Service Manual

Finisher, Sorter, DeliveryTray
Shift Tray-D1

Canon

Feb 21 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 1 Specifications

Contents

1.1 Product Specifications

1.1.1 Specifications

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Item	Description
Method of stacking	Sorting by shifting trays face up/ face down stacking
Mode of stacking	non-sort, sort (stack shift)
Source of drive	ascent/descent: by coil spring (descent by paper weight) shift movement: by motor
Size of paper for stack*1	non-sort: A3, A4, A4R, A5R, B4, B5, B5R, 11x17, LGL, LTR, LTR-R, STMT-R sort: A3,A4, B4, B5, 11x17, LGL, LTR
Paper type	plain paper (64 to 90g/m2), recycled paper (64 to 80g/m2), eco paper, tracing paper, transparency, colored paper, postcard, double-postcard, 4-plane postcard, label paper, thick paper (91 to 200g/m2)
Weight of Paper for stack	64g/m2 to 200g/m2
Movement of offset	in units of sets
Maximum number of sets in stack	sort: 500sheets (64g/m2 paper) non-sort: 250 sheets (64g/m2)
Accuracy of alignment	sort: 50 mm or less (delivery direction) 20 mm or more (shift direction, between stacks) between stacks; -5 mm or less (shft 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 hostmachine)
Maximum power consumption	12 W or less
Dimensions	365.3 (W) x 547 (D) x 255.7 (H) mm
Weight	4.2 kg

Operation environment	same as host machine

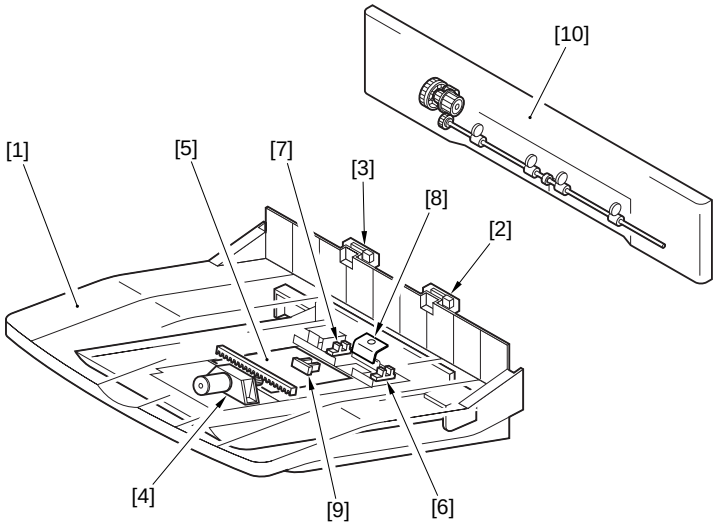
*1: tranceparencies, postcards and label papers may not be sorted.

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

1.2 Names of Parts

1.2.1 Names of Parts

0009-3514



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

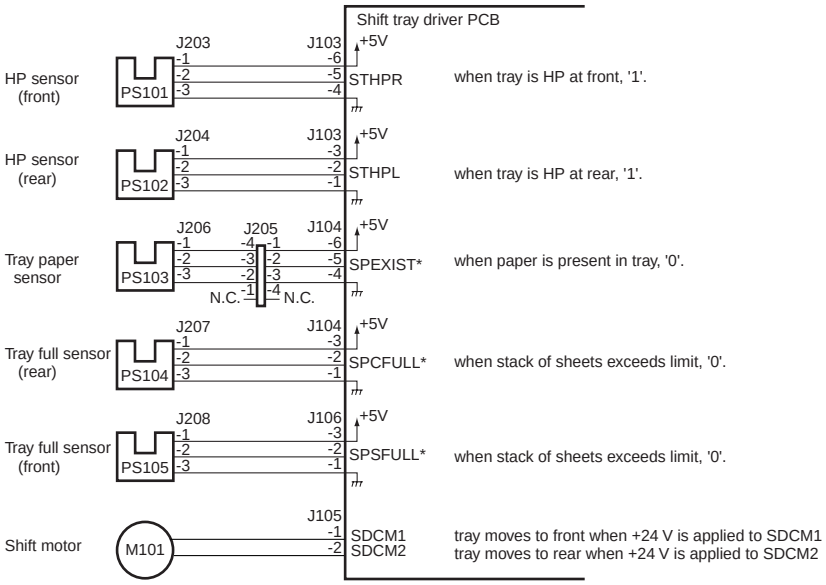
Chapter 2 Functions

Contents

2.1 Basic Construction

2.1.1 Inputs to and Outputs from the Shift Tray Driver PCB

0009-3515

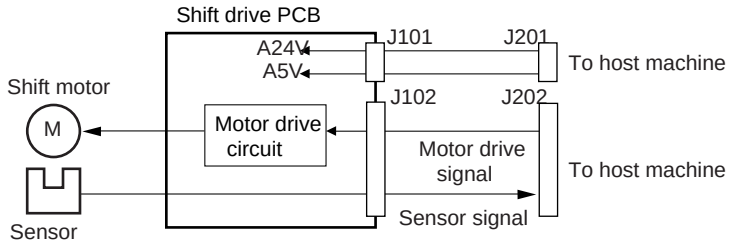


F-2-1

2.1.2 Outline of the Electrical Circuitry

0009-3516

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.



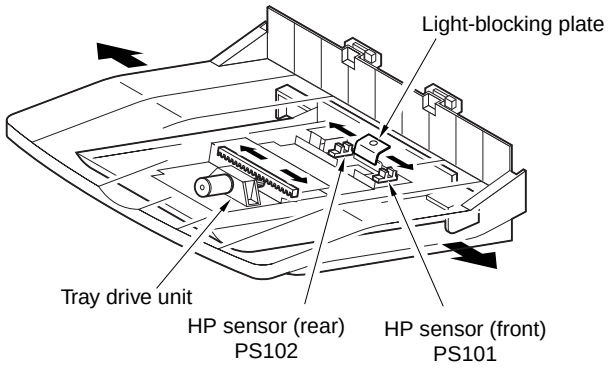
F-2-2

2.2 Basic Operation

2.2.1 Shift Movement

0009-3517

The machine moves the tray to the front and the rear 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.

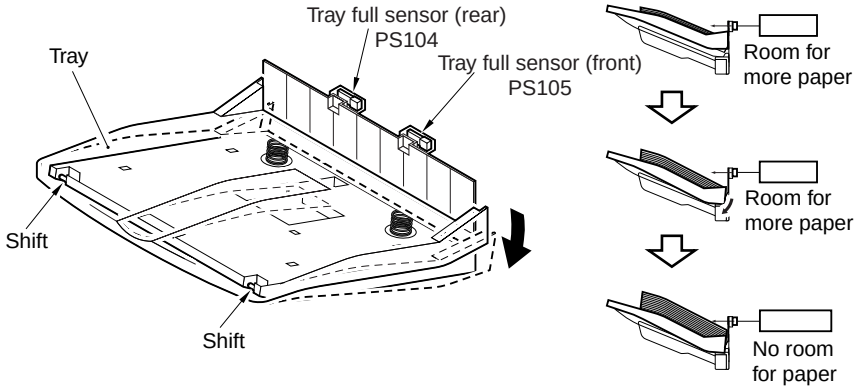


F-2-3

2.2.2 Placement of Paper

0009-3518

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.

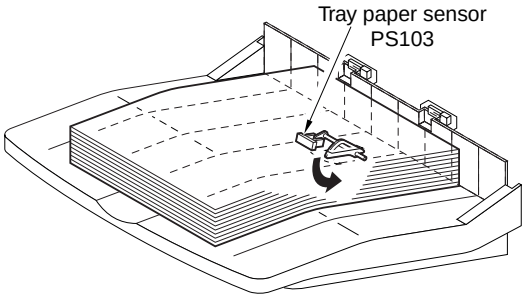


F-2-4

2.2.3 Detecting the Presence/Absence of Paper

0009-3519

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

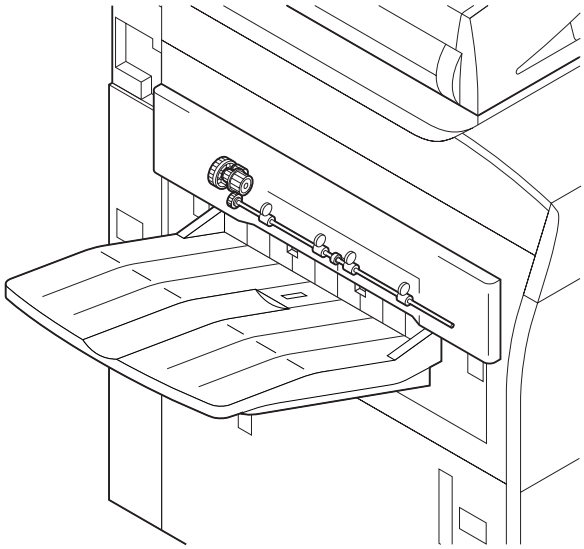


F-2-5

2.2.4 Delivery Movement

0009-3520

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

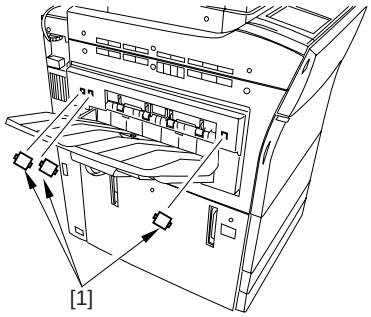
Contents

3.1 Removing from the Host Machine

3.1.1 Shift Tray

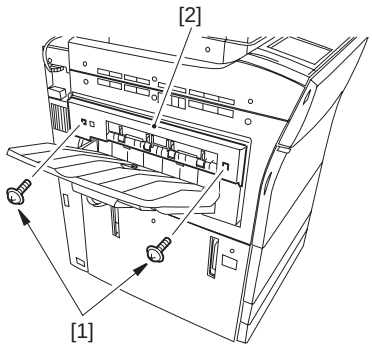
3.1.1.1 Removing the Shift Tray 0009-3523

1) Remove the 3 face covers [1].



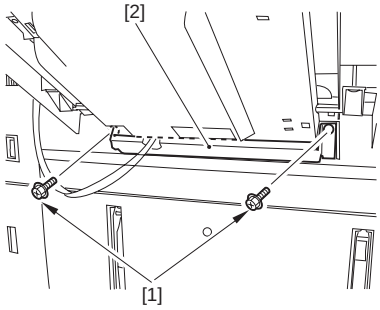
F-3-1

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



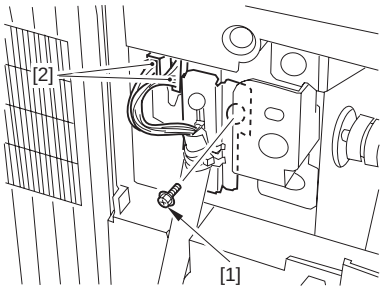
F-3-2

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



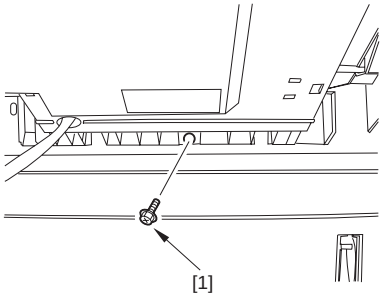
F-3-3

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



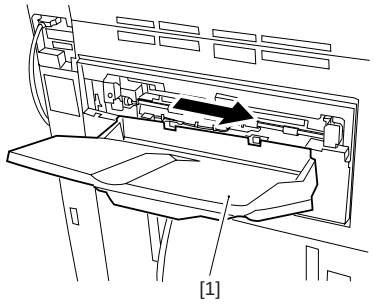
F-3-4

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.



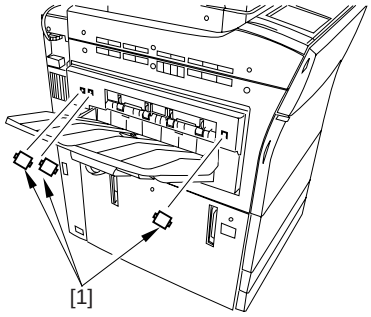
F-3-6

3.2 Drive System

3.2.1 Tray Drive Unit

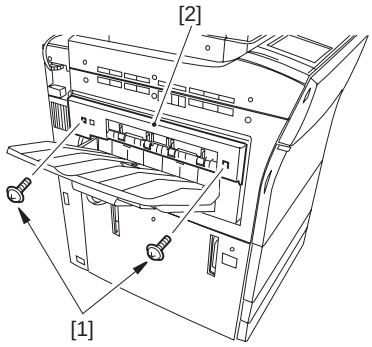
3.2.1.1 Removing the Shift Tray 0009-3525

1) Remove the 3 face covers [1].



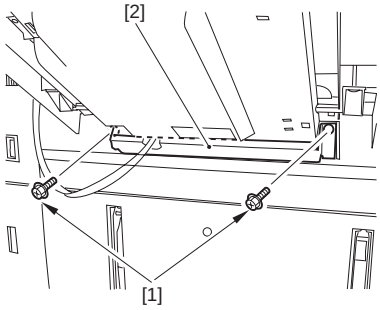
F-3-7

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



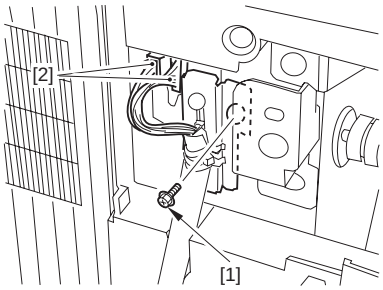
F-3-8

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



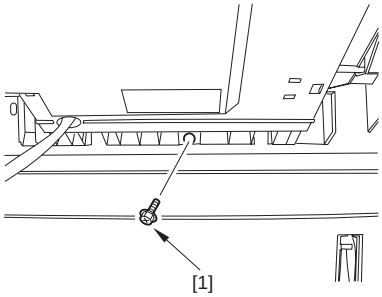
F-3-9

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



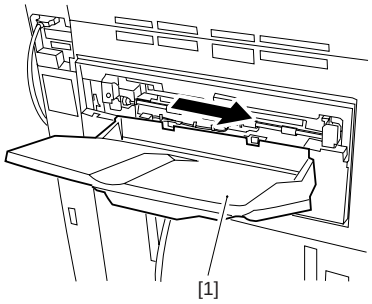
F-3-10

5) Remove the screw [1].



F-3-11

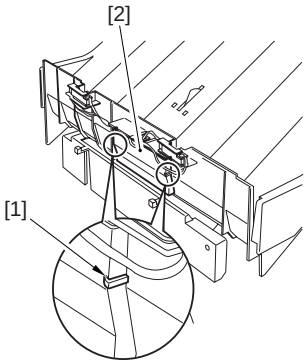
6) Move the shift tray [1] to the right to detach the shift tray [1] from the host machine.



F-3-12

3.2.1.2 Removing the Tray Drive Unit 0009-3526

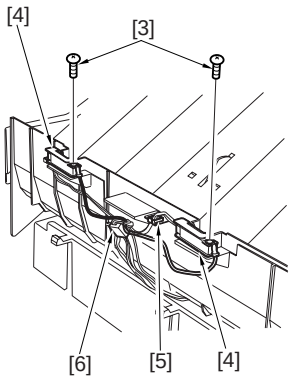
1) Free the 2 retaining claws [1], and detach the cable retaining plate [2].



F-3-13

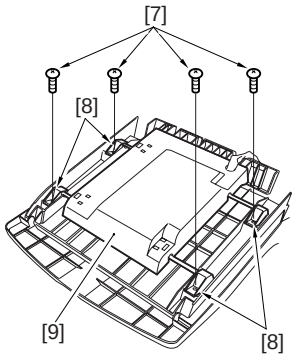
2) Remove the 2 screws [3], and detach the 2 tray full sensors [4] and the 2 grounding wires.

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



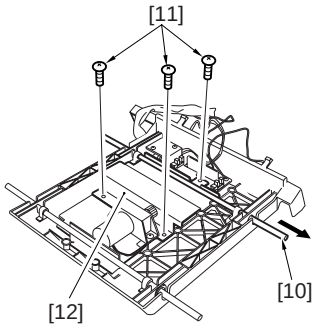
F-3-14

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].



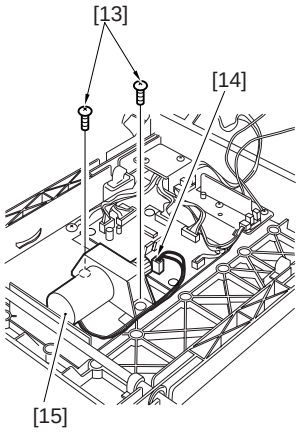
F-3-15

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 2 screws[13] and the connector [14]; then, remove the tray drive unit [15].



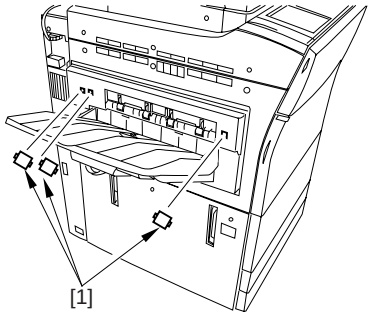
F-3-17

3.3 Electrical System

3.3.1 Shift Tray Driver PCB

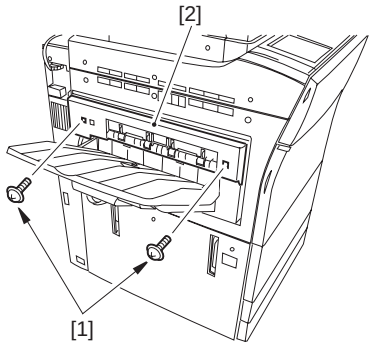
3.3.1.1 Removing the Shift Tray 0009-3527

1) Remove the 3 face covers [1].



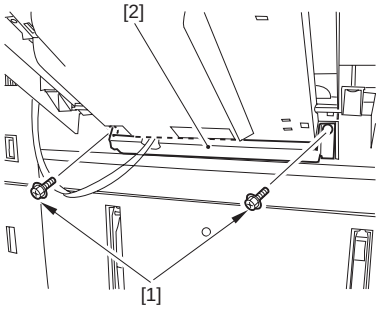
F-3-18

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



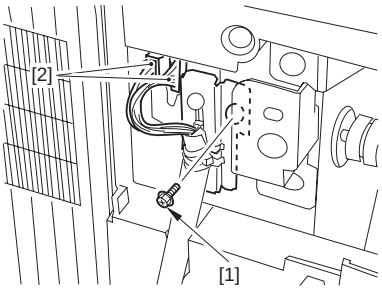
F-3-19

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



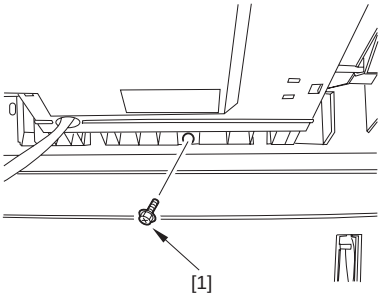
F-3-20

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



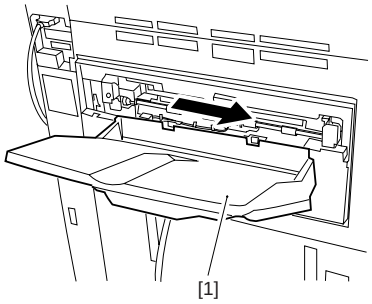
F-3-21

5) Remove the screw [1].



F-3-22

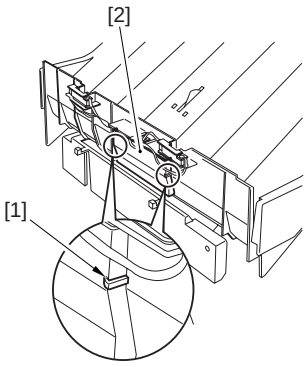
6) Move the shift tray [1] to the right to detach the shift tray [1] from the host machine.



F-3-23

3.3.1.2 Removing the Shift Tray Driver PCB 0009-3528

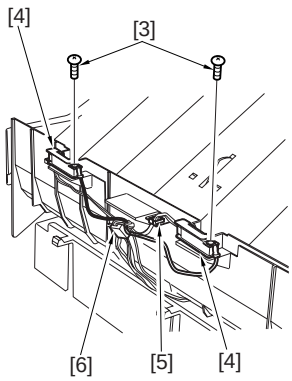
1) Free the 2 retaining claws [1], and detach the cable retaining plate [2].



F-3-24

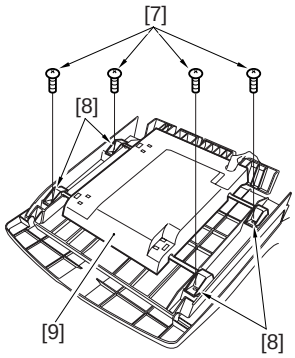
2) Remove the 2 screws [3], and detach the 2 tray full sensors [4] and the 2 grounding wires.

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



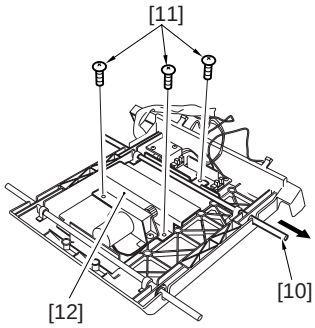
F-3-25

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-3-26

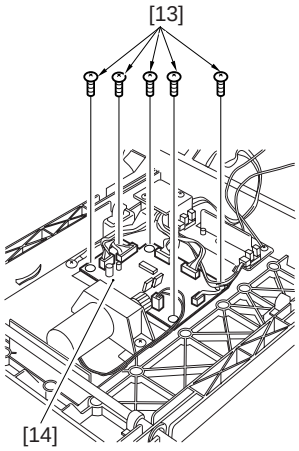
5) Pull off the shaft [10] from the tray drive assembly; then, remove the 3 screws [11], and detach the shield cover [12].



F-3-27

6) Disconnect all connector from the shift tray driver PCB.

7) Remove the 5 screws [13], and detach the shift tray driver PCB [14].



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Chapter 4 Maintenance

Contents

4.1 Maintenance and Inspection

4.1.1 Periodical Servicing

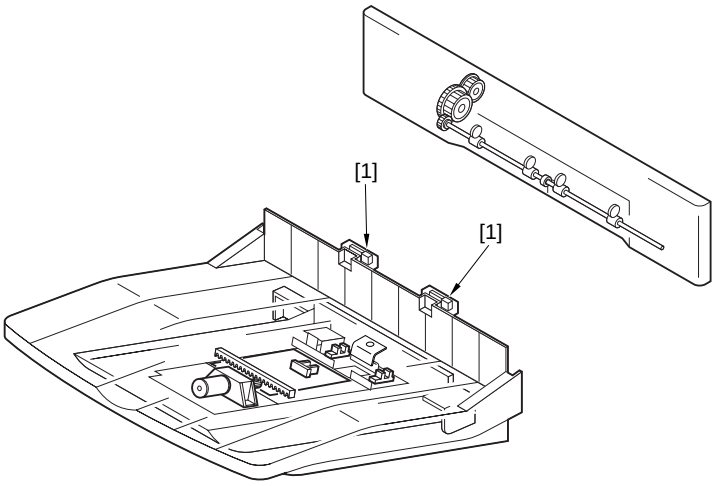
4.1.1.1 Scheduled Servicing Chart

0009-4343

T-4-1

Illust No.	Parts name	Scheduled servicing 250,000	Remarks
1	Tray full sensor (front/ rear)	clean	

The following figure shows the locations of the parts that require scheduled servicing:



F-4-1

4.2 Adjustment

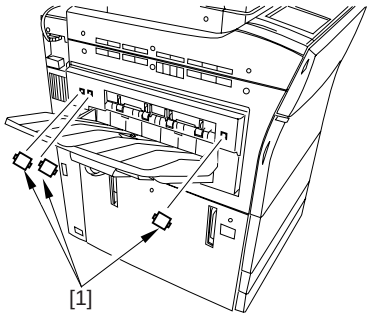
4.2.1 Adjustment at Time of Parts Replacement

4.2.1.1 Adjusting the Tray Full Sensor Position 0009-3531

Adjusting the Position of the Shift Tray Full Sensor

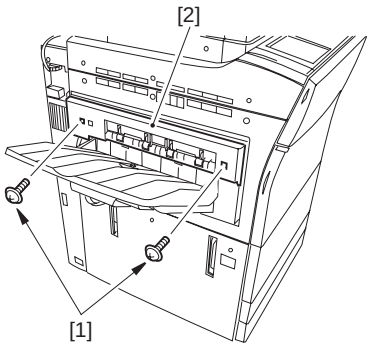
Be sure to go through the following whenever you have removed/replaced the tray full sensor (front, rear):

1)Remove the 3 face covers [1].



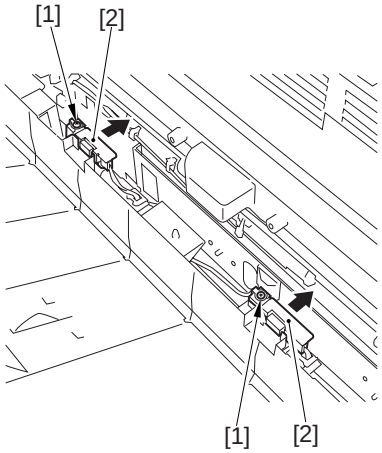
F-4-2

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



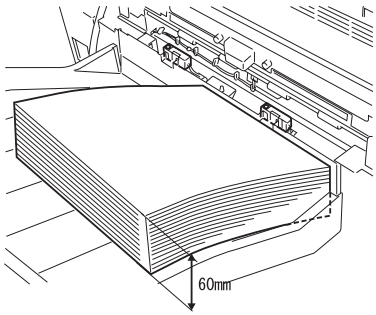
F-4-3

3)Loosen the screw [1], and temporarily fix both of the tray full sensors [2] in place where they are farthest from the paper.



F-4-4

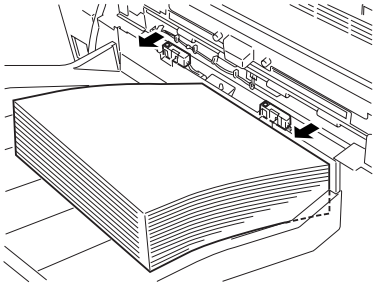
4)Place a stack of paper about 60 mm in height over the point of detection of either of the tray full sensors on the shift tray.



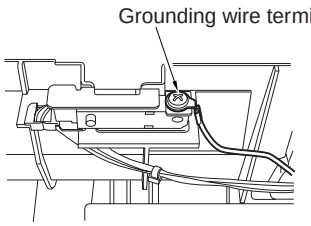
F-4-5

5) Turn on the host machine's main power switch. Then set COPIER>FUNCTION>SENS-ADJ>STCK-LMT in the host machine's service mode, 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.

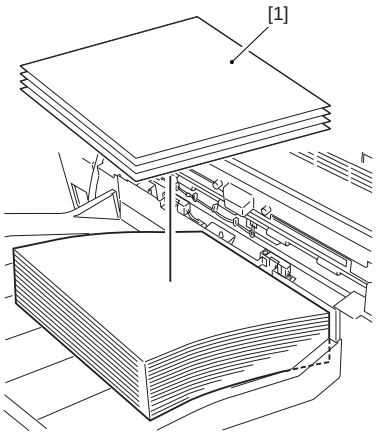


F-4-6



F-4-8

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-4-7

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.

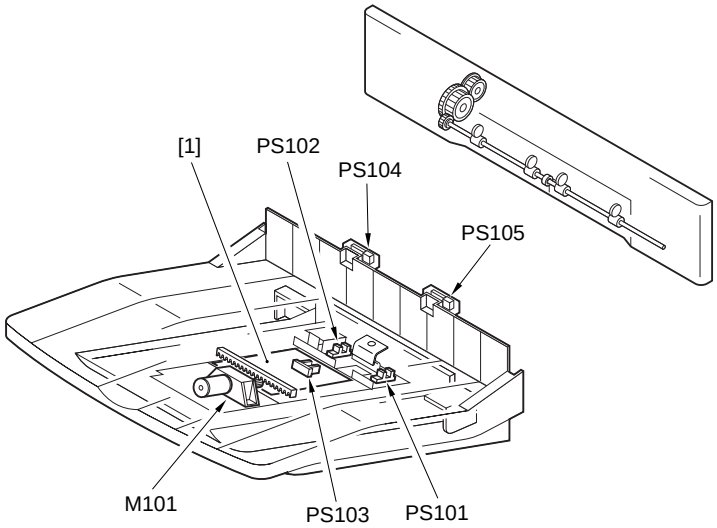
4.3 Outline of Electrical Components

4.3.1 Sensors, Motors, PCBs

0009-3532

T-4-2

Notation	Name	Description	Parts No.	I/O	Connect or No.	PART-CHK
M101	Shift motor	shifts the tray	FK2-0430		J105	MTR>30
PS101	HP sensor (front)	detects tray stop position (front)	FK2-0149	P006-14	J103	
PS102	HP sensor (rear)	detects tray stop position (rear)	FK2-0149	P006-13	J103	
PS103	Tray paper sensor	detects the sheet on the tray	FK2-0149	P006-12	J104	
PS104	Tray full sensor (rear)	detects sheet full on the tray	FK2-0316		J104	
PS105	Tray full sensor (front)	detects sheet full on the tray	FK2-0316	P006-11	J106	
[1]	Shift tray driver PCB	controls tray shifting	FM2-3241			



F-4-9

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