Service Manual

Finisher, Sorter, DeliveryTray
Finisher-U1

Canon

Sep 14 2005

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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Caution

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

Symbols Used

This documentation uses the following symbols to indicate special information:

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

The following rules apply throughout this Service Manual:

1. Each chapter contains sections explaining the purpose of specific functions and the relationship between electrical and mechanical systems with reference to the timing of operation.
   In the diagrams, ▭▮▮▮▭ represents the path of mechanical drive; where a signal name accompanies the symbol , the arrow ⟶ indicates the direction of the electric signal.
   The expression "turn on the power" means flipping on the power switch, closing the front door, and closing the delivery unit door, which results in supplying the machine with power.
2. In the digital circuits, '1'is used to indicate that the voltage level of a given signal is "High", while '0' is used to indicate "Low".(The voltage value, however, differs from circuit to circuit.) In addition, the asterisk (*) as in "DRMD*" indicates that the DRMD signal goes on when '0'.
   In practically all cases, the internal mechanisms of a microprocessor cannot be checked in the field. Therefore, the operations of the microprocessors used in the machines are not discussed: they are explained in terms of from sensors to the input of the DC controller PCB and from the output of the DC controller PCB to the loads.

The descriptions in this Service Manual are subject to change without notice for product improvement or other purposes, and major changes will be communicated in the form of Service Information bulletins.
All service persons are expected to have a good understanding of the contents of this Service Manual and all relevant Service Information bulletins and be able to identify and isolate faults in the machine."

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Chapter 1 Specifications

Chapter 2 Functions

Chapter 3 Parts Replacement Procedure

Chapter 4 Maintenance

Chapter 5 Error Code

Chapter 1 Specifications

Contents

1.1 Product Specifications

1.1.1 Specifications

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Item		Description	Remarks
Stack tray		1-stage tray (w/ extension tray for large-size paper)	Two-bin configuration can be used by attaching an option.
Stacking method		Stack tray lowering mechanism (1-bin self-running)	
Delivery method		Face-down	
Loadable paper size	Longitudinal	139.7mm to 457mm	
	Lateral	98.4mm to 320mm	
Stack paper size		64g/ to 200g/m2	
Paper sizes		A3, B4, A4R, B5, B5R, A5R, postcard, double postal card, 4-leaf postcard, custom size (182 x 140 mm to 292 x 432 mm), envelopes (Env. #4, COM10, Monarch, DL, ISO-B5, ISO-C5) 64 g/m2 to 128 g/m2	
Media types		Plain paper, recycled paper, colored paper, punched paper, thick paper, secondary drawing copy, transparency, label sheet, postcard, double postal card, 4-leaf postcard, envelope	
Modes	Staple loading	A3,A4,A4R,B4,B5,LDR,LGL,LTR,LTRR	
	Non-staple loading	A3, A4, A4R, A5, A5R, B4, B5, B5R, LDR, LGL, LTR, LTRR, postcard, envelope	
	Stack offset loading	A3,A4,A4R,B4,B5,LDR,LGL,LTR,LTRR	- Shift amount 43.5 to 87 mm - Shift range 210 mm to 297 mm
Number of loadable sheets	Option tray	Non-sort, Sort A4/B5/A5/LTR/STMT/STMTR: 770 sheets (80 g/m2) or 26 mm A3/B4/A4R/B5R/LDR/LGL/LTRR: 150 sheets (80 g/m2) or 20 mm Staple Mode A4/B5/LTR: 30 sheets or 100 mm A3/B4/A4R/B5R/LDR/LGL/LTR-R: 30 sheets or 50 mm	Based on 80 g/m2 paper
	Standard tray	Non-sort, Sort A4/B5/A5/LTR/STMT/STMTR: 200 sheets (80 g/m2) or 26 mm A3/B4/A4R/B5R/LDR/LGL/LTRR: 150 sheets (80 g/m2) or 20 mm Staple Mode A4/B5/LTR: 30 sheets or 26 mm A3/B4/A4R/LDR/LGL/LTR-R: 30 sheets or 20 mm	
	Optional tray	Upper tray Small size: 26 mm in height Large size: 13 mm in height Lower tray Small size: 26 mm in height Large size: 13 mm in height	
	When optional trays are attached	A4, B5: 50 sheets (64-80 g/m2) A3, B4, A4R: 30 sheets 64-80 g/m2)	
Alignment range	Staple loading	Paper width: 210.0 mm to 297.0 mm	
	Non-staple loading	Paper width: 210.0 mm to 297.0 mm	
	Stack offset loading	Paper width: 210.0 mm to 297.0 mm	
Paper detection	Intermediate process tray	Attached	
	Stack tray	Attached	
Number of mixed sheets	Mixed-size	Height: Max. 50 mm	20 mm when the additional tray C1 for finisher is installed (loadability is not assured).
	Mixed-staple	Height: Max. 50 mm (Max. 30 booklets)	
	Mixed-mode	Height: Max. 50 mm (Max. 30 booklets)	
Operation panel		Not provided	
Display panel		Not provided	
Installation type		Built-in	
Dimensions		460mm(W)x520mm(D)x300mm(H)	
Weight		12kg	
Power supply		Power (24 V/13 V) is supplied from host machine.	

Item		Description	Remarks
Maximum power consumption	Power supply from host machine	Approx. 45 W or less	
Operating noise	Host machine + DF + Finisher	Host machine noise + 3 dB (full system)	
Option		Additional tray C1 for finisher	

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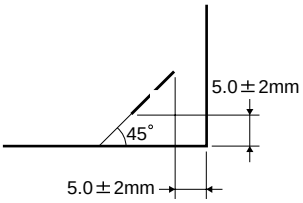
Item	Description	Remarks
Stapling method	Stapling by rotary cam	
Sizes of paper that can be stapled	1-point stapling	A3,A4,A4R,B4,B5,LDR,LGL,LTR,LTRR
Number of sheets that can be stapled	50 sheets of small-size paper, 30 sheets of large-size paper (Max.) 2 sheets of 128 g/m2 paper + 40 sheets of 80 g/m2 paper (small-size)	Paper thickness: 5.5 mm or less
Staple loading method	Replacement of dedicated staple sheet cartridge (5000 staples)	
No staple detection	Detected	
Manual stapling	Disabled	
Standby function	Provided	

-Stapling position (front 1-point)



A3 , B4 , A4 , A4R , B5 , LDR , LGL , LTR , LTR-R

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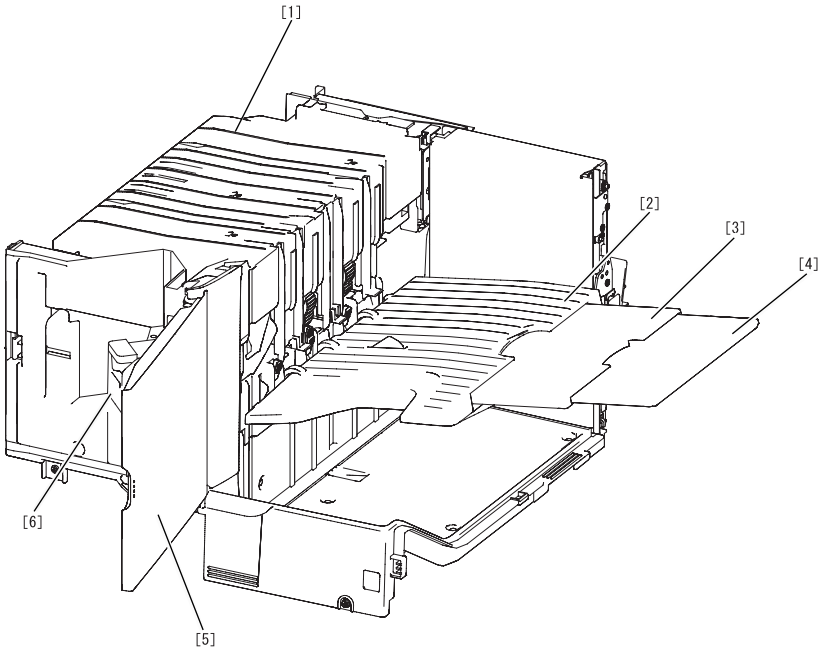
1.2 Names of Parts

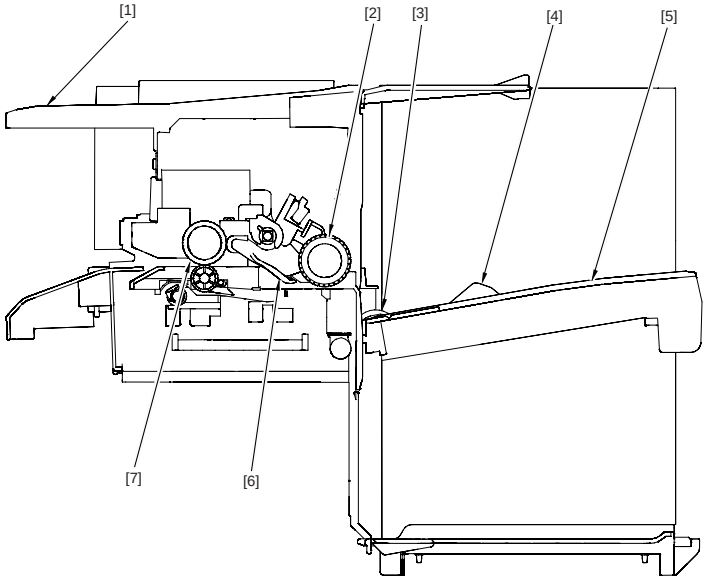
1.2.1 External View



F-1-2

[1] Top cover
[2] Stack tray
[3] Stack extension tray 1
[4] Stack extension tray 2
[5] Finisher front cover
[6] Staple

1.2.2 Cross-sectional View



F-1-3

[1] Top cover
[2] Offset roller
[3] Tray paper holder
[4] Stack tray paper presence sensor
[5] Stack tray
[6] Paper holder
[7] Feed roller

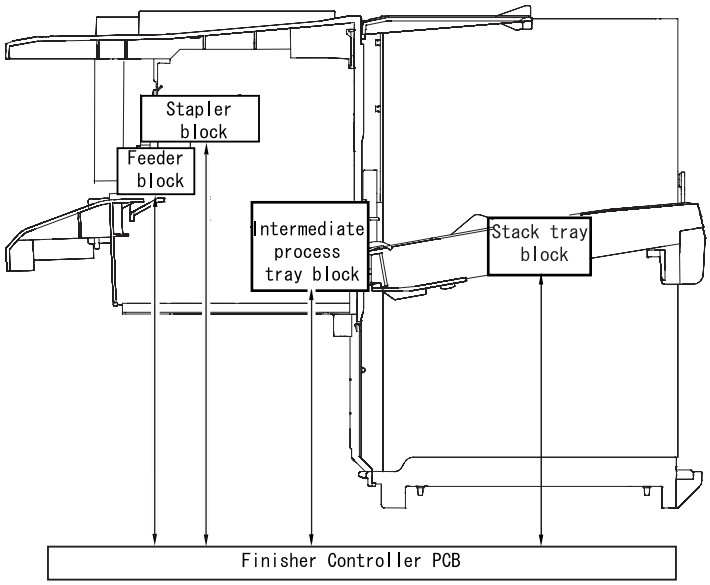
Chapter 2 Functions

Contents

2.1 Basic Construction

2.1.1 Overview

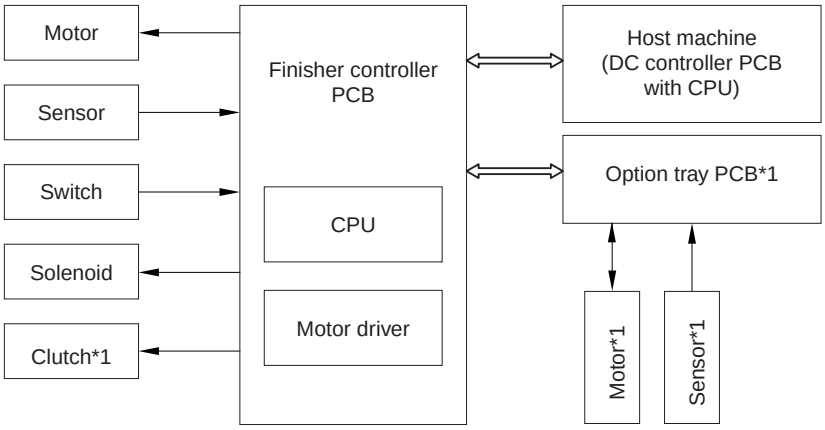
The finisher consists of four blocks: a stack tray, stapler, intermediate process tray, and feeder blocks.
The following illustration shows locations of these four blocks and the finisher controller PCB.



F-2-1

2.1.2 Outline of Electric Circuits

The operation sequence of the finisher is controlled by the finisher controller PCB.
The finisher controller PCB incorporates a 16-bit CPU to perform sequence control (and serial communication with the host machine).
The CPU on the finisher controller PCB incorporates a ROM that stores an operation sequence program.
The finisher controller PCB drives motors in response to the commands sent from the host machine via a serial communication line.
The finisher controller PCB also sends information about various sensors and switches to the host machine via the serial communication line.



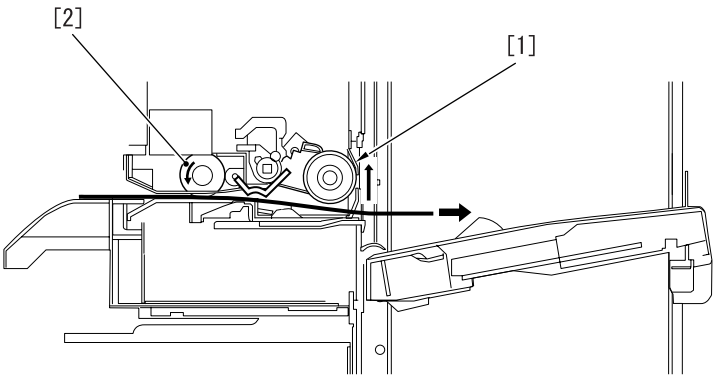
*1: Only when option tray is installed

F-2-2

2.2 Basic Operation

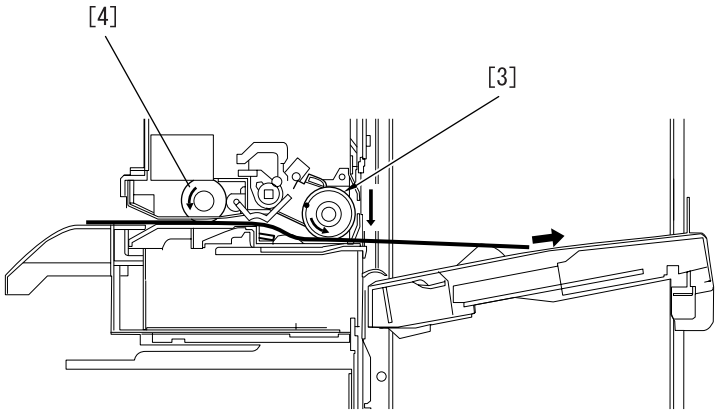
2.2.1 Basic Operation

1) The offset roller [1] rises.
2) Paper is fed only with the feed roller [2]. (The offset roller and feed roller are driven together.)



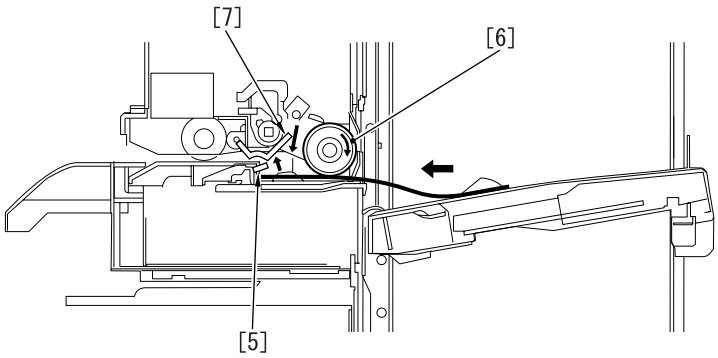
F-2-3

3) The offset roller [3] lowers to feed paper together with the feed roller [4].
4) After passing through the feed roller [4], paper is fed only with the offset roller [3] and then it stops on the process tray.



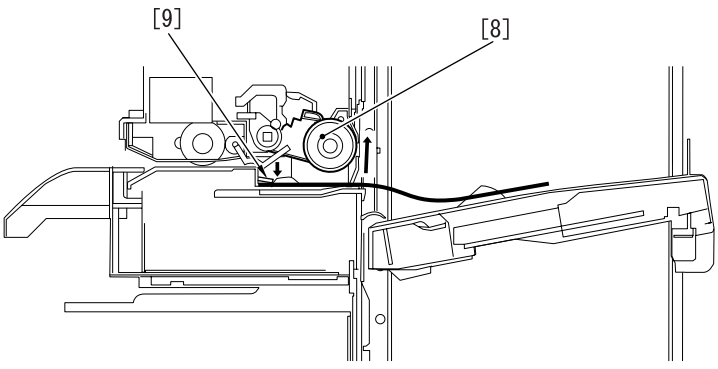
F-2-4

5) Open the claw [5].
6) The offset roller [6] turns reversely to push the paper against the restriction plate.
7) The paper holder [7] prevents the paper from being curled in conjunction with the descending offset roller.



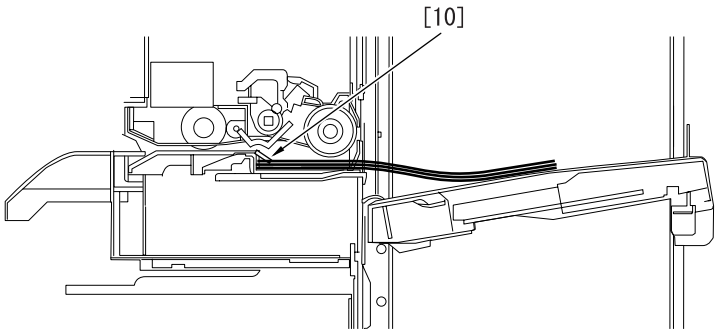
F-2-5

8) While pressing the paper with the offset roller [8] to cause offset, align the paper to the front paper alignment plate.
9) Raise the offset roller [8], and then close the claw [9].



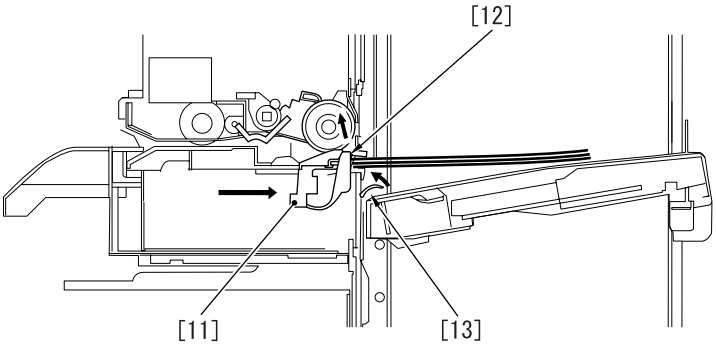
F-2-6

10) Steps 2 to 9 are repeated to put the succeeding sheet in the process tray.
11) After completion of alignment or stapling, the Claw [10] catches hold of the paper stack.



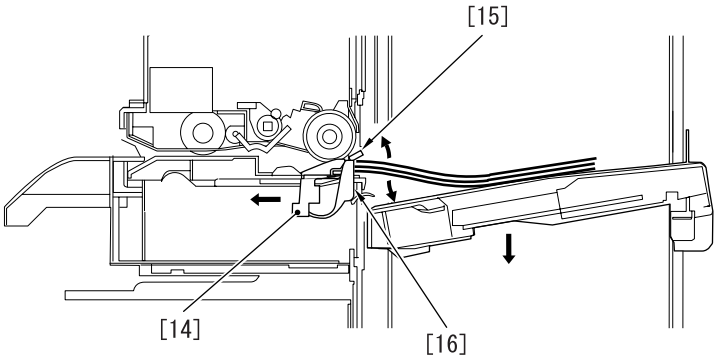
F-2-7

12) With the paper stack held by the paper holder, the stack slider [11] moves toward the stack tray and stops.
13) The return wall [12] is pressed by the stack slider, being raised on the process tray.
14) The tray paper holder [13] moves away from the stack tray.



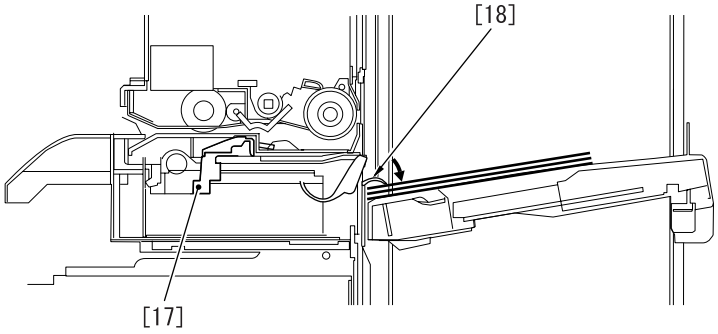
F-2-8

15) The stack slider [14] moves in the opposite direction from the stack tray.
16) The lever of the Claw [15] is engaged with the groove in the tray and the paper holder opens while moving.
17) The stack stops at the return wall [16], falling into the stack stay.



F-2-9

18) The slider [17] moves to the original position.
19) The tray paper holder [18] catches hold of the sheets dropped in the stack tray.

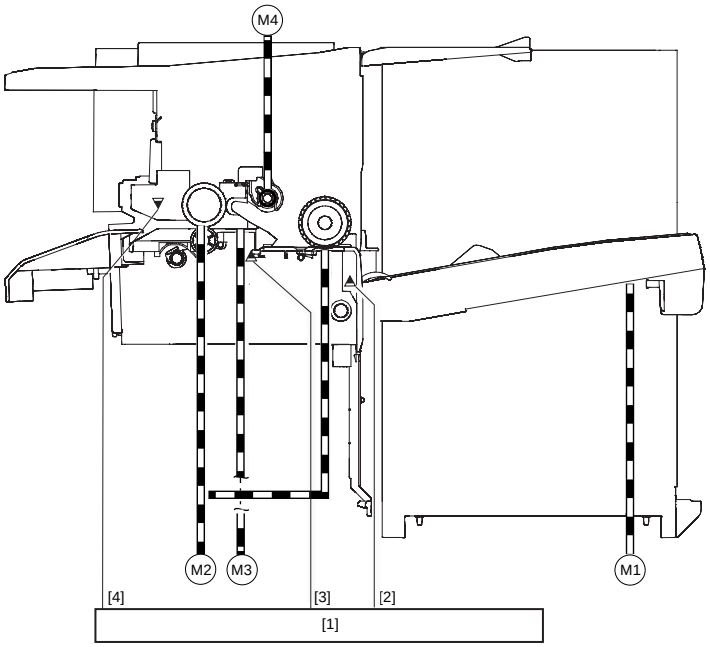


F-2-10

2.3 Feed Drive System

2.3.1 Overview

Sheets of paper fed from the host machine are put in the process tray.
The sheets are aligned and stapled in the process tray and then ejected to the stack tray.
The following illustration shows major components of the feed system.

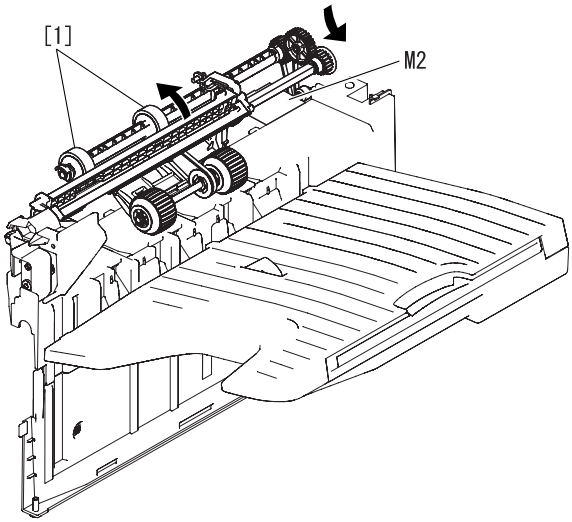


F-2-11

M1: Stach tray shift motor
M2: Feed motor
M3: Stack slide motor
M4: Offset motor
[1]: Finisher controller PCB
[2]: Paper surface sensor signal
[3]: Process tray papepr presence sensor signal
[4]: Inlet sensor signal

2.3.2 Feed Roller Control

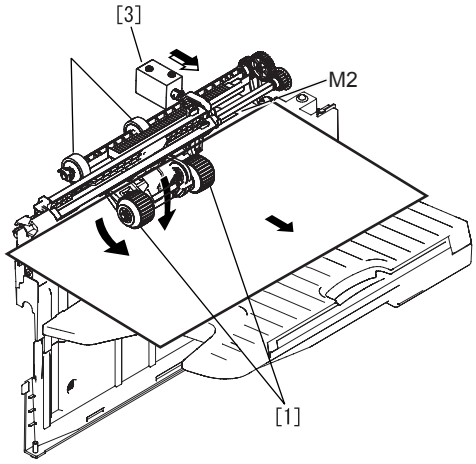
The feed roller is driven by the feed motor (M2). when the motor turns in the normal direction,the feed roller[1] is driven to eject paper foward the stack tray.



F-2-12

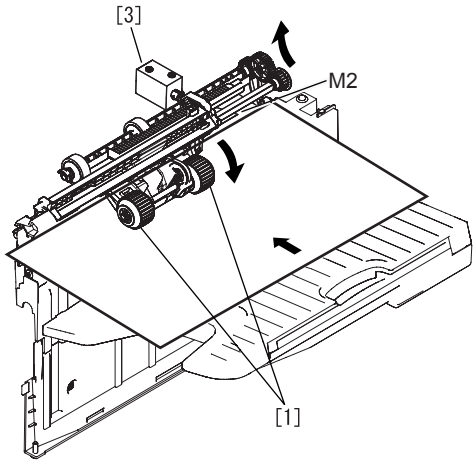
2.3.3 Offset Roller Control

a. Paper feed
The offset roller [1] is driven by the feed motor (M2). When prescribed time lapses after paper is fed by the feed roller [2], the offset solenoid [3] is turned off to bring the offset roller [1] into contact with the paper, feeding the paper toward the track tray along with the feed roller [2]. When the trailing edge of the paper leaves the feed roller, the paper is then fed only by the offset roller [1].



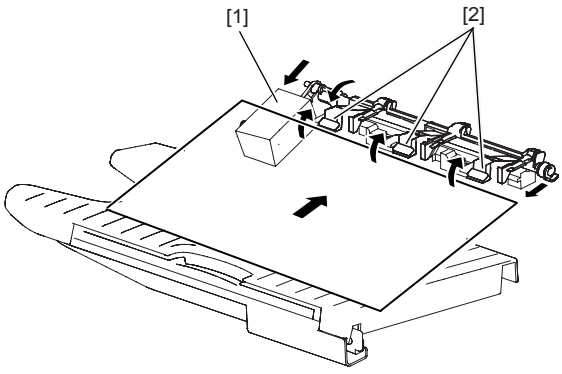
F-2-13

a.Paper Feed 1
When prescribed time lapses, the feed motor (M2) turns in the reverse direction to drive the offset roller [1] to pull the paper back to the processing tray.



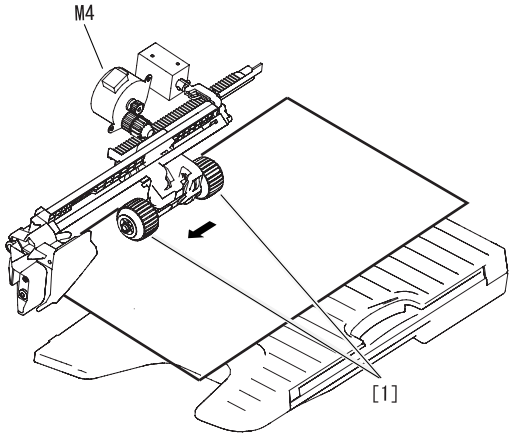
F-2-14

b. Alignment/Offsetting
This machine opens the claw [2] by turning on the claw open/close solenoid [1] before pulling the paper back to the processing tray. Then, the machine pulls back the paper to press the paper against the trailing edge stopper for longitudinal alignment.



F-2-15

After completion of feed-directional alignment, the offset roller [1] is brought into contact with the upper surface of the paper. Then, the offset roller is driven by the offset motor (M4) to move the paper toward the rear of the machine, thus aligning the paper in the across-the-width direction.

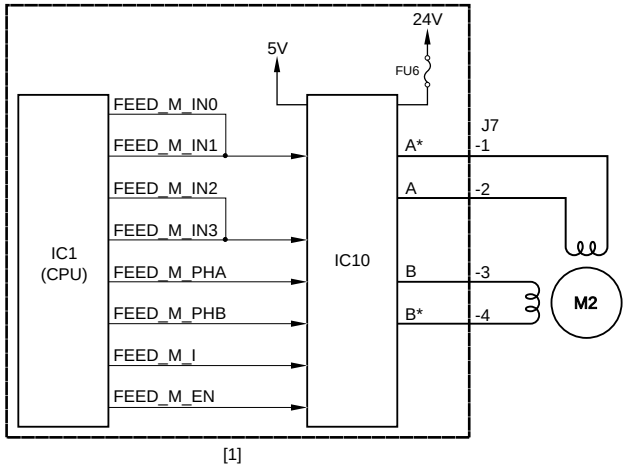


F-2-16

MEMO:
After completion of across-the-width alignment of paper, this machine lowers the Claw to hold the aligned paper so that it is not misaligned by the succeeding paper.

2.3.4 Feed Motor Control

The feed motor (M2) is a 2-phase stepping motor.
The drive force of the feed motor is transmitted to the feed roller and offset roller via gears and belts.
The motor driver changes the order and frequencies of the pulse signals (A, A*, B, B*) output in response to the signal from the CPU, thus controlling the rotation direction and speed of the feed motor (M2).

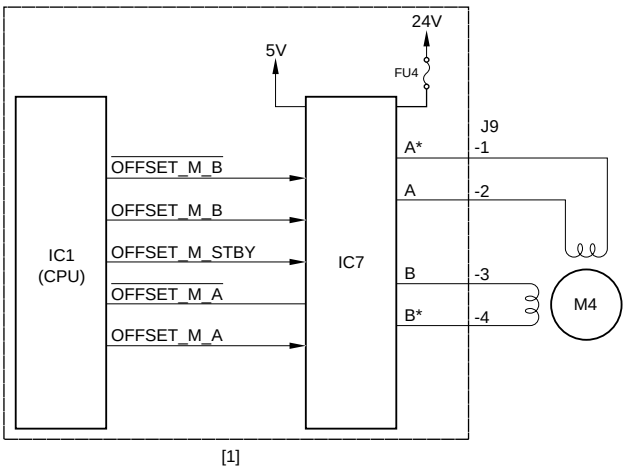


F-2-17

[1]: Finisher controller PCB
M2: Feed motor
IC10: Motor driver

2.3.5 Offset Motor Control

The offset motor (M4) is a 2-phase stepping motor. The offset roller is controlled by changing the rotation direction of the offset motor. The motor driver changes the order and frequencies of the pulse signals (A, A*, B, B*) output in response to the signal from the CPU, thus controlling the rotation direction and speed of the offset motor (M4).



F-2-18

[1]: Finisher controller PCB

M4: Offset motor
IC7: Motor driver

2.4 Staple Operation

2.4.1 Functional Configuration

The stapler unit of this machine is of the fixed type and it staples sheets of paper when the Staple mode is selected on the operationpanel on the main body. Since this stapler unit is of the fixed type, it can staple sheets at one front position.This machine puts in staples from the bottom of paper.The following table lists the components of the stapler.

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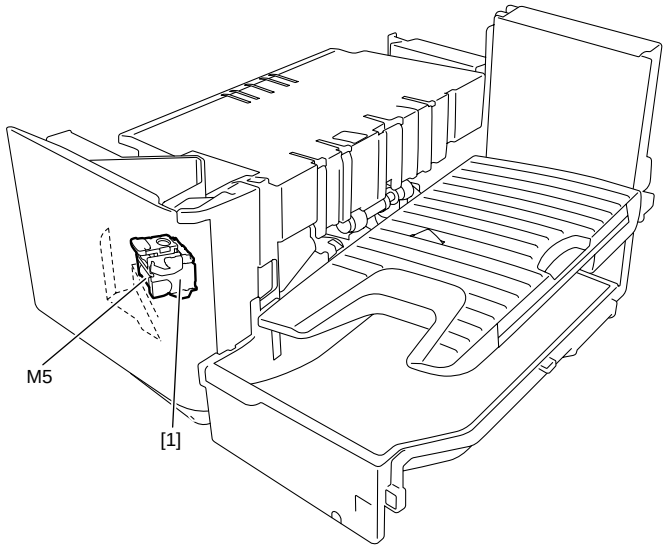
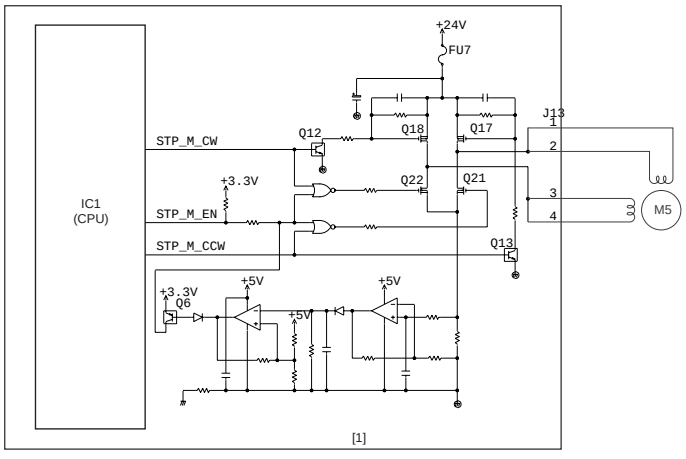
Symbol	Name	Function
M5	Staple motor	Drives the stapler.
-	No staple sensor	Detects staples remaining in the stapler (this sensor is built in the stapler)
-	Stapler home position sensor	Detects the home position of the stapler (this sensor is built in the stapler)
[1]	Stapler	Puts in staples.



F-2-19

2.4.2 Staple Motor Control

A rough diagram of the staple motor (M5) drive circuit is shown below.
The staple motor is a DC motor.
The motor rotation direction can be changed by the combination of motor drive signals sent from the CPU (on the finisher controller PCB) to the motor drive circuit.



F-2-20

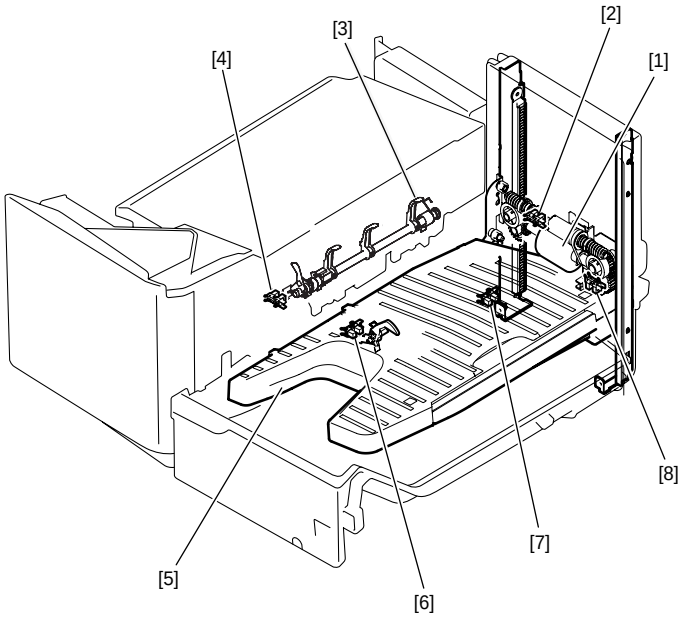
[1]: Finisher controller PCB
M5: Staple motor

2.5 Stack Tray Operation

2.5.1 Overview

This machine has a 1-stage stack tray to which the paper aligned/offset/stapled in the process tray is ejected. When the first stack of paper is fed to the stack tray, the stack tray paper presence sensor (PI8) is turned on.

The stack tray is moved up and down with the stack tray shift motor (M1).
The home position of the stack tray is where the paper surface sensor detects the upper surface of the stack tray. If the stack tray is not at the home position when copying/printing starts, the stack tray shift motor is operated to move the stack tray to the home position. The lower limit of the stack tray is detected by the stack tray lower limit sensor (PI10). When the stack tray lower limit sensor is turned on, the stack shift motor can run only in the direction that leaves this sensor.

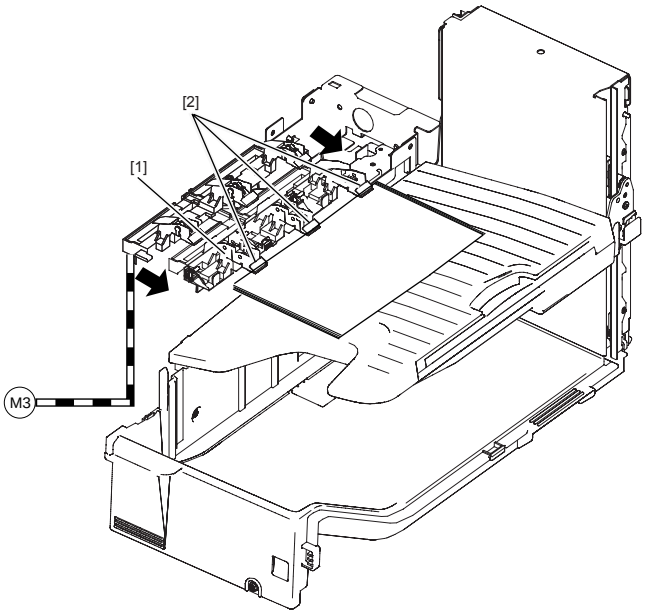


F-2-21

[1] Stack tray shift motor (M1)
[2] Stack tray clock sensor (PI7)
[3] Stack tray paper holder
[4] Stack tray paper surface sensor (PI3)
[5] Stack tray
[6] Stack tray paper presence sensor (PI8)
[7] Stack tray lower limit sensor (PI10)
[8] 150-sheets-in-tray sensor

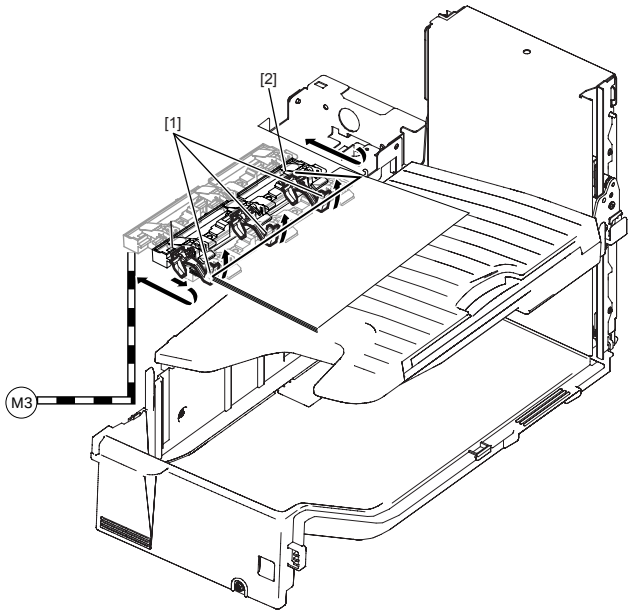
2.5.2 Stack Ejection

1) A paper stack is ejected to the stack tray by the stack slider [1].
2) After completion of alignment, this machine operates the stack slide motor (M3) with the stack held by the Claw [2] to move the stack slider [1] toward the stack tray, stopping the stack slide motor.



F-2-22

3) The return wall [1] is pressed by the stack slider [2], being raised on the process tray.
4) The stack slider moves in the opposite direction from the stack tray.
5) The lever of the paper holder is engaged with the groove in the process tray, releasing the stack.
6) The stack stops at the raised return wall, falling into the stack tray.



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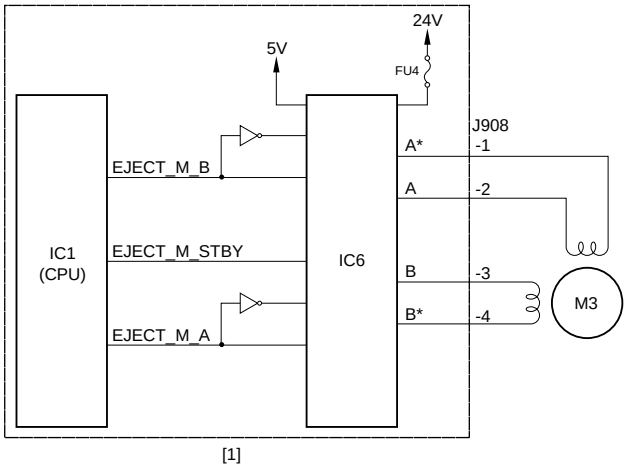
2.5.3 Stack Slide Motor Control

The stack slide motor (M3) is a 2-phase stepping motor. This motor can rotate in only one direction due to the machine configuration. Movement of the stack slider is controlled using the cam driven by the stack slide motor (M3). The motor driver controls operation of the stack slide motor (M3) with the pulse signals (A, A*, B, B*) output in response to the signal from the CPU.

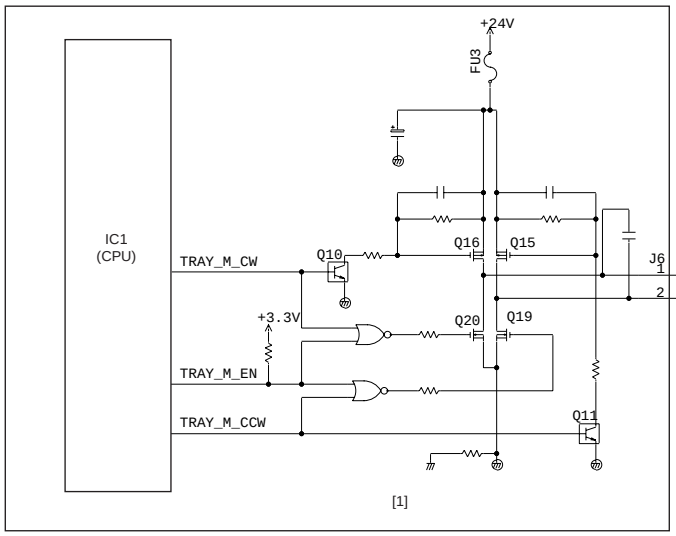


F-2-24

[1]: Finisher controller PCB
M3: Stack slide motor
IC6: Motor driver

2.5.4 Stack Tray Shift Motor Control

A rough diagram of the stack tray shift motor (M6) drive circuit is shown below.
The staple tray shift motor is a DC motor.
The motor rotation direction can be changed by the combination of motor drive signals sent from the CPU (on the finisher controller PCB (IC1)) to the motor drive circuit.
If the stack tray lower limit sensor (PI10) has detected the tray, a restriction is placed on the hardware so that the motor does not run in the direction that approaches this sensor.



F-2-25

[1]: Finisher controller PCB
M6: Stack tray shift motor

2.6 Detecting Jams

2.6.1 Overview

This machine detects paper jam using the following sensors:
- Inlet sensor (P15)
- Front cover open/close sensor (MS1)
- Stapler home position sensor (built in stapler)
- Stack slider home position sensor (PI1)

Paper jam is checked at the check timings recorded in the CPU on the finisher controller PCB. If paper jam is detected, operation stops and occurrence of the jam is indicated on the operation panel on the host machine.

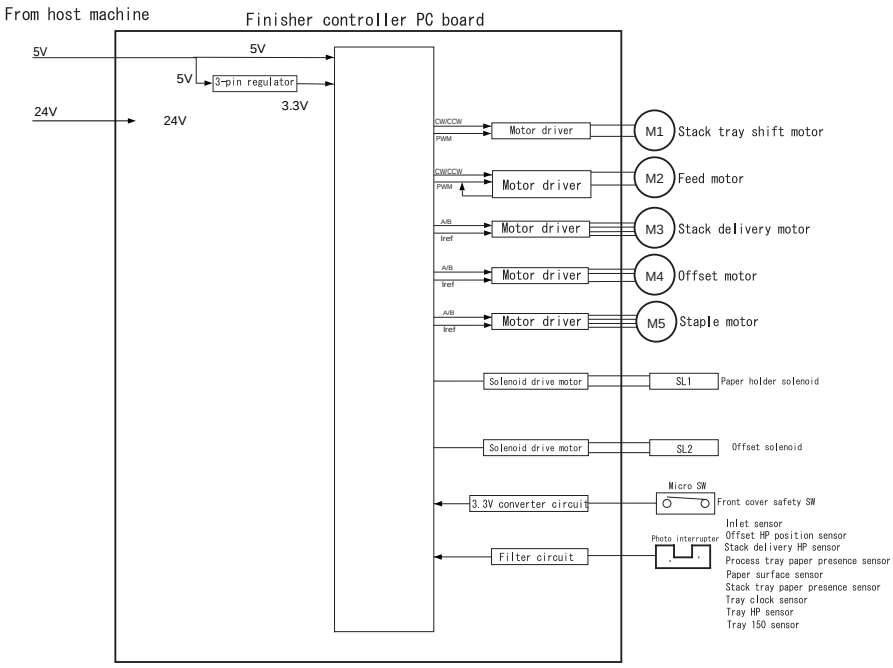
T-2-2

Jam type	Sensor	Description	Cause
Power-on jam (1307)	Inlet sensor (PI5)	Paper exists in the paper ejection path when the power is turned on.	The inlet sensor detected paper at power-on.
Door open jam (1408)	Front cover open/close switch (MS1)	The finisher cover opened during machine operation	The front cover switch detected opening of the front cover during standby or copy operation.
Delayed feed jam (1011)	Inlet sensor (PI5)	The paper ejected from the host machine is not fed to the finisher within the specified time.	The inlet sensor is not turned on within the specified time after reception of a paper ejection signal from the host machine.
Staying paper jam (1121)		Paper stayed in the paper ejection path longer than the specified time.	The inlet sensor is not turned off even if paper is fed by the specified distance after the leading edge of the paper from the host machine has passed through the sensor.
Staple jam (1506)	Stapler HP sensor (built in stapler)	The stapler does not operate normally because it is bloced with a staple.	The stapler HP sensor was turned off once after start of stapler operation, but the HP has not been reached within the specified time.
Stack ejection jam (1F08)	Stack slider HP sensor (PI1)	Paper ejection error or stack slider HP return error.	When a paper stack is ejected, the HP sensor is not turned off within the specified time.

2.7 Power Supply

2.7.1 Overview

After being turned on, the host machine supplies 24 VDC and 5 VDC to the finisher controller PCB. 24 VDC is used to drive motors. 5 DVC is converted to 3.3 VDC by the regulator IC on the finisher controller PCB. 5 VDC is used to drive sensors and ICs. 3.3 VDC is mainly used to drive ICs such as the CPU.



F-2-26

2.7.2 Protection Function

24 VDC lines connected to motors are provided with fuses for overcurrent protection.
The 24 DVC line connected to the host machine is provided with a fuse (FU1) and the 13 VDC line connected to the logic circuit is also provided with a fuse (FU2) for overcurrent protection.

Chapter 3 Parts Replacement Procedure

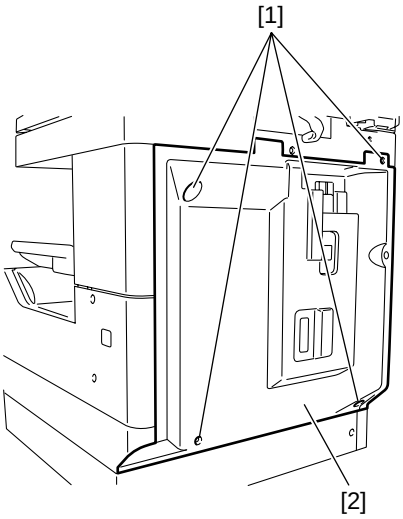
Contents

3.1 Removing from the Host Machine

3.1.1 Finisher Assembly

3.1.1.1 Detaching the Rear Cover

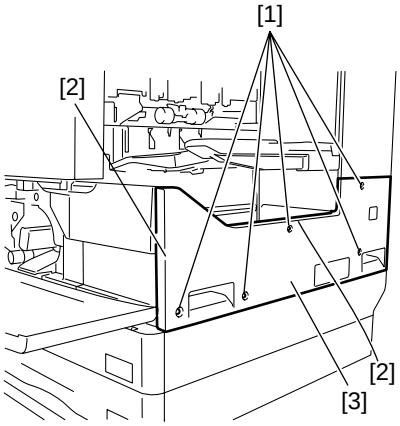
1) Open the front cover of the host machine.
2) Remove the four RS tightening screws (M3 x 8) [1], and then detach the rear cover [2].



F-3-1

3.1.1.2 Detaching the Lower-right Cover

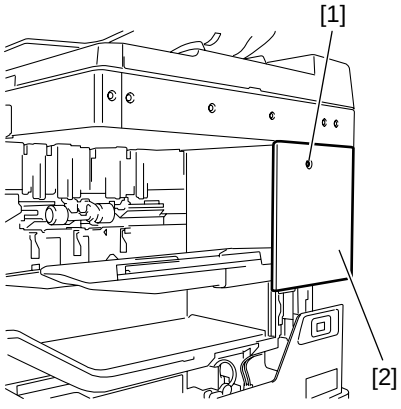
1) Remove the five RS tightening screws (M3 x 8) [1]. Release the two hooks [2], and then detach the lower-right cover [3].



F-3-2

3.1.1.3 Upper-right Cover

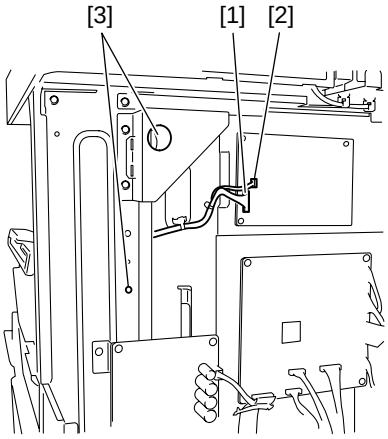
1) Remove the RS tightening screw (M3 x 8) [1], and then detach the upper-right cover [2].



F-3-3

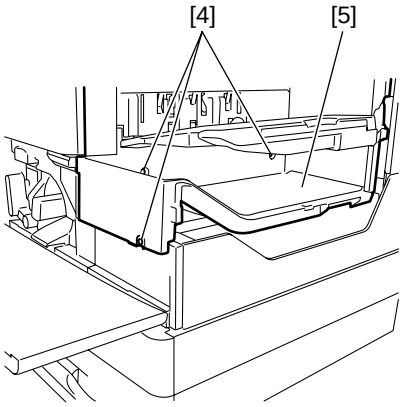
3.1.1.4 Removing the Shift Tray

1) Disconnect the connectors (J905) [1] and (J906) [2] on the finisher controller PCB, and then remove the two screws with toothed washer (M3 x 6) [3].



F-3-4

2) Remove the three TP binding screws (M3 x 6) [4], and then remove the Shift Tray [5] forward.

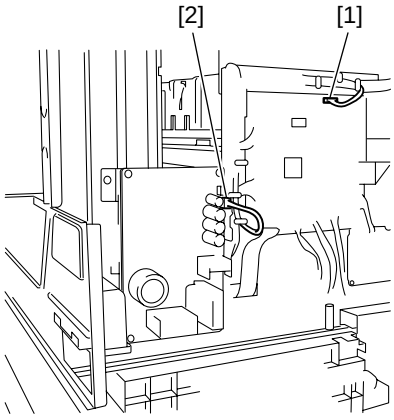


F-3-5

⚠ When removing the tray unit, be careful not to get your hands hit or pinched. Do not hold the tray.

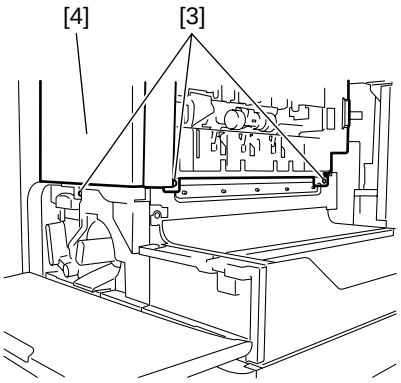
3.1.1.5 Removing the Finisher

1) Disconnect the connector (J203) [1] on the DC controller PCB and the connector (J50) [2] on the optional power supply PCB, and then disconnect the harness from the guide.



F-3-6

2) Remove the three TP binding screws (M3 x 6) [3], and then disconnect the finisher [4] forward.



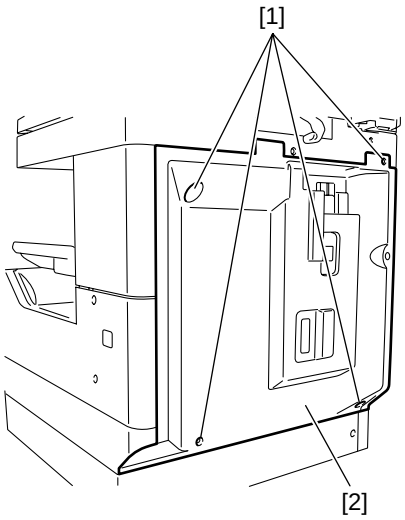
F-3-7

When removing the tray unit, be careful not to get your hands hit or pinched. Do not hold the tray.

3.1.2 Shift Tray

3.1.2.1 Removing the Rear Cover

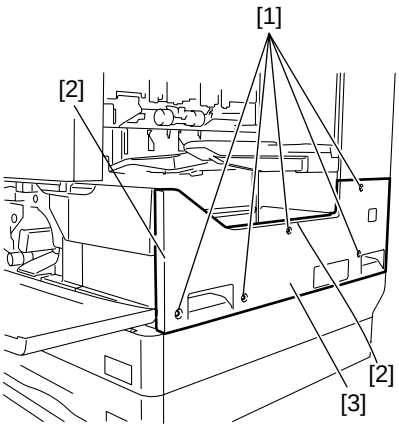
1) Open the front cover of the host machine.
2) Remove the four RS tightening screws (M3 x 8) [1], and then detach the rear cover [2].



F-3-8

3.1.2.2 Removing the Lower-right Cover

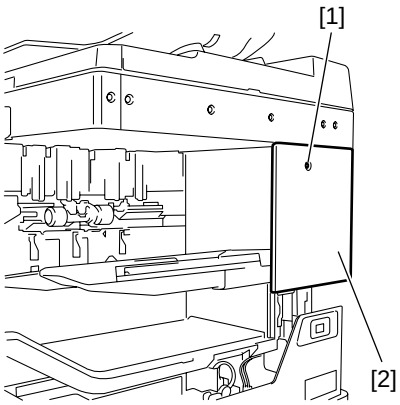
1) Remove the five RS tightening screws (M3 x 8) [1]. Release the two hooks [2], and then detach the lower-right cover [3].



F-3-9

3.1.2.3 Removing the Upper-right Cover

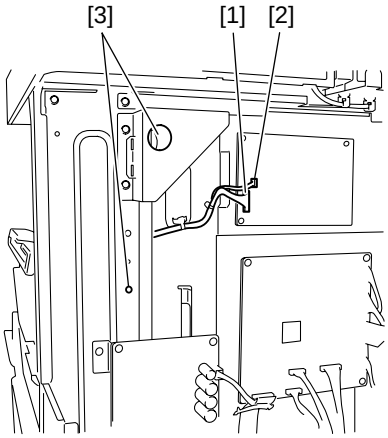
1) Remove the RS tightening screw (M3 x 8) [1], and then detach the upper-right cover [2].



F-3-10

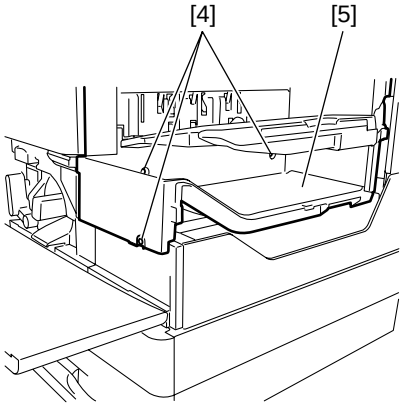
3.1.2.4 Removing the Shift Tray

1) Disconnect the connectors (J905) [1] and (J906) [2] on the finisher controller PCB, and then remove the two screws with toothed washer (M3 x 6) [3].



F-3-11

2) Remove the three TP binding screws (M3 x 6) [4], and then remove the Shift Tray [5] forward.

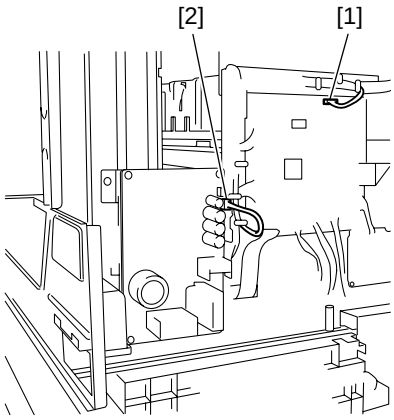


F-3-12

When removing the tray unit, be careful not to get your hands hit or pinched. Do not hold the tray.

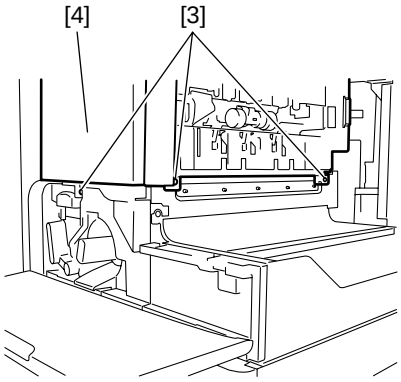
3.1.2.5 Removing the Finisher

1) Disconnect the connector (J203) [1] on the DC controller PCB and the connector (J50) [2] on the optional power supply PCB, and then disconnect the harness from the guide.



F-3-13

2) Remove the three TP binding screws (M3 x 6) [3], and then disconnect the finisher [4] forward.



F-3-14

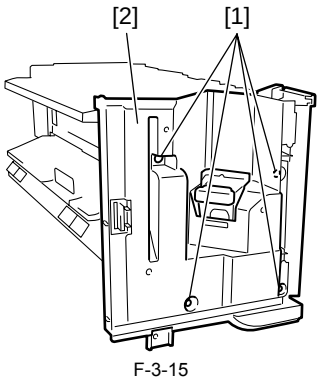
When removing the tray unit, be careful not to get your hands hit or pinched. Do not hold the tray.

3.2 External Covers

3.2.1 External Covers

3.2.1.1 Removing the Inner Cover of the Finisher

1) Open the front cover of the host machine.
2) Remove the four RS tightening screws (M3 x 8) [1], and then detach the rear cover [2].

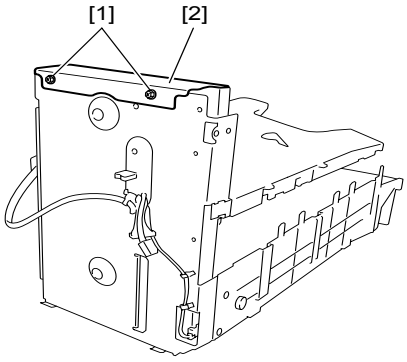


F-3-15

3.2.2 Finisher Front Cover

3.2.2.1 Front Cover of Finisher

1) Open the front cover of the finisher, remove the two P tightening screws (M4 x 10) [1], and then detach the front cover [2] of the finisher.

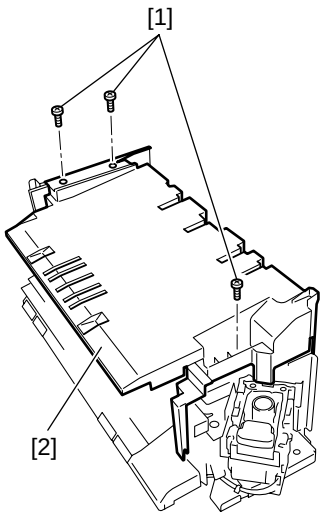


F-3-16

3.2.3 Top Harness Cover

3.2.3.1 Removing the Top Cover

1) Remove the three RS tightening screws (M3 x 8) [1], and then detach the top cover [2].



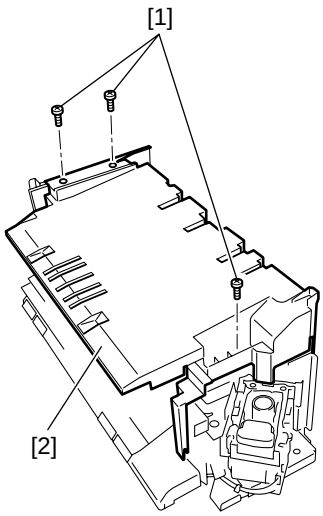
F-3-17

3.3 Drive System

3.3.1 Feed Motor

3.3.1.1 Removing the Top Cover

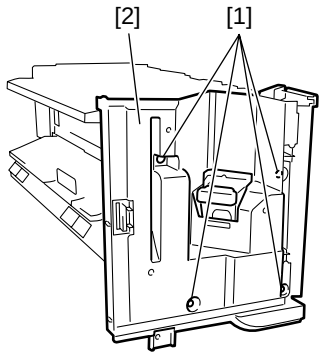
1) Remove the three RS tightening screws (M3 x 8) [1], and then detach the top cover [2].



F-3-18

3.3.1.2 Removing the Inner Cover of the Finisher

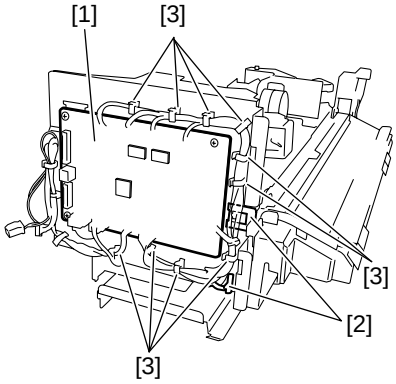
1) Open the front cover of the host machine.
2) Remove the four RS tightening screws (M3 x 8) [1], and then detach the rear cover [2].



F-3-19

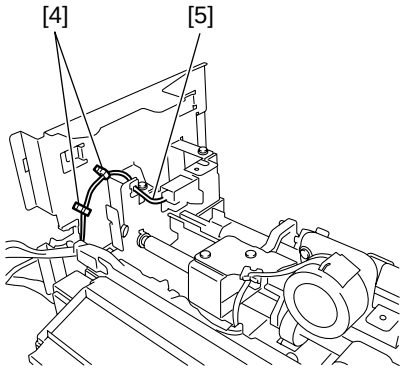
3.3.1.3 Removing the Finisher Controller PCB

1) Remove all connectors from the finisher controller PCB [1], and then open the two wire saddles [2].
2) Open ten wire saddles[3] and then remove the harnes.



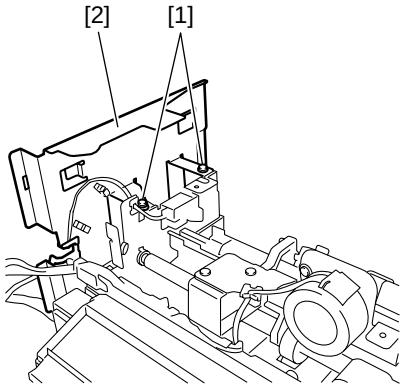
F-3-20

3) Remove two wire saddles[4] behind the finisher controller, and then remove the harnes[5].



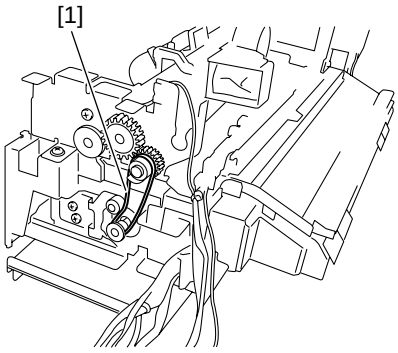
F-3-21

4) Remove the two RS tightening screws (M3 x 8) [1], and then remove the finisher controller PCB [2] together with the mount.



F-3-22

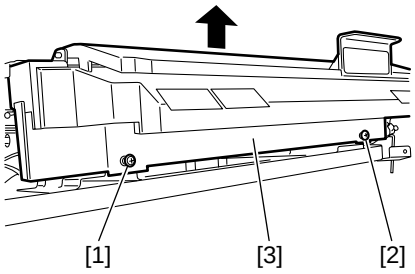
5) Remove the timing belt [1].



F-3-23

3.3.1.4 Removing the Inret Guide

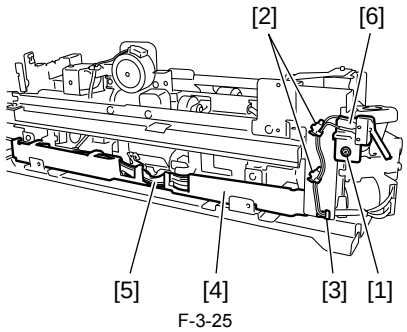
1) Remove the stepped screw [1] (front side) and RS tightening screw (M3 x 8) [2], and then remove the inlet guide [3].



F-3-24

3.3.1.5 Removing the Front Cover Safety Switch

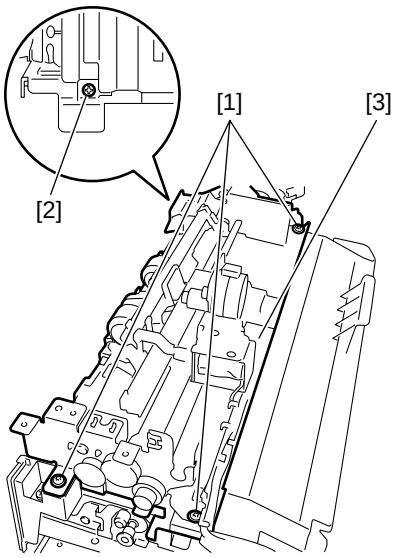
1) Remove the RS tightening screw (M3 x 8) [1]. Remove the two reusable bands [2] using pliers or the like, and then remove the harness from the edge saddle [3].
2) Remove the harness [5] from the guide [4], and then remove the front cover safety switch [6].



F-3-25

3.3.1.6 Removing the Drive Unit

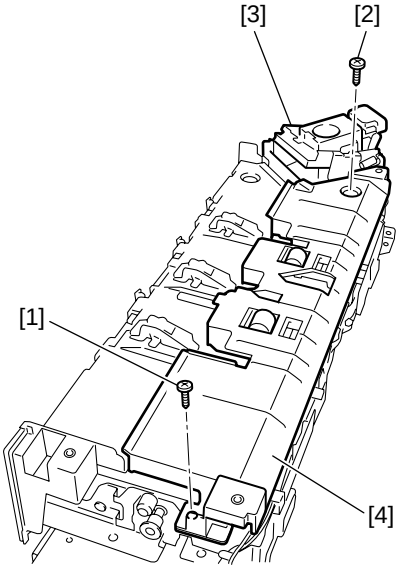
1) Remove the three TP screws (M4 x 12) [1], one RS tightening screw (M3 x 8) [2], and the drive unit [3].



F-3-26

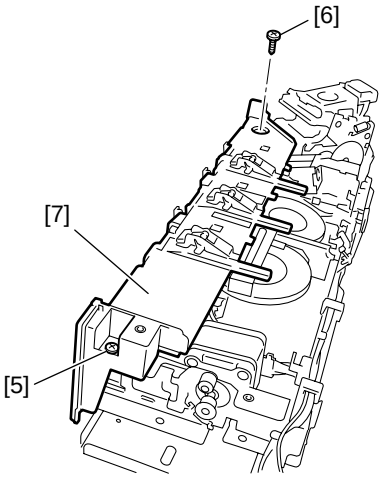
3.3.1.7 Removing the Process Tray Unit

1) Remove the stepped screw [1] (rear side) and RS tightening screw [2] (front side), and then remove the stay [3] and process tray [4] (right side).



F-3-27

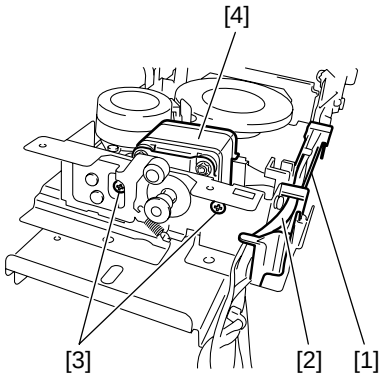
2) Remove the stepped screw [5] (front side) and RS tightening screw [6] (rear side), and then remove the process tray [7] (left side).



F-3-28

3.3.1.8 Removing the Feed Motor

1) Remove the harness [2] from the guide [1].
2) Remove the two binding screws (M4 x 4) [3], and then remove the feed motor [4].

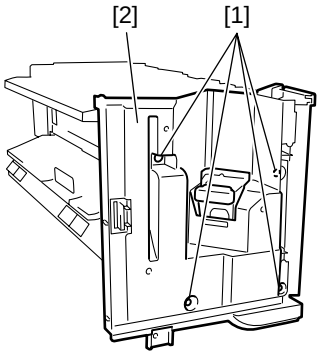


F-3-29

3.3.2 Stapler

3.3.2.1 Removing the Inner Cover of the Finisher

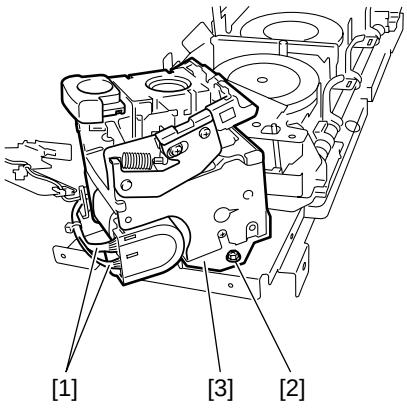
1) Open the front cover of the finisher.
2) Remove the four RS tightening screws (M3 x 8) [1], and then detach the inner cover [2] of the finisher.



F-3-30

3.3.2.2 Removing the Stapler

1) Disconnect the two connectors [1], remove the screw [2], and then remove the stapler.

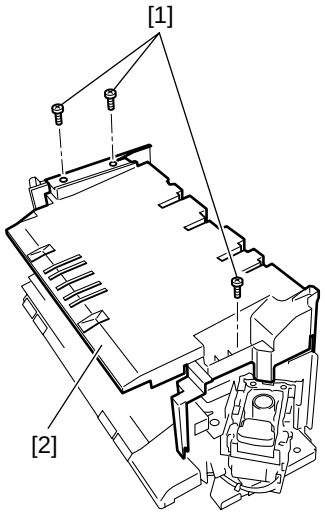


F-3-31

3.3.3 Offset Motor

3.3.3.1 Removing the Top Cover

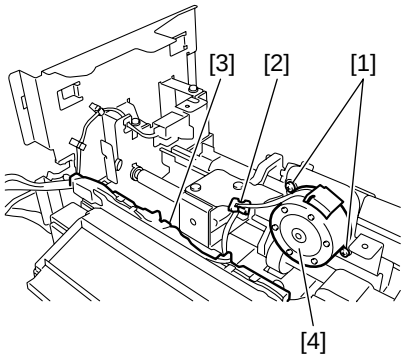
1) Remove the three RS tightening screws (M3 x 8) [1], and then detach the top cover [2].



F-3-32

3.3.3.2 Removing the Offset Motor

1) Remove the two binding screws (M4 x 4) [1], and then remove the harness from the edge saddle [2].
2) Remove the harness from the guide [3], and then remove the offset motor [4].

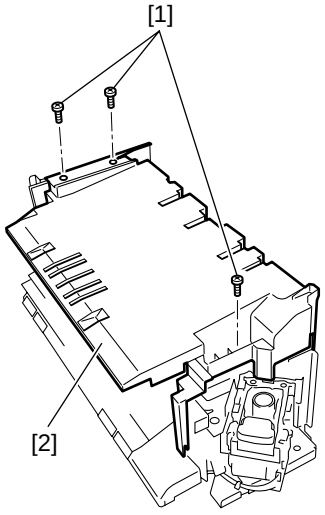


F-3-33

3.3.4 Stack Slide Motor

3.3.4.1 Removing the Top Cover

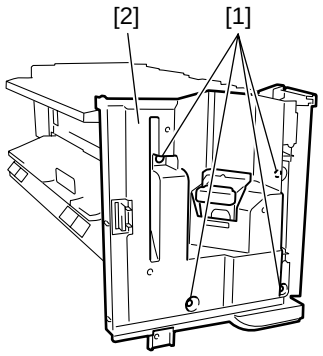
1) Remove the three RS tightening screws (M3 x 8) [1], and then detach the top cover [2].



F-3-34

3.3.4.2 Removing the Inner Cover of the Finisher

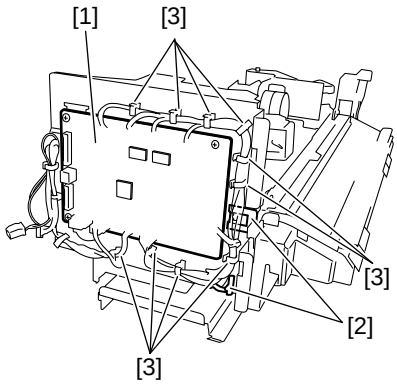
1) Open the front cover of the host machine.
2) Remove the four RS tightening screws (M3 x 8) [1], and then detach the rear cover [2].



F-3-35

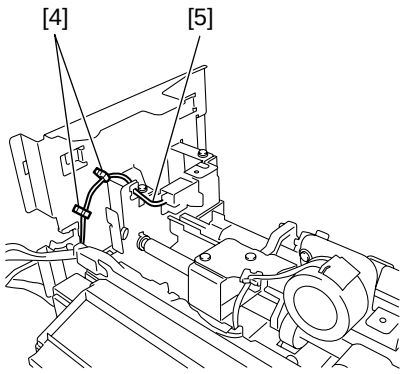
3.3.4.3 Removing the Finisher Controller PCB

1) Remove all connectors from the finisher controller PCB [1], and then open the two wire saddles [2].
2) Open ten wire saddles[3] and then remove the harnes.



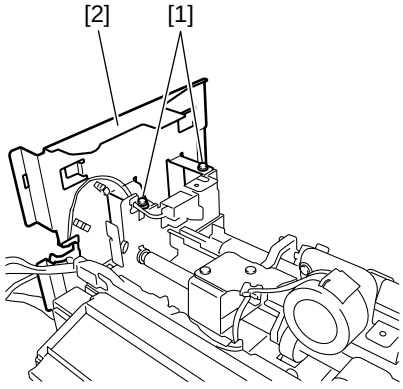
F-3-36

3) Remove two wire saddles[4] behind the finisher controller, and then remove the harnes[5].



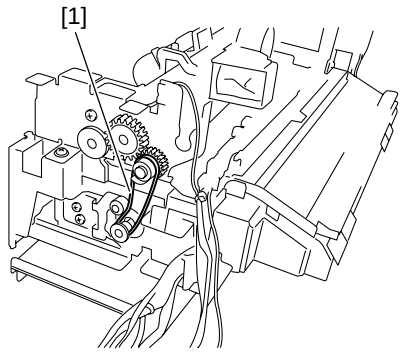
F-3-37

4) Remove the two RS tightening screws (M3 x 8) [1], and then remove the finisher controller PCB [2] together with the mount.



F-3-38

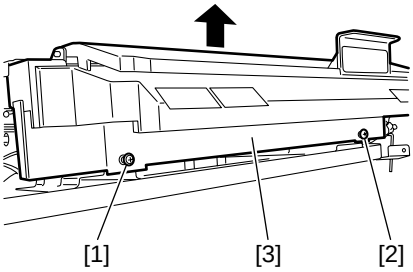
5) Remove the timing belt [1].



F-3-39

3.3.4.4 Removing the Inlet Guide

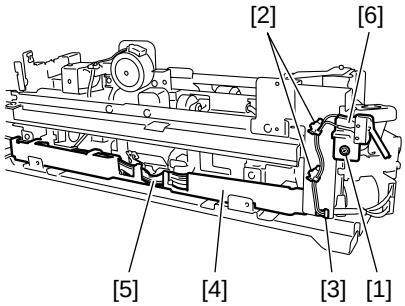
1) Remove the stepped screw [1] (front side) and RS tightening screw (M3 x 8) [2], and then remove the inlet guide [3].



F-3-40

3.3.4.5 Removing the Front Cover Safety Switch

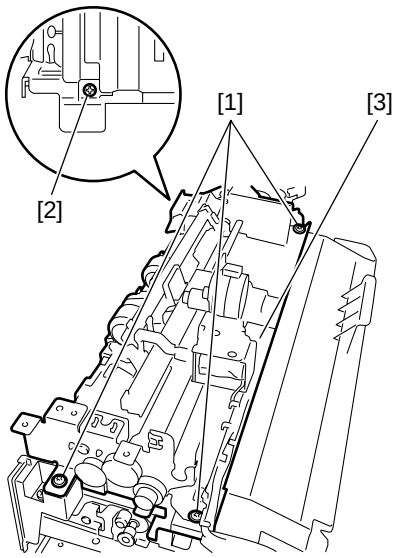
1) Remove the RS tightening screw (M3 x 8) [1]. Remove the two reusable bands [2] using pliers or the like, and then remove the harness from the edge saddle [3].
2) Remove the harness [5] from the guide [4], and then remove the front cover safety switch [6].



F-3-41

3.3.4.6 Removing the Drive Unit

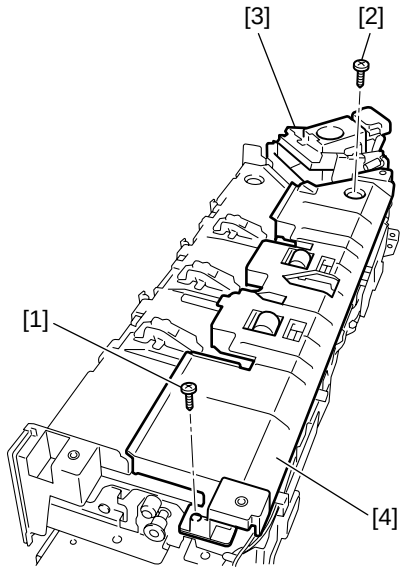
1) Remove the three TP screws (M4 x 12) [1], one RS tightening screw (M3 x 8) [2], and the drive unit [3].



F-3-42

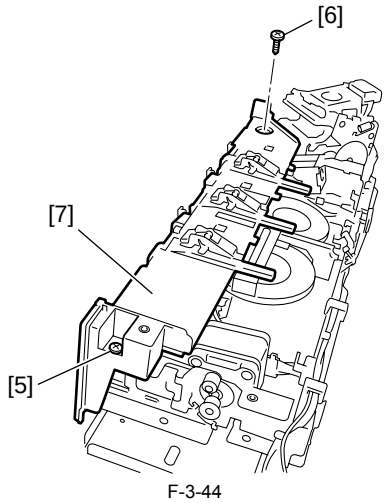
3.3.4.7 Removing the Process Tray Unit

1) Remove the stepped screw [1] (rear side) and RS tightening screw [2] (front side), and then remove the stay [3] and process tray [4] (right side).



F-3-43

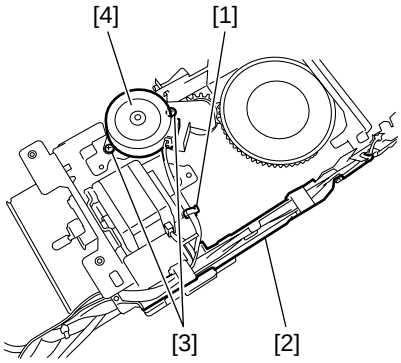
2) Remove the stepped screw [5] (front side) and RS tightening screw [6] (rear side), and then remove the process tray [7] (left side).



F-3-44

3.3.4.8 Removing the Stack Slide Motor

1) Remove the harness from the wire saddle [1] and guide [2].
2) Remove the two binding screws (M4 x 4) [3], and then remove the stack slide motor [4].



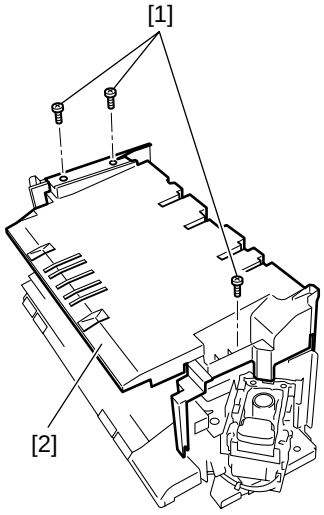
F-3-45

3.4 Document Feeding System

3.4.1 Feed Roller (Upper Guide)

3.4.1.1 Removing the Top Cover

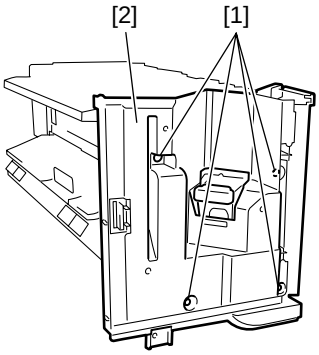
1) Remove the three RS tightening screws (M3 x 8) [1], and then detach the top cover [2].



F-3-46

3.4.1.2 Removing the Inner Cover of the Finisher

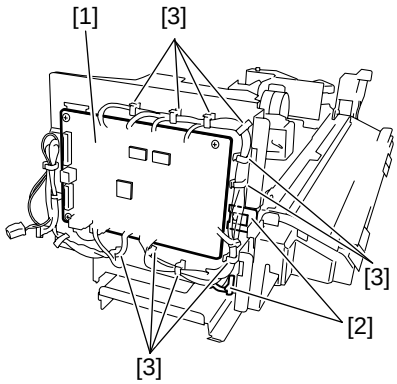
1) Open the front cover of the host machine.
2) Remove the four RS tightening screws (M3 x 8) [1], and then detach the rear cover [2].



F-3-47

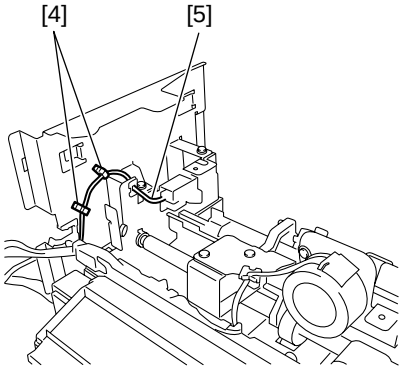
3.4.1.3 Removing the Finisher Controller PCB

1) Remove all connectors from the finisher controller PCB [1], and then open the two wire saddles [2].
2) Open ten wire saddles[3] and then remove the harnes.



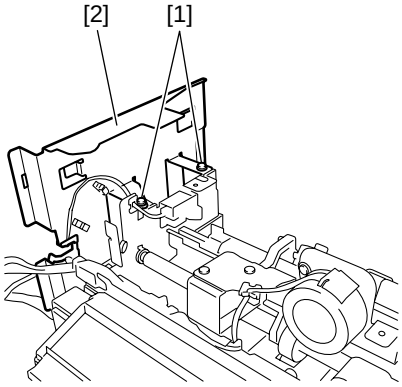
F-3-48

3) Remove two wire saddles[4] behind the finisher controller, and then remove the harnes[5].



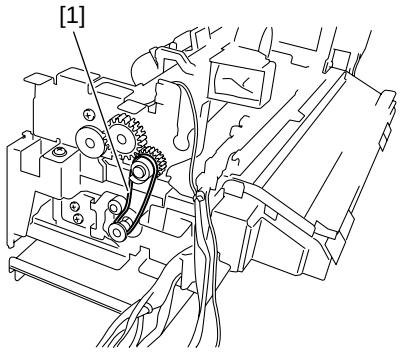
F-3-49

4) Remove the two RS tightening screws (M3 x 8) [1], and then remove the finisher controller PCB [2] together with the mount.



F-3-50

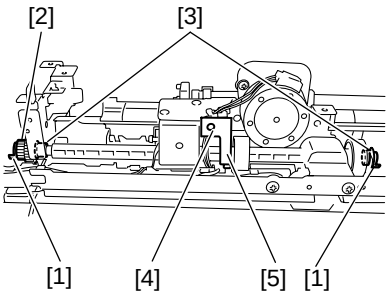
5) Remove the timing belt [1].



F-3-51

3.4.1.4 Removing the Feed Roller Holder

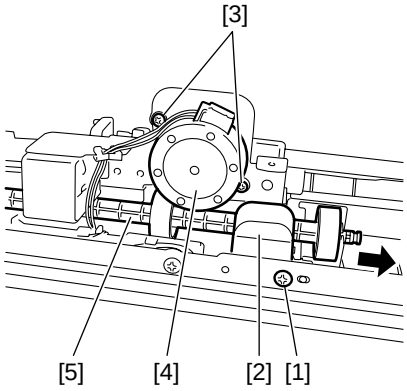
1) Remove the two resin retaining ring [1], one gear [2], and two bearings [3].
2) Remove the binding screw (M3 x 4) [4], and then remove the feed roller holder [5].



F-3-52

3.4.1.5 Removing the Feed Roller

1) Remove the P tightening screw (M4 x 10) [1], and then detach the inlet sensor cover [2].
2) Remove the two binding screws (M4 x 4) [3]. Remove the offset motor [4], and then remove the feed roller [5] in the direction of the arrow.

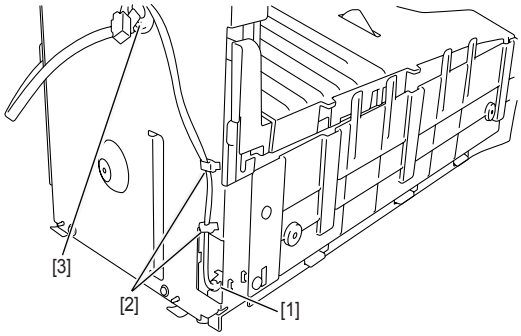


F-3-53

3.4.2 Stack Tray Assembly

3.4.2.1 Removing the Stack Tray Harness

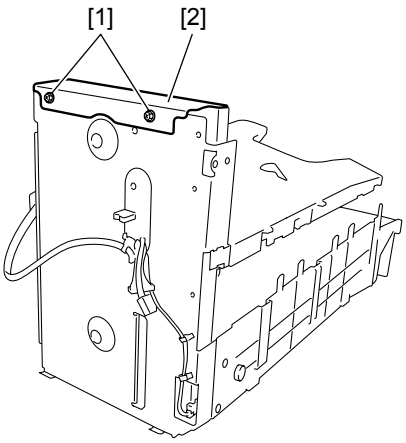
1) Disconnect the connector from the stack tray lower sensor [1]. Open the two wire saddles [2], and then remove the harness from the reusable band [3].



F-3-54

3.4.2.2 Removing the Tray Guide Top Cover

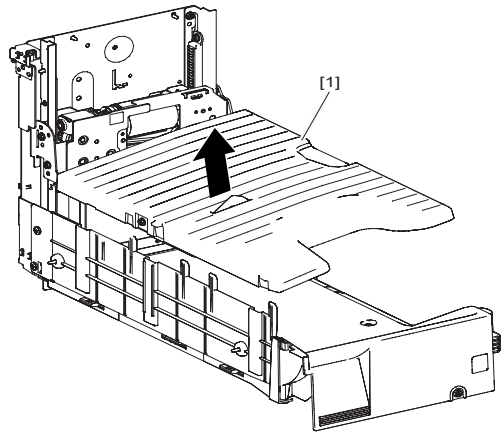
1) Remove the two RS tightening screws (M3 x 8) [1], and then detach the tray guide top cover [2].



F-3-55

3.4.2.3 Removing the Stack Tray Assembly

1) Holding the stack tray [1], remove it in the direction of the arrow.

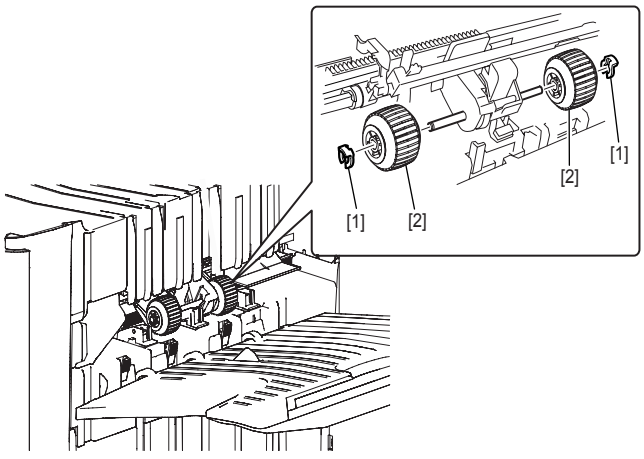


F-3-56

3.4.3 Offset Roller

3.4.3.1 Removing the Offset Roller

1) Remove the resin retaining ring [1], and then remove the offset roller [2].



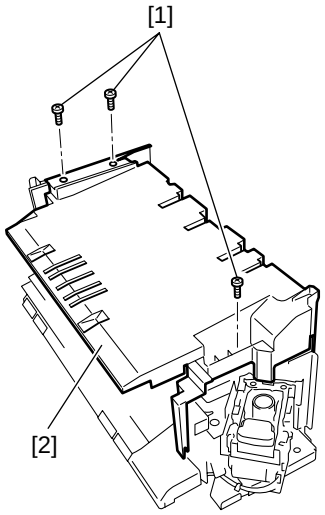
F-3-57

3.5 Electrical System

3.5.1 Stack Tray Paper Surface Sensor

3.5.1.1 Removing the Top Cover

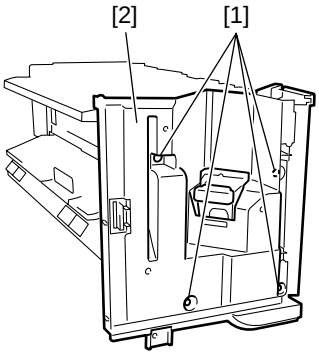
1) Remove the three RS tightening screws (M3 x 8) [1], and then detach the top cover [2].



F-3-58

3.5.1.2 Removing the Inner Cover of the Finisher

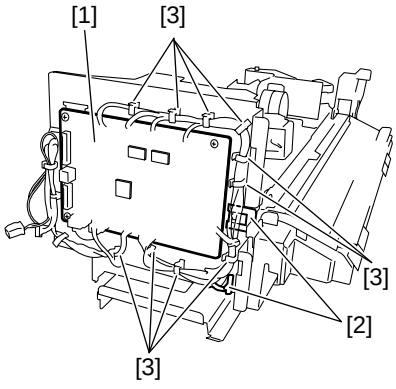
1) Open the front cover of the host machine.
2) Remove the four RS tightening screws (M3 x 8) [1], and then detach the rear cover [2].



F-3-59

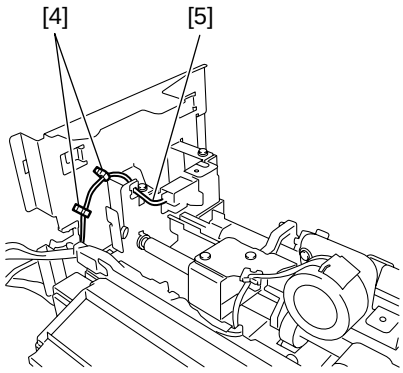
3.5.1.3 Removing the Finisher Controller PCB

1) Remove all connectors from the finisher controller PCB [1], and then open the two wire saddles [2].
2) Open ten wire saddles[3] and then remove the harnes.



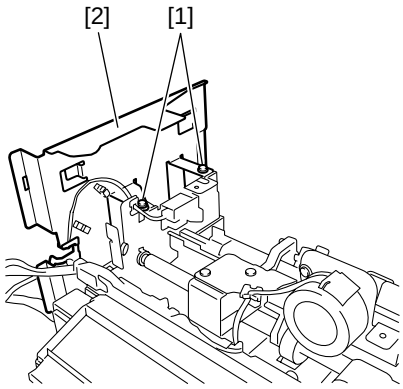
F-3-60

3) Remove two wire saddles[4] behind the finisher controller, and then remove the harnes[5].



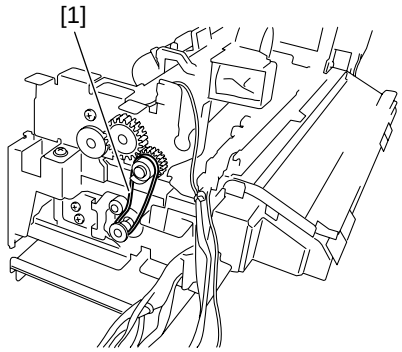
F-3-61

4) Remove the two RS tightening screws (M3 x 8) [1], and then remove the finisher controller PCB [2] together with the mount.



F-3-62

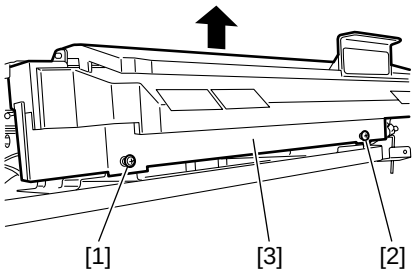
5) Remove the timing belt [1].



F-3-63

3.5.1.4 Removing the Inlet Guide

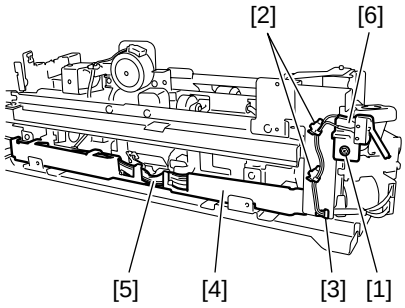
1) Remove the stepped screw [1] (front side) and RS tightening screw (M3 x 8) [2], and then remove the inlet guide [3].



F-3-64

3.5.1.5 Removing the Front Cover Safety Switch

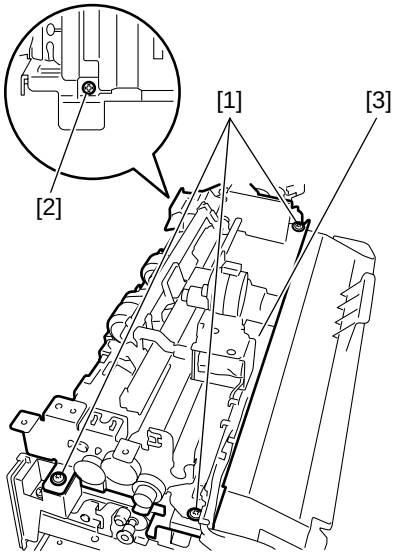
1) Remove the RS tightening screw (M3 x 8) [1]. Remove the two reusable bands [2] using pliers or the like, and then remove the harness from the edge saddle [3].
2) Remove the harness [5] from the guide [4], and then remove the front cover safety switch [6].



F-3-65

3.5.1.6 Removing the Drive Unit

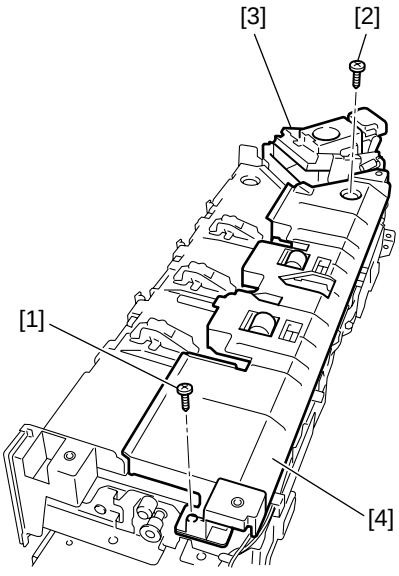
1) Remove the three TP screws (M4 x 12) [1], one RS tightening screw (M3 x 8) [2], and the drive unit [3].



F-3-66

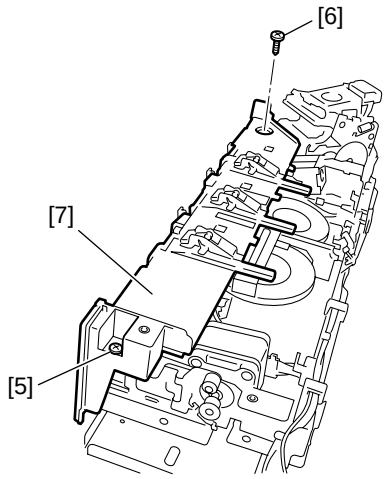
3.5.1.7 Removing the Process Tray Unit

1) Remove the stepped screw [1] (rear side) and RS tightening screw [2] (front side), and then remove the stay [3] and process tray [4] (right side).



F-3-67

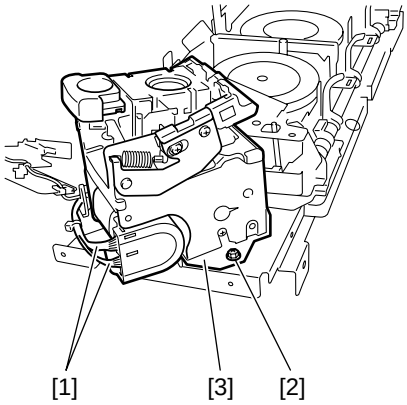
2) Remove the stepped screw [5] (front side) and RS tightening screw [6] (rear side), and then remove the process tray [7] (left side).



F-3-68

3.5.1.8 Removing the Stapler

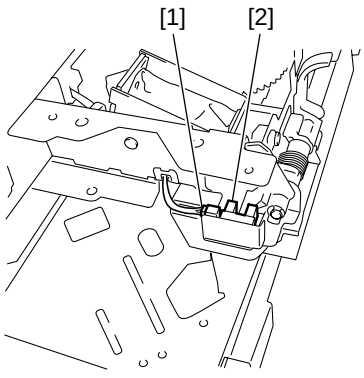
1) Disconnect the two connectors [1] from the stapler. Remove the RS tightening screw [2], and then remove the stapler [3].



F-3-69

3.5.1.9 Removing the Stack Tray Paper Surface Sensor

1) Disconnect the connector [1], and then remove the stack tray paper surface sensor [2].

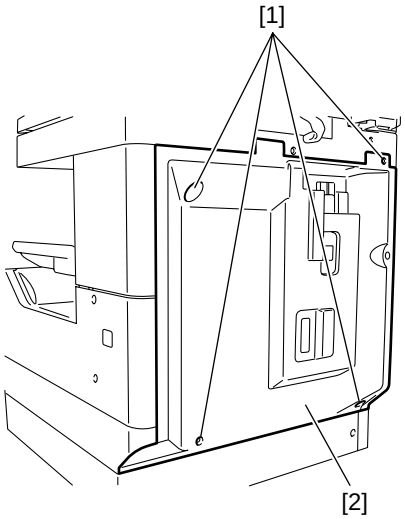


F-3-70

3.5.2 Stack Tray Lower Limit Sensor

3.5.2.1 Removing the Rear Cover

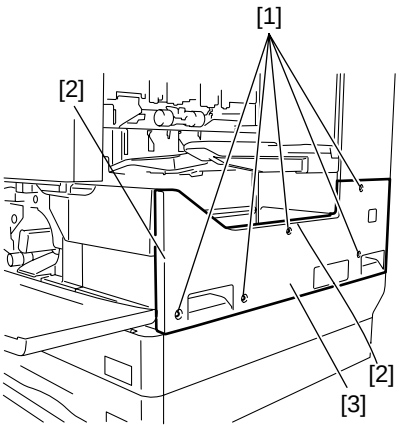
1) Open the front cover of the host machine.
2) Remove the four RS tightening screws (M3x8) [1], and then detach the rear cover [2].



F-3-71

3.5.2.2 Removing the Lower-right Cover

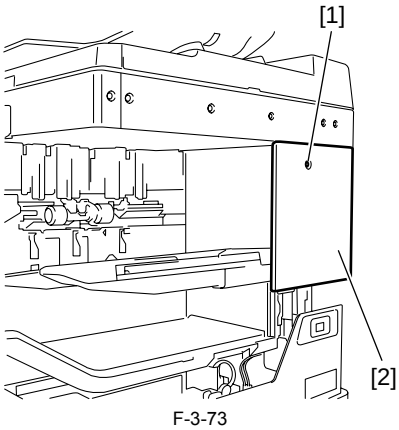
1) Remove the five RS tightening screws (M3 x 8) [1]. Release the two hooks [2], and then detach the lower-right cover [3].



F-3-72

3.5.2.3 Removing the Upper-right Cover

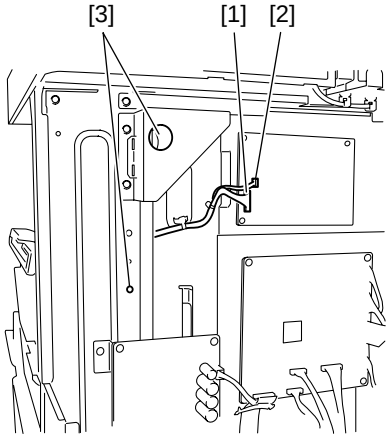
1) Remove the RS tightening screw (M3 x 8) [1], and then detach the upper-right cover [2].



F-3-73

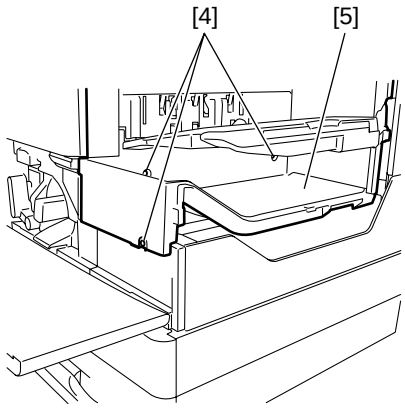
3.5.2.4 Removing the Shift Tray

1) Disconnect the connectors (J905) [1] and (J906) [2] on the finisher controller PCB, and then remove the two screws with toothed washer (M3 x 6) [3].



F-3-74

2) Remove the three TP binding screws (M3 x 6) [4], and then remove the Shift Tray [5] forward.

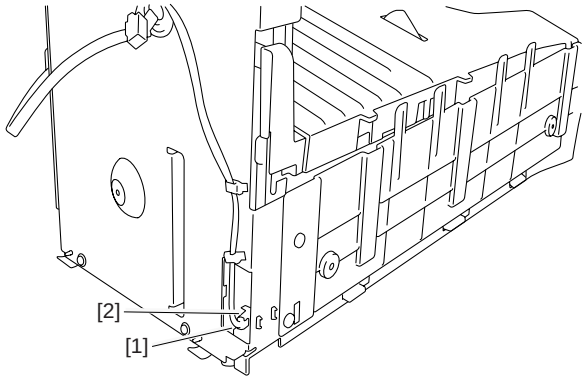


F-3-75

When removing the tray unit, be careful not to get your hands hit or pinched. Do not hold the tray.

3.5.2.5 Removing the Stack Tray Lower Limit Sensor

1) Disconnect the connector [1], and then remove the stack tray lower limit sensor [2].

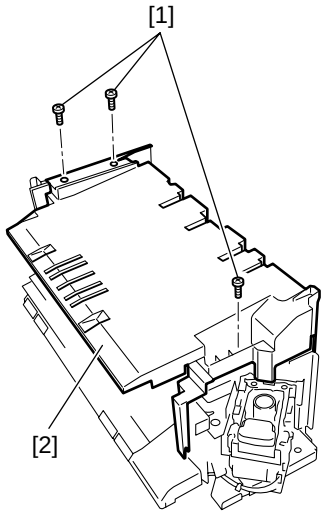


F-3-76

3.5.3 Process Tray Paper Sensor

3.5.3.1 Removing the Top Cover

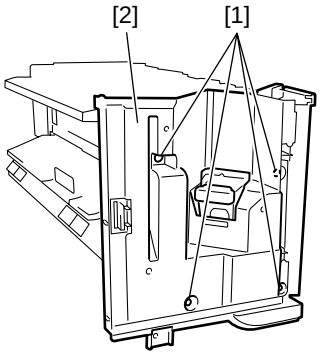
1) Remove the three RS tightening screws (M3 x 8) [1], and then detach the top cover [2].



F-3-77

3.5.3.2 Removing the Inner Cover of the Finisher

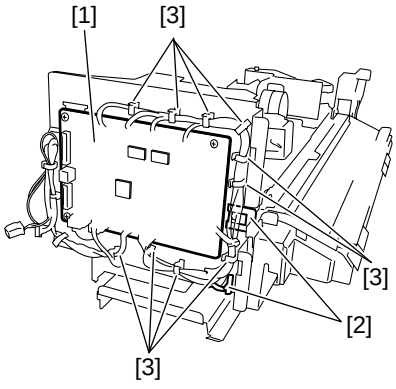
1) Open the front cover of the host machine.
2) Remove the four RS tightening screws (M3 x 8) [1], and then detach the rear cover [2].



F-3-78

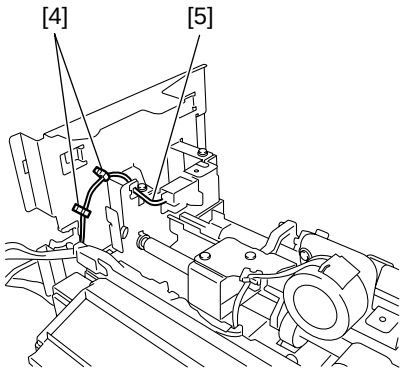
3.5.3.3 Removing the Finisher Controller PCB

1) Remove all connectors from the finisher controller PCB [1], and then open the two wire saddles [2].
2) Open ten wire saddles[3] and then remove the harnes.



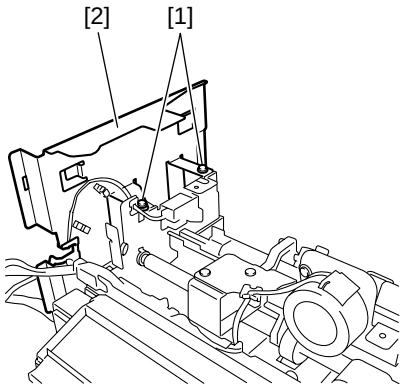
F-3-79

3) Remove two wire saddles[4] behind the finisher controller, and then remove the harnes[5].



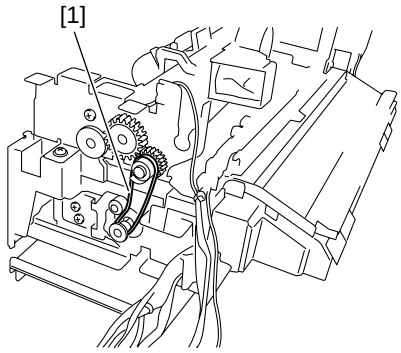
F-3-80

4) Remove the two RS tightening screws (M3 x 8) [1], and then remove the finisher controller PCB [2] together with the mount.



F-3-81

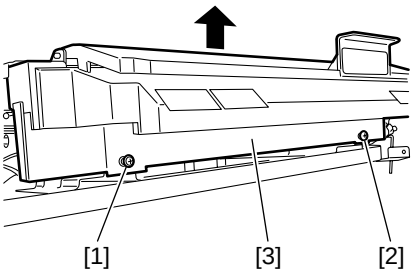
5) Remove the timing belt [1].



F-3-82

3.5.3.4 Removing the Inlet Guide

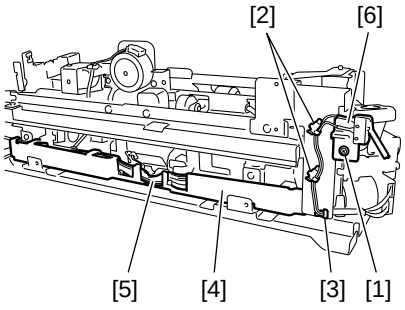
1) Remove the stepped screw [1] (front side) and RS tightening screw (M3 x 8) [2], and then remove the inlet guide [3].



F-3-83

3.5.3.5 Removing the Front Cover Safety Switch

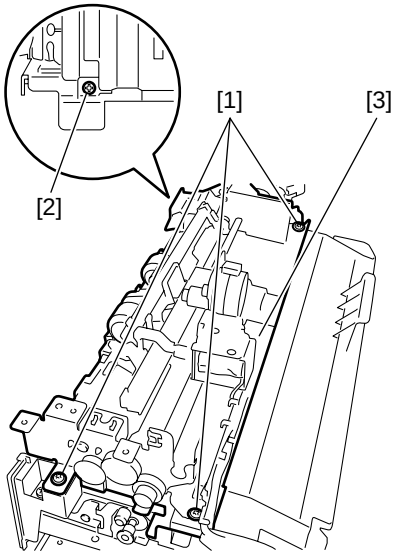
1) Remove the RS tightening screw (M3 x 8) [1]. Remove the two reusable bands [2] using pliers or the like, and then remove the harness from the edge saddle [3].
2) Remove the harness [5] from the guide [4], and then remove the front cover safety switch [6].



F-3-84

3.5.3.6 Removing the Drive Unit

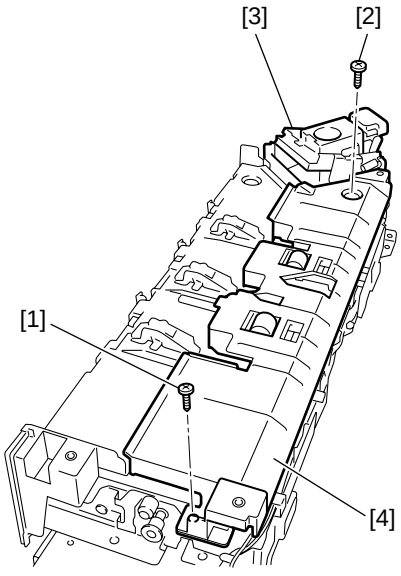
1) Remove the three TP screws (M4 x 12) [1], one RS tightening screw (M3 x 8) [2], and the drive unit [3].



F-3-85

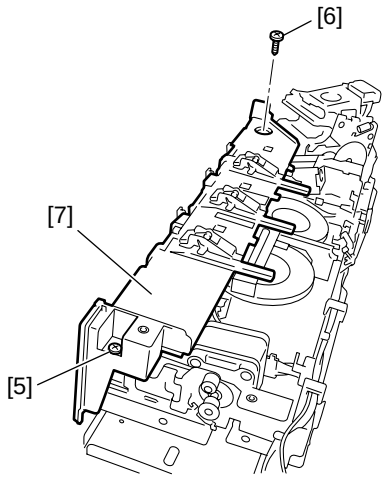
3.5.3.7 Removing the Process Tray Unit

1) Remove the stepped screw [1] (rear side) and RS tightening screw [2] (front side), and then remove the stay [3] and process tray [4] (right side).



F-3-86

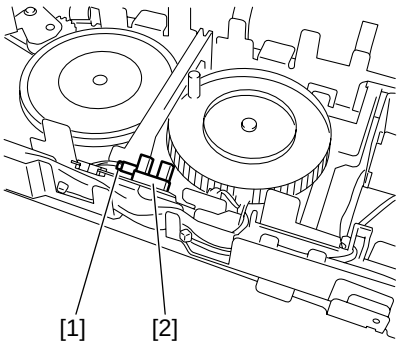
2) Remove the stepped screw [5] (front side) and RS tightening screw [6] (rear side), and then remove the process tray [7] (left side).



F-3-87

3.5.3.8 Removing the Process Tray Paper Sensor

1) Disconnect the connector [1], and then remove the processing tray paper sensor [2].



F-3-88

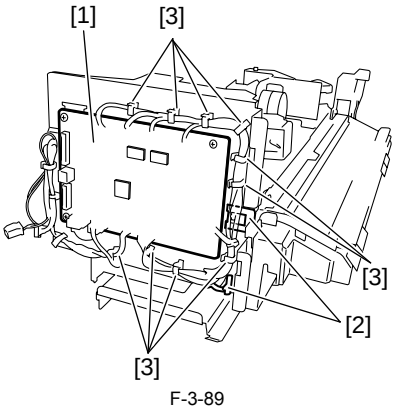
3.5.4 Finisher Controller PCB

3.5.4.1 Finisher Controller PCB

3.5.4.1.1 Finisher Controller PCB

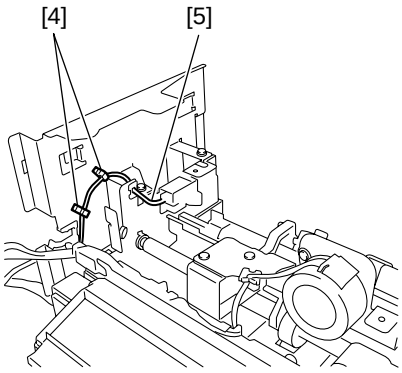
0010-6700

1) Remove all connectors from the finisher controller PCB [1], and then open the two wire saddles [2].
2) Open ten wire saddles[3] and then remove the harnes.



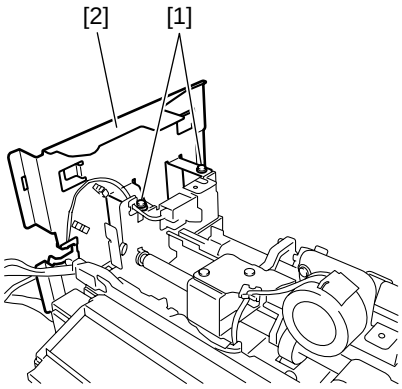
F-3-89

3) Remove two wire saddles[4] behind the finisher controller, and then remove the harnes[5].



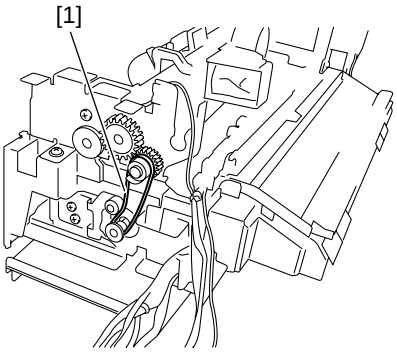
F-3-90

4) Remove the two RS tightening screws (M3 x 8) [1], and then remove the finisher controller PCB [2] together with the mount.



F-3-91

5) Remove the timing belt [1].

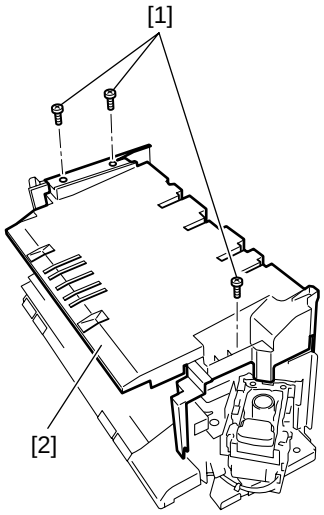


F-3-92

3.5.5 Front Cover Safety Switch

3.5.5.1 Removing the Top Cover

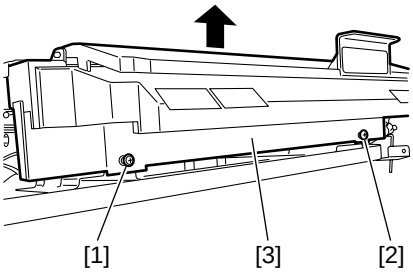
1) Remove the three RS tightening screws (M3 x 8) [1], and then detach the top cover [2].



F-3-93

3.5.5.2 Removing the Inlet Guide

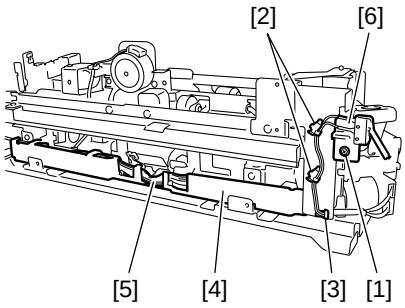
1) Remove the stepped screw [1] (front side) and RS tightening screw (M3 x 8) [2], and then remove the inlet guide [3].



F-3-94

3.5.5.3 Removing the Front Cover Safety Switch

1) Remove the RS tightening screw (M3 x 8) [1]. Remove the two reusable bands [2] using pliers or the like, and then remove the harness from the edge saddle [3].
2) Remove the harness [5] from the guide [4], and then remove the front cover safety switch [6].

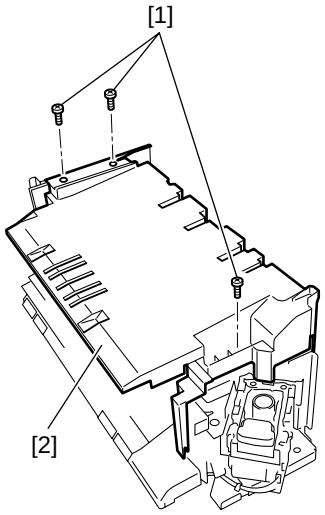


F-3-95

3.5.6 Inlet Sensor

3.5.6.1 Removing the Top Cover

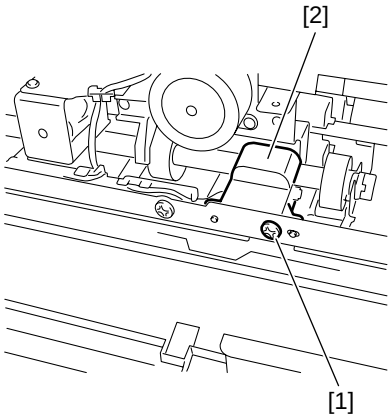
1) Remove the three RS tightening screws (M3 x 8) [1], and then detach the top cover [2].



F-3-96

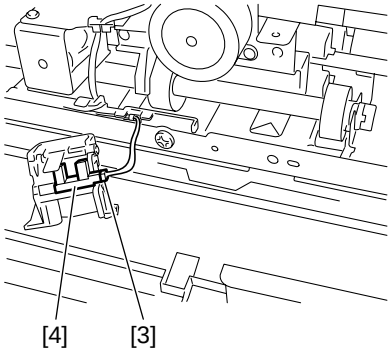
3.5.6.2 Removing the Inlet Sensor

1) Remove the P tightening screws (M4x10) [1], and then detach the sensor cover [2].



F-3-97

2) Disconnect the connector [3], and then remove the inlet sensor [4].

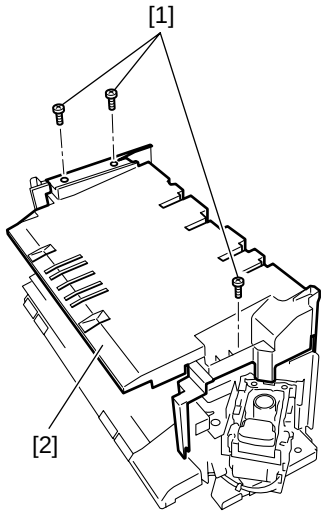


F-3-98

3.5.7 Stack Slide HP Sensor

3.5.7.1 Removing the Top Cover

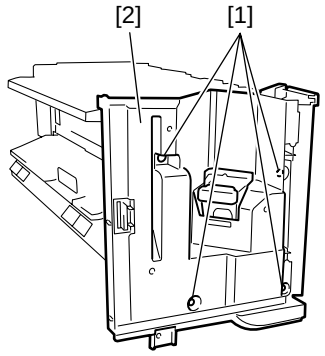
1) Remove the three RS tightening screws (M3 x 8) [1], and then detach the top cover [2].



F-3-99

3.5.7.2 Removing the Inner Cover of the Finisher

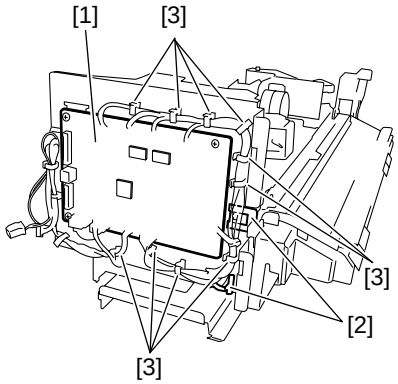
1) Open the front cover of the host machine.
2) Remove the four RS tightening screws (M3 x 8) [1], and then detach the rear cover [2].



F-3-100

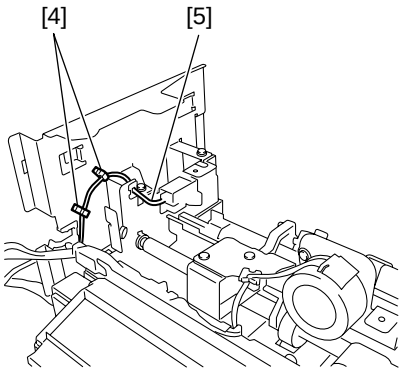
3.5.7.3 Removing the Finisher Controller PCB

1) Remove all connectors from the finisher controller PCB [1], and then open the two wire saddles [2].
2) Open ten wire saddles[3] and then remove the harnes.



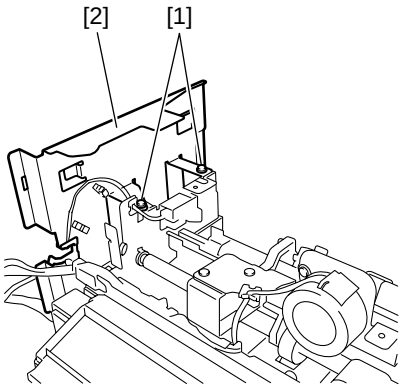
F-3-101

3) Remove two wire saddles[4] behind the finisher controller, and then remove the harnes[5].



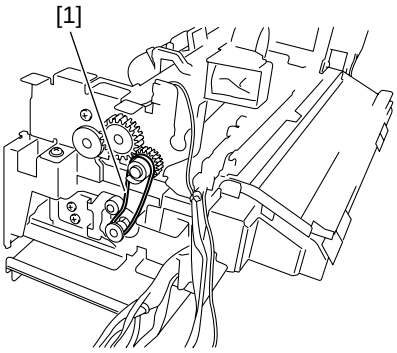
F-3-102

4) Remove the two RS tightening screws (M3 x 8) [1], and then remove the finisher controller PCB [2] together with the mount.



F-3-103

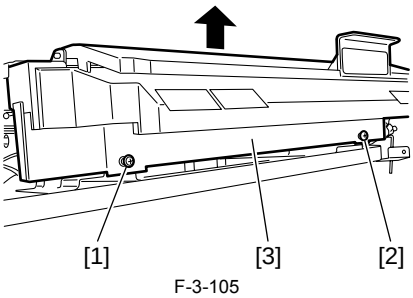
5) Remove the timing belt [1].



F-3-104

3.5.7.4 Removing the Inlet Guide

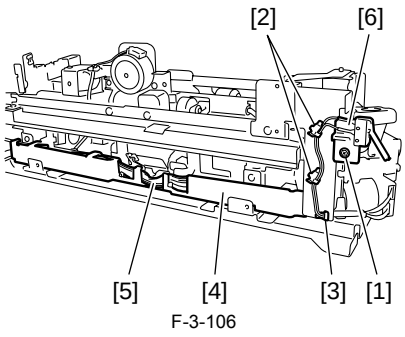
1) Remove the stepped screw [1] (front side) and RS tightening screw (M3 x 8) [2], and then remove the inlet guide [3].



F-3-105

3.5.7.5 Removing the Front Cover Safety Switch

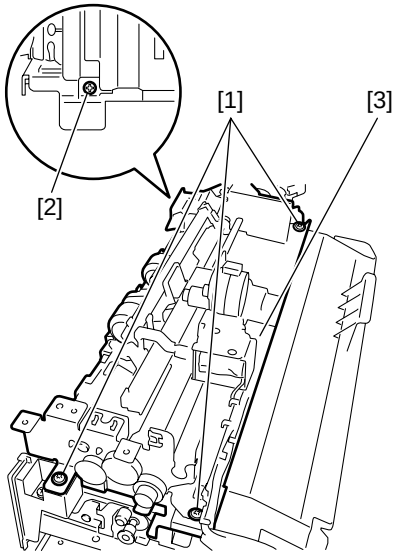
1) Remove the RS tightening screw (M3 x 8) [1]. Remove the two reusable bands [2] using pliers or the like, and then remove the harness from the edge saddle [3].
2) Remove the harness [5] from the guide [4], and then remove the front cover safety switch [6].



F-3-106

3.5.7.6 Removing the Drive Unit

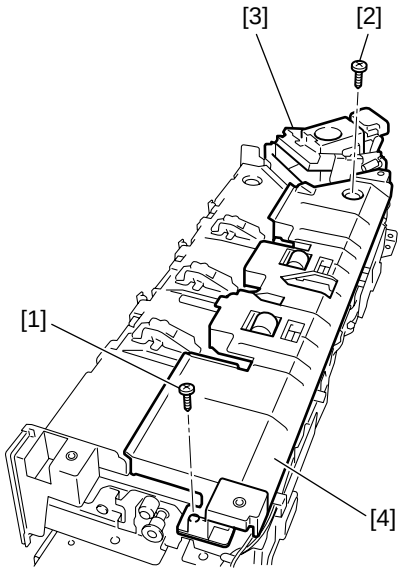
1) Remove the three TP screws (M4 x 12) [1], one RS tightening screw (M3 x 8) [2], and the drive unit [3].



F-3-107

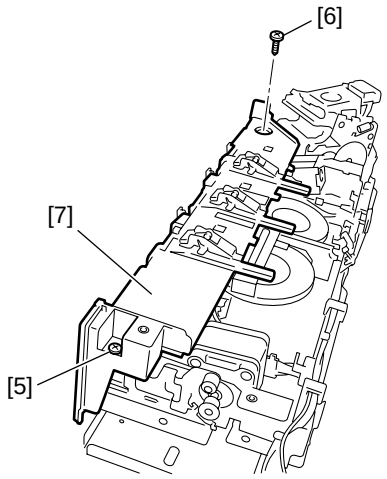
3.5.7.7 Removing the Process Tray Unit

1) Remove the stepped screw [1] (rear side) and RS tightening screw [2] (front side), and then remove the stay [3] and process tray [4] (right side).



F-3-108

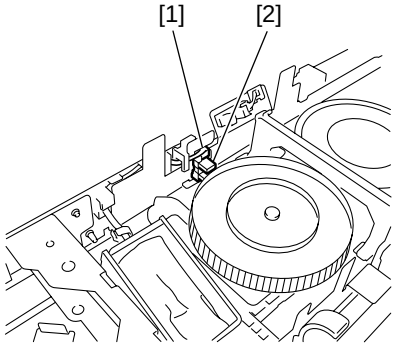
2) Remove the stepped screw [5] (front side) and RS tightening screw [6] (rear side), and then remove the process tray [7] (left side).



F-3-109

3.5.7.8 Stack Slide HP Sensor

1) Disconnect the connector [1], and then remove the stack delivery sensor [2].

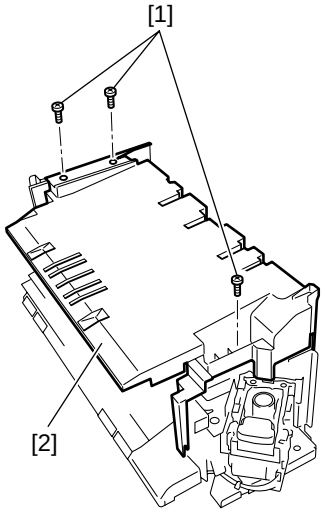


F-3-110

3.5.8 Offset HP Sensor

3.5.8.1 Removing the Top Cover

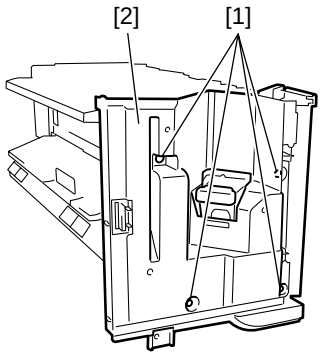
1) Remove the three RS tightening screws (M3 x 8) [1], and then detach the top cover [2].



F-3-111

3.5.8.2 Removing the Inner Cover of the Finisher

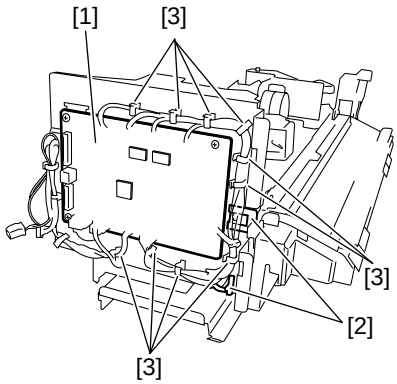
1) Open the front cover of the host machine.
2) Remove the four RS tightening screws (M3 x 8) [1], and then detach the rear cover [2].



F-3-112

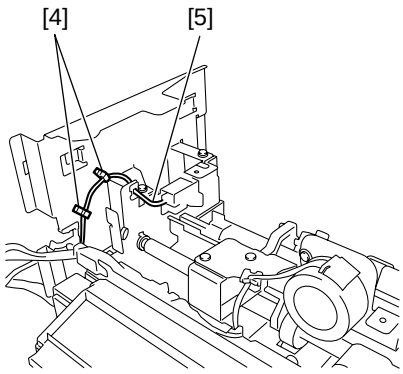
3.5.8.3 Removing the Finisher Controller PCB

1) Remove all connectors from the finisher controller PCB [1], and then open the two wire saddles [2].
2) Open ten wire saddles[3] and then remove the harnes.



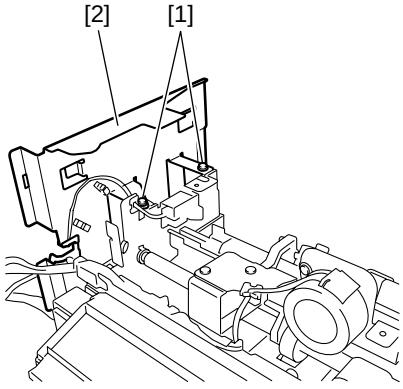
F-3-113

3) Remove two wire saddles[4] behind the finisher controller, and then remove the harnes[5].



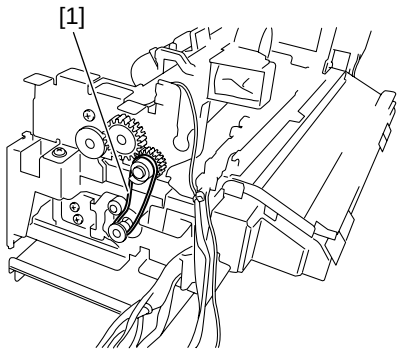
F-3-114

4) Remove the two RS tightening screws (M3 x 8) [1], and then remove the finisher controller PCB [2] together with the mount.



F-3-115

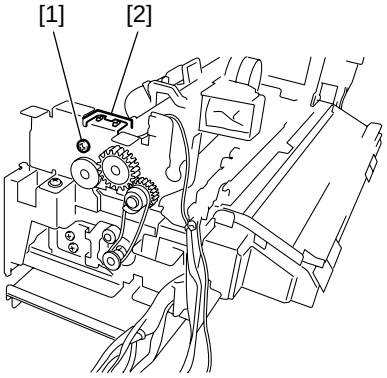
5) Remove the timing belt [1].



F-3-116

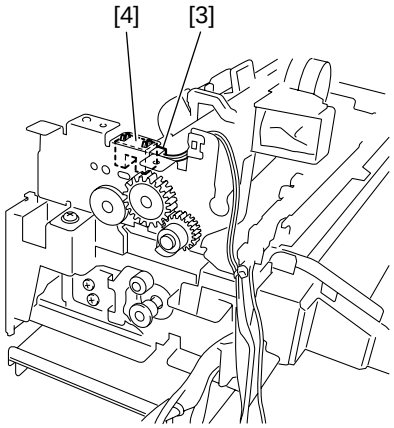
3.5.8.4 Removing the Offset HP Sensor

1) Remove the P tightening screw (M4 x 10) [1], and then detach the sensor cover [2].



F-3-117

2) Disconnect the connector [3], and then remove the offset HP sensor [4].

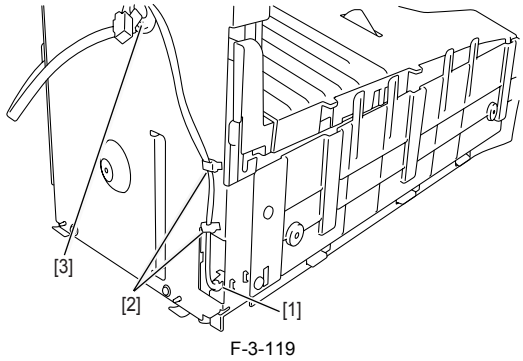


F-3-118

3.5.9 Tray Clock Sensor

3.5.9.1 Removing the Stack Tray Harness

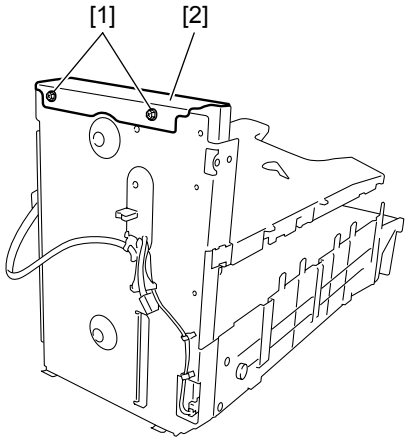
1) Disconnect the connector from the stack tray lower limit sensor [1]. Open the two wire saddles [2], and then remove the harness from the reusable band [3].



F-3-119

3.5.9.2 Removing the Tray Guide Top Cover

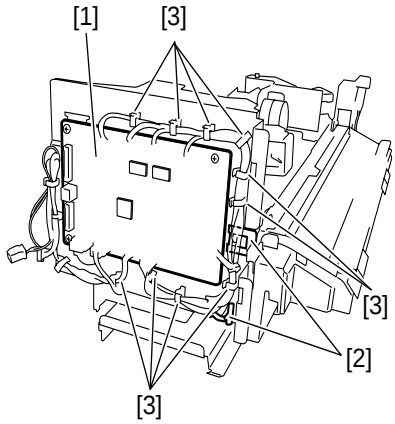
1) Remove the two RS tightening screws (M3 x 8), and then detach the tray guide top cover [2].



F-3-120

3.5.9.3 Removing the Stack Tray Assembly

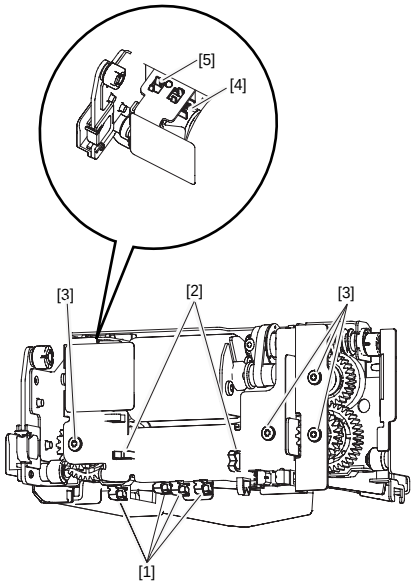
1) Turn the dial (1)[1], and then remove the stack tray [2].



F-3-121

3.5.9.4 Removing the Tray Clock Sensor

1) Remove the harness from the four wire saddles [1] and three mini-clamps [2], and then remove the four binding screws (M3 x 3) [3].
2) Disconnect the connector [4], and then remove the tray clock sensor [5].

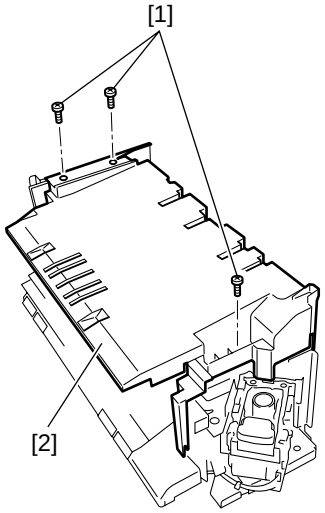


F-3-122

3.5.10 Offset Solenoid

3.5.10.1 Removing the Top Cover

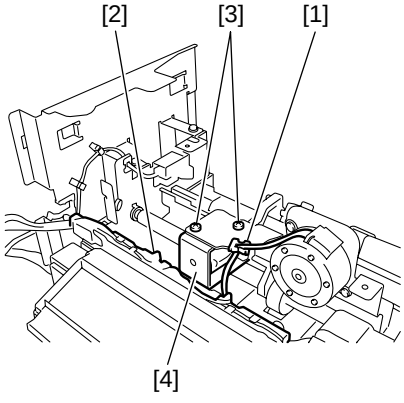
1) Remove the three RS tightening screws (M3 x 8) [1], and then detach the top cover [2].



F-3-123

3.5.10.2 Removing the Offset Solenoid

1) Disconnect the connector (J911) from the finisher controller PCB, and then remove the harness from the edge saddle [1] and guide [2].
2) Remove the two binding screws (M4 x 4) [3], and then remove the offset solenoid [4].

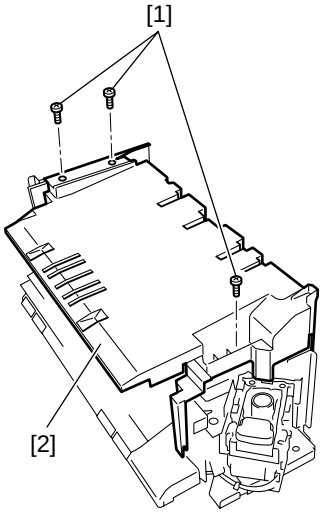


F-3-124

3.5.11 Paper Holder Solenoid

3.5.11.1 Removing the Top Cover

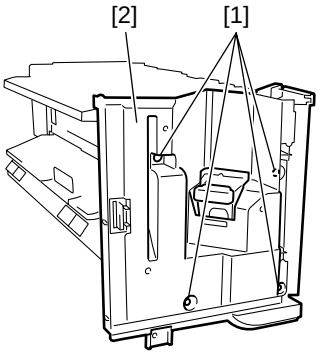
1) Remove the three RS tightening screws (M3 x 8) [1], and then detach the top cover [2].



F-3-125

3.5.11.2 Removing the Inner Cover of the Finisher

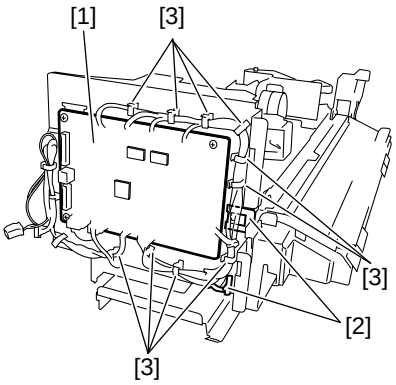
1) Open the front cover of the host machine.
2) Remove the four RS tightening screws (M3 x 8) [1], and then detach the rear cover [2].



F-3-126

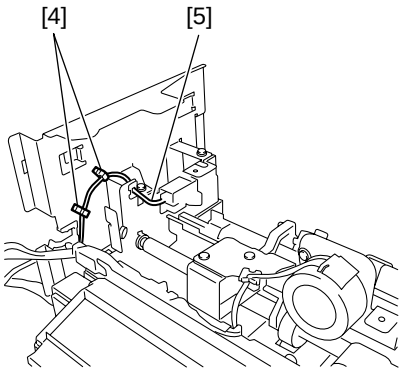
3.5.11.3 Removing the Finisher Controller PCB

1) Remove all connectors from the finisher controller PCB [1], and then open the two wire saddles [2].
2) Open ten wire saddles[3] and then remove the harnes.



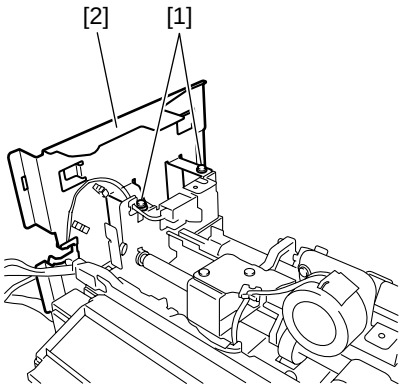
F-3-127

3) Remove two wire saddles[4] behind the finisher controller, and then remove the harnes[5].



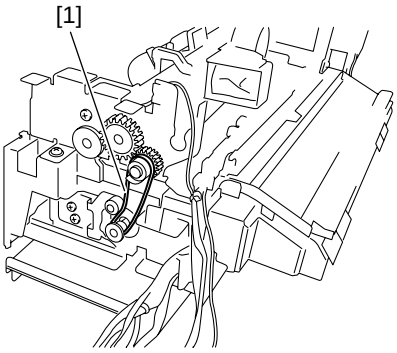
F-3-128

4) Remove the two RS tightening screws (M3 x 8) [1], and then remove the finisher controller PCB [2] together with the mount.



F-3-129

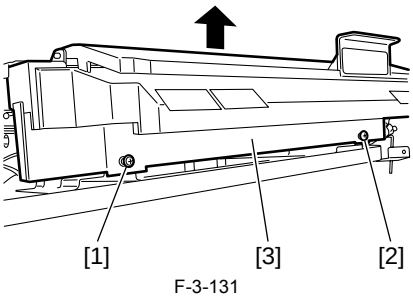
5) Remove the timing belt [1].



F-3-130

3.5.11.4 Removing the Inlet Guide

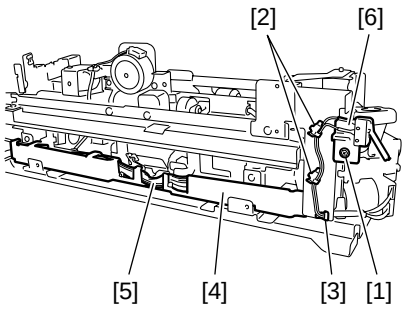
1) Remove the stepped screw [1] (front side) and RS tightening screw (M3 x 8) [2], and then remove the inlet guide [3].



F-3-131

3.5.11.5 Removing the Front Cover Safety Switch

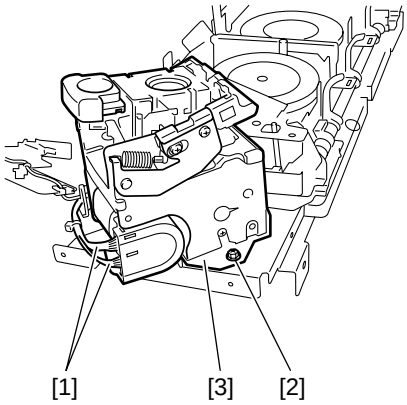
1) Remove the RS tightening screw (M3 x 8) [1]. Remove the two reusable bands [2] using pliers or the like, and then remove the harness from the edge saddle [3].
2) Remove the harness [5] from the guide [4], and then remove the front cover safety switch [6].



F-3-132

3.5.11.6 Removing the Stapler

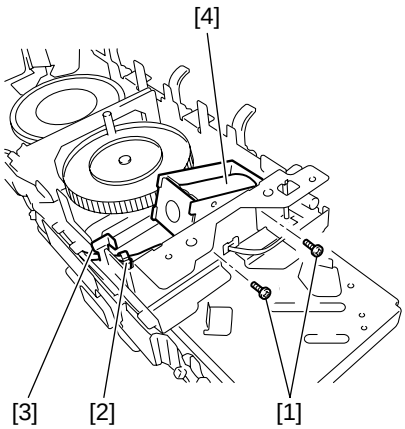
1) Disconnect the two connectors [1] from the stapler. Remove the RS tightening screw [2], and then remove the stapler [3].



F-3-133

3.5.11.7 Removing the Paper Holder Solenoid

1) Remove the two binding screws (M4 x 4) [1]. Open the wire saddle [2]. Remove the harness from the guide [3], and then remove the paper holder solenoid [4].



F-3-134

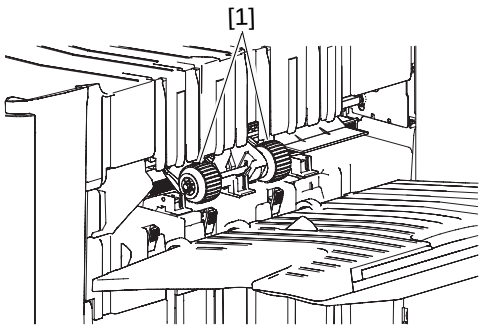
Chapter 4 Maintenance

Contents

4.1 User Maintenance

4.1.1 Cleaning the Offset Roller

Cleaning
Since the offset roller[1] may often get dusty, clean it once a month to keep the paper alignment accuracy.



F-4-1

Cleaning procedure
1) Move the roller slightly up, wipe off paper dust on the roller surface with wet cloth, while rotating it.

MEMO:
For 2-bin type, cleaning is easier after output with the upper bin is finished.

4.2 Maintenance and Inspection

4.2.1 Periodically Replaced Parts

4.2.1.1 Periodically Replaced Parts

The machine does not have parts that need to be replaced on a periodical basis.

4.2.2 Durables

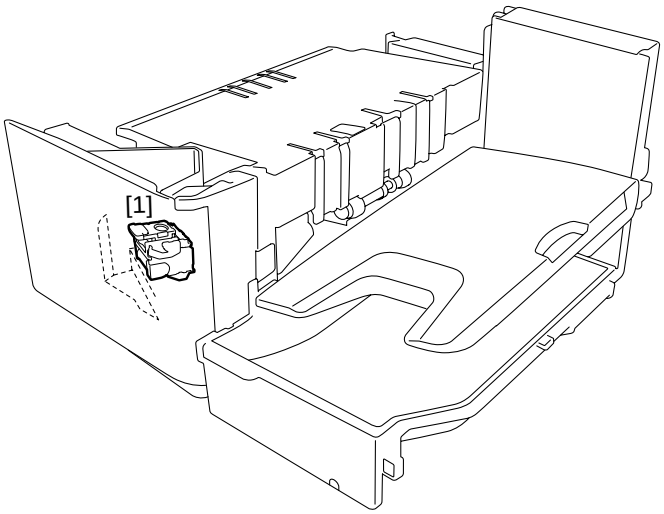
4.2.2.1 Durables

Some parts of the machine may require replacement once or more over the period of product warranty because of wear or damage. Replace them as needed by referring to the following table:

T-4-1

No.	Parts name	Parts No.	Q'ty	Life	Remarks
[1]	Stapler	4G3-0480-000	1	500,000 times	number of stapling operations

⚠The values in the above table are estimates only, and are subject to change depending on future data.



F-4-2

[1]Stapler

4.2.3 Periodical Servicing

4.2.3.1 Periodical Servicing

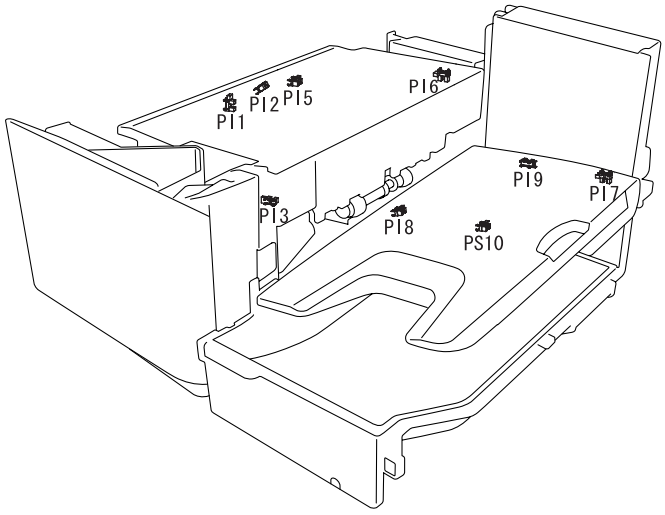
The machine does not have items that must be serviced on a periodical basis.

4.3 Outline of Electrical Components

4.3.1 Outline of Electrical Components

T-4-2

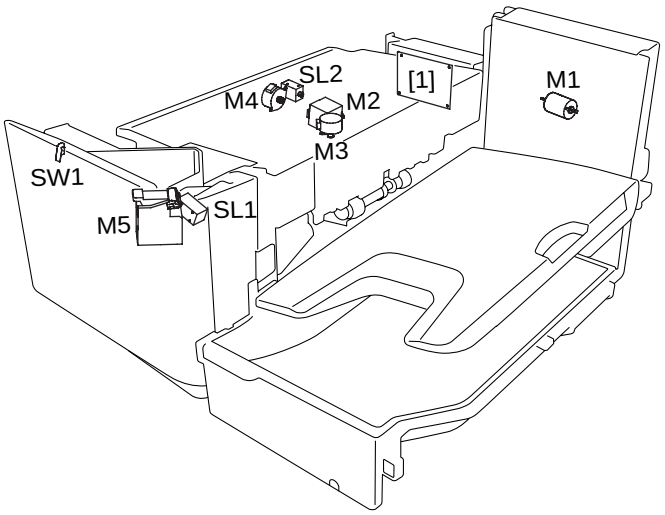
Notation	Name	Parts No.	Finisher controller PCB	Jam cord
PI1	Stack edging HP sensor	WG8-5696	J903	1F81
PI2	Handing tray paper sensor	WG8-5696	J903	
PI3	Paper surface sensor	WG8-5696	J903	
PI5	Inlet sensor	WG8-5696	J904	1011 1121
PI6	Offset HP sensor	WG8-5696	J904	
PI7	Tray clock sensor	WG8-5696	J905	
PI8	Stack tray paper sensor	WG8-5696	J905	
P19	Tray 150 sensor	WG8-5696	J905	
PI10	Tray lower limit sensor	WG8-5696	J905	
-	Stapler HP sensor (built into stapler)	WG8-5696	J912	1506
-	Stapler staple sensor(built into stapler)	WG8-5696	J912	



F-4-3

T-4-3

Notation	Name	Part No.	Description	Finisher controller PCB	E cord
M1	Stack tray shift motor	4K1-4055	moves up/down the stack tray	J906	540
M2	Feed motor	4H3-0086	moves paper	J907	
M3	Stack edging motor	4H3-0084	drives the stack edging slider	J908	575
M4	Offset motor	4H3-0085	drives the offset roller	J909	520
M5	Stapler motor	FM2-0665	drives the stapler	J912 J913	531
SW1	Front cover safety switch	WC4-5236	cuts off the 24-v power	J914	
[1]	Finisher controller PCB	4G3-0806			
SL1	Paper retaining solenoid	4H3-0087	moves up/down the paper retainer	J910	
SL2	Offset solenoid	4H3-0088	moves up/down the offset	J911	



F-4-4

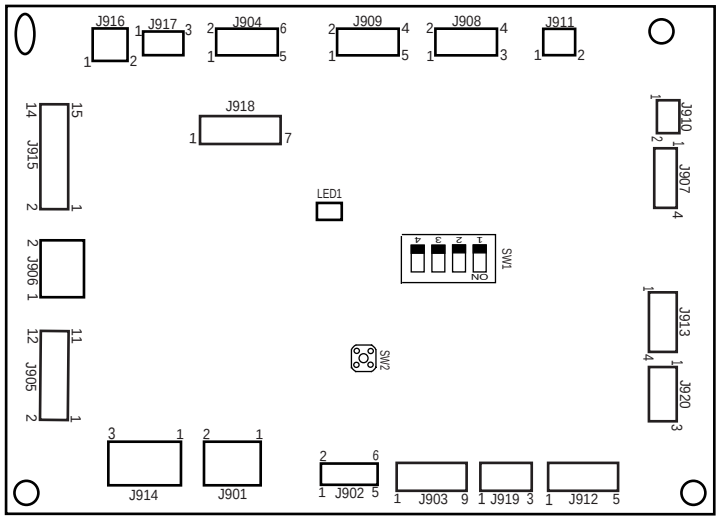
4.4 Variable Resistors (VR), Light-Emitting Diodes (LED), and Check Pins by PCB

4.4.1 Light-Emitting Diodes and Check Pins by PCB

Of the light-emitting diodes (LED) and check pins used in the machine, those needed in the field when servicing the machine are discussed herein.

⚠Do not use the variable resistors (VR) and check pins that are not discussed herein. A check using these will require the use of special tools/instruments and a high level of accuracy.

4.4.2 Finisher Controller PCB



F-4-5

SW1: Use it for mode setting
SW2: Use it for adjustment and test start-up
LED1:Use it for checking the operation

T-4-4

Connector		Target
J1	power supply	-
J2	communication	-
J903	PI1	stack edging HP sensor
	PI2	handing tray paper sensor
	PI3	paper surface sensor
J904	PI15	inlet sensor
	PI16	offset HP sensor
J905	PI7	tray clock sensor
	PI8	stack tray paper sensor
	PI9	tray 300 sensor
	PI10	tray lower limit sensor
J906	M1	stack tray shift motor
J907	M2	feed motor

J908	M3	stack feed motor
J909	M4	offset motor
J910	SL1	paper retainer solenoid
J911	SL2	offset solenoid
J912	-	stapler
J913	M5	stapler motor
J914	-	front cover safety switch
J915	-	option tray
J916	CL1	shutter clutch
J917	PI15	shutter open/closed sensor

4.4.3 Functions of the DIP Switch

The DipSW (SW1) function of the finisher controller PCB is as follows.
- After setting the DipSW (SW1), the check item is changed in order each time the PushSW (SW2) is pressed.
- Turn OFF all bits of the DipSW (SW1) after checking.

1.Checking operation of the stack tray unit

F-4-6

Points to check:
1) Initial operation of the stack tray is executed.
(*1) Operation differs depending on initial status
2) Initial operation of the option tray is executed. (When the option tray is attached.)
(*1) Operation differs depending on initial status
3) The stack tray moves to the bottom position (standby position at the time of replacing the offset roller).
(*1) Initial operation of the tray
- When the tray stops at the home position: The tray moves down by 20mm. Then, the tray moves back to the home position with a press of the PushSW (SW2).
- When the tray stops at other than the home position: The tray moves to the home position.

2.Non-paper aging

F-4-7

Points to check:
1) The stack tray moves to the home position, and initial operations of the stack delivery slider and offset roller are executed.
2) After the feeder motor is driven in the feeding direction, copying is executed with the following conditions: Shift mode, 2 sheets in A4 size, 4 sets (8 copies in total)
3) The copying operation ends.

3.Checking operation of the feeder unit

F-4-8

Points to check:
1) The pickup solenoid is turned ON.
(*1) Operation differs depending on initial status
2) The feeder motor is driven at 137mm/s in the feeding direction.
3) The speed of the feeder motor is increased to 230mm/s.
4) The speed of the feeder motor is increased to 600mm/s.
5) The feeder motor is driven by 50mm in the feeding direction, and stops.
6) The feeder motor is driven by 40mm in the backward direction, and stops.
7) The feeder motor is driven at 230mm/s in the backward direction.
8) The feeder motor stops.
9) The pickup solenoid is turned OFF.
10) Shutter closing operation (When the option tray is set.)
11)Shutter opening operation (When the option tray is set.)
(*1) When the option tray is attached.
- The shutter is closed: The steps to open the shutter are performed.
- The shutter is opened: The stack delivery slider moves to the tray switching position.
After either of the action above, the step 1) is performed.
(*1) When the option tray is not attached.
- The stack delivery slider moves to the tray switching position.
After the action above, the step 1) is performed.

4.Checking operation of the adjustment unit

F-4-9

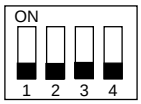
Points to check:
1) The pickup solenoid is turned ON.
2) Initial operation of the offset roller is executed. (*1)
3) The offset roller moves to the center of inside machine.
4) The offset roller moves by the adjusting quantity of the sheet width 210mm (A4R).
5) The offset roller moves to the center of inside machine.
6) The pickup solenoid is turned OFF.
7) The clamp solenoid is turned ON.
8) The clamp solenoid is turned OFF.
(*1) Initial operation
- If the PushSW (SW2) is pressed while the offset roller is in other than the home position, the offset roller returns to the home position. If the PushSW (SW2) is pressed while the offset roller is in the home position, the offset roller leaves the home position once, and returns.

5.Checking operation of the stack delivery unit

F-4-10

Points to check:
1) The pickup solenoid is turned ON.
2) Initial operation of the stack delivery unit is executed. (*1)
3) The clamp solenoid is turned ON.
4) The clamp solenoid is turned OFF.
5) The staple unit executes stapling.
6) Stack delivery is executed (to the standard tray). (*2)
7) The stack delivery unit moves to the tray switching position.
8) The pickup solenoid is turned OFF.
(*1) Initial operation
- If the PushSW (SW2) is pressed while the stack delivery slider is in other than the home position, the stack delivery slider returns to the home position. If the PushSW (SW2) is pressed while the stack delivery slider is in the home position, the stack delivery slider leaves the home position once, and returns.
(*2) Tray operation is executed in accordance with stack delivery. Therefore, selection of the standard tray is premised.

6.Software version number display



F-4-11

Operation:
Software version is indicated by the LED1 on the DC controller. The LED1 flashes according to the following calculation:
1) 1 is subtracted from the version number.
2) Result of 1) is devided by 3.
3) 1 is added to residual of 2).
4) LED1 flashes number of times as the result of 3).

T-4-5

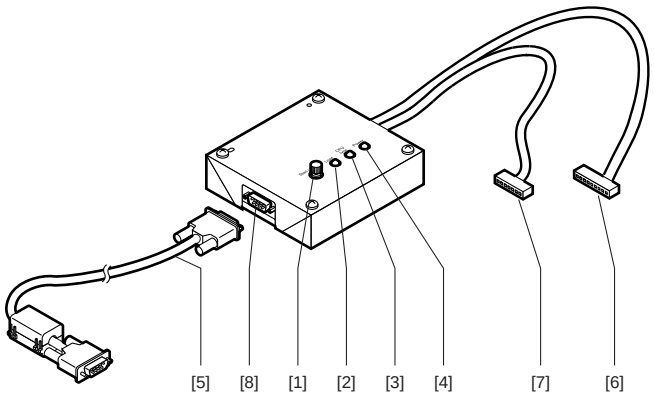
[Sample: Number of blinks]	
Number of times	Number of blinks
1	1
2	2
3	3
4	1
Thereafter,repeats flashing once through 3 times	

4.5 Upgrading

4.5.1 Upgrading(Finisher Unit)

:Outline
flash ROM is built-in with IC1 (CPU) of the finisher unit. downloader PCB (FY9-2034) is required to upgrade IC1. Refer to below for how to use the downloader PCB (FY9-2034).

:How to use the downloader PCB (FY9-2034)
1.Purpose
To use when upgrading the version of the CPU (IC1) of the finisher controller PCB.
2.Components of the downloader PCB



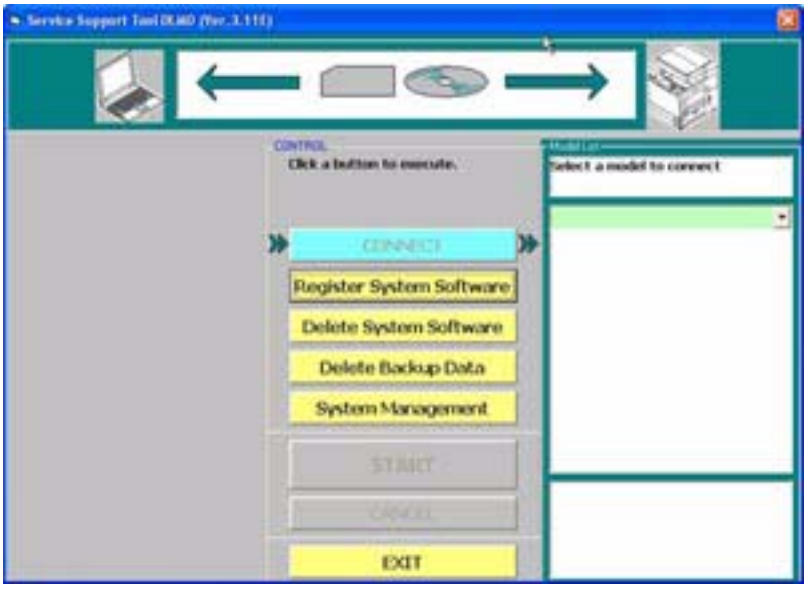
F-4-12

T-4-6

No.	Description	Function
[1]	START/STOP key	A key to be pressed when you start or stop download
[2]	LOAD LED	To be lit when download is available.
[3]	Model LED	To be lit when the Finisher is connected.
[4]	Power LED	To be lit when power is supplied from the Finisher to the downloader PCB
[5]	RS-232C cable (straight full wiring; 9 pins)	A cable to connect the downloader PCB and a PC.Be sure to connect the cable in a way that its ferrite core comes to the PC side.
[6]	Cable A (9 pins) Length: approx. 70cm	A cable to connect the downloader PCB and other products
[7]	Cable B (9 pins)Length: approx. 50cm	A cable to connect the downloader PCB and the Finisher
[8]	RS-232C connector	A connector to connect an RS-232C cable to the downloader PCB

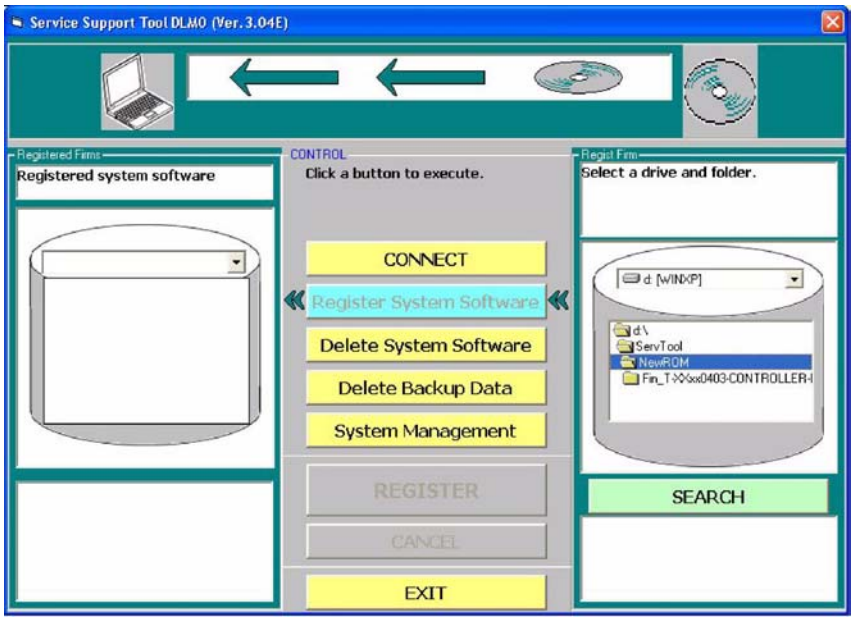
3.Tool
The following tool is required to perform download work.
- PC
Condition: The download tool (Ver.3.21J or later) must be downloaded.

4.Download procedure
a. Addition of ROM data
1) Add the ROM data to be downloaded to the folder C: \ ServTool \ NewROM
2) Start up the Service Support Tool.
C: \ ProgramFiles \ Service Support Tool \ bpchost.exe
3) Select [Register System Software].



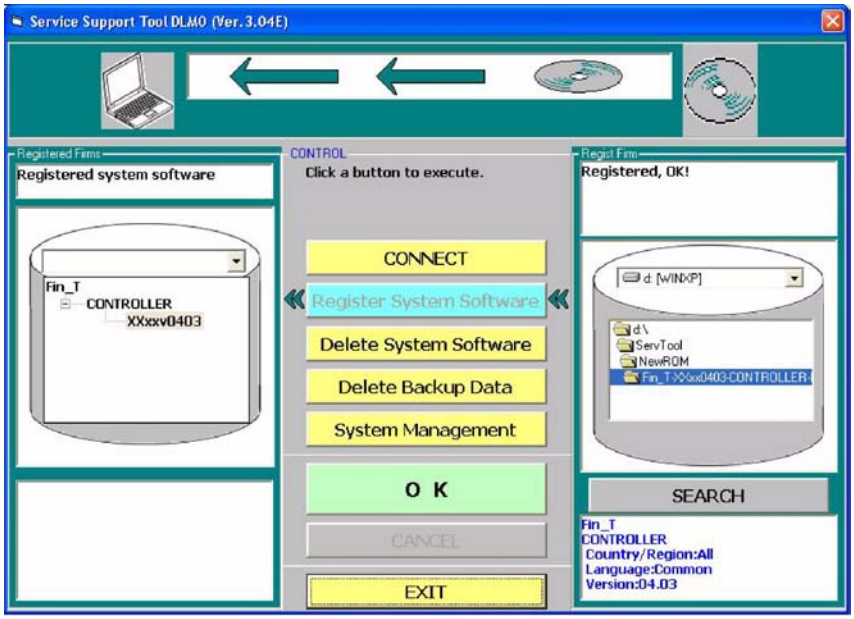
F-4-13

4) Select the data in the NewROM folder.



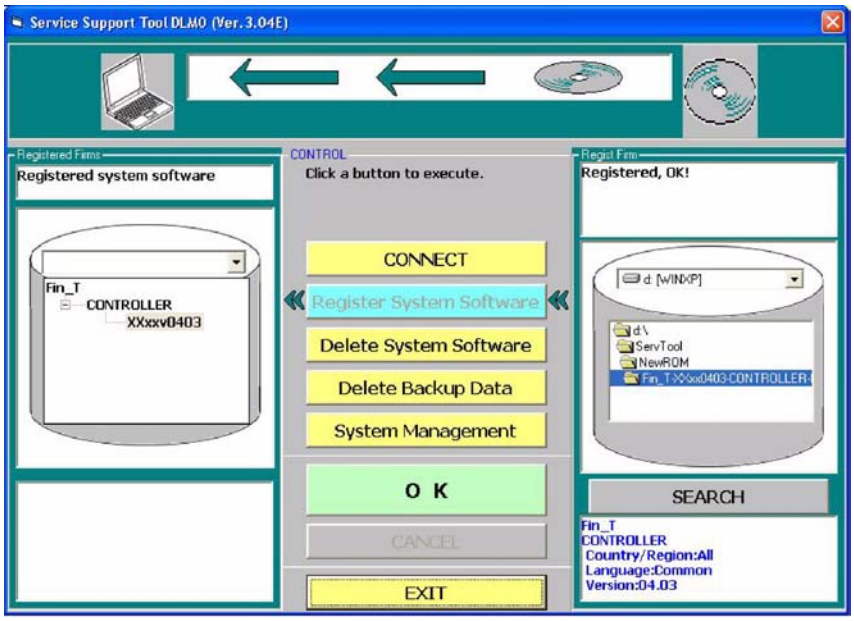
F-4-14

5) Press the [Register] button.



F-4-15

6) Press the [OK] button to register the data.



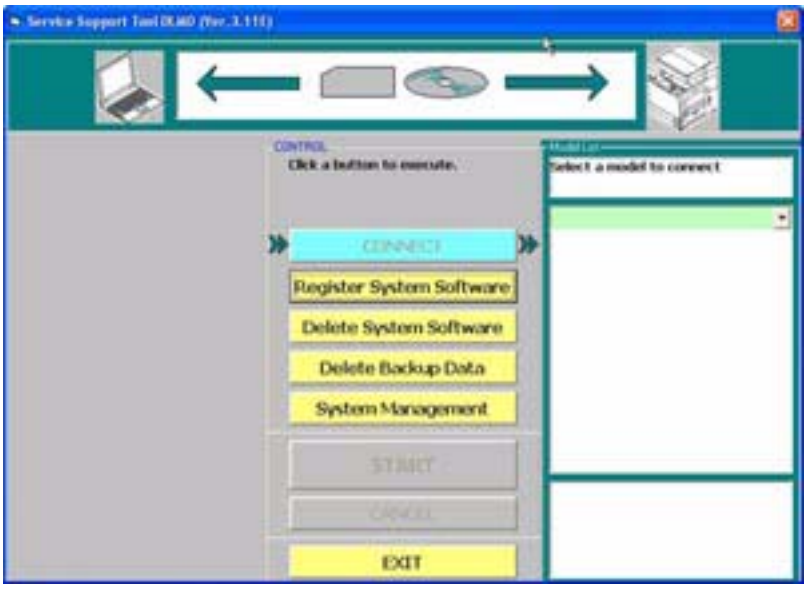
F-4-16

b. Connection to the finisher
1) Turn OFF the machine.
2) Remove the machine rear cover
3) Connect the cable B to J918 on the finisher controller PCB.
4) Connect the RS-232C cable to the PCB and the RS-232C connector of the PC.
Make sure at this time that the ferrite core of the RS-232C cable comes to the PC side.
5) Turn ON the machine.
c. Download

⚠Although E500 may occur during downloading, it does not affect download work and a result.

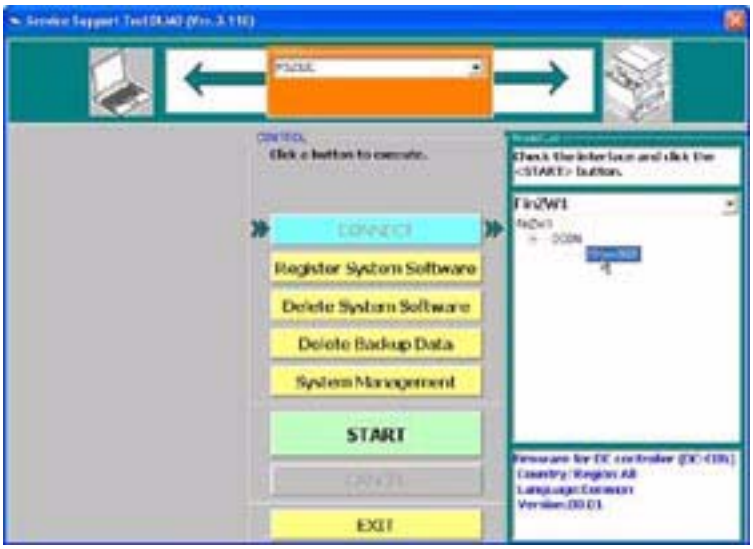
---

1) Start up the Service Support Tool.
C:\ ProgramFiles \ Service Supprt Tool \ bpchost.exe
2) Select a model to be connected.



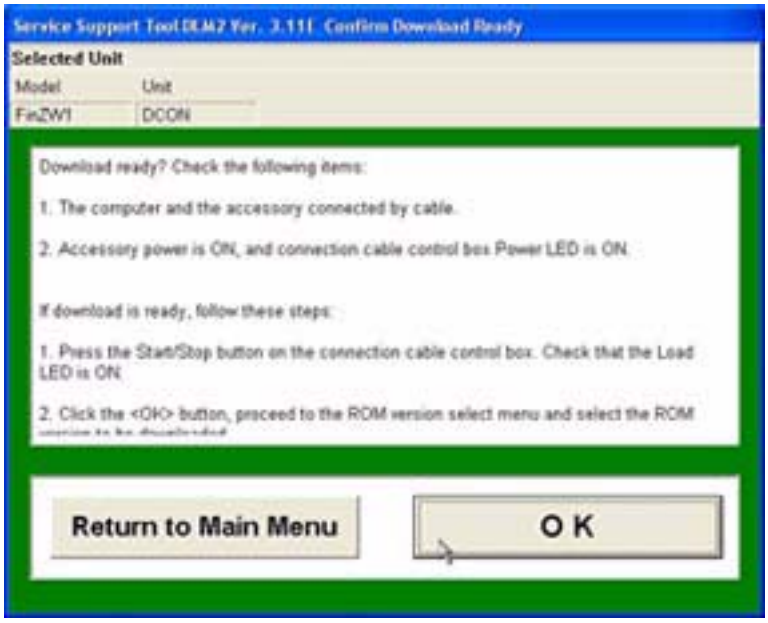
F-4-17

3) Press the [START/STOP] key.
The LOAD LED will light up.
4) Select the finisher.
Highlight the model name, and press the [Connect] key.



F-4-18

5) Follow the screens to check preparations for download. The next screen appears with a press of the [OK] key on the screen.

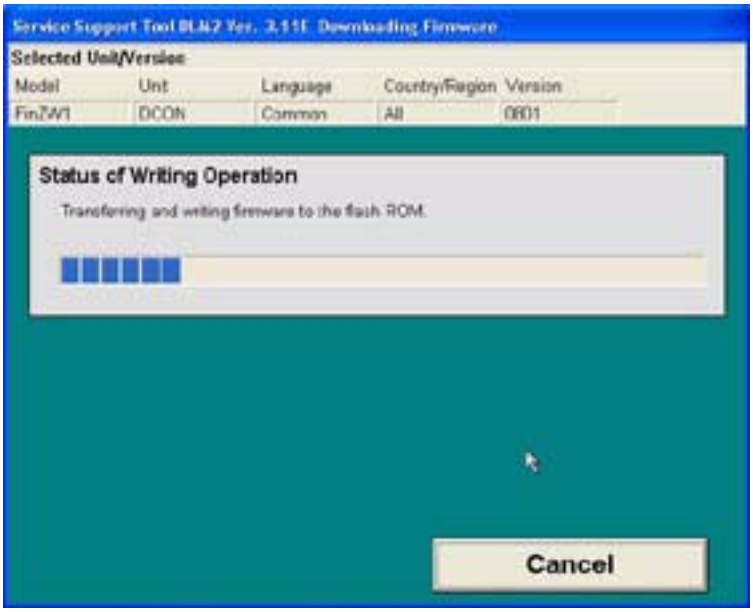


F-4-19

6) Select the ROM version to be downloaded.

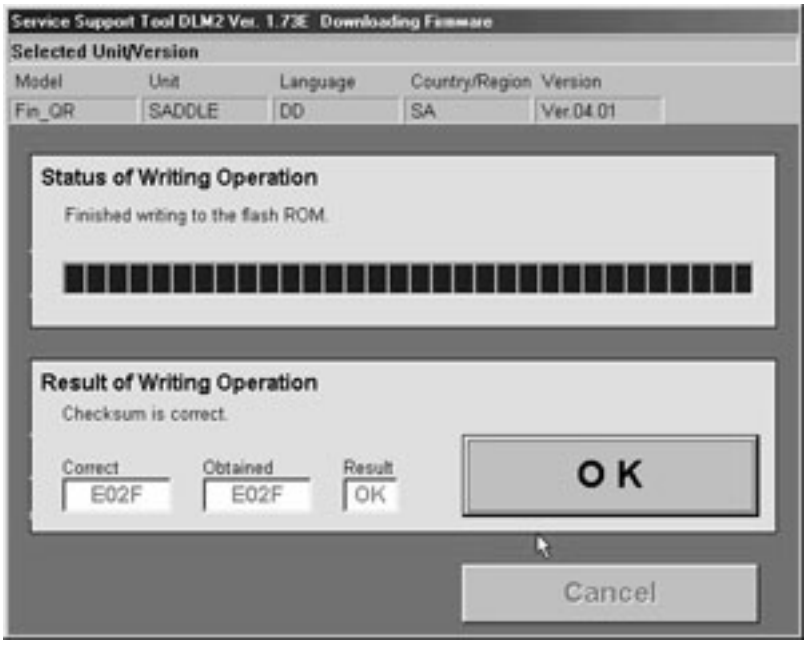
F-4-20

7) The PC and the downloader PCB will start to download the program with a press of the [Start] key.



F-4-21

8) Press the [OK] key when the download is properly completed.



F-4-22

9) Follow the screen to end.

F-4-23

5. Disconnection
1) Press the [START/STOP] key. The LOAD LED will go out.
2) Turn OFF the machine.
3) Disconnect the cable B from the finisher.
4) Attach the machine rear cover.
5) Turn ON the machine.

Chapter 5 Error Code

Contents

5.1 Service Error Code

5.1.1 Service Error Code

T-5-1

Display code	Detail Code	Main Cause/Symptom	Countermeasure
E500	0001	Finisher communication error	
		Data communication could not be performed normally. It has been retried three times in vain.	- Check the connectors of the finisher controller PCB and DC controller PCB for normal connection. - Replace the finisher controller PCB. - Replace the DC controller PCB.
E520	0001	- Offset motor or finisher controller PCB failure - Offset HP sensor failure	
		- The offset motor was driven for 1000 ms in the HP sensor approach direction, but the offset HP sensor did not turn on.	- Check the connector of the offset HP sensor. - Check the connector of the offset motor. - Replace the offset HP sensor. - Replace the offset motor. - Replace the finisher controller PCB.
	0002	- Offset motor or finisher controller PCB failure - Offset HP sensor failure	
		- The offset motor was driven for 1000 ms in the HP sensor escape direction, but the offset HP sensor did not turn off.	- Check the connector of the offset HP sensor. - Check the connector of the offset motor. - Replace the offset HP sensor. - Replace the offset motor. - Replace the finisher controller PCB.
E531	0001	- Staple unit failure - Staple HP sensor failure - Finisher controller PCB failure	
		- The staple home position was not left when 400 ms have lapsed since start of staple operation.	- Check the connector of the staple unit. - Replace the staple unit. - Replace the finisher controller PCB.
	0002	- Staple unit failure - Staple HP sensor failure - Finisher controller PCB failure	
		- The staple home position had been left once, but it was not reached again when 400 ms have lapsed since start of staple operation. In addition, the staple home position could not be reached by performing reverse operation for 400 ms.	- Check the connector of the staple unit. - Replace the staple unit. - Replace the finisher controller PCB.

Display code	Detail Code	Main Cause/Symptom	Countermeasure
E540	0001	- Standard tray shift motor or finisher controller PCB failure - Standard tray HP sensor failure - Standard tray clock sensor failure - Standard tray shift motor load failure	
		The standard tray was moved but the paper surface was not detected.	- Check the connector of the standard tray HP sensor. - Check the connector of the standard tray clock sensor. - Check the connector of the standard tray shift motor. - Replace the standard tray HP sensor. - Replace the standard tray clock sensor. - Replace the standard tray shift motor. - Replace the finisher controller PCB.
	0002	- Standard tray shift motor or finisher controller PCB failure - Standard tray HP sensor failure - Standard tray clock sensor failure - Standard tray shift motor load failure	
		Cannot move (to the pickup position) within the specified time.	- Check the connector of the standard tray HP sensor. - Check the connector of the standard tray clock sensor. - Check the connector of the standard tray shift motor. - Replace the standard tray HP sensor. - Replace the standard tray clock sensor. - Replace the standard tray shift motor. - Replace the finisher controller PCB.
	0003	- Standard tray shift motor or finisher controller PCB failure - Standard tray HP sensor failure - Standard tray clock sensor failure - Standard tray shift motor load failure	
		The standard tray was operated, but it did not reach the sensor within 300 ms.	- Check the connector of the standard tray HP sensor. - Check the connector of the standard tray clock sensor. - Check the connector of the standard tray shift motor. - Replace the standard tray HP sensor. - Replace the standard tray clock sensor. - Replace the standard tray shift motor. - Replace the finisher controller PCB.
	0005	- Standard tray shift motor or finisher controller PCB failure - Standard tray HP sensor failure - Standard tray clock sensor failure - Standard tray shift motor load failure	
		The encoder clock signal was not detected two or more times when the standard tray was operated for 300 ms.	- Check the connector of the standard tray HP sensor. - Check the connector of the standard tray clock sensor. - Check the connector of the standard tray shift motor. - Replace the standard tray HP sensor. - Replace the standard tray clock sensor. - Replace the standard tray shift motor. - Replace the finisher controller PCB.

Display code	Detail Code	Main Cause/Symptom	Countermeasure
E542	0001	- Optional tray motor or finisher controller PCB failure - Optional tray HP sensor failure - Optional tray clock sensor failure - Optional tray shift motor load failure	
		The optional tray was operated, but the paper surface was not detected.	- Check the connector of the optional tray HP sensor. - Check the connector of the optional tray clock sensor. - Check the connector of the optional tray shift motor. - Replace the optional tray HP sensor. - Replace the optional tray clock sensor. - Replace the optional tray shift motor. - Replace the finisher controller PCB.
	0002	- Optional tray motor or finisher controller PCB failure - Optional tray HP sensor failure - Optional tray clock sensor failure - Optional tray shift motor load failure	
		Cannot move (to the pickup position) within the specified time.	- Check the connector of the optional tray HP sensor. - Check the connector of the optional tray clock sensor. - Check the connector of the optional tray shift motor. - Replace the optional tray HP sensor. - Replace the optional tray clock sensor. - Replace the optional tray shift motor. - Replace the finisher controller PCB.
	0003	- Optional tray motor or finisher controller PCB failure - Optional tray HP sensor failure - Optional tray clock sensor failure - Optional tray shift motor load failure	
		- The optional tray was moved upward, but it did not reach the HP sensor within 3000 ms.	- Check the connector of the optional tray HP sensor. - Check the connector of the optional tray clock sensor. - Check the connector of the optional tray shift motor. - Replace the optional tray HP sensor. - Replace the optional tray clock sensor. - Replace the optional tray shift motor. - Replace the finisher controller PCB.
	0005	- Optional tray motor or finisher controller PCB failure - Optional tray HP sensor failure - Optional tray clock sensor failure - Optional tray shift motor load failure	
		- The encoder clock signal was not detected two or more times when the optional tray was operated for 300 ms.	- Check the connector of the optional tray HP sensor. - Check the connector of the optional tray clock sensor. - Check the connector of the optional tray shift motor. - Replace the optional tray HP sensor. - Replace the optional tray clock sensor. - Replace the optional tray shift motor. - Replace the finisher controller PCB.
E575	0001	- Stack delivery motor or finisher controller PCB failure - Stack delivery HP sensor failure	
		- The stack delivery motor was driven for 2000 ms in the stack delivery direction (HP sensor approach direction), but the stack delivery HP sensor did not turn on.	- Check the connector of the stack delivery HP sensor. - Check the connector of the stack delivery motor. - Check the connector of the stack delivery HP sensor. - Replace the stack delivery motor. - Replace the finisher controller PCB.
	0002	- Stack delivery motor or finisher controller PCB failure - Stack delivery HP sensor failure	
		- The stack delivery motor was driven for 2000 ms in the HP sensor escape direction, but the stack delivery HP sensor did not turn off.	- Check the connector of the stack delivery HP sensor. - Check the connector of the stack delivery motor. - Check the connector of the stack delivery HP sensor. - Replace the stack delivery motor. - Replace the finisher controller PCB.

Display code	Detail Code	Main Cause/Symptom	Countermeasure
E584	0001	- Shutter drive motor or finisher controller PCB failure - Shutter open detection sensor failure - Shutter clutch failure	
		- The shutter open sensor did not turn on when 1000 ms have lapsed since the shutter unit had performed open operation, resulting in incomplete open operation.	- Check the connector of the shutter open sensor. - Check the connector of the shutter clutch. - Check the connector of the shutter motor. - Replace the shutter open sensor. - Replace the shutter clutch. - Replace the shutter drive motor. - Replace the finisher controller PCB.
	0002	- Shutter drive motor or finisher controller PCB failure - Shutter open detection sensor failure - Shutter clutch failure	
		- The shutter open sensor did not turn off when 1000 ms have lapsed since the shutter unit had performed close operation, resulting in incomplete close operation.	- Check the connector of the shutter open sensor. - Check the connector of the shutter clutch. - Check the connector of the shutter motor. - Replace the shutter open sensor. - Replace the shutter clutch. - Replace the shutter drive motor. - Replace the finisher controller PCB.

5.2 Alam Code

5.2.1 Alam Code

T-5-2

Cause of alarm	Occurrence Condition	Alarm code	Reset
Overload	1. When the paper level sensor for 300 pcs (minimum load) is turned on while the level sensor detects the top of the stack of sheets on the tray.2. In mixed loading, when the paper level sensor for 300 pcs (minimum load) is turned on while the level sensor detects the top of the stack of sheets on the tray.3. When the amount of paper on the tray reaches a specified number 4. When the number of stapled sets reaches a specified number 5. At the power-on, when the condition 2 above is met with paper loaded on the tray.	02	Remove all the paper on the stacker tray to reset.

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