Canon

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Revision 0

# Staple Finisher-A1 / Booklet Finisher-A1

## Service Manual

## Application

This manual has been issued by Canon Inc. for qualified persons to learn technical theory, installation, maintenance, and repair of products. This manual covers all localities where the products are sold. For this reason, there may be information in this manual that does not apply to your locality.

## Corrections

This manual may contain technical inaccuracies or typographical errors due to improvements or changes in products. When changes occur in applicable products or in the contents of this manual, Canon will release technical information as the need arises. In the event of major changes in the contents of this manual over a long or short period, Canon will issue a new edition of this manual.

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## Copyright



## Caution

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

## Explanation of Symbols

The following symbols are used throughout this Service Manual.

| Symbols | Explanation |
|---|---|
|  | Check. |
|  | Check visually. |
|  | Check the noise. |
|  | Disconnect the connector. |
|  | Connect the connector. |
|  | Remove the cable/wire from the cable guide or wire saddle. |
|  | Set the cable/wire to the cable guide or wire saddle. |
|  | Remove the screw. |
|  | Tighten the screw. |

| Symbols | Explanation |
|---|---|
|  | Remove the claw. |
|  | Insert the claw. |
|  | Use the bundled part. |
|  | Push the part. |
|  | Plug the power cable. |
|  | Turn on the power. |

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.

# Contents

## Periodic Servicing



## Parts Replacement and Cleaning Procedure

## Adjustment



## Installation

## Appendix

# Safety Precautions

- Notes Before it Works
- Servicing

# Notes Before it Works Servicing

Caution:

At servicing, be sure to turn off the power source according to the specified steps and disconnect the power plug.

Caution:

Do not turn off the power switch when downloading is under way.

Turning off the main power switch while downloading is under way can disable the machine.

# 1

# Product Outline

- Features
- Specifications
- Names of Parts
- Optional Construction

# Features

- The gripper function is installed in the processing tray unit , and it improves the stacking alignment on the stack tray. The gripper operates at the sort and the staple sort mode.
- The four universal casters are installed, and it facilitates the maintenance work.
- The innner puncher and innner trimmer are installed in the finisher as the option, therefore, it can perform various paper and bookbinding output by the compact system.
- 250 sheets(Escape tray), 1,500 sheets(Tray 1) and 2,500 sheets(Tray 2) in total 4,250 sheets of high stacking are possible at the maximum.

# Specifications

## Finisher Unit

| Item | Specifications | Remarks |
|---|---|---|
| Stacking method | Trays 1 and 2: Independently move up and down<br>Escape tray: operation with tray 1 | |
| Stacking orientation | Face up, face down | |
| Stacking size | Feed direction: 182 to 487.7 mm<br>Cross feed direction: 182 to 330.2 mm | |
| Paper weight | 52g/m2 to 300g/m2 | |
| | [Non sort: Escape tray, Tray 1, Tray 2]<br>A3, B4, A4, A4R, B5, B5R, 13" x 19" (330.2 x 482.6 mm), 12" x 18" (304.8 x 457.2 mm), 11" x 17" (279mm x 432mm), 12" x 19.2", LGL, LTR, LTRR, EXEC, EXECR, 12 5/8" x 17 3/4" (320 x 450 mm) 8K, 16K and Irregular Size (182 mm x 182 mm to 330.2 mm x 487.7 mm) | |
| | [Sort: Tray 1, Tray 2]<br>A3, A4, A4R, B4, B5, 11" x 17"(279mm x 432mm), LGL, LTR, LTR-R, EXEC, 8K, 16K | |
| | [Staple sort: Tray 1, Tray 2]<br>A3, A4, A4R, B4, B5, 11" x 17"(279mm x 432mm), LGL, LTR, LTR-R, EXEC, 8K, 16K | |
| Stacking capacity (without Z-folding sheets) | [Processing tray]<br>Feed length: 182mm to 216mm (less than 100 sheets)<br>Feed length: More than 216mm to 432mm (less than 50 sheets) | Equivalent of 80g/m2 paper. (including 2 sheets of cover 300g/m2) |
| | [Escape tray: Non sort]<br>Small size: Height 32.3mm -/+ 3 mm or less (equivalent of 250 sheets)<br>Large size: Height 16mm -/+ 3 mm or less (equivalent of 125 sheets) | Equivalent of 80g/m2 paper. Transparency, post card, tracing paper, label and tab paper: 10 sheets or less<br>Non sort stack only |
| | [Tray 1: Non sort]<br>-Plain paper<br>Small size: Height 195mm -/+ 3 mm or less (equivalent of 1500 sheets)<br>Large size: Height 97 mm -/+ 3 mm or less (equivalent of 750 sheets)<br>-Coated paper<br>Small size/large size: Height 97mm -/+ 3 mm or less (equivalent of 750 sheets) | Equivalent of 80g/m2 paper. Transparency, post card, tracing paper, label and tab paper: 10 sheets or less<br>Alignment accuracy and stacking capacity for stacks of 1500 or more sheets are not specified. |
| Stacking capacity (without Z-folding sheets) | [Tray 2: Non sort]<br>- Plain paper<br>Small size: Height 195 mm -/+ 3 mm or less (equivalent of 1500 sheets)<br>Large size: Height 97 mm -/+ 3 mm or less (equivalent of 750 sheets)<br>* It is possible to stack the same size sheets (A4, B5, LTR) up to height 325 -/+ 3 mm (equivalent of 2500 sheets) at the continuous non-sort mode.<br>- Coated paper<br>Small size/large size: Height 97mm -/+ 3 mm or less (equivalent of 750 sheets) | |
| | [Tray 1/ tray 2: Staple sort]<br>- Plain paper<br>Small size: less than 195 mm -/+ 3 mm height, or less than 100 sets<br>Large size: less than 97 mm -/+ 3 mm height, or less than 50 sets<br>- Coated paper<br>Small size/large size: less than 97 mm -/+ 3 mm height, or less than 50 sets | Equivalent of 80g/m2 paper. |
| Stacking capacity (including Z-folding sheets) | [Processing tray]<br>A3, B4, 279mm x 432mm (11" x 17"): 10 sheets | "Equivalent of 80g/m2 paper.<br>Stacking alignment and capacity are not guaranteed." |
| | [Tray 1]<br>A3, B4, 279mm x 432mm (11" x 17"): 30 sheets<br>A4R, LTRR, LGL: 10 sheets | |
| | [Tray 2]<br>A3, B4, 279mm x 432mm (11" x 17"): 10 sheets<br>A4R, LTRR, LGL: 10 sheets" | |
| Mixed stacking capacity | [Size mixing]<br>Escape tray: Height 16mm -/+ 3mm or less<br>Trays 1 and 2: Height 97mm -/+ 3mm or less | Equivalent of 80g/m2 paper.<br>Stacking capacity is not guaranteed. |
| | [Stapling mixing]<br>- Plain paper<br>Small size: less than 195 mm -/+ 3 mm height, or less than 100 sets<br>Large size: less than 97 mm -/+ 3 mm height, or less than 50 sets<br>- Coated paper<br>Small size/large size: less than 97 mm -/+ 3 mm height, or less than 50 sets | |

| Item | Specifications | Remarks |
|---|---|---|
| | [Mode mixing]<br>Combination of A4, B5, and LTR only: Height 195mm -/+ 3mm or less<br>Combinations of other paper sizes: Height 97mm -/+ 3mm or less | |
| Z-folding sheet mixed stacking capacity | [Processing tray]<br>Z-folding sheet capacity per 1set: Maximum 10 sheets<br>* A3, B4, 279mm x 432mm (11" x 17") | Equivalent of 80g/m2 paper. A sheet of folded paper is equivalent to 10 sheets of plain paper. |
| | [Tray 1/tray 2]<br>A3, B4, 279mm x 432mm (11" x 17"):<br>- Plain paper<br>Less than 195mm -/+ 3mm height, or 30 sheets<br>- Coated paper<br>Small size/large size: less than 97 mm -/+ 3 mm height, or less than folding sheet 30 sets<br>A4R, LTRR, LGL: Impossible | |

Paper size regulations:

Small size(Feed length: less than 216mm); A4, B5, LTR, EXEC, 16K

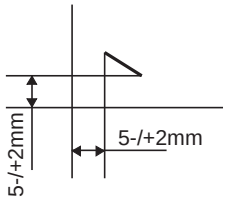
Large size(Feed length: 216 to 483mm); A3, A4R, B4, B5R, 279mm x 432mm(11 x 17), LGL, LTRR, 8K

## Staple Unit

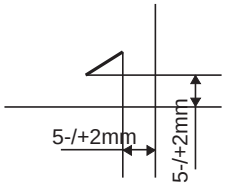
| Item | Specifications | | | Remarks |
|---|---|---|---|---|
| Stapling | By rotating cam | | | Flat clinch |
| Stapling capacity | | Small size*1 | Large size*2 | "Paper thickness (small size); 11mm or less<br>Paper thickness (largel size); 5.5mm or less<br>2 sheets of cover are included in cover mode.<br>*1 Small size: A4, B5, LTR,EXEC<br>*2 Large size: A3, B4, A4R, 11X17, LGL, LTRR" |
| | Plain paper 1 (52 to 80g/m2) | 100 sheets | 50 sheets | |
| | Plain paper 2 (More than 80 to 81.4g/m2) | 80 sheets | 40 sheets | |
| | Plain paper 3 (More than 81.4 to 105g/m2) | 30 sheets | 20 sheets | |
| | Thick paper 1 (More than 105 to 200g/m2) | 10 sheets | 5 sheets | |
| | Thick paper 2 (More than 200 to 256g/m2) | 3 sheets | 2 sheets | |
| | Super thick paper (More than 256 to 300g/m2) | 2 sheets | 2 sheets | |
| | Coated paper 1 (52 to 81.4g/m2) | 50 sheets | 25 sheets | |
| | Coated paper 2 (More than 81.4 to 105g/m2) | 15 sheets | 10 sheets | |
| | Coated thick paper 1 (More than 105 to 200g/m2) | 5 sheets | 2 sheets | |
| | Coated thick paper 2 (More than 200 to 256g/m2) | 3 sheets | 2 sheets | |
| | Coated super thick paper (More than 256 to 300g/m2) | 2 sheets | 2 sheets | |
| Stapling size | "[Front 1-point stapling (30 deg.)]<br>A4R, LGL, LTRR<br>[Front 1-point stapling (45 deg.)]<br>A3, B4, A4, B5, 279mm x 432mm (11 x 17), LTR, EXEC<br>[Rear 1-point stapling (30 deg.)]<br>A4R, LGL, LTRR<br>[Rear 1-point stapling (45 deg.)]<br>A3, B4, A4, B5, 279mm x 432mm (11 x 17), LTR, EXEC<br>[2-points stapling]<br>A3, B4, A4, A4R, B5, 279mm x 432mm (11 x 17), LGL, LTR, LTRR, EXEC" | | | |
| Staple supply | Special staple cartridge (5000 staples) | | | |
| Staple detection | Provided | | | |
| Manual stapling | Not Provided | | | |
| Paper detection | Provided | | | |

- Staple Position

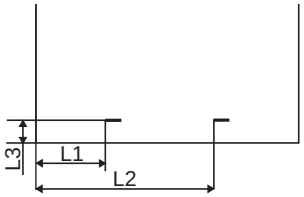
Front 1-point stapling (30deg.)
A3, B4, A4, A4R, B5, 8K, 16K,
11” X 17”, LTR, LGL, LTRR and EXEC




Rear 1-point stapling (30deg.)
A3, B4, A4, A4R, B5, 8K, 16K,
11” X 17”, LTR, LGL, LTRR and EXEC




2-point stapling
A3, B4, A4, A4R, B5, 8K, 16K, 11” X 17”, LTR, LGL, LTRR and EXEC




| Paper Side | L1 | L2 | L3 | Interval |
|---|---|---|---|---|
| A3, A4 | 83-/+4mm | 203-/+4mm | 5-/+2mm | 120mm |
| B4, B5 | 63-/+4mm | 183-/+4mm | 5-/+2mm | 120mm |
| 11”X17”,LTR | 74-/+4mm | 194-/+4mm | 5-/+2mm | 120mm |
| A4R | 39.5-/+4mm | 159.5-/+4mm | 5-/+2mm | 120mm |
| LTRR, LGL | 42.5-/+4mm | 162.5-/+4mm | 5-/+2mm | 120mm |
| EXEC | 68.5-/+4mm | 188.5-/+4mm | 5-/+2mm | 120mm |
| 8K, 16K | 69.5-/+4mm | 189.5-/+4mm | 5-/+2mm | 120mm |

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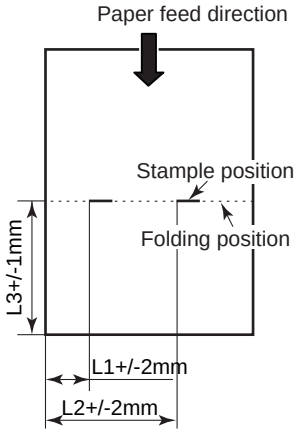
## Saddle Stitcher Unit (Booklet Finisher-A1)

| Item | Specifications | | | Remarks |
|---|---|---|---|---|
| Stapling method | Vertically separated, round-clinch, stapling at two positions in the middle | | | |
| Paper size | Feed direction: 279 to 487.7 mm<br>Cross feed direction: 210 to 330.2 mm | | | |
| Capacity | Without Binding | Plain paper | 1 to 5 sheets（52 to 105g/m2）<br>1 to 3 sheets（106 to 209g/m2） | Special paper, postcards, transparencies, or label can not be handled. |
| | | Coated paper | 1 to 5 sheets（52 to 105g/m2）<br>1 to 3 sheets（106 to 209g/m2） | |
| | Binding | Plain paper | 2 to 20 sheets（52 to 81.4g/m2）<br>2 to 10 sheets（81.5 to 105g/m2）<br>2 to 3 sheets（106 to 209g/m2） | Cover mode; including 1 cover page.<br>Special paper, postcards, transparencies, or label can not be handled. |
| | | Coated paper | 2 to 10 sheets（52 to 105g/m2）<br>2 to 3 sheets（106 to 209g/m2） | |
| | | Paper weight of cover material | 52 to 300 g /m2 | |
| Stacking capacity | Without cover | | Plain paper 1 (52 to 81.4g/m2)<br>1 to 5 sheets: 25sets, 6 to 10 sheets: 15set, 11 to 15sheets; 10sets, 16 to 20 sheets: 5 sets<br>Plain paper 2 (81.5 to 105g/m2)<br>1 to 5 sheets: 25sets, 6 to 10 sheets: 15 sets<br>Thick paper 1 (106 to 128g/m2)<br>1 to 10 sheets : 3 sets<br>Thick paper 2 (129 to 209g/m2)<br>1 to 3 sheets: 3 sets | The coat paper is similar, too |
| | With cover | | Plain paper 1 (52 to 81.4g/m2)<br>1 to 15 sheets: 10sets, 16 to 20 sheets: 5sets<br>Plain paper 2 (More than 81.4 to 105g/m2)<br>1 to 10 sheets: 10sets | When the paper weight of cover material is 52 to 256g/m2.<br>Paper weight of cover material is 257g/m2 : 1set |
| | Without binding | | Plain paper 1 (52 to 105g/m2)<br>: 5sets<br>Plain paper 2 (More than 105 to 209g/m2)<br>: 3sets | The coat paper is similar, too |

| Item | Specifications | Remarks |
|---|---|---|
| Stapling position | 2 points | |
| Staple | 5000 staples | |
| Staple supply | Special cartridge | |
| Staples | Special staples (Staple-G1) | |
| Staple detection | Provided | 0 to 20 remaining staples. |
| Manual stapling | Not provided | |
| Folding method | Roller contact | |
| Folding mode | Double folding | |
| Folding position | Paper center | |
| Folding position adjustment | Provided | |
| Power supply | From finisher unit (24V DC) | |

- Staple and Folding Positions




| Paper Size | L1 | L2 | L3 |
|---|---|---|---|
| 13”X19” | 98mm | 218mm | 241.5mm |
| 12“X18” | 85.5mm | 205.5mm | 228.5mm |
| A3 | 81.5mm | 201.5mm | 210mm |
| B4 | 61.5mm | 181.5mm | 182mm |
| A4R | 38mm | 158mm | 148.5mm |
| 11”X17” | 72.5mm | 192.5mm | 216mm |
| LGL | 41mm | 161mm | 177.8mm |
| LTRR | 41mm | 161mm | 139.7mm |

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## Others

| Item | Specifications | Remarks |
|---|---|---|
| Dimensions | - Staple Finisher-A1<br>1040 mm(H)× 654 (782*) mm(W) × 765 mm(D)<br>- Booklet Finisher-A1<br>1040 mm(H)× 767 (896*) mm(W) × 765 mm(D)<br>*1 When the auxiliary booklet tray is pulled out | |
| Weight | - Staple Finisher-A1<br>About 59 kg<br>- Booklet Finisher-A1<br>About 106 kg | |
| Power supply | 100-240V, 50/60Hz | |
| Power consumption | - Staple Finisher-A1<br>Max. 178W<br>- Booklet Finisher-A1<br>Max. 200W | When the optional machine is not installed. |

# Names of Parts

## External View(Front)

### Finisher (Staple Finisher)


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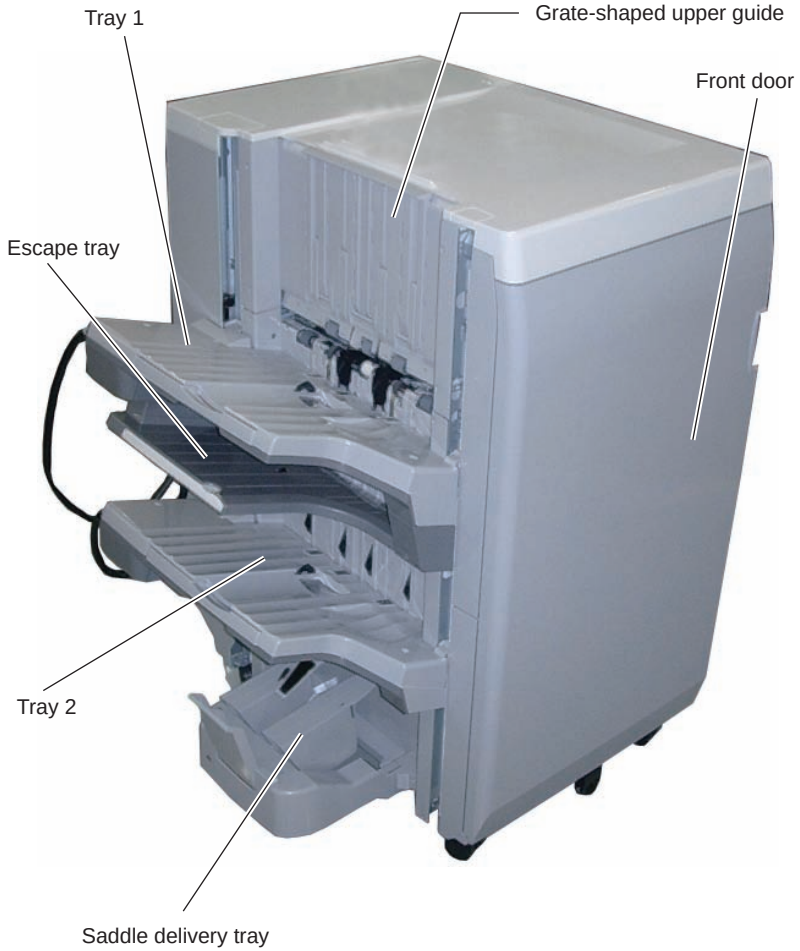
### Saddle Finisher (Booklet Finisher)

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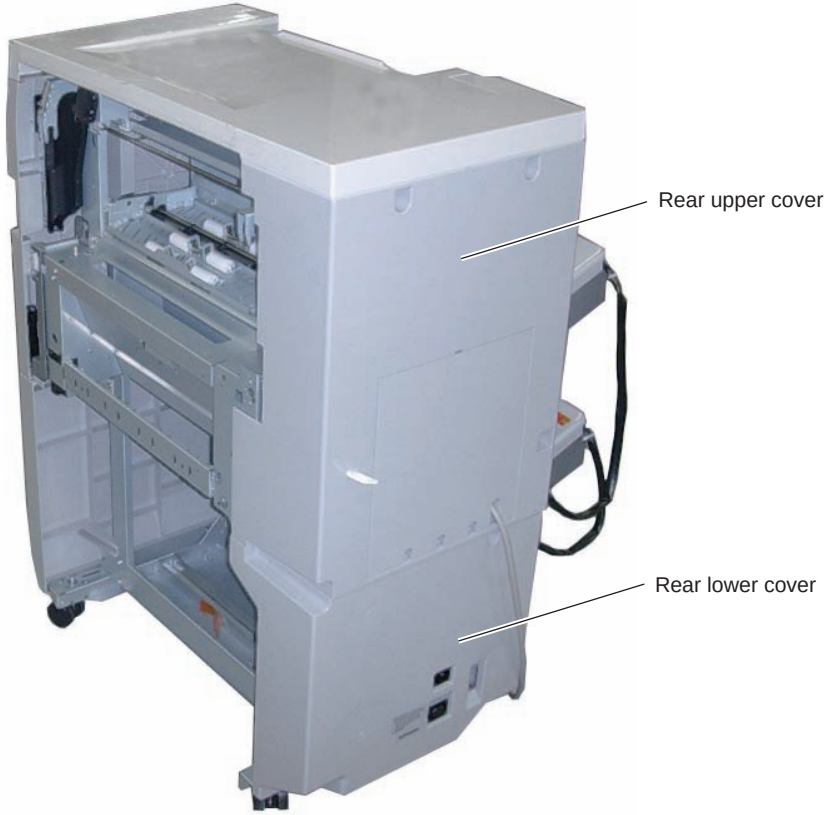
## External View(Rear)

### Finisher (Staple Finisher)

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### Saddle Finisher (Booklet Finisher)


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# External View(Internal)

## Saddle Finisher (Booklet Finisher)


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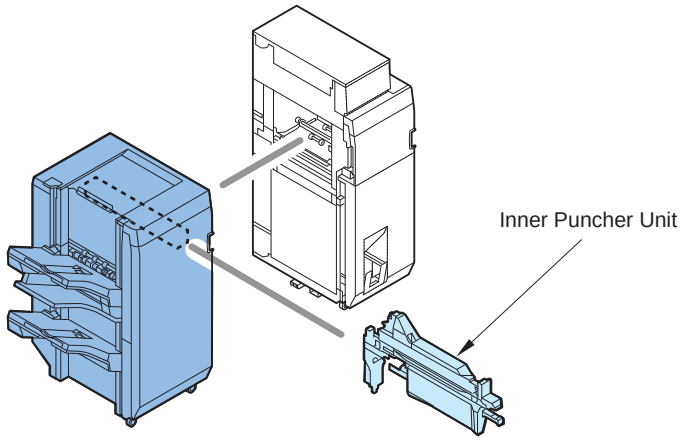
# Optional Construction

The following two optional machines can install to the finisher.

- Inner Puncher Unit
  - Punch Unit-BE1: AB, 2 holes
  - Punch Unit-BF1: Inch, 2/3 holes
  - Punch Unit-BG1 FRN, 2/4 holes
  - Punch Unit-BH1: SWE, 4 holes
- Inner Trimmer Unit
  - : For Saddle Finisher (Booklet Finisher)

- Finisher (Staple Finisher)

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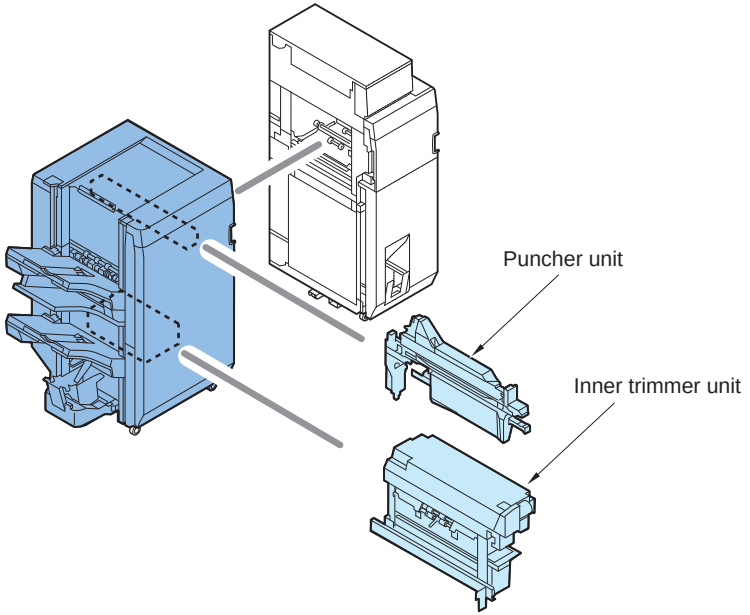
- Saddle Finisher (Booklet Finisher)

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# 2

# Technology

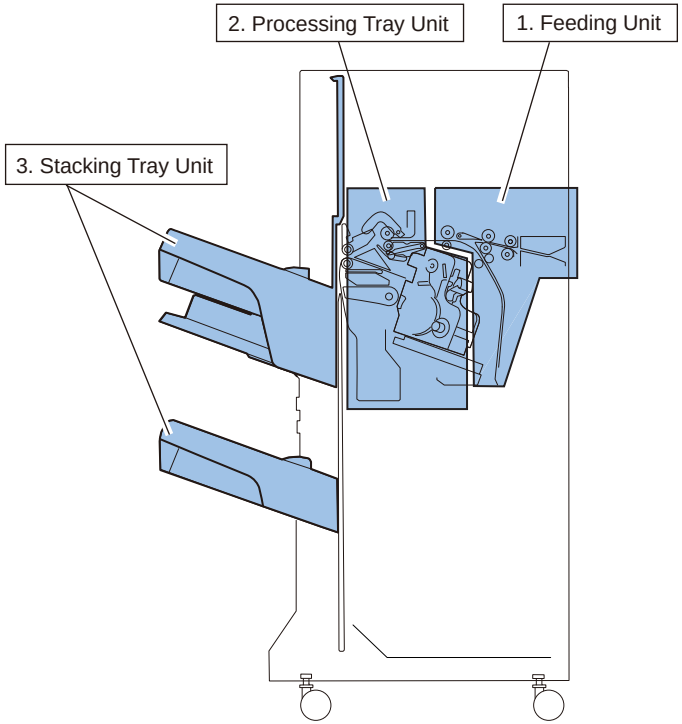
- Basic Configuration
- Controls
- Feeding Unit
- Stack Tray Unit
- Processing Tray Unit
- Saddle Stitcher Unit
- Controller Unit
- Detecting Jams
- Power Supply
- Work of Service

# Basic Configuration

## Functional Configuration

The components of this saddle finisher are organized into 4 major blocks and this finisher are organized into 3 major blocks; feed unit, processing unit, stack tray unit and saddle stitcher unit.

- Finisher (Staple Finisher)

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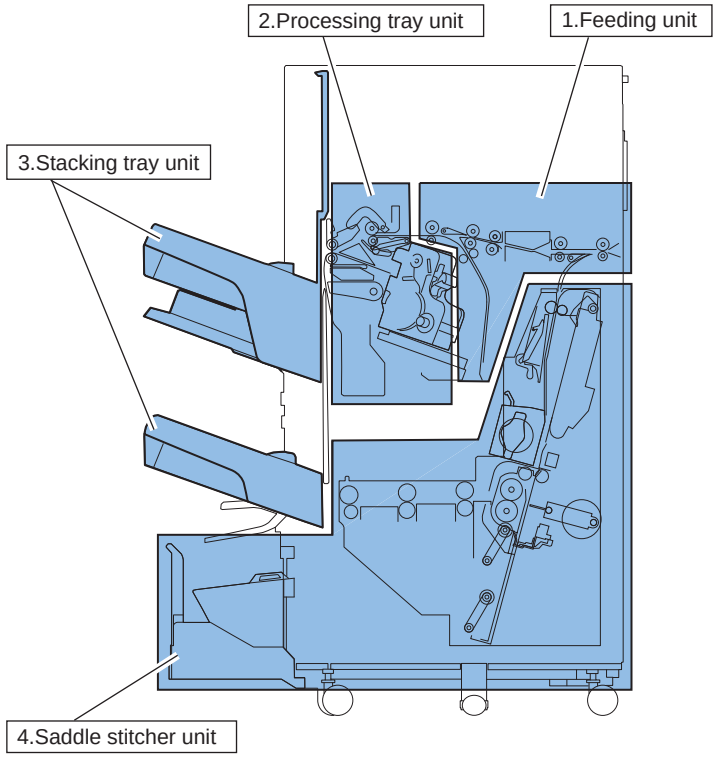
- Saddle Finisher (Booklet Finisher)

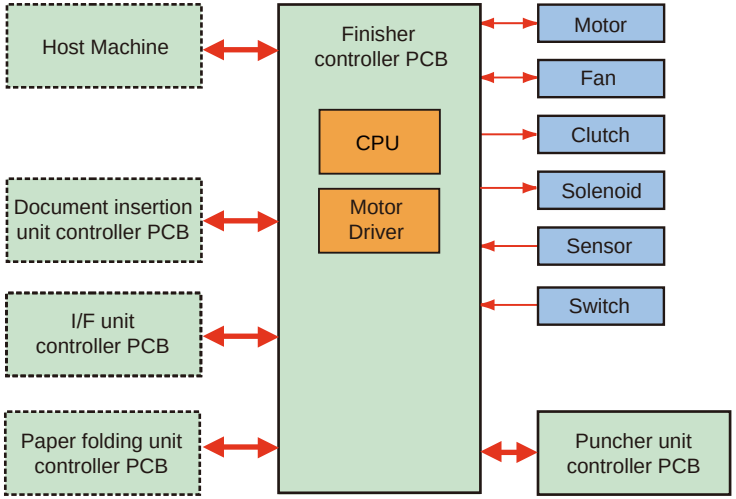



F-2-2

## Overview of Electrical Circuitry

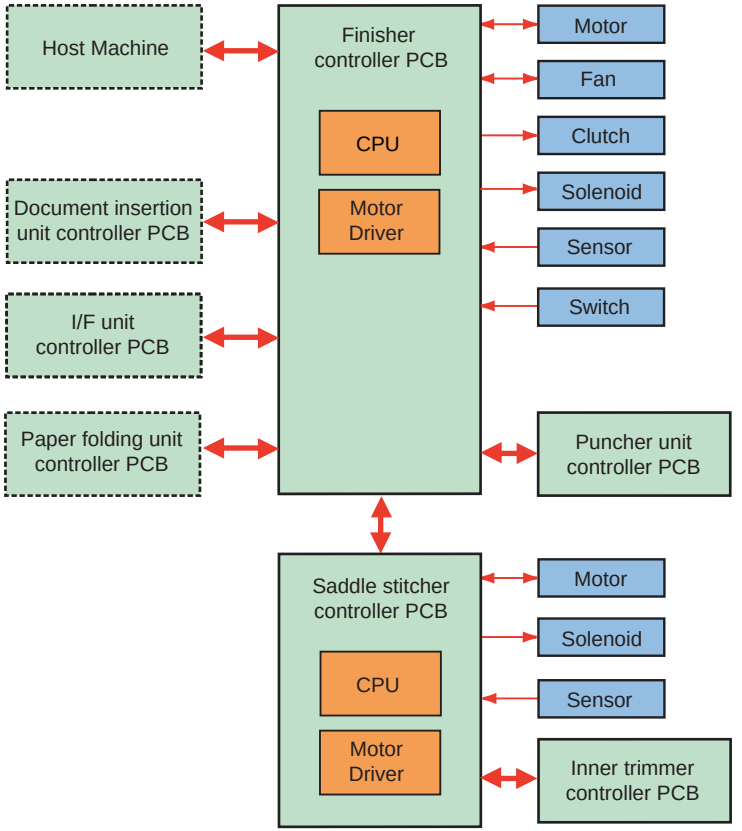
The machine's sequence of the operations is controlled by its finisher controller PCB.
The finisher controller PCB has the 16-bit CPU, and the controller also controls the communication with the host machine, the saddle stitcher controller PCB and the punch unit (option) in addition to controlling the machine's operation sequence.
The Document insertion unit, professional Integration puncher unit and paper folding unit which are equipped to the upper stream side controls the communication with the host machine via to the finisher controller PCB.The CPU on the finisher controller PCB is equipped with a built-in ROM used to store sequence programs.
The finisher control PCB responds to the various commands coming from the host machine through the communication line to drive their respective motors, clutches and solenoids.
Also the controller PCB serves the status of the various sensors and switches through the communication line to the host machine.

- Finisher (Staple Finisher)




F-2-3

-Saddle Finisher (Booklet Finisher)

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# Controls

## Controls



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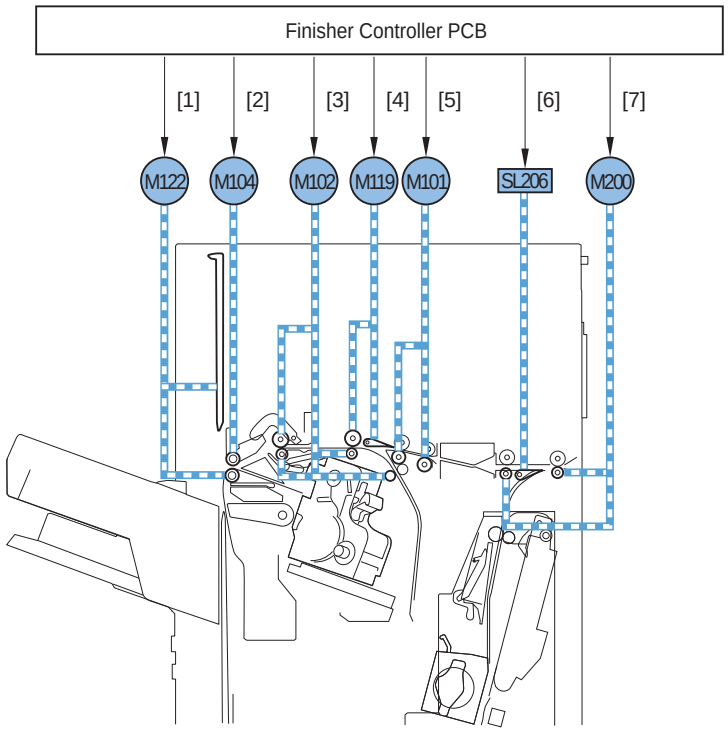
# Feeding Unit

## Outline

The feeding unit feeds the paper to the stacking tray or the saddle stitcher unit in response to the instructions from the finisher controller PCB.
The paper feeding path to the stacking tray is equipped with the following 2 sensors for monitor of  the paper feed and the detection of a jam.

Inlet Sensor (S101)
Feed Path Senor (S102)

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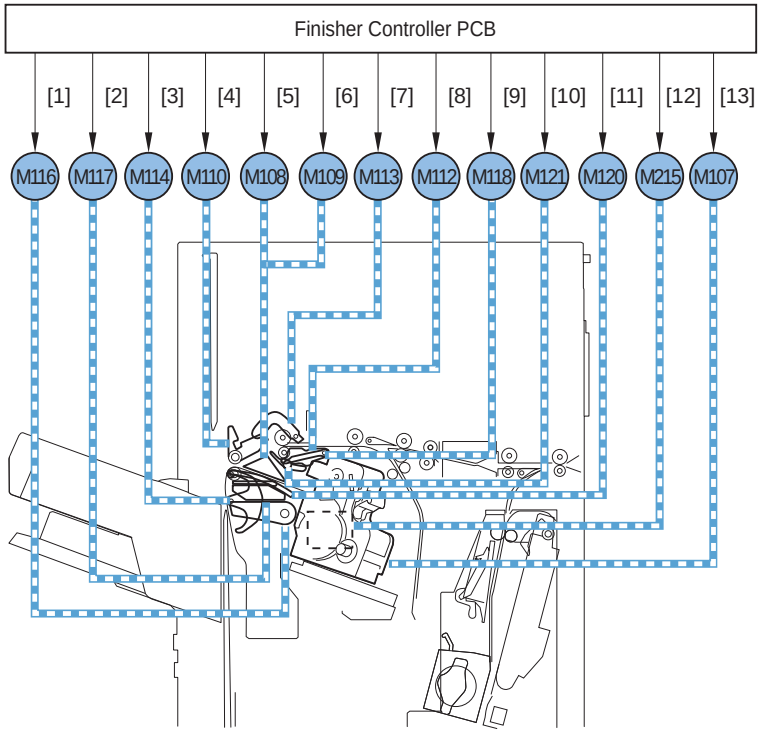
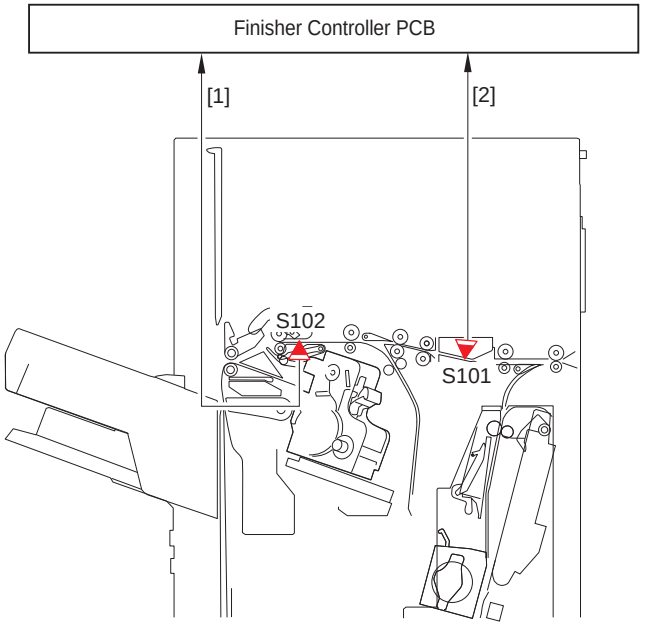



F-2-6

| | | | |
|---|---|---|---|
| [1] | Stack Delivery Lower/Shutter Motor drive signal | M122 | Stack Delivery Lower/Shutter Motor |
| [2] | Stack Delivery Upper Motor drive signal | M104 | Stack Delivery Upper Motor |
| [3] | Buffer Feed Motor drive signal | M102 | Buffer Feed Motor |
| [4] | Feed Roller Disengage/Buffer Flapper Motor drive signal | M119 | Feed Roller Disengage/Buffer Flapper Motor |
| [5] | Feed Motor drive signal | M101 | Feed Motor |
| [6] | Saddle Inlet Flapper Solenoid drive signal | SL206 | Saddle Inlet Flapper Solenoid |
| [7] | Inlet Feed Motor drive signal | M200 | Inlet Feed Motor |

T-2-2

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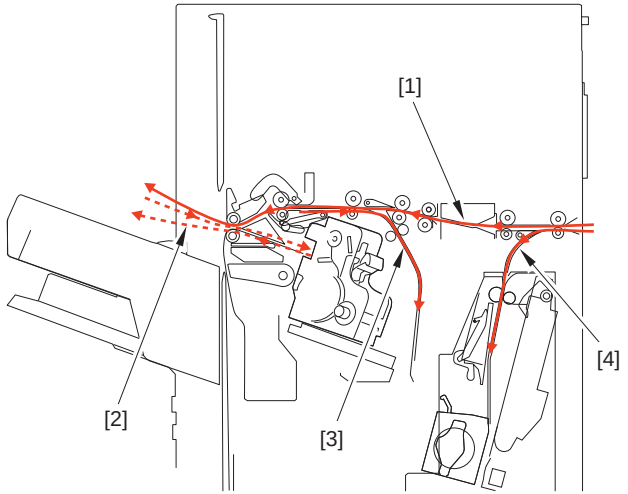
| | | | |
|---|---|---|---|
| [1] | Feed Path Senor detection signal | S102 | Feed Path Senor Detection Sensor |
| [2] | Inlet Sensor detection signal | S101 | Inlet Sensor Detection Sensor |

T-2-3

## Basic Operations

The feeding unit uses the following 4 sequences of operation:

[1] Straight Path Paper Feed Operation
The feeding unit delivers the paper that fed from the upstream connection machine on the stacking tray without stacking the paper to the processing tray unit.
[2] Processing Tray Paper Feed Operation
The feeding unit stacks the paper that fed from the upstream connection machine on the processing tray unit to shifts or staples it, and then delivers it on the stacking tray.
[3] Buffer Path Paper Feed Operation
The feeding unit feeds the paper that fed from the upstream connection machine to the buffer path unit.
[4] Switching Over the Paper Path
The feeding unit feeds the paper that fed from the upstream connection machine to the saddle stitcher unit.



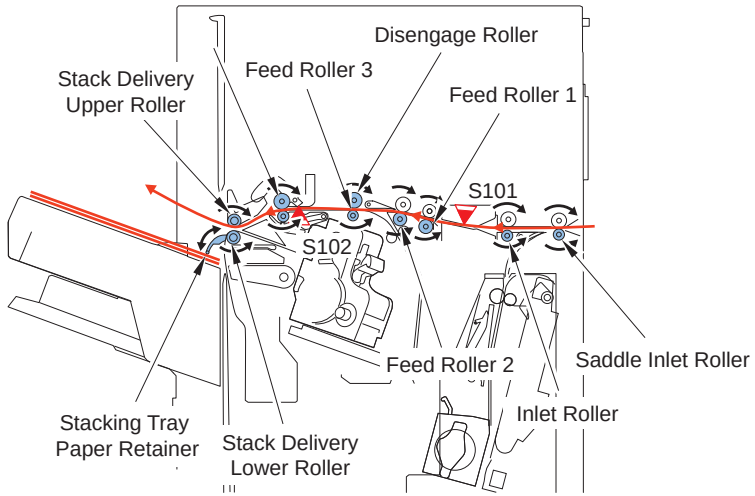

F-2-8

## Straight Path Paper Feed Operation

When the shift or staple mode is not selected, this finisher delivers the paper on the stacking tray unit immediately without stacking the paper to the processing tray unit.

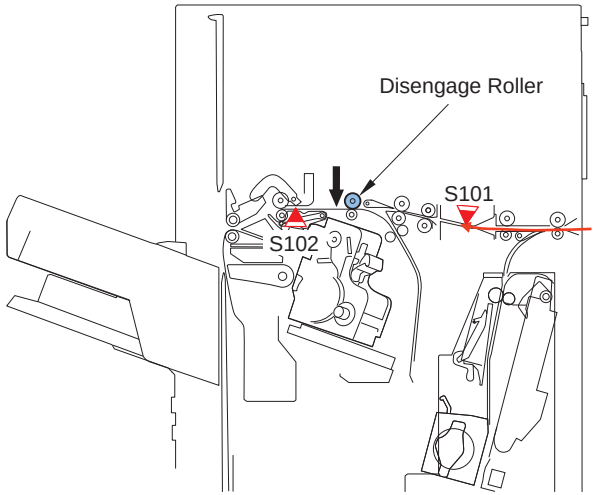
The feeding unit delivers each sheet of paper on the stacking tray in the straight path paper feed operation.

The inlet feed motor (M200) drives and the saddle inlet roller and inlet roller rotate to feeds the paper, and then the feed motor (M101) and the buffer feed motor (M102) drive and the feed roller 1 and feed roller 2 and feed roller 3 and pre-delivery roller and stack delivery upper/lower roller rotate to feeds the paper when the inlet sensor (S101) has detected the paper.



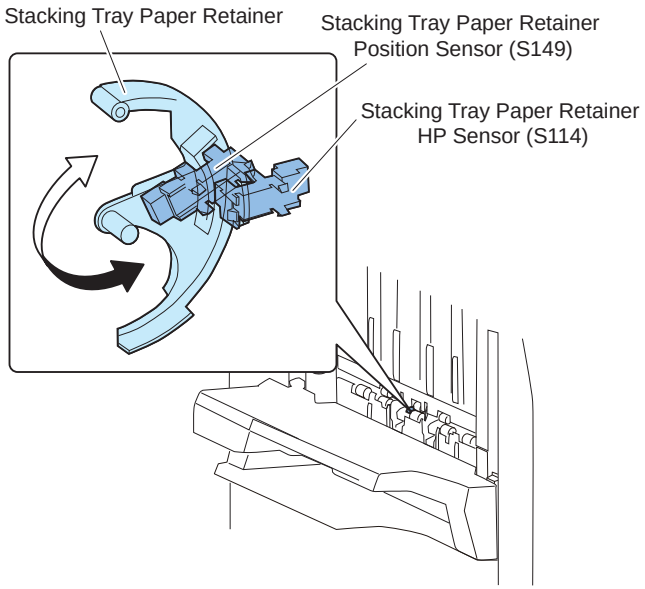

F-2-9

At this time, if the paper length is under 257mm, the feed roller disengage/buffer flapper motor (M119) drives so that the disengage roller and the feed roller 3 contact.




F-2-10

When the feed path senor (S102) has detected the paper, the stacking tray paper retainer holds the paper on the stacking tray. At this time, the stacking tray paper retainer HP sensor (S114) and the stacking tray paper retainer position sensor (S149) detects the position of the stacking tray paper retainer. Then, the stacking tray paper retainer returns to the home position when the paper has passed through the feed path sensor (S102).



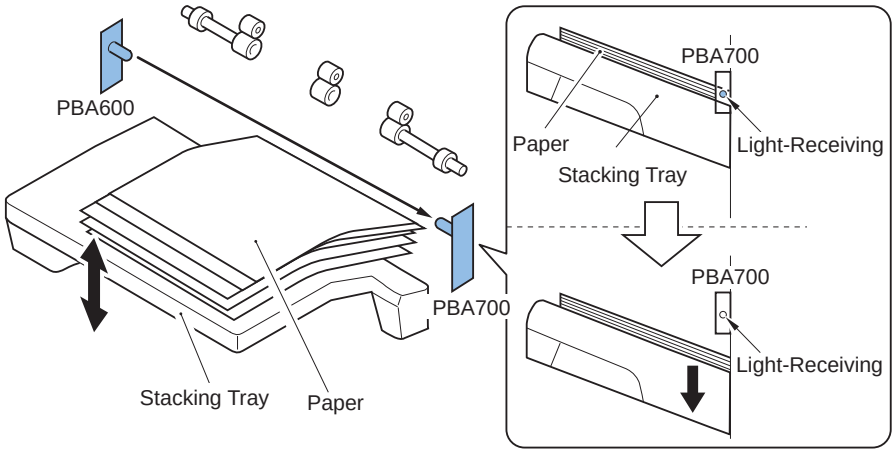

F-2-11

After delivering the paper, the stacking tray raises or lowers according to the position of the stacking tray paper retainer that detected by the stacking tray paper retainer HP sensor (S114) and the stacking tray paper retainer position sensor (S149) and the number of the delivered paper (the stacking tray lowers by 0.5mm for each 7 sheets of paper) and the detection of the tray paper surface sensor (PBA600/PBA700).

| The position of the stacking tray paper retainer | HP | high | middle | low |
|---|---|---|---|---|
| Stacking tray paper retainer HP sensor (S114) | ON | OFF | OFF | ON |
| Stacking tray paper retainer position sensor (S149) | ON | ON | OFF | OFF |
| Stacking tray raises or lowers | - | Raises by 0.5mm | - | Lowers by 0.5mm |

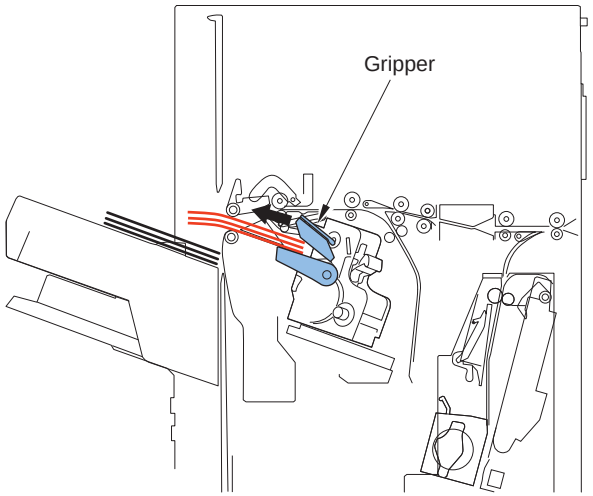
T-2-4

The light-emitting (PBA600) and the light-receiving (PBA700) of the tray paper surface sensor detect the surface of the stack of paper on the stacking tray.
When the tray paper surface sensor has detected the paper, the stacking tray lowers by 2mm.




## Processing Tray Paper Feed Operation

When the shift or staple mode is selected, this finisher stacks the paper on the processing tray unit, and then delevers the paper on the stacking tray unit.
After the processing tray unit has shifted or stapled the stack of paper, it delivers the stack of paper on the stacking tray by the gripper.




F-2-12

When the shift mode is selected, the number of the stack paper delivered on the stacking tray is as followings.

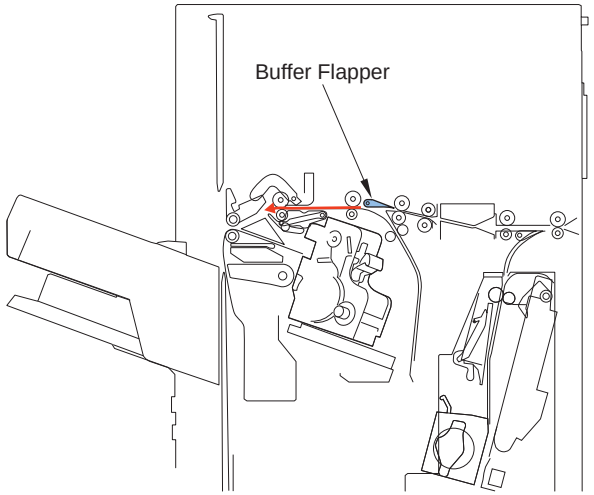
| | The numer of stack paper | |
|---|---|---|
| | Plain paper | Coated paper/Thick paper |
| Paper length > 216mm | 3 sheets of paper | 2 sheets of paper |
| 216mm => Paper length | 4 sheets of paper | |

T-2-5

## Buffer Path Paper Feed Operation

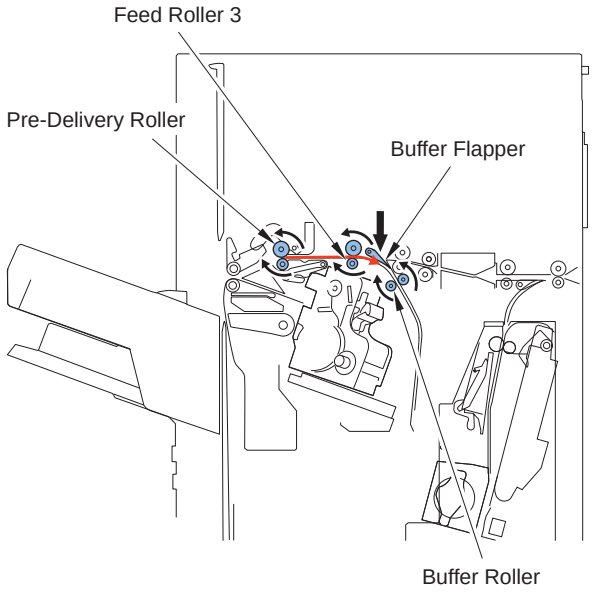
The paper that fed from the upstream connection machine stacks to the buffer path unit while the shift or staple operation performs in the processing tray unit.
The paper size that the buffer path paper feed operation is performed : A4, B5, LTR
The stackable number of sheets of paper in the buffer path: 1 or 2 sheets of paper

The feeding unit feeds the paper until the trailing edge of the paper reaches the specified position from the buffer flapper.



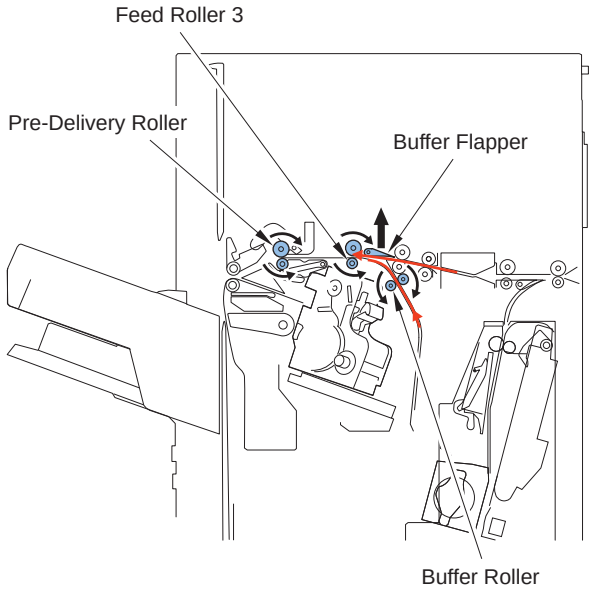

F-2-13

The feed roller disengage/buffer flapper motor (M119) drives and the buffer flapper switches over.
Then, the buffer feed motor (M102) drives in the opposite direction and the feeding unit feeds the paper to the buffer path unit until the leading edge of paper reaches the specified position from feed roller 3.




F-2-14

The feed roller disengage/buffer flapper motor (M119) drives to switches over the buffer flapper.
Then, the buffer feed motor (M102) drives and the feeding unit feeds a sheet of paper that stacked in the buffer path together with a subsequent sheet of paper.

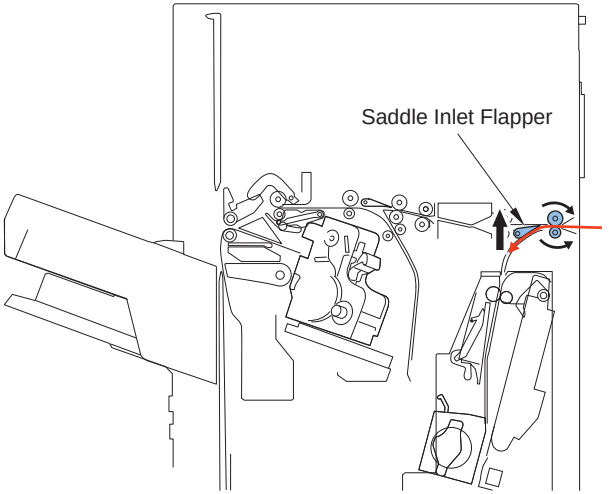



F-2-15

In case only a sheet of the paper is stacked in the buffer path, the feeding unit feeds two sheets of paper to the processing tray unit.
In case two sheets of the paper are stacked in the buffer path, the feeding unit feeds back two stacks of paper to the buffer path and feeds it together with a subsequent sheet of the paper to the processing tray unit.

## Switching Over the Paper Path

The saddle inlet flapper solenoid (SL206) drives to switches over the saddle inlet flapper. As a result, the sheet of paper that fed from the upstream connection machine feeds toward the sadde stitcher unit.

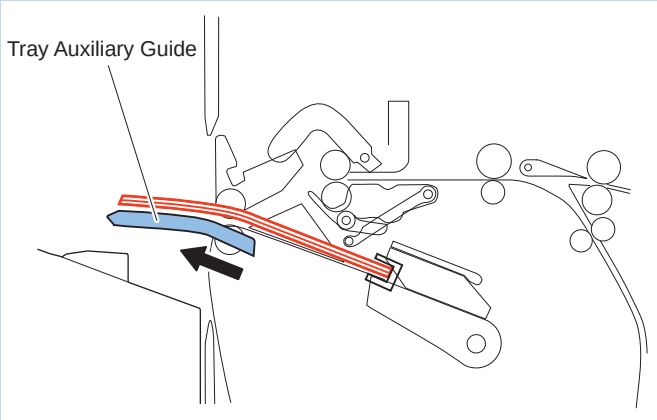



F-2-16

MEMO:

Stack Delivery Auxiliary Function

This finisher 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 tray auxiliary plate is pushed outside the finisher before delivery occurs to hold the lead edge of paper. This prevents misalignment. The tray auxiliary plate is pulled inside the finisher at the end of the delivery operation.




F-2-17

# Stack Tray Unit

## Stack Tray Operation

This equipment has three delivery trays. The upper tray is called escape tray, the middle tray is called tray 1, and the lower tray is called tray2. The escape tray is fixed and tray 1 and tray 2 can move up and down independently. The escape tray has an escape tray full detector sensor(S130). When the escape tray becomes full, the finisher controller PCB notifies the host machine to that effect.

The finisher controller PCB controls the vertical movement of tray 1 and tray 2 by changing the drive direction of the tray 1 shift motor (M105) and tray 2 shift motor (M217) (incorporating a motor driver PCB).

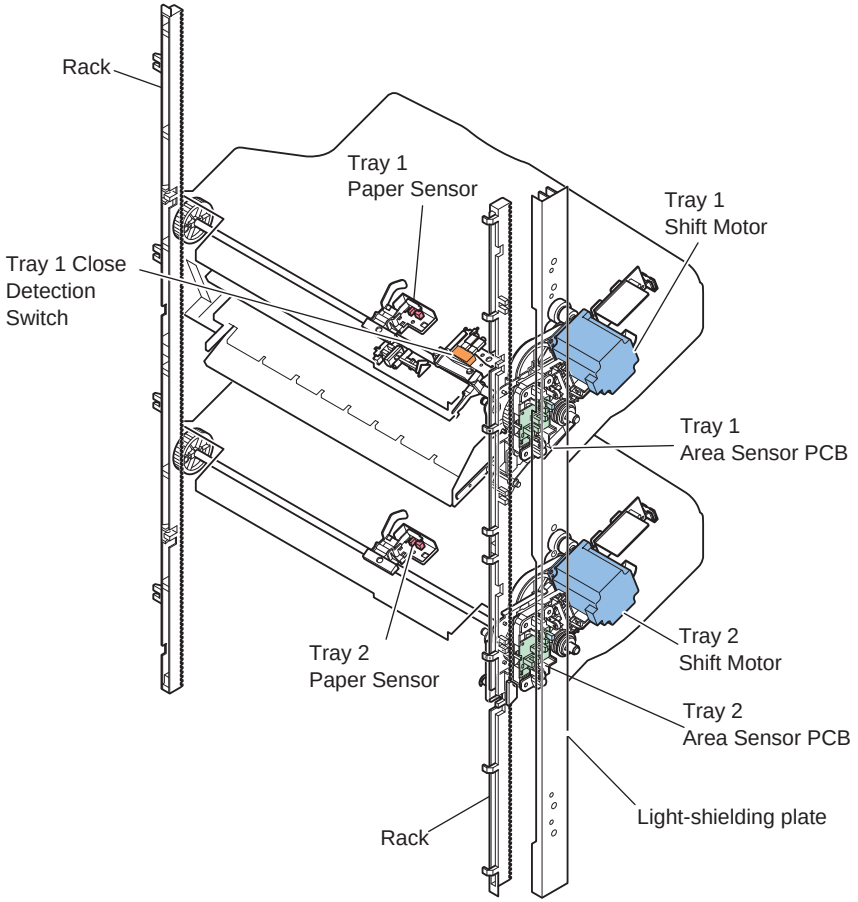
Tray 1 paper sensor (S104) and tray 2 paper sensor (S105) are provided to detect the presence of the paper stacked on tray 1 and tray 2.

The home position of tray 1 is detected by the tray 1 paper surface sensor (PI114) and the home position of tray 2 is detected by the tray 2 paper surface sensor(PI115) 1. The home position is the top surface of the paper if paper is already stacked on the tray, or the position where the edge of the tray is detected if no paper is stacked. The tray 2 paper surface sensor (S143) 2 detects the paper surface when 651 or more sheets are stacked in tray 2. When the power is turned on, the finisher controller PCB drives the tray 1 shift motor (M105) and tray 2 shift motor (M217) to return the tray 1 and tray 2 to their home positions. If either tray is already at the home position, it is moved out of the home position once and then returned to the home position again. If both tray 1 and tray 2 are at their home positions, this operation is performed for tray 2 and then for tray 1. If the tray specified by the host machine is tray 2, the finisher controller PCB raises the tray so that tray 2 is at the delivery port.

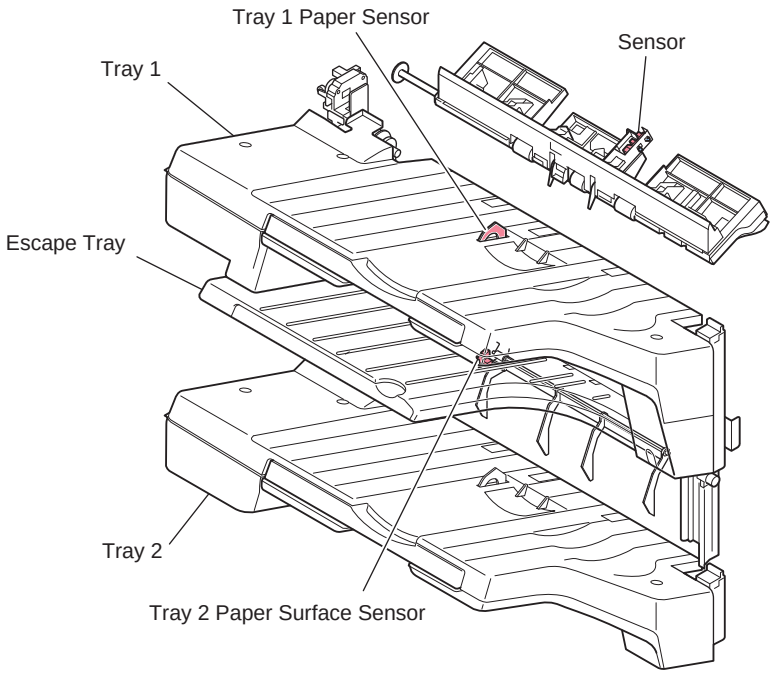
When paper is stacked on either tray, the tray 1 shift motor (M105) or tray 2 shift motor (M217) is driven a prescribed number of pulses to lower the tray. Then the tray returns to the home position to prepare for the next stack.

The upper and lower limits of the tray are detected by three area sensors (S122, S123, S124,S125,S126,S127) on the tray 1 and tray 2 shift area sensor PCB. The finisher controller PCB stops driving the tray 1 shift motor (M105) and tray 2 shift motor (M217) upon detection of the upper or lower limit of the tray. Also, the ON/OFF combinations of the area sensors (S122, S123, S124,S125,S126,S127) are used to detect over-stacking according to the stack height for large size and mixed stacking.

The finisher controller PCB stops supplying +24V to the tray 1 shift motor (M105) and stops the finisher operation when tray 1 closing detect switch (SW110) turns ON




F-2-18




| Detected items | Tray 1 shift area sensor PCB | | |
|---|---|---|---|
| | Area sensor 1 (S122) | Area sensor 2 (S123) | Area sensor 3 (S124) |
| Tray 1 upper limit | OFF | ON | ON |
| Stack count 650 sheet limit exceeded | ON | OFF | OFF |
| Stack count 1300 sheet limit exceeded | ON | ON | OFF |
| Tray 1 lower limit | ON | ON | OFF |

T-2-19

| Detected items | Tray 2 shift area sensor PCB | | |
|---|---|---|---|
| | Area sensor 1 (S125) | Area sensor 2 (S126) | Area sensor 3 (S127) |
| Tray 2 upper limit | OFF | ON | OFF |
| Stack count 650 sheet limit exceeded | ON | OFF | OFF |
| Stack count 1700 sheet limit exceeded | ON | ON | ON |
| Stack count 2450 sheet limit exceeded | OFF | ON | ON |
| Tray 2 lower limit (finisher) | ON | OFF | ON |
| Tray 2 lower limit (saddle finisher) | OFF | OFF | ON |

T-2-1

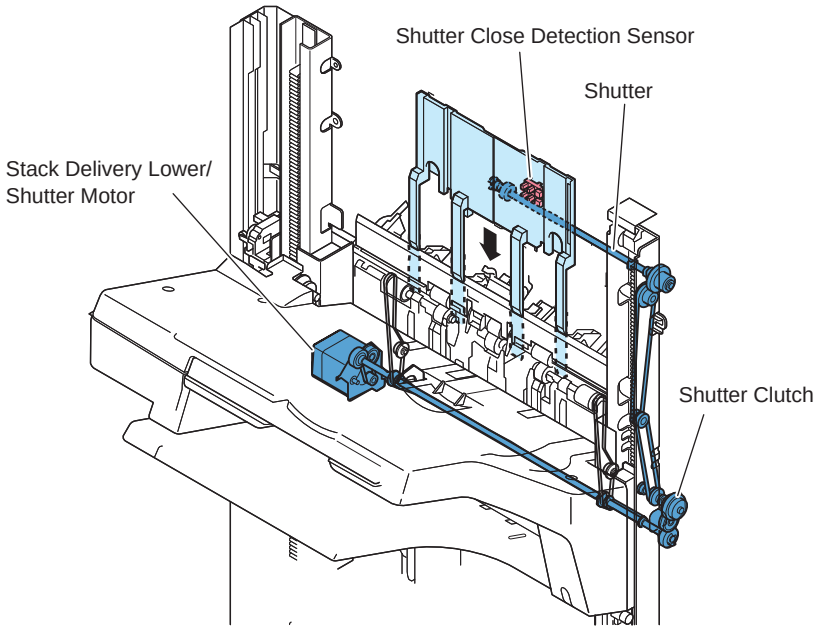
* The symbol for the area sensor of each PCB is same because tray 1/tray 2 shift area sensor PCBs are the same board.

## Shutter Operation

When tray 1 passes the delivery section with paper already stacked, the stacked paper may get caught by the delivery section. A shutter is provided at the delivery section to prevent this. The shutter closes when tray 1 passes the delivery section. This is performed even when no paper is stacked.

When the shutter clutch (CL102) and shutter close detection sensor (S148) are ON, the shutter moves up (close) when the stack ejection motor (M122) turns forward and moves down (open, delivery enabled) when the motor turns backward.

The open/close of the shutter is detected by the shutter home position sensor (S106).




F-2-20

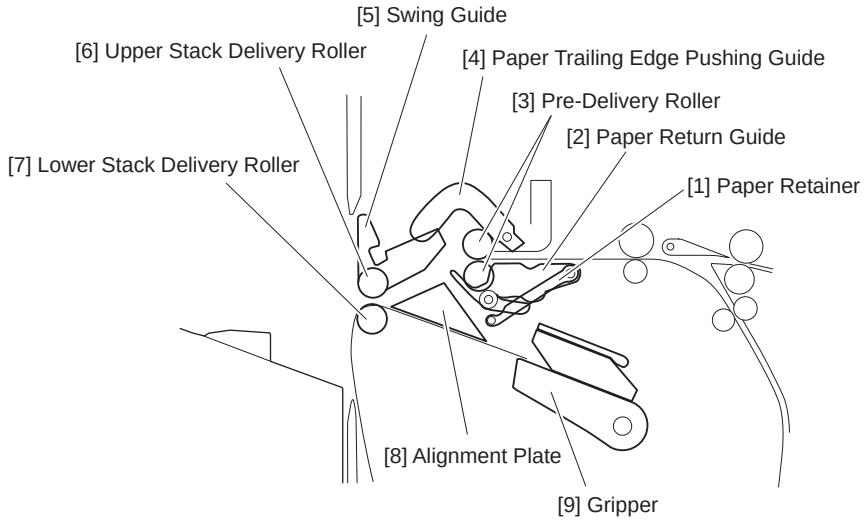
# Processing Tray Unit

## Outline

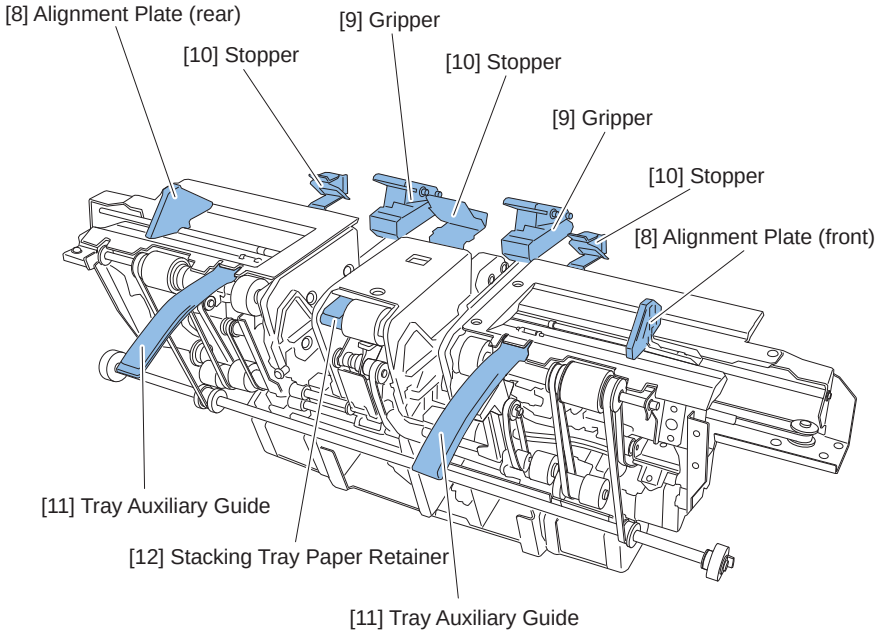
In the processing tray unit, the fed sheets are stacked to be shifted or stapled. The stack of sheets is then delivered to the stacking tray.

When sheets are delivered straight without being shifted or stapled, they are not stacked in the processing tray.

Names and functions of the components of the processing tray unit are as follows:




F-2-21




F-2-22

| No. | Name | Function |
|---|---|---|
| [1] | Paper Retainer | Presses down the sheets stacked in the processing tray unit to prevent them from being delivered or fed. |
| [2] | Paper Return Guide | Holds down and feeds paper to the processing stopper to stack it in the processing tray. |
| [3] | Pre-Delivery Roller | Feeds paper to the processing tray unit. |
| [4] | Paper Trailing Edge Pushing Guide | Pushes down the trailing edge of the paper delivered from the pre-delivery roller so that it heads to the processing tray. |
| [5] | Swing Guide | Moves the upper stack delivery roller vertically to nip/release paper. |
| [6] | Upper Stack Delivery Roller | Delivers paper and feeds it to the processing tray unit. |
| [7] | Lower Stack Delivery Roller | Delivers paper and feeds it to the processing tray unit. (This roller does not rotate when paper already exists in the processing tray unit). |
| [8] | Alignment Plate | Aligns the sheets stacked in the processing tray unit. |
| [9] | Gripper | Grips the sheets stacked in the processing tray unit and delivers them to the stacking tray. |
| [10] | Stopper | Stops the trailing edge of paper here during paper feed to the processing tray unit. |
| [11] | Tray Auxiliary Guide | Prevents large size sheets from being misaligned due to bending when they are stacked. |
| [12] | Stacking Tray Paper Retainer | Holds down the sheets stacked in the stacking tray when they are delivered straight without being shifted or stapled. (The stacking tray paper retainer projects when the leading edge of paper reaches the feed path sensor. It retracts when the trailing edge of paper has passed by the feed path sensor.) The stacking tray moves up and down according to the height of the stacking tray paper retainer. |

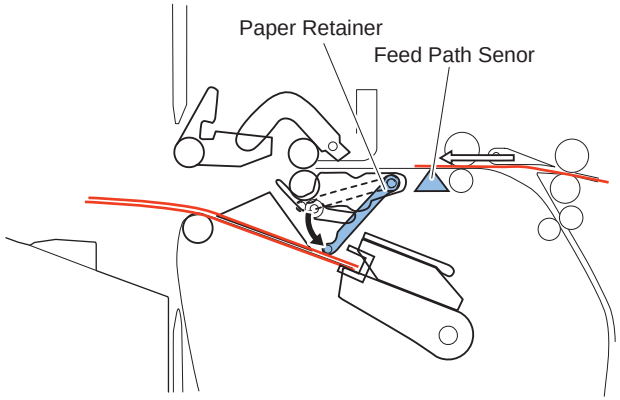
## Basic Operation

The processing tray unit performs four types of basic operations described below.

1.Processing Tray Paper Stacking Operation
Stacks sheets (fed from the feed unit) in the processing tray unit.
2.Shift Operation
Shifts the paper stacking position to the front or rear of the tray (only when the Shift mode is selected).
3.Staple Operation
Staples a stack of sheets at the specified position(s) (only when the Staple mode is selected).
4.Stack Delivery Operation
Delivers a stack of sheets (stacked in the processing tray) to tray 1, tray 2, or escape tray. When the Staple mode is selected, the stack is not delivered to the escape tray.

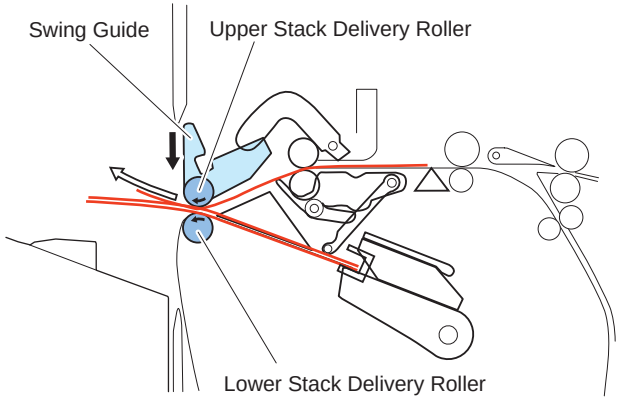
## Processing Tray Paper Stacking Operation

1) When the paper fed from the feed unit reaches the feed path paper sensor (S108), the processing tray paper retainer motor (M118) is driven to lower the paper retainer, thus pressing down the sheets in the processing tray (if they exists in the processing tray)



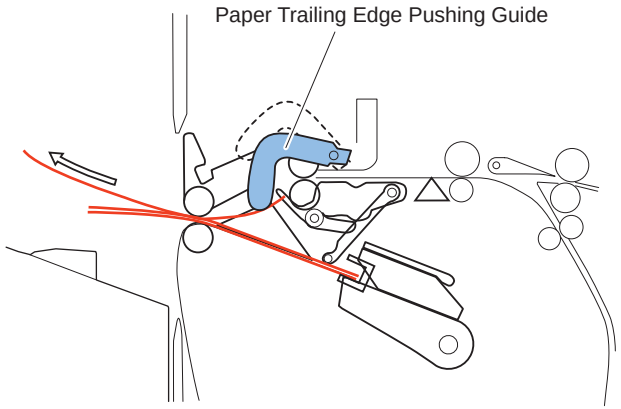

F-2-23

2) When the leading edge of paper reaches the stack delivery roller, the swing guide motor (M110) is driven to lower the swing guide, feeding the paper between the stack delivery rollers. If sheets are stacked on the processing tray, the lower stack delivery roller does not rotate to prevent the stacked sheets from being delivered.



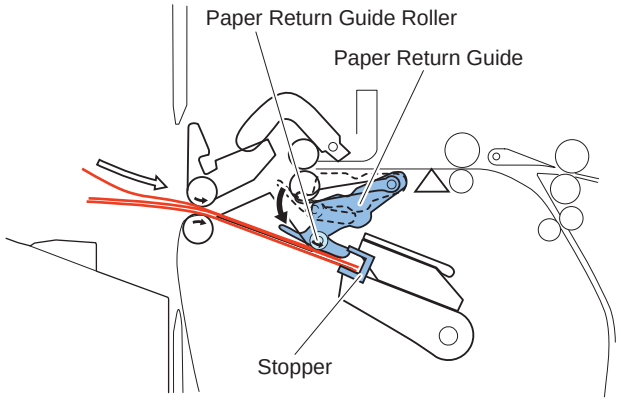

F-2-24

3) When the trailing edge of paper passes by the front delivery roller, the paper trailing edge pushing guide motor (M113) is driven to lower the paper trailing edge pushing guide, thus pushing down the paper in the stacking direction of the processing tray.



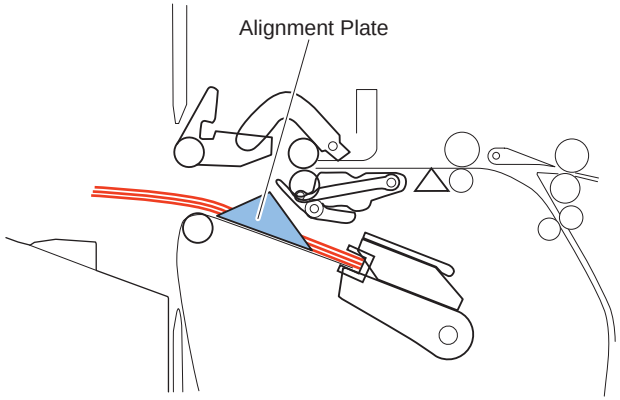

F-2-25

4) The stack delivery roller rotates in the reverse direction to feed paper to the processing tray unit. At this time, the paper return guide rmotor (M112) is driven to lower the paper, thus pressing down the paper fed to the processing tray unit. The paper return guide roller motor (M121) is driven to rotate the paper return guide roller, feeding the paper until it stops against the processing stopper.




F-2-26

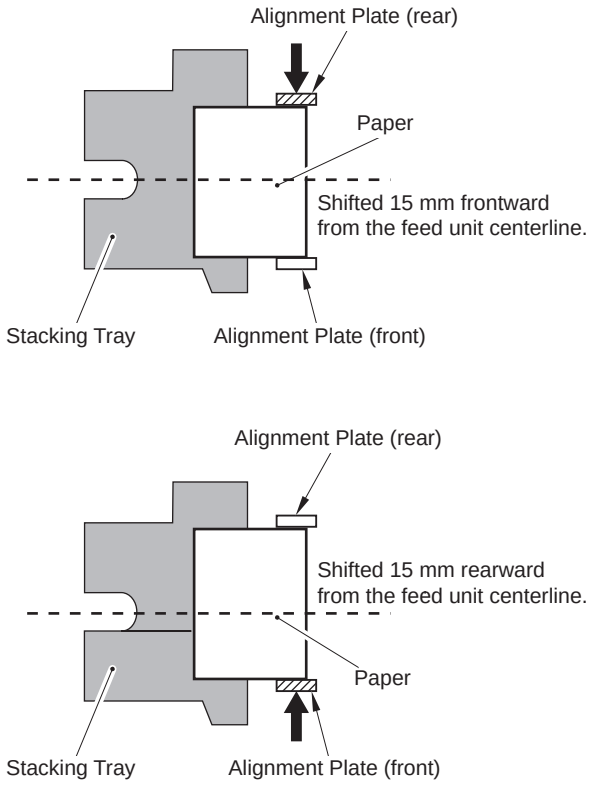
5) The front/rear alignment motor (M108/M109) is driven to move the alignment plate (front/rear), thus aligning the sheets stacked in the processing tray. This operation is performed each time paper is fed to the processing tray.




F-2-27

## Shift Operation

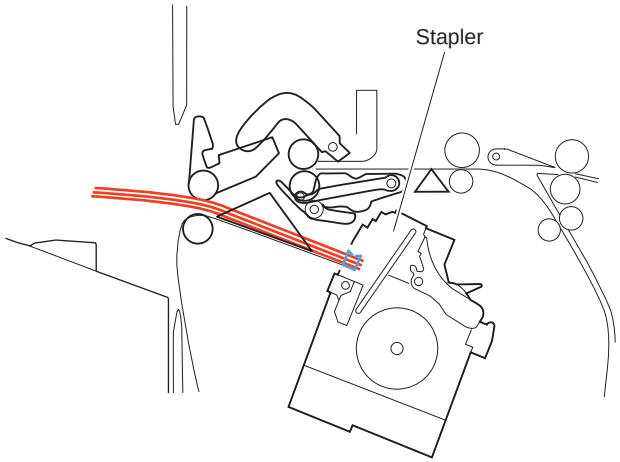
Sheets fed to the processing tray are aligned to the front or rear using the alignment plates.
Alignment positions are as follows:
Front alignment: 15 mm frontward from the center
Rear alignment: 15 mm rearward from the center




F-2-28

## Staple Operation

Sheets are stapled after being fed to the processing tray and aligned there.

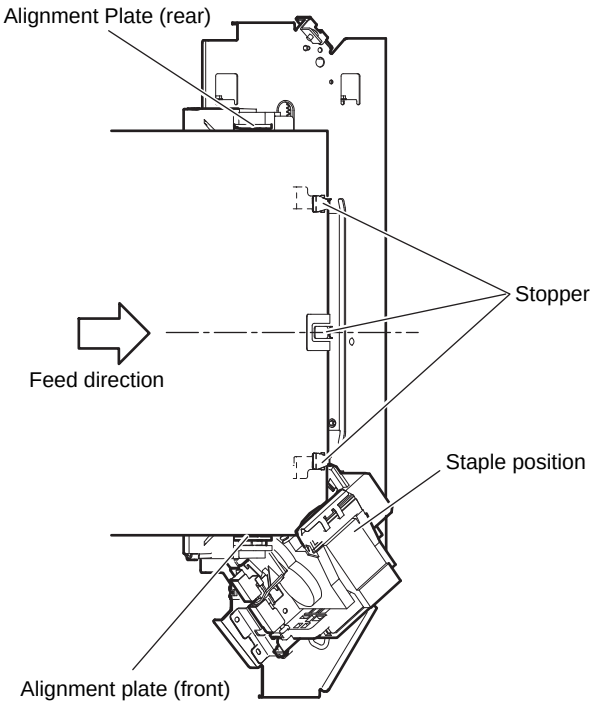



F-2-29

Stapling and alignment positions in different staple modes are as follows:

<Front 1-Point Stapling>

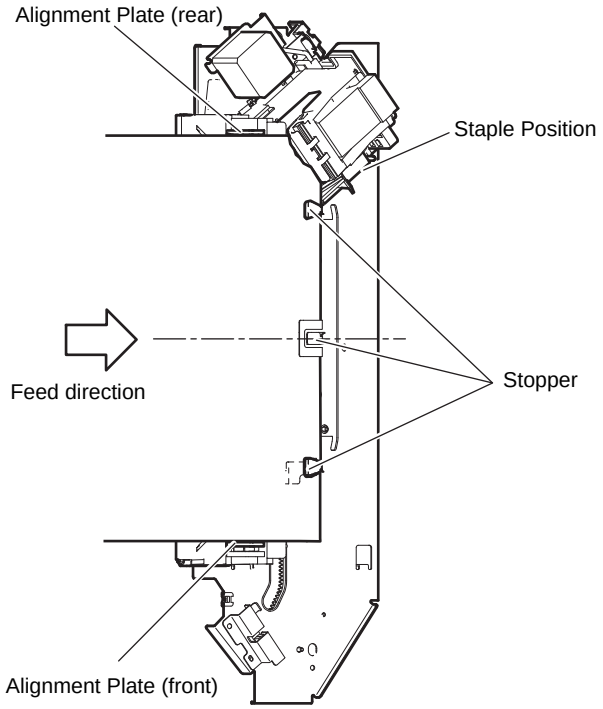
Alignment position: Sheets are aligned to the center when the paper width is more than 216 mm. Sheets are aligned to the position 15 mm frontward from the center when the paper width is 216 mm or less.




F-2-30

<Rear 1-Point Stapling>

Alignment position: Sheets are aligned to the center when the paper width is more than 216 mm. Sheets are aligned to the position 15 mm rearward from the center when the paper width is 216 mm or less.

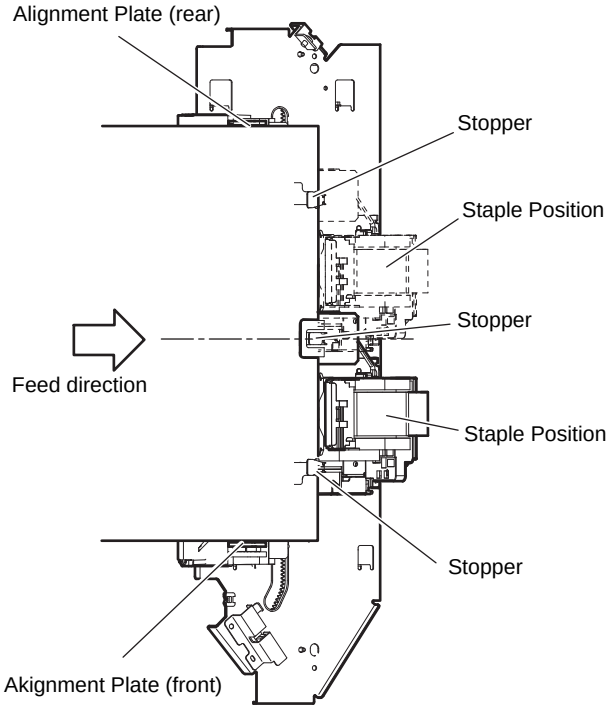



F-2-31

<2-Point Stapling>

Sheets are stapled at the rear, and then stapled at the front.

Alignment position: Sheets are aligned to the center. When the stack consists of 20 or fewer sheets of A4R/LTRR/B5R paper, they are first stapled at the rear, shifted 43 mm frontward from the center, stapled at the front where the gripper does not touch the stapler, and delivered by the gripper immediately.

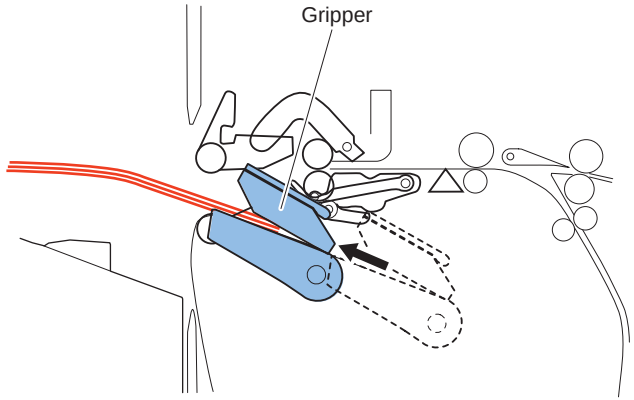



F-2-32

## Stack Delivery Operation

Trailing edges of the sheets stacked in the processing tray unit are gripped by driving the gripper base motor (M116) and gripper motor (M117), and the paper stack is delivered to the stacking tray.

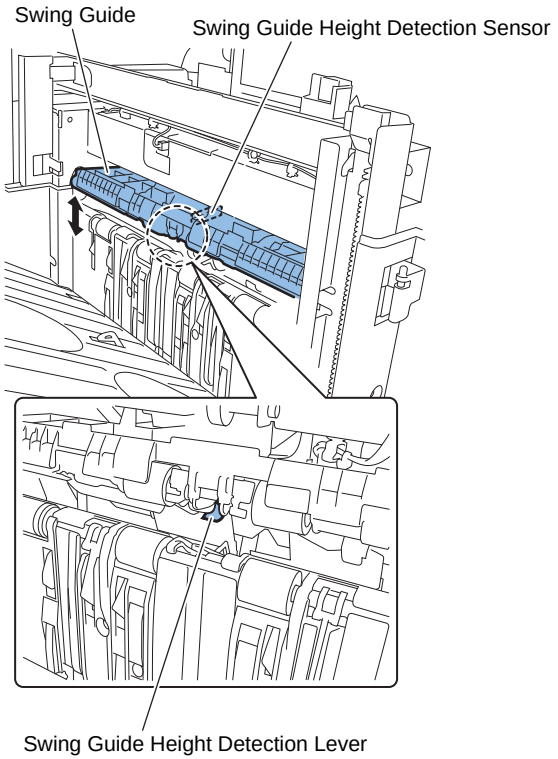
When the stack consists of 10 or fewer sheets as long as or shorter than 216 mm or it consists of two or fewer sheets longer than 216 mm, sheets gripped by the gripper are delivered faster than usual.




F-2-33

## Swing Height Detection Control

The height of the sheets stacked in the processing tray is detected by the swing height detection sensor (S118) and the height of the swing unit is adjusted appropriately (during stacking of a sheet in the processing tray) to lessen the damages (scratches, etc.) to the image due to abrasion between the previously stacked sheet and the newly delivered sheet.

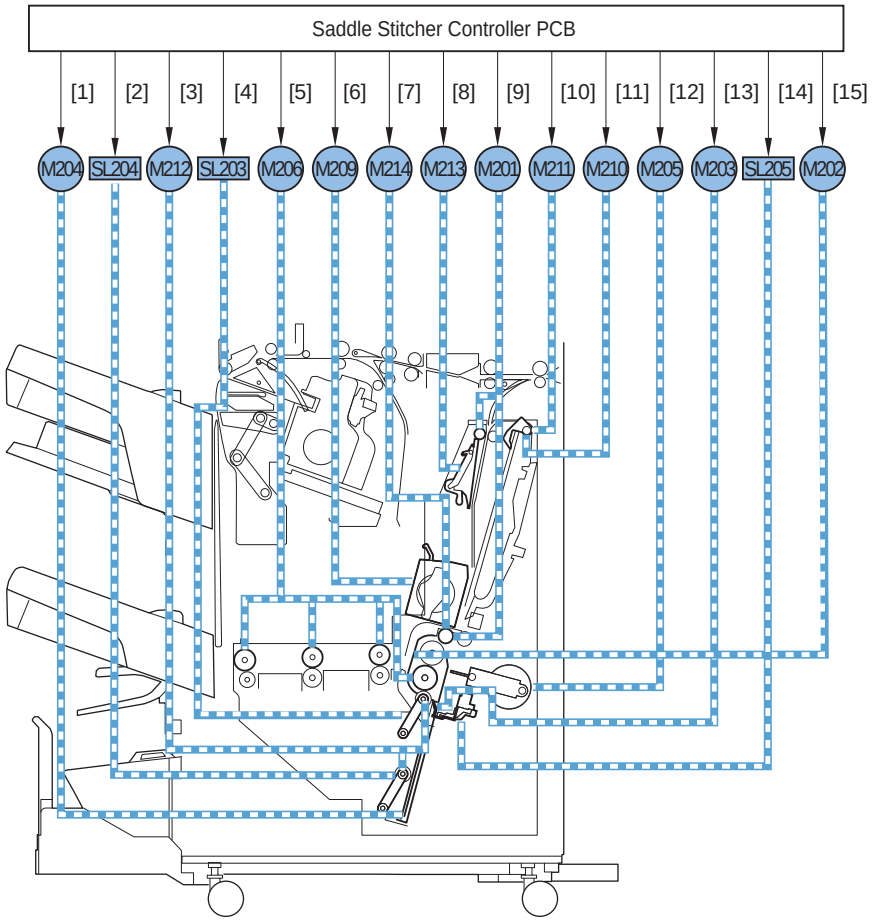



F-2-34

# Saddle Stitcher Unit

## Outline

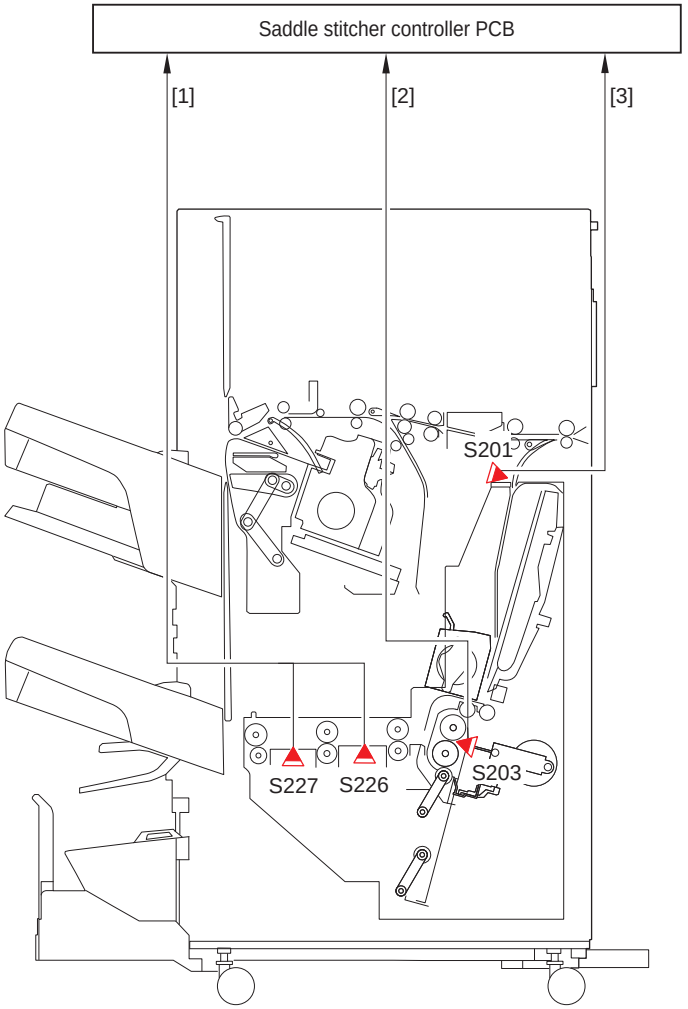
The saddle stitcher block serves to staple a stack of sheets according to the instructions from the saddle stitcher controller PCB, and moves the stack to the saddle delivery belt.
The paper path is fitted with 4 sensors to check for a jam.




F-2-35

| | | | |
|---|---|---|---|
| [1] | Saddle guide motor drive signal | M201 | Saddle transport motor |
| [2] | Alignment roller disengage solenoid (lower) drive signal | M202 | Saddle alignment guide motor |
| [3] | Saddle alignment roller drive signal | M203 | Saddle lead edge stopper motor |
| [4] | Alignment roller disengage solenoid (upper) drive signal | M204 | Saddle guide motor |
| [5] | Saddle folding/transport motor drive signal | M205 | Saddle paper push-on plate motor |
| [6] | Stitcher motor drive signal | M206 | Saddle folder/feeder motor |
| [7] | Saddle pull-in shift motor drive signal | M209 | Saddle stitcher motor |
| [8] | Saddle tapping motor drive signal | M210 | Saddle trailing edge holding motor |
| [9] | Saddle transport motor drive signal | M211 | Saddle trailing edge moving motor |
| [10] | Saddle trailing edge shift motor drive signal | M212 | Saddle alignment roller motor |
| [11] | Saddle trailing edge stay motor drive signal | M213 | Saddle tapping motor |
| [12] | Saddle paper butting plate signal | M214 | Saddle lead-in roller disengage motor |
| [13] | Saddle lead edge stopper motor drive signal | SL203 | Alignment roller disengage solenoid (upper) |
| [14] | Leading edge gripper solenoid drive signal | SL204 | Alignment roller disengage solenoid (lower) |
| [15] | Saddle alignment motor drive signal | SL205 | Saddle lead edge glipper solenoid |

T-2-7




F-2-36

| | |
|---|---|
| [1] | Saddle Delivery Sensor 1,2 signal |
| [2] | Saddle Vertical Path Sensor signal |
| [3] | Saddle Inlet Sensor signal |
| S201 | Saddle inlet sensor |
| S203 | Saddle vertical path sensor |
| S226 | Saddle Delivery Sensor 1 |
| S227 | Saddle Delivery Sensor 2 |

T-2-8

## Basic Sequence of Operations

The saddle stitcher block uses the following sequence of operations:

1. Transport

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

2. Alignment

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

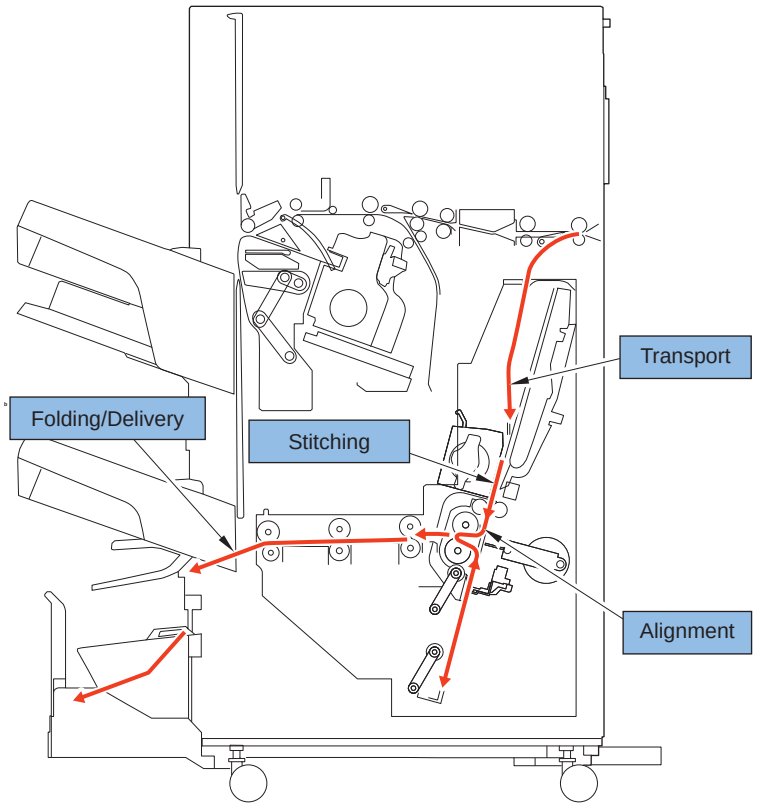
3. Stitching

   Uses the stitcher to staple the middle of the stack.

4. Folding/Delivery

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

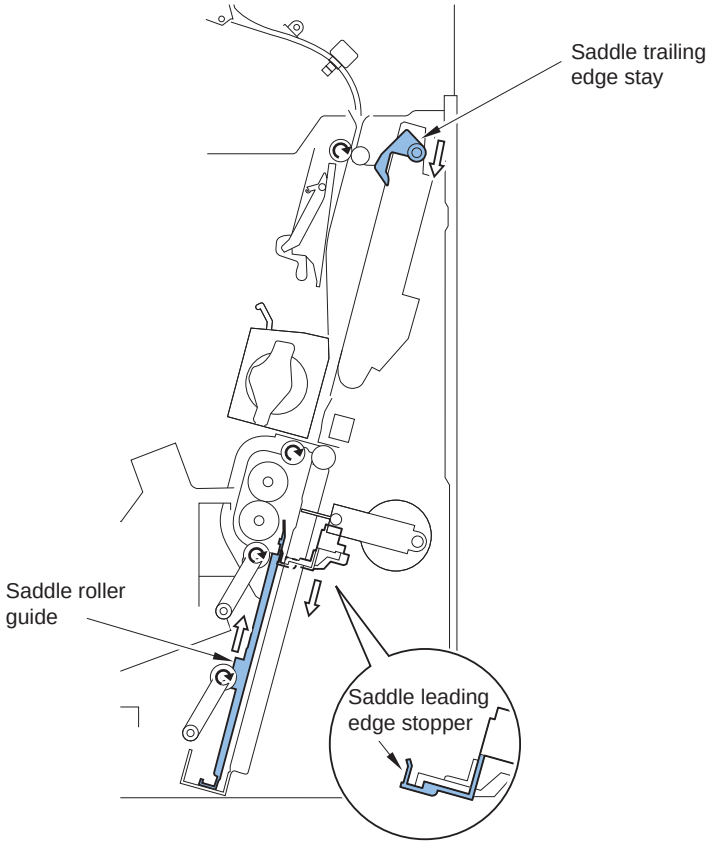
The particulars of the individual operations are as follows:




F-2-37

## Paper Feed Operation

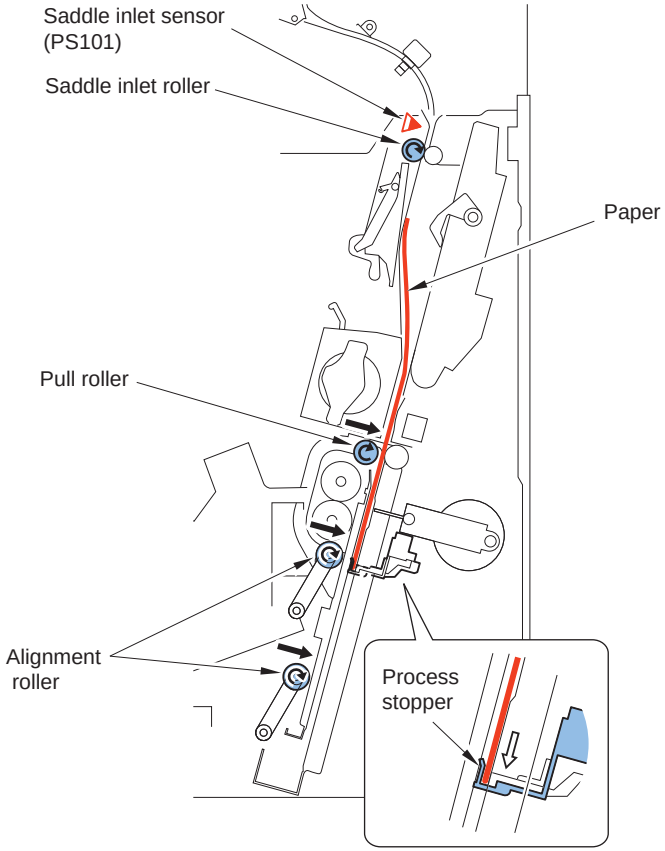
1) The saddle leading edge stopper and saddle trailing edge stay move into position based on the paper size. Also, the saddle roller guide rises.(In case of thin paper, roller guide movement control is performed.)




F-2-38

2) The paper is transported to the stitcher unit by the saddle feed roller.

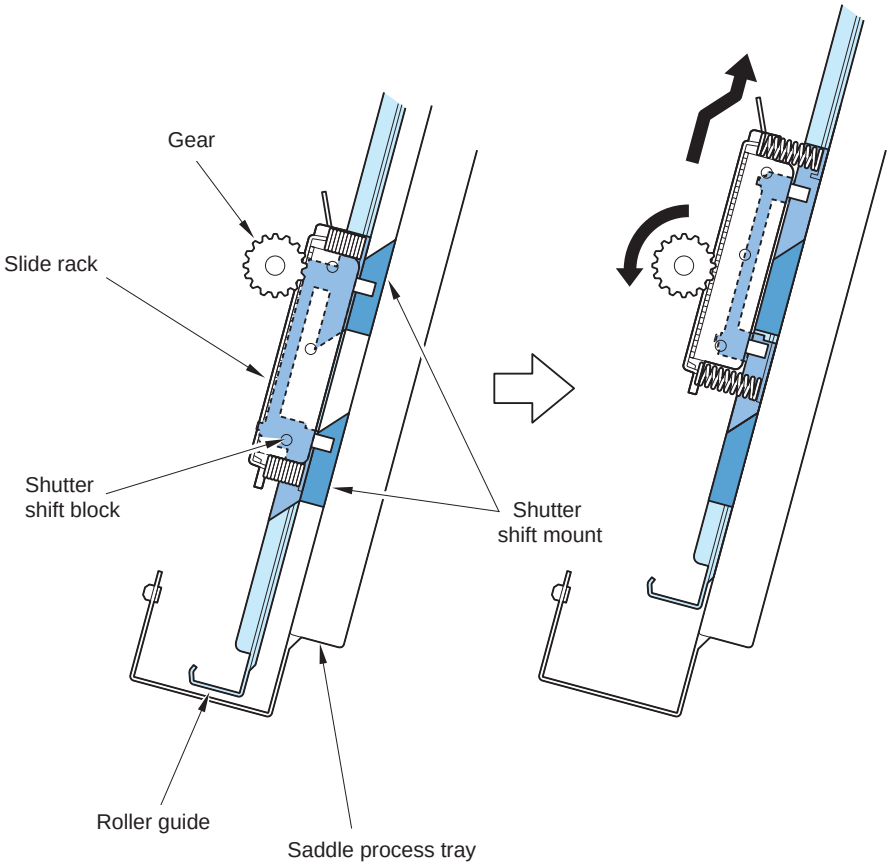
3) Once the saddle inlet sensor (PS201) detects the paper, the saddle alignment roller rotates and drives the saddle pull roller disengage motor and the saddle alignment roller disengage solenoid so that the paper is transported by the pull roller and alignment roller till it reaches the process stopper.




F-2-39

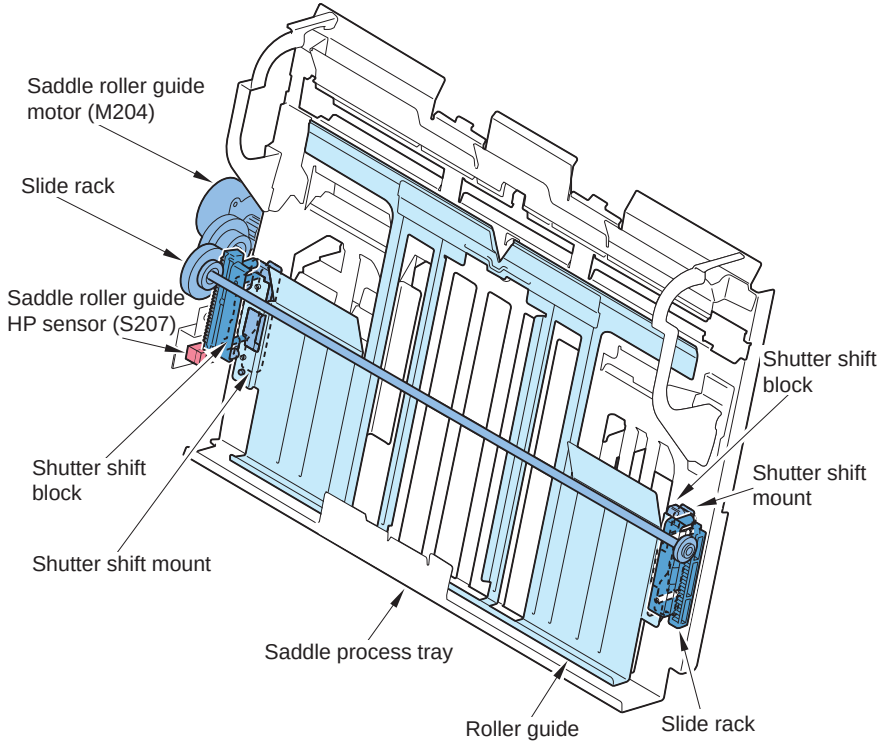
## Roller Guide Clearance Control

In case of thin paper if the clearance between the roller guide and the saddle process tray is too loose, the paper stack gets loose and the alignment
operation does not function properly. Thus, in case of thin paper mode, the machine makes the clearance between the roller guide and the saddle process tray
tighter compared with the modes other than thin paper. Also, the machine makes the clearance larger when several sheets of paper are transferred to the saddle
process tray. The machine enlarges the clearance by the specified degree per 5 sheets of paper.




F-2-40

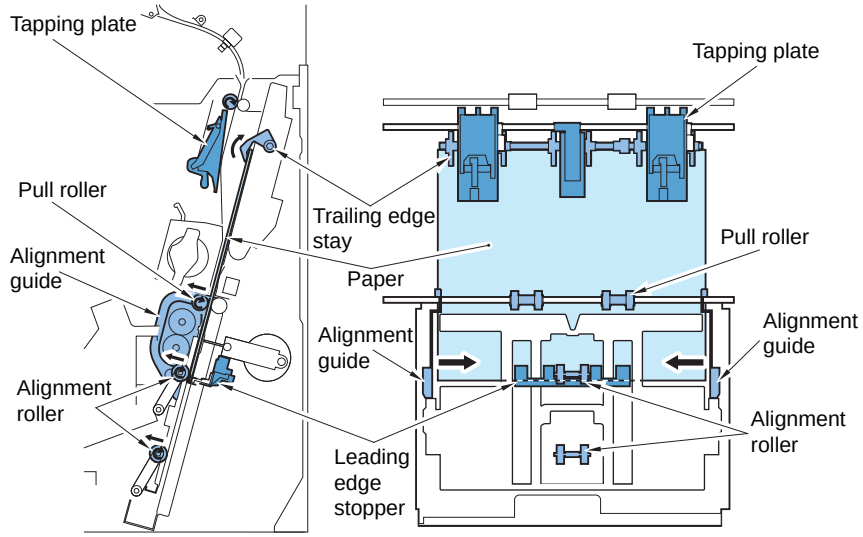
The clearance between the roller guide and the saddle process tray changes in accordance with the position of shutter shift block (hereinafter called as shift block).
The Saddle Roller Guide Motor (M204) lifts the shift block. Since the shift block contacts the shutter shift mount at the first time, it moves with the constant clearance.
When it continues lifting, it reaches the edge of the shutter shift mount and the clearance is reduced as it moves. In thin paper mode, the machine lifts the shift
block until the clearance becomes the specified degree, and then it lowers the shift block per 5 sheets to enlarge the clearance.




F-2-41

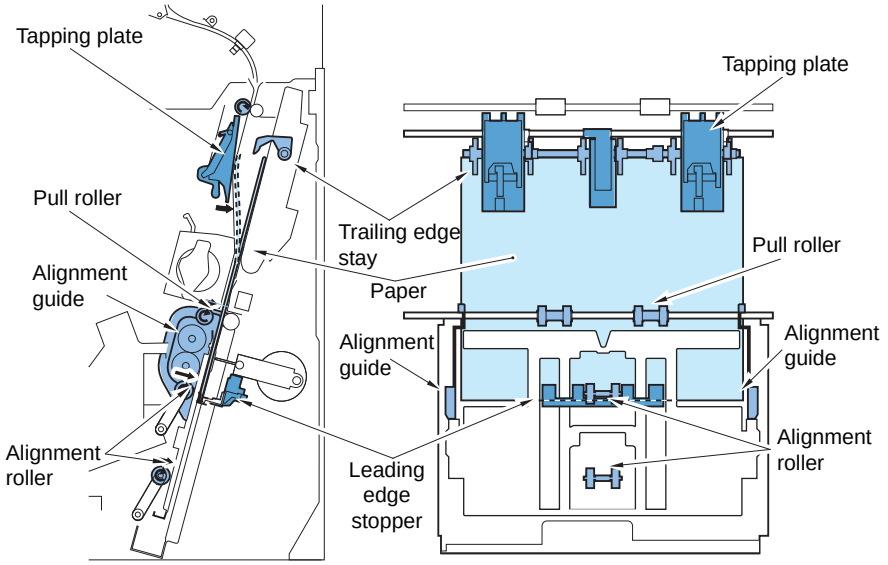
## Alignment Operation

1) The machine opens the trailing edge retainer and disengages the alignment roller and lead-in roller. It then narrower the alignment guide in accordance with the paper size to align the paper stack.



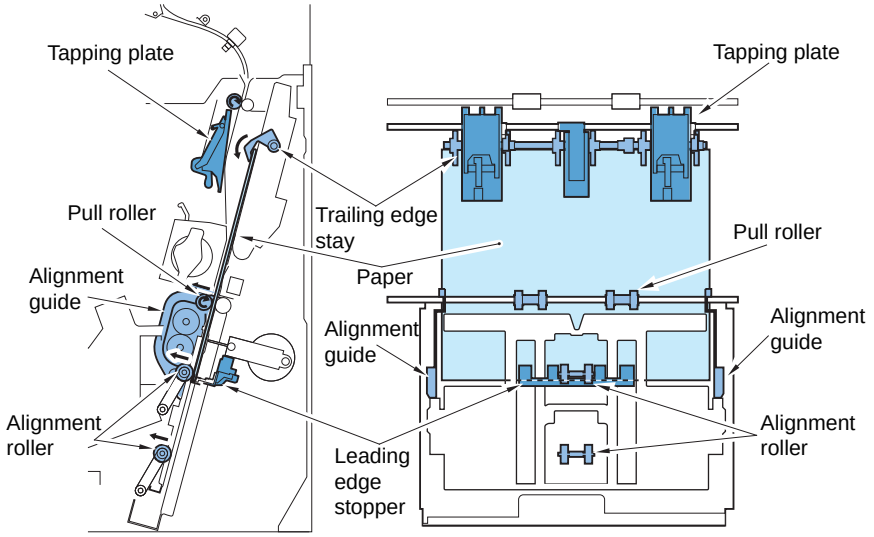

F-2-42

2) The machine engages the alignment roller again and the paper is pushed to the leading edge stopper, and then the knocking plate taps the trailing edge of paper.




F-2-43

3) The machine disengages the alignment roller and the trailing edge retainer holds the trailing edge of paper.

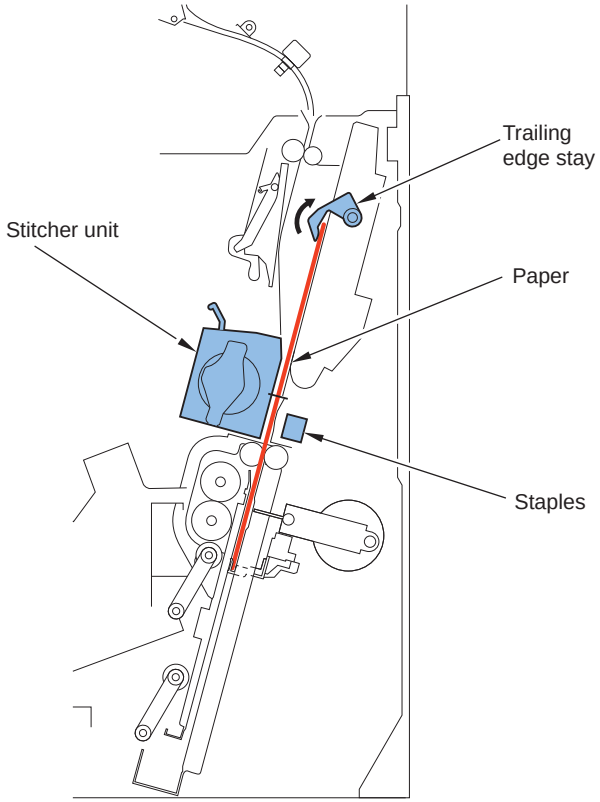



F-2-44

4) There is one sticker unit at the front and the rear of the machine respectively. When the alignment operation is complete and the trailing edge retainer is released, the stitcher unit starts the stitching operation on the paper.

## Staple Operation

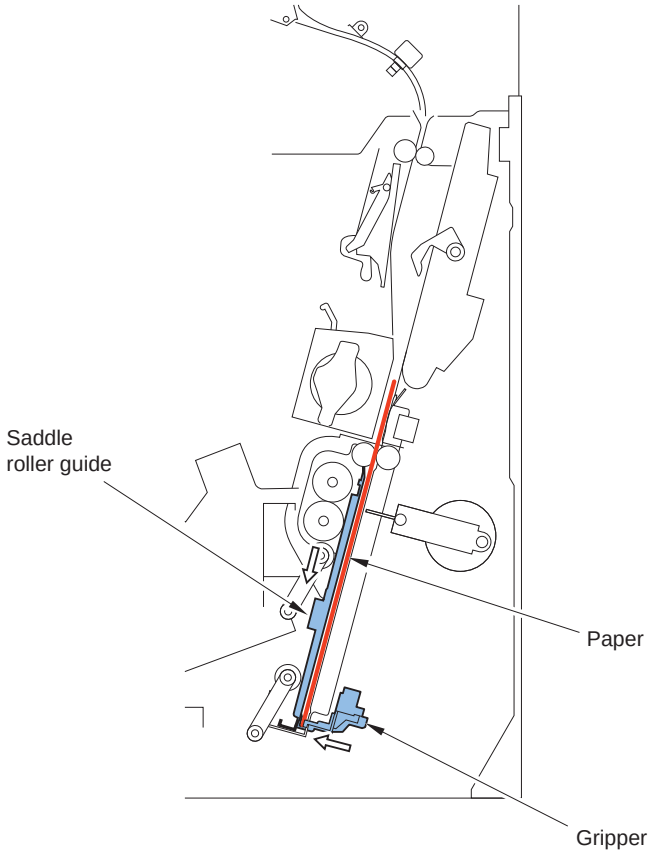
1) There is one sticker unit at the front and the rear of the machine respectively. When the alignment operation is complete and the trailing edge retainer is released, the stitcher unit starts the stitching operation on the paper.




F-2-45

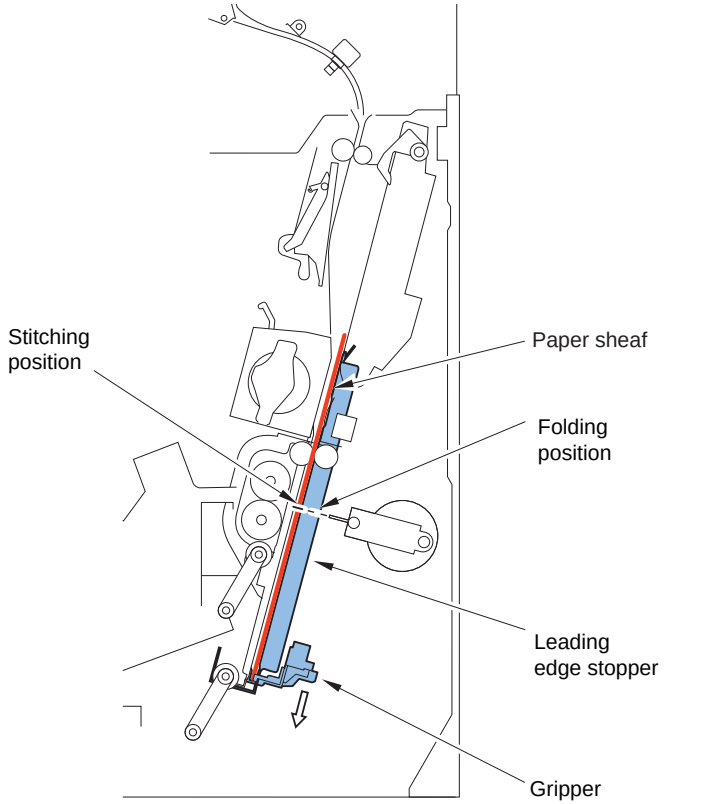
## Paper Folding/Delivery Operations

1) The saddle roller guide is lowered and then the Saddle Lead Edge Stopper Solenoid (SI205) comes ON and the paper is gripped by the gripper



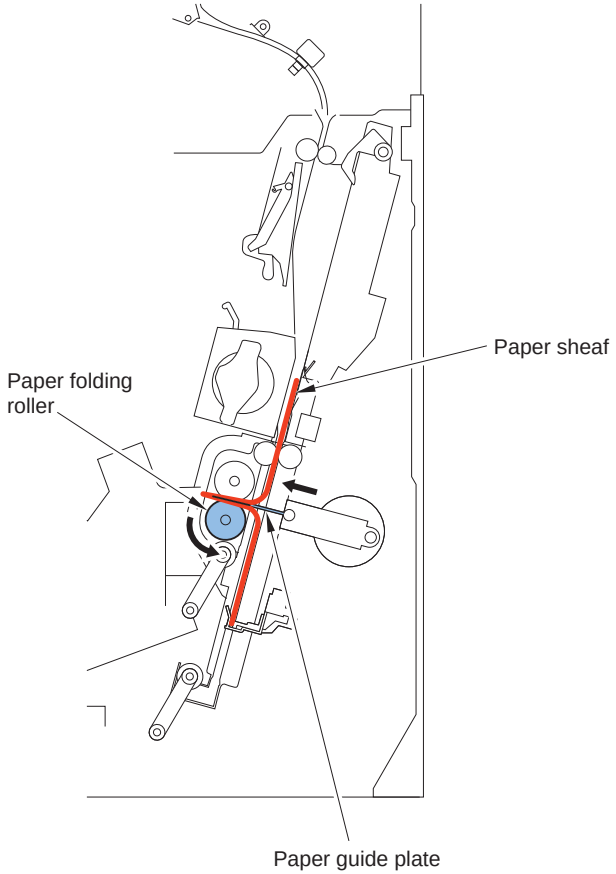

F-2-46

2) With the sheaf held in place by the gripper the paper positioning plate lowers, moving the sheaf in the direction of the arrow. Thus, the stitching position and the folding position are aligned.




F-2-47

3) After the paper folding roller begins to rotate in the direction of the arrow, the paper guide plate moves in the direction of the arrow. This starts the paper folding operation. Then, the paper guide plate is returned to its original position and stops.



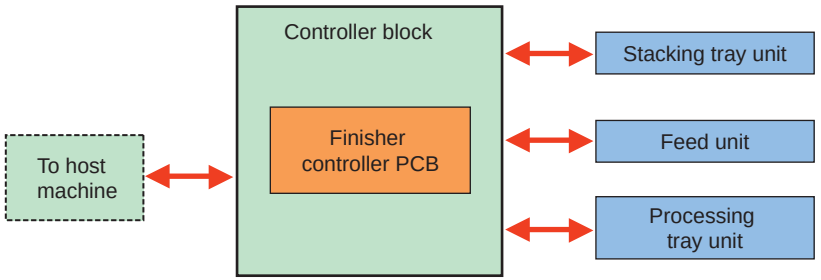

F-2-48

# Controller Unit

## Outline

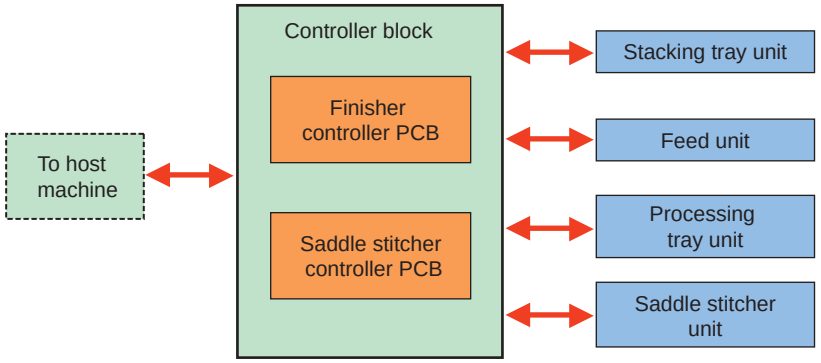
The controller block governs all the control mechanisms of the machine, i.e., stacking block, transport block, intermediary tray block, and saddle stitcher block.
The controller block consists of 2 entities: finisher controller PCB and saddle stitcher controller PCB.

- Finisher (Staple Finisher)




F-2-49

- Saddle Finisher (Booklet Finisher)

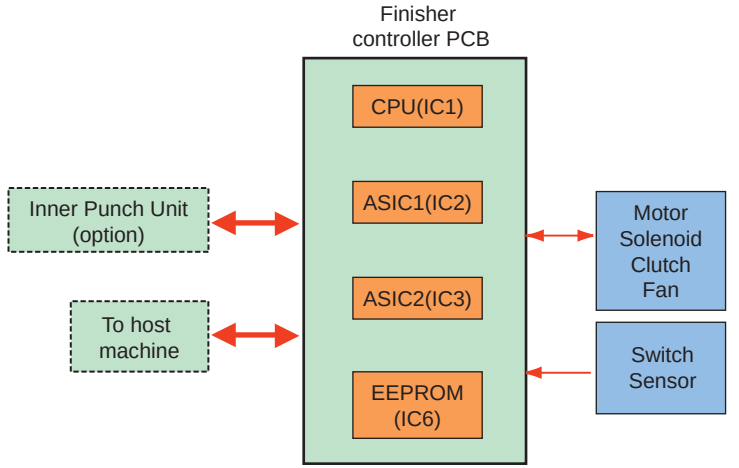



F-2-50

## Finisher Controller PCB

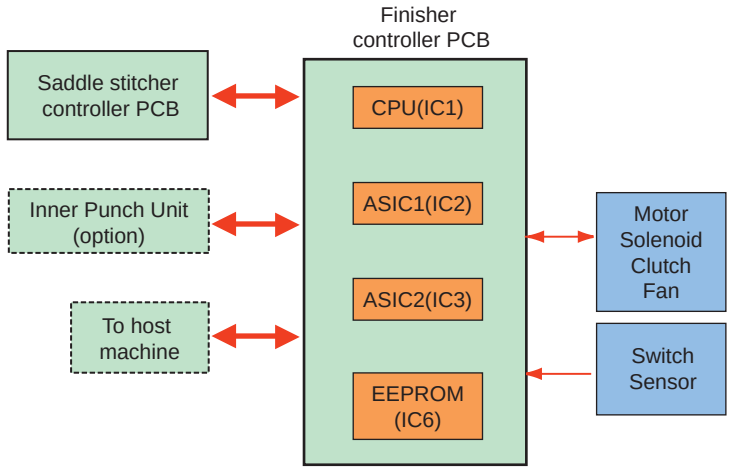
The finisher controller PCB drives the various loads (motors, solenoids) of the machine in response to the commands from the host machine (copier), and indicates the states of the sensors and switches to the host machine.
It also serves to control the inner punch unit and the saddle stitcher controller PCB.

- Finisher (Staple Finisher)




F-2-51

- Saddle Finisher (Booklet Finisher)




F-2-52

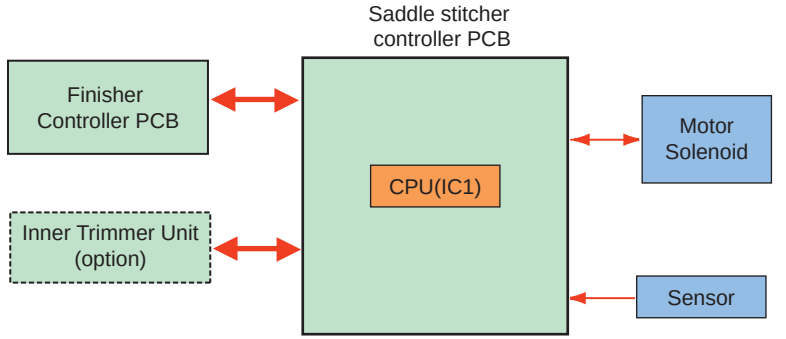
The machine uses the following ICs, each possessing specific functions:

| Name | Description |
|---|---|
| CPU(IC1) | Controls the communications with the host machine.<br>Controls ASIC1/ASIC2.<br>Stores the firmware used to operate the machine. |
| ASIC1(IC2) | Controls the communications with accessories.<br>Controls the drive to various loads. |
| ASIC2(IC3) | Controls the drive to various loads. |
| EEPROM(IC6) | Stores counter readings and adjustment values. |

T-2-9

## 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.




F-2-53

The machine uses the following major ICs possessing specific functions:

| Name | Description |
|---|---|
| CPU(IC1) | Controls the communications with the finisher controller<br>Controls the drive to various loads.<br>Stores the firmware used to operate the machine. |

T-2-10

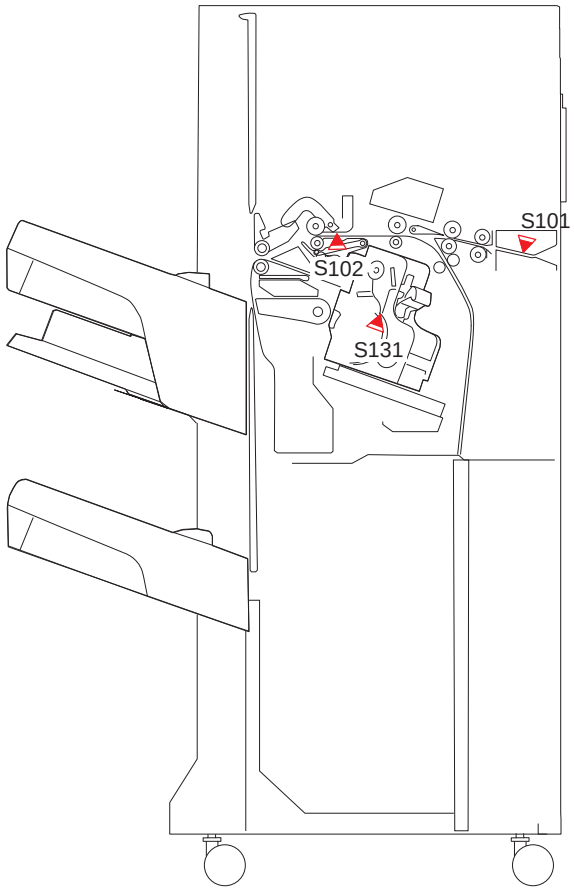
# Detecting Jams

## Detecting Jams

To detect whether there is paper or not, or whether the paper can properly be fed or not, the followings are the detection sensor for paper

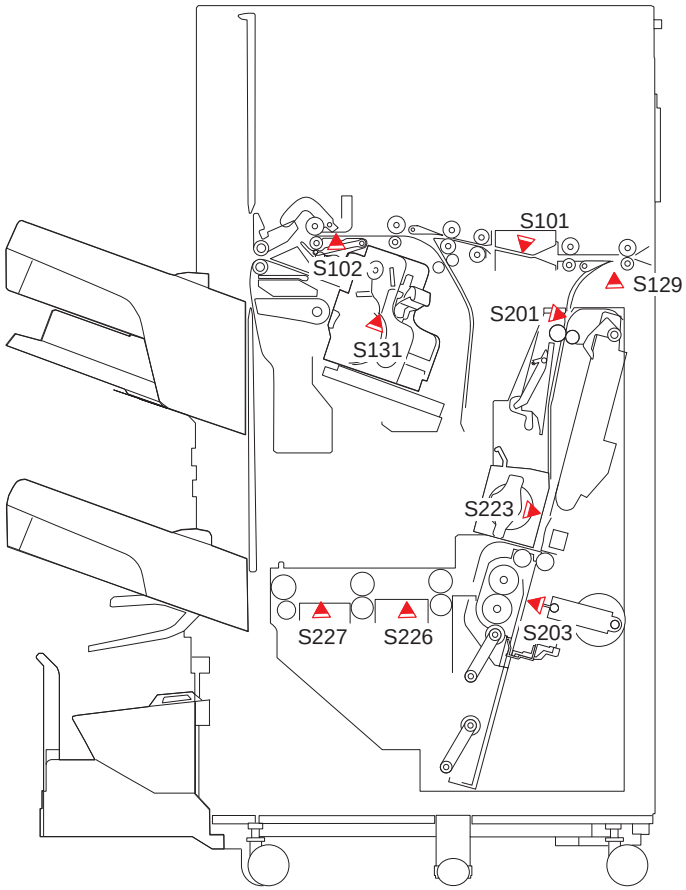
- Inlet sensor (S101)
- Feed path senor (S102)
- Front door sensor (S129)
- Staple hp sensor (S131)
- Saddle inlet sensor (S201)
- Saddle vertical path sensor (S203)
- Saddle stitcher hp sensor (S223)
- Saddle delivery sensor 1 (S226)
- Saddle delivery sensor 2 (S227)

- Finisher (Staple Finisher)




F-2-54

- Saddle Finisher (Booklet Finisher)




F-2-55

Whether jam is occurred or not, determined by whether there is paper or not in the sensor area by the time of timing check that memorized in advance by Finisher Controller PCB and Saddle Stitcher Controller PCB.

When Finisher Controller PCB or Saddle Stitcher Controller PCB detected jam, it will break feeding/delivery movement. And at the same time inform the connection machines about the jam occurrence.

| Jam type | Sensor | Jam description | Code |
|---|---|---|---|
| Early arrival jam | S101 | When the reception distance of the host machine delivery signal is short more than specified time for the sheet processing time of previous notice. | 1200 |
| Finisher staple jam | S131 | When executing the staple processing, the staple HP sensor (S131) doesn't detect the home position within the specified time (distance) after the staple HP sensor (S131) goes OFF. | 1500 |
| Finisher Power-on jam | S101, S102 | When paper is detected by the inlet sensor (S101), or the feed path senor (S102) that the cover is opened/cosed.and during power on. | 1300 |
| Door open jam | S129 | When the front door sensor (S129) detects that the cover is opened during movement. | 1400 |
| Finisher inlet sensor delay jam | S101 | The inlet sensor (S101) doesn't detect ON within the specified time (distance) after the controller judged that paper arrived at the finisher inlet. | 1001 |
| Finisher feed path sensor delay jam | S102 | The feed path sensor (S102) doesn't detect ON within the specified time (distance) after the inlet sensor (S101) detects paper. | 1002 |
| Finisher inlet sensor stationary jam | S101 | The inlet sensor (S101) doesn't detect OFF within the specified time (distance) after the controller judged that end of the paper arrived at the finisher inlet. | 1101 |
| Finisher feed path sensor stationary jam | S102 | The feed path sensor (S102) doesn't detect OFF within the specified time (distance) after the inlet sensor (S101) goes OFF. | 1102 |
| Finisher error detection jam | - | When the controller detected the following errors during movement.<br>• Error in the gripper motor (E514)<br>• Error in the front alignment motor (E530)<br>• Error in the stapler shift motor (E532)<br>• Error in the swing guide motor (E535)<br>• Error in the rear alignment motor (E537)<br>• Error in the paper return guide motor (E578)<br>• Error in the paper trailing edge pushing guide motor (E57B)<br>• Error in the stacking tray paper retainer motor (E56D)<br>• Error in the feed roller disengage/buffer flapper motor (E568)<br>• Error in the processing tray paper retainer motor (E57C)<br>• Error in the tray auxiliary guide motor (E583)<br>• Error in the tray 1 shift motor (E540)<br>• Error in the tray 2 shift motor (E542)<br>• Error in the stack delivery lower/shutter motor (E584) | 110F |

# Power Supply

## Outline

This machine incorporates the power supply PCB to supply DC power to every PCB.

The following table summarizes functions of DC power supply units.

| Name | Function |
|---|---|
| Power supply PCB | Generates DC power (24V) and supplies DC power to the finisher controller PCB and saddle stitcher controller PCB. |
| Front door switch (SW101)<br>Swing guide safety switch (front) (SW102)<br>Staple position switch (SW103)<br>Swing guide safety switch (rear) (SW104)<br>Tray 1 lower safety switch (SW110)<br>Escape tray lower safety switch (SW111) | Turns on/off the 24V |

T-2-12

## Protective Functions

Protective Functions

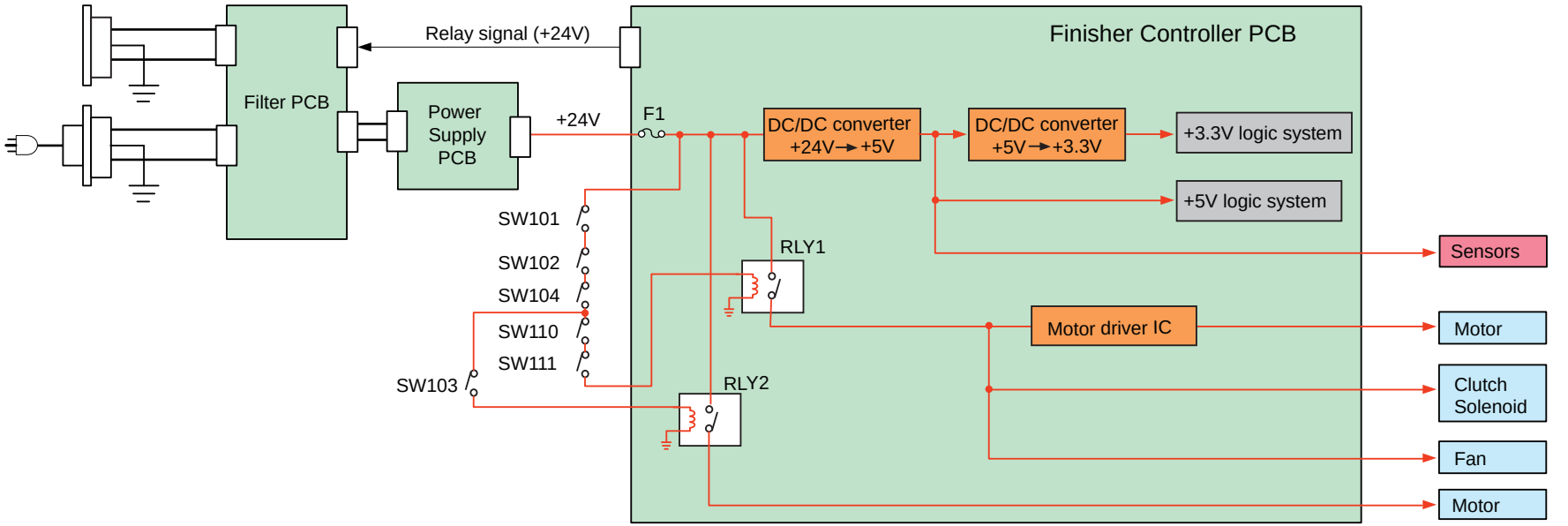
The 24VDC circuits (used for driving solenoids, etc.) on the finisher controller PCB and saddle stitcher controller PCB are provided with a fuse or a motor driver with an overcurrent protective function.

The 24VDC input circuit of each controller PCB is also provided with a fuse which is blown when an excessive current flows.

Power supply unit is provided with an overcurrent/overvoltage protective function to shut off the output voltage automatically when an excessive current or voltage occurs due to a problem on the load side (e.g., short-circuiting), thus protecting electric circuits.

Each circuit is provided with a fuse which is blown when an excessive current flows in the AC line, thus shutting off the excessive AC current.

- Finisher (Staple Finisher)




F-2-56

SW101: Front door switch
SW102: Swing guide safety switch (front)
SW103: Staple position switch
SW104: Swing guide safety switch (rear)
SW110: Tray 1 lower safety switch
SW111: Escape tray lower safety switch

# Work of Service

## When replacing the parts

When replacing the following parts, perform the operations.

| Part name | Operetion | Reference |
|---|---|---|
| Finisher controller PCB | Before replacing the finisher controller PCB, store the adjustment values and the counter of the consumable parts to the host machine. Then, write the stored data after replacing the finisher controller PCB.<br>If the adjustment values cannot store to the host machine, enter the values on the service label that attached to the PCB cover by the service mode after replacing the finisher controller PCB. However, in this case, the counter cannot enter. | Refer to page 5-10 |

T-2-13

## Periodic Servicing

When the parts are reaching the expected service life, perform the parts replacement or cleaning if needed.

PR:Replacement (Periodically replaced parts) CR:Replacement (consumable parts) CL: Cleaning LU:Lubrication AD:Adjustment CH:Maintenance

As of July 2009

| No. | Part Name | Part Number | Q'ty | Interval | Reference |
|---|---|---|---|---|---|
| 1 | Static Eliminator | FC9-3335 | 1 | CR/1,000,000 sheets | Refer to page 4-39 |
| 2 | Static Eliminator (Front) | FC9-3151 | 1 | CR/1,000,000 sheets | Refer to page 4-44 |
| 3 | Static Eliminator (Rear) | FC9-3150 | 1 | CR/1,000,000 sheets | Refer to page 4-44 |
| 4 | Stack delivery upper roller (front/rear) | FC9-3148 | 2 | CR/3,000,000 sheets | Refer to page 4-46 |
| 5 | Stack delivery upper roller (center) | FC9-3149 | 1 | CR/3,000,000 sheets | Refer to page 4-46 |
| 6 | Shutter Clutch | FK2-8207 | 1 | CR/1,000,000 times | Refer to page 4-54 |
| 7 | Swing guide open solenoid (SL101) | FK2-8206 | 1 | CR/1,000,000 times | Refer to page 4-49 |
| 8 | Torque limiter (processing tray paper holder) | FC9-3323 | 1 | CR/1,000,000 times | Refer to page 4-41 |
| 9 | Paper return guide roller (front) | FC9-3436 | 1 | CR/3,000,000 sheets | Refer to page 4-51 |
| 10 | Paper return guide roller (rear) | FC9-3319 | 1 | CR/3,000,000 sheets | Refer to page 4-51 |
| 11 | Torque limiter (Tray1/2 paper holder) | FC9-3111 | 2 | CR/1,000,000 times | Refer to page 4-50 |
| 12 | Paper holding rubber | FC9-3108 | 1 | CR/3,000,000 sheets | Refer to page 4-48 |
| 13 | Paper holding roller | FC9-3320 | 1 | CR/3,000,000 sheets | Refer to page 4-54 |
| 14 | Torque limiter (sub guide) | FC9-3111 | 2 | CR/3,000,000 sheets | Refer to page 4-47 |
| 15 | Staple unit | FC9-3362 | 1 | CR/500,000 times | Refer to page 4-40 |
| 16 | Static Eliminator | FL3-2575 | 2 | CR/1,000,000 sheets | Refer to page 4-48 |
| 17 | Torque limiter (shutter) | FC9-3559 | 1 | CR/1,000,000 times | Refer to page 4-40 |
| 18 | Torque limiter (tray 1) | FC9-3559 | 2 | CR/200,000 times | Refer to page 4-42 |
| 19 | Torque limiter (tray 2) | FC9-3559 | 2 | CR/200,000 times | Refer to page 4-43 |

T-2-14

## Upgrading

When upgrading the firmware of the finisher controller PCB, upgrade from the host machine. (Refer to the service manual for the host machine as to the detail.)

# 3 Periodic Servicing

- List of Work for Scheduled Servicing

# List of Work for Scheduled Servicing

PR:Replacement (Periodically replaced parts) CR:Replacement (consumable parts) CL:Cleaning LU:Lubrication AD:Adjustment CH:Maintenance

As of July 2009

| No. | Category | Part Name | Part Number | Q'ty | Interval | Adjusted/Not adjusted | Counter | Reference |
|---|---|---|---|---|---|---|---|---|
| 1 | Feed guide area | Static Eliminator | FC9-3335 | 1 | CR/1,000,000 sheets | No | DRBL-2>DL-STC-R | Refer to page 4-39 |
| 2 | Swing guide area | Static Eliminator (Front) | FC9-3151 | 1 | CR/1,000,000 sheets | No | DRBL-2>DL-STC-L | Refer to page 4-44 |
| 3 | Swing guide area | Static Eliminator (Rear) | FC9-3150 | 1 | CR/1,000,000 sheets | No | DRBL-2>DL-STC-L | Refer to page 4-44 |
| 4 | Swing guide area | Stack delivery upper roller (front/rear) | FC9-3148 | 2 | CR/3,000,000 sheets | No | DRBL-2>SWG-DL-1 | Refer to page 4-46 |
| 5 | Swing guide area | Stack delivery upper roller (center) | FC9-3149 | 1 | CR/3,000,000 sheets | No | DRBL-2>SWG-DL-2 | Refer to page 4-46 |
| 6 | Swing guide area | Shutter Clutch | FK2-8207 | 1 | CR/1,000,000 times | No | DRBL-2>SHT-CL | Refer to page 4-54 |
| 7 | Swing guide area | Swing guide open solenoid (SL101) | FK2-8206 | 1 | CR/1,000,000 times | No | DRBL-2>SWG-SL | Refer to page 4-49 |
| 8 | Processing tray area | Torque limiter (processing tray paper holder) | FC9-3323 | 1 | CR/1,000,000 times | No | DRBL-2>SWG-TQLM | Refer to page 4-41 |
| 9 | Processing tray area | Paper return guide roller (front) | FC9-3436 | 1 | CR/3,000,000 sheets | No | DRBL-2>SWG-RL | Refer to page 4-51 |
| 10 | Processing tray area | Paper return guide roller (rear) | FC9-3319 | 1 | CR/3,000,000 sheets | No | DRBL-2>SWG-RL | Refer to page 4-51 |
| 11 | Processing tray area | Torque limiter (Tray1/2 paper holder) | FC9-3111 | 2 | CR/1,000,000 times | No | DRBL-2>BEHLTQLM | Refer to page 4-50 |
| 12 | Processing tray area | Paper holding rubber | FC9-3108 | 1 | CR/3,000,000 sheets | No | DRBL-2>SWG-RB | Refer to page 4-48 |
| 13 | Processing tray area | Paper holding roller | FC9-3320 | 1 | CR/3,000,000 sheets | No | DRBL-2>BEHL-RL | Refer to page 4-54 |
| 14 | Processing tray area | Torque limiter (sub guide) | FC9-3111 | 2 | CR/3,000,000 sheets | No | DRBL-2>SUB-TQLM | Refer to page 4-47 |
| 15 | Stapling area | Staple unit | FC9-3362 | 1 | CR/500,000 times | No | DRBL-2>FIN-STPR | Refer to page 4-40 |
| 16 | Grate-shaped lower guide | Static Eliminator | FL3-2575 | 2 | CR/1,000,000 sheets | No | DRBL-2>DL-STC | Refer to page 4-48 |
| 17 | Grate-shaped upper guide | Torque limiter (shutter) | FC9-3559 | 1 | CR/1,000,000 times | No | DRBL-2>SSHT-TQLM | Refer to page 4-40 |
| 18 | Tray 1 | Torque limiter | FC9-3559 | 2 | CR/200,000 times | No | DRBL-2>TRY-TQLM | Refer to page 4-42 |
| 19 | Tray 2 | Torque limiter | FC9-3559 | 2 | CR/200,000 times | No | DRBL-2>TR2-TQLM | Refer to page 4-43 |

T-3-1

# 4

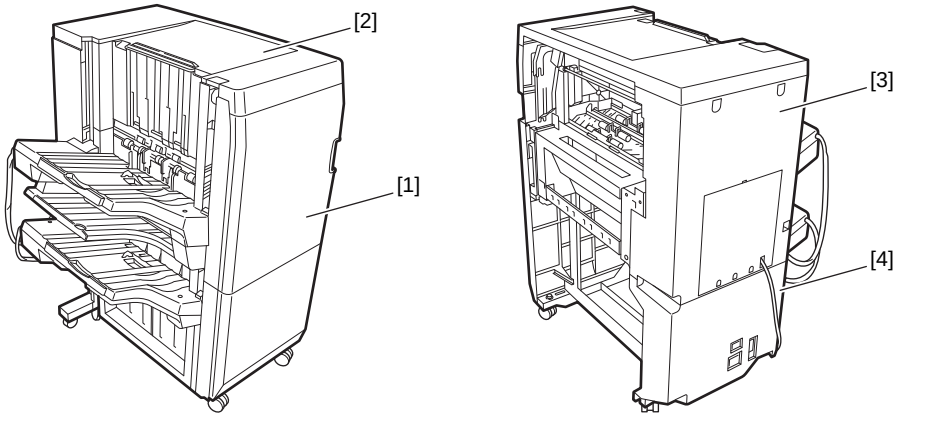
# Parts Replacement and Cleaning Procedure

- List of Parts
- External / Internal Covers
- Main Units
- Consumable Parts Requiring Periodic Replacement and Cleaning Points
- Clutchs/Solenoids
- Motors
- Other Parts
- Switches
- PCBs

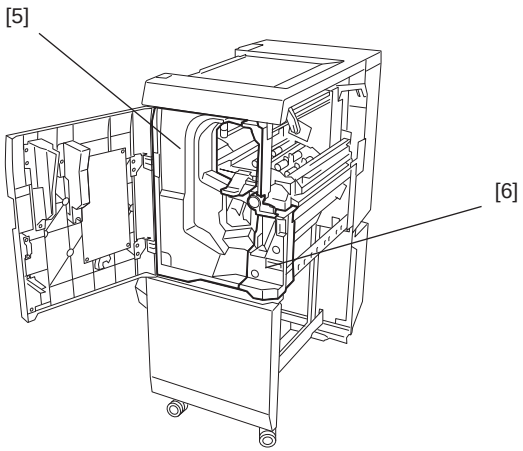
# List of Parts

## External / Internal Covers

- Finisher (Staple Finisher)




F-4-1

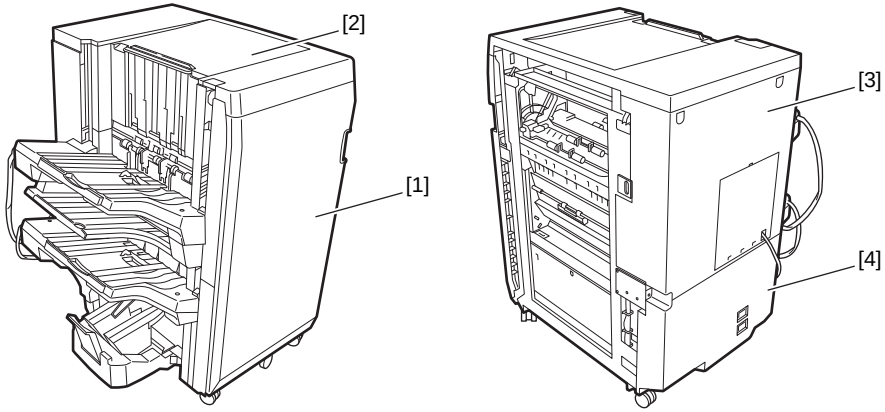



F-4-2

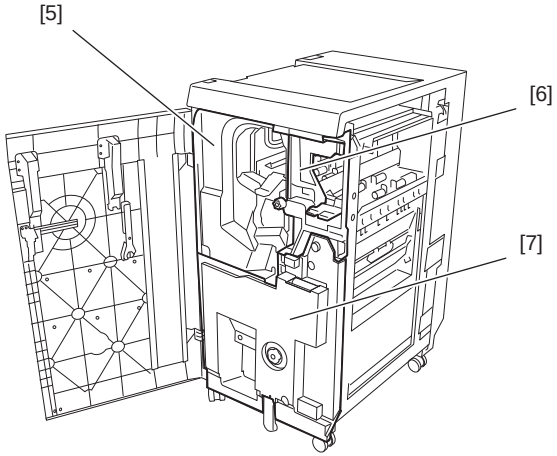
| No | Name | Part No | Refer to |
|---|---|---|---|
| [1] | Front Door | FC9-3441 | Refer to page 4-17 |
| [2] | Upper Cover | FC9-3449 | Refer to page 4-18 |
| [3] | Rear Cover (Upper) | FC9-3445 | Refer to page 4-19 |
| [4] | Rear Cover (Lower) | FC9-3446 | Refer to page 4-19 |
| [5] | Left Inner Cover | FC9-3422 | Refer to page 4-20 |
| [6] | Right Inner Cover | FC9-3450 | Refer to page 4-21 |

T-4-1

- Saddle Finisher (Booklet Finisher)




F-4-3




F-4-4

| No | Name | Part No | Refer to |
|---|---|---|---|
| [1] | Front Door | FC9-2692 | Refer to page 4-17 |
| [2] | Upper Cover | FC9-2699 | Refer to page 4-18 |
| [3] | Rear Cover (Upper) | FC9-2695 | Refer to page 4-19 |
| [4] | Rear Cover (Lower) | FC9-2696 | Refer to page 4-19 |
| [5] | Left Inner Cover | FC9-3442 | Refer to page 4-20 |
| [6] | Right Inner Cover | FC9-2697 | Refer to page 4-21 |
| [7] | Saddle Stitcher Cover | FC9-2615 | Refer to page 4-22 |

T-4-2

## Main Units

| No | Name | Part No | Refer to |
|---|---|---|---|
| [1] | Grate-shaped Upper Guide | | Refer to page 4-23 |
| [2] | Tray-1 Unit/Tray-2 Unit | | Refer to page 4-24 |
| [3] | Gate-shaped Lower Guide | | Refer to page 4-26 |
| [4] | Saddle Delivery Tray | | Refer to page 4-27 |
| [5] | Stapler Drive Unit | FM4-2050 | Refer to page 4-28 |
| [6] | Processing Tray Unit | FM4-2044 | Refer to page 4-30 |
| [7] | Saddle Unit | FM4-0145 | Refer to page 4-34 |
| [8] | Thrust Unit | | Refer to page 4-37 |

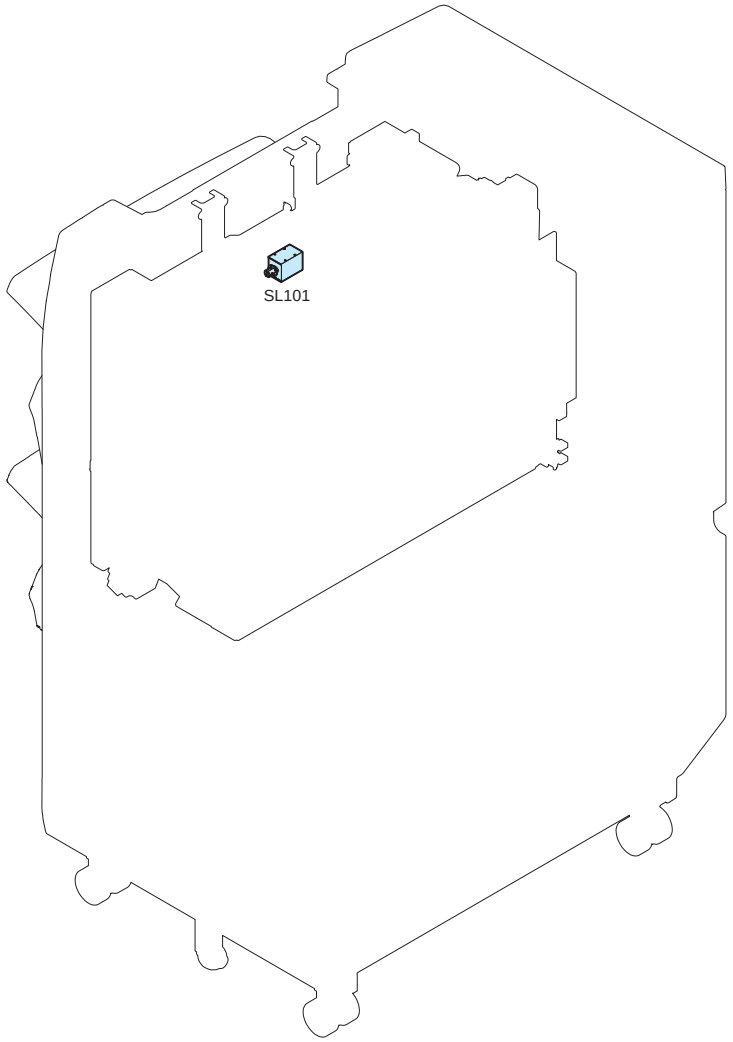
T-4-3

## Consumable Parts Requiring Periodic Replacementand Cleaning Points

| No | Name | Part No | Refer to |
|---|---|---|---|
| [1] | Static Eliminator (Feed Guide Unit) | FC9-3335 | Refer to page 4-39 |
| [2] | Shutter Torque Limiter | FC9-3559 | Refer to page 4-40 |
| [3] | Stapler Unit | FC9-3362 | Refer to page 4-40 |
| [4] | Paper Holding Torque Limiter | FC9-3323 | Refer to page 4-41 |
| [5] | Tray-1 Torque Limiter | FC9-3559 | Refer to page 4-42 |
| [6] | Tray-2 Torque Limiter | FC9-3559 | Refer to page 4-43 |
| [7] | Static Eliminators (Swing Guide Unit) | FC9-3150/ FC9-3151 | Refer to page 4-44 |
| [8] | Stack Delivery Upper Roller | FC9-3148/ FC9-3149 | Refer to page 4-46 |
| [9] | Sub Guide Torque Limiter | FC9-3461 | Refer to page 4-47 |
| [10] | Static Eliminator | FL3-2575 | Refer to page 4-48 |
| [11] | Paper holding rubber | FC9-3108 | Refer to page 4-48 |
| [12] | Swing guide open solenoid (SL101) | FK2-8206 | Refer to page 4-49 |
| [13] | Torque limiter (Tray1/2 paper holder) | FC9-3111 | Refer to page 4-50 |
| [14] | Paper return guide roller (front) | FC9-3436 | Refer to page 4-51 |
| [15] | Paper return guide roller (rear) | FC9-3319 | |
| [16] | Paper holding roller | FC9-3320 | Refer to page 4-54 |
| [17] | Shutter Clutch | FK2-8207 | Refer to page 4-54 |

T-4-4

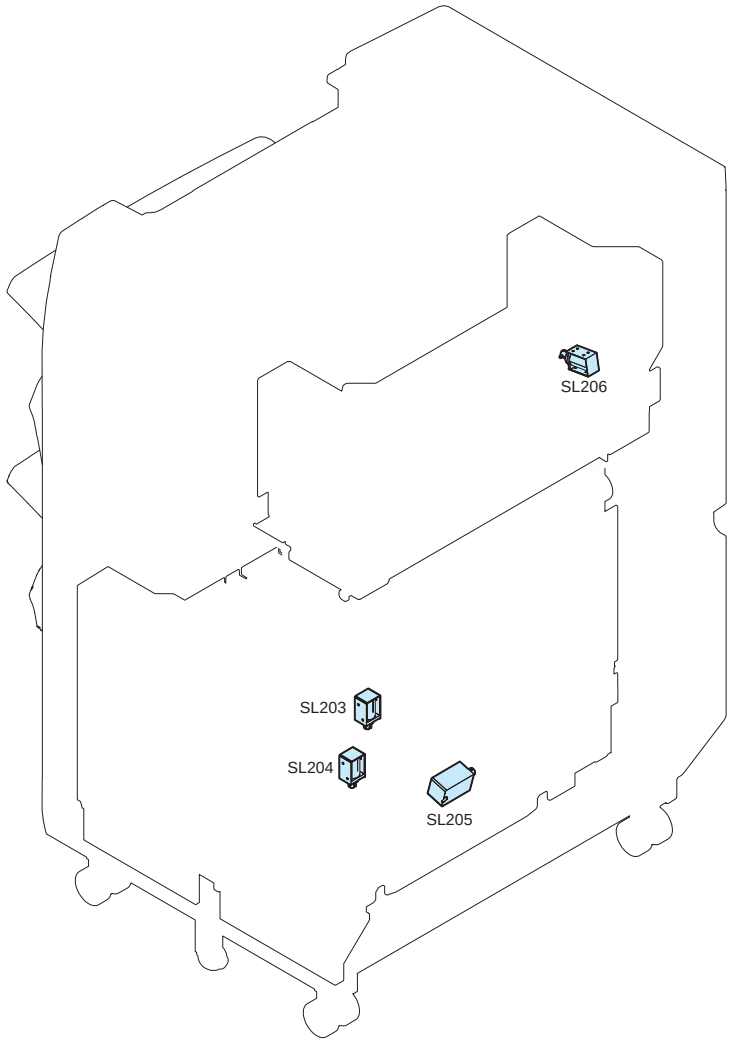
## List of Solenoid




F-4-5

| No | Name | Part No | Refer to |
|---|---|---|---|
| SL101 | Swing Guide Solenoid | FK2-8206 | Refer to page 4-49 |

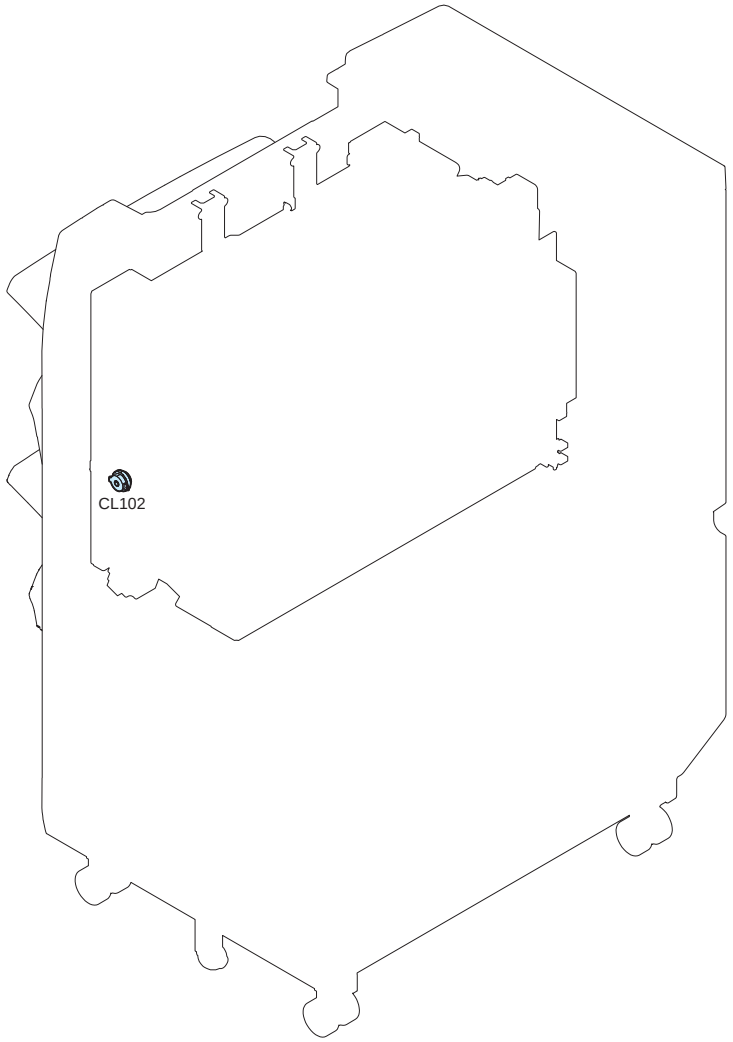
T-4-5




F-4-6

| No | Name | Part No | Refer to |
|---|---|---|---|
| SL203 | Saddle Alignment Roller Disengage Solenoid (Upper) | FK2-1782 | - |
| SL204 | Saddle Alignment Roller Disengage Solenoid (Lower) | FK2-1782 | - |
| SL205 | Saddle Lead Edge Stopper Solenoid | FK2-1740 | - |
| SL206 | Saddle Inlet Flapper Solenoid | FK2-8187 | Refer to page 4-55 |

## List of Clutchs

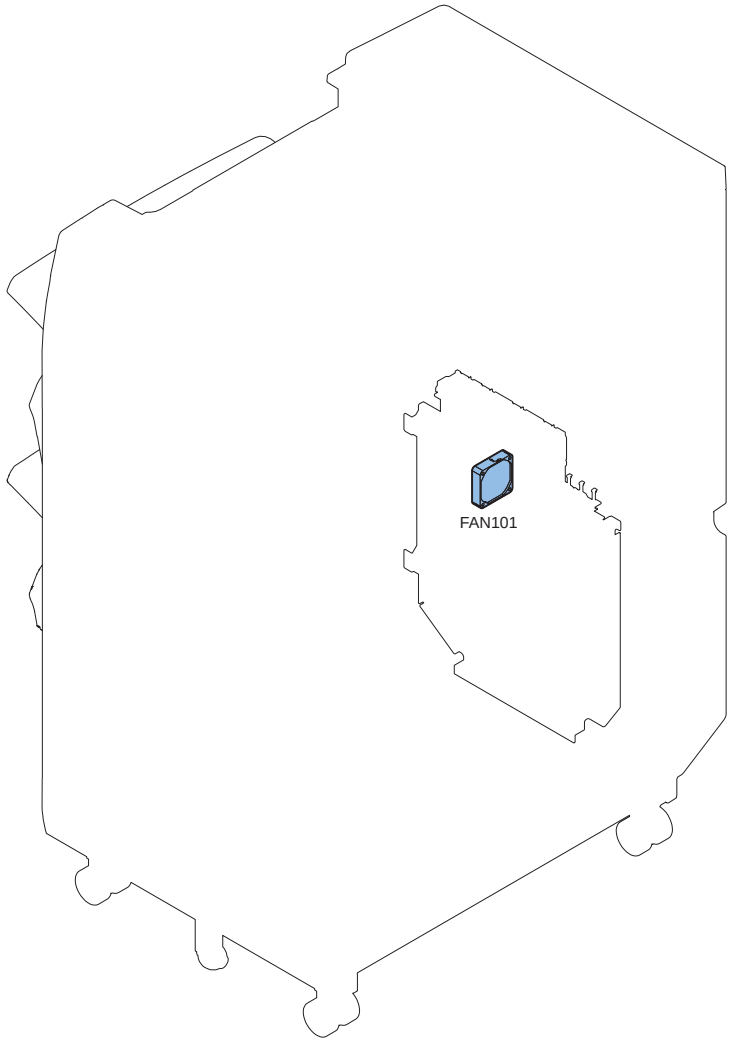



F-4-7

| No | Name | Part No | Refer to |
|---|---|---|---|
| CL102 | Shutter Clutch | FK2-8207 | Refer to page 4-54 |

T-4-6

## List of Cooling Fans

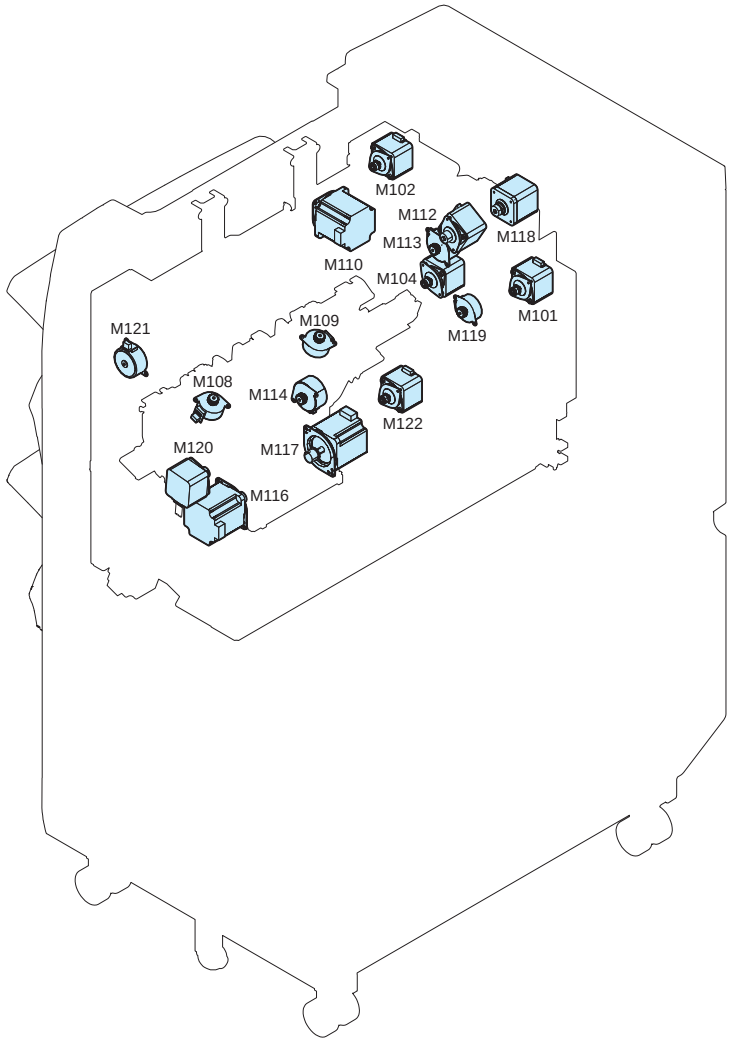



F-4-8

| No | Name | Part No | Refer to |
|---|---|---|---|
| FAN101 | Power Supply Fan | FK2-8208 | - |

T-4-7

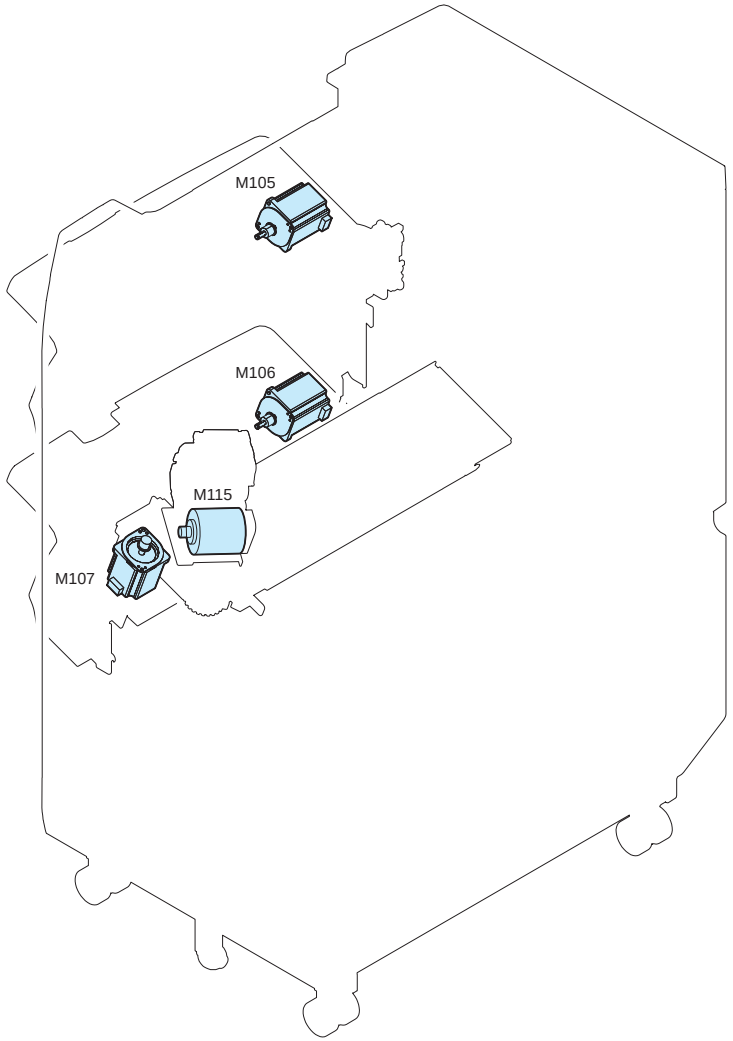
## List of Motors




F-4-9

| No | Name | Part No | Refer to |
|---|---|---|---|
| M101 | Feed Motor | FK2-8199 | Refer to page 4-68 |
| M102 | Buffer Feed Motor | FK2-8199 | Refer to page 4-67 |
| M104 | Stack Delivery Upper Motor | FK2-8199 | Refer to page 4-69 |
| M108 | Front Alignment Motor | FK2-8202 | Refer to page 4-61 |
| M109 | Rear Alignment Motor | FK2-8202 | Refer to page 4-60 |
| M110 | Swing Guide Motor | FK2-8201 | Refer to page 4-70 |
| M112 | Paper Return Guide Motor | FK2-8204 | - |
| M113 | Paper Trailing Edge Pushing Guide Motor | FK2-8203 | Refer to page 4-67 |
| M114 | Stacking Tray Paper Retainer Motor | FK2-8203 | Refer to page 4-59 |
| M116 | Gripper Base Motor | FK2-8201 | Refer to page 4-58 |
| M117 | Gripper Motor | FK2-8201 | Refer to page 4-58 |
| M118 | Processing Tray Paper Retainer Motor | FK2-8205 | Refer to page 4-66 |
| M119 | Feed Roller Disengage/Buffer Flapper Motor | FK2-8202 | - |
| M120 | Tray Auxiliary Guide Motor | FK2-8204 | Refer to page 4-59 |
| M121 | Paper Return Guide Roller Motor | FK2-8203 | Refer to page 4-57 |
| M122 | Stack Delivery Lower/Shutter Motor | FK2-8199 | Refer to page 4-69 |

T-4-8

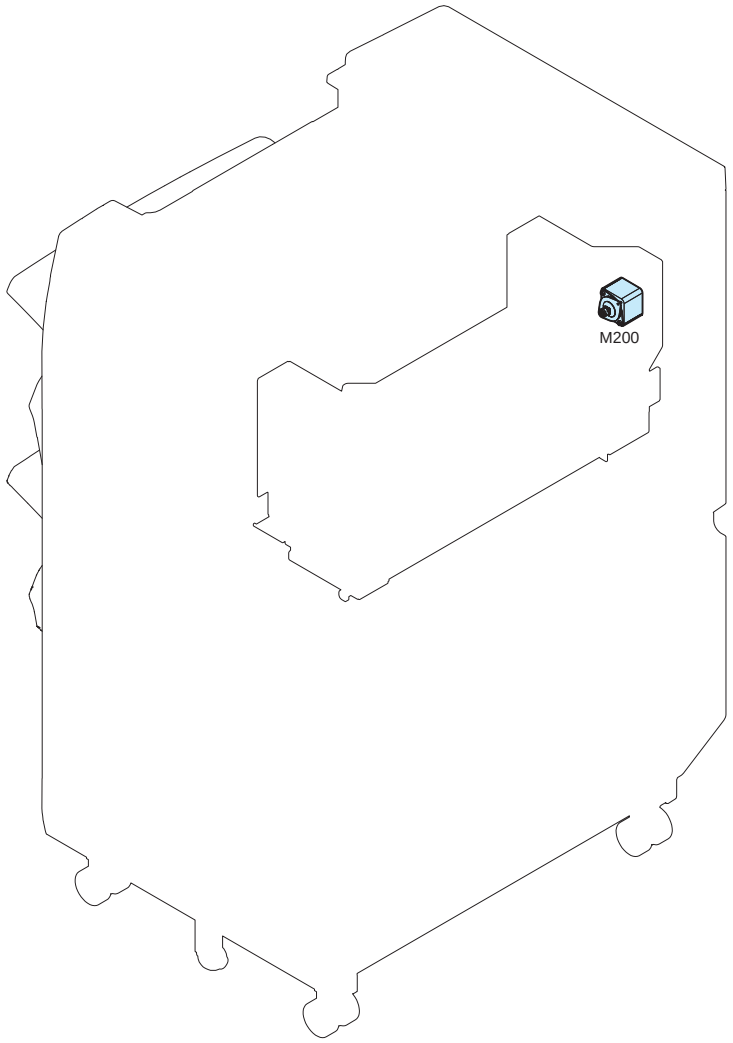



F-4-10

| No | Name | Part No | Refer to |
|---|---|---|---|
| M105 | Tray 1 Shift Motor | FK2-8200 | Refer to page 4-63 |
| M106 | Tray 2 Shift Motor | FK2-8200 | Refer to page 4-64 |
| M107 | Stapler Shift Motor | FK2-8200 | Refer to page 4-65 |
| M115 | Staple Motor | FK2-8201 | Refer to page 4-40 |

T-4-9

- Finisher (Staple Finisher)




F-4-11

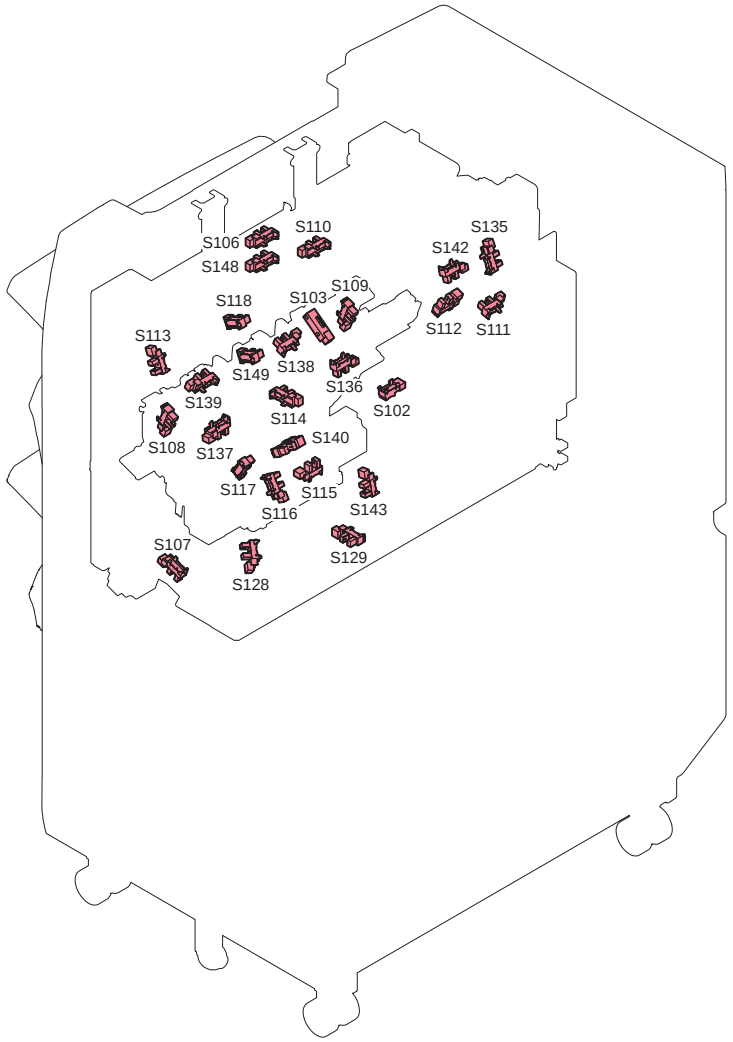
- Saddle Finisher (Booklet Finisher)


F-4-12

| No | Name | Part No | Refer to |
|---|---|---|---|
| M200 | Inlet Feed Motor | FK2-8199 | Refer to page 4-66 |
| M201 | Saddle Feed Motor | FK2-8184 | - |
| M202 | Saddle Alignment Guide Motor | FK2-1730 | - |
| M203 | Saddle Lead Edge Stopper Motor | FK2-1732 | - |
| M204 | Saddle Roller Guide Motor | FK2-1731 | - |
| M205 | Saddle Paper Push-on Plate motor | FK2-8185 | - |
| M206 | Saddle Folder/Feeder Motor | FK2-8186 | - |
| M210 | Saddle Trailing Edge Retainer Motor | FK2-1731 | - |
| M211 | Saddle Trailing Edge Moving Motor | FK2-1732 | - |
| M212 | Saddle Alignment Roller Motor | FK2-1714 | - |
| M213 | Saddle Tapping Motor | FK2-1731 | - |
| M214 | Saddle Lead-in Roller Disengage Motor | FK2-1731 | - |

T-4-10

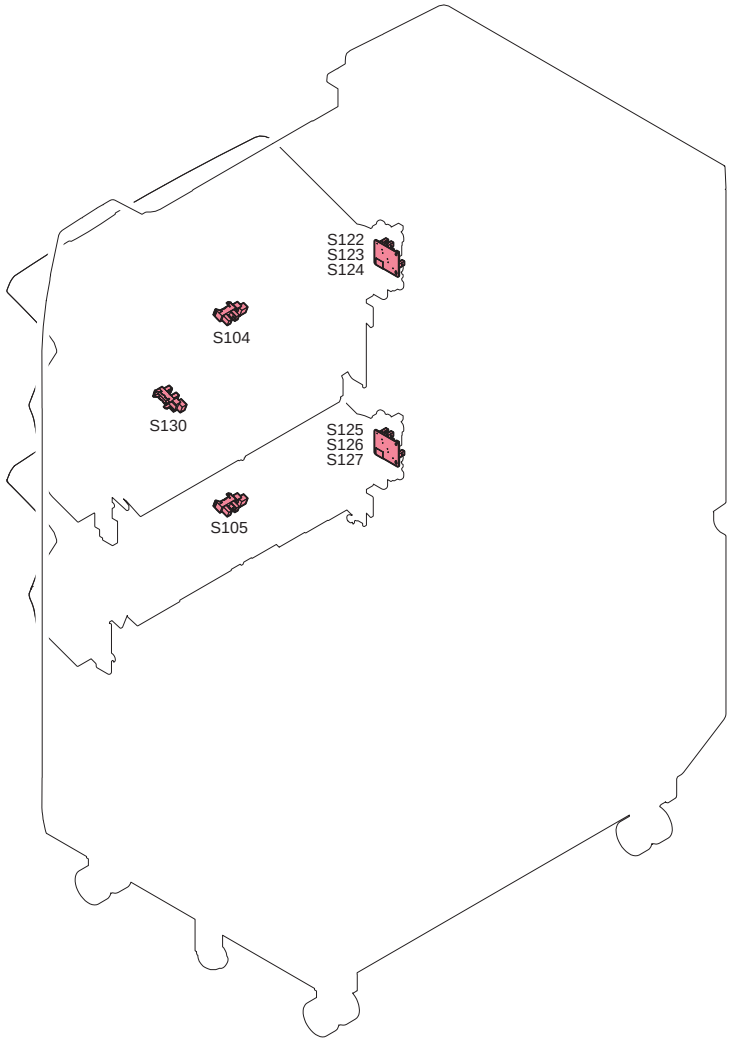
## List of Sensors




F-4-13

| No | Name | Part No | Refer to |
|---|---|---|---|
| S102 | Feed Path Sensor | WG8-5854 | - |
| S103 | Processing Tray Paper Sensor | FK2-1772 | - |
| S106 | Shutter HP Sensor | WG8-5823 | - |
| S107 | Stapler Shift HP Sensor | WG8-5823 | - |
| S108 | Front Alignment HP Sensor | WG8-5823 | - |
| S109 | Rear Alignment HP Sensor | WG8-5823 | - |
| S110 | Swing Guide HP Sensor | WG8-5823 | - |
| S111 | Feed Roller Separation HP Sensor | WG8-5823 | - |
| S112 | Paper Return Guide HP Sensor | WG8-5823 | - |
| S113 | Paper Trailing Edge Pushing Guide HP Sensor | WG8-5823 | - |
| S114 | Stacking Tray Paper Retainer HP Sensor | WG8-5823 | - |
| S115 | Gripper Position Sensor | WG8-5823 | - |
| S116 | Gripper Base Front Sensor | WG8-5823 | - |
| S117 | Gripper Base Rear Sensor | WG8-5823 | - |
| S118 | Swing Guide Height Detection Sensor | WG8-5823 | - |
| S128 | Staple Alignment Interference Sensor | WG8-5823 | - |
| S129 | Front Door Sensor | WG8-5823 | - |
| S135 | Paper Retainer HP Sensor | WG8-5823 | - |
| S136 | Tray Auxiliary Guide Rear HP Sensor | WG8-5823 | - |
| S137 | Tray Auxiliary Guide Front HP Sensor | WG8-5823 | - |
| S138 | Stacking Tray Paper Retainer Rear HP Sensor | WG8-5823 | - |
| S139 | Stacking Tray Paper Retainer Front HP Sensor | WG8-5823 | - |
| S140 | Gripper HP Sensor | WG8-5823 | - |
| S142 | Buffer Flapper HP Sensor | WG8-5823 | - |
| S143 | Tray 2 Paper Surface Sensor | WG8-5823 | - |
| S148 | Shutter Close Detection Sensor | WG8-5823 | - |
| S149 | Stacking Tray Paper Retainer Position Sensor | WG8-5823 | - |

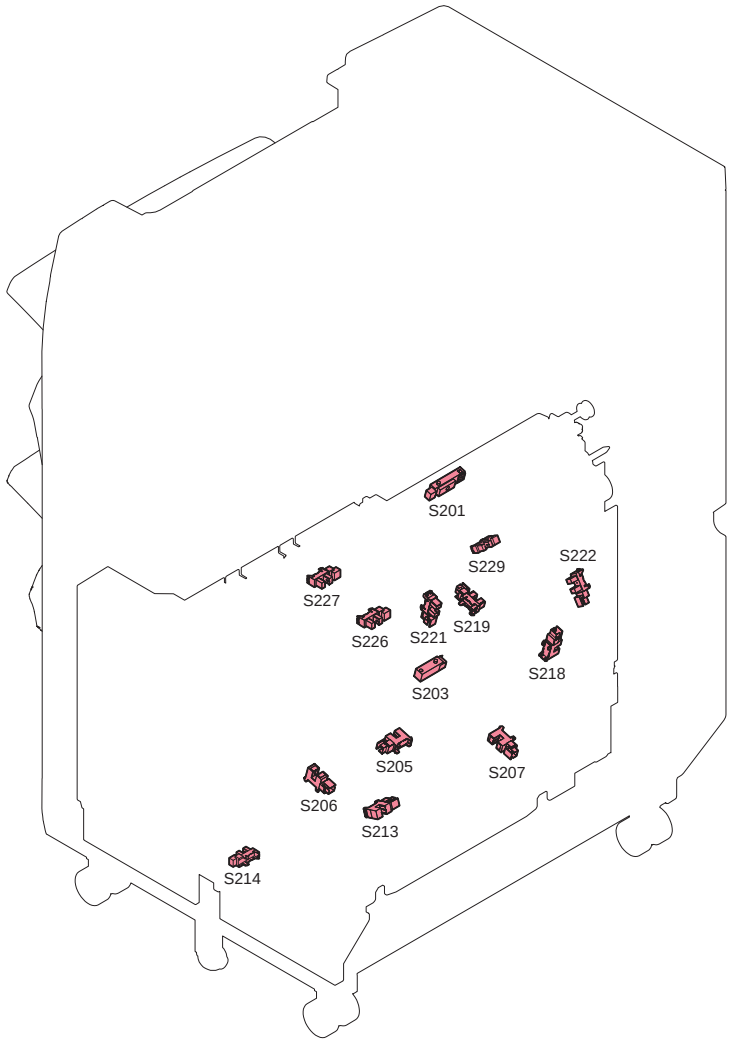
T-4-11




F-4-14

| No | Name | Part No | Refer to |
|---|---|---|---|
| S104 | Tray 1 Paper Sensor | WG8-5823 | - |
| S105 | Tray 2 Paper Sensor | WG8-5823 | - |
| S122 | Tray 1 Area Sensor 1 | FM4-2175 | - |
| S123 | Tray 1 Area Sensor 2 | | |
| S124 | Tray 1 Area Sensor 3 | | |
| S125 | Tray 2 Area Sensor 1 | FM4-2175 | - |
| S126 | Tray 2 Area Sensor 2 | | |
| S127 | Tray 2 Area Sensor 3 | | |
| S130 | Escape Tray Paper Sensor | WG8-5823 | - |

T-4-12

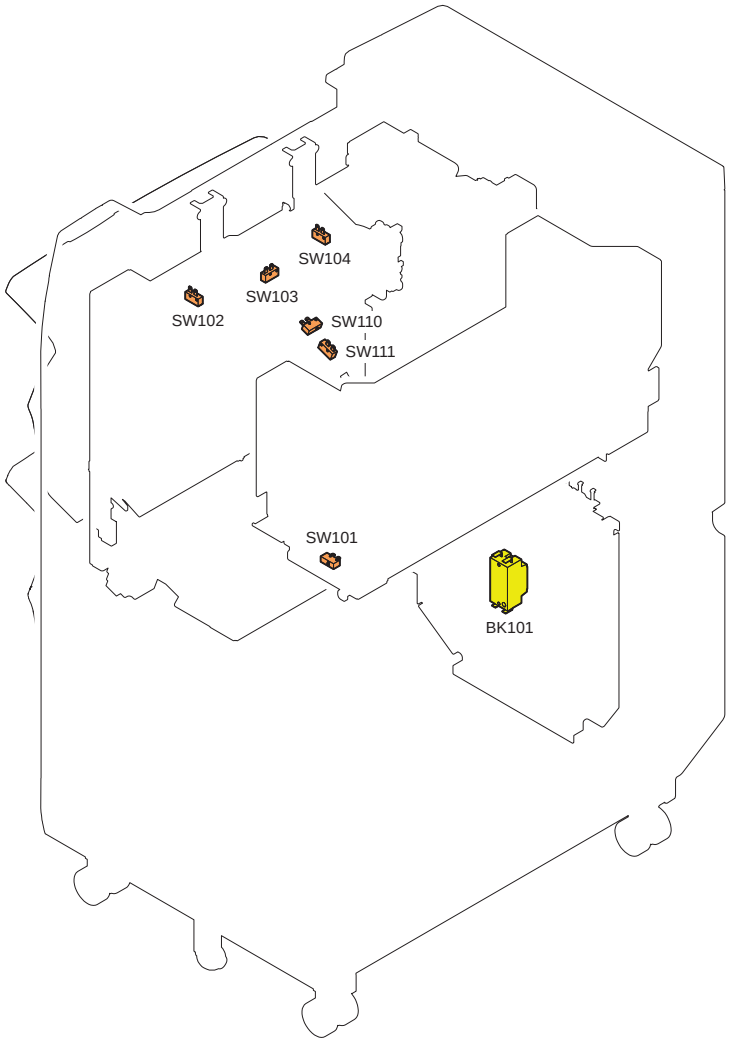



F-4-15

| No | Name | Part No | Refer to |
|---|---|---|---|
| S201 | Saddle Inlet Sensor | WG8-5854 | - |
| S203 | Saddle Vertical Path Sensor | FK2-1772 | - |
| S205 | Saddle Lead Edge Stopper HP Sensor | WG8-5823 | - |
| S206 | Saddle Alignment Plate HP Sensor | WG8-5823 | - |
| S207 | Saddle Roller Guide HP Sensor | WG8-5823 | - |
| S213 | Saddle Paper Push-on Plate Motor Sensor | WG8-5823 | - |
| S214 | Saddle Folder/Feeder Motor Sensor | WG8-5823 | - |
| S218 | Saddle Paper Push-on Plate HP Sensor | WG8-5823 | - |
| S219 | Saddle Trailing Edge Retainer Move HP Sensor | WG8-5823 | - |
| S221 | Saddle Trailing Edge Retainer HP Sensor | WG8-5823 | - |
| S222 | Saddle Lead-in Roller HP Sensor | WG8-5823 | - |
| S226 | Saddle Delivery Sensor 1 | WG8-5823 | - |
| S227 | Saddle Delivery Sensor 2 | WG8-5823 | - |
| S229 | Saddle Folder HP Sensor | WG8-5823 | - |

T-4-13

## List of Switchs

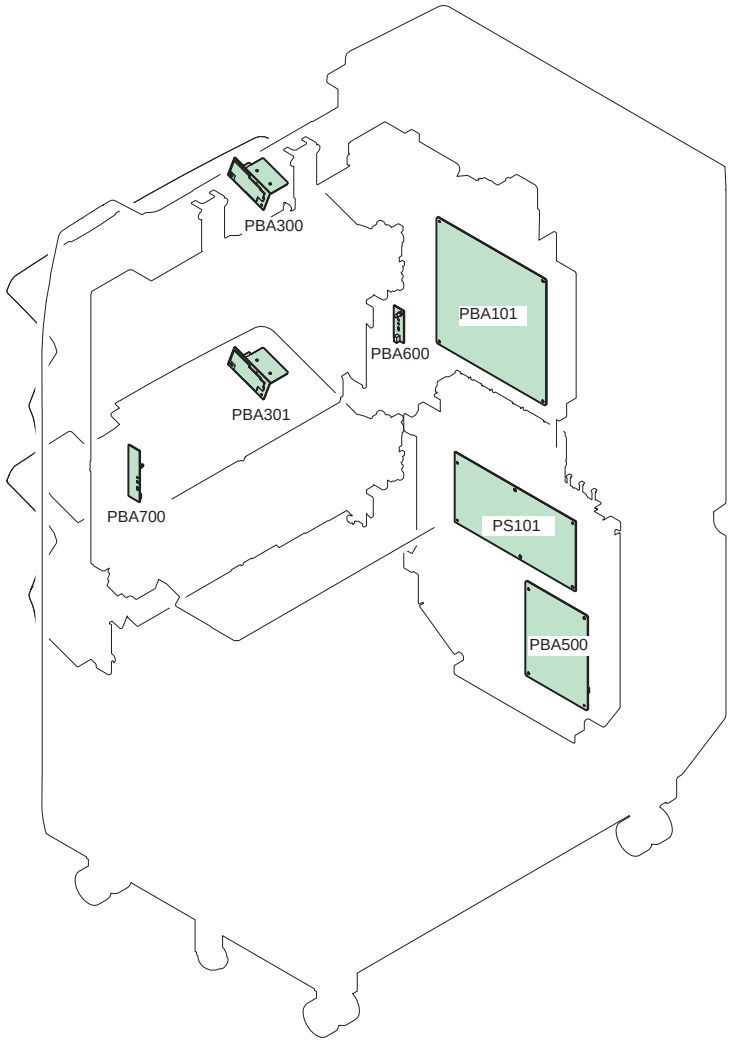



F-4-16

| No | Name | Part No | Refer to |
|---|---|---|---|
| BK101 | Breaker | FH7-7625 | - |
| SW101 | Front Door Switch | WC4-5301 | - |
| SW102 | Staple Safety Switch (Front) | WC4-5301 | Refer to page 4-79 |
| SW103 | Swing Guide Switch | WC4-5301 | - |
| SW104 | Staple Safety Switch (Rear) | WC4-5301 | Refer to page 4-79 |
| SW110 | Tray 1 Close Detection Sensor | WC4-5301 | - |
| SW111 | Escape Tray Close Detection Switch | WC4-5301 | - |

T-4-14

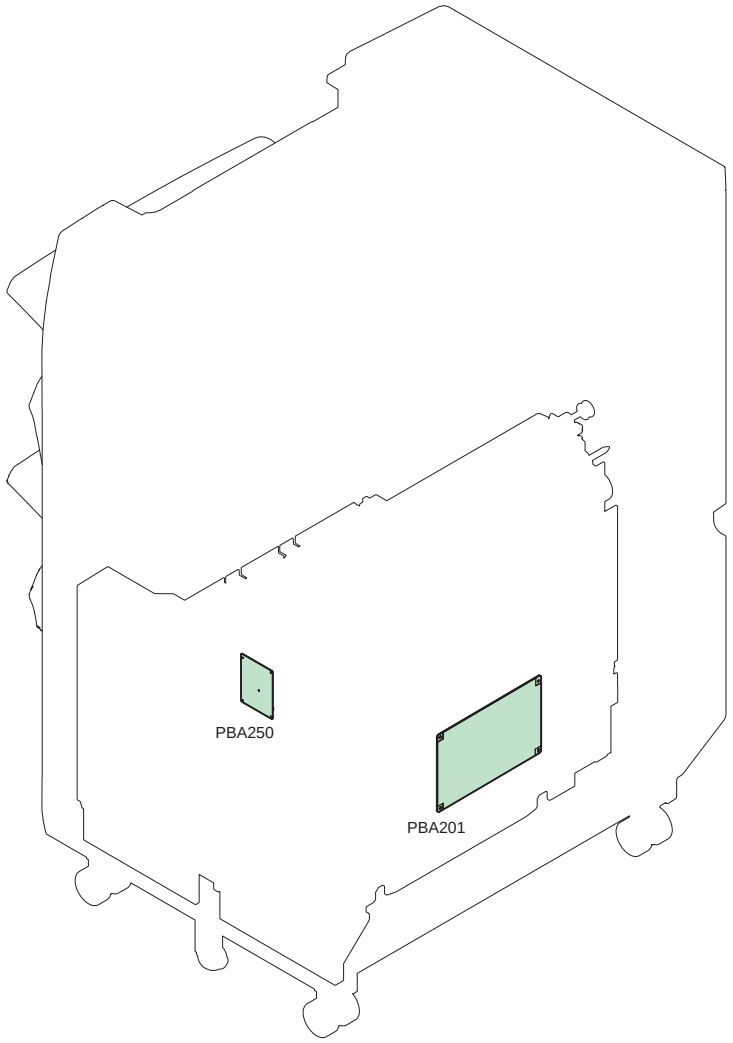
## List of PCBs




F-4-17

| No | Name | Part No | Refer to |
|---|---|---|---|
| PBA101 | Finisher Controller PCB | FM4-2173 | Refer to page 4-80 |
| PBA300 | Tray 1 Motor Driver PCB | FM4-2174 | Refer to page 4-81 |
| PBA301 | Tray 2 Motor Driver PCB | FM4-2174 | Refer to page 4-82 |
| PBA500 | AC Noise Filter PCB | FM4-2174 | Refer to page 4-83 |
| PBA600 | Tray Paper Surface Sensor (light-emitting) | FM4-2177 | - |
| PBA700 | Tray Paper Surface Sensor (light-receiving) | FM4-2178 | - |
| PS101 | Power Supply Unit | FK2-6317 | Refer to page 4-83 |

T-4-15




F-4-18

| No | Name | Part No | Refer to |
|---|---|---|---|
| PBA201 | Saddle Stitcher Controller PCB | FM4-0299 | - |
| PBA250 | Saddle Stitcher Jam LED PCB | FM4-0300 | - |

T-4-16

## Other

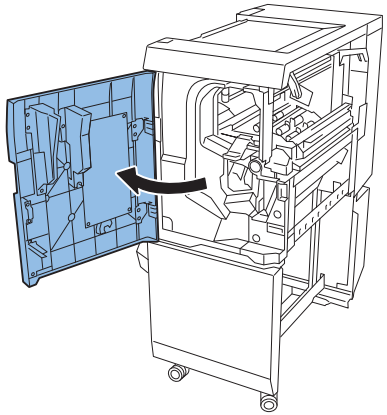
| No | Name | Part No | Refer to |
|---|---|---|---|
| | Alignment Roller | FC8-7495 | Refer to page 4-71 |
| | Thrust Plate | FM4-3083 | Refer to page 4-74 |
| | Folding Rollers (Upper)/(Lower) | FC9-2580 | Refer to page 4-75 |

T-4-17

# External / Internal Covers

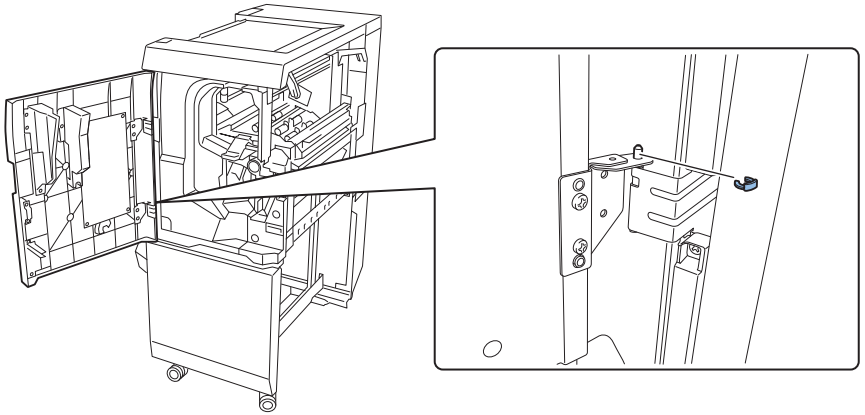
## Removing the Front Door (Finisher [Staple Finisher])

1) Open the front door.



F-4-19

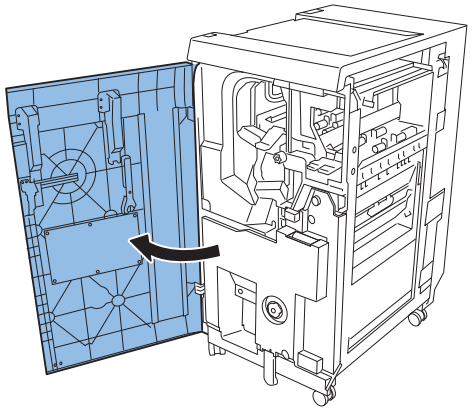
2) Remove the clip and detach the front door.



F-4-20

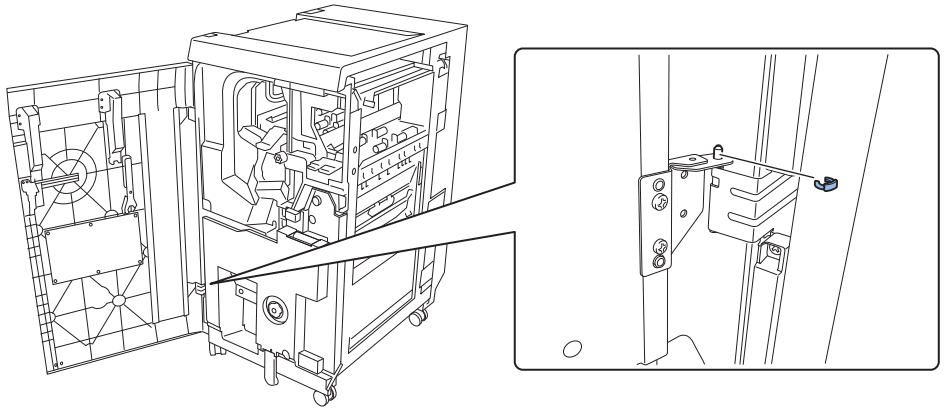
## Removing the Front Door (Saddle Finisher [Booklet Finisher])

1) Open the front door.



F-4-21

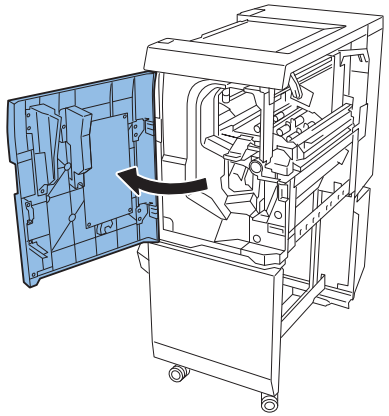
2) Remove the clip and detach the front door.



F-4-22

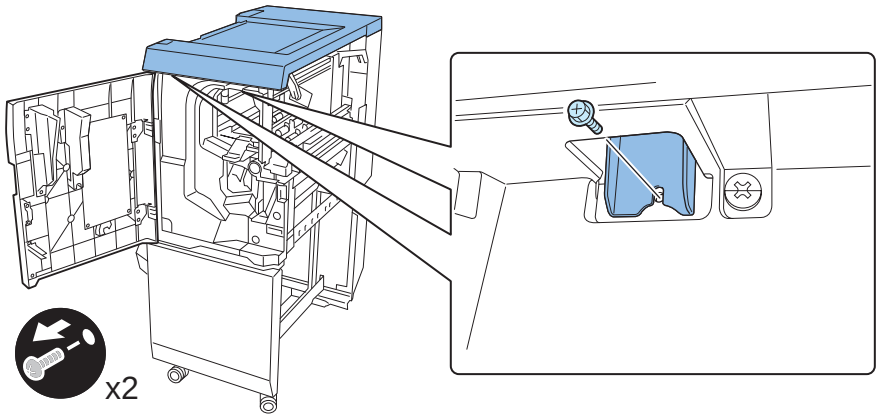
## Removing the Upper Cover (Finisher [Staple Finisher])

1) Open the front door.



F-4-23

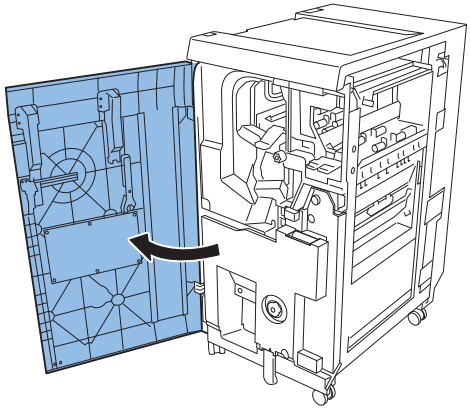
2) Remove the 2 screws detach the upper cover.




F-4-24

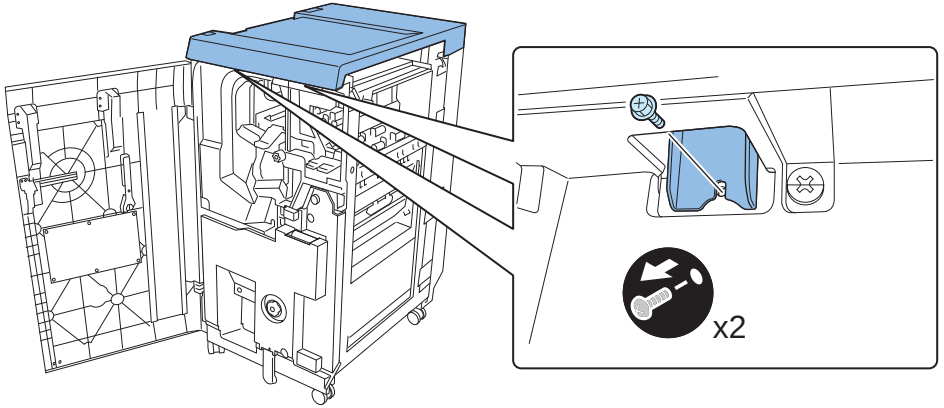
## Removing the Upper Cover (Saddle Finisher [Booklet Finisher])

1) Open the front door.



F-4-25

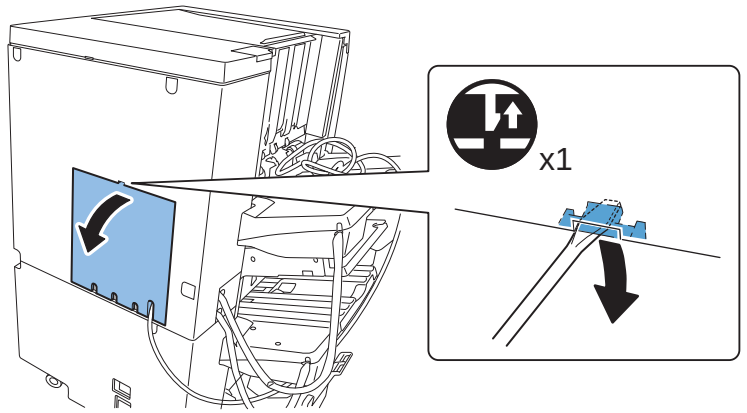
2) Remove the 2 screws detach the upper cover.




F-4-26

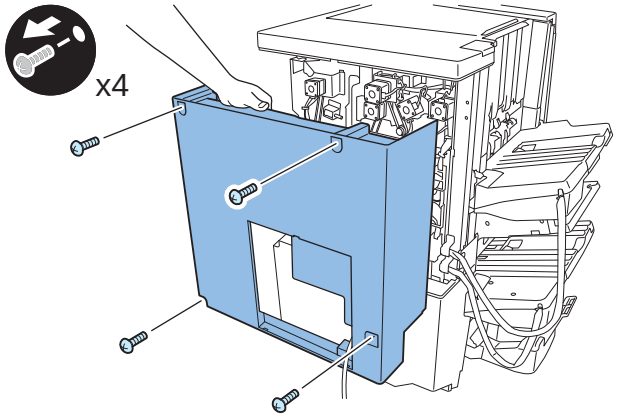
## Removing the Rear Cover (Upper)

1) Release the hook with the flat head screwdriver, and then remove the PCB cover.




F-4-27

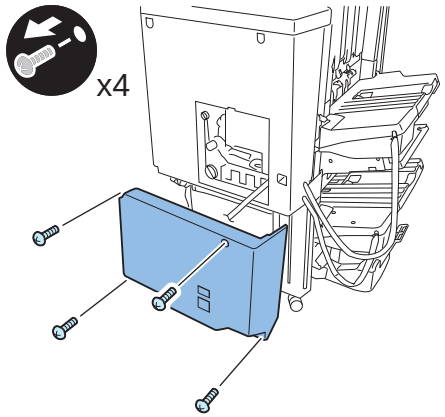
2) Remove the 4 screws and detach the rear cover (upper).




F-4-28

## Removing the Rear Cover (Lower)

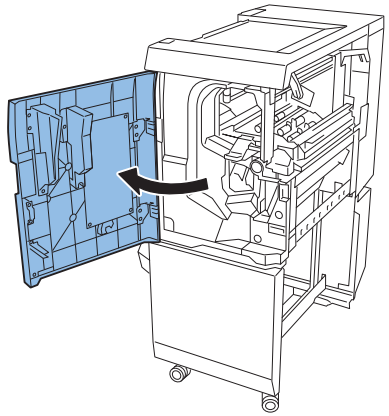
1) Remove the 4 screws and detach the rear cover (lower).




F-4-29

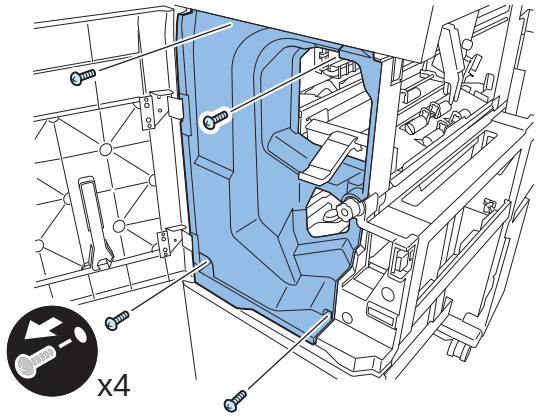
## Removing the Left Inner Cover (Finisher [Staple Finisher])

1) Open the front door.



F-4-30

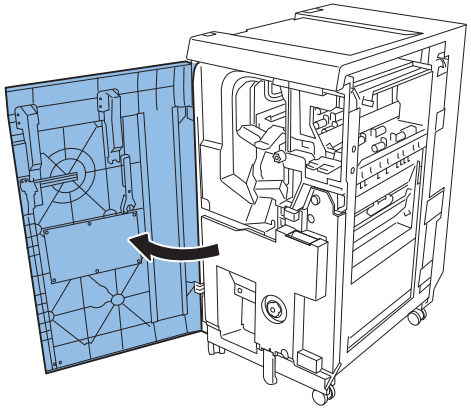
2) Remove the 4 screws and detach the left inner cover.




F-4-31

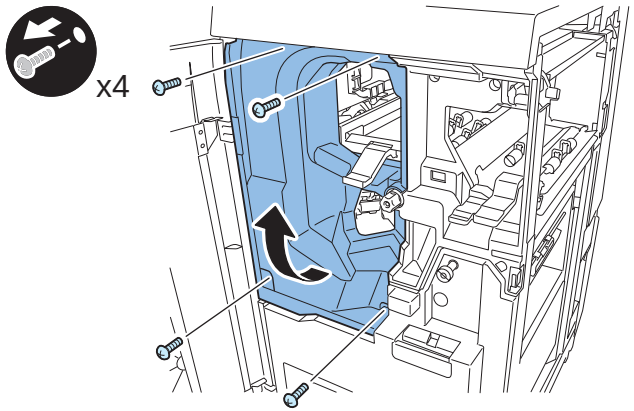
## Removing the Left Inner Cover (Saddle Finisher [Booklet Finisher])

1) Open the front door.



F-4-32

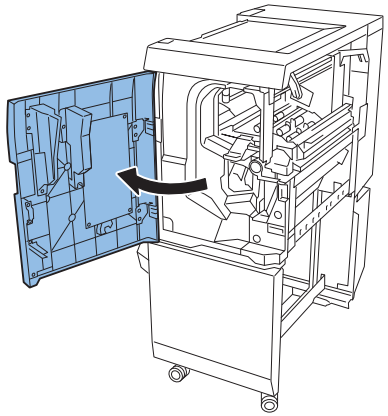
2) Remove the 4 screws and detach the left inner cover.




F-4-33

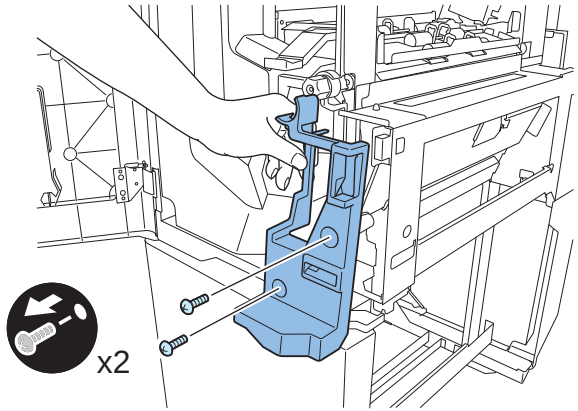
## Removing the Right Inner Cover (Finisher [Staple Finisher])

1) Open the front door.



F-4-34

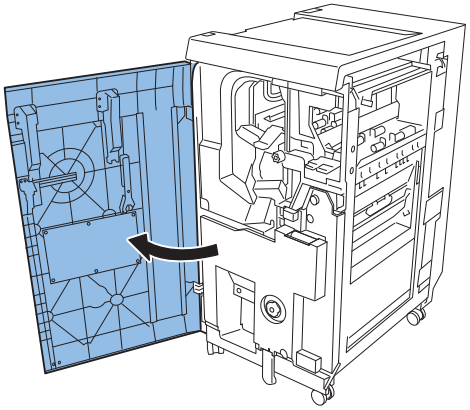
2) Remove the 2 screws and detach the right inner cover.




F-4-35

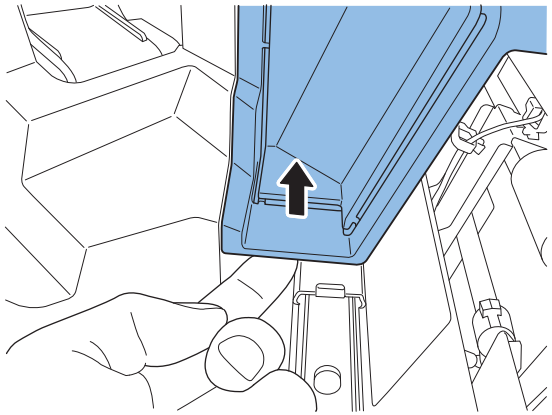
## Removing the Right Inner Cover (Saddle Finisher [Booklet Finisher])

1) Open the front door.

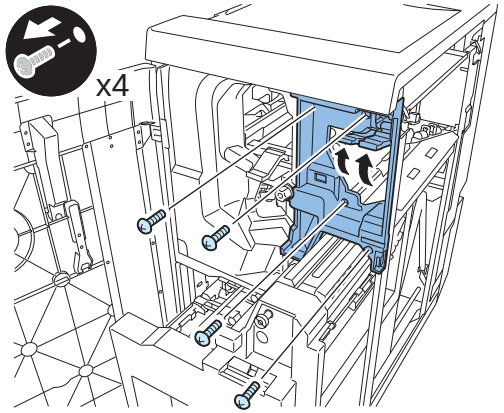


F-4-36

2) Lift the jam recovery reveres and draw out the saddle stitcher unit. Remove the 4 screws and press the lower part of the right inner cover to release the hook, and then remove the right inner cover.



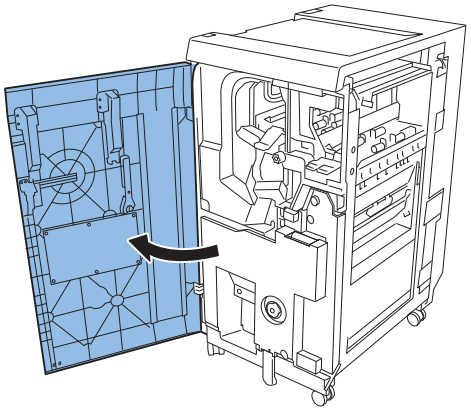
F-4-37




F-4-38

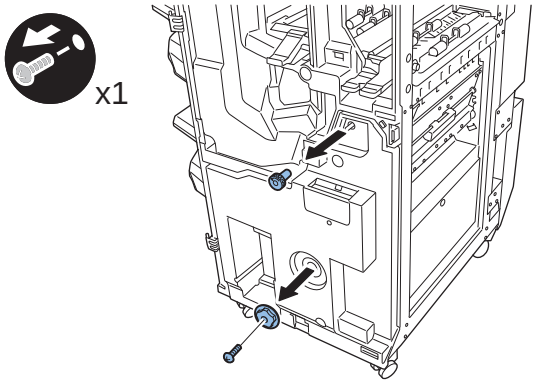
## Removing the Saddle Stitcher Cover

1) Open the front door.



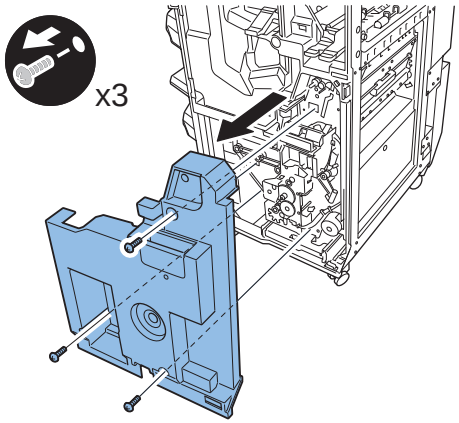
F-4-39

2) Remove the jam dial (upper).
Remove one screw, and then remove the jam dial (lower).




F-4-40

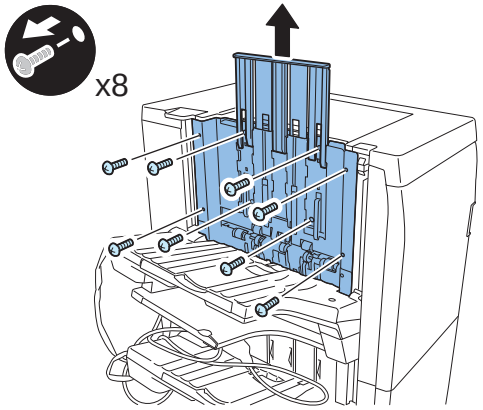
3) Remove three screws, and then remove the inner cover.




F-4-41

## Removing the Grate-shaped Upper Guide

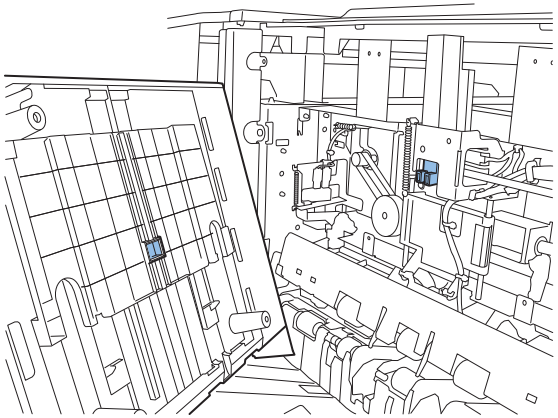
1) Remove the 8 screws while lifting the paper holding guide, and then remove the grate-shaped upper guide.



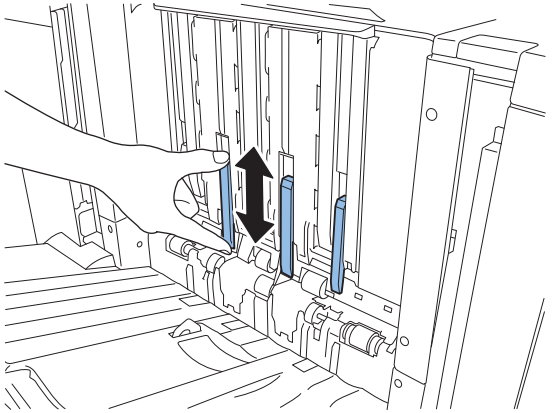

F-4-42

CAUTION:

When reassembling, attach the grate-shaped upper guide with the condition lifted the shutter and the shutter link unit to the maximum point, so that the projection of the shutter link unit is put in the groove of the shutter. After reassembling, move the shutter up and down by hand to confirm that a load is applied to the shutter.



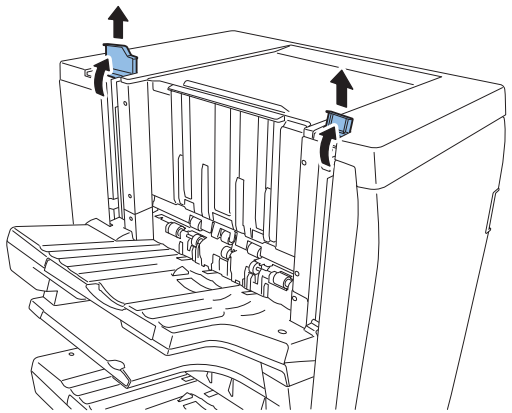
F-4-43



F-4-44

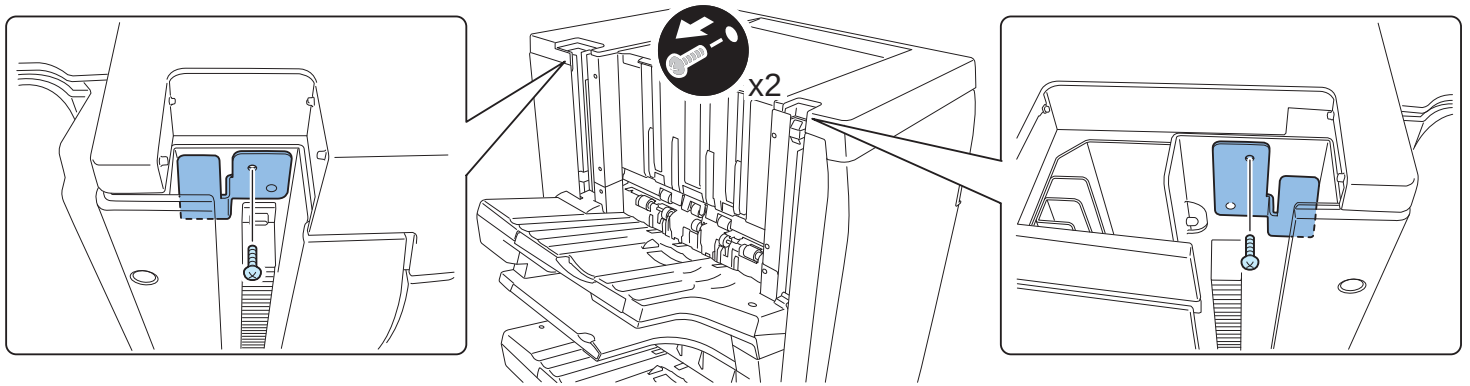
## Removing the Tray-1 unit / Tray-2 unit

1) Remove the finger-pinch prevention covers (front) and (rear).



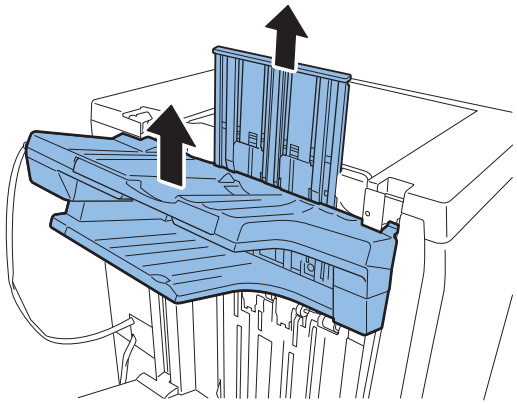
F-4-45

2) Remove the 2 screws and then remove the tray stoppers (front) and (left).



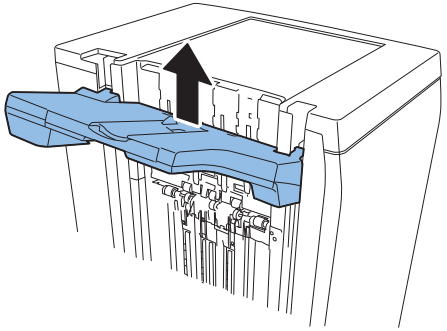

F-4-46

3) Lift the paper holding guide to remove it from the grate-shaped upper guide and then remove the tray-1 unit.



F-4-47

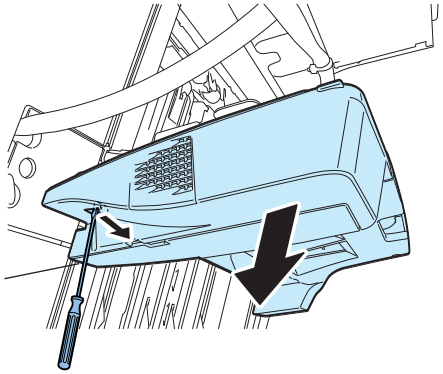
4) Remove the tray-2 unit.



F-4-48

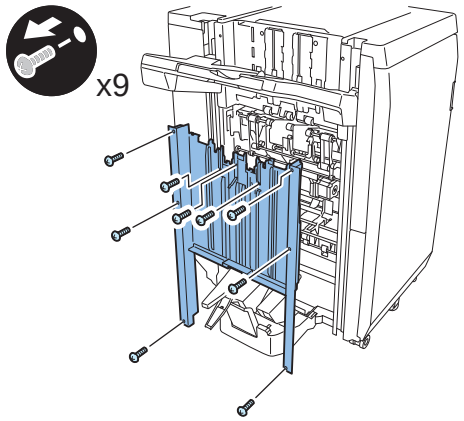
CAUTION:

When attaching or lowering the tray, lower the tray while releasing the cam toward the direction of the arrow with the flat head screwdriver inserting into the hole of the lower rear side.



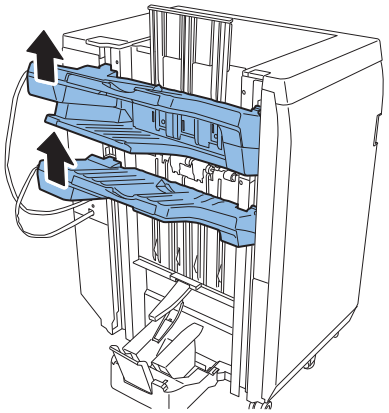
F-4-49

## Removing the Grate-shaped Lower Guide

| | |
|---|---|
| 1) Remove the tray-1 unit. (Refer to page 4-24) | 2) After lifting the tray-2 unit to the maximum point, remove the 9 screws to detach the grate-shaped lower guide.   F-4-50 |

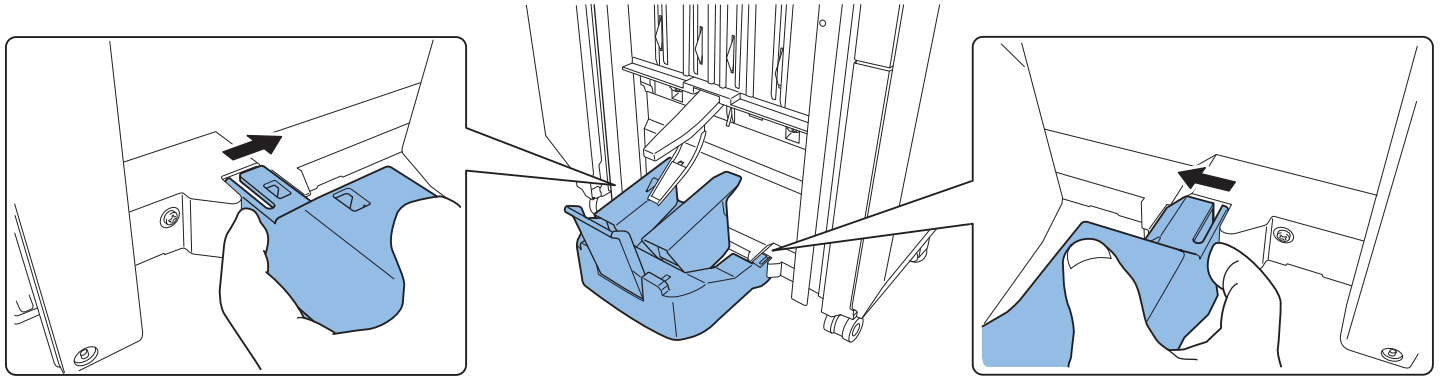
## Removing the Saddle Delivery Tray

1) Lift the tray-1 unit and the tray-2 unit until they will stop.

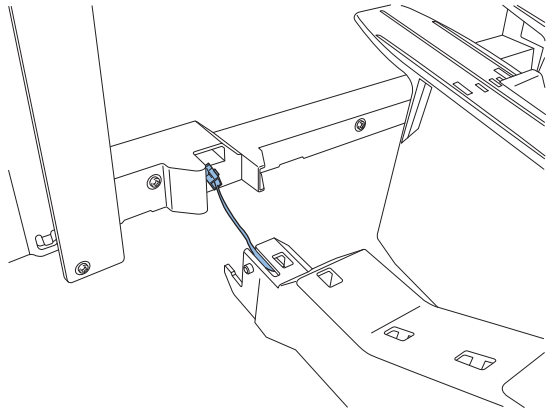


F-4-51

2) Press the hooks to release them and detach the saddle delivery tray, and then disconnect the connector.



F-4-52

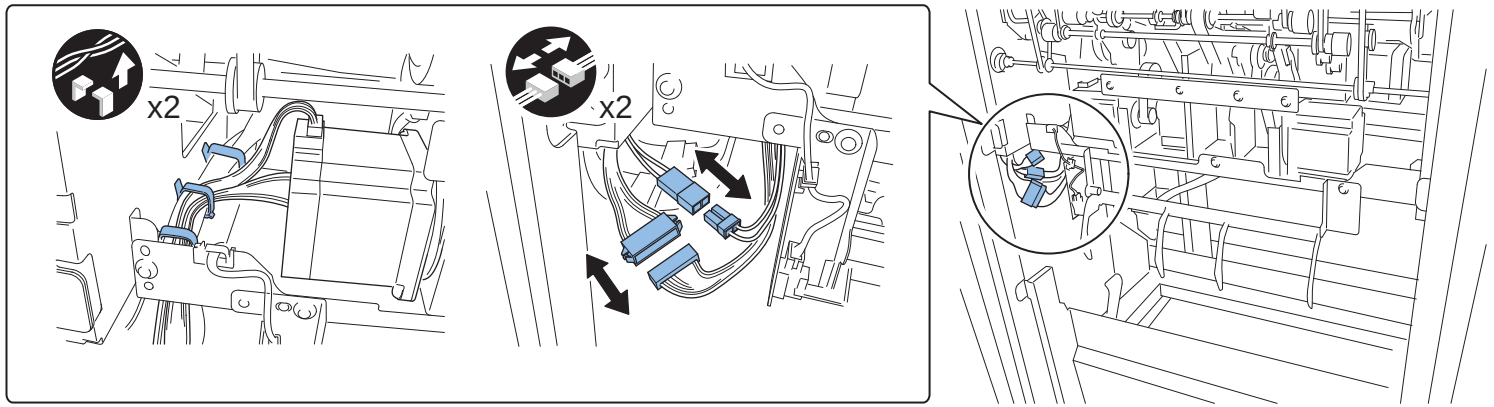


F-4-53

## Removing the Stapler Drive Unit

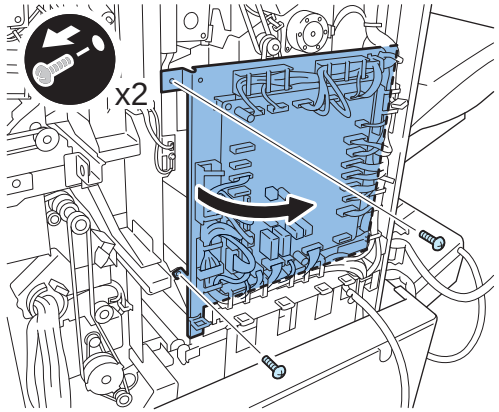
1) Remove the stapler unit.
(Refer to page 4-40)
2) Remove the Grate-shaped lower guide.
(Refer to page 4-26)

3) Release the harness for the stapler drive unit from the 3 wire saddles, and then remove 2 connectors (10P and 2P).



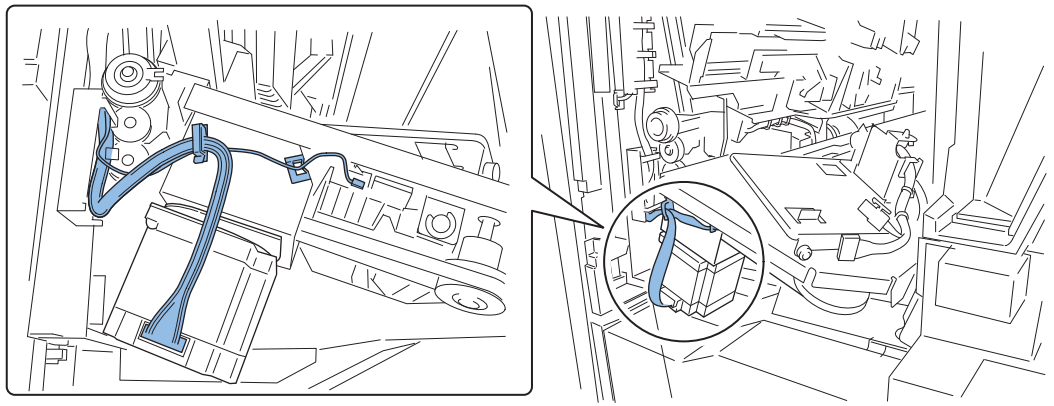

F-4-54

4) Remove the 2 screws and open the finisher controller PCB mount.



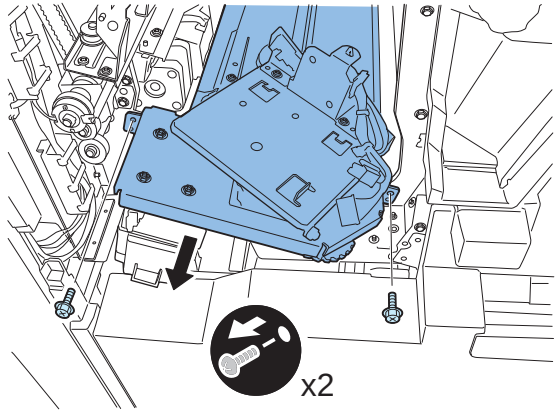

F-4-55

5) Disconnect the sensor connector and release the motor harness from the 2 wire saddles and the edge saddle.
Disconnect the motor connector and release the motor harness from the wire saddle.



F-4-56

6) Remove the 2 screws and draw out the stapler drive unit.

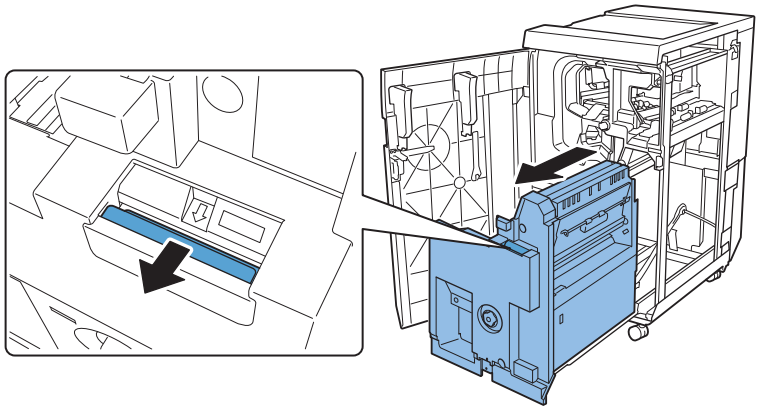



F-4-57

## Removing the Processing Tray Unit

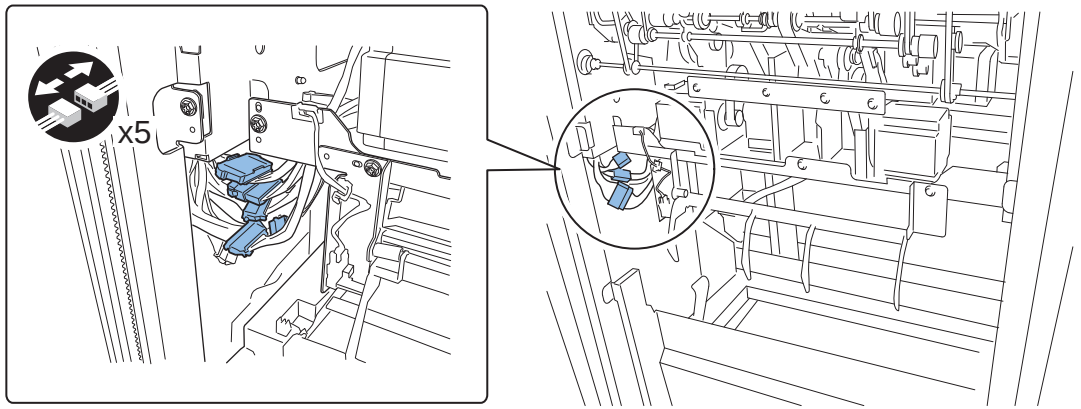
1) Remove the stapler drive unit.
(Refer to page 4-28)

2) Draw out the saddle stitcher unit.



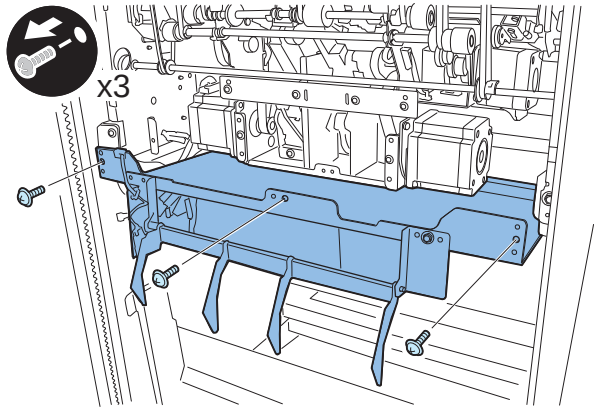
F-4-58

3) Disconnect the 5 connectors.



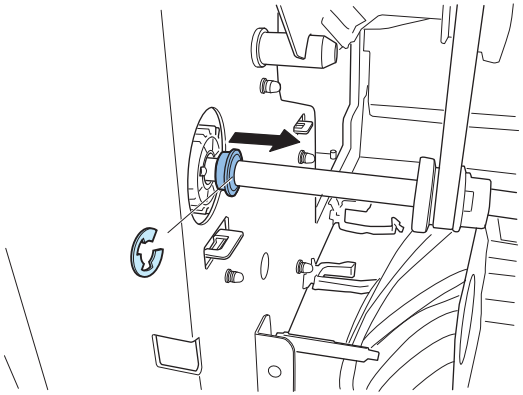

F-4-59

4) Remove the 3 screws and take out the bottom plate.



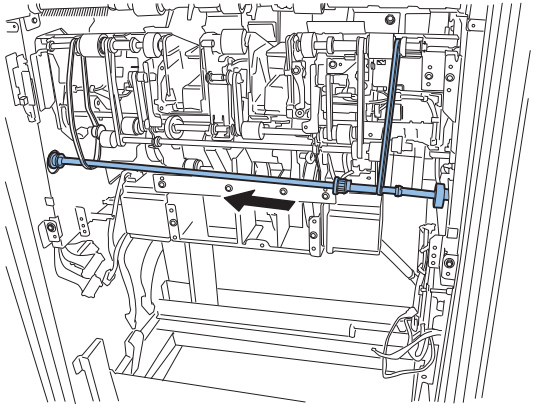

F-4-60

5) Remove the E-ring at the rear side and shift the bearing to the front.



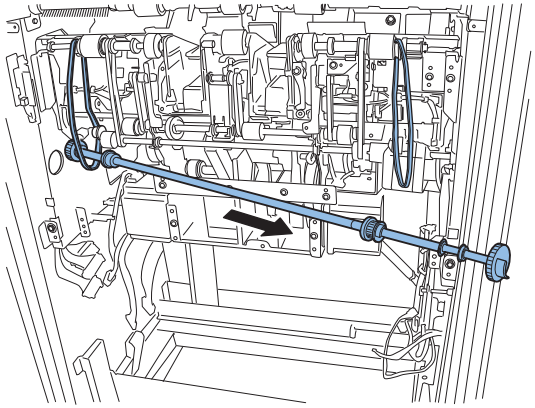
F-4-61

6) Shift the drive shaft to the rear to release it from the front belt.



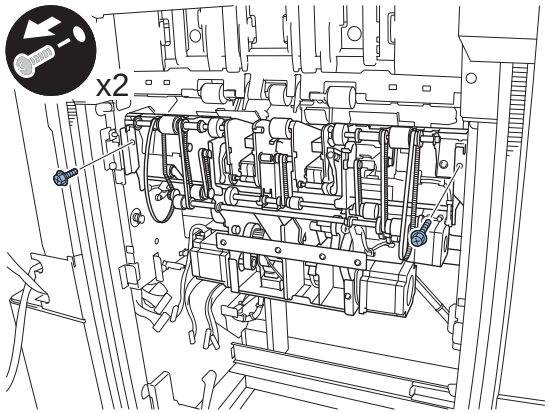
F-4-62

7) Shift the drive shaft to the front to release it from the rear belt, and then remove the drive shaft.



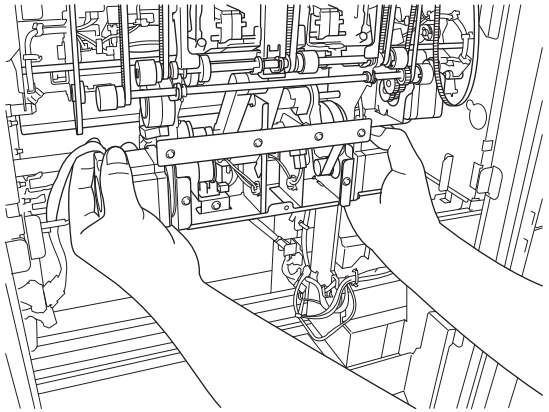
F-4-63

8) Remove the 2 screws.



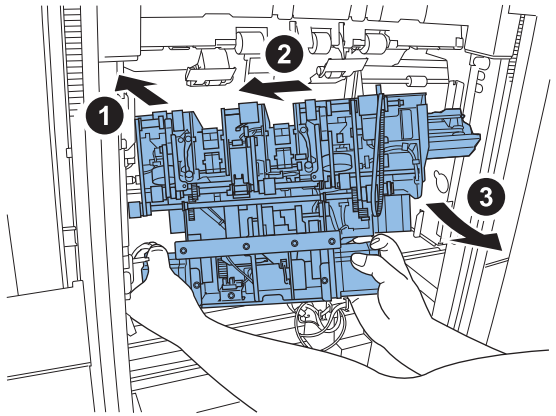

F-4-64

9) Grip the motors at the lower part of the processing tray unit.



F-4-65

10) Shift the left hand side of the processing tray unit to the rear, and then draw out the processing unit from the right hand side.

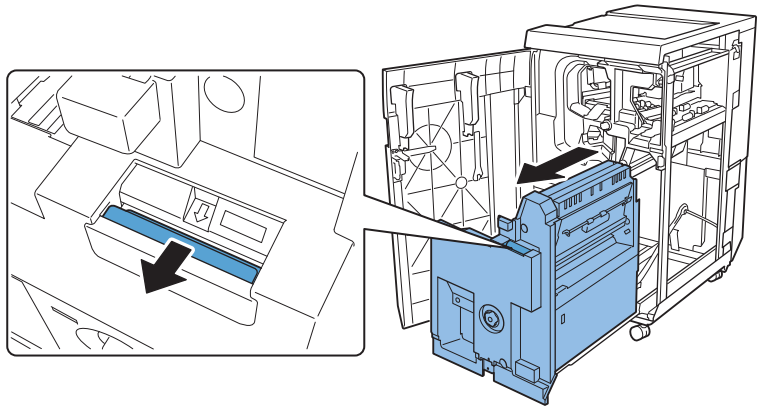



F-4-66

## Pull out the Saddle Unit (Service Position)

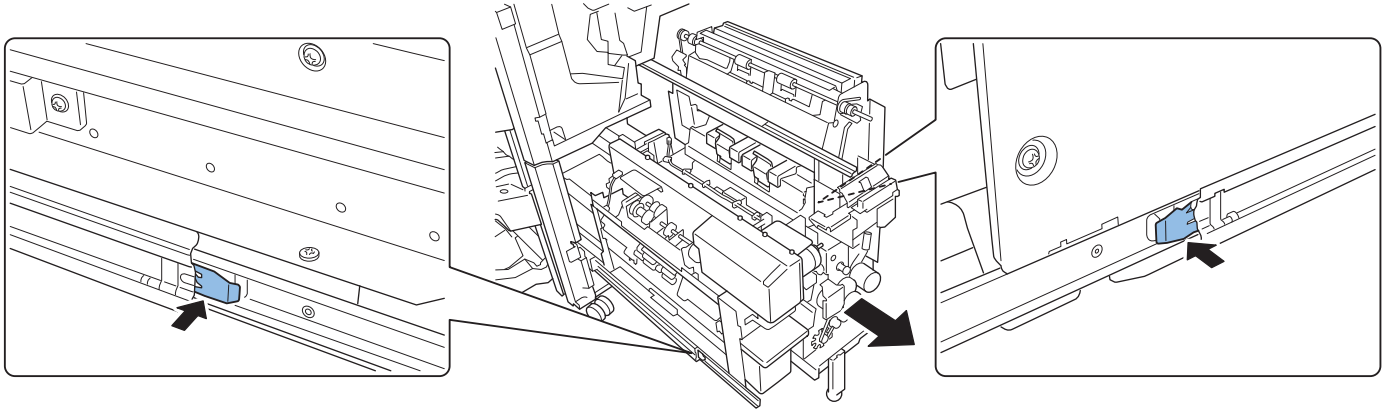
1) Remove the front door.
(Refer to page 4-17)

2) Pull out the saddle unit until it will stop.



F-4-67

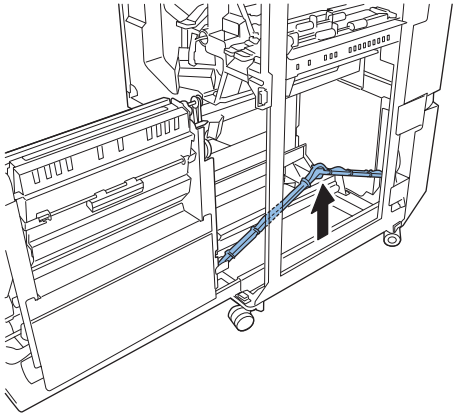
3) Release the rail stopper and pull out the saddle unit further about 5 cm.



F-4-68

CAUTION:

- Draw it out slowly. If it is drown out too much, the saddle cable and the cable guide may be damaged.
- When the saddle unit is return into the finisher from the service position, lift up the center of the cable guide. If it is carelessly pushed into the finisher, the center of the cable guide will fall down so that the saddle cable and the cable guide may be damaged.

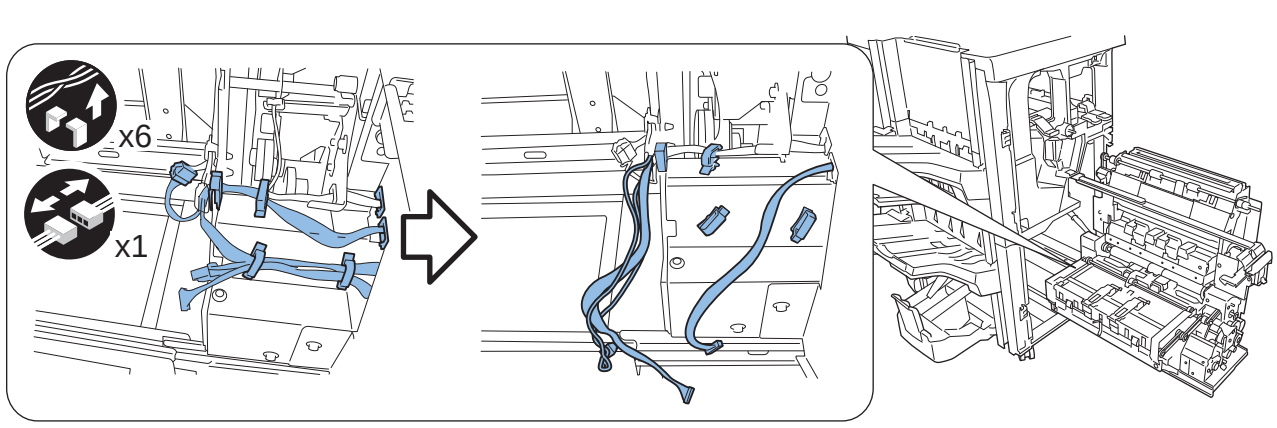


F-4-69

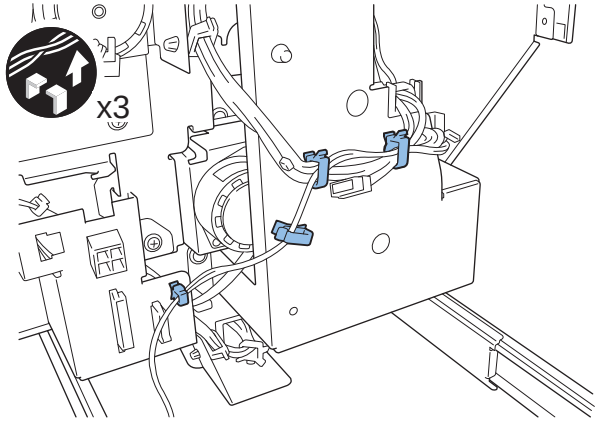
## Removing the Saddle Unit

1) Pull out the saddle unit to the service position.
(Refer to page 4-32)

2) Disconnect the connector and release the harness from the wire saddle on the rear of the saddle unit.

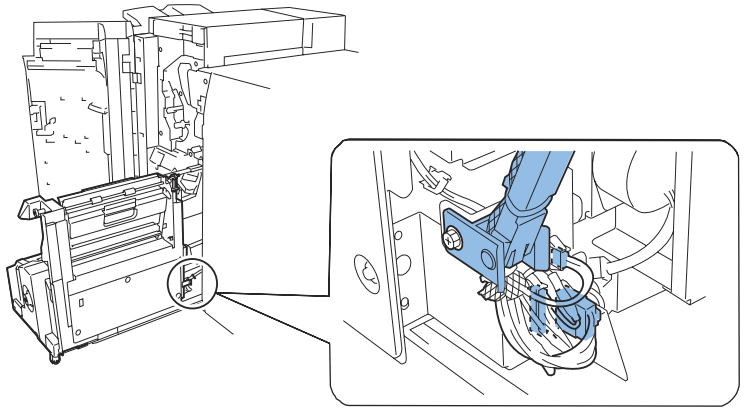



F-4-70



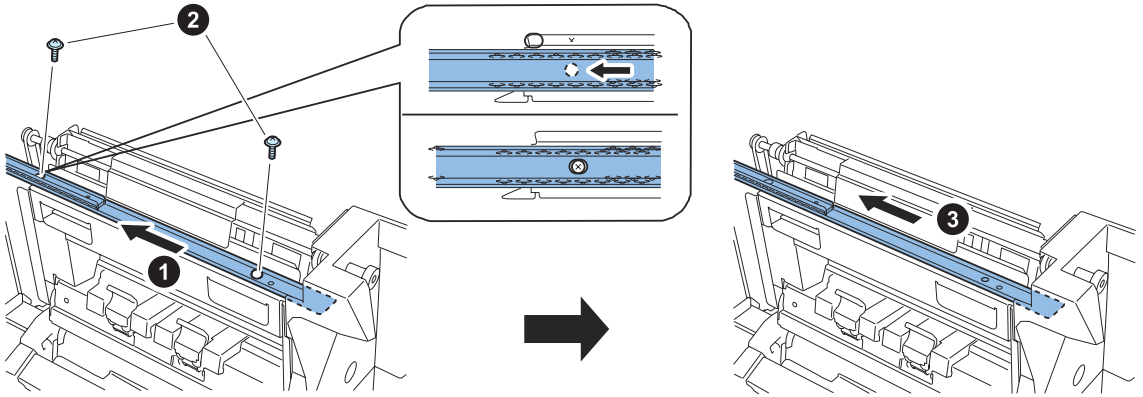

F-4-71

3) Remove the screw and disconnect the 3 connectors, and then remove the cable guide.

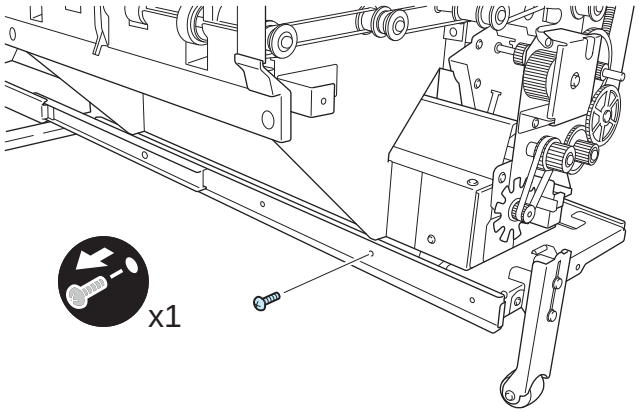
F-4-72

4) Move the saddle unit to the position where the screw can be seen from the hole, and remove the screws.

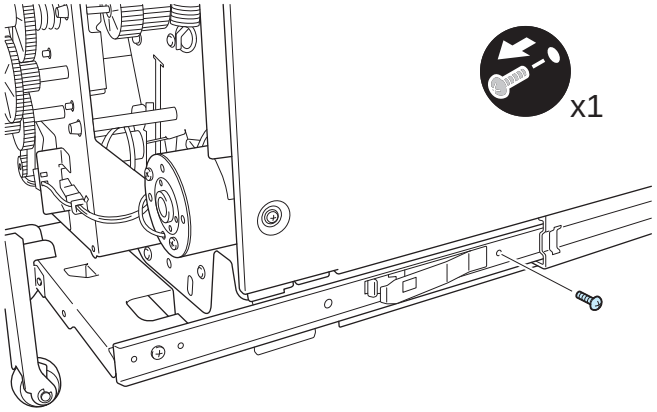




F-4-73

5) Remove the 2 screws from the rail (left) and rail (right).

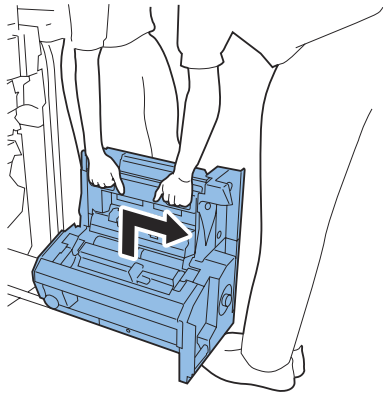



F-4-74




F-4-75

6) Hold the saddle unit as shown in the figure, lift it as the direction of the arrow, make sure that it has parted from the rail, and carry it.

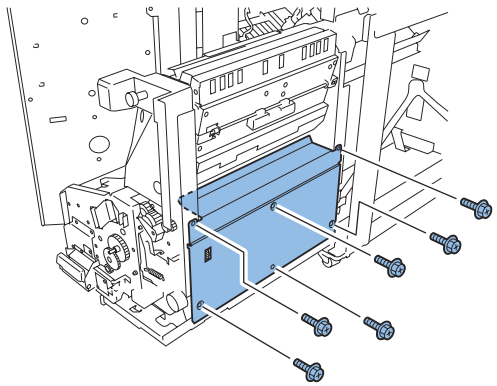


F-4-76

## Removing the Thrust Unit

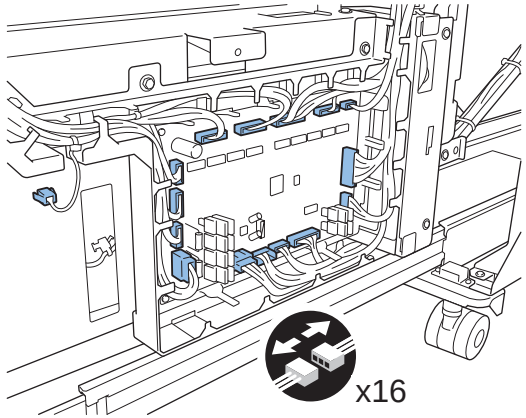
1) Remove the saddle cover.
(Refer to page 4-22)
2) Pull out the saddle unit to the service position.
(Refer to page 4-32)

3) Remove the 6 screws and then remove the PCB cover.



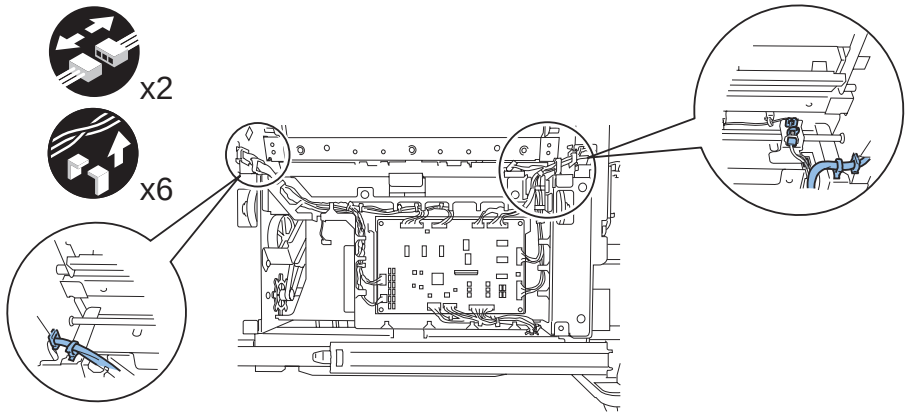
F-4-77

4) Disconnect the 16 connectors and release the harness from the harness guide.



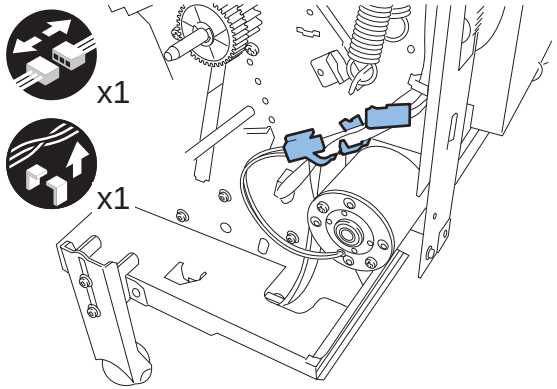

F-4-78

5) Release the harness from the wire saddles and disconnect the 2 connectors.



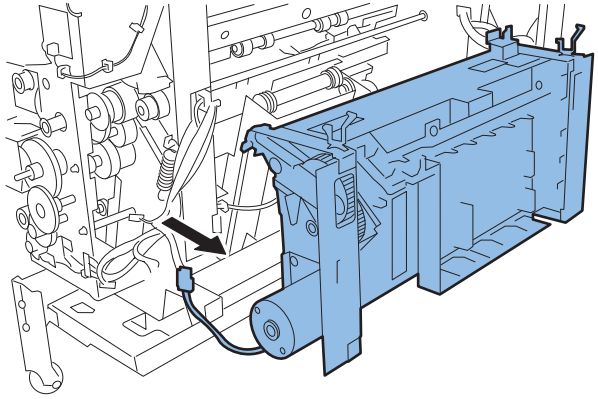

F-4-79

6) Release the harness from the wire saddle and disconnect the connector.




F-4-80

7) Remove the 4 screws and then remove the thrust unit.



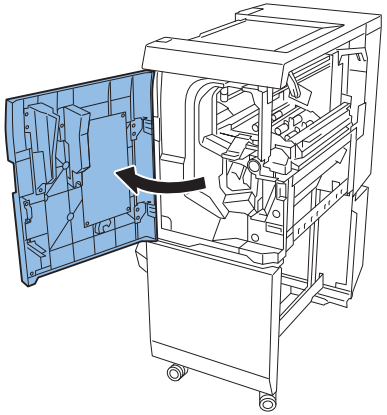
F-4-81

# Consumable Parts Requiring Periodic Replacement and Cleaning Points

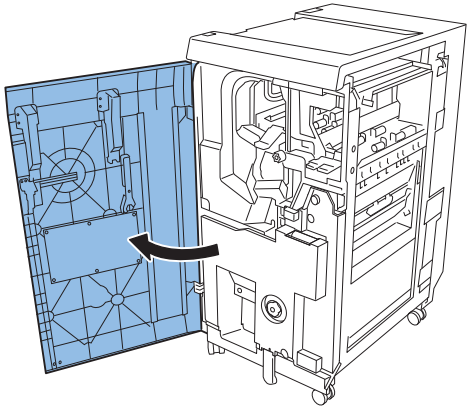
## Removing the Static Eliminator (Feed Guide Unit)

1) Open the front door.

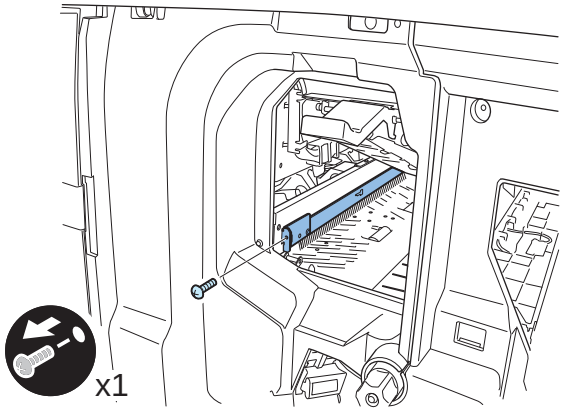
<Finisher (Staple Finisher)>



<Saddle Finisher (Booklet Finisher)>



2) Remove the screw and then remove the static eliminator.

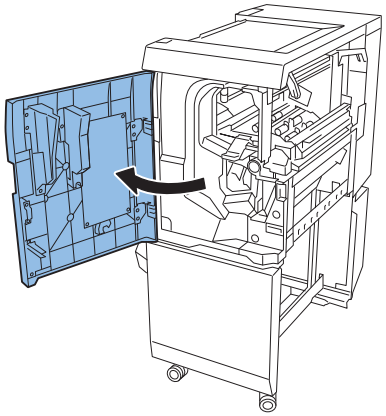



F-4-82

## Removing the Shutter Torque Limiter

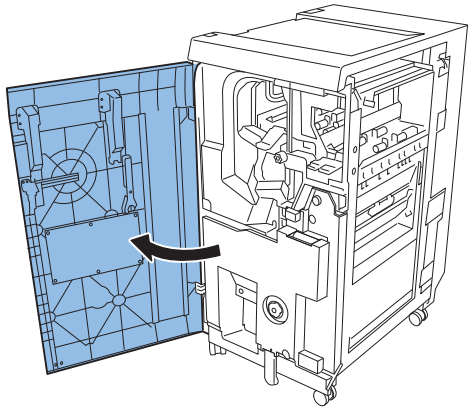
1) Open the front door.

<Finisher (Staple Finisher)>



F-4-83

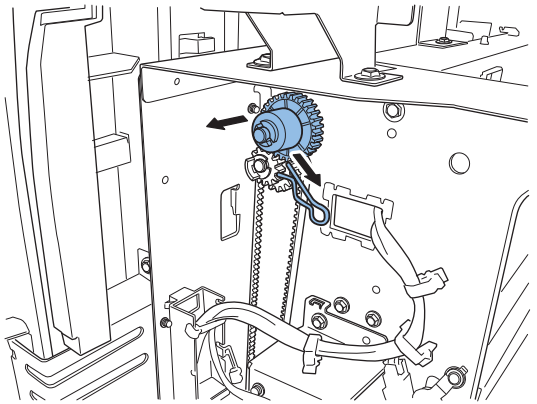
<Saddle Finisher (Booklet Finisher)>



F-4-84

2) Remove the left inner cover.
(Refer to page 4-20)

3) Pull out the pin and remove the shutter torque limiter.

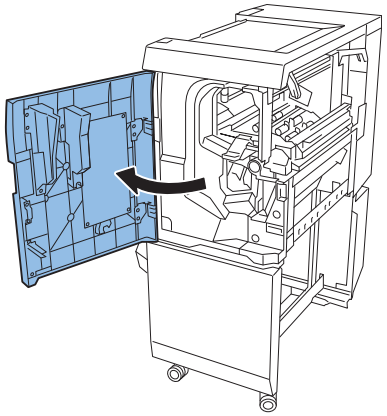


F-4-85

## Removing the Stapler Unit

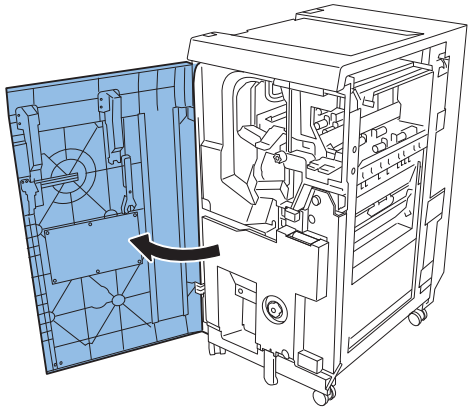
1) Open the front door.

<Finisher (Staple Finisher)>



F-4-86

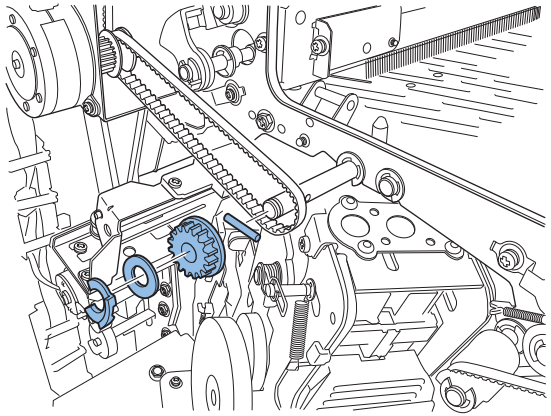
<Saddle Finisher (Booklet Finisher)>



F-4-87

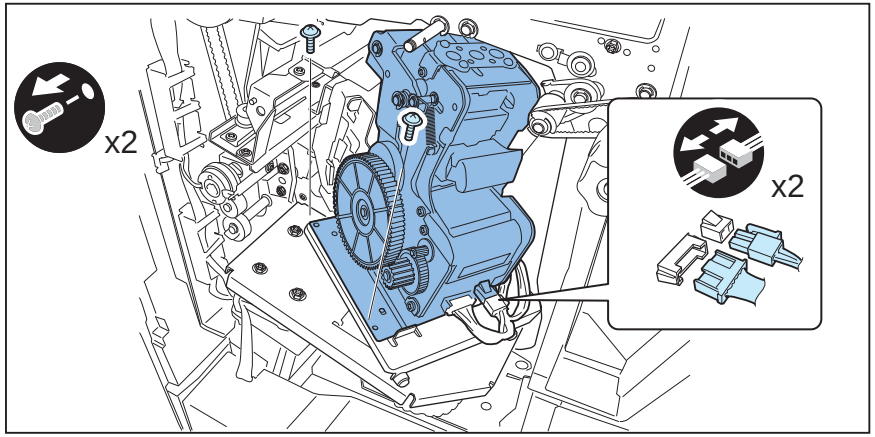
2) Remove the left inner cover.
(Refer to page 4-20)

3) Remove the clip, the flange and the straight pin.



F-4-88

4) Disconnect the connector and remove the 2 screws, and then remove the stapler unit.

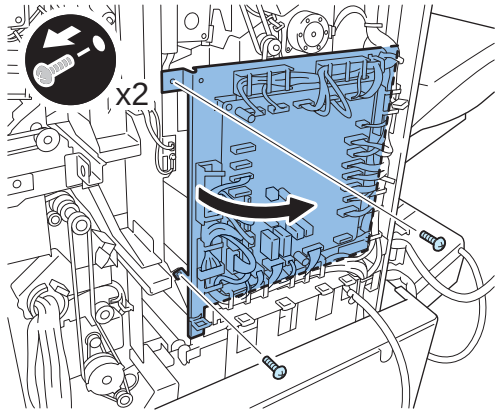



F-4-89

## Removing the Paper Holding Torque Limiter

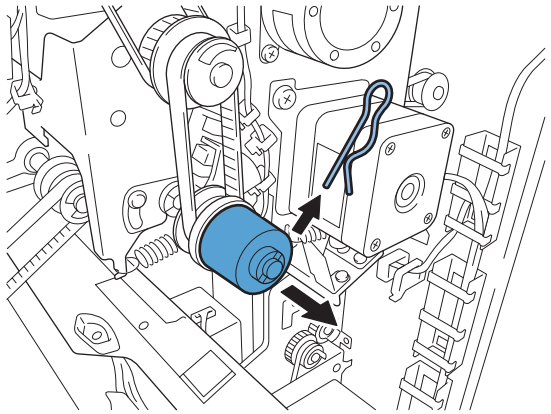
1) Remove the rear cover (upper).
(Refer to page 4-19)

2) Remove the 2 screws and open the finisher controller PCB mount.




F-4-90

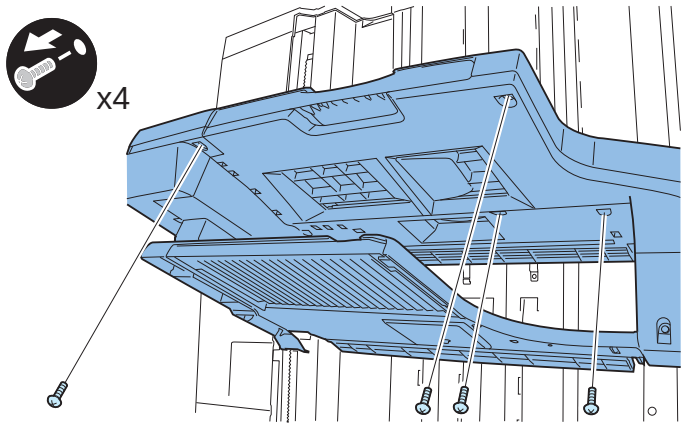
3) Pull out the pin and remove the paper holding torque limiter.



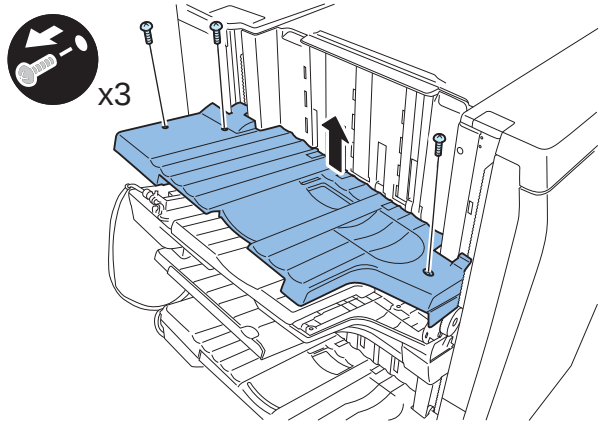
F-4-91

## Removing the Tray-1 Torque Limiter

1) Remove the 7 screws and remove the tray-1 upper cover.

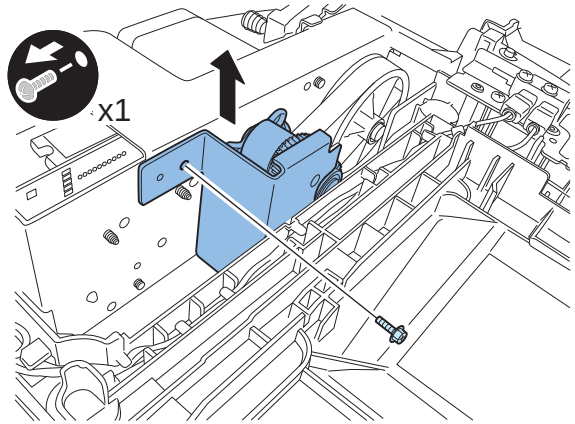



F-4-92



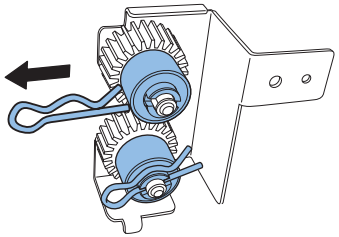

F-4-93

2) Remove the screw and take out the torque limiter unit.




F-4-94

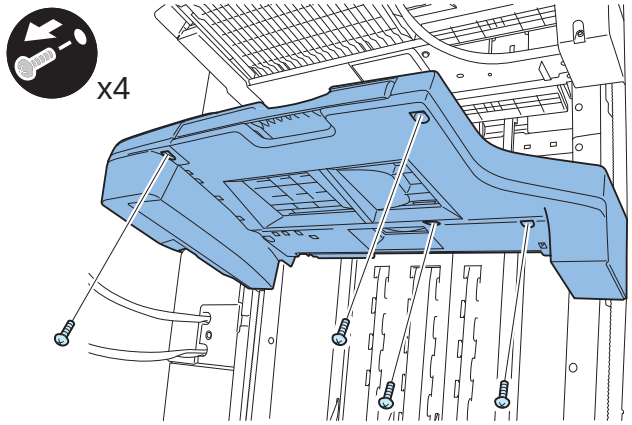
3) Pull out the pins and remove the torque limiters.



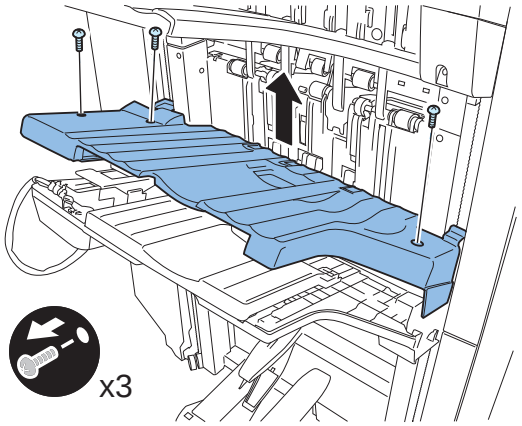
F-4-95

## Removing the Tray-2 Torque Limiter

1) Remove the 7 screws and remove the tray-2 upper cover.

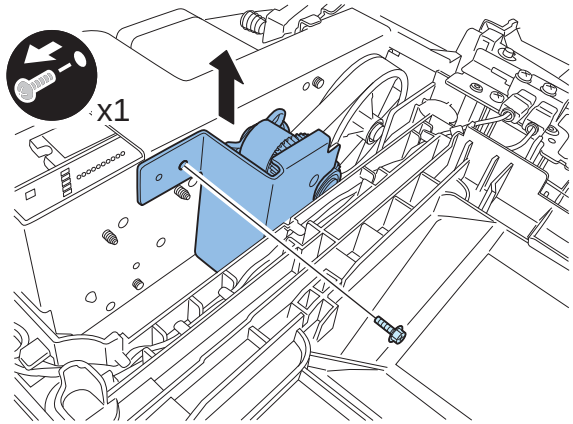



F-4-96



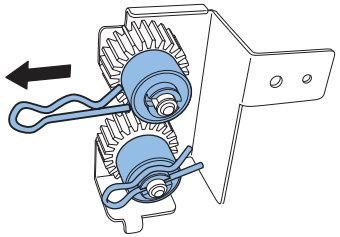

F-4-97

2) Remove the screw and take out the torque limiter unit.




F-4-98

3) Pull out the pins and remove the torque limiters.

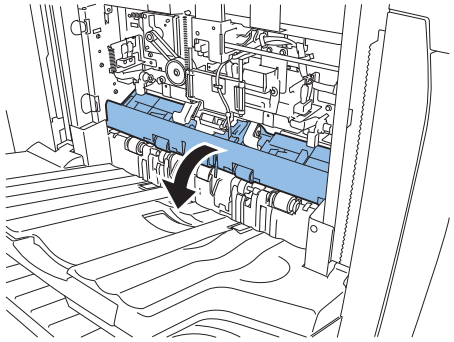


F-4-99

## Removing the Static Eliminators (Swing Guide Unit)

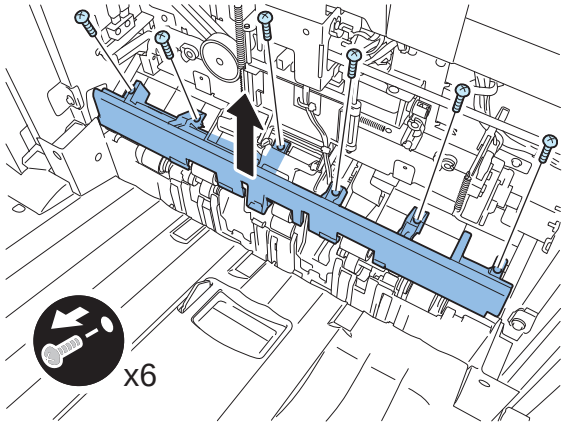
1) Remove the grate-shaped upper guide. (Refer to page 4-23)

2) Lower the swing guide.



F-4-100

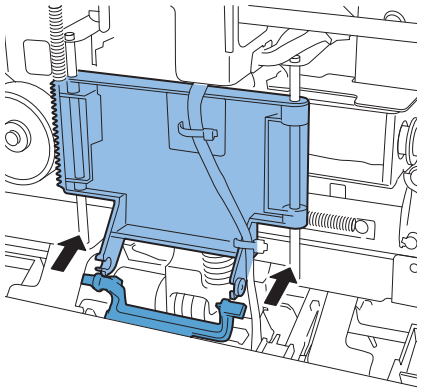
3) Remove the 6 screws and then remove the swing guide upper cover.




F-4-101

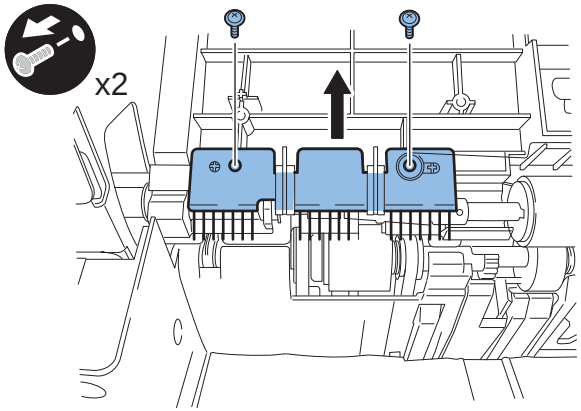
CAUTION:

When the swing guide upper cover is reassembled, put the arms of swing guide in the link holder.



F-4-102

4) Remove each 2 screws and detach the static eliminators front and left.




F-4-103

CAUTION:

When attaching the swing guide upper cover, check the position attached the swing guide unit.

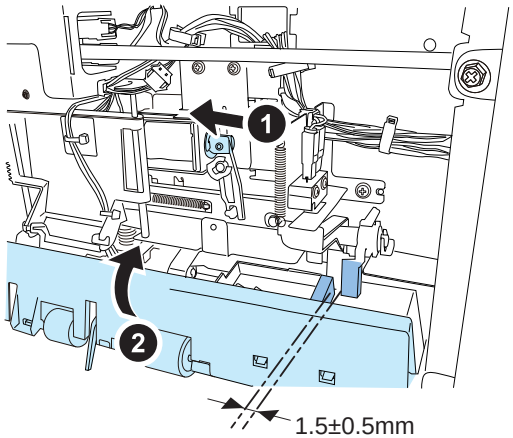
(Refer to page 4-45)

## Checking the position attached the Swing Guide Unit

CAUTION:

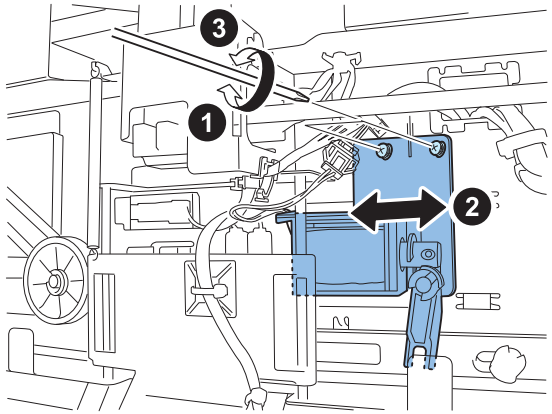
When attaching the swing guide unit, swing guide upper cover and swing guide open solenoid (SL101), check the gap between the swing guide upper cover and the arm of the staple safety switch.

1) Raise the swing guide unit while pushing the plunger of the swing guide solenoid, and then check that the gap between the swing guide upper cover and the arm of the staple safety switch is within 1.5±0.5mm.
If the gap is outside the standard, adjust according to the following steps 2) to 3).




F-4-104

2) Loosen two screws and shift the position of the swing guide open solenoid to adjust the position of the staple safety switch's arm. Then, tighten two screws.




F-4-105

3) Check whether the gap between the swing guide upper cover and the arm of the staple safety switch is within 1.5±0.5mm. If the gap is outside the standard, adjust again.

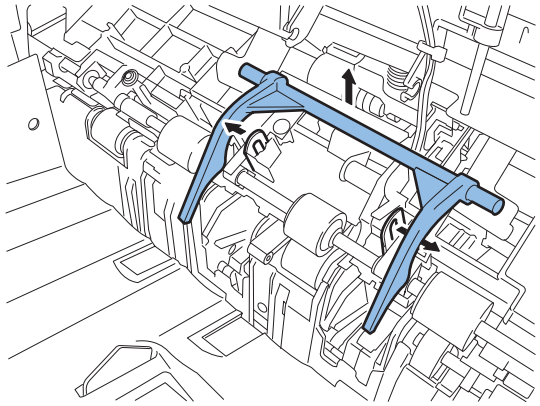
CAUTION:

If the gap between the swing guide upper cover and the arm of the staple safety switch is outside the standard, it might defective movement.

## Removing the Stack Delivery Upper Roller

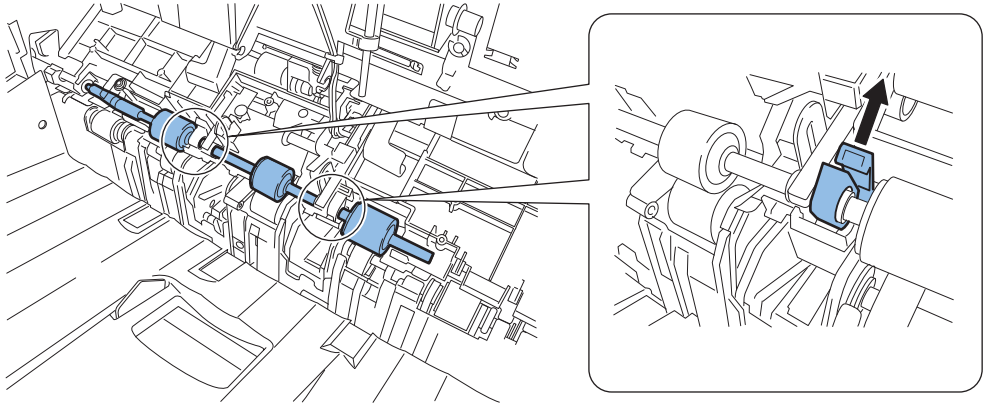
1) Remove the static eliminators (swing guide unit). (Refer to page 4-39)

2) Remove the paper guide.



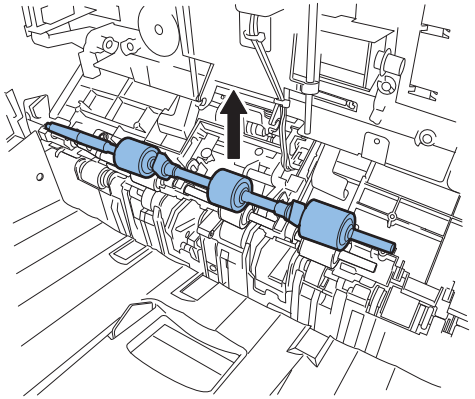
F-4-106

3) Release the bushings from the hooks.



F-4-107

4) Remove the stack delivery upper roller.

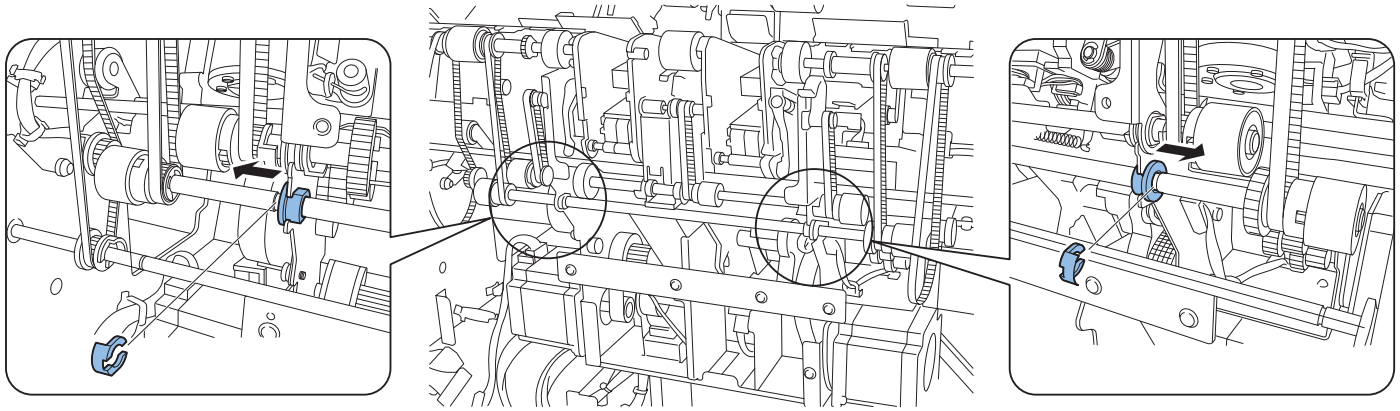


F-4-108

## Removing the Sub Guide Torque Limiter

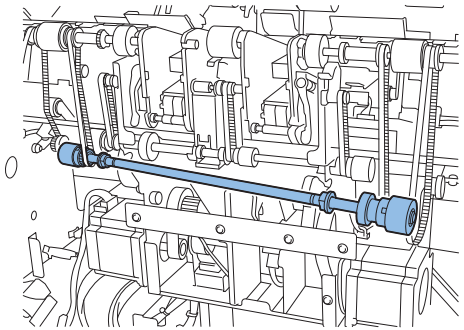
1) Remove the grate-shaped lower guide. (Refer to page 4-26)

2) Remove the 2 clips and shift the 2 bushings to the outside.



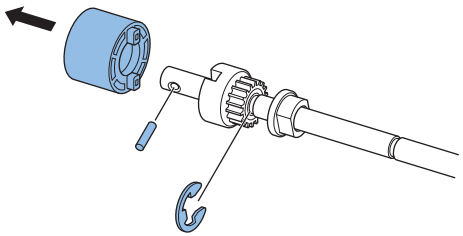
F-4-109

3) Release the drive shaft from the belt and remove it.

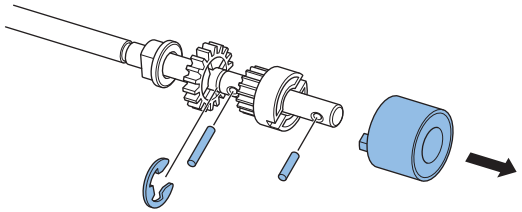


F-4-110

4) Remove the E-rings and the straight pins, and then remove the torque limiters.



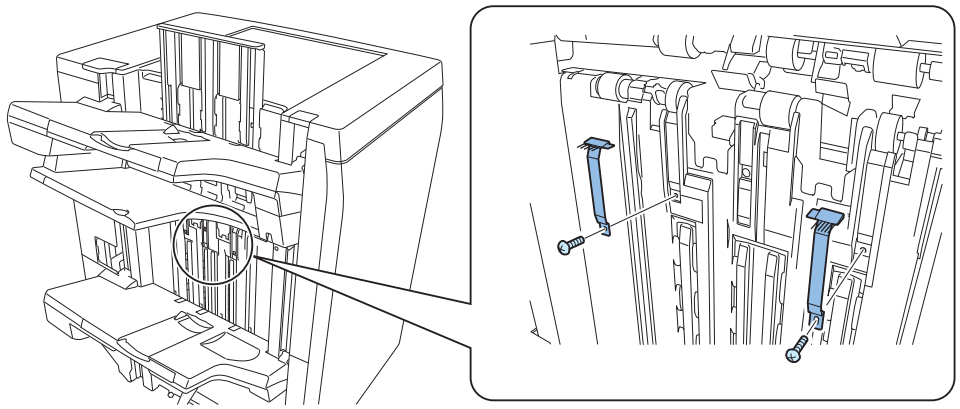
F-4-111



F-4-112

## Removing the Static Eliminator (Grate-shaped lower guide unit)

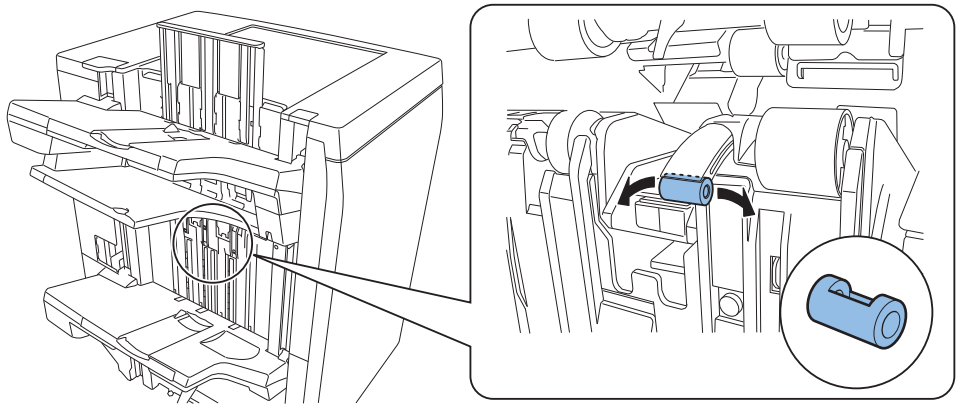
1) Lift the tray 1 unit until it will stop. Remove the screw and take out the static eliminator.



F-4-113

## Removing the Paper Holding Rubber

1) Lift the tray 1 unit until it will stop. Remove the paper holding rubber after drawing out the paper holding lever.

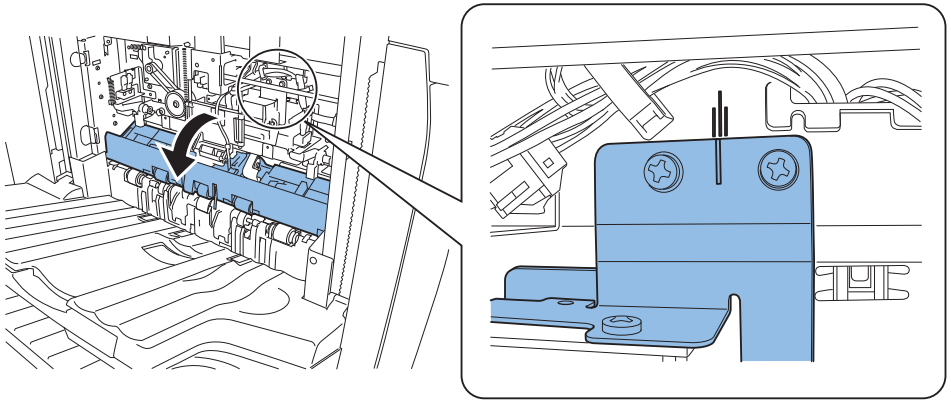


F-4-114

## Removing the Swing Guide Open Solenoid (SL101)

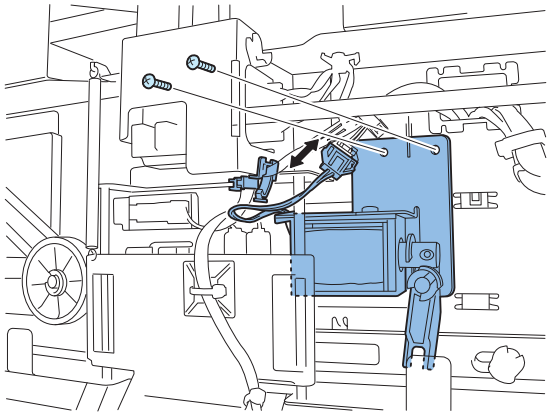
1) Remove the grated-shaped upper guide. (Refer to page 4-23)

2) Lower the swing guide and put a mark on the fixed position of the swing open solenoid.



F-4-115

3) Release the solenoid harness from the edge saddle, and then remove the 2 screws to remove the swing open solenoid.



F-4-116

CAUTION:

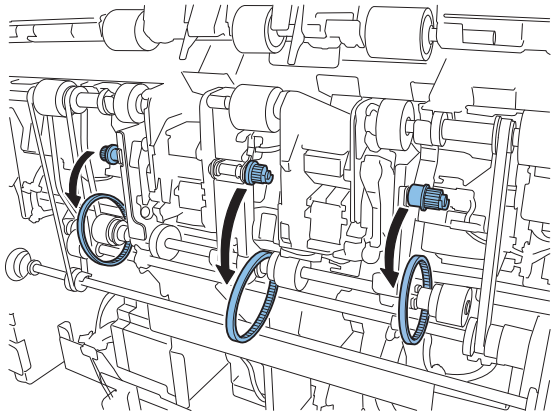
When attaching the swing guide open solenoid (SL101), check the position attached the swing guide unit.

(Refer to page 4-45)

# Removing the Torque Limiter (Tray1/2 Paper Holder)

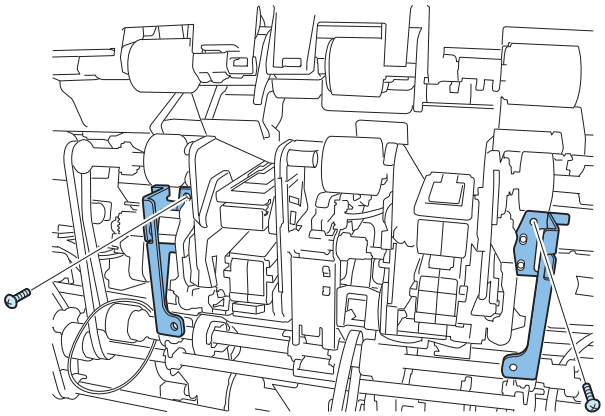
1) Remove the grated-shaped upper guide. (Refer to page 4-23)

2) Take off the 3 belts from the pulleys.



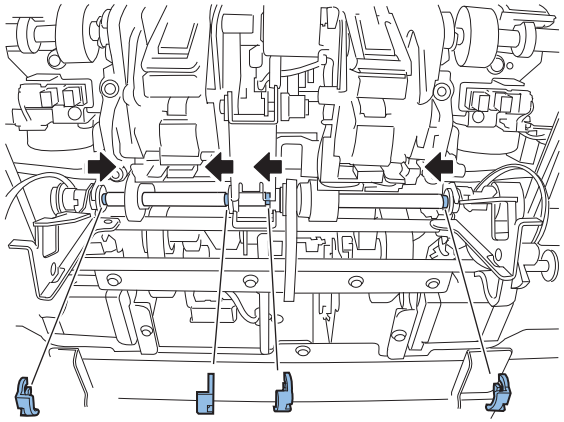
F-4-117

3) Remove the 2 screws and then remove the paper holder shaft plates (front) and (left).



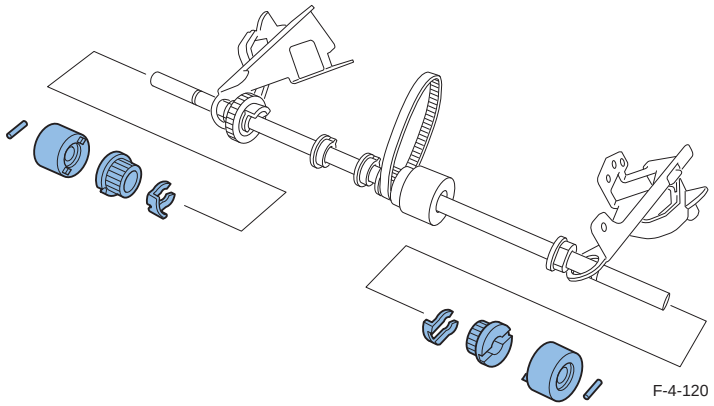
F-4-118

4) Remove the 4 clips and slide the 4 bushings, then remove the paper holder shaft units.



F-4-119

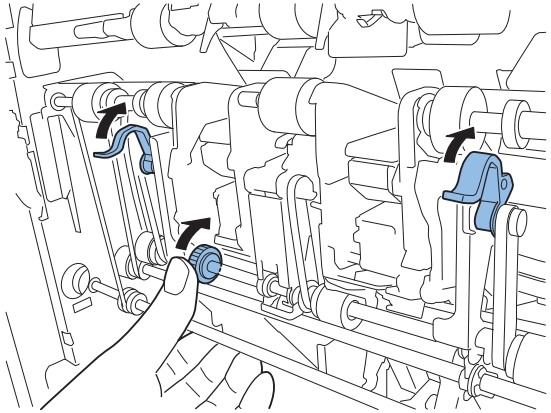
5) Remove the 2 torque limiters (tray1/2 paper holder).



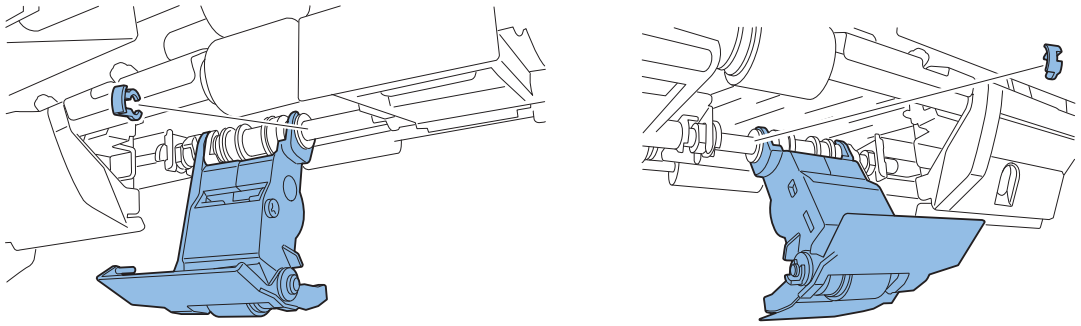
F-4-120

CAUTION:

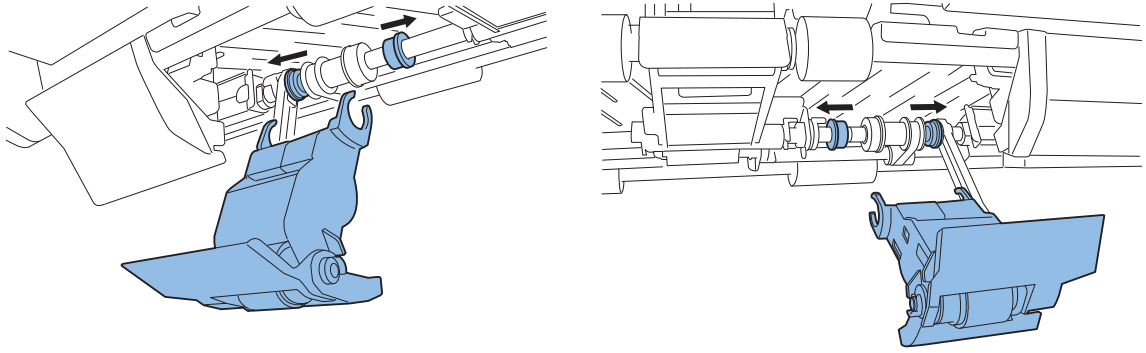
After installing the 2 torque limiters (tray1/2 paper holder), turn the drive shaft to the allow direction to put away the tray paper holder lever in the processing tray unit.



## Remove the Paper Holding Rollers (Front) and (Left)

| 1) Remove the processing tray unit. (Refer to page 4-30) | 2) Take out the clip.  F-4-121 |
|---|---|

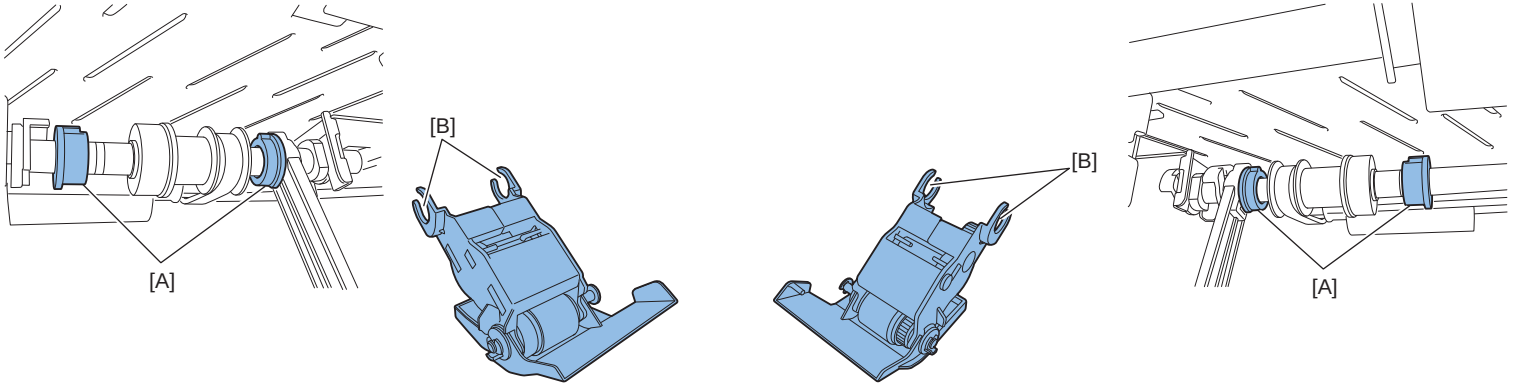
3) Slide the bushing to the outside and then remove the paper return guide roller units (front) and (rear).



F-4-122

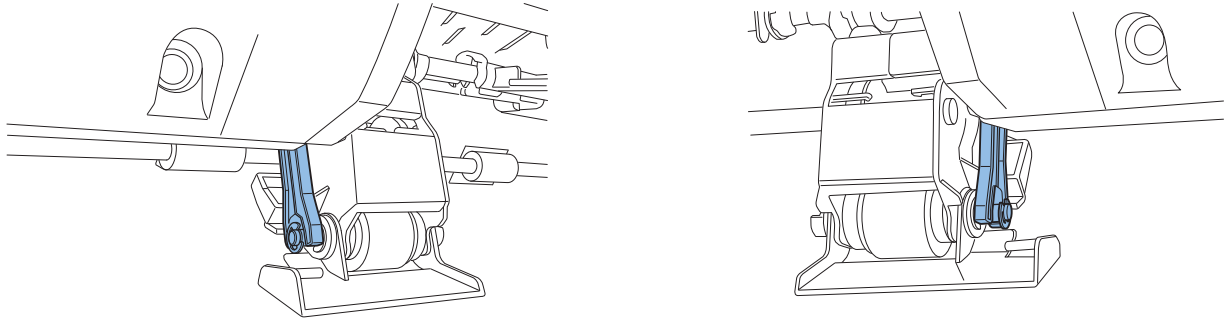
CAUTION:

When installing the paper return guide roller units, be careful about the followings. Fit the projection [A] of the bushings into the opening [B] of the paper return guide holders.



CAUTION:

Fit the roller shaft into the opening of the drive shaft arm.

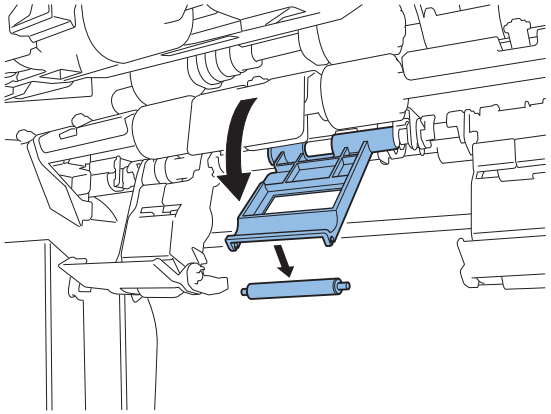


F-4-123

## Removing the Paper Holding Roller

1) Remove the processing tray unit.
(Refer to page 4-30)

2) Lower the paper holder roller arm and then remove the paper holder roller.

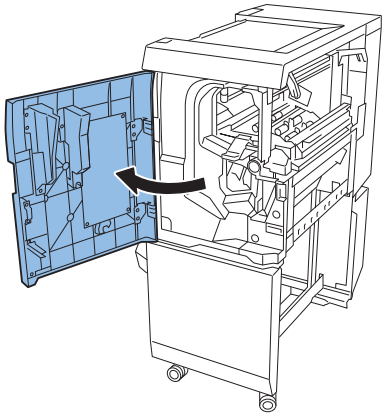


F-4-124

## Removing the Shutter Clutch (CL102)

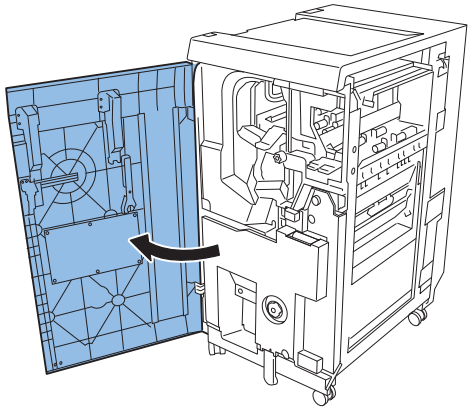
1) Open the front door.

<Finisher (Staple Finisher)>



F-4-125

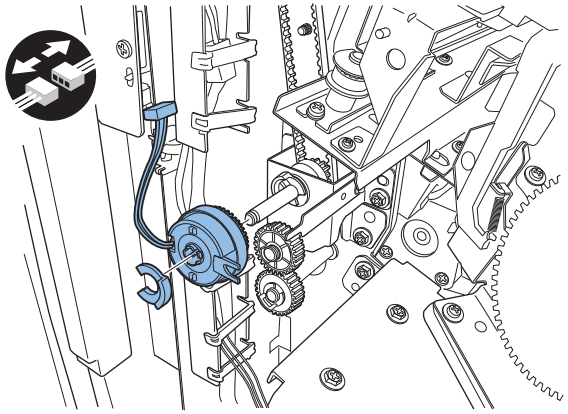
<Saddle Finisher (Booklet Finisher)>



F-4-126

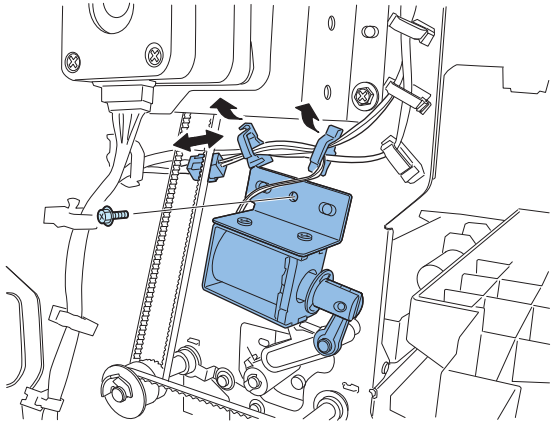
2) Remove the left inner cover.
(Refer to page 4-20)

3) Disconnect the connector and take out the clip, and then remove the shutter clutch.



F-4-127

## Removing the Saddle Inlet Flapper Solenoid (SL206)

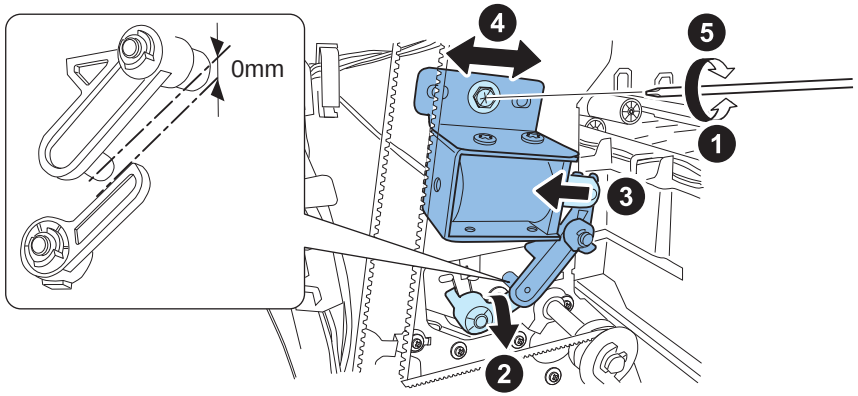
| | |
|---|---|
| 1) Remove the rear cover (upper). (Refer to page 4-19) | 2) Put a mark on the fixed position of the solenoid. Release the solenoid harness from the wire saddle and disconnect the connector. Remove the screw and then remove the saddle inlet flapper solenoid.  F-4-128 |

## Adjusting the position attached the Saddle Inlet Flapper Solenoid (SL206)

CAUTION:

When attaching the saddle inlet flapper solenoid (SL206), adjust the position attached the solenoid.

1) Loosen the screw.
2) Lower the arm of the saddle inlet flapper until it stops. Then, shift the position of the solenoid so that the arm bumps against the link when pushing the plunger of the solenoid.
3) Tighten the screw.

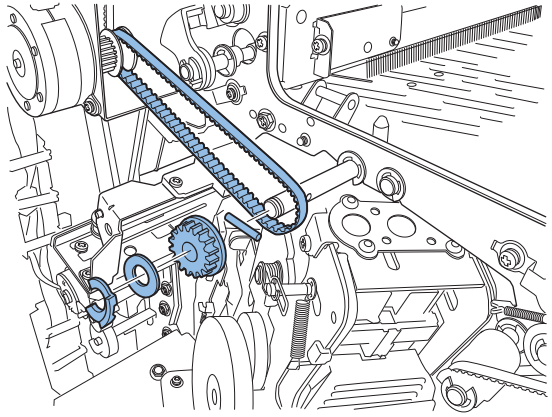



F-4-129

## Removing the Paper Return Guide Roller Motor (M121)

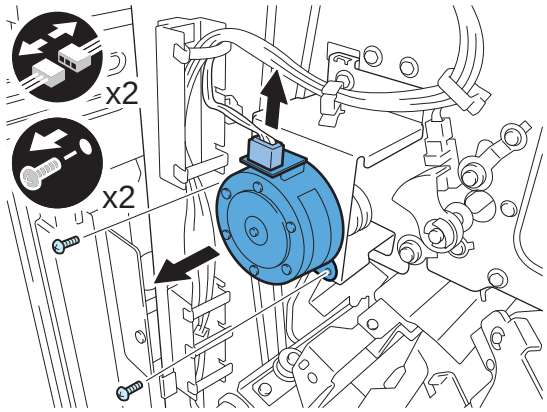
1) Remove the left inner cover.
(Refer to page 4-20)

2) Remove the clip, the flange, the pulley, the straight pin and the belt.



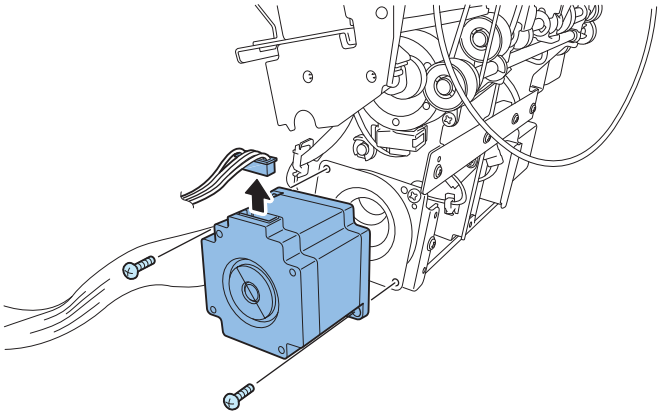
F-4-130

3) Disconnect the connector and remove the 2 screws, and then remove the paper return guide roller motor.

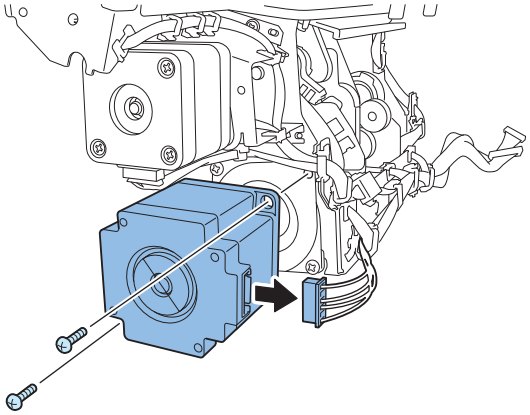



F-4-131

## Removing the Gripper Motor (M117)

| | |
|---|---|
| 1) Remove the processing tray unit. (Refer to page 4-30) | 2) Disconnect the 2 connectors and remove the 2 screws to remove the gripper motor.  F-4-132 |

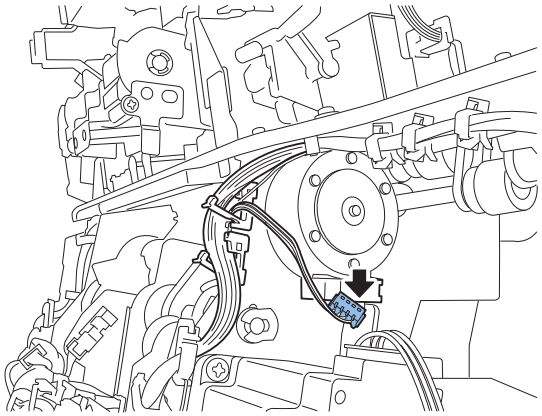
## Removing the Gripper Base Motor (M116)

| | |
|---|---|
| 1) Remove the processing tray unit. (Refer to page 4-30) | 2) Disconnect the 2 connectors and remove the 2 screws to remove the gripper base motor.  F-4-133 |

## Removing the Stacking Tray Paper Retainer Motor (M114)

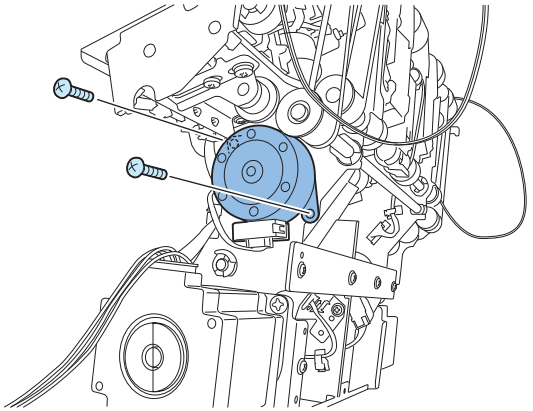
1) Remove the processing tray unit.
(Refer to page 4-30)

2) Disconnect the motor connector and release the harness from the edge saddles.



F-4-134

3) Remove the 2 screws and then remove the stacking tray paper retainer Motor

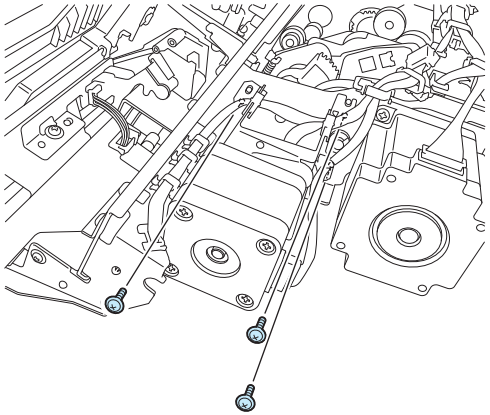


F-4-135

## Removing the Tray Auxiliary Guide Motor (M120)

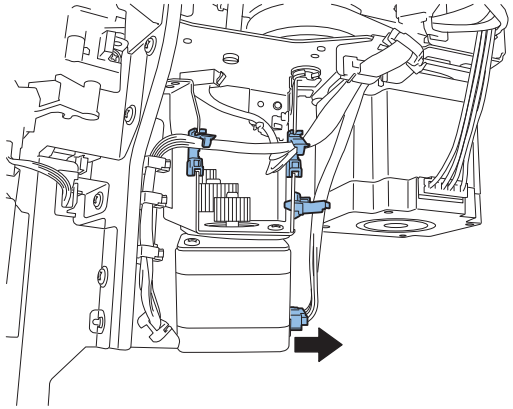
1) Remove the processing tray unit.
(Refer to page 4-30)

2) Remove the 3 screws.



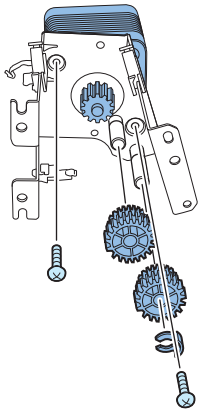
F-4-136

3) Release the harness from the 4 wire saddles, disconnect the motor connector and remove the motor mount.



F-4-137

4) Remove the clip, 2 gears, 2 screws and then the tray auxiliary guide motor.

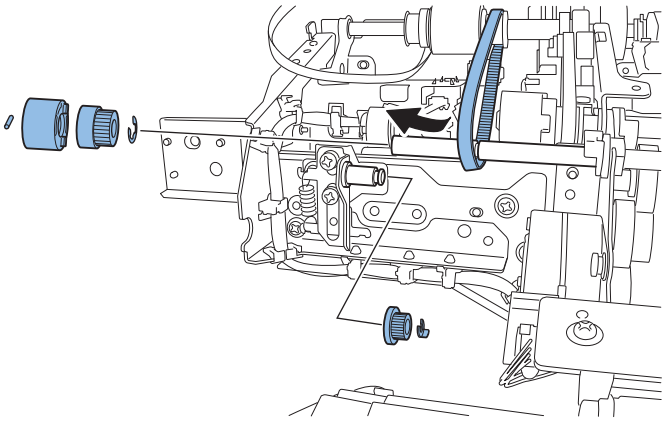


F-4-138

## Rear Alignment Motor (M109)

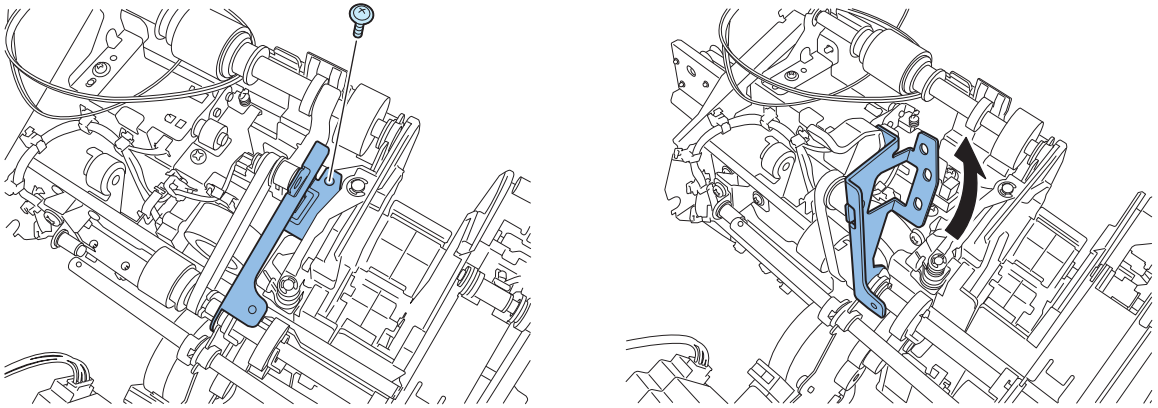
1) Remove the processing tray unit.
(Refer to page 4-30)

2) Remove the clip and pulley. Remove the E ring, pulley, torque limiter, straight pin, and then free the belt from the shaft.



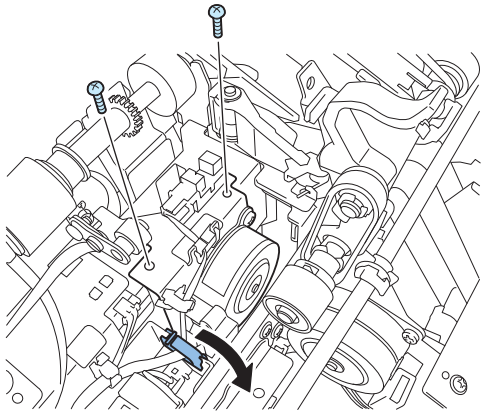
F-4-139

3) Remove the screw and turn the paper holder lever mount towards you.



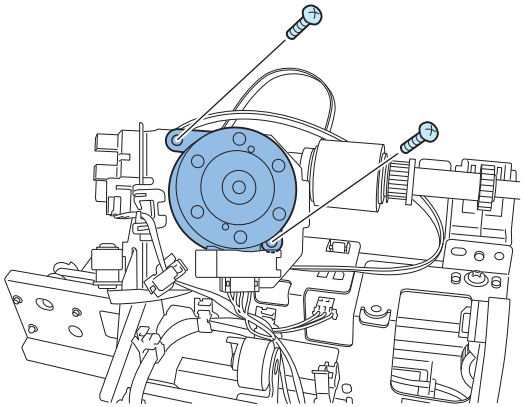
F-4-140

4) Open the edge saddles, remove the 2 screws and then take out the motor mount.



F-4-141

5) Disconnect the connector, remove the 2 screws and then the rear alignment motor.

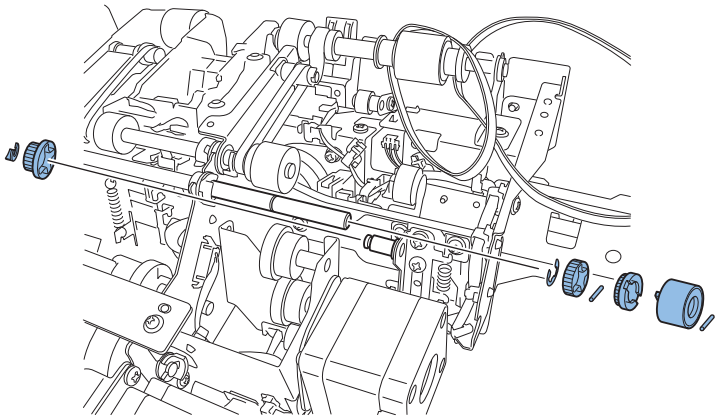


F-4-142

## Removing the Front Alignment Motor (M108)

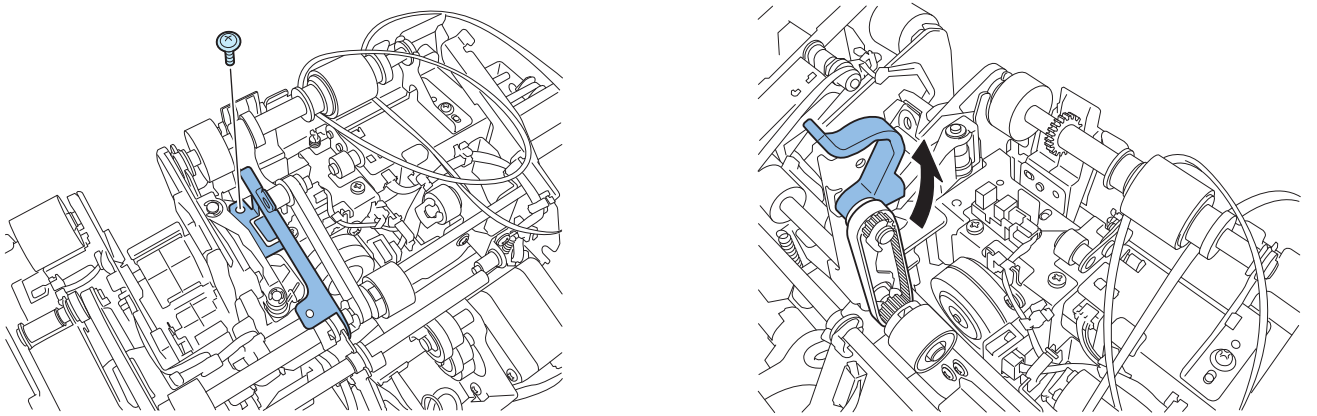
1) Remove the processing tray unit.
(Refer to page 4-30)

2) Remove the clip and pulley. Remove the E ring, gear, pulley, torque limiter, 2 straight pins, and then free the belt from the shaft.



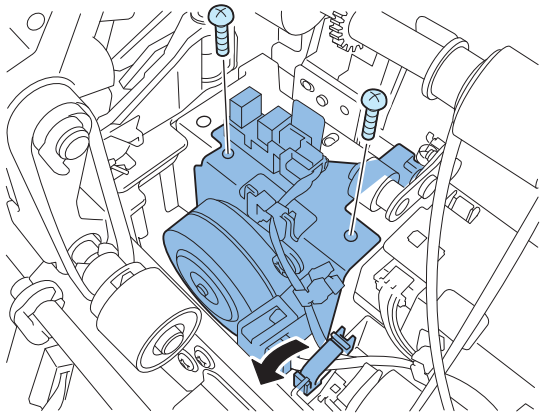
F-4-143

3) Remove the screw and turn the paper holder lever mount towards you.



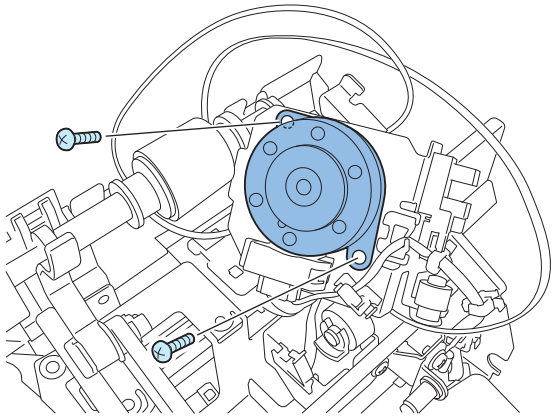
F-4-144

4) Open the edge saddles, remove the 2 screws and then take out the motor mount.



F-4-145

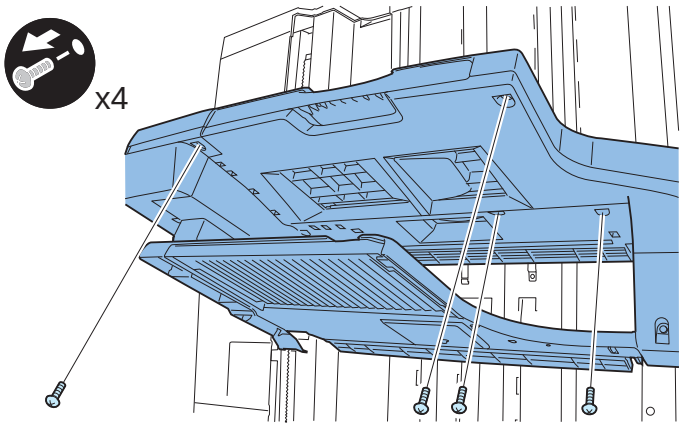
5) Disconnect the connector, remove the 2 screws and then the front alignment motor.



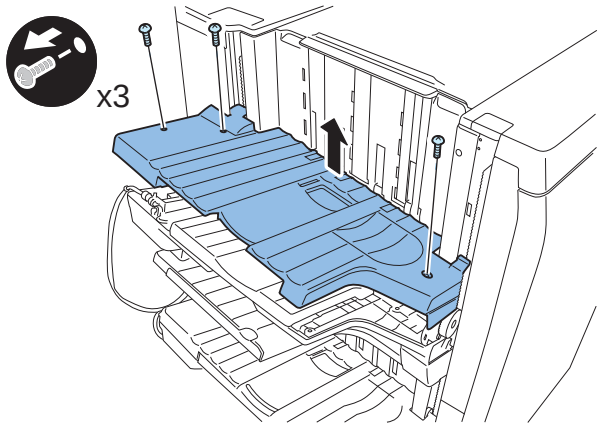
F-4-146

## Removing the Tray 1 Shift Motor (M105)

1) Remove the 7 screws and remove the tray 1 upper cover.

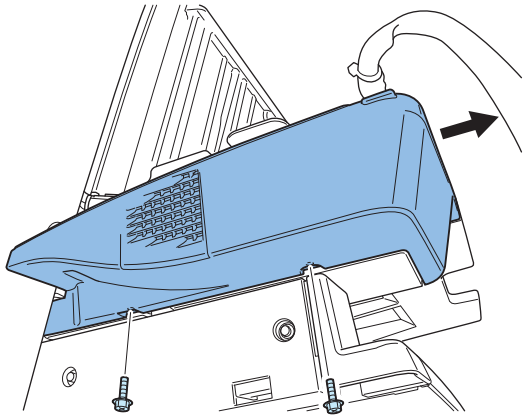



F-4-147



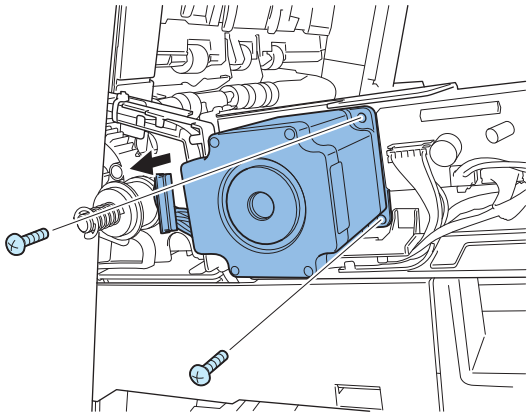

F-4-148

2) Remove the 2 screws and remove the tray motor cover.



F-4-149

3) Remove the connector, 2 screws and then the tray 1 shift motor.



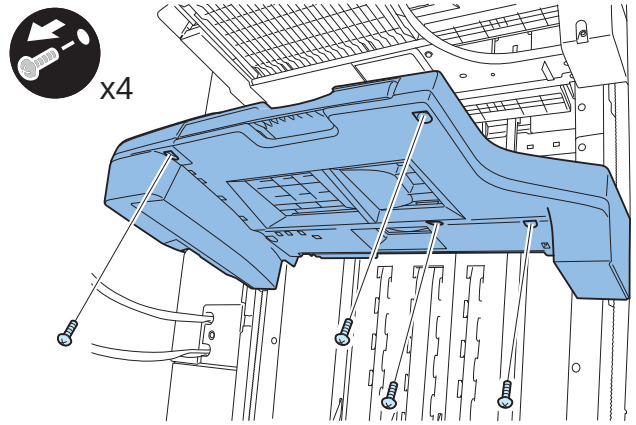
F-4-150

Caution:

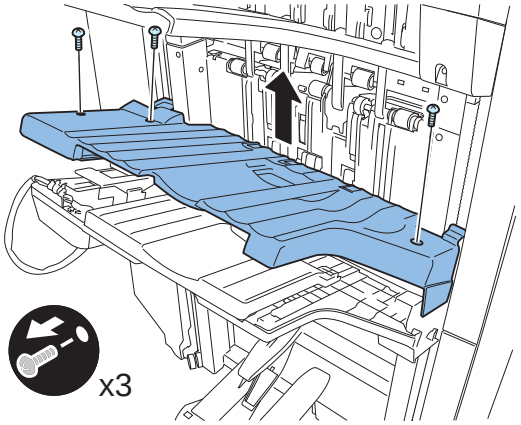
The tray will fall with its own weight after removing the motor. Hold the tray with a hand before releasing the motor from the drive belt.

# Removing the Tray 2 Shift Motor (M106)

1) Remove the 7 screws and remove the tray 2 upper cover.

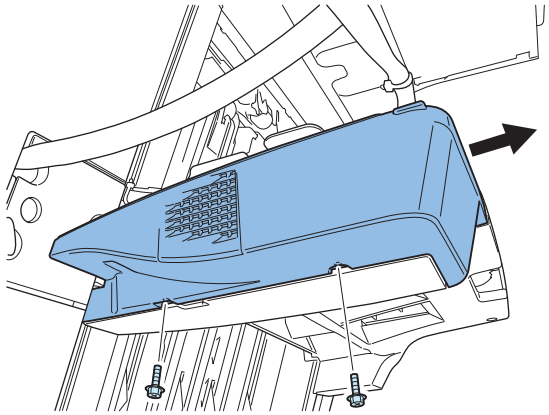



F-4-151



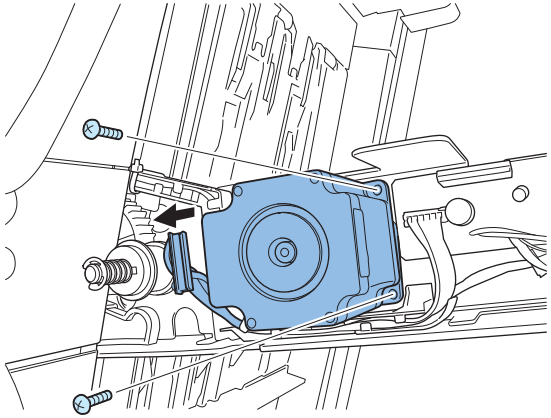

F-4-152

2) Remove the 2 screws and remove the tray motor cover.



F-4-153

3) Remove the connector, 2 screws and then the tray 2 shift motor.



F-4-154

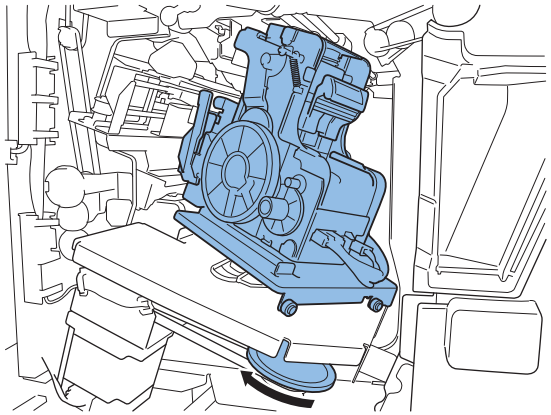
Caution:

The tray will fall with its own weight after removing the motor. Hold the tray with a hand before releasing the motor from the drive belt.

## Removing the Staple Shift Motor (M107)

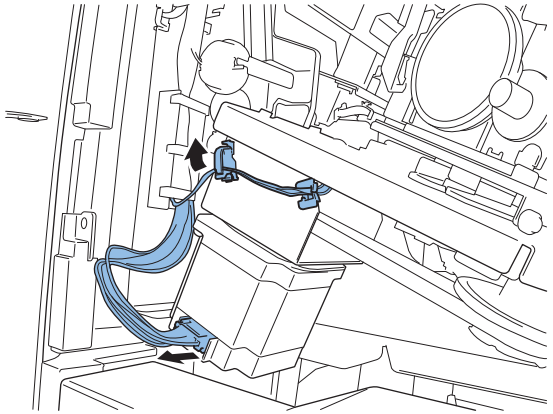
1) Remove the left inner cover.
(Refer to page 4-20)

2) Turn the dial to the allow direction to shift the staple unit to the rear side.



F-4-155

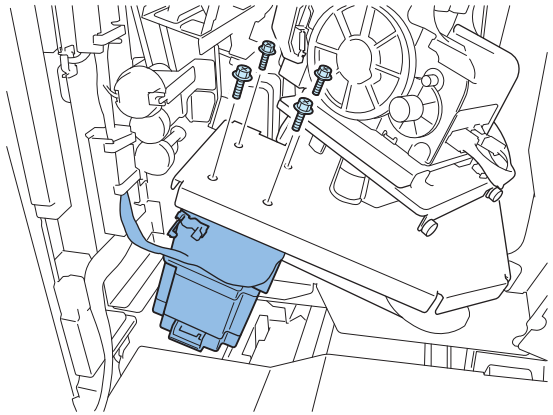
3) Remove the motor connector. Release the sensor harness from the wire saddle and the edge saddle.



F-4-156

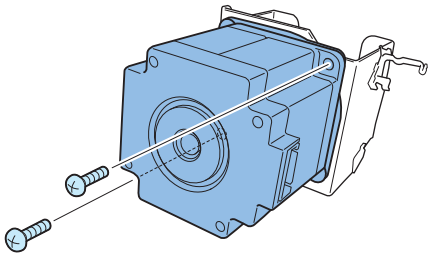
]

4) Remove the 4 screws to detach the motor mount.



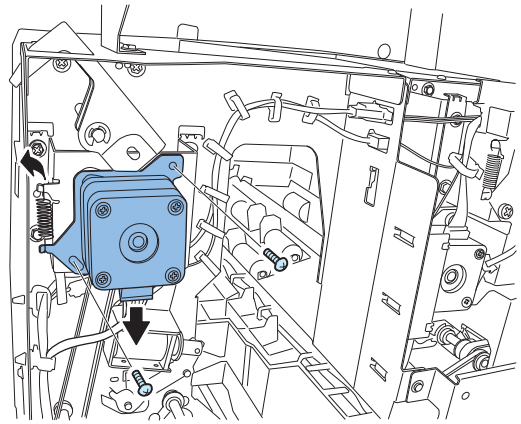
F-4-157

5) Remove the 2 screws and remove the staple shift motor.

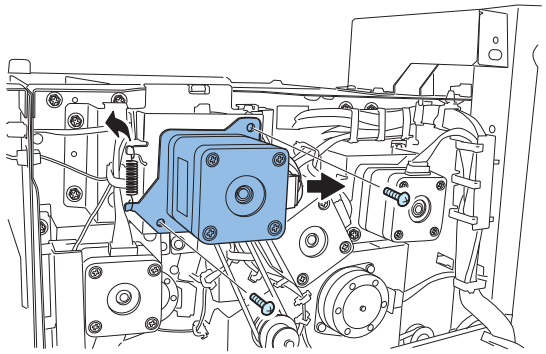


F-4-158

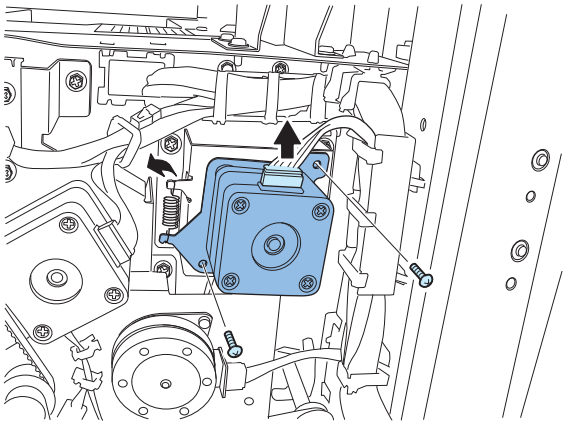
## Removing the Inlet Feed Motor (M200)

| | |
|---|---|
| 1) Remove the rear cover (upper). (Refer to page 4-19) | 2) Remove the motor connector and the tension spring. Remove the 2 screws and then remove the inlet feed motor.  F-4-159 |

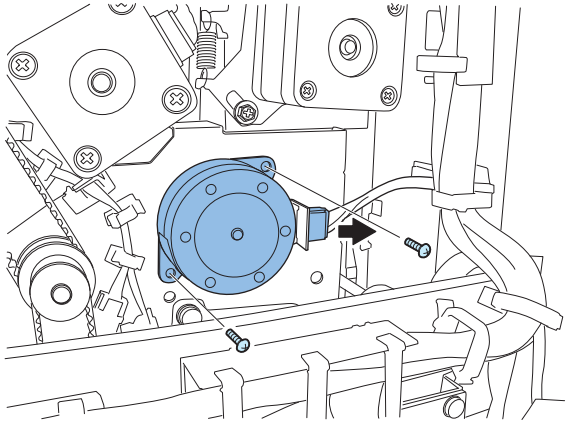
## Removing the Processing Tray Paper Retainer Motor (M118)

| | |
|---|---|
| 1) Remove the rear cover (upper). (Refer to page 4-19) | 2) Remove the motor connector and the tension spring. Remove the 2 screws and then remove the processing tray paper retainer motor.  F-4-160 |

## Removing the Buffer Feed Motor (M102)

| | |
|---|---|
| 1) Remove the rear cover (upper). (Refer to page 4-19) | 2) Remove the motor connector and the tension spring. Remove the 2 screws and then remove the buffer feed motor.  F-4-161 |

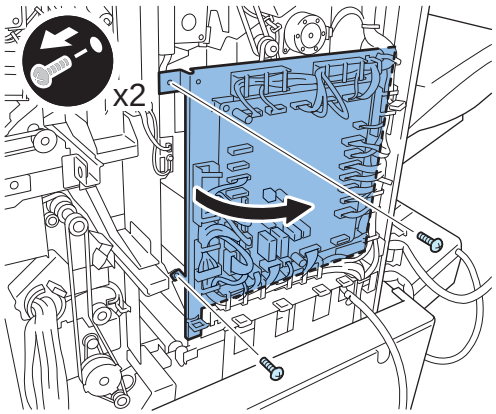
## Removing the Paper Trailing Edge Pushing Guide Motor (M113)

| | |
|---|---|
| 1) Remove the rear cover (upper). (Refer to page 4-19) | 2) Disconnect the connector, remove the 2 screws and then remove the paper trailing edge pushing guide motor.  F-4-162 |

# Removing the Feed Motor (M101)

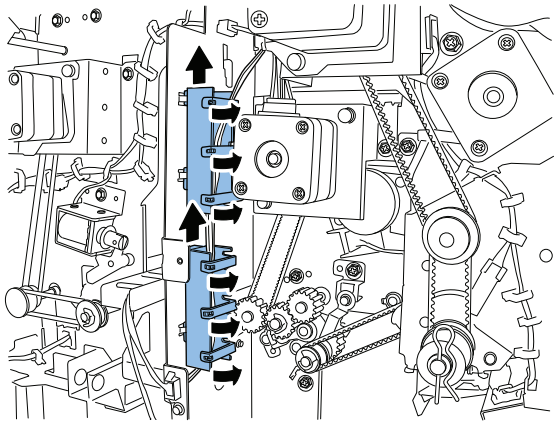
1) Remove the rear cover (upper).
(Refer to page 4-19)

2) Remove the 2 screws and open the finisher controller PCB mount.



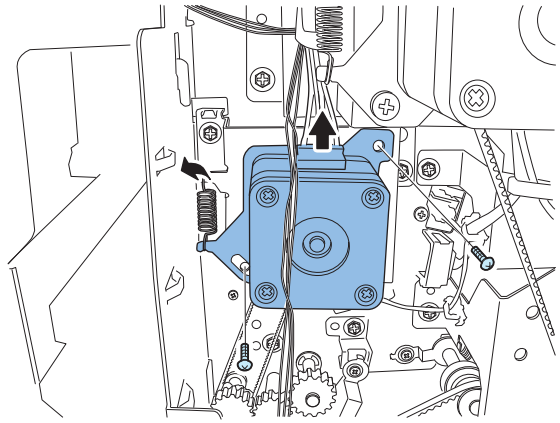

F-4-163

3) Release the harness from the harness guide and remove the 2 harness guides.



F-4-164

4) Remove the motor connector and the tension spring. Remove the 2 screws and then remove the feed motor.

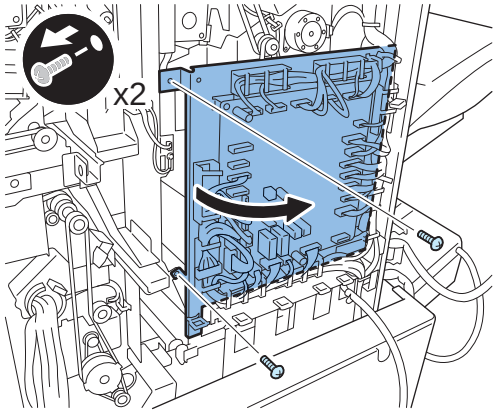


F-4-165

## Removing the Stack Delivery Upper Motor (M104)

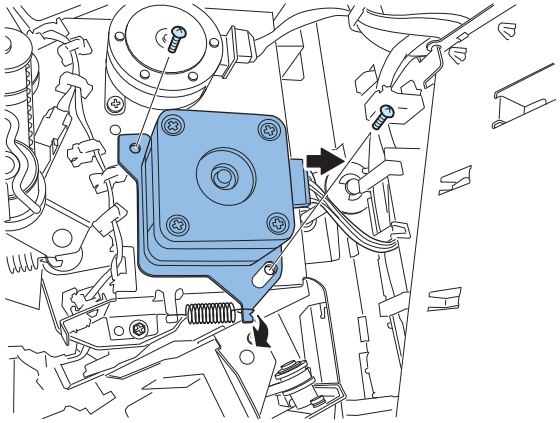
1) Remove the rear cover (upper).
(Refer to page 4-19)

2) Open the finisher controller PCB mount.




F-4-166

3) Remove the motor connector and the tension spring. Remove the 2 screws and then remove the stack delivery upper motor.

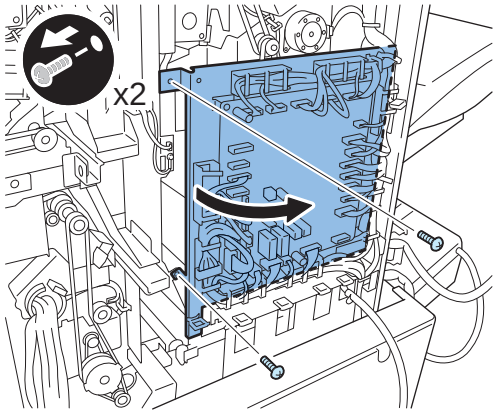


F-4-167

## Removing the Stack Delivery Lower/Shutter Motor (M122)

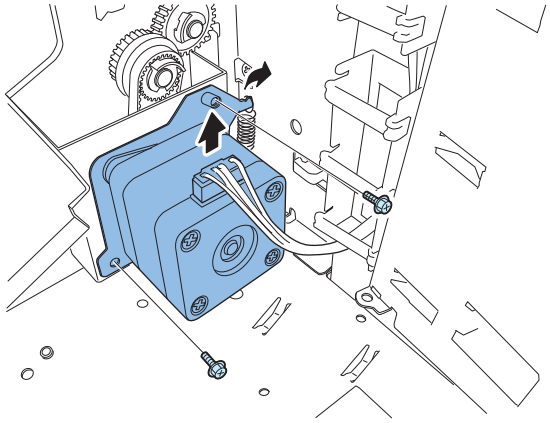
1) Remove the rear cover (upper).
(Refer to page 4-19)

2) Open the finisher controller PCB mount.




F-4-168

3) Remove the motor connector and the tension spring. Remove the 2 screws and then remove the stack delivery lower/shutter motor.

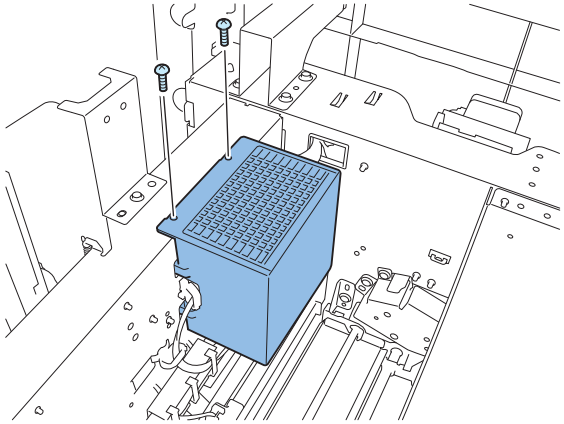


F-4-169

# Removing the Swing Guide Motor (M110)

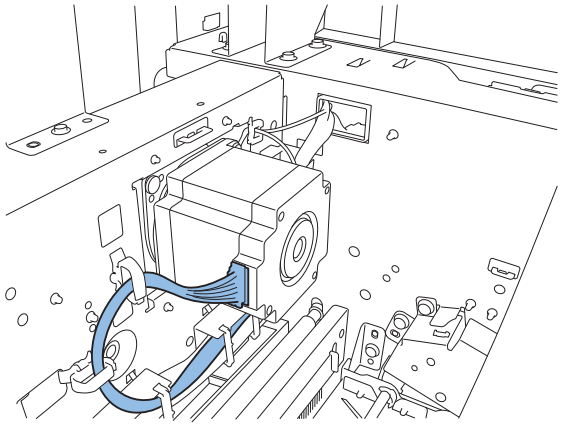
1) Remove the grated-shaped upper guide. (Refer to page 4-23)
2) Remove the upper cover. (Refer to page 4-18)

3) Remove the 2 screws and remove the motor cover.



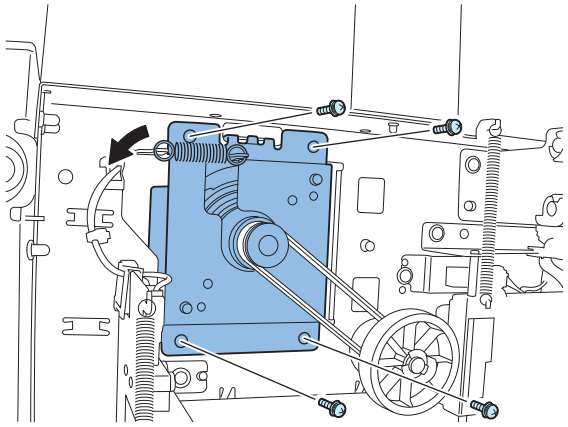
F-4-170

4) Disconnect the motor connector.



F-4-171

5) Remove the tension spring and the 4 screws, and then remove the swing guide motor.



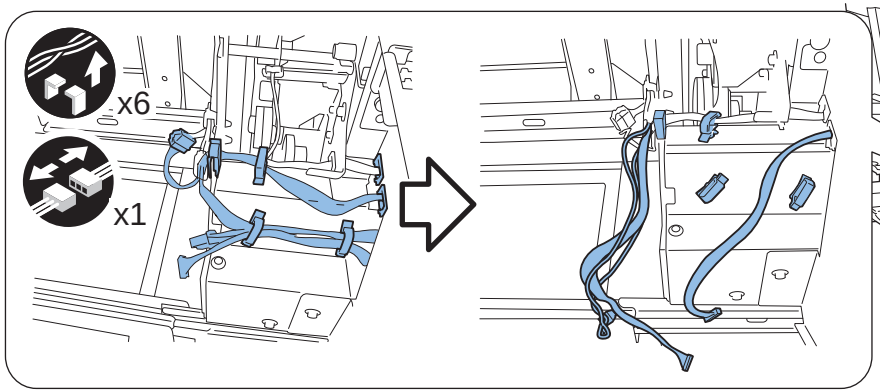
F-4-172

# Other Parts

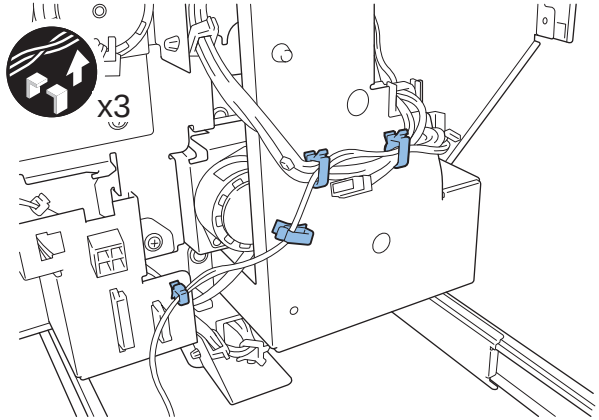
## Removing the Alignment Roller

1) Remove the saddle cover.
(Refer to page 4-22)
2) Pull out the saddle unit to the service position.
(Refer to page 4-32)

3) Disconnect the connector and release the harness from the wire saddle on the rear of the saddle unit.

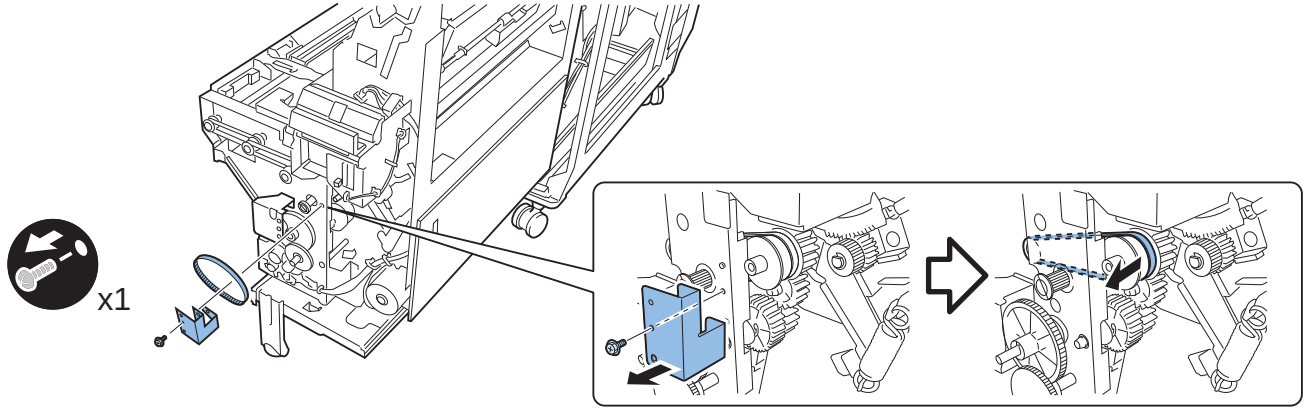



F-4-173



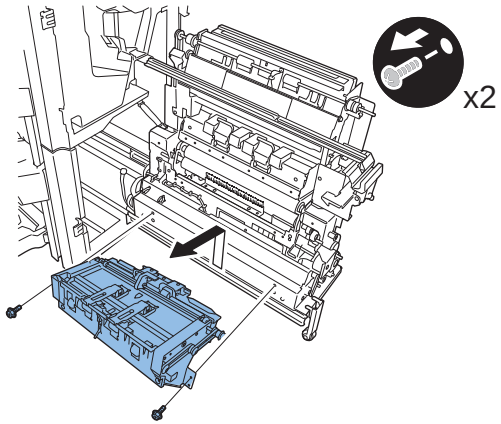

F-4-174

4) Remove the screw and take out the support plate. Slide the pulley and remove the belt.



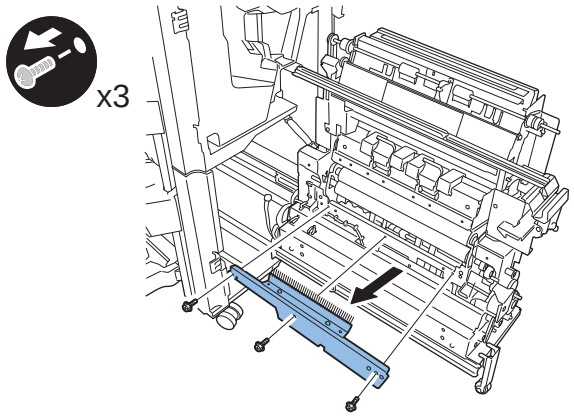

F-4-175

5) Remove the 2 screws and remove the transport unit.



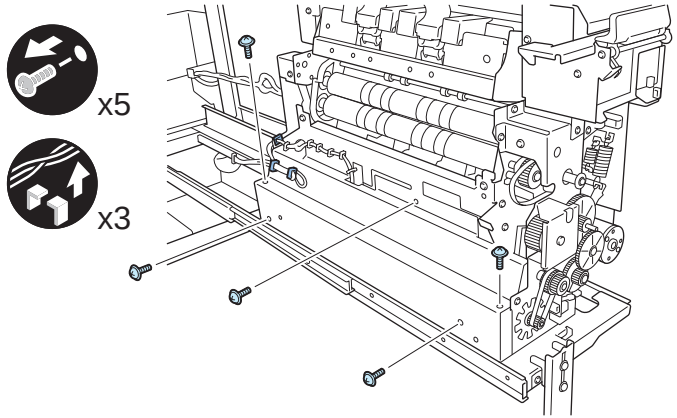

F-4-176

6) Remove the 3 screws and remove the static eliminator unit.



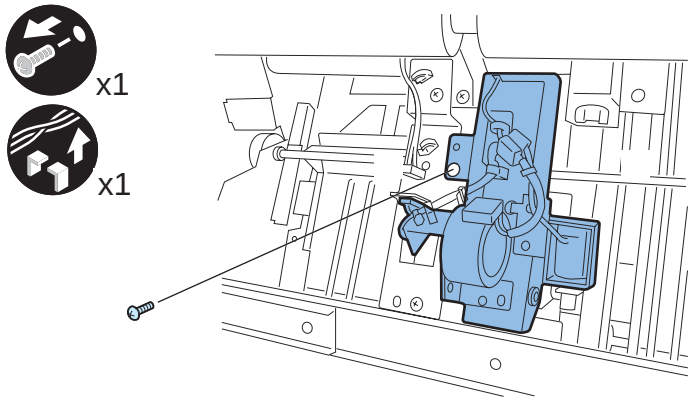

F-4-177

7) Release the harness from the wire saddle. Remove the 5 screws and remove the transport cover.



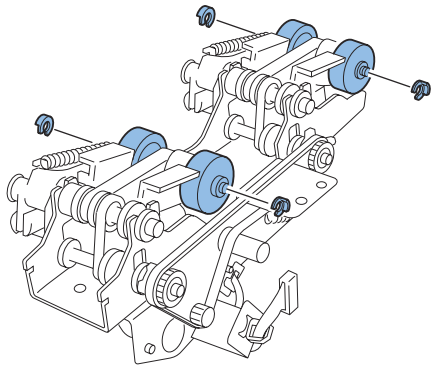

F-4-178

8) Remove the screw and connector, and then take out the alignment roller unit.




F-4-179

9) Remove the clips and then remove the alignment rollers.

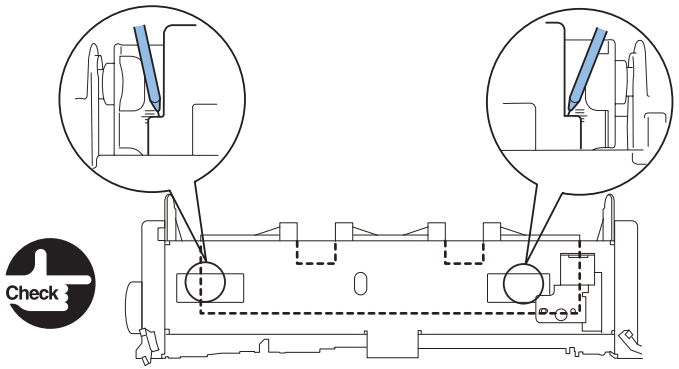


F-4-180

## Removing the Thrust Plate

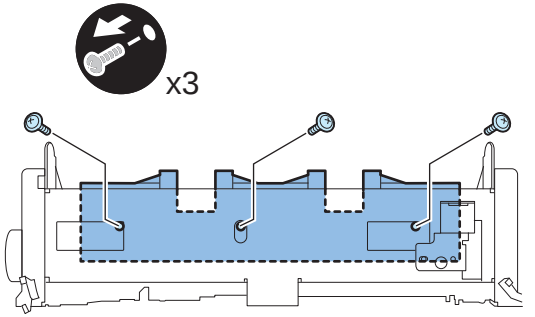
1) Remove the thrust unit.
(Refer to page 4-37)

2) Put marks on the retaining position of the thrust plate.




F-4-181

3) Remove the thrust plate.




F-4-182

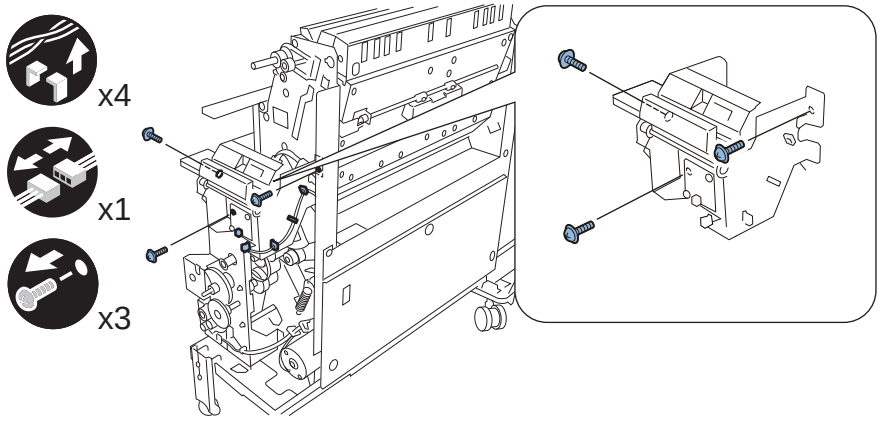
Caution:

When the thrust plate is installed, align it to the lines marked in the step 2) and fix it.

## Removing the Folding Rollers (Upper)/(Lower)

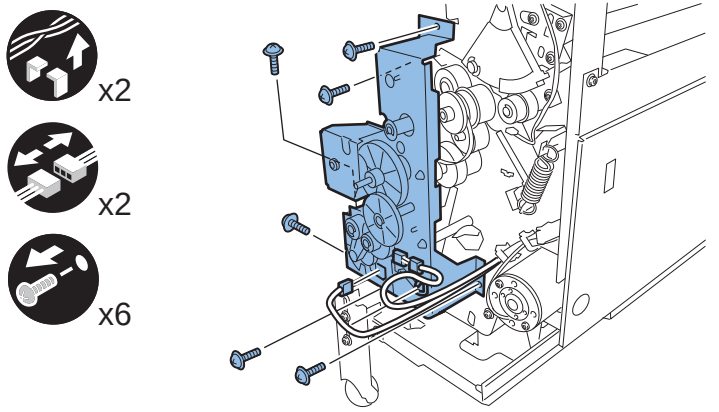
1) Remove the saddle cover. (Refer to page 4-22)
2) Remove the alignment roller. (Refer to page 4-71)

3) Release the harness from the wire saddles and disconnect the connector. Remove the 3 screws and then remove the saddle handle unit.



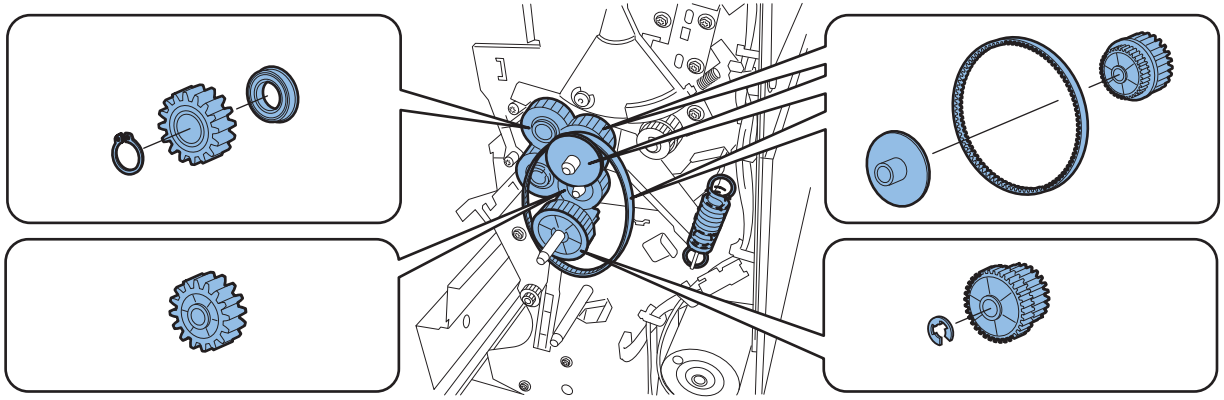

F-4-183

4) Release the harness from the wire saddle and disconnect the 2 connectors. Remove the 6 screws and then remove the unit fixing base (front) unit.



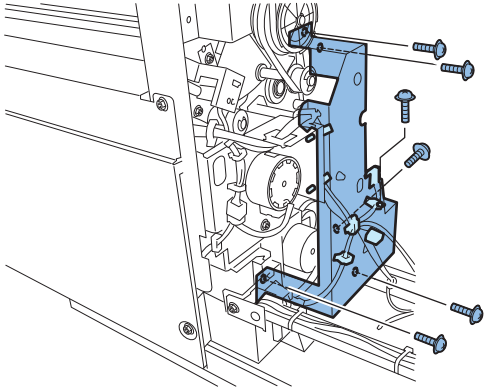

F-4-184

5) Remove the pulleys, belt, gears, E ring and spring.
6) Remove the C ring, gear, bearing and then the pressure plate (upper) in the front side.



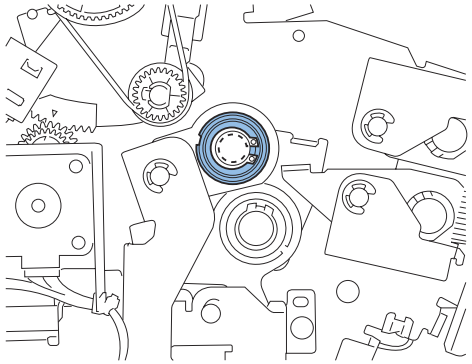
F-4-185

7) Release the harness from the wire saddles and edge saddles in the rear side. Remove the 6 screws and remove the unit fixing base (rear).

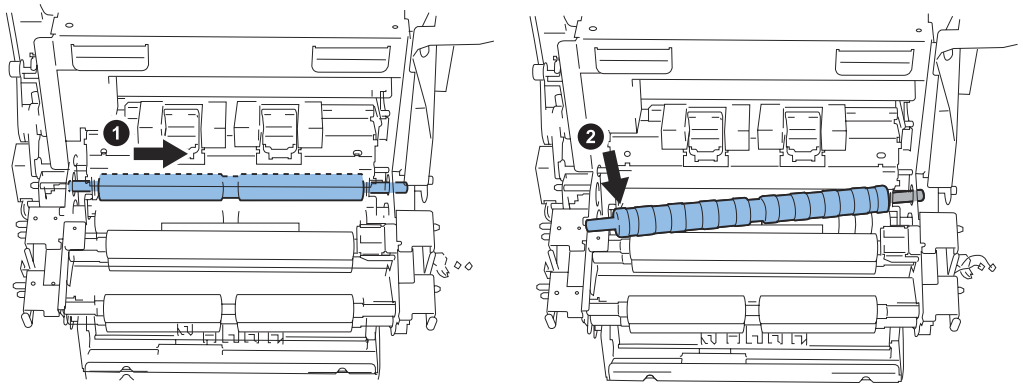
F-4-186

8) Remove the C ring, spacer and bearing.



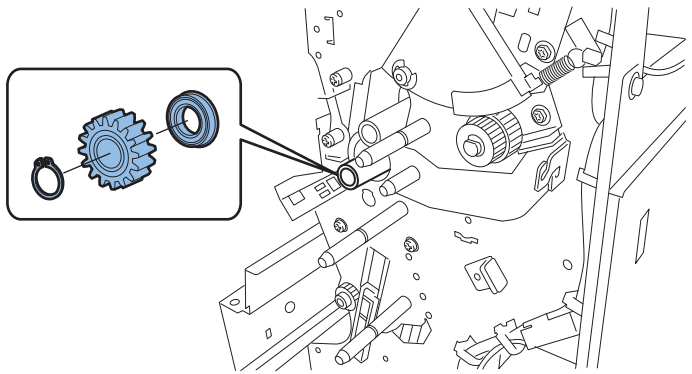
F-4-187

9) Slide the folding roller (upper) and then remove it.



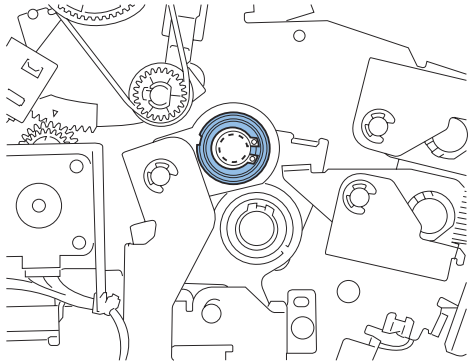

F-4-188

10) Remove the C ring, gear, bearing and then the pressure plate (lower) in the front side.



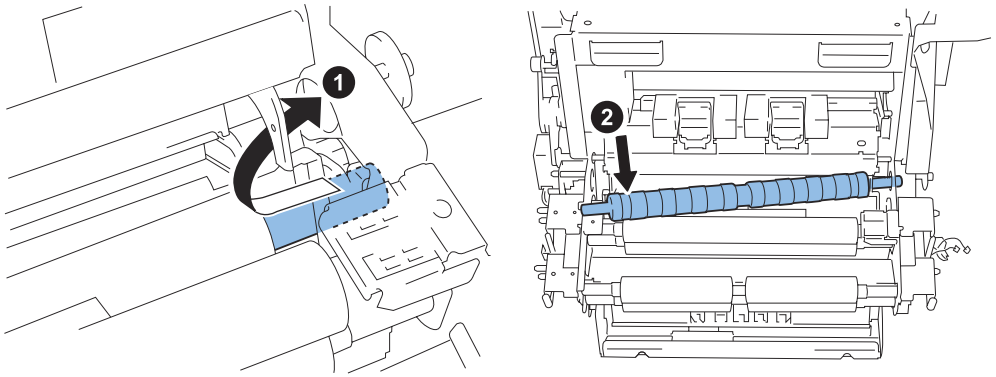
F-4-189

11) Remove the C ring, spacer and bearing.



F-4-190

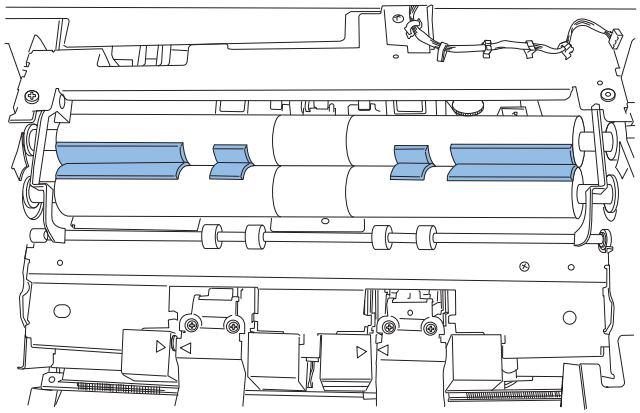
12) Slide the folding roller (lower) to the allow direction and remove it.




F-4-191

Caution:

Make sure that the each convex part of the folding roller (upper) and folding roller (lower) match when attaching the roller.



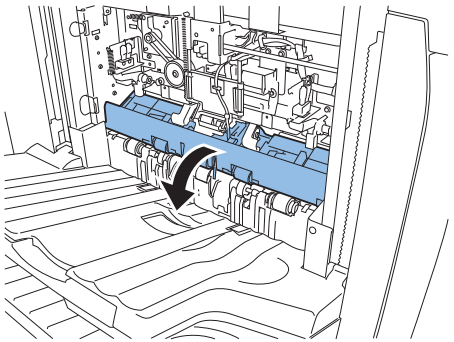
F-4-192

# Switches

## Removing the Staple Safety Switch (Front/Rear) (SW102/SW104)

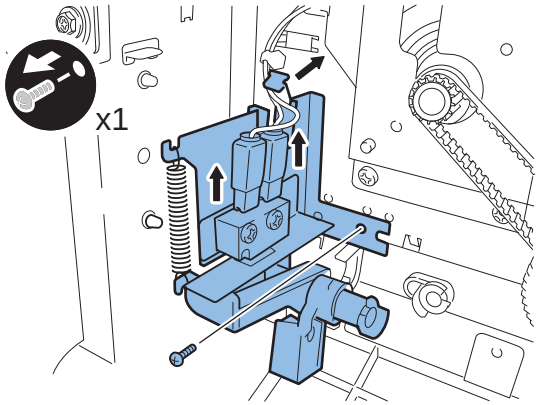
1) Remove the grate-shaped upper guide. (Refer to page 4-23)

2) Lower the swing guide.



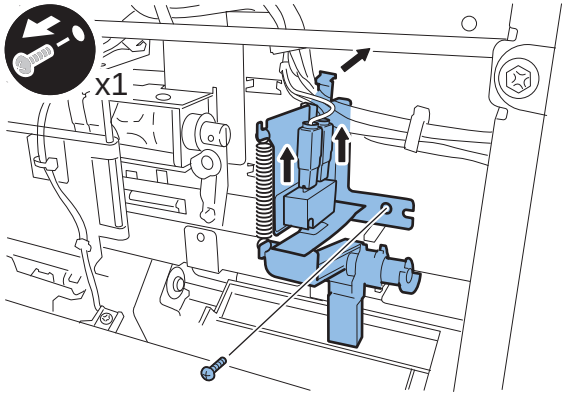
F-4-193

3) Open the wire saddle to release the harness and disconnect the 2 connector, then remove the staple safety switch (front).




F-4-194

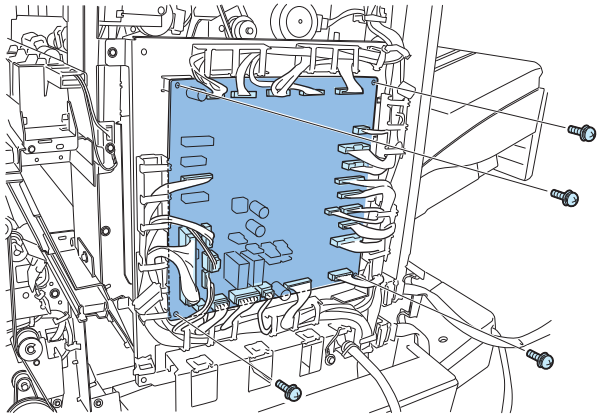
4) Open the wire saddle to release the harness and disconnect the 2 connector, then remove the staple safety switch (rear).




F-4-195

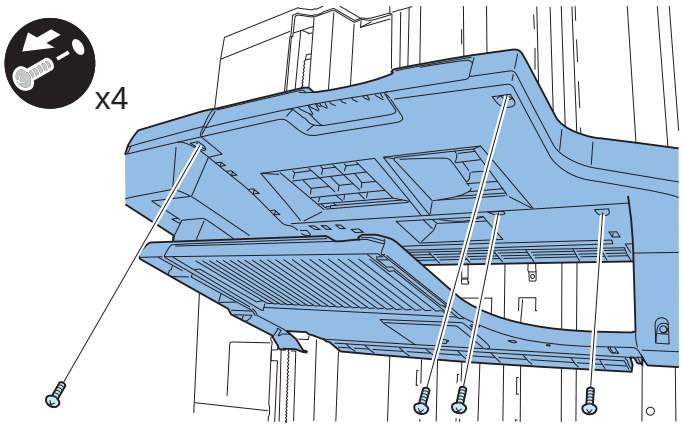
# PCBs

## Removing the Finisher Controller PCB

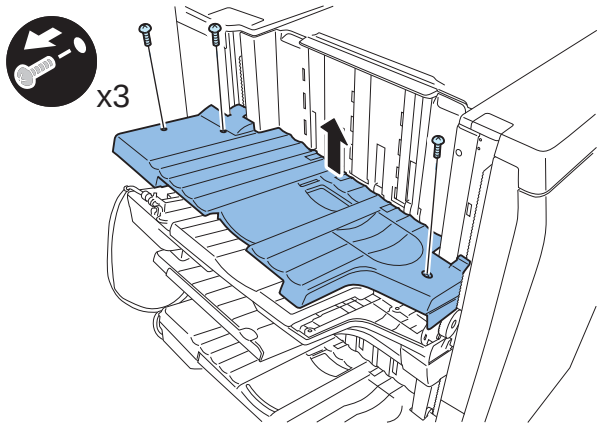
| | |
|---|---|
| 1) Remove the rear cover (upper). (Refer to page 4-19) | 2) Disconnect the connectors and remove the 4 screws, and then remove the finisher controller PCB.  F-4-196 |

## Removing the Tray 1 Motor Driver PCB

1) Remove the 7 screws and remove the tray 1 upper cover.

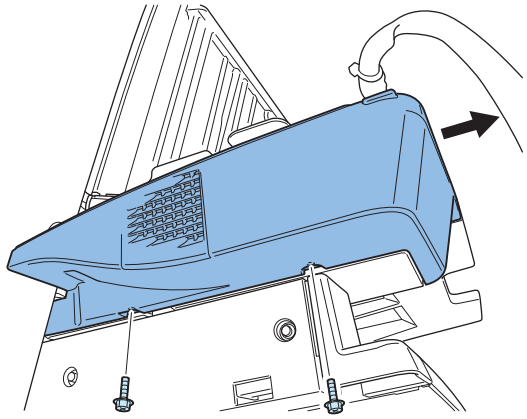



F-4-197



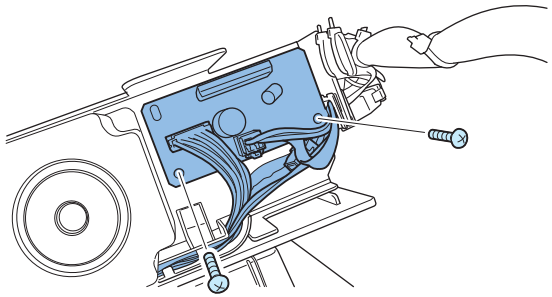

F-4-198

2) Remove the 2 screws and remove the tray motor cover.



F-4-199

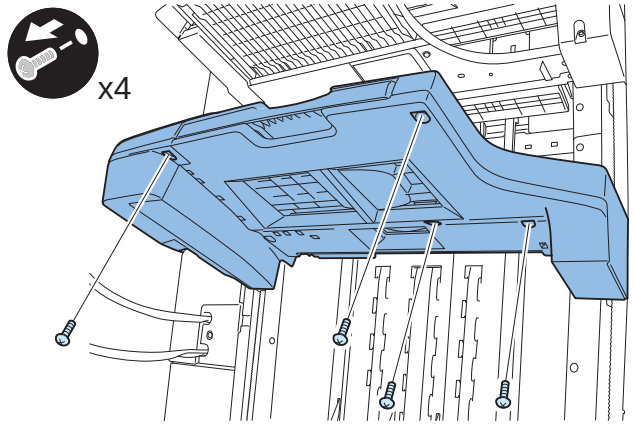
3) Remove the 3 connectors and 2 screws, and then remove the tray 1 motor driver PCB.



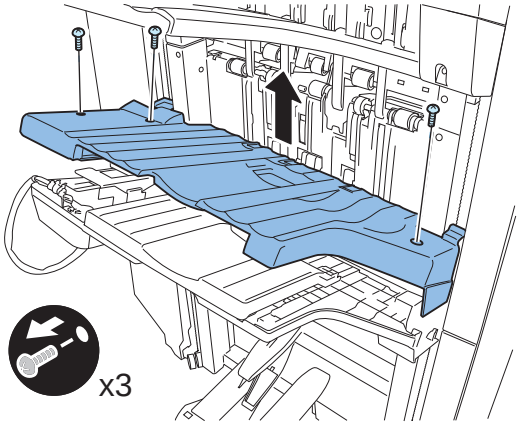
F-4-200

## Removing the Tray 2 Motor Driver PCB

1) Remove the 7 screws and remove the tray 2 upper cover.

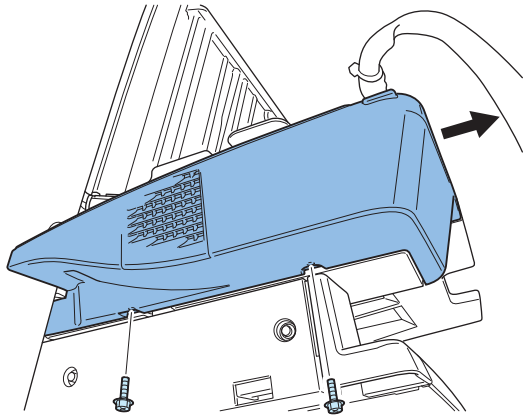



F-4-201



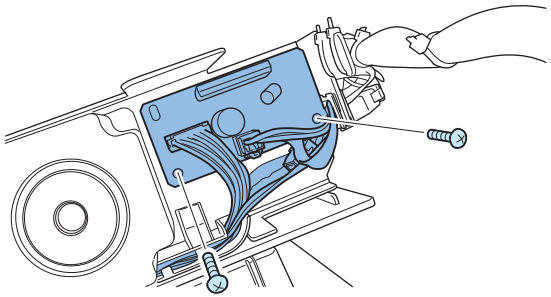

F-4-202

2) Remove the 2 screws and remove the tray motor cover.



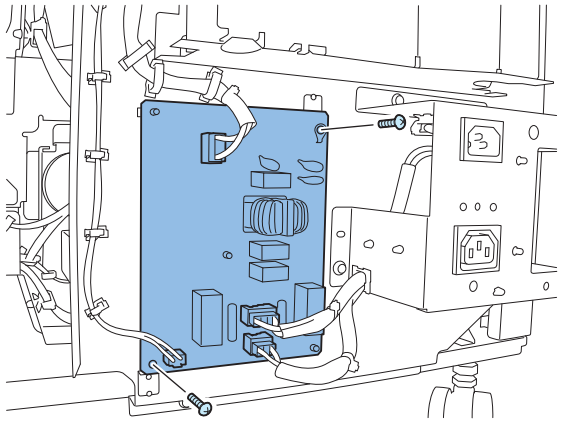
F-4-203

3) Remove the 3 connectors and 2 screws, and then remove the tray 2 motor driver PCB.

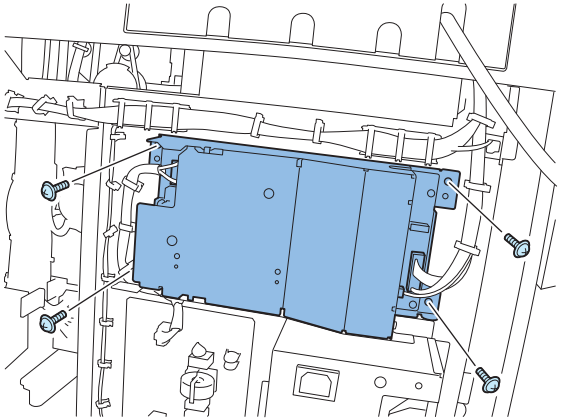


F-4-204

## Removing the AC Noise Filter PCB

| | |
|---|---|
| 1) Remove the rear cover (lower). (Refer to page 4-19) | 2) Disconnect the 4 connectors and remove the 2 screws, and then remove the AC noise filter PCB.  F-4-205 |

## Removing the Power Supply Unit

| | |
|---|---|
| 1) Remove the rear cover (lower). (Refer to page 4-19) | 2) Disconnect the 3 connectors and remove the 4 screws, and then remove the power supply unit.  F-4-206 |

# 5

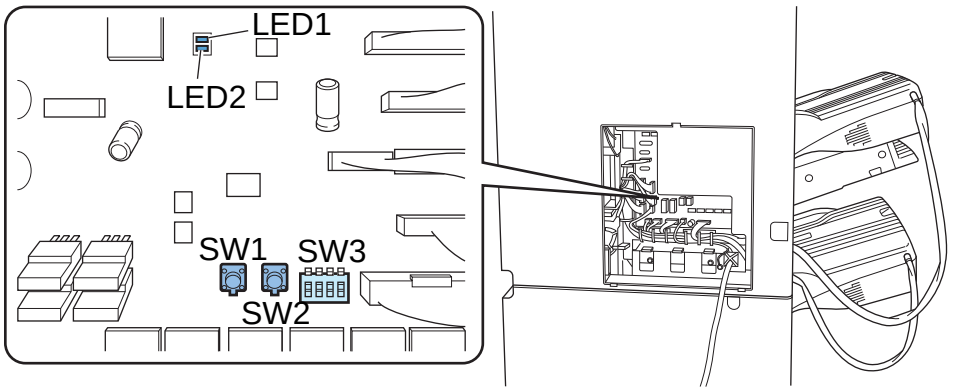
# Adjustment

- Overview
- Basic Adjustment
- Action on parts replacement

# Overview

## Overview

You can perform the service mode adjustments using the SW1 (push switch), SW2 (push switch), SW3 (DIP switch), LED1, an LED2 on the finisher controller PCB.




F-5-1

## Detail Description

After turning on finisher with all SW3 keys set to OFF, select a service mode adjustment item by setting the SW3 keys to ON/OFF, and then press the SW1 continuously for two seconds to start the selected service mode adjustment. To exit from the service mode, press the SW1 or SW2 continuously for two seconds.
When not in the service mode, the LED1 blinks at intervals of 0.5 second.
When in the service mode, the LEDs illuminate as discussed later.

## Major Adjustments

Adjustments to be made to improve the stacked paper alignment performance are listed below.

| Machine Block | Adjustment Item | Refer to |
|---|---|---|
| Puncher Unit | Paper Bump Amount Adjustment at the high-accuracy punch mode | Refer to page 5-3 |
| Processing Tray Unit (when stacking the buffered paper to the processing tray unit.) | Paper Return Roller Descension Timing Adjustment | Refer to page 5-4 |
| | Stack Delivery Upper Roller Ascension Timing Adjustment | Refer to page 5-5 |
| | Paper Switchback Position Adjustment | Refer to page 5-6 |
| | Paper Return Roller Ascension (Angle) Amount Adjustment | Refer to page 5-7 |
| | Buffer Operation Enable/Disable Mode Setting | Refer to page 5-8 |

T-5-1

# Basic Adjustment

## Paper Bump Amount Adjustment at the high-accuracy punch mode

- Overview
  Adjustment of the amount of bump of the paper against the stopper at the high-accuracy punch mode.

- Purpose of Adjustment
  To correct the skew of the punch hole position.

- How to enter the adjustment mode

(1) Turn on the power with all SW3 keys set to OFF.

(2) Set the SW3 keys as shown below and press the SW1 continuously for two seconds.


F-5-2

Adjustment Method

(1) The LED1 and LED2 indicate the current adjustment value.

(2) Pressing the SW1 reduces the value by 1 mm.

Pressing the SW2 increases the value by 1 mm.

(3) The LED1 and LED2 light for 0.5 second. (The adjustment result has been accepted.)

(4) The LED1 and LED2 indicate the new adjustment value.

Repeat steps (2) to (4) until the desired adjustment value is displayed.

(5) Pressing the SW1 continuously for two seconds writes the new adjusment value to the EEPROM.

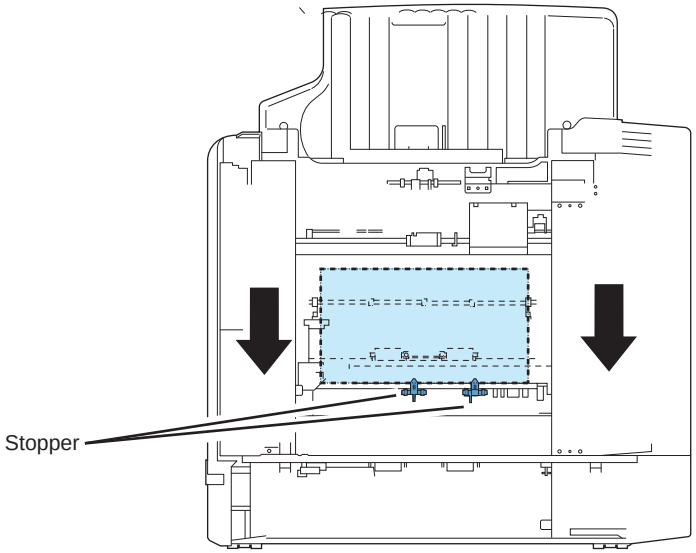
Pressing the SW2 continuously for two seconds cancels the new adjustment value.

(Be sure to cancel the new adjustment value before writing it to the EEPROM.)

(6) The LED2 goes out and the LED1 blinks at intervals of 0.5 seconds.

(7) Set all SW3 keys set to OFF.

- Adjustment Range
  The bump amount can be adjusted in the 2 mm to 4 mm range. [Default: 2 mm]




F-5-3

- Display of Adjustment Value
  - The numbers of times the LED1 and LED2 blink indicate the adjustment value assuming that the LED1 stands for a tens digit and the LED2 stands for a units digit. Each LED blinks at intervals of 300 ms.
  (If the LED1 blinks 0 time and the LED2 blinks 2 times, the adjustment value is 2 mm (= 10 x 0 + 1 x 2). )
  - Each LED stays lit for two seconds to indicate 0 (zero).

Example: Display of the adjustment value “2 mm”

| | Turn* | LED1 | LED2 | Remarks |
|---|---|---|---|---|
| Tens digit | 1 | ●(Stays lit for 2 seconds) | ○ | LED1 stays lit (2 seconds) |
| | 2 | ○ | ○ | LED1/LED2 stays unlit. (1 second) |
| Units digit | 3 | ○ | *(Blinks 2 times) | Blinking interval: 300 ms. |
| | 4 | ○ | ○ | LED1/LED2 stays unlit. (1 second) |

T-5-2

○= Stays unlit, ●= Stays lit, *= Blinking

*: It repeats from the turn 1 to 4 during the adjustment value indication.

# Paper Return Roller Descension Timing Adjustment

- Overview

  Adjustment of the paper return roller decension timing when stacking the buffered paper (A4/LTR/B5, 2 or 3 sheaves of paper) to the processing tray unit.

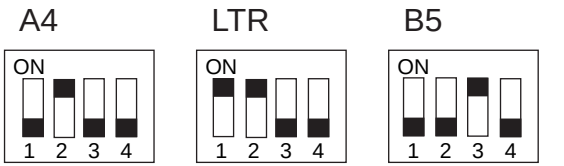
- Purpose of Adjustment

  To correct the paper alignment at the sort and staple sort mode.

- How to enter the adjustment mode

(1) Turn on the power with all SW3 keys set to OFF.

(2) Set the SW3 keys as shown below and press the SW1 continuously for two seconds.




F-5-4 F-5-5 F-5-6

- Adjustment Method

(1) The LED1 and LED2 indicate the current adjustment value.

(2) Pressing the SW1 reduces the value by 1 ms.

Pressing the SW2 increases the value by 1 ms.

(3) The LED1 and LED2 light for 500 ms.

(4) The LED1 and LED2 indicate the new adjustment value.

Repeat steps (2) to (4) until the desired adjustment value is displayed.

(5) Pressing the SW1 continuously for two seconds writes the new adjustment value to the EEPROM.

Pressing the SW2 continuously for two seconds cancels the new adjustment value.

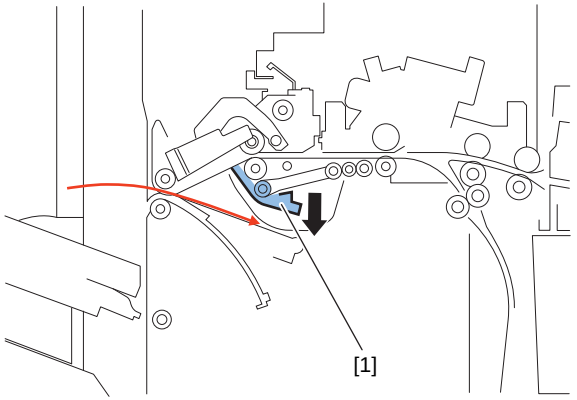
(Be sure to cancel the new adjustment value before writing it to the EEPROM.)

(6) The LED2 goes out and the LED1 blinks at intervals of 0.5 seconds.

(7) Set all SW3 keys set to OFF.

- Adjustment Range

  The paper return roller [1] descension timing can be delayed up to 50 ms. (It delays the decension timing of the paper return roller.) [Default: 0 ms]




F-5-7

- Display of Adjustment Value

  - The numbers of times the LED1 and LED2 blink indicate the adjustment value assuming that the LED1 stands for a tens digit and the LED2 stands for a units digit. Each LED blinks at intervals of 300 ms.(If the LED1 blinks 2 time and the LED2 blinks 4 times, the adjustment value is 24 ms (= 10 x 2 + 1 x 4). )
  - Each LED stays lit for two seconds to indicate 0 (zero).

Example: Display of the adjustment value “24 ms”

| | Turn* | LED1 | LED2 | Remarks |
|---|---|---|---|---|
| Tens digit | 1 | (Blinks 2 times) | ○ | Blinking interval: 300 ms. |
| | 2 | ○ | ○ | LED1/LED2 stays unlit. (1 second) |
| Units digit | 3 | ○ | (Blinks 4 times) | Blinking interval: 300 ms. |
| | 4 | ○ | ○ | LED1/LED2 stays unlit. (1 second) |

○= Stays unlit, ●= Stays lit, *= Blinking T-5-3

*: It repeats from the turn 1 to 4 during the adjustment value indication.

## Stack Delivery Upper Roller Ascension Timing Adjustment

- Overview

  Adjustment of the stack delivery upper roller ascension timing when stacking the buffered paper (A4/LTR/B5, 2 or 3 sheaves of paper) to the processing tray unit.

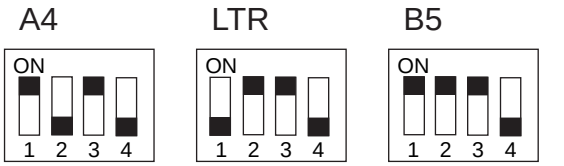
- Purpose of Adjustment

  To correct the paper alignment at the sort and staple sort mode.

- How to enter the adjustment mode

(1) Turn on the power with all SW3 keys set to OFF.

(2) Set the SW3 keys as shown below and press the SW1 continuously for two seconds.




F-5-8 F-5-9 F-5-10

Adjustment Method

(1) The LED1 and LED2 indicate the current adjustment value.

(2) Pressing the SW1 reduces the value by 1 ms.

Pressing the SW2 increases the value by 1 ms.

(3) The LED1 and LED2 light for 500 ms.

(4) The LED1 and LED2 indicate the new adjustment value.

Repeat steps (2) to (4) until the desired adjustment value is displayed.

(5) Pressing the SW1 continuously for two seconds writes the new adjustment value to the EEPROM.

Pressing the SW2 continuously for two seconds cancels the new adjustment value.

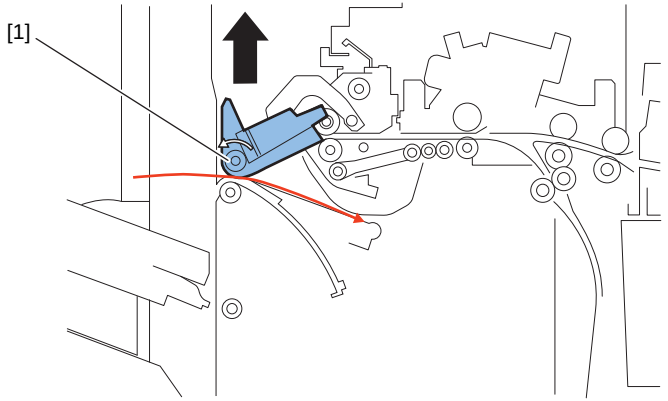
(Be sure to cancel the new adjustment value before writing it to the EEPROM.)

(6) The LED2 goes out and the LED1 blinks at intervals of 0.5 seconds.

(7) Set all SW3 keys set to OFF.

- Adjustment Range

  The stack delivery upper roller[1] ascension timing can be increased up to 50 ms. (It hastens the ascension timing of the swing guide.) [Default: 0 ms]




F-5-11

- Display of Adjustment Value

  - The numbers of times the LED1 and LED2 blink indicate the adjustment value assuming that the LED1 stands for a tens digit and the LED2 stands for a units digit. Each LED blinks at intervals of 300 ms.

  (If the LED1 blinks 2 time and the LED2 blinks 4 times, the adjustment value is 24 ms (= 10 x 2 + 1 x 4). )

  - Each LED stays lit for two seconds to indicate 0 (zero).

Example: Display of the adjustment value “24 ms”

| | Turn* | LED1 | LED2 | Remarks |
|---|---|---|---|---|
| Tens digit | 1 | *(Blinks 2 times) | ○ | Blinking interval: 300 ms. |
| | 2 | ○ | ○ | LED1/LED2 stays unlit. (1 second) |
| Units digit | 3 | ○ | *(Blinks 4 times) | Blinking interval: 300 ms. |
| | 4 | ○ | ○ | LED1/LED2 stays unlit. (1 second) |

○= Stays unlit, ●= Stays lit, *= Blinking T-5-4

*: It repeats from the turn 1 to 4 during the adjustment value indication.

# Paper Switchback Position Adjustment

- Overview

  Adjustment of the paper switchback position (stack delivery upper roller stop timing) when stacking the buffered paper (A4/LTR/B5, 2 or 3 sheaves of paper) to the processing tray unit.

- Purpose of Adjustment

  To correct the paper alignment at the sort and staple sort mode.

- How to enter the adjustment mode

(1) Turn on the power with all SW3 keys set to OFF.

(2) Set the SW3 keys as shown below and press the SW1 continuously for two seconds.


F-5-12

- Adjustment Method

(1) The LED1 and LED2 indicate the current adjustment value.

(2) Pressing the SW1 reduces the value by 1 mm.

Pressing the SW2 increases the value by 1 mm.

(3) The LED1 and LED2 light for 500 ms.

(4) The LED1 and LED2 indicate the new adjustment value.

Repeat steps (2) to (4) until the desired adjustment value is displayed.

(5) Pressing the SW1 continuously for two seconds writes the new adjustment value to the EEPROM.

Pressing the SW2 continuously for two seconds cancels the new adjustment value.

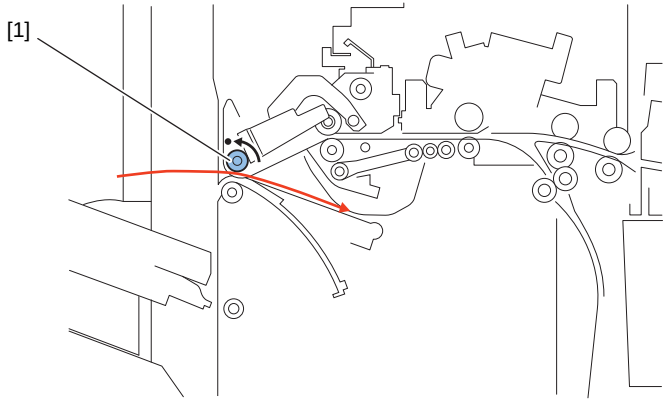
(Be sure to cancel the new adjustment value before writing it to the EEPROM.)

(6) The LED2 goes out and the LED1 blinks at intervals of 0.5 seconds.

(7) Set all SW3 keys set to OFF.

- Adjustment Range

The stack delivery upper roller[1] stop timing can be made 0-50 mm earlier. (It hastens the switchback position of the buffered paper.) [Default: 0 mm]




F-5-13

- Display of Adjustment Value

- The numbers of times the LED1 and LED2 blink indicate the adjustment value assuming that the LED1 stands for a tens digit and the LED2 stands for a units digit. Each LED blinks at intervals of 300 ms.

(If the LED1 blinks 1 time and the LED2 blinks 5 times, the adjustment value is 15mm (= 10 x 1 + 1 x 5). )

- Each LED stays lit for two seconds to indicate 0 (zero).

Example: Display of the adjustment value “15 mm”

| | Turn* | LED1 | LED2 | Remarks |
|---|---|---|---|---|
| Tens digit | 1 | *(Blinks 1 time) | ○ | Blinking interval: 300 ms. |
| | 2 | ○ | ○ | LED1/LED2 stays unlit. (1 second) |
| Units digit | 3 | ○ | *(Blinks 5 times) | Blinking interval: 300 ms. |
| | 4 | ○ | ○ | LED1/LED2 stays unlit. (1 second) |

○= Stays unlit, ●= Stays lit, *= Blinking

T-5-5

*: It repeats from the turn 1 to 4 during the adjustment value indication.

# Paper Return Roller Ascension (Angle) Amount Adjustment

- Overview

  Adjustment of the paper return roller ascension (angle) amount when stacking the bufferd paper (A4/LTR/B5, 2 or 3 sheaves of paper) to the processing tray unit.

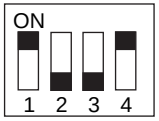
- Purpose of Adjustment

  To correct the paper alignment at the sort and staple sort mode.

- How to enter the adjustment mode

(1) Turn on the power with all SW3 keys set to OFF.

(2) Set the SW3 keys as shown below and press the SW1 continuously for two seconds.




- Adjustment Method

(1) The LED1 and LED2 indicate the current adjustment value.

(2) Pressing the SW1 reduces the value by 1°.

Pressing the SW2 increases the value by 1°.

(3) The LED1 and LED2 light for 500 ms.

(4) The LED1 and LED2 indicate the new adjustment value.

Repeat steps (2) to (4) until the desired adjustment value is displayed.

(5) Pressing the SW1 continuously for two seconds writes the new adjustment value to the EEPROM.

Pressing the SW2 continuously for two seconds cancels the new adjustment value.

(Be sure to cancel the new adjustment value before writing it to the EEPROM.)

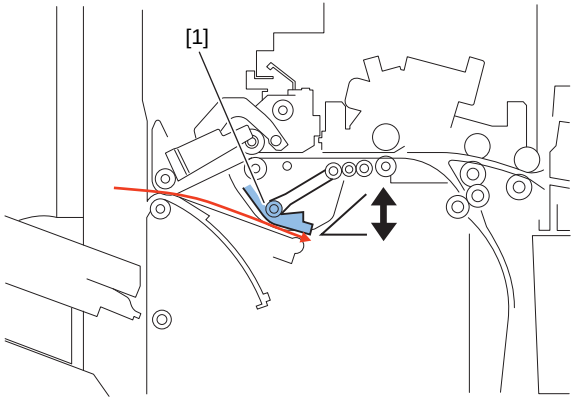
(6) The LED2 goes out and the LED1 blinks at intervals of 0.5 seconds.

(7) Set all SW3 keys set to OFF.

- Adjustment Range

  The paper return roller[1] acceptance angle can be adjusted in the 1° to 44° range.

  [Default: 22°]




F-5-14

- Display of Adjustment Value

  - The numbers of times the LED1 and LED2 blink indicate the adjustment value assuming that the LED1 stands for a tens digit and the LED2 stands for a units digit. Each LED blinks at intervals of 300 ms.

  (If the LED1 blinks 2 time and the LED2 blinks 2 times, the adjustment value is 22° (= 10 x 2 + 1 x 2). )

  - Each LED stays lit for two seconds to indicate 0 (zero).

Example: Display of the adjustment value “22°”

| | Turn* | LED1 | LED2 | Remarks |
|---|---|---|---|---|
| Tens digit | 1 | *(Blinks 2 times) | ○ | Blinking interval: 300 ms. |
| | 2 | ○ | ○ | LED1/LED2 stays unlit. (1 second) |
| Units digit | 3 | ○ | *(Blinks 2 times) | Blinking interval: 300 ms. |
| | 4 | ○ | ○ | LED1/LED2 stays unlit. (1 second) |

○= Stays unlit, ●= Stays lit, *= Blinking

T-5-6

*: It repeats from the turn 1 to 4 during the adjustment value indication.

## Buffer Operation Enable/Disable Mode Setting

- Overview
  Enabling/disabling buffer operation

- Purpose of Adjustment
  - When placing the importance to the productivity: Enabling buffer position
  - When placing the importance to the performance: Disabling buffer position

- How to enter the adjustment mode

(1) Turn on the power with all SW3 keys set to OFF.

(2) Set the SW3 keys as shown below and press the SW1 continuously for two seconds.


F-5-15

- Setting Method

(1) The LED1 and LED2 indicate the current setting value.

(2) To enable buffer operation, press the SW1.

To disable buffer operation, press the SW2.

(3) The LED1 and LED2 light for 500 ms.

(4) The LED1 and LED2 indicate the new setting value.

(5) Pressing the SW1 continuously for two seconds writes the new setting value to the EEPROM.

Pressing the SW2 continuously for two seconds cancels the new setting value.

(Be sure to cancel the new setting value before writing it to the EEPROM.)

(6) The LED2 goes out and the LED1 blinks at intervals of 0.5 seconds.

(7) Set all SW3 keys set to OFF.

- Setting Range
  1 = Enable, 2 = Disable (Default:1 (Enable))
  When buffer operation is enabled, 0 is written to the EEPROM. When buffer operation is disabled, 1 is written to the EEPROM.

- Display of Setting Value
  - The numbers of times the LED1 and LED2 blink indicate the setting value assuming that the LED1 stands for a tens digit and the LED2 stands for a units digit. Each LED blinks at intervals of 300 ms.
  (If the LED1 blinks 0 time and the LED2 blinks 1 time, the setting value is 1 (= 10 x 0 + 1 x 1)(Enable). )
  - Each LED stays lit for two seconds to indicate 0 (zero).

Example: Display of the setting value “1” (Enable)

| | Turn* | LED1 | LED2 | Remarks |
|---|---|---|---|---|
| Tens digit | 1 | ● (Stays lit for 2 seconds) | ○ | LED1 stays lit (2 seconds) |
| | 2 | ○ | ○ | LED1/LED2 stays unlit. (1 second) |
| Units digit | 3 | ○ | *(Blinks 1 times) | Blinking interval: 300 ms. |
| | 4 | ○ | ○ | LED1/LED2 stays unlit. (1 second) |

○= Stays unlit, ●= Stays lit, *= Blinking

T-5-7

*: It repeats from the turn 1 to 4 during the adjustment value indication.

# Action on parts replacement

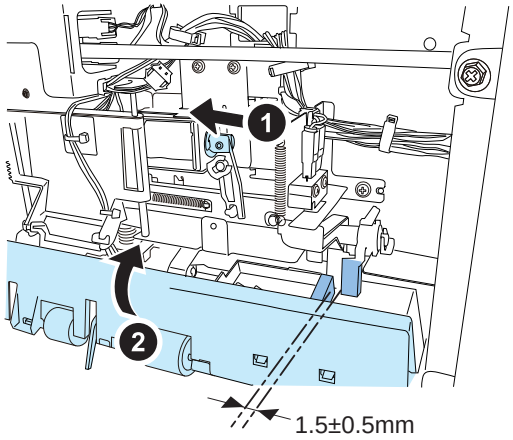
## Checking the position attached the Swing Guide Unit

CAUTION:

When attaching the swing guide unit, swing guide upper cover and swing guide open solenoid (SL101), check the gap between the swing guide upper cover and the arm of the staple safety switch.

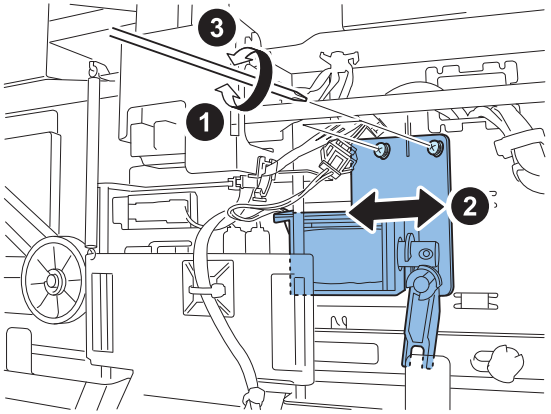
1) Raise the swing guide unit while pushing the plunger of the swing guide solenoid, and then check that the gap between the swing guide upper cover and the arm of the staple safety switch is within 1.5±0.5mm.

   If the gap is outside the standard, adjust according to the following steps 2) to 3).




F-5-16

2) Loosen two screws and shift the position of the swing guide open solenoid to adjust the position of the staple safety switch's arm. Then, tighten two screws.




F-5-17

3) Check whether the gap between the swing guide upper cover and the arm of the staple safety switch is within 1.5±0.5mm. If the gap is outside the standard, adjust again.

CAUTION:

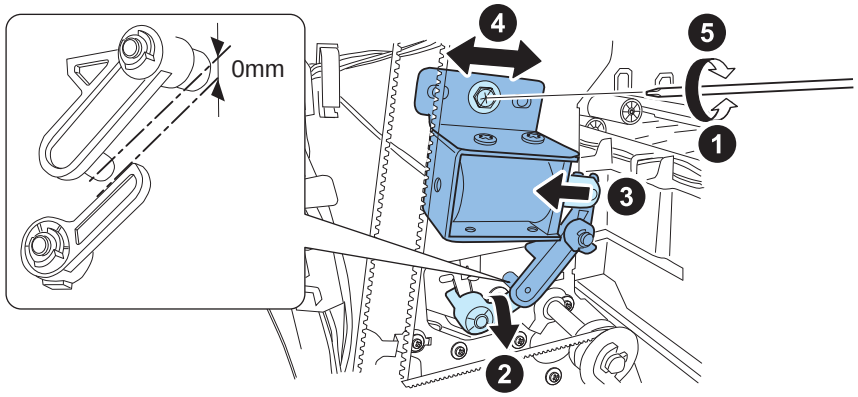
If the gap between the swing guide upper cover and the arm of the staple safety switch is outside the standard, it might defective movement.

## Adjusting the position attached the Saddle Inlet Flapper Solenoid (SL206)

CAUTION:

When attaching the saddle inlet flapper solenoid (SL206), adjust the position attached the solenoid.

1) Loosen the screw.
2) Lower the arm of the saddle inlet flapper until it stops. Then, shift the position of the solenoid so that the arm bumps against the link when pushing the plunger of the solenoid.
3) Tighten the screw.



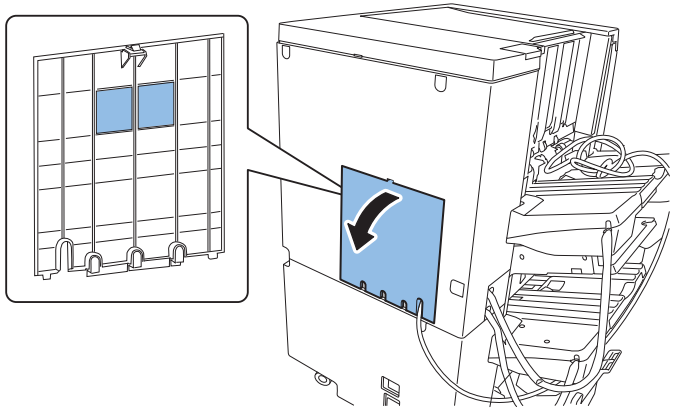

F-5-18

## Note on replacing the finisher controller PCB

1) Before replacing the finisher controller PCB, store the adjustment values and the counter of the consumable parts to the host machine.
2) After replacing the finisher controller PCB, write the stored data to the new finisher controller PCB by the service mode of the host machine.

(Refer to the service manual for the host machine as to the datail.)

If the adjustment values cannot store to the host machine, enter the values on the service label that attached to the PCB cover by the service mode after replacing the finisher controller PCB. However, in this case, the counter cannot enter.



F-5-19

# 6

# Installation

- How to Utilize This Installation Procedure
- Checking Before Installation
- Unpacking and Checking the Contents
- Installation Procedure
- Making Adjustments
- Operation Check
- Machine Relocation Work

F-6-1

# How to Utilize This Installation Procedure

## Illustrations Used in This Procedure

Illustrations used in this procedure are those of Booklet Finisher-A1 unless otherwise specified.

## Descriptions Used in This Procedure

- In this procedure, Staple Finisher-A1 and Booklet Finisher-A1 are inclusively called the finisher.
- In this procedure, the machine connected to the upstream side of the finisher is called the upstream connection machine.
- For the procedure required only for the Staple Finisher-A1, the relevant section caption is followed by “[Staple Finisher-A1 only]”.
- For the procedure required only for the Booklet Finisher-A1, the relevant section caption is followed by “[Booklet Finisher-A1 only]”.

## When Using the Contained Parts (Bundled Components in the Shipping Carton)

After unpacking, confirm the parts contained in the package by referring to the illustration of “Bundled Components” described in this procedure. The below symbol appears on the illustration of some steps when the parts contained in the shipping carton are to be used. Mind this symbol to be aware the parts contained in the shipping carton are to be used.

F-6-2



## Symbols in the Illustration

The frequently-performed operations/works are described with symbols in this procedure. Check the description below.

Screw

Tighten

Remove

Connector

Connect

Disconnect

Harness

Connect/ Secure

Disconnect/ Free

Prohibition (Good/Bad)

Good

Bad

Checking instruction


Check

Visual check

Sound check

Instruction on direction (front/rear, top/bottom)



Push

Connect to the outlet


Turn ON the switch


Copy

Remove the projection

Fit in the projection

Release/ remove the claw

Fit in/attach the claw

F-6-3

# Checking Before Installation

The installation site must satisfy the conditions given below.
Therefore, it is recommended that the installation site be looked over before delivering the finisher to the customer.

## Checking the Power Supply

The finisher must be connectable to the outlet that can supply the rated voltage +10/-15% at the specified ampere or higher.
120V 15A or more
230V 10A or more

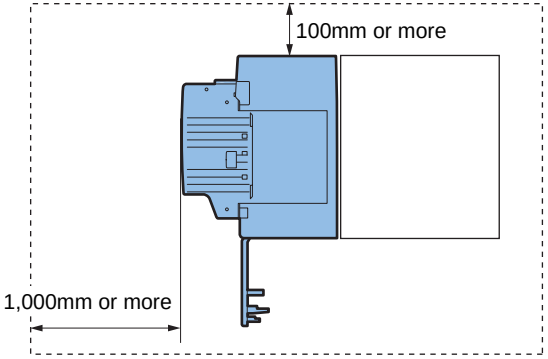
## Selecting the Site of Installation

Select the site of installation, making sure that there will be enough space for work (e.g., removal of paper). Be sure that there will be no gap between the finisher and the upstream connection machine.

The machine must be away from the wall by 100mm(*) or more to secure an enough space to perform machine operation.

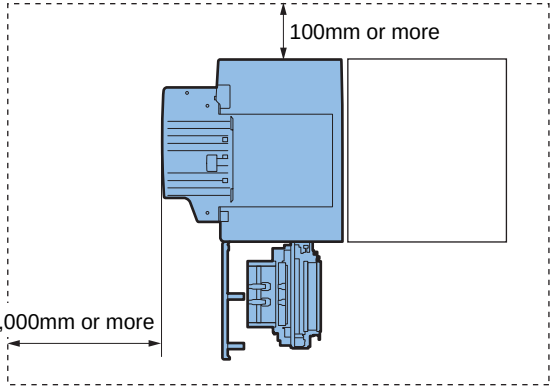
*: Make sure to provide at least 800mm of space if you install one or more of the following: Paper Folding Unit-G1, Professional Puncher-C1, Document Insertion Unit-H1, or Multi-drawer Paper Deck-A1.

<Staple Finisher-A1>




F-6-4

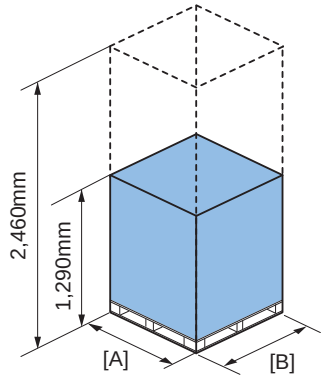
<Booklet Finisher-A1>




F-6-5

## Checking the Unpacking Space

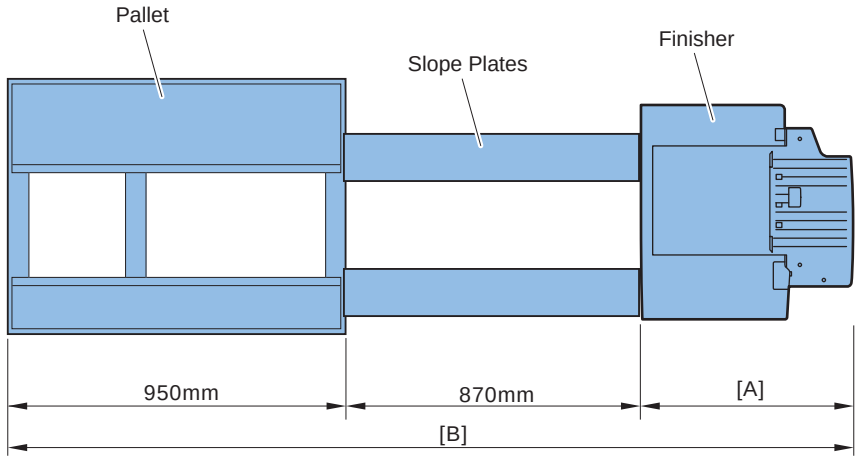
Be sure to unpack the finisher according to the illustrations in a wide area where there is enough space around it.




F-6-6

[A] Staple Finisher-A1: Approx. 880mm / Booklet Finisher-A1 : Approx. 950mm

[B] Staple Finisher-A1: Approx. 830mm / Booklet Finisher-A1 : Approx. 865mm




F-6-7

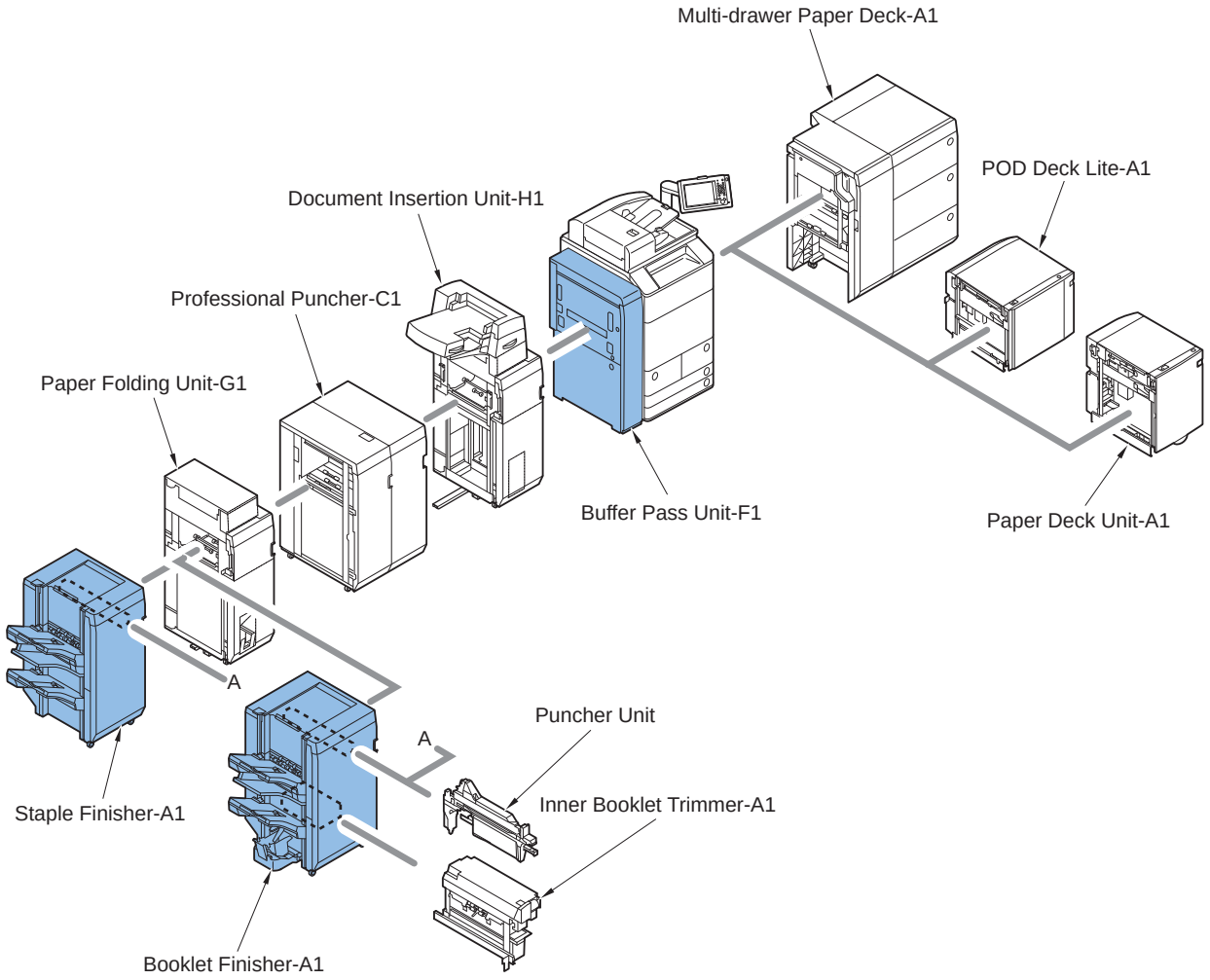
[A] Staple Finisher-A1: 655mm / Booklet Finisher-A1 : 768mm

[B] Staple Finisher-A1: 2,475mm / Booklet Finisher-A1 : 2,588mm

# Points to Note on Installation

## Order of Installation of Options

When installing the finisher together with other options, first install the host machine and then install options in the following order:




F-6-8

1. Multi-drawer Paper Deck-A1/POD Deck Lite-A1/Paper Deck Unit-A1
2. Buffer Pass Unit-F1 *1
3. Document Insertion Unit-H1
4. Professional Puncher-C1
5. Paper Folding Unit-G1
6. Staple Finisher-A1/Booklet Finisher-A1
7. Puncher Unit *2
8. Inner Booklet Trimmer-A1 *2/*3

*1: When installing the finisher, it is necessary for the buffer pass unit to be installed.

*2: The puncher unit and inner booklet trimmer are to be installed in the finisher. Install these units together with the finisher or after installing the finisher.

*3: Booklet Finisher-A1 only

## Turning Off the Main Power of the Host Machine

Caution:

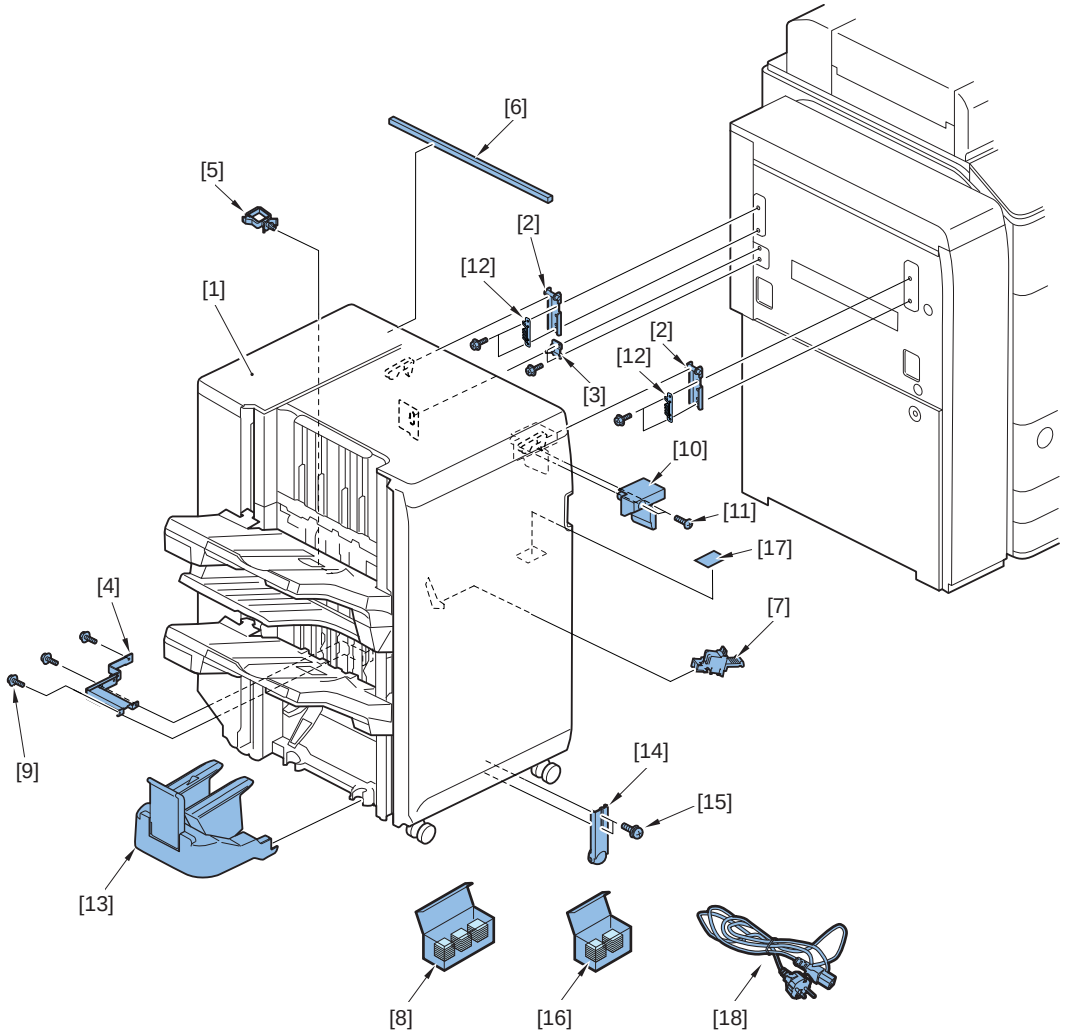
Before installing the finisher, be sure to perform the following steps in the specified order.

1) Turn OFF the main power switch of the host machine.
2) Be sure that the control panel display and main power lamp are both turned OFF, and then disconnect the power plug.

# Unpacking and Checking the Contents

## Checking the Contents

Open the container box and check that none of the included parts is missing.




F-6-9

- ☐[1] Finisher .....1 pc.
- ☐[2] Latch catch.....2 pcs.
- ☐[3] Positioning pin.....1 pc.
- ☐[4] Shunt cable unit .....1 pc.
- ☐[5] Wire saddle.....1 pc.
- ☐[6] Spacer.....1 pc.
- ☐[7] Stapler unit staple case.....1 pc.
- ☐[8] Staple cartridge.....3 pcs.
- ☐[9] Screw (RS-tight, M4 x 8).....9 pcs.
- ☐[10]*1 Latch cover .....1 pc.
- ☐[11]*1 Screw (Bind, M4 x 6).....2 pcs.
- ☐[12]*2 Ground plate .....2 pcs.
- ☐[13]*2 Booklet tray.....1 pc.
- ☐[14]*2 Saddle stitcher unit auxiliary caster .....1 pc.
- ☐[15]*2 Screw (with spring washer).....2 pcs.
- ☐[16]*2 Staple cartridge for saddle stitcher .....2 pcs.
- ☐[17]*2 Saddle caution label
- ☐[18]*3 Power cord

*1: Staple Finisher-A1 only

*2: Booklet Finisher-A1 only

*3: The package may contain several power cords intended for use in Europe. Use the correct power cord to match the location/area of installation. Make sure not to leave unused power cords at the site.

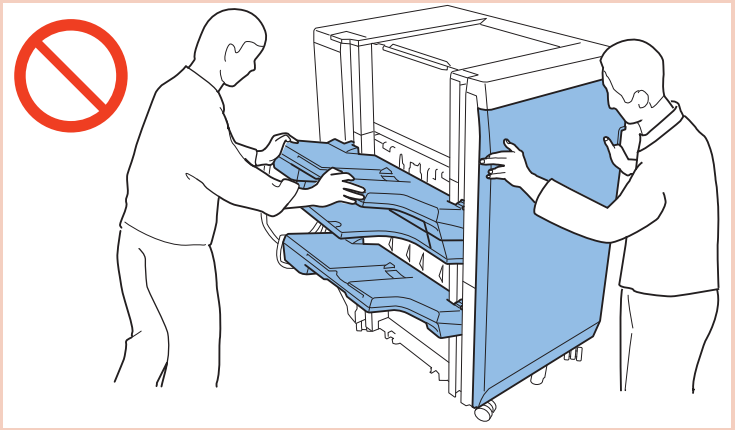
# Unpacking Procedure

MEMO:

The finisher is packed using tapes, fixings and cushioning materials to be protected against vibration and shock during transportation. Be sure to remove them before starting to install the finisher. It is a good idea to store away the removed fixings and cushioning materials for possible relocation of the finisher, e.g., to a new site or for repairs.

Caution:

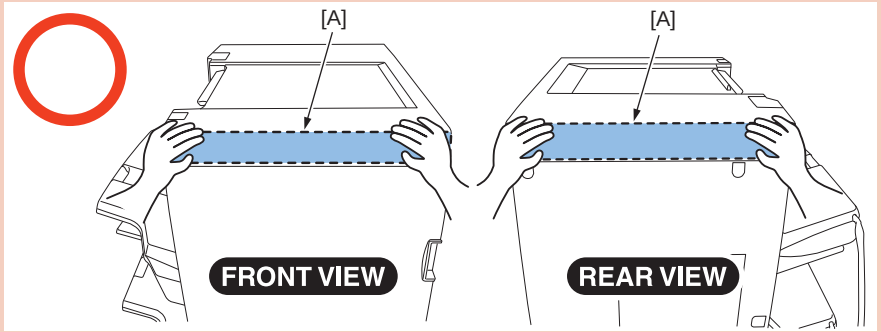
- Staple Finisher-A1 weighs about 61 kg and Booklet Finisher-A1 weighs about 108 kg.
- When unpacking the finisher, you can deform or damage it depending on the parts you hold. Do not hold the front cover or upper output tray unit or lower output tray unit.



F-6-10

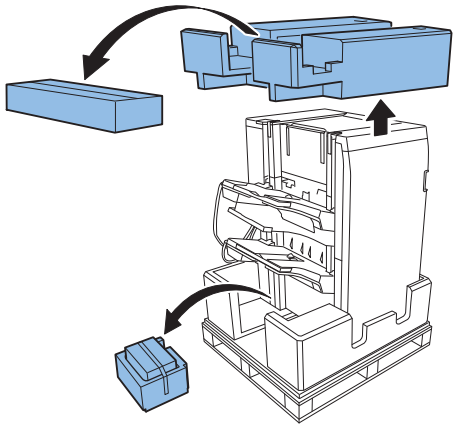
Caution:

When removing the cushioning materials in steps 2) and 3) or moving the finisher from the pallet down to the floor along the slope boards in step 6), hold the top [A] of the finisher.



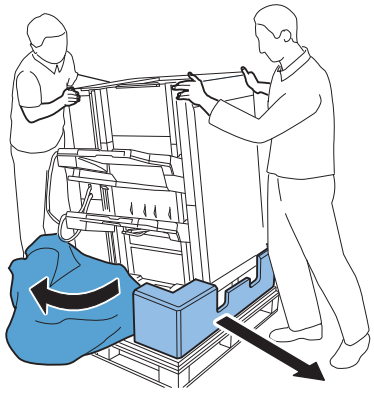

F-6-11

1) Open the container box, and then take out the accessory box and cushioning materials.



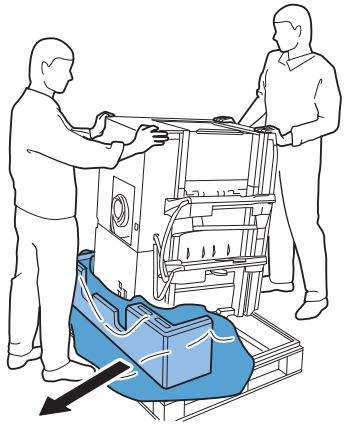
F-6-12

2) While holding the top of the finisher, raise one side of the finisher to remove the cushioning material.
Be sure to pull the plastic bag toward the other cushioning material completely.



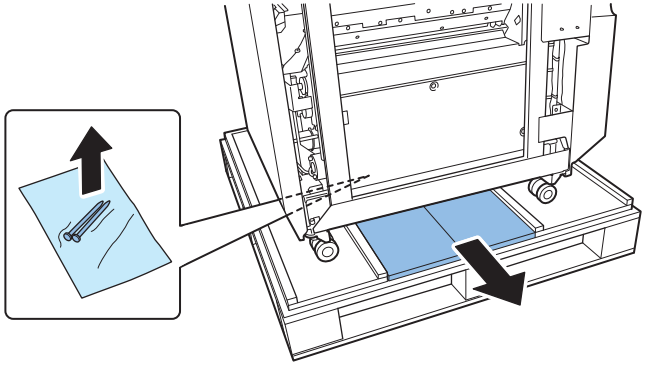
F-6-13

3) While holding the top of the finisher, raise the other side to remove the cushioning material and plastic bag.



F-6-14

4) Remove two slope boards and two fixing pins.

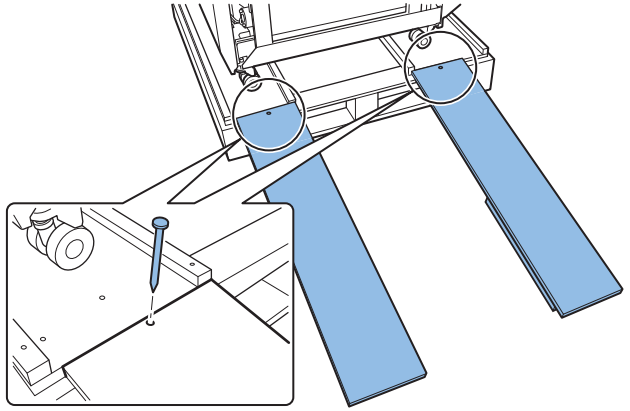


F-6-15

MEMO:

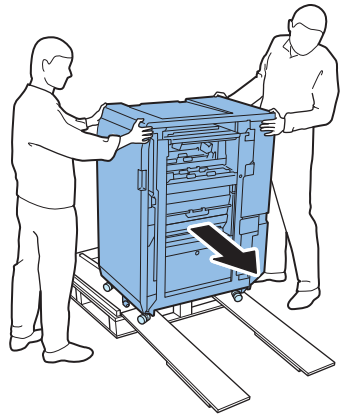
The fixing pins are attached to the slope board with the adhesive tape.

5) Using two fixing pins, secure the slope boards to the pallet.



F-6-16

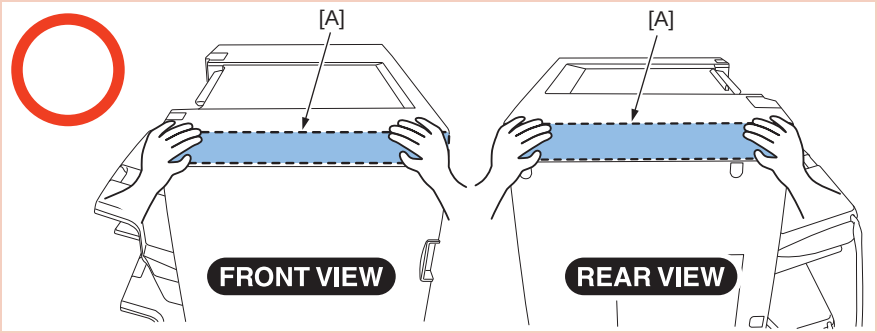
6) Place the casters of the finisher on the slope boards, and then move the finisher slowly from the pallet down to the floor.



F-6-17

Caution:

- Move the finisher down to the floor carefully so that the casters do not slip off the slop boards.
- Be sure to hold the top [A] of the finisher when moving the finisher from the slope boards down to the floor.

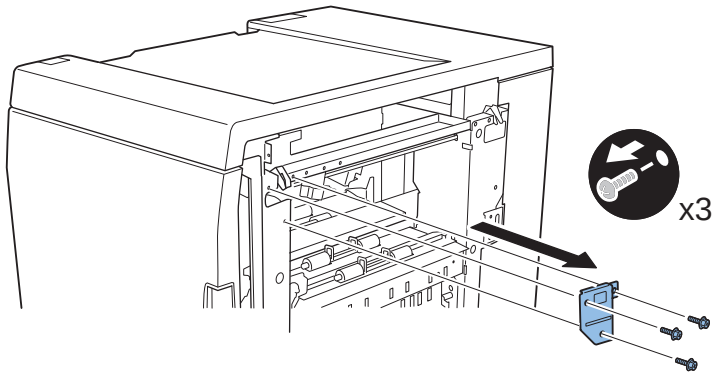



F-6-18

7) Remove all pieces of packing tape used outside the finisher.

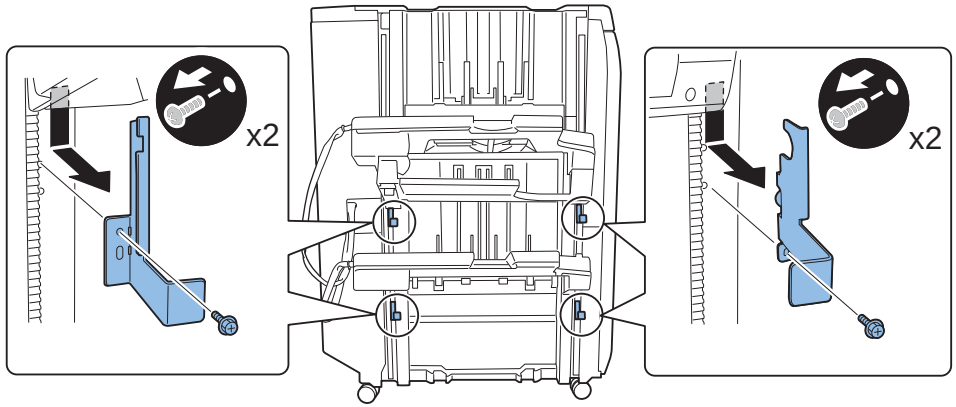
8) For Booklet Finisher-A1, remove three screws and then remove the fixing.

<Booklet Finisher-A1>




F-6-19

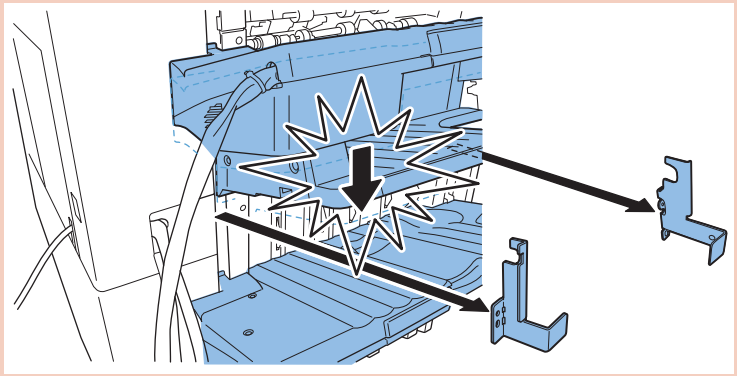
9) Remove four screws, and then remove four fixings of the upper output tray and lower output tray.




F-6-20

Caution:

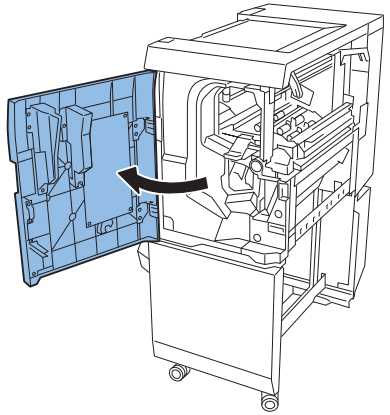
Hold the output tray while removing the fixings lest the output tray jerks.



F-6-21

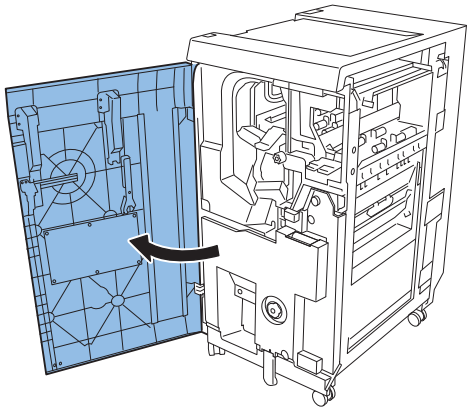
10) Open the front cover.

<Staple Finisher-A1>



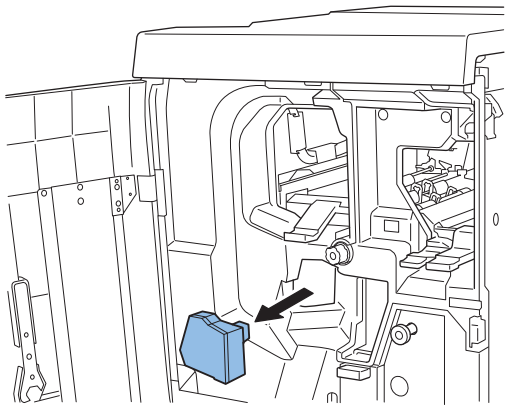
F-6-22

<Booklet Finisher-A1>



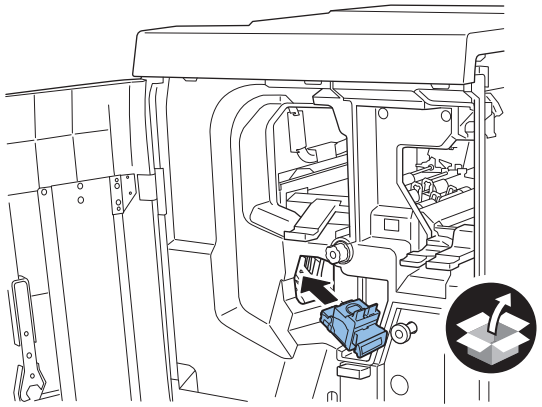
F-6-23

11) Remove all pieces of packing tape used inside the finisher, and then remove the cushioning material from the stapler unit.



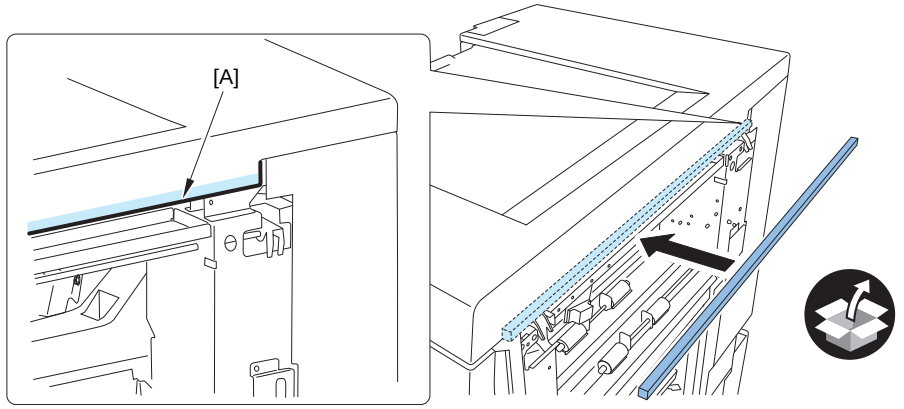
F-6-24

☐ 12) Attach the stapler unit staple case by pushing until it clicks.



F-6-25

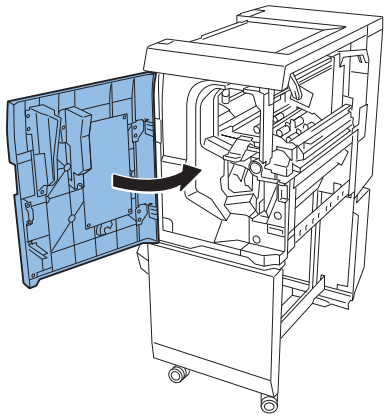
☐ 13) Peel off the release paper from the spacer, and then affix the spacer inside the boundary [A] on the right side of the finisher's upper cover.




F-6-26

☐ 14) For Staple Finisher-A1, close the front cover and proceed to Section “Installation Procedure”.
For BookletFinisher-A1, follow the procedure below.

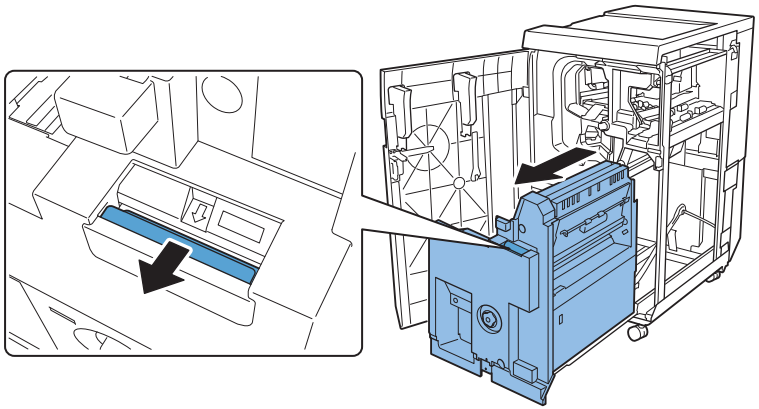
<Staple Finisher-A1>



F-6-27

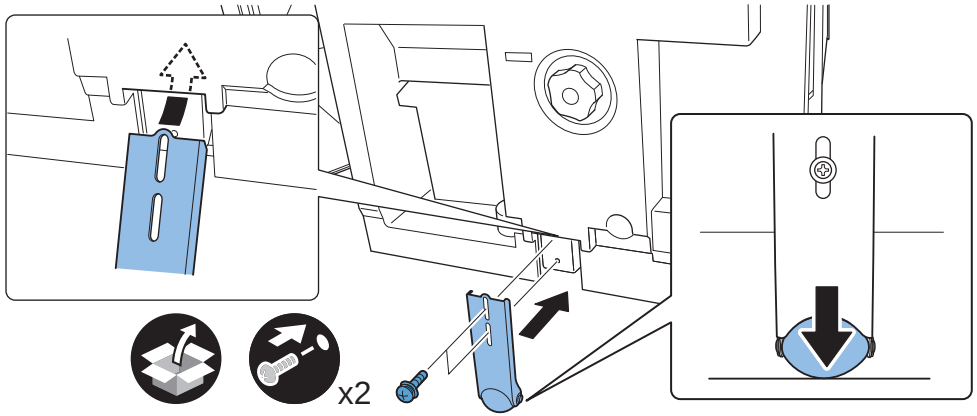
## Unpacking Procedure of the Saddle Unit [Booklet Finisher-A1 Only]

1) Gripping the hook of the handle, pull out the saddle stitcher unit gently until it stops, and then remove all pieces of packing tape.



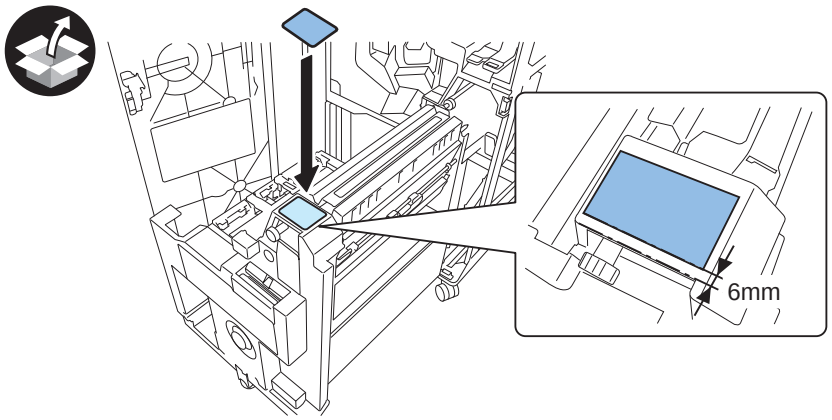
F-6-28

2) Using two screws (with spring washer), attach the saddle stitcher unit auxiliary caster so that its caster can touch the floor.



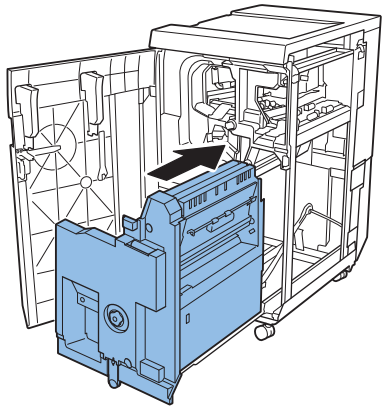

F-6-29

3) Affix the saddle caution label (written in the language used by the customer) to the top of the saddle stitcher unit cover.



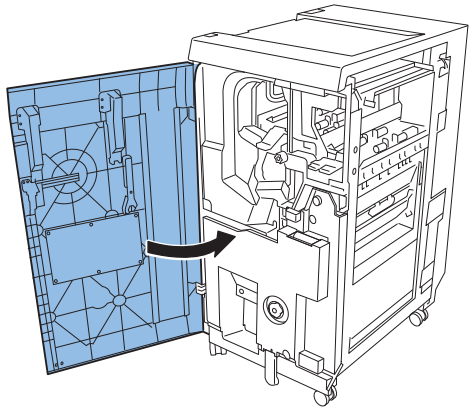

F-6-30

☐ 4) Push back the saddle stitcher unit gently into the finisher until it stops.



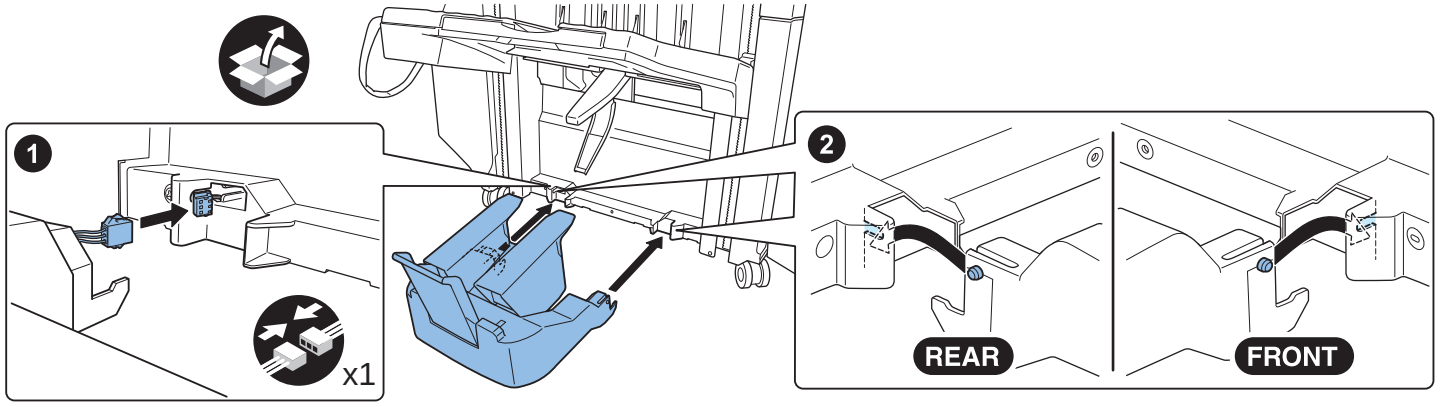
F-6-31

☐ 5) Close the front cover.



F-6-32

☐ 6) Connect the connector of the booklet tray to the connector on the lower left side, and then attach the booklet tray using its two hooks.




F-6-33

Caution:

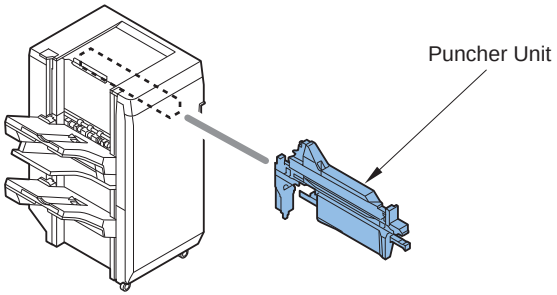
When attaching the booklet tray, take care so that the connector and harness are not damaged or get caught between parts, and put the connector and harness into the booklet tray or finisher so that it does not be outside.

# Installation Procedure

## Installing Options

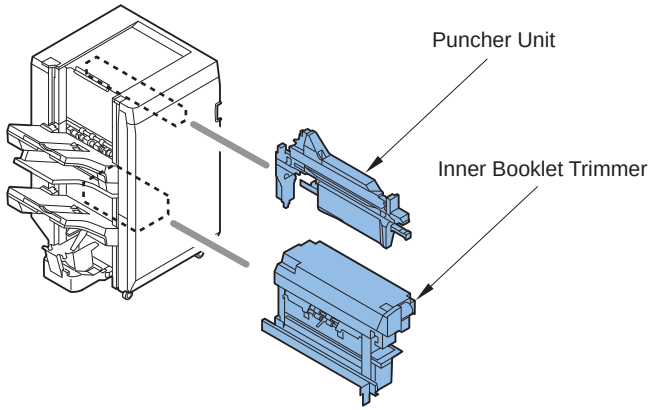
When installing the puncher unit and inner booklet trimmer together with the finisher, install them before connecting the finisher to the upstream connection machine.
For the procedures for installing the puncher unit and inner booklet trimmer, refer to their installation procedure manuals.

<Staple Finisher-A1>




F-6-34

<Booklet Finisher-A1>

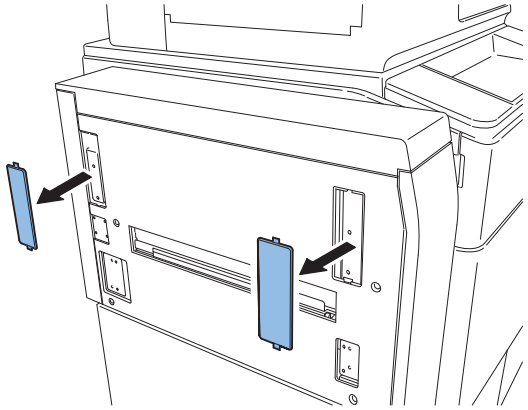



F-6-35

# Preparation for Installation on Upstream Connection Machine Side [Staple Finisher-A1 only]

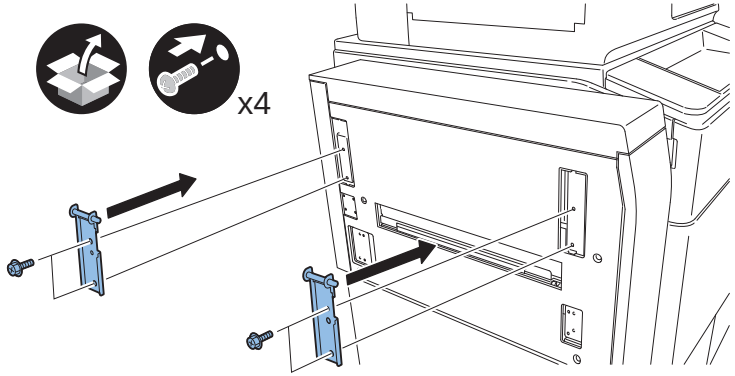
## ■ Connecting to Buffer Pass Unit

☐ 1) Remove two covers (front and rear) on the left side of the buffer pass unit.



F-6-36

☐ 2) Using four screws, attach two latch catches (front and rear) on the left side of the buffer pass unit.

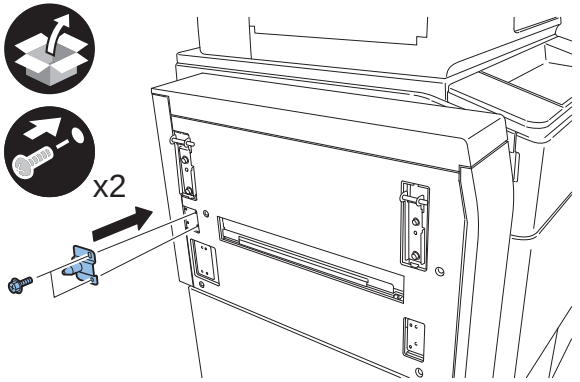



F-6-37

MEMO:

- The latch catch has three screw holes. Use two screw holes according to the mounting position on the buffer pass unit.
- The two latch catches are identical to each other.

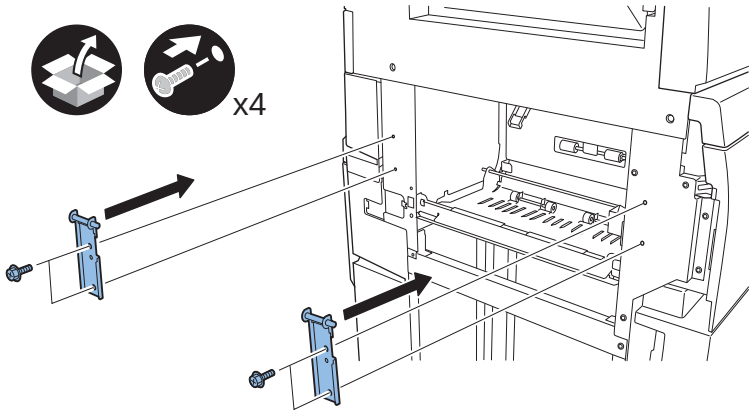
☐ 3) Attach the positioning pin using two screws.




F-6-38

## Connecting to Document Insertion Unit

1) Using four screws, attach two latch catches (front and rear) on the left side of the document insertion unit.

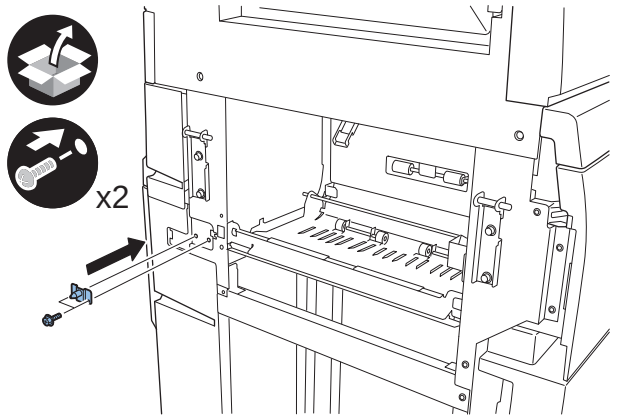



F-6-39

MEMO:

- The latch catch has three screw holes. Use two screw holes according to the mounting position on the document insertion unit.
- The two latch catches are identical to each other.

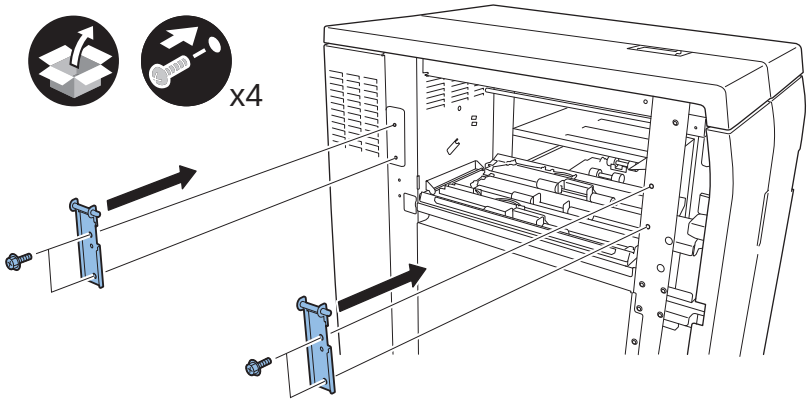
2) Attach the positioning pin using two screws.




F-6-40

## Connecting to Professional Puncher

1) Using four screws, attach two latch catches (front and rear) on the left side of the professional puncher.

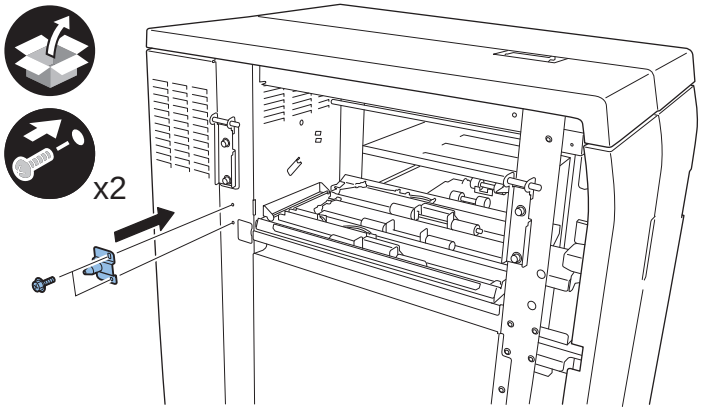



F-6-41

MEMO:

- The latch catch has three screw holes. Use two screw holes according to the mounting position on the professional puncher.
- The two latch catches are identical to each other.

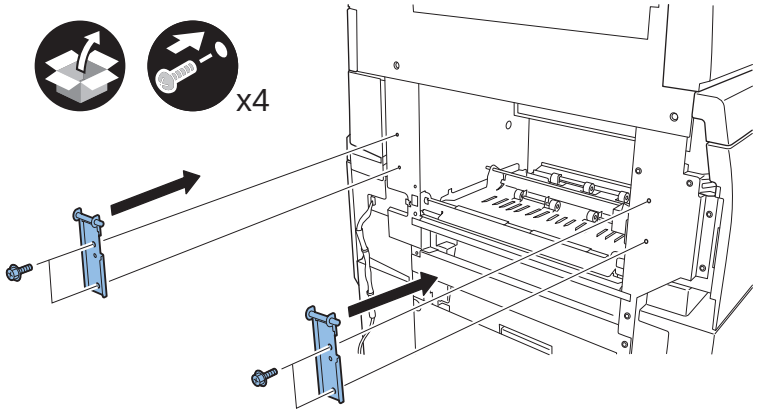
2) Attach the positioning pin using two screws.




F-6-42

## ■ Connecting to Paper Folding Unit

☐ 1) Using four screws, attach two latch catches (front and rear) on the left side of the paper folding unit.

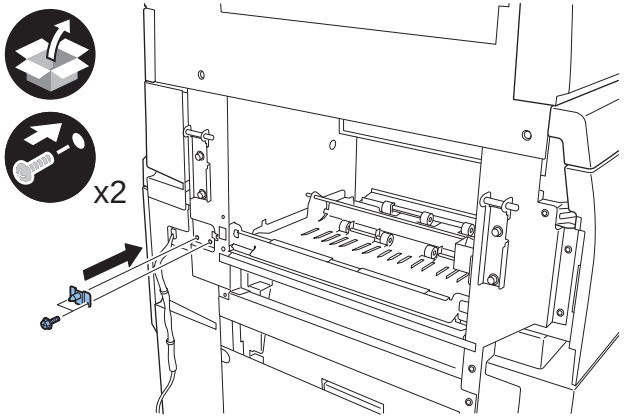



F-6-43

MEMO:

- The latch catch has three screw holes. Use two screw holes according to the mounting position on the paper folding unit.
- The two latch catches are identical to each other.

☐ 2) Attach the positioning pin using two screws.

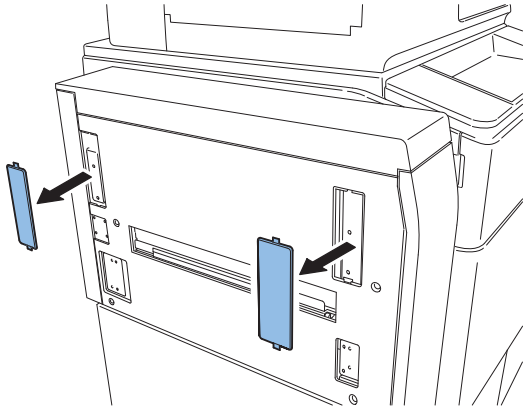



F-6-44

# Preparation for Installation on Upstream Connection Machine Side [Booklet Finisher-A1 only]

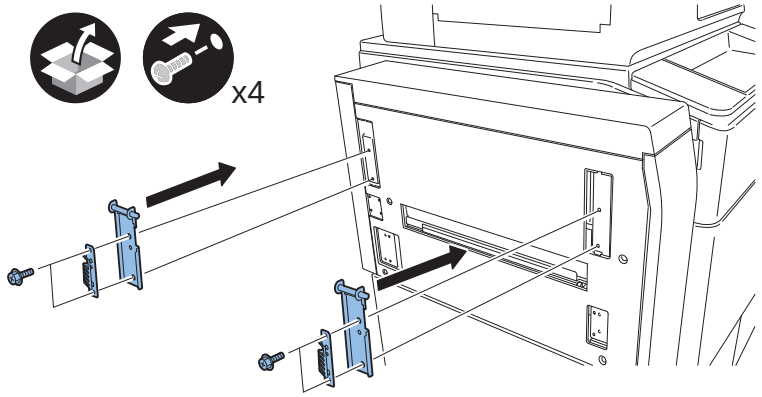
## ■ Connecting to Buffer Pass Unit

☐ 1) Remove two covers (front and rear) on the left side of the buffer pass unit.



F-6-45

☐ 2) Using four screws, attach two ground plates and two latch catches (front and rear) on the left side of the buffer pass unit together.

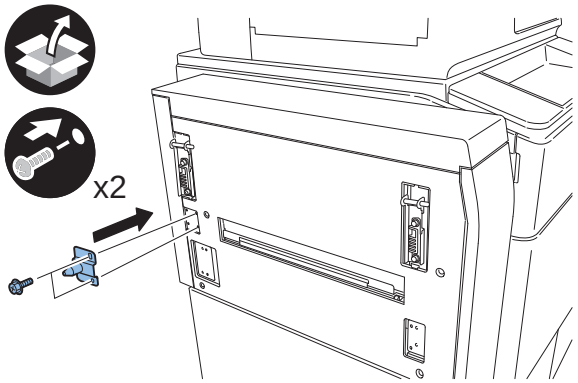



F-6-46

MEMO:

- The ground plate and latch catch have three screw holes each. Use two screw holes according to the mounting position on the buffer pass unit.
- A pair of the ground plates and the latch catches are identical to each other.

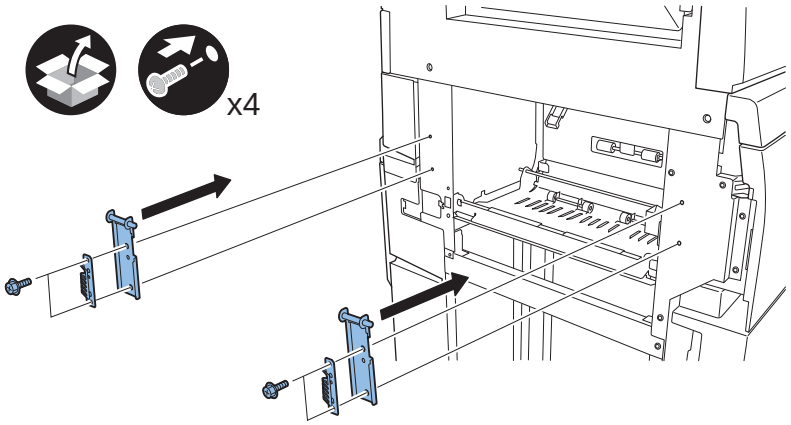
☐ 3) Attach the positioning pin using two screws.




F-6-47

## ■ Connecting to Document Insertion Unit

☐ 1) Using four screws, attach two ground plates and two latch catches (front and rear) on the left side of the document insertion unit together.

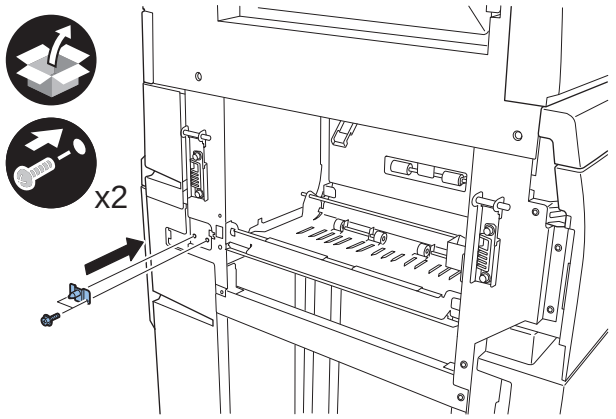



F-6-48

MEMO:

- The ground plate and latch catch have three screw holes each. Use two screw holes according to the mounting position on the document insertion unit.
- A pair of the ground plates and the latch catches are identical to each other.

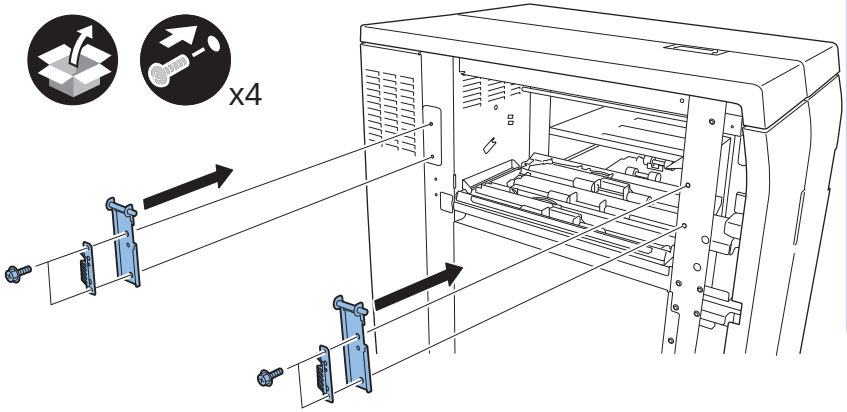
☐ 2) Attach the positioning pin using two screws.




F-6-49

## ■ Connecting to Professional Puncher

☐ 1) Using four screws, attach two ground plates and two latch catches (front and rear) on the left side of the professional puncher together.

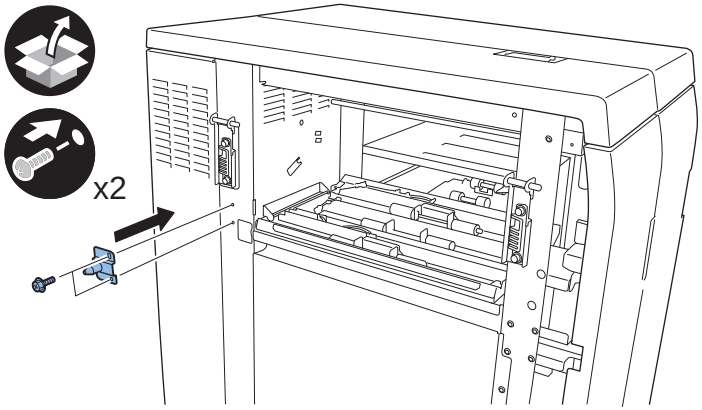



F-6-50

MEMO:

- The ground plate and latch catch have three screw holes each. Use two screw holes according to the mounting position on the professional puncher.
- A pair of the ground plates and the latch catches are identical to each other.

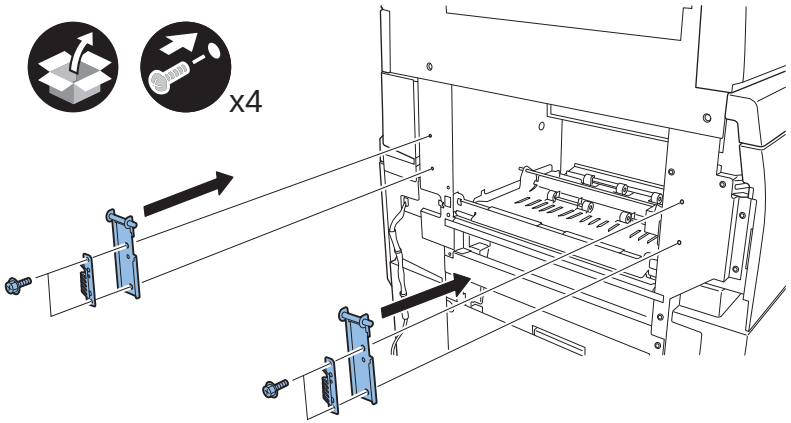
☐ 2) Attach the positioning pin using two screws.




F-6-51

## ■ Connecting to Paper Folding Unit

☐ 1) Using four screws, attach two ground plates and two latch catches (front and rear) on the left side of the paper folding unit together.

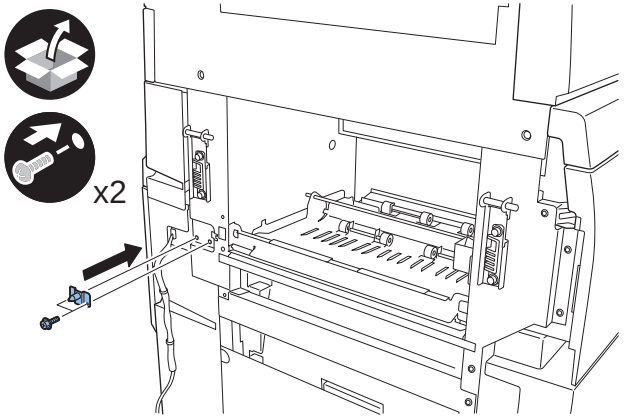



F-6-52

MEMO:

- The ground plate and latch catch have three screw holes each. Use two screw holes according to the mounting position on the paper folding unit.
- A pair of the ground plates and the latch catches are identical to each other.

☐ 2) Attach the positioning pin using two screws.



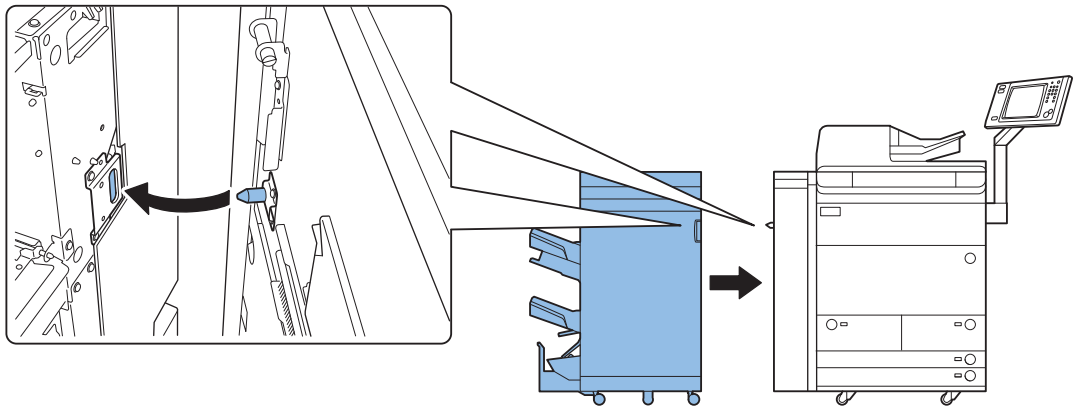

F-6-53

## Connecting to the Upstream Connection Machine

**Caution:**

Make sure that the host machine is turned off and the power plug is disconnected from the outlet.

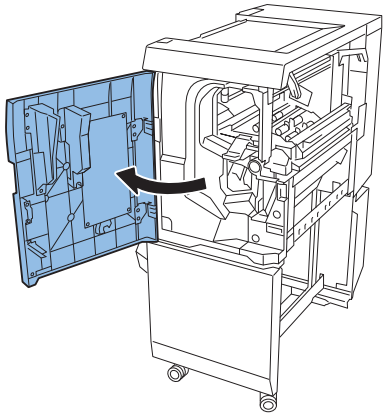
1) Fit the positioning pin installed on the upstream connection machine in the positioning hole on the finisher to connect the finisher to the upstream connection machine fittingly.



F-6-54

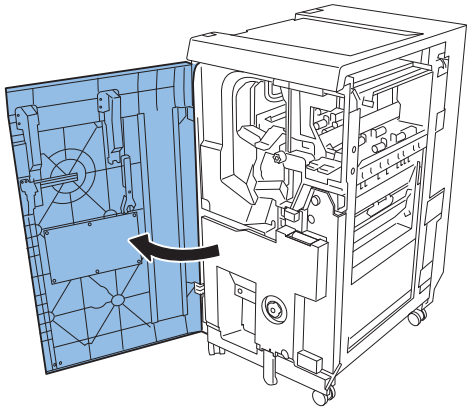
2) Open the front cover of the finisher.

<Staple Finisher-A1>



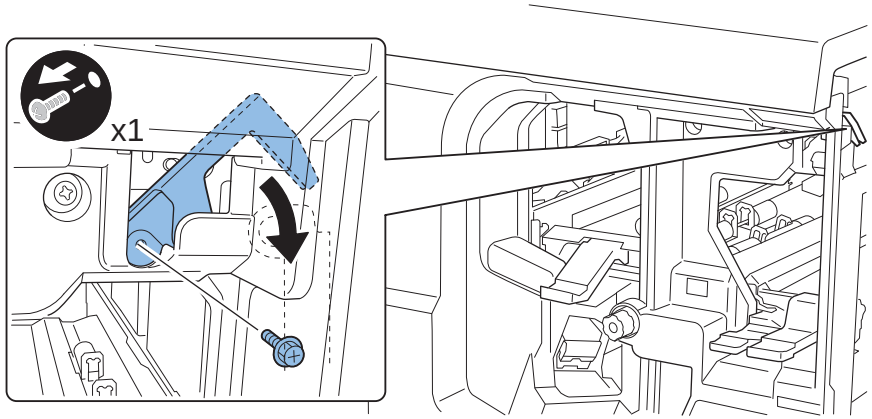
F-6-55

<Booklet Finisher-A1>



F-6-56

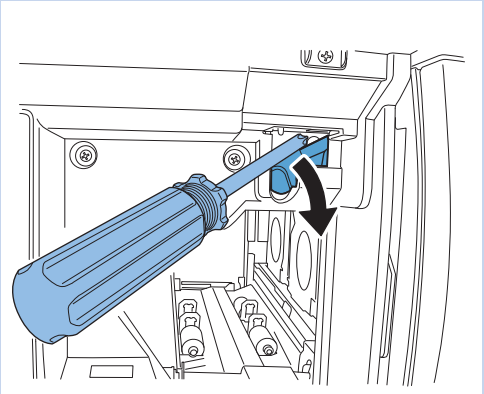
3) Remove the latch fixing screw, and then hang the latch (front and rear) on the latch catch.




F-6-57

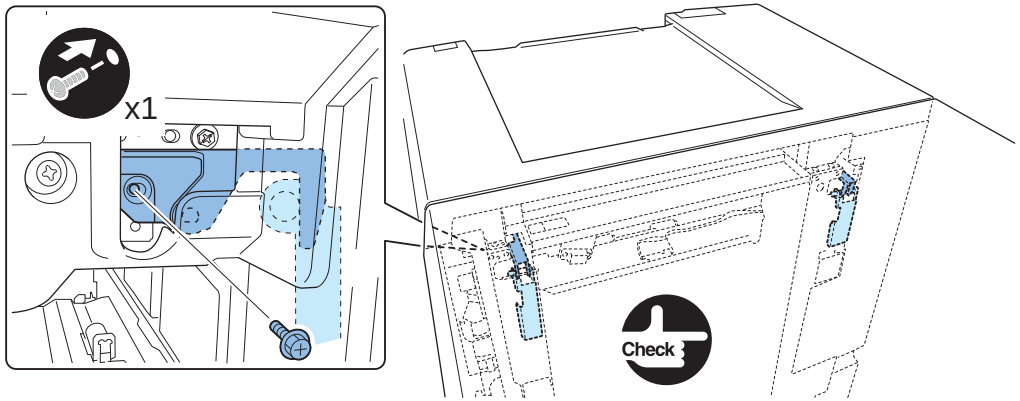
MEMO:

If the latch cannot be hung on the latch catch smoothly, use a screwdriver or the like as shown by the illustration.



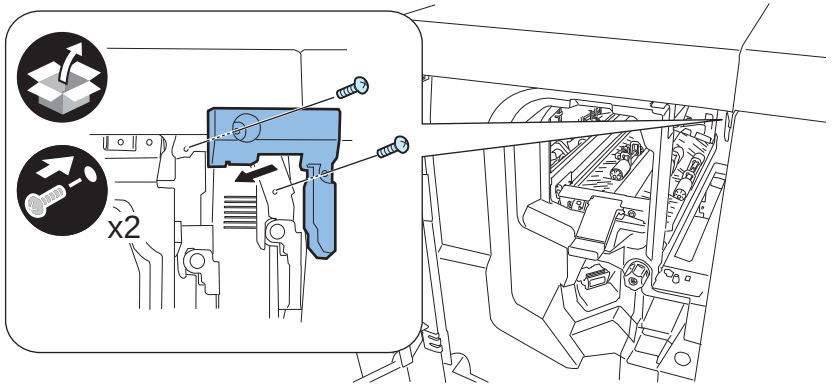
F-6-58

4) After making sure that the latch is firmly engaged with the latch catch, secure the latch using the latch fixing screw removed in step 3).




F-6-59

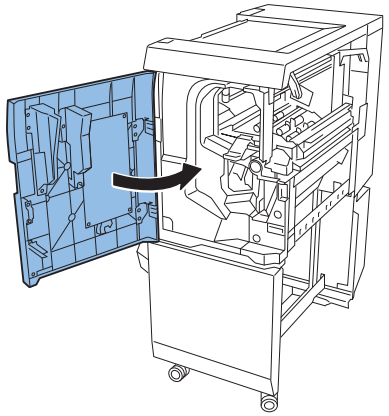
5) For Staple Finisher-A1, attach the latch cover to the latch using two bind screws.




F-6-60

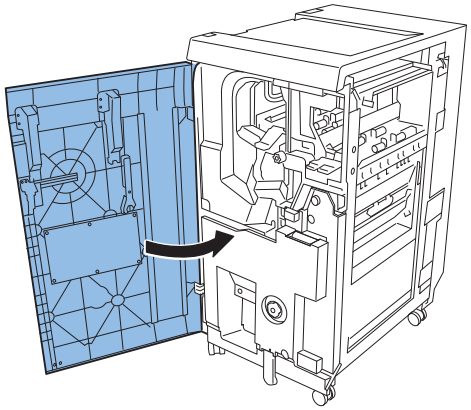
6) Close the front cover of the finisher.

<Staple Finisher-A1>



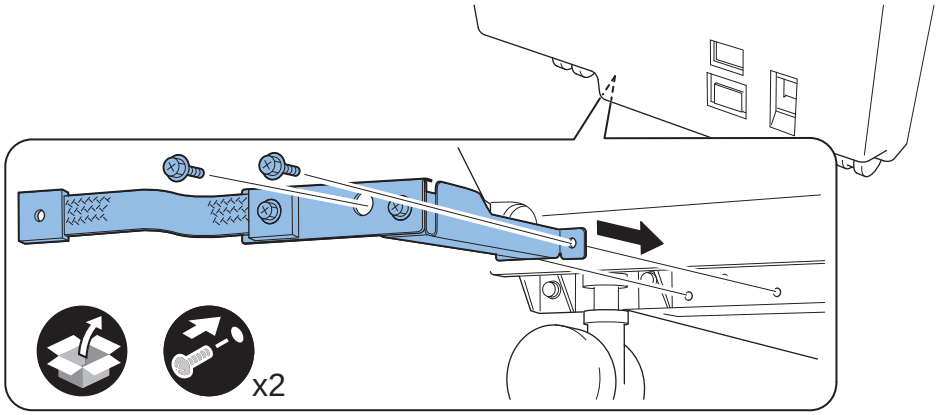
F-6-61

<Booklet Finisher-A1>



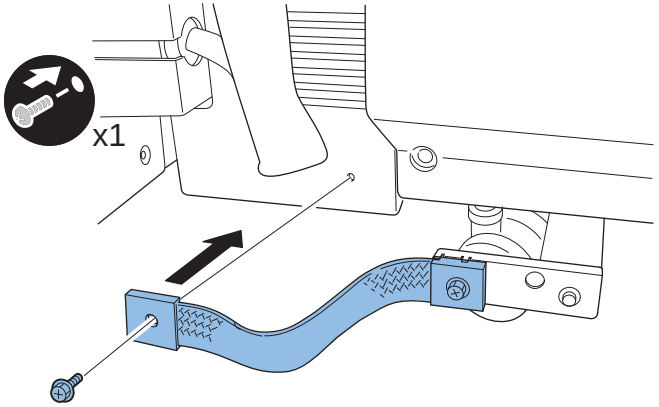
F-6-62

7) Using two screws, attach the shunt cable unit on the lower rear side.



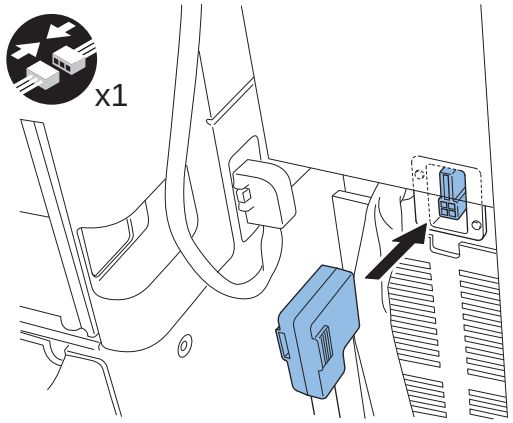

F-6-63

8) Using a screw, secure the shunt cable to the upstream connection machine.




F-6-64

9) Connect the interface cable to the buffer pass unit.

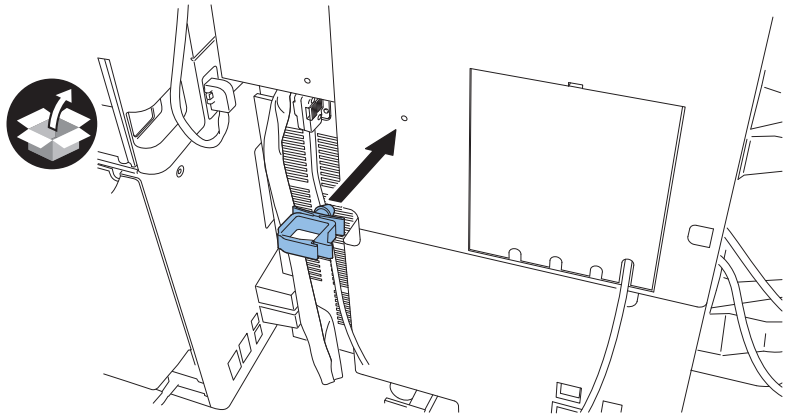



F-6-65

**Caution:**

When connecting the interface cable, be sure to turn off the host machine and disconnect its power cable from the outlet. If you do not do so, electric shock can result.

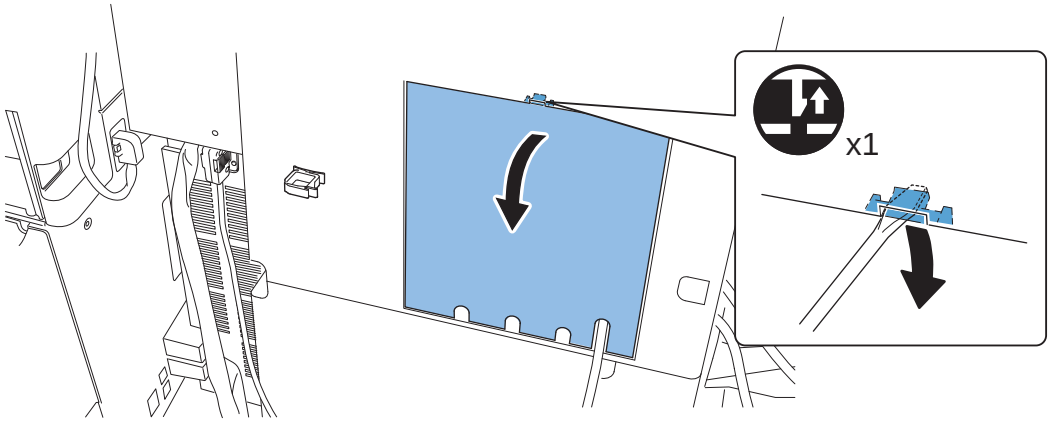
10) Attach the wire saddle to the upper rear cover.



F-6-66

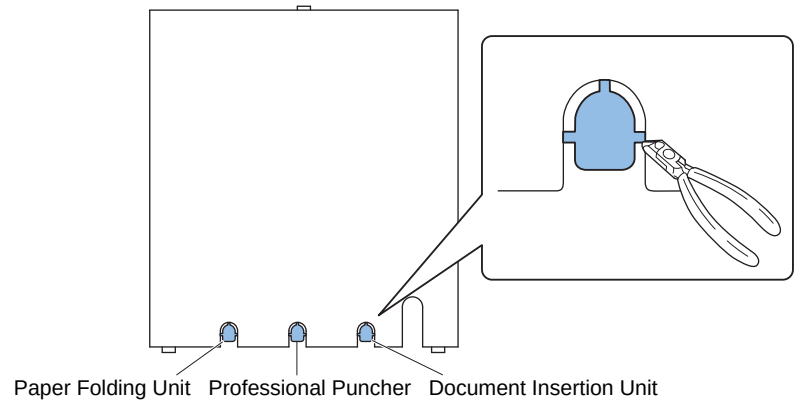
11) When an optional paper folding unit, professional puncher, or document insertion unit is connected, follow the procedure below. If such an option is not connected, proceed to step 18).

12) Release the hook with the flat head screwdriver, and then remove the PCB cover.



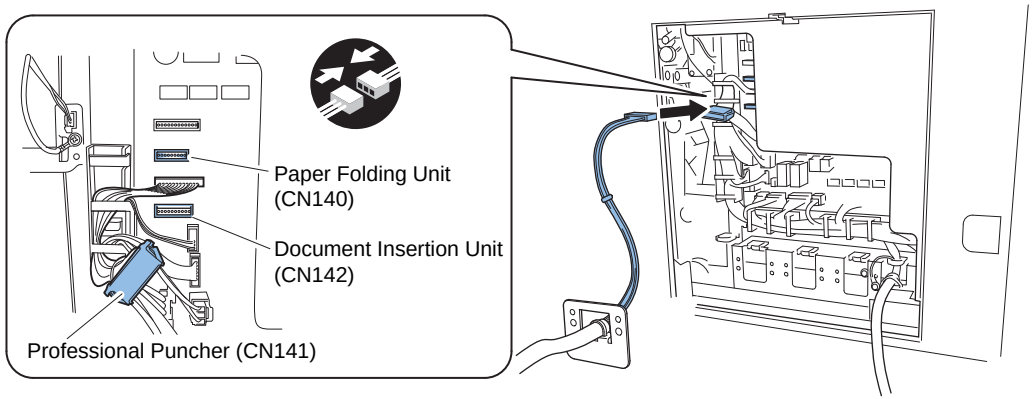

F-6-67

13) Using a side cutter, cut the PCB cover to make a cable groove for lacing the cable of the connected option.




F-6-68

14) Connect the interface cable of the connected option to the connector on the finisher controller PCB.

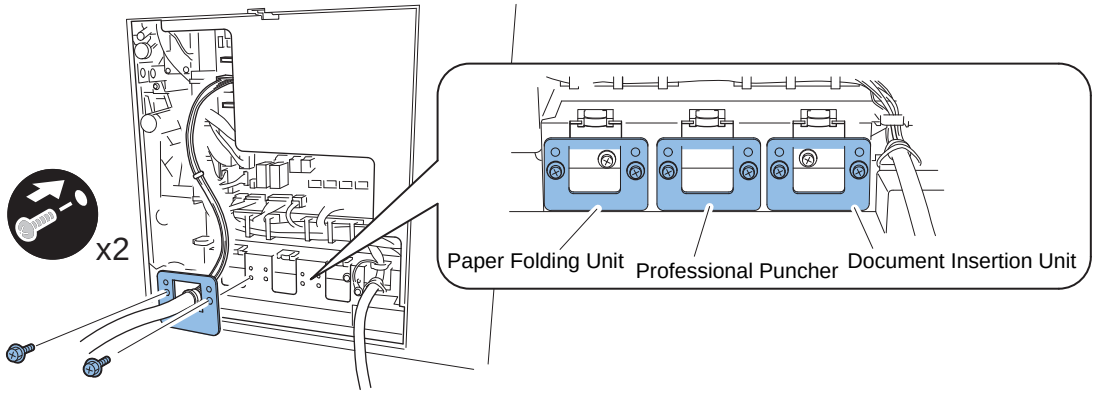



F-6-69

MEMO:

Use the interface cable that comes with the option.

15) Attach the cable fixing plate using two screws.
(The illustration shows the case where the interface cable of the paper folding unit is installed.)

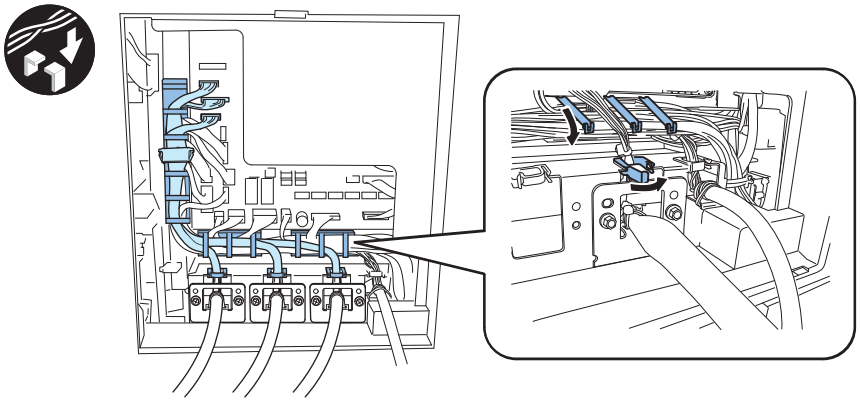



F-6-70

MEMO:

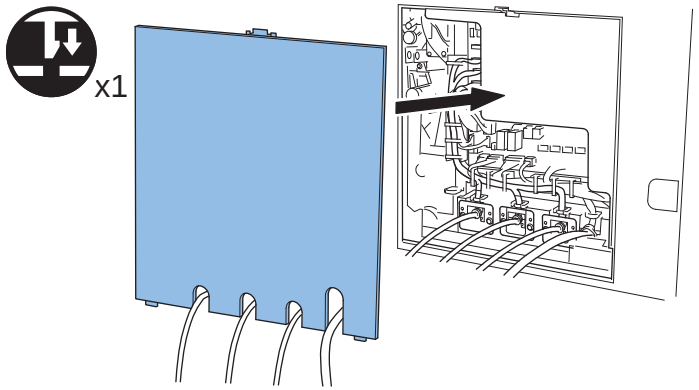
Use the screws that come with the option.

16) Put the interface cable in the harness guide so that it does not touch the PCB and cover.



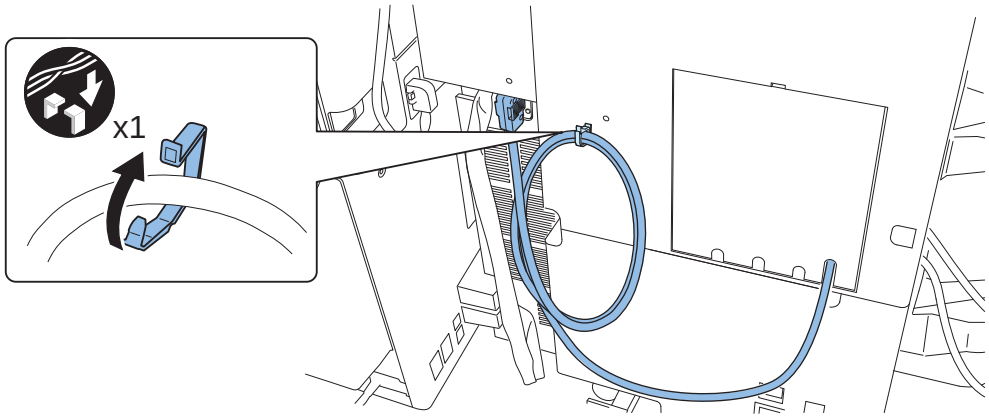
F-6-71

17) Lace the interface cable in the groove, and then attach the PCB cover.




F-6-72

18) Secure the interface cable connected in step 9) using the wire saddle.
(The illustration shows the case where bundle the interface cable forming the 2 loops.)

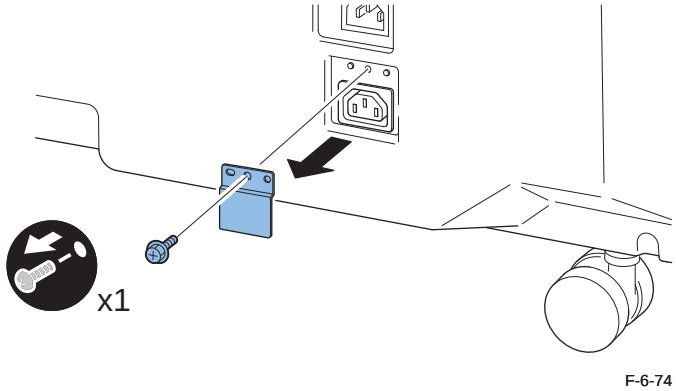



F-6-73

Caution:

- Do not bundle the interface cable to form three or more loops.
- The interface cable connected to the option secures to the wire saddle of the option.

☐ 19) When connecting the power cord of the option to the connector on the finisher, remove a screw and then remove the connector cover.

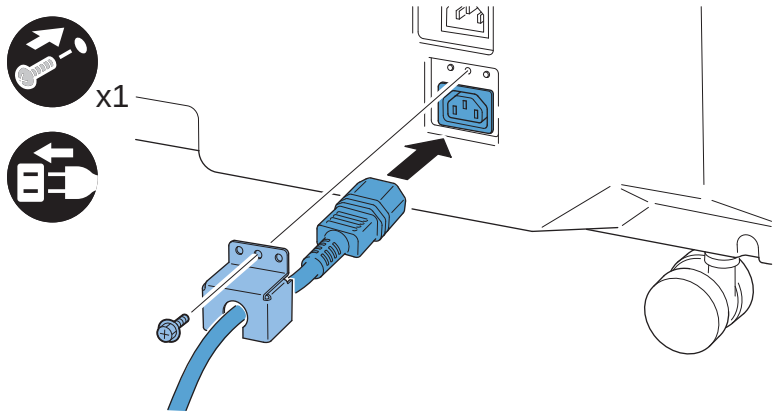



F-6-74

Caution:

Don't connect the power cord of the machine except the optional paper folding unit (Model: F280490).

☐ 20) After connecting the power cord of the option to the connector, attach the plug cover that comes with the option using a screw removed in step 19).




F-6-75

# Making Adjustments

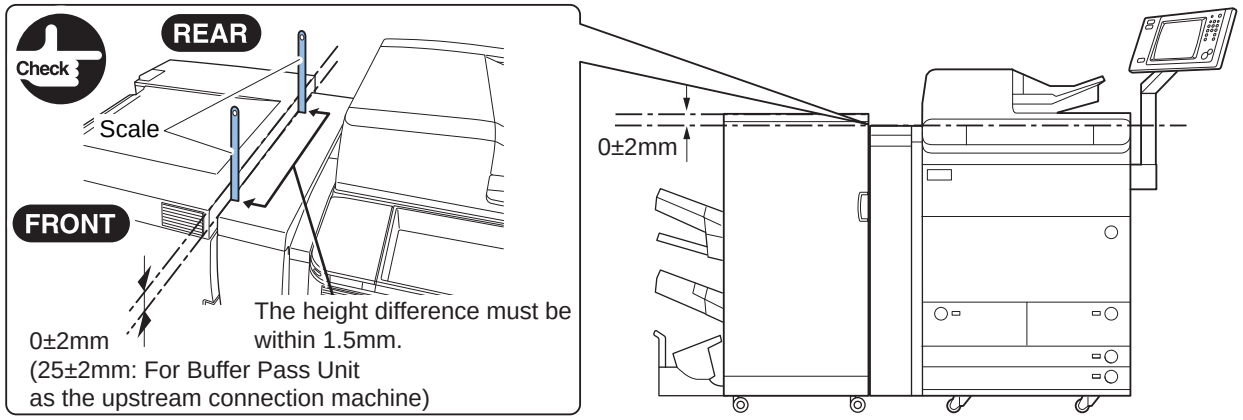
## Adjusting the Height and Tilt

The difference in height between the finisher and the upstream connection machine and the tilt of the finisher and the upstream connection machine need to be adjusted depending on the installation site floor condition. If the height or tilt are not adjusted properly, problems can occur (for example, a paper jam can occur frequently at the paper supply section of the finisher). Check the height and tilt and adjust it as required.

### ■ Checking the Difference in Height and the Tilt

□

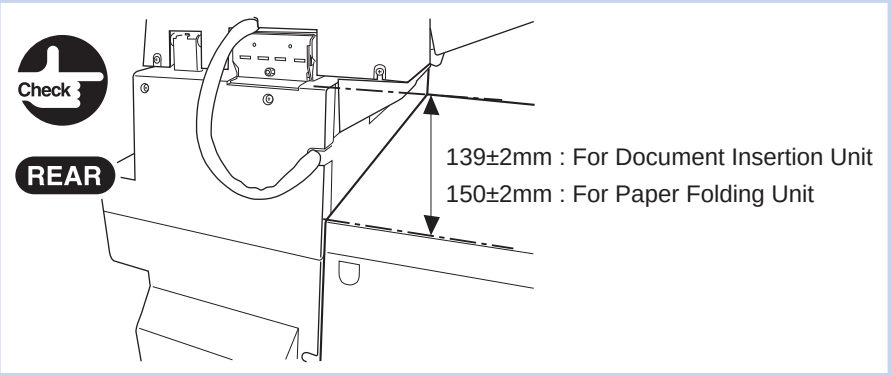
1) Check the difference in height between the finisher and the upstream connection machine. Make sure that the difference in height between the top surface of the finisher and the top surface of the upstream connection machine is within 0±2mm. However, when the buffer pass unit has been installed as the upstream connection machine, check that the difference in height is within 25±2mm.
Measure the difference in height at two points (at the front and rear), and then check that the difference in height between the front and rear is within 1.5mm.




F-6-76

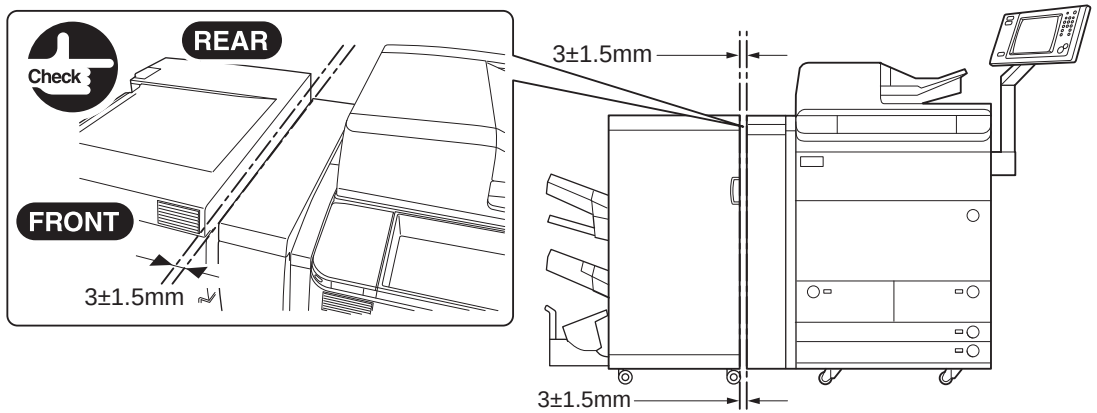
MEMO:

As for the difference in rear height between the finisher and the document insertion unit, make sure that it is within 139±2mm, or as for the difference in rear height between the finisher and the paper folding unit, make sure that it is within 150±2mm.




F-6-77

☐ 2) Check the relational tilting amount of the finisher for the upstream connection machine. Make sure that the gap between the right side of the finisher and the left side of the upstream connection machine is 3±1.5 mm.




F-6-78

☐ 3) If the height and tilt of the finisher must be adjusted, go to "Adjusting the Height and Tilt".

## ■ Adjusting the Height and Tilt

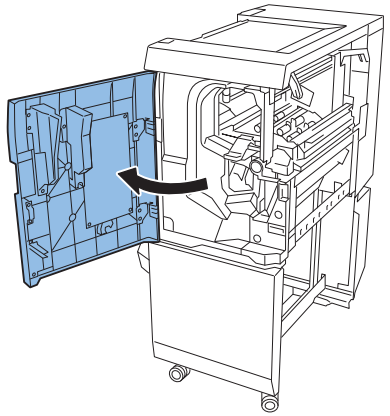
Caution:

If either of the difference in height between the finisher and the upstream connection machine or the tilt of the finisher is not within the specifications, adjust them following the procedure explained below. Be sure to adjust the height before adjusting the tilt.

□

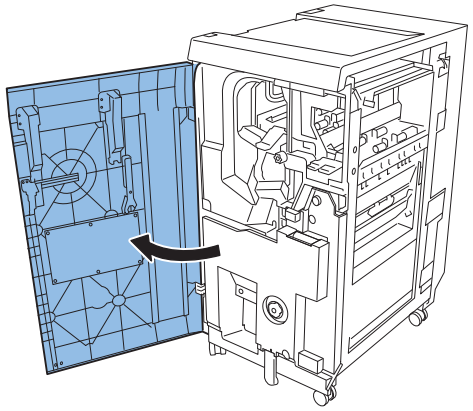
1) Open the front cover.

<Staple Finisher-A1>



F-6-79

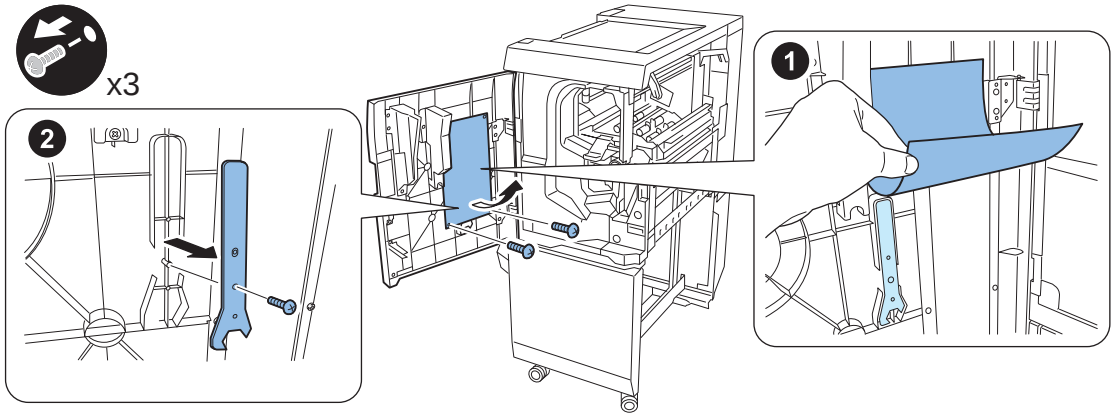
<Booklet Finisher-A1>



F-6-80

[Staple Finisher-A1 only]

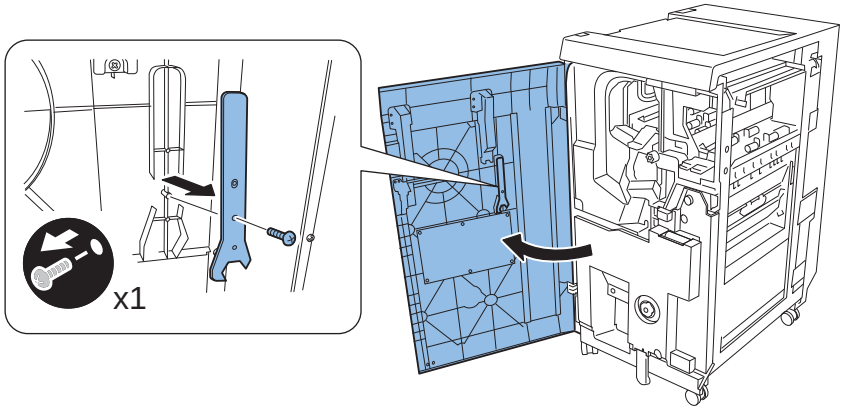
☐ 2) While turning up the label so that the wrench can be seen, remove a screw and then detach the wrench.




F-6-81

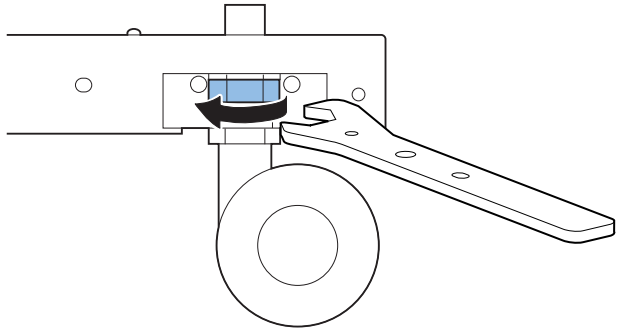
[Booklet Finisher-A1 only]

☐ 2) Remove a screw, and then detach the wrench.



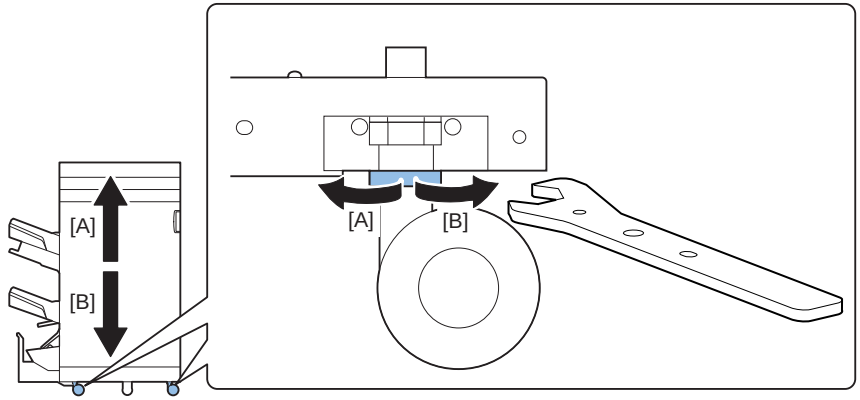

F-6-82

3) Using the wrench, turn the caster lock nut in the direction of the arrow to loosen the nut.



F-6-83

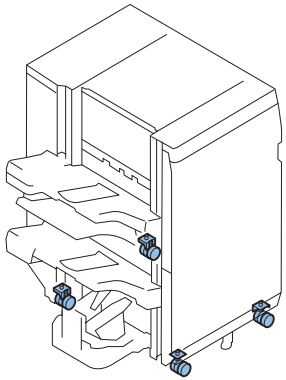
4) Using the wrench, turn the height adjusting nut of the caster in the direction of the arrow.
(A full turn of the adjusting nut changes the finisher height by 1.75 mm.)
- To increase the height of the finisher, turn the nut in the direction of arrow [A].
- To decrease the height of the finisher, turn the nut in the direction of arrow [B].




F-6-84

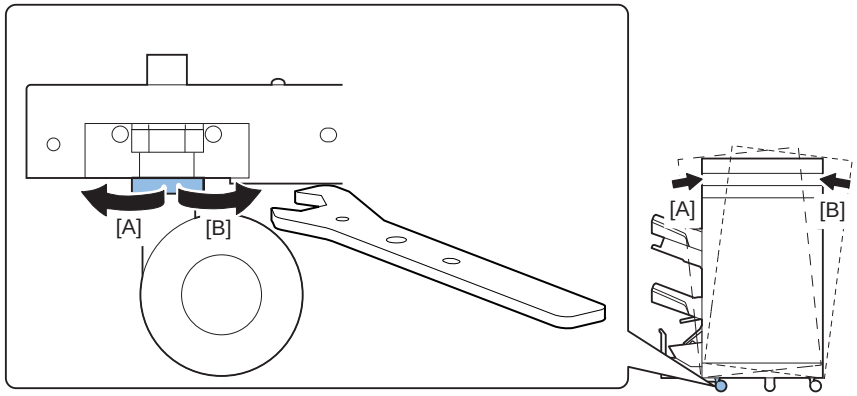
MEMO:

Adjust the height at four casters.



F-6-85

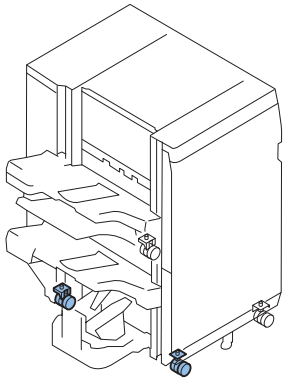
5) Using the wrench, turn the tilt adjusting nut of the caster in the direction of the arrow.
- To tilt the finisher to the right, turn the nut in the direction of arrow [A].
- To tilt the finisher to the left, turn the nut in the direction of arrow [B].




F-6-86

MEMO:

Adjust the tilt at two left casters.



F-6-87

## Making Checks after Completion of Adjustments

□

1) Check to see that the difference in height between the finisher and the upstream connection machine and the tilt are within the specifications. If they are not within the specifications, make adjustments again with reference to Section “Adjusting the Height and Tilt”.
2) After making adjustments, attach the wrench to the back of the front cover and then close the front cover.

# Operation Check

Caution:

Make sure that all pieces of packing tape, cushioning materials and fixings have been removed. Operating the finisher without removing them can cause machine troubles.

☐

1) Connect the power cord of the finisher, and then connect the power plug to the outlet.

Caution:

The package may contain several power cords intended for use in Europe. Use the correct power cord to match the location/area of installation. Make sure not to leave unused power cords at the site.

2) Connect the power plugs of the option and host machine to the outlets.
3) Turn the power switches on in order of the host machine from the options.
4) Check the operation such as paper feed and stapling to make sure that problems such as a jam or malfunction do not occur. If a jam or malfunction occurs, adjust the height and tilt with reference to Section “Making Adjustments”.

# Machine Relocation Work

When relocating the finisher to other place, carry out the following work.

☐

1) Turn off the host machine following the shutdown sequence, and then disconnect the power plug (from the outlet).

2) Disconnect the interface cable from the host machine.

3) When the optional machine (the professional puncher, the document insertion unit, the paper folding unit) has been installed, remove the PCB cover and then disconnect the optional connector from the finisher controller PCB and remove the cable fixing plate to remove the interface cable of the optional machine from the harness guide.

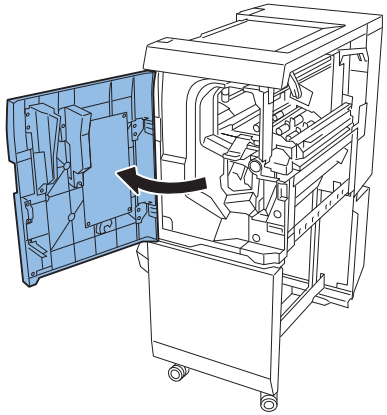
4) Disconnect the shunt cable.

5) When the power cord of the optional machine has been connected to the finisher, remove the plug cover to disconnect the power cord.

☐

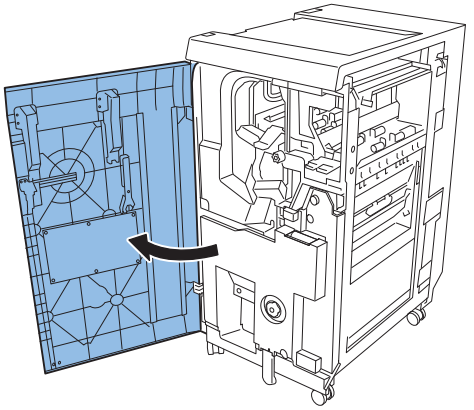
6) Open the front cover of the finisher.

<Staple Finisher-A1>



F-6-88

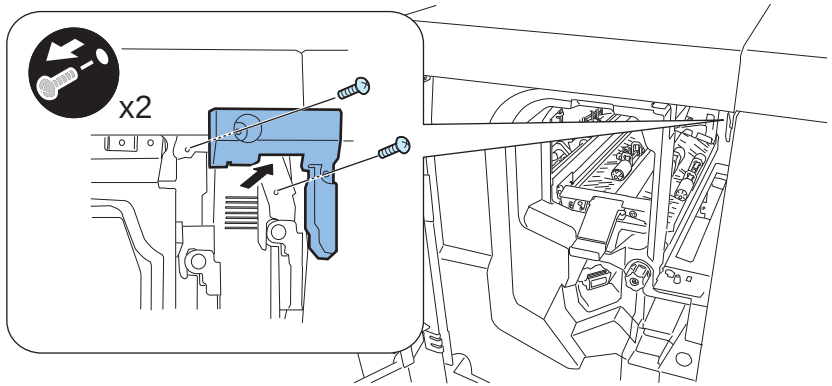
<Booklet Finisher-A1>



F-6-89

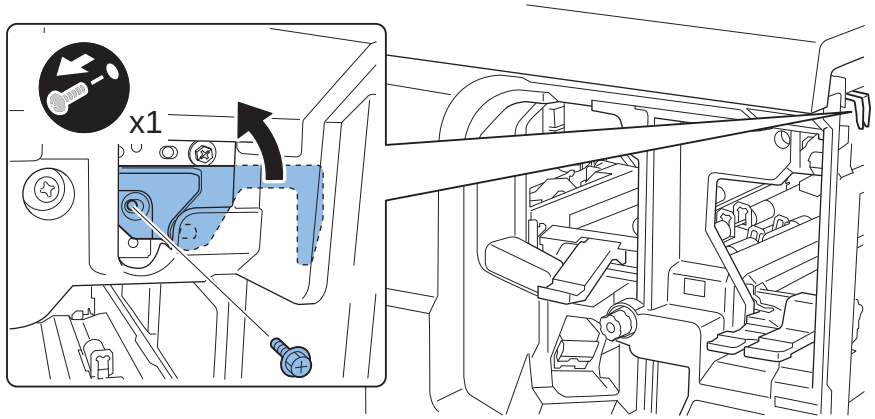
☐

7) For Staple Finisher-A1, remove two screws to remove the latch cover.



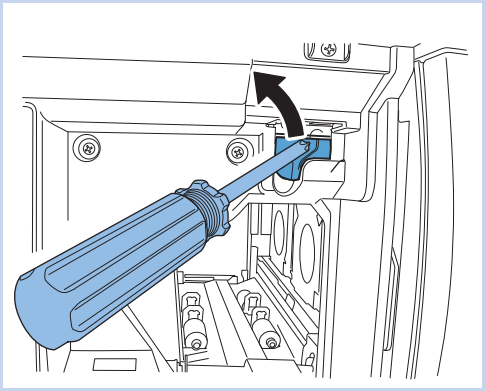

F-6-90

8) Remove the latch fixing screw, and then release the latch from the latch catch.



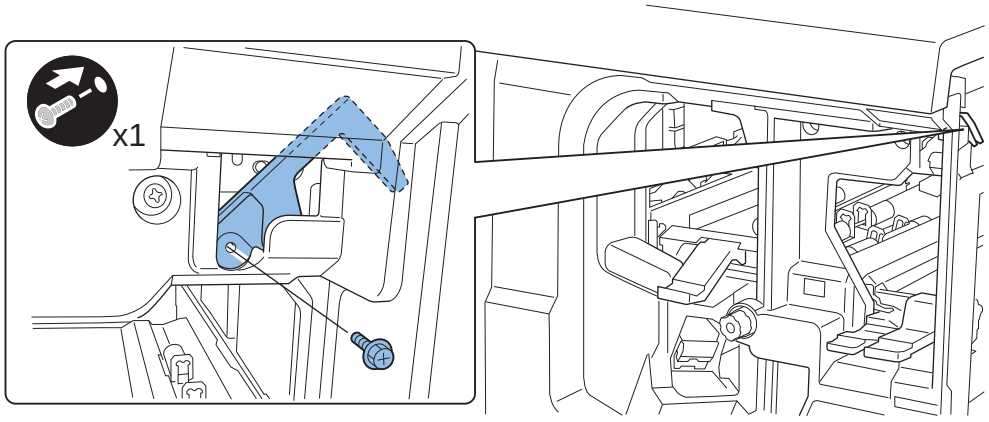

F-6-91

MEMO:
If the latch cannot be released from the latch catch smoothly, use a screwdriver or the like as shown by the illustration.



F-6-92

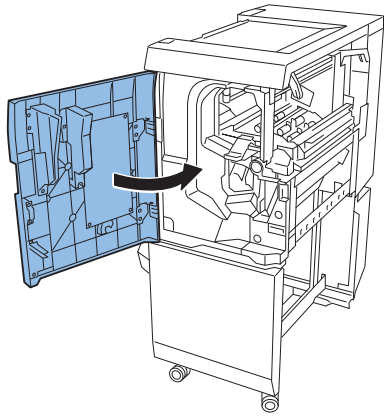
9) Remove the latch fixing screw to fix the latch.




F-6-93

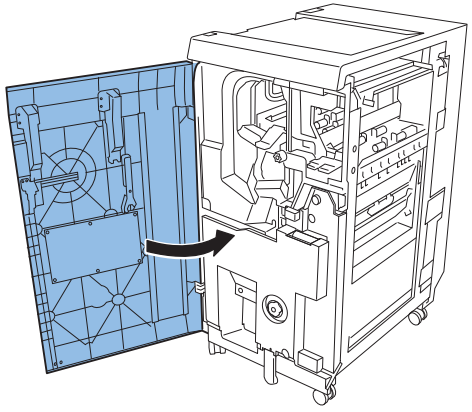
10) Close the front cover of the finisher.

<Staple Finisher-A1>



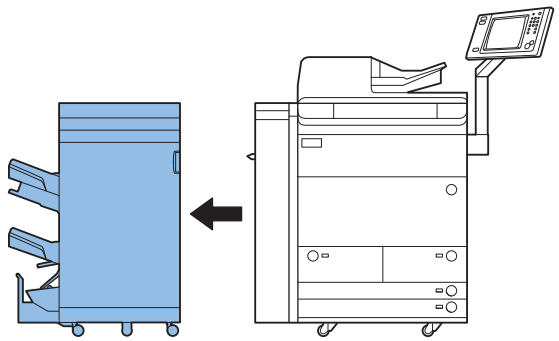
F-6-94

<Booklet Finisher-A1>



F-6-95

☐ 11) Separate the finisher from the host machine.



F-6-96

# 7

# Appendix

- Service Tools
- General Circuit Diagram

F-7-1

# Service Tools

## Solvents and Oils

| No. | Name | Uses | Composition | Remarks |
|---|---|---|---|---|
| 1 | Alcohol | Cleaning:<br>e.g., glass, plastic, rubber parts, external covers | Hydrocarbon (fluorine family), Alcohol, Surface activating agent, Water | Do not bring near fire.<br>Procure locally.<br>Isopropyl alcohol may be substituted. |

T-7-1

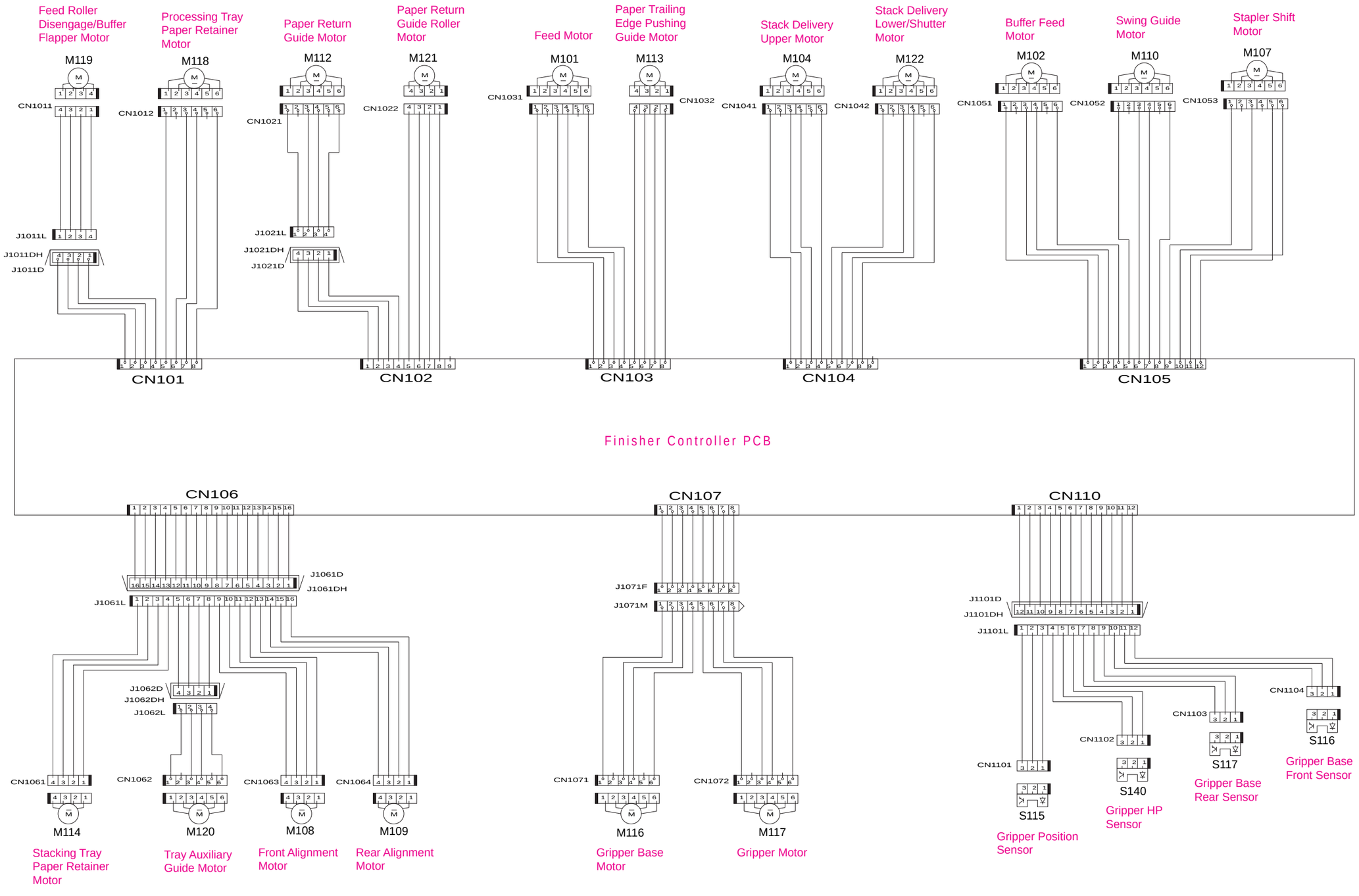
## Special Tools

None

# General Circuit Diagram

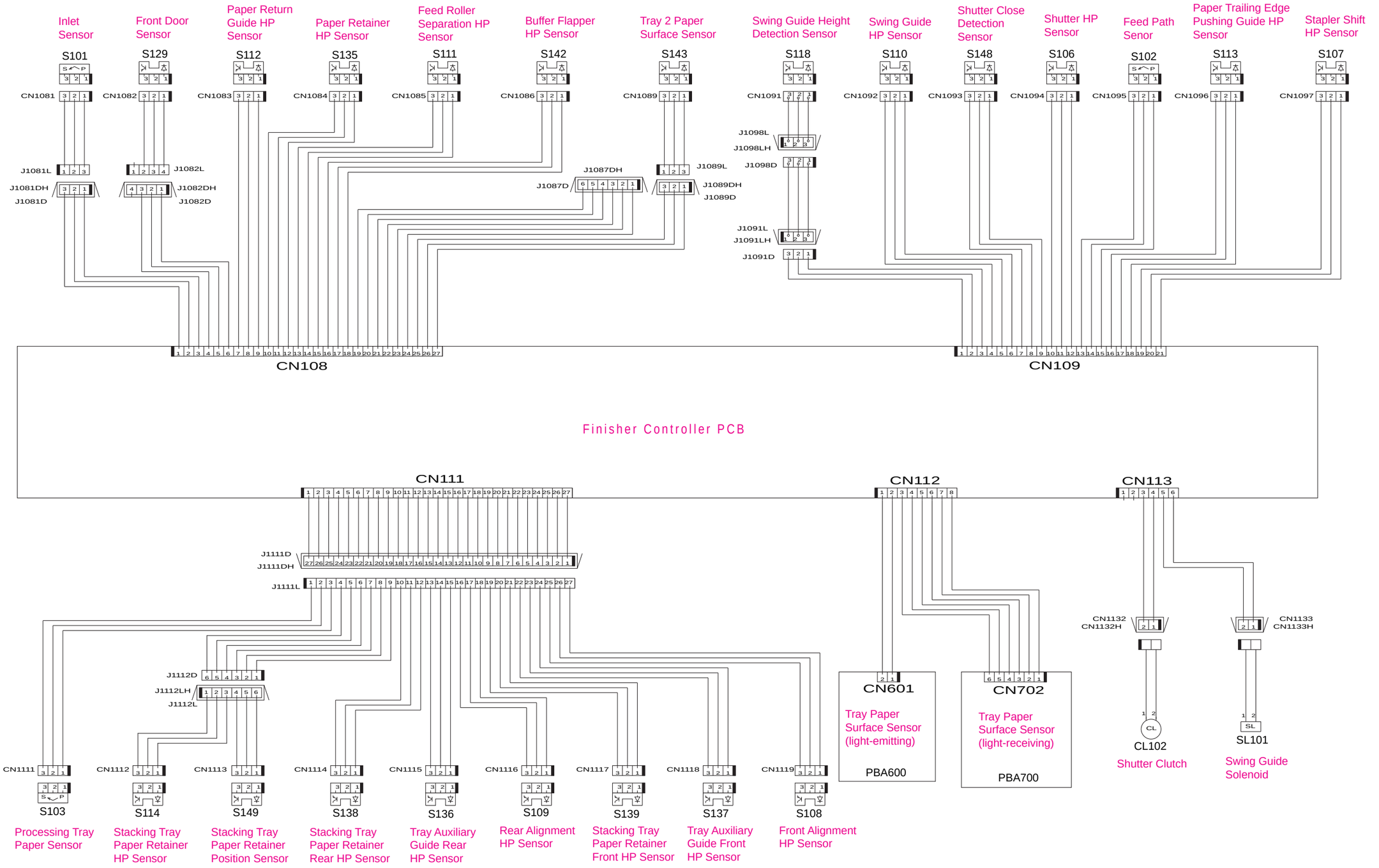
## General Circuit Diagram

Generai Circuit Diagram 1/6



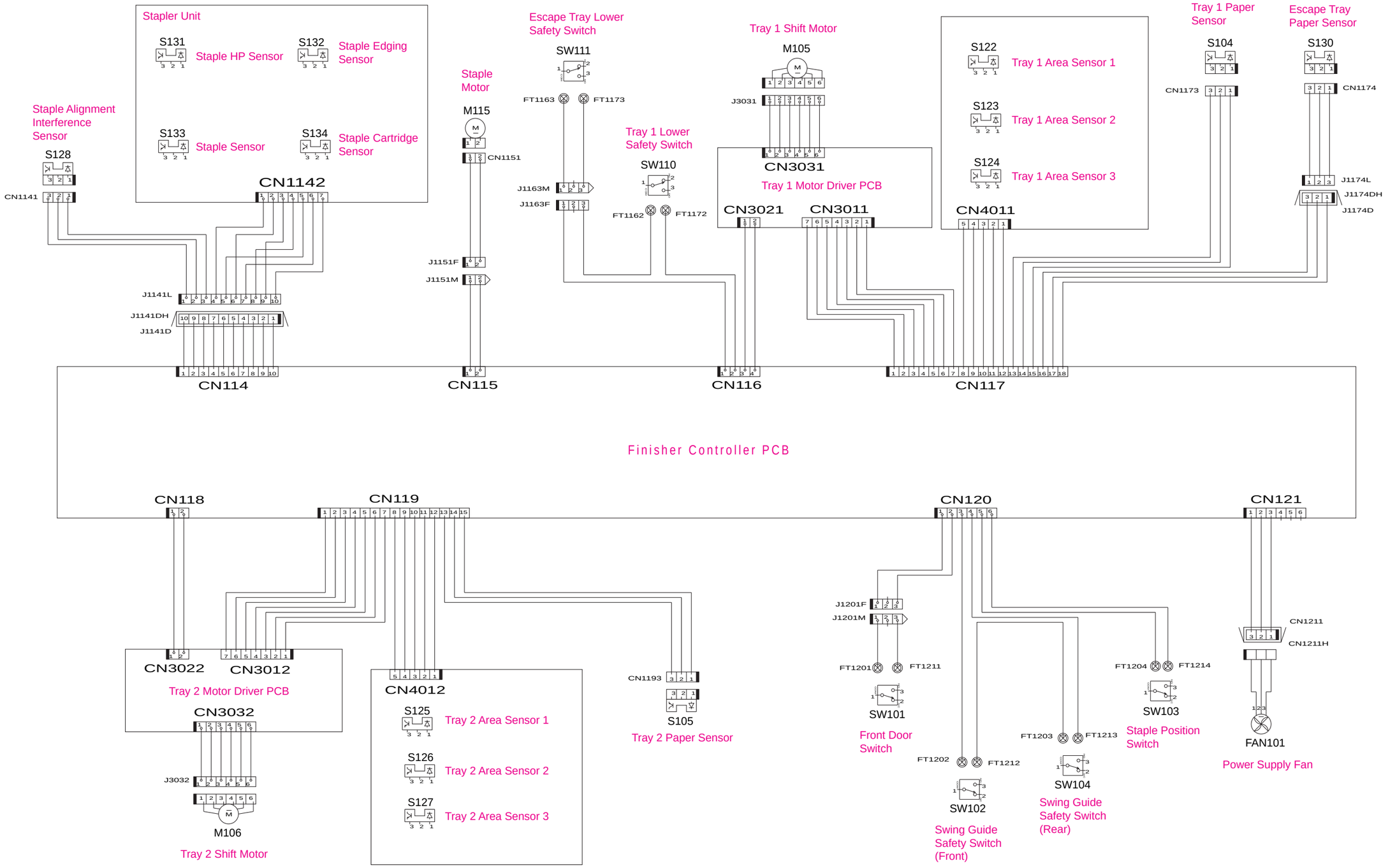

F-7-2

Generai Circuit Diagram 2/6



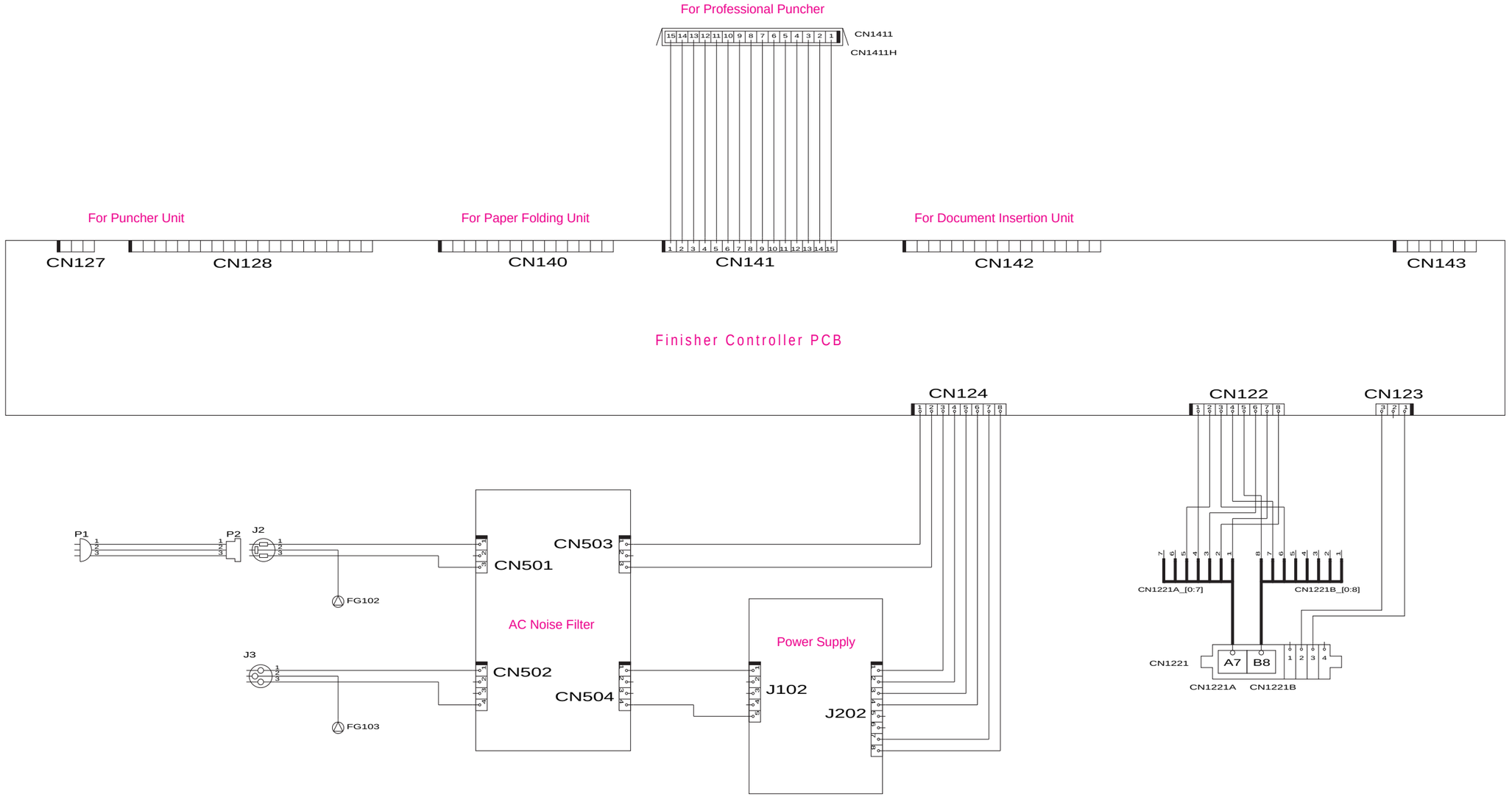

F-7-3

Generai Circuit Diagram 3/6



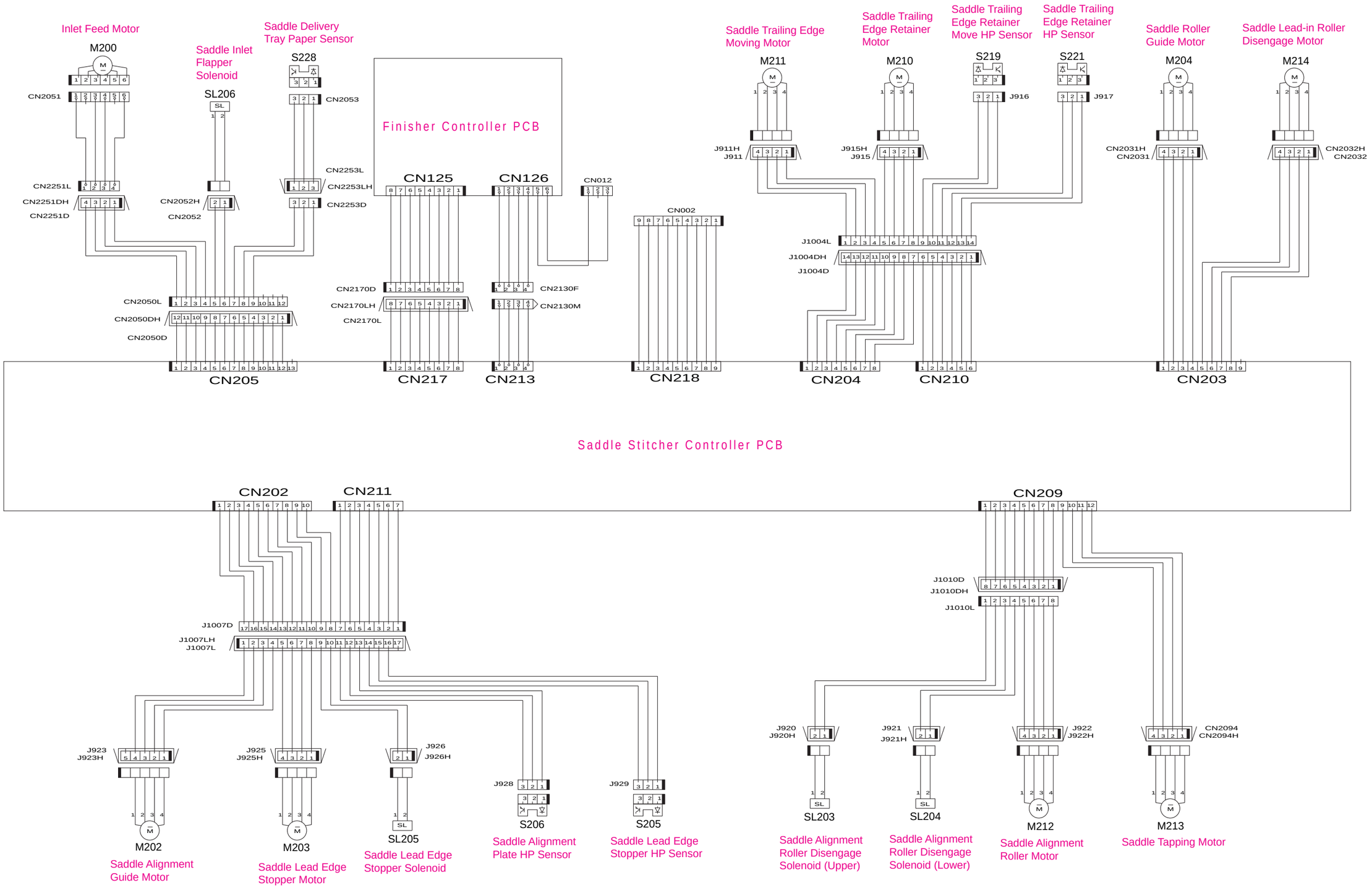

F-7-4

Generai Circuit Diagram 4/6



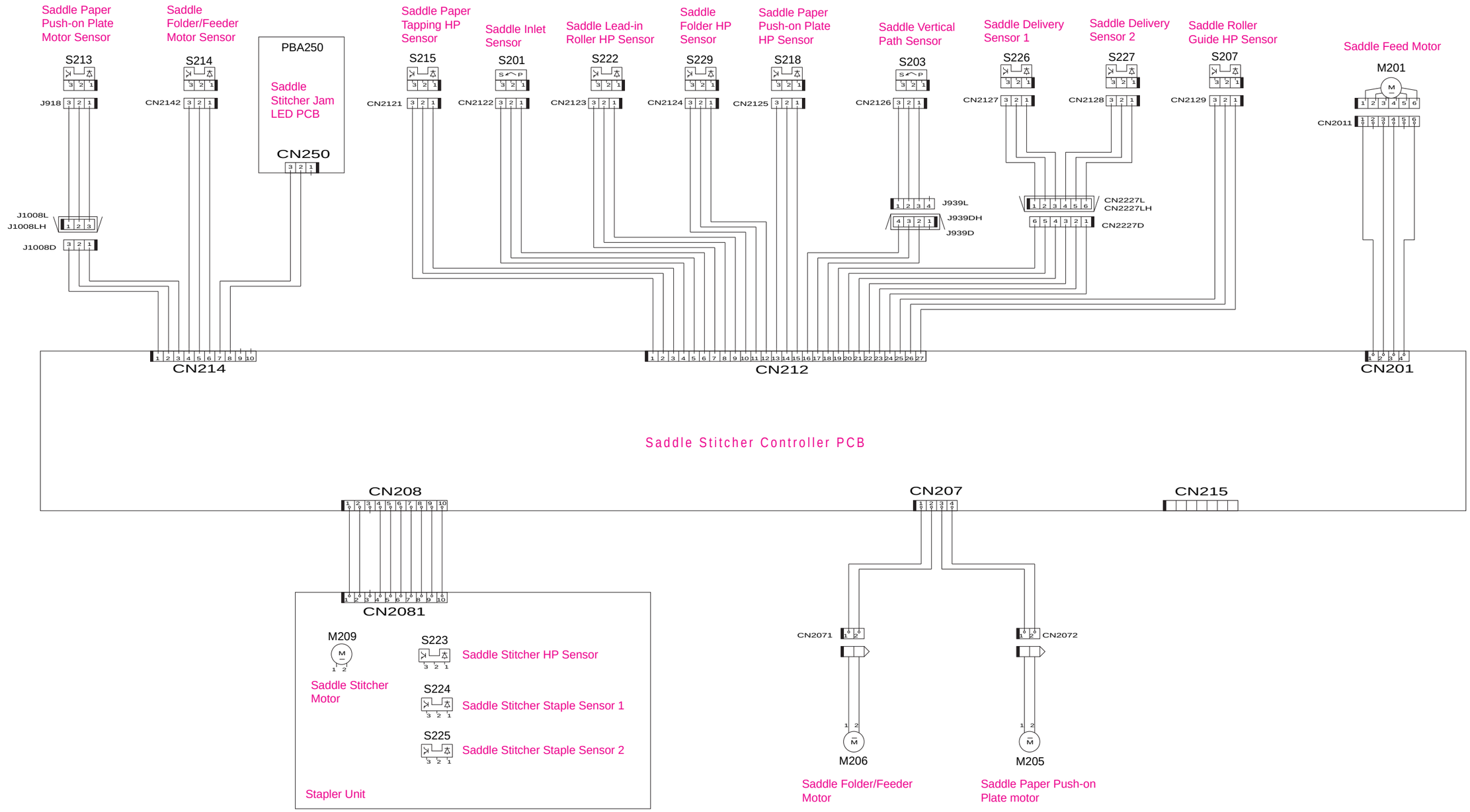

F-7-5

Generai Circuit Diagram 5/6




F-7-6

Generai Circuit Diagram 6/6




F-7-7