Service Manual

Finisher, Sorter, DeliveryTray
Shift Tray-C1

Canon

Mar 22 2004

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.

The following paragraph does not apply to any countries where such provisions are inconsistent with local law.

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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 1 Specifications

Contents

1.1 Product Specifications

1.1.1 Specifications

0003-8613

T-1-1

Item	Description
Method of stacking	ascent/descent by paper weight/coil springsort by tray shift movement
Mode of stacking	sort: offset used non-sort: offset not used
Source of drive	ascent/descent: by coil spring (descent by paper weight) shift movement: by motor
Size of paper for stack	A3, A4, A4R, A5R, B4, B5, B5R, 11x17, LTR, LTR-R, LGL, STMT-R, postcard, transparency
Weight of paper for stack	64 to 200 g/m2
Movement of offset	in units of sets
Distance of offset	55 mm
Maximum number of sets in stack	sort: 500 sheets (6y4 g/m2 paper) non-sort: 250 sheets (64/m2 paper)
Accuracy of alignment	sort: 50 mm or less (delivery direction) 20 mm or less (shift direction, between stacks) between stacks: -5 mm or less (shift direction, within stack) non-sort: 100 mm or less
Tray full detection*2	by reflection type sensor (2 pc.) monitoring height of stack
Power supply	24 VDC/5 V (from host machine)
Maximum power consumption	2 W or less
Dimensions	365.3 (W) x 547 (D) x 255.7 (H) mm
Weight	4.2 kg

Operating environment	same as host machine

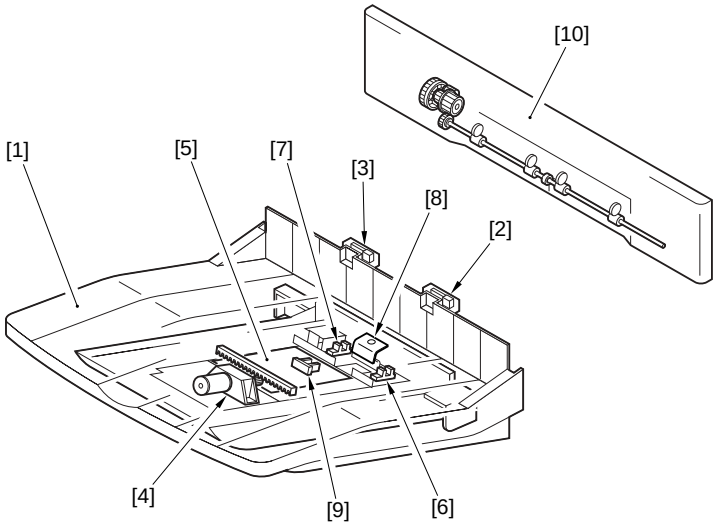
*1: the following will not be operated: A4R, A5R, B5R, 11x17, 13x19, LTR-R, STMT-R, 4-pane postcard, tab sheet.

*2: the machine stops printing when the stack exceeds a specific height.

1.2 Names of Parts

1.2.1 Names of Parts

0003-8677



F-1-1

T-1-2

1	Tray	2	Tray full sensor (front)
3	Tray full sensor (rear)	4	Tray drive unit
5	Shift tray drive PCB	6	HP sensor (front)
7	HP sensor (rear)	8	Light-blocking plate
9	Paper sensor	10	Delivery unit

Chapter 2 Functions

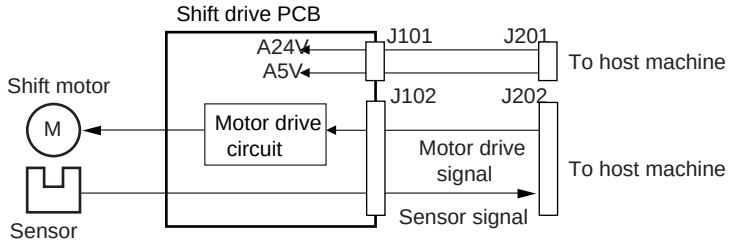
Contents

2.1 Basic Construction

2.1.1 Outline of the Electrical Circuitry

0003-8683

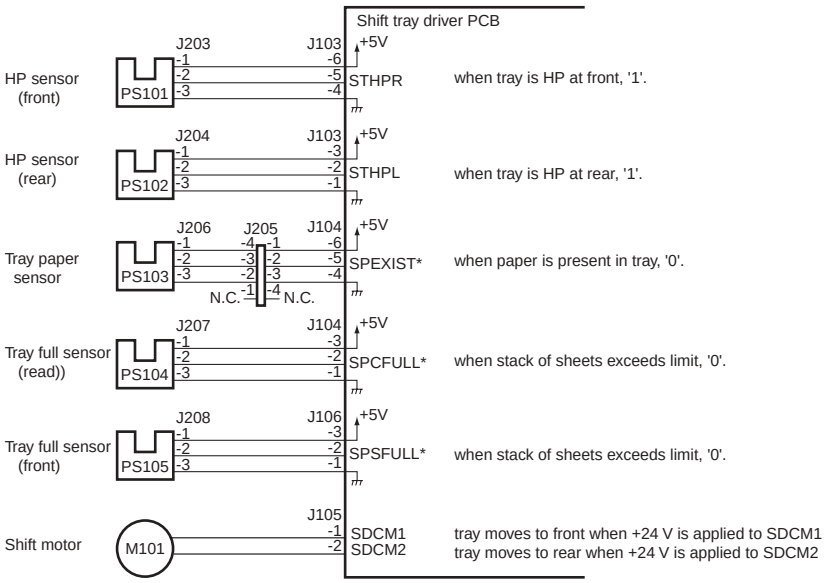
The circuit shown below is used to drive the shift motor according to the shift control signal from the host machine and also to send various sensor signals associated with the shift operation to the host machine.



F-2-1

2.1.2 Inputs to and Outputs from the Shift Tray Driver PCB

0003-8686



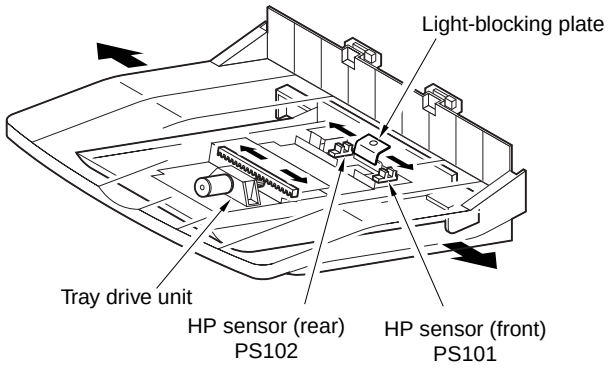
F-2-2

2.2 Basic Operation

2.2.1 Shift Movement

0003-8687

The machine moves the tray to the front and the rear (shift of 55 mm) to sort stacks (offset). The tray is driven by a DC motor, and the rotation of the motor is converted into liner movement by means of a rack and pinion gear mechanism. The location of the tray (front, rear) is monitored by the HP sensor mounted to the front and the rear.

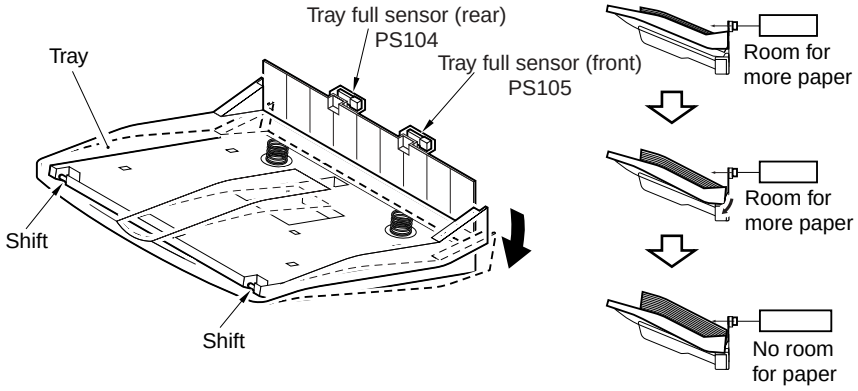


F-2-3

2.2.2 Placement of Paper

0003-8689

The machine's tray is held up by the work of a coil spring. When paper is placed, the tray moves down under the weight of the paper. The height of the stack in the tray is monitored by the tray full sensor (reflection type photo sensor), and the shift tray driver PCB sends the tray full signal to the host machine when the top of the stack reaches a specific height.

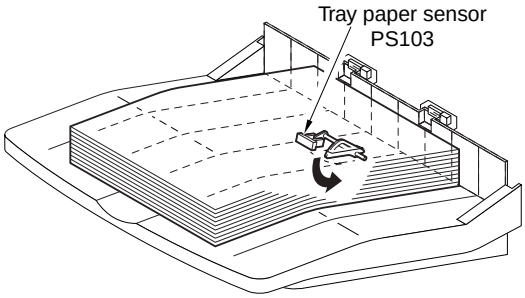


F-2-4

2.2.3 Detecting the Presence/Absence of Paper

0003-8690

The presence/absence of paper in the tray is detected by the paper sensor mounted to the tray.

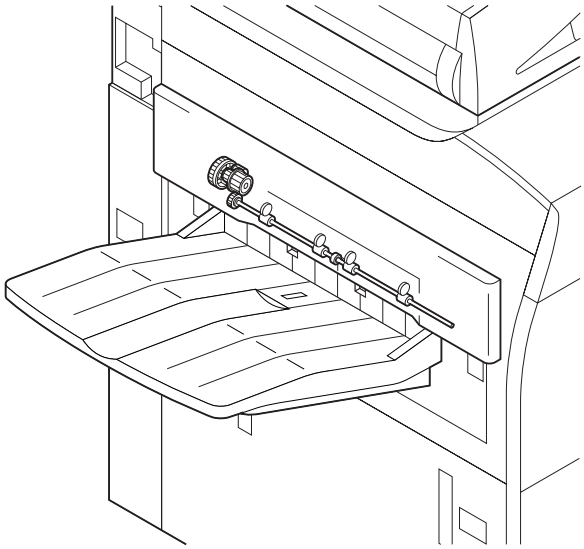


F-2-5

2.2.4 Delivery Movement

0003-8691

The paper from the host machine is delivered to the tray through the delivery unit, which is driven by the host machine's gear mechanism.



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Chapter 3 Parts Replacement Procedure

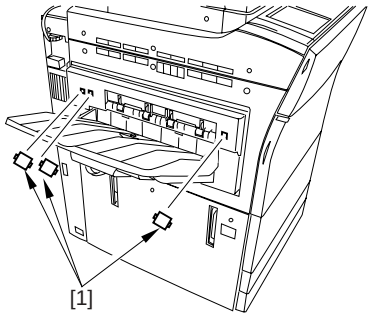
Contents

3.1 Removing from the Host Machine

3.1.1 Shift Tray

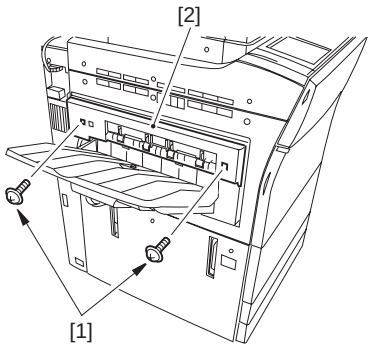
3.1.1.1 Removing the Shift Tray 0004-1889

1) Remove the 3 face covers [1].



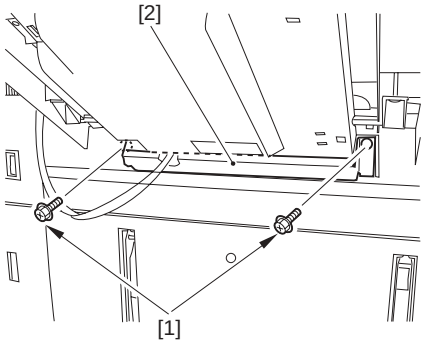
F-3-1

2) Remove the 2 screws [1], and detach the delivery unit [2].



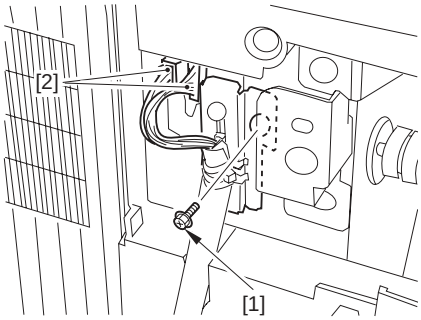
F-3-2

3) Remove the 2 screws [1], and detach the reinforcing plate [2].



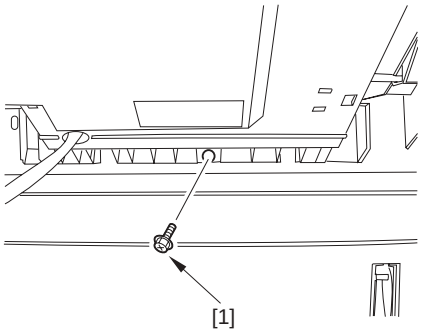
F-3-3

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



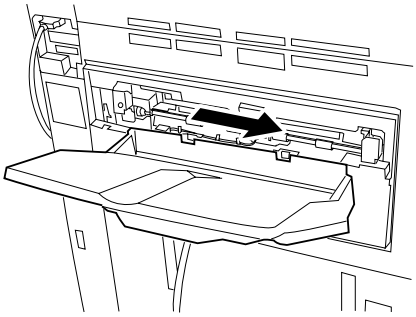
F-3-4

5) Remove the screw [1].



F-3-5

6) Move the shift tray [1] to the right to detach the shift tray [1] from the host machine.



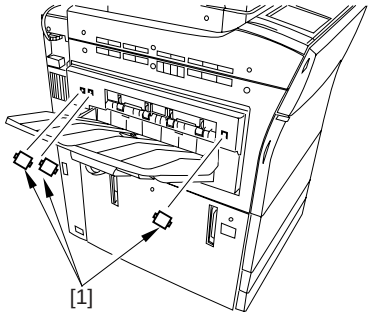
F-3-6

3.2 Drive System

3.2.1 Tray Drive Unit

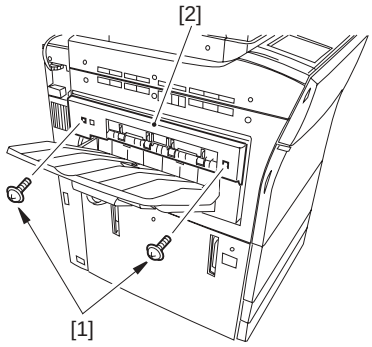
3.2.1.1 Removing the Shift Tray 0005-0090

1) Remove the 3 face covers [1].



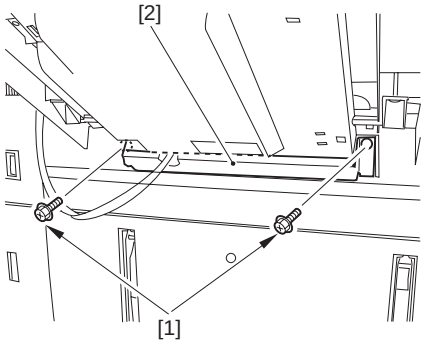
F-3-7

2) Remove the 2 screws [1], and detach the delivery unit [2].



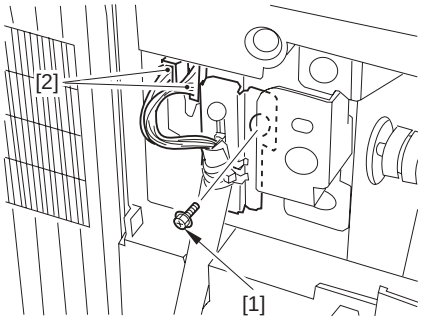
F-3-8

3) Remove the 2 screws [1], and detach the reinforcing plate [2].



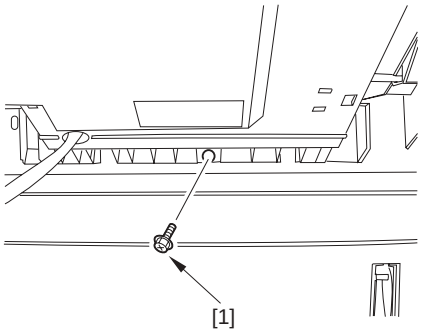
F-3-9

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



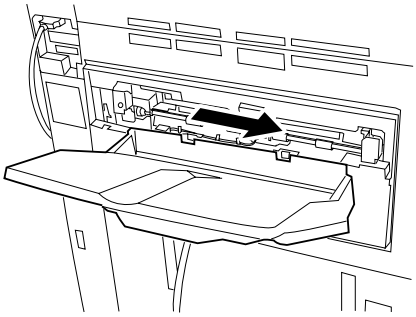
F-3-10

5) Remove the screw [1].



F-3-11

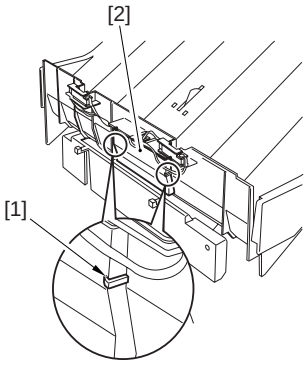
6) Move the shift tray [1] to the right to detach the shift tray [1] from the host machine.



F-3-12

3.2.1.2 Removing the Shift Tray Driver PCB 0005-0091

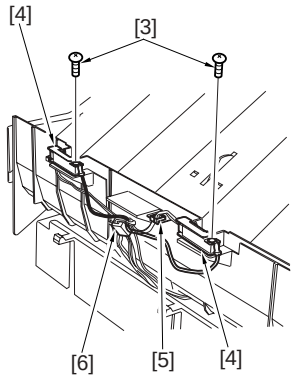
1) Free the 2 retaining claws [1], and detach the cable retaining plate [2].



F-3-13

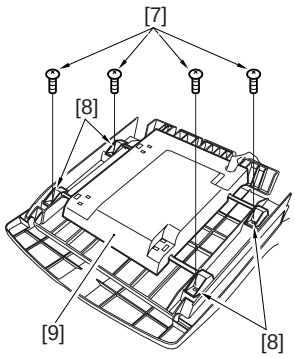
2) Remove the 2 screws [3], and detach the 2 tray full sensors [4] and the 2 grounding wires.

3) Free the cable of the tray full sensor from the clamp [5], and disconnect the connector [6].



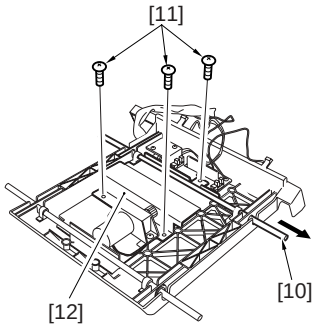
F-3-14

4) From the back of the shift tray, remove the 4 screws [7] and detach the 4 shaft retainers [8]; then, detach the tray drive assembly [9].



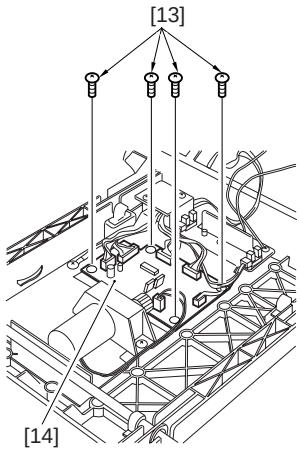
F-3-15

5) Pull off the shaft [10] from the tray drive assembly; then, remove the 3 screws [11], and detach the shield cover [12].



F-3-16

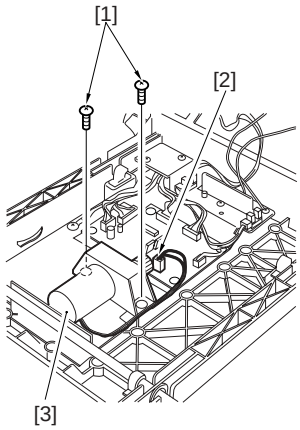
6) Remove the 4 screws [13], and detach the shift tray driver PCB [14].



F-3-17

3.2.1.3 Removing the Tray Drive Unit 0003-8907

1) Remove the 2 screws [1], and disconnect the connector; [2]; then, detach the tray drive unit [3].



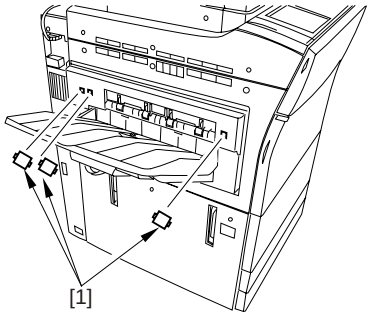
F-3-18

3.3 Electrical System

3.3.1 Shift Tray Driver PCB

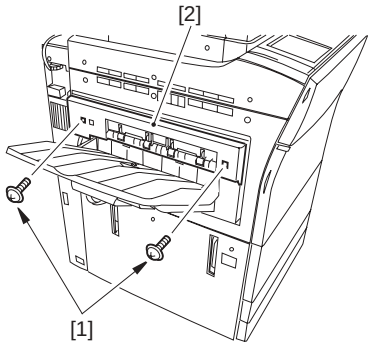
3.3.1.1 Removing the Shift Tray 0004-1902

1) Remove the 3 face covers [1].



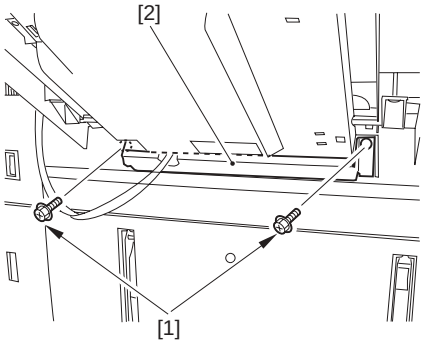
F-3-19

2) Remove the 2 screws [1], and detach the delivery unit [2].



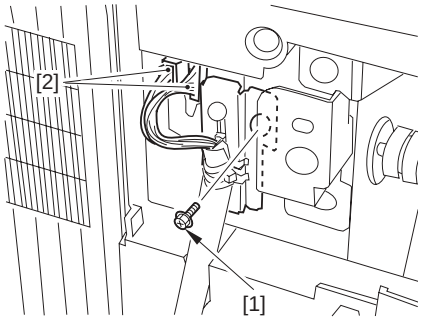
F-3-20

3) Remove the 2 screws [1], and detach the reinforcing plate [2].



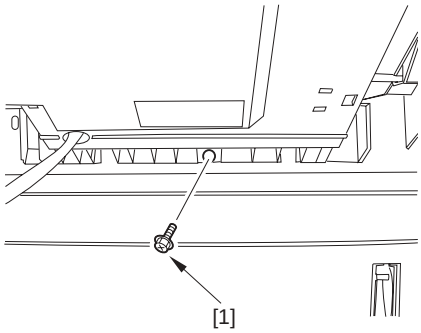
F-3-21

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



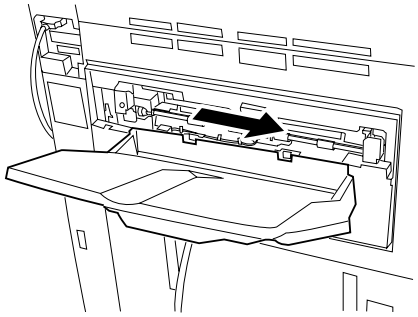
F-3-22

5) Remove the screw [1].



F-3-23

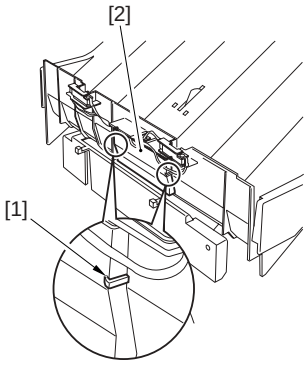
6) Move the shift tray [1] to the right to detach the shift tray [1] from the host machine.



F-3-24

3.3.1.2 Removing the Shift Tray Driver PCB 0003-8876

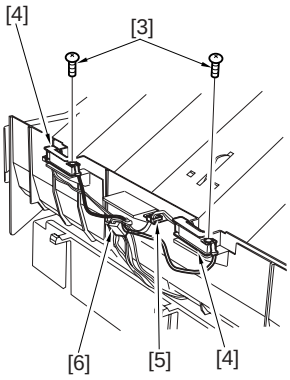
1) Free the 2 retaining claws [1], and detach the cable retaining plate [2].



F-3-25

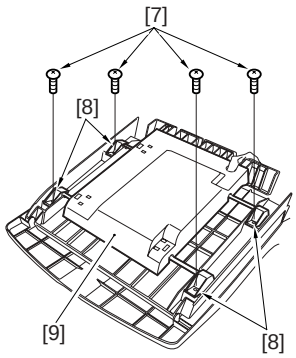
2) Remove the 2 screws [3], and detach the 2 tray full sensors [4] and the 2 grounding wires.

3) Free the cable of the tray full sensor from the clamp [5], and disconnect the connector [6].



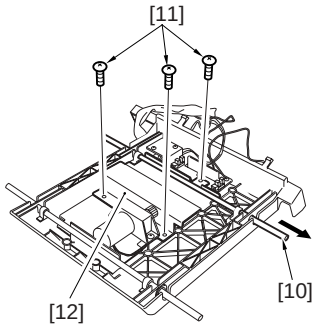
F-3-26

4) From the back of the shift tray, remove the 4 screws [7] and detach the 4 shaft retainers [8]; then, detach the tray drive assembly [9].



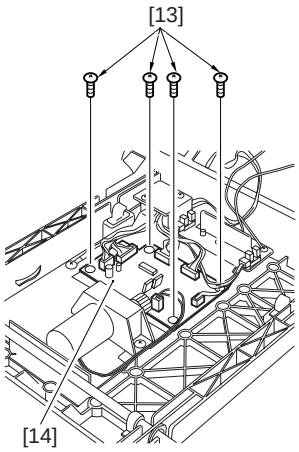
F-3-27

5) Pull off the shaft [10] from the tray drive assembly; then, remove the 3 screws [11], and detach the shield cover [12].



F-3-28

6) Remove the 4 screws [13], and detach the shift tray driver PCB [14].



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Chapter 4 Maintenance

Contents

4.1 Adjustment

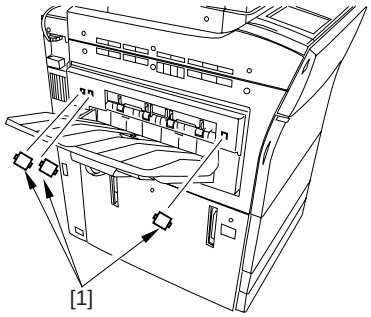
4.1.1 Adjustment at Time of Parts Replacement

4.1.1.1 Adjusting the Tray Full Sensor Position 0005-8062

Adjusting the Position of the Shift Tray Full Sensor

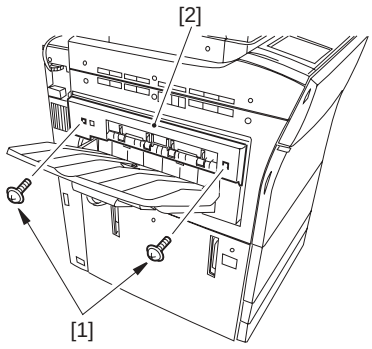
Be sure to go through the following whenever you have removed/replaced the tray full sensor (front, rear):

1)Remove the 3 face covers [1].



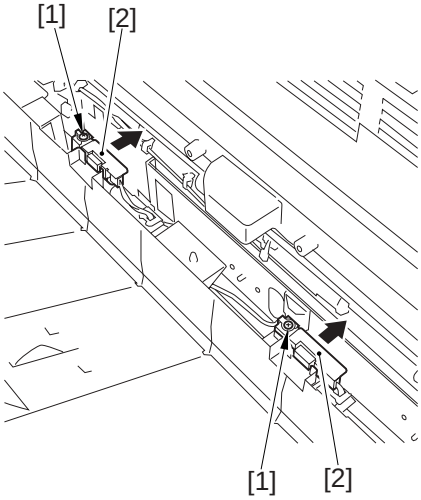
F-4-1

2)Remove the 2 screws [1], and detach the delivery unit [2].



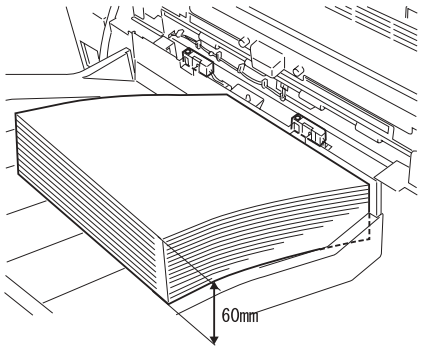
F-4-2

3)Loosen the screw [1], and temporarily fix both of the tray full sensors in place where they are farthest from the paper.



F-4-3

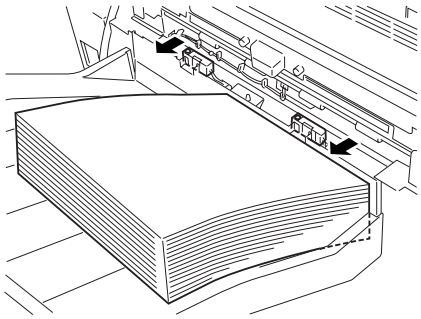
4)Place a stack of paper about 60 mm in height over the point of detection of either of the tray full sensors on the shift tray.



F-4-4

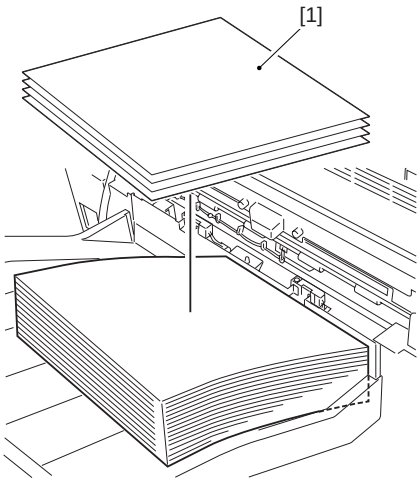
5)Select the service mode item, and press the OK key.

6)While referring to the indication, move the sensor closer to the paper, and fix it in place where 'ON' is indicated.



F-4-5

Memo: If ‘ON’ is not indicated after moving the sensor closest to the paper, keep adding a sheet of paper until ‘ON’ is indicated.



F-4-6

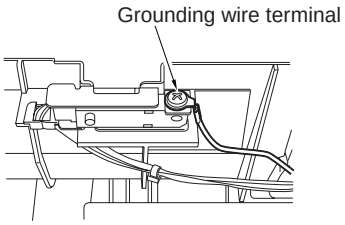
7)Perform step 6) for the other sensor.

8)Press the Stop key to end the adjustment.

⚠

1.When moving the sensor (front, rear), be sure to do so starting from where it is farthest from the paper. This is important in respect of the characteristics of the sensor.

2.Be sure that the grounding terminal of the sensor (front, rear) is parallel to the sensor and, moreover, its bend is in downward direction.



F-4-7

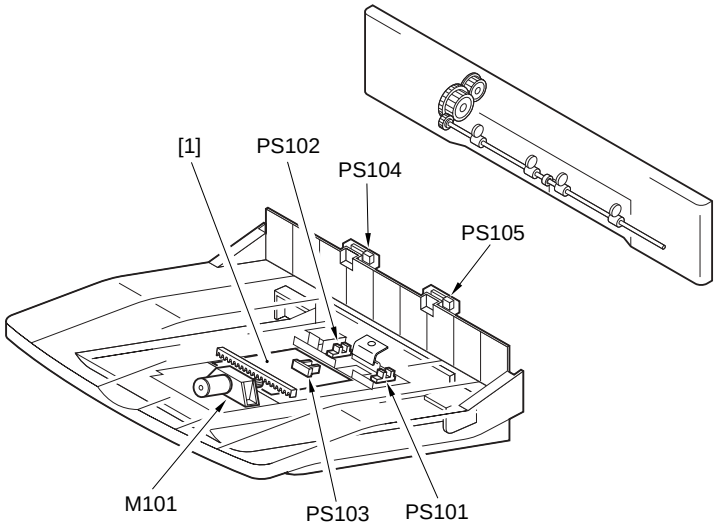
4.2 Outline of Electrical Components

4.2.1 Sensors, Motors, PCBs

0006-4194

T-4-1

Notation	Name / Description	Parts No.	I/O	Connector No.	PART-CHK
M101	Shift Motor / shifts the tray	FH6-1829		J105	MTR>37
PS101	HP sensor (front) / detects tray stop position (front)	FH7-7462	P008-2	J103	
PS102	HP sensor (rear) / detects tray stop position (rear)	FH7-7462	P008-1	J103	
PS103	Tray paper sensor / detects the sheet on the tray	FH7-7462	P008-3	J104	
PS104	Limit sensor (rear) / detects sheet full on the tray	WG8-5485		J104	
PS105	Limit sensor (front) / detects sheet full on the tray	WG8-5485	P008-4	J106	
[1]	Shift tray driver PCB / controls tray shifting	FG6-6841			



F-4-8

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