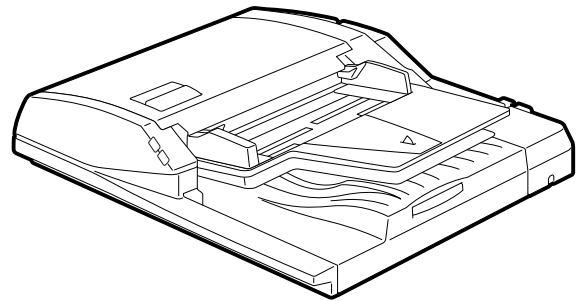


# TOSHIBA

# SERVICE MANUAL

## REVERSING AUTOMATIC DOCUMENT FEEDER

# MR-3031



Model: MR-3031  
Publish Date: March 2016  
File No. SME150025B0  
R150921R4802-TTEC  
Ver02 F-\_2018-06

## Trademarks

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# General Precautions for Installation/Service/Maintenance for the equipment

The installation and service shall be done by a qualified service technician.

1. When installing the equipment to the MFP, be sure to follow the instructions described in the "Unpacking/Set-Up Procedure for the equipment" booklet which comes with each unit of the equipment.
2. The equipment should be installed by an authorized/qualified person.
3. The equipment must be grounded for safety.
4. Before starting installation, servicing or maintenance work, be sure to turn off and unplug the equipment first.
5. The equipment shall be installed near the socket outlet and shall be easily accessible.
6. Be sure to fix and plug in the power cable securely after the installation so that no one trips over it.
7. Unplug the power cable and clean the area around the prongs of the plug and socket outlet once a year or more. A fire may occur when dust lies on this area.
8. The equipment should be grounded to the specified position on the machine frame.
9. When servicing or maintaining the equipment, be careful about the rotating or operation sections such as gear, pulleys, sprockets, cams, belts, etc.
10. When parts are disassembled, reassembly is basically the reverse of disassembly unless otherwise noted in this manual or other related materials. Be careful not to reassemble small parts such as screws, washers, pins, E-rings, toothed washers to the wrong places.
11. Basically, the machine should not be operated with any parts removed or disassembled.
12. When servicing the equipment with the power turned ON, be sure not to touch live sections and rotating/operating sections.
13. Delicate parts for preventing safety hazard problems (such as breakers, thermofuses, fuses, door switches, sensors, etc. if any) should be handled/installed/adjusted correctly.
14. Use suitable measuring instruments and tools.
15. During servicing or maintenance work, be sure to check the serial No. plate and other cautionary labels (if any) to see if they are clean and firmly fixed. If not, take appropriate actions.
16. The PC board must be stored in an anti-electrostatic bag and handled carefully using a wristband, because the ICs on it may be damaged due to static electricity. Before using the wrist band, pull out the power cord plug of the equipment and make sure that there is no uninsulated charged objects in the vicinity.
17. For the recovery and disposal of used equipment, consumable parts and packing materials, follow the relevant local regulations/rules.
18. After completing installation, servicing and maintenance of the equipment, return the equipment to its original state, and check operation.

19. Check the procedures and perform as described in the Service Manual.

20. Make sure you do not lose your balance.

21. Avoid exposure to your skin and wear protective gloves as needed.

22. Do not leave plastic bags where children can get at them. This may cause an accident such as suffocation if a child puts his/her head into a bag. Plastic bags of options or service parts must be brought back.

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# 1. SPECIFICATIONS

<b>Item</b>	
Maximum number of originals on the original feeding tray	Up to 100 sheets or 16 mm in height. * 35 - 80 g/m <sup>2</sup> (9.3 - 21.3 lb. Bond)
Acceptable paper size	A5-R, A4, A4-R, B5, B5-R, B4, A3, FOLIO, ST-R, LT, LT-R, LG, LD, COMPUTER
Acceptable paper weight	1-sided: 35 - 157 g/m <sup>2</sup> (9.3 lb. Bond - 58 lb. Cover) 2-sided: 50 - 157 g/m <sup>2</sup> (13.3 lb. Bond - 58 lb. Cover)
Dimensions	W575 x D531 x H135 (mm) * Excluding original tray
Weight	11 kg
Power consumption	Approx. 49.5 W
Power requirements	DC5 V, DC24 V * Supplied from the equipment
Co-packed items	Unpacking Instruction (1 set) Charts (A4/LT: 1 sheet each) Mounting screws (6 pcs) Positioning pins (2 pcs) Washer (1 pc) Stopper bracket (1 pc) Stopper bracket fixing screw (2 pcs) Hinge cover (1 pc)
Appearance color	Jet black

## Remarks (Comparison of MR-3031 and MR-3031-B)

Model Name	MR-3031	MR-3031-B
European safety standards complied with	Safety standard: EN60950-1 RoHS2: 2011/65/EU	Safety standard: EN60950-1, EN62368-1 RoHS2: 2011/65/EU 2011/65/EU+(EU)2015/863
Rating label <for identification>	<p>NO.1234567890</p> <p>TOSHIBA TEC CORPORATION MADE IN MALAYSIA/FABRIQUE EN MALAISIE</p> <p>No mark applied</p>	<p>NO.1234567890</p> <p>TOSHIBA TEC CORPORATION MADE IN MALAYSIA/FABRIQUE EN MALAISIE</p> <p>Black dot mark and “-B” applied The 2nd digit of the serial number differs</p>
Applicable models	e-STUDIO2005AC/2500AC e-STUDIO2505AC/3005AC/3505AC/4505AC/5005AC e-STUDIO2008A/2508A/3008A/3508A/4508A/5008A e-STUDIO3508LP/4508LP/5008LP	e-STUDIO2005AC/2500AC e-STUDIO2505AC/3005AC/3505AC/4505AC/5005AC e-STUDIO2008A/2508A/3008A/3508A/4508A/5008A e-STUDIO3508LP/4508LP/5008LP  e-STUDIO 2010AC/2510AC e-STUDIO 2015AC/2515AC/3015AC/3515AC/4515AC/5015AC e-STUDIO2018A/2518A/3018A/3518A/3518A/4518A/5018A
Notes	Purchasing this is not possible after June, 2019.	





## 2. GENERAL DESCRIPTION

### 2.1 Main Components

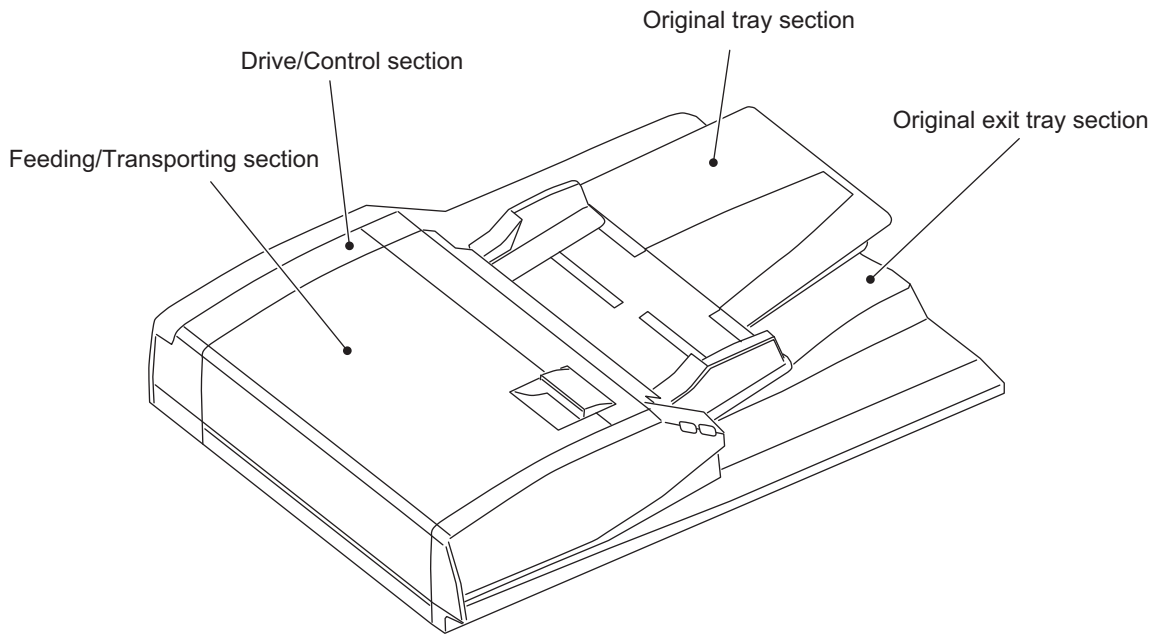


Fig. 2-1

Location	Components	
Feeding/Transporting section	Pickup roller Feed roller Separation roller Registration roller Intermediate transfer roller Pre-reading roller Post-reading roller Exit/reverse roller Reverse registration roller	Original empty sensor (S3) Original length detection sensor (S4) Original registration sensor (S5) Original width detection sensor-1 (S6) Original width detection sensor-2 (S7) Original intermediate transport sensor(S8) Read sensor (S9) Original exit/reverse sensor (S10) Jam access cover sensor (S11)
Original tray section	Original width guide Original tray Original reverse tray	Original tray sensor (S1) Original tray width sensor (S2)
Original exit tray section	Original exit tray	
Drive/Control section		Original feed motor (M1) Read motor (M2) Original exit/reverse motor (M3) Fan motor (M4) Original pickup solenoid (SOL1) Jam access cover opening/closing switch (SW1) RADF control PC board (RADF)

## 2.2 Sectional View

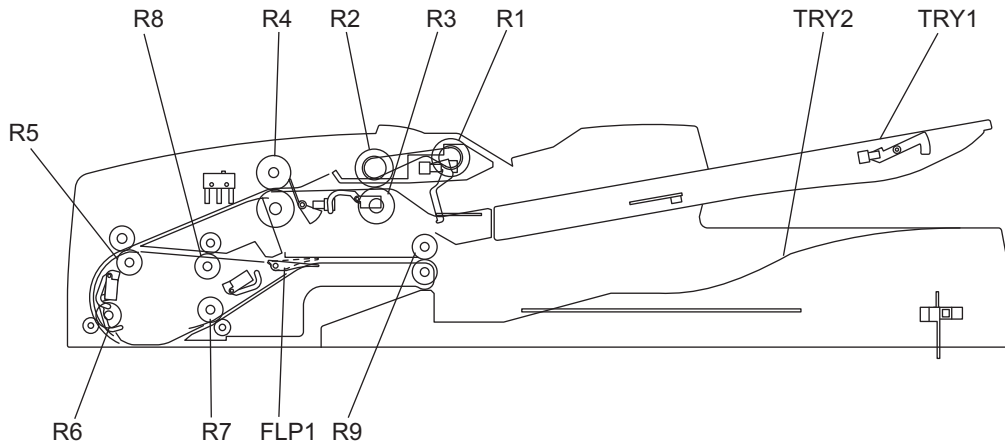


Fig. 2-2

TRY1	Original tray	R4	Registration roller
TRY2	Original exit tray	R5	Intermediate transfer roller
FLP1	Exit gate	R6	Pre-reading roller
R1	Pickup roller	R7	Post-reading roller
R2	Feed roller	R8	Reverse registration roller
R3	Separation roller	R9	Exit/reverse roller

## 2.3 Electric Parts Layout

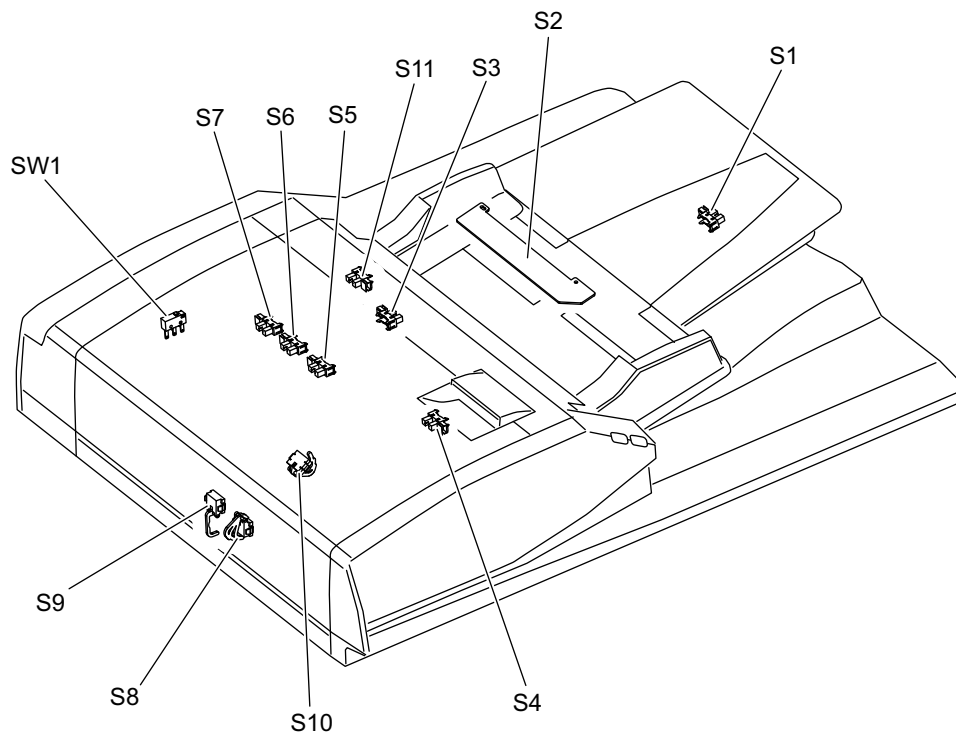
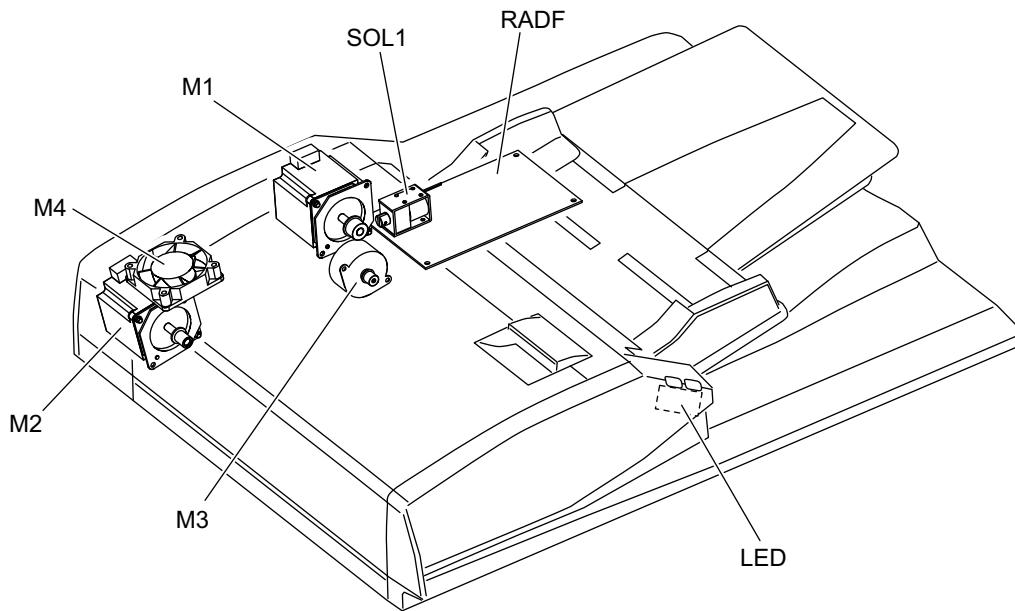


Fig. 2-3

## 2.4 Symbols and Functions of Various Components

### 1. Motors

Symbol	Name	Function
M1	Original feed motor	Drives the original feed roller, pickup roller and registration roller.
M2	Read motor	Transports originals by driving the intermediate transport roller, front read roller, rear read roller and reverse registration roller.
M3	Original exit/reverse motor	Drives the original exit/reverse roller.
M4	Fan motor	Cools off the ADF drive section and ADF board.

### 2. Sensors and Switches

Symbol	Name	Function
S1	Original tray sensor	Detects the length of the original set on the original tray.
S2	Original tray width sensor	Detects the width of the original set on the original tray.
S3	Original empty sensor	Detects the original set on the original tray.
S4	Original length detection sensor	Detects the length of the original.
S5	Original registration sensor	Detects transport of the original at the registration roller section.
S6	Original width detection sensor-1	Detects the width of the original.
S7	Original width detection sensor-2	Detects the width of the original.
S8	Original intermediate transport sensor	Detects the original transported to the Pre-scanning section.
S9	Read sensor	Detects the leading edge of the original at the original scanning section.
S10	Original exit/reverse sensor	Detects the exit (transit) of an original. Also detects the stop reference position for an original when in reverse.
S11	Jam access cover sensor	Detects opening/closing of the Jam access cover.
SW1	Jam access cover opening/closing switch	Switches between cutoff and supply state of the 24 V power by opening/closing of the jam access cover.

### 3. Solenoid

Symbol	Name	Function
SOL1	Original pickup solenoid	Drives up and down the original pickup roller.

### 4. PC board

Symbol	Name	Function
RADF	RADF control PC board (RADF board)	Controls the RADF.
LED	LED board	Controls the lighting of LED.

## 2.5 Diagram of Signal Blocks

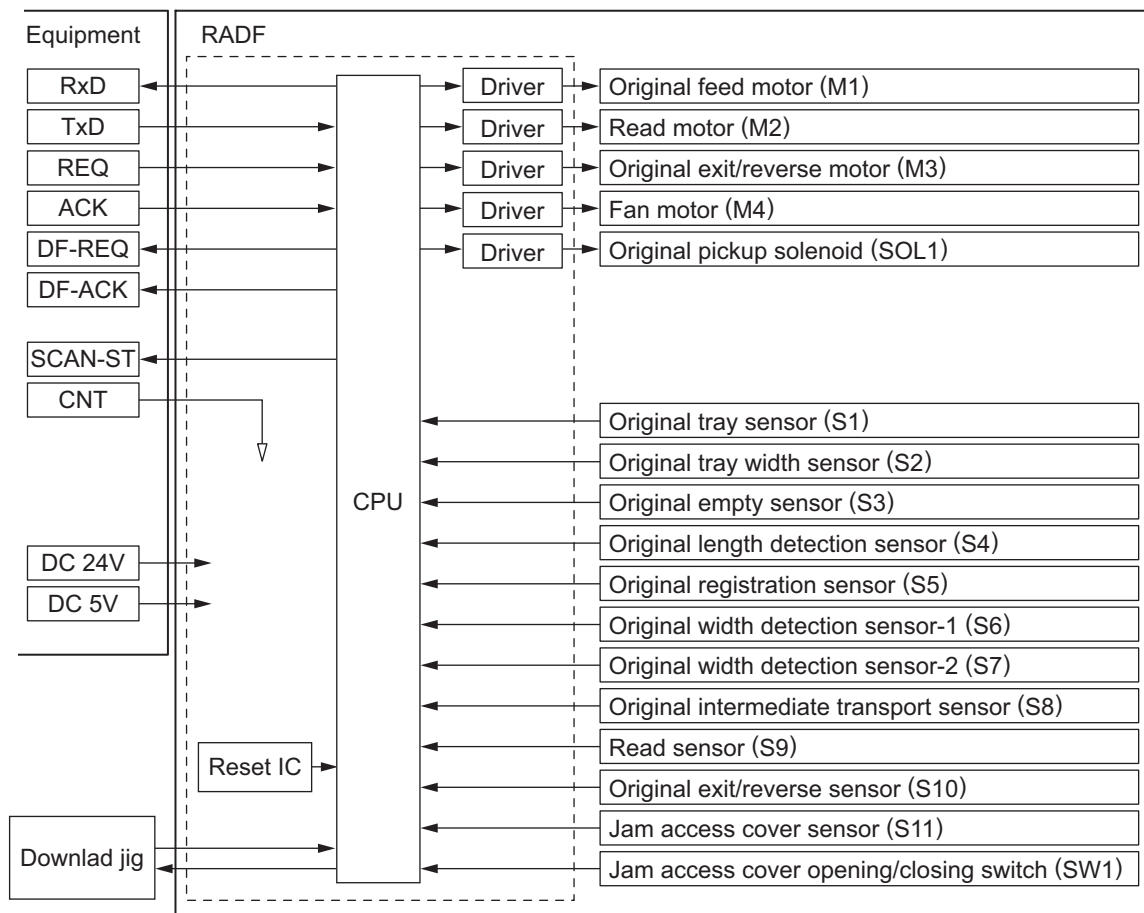


Fig. 2-4

## 2.6 Description of Interface Signals

The following 6 lines are used to transmit/receive signals between the equipment and the RADF.

- REQCommunication request signal (from equipment to the RADF)
- DF-REQCommunication request signal (from the RADF to equipment)
- DF-ACKCommunication request acknowledging signal (from the RADF to equipment)
- ACKCommunication request acknowledging signal (from equipment to the RADF)
- TxDData transmitted from equipment to the RADF
- RxDData transmitted from the RADF to equipment

Data communication (RxD and TxD) between the scanner and the RADF has adopted the serial communication system which does not allow checking using testing devices to see whether the signals are transmitted/received properly in the field.

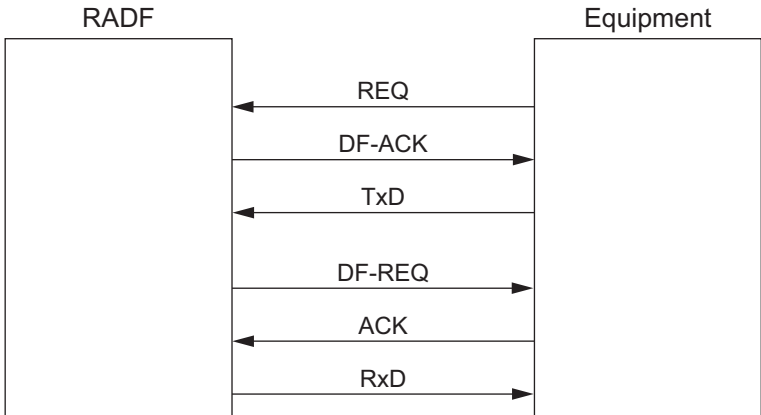


Fig. 2-5

### 3. DESCRIPTION OF OPERATIONS

#### 3.1 DRIVE SYSTEM

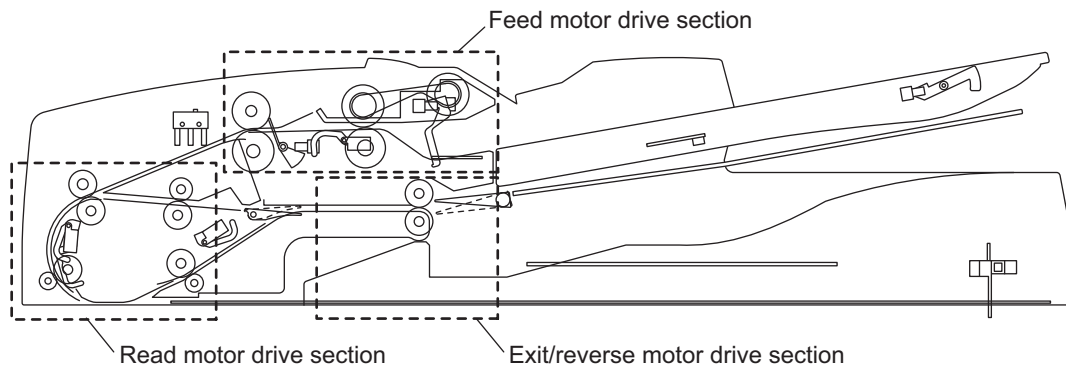


Fig. 3-1

##### 3.1.1 Outline

Originals are transported by the original feed motor, read motor and original exit/reverse motor. Each motor has a drive section for the following operations:

Original feed motor drive section: picks up originals and drives the registration roller.

Read motor drive section: transports originals and drives parts such as the pre-reading roller.

Original exit/reverse motor drive section: exits and reverses originals, and drives the exit/reverse roller.

The Original feed motor rotates reversely when the originals are being transported at the registration roller, compared to its rotational direction when they are being picked up.

The original exit/reverse motor also rotates reversely when the originals are being reversed and transported, compared to its rotational direction when they are being exited.

The read motor always rotates in a constant direction.

### 3.1.2 Original feed motor drive section

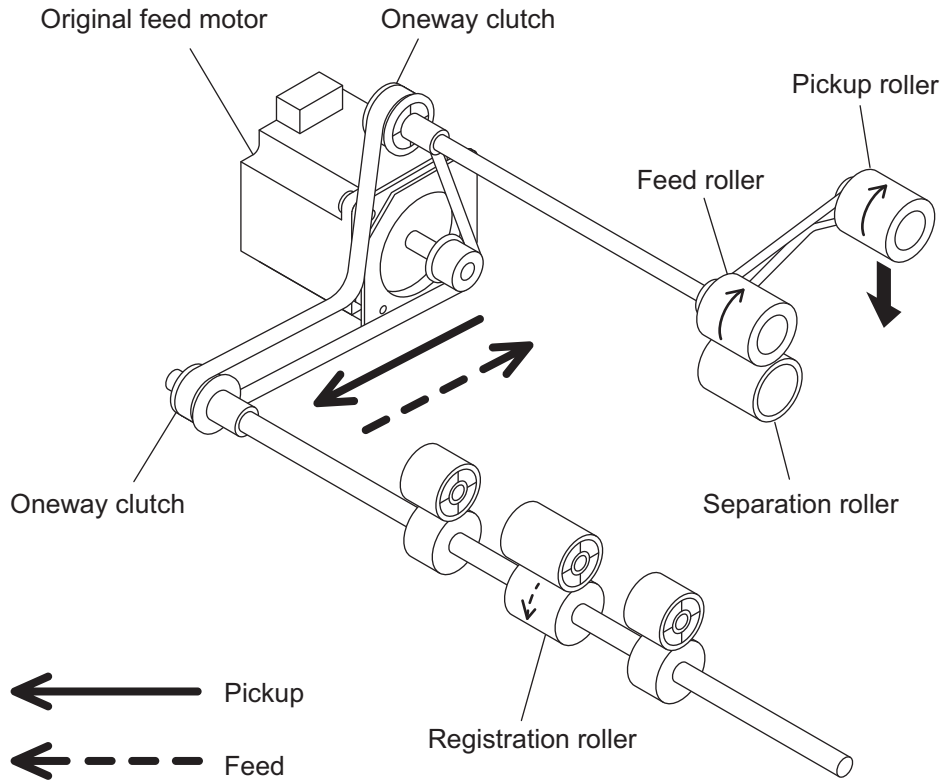


Fig. 3-2

When an original is placed on the original tray and the RADF receives a feed request signal from the equipment, the feeding of the original is started. The original empty sensor detects the presence of the original, and then the pickup roller is lowered by the drive from the original pickup solenoid. The Original feed motor rotates, and the pickup roller and the feed roller then rotate in a normal direction (shown in a solid line in the figure) to guide the original into the transport path. Then the original is transported to the registration roller to be aligned. The original aligned with the registration roller is then transported by the reverse rotation of the Original feed motor (shown in a dotted line in the figure). A one-way clutch is installed inside of each gear of the feed roller and the registration roller, so these gears will not be driven in a reverse rotation. When the original empty sensor detects that there is no original on the original tray, the original pickup solenoid is turned OFF and the pickup roller is raised. The original pickup solenoid is the one can operate both suction and recovery.



### 3.1.3 Read motor drive section

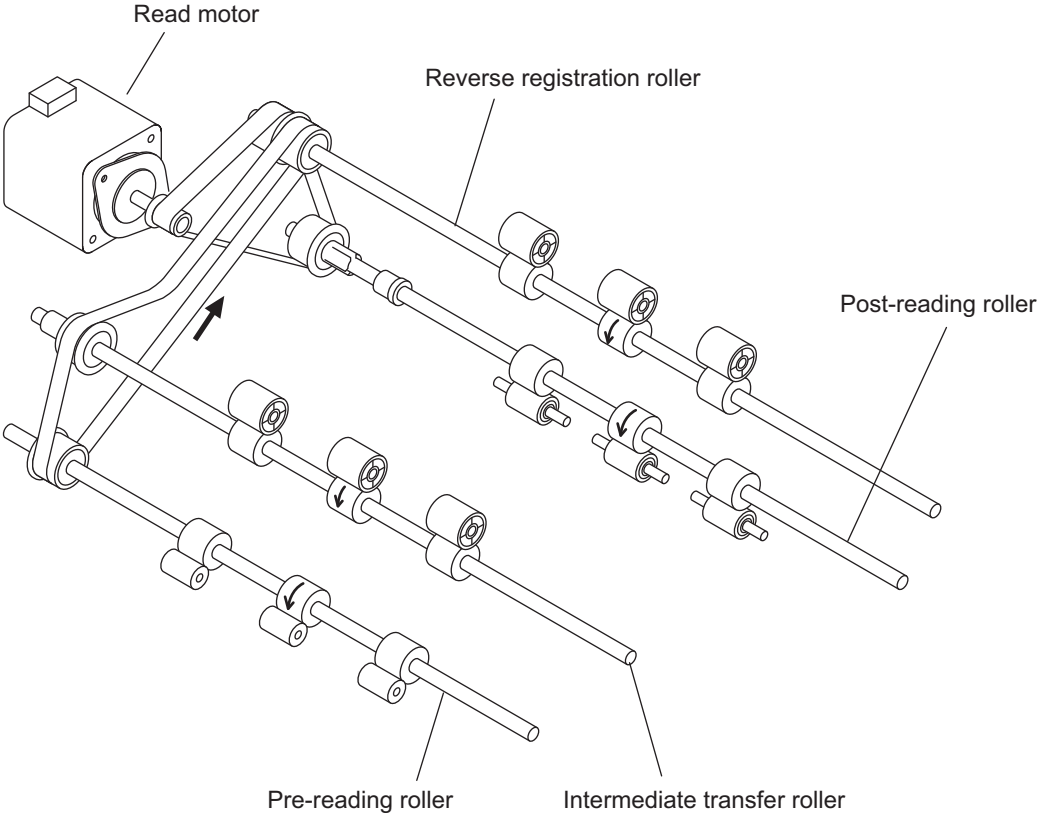


Fig. 3-3

The transported original is driven by the read motor.  
Then the original is transported to a scanning start position by the intermediate transfer roller and pre-reading roller.  
The original transported to the scanning start position is then scanned in the scanner function of the equipment.  
When the data of the original have been scanned, the original is then transported to the original exit tray side by the post-reading roller.

### 3.1.4 Original exit/reverse motor drive section

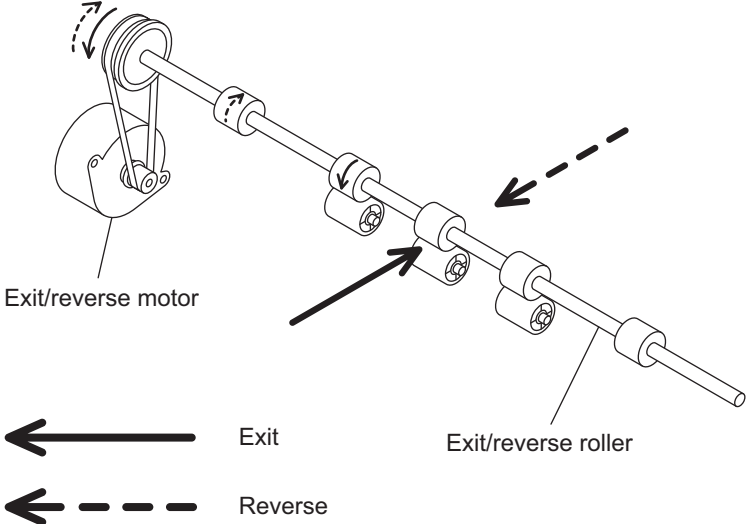


Fig. 3-4

When the data of the original have been scanned, the original is exited to the original exit tray by the exit/reverse roller driven by the exit motor (shown in a solid line in the figure). In the duplex scanning mode, the original is temporarily transported to the reverse tray, and then the exit motor rotates reversely to return the original to the transport path switched for reverse operation (shown in a dotted line in the figure). The reversed original is aligned with the reverse registration roller, and then the other side of the original is scanned. When the scanning is completed, the original is exited to the original exit tray.

### 3.2 Original Size Detection

The original tray width sensor, original length detection sensor, and original width detection sensors-1 and -2 work in combination to detect the size of originals.

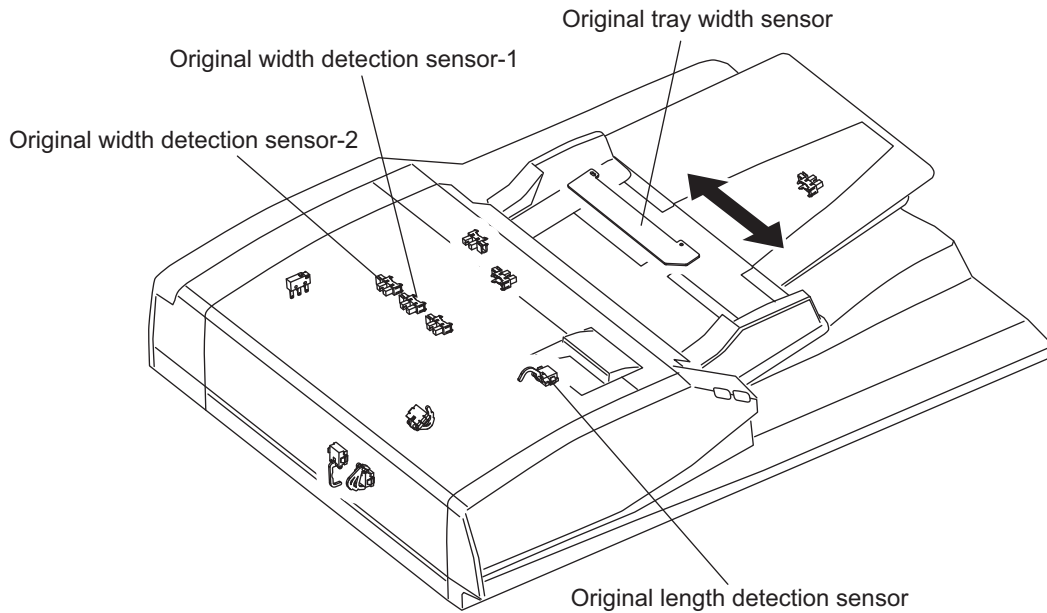


Fig. 3-5

#### 3.2.1 Outline

When an original is placed on the original tray, the width of the original is detected by the positions of the original width guides. Then the original width sensors -1 and -2 and the original length detection sensor detect the size of the original being transported. Based on the detection result of these sensors, the size of the original is finally determined.

#### 3.2.2 Original tray width sensor

The original tray width sensor detects the width of an original placed on the original tray. It is detected by the brush attached to the rack moving on the original tray width sensor, which is a board with the different length of the patterns written. This brush is moved as the original width guide is moved. Signals (TWID0S, TWID1S, TWID2S) are opened and shorted to SG by this movement. The combination of these short (= low level) and open (= high level) can determine the width of the original. Sizes detectable in combination of these open and short of the signals are as follows:

TWID2S	TWID1S	TWID0S	Original width size (LT series)	Original width size (A4 series)
H	H	L	-	B5-R
H	L	H	ST-R	A5-R
H	L	L	LD / LT	A3 / A4
L	H	L	8.5 x 8.5 / LT-R / LG / 13"LG	A4-R / FOLIO
L	L	L	COMPUTER	B4 / B5

H (= high level): Open      L (= low level): Short

### 3.2.3 Original width detection sensors-1 and -2 / Original length detection sensor

The size of the original is determined by the detection performed in combination of the original width detection sensors-1 and -2 and the original length detection sensor, as well as the detection performed by the original tray width sensor.

Sizes detectable in combination of these sensors are as follows:

A4 series (ORG-SRS: 1)

Original length detection sensor	Original width sensor-1	Original width sensor-2	Size determined	Original tray width
OFF	OFF	OFF	A5-R	-
	ON	OFF	B5	-
	ON	ON	A4	-
ON	OFF	OFF	B5-R	-
	ON	OFF	A4-R / FOLIO	Determined by a gap between guides
	ON	ON	A3	

A4 series (width sizes mixed at A3 / A4 standard)

Original length detection sensor	Original width sensor-1	Original width sensor-2	Size determined	Original tray width
ON	ON	ON	A3	A3 / A4
	OFF	OFF	A4-R / FOLIO	
	ON	OFF	B4	
OFF	ON	OFF	B5	
	ON	ON	A4	

A4 series (width sizes mixed at B4 / B5 standard)

Original length detection sensor	Original width sensor-1	Original width sensor-2	Size determined	Original tray width
ON	OFF	OFF	A4-R / FOLIO	B4/B5
	ON	OFF	B4	
OFF	ON	OFF	B5	
	OFF	OFF	A5-R	

A4 series (width sizes mixed at A4-R standard)

Original length detection sensor	Original width sensor-1	Original width sensor-2	Size determined	Original tray width
ON	OFF	OFF	B5-R	A4-R
	ON	OFF	A4-R / FOLIO	
OFF	OFF	OFF	A5-R	

A4 series (width sizes mixed at B5-R standard)

Original length detection sensor	Original width sensor-1	Original width sensor-2	Size determined	Original tray width
ON	OFF	OFF	B5-R	B5-R
OFF	OFF	OFF	A5-R	

LT series (ORG-SRS: 0)

Original length detection sensor	Original width sensor-1	Original width sensor-2	Size determined	Original tray width
OFF	OFF	OFF	ST-R	-
	ON	OFF	8.5x8.5	-
	ON	ON	LT	-
ON	ON	OFF	LT-R / LG / COMP / 13"LG	-
	ON	ON	LD	-

LT series (width sizes mixed at LD / LT standard)

Original length detection sensor	Original width sensor-1	Original width sensor-2	Size determined	Original tray width
ON	ON	ON	LD	LD / LT
	ON	OFF	COMP	
	OFF	OFF	LT-R / LG / 8.5x8.5 / 13"LG	
OFF	ON	ON	LT	

LT series (width sizes mixed at LG / LT-R standard)

Original length detection sensor	Original width sensor-1	Original width sensor-2	Size determined	Original tray width
ON	ON	OFF	LT-R / LG / 8.5x8.5 / 13"LG	LD / LT
OFF	OFF	OFF	ST-R	



## 4. DISASSEMBLY AND ASSEMBLY

### Notes:

The covers of actual equipment and a picture differs in color.

### 4.1 Cover

#### [A] Front cover

- (1) Open the RADF and remove the 2 screws [1] and 1 screw [2].

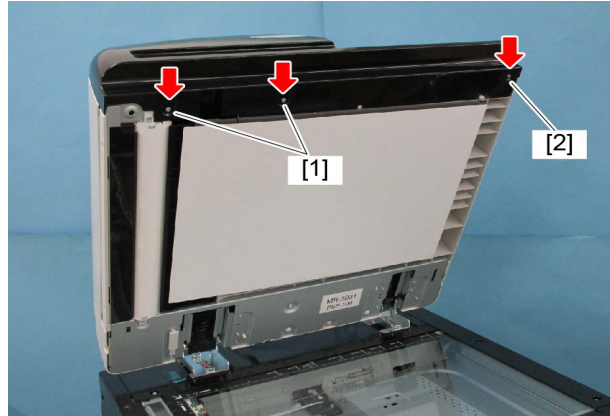


Fig. 4-1

- (2) Close the RADF.
- (3) Open the jam access cover and remove 2 screws.

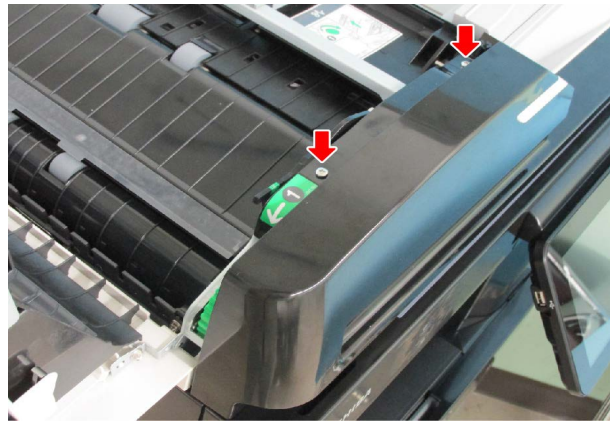


Fig. 4-2

(4) Take off the front cover [3] toward you.

**Notes:**

Do not pull the harness too strong.

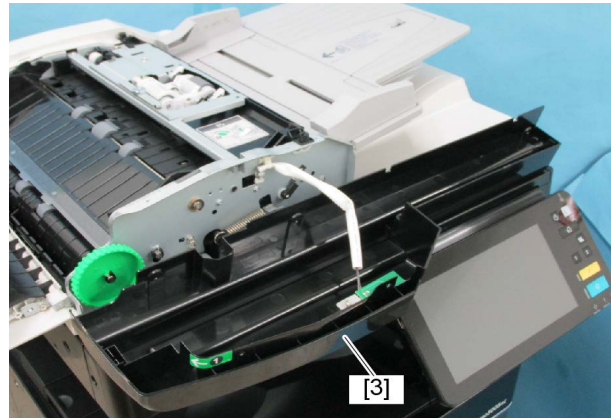


Fig. 4-3

(5) Disconnect 1 connector [4] from the LED board.  
Take off the front cover.

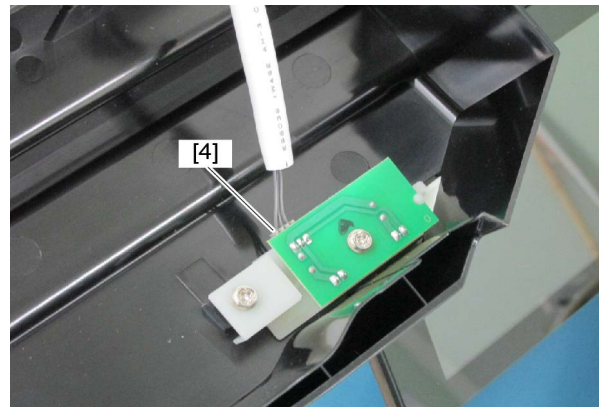


Fig. 4-4

**[B] Rear cover**

(1) Open the jam access cover and remove 4 screws.

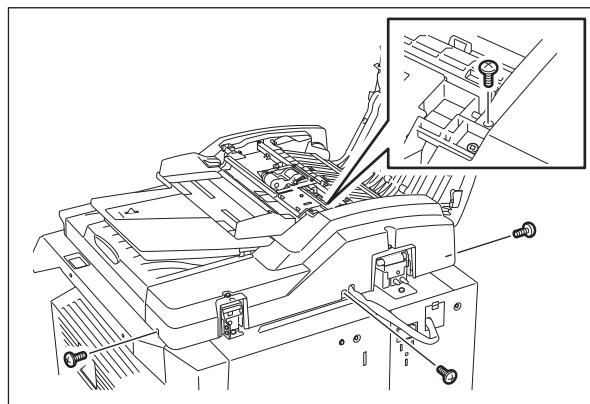


Fig. 4-5



- (2) Raise the original tray and take off the rear cover upward.

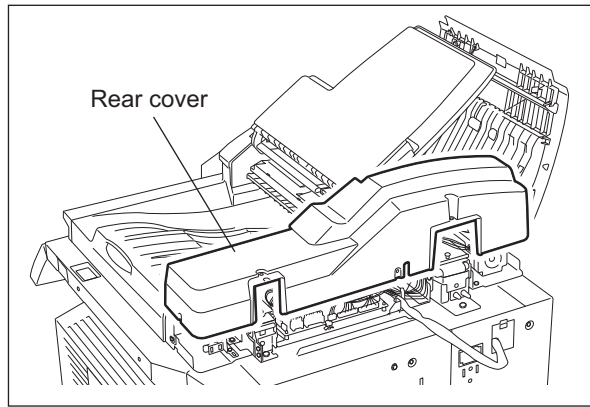


Fig. 4-6

**[C] Jam access cover**

- (1) Take off the front cover.  
( P. 4-1 "[A] Front cover")
- (2) Take off the rear cover.  
( P. 4-2 "[B] Rear cover")
- (3) Remove 1 clip and then the dial and pin.

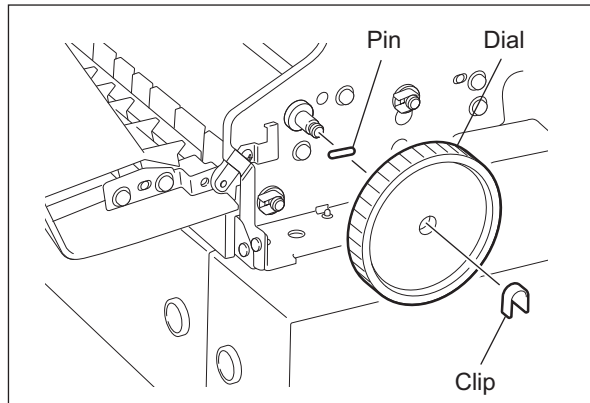


Fig. 4-7

- (4) Remove 1 screw and the hinge pin.

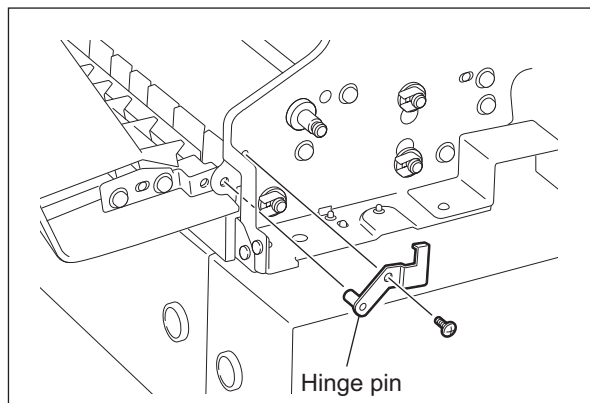


Fig. 4-8

(5) Take off the jam access cover by sliding it.

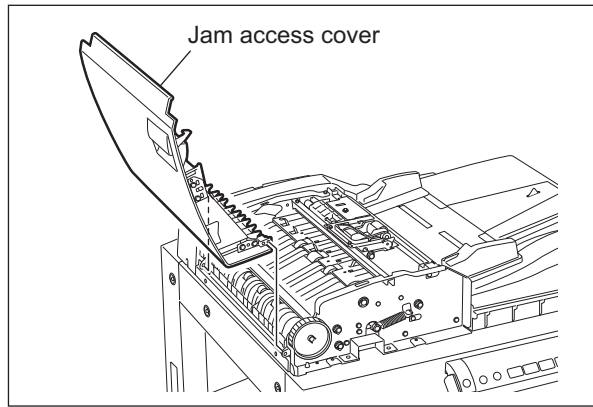


Fig. 4-9

**[D] Left cover**

(1) Remove 2 screws and take off the left cover.

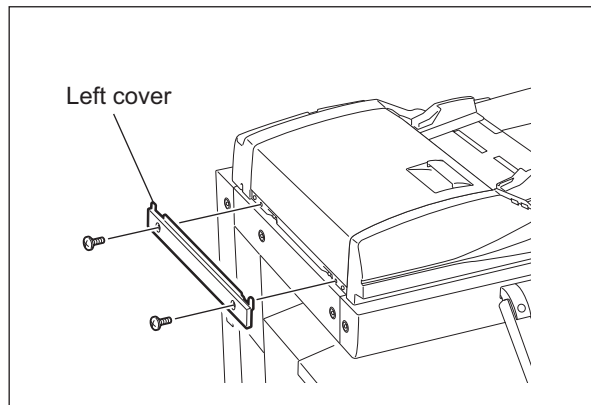


Fig. 4-10

## [E] Original tray

- (1) Take off the front cover.  
(☞ P. 4-1 "[A] Front cover")
- (2) Take off the rear cover.  
(☞ P. 4-2 "[B] Rear cover")
- (3) Take off the paper feeder unit.  
(☞ P. 4-7 "[A] Paper feeder unit")
- (4) Remove 2 screws. Lift up the feeder upper guide [1] by sliding it to the right.

### Notes:

Do not pull the harness too strong.

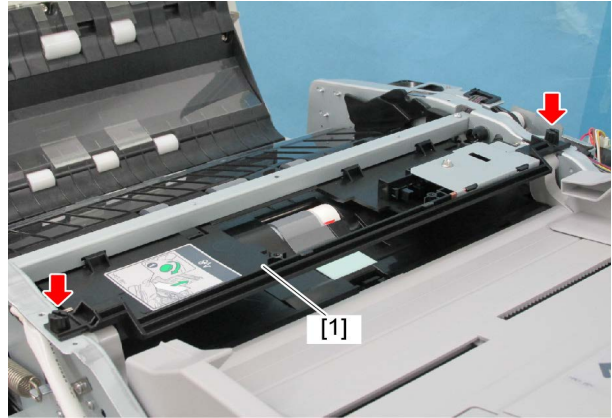


Fig. 4-11

- (5) Disconnect 1 connector from the RADF control PC board.

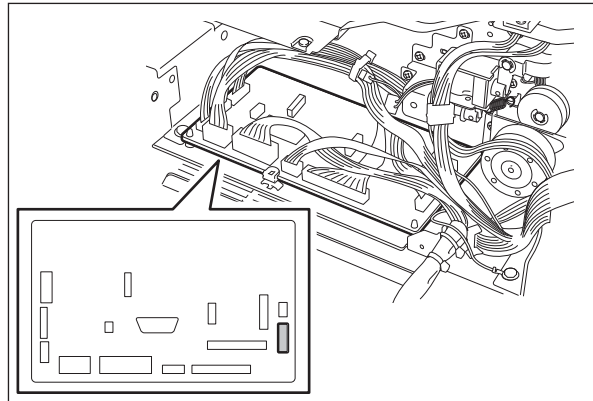
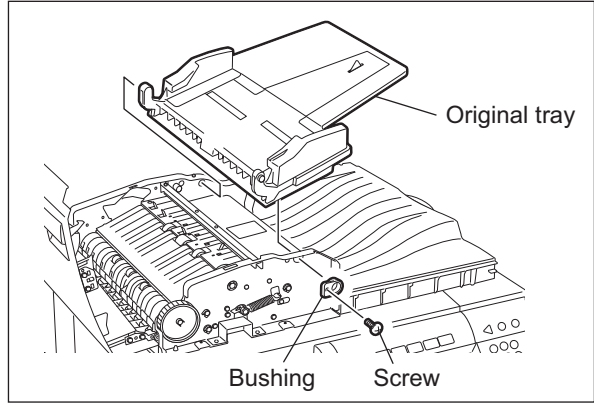


Fig. 4-12

- (6) Remove 1 screw and take off the bushing.
- (7) Take off the original tray.



**Fig. 4-13**

## 4.2 Roller

### [A] Paper feeder unit

- (1) Open the jam access cover.
- (2) Remove 1 screw and take off the bracket [1].

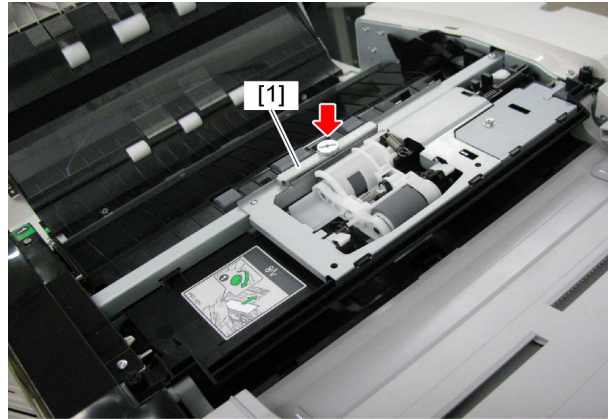


Fig. 4-14

- (3) Pull the release lever [2] toward you to unlock the shaft.

#### Notes:

When installing, be sure to lock the shaft by pushing the release lever [2] to the end.

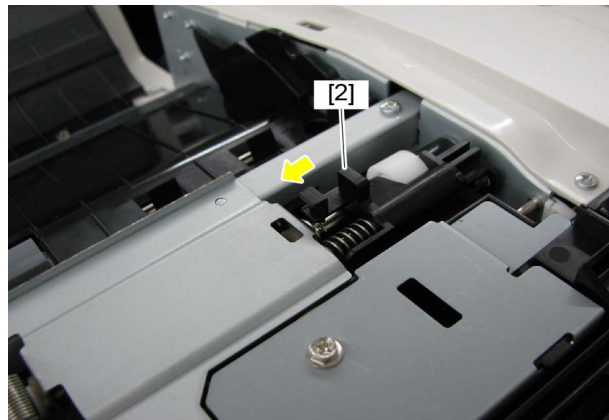


Fig. 4-15

- (4) Take off the paper feeder unit [3].

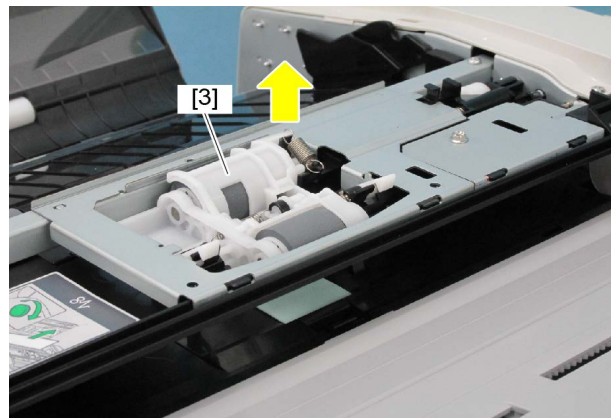

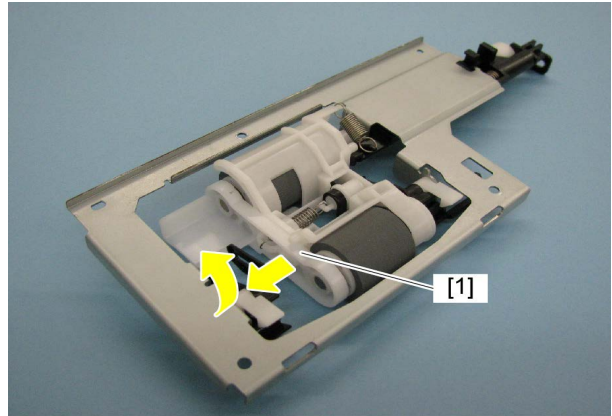


Fig. 4-16

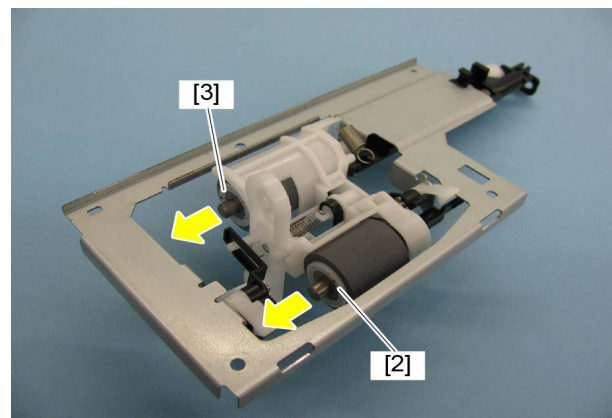
**[B] Pickup roller [PM], Feed roller [PM]**

- (1) Take off the paper feeder unit.  
( P. 4-7 "[A] Paper feeder unit")
- (2) Move the roller holder [1] to the direction indicated by the arrow and then turn it by 90 degrees counterclockwise.



**Fig. 4-17**

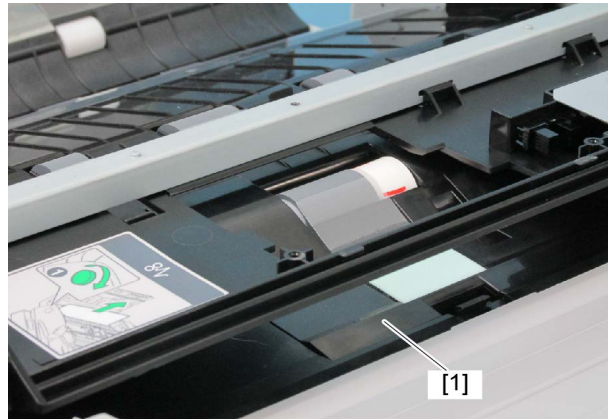
- (3) Remove the pickup roller [2] or the feed roller [3] from each shaft respectively.



**Fig. 4-18**

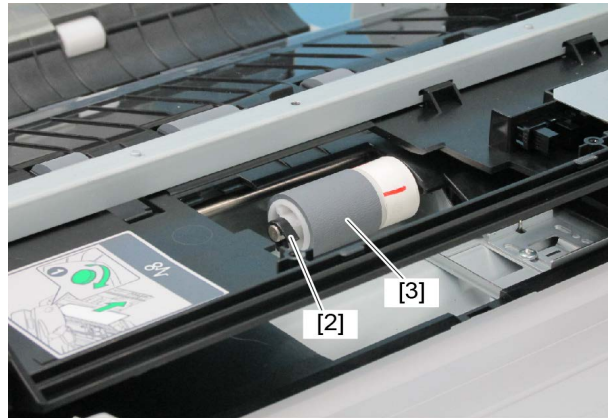
**[C] Separation roller [PM]**

- (1) Take off the paper feeder unit.  
(📖 P. 4-7 "[A] Paper feeder unit")
- (2) Take off the separation roller holder [1].



**Fig. 4-19**

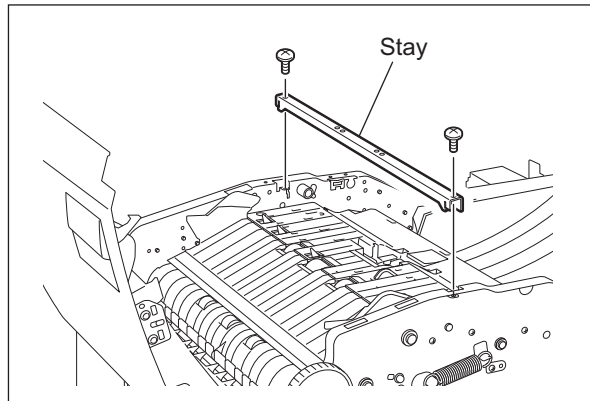
- (3) Remove the clip [2]. Take off the separation roller [3].



**Fig. 4-20**

**[D] Feeder lower guide**

- (1) Take off the original tray.  
(📖 P. 4-5 "[E] Original tray")
- (2) Take off the paper feeder unit.  
(📖 P. 4-7 "[A] Paper feeder unit")
- (3) Remove 2 screws and take off the stay.



**Fig. 4-21**



(4) Take off the jam access guide.

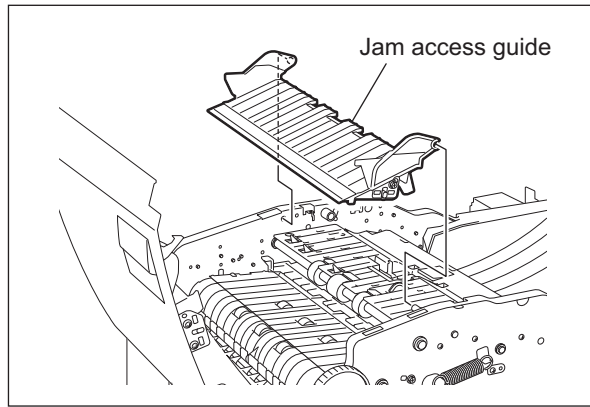


Fig. 4-22

(5) Remove the cable clamp [1] from the frame. Release the harness [2] from the harness clamp [3].

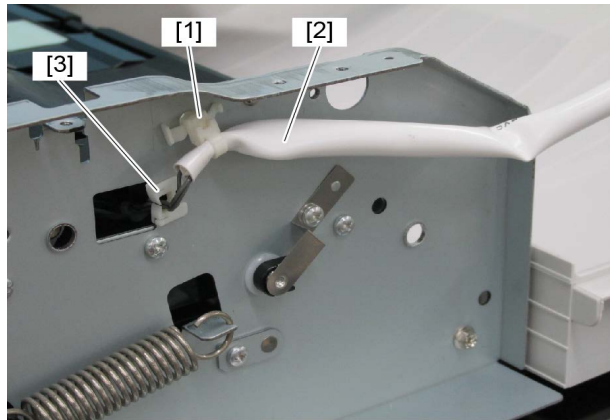


Fig. 4-23

(6) Disconnect the joint connect [4]. Release the harness [5] from the harness clamp [6].

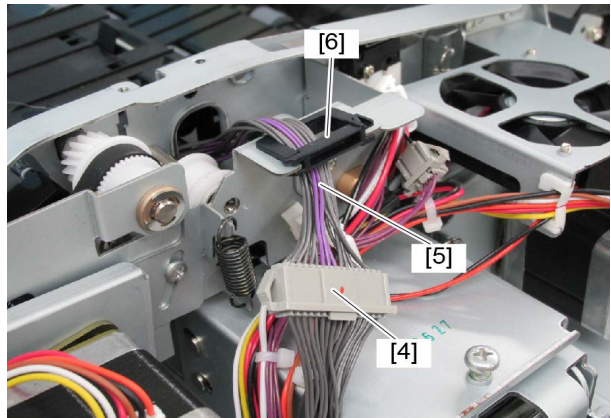


Fig. 4-24



- (7) Remove 4 screws. Take off the feeder lower guide [7].

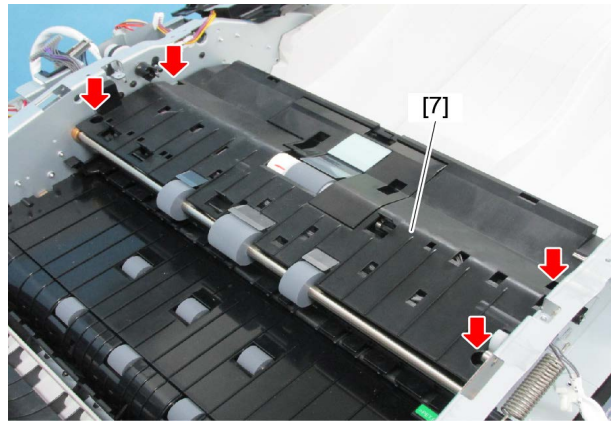


Fig. 4-25

### [E] Registration roller

- (1) Take off the feeder lower guide.  
( P. 4-9 "[D] Feeder lower guide")
- (2) Take off the original feed motor drive section.  
( P. 4-25 "[E] Original feed motor drive section")
- (3) Remove 1 E-ring and 1 bushing from the front side of the registration roller shaft. Also, remove 1 bushing, 1 pulley, 2 E-ring and 1 bushing from the rear side of the shaft, and then take off the registration roller.

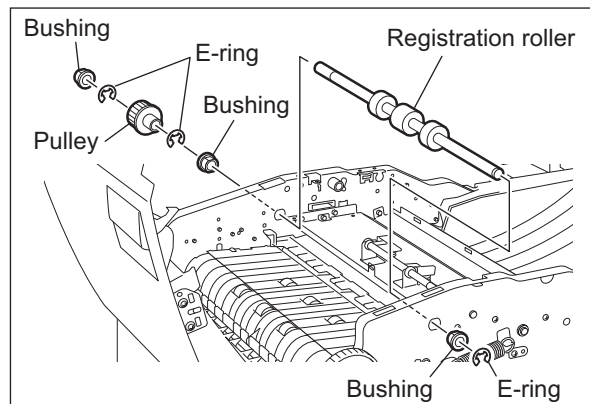


Fig. 4-26

## [F] Exit/reverse roller

- (1) Take off the front cover.  
( P. 4-1 "[A] Front cover")
- (2) Take off the original exit/reverse motor.  
( P. 4-27 "[F] Original exit/reverse motor (M3)")
- (3) Remove 1 clip, 1 pulley, 1 pin and 1 bushing from the rear side of the exit/reverse roller shaft.

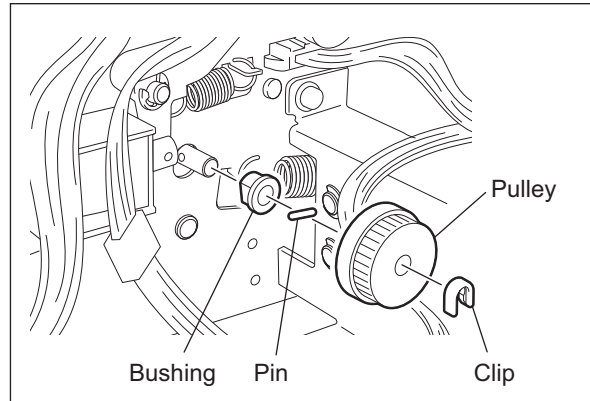


Fig. 4-27

- (4) Remove 1 screw and take off the leaf spring.
- (5) Remove 1 clip and 1 bushing from the front side of the exit/reverse roller shaft.

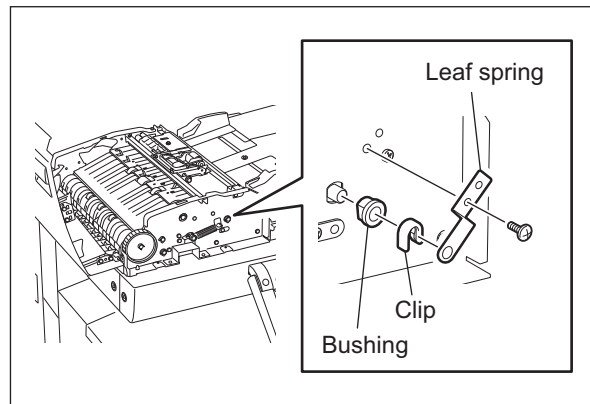


Fig. 4-28

- (6) Take off the jam access guide.

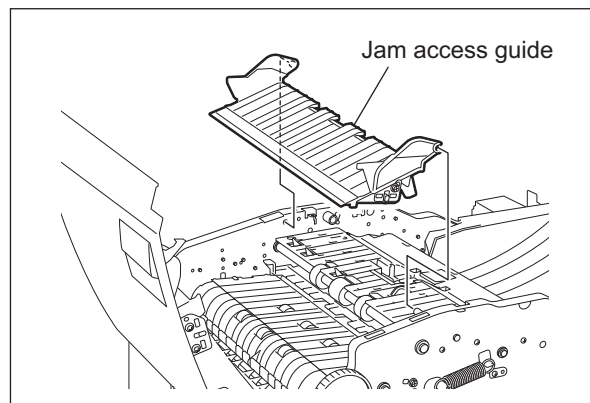


Fig. 4-29

- (7) Pull out the exit guide.

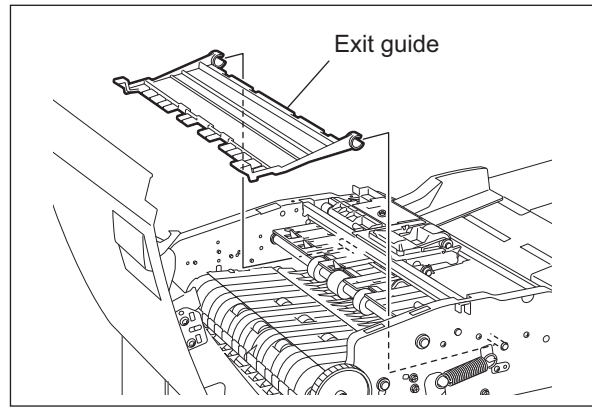


Fig. 4-30

- (8) Take off the exit/reverse roller.

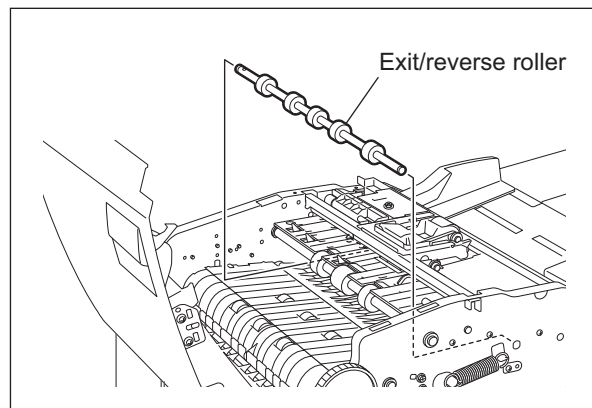


Fig. 4-31

### [G] Pre-reading guide

- (1) Take off the front cover.  
( P. 4-1 "[A] Front cover")
- (2) Take off the rear cover.  
( P. 4-2 "[B] Rear cover")
- (3) Take off the jam access cover.  
( P. 4-3 "[C] Jam access cover")
- (4) Take off the left cover.  
( P. 4-4 "[D] Left cover")
- (5) Remove 1 screw and take off the hinge pin.

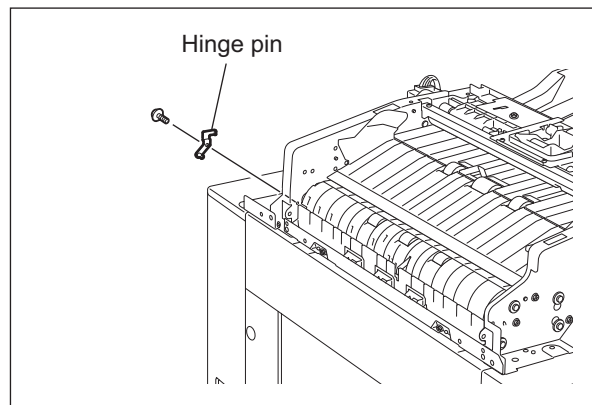


Fig. 4-32

- (6) Disconnect 2 connectors. Remove 2 screws and take off the pre-reading guide.

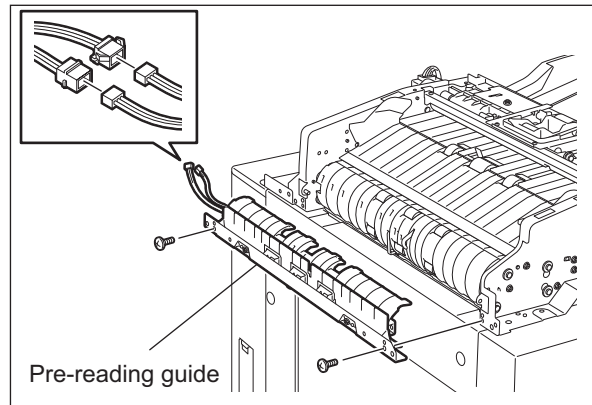


Fig. 4-33

### [H] Intermediate transport roller

- (1) Take off the pre-reading guide.  
( P. 4-13 "[G] Pre-reading guide")
- (2) Take off the read motor drive section.  
( P. 4-21 "[C] Read motor drive section")
- (3) Remove 1 screw, 1 pulley and 2 bushings from the rear side of the intermediate transport roller shaft.
- (4) Remove 1 bushing from the front side of the intermediate transport roller shaft.
- (5) Take off the intermediate transport roller.

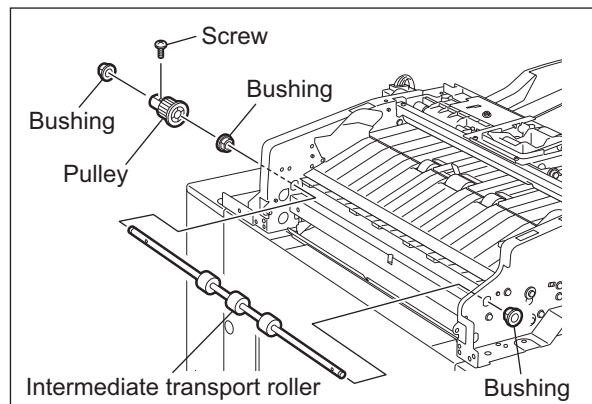
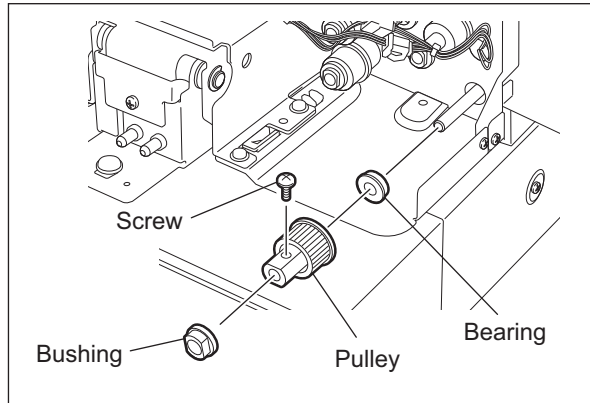


Fig. 4-34

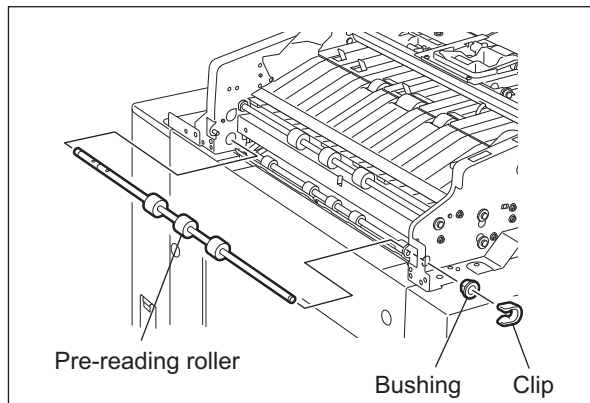
**[I] Pre-reading roller**

- (1) Take off the pre-reading upper guide.  
(📖 P. 4-13 "[G] Pre-reading guide")
- (2) Take off the read motor drive section.  
(📖 P. 4-21 "[C] Read motor drive section")
- (3) Remove 1 bushing, 1 screw, 1 pulley and 1 bearing from the rear side of the pre-reading roller shaft.




**Fig. 4-35**

- (4) Remove 1 clip and 1 bushing from the front side of the pre-reading roller shaft.
- (5) Take off the pre-reading roller.



**Fig. 4-36**

## [J] Post-reading roller

- (1) Take off the pre-reading lower guide.  
( P. 4-13 "[G] Pre-reading guide")
- (2) Disconnect 1 connector.

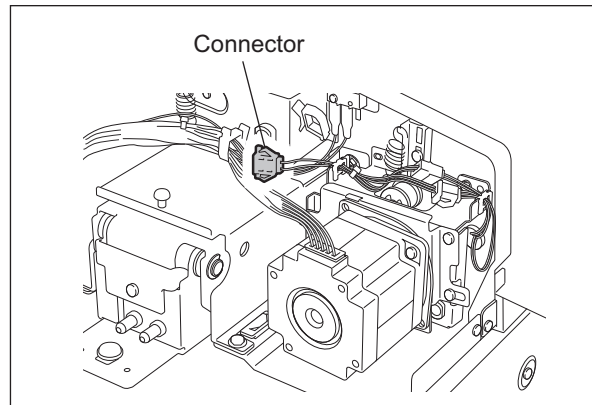



Fig. 4-37

- (3) Take off the read motor drive section.  
( P. 4-21 "[C] Read motor drive section")
- (4) Remove 1 bushing, 1 E-ring and 1 pulley from the rear side of the post-reading roller shaft. Loosen 2 setscrews and take off 1 flange. Take off 1 bearing.

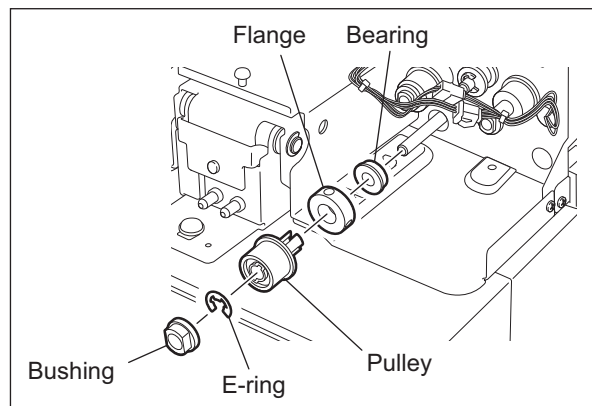


Fig. 4-38

- (5) Remove 1 clip and 1 bushing from the front side of the post-reading roller shaft.

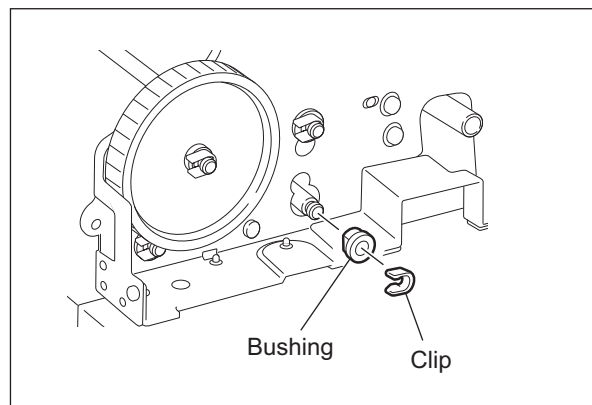


Fig. 4-39

(6) Open the RADF. Remove 4 screws, take off 2 holders and platen guide.

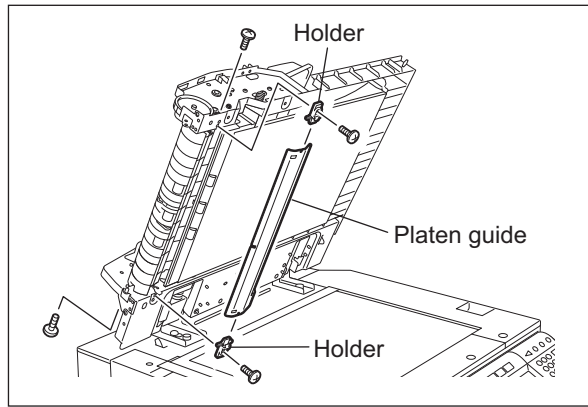


Fig. 4-40

(7) Remove 2 screws. Open the post-reading lower guide and take off the post-reading upper guide.

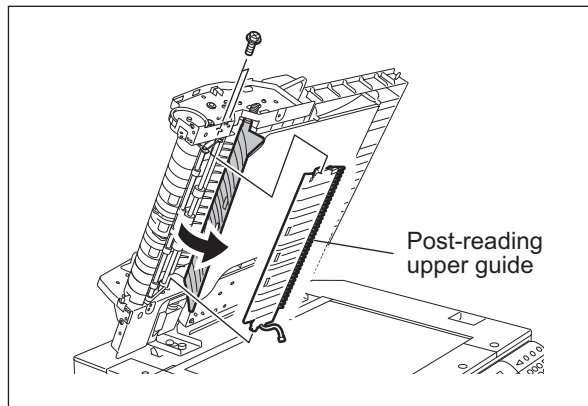


Fig. 4-41

(8) Take off the post-reading roller.

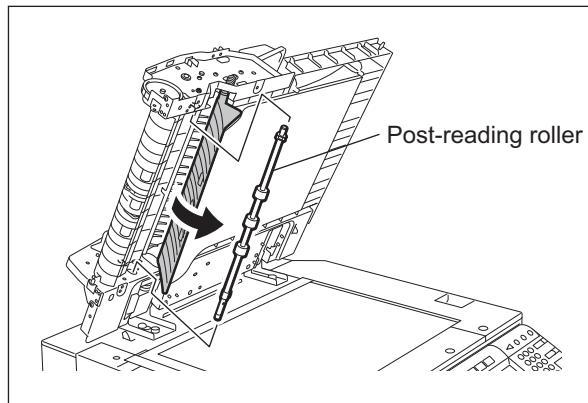



Fig. 4-42

### [K] Reverse registration roller

- (1) Take off the post-reading roller.  
( P. 4-16 "[J] Post-reading roller")
- (2) Remove 1 E-ring, 1 pulley, 1 pin and 1 bushing from the rear side of the reverse registration roller shaft.

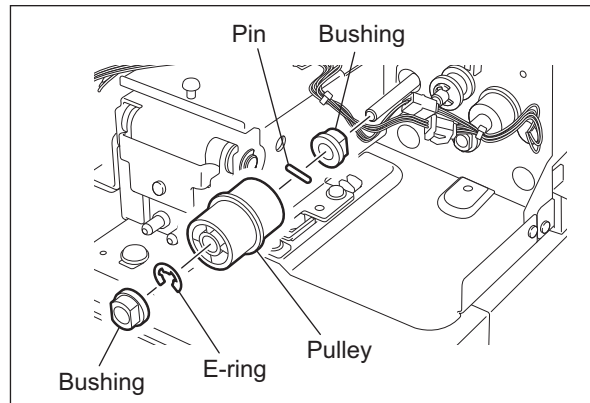


Fig. 4-43

- (3) Remove 1 clip and 1 bushing from the front side of the reverse registration roller shaft.

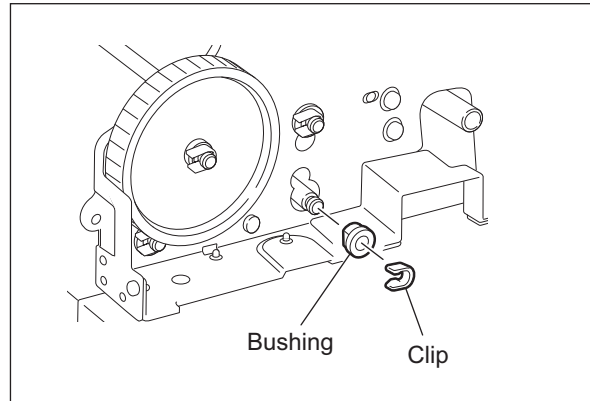


Fig. 4-44

- (4) Open the RADF. Take off the reverse registration roller.

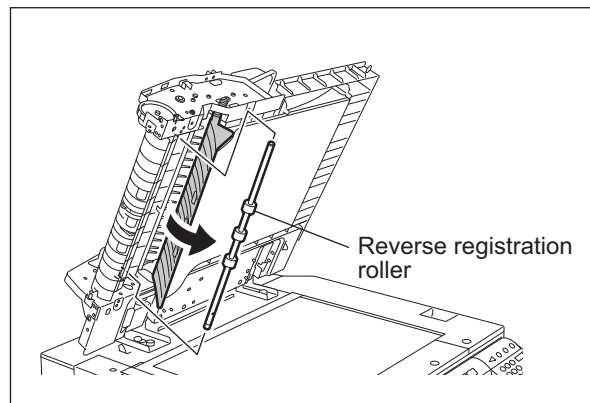


Fig. 4-45



## 4.3 Motor / Motor drive section

### [A] Fan motor (M4)

- (1) Take off the rear cover.  
(☞ P. 4-2 "[B] Rear cover")
- (2) Disconnect 1 connector. Then remove 2 screws to take off the fan motor.

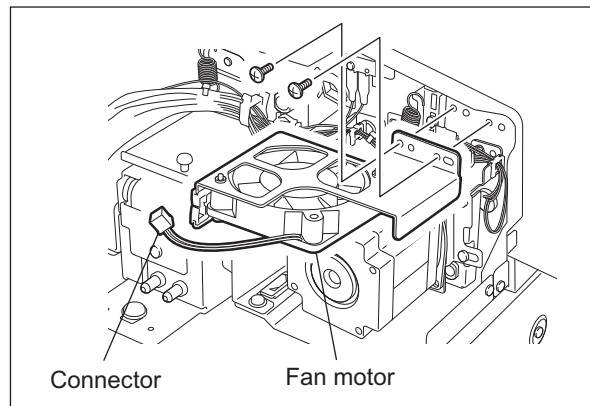


Fig. 4-46

### [B] Read motor (M2)

- (1) Take off the rear cover.  
(☞ P. 4-2 "[B] Rear cover")
- (2) Take off the fan motor.  
(☞ P. 4-19 "[A] Fan motor (M4)")
- (3) Disconnect 1 connector, and then remove 1 spring. (Spring: Outside diameter of coil -  $\varnothing 10.2$  mm, active coils - 12.5)

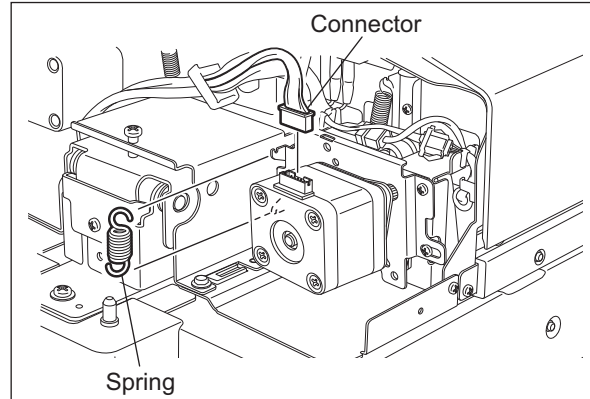
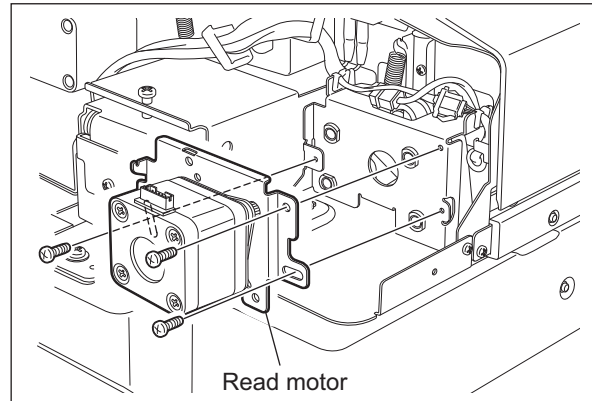


Fig. 4-47

- (4) Remove 3 screws, and then take off the read motor with its bracket.

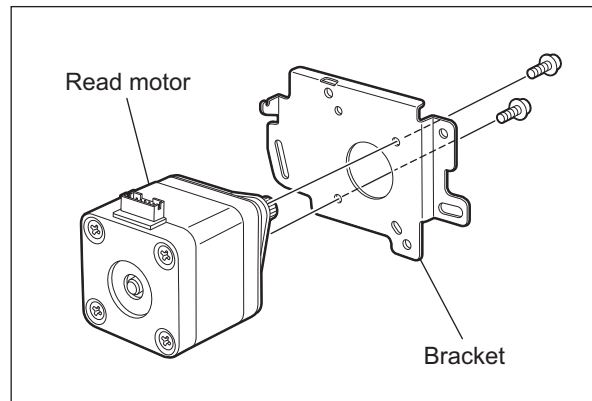
**Notes:**

When the unit is being assembled, temporarily tighten the screws removed at step (4), and then attach the spring removed at step (3). Then fully tighten these screws.





**Fig. 4-48**

- (5) Remove 2 screws, and then take off the read motor.



**Fig. 4-49**

### [C] Read motor drive section

- (1) Take off the rear cover.  
( P. 4-2 "[B] Rear cover")
- (2) Take off the fan motor.  
( P. 4-19 "[A] Fan motor (M4)")
- (3) Disconnect 1 connector, and then remove 1 spring. (Spring: Outside diameter of coil –  $\phi 10.2$  mm, active coils – 12.5)

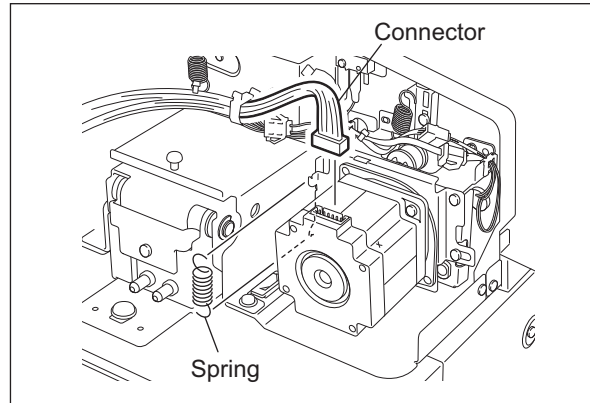


Fig. 4-50

- (4) Remove 3 screws, and then take off the read motor with its bracket.

#### Notes:

When the unit is being assembled, temporarily tighten the screws removed at step (4), and then attach the spring removed at step (3). Then fully tighten these screws.

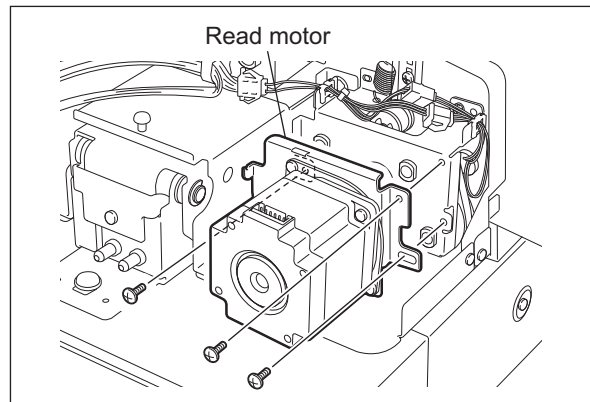
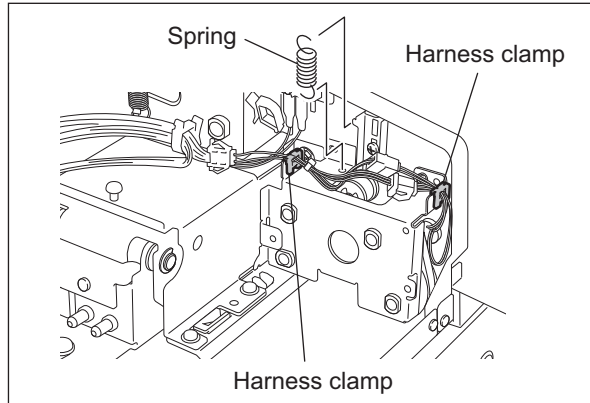


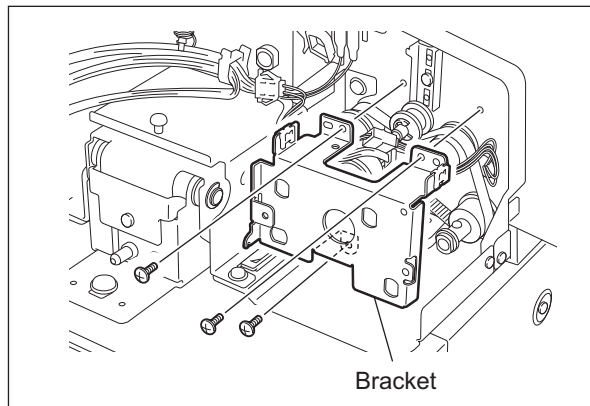
Fig. 4-51

- (5) Remove 1 spring. (Spring: Outside diameter of coil –ø8.8 mm, active coils – 12.5)
- (6) Release the harness from 2 harness clamps.



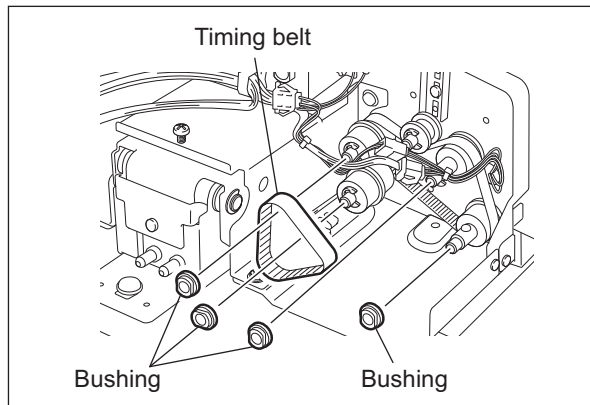
**Fig. 4-52**

- (7) Remove 3 screws and then take off the bracket.



**Fig. 4-53**

- (8) Take off 1 timing belt and 4 bushings.



**Fig. 4-54**

- (9) Loosen 1 screw of the belt tensioner.
- (10) Remove the 2 E-rings, and then take off the pulley and timing belt.

**Notes:**

When the unit is being assembled, first install the parts removed at steps (5), (6), (7) and (9), and attach the spring removed at step (4) next. Then tighten the screw loosened at step (8).

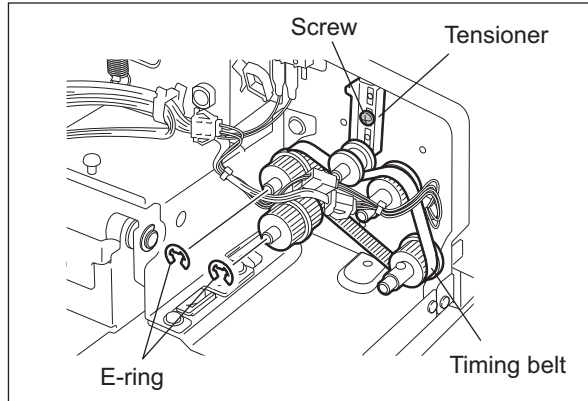


Fig. 4-55

**[D] Original feed motor (M1)**

- (1) Take off the rear cover.  
( P. 4-2 "[B] Rear cover")
- (2) Disconnect 1 connector, and then remove 1 spring.

**Notes:**

Spring color and form

Color: Black, Outside diameter of coil:  $\varnothing 8$  mm, acceptable turns of coil: 12.5

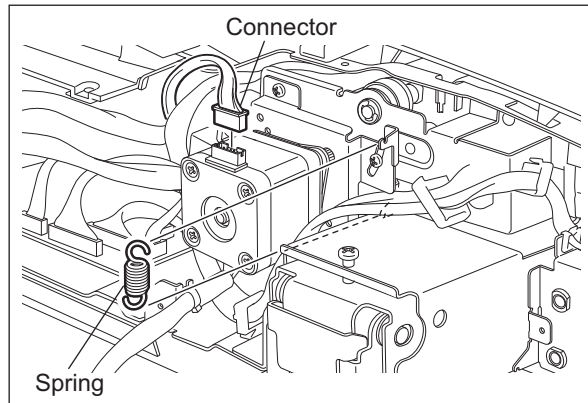


Fig. 4-56

- (3) Remove 3 screws, and then take off the original feed motor with its bracket.

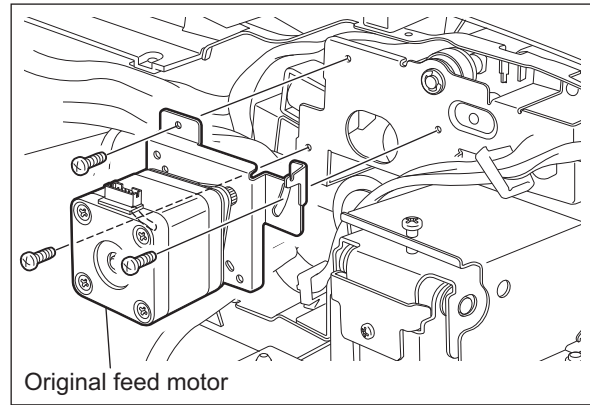


Fig. 4-57

**Notes:**

Follow the procedure below for the assembly.

(A) Loosen the 2 screws [2] of the sub bracket.

(B) Temporarily tighten the screws removed in step (3) and then attach the spring [1] removed in step (2). Then fully tighten these screws.

(C) Tighten the 2 screws [2] of the sub bracket.

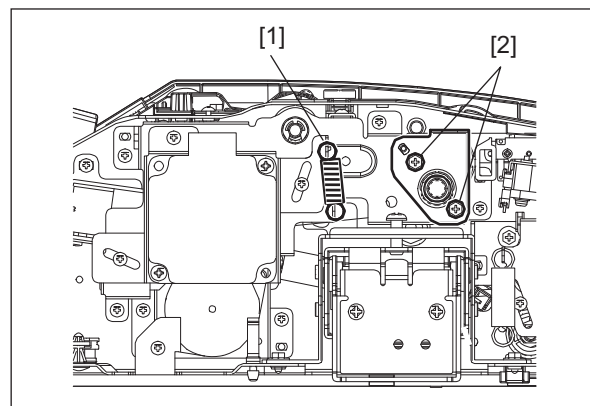


Fig. 4-58

- (4) Remove 2 screws and then take off the original feed motor.

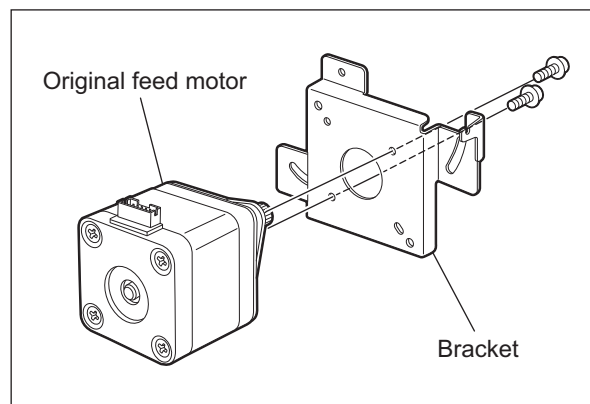



Fig. 4-59

### [E] Original feed motor drive section

- (1) Take off the rear cover.  
( P. 4-2 "[B] Rear cover")
- (2) Disconnect 1 connector, and then remove 1 spring.

**Notes:**

Spring color and form

Color: Black, Outside diameter of coil:  $\varnothing 8$  mm, Acceptable turns of coil: 12.5

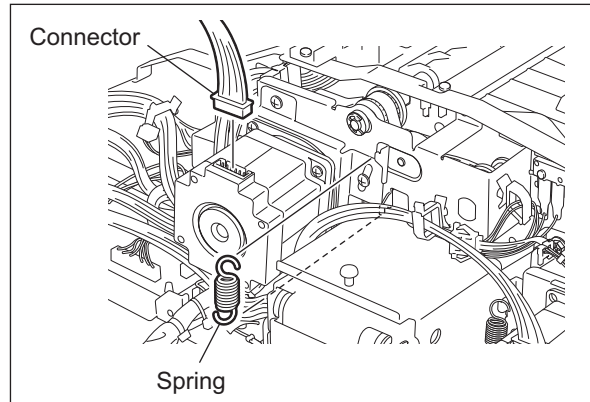


Fig. 4-60

- (3) Remove 3 screws, and then take off the original feed motor with its bracket.

**Notes:**

When the unit is being assembled, temporarily tighten the screws removed at step (3) and then attach the spring removed at step (2). Then fully tighten these screws.

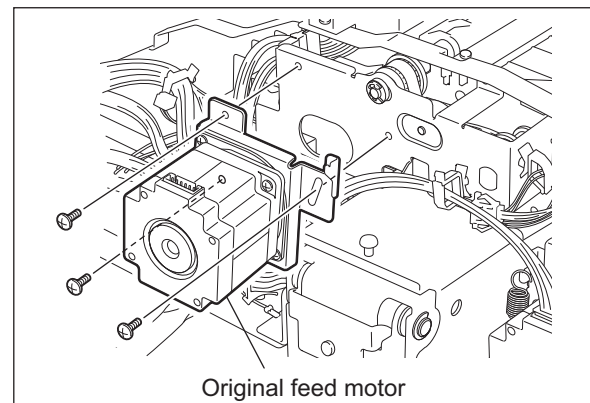


Fig. 4-61

- (4) Release the harness from 3 harness clamps.
- (5) Remove 1 E-ring and take off the bushing.

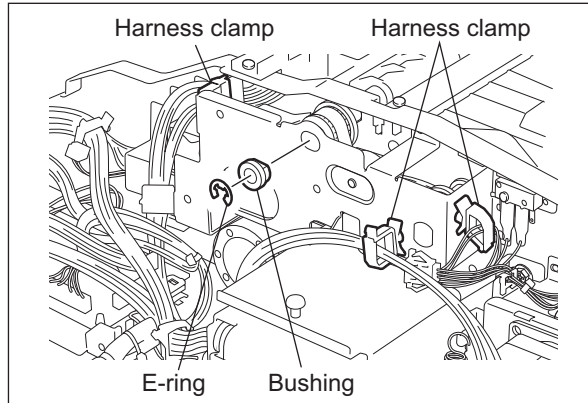


Fig. 4-62

- (6) Remove 2 screws [1] and take off the sub bracket [2].

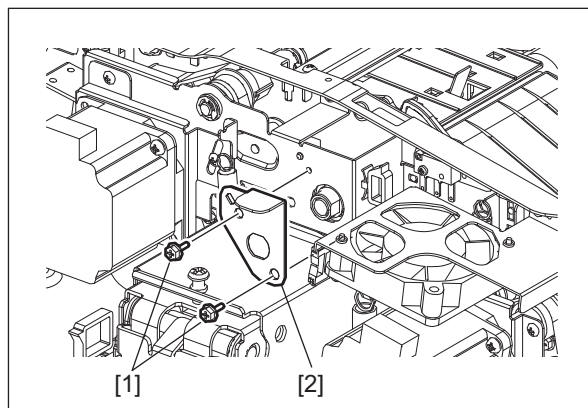


Fig. 4-63

**Notes:**

Follow the procedure below for the assembly.

- (A) Loosen the 2 screws [2] of the sub bracket.
- (B) Temporarily tighten the screws removed in step (3) and then attach the spring [1] removed in step (2). Then fully tighten these screws.
- (C) Tighten the 2 screws [2] of the sub bracket.

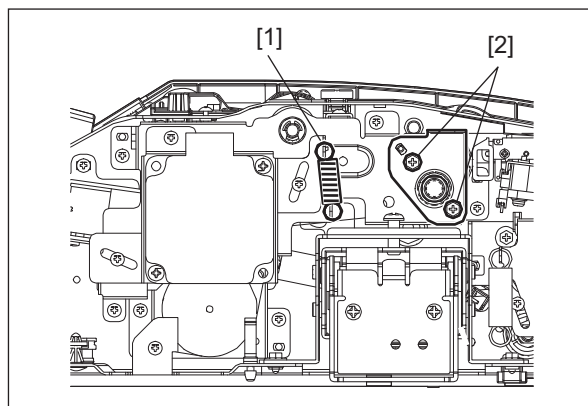


Fig. 4-64



- (7) Disconnect 3 terminals of the switch.
- (8) Remove 4 screws, and then take off the bracket.

**Notes:**

When connecting the terminal, make sure that the color of the harness is correct.

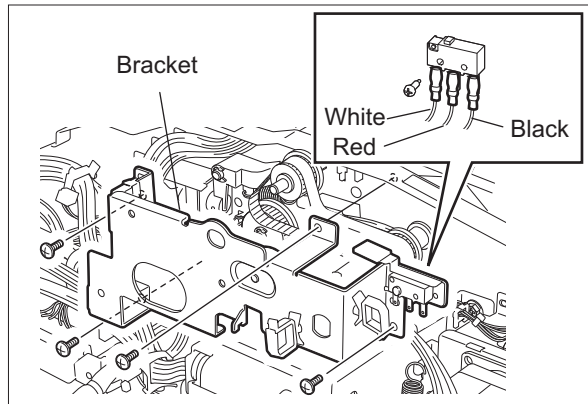


Fig. 4-65

- (9) Take off the timing belt, bushings, E-ring, pulleys, and clutch.

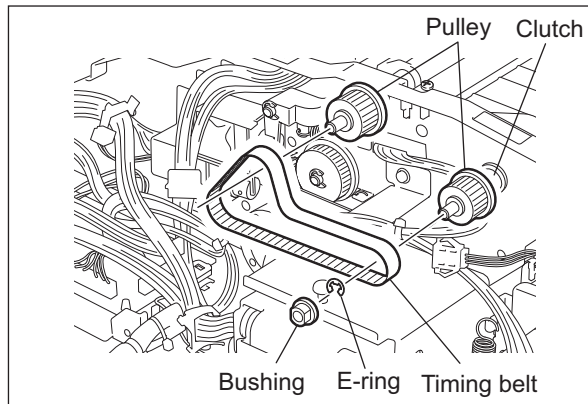


Fig. 4-66

**[F] Original exit/reverse motor (M3)**

- (1) Take off the original feed motor drive section.  
(P. 4-25 "[E] Original feed motor drive section")
- (2) Disconnect 1 connector from the RADF control PC board.

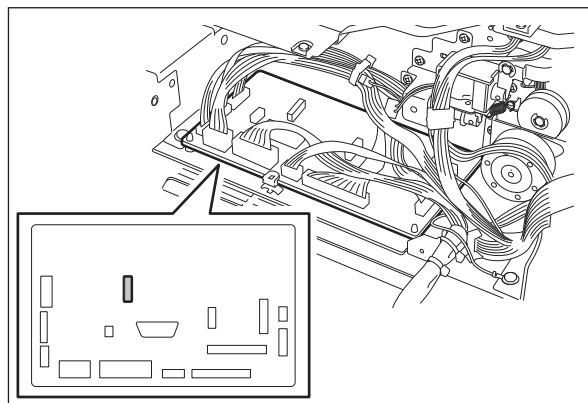


Fig. 4-67

- (3) Remove 2 screws, and then take off the original exit/reverse motor with its bracket.

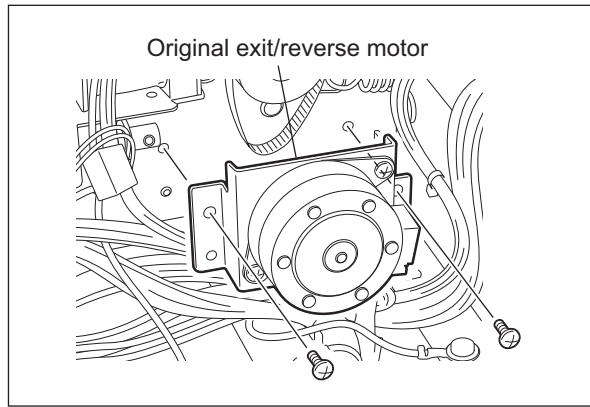


Fig. 4-68

**Notes:**

Install the motor bracket while aligning the play of the attachment hole to the top side.

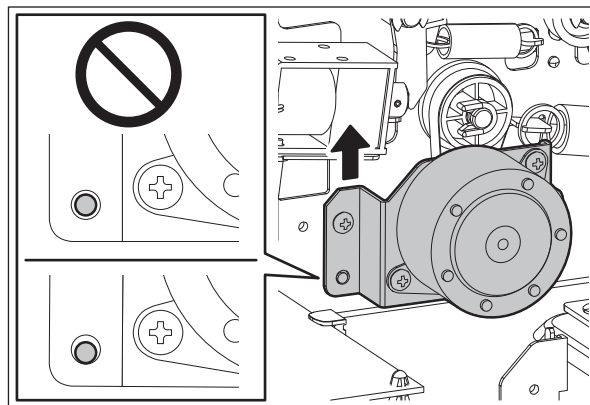


Fig. 4-69

- (4) Remove 2 screws, and then take off the original exit/reverse motor by sliding it from the bracket.

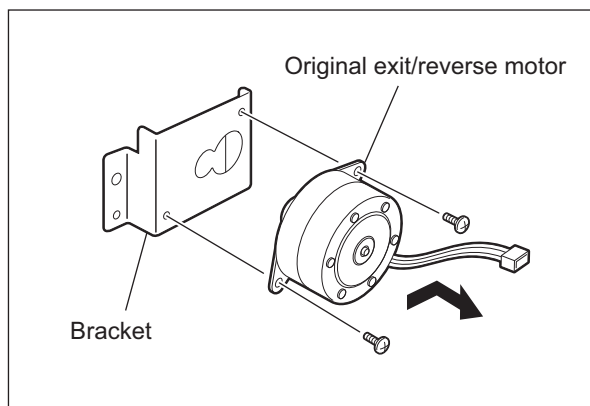


Fig. 4-70

## 4.4 Solenoid

### [A] Original pickup solenoid (SOL1)

- (1) Take off the original feed motor drive section.  
(P. 4-25 "[E] Original feed motor drive section")
- (2) Disconnect one connector. Remove 2 screws and take off the original pickup solenoid with the bracket.

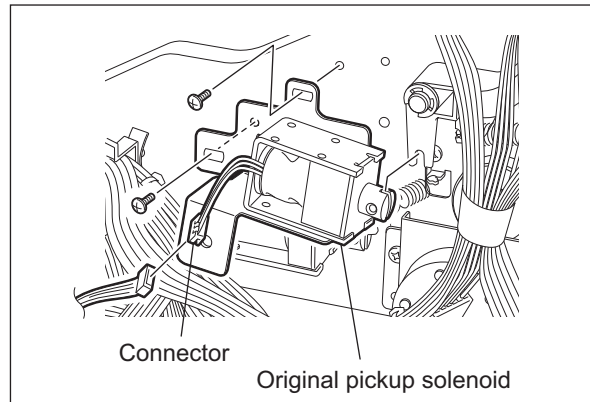


Fig. 4-71

- (3) Remove 2 screws and take off the original pickup solenoid from the bracket.

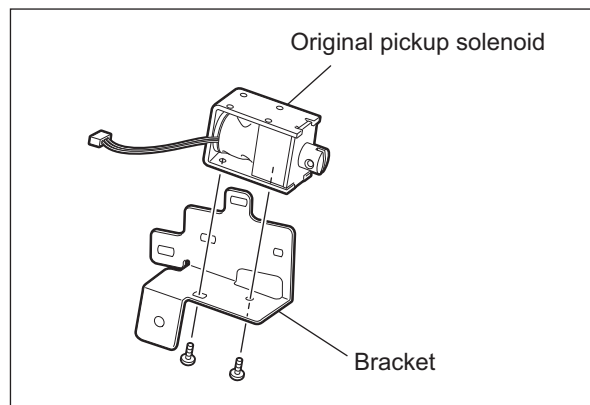


Fig. 4-72

### Notes:

When installing the original pickup solenoid, be sure to align the edge of the original pickup solenoid with the mark-off line on the frame.

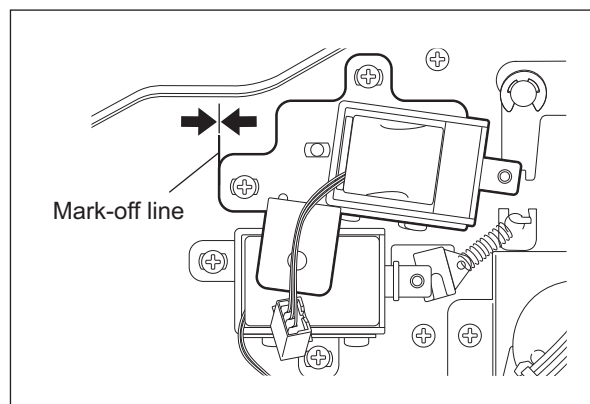


Fig. 4-73

## 4.5 Sensor/switch

### [A] Original tray width sensor (S2)

- (1) Remove 3 screws. Release 8 latches and separate the original tray into 2 parts.

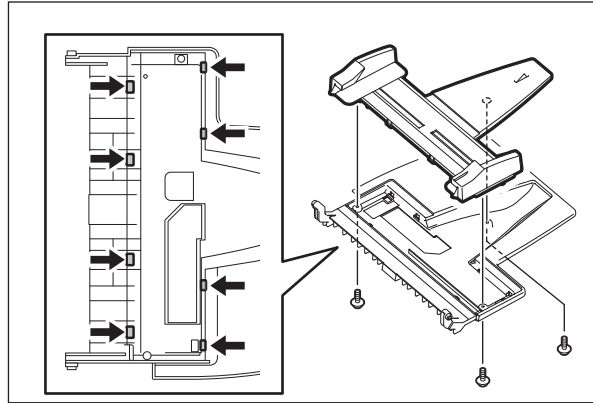


Fig. 4-74

- (2) Remove 1 screw and take off the cover.
- (3) Disconnect 1 connector and take off the original tray width sensor.

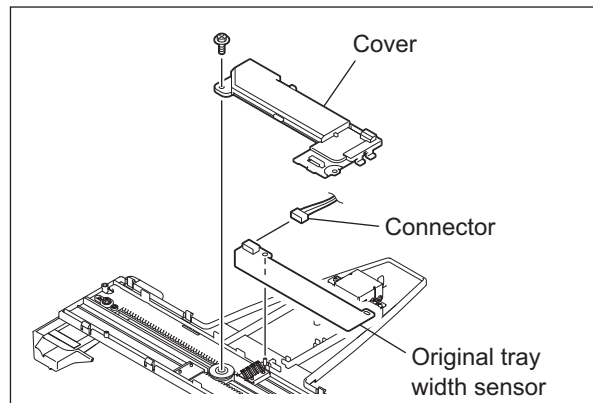


Fig. 4-75

### Notes:

If washers (3 pcs) and a pinion come off, assemble them in the order as shown in the illustration.

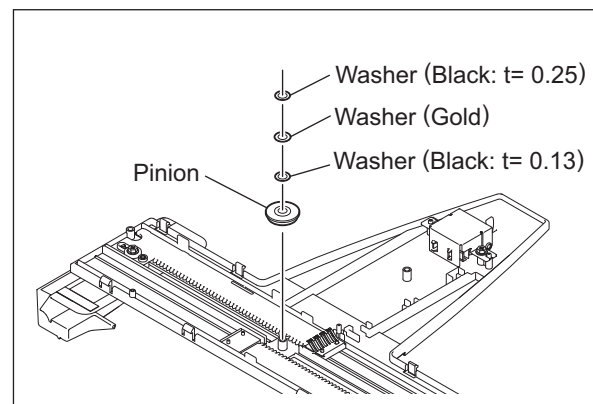
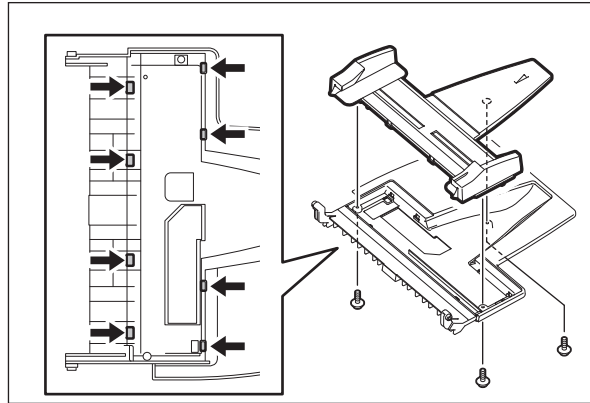


Fig. 4-76

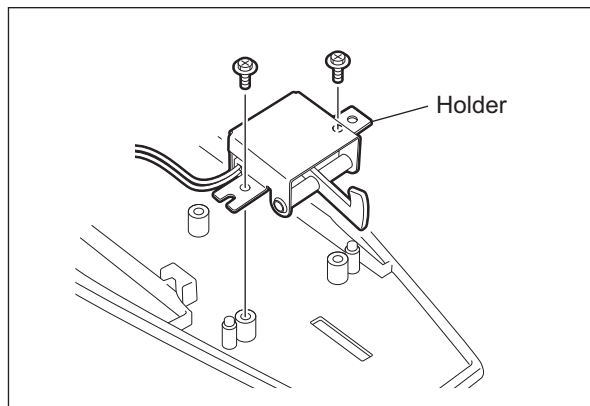
**[B] Original tray sensor (S1)**

- (1) Remove 3 screws. Release 8 latches and separate the original tray into 2 parts.



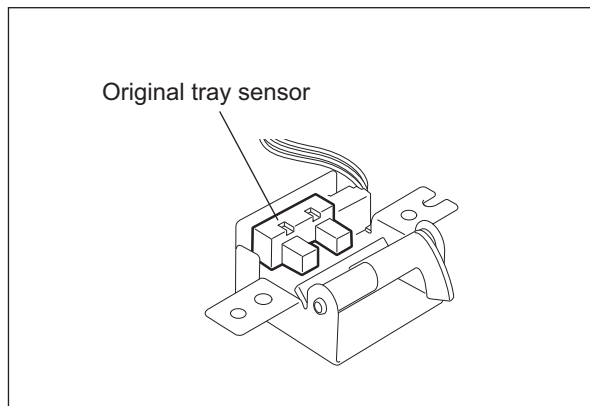
**Fig. 4-77**

- (2) Remove 2 screws and take off the holder.



**Fig. 4-78**

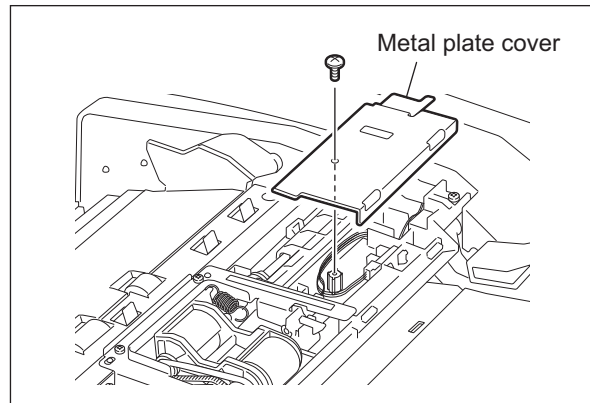
- (3) Release 2 latches and take off the original tray sensor.



**Fig. 4-79**

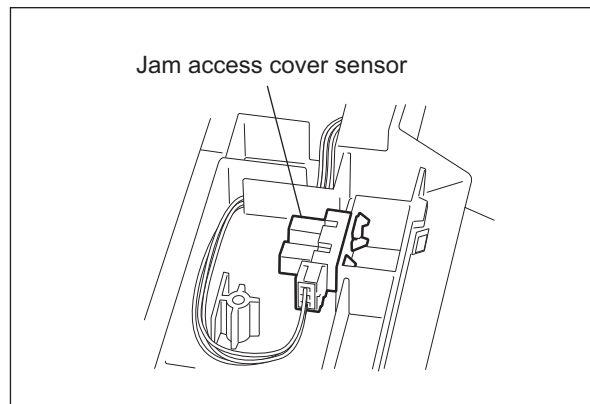
**[C] Jam access cover sensor (S11)**

- (1) Open the jam access cover.
- (2) Remove 1 screw and take off the metal plate cover.



**Fig. 4-80**

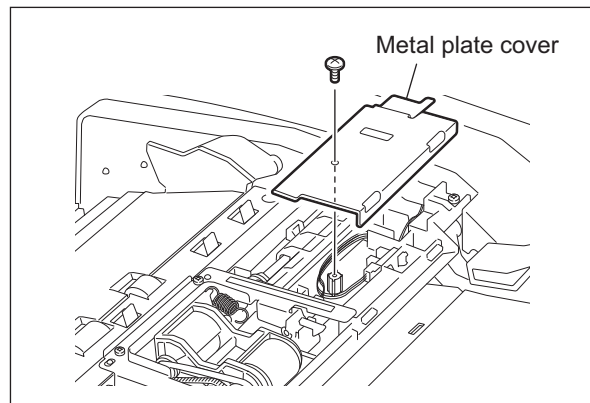
- (3) Disconnect 1 connector. Release 2 latches and take off the jam access cover sensor.



**Fig. 4-81**

**[D] Original empty sensor (S3)**

- (1) Open the jam access cover.
- (2) Remove 1 screw and take off the metal plate cover.



**Fig. 4-82**

- (3) Remove 1 screw and take off the bracket [1] and [2].

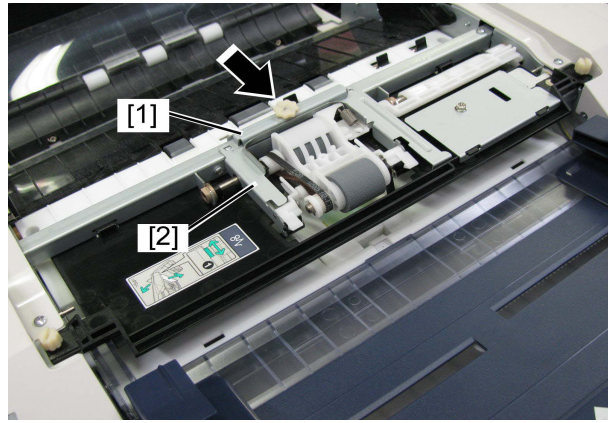


Fig. 4-83

- (4) Disconnect 1 connector. Release 2 latches and take off the original empty sensor.

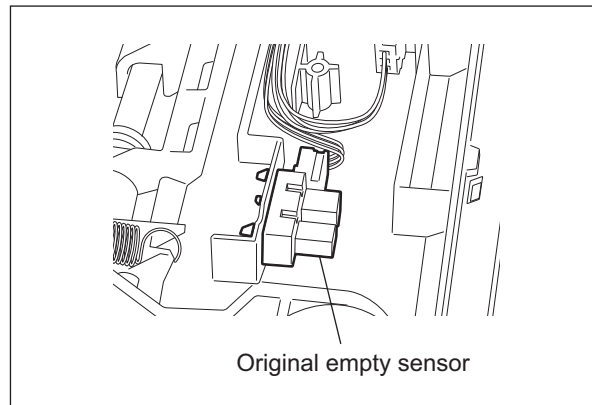


Fig. 4-84

**[E] Original length detection sensor (S4)**

- (1) Take off the feeder lower guide.  
( P. 4-9 "[D] Feeder lower guide")
- (2) Disconnect 1 connector. Release 2 latches and take off the original length detection sensor[1].

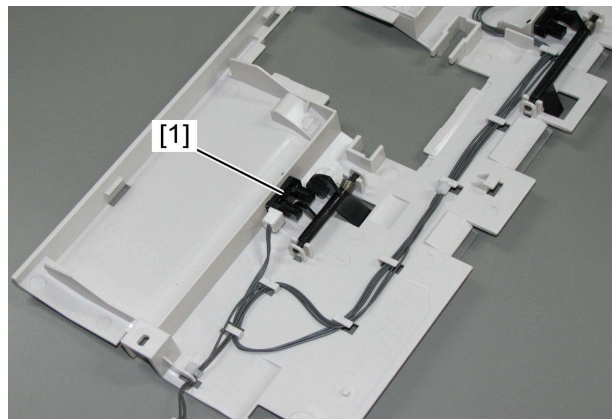

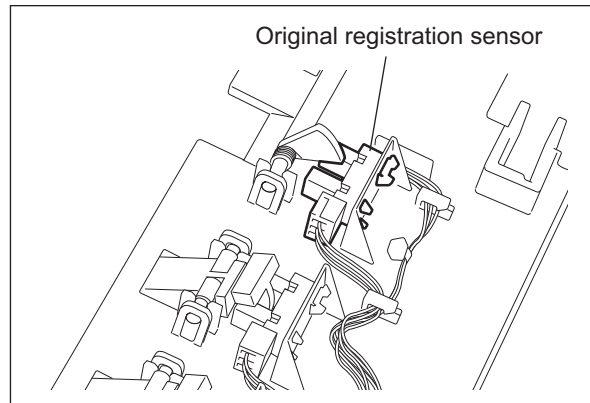


Fig. 4-85


**[F] Original registration sensor (S5)**

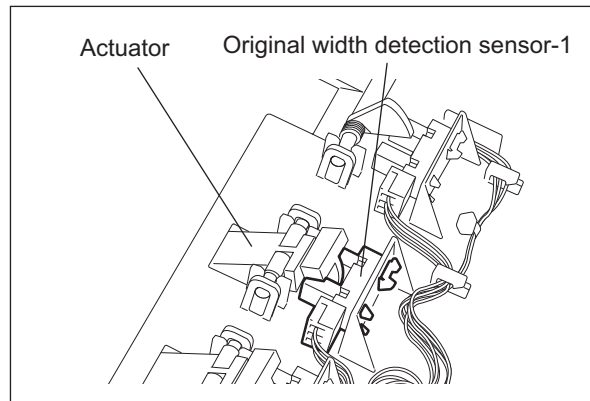
- (1) Take off the feeder lower guide.  
( P. 4-9 "[D] Feeder lower guide")
- (2) Disconnect 1 connector. Release 2 latches and take off the original registration sensor.



**Fig. 4-86**

**[G] Original width detection sensor-1 (S6)**


- (1) Take off the feeder lower guide.  
( P. 4-9 "[D] Feeder lower guide")
- (2) Take off the actuator.
- (3) Disconnect 1 connector. Release 2 latches and take off the original width detection sensor-1.



**Fig. 4-87**



#### [H] Original width detection sensor-2 (S7)

- (1) Take off the feeder lower guide.  
( P. 4-9 "[D] Feeder lower guide")
- (2) Take off the actuator.
- (3) Disconnect 1 connector. Release 2 latches and take off the Original width detection sensor-2.

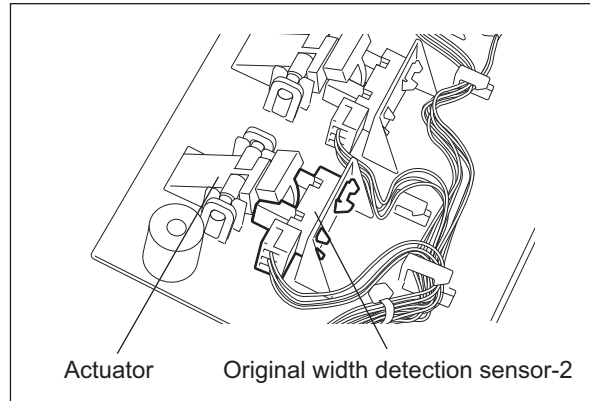



Fig. 4-88

#### [I] Read sensor (S9)

- (1) Take off the pre-reading upper guide.  
( P. 4-13 "[G] Pre-reading guide")
- (2) Release 2 latches and take off the read sensor from the pre-reading upper guide.

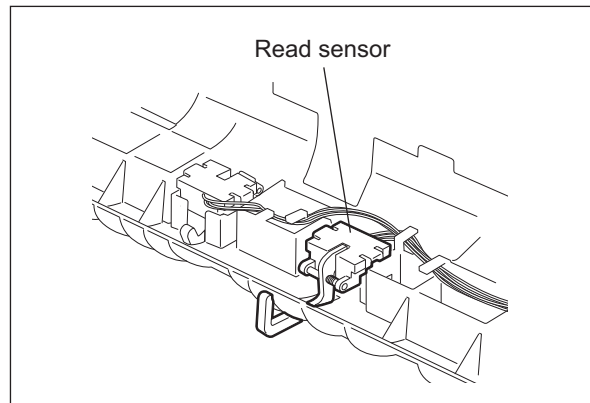

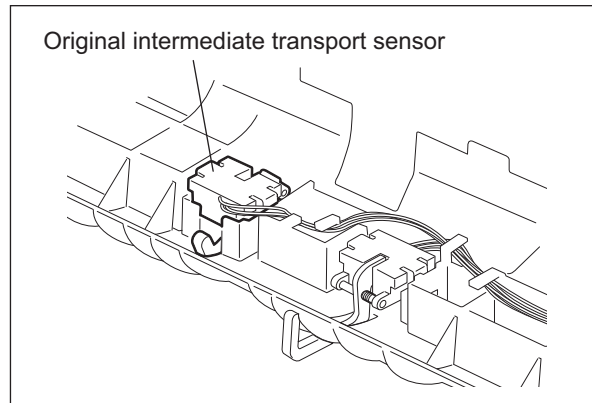


Fig. 4-89


**[J] Original intermediate transport sensor (S8)**

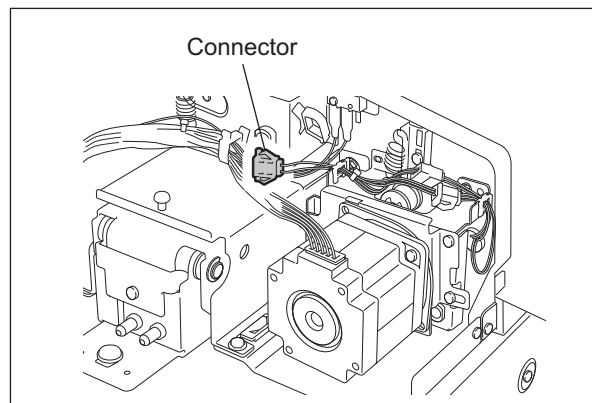
- (1) Take off the pre-reading upper guide.  
( P. 4-13 "[G] Pre-reading guide")
- (2) Release 2 latches and take off the original intermediate transport sensor from the pre-reading upper guide.



**Fig. 4-90**

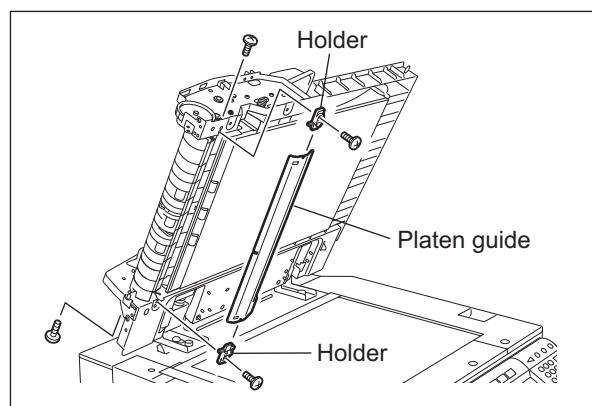
**[K] Original exit/reverse sensor (S10)**

- (1) Take off the pre-reading lower guide.  
( P. 4-13 "[G] Pre-reading guide")
- (2) Disconnect 1 connector.



**Fig. 4-91**

- (3) Open the RADF. Remove 2 screws, and then take off 2 holders and platen guide.



**Fig. 4-92**

- (4) Remove 2 screws. Open the post-reading lower guide and take off the post-reading upper guide.

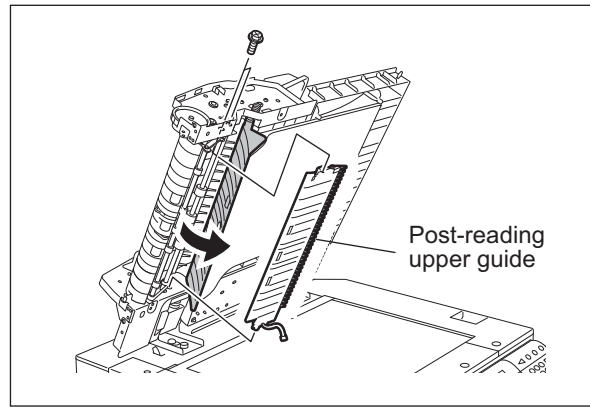


Fig. 4-93

- (5) Release 2 latches and take off the Original exit/reverse sensor from the post-reading upper guide.

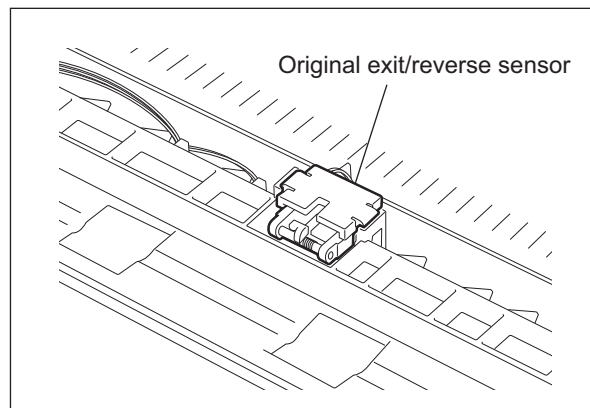


Fig. 4-94

**[L] Original jam access cover opening/closing switch (SW1)**

- (1) Take off the bracket of the original feed motor drive section.  
( P. 4-25 "[E] Original feed motor drive section")
- (2) Disconnect 3 terminals. Remove 1 screw and take off the original jam access cover opening/closing switch.

**Notes:**

When connecting the terminal, make sure that the color of the harness is correct.

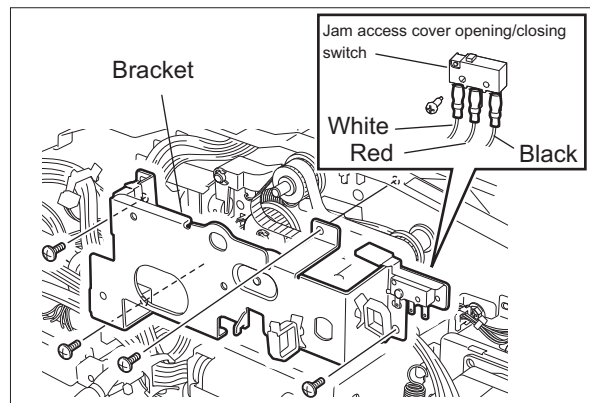



Fig. 4-95

## 4.6 PC Board

### [A] RADF control PC board (RADF board)

- (1) Take off the rear cover.  
( P. 4-2 "[B] Rear cover")
- (2) Disconnect 11 connectors.

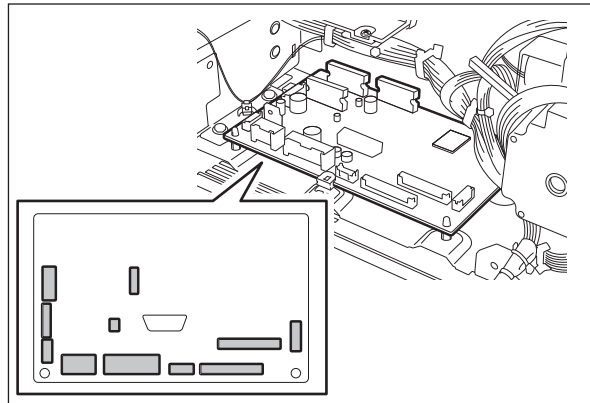


Fig. 4-96

- (3) Release 2 lock supports and 3 edge spacer. Take off the RADF board.

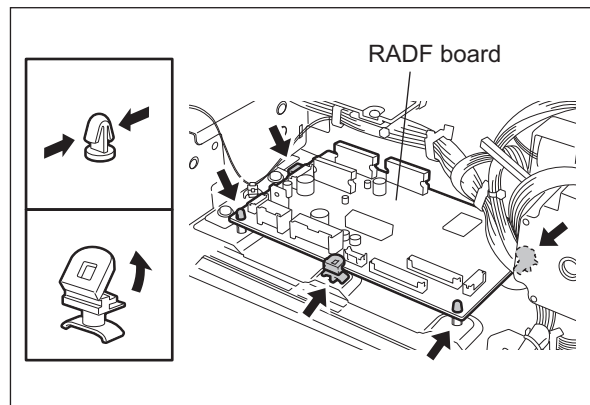



Fig. 4-97

### [B] LED board (LED)

- (1) Take off the front cover.  
( P. 4-1 "[A] Front cover")
- (2) Disconnect 1 connector [1]. Remove 1 screw and take off the LED board (LED) [2].

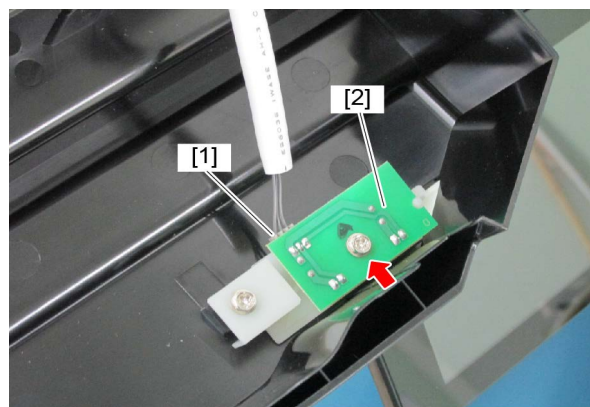


Fig. 4-98

## 4.7 Others

### [A] Hinge stopper

- (1) Remove 2 screw and then take off the hinge stopper.

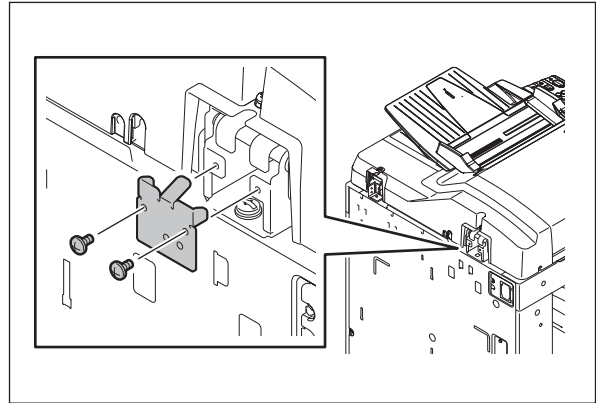


Fig. 4-99

### Notes:

When the hinge stopper is taken off, the opening angle for the RADF becomes approx. 90 degrees. Take off the hinge stopper only when it is needed for installation, maintenance service, etc.

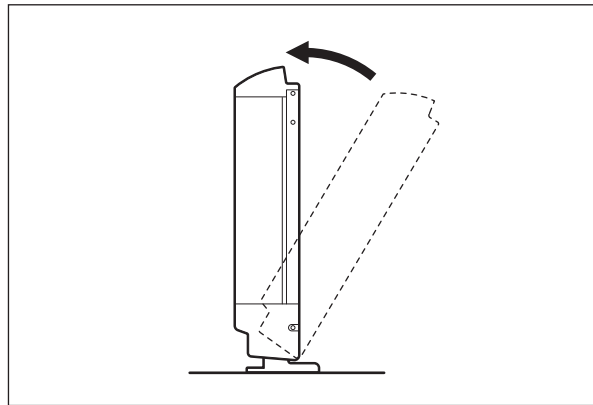


Fig. 4-100

### [B] Front resist roller sheet

- (1) Open the jam access cover.
- (2) Peel off 3 registration roller front sheets [1].

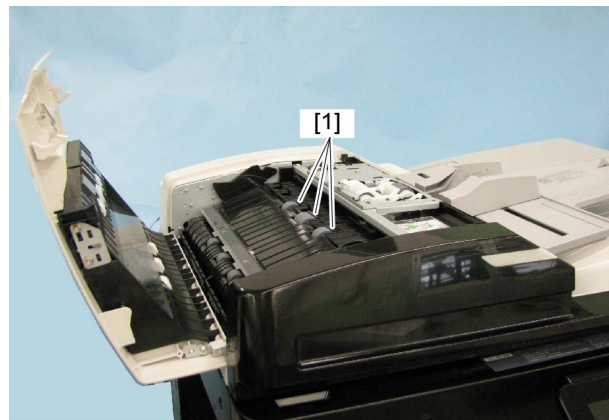
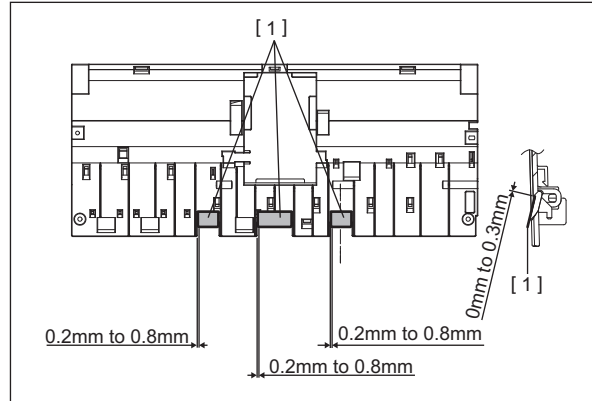


Fig. 4-101

**Notes:**

- When installing, attach the registration roller front sheets [1] to the position indicated in the figure.
- Before attaching the registration roller front sheets [1], be sure to clean the attachment surface with alcohol. Attach them securely and check that they do not lift up or become unstuck.



**Fig. 4-102**

## 5. ADJUSTMENT

### 5.1 Adjustment of Position

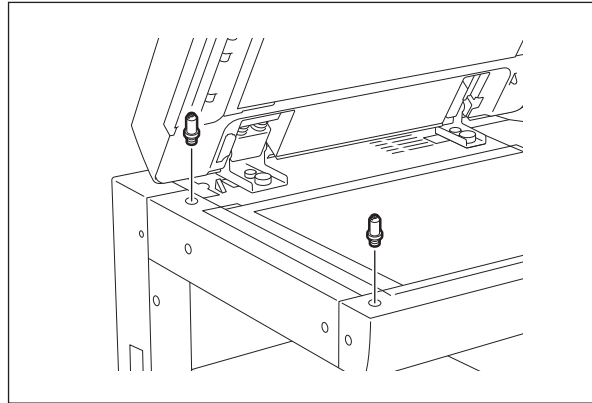
Perform this adjustment when the RADF is not installed in the correct position.

**Notes:**

Check if the image adjustment for the equipment is performed properly before this adjustment of the RADF. (See the Service Manual of the applicable equipment.)

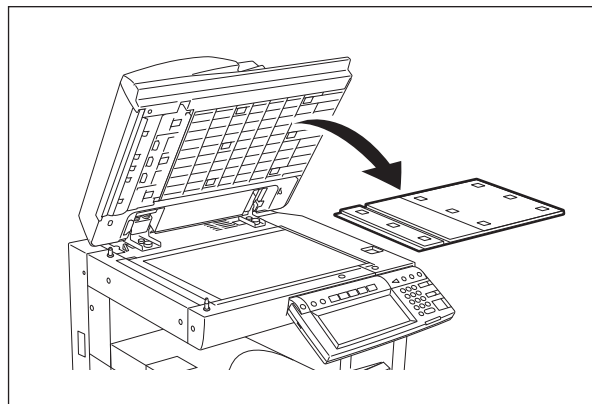
**[A] Checking**

- (1) Open the RADF and install 2 positioning pins (the positioning pins are installed to the back side of the hinge which is on the left side of the RADF).



**Fig.5-1**

- (2) Remove the platen sheet.



**Fig.5-2**

- (3) Close the RADF and check if the positioning pins fit the holes on the RADF.

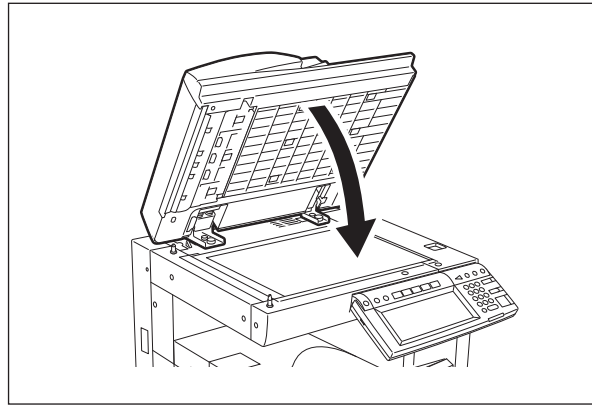


Fig.5-3

### [B] Adjustment

If the pins cannot be fitted into the holes, perform the adjustment according to the following procedure.

- (1) Remove the right-hand hinge screw at the rear side.

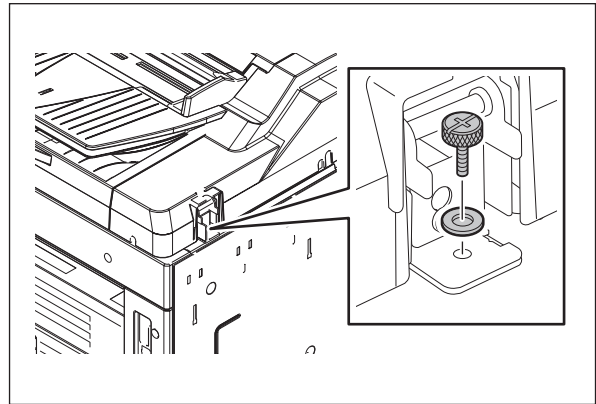


Fig.5-4

- (2) Remove the bracket on the left-hand hinge.

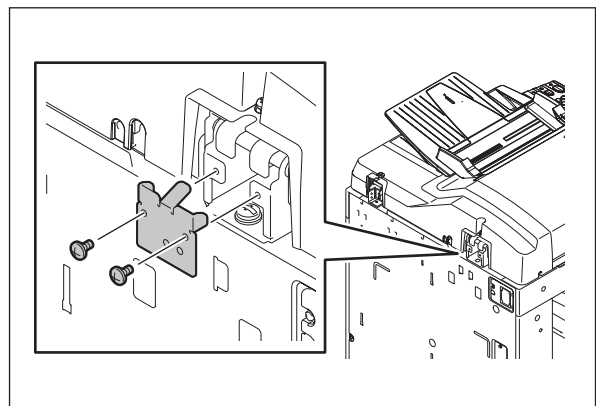


Fig.5-5



- (3) Loosen the left-hand hinge screw at the rear side.

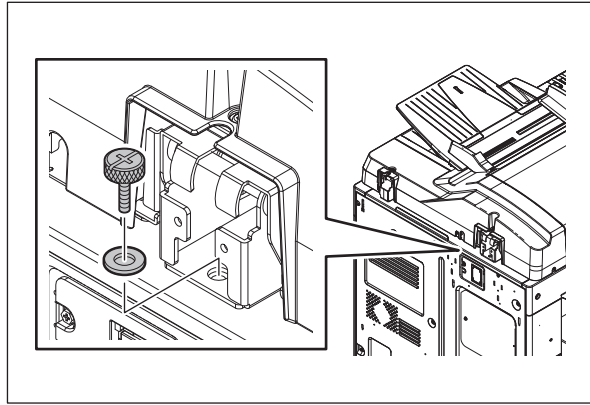


Fig.5-6

- (4) Loosen the hinge screws at the front side.

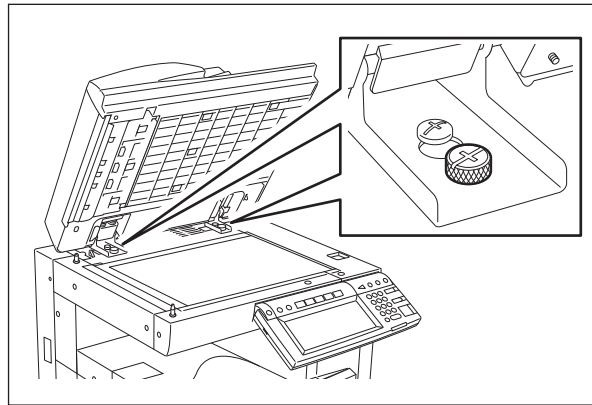


Fig.5-7

- (5) Position the pins with the holes on the RADF by moving it so that the pins fit into the holes when the RADF is closed.

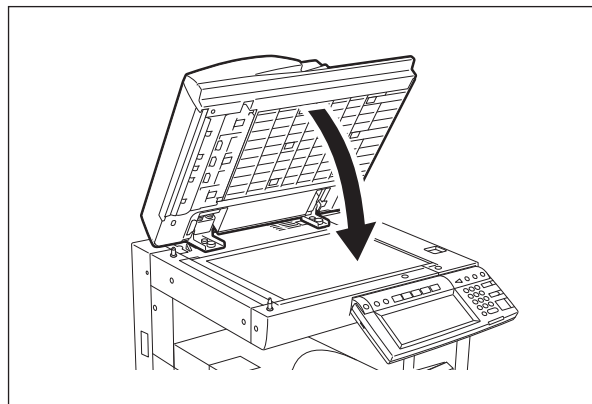


Fig.5-8

(6) Tighten the left-hand hinge screw at the rear side.

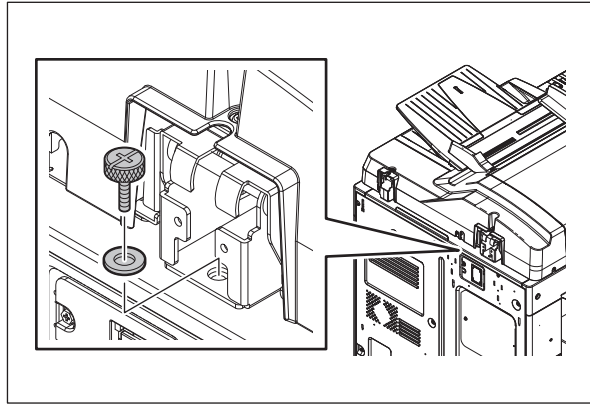


Fig.5-9

(7) Match the screw hole positions.

**Notes:**

Turn it clockwise: It moves toward the rear side.

Turn it counterclockwise: It moves toward the front side.

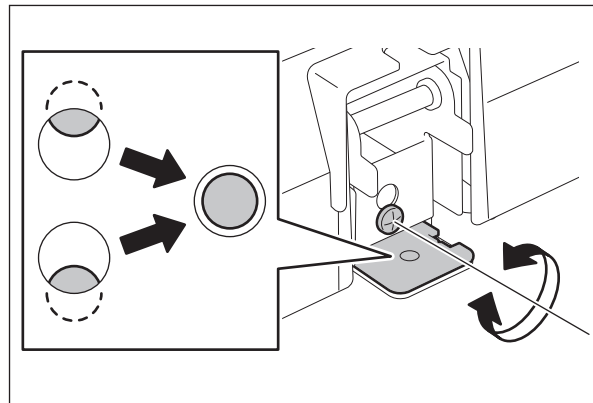


Fig.5-10

(8) Install the right-hand hinge screw at the rear side.

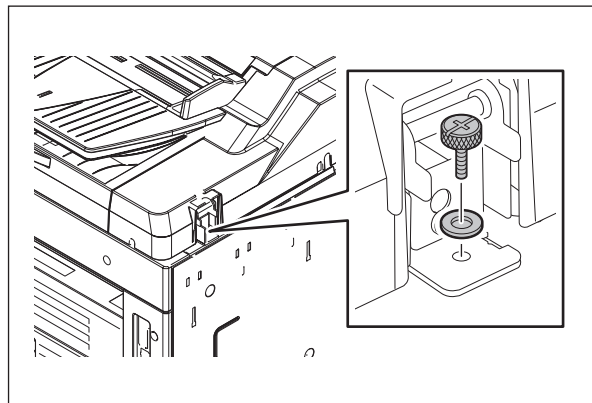


Fig.5-11

(9) Install the bracket on the left-hand hinge.

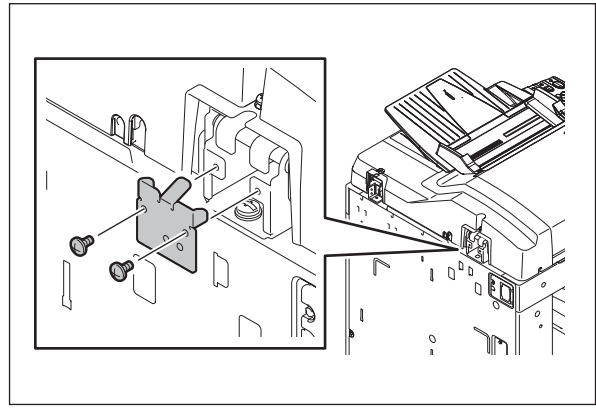


Fig.5-12

(10) Loosen the hinge screws at the front side.

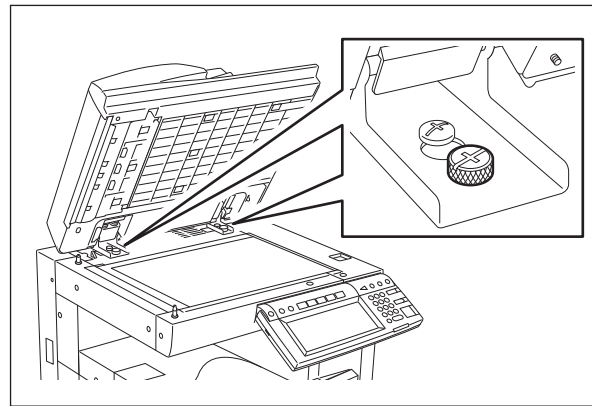


Fig.5-13

(11) Place the platen sheet on the original glass and align it to the top left corner.  
Close the RADF gently and open it to check if the platen sheet is attached properly.

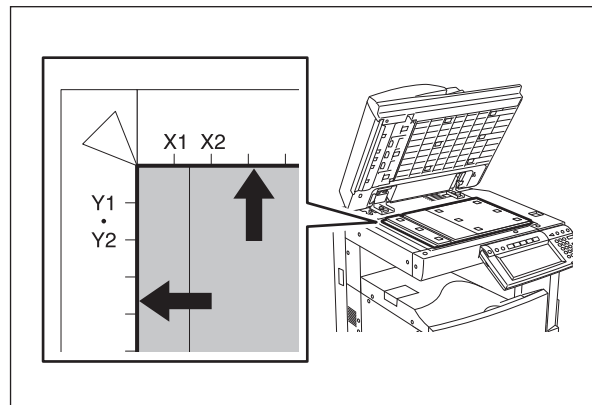


Fig.5-14

## 5.2 Adjustment of Height

### Notes:

Check if the image adjustment for the equipment is performed properly before this adjustment of the RADF. (See the Service Manual of the applicable equipment.)

### [A] Checking

- (1) Close the RADF.
- (2) Light the exposure lamp.
  - By performing [FS-03-267], the exposure lamp will light for a certain period.
- (3) Visually check the gap between platen guide holder "A" and upper surface of the original glass "B" from the left hand side of the equipment. If the value is not within the tolerance, perform the adjustment according to the following procedure.

[Tolerance of the gap]

Rear side: 0 - 0.5 mm

Front side: 0 mm

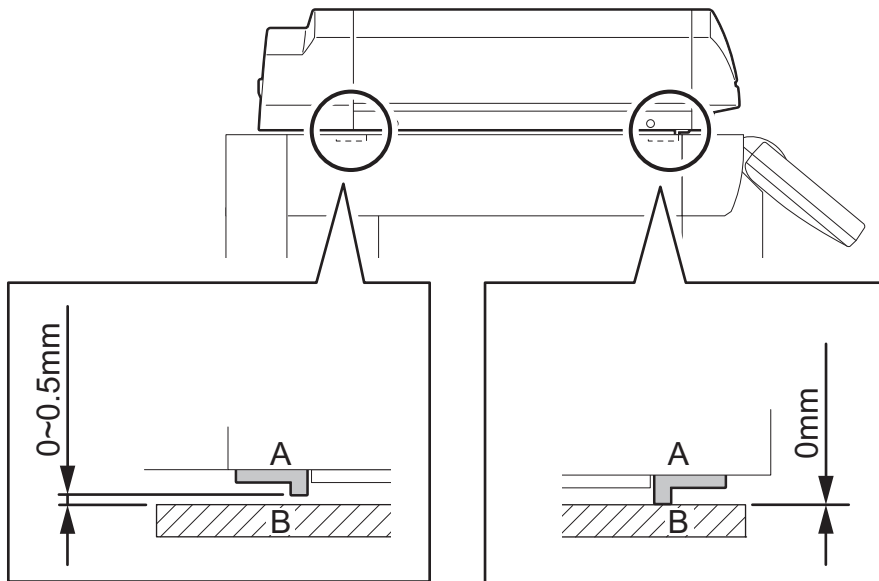


Fig.5-15

## [B] Adjustment

- (1) Close the RADF.
- (2) Adjust it by turning the adjustment screws on the hinges.
  - Adjust the height on the rear side by means of the screw on the hinge on the feed side of the RADF.  
Turn it clockwise Heightened  
Turn it counterclockwise Lowered

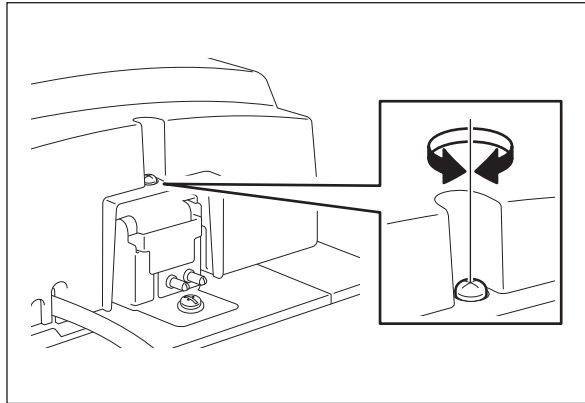


Fig.5-16

- Adjust the gap on the front side by means of the screw on the hinge on the exit side of the RADF.  
Turn it clockwise Lowered  
Turn it counterclockwise Heightened

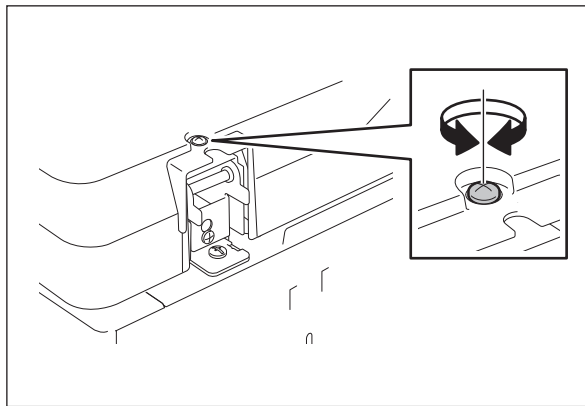


Fig.5-17

## 5.3 Adjustment of Skew

### Notes:

Check if the image adjustment for the equipment is performed properly before this adjustment of the RADF.

(See the Service Manual of the applicable equipment.)

Also, the RADF position and height shall be adjusted properly.

### [A] Checking

Check the image using the chart (original) with vertical and horizontal lines in the following procedure.

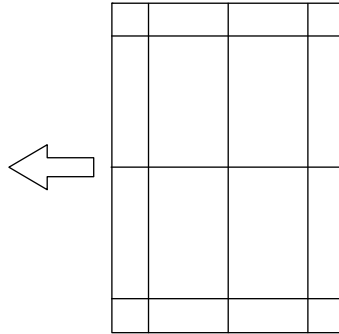


Fig.5-18 Chart (Original)

### Simplex copying:

- (1) Place the chart provided as an original with its face up on the original tray of the RADF, select [Sort] and [1 -> 1 Simplex] and then press the [START] button.
- (2) Superimpose the chart on the copy and check the inclination of the copy image.

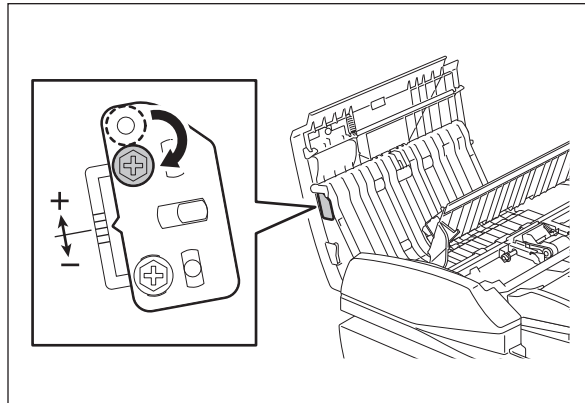
### Duplex copying:

- (1) Place the chart provided as an original with its face up on the original tray of the RADF, select [Sort] and [2 -> 2 Duplex] and then press the [START] button.
- (2) Superimpose the chart on the copy and check the inclination of the copy image.

**[B] Adjustment**

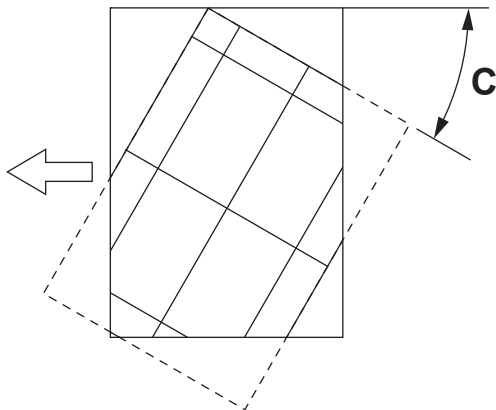
Simplex copying:

- (1) Shift the aligning plate with the scale as the guide shown in the figure below to adjust the skew.



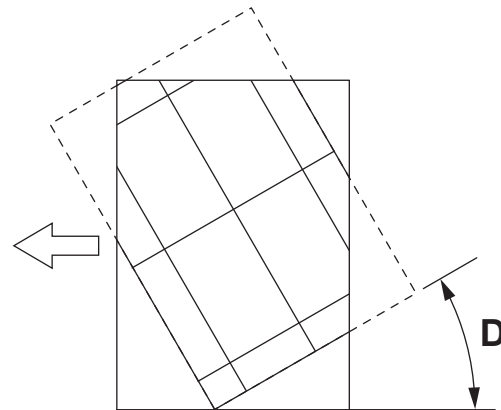
**Fig.5-19**

- (2) If the image skew is "C" as shown in the figure below, shift the aligning plate in the direction of "+", and if "D", shift it to "-".



**Fig.5-20**

Shift the aligning plate in the direction of "+".



**Fig.5-21**

Shift the aligning plate in the direction of "-".

Duplex copying:

(1) Shift the aligning plate with the scale as the guide shown in the figure below to adjust the skew.

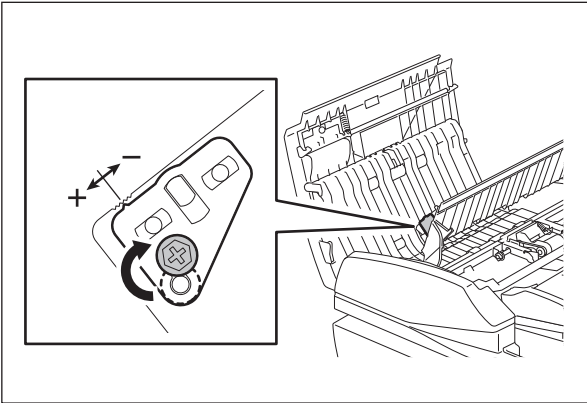


Fig.5-22

(2) If the image skew is "C" as shown in the figure below, shift the aligning plate in the direction of "-", and if "D", shift it to "+".

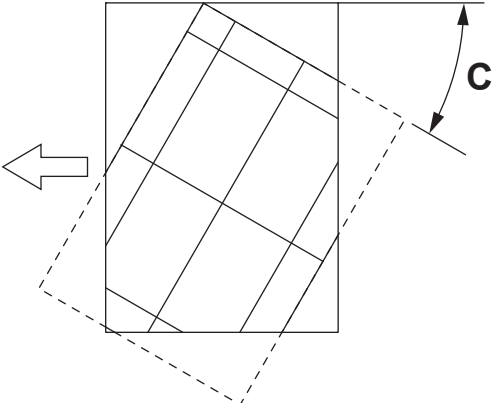


Fig.5-23

Shift the aligning plate in the direction of "-".

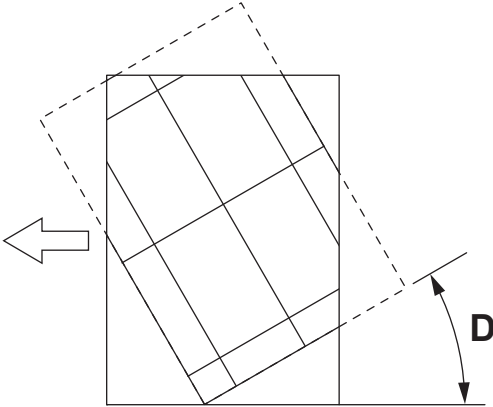


Fig.5-24

Shift the aligning plate in the direction of "+".



## 5.4 Adjustment of the Leading Edge Position

### Notes:

Check if the image adjustment for the equipment is performed properly before this adjustment of the RADF.

(See the Service Manual of the applicable equipment.)

Also, the RADF position and height shall be adjusted properly.

### [A] Checking

Check the image using the chart (original) with vertical and horizontal lines in the following procedure.

#### Simplex copying:

- (1) Place the chart provided as an original with its face up on the original tray of the RADF, select [Sort] and [1 -> 1 Simplex] and then press the [START] button.
- (2) Superimpose the chart on the copy and check the leading edge E of the chart and F of the copy.

#### Duplex copying:

- (1) Place the chart provided as an original with its face up on the original tray of the RADF, select [Sort] and [2 -> 2 Duplex] and then press the [START] button.
- (2) Superimpose the chart on the copy and check the leading edge E of the chart and F of the copy.

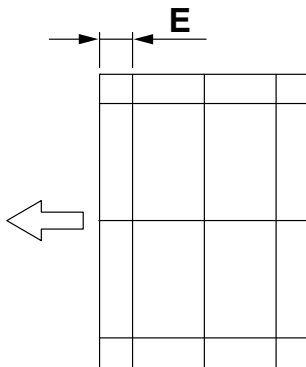


Fig.5-25 Chart (Original)

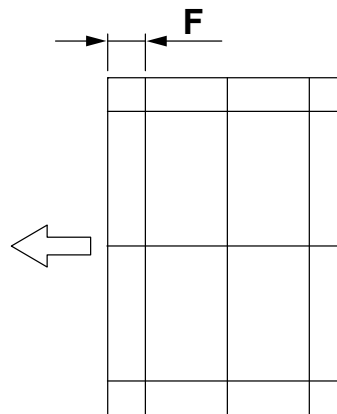


Fig.5-26 Copy

## **[B] Adjustment**

### Simplex copying:

- (1) Perform [FS-05-3044].
- (2) Enter the value.
  - If the leading edge (F) margin of the copy image is larger than the (E) margin of the chart, enter a value smaller than the current one.

#### **Notes:**

Changing one value shifts the copy image by 0.1 mm.

- If the leading edge (F) margin of the copy image is smaller than the (E) margin of the chart, enter a value larger than the current one.

#### **Notes:**

Changing one value shifts the copy image by 0.1 mm.

- (3) Press the [OK] button.

### Duplex copying:

- (1) Perform [FS-05-3045].
- (2) Enter the value.
  - If the leading edge (F) margin of the copy image is larger than the (E) margin of the chart, enter a value smaller than the current one.

#### **Notes:**

Changing one value shifts the copy image by 0.1 mm.

- If the leading edge (F) margin of the copy image is smaller than the (E) margin of the chart, enter a value larger than the current one.

#### **Notes:**

Changing one value shifts the copy image by 0.1 mm.

- (3) Press the [OK] button.

## 5.5 Adjustment of Horizontal Position

### Notes:

Check if the image adjustment for the equipment is performed properly before this adjustment of the RADF.

(See the Service Manual of the applicable equipment.)

Also, the RADF position and height shall be adjusted properly.

### [A] Checking

Check the image using the chart (original) with a center line in the following procedure.

- (1) Place the chart provided as an original with its face up on the original tray of the RADF.
- (2) Select the [Sort] and then press the [START] button.
- (3) Fold the copy in half and check if the center line is misaligned.

### [B] Adjustment

- (1) Perform [FS-05-3043].
  - If the center line of the copy image is shifted to the front side of the equipment, enter a value larger than the current one.

### Notes:

Changing one value shifts the copy image by 0.042 mm.

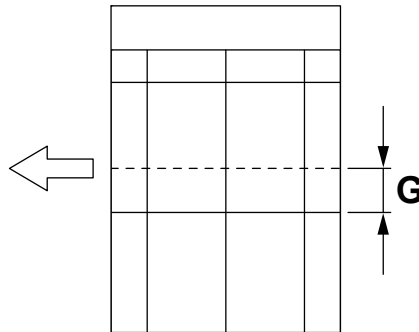


Fig.5-27

- If the center line of the copy image is shifted to the rear side of the equipment, enter a value smaller than the current one.

### Notes:

Changing one value shifts the copy image by 0.042 mm.

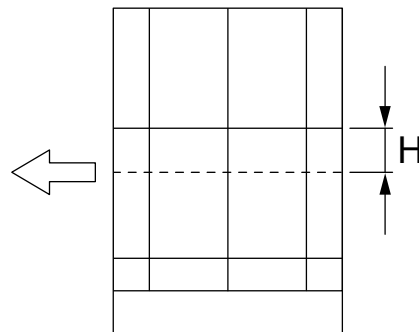


Fig.5-28

- (2) Press the [ENTER] button.

## 5.6 Adjustment of Copy Ratio

### Notes:

Check if the image adjustment for the equipment is performed properly before this adjustment of the RADF.

(See the Service Manual of the applicable equipment.)

Also, the RADF position and height shall be adjusted properly.

### [A] Checking

Check the image using the chart (original) with vertical and horizontal lines in the following procedure.

- (1) Place the chart provided as an original with its face up on the original tray of the RADF.
- (2) Select the [Sort] and then press the [START] button.
- (3) Superimpose the chart on the copy and check the image dimension "1".

### [B] Adjustment

- (1) Perform [FS-05-3042].
  - If the copy image dimension "1" is larger than the chart dimension, enter a value smaller than the current one.
  - If the copy image dimension "1" is smaller than the chart dimension, enter a value larger than the current one.

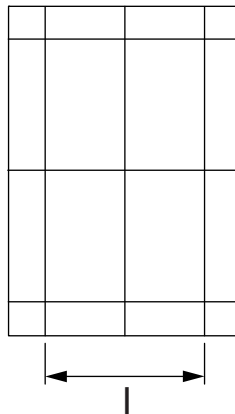


Fig.5-29

### Notes:

When the value increases by "1", the reproduction ratio of the secondary scanning direction when using the RADF increases by approx. 0.1%.

- (2) Press the [OK] button.

## 5.7 RADF Separation roller pressure force adjustment

In some cases the life of the separation roller may be shortened or paper jams (E712, E721) and multiple feeding (E724) may occur regardless of the operation frequency of the equipment. This comes from the weight or edge status of paper used and the amount of paper dust.

Generally paper jams and multiple feeding often occur as the life end of the roller approaches. However, if they often occur even though its life has not yet reached its replacement timing, or if the life end comes much earlier than the scheduled replacement timing, the jams and multiple feeding can be suppressed by adjusting the pressure force of the separation roller.

In this method, however, when the roller life becomes longer, jams and multiple feeding may occur frequently, and when the jams and multiple feeding are suppressed, the roller life may become shorter. Therefore, perform this adjustment while checking the status carefully, and if necessary, give a sufficient explanation to users.

### [A] Adjustment procedure

- (1) Open the jam access cover.
- (2) Take off the paper feeder unit [1].

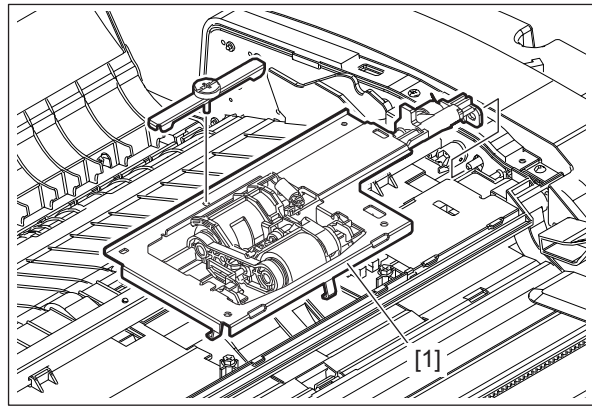


Fig.5-30

- (3) Remove 2 screws. Lift up the feeder upper guide [2] by sliding it to the right.

#### Notes:

Do not pull the harness too strong.

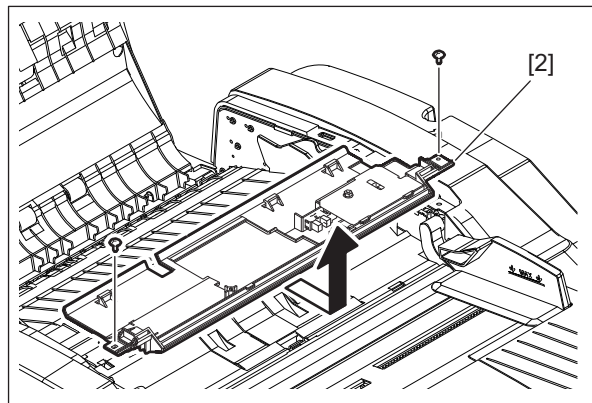


Fig.5-31

- (4) Take off the separation roller holder [3].

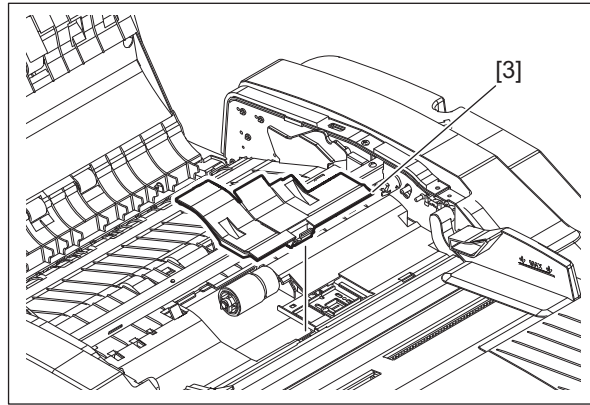


Fig.5-32

- (5) While holding the bracket [5] with your hand, remove the screw [4].

**Notes:**

When installing or taking off the bracket [5], keep it setting up because it is tensed with a spring to L direction.

- (6) Move the bracket [5].
- Move to the direction R: Paper jams (E712, E721) will be suppressed. The roller life will become longer (but multiple feeding may occur frequently).
  - Move to the direction L: Multiple feeding will be suppressed (but the roller life may become shorter).
  - The upper limit of the movement of the bracket for the adjustment is 1 scale. If the bracket is moved by 2 scales, deterioration of the pressure spring may occur.
- (7) Tighten the screw [4].

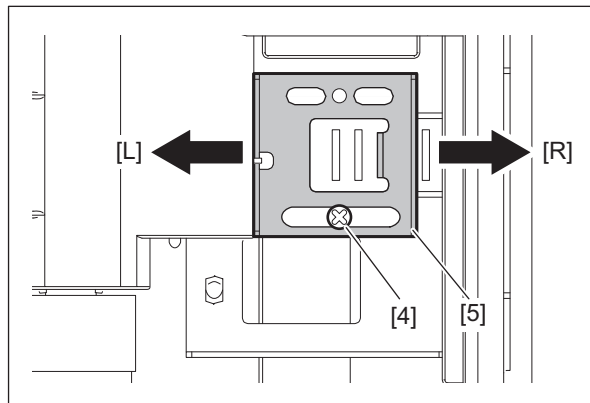


Fig.5-33

## 5.8 Platen Sheet

If a shadow-like dark area appears on the edge of the image, reset the platen sheet.

- (1) Open the RADF and remove the platen sheet.

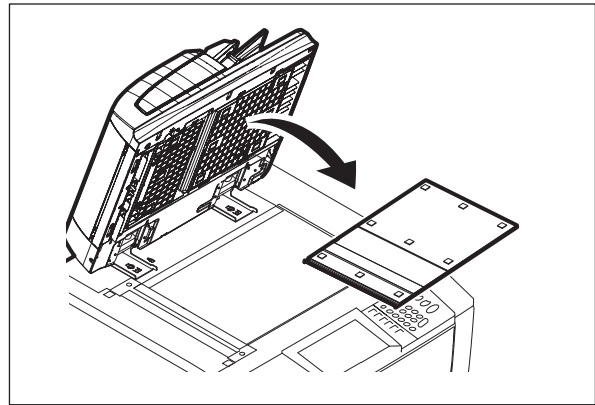


Fig.5-34

- (2) Place the platen sheet on the original glass and align it to the top left corner. Close the RADF gently and open it to check if the platen sheet is attached properly.

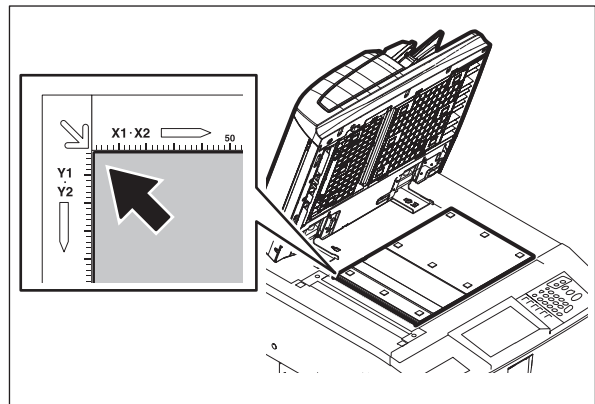


Fig.5-35





## 6. TROUBLESHOOTING

### 6.1 Troubleshooting for Mechanical Errors

#### 1. Multiple originals are transported simultaneously

Original abnormally curled or folded?

↓ YES→ Flatten the original and set it again

NO

Separation roller is dirty?

↓ YES→ Clean the roller with alcohol

NO

Replace the separation rollers with new ones

#### 2. Original is not transported to registration roller

Original thicker than specified?

↓ YES→ Use originals with permissible thickness.

↓ Place thick originals manually on the platen cover to make a copy

NO

Pickup roller and feed roller are dirty?

↓ YES→ Clean the rollers with alcohol

NO

Transport power of pickup roller and feed roller is weak?

↓

YES

Replace the rollers with new ones

#### 3. Leading edge of original is skewed

Front and rear protrusions at bottom of RADF are out of contact with glass?

↓ YES→ Adjust the height of the left hinge

NO

Transport rollers are dirty?

↓ YES→ Clean the rollers with alcohol

NO

Is the right hinge out of place?

↓

YES

Make a copy and adjust the position of the hinge

#### 4. Edges of original and copied image are not aligned

Width between slides too wide compared to that of original?

↓ YES→ Move the slides so that they contact the edges of the original

NO

Check the scanner adjustment

5. Black streaks appear on copied image

ADF original glass is dirty?

↓ YES→ Clean the glass with a dry/squeezed cloth

NO

Check the scanner unit

## 6.2 Troubleshooting for Electrical Errors

### 1. RADF does not work (except in the case of a paper jam or when the cover is open)

Interface harness connected properly?

↓ NO→ Connect the harness properly or replace it  
YES

DC+5V supplied to CN70-2, 3pin?

↓ NO→ Connect the harness properly or replace it  
YES

DC+24V supplied to CN70-6, 7pin?

↓ NO→ Connect the harness properly or replace it  
YES

DC+24V supplied to CN72-4pin?

↓ NO→ Check or replace the jam access cover switch  
YES

Empty sensor is ON when there is paper?

↓ NO→ Check or replace the empty sensor  
YES

Check or replace the RADF board

### 2. Communication error

Interface cable normal?

↓ NO→ Replace the interface cable  
YES

Check or replace the RADF board and check the equipment

### 3. Size detection error

Original tray sensor is ON when there is paper?

↓ NO→ Replace the sensor or harness  
YES

Registration roller does not catch the original?

↓ YES→ Clean the roller with alcohol or replace  
NO

Original width detection sensor-1 is ON when there is paper?

↓ NO→ Replace the sensor or harness  
YES

Original width detection sensor-2 is ON when there is paper?

↓ NO→ Replace the sensor or harness  
YES

Check or replace the RADF board

## 6.3 Jam

### Jam not reaching the original registration sensor

1. Clean the pickup roller, feed roller and separation roller if they are stained.
2. Flatten the original if it is folded or excessively curled and place it again.
3. Is the original registration sensor working? (Perform the input check)
  - \* If it is working properly, proceed to 7. If not, check 4 to 6.
4. Check if the connector CN74 on the RADF board is disconnected from the original registration sensor or the harnesses are open circuited. Correct if any.
5. Replace the original registration sensor.
6. Replace the RADF board.
7. Is the original pickup solenoid working?
  - \* If it is working properly, proceed to 12. If not, check 8 to 11.
8. Check if the solenoid is installed at the center of the scale. (The scale is longer in the center.)
9. If it is not, correct the position, aligning with the center of the scale.
10. Check if the connector CN79 on the RADF board is disconnected from the original pickup solenoid or the harnesses are open circuited. Correct if any.
11. Replace the original pickup solenoid.
12. Replace the RADF board.
13. Replace the pickup roller, feed roller and separation roller if they are worn out.

### Feed signal reception jam

1. Is the empty sensor working? (Perform the input check)
2. Check if the lever of empty sensor is working normally.
3. Check if the connector CN75 on the RADF board is disconnected from the empty sensor or the harnesses are open circuited. Correct if any.
4. Replace the empty sensor.
5. Replace the RADF board.

### Jam not reaching the read sensor

1. Clean the registration roller and the read roller if they are stained.
2. Is the read sensor working? (Perform the input check)
  - \* If it is working properly, proceed to 6. If not, check 3 to 5 below.
3. Check if the connector CN75 on the RADF board is disconnected from the read sensor or the harnesses are open circuited. Correct if any.
4. Replace the read sensor.
5. Replace the RADF board.
6. Replace the registration roller and the read roller if they are worn out.

### Jam not reaching the exit sensor (during scanning)

1. Clean the read roller if it is stained.
2. Is the original exit/reverse sensor working? (Perform the input check)
  - \* If it is working properly, proceed to 6. If not, check 3 to 5 below.
3. Check if the connector CN75 on the RADF board is disconnected from the original exit/reverse sensor or the harnesses are open circuited. Correct if any.
4. Replace the original exit/reverse sensor
5. Replace the RADF board.
6. Replace the read roller if it is worn out.

### Stop jam at the original registration sensor

1. Clean the registration roller if it is stained.
2. Are the original registration sensor, original width detection sensor-1, original width detection sensor-2, original length detection sensor working? (Perform the input check)
  - \* If it is working properly, proceed to 9. If not, check 3 to 8 below.
3. Check if the connector CN74 on the RADF board is disconnected from the original registration sensor or the harnesses are open circuited. Correct if any.
4. Check if the connector CN74 on the RADF board is disconnected from the original width detection sensor-1 or the harnesses are open circuited. Correct if any.
5. Check if the connector CN74 on the RADF board is disconnected from the original width detection sensor-2 or the harnesses are open circuited. Correct if any.
6. Check if the connector CN74 on the RADF board is disconnected from the original length detection sensor or the harnesses are open circuited. Correct if any.
7. Replace the original registration sensor.
8. Replace the original width detection sensor-1.
9. Replace the original width detection sensor-2.
10. Replace the original length detection sensor.
11. Replace the RADF board.
12. Replace the registration roller if it is worn out.

### Stop jam at the read sensor

1. Clean the read roller if it is stained.
2. Are the read sensor and original intermediate transport sensor working? (Perform the input check)
  - \* If it is working properly, proceed to 6. If not, check 3 to 5 below.
3. Check if the connector CN75 on the RADF board is disconnected from the read sensor or the harnesses are open circuited. Correct if any.
4. Check if the connector CN75 on the RADF board is disconnected from the Original intermediate transport sensor or the harnesses are open circuited. Correct if any.
5. Replace the read sensor.
6. Replace the original intermediate transport sensor.
7. Replace the RADF board.
8. Replace the read roller if it is worn out.

### Stop jam at the original exit/reverse sensor

1. Clean the exit roller if it is stained.
2. Is the original exit/reverse sensor working? (Perform the input check)
  - \* If it is working properly, proceed to 6. If not, check 3 to 5 below.
3. Check if the connector CN75 on the RADF board is disconnected from the original exit/reverse sensor or the harnesses are open circuited. Correct if any.
4. Replace the original exit/reverse sensor.
5. Replace the RADF board.
6. Replace the exit roller if it is worn out.

### RADF jam access cover open jam

1. Close the RADF jam access cover if it is opened. Remove if there is any original before closing it.
2. Is the RADF jam access cover opening/closing switch working? (Perform the input check)
  - \* If it is working properly, proceed to 6. If not, check 3 to 5 below.
3. Check if the connector CN72 on the RADF board is disconnected from the RADF jam access cover opening/closing switch or the harnesses are open circuited. Correct if any.
4. Replace the RADF jam access cover opening/closing switch.
5. Replace the RADF board.

**RADF open jam**

1. Close the RADF if it is opened. Remove if there is any original before closing it.
2. Are platen sensor-1 and platen sensor-2 working? (Perform the input check)
3. Check if the connector CN121 on the SYS board is disconnected from the platen sensor-1 and platen sensor-2 or the harnesses are open circuited. Correct if any.
4. Replace platen sensor-1 and platen sensor-2.
5. Replace the SYS board.

**Cover open jam in the read ready status**

1. Close the RADF jam access cover or the front cover if they are opened in the read ready status.
2. Is the RADF jam access cover sensor working? (Perform the input check)
3. Check if the connector CN75 on the RADF board is disconnected from the RADF jam access cover sensor or the harnesses are open circuited. Correct if any.
4. Replace the RADF jam access cover sensor.
5. Replace the RADF board.

# 7. MAINTENANCE AND REWRITING ROM

## 7.1 Periodic Maintenance

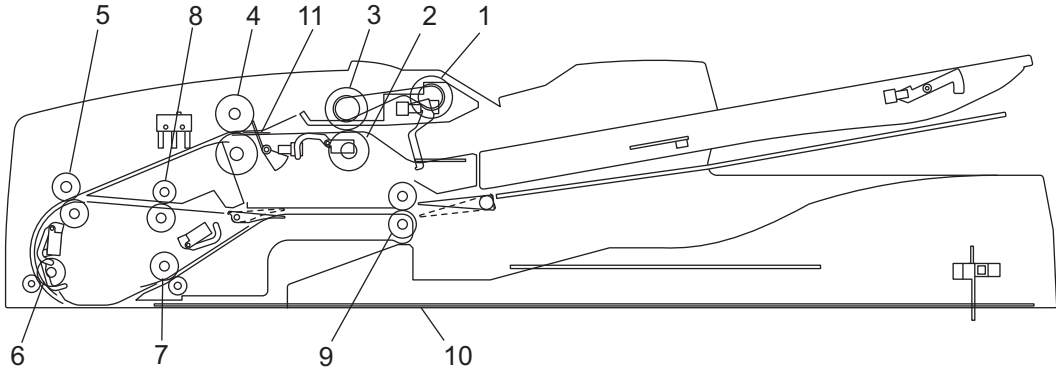


Fig. 7-1

Symbols used in the checklist

Cleaning	Lubrication/Coating	Replacement	Operation check
A: Clean with alcohol B: Clean with soft pad, cloth or vacuum cleaner	L: Launa 40 SI: Silicon oil W: White grease (Molykote EM-30L)	Value:Replacement cycle R1:Replace R3:Replace if deformed or damaged	O: After cleaning or replacement, confirm there is no problem

### Preventive Maintenance Checklist

**Notes:**

- Page-Item (P-I) is described in the column of the Parts list.
- Make sure properly to remove any dirt adhering to the convex-concave on the roller surface while cleaning it. (See the below figure: e.g. cleaned roller)

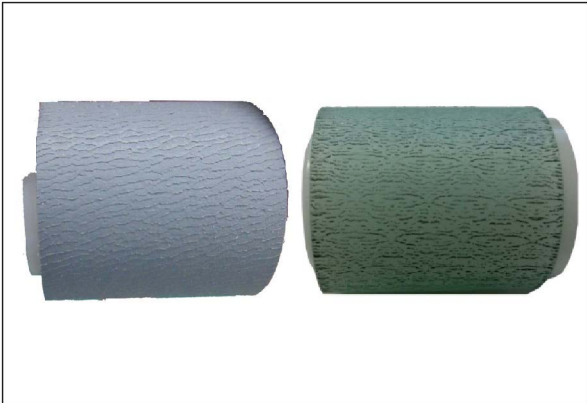


Fig. 7-2

Item to check		Cleaning (30K)	Lubrication / Coating	Replaceme nt (x1,000)	Operation check	Parts list (P-I)	Remarks
1	Pickup roller	A		R1 120		5-1	
2	Separation roller	A		R1 120		4-10	
3	Feed roller	A		R1 120		5-1	
4	Registration roller	A				4-30	
5	Intermediate transfer roller	A				3-13	
6	Front read roller	A				3-14	
7	Rear read roller	A				3-1	
8	Reverse registration roller	A				3-10	
9	Exit/reverse roller	A				4-25	
10	Platen sheet	B or A				1-25	
11	Registration roller front sheet			R1 120			Attached on the feeder lower guide



## 7.2 Rewriting ROM (Firmware Updating)

For updating firmware, refer to " FIRMWARE UPDATING" in the Service Manual for MFP.



# 8. CIRCUIT DIAGRAM / HARNESS DIAGRAM

## 8.1 Circuit Diagram

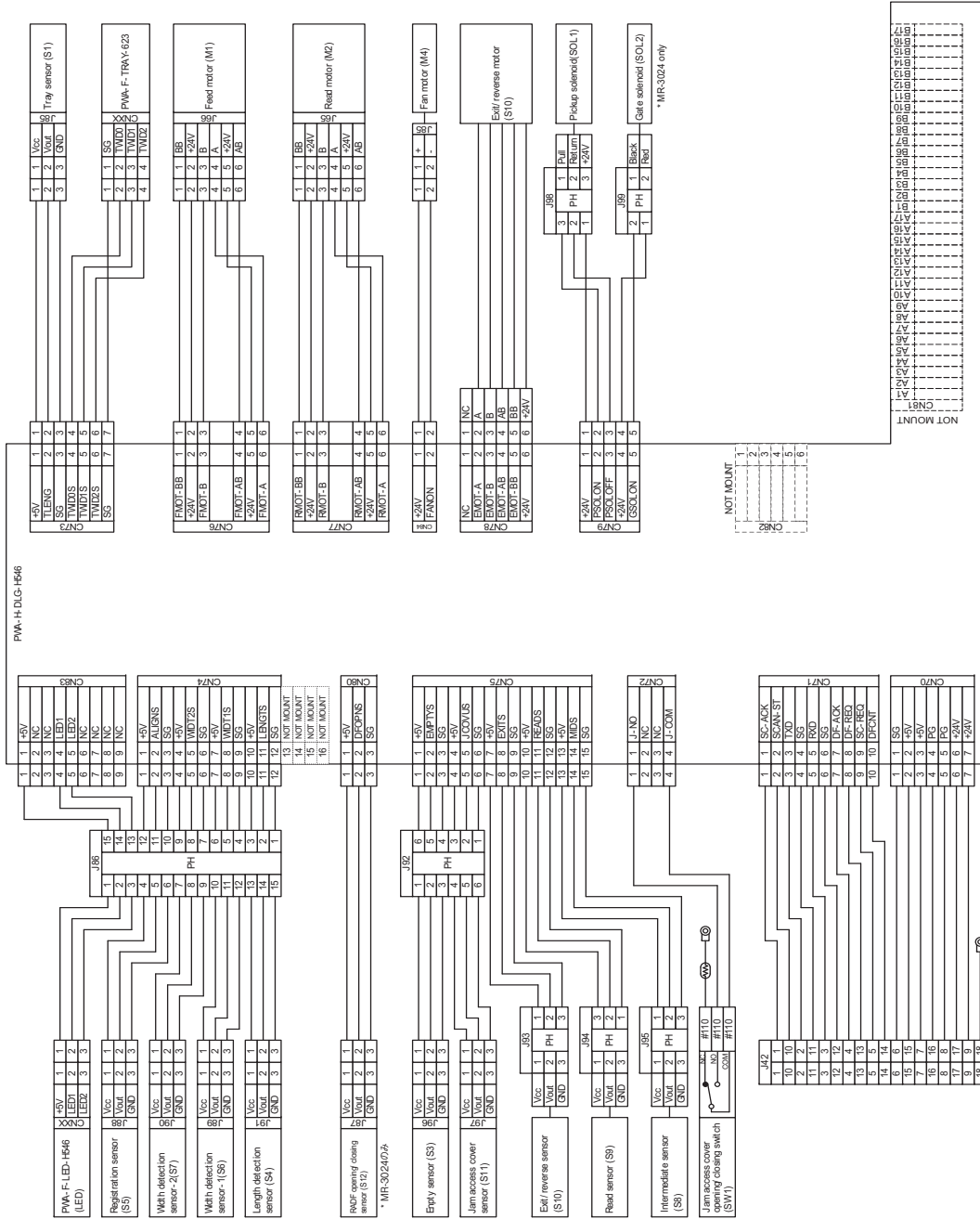


Fig.8-1

# 8.2 Control PC Board Circuit

## 8.2.1 MR-3031

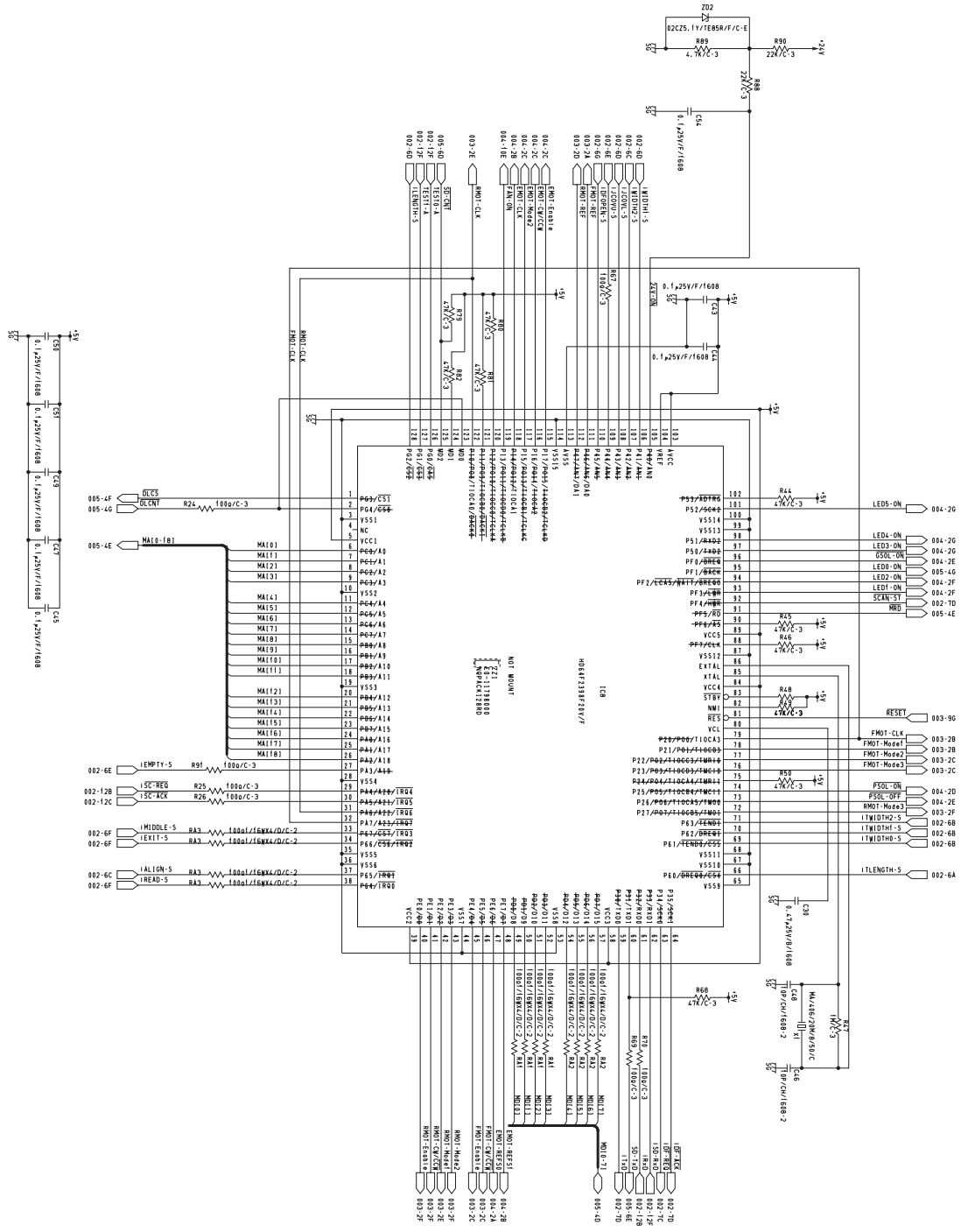


Fig.8-2

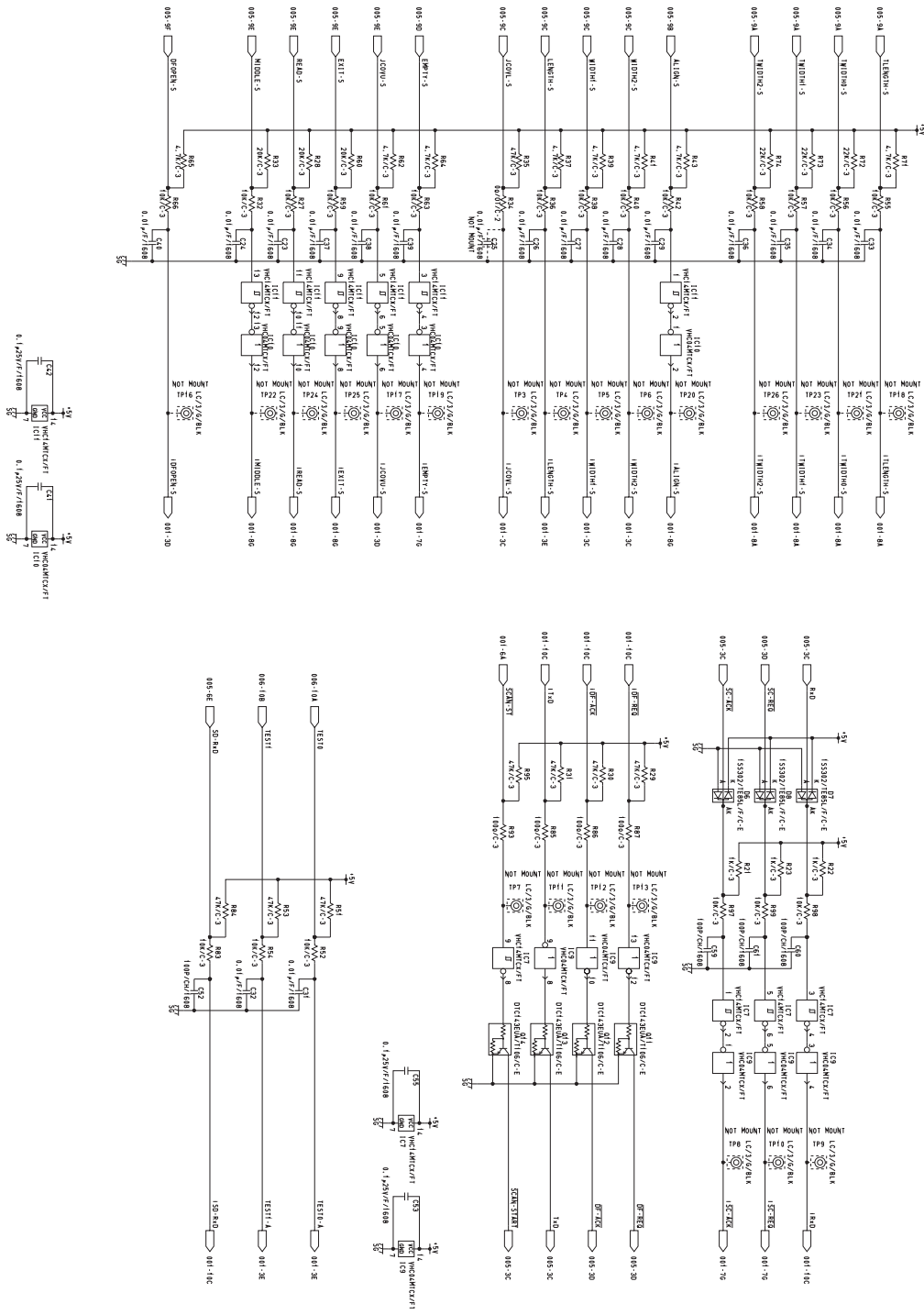


Fig.8-3

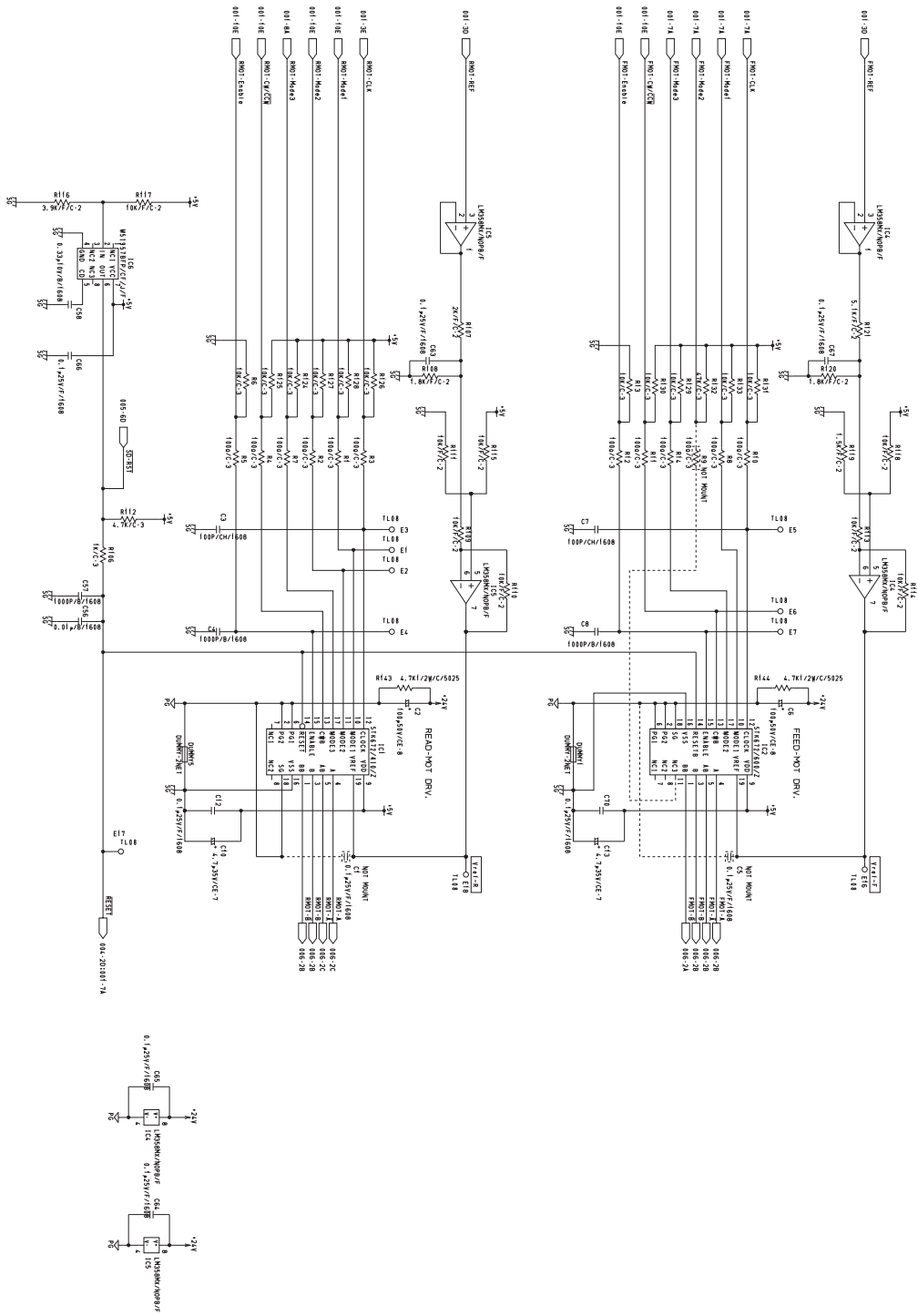


Fig.8-4

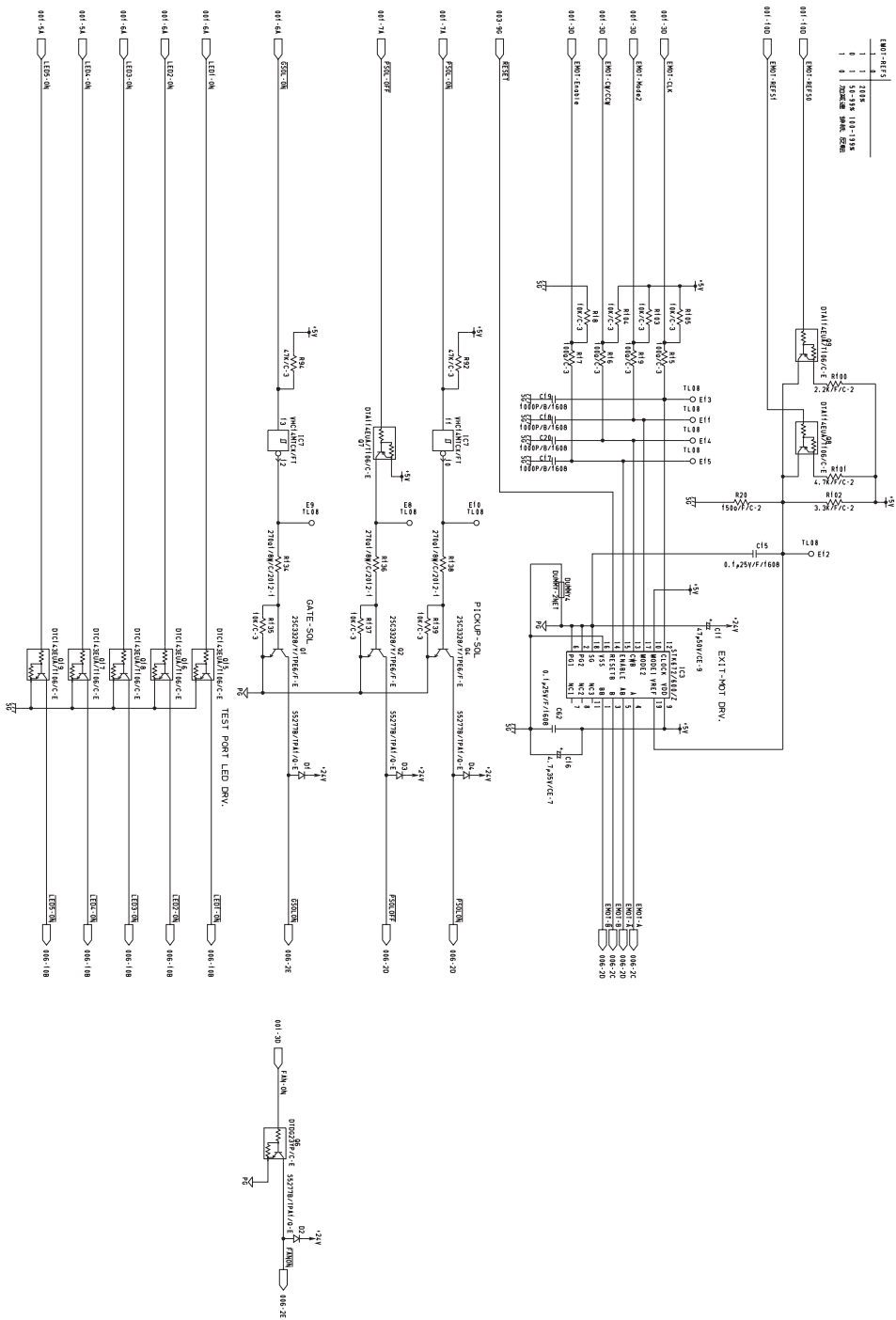


Fig.8-5

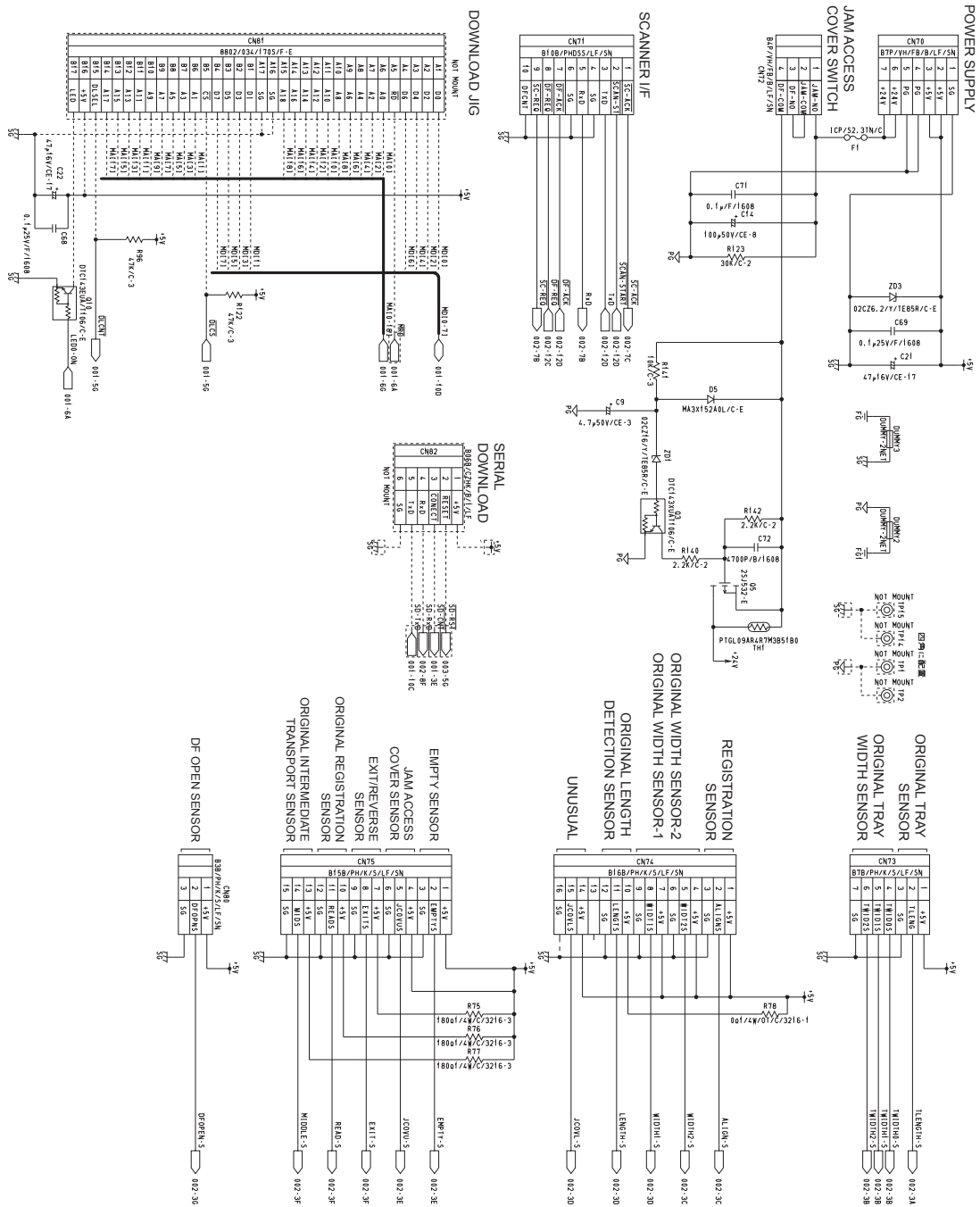


Fig.8-6



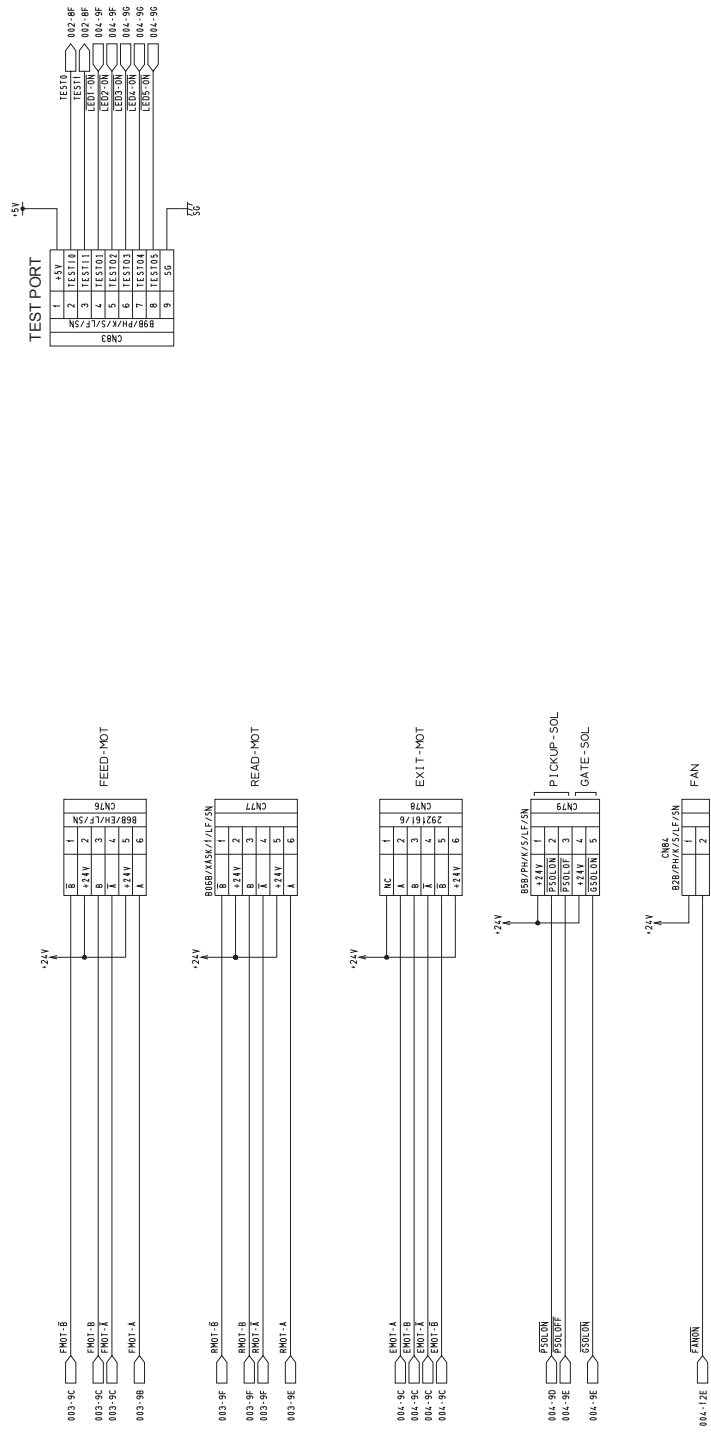


Fig.8-7



# REVISION RECORD

## Ver.02

Ver02 <2018.06.20>	
Page	Contents
1-1	"Remarks" has been added

## Ver.01

Ver01<2017.06.29>	
Page	Contents
3-5	The mistake has been corrected.
3-7	The mistake has been corrected.
4-25	A note has been added.
5-12	The mistake has been corrected.
5-15 to 5-16	The adjustment procedure "5.7 RADF Separation roller pressure force adjustment" has been added.
5-17	The adjustment procedure "5.8 Platen Sheet" has been added.

## Ver.00

Ver00<2016.03.29>	
Page	Contents
-	Initial release





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