DADF-AB1

SERVICE MANUAL

Canon

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REV. 0

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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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Copyright

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 Installation

Chapter 3 Functions

Chapter 4 Parts Replacement Procedure

Chapter 5 Maintenance

Chapter 6 Error Code

Chapter 1 Specifications

Contents

1.1 Product Specifications

1.1.1 Specifications

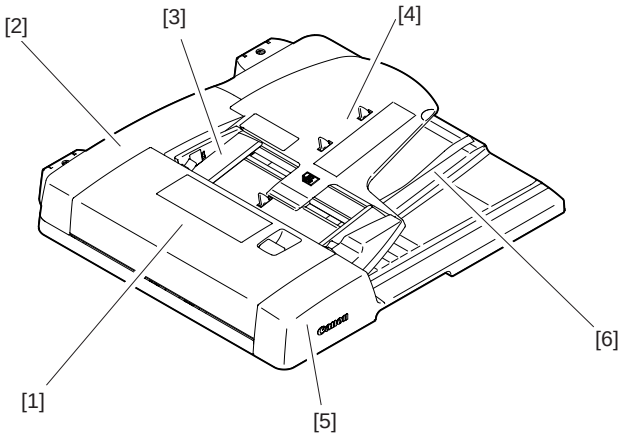
T-1-1

Item	Specification	Remarks
Document pickup method	Automatic pickup and delivery	
Document loading direction	Face-up	
Document loading position	Aligned to center	
Document separation method	Upper separation	
Document weight	Continuous feed: 52-105 g/m2 or less	Document longer than 432 mm: 60-90 g/m2 (single-sided, single feed)
	Single feed: Less than 37-52 g/m2, 105-128 g/m2 or less	
Document size	AB type: B6/A5/A5R/B5R/A4/A4R/B4/A3	SMT, B6: Landscape orientation only
	Inch type: STMT/LTR/LTRR/LGN/11 x 17	
	Others: 8K/16K	
	Document width: 148-297 mm	
	Document length (longitudinal) 128-432 <<1000>> mm	The document with the length indicated in << >> must be held by the operator.
Document tray capacity	S-size: 50 sheets (S-size: A4, A4R, B5, B5R, A5, A5R, B6, LTR, LTRR, STMT)	(80 g/m2 paper)
	L-size: 25 sheets (L-size: A3, 11 x 17, B4, LGL)	
	Document heavier than 80 g/m2: Weight equivalent	
	Folded document: 10 mm or less in height	
	Mixed-size document lighter than 50g/m2: 10sheets	
Document read method	Stream reading	
Document processing mode	- Single-sided document processing - Double-sided document processing	
Document size recognition	Detected by photo interrupter on pickup tray	Longitudinal: Two photo interrupters Lateral: Two photo interrupters
Jam recovery function	Not supported	
Completion stamp function	Supported	
Mixed document function	Same types of paper can be mixed.	Mixing of same type of paper: 52-105 g/m2 or less (equivalent to that in continuous feed mode) Mixing of different types of paper: 64-81.4 g/m2
	Different types of paper can be mixed.	
	Examples of mixing of different types of paper	
	AB type: A3/B4, A4/B5, B4/A4R, B5/A5	
	Inch type: LDR/LGL, LDR/LTRR, LDR/STMT, LTR/LGL, LTR/LTRR, LTR/STMT	
Book document	Ready (The thickness of the book document must not exceed 50 mm.)	

Item		Specification	Remarks
Document feed speed		100% read: 123 mm/s	Speed range: 123 to 246 mm/s
Document processing speed (LTR)		Copy BW 50% read: 246 mm/s 100% read: 123 mm/s 200% read: 61.5 mm/s SEND BW 600dpi x 300dpi:246mm/s 600dpi x 600dpi:123mm/s CL 300dpi x 300dpi:123mm/s (At the time of speed priority) 300dpi x 600dpi:61.5mm/s (At the time of image priority)	
Power supply		Power system: 24 VDC +10%, -5% Logic system: 3.3 VDC ±2%	Supplied from host machine
Weight		Approx. 7.0 kg	
Dimensions		565 (W) x 506.4 (D) x 126 (H) mm	
Operating environment	Temperature range	Same as that of host machine.	
	Humidity range	Same as that of host machine.	

1.2 Names of Parts

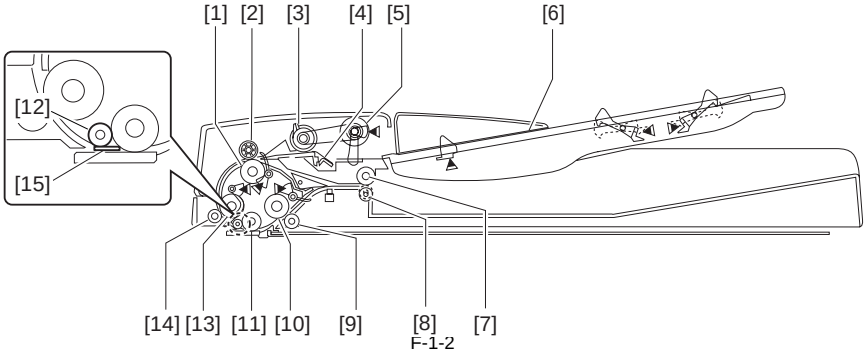
1.2.1 External View



F-1-1
T-1-2

[1] Feeder cover
[2] Rear cover
[3] Slide guide
[4] Document pickup tray
[5] Front cover
[6] Document delivery tray

1.2.2 Cross-section



F-1-2

[1] Lower registration roller
[2] Upper registration roller
[3] Feed roller
[4] Separation pad
[5] Pickup roller
[6] Document supply tray
[7] Upper delivery reversal roller
[8] Lower delivery reversal roller
[9] Read roller 2 (lower)
[10] Read roller 2 (upper)
[11] Platen roller
[12] Read roller
[13] Read roller 1 (upper)
[14] Read roller 1 (lower)
[15] White sheet

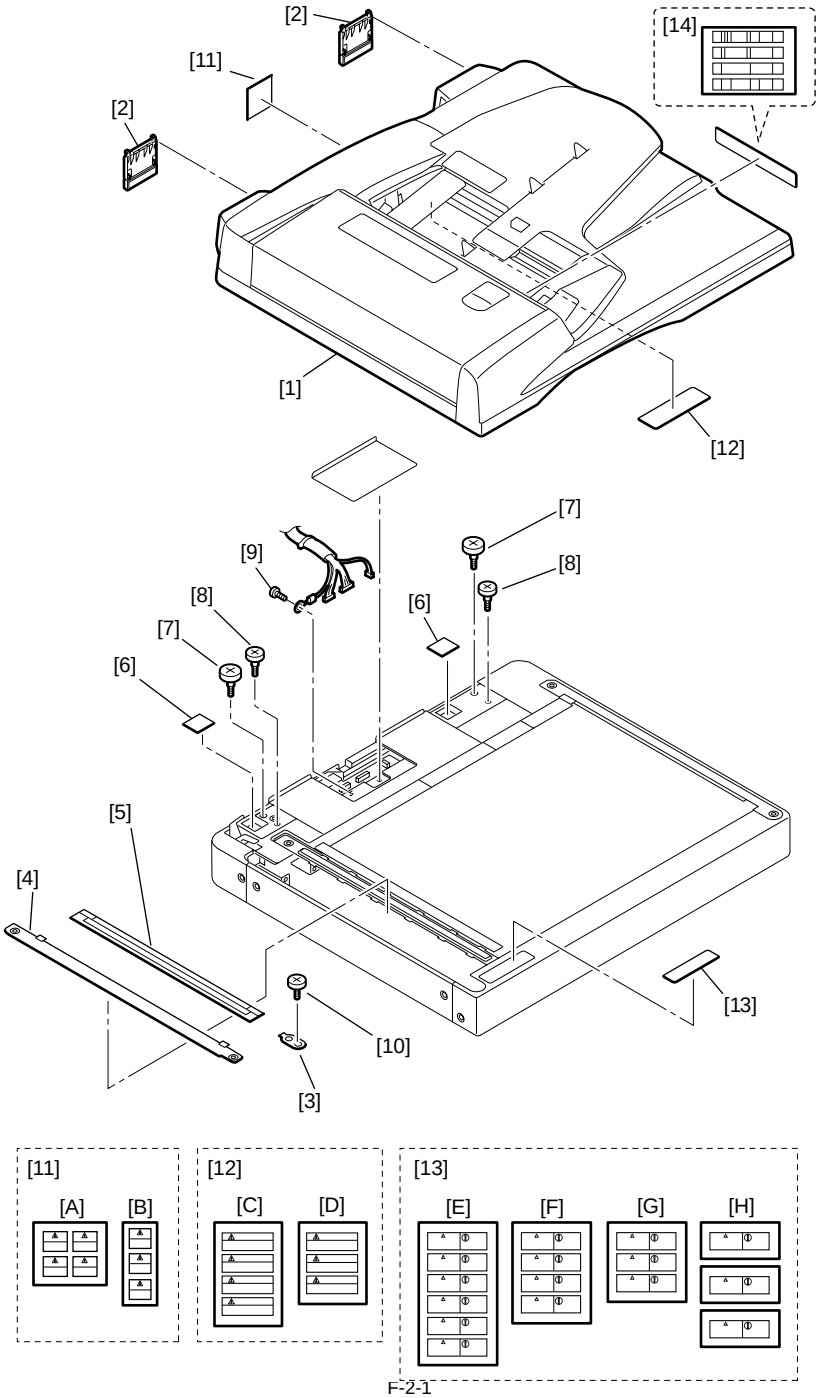
Chapter 2 Installation

Contents

2.1 Unpacking and Checking the Components

2.1.1 Unpacking and Checking the Checking the Contents

1) Make sure that none of the following parts is missing.



F-2-1

[1]	DADF main unit	1 unit	[8]	Stepped screw (M4X10)	2 pcs.
[2]	Hinge cover	2 pcs.	[9]	Binding screw (M3X6)	1 pc.
[3]	Glass positioning plate	1 pc.	[10]	Flat head screw (M4X6)	1 pc.
[4]	Glass holder	1 pc.	[11]*	Finger pinch caution label 1	1 pc.
[5]	Stream reading glass	1 pc.	[12]*	Finger pinch caution label 2	1 pc.
[6]	Face sticker	2 pcs.	[13]*	Glass cleaning/lamp caution label	1 pc.
[7]	Stepped screw (M5X6)	2 pcs.	[14]	Original size label	1 pc.

* The labels No. 11, 12 and 13 are different in a kind and the number of sheets by the type of DADF. Refer to the following table to confirm them.

T-2-1

			INCH/A type	A type	INCH/AB/K type
[11]	Finger pinch caution label 1	[A]	---	Yes	Yes
		[B]	Yes	---	Yes
[12]	Finger pinch caution label 2	[C]	---	Yes	Yes
		[D]	Yes	---	Yes
[13]	Glass cleaning/lamp caution label	[E]	---	---	Yes
		[F]	---	Yes	---
		[G]	Yes	---	---
		[H]	---	---	Yes

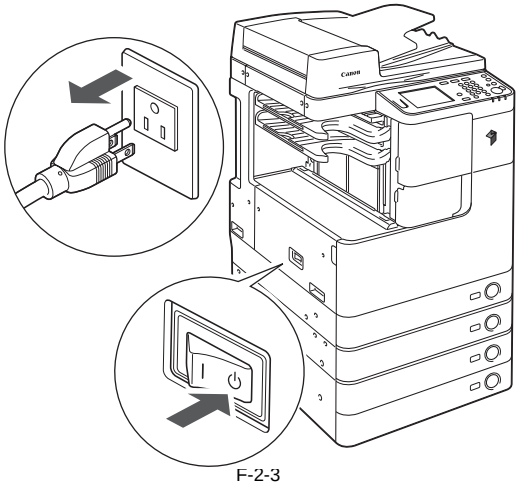
2.2 Installation Procedure

2.2.1 Points to Note When Turning OFF the power of Host Machine

⚠ How to Disconnect the Main Power
1) Turn OFF the power switch of the Operation panel.
2) Turn OFF the main power switch of the Host Machine.
3) Be sure that the Control Panel Display and the Main Power Lamp are both turned OFF, and then disconnect the power plug.

⚠ Unterbrechen der Netzversorgung
1) Schalten Sie den Bedienung gremium aus.
2) Schalten Sie den Netzschalter der Hostmaschine aus.
3) Überzeugen Sie sich zunächst, dass sowohl das Display auf dem Bedienfeld als auch die Netzstrom-Kontrolleuchte erloschen sind, und ziehen Sie dann den Netzstecker.

F-2-2

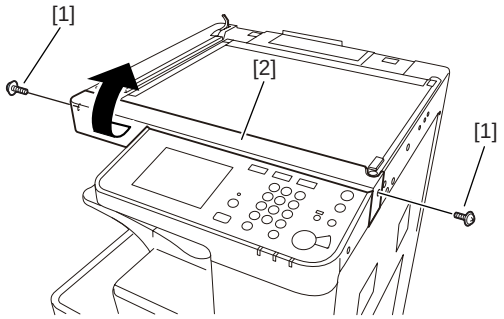


F-2-3

2.2.2 Installing the Stream Reading Glass

CAUTION:
Installation precautions are as follows.
- Be careful not to allow foreign objects to enter the reader unit.
- Do not stain the back side of the stream reading glass.

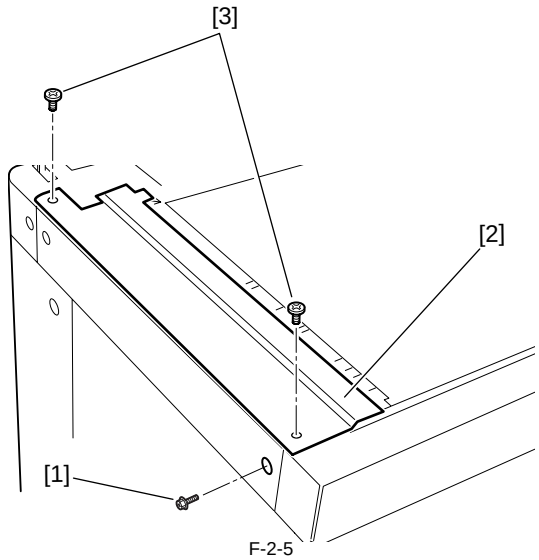
1) When the host machine is equipped with the copyboard cover, detach the copyboard cover.
2) Remove the 2 screws [1] to detach the reader front cover [2].



F-2-4

3) Remove the screw [1] retaining the front side of the reader left cover. Remove the 2 flat-head screws [2] to detach the reader upper left cover [3]. (The removed reader upper left cover is no longer necessary.)

MEMO:
The removed flat-head screws will be used later.

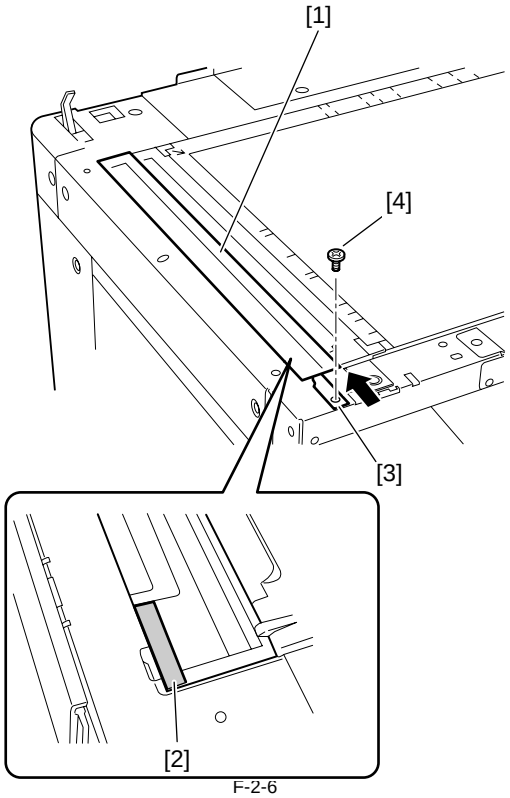


F-2-5

4) Mount the supplied stream reading glass [1].

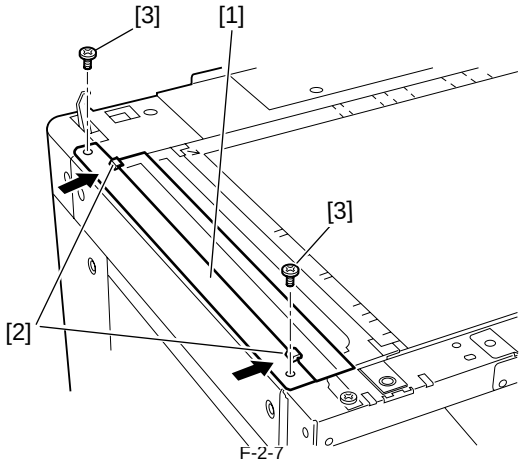
CAUTION:
Mount the stream reading glass so that the sheet material affixed to the back side of the glass comes in the left side (so that the sheet material comes in contact with the reader frame).

5) Mount the supplied glass posotioning plate [3] with the supplied flat-head screw [4] pressing it against the stream reading glass.



F-2-6

6) Pressing the projections [2] of the supplied glass holder [1] against the glass, mount the glass holder with the 2 flat-head screws (M4X6) [3] removed in Step 3).



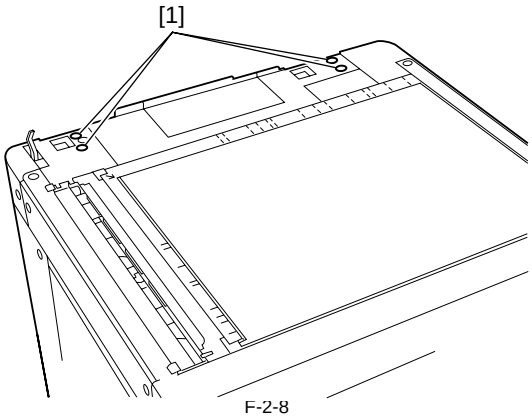
F-2-7

7) Fix the the front side of the reader left cover with the screw.
8) Attach the reader front cover. (two screws)

2.2.3 Installing the DADF

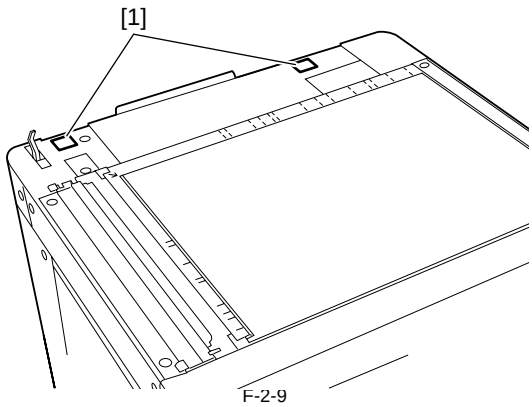
MEMO:
The DADF is weight about 10 kg.

1) Peel off 4 pieces of blind seal [1]. (The 4 pieces of blind seal are no longer necessary).



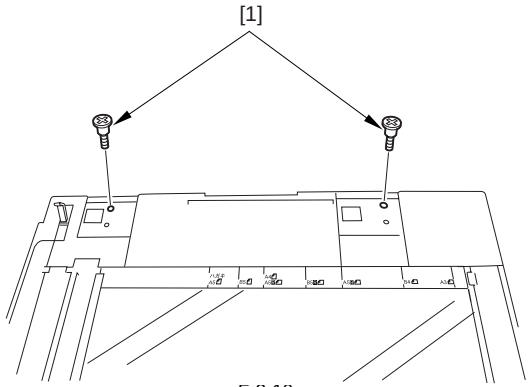
F-2-8

2) Affix 2 pieces of the supplied face stickers [1] over the hinge holes.



F-2-9

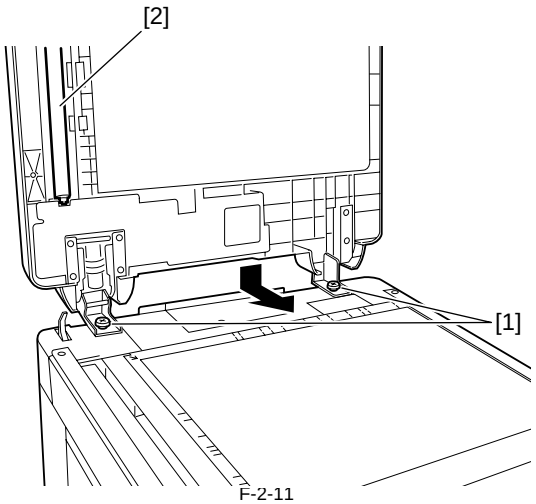
3) Install the supplied 2 stepped screws (M5X6) [1] at the upper rear of the reader.



F-2-10

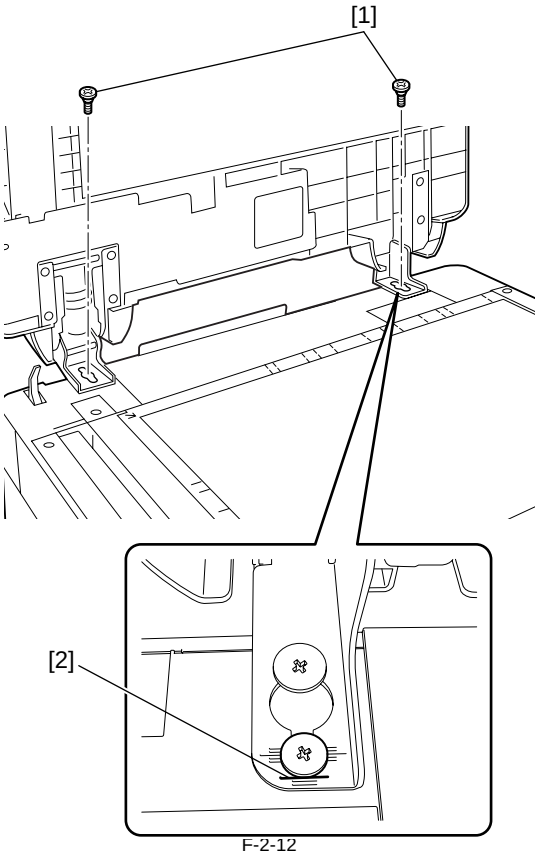
4) Engage the hinges of the DADF with the stepped screws [1] from behind and slide them toward the front of the host machine.

CAUTION:
When holding the DADF, be careful not to touch the platen roller [2].



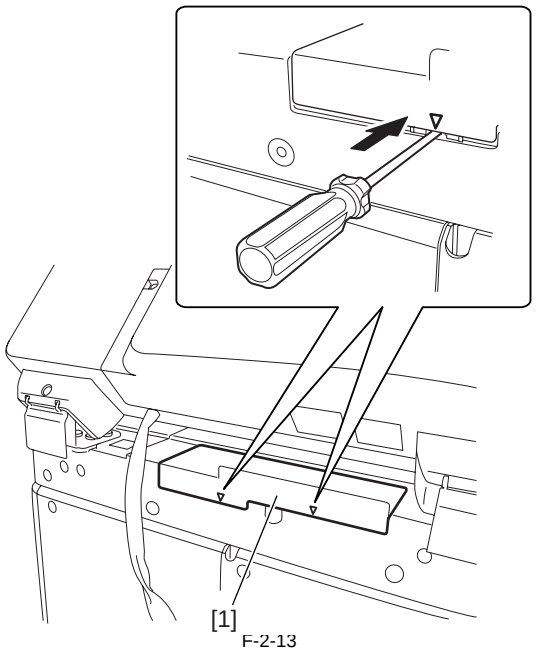
F-2-11

5) Secure the hinges with the supplied 2 stepped screws (M4X10) [1]. Secure the right hinge with the screw aligning the edge of the screw with the mark-off line (long) [2].



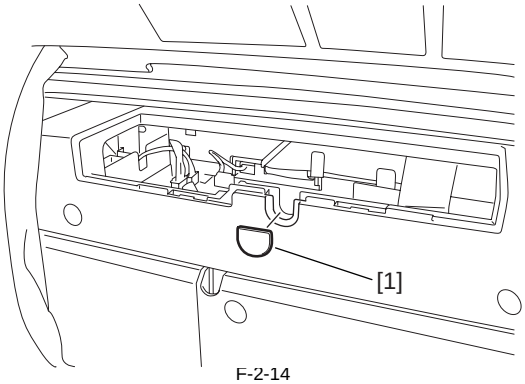
F-2-12

6) Insert the flat-bladed screwdriver to the triangle mark of the cover to remove the reader rear small cover [1].



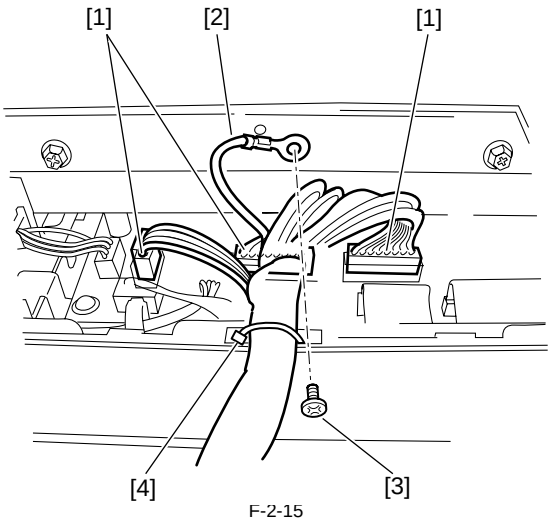
F-2-13

7) Peel off the blind sheet [1] from the reader rear cover. (The blind sheet is no longer necessary.)



F-2-14

8) Connect the 3 connectors [1] to the reader controller PCB, and then secure the ground cable [2] using the supplied binding screw (M3X6) [3].
9) Install the DADF harness so that the cable tie [4] fits in the groove of the reader rear cover.

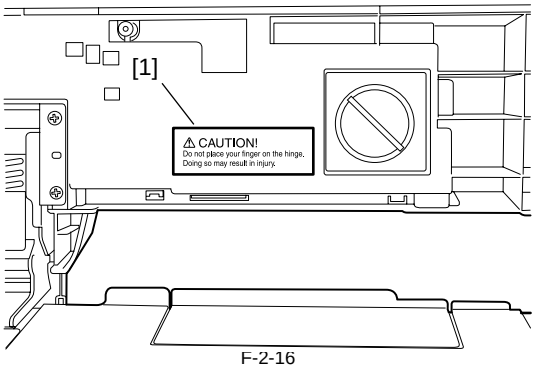


F-2-15

10) Attach the reader rear small cover detached in step 6). (One screw)

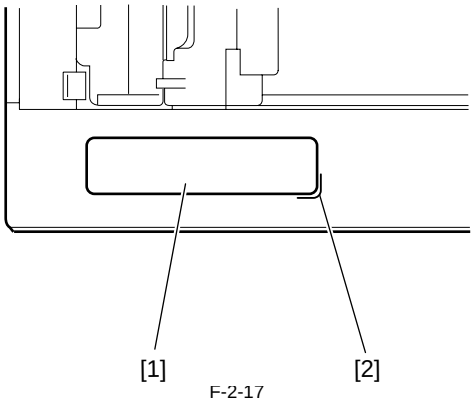
2.2.4 Affixing Labels

1) Open the DADF.
2) Attach the supplied finger pinch caution label 2 [1] of the appropriate language, if necessary.



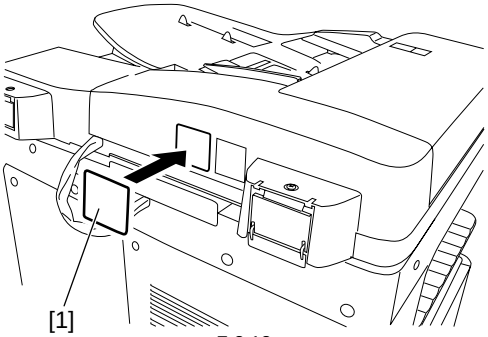
F-2-16

2) Affix the supplied glass cleaning/lamp caution label [1] of the appropriate language to the reader front cover aligning with the mark-offline [2].



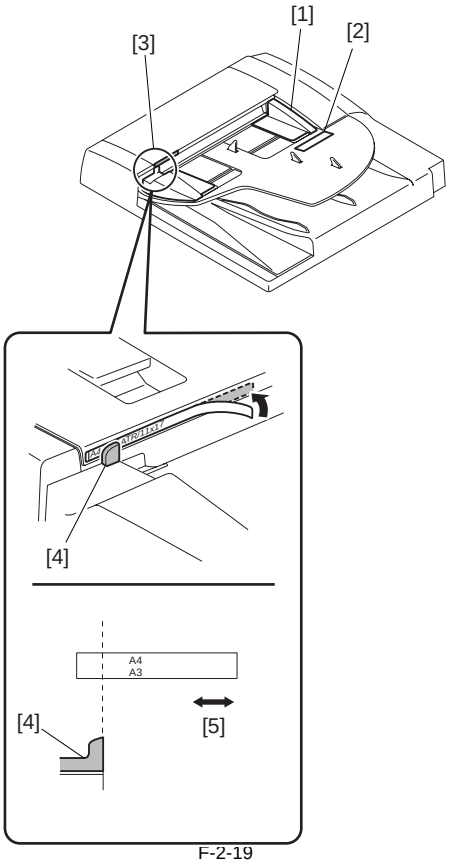
F-2-17

4) Close the DADF and move to the rear of the host machine.
5) Attach the supplied finger pinch caution label 1 [1] of the appropriate language to the DADF rear cover, if necessary.



F-2-18

6) Affix the supplied original size label.
The purpose of this label is to facilitate the size adjustment made from the view point of each user.
6-1) Align the side guide (rear) [1] to the notation [2] of "A4/A3" or "LTR/11x17".
6-2) Affix the label of the series matching the original size label[3] to the feeder cover.
Adjust the label position by moving it back and forth (in the direction of the arrow [5]) according to the view point of the user so that the indicator [4] on the side guide (front) meets the indicator on the size label, and then affix the label securely.

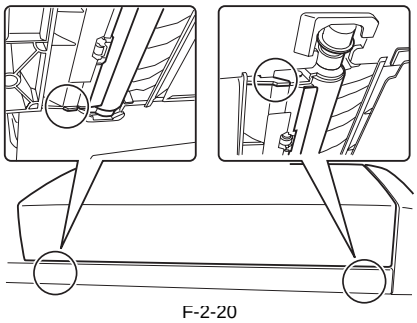


F-2-19

2.3 Making Adjustments

2.3.1 Adjusting the Height

1. Pre-check
Check whether the front and rear document glass spacers provided under the bottom of the DADF are in close contact with the document glass when the DADF is closed.
If visual check is difficult, perform the check with reference to the next and subsequent pages.



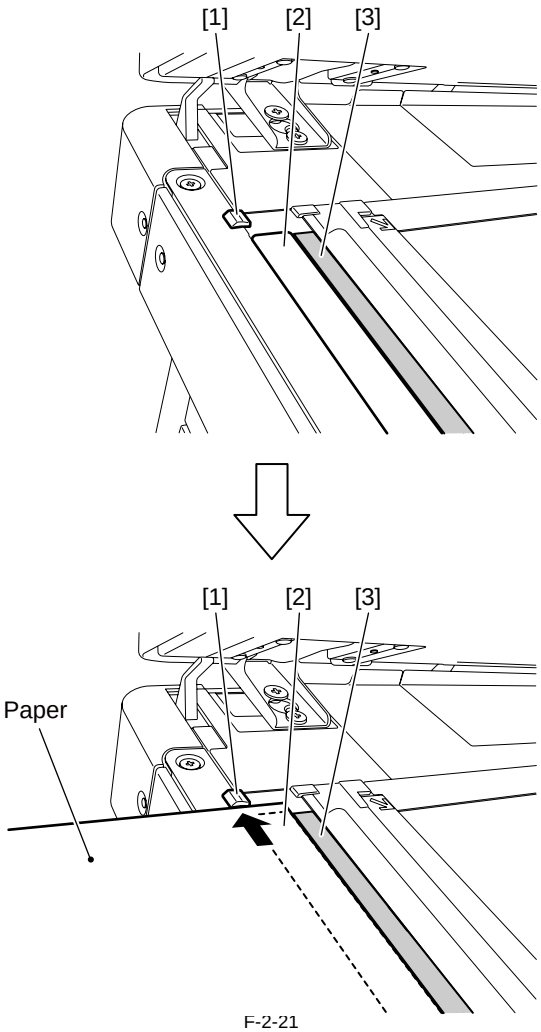
F-2-20

MEMO:
Insert a sheet of paper between the DADF stream reading glass and the document glass spacers (two) and pull out the sheet. It is recommended that slight resistance is felt when pulling out the sheet.

CAUTION:
- Use plain paper.

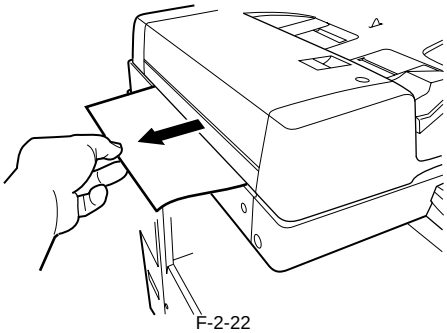
2. Checking the left hinge height
1) Checking the rear-left height of the DADF
Set paper against the protrusions [1] of the stream reading glass in such a manner that the seat [2] of the stream reading glass is nearly hidden.

CAUTION:
Set paper so that it does not reach the document reading area [3].



F-2-21

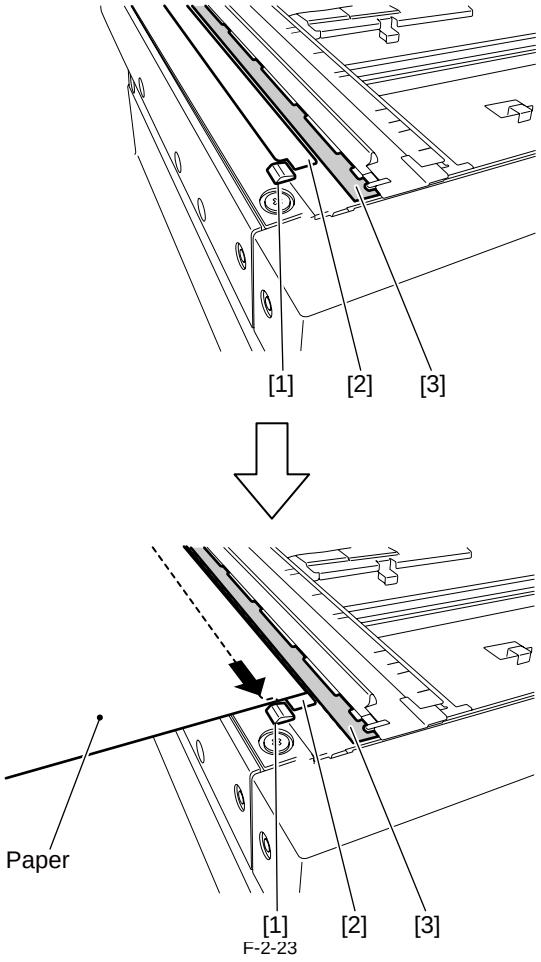
2) Pulling out the set paper
Pull out the paper in the direction of the arrow to check that you feel slight resistance.



F-2-22

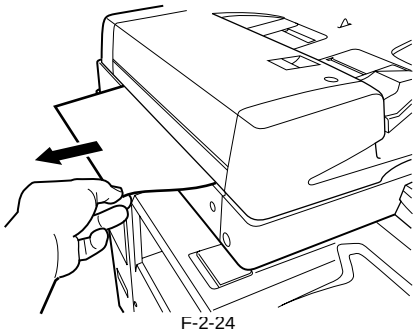
3) Checking the front-left height of the DADF
Set paper against the protrusions [1] of the stream reading glass in such a manner that the seat [2] of the stream reading glass is nearly hidden.

CAUTION:
Set paper so that it does not reach the document reading area [3].



F-2-23

4) Pulling out the set paper
Pull out the paper in the direction of the arrow to check that you feel slight resistance.



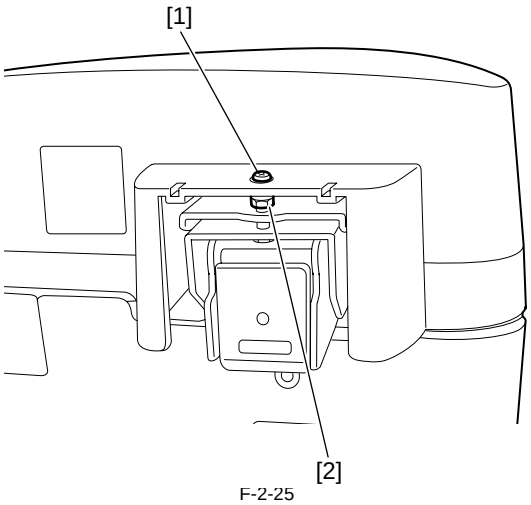
F-2-24

3. Adjustment Procedure
* When the front or rear side is floating;
1) Adjust the left hinge height.
2) Adjust the right hinge height.
3) Adjust or check the left hinge height.
* When both sides are floating;
1) Adjust the left hinge height.
2) Adjust the right hinge height.
3) Adjust the left hinge height.
4) Adjust or check the right hinge height.

4. Adjust the height of the left hinge.
1) Adjust the height with the left hinge height adjusting screw [1].

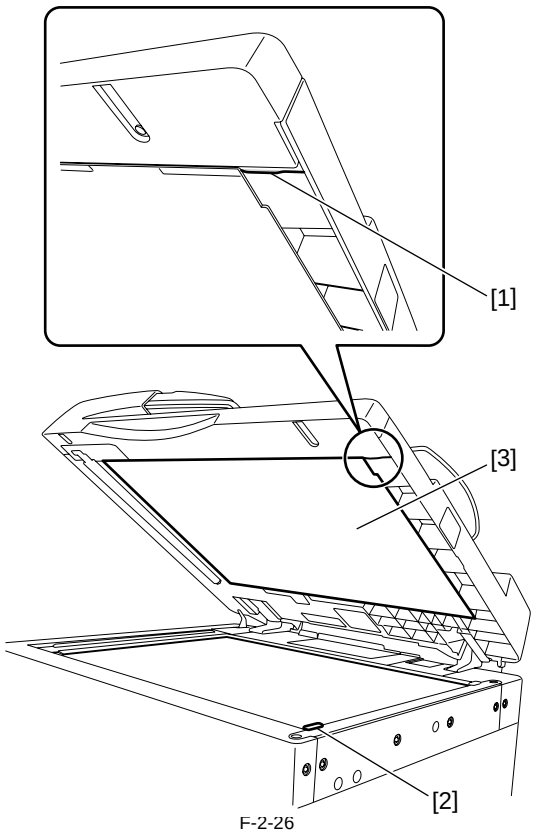
CAUTION:
Loosen the lock nut [2] before adjustment, and tighten it after adjustment.

* If the front spacer is floating, turn the adjusting screw clockwise to bring the front spacer closer to the glass.
* If only the rear spacer or both front and rear spacers are floating, turn the adjusting screw counterclockwise to bring the rear spacer closer to the glass.



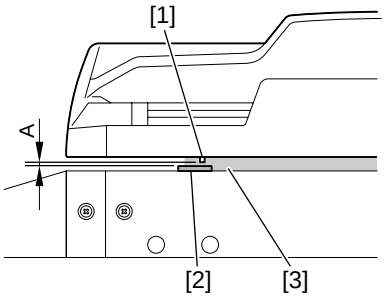
F-2-25

5. Check the height of the right hinge
1) Close the DADF and check for the following;
- The bottom rib [1] of the DADF must be in contact with the document glass holder (right) [2]. (There should be no clearance; A=0mm.)
- The document hold sheet [3] must be in contact with the document glass.



F-2-26

[Right side view]

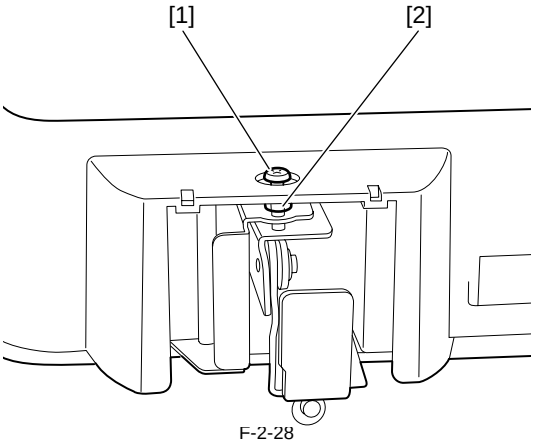


F-2-27

6. Adjust the height of the right hinge
1) If the height is improper, adjust it with the right hinge adjusting screw [1].

CAUTION:
Loosen the lock nut [2] before adjustment, and tighten it after adjustment.

* Turning the adjusting screw clockwise reduces the front-right side height of the DADF.
* Turning the adjusting screw counter clockwise increases the front-right side height of the DADF.



F-2-28

2) Check the height of the left hinge. If the height is inappropriate, adjust it again.

2.3.2 Turning On the Host Machine

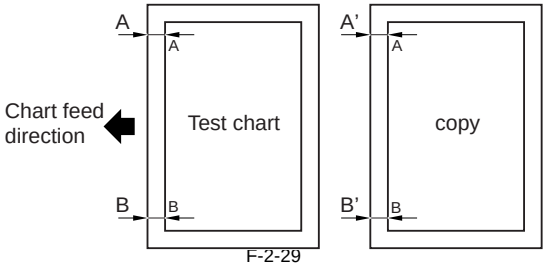
1) Connect the power cable plug to the wall outlet.
2) Turn on the main power switch.

2.3.3 Adjusting the Perpendicularity

1) Load a test chart in the DADF to make a copy.

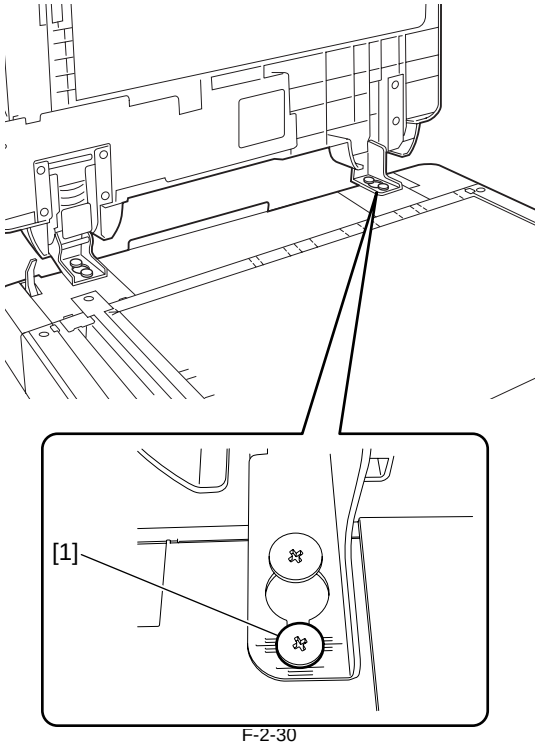
MEMO:
The test chart is printed on the back cover of the Installation Procedure (this manual). Copy it or clip it out.

2) Check the perpendicularity at the leading edges of the test chart and copy. Measure dimensions A and B on the test chart and dimensions A' and B' on the copy. If it is not (A-B)=(A'-B'), go through Step 3) and later.



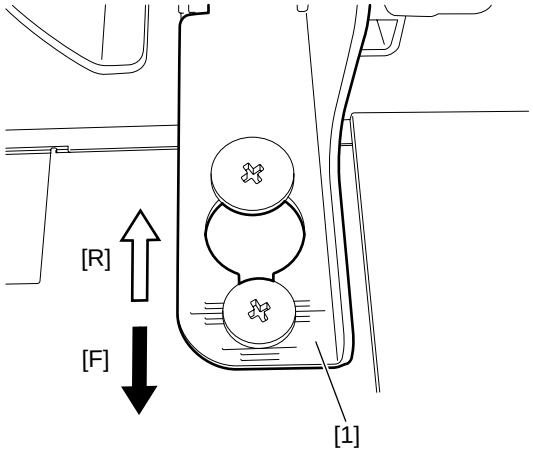
F-2-29

3) Loosen the screw to adjust the right hinge position.



F-2-30

A'>B': Slide the hinge [1] forward [F].
B'>A': Slide the hinge [1] backward [R].



F-2-31

4) Tighten the fixing screw loosened in Step 3).

2.3.4 Adjusting the Read Position

1) Enter to the service mode.
[Entering to Service Mode]
Press the additional function key "✲", the 2 key, the 8 keys and the additional function key "✲" sequentially on the operation panel of the host machine.
2) On the service mode screen, select the following notations in sequence.

MEMO:
If it is necessary to shift the service mode to the upper tier, press the additional function key.

1 #SCAN
2 #SCAN READER
3 #READER FUNCTION
4 #FUNCTION INSTALL
5 #INSTALL STRD-POS

3) Confirm the"STRD-POS" is displayed, and then press the OK key.
Pressing the OK key will cause the scanner to start a scan; in several seconds, the machine will end the auto adjustment of the read position, and then indicate "OK".

CAUTION:
If the machine fails the auto adjustment and indicates "NG", go through the following:
(1) Clean the platen roller of the DADF and the stream reading glass of the host machine; then, execute the auto adjustment once again.
(2) If the auto adjustment operation still fails, enter the service mode and make adjustments manually:
#SCAN>#SCAN_READER>#READER_ADJUST>#ADJUST_ADJ-XY>#ADJ-XY_STRD-POS
To find the optimum value, change the "STRD-POS" value checking the actual copy image.

2.3.5 Adjusting the Horizontal Registration

1) Place the test chart on the DADF tray and make a copy.
2) Compare the copy with the test chart for the horizontal registration. If it is improper, make the following adjustment.
3) Enter to the service mode. On the service mode screen, select the following notations in sequence.
1 #SCAN
2 #SCAN READER
3 #READER ADJUST
4 #ADJUST ADJ-XY
5 #ADJ-XY ADJ-Y-DF
4) Confirm the "ADJ-Y-DF" is displayed, and then press the OK key to change the setting value.

MEMO:
If it is necessary to change the sign (+/-), press the ssterisk key of the numeric keys.

- If the image is displaced to the front, increase the value.
- If the image is displaced to the rear, decrease the value.
<Unit of the adjustment: 0.1 mm>
5) After changing the value, press the OK key to fix it.

2.3.6 Adjusting the Trailing Edge Registration

1) Place the test chart on the DADF tray and make a copy.
2) Compare the copy with the test chart for the trailing edge registration. If it is improper, make the following adjustment.
3) Enter to the service mode. On the service mode screen, select the following notations in sequence.
1 #SCAN
2 #SCAN FEEDER
3 #FEEDER ADJUST
4 #ADJUST DOCST

4) Confirm the "DOCST"is displayed and press the OK key to change the setting value.

MEMO:
If it is necessary to change the sign (+/-), press the ssterisk key of the numeric keys.

- If the image is displaced to the leading edge, decrease the value.
- If the image is displaced to the trailing edge, increase the value.

<Unit of the adjustment: 0.1 mm>

5) After changing the value, press the OK key to fix it.

2.3.7 Adjusting the Magnification

1) Place the test chart on the DADF tray and make a copy.
2) Compare the copy with the test chart in terms of the length of the image in the feed direction. If it is improper, make the following adjustment.
3) Enter to the service mode. On the service mode screen, select the following notations in sequence.
   1 #SCAN
   2 #SCAN FEEDER
   3 #FEEDER ADJUST
   4 #ADJUST LA-SPEED
4) Confirm the "LA-SPEED" is displayed and press the OK key to change the setting value.
   - If the image is shorter, increase the value. (so that the stream reading speed will be reduced.)
   - If the image is longer, decrease the value. (so that the stream reading speed will be increased.)

   <Unit of the adjustment: 0.1 %>
5) After changing the value, press the OK key to fix it.

2.3.8 Adjusting the White Level

MEMO:
This is the adjustment to match the white level of the image made in the stream reading mode with the white level of the image made in the book mode. If this adjustment has not been made, the following will likely occur.
- Inappropriate background density in images made in the stream reading mode
- Wrong speck detection in the stream reading mode

MEMO:
In this step, make two types of adjustments for the white level: monochromic and color. "DF-WLVL1" and "DF-WLVL2" are for the monochromic adjustment, and "DF-WLVL3" and "DF-WLVL4" are for the color adjustment.

1) Prepare the blank paper which user always uses and place it on the document glass, then close the DADF.
2) Enter to the service mode. On the service mode screen, select the following notations in sequence.
   1 #SCAN
   2 #SCAN READER
   3 #READER FUNCTION
   4 #FUNCTION CCD
   5 #CCD DF-WLVL1
3) Confirm the "DF-WLVL1" is displayed and press the OK key. Automatic adjustment starts, if it ends successfully, the screen shows "OK".
   After the adjustment, press the OK key.
4) Remove the paper from the document glass and place it on the DADF tray.
5) Select "DF-WLVL2" on the screen and press the OK key.
   The machine executes the automatic adjustment with the duplex stream reading operation. When the adjustment ends successfully, the machine indicates "OK" on the screen.
   After the adjustment, press the OK key.

MEMO:
If the monochromic adjustment fails, perform Steps 1) to 5) again.

6) Prepare the blank paper which user always uses and place it on the document glass, then close the DADF.
7) Select "DF-WLVL3" on the screen and press the OK key.
   Automatic adjustment starts, if it ends successfully, the screen shows "OK".
   After the adjustment, press the OK key.
8) Remove the paper from the document glass and place it on the DADF tray.
9) Select "DF-WLVL4" on the screen and press the OK key.
   The machine executes the automatic adjustment with the duplex stream reading operation. When the adjustment ends successfully, the machine indicates "OK" on the screen.

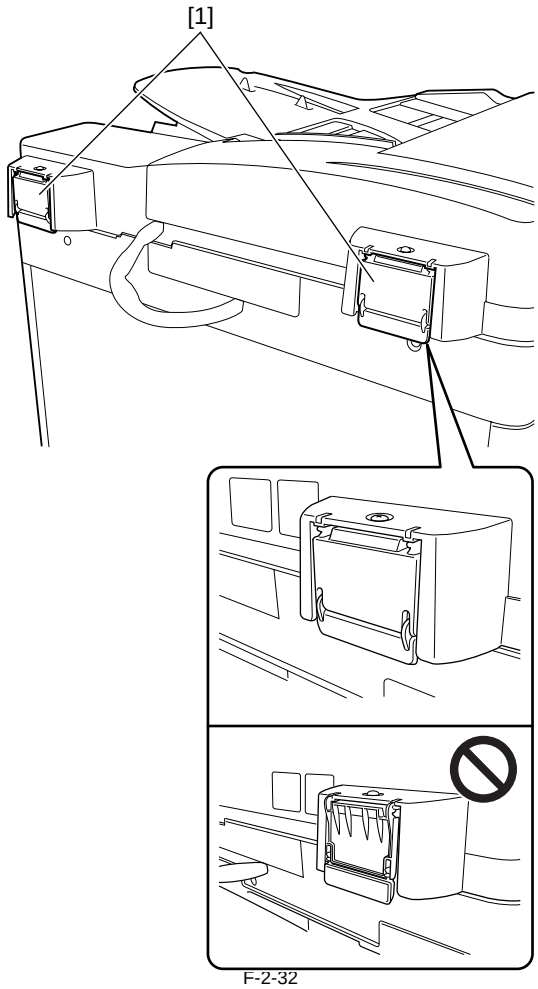
MEMO:
If the monochromic adjustment fails, perform Steps 6) to 9) again.

10) Press the reset key to end the service mode.

2.4 Attaching the Hinge Covers

2.4.1 Attaching the Hinge Covers

1) Attach the supplied 2 hinge covers [1].

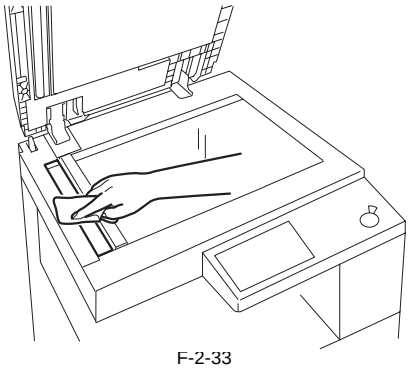


F-2-32

2.5 Cleaning

2.5.1 Cleaning the Stream Reading Glass

1) Open the DADF.
2) Hardly squeeze the cloth soaked with water. Using this cloth, wipe the stream reading glass clean.



F-2-33

2.6 Checking the Operation

2.6.1 Operation Check

1) Check the following operations:
   - Check the single-sided and double-sided copy operations
   - If the machine has the stamp unit for the FAX, check the stamping operation in FAX mode.

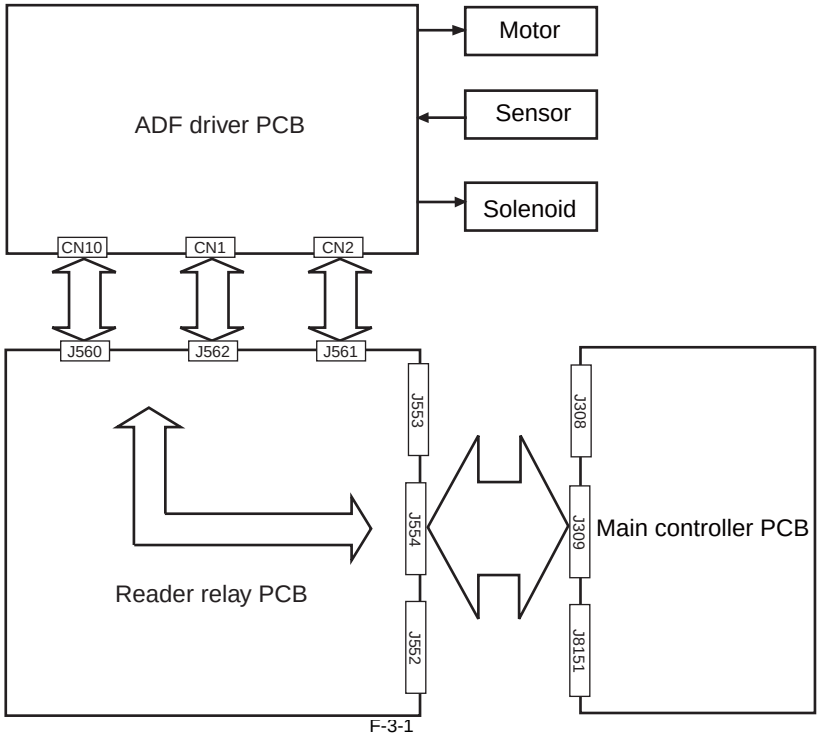
Chapter 3 Functions

Contents

3.1 Basic Construction

3.1.1 Outline of Electric Circuit

Electric circuits of this machine are controlled by the main controller PCB. The main controller PCB detect the signals received from the host machine to output the signals that drive DC loads such as motors and solenoids at the predetermined timings. The ADF driver PCB do not have a memory area; data (service mode, etc.) is stored in the main controller PCB.



F-3-1

3.2 Basic Operation

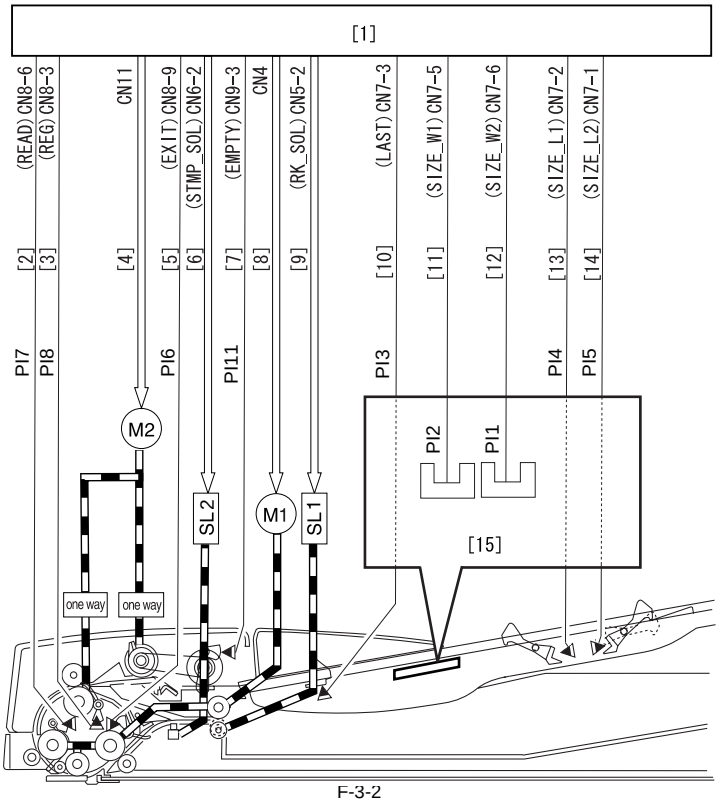
3.2.1 Drive Mechanism and Signals

This machine is a document feeder exclusively for stream reading.
This machine uses two motors to pick up and feed document paper.

T-3-1

Name (symbol)	Function
Feed motor (M1)	Feeds documents.
Pickup motor (M2)	Separates and feeds documents.

The drive mechanism and signals are shown below.



F-3-2

[1] ADF driver PCB
[2] Document detection signal
[3] Document detection signal
[4] Pickup motor drive signal
[5] Document placement signal
[6] Stamp solenoid drive signal
[7] Document placement signal
[8] Feed motor drive signal
[9] Roller release solenoid drive signal
[10] Last document detection signal
[11] Paper size (width) identification signal 1
[12] Paper size (width) identification signal 2
[13] Paper size (length) identification signal 1
[14] Paper size (length) identification signal 2
[15] Relay PCB

3.2.2 Outline of Operation Mode

This machine has four operation modes. This machine operates in the operation mode specified by the host machine to perform printing. Operation mode names, brief outline of operations, and associated print modes are given in the following table:

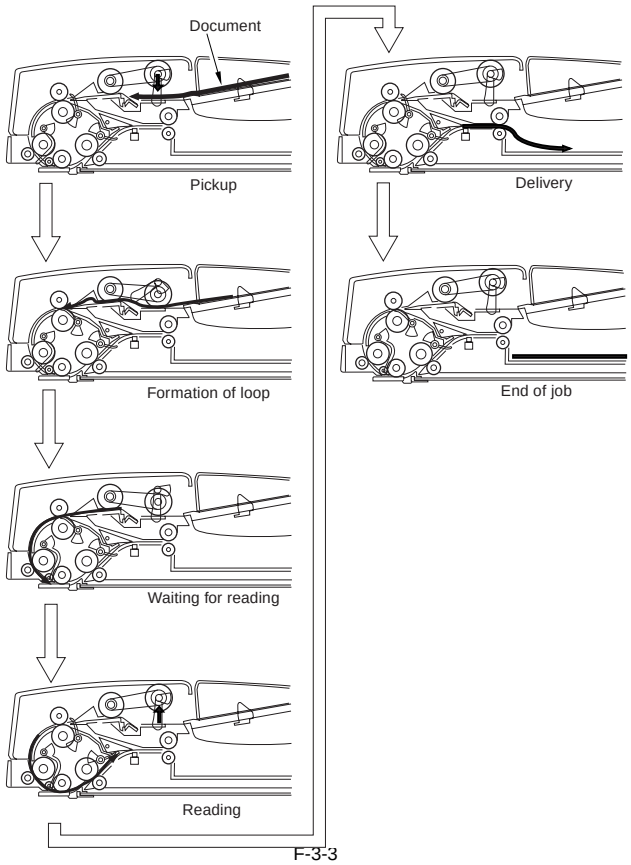
T-3-2

Operation mode name	Outline of operation	Associated print mode
[1] Forward pickup/delivery	Picks up, reads, and then delivers an document.	Single-sided document > Simplex printing Single-sided document > Duplex printing (This operation is performed for documents with the same width/different width.)
[2] Forward feed/reversal delivery	Picks up, reads, reverses, and delivers an document.	Double-sided document > Duplex printing Double-sided document > Simplex printing (This operation is performed for documents with the same width/different width.)

3.2.3 Forward Pickup/Delivery (Single-sided document > Simplex Printing) Operation

The document flows as shown below.

MEMO:
This operation is performed for all single-sided documents irrespective of whether document widths are the same or different.

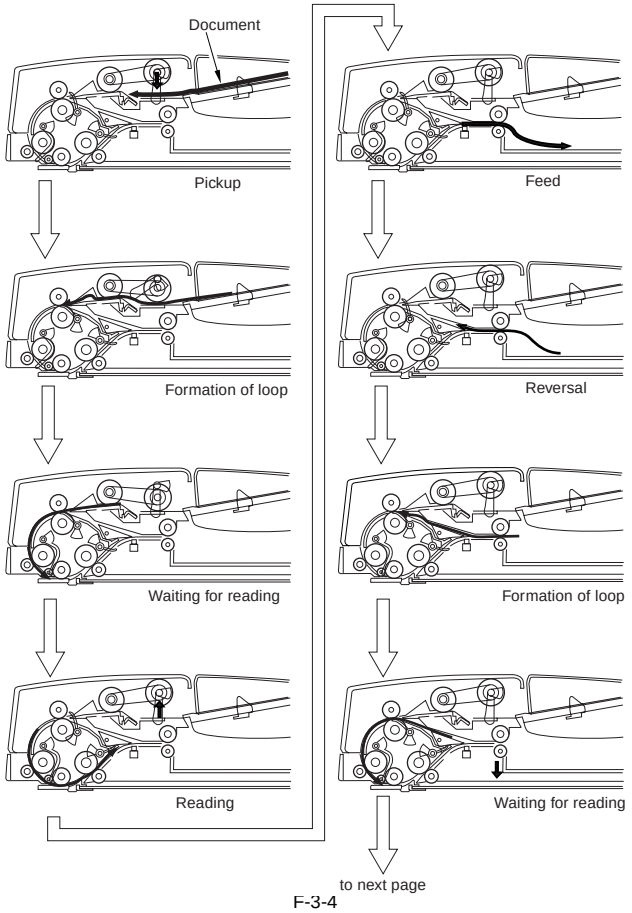


F-3-3

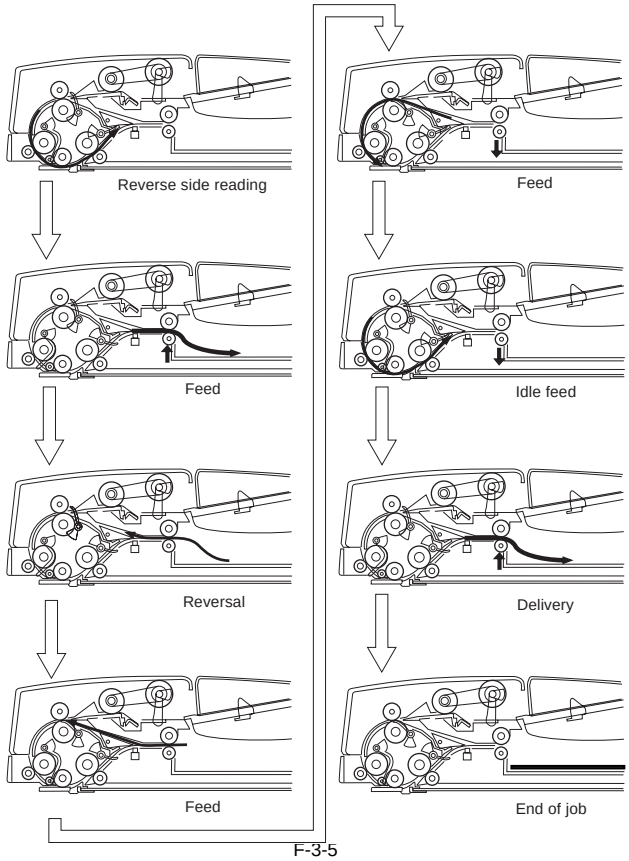
3.2.4 Forward Pickup/Reversal Delivery (Double-sided document > Duplex printing) Operation

The document flow is shown below.

MEMO:
This operation is performed for all double-sided documents irrespective of whether document widths are the same or different.



F-3-4



F-3-5

3.3 Document Detection

3.3.1 Outline

This machine detects an document using either one of the two methods depending on the print mode.
- Normal print mode (other than mixed size print mode and banner paper mode)
- Mixed size print mode and banner paper mode

a. Normal print mode (other than mixed size print mode and banner paper mode)
In the normal print mode, the following four document detection functions are used:

T-3-3

Function	Description	Sensor used (symbol)
Document presence/ absence detection	Detects whether there is an document on the document pickup tray.	Document set sensor (PI11)
Last document detection	Detects whether the document being picked up is the last one.	Last document detection sensor (PI3)
Initial document size detection		
- Longitudinal direction	Detects the length of the document placed on the document pickup tray.	Document length sensor 1/2 (PI4/ PI5)
- Lateral direction	Detects the width of the document placed on the document pickup tray.	Document width sensor 1/2 (PI2/ PI1)

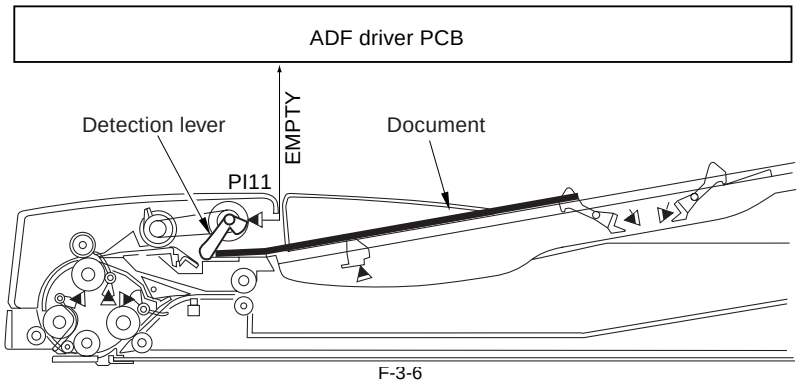
b. Mixed size print mode and banner paper mode
In the mixed size print mode and banner paper mode, the following three document detection functions are used:

T-3-4

Function	Description	Sensor used (symbol)
Document presence/ absence detection	Detects whether there is a document on the document pickup tray.	Document set sensor (PI11)
Last document detection	Detects whether the document being picked up is the last one.	Last document detection sensor (PI3)
Document length detection	Detects the document length according to the distance from the position where the read sensor (PI7) turns on to the position where the read sensor (I7) turns off.	Read sensor (PI7)

3.3.2 Document Presence/Absence Detection

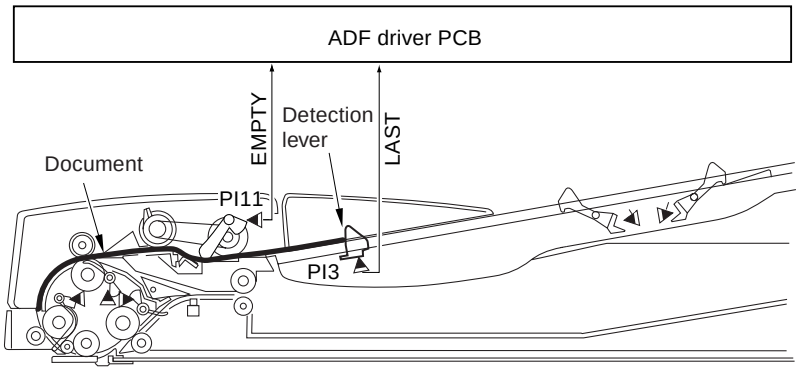
The Document set sensor (PI11) detects presence/absence of a document on the document tray.
When a document is placed on the document tray, the detection lever moves the light shielding plate to allow light to pass thorough the photo interrupter. Thus, the Document set sensor (PI11) generates an document detection signal (EMPTY) to notify the host machine that an document is placed on the document tray via the ADF drive PCB.



F-3-6

3.3.3 Detection of Last Document

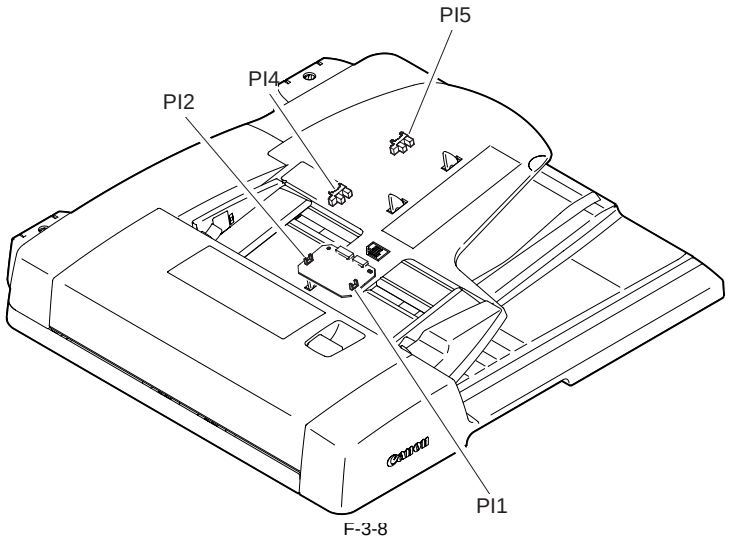
The last document detection sensor (PI3) and Document set sensor (PI11) detect whether the document being picked up is the last one.
When the trailing edge of the last document has moved past the last document detection lever, the detection lever moves the light shielding plate to allow light pass through the photo interrupter. Thus, the last document detection sensor (PI3) generates a last document detection signal (LAST). When the last document has moved past the document sensor (PI11), an document absence signal (EMPTY) is generated to notify the host machine that an document being picked up is the last one via the ADF drive PCB.



F-3-7

3.3.4 Initial Document Size Detection

The document length sensor 1 (PI4) and document length detection sensor 2 (PI5) detect the longitudinal size of the document placed on the document tray, and the document width sensor 1 (PI2) and document width sensor 2 (PI1) detect the lateral size of the document.
When an document is placed on the document tray, detection levers of the two document length sensors move the light shielding plate to allow light pass through the photo interrupter.
If the slide guide is adjusted to the document size, the two document width sensors mounted inside the document tray are shielded by the light shielding plate mounted at the bottom of the slide guide.
Document sizes are determined by the combination of the ON/OFF states of document length sensors and the combination of ON/OFF states of document width sensors.



F-3-8

The following tables show the relationships among document width sensors, document length sensors, and document sizes.

1. AB type

T-3-5

		Sensor name			
		Document width sensor 1	**Document width sensor 2**	**Document length sensor 1**	**Document length sensor 2**
Size	A3	ON	ON	ON	ON
	B4	ON	OFF	ON	ON
	A4R	OFF	OFF	ON	OFF
	B5R	OFF	ON	ON	OFF
	A4	ON	ON	OFF	OFF
	A5R	OFF	ON	OFF	OFF
	B5	OFF	ON	OFF	OFF
	A5	OFF	OFF	OFF	OFF
	B6	OFF	ON	OFF	OFF

2. Inch type

T-3-6

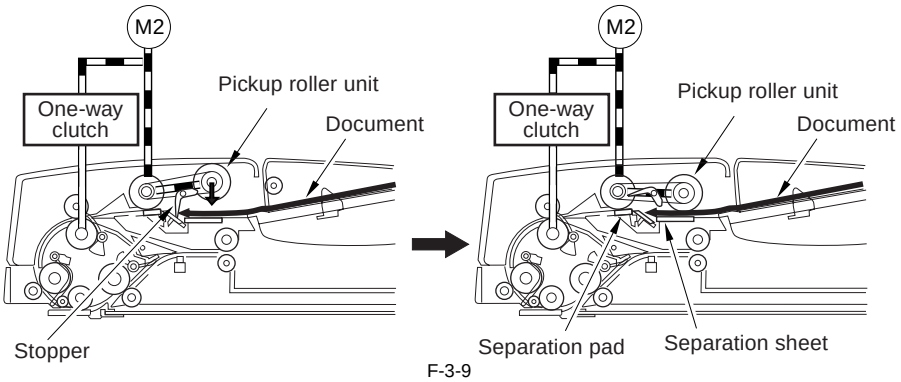
		Sensor name			
		Document width sensor 1	**Document width sensor 2**	**Document length sensor 1**	**Document length sensor 2**
Size	11 x 17	ON	-	ON	ON
	LGL	OFF	-	ON	ON
	LTRR	OFF	-	ON	OFF
	LTR	ON	-	OFF	OFF
	STMT	OFF	-	OFF	OFF

3.4 Document Pickup/Separation

3.4.1 Basic Pickup Operation

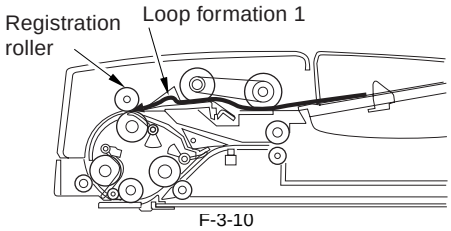
With an document placed on the document tray, pressing the print start key will picks up the document in the following manner.

a. Pickup operation
When the pickup motor (M2) turns in reverse direction, the pickup roller unit lowers to rotate the pickup rollers, thus feeding the document. The stopper rises in conjunction with the pickup roller unit. The separation sheet and pad are used to prevent multiple sheets from being fed together.



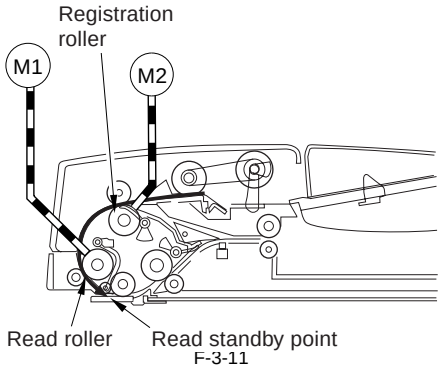
F-3-9

b. Formation of loop
While the pickup motor (M2) is turning in the reverse direction, the document is fed against the registration roller that is stopped by the idling one-way clutch to form a loop, thus preventing the document from skewing.



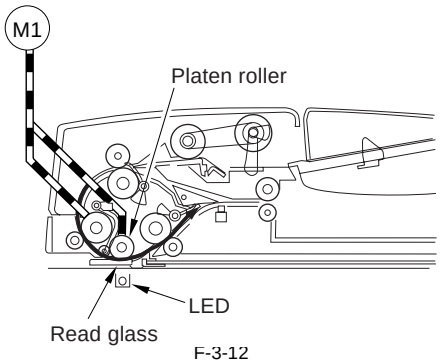
F-3-10

c. Feed
The pickup motor (M2) and feed motor (M1) turns in the forward direction to raise the paper pickup roller unit, feeding the document to the read standby point with the registration roller and read roller. When the document reaches the read standby point, the pickup motor (M2) and feed motor (M1) stops.



F-3-11

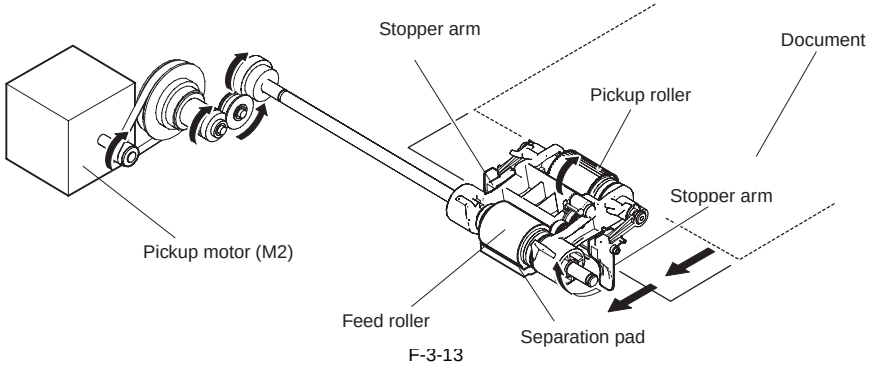
d. Stream reading
When the leading edge of the document reaches the read standby point, an image leading edge signal is sent to the host machine to start stream reading. Stream reading is a scan mode in which the document is moved on the optical system's glass using the platen roller.
The read image is stored in the memory of the host machine.



F-3-12

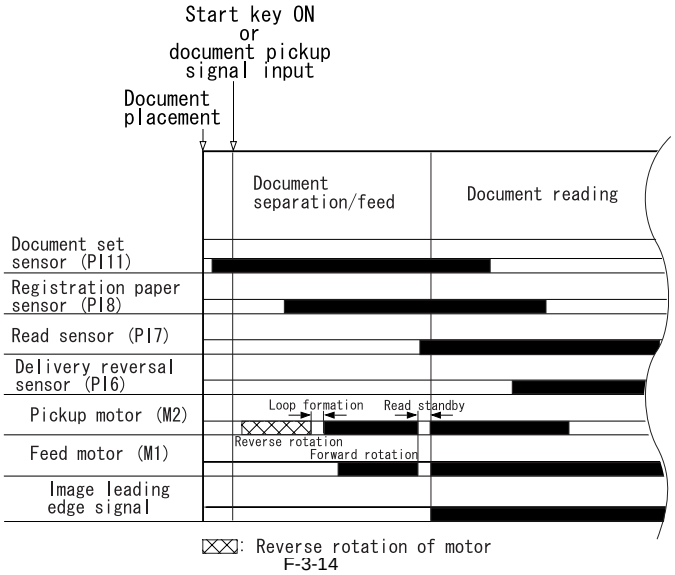
3.4.2 Pickup Unit and Stopper

The pickup unit consists of a pickup roller and feed roller. When the print start key is pressed or an document pickup signal is input, the pickup motor (M2) turns in the reverse direction to lower the pickup unit, turning the pickup roller and feed roller to feed the document. The stopper rises in conjunction with the pickup unit. When the document is picked up, the separation pad and separation plate prevent multiple sheets from being fed together.
When the document is looped at the registration roller, the pickup motor turns in the forward direction to raise the pickup unit, feeding the document with the registration roller. At this time, the feed roller drive shaft driven via the spring one-way clutch stops at the upper limit of the pickup unit and the friction against the document forces the separation roller to rotate with the aid of the one-way clutch.



F-3-13

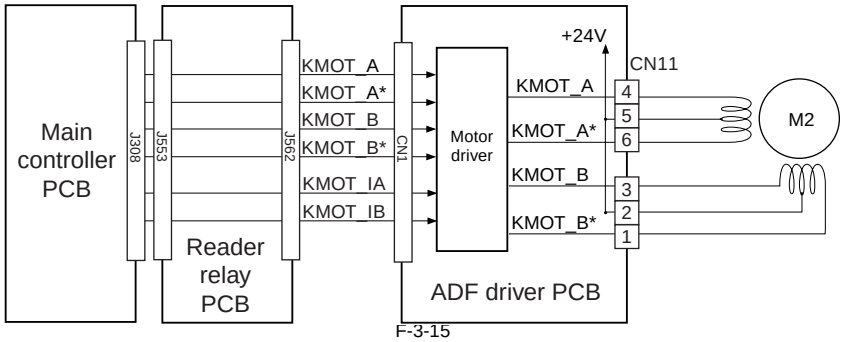
3.4.3 Pickup Timing



F-3-14

3.4.4 Pickup Motor (M2) Control

The pickup motor (M2) control circuit diagram is shown below. A 2-phase stepping motor is used to feed documents. This circuit mainly performs the following types of control:
- Motor ON/OFF control
- Motor rotation direction control
- Motor speed control



F-3-15

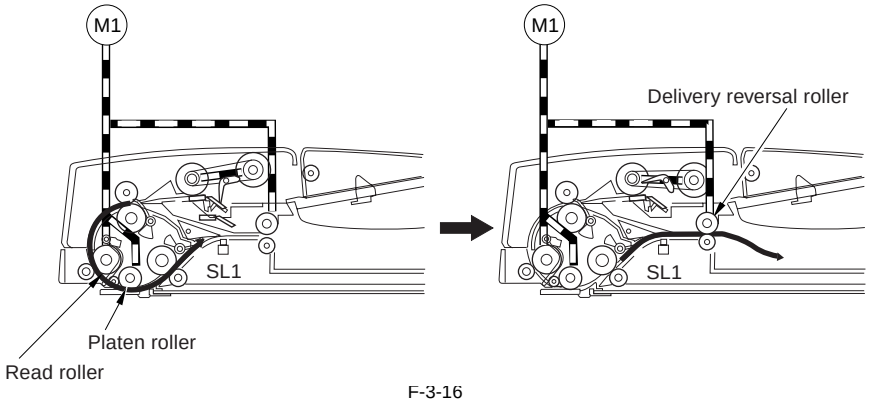
The pickup motor of the ADF is controlled by the main controller PCB. The main controller PCB outputs drive pulses to the pickup motor according to the selected print mode (magnification, operation mode, timing, etc.).
The pickup motor is a stepping motor. Its rotation direction and speed are controlled by changing the order of output pulses (KMOT_A, KMOT_A*, KMOT_B, and KMOT_B*) and frequency.

3.5 Document Reversing

3.5.1 Basic Operation

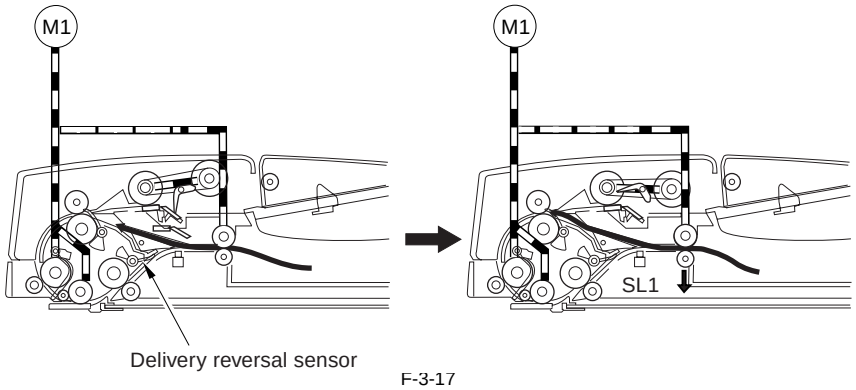
There are two types of document reversal operation: one that is performed from the top to the reverse side of the document and the other that is performed from the reverse side to the top of the document. Since the basic operation methods are identical, only the reversal operation performed from the reverse side to the top is discussed below.

a. Top side pickup
The feed motor (M1) drives the read roller and platen roller to scan the surface of the document. After completion of reading, the delivery reversal roller feeds the document to the delivery unit.



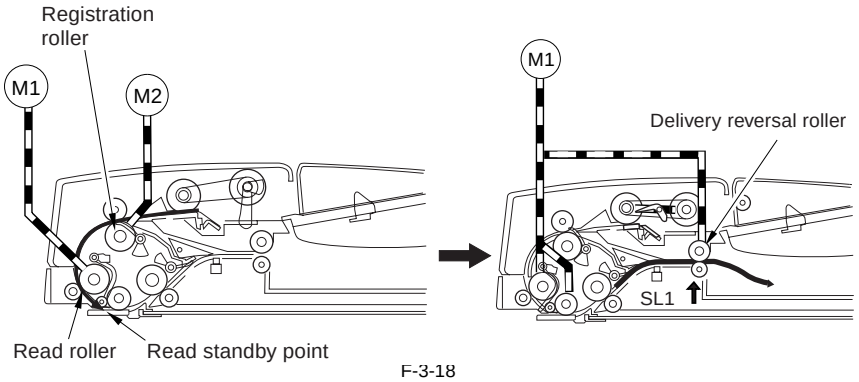
F-3-16

b. Reversal/feed 1
When the trailing edge of the fed document moves past the delivery reversal sensor (PI6), the feed motor (M1) stops. Immediately after this, the feed motor start turning in the reverse direction to feed the document to the registration roller, then stops. At this time, the roller release solenoid (SL1) turns on to release the pressure of the delivery reversal roller.



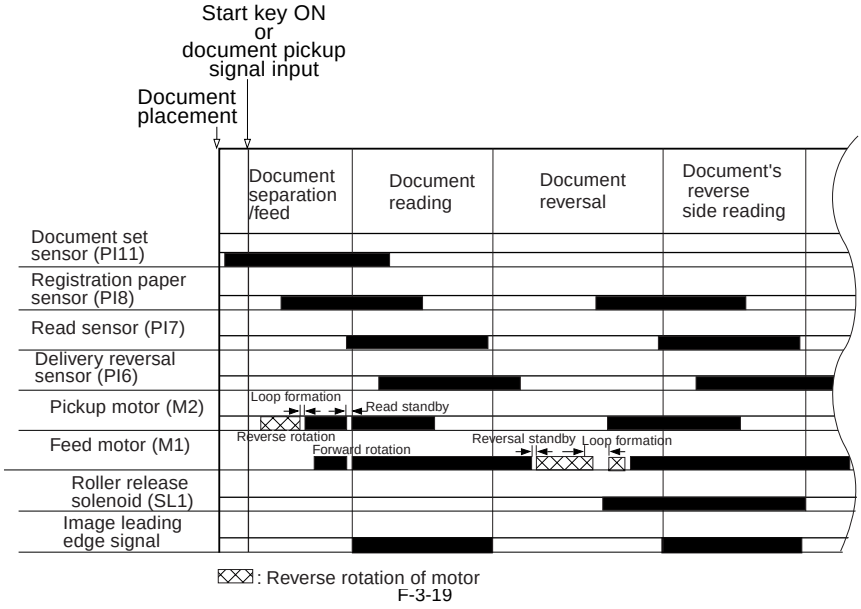
F-3-17

c. Reversal/feed 2
The feed motor (M1) turns to feed the document to the read standby point and stops.
Thus, the document has been reversed. Next, the document is picked up again and read, turning off the roller separation solenoid. After this, the document is reversed again, fed, and delivered.



F-3-18

3.5.2 Operation Sequence



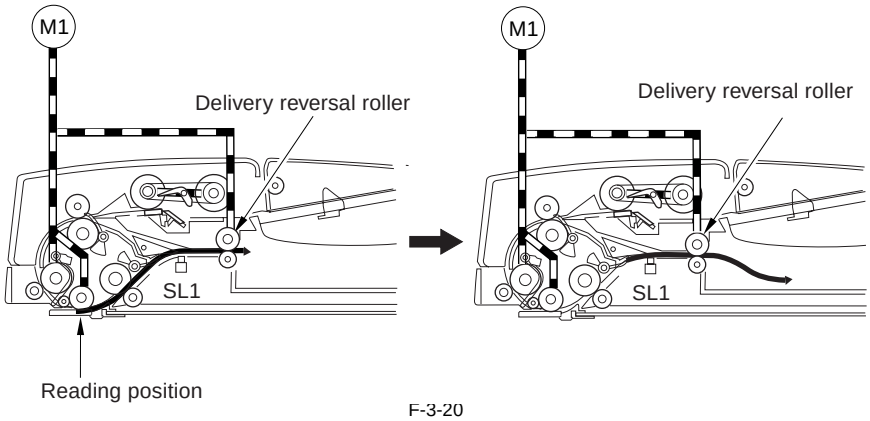
F-3-19

3.6 Document Feeding/Delivery

3.6.1 Basic Operation

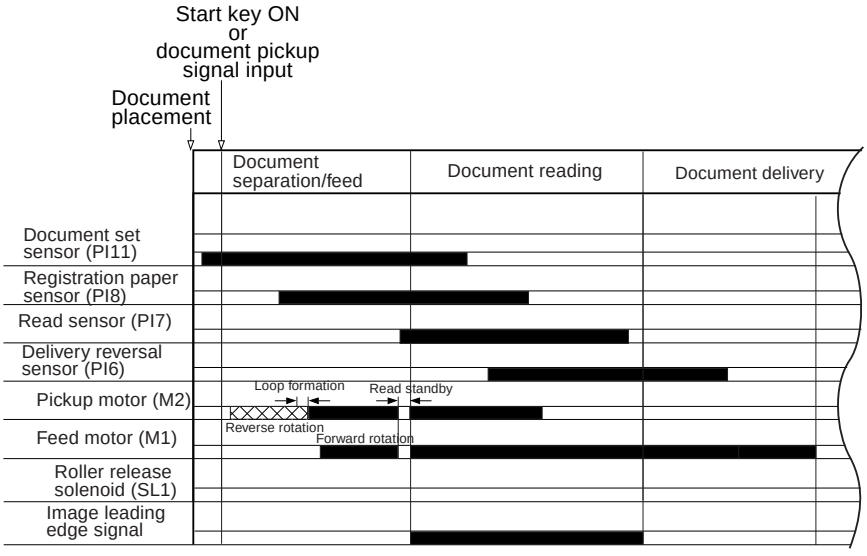
After stream reading on the document glass, the document is delivered to the document delivery unit as discussed below.

a. Document feed/delivery
After moving past the reading position, the document is fed by the delivery reversal roller driven by the feed motor (M1) turning in the forward direction. The deliver reversal motor is normally pressurized; the roller release solenoid turns on only when the document is reversed for duplex printing.



F-3-20

3.6.2 Operation Sequence

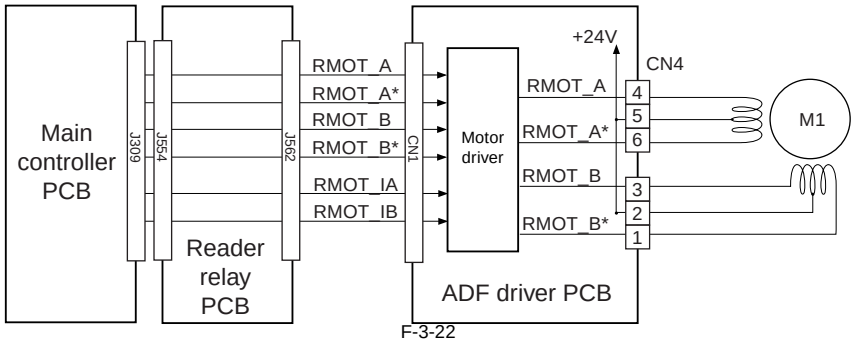


F-3-21

3.6.3 Feed Motor (M1) Control

The feed motor (M1) control circuit diagram is shown below. The feed motor (M1) is a 2-phase stepping motor. This circuit mainly performs the following types of control:

- Motor ON/OFF control
- Motor rotation direction control
- Motor speed control



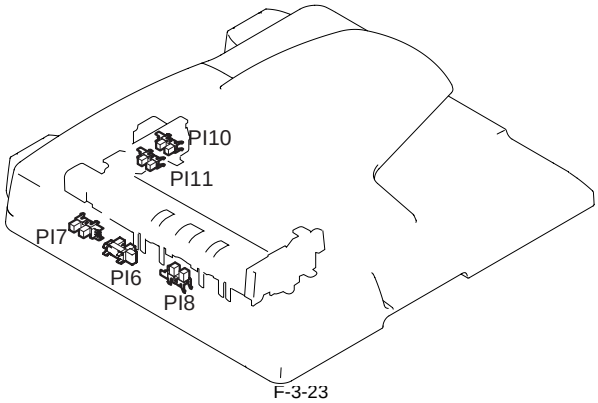
F-3-22

The feed motor of the ADF is controlled by the main controller PCB. The main controller PCB outputs drive pulses to the feed motor according to the selected print mode (magnification, operation mode, timing, etc.).
The feed motor is a stepping motor. Its rotation direction and speed are controlled by changing the order of output pulses (RMOT_A, RMOT_A*, RMOT_B, and RMOT_B*) and frequency.

3.7 Detecting Jams

3.7.1 Jam

This machine detects a jam using the sensors shown below. Document jam check timings are stored in the ROM on the main controller PCB to check whether a jam has occurred according to presence/absence of the document at the relevant sensor position.
When a jam occurs, the host machine stores its code.
Jam codes can be checked by outputting a jam error log report in the service mode of the host machine.



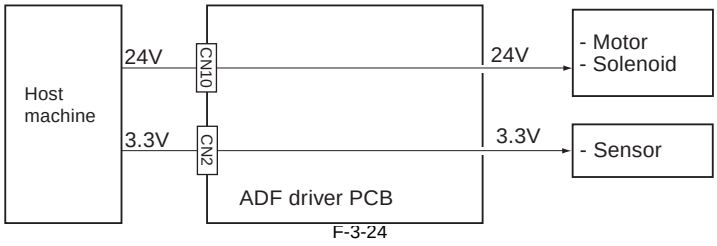
F-3-23

PI6: Delivery reversal sensor
PI7: Read sensor
PI8: Registration paper sensor
PI10: Cover open/close sensor
PI11: Document set sensor

3.8 Power Supply

3.8.1 Power Supply

The power supply lines are shown below.
This machine is powered via two power supply lines (24 V and 3.3 V) from the host machine.

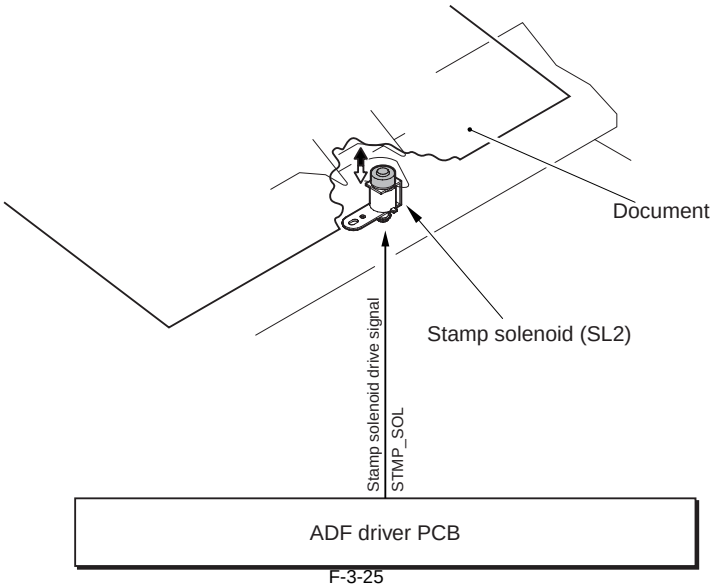


F-3-24

3.9 Stamp Operation

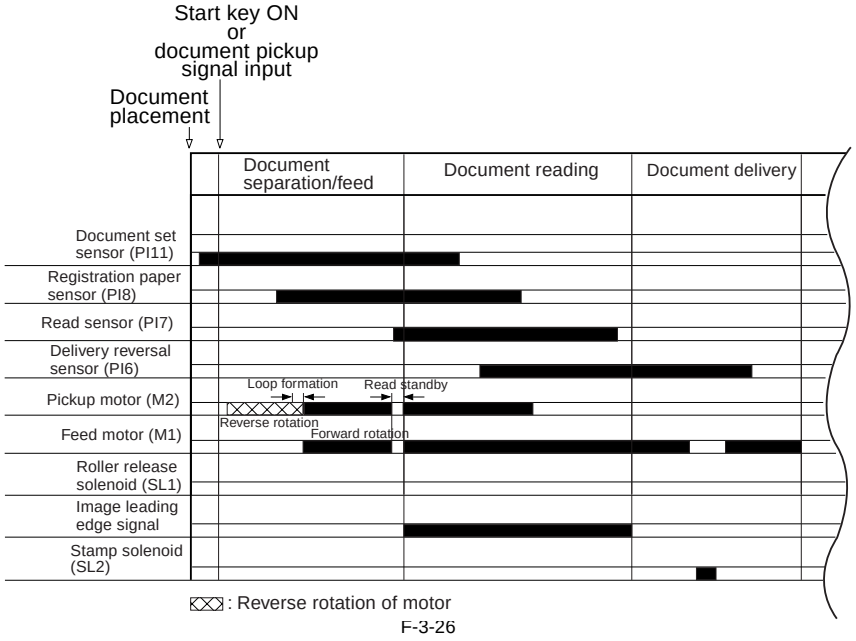
3.9.1 Outline(with the Stamp Unit-B1)

If the stamp function is selected in the FAX mode of the host machine, the stamp solenoid drive signal (STMP_SOL) from the ADF driver PCB drives the stamp solenoid (SL2) to affix a stamp indicating that the document has been read or sent.



F-3-25

In the stamp mode, the feed speed is set to 118 mm/s after completion of document reading. The document stops when it has been fed 21.45 mm since detection of tuning off of the delivery reversal sensor, where the stamp is printed. The solenoid drive time is 50 ms, and the stamp is affixed at the position which is about 10 mm away from the trailing edge of paper.



F-3-26

MEMO:
Fresh out of the package, the stamp cartridge is good for about 7,000 documents.

Chapter 4 Parts Replacement Procedure

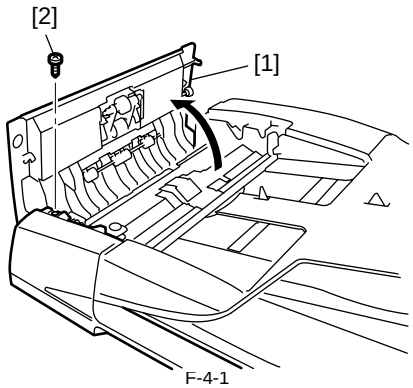
Contents

4.1 External Covers

4.1.1 Front Cover

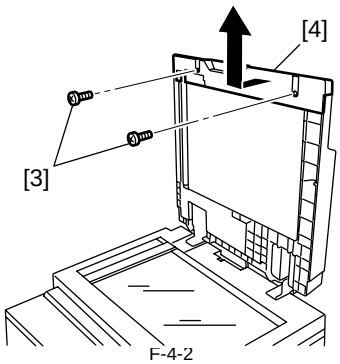
4.1.1.1 Removing the Front Cover

1) Open the feeder cover [1].
   - Screw [2], 1 pc.



F-4-1

2) Detach the front cover.
   - Screw [3], 2 pcs.

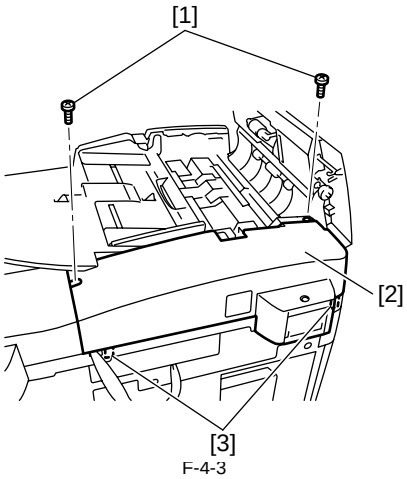


F-4-2

4.1.2 Rear Cover

4.1.2.1 Removing the Rear Cover

1) Open the feeder cover.
2) Move to the back of the host machine and detach the rear cover [2].
   - Screw [1], 2 pcs.



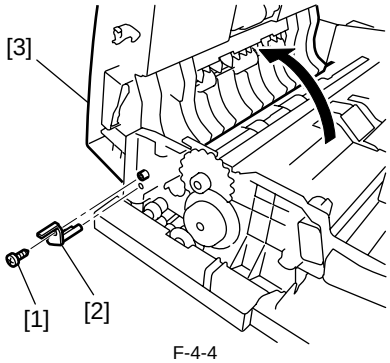
F-4-3

> Remove the rear cover with the two claws [3] released.

4.1.3 Feeder Cover

4.1.3.1 Removing the Feeder Cover

1) Open the feeder cover.
2) Detach the front cover.
- Screw, 3 pcs.
3) Detach the connector cover [3].
   - Screw [1], 1 pc.
   - Positioning pin [2]



F-4-4

4.2 Drive System

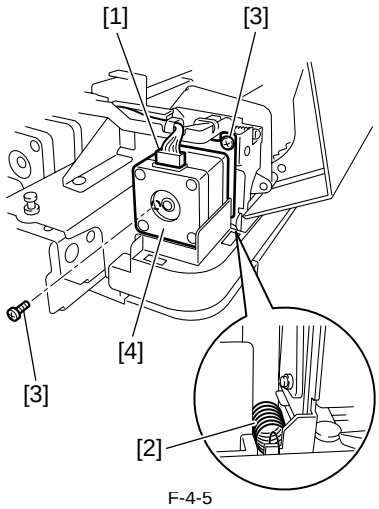
4.2.1 Pickup Motor

4.2.1.1 Removing the Pickup Motor

1) Open the feeder cover.
2) Move to the back of the host machine and detach the rear cover.
   - Screw, 2 pcs.

> Remove the rear cover with the two claws released.

3) Disconnect the connector [1], and then remove the tension spring [2].
4) Remove the pickup motor [4] together with the adjusting plate.
   - Screw [3], 2 pcs.



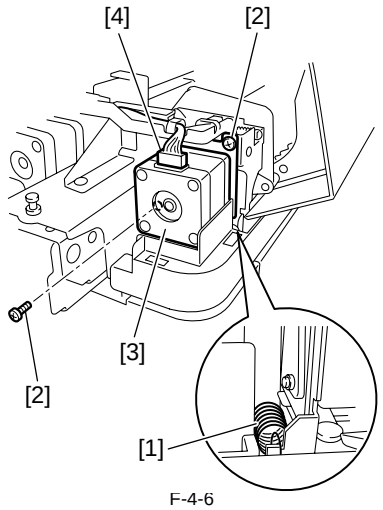
F-4-5

4.2.1.2 Installing the Pickup Motor

1) Install the tension spring [1] to the motor base together with the adjusting plate. Install the motor in such a manner that the motor pulley is engaged with the timing belt.

2) Install the pickup motor [3] together with the adjusting plate.
- Screw [2], 2 pcs.

3) Attach the connector [4].



F-4-6

4.2.2 Feed Motor

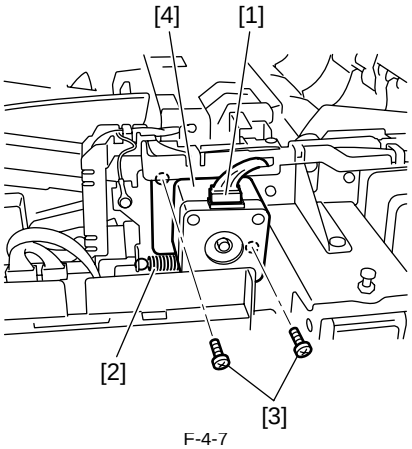
4.2.2.1 Removing the Feed Motor

1) Open the feeder cover.
2) Move to the back of the host machine and detach the rear cover.
- Screw, 2 pcs.

> ⚠ Remove the rear cover with the two claws released.

3) Remove the tension spring [2].
- Connector [1], 1 pc.

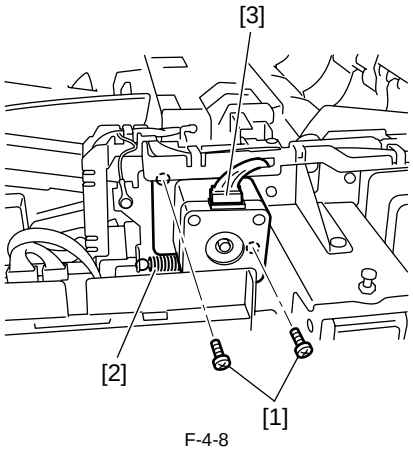
4) Remove the transport motor [4] together with the adjusting plate.
- Screw [3], 2 pcs.



F-4-7

4.2.2.2 Installing the Feed Motor

1) Install the feed motor in such a manner that the motor pulley is engaged with the timing belt, and then tighten two screws [1] temporarily.
2) Attach the tension spring [2] to the adjusting plate and motor base, and then securely tighten the screws tightened temporarily in step 1.
3) Connect the connector [3].



F-4-8

4.2.3 Timing Belt/Pulley

4.2.3.1 Removing the Timing Belt

1) Open the feeder cover.
2) Detach the front cover.
- Screw, 3 pcs.

3) Detach the feeder cover.
- Screw, 1 pc.
- Positioning pin

4) Move to the back of the host machine and detach the rear cover.
- Screw, 2 pcs.

> ⚠ Remove the rear cover with the two claws released.

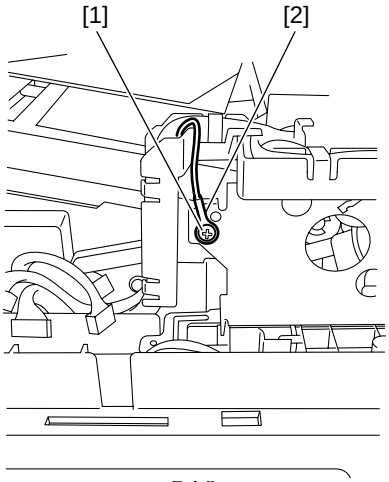
5) Disconnect all connectors from the ADF driver PCB.
- Connector, 10 pcs.

6) Remove the ADF driver PCB.
- Screw, 2 pcs.

7) Remove the pickup motor together with the adjusting plate.
- Tension spring
- Connector, 1 pc.
- Screw, 2 pcs.

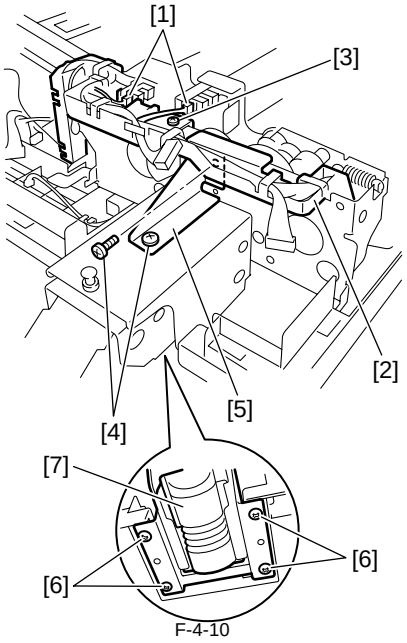
8) Remove the pickup motor together with the adjusting plate.
- Tension spring
- Connector, 1 pc.
- Screw, 2 pcs.

9) Disconnect the ground cable [2].
- Screw [1], 1 pc.



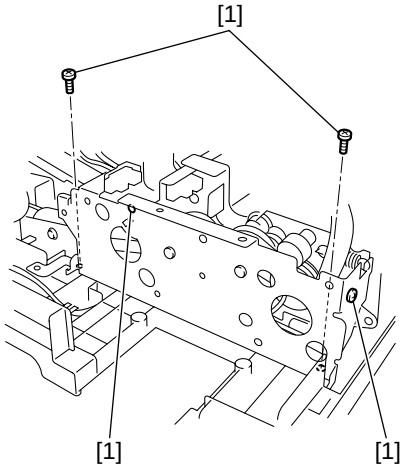
F-4-9

10) Disconnect the two sensor connectors [1].
11) Release the harness from the harness guide [2].
12) Remove the harness guide [2].
- Screw [3], 1 pc.
13) Remove the metal plate [5].
- Screw [4], 2 pcs.
14) Remove the left hinge [7].
- Screw [6], 4 pcs.



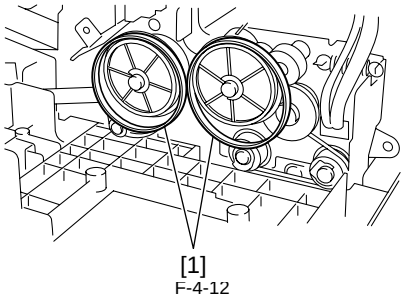
F-4-10

15) Remove the metal plate.
- Screw [1], 4 pcs.



F-4-11

16) Remove the timing belt [1].



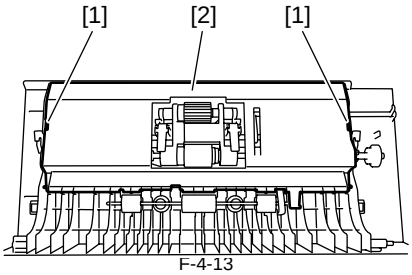
F-4-12

4.3 Document Feeding System

4.3.1 Pickup Roller Unit

4.3.1.1 Removing the Pickup Roller Unit

1) Open the feeder cover.
2) Detach the front cover.
- Screw, 3 pcs.
3) Detach the feeder cover.
- Screw, 1 pc.
- Positioning pin
4) Remove the inner cover [2] from the feeder cover.
- Hook [1], 2 pcs.



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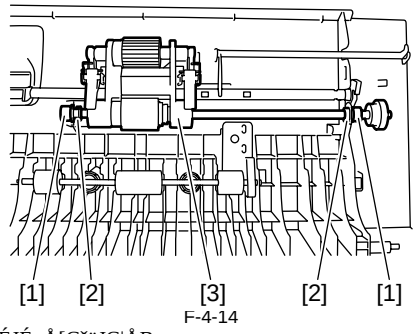
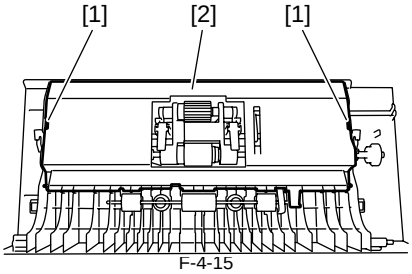
5) Remove the pickup roller unit [3].
- Resin ring [1], 2 pcs.
- Bearing [2], 2 pcs.



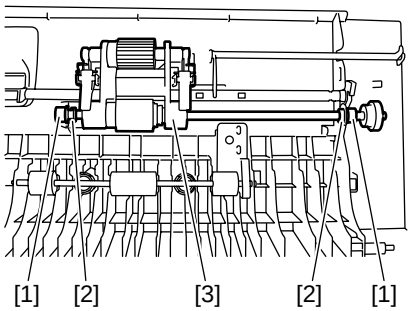
F-4-14

1)ÉtÉBÅ[É_ÉJÉoÅ[ÇšäJÇ¦ÅB
2)ëOÉJÉoÅ[ÇšäOÇ²ÅB
ÅEÉrÉX3ñ{
3)ÉtÉBÅ[É_ÉJÉoÅ[ÇšäOÇ²ÅB
ÅEÉrÉX1ñ{
ÅEàþíuåàÇ?ÉsÉì
4)ÉtÉBÅ[É_ÉJÉoÅ[ÇÃì‡ÉJÉoÅ[[2]ÇšäOÇ²ÅB
ÅEÉtÉbÉN[1]2â”èä



F-4-15

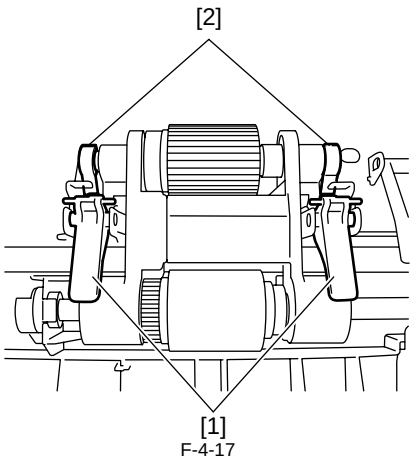
5)ãäéÜÉçÅ[ÉâÉÜÉjÉbÉg[3]ÇšäOÇ²ÅB
ÅEé˜éâÉäÉìÉO[1]2å¬ÅA
ÅEéðéÛ[2]2å¬



F-4-16

4.3.1.2 Precaution about Pickup Roller Unit Installation

- Install the pickup roller unit with the stopper arm [1] at the front as shown below.
- Install the pickup roller unit with the stopper [2] at the rear as shown below.



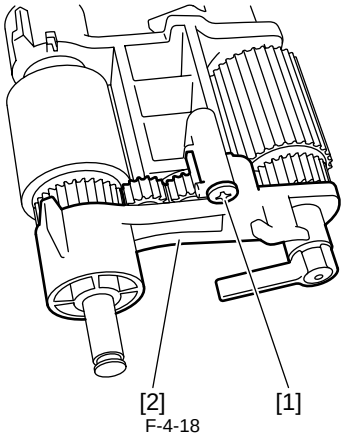
F-4-17

4.3.2 Pickup Roller/Separation Roller

4.3.2.1 Removing the Pickup Roller and Feed Roller

1) Open the feeder cover.
2) Detach the front cover.
   - Screw, 3 pcs.
3) Detach the feeder cover.
   - Screw, 1 pc.
   - Positioning pin
4) Remove the inner cover from the feeder cover.
   - Hook, 2 pcs.
5) Remove the pickup roller unit.
   - Resin ring, 2 pcs.
   - Bearing, 2 pcs.

6) Remove the screws [1], and then remove the drive gear [2].



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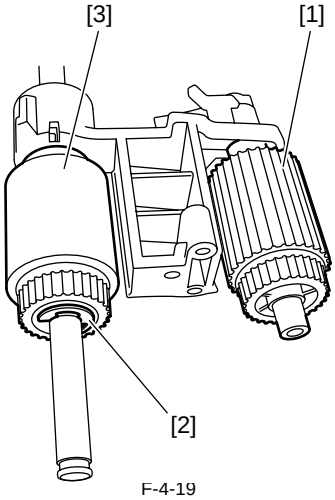
7) Remove the pickup roller [1].
8) Remove the E-ring [2], and then remove the transport roller [3].

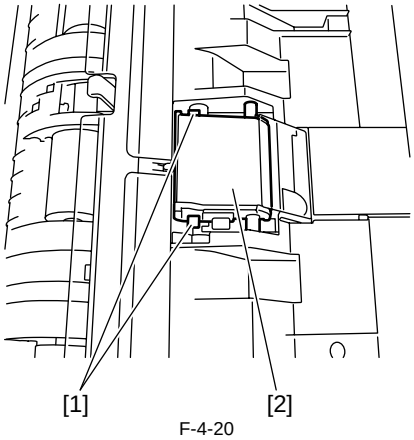


F-4-19

4.3.3 Separation Plate/Separation Pad

4.3.3.1 Removing the Separation Pad

1) Open the feeder cover.
2) Remove the separation pad [2].
   - Hook [1], 2 pcs.



F-4-20

4.3.4 Upper Registration Roller

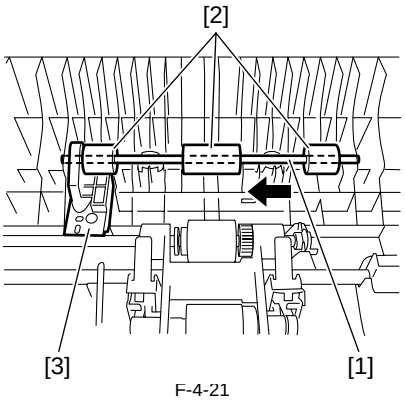
4.3.4.1 Removing the Upper Registration Roller

1) Open the feeder cover.
2) Detach the front cover.
   - Screw, 3 pcs.
3) Detach the feeder cover.
   - Screw, 1 pc.

- Positioning pin

4) Remove the inner cover from the feeder cover.
   - Hook, 2 pcs.
5) Slide the shaft [1] in the direction of the arrow, and then remove the upper registration roller [2].

> Do not remove the upper registration roller shaft holder [3] because it was factory-adjusted.



F-4-21

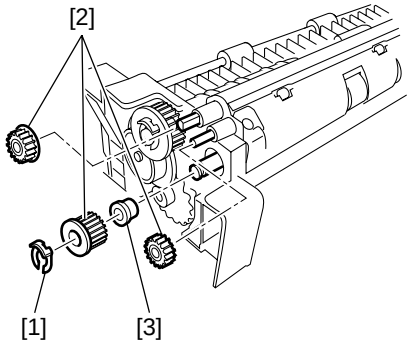
4.3.5 Lower Registration Roller

4.3.5.1 Removing the Lower Registration Roller

1) Open the feeder cover.
2) Detach the front cover.
   - Screw, 3 pcs.
3) Detach the feeder cover.
   - Screw, 1 pc.
   - Positioning pin
4) Move to the back of the host machine and detach the rear cover.
   - Screw, 2 pcs.

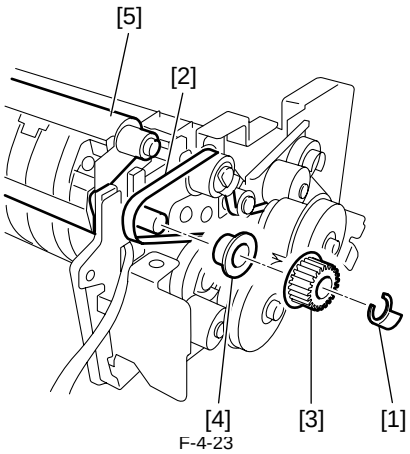
> Remove the rear cover with the two claws released.

5) Disconnect all connectors from the ADF driver PCB.
   - Connector, 10 pcs.
6) Remove the ADF driver PCB.
   - Screw, 2 pcs.
7) Remove the pickup motor together with the adjusting plate.
   - Tension spring
   - Connector, 1 pc.
   - Screw, 2 pcs.
8) Remove the transport motor together with the adjusting plate.
   - Tension spring
   - Connector, 1 pc.
   - Screw, 2 pcs.
9) Disconnect the ground cable.
   - Screw, 1 pc.
10) Disconnect the two sensor connectors.
11) Release the harness from the harness guide.
12) Remove the harness guide.
   - Screw, 1 pc.
13) Remove the metal plate.
   - Screw, 2 pcs.
14) Remove the left hinge.
   - Screw, 4 pcs.
15) Remove the metal plate.
   - Screw, 4 pcs.
16) Remove the timing belt.
17) Move to the front of the host machine and remove the tray holder.
   - Screw, 1 pc.
18) Remove the document tray.
19) Remove the transport unit.
   - Screw, 4 pcs.
20) Turn over the transport unit.
21) Remove the resin ring [1], and then remove the three gears [2] and one bearing [3].



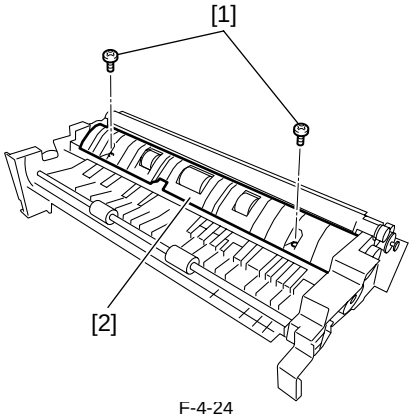
F-4-22

22) Remove the resin ring [1], belt [2], gear [3], and bearing [4].
23) Remove the platen roller unit [5].



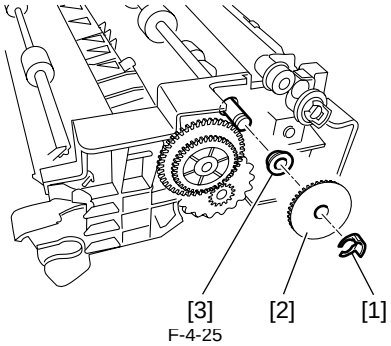
F-4-23

24) Detach the cover [2].
   - Screw [1], 2 pcs.



F-4-24

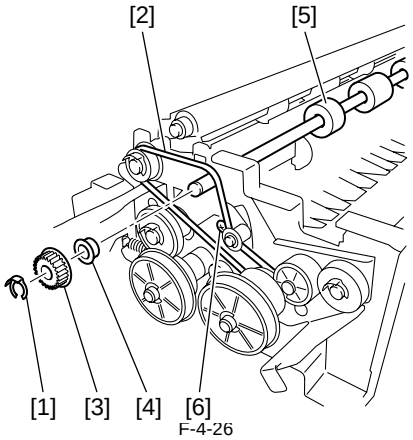
25) Remove the resin ring [1], gear [2], and bearing [3].



F-4-25

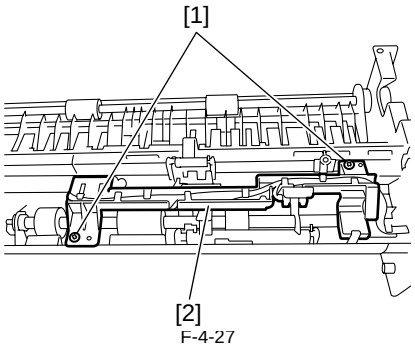
26) Remove read roller 2 [5].
- Resin ring [1], 1 pc.
- Belt [2]
- Gear [3], 1 pc.
- Bearing [4], 1 pc.

> ⚠
> When installing the read roller 2, loosen the screws [6] and attach the belt.



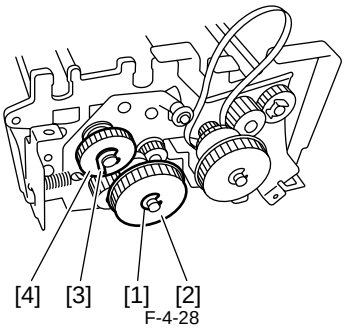
F-4-26

27) Remove the sensor unit [2].
- Screw [1], 2 pcs.



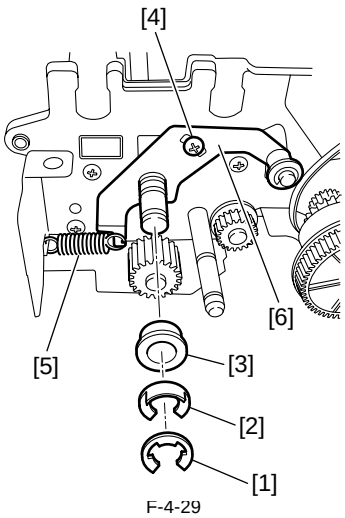
F-4-27

28) Remove the E-ring [1], and then remove the gear [2].
29) Remove the resin ring [3], and then remove the gear [4].



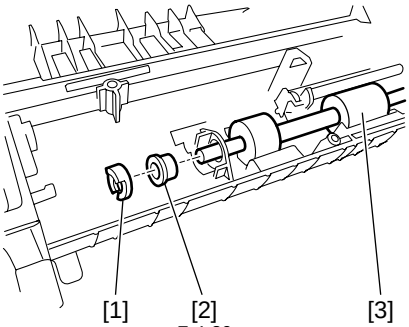
F-4-28

30) Remove the E-ring [1] and the resin ring [2], and then remove the bearing [3].
31) Remove the screw [4], and then remove the spring [5] and metal plate [6].



F-4-29

32) Remove the resin ring [1], and then remove the bearing [2] and lower registration roller [3].



F-4-30

4.3.6 Delivery Reversing Roller (upper)

4.3.6.1 Removing the Upper Delivery Reversing Roller

1) Open the feeder cover.
2) Detach the front cover.
   - Screw, 3 pcs.
3) Detach the feeder cover.
   - Screw, 1 pc.
   - Positioning pin
4) Move to the back of the host machine and detach the rear cover.
   - Screw, 2 pcs.

> ⚠
> Remove the rear cover with the two claws released.

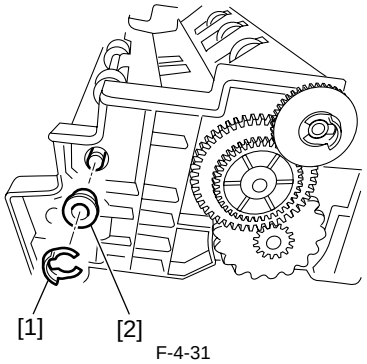
5) Disconnect all connectors from the ADF driver PCB.
   - Connector, 10 pcs.
6) Remove the ADF driver PCB.
   - Screw, 2 pcs.
7) Remove the pickup motor together with the adjusting plate.
   - Tension spring
   - Connector, 1 pc.
   - Screw, 2 pcs.
8) Remove the transport motor together with the adjusting plate.
   - Tension spring
   - Connector, 1 pc.
   - Screw, 2 pcs.
9) Disconnect the ground cable.
   - Screw, 1 pc.
10) Disconnect the two sensor connectors.
11) Release the harness from the harness guide.
12) Remove the harness guide.
   - Screw, 1 pc.
13) Remove the metal plate.
   - Screw, 2 pcs.
14) Remove the left hinge.
   - Screw, 4 pcs.

15) Remove the metal plate.
- Screw, 4 pcs.

16) Remove the timing belt.
17) Move to the front of the host machine and remove the tray holder.
- Screw, 1 pc.

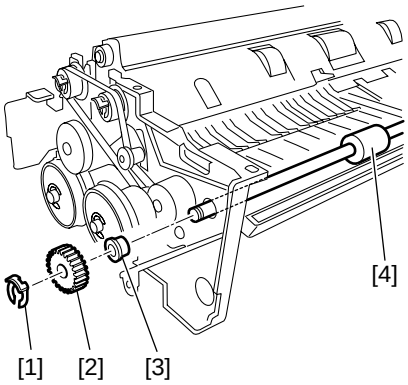
18) Remove the document tray.
19) Remove the two screws.
20) Remove the transport unit.
- Screw, 2 pcs.

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



F-4-31

22) Remove the delivery reversing upper roller [4].
- Resin ring [1], 1 pc.
- Gear [2], 1 pc.
- Bearing [3], 1 pc.



F-4-32

4.3.7 Read Roller 1

4.3.7.1 Removing the Read Roller 1

1) Open the feeder cover.
2) Detach the front cover.
- Screw, 3 pcs.

3) Detach the feeder cover.
- Screw, 1 pc.
- Positioning pin

4) Move to the back of the host machine and detach the rear cover.
- Screw, 2 pcs.

> ⚠
> Remove the rear cover with the two claws released.

5) Disconnect all connectors from the ADF driver PCB.
- Connector, 10 pcs.

6) Remove the ADF driver PCB.
- Screw, 2 pcs.

7) Remove the pickup motor together with the adjusting plate.
- Tension spring
- Connector, 1 pc.
- Screw, 2 pcs.

8) Remove the transport motor together with the adjusting plate.
- Tension spring
- Connector, 1 pc.
- Screw, 2 pcs.

9) Disconnect the ground cable.
- Screw, 1 pc.

10) Disconnect the two sensor connectors.
11) Release the harness from the harness guide.
12) Remove the harness guide.
- Screw, 1 pc.

13) Remove the metal plate.
- Screw, 2 pcs.

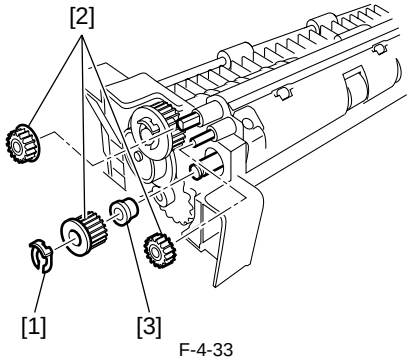
14) Remove the left hinge.
- Screw, 4 pcs.

15) Remove the metal plate.
- Screw, 4 pcs.

16) Remove the timing belt.
17) Move to the front of the host machine and remove the tray holder.
- Screw, 1 pc.

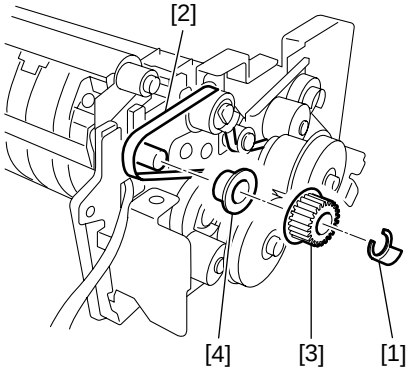
18) Remove the document tray.
19) Remove the two screws.
20) Remove the transport unit.
- Screw, 2 pcs.

21) Turn over the transport unit.
22) Remove the resin ring [1], and then remove the four gears [2] and one bearing [3].



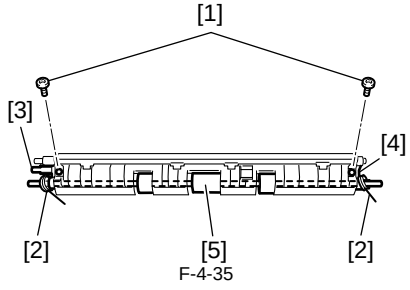
F-4-33

23) Remove the resin ring [1], belt [2], gear [3], and bearing [4].



F-4-34

24) Remove read roller 1 [5].
- Screw [1], 2 pcs.
- Spring [2], 2 pcs.
- Member [3], 1 pc.
- Member [4], 1 pc.



F-4-35

> **MEMO:**
> When the read roller 2 is removed first, it works easily [the installation of the read roller 1].

4.3.8 Read Roller 2

4.3.8.1 Removing the Read Roller 2

1) Open the feeder cover.
2) Detach the front cover.
- Screw, 3 pcs.

3) Detach the feeder cover.

- Screw, 1 pc.
- Positioning pin

4) Move to the back of the host machine and detach the rear cover.
- Screw, 2 pcs.

> ⚠ Remove the rear cover with the two claws released.

5) Disconnect all connectors from the ADF driver PCB.
- Connector, 10 pcs.

6) Remove the ADF driver PCB.
- Screw, 2 pcs.

7) Remove the pickup motor together with the adjusting plate.
- Tension spring
- Connector, 1 pc.
- Screw, 2 pcs.

8) Remove the transport motor together with the adjusting plate.
- Tension spring
- Connector, 1 pc.
- Screw, 2 pcs.

9) Disconnect the ground cable.
- Screw, 1 pc.

10) Disconnect the two sensor connectors.
11) Release the harness from the harness guide.
12) Remove the harness guide.
- Screw, 1 pc.

13) Remove the metal plate.
- Screw, 2 pcs.

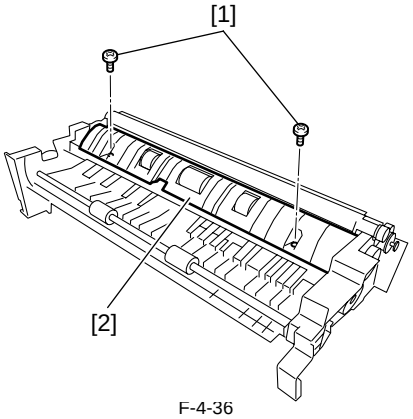
14) Remove the left hinge.
- Screw, 4 pcs.

15) Remove the metal plate.
- Screw, 4 pcs.

16) Remove the timing belt.
17) Move to the front of the host machine and remove the tray holder.
- Screw, 1 pc.

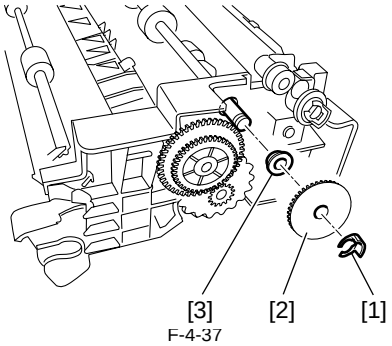
18) Remove the document tray.
19) Remove the transport unit.
- Screw, 4 pcs.

20) Detach the cover [2].
- Screw [1], 2 pcs.



F-4-36

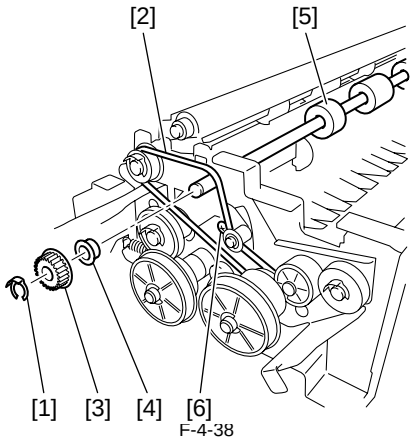
21) Remove the resin ring [1], gear [2], and bearing [3].



F-4-37

22) Remove read roller 2 [5].
- Resin ring [1], 1 pc.
- Belt [2]
- Gear [3], 1 pc.
- Bearing [4], 1 pc.

> ⚠ When installing the read roller 2, loosen the screws [6] and attach the belt.



F-4-38

4.3.9 Platen Roller

4.3.9.1 Removing the Platen Roller

1) Open the feeder cover.
2) Detach the front cover.
- Screw, 3 pcs.

3) Detach the feeder cover.
- Screw, 1 pc.
- Positioning pin

4) Move to the back of the host machine and detach the rear cover.
- Screw, 2 pcs.

> ⚠ Remove the rear cover with the two claws released.

5) Disconnect all connectors from the ADF driver PCB.
- Connector, 10 pcs.

6) Remove the ADF driver PCB.
- Screw, 2 pcs.

7) Remove the pickup motor together with the adjusting plate.
- Tension spring
- Connector, 1 pc.
- Screw, 2 pcs.

8) Remove the transport motor together with the adjusting plate.
- Tension spring
- Connector, 1 pc.
- Screw, 2 pcs.

9) Disconnect the ground cable.
- Screw, 1 pc.

10) Disconnect the two sensor connectors.
11) Release the harness from the harness guide.
12) Remove the harness guide.
- Screw, 1 pc.

13) Remove the metal plate.
- Screw, 2 pcs.

14) Remove the left hinge.
- Screw, 4 pcs.

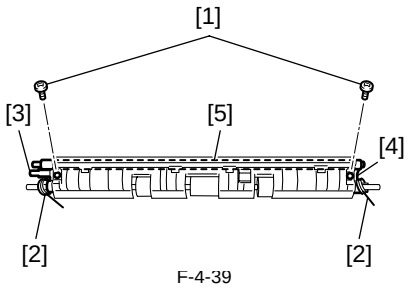
15) Remove the metal plate.
- Screw, 4 pcs.

16) Remove the timing belt.
17) Move to the front of the host machine and remove the tray holder.
- Screw, 1 pc.

18) Remove the document tray.
19) Remove the transport unit.
- Screw, 4 pcs.

20) Turn over the transport unit.
21) Remove the resin ring [1], and then remove the three gears [2] and one bearing [3].
22) Remove the resin ring [1], belt [2], gear [3], and bearing [4].

23) Remove the platen roller unit [5].
- Screw [1], 2 pcs.
- Spring [2], 2 pcs.
- Member [3], 1 pc.
- Member [4], 1 pc.



F-4-39

MEMO:
When the read roller 2 is removed first, it works easily [the installation of the platen roller].

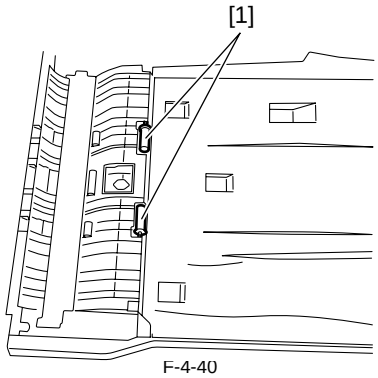
4.3.10 Delivery Reversing Roller (lower)

4.3.10.1 Removing the Lower Delivery Reversing Roller

1) Open the feeder cover.
2) Detach the front cover.
   - Screw, 3 pcs.
3) Detach the feeder cover.
   - Screw, 1 pc.
   - Positioning pin
4) Move to the back of the host machine and detach the rear cover.
   - Screw, 2 pcs.

⚠ Remove the rear cover with the two claws released.

5) Disconnect all connectors from the ADF driver PCB.
   - Connector, 10 pcs.
6) Remove the ADF driver PCB.
   - Screw, 2 pcs.
7) Remove the pickup motor together with the adjusting plate.
   - Tension spring
   - Connector, 1 pc.
   - Screw, 2 pcs.
8) Remove the transport motor together with the adjusting plate.
   - Tension spring
   - Connector, 1 pc.
   - Screw, 2 pcs.
9) Disconnect the ground cable.
   - Screw, 1 pc.
10) Disconnect the two sensor connectors.
11) Release the harness from the harness guide.
12) Remove the harness guide.
   - Screw, 1 pc.
13) Remove the metal plate.
   - Screw, 2 pcs.
14) Remove the left hinge.
   - Screw, 4 pcs.
15) Remove the metal plate.
   - Screw, 4 pcs.
16) Remove the timing belt.
17) Move to the front of the host machine and remove the tray holder.
   - Screw, 1 pc.
18) Remove the document tray.
19) Remove the transport unit.
   - Screw, 4 pcs.
20) Remove the delivery reversing lower roller [1].



F-4-40

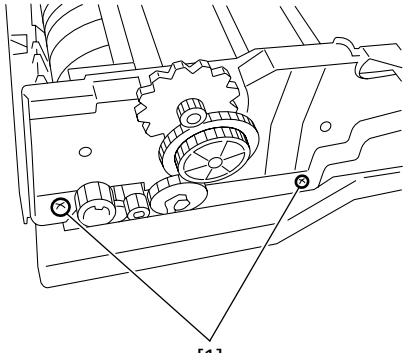
4.3.11 Feeding Unit

4.3.11.1 Removing the Feeding Unit

1) Open the feeder cover.
2) Detach the front cover.
   - Screw, 3 pcs.
3) Detach the feeder cover.
   - Screw, 1 pc.
   - Positioning pin
4) Move to the back of the host machine and detach the rear cover.
   - Screw, 2 pcs.

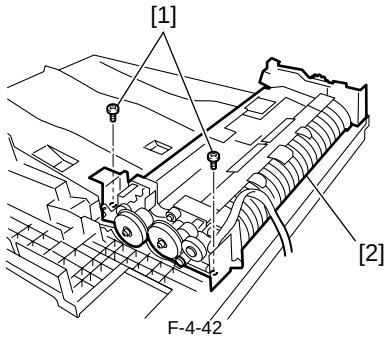
⚠ Remove the rear cover with the two claws released.

5) Disconnect all connectors from the ADF driver PCB.
   - Connector, 10 pcs.
6) Remove the ADF driver PCB.
   - Screw, 2 pcs.
7) Remove the pickup motor together with the adjusting plate.
   - Tension spring
   - Connector, 1 pc.
   - Screw, 2 pcs.
8) Remove the transport motor together with the adjusting plate.
   - Tension spring
   - Connector, 1 pc.
   - Screw, 2 pcs.
9) Disconnect the ground cable.
   - Screw, 1 pc.
10) Disconnect the two sensor connectors.
11) Release the harness from the harness guide.
12) Remove the harness guide.
   - Screw, 1 pc.
13) Remove the metal plate.
   - Screw, 2 pcs.
14) Remove the left hinge.
   - Screw, 4 pcs.
15) Remove the metal plate.
   - Screw, 4 pcs.
16) Remove the timing belt.
17) Move to the front of the host machine and remove the tray holder.
   - Screw, 1 pc.
18) Remove the document tray.
19) Remove the two screws [1].



F-4-41

20) Remove the transport unit.
- Screw [1], 2 pcs.

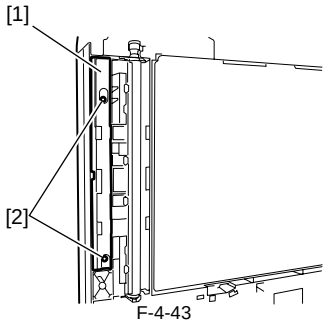


F-4-42

4.3.12 Feed Roller Guide

4.3.12.1 Exchanging the Feed Roller Guide

1) Open the ADF.
2) Remove the feed roller guide [1].
- Screw [2], 2 pcs.



F-4-43

3) Pell off the release paper of the new feed roller guide.
4) Attach the new feed roller guide.

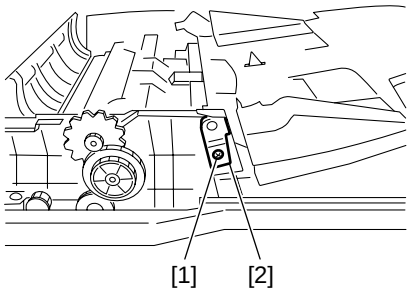
4.3.13 Document Tray

4.3.13.1 Removing the Document Tray

1) Open the feeder cover.
2) Detach the front cover.
- Screw, 3 pcs.
3) Move to the back of the host machine and detach the rear cover.
- Screw, 2 pcs.

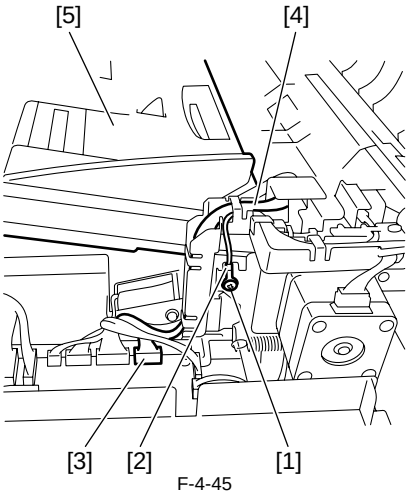
> Remove the rear cover with the two claws released.

4) Move to the front of the host machine and remove the tray holder [2].
- Screw [1], 1 pc.



F-4-44

5) Move to the back of the host machine and remove the ground cable [2].
- Screw [1], 1 pc.
6) Disconnect the tray harness connector (CN7) [3] from the ADF controller PCB.
7) Release the harness [4] from the harness guide, and then remove the document tray [5].



F-4-45

4.4 Electrical System

4.4.1 Inner Sensor of Feed Unit

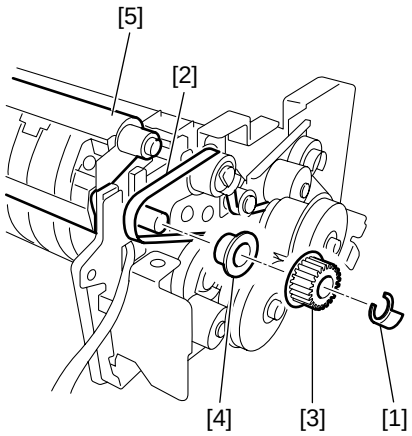
4.4.1.1 Removing the Sensor in the Feeder Unit

1) Open the feeder cover.
2) Detach the front cover.
- Screw, 3 pcs.
3) Detach the feeder cover.
- Screw, 1 pc.
- Positioning pin
4) Move to the back of the host machine and detach the rear cover.
- Screw, 2 pcs.

> Remove the rear cover with the two claws released.

5) Disconnect all connectors from the ADF driver PCB.
- Connector, 10 pcs.
6) Remove the ADF driver PCB.
- Screw, 2 pcs.
7) Remove the pickup motor together with the adjusting plate.
- Tension spring
- Connector, 1 pc.
- Screw, 2 pcs.
8) Remove the transport motor together with the adjusting plate.
- Tension spring
- Connector, 1 pc.
- Screw, 2 pcs.
9) Disconnect the ground cable.
- Screw, 1 pc.
10) Disconnect the two sensor connectors.
11) Release the harness from the harness guide.
12) Remove the harness guide.
- Screw, 1 pc.
13) Remove the metal plate.
- Screw, 2 pcs.
14) Remove the left hinge.
- Screw, 4 pcs.
15) Remove the metal plate.
- Screw, 4 pcs.
16) Remove the timing belt.
17) Move to the front of the host machine and remove the tray holder.
- Screw, 1 pc.
18) Remove the document tray.
19) Remove the transport unit.
- Screw, 4 pcs.
20) Turn over the transport unit.
21) Remove the resin ring, and then remove the three gears and one bearing.

22) Remove the resin ring [1], belt [2], gear [3], and bearing [4].
23) Remove the platen roller unit [5].



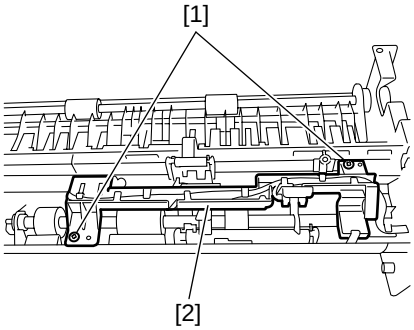
F-4-46

24) Detach the cover.
- Screw, 2 pcs.

25) Remove the resin ring, gear, and bearing.
26) Remove read roller 2.
- Resin ring, 1 pc.
- Belt
- Gear, 1 pc.
- Bearing, 1 pc.

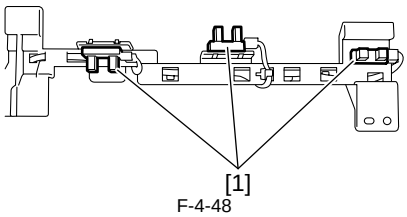
> When installing the read roller 2, loosen the screws and attach the belt.

27) Remove the sensor unit [2].
- Screw [1], 2 pcs.



F-4-47

28) Disconnect the sensor [1] from the sensor unit.

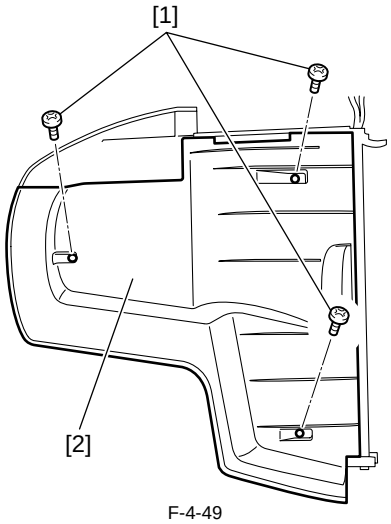


F-4-48

4.4.2 Document Width Volume

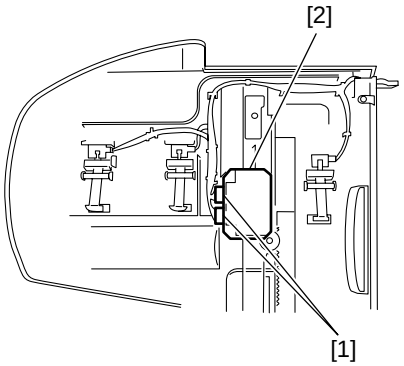
4.4.2.1 Removing the Relay PCB (Document Width Sensor PCB)

1) Using a stub screwdriver, detach the rear cover [2] of the document tray.
- Screw [1], 3 pcs.



F-4-49

2) Remove the relay PCB (document width sensor PCB) [2].
- Connector [1], 2 pcs.



F-4-50

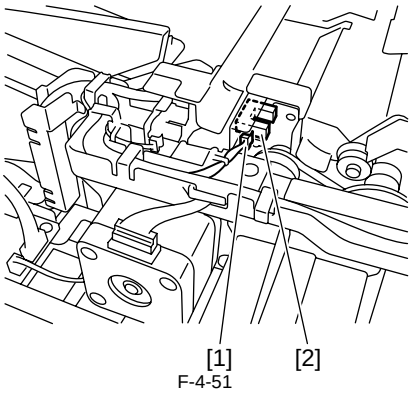
4.4.3 Cover Open/Closed Sensor

4.4.3.1 Removing the Feeder Cover Open/Close Sensor

1) Open the feeder cover.
2) Move to the back of the host machine, remove the two screws, and then detach the rear cover.

> Remove the rear cover with the two claws released.

3) Disconnect the connector [1], and then detach the feeder cover. open/close sensor [2].



F-4-51

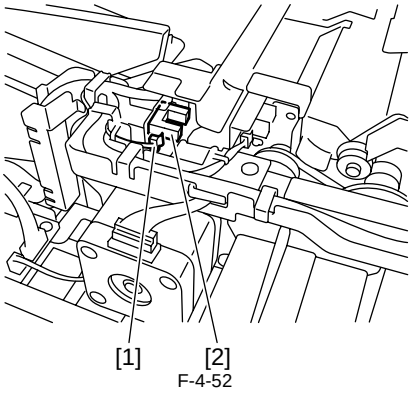
4.4.4 Document Set Sensor

4.4.4.1 Removing the Document Placement Sensor

1) Open the feeder cover.
2) Move to the back of the host machine, remove the two screws, and then detach the rear cover.

> ⚠ Remove the rear cover with the two claws released.

3) Disconnect the connector [1], and remove the document placement sensor [2].

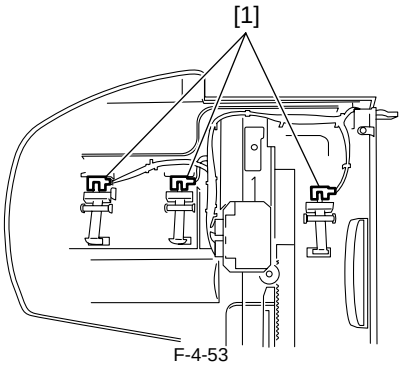


F-4-52

4.4.5 Document Length sensor

4.4.5.1 Removing the Document Length Sensor

1) Using a stub screwdriver, detach the rear cover of the document tray.
   - Screw, 3 pcs.
2) Disconnect the connector, and then remove the document length sensor [1].



F-4-53

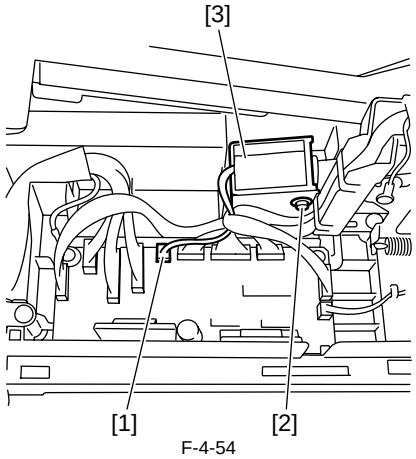
4.4.6 Pressurization Solenoid

4.4.6.1 Removing the Pressurization Solenoid (Roller Release Solenoid)

1) Open the feeder cover.
2) Move to the back of the host machine, remove the two screws, and then detach the rear cover.

> ⚠ Remove the rear cover with the two claws released.

3) Disconnect the connector [1] from the ADF driver PCB.
4) Remove the screw [2], and then remove the pressurization (separation) solenoid [3].



F-4-54

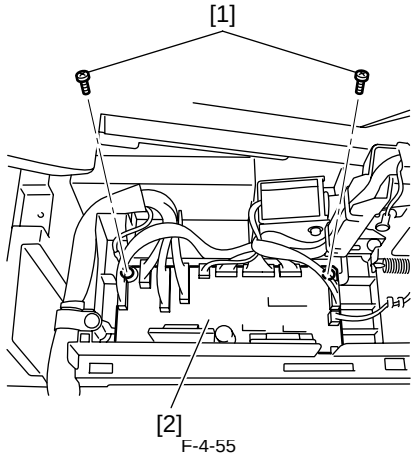
4.4.7 ADF Driver PCB

4.4.7.1 Removing the ADF Driver PCB

1) Open the feeder cover.
2) Move to the back of the host machine, remove the two screws, and then detach the rear cover.

> ⚠ Remove the rear cover with the two claws released.

3) Disconnect all connectors from the ADF driver PCB.
   - Connector, 10 pcs.
4) Remove the ADF driver PCB [2].
   - Screw [1], 2 pcs.



F-4-55

Chapter 5 Maintenance

Contents

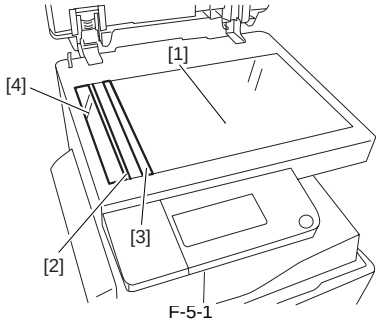
5.1 User Maintenance

5.1.1 Cleaning

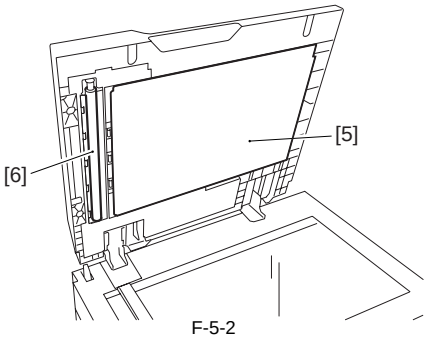
Tell the user to clean the following parts every 2000 sheets.

T-5-1

Parts to clean	Cleaning method	Cleaning cycle	Remarks
White plate (pressure plate)	Clean with a cloth dampened with water or neutral detergent and squeezed hard, and then wipe with a dry cloth.	As required	
Document glasses (large/ small)		As required or every 2000 sheets	Parts of reader unit
Document glass holder		As required	Parts of reader unit
Vertical size plate		As required	Parts of reader unit
Platen roller		As required or every 2000 sheets	Parts of reader unit



F-5-1



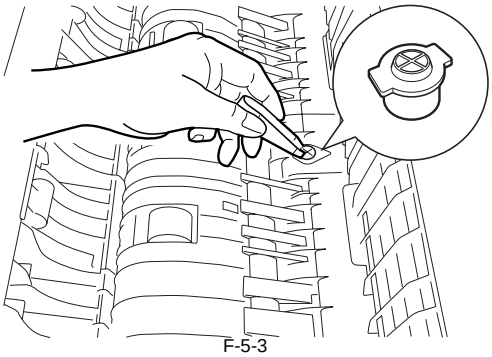
F-5-2

[1] Document glass (large)
[2] Document glass holder
[3] Vertical size plate
[4] Document glass (small)
[5] White plate
[6] Platen roller

5.1.2 Replacement

1. Replacing the Stamp (when the fax feature is provided)

1) Open the feeder cover and separation guide.
2) Using tweezers, remove the stamp.
3) Using tweezers or the like, attach a new stamp.
Be sure to attach the new stamp with the stamp face up.



F-5-3

If the stamp is floating, a jam can occur. Be sure to push in the stamp until it clicks.

5.2 Maintenance and Inspection

5.2.1 Periodically Replaced Parts

5.2.1.1 Periodically Replaced Parts

This machine does not have parts that must be replaced periodically.

5.2.2 Durables

5.2.2.1 Durables

Some parts must be replaced due to deterioration or damage at least once within the warranty period. The following tale lists the expected average lives (number of document sheets supplied) of the parts that requires replacement when they become defective.
The number of document sheets that have been fed can be checked in the service mode of the host machine.

As of September, 2009

No.	Part name	Part No.	Quantity	Expected life	Remarks
1	Pickup roller	FG3-4043	1	80000 sheets	The number of document sheets that have been fed can be checked in the service mode of the host machine.
2	Separation pad	FL3-3239	1	80000 sheets	
3	Feed guide (dust collection tape)	FL3-5012	1	40000 sheets	
4	Stamp (Option)	FC7-5465	1	7000 sheets	Replace it when the stamp image becomes faint.

The numbers of sheets listed above are estimated ones, so they may change with the experimental data.

5.2.3 Periodical Servicing

5.2.3.1 Periodic Service Items

This machine does not have periodic service items.

5.3 Adjustment

5.3.1 Basic Adjustment

5.3.1.1 Outline

This machine has the following adjustment items. Carry out each adjustment after replacing the relevant parts.

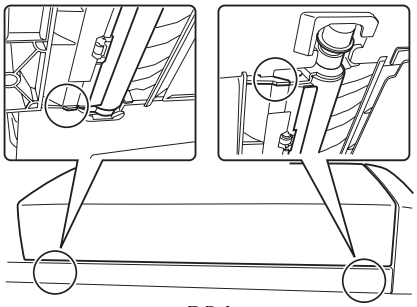
T-5-2

No.	Adjustment type	Replaced parts	Remarks
[1]	Height adjustment	Hinge	
[2]	Perpendicularity adjustment	Hinge	
[3]	Magnification adjustment	Motor/roller	
[4]	Side registration adjustment	-	During installation only
[5]	Leading edge registration adjustment	-	During installation only
[6]	Reading position adjustment	White roller	

Carry out the adjustment of above all after removing the ADF from the reader unit.

5.3.1.2 Adjusting the Height

1. Pre-check
   Check whether the front and rear document glass spacers provided under the bottom of the DADF are in close contact with the document glass when the DADF is closed.
   If visual check is difficult, perform the check with reference to the next and subsequent pages.



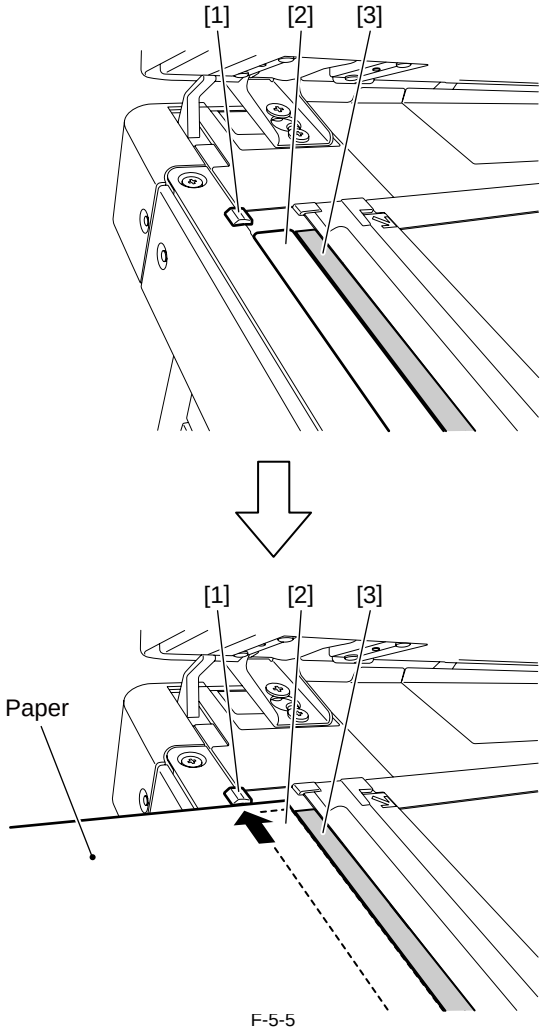
F-5-4

MEMO:
Insert a sheet of paper between the DADF stream reading glass and the document glass spacers (two) and pull out the sheet. It is recommended that slight resistance is felt when pulling out the sheet.

CAUTION:
- Use plain paper.

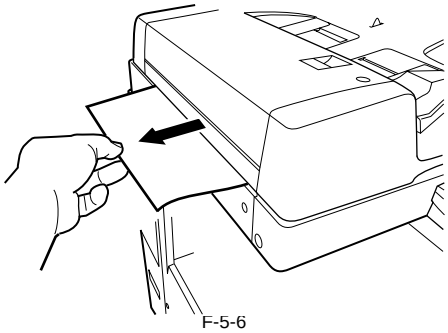
2. Checking the left hinge height
1) Checking the rear-left height of the DADF
   Set paper against the protrusions [1] of the stream reading glass in such a manner that the seat [2] of the stream reading glass is nearly hidden.

CAUTION:
Set paper so that it does not reach the document reading area [3].



F-5-5

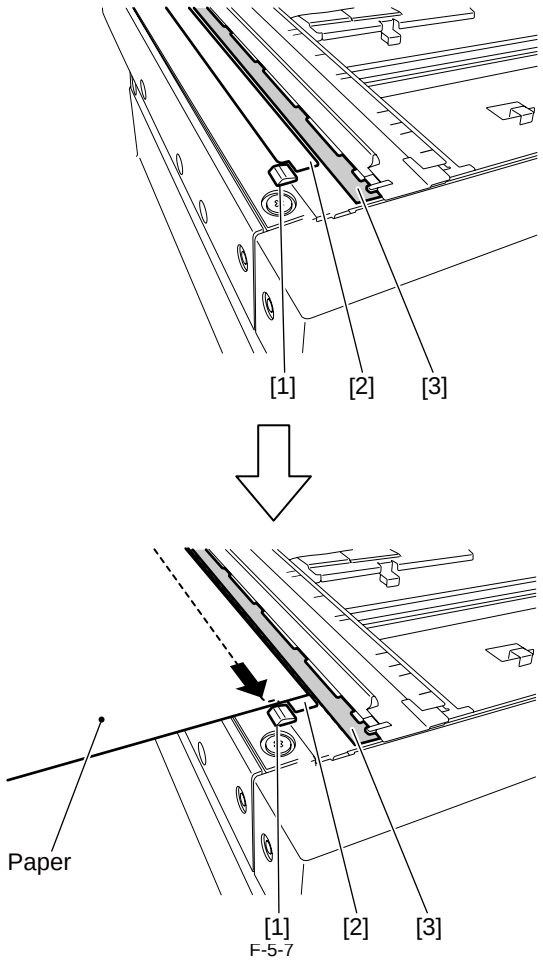
2) Pulling out the set paper
   Pull out the paper in the direction of the arrow to check that you feel slight resistance.



F-5-6

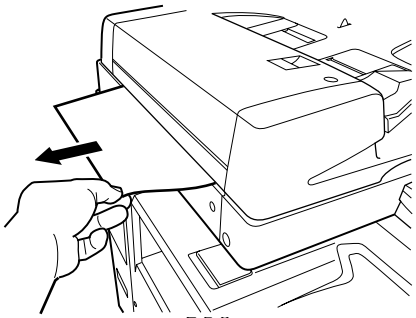
3) Checking the front-left height of the DADF
Set paper against the protrusions [1] of the stream reading glass in such a manner that the seat [2] of the stream reading glass is nearly hidden.

CAUTION:
Set paper so that it does not reach the document reading area [3].



F-5-7

4) Pulling out the set paper
Pull out the paper in the direction of the arrow to check that you feel slight resistance.



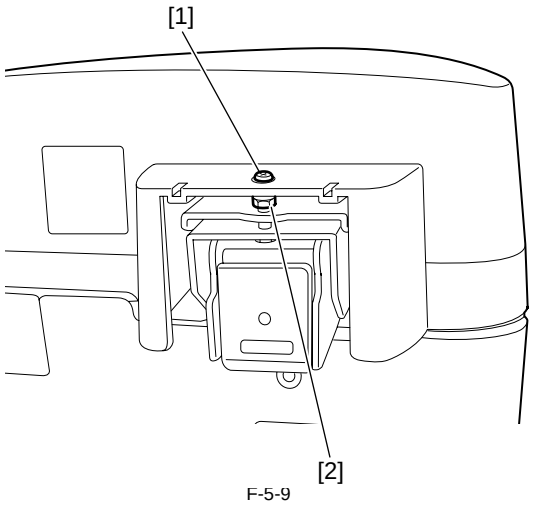
F-5-8

3. Adjustment Procedure
* When the front or rear side is floating;
1) Adjust the left hinge height.
2) Adjust the right hinge height.
3) Adjust or check the left hinge height.
* When both sides are floating;
1) Adjust the left hinge height.
2) Adjust the right hinge height.
3) Adjust the left hinge height.
4) Adjust or check the right hinge height.

4. Adjust the height of the left hinge.
1) Adjust the height with the left hinge height adjusting screw [1].

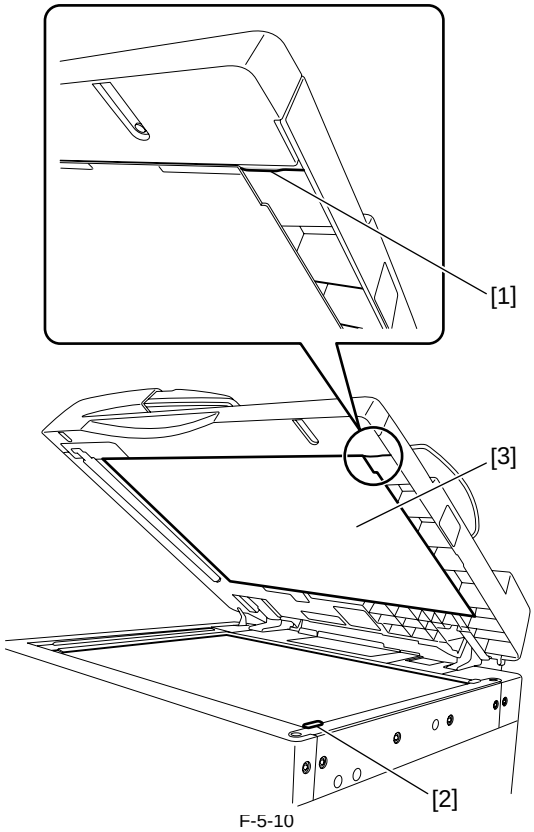
CAUTION:
Loosen the lock nut [2] before adjustment, and tighten it after adjustment.

* If the front spacer is floating, turn the adjusting screw clockwise to bring the front spacer closer to the glass.
* If only the rear spacer or both front and rear spacers are floating, turn the adjusting screw counterclockwise to bring the rear spacer closer to the glass.



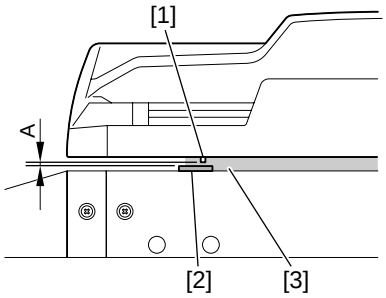
F-5-9

5. Check the height of the right hinge
1) Close the DADF and check for the following;
- The bottom rib [1] of the DADF must be in contact with the document glass holder (right) [2]. (There should be no clearance; A=0mm.)
- The document hold sheet [3] must be in contact with the document glass.



F-5-10

[Right side view]



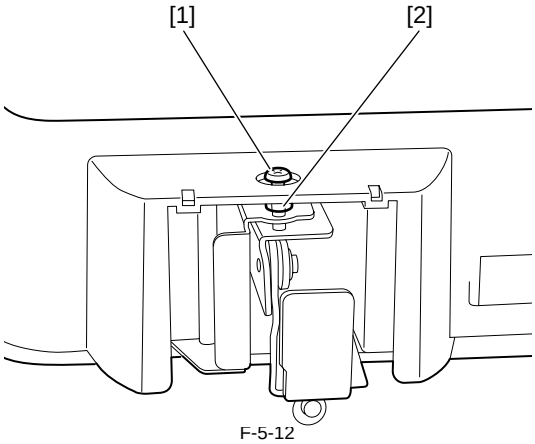
F-5-11

6. Adjust the height of the right hinge

1) If the height is improper, adjust it with the right hinge adjusting screw [1].

CAUTION:
Loosen the lock nut [2] before adjustment, and tighten it after adjustment.

* Turning the adjusting screw clockwise reduces the front-right side height of the DADF.
* Turning the adjusting screw counter clockwise increases the front-right side height of the DADF.



F-5-12

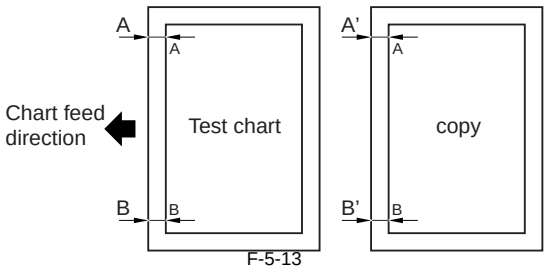
2) Check the height of the left hinge. If the height is inappropriate, adjust it again.

5.3.1.3 Adjusting the Perpendicularity

1) Load a test chart in the DADF to make a copy.

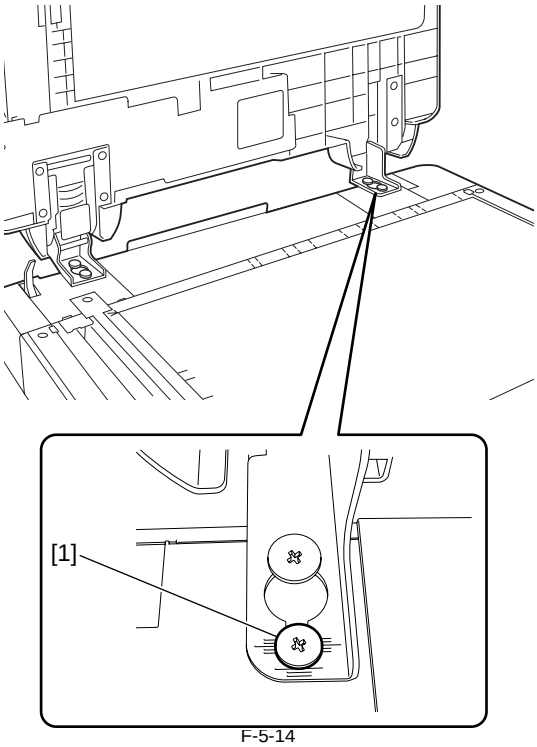
MEMO:
The test chart is printed on the back cover of the Installation Procedure (this manual). Copy it or clip it out.

2) Check the perpendicularity at the leading edges of the test chart and copy. Measure dimensions A and B on the test chart and dimensions A' and B' on the copy. If it is not (A-B)=(A'-B'), go through Step 3) and later.



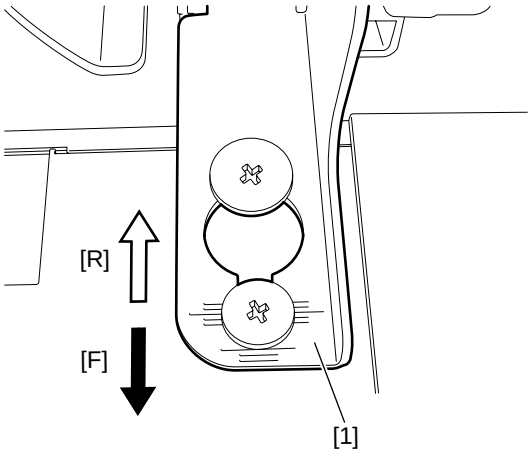
F-5-13

3) Loosen the screw to adjust the right hinge position.



F-5-14

A'>B': Slide the hinge [1] forward [F].
B'>A': Slide the hinge [1] backward [R].



F-5-15

4) Tighten the fixing screw loosened in Step 3).

5.3.1.4 Adjusting the Magnification

1) Place the test chart on the DADF tray and make a copy.
2) Compare the copy with the test chart in terms of the length of the image in the feed direction. If it is improper, make the following adjustment.
3) Enter to the service mode. On the service mode screen, select the following notations in sequence.
   1 #SCAN
   2 #SCAN FEEDER
   3 #FEEDER ADJUST
   4 #ADJUST LA-SPEED
4) Confirm the "LA-SPEED" is displayed and press the OK key to change the setting value.
   - If the image is shorter, increase the value. (so that the stream reading speed will be reduced.)
   - If the image is longer, decrease the value. (so that the stream reading speed will be increased.)
   <Unit of the adjustment: 0.1 %>
5) After changing the value, press the OK key to fix it.

5.3.1.5 Adjusting the Horizontal Registration

1) Place the test chart on the DADF tray and make a copy.
2) Compare the copy with the test chart for the horizontal registration. If it is improper, make the following adjustment.
3) Enter to the service mode. On the service mode screen, select the following notations in sequence.
   1 #SCAN
   2 #SCAN READER
   3 #READER ADJUST
   4 #ADJUST ADJ-XY
   5 #ADJ-XY ADJ-Y-DF
4) Confirm the "ADJ-Y-DF" is displayed, and then press the OK key to change the setting value.

MEMO:
If it is necessary to change the sign (+/-), press the ssterisk key of the numeric keys.

   - If the image is displaced to the front, increase the value.
   - If the image is displaced to the rear, decrease the value.
   <Unit of the adjustment: 0.1 mm>
5) After changing the value, press the OK key to fix it.

5.3.1.6 Adjusting the Trailing Edge Registration

1) Place the test chart on the DADF tray and make a copy.
2) Compare the copy with the test chart for the trailing edge registration. If it is improper, make the following adjustment.
3) Enter to the service mode. On the service mode screen, select the following notations in sequence.
   1 #SCAN
   2 #SCAN FEEDER
   3 #FEEDER ADJUST
   4 #ADJUST DOCST
4) Confirm the "DOCST"is displayed and press the OK key to change the setting value.

MEMO:
If it is necessary to change the sign (+/-), press the ssterisk key of the numeric keys.

   - If the image is displaced to the leading edge, decrease the value.
   - If the image is displaced to the trailing edge, increase the value.
   <Unit of the adjustment: 0.1 mm>
5) After changing the value, press the OK key to fix it.

5.3.1.7 Adjusting the Read Position

1) Enter to the service mode.
   [Entering to Service Mode]
   Press the additional function key "⊛", the 2 key, the 8 keys and the additional function key "⊛" sequentially on the operation panel of the host machine.
2) On the service mode screen, select the following notations in sequence.

MEMO:
If it is necessary to shift the service mode to the upper tier, press the additional function key.

   1 #SCAN
   2 #SCAN READER
   3 #READER FUNCTION
   4 #FUNCTION INSTALL
   5 #INSTALL STRD-POS

3) Confirm the"STRD-POS" is displayed, and then press the OK key.
   Pressing the OK key will cause the scanner to start a scan; in several seconds, the machine will end the auto adjustment of the read position, and then indicate "OK".

CAUTION:
If the machine fails the auto adjustment and indicates "NG", go through the following:
(1) Clean the platen roller of the DADF and the stream reading glass of the host machine; then, execute the auto adjustment once again.
(2) If the auto adjustment operation still fails, enter the service mode and make adjustments manually:
#SCAN>#SCAN_READER>#READER_ADJUST>#ADJUST_ADJ-XY>#ADJ-XY_STRD-POS
To find the optimum value, change the "STRD-POS" value checking the actual copy image.

5.3.1.8 Adjusting the White Level

MEMO:
This is the adjustment to match the white level of the image made in the stream reading mode with the white level of the image made in the book mode. If this adjustment has not been made, the following will likely occur.
- Inappropriate background density in images made in the stream reading mode
- Wrong speck detection in the stream reading mode

MEMO:
In this step, make two types of adjustments for the white level: monochromic and color. "DF-WLVL1" and "DF-WLVL2" are for the monochromic adjustment, and "DF-WLVL3" and "DF-WLVL4" are for the color adjustment.

1) Prepare the blank paper which user always uses and place it on the document glass, then close the DADF.
2) Enter to the service mode. On the service mode screen, select the following notations in sequence.
   1 #SCAN
   2 #SCAN READER
   3 #READER FUNCTION
   4 #FUNCTION CCD
   5 #CCD DF-WLVL1
3) Confirm the "DF-WLVL1" is displayed and press the OK key. Automatic adjustment starts, if it ends successfully, the screen shows "OK".
   After the adjustment, press the OK key.
4) Remove the paper from the document glass and place it on the DADF tray.

5) Select "DF-WLVL2" on the screen and press the OK key.
The machine executes the automatic adjustment with the duplex stream reading operation. When the adjustment ends successfully, the machine indicates "OK" on the screen.
After the adjustment, press the OK key.

MEMO:
If the monochromic adjustment fails, perform Steps 1) to 5) again.

6) Prepare the blank paper which user always uses and place it on the document glass, then close the DADF.
7) Select "DF-WLVL3" on the screen and press the OK key.
Automatic adjustment starts, if it ends successfully, the screen shows "OK".
After the adjustment, press the OK key.
8) Remove the paper from the document glass and place it on the DADF tray.
9) Select "DF-WLVL4" on the screen and press the OK key.
The machine executes the automatic adjustment with the duplex stream reading operation. When the adjustment ends successfully, the machine indicates "OK" on the screen.

MEMO:
If the monochromic adjustment fails, perform Steps 6) to 9) again.

10) Press the reset key to end the service mode.

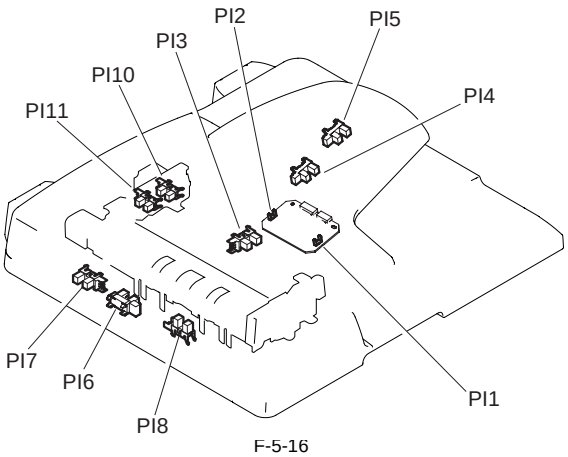
5.4 Outline of Electrical Components

5.4.1 Electric Parts Layout/Functions

<Sensors>

T-5-3

Symbol	Name	Part No.	Relay PCB	ADF driver PCB	Jam code
PI1	Document width sensor 2 (directly mounted on the Relay PCB)	FM4-3611		CN7	
PI2	Document width sensor 1 (directly mounted on the Relay PCB)	FM4-3611		CN7	
PI3	Last document detection sensor	WG8-5696	CN32	CN7	
PI4	Document length sensor 1	WG8-5696	CN32	CN7	
PI5	Document length sensor 2	WG8-5696	CN32	CN7	
PI6	Delivery reversal sensor	WG8-5696		CN8	0007, 0008, 0047, 0048, 0094
PI7	Read sensor	WG8-5696		CN8	0005, 0006, 0045, 0046, 0094
PI8	Registration paper sensor	WG8-5696		CN8	0003, 0004, 0044, 0094
PI10	Cover open/close sensor	WG8-5696		CN9	0092, 0093
PI11	Document set sensor	WG8-5696		CN9	0095



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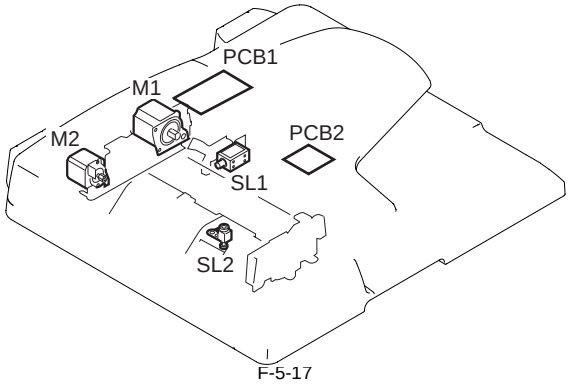
<Motors, Clutch, Solenoids, PCBs, etc.>

T-5-4

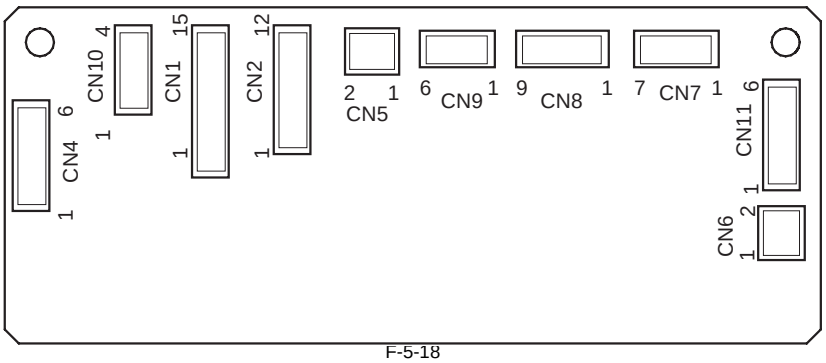
Symbol	Name	Function	Part No.	ADF driver PCB	E code
M1	Motor	Feed motor	FK2-9425	CN4	
M2		Pickup motor	FK2-9425	CN11	
SL1	Solenoid	Roller release solenoid	FH6-5136	CN5	
SL2		Stamp solenoid	FK2-0216	CN6	
PCB1	ADF driver PCB	ADF control	FM4-3221		
PCB2	Relay PCB	Repeating for sensors in document pickup tray/Document width detection	FM4-3611	CN7	



F-5-17

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

5.5.1 ADF Driver PCB



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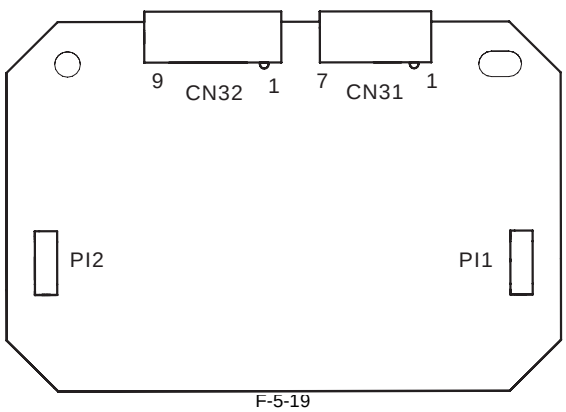
5.5.2 Relay PCB



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Chapter 6 Error Code

Contents

6.1 Service Error Code

6.1.1 Error Code List

This machine has no error code.

6.2 Jam Codes

6.2.1 Jam Code List

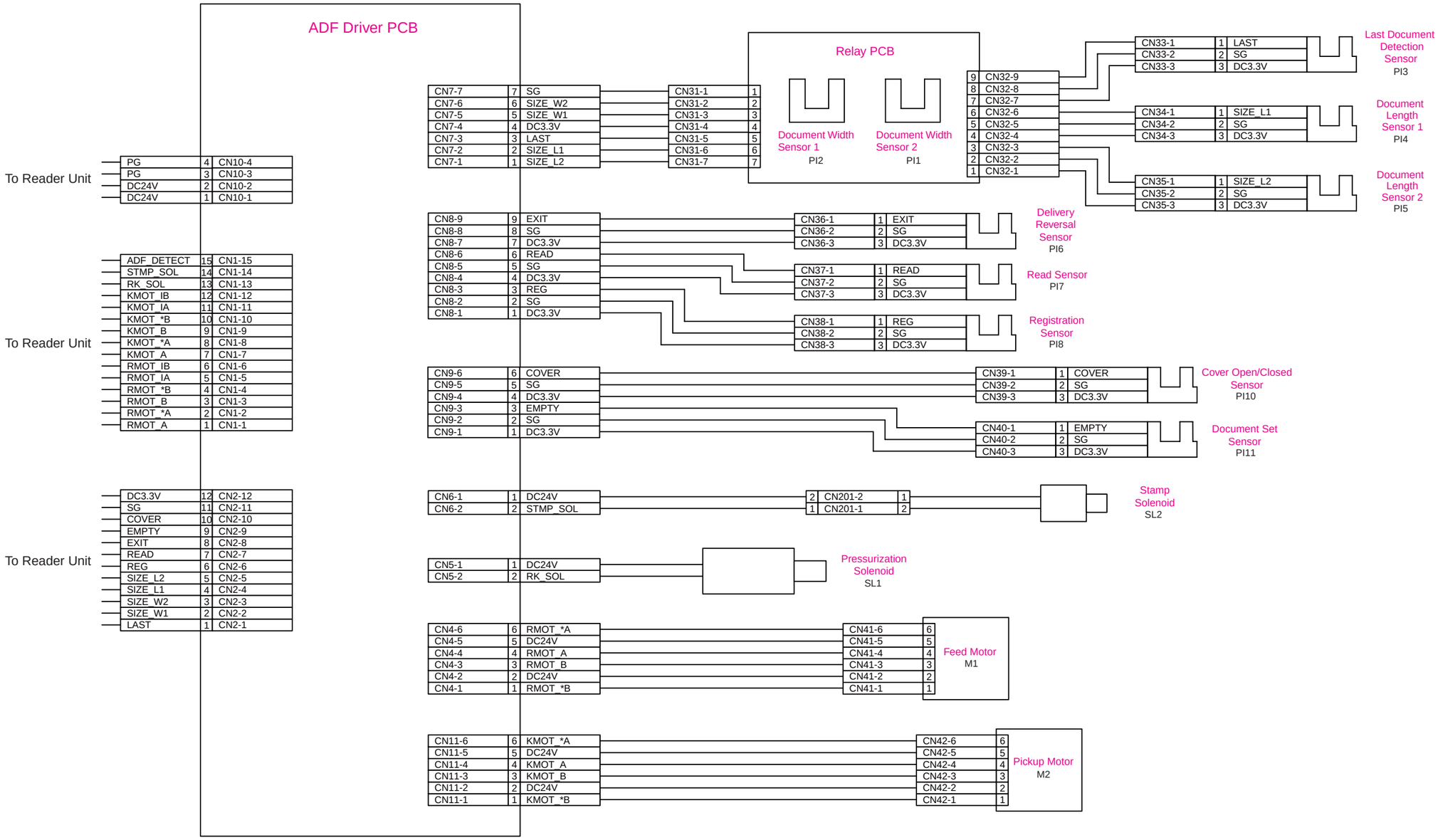
Code	Name	Sensor No.	Description
0003	Registration sensor delay	PI8	1) The registration sensor has not detected paper within 1.5 seconds since start of separation. 2) The registration sensor has not detected paper when the paper has been fed by the predetermined distance for reversal.
0004	Registration sensor stationary	PI8	The trailing edge of paper has not been detected when the paper has been fed by the predetermined distance since it was detected by the registration sensor.
0005	Read sensor delay	PI7	The read sensor has not detected paper when the paper has been fed by the predetermined distance since reception of a pickup request.
0006	Read sensor stationary	PI7	The trailing edge of paper has not been detected when the paper has been fed by the predetermined distance since detection of it by the read sensor.
0007	Delivery reversal sensor delay	PI6	The delivery reversal sensor has not detected paper when the paper has been fed by the predetermined distance since reception of a read request.
0008	Delivery reversal sensor stationary	PI6	The trailing edge of paper has not been detected when the paper has been fed by the predetermined distance since the delivery reversal sensor detected the paper.
0044	Fist document registration sensor stationary	PI8	A read sensor delay jam has occurred during feed of the first document.
0045	First document read sensor non-arrival	PI7	A read sensor delay jam has occurred during feed of the first document.
0046	First document read sensor stationary	PI7	A read sensor stationary jam has occurred during feed of the first document.
0047	First document delivery reversal sensor non-arrival	PI6	A delivery reversal sensor delay jam has occurred during feed of the first document.
0048	First document delivery reversal sensor stationary	PI6	A delivery reversal sensor stationary jam has occurred during feed of the first document.
0071	Timing error	-	The software sequence has not ended normally within the specified time.
0090	ADF open	Sensor in reader unit	The ADF has been opened during operation (of the drive system).
0091	User ADF open	Sensor in reader unit	The ADF has been opened during operation (of the drive system).
0092	ADF cover open	PI10	The ADF cover has been opened during operation (of the drive system).
0093	User cover open	PI10	The user cover has been opened during operation (of the drive system).
0094	Initial stationary	PI6, PI7, PI8	Paper has been detected in the path during feed of the first document.
0095	Pickup NG	PI11	A pickup signal has been received for 2 seconds with no document placed on the tray.

Appendix

1 General Circuit Diagram

General Circuit Diagram

DADF-AB1 General Circuit Diagram



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Mar 10 2010

Canon