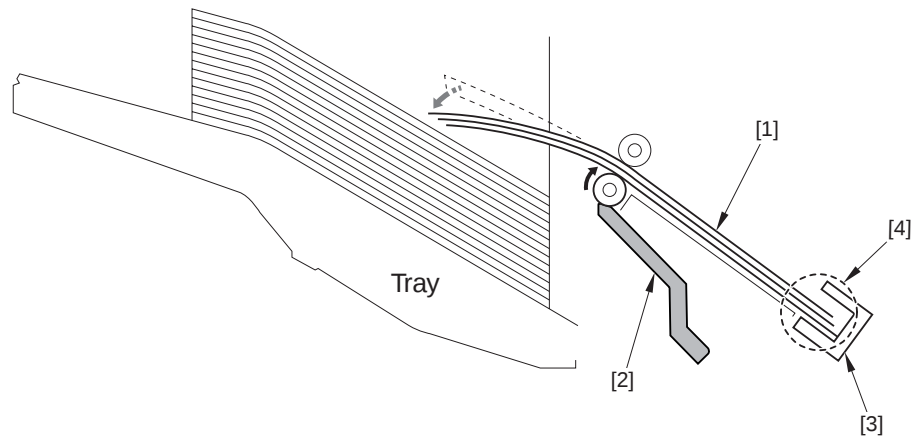
F-2-25

- | | |
|--------------------------|-------------------|
| [1]Paper | [5]Transport belt |
| [2]Stack delivery roller | [6]Paddle |
| [3]Sort delivery roller | [7]Swing guide |
| [4]Processing stopper | |

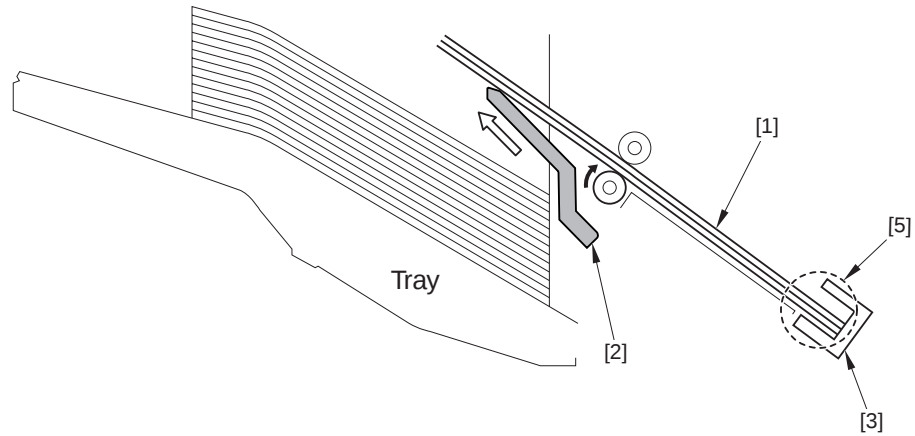
**Stack Delivery Auxiliary Function**

This machine is equipped with the stack delivery auxiliary mechanism as a means of preventing misalignment of extra-length paper. Misalignment occurs when the trail edge of paper hangs down on its own weight at the stack delivery operation. The paper is then pulled back in the direction of the arrow, causing its lead edge to move away from the stopper. The tray auxiliary plate is pushed outside the machine before delivery occurs to hold the lead edge of paper. This prevents misalignment. The tray auxiliary plate is pulled inside the machine at the end of the delivery operation.

Stacks Subject to Misalignment



Stacks Free of Misalignment



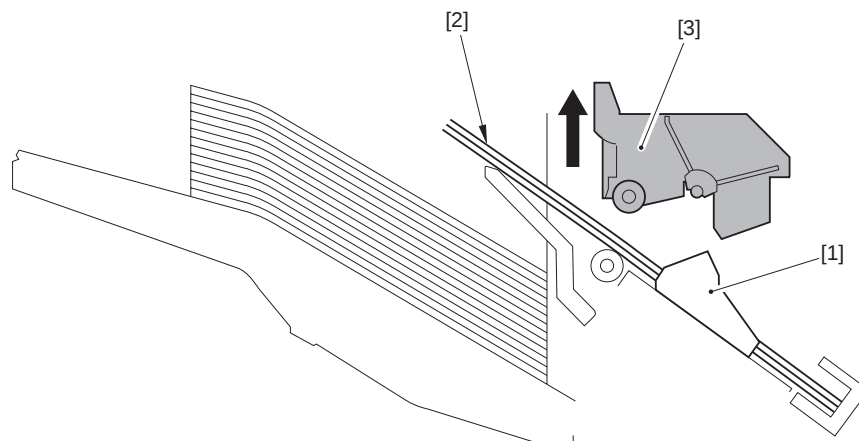
F-2-26

- [1]Stack
- [2]Tray auxiliary plate
- [3]Processing stopper

- [4]Variation present among lead edges of sheets
- [5]Variation absent among trail edges of sheets

2.5.4 Alignment

1) At the end of stacking, the swing guide is moved up, and then the aligning plate is operated as part of an alignment operation (Note), causing the stack of sheets to move to the rear or to the front. The foregoing sequence of operations applies only to the Tray B. A sequence of alignment operations is executed for the tray A while paper is in the paper path.

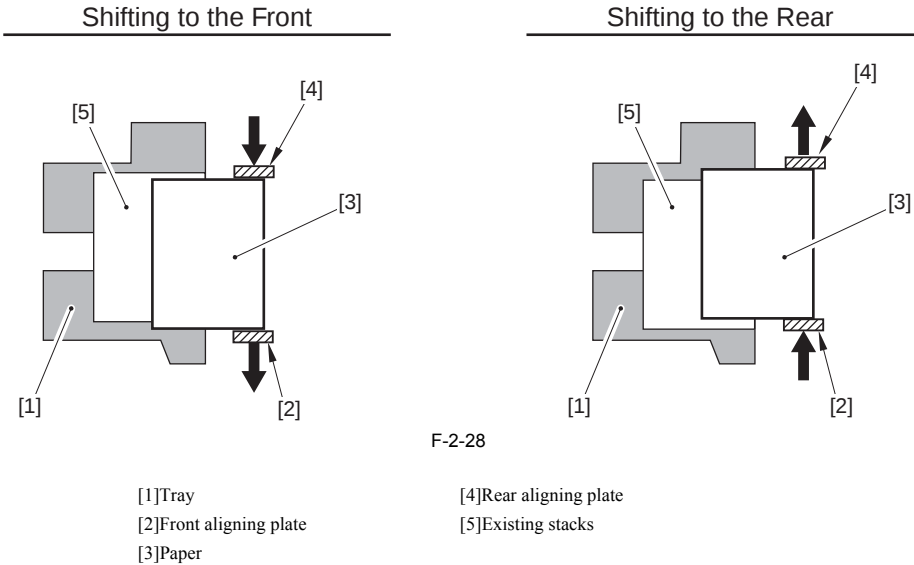


F-2-27

- [1]Aligning plate
- [2]Stack

Alignment Mechanism (shift)

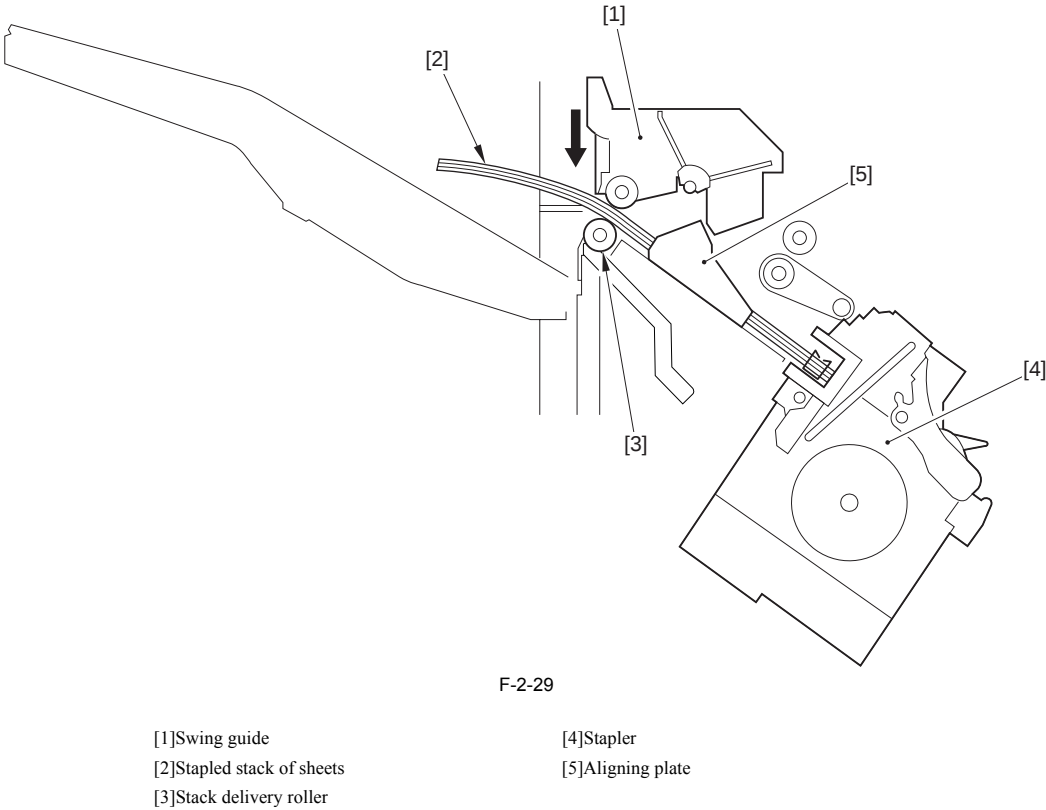
The machine’s alignment mechanism operates either of its 2 aligning plates to switch over (offset) the point of depositing individual stacks of sheets.



F-2-28

2.5.5 Stapling Operation

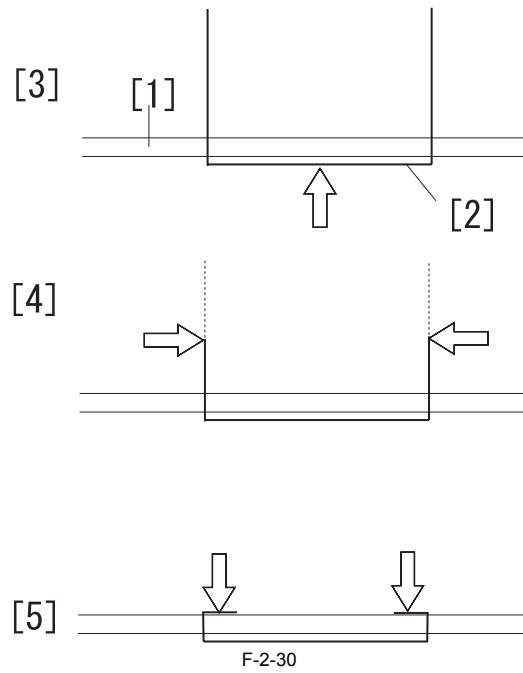
1)At the end of alignment operation, the machine moves down the swing guide and performs stapling (Note).



F-2-29

2) As needed, the staple unit is moved to empty itself of the waste staples in the waste staple case.

! The machine's stapling sequence consists of the following operations: driving a staple, cutting the staple tips, clinching the staple.

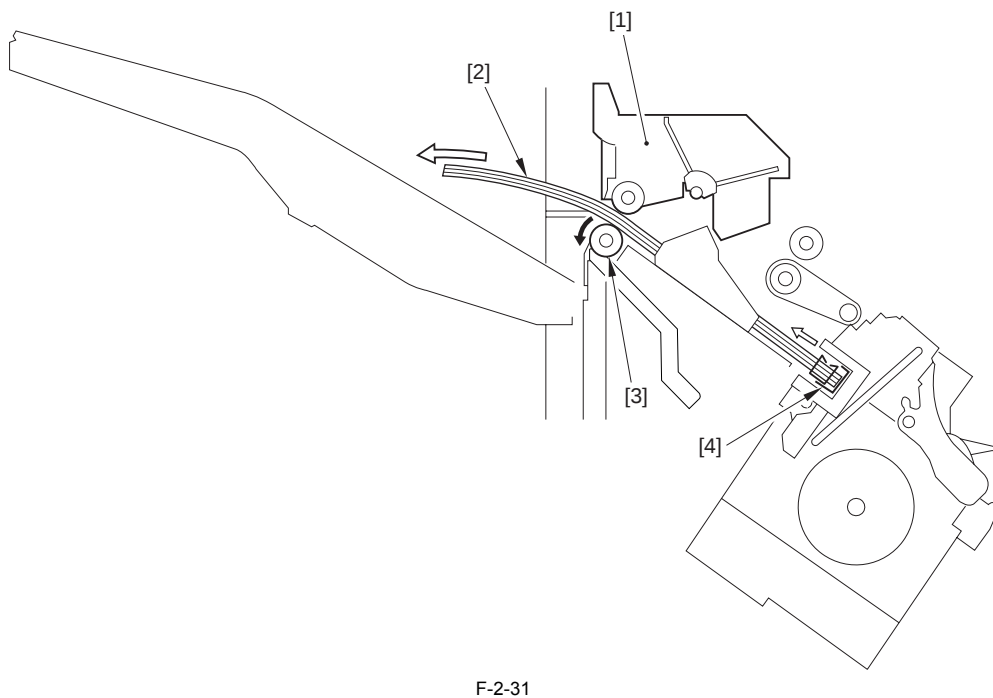


[1]Stack of sheets
[2]Staple
[3]Driving a staple

[4]Cutting the staple tips
[5]Clinching the staple

2.5.6 Delivery Operation

- 1) The machine starts delivery of the stack at the end of alignment or stapling by rotating the delivery roller in the direction of the arrow.
- 2) When a stack has 11 or more sheets, the assist stopper moves in the direction of the arrow in synchronization with the stack delivery roller so that the paper delivery operation is smoothly performed.



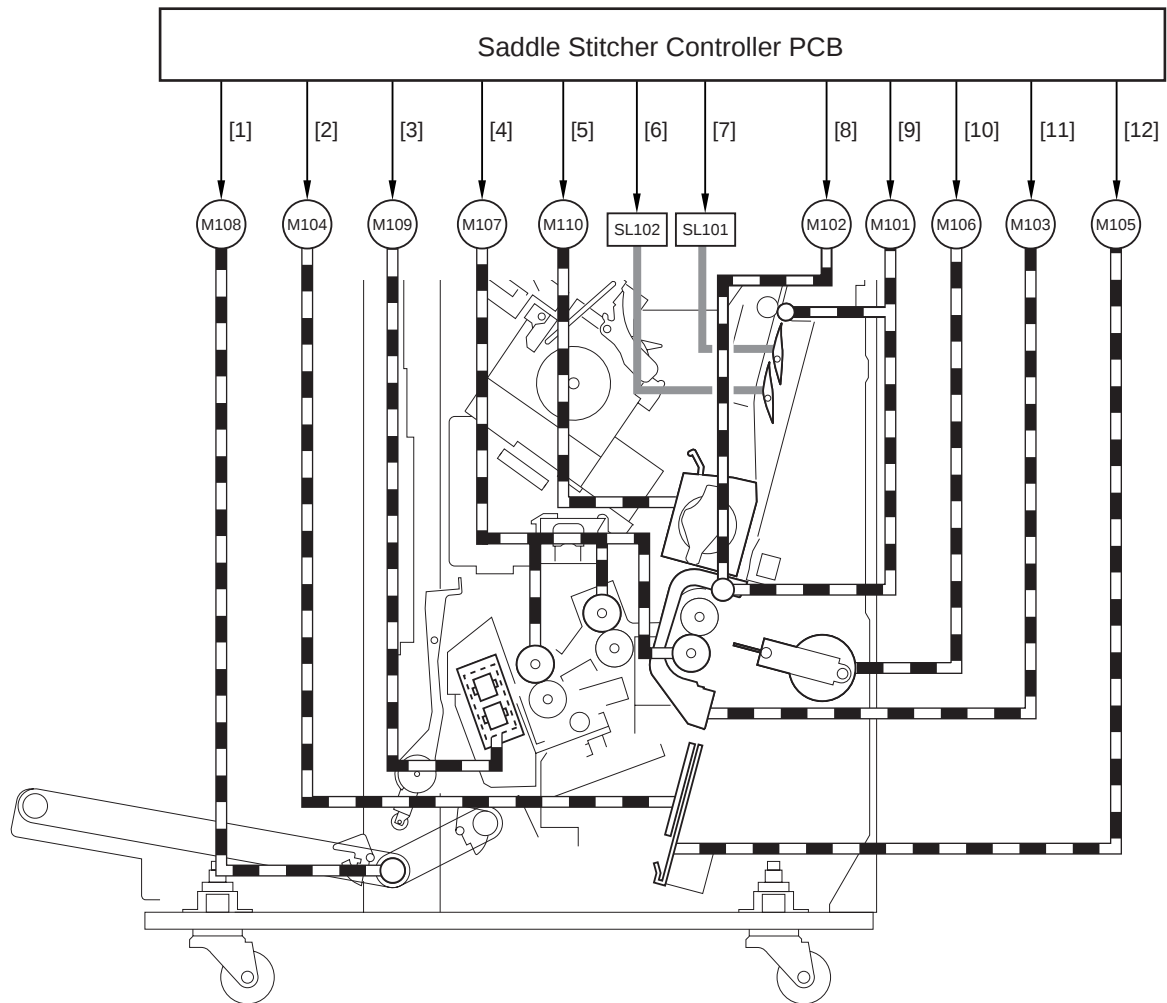
[1]Swing guide
[2]Stapled stack of sheets
[3]Stack delivery roller
[4]Assist stopper

2.6 Saddle Stitcher Unit

2.6.1 Overview

The saddle stitcher block serves to staple a stack of sheets according to the instructions from the saddle stitcher controller PCB, and moves the stack to the saddle

delivery belt.
The paper path is fitted with 8 sensors to check for a jam.



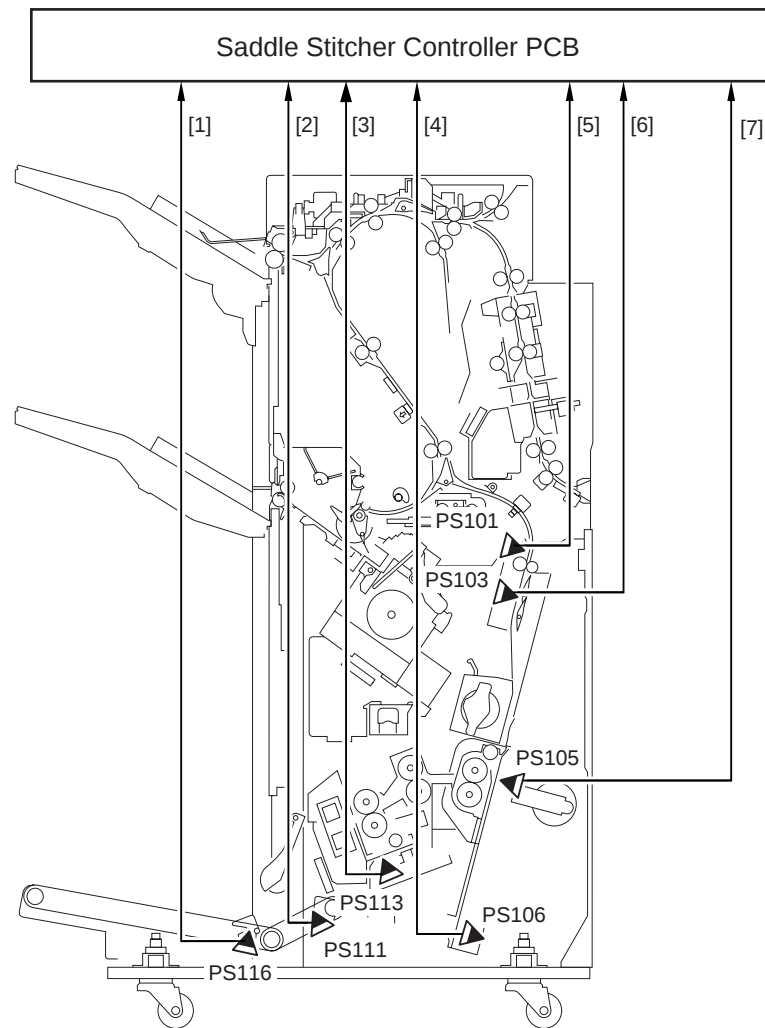
F-2-32

- [1] Delivery belt motor drive signal
- [2] Saddle guide motor drive signal
- [3] Saddle pressing motor drive signal
- [4] Paper folding/transport motor drive signal
- [5] Stitcher motor drive signal
- [6] Saddle flapper solenoid 2 signal

- [7] Saddle flapper solenoid 1 signal
- [8] Saddle pull-in shift motor drive signal
- [9] Saddle transport motor drive signal
- [10] Saddle paper butting plate signal
- [11] Saddle alignment motor drive signal
- [12] Saddle lead edge stopper motor drive signal

M101: saddle transport motor
M102: saddle pull-in roller shift motor
M103: saddle alignment motor
M104: saddle guide motor
M105: saddle lead edge stopper motor
M106: saddle paper butting plate motor

M107: saddle paper folding/transport motor
M108: saddle delivery belt motor
M109: saddle pressing motor
M110: stitcher motor
SL101: saddle flapper solenoid 1
SL102: saddle flapper solenoid 2



F-2-33

[1] Saddle pressing home position sensor signal

[2] Saddle pressing front sensor signal

[3] Saddle vertical path sensor signal

[4] Saddle stitcher detection signal

[5] Saddle inlet sensor signal

[6] Saddle small sensor signal

[7] Saddle paper butting plate home position sensor signal

[8] Saddle pressing positioning signal

PS103: saddle small sensor

PS105: saddle vertical path sensor

PS110: saddle paper butting plate home position sensor

PS111: saddle pressing front sensor

PS113: saddle pressing home position sensor

PS121: saddle pressing positioning sensor

SU: saddle stitcher sensor (in saddle stitcher unit)

2.6.2 Basic Sequence of Operations

The saddle stitcher block uses the following sequence of operations:

1. Transport [1]

Moves the paper from the transport block to the vertical path assembly.

2. Alignment [2]

Aligns the edges of sheets of paper coming to the transport block.

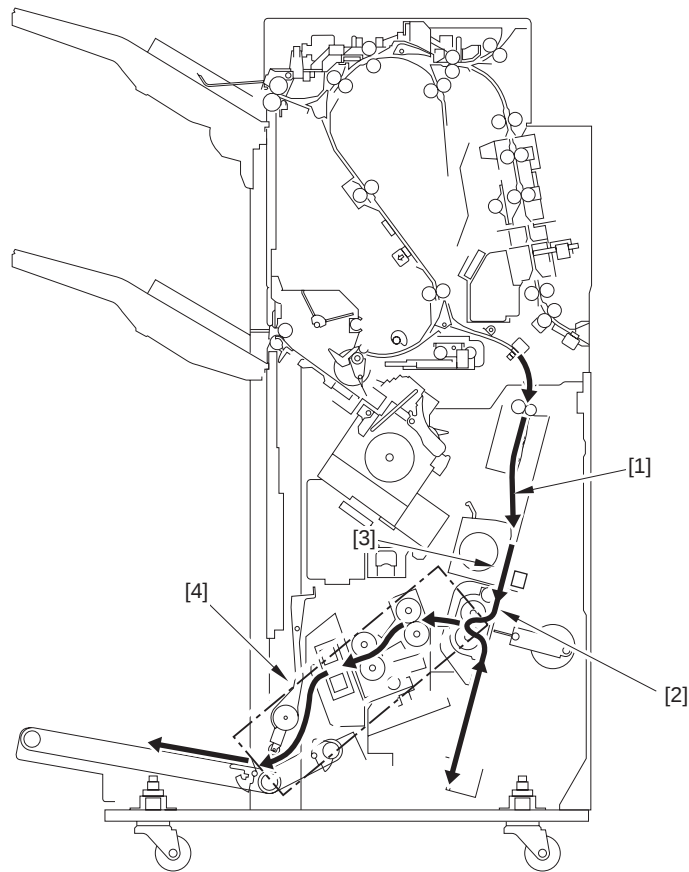
3. Stitching [3]

Uses the stitcher to staple the middle of the stack.

4. Folding/Delivery [4]

Folds the sheet in half, and sends the result to the saddle delivery tray.

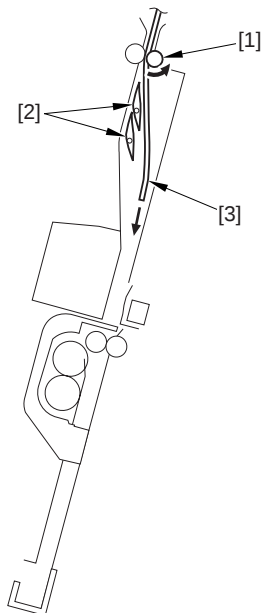
The particulars of the individual operations are as follows:



F-2-34

2.6.3 Transport

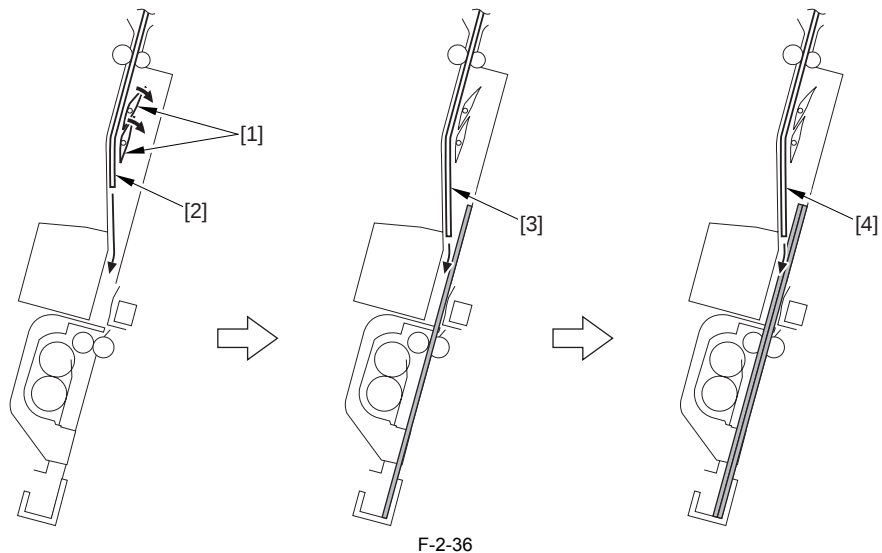
1) The inlet transport roller rotates clockwise to move the paper to the stitcher block. At this time, the 2 flappers are operated to suit the size of the paper, making sure that the order of stacking the preceding sheet and the subsequent sheet will not be reversed.



F-2-35

- [1] Inlet transport roller
- [2] Flapper
- [3] Paper

For instance, 3 sheets of A4R/LRR will be moved as follows:



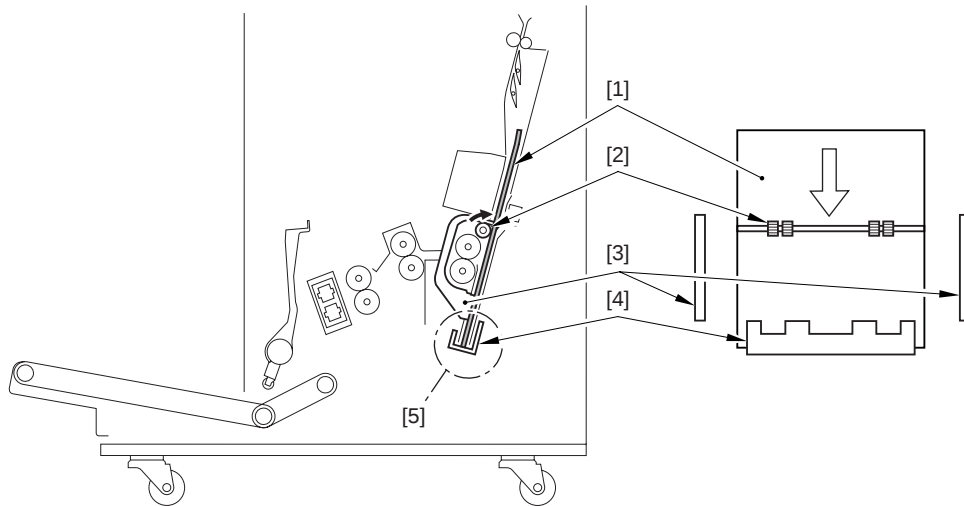
F-2-36

[1] Flapper
[2] Paper (1st sheet)

[3] Paper (2nd sheet)
[4] Paper (3rd sheet)

2.6.4 Alignment

1) The pull-in roller is rotated clockwise to move the paper to the vertical path assembly. At the same time, the paper positioning plate is moved to a point suited to the size of the paper.

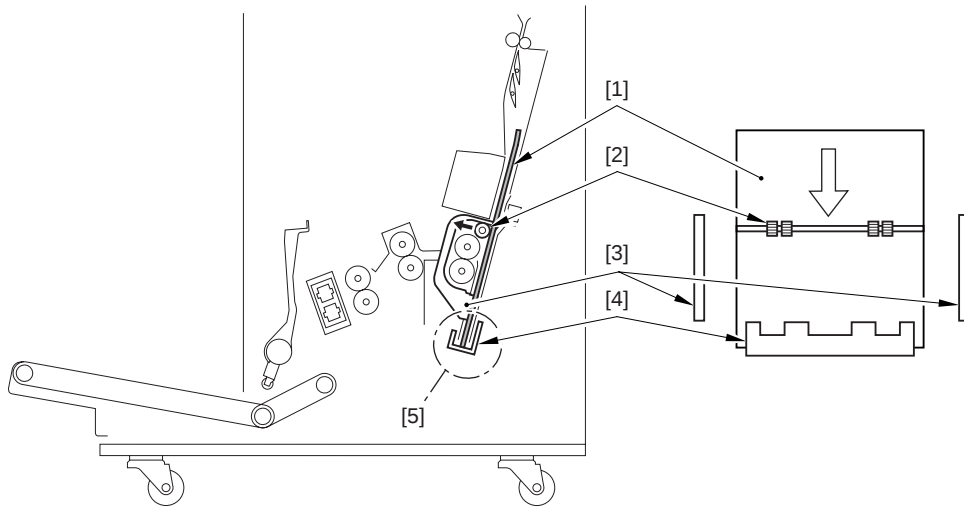


F-2-37

[1] Paper
[2] Pull-in roller
[3] Aligning plate

[4] Paper positioning plate
[5] Vertical path assembly

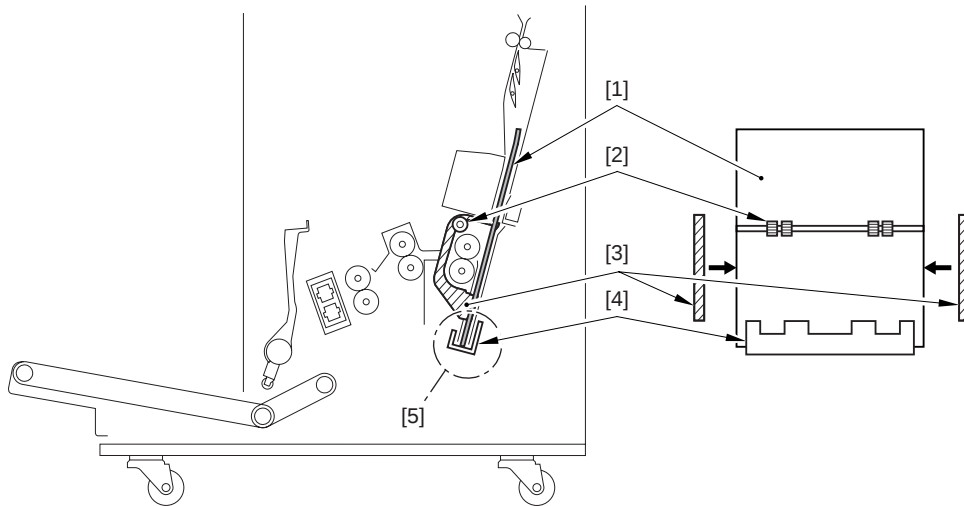
2) Thereafter, the lead edge of the paper is held down by the paper positioning plate. At the same time, the pull-in roller stops to rotate and moves away.



F-2-38

- | | |
|-------------------|----------------------------|
| [1]Paper | [4]Paper positioning plate |
| [2]Pull-in roller | [5]Vertical path assembly |
| [3]Aligning plate | |

3) The aligning plate is moved to a point suited to the size of the paper.



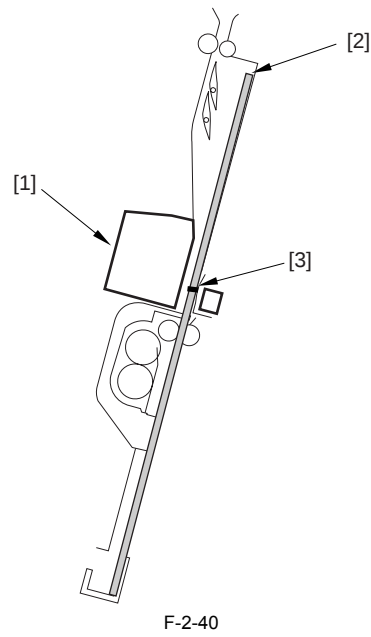
F-2-39

- | | |
|--------------------|----------------------------|
| [1]Paper | [4]Paper positioning plate |
| [2]Pull-in roller | [5]Vertical path assembly |
| [3]Alignment plate | |

4) The foregoing operations put the stack of sheets in order.

2.6.5 Stitching

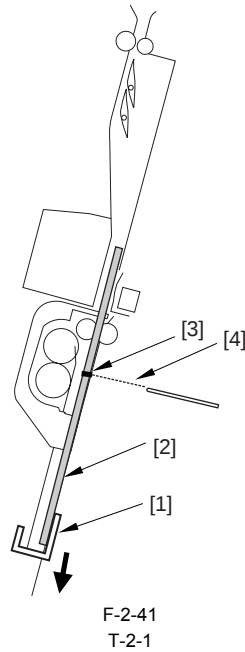
1) A stitcher unit is found at both front and rear of the machine (1 unit each). The stitcher unit staples the stack of sheets at the end of alignment.



- [1]Stitcher unit
- [2]Paper
- [3]Staple

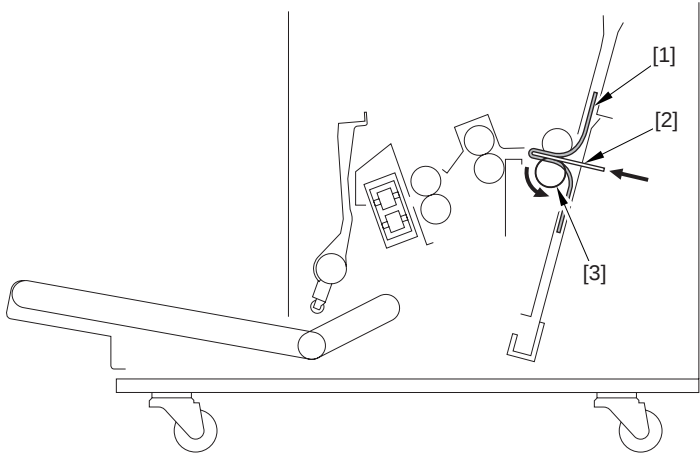
2.6.6 Folding/Delivery

1)The paper positioning plate [1] is moved down to move the paper stack [2] in the direction of the arrow so that the stitching position [3] matches the folding position [4].



- [1] Paper positioning plate
- [2] Stack
- [3] Stitching position
- [4] Folding position

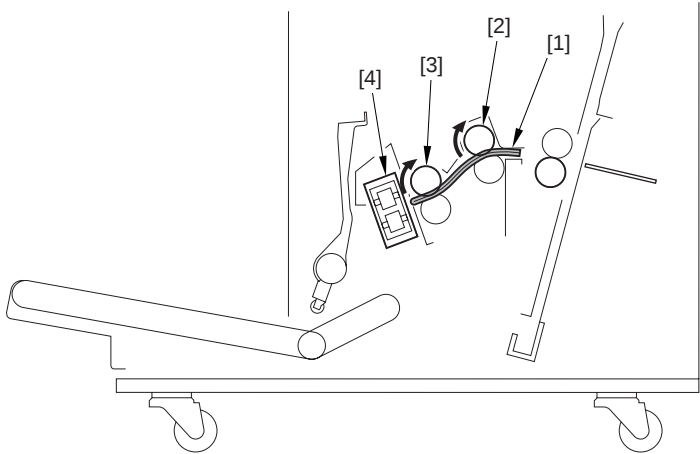
2) After the paper folding roller starts rotating in the direction of the arrow, the paper butting plate moves in the direction of the arrow, thereby starting the folding operation for stacks. After that, the paper butting plate is moved back to the original position and stops.



F-2-42

- [1]Stack of sheets
- [2]Paper butting plate
- [3]Paper folding roller

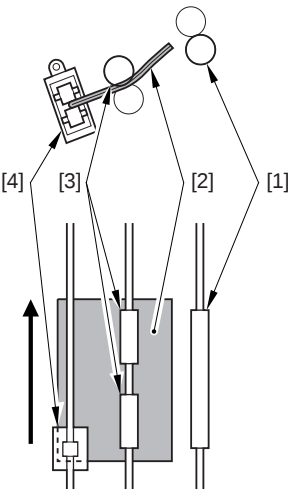
3)The paper transport roller and the pressing front roller rotate clockwise to move the stack of sheets as far as the pressing unit.



F-2-43

- [1]Paper butting plate
- [2]Paper folding roller
- [3]Stack of sheets
- [4]Stack transport roller
- [5]Pressing front roller
- [6]Pressing unit

4) Rotation of the stack delivery roller and pressing front roller stops. Then, a press unit moves in the direction of the arrow. At this time, the press roller in a press unit applies pressure to stack of sheets so as to securely fold the stack of sheets.

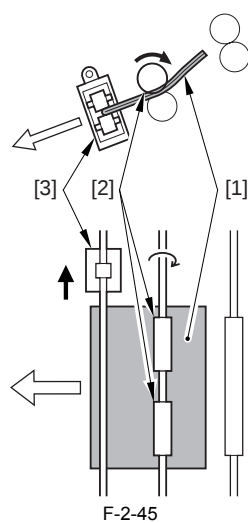


F-2-44

- [1]Stack transport roller
- [2]Stack of sheets
- [4]Pressing unit

[3]Pressing front roller

5) The pressing unit is moved in the direction of the arrow, and the pressing front roller is rotated once again, thereby discharging the stack of sheets to the saddle delivery belt.



[1]Stack of sheets

[2]Pressing front roller

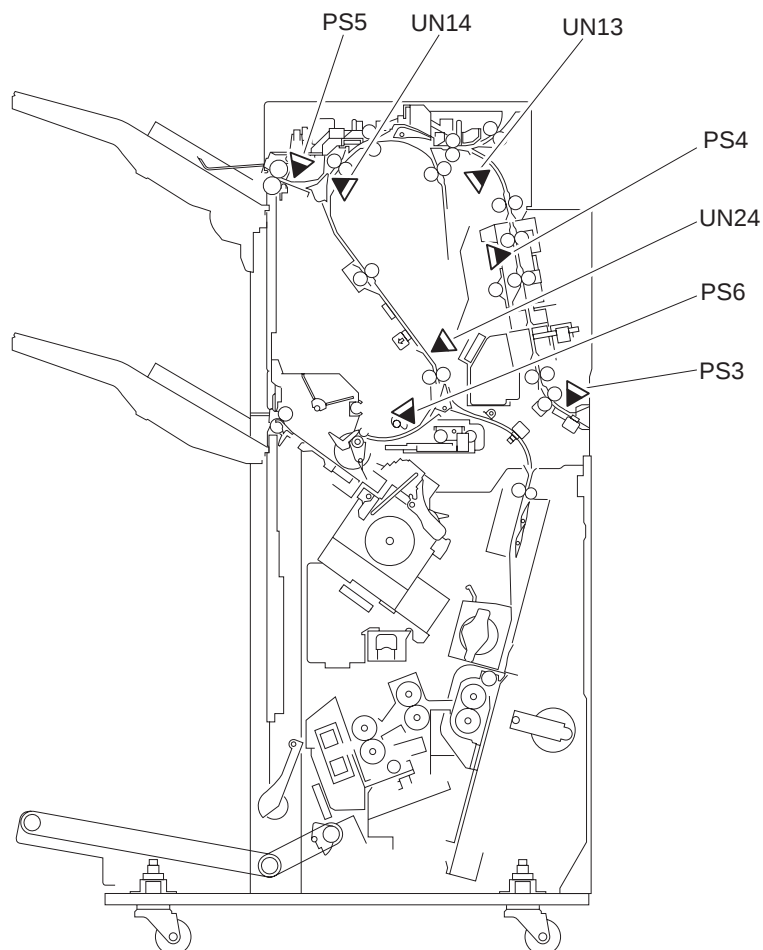
[3]Pressing unit

2.7 Detecting Jams

2.7.1 Jam Detection in the Finisher Assembly

The machine is equipped with the following sensors to check the presence/absence of paper and to see if paper is moving properly:

- inlet sensor
- shift unit sensor
- upper delivery sensor
- lower delivery sensor
- buffer path 1 sensor
- buffer path 2 sensor
- lower path sensor



F-2-46

The presence of a jam, on the other hand, is checked by the finisher controller PCB, running a check at such times as programmed in advance. When the finisher controller PCB finds a jam, it will cause the stitcher controller PCB to suspend the ongoing transport/delivery operation and communicate the presence of a jam to the host machine.

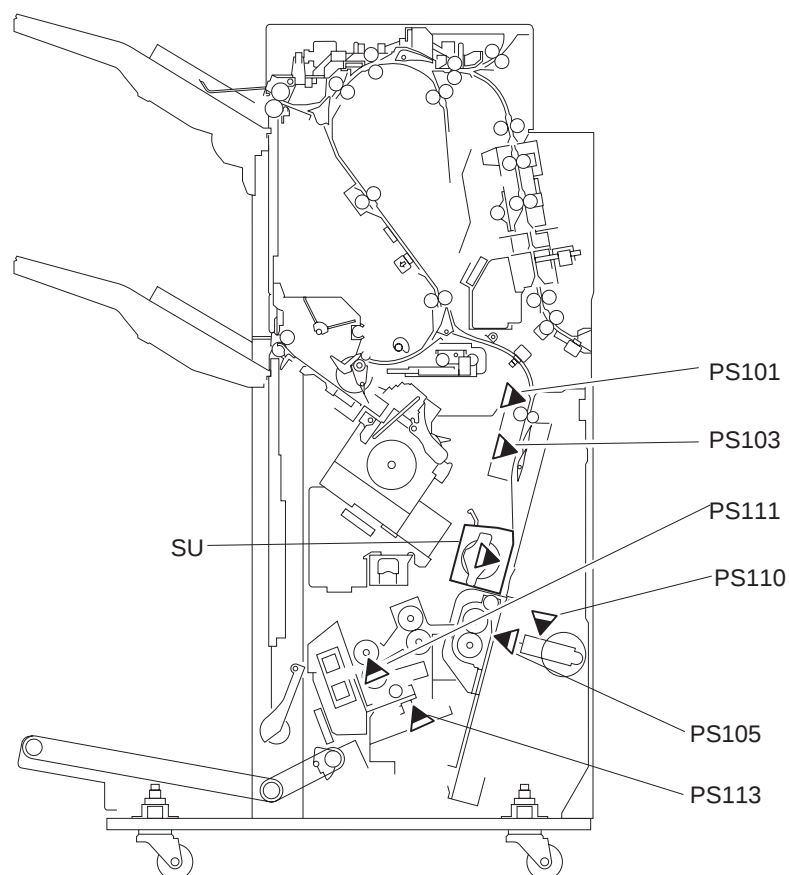
T-2-2

Jam	Sensor	Description	Code
Inlet sensor delay	PS3	The inlet sensor (PS3) does not detect paper within a specific period of time (distance) after the delivery signal from the host machine has been received.	1002
Inlet sensor stationary	PS3	The paper does not leave the inlet sensor (PS3) within a specific period of time after it has detected paper.	1103
Shift unit sensor delay	PS4	The shift unit sensor (PS4) does not detect paper within a specific period of time (distance) after the inlet sensor (PS3) has detected paper.	1004
Shift unit sensor stationary	PS4	The paper does not leave the shift unit sensor (PS4) within a specific period of time (distance) after the inlet sensor (PS3) has detected paper.	1105
Buffer path 1 sensor delay	UN13	The buffer path 1 sensor (UN13) does not detect paper within a specific period of time (distance) after the shift unit sensor (PS4) has detected paper.	1006
Buffer path 1 sensor stationary	UN13	The paper does not leave the buffer path 2 sensor (UN14) within a specific period of time (distance) after the shift unit sensor (PS4) has detected paper.	1107
Buffer path 2 sensor delay	UN14	The buffer path 2 sensor (UN14) does not detect paper within a specific period of time (distance) after the shift unit sensor (PS4) has detected paper.	1008
Buffer path 2 sensor stationary	UN14	The paper does not leave the buffer path 2 sensor (UN14) within a specific period of time (distance) after the shift unit sensor (PS4) has detected paper.	1109
Upper delivery sensor delay	PS5	The upper delivery sensor (PS5) does not detect paper within a specific period of time (distance) after the buffer path 2 sensor (UN14) has detected paper.	100A
Upper delivery sensor stationary	PS5	The paper does not leave the upper delivery sensor (PS5) within a specific period of time (distance) after the buffer path 2 sensor (UN14) has detected paper.	110B
Lower delivery sensor delay	PS6	The lower delivery sensor (PS6) does not detect paper within a specific period of time after the buffer path 2 sensor (UN14) has detected paper.	100E
Lower delivery sensor stationary	PS6	The paper does not leave the lower delivery sensor (PS6) within a specific period of time (distance) after the buffer path 2 sensor (UN14) has detected paper.	110F
Lower path sensor delay	UN24	The lower path sensor (UN24) does not detect paper within a specific period of time (distance) after the buffer path 2 sensor (UN14) has detected paper.	100C
Lower path sensor stationary	UN24	The paper does not leave the lower path sensor (UN24) within a specific period of time (distance) after the buffer path 2 sensor (UN14) has detected paper.	110D
Residual (at power-on)		Paper exists within the transport path at power-on.	1320
Residual (during initial rotation)		Paper exists in the path during initial rotation of the host machine.	1721
Door open	MSW1	The front cover switch (MSW1) has identified the front cover as being open during machine operation.	1422

2.7.2 Jam Detection in the Stitcher Assembly

The machine is equipped with the following sensors to check the presence/absence of paper and to see if paper is moving properly:

- saddle inlet sensor
- saddle small sensor
- saddle vertical path sensor
- saddle lead edge path sensor
- saddle pre-pressing sensor
- saddle stitcher sensor



F-2-47

The presence/absence of a jam is checked by the finisher controller PCB at such times as programmed in advance. When the finisher controller PCB detects a jam, it suspends the ongoing transport/delivery operation and communicates the presence of a jam to the host machine.

T-2-3

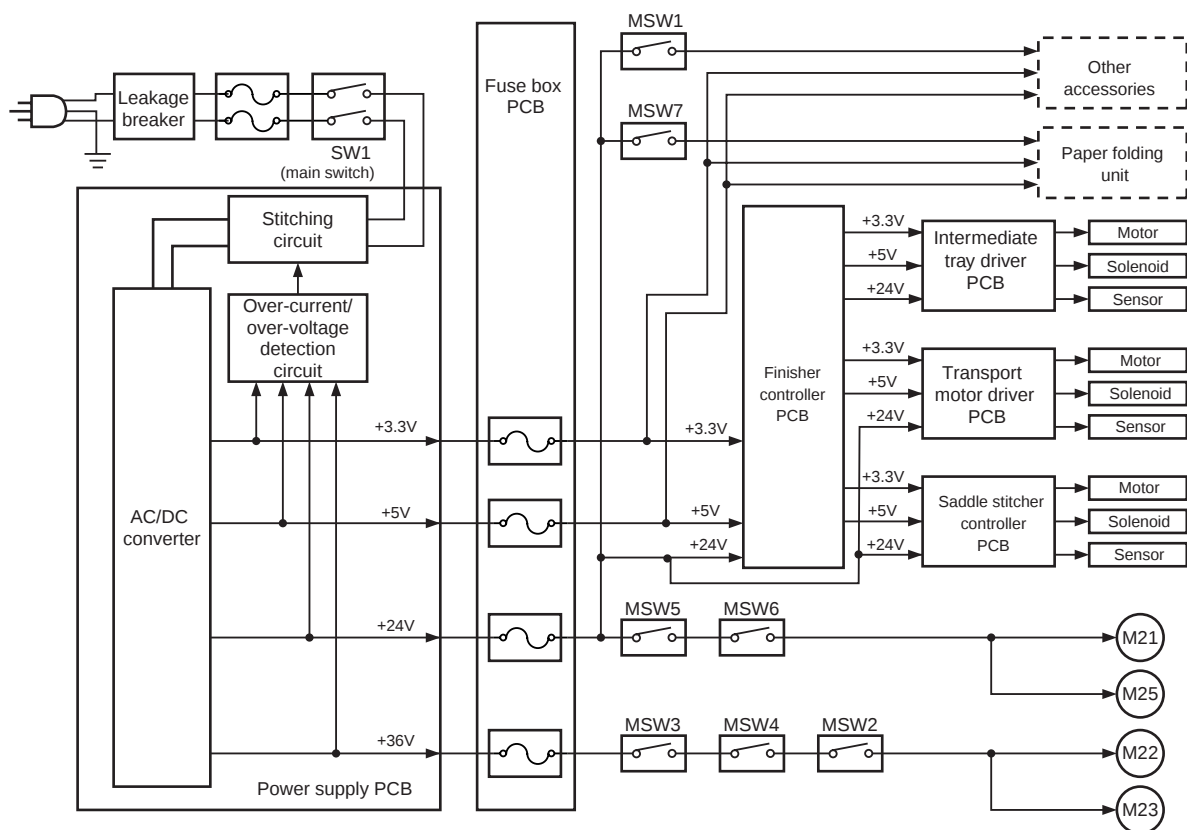
Jam	Sensor	Description	Code
Saddle inlet sensor delay	PS101	The saddle inlet sensor (PS101) does not detect paper within a specific period of time (distance) after the lower path sensor (UN24) has detected paper.	1042
Saddle inlet sensor stationary	PS101	The paper does not leave the saddle inlet sensor (PS101) within a specific period of time (distance) after the lower path sensor (UN24) has detected paper.	1143
Saddle small sensor delay	PS103	The saddle small sensor (PS103) does not detect paper within a specific period of time (distance) after the saddle inlet sensor (PS101) has detected paper.	1044
Saddle small sensor stationary	PS103	The paper does not leave the saddle small sensor (PS103) within a specific period of time (distance) after the saddle inlet sensor (PS101) has detected paper.	1145
Saddle vertical path sensor delay	PS105	The paper does not detect the saddle vertical path sensor (PS105) within a specific period of time after the saddle stop plate operation has been ended.	1046
Saddle vertical path sensor stationary	PS105	The paper does not leave the saddle vertical path sensor (PS105) within a specific period of time after the saddle stop plate operation has been started.	1147
Saddle pre-pressing sensor delay	PS111	The saddle pre-pressing sensor (PS111) does not detect paper within a specific period of time after the saddle stop plate operation has been ended.	104A
Saddle pre-pressing sensor stationary	PS111	The paper does not leave the saddle pre-pressing sensor (PS111) within a specific period of time after the end of saddle stop plate operation.	114B
stitcher staple	SU	The saddle stitcher unit does not detect the start-up of the stitcher motor (M110) within a specific period of time.	1550
Saddle stop plate	PS110	The saddle stop plate sensor (PS110) does not detect the start-up of the saddle motor stop plate motor (M106) within a specific period of time.	1F52
Saddle pressing home position sensor delay	PS113	The saddle pressing home position sensor (PS113) does not detect the home position within a specific period of time after the start of saddle stack delivery operation.	1054
Saddle pressing home position sensor stationary	PS113	The saddle home position sensor (PS113) remains on (detects the home position) at the start of saddle pressing operation.	1155

2.8 Power Supply

2.8.1 Overview

The machine's power supply mechanism converts the AC power from the power outlet into DC for supply to its various loads.

The AC power is supplied to the circuit when the power switch (SW1) is turned on. It is then converted by the circuit into the following DC power supplies; +24 V, +5 V, and +3.3 V. Both +36 V and +24 V are used to drive the various motors; +24 V is also used to drive solenoids and clutches, while +3.3 V is also used to the ICs on the PCBs.



F-2-48
T-2-4

MSW1: front door switch
MSW2: tray approach switch
MSW3: tray safety switch (front)
MSW4: tray safety switch (rear)
MSW5: staple safety switch (front)
MSW6: staple safety switch (rear)

MSW7: paper folding unit safety switch
M21: stapler shift motor
M22: tray A motor
M23: tray B motor
M25: stapler motor

2.8.2 Protective Mechanism

The machine is equipped with protective mechanisms that will automatically shut off the output voltage to prevent damage to the power supply circuit in the event of over-current or over-voltage caused, for example, by a short-circuit in any of its loads.

If DC output is absent in the power supply circuit, suspect that the over-current or over-voltage protective mechanism has gone on. Turn off the power switch (SW301), remove the cause of the fault, and turn the power back on.

In addition to the foregoing mechanism, the machine uses the following:

- fuse

The power supply circuit is fitted with 2 fuses which blow to shut off the power in response to over-current in the AC line.

- Interlock Switch

The machine's external covers and safety levers are fitted with a total of 7 microswitches which go off to cut off the power supply when a specific cover is opened or a specific lever is operated.

Chapter 3 Parts Replacement Procedure

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3.1 Removing from the Host Machine

3.1.1 Finisher Assembly

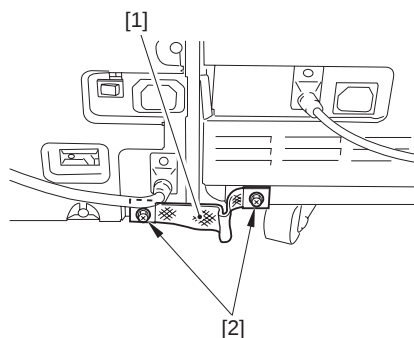
3.1.1.1 Disconnecting from the Host Machine



Check to make sure that the machine is off and the power plug is not connected to the power outlet.

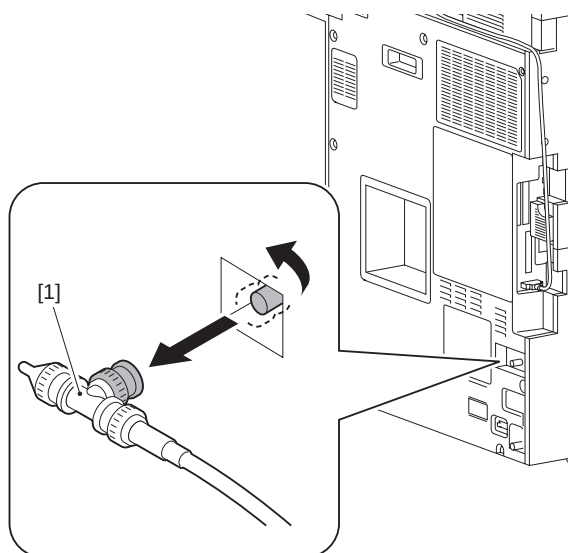
1) Detach the shunt cable [1].

- 2 screws [2]



F-3-1

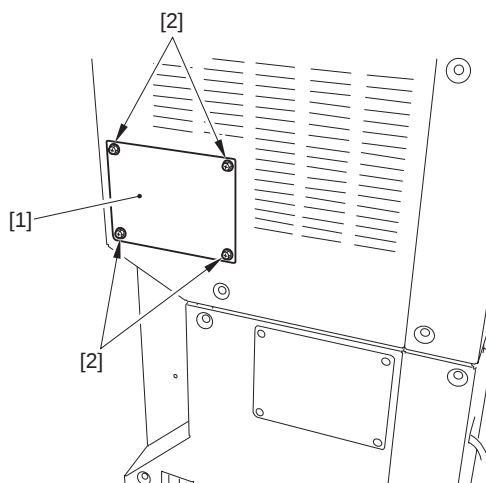
2) Free the signal cable [1] from the machine.



F-3-2

3) Remove the rear small cover [1].

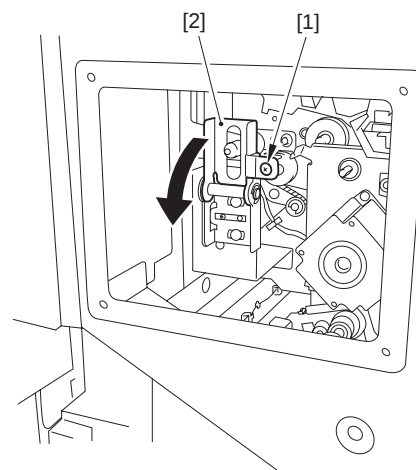
- 4 screws [2]



F-3-3

4) Remove the screw [1] of the latch base (rear), and shift the hinge [2]

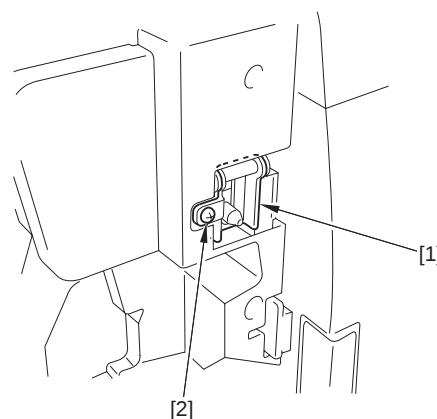
toward the front.



F-3-4

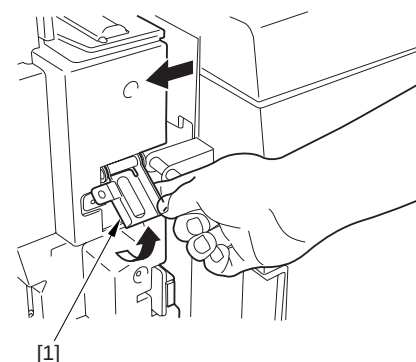
5) Open the front cover.

6) Remove the screw [2] from the latch base (front) [1].



F-3-5

7) While lifting the latch base (front) [1], disconnect the finisher from the host machine.



F-3-6

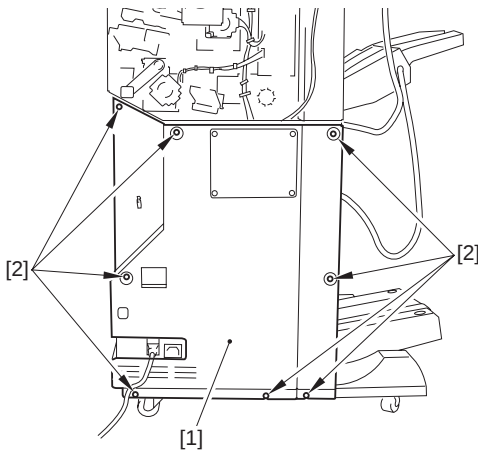
3.2 External Covers

3.2.1 Rear Lower Cover

3.2.1.1 Removing the Low Rear Cover

1) Remove the lower rear cover [1].

- 8 screws

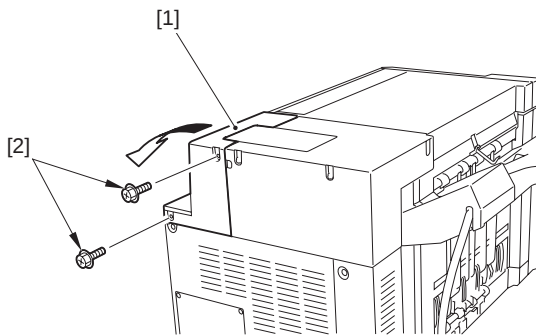


F-3-7

3.2.2 Rear Upper Cover

3.2.2.1 Removing the Upper Rear Cover (right)

- 1) Remove the upper rear cover (right) [1].
- 2 screws [2]



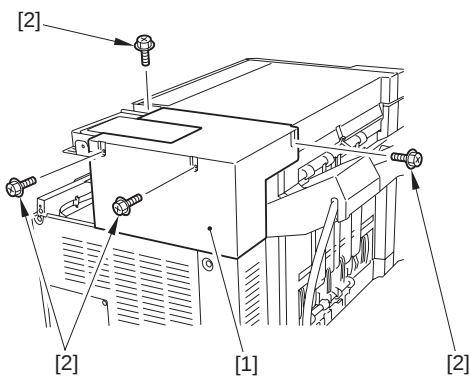
F-3-8

3.2.2.2 Before Removing the Upper Rear Cover (left)

- 1) Remove the upper rear cover (right). (page 3-2)Reference[Removing the Upper Rear Cover (right)]

3.2.2.3 Removing the Upper Rear Cover (left)

- 1) Remove the upper rear cover (left) [1].
- 4 screws [2]



F-3-9

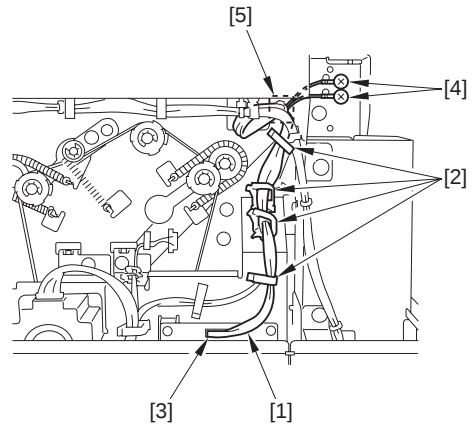
3.2.3 Upper Cover Unit

3.2.3.1 Before Removing the Upper Cover Unit

- 1) Remove the upper rear cover (right). (page 3-2)Reference[Removing the Upper Rear Cover (right)]
- 2) Remove the upper rear cover (left). (page 3-2)Reference[Removing the Upper Rear Cover (left)]
- 3) Remove the middle rear cover. (page 3-4)Reference[Removing the Middle Rear Cover]

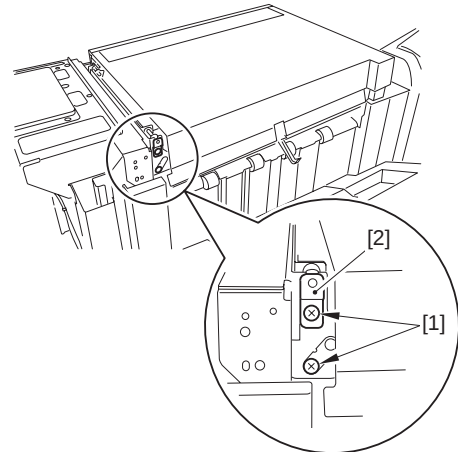
3.2.3.2 Removing the Upper Cover Unit

- 1) Disconnect the cable [1].
- 4 clamps [1]
- 1 connector [3]
- 2 screws [4]
- 1 edge saddle [5]



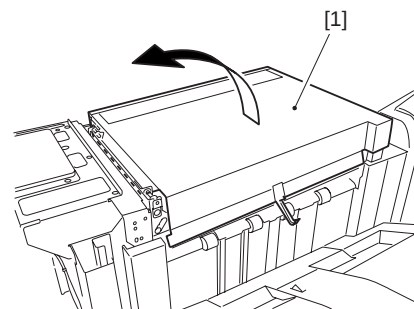
F-3-10

- 2) Open the front cover [1].
- 3) Remove the 2 screws [1], and detach the shaft retaining plate [2].



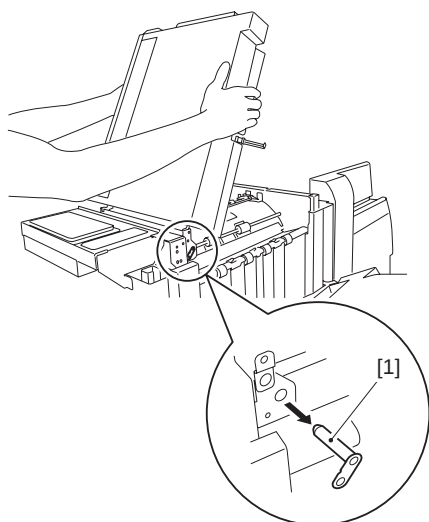
F-3-11

- 4) Open the upper cover unit [1].



F-3-12

- 5) Open the upper cover unit so that the damper shaft [1] becomes loose; then, detach it.

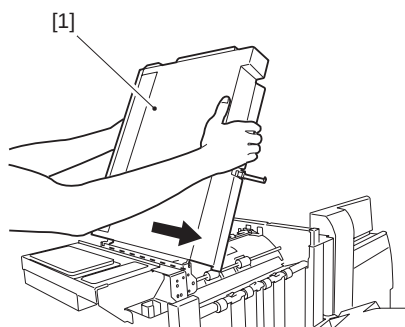


F-3-13

6) Slide the upper cover unit [1] in the direction of the arrow to detach.



Take care not to trap the cable.

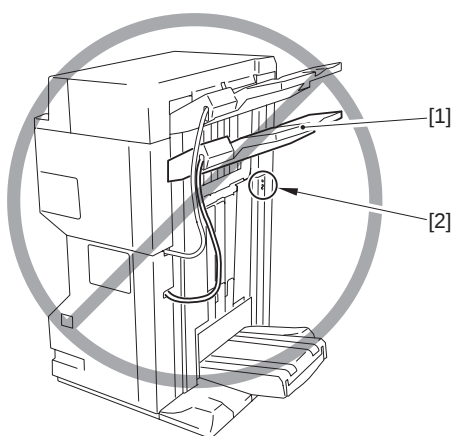


F-3-14

3.2.4 Delivery Tray

3.2.4.1 Position of the Tray B at Power-On

At power-on, the tray B [1] must never be above the tray B paper sensor [2], which will cause an error during detection of the tray B position.

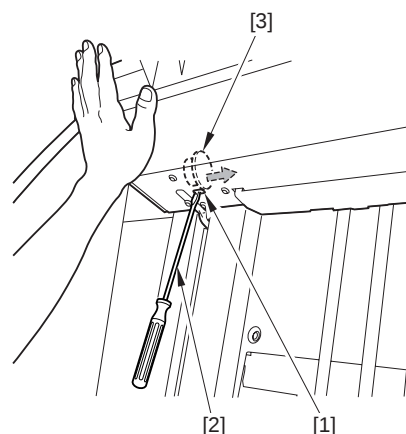


F-3-15

3.2.5 Stack Wall (Upper)

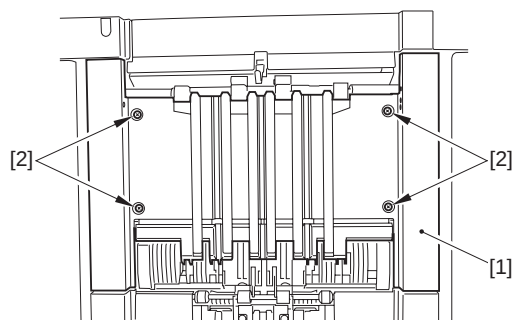
3.2.5.1 Removing the Stacking Wall (upper)

- 1) While supporting the tray from below, insert a screwdriver [2] in the hole [1] of the lower face to release the roll [3] in the direction of the arrow; then, lower the tray until it is free of the stacking wall (upper).



F-3-16

- 2) Remove the stacking wall (upper) [1].
- 4 screws [2]



F-3-17

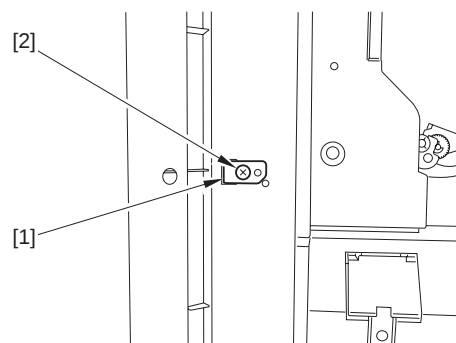
3.2.6 Stack Wall (Lower)

3.2.6.1 Before Removing the Stacking Wall (lower)

- 1) Remove the stacking wall (upper). (page 3-3) Reference[Removing the Stacking Wall (upper)]

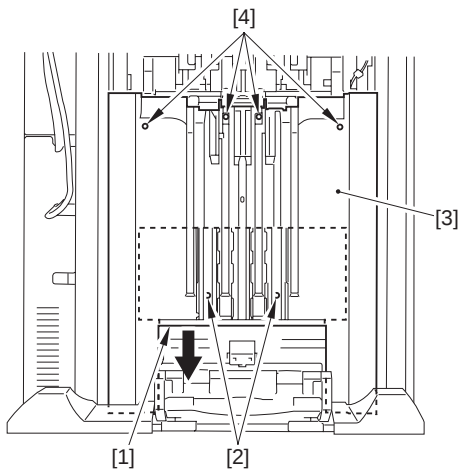
3.2.6.2 Removing the Stacking Wall (lower)

- 1) Open the front cover.
- 2) Remove the stopper (lower) [1].
- Screw [1]



F-3-18

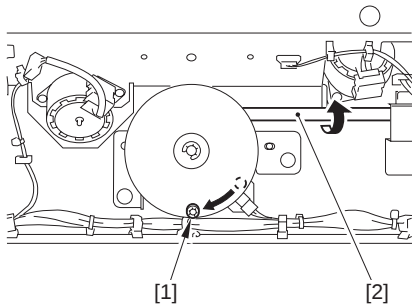
- 3) Move up the tray A and the tray B above the stacking wall (lower).
- 4) Lower the shutter [1], and remove the 2 screws [2].
- 5) Detach the stacking wall (lower) [3].
- Remove the 4 screws [4].



F-3-19

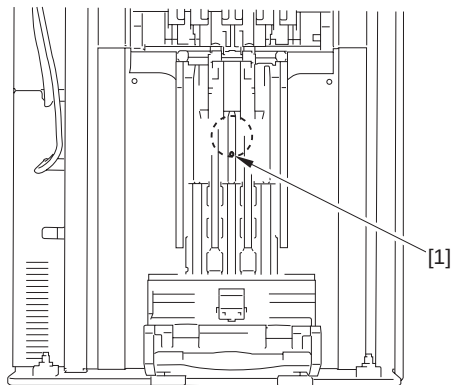
3.2.6.3 Mounting the Stacking Wall (lower)

- 1) Turn the shutter drive shaft [2] so that the shutter drive roll [1] is directly below.



F-3-20

- 2) Mount the stacking wall (lower) so that the shutter drive roll [1] is visible through the hole in the stacking wall.

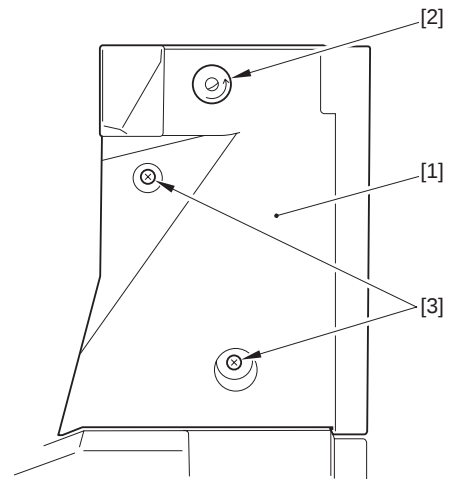


F-3-21

3.2.7 Saddle Inside Cover

3.2.7.1 Removing the Side Inside Cover (upper)

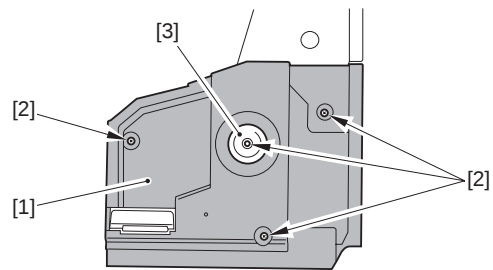
- 1) Open the front cover.
- 2) Remove the saddle inside cover (upper) [1].
- 2 knobs [2]
- 2 screws [3]



F-3-22

3.2.7.2 Removing the Saddle Inside Cover (lower)

- 1) Remove the front cover.
- 2) Remove the saddle inside cover (lower) [1].
- 4 screws [2]
- 1 knob [3]

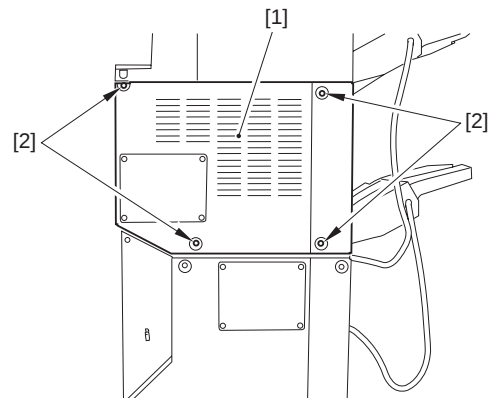


F-3-23

3.2.8 Rear Middle Cover

3.2.8.1 Removing the Middle Rear Cover

- 1) Remove the middle rear cover [1].
- 4 screws [2]



F-3-24

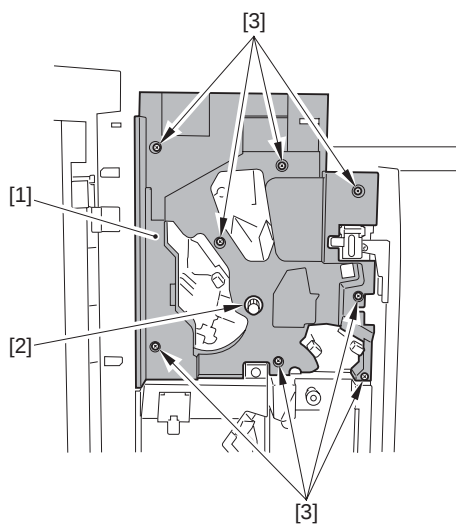
3.2.9 Inside Cover (Upper)

3.2.9.1 Before Removing the Inside Cover (upper)

- 1) Open the front cover.
- 2) Open the upper cover unit.

3.2.9.2 Removing the Inside Cover (upper)

- 1) Remove the inside cover (upper) [1].
- 1 knob [1]
- 8 screws [2]

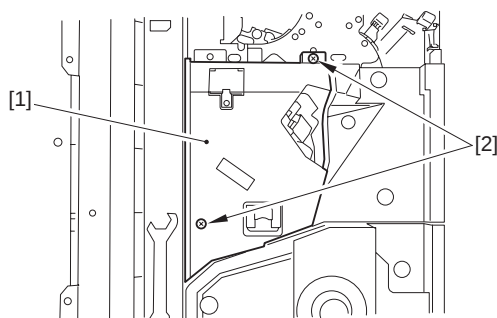


F-3-25

3.2.10 Inside Cover (Lower)

3.2.10.1 Removing the Inside Cover (lower)

- 1) Open the front cover.
- 2) Remove the inside cover (lower) [1].
- 2 screws [2]



F-3-26

3.3 Drive System

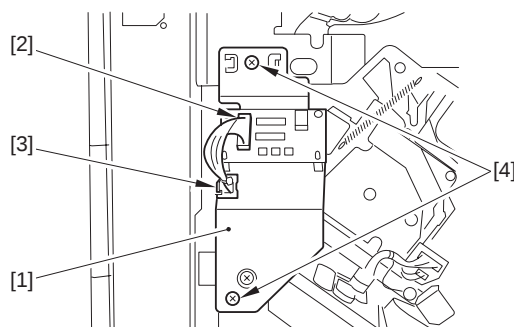
3.3.1 Staple Unit

3.3.1.1 Before Removing the Stapler

- 1) Open the front cover.
- 2) Open the upper cover unit.
- 3) Remove the inside cover (upper). (page 3-4) Reference [Removing the Inside Cover (upper)]
- 4) Remove the inside cover (lower). (page 3-5) Reference [Removing the Inside Cover (lower)]

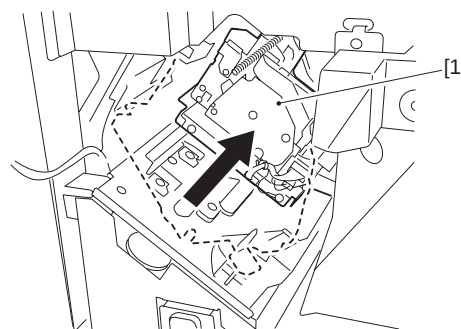
3.3.1.2 Removing the Stapler

- 1) Remove the switch PCB [1].
- 2 screws [2]
- 1 connector [3]
- 1 edge saddle [4]



F-3-27

- 2) Push in the stapler unit [1] until it is as shown.

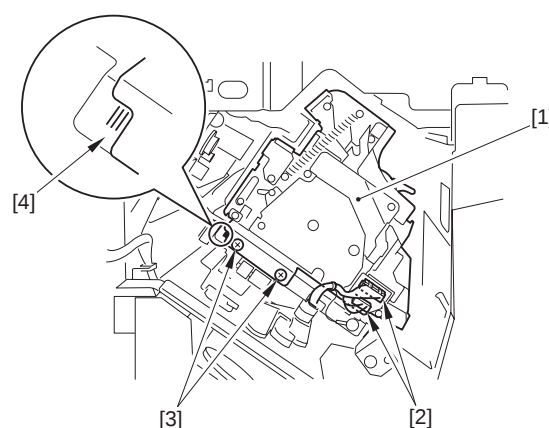


F-3-28

- 3) Remove the stapler unit [1].
- 1 connector [2]
- 2 screws [3]



Be sure to take note of the positioning index [4] before detaching the staple.

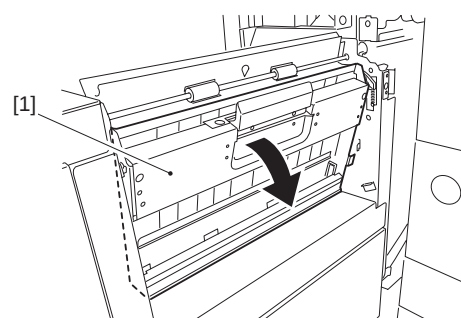


F-3-29

3.3.2 Saddle Staple Unit

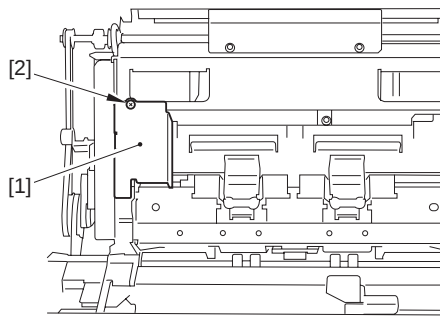
3.3.2.1 Removing the Saddle Stapler Unit

- 1) Open the front cover.
- 2) Slide out the saddle unit.
- 3) Open the saddle stack guide [1].



F-3-30

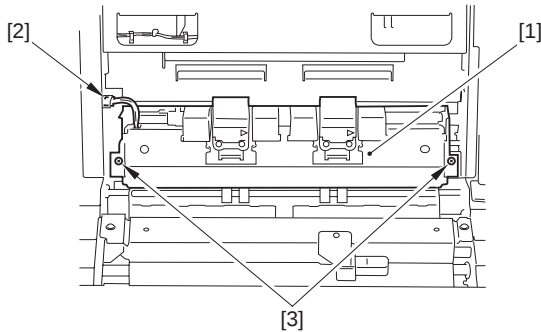
- 4) Remove the harness cover [1].
- 1 screw [2]



F-3-31

5) Remove the saddle stapler unit [1].

- 1 connector [2]
- 2 screws [3]



F-3-32

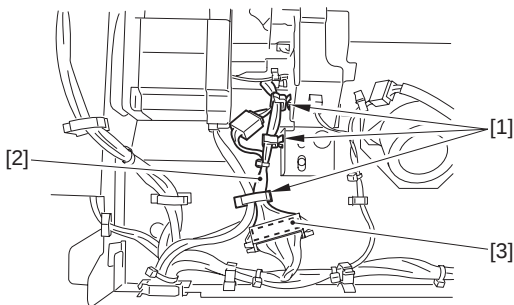
3.3.3 Front Alignment Motor

3.3.3.1 Before Removing the Alignment Motor (front)

- 1) Remove the stacking wall (upper). (page 3-3) Reference [Removing the Stacking Wall (upper)]
- 2) Remove the stacking wall (lower). (page 3-3) Reference [Removing the Stacking Wall (lower)]
- 3) Remove the handling tray unit. (page 3-14) Reference [Removing the Handling Tray Unit]

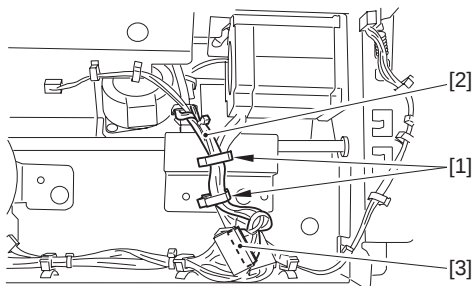
3.3.3.2 Removing the Alignment Motor (front)

- 1) Free the cable [2] from the 3 clamps [1], and disconnect the connector [3].



F-3-33

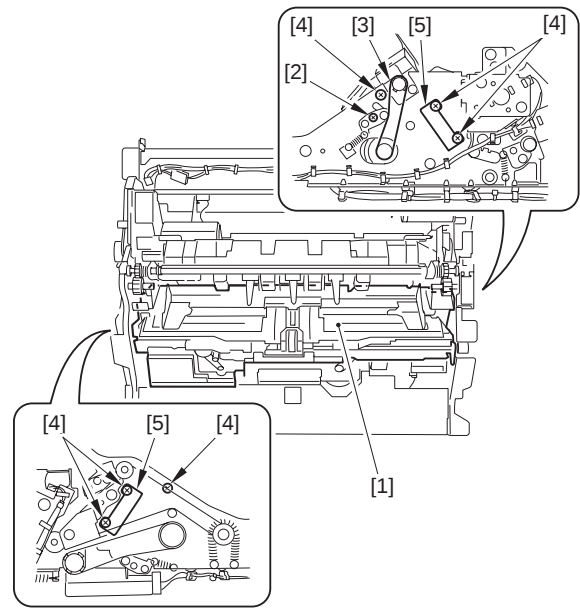
- 2) Free the cable [2] from the 2 clamps [1], and disconnect the connector [3].



F-3-34

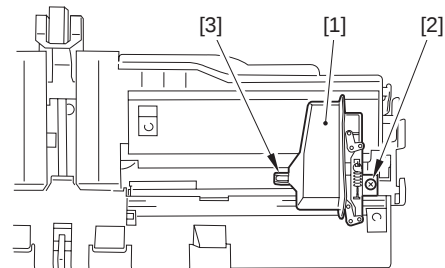
- 3) Remove the handling tray plate unit [1].
- 1 screw [2] (loosen)
- 1 belt [3]
- 6 screws [4]

- 2 positioning plates [5]



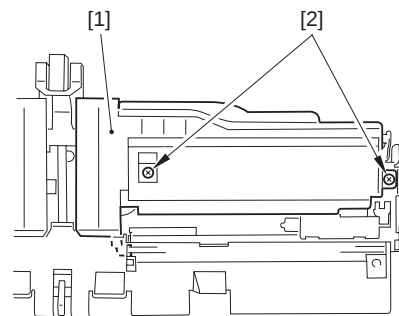
F-3-35

- 4) Shift the handling tray aligning plate (front) [1] in the direction of the arrow, and remove the screw [2] and the claw [3]; then, detach the handling tray aligning plate (front).



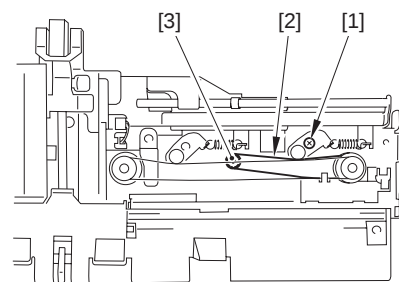
F-3-36

- 5) Remove the handling tray (front) [1].
- 2 screws [2]



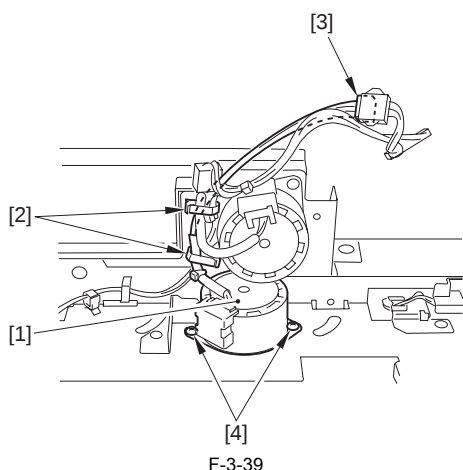
F-3-37

- 6) Loosen the screw [1], and free the belt [2] from the gear [3].



F-3-38

- 7) Remove the aligning motor (front) [1].
- 2 clamps [2]
- 1 connector [3]
- 2 screws [4]



F-3-39

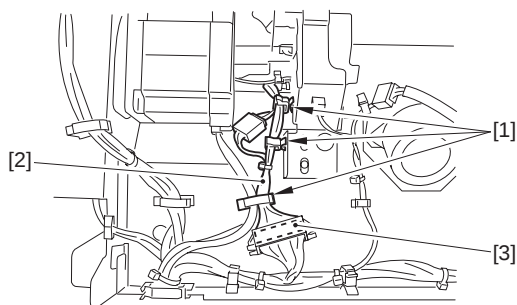
3.3.4 Rear Alignment Motor

3.3.4.1 Before Removing the Alignment Motor (rear)

- 1) Remove the stacking wall (upper). (page 3-3) Reference [Removing the Stacking Wall (upper)]
- 2) Remove the stacking wall (lower). (page 3-3) Reference [Removing the Stacking Wall (lower)]
- 3) Remove the handling tray unit. (page 3-14) Reference [Removing the Handling Tray Unit]

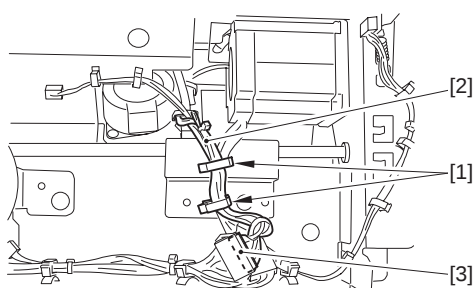
3.3.4.2 Removing the Alignment Motor (rear)

- 1) Free the cable [2] from the 3 clamps, and disconnect the connector [3].



F-3-40

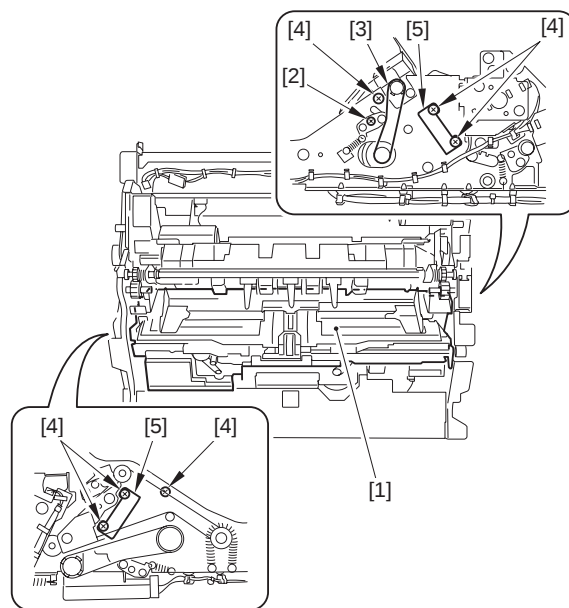
- 2) Free the cable [2] connected to the 2 clamps [1], and disconnect the connector [3].



F-3-41

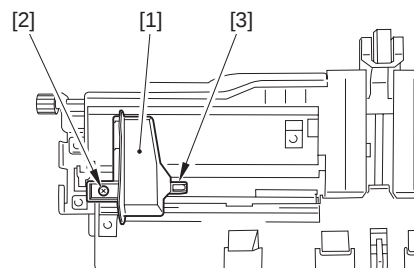
- 3) Remove the handling plate unit [1].

- 1 screw [2] (loosen)
- 1 screw [3]
- 6 screws [4]
- 2 positioning plates [5]



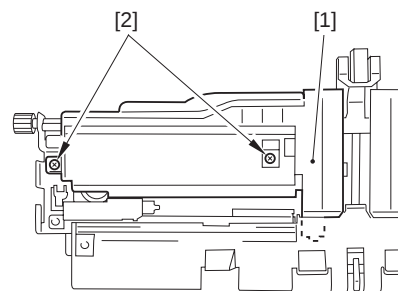
F-3-42

- 4) Shift the handling tray aligning plate (rear) [1] in the direction of the arrow, and remove the screw [2] and the claw [3]; then, detach the handling tray aligning plate (rear).



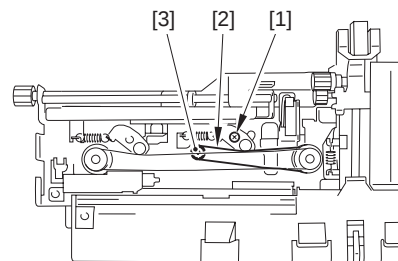
F-3-43

- 5) Remove the handling tray (front) [1].
- 2 screws [2]



F-3-44

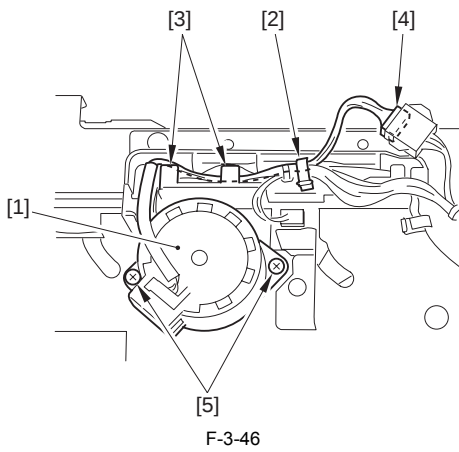
- 6) Loosen the screw [1], and free the belt [2] from the gear [3].



F-3-45

- 7) Remove the alignment motor (rear) [1].

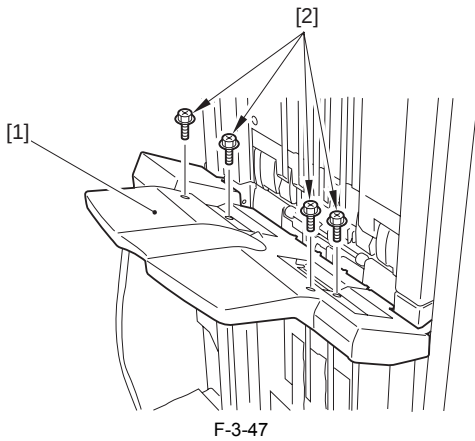
- 1 clamp [2]
- 2 cable guides [3]
- 1 connector [4]
- 2 screws [5]



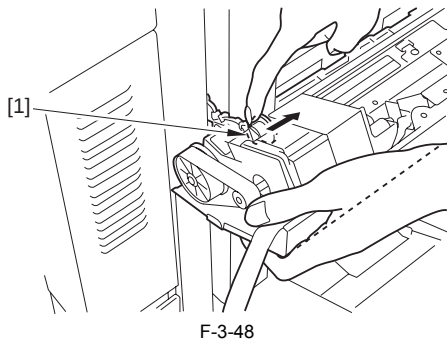
3.3.5 Tray Shift Motor

3.3.5.1 Removing the Tray A/B Lift Motor

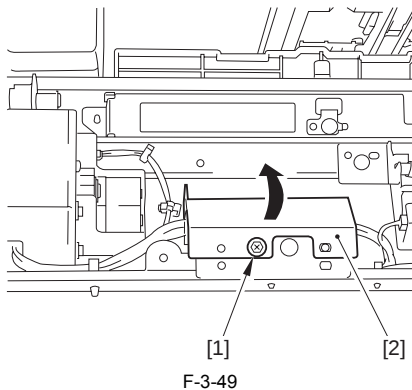
- 1) Remove the tray A/B cover [1].
- 4 screws [2]



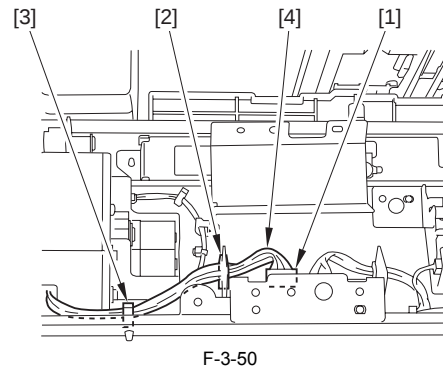
- 2) While supporting the tray from below, release the roll [1] in the direction of the arrow; then, move it down until it stops.



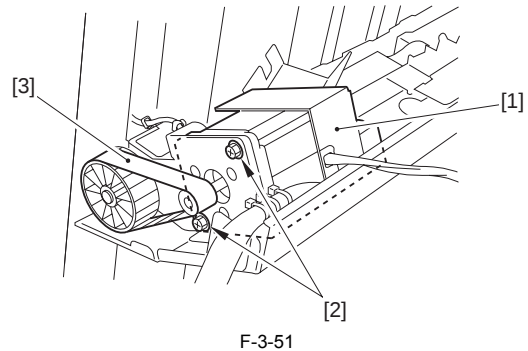
- 3) Remove the screw [1], and open the connector cover [2] in the direction of the arrow.



- 4) Disconnect the connector [1], and free the cable [4] from the edge saddle [2] and the wire saddle [3].



- 5) Remove the tray A/B lift motor.
- 2 screws [2]
- 1 belt [3]



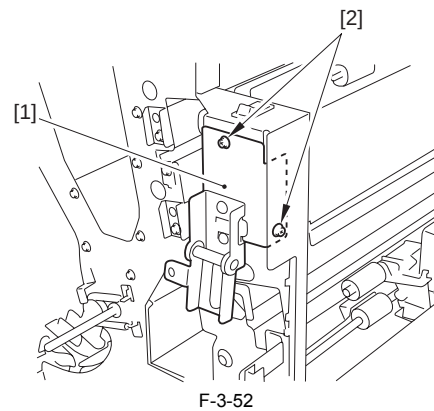
3.3.6 Shift Motor

3.3.6.1 Before Removing the Shift Motor

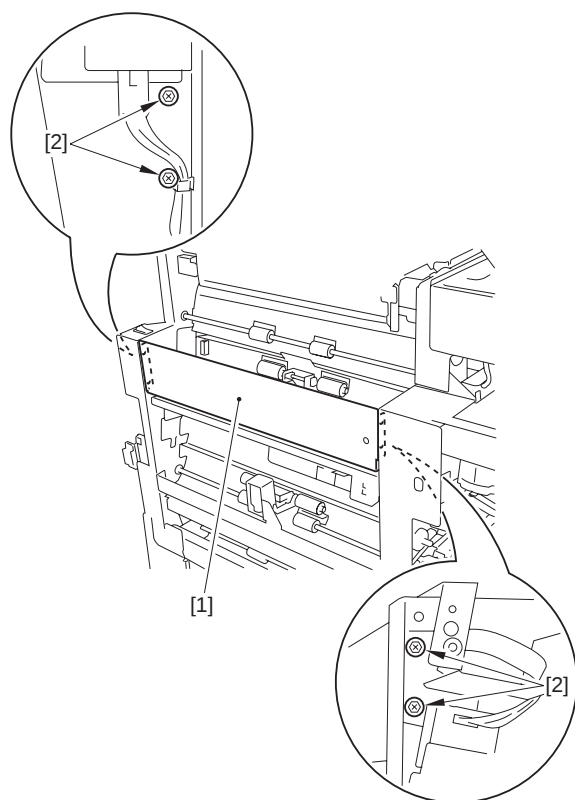
- 1) Disconnect the machine from the host machine side.
- 2) Remove the upper rear cover (right). (page 3-2) Reference[Removing the Upper Rear Cover (right)]
- 3) Remove the upper rear cover (left). (page 3-2) Reference[Removing the Upper Rear Cover (left)]
- 4) Remove the middle rear cover. (page 3-4) Reference[Removing the Middle Rear Cover]
- 5) Remove the upper cover unit. (page 3-2) Reference[Removing the Upper Cover Unit]
- 6) Remove the inside cover (upper). (page 3-4) Reference[Removing the Inside Cover (upper)]

3.3.6.2 Removing the Shift Motor

- 1) Remove the latch base support plate [1].
- 2 screws [2]

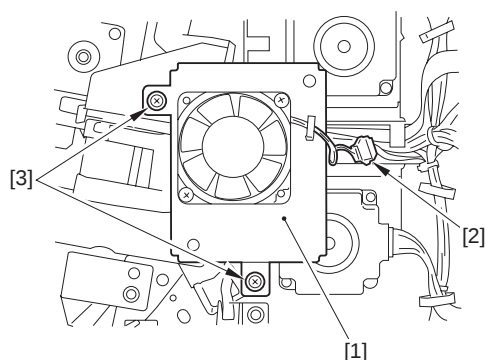


- 2) Remove the transport stay (upper right) [1].
- 4 screws [2]



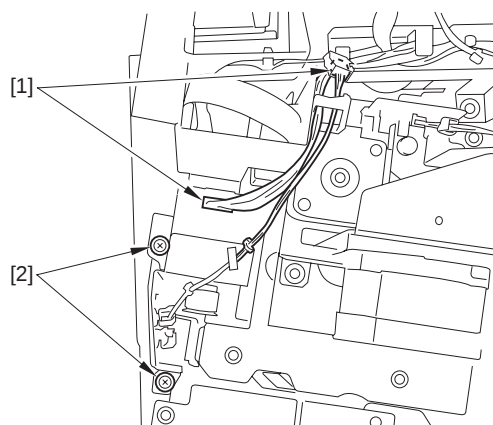
F-3-53

- 3) Remove the fan unit [1].
 - 1 connector [2]
 - 2 screws [3]



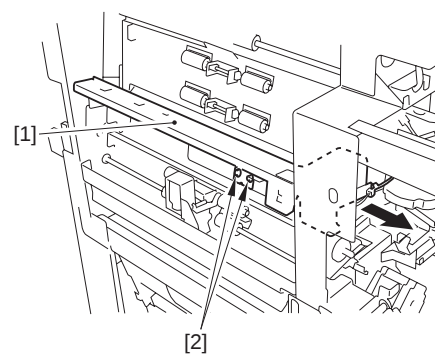
F-3-54

- 4) Disconnect the 2 connectors [1], and remove the 2 screws [2].



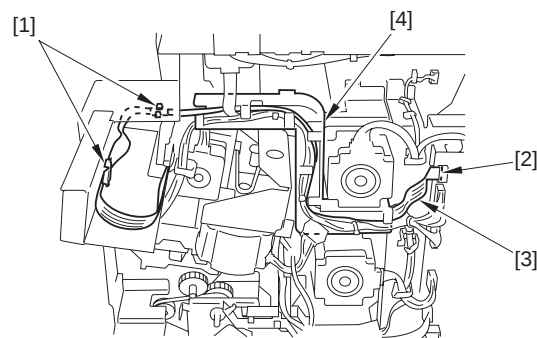
F-3-55

- 5) Remove the detection drive assembly [1].
 - 2 screws [2]



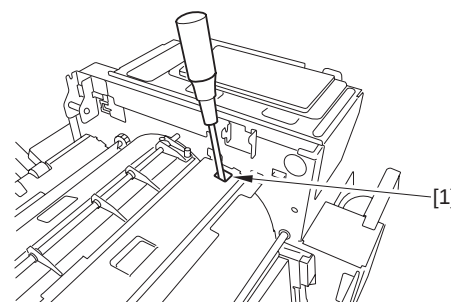
F-3-56

- 6) Remove the cable retainer [1], and disconnect the connector [2]; then, free the cable [3] from the cable guide [4].



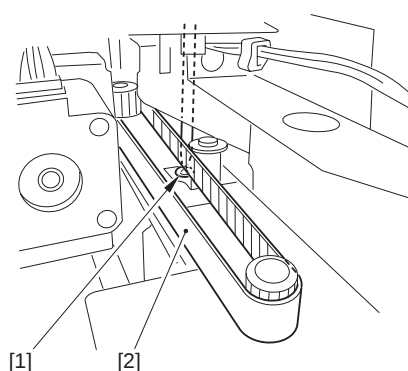
F-3-57

- 7) Insert a screwdriver [1] into the hole [1].



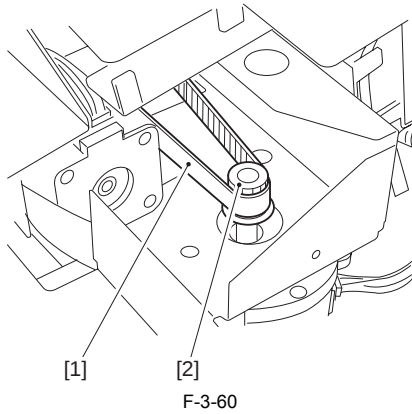
F-3-58

- 8) Loosen the screw [1], and tighten the screw while the tension is removed.

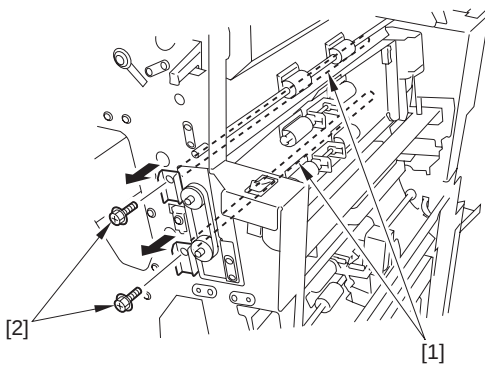


F-3-59

- 9) Detach the belt [1] from the gear [2].



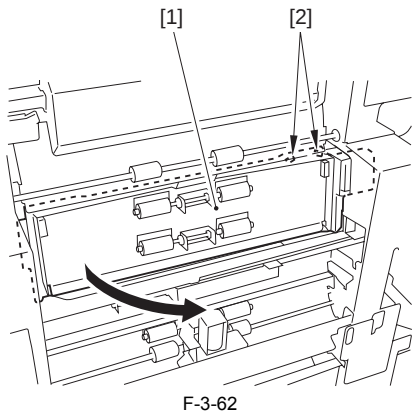
- 10) Remove the 2 slide shafts [1] in the direction of the arrow.
- 2 screws [2]



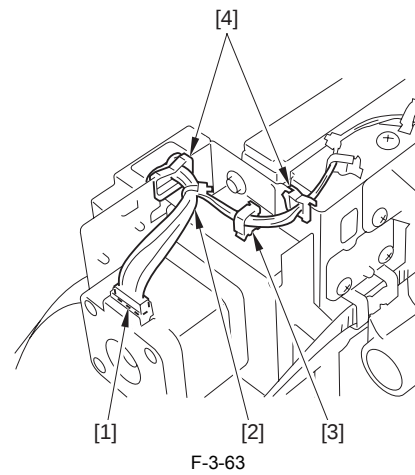
- 11) Detach the shift assembly [1] in the direction of the arrow.



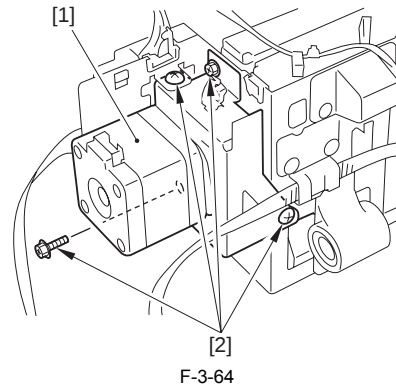
When detaching the shift assembly, take care not to hit the clamp [2].



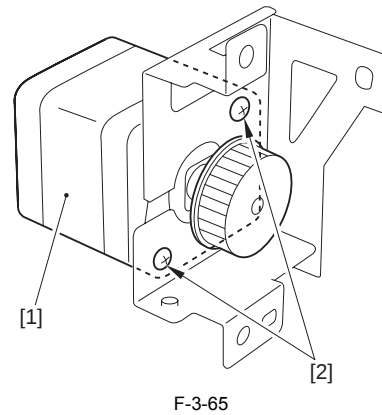
- 12) Disconnect the connector [1], and free the cable [2] from the clamp [3] and the 2 edge saddles [4].



- 13) Remove the shift motor unit [1].
- 3 screws [2]



- 14) Remove the shift motor [1].
- 2 screws [2]



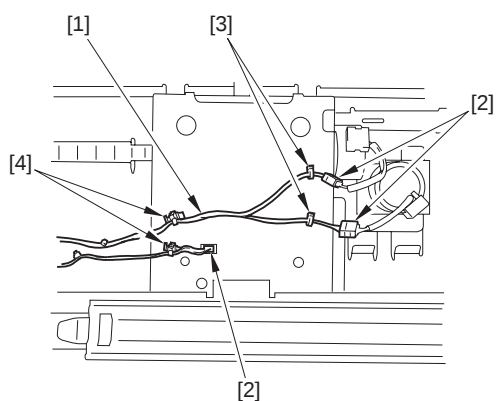
3.3.7 Positioning Plate Unit

3.3.7.1 Before Removing the Positioning Plate Unit

- 1) Remove the stop unit. (page 3-22) Reference[Removing the Stop Unit]

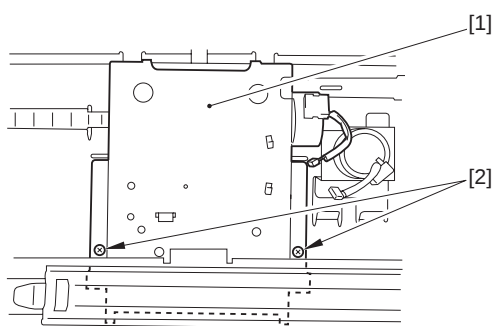
3.3.7.2 Removing the Positioning Plate Unit

- 1) Disconnect the cable [1].
- 3 connectors [2]
- 2 clamps [3]
- 2 reuse band [4]



F-3-66

- 2) Remove the positioning plate unit [1].
- 2 screws [2]



F-3-67

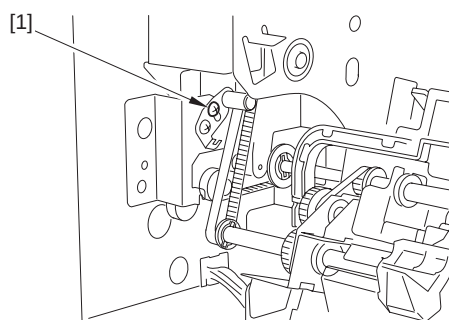
3.3.8 Belt Controller Unit

3.3.8.1 Before Removing the Belt Controller Unit

- 1) Remove the stacking wall (upper). (page 3-3) Reference[Removing the Stacking Wall (upper)]
- 2) Remove the stacking wall (lower). (page 3-3) Reference[Removing the Stacking Wall (lower)]
- 3) Remove the handling tray unit. (page 3-14) Reference[Removing the Handling Tray Unit]
- 4) Remove the middle rear cover. (page 3-4) Reference[Removing the Middle Rear Cover]

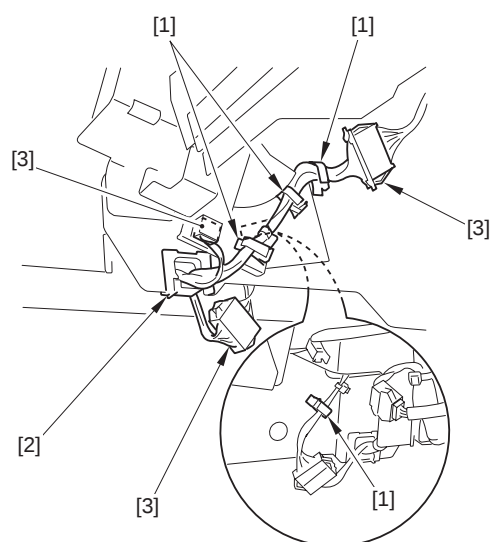
3.3.8.2 Removing the Belt Controller Unit

- 1) Loosen the screw [1].



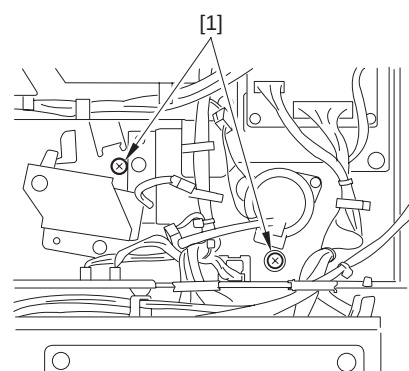
F-3-68

- 2) Free the cable from the 4 clamps [1] and the edge saddle [2]; then, disconnect the 3 connectors [3].



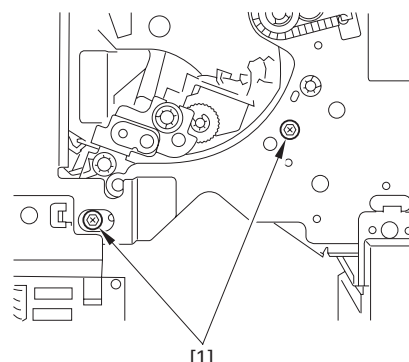
F-3-69

- 3) Remove the 2 screws [1] found at the rear of the machine.



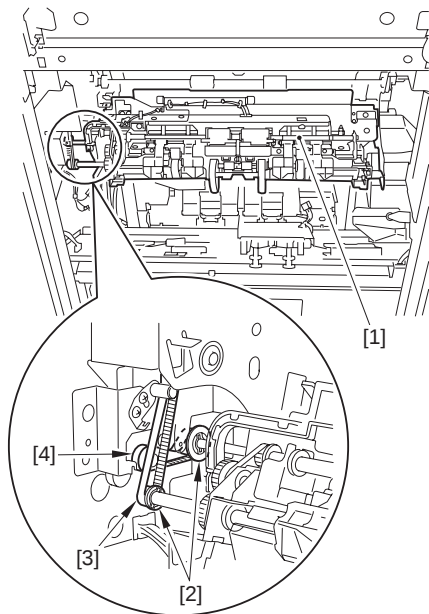
F-3-70

- 4) Remove the 2 screws [1] found at the front of the machine.



F-3-71

- 5) While removing the handling tray upper guide unit [1], detach the belt [3] [4] from the 2 gears.

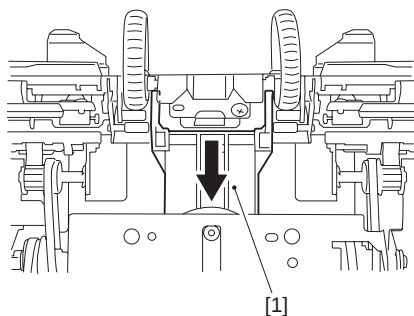


F-3-72



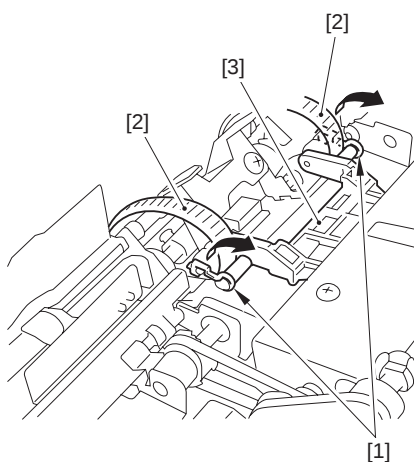
The belt [4] tends to slip off. Take care not to lose it.

6) Shift the belt variable lever [1] in the direction of the arrow.



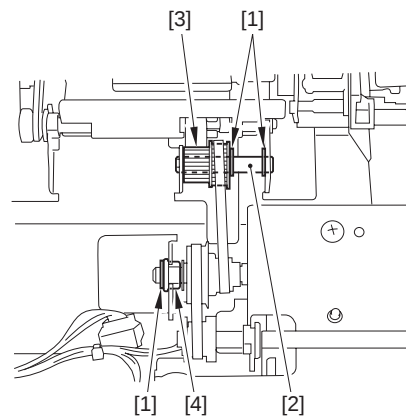
F-3-73

7) Release the 2 roll guides [1] in the direction of the arrow, and detach the 2 belts [2] from the belt variable lever [3].



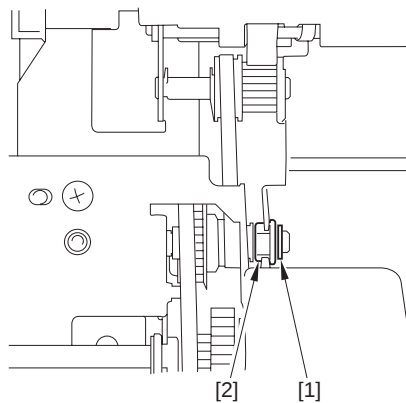
F-3-74

8) Remove the 3 E-rings [1], shift [2], and bushing [4].



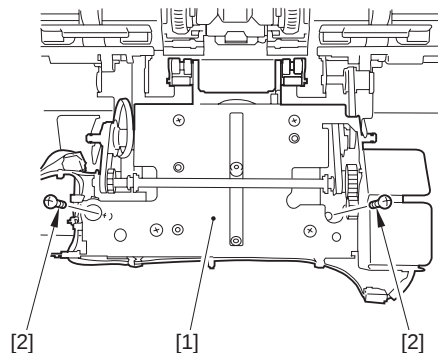
F-3-75

9) Remove the E-ring [1] and the bushing [2].



F-3-76

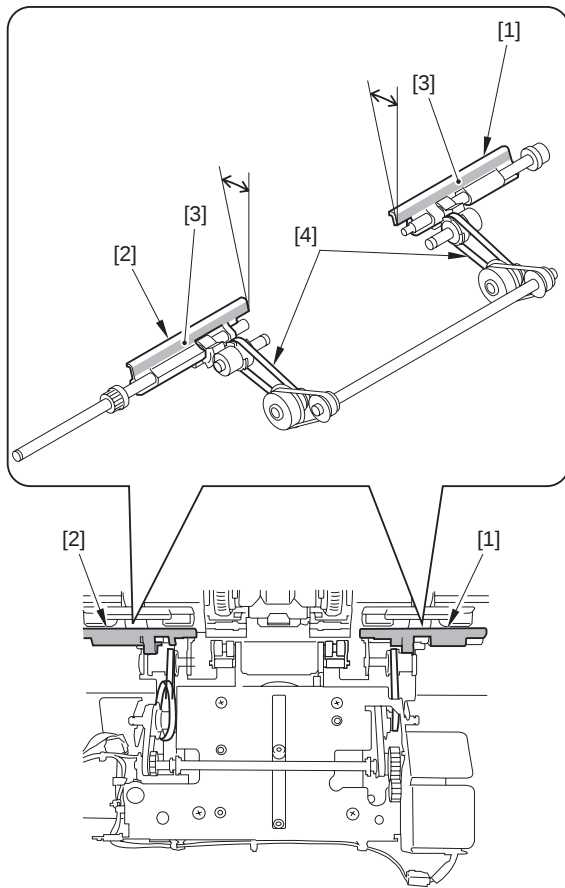
10) Remove the belt controller unit [1].
- 2 screws [2]



F-3-77



Unite the guide side [3] of a guide lever (before) [1] and a guide lever (after) [2]. After that, it is a belt [4]. Two pieces are attached.



F-3-78

3.4 Document Feeding System

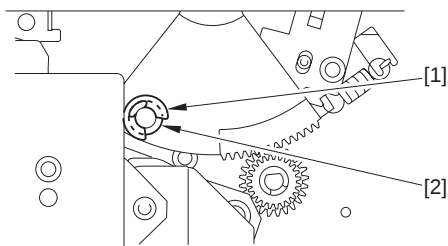
3.4.1 Engaging Roller

3.4.1.1 Before Removing the Shift Roller

- 1) Remove the saddle stapler unit. (page 3-5) Reference [Removing the Saddle Stapler Unit]
- 2) Remove the saddle inside cover (lower). (page 3-4) Reference [Removing the Saddle Inside Cover (lower)]

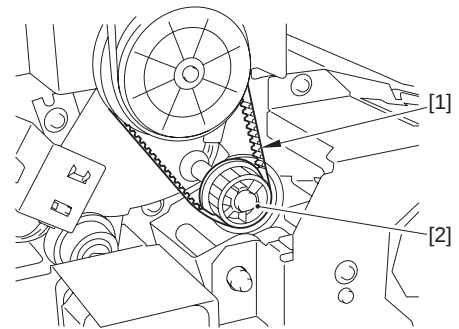
3.4.1.2 Removing the Shift Roller

- 1) Remove the resin ring [1] and the ball bearing [2].



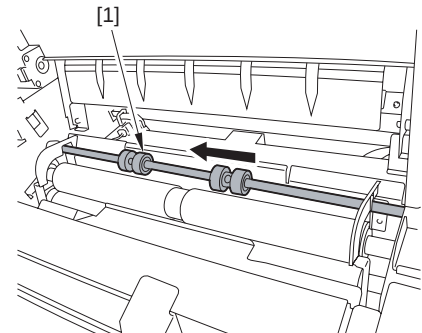
F-3-79

- 2) Detach the belt [1] found at the rear of the saddle assembly from the gear [2].



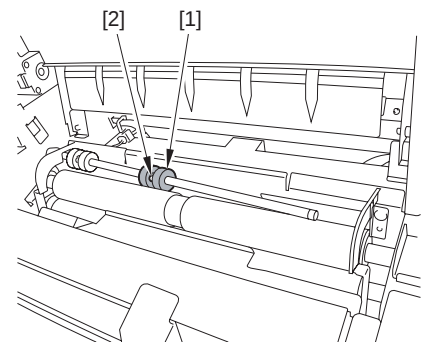
F-3-80

- 3) While releasing the claw [1], remove the gear [2], E-ring [3], and ball bearing [4].



F-3-81

- 4) Remove the separation roller shaft [1] in the direction of the arrow.
- Screw [2]



F-3-82

- 5) Remove the separation roller (front) [1] in the direction of the arrow.

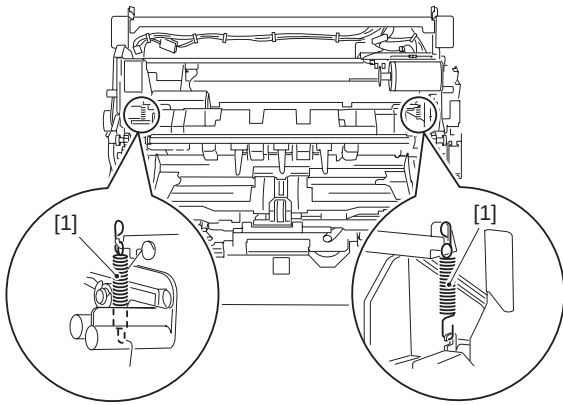
3.4.2 Stack Delivery Roller

3.4.2.1 Before Removing the Stack Delivery Upper Roller

- 1) Remove the stacking wall (upper). (page 3-4) Reference [Removing the Side Inside Cover (upper)]
- 2) Remove the stacking wall (lower). (page 3-3) Reference [Removing the Stacking Wall (lower)]
- 3) Remove the handling tray unit. (page 3-14) Reference [Removing the Handling Tray Unit]

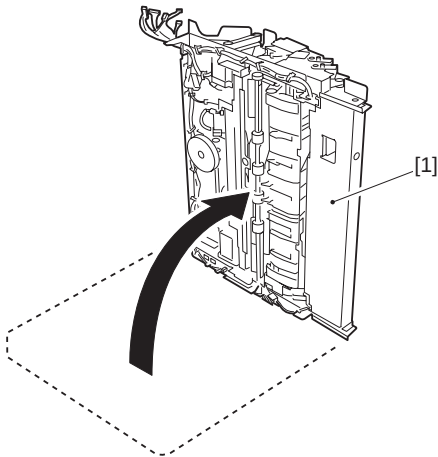
3.4.2.2 Removing the Stack Delivery Upper Roller

- 1) Remove the tension springs [1].



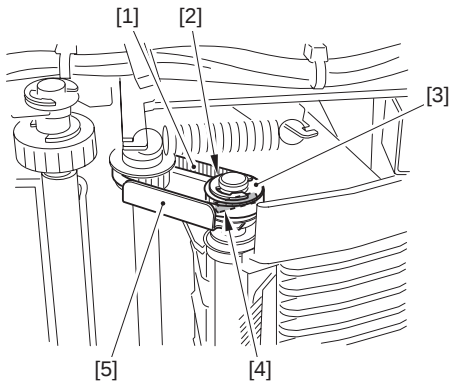
F-3-83

2) Orient the handling tray unit [1] as shown.



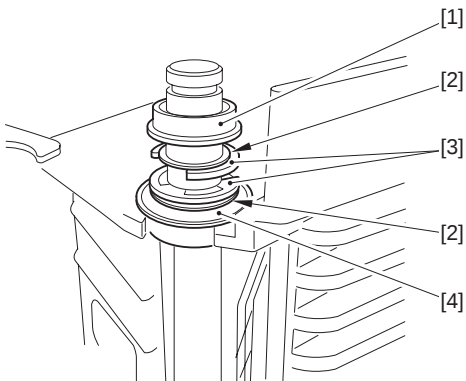
F-3-84

3) Remove the belt [1], E-ring [2], gear [3], parallel pin [4], and plate [5].



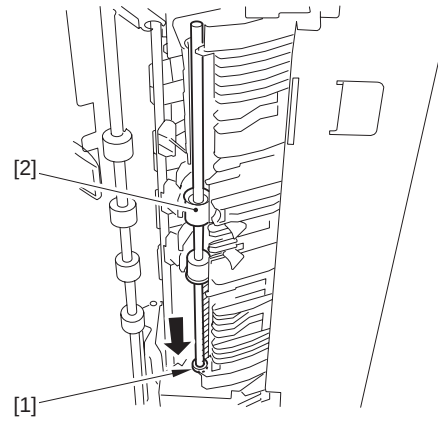
F-3-85

4) Remove the ball bearing [1], washer [2], E-ring [3], and ball bearing [4].



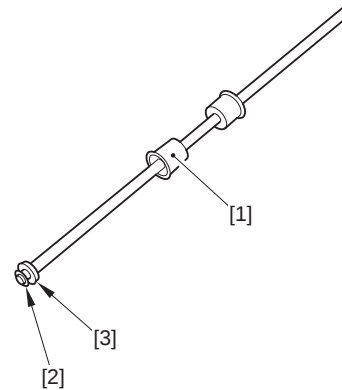
F-3-86

5) Remove the ball bearing [1] in downward direction, detaching the delivery roller [2] at the same time.



F-3-87

6) Detach the E-ring [2] and the ball bearing [3] from the stack delivery roller [1].



F-3-88

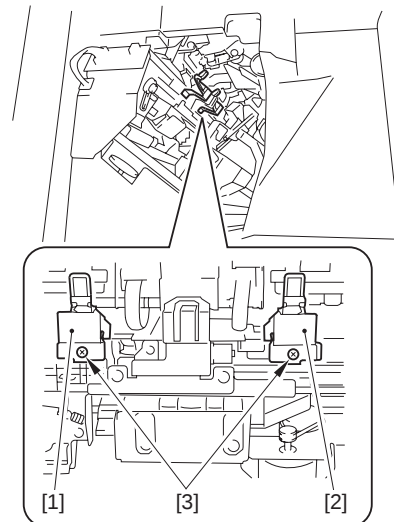
3.4.3 Process Tray Assembly

3.4.3.1 Before Removing the Handling Tray Unit

- 1) Remove the stacking wall (upper). (page 3-3) Reference[Removing the Stacking Wall (upper)]
- 2) Remove the stacking wall (lower). (page 3-3) Reference[Removing the Stacking Wall (lower)]

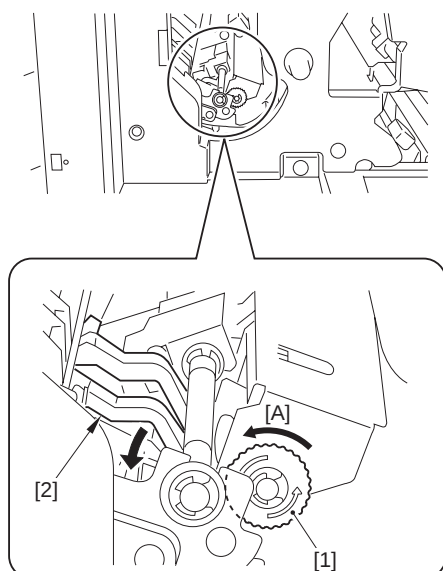
3.4.3.2 Removing the Handling Tray Unit

- 1) Remove the handling bin (front) [1] and the handling bin (rear) [2]. - 2 screws [3]



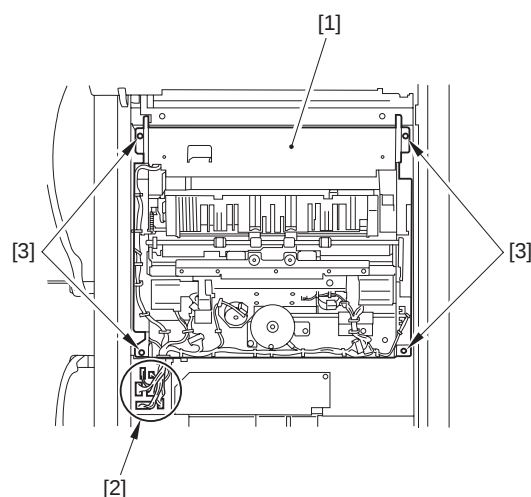
F-3-89

- 2) Turn the knob [1] clockwise so that the rear edge drop guide [2] is at its lowest position.



F-3-90

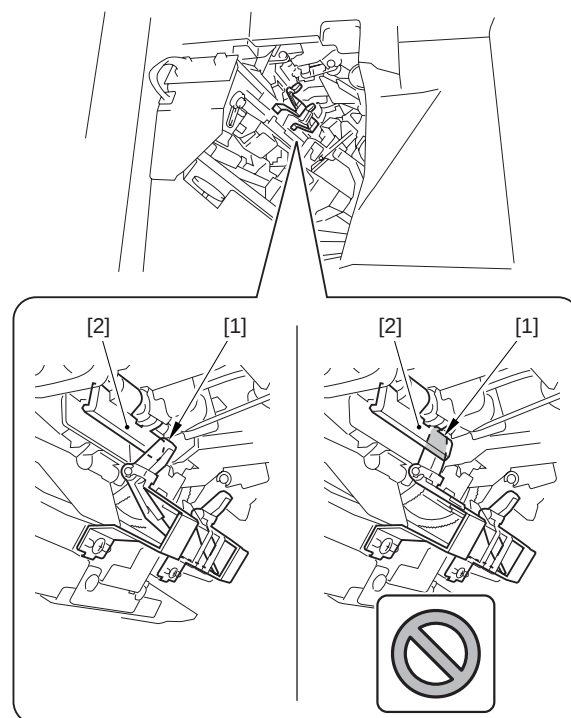
- 3) Remove the handling tray unit [1].
 - 6 connectors [2]
 - 4 screws [3]



F-3-91



A guide [2] is attached so that it may not run aground on a lever [1].



F-3-92

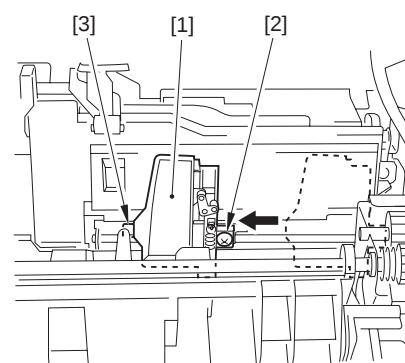
3.4.4 Process Tray

3.4.4.1 Before Removing the Handling Tray (front/rear)

- 1) Remove the stacking wall (upper). (page 3-3) Reference[Removing the Stacking Wall (upper)]
- 2) Remove the stacking wall (lower). (page 3-3) Reference[Removing the Stacking Wall (lower)]
- 3) Remove the handling tray unit. (page 3-14) Reference[Removing the Handling Tray Unit]

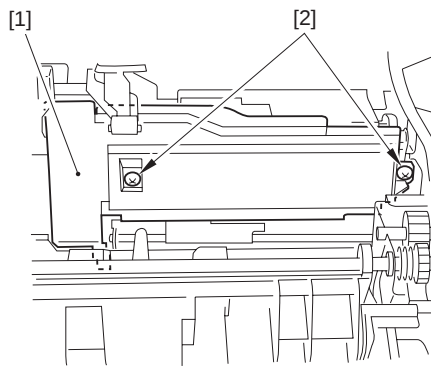
3.4.4.2 Removing the Handling Tray (front)

- 1) Shift the handling tray aligning plate (front) [1] in the direction of the arrow; then, remove the screw [2] and the claw [3] to detach the handling tray aligning plate (front).



F-3-93

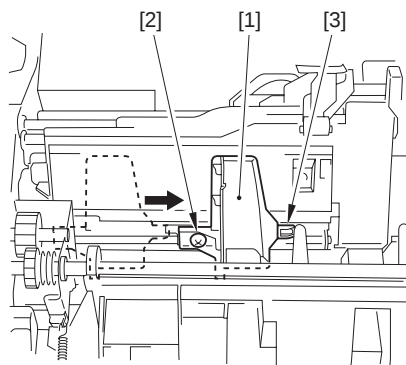
- 2) Remove the handling tray (front) [1].
 - 2 screws [2]



F-3-94

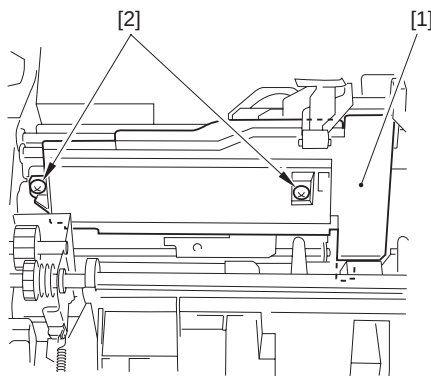
3.4.4.3 Removing the Handling Tray (rear)

- 1) Shift the handling tray aligning plate (rear) [1] in the direction of the arrow; then, remove the screw [2] and the claw [3] to detach the handling tray aligning plate (rear).



F-3-95

- 2) Remove the handling tray (rear) [1].
- 2 screws [2]



F-3-96

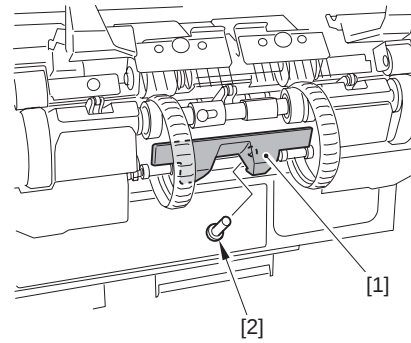
3.4.5 Feed Belt

3.4.5.1 Before Removing the Transport Belt

- 1) Remove the stacking wall (upper).
- 2) Remove the stacking plate (lower). (page 3-3) Reference [Removing the Stacking Wall (lower)]
- 3) Remove the handling tray unit. (page 3-14) Reference [Removing the Handling Tray Unit]

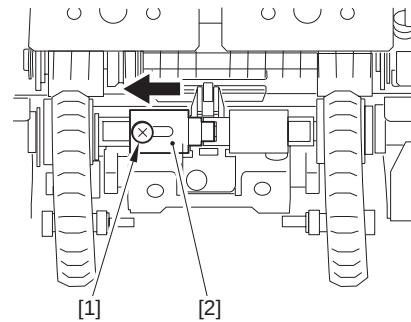
3.4.5.2 Removing the Transport Belt

- 1) Remove the protective cover [1].
- 1 screw [2]



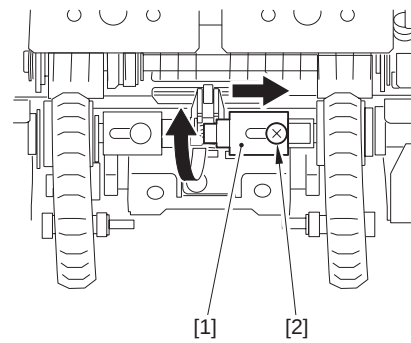
F-3-97

- 2) Loosen the screw [1], and shift the coupling (rear) [2] to the left.



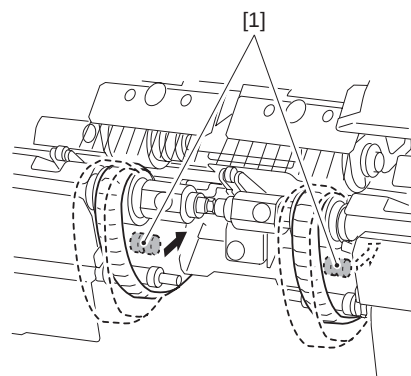
F-3-98

- 3) Turn the coupling (front) [1] so that the screw is at the front; then, loosen the screw, and shift the coupling (front) to the right.



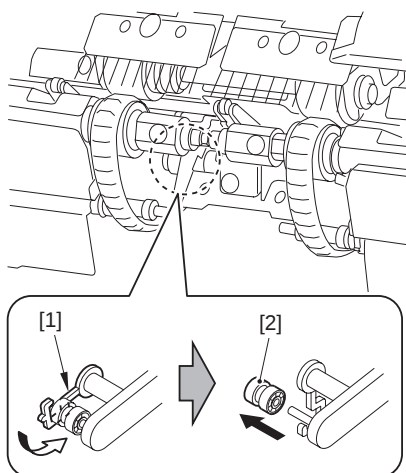
F-3-99

- 4) Shift the transport belt release unit [1] toward the rear so that the transport belt is not engaged.



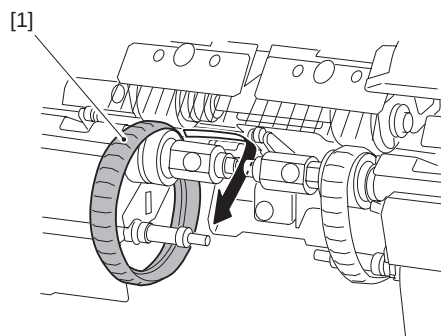
F-3-100

- 5) Release the roll guide [1], and detach the transport roll [2] from the shaft together with the belt.



F-3-101

6) Detach the transport belt (rear) [1] by moving it through the coupling.



F-3-102

7) If the transport belt at the front must be detached, perform steps 8) and 9) at the front.

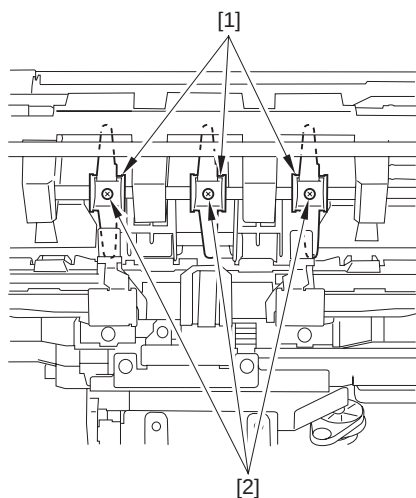
3.4.6 Paddle Unit

3.4.6.1 Before Removing the Paddle Unit

- 1) Remove the stacking plate (upper). (page 3-3) Reference[Removing the Stacking Wall (upper)]
- 2) Remove the stacking plate (lower). (page 3-3) Reference[Removing the Stacking Wall (lower)]
- 3) Remove the handling tray unit. (page 3-14) Reference[Removing the Handling Tray Unit]

3.4.6.2 Removing the Paddle Unit

- 1) Remove the 3 paddle units [1].
- 3 screws [2]



F-3-103

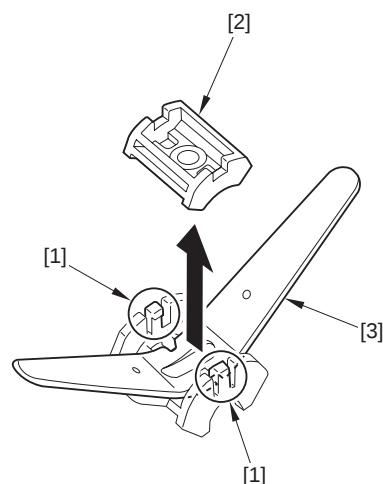
3.4.7 Paddle

3.4.7.1 Before Removing the Paddle

- 1) Remove the stacking plate (upper). (page 3-3) Reference[Removing the Stacking Wall (upper)]
- 2) Remove the stacking plate (lower). (page 3-3) Reference[Removing the Stacking Wall (lower)]
- 3) Remove the handling tray unit. (page 3-14) Reference[Removing the Handling Tray Unit]
- 4) Remove the paddle unit. (page 3-17) Reference[Before Removing the Paddle Unit]

3.4.7.2 Removing the Paddle

- 1) Release the 2 claws [1], and detach the paddle retaining roll [2] to detach the paddle [3].



F-3-104

3.4.8 Tray Unit

3.4.8.1 Before Removing the Tray A/B Unit

- 1) Remove the upper rear cover (right). (page 3-2) Reference[Removing the Upper Rear Cover (right)]
- 2) Remove the upper rear cover (left). (page 3-2) Reference[Removing the Upper Rear Cover (left)]
- 3) Open the front cover.
- 4) Open the upper cover unit.

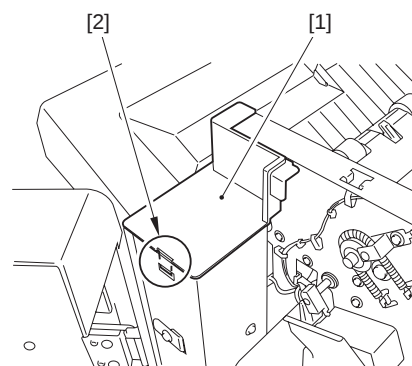
3.4.8.2 Removing the Tray A/B Unit

MEMO:

If the tray B unit must be removed, remove the tray A unit first.

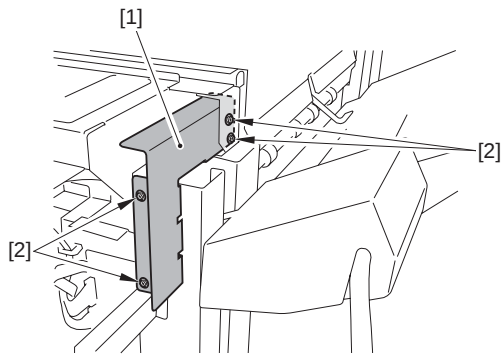
1. Removing the Tray A Unit

- 1) Remove the support cover [1].
- claw [2]



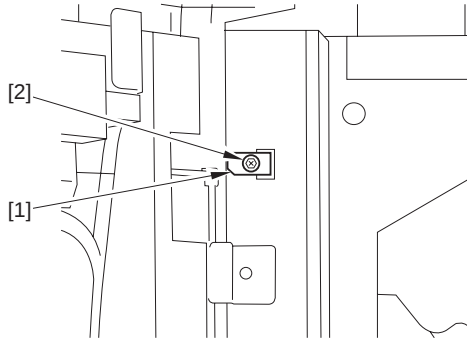
F-3-105

- 2) Remove the support plate [1].
- 4 screws [2]



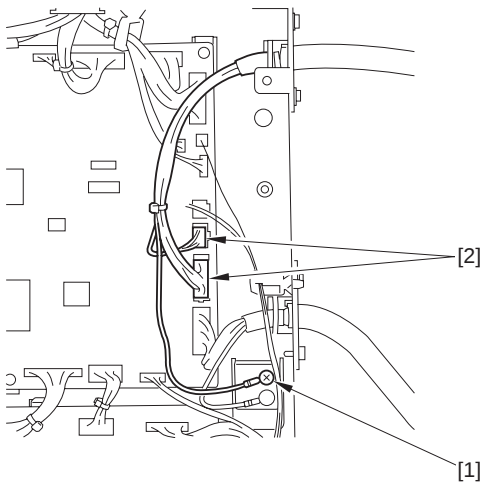
F-3-106

- 3) Remove the stopper [1]
- screw [2]



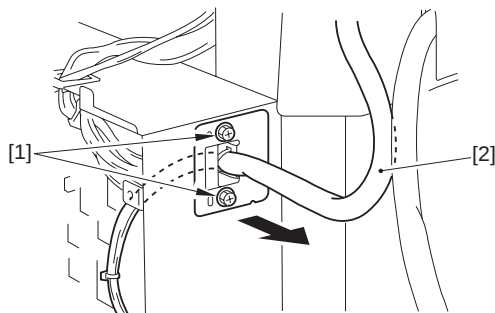
F-3-107

- 4) Remove the screw [1], and disconnect the 2 connectors [2].



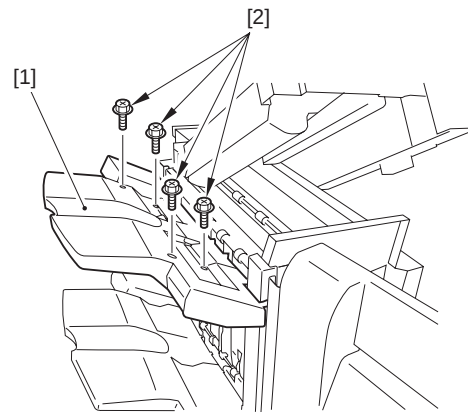
F-3-108

- 5) Remove the 2 screws [1], and lead out the cable [2] in the direction of the arrow.



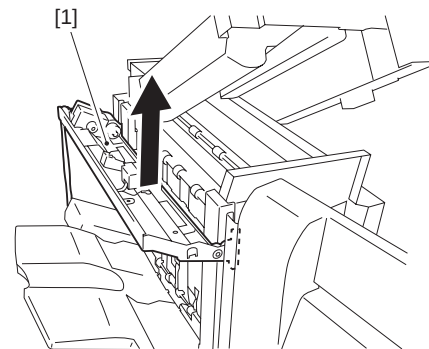
F-3-109

- 6) Remove the tray A cover [1]
- 4 screws [2]



F-3-110

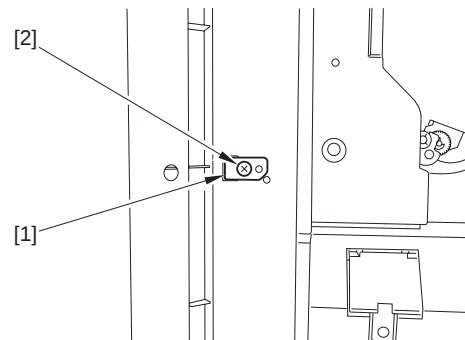
- 7) Lift the tray A unit [1] to detach.



F-3-111

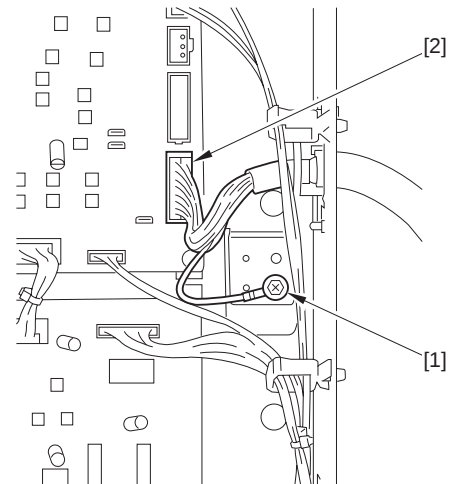
2. Removing the Tray B Unit

- 1) Remove the stopper (lower) [1].
- 1 screw [2]



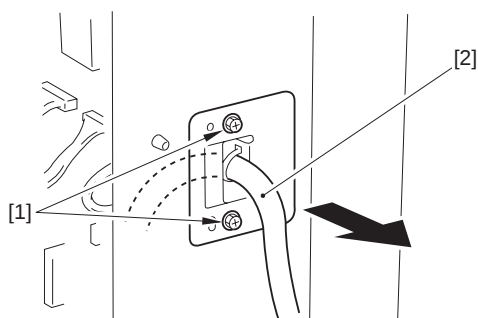
F-3-112

- 2) Remove the screw [1], and disconnect the connector [2].



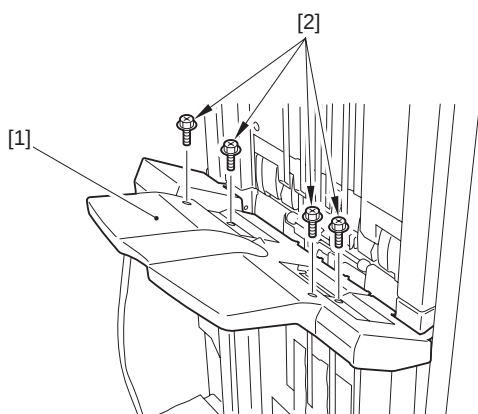
F-3-113

- 3) Remove the 2 screws [1], and lead out the cable [2] in the direction of the arrow.



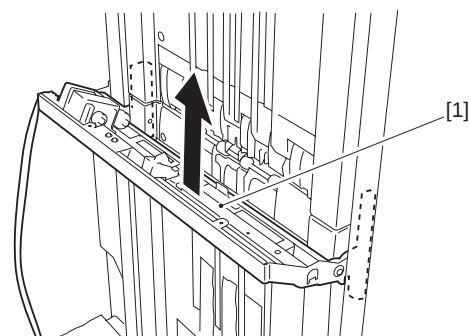
F-3-114

- 4) Remove the tray B cover [1].
- 4 screws [2]



F-3-115

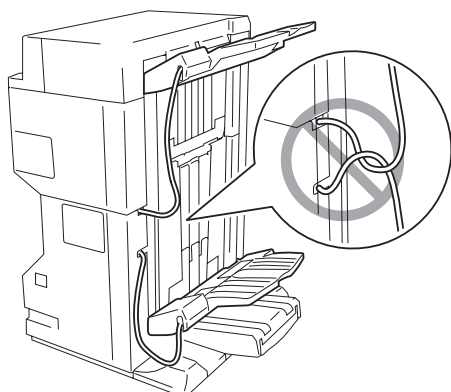
- 5) Lift the tray B unit [1] to detach.



F-3-116

3.4.8.3 Points to Note About the Tray A/B Cable

When mounting the tray A/B unit, take care so that the cables will not become tangled.

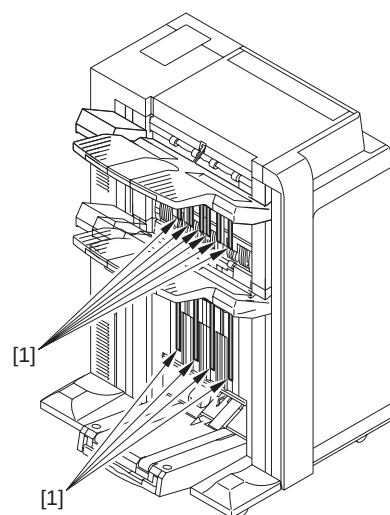


F-3-117

3.4.8.4 Points to Note When Handling the Stacking Wall Rail

Take care not to damage the stacking rail [1]. The presence of scratches or dents can affect stacking performance. If soiling is found, clean it with

alcohol.

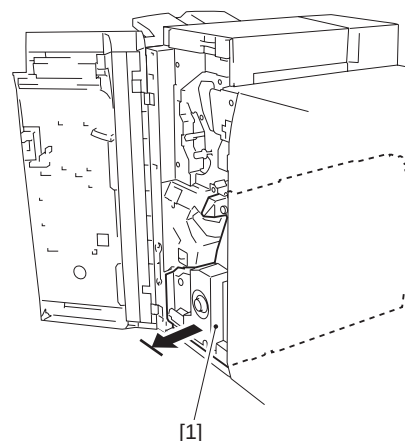


F-3-118

3.4.9 Saddle Unit

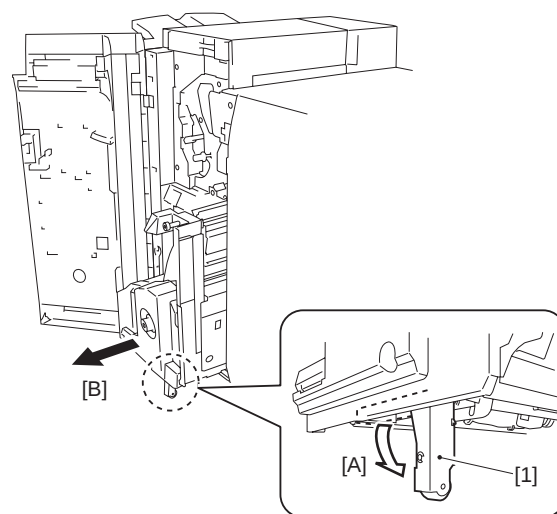
3.4.9.1 Removing the Saddle Unit

- 1) Open the front cover.
- 2) Slide out the saddle unit [1] about 20 cm.



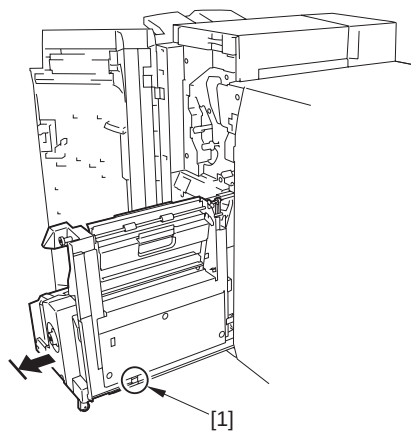
F-3-119

- 3) Pull out the auxiliary caster [1] in the direction of the arrow [A], and slide out the saddle unit in the direction of the arrow [B].



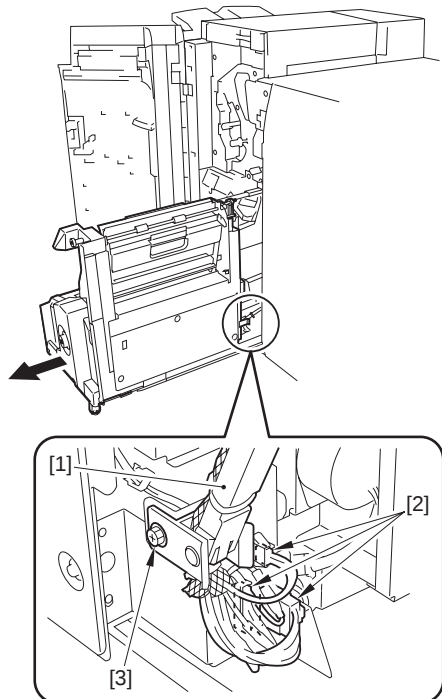
F-3-120

- 4) Release the stopper [1] of the rail, and pull it out about 5 cm.



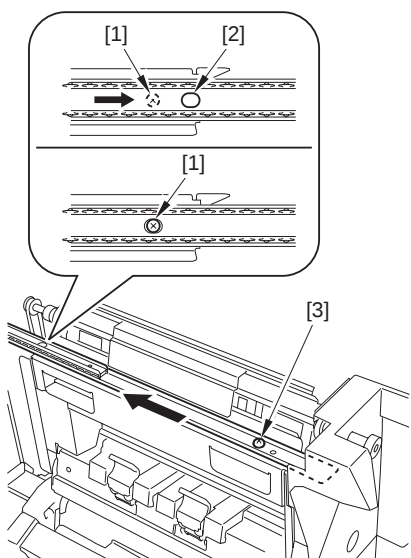
F-3-121

- 5) Disconnect the 3 connectors [1], and remove the screw [2]; then, slide out the saddle unit in the direction of the arrow.



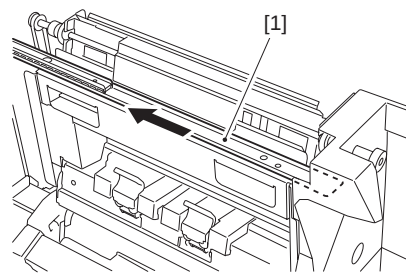
F-3-122

- 6) Move the saddle unit in the direction of the arrow until the screw [1] is visible through the hole [2]; then, remove the screws [1] [3].



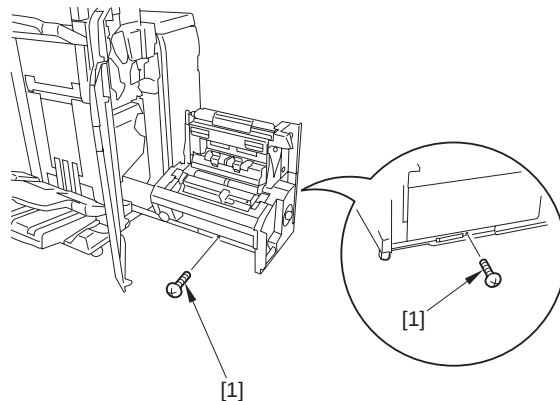
F-3-123

- 7) Push in the rail [1] inside the machine.



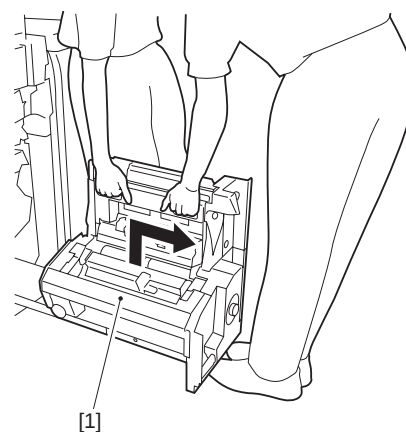
F-3-124

- 8) Remove the 2 screws [1].



F-3-125

- 9) Hold the saddle unit [1] as shown, and move it in the direction of the arrow. Before carrying it away, be sure it is free from the rail.

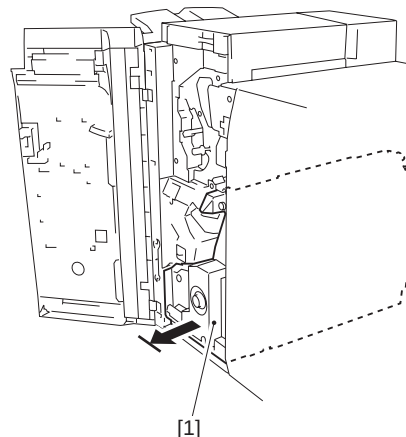


F-3-126

3.4.10 No.1 Flapper

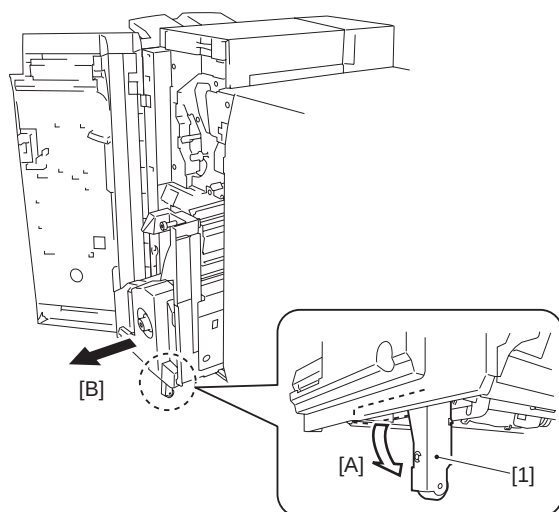
3.4.10.1 Removing the No. 1 Paper Deflecting Plate

- 1) Open the front cover.
- 2) Slide out the saddle unit [1] about 20 cm.



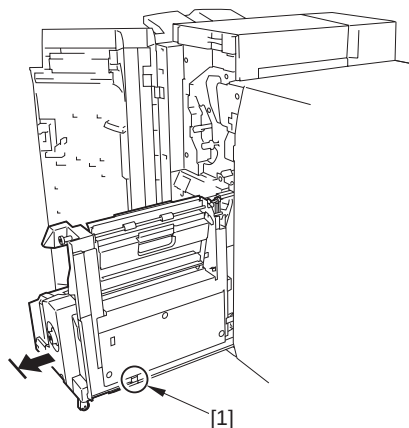
F-3-127

- 3) Slide out the auxiliary caster [1] in the direction of the arrow [A], and slide out the saddle unit in the direction of the arrow [B].



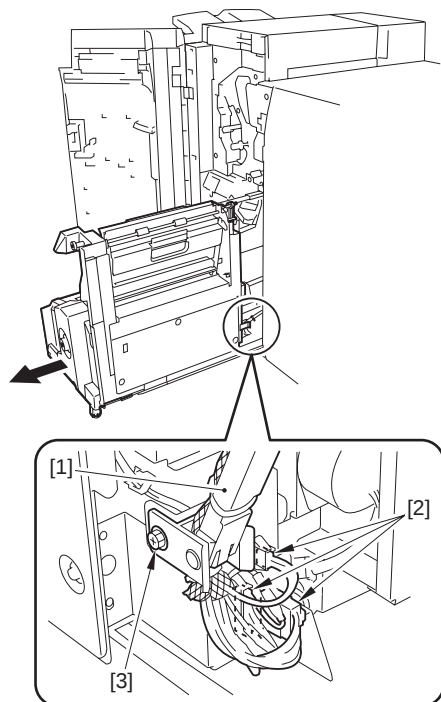
F-3-128

- 4) Release the stopper [1] of the rail, and slide it out about 5 cm.



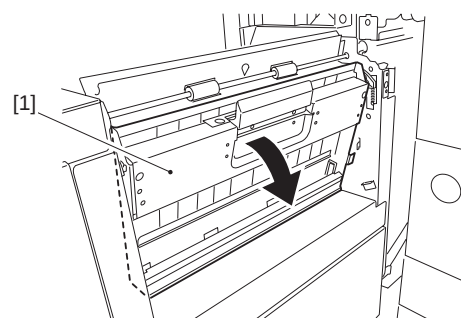
F-3-129

- 5) Disconnect the 3 connectors [1], and remove the screw [2]; then, slide out the saddle unit in the direction of the arrow.



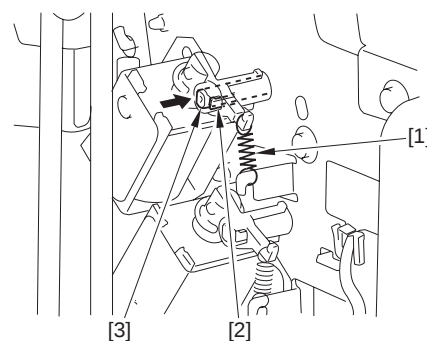
F-3-130

- 6) Open the saddle stack guide assembly [1].



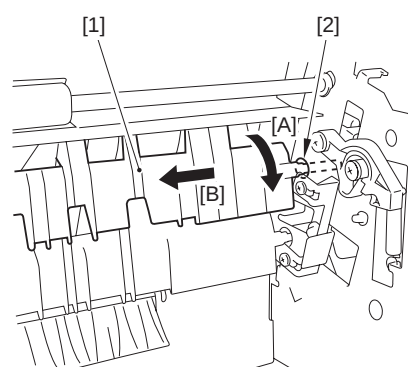
F-3-131

- 7) Remove the tension spring [1] found at the rear of the saddle unit; then, while releasing the claw [2], push in the shaft [3] slightly.



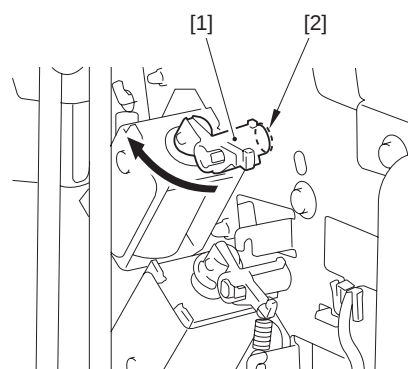
F-3-132

- 8) Move the No. 1 paper deflecting plate [1] in the direction of the arrow [A] [B] to free it from the hole [2].



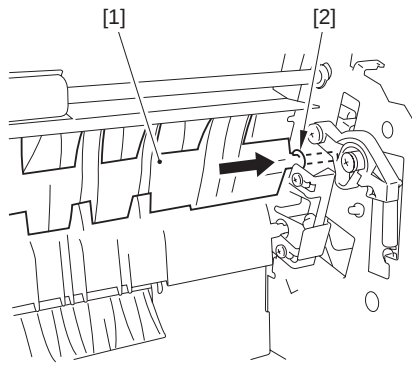
F-3-133

- 9) Free the arm [1] from the hole [1]; then, shift it away in the direction of the arrow.



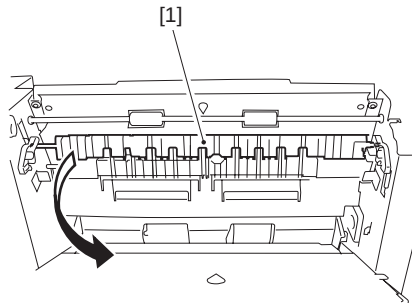
F-3-134

- 10) Fit the No. 1 paper deflecting plate [1] into the hole [2].



F-3-135

11) Remove the No. 1 paper deflecting plate [1] in the direction of the arrow.



F-3-136

3.4.11 No.2 Flapper

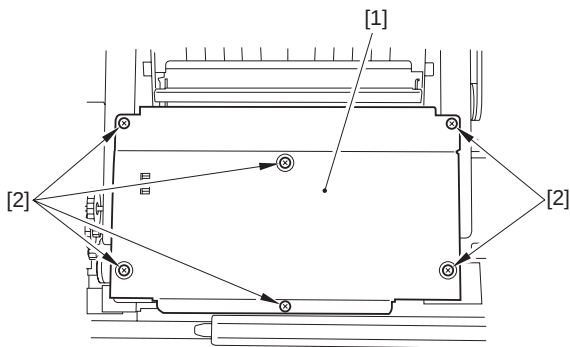
3.4.11.1 Removing the No. 2 Paper Deflecting Plate

1) Remove the No. 2 paper deflecting plate in the same way you removed the No.1 paper deflecting plate.

3.4.12 Thrust Unit

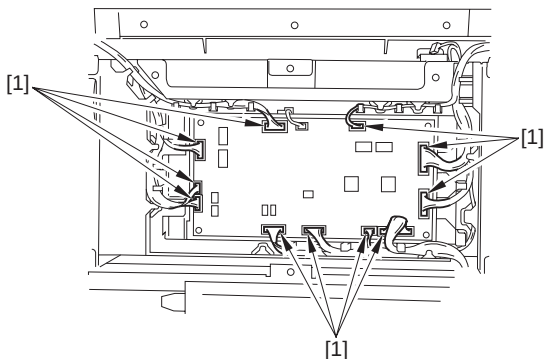
3.4.12.1 Removing the Stop Unit

1) Open the front cover.
 2) Slide out the saddle unit.
 3) Remove the saddle stitcher controller PCB cover [1].
 - 6 screws [2]



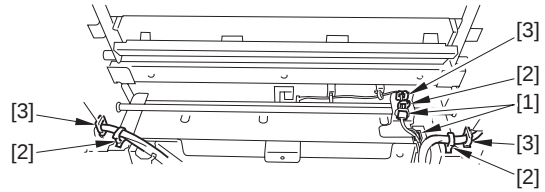
F-3-137

4) Disconnect the 11 connector [1], and detach the cable from the guide.



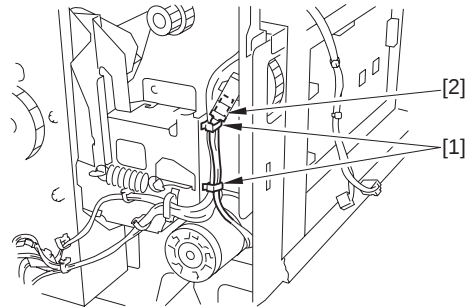
F-3-138

5) Disconnect the 2 connectors [1], and free the cable from the 3 clamps [2] and the 3 edge saddles [3].



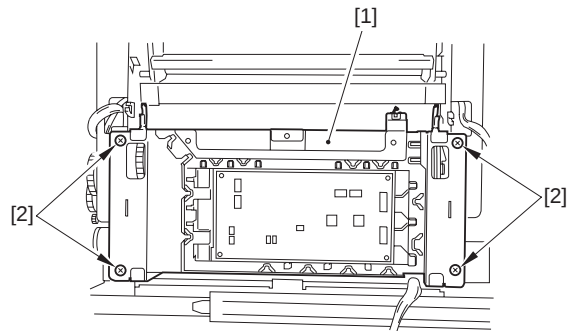
F-3-139

6) Remove the 2 clamps [1], and disconnect the connector [2].



F-3-140

7) Remove the stop unit [1].
 - 4 screws [2]



F-3-141

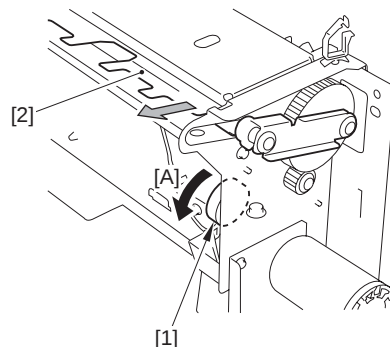
3.4.13 Thrust Plate

3.4.13.1 Before Removing the Stop Plate

1) Remove the stop unit. (page 3-22) Reference [Removing the Stop Unit]

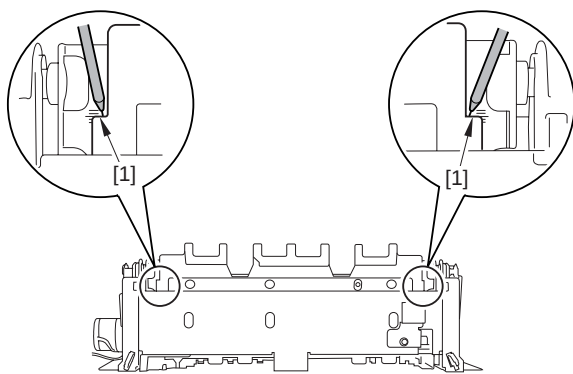
3.4.13.2 Removing the Stop Plate

1) Turn the gear [1] in the direction of the arrow [A] so that the stop plate [2] is extended as far as possible.



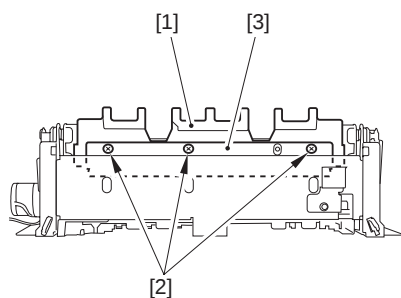
F-3-142

2) Mark the current position [1] before detaching the stop plate.



F-3-143

- 3) Remove the stop plate [1].
 - 3 screws [2]
 - 1 stop plate fixing plate [3]



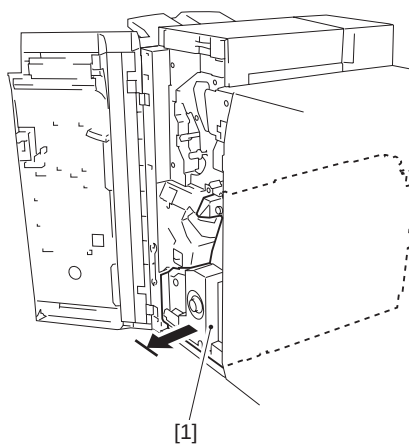
F-3-144

- 4) When fitting a new stop plate, secure it in place in keeping with the marking made in step 2).

3.4.14 Pressing Unit

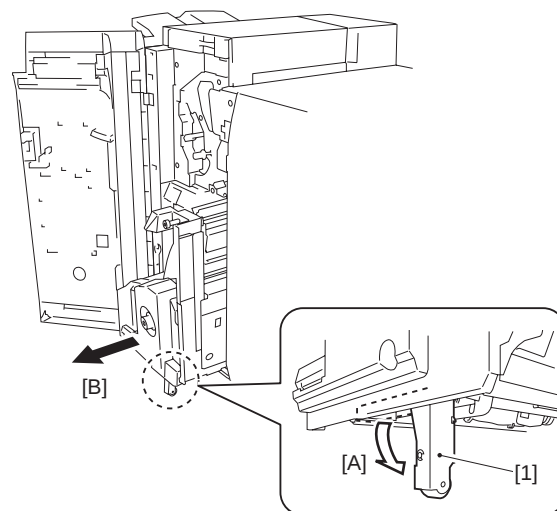
3.4.14.1 Before Removing the Press Unit

- 1) Open the front cover.
 2) Slide out the saddle unit.



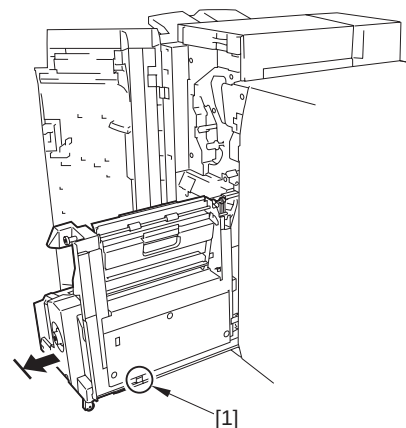
F-3-145

- 3) Pull out an auxiliary caster [1] in the direction of an arrow [A]. Then, a saddle unit is pulled out in the direction of an arrow [B].



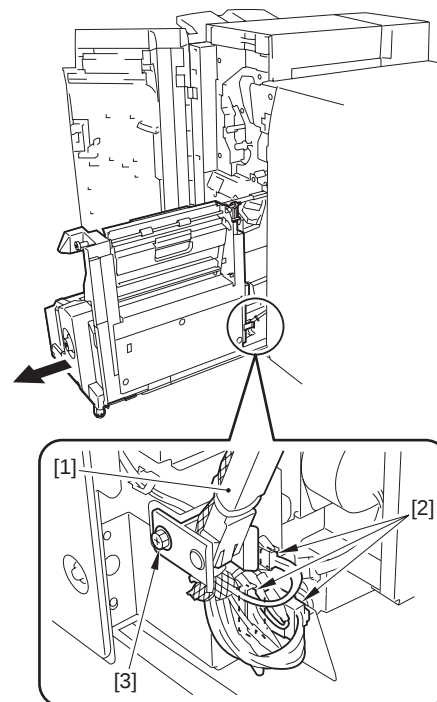
F-3-146

- 4) Pull out the rail stopper[1].



F-3-147

- 5) Remove a cable guide [1] from a saddle unit. Then, a saddle unit [2] is pulled out.
 - 3 connectors [2]
 - screw [3]

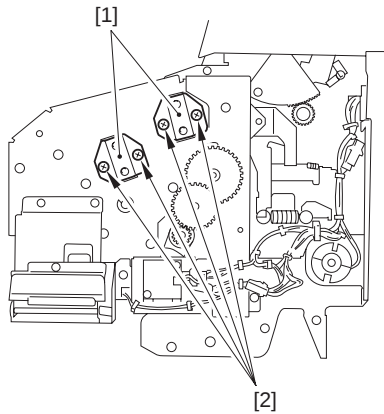


F-3-148

- 6) Remove the saddle inside cover (lower) (page 3-4) Reference [Removing the Saddle Inside Cover (lower)]

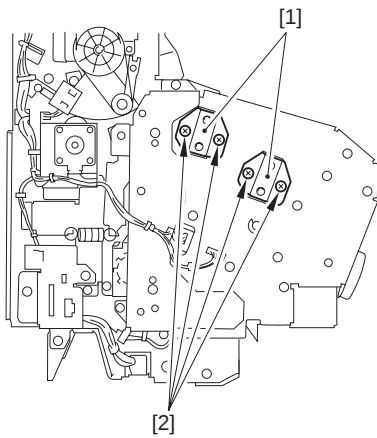
3.4.14.2 Removing the Press Unit

- 1) Remove the 2 roller fixing plates (front) [1].
- 4 screws [2]



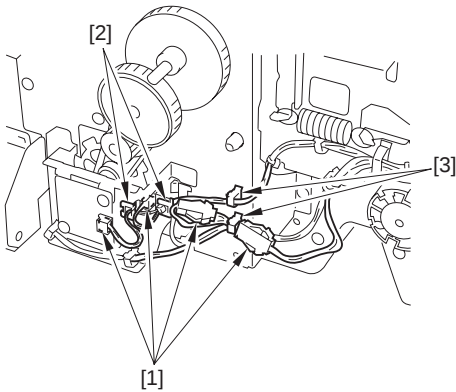
F-3-149

- 2) Remove the 2 roller fixing plates (rear) [1].
- 4 screws [2]



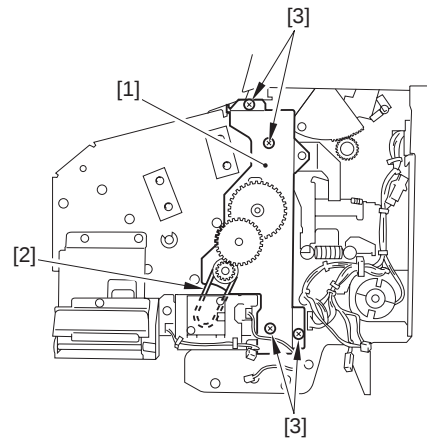
F-3-150

- 3) Disconnect the 4 connectors [1], and free the cable from the 2 edge saddles [2] and the 2 clamps [3].



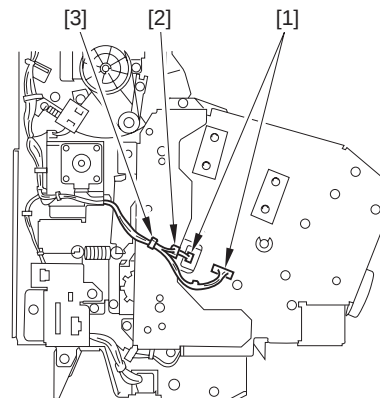
F-3-151

- 4) Remove the fixing plate (front) [1].
- 1 belt [2]
- 4 screws [3]



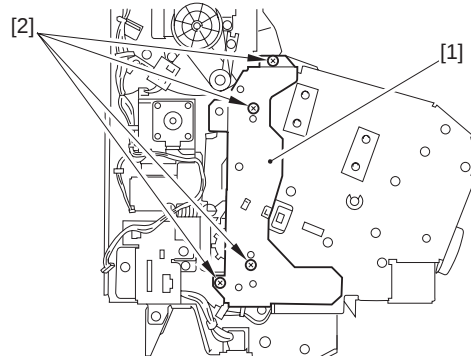
F-3-152

- 5) Disconnect the 2 connectors [1], and free the cable from the edge saddle [2] and the clamp [3].



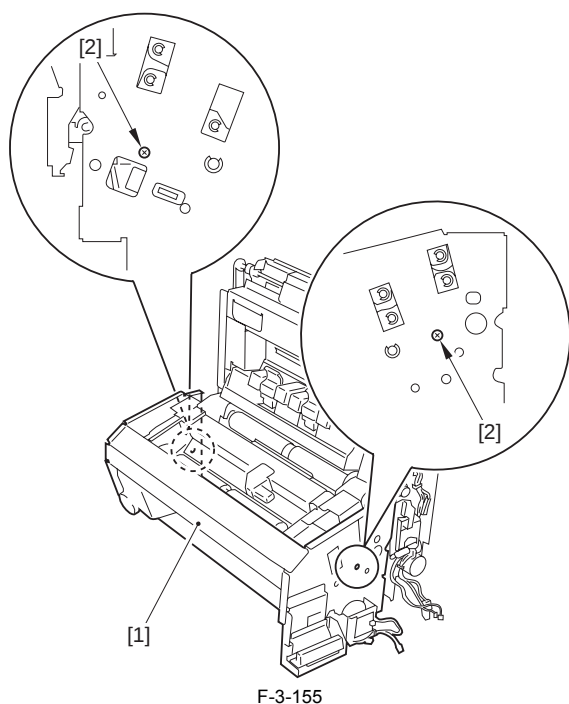
F-3-153

- 6) Remove the fixing plate (rear) [1].
- 4 screws [2]



F-3-154

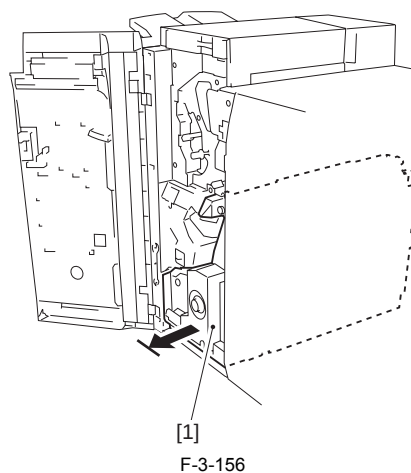
- 7) Remove the press roller unit [1].
- 2 screws



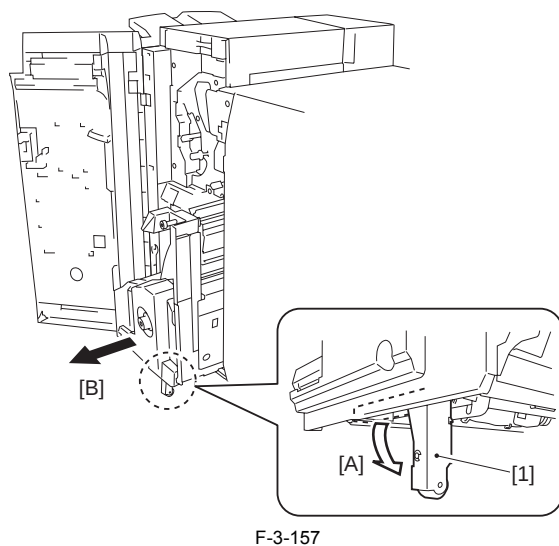
3.4.15 Pressing Roller Unit

3.4.15.1 Before Removing the Press Roller Unit

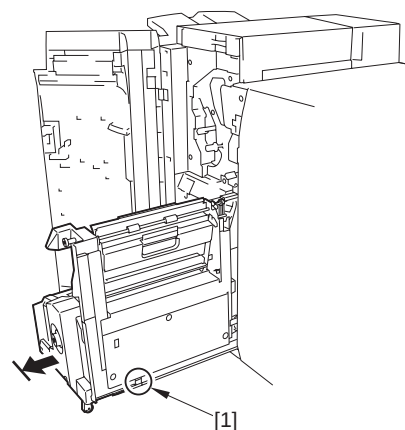
- 1) Open the front cover.
- 2) Slide out the saddle unit.



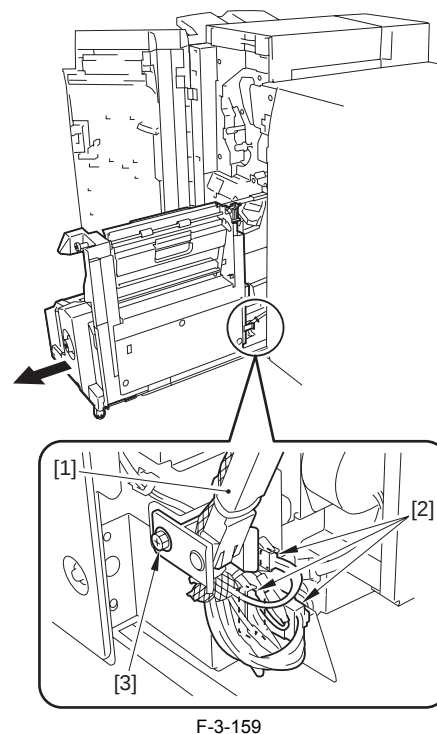
- 3) Pull out the auxiliary caster [1] in the direction of the arrow [A], and slide out the saddle unit in the direction of the arrow [B].



- 4) Release the stopper [1] of the rail, and pull it out about 5 cm.



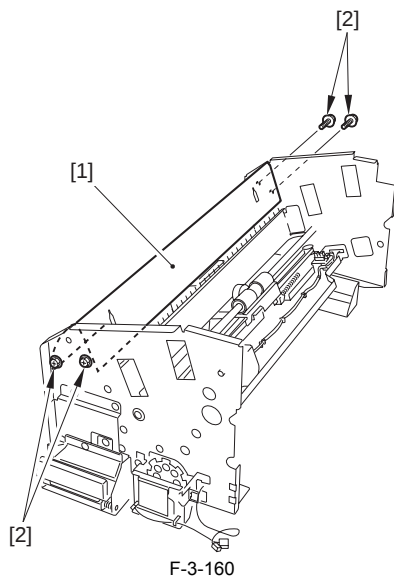
- 5) Disconnect the 3 connectors [1], and remove the screw [2]; then, slide out the saddle unit in the direction of the arrow.



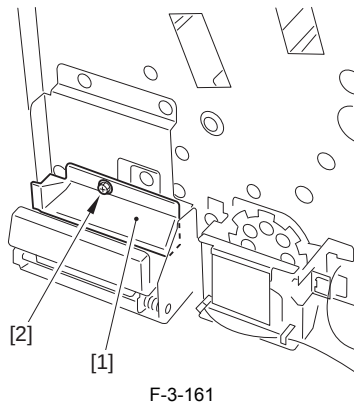
- 6) Remove the saddle inside cover (lower). (page 3-4) Reference[Removing the Saddle Inside Cover (lower)]
- 4) Remove the press unit. (page 3-25) Reference[Removing the Press Roller Unit]

3.4.15.2 Removing the Press Roller Unit

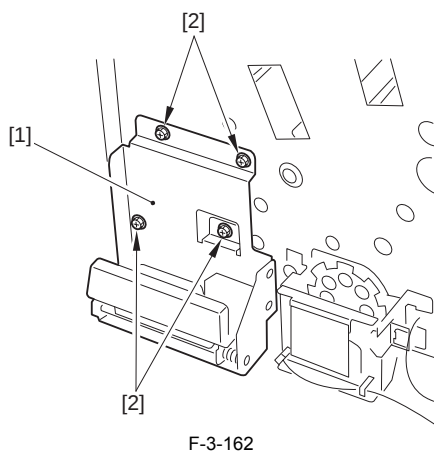
- 1) Remove the delivery guide (upper) [1].
- 4 screws [2]



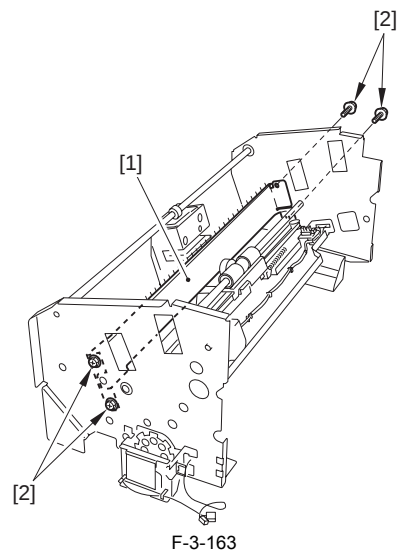
- 2) Remove the handle cover [1].
- 1 screw [2]



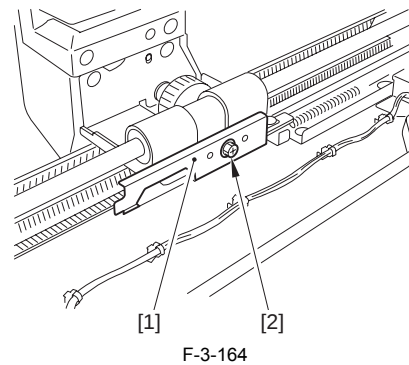
- 3) Remove the handle unit [1].
- 4 screws [2]



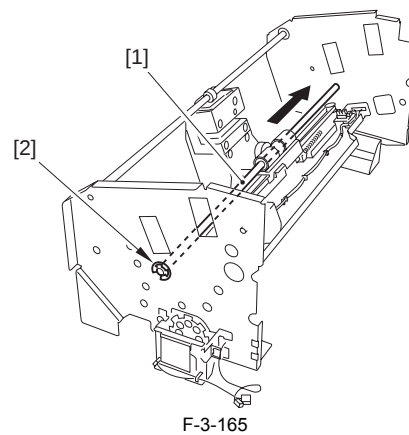
- 4) Remove the delivery guide (lower) [1].
- 4 screws [2]



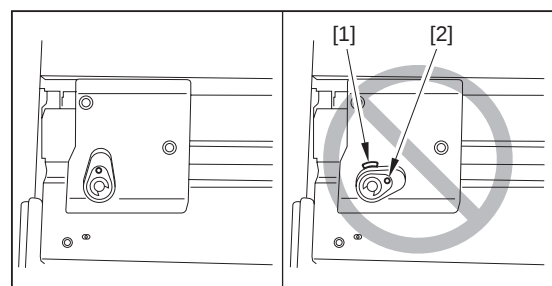
- 5) Remove the belt support plate [1].
- 1 screw [2]



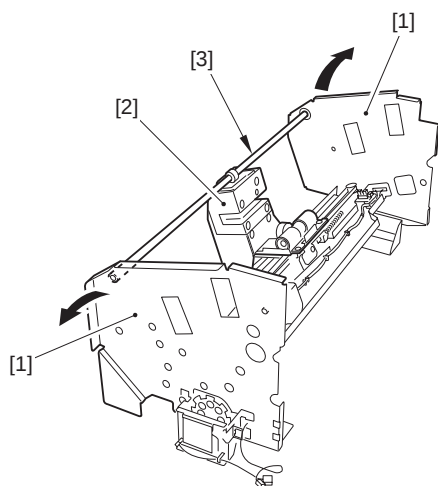
- 6) Remove the slide shaft (lower) [1] in the direction of the arrow.
- E-ring [2]



⚠ When mounting the slide shaft (lower), be sure that the hole [1] of the press roller unit cover and the hole [2] of the knob are matched while the press roller unit is in its rearmost position.

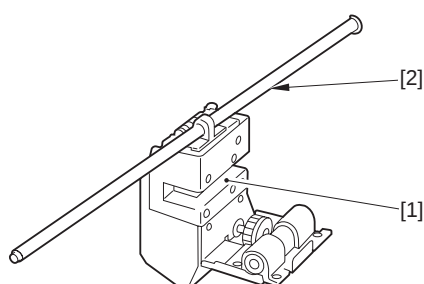


- 7) While opening the side plate [1] in the direction of the arrow, remove the press roller unit [2] together with the slide shaft (upper) [3].



F-3-167

- 8) Detach the shaft [2] from the press roller unit [1].

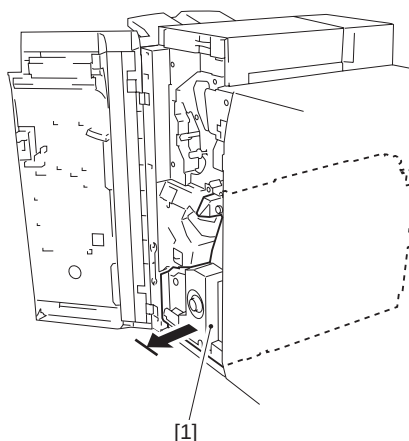


F-3-168

3.4.16 Folding Roller

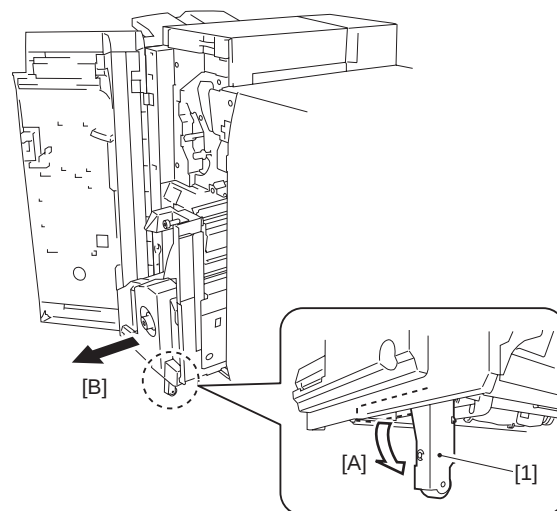
3.4.16.1 Before Removing the Folding Roller

- 1) Open the front cover.
- 2) Slide out the saddle unit.



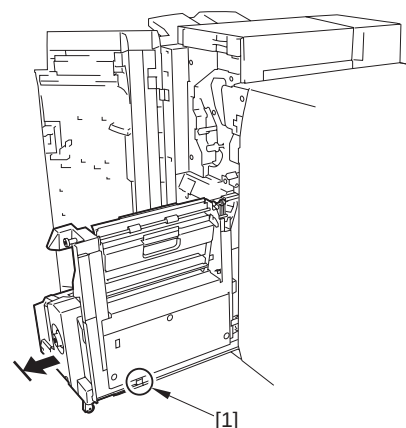
F-3-169

- 3) Pull out an auxiliary caster [1] in the direction of an arrow [A]. Then, a saddle unit is pulled out in the direction of an arrow [B].



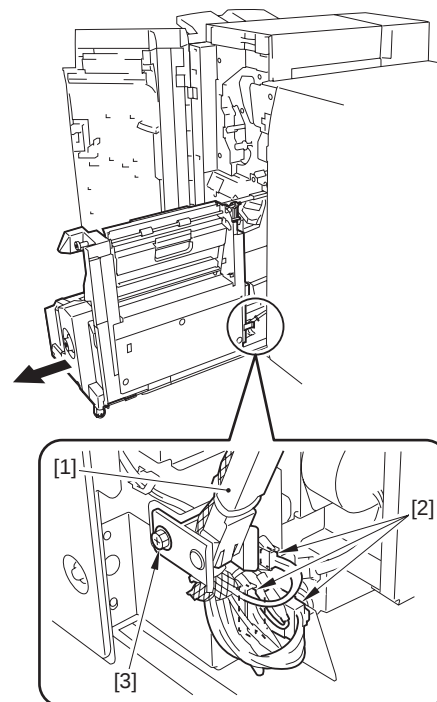
F-3-170

- 4) Pull out the rail stopper [1].



F-3-171

- 5) Remove a cable guide [1] from a saddle unit. Then, a saddle unit [2] is pulled out.
 - 3 connectors [2]
 - screw [3]



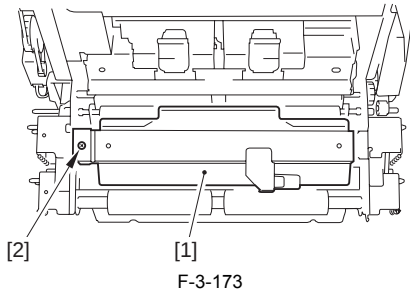
F-3-172

- 6) Remove the saddle inside cover (lower) (page 3-4) Reference [Removing the Saddle Inside Cover (lower)]

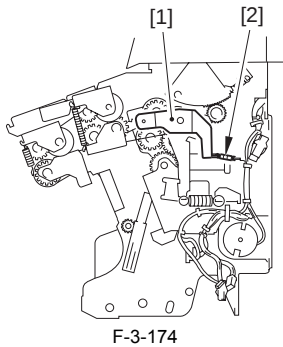
7) Remove the press unit. (page 3-24) Reference[Removing the Press Unit]

3.4.16.2 Removing the Folding Roller

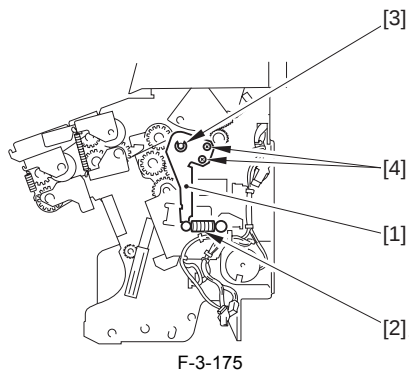
- 1) Remove the transport roller guide [1].
- 1 screw [2]



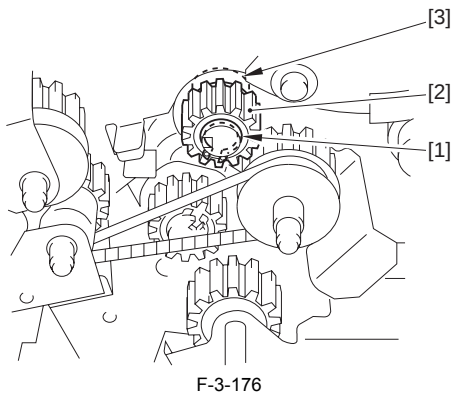
- 2) Remove the tension arm plate [1].
- 1 tension spring [2]



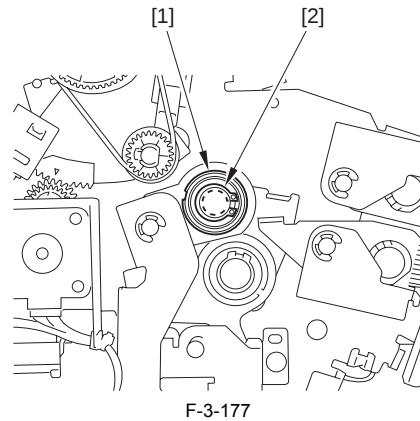
- 3) Remove the roller arm plate [1].
- 1 tension spring [2]
- 1 E-ring [3]
- 2 screws [4]



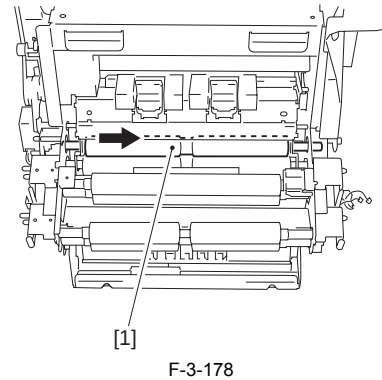
- 4) Remove the C-ring [1], gear [2], and ball bearing [3].



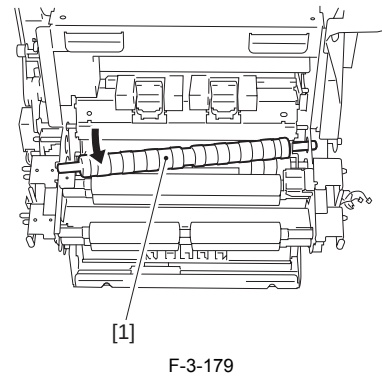
- 5) Remove the C-ring [1] and the ball bearing [2] found at the rear of the saddle unit.



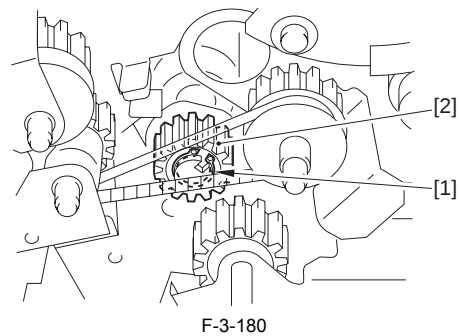
- 6) Slide the folding roller (upper) [1] in the direction of the arrow.



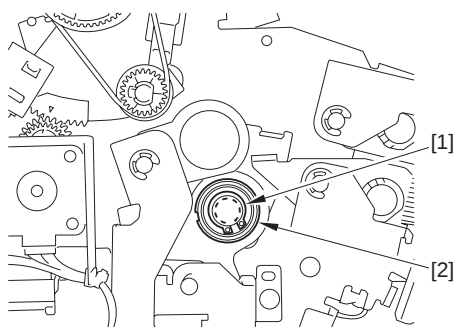
- 7) Remove the folding roller (upper) [1] in the direction of the arrow.



- 8) Remove the C-ring [1] and the gear [2].

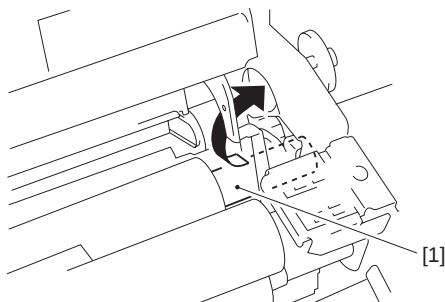


- 9) Remove the C-ring [1] and the ball bearing [2] found at the rear of the saddle unit.



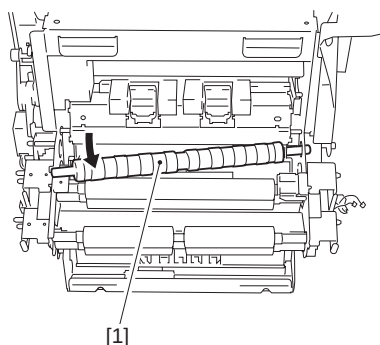
F-3-181

- 10) Shift the shaft [1] found at the front of the folding roller (lower) to the hole above.



F-3-182

- 11) Remove the folding roller (lower) [1] in the direction of the arrow.



F-3-183

3.5 Electrical System

3.5.1 Finisher Controller PCB

3.5.1.1 Finisher Controller PCB

3.5.1.1.1 Before Removing the Finisher Controller PCB

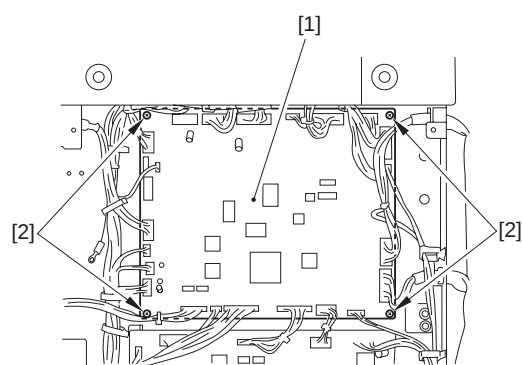
0011-8493

- 1) Remove the middle rear cover. (page 3-4)Reference[Removing the Middle Rear Cover]
- 2) Remove the lower rear cover. (page 3-1)Reference[Removing the Low Rear Cover]

3.5.1.1.2 Removing the Finisher Controller PCB

0011-7740

- 1) Remove the finisher controller PCB [1].
- 24 connectors (all)
- 4 screws [2]

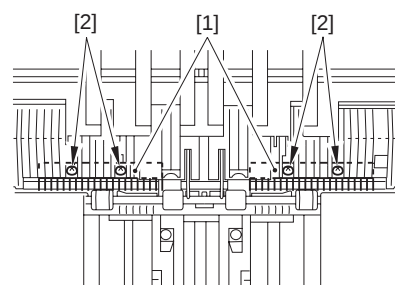


F-3-184

3.5.2 Static Charge Eliminator

3.5.2.1 Removing the Stack Edging Roller Static Eliminator

- 1) Remove the 2 stack edging roller stack eliminators [1].
- 4 screws [2]



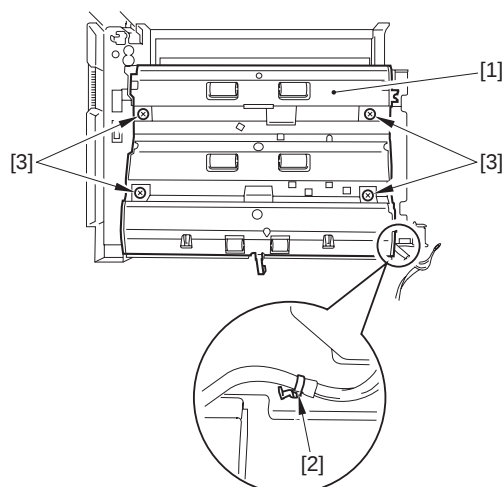
F-3-185

3.5.2.2 Before Removing the Static Eliminator (upper delivery slot)

- 1) Remove the upper rear cover (right).
- 2) Remove the upper rear cover (left). (page 3-2)Reference[Removing the Upper Rear Cover (left)]
- 3) Remove the middle rear cover. (page 3-4)Reference[Removing the Middle Rear Cover]
- 4) Remove the upper cover unit. (page 3-2)Reference[Removing the Upper Cover Unit]

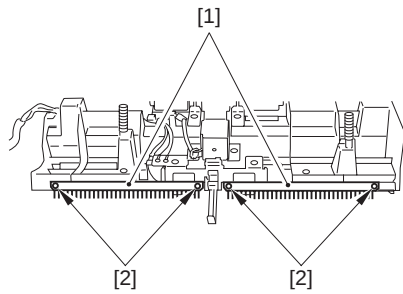
3.5.2.3 Removing the Stack Eliminator (upper delivery slot)

- 1) Remove the buffer upper cover assembly [1].
- 1 reuse band [2]
- 4 screws [3]



F-3-186

- 2) Remove the 2 static eliminators (upper delivery slot) [1].
- 4 screws [2]



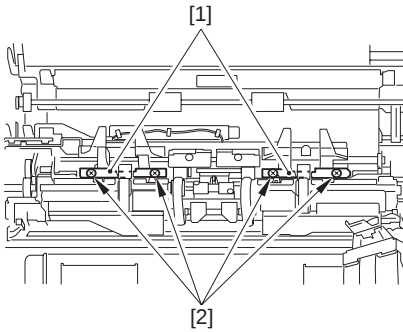
F-3-187

3.5.2.4 Before Removing the Stack Eliminator (inside delivery guide/inside delivery roller)

- 1) Remove the stacking wall (upper). (page 3-3) Reference [Removing the Stacking Wall (upper)]
- 2) Remove the stacking wall (lower). (page 3-3) Reference [Removing the Stacking Wall (lower)]
- 3) Remove the handling tray unit. (page 3-14) Reference [Removing the Handling Tray Unit]

3.5.2.5 Removing the Stack Eliminator (inside delivery guide)

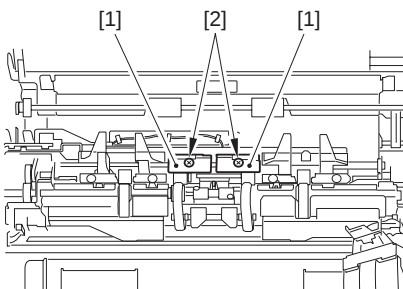
- 1) Remove the 2 static eliminators (inside delivery guide) [1].
- 4 screws [2]



F-3-188

3.5.2.6 Removing the Static Eliminator (inside delivery roller)

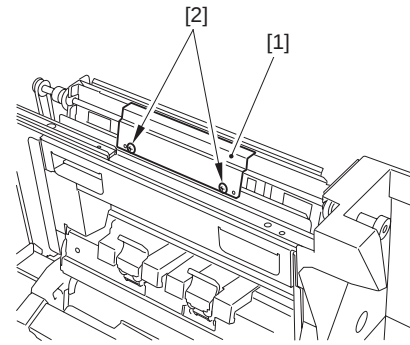
- 1) Remove the 2 static eliminators (inside delivery roller).
- 2 screws [2]



F-3-189

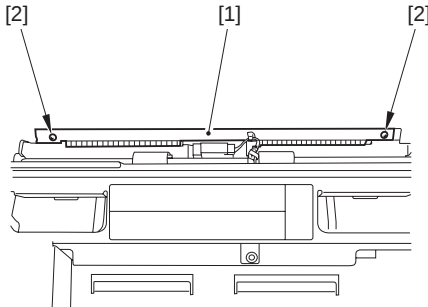
3.5.2.7 Removing the Static Eliminator (saddle transport inlet)

- 1) Open the front cover.
- 2) Slide out the saddle unit.
- 3) Remove the plate [1].
- 2 screws [2]



F-3-190

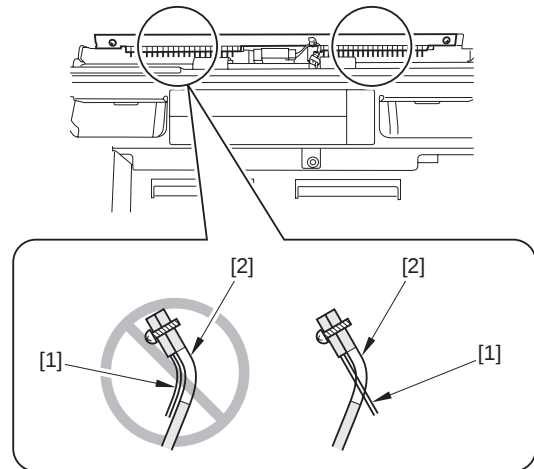
- 4) Remove the stack eliminator (saddle transport inlet) [1].
- 2 screws [2]



F-3-191

Points to Note When Mounting the Static Eliminator

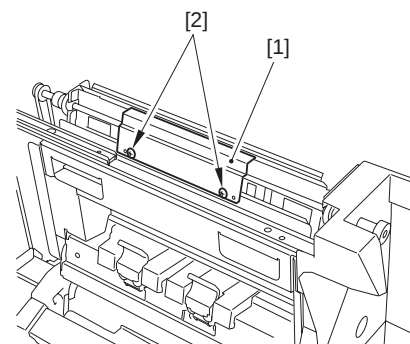
Be sure that the tip [1] of the static eliminator is fitted into the hole [2] of the plate before fitting it into place.



F-3-192

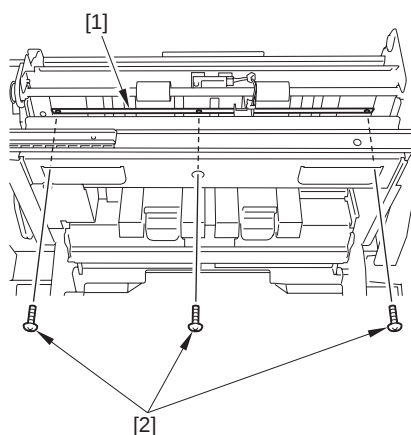
3.5.2.8 Removing the Flapper Static Eliminator

- 1) Open the front cover.
- 2) Slide out the saddle unit.
- 3) Remove the plate [1].
- 2 screws [2]



F-3-193

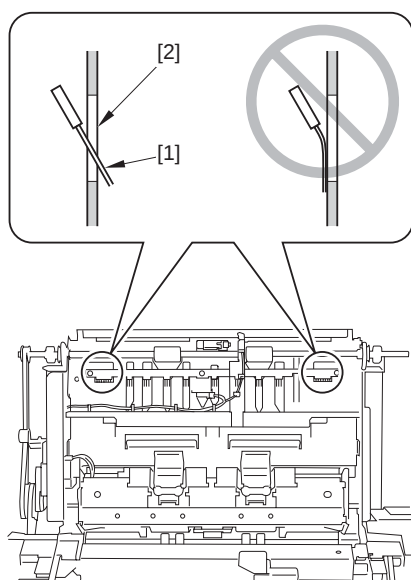
- 4) Remove the flapper static eliminator [1].
- 3 screws [2]



F-3-194

Points to Note When Mounting the Static Eliminator

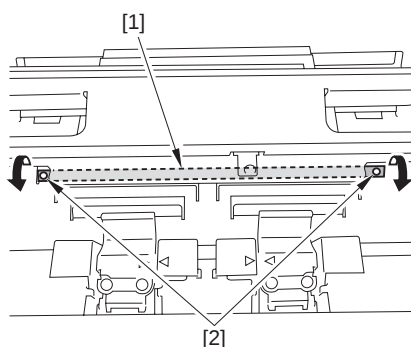
Be sure to put the tip [1] of the static eliminator into the hole [2] of the plate before fitting it in place.



F-3-195

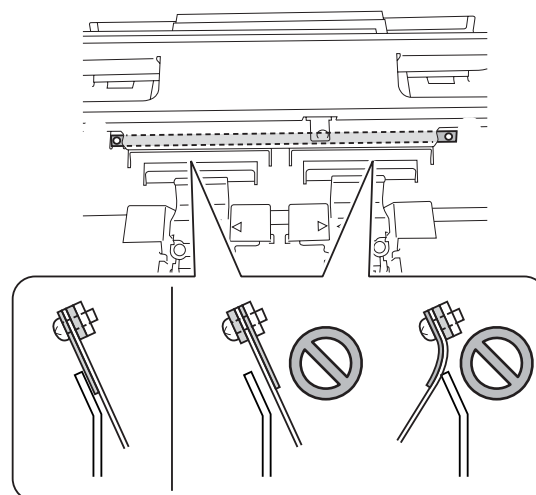
3.5.2.9 Removing the Static Eliminator (T2)

- 1) Open the front cover.
- 2) Slide out the saddle unit.
- 3) Remove the static eliminator (T2) [1]
- 2 screws [2]



F-3-196

⚠ Points to Note When Mounting the Static Eliminator
Don't mistake how to attach a static eliminator needle.



F-3-197

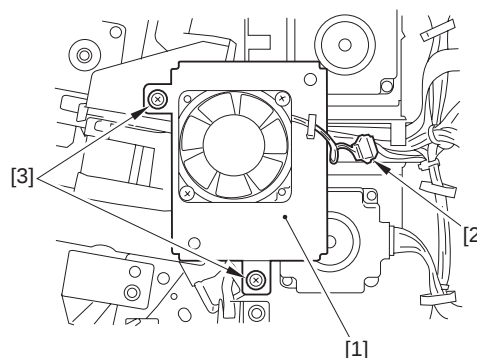
3.5.3 Horizontal Registration Sensor Unit

3.5.3.1 Before Removing the Horizontal Registration Sensor Unit

- 1) Separate the machine from the host machine side. (page 3-1) Reference[Disconnecting from the Host Machine]
- 2) Remove the upper rear cover (right). (page 3-2) Reference[Removing the Upper Rear Cover (right)]
- 3) Remove the upper rear cover (left). (page 3-2) Reference[Removing the Upper Rear Cover (left)]
- 4) Remove the middle rear cover. (page 3-4) Reference[Removing the Middle Rear Cover]
- 5) Remove the upper cover unit. (page 3-2) Reference[Removing the Upper Cover Unit]
- 6) Remove the middle rear cover. (page 3-4) Reference[Removing the Middle Rear Cover]

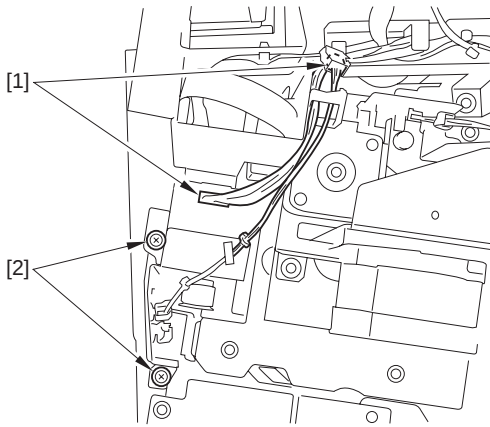
3.5.3.2 Removing the Horizontal Registration Sensor Unit

- 1) Remove the fan unit [1].
- 1 connector [2]
- 2 screws [3]



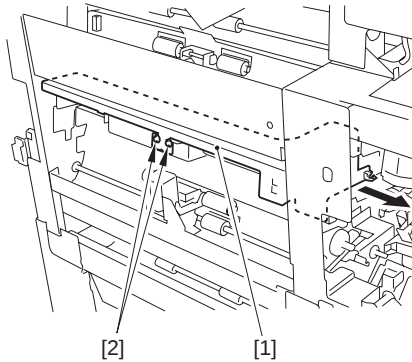
F-3-198

- 2) Disconnect the 2 connectors [1], and remove the 2 screws [2].



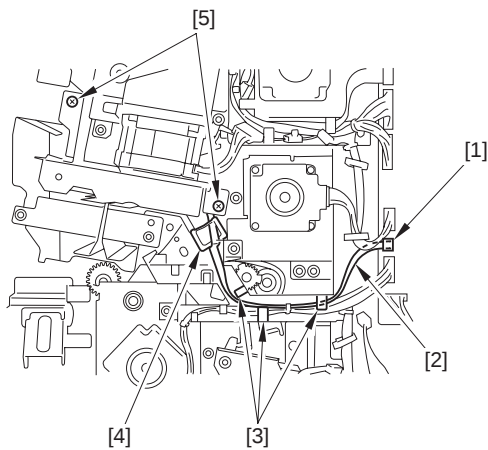
F-3-199

- 3) Remove the detection drive assembly [1].
- 2 screws [2]



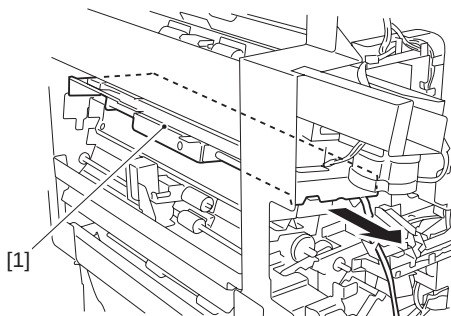
F-3-200

- 4) Disconnect the connector [1], and free the cable [2] from the 3 cable guides [3] and the edge saddle [4].
5) Remove the 2 screws [5].



F-3-201

- 6) Remove the horizontal registration sensor unit [1] in the direction of the arrow.



F-3-202

Chapter 4 Maintenance

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4.1 User Maintenance

4.1.1 User Maintenance Items (finisher)

T-4-1

No.	Item	Timing
1	staple cartridge (replacement)	when prompted (in host machine control panel)
2	waste staple (disposal)	when prompted (in host machine control panel)

4.1.2 User Maintenance Item (saddle stitcher)

T-4-2

No.	Item	Timing
1	staple cartridge (replacement)	when prompted (in host machine control panel)

4.2 Maintenance and Inspection

4.2.1 Periodically Replaced Parts

4.2.1.1 Periodically Replaced Parts in the Finisher

The finisher does not have a part that requires periodical replacement.

4.2.1.2 Periodically Replaced Parts in the Saddle Finisher

The saddle finisher does not have a part that requires periodical replacement.

4.2.2 Durables

4.2.2.1 Durables in the Finisher

Some parts of the machine may require replacement once or more over the period of product warranty because of deterioration or damage. Replace them as necessary.

T-4-3

					as of November 2005
No.	Parts name	Parts number	Q'ty	Life	Remarks
1	Stapler	FC6-6222-000	1	500,000 times	A single cartridge is good for about 5000 operations.
2	Roller belt	FB5-9103-000	2	1,000,000 pages	
4	Stack edging roller static eliminator	FC6-6134-000	1	1,000,000 pages	
5	Static eliminator	FC6-6341-000	1	1,000,000 pages	
6	Static eliminator	FC6-5864-000	2	1,000,000 pages	
7	Static eliminator	FC6-6101-000	1	1,000,000 pages	

4.2.2.2 Durables in the Saddle Stitcher

Some parts of the machine may require replacement once or more over the period of product warranty because of deterioration or damage. Replace them as necessary.

T-4-4

					as of November 2005
No.	Parts name	Parts number	Q'ty	Life	Remarks
1	Stitcher	FM2-6618-000	1	500,000 times	A single cartridge is good for about 5000 operations.
2	Static eliminator (T2)	FL2-3655-000	1	1,000,000 pages	
3	Flapper static eliminator	FL2-3656-000	1	1,000,000 pages	
4	Shift roller	FL2-3692-000	1	1,000,000 pages	
5	Paper static eliminator	FL2-3654-000	1	1,000,000 pages	

4.2.3 Periodical Servicing

4.2.3.1 Scheduled Servicing for the Finisher

The finisher does not have items that require scheduled servicing.

4.2.3.2 Scheduled Servicing for the Saddle Stitcher

The saddle stitcher does not have items that require scheduled servicing.

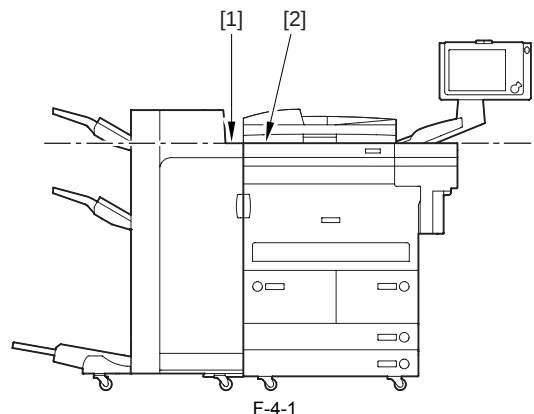
4.3 Adjustment

4.3.1 Basic Adjustment

4.3.1.1 Adjusting the Height

If jams start to occur often, adjust the height of the machine as follows:

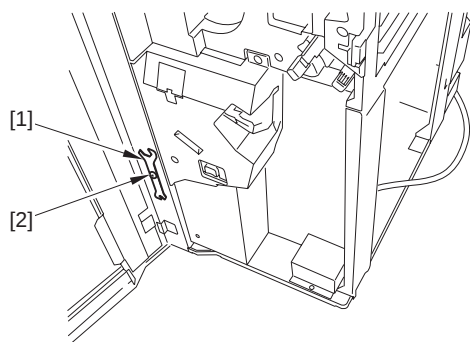
- 1) Check the height of the finisher and the host machine. If the difference between the right top surface [1] of the finisher and the left top surface [2] of the host machine is not ± 2 mm, go through the following steps:



F-4-1

- 2) Detach the finisher from the host machine.
- 3) Detach the spanner [1] from the front cover.

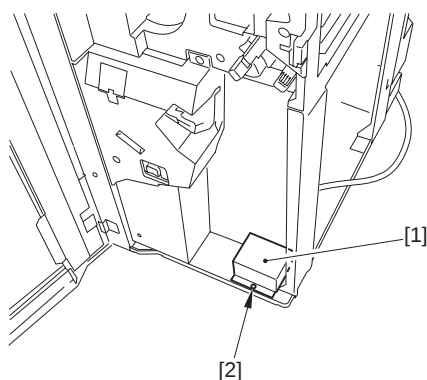
- 1 screw [2]



F-4-2

- 4) In the case of the Finisher-V1/V1L, detach the caster cover [1] found at the front.

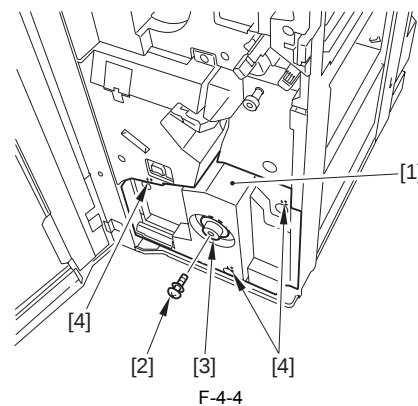
- 1 screw [2]



F-4-3

- 5) In the case of the Saddle Finisher-V2/V2L, detach the saddle inside cover (lower) [1].

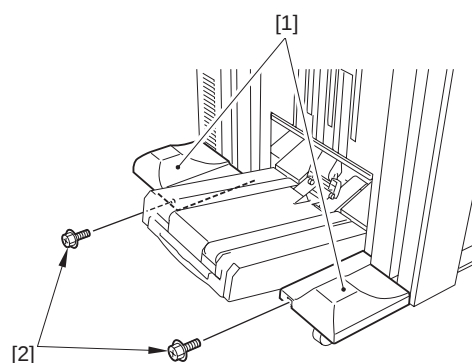
- 1 screw [2]
- 1 knob [3]
- 3 screws [4]



F-4-4

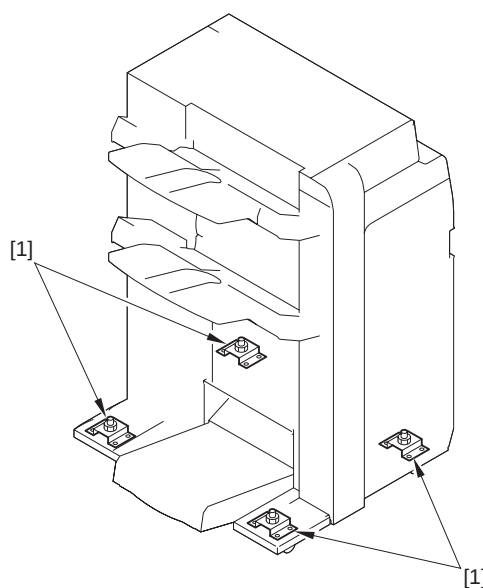
- 6) Detach the 2 caster covers [1] found on the left side. (The illustration shows the saddle finisher.)

- 2 screws [2]



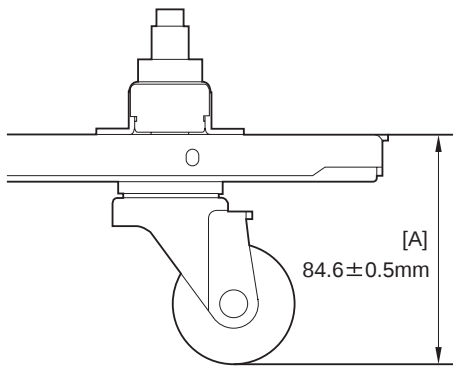
F-4-5

- 7) Adjust the 4 casters [1].



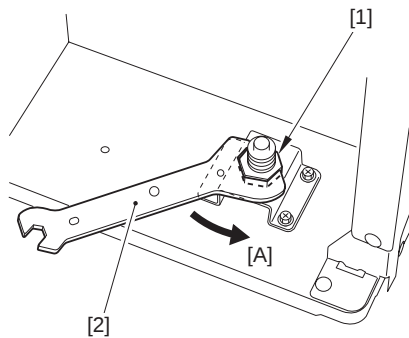
F-4-6

- 8) Measure the distance [A] from the caster to the base plate. Make adjustments so that it is 84.6 ± 0.5 mm.



F-4-7

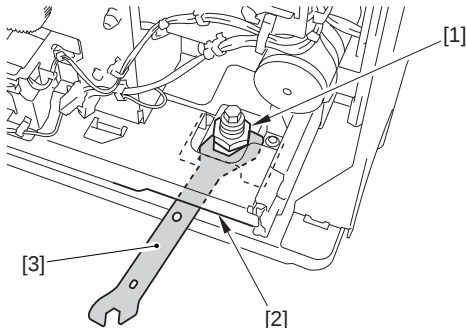
- 9) Loosen the fixing nut [1] of the caster in the direction of [A] using a spanner (large) [2].



F-4-8

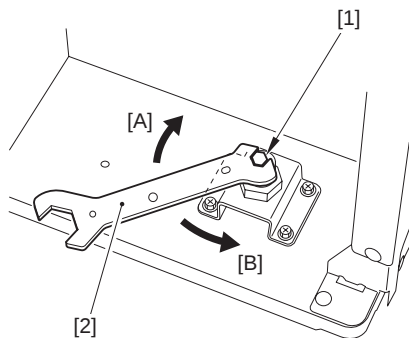


When loosening the caster fixing nut [1] at the front of the saddle finisher, be sure to insert the spanner [3] through the gap under the saddle assembly base plate [2].



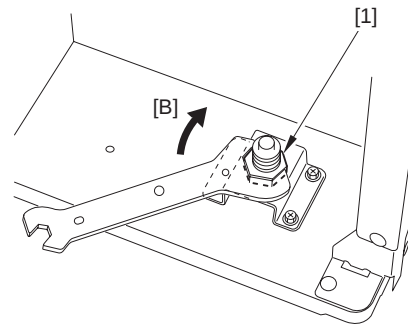
F-4-9

- 10) Turn the adjusting bolt [1] using a spanner (small) [2].
 - to raise, turn the bolt in the direction of [A].
 - to lower, turn the bolt in the direction of [B].
 (A full turn will cause a change of about 1.75 mm in height.)



F-4-10

- 11) Tighten the fixing nut [1] in the direction of [B].



F-4-11

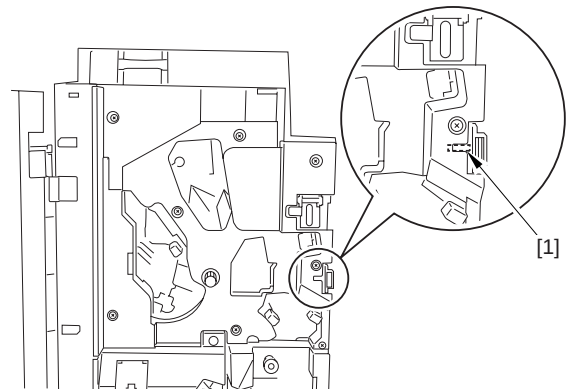
- 12) Adjust the remaining 3 casters in the same way.
 13) Connect the finisher to the host machine, and check the height. If the difference in height is as indicated, mount the covers and parts that you have removed. Otherwise, adjust the height once again.

4.3.1.2 Adjusting the Horizontal Registration/Angle

If the horizontal registration/angle is not correct, go through the following adjustments:

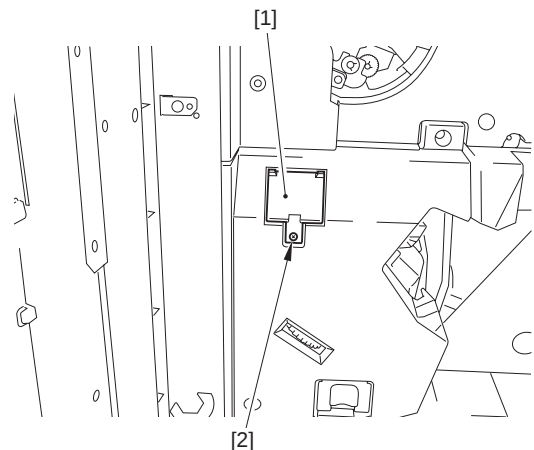
1. Checking the Adjustment Value

- 1) Turn on the finisher and then the host machine.
- 2) Open the front cover, and insert the door switch actuator into the door switch [1].



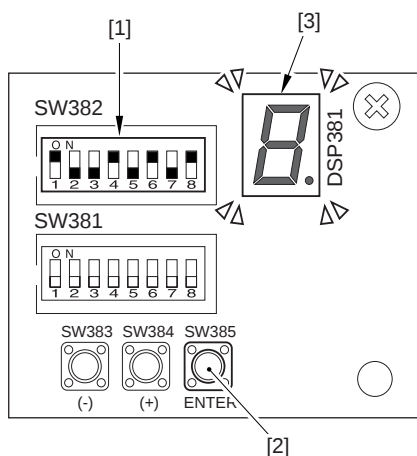
F-4-12

- 3) Detach the switch cover [1] of the inside cover (lower).
 - 1 screw [2]



F-4-13

- 4) Set the DIP switch SW382 [1] on the switch PCB as shown (1, 4, 6, and 8 at ON), and press the enter button (SW385) [2]; in response, the LED [3] will flash '0'.

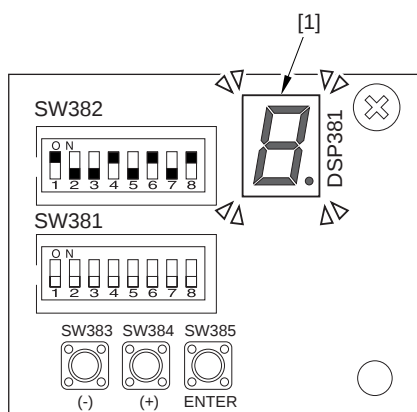


F-4-14

5) Place a single sheet of paper in the ADF, and make prints by setting the copy count to '3'.

6) Check the horizontal registration/angle adjustment value indicated by the LED [1].

The indication will be in the following sequence: A>horizontal registration adjustment value>b>angle adjustment value. Take notes of the values.



F-4-15

7) Press the enter button to end adjustment mode.

8) Turn off the host machine and then the finisher in sequence.

If the indicated values are not as follows, adjust the horizontal registration/angle:

- for horizontal registration adjustment value, -3 to +3 mm

- for angle adjustment value, -2 to +2 mm

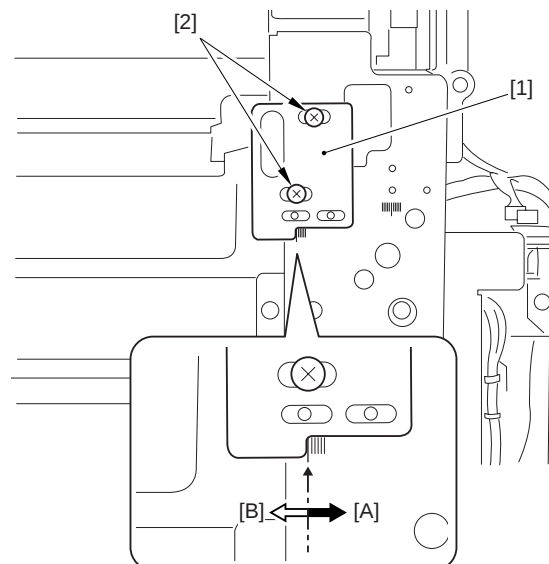
2. Adjusting the Horizontal Registration

1) Disconnect the finisher from the host machine.

2) Loosen the 2 screws [2] on the positioning plate [1] found on the right side.

3) If the value recorded is on the + side, move the plate in the direction of [A] and tighten the screw [2].

If the value recorded is on the - side, on the other hand, move the plate in the direction of [B] and tighten the screw [2]. (1 index equivalent of 1mm)



F-4-16

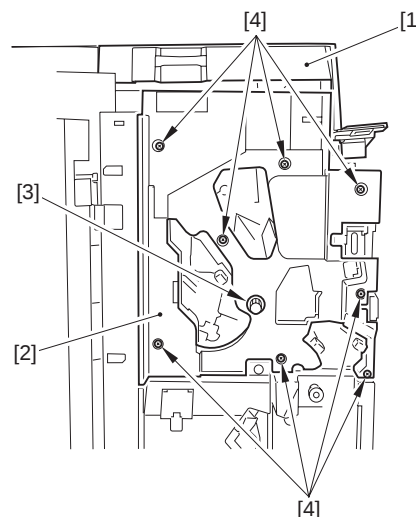
3. Adjusting the Angle

If the angle is as indicated, start with step 7).

1) Lift the upper cover [1], and detach the inside cover (upper) [2].

- 1 knob [3]

- 8 screws [4]



F-4-17

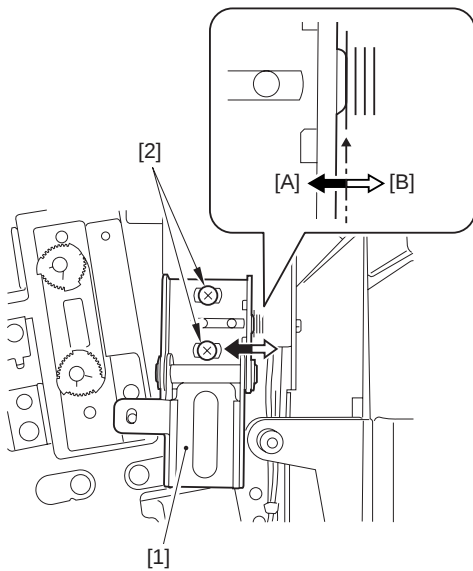
2) Loosen the 2 screws [2] on the latch base (front) [1].

3) If the value recorded is on the + side, move the base in the direction of [A] and tighten the screw [2].

If the value recorded is on the - side, on the other hand, move the base in the direction of [B] and tighten the screw [2]. (1 index equivalent of 1 mm)

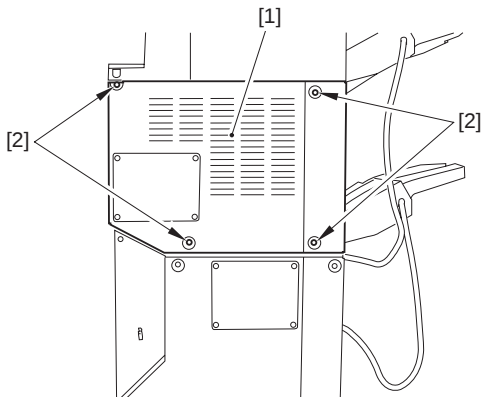


Make sure that the total of the indexes over which the latch base (front, rear) is moved is between -2 and +2 mm.



F-4-18

- 4) Remove the middle rear cover [1].
- 4 screws [2]

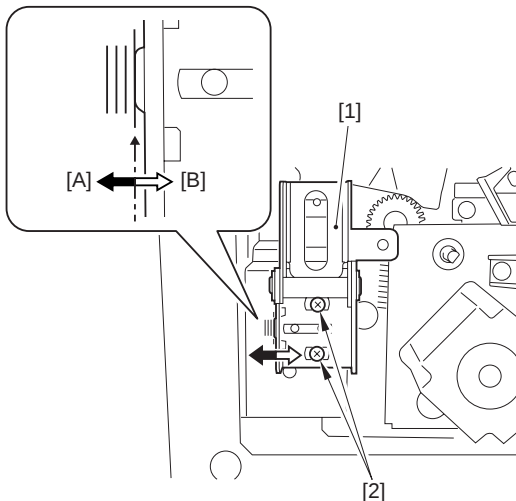


F-4-19

- 5) Loosen the 2 screws [2] on the latch base (rear) [1].
6) If the value recorded is on the + side, move the base in the direction of [A] and tighten the screw [2].
If the value recorded is on the - side, on the other hand, move the base in the direction of [B] and tighten the screw [2]. (1 index equivalent of 1 mm)



Make sure that the total of the indexes over which the latch base (front, rear) has been moved is between -2 and +2 mm.



F-4-20

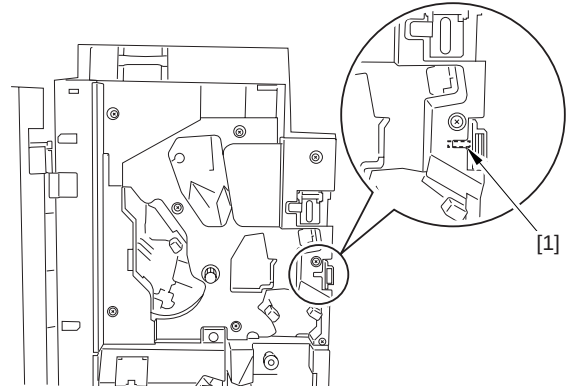
- 7) Connect the finisher and the host machine.

- 8) Turn on the finisher and the host machine in sequence.
9) Check the adjustment values once again.
If the adjustment values indicated by the LED are not as indicated here, go through the adjustment steps once again.
Otherwise, press the enter button to end adjustment mode.
10) Put the DIP switch back to its initial settings, and attach the covers and parts you have removed.

4.3.1.3 Adjusting the Sensor Intensity

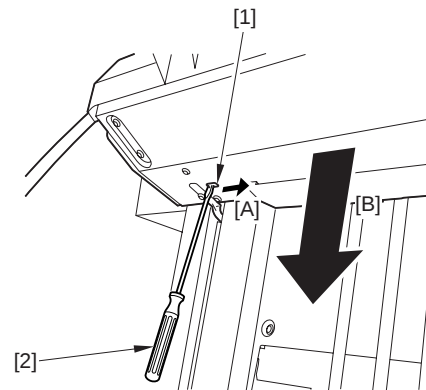
Go through the following steps when installing the finisher or replacing specific sensor:

- 1) Turn on the finisher and the host machine in sequence.
2) Open the front cover, and insert the door switch actuator into the door switch [1].



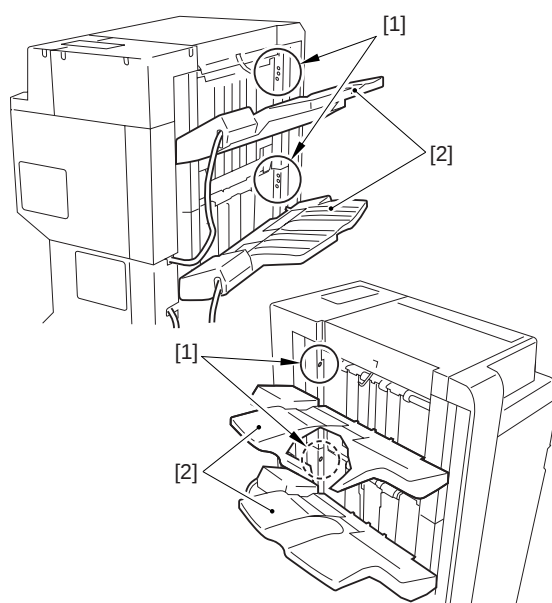
F-4-21

- 3) Insert a screwdriver [2] through the hole [1] in the bottom face of the tray; then, disengage the tray in the direction of [A], and lower the tray A/B in the direction of [B].



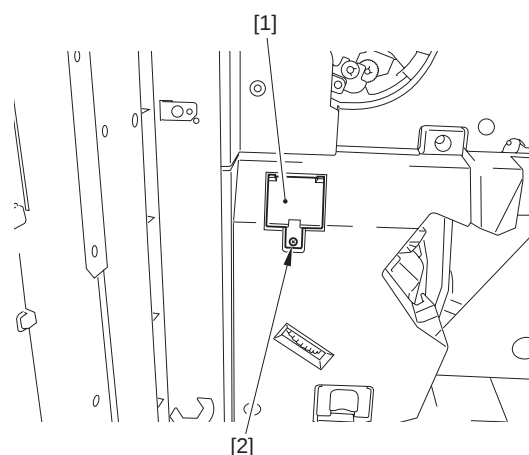
F-4-22

Be sure to lower the tray A/B [2] until it does not block the tray sensor (front/rear) [1].



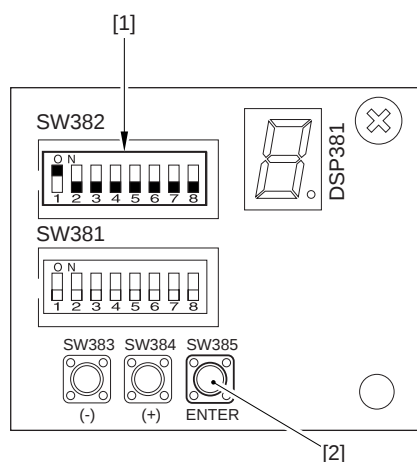
F-4-23

- 4) Detach the inside cover (lower) and the switch cover [1].
- 1 screw [2]



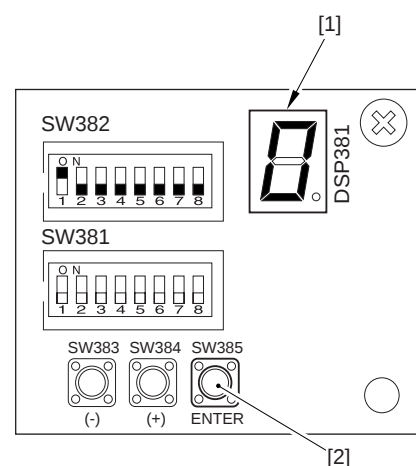
F-4-24

- 5) Set the DIP switch SW382 [1] of the switch PCB as shown (1: ON), and press the enter button (SW385) [2] to start sensor intensity adjustment.



F-4-25

- 6) If the LED [1] indicates '0', the adjustment has been successful. Press the enter button (SW385) [2] to end the sensor intensity adjustment.



F-4-26

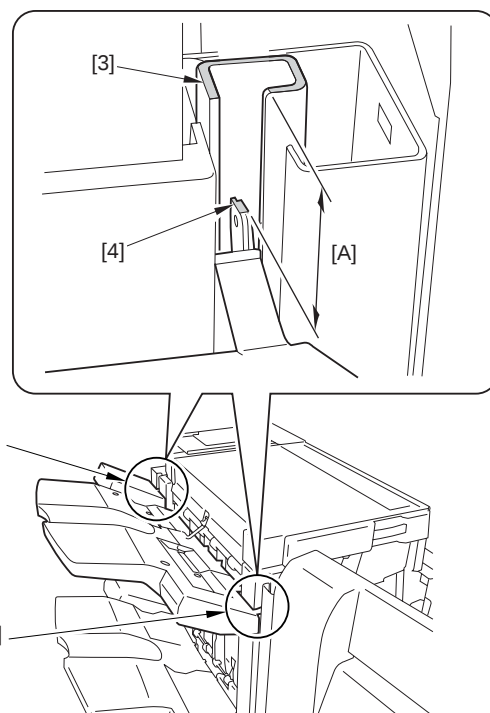
- 7) If any of the sensors is faulty (i.e., the LED flashes '0'), press the + (SW384) [1]/- (SW383) [2] button to find out the code number indicated by the LED [3], and replace the faulty sensor.

4.3.2 Adjustment at Time of Parts Replacement

4.3.2.1 Adjusting the Tray A/B Position

Go through the following steps if you have replaced the tray A or B so that the tray is horizontal:

- 1) Holding the tray horizontally, fit it to the support (left, right).
At this time, be sure that distance A (i.e., from the tip of the support [3] to the tray shaft [4]) is the same at the front [1] and the rear [2].

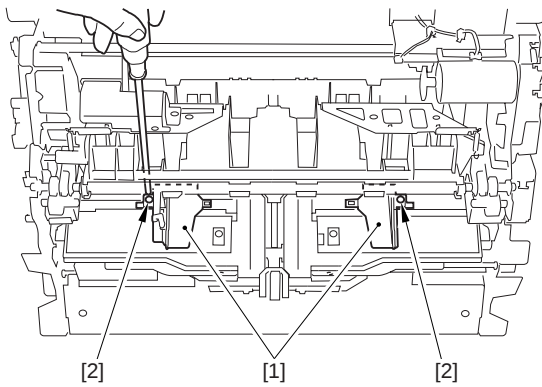


F-4-27

4.3.2.2 Adjusting the Angle of the Aligning Plate (orthogonal)

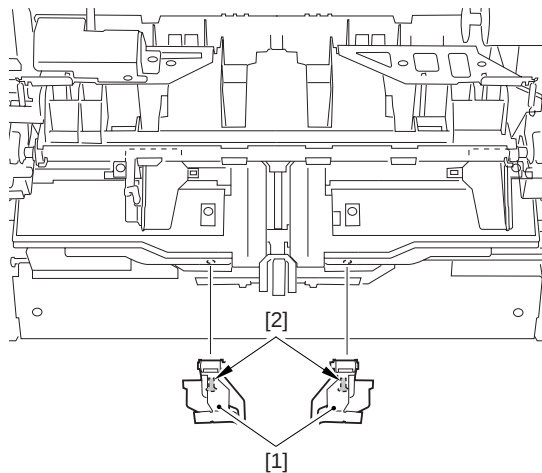
Go through the following steps if you have replaced the alignment motor of the intermediate handling tray assembly or the EEPROM of the finisher controller PCB:

- 1) After mounting the intermediate handling tray assembly, loosen the 2 screws [2] on the aligning plate [1] of the assembly.



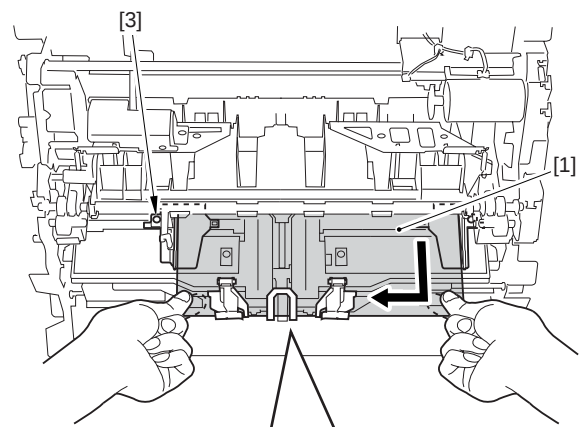
F-4-28

2) Fix the 2 paper edge stoppers [1] in place on the host machine using 2 screws [2].



F-4-29

3) Place A4 paper [1] in the intermediate handling tray in the direction of the arrow. Make adjustments so that there is no gap between the paper edge [1] and the aligning plate [2]; then, fix the aligning plate using a screw [3].

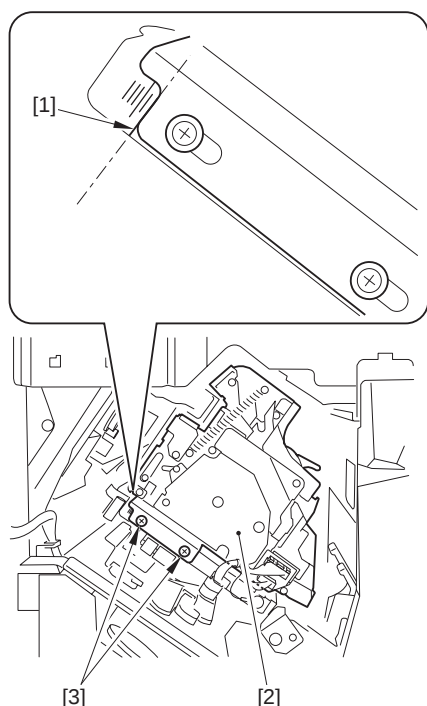


F-4-30

4.3.2.3 Adjusting the Stapler Position

Go through the following steps if you have replaced the stapler unit found in the intermediate handling tray assembly:

- 1) Mark the position [1] of the stapler unit before replacement.
- 2) Mount the new stapler unit [2] with reference to the marking [1], fixing it in place using 2 screws [3].

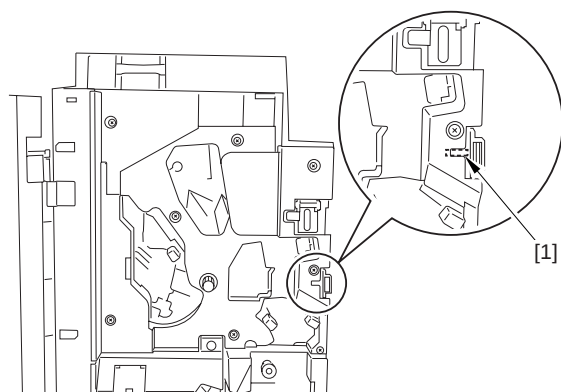


F-4-31

4.3.2.4 Adjusting the Speed of the Swing Guide

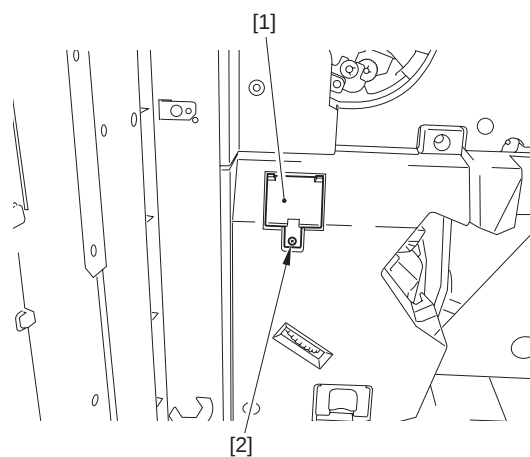
Go through the following steps if you have replaced the swing guide motor or the EEPROM of the finisher controller PCB:

- 1) Turn on the finisher.
- 2) Turn on the host machine so that it will be in a standby state.
- 3) Open the front door, and insert the door switch actuator into the door switch [1].



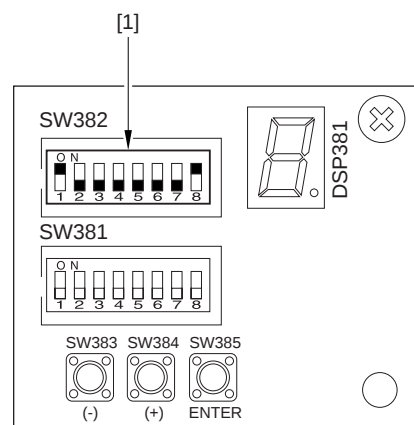
F-4-32

- 4) Remove the screw [2], and detach the switch cover [1].



F-4-33

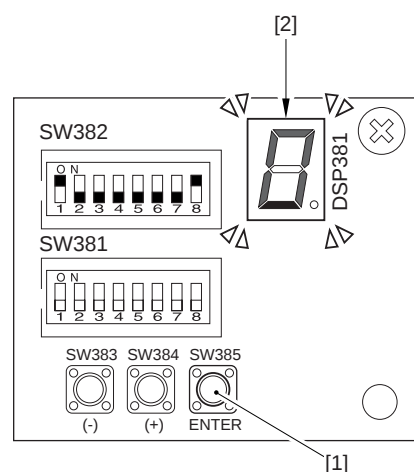
- 5) Set the DIP switch SW382 [1] on the switch PCB as follows:



F-4-34

- 6) Press the push switch SW385 [1] to start adjustment of the swing guide speed.

In a while, press the push switch SW385 [1]; if the LED [2] indicates '0', the adjustment has ended successfully.



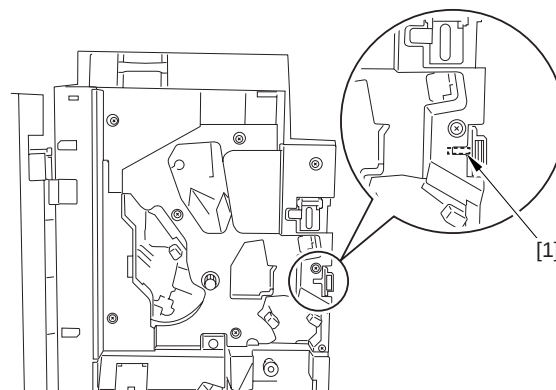
F-4-35

- 7) If the LED indicates other than '0', the result is not good. Repeat the steps.

4.3.2.5 Adjusting the Aligning Plate Width

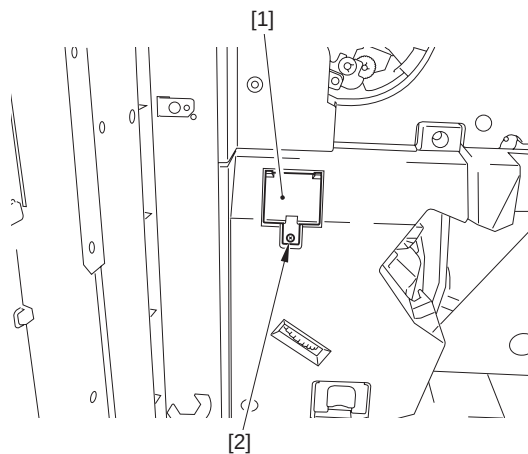
Go through the following steps if you have replaced the front alignment motor or the rear alignment motor or the EEPROM of the controller PCB:

- 1) Turn on the finisher.
- 2) Turn on the host machine so that it will be in a standby state.
- 3) Open the front door, and insert the door switch actuator into the door switch [1].



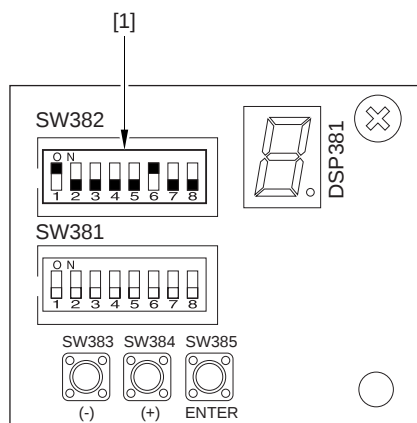
F-4-36

- 4) Remove the screw [2], and detach the switch cover [1].



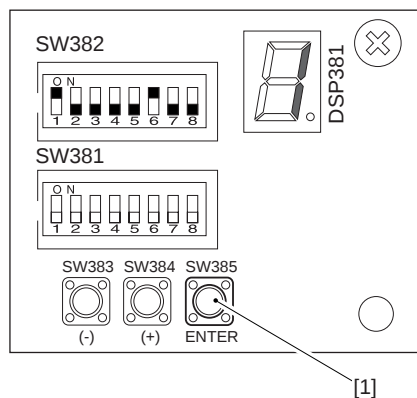
F-4-37

- 5) Set the DIP switch SW382 [1] on the switch PCB as follows:



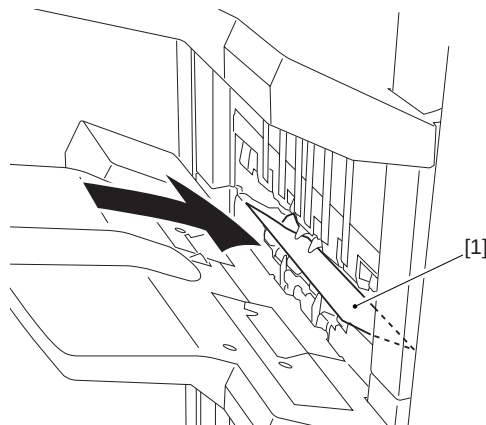
F-4-38

- 6) Press the push switch SW3851 [1] to start adjustment of the front aligning plate width.



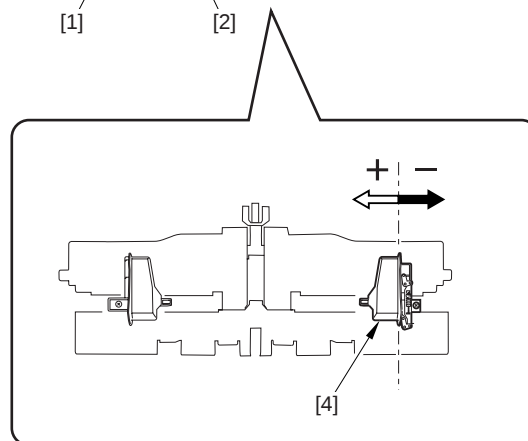
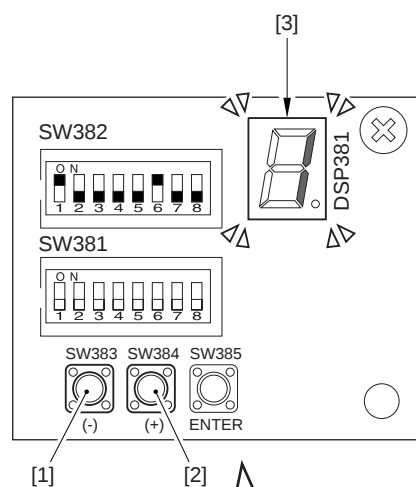
F-4-39

- 7) Place A4 paper [1] in the intermediate handling tray. (Be sure to butt the paper against the rear of the handling tray.)



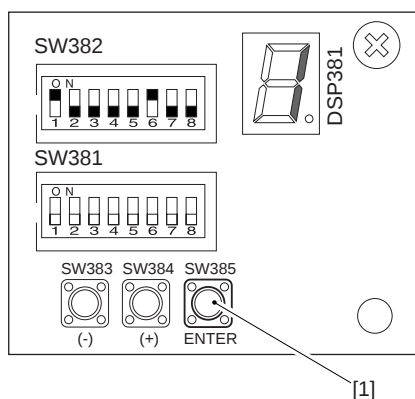
F-4-40

- 8) Press the push switch SW383 [1] or SW384 [2] to store the new value. A single press on SW383 will cause the LED [3] to indicate '-1', moving the front aligning plate [4] by about 0.2 mm toward the front. On the other hand, a single press on SW384 will cause the LED [3] to indicate '+1', moving the front aligning plate [4] by about 0.2 mm toward the rear. range of adjustment: +10 to -10 (unit: 0.2 mm)



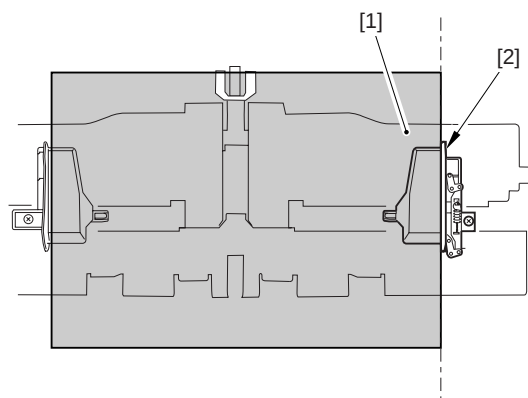
F-4-41

- 9) Press the push switch SW385 [1] to store the distance of travel of the front aligning plate.



F-4-42

- 10) Check that there is no gap between the paper and the aligning plate as the result of the foregoing steps. If there still is a gap, go back to step 8).

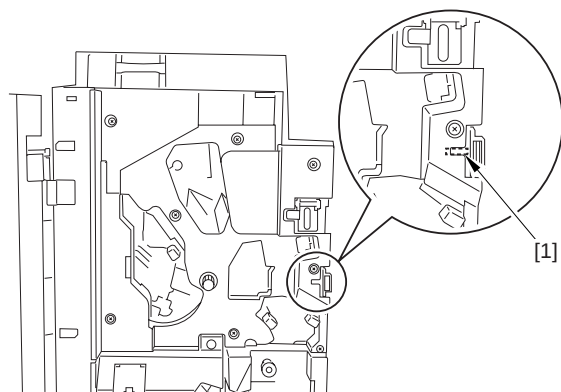


F-4-43

4.3.2.6 Adjusting the Transport Belt Position

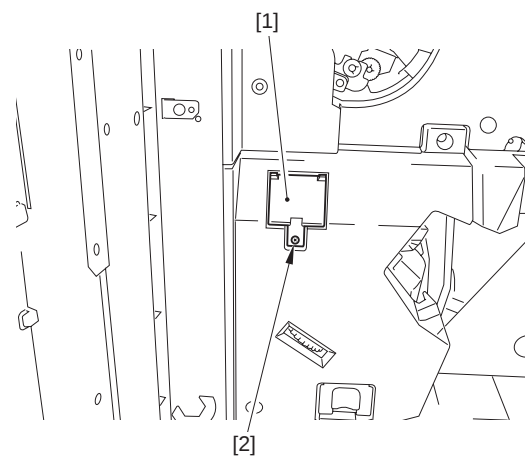
Go through the following steps if you have replaced the transport belt of the intermediate tray or there is displacement among the sheets of a delivered stack:

- 1) Turn on the finisher.
- 2) Turn on the host machine so that it will be in a standby state.
- 3) Open the front door, and insert the door switch actuator into the door switch [1].



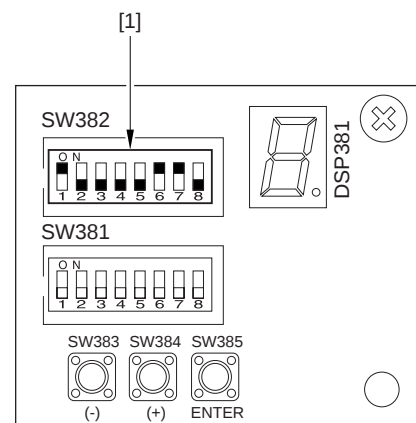
F-4-44

- 4) Remove the screw [2], and detach the switch cover [1].



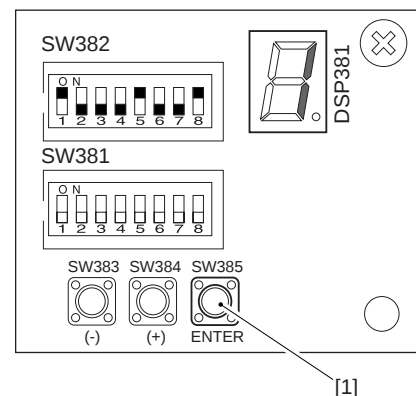
F-4-45

- 5) Set the DIP switch SW382 [1] on the switch PCB as follows:



F-4-46

- 6) Press the push switch SW385 [1] to start adjustment of the transport belt position.



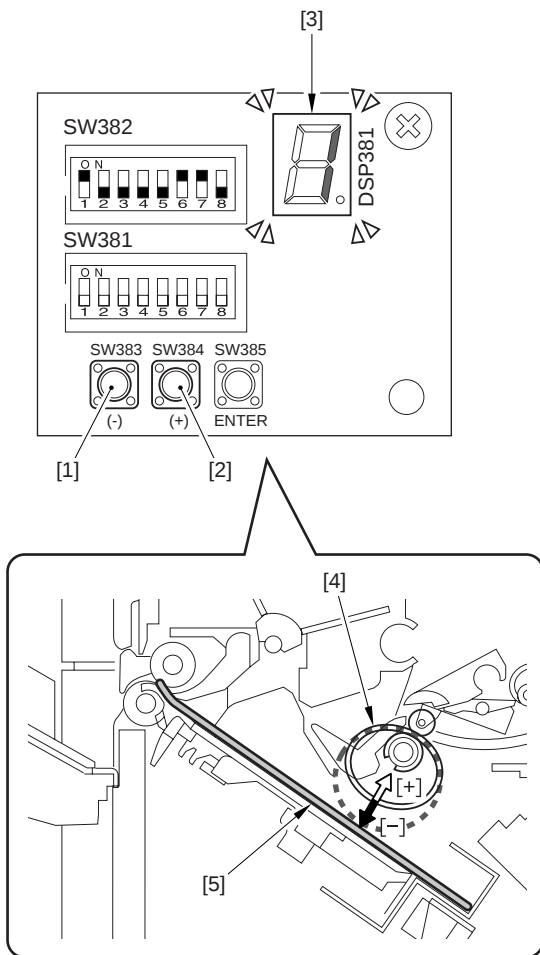
F-4-47

- 7) Press the push switch SW383 [1] or SW384 [2] to store the adjustment value.

A single press on SW383 will cause the LED to indicate '-1', closing up the distance between the belt [4] and the paper [5] and, thus, increasing the retention by the belt. On the other hand, a single press on SW384 will cause the LED to indicate '+1', distancing the belt [4] and the paper [5] and, thus, decreasing the retention by the belt. (range: +4 to -4)

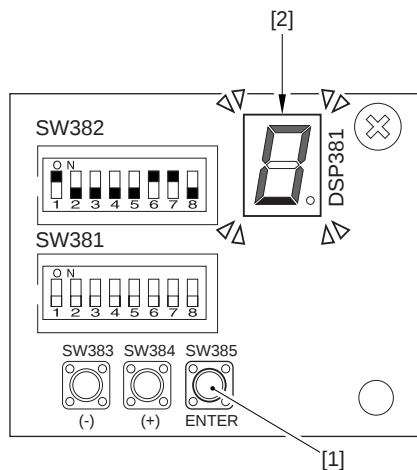
Reference:

1. If wear has occurred on the transport belt or recycled paper (i.e., with high surface resistance) is used, select a negative adjustment value (-1 to -4) to increase the retention.
2. If dents have occurred in the edge of paper, select a positive adjustment value (+1 to +4) to decrease the retention.



F-4-48

8) Press the push switch SW385 [1] to end adjustment of the transport belt. If the LED [2] indicates '0', the adjustment has ended successfully.



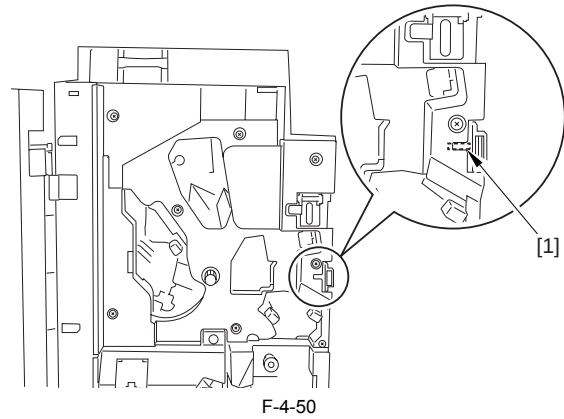
F-4-49

9) If the LED indicates '0', on the other hand, the adjustment has failed. Repeat the foregoing steps.

4.3.2.7 Adjusting the Stapling Position (rear 1-point)

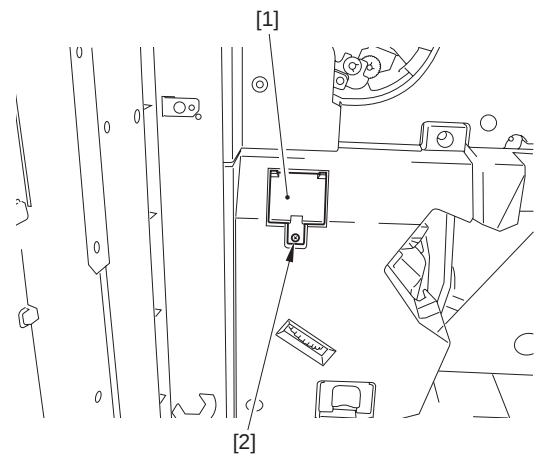
Go through the following steps if there is displacement in the stapling position (rear 1-point) or if you have replaced the EEPROM of the finisher controller PCB:

- 1) Turn on the finisher.
- 2) Turn on the host machine so that it will be in a standby state.
- 3) Open the front door, and insert the door switch actuator into the door switch [1].



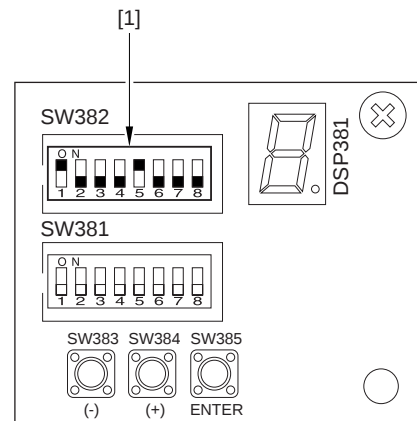
F-4-50

4) Remove the screw [2], and detach the switch cover [1].



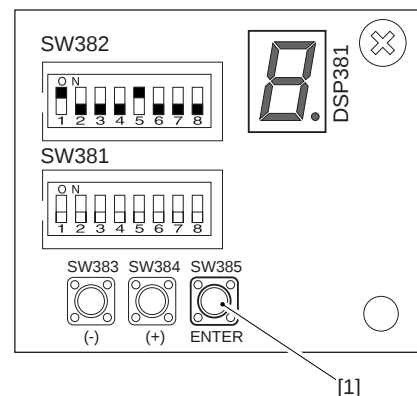
F-4-51

5) Set the DIP switch SW382 [1] of the switch PCB as follows:



F-4-52

6) Press the push switch SW385 [1] to start adjustment of the stapling position (rear 1-point).

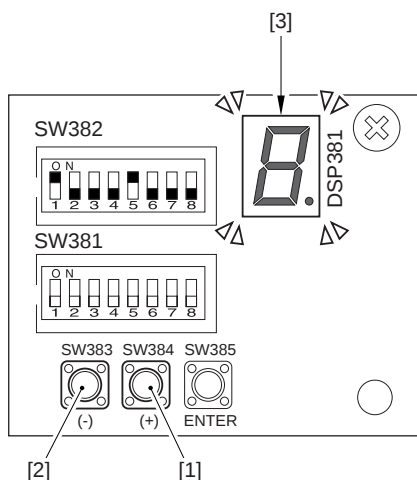


F-4-53

7) Press the push switch SW383 [1] or SW384 [2] to store the adjustment value.

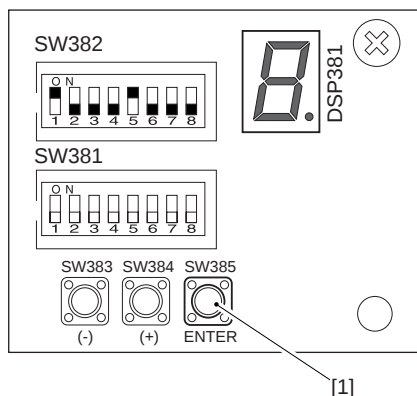
A single press on SW383 will cause the LED [3] to indicate '-1', moving the stapling position toward the rear. On the other hand, a single press on SW384 will cause the LED [3] to indicate '+1', moving the stapling position toward the front.

range of adjustment: +20 to -20 (unit: 0.5 mm)



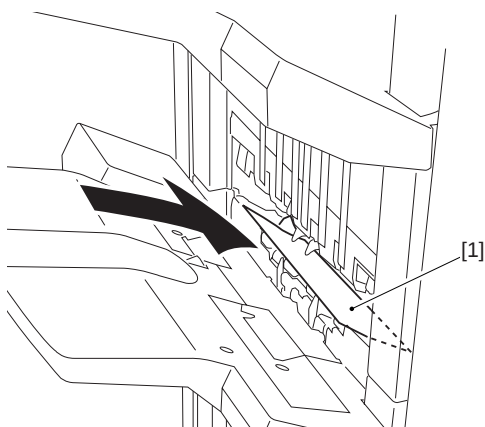
F-4-54

8) Press the push switch SW385 [1] to move the stapler to the rear.



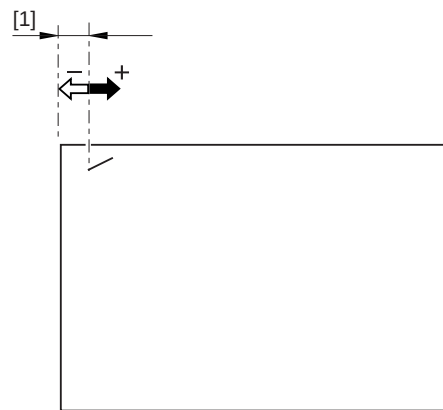
F-4-55

9) Place A4 paper [1] in the intermediate handling tray. (Be sure to butt the paper against the rear of the handling tray.) Thereafter, press the push switch SW385 to execute stapling.



F-4-56

10) Check to see that the stapling position is 5 +/-2 mm [1] as a result of the foregoing steps. Otherwise, go back to step 6).



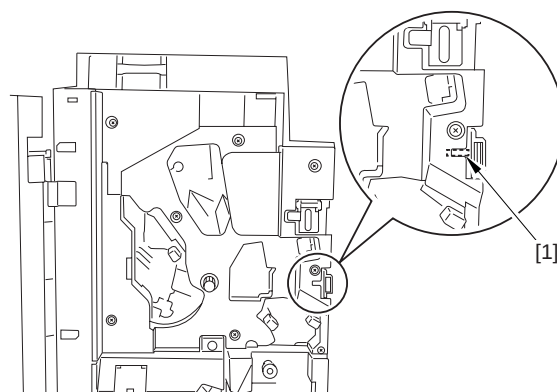
F-4-57

If the LED indicates a value other than '0', the adjustment is likely to have failed. Start over.

4.3.2.8 Adjusting the Stapling Position (front 1-point)

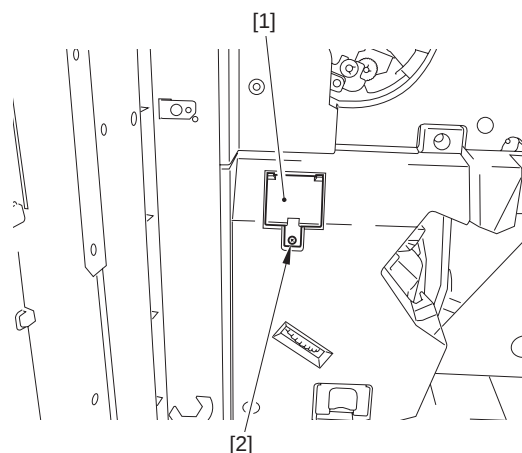
Go through the following steps if the stapling position (front 1-point) is displaced or if you have replaced the EEPROM of the finisher controller PCB:

- 1) Turn on the finisher.
- 2) Turn on the host machine so that it will be in a standby state.
- 3) Open the front door, and insert the door switch actuator into the door switch [1].



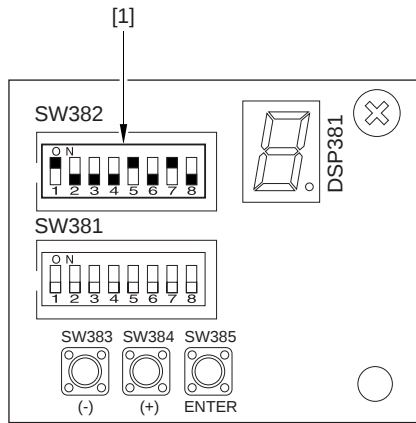
F-4-58

4) Remove the switch [2], and detach the switch cover [1].



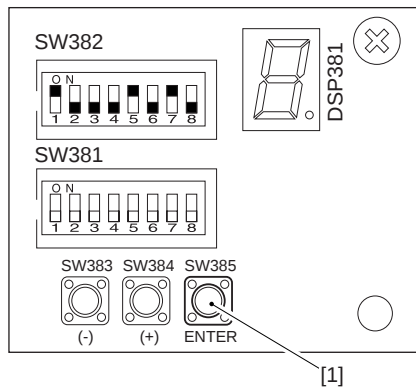
F-4-59

5) Set the DIP switch SW382 [1] on the switch PCB as follows:



F-4-60

- 6) Press the push switch SW385 [1] to start adjustment of the stapling position (front 1-point).

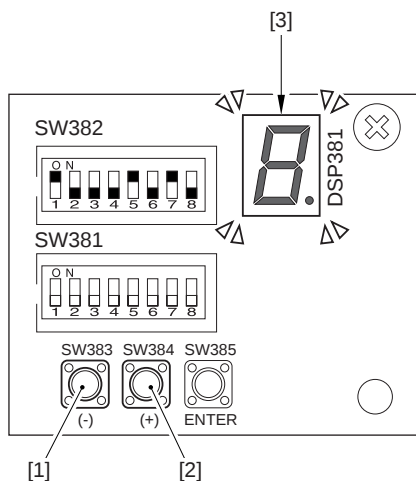


F-4-61

- 7) Press the push switch SW383 [1] or SW382 [3] to store the new adjustment value.

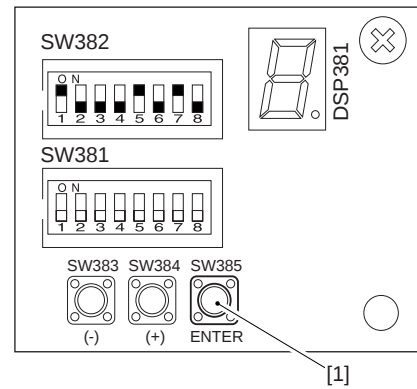
A press on SW383 causes the LED [3] to indicate '-1', moving the stapling position (front 1-point) toward the rear. On the other hand, a press on SW384 causes the LED [3] to indicate '+1', moving the stapling position toward the front.

range of adjustment: +20 to -20 (unit: 0.5 mm)



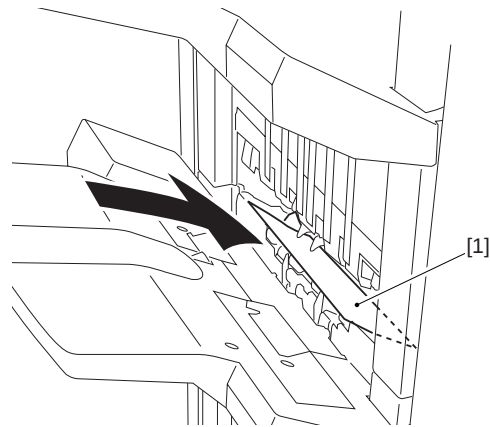
F-4-62

- 8) Press the push switch SW385 [1] to move the stapler toward the front.



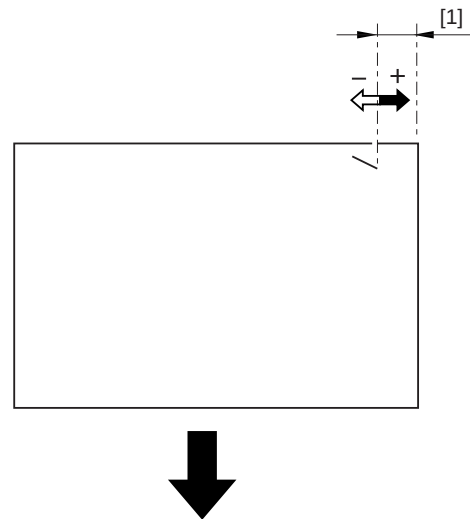
F-4-63

- 9) Place A4 paper [1] in the intermediate handling tray. (Be sure to butt the paper against the rear of the handling tray.)



F-4-64

- 10) Check to make sure that the stapling position is 5 ± 2 mm [1] as a result of the foregoing steps. Otherwise, go back to step 6).



F-4-65

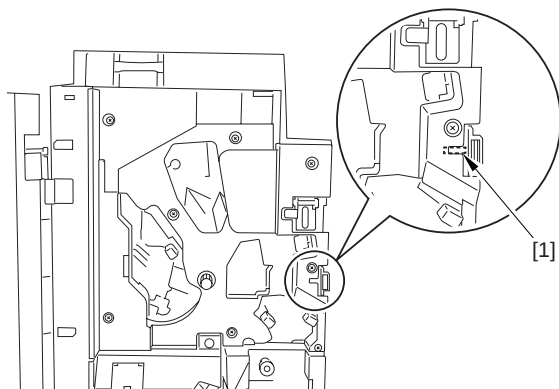


If the LED indicates other than '0', the adjustment is likely to have failed. Start over.

4.3.2.9 Using the Stapling Position (2-point)

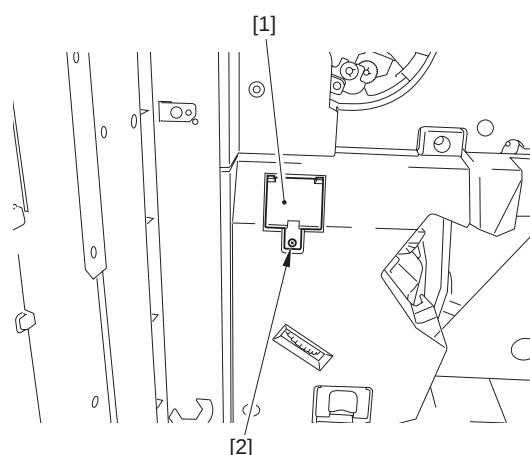
Go through the following steps if there is displacement in stapling position (2-point) or if you have replaced the EEPROM of the finisher controller PCB:

- 1) Turn on the finisher.
- 2) Turn on the host machine so that it will be in a standby state.
- 3) Open the front door, and insert the door switch actuator into the door switch [1].



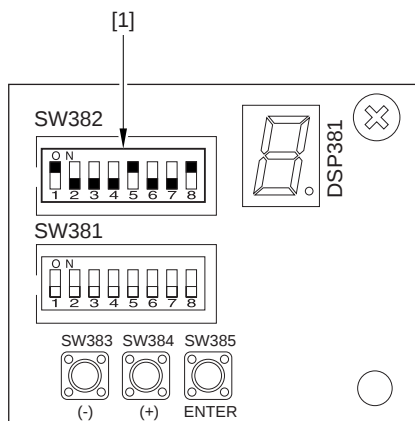
F-4-66

- 4) Remove the screw [2], and detach the switch cover [1].



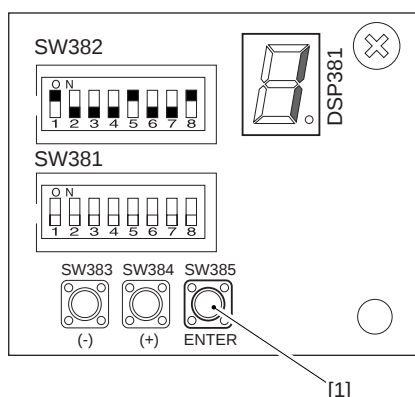
F-4-67

- 5) Set the DIP switch SW382 [1] on the switch PCB as follows:



F-4-68

- 6) Press the push switch SW385 [1] to start adjustment of stapling position (2-point).

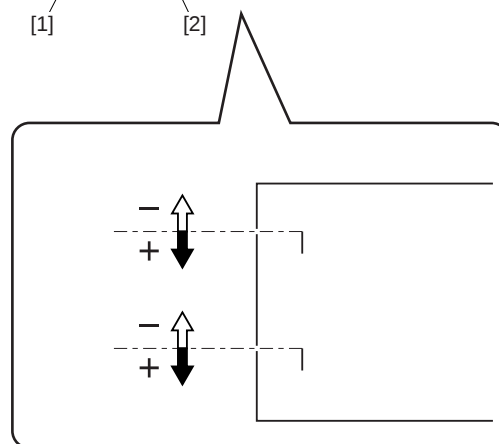
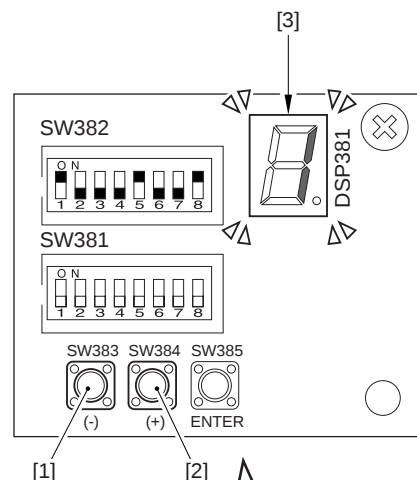


F-4-69

- 7) Press the push switch SW383 [1] or SW384 [2] to store the new adjustment value.

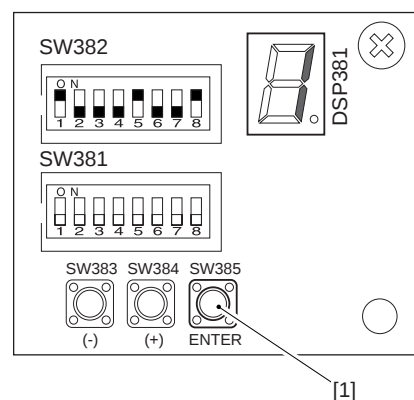
A single press on SW383 will cause the LED [3] to indicate '-1', moving the stapling position (2-point) upward. On the other hand, a single press on SW384 will cause the LED [3] to indicate '+1', moving the stapling position in downward direction.

range of adjustment: +20 to -20 (unit: 0.5 mm)



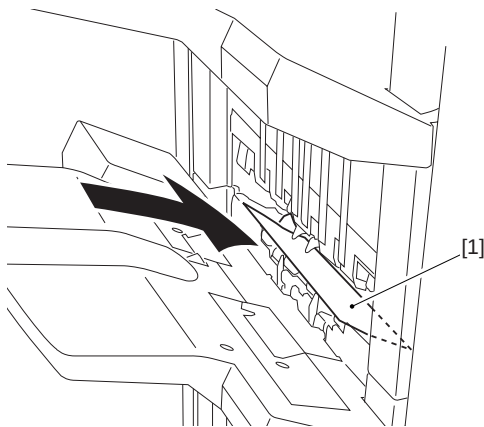
F-4-70

- 8) Press the push switch SW385 [1] to move the stapler to the 2-point stapling position.



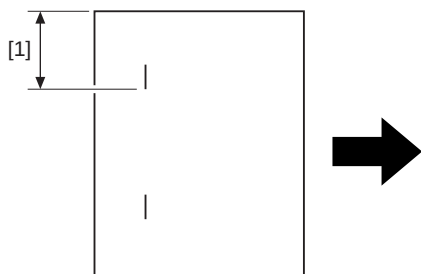
F-4-71

- 9) Place A4 paper [1] in the intermediate handling tray. (Be sure to butt the paper against the rear of the handling tray.)



F-4-72

10) Check to see that the stapling position is as follows [1] as the result of the foregoing steps: for A-Series, 86.3 +/-4 mm; for L-Series, 73.7 +/-4 mm. Otherwise, go back to step 6).



F-4-73

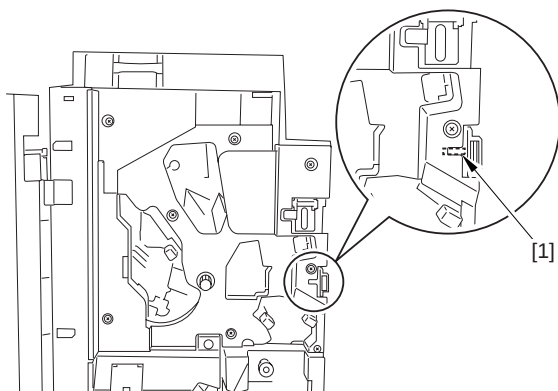


If the LED indicates other than '0', the adjustment is likely to have failed. Start over.

4.3.2.10 Adjusting the Delivery of Stapled Stacks (lower delivery)

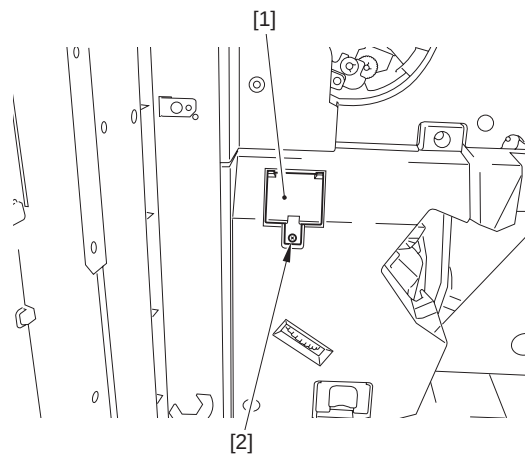
Go through the following steps if there is displacement among sheets of a stapled stack (lower delivery; cover, 1st to 3rd sheets) or if you have replaced the EEPROM of the finisher controller PCB:

- 1) Turn on the finisher.
- 2) Turn on the host machine so that it will be in a standby state.
- 3) Open the front door, and insert the door switch actuator into the door switch [1].



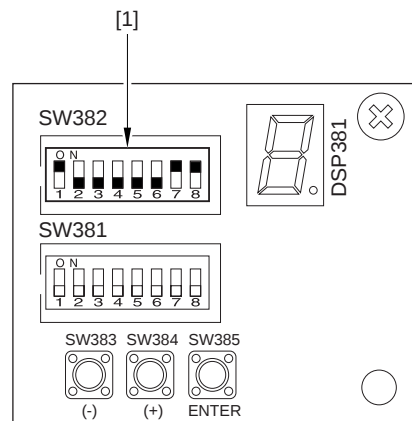
F-4-74

4) Remove the screw [2], and detach the switch cover [1].



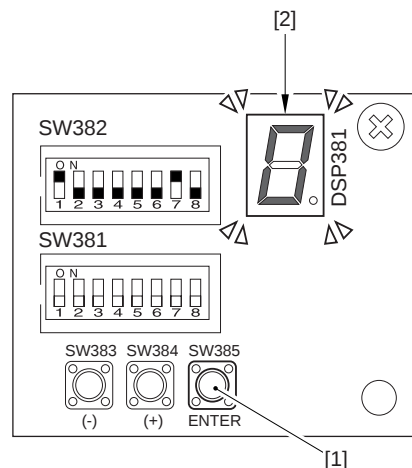
F-4-75

5) Set the DIP switch SW382 [1] on the switch PCB as follows:



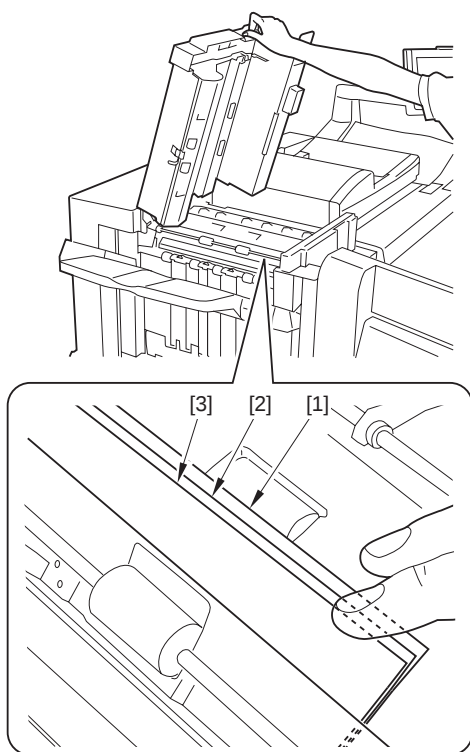
F-4-76

6) Press the push switch SW385 [1] so that the LED [2] flashes '0', indicating that the machine is ready for adjustment.

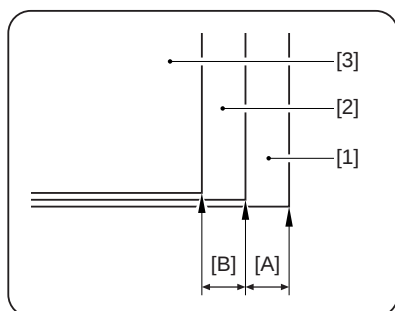


F-4-77

- 7) Place 3 originals in the ADF, and set as follows on the control panel: A4, 1 set (staple sort).
 - 8) Press the Start key on the control panel to execute copying.
 - 9) Open the upper cover, and measure the displacement (A: between 1st and 2nd sheets; B: between 2nd and 3rd sheets).
- Repeat this step 5 times, and see that the average of A and B is as indicated (2 +/-0.5 mm). If not, go through the following steps:



F-4-78



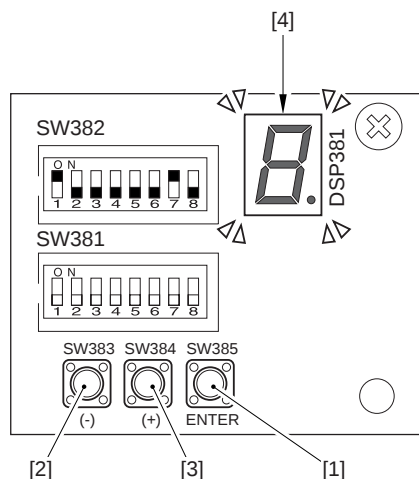
F-4-79

- [1] 1st sheet
- [2] 2nd sheets
- [3] 3rd sheets

10) If A (between 1st and 2nd sheets) or B (between 2nd and 3rd sheets) is not as indicated, go through the following:

Press the push switch SW385 [1] so that the machine is in adjustment mode for A (between 1st and 2nd sheets). Press the push switch SW383 [2] to decrease the displacement, or press SW384 [3] to increase the displacement. (The LED [4] indicates the correction value.)

range of adjustment: +30 to -30 (unit: 0.2 mm)



F-4-80

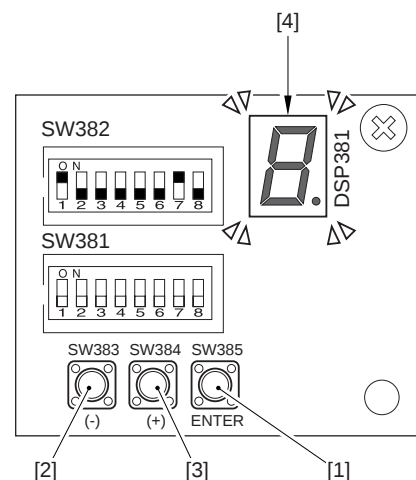
11) If B (between 2nd and 3rd sheets) is not as indicated, go through the following:

Press the push switch SW385 [1] so that the machine is in adjustment mode for B (between 1st and 3rd sheets).

Press the push switch SW382 [2] to decrease the displacement, or press SW384 [3] to increase the displacement. (The LED [4] will indicate the correction value.)

range of adjustment: +30 to -30 (unit: 0.2 mm)

Another press on SW385 will store the A/B correction value.



F-4-81

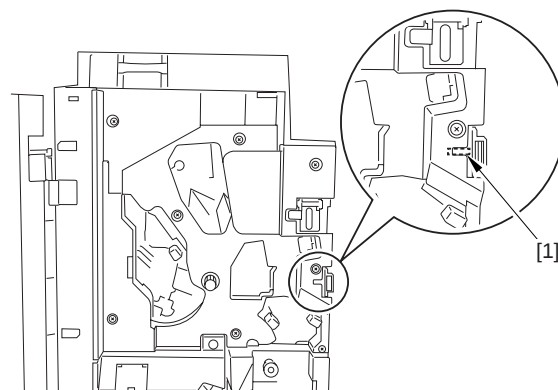
A press on the push switch SW385 while the LED is indicating '0' will cause the LED to indicate the A and B correction values in sequence.

Pay attention so that you remain aware of which correction value you are working on.

4.3.2.11 Adjusting the Delivery of Stapled Stacks (saddle delivery)

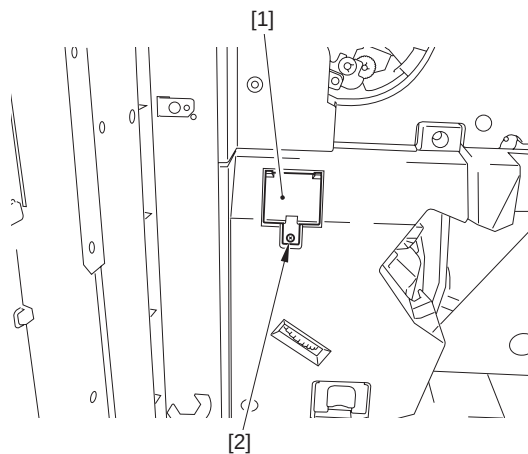
Go through the following steps if there is displacement (cover, 1st to 3rd sheets) among sheets of a stapled stack (saddle delivery) or if you have replaced the EEPROM of the finisher controller:

- 1) Turn on the finisher.
- 2) Turn on the host machine so that the machine will be in a standby state.
- 3) Open the front door, and insert the door switch actuator into the door switch [1].



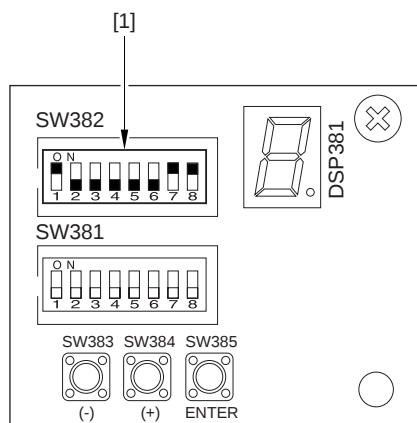
F-4-82

- 4) Remove the screw [2], and detach the switch cover [1].



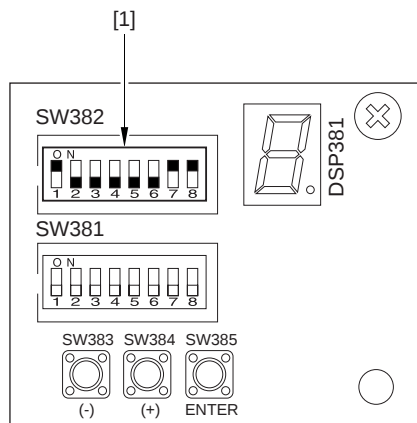
F-4-83

5) Set the DIP switch SW382 [1] on the switch PCB as follows:



F-4-84

6) Press the push switch SW385 [1] so that the LED [2] flashes '0', indicating that the machine is ready for adjustment.



F-4-85

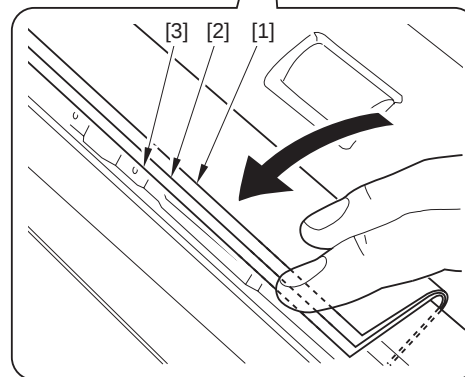
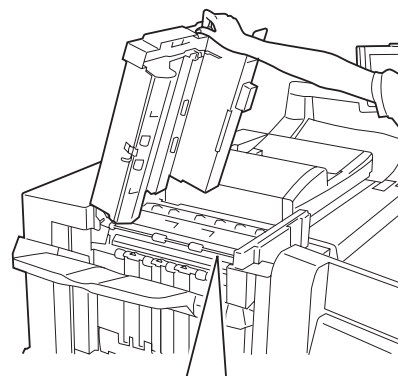
7) Place 3 originals in the ADF, and set the following on the control panel: A3, 1 set (middle stapling).

8) Press the Start key on the control panel to start printing.

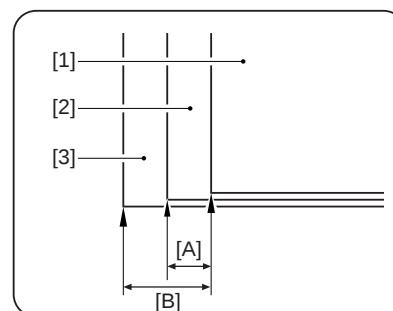
9) Open the upper cover, and measure the displacement (A: between 1st and 2nd sheets; B: between 2nd and 3rd sheets) of the stack found in the buffer assembly. Repeat this step 5 times, and see that the average of A/B is as indicated (A: 2 +/-0.5 mm; B: 6 +/-0.5mm). If not, go through the following:



Be sure to turn over the stack as follows before taking measurements:



F-4-86



F-4-87

[1] 1st sheet

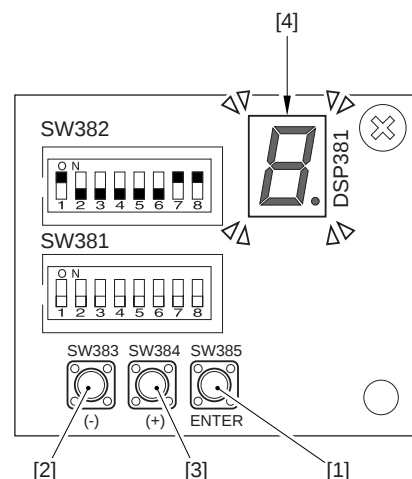
[2] 2nd sheets

[3] 3rd sheets

10) If A (between 1st and 2nd sheets) or B (between 2nd and 3rd sheets) is not as indicated, go through the following:

Press the push switch SW385 [1] once so that the machine is ready for adjustment of A (between 1st and 2nd sheets). A press on the push switch SW383 [2] will decrease the displacement, while a press on SW384 [3] will increase the displacement. (The LED [4] will indicate the correction value.)

range of adjustment: +30 to -30 (unit: 0.2 mm)



F-4-88

11) If B (between 1st and 3rd sheets) is not as indicated, go through the

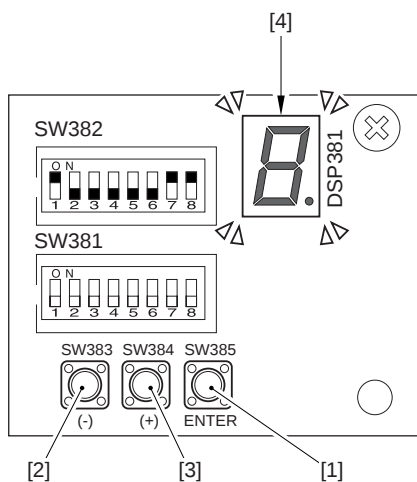
following:

Press the push switch SW385 [1] so that the machine is ready for adjustment of B (cover, between 1st and 3rd sheets).

A press on the push switch SW383 [2] will decrease the displacement, while a press on SW384 [3] will increase the displacement. (The LED [4] will indicate the correction value.)

range of adjustment: +30 and -30 (unit: 0.2 mm)

Another press on SW385 will store the new A/B correction value.



F-4-89

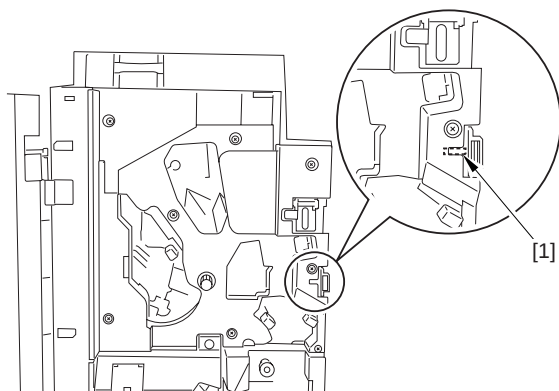


A press on the push switch SW385 while the LED is indicating '0' will cause the LED to indicate the A and B correction values in sequence. Pay attention to remain aware of which correction value you are working on.

4.3.2.12 Adjusting the Saddle Binding Position

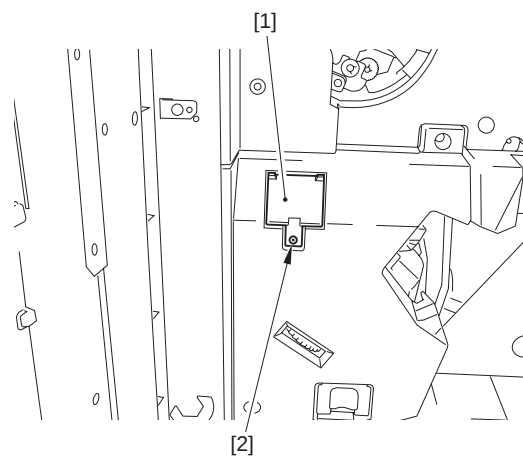
Go through the following steps if there is displacement in stitching position (saddle delivery) or if you have replaced the EEPROM of the finisher controller PCB:

- 1) Turn on the finisher.
- 2) Turn on the host machine so that it will be in a standby state.
- 3) Open the front door, and insert the door switch actuator into the door switch [1].



F-4-90

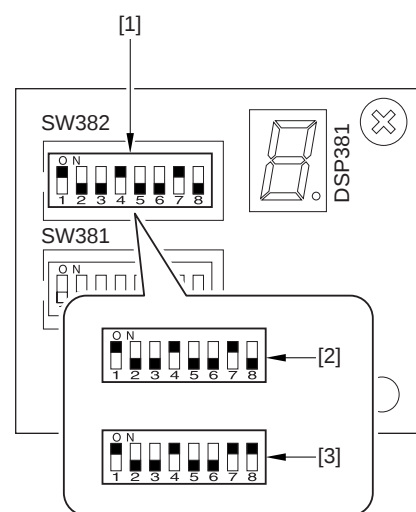
- 4) Remove the screw [2], and detach the switch cover.



F-4-91

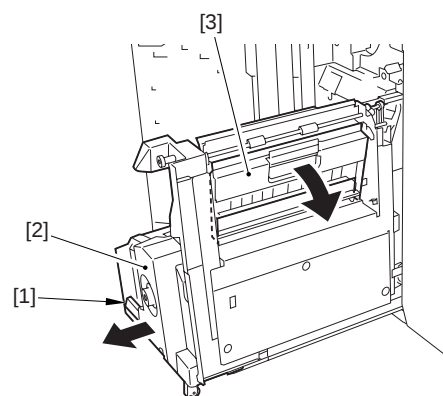
- 5) Set the DIP switch DIP SW382 [1] on the switch PCB as follows:

- for A-Series, [2]
- for L-Series, [3]



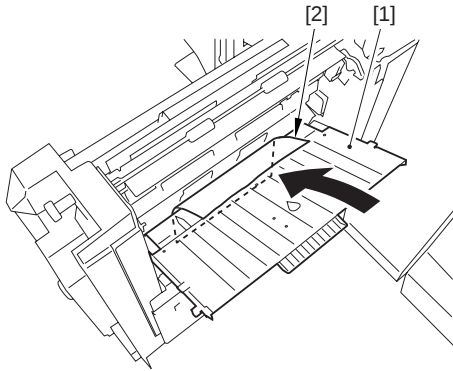
F-4-92

- 6) Hold the lever [1], and slide out the saddle unit [2]; then, open the saddle right guide [3].



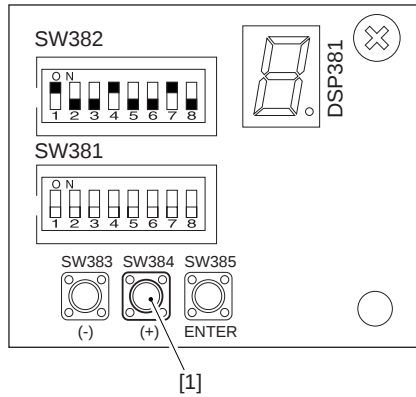
F-4-93

- 7) Place paper (A4 or LTR) [1] along the transport guide. (Be sure to butt the paper against the positioning plate.)



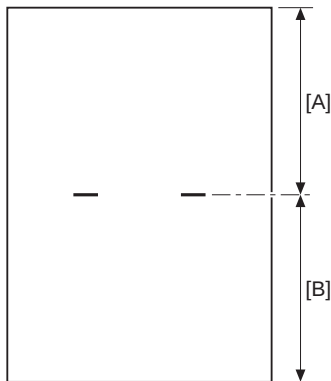
F-4-94

8) Press the push switch SW384 [1] once to start stitching operation.



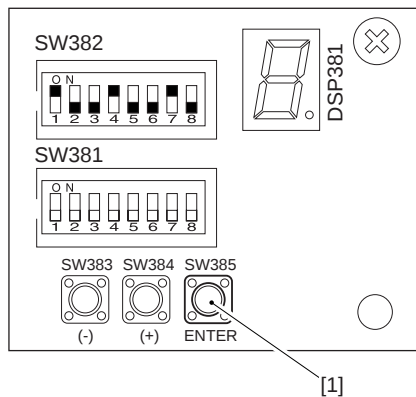
F-4-95

9) Remove the paper, and measure the stitching position (A, B).



F-4-96

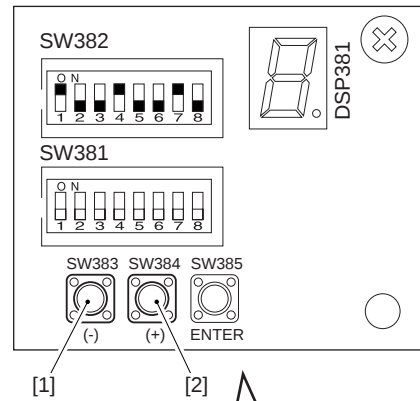
10) If the measurements (A, B) are as indicated (i.e., if A - B is within 0.5 mm), press the push switch SW385 [1] once to end adjustment mode. If not, go through the following:



F-4-97

11) Press the push switch (SW383, SW384) according to the degree of displacement from the standard.
A press on SW383 [1] will move the stapling position upward, while a press on SW384 [2] will move it downward.

range of adjustment: +5 to -5 (unit: 0.2 mm)

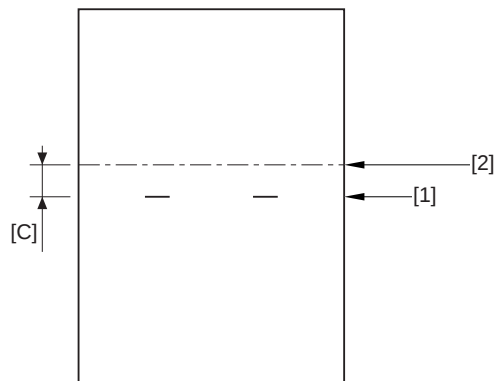


F-4-98

4.3.2.13 Adjusting the Saddle Folding Position

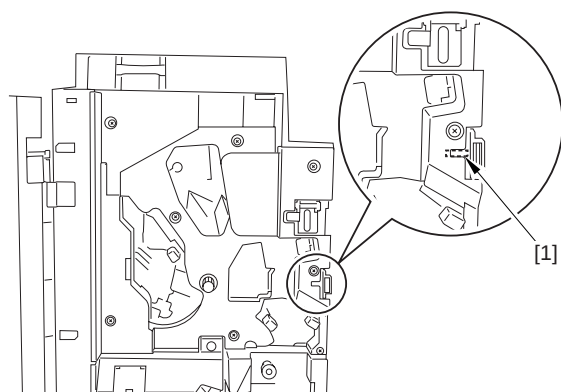
Go through the following steps if there is displacement in folding position (saddle delivery) or if you have replaced the EEPROM of the finisher controller PCB:

- 1) Turn on the finisher.
- 2) Turn on the host machine so that it will be in a standby state.
- 3) Set the machine for a set of 20 sheets on the control panel, and execute printing.
- 4) Spread open the bound booklet, and measure the following position [2] in relation to the stapling position [1].
If the measurement is as indicated (i.e., C is 0.5 mm or less), end the adjustment. Otherwise, go through the following:



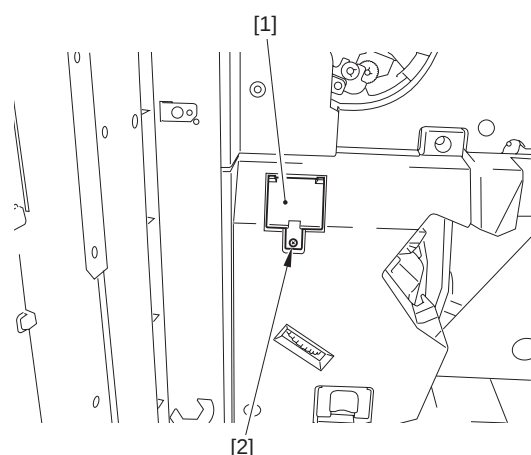
F-4-99

5) Open the front door, and insert the door switch actuator into the door switch [1].



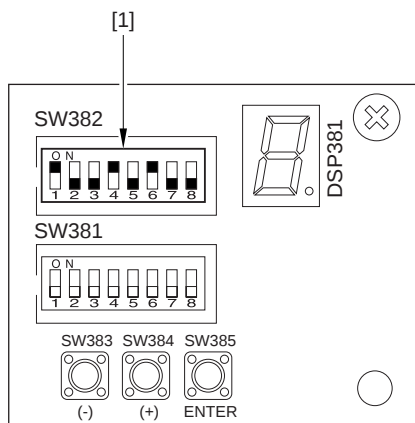
F-4-100

6) Remove the screw [2], and detach the switch cover [1].



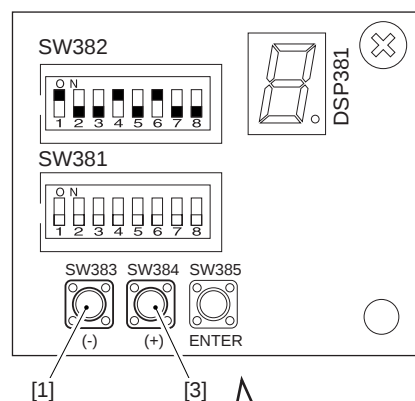
F-4-101

7) Set the DIP switch DIPSW382 [1] on the switch PCB as follows:



F-4-102

6) Obtain the correction value from the measurement, and press the 2 push switches (SW383, SW384) as necessary to correct. A press on SW383 [1] will move the folding position [2] upward, while a press on SW 384 [3] will move it downward.
range of adjustment: +30to -30 (unit: 0.1 mm)



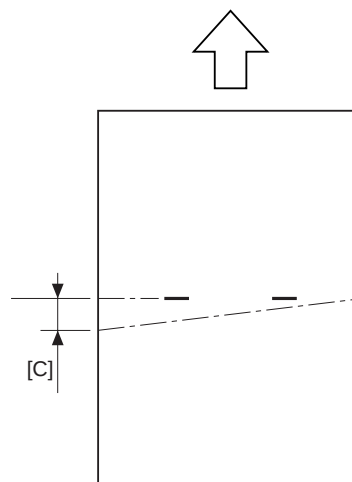
F-4-103

9) Press the push switch SW385 once to end adjustment mode.

4.3.2.14 Adjusting the Saddle Lead Edge Stopper Position

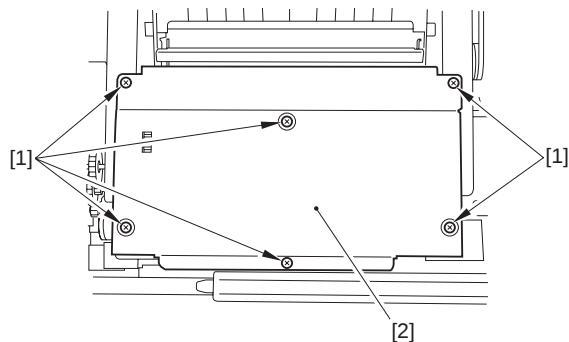
Go through the following steps if the saddle folding position has become displaced.

1) Generate a print using the saddle assembly, and measure the displacement (C) of the folding position.



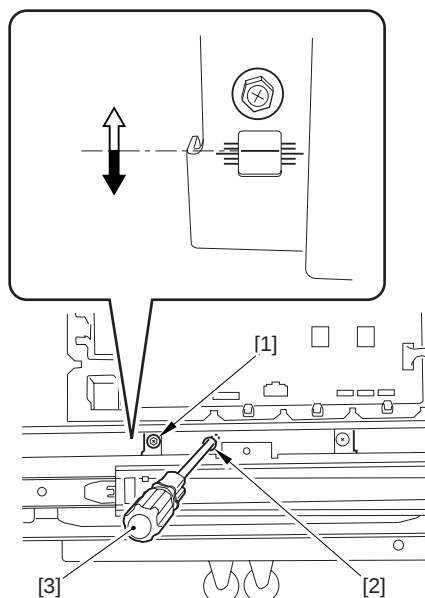
F-4-104

2) Slide out the saddle assembly; then, remove the 5 screws [1], and detach the PCB cover [2].



F-4-105

3) Loosen the fixing screw [1] of the lead edge stopper, and change the position of the stopper to suit the displacement (C) of the following position measured in the foregoing step. (A single index will cause a change of 1 mm.) Specifically, insert a Phillips screwdriver into the adjusting hole, and move the screwdriver up/down to move to a different index.



F-4-106

4.4 Troubleshooting

4.4.1 Malfunction

4.4.1.1 Malfunction/Faulty Detection

4.4.1.1.1 The output is sent to tray B even when tray A is selected.

0011-8041

[Case Study]

Description

Enabling the following in user mode will select tray B as the destination of output (large-capacity stacking mode): initial setup/registration>common spec set-up>large-capacity stacking mode.

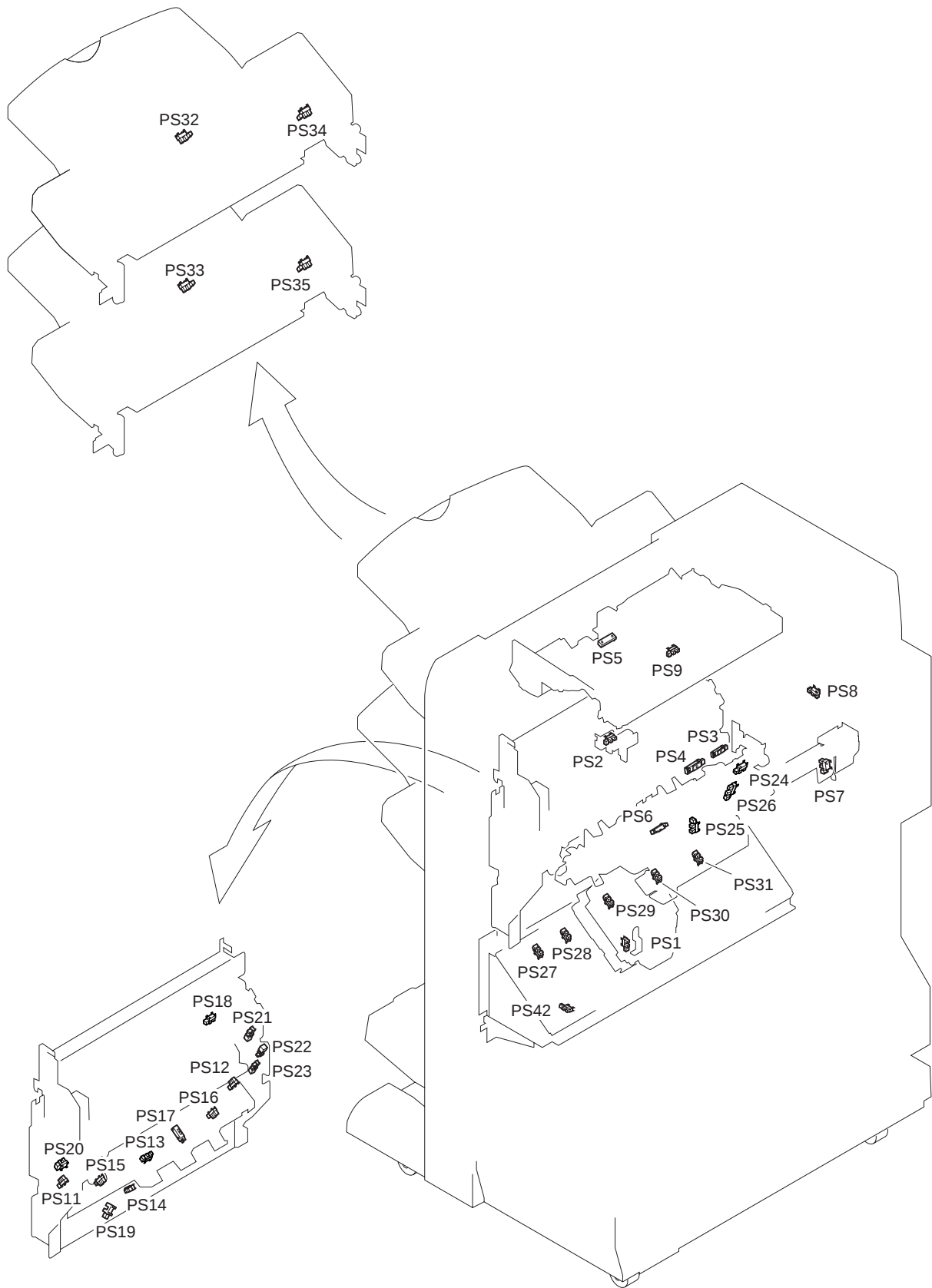
Once the setting has been enabled (ON), the target of output will be tray B, regardless of the selection made on the control panel.

Field Remedy

Disable (OFF) 'large-capacity stacking mode' in user mode so that the target of output may freely be selected on the control panel.

4.5 Outline of Electrical Components

4.5.1 Sensors (Finisher Unit)



F-4-107

T-4-5

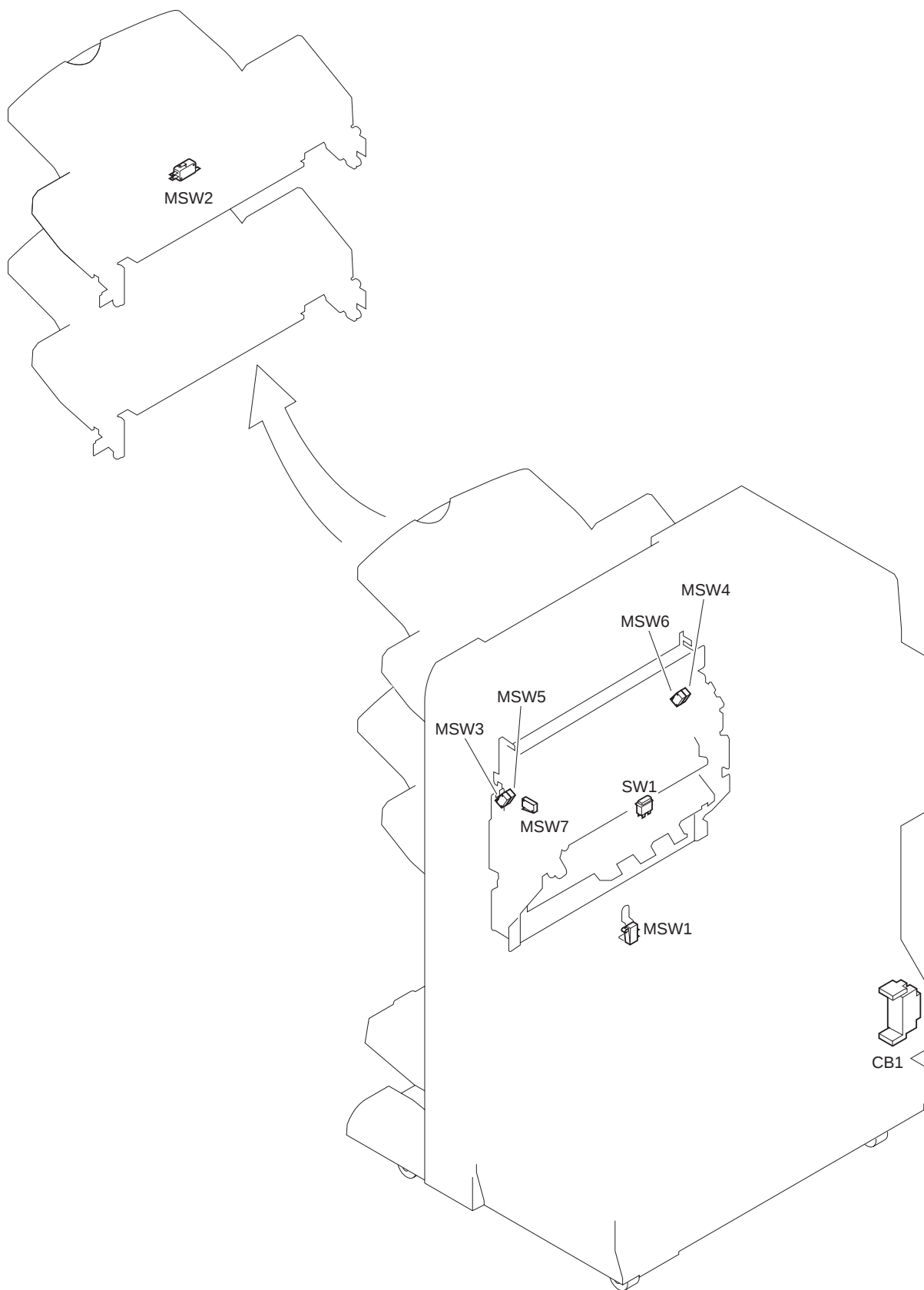
Notation	Name	Description	Parts No.	Jam	Error
PS1	front cover open sensor	detects the state (open/closed) of the front cover	FK2-0149	1422	
PS2	upper cover open/closed sensor	detects the state (open/closed) of the upper cover	FK2-0149	1422	
PS3	inlet sensor	detects paper at the inlet	WG8-5736	1002/1103	
PS4	shift unit trail edge sensor	detects paper in the shift unit	WG8-5736	1004/1105	
PS5	upper delivery sensor	detects paper in the upper delivery assembly	WG8-5736	100A/110B	
PS6	lower delivery sensor	detects paper in the lower delivery sensor	WG8-5736	100E/110F	
PS7	horizontal registration HP sensor	detects the home position of the horizontal registration unit	FK2-0149		E566
PS8	shift roller unit HP sensor	detects the home position of the shift roller unit	FK2-0149		E567
PS9	transport roller HP sensor	detects the home position of the transport roller	FK2-0149		E568
PS11	front alignment HP sensor	detects the home position of the front aligning plate	FK2-0149		E537
PS12	rear alignment HP sensor	detects the home position of the rear aligning plate	FK2-0149		E530
PS13	assist HP sensor	detects the home position of the assist unit	FK2-0149		E514
PS14	stack delivery auxiliary tray HP sensor	detects the home position of the stack delivery auxiliary tray	FK2-0149		E583
PS15	paper edge area 1 sensor	detects paper in the area	FK2-0149		E57A
PS16	paper edge area 2 sensor	detects paper in the area	FK2-0149		E57A
PS17	handling tray paper sensor	detects paper in the handling tray	FK2-0149		
PS18	swing motor rotation sensor	detects the rotation of the swing motor	FK2-0149		
PS19	shutter HP sensor	detects home position of the shutter	FK2-0149		E584
PS20	paddle rotation HP sensor	detects the home position of the paddle rotation	FK2-0149		E577
PS21	paddle lifter HP sensor	detects the home position of the paddle lifter operation	FK2-0149		E577
PS22	swing guide closed sensor	detects the opening operation of the swing guide	FK2-0149		E535
PS23	swing guide open sensor	detects closing operation of the swing guide	FK2-0149		E535
PS24	paper trail edge push mechanism HP sensor	detects the home position of the paper trail edge push mechanism	FK2-0149		E57B
PS25	transport belt HP sensor	detects the home position of the transport belt	FK2-0149		E578
PS26	upper guide HP sensor	detects the home position of the upper guide	FK2-0149		E57C
PS27	stapling position HP sensor	detects the home position of stapling	FK2-0149		
PS28	stapling position sensor 1	detects stapling position	FK2-0149		
PS29	stapling position sensor 2	detects stapling position	FK2-0149		
PS30	stapling position sensor 3	detects stapling position	FK2-0149		
PS31	stapling position sensor 4	detects stapling position	FK2-0149		
PS32	tray A paper sensor	detects paper in tray A	FK2-0149		E540
PS33	tray B paper sensor	detects paper in tray B	FK2-0149		E542
PS34	tray A lifter motor rotation sensor	detects lifter operation of tray A	FK2-0149		E540
PS35	tray B lifer motor rotation sensor	detects lifter operation of tray B	FK2-0149		E542
PS42	staple waste case full sensor	detects the state (full) of the staple waste case	FK2-0149		

T-4-6

Notation	Shift relay PCB	Transport motor driver PCB	Finisher controller PCB
PS1			J117
PS2			J117
PS3			J117
PS4	J463/J461	J278/J271	J118
PS5		J279/J271	J118
PS6			J116
PS7			J116
PS8			J116
PS9		J279/J271	J118

Notation	Shift relay PCB	Transport motor driver PCB	Finisher controller PCB
PS11		J257/J252	J104
PS12		J256/J252	J104
PS13		J256/J252	J104
PS14		J253/J252	J104
PS15		J257/J252	J104
PS16		J256/J252	J104
PS17		J256/J252	J104
PS18		J253/J252	J104
PS19		J253/J252	J104
PS20		J253/J252	J104
PS21		J253/J252	J104
PS22		J253/J252	J104
PS23		J253/J252	J104
PS24			J116
PS25		J263/J251	J104
PS26		J263/J251	J104
PS27			J114
PS28			J114
PS29			J114
PS30			J114
PS31			J114
PS32			J109
PS33			J108
PS34			J109
PS35			J108
PS42			J121

4.5.2 Microswitches (Finisher Unit)

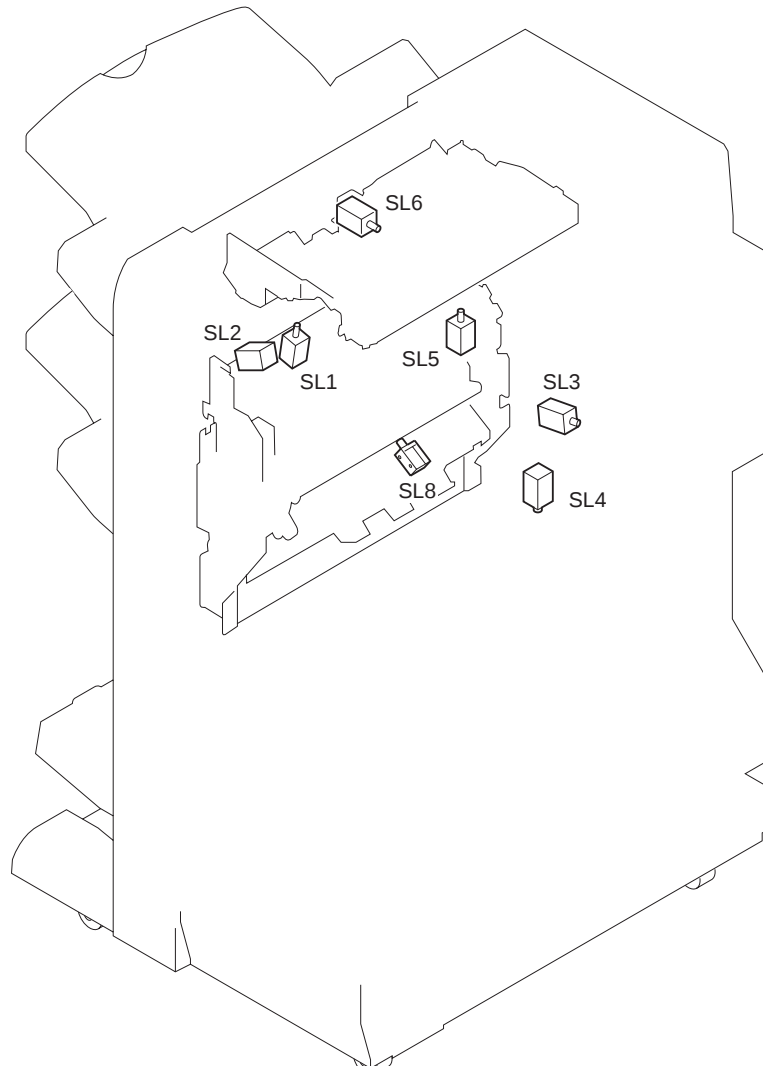


F-4-108

T-4-7

Notation	Name	Description	Parts No.	Jam	Error	Finisher controller PCB
MSW1	front door switch	detects the state (open/closed) of the front door	WC4-5231	1422		J101
MSW2	tray approach switch	detects the approach of the tray	WC4-5159		E540	J101
MSW3	tray safety switch (front)	detects the tray (front) for safety	WC4-5159			J111
MSW4	tray safety switch (rear)	detects the tray (rear) for safety	WC4-5159			J111
MSW5	stapler safety switch (front)	detects the stapler (rear) for safety	FH7-6336			J101
MSW6	stapler safety switch (rear)	detects the stapler (rear) for safety	FH7-6336			J101
MSW7	swing guide safety switch	detects the swing guide for safety	FH7-6336			J113
SW1	main switch		FK2-1741			J103
CB1	circuit breaker		FH7-7625			J103

4.5.3 Solenoids (Finisher Unit)



F-4-109
T-4-8

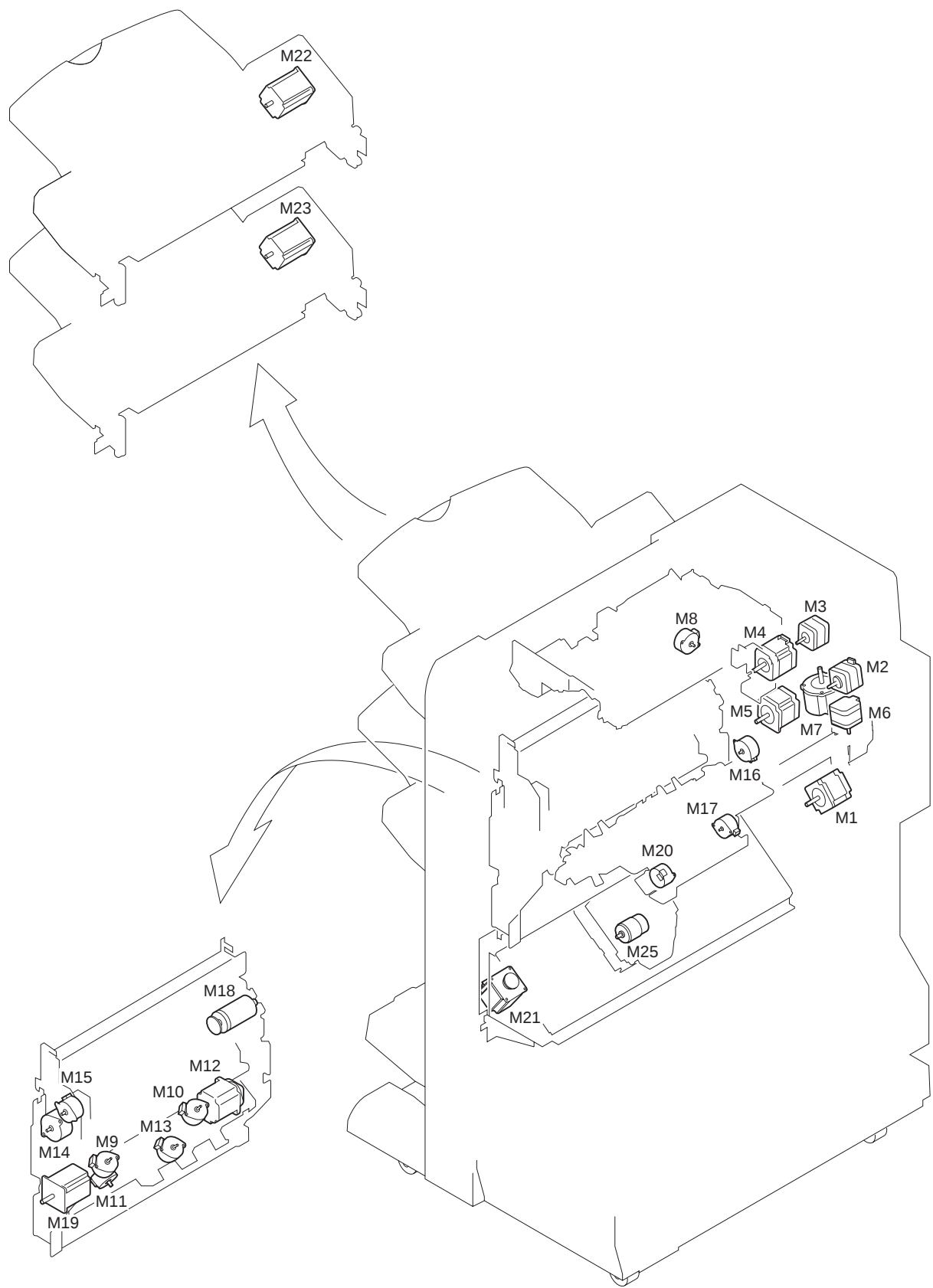
Notation	Name	Parts No.	Error
SL1	buffer switchover solenoid	FK2-1740	
SL2	upper path solenoid	FK2-1740	
SL3	saddle path switchover solenoid	FK2-1740	
SL4	assist roller 1 shift solenoid	FK2-1740	
SL5	assist roller 2 shift solenoid	FK2-1740	
SL6	assist roller 3 shift solenoid	FK2-1740	
SL8	handling tray solenoid	FK2-1782	

T-4-9

Notation	Transport motor driver PCB	Handling tray driver PCB	Finisher controller PCB
SL1			J117
SL2			J117

Notati on	Transport motor driver PCB	Handling tray driver PCB	Finisher controller PCB
SL3			J116
SL4			J117
SL5			J117
SL6	J279/271		J118
SL8		J259/J252	J104

4.5.4 Motors (Finisher Unit)



F-4-110

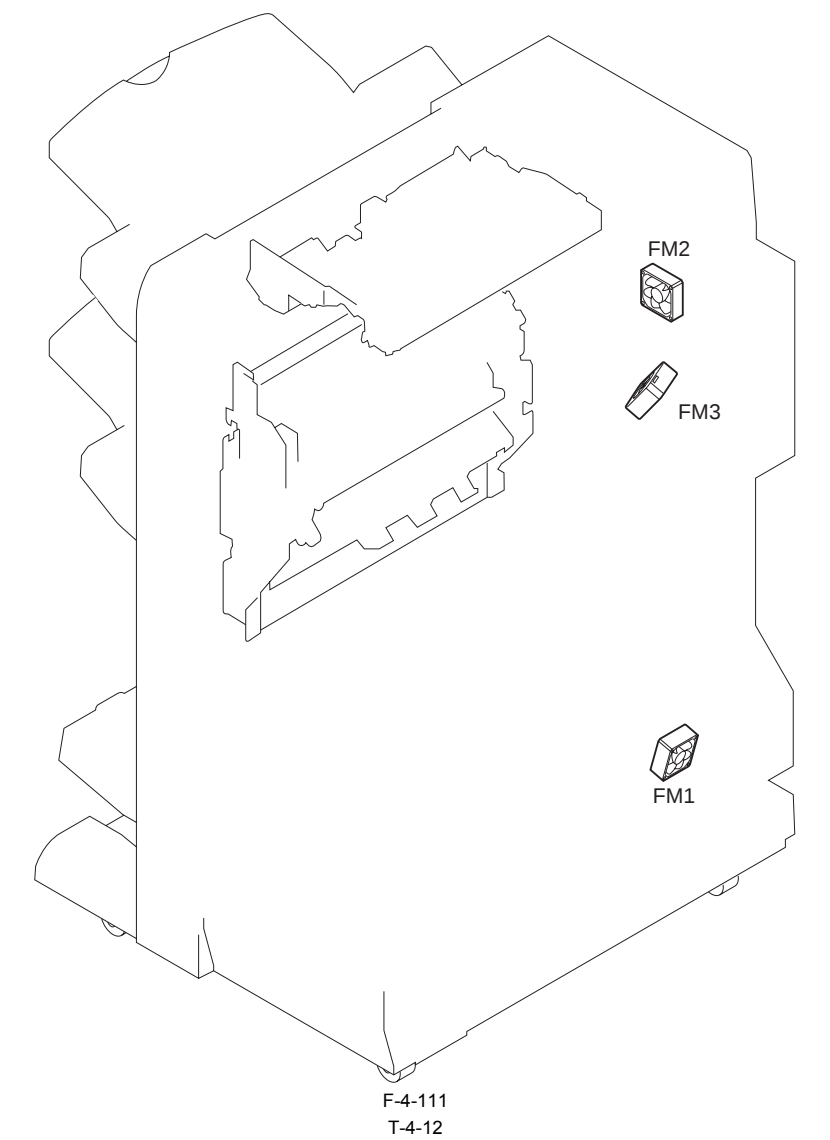
T-4-10

Notation	Name	Parts No.	Error
M1	inlet transport motor	FK2-1704	
M2	shift transport motor	FK2-1705	
M3	pre-buffer transport motor	FK2-1705	
M4	buffer motor	FK2-1704	
M5	delivery motor	FK2-1704	
M6	horizontal registration detection unit shift motor	FK2-1709	E566
M7	horizontal shift motor	FK2-1710	E567
M8	transport roller shift motor	FK2-1711	E568
M9	front alignment motor	FK2-1712	E537
M10	rear alignment motor	FK2-1712	E530
M11	paper edge stopper shift motor	FK2-1714	E57A
M12	assist motor	FK2-1715	E514
M13	stack delivery auxiliary motor	FK2-1716	E57B
M14	paddle rotation motor	FK2-1717	E577
M15	paddle lifter motor	FK2-1718	E577
M16	paper trail edge push motor	FK2-1718	E57B
M17	transport belt shift motor	FK2-1718	E578
M18	swing guide motor	FH6-1644	E535
M19	stack delivery motor	FK2-1722	
M20	upper guide motor	FK2-1718	E57B
M21	stapler shift motor	FK2-1724	E532
M22	tray A lifter motor	FK2-1725	E540
M23	tray B lifter motor	FK2-1725	E542
M25	stapler motor	FM2-6541	E531

T-4-11

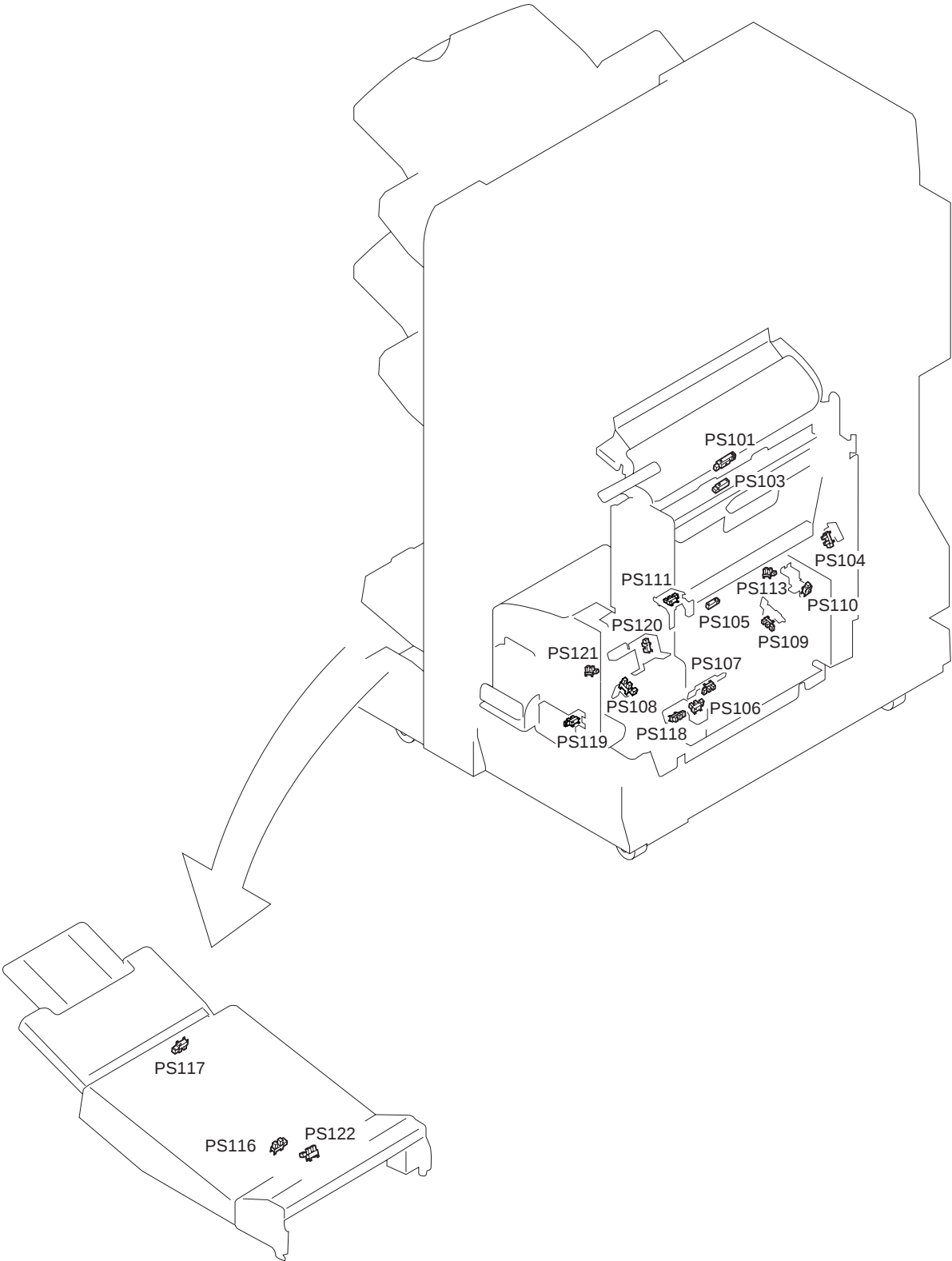
Notation	Transport motor driver PCB	Handling tray driver PCB	Stapler driver PCB	tray A motor driver PCB/tray B motor driver PCB	Finisher controller PCB
M1	J273/J271				J118
M2	J278/J271				J118
M3	J276/J271				J118
M4	J277/J271				J118
M5	J275/J271				J118
M6	J276/J271				J118
M7	J277/J271				J118
M8	J279/J271				J118
M9		J257/J252			J104
M10		J256/J252			J104
M11		J257/J252			J104
M12		J264/J252			J104
M13		J260/J252			J104
M14		J260/J252			J104
M15		J259/J252			J104
M16		J258/J252			J104
M17		J263/J252			J104
M18		J264/J252			J104
M19		J264/J252			J104
M20		J263/J252			J104
M21			J317/J311		J114
M22				J291/J292	J109
M23				J291/J292	J108
M25			J315/J311		J114

4.5.5 Fans (Finisher Unit)



Notati on	Name	Parts No.	Error	Finisher controller PCB
FM1	power supply fan	FK2-0636	E551	J103
FM2	transport fan 1	FK2-0636	E551	J116
FM3	transport fan 2	FK2-0636	E551	J116

4.5.6 Sensors (Saddle Stitcher Unit)



F-4-112

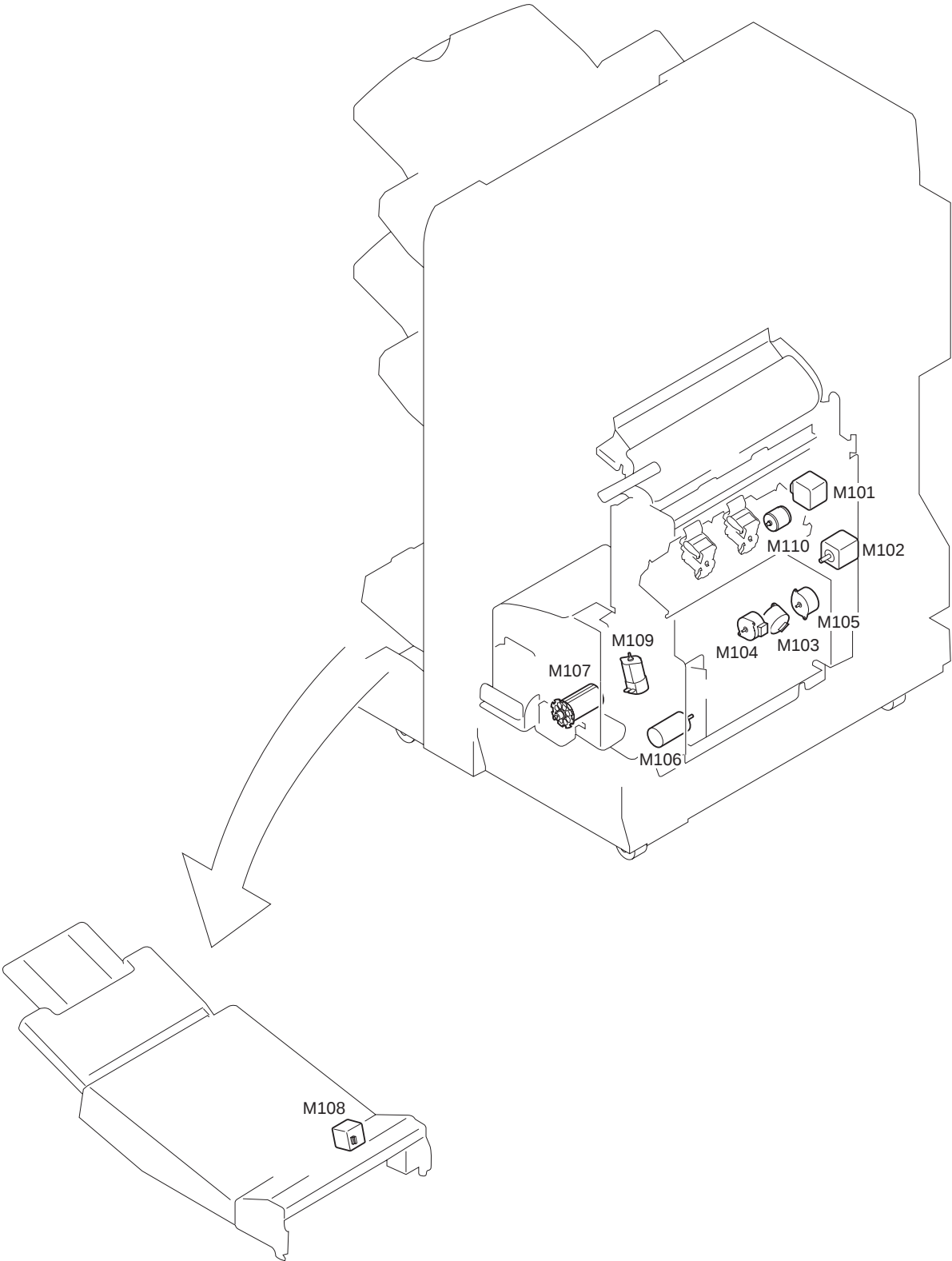
T-4-13

Notation	Name	Description	Parts No.	Jam	Error
PS101	saddle inlet sensor	detects paper at the saddle inlet	FK2-0149	1042/1143	
PS103	saddle small sensor	detects the trail edge of paper in the vertical path assembly 1	FK2-0149	1044/1145	
PS104	saddle pull-in roller HP sensor	detects the home position of the saddle pull-in roller	FK2-0149		
PS105	saddle vertical path sensor	detects paper in the vertical path assembly	FK2-0149	1147	
PS106	saddle lead edge path sensor	detects paper in the saddle lead edge path	FK2-0149		
PS107	saddle lead edge stopper HP sensor	detects the home position of the saddle lead edge stopper	FK2-0149		E5F0
PS108	saddle aligning plate HP sensor	detects the home position of the saddle aligning plate	FK2-0149		E5F3
PS109	saddle roller guide HP sensor	detects the home position of the saddle roller guide	FK2-0149		E5F2
PS110	saddle paper stop plate HP sensor	detects the home position of the saddle paper stop plate	FK2-0149		
PS111	saddle pre-pressing HP sensor	detects paper in front of the saddle pressing unit	FK2-0149	104A/114B	
PS113	saddle HP sensor	detects the home position of the saddle pressing unit	FK2-0149	1054/1155	E5F9
PS116	saddle delivery tray sensor 1	detects paper in the saddle delivery tray	FK2-0149		
PS117	saddle delivery sub tray sensor	detects paper in the saddle delivery sub tray	FK2-0149		
PS118	saddle paper stop plate motor rotation sensor	detects the rotation of the saddle paper stop plate motor	FK2-0149		E5F6
PS119	saddle folding/transport motor rotation sensor	detects the rotation of the saddle folding/transport motor	FK2-0149		E5F1
PS120	saddle pressing motor rotation sensor	detects the rotation of the saddle pressing motor	FK2-0149		
PS121	saddle pressing positioning sensor	detects saddle pressing position	FK2-0149		E5F9
PS122	saddle delivery tray sensor 2	detects paper in the saddle delivery tray	FK2-0149		

T-4-14

Notation	Handling tray driver PCB	Saddle stitcher controller PCB
PS101		J209
PS103		J209
PS104		J209
PS105		J209
PS106		J106
PS107		J212
PS108		J212
PS109		J209
PS110		J209
PS111		J204
PS113		J204
PS116	J255	J105
PS117	J255	J105
PS118		J213
PS119		J212
PS120		J204
PS121		J204
PS122	J255	J105

4.5.7 Motors (Saddle Stitcher Unit)

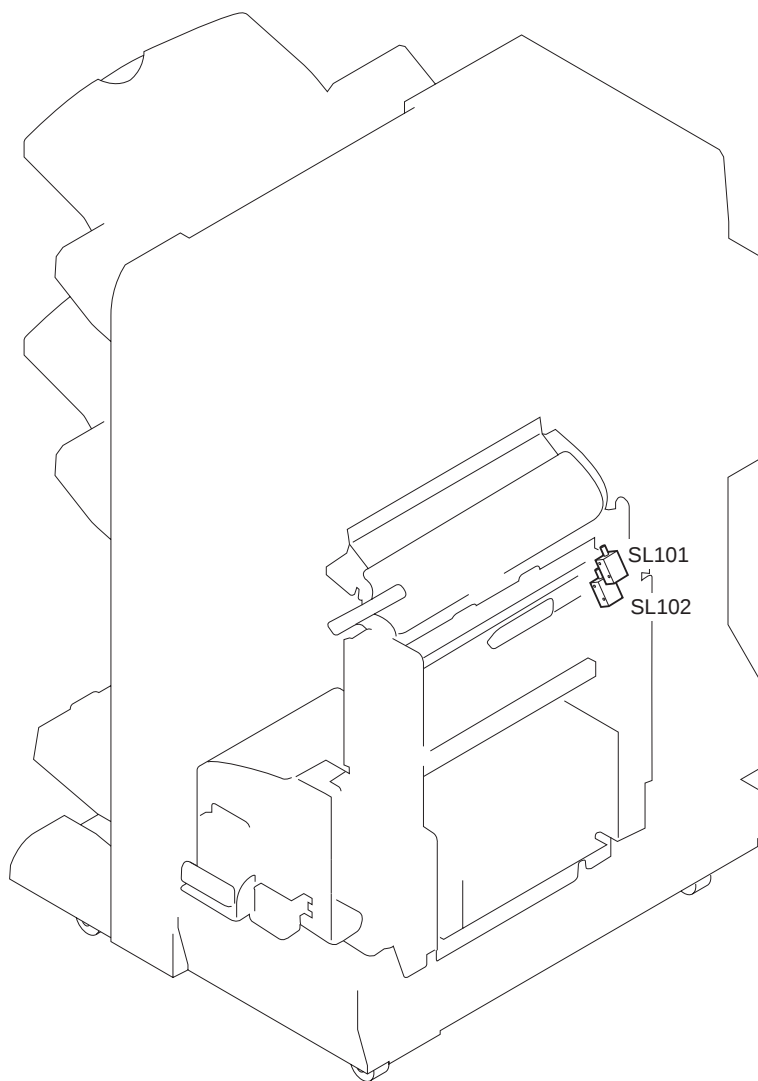


F-4-113

T-4-15

Notation	Name	Parts No.	Error	Handling tray delivery PCB	Saddle stitcher controller PCB	Finisher controller PCB
M101	saddle transport motor	FK2-1728			J205/J203	J130
M102	saddle pull-in roller shift motor	FK2-1729			J204/J203	J130
M103	saddle alignment motor	FK2-1730	E5F3		J211/J203	J130
M104	saddle guide motor	FK2-1731	E5F2		J211/J203	J130
M105	saddle lead edge stopper motor	FK2-1732	E5F0		J204/J203	J130
M106	saddle paper stop plate motor	FK2-1733	E5F6		J206/J203	J130
M107	saddle folding/transport motor	FK2-1734	E5F1		J210/J203	J130
M108	saddle delivery belt motor	FK2-1735		J255/J252		J104
M109	saddle pressing motor	FK2-1736	E5FA		J210/J203	J130
M110	saddle stitcher	FC6-6601	E5F4		J207/J203	J130

4.5.8 Solenoids(Saddle Stitcher Unit)



F-4-114

T-4-16

Notation	Name	Parts No.	Saddle stitcher controller PCB	Finisher controller PCB
SL101	saddle flapper solenoid 1	FK2-1783	J204/J203	J130
SL102	saddle flapper solenoid 2	FK2-1783	J204/J203	J130

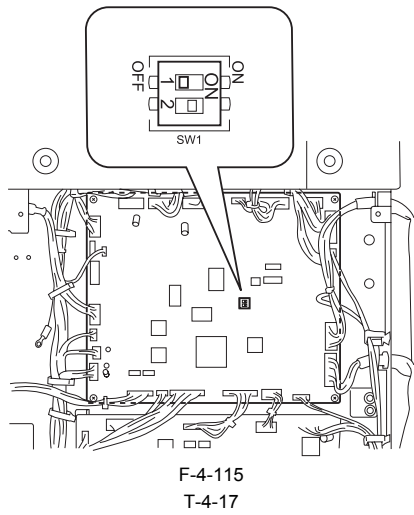
4.6 Variable Resistors (VR), Light-Emitting Diodes (LED), and Check Pins by PCB

4.6.1 Overview

Of the LEDs and check pins used in the machine, those needed during servicing in the field are discussed.

 Do not touch the check pins not found in the list herein. They are exclusively for factory use, and require special tools and a high degree of accuracy.

4.6.2 Finisher Controller PCB



Switch	Switch function
SW1	Use to the upgrading

4.7 Service Tools

4.7.1 Solvents and Oils

T-4-18				
No.	Name	Description	Composition	Remarks
1	Vic Clean	Cleaning: e.g., glass, plastic, rubber parts, external covers	Hydrocarbon(fluorine family) Alcohol Surface activating agent Water	Do not bring near fire. Procure locally. Isopropyl alcohol may be substituted.
2	Lubricant	Sliding units	Silicone oil	MOLYKOTE EM30-L

Chapter 5 Error Code

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5.1 Overview

5.1.1 Overview

The CPU on the machine's finisher controller PCB is equipped with a mechanism to check the machine condition as needed; when it detects a fault, the machine communicates the fact to the host machine in the form of a code and a detail code. The host machine indicates the code on its control panel. (The detail code may be checked in the host machine's service mode.)

5.2 Service Error Code

5.2.1 Service Error Code for the Finisher

T-5-1

Code	Detail code	Description	Remedial action
E501	0001	finisher communication fault	
		Data communication has failed even after 3 retries.	- Check the connectors of the finisher controller PCB and the DC controller PCB. - Replace the finisher controller PCB. - Replace the DC controller PCB.
E503	0003	professional puncher communication error	
		Communication between finisher and professional puncher is not possible.	- Check the connectors of the finisher and the professional puncher. - Replace the finisher controller PCB. - Suspect a fault on the side of the professional puncher. (For details, see the manual for the professional puncher.)
	8004	trimmer communication error	
		Communication between finisher and trimmer is not possible.	- Check the connectors between finisher and trimmer. - Replace the finisher controller PCB. - Suspect a fault on the side of the trimmer. (For details, see the manual for the trimmer.)
	8005	inserter communication error	
		Communication between finisher and inserter is not possible.	- Check the connectors between finisher and inserter. - Replace the finisher controller PCB. - Suspect a fault on the side of the inserter. (For details, see the manual for the inserter.)
E505	0001	finisher controller PCB fault (EEPROM error)	
		A fault exists in the data stored in the EEPROM on the finisher controller PCB.	- Replace the EEPROM on the finisher controller PCB.
E514	8001	- fault in assist motor or finisher controller PCB - fault in assist HP sensor	
		The assist HP sensor does not go on within 5 sec after the start-up of the assist motor.	- Check the connectors of the assist HP sensor. - Check the connectors of the assist motor. - Replace the assist HP sensor. - Replace the assist motor. - Replace the finisher controller PCB.
	8002	- fault in assist motor or finisher controller PCB - fault in assist HP sensor	
		The assist HP sensor does not go off within 5 sec after the start-up of the assist motor.	- Check the connectors of the assist HP sensor. - Check the connector of the assist motor. - Replace the assist HP sensor. - Replace the assist motor. - Replace the finisher controller PCB.
E530	8001	- fault in rear alignment motor or finisher controller PCB - fault in rear alignment HP sensor	
		The rear alignment HP sensor does not go on within 5 sec after the start-up of the rear alignment motor.	- Check the connectors of the rear alignment HP sensor. - Check the connectors of the area alignment motor. - Replace the rear alignment HP sensor. - Replace the rear alignment motor. - Replace the finisher controller PCB.
	8002	- fault in rear alignment motor or finisher controller PCB - fault in rear alignment HP sensor	
		The rear alignment HP sensor does not go off within 1 sec after the start-up of the rear alignment motor.	- Check the connectors of the rear alignment HP sensor. - Check the connectors of the rear alignment motor. - Replace the rear alignment HP sensor. - Replace the rear alignment motor. - Replace the finisher controller PCB.

Code	Detail code	Description	Remedial action
E531	8001	- stapler motor fault - stapler HP fault - finisher controller PCB fault	
		- Check the connectors of the stapler unit. - Replace the stapler unit. - Check the connectors of the stapler HP sensor. - Replace the stapler HP sensor. - Replace the finisher controller PCB.	- Check the connectors of the stapler unit. - Replace the stapler unit. - Check the connectors of the stapler HP sensor. - Replace the stapler HP sensor. - Replace the finisher controller PCB.
	8002	- stapler motor fault - stapler HP sensor fault - finisher controller PCB fault	
		The stapler HP sensor does not go off within 500 msec after the start-up of the stapler motor.	- Check the connectors of the stapler unit. - Replace the stapler unit. - Check the connectors of the stapler HP sensor. - Replace the stapler HP sensor. - Replace the finisher controller PCB.
E532	8001	- stapler shift motor fault - stapler HP sensor fault - finisher controller PCB fault	
		The stapler HP sensor does not go off within 500 msec after the start-up of the stapler shift motor.	- Check the connectors of the stapler shift motor. - Replace the stapler shift motor. - Check the connectors of the stapler HP sensor. - Replace the stapler HP sensor. - Replace the finisher controller PCB.
	8002	- stapler shift motor fault - stapler HP sensor - finisher controller PCB fault	
		The stapler HP sensor does not go off within 500 msec after the start-up of the staple shift motor.	- Check the connectors of the staple shift motor. - Replace the stapler shift motor. - Check the connectors of the stapler HP sensor. - Replace the stapler HP position. - Replace the finisher controller PCB.
E535	8001	- swing guide motor fault - swing guide open sensor fault - finisher controller PCB fault	
		The swing guide open sensor does not go on within 2 sec after the start-up of the swing guide motor.	- Check the connectors of the swing guide motor. - Replace the swing guide motor. - Check the connectors of the swing guide open sensor. - Replace the connectors of the swing guide open sensor. - Replace the finisher controller PCB.
	8002	- swing guide motor fault - swing guide closed sensor fault - finisher controller PCB fault	
		The swing guide closed sensor does not go on within 2 sec after the start-up of the swing guide motor.	- Check the connectors of the swing guide motor. - Replace the swing guide motor. - Check the connectors of the swing guide open sensor. - Replace the swing guide closed sensor. - Replace the finisher controller PCB.
E537	8001	- fault in front alignment motor or finisher controller PCB - front alignment HP sensor fault	
		The front alignment HP sensor does not go on within 5 sec after the start-up of the front alignment motor.	- Check the connectors of the front alignment HP sensor. - Check the connectors of the front alignment motor. - Replace the front alignment HP sensor. - Replace the front alignment motor. - Replace the finisher controller PCB.
	8002	- fault in front alignment motor or finisher controller PCB - front alignment HP sensor	
		The front alignment HP sensor does not go off within 5 sec after the start-up of the front alignment motor.	- Check the connectors of the front alignment HP sensor. - Check the connectors of the front alignment motor. - Replace the front alignment HP sensor. - Replace the front alignment motor. - Replace the finisher controller PCB.

Code	Detail code	Description	Remedial action
E540	8001	- fault in tray A lift motor or finisher controller PCB - tray A rotation sensor	
		The tray A rotation sensor does not go on within 300 msec after the start-up of the tray A lift motor.	- Check the connectors of the tray A rotation sensor. - Check the connectors of the tray A lift motor. - Replace the tray A rotation sensor. - Replace the tray A lift motor. - Replace the finisher controller PCB.
	8002	tray A area sensor fault - finisher controller PCB	
		The tray A has been identified as being lower than tray B.	- Check the connectors of the tray A area sensor. - Replace the tray A area sensor. - Replace the finisher controller PCB.
	8003	- tray approach switch fault - finisher controller PCB fault	
		The tray approach switch has gone on.	- Check the connectors of the tray approach switch. - Replace the tray approach switch. - Replace the finisher controller PCB.
E542	80FF	- fault in tray A lift motor or finisher controller PCB - tray A rotation sensor fault	
		The up/down movement does not end within 25 sec after the start-up of the tray A lift motor.	- Check the connectors of the tray A rotation sensor. - Check the connectors of the tray A lift motor. - Replace the tray A rotation sensor. - Replace the tray A lift motor. - Replace the finisher controller PCB.
	8001	- fault in tray B lift motor or finisher controller PCB - tray B rotation sensor error	
		The tray B rotation sensor does not go on within 300 msec after the start-up of the tray B lift motor.	- Check the connectors of the tray A rotation sensor. - Check the connectors of the tray A lift motor. - Replace the tray A rotation sensor. - Replace the tray A lift motor. - Replace the finisher controller PCB.
	8002	- fault in tray B area sensor or finisher controller PCB	
		The tray B is identified as being higher than the intermediate handling tray delivery slot.	- Check the connectors of the tray A rotation sensor. - check the connectors of the tray A lift motor. - Replace the tray A rotation sensor. - Replace the tray lift motor. - Replace the finisher controller PCB.
E551	80FF	fault in tray B area sensor or finisher controller PCB	
		The tray B is identified as being higher than the intermediate handling tray delivery slot.	- Check the connectors of the tray B rotation sensor. - Check the connectors of the tray B lift motor. - Replace the tray B rotation sensor. - Replace the tray B lift motor. - Replace the finisher controller PCB.
	8001	power supply fan error	
		The lock signal has been detected for 2 sec or more while the fan is operating.	- Check the connectors of the power supply fan. - Suspect a fault in the power supply fan. - Replace the finisher controller PCB.
	8002	feed fan error	
		The lock signal has been detected for 2 sec or more while the fan is operating.	- Check the connectors of the feed fan. - Suspect a fault in the feed fan. - Replace the finisher controller PCB.
E566	8001	- fault in horizontal registration sensor or horizontal registration detection unit shift motor	
		The horizontal registration sensor does not go on within 5 sec after the start-up of the horizontal registration detection unit.	- Check the connectors of the horizontal detection unit shift motor and the horizontal sensor. - Replace the horizontal registration detection unit shift motor and the horizontal registration sensor. - Replace the finisher controller PCB.
	8002	fault in shift roller unit HP sensor or horizontal registration shift motor	
		The shift roller unit HP sensor does not go on within 5 sec after the start-up of the horizontal registration shift motor.	- Check the connectors of the horizontal registration shift motor and the shift roller unit HP sensor. - Replace the horizontal registration shift motor and the shift roller unit HP sensor. - Replace the finisher controller PCB.
E567	8001	- fault in shift roller unit HP sensor or horizontal registration shift motor	
		The shift roller unit HP sensor does not go off within 5 sec after the start-up of the horizontal shift motor.	- Check the connectors of the horizontal registration shift motor and the shift roller unit HP sensor. - Replace the horizontal registration shift motor and the shift roller unit HP sensor. - Replace the finisher controller PCB.
	8002	- fault in transport roller HP sensor or transport roller shift motor	
		The transport roller HP sensor does not go on within 5 sec after the start-up of the transport roller shift motor.	- Check the connectors of the transport roller shift motor and the transport roller HP sensor. - Replace the transport roller shift motor and the transport roller HP sensor. - Replace the finisher controller PCB.

Code	Detail code	Description	Remedial action
E568	8001	- fault in transport roller HP sensor or transport roller shift motor The transport roller HP sensor does not go off within 5 sec after the start-up of the transport roller shift motor.	- Check the connectors of the transport roller shift motor and the transport roller HP sensor. - Replace the transport roller shift motor and the transport roller HP sensor. - Replace the finisher controller PCB.
	8002	- fault in paddle rotation HP sensor or paddle rotation motor The paddle rotation HP sensor does not go off within 5 sec after the start-up of the paddle rotation motor.	- Check the connectors of the paddle rotation motor and the paddle rotation HP sensor. - Replace the paddle rotation motor and the paddle rotation HP sensor. - Replace the finisher controller PCB.
E577	8001	- fault in paddle lift HP sensor or paddle lift motor The paddle lift HP sensor does not go on within 5 sec after the start-up of the paddle lift motor.	- Check the connectors of the paddle lift motor and the paddle lift HP sensor. - Replace the paddle lift motor and the paddle lift HP sensor. - Replace the finisher controller PCB.
	8002	- fault in paddle lift HP sensor or paddle lift motor The paddle lift HP sensor does not go off within 5 sec after the start-up of the paddle lift motor.	- Check the connectors of the paddle lift motor and the paddle lift HP sensor. - Replace the paddle lift motor and the paddle lift HP sensor. - Replace the finisher controller PCB.
	8003	- fault in transport belt HP sensor or transport belt shift motor The transport belt sensor does not go on within 5 sec after the start-up of the transport belt shift motor.	- Check the connectors of the paddle lift motor and the paddle lift HP sensor. - Replace the paddle lift motor and the paddle lift HP sensor. - Replace the finisher controller PCB.
	8004	- fault in transport belt HP sensor or transport belt shift motor The paddle lift HP sensor does not go off within 5 sec after the start-up of the paddle lift motor.	- Check the connectors of the paddle lift motor and the paddle lift HP sensor. - Replace the paddle lift motor and the paddle lift HP sensor. - Replace the finisher controller PCB.
	8001	- fault in transport belt HP sensor or transport belt shift motor The transport belt sensor does not go on within 5 sec after the start-up of the transport belt shift motor.	- Check the connectors of the transport belt shift motor and the transport belt HP sensor. - Replace the transport belt shift motor and the transport belt HP sensor. - Replace the finisher controller PCB.
E578	8002	- fault in transport belt HP sensor or transport belt shift motor The transport belt HP sensor does not go off within 5 sec after the start-up of the transport belt shift motor.	- Check the connectors of the transport belt shift motor and the paper edge area HP sensor. - Replace the paper edge stopper shift motor and the paper edge area HP sensor. - Replace the finisher controller PCB.
	8001	- fault in paper edge area sensor or paper edge stopper shift motor The paper edge area HP sensor does not go on within 5 sec after the start-up of the paper edge stopper shift motor.	- Check the connectors of the paper edge stopper shift motor and the paper edge area HP sensor. - Replace the paper edge stopper shift motor and the paper edge area HP sensor. - Replace the finisher controller PCB.
E57A	8002	- fault in paper edge area sensor or paper edge stopper shift motor The paper edge area HP sensor does not go off within 5 sec after the start-up of the paper edge stopper shift motor.	- Check the connectors of the paper edge stopper shift motor and the paper edge area HP sensor. - Replace the paper edge stopper shift motor and the paper edge area HP sensor. - Replace the finisher controller PCB.
	8003	paper edge stopper fault Interference with the stapler prevents operation at the start of paper edge stopper operation.	- Check the connectors of the paper edge stopper shift motor. - Replace the paper edge stopper shift motor. - Replace the finisher controller PCB.
	8001	- fault in paper trail edge HP sensor or paper trail edge motor The paper trail edge HP sensor does not go on within 5 sec after the start-up of the paper trail edge motor.	- Check the connectors of the paper edge motor and the paper edge HP sensor. - Replace the paper edge motor and the paper edge HP sensor. - Replace the finisher controller PCB.

Code	Detail code	Description	Remedial action
E57C	8003	- fault in upper guide HP sensor or upper guide motor	
		The upper guide HP sensor does not go on within 5 sec after the start-up of the upper guide motor.	- Check the connectors of the upper guide motor and the upper guide HP sensor. - Replace the upper guide motor and the upper guide HP sensor. - Replace the finisher controller PCB.
	8004	- fault in upper guide HP sensor or upper guide motor	
		The upper guide HP sensor does not go off within 5 sec after the start-up of the upper guide motor.	- Check the connectors of the upper guide motor and the upper guide HP sensor. - Replace the upper guide motor and the upper guide HP sensor. - Replace the finisher controller PCB.
E583	8001	- fault in stack delivery auxiliary tray HP sensor or stack delivery auxiliary motor	
		The stack delivery auxiliary tray HP sensor does not go on within 5 sec after the start-up of the stack delivery auxiliary motor.	- Check the connectors of the stack auxiliary motor and the stack delivery auxiliary tray HP sensor. - Replace the HP sensor. - Replace the finisher controller PCB.
	8002	- fault in stack delivery auxiliary tray HP sensor or stack delivery auxiliary motor	
		The stack delivery auxiliary tray HP sensor does not go off within 5 sec after the start-up of the stack delivery auxiliary motor.	- Check the connectors of the stack auxiliary motor and the stack delivery auxiliary tray HP sensor. - Replace the HP sensor. - Replace the finisher controller PCB.
E584	8001	- fault in shutter HP sensor or paddle rotation motor	
		The shutter HP sensor does not go on within 5 sec after the start-up of the paddle rotation motor.	- Check the connectors of the paddle rotation motor and the shutter HP sensor. - Replace the paddle rotation motor and the shutter HP sensor. - Replace the finisher controller PCB.
	8002	- fault in shutter HP sensor or paddle rotation motor	
		The shutter HP sensor does not go off within 5 sec after the start-up of the paddle rotation motor.	- Check the connectors of the paddle rotation motor and the shutter HP sensor. - Replace the paddle rotation motor and the shutter HP sensor. - Replace the finisher controller PCB.

5.2.2 Service Error Code for the Saddle Finisher

T-5-2

Code	Detail code	Description	Remedial action
E5F0	8001	- fault in stopper HP sensor or stopper motor	
		The stopper HP sensor does not go on within 5 sec after the start of the stopper motor.	- Check the connectors of the stopper motor and the stopper HP sensor. - Replace the stopper motor and the stopper HP sensor. - Replace the saddle stitcher controller PCB.
	8002	- fault in stopper HP sensor or stopper motor	
		The stopper HP sensor does not go off within 5 sec after the start of the stopper motor.	- Check the connectors of the stopper motor and the stopper HP sensor. - Replace the stopper motor and the stopper HP sensor. - Replace the saddle stitcher controller PCB.
E5F1	8001	- fault in folding/transport motor rotation sensor or following/transport motor	
		The folding/transport motor rotation sensor does not go on for 1 sec after the start-up of the folding/transport motor.	- Check the connectors of the folding/transport motor and the folding/transport motor rotation sensor. - Replace the folding/transport motor and the folding/transport motor rotation sensor. - Replace the saddle stitcher controller PCB.
E5F2	8001	- fault in saddle roller guide HP sensor or saddle guide motor	
		The saddle guide HP sensor does not go on within 5 sec after the start-up of the saddle guide motor.	- Check the connectors of the saddle guide motor and the saddle roller guide HP sensor. - Replace the saddle guide motor and the saddle roller guide HP sensor. - Replace the saddle stitcher controller PCB.
	8002	- fault in saddle roller guide HP sensor or saddle guide motor	
		The saddle roller guide HP sensor does not go off within 5 sec after the start-up of the saddle guide motor.	- Check the connectors of the saddle guide motor and the saddle roller guide HP sensor. - Replace the saddle guide motor and the saddle roller guide HP sensor. - Replace the saddle stitcher controller PCB.

Code	Detail code	Description	Remedial action
E5F3	8001	- fault in saddle aligning plate HP sensor or saddle alignment motor	
		The saddle aligning plate HP sensor does not go on within 5 sec after the start-up of the saddle alignment motor.	- Check the saddle alignment motor and the saddle aligning plate HP sensor. - Replace the saddle alignment motor and the saddle aligning plate HP sensor. - Replace the saddle stitcher controller PCB.
	8002	- fault in saddle aligning plate HP sensor or saddle alignment motor	
		The saddle aligning plate HP sensor does not go off within 5 sec after the start-up of the saddle alignment motor.	- Check the connectors of the saddle alignment motor and the saddle aligning plate HP sensor. - Replace the saddle alignment motor and the saddle aligning plate HP sensor. - Replace the saddle stitcher controller PCB.
E5F4	8001	- stitcher unit fault	
		The home position is not detected within 500 msec after the start-up of the saddle unit.	- Check the connectors of the stitcher unit. - Replace the stitcher unit. - Replace the saddle stitcher controller PCB.
	8002	- stitcher unit fault	
		The stitcher unit is still in home position 500 msec after the start-up of the saddle unit.	- Check the connectors of the stitcher unit. - Replace the stitcher unit. - Replace the saddle stitcher controller PCB.
E5F6	8001	- fault in saddle paper stop plate HP sensor or saddle paper stop plate motor	
		The saddle paper stop plate HP sensor does not go on within 800 msec after the start-up of the saddle paper stop plate motor.	- Check the connectors of the saddle paper stop plate motor and the saddle paper stop plate HP sensor. - Replace the saddle paper stop plate motor and the saddle paper stop plate HP sensor. - Replace the saddle stitcher controller PCB.
	8002	- fault in saddle paper stop plate HP sensor or saddle paper stop plate motor	
		The saddle paper stop plate HP sensor does not go off within 300 msec after the start-up of the saddle paper stop plate motor.	- Check the connectors of the saddle paper stop plate motor and the saddle paper stop plate HP sensor. - Replace the saddle paper stop plate motor and the saddle paper stop plate HP sensor. - Replace the saddle controller PCB.
E5FA	8000	- fault in saddle pressing motor or saddle pressing position sensor	
		The saddle pressing position sensor does not go on within 200 msec after the start-up of the saddle pressing motor.	- Check the saddle pressing motor and the saddle pressing position sensor. - Replace the saddle pressing motor and the saddle pressing position sensor. - Replace the stitcher controller PCB.
	8001	- fault in saddle pressing motor or saddle pressing HP sensor	
		The saddle pressing HP sensor does not go on 1 sec after the start-up of the saddle pressing motor.	- Check the saddle pressing motor and the saddle pressing HP sensor. - Replace the saddle pressing motor and the saddle pressing HP sensor. - Replace the stitcher controller PCB.
	8002	- fault in saddle pressing motor or saddle pressing HP sensor	
		The saddle pressing HP sensor does not go off within 1 sec after the start-up of the saddle pressing motor.	- Check the saddle pressing motor and the saddle pressing HP sensor. - Replace the saddle pressing motor and the saddle pressing HP sensor. - Replace the stitcher controller PCB.
E5FB	8001	- fault in saddle pull-in roller motor and saddle pull-in roller HP sensor.	
		The saddle pull-in roller HP sensor does not go on within 3 sec after the start-up of the pull-in roller motor.	- Check the saddle pull-in roller motor and the saddle pull-in roller HP sensor. - Replace the saddle pull-in roller motor and the saddle pull-in roller HP sensor. - Replace the stitcher controller PCB.
	8002	- fault in saddle pull-in roller motor and saddle pull-in roller HP sensor.	
		The saddle pull-in roller HP sensor does not go off within 3 sec after the start-up of the pull-in roller motor.	- Check the saddle pull-in roller motor and the saddle pull-in roller HP sensor. - Replace the saddle pull-in roller motor and the saddle pull-in roller HP sensor. - Replace the stitcher controller PCB.

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