70

Standard Finisher Maintenance Manual

May, 2005
N901402

The material in this document is for informational purposes and is subject to change without notice. Ricoh Printing Systems, Ltd. assumes no responsibility for errors or omissions in this document. No liability is assumed for any damages resulting from the use of the information it contains.

NOTICE TO USER

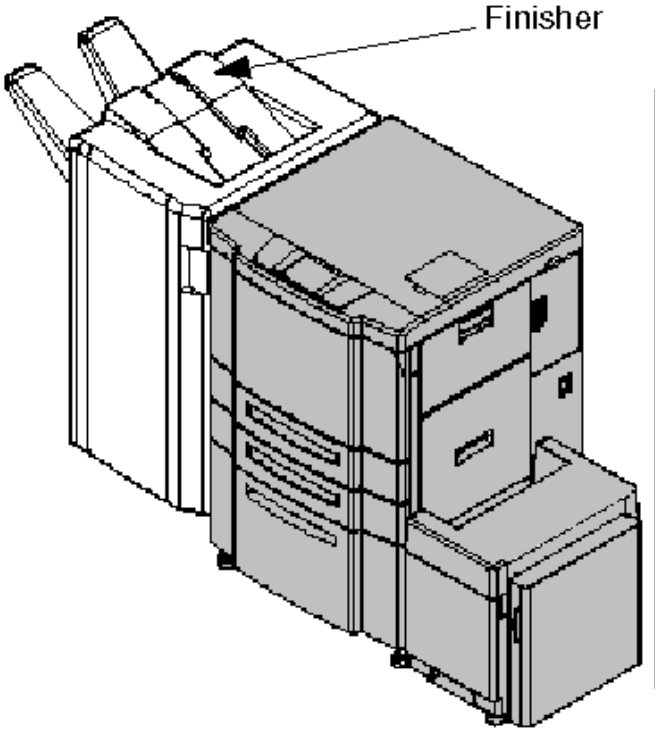
In an effort to meet the demands of a rapidly changing technology, the manufacturer is continually developing new features and functions to meet your changing printing or printer needs. Please be sure to consult all manual updates or addenda when using this product's documentation.

DDP70

Finisher
Maintenance Manual

"Click on blue to view"

Table of Contents



Dated: May, 2005

DDP70 Finisher
Maintenance Manual

N901402

Revisions

Page Rev.	Machine Rev.	Page No. (Contents)	Date
00	-	First Edition	May, 2005

Safety

Safety in Operation

Contents

Chapter 1. Outlines

1.1. Characteristics

70 pages/minutes high speed cut sheet finisher
Offset sorting and stapling with 3 places are available
Small size and easy paper handling
Easy change for staple cartridge
Applicable for variety size of paper

1.2. Specifications

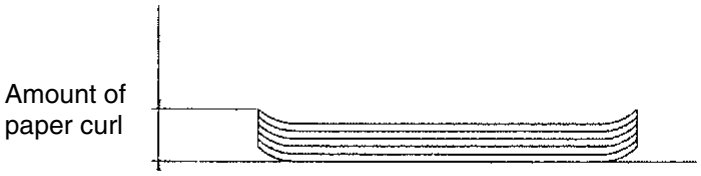
Finishing speed	70 pages /minute (Letter, A4/LEF)	
Dimensions	460(784*) x 1035 x 616 mm*: Include the shift tray	
Weight	50 kg.	
Paper -Size	A5 SEF*, B5 LEF, A4 LEF, A4 SEF, B4 SEF, A3 SEF, Letter SEF, Letter LEF, 8.5x12.4" SEF, Legal 13" SEF, Legal 14" SEF, Ledger SEF, 12x18" SEF* (SEF: Short Edge Feed LEF: Long Edge Feed) * Non-staple mode only	
-Weight	Non-staple mode:	16 to 110(Index) lbs.
	Sub tray exit mode:	16 to 42 lbs.
	Staple mode:	16 to 34 lbs. (Option for over 34 to 110(Index) lbs.)

Stacking mode Each stacking capacity is specified with xerography and capacity80g/m^2 paper.
(1)Sub-tray exit mode
Maximum 200 sheets
(2)Non-staple / Offset mode
Maximum 2,000 sheets---- A4, Letter, B5
Maximum 1,500 sheets---- A3, B4, 8.5x12.4", Legal 13", Legal 14", Ledger, 12x18"
Maximum 500 Sheets---- A5
(3)Staple mode

Number of stapled sheets	Other than A3, Ledger	A3, Ledger
2 to 9	100 stacks	50 stacks
10 to 20	50 stacks	50 stacks
21 to 30	30 stacks	30 stacks
31 to 40	25 stacks	25 stacks
41 to 50	20 stacks	20 stacks

Table 1-1. Stacking Mode and Capacity

Paper curl The allowable amount of paper curl is 10mm maximum.



5 sheets of printed paper

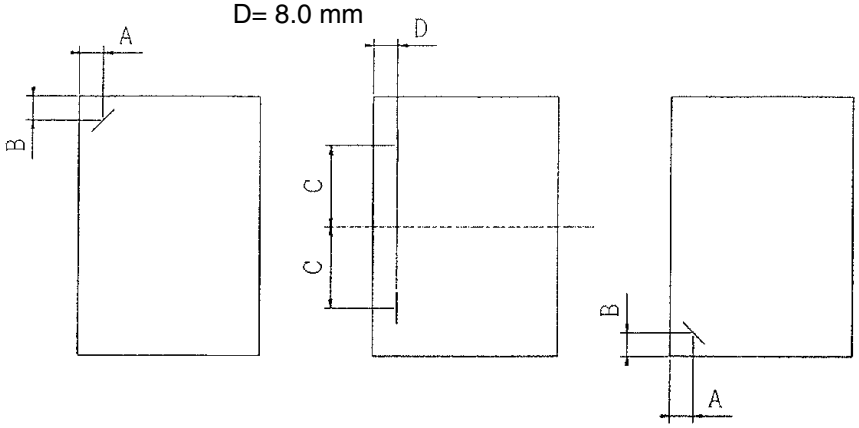
Amount of offset 30 mm **Note**: Non-staple mode only

Stable type ofFlat clinch
clinch

Stapling capability Maximum 50 sheets (80 g/m^2, 5.0 mm and below)

Stapling position 3 places

A= 8.8 mm
B= 8.8 mm
C= 89.1 mm
D= 8.0 mm



Stapling capacity 5,000 staples / cartridge

Power source 24V/5V (Supplied from the printer)

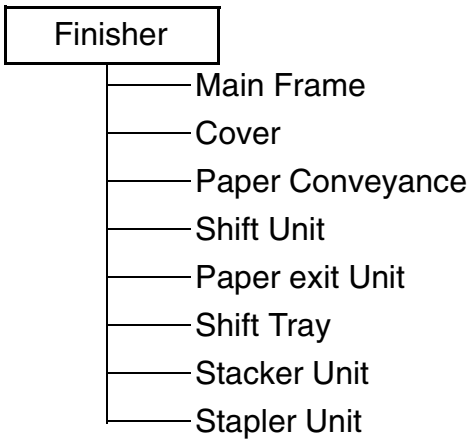
Temperature and Humidity

(1) Operation
Temperature : 10 to 32 °C (50 to 89.6 °F)
Humidity : 20 to 80 %
Wet Bulb 26 deg.C (78.8 °F) max.

(2) Recommended condition
Temperature : 19 to 25 °C (66.2 to 77 °F)
Humidity : 40 to 60 %

1.3. Configurations

The basic configuration of this finisher is as follows.



Chapter 2. Safe Handling of the Finisher

This chapter describes the rules for safe handling of the finisher which must be strictly observed by all maintenance personnel. Before conducting maintenance and inspection of the finisher, you must fully comprehend the following.

1. Before conducting maintenance or inspection, be sure to switch the power supply **OFF**.
2. If it is absolutely necessary to work with the power turned ON, observe the following:
3. Have one individual watch while the work is being performed so that that person may switch **OFF** the power switch at anytime if necessary.
4. Never allow two individuals to work at the same time. It is very dangerous if a drive part actuates suddenly.
   (a) Never wear a ring, wristwatch, cuff-links, bracelet, metal fastener or any other metallic objects.
   (b) Be sure not to loosen or misuse screws. It is good practice to put a sheet of paper under a portion where it is difficult to find small parts if dropped. Make it a rule to replace screws back to their original place immediately after removal of a part.
   (c) Be particularly careful not to let a tool or a part drop into the finisher.
5. Whenever working on near a rotating part, stop the rotation and ascertain the shape of it. The projection of a rotating part is very dangerous as it cannot be seen when rotating. During work, pay attention to ties, sleeves, shirts and long hair so that they may not be caught in the finisher. Always wear a working cap.
6. Before handling a movable part, make certain that it has completely stopped.
7. Wear eye protection whenever the following jobs are to be performed;
   (a) To hammer the pins or rivet.
   (b) To perform work using a hand drill.
   (c) To mount or dismount a spring.
   (d) To perform soldering or cutting wires.
   (e) To clean parts.
8. Make sure that the power is **OFF** when replacing a PCB.
9. Care must be taken to store covers which are detached at a proper place to avoid other people from tripping or stumbling, over them.
10. Do not leave tools in any unit, nor leave them on the floor. It is dangerous if they are dropped into a unit and also it may cause other people to trip or slip on them in another instance.
11. When you are going to move the finisher, first check to see that no personnel or customers are around a dangerous position.
12. Carefully observe cautions itemized in this Maintenance Manual for your operations.
13. Be sure that nobody touches the finisher and carefully recheck if there is incorrect wiring, incorrect connections, or tools remaining on the finisher before turning ON the finisher.
14. Replace all the covers of the finisher back to their original position and make the final checks without fail.
15. Before handing the finisher over to the customer, perform overall checking again.

Chapter 3. General Information

This chapter describes the cautions and matter in general in relationship to the maintenance. It is particularly essential to read the following.

3.1. Maintenance Precautions

1. Thoroughly read through and understand the instructions to handle the finisher safely as described in Chapter 2, “Safe Handling of the Finisher,” on page 2-1.
2. Do not place such parts as screws on the upper cover as these may fall off and get astray.

3.2. Powering ON and OFF the Finisher

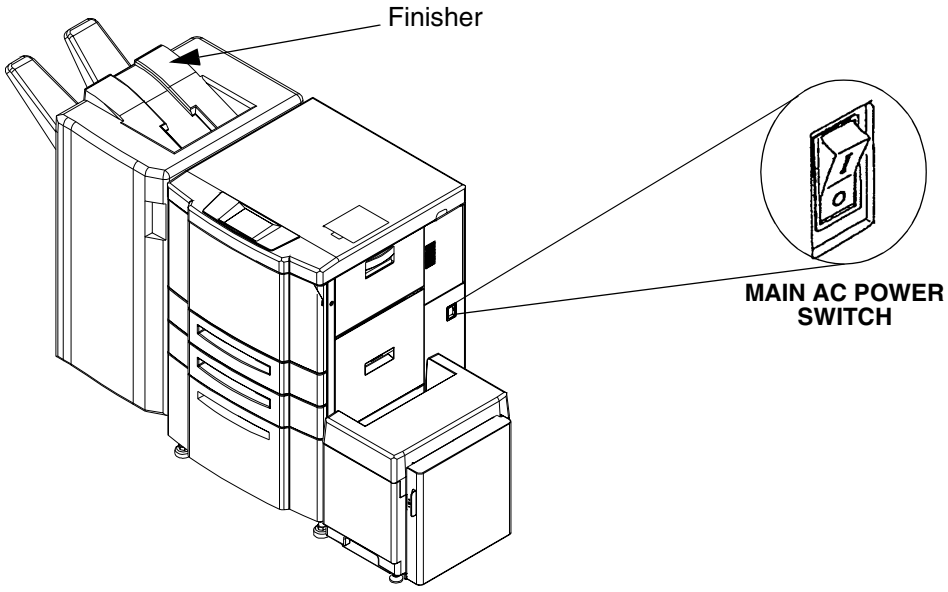


Figure 3-1. Location of the Main AC Power Switch

3.3. Tool Required

The tools which are necessary for servicing the finisher are listed below.

Table 3-1. Names of General Tools - Scale in metric

Item	NAME	SPECIFICATION
1.	Philips Screwdriver	No. 2 MediumShaft length ; approx. 100mm
2.	Jeweler's Screwdriver Set	Tip width 2.0 to 2.5 mm
3.	Long Nose Chain Plier with side cutter (Radio Nipper)	
4.	Push-Pull Scale	3 kg
5.	Adjustable Open End Wrench	Span 30mm

Table 3-2. Measurement Instruments

Item	NAME	USAGE
1.	Multimeter	Measurement of Voltage and Resistance

Table 3-3. Consumables

Item	NAME	USAGE
1.	Lint-Free Cloth	Cleaning contaminated areas of the finisher

3.4. Motor & Solenoid Locations

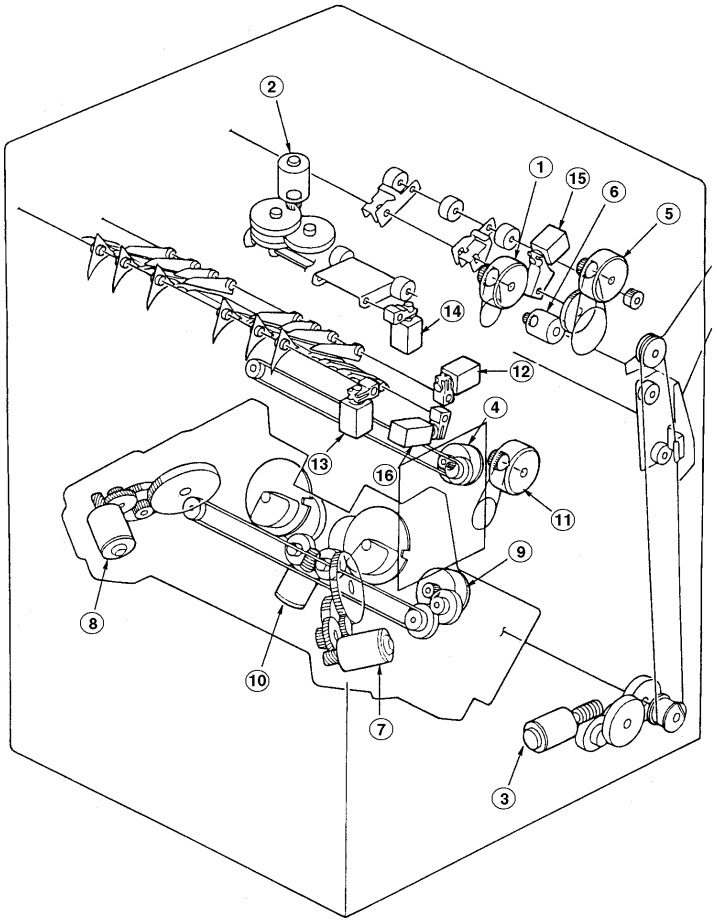


Figure 3-2. Location of all Motors & Solenoids

Table 3-4. Names of Motors & Solenoids

No.	Name	Marks	Maintenance Ref. + Page	Parts Catalog			Remarks
				List	Item No.	Block	
1.	Conveyance Motor (M1)	M1	4.3.7 Page 4-12	8	1	FS	
2.	Roller Shift Motor	M2		3	1	FS	
3.	Tray Up-down Motor	M3	4.3.5 Page 4-10	7	16	FS	
4.	Alignment Plate Motor	M5		9	26	FS	
5.	Conveyance Motor (M7)	M7	4.3.8 Page 4-13	6	33	FS	
6.	Paper Exit Opening Motor	M8		8	27	FS	
7.	Staple R Motor	M9	4.3.4 Page 4-8	10	41	FS	
8.	Staple F Motor	M10	4.3.4 Page 4-8	10	41	FS	
9.	Stapler Movement Motor	M11		10	13	FS	
10.	Stapler Rotation Motor	M12		10	7	FS	

Table 3-4. Names of Motors & Solenoids

No.	Name	Marks	Maintenance Ref. + Page	Parts Catalog			Remarks
				List	Item No.	Block	
11.	Stacker Entrance Motor	M14		9	40	FS	
12.	Gate Solenoid	SD1		8	15	FS	
13.	Sub-tray Paper Exit Solenoid	SD2		8	15	FS	
14.	Grip Solenoid	SD3	4.3.9 Page 4-14	3	39	FS	
15.	Paper Exit Opening Solenoid	SD4	4.3.10 Page 4-15	6	8	FS	
16.	By-pass Solenoid	SD5		8	15	FS	

3.5. Switch & Sensor Locations

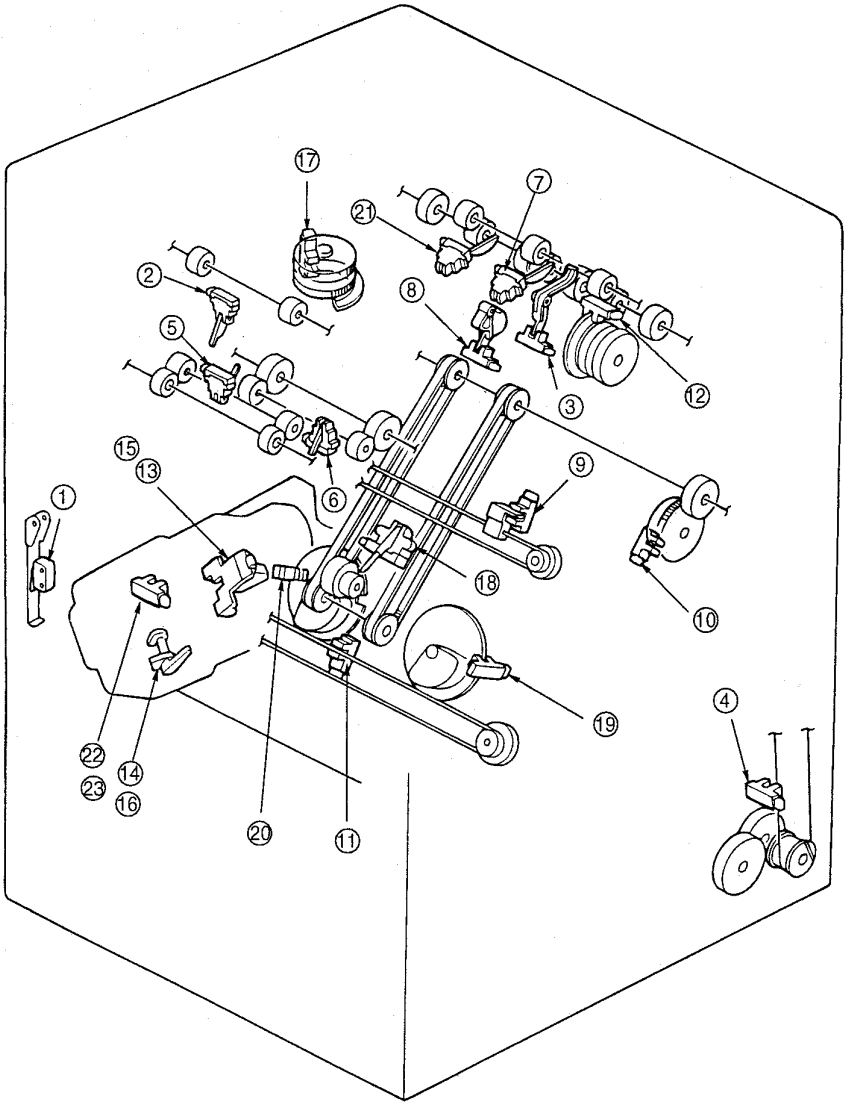


Figure 3-3. Location of all Switches & Sensors

Table 3-5. Names of Switches & Sensors

No.	Name	Marks	Maintenance Ref. + Page	Parts Catalog			Remarks
				List	Item No.	Block	
1.	Interlock	MS1		1	16	FS	
2.	Sub-tray Exit Sensor	PS1		4	15	FS	
3.	Tray Upper Limit Sensor	PS2		1	31	FS	
4.	Tray Lower Limit Sensor	PS3		7	11	FS	
5.	FIN Entrance Sensor	PS4		4	15	FS	
6.	Stacker Conveyance Sensor	PS5		5	2	FS	

Table 3-5. Names of Switches & Sensors

No.	Name	Marks	Maintenance Ref. + Page	Parts Catalog			Remarks
				List	Item No.	Block	
7.	Paper Exit 1 Sensor	PS6		6	24	FS	
8.	Staple Paper Exit Sensor	PS7		7	10	FS	
9.	Alignment Plate HP Sensor	PS8		9	5	FS	
10.	Paper Exit Belt HP Sensor	PS9		9	5	FS	
11.	Staple Movement HP Sensor	PS11		10	4	FS	
12.	Paper Exit Opening Sensor	PS12		8	20	FS	
13.	No R Staple Sensor	PS14		10	41	FS	
14.	R Staple HP Sensor	PS15		10	41	FS	
15.	No F Staple Sensor	PS16		10	41	FS	
16.	F Staple HP Sensor	PS17		10	41	FS	
17.	Roller Shift HP Sensor	PS18		3	3	FS	
18.	Stacker Paper Sensor	PS20		9	5	FS	
19.	Staple Rotation HP1 Sensor	PS21		10	4	FS	
20.	Staple Rotation HP2 Sensor	PS22		10	4	FS	
21.	Paper Exit 2 Sensor	PS23		6	24	FS	
22.	R Staple Ready Sensor	PS24		10	41	FS	
23.	F Staple Ready Sensor	PS25		10	41	FS	

3.6. Finisher Circuit Diagram

Note: SNS means Sensor.
SD means Solenoid.

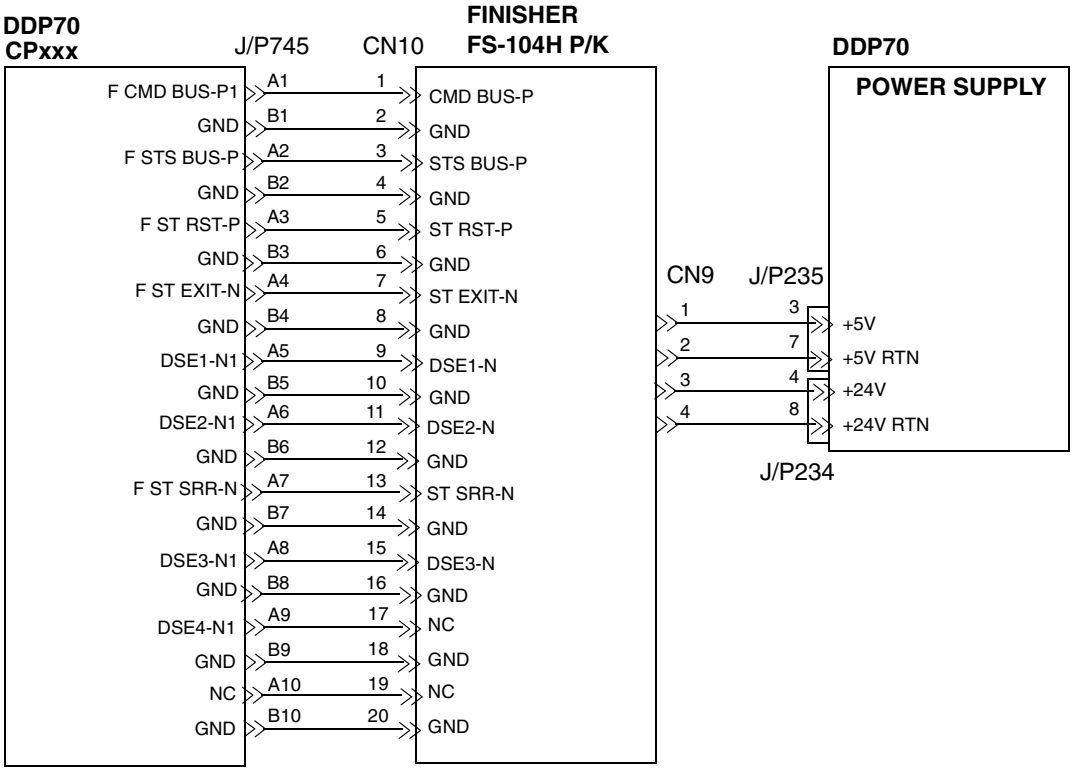


Figure 3-1. Finisher Circuit Diagram

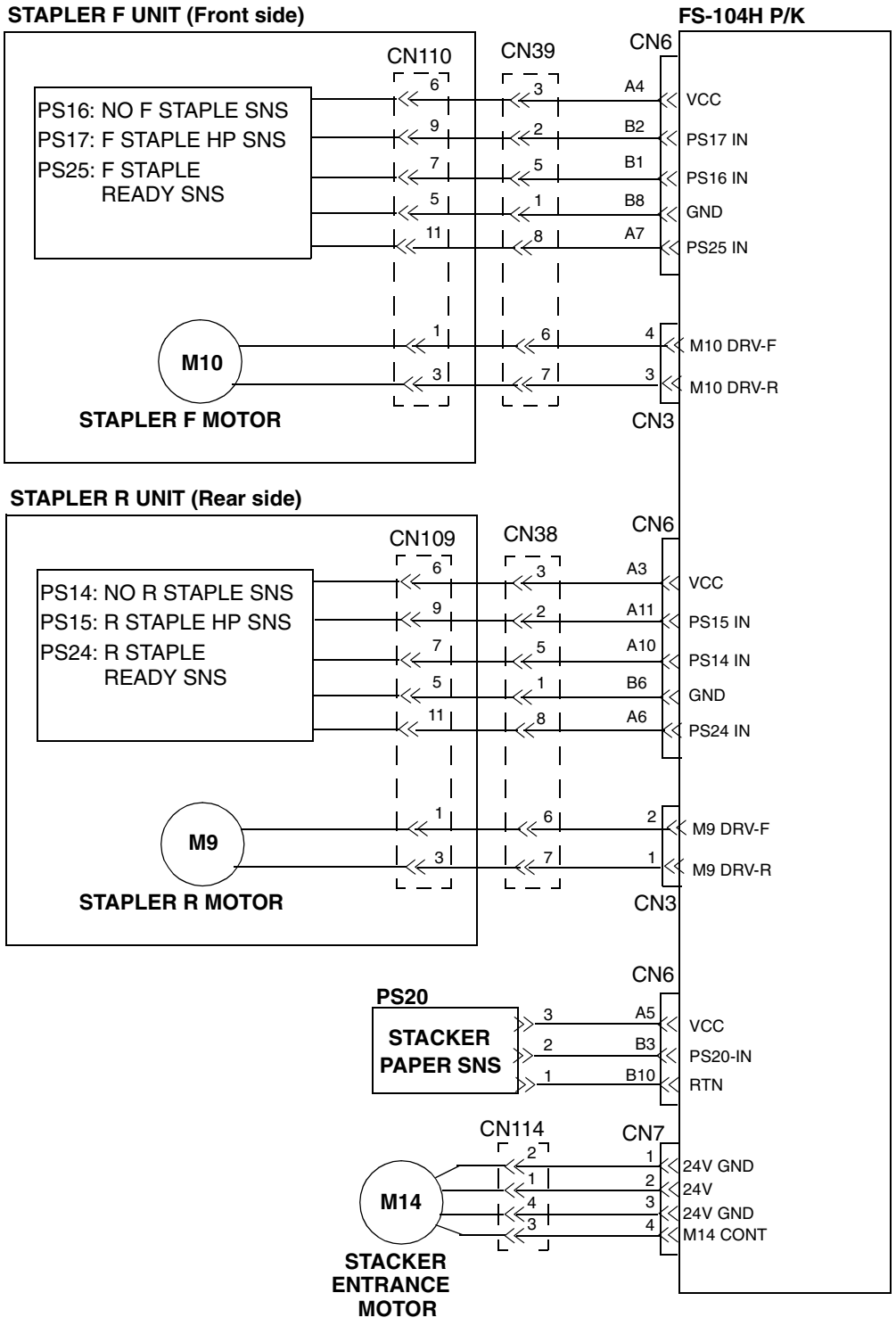


Figure 3-2. Finisher Circuit Diagram

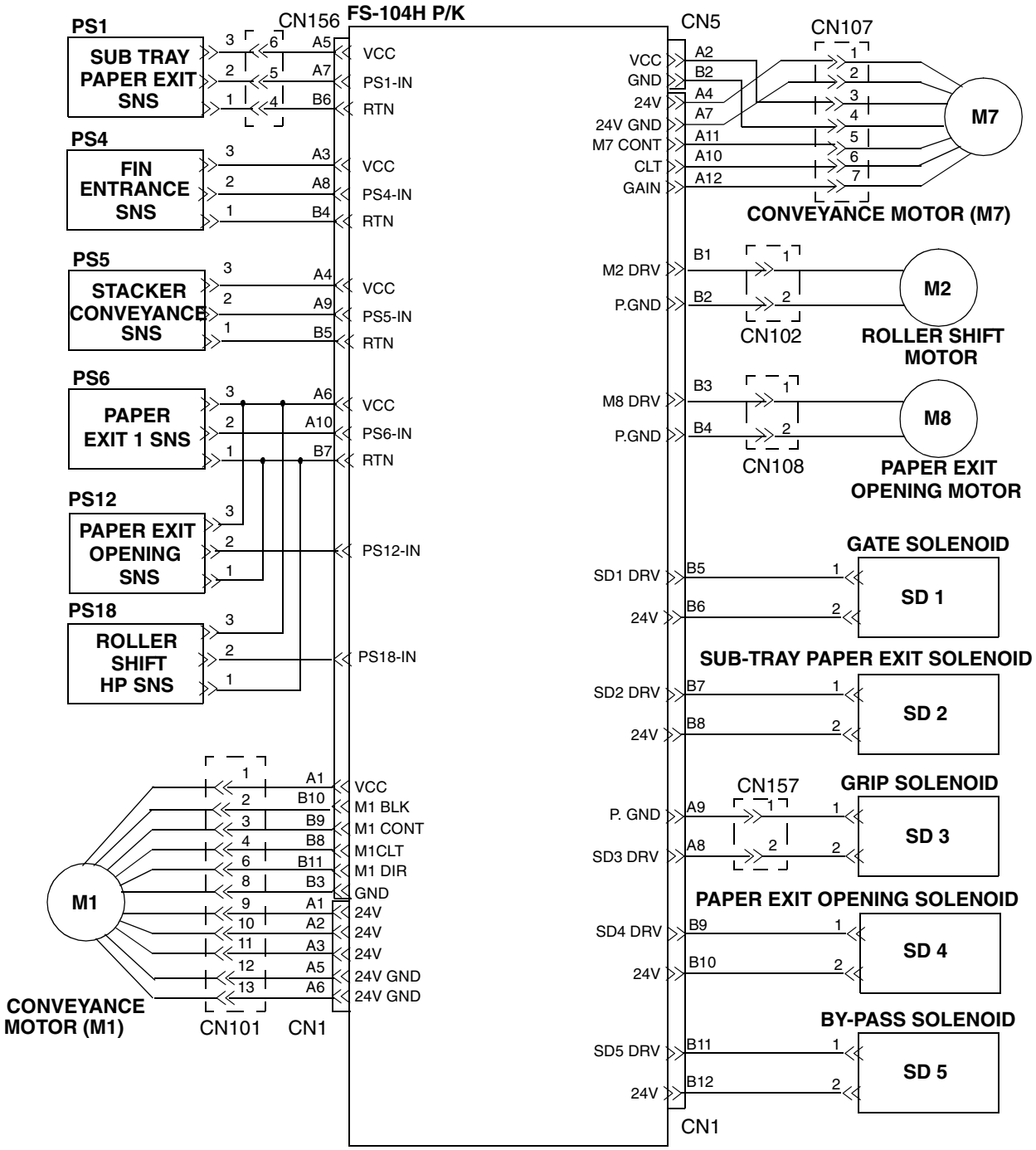


Figure 3-3. Finisher Circuit Diagram

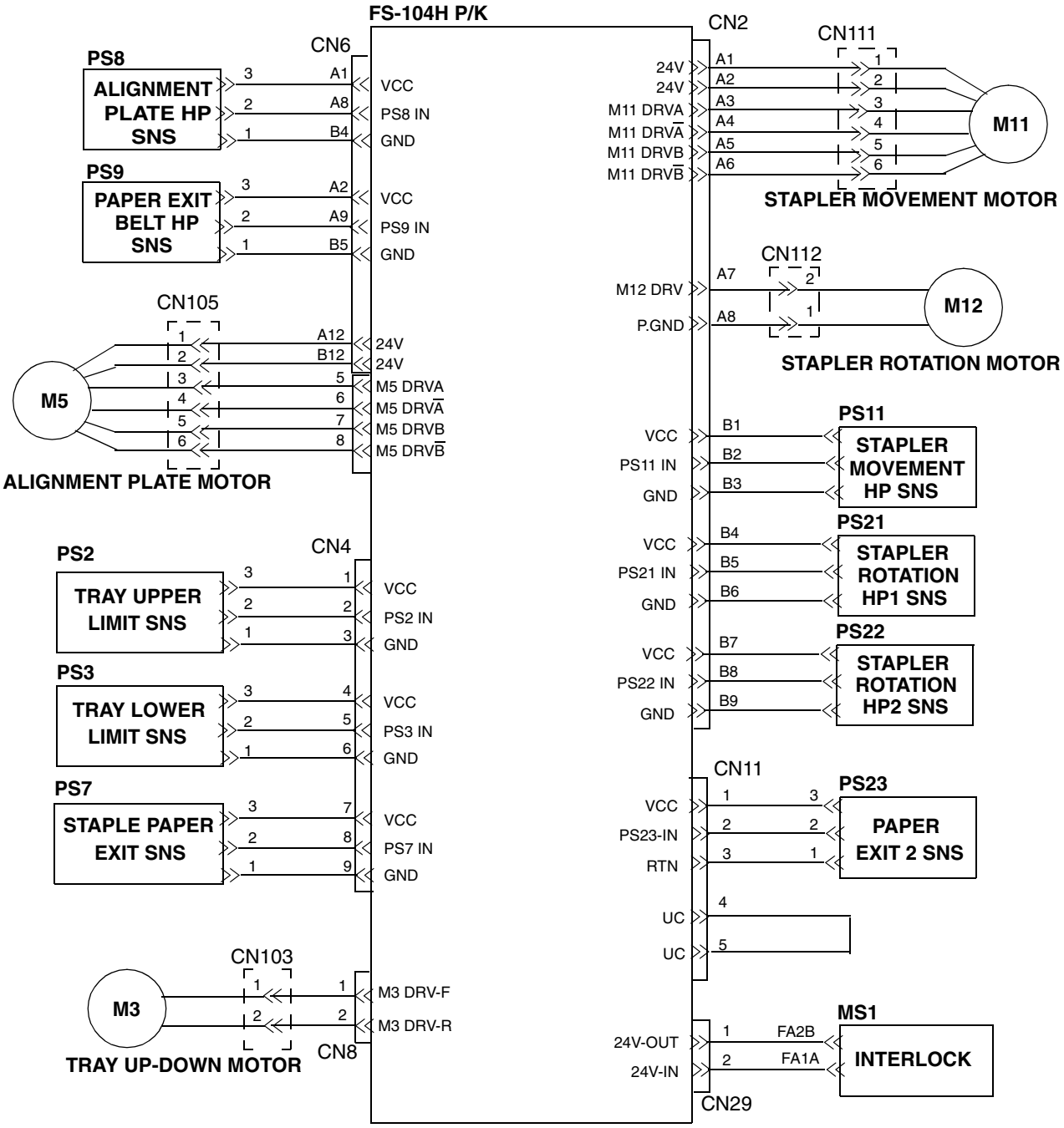


Figure 3-4. Finisher Circuit Diagram

Chapter 4. Preventive Maintenance

This section contains information for maintaining the finisher for continuous failure-free, high quality performance. Including in this section are procedures for cleaning the exterior and interior of the finisher.
While performing any maintenance procedure, visually inspect the finisher for loose, broken or missing cables, connectors or other parts.

PREVENTIVE MAINTENANCE SCHEDULE

For many of the preventive maintenance procedures, there are no set times to perform them. The determining factor for when to perform a procedure depends on the extent of use. Finishers that are used more heavily will require more frequent preventive maintenance.

4.1. Periodic check and Cleaning by Customer Engineer

This section describes maintenance items and the frequencies performed by customer engineers.
If any maintenance is noted with plural frequencies, an inspection is to be made on an earlier schedule. Check intervals are based on the standard printer operating conditions described below. Check the operating conditions and make sure that maintenance and checks are performed at intervals appropriate for

the actual condition.

1. Standard usage - Printing volume : 200 K Images/month
   Power on time : 200 hrs/month
   Operating time : 60 hrs/month

Table 4-1. Items and intervals of periodic check and cleaning

Item No.	Items	Frequency	Work time (min.)	Note
1.	Cleaning of Conveyance rollers	400 k images	5	
2.	Cleaning of covers	Per visit	3	
3.	Checking of Drive mechanism	400 k images	10	If strange noise comes from the drive mechanism due to insufficient grease, grease it. (Grease is for plastic)
4.	Cleaning of Paper Exit Pressure Roller (Sub-Tray).	1,200 k images	5	Grease is spread.

4.2. Parts for Periodical Replacements and Frequencies by Customer Engineer

Table 4-2. Parts for periodic replacement and frequencies

Item No.	Periodic Replacement	DWG. No.	Qty	Frequencies	Work time reqd. (min.)	Maint. Manual
1.	Middle Sponge Roller	G8501076 (N421805)	2	400 k images	10	4.3.1
2.	Paper Exit Roller	G8501111 (N421840)	4	800 k images	15	4.3.2
3.	Sponge Roller	G8501140 (N421870)	1	800 k images	2	4.3.3
4.	Stapler	G8501146 (N421876)	2	500 k staples	10	4.3.4
5.	Tray Up-Down Motor	G8501097 (N421826)	1	4,800 k images	15	4.3.5
6.	Conveyance Roller A	G8501073 (N421802)	1	5,000 k images	20	4.3.6
7.	Pulley/F	G8501104 (N421833)	1	4,800 k images	10	4.3.6
8.	Conveyance Motor (M1)	G8501114 (N421843)	1	10,000 k images	15	4.3.7
9.	Conveyance Motor (M7)	G8501112 (N421841)	1	10,000 k images	15	4.3.8
10.	Grip Solenoid	G8501069 (N421798)	1	10,000 k images	30	4.3.9
11.	Paper Exit Opening Solenoid	G8501070 (N421808)	1	7,200 k images	20	4.3.10
12.	Bearing Kit	G8501363 (N335815A)	-	4,800 k images	30	4.3.12

Note 1: Frequencies of parts marked * are counted with a mechanical counter and their life is not displayed on the Operator Panel of the printer. Figures of such mechanical counter shall be written down on a memo when replacing the parts in order to know when they should be replaced.

Note 2: Contents of the Bearing Kit

Parts Name	DWG. No.	Qty
Shaft holder	G8501088 (N421817)	3
Shaft holder	G8501064 (N421793)	2
Metal	G8501074 (N421803)	4

4.3. Procedure of Replacing the Parts for Periodical Replacement

4.3.1. Replacing the Middle Sponge Roller

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: Jewel Screwdriver.

[Disassembling Procedures]

1. Open the Front Cover, then open the Guide Plate D.

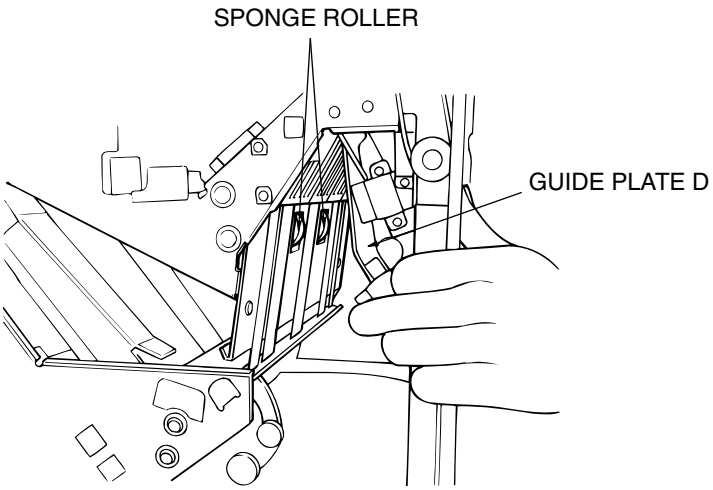


Figure 4-1. -1 Removal of the Middle Sponge Roller

2. Insert a screwdriver into the slot of the Middle Sponge Roller, then pry the roller open.

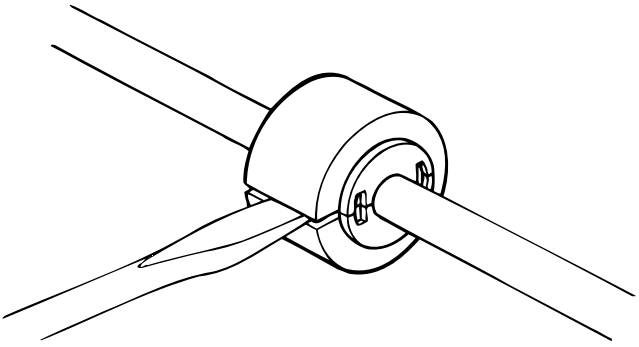


Figure 4-2. -2 Removal of the Middle Sponge Roller

[Assembling Procedures]

1. Align the grooves of the new Middle Sponge Rollers with the shaft.
2. Press the rollers until click sounds, so that they can be properly installed.

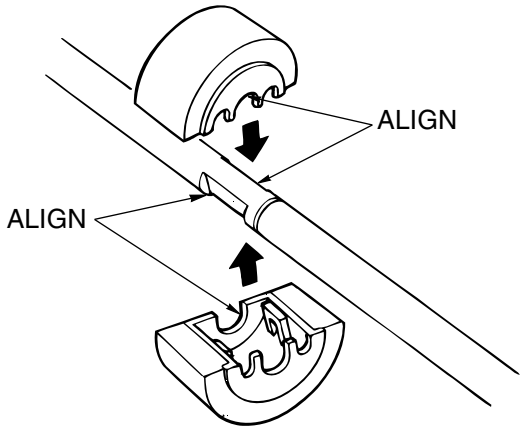


Figure 4-3. Assembling of the Middle Sponge Roller

4.3.2. Replacing the Sponge Roller

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

[Disassembling Procedures]

1. Open the Front Cover, remove the Fixing Ring of the Stacker Unit and then remove the Sponge Roller.

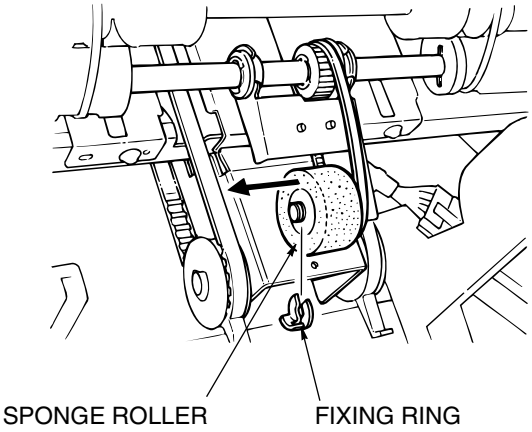


Figure 4-4. Removal of the Sponge Roller

[Assembling Procedures]

1. Reinstall the Sponge Roller of the Stacker Unit by reversing the procedure above.

4.3.3. Replacing the Paper Exit Roller

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: Jewel Screwdriver, ⊕ Screwdriver.

[Disassembling Procedures]

1. Move the Shift Tray down. (Refer to item 4.3.5 on page 4-10)

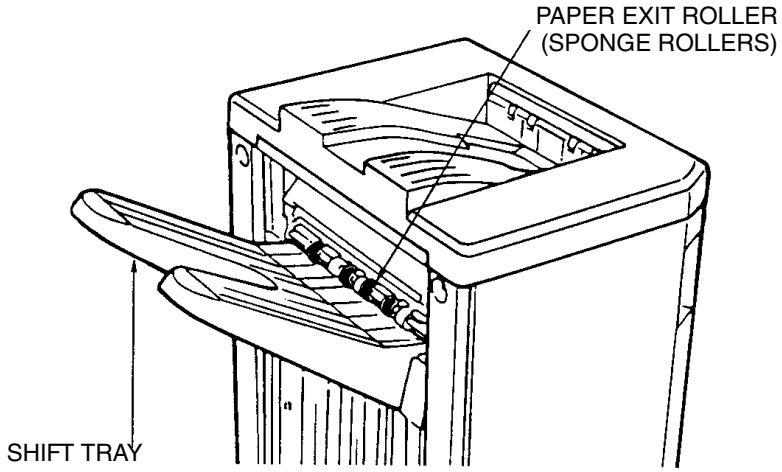


Figure 4-5. -1 Removal of the Paper Exit Roller

2. Insert a screwdriver into the slot of the Paper Exit Roller, then pry the roller open.

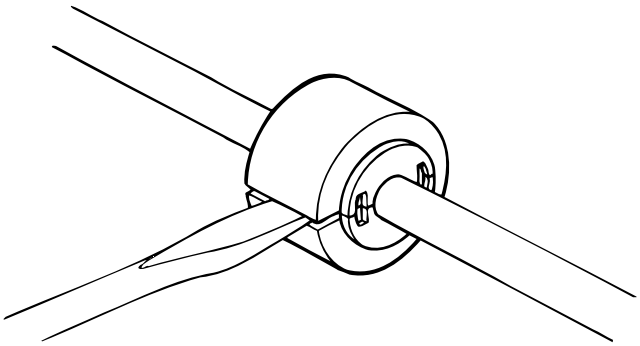


Figure 4-6. -2 Removal of the Paper Exit Roller

[Assembling Procedures]

1. Align the grooves of the new Paper Exit Roller with the shaft.
2. Press the rollers until click sounds, so that they can be properly installed.

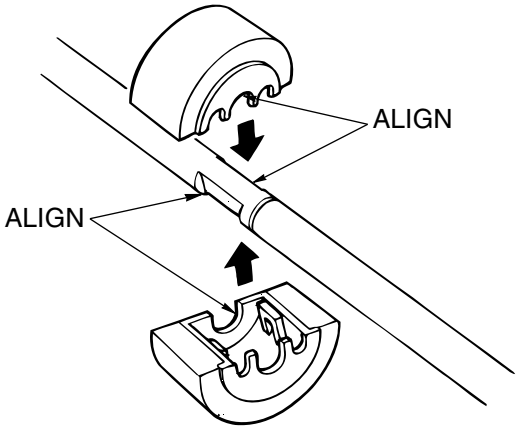


Figure 4-7. Assembling of the Paper Exit Roller

4.3.4. Replacing the Stapler

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Open the Front Cover.
2. Pull the release shaft and open the stapler section.

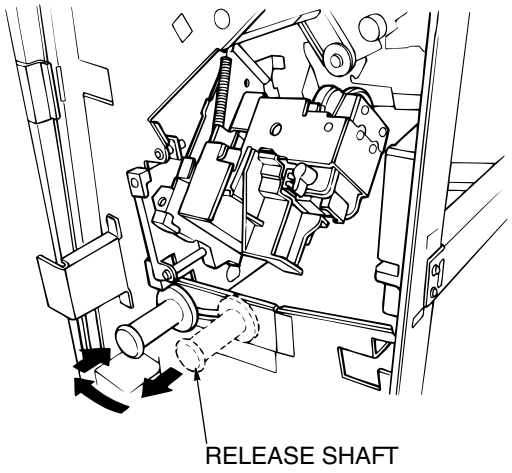


Figure 4-8. -1 Removal of the Stapler

3. Lower the Stapler Unit, then disconnect the connector from the Stapler.

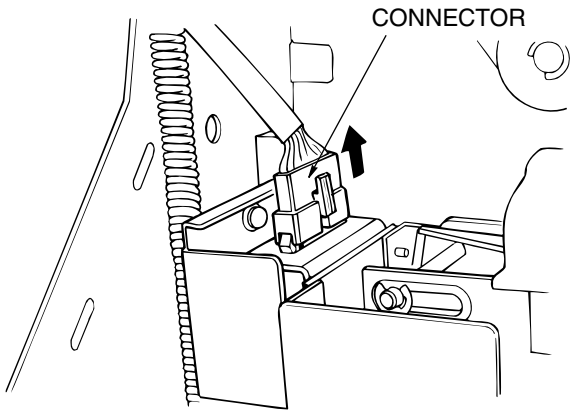


Figure 4-9. -2 Removal of the Stapler

4. Remove the ⊕ screw of the Stapler.
5. Lift up the Stapler and remove.

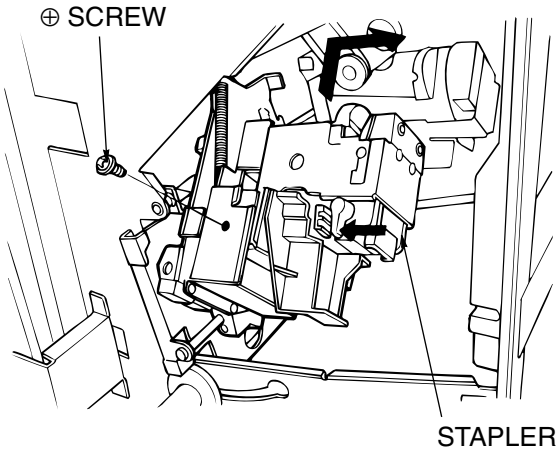


Figure 4-10. -3 Removal of the Stapler

[Assembling Procedures]

1. Reinstall the Stapler by reversing the procedure above.

4.3.5. Replacing the Tray Up-down Motor

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 6.1.1 on page 6-1)
2. Remove the Connector and the two ⊕ screws then remove the Tray Up-down Motor (M3).

CAUTION:
Take out the Tray Up-down Motor while supporting the Shift Tray by your hand.

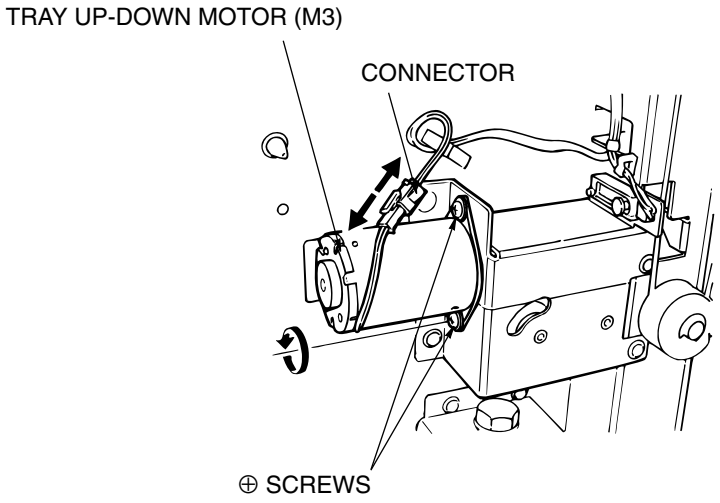


Figure 4-11. Removal of the Tray Up-down Motor

[Assembling Procedures]

1. Reinstall the Tray Up-down Motor by reversing the procedure above.

4.3.6. Replacing the Conveyance Roller A and Pulley/F

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver, Jewel Screwdriver, Pliers.
[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 6.1.1 on page 6-1)
2. Remove the Pulley, Bel, Pulley/F, and Gear.

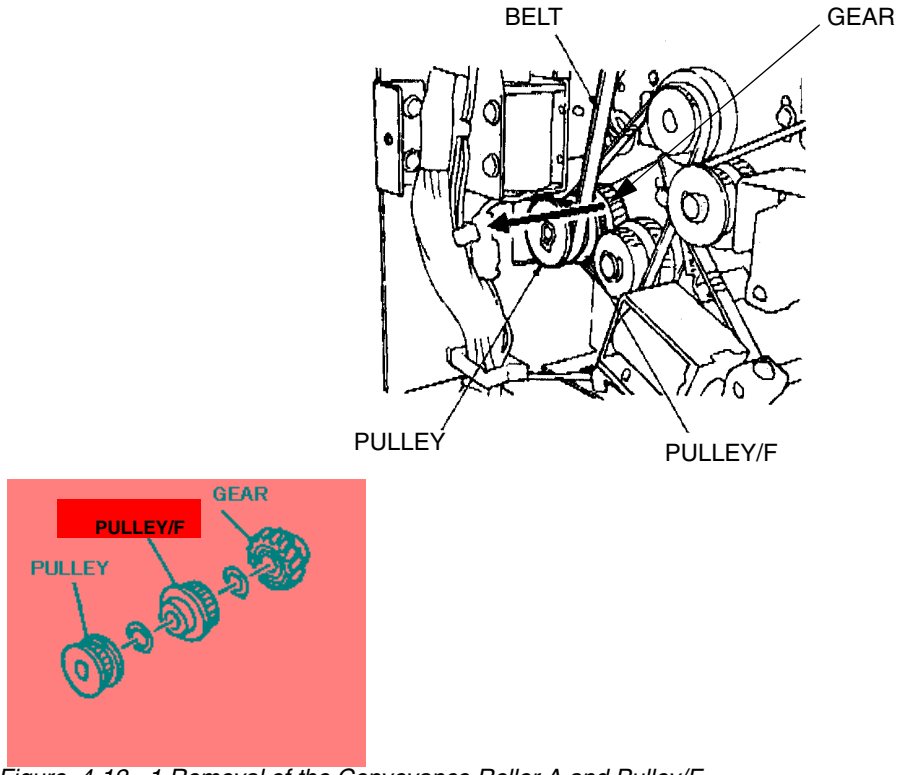


Figure 4-12. -1 Removal of the Conveyance Roller A and Pulley/F

3. Remove the E-Ring and the Shaft Holder from the Conveyance Roller A.
4. Remove the Conveyance Roller A.

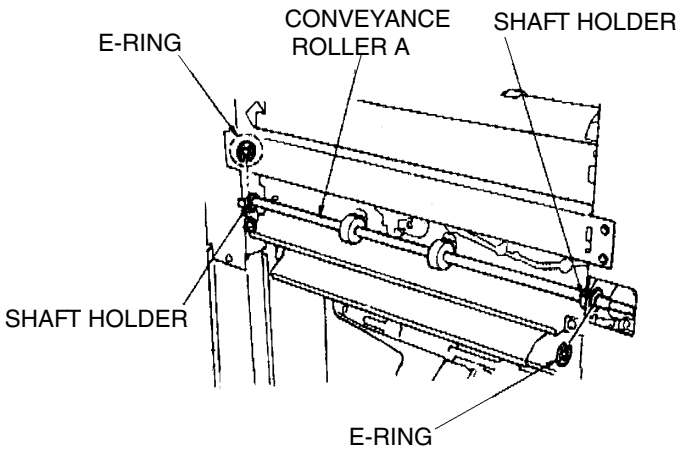


Figure 4-13. -2 Removal of the Conveyance Roller A and Pulley/F

[Assembling Procedures]

1. Reinstall the Conveyance Roller A and Pulley/F by reversing the procedure above.

4.3.7. Replacing the Conveyance Motor (M1)

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 6.1.1 on page 6-1)
2. Remove the Connector and the ⊕ screws.
3. Remove the Conveyance Motor (M1).

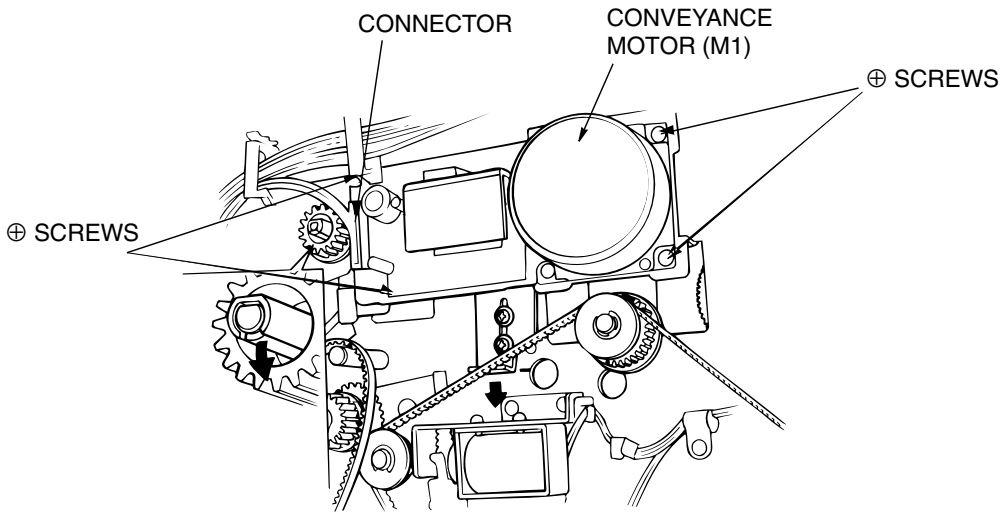


Figure 4-14. Removal of the Conveyance Motor (M1)

[Assembling Procedures]

1. Reinstall the Conveyance Motor (M1) reversing the procedure above.

4.3.8. Replacing the Conveyance Motor (M7)

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 6.1.1 on page 6-1)
2. Remove the Connector and the ⊕ screws.
3. Remove the Conveyance Motor (M7).

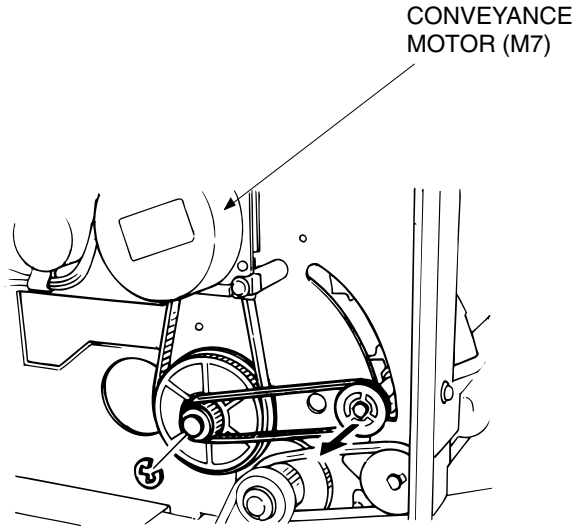


Figure 4-15. Removal of the Conveyance Motor (M7)

[Assembling Procedures]

1. Reinstall the Conveyance Motor (M7) reversing the procedure above.

4.3.9. Replacing the Grip Solenoid

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver, Jewel Screwdriver, Pliers.

[Disassembling Procedures]

1. Remove the Rear Cover and the Top Cover. (Refer to item 6.1.1 on page 6-1)
2. Remove the Shift Unit. (Refer to item 6.2.1 on page 6-4)
3. Remove the Grip Solenoid from the Shift Unit.

[Assembling Procedures]

1. Reinstall the Grip Solenoid reversing the procedure above.

4.3.10. Replacing the Paper Exit Opening Solenoid

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver, Pliers.

[Disassembling Procedures]

1. Remove the Rear Cover and the Top Cover. (Refer to item 6.1.1 on page 6-1)
2. Remove the ⊕ Screws and the Spring.
3. Remove the Paper Exit Opening Solenoid.

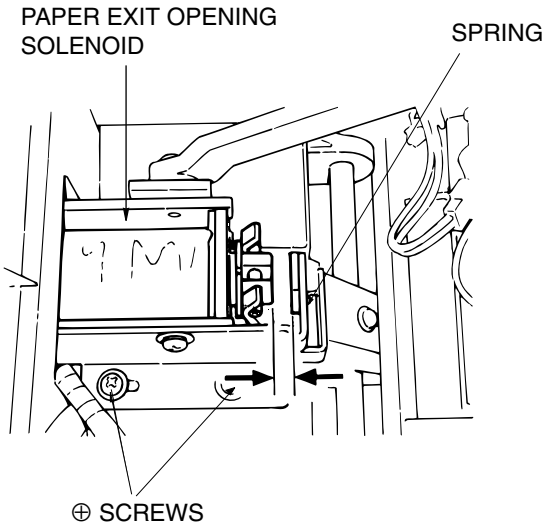


Figure 4-16. Removal of the Paper Exit Opening Solenoid

[Assembling Procedures]

1. Reinstall the Paper Exit reversing the procedure above.
2. Adjust the position of the Paper Exit Opening Solenoid. (Refer to item 6.7.6 on page 6-36) and (Refer to item 6.7.7 on page 6-38)

4.3.11. Replacing the FS-104H P/K

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver, Pliers.

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 6.1.1 on page 6-1)
2. Remove the Connectors on the FS-104H P/K.
3. Remove the FS-104H P/K.

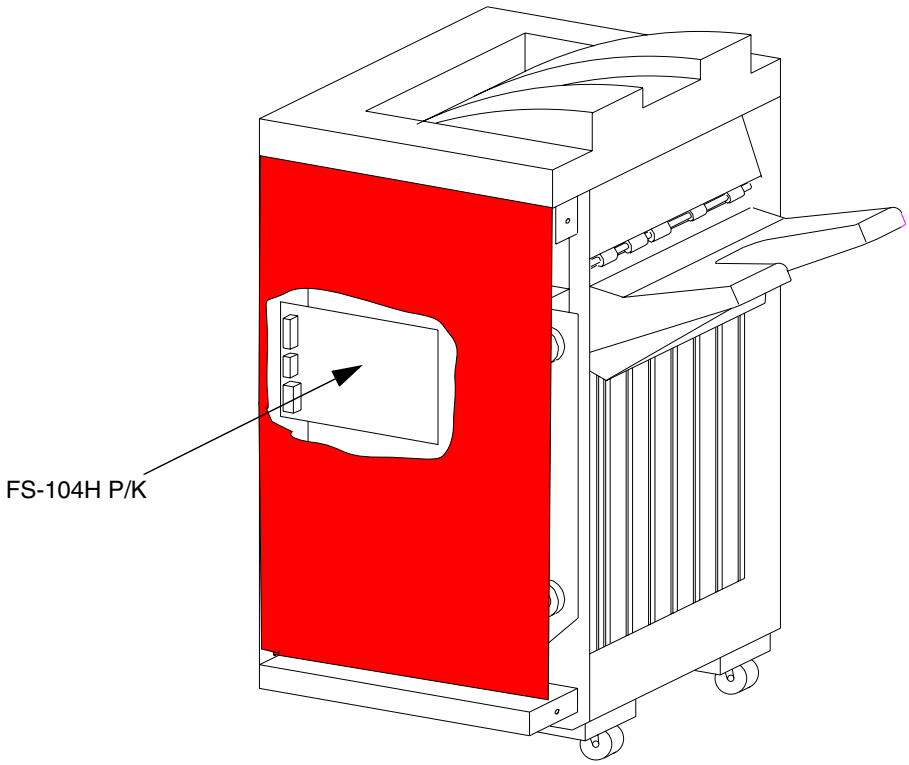


Figure 4-17. Removal of the FS-104H P/K

[Assembling Procedures]

1. Reinstall the FS-104H P/K reversing the procedure above.

4.3.12. Replacing the Bearing Parts [Shaft holder (G8501088 / N421817), Metal and Shaft holder (G8501064 / N421793)]

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver, Jewel Screwdriver, Pliers.

[Disassembling Procedures]

1. Remove the Rear cover and the Top cover. (Refer to item 6.1.1 on page 6-1)
2. Remove the E ring, Collar/A, Belt/C(L=564), Belt/E(L=180), Shaft holder (G8501088 / N421817), Driving pulley/B (Z=24) and Shaft holder (G8501088 / N421817) from the Rear side.
3. Remove the E ring, Driving pulley/C (Z=30) and Shaft holder (G8501088 / N421817) from the Rear side.

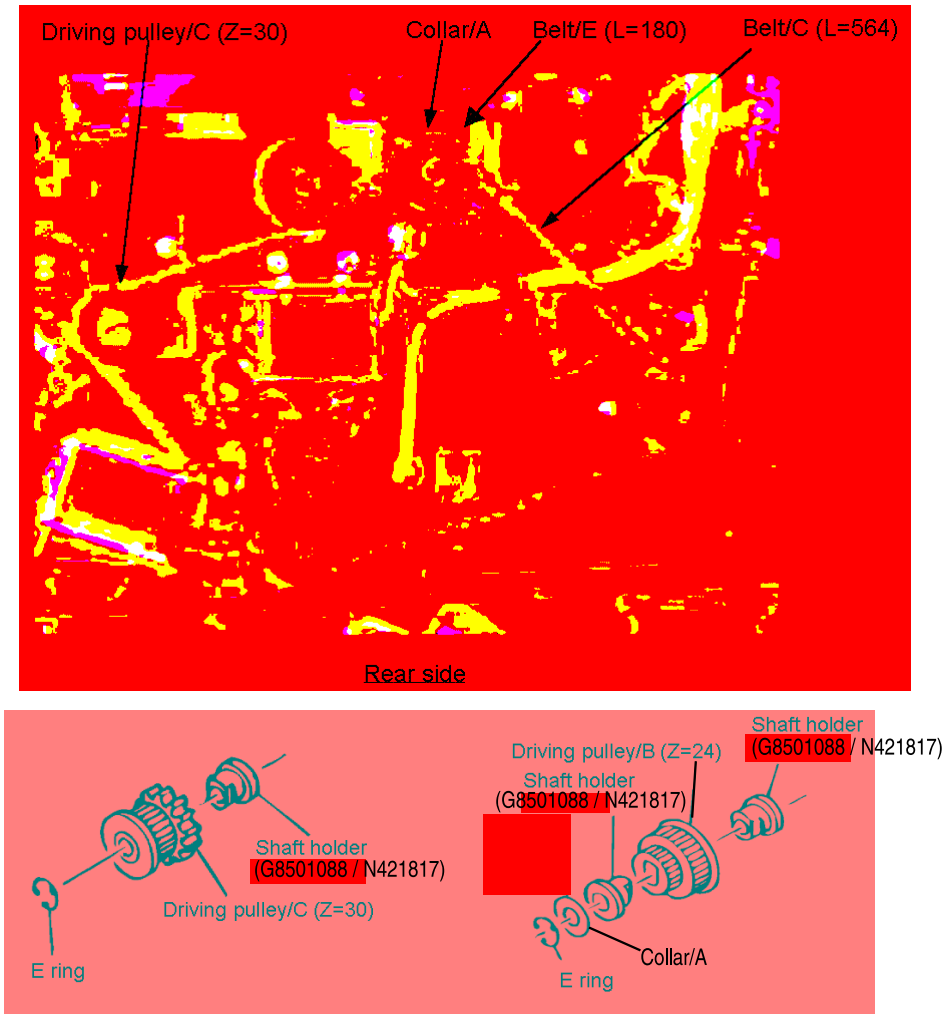


Figure 4-18. Removal of the Bearing Parts

4. Remove the Belt/I (L=234), Pulley/(Z=24,30), E ring and Metal from the Rear side.
5. Remove the Driving pulley/A, Belt/D (L=309), Driving spacer, Pulley/F, Belt/I (L=234), Driving spacer, Gear/A (Z=27), E ring and Metal from the Rear side.
6. Remove the Driving gear/B (Z=24) and Shaft holder (G8501064 / N421793) from the Rear side.

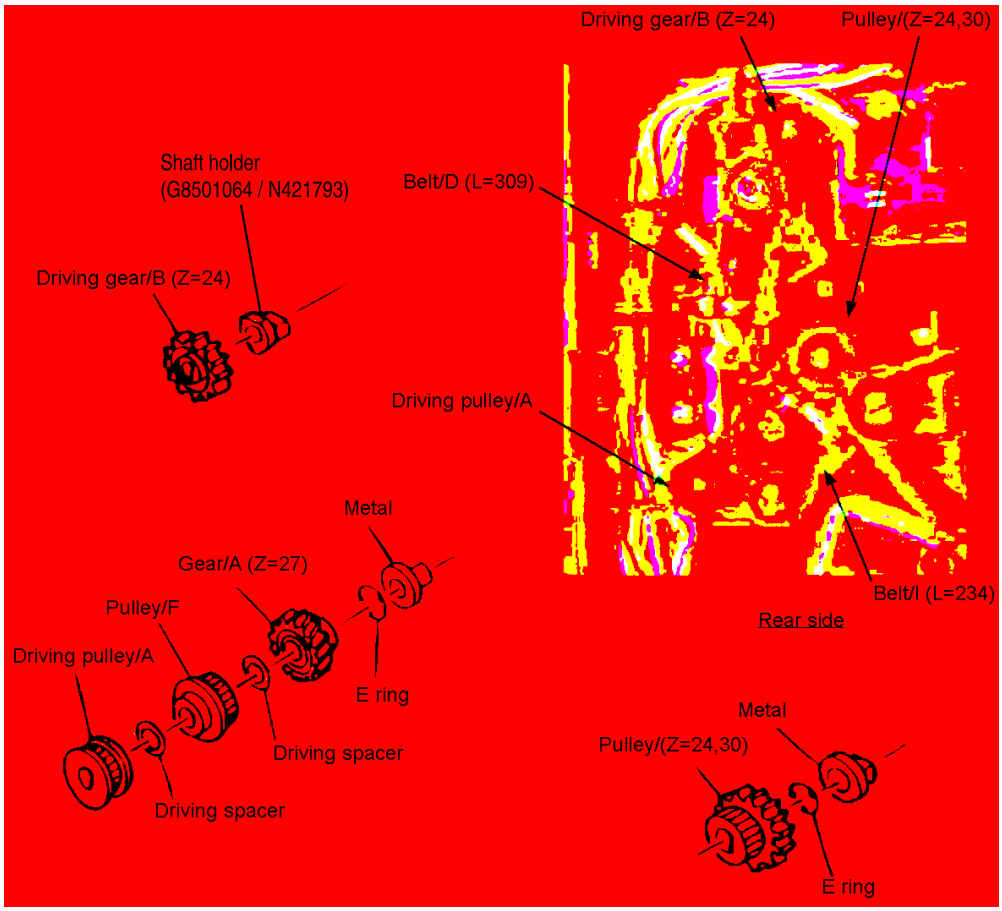


Figure 4-19. Removal of the Bearing Parts

7. Remove the E ring and Shaft holder (G8501064 / N421793) from the Front side.
8. Remove the two E ring and the two Metal from the Front side.

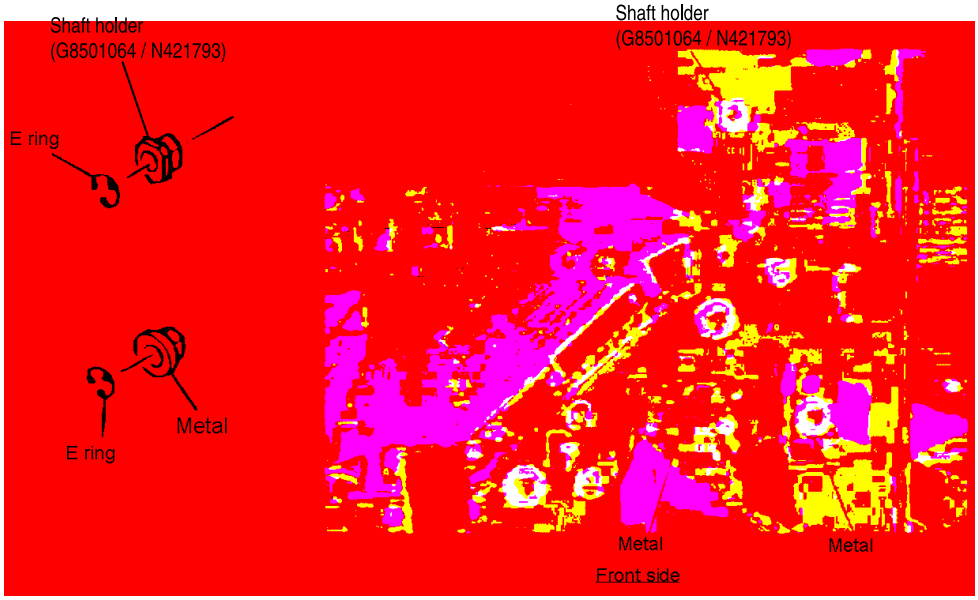


Figure 4-20. Removal of the Bearing Parts

[Assembling Procedures]

1. Reinstall the two Metal of the Front side by reversing the procedure above.
2. Reinstall the Shaft holder (G8501064 / N421793) of the Front side by reversing the procedure above.
3. Reinstall the Shaft holder (G8501064 / N421793) of the Rear side by reversing the procedure above.
4. Reinstall the two Metal of the Rear side by reversing the procedure above.
5. Reinstall the three Shaft holder (G8501088 / N421817) of the Rear side by reversing the procedure above.

Chapter 5. Troubleshooting

5.1. Troubles

5.1.1. Abnormal stacking

PRIMARY FACTOR;	The condition of stacked paper on the Shift Tray is abnormal. Note: If paper stacked on each tray is beyond the capacity indicated in Table 1-1, abnormal stacking may occur.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. The paper is curled.	Replace: Paper	
	2. The paper is skewed at the Paper Exit Unit. (1) Paper Exit Opening does not close correctly. (2) Grip solenoid does not operate.	Adjust: Paper Exit Opening Solenoid (SD4) Replace: Paper Exit Opening Solenoid (SD4) Replace: Grip Solenoid (SD3)	6.7.6, 6-36 4.3.10, 4-15 4.3.9, 4-14
	3. Sponge Roller fault.	Replace: Paper Exit Roller	4.3.3, 4-6
	4. The stacked paper is beyond the capacity.	Remove: Paper	
	5. The various size paper is stacked.	Remove: Paper	

Stacking Capability (in case of a size of paper that is stacked on the same tray)

1. Staple mode

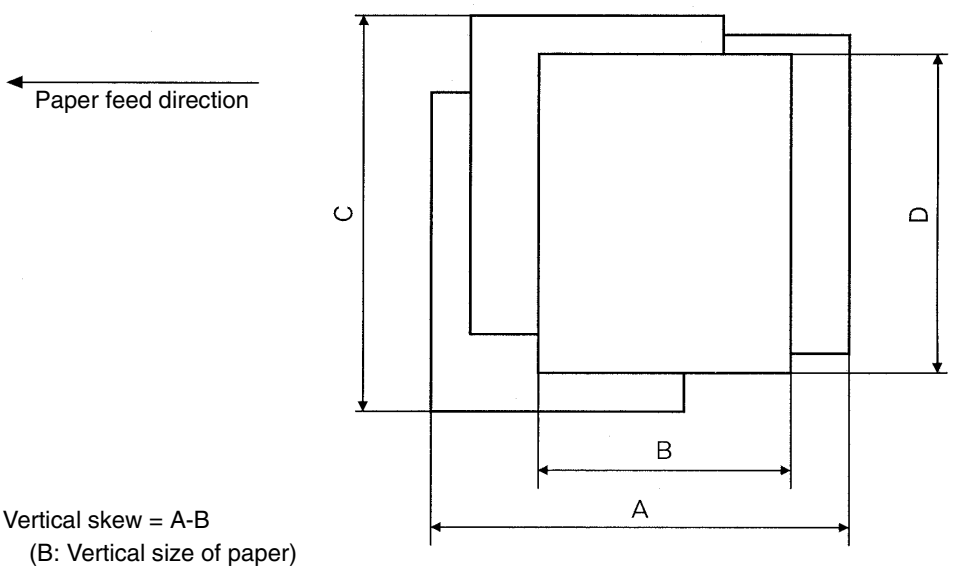
		Vertical skew	Horizontal skew
in a bundle *1	15 sheets or less	1.5mm or less	1.5mm or less
	50 sheets or less	3.0mm or less	3.0mm or less
in some bundles		100mm or less *2	100mm or less *2

2. Non Staple mode

		Vertical skew	Horizontal skew
Shift Tray stacking (normal)	in some sheets	30mm or less	10mm or less
Shift Tray stacking (offset)	in a bundle	30mm or less	10mm or less
	in some bundles *3	30mm or less	15 to 45mm
Sub-Tray Stacking	in some sheets	60mm or less	60mm or less

Note:

*1:This value is measured near a staple.
If sheets in bundles spread like a folding fan, measure the value after mending its spread.
*2:In case of 2 to 20 sheets and except B5/A3/letter size paper
1 position staple: 120mm,
2 position staple: 160mm
*3:Its value is measured between a bundle and the next bundle.
*4:If stacked paper rotates, its maximum value of a rotation is considered to be a skew value.



Vertical skew = A-B
(B: Vertical size of paper)
Horizontal skew = C-D
(D: Horizontal size of paper)

Figure 5-1. Vertical/Horizontal sizes of paper

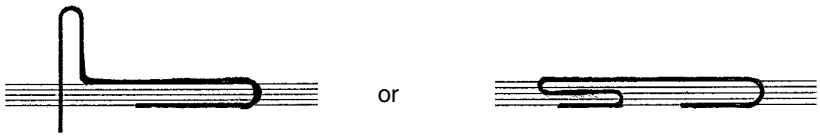
5.1.2. Stapling failure

PRIMARY FACTOR;

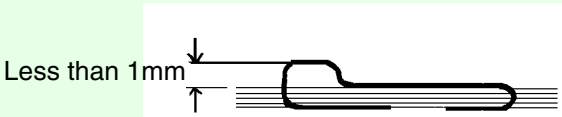
(a) The staple does not reach the tip of the Staple Cartridge.
NOTE: The Finisher has a possibility that this phenomenon may occur 5 times per 1,000 staple operations.

(b) The staple remains at the tip of the Staple Cartridge.
NOTE: The Finisher has a possibility that this phenomenon may occur 1 time per 1,000 staple operations.

(c) The staple is folded.
NOTE: The Finisher has a possibility that this phenomenon may occur 5 times per 1,000 staple operations.



(d) The gap between the paper and a staple is beyond 1mm.
NOTE: The Finisher has a possibility that this phenomenon may occur 5 times per 1,000 staple operations.



PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page
1. No staple on the paper.	1. The staple does not reach the tip of the Staple Cartridge. (E019/E01A error does not occur.)	Replace: Stapler Unit	4.3.4, 4-8
	2. The staple remains at the tip of the Staple Cartridge.	Replace: Staple Cartridge Stapler Unit	4.3.4, 4-8
2. A staple on the paper.	1. The staple is folded.	Replace: Stapler Unit	4.3.4, 4-8
	2. The gap between the staple and the paper is more than 1mm.	Replace: Stapler Unit	4.3.4, 4-8

5.1.3. Staple position failure

PRIMARY FACTOR;	The staple position on the paper is beyond the requirements. NOTE: The Finisher has a possibility that this phenomenon may occur 1 time per 200 staple operations. NOTE: This requirement is shown at "Specifications".		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs continuously.	1. The space "A" is not in the requirement.	Adjust: Stapler position	6.7.12, 6-43 6.7.14, 6-45
	2. The space "B" is not in the requirement.	Adjust: Stapler position	6.7.12, 6-43 6.7.14, 6-45
	3. The space "C" is not in the requirement.	Adjust: Stapler position	6.7.12, 6-43 6.7.14, 6-45
	4. The space "D" is not in the requirement.	Adjust: Stapler position	6.7.12, 6-43 6.7.14, 6-45

5.1.4. Alignment failure

PRIMARY FACTOR;	Some paper is extremely skewed in a stapled bundle. NOTE: The Finisher has a possibility that this phenomenon may occur 1 time per 150 staple operations.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs continuously.	1. The Alignment Plate operation is abnormal. (1) The paper bends extremely when the plates move inside. (2) The plates do not touch the paper.	Adjust:Alignment Plate Installation position Adjust:Alignment Drive Timing Belt Tension	6.7.9, 6-40 6.7.10, 6-41
	2. The Sponge Roller at the by-pass is faulty.	Replace: Middle Sponge Roller	4.3.1, 4-3
2. There are some pieces of paper which are not stapled in the staple job.	1. The paper is curled.	Replace: Paper	
	2. The number of paper in the staple job is beyond 50.	Check: CE Program	

5.1.5. Paper order is reverse

PRIMARY FACTOR;	The 1st and 2nd page are reverse on Staple mode of short size paper.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. By-pass solenoid does not operate.	Replace: By-pass solenoid	3.4, 3-3
Refer to Figure 5-5			

5.1.6. Paper damage

PRIMARY FACTOR;	The center of the front side of paper is damaged on Offset mode.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. Shift Unit operation is faulty.	Adjust: Shift position	6.7.4, 6-34

5.2. Error Code Indication

Note: SNS in the Circuit Diagram means Sensor.
SD in the Circuit Diagram means Solenoid.

Detail Error Code	Display Message	Error Name	Description	Page No.
0000		NORMAL		
E009	PAPER FULL SHIFT TRAY	Shift Tray Full 1	Shift Tray is full of paper.	5-7
E00A	PAPER FULL SHIFT TRAY	Shift Tray Full 2	Paper on the Shift Tray is abnormal.	5-7
E019	LOW STAPLE (R) RENEW CARTRIDGE	Low Staple (R)	Detected no needle of stapler. (Rear)	5-8
E01A	LOW STAPLE (F) RENEW CARTRIDGE	Low Staple (F)	Detected no needle of stapler. (Front)	5-8
E03F	COVER OPEN FNS FRONT COVER	Finisher Front Cover Open	The Finisher Front cover is open.	5-10
E064	REMOVE PAPER FINISHER	Paper On Paper Path 14 (FIN Entrance Sensor)	Paper is detected on the FIN Entrance Sensor.	5-11
E065	REMOVE PAPER FINISHER	Paper On Paper Path 15 (Paper Exit 1 or 2 Sensor)	Paper is detected on the Paper Exit 1 Sensor or the Paper Exit 2 Sensor.	5-11
E066	REMOVE PAPER FINISHER	Paper On Paper Path 16 (Stacker Conveyance Sensor)	Paper is detected on the Stacker Conveyance Sensor.	5-11
E067	REMOVE PAPER FINISHER	Paper On Paper Path 17 (Stacker Paper Sensor)	Paper is detected on the Stacker Paper Sensor.	5-11
E068	REMOVE PAPER FINISHER	Paper On Paper Path 18 (Sub-Tray Exit Sensor)	Paper is detected on the Sub-Tray Exit Sensor.	5-11
E1D0	PAPER JAM FINISHER	FNS 1 Lead jam 1	Paper did not arrive at FIN Entrance Sensor.	5-13
E1D1	PAPER JAM FINISHER	FNS 1 Lead jam 2	Paper did not arrive at Paper Exit 2 Sensor.	5-13
E1D2	PAPER JAM FINISHER	FNS 1 Lead jam 3	Paper did not arrive at Stacker Conveyance Sensor.	5-13
E1D3	PAPER JAM FINISHER	FNS 1 Lead jam 4	Paper did not arrive at Paper Exit 1 Sensor.	5-13
E1D5	PAPER JAM FINISHER	FNS 1 Trail jam 2	Paper did not depart from Paper Exit 2 Sensor.	5-13
E1D6	PAPER JAM FINISHER	FNS 1 Trail jam 3	Paper did not depart from Stacker Conveyance Sensor.	5-13

Detail Error Code	Display Message	Error Name	Description	Page No.
E1D7	PAPER JAM FINISHER	FNS 1 Trail jam 4	Paper did not depart from Paper Exit 1 Sensor.	5-13
E1D8	PAPER JAM FINISHER	FNS 1 Lead jam 5	Paper did not arrive at Sub-Tray Exit Sensor.	5-13
E1D9	PAPER JAM FINISHER	FNS 1 Trail jam 5	Paper did not depart from Sub-Tray Exit Sensor.	5-13
E260	46 SERVICE CALL E260	Finisher 1 CPU Error	Slave processor cannot receive the status data from the Finisher processor.	5-16
E262	46 SERVICE CALL E262	Finisher 1 Incorrect Command	Finisher received the command when its condition prohibits PR from issuing.	5-17
E264	46 SERVICE CALL E264	Finisher 1 Act Timeout	Finisher does not become an activate condition.	5-17
E266	46 SERVICE CALL E266	Finisher 1 Dormant Timeout	Finisher does not become a dormant condition.	5-17
E268	46 SERVICE CALL E268	Finisher 1 Busy Timeout	The Busy signal of the Finisher is on more than specified time.	5-17
E26A	46 SERVICE CALL E26A	Finisher 1 ST Exit Signal Error	The Stacker exit signal is on more than specified time.	5-17
E26C	46 SERVICE CALL E26C	Finisher 1 Print Timeout	The Print signal of the Finisher is on more than specified time.	5-17
E2C1	4C SERVICE CALL E2C1	Stapler Position Error	Abnormality was detected in the Staple Movement HP Sensor.	5-18
E2C2	4C SERVICE CALL E2C2	Stapling Error	Both staplers missed to staple.	5-20
E2C3	4C SERVICE CALL E2C3	Stapling F Error	Stapler (Front) missed to staple.	5-20
E2C4	4C SERVICE CALL E2C4	Stapling R Error	Stapler (Rear) missed to staple.	5-20
E2C5	4C SERVICE CALL E2C5	Stapler Rotate Error	Abnormality was detected in the Staple Rotation HP1 Sensor or Staple Rotation HP2 Sensor.	5-21
E2C6	4C SERVICE CALL E2C6	Shift Tray Timeout	The Shift Tray was driven too long time.	5-22
E2C7	4C SERVICE CALL E2C7	Alignment Plate Position Error	Abnormality was detected in the Alignment Plate HP Sensor.	5-23
E2C8	4C SERVICE CALL E2C8	Shift Position Error	Abnormality was detected in the Roller Shift HP Sensor.	5-24
E2C9	4C SERVICE CALL E2C9	Belt Position Error	Abnormality was detected in the Paper Exit Belt HP Sensor.	5-25
E2CA	4C SERVICE CALL E2CA	Paper Exit Opening Position Error	Abnormality was detected in the Paper Exit Opening Sensor.	5-26
E2E5	4F SERVICE CALL E2E5	FNS Driver	Abnormality was detected in the Finisher driver.	5-26

5.2.1. E009 SHIFT TRAY FULL 1
E00A SHIFT TRAY FULL 2

PRIMARY FACTOR;	E009: Detected that the Tray Lower Limit Sensor of the Finisher is turned ON. E00A: Detected that the stacked paper on the Shift Tray of the Finisher is abnormal.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. The Shift Tray is full.	Remove: Paper	
2. STACKER FULL is detected though the Shift Tray is not full of paper. (in case of the paper on the Shift Tray is not abnormal)	1. The sheet number stacked on the Shift Tray reached the number for the paper full detection.	Remove: Paper	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable CN4-PS3 or reset the connector.	
	3. Sensor fault.	Replace: Tray upper limit sensor (PS2) Tray lower limit sensor (PS3)	3.5, 3-5 3.5, 3-5
	4. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16
3. STACKER FULL is detected though the Shift Tray is not full of paper. (in case of the paper on the Shift Tray is abnormal)	1. The condition of the paper stacked on the Shift Tray is abnormal.	Remove: Paper	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable CN4-PS3, CN4-PS7 or reset the connector.	
	3. Sensor fault.	Replace: Tray upper limit sensor (PS2) Tray lower limit sensor (PS3)	3.5, 3-5 3.5, 3-5
	4. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16

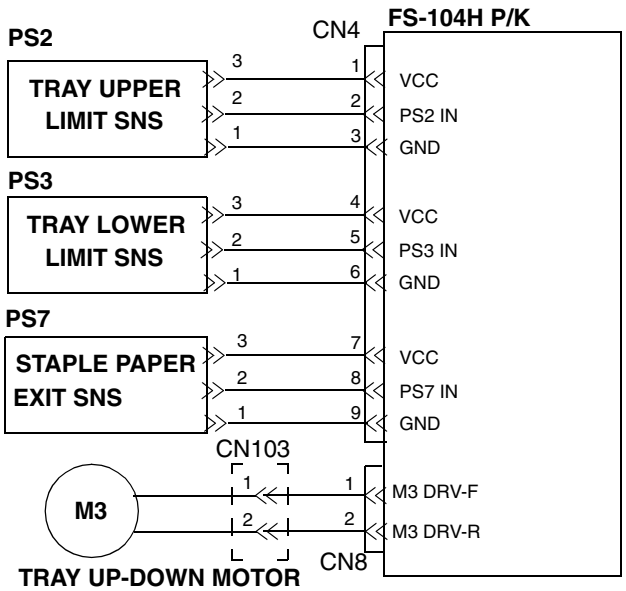


Figure 5-1. Error Codes E009 & E00A

5.2.2. E019 LOW STAPLE (R)
E01A LOW STAPLE (F)

PRIMARY FACTOR;	E019: Lack of Rear Side Staple E01A: Lack of Front Side Staple
Precaution:	If the FINISHER Front Cover is closed after changing the staple cartridge, the Stapler motor operates some times, still the stapler becomes in a ready condition.

PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page
1. This phenomenon occurs due to a lack of staples. (the number of staples is less than 50)	1. Lack of Staples.	Supply the Staple.	
2. This phenomenon occurs though the staple plates are in the Staple Cartridge. (more than 50 staples)	1. The Staple Cartridge is incorrectly set.	Reset the Staple Cartridge correctly.	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable CN6-CN109, CN6-CN110 or reset the connector in the correct position.	
	3. No Staple Sensor in the Stapler Unit is fault.	Replace: Stapler Unit	4.3.4, 4-8
	4. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16

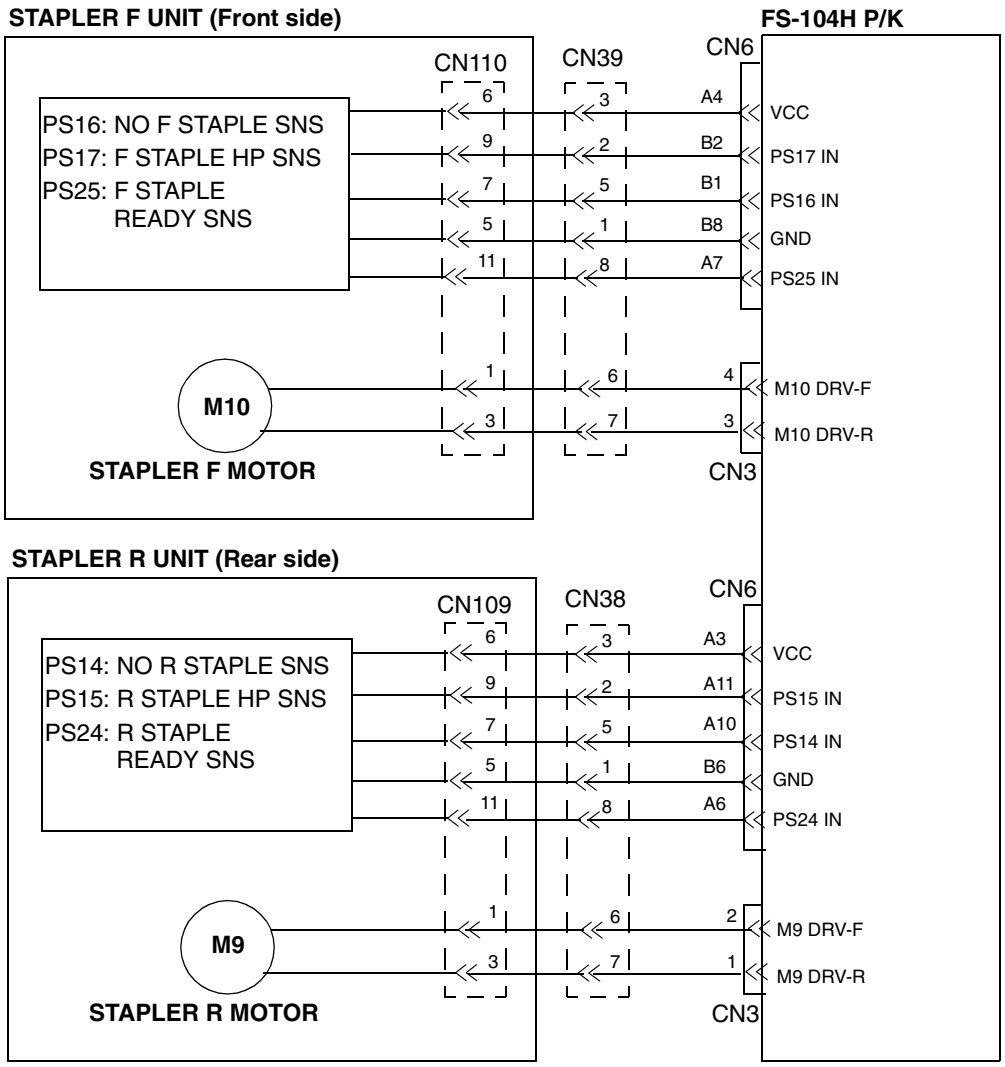


Figure 5-2. Error Codes E019 & E01A

5.2.3. E03F FNS FRONT COVER OPEN

PRIMARY FACTOR;	The Finisher Front Cover Open.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Finisher Front Cover is open.	1. Cover is open.	Close the cover.	
2. This phenomenon occurs though the Finisher Front Cover does not open.	1. The Interlock Switch of the Front Cover is broken.	Replace: Interlock Switch(MS1)	3.5, 3-5
	2. The mounting Switch is faulty.	Reset the Switch correctly.	3.5, 3-5
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable CN29-MS1 or reset the connector in the correct position.	
	4. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16

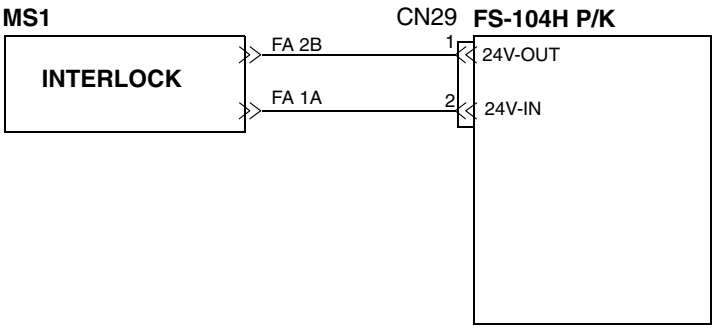


Figure 5-3. Error Code E03F

5.2.4. E064 to E068 PAPER ON PAPER PATH 14 to 18

PRIMARY FACTOR;	Detected that the sensor of each sensor unit is turned ON. This status is generally detected when paper is in the finisher.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. Paper jam occurs.	Remove: Jammed Paper	
2. The Sensor detected the paper jam though a paper jam does not occur.	1. Foreign substances are in the Paper Path.	Remove: Foreign substances	
	2. The face of the Sensor is contaminated.	Cleaning: Sensor (see the table)	
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable or reset the connector.	
	4. The mounting of the Sensor is faulty.	Reset the Sensor correctly.	
	5. Sensor fault.	Replace: Sensor(see the table)	
	6. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16

Item	Error Code	Sensor to be specified		Maintenance Ref + Page
		Sensor Name	Sensor Description	
(1)	E064	PS4	FIN Entrance Sensor	3.5, 3-5
(2)	E065	PS6	Paper Exit 1 Sensor	3.5, 3-5
		PS23	Paper Exit 2 Sensor	3.5, 3-5
(3)	E066	PS5	Stacker Conveyance Sensor	3.5, 3-5
(4)	E067	PS20	Stacker Paper Sensor	3.5, 3-5
(5)	E068	PS1	Sub-Tray Paper Exit Sensor	3.5, 3-5

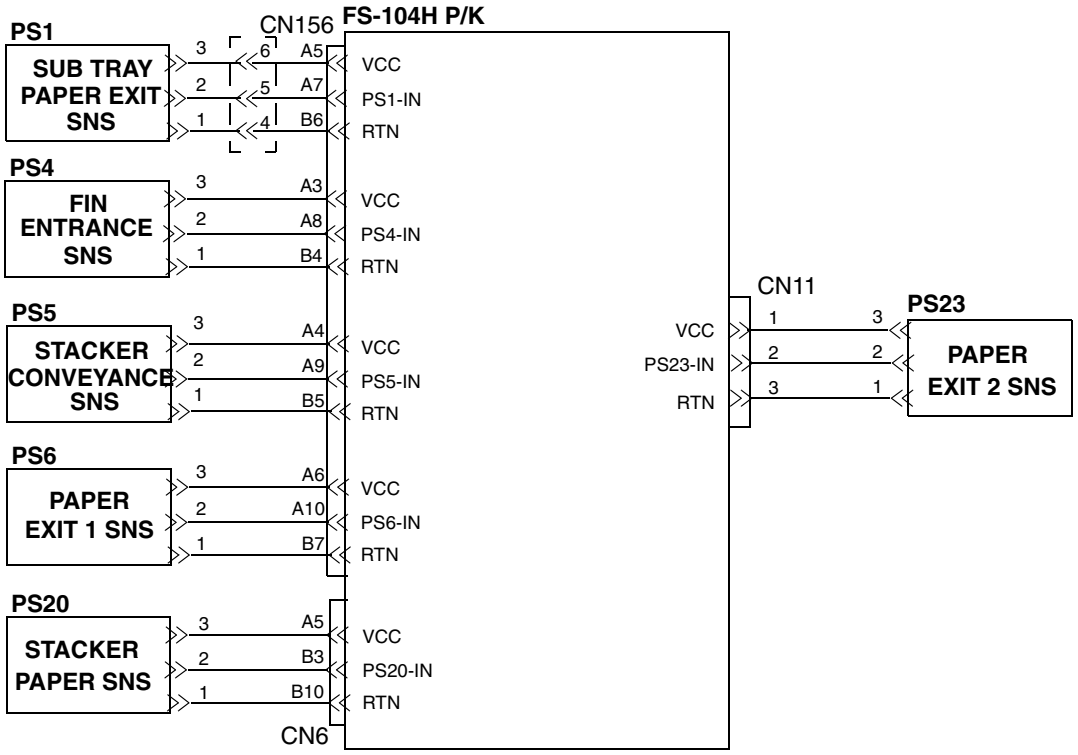


Figure 5-4. Error Codes E064 to E068

5.2.5. E1D0 to E1D3 FNS 1 PAPER LEAD JAM 1 to 3
E1D8 FNS 1 PAPER LEAD JAM 5
E1D5 to E1D7 FNS 1 PAPER TRAIL JAM 1 to 4
E1D9 FNS 1 PAPER TRAIL JAM 5

PRIMARY FACTOR;

E1D0: Paper did not arrive at the FIN Entrance Sensor.
E1D1: Paper did not arrive at the Paper Exit 2 Sensor.
E1D2: Paper did not arrive at the Stacker Conveyance Sensor.
E1D3: Paper did not arrive at the Paper Exit 1 Sensor.
E1D5: Paper did not depart from the Paper Exit 2 Sensor.
E1D6: Paper did not depart from the Stacker Conveyance Sensor.
E1D7: Paper did not depart from the Paper Exit 1 Sensor.
E1D8: Paper did not arrive at the Sub-Tray Paper Exit Sensor.
E1D9: Paper did not depart from the Sub-Tray Paper Exit Sensor.

Note: E1D3 is detected on Staple mode of the following paper.
Letter (LEF)
A4 (LEF)
B5 (LEF)

PHENOMENON	CAUSES & CHECK POINTS	CORRECTIONS	Maintenance Ref + Page
1. Paper jam occurs.	1. Paper jam occurs.	Remove: Jammed paper	
	2. Foreign substance is on the paper path.	Remove: Foreign substance	
	3. Paper Guide is dislocated.	Check: Paper Guide and its magnet.	
	4. Gate position is faulty.	Check: Gate position If the gate position is out of order, adjust it. E1D1: Paper Route Switching Gate Sub-Tray Gate E1D2: By-Pass Gate Paper Route Switching Gate Sub-Tray Gate E1D6: By-Pass Gate Paper Route Switching Gate Sub-Tray Gate E1D8: Sub-Tray Gate E1D9: Sub-Tray Gate	 6.7.2, 6-30 6.7.1, 6-28 6.7.3, 6-32 6.7.2, 6-30 6.7.1, 6-28 6.7.3, 6-32 6.7.2, 6-30 6.7.1, 6-28 6.7.1, 6-28 6.7.1, 6-28
	5. Solenoid is faulty.	Replace: solenoid If the solenoid does not operate, replace it. E1D2: Gate Solenoid (SD1) E1D5: Paper Exit Opening Solenoid (SD4) E1D7: Paper Exit Opening Solenoid (SD4) E1D8: Sub-Tray Paper Exit Solenoid (SD2)	 3.4, 3-3 4.3.10, 4-15 4.3.10, 4-15 3.4, 3-3
	6. Motor fault.	Replace: Motor E1D0: Conveyance Motor (M1) E1D5: Conveyance Motor (M7) E1D6: Stacker Entrance Motor (M14)	 4.3.7, 4-12 4.3.8, 4-13 3.4, 3-3

PRIMARY FACTOR;	E1D0: Paper did not arrive at the FIN Entrance Sensor. E1D1: Paper did not arrive at the Paper Exit 2 Sensor. E1D2: Paper did not arrive at the Stacker Conveyance Sensor. E1D3: Paper did not arrive at the Paper Exit 1 Sensor. E1D5: Paper did not depart from the Paper Exit 2 Sensor. E1D6: Paper did not depart from the Stacker Conveyance Sensor. E1D7: Paper did not depart from the Paper Exit 1 Sensor. E1D8: Paper did not arrive at the Sub-Tray Paper Exit Sensor. E1D9: Paper did not depart from the Sub-Tray Paper Exit Sensor.		
1. Paper jam occurs.	7. Shift Unit fault. Check if Paper jam occurs at the Shift Unit on offset mode	Adjust: Shift position	6.7.4, 6-34
	8. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16
2. The Sensor detected the jam though a jam did not occur.	1. The Sensor window is contaminated.	Cleaning: Sensor	
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable or reset the connector in the correct position. E1D0:CN5-PS4 E1D1:CN11-PS23 E1D2:CN5-PS5 E1D3:CN5-PS6 E1D5:CN11-PS23 E1D6:CN5-PS5 E1D7:CN5-PS6 E1D8:CN5-PS1 E1D9:CN5-PS1	
	3. Sensor fault. Check points: Check if the paper on paper path error occurs on initialization after masking of the sensor actuator. Error codes when the sensors are normal. Sensor Name-Error Code FIN Entrance Sensor-E064 Paper Exit 1 Sensor-E065 Paper Exit 2 Sensor-E065 Stacker Conveyance Sensor-E066 Sub-Tray Exit Sensor-E068	Replace: Sensor Replace: FIN Entrance Sensor (PS4) Paper Exit 2 Sensor (PS6) Stacker Conveyance Sensor (PS5) Paper Exit 1 Sensor (PS23) Sub-Tray Exit Sensor (PS1)	 3.5, 3-5 3.5, 3-5 3.5, 3-5 3.5, 3-5 3.5, 3-5

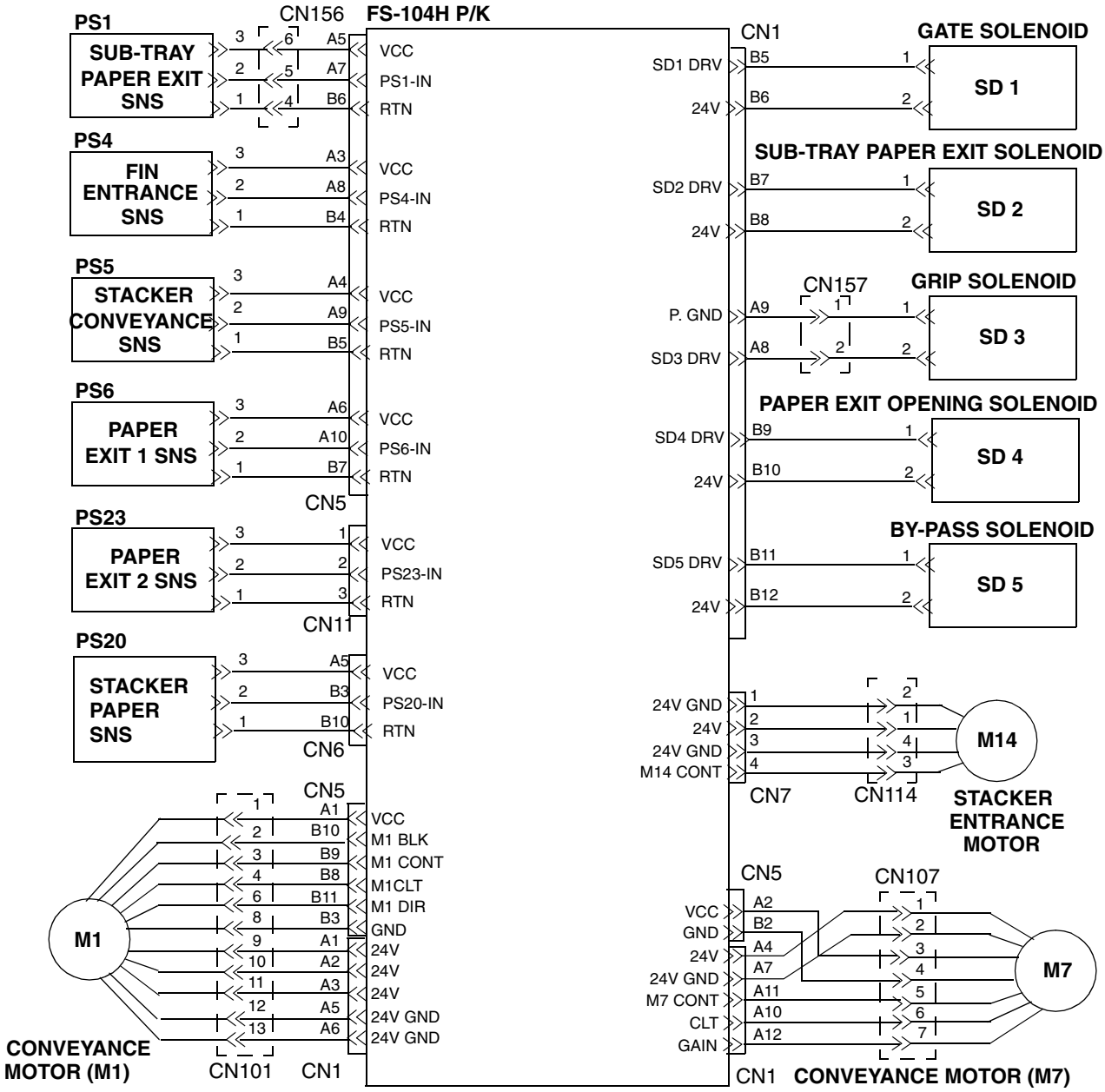


Figure 5-5. Error Codes E1D0, E1D1, E1D2, E1D3, E1D5, E1D6, E1D7, E1D8 & E1D9

5.2.6. E260 FINISHER 1 CPU ERROR

PRIMARY FACTOR;	The FINISHER CPU is not in operation.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs continually even after the Reset Switch is pressed.	1. PCB fault.	Replace: CPxxx Assembly FS-104H P/K	Refer to Engine Maintenance manual. 4.3.11, 4-16
	2. Interface fault. Check the Interface cable between the PR and the Finisher.	Reset the cable CN10-P745 Replace:If cable CN10-P745 is damaged, replace it.	
	3. PCB fault.	Replace: CPxxx Assembly FS-104H P/K	Refer to Engine Maintenance manual. 4.3.11, 4-16
2. This phenomenon is eliminated by pressing the Reset Switch.	1. PCB fault.	Replace: CPxxx Assembly FS-104H P/K	Refer to Engine Maintenance manual. 4.3.11, 4-16
	2. Noise check.		

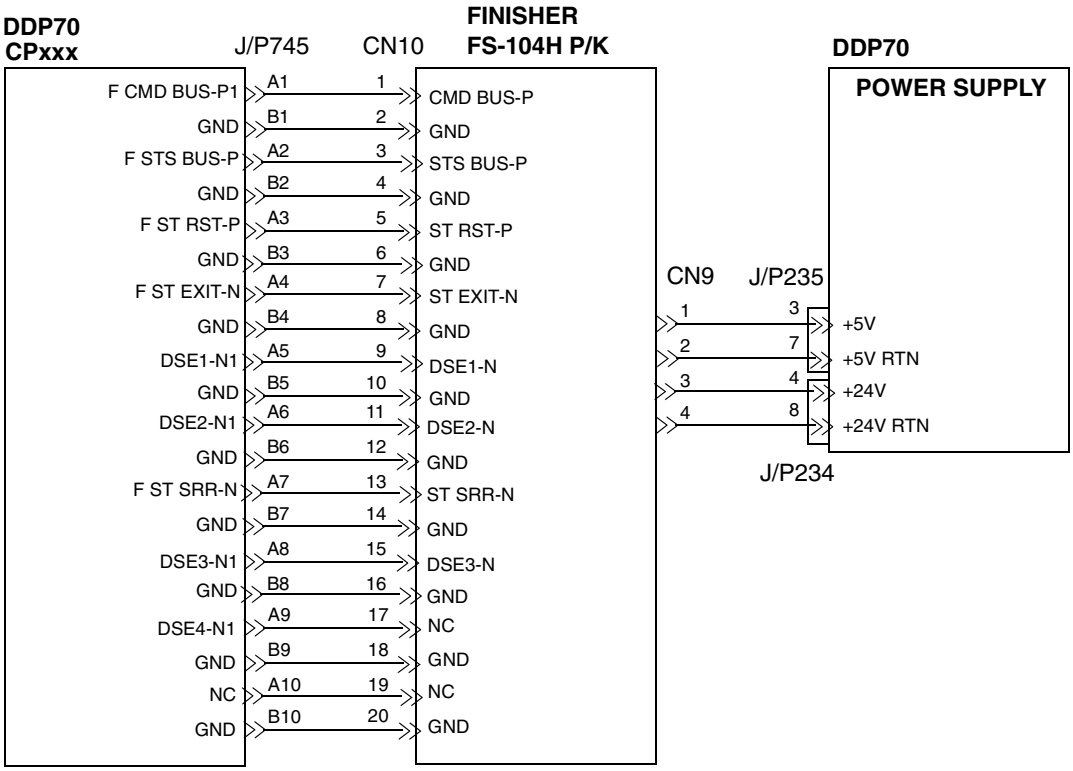


Figure 5-6. Error Code E260

5.2.7. E262 FINISHER 1 INCORRECT COMMAND
E264 FINISHER 1 ACT TIMEOUT
E266 FINISHER 1 DORMANT TIMEOUT
E268 FINISHER 1 BUSY TIMEOUT
E26C FINISHER 1 PRINT TIMEOUT

PRIMARY FACTOR;	E262: The Finisher detected that it received a command on undefined condition. E264: The Finisher does not become an activate condition. E266: The Finisher does not become a dormant condition. E268: The Finisher is in busy condition continuously. E26C: The Finisher is in print condition continuously.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs. (E262)	1. Finisher program fault.	Check: Finisher program	
	2. PR program fault.	Check: PR program	
	3. CE program fault.	Check: CE program	
2. This phenomenon occurs. (E264, E266, E268, E26C)	1. Finisher program fault..	Check: Finisher program	
Refer to Figure 5-6			

5.2.8. E26A FINISHER 1 ST EXIT SIGNAL ERROR

PRIMARY FACTOR;	The FINISHER detected the abnormality of ST_EXIT Signal.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs continually even after the Reset Switch is pressed.	1. PCB fault.	Replace: CPxxx Assembly FS-104H P/K	Refer to Engine Maintenance manual. 4.3.11, 4-16
	2. Interface fault. Check the Interface cable between the PR and the Finisher.	Replace: If the cable is damaged, replace it, otherwise replace the CPxxx Assembly.	Refer to Engine Maintenance manual.
2. This phenomenon is eliminated by pressing the Rest Switch.	1. Noise check.		
Refer to Figure 5-6			

5.2.9. E2C1 STAPLER POS. ERROR

PRIMARY FACTOR;	During the Stapler movement, the Stapler horizontal position cannot be detected.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Stapler does not move normally.	1. The drive system for the Stapler is faulty.	Check: Stapler or its environs.	
	2. Motor fault.	Replace:Stapler Movement Motor (M11)	3.4, 3-3
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable CN111-M11 or reset the connector in the correct position.	
	4. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16
2. This phenomenon occurs though the Stapler moves.	1. The sensor is contaminated.	Cleaning: Staple Movement HP Sensor (PS11) and its environs.	3.5, 3-5
	2. The mounting of the sensor is faulty.	Reset the Staple Movement HP Sensor (PS11) correctly.	
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable CN2-PS11 or reset the connector in the correct position.	
	4. Sensor fault.	Replace: Staple Movement HP Sensor (PS11).	3.5, 3-5
	5. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16

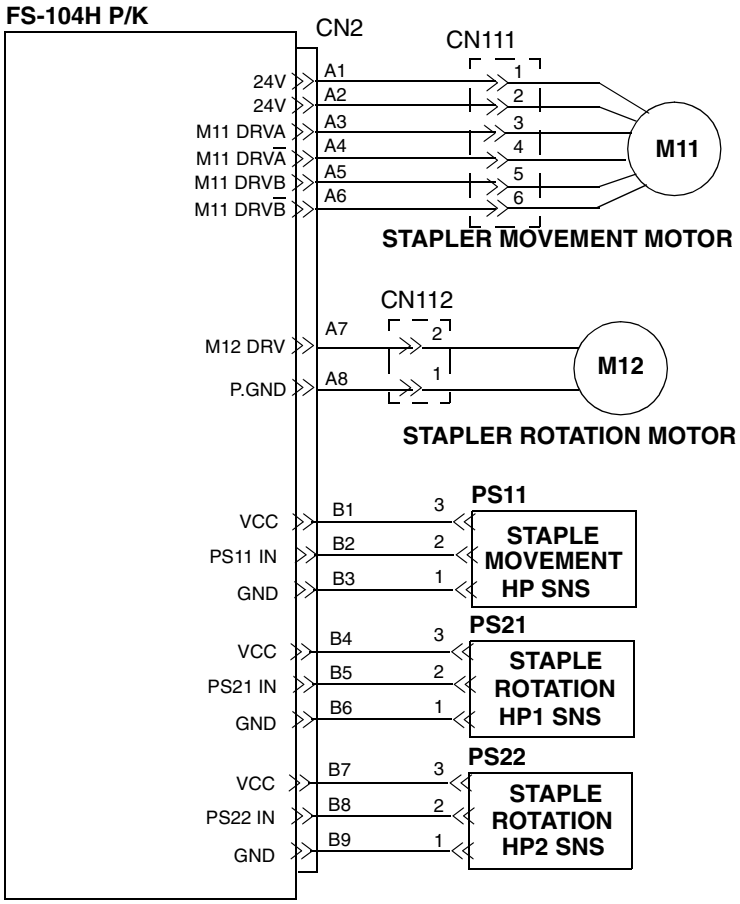


Figure 5-7. Error Code E2C1

5.2.10. E2C2 STAPLING ERROR
E2C3 STAPLING F ERROR
E2C4 STAPLING R ERROR

PRIMARY FACTOR;	E2C2: When in Staple operation, both Staple operations fail. E2C3: When in Staple operation, the Front side Staple operation fails. E2C4: When in Staple operation, the Rear side Staple operation fails. (Front side Staple:Stapler F, Rear side Staple:Stapler R)		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Stapler does not operate.	1. Stapler fault.	Replace: Stapler Unit	4.3.4, 4-8
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable or reset the connector in the correct position. Front: CN110-CN3 Rear: CN109-CN3	
	3. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16
2. This phenomenon occurs though the Stapler operates during stapling.	1. Sensor in the Stapler fault.	Replace: Stapler Unit	4.3.4, 4-8
	2. The breaking of cables or the disconnecting of connectors.	Repair the cable or reset the connector in the correct position. Front: CN110-CN3 Rear: CN109-CN3	
	3. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16
Refer to Figure 5-2.			

5.2.11. E2C5 STAPLER ROTATE ERROR

PRIMARY FACTOR;	During the Stapler rotation, the Stapler Rotation Position cannot be detected.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Stapler does not rotate.	1. The drive system for the Stapler rotation is faulty.	Check: Stapler or its environs.	
	2. Motor fault.	Replace: Stapler Rotation Motor (M12)	3.4, 3-3
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable CN2-M12 or reset the connector in the correct position.	
	4. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16
2. This phenomenon occurs though the Stapler rotates.	1. The sensor is contaminated.	Cleaning: Stapler Rotation HP1 (PS21) or HP2 (PS22) Sensor and its environs.	3.5, 3-5
	2. The mounting of the sensor is faulty.	Reset the Stapler Rotation HP1 (PS21) or HP2 (PS22) Sensor in the correct position.	3.5, 3-5
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable CN2-PS21, CN2-PS22 or reset the connector in the correct position.	
	4. Sensor fault.	Replace: Stapler Rotation HP1 (PS21) or HP2 (PS22) Sensor.	3.5, 3-5
	5. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16
Refer to Figure 5-7.			

5.2.12. E2C6 SHIFT TRAY TIMEOUT

PRIMARY FACTOR;	Even if the Shift Tray is driven for 10 seconds, the Tray Upper Limit Sensor or Tray Lower Limit Sensor does not detect the Tray.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Shift Tray does not operate.	1. The drive system for the Shift Tray is faulty. (1) The Up-down cable is worn out.	Replace: Up-down cable	6.5.4, 6-18
	2. Motor fault.	Replace: Tray Up-Down Motor (M3).	3.4, 3-3
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable CN103-CN8 or reset the connector in the correct position.	
	4. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16
2. This phenomenon occurs though the Shift Tray operates.	1. The sensor is contaminated. Check if the sensor is contaminated, etc.	Cleaning: Tray Upper Limit Sensor (PS2) or Tray Lower Limit Sensor (PS3) and its environs.	3.5, 3-5
	2. The mounting sensor is faulty.	Reset the Tray Upper Limit Sensor (PS2) or the Tray Lower Limit Sensor (PS3) correctly.	3.5, 3-5
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable CN4-PS2, CN4-PS3 or reset the connector in the correct position.	
	4. Sensor fault.	Replace: Tray Upper Limit Sensor (PS2) or the Tray Lower Limit Sensor (PS3).	3.5, 3-5
	5. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16
Refer to Figure 5-1.			

5.2.13. E2C7 ALIGNMENT PLATE POS. ERROR

PRIMARY FACTOR;	E2C7: During the Alignment Plate operation, the Plate cannot be detected.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Alignment Plate does not operate.	1. The drive system for the Alignment Plate is faulty.	Check: Alignment Plate or its environs.	
	2. Motor fault.	Replace: Alignment Plate Motor (M5).	3.4, 3-3
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable CN3/CN6-M5 or reset the connector in the correct position.	
	4. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16
2. This phenomenon occurs though the Alignment Plate operates.	1. The sensor is contaminated.	Cleaning: Alignment Plate HP Sensor (PS8) and its environs.	3.5, 3-5
	2. The mounting of the sensor is faulty.	Reset the Alignment Plate HP sensor (PS8) in the correct position.	3.5, 3-5
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable CN6-PS8 or reset the connector in the correct position.	
	4. Sensor fault.	Replace: Alignment Plate HP Sensor (PS8)	3.5, 3-5
	5. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16

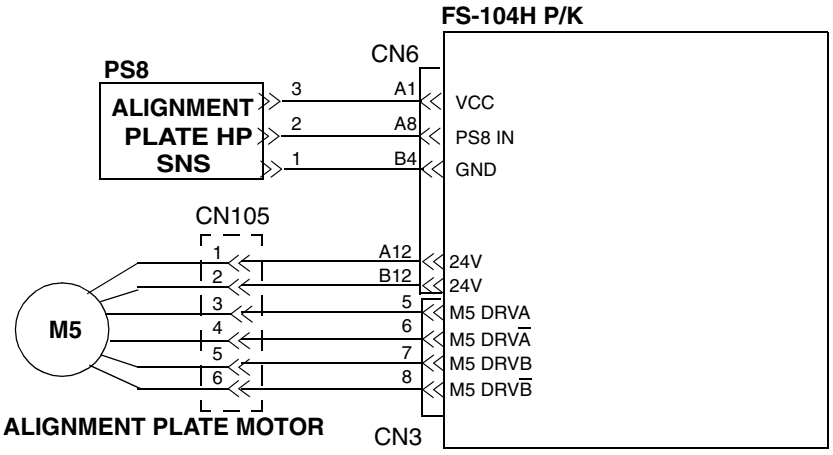


Figure 5-8. Error Code E2C7

5.2.14. E2C8 SHIFT POS. ERROR

PRIMARY FACTOR;	During the Shift operation, the Shift cannot be detected.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Shift does not operate.	1. The drive system for the Shift is faulty.	Adjust: Shift position Check: Shift or its environs.	6.7.4, 6-34
	2. Motor fault.	Replace: Roller Shift Motor (M2).	3.4, 3-3
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable CN1-M2 or reset the connector in the correct position.	
	4. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16
2. This phenomenon occurs though the Shift operates.	1. The sensor is contaminated.	Cleaning: Roller Shift HP Sensor (PS18) and its environs.	3.5, 3-5
	2. The mounting of the sensor is faulty.	Reset the Roller Shift HP Sensor (PS18) in the correct position.	3.5, 3-5
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable CN5-PS18 or reset the connector in the correct position.	
	4. Sensor fault.	Replace: Roller Shift HP Sensor (PS18)	3.5, 3-5
	5. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16

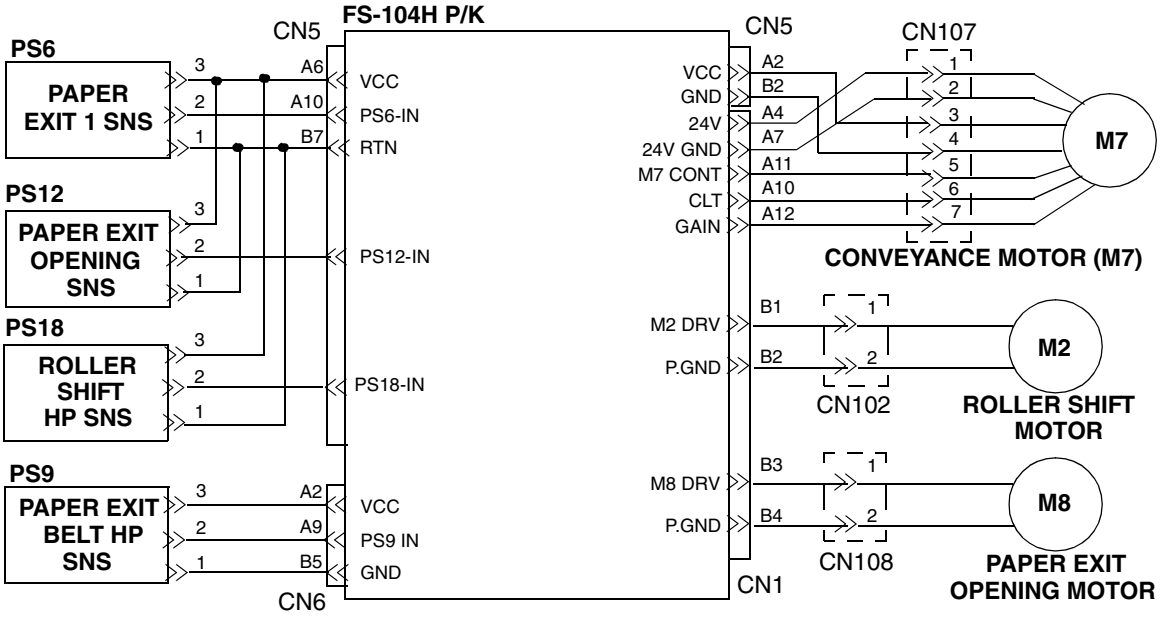


Figure 5-9. Error Code E2C8

5.2.15. E2C9 BELT POS. ERROR

PRIMARY FACTOR;	During the Paper Exit Belt operation, the Belt cannot be detected.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Paper Exit Belt does not operate.	1. The drive system for the Belt operation is faulty.	Check: Paper Exit Belt or its environs.	
	2. Motor fault.	Replace: Conveyance Motor (M7).	3.4, 3-3
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable CN1/CN5-M7 or reset the connector in the correct position.	
	4. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16
2. This phenomenon occurs though the Paper Exit Belt operates.	1. The sensor is contaminated.	Cleaning: Paper Exit Belt HP Sensor(PS9) and its environs.	3.5, 3-5
	2. The mounting of the sensor is faulty.	Reset the Paper Exit Belt HP Sensor(PS9) correctly.	3.5, 3-5
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable CN6-PS9 or reset the connector in the correct position.	
	4. Sensor fault.	Replace: Paper Exit Belt HP Sensor(PS9)	3.5, 3-5
	5. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16
Refer to Figure 5-9.			

5.2.16. E2CA PAPER EXIT OPENING POS. ERROR

PRIMARY FACTOR;	During the Paper Exit Opening operation, the Opening cannot be detected.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs because the Paper Exit Opening does not operate.	1. The drive system for the Paper Exit Opening is faulty.	Check: Paper Exit Opening and its environs.	
	2. Motor fault.	Replace: Paper Exit Opening Motor (M8).	3.4, 3-3
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable CN1-M8 or reset the connector in the correct position.	
	4. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16
2. This phenomenon occurs though the Paper Exit Opening operates.	1. The sensor is contaminated. Check if the sensor is contaminated, etc.	Cleaning: Paper Exit Opening Sensor (PS12) and its environs.	3.5, 3-5
	2. The mounting of the sensor is faulty.	Reset the Paper Exit Opening Sensor (PS12) in the correct position.	3.5, 3-5
	3. The breaking of cables or the disconnecting of connectors.	Repair the cable CN5-PS12 or reset the connector in the correct position.	
	4. Sensor fault.	Replace: Paper Exit Opening Sensor (PS12)	3.5, 3-5
	5. PCB fault.	Replace: FS-104H P/K	4.3.11, 4-16
Refer to Figure 5-9.			

5.2.17. E2E5 FNS DRIVER

PRIMARY FACTOR;	Detected that the power supply does not supply the Finisher with the +24V power.		
PHENOMENON	**CAUSES & CHECK POINTS**	**CORRECTIONS**	**Maintenance Ref + Page**
1. This phenomenon occurs.	1. The breaking of cables or the disconnecting of connectors.	Repair the cable P231-CN9 or reset the connector P231 or CN9 in the correct position.	
	2. PCB fault.	Replace:FS-104H P/K	4.3.11, 4-16
	3. Power Supply fault.	Check the Power Supply	

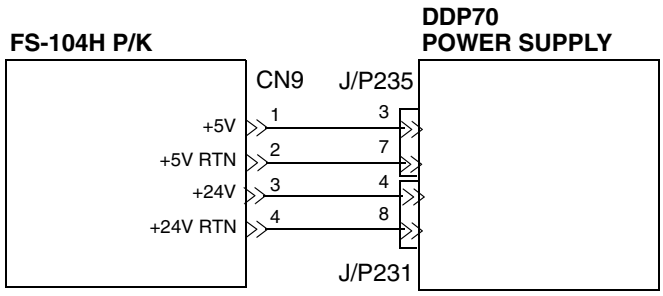


Figure 5-10. Error Code E2E5

Chapter 6. Disassembling, Assembling & Adjustment

6.1. Removal of the Cover Parts

6.1.1. Removal of the Rear Cover and the Top Cover

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Unscrew the five ⊕ screws to remove the Rear Cover.

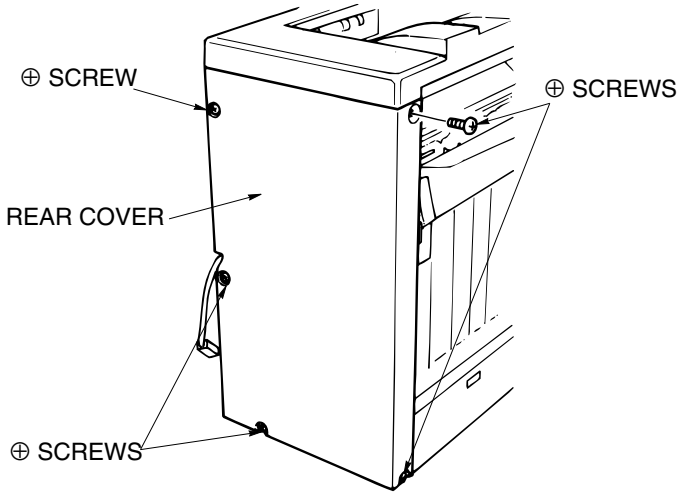


Figure 6-1. Removal of the Rear Cover

2. Open the Front Cover.
3. Unscrew the four ⊕ screws to remove the Top Cover.

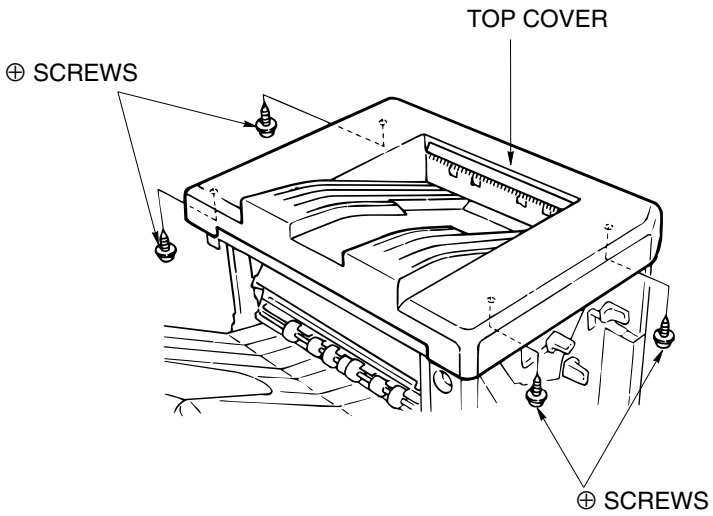


Figure 6-2. Removal of the Top Cover

[Assembling Procedures]

1. Reinstall the Rear Cover and Top Cover by reversing the procedure above.

6.1.2. Removal of the Front Cover

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Open the Front Cover.
2. Unscrew the four ⊕ screws to remove the Front Cover.

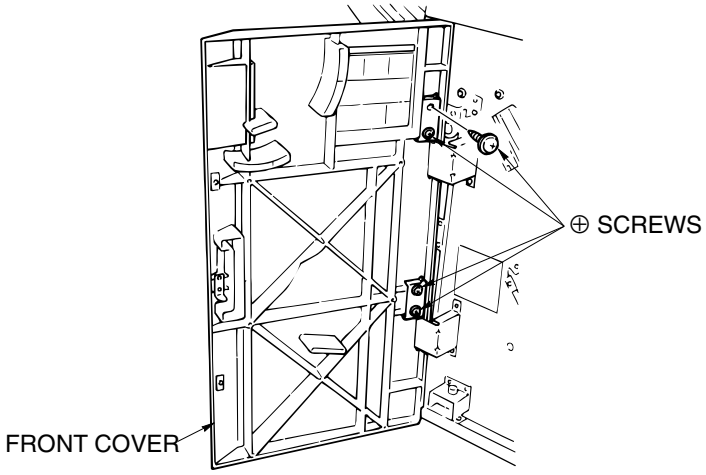


Figure 6-3. Removal of the Front Cover

[Assembling Procedures]

1. Reinstall the Front Cover by reversing the procedure above.

6.1.3. Removal of the Front Side Cover

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Unscrew the three ⊕ screws to remove the Front Side Cover.

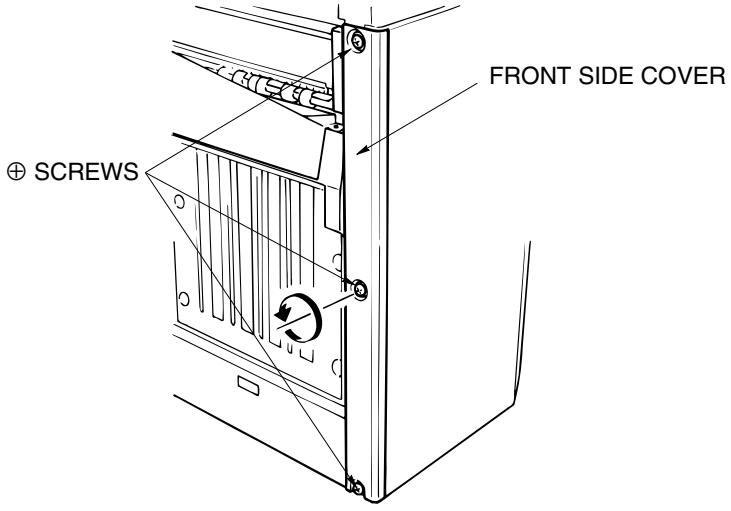


Figure 6-4. Removal of the Front Side Cover

[Assembling Procedures]

1. Reinstall the Front Side Cover by reversing the procedure above.

6.2. Removal of the Shift Unit Parts

6.2.1. Removal of the Shift Unit

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver, Jewel Screwdriver, Pliers.

[Disassembling Procedures]

1. Remove the Rear Cover and the Top Cover. (Refer to item 6.1.1 on page 6-1)
2. Disconnect the connectors M2, PS16 and SD4.
3. Remove the Wiring from the four Clamp positions.

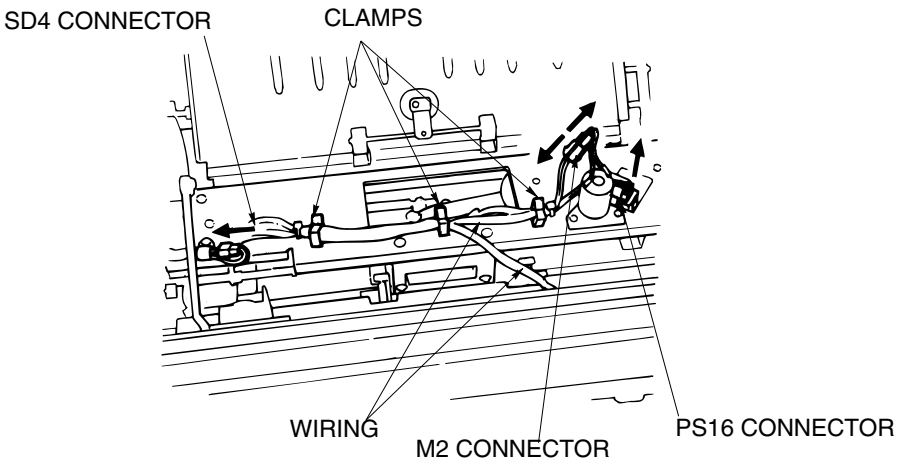


Figure 6-5. Removal of the Shift Unit

4. Remove the Ground Wire Fixing Screw.
5. Remove the clamp screw.
6. Remove the eight ⊕ screws.

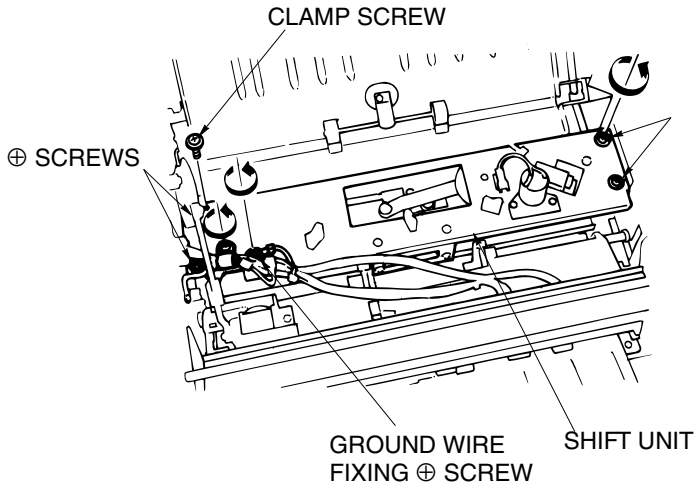


Figure 6-6. Removal of the Shift Unit

7. Remove the Belt and Pulley. If necessary, loosen the belt by the procedure below.
8. Unscrew the ⊕ screw to remove the Shift Unit.

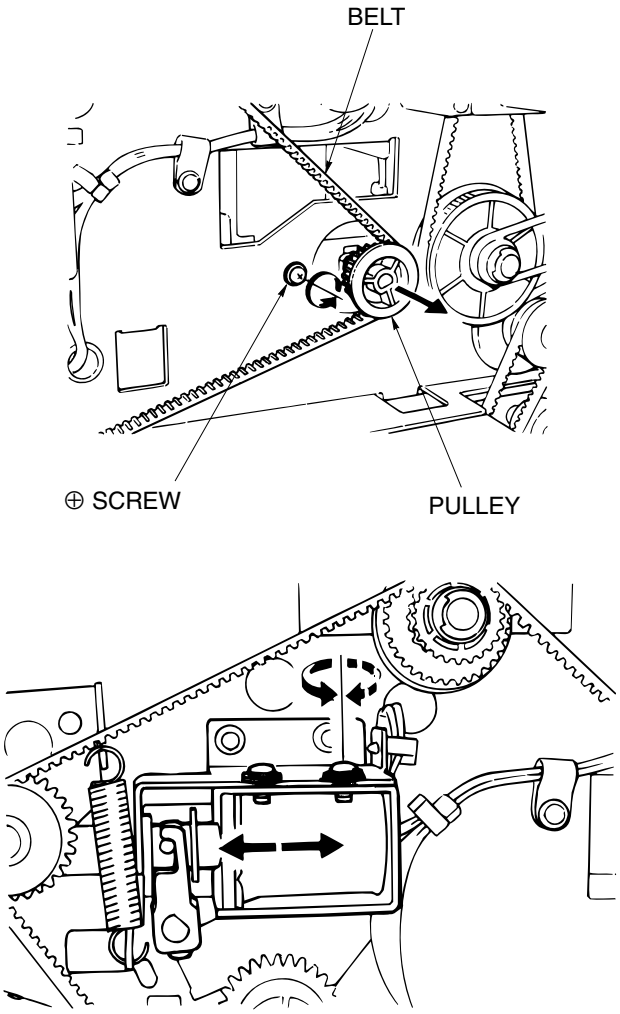


Figure 6-7. Removal of the Shift Unit

[Assembling Procedures]

1. Reinstall the Shift Unit by reversing the procedure above.

6.3. Removal of the Paper Conveyance Parts

6.3.1. Removal of the Sub-tray Paper Exit Roller

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver, Jewel Screwdriver, Pliers.

[Disassembling Procedures]

1. Remove the Rear Cover and the Top Cover. (Refer to item 6.1.1 on page 6-1)
2. Unscrew the four ⊕ screws to remove the Rear Guide Plate.

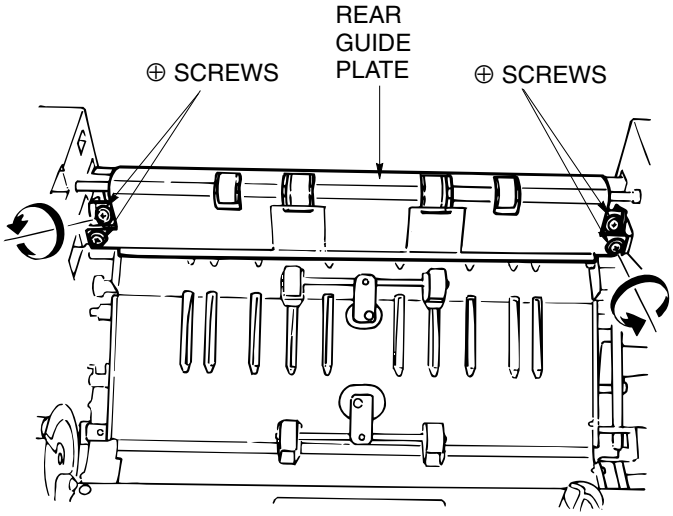


Figure 6-8. Removal of the Sub-tray Paper Exit Roller

3. Remove the Gear, E-ring and the Shaft Holder.

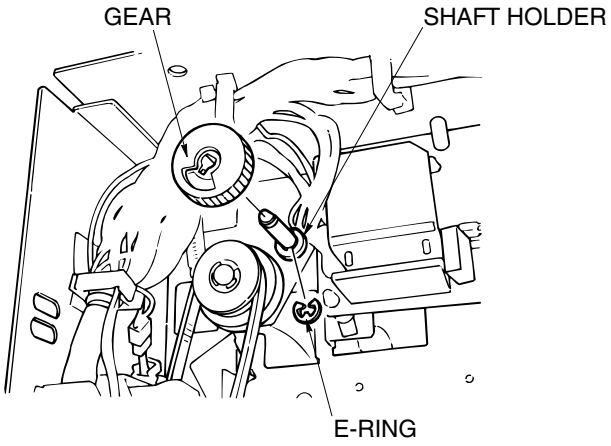


Figure 6-9. Removal of the Sub-tray Paper Exit Roller

4. Open the Front Cover and remove the E-ring and the Shaft Holder from the Sub-tray Paper Exit Roller.
5. Remove the Sub-tray Paper Exit Roller.

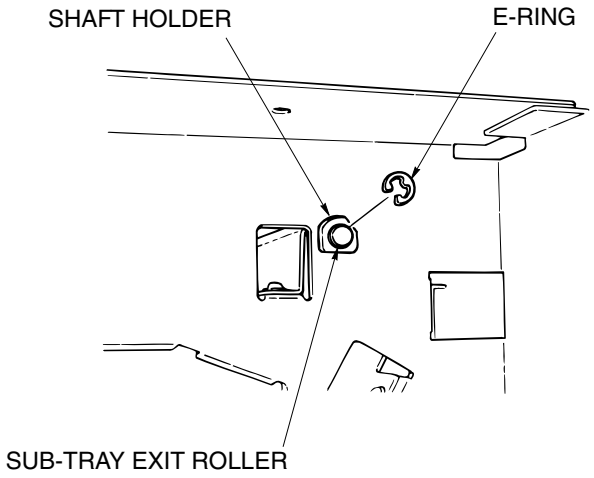


Figure 6-10. Removal of the Sub-tray Paper Exit Roller

[Assembling Procedures]

1. Reinstall the Sub-tray Paper Exit Roller by reversing the procedure above.

6.3.2. Removal of the Stacker Entrance Roller

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver, Jewel Screwdriver, Pliers.

[Disassembling Procedures]

1. Remove the Rear Cover and the Top Cover. (Refer to item 6.1.1 on page 6-1)
2. Remove the Front Side Cover. (Refer to item 6.1.3 on page 6-3)
3. Remove the Shift Unit. (Refer to item 6.2.1 on page 6-4)
4. Remove the Paper Exit opening Unit. (Refer to item 6.4.1 on page 6-10)
5. Remove the Stacker Unit. (Refer to item 6.6.1 on page 6-21)
6. Unscrew the four ⊕ screws to remove the Guide Plate.

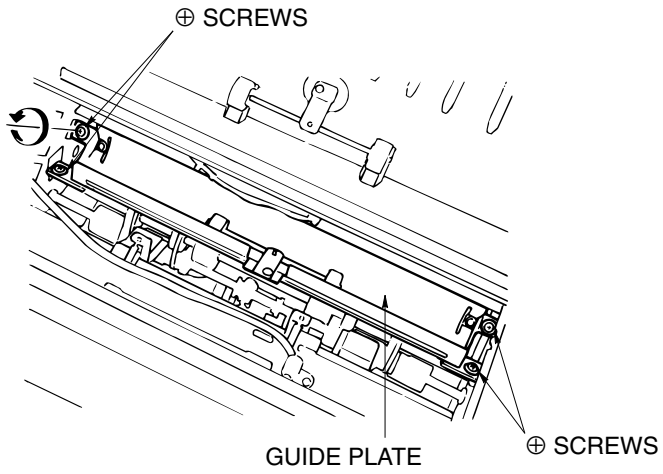


Figure 6-11. Removal of the Stacker Entrance Roller

7. Remove the Drive Pulley from the Shaft.

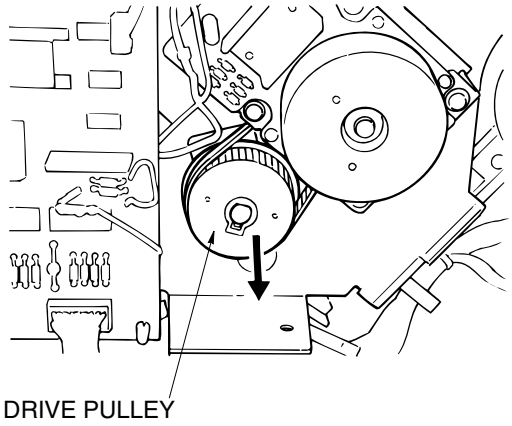


Figure 6-12. Removal of the Stacker Entrance Roller

8. Remove the two front and two rear E-rings, and the two front and two rear Shaft Holders, then take out the Stacker Entrance Roller.

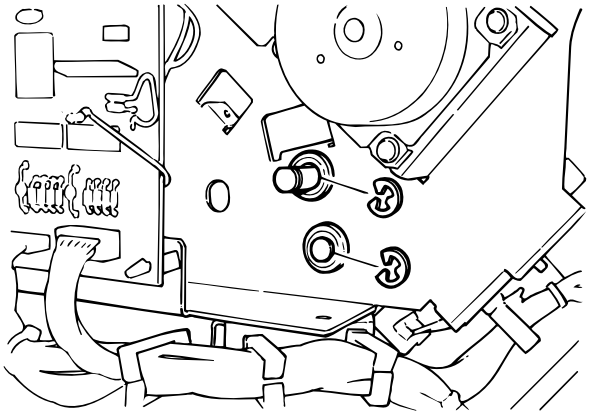


Figure 6-13. Removal of the Stacker Entrance Roller

[Assembling Procedures]

1. Reinstall the Stacker Entrance Roller by reversing the procedure above.

6.4. Removal of the Paper Exit Parts

6.4.1. Removal of the Paper Exit Opening Unit

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver, Jewel Screwdriver, Pliers.

[Disassembling Procedures]

1. Remove the Rear Cover and the Top Cover. (Refer to item 6.1.1 on page 6-1)
2. Remove the Front Side Cover. (Refer to item 6.1.3 on page 6-3)
3. Remove the Shift Unit. (Refer to item 6.2.1 on page 6-4)
4. Remove the E-ring and then remove the Collar, Gear and the Drive Belt.

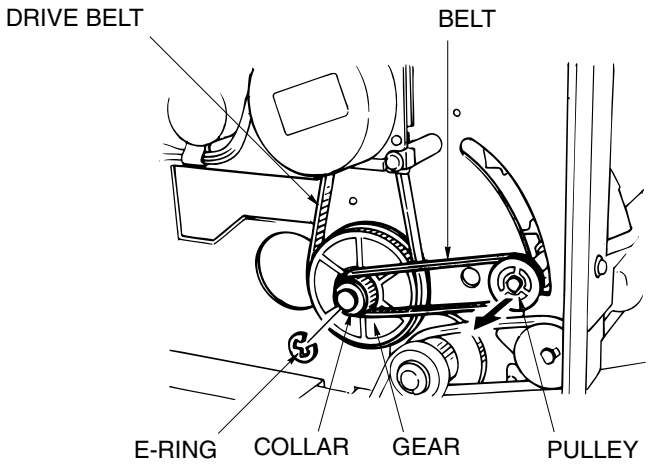


Figure 6-14. Removal of the Paper Exit Opening Unit

5. Remove the Collar, E-ring and Shaft Holder.

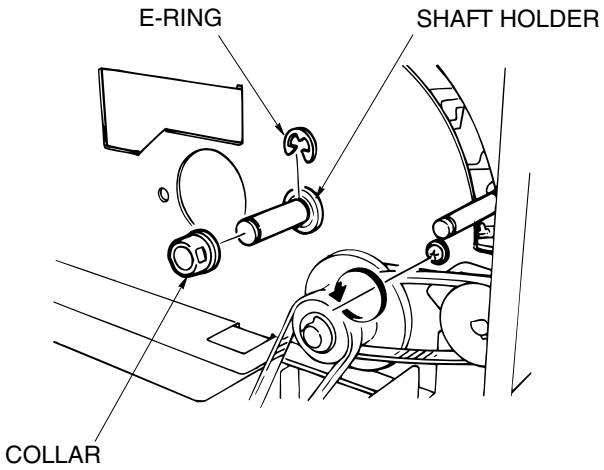


Figure 6-15. Removal of the Paper Exit Opening Unit

6. Remove the Clamp ⊕ screw and the Ground Wire ⊕ screw.
7. Disconnect the connectors PS6 and SD4.

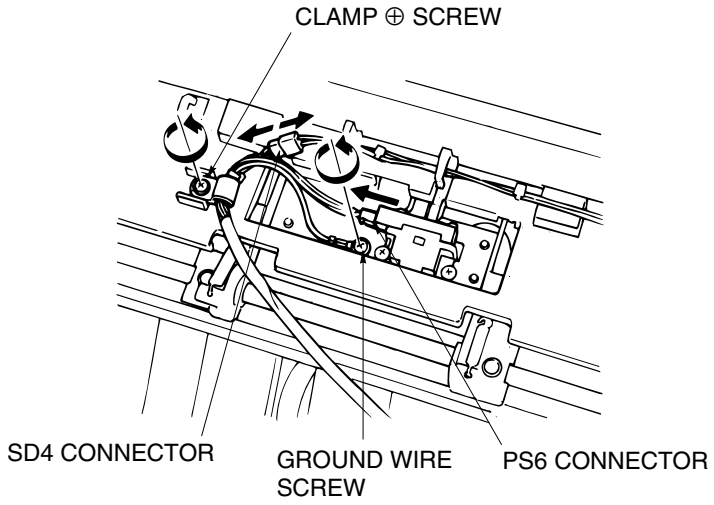


Figure 6-16. Removal of the Paper Exit Opening Unit

8. Remove the Slide Arm.

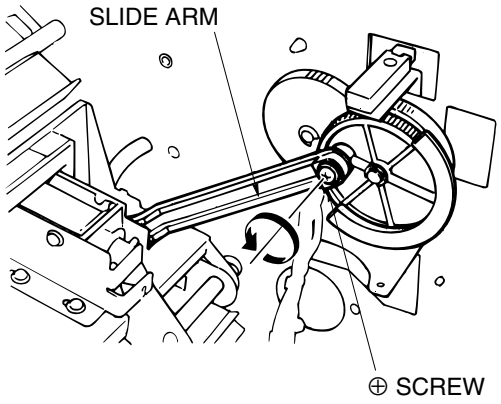


Figure 6-17. Removal of the Paper Exit Opening Unit

9. Open the Front Cover and remove the front side E-ring and the Shaft Holder.

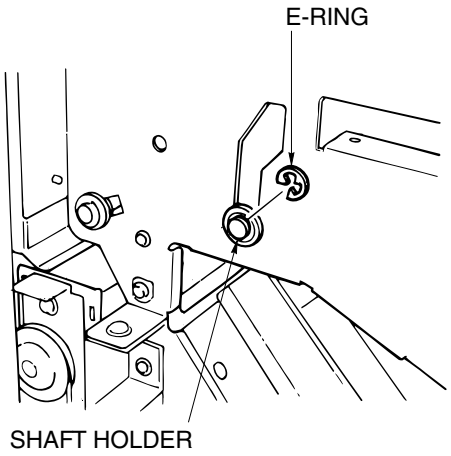


Figure 6-18. Removal of the Paper Exit Opening Unit

10. Remove the Spring.

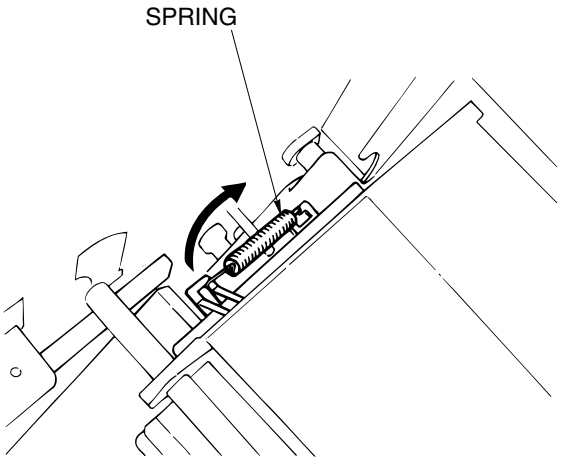


Figure 6-19. Removal of the Paper Exit Opening Unit

11. Unscrew the four ⊕ screws to remove the Paper Exit Opening Cover.
12. Take the Paper Exit Opening Unit out to the top.

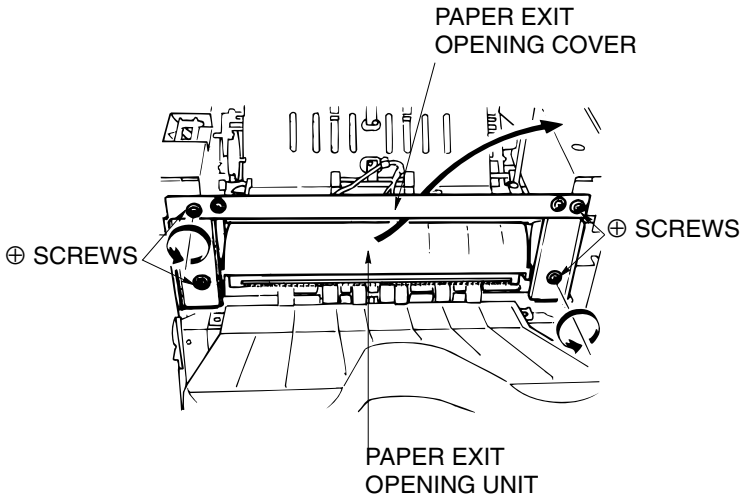


Figure 6-20. Removal of the Paper Exit Opening Unit

[Assembling Procedures]

1. Reinstall the Paper Exit Opening Unit by reversing the procedure above.

6.4.2. Removal of the Neutralizing Brush

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: None.

[Disassembling Procedures]

1. Tear out the old Neutralizing Brush.
2. Stick the new Neutralizing Brush on so that it lines up with the marked line.

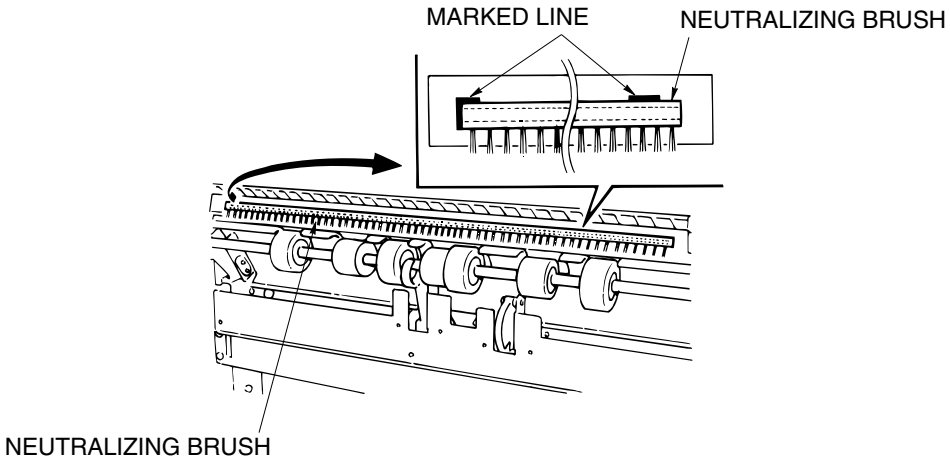


Figure 6-21. Removal of the Neutralizing Brush

[Assembling Procedures]

1. Reinstall the Neutralizing Brush by reversing the procedure above.

6.5. Removal of the Shift Tray Parts

6.5.1. Removal of the Shift Tray

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Open the Rear Cover. (Refer to item 6.1.1 on page 6-1)
2. Remove the Tray Up-down Motor. (Refer to item 4.3.5 on page 4-10)
3. Unscrew the two ⊕ screws, lift up and remove the Shift Tray.

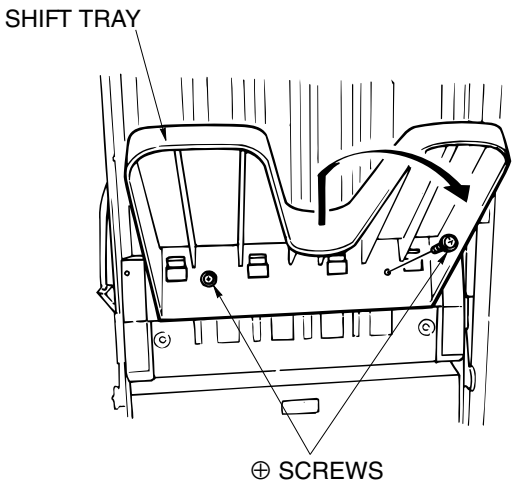


Figure 6-22. Removal of the Shift Tray

[Assembling Procedures]

1. Reinstall the Shift Tray by reversing the procedure above.

6.5.2. Removal of the Paper Exit Stopper Plate

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 6.1.1 on page 6-1)
2. Remove the Shift Tray. (Refer to item 6.5.1 on page 6-14)
3. Remove the Front Side Cover. (Refer to item 6.1.3 on page 6-3)
4. Unscrew the four ⊕ screws to remove the left and right Up-down Cover.

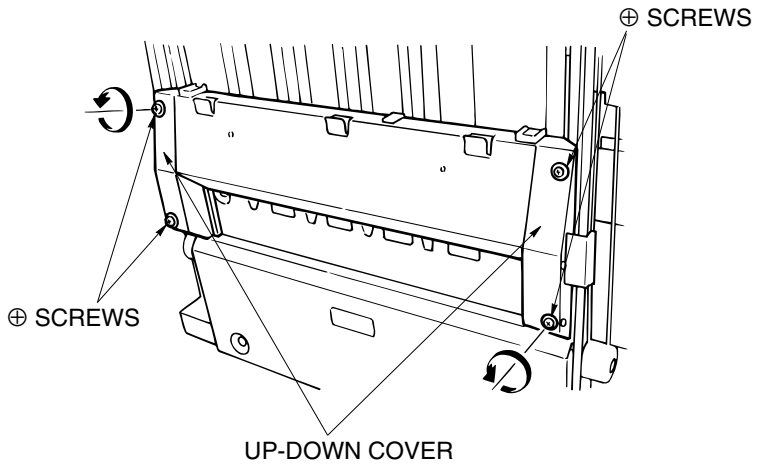


Figure 6-23. Removal of the Paper Exit Stopper Plate

5. Unscrew the two ⊕ screws to remove the two Slide Stoppers.

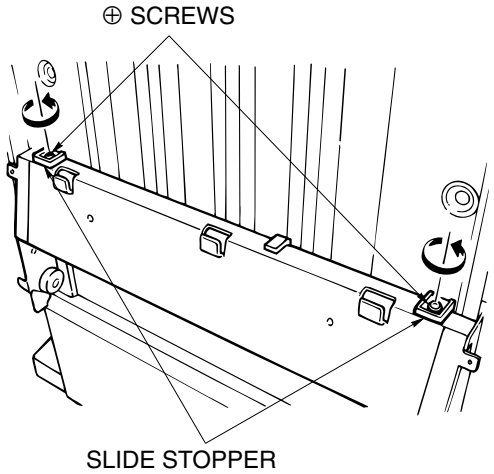


Figure 6-24. Removal of the Paper Exit Stopper Plate

6. Unscrew the two ⊕ screws and take out the Up-down Support Plate (front and rear).

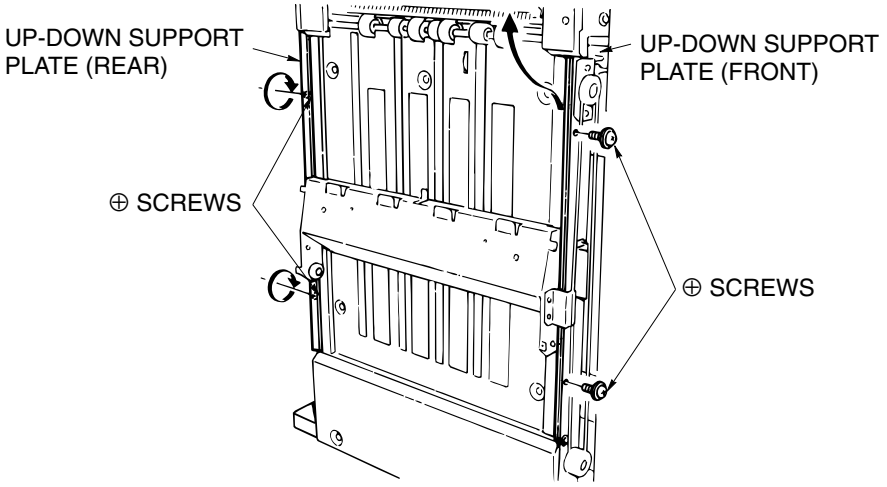


Figure 6-25. Removal of the Paper Exit Stopper Plate

7. Unscrew the nine ⊕ screws, lift the Up-down Stay and take out the Paper Exit Stopper Plate to the lower side.

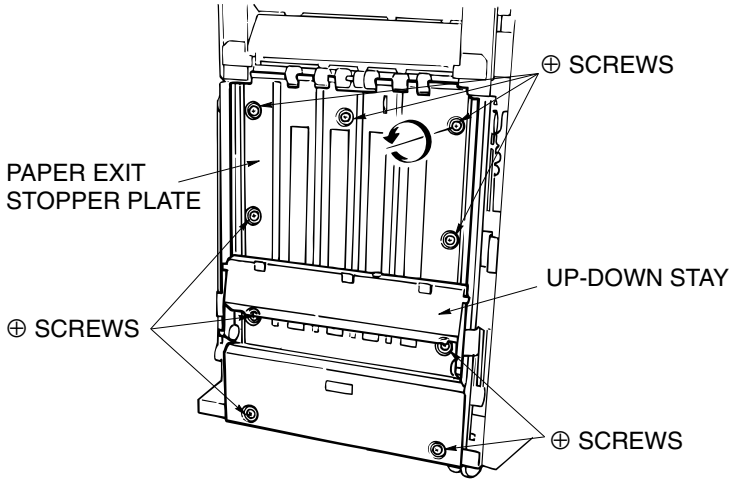


Figure 6-26. Removal of the Paper Exit Stopper Plate

[Assembling Procedures]

1. Reinstall the Paper Exit Stopper Plate by reversing the procedure above.

6.5.3. Removal of the Up-down Stay

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 6.1.1 on page 6-1)
2. Remove the Front Side Cover. (Refer to item 6.1.3 on page 6-3)
3. Remove the Shift Tray. (Refer to item 6.5.1 on page 6-14)
4. Remove the Paper Exit Stopper Plate. (Refer to item 6.5.2 on page 6-15)
5. Unscrew the four ⊕ screws of the Cable Bracket to remove the Up-down Stay.

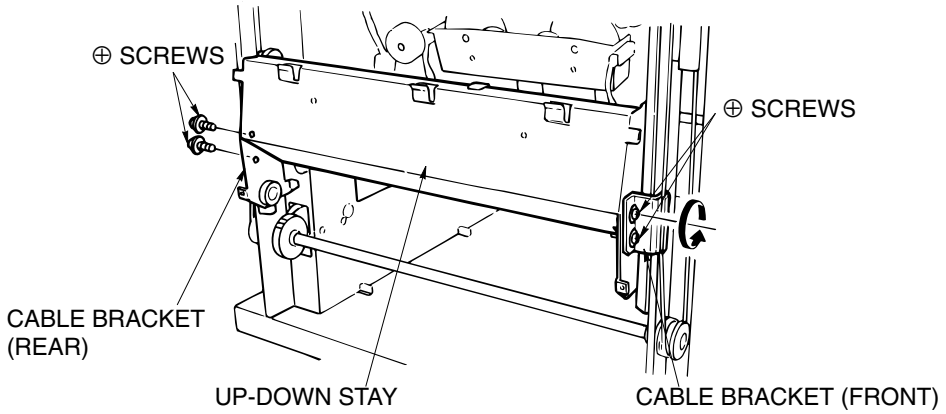


Figure 6-27. Removal of the Up-down Stay

[Assembling Procedures]

1. Reinstall the Up-down Stay by reversing the procedure above, paying attention to the following caution.

CAUTION:
When the Up-down Stay is pressed down, the four ⊕ screws of the Cable Bracket Up-down Stay will tighten.

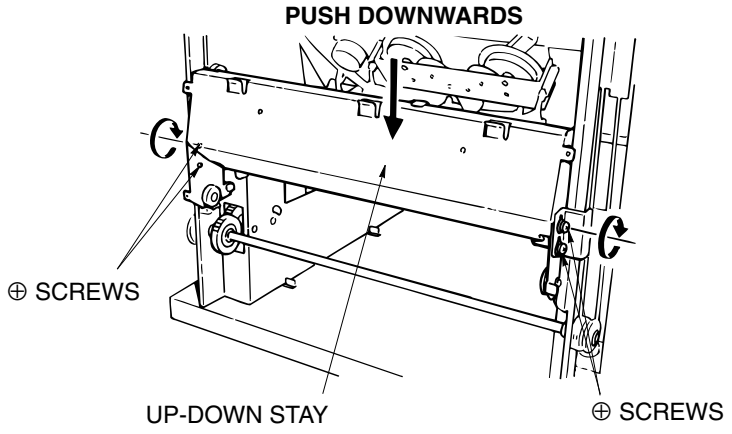


Figure 6-28. Removal of the Up-down Stay

6.5.4. Removal of the Up-down Cable

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver, Jewel Screwdriver, Pliers.

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 6.1.1 on page 6-1)
2. Remove the Shift tray. (Refer to item 6.5.1 on page 6-14)
3. Remove the Front Side Cover. (Refer to item 6.1.3 on page 6-3)
4. Remove the Paper Exit Support Plate. (Refer to item 6.5.2 on page 6-15)
5. Remove the Up-down Stay. (Refer to item 6.5.3 on page 6-17)
6. Unscrew each of the two ⊕ screws of the front and rear Cable Bracket, then remove the Up-down Stay.

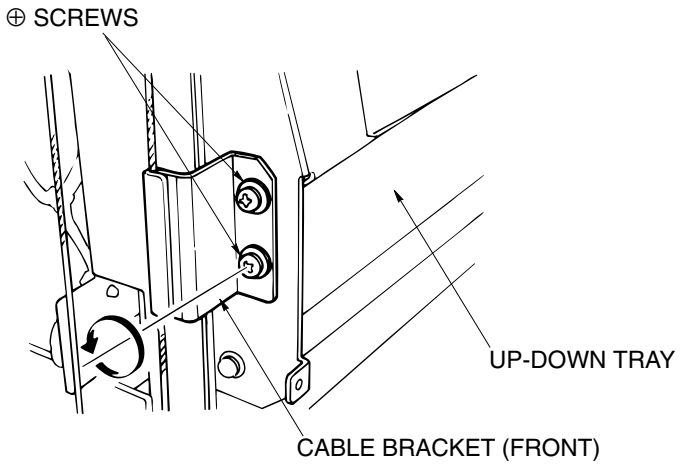


Figure 6-29. Removal of the Up-down Cable

7. Remove the E-ring, remove the lower Up-down Pulley and then replace the Cable.

CAUTION:
Take care not to lose the pin which is used inside the Up-down Pulley when removing the pulley.

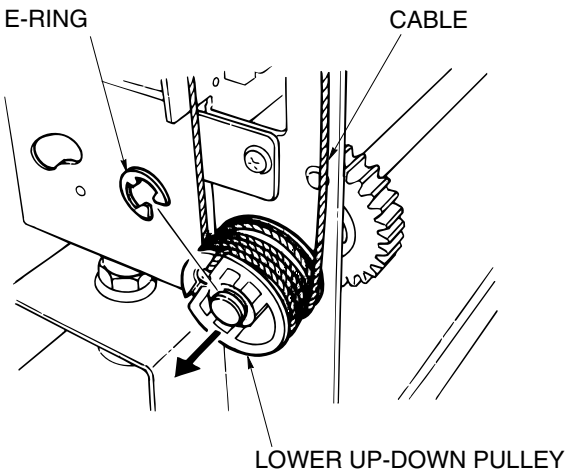


Figure 6-30. Removal of the Up-down Cable

8. Move the Up-down Stay so that the inner cable which is not removed (the shorter side from the Cable Bracket) is wound around twice.

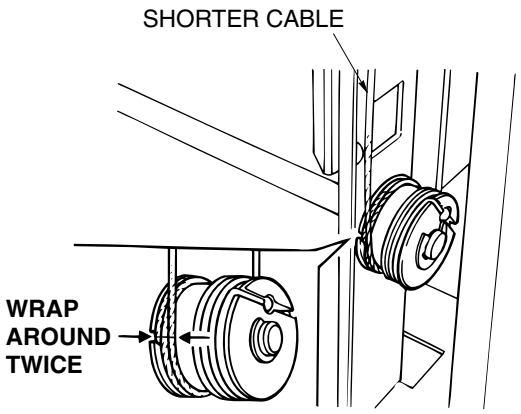


Figure 6-31. Removal of the Up-down Cable

9. Wrap the short side of the cable (from the Cable Bracket) being exchanged around the Up-down Pulley twice.
10. Line the Cable Bracket position up with another Cable Bracket which was not removed and, after inserting the pin, install the Up-down Pulley with the E-ring.
11. Hook the Cable onto the Upper Pulley.

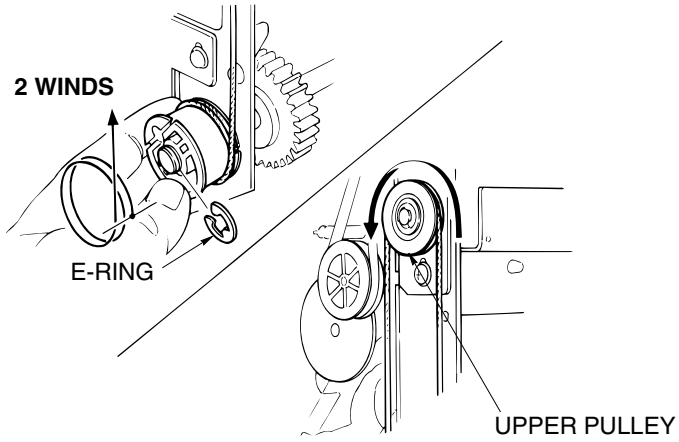


Figure 6-32. Removal of the Up-down Cable

12. Wrap the opposite side (long portion) of the Cable around the Up-down Pulley from the inside to the outside and fix the cable end.

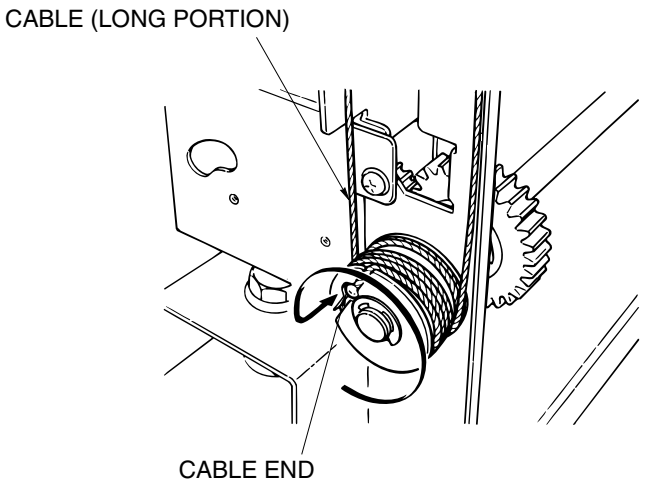


Figure 6-33. Removal of the Up-down Cable

13. When the Up-down Stay is pressed down, the four ⊕ screws of the Cable Bracket will tighten.

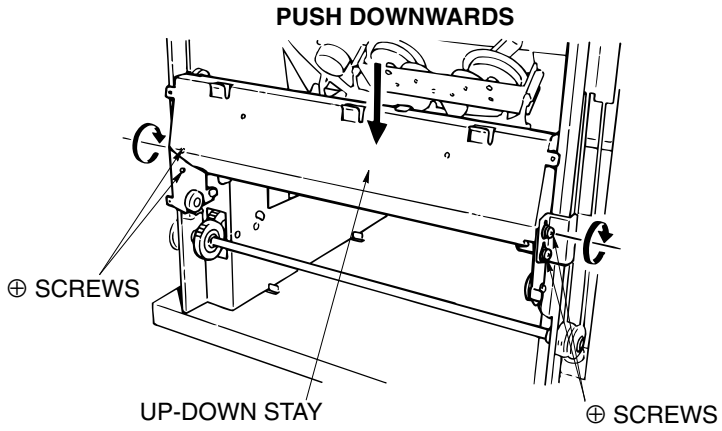


Figure 6-34. Removal of the Up-down Cable

[Assembling Procedures]

1. Reinstall the Up-down Cable by reversing the procedure above.

6.6. Removal of the Stacker Unit Parts

6.6.1. Removal of the Stacker Unit

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver, Jewel Screwdriver, Pliers.

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 6.1.1 on page 6-1)
2. Remove the Top Cover. (Refer to item 6.1.1 on page 6-1)
3. Remove the Front Side Cover. (Refer to item 6.1.3 on page 6-3)
4. Remove the Shift Unit. (Refer to item 6.2.1 on page 6-4)
5. Remove the Paper Exit Opening Unit. (Refer to item 6.4.1 on page 6-10)
6. Take out the E-ring and Flange, then remove the belt and the two Pulleys.
7. Remove the Shaft with a jewel screwdriver and remove the Belt Detection Gear.

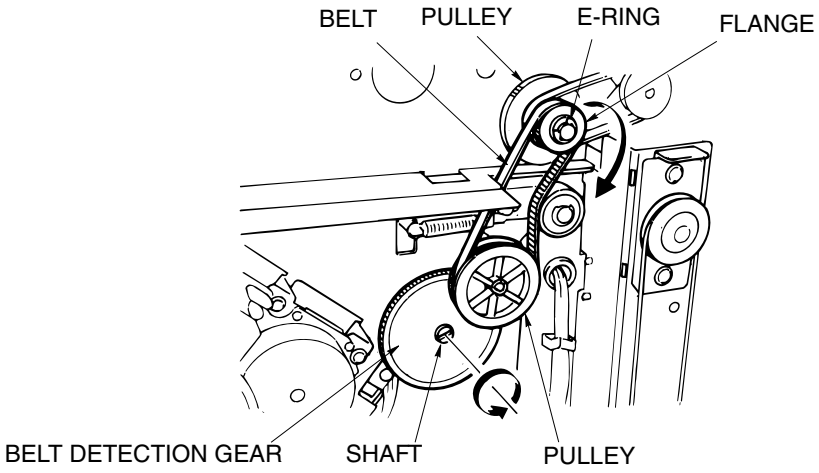


Figure 6-35. Removal of the Stacker Unit

8. Remove the E-ring and then the Shaft Holder.

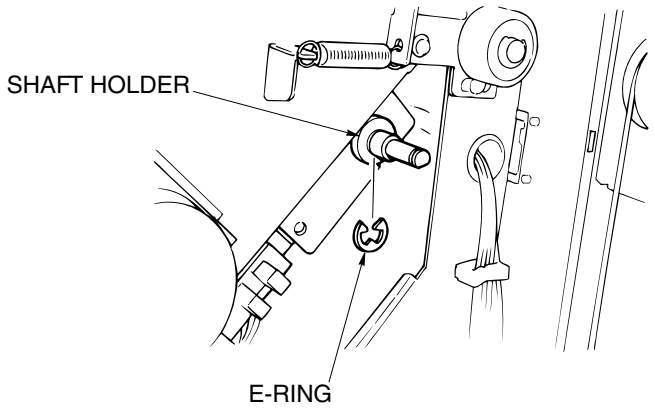


Figure 6-36. Removal of the Stacker Unit

9. Shift and remove the Shaft Holder.

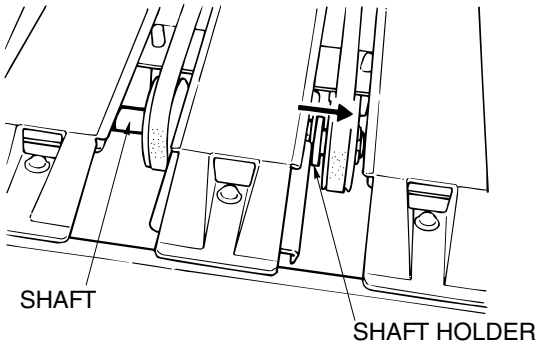


Figure 6-37. Removal of the Stacker Unit

10. Disconnect the connector PS9 and then remove the wiring from the Clamp.

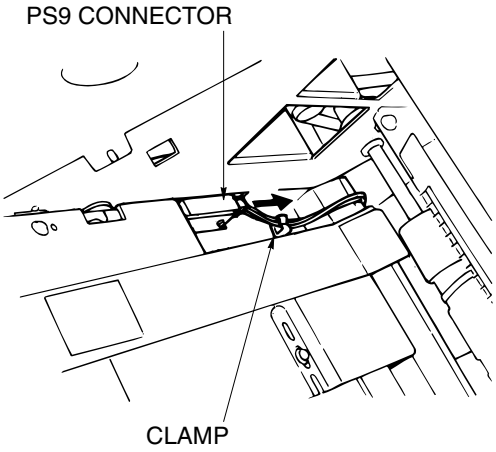


Figure 6-38. Removal of the Stacker Unit

11. Unscrew the ⊕ screw and then remove PS9.

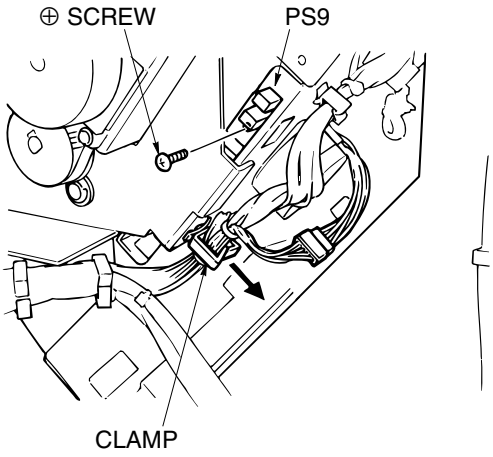


Figure 6-39. Removal of the Stacker Unit

12. Unscrew the two ⊕ screws to remove the Support Stay.

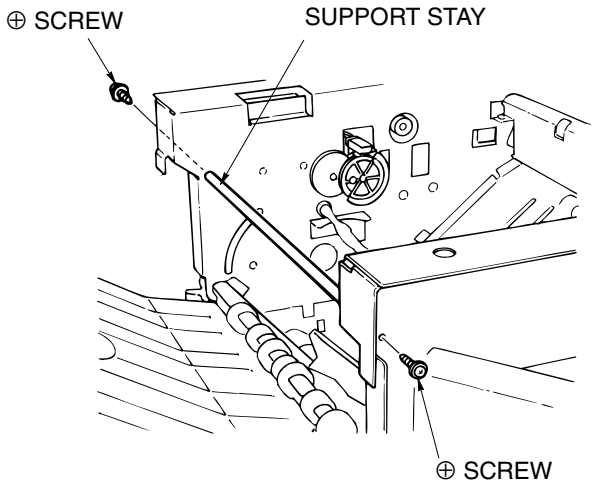


Figure 6-40. Removal of the Stacker Unit

13. Remove CN6 and CN3 on the FIN Control Board and the Staple Connectors F and R. Then remove the wiring from the Clamp.

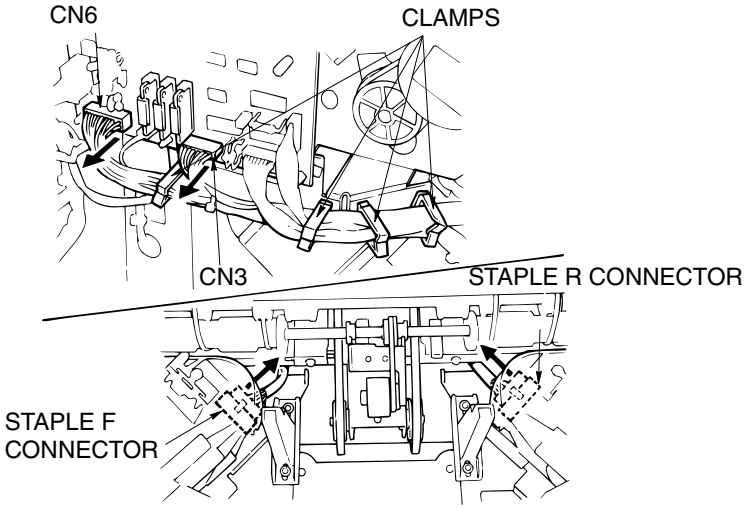


Figure 6-41. Removal of the Stacker Unit

14. Unscrew the four ⊕ screws to remove the Stacker Unit.

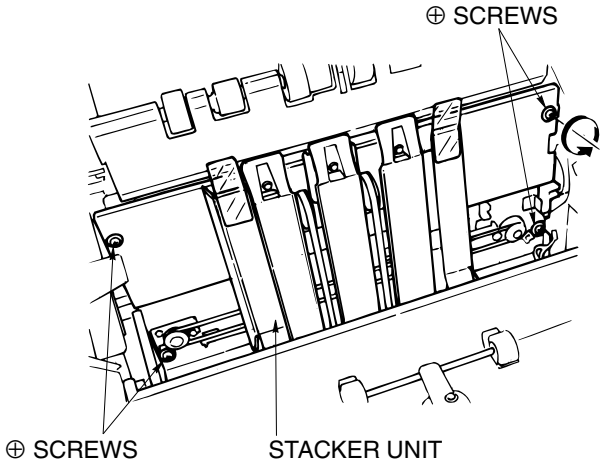


Figure 6-42. Removal of the Stacker Unit

[Assembling Procedures]

1. Reinstall the Stacker Unit by reversing the procedure above.

CAUTION:
When the Stacker Paper Exit Arm is in the position as that of the diagram below, engage the gear so that the notch of the Belt Detection Gear actuator meets with the edge of PS9 as per the diagram below.

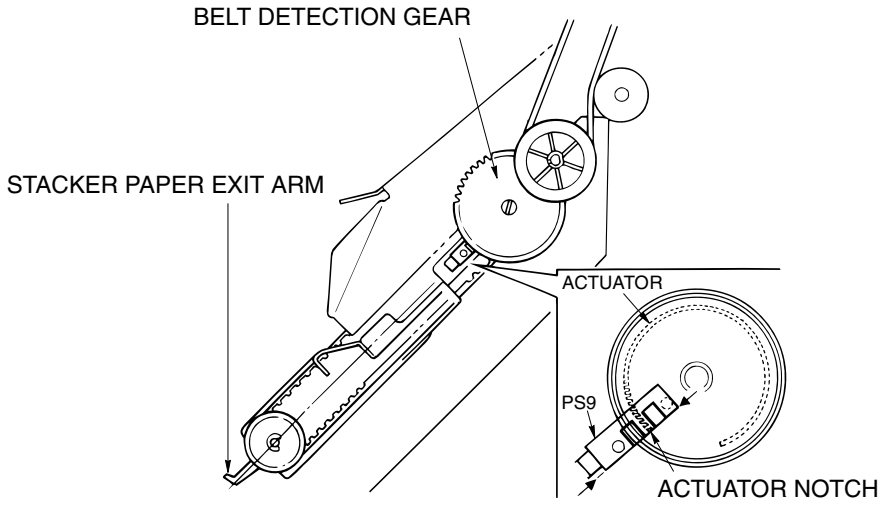


Figure 6-43. Removal of the Stacker Unit

6.6.2. Removal of the Neutralizing Brush

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver, Jewel Screwdriver, Pliers.

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 6.1.1 on page 6-1)
2. Remove the Top Cover. (Refer to item 6.1.1 on page 6-1)
3. Remove the Front Side Cover. (Refer to item 6.1.2 on page 6-2)
4. Remove the Shift Unit. (Refer to item 6.2.1 on page 6-4)
5. Remove the Paper Exit Opening Unit. (Refer to item 6.4.1 on page 6-10)
6. Remove the Stacker Unit. (Refer to item 6.6.1 on page 6-21)
7. Tear off the old Neutralizing Brush.

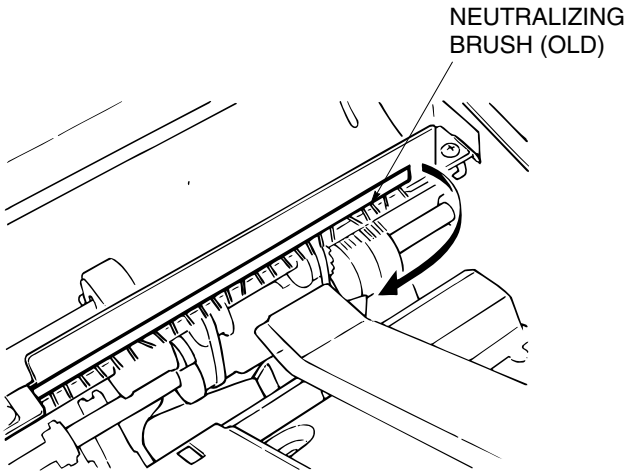


Figure 6-44. Removal of the Neutralizing Brush

8. Stick the new Neutralizing Brush on so that it lines up with the marked line.

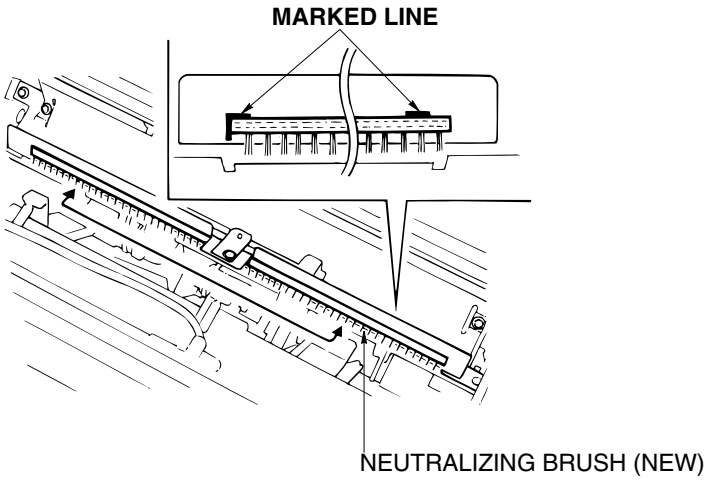


Figure 6-45. Removal of the Neutralizing Brush

[Assembling Procedures]

1. Reinstall the Neutralizing Brush by reversing the procedure above.

6.6.3. Removal of the Stapler Unit

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver, Jewel Screwdriver, Pliers.

[Disassembling Procedures]

1. Remove the Stapler. (Refer to item 4.3.4 on page 4-8)
2. Close the Stapler section.
3. Disconnect the connector CN2 from the Finisher Control Board.
4. Open the Clamp in for places and then remove the Harness.

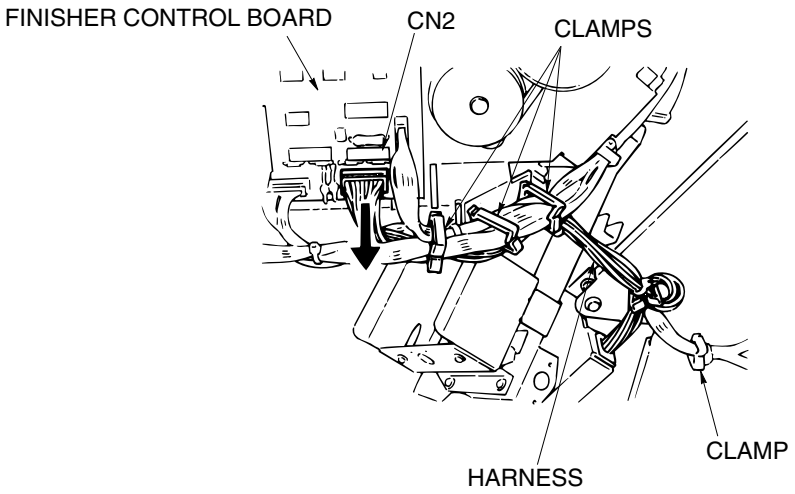


Figure 6-46. Removal of the Stapler Unit

5. Remove the two Springs.
6. Remove the two E-rings and then remove the Release Shaft.

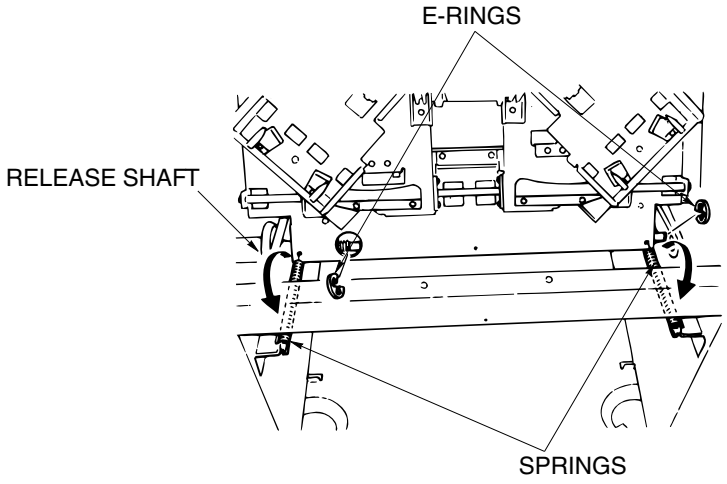


Figure 6-47. Removal of the Stapler Unit

7. Re7move the E-ring fixed by the Shaft and remove the Stapler.

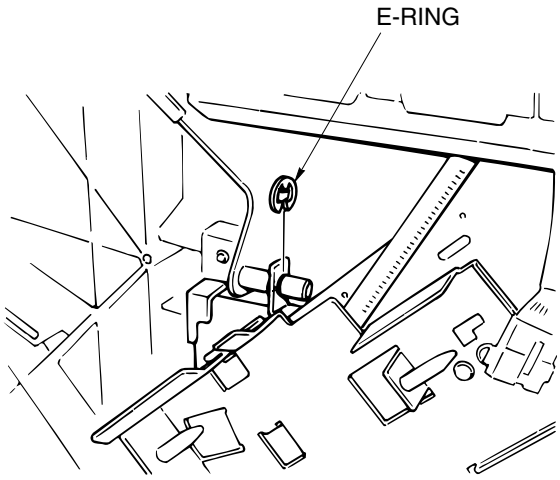


Figure 6-48. Removal of the Stapler Unit

[Assembling Procedures]

1. Reinstall the Stapler Unit by reversing the procedure above.

6.7. Adjustment

6.7.1. Adjusting the Sub-tray Gate

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the Rear Cover and the Top Cover. (Refer to item 6.1.1 on page 6-1)
2. Unscrew the four ⊕ screws to remove the Rear Guide Plate.

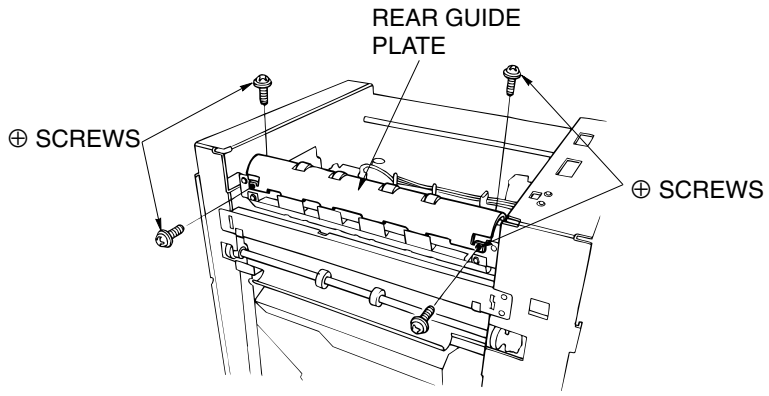


Figure 6-49. Adjustment of the Sub-tray Gate

[Adjustment Procedures]

1. When the Sub-tray Paper Exit Solenoid (SD2) is OFF, check whether the gap between the Sub-tray Gate and the Guide Plate B is the value stated below:
   Value: A = 2.9 to 3.9 mm.
2. When the Sub-tray Paper Exit Solenoid (SD2) is ON, check that the gap between the solenoid plunger and the bracket stopper is the value stated below:
   Value: B = 5 ± 0.5 mm.

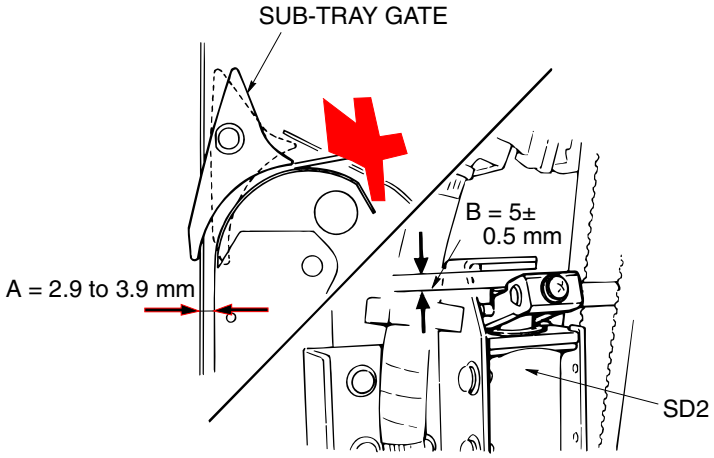


Figure 6-50. Adjustment of the Sub-tray Gate

3. If the value is outside that of the standard stated, loosen the two Solenoid Installation ⊕ screws then operate and adjust the Solenoid.

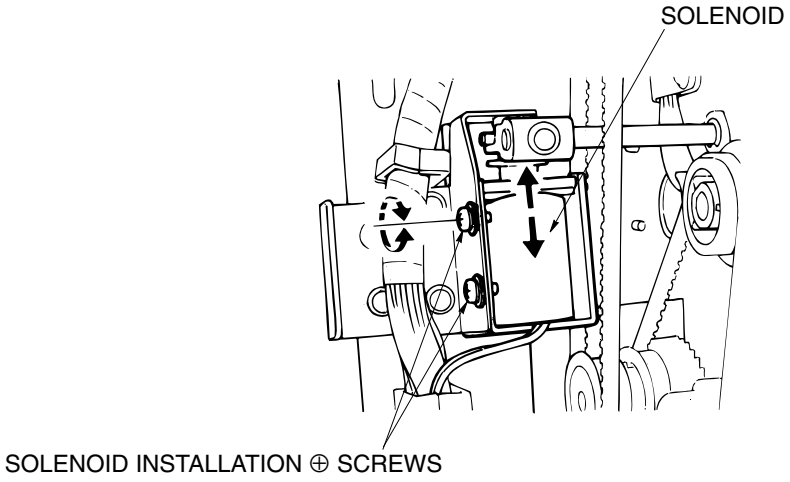


Figure 6-51. Adjustment of the Sub-tray Gate

4. Tighten the Solenoid ⊕ screws.

[Assembling Procedures]

1. Reinstall the Rear Cover and the Top Cover by reversing the procedure above.

6.7.2. Adjusting the Paper Route Switching Gate

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the Rear Cover and the Top Cover. (Refer to item 6.1.1 on page 6-1)

[Adjustment Procedures]

1. When the Gate Solenoid (SD1) is ON, check that the distance between the Shorter Gate and the Guide Plate C is the value stated below:
   Value: A = 5 ± 0.5 mm.
2. When the Gate Solenoid (SD1) is ON, check that the gap between the Solenoid Plunger and the Bracket Stopper is the value stated below:
   Value: B = 5 ± 0.5 mm.

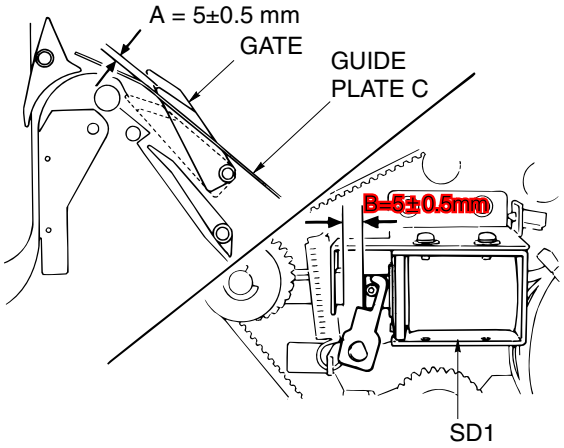


Figure 6-52. Adjustment of the Paper Route Switching Gate

3. Loosen the two Solenoid Installation ⊕ screws then move and adjust the Solenoid.

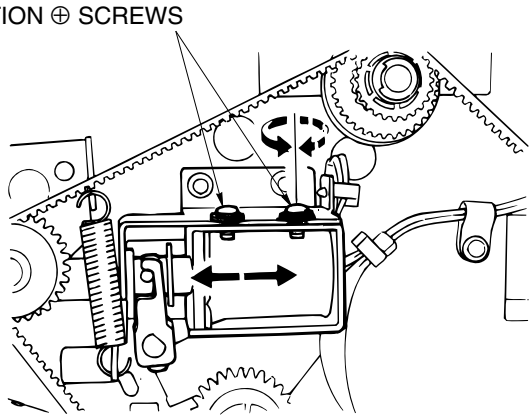


Figure 6-53. Adjustment of the Paper Route Switching Gate

4. Tighten the Solenoid ⊕ screws.

[Assembling Procedures]

1. Reinstall the Rear Cover and Top Cover by reversing the procedure above.

6.7.3. Adjusting the By-pass Gate

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the Rear Cover. (Refer to item 6.1.1 on page 6-1)

[Adjustment Procedures]

1. Open the Front Cover and open the Guide Plate C.

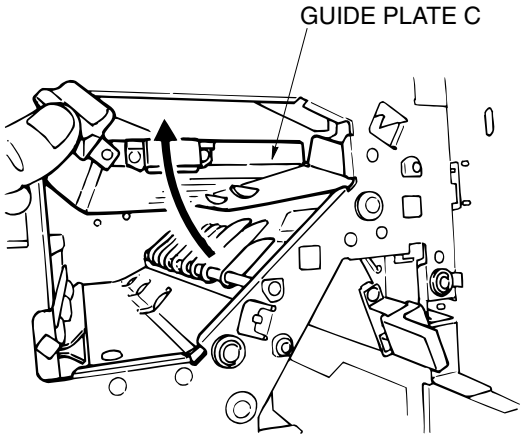


Figure 6-54. Adjustment of the By-Pass Gate

2. When the By-Pass Solenoid (SD5) is OFF, check that the distance between the By-Pass Gate and the Guide Plate D is the value stated below:
   Value: 5.2 ± 0.5 mm.
3. When the By-Pass Solenoid (SD5) is ON, check that the gap between the Solenoid Plunger and the Bracket Stopper is the value stated below:
   Value: B = 5.0 ± 0.5 mm.

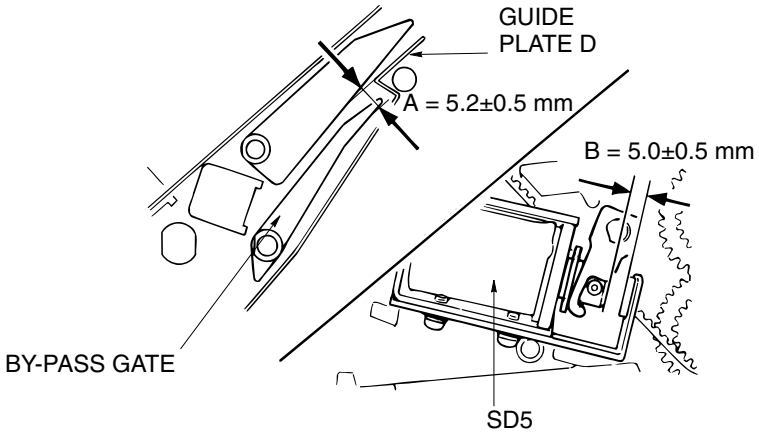


Figure 6-55. Adjustment of the By-Pass Gate

4. Loosen the two installation ⊕ screws then move and adjust the Solenoid.

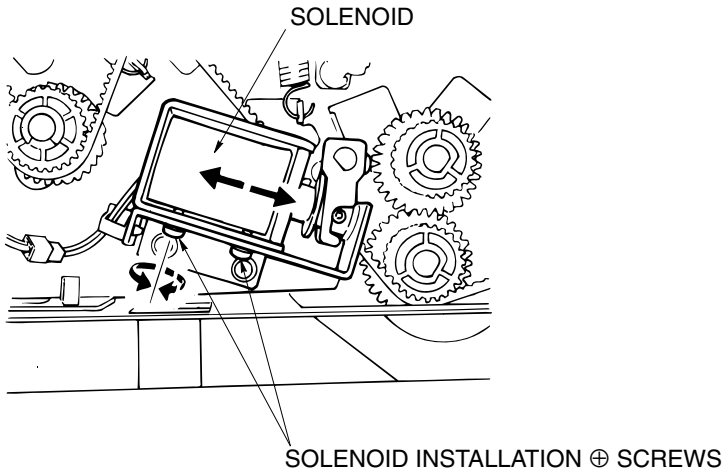


Figure 6-56. Adjustment of the By-Pass Gate

5. Tighten the Solenoid ⊕ screws.

[Assembling Procedures]

1. Reinstall the Rear Cover by reversing the procedure above.

6.7.4. Adjusting the Shift Position

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the Rear Cover and the Top Cover. (Refer to item 6.1.1 on page 6-1)

[Adjustment Procedures]

1. Turn the power OFF-ON-OFF.
2. When the Roller Shift Motor (M2) is OFF (home position), check that the Roller Shift HP (PS18) Actuator lines up with the Shift Unit Installation Plate Notch.

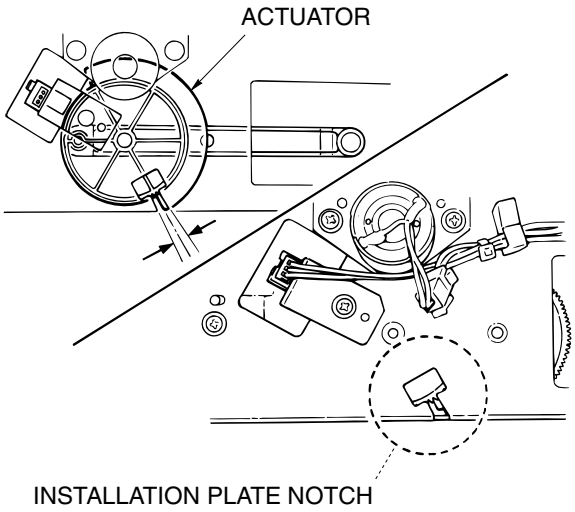


Figure 6-57. Adjustment of the Shift Position

3. Loosen the Roller Shift HP (PS18) Bracket ⊕ screw then move and adjust the Bracket.

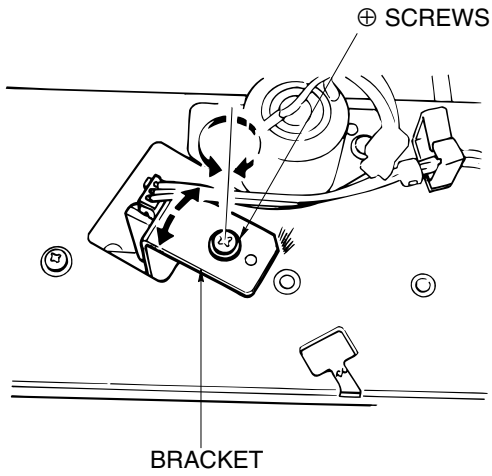


Figure 6-58. Adjustment of the Shift Position

4. Tighten the Bracket ⊕ screws.

[Assembling Procedures]

1. Reinstall the Rear Cover and the Top Cover by reversing the procedure above.

6.7.5. Adjusting the Open/Close Section of the Paper Exit Opening

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the Rear Cover and the Top Cover. (Refer to item 6.1.1 on page 6-1)

[Adjustment Procedures]

1. After switching the power OFF-ON-OFF, when the Paper Exit Opening is closed, check that the Paper Exit Casing is touching the Stopper Section reliably.

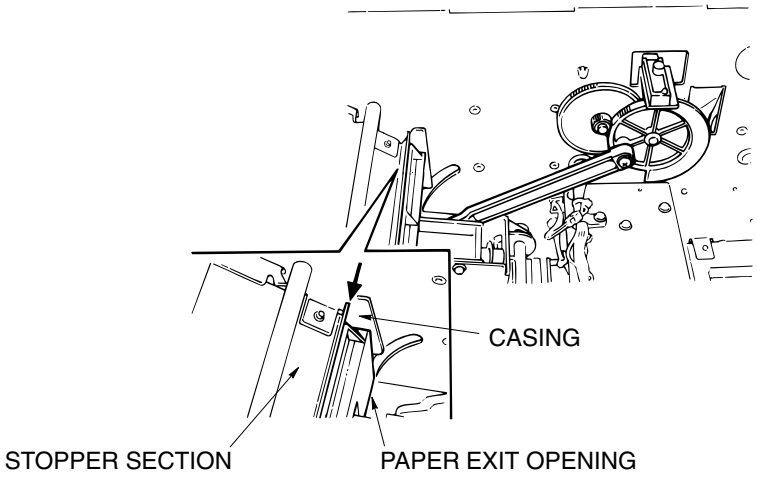


Figure 6-59. Adjustment of the Paper Exit Opening

2. Loosen the Paper Exit Opening detection PS (PS12) Bracket screw then move and adjust the Bracket.
3. Tighten the Bracket ⊕ screws.

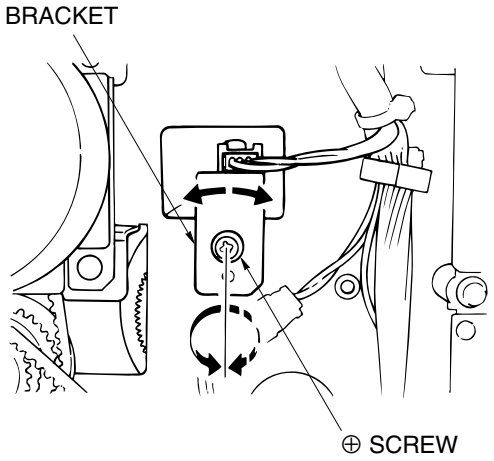


Figure 6-60. Adjustment of the Paper Exit Opening

[Assembling Procedures]

1. Reinstall the Rear Cover and the Top Cover by reversing the procedure above.

6.7.6. Adjusting the Paper Exit Opening Solenoid

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the Rear Cover and the Top Cover. (Refer to item 6.1.1 on page 6-1)

[Adjustment Procedures]

1. When the Paper Exit Opening Solenoid (SD4) is ON, check that the gap between the Solenoid Plunger and the Bracket Stopper is the value stated below:
   Value: A = 6.0 ± 0.5 mm.

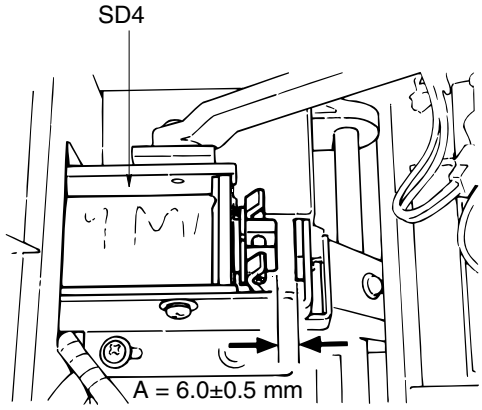


Figure 6-61. Adjustment of the Paper Exit Opening Solenoid

2. Remove the two Solenoid Bracket ⊕ screws and remove the Solenoid together with the Bracket.

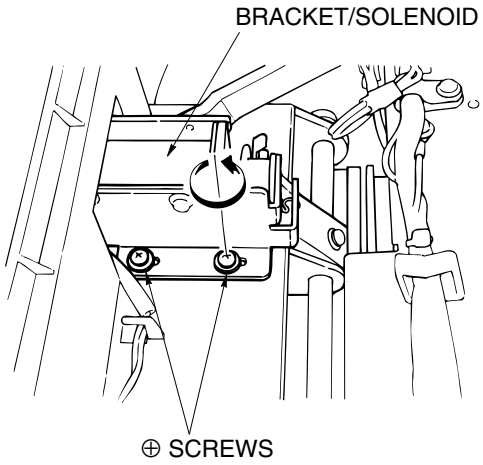


Figure 6-62. Adjustment of the Paper Exit Opening Solenoid

3. Loosen the two Solenoid Installation ⊕ screws then move and adjust the Solenoid.

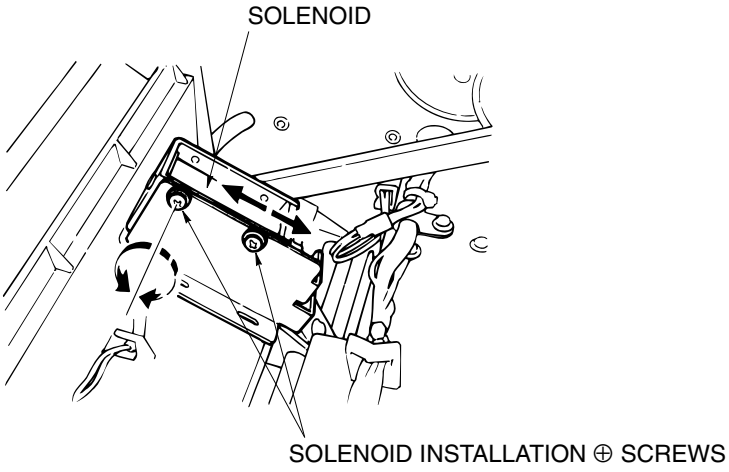


Figure 6-63. Adjustment of the Paper Exit Opening Solenoid

4. Return the Solenoid to the original position and tighten the Solenoid Bracket ⊕ screws.

[Assembling Procedures]

1. Reinstall the Rear Cover and the Top Cover by reversing the procedure above.

6.7.7. Adjusting the Paper Exit Opening Lower Guide Plate

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the Rear Cover and the Top Cover. (Refer to item 6.1.1 on page 6-1)

[Adjustment Procedures]

1. When the Paper Exit Opening Solenoid (SD4) is OFF, check whether the value of the Lower Guide Plate is greater than that of the Paper Exit Roller.

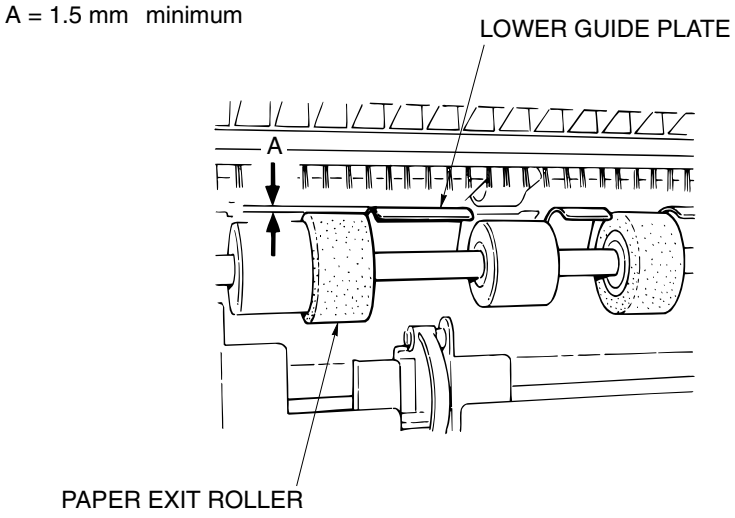


Figure 6-64. Adjustment of the Paper Exit Opening Lower Guide Plate

2. Loosen the two Solenoid Bracket ⊕ screws then move and adjust the Solenoid.
3. Tighten the Solenoid Bracket ⊕ screws.

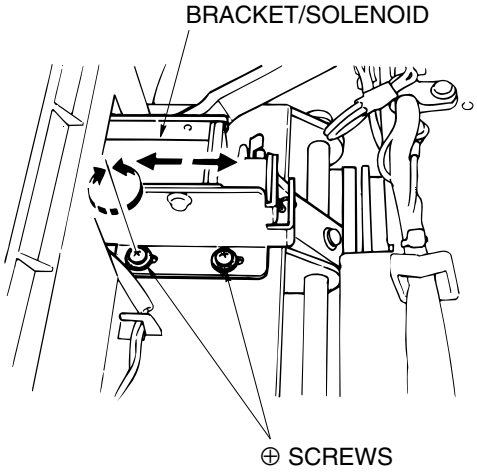


Figure 6-65. Adjustment of the Paper Exit Opening Lower Guide Plate

[Assembling Procedures]

1. Reinstall the Rear Cover and the Top Cover by reversing the procedure above.

6.7.8. Adjusting the Stacker Paper Exit Belt Tension

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Note: Perform the adjustment before installing the unit if the Belt Tensioner for Belt exchange, etc., is loose.

Applicable jigs and tools: ⊕ Screwdriver, Push-pull Gauge.

[Disassembling Procedures]

1. Remove the Front Side Cover. (Refer to item 6.1.3 on page 6-3)
2. Remove the Shift Tray. (Refer to item 6.5.1 on page 6-14)
3. Remove the Paper Exit Stopper Plate. (Refer to item 6.5.2 on page 6-15)
4. Remove the Up-down Stay. (Refer to item 6.5.3 on page 6-17)

[Adjustment Procedures]

1. Loosen the four ⊕ screws.
2. Using the push-pull gauge, pull the Pulley Shaft of the Belt Tensioner to the level of the value stated below, then tighten the ⊕ screws.
   Value: A= 2 kg.

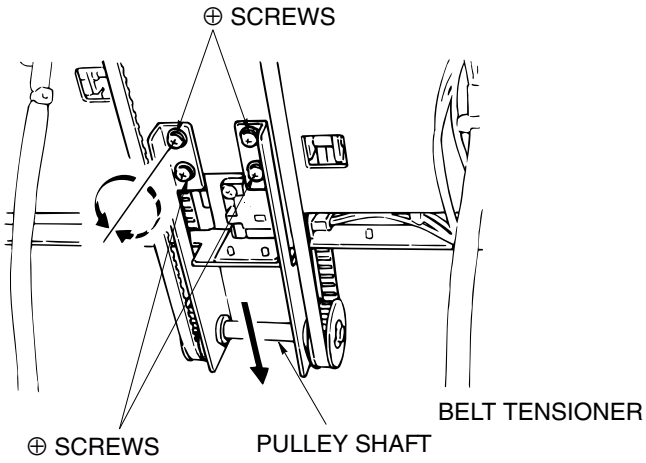


Figure 6-66. Adjustment of the Stacker paper Exit Belt Tension

[Assembling Procedures]

1. Reinstall the parts above by reversing the procedure above.

6.7.9. Adjusting the Alignment Plate Installation Position

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the Stacker Unit. (Refer to item 6.6.1 on page 6-21)

[Adjustment Procedures]

1. Put the Alignment Plate (R) into the home position. (Line the Alignment Plate Drive Belt actuator up with the Alignment Plate HP).

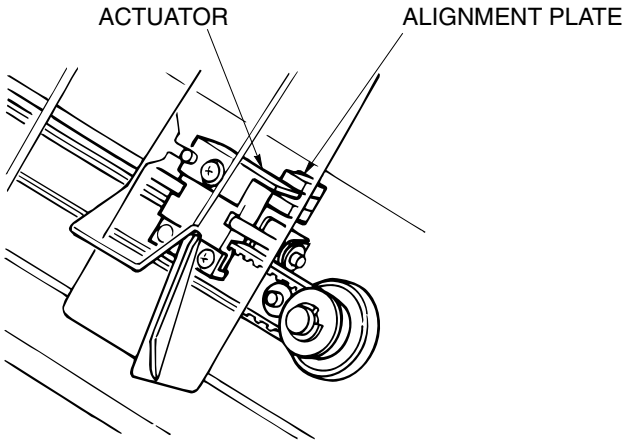


Figure 6-67. Adjustment of the Paper Exit Opening Lower Guide Plate

2. Loosen the two ⊕ screws and adjust the Alignment Plate gap A so that it is within the value stated below:

   Value: A = 317 ± 0.5 mm
   B = 50.8 ± 0.5 mm

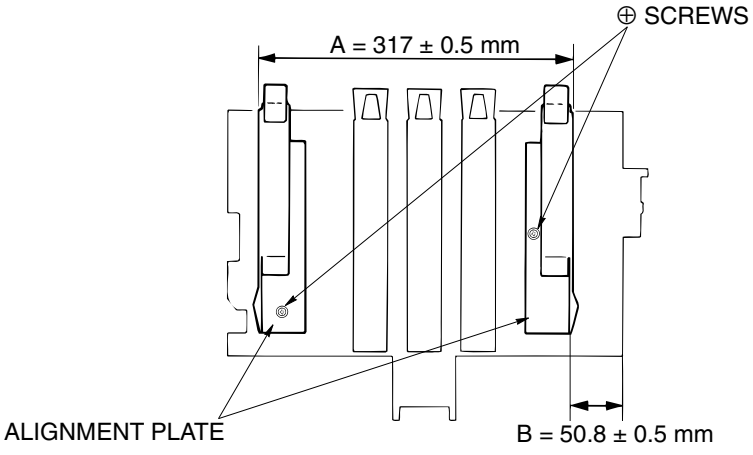


Figure 6-68. Adjustment of the Alignment Plate Installation Position

3. Tighten the ⊕ screws

[Assembling Procedures]

1. Reinstall the Stacker Unit by reversing the procedure above.

6.7.10. Adjusting the Alignment Drive Timing Belt Tension

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Note: Perform the adjustment before reinstalling the Stacker Unit when the brake plate drive belt tensioner is loosened in order to exchange the belt, etc.,

Applicable jigs and tools: ⊕ Screwdriver, Push-pull Gauge.

[Adjustment Procedures]

1. Loosen the two ⊕ screws.
2. Pull the Belt Tensioner to the value A stated below using a tension gauge or spring balance, then tighten the ⊕ screws:
   Value: A= 0.5 kg.

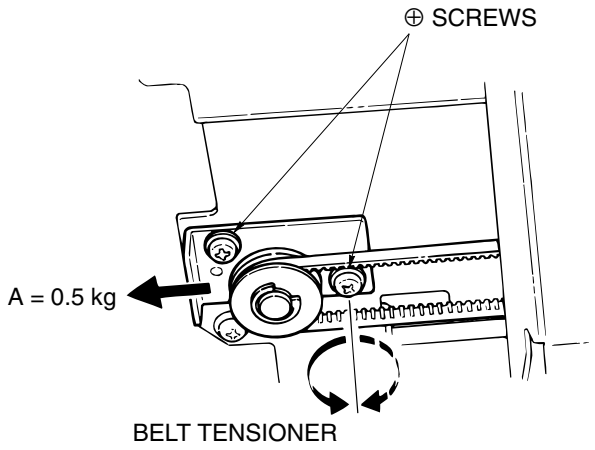


Figure 6-69. Adjustment of the Alignment Drive Timing Belt Tension

6.7.11. Adjusting the Stapler Rotation Drive Section Installation

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Note: Perform the following adjustment when the stapler unit rotation drive section is removed, before reinstalling the unit.

Applicable jigs and tools: ⊕ Screwdriver.

[Adjustment Procedures]

1. Install the rotation drive section into the Stapler Unit so that the rotation hole and the hole of the Installation Plate line up.

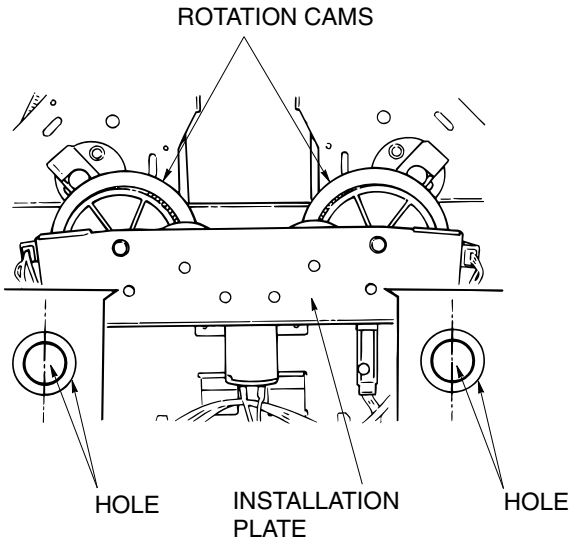


Figure 6-70. Adjustment of the Stapler Rotation Drive Section Installation

6.7.12. Adjusting the Stapler 2 Position Staple Position

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Note: Operate the stapling mechanism in two positions and check that the staple position is 10 mm from the paper edge.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the Rear Cover and the Top Cover. (Refer to item 6.1.1 on page 6-1)

[Adjustment Procedures]

1. Loosen each of the two front and rear Stapler ⊕ screws and move and adjust the Stopper.
2. Tighten the Stopper ⊕ screws.

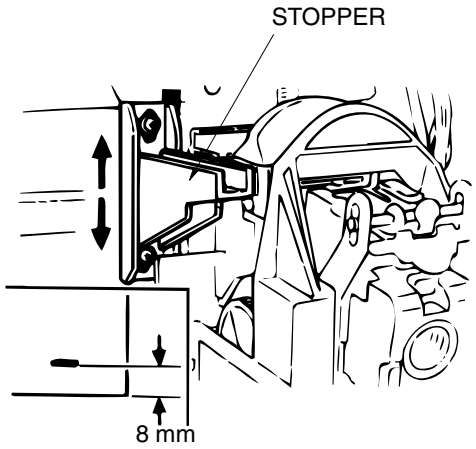


Figure 6-71. Adjustment of the Stapler 2 Position Staple Position

6.7.13. Adjusting the Staple Slant of the Stapler 2 Position Mechanism

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Note: Operate the stapler 2 position stapling mechanism and check that the slant of the staples is a maximum of 0.5 mm.

Applicable jigs and tools: ⊕ Screwdriver.

[Disassembling Procedures]

1. Remove the Stapler R and F. (Refer to item 4.3.4 on page 4-8)

[Adjustment Procedures]

1. Loosen the two ⊕ screws then move and adjust the Adjustment Plate.
2. Tighten the ⊕ screws.

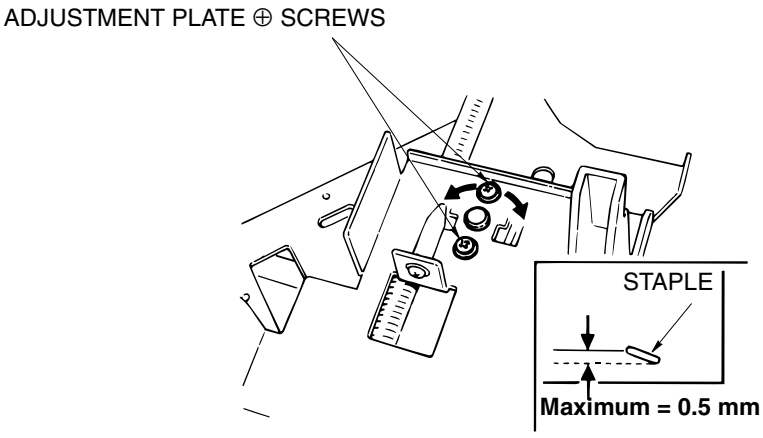


Figure 6-72. Adjustment of the Stapler 2 Position Mechanism

[Assembling Procedures]

1. Reinstall the Stapler R and F by reversing the procedure above.

6.7.14. Adjusting the Stapling Position for 1 Position Stapling

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Note: Operate the stapler 1 position stapling mechanism and check that the distance to the center of the staple position from the paper edge is 10 mm.

Applicable jigs and tools: ⊕ Screwdriver.

[Adjustment Procedures]

1. Loosen the two Adjustment Plate ⊕ screws then move and adjust the Adjustment Plate.
2. Tighten the ⊕ screws.

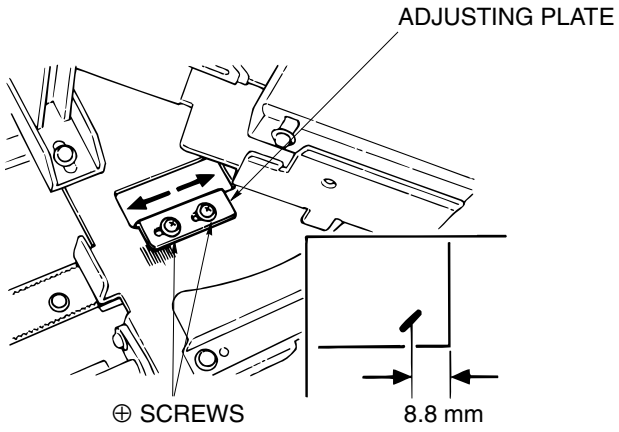


Figure 6-73. Adjustment of the Stapling Position for 1 Position Stapling

6.7.15. Adjusting the Tension of the Stapler Move Timing Belt

CAUTION:
Be sure to turn OFF the MAIN AC POWER prior to performing the maintenance.

Note: Remove the Stapler Unit and perform the following adjustment before reinstalling the unit when the Stapler move belt tension has been loosened for exchanging the belt, etc.

Applicable jigs and tools: ⊕ Screwdriver, Push-pull Gauge.

[Adjustment Procedures]

1. Loosen the two Belt Tensioner ⊕ screws.
2. Pull the Belt Tensioner to the level of value A stated below using a push-pull gauge or spring balance, and then tighten the ⊕ screws.
   Value: A = 0.5 kg.

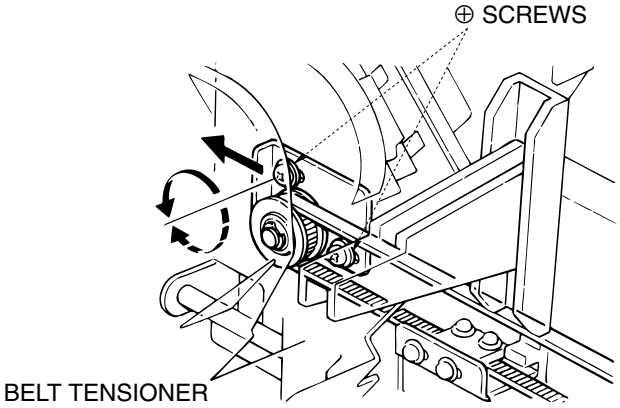


Figure 6-74. Adjustment of the Tension of the Stapler Move Timing Belt

Chapter 7. Theory of Operation

7.1. Center Cross Section

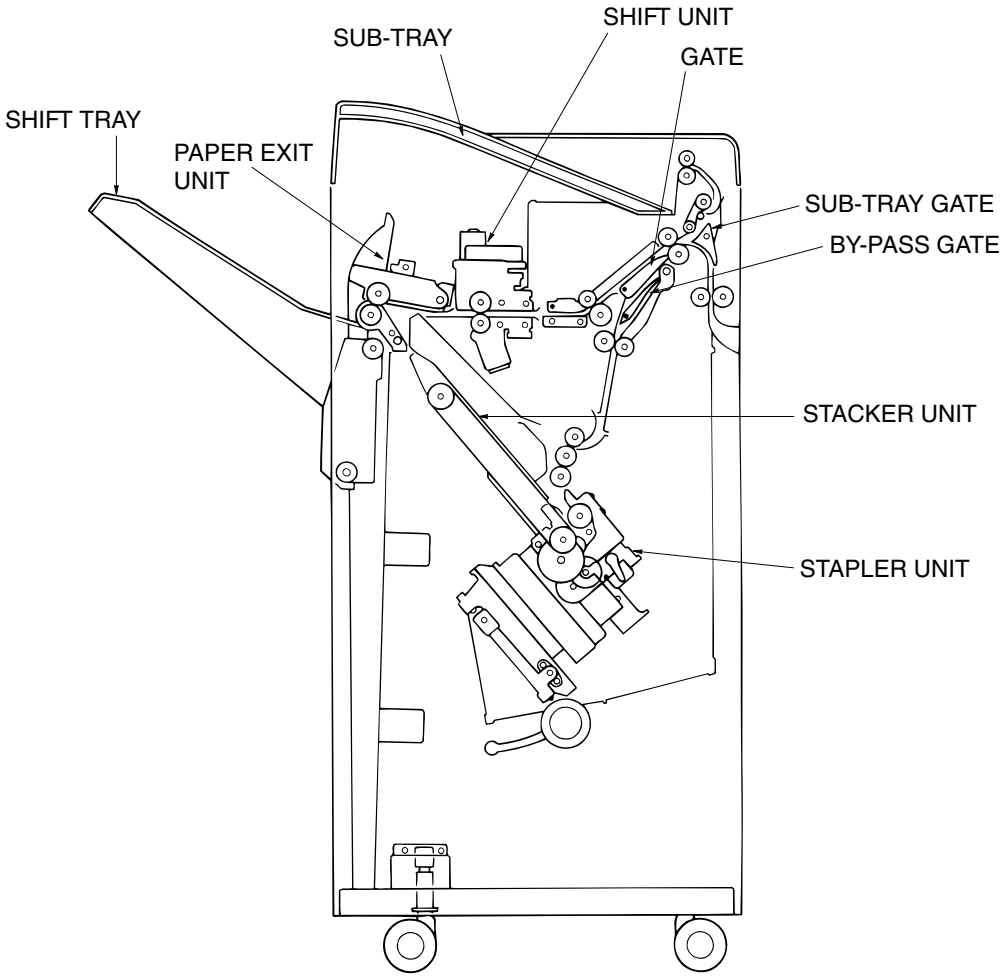


Figure 7-1. View of the Center Cross Section of the Finisher

7.2. Drive System Diagram

7.2.1. Paper Conveyance Drive

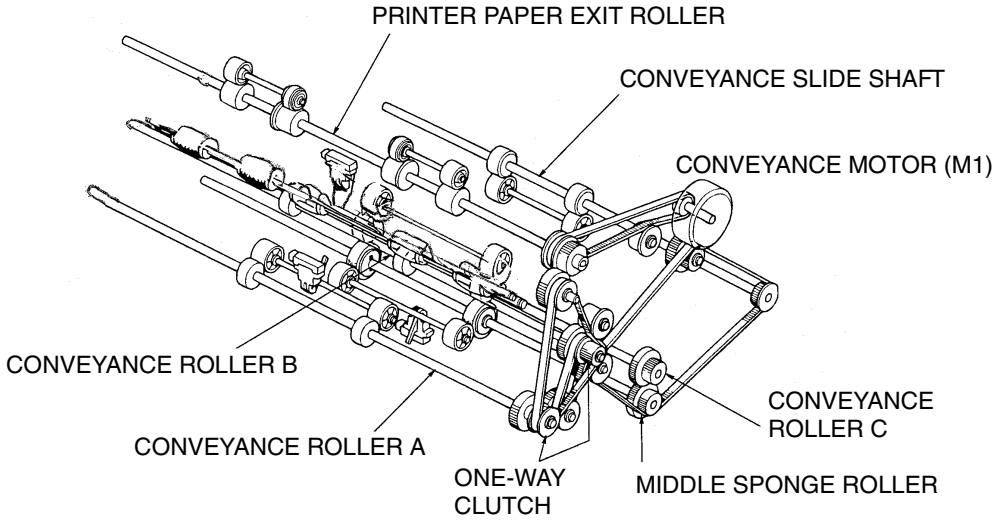


Figure 7-2. View of the Paper Conveyance Drive

7.2.2. Stacker Drive

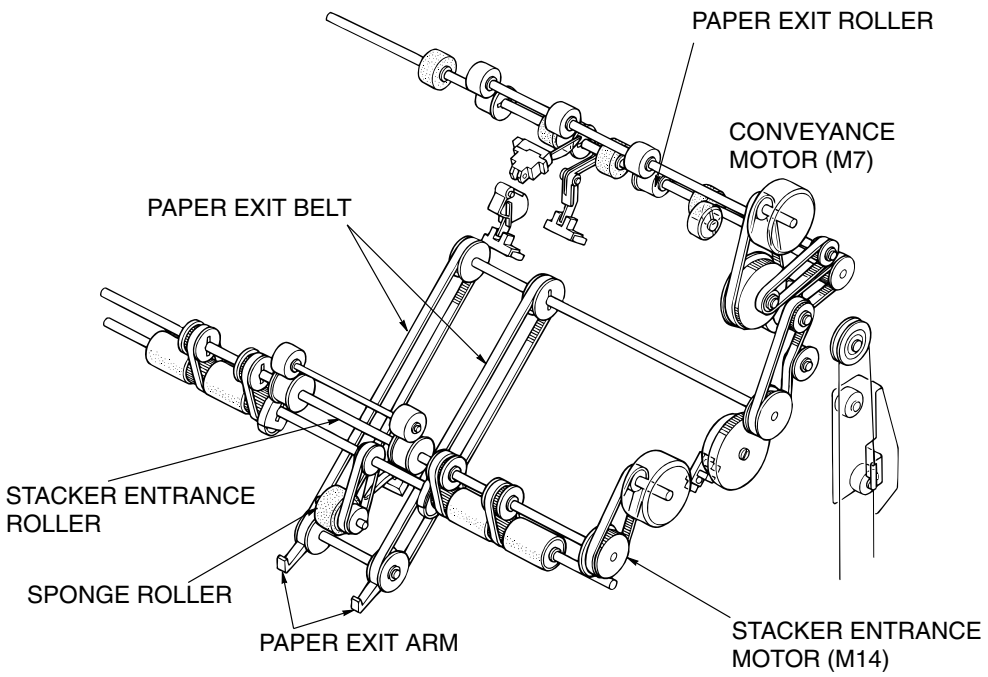


Figure 7-3. View of the Stacker Drive

7.3. Paper Conveyance Path

7.3.1. Offset Mode

A paper exited from the printer is conveyed and exited to the shift tray. This mode has off-set function that allows each paper sets to be exited with a paper shifted 30mm to the rear.

Off-set function

(a.) Release the pressure of the pressure roller (SD3).

(b.) The paper is gripped and moved 30mm to the rear.

(c.) The pressure roller applies pressure to the paper.

(d.) The paper is exited to the shift tray.

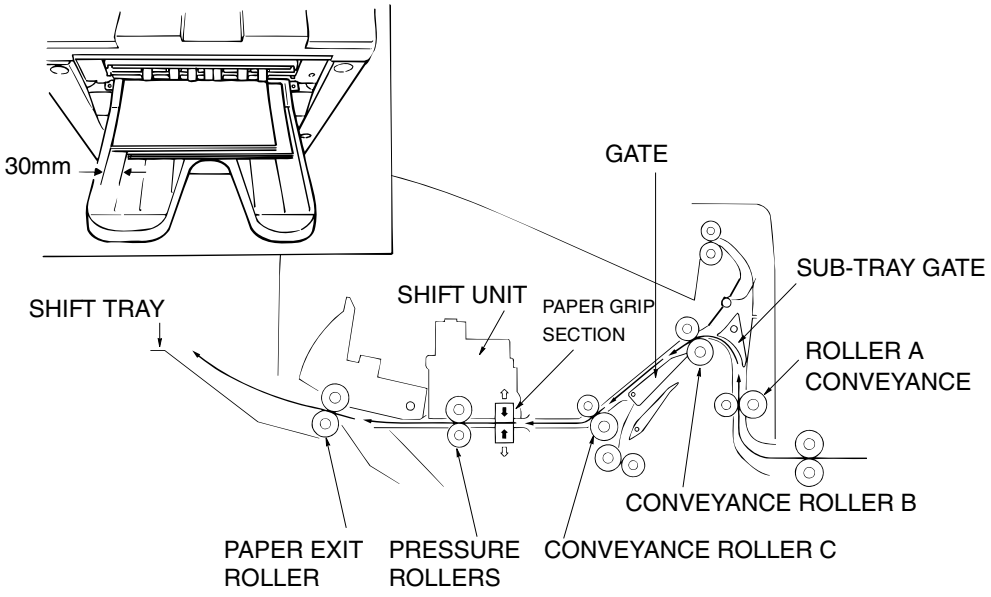


Figure 7-4. View of the Off-set Mode

7.3.2. Non-staple Mode

A paper exited from the main body is conveyed and exited to the Shift Tray.

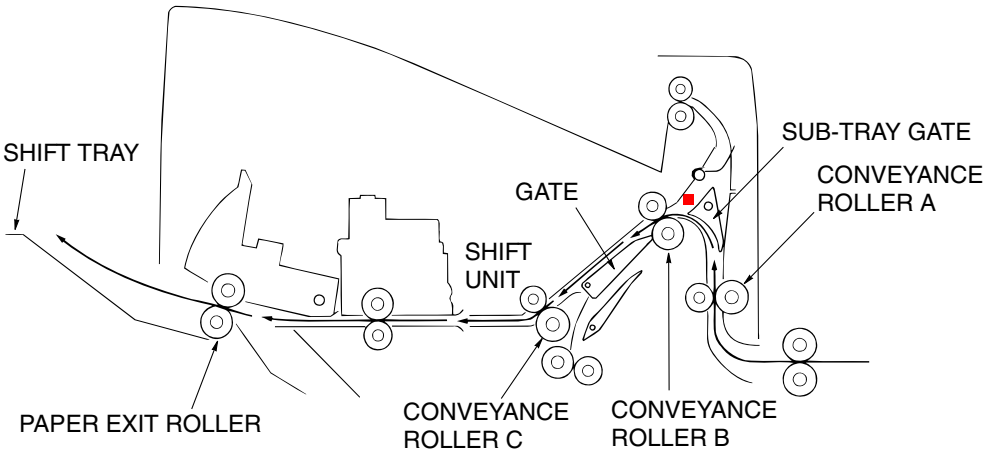


Figure 7-5. View of the Non-staple Mode

7.3.3. Sub-tray Exit Mode

A paper exited from the main body is conveyed and exited to the Sub Tray.

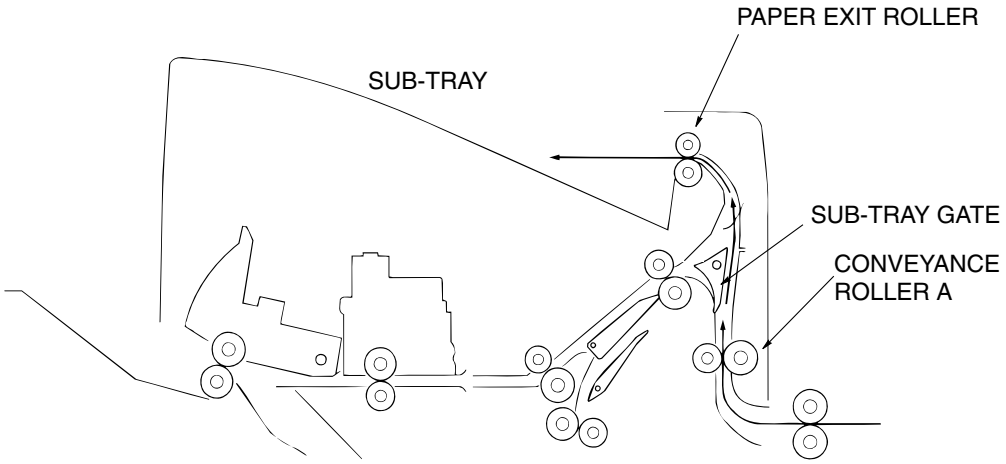


Figure 7-6. View of the Sub-tray Exit Mode

7.3.4. Staple Mode

First stack

(1.) The gate switches to the staple mode.

(2.) For A4R paper and above, the paper exit opening opens.

(3.) A paper exited from the printer is conveyed to the stacker unit through Conveyance roller B.

(4.) The alignment plate unit lines up paper in the width wise direction.

(5.) Paper is stapled.

(6.) The first stack is conveyed by the paper exit arm and exited to the shift tray.

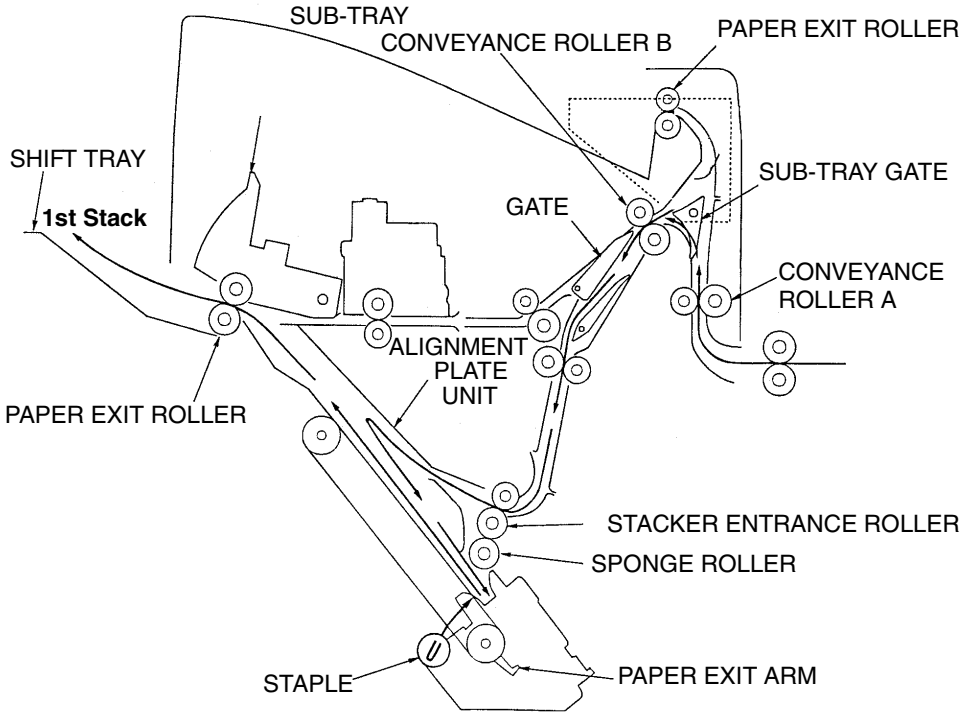


Figure 7-7. View of the first stack

Second and subsequent stacks

The second and subsequent stacks of paper are conveyed and stacked.

(1.) The first page has already stopped in the stacker entrance and the stacker entrance roller stops to wait for the previous stack to be exited. The by-pass gate is open at this time and the first page is in the lower region of the by-pass gate.

(2.) The by-pass gate is closed and the second page is stacked on top of the first.

(3.) Once the previous stack has exited, the stack entrance roller rotates and the first and second pages are simultaneously sent to the stacker.
* The steps (1) to (3) above are for paper to a maximum of LT size.

(4.) The sponge roller of the stacker section sends the paper to the stopper and the paper is lined up in the lengthwise direction.

(5.) The alignment plate unit lines up paper in the width wise direction.

(6.) When all paper is conveyed to the stacker, the paper is stapled.

(7.) The second and subsequent sets are conveyed by the paper exit arm and the paper is exited to the shift tray.

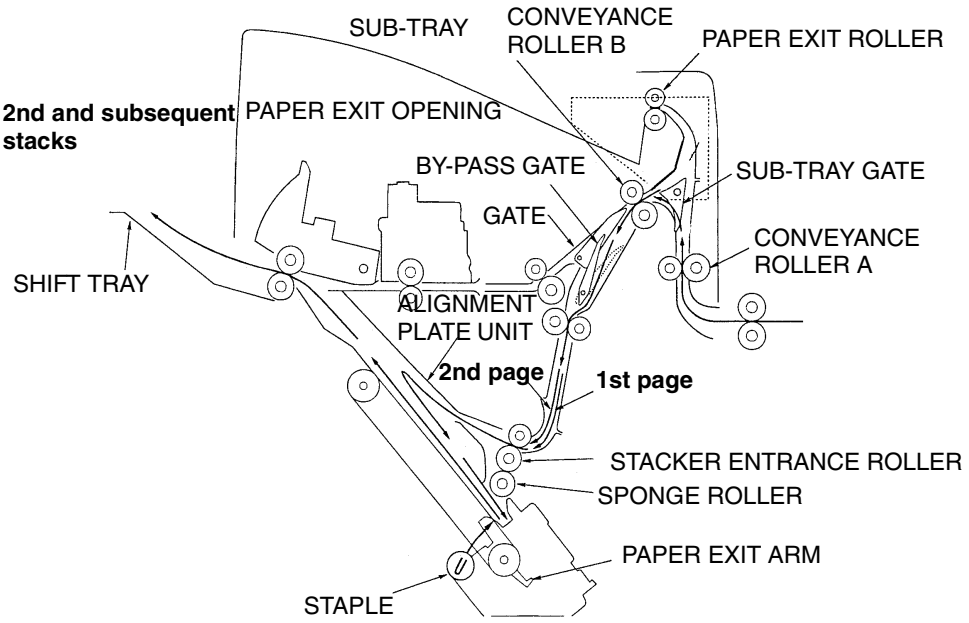


Figure 7-8. View of the second and subsequent stack

7.4. Conveyance Section

7.4.1. Construction

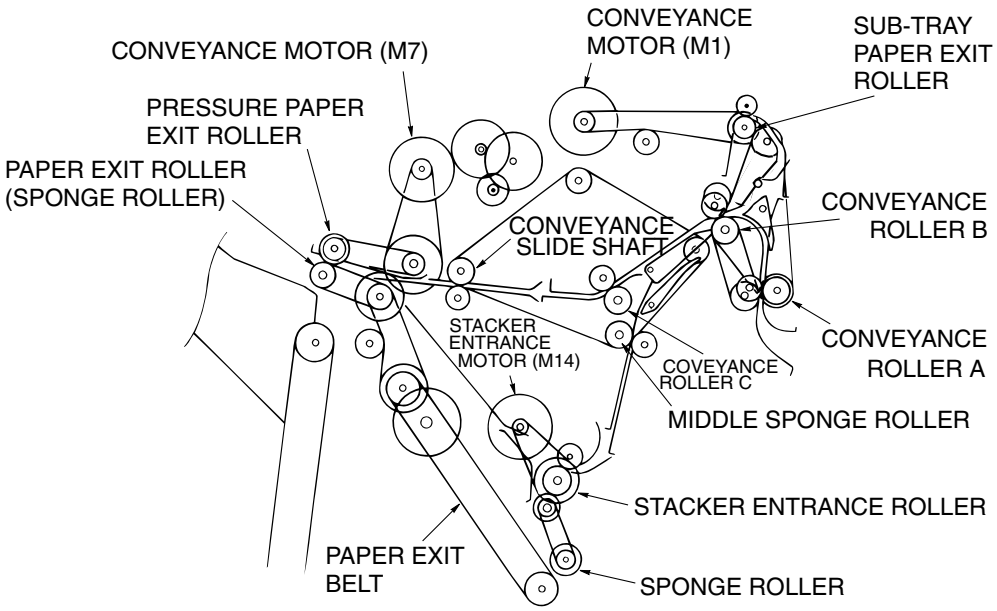


Figure 7-9. Construction of the Conveyance Section

7.4.2. Mechanism

7.4.2.1. Paper Conveyance

Paper conveyance is performed by the conveyance rollers A, B and C, conveyance slide shaft and sub-tray paper exit roller. These components are driven by the conveyance motor (M1) through the timing belt.
Stacking to the paper stacker is performed by the stacker entrance roller and sponge roller. These are driven by the stacker entrance motor (M14) via the timing belt.
Paper exiting is performed by the stacker paper exit belt claws and the paper exit rollers. These are driven by the conveyance motor (M7) via the timing belt.

7.4.2.2. Paper Path Switching

The paper route switches using the gate, sub-tray gate and by-pass gate. Each gate operates with the ON/OFF switching of the gate solenoid (SD1), sub-tray paper exit solenoid (SD2) and by-pass solenoid (SD5).

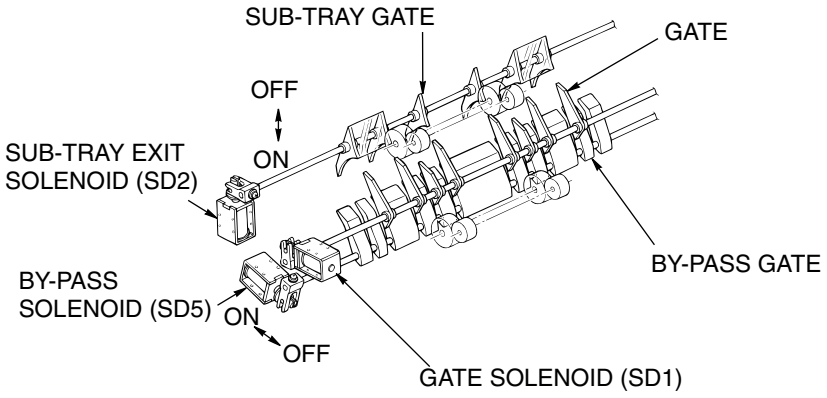


Figure 7-10. View of the Paper Path Switching

7.4.2.3. Offset Operation

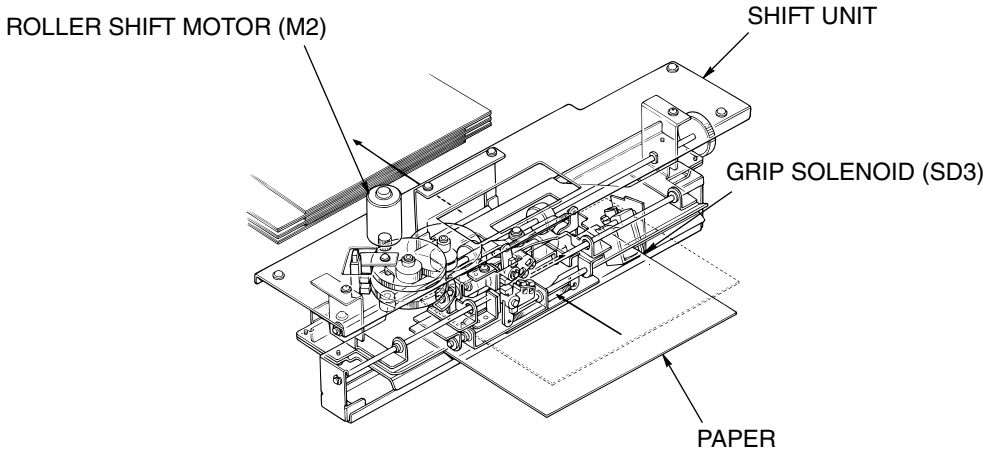


Figure 7-11. View of the Offset Operation

(1.) The Grip Solenoid (SD3) turns ON and the pressure of the pressure roller is released.

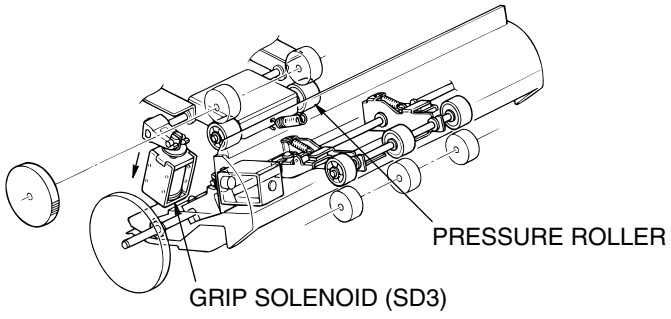


Figure 7-12. View of the Grip Solenoid

(2.) As the paper is not held by the pressure roller, it will stop in the shift unit.

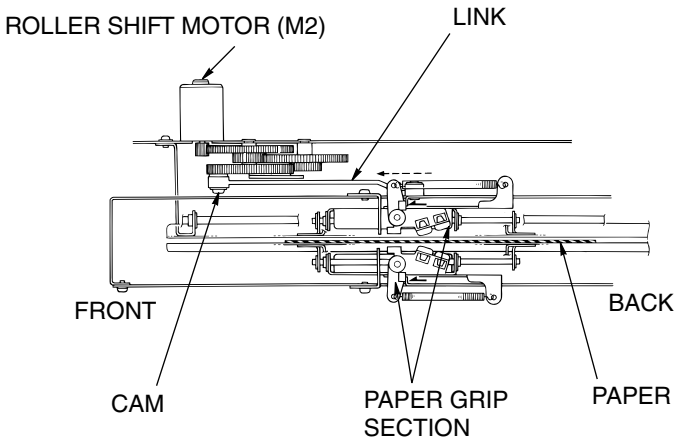


Figure 7-13. View of the Offset Operation

(3.) The paper is gripped by the roller shift motor (M2), cam and link mechanism.

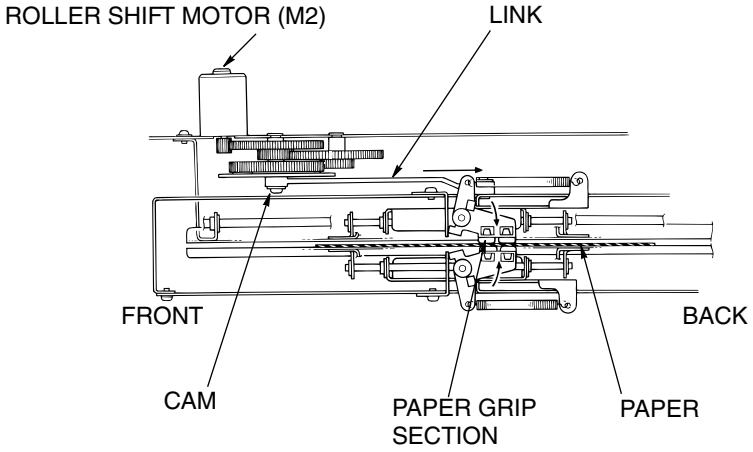


Figure 7-14. View of the Offset Operation

(4.) Paper is moved 30 mm to the rear and separated, and the gripping section returns to the original position.

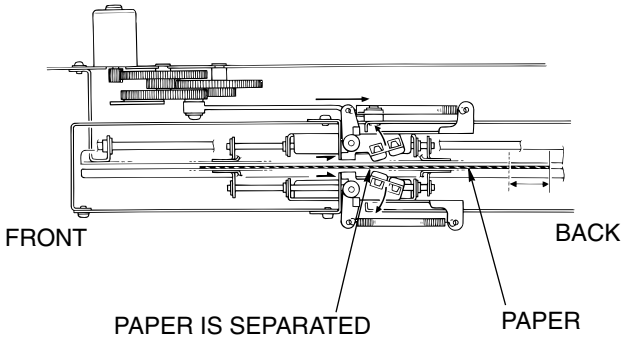


Figure 7-15. View of the Offset Operation

7.4.2.4. Stacker Unit

Paper alignment

The front and rear of the alignment plate swings and the paper conveyed to the stacker is lined up.

The swinging motion of the alignment plate is performed by the alignment plate motor (M5).

Paper exiting

The paper exit arm sends the stapled paper out to the paper exit opening.

The paper exit belt is rotated by the conveyance motor (M7).

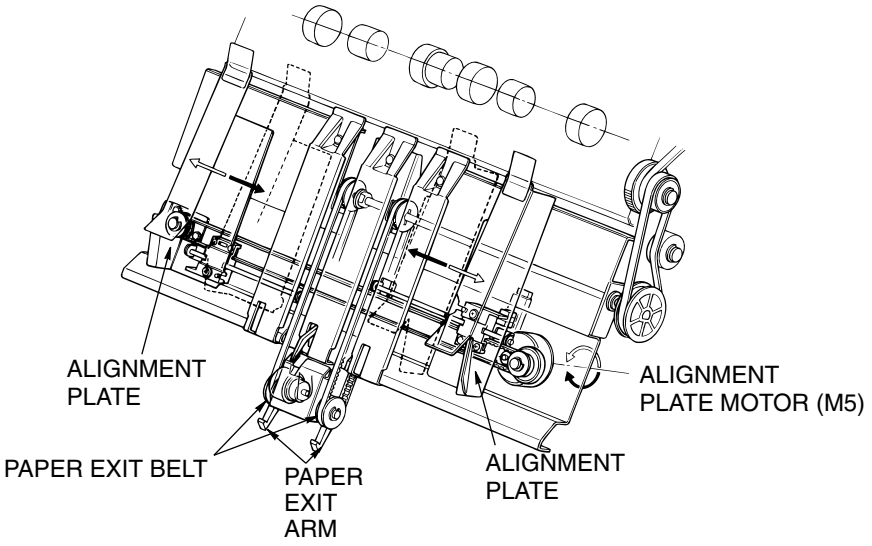


Figure 7-16. View of the Stacker Unit

7.4.2.5. Paper Exit Opening Unit

(1.) **Stapling mode for paper sized A4R and above**

The Paper exit opening is opened from the time printing commences to the time stapling is complete.

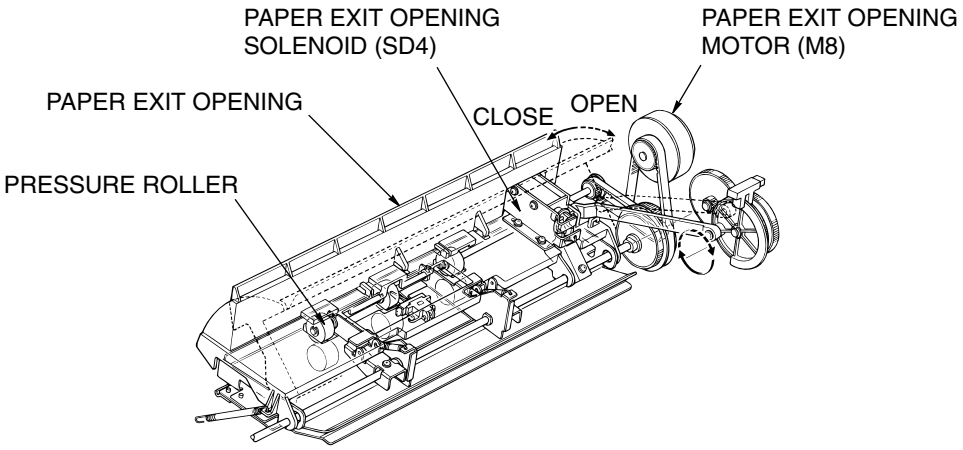


Figure 7-17. View of the Paper Exit Opening Unit

(2.) **Paper exit of the staple mode**

When the stapling has finished, the paper exit opening is closed, the paper pressured and paper is exited to the shift tray. The opening and closing of the paper exit opening is performed by the paper exit opening motor(M8).

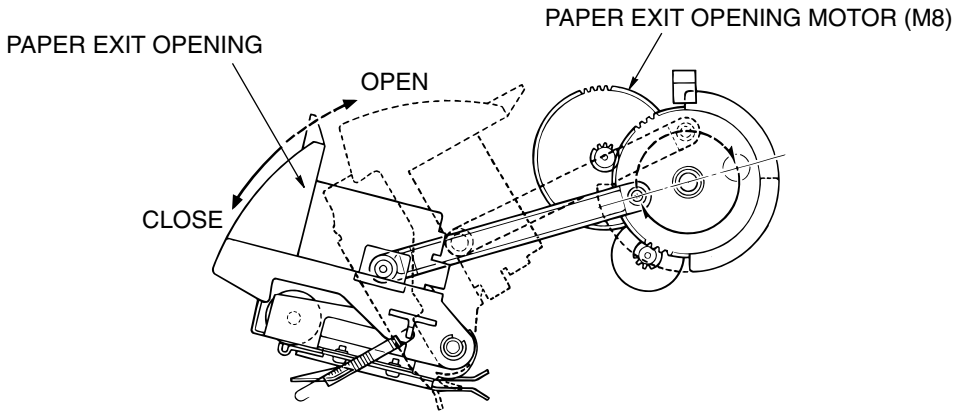


Figure 7-18. View of the Paper Exit Opening Unit

(3.) **Pressure of the paper exit roller**

The paper exit roller rotation is slower than the conveyance rollers A, B and C. Therefore pressure is released at times other than when paper is exiting.

When the paper reaches the paper exit opening the paper exit roller applies pressure and paper is exited to the shift tray. The pressuring and release of paper is performed by the paper exit solenoid (SD4).

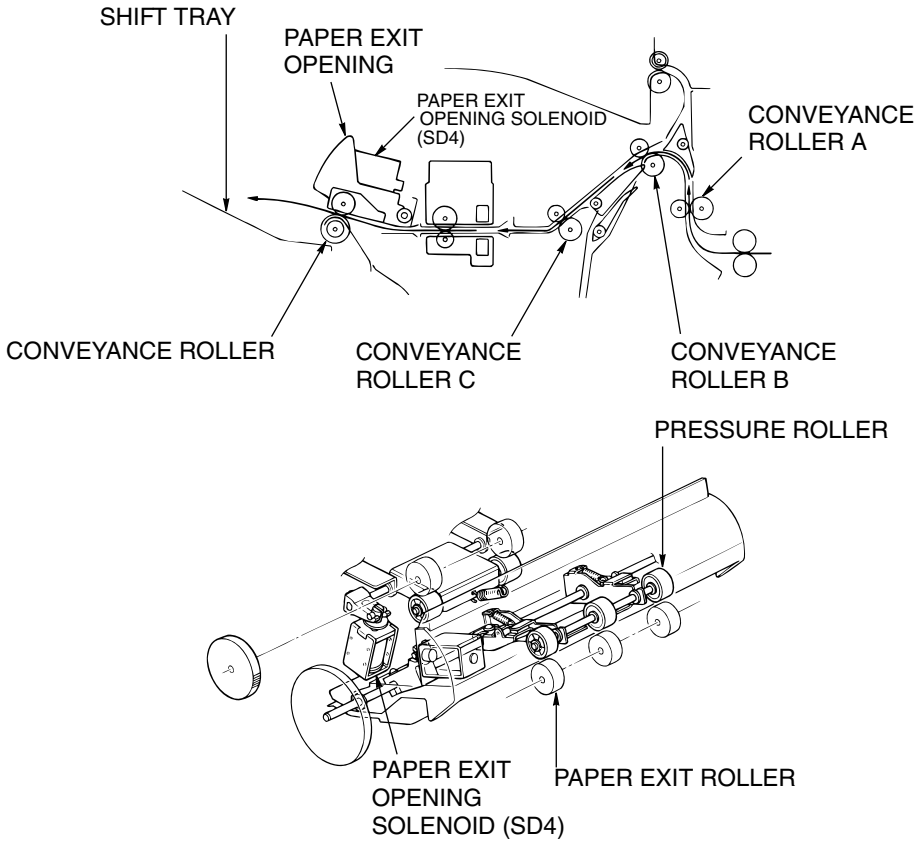


Figure 7-19. View of the Paper Exit Opening Unit

7.5. Stapler Unit

7.5.1. Construction

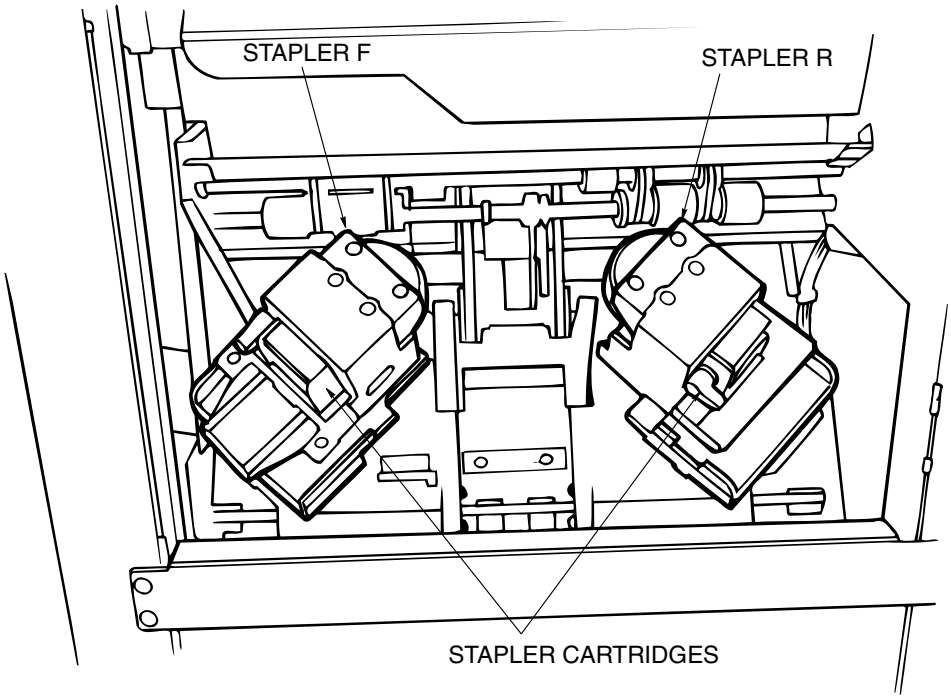


Figure 7-20. Construction of the Stapler Unit

7.5.2. Mechanism

7.5.2.1. Stapling in One Place

(1.) The stapler F and R moves to the stapling position.
Movement of the stapler F and R is performed by the stapler moving motor (M11)

(2.) Paper arranged within the stacker is stapled with either the stapler F or R.

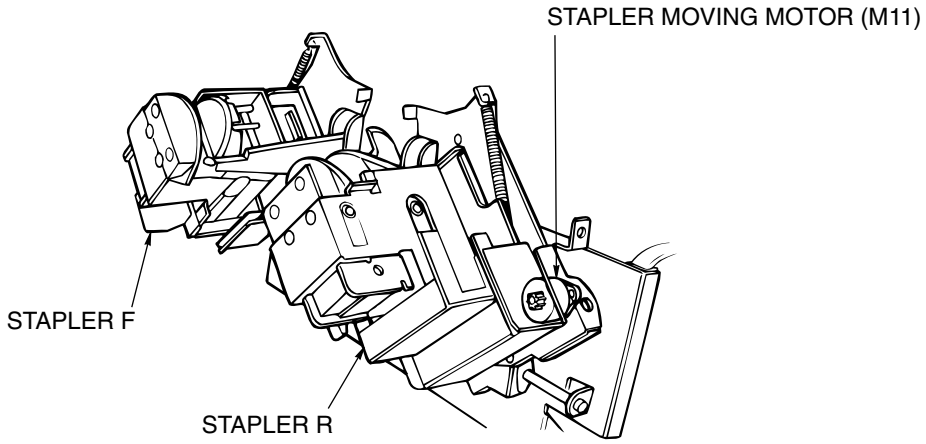


Figure 7-21. View of the mechanism for stapling in one place

7.5.2.2. Stapling in Two Places

(1.) The staple F and R is rotated so that it is parallel to the paper and stapling made in two places.

(2.) Rotation of the stapler is performed by the stapler rotation motor (M12).

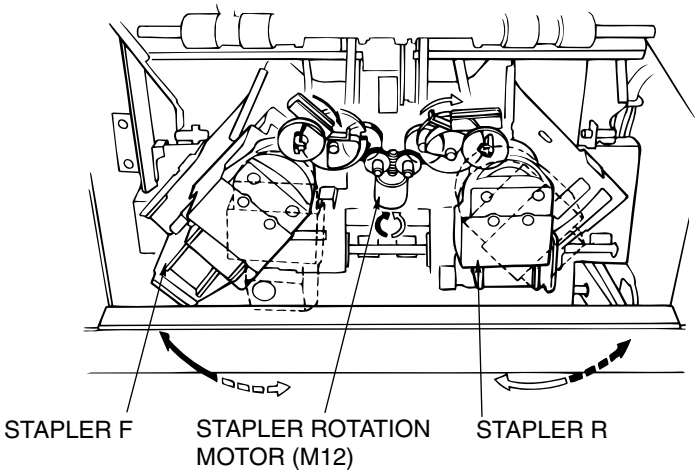


Figure 7-22. View of the mechanism for stapling in two places

7.5.2.3. Staple Operation

The staple operation is driven by the F and R stapler motors (M9 and M10) and operated by the cam rotation.

The home position sensors (PS15 and PS17) detect that one operation has been performed.
Whether there are staples or not is detected by the stapler F and R no staple detection PS (PS14 and PS16).

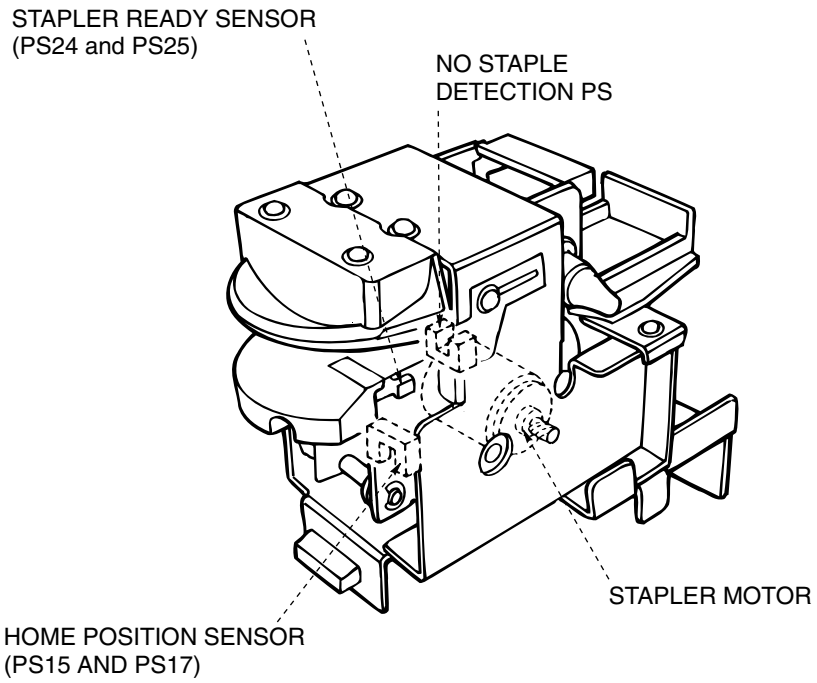


Figure 7-23. View of the mechanism for stapling in one place